

# Preface

Thank you for purchasing the Axis NPS 530/532 Network Print Server. Our goal in developing this product is to enable you to connect your printers anywhere in your network, allowing all network users access to shared printer resources.

## About Axis

Axis Communications, founded in 1984, is one of the world's fastest growing companies in the printer interface and network print server market. The head quarters are located in Lund, Sweden, with subsidiaries in Boston, Tokyo, and Hong Kong.

Axis Communications has a distributor network operating in more than 60 countries world-wide, marketing three product lines:

***Network CD-ROM Servers*** CD-ROM servers provide a flexible and cost-efficient solution for sharing CD-ROMs across the network. They are available in Ethernet and Token Ring versions, with or without built in drive option.

***Network Print Servers*** These intelligent Ethernet and Token Ring print servers support a wide range of LAN protocols. The Axis NPS 530, 532, 550, AXIS 150 and 152 are Ethernet print servers, and the Axis NPS 630, 632 and 650 are Token Ring print servers.

***IBM Mainframe and S/3x - AS/400 Printer Interfaces*** These products include a wide range of plug-in interfaces and free standing products such as the Cobra+ and the AFP IPDS-to-PostScript converter.

Axis NPS 530/532 User's Manual Part No.:13588	Version 2.0 October 1995
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## About this manual

This manual will guide you through a simple step-by-step installation and configuration procedure. It is divided into four sections:

***Introduction*** The NPS 530/532 print server, how it works, where to use it, and its main features.

***Getting started*** How to connect your NPS 530/532 to your printer, and how to install it in your network.

***Setup*** How to set up your NPS 530/532 for the NetWare, Windows, OS/2, Unix and Macintosh environments.

***Advanced options*** An overview of unique NPS 530/532 functions that allows you to tailor your printer resources for specific needs.

The manual applies to the NPS 530/532 with firmware release 5.00 and subsequent releases until otherwise notified. Please refer to the Axis NPS Print Server Technical Reference for further information of functions and parameters.

Every care has been taken in the preparation of this manual; if you detect any inaccuracies or omissions, please inform us at the address on the back cover. Axis Communications AB cannot be held responsible for any technical or typographical errors and reserves the right to make changes to the product and manuals without prior notice.

## Emission notices

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

***Europe*** This digital equipment fulfils the requirements for radiated emission according to limit B of EN55022/1987, and the requirements for immunity according to EN50082-1/1992 residential, commercial, and light industry. (Compliance is not valid for unshielded twisted-pair (UTP) cabling.)

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## Section 1

### Introduction

The Axis NPS 530 and 532 are plug-in network print servers for the Ethernet environment. There is no functional difference between them; it's only the network connector that differs.

The NPS 530/532 connects your printer directly to your Ethernet network, no matter if you are using a PC or PS/2 system. The multiple protocol support makes it possible to print under NetWare and Microsoft and IBM networks simultaneously.

In addition, protocol upgrades for TCP/IP and Apple EtherTalk are available as software keys from your dealer. Once upgraded, your NPS 530/532 supports printing from PC, PS/2, Macintosh and Unix systems simultaneously and without user intervention.

The NPS 530/532 plugs directly to the parallel port of any standard printer. It combines a high degree of user-friendliness in both installation procedures and print management with an equally high degree of flexibility thanks to its powerful built-in functions.



*The Axis NPS 530/532 Network Print Server*

## How It Works

Ethernet network print data is transmitted as *packets* using a high-speed protocol very different from the standards used by serial or parallel printers. Each packet contains information about the sender, the receiver, how to unpack the packet, and the data itself.

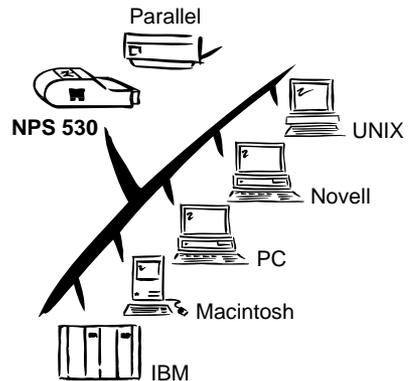
The NPS 530/532 acts as a *node* in the Ethernet network, with its own unique address. It receives the packets addressed to it, unpacks them, and converts the print data to a format suitable for standard printers.

The only difference between the NPS 530 and 532 is the physical network attachment. The NPS 530 is attached by *twisted-pair* (10baseT) Ethernet cabling, while the NPS 532 is attached by *thin-wire* (10base2).

It is physically attached to the network by Ethernet cabling. The print data is sent to the printer using a high-speed parallel port.

## Where To Use it

The NPS 530/532 can communicate with PC, PS/2, and optionally Unix and Macintosh systems. It supports two different network protocols: NetWare and Microsoft and IBM networks, and two additional protocols as upgrade options: TCP/IP and Apple EtherTalk. Since the NPS 530/532 can handle these protocols simultaneously, it's the ideal printer server solution for a mixed environment.



**NetWare** The NPS 530/532 has two different modes in the NetWare environment – *Print Server Mode* and *Remote Printer Mode*.

In Print Server Mode, the NPS 530/532 emulates a NetWare Print Server. At power-on it will log in to each file server in the network to find out which print queues are to be serviced. Up to 16 file servers and up to 96 print queues are supported.

In Remote Printer Mode, the NPS 530/532 appears as a NetWare Remote Printer. At power-on it will log in and attach to up to eight specified NetWare print servers.

**Windows** The NPS 530/532 is set up using the supplied *Axis Print Utility for Windows*. You may print through a server (*client-server*), or directly (*peer-to-peer*). The supported platforms are Windows for Workgroups, Windows 95 and Windows NT.

**OS/2** The NPS 530/532 is integrated to the OS/2 Spooler using the supplied *Axis Print Utility for OS/2*. The printers attached to the NPS 530/532 will appear as connected directly to the file server, and may be used by any PC running LAN Server or LAN Manager on your network.

**Unix systems** The NPS 530/532 can operate as an integrated part of your system. The printers connected to the NPS 530/532 will appear as if they were connected directly to the host printer spooler.

You have several protocols and print methods to choose from. The method you should select depends on your requirements, and what system you are running. Five print methods are supported in TCP/IP: **LPD**, **FTP**, **PROS A** (*named pipe*) **PROS B** (*filter*) and **Reverse Telnet**.

Any host supporting the **TCP/IP** suite of protocols is supported by the NPS 530/532.

**Macintosh** The NPS 530/532 will appear as a LaserWriter printer connected to your AppleTalk network. Once selected from the Chooser in the Apple menu, it can be used as any other LaserWriter.

## Main Features

***Reliability*** The Axis NPS 530/532 hardware provides high performance and reliability combined with low power consumption. It is based on the Axis ETRAX chip with an integrated 32 bit RISC CPU and Ethernet controller.

***Flexibility*** It supports NetWare, Microsoft and IBM networks, and optionally TCP/IP and Apple EtherTalk simultaneously. Five different print methods are supported for Unix systems.

***Speed*** The sustained throughput exceeds 150 kbytes per second. High-speed Centronics communication such as Hewlett-Packard *Fast Mode* is supported.

***Easy to Install*** Use *PCONSOLE* for NetWare Installation, *Axis Print Utility* for Windows and OS/2, the supplied *axinstall* script for Unix systems, and the Chooser for Macintosh.

***Logical Printers*** This unique Axis concept allows you to perform auto ASCII to PostScript conversions, use different character sets, or select multiple bins and form sizes on the same printer.

***Accounting*** The accounting function lets you keep track of the last ten print jobs.

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

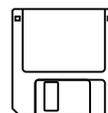
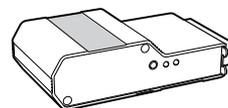
## Section 2

### Getting started

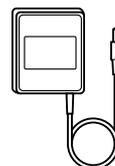
Unpack and inspect all parts for damage. Contact your dealer if anything is missing. All packing materials are recyclable.

***The standard delivery***

- NPS 530 Print Server; part no. 0039-1 *or* NPS 532 Print Server; part no. 0039-2
- NPS 530/532 User's Manual; part no. 13588
- NPS 530/532 Quick Installation Guide; part no. 13593
- Warranty registration form; part no. 13510
- 3.5" disk with NPS Installation Utilities for NetWare, Windows and OS/2; part no. 13493

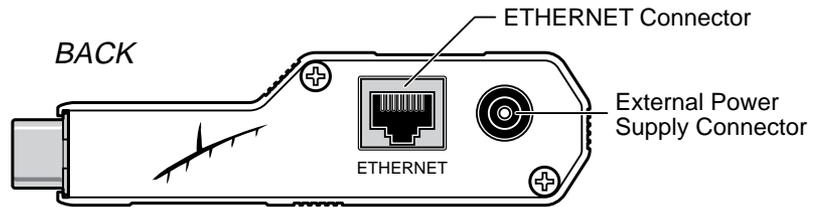
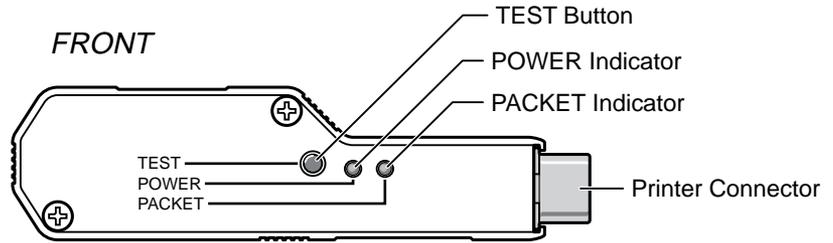


- Power Supply Europe (*NPS 530 only*); part no. 13599 *or*
- Power Supply Europe (*NPS 532 only*); part no. 13267 *or*
- Power Supply UK; part no. 13268 *or*
- Power Supply Australia; part no. 13269 *or*
- Power Supply USA; part no. 13270

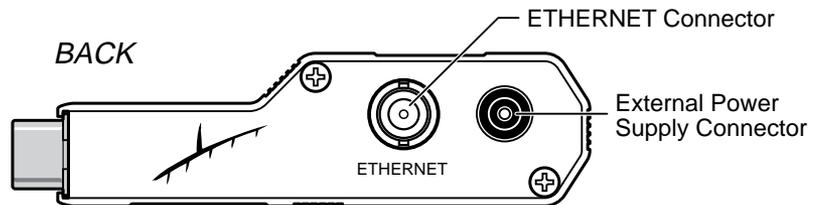
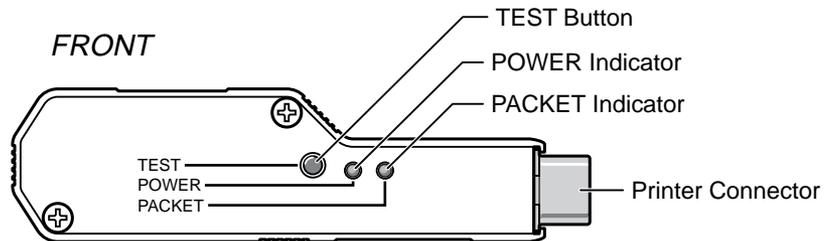


***Optional accessories***

- Self-adhesive Velcro ribbons; part no. 13282 and 13283
- BNC T-adapter (*NPS 532 only*); part no. 12839
- Printer cable extension; part no. 13522
- NPS Print Server Technical Reference and Adobe Acrobat Reader; see Appendix E.



*The NPS 530 side panels*



*The NPS 530 side panels*

## Printer Installation

***Before you begin:***

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

Attach the NPS 530/532 to your printer's parallel port and make a test printout:

1. **Switch off the printer.**
2. **Attach the NPS 530/532 to the printer**, either directly to the parallel printer port, or using the optional velcro ribbons and printer cable extension.
3. **Connect the external power supply.** The PACKET indicator will flash during power-on and self-test. When the indicator stops flashing and remains unlit, the NPS 530/532 is ready for use.
4. **Switch on the printer.**
5. **Press and hold the test button** until the PACKET indicator starts to flash, then release the button to print a test page.

The test page shows the software revision and the basic setup of your NPS 530/532.

**Note:** The NPS 530/532 supports high-speed Centronics communication such as Hewlett-Packard Fast Mode. This function is disabled by default, since some printers support standard Centronics only. To activate high-speed Centronics, change the *Output Menu* parameter L1\_CENTR to HISPEED as outlined in Appendix A.

## Network Installation

***Before you begin:***

- Make sure that your network is ready to accept a new node.
- Any network configuration should always involve the network manager.

1. **Record the serial number of your NPS 530/532.** You will need this number for the setup.
2. ***NPS 530 only:* Connect your NPS 530 to the network** using a twisted-pair (10baseT) Ethernet cable.
3. ***NPS 532 only:* Connect your NPS 532 to the network** using a thin-wire (10base2) Ethernet cable.

***Note:*** Each NPS print server is preconfigured with a unique Node Address (identical to the serial number). You can change this to a *Locally Administrated Address*; see page 68.

The installation is now completed. Proceed with the setup sections for NetWare, Windows, OS/2, Unix and/or Macintosh.

## Section 3

# Setup for NetWare

The NPS 530/532 can run in either *Print Server Mode*, *Remote Printer Mode* or both simultaneously. The basic configuration is done using the PCONSOLE software supplied from Novell, and if you choose a setup other than the automatic print server mode, also with AXCFG supplied with the NPS 530/532.

The overview on the following pages explains the advantages and limitations of each mode. Select the mode that best fits your needs, then carry out the configuration as described later in this section.

***Before you begin:***

- Make sure that the NPS 530/532 is powered on and attached to the network.
- You will need *root* privileges on the system.
- Have the serial number found on the back of the NPS 530/532 available.
- Any network configuration should always involve the network manager.
- If you use NetWare 4.0 or later, you must set up your file server for *bindery emulation* by specifying the *Bindery Context* parameter. See your Novell documentation for details.

Before configuring your NetWare system, you may want to configure the NPS 530/532 (e.g. logical printer definitions). This is done using the AXCFG software on the disk supplied with the NPS 530/532.

On the disk you will find a text file called *read.me*, containing installation instructions for AXCFG in the Novell environment.

***Print Server Mode*** An NPS 530/532 in print server mode emulates a Novell print server (a workstation running PSERVER). This is the recommended mode for medium-sized to large networks.

There are three different ways to set up the print server mode, depending on how you want the NPS 530/532 to log in to the servers at power-up, and how you want to manage printer and queue configurations:

***Automatic Log-In*** The NPS 530/532 will automatically detect and log in to all NetWare servers on the network at power-on. See page 17 for setup procedures.

Advantages	Limitations
High performance (typically 150 kbytes/s).	Requires a NetWare user licence for each NPS 530/532.
Easy to set up – no NPS 530/532 configuration required for automatic mode.	The NPS 530/532 power-up takes a long time on large networks

***Parameter Controlled Log-In*** The NPS 530/532 will log in to only those NetWare servers specified by the NPS 530/532 configuration. See page 18 for setup procedures.

Advantages	Limitations
High performance (typically 150 kbytes/s).	Requires a NetWare user licence for each NPS 530/532.
Avoids the prolonged NPS power-up time caused by the automatic file server login.	Requires configuration of the NPS 530/532.
You can link a queue to a logical printer without having to use the <i>!n</i> queue name extension.	Difficult to manage print queues on larger networks.
An unavailable file server will not affect the access of the remaining specified servers.	

***File Server  
Controlled Log-In***

The NPS 530/532 will first log in to the *Configuration File Server*, and then to any additional NetWare servers found in the file server configuration. See page 20 for setup procedures.

Advantages	Limitations
High performance (typically 150 kbytes/s).	Requires a NetWare user licence for each NPS 530/532.
Avoids the prolonged NPS power-up time caused by the automatic file server login.	Requires configuration of the NPS 530/532.
Simplifies the queue and printer set-up and maintenance, especially on larger networks.	If the configuration file server is unavailable, then none of the queues will be serviced.
You can link a queue to a logical printer without having to use the <i>!n</i> queue name extension.	

***Remote Printer  
Mode***

An NPS 530/532 in remote printer mode emulates a workstation running RPRINTER or NPRINT (the Novell remote printer software). It is attached to a NetWare print server, that is either located on the file server (PSERVER.NLM), or a dedicated workstation running PSERVER.EXE. This mode is only recommended for small networks where the number of NetWare user licences is a major issue.

The setup procedure involves adding a printer, linking the printer to one or more print queues, and finally specifying which NetWare print servers the NPS 530/532 shall attach to. The first two steps are carried out in PCONSOLE, and the last step is done in AXCFG (supplied with the NPS 530/532). See page 24 for setup procedures.

Advantages	Limitations
Allows up to 8 printers per NetWare user licence.	Lower performance – 20 - 40 kbytes/s for NLM, and 70 kbytes/s for EXE.
	Requires configuration of the NPS 530/532.
	Higher network load.

## Print Server Mode (Automatic)

The setup procedure involves adding a print server and linking it to one or more print queues. Both steps are carried out in PCONSOLE.

***Add a Print Server*** Follow these steps to add a print server to your NetWare environment:

1. **Log in to a file server from a client workstation.**
2. **Start PCONSOLE.**
3. ***NetWare 4.xx only:* Press <F4> to switch to *Bindery Mode*.**
4. **Select *Print Server Information* (3.xx) or *Print Servers* (4.xx).**
5. **Press <Insert> to add a new Print Server.**
6. **Enter the Print Server Name: AXIS<nnnnnn>** *(see notes below)*  
<nnnnnn> are the last six digits of the NPS 530/532 serial number.
7. **Press Escape to return to the Main Menu.**

Repeat this procedure for each **file server** using the NPS 530/532.

- Notes**
1. If the serial number of your NPS 530/532 is **00408C110086**, then the default name is **AXIS110086**. The serial number is found on the label at the back of the NPS 530/532.
  2. You may change the default name using AXCFG, the Axis Configuration Software. This must be done before running PCONSOLE.
  3. The print server name is case insensitive in print server mode. Both **AXIS110086** and **Axis110086** are valid default print server names.

***Link a Print Queue to the Print Server***

The next step is to link a print queue to the print server:

1. Start PCONSOLE according to steps 1-3 on the previous page.
2. Select *Print Queue Information (3.xx)* or *Print Queues(4.xx)*. If you plan to use an existing queue, then skip to step 5.
3. Press <Insert> to add a new queue.
4. Type a queue name, and press <Enter>.
5. Select the queue that you want the NPS 530/532 to service. The *Print Queue Information* menu appears.
6. Select *Queue Servers (3.xx)* or *Print Servers (4.xx)*.
7. Press <Insert> to display the *Queue Server Candidates* list.
8. Select *AXIS<nnnnnn>*.
9. Press <Escape> repeatedly to return to the main menu.

Repeat this procedure for every queue you want the NPS 530/532 to service. The NPS 530/532 supports up to 96 print queues, defined on up to 16 file servers.

## Print Server Mode (Parameter Controlled)

This is similar to the automatic print server mode, but the NPS 530/532 will not automatically log in to all file servers and scan for queues to service. Instead, the file servers and print queues are specified by a set of parameters in the NPS 530/532 configuration. This is the recommended method for medium-sized networks.

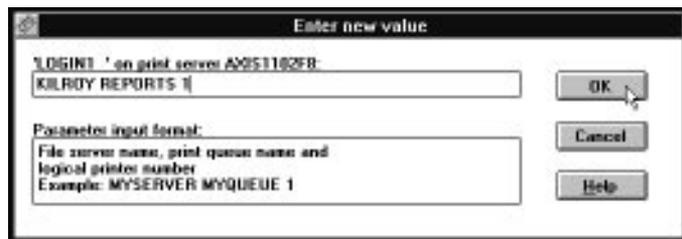
***NetWare Configuration***

The NetWare configuration is identical to the one described for automatic print server mode. Follow the instructions in “*Add a Print Server*” (page 17) and “*Link a Print Queue to the Print Server*” (page 18) to add a print server and assign queues to it.

### ***NPS 530/532 Configuration***

The configuration involves specifying which NetWare file servers and print queues the NPS 530/532 shall attach to. This is done using AXCFG, the Axis NPS configuration software on the disk supplied with the NPS 530/532. Follow the instructions in the *read.me* file on the disk to install the software, then proceed as follows:

1. Start AXCFG, and select *NetWare*.
2. Select **No** at the 'Look for old print servers' prompt unless you are configuring an NPS 530/532 with software revision prior to 4.20.
3. Choose *Select All Networks*, then select your NPS 530/532.
4. Type *root* and *pass* at the login prompt.
5. Select *NETWARE MENU*.
6. Select *LOGIN1*.
7. Type the name of the NetWare file server, the print queue, and the logical printer number. Use the file server and print queue name from the NetWare configuration above, and one of the logical printer numbers 1–8.



8. To specify more print queues, select LOGIN2 through LOGIN16 in consecutive order. Repeat step 7 for each print queue.
9. Select *Save*, then select *Cancel* until AXCFG closes down.

## Print Server Mode (File Server Controlled)

This method uses a NetWare file server (the *Configuration File Server*) to hold the print queue information. The NPS 530/532 will not automatically log in to all file servers and scan for queues to service. Instead, the file servers and print queues are specified on the configuration file server. This is the recommended method for large networks, since it simplifies the maintenance of a large number of print queues.

### ***NetWare Configuration***

The NetWare configuration is different from the automatic and parameter controlled modes. Instead of setting up queues on several file servers, all queues are set up and maintained on the configuration file server. The configuration procedure depends on which NetWare version you are using.

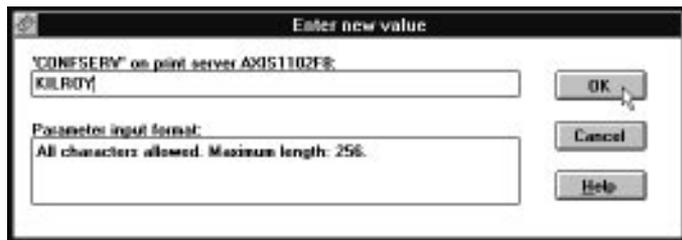
- 
- NetWare 3.xx:**
1. Log in as supervisor to the NetWare server, and start PCONSOLE.
  2. Select *Change Current File Server*, then select the file server at which you want to keep the queue and printer configurations. Make a note of the configuration file server name, you will need it during the NPS 530/532 configuration.
  3. Select *Print Server Information*, then add the new print server **AXIS<nnnnnn>**. See “*Add a Print Server*” (page 17) for details.
  4. Select **AXIS<nnnnnn>**.
  5. Select *Print Server Configuration*, and then *File Servers to be Serviced*.
  6. Press <Insert> to see the list of Available File Servers. Add all file servers you want the NPS 530/532 to log in to, then press <Esc> to get back to the *Print Server Information Menu*.
  7. Select *Printer Configuration*. A list of 16 printers marked *Not Installed* appears. The printers numbered 1–8 correspond directly to the NPS 530/532 logical printers PR1–PR8. The remaining eight printers are not used by the NPS 530/532.
  8. Select the second printer (number 1). The printer is by default named ‘Printer 1’. The printer names are not used by the NPS 530/532.
  9. Select *Queues Serviced By Printer*, then select *Printer 1*.
  10. Press <Insert> to see the list of *Available Queues* then select the queues you want the printer to service. Repeat steps 9 – 10 if you have installed more than one printer.
  11. Exit PCONSOLE.

- NetWare 4.xx:**
1. Log in as supervisor to the NetWare server, and start PCONSOLE.
  2. Press <F4> to switch to *Bindery Mode*.
  3. Select *Change Current NetWare Server*, then select the file server at which you want to keep the queue and printer configurations. Make a note of the configuration file server name, you will need it during the NPS 530/532 configuration.
  4. Select *Print Servers* then add the new print server AXIS<nnnnnn>. See “Add a Print Server” (page 17) for details.
  5. Select AXIS<nnnnnn>.
  6. Select *Serviced NetWare Servers*.
  7. Press <Insert> to see the list of *Available NetWare Servers*. Add all file servers you want the NPS 530/532 to log in to, then press <Esc> to get back to the *Print Server Information* menu.
  8. Select *Printers*. An empty list of *Defined Printers* appears. Printers are numbered from 0 to 255 in the order that they are defined. The printers numbered 1–8 correspond directly to the NPS 530/532 logical printers PR1–PR8. No other printer numbers are used by the NPS 530/532.
  9. Press <Insert> to define printer number 0. Name it ‘DUMMY’, ‘UNUSED’ or similar to indicate that this printer is not used.
  10. Press <Insert> to define printer number 1. Name it ‘PRINTER\_1’ or whichever name you prefer. The printer names are not used by the NPS 530/532.
  11. Select printer number 1. The printer is by default named ‘Printer 1’.
  12. Select *Print Queues Assigned* and press <Insert> to see the list of Available Print Queues.
  13. Select the queues you want printer number 1 to service. Repeat steps 10 – 13 for each additional printer number you want to define.
  14. Exit PCONSOLE.

***NPS 530/532  
Configuration***

The configuration involves specifying the configuration file server. This is done using AXCFG, the Axis NPS installation software on the disk supplied with the NPS 530/532. Follow the instructions in the *read.me* file on the disk to install the software, then proceed as follows:

1. Start AXCFG, and select *NetWare*.
2. Select **No** at the 'Look for old print servers' prompt unless you are configuring an NPS 530/532 with software revision prior to 4.20.
3. Choose *Select All Networks*, then select your NPS 530/532.
4. Type *root* and *pass* at the login prompt.
5. Select *NETWARE MENU*.
6. Select *CONFSERV*.
7. Type the name of the NetWare file server dedicated as the configuration file server, then select *OK*.



***Example:*** Use KILROY as configuration file server

8. Select *Save*, then select *Cancel* until AXCFG closes down.

## Remote Printer Mode

The configuration for remote printer mode comprises the following steps:

1. **Add a Print Server**
2. **Create a Print Queue**
3. **Link a Remote Printer to the Print Queue**
4. **Configure the NPS 530/532**

***Add a Print Server*** The NetWare print server software is either installed on a file server (PSERVER.NLM), or a dedicated workstation (PSERVER.EXE). If you don't already have a Novell print server installed, please refer to the Novell documentation for installation procedures.

***Create a Print Queue*** Print queues are created in the same way as for print server mode. If you do not need any new queues, skip to "*Link a Remote Printer...*" below.

1. **Log in to a file server from a client workstation.**
2. **Start PCONSOLE.**
3. **Select *Print Queue Information (3.xx)* or *Print Queues (4.xx)*.**
4. **Press <Insert> to add a new queue.**
5. **Type a queue name, and press <Enter>. Select a print queue volume (4.xx only). Repeat steps 4 – 5 for each queue you want to create.**
6. **Press <Esc> to return to the Main Menu.**

***Link a Remote Printer to the Print Queue*** The procedures are slightly different depending on which NetWare version you are using. In either case, begin with starting PCONSOLE according to steps 1–3 in "*Create a Print Queue*" above if you have not already done so.

- NetWare 3.xx:**
1. Select *Print Server Information* from the PCONSOLE Main Menu.
  2. Select the NetWare Print Server to which you want to link your NPS 530/532.
  3. Select *Print Server Configuration*, and then *Printer Configuration*.
  4. Select the first free slot in the *Configured Printers* list.
  5. Make a note of the NetWare print server name and the Printer number; you will need it later during the configuration.
  6. Change *Name* to **AXIS<nnnnnn>/n** *(see notes below)*  
 <nnnnnn> are the last six digits of the NPS 530/532 serial number.
  7. Change *Type* to Remote Other/Unknown.
  8. Press <Esc>, and select *Yes* at the *Save Changes* prompt.
  9. Select *Queues Serviced by Printer* in the Print Server Configuration Menu.
  10. Select **AXIS<nnnnnn>/n** in the Defined Printers list.
  11. Press <Insert>, then select the queue you want to use from the Available Queues list. Repeat this step if you want more than one queue.
  12. Press <Esc> to get back to the Main Menu, then exit PCONSOLE.

Repeat this procedure for each file server and print server using the NPS 530/532.

- Notes:**
1. If the serial number of your NPS 530/532 is **00408C110086**, then the default name is **AXIS110086**. The serial number is found on the label at the back of the NPS 530/532.
  2. You may change the default name using AXCFG, the Axis Configuration Software. This must be done before running PCONSOLE.
  3. You may define up to eight remote printers, each attached to its own NPS 530/532 logical printer. Each remote printer must have a unique name distinguished by the /n extension.

- NetWare 4.xx:**
1. Select *Print Servers* from the PCONSOLE Main Menu.
  2. Select the NetWare Print Server to which you want to link your NPS 530/532.
  3. Select *Printers*
  4. Press <Insert> to add a remote printer to the Defined Printers list.
  5. Type AXI S<nnnnnn>! n at the *Printer:* prompt. *(see notes below)*  
<nnnnnn> are the last six digits of the NPS 530/532 serial number, and *n* is the logical printer number 1–8.
  6. Select *AXIS<nnnnnn>/n*.  
  
*Important:* Always use printer numbers 1 and higher; the NPS 530/532 will not detect any remote printers with printer number 0.
  7. Make a note of the NetWare print server name and the Printer number; you will need it later during the configuration.
  8. Select *Printer type:*, and change to Other/Unknown.
  9. Select *Print Queues Assigned*, then press <Insert>
  10. Press <Insert>, then select the queue you want to use from the Available Print Queues list. Repeat this step if you want more than one queue.
  11. Press <F10> to save the changes, then press <Esc>.
  12. Press <Esc> to get back to the Main Menu, then exit PCONSOLE.

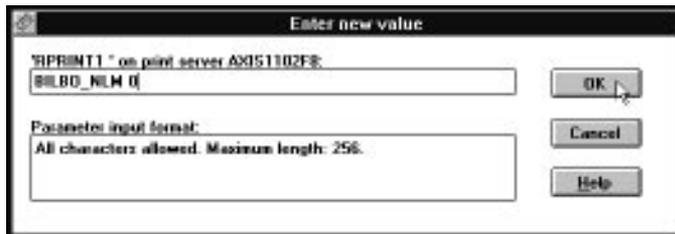
Repeat this procedure for each file server and print server using the NPS 530/532.

- Notes:**
1. If the serial number of your NPS 530/532 is **00408C110086**, then the default name is **AXIS110086**. The serial number is found on the label at the back of the NPS 530/532.
  2. You may change the default name using AXCFG, the Axis Configuration Software. This must be done before running PCONSOLE.
  3. You may define up to eight remote printers, each attached to its own NPS 530/532 logical printer. Each remote printer must have a unique name distinguished by the */n* extension.

***Configure the NPS 530/532***

The configuration involves specifying which NetWare print servers and printer numbers the NPS 530/532 shall attach to. This is done using AXCFG, the Axis NPS installation software on the disk supplied with the NPS 530/532. Follow the instructions in the *read.me* file on the disk to install the software, then proceed as follows:

1. Start AXCFG, and select *NetWare*.
2. Select **No** at the 'Look for old print servers' prompt.
3. Choose *Select All Networks*, then select your NPS 530/532.
4. Type *root* and *pass* at the login prompt.
5. Select *NETWARE MENU*.
6. Select *RPRINT1*.
7. Type the name of the NetWare print server and the printer number (4.xx: Use printer numbers 1 and higher). Use the name and number from the NetWare configuration earlier.



*Example:* Use printer 0 at BILBO\_NLM as remote printer

8. To specify more print servers, select **RPRINT2** through **RPRINT8** in consecutive order. Repeat step 7 for each print server.
9. Select *Save*, then select *Cancel* until AXCFG closes down.

## Verify the Communication

To verify communication by making a test printout, just send a job to one of the print queues that NPS 530/532 will service. Use CAPTURE, NPRINT, or PCONSOLE.

**Example:** Use CAPTURE from the DOS command line when you are logged into the network, to print out the *autoexec.bat* file from the root of drive C:

```
CAPTURE /L=1 /Q=DESKTOP /NOTIFY /TI=30 /NT /FF /NB  
COPY C:\AUTOEXEC.BAT LPT1:
```

The CAPTURE switches have the following meanings: **/L=1** captures the printouts sent to the PC LPT1 port, **/Q=DESKTOP** specifies the print queue, **/NOTIFY** enables user messages, **/TI=30** sets the time-out to 30 seconds, **/NT** specifies no tab expansion, **/FF** ends the printout with a Form Feed, and **/NB** disables the banner page.

## Section 4

# Setup for Windows

This section describes how to set up your NPS 530/530 for the Microsoft Windows environment. The following Windows platforms are supported:

- **Windows 3.1** (requires add-on network support)
- **Windows for Workgroups**
- **Windows 95**
- **Windows NT**

The setup is done using *Axis Print Utility for Windows*. Install the utility if you haven't already done so (see the instructions on the *NPS 530/530 Setup* disk label).

### ***Axis Print Utility for Windows***

Axis Print Utility is a dual purpose application for network printing in the Microsoft Windows environment. It's two purposes are:

**1. Install and maintain NPS 530/530 printer ports as Windows printer ports.**

Axis Print Utility automatically detects all NPS 530/530s on your network. Any number of printers may be installed at any workstation.

**2. Capture and monitor print jobs directed to NPS 530/530 ports.**

Print jobs are directed through a spool directory, either at your local hard disk (peer-to-peer mode) or at the file server (Client-Server mode). NPS 530/530 printer ports can be monitored, and you get a pop-up notification message when your print job is finished.

For more information about Axis Print Utility, see the on-line help.

- Requirements:**
1. Microsoft Network must be running when installing and using Axis Print Utility.
  2. Axis Print Utility must be running whenever you want to print to your network printer.

***Peer-to-peer vs. Client-Server printing*** Axis Print Utility supports both peer-to-peer and client-server printing. Peer-to-peer is the recommended print method for smaller networks. For more information on peer-to-peer and client-server printing, see the Axis Print Utility on-line help.

### Windows 3.1

Windows 3.1 requires that network support such as *LAN Server* or *LAN Manager Workstation* software is installed in order to print to a network device. If this is the case, proceed as described under *Windows for Workgroups* below.

## Windows for Workgroups

### ***Setup for peer-to-peer printing***

Follow these steps to install your NPS 530/530 for peer-to-peer printing at a Windows for Workgroups workstation:

1. Double-click the *Axis Print Utility* icon.
2. In the *Port* menu, click **Add**.
3. In the *NPS Port* list, select the NPS 530/530 port you want to install. The port appears as **<name>.LP1**, where <name> is the NPS 530/530 print server name (AXIS... is abbreviated to AX...).

### ***Example:***

AX110086.LP1
--------------

4. Accept or change the suggested *Windows port* name, and type any comments in the *Description* field. Make a note of the Windows port name (you will need it later), then click **OK** to install the Windows port.
5. In the *Port* menu, click **Connect** to bring up the Windows *Printers* dialog.
6. Select a printer driver from the list of *Installed Printers* (or click **Add**>> to install a new driver), then click **Connect**...
7. Select the *Windows port* from step 4 (at the bottom of the *Ports* list), then click **OK**.
8. Click **OK** to close the *Connect* dialog, and **Close** to close *Printers*.

The setup is now completed and you can immediately print through your NPS 530/530.

**Important:** Axis Print Utility must be running when you print through your NPS 530/530. We strongly recommend that you copy the Axis Print Utility icon into your Startup folder.

***Client-Server  
printing  
Server setup***

Follow these steps to install your NPS 530/530 for client-server printing at a Windows for Workgroups server:

1. Choose a workstation that you want to use as server for network printing. The server must be available at all times, and must have sufficient hard disk space for spooling print jobs.
2. Make sure that the printer sharing option is enabled. (Open *Network Setup*, click **Sharing...**, check the '*I want to be able to allow others to print to my printer(s)*.' box).
3. Install Axis Print Utility on the server.
4. Set up your NPS 530/530 as described on page 31.
5. Open *Print Manager* and select your printer.
6. In the *Printer* menu, select **Share Printer As...**
7. Type a printer name in the *Share as* field (this is the printer name seen by the clients, see *Client setup* below). Check the *Re-share at Startup* box, then click **OK**.

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

**Important:** Both Axis Print Utility and Print Manager must be running when you print through your NPS 530/530. We strongly recommend that you copy the Axis Print Utility icon into your Startup folder.

***Client-Server  
printing  
Client setup***

Follow these steps to install your NPS 530/530 for client-server printing at a Windows for Workgroups client:

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

The client setup is now completed and you can immediately print through your NPS 530/530.

## Windows 95

***Setup for peer-to-peer printing***

Follow these steps to install your NPS 530/530 for peer-to-peer printing at a Windows 95 workstation:

1. Double-click the *Axis Print Utility* icon.
2. In the *Port* menu, click **Add**.
3. In the *NPS Port* list, select the NPS 530/530 port you want to install. The port appears as **<name>.LP1**, where <name> is the NPS 530/530 print server name (AXIS... is abbreviated to AX...).

***Example:***

AX110086.LP1
--------------

4. Accept or change the suggested *Windows port* name, and type any comments in the *Description* field. Make a note of the Windows port name (you will need it later), then click **OK** to install the Windows port.
5. In the *Port* menu, click **Connect** to bring up the *Printers* folder.
6. Double-click the *Add Printer* icon. The *Add Printer Wizard* will guide you through the installation. Click **Next** to proceed.
7. Choose **Local Printer**, then click **Next**.
8. Choose *Manufacturer* and *Printer*, then click **Next**.
9. Select the *Windows port* from step 4, then click **Next**.
10. Accept or change the suggested *Printer name*, then click **Next**.
11. Click **Finish** to complete the installation.

The setup is now completed and you can immediately print through your NPS 530/530.

**Important:** Axis Print Utility must be running when you print through your NPS 530/530. We strongly recommend that you copy the Axis Print Utility icon into your Startup folder.

***Client-Server  
printing  
Server setup***

Follow these steps to install your NPS 530/530 for client-server printing at a Windows 95 server:

1. Choose a workstation that you want to use as server for network printing. The server must be available at all times, and must have sufficient hard disk space for spooling print jobs.
2. Install Axis Print Utility on the server.
3. Set up your NPS 530/530 as described on page 33.
4. In the *Printers* folder, click the right mouse button over your new printer, then select **Sharing...**
5. Click the *Shared As:* radio button, type a name in the *Share Name:* field, then click **OK**.

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

**Important:** Both Axis Print Utility and Print Manager must be running when you print through your NPS 530/530. We strongly recommend that you copy the Axis Print Utility icon into your *StartUp* folder.

***Client-Server  
printing  
Client setup***

Follow these steps to install your NPS 530/530 for client-server printing at a Windows 95 client:

1. Open the *Network Neighborhood* folder and select the server where your printer is set up (see Server setup above).
2. Select the printer, and follow the Add Printer Wizard to set up the printer on your client.

The client setup is now completed and you can immediately print through your NPS 530/530.

## Windows NT

***Setup for peer-to-peer printing***

Follow these steps to install your NPS 530/530 for peer-to-peer printing at a Windows NT workstation:

1. Double-click the *Axis Print Utility*.
2. In the *Port* menu, click **Add**.
3. In the *NPS Port* list, select the NPS 530/530 port you want to install. The port appears as **<name>.LP1**, where <name> is the NPS 530/530 print server name (AXIS... is abbreviated to AX...).

***Example:***

AX110086.LP1
--------------

4. Accept or change the suggested *Windows port* name, and type any comments in the *Description* field. Make a note of the Windows port name (you will need it later), then click **OK** to install the Windows port.
5. In the *Port* menu, click **Connect** to bring up *Print Manager*.
6. In the *Printer* menu, click **Create Printer**.
7. Type a name in the *Printer Name* field, select a suitable printer driver from the *Driver* list, and select **Other...** in the *Print to* list.
8. In the *Print Destinations* dialog, select **Local Port**, then click **OK**.
9. In the Port Name field, type: **C:\~\<port>**  
where **C:\~** is your spool directory, and **<port>** is the Windows port name from step 4. Click **OK**.
10. **Close** the *Print Manager*.

The setup is now completed and you can immediately print through your NPS 530/530.

**Important:** Axis Print Utility must be running when you print through your NPS 530/530. We strongly recommend that you copy the Axis Print Utility icon into your Startup folder.

***Client-Server  
printing  
Server setup***

Follow these steps to install your NPS 530/530 for client-server printing at a Windows NT server:

1. Choose a workstation that you want to use as server for network printing. The server must be available at all times, and must have sufficient hard disk space for spooling print jobs.
2. Install Axis Print Utility on the server.
3. Set up your NPS 530/530 following steps 1 - 9 on page 35 (do not close *Print Manager*).
4. In the *Printer* menu, select **Properties...**
5. Check the *Share this printer on the network* box, then click **OK**.

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

**Important:** Both Axis Print Utility and Print Manager must be running when you print through your NPS 530/530. We strongly recommend that you copy the Axis Print Utility icon into your Startup folder.

***Client-Server  
printing  
Client setup***

Follow these steps to install your NPS 530/530 for client-server printing at a Windows NT client:

1. Open *Print Manager*.
2. In the *Printer* menu, select **Connect to printer...**
3. In the *Shared Printers* list, select the printer you want to use. Click **OK**.

The client setup is now completed and you can immediately print through your NPS 530/530.

---

## Windows NT - LPD printing

This section describes how to set up a Windows NT Server (ver. 3.5 or later) for LPD printing over the TCP/IP protocol.

### ***Install the TCP/IP Protocol Stack***

In the *Control Panel*, click the *Network* icon. If the **TCP/IP Protocol** entry appears, then TCP/IP is already installed. Close the *Network* folder and skip to *Installing a Printer* below.

Follow these steps to install the TCP/IP protocol stack:

1. In the *Network* folder, select **Add Software**.
2. Select **TCP/IP Protocol and Related Components**, then click **OK**.
3. Make sure that the following boxes are checked:
  - Connectivity Utilities
  - TCP/IP Printing Support
  - FTP Server Services
4. Click **OK** to complete the installation.

### ***Installing a Printer***

1. In the *Control Panel*, click the *Print Manager*.
2. In the *Printer* menu, select **Create Printer**.
3. In the *Printer Name* field, type a name for your printer.
4. Choose a printer driver suitable for your printer.
5. In the *Print to* field, select **Other...**
6. In the *Print Destinations* dialog, choose **LPR Port**, then click **OK**. The *Add LPR Compatible Printer* dialog now appears.
7. In the *Name or Address* field, type the IP address or the alias name of your NPS 530/532.

*Note:* If you use an alias name, this must be defined in the *hosts* file on your server prior to the installation. This file is normally located in */winnt35/system32/drivers/etc/hosts*

8. In the *Name of Printer on the Machine* field, type the logical printer number you want to use (e.g. **pr1**), then click **OK**.
9. Click **OK** to complete the installation.

## Section 5

### Setup for OS/2

The basic configuration in the OS/2 environment is done using the *Axis Print Utility for OS/2* included on the disk supplied with the NPS 530/532. It comprises four steps:

1. **Activate the NetBEUI protocol** (if not already activated).
2. **Install the *Axis Print Utility for OS/2*.**
3. **Install the NPS 530/532 using the Axis Print Utility.**
4. **Create print queues to be serviced by the NPS 530/532.**

Before configuring your LAN Server/LAN Manager system, you may want to configure the NPS 530/532 (e.g. logical printer definitions). This is done using the AXCFG software on the disk supplied with the NPS 530/532.

On the disk you will find a text file called *read.me*, containing installation instructions for AXCFG in the IBM OS/2 environment.

***Before you begin:***

- Make sure that the NPS 530/532 is powered on and attached to the network.
- Have the serial number found on the back of the NPS 530/532 available.
- Any network configuration should always involve the network manager.

## Activate the NetBEUI Protocol

Activating the NetBEUI protocol is done using the LAN Server/LAN Manager Setup:

- **LAN Server**

Use **MPTS/LAPS** to activate NetBEUI (see the MPTS/LAPS documentation for details).

- **LAN Manager**

Use **SETUP** to activate NetBEUI (see the LAN Manager SETUP documentation for details).

## Install the Axis Print Utility for OS/2

The *Axis Print Utility for OS/2* is included on the disk supplied with the NPS 530/532. Start the installation according to the description in the *read.me* file on the same disk. Follow the instructions on the screen to complete the installation. The Axis Print Utility will start automatically when the installation process is completed.

When the Axis Print Utility is running, an *action bar* and a *list of available Axis print server ports* (initially empty) will be displayed. The action bar contains the following commands: *Status*, *Install*, *Remove*, *Logfile*, and *Help*. The *Install* command is used for installing new Axis print servers. The *Help* command gives detailed descriptions of the actions that can be performed by Axis Print Utility.

## Install the NPS 530/532

Once the Axis Print Utility is installed and running, you can install the NPS 530/532 by clicking the *Install* entry on the action bar. The *Install* command initiates a search for Axis print servers on the network. Your new NPS 530/532 will appear in the list (together with any other Axis print servers) as a printer port:

```
AX110086.LP1
```

The digits following AX are the six last digits of the NPS 530/532 serial number (110086 in this example). LP1 is the NPS 530/532 printer port (LPT1).

The Axis print server ports appearing in the list can now be assigned as print queue destinations as described below.

**Note:** If the serial number of your NPS 530/532 is **00408C110086**, then the default port name is **AX110086.LP1**. The serial number is found on the label at the back of the NPS 530/532. You may change the default names by editing parameters LPRINT\_1, LPRINT\_2, etc. in the *config* file as described in Appendix A. If you want to change the default port names, you must do that before installing the NPS 530/532 using Axis Print Utility.

## Create a Print Queue

Each Axis print server port will be seen as a *print queue destination* by the OS/2 Print Manager. Print queue destinations are referred to as *devices* in OS/2 version 1.x and *ports* in version 2.x. They appear as *pipe names*, e.g. \PIPE\AX110086.LP1, etc. Assigning Axis print server ports as print queue destinations follow the standard procedures under OS/2. The procedures are identical for LAN Server and LAN Manager, but differ between OS/2 versions 1.x and 2.x as shown below.

The examples below demonstrate how to create a new print queue and assign it to an NPS 530/532 printer port. Alternatively, you may re-direct an existing queue to an NPS 530/532 port.

***OS/2 Version 1.x*** The print queue assignment under OS/2 version 1.x requires two operations – the definition of a printer, and the definition of one or more print queues for that printer. Follow these steps to create a print queue and assign it to an NPS 530/532 printer port:

1. Double-click the *Print Manager* icon.
2. Click the **Setup** menu option, then select **Printers...**
3. Click **Add** to make a new printer definition.
4. Type a printer name in the *Name* field.
5. Select a *Device* (a pipe name, e.g. \PIPE\AX110086.LP1).
6. Select a *printer driver* suitable for the printer attached to the NPS 530/532.
7. Click **Add**, then click **OK** to confirm the new printer definition.
8. Click the **Setup** menu option, then select **Queues...**
9. Click **Add** to make a new print queue definition.
10. Type a queue name in the *Name* field (preferably the printer name assigned above).
11. Select the previously defined printer.
12. Click **Add**, then click **OK** to confirm the new queue definition.

**OS/2 Version 2.x** The print queue assignment procedure under OS/2 version 2.x is done in one operation – the definition of a printer will automatically create a queue. Follow these steps to create a print queue and assign it to an NPS 530/532 printer port:

1. Double-click the *Templates* folder.
2. Drag the *Printer* icon out to the *Workplace Shell* (or into a folder), while holding the *right* mouse button down.
3. Type a name in *Printer Name* field.
4. Select a printer driver from the *Standard printer* list suitable for the attached printer.
5. Select a *pipe name* (e.g. \PIPE\AX110086.LP1) from the Port list.
6. Click **OK** to confirm the new printer definition.

## Sharing Print Queues

To access a print queue from other computers in the network (either clients or other servers), the queue must be made a *shared resource*. Open an OS/2 window and issue the following command (you will need administrator privileges to do this):

```
NET SHARE <queue name> /PRINT
```

<*Queue name*> is the queue created above. Note that the queue name equals the printer name for OS/2 version 2.x, while queue and printer names may differ for version 1.x.

For further information on queue sharing, please refer to your LAN Server or LAN Manager documentation.

## Verify the Communication

To verify communication by making a test printout, use the NET COPY command (or any other print method such as drag-and-drop, etc.) to send a job to one of the print queues that NPS 530/532 will service.

**Example:** Use NET COPY from the OS/2 or DOS command line when you are logged into the network, to print a file:

```
NET COPY <file name> \\<server name>\<queue name>
```

For further information on printing to print queues, refer to the appropriate OS/2, LAN Server and LAN Manager documentation.

## Section 6

# Setup for Unix systems

This section covers the setup for TCP/IP in a Unix environment. The steps described on the following pages are:

**1. Prepare your system for a new TCP/IP node.**

*Procedures:* Find an unused Internet (IP) address and choose a unique host name for your NPS 530/532. Update your host table and alias name data bases.

**2. Set up the NPS 530/532 as a TCP/IP node.**

*Procedures:* Down-load the IP address to your NPS 530/532 using the *arp*, *rarp* or *bootp* method.

**3. Set up and attach a print queue at your Unix workstation.**

*Procedures:* Use the automatic *axinstall* script to complete the setup. Up-load and run the script, then follow the instructions on your screen.

***Before you begin:***

- Make sure that the NPS 530/532 is powered on and attached to the network.
- You will need *root* privileges on the system.
- Have the serial number found on the back of the NPS 530/532 available.
- Any network configuration should always involve the network manager.

## Prepare your system

Each node in a TCP/IP network must have a unique *Internet (IP) address* and also a unique *host name* to be used as an alias for the IP address. Before you add your NPS 530/532 to a TCP/IP network, you must prepare your system for a new node.

***Find an unused IP address*** The IP addresses used in your network are listed in the system host table (*/etc/hosts* on most Unix systems). Find an unused IP address, and choose a unique host name for your NPS 530/532.

***Important:***

**Don't** use the default or example IP address when installing your NPS 530/532. Always consult your network manager before assigning an Internet Address.

***Update your system host table*** Open the system host table using a text editor (e.g. **vi** */etc/hosts*), and add a line containing the IP address and host name for your NPS 530/532:

***Example:***

```
192.36.253.96          salesdept
```

***Update your alias name data bases*** If your system uses alias name data bases such as Yellow Pages (YP) or Network Information Services (NIS), update these using the commands below. If you intend to use the *arp* or *bootp* method, update the YP or NIS now. If you intend to use the *rarp* method, you must first update the *node address table*, see *"The rarp method"* (page 48).

***Commands:***

```
cd /var/yp
make
```

***Note:*** These commands may vary between different systems. When in doubt, consult your system documentation for the proper commands.

## Set up your NPS 530/532

When you have prepared your system to accept a new TCP/IP node, you are ready to set up your NPS 530/532 as a node on your network. This is done by down-loading the new IP address to the NPS 530/532 using one of these three methods:

- ***arp*** – the easiest method, but requires down-loading of the Internet address to each new device individually.
- ***rarp*** – down-loads the Internet address to each device automatically. Requires a rarp daemon on your system, and operates within a single network segment only.
- ***bootp*** – similar to rarp, but operates on the entire network. Requires a bootp daemon on your system.

**Note:** NPS 530/532 has an auto-sensing router facility that automatically adopts to the network topology. However, if you do run into problems in a complex network, we recommend that you specify the default router and net mask parameters manually. Refer to the Axis NPS Print Server Technical Reference for details.

**The arp method** The *arp* command associates your NPS 530/532's node address with an IP address. The IP address is then down-loaded by the *ping* command. The *arp* command syntax depends on your Unix system (see examples below). This is the syntax for System V and some BSD-type systems:

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

The node address is the serial number found at the back of the NPS 530/532. Each pair of digits must be separated by colons as in examples below.

**Examples** The *arp* command differs between different Unix systems. The 'ether' argument is only required for IBM AIX systems, and some BSD-type systems expect the host name and node address in reversed order.

**BSD-Type Unix Systems:**

```
arp -s 00:40:8C:11:00:86 salesdept temp
ping salesdept
```

**System V Unix Systems:**

```
arp -s salesdept 00:40:8C:11:00:86 temp
ping salesdept
```

**IBM AIX Systems:**

```
arp -s ether salesdept 00:40:8C:11:00:86 temp
ping salesdept
```

The host will return '*salesdept is alive*' or similar indicating that the IP address has been set, and that communication is established.

**Note:** When you execute the *ping* command for the first time, you should expect a response time significantly longer than usual.

***The rarp method*** The *rarp* method uses a daemon to establish and maintain communication between the hosts listed in a *Ethernet address table* (*/etc/ethers* on most systems). Rarp daemons are normally only used on BSD-type and System V Unix systems. If you are an IBM AIX user, use the *arp* or *bootp* methods instead.

Follow these steps to use the *rarp* method:

1. Open the Ethernet address table using a text editor (e.g. **vi /etc/ethers**), and add a line containing the Ethernet address and host name for your NPS 530/532.

***Example:***

00:40:8C:11:00:86 salesdept
-----------------------------

2. Update your alias name data bases (see page 45).
3. Start the *rarp* daemon (if not already running) by the command **rarpd -a**.
4. Restart the NPS 530/532 to down-load the IP address.

**The bootp method** The *bootp* method uses a daemon to establish and maintain communication between the hosts listed in a *boot table* (*/etc/bootptab* on most systems). Follow these steps to use the bootp method:

1. Open the boot table using a text editor (e.g. **vi** */etc/bootptab*), and add the following entry for your NPS 530/532:

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

**Example:**

```
salesdept:ht=ether:vm=rfc1048:\
:ha=00408C110086:ip=192.36.253.96:\
:sm=255.255.255.0:gw=192.36.253.254
```

2. Start the bootp daemon (if not already running) by the command **bootpd**.
3. Restart the NPS 530/532 to down-load the IP address, default router address, and net mask.

- Notes:**
1. The *ht* and *vm* fields must be entered exactly as in the example.
  2. The *ha* and *ip* fields are the Node and IP Addresses respectively.
  3. The *sm* and *gw* fields correspond to the default router address and net mask (*TCP/IP Menu* parameters DEF\_ROUT and NET\_MASK, see Appendix A).

## Set up and attach a print queue

The final step is done using the *axinstall* script, which is up-loaded from the NPS 530/532 to your host using FTP. You don't need any technical knowledge about your Unix system; *axinstall* will automatically detect your system's characteristics, and guide you through the setup procedure.

Below is a list of Unix systems that are supported by *axinstall*:

* BSD (Berkley Unix)	IRIX (Silicon Graphica, SGI)
SunOS 4 (Sun BSD, Solaris 1.x)	BOS (BULL DPX 2)
ULTRIX (Digital Equipment, DEC)	* SYS V R4 (UNIX System V Release 4)
DEC OSF/1 (Digital Equipment, Alpha)	SunOS 5 (Sun SYS V, Solaris 2.x)
FreeBSD (Berkley Unix)	HP-UX (HP 9000)
* SYS V R3 (Unix System V Release 3)	AIX (IBM RS/6000, BULL DPX 20)
SCO (Santa Cruz Operation)	

If your particular system isn't listed, *axinstall* tries to use one of the generic Unix systems (BSD, SYS V R3 or SYS V R4). If *axinstall* fails to recognize your system, complete the setup manually as described in the Axis NPS Print Server Technical Reference.

### ***Up-load axinstall***

1. Log in to the NPS 530/532 with the command **ftp <host name>**, where *host name* is the name assigned in your system host table (e.g. *salesdept*). You will be prompted for user id and password. Enter *root* as user id, and *pass* as password.
2. Up-load the script using the command **get axinstall**.
3. Log out using **quit**, **bye** or **exit** (depending on your FTP version).

**Example:** Below is a sample FTP session showing how to up-load *axinstall* (user entries appear in bold):

```
> ftp salesdept
Connected to salesdept.
220 Axis NPS 53X FTP Print Server V5.00 ready.
Name (salesdept: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)
226 Transfer complete.
local: axinstall remote: axinstall
27545 bytes received in 4.1 seconds (6.5 Kbytes/s)
ftp> bye
221 Goodbye.
>
```

The *axinstall* script has now been up-loaded to your host.

**Run *axinstall*** Type the command **sh axinstall** to run the script.

You will be guided through the setup by a step-by-step procedure. *Axinstall* will first detect what kind of Unix system you are using, and then suggest a suitable print method. The suggested print method will be sufficient in most cases, but you can also choose one of the PROS methods for more advanced print capabilities. See page 52 for a brief overview of the different print methods. For more detailed information, please refer to the NPS Technical Reference.

After you have selected a print method, *axinstall* will automatically set up the necessary print queues, filters, etc. You will then be offered to make a test printout, and after that the setup is completed.

## Print methods

The NPS 530/532 supports several different print methods for printing under TCP/IP. *Axinstall* will suggest a print method suitable for your particular Unix system, but you might want to use another method depending on your printing requirements (banner pages, status logging, etc.) Use the overview below to determine which method to use:

***LPD*** The recommended method where available.

***Advantages:*** Easy to set up – install the NPS 530/532 as a remote queue in *SMIT* (AIX), or add a remote printer to */etc/printcap* using the *rm* and *rp* fields (BSD).

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

***FTP*** The recommended method when LPD is not available.

***Advantages:*** Uses industry standard network software on the host.

***Limitations:*** No printer status logging. *BSD*: May conflict with other input or output filters. Doesn't allow both input and output filters. *System V*: No filters or interface programs can be used.

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

***Advantages:*** The NPS 530/532 appears as a device to the system. Print traffic (including printer status and readback) is logged to file. *BSD*: All *printcap* options are available.

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

***Reverse Telnet*** Often used for printing via a terminal server printer port. Only recommended if you already have a Reverse Telnet driver installed (not available for AIX).

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

***Limitations:*** No status logging. Drivers are not supplied with the NPS 530/532. Existing drivers may be slow.

## Section 7

# Setup for Macintosh

The basic setup for Macintosh is done by opening the *Chooser* window and clicking a printer.

Before configuring your Macintosh system, you may want to configure the NPS 530/532 (e.g. logical printer definitions). See Appendix A for details.

If you intend to operate your NPS 530/532 in a multi-protocol environment, you should also proceed according to the other “*Setup for...*” sections as appropriate.

***Before you begin:***

- Make sure that the NPS 530/532 is powered on and attached to the network.
- Any network configuration should always involve the network manager.

## Choose a Printer

Choosing a printer is slightly different depending on which version of LaserWriter printer driver you are using.

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

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

### ***LaserWriter 7.0 Printer Driver***

Open the Chooser window by clicking *Chooser* in the Apple menu. Follow these steps to choose a printer:

1. **Click the LaserWriter icon.**
2. **If your network has more than one zone, click on the zone you want.** If your network has no zones, this box does not appear.
3. **Click the name of the printer you want.** The default NPS 530/532 printer name is shown as *AXIS<nnnnnn>*, where *<nnnnnn>* is the last six digits of the NPS 530/532 serial number.  
  
Example: AXI S110086
4. **Click the close box.** This completes the configuration and closes the Chooser.

Repeat this procedure for each Macintosh using the NPS 530/532.

**LaserWriter 8.0  
Printer Driver**

Open the Chooser window by clicking *Chooser* in the Apple menu. Follow these steps to choose a printer:

1. **Click the LaserWriter 8.0 icon.**
2. **If your network has more than one zone, click on the zone you want.** If your network has no zones, this box does not appear.
3. **Click the name of the printer you want.** The default NPS 530/532 printer name is shown as *AXIS<nnnnnn>*, where *<nnnnnn>* is the last six digits of the NPS 530/532 serial number.  
  
Example: AXI S110086
4. Click the 'Setup...' button, and then the 'Select PPD...' button.
5. **Choose the PPD file matching your printer, and click 'OK'.** If your printer doesn't appear in the PPD file list, contact your printer vendor. You may also use the Generic PPD if you don't need any printer specific features.
6. **Click 'OK', and then click the close box.** This completes the configuration and closes the Chooser.

Repeat this procedure for each Macintosh using the NPS 530/532.

## Verify the Communication

To verify communication by making a test printout, just print a document from the desktop or from within a program. The printout will appear on the printer you have chosen.

**You have completed the basic installation and the NPS 530/532 is ready to use as a print server.**

**Note:** For information on advanced EtherTalk functions such as non-PostScript printer support, please refer to the AXIS NPS Print Server Technical Reference.

## Section 8

# Advanced Options

This section takes you beyond the “plug-and-print” concept and into the area of *Print Server Configuration* and *Print Management*.

This section provides an overview of the unique functions that make the NPS 530/532 more than ‘just another print server’. For a complete description of these functions, please refer to the NPS Print Server Technical Reference.

### ***Print Server Configuration***

How to solve printout related problems by tailoring your NPS 530/532 configuration to meet specific needs. The key feature is the *Logical Printer Concept*, which will be discussed in the following pages.

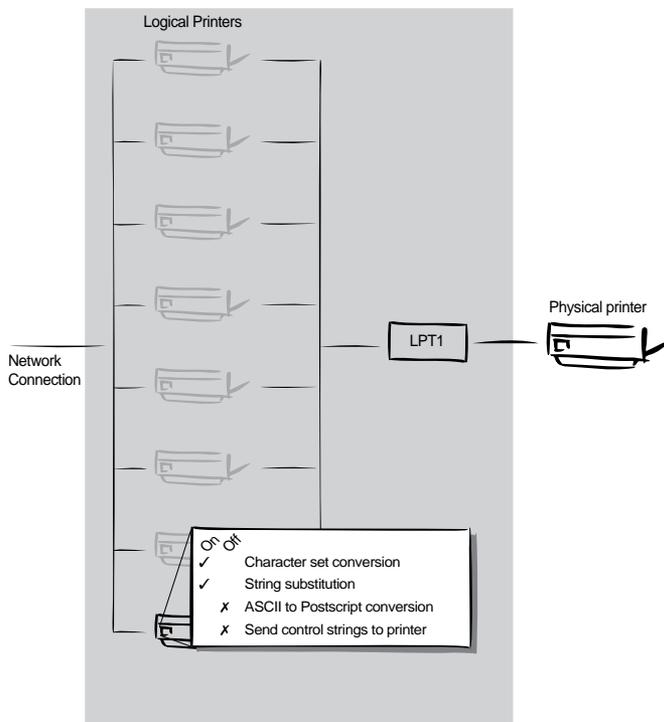
### ***Print Management***

The NPS 530/532 has a number of built-in tools and features to help you to manage and monitor your printing environment. This section covers the following topics:

- **Telnet Login** – how to log in to the NPS 530/532 (page 65).
- **Accounting** – keep track of the last ten print jobs (page 66).
- **Status Logging** – display the current status of the logical printers (page 67).
- **Locally Administrated Address** – change the preconfigured node address (page 68).
- **SNMP** – monitor the NPS 530/532 using the Simple Network Management Protocol (page 69).

## Logical Printers

One of the most powerful features of the NPS 530/532 is the *Logical Printer* concept. A logical printer is a configurable device driver acting as an interface between the network and the physical printer. You may specify up to eight logical printers, each with different properties.



The following properties can be configured individually for each logical printer:

- Character Set Conversion (page 59)
- Strings Before and After Print Jobs (page 60)
- String Substitutions (page 61)
- PostScript Functions (page 62)
- Hex Dump Mode (page 64)

Logical printers are configured by editing a number of parameters in the *config* file. There is a menu for each logical printer (PRINTER1 - PRINTER8), see Appendix A.

## Character Set Conversion

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

The NPS 530/532 solution to this problem is to assign a character set conversion filter to a logical printer, and link that logical printer to the host causing the problem.

There are several different filters to choose from, see *Printer1 Menu* parameter PR1\_CSET in Appendix A. The output from the conversion filter is always IBM PC Set 2 (Code Page 437), and that is the character set the printer must be set up for.

**Example:** Your network contains three hosts using the character sets IBM PC Set 2, ISO 8859-2, and DEC. In order to direct their print jobs to the same printer, for instance LPT1, you should assign each host to a separate logical printer, and install character set conversion filters. Edit the following entries in your *config* file:

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

The logical printer PR1 prints data transparently without conversion, PR2 converts ISO 8859-2 data to IBM PC Set 2, and PR3 converts DEC data to IBM PC Set 2. This will produce correct printouts for all language specific characters.

## Strings Before and After Print Jobs

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

All strings are entered as hexadecimal byte values.

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

```
PR5_AFT.      : 04
```

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

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

## String Substitutions

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

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

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

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

'01' is the match string count byte (length of the match string), '0A' is the match string, '02' is the substitute count byte, and '0D 0A' is the substitute string (This is the default setting for logical printers PR5 through PR8).

**Example 2:** To replace the UNIX New Line (hex 0A) with an ASCII NewLine (hex 0D 0A), and the printer command  $\text{E}^{\text{C}}\text{G}1$  (hex 1B 47 31) with  $\text{E}^{\text{C}}\text{Y}$  (hex 1B 59) for logical printer PR2, edit the following entry in your *config* file:

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

**Note:** Extensive use of string substitutions may decrease the throughput rate of the NPS 530/532.

## PostScript Functions

The NPS 530/532 can translate standard ASCII print data into PostScript format. This makes it possible to print with a PostScript printer from a host that doesn't support PostScript. The PostScript functions are controlled by a number of parameters described below.

***ASCII to PostScript Conversion*** The conversion is selected by activating a filter that converts ASCII data into PostScript. This filter may be activated individually for each logical printer.

***Example:*** The following entries in your *config* file will activate pass-through (no filter) for PR1, ASCII to PostScript conversion for PR2. On PR3 the incoming data will be searched, ASCII data will be converted to PostScript, PostScript data will pass-through without conversion:

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

Use this configuration when print jobs directed to PR1 are already in PostScript format, print jobs directed to PR2 are in ASCII format and direct print jobs to PR3 when you are not sure if it is ASCII or PostScript format.

***PostScript Page Size*** When the ASCII to PostScript filter is active, a page size must be specified. The default page size is A4, and may be specified individually for each logical printer. See the example on the next page on how to change the page size.

The page size setting is ignored when the ASCII to PostScript filter is inactive.

**PostScript Page Orientation** When the ASCII to PostScript filter is active, a page orientation must be specified. The default page orientation is Portrait, and may be specified individually for each logical printer. See the example below on how to change the page orientation.

The page orientation setting is ignored when the ASCII to PostScript filter is inactive.

**PostScript Page Format** When the ASCII to PostScript filter is active, a page format must be specified. The page format is defined by six byte values: Lines per Page, Characters per Line, Characters per Inch, Lines per Inch, Left Margin, and Top Margin (see also PR1\_FORM, *Printer1 Menu* in Appendix A).

The page format settings are ignored when the ASCII to PostScript filter is inactive.

**Example:** The following entries in your *config* file will activate the ASCII to PostScript conversion for PR2, set the page size to *Letter*, the page orientation to *Landscape*, and the page format to 48 lines per page, 0 characters per line (equal to *disable line wrap*), 12 CPI, 6 LPI, 3 mm left margin and 5 mm top margin:

```
PR2_FILT.      : POSTSCR
PR2_SIZE.     : LETTER
PR2_ORNT.     : LANDS
PR2_FORM.     : 48 0 120 60 30 50
```

**PostScript Font** You may specify a PostScript font to be used when the ASCII to PostScript filter is active. The specified font must be available in the attached PostScript printer. An invalid font name may cause a PostScript error and terminate the printout.

If no font name is specified, Courier (fixed pitch) will be used.

The font settings are ignored when the ASCII to PostScript filter is inactive.

**Example:** The following entry in your *config* file will select the Helvetica proportional font as the PR2 PostScript font:

```
PR2_FONT.     : Helvetica
```

## Hex Dump Mode

When hex dump mode is activated, the print data will be printed as hexadecimal byte values rather than characters. Printer control commands are also printed as hex values. This function is used for debugging purposes.

**Example:** The following entry in your *config* file will activate the hex dump mode for PR3:

```
PR3_DUMP .      : YES
```

**Note:** The page length for hex dump printouts is determined by the *Lines per Page* value of the *PostScript Page Format* parameter.

## Telnet Login

The Telnet support makes it possible to log in to the NPS 530/532 and execute various commands as shown in the example below. Use the **telnet** **<hostname>** command to log in.

**Example:** This sample telnet session illustrates the **help** command:

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

Axis NPS 53X TELNET Print Server V5.00

NPS 53X network login: root
Password: pass (not visible)

Axis NPS 53X TELNET Print Server V5.00

Root> help
Commands may be abbreviated:
logout      logout from TELNET
version     print current software version
help        print this list
status      show current printing status
account     show current account file
softreset   protocol restart of Axis NPS 53X
hardreset   reboot of Axis NPS 53X
defaults    set default parameters in Axis NPS 53X
Root> logout
Goodbye!
Connection closed by foreign host.
>
```

The *account* and *status* commands are shown on the following pages.

## Accounting

The accounting file contains data concerning the ten last print jobs. It specifies an internal job number, the user that initiated the job, the protocol and logical printer that was used, current status (Completed, Offline, or Printing), number of bytes printed, elapsed time and off-line time. The file can be accessed using FTP, Telnet, or AXCFG.

**Example:** This sample telnet session illustrates the **account** command:

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

Axis NPS 53X TELNET Print Server V5.00

NPS 53X network login: root
Password: pass (not visible)

Axis NPS 53X TELNET Print Server V5.00

Root> account
Current account file:
JOB      USER      PROT      LPR  S   BYTES      ETIME      OTIME
-----
1       thomas     FTP       pr2  C   1885       2         0
2       bengt      LPD       pr1  C   23074      4         0
3       RICARD     NETWARE   pr2  C   43004      5         0
4       LSLM_user  NetBIOS   pr1  C   6717       2         0
5       MacUser    APPLE     pr1  C   6717       2         0
6       patrik     PROS      pr5  P   832081     9         0
Root>
```

## Status Logging

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

*Example:* This sample telnet session illustrates the **status** command:

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

Axis NPS 53X TELNET Print Server V5.00

NPS 53X network login: root
Password: pass (not visible)

Axis NPS 53X TELNET Print Server V5.00

Root> status
Current printout status:
Printer   Port    Status    Bytes printed  Comments
pr1       LPT1    Printing  20916          Ready
pr1       LPT1    Occupied                Ready

Root>
```

## Locally Administrated Address

Each NPS 530/532 is preconfigured with a unique Node Address (identical to the serial number). You may change the node address to a *Locally Administrated Address* by editing the Node Address entry in your *config* file.

**Important:**

Always consult your network manager before changing the Node Address.

The Node Address consists of six hexadecimal numbers in the range 00 - FF. The numbers are separated by spaces.

**Example 1:** The following *config* entry shows an example of a preconfigured Node Address:

```
NODE_ADDR.      : 00 40 8C 11 00 86
```

A locally administrated address must begin with one of the hexadecimal numbers x2, x6, xA, or xE (xxxx xx10 in binary format). Examples: 02, 36, 5A and EE are valid leading numbers. No restrictions apply to the five remaining numbers.

**Example 2:** The following *config* entry shows an example of a locally administrated address:

```
NODE_ADDR.      : 36 F3 10 2E 20 0B
```

If you enter an invalid address, the current Node Address will remain unchanged. It is not possible to set an address other than a valid locally administrated address or the preconfigured Node Address.

You can restore the preconfigured Node Address by entering the NPS 530/532 serial number, or an address consisting of all 0's.

**Example 3:** The following *config* entry restores the Node Address to the preconfigured setting:

```
NODE_ADDR.      : 00 00 00 00 00 00
```

## SNMP

You may use SNMP (Simple Network Management Protocol) for remote monitoring of the NPS 530/532. All major functions applicable to print servers are supported.

SNMP actually refers to a set of standards for network management, including a protocol, a database structure specification, and a set of data objects. The NPS 530/532 SNMP implementation runs in the TCP/IP environment.

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

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

The NPS 530/532 supports all relevant parts of MIB-II. It also includes a private enterprise MIB (the AXIS MIB described in the NPS Print Server Technical Reference).

# Appendix A

## The parameter list

This appendix contains an overview of the NPS 530/532 parameters and how to edit them. Please refer to the NPS Print Server Technical Reference for a complete description of the parameters.

The current parameter settings are stored in the NPS 530/532 *config* file. Editing parameter values involve three steps: Up-load the *config* file to your system, edit the parameter values, and down-load the modified file to the NPS 530/532. There are a number of methods for doing this depending on the environment you work in.

### NetWare, Windows, OS/2

The disk supplied with the NPS 530/532 contains AXCFG, a menu-driven configuration utility that performs the tasks mentioned above. Follow the instructions given in the *read.me* file to install and use AXCFG.

## Unix (TCP/IP)

Use FTP to change the *config* file:

1. **Log in to the NPS 530/532.**  
Command: `ftp <host name>`  
Enter **root** as user id and **pass** as password.
2. **Up-load the config file.** Command: `get config`
3. **Edit the file using your favorite text editor.**
4. **Down-load the config file.** Command: `put config CONFIG`

The NPS 530/532 will automatically activate the new settings.

## Apple EtherTalk

You will need FTP support (such as the MacTCP utility) to get access to the config file from your Macintosh. Proceed as described for TCP/IP above. You can also configure your NPS 530/532 from a NetWare server, LAN Server/LAN Manager server, or a UNIX host if you have one of those in your network.

## Factory Default Settings

If you should need to reset the NPS 530/532 to factory default conditions, the best way to do this is to use the TEST button. This procedure involves switching the NPS 530/532 off and on. If you use an external power supply, unplug the power cord to switch off the NPS 530/532, otherwise use the printer's power switch.

- 1. Switch off the NPS 530/532.**
- 2. Press and hold the TEST button while you switch on the NPS 530/532.** Keep the TEST button pressed for at least 20 seconds until the PACKET flashes with one second intervals.
- 3. Release the TEST button and wait at least five seconds** (five indicator flashes).
- 4. Press and hold the TEST button for at least five seconds** until the PACKET indicator remains constantly lit.
- 5. Restart the NPS 530/532** (power-off/power-on).

The NPS 530/532 is now reset to factory default conditions.

**Note:** The Node and Internet Addresses (NODE\_ADDR and INT\_ADDR) remain unchanged, but all other parameters are reset to factory default values.

## The Config File

The remainder of this appendix contains the complete NPS 530/532 parameter list. The left column shows the parameters and their default values as they appear in the config file, and the right column contains brief descriptions of the parameters. For a full description of the parameters, please refer to the NPS Print Server Technical Reference.

```
--- CONFIG MENU
NODE_ADDR. : 00 40 8C 11 00 86
ROOT_PWD.  : pass
USERS.     :
```

Node Address
Root Password
User Authority and Printer Access

```
--- TCP/IP MENU
TCP_ENB.   : YES
INT_ADDR.  : 192 36 253 80
DEF_ROUT.  : 0 0 0 0
NET_MASK.  : 0 0 0 0
TCP_KEY.   :
PROS_PWD.  : netprinter
PROS_PRT.  : 35
LPD_BANN.  : YES
BOOTP_ENB. : YES
RARP_ENB.  : YES
RTN_OPT.   : YES
RTEL_PR1.  : 0
RTEL_PR2.  : 0
RTEL_PR3.  : 0
RTEL_PR4.  : 0
RTEL_PR5.  : 0
RTEL_PR6.  : 0
RTEL_PR7.  : 0
RTEL_PR8.  : 0
```

TCP/IP Protocol Enabled
Internet Address
Default Router Address (0.0.0.0 for no router)
Net Mask (e.g. 255.255.255.0 for class C, 0.0.0.0 for auto-sense)
TCP/IP Protocol Key
PROS Protocol Password
PROS TCP Port Number
LPD Banner Page Enabled
BOOTP Protocol Enabled
RARP Protocol Enabled
Reverse Telnet Options Enabled
PR1 Reverse Telnet TCP Port Number (0 for Disabled)
PR2 Reverse Telnet TCP Port Number (0 for Disabled)
PR3 Reverse Telnet TCP Port Number (0 for Disabled)
PR4 Reverse Telnet TCP Port Number (0 for Disabled)
PR5 Reverse Telnet TCP Port Number (0 for Disabled)
PR6 Reverse Telnet TCP Port Number (0 for Disabled)
PR7 Reverse Telnet TCP Port Number (0 for Disabled)
PR8 Reverse Telnet TCP Port Number (0 for Disabled)

```
--- SNMP MENU
READ_COM.  : public
WRT_COM.   : pass
TRAPADDR.  : 0 0 0 0
TRAP_COM.  : public
SYS_CONT.  :
SYS_NAME.  :
SYS_LOC.   :
SNMP_AUT.  : DISABLED
TRAP_PRT.  : DISABLED
```

Read-Only Community Name
Read-Write Community Name
SNMP Trap Internet Address
SNMP Trap Community Name
System Contact
System Name
System Location
Authentication Failure Traps
Printer Traps

## Appendix A: The parameter list

### --- NETWARE MENU

```

NETW_ENB.      : YES
PS_NAME.       : AXIS110086
CONFSERV.      :
PS_POLL.       : 5
AUTO_SCAN.     : BOTH (OFF PSERVER RPRINTER BOTH)
FR_802_3.      : YES
FR_ETH_2.      : YES
FR_802_2.      : YES
FR_SNAP.       : YES
LOGIN1.        :
LOGIN2.        :
LOGIN3.        :
LOGIN4.        :
LOGIN5.        :
LOGIN6.        :
LOGIN7.        :
LOGIN8.        :
LOGIN9.        :
LOGIN10.       :
LOGIN11.       :
LOGIN12.       :
LOGIN13.       :
LOGIN14.       :
LOGIN15.       :
LOGIN16.       :
RPRINT1.       :
RPRINT2.       :
RPRINT3.       :
RPRINT4.       :
RPRINT5.       :
RPRINT6.       :
RPRINT7.       :
RPRINT8.       :

```

```

NetWare Protocol Enabled
Print Server Name (110086 are the last six digits of the serial number)
Configuration File Server Name
Print Server Poll Interval
Automatic NetWare Print Server/Remote Printer Login
IEEE 802.3 Frame Type Enabled
Ethernet II Frame Type Enabled
IEEE 802.2 Frame Type Enabled
SNAP Frame Type Enabled
Print Server Queue Attachment 1
Print Server Queue Attachment 2
Print Server Queue Attachment 3
Print Server Queue Attachment 4
Print Server Queue Attachment 5
Print Server Queue Attachment 6
Print Server Queue Attachment 7
Print Server Queue Attachment 8
Print Server Queue Attachment 9
Print Server Queue Attachment 10
Print Server Queue Attachment 11
Print Server Queue Attachment 12
Print Server Queue Attachment 13
Print Server Queue Attachment 14
Print Server Queue Attachment 15
Print Server Queue Attachment 16
Remote Printer Attachment 1
Remote Printer Attachment 2
Remote Printer Attachment 3
Remote Printer Attachment 4
Remote Printer Attachment 5
Remote Printer Attachment 6
Remote Printer Attachment 7
Remote Printer Attachment 8

```

### --- LAN SERVER/LAN MANAGER MENU

```

LSLM_ENB.      : YES
NB_FR_TYPE.    : FR_AUTO (FR_AUTO, FR_802_2, FR_DIX)
LPRINT_1.     : AX110086.LP1
LLOGIC_1.     : PR1
LPRINT_2.     :
LLOGIC_2.     : PR2
LPRINT_3.     :
LLOGIC_3.     : PR3
LPRINT_4.     :
LLOGIC_4.     : PR4

```

```

LAN Server/LAN Manager Protocol Enabled
Frame Type
Printer 1 Name (110086 are the last six digits of the serial number)
Printer 1 Logical Printer
Printer 2 Name
Printer 2 Logical Printer
Printer 3 Name
Printer 3 Logical Printer
Printer 4 Name
Printer 4 Logical Printer

```

```

--- APPLETalk MENU
ATLK_ENB.      : NO
ATLK_KEY.      :
ATK_ZONE.      :
ZONER_EN.      : YES
ATK_FONT.      : DEFAULT      (DEFAULT 35N ALL)
BINARY.        : NO
APRINT_1.      : AXIS110086
ATYPE_1.       : LaserWriter
ALOGIC_1.      : PR1 (PR1 PR2 PR3 PR4
                  PR5 PR6 PR7 PR8)

```

AppleTalk Protocol Enabled  
 AppleTalk Protocol Key  
 AppleTalk Zone  
 HP Zoner Enabled  
 PostScript Font Set  
 Binary Transfer Enabled  
 Printer 1 Name (*110086 are the last six digits of the serial number*)  
 Printer 1 Type  
 Printer 1 Logical Printer

```

--- PRINTER1 MENU
PR1_WAIT.      : YES
PR1_BEF.       :
PR1_STR.        :
PR1_CSET.      : NONE      (NONE ISO>IBM 7UK>IBM 7SW>IBM
                          7GE>IBM 7FR>IBM 7ND>IBM DEC>IBM)
PR1_FILT.      : NONE      (NONE POSTSCR AUTO_PS)
PR1_AFT.       :
PR1_DUMP.      : NO
PR1_SIZE.      : A4      (A4 LETTER LEGAL EXECUT)
PR1_ORNT.      : PORTR    (PORTR LANDS R_PORTR R_LANDS)
PR1_FORM.      : 66 0 100 60 30 50
PR1_FONT.      :

```

PR1 Wait on Busy  
 PR1 String Before Print Job  
 PR1 String Substitutions  
 PR1 Character Set Conversion

PR1 Printer Language Translation  
 PR1 String After Print Job  
 PR1 Hex Dump Mode  
 PR1 PostScript Page Size  
 PR1 PostScript Page Orientation  
 PR1 PostScript Page Format (*MPL, MPP, CPI, LPI, LM, TM*)  
 PR1 PostScript Font (*Courier when not specified*)

```

--- PRINTER2 MENU
PR2_WAIT.      : YES
PR2_BEF.       :
PR2_STR.        :
PR2_CSET.      : NONE      (NONE ISO>IBM 7UK>IBM 7SW>IBM
                          7GE>IBM 7FR>IBM 7ND>IBM DEC>IBM)
PR2_FILT.      : NONE      (NONE POSTSCR AUTO_PS)
PR2_AFT.       :
PR2_DUMP.      : NO
PR2_SIZE.      : A4      (A4 LETTER LEGAL EXECUT)
PR2_ORNT.      : PORTR    (PORTR LANDS R_PORTR R_LANDS)
PR2_FORM.      : 66 0 100 60 30 50
PR2_FONT.      :

```

PR2 Wait on Busy  
 PR2 String Before Print Job  
 PR2 String Substitutions  
 PR2 Character Set Conversion

PR2 Printer Language Translation  
 PR2 String After Print Job  
 PR2 Hex Dump Mode  
 PR2 PostScript Page Size  
 PR2 PostScript Page Orientation  
 PR2 PostScript Page Format (*MPL, MPP, CPI, LPI, LM, TM*)  
 PR2 PostScript Font (*Courier when not specified*)

```

--- PRINTER3 MENU
PR3_WAIT.      : YES
PR3_BEF.       :
PR3_STR.        :
PR3_CSET.      : NONE      (NONE ISO>IBM 7UK>IBM 7SW>IBM
                          7GE>IBM 7FR>IBM 7ND>IBM DEC>IBM)
PR3_FILT.      : NONE      (NONE POSTSCR AUTO_PS)
PR3_AFT.       :
PR3_DUMP.      : NO
PR3_SIZE.      : A4      (A4 LETTER LEGAL EXECUT)
PR3_ORNT.      : PORTR    (PORTR LANDS R_PORTR R_LANDS)
PR3_FORM.      : 66 0 100 60 30 50
PR3_FONT.      :

```

PR3 Wait on Busy  
 PR3 String Before Print Job  
 PR3 String Substitutions  
 PR3 Character Set Conversion

PR3 Printer Language Translation  
 PR3 String After Print Job  
 PR3 Hex Dump Mode  
 PR3 PostScript Page Size  
 PR3 PostScript Page Orientation  
 PR3 PostScript Page Format (*MPL, MPP, CPI, LPI, LM, TM*)  
 PR3 PostScript Font (*Courier when not specified*)

## Appendix A: The parameter list

### --- PRINTER4 MENU

```

PR4_WAIT.      : YES
PR4_BEF.       :
PR4_STR.       :
PR4_CSET.      : NONE      (NONE ISO>IBM 7UK>IBM 7SW>IBM
                          7GE>IBM 7FR>IBM 7ND>IBM DEC>IBM)
PR4_FILT.     : NONE      (NONE POSTSCR AUTO_PS)
PR4_AFT.       :
PR4_DUMP.     : NO
PR4_SIZE.     : A4         (A4 LETTER LEGAL EXECUT)
PR4_ORNT.     : PORTR     (PORTR LANDS R_PORTR R_LANDS)
PR4_FORM.     : 66 0 100 60 30 50
PR4_FONT.     :

```

```

PR4 Wait on Busy
PR4 String Before Print Job
PR4 String Substitutions
PR4 Character Set Conversion

PR4 Printer Language Translation
PR4 String After Print Job
PR4 Hex Dump Mode
PR4 PostScript Page Size
PR4 PostScript Page Orientation
PR4 PostScript Page Format (MPL, MPP, CPI, LPI, LM, TM)
PR4 PostScript Font (Courier when not specified)

```

### --- PRINTER5 MENU

```

PR5_WAIT.      : YES
PR5_BEF.       :
PR5_STR.       : 010A020D0A
PR5_CSET.      : NONE      (NONE ISO>IBM 7UK>IBM 7SW>IBM
                          7GE>IBM 7FR>IBM 7ND>IBM DEC>IBM)
PR5_FILT.     : NONE      (NONE POSTSCR AUTO_PS)
PR5_AFT.       :
PR5_DUMP.     : NO
PR5_SIZE.     : A4         (A4 LETTER LEGAL EXECUT)
PR5_ORNT.     : PORTR     (PORTR LANDS R_PORTR R_LANDS)
PR5_FORM.     : 66 0 100 60 30 50
PR5_FONT.     :

```

```

PR5 Wait on Busy
PR5 String Before Print Job
PR5 String Substitutions
PR5 Character Set Conversion

PR5 Printer Language Translation
PR5 String After Print Job
PR5 Hex Dump Mode
PR5 PostScript Page Size
PR5 PostScript Page Orientation
PR5 PostScript Page Format (MPL, MPP, CPI, LPI, LM, TM)
PR5 PostScript Font (Courier when not specified)

```

### --- PRINTER6 MENU

```

PR6_WAIT.      : YES
PR6_BEF.       :
PR6_STR.       : 010A020D0A
PR6_CSET.      : NONE      (NONE ISO>IBM 7UK>IBM 7SW>IBM
                          7GE>IBM 7FR>IBM 7ND>IBM DEC>IBM)
PR6_FILT.     : NONE      (NONE POSTSCR AUTO_PS)
PR6_AFT.       :
PR6_DUMP.     : NO
PR6_SIZE.     : A4         (A4 LETTER LEGAL EXECUT)
PR6_ORNT.     : PORTR     (PORTR LANDS R_PORTR R_LANDS)
PR6_FORM.     : 66 0 100 60 30 50
PR6_FONT.     :

```

```

PR6 Wait on Busy
PR6 String Before Print Job
PR6 String Substitutions
PR6 Character Set Conversion

PR6 Printer Language Translation
PR6 String After Print Job
PR6 Hex Dump Mode
PR6 PostScript Page Size
PR6 PostScript Page Orientation
PR6 PostScript Page Format (MPL, MPP, CPI, LPI, LM, TM)
PR6 PostScript Font (Courier when not specified)

```

### --- PRINTER7 MENU

```

PR7_WAIT.      : YES
PR7_BEF.       :
PR7_STR.       : 010A020D0A
PR7_CSET.      : NONE      (NONE ISO>IBM 7UK>IBM 7SW>IBM
                          7GE>IBM 7FR>IBM 7ND>IBM DEC>IBM)
PR7_FILT.     : NONE      (NONE POSTSCR AUTO_PS)
PR7_AFT.       :
PR7_DUMP.     : NO
PR7_SIZE.     : A4         (A4 LETTER LEGAL EXECUT)
PR7_ORNT.     : PORTR     (PORTR LANDS R_PORTR R_LANDS)
PR7_FORM.     : 66 0 100 60 30 50
PR7_FONT.     :

```

```

PR7 Wait on Busy
PR7 String Before Print Job
PR7 String Substitutions
PR7 Character Set Conversion

PR7 Printer Language Translation
PR7 String After Print Job
PR7 Hex Dump Mode
PR7 PostScript Page Size
PR7 PostScript Page Orientation
PR7 PostScript Page Format (MPL, MPP, CPI, LPI, LM, TM)
PR7 PostScript Font (Courier when not specified)

```

---	PRINTER8 MENU	
PR8_WAIT.	: YES	PR8 Wait on Busy
PR8_BEF.	:	PR8 String Before Print Job
PR8_STR.	: 010A020D0A	PR8 String Substitutions
PR8_CSET.	: NONE (NONE ISO>IBM 7UK>IBM 7SW>IBM 7GE>IBM 7FR>IBM 7ND>IBM DEC>IBM)	PR8 Character Set Conversion
PR8_FILT.	: POSTSCR (NONE POSTSCR AUTO_PS)	PR8 Printer Language Translation
PR8_AFT.	:	PR8 String After Print Job
PR8_DUMP.	: NO	PR8 Hex Dump Mode
PR8_SIZE.	: A4 (A4 LETTER LEGAL EXECUT)	PR8 PostScript Page Size
PR8_ORNT.	: PORTR (PORTR LANDS R_PORTR R_LANDS)	PR8 PostScript Page Orientation
PR8_FORM.	: 66 0 100 60 30 50	PR8 PostScript Page Format ( <i>MPL, MPP, CPI, LPI, LM, TM</i> )
PR8_FONT.	:	PR8 PostScript Font ( <i>Courier when not specified</i> )
---	OUTPUT MENU	
L1_CENTR.	: STNDRD (IBM_PC STNDRD FAST HISPEED)	LPT1 Centronics Interface Timing
L1_BSYTM.	: 60	LPT1 Busy Status Time-Out
---	PANEL MENU	
DEF_OUT.	: PR1 (PR1 PR2 PR3 PR4 PR5 PR6 PR7 PR8)	Internal Printout Destination
LOCK_KEY.	: NO	Lock Test Button

# Appendix B

## Internal printouts

There are three different internal printouts that can be printed using the TEST button on the NPS 530/532 front panel:

***The Test Page*** The test page shows the software revision and the basic configuration of the NPS 530/532.

To print the test page, press the TEST button until the STATUS indicator starts to flash, then release the button.

***The Parameter List*** The parameter list (or the *config* file) shows the complete NPS 530/532 configuration. See Appendix A for a sample parameter list.

To print the parameter list, press the TEST button until the STATUS indicator starts to flash, release the button, and press it once.

***The read.me File*** The *read.me* file contains detailed instructions about how to integrate the NPS 530/532 for different TCP/IP environments and print methods. It also contains last-minute information not covered by the printed documentation, so you should always read this file before starting the integration.

To print the *read.me* file, press the TEST button until the STATUS indicator starts to flash, release the button, and press it twice.

# Appendix C

## Protocol Support Upgrades

The NPS 530/532 is by default delivered with Novell NetWare and LAN Server/LAN Manager support. TCP/IP and Apple EtherTalk support are available as software keys from your dealer. The software keys are sold separately for TCP/IP and Apple EtherTalk.

### Ordering Procedures

A software key is simply a six-digit hexadecimal number that can be obtained by fax (or over the phone) from your distributor. The keys are individual for each NPS 530/532. You should have the following information available when ordering upgrades:

- The protocol (or protocols) you wish to upgrade to.
- The serial number of each NPS 530/532 you wish to upgrade.

### Upgrading Procedures

The TCP/IP and Apple EtherTalk protocols are controlled by two parameters; **TCP\_ENB** (TCP/IP Menu), and **ATLK\_ENB** (AppleTalk Menu). These parameters are by default set to NO, and cannot be changed unless the corresponding software keys have been provided.

The protocol upgrade is carried out by editing the *config* file as outlined in Appendix A. The software keys are entered as two parameter values; **TCP\_KEY** (TCP/IP Menu), and **ATLK\_KEY** (AppleTalk Menu).

There are two ways to enter the software keys, either using AXCFG from a PC running Windows or OS/2, or using FTP from a UNIX host running TCP/IP.

## Upgrade using AXCFG

The disk supplied with the NPS 530/532 contains AXCFG, a menu-driven configuration utility for Novell NetWare and LAN Server/LAN Manager that performs the tasks mentioned above. Follow the instructions given in the *read.me* file to install and use AXCFG.

Follow these steps to upgrade using AXCFG:

1. Start *AXCFG* and select your NPS 530/532 from the list of available print servers.
2. If you are upgrading to Apple EtherTalk only, then skip to step 6.
3. Select **TCP/IP MENU**, then select **TCP\_KEY**.
4. Type in the six-digit *TCP/IP key*, and click **OK**.
5. If you are upgrading to TCP/IP only, then skip to step 8.
6. Select **APPLETALK MENU**, then select **ATLK\_KEY**.
7. Type in the six-digit *AppleTalk key*, and click **OK**.
8. Click **SAVE**, then click **CANCEL** to exit AXCFG.

- Notes**
- The protocol enable parameters **TCP\_ENB** and **ATLK\_ENB** will automatically be set to YES when correct keys have been provided. You can change these parameters later if you want to disable one or both protocols.
  - If you enter an incorrect key the parameter will remain empty.
  - In order to prevent accidental loss of upgrade keys, it is not possible to edit the key parameters further once the correct key has been entered.

## Upgrade using TCP/IP

Even if the TCP/IP protocol is disabled, the NPS 530/532 has a limited FTP file transfer support to allow upgrading from a UNIX workstation. Follow these steps to upgrade using FTP file transfer:

1. Create a file named *upgrade* containing the following lines:

TCP_KEY.	:	4B26F8
ATLK_KEY.	:	603DC2

*(the software key values are examples only)*

If you are upgrading for one protocol only, then omit the inappropriate line.

2. Do a basic TCP/IP configuration as described in Section 6, and use the *arp* method to set the Internet address.
3. Log in to the NPS 530/532. Command: **ftp <host name>**  
Enter *root* as user id and *pass* as password.
4. Down-load the upgrade file. Command: **put upgrade CONFIG**

- Notes**
- The protocol enable parameters **TCP\_ENB** and **ATLK\_ENB** will automatically be set to YES when correct keys have been provided. You can change these parameters later if you want to disable one or both protocols.
  - If you enter an incorrect key the parameter will remain empty.
  - In order to prevent accidental loss of upgrade keys, it is not possible to edit the key parameters further once the correct key has been entered.

## Verify the Upgrade

You can verify that the upgrade is successfully completed by printing the test page after the NPS 530/532 has been restarted. To print the test page, press the TEST button until the STATUS indicator starts to flash, then release the button. See Appendix B for a test page sample from an NPS 530/532 in its default configuration.

- If you have upgraded to TCP/IP, the TCP/IP header has changed from:

```
** TCP/IP: locked
```

to:

```
** TCP/IP: enabled
```

- If you have upgraded to Apple EtherTalk, the Apple EtherTalk header has changed from:

```
** Apple EtherTalk: locked
```

to:

```
** Apple EtherTalk: enabled
```

If the upgrade procedure failed, repeat the process and make sure that you enter the proper key into the key parameters. Should the upgrade still fail, contact your distributor.

**Note:** As an alternative, you can also view the parameter list to verify the upgrade. After a successful upgrade, the parameters **TCP\_KEY** and/or **ATLK\_KEY** contain the software key, and parameters **TCP\_ENB** and/or **ATLK\_ENB** are set to YES. If the upgrade procedure failed, the software key parameters (**TCP\_KEY** and **ATLK\_KEY**) remain empty.

# Appendix D

## Technical specifications

### Network environments

- NetWare 3.11, 3.12, 4.0x and 4.10 using bindery emulation
- Windows for Workgroups, Windows 95, Windows NT ver. 3.5 and above
- LAN Server 1.3 and above
- LAN Manager 2.0c and above
- Any system with TCP/IP support (*software upgrade required*)
- Apple EtherTalk (*software upgrade required*)

### Network attachments

- NPS 530: 10baseT (twisted-pair) via RJ-45 connector
- NPS 532: 10base2 (thin-wire) via BNC connector

### Supported protocols

- Netware: IPX, RIP, NCP, SAP, SPX
- Windows: NetBIOS/NetBEUI, TCP/IP (Windows NT)
- TCP/IP: LPD, FTP, Reverse Telnet, PROS, BOOTP, ARP, ICMP, IP, RARP, TCP, Telnet, UDP
- OS/2: NetBIOS/NetBEUI
- EtherTalk: AARP, ATP, DDP, NBP, PAP, RTMP, ZIP

### General features

- Easy installation
- High-speed printing (>150 kbytes/s)
- Eight logical printers (featuring Physical Printer Port, Character Set Conversion, Strings Before and After Print Jobs, String Substitutions, PostScript Functions, and Hex Dump Mode)
- Security functions
- Printout statistics logging
- Use of IEEE802.2, IEEE802.3, SNAP and Ethernet II frame types simultaneously

### NetWare features

- Standard installation using PCONSOLE
- Print Server Mode for high-speed printing
- Remote Printer Mode for up to 16 printers per NetWare user licence
- Up to 96 print queues on 16 file servers
- Port Status monitoring

### Windows features

- Automatic installation software (Axis Print Utility for Windows)
- Printing through Windows Print Manager
- Both peer-to-peer and client-server printing

### OS/2 features

- Automatic installation software (Axis Print Utility for OS/2)
- Printing through OS/2 Print Manager
- Port Status monitoring

### Unix features

- SNMP support: Axis private enterprise MIB and MIB-II

### Macintosh features

- Standard installation using the Chooser
- Supports binary mode

### Printer attachments

- Connects to the printer's Centronics port (throughput exceeding 150 kbytes/s, burst 250 kbytes/s)

### Hardware specifications

- Size: 1.2 × 2.2 × 8.5 inches / 29 × 55 × 100 mm
- Weight: 0.3 lb / 0.15 kg
- Power: NPS 530: 5 VDC, min. 300 mA supplied by the printer (Centronics pin 18), or  
12 VDC or 9 VAC, min 300 mA by external power supply  
NPS 532: 12-15 VDC or VAC, min 500 mA by external power supply

### Approvals

- EMC: Limit A of FCC Rules and Regulations part 15 subpart B, class A (US).  
Limit B of EN 55022/1987, EN 50082-1/1992 (Europe).
- Safety: EN 60950, UL



### Operating environments

- Temperature: 40 - 105 °F / 5 - 40 °C
- Humidity: 10 - 95% non-condensing

All specifications are subject to change without prior notice

# Appendix E

## How to contact Axis

If you need technical support, please contact your dealer. If they can't help you, they will forward your request to us.

### Axis on-line service

Use the Axis on-line service at any time to retrieve electronically distributed items. The material available include the NPS Print Server Technical Reference, the Adobe Acrobat Reader (required for all Axis on-line documentation), company and product presentations, etc. All items are available on Internet by a WWW browser or ftp file transfer, and on the Axis Bulletin Board by modem.

#### ***Internet and World Wide Web***

If you are connected to Internet, have a look at the Axis WWW Home Page at <http://www.axis.se>. Here you can find information about the company and our products. You can also download online manuals, tools such as the Acrobat Reader for different platforms, and the latest versions of the NPS utilities.

You can also get files and information through anonymous ftp at <ftp://ftp.axis.se>.

If you want to receive regular information about new products and product updates by e-mail, send an e-mail to [Majordomo@axis.se](mailto:Majordomo@axis.se) with

SUBSCRIBE AXIS-NEWS  
in the message body.

#### ***The Axis Bulletin Board***

The third way to access the Axis archive is the Axis BBS. You will need a high-speed modem, a VT100 or VT220 terminal emulator, and a Kermit or ZModem compatible software. Dial **+46 46 12 06 32** or **+46 46 211 94 53** and log in as **guest** (no password required).

## The Axis offices

If you want to contact an Axis office, choose the one nearest to your region:

*Europe, Middle  
East, South  
America, Africa*

**Axis Communications AB**  
Scheelevägen 16, S-223 70 Lund, Sweden  
Phone: +46 46 19 18 00  
Fax: +46 46 13 61 30  
Email: [info@axis.se](mailto:info@axis.se)  
URL: <http://www.axis.se/>

*North & Central  
America*

**Axis Communications Inc.**  
4 Constitution Way, Woburn, MA 01801-1030, USA  
Phone: 1-800-444-AXIS, (617) 938-1188  
Fax: (617) 938-6161  
Email: [info@axisinc.com](mailto:info@axisinc.com)

*Japan*

**Axis Communications KK**  
8th Center Plaza 5F, 1-10-16Nihombashi Horidome-cho,  
Chuo-ku, Tokyo 103, Japan  
Phone: +81 3 3663 8801  
Fax: +81 3 3663 8802  
Email: [info@axiscom.co.jp](mailto:info@axiscom.co.jp)

*Hong Kong, Asia  
(except Japan &  
Middle East),  
Australia*

**Axis Communications LTD**  
Room 602, Asian House, 1 Hennessy Road, Wanchai, Hong Kong  
Phone: +852 2836 0813  
Fax: +852 2573 5935  
Email: [info@axis.com.hk](mailto:info@axis.com.hk)

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