AXIS 5500 / AXIS 5550

Network Print Servers

Userʹs Manual

Regulatory Information

Safety Notices Take some time to read through the safety notices before installing the AXIS 5500/AXIS 5550. 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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Axis' Trademarks AXIS IP JumpStarter, AXIS ThinWizard, axinstall, AXIS Print Monitor.

Other Trademark Acknowledgments Adobe Acrobat Reader, Aix, Apple, ARP, BOOTP, Debian, Ethernet, EtherTalk, IBM, LAN Manager, LAN Server, Macintosh, Microsoft, Novell NetWare, OS/2, OS/400, AS/400, Red Hat, Solaris, SuSe, UNIX/Linux, Windows, are registered trademarks of the respective holders.

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. If you are connected to the Internet, you can find on-line manuals, technical support, software updates, application software, corporate information, etc. at http://www.axis.com/techsup/

Patent information Axis AB has intellectual property rights relating to technology embodied in the product that is described in this document. In particular, and without limitation, these intellectual property rights may include one or more of the patents listed at http://www.axis.com/patent.htm and one or more additional patents or pending patent applications in the US and other countries.

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

Table of Contents

Section 1   Introduction

Thank you for purchasing the AXIS 5500/AXIS 5550. 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 an AXIS 5500/AXIS 5550 with firmware version 6.40 or later, 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 *"Factory Default"* on page 102.

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

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

Supported Environments

Network Printing
- Windows
- NetWare
- UNIX/Linux
- Macintosh

Section 2   Product Overview

Package Contents

Verify that nothing is missing from the AXIS 5500/AXIS 5550 package by using the check list below. Please contact your dealer if anything is missing or damaged. All packing materials are recyclable.

AXIS 5500 & AXIS 5550

Hardware	Model	Part Number
Network Print Server	AXIS 5500 AXIS 5550	0172-001 0173-001
Adhesive Holder & Clip	ACC AXIS 5500 CLIPS K	20119
USB Cable	70 cm, 28 inches	20208

	Model	PS-H Part No.
	Australia	19111
	Europe	19108
Power Adapter	Korea	19112
	UK	19109
	USA / Japan	19110

Media	Title	Part Number
CD	AXIS Network Product CD	rev 1.3 and up
Printed Material	AXIS 5500/AXIS 5550 User's Guide	20143 rev 1.0

Optional accessories	Description	Part Number
Cables	Parallel Printer Cable	13360
	Centronics to Mini Centronics Cable	16453

Ensure that the print server's Power Adapter is marked with the correct voltage! Refer to the tables above for details.

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.
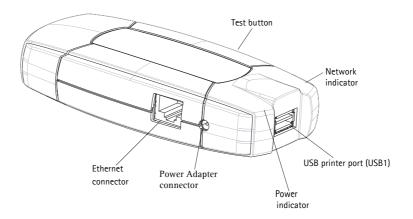
Start-up Procedures for Windows

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.
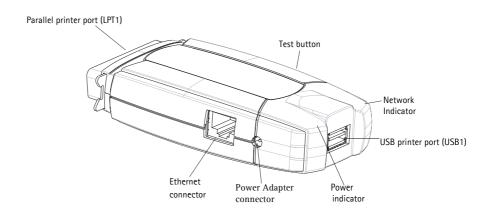
Start-up Procedures for UNIX/Linux, and Mac OS

Using your preferred file manager application, navigate to the CD root directory and click *index.htm*

Physical Description

Test button

Network
indicator

USB printer port (USB1)

Power
indicator

Ethernet
connector

Power Adapter
connector

AXIS 5500 Network Print Server

Parallel printer port (LPT1)

Test button

Network
Indicator

USB printer port (USB1)

Power
indicator

Ethernet
connector

Power Adapter
connector

AXIS 5550 Network 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 category 5 cable
(10baseT and 100baseTX) or better.

Printer Ports	**AXIS 5500** is USB 1.1 low and full speed compliant . Successfully tested with USB 2.0 printers. **AXIS 5550** is equipped with a high–speed IEEE 1284 compatible parallel port and is USB 1.1 low and full speed compliant . Successfully tested with USB 2.0 printers. Any standard printer can be connected for network printing.
Test Button	The test button is used for:

- **printing a test page** to check the connection to the printer
- **printing the parameter list** showing the print server settings
- **performing a Factory Default of** the print server, which will restore most of the parameters and settings to factory default values
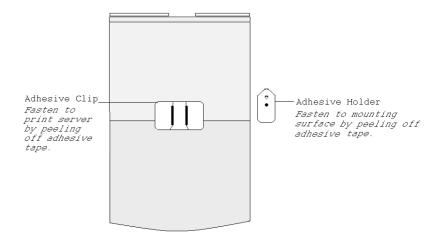
Network Indicator	The network indicator flashes to indicate network activity.
Power Indicator	The power indicator is lit while power is applied. If it is not lit, or if it flashes, there is a problem with the print server or its Power Adapter.

Mounting the Print Server

Using the supplied clips, your AXIS 5500/AXIS 5550 can be mounted in many ways, e.g. on the back of the printer, on the side of the printer or on a wall. It can be placed behind the printer or next to a hub.

AXIS 5550 can also be inserted directly into the parallel port of the printer.

Backside of print server

Installation Methods

Installation and Integration

Refer to the table below to select the appropriate installation method. All Axis client software is available on the AXIS Network Product CD or from Axis' Web site.

Environment	Method/ Client Software	Description
Windows 2000, XP	AXIS ThinWizard	Using a standard web browser, you can find, install, monitor, configure and upgrade multiple Axis print servers remotely in any TCP/IP network.
Windows	AXIS IP JumpStarter	Used for setting the IP address of the print server in Windows 98/NT/2000
	Standard Windows Add Printer Wizard	Used for adding network printers to your computer in Windows 2000/XP
	AXIS Print Monitor	Used for adding network printers to your computer in Windows 98/Me/NT
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 tool developed for installing network printers in UNIX/Linux
NetWare Pure IP	NetWare Administrator	Used for installing network printers in NetWare
NetWare	AXIS Gateway Configuration Utility	Used for installing and configuring NDPS printers in NetWare
	NetPilot	Tool that runs on Windows platforms that use NetWare over IPX.
Macintosh	Macintosh standard methods in native/classic mode	Used for installing network printers in Macintosh

Configuration and Management

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 *Using a Web Browser for Print Server Management*, on page 58 for details.

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. AXIS 5550 allows you to print on two printers simultaneously.

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

Speed   The AXIS ETRAX 100 LX chip has been specifically designed for LAN products and benefits users with a faster throughput than a direct PC-to-printer connection.

Easy to Install   The print server installs, operates and is managed in a reliable and easy fashion.

Security   You can assign passwords to restrict login and printer access, disable protocols and force a secure mode.

Monitoring   The internal print server Web pages, AXIS NetPilot (2.70 and up) 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 NetPilot and AXIS ThinWizard can be used to monitor multiple Axis units.

Through e-mail notification, the printer 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.

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.
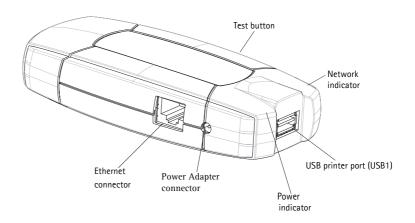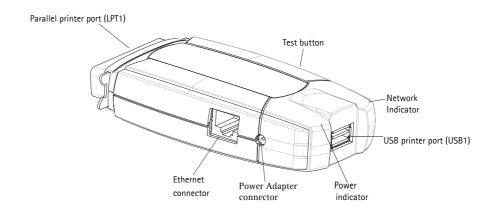
Section 3   Basic Installation

Connecting the Hardware

AXIS 5500

Test button

Network
indicator

USB printer port (USB1)

Ethernet
connector

Power Adapter
connector

Power
indicator

AXIS 5550

Parallel printer port (LPT1)

Test button

Network
Indicator

USB printer port (USB1)

Ethernet
connector

Power Adapter
connector

Power
indicator

Underside of AXIS 5500

P/N: 0172 001
S/N: 00408c181636 ← MAC address
PS Name: AXIS181636   (Ethernet address)
                       example

P/N: 0172 001
S/N: 0040&c181636
PS Name: AXIS181636

"S/N" can also appear as "Ser. No." or "Serial no."

1. Make sure that your printer is switched <u>off</u> and that the print server's Power Adapter is <u>disconnected</u>.

2. Locate the **serial number**, found on the underside label of the print server, and write it down. You will need this number to configure the print server. **Example**: S/N: 00408c181cf0

3. Connect the printer to a print server port using an appropriate printer cable.

4. Connect the print server to the network using a twisted pair category 5 cable, 10baseT or 100baseTX.

5. Switch on the printer and make sure it is ready for use.

6. Connect the Power Adapter to the print server. The power indicator will light up. When the network indicator starts to flash, the print server is correctly connected to the network.

7. Wait 1 minute. Press the test button on the print server once to print a test page. The test page includes a list of the most important parameters.

   AXIS 5550 has two printer ports. If each port is connected to a printer, the default setting will send the test page to the parallel printer.

Note:

> AXIS 5550 uses high-speed Centronics Communication for the parallel port. For use with older printers not supporting high speed, this function can be disabled by using a standard Web browser. Please refer to *"Print Server Management Methods"* on page 57, for more information.

Assigning an IP Address to the Print Server

Before you Start
- **If you have a DHCP server on your network,** your print server will receive an IP address automatically. The IP address will then appear on the test page you printed earlier.
- **If you are not working in a DHCP network,** you need to set the IP address of the print server manually.

System Privileges
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
- add an entry to the ARP table with the command 'arp –s'

Ethernet Address
You need to know the Ethernet address of your AXIS 5500/AXIS 5550 in order to assign an IP address to it. The Ethernet address is based upon the serial number of your print server. This means, for example, that an AXIS 5500/AXIS 5550 with the serial number of 00408C100086, will have the corresponding Ethernet address of 00 40 8C 10 00 86. The serial number is located on the bottom label of the print server.

IP Address
Unless you are assigning an IP address using DHCP or AutoIP, you must obtain an unused IP address from your network administrator.

Important:

> DO NOT use the IP addresses used in the following examples when installing your AXIS 5500/AXIS 5550. Consult your network administrator before assigning an IP address to your print server.

Methods for Setting the IP Address

You can set the IP address of your AXIS 5500/AXIS 5550 using one of the following methods, depending on your network operating environment:

Automatic IP Address Assignment

Method	Server required	Comment
DHCP	DHCP server	Dynamic assignment of IP addresses. See *"Set the IP Address using DHCP"* on page 17
RARP	RARP server	Static assignment of I P adresses. Cannot be used over routers. See *"Set the IP Address using RARP in UNIX/Linux"* on page 18
BOOTP	BOOTP server	Static assignment of IP addresses. See *"Set the IP Address using BOOTP in UNIX/Linux"* on page 19
AutoIP	Windows environment	Automatic assignment of IP addresses. See *"Set the IP Address using AutoIP"* on page 19

Manual IP Address Assignment

Method	Platform	Comment
arp/ping	Windows	Requires the IP address for each device to be downloaded individually. Cannot be used over routers. See *"Set the IP Address using ARP in Windows 98/NT/Me/2000/XP"* on page 19
	UNIX/Linux/Mac OS X	Requires the IP address for each device to be downloaded individually. Cannot be used over routers. See *"Set the IP Address using ARP in UNIX/Linux and Mac OS X"* on page 20
AXIS IP JumpStarter	Windows	Axis software that allows you to find print servers in your network and assign an IP address to them. This method is recommended for small offices and local networks. See *"Set the IP Address using AXIS IP JumpStarter"* on page 21
AXIS ThinWizard	Windows 2000/XP	Axis software that assists in setting the IP address of multiple print servers simultaneously. This method is recommended for large organizations and enerprise networks. See *"Using FTP for Print Server Management"* on page 69

Notes:

- The ability to set the IP address with ARP and PING will only be enabled the first 4 minutes after restarting the print server.
- Refer to *"Setting Parameters"* on page 49 for information about setting the IP address in the Macintosh environment.

Registering and Resolving Host Names

In order to register the host name of the AXIS 5500/AXIS 5550 in networks with dynamic IP address settings, WINS (Windows Internet Name Service) and DDNS (Dynamic Domain Name System) are supported. It is recommended that at least one of these methods should be used if you are setting the IP address of the print server using DHCP.

The host name of the AXIS 5500/AXIS 5550 is specified by the PS_NAME. parameter. Refer to the *"The Parameter List"* on page 107.

WINS Host Name Rules

WINS only supports 15 character long host names. If your host name is longer than 15 characters, the AXIS 5500/AXIS 5550 truncates the host name to 15 characters when registering with a WINS server. You can view the AXIS 5500/AXIS 5550 host name that is registered at a WINS server in the print server's Web interface. Refer to *"Print Server Management Methods"* on page 57.

DDNS Host Name Rules

DDNS supports 47 character long host names and can only consist of the characters 'A-Z', 'a-z', '0-9' and '-'. If your host name consists of any other characters, they are converted to '-' when registering with a DDNS server. You can view which host name that is registered at a DDNS server in the print server's Web interface. Refer to *"Print Server Management Methods"* on page 57.

If the host name matches another entry in the DDNS data base, the print server deletes that entry before registering.

Notes:

- The default host name of the AXIS 5500/AXIS 5550 is 'AXIS' followed by the last 6 digits in the serial number. e.g. AXIS181636. The host name (Print server name) can be changed in the PS_NAME. field on the **Admin | General Settings** page.

- The host name limitations conclude that if you want to register the same host name at a WINS server and a DDNS server, the host name should be no longer than 15 characters and it should only contain the characters 'A-Z', 'a-z', '0-9' and '-'.

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

Set the IP Address using DHCP

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

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

   - range of IP addresses
   - subnet mask
   - default router IP address
   - WINS server IP address(es) or DDNS server IP address(es)
   - lease duration

2. Activate the scope. The print server automatically downloads the DHCP parameters. If you are using WINS or DNS, you should include at least one WINS or DNS server IP address in the DHCP scope. Immediately after the IP address has been received, the print server registers its host name and IP address on the WINS alternatively DNS server. Refer to *"Registering and Resolving Host Names"* on page 17 for more information. 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 DHCP scope. The *config* file is downloaded immediately after the print server receives its IP address.

3. You have now successfully set the IP address of your print server. Continue to *"Adding a Network Printer to your Computer"* on page 22.

Note:

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

Set the 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
```

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

5. If it is not already running, start the RARP daemon. This is typically performed using the `rarpd -a` command.

6. Restart the print server to download the IP address.

7. You have now set the IP address of the print server. Continue to *"Adding a Network Printer to your Computer"* on page 22.

Notes:

> • If the host name has not been mapped to an IP address, simply replace the host name entry with the IP address in the example above.
>
> • If you are using IBM AIX, you will probably not have access to a RARP daemon. If this is the case, you can use either ARP (see *"Set the IP Address using ARP in UNIX/Linux and Mac OS X"* on page 20) or BOOTP (see *"Set the IP Address using BOOTP in UNIX/Linux"* on page 19).
>
> • You have to restart the print server to download the IP address.

Set the 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
```

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

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

10. 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.

11. You have now successfully set the IP address of the print server. Proceed to *"Adding a Network Printer to your Computer"* on page 22.

Set the IP Address using AutoIP

AutoIP sets the IP address automatically in the absence of a DHCP server in Windows Me, 2000 and XP. If you have a DHCP server running on your network, the print server will receive an IP address immediately after you have connected it to the network. In the absence of a DHCP server, your print server will automatically be assigned an IP address through integrated AutoIP. The AutoIP address structure is: **169.254.xxx.xxx.**

The AutoIP function will only work when DHCP is enabled in your print server. This function is enabled automatically upon installation of a brand new print server.

The easiest way to make sure DHCP and AutoIP are enabled is to reset your print server (to Factory Default). See *"The Test Button"* on page 102 for instruction on how to do this.

If you perform a Factory Default on the print server and you do not have a DHCP server on your network, AutoIP will automatically set the IP address of the print server.

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

Open a Command Prompt and enter the following commands:

	Syntax	*Example*
1.	arp –s <IP address> <Ethernet address>	arp –s 192.168.3.191 00-40-8c-10-00-86
2.	ping <IP address>	ping 192.168.3.191
3.	arp –d <IP address>	arp –d 192.168.3.191

The host will return `reply from 192.168.3.191`, or a similar message. This indicates that the address has been set and that communication is established. Log in to the print server's Web pages (see *Using a Web Browser for Print Server Management*, on page 58), select **Admin** | **Network Settings** | **Detailed View** | **TCP/IP** and define **Default Router** and **Subnet Mask**.

You have now set the IP address of the print server. Continue to *"Adding a Network Printer to your Computer"* on page 22.

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:

Syntax	Example
1. arp –s <IP address> <Ethernet address>	arp –s 192.168.3.191 00:40:8c:10:00:86
2. ping <IP address>	ping 192.168.3.191
3. arp –d <IP address>	arp –d 192.168.3.191

The host will return `psname is alive`, or a similar message. This indicates that the address has been set and that communication is established. Log in to the print server's Web pages (see *Using a Web Browser for Print Server Management*, on page 58), select **Admin** | **Network Settings** | **Detailed View** | **TCP/IP** and define **Default Router** and **Subnet Mask**.

You have now successfully set the IP address of the print server. Continue to *"Adding a Network Printer to your Computer"* on page 22.

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 allows you to assign IP addresses to your Axis servers and find IP addresses already assigned to Axis servers.

1. Download and install AXIS IP JumpStarter. AXIS IP JumpStarter is available on the AXIS Network Product CD and from the Axis Web site.

2. Select a print server from the serial number list:

Server menu

3. From the **Server** menu, select **Set IP Address**. The **Set IP Address** dialog appears.

4. 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**.

5. Click **OK** to save your settings.

6. 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.

7. 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.

8. You have now finished the procedure of setting the IP address. Continue to *"Adding a Network Printer to your Computer"* on page 22.

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

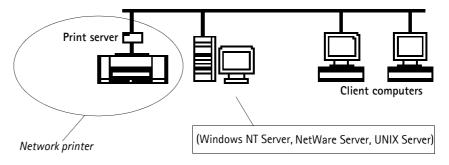## Adding a Network Printer to your Computer

Configuration Methods   Once you have set the IP address of your print server, your network printer can be added to any computer 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:

Operating system	Printing Protocol	See...
Windows	TCP/IP	*"Adding Printers in Windows"* on page 24
	NetBIOS/NetBEUI	
NetWare	IP/IPX in PSERVER mode	*"Setup using NDPS"* on page 52 and then *"Setup using Queue-based Printing over IP/IPX in PSERVER Mode"* on page 53
	IP/IPX in Remote Printer mode	*"Setup using NDPS"* on page 52 and then *"Setup for Queue-based Printing over IPX/SPX (Remote Printer Mode)"* on page 55
Macintosh	Mac OS X AppleTalk	*"Adding Printers in Macintosh"* on page 46
UNIX/Linux	TCP/IP	*"Adding Printers in UNIX/Linux"* on page 35

See also "IPP (Internet Printing Protocol)" on page 76. for information on Internet printing over Large and Wide Area Networks.

Network Structures

Client/Server Network

Network printer   Print server   Client computers   (Windows NT Server, NetWare Server, UNIX Server)
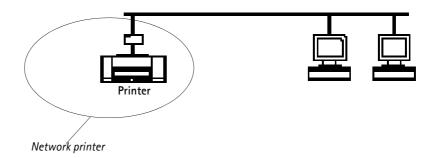
For client/server printing, each computer sends print jobs through a network server computer.

The printer must first be installed on the server computer (from the Add Printer Wizard, AXIS Print Monitor) and then underlined 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 sthe client computers. Each client computer must install the appropriate printer drivers in order to print properly.

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

Peer–to–Peer Network

Network printer

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.

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

Section 4   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:

Windows Platform	Printing Protocol	Method	See…
Windows 2000, XP	TCP/IP	Standard Windows Add Printer Wizard	"Adding Printers in Windows 2000 and XP over TCP/IP" on page 25
		Microsoft LPR Monitor	"Using the Microsoft LPR Monitor with Windows 2000 and XP" on page 27
Windows 2000	**NetBIOS/NetBEUI**	AXIS Print Monitor	Adding NetBIOS/NetBEUI Printers in Windows 2000 using AXIS Print Monitor, on page 28
Windows NT 4	TCP/IP	Microsoft LPR Monitor	"Adding Printers in Windows NT 4 Using the Microsoft LPR Monitor" on page 29
	NetBIOS/NetBEUI	AXIS Print Monitor	"Adding NetBIOS/NetBEUI Printers in Windows NT 4 using AXIS Print Monitor" on page 31
Windows 98/Me	Raw TCP	AXIS Print Monitor	"Adding Printers in Windows 98 and Me over TCP/IP using AXIS Print Monitor" on page 32
	NetBIOS/NetBEUI		"Adding Printers in Windows 98 and Me over NetBIOS/NetBEUI using AXIS Print Monitor" on page 34

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.

Adding Printers in Windows 2000 and XP over TCP/IP

Follow the instructions below to use the standard Windows method for adding a network printer in Windows NT, 2000 and XP:

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

Windows 2000: 1. Go to **Start** | **Settings** | **Printers** and click the **Add Printer** icon to start the **Add Printer Wizard**. Click **Next**.

2. Select the appropriate radio button:

Peer-to-Peer Printing
- **Local printer** - If you are connecting directly to the print server, select **Local Printer** and click **Next**. 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**.

  Enter the name of the print server (Example: AXIS100086 or the IP address) and click **Next**. Enter the **Device Port** you want to use (Example: USB1). Click **Next** and **Finish**.

Ports available	USB port	Parallel port
AXIS 5500	USB1	—
AXIS 5550	USB1	LPT1

  Select **Manufacturer** and **Printer** from the lists. Click **Next**. Choose whether you want to keep the existing driver or to replace it. If you already have the printer's driver installed, you will be asked whether to keep it or to replace it. Click **Next**.

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

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

Client/Server Printing
- **Network printer** - If your print server has already been installed on another computer, select **Network printer** and click **Next**.

  Enter the name of the printer (Example: \\aladdin\apple) and click **Next** (or leave the field empty and browse the network for which printer to install; click **Next** and select the printer to use. Click **Next**.)

Choose whether you want it to be your default printer and click **Next** and **Finish.**

Important!

> - Make sure that the **Automatically detect and install my Plug and Play printer** checkbox is <u>not</u> checked.
>
> - Press **F1** to access the Windows online help system if you need additional help when installing a printer/print server using this method.
>
> - If you wish to print over LPR, double-click the installed printer in **Start │ (Settings) │ Printers (and Faxes)**. Select **Properties** from the Printer menu and click **Ports** then **Configure Port**. Click the **LPR** radio button and enter the queue name under LPR Settings: The available queues are:
>
>   **AXIS 5550**: pr1, pr3, pr5, pr7= *LPT1*. Pr2, pr4, pr6, pr8=*USB1*
>
>   **AXIS 5500**: pr1-pr8= *USB1*
>
>   Click **OK** to finish.

If the USB port option does not appear:

> If the USB port option does not appear when adding printers in Windows 2000 and XP, follow these instructions to emulate a USB port:
>
> Windows XP:
>
> 1. Go to **Start │ Printers and Faxes** and click the **Add a Printer** icon to start the Add Printer Wizard. Click **Next.**
>
> Windows 2000:
>
> 1. Go to **Start │ Settings │ Printers** and click the **Add Printer** icon to start the Add Printer Wizard. Click **Next.**
>
> 2. Select the **Local Printer** radio button and click **Next**. 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.**
>
> 3. Enter the name of the print server (Example: AXIS100086 or the IP address) and click **Next.** Enter the **Device Port** you want to use:
>   **5500:** choose LPT1
>   **5550:** Choose LPT2 for if you are installing a USB port and LPT1 if you are installing a parallel port. Click **Next** and **Finish.**
>   Select **Manufacturer and Printer** from the lists. Click **Next**. Choose whether you want to keep the existing driver or to replace it. If you already have the printer's driver installed, you will be asked whether to keep it or to replace it. Click **Next**.
>   Supply a name for the printer and choose whether you want to make it your default printer. Click **Next.**
>   Choose whether you want to share the printer with other network users. Click **Next** and **Finish**.
>
> 4. Go to **Start │ (Settings) │ Printers (and Faxes)** and highlight your newly installed printer. Right-click and choose **Properties.** Choose the **Ports** tab (make sure your printer is highlighted) and then **Configure Port...**Under **Protocol**, click the **Raw** radio button and then define the printer port under **Raw Settings – Port Number** as follows:
>   **5500:** 9100
>   **5550:** USB = 9101, LPT1 = 9100
>   Click **OK** and close the window. Print a test page to verify your installation.

Using the Microsoft LPR Monitor with Windows 2000 and XP

This section describes how to set up a Windows 2000/XP 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 28 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

Follow the following steps to prepare for LPR printing:

1. Open the **Control Panel**.

2. Click **Add/Remove Programs.**

3. Click **Add/Remove Windows Components.**

4. Check **Other Network File and Print Services** and click **Details.**

5. Check **Print Services for Unix** and click **OK.**

6. Click **Next** and **Finish**.

7. Close **Add/Remove Programs** and the **Control Panel.**

Installing an LPR printer

Follow the instructions below to use the standard Windows method for installing an LPR printer in Windows 2000/XP:

Windows XP:

1. Go to **Start** | **Printers and Faxes** and click the **Add a Printer** icon to start the **Add Printer Wizard**. Click **Next.**

Windows 2000:

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

2. Select the appropriate radio button

Peer-to-Peer Printing

- **Local printer** - If you are connecting directly to the print server, select **Local Printer. Click Next.**

  Click the **Create a new port** radio button and select **LPR Port** from the list. Click **Next.**

  Enter the name of the server (or its IP address) in the field **Name and address of server providing lpr** (Example: AXIS100086) and enter the port you want to use in the field **Name of printer or print queue on that server** (Example: USB1). Click **OK.**

Ports available	USB port	Parallel port
AXIS 5500	USB1	—
AXIS 5550	USB1	LPT1

End the wizard in the usual manner: select Manufacturer and Printer, keep/replace driver, name the printer, make it default or not, share it or not and finally decide whether you want to print a test page.

Client/Server Printing

- **Network printer** - If your print server has already been installed by the administrator on another computer, select **Network printer** and click **Next.** 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 <u>not</u> 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 *"Adding Printers in Windows 2000 and XP over TCP/IP"* on page 25 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 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	USB port	Parallel port
AXIS 5500	US1	—
AXIS 5550	US1	LP1

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 in Windows NT 4 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 an LPR
Printer

1. Go to **Start** | **Settings** | **Printers** | **Add Printer**. Select **My Computer** (for peer-to-peer printing) and click **Next**.

2. From the **Available Ports** list, choose the appropriate printer port, which will appear as the host name or IP address of the print server. Skip to step 7.

3. If the host name or IP address of the print server you wish to use does <u>not</u> appear in the list, click **Add Port**.

4. Choose **LPR Port** from **Available Printer Ports** and click **New Port**.

5. Type the print server's name or IP address in the field **Name or address of server providing lpr** (Example: 10.13.6.198). Then enter which port to use in the field **Name of printer or print queue on that server** according to the table below (Example: USB1). Click **OK** and then **Close**.

Ports available	USB port	Parallel port
AXIS 5500	USB1	–
AXIS 5550	USB1	LPT1

6. The added print server will now appear in the **Available Ports** list.

7. Click **Next**, choose an appropriate driver and finish the installation in the normal manner.

Adding NetBIOS/NetBEUI Printers 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. To start the Add Printer Wizard, select **Settings** | **Printers** from the **Start** menu and double-click the **Add Printer** icon.

2. The Wizard asks you to select **My Computer** or **Network printer server**. Select **My Computer**. Click **Next**.

3. Click **Add Port...** In the Available Ports dialog, select **AXIS Port** and click **New Port...**

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	USB port	Parallel port
AXIS 5500	US1	—
AXIS 5550	US1	LP1

6. Close the Printer Ports window.

7. 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**.

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

Note:

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

9. 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**.

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

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

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

13. 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

AXIS Print Monitor   AXIS Print Monitor is the recommended tool to use for network printing in Windows 98 and Me environments. AXIS Print Monitor is available on the AXIS Network Product CD and from the Axis Web site.

AXIS Print Monitor Overview   AXIS Print Monitor allows an AXIS 5500/AXIS 5550 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 NetBIOS/NetBEUI and TCP/IP (LPR and Raw TCP). 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 TCP/IP Printers in Windows 98/Me 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 between **Local Printer** and **Network Printer.** You must select **Local Printer** as the AXIS 5500/AXIS 5550. Click **Next**.

3. 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 6. It is only necessary to perform steps 4 - 5 if your printer does not feature in the model list.

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

5. Select the type of printer you want to install from the diskette/CD and click **Next**.

6. Select the **Printers@TCP/IP** Port and click **Next**.

7. Enter an appropriate name for your printer and choose whether you want it to be the default printer. Click **Next**.

8. In the next window, do <u>not</u> order a Test Page to be written, just click **Finish**.

9. AXIS Print Monitor now informs you that the printer has to be connected to another port. Click **OK**.

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

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

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

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

14. Enter the IP address or the host name of your print server (Example: AXIS100086) and assign an appropriate port number (Example: 9902). Click **OK**.

Port number	USB port	Parallel port
AXIS 5500	9902	—
AXIS 5550	9902	9900

15. The TCP/IP port will then be added automatically to the list of available ports. Click **OK** and **Apply**.

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**. Click the **Configure Port** button.

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**. 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.

Port number	USB port	Parallel port
AXIS 5500	US1	—
AXIS 5550	US1	LP1

Example: AX100086.US1

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 5   Adding Printers in UNIX/Linux

Print Tools

For printer configuration, *printtool* and *printconfig* 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
- If you don't find your specific printer in your distribution, have a look at http://www.linuxprinting.org/database.html

Typical Invokation 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.

Click **Hardware** | **Printer** and the *Printerdrake* application will be invoked.

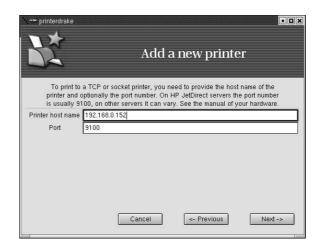Click **Expert Mode** to be able to add a network printer.

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 URl

Select the **Network printer** radio button and click **Next**.

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	USB port	Parallel port
AXIS 5500	9902	—
AXIS 5550	9902	9900

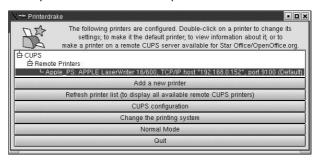Also see *"TCP Ports Opened for Raw Printing"* on page 119.

Click **Next**.

Fill in data to help users identify the printer, i.e. name, description and location. Click **Next**.

Select printer model and click **Next**.

Configure the printer and click **Next**.

The printer is set up. Click **Finish** and the printer is accessible.

Typical Invokation 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.**

Invokation
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
Start *printtool* and click **Add**.

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.

Click **Next** to continue.

Click **Select** to choose a printer driver and to set it up.

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.

Invokation
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 deamon (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   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.

Select **Unix Printer** from the **Queue Type menu**, and click **Next**.

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.

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.

Invokation 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, USB, 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 5500/AXIS 5550 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 the Axis Web site and on the AXIS Network Product CD.

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 5500/AXIS 5550 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 5500/AXIS 5550 FTP Print Server v6.30 March
23 2002 ready.
Name (npsserver:thomas): root
331 User name ok, need password
Password: pass         (not visible)
230 User logged in
ftp> get axinstall
200 PORT command successful.
150 Opening data connection for axinstall
(192,36,253,4,13,223), (mode ascii).
226 Transfer complete.
local: axinstall remote: axinstall
61187 bytes received in 14 seconds (4.2 kbytes/s)
ftp> bye
221 Goodbye.
>
```

Typical FTP session for 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 5500/AXIS 5550 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.
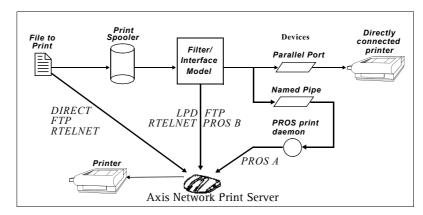

Illustration of different UNIX/Linux print methods

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 5500/AXIS 5550 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 5500/AXIS 5550 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 `prosbsd` (in the `bsd` directory of the AXIS 5500/AXIS 5550) can be used as a starting point. It receives print data from `stdin`, and writes a log file to `stderr`. Nothing is written to `stdout`.

Alternatively, FTP may be used. It is a good idea to use `bsd/ftp_bsd` or `sysv/ftp_sysv` as a starting point.

IBM MVS Systems   A sample JCL script, `jclex`, is available in the `mvs` directory of the print server. It gives an example of how to print a file from an MVS mainframe to an AXIS 5500/AXIS 5550 using FTP.

Section 6   Adding Printers in Macintosh

Having connected the AXIS 5500/AXIS 5550 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 AXIS 5500 will appear in the list of available printers. The port is shown as <host name>_<port>. **Example**: AXIS100086_USB1. On an AXIS 5550 you will also have access to an LPT port, which will appear as LPT1 in the list. **Example**: AXIS100086_LPT1.

5. Select the print server port you want to use.

6. 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.)

7. 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 <u>uncheck</u> the **Use Default Queue on Server** check box and enter a Queue Name:
   >
   >   *Physical ports:*
   >   Enter **USB1** for AXIS 5500 and AXIS 5550 if you wish to use the USB port.
   >   Enter **LPT1** for the AXIS 5550 if you wish to use the parallel port.
   >   *Logical printer ports:*
   >   **AXIS 5550**: pr1, pr3, pr5, pr7= *LPT1*. Pr2, pr4, pr6, pr8=*USB1*
   >   **AXIS 5500**: pr1-pr8= *USB1*
   >
   > 4. Choose a printer driver from the **Printer Model** list and click **Add** to finish.

Installation on an Older Mac, using AppleTalk

Basic Configuration On an older Mac, 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 49.

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_USB1.
   On an AXIS 5550 you will also have access to an LPT port, which will appear as LPT1 in the list. **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_USB1.
   On an AXIS 5550 you will also have access to an LPT port, which will appear as LPT1 in the list. **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 5500/AXIS 5550 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 5500/AXIS 5550 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 5500/AXIS 5550 is now ready for use.

Note:

> For information on advanced AppleTalk functions such as non-PostScript printer support, please refer to the AXIS 5500/AXIS 5550 Technical Reference on the Axis Web site.

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 5500/AXIS 5550. You can:

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

However, by assigning an IP address to your print server, you have access to all of the print server parameters via any standard Web browser or via FTP. Refer to *Section 8 Print Server Management Methods*, on page 57 for more information.

Example: The following example describes how you 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.

Follow the instructions below:

---

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 5500/AXIS 5550 has been powered on. If you want it to reappear, you must restart your print server.

Section 7 Adding Printers in NetWare

This section describes how to continue the installation of the AXIS 5500/AXIS 5550 in a NetWare environment. Identify which transport protocol you are running on your network and which installation method you should use. Continue the installation by selecting the appropriate installing instructions from the table below:

Installation method	Transport protocol	Action
NDPS	TCP/IP IPX/SPX	See *"Setup using NDPS"* on page 52 Proceed with *"Installing the AXIS 5500/AXIS 5550 in an NDPS environment"* on page 52

Printer Configuration method	Transport protocol	Action
PSERVER mode	IP/IPX	See *"Setup using Queue-based Printing over IP/IPX in PSERVER Mode"* on page 53 and then *"Overview: Queue-based Printing Methods"* on page 56
Remote Printer mode	IPX/SPX	See *"Setup for Queue-based Printing over IPX/SPX (Remote Printer Mode)"* on page 55 and then *"Overview: Queue-based Printing Methods"* on page 56

If you wish to print using iPrint, the following Axis snap-in tools are available from www.axis.com (Support | Select Software):

- *AXIS LPR Gateway Comfiguration Snap-in for i-Print in NetWare 5.x/NetWare 6.x*
- *AXIS IPP Gateway Comfiguration Snap-in for i-Print in NetWare 5.x*

See the read-me files on the web for installation instructions.

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.

Setup using NDPS

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

Before the print server can be installed, make sure that NDPS is installed and a Broker is loaded on your NetWare file server.

The 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.

Notes:

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

Installing the AXIS 5500/AXIS 5550 in an NDPS Environment

Having assigned an IP address to the AXIS 5500/AXIS 5550, you are now ready to install it for NDPS printing. You can select to install the connected printers as public or controlled access printers. Follow the instructions below to install the print server using NDPS:

Notes:

- The **NDPS** parameter of the AXIS 5500/AXIS 5550 must be enabled in order to permit communication between the print server and the NDPS gateway. Set this parameter in the print server's internal Web pages: **Admin** | **Network Settings** | **Detailed View** | **NetWare** | **NDPS Printing Protocol** (default value=TCP_AND_SPX).
- If you do not have an NDPS Manager object available, start with creating one in the NetWare Administrator.

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

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

2. At the Identification page for the NDPS Manager, 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 **Printer Agent** field.

5. Choose the **Axis Gateway Configuration** in the **Gateway Types** window. Click **OK**.

6. Select printer type and transport protocol (TCP/IP or IPX) — see Note below. (Example: Select TCP/IP.)

7. Click **Next.**

8. Enter the IP address of the print server and select print server port according to the list below.

Ports available	USB port	Parallel port
AXIS 5500	USB1	–
AXIS 5550	USB1	LPT1

(Example: 192.168.0.152 and USB1.)
Click **Finish**.

9. Select print drivers. Click **Continue** and then **OK.**

10. Once you have completed the required tasks, you are ready to print in your NDPS environment. Use the Novell Print Manager to install the Public Access Printer on the client workstation.

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. To use the Axis Gateway with earlier versions of NetWare, you can download the Axis Gateway Configuration Utility from the Axis Web site.

Controlled Access
1. Before you connect the AXIS 5500/AXIS 5550 to the network, make sure that the HP NDPS Gateway is <u>not</u> configured to automatically create a public access printer.

2. Connect the print server to the NetWare network.

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

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

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

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

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

Setup using Queue-based Printing over IP/IPX in PSERVER Mode

All previous firmware versions of Axis print servers allow users to print in an IPX environment using traditional queue-based printing in PSERVER mode. This method is supported in both Bindery and NDS mode.

Axis is one of the few companies in the world that offers the possibility of printing in a Pure IP environment, using queue-based printing in PSERVER

mode. This method is only supported by Axis print servers with firmware version 6.0 and later and only in NDS environments. Pure IP is only supported by NetWare 5 or higher.

In a Pure IP NetWare environment, the NetWare Administrator should be used to create the printer, print server and queue objects.

Installing the Axis Network Print Server in IP/IPX

Follow the instructions below:

1. From the print server's internal Web pages, go to **Admin** | **Network Settings** | **Detailed View**| **NetWare.**

2. Enter the three **PSERVER NDS** parameters:

   • PSERVER NDS Tree
     (example: NW5TREE) **or**
   • PSERVER NDS File Server (IPX only):
     (example: FILESERVERNAME) **or**
   • PSERVER NDS Distinguished Name:
     (example: AXIS100086.<context>, where <context> is the container where you want to create your print server)

3. Click **OK** when finished.

4. Use the NetWare Administrator to create the three needed objects (the printer, the print server and the queue) in the NDS tree and then link them together. The **Print Services Quick Setup** (Non-NDPS) utility can be used for this. It is available under **Tools** in the **NetWare Administrator**.

5. Use the Add Printer Wizard on your workstation to install the printer on your client.

Additional configuration and management can be performed from any standard Web browser. Please refer to *"Using a Web Browser for Print Server Management"* on page 58.

Notes:

• 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** | **Network Settings** | **Detailed View** | **NetWare** and change the **NetWare Transport Protocol** from DUAL_STACK to IP_ONLY. Click **OK** when finished to save your changes.

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

Setup for Queue-based Printing over IPX/SPX (Remote Printer Mode)

If you don't have a PSERVER created on the file server, start out with creating one in the NetWare Administrator, as described here:

1. Start the NetWare Administrator.

2. Choose **Tools** | **Print Services Quick Setup (Non-NDPS).**

3. In the **Print Services Quick Setup (Non-NDPS)** dialogue, enter names for

   - the print server object (example: aPSname)
   - the printer object (example: aPrinter)
   - the queue object (example: aQueue)

4. Choose printer type according to the table below and **Postscript** as the Banner type.

Ports available	USB port	Parallel port
AXIS 5500	other/unknown	–
AXIS 5550	other/unknown	parallel

   (Example: other/unknown, which stands for the USB1 port.)

5. Click **Create** and the three new objects will show up in the NetWare Administrator. Double-click the print server object (example: aPSname) and then click the button **Print Layout (Non NDPS).** You will notice that there is an exclamation point in front of the print server object – an indication that we have not yet associated the print server with the tree.

6. Log in to the print server's Web interface and choose **Admin** | **Network Settings** | **Detailed View** | **NetWare**. Enter the data needed:

   - PSERVER NDS Tree
     (example: NW5TREE)
   - PSERVER NDS File Server:
     (example: FILESERVERNAME)
   - PSERVER NDS Distinguished Name:
     (example: aPSname.<context>, where <context> is the container where you want to create your print server)

7. Click **OK** when done.

8. Use RCONSOLE or go to the file server console where you have created the object, load PSERVER.NLM and choose the print server you have just created.

9. From the available options, choose **Printer Status**, choose your newly created printer object and check that the status is **Waiting for job**.

Note:

- If the status reads **Not Connected**, log in to the print server's Web interface, choose **Admin** and click the **Restart** button. The print server status in RCONSOLE will then change from **Not Connected** to **Waiting for job**.

Overview: 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 5500/AXIS 5550 logs in to a file server(s) and repeatedly polls the print queues for print jobs. In this fashion, the 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

Limitations • In bindery mode, this printing method requires a NetWare user licence for each AXIS 5500/AXIS 5550–to–file server link.

Remote Printer Mode The 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 5500/AXIS 5550 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.
  • Higher network load.

NetWare Packet Signature

The AXIS 5500/AXIS 5550 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 8   Print Server Management Methods

The management and configuration tools that are supported by the AXIS 5500/AXIS 5550 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
- Perform a Factory Default of the print server. See "Factory Default" on page 102.
- Upgrade the AXIS 5500/AXIS 5550 firmware. See "Updating the Firmware" on page 100..
- Enable/disable security settings. See "Enabling Secure Web Services — SSL/TLS" on page 93.

Configuration Overview   The method you should use to manage and configure your print server depends on the operating systems and protocols of your network. The table below displays which method to use for each supported environment.

Protocol	Configuration/Management methods
TCP/IP (UNIX/Linux, Windows, NetWare Pure IP)	Web Browser - See page 58 AXIS ThinWizard - See page 69 FTP - See page 69 telnet - See page 71
IPX/SPX (NetWare)	AXIS NetPilot - See page 66 Novell Utilities - See page 73
NetBIOS/NetBEUI (Windows 98/Me/NT/2000)	AXIS NetPilot - See page 66
AppleTalk over TCP/IP	Web browser - See page 58
Older versions of AppleTalk	Chooser - page 47

Note:

> BOOTP and TFTP are powerful tools for configuring the AXIS 5500/AXIS 5550. Refer to the documentation for the BOOTP/TFTP server on your system for specific information.

Using a Web Browser for Print Server Management

Once you have assigned an IP address to the print server, you are free to access the print server's Web pages from any Web browser with Javascript enabled.

The Web interface of the 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 parameters. 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 of the print server's settings, you must enter the Admin mode.

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.

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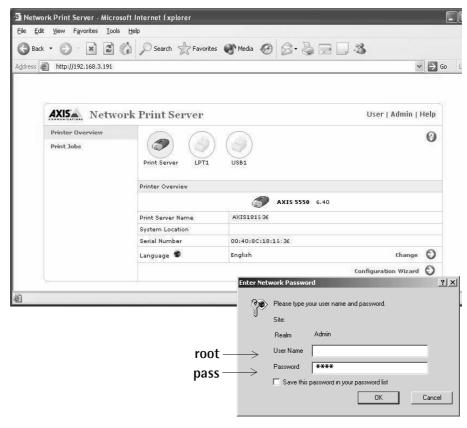
Note:

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

Accessing the Web Pages

Follow the steps below to access the internal home page of the AXIS 5500/AXIS 5550.

1. Start your Web browser.

2. In the **Location/Address** field, type the host name or the IP address of your print server. The User Mode **Printer Overview** page of the print server will appear in the browser window.

3. Click **Admin** to enter the Admin mode. If the management password is set to anything but **pass,** you must enter **root** as the user. The password **pass** is the default password of the AXIS 5500/AXIS 5550.

Services Available from the User Mode

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

Printer Overview

The Printer Overview page contains a section that allows you to view the general parameter setting of the AXIS 5500/AXIS 5550, including the print server name and the location of the print server in your organization, if defined.

If you have admin access rights you can use the **Configuration Wizard** to perform basic configuration of the print server.

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

Print Jobs
From the **Print Jobs** page you can view the status of the current print jobs, including the number of printed bytes and the origin of the print job. You can also view a log of the 20 latest print jobs that includes user, printing protocol and file size. A log that displays 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 5500/AXIS 5550 and the Web user interface. A short description of the Axis installation tools you should use when installing a printer on your computer is also included.

Configuration Wizard
The **Configuration Wizard** will guide you through the procedure of verifying some default settings and configure a few parameters. When you are finished, the print server is correctly configured for all printers and network environments.
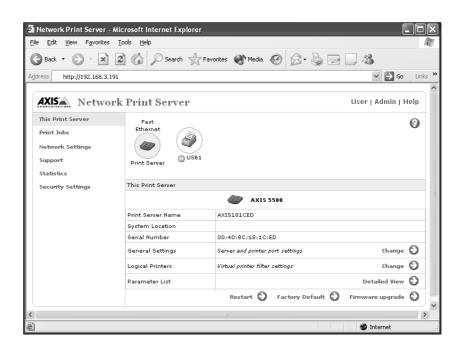
Changing Language and Character Set
You can **Change** language and character set used in the print server's Web interface from the User mode. Available languages are English (default), French, German, Spanish and Italian. Available character sets are ISO-8859-1 (default) and UTF-8.

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

This Print Server   The **This Print Server** page contains a section that allows you to view and modify the general parameter settings of the AXIS 5500/AXIS 5550, including print server name, node address, password and base URL. You can also configure any of the eight available logical printers of the print server. Management operations, like restarting the print server and resetting most of its parameters to their factory default values, are also available.

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

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

To the right of every current print job there is a delete button. Click it to delete the print job.

Network Settings   From the **Network Settings** page you can set all parameters that control the network traffic to and from the print server. You can enable or disable network protocols and fine-tune parameter settings.

Caution!

> Any network configuration should involve the Network Administrator.

Support   Using the **Support page** you can receive assistance to resolve any installation or print problems that might occur. If your problems persist, the Support page also allows you to produce a Server Report. The Server Report includes the settings of the AXIS 5500/AXIS 5550, information about your connected printers as well as 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 description of the problem.

Statistics   The **Statistics** page displays information about the network packets to and from the print server as well as information about the connections to different network servers and services.

Security Settings   On the **Security Settings** page you can enable or disable *SSL* (Secure Socket Layer - a protocol designed to provide secure communications on the Internet.) and *TLS* (Transport Layer Security, a protocol that guarantees privacy and data integrity between applications communicating over the Internet) You can also create secure certificates and disable/enable insecure protocols.

Whenever SSL/TLS is enabled, you have to address the print server's Web interface in the secure way, i.e. via **https://**

Help **Help** displays a comprehensive description of the configuration and management activities that can be performed from the internal Web pages of the print server. Theses activities include instructions on how to install the 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.

Factory Default Will reset all print server parameters and settings to their factory default values except

- Node Address (NODE_ADDR.)
- IP Address (INT_ADDR.)
- DHCP enabled or disabled (DHCP_ENB.)
- Installed certificate
- Private key

Firmware Upgrade Upgrades the print server's internal software.

Using AXIS ThinWizard for Print Server Management

AXIS ThinWizard 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 is available on the AXIS Network Product CD and can also be downloaded from the Axis Web site. 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.
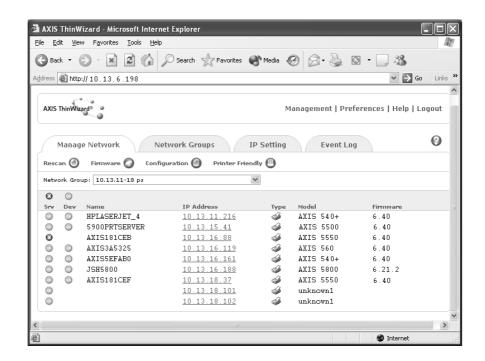
Notes:

> To be able to use all AXIS ThinWizard features, the print server must have the FTP_ENB. parameter enabled, i.e. set to "yes".

Starting AXIS ThinWizard

Follow the instructions below to start the AXIS ThinWizard:

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

2. Start a Web browser 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.

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

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 5500/AXIS 5550 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 5500/AXIS 5550 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 *"Services Available from the User Mode"* on page 59.

Upgrading Axis Servers

Refer to *"Upgrading using AXIS ThinWizard"* on page 100, for more information about upgrading Axis servers using AXIS ThinWizard.

Additional Information

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

Using AXIS NetPilot for Print Server Management

AXIS NetPilot **2.70 and up** should be used for AXIS USB print servers.

AXIS NetPilot makes management of Network Print Servers simple and convenient. It runs on Windows platforms that use NetWare or NetBIOS/NetBEUI and lets you

- Install Network Print Servers
- Modify the network environment
- Change the print server configuration
- Create printer groups
- Monitor printers

Installing AXIS NetPilot

AXIS NetPilot is available on the AXIS Network Product CD and can also be downloaded from the Axis Web site. Install it on any Windows client in the network using NetWare or NetBIOS/NetBEUI.

Installing a Network Print Server

When started, AXIS NetPilot scans the network for Network Print Servers. All found will be placed in the folder **New AXIS Units**. Highlight the one you want to install and click **Install**.

Print Server Installation Options

Select one of the two options:

- **with Installation Wizard**. Use this option to install a new print server. When you click the OK button the Installation Wizard will start and you will be guided through the installation process, step by step.

  If you choose this option for a print server that has already been installed, the new settings that you enter via the Wizard will replace the existing parameters.

- **with current configuration**. Use this option to make AXIS NetPilot accept a previously installed Network Print Server without changing its configuration parameters. When you click the OK button you will return to the main window — the selected print server will now appear in the **Network Print Servers** folder.

  If you select this option for a new print server, the factory default settings will be used and no print queues will be created. This is unlikely to be a satisfactory installation.

Modify the Network Environment

Double-click the Axis Units folder and then the Network Print Servers folder in the main window to reveal the installed print servers. Highlight the print server that you wish to modify. Click the Network button in the toolbar or select Network in the Setup menu or the pop-up menu.

The Network window has a number of pages with selection tabs depending upon which environments are available and enabled for the print server you have selected.

See AXIS NetPilot's help files for additional information on how to change the print server environments.

Change the Print Server Configuration

Your Network Print Server has configuration parameters or properties which will govern its operation. These properties are held in a non-volatile memory within the print server, and are accessible via the AXIS NetPilot configuration program.

You alter the properties via property pages; there is one property page for each group of configuration parameters.

You can also edit the parameters by using the Parameter List Editor, which is accessible via the Setup drop down menu. It is recommended that this method is only used when you are familiar with the parameters and their values.

See AXIS NetPilot's help files for additional information on these property pages.

Create Print Server Groups

By treating a number of print servers as one group with a group name, you can simplify configuration and management when you have several installed print servers on the network. You can, for instance, group the print servers together by name, by model, by location, etc.

When grouping print servers together in a print server folder, you are actually creating shortcuts to the print servers located in the Network Print Servers folder. Only one shortcut is allowed for each print server.

If you uninstall a print server from the Network Print Servers folder, the shortcut will automatically be removed from the print server folder.

To Create a Print Server Group

Click on the Axis Units folder. Select New Print Server Group from the File menu, or click the New Group Button on the toolbar. Enter the name for the print server group in the dialog box and click OK.

To Add a Print Server to a Print Server Group:

Select the print server folder where you want to put the print server. Select Add Print Server from the File menu, or click the Add Print Server Button on the Toolbar. In the Add Network Print Servers dialog, click the print server(s) you want to create a shortcut to. You can sort the print servers first by selecting Name or Model. Click OK.

Note: All installed print servers will remain in the Network Print Servers folders. Only shortcuts to these print servers are added to the print server groups. If a print server is uninstalled from the Network Print Servers folder, the shortcut will automatically be removed from the print server group and vice versa.

To Remove a Print Server from a Print Server Group

Click on the print server folder from where you want to remove the print server and highlight the print server you want to remove. Select **Remove** from the File menu.

To Remove a Print Server Group

Empty print server folders can be deleted. Simply click the print server folder you want to delete and select **Delete** from the File menu.

Monitor Printers   Treating a number of printers as one group with a group name makes monitoring easier when you have several printers on the network. For instance, you may group all critical printers in a High Priority group, and have less important printers in a Low Priority group.

Setting up a Printer Group

1. Click on the Monitoring Printers folder.

2. Select New Printer Group from the File menu or pop-up menu, or click the New Group Button on the toolbar.

3. Enter a name for the printer group in the dialog box and click OK.

4. Click on the folder of the new group you have just created.

5. Select Add Printer from the File menu or pop-up menu, or click the Add Printer Button.

6. An Add Printer dialog window will appear. Double click the required print server name in this dialog box to reveal the print server ports. Select the printer you wish to monitor by clicking its name.

7. Alter the name of the selected printer, if required, then click Add. The printer will appear in the right hand section of the main window.

Repeat this procedure to setup the printers you wish to monitor, creating more groups as required.

Printer Status   The printer status is shown in words and by change of icon color.

Additional printer status messages are available for some printers and print servers. Please refer to their respective manuals. These additional messages are mapped to an appropriate printer status color according to their nature.

- Green   Ready or Busy (Normal operation).
- Yellow   Off Line.
- Red   Out of Paper.
- Gray   Printer disconnected.

To Open an Independent Monitoring Window:

1. Click on the folder of the group you wish to monitor.

2. Select Monitor from the File menu or pop-up menu, or click the Monitor Button on the toolbar.

A new window will appear that can be positioned as you require. When this window is minimized, its color will represent the status of the worst case printer in the group according to the color table above.

Additional Information   For additional information, please refer to the AXIS NetPilot on-line help.

Using FTP for Print Server Management

Having assigned an IP address to your AXIS 5500/AXIS 5550, as described earlier in this manual, you can change its 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 5500/AXIS 5550 by typing:
   ```
   ftp <host name>
   ```
   - or –
   ```
   ftp <IP address>
   ```
   in a Command window (Windows) or at a UNIX/Linux shell prompt or terminal window.

2. Enter user id and 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 5500/AXIS 5550 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 5500/AXIS 5550 has been powered down.
>
> • To edit the *config* file on older MacOS versions, you will need FTP support such as MacTCP, Fetch or Anarchie. The procedure for editing the file is the same as described above.

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

Example:

```
> ftp npserver
connected to npserver.
220 Axis 5550 FTP Network Print Server vx.xx March 19
2003 ready.
Name (npserver:thomas): root
331 User name ok, need password
Password: pass          (not visible)
230 User logged in
ftp> get config
200 PORT command successful.
150 Opening data connection for config
(192,36,253,4,13,223), (mode ascii).
226 Transfer complete.
8588 bytes received in 0.24 seconds (35.63 kbytes/s)
ftp> put config CONFIG
200 PORT command successful.
150 Opening data connection for CONFIG
(192,36,253,4,13,223), (mode ascii).
226 Transfer complete.
8588 bytes received in 0.45 seconds (19.04 kbytes/s)
ftp> bye
221 Goodbye.
>
```

Viewing the Status File

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

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

1. Log in to the AXIS 5500/AXIS 5550 by typing:
   `ftp <host name>` or `ftp <IP address>` in a Command window (Windows) or at UNIX/Linux shell prompt.

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

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

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

Viewing the Account File The *account* file contains data concerning the 20 last print jobs. It specifies an internal job number, the user that initiated the job, the protocol and logical printer that was used, current status (Completed, Off-line, or Printing), number of bytes printed, elapsed time and off-line time.

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

1. Log in to the AXIS 5500/AXIS 5550 by typing:
   `ftp <host name>` or `ftp <IP address>` in a Command window (Windows) or at a UNIX/Linux shell prompt.

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

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

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

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

By typing `remotehelp` (or `rhelp`, depending on your FTP program) in step 3 in the FTP instruction sets above, a list of all print server specific commands will be displayed.

Using Telnet for Print Server Management

Having assigned an IP address to your AXIS 5500/AXIS 5550, as described in earlier in this manual, you can manage your print server using the telnet protocol.

Viewing the *Account* File The *account* file contains data concerning the last 20 print jobs. It specifies an internal job number, the user that initiated the job, the protocol and logical printer that was used, current status (Completed or Printing), number of bytes printed and elapsed time.

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

1. Log in to the AXIS 5500/AXIS 5550 by typing:
   `telnet <host name>` or `telnet <IP address>` in a Command window (Windows) or at UNIX/Linux shell prompt or terminal window.

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

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

The following example shows how to view the *account* file using Telnet in a UNIX/Linux terminal window.

Example:

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

Axis Network Print Server TELNET Print Server vx.xx March 19 2003

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

Axis Network Print Server TELNET Print Server vx.xx March 19 2003

Root> account
Current account file:
JOB           USER          PROT          LPR S BYTES      ETIME

1             Thomas        FTP           pr2 C 1885       2
2             Lisa          LPT           pr1 C 23074      4
3             RICHARD       PSERVER       pr2 C 43044      5
4             MacUser       APPLE         pr1 C 6717       2
5             LSLM_user     NetBIOS       pr2 C 36995      3
6             patrick       PROS          pr5 P 83208      9
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 5500/AXIS 5550 by typing:
   `telnet <host name>` or `telnet <IP address>` in a Command window (Windows) or at a UNIX/Linux shell prompt or terminal window.

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

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

Restarting the Print Server

Follow the instructions below to restart the print server using telnet:

1. Log in to the AXIS 5500/AXIS 5550 by typing:
   `telnet <host name>` or `telnet <IP address>` in a Command window (Windows) or at a UNIX/Linux shell prompt or terminal window.

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

3. Restart the print server by typing `hardreset`

Telnet Help

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

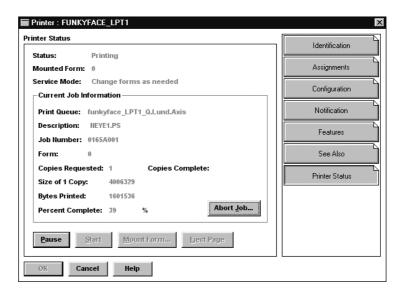## Using Novell Utilities for Print Server Management

After installing the AXIS 5500/AXIS 5550 into the NetWare environment, you can manage your print server, using either Novell's NetWare Administrator, or PCONSOLE (not available in NetWare version 5.x or higher).

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 5500/AXIS 5550. 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.
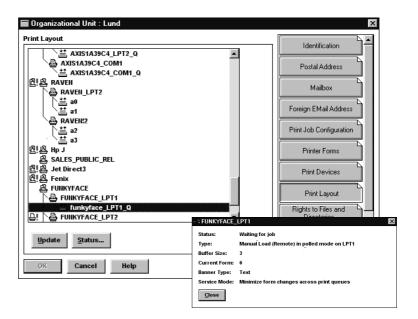
NetWare Administrator Printer Status Menu

Notification   You can use the NetWare Administrator to enable or disable status notification messages for printers connected to the 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 5500/AXIS 5550s 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 9   Configuration Possibilities

This section describes some special features offered by the AXIS 5500/AXIS 5550:

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. If **Autodetect Printer Type** is disabled, 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.

AutoIP

In the absence of an IP address management mechanism such as DHCP, the print server will receive a temporary IP address automatically over AutoIP, a method which enables the host to automatically take a linklocal IPv4 address. AutoIP is supported by Windows 98, Me, 2000, XP and Mac OS version 8.5 or higher.

IPP (Internet Printing Protocol)

The AXIS 5500/AXIS 5550 enables printing over the Internet with IPP (Internet Printing Protocol), an industry standard that allows users to print to remote printers across the Internet.

With IPP, a user with an Internet connection can send a document to any printer which is connected to the Internet. IPP is platform independent and can be used to print over any LAN or WAN that supports TCP/IP.

In practical terms, this means that you can send documents to a remote printer as an addition to or replacement of fax and e-mail, with the same quality and color options of traditional network printing.

In order to print to a remote printer using IPP, you need the following:

- An *IPP client* installed on your computer together with appropriate printer drivers. The IPP client is a tool that adds destination printers to your printer list. A list of available IPP clients can be viewed in *IPP clients*, on page 77.
- The printer to which you want to send your print job needs to be connected to *a print server with IPP functionality*. The print server makes it possible for your printer to receive print jobs from an IPP client. The IPP functionality of the AXIS 5500/AXIS 5550 is automatically activated upon installation.

IPP Printing Requirements

Before you print to an IPP printer you need to know:

- the http:// address of the print server.
- **the brand and model of the printer** in order to install the appropriate printer driver.

Address Schemes for IPP Printers

When using IPP printing, you need to know the IP address or host name of your IPP enabled Axis print server. IPP is a client/server type protocol which comprises two industry standards:

- the 1.0 standard, which uses an http:// address scheme
- the 1.1 standard, which uses an ipp:// address scheme

Example using a Host Name in the 1.0 Standard:

If "axisps" is the host name of the AXIS 5500/AXIS 5550, "631" is the port number and "USB1" is the local printer port name, then the syntax of the address scheme will be `http://axisps:631/USB1` in the 1.0 standard.

Example using an IP Address in the 1.1 Standard:

If "171.16.5.218" is the IP address of the AXIS 5500/AXIS 5550 and "USB1" is the local printer port name, then the syntax of the address scheme will be `ipp://171.16.5.218/USB1` in the 1.1 standard.

IPP clients   An *IPP client* needs to be installed on your computer together with an appropriate printer driver for proper IPP functionality. The IPP client is a tool that adds destination printers to your printer list.

The AXIS 5500/AXIS 5550 with integrated IPP is compatible with any 1.0 and 1.1 compliant IPP client.

The AXIS 5500/AXIS 5550 presents IPP printer objects to the client, one for each printer port. Some of the most common IPP client printing methods are described later on in this chapter. Please refer to your IPP client documentation for more specific information.

Currently Available IPP Clients on the Market:
- For Windows NT/2000: the Internet Printer Connection software from Hewlett Packard (can be downloaded from the Hewlett Packard Web site).
- **For Windows 2000/XP**: the Microsoft IPP Client (automatically installed with the Operating System).
- **For Windows 98, NT 4.0**: IPP clients can be downloaded from the Microsoft Web site.
- **For UNIX/Linux**: CUPS (can be downloaded from the Common Unix Printing System Web site at www.cups.org).

If you wish to print using iPrint over IPP, the following Axis snap-in tool is available from www.axis.com (Support | Select Software):

- AXIS IPP Gateway Comfiguration Snap-in for i-Print in NetWare 5.x. See the read-me file for installation instructions.

IPP User Requirements   The IPP protocol does not require any special configuration of the AXIS 5500/AXIS 5550, the IPP function is automatically activated when you install your print server.

IPP is platform independent and functional in Windows (NT, 98, Me and 2000/XP), Macintosh, NetWare and UNIX/Linux.

Firewall Considerations with IPP   If there are one or more firewalls between the IPP client and the server, you may have to make some changes to the firewall configuration. IPP uses TCP Port 631 for printing, so any firewalls between client and server must be configured to allow bi-directional traffic on that port. Please consult your network administrator if you think any configuration changes are necessary.

How to Print from Windows 98:   Before you print to an IPP printer you will need to know:

- **the http:// address of the print server.** The http:// address contains the **IP address** or **host name** of the print server and the **printer port name**.
- **the brand and type of the printer** in order to install the appropriate printer driver.

If your destination printer does not exist in your **Printer name** list, you need to add it. Adding an IPP printer to your printer list is described below.

1. Select the IPP printer to which you want to send your document. Choose the destination printer from the **Printer name** field (in **File** | **Print**).

2. When you press **Print**, the print job is sent over the Internet to the AXIS 5500/AXIS 5550, which then forwards the print job to the destination printer.

3. The recipient of the print job can collect the print job at the destination printer.

Adding an IPP Printer to your Printer List in Windows 98

1. Install the IPP client for Windows 98 on your computer. This IPP client can be downloaded from the Microsoft Web site.

2. Open **Start** | **Settings** | **Printers.**

3. Choose **Add Printer**, then **Network Printer**.

4. In the **Printer** field in the **Connect to Printers** window, write the http:// address of the destination printer.
(**Example**: http://171.16.5.218:631/USB1**)**

5. Select the appropriate printer driver corresponding to the destination printer.

6. Specify a name for the printer you wish to add to your printer list. Click **Finish.** The destination printer will be added to your printer list and you are ready to print using IPP.

How to Print from Windows NT:

Before you print to an IPP printer you will need to know:

- **the http:// address of the print server.** The http:// address contains the **IP address** or **host name** of the print server and the **printer port name**.

- **the brand and type of the printer** in order to install the appropriate printer driver.

1. First you need to select the IPP printer to which you want to send your document. Select the destination printer from your **Printer Name** list (in **File** | **Print** | **Printer Setup**).

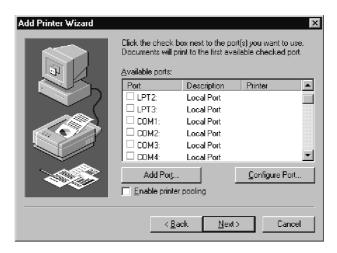   The printer name will begin with a URL: **http://...**

   If your destination printer does not exist in your **Printer Name** list, you need to add it. Adding an IPP printer to your printer list is described below.

2. When you press **Print**, the print job is sent over the Internet/WAN to the AXIS 5500/AXIS 5550, which then forwards the print job to the destination printer.

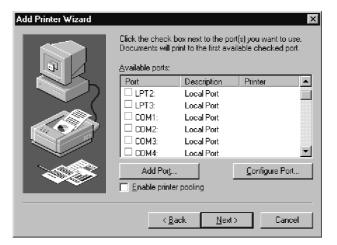3. The recipient of the print job can collect the print job at the destination printer.

Adding an IPP Printer to your Printer List in Windows NT

1. Install the Internet Printer Connection software from Hewlett Packard (can be downloaded from the Hewlett Packard Web site) on your computer.

2. Open **Start** | **Settings** | **Printers.**
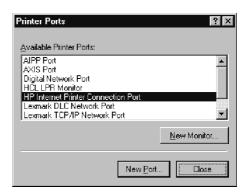
3. Choose **Add Printer.** The Add Printer Wizard will start.

4. Next, the Wizard will ask you if you want to install on **My Computer** or on a **Network print server**. Choose **My Computer** and click **Next.**
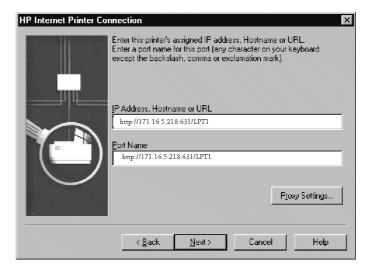

5. In the **Available Ports** window, click **Add Port**:

6. The **Printer Ports** dialog will appear, showing a list of **Available Printer Ports**.

7. Choose **The HP Internet Printer Connection Port** and click **New Port.**

8. The HP Internet Printer Connection will start. Click **Next**.

9. In the **IP Address, Host Name or URL** field, type the http:// address of the AXIS 5500/AXIS 5550 to which the destination printer is connected. The URL will automatically appear in the **Port Name** field as well:

(Example: http://171.16.5.218:631/LPT1 if you have an AXIS 5500 and want to address the parallel port or
http://171.16.5.218:631/USB1 to address the USB port.)
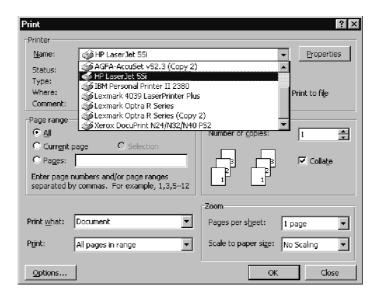
Click **Next**.

10. The Wizard will confirm the information you have entered. Click **Finish** to complete the installation and go back to the **Available Ports** list.

11. The IPP printer port list is now available in the **Available Ports** list. Click **Next.**

12. Next, choose a suitable driver for the destination printer and install it. Click **Next**
.

13. You will be asked if you want the newly added printer to be your default printer and if you want to share the printer on your network with other users. Choose the alternatives that suit your printing needs and click **Finish** to complete the installation.

14. The new printer will appear in your **Printer** window. You are now ready to start printing using IPP.

How to Print from Windows 2000/XP

Before you print to an IPP printer you will need to know:

- **the http:// address of the print server.** The http:// address contains the **IP address** or **host name** of the print server and the **printer port name**.

- **the brand and type of the printer** in order to install the appropriate printer driver.

1. Select the IPP printer to which you want to send your document. Choose the destination printer from the **Select Printer** field (in **File │ Print**).

   If your destination printer does not exist in your **Select Printer** list, you need to add it. Adding an IPP printer to your printer list is described below.

2. When you press **Print**, the print job is sent over the Internet to the AXIS 5500/AXIS 5550, which then forwards the print job to the destination printer.

3. The recipient of the print job can collect the print job at the destination printer.

Adding an IPP Printer to your Printer List in Windows 2000/XP

1. Choose **File │ Print** from the document you wish to print.

2. In the **Select Printer** field, click the **Add Printer** icon. The **Add Printer Wizard** will start. Click **Next**.

3. The Wizard will ask you if you want to install a local printer or a network printer. Choose **Network Printer** and click **Next**.
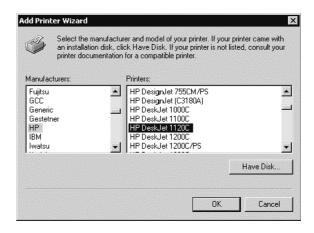
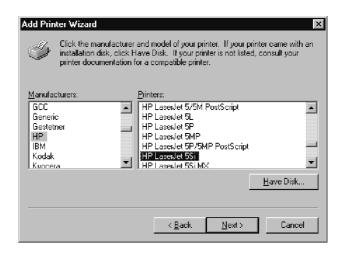4.   Enter the printer http:// address in the **URL** field.
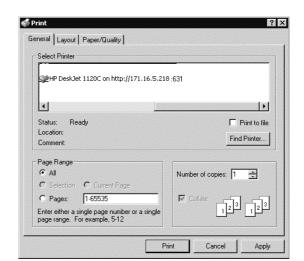
(Example: http://171.16.5.218:631/LPT1 if you have an AXIS 5500 and want to address the parallel port or
http://171.16.5.218:631/USB1 to address the USB port.)

Click **Next**.

5.   If you do not have a driver corresponding to the destination printer installed on your computer, the Wizard will prompt you to install one. Click **OK**.

6.   The Installation Wizard will ask you to select a printer driver corresponding to the destination printer. Select the printer driver from the list and click **OK**.

7.   The Wizard will ask you if you want the printer to be your default destination printer. Make your choice and click **Next** to complete the Add Printer Wizard installation.

8. The new printer is added to your **Select Printer** window:

9. You are now ready to print using IPP: specify your new destination printer from the printer list and click **Print**.

Logical Printers for Customized Printing

The AXIS 5500/AXIS 5550 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:

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

Each logical printer can be set 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 69.

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 AXIS 5500/AXIS 5550 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 ô ñ) are sometimes printed incorrectly.

The AXIS 5500/AXIS 5550 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 5500/AXIS 5550, 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 **USB1**.

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 **USB1**.

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 USB1. Similarly, the DEC printer data that is sent to logical printer PR2 converts to IBM PC Set 2 and is printed on USB1.

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: ^E_C&l1H (hex `1B 26 6C 31 48`). The string after print job should contain the command to select the lower tray: ^E_C&l4H (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.

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

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 $^E_CG1$ (hex 1B 47 31) with ^E_CY (hex 1B 59) for logical printer PR2.

Follow the instructions below to substitute command strings:

1. 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.

Hex code	Explanation
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 5500/AXIS 5550.

ASCII to Postscript Conversion

The AXIS 5500/AXIS 5550 AXIS 5500/AXIS 5550 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:

Page Format Parameter	Default Value	Comment
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.

Hex code	Explanation
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, if you have an AXIS 5500 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 **USB1**.

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 5500/AXIS 5550 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.

Network Speed

With the Network Speed parameter you can manually specify the speed at which you will send and receive network packages. You can change the Network Speed setting to correspond to the type of network you are using (10 or 100 Mbit).

To change the Network Speed in an Ethernet network, log in to the print server's internal Web pages and click **Admin | General Settings =>Change**. From here, you have the option of setting the network speed to:

Network Speed	Comment

AUTO_SENSE	This is the default value where the print server detects which speed is optimal for each network package you transfer.
10_HALF__DX	10 Half Duplex
10_FULL_DX	10 Full Duplex
100_HALF_DX	100 Half Duplex
100_FULL_DX	100 Full Duplex

NetWare Packet Signature
Level 1,2,3

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 *"NetWare Packet Signature"* on page 56 for detailed information.

Print Server Settings

Some useful settings that can be changed in the print server are described here. See the print server's **Help** pages in the Web interface for details.

Deleting Print Jobs   To delete a print job, log in to the print server's internal Web pages and click **Admin** | **Print Jobs.** To the right of every current print job there is a delete button. Click it to delete the print job.

E-mail Notification Parameters   Whenever an event that needs human intervention occurs in a network printer, the concerned person can be notified by e-mail. This 'trouble-report' contains a short and concise description of the event. Five events are covered: **Paper Jam, Out of Paper, Toner Low, No Toner, Printer Off-line**.

Follow these instructions to set the e-mail addresses of the people to whom the trouble-reports will be sent:

1. From your print server's internal Web page, go to **Admin** | **Network Settings** | **Detailed View** | **e-mail Notification.** The following options will appear:

Options	E-mail recipient
PAPER JAM	The person responsible for handling paper jams in the printer
OUT OF PAPER	The person responsible for filling the printer with paper
TONER LOW	The person responsible for filling up the toner in the printer
NO TONER	The person responsible for changing the toner in the printer
PRINTER OFFLINE	The person responsible for the overall maintenance of printer

2. Enter the respective e-mail addresses of the trouble-report recipients in the blank fields. Example: `name@company.com`

3. Click **OK** when done.

Important:

> Check that the **SMTP_SERVER.** and **DOMAIN_NAME.** parameters in the print server's internal Web pages are correct. These parameters are set in **Admin** | **Network Settings** | **Detailed View** | **TCP/IP**

Changing Language and Character Set

You can change the language and character set used for the print server's Web interface from the **User** mode:

1. Click the **Change** button next to 'Language'.

2. Choose your preferred language and character set from the drop-down lists, cllick OK and then press **F5** to refresh the view.

Flash Loading of Firmware over the Web

The firmware can easily be upgraded, since flash loading over the Web is possible from the print server's internal Web pages. Client software is not needed to upgrade the firmware. See *Upgrading from the Print Server's Internal Web Pages*, on page 100.

Enabling Secure Web Services — SSL/TLS

In a new and unconfigured AXIS 5500/AXIS 5550, SSL/TLS is disabled.

Certificates   To use SSL/TLS you have to create or obtain a digital certificate. There are two kinds of certificates: self-signed certificates and third party certificates.

- Self-signed certificates are less secure but normally they are sufficiently secure for small networks with no public access. You generate such a certificate yourself and there are no fees to pay.
- For large networks and for networks with public access, third party certificates from a trusted source are normally used. You obtain them for a yearly fee from a Certificate Authority (CA).

Among other things, a certificate gives information about which domain it is issued for, its validity and the name of issuer. With SSL/TLS enabled, the installed certificate authenticates the print server to the client and all information exchanged between them will be encrypted.

Enabling SSL via the Web Interface   You enable the print server's secure Web services through its internal Web pages. If you have a valid certificate loaded, select **Admin** | **Network Settings** | **Detailed View** | **TCP/IP** and set the **HTTPS Enabled** parameter to **Yes**.

If you do not have a valid certificate loaded, select **Admin** | **Security Settings** and click **Create**.

Decide whether you want to generate a self-signed certificate or if you want to generate a certificate request.

Generating a Self–Signed Certificate   Select the **Generate Self–Signed Certificate** radio button and click **Next**.

Enter the data asked for:

- Country Name: *Example*: US
- State or Province Name: *Example*: California
- Locality Name: *Example*: Los Angeles
- Organization Name: *Example:* Printers Inc
- Organizational Unit Name: *Example:* Sales Dept
- Common Name*: *Example:* printserver2@company.com
- Current Date (yyyy/mm/dd): *Example:* 2003/03/27
- Validity Duration (in days): *Example:* 365
  * Common Name denotes the name given to the print server in the network. If you do not have a DNS server on your network, you must include the domain name, e. g. xxx@<u>company.com</u>

Click **Finish** and the print server will generate a public/private key pair as well as the self-signed certificate itself (this process will take a few minutes) and store these data in the print server. When the certificate is generated, the print server automatically loads it into your present browser session. The browser reports the new state by changing into https mode. In the browser's Security Alert box, select **View Certificate** and **Install Certificate**. Follow the

instructions of the Install Certificate wizard.

Generating a Certificate Request

Select the **Generate Certificate Request** radio button and click **Next**.

Enter the data asked for:

- Country Name: *Example:* US
- State or Province Name: *Example:* California
- Locality Name: *Example:* Los Angeles
- Organization Name: *Example:* Printers Inc
- Organizational Unit Name: *Example:* Sales Dept
- Common Name*: *Example:* printserver2@company.com
- Current Date (yyyy/mm/dd): *Example:* 2003/03/27
- Validity Duration (in days): *Example:* 365
  * Common Name denotes the name given to the print server in the network. If you do not have a DNS server on your network, you must include the domain name, e. g. xxx@company.com

Click **Finish**.

Now the print server will generate a public/private key pair and a PEM-encoded Certificate Request, called *cert.pem*. Click **Save**, **Save this file to disk** and **Save**.

Send this Certificate Request to your Certificate Authority for their signature.

Importing a Certificate

When you receive the PEM-encoded certificate from your Certificate Authority, open the print server's Web interface and select **Admin** | **Security Settings**. Click **Import** and follow the instructions on the screen.

https://

Whenever SSL/TLS is enabled, you can only reach the print server's Web interface through the secure services. The unsecure way via http:// is closed and now you have to address the print server's Web interface in the secure way, i.e. via https://.

Disabling Protocols

To further increase security, you must disable protocols that are considered insecure;

- FTP (used by AXIS ThinWizard. If FTP is disabled, AXIS ThinWizard can not function properly.)
- Telnet
- Auto-IP
- DHCP
- BOOTP
- Remote Config (used by AXIS NetPilot)
- SNMPv1 Configuration

To disable these protocols, go to **Admin** | **Security Settings** | **Protocol Settings** | **Detailed View** and mark the check boxes. Click **OK** to finish. *Only enabled protocols will be visible from this view!*

To enable these protocols, select **Admin** | **Network Settings** | **Detailed View** |

TCP/IP for FTP, Telnet, AutoIP, DHCP and BOOTP. Remote Config is enabled via **Admin | General Settings | RConfig Support**.

Important: To ensure maximum security, it is highly recommended that you change your Administrator password after generating a certificate and disabling insecure protocols! This is done from **Admin | General Settings | Change => | General | Root Password.**

Checking SSL/TLS Status To check SSL/TLS status, open the print server's Web interface and select **Admin | Network Settings | Detailed View| TCP/IP** to see if the **HTTPS Enabled** parameter is set to Yes or No.

To View a Certificate To view a Certificate, open the print server's Web interface, select **Admin | Security Settings** and click **View** next to the Certificate.

To Delete a Certificate To delete a Certificate, open the print server's Web interface, select **Admin | Security Settings** and click **Delete** next to the Certificate.

Section 10   Troubleshooting

This section provides useful information to help you resolve difficulties you might have with your AXIS 5500/AXIS 5550. Fault symptoms, possible causes and remedial actions are provided within a quick reference table.

Please visit the Axis Web site for latest troubleshooting tips, more support and additional help through the FAQ database or to fill in and submit a Support question.

General   The USB port in an AXIS 5500 / AXIS 5550 only supports USB printers. If any other USB device has been connected to this port, the print server must be restarted before it can function properly again.

LED Indicators

Indicator	Color/Behavior	Explanation
Power	Yellow	OK
	Not lit	No power/Error
Network	Orange	OK - network connected
	Orange flashing	Activity on network
	Not lit	No physical connection to the network

Web Interface

Symptoms	Possible causes	Remedial actions
The AXIS 5500/AXIS 5550 Web interface cannot be accessed from a Web browser.	The AXIS 5500/AXIS 5550 is not connected properly.	1. Check Power and Network indicator. 2. Check that assignment of IP addresses for the AXIS 5500/AXIS 5550 is correct. 3. To further check the IP addresses, run the Ping command from another computer as described in "IP address check" at the end of this chapter. Follow the appropriate recommendations.
	Problem with your proxy server.	Verify the proxy server settings in your Web browser.
	Other networking problems.	1. Verify that your network is accessible through your network socket. 2. Verify that your network cable is functional.

IP Address Check with Ping

By sending a data packet to a specific IP address and waiting for a reply, Ping can determine whether that IP address is accessible. Ping can also help you to determine IP address conflicts with your AXIS 5500/AXIS 5550 and troubleshoot TCP/IP problems on the network. Follow the instructions below to diagnose your problem.

Windows:

Open a Command Prompt and enter the following commands:

	Syntax	*Example*
1.	arp –s <IP address> <Ethernet address>	arp –s 192.168.3.191 00-40-8c-10-00-86
2.	ping <IP address>	ping 192.168.3.191
3.	arp –d <IP address>	arp –d 192.168.3.191

The host will return **reply from 192.168.3.191,** or a similar message. This indicates that the address has been set and that communication is established

UNIX/Linux and MacOSX

Open a Terminal and enter the following commands:

	Syntax	*Example*
1.	arp –s <IP address> <Ethernet address>	arp –s 192.168.3.191 00:40:8c:10:00:86
2.	ping <IP address>	ping 192.168.3.191
3.	arp –d <IP address>	arp –d 192.168.3.191

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

Replies:

Subsequent replies will provide an explanation of the cause of the problem. Replies from DOS can be interpreted as defined in the table below (for UNIX/Linux replies please refer to the UNIX/Linux chapter of this manual):

Ping Reply	Interpretation and recommendation	
	Axis Network Print Server connected	Axis Network Print Server disconnected
bytes = 32 time = 2 ms...... - or something similar	The AXIS 5500/AXIS 5550 is responding correctly. There are probably no conflicts with the IP address - disconnect the AXIS 5500/AXIS 5550 and ping again to verify.	The IP address is already in use and cannot be used again. You must obtain a new IP address for your AXIS 5500/AXIS 5550.
destination host unreachable	The AXIS 5500/AXIS 5550 is not accessible. Check your network settings.	–
request timed out	The IP address is not in use. You are either pinging the wrong IP address or your AXIS 5500/AXIS 5550 does not have the correct IP address.	This IP address is not used by anyone and is available for use for your AXIS 5500/AXIS 5550. Set the IP address again, power on the AXIS 5500/AXIS 5550 and then try accessing the unit.
no response from ping command	The AXIS 5500/AXIS 5550 is not accessible. Check your network settings.	–

USB port

> If the USB port option does not appear when adding printers in Windows 2000 and XP, follow these instructions to emulate a USB port:
>
> Windows XP:
>
> 1. Go to **Start** | **Printers and Faxes** and click the **Add a Printer** icon to start the Add Printer Wizard. Click **Next.**
>
> Windows 2000:
>
> 1. Go to **Start** | **Settings** | **Printers** and click the **Add Printer** icon to start the Add Printer Wizard. Click **Next.**
> 2. Select the **Local Printer** radio button and click **Next**. 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.**
> 3. Enter the name of the print server (Example: AXIS100086 or the IP address) and click **Next.** Enter the **Device Port** you want to use:
>   **5500:** choose LPT1
>   **5550:** Choose LPT2 for if you are installing a USB port and LPT1 if you are installing a parallel port. Click **Next** and **Finish**.
>   Select **Manufacturer and Printer** from the lists. Click **Next**. Choose whether you want to keep the existing driver or to replace it. If you already have the printer's driver installed, you will be asked whether to keep it or to replace it. Click **Next**.
>   Supply a name for the printer and choose whether you want to make it your default printer. Click **Next.**
>   Choose whether you want to share the printer with other network users. Click **Next** and **Finish**.
> 4. Go to **Start** | **(Settings)** | **Printers (and Faxes)** and highlight your newly installed printer. Right-click and choose **Properties.** Choose the **Ports** tab (make sure your printer is highlighted) and then **Configure Port...** Under **Protocol**, click the **Raw** radio button and then define the printer port under **Raw Settings – Port Number** as follows:
>   **5500:** 9100
>   **5550:** USB = 9101, LPT1 = 9100
>   Click **OK** and close the window. Print a test page to verify your installation.

Axis Support
Server Report

In order to obtain optimal support from Axis support technicians, please follow these instructions when filling in and submitting a Support question.

1. Go to the print server's Web pages by typing the print server's IP address in the **Address/Location** field of your Web browser.

2. Go to **Admin** | **Support**. Click the **Server Report** link. A new window will open.

3. Save the Server report as an HTML file (with an .html file extension) and go to the Axis Web site.

4. Choose **Support** and report your case, attaching the Server Report.

Please visit the Axis Web site for more support and additional help through the FAQ database.

Section 11   Updating the Firmware

Upgrading the Firmware

You can upgrade the AXIS 5500/AXIS 5550 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 Methods"* on page 57 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 **Manage Network** button in the AXIS ThinWizard main menu.

2. Select a network group from the drop-down list. You can only update the servers that are included in the selected network group.

3. All AXIS servers included in the network group appear. Click the **Firmware** button to start the Upgrade Wizard.

4. Follow the instructions that are presented to you to complete the installation.

Refer to *"Using AXIS ThinWizard for Print Server Management"* on page 63, for more information about AXIS ThinWizard.

Upgrading over the Network 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 5500/AXIS 5550 before you can use this upgrading method.

Follow the procedures below to upgrade the print server:

Caution!

> Be careful not to interrupt the file transfer. If the transfer is interrupted, the AXIS 5500/AXIS 5550 may have to be re-initialized by your dealer.

1. From a DOS command prompt, log in to the AXIS 5500/AXIS 5550 with the command:
    `ftp <host name>` or `ftp <IP address>`

2. You will be prompted for user id and password. Use the user id `root`, which has the default password `pass`.

3. Type the command: `binary` to change to binary transfer mode.

4. Type the command: `put <firmware_name> FLASH` where `<firmware_name>` is the name of the new print server firmware.

5. Wait for the flash loading operation to finish. This normally takes 1 to 4 minutes. After that, the unit will automatically restart with the new print server firmware.

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

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
- AXIS Network Product CD
- your local dealer

Note:

> If you are upgrading your print servers using AXIS ThinWizard, you do not need to obtain the firmware file prior to the upgrading process, provided that you are connected to the Internet.

Section 12   The Test Button

The test button is located on the front right hand side of the AXIS 5500/AXIS 5550 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.

The Test Page   Press the test button once to print a test page. The test page contains basic information about the AXIS 5500/AXIS 5550. It is recommended that you print a test page every time you connect the print server to a printer.

Note:

> AXIS 5550 has two printer ports. If just one of ports is connected to a printer, the test page will be printed on that port. If each port is connected to a printer, the default setting will send the test page to the parallel printer. The default behavior can be changed from the print server's internal Web pages under **Admin | General Settings =>Change**.

The Parameter List   Press the test button twice to print a parameter list showing the current AXIS 5500/AXIS 5550 settings. This list provides comprehensive details of all the parameters and their current status. Refer to *Section 14 The Parameter List*, on page 107.

If you want to change any of the parameters, use one of the methods described in *Section 8 Print Server Management Methods*, on page 57.

Factory Default   Follow the instructions below to restore most of the print server settings to factory default values:

1. Remove the Power Adapter to switch off the AXIS 5500/AXIS 5550.

2. Remove the network cable.

3. Press and hold down the test button while you plug the Power Adapter back in. Continue to hold down the test button until the network indicator begins to flash at one-second intervals. This should take about 5 seconds.

4. Release the test button and wait until the network indicator flashes at least five times.

5. Press and hold down the test button again until the network indicator remains constantly lit.

6. Disconnect the Power Adapter.

7. Insert the network cable.

8. Restart the AXIS 5500/AXIS 5550 by reconnecting the Power Adapter.

Note:

A Factory Default will reset all print server parameters and settings to their factory default values except

- Node Address (NODE_ADDR.)
- IP Address (INT_ADDR.)
- DHCP enabled or disabled (DHCP_ENB.)
- Installed certificate
- Private key

If you want to change these parameters, use any standard Web browser. Please refer to *Section 8 Print Server Management Methods*, on page 57.

Section 13   Technical Specification

Supported Printers   All USB printers except Windows GDI printers.

Supported Systems

Microsoft Windows: Windows NT ver 4.0, Windows 98, Windows 2000, Windows Me, Windows XP.
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.

Microsoft 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.
Security	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/PCONSOLE.
	AXIS ThinWizard for monitoring, configuration and firmware upgrading.
Supported Languages	English, French, German, Spanish and Italian.
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	AXIS 5500: One USB printer port. AXIS 5550: One parallel port with a CN36 (male) connector and one USB port.

Power Consumption	Maximum 5.6 W
	Power provided by Power Adapter type PS-H: 5.1V DC 2000 mA
Dimensions	Height x Width x Depth
	5500: 1.1in (29 mm), 2.4in (62 mm), 5.1in (130 mm)
	5550: 1.1in (29 mm), 2.4in (62 mm), 4.6in (117 mm)
	Weight
	5500: 0.17lb (77g)
	5550: 0.18lb (81g)
Environmental	
Temperature:	40 - 105 °F (5 - 40 °C)
Approvals	
EMC:	EN 55 024:1998 EN 55 022:1998 + A1 (CISPR 22:1997 + A1) Class B EN 61000-3-2:2000 EN 61000-3-3:1995+A1 VCCI:2002 Class B ITE (CISPR 22:1997 + A1:2000, Class B C-tick AS/NZS 3548 FCC part 15, subpart B, Class B, demonstrated by compliance with EN 55022:1998 (CISPR 22:1997) Class B.
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.

Section 14   The Parameter List

This section provides an overview of the AXIS 5500 and AXIS 5550 print server parameters. See the Axis Web site for latest technical information.

The *config* File

See *Using FTP for Print Server Management*, on page 69 for information on how to fetch the print server's *config* file. The *config* file is built up like this:

```
--- General Menu

NODE_ADDR.   : 00 40 8C 18 1C F0

NETWORK_SPEED. : AUTO_SENSE  (AUTO_SENSE, 10_HALF_DX,
10_FULL_DX, 100_HALF_DX, 100_FULL_DX)

PS_NAME.     : AXIS181CF0

ROOT_PWD.  : pass

USERS.     :

BASE_URL.    : www.axis.com

CHARSET.     : ISO-8859-1  (ISO-8859-1, UTF-8)

LANG.        : English  (English, French, German, Spanish,
Italian)

AXIS_PRINT_SYSTEM. : YES

RCONFIG_ENB. : YES

DEF_OUT.     : PR1  (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8,
LPT1, USB1)

SYS_LOC.     :

SYS_CONT.    :
```

To the left of the colon character (":"), you will find each parameter. To the right of the colon you see the present value or state of the parameter, followed by a list of possible values (within brackets). **Example:** The language parameter `LANG.` presently is set to `English`. Possible values for this parameter are `English, French, German, Spanish, Italian`.

Parameters, Default Values, Possible Values and Comments

After a change, most parameters take effect for the next print job. If *Requires Restart* appears in a parameter comment (see below), you must restart the AXIS 5500/AXIS 5550 before the new setting for that parameter takes effect.

Four parameters (`ROOT_PWD.`, `USERS.`, `PROS_PWD.` and `WRT_COM.`) only appear when you are logged in to the print server as *root*. They will not be printed when you are printing the parameter list using the test button.

In the Parameter Lists below, Default values and Possible values are shown for an AXIS 5550, which has two printer ports: one parallel port (LPT1) and one USB port (USB1).

AXIS 5500 has one printer port: a USB port, which means that LPT1 is not among the Possible values. In this print server, USB1 is the default port.

Below, all parameters are listed in the same order as they appear in the *config* file:

General Menu

In the print server's Web interface, select **Admin** | **General Settings => Change.**

Parameter	Default value (Possible values)	Comments
NODE_ADDR.	xx xx xx xx xx xx	Node Address and serial number of the print server
NETWORK_SPEED.	AUTO_SENSE (AUTO_SENSE, 10_HALF_DX, 10_FULL_DX, 100_HALF_DX, 100_FULL_DX)	Network speed
PS_NAME.	AXISxxxxxx	Print server name, where the x:s match the last 6 hex digits of the serial number
ROOT_PWD.	pass	Root password
USERS.		User and Printer Access List
BASE_URL.	www.axis.com	Base URL
CHARSET.	ISO-8859-1 (ISO-8859-1, UTF-8)	Character set
LANG.	English (English, French, German, Spanish, Italian)	Language to use in the Web interface
AXIS_PRINT_SYSTEM.	YES (YES, NO)	Axis print system support
RCONFIG_ENB.	YES (YES, NO)	Enables the remote config protocol used by AXIS Net-Pilot
DEF_OUT.	PR1 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, LPT1, USB1)	Default printout destination
SYS_LOC.		Location of print server

SYS_CONT.		Print server responsible person

TCP/IP Menu In the print server's Web interface, select **Admin** │ **Network Settings** │ **Detailed View** │ **TCP/IP**.

Parameter	*Default value (Possible values)*	*Comments*
TCP_ENB.	YES (YES, NO)	TCP/IP Enabled
INT_ADDR.	x x x x	IP address
DEF_ROUT.	x x x x	Default router (enter 0 0 0 0 for no router)
NET_MASK.	x x x x	Net Mask (e.g. 255 255 255 0 for class C; 0 0 0 0 for auto-sense)
HTTPS_ENB.	NO (YES, NO)	HTTPS Enabled
PROS_PWD.	netprinter	PROS password
PROS_PRT.	35	PROS TCP port number
LPD_BANN.	OFF (OFF, AUTO, LAST)	LPD banner page mode
DHCP_ENB.	YES (YES, NO)	DHCP Enabled
AUTOIP_ENB.	YES (YES, NO)	AutoIP Enabled
BOOTP_ENB.	YES (YES, NO)	BOOTP Enabled
RARP_ENB.	YES (YES, NO)	RARP Enabled
WINS_ENB.	YES (YES, NO)	WINS Enabled
WINS_ADDR1.	x x x x	Primary WINS server address
WINS_ADDR2.	x x x x	Secondary WINS server address
NBT_SCOPE_ID.		Defines the NetBIOS scope to be used with WINS name registration
DNS_ENB.	YES (YES, NO)	DNS Enabled
DNS_ADDR1.	x x x x	Primary DNS server address
DNS_ADDR2.	x x x x	Secondary DNS server address
DOMAIN_NAME.		Domain name, defining the domain to which this AXIS 5500/AXIS 5550 belongs
SLP_SCOPE_LIST.	DEFAULT	Defines the SLP scope to which this print server belongs
SMTP_SERVER.		Mail server to use for e-mail notification
FTP_ENB.	YES (YES, NO)	FTP Enabled
TELNET_ENB.	YES (YES, NO)	Telnet Enabled
DEFAULT_RAW_TCP.	9100-9101 (9100-9101, CLOSED)	Default port for raw TCP (See also "TCP Ports Opened for Raw Printing" on page 119.)
RTN_OPT.	NO (YES, NO)	Reverse Telnet options Enabled
RTEL_PR1.	0	PR1 Reverse Telnet Port Number
RTEL_PR2.	0	PR2 Reverse Telnet Port Number
RTEL_PR3.	0	PR3 Reverse Telnet Port Number

RTEL_PR4.	0	PR4 Reverse Telnet Port Number
RTEL_PR5.	0	PR5 Reverse Telnet Port Number
RTEL_PR6.	0	PR6 Reverse Telnet Port Number
RTEL_PR7.	0	PR7 Reverse Telnet Port Number
RTEL_PR8.	0	PR8 Reverse Telnet Port Number

SNMP Menu

In the print server's Web interface, select **Admin** | **Network Settings** | **Detailed View** | **SNMP**.

Parameter	Default value (Possible values)	Comments
SNMP_ENB.	YES	SNMP traffic enabled/disabled
SNMP_V1_CONFIG.	YES	SNMP parameter configuration enabled/disabled
READ_COM.	public	Read Community
WRT_COM.	pass	Read/Write Community
TRAPADDR.	0 0 0 0	Trap Address
TRAP_COM.	public	Trap Community
SYS_NAME.		System Name
SNMP_AUT.	DISABLE (DISABLE, ENABLE)	Authentication Failure Trap
TRAP_PRT.	DISABLE (DISABLE, ENABLE)	Printer Failure Trap

NetWare Menu

In the print server's Web interface, select **Admin** | **Network Settings** | **Detailed View** | **NetWare**.

Parameter	Default value (Possible values)	Comments
NETW_ENB.	YES (YES, NO)	NetWare Enabled
NETW_TRANSPORT_PROTOCOL.	DUAL_STACK (IPX_ONLY, IP_ONLY, DUAL_STACK)	NetWare Transport protocol and NDPS types to use when NETW_ENB. is enabled. See *"NetWare Parameter Combinations"* on page 118 for additional information
NDPS.	TCP_AND_SPX (TCP_AND_SPX, TCP_ONLY, SPX_ONLY, DISABLED)	
JOB_CHECK_DELAY.	5	Print server queue polling interval
CONF_CHECK_DELAY.	300	Interval between automatic configuration checks
FR_802_3.	YES (YES, NO)	IEEE 802.3 Frame Type Enabled
FR_ETH_2.	YES (YES, NO)	Ethernet II Frame Type Enabled
FR_802_2.	YES (YES, NO)	IEEE 802.2 Frame Type Enabled
FR_SNAP.	YES (YES, NO)	SNAP Frame Type Enabled
NCP_BURST_MODE.	YES (YES, NO)	NCP Burst Mode Enabled *(Requires Restart)*
PSERVER_NDS_TREE.		The PSERVER_NDS parameters specify which NDS tree or file server the AXIS 5500/AXIS 5550 will log in to. It also specifies the path to the print server object in the tree.
PSERVER_NDS_FILESERVER.		
PSERVER_NDS_DISTINGUISHED_NAME.		

PSERVER_BINDERY1.		Bindery file server name
PSERVER_BINDERY2.		Bindery file server name
PSERVER_BINDERY3.		Bindery file server name
PSERVER_BINDERY4.		Bindery file server name
PSERVER_BINDERY5.		Bindery file server name
PSERVER_BINDERY6.		Bindery file server name
PSERVER_BINDERY7.		Bindery file server name
PSERVER_BINDERY8.		Bindery file server name
PSERVER_BINDERY9.		Bindery file server name
PSERVER_BINDERY10.		Bindery file server name
PSERVER_BINDERY11.		Bindery file server name
PSERVER_BINDERY12.		Bindery file server name
PSERVER_BINDERY13.		Bindery file server name
PSERVER_BINDERY14.		Bindery file server name
PSERVER_BINDERY15.		Bindery file server name
PSERVER_BINDERY16.		Bindery file server name
NPRINTER1.		Print server name and slot number
NPRINTER2.		Print server name and slot number
NPRINTER3.		Print server name and slot number
NPRINTER4.		Print server name and slot number
NPRINTER5.		Print server name and slot number
NPRINTER6.		Print server name and slot number
NPRINTER7.		Print server name and slot number
NPRINTER8.		Print server name and slot number

NetBIOS/NetBEUI Menu In the print server's Web interface, select **Admin** | **Network Settings** | **Detailed View** | **Windows, OS2**.

Parameter	*Default value (Possible values)*	*Comments*
LSLM_ENB.	YES (YES, NO)	NetBIOS/NetBEUI Enabled
NB_FR_TYPE.	FR_AUTO (FR_AUTO, FR_802_2, FR_DIX)	NetBIOS Frame Type *(Requires Restart)*
LPRINT_1.	AXxxxxxx.LP1	Name Printer 1 In AXIS 5500, LPRINT_1. has AXxxxxxx.US1 as default
LLOGIC_1.	PR1 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, LPT1, USB1)	Logical Printer for Printer 1
LPRINT_2.	AXxxxxxx.US1	Name Printer 2
LLOGIC_2.	PR2 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, LPT1, USB1)	Logical Printer for Printer 2
LPRINT_3.		Name Printer 3

LLOGIC_3.	PR3 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, LPT1, USB1)	Logical Printer for Printer 3
LPRINT_4.		Name Printer 4 Name
LLOGIC_4.	PR4 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, LPT1, USB1)	Logical Printer for Printer 4
LPRINT_5.		Name Printer 5
LLOGIC_5.	PR5 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, LPT1, USB1)	Logical Printer for Printer 5
LPRINT_6.		Name Printer 6
LLOGIC_6.	PR6 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, LPT1, USB1)	Logical Printer for Printer 6
LPRINT_7.		Name Printer 7
LLOGIC_7.	PR7 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, LPT1, USB1)	Logical Printer for Printer 7
LPRINT_8.		Name Printer 8
LLOGIC_8.	PR8 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, LPT1, USB1)	Logical Printer for Printer 8

AppleTalk Menu   In the print server's Web interface, select **Admin** │ **Network Settings** │ **Detailed View** │ **Macintosh**.

Parameter	Default value (Possible values)	Comments
ATLK_ENB.	YES (YES, NO)	AppleTalk Enabled
ATK_ZONE.		AppleTalk Zone
ZONER_EN.	YES (YES, NO)	HP Zoner Enabled
ATK_FONT.	DEFAULT (DEFAULT, 35N, ALL)	Font (PostScript Font Set)
AUTO_DT_PRIN.	NO (YES, NO)	Autodetect Printer Enabled
APRINT_1.	AXISxxxxxx_LPT1	Name of Printer 1, where xxxxxx are the last six digits of the serial number. In AXIS 5500, APRINT_1. has AXISxxxxxx_USB1 as default
ATYPE_1.	LaserWriter	Type Printer 1
ALOGIC_1.	PR1 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, LPT1, USB1)	Logical Printer for Printer 1
BINARY_TYPE_1.	TBCP (TBCP, BCP, NONE)	Binary Protocol for APRINT_1
APRINT_2.	AXISxxxxxx_USB1	Name Printer 2, where xxxxxx are the last six digits of the serial number
ATYPE_2.	LaserWriter	Type Printer 2
ALOGIC_2.	PR2 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, LPT1, USB1)	Logical Printer for Printer 2
BINARY_TYPE_2.	TBCP (TBCP, BCP, NONE)	Binary Protocol for APRINT_2

Printer1 Menu
In the print server's Web interface, select **Admin | Logical Printers | PR1.**

Parameter	Default value (Possible values)	Comments
PR1_OUT.	LPT1 (NONE, LPT1, USB1)	Physical Port In AXIS 5500, PR1_OUT. points to USB1 as default
PR1_NAME.		
PR1_SCND.	PR1 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8)	Secondary Printer
PR1_WAIT.	YES (YES, NO)	Wait on Busy
PR1_IN.	AUTO (AUTO, NONE)	Read Back Port (Read-Back of information)
PR1_BEF.		String Before Print Job
PR1_STR.		String Substitutions
PR1_CSET.	NONE (NONE, ISO>IBM, 7UK>IBM, 7SW>IBM, 7GE>IBM, 7FR>IBM, 7ND>IBM, DEC>IBM)	Character Set Conversion
PR1_FILT.	NONE (NONE, POSTSCR, AUTO_PS)	Printer Language Translation
PR1_AFT.		String After Print Job
PR1_DUMP.	NO (YES, NO)	Hex Dump Mode Enabled
PR1_SIZE.	A4 (A4, LETTER, LEGAL, EXECUT)	PostScript Page Size
PR1_ORNT.	PORTR (PORTR, LANDS, R_PORTR, R_LANDS)	PostScript Page Orientation
PR1_FORM.	66 0 100 60 30 50	PostScript Page Format *(MPL, MPP, CPI, LPI, LM, TM)*
PR1_FONT.		PostScript Font *(Courier when not specified)*

Printer2 Menu
In the print server's Web interface, select **Admin | Logical Printers | PR2.**

Parameter	Default value (Possible values)	Comments
PR2_OUT.	USB1 (NONE, LPT1, USB1)	Physical Port
PR2_NAME.		
PR2_SCND.	PR2 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8)	Secondary Printer
PR2_WAIT.	YES (YES, NO)	Wait on Busy
PR2_IN.	AUTO (AUTO, NONE)	Read Back Port (Read-Back of information)
PR2_BEF.		String Before Print Job
PR2_STR.		String Substitutions
PR2_CSET.	NONE (NONE, ISO>IBM, 7UK>IBM, 7SW>IBM, 7GE>IBM, 7FR>IBM, 7ND>IBM, DEC>IBM)	Character Set Conversion
PR2_FILT.	NONE (NONE, POSTSCR, AUTO_PS)	Printer Language Translation
PR2_AFT.		String After Print Job
PR2_DUMP.	NO (YES, NO)	Hex Dump Mode Enabled
PR2_SIZE.	A4 (A4, LETTER, LEGAL, EXECUT)	PostScript Page Size
PR2_ORNT.	PORTR (PORTR, LANDS, R_PORTR, R_LANDS)	PostScript Page Orientation
PR2_FORM.	66 0 100 60 30 50	PostScript Page Format *(MPL, MPP, CPI, LPI, LM, TM)*

Parameter	Default value (Possible values)	Comments
PR2_FONT.		PostScript Font *(Courier when not specified)*

Printer3 Menu

In the print server's Web interface, select **Admin │ Logical Printers │ PR3**.

Parameter	Default value (Possible values)	Comments
PR3_OUT.	LPT1 (NONE, LPT1, USB1)	Physical Port In AXIS 5500, PR3_OUT. points to USB1 as default
PR3_NAME.		
PR3_SCND.	PR3 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8)	Secondary Printer
PR3_WAIT.	YES (YES, NO)	Wait on Busy
PR3_IN.	AUTO (AUTO, NONE)	Read Back Port (Read-Back of information)
PR3_BEF.		String Before Print Job
PR3_STR.		String Substitutions
PR3_CSET.	NONE (NONE, ISO>IBM, 7UK>IBM, 7SW>IBM, 7GE>IBM, 7FR>IBM, 7ND>IBM, DEC>IBM)	Character Set Conversion
PR3_FILT.	NONE (NONE, POSTSCR, AUTO_PS)	Printer Language Translation
PR3_AFT.		String After Print Job
PR3_DUMP.	NO (YES, NO)	Hex Dump Mode Enabled
PR3_SIZE.	A4 (A4, LETTER, LEGAL, EXECUT)	PostScript Page Size
PR3_ORNT.	PORTR (PORTR, LANDS, R_PORTR, R_LANDS)	PostScript Page Orientation
PR3_FORM.	66 0 100 60 30 50	PostScript Page Format *(MPL, MPP, CPI, LPI, LM, TM)*
PR3_FONT.		PostScript Font *(Courier when not specified)*

Printer4 Menu

In the print server's Web interface, select **Admin │ Logical Printers │ PR4**.

Parameter	Default value (Possible values)	Comments
PR4_OUT.	USB1 (NONE, LPT1, USB1)	Physical Port
PR4_NAME.		
PR4_SCND.	PR4 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8)	Secondary Printer
PR4_WAIT.	YES (YES, NO)	Wait on Busy
PR4_IN.	AUTO (AUTO, NONE)	Read Back Port (Read-Back of information)
PR4_BEF.		String Before Print Job
PR4_STR.		String Substitutions
PR4_CSET.	NONE (NONE, ISO>IBM, 7UK>IBM, 7SW>IBM, 7GE>IBM, 7FR>IBM, 7ND>IBM, DEC>IBM)	Character Set Conversion
PR4_FILT.	NONE (NONE, POSTSCR, AUTO_PS)	Printer Language Translation
PR4_AFT.		String After Print Job
PR4_DUMP.	NO (YES, NO)	Hex Dump Mode Enabled
PR4_SIZE.	A4 (A4, LETTER, LEGAL, EXECUT)	PostScript Page Size

PR4_ORNT.	PORTR (PORTR, LANDS, R_PORTR, R_LANDS)	PostScript Page Orientation
PR4_FORM.	66 0 100 60 30 50	PostScript Page Format *(MPL, MPP, CPI, LPI, LM, TM)*
PR4_FONT.		PostScript Font *(Courier when not specified)*

Printer5 Menu

In the print server's Web interface, select **Admin** │ **Logical Printers** │ **PR5**.

Parameter	*Default value (Possible values)*	*Comments*
PR5_OUT.	LPT1 (NONE, LPT1, USB1)	Physical Port In AXIS 5500, PR5_OUT. points to USB1 as default
PR5_NAME.		
PR5_SCND.	PR5 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8)	Secondary Printer
PR5_WAIT.	YES (YES, NO)	Wait on Busy
PR5_IN.	AUTO (AUTO, NONE)	Read Back Port (Read-Back of information)
PR5_BEF.		String Before Print Job
PR5_STR.	01 0A 02 0D 0A	String Substitutions
PR5_CSET.	NONE (NONE, ISO>IBM, 7UK>IBM, 7SW>IBM, 7GE>IBM, 7FR>IBM, 7ND>IBM, DEC>IBM)	Character Set Conversion
PR5_FILT.	NONE (NONE, POSTSCR, AUTO_PS)	Printer Language Translation
PR5_AFT.		String After Print Job
PR5_DUMP.	NO (YES, NO)	Hex Dump Mode Enabled
PR5_SIZE.	A4 (A4, LETTER, LEGAL, EXECUT)	PostScript Page Size
PR5_ORNT.	PORTR (PORTR, LANDS, R_PORTR, R_LANDS)	PostScript Page Orientation
PR5_FORM.	66 0 100 60 30 50	PostScript Page Format *(MPL, MPP, CPI, LPI, LM, TM)*
PR5_FONT.		PostScript Font *(Courier when not specified)*

Printer6 Menu

In the print server's Web interface, select **Admin** │ **Logical Printers** │ **PR6**.

Parameter	*Default value (Possible values)*	*Comments*
PR6_OUT.	USB1 (NONE, LPT1, USB1)	Physical Port
PR6_NAME.		
PR6_SCND.	PR6 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8)	Secondary Printer
PR6_WAIT.	YES (YES, NO)	Wait on Busy
PR6_IN.	AUTO (AUTO, NONE)	Read Back Port (Read-Back of information)
PR6_BEF.		String Before Print Job
PR6_STR.	01 0A 02 0D 0A	String Substitutions
PR6_CSET.	NONE (NONE, ISO>IBM, 7UK>IBM, 7SW>IBM, 7GE>IBM, 7FR>IBM, 7ND>IBM, DEC>IBM)	Character Set Conversion
PR6_FILT.	NONE (NONE, POSTSCR, AUTO_PS)	Printer Language Translation
PR6_AFT.		String After Print Job

PR6_DUMP.	NO (YES, NO)	Hex Dump Mode Enabled
PR6_SIZE.	A4 (A4, LETTER, LEGAL, EXECUT)	PostScript Page Size
PR6_ORNT.	PORTR (PORTR, LANDS, R_PORTR, R_LANDS)	PostScript Page Orientation
PR6_FORM.	66 0 100 60 30 50	PostScript Page Format *(MPL, MPP, CPI, LPI, LM, TM)*
PR6_FONT.		PostScript Font *(Courier when not specified)*

Printer7 Menu

In the print server's Web interface, select **Admin │ Logical Printers │ PR7**.

Parameter	*Default value (Possible values)*	*Comments*
PR7_OUT.	LPT1 (NONE, LPT1, USB1)	Physical Port In AXIS 5500, PR7_OUT. points to USB1 as default
PR7_NAME.		
PR7_SCND.	PR7 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8)	Secondary Printer
PR7_WAIT.	YES (YES, NO)	Wait on Busy
PR7_IN.	AUTO (AUTO, NONE)	Read Back Port (Read-Back of information)
PR7_BEF.		String Before Print Job
PR7_STR.	01 0A 02 0D 0A	String Substitutions
PR7_CSET.	NONE (NONE, ISO>IBM, 7UK>IBM, 7SW>IBM, 7GE>IBM, 7FR>IBM, 7ND>IBM, DEC>IBM)	Character Set Conversion
PR7_FILT.	NONE (NONE, POSTSCR, AUTO_PS)	Printer Language Translation
PR7_AFT.		String After Print Job
PR7_DUMP.	NO (YES, NO)	Hex Dump Mode Enabled
PR7_SIZE.	A4 (A4, LETTER, LEGAL, EXECUT)	PostScript Page Size
PR7_ORNT.	PORTR (PORTR, LANDS, R_PORTR, R_LANDS)	PostScript Page Orientation
PR7_FORM.	66 0 100 60 30 50	PostScript Page Format *(MPL, MPP, CPI, LPI, LM, TM)*
PR7_FONT.		PostScript Font *(Courier when not specified)*

Printer8 Menu

In the print server's Web interface, select **Admin │ Logical Printers │ PR8**.

Parameter	*Default value (Possible values)*	*Comments*
PR8_OUT.	USB1 (NONE, LPT1, USB1)	Physical Port
PR8_NAME.		
PR8_SCND.	PR8 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8)	Secondary Printer
PR8_WAIT.	YES (YES, NO)	Wait on Busy
PR8_IN.	AUTO (AUTO, NONE)	Read Back Port (Read-Back of information)
PR8_BEF.		String Before Print Job
PR8_STR.	01 0A 02 0D 0A	String Substitutions
PR8_CSET.	NONE (NONE, ISO>IBM, 7UK>IBM, 7SW>IBM, 7GE>IBM, 7FR>IBM, 7ND>IBM, DEC>IBM)	Character Set Conversion

PR8_FILT.	NONE (NONE, POSTSCR, AUTO_PS)	Printer Language Translation
PR8_AFT.		String After Print Job
PR8_DUMP.	NO (YES, NO)	Hex Dump Mode Enabled
PR8_SIZE.	A4 (A4, LETTER, LEGAL, EXECUT)	PostScript Page Size
PR8_ORNT.	PORTR (PORTR, LANDS, R_PORTR, R_LANDS)	PostScript Page Orientation
PR8_FORM.	66 0 100 60 30 50	PostScript Page Format *(MPL, MPP, CPI, LPI, LM, TM)*
PR8_FONT.		PostScript Font *(Courier when not specified)*

LPT1 Menu (not in AXIS 5500)   In the print server's Web interface, select **Admin** | **General Settings** | **LPT1**.

Parameter	*Default value (Possible values)*	*Comments*
L1_CENTR.	HISPEED (IBM_PC, STNDRD, FAST, HISPEED, HINOACK)	Centronics Interface Timing LPT1
L1_BSYTM.	60	Busy Status Time-Out LPT1 (All status reporting disabled if set to 0)
L1_MGM_INFO.	AUTO (DISABLE, AUTO)	Printer Management Information LPT1
L1_COMMENT.		Optional user comment describing the printer at LPT1
L1_BIDIR.	AUTO (DISABLE, AUTO)	LPT1Read-back information
L1_READT.	3	Read-back time-out

USB1 Menu   In the print server's Web interface, select **Admin** | **General Settings** | **USB1**.

Parameter	*Default value (Possible values)*	*Comments*
U1_MGM_INFO.	AUTO (DISABLE, AUTO)	Printer Management Information USB1
U1_COMMENT.		Optional user comment describing the printer at USB1
U1_BIDIR.	AUTO (DISABLE, AUTO)	USB1 Read-back information
U1_READT.	3	Read-back time-out

e-mail Menu   In the print server's Web interface, select **Admin** | **Network Settings** | **Detailed View** | **e-mail Notification**.

Parameter	*Default value (Possible values)*	*Comments*
EMAIL_NOTIFICATION.	YES (YES, NO)	e-mail Notification Enabled
REPLY_ADDRESS.		Network Administrator e-mail address
PAPER_JAM_ADDRESS.		e-mail address of Paper-jam Administrator
OUT_OF_PAPER_ADDRESS.		e-mail address of Out-Of-Paper Administrator
TONER_LOW_ADDRESS.		e-mail address of Toner-Low Administrator
NO_TONER_ADDRESS.		e-mail address of No-Toner Administrator
PRINTER_OFFLINE_ADDRESS.		e-mail address of Printer-Offline Administrator

NetWare Parameter Combinations

When NetWare is enabled (i.e. when the NETW_ENB. parameter is set to "yes" in the NetWare Menu), the different settings of the NETW_TRANSPORT_PROTOCOL. and NDPS. parameters will result in these functionalities:

NETW_ENB	NETW_TRANSPORT_PROTOCOL	NDPS	Functionality
YES	DUAL_STACK	TCP_AND_SPX	1, 2, 3, 4, 5, 6, 7
YES	DUAL_STACK	TCP_ONLY	1, 2, 3, 5, 6, 7
YES	DUAL_STACK	SPX_ONLY	2, 3, 4, 5, 6, 7
YES	DUAL_STACK	DISABLED	3, 5, 6, 7
YES	IP_ONLY	TCP_AND_SPX	1, 2, 5
YES	IP_ONLY	TCP_ONLY	1, 2, 5
YES	IP_ONLY	SPX_ONLY	2, 5
YES	IP_ONLY	DISABLED	5
YES	IPX_ONLY	TCP_AND_SPX	2, 3, 4, 6, 7
YES	IPX_ONLY	TCP_ONLY	2, 3, 6, 7
YES	IPX_ONLY	SPX_ONLY	2, 3, 4, 6, 7
YES	IPX_ONLY	DISABLED	3, 6, 7

Functionality
1. Raw TCP ports 9100 = LPT1 and 9101 = USB1 are opened for NDPS printing. To create TCP NDPS printer objects, AXIS_PRINT_SYSTEM must be enabled (see Note a).

2. The HP-MIB is enabled.

3. Services are SAP'ed and enabled on SPX sockets 8060 and 4114 (see Notes b and c).

4. Print services are SAP'ed and enabled on SPX sockets, 400C = LPT1 and 401C = USB1 (see Notes b and c).

5. Pure IP queue mode printing is enabled.

6. IPX queue mode printing is enabled (see Note c).

7. Looking for SAP NetwWare fileservers on the net (see Note c).

Notes:
(a) TCP printing must be enabled (TCP_ENB. = YES).

(b) Some other SAP service must be present on the network.

(c) At least one frametype must be enabled for NetWare.

TCP Ports Opened for Raw Printing

AXIS 5500

Port Number	Port	Via Logical Printer	Condition
9100	USB1	–	DEFAULT_RAW_TCP. set to 9100
9902	USB1	–	AXIS_PRINT_SYSTEM. Enabled
9101	USB1	–	NDPS. Enabled

AXIS 5550

Port Number	Port	Via Logical Printer	Condition
9100	LPT1	–	DEFAULT_RAW_TCP. set to 9100
9101	USB1	–	
9900	LPT1	–	AXIS_PRINT_SYSTEM. Enabled
9902	USB1	–	
9100	LPT1	–	NDPS. Enabled
9101	USB1	–	

Note: The TCP port numbers entered in RTEL_PRx. will override the settings in the two tables above.

Section 15   Glossary

AIX	Advanced Interactive eXecutive. A version of the UNIX operating system from IBM that runs on various IBM computers including Mainframe systems.
AppleTalk	A local area network protocol for communication between Apple Computer products and other computers and peripherals.
ARP	Address Resolution Protocol. A protocol within the TCP/IP suite of network protocols that allows a host to find the physical address of a node on the same network. ARP cannot be used across routers.
Authentication	Verification of identity, for instance by use of digital signatures.
AutoIP	A method to automatically set an IP address in the absence of a DHCP server.
BOOTP	BOOT Protocol. A TCP/IP protocol, used for downloading start-up information such as the IP address to hosts on the network. BOOTP requires a BOOTP daemon on your system. A request made to an active BOOTP daemon initiates a search of the Boot Table for an entry matching the print server's Ethernet address. If a matching entry is found, the daemon downloads the IP address to the print server.
BSD	Berkeley Software Distribution. The University of California, Berkeley additions to the UNIX operating system.
Certificate Authority, CA	An organization or company that issues digital certificates.
config **File**	This is a file that resides in the print server's memory and contains all the parameters that determine the AXIS 5500/AXIS 5550 functionality. By editing the *config* file (changing the parameter settings), you can configure the print server to meet the printing needs of your network.
Client/server Printing	Means that print jobs are sent to a file server, with different clients attached to the print queue, rather than directly to the print server (Peer-to-Peer printing).
DHCP	Dynamic Host Configuration Protocol. Enables e.g. a print server to automatically obtain an unused IP address from the DHCP server.
	To fully benefit from this method, the AXIS 5500/AXIS 5550 also supports DDNS, which is available in Windows 2000 networks.
Digital Certificate	Used to create digital signatures and public/private key pairs for secure Web services.

DNS Domain Name System. Resolves host names into IP addresses.

Dynamic DNS Dynamic Domain Name System. Allows hosts to dynamically change the Ip address in DNS, e.g. when the host is given a new IP address by DHCP.

Firmware Firmware is the printserver's internal software.

Flash Memory The print server firmware is stored in Flash memory.

FTP File Transfer Protocol. A TCP/IP protocol used for logging in to network servers and for transferring files.

HTML Hypertext Markup Language. A standard hypertext language used for creating World Wide Web pages and other hypertext documents.

HTTP Hypertext Transfer Protocol. The TCP/IP protocol for Web based communication.

HTTPS HyperText Transmission Protocol, Secure, i.e. HTTP for secure transactions.

IP Internet Protocol. The TCP/IP network-layer protocol that regulates packet forwarding by tracking IP addresses, routing outgoing messages and recognizing incoming messages.

IPP Internet Printing Protocol. A developing industry standard that allows users to print to remote printers across the Internet. With IPP, a user with an Internet connection can send a document to any printer connected to the Internet. IPP is platform independent and can be used to print over any LAN or WAN that supports TCP/IP.

IPX Internetwork Packet Exchange, a networking protocol used by NetWare.

LAN Local Area Network.

LED Light Emitting Diode.

Linux An open source implementation of UNIX.

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.

Logical Printer A logical printer acts as a filter between the network and the physical printer. It appears to the user as a normal printer with additional characteristics. For example a UNIX/Linux workstation may only send a line feed (LF) to a shared

printer that needs carriage return (CR) and LF. The logical printer can solve this problem by adding a CR whenever a line feed is detected.

NCP
NetWare Core Protocol. Network clients use the NCP to request services of servers, and servers use NCP to provide services, such as file and print services.

NDPS
Novell's Distributed Printing Services.

NDS
NetWare Directory Services. A hierarchical data base that manages NetWare network resources such as servers and volumes.

NetBIOS/NetBEUI
Network Basic Input Output System, a network protocol with special functions for local area networks. NetBIOS Enhanced User Interface is an enhanced version of NetBIOS.

NetWare
An operating system for local area networks.

PCL
Printer Control Language — a set of command codes used when printing. A PCL driver is a small program that works between the operating system and the printer.

Peer-to-Peer Printing
When selecting Peer-to-peer printing, all print jobs are sent directly to the print server, rather than through a file server (client/server).

PEM
Privacy Enhanced Mail.

RARP
Reverse Address Resolution Protocol. A TCP/IP protocol used for downloading IP addresses in UNIX/Linux networks. It requires a RARP daemon on your system, and only operates within a single network segment. A request made to an active RARP daemon initiates a search of the Ethernet Address Table for an entry matching the print server's Ethernet address. If a matching entry is found, the daemon downloads the IP address to the print server.

RISC
Reduced Instruction Set Computing. A processor designed to increase performance, using a limited set of of assembly language instructions.

SAP
Service Advertising Protocol. A NetWare network name advertising service that e.g. file servers can use for advertising their existence to network clients.

SNMP
Simple Network Management Protocol. Standard management protocol for network attached devices.

SSL
Secure Sockets Layer, a protocol designed to provide secure communications on the Internet.

SPX   Sequenced Packet Exchange, a NetWare communications protocol used to transmit messages reliably over a network.

TCP   Transmission Control Protocol. The connection-oriented, transport-level protocol used in the TCP/IP suite of protocols.

Telnet   A terminal emulation program for networks, often used to remotely control Web servers.

TFTP   Trivial File Transfer Protocol (TFTP) is an Internet software utility for transferring files that is simpler to use than the File Transfer Protocol (FTP) but less capable. It is used where user authentication and directory visibility are not required. TFTP uses the User Datagram Protocol (UDP) rather than the Transmission Control Protocol (TCP).

TLS   Transport Layer Security, a protocol that guarantees privacy and data integrity between applications communicating over the Internet.

UNIX   A 32-bit multi-tasking, multi-user operating system originally developed by AT&T.

URL   Uniform Resource Locator. A way of specifying the location of information on the Internet.

USB   Universal Serial Bus.

WAN   Wide Area Network.

WINS   Windows Internet Name Service. A NetBIOS Name Server that maps NetBIOS names to dynamically assigned IP addresses.

Wizard   A special form of user assistance that automates a task through a dialog with the user. Wizards help the user to accomplish tasks that are complex and require experience, and even for the experienced user can help to speed up an operation.

Index