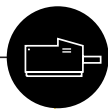# Axis Print Servers

High Performance Multi-Protocol
Print Servers for Virtually All Networks

AXIS 570/670 User's Manual v3.0

THIN
SERVER
TECHNOLOGY
BY AXIS™

AXIS®
COMMUNICATIONS

AXIS 570/670
Network Print Server

User's Manual

Safety Notices

Please take some time to read through the safety notices before installing the AXIS 570/670.

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

Important: - must be observed to avoid operational impairment.

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

Electromagnetic Compatibility (EMC) notices - USA

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

Electromagnetic Compatibility (EMC) notices - Europe

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

Liability

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

Year 2000 compliance

Axis Communications warrants that all versions of the AXIS 570/670, with software versions 5.54 or later, are Year 2000 compliant.

Axis' Trademarks

NetPilot, ThinServer, ThinWizard, IP Installer, 570, 670, 570e, 670e.

Other Trademark Acknowledgments

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

Preface

Thank you for purchasing the AXIS 570/670 Network Print Server. This product has been developed to connect your printers anywhere in your network, allowing all network users access to the shared printer resources.

About this manual

This manual provides introductory information as well as detailed instructions on how to set up and manage the AXIS 570/670 in various network environments. It is intended for everyone involved in installing and managing the AXIS 570/670. To fully benefit from the manual, you should be familiar with basic networking principles.

This manual is applicable for the AXIS 570/670, with software release 5.54 or later.

Unless stated otherwise, the AXIS 570, AXIS 570e, AXIS 670 and the AXIS 670e are collectively described as the AXIS 570/670 throughout this manual.

About Axis

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

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

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

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

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

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

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

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

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

Support services

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

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

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

Table of Contents

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

Section 1 Introduction

Based on the ThinServer technology, the AXIS 570/670 is a LAN attached multiprotocol print server that prints IBM and ASCII data streams to any ASCII printer. The AXIS 570/670 is ideal for IBM Mainframe and AS/400 sites that are migrating from pure IBM networks to LAN environments.
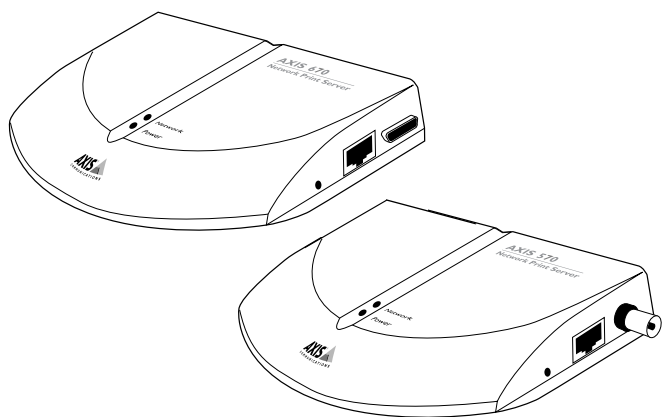
The AXIS 570/670 Network Print Server

The AXIS 570/670 family currently consists of four models, which main differences are summarized in the table below:

	AXIS 570	AXIS 570e	AXIS 670	AXIS 670e
Ethernet	X	X		
Fast Ethernet		X		
Token Ring			X	X
Network Speed(Mbps)	10	10 or 100	4 or 16	4 or 16
Network Connection	10baseT or 10base2	10baseT or 100baseTX	STP (media type 1) or UTP (media type 3)	STP (media type 1) or UTP (media type 3)
IPDS data streams		X		X
SCS data streams	X	X	X	X
3270 data stream	X	X	X	X

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

Where to use it
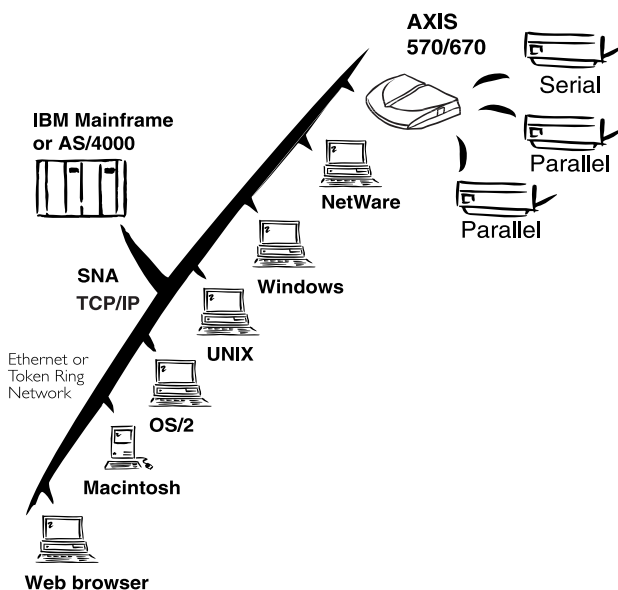
Supported Environments

The AXIS 570/670 is the ideal print server in mixed environments as it can communicate with all the major computer systems and network protocols including:

- IBM Mainframe and AS/400

- NetWare

- UNIX

- Windows

- Windows clients connected to LANtastic networks

- OS/2

- Macintosh *(Not supported by AXIS 670 and AXIS 670e)*

- Internet/intranet via any standard Web browser

How to use it

Installation and
Integration

The installation of the AXIS 570/670 and its integration into the
network is performed using the appropriate Axis client software,
provided with your print server:

- AXIS NetPilot™ (NetWare)

- AXIS Print Monitor (Windows 95/98 and Windows NT)

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

- AXIS Print Utility for OS/2

- *axinstall* (UNIX)

Note: ❏ The AXIS 570 and the AXIS 570e can be installed in the
Macintosh environment without any Axis client software.

Configuration and
Management

As the AXIS 570/670 comprises a built-in Web server, it can be
configured and managed directly from its internal Web pages, using
HTTP over TCP/IP. Access to the AXIS 570/670 via any standard
Web browser, offers you a platform-independent management tool
that is suitable for all supported network environments.

If your network does not support TCP/IP, you can use AXIS NetPilot
to configure and manage the AXIS 570/670.

Features and Benefits

Reliability   The AXIS 570/670 print server provides high performance and
reliability combined with low power consumption. The electronic
circuits are based on the proven AXIS ETRAX chip, which comprises
an integrated 32 bit RISC processor and associated network
controllers.

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

Flexibility   In the IBM Mainframe and AS/400 environment, the AXIS 570/670 can emulate IBM twinax and coax print and control functionality. This means that the AXIS 570/670 can effectively replace coax/twinax attached printers and control units on the LAN.

A single IBM data stream can be directed to any of the two high-speed parallel printer ports, or the serial printer port, using TCP/IP or SNA transport protocols.

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

Speed   The AXIS ETRAX chip has been specifically designed for LAN products and benefits users with a faster throughput than a direct PC-to-printer connection. With a sustained data throughput of up to 400 kbytes per second, the AXIS 570/670 is fast. High speed Centronics communication such as Hewlett-Packard Fast Mode, High Speed and IBM Fast Byte is supported.

Easy to Install   You can install the AXIS 570/670 in minutes, using the AXIS NetPilot installation software. Its Installation Wizard, combined with the *axinstall* script for UNIX workstations, allows installation into all supported networking environments.

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

Monitoring   The provided AXIS NetPilot software and the internal AXIS 570/670 Web pages allow you to continuously monitor printer status. Integrity of your printing is also monitored via interactive communication with the IBM host.

The AXIS Print Monitor for Windows 95, Windows 98 and Windows NT can be configured to display pop-up messages that show the status of peer-to-peer print jobs.

The AXIS 570/670 additionally supports SNMP for remote monitoring.

Futureproof   You can upgrade the AXIS 570/670 Flash memory over the network. This allows you to quickly update and enhance the operational features of your AXIS 570/670 when new print server software becomes available. All software updates are free of charge.

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

Section 2 Product Overview

Package Contents

Verify that nothing is missing from the print server package by using the check list below. Please contact your dealer if anything should be missing or damaged. All packing materials are recyclable.

☐ AXIS 570, part no: 0056-1
AXIS 570e, part no: 0080-2
AXIS 670, part no: 0057-1
AXIS 670e part no: 0057-6

☐ AXIS Online CD, revision 5.2 or higher

☐ AXIS 570/670 User's Guide, part no: 16456

☐Power Supply:

Part no.	AXIS 570/670/670e (PS-B)	AXIS 570e (PS-D)
Australia	13269	14255
Europe	13267	14233
Japan	13936	14254
UK	13268	14234
USA	13270	14253

Optional accessories

☐ Parallel printer cable, part no: 13360
☐ Serial printer cable, part no: 13281
☐ Flash loading kit, part no: 0041-4

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

The AXIS Online CD

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

Start-up procedures for Windows

The AXIS Online CD starts automatically from a local CD drive on **Windows 95/98 and NT** platforms.

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

Start-up procedures for UNIX, OS/2 and MacOS

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

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

AXIS 570 Physical Description

LPT1 Printer   LPT2 Printer   External Power
Connector   Connector   Supply Connector

COM1
Printer
Connector

AXIS 570
Network Print Server

Ethernet
10base2
Connector

Ethernet
10baseT
Connector

Test Button

Network

Power

AXIS▲

Network Indicator
Power Indicator

AXIS 570 Network Print Server
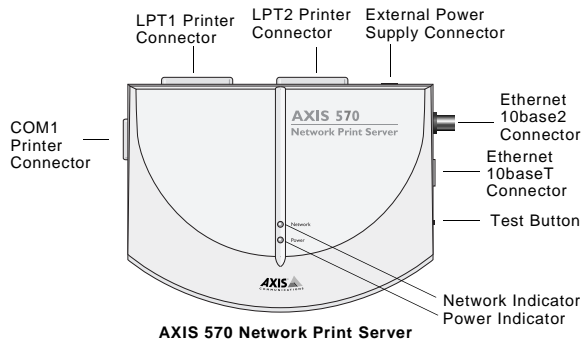
Plan view of the AXIS 570

Network Connectors   The AXIS 570 is designed for 10 Mbps Ethernet networks and connect to the network via a twisted pair (10baseT) or a thin wire (10base2) cable.

Printer Ports   The AXIS 570/670 print server is provided with two high-speed IEEE 1284 compatible parallel ports and one serial port. Any standard printer can be connected to any of the ports. Print data can be directed to any of the three ports simultaneously, which means that three different printers can be used at the same time, regardless of protocol.

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

Test Button   The test button is used for:

- Printing a test page to check the connection to the printer.
- Printing the parameter list showing all the AXIS 570 settings.
- Resetting the AXIS 570 parameters to the factory default settings.

Refer to *Appendix J - Test Button*, on page 283, for more information about the test Button.

Network Indicator   The network indicator flashes to indicate network activity.

Power Indicator   The power indicator is lit while power is applied. If it is not lit, or it flashes, there is a problem with the AXIS 570 or its power supply.

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

AXIS 570e Physical Description

LPT1 Printer Connector

LPT2 Printer Connector

External Power Supply Connector

COM1 Printer Connector

AXIS 570e
Network Print Server

10baseT and 100baseTX Connector

Test Button

Network

Power

Network Indicator
Power Indicator

AXIS 570e Network Print Server

Plan view of the AXIS 570e

Network Connectors

The AXIS 570e is designed for 10 Mbps Ethernet and 100 Mbps Fast Ethernet networks and connects to the network via a twisted pair category 5 cable (10baseT and 100baseTX) or better. The AXIS 570e is equipped with an autosensing function that detects the speed of the local network segment and varies the speed of its data communication accordingly, between 10 Mbps and 100 Mbps.

Printer Ports

The AXIS 570e print server is provided with two high-speed IEEE 1284 compatible parallel ports and one serial port. Any standard printer can be connected to any of the ports. Print data can be directed to any of the three ports simultaneously, which means that three different printers can be used at the same time, regardless of protocol.

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

Test Button   The test button is used for:

- Printing a test page to check the connection to the printer.
- Printing the parameter list showing all the AXIS 570e settings.
- Resetting the AXIS 570e parameters to the factory default settings.

Refer to *Appendix J - Test Button*, on page 283 for more information about the test button.

Network Indicator   The network indicator flashes to indicate network activity.

Power Indicator   The power indicator is lit while power is applied. If it is not lit, or it flashes, there is a problem with the AXIS 570e or its power supply.

AXIS 670 Physical Description
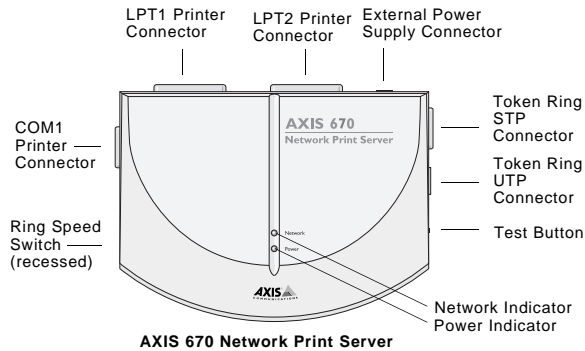
Plan view of the AXIS 670

Network Connectors   The AXIS 670 is designed for 4 and 16 Mbps Token Ring networks and connect to the network via an unshielded twisted pair (UTP) or a shielded twisted pair (STP) cable.

Printer Ports   The AXIS 670 print server is provided with two high-speed IEEE 1284 compatible parallel ports and one serial port. Any standard printer can be connected to any of the ports. Print data can be directed to any of the three ports simultaneously, which means that three different printers can be used at the same time, regardless of protocol.

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

Test Button   The test button is used for:

- Printing a test page to check the connection to the printer.
- Printing the parameter list showing all the AXIS 670 settings.
- Resetting the AXIS 670 parameters to the factory default settings.

Refer to *Appendix J - Test Button*, on page 283 for more information about the test button.

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

Network Indicator   The network indicator flashes to indicate network activity.

Power Indicator   The power indicator is lit while power is applied. If it is not lit, or it flashes, there is a problem with the AXIS 670 or its power supply.

AXIS 670e Physical Description
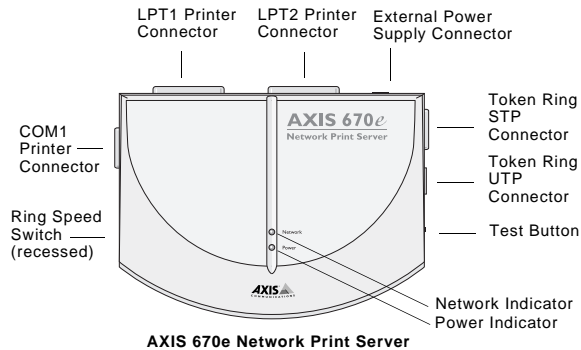
Plan view of the AXIS 670e

Network Connectors

The AXIS 670e is designed for 4 and 16 Mbps Token Ring networks and connect to the network via an unshielded twisted pair (UTP) or a shielded twisted pair (STP) cable.

Printer Ports

The AXIS 670e print server is provided with two high-speed IEEE 1284 compatible parallel ports and one serial port. Any standard printer can be connected to any of the ports. Print data can be directed to any of the three ports simultaneously, which means that three different printers can be used at the same time, regardless of protocol.

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

Test Button   The test button is used for:

- Printing a test page to check the connection to the printer.
- Printing the parameter list showing all the AXIS 670e settings.
- Resetting the AXIS 670e parameters to the factory default settings.

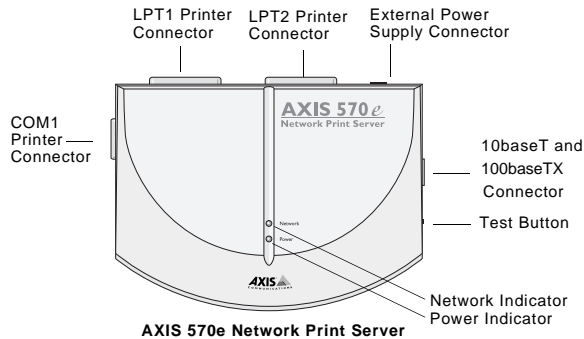Refer to *Appendix J - Test Button*, on page 283 for more information about the test button.

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

Network Indicator   The network indicator flashes to indicate network activity.

Power Indicator   The power indicator is lit while power is applied. If it is not lit, or it flashes, there is a problem with the AXIS 670e or its power supply.

Section 3 Basic Installation

Getting Started

After you have verified that no items presented in *Package Contents*, on page 15, are missing, you are now ready to install your AXIS 570/670.

Follow the instructions below to install the AXIS 570/670 in your environment:

1. Start the procedure by connecting the AXIS 570/670 to your network and printer as described in the following table:

Print Server Model	Go to...
AXIS 570 **AXIS 570e**	*Connecting a printer to the Ethernet Network*, on page 26
AXIS 670 **AXIS 670e**	*Connecting a printer to the Token Ring Network*, on page 28

2. When the AXIS 570/670 is successfully connected, proceed to the *Installation Guide*, on page 30, where you will find further information about how to install and integrate the AXIS 570/670 in your network environments.

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

Connecting a printer to the Ethernet Network

Follow the instructions below to connect a printer to the network via the AXIS 570/570e print server.

Caution! ❏ Make sure that the AXIS 570/570e external power supply is marked with the correct voltage! Refer to the Power supply table on page 15.
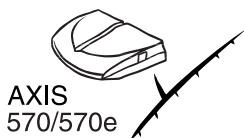
1. Switch off the printer and disconnect the AXIS 570/570e external power supply.

AXIS
570/570e

2. Locate the serial number, found on the underside label of the AXIS 570/570e, and write it down. You will need this number later during the network configuration.

3. Connect the printer to the LPT1, LPT2 or the COM1 port on the AXIS 570/570e using an appropriate printer cable.

4. Connect your AXIS 570/570e to the network using a twisted pair (10baseT), thin wire (10base2) cable or twisted pair category 5 cable (10baseT and 100baseTX).

5. Switch on the printer and connect the external power supply to the AXIS 570/570e. The power indicator lights. If the network indicator starts to flash, the AXIS 570/570e is successfully connected to the network.

6. Press and release the test button on the AXIS 570/570e to print a test page. If the printer and the AXIS 570/570e are correctly connected, the AXIS 570/570e internal test page will be printed.

You are now ready to install your server onto your network using one of the methods detailed in the *Installation Guide*, on page 30.

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

❏ Each AXIS 570/570e Print Server is pre-configured with a unique node address that is identical to the serial number. The node address can be changed using AXIS NetPilot, or any standard Web browser. Please refer to *Section 11 Management & Configuration*, on page 161, for more information.

❏ The AXIS 570/570e uses high speed Centronics Communication. For use with older printers not supporting high speed, this function can be disabled by using AXIS NetPilot, or any standard Web browser. Please refer to *Section 11 Management & Configuration*, on page 161, for more information.

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

Connecting a printer to the Token Ring Network

Follow the instructions below to connect a printer to the network via the AXIS 670/670e print server.

Caution! ❑ Make sure that the AXIS 670/670e external power supply is marked with the correct voltage! Refer to the Power supply table on page 15.

❑ DO NOT connect or disconnect the network cabling while AXIS 670/670e is powered on.
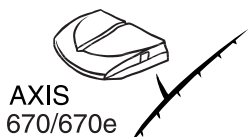
1. Switch off the printer and disconnect the AXIS 670/670e external power supply.

2. Locate the serial number, found on the underside label of the AXIS 670/670e, and write it down. You will need this number later during the network configuration.

AXIS 670/670e

3. Connect the printer to the LPT1, LPT2 or the COM1 port on the AXIS 670/670e using an appropriate printer cable.

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

5. Connect your AXIS 670/670e to the network using an Shielded Twisted Pair (Media Type 1) or Unshielded Twisted Pair (Media Type 3) cable.

6. Switch on the printer and connect the external power supply to the AXIS 670/670e. The power indicator lights. If the network indicator starts to flash, the AXIS 670/670e is successfully connected to the network.

Notes:

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

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

❏ Each AXIS 670/670e Print Server is pre-configured with a unique node address that is identical to the serial number. The node address can be changed using AXIS NetPilot, or any standard Web browser. Please refer to *Section 11 Management & Configuration*, on page 161, for more information.

❏ The AXIS 670/670e uses high speed Centronics Communication. For use with older printers not supporting high speed, this function can be disabled by using AXIS NetPilot, or any standard Web browser. Please refer to *Section 11 Management & Configuration*, on page 161, for more information.

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

Installation Guide

After connecting the AXIS 570/670 to your network, you are now ready to perform the basic setup procedures. The method of installation that you choose should be dictated by your printing requirements and the type of network into which you are integrating.

Installation Methods   Select the appropriate installation method from the table below:

Environment	Network Configuration	Action
AS/400	SNA	See *Section 4 Setting Up - AS/400*, on page 49
	TCP/IP	See *Assigning an IP address*, on page 36 Proceed with *Section 4 Setting Up - AS/400*, on page 49
IBM Mainframe	SNA	See *Section 5 Setting Up - IBM Mainframe*, on page 87
	TCP/IP	See *Assigning an IP address*, on page 36 Proceed with
NetWare	NDPS	See *Setup using NDPS*, on page 116
	NetWare	See *Basic Setup with AXIS NetPilot*, on page 32
	Advanced configuration	See *Basic Setup with AXIS NetPilot*, on page 32. Proceed with *Advanced Installation using AXIS NetPilot*, on page 118
Windows	NetBIOS/NetBEUI	See *Section 7 Setting Up - Windows*, on page 123
	TCP/IP	See *Assigning an IP address*, on page 36 Proceed with *Section 7 Setting Up - Windows*, on page 123
OS/2	NetBIOS/NetBEUI	See *Section 8 Setting Up - OS/2*, on page 145
Macintosh(*)	AppleTalk	See *Section 9 Setting Up - Macintosh*, on page 149
UNIX	TCP/IP	See *Assigning an IP address*, on page 36 Proceed with *Section 10 Setting Up - UNIX*, on page 155

Available installation methods for the AXIS 570/670

*   Macintosh is only supported by AXIS 570 and AXIS 570e.

Installation Tools   The appropriate installation tools for the AXIS 570/670 are summarized in the following table:

Environment	Network Protocols	Installation Tool
AS/400	SNA	AXIS NetPilot
	TCP/IP	Web browser
IBM Mainframe	SNA	AXIS NetPilot
	TCP/IP	Web browser
NetWare	IPX/SPX	AXIS NetPilot
Windows 95/98/NT	NetBIOS/NetBEUI	AXIS Print Monitor
	TCP/IP	AXIS Print Monitor
Windows 3.1/WfW	NetBIOS/NetBEUI	AXIS Print Utility for Windows
	TCP/IP	LPR Spooler (*)
OS/2	NetBIOS/NetBEUI	AXIS Print Utility for OS/2
Macintosh (**)	AppleTalk	Standard using the Chooser
UNIX	TCP/IP	axinstall

Recommended installation tools for the AXIS 570/670

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

** Macintosh is only supported by the AXIS 570 and AXIS 570e models.

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

Basic Setup with AXIS NetPilot

Follow the instructions available on the AXIS Online CD to install the
AXIS NetPilot software on to your computer. AXIS NetPilot runs on
any of the Windows platforms; Windows 3.x, Windows 95, Windows
98, Windows NT, Windows for Workgroups, or in a WinOS/2
window under OS/2.

Starting the   Follow the instructions below to install the AXIS 570/670 with AXIS
Installation   NetPilot:

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

2. Locate the AXIS 570/670 in the 'New Axis Units' folder. Select it
    and click the **Install** button on the AXIS NetPilot toolbar. If your
    network is large, it could take a few seconds before the print server
    appears in the folder.

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

The AXIS Installation Wizard Main window

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

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

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

Environments   Choose which networking environments you want to configure the AXIS 570/670 for, i.e. SNA, NetWare, TCP/IP, Windows & OS/2 or AppleTalk. If your network comprises various different platforms, you can enable any combination of environments.

Note: ❏ AppleTalk only available for the AXIS 570 and the AXIS 570e models.

SNA   Select the emulation mode for the AXIS 570/670. The supported modes are 3174 (Mainframe) and 5494 (AS/400). You should also provide the valid emulation settings.

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

The IP address   Choose the method the AXIS 570/670 should employ for obtaining an IP address. DHCP, ARP, RARP and BOOTP are supported. You can also select to set the IP address manually. Refer to *Assigning an IP address*, on page 36 for further information about setting the IP address.

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

Print Queues   The AXIS 570/670 uses the print server name followed by the printer port as the default Print Queue names and print server port names. If you want to change the default printer queue names, just type the new names in the available text fields.

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

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

Test Page   The final user prompt in the Installation Wizard allows you to print a test page through NetWare. The test page displays the name of all the NetWare servers the AXIS 570/670 is connected to and shows the status of each connection.

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

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

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

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

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

Assigning an IP address

To establish communication with the TCP/IP network, enabling TCP/IP printing and Web browser management, an IP address must be assigned to your AXIS 570/670.

Before you start

System privileges
: You need root privileges on your UNIX system, or administrator privileges on a Windows NT server.

Ethernet address
: You need to know the Ethernet address of your AXIS 570/570e to perform the installation. The Ethernet address is based upon the serial number of your AXIS 570/570e. This means, for example, that an AXIS 570/570e with the serial number of 00408C100086, will have the corresponding Ethernet address of 00 40 8C 10 00 86. The serial number is located on the bottom label of the unit.

Node address
: In Token Ring networks the node address is either the serial number found on the underside label of the AXIS 670/670e or a Locally Administrated Address

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

Important: ❏ DO NOT use the IP addresses used in the following examples when installing your AXIS 570/670. Always consult your network administrator before assigning an IP address to your AXIS 570/670.

Methods for downloading the IP Address

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

Method	Network environments	See ...
AXIS IP Installer	Windows 95/98/NT	page 38
DHCP	Windows NT, UNIX	page 39
ARP	Windows 95/98/NT	page 40
	UNIX	page 42
RARP	UNIX	page 44
BOOTP	UNIX	page 46
Manual setting	Windows 95/98/NT, OS/2, NetWare	*Basic Setup with AXIS NetPilot*, on page 32

Note: ❏ The ARP and RARP methods operate on single network segments only, i.e. they cannot be used over routers.

Assigning a Host Name to the IP address

If you are using host names, you can map a unique host name to the obtained IP address. Refer to your system manuals or to your network administrator for instructions on how to perform name mapping on your system.

The AXIS 570/670 supports WINS (Windows Internet Name Service), which is recommended when you are using DHCP in a Windows NT network.

Note: ❏ If the host name has not been mapped to the IP address, you can still perform the following instructions on how to download the IP address. In this case, simply replace the host name entry with the IP address wherever required.

Using AXIS IP Installer   Follow the instructions below to set the IP address of your AXIS 570/670 using the AXIS IP Installer:

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

2. Connect the AXIS 570/670 to the network. Note the serial number that is located on the underside label of the AXIS 570/670. You will need it in the proceeding steps.

3. Start the AXIS IP Installer.

4. Click the serial number of your AXIS 570/670 that appears in the server list.

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

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

Notes: ❑ AXIS IP Installer uses the BOOTP and DHCP protocols to communicate with the AXIS 570/670. Make sure that at least one of these protocols is enabled in your print server.

❑ Restart your AXIS 570/670, if it does not show up in the server list.

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

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

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

   - range of IP addresses

   - subnet mask

   - default router IP address

   - WINS server IP address(es)

   - lease duration

2. Activate the scope.

The AXIS 570/670 automatically downloads the DHCP parameters.

If you are using WINS, you must include at least one WINS server IP address in the DHCP scope. Immediately after the IP address has been received, the AXIS 570/670 registers its host name and IP address on the WINS server.

The AXIS 570/670 can automatically download a customized config file from a TFTP server. Just add the name of the config file and the TFTP server's IP address to your DHCP scope. The config file is downloaded immediately after the AXIS 570/670 receives its IP address.

Note: ❏ You do not have to restart the AXIS 570/670 to download the IP address.

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

Using ARP in
Windows 95/98 and
Windows NT

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

AXIS 570/570e Ethernet Print Servers:

1. Start a DOS window.

2. Type the following commands:

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

Example

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

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

Notes: ❏ The Ethernet address is equal to the serial number, which
can be found on the underside label of the AXIS 570/570e.

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

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

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

AXIS 670/670e Token Ring Print Servers:

1. Start a DOS window.

2. Type the following commands:

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

Example

```
arp -s 802.5 192.168.3.191 00-02-31-48-00-61
ping 192.168.3.191
arp -d 192.168.3.191
```

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

Notes:
- ❏ The `Node address` is equal to the serial number, which can be found on the underside label of the AXIS 670/670e.

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

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

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

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

Using ARP in UNIX   Follow the instructions below to set the IP address using ARP.

AXIS 570/570e Ethernet Print Servers:

Type the following commands in the shell window:

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

Example:

```
arp -s npsname 00:40:8c:10:00:86 temp
ping npsname
```

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

Notes: ❏ The Ethernet address is equal to the serial number, which can be found on the underside label of the AXIS 570/570e.

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

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

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

AXIS 670/670e Token Ring Print Servers:

Type the following commands in the shell window:

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

Example:

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

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

Notes:
❏ The `node address` is equal to the serial number, which can be found on the underside label of the AXIS 670/670e.

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

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

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

Using RARP in UNIX   Follow the instructions below to set the IP address using RARP.

AXIS 570/570e Ethernet Print Servers:

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

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

    Example:

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

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

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

4. Restart the AXIS 570/570e to download the IP address.

Notes: ❏ The Ethernet address is equal to the serial number, which can be found on the underside label of the AXIS 570/570e.

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

AXIS 670/670e Token Ring Print Servers:

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

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

Example:

```
00:02:31:48:00:61 npsname
```

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

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

4. Restart the AXIS 670/670e to download the IP address.

Note: ❏ The Node address is equal to the serial number, which can be found on the underside label of the AXIS 670/670e.

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

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

Using BOOTP in UNIX

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

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

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

Example - AXIS 570/570e Ethernet Print Servers:

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

Example - AXIS 670/670e Token Ring Print Servers:

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

Notes: ❑ Enter the ht and vm fields exactly as shown in the example.

❑ The ha field is the Ethernet address/node address and the ip field is the IP address of your AXIS 570/670.

❑ The gw and sm fields correspond to the default router address and subnet mask.

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

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

4. Restart the AXIS 570/670 to download the IP address, default router address, and subnet mask.

The AXIS 570/670 can automatically download a customized config file from a TFTP server. Just add the name of the config file and the TFTP server's IP address to your boot table. The config file is downloaded immediately after the AXIS 570/670 receives its IP address.

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

Section 4   Setting Up - AS/400

This section describes how to configure the AXIS 570/670 for printing of SCS and IPDS data streams using SNA and TCP/IP transport protocols in the AS/400 environment.

A number of protocols and print methods are available. Looking at SCS over TCP/IP printing, we strongly recommend the TN5250E alternative. This print method offers superior control and management features as well as automatic configuration and high throughput using the AXIS 570/670 series.

If you have decided to use SNA, we recommend the 5494 mode. Compared to the 3174 mode, this alternative yields better text formatting options as well as automatic configuration.

Proceed to the setup section that is relevant to your network environment, as described in the table below:

Printing protocol	Data streams	Action
SNA - 5494 Mode	SCS	*SNA Printing - 5494 Mode, on page 51*
	IPDS	*SNA Printing - 5494 Mode*, on page 51
SNA - 3174 Mode	SCS	*SNA Printing - 3174 Mode*, on page 58
TN5250E (TCP/IP)	SCS	*TN5250E printing*, on page 64
Raw TCP/IP	SCS	*Raw TCP/IP Printing - SCS data streams*, on page 66
PPR/PPD (TCP/IP)	IPDS	*PPR/PPD Printing - IPDS data streams*, on page 72
LPR/LPD (TCP/IP)	SCS	*LPR/LPD Printing*, on page 79

Note: ❑ IPDS is only supported by the AXIS 570e and AXIS 670e models.

IBM AS/400

If you intend to operate your AXIS 570/670 in a multiprotocol environment, you should also proceed to the other relevant sections in this manual, namely:

Section 5 Setting Up - IBM Mainframe, on page 87

Section 6 Setting Up - NetWare, on page 115

Section 7 Setting Up - Windows, on page 123

Section 8 Setting Up - OS/2, on page 145

Section 9 Setting Up - Macintosh, on page 149

Section 10 Setting Up - UNIX, on page 155

IBM AS/400

SNA Printing – 5494 Mode

The 5494 mode provides a significantly richer set of features for formatting text and is the recommended emulation mode in AS/400 environments.

The 5494 mode supports DBCS which accommodates printing from AS/400 host systems using languages that employ double-byte character sets, namely Chinese, Japanese and Korean. Refer to *Appendix H - DBCS Support* for further information.

The AXIS 570/670 supports printing of SCS and IPDS data streams via the SNA transport protocol. However, you cannot mix the two data streams within the same print job.

Note: ❏ IPDS data streams are only supported by the AXIS 570e and AXIS 670e models.

Configuring for SNA printing in 5494 Mode is described in three separate stages:

- Configuring the AS/400 Host system
- Configuring the AXIS 570/670
- Verifying the communication

Configuring the AS/400 Host System

If you are using OS/400 Version 3 Release 1 or higher, the AS/400 host in 5494 CU mode is automatically configured. The instructions in this section describes this automated configuration procedure.

If you are using a pre-version 3 release, you must perform the configuration procedure manually. If this is the case, please refer to the AXIS Network Print Server Technical Reference that is supplied on the AXIS Online CD or the Technical Notes that feature on the Axis Web site.

Follow the instructions below to verify that the AS/400 host is correctly configured for SNA printing:

1. Type **DSPNETA** on the AS/400 command line. For your future reference, note the values of the `Local network ID` and `Default local location` parameters. Press F3.

2. Type **DSPLIND xxxxxxxxxx**, where **xxxxxxxxxx** is the name given to your LAN Line Description used with the AXIS 570/670. If you do not know the name of the Line Description, type **WRKCFGSTS *LIN** to get a list of all line descriptions on the system.

3. Press F11 to display keywords.

4. For your future reference, note the values of the `Local Adapter Address (ADPTADR)` and `Maximum Controllers (MAXCTL)` parameters. Press ENTER to view the active switched controllers display and check that the number of controllers does not exceed `MAXCTL`.

5. Press ENTER repeatedly to display the SSAP list. Make sure that there is at least one SSAP entry dedicated for SNA. For your future reference, note the SSAP value for this entry.

Note: ❏ The SNA entry is normally set to `SSAP 04`.

6. Press ENTER repeatedly to display the `Autocreate controller (AUTOCRTCTL)` parameter. Ensure that the `AUTOCRTCTL` parameter is set to `*YES`. Press F3 to return to the command line.

7. Type **WRKSYSVAL**. Find the QAUTOCFG and QAUTORMT parameters and check that both are ON(1). Press F3.

8. Type DSPMODD QRMTWSC on the command line. Press F11 to display the keywords. Verify that the mode description exists on the system and that it is configured as presented in the example below. Use the command WRKMODD QRMTWSC if you need to change a value:

```
Display Mode Description


 Mode description . . . . . . . . MODD          QRMTWSC


 Class-of-service . . . . . . . . COS           #CONNECT
 Maximum sessions . . . . . . . . MAXSSN        64
 Maximum conversations. . . . . . MAXCNV        64
 Locally controlled sessions. . . LCLCTLSSN     63
 Pre-established sessions . . . . PREESTSSN      0
 Maximum inbound pacing value . . MAXINPAC      *CALC
 Inbound pacing value . . . . . . INPACING      7
 Outbound pacing value. . . . . . OUTPACING     7
 Maximum length of request unit . MAXLENRU      *CALC
 Data compression . . . . . . . . DTACPR        *NONE
 Inbound data compression . . . . INDTACPR      *NONE
 Outbound data compression. . . . OUTDTACPR     *NONE
 Session level encryption . . . . SLE           *NONE
 Text . . . . . . . . . . . . . . TEXT          This Mode is IBM supplied

                                               Bottom
```

Press F3.

9. Type **DSPUSRPRF QUSER**. Make sure that the QUSER Status is *ENABLED and has its Maximum Storage Allowed parameter set to *NOMAX. Press F3.

10. Use the **WRKCFGSTS *CTL xxxx*** (where **xxxx** is the first 4 characters of the AXIS 570/670 LU Name) command to delete any previously created Controller and Device descriptions specific to your 570/670 unit. Delete the Device Descriptions (indented text) first and then the Controllers. Print a test page if you are unsure of the AXIS 570/670 LU Name.

IBM AS/400

Configuring the
AXIS 570/670

To perform the instructions presented in this section, you should first assign an IP address to your AXIS 570/670 using one of the methods presented in *Assigning an IP address,* on page 36.

Note: ❑ If your network does not support the TCP/IP protocol suite, you can still configure the AXIS 570/670 using the AXIS NetPilot installation tool.

Follow the instructions below to configure the AXIS 570/670 using a Web browser:

1. Start a Web browser, e.g. Internet explorer or Netscape Navigator.

2. Enter the IP address or the host name of the AXIS 570/670 in the location field and press the ENTER key on your keyboard. The internal Web pages of the AXIS 570/670 appear. You may be asked to enter a user name and a password. The default values are *root* and *pass*, respectively.

3. Click the **Configuration** button.

4. Select **SNA** from the header.

5. Select 5494 from the **3174/5494 Emulation Parameter** drop-down list.

6. Enter the SSAP in the **Local SAP value** text field.

7. Enter the Local network ID in the **Local 5494 Network Name** text field.

8. Enter the Local adapter address in the **Host MAC address** text field.

9. Enter the Local network ID in the **Host Network Name** text field.

10. Enter the Default local location in the **Host LU Name** text field and click the **Submit SNA settings** button.

Depending on your choice of data streams, continue the installation by selecting the appropriate set of instructions on page 55.

IPDS data streams *(AXIS 570e and AXIS 670e only)*

Proceed with the following instructions if you are printing IPDS data streams:

1. Select **IBM IPDS Configuration** from the header.

2. Select your preferred system language from the **System Language** drop-down list and click the **Submit IBM IPDS Configuration settings** button.

3. Select **IBM IPDS Printer Driver** from the header.

4. Select the paper size for each paper bin from the from the **Paper Size** drop-down list and click the **Submit IBM IPDS Printer Driver settings** button.

5. Select **SNA** from the header.

6. Select an IPDS printer emulation from the **Logical unit data streams** drop-down list that corresponds to the logical printer you want to use. If you are using several logical printers, each corresponding Logical unit data stream must be set.

7. Set the **Automatic link establishment (dialing)** radio button to Yes and click the **Submit SNA settings** button. This will start the automatic configuration process.

SCS data streams

Proceed with the following instructions if you are printing SCS data streams:

1. Select **IBM BASIC CONFIGURATION** from the header.

2. Select your preferred system language from the **System Language** drop-down list.

3. Select a twinax printer emulation from the Printer Emulation drop-down list and click the **Submit IBM BASIC CONFIGURATION settings** button.

4. Select **IBM PRINTER DRIVER** from the header.

IBM AS/400

5. Make sure that the **Printer Driver** parameter is matching your printer and click the **Submit IBM PRINTER DRIVER settings** button.

6. Select **IBM PAGE FORMAT** from the header.

7. Select the appropriate page properties and click the **Submit IBM PAGE FORMAT settings** button.

8. Select **SNA** from the header.

9. *AXIS 570e and AXIS 670e only:* Check that you have selected SCS from the appropriate Logical Unit Data stream drop-down lists.

10. Set the **Automatic link establishment (dialing)** radio button to Yes and click the **Submit SNA settings** button. This will start the automatic configuration process.

Should you require assistance with any of the operations, click the Help button and follow the instructions provided in the Help window.

IBM AS/400

Verifying the
Communication Link

1. Type **WRKCFGSTS *CTL xxxx*** on the AS/400 command line where **xxxx** is the first four characters of the AXIS 570/670 LU Name. After a couple of minutes, ensure that the following items are displayed:

   - One APPC controller with the same name as the AXIS 570/670 LU Name.

   - One APPC device with the same name as the AXIS 570/670 LU Name, one controller session (QRMTWSC) and the currently active (default = 3) printer sessions(QRMTWSC).

   - One twinax controller named xxxxxRMT, where xxxxx is the first five characters of the AXIS 570/670 LU Name.

   - Three twinax printer devices named xxxxPRT0z where xxxx is the first four characters of the AXIS 570/670 LU Name and z is the printer device number.

   The status of all items should now be ACTIVE or VARIED ON.

2. Type **STRPRTWTR xxxxPRT0z** on the AS/400 command line, where **xxxxPRT0z** is the printer device name. This command starts the writer for this printer device.

3. Press the AXIS 570/670 test button once to print a test page. Ensure that the SNA status is defined on the test page as Idle, Actv or LU-4.

IBM AS/400

SNA Printing - 3174 Mode

The 3174 mode does <u>not</u> provide optimum AS/400 performance and is not the recommended emulation mode. In this mode, printing is limited to plain text only. However, the fonts used can be selected using Extended IBM printer Emulation. See *Appendix C - Extended IBM Printer Emulation* for further information.

Note: ❑ Native AS/400 printout is limited to 10 CPI and 132 columns per line. The full functionality of OfficeVision (justification, etc.) can not be utilized, as only 3174-type printers can be emulated by the AXIS 570/670 in 3174 CU mode.

Configuring for SNA printing in 3174 Mode is performed in three separate stages:

- Configuring the AS/400 Host System

- Configuring the AXIS 570/670

- Verifying communication

Configuring the AS/400 Host

Configuring the AS/400 host for 3174 CU mode is performed in two basic steps:

- Creating a controller description
- Creating a printer device description.

Creating a Controller Description

Follow the steps below to create a controller description:

1. Type **CRTCTLRWS** on the command line to create a controller description.

2. Press F11 to display keywords.

3. Enter a valid Controller description (CTLD) name.

4. Enter **3174** as the Controller type (TYPE).

5. Enter **0** as the Controller Model (MODEL).

6. Enter ***LAN** as the Link Type (LINKTYPE).

7. Enter the LAN remote adapter address (ADAPTADR) **xxxxxxxxxxxx**, where xxxxxxxxxxxx is equal to the AXIS 570/670 node address. By default this is the serial number of your AXIS 570/670.

8. Define the Switched Line List (SWTLINLST) **ssssssss**, where ssssssss equals the Line description name of the Ethernet or Token Ring network in use. If you do not know the name of the Line Description, type **WRKCFGSTS *LIN** to get a list of all line descriptions on the system.

Many of the settings presented in the following panel example can be left at their default settings. However, the settings that you must change are highlighted in **bold** text and the settings that you must enter exactly as shown in the example are highlighted in **bold underlined** text.

Example:

```
Create Ctl Desc (Remote WS) (CRTCTLRWS)

 Type choices, press Enter.

 Controller description . . . . . CTLD        > CTL670
 Controller type  . . . . . . . . TYPE        > 3174
 Controller model . . . . . . . . MODEL       > 0
 Link type  . . . . . . . . . . . LINKTYPE    > *LAN
 Online at IPL  . . . . . . . . . ONLINE        *YES
 Switched line list . . . . . . . SWTLINLST   > ssssssss
               + for more values
 Maximum frame size . . . . . . . MAXFRAME      *LINKTYPE
 Exchange identifier  . . . . . . EXCHID
 Initial connection . . . . . . . INLCN         *DIAL
 Dial initiation  . . . . . . . . DIALINIT      *LINKTYPE
 LAN remote adapter address . . . ADAPTADR      xxxxxxxxxxxx
 Autocreate device. . . . . . . . AUTOCRTDEV    *ALL
 Text 'description' . . . . . . . TEXT          'Controller for AXIS 670'

                                                               Bottom
 F3=Exit   F4=Prompt   F5=Refresh   F10=Additional parameters   F12=Cancel
 F13=How to use this display        F24=More keys
```

Creating a Printer Device Description

Follow the steps below to create a printer description:

1. Type **CRTDEVPRT** on the command line.

2. Press F11 to display keywords.

3. Enter *RMT as Device class (DEVCLS).

4. Enter 3287 as the desired Device type (TYPE).

5. Enter 0 as the Device model (MODEL).

6. Define the Attached controller (CTL). This should be set to the name of the previously defined Controller description.

7. In the LU definition, define the Local Location Address (LOCADDR). This number must map to the Logical Printer number of the AXIS 570/670.

Notes: ❑ The first eight Local Addresses pass the printout through Logical Printer 1-8. However, some older IBM systems do not allow Local Address 1 to be used for printing. For further information, refer to *Section 12 Using Logical Printers*, on page 193.

❑ A writer and a print queue with the same name as the printer description is created automatically.

Many of the settings presented in the following panel example can be left at their default settings. However, the settings that you must change are highlighted in **bold** text and the settings that you must enter exactly as shown in the example are highlighted in **<u>bold underlined</u>** text.

Example:

```
Create Device Desc (Printer) (CRTDEVPRT)

 Type choices, press Enter.

 Device description . . . . . . . DEVD        > PRT670
 Device class . . . . . . . . . . DEVCLS      > *RMT
 Device type  . . . . . . . . . . TYPE        > 3287
 Device model . . . . . . . . . . MODEL       > 0
 Local location address . . . . . LOCADR      > 02
 Online at IPL  . . . . . . . . . ONLINE        *YES
 Attached controller  . . . . . . CTL         > CTL670
 Separator program  . . . . . . . SEPPGM        *NONE
   Library  . . . . . . . . . . .
 Printer error message  . . . . . PRTERRMSG     *INQ
 Message queue  . . . . . . . . . MSGQ          QSYSOPR
   Library  . . . . . . . . . . .               *LIBL
 Application type . . . . . . . . APPTYPE       *NONE
 Text 'description' . . . . . . . TEXT          'Printer for AXIS 670'

                                                                  Bottom
 F3=Exit   F4=Prompt   F5=Refresh   F10=Additional parameters   F12=Cancel
 F13=How to use this display       F24=More keys
```

Configuring the AXIS 570/670

The perform the instructions presented in this section, you should first assign an IP address to your AXIS 570/670 using one of the methods presented in *Assigning an IP address,* on page 36.

Note:
❑ If your network does not support the TCP/IP protocol suite, you can still configure the AXIS 570/670 using the AXIS NetPilot installation tool.

Follow the instructions below to configure the AXIS 570/670 using a Web browser:

1. Start a Web browser, e.g. Internet explorer or Netscape Navigator.

2. Enter the IP address or the host name of the AXIS 570/670 in the location field and press the ENTER key on your keyboard. The internal Web pages of the AXIS 570/670 appear. You may be asked to enter a user name and a password. The default values are *root* and *pass*, respectively.

3. Click the **Configuration** button.

4. Select **SNA** from the header.

5. Select 3174 from the **3174/5494 Emulation Parameter** drop-down list.

6. Enter the SSAP in the **Local SAP value** text field.

7. Enter the Local adapter address in the **Host MAC address** text field.

8. Enter the Local network ID in the **Host Network Name** text field and click the **Submit SNA settings** button.

9. Select **IBM BASIC CONFIGURATION** from the header.

10. Select your preferred system language from the **System Language** drop-down list.

11. Select a coax printer emulation from the Printer Emulation drop-down list and click the **Submit IBM BASIC CONFIGURATION settings** button.

12. Select **IBM PRINTER DRIVER** from the header.

13. Make sure that the **Printer Driver** parameter is matching your printer and click the **Submit IBM PRINTER DRIVER settings** button.

14. Select **IBM PAGE FORMAT** from the header.

15. Select the appropriate page properties and click the **Submit IBM PAGE FORMAT settings** button.

16. Select **SNA** from the header.

17. *AXIS 570e and AXIS 670e only:* Check that you have selected SCS from the appropriate Logical Unit Data stream drop-down lists.

18. Set the **Automatic link establishment** (**dialing**) radio button to Yes and click the **Submit SNA settings** button.

Should you require assistance with any of the operations, click the Help button and follow the instructions provided in the Help window.

Verifying the Communication

Follow the steps below to verify the communication with the AXIS 570/670:

1. Vary on the controller and device description.

2. Start the writer.

3. Send a print job to the AXIS 570/670.

4. Press the test button once to print the test page, where you can find the present SNA link status. Ensure that the SNA link Status is Idle, Actv or LU-1.

The AXIS 570/670 is now ready for use in the SNA environment.

IBM AS/400

TN5250E printing

TN5250E is the recommended protocol to use when printing SCS data streams over TCP/IP. This print method offers superior control, management and throughput for the AXIS 570/670.

Before you begin

Make sure that the AS/400 host is running OS/400 V3R2 or higher with TCP/IP support installed and configured.

Make sure that the latest PTFs are installed. Information about which PTFs to use can be obtained from:

http://as400service.rochester.ibm.com/as4sde/nas4apar.nsf/nas4aparhome

Configuring the AS/400 Host System

Follow the instructions below to verify that the AS/400 host is correctly configured for TN5250E printing:

1. Type **WRKCTLD *VWS** on the AS/400 command line to determine the number of auto-configured virtual devices on your AS/400 system.

2. Type **DSPSYSVAL QAUTOVRT.** Make sure that the value of the QAUTOVRT parameter is greater than the number of auto-configured virtual devices.

Configuring the AXIS 570/670

Follow the instructions below to configure the AXIS 570/670 for TN5250E printing using a Web browser:

1. Start a Web browser, e.g. Internet Explorer or Netscape Navigator.

2. Enter the IP address or the host name of the AXIS 570/670 in the location field and press the ENTER key on your keyboard. The internal Web pages of the AXIS 570/670 appear. You may be asked to enter a user name and a password. The default values are *root* and *pass*, respectively.

3. Click the **Configuration** button.

4. Ensure that the IP address, subnet mask and default router are appropriately set for your network.

5. Select **IBM BASIC CONFIGURATION** from the header.

6. Select your preferred system language from the **System Language** drop-down list.

7. Select 3812_TX from the **Printer Emulation** drop-down list and click the **Submit IBM BASIC CONFIGURATION settings** button.

8. Select **IBM PRINTER DRIVER** from the header.

9. Make sure that the **Printer Driver** parameter is matching your printer and click the **Submit IBM PRINTER DRIVER settings** button.

10. Select **IBM PAGE FORMAT** from the header.

11. Select the appropriate page properties and click the **Submit IBM PAGE FORMAT settings** button.

12. Select **TN5250E** from the header.

13. Enter the IP address of your AS/400 host in the **Host IP Address** field.

14. Enter a printer device name of your choice in the **Printer Name** field. The name may comprise the letters A-Z and the numerals 0-9, but must begin with a letter. A maximum of 10 characters are allowed.

15. Enter the AS/400 host's Telnet port number in the **Port** field. The default port number (23) can be used in most environments.

16. Select which logical printer to use from the **Logical Printer** drop-down list.

17. Set **Auto Connect** to ON

18. Repeat steps 13-17 for each session you want to set up.

19. Click the **Submit TN5250E settings** button to initialize the TN5250E sessions.

Verifying the
communication link

1. Type **WRKCFGSTS *DEV xxxx***, where **xxxx** are the first four characters of the printer device name, on the AS/400 command line. A list of printer devices will be displayed. Make sure that a virtual printer device is active.

2. Direct a printout to this printer device to check the integrity of the communication link.

Raw TCP/IP Printing - SCS data streams

The configuration procedures presented in this section are divided into three separate steps:

-   Configuring of the AS/400 host

-   Configuring the AXIS 570/670

-   Verifying the communication between the AXIS 570/670 and the AS/400

Notes: ❏ When printing SCS data using Raw TCP/IP, the AS/400 printer file settings will not be sent to the AXIS 570/670. If you want to retain a specific document style, font or orientation, the data must be embedded in the document.

Before you begin   Make sure that the AS/400 host is running OS/400 V3R6 or higher with TCP/IP support installed and configured.

Configuring the
AS/400 Host System

Follow the instructions below to create a printer device description:

1. Issue the command **CRTDEVPRT**. A panel, similar to the example on page 69, will be displayed.

2. Press F11 to display keywords.

3. Select a name for the printer device and enter it at the `Device Description (DEVD)` line. The name may comprise the letters A-Z and the numerals 0-9, but must begin with a letter. A maximum of 10 characters are allowed.

4. Enter `*LAN` at the `Device class (DEVCLS)` line.

5. Enter `3812` at the `Device type (TYPE)` line.

6. Enter `1` at the `Device model (MODEL)` line.

7. Enter `*IP` at the `LAN attachment (LANATTACH)` line.

8. Enter a port number at the `Port number (PORT)` line. The default port numbers are defined in the table below:

Port Number	Data Stream	Logical Printer Destination
5011	SCS	PR4
5012	SCS	PR5
5013	SCS	PR6

9. Enter a FGID number at the `Font Identifier (FONT)` line. Lists of all supported FGIDs are available in *Appendix G - IPDS Fonts*, on page 239 and *Appendix D - IBM Fonts*, on page 225.

10. Enter `*AUTOCUT` at the `Form feed (FORMFEED)` line.

11. The `Host print transform (TRANSFORM)` entry specifies if the AS/400 will do EBCDIC-to-ASCII transformation of the print data. Enter `*NO`, since this is done by the AXIS 570/670.

12. Define the `Remote location (RMTLOCNAME)`. Use the IP address of the AXIS 570/670 or the host name you have specified in the AS/400 TCP/IP host table.

13. Enter *HPPJLDRV at the System driver program (SYSDRVPGM) line.

14. Press the ENTER key to create the printer device description.

Many of the settings presented in the following panel example can be left at their default settings. However, the settings that you must change are highlighted in **bold** text and the settings that you must enter exactly as shown in the example are highlighted in <u>**bold underlined**</u> text.

Example:

```
Create Device Desc (Printer) (CRTDEVPRT)


 Type choices, press Enter.


 Device description . . . . . . . DEVD          > AX570PR4
 Device class . . . . . . . . . . DEVCLS        > *LAN
 Device type  . . . . . . . . . . TYPE          > 3812
 Device model . . . . . . . . . . MODEL         > 1
 LAN attachment . . . . . . . . . LANATTACH     > *IP
 Port number  . . . . . . . . . . PORT          > 5011
 Online at IPL  . . . . . . . . . ONLINE          *YES
 Font:                            FONT
   Identifier . . . . . . . . . .               > 11
   Point size . . . . . . . . . .                 *NONE
 Form feed. . . . . . . . . . . . FORMFEED      > *AUTOCUT
 Separator drawer . . . . . . . . SEPDRAWER       *FILE
 Separator program  . . . . . . . SEPPGM          *NONE
   Library  . . . . . . . . . . .
 Printer error message  . . . . . PRTERRMSG       *INQ
                                                   More...


 Message queue  . . . . . . . . . MSGQ            QSYSOPR
   Library. . . . . . . . . . . .                 *LIBL
 Activation timer . . . . . . . . ACTTMR          170
 Inactivity timer . . . . . . . . INACTTMR        *ATTACH
 Host print transform . . . . . . TRANSFORM     > *NO
 Image configuration. . . . . . . IMGCFG          *NONE
 Remote location: . . . . . . . . RMTLOCNAME
   Name or address. . . . . . . .               > '192.168.5.23'


 User-defined options . . . . . . USRDFNOPT       *NONE
                          + for more values



 User-defined objects . . . . . . USRDFNOBJ
   Object . . . . . . . . . . . .                 *NONE
      Library . . . . . . . . . .
   Object type. . . . . . . . . .
 Data transform program . . . . . USRDTATFM       *NONE
   Library. . . . . . . . . . . .
 System driver program. . . . . . SYSDRVPGM     > *HPPJLDRV
 Text 'description' . . . . . . . TEXT            SCS over Raw TCP/IP
```

Example cont:

```
                    Additional parameters

Remote network identifier. . . . . RMTNETID      *NETATR
Workstation customizing object . . WSCST         *NONE
  Library. . . . . . . . . . . .
Authority. . . . . . . . . . . . . AUT           *LIBCRTAUT
                                                      Bottom
```

**Configuring the
AXIS 570/670**

Follow the instructions below to configure your AXIS 570/670 for
Raw TCP/IP printing using a standard Web browser:

1. Start a Web browser, e.g. Internet Explorer or Netscape Navigator.

2. Enter the IP address or the host name of the AXIS 570/670 in the
   location field and press the ENTER key on your keyboard. The
   internal Web pages of the AXIS 570/670 appear. You may be
   asked to enter a user name and a password. The default values are
   root and *pass*, respectively.

3. Click the **Configuration** button.

4. Select **TCP/IP** from the header.

5. The Reverse Telnet parameters PR4, PR5 and PR6 are by default
   setup for SCS data streams, on the port numbers 5011, 5012 and
   5013 respectively. If you need to change a port number, enter the
   new number in the text field and click the **Submit TCP/IP
   settings** button. Otherwise you do not have to do anything.

6. Select **IBM BASIC CONFIGURATION** from the header.

7. Select your preferred system language from the **System Language**
   drop-down list.

8. Select a printer emulation from the **Printer Emulation** drop-down
   list.

Note: ❑   AS/400 hosts only support laser printers when using Raw
            TCP/IP. Therefore you can only use the twinax emulations
            3812_TX, 3816S_TX and 3816_TX.

9. Click the **Submit IBM BASIC CONFIGURATION** settings button.

10. Select **IBM PRINTER DRIVER** from the header.

11. Make sure that the **Printer Driver** parameter matches the printer driver of your printer and click the **Submit IBM PRINTER DRIVER** settings button.

12. Select **IBM PAGE FORMAT** from the header.

13. Select the appropriate page properties and click the **Submit IBM PAGE FORMAT** settings button.

Verifying the communication

Follow the instructions below to verify the communication by sending a print job to the AXIS 570/670:

1. Type **WRKCFGSTS *DEV AX570PR4** on the AS/400 command line to display the previously created printer device. The status of the printer device should be VARIED OFF.

2. Vary on the printer device by typing 1 in the Opt field. Press ENTER.

3. Press F5 to refresh the display. The printer device should now be VARIED ON.

4. Start the printer writer by typing **STRPRTWTR AX570PR4** on the AS/400 command line. Press ENTER.

5. Press F5 to refresh the display. The printer device should now be ACTIVE/WRITER.

6. Direct a printout to this printer device. A successful printout effectively verifies the communication link between the AS/400 and the AXIS 570/670.

Note: ❑ In the example above, the logical printer PR4 is used and the printout is directed to the destination AX570PR4.

The AXIS 570/670 is now ready for printing in the AS/400 environment.

IBM AS/400

PPR/PPD Printing - IPDS data streams

Note: ❑ IPDS is only supported by the AXIS 570e and the AXIS 670e print servers.

The configuration procedures presented in this section are divided into three separate steps:

• Configuring the AXIS 570e/670e

• Configuring of the AS/400 host

• Verifying the communication between the AXIS 570e/670e and the AS/400

Before you begin   Make sure that the AS/400 host is running OS/400 V3R6 or higher with TCP/IP support installed and configured.

Make sure that the latest PTFs are installed. Information about which PTFs to use can be obtained from:

http://as400service.rochester.ibm.com/as4sde/nas4apar.nsf/nas4aparhome

Configuring the AXIS
570e/670e

Follow the instructions below to configure your AXIS 570e/670e
using a standard Web browser:

1. Start a Web browser, e.g. Internet Explorer or Netscape Navigator.

2. Enter the IP address or the host name of the AXIS 570e/670e in
    the location field and press the **ENTER** key on your keyboard.
    The internal Web pages of the AXIS 570e/670e appear. You may
    be asked to enter a user name and a password. The default values
    are *root* and *pass*.

3. Click the **Configuration** button.

4. Select **TCP/IP** from the header.

5. The Reverse Telnet parameters PR1, PR2 and PR3 are by default
    setup for IPDS data streams, emulating an IBM 4028 printer
    model 1 on the port numbers 5001, 5002 and 5003 respectively.
    If you need to change a port number, enter a new number in the
    text field and click the **Submit TCP/IP settings** button.
    Otherwise you do not have to do anything.

6. Select **IBM IPDS Configuration settings** from the header.

7. Select your preferred system language from the **IPDS System
    Language** drop-down list.

8. Click the **Submit IBM IPDS Configuration settings** button.

9. Select **IBM IPDS PRINTER DRIVER** from the header.

10. Select the appropriate page properties and click the **Submit IBM
    IPDS PRINTER DRIVER settings** button.

IBM AS/400

Configuring the AS/400 Host System

When configuring the AS/400 host system you must:

- create a PSF configuration
- create a printer device description

Creating a PSF Configuration

Follow the instructions below to create a PSF configuration:

1. Issue the command **CRTPSFCFG**.

2. Press F11 to display keywords.

3. Select a name for the PSF configuration and enter it at the `PSF configuration (PSFCFG)` line. The name may comprise the letters A-Z and the numerals 0-9, but must begin with a letter. A maximum of 10 characters are allowed.

4. Enter `QGPL` at the `Library` line.

5. Enter `*YES` at the `IPDS pass through (IPDSPASTHR)` line.

6. Enter `*NORDYF` at the `Activate release timer (ACTRLSTMR)` line.

7. Enter `*NOMAX` at the `Release timer (RLSTMR)` line.

8. Press the ENTER key on your keyboard to create the PSF configuration.

Many of the settings presented in the following panel example can be left at their default settings. However, the settings that you must change are highlighted in **bold** text and the settings that you must enter exactly as shown in the example are highlighted in **<u>bold underlined</u>** text.

IBM AS/400

Example:

```
Create PSF Configuration (CRTPSFCFG)


 Type choices, press Enter.


 PSF configuration. . . . . . . PSFCFG          > AX570PR1
   Library . . . . . . . . . . .                > QGPL
 User resource library list . . USRRSCLIBL      *JOBLIBL
 Device resource library list . . DEVRSCLIBL    *DFT
                       + for more values
 IPDS pass through. . . . . . . IPDSPASTHR      > *YES
 Activate release timer . . . . . ACTRLSTMR     > *NORDYF
 Release timer. . . . . . . . . RLSTMR          > *NOMAX
 Restart timer. . . . . . . . . RESTRTMR        *IMMED
 APPC and TCP/IP retry count. . . RETRY         15
 Delay between APPC retries . . . RETRYDLY       90
 Automatic session recovery . . . UAUTOSSNRCY   *NO
 Acknowledgment frequency . . . . ACKFRQ        100
 Text 'description' . . . . . . . TEXT          *BLANK
                                                Bottom
```

Creating a Printer Device Description

Follow the instructions below to create a printer device description:

1. Issue the command **CRTDEVPRT**.

2. Press F11 to display keywords.

3. Select a name for the printer device and enter it at the Device Description (DEVD) line. The name may comprise the letters A-Z and the numerals 0-9, but must begin with a letter. A maximum of 10 characters are allowed.

4. Enter *LAN at the Device class (DEVCLS) line.

5. Enter *IPDS at the Device type (TYPE) line.

6. Enter 0 at the Device model (MODEL) line.

7. Enter *IP at the LAN attachment (LANATTACH) line.

IBM AS/400

8. Enter a port number at the `Port number (PORT)` line. The
    default port numbers are defined in the table below:

Port Number	Data Stream/ IPDS Printer Emulation	Logical Printer Destination
5001	IPDS_4028_1	PR1
5002	IPDS_4028_1	PR2
5003	IPDS_4028_1	PR3

9. Enter a FGID number at the `Font Identifier (FONT)` line.
    Lists of all supported FGIDs are available in *Appendix G - IPDS
    Fonts*, on page 239 and *Appendix D - IBM Fonts*, on page 225.

10. Define the `Remote location (RMTLOCNAME)`. Use the IP
    address of the AXIS 570e/670e.

11. Enter the name of the previously created PSF configuration at the
    `User-defined object (USRDFNOBJ): Object` line.

12. Enter the library of the previously created PSF configuration at
    the `User-defined object (USRDFNOBJ): Library` line.

13. Enter `*PSFCFG` at the `User-defined object
    (USRDFNOBJ): Object type` line.

14. Press the ENTER key on your keyboard to create the printer
    device description.

Many of the settings presented in the following panel example can be
left at their default settings. However, the settings that you must
change are highlighted in **bold** text and the settings that you must
enter exactly as shown in the example are highlighted in <u>**bold
underlined**</u> text.

Example:

```
Create Device Desc (Printer) (CRTDEVPRT)


 Type choices, press Enter.


 Device description . . . . . . . DEVD        > AX570PR1
 Device class . . . . . . . . . . DEVCLS      > *LAN
 Device type  . . . . . . . . . . TYPE        > *IPDS
 Device model . . . . . . . . . . MODEL       > 0
 LAN attachment . . . . . . . . . LANATTACH   > *IP
 Advanced function printing . . . AFP           *YES
 Port number  . . . . . . . . . . PORT        > 5001
 Online at IPL  . . . . . . . . . ONLINE        *YES
 Font:                            FONT
   Identifier . . . . . . . . . .             > 11
   Point size . . . . . . . . . .               *NONE
 Form feed. . . . . . . . . . . . FORMFEED      *FILE
 Separator drawer . . . . . . . . SEPDRAWER     *FILE
 Separator program  . . . . . . . SEPPGM        *NONE
   Library  . . . . . . . . . . .
 Printer error message  . . . . . PRTERRMSG     *INQ
                                              More...


 Message queue  . . . . . . . . . MSGQ          QSYSOPR
   Library  . . . . . . . . . . .               *LIBL
 Activation timer . . . . . . . . ACTTMR        170
 Image configuration. . . . . . . IMGCFG        *NONE
 Maximum pending requests . . . . MAXPNDRQS     6
 Print while converting . . . . . PRTCVT        *YES
 Print request timer. . . . . . . PRTRQSTMR     *NOMAX
 Form definition. . . . . . . . . FORMDF        F1C10110
   Library. . . . . . . . . . . .               *LIBL
 Remote location: . . . . . . . . RMTLOCNAME
   Name or address. . . . . . . .             > '192.168.5.23'


 User-defined options . . . . . . USRDFNOPT     *NONE
                       + for more values


                                              More...
```

Example cont:

```
User-defined objects . . . . . . USRDFNOBJ
    Object . . . . . . . . . . . .            > AX570PR1
      Library . . . . . . . . . .             > QGPL
    Object type. . . . . . . . .              > *PSFCFG
Data transform program . . . . . USRDTATFM       *NONE
    Library. . . . . . . . . . .
User-defined driver program. . . USRDRVPGM       *NONE
    Library. . . . . . . . . . .
Text 'description' . . . . . . . TEXT            IPDS over Raw TCP/IP


                                                     More...
```

Verifying the communication

Follow the instructions below to verify the communication by sending a print job to the AXIS 570e/670e:

1. Type **WRKCFGSTS *DEV AX570PR1** on the AS/400 command line to display the previously created printer device. The status of the printer device should be VARIED OFF.

2. Vary on the printer device by typing 1 in the Opt field. Press ENTER.

3. Press F5 to refresh the display. The printer device should now be VARIED ON.

4. Start the printer writer by typing **STRPRTWTR AX570PR1** on the AS/400 command line. Press ENTER.

5. Press F5 to refresh the display. The printer device should now be ACTIVE/WRITER.

6. Direct a printout to this printer device. A successful printout verifies the communication link between the AS/400 and the AXIS 570e/670e.

Note: ❏ In the example above, the logical printer PR1 is used and the printout is directed to the destination AX570PR1.

The AXIS 570e/670e is now ready for printing in the AS/400 environment.

LPR/LPD Printing

This section describes how to establish communication between an AXIS 570/670 and an AS/400, using TCP/IP LPR/LPD as a transport protocol for the SCS data stream. The AS/400 must be running OS/400 V3R1 or later with TCP/IP support installed and configured.

Important! ❏ When using LPR/LPD the AS/400 printer file settings will not be sent to the AXIS 570/670. If you wish to retain a specific document style, font and orientation data must be embedded into your document.

Configuration is performed in three separate stages:

- Configuring the AXIS 570/670
- Configuring the AS/400 Host
- Verifying communication

Configuring the AXIS 570/670

Follow the instructions below to configure your AXIS 570/670 for LPR/LPD printing using a standard Web browser:

1. Start a Web browser, e.g. Internet Explorer or Netscape Navigator.

2. Enter the IP address or the host name of the AXIS 570/670 in the location field and press the ENTER key on your keyboard. The internal Web pages of the AXIS 570/670 appear. You may be asked to enter a user name and a password. The default values are *root* and *pass*, respectively.

3. Click the **Configuration** button.

4. Select **IBM BASIC CONFIGURATION** from the header.

5. Select your preferred system language from the **System Language** drop-down list.

6. Select a laser twinax printer emulation from the **Printer Emulation** drop-down list.

7.   Click the **Submit IBM BASIC CONFIGURATION** settings button.

8.   Select **IBM PRINTER DRIVER** from the header.

9.   Make sure that the **Printer Driver** parameter matches the printer driver of your printer and click the **Submit IBM PRINTER DRIVER** settings button.

10. Select **IBM PAGE FORMAT** from the header.

11. Select the appropriate page properties and click the **Submit IBM PAGE FORMAT** settings button.

12. Select **TCP/IP** from the header.

13. Make sure that the TCP/IP parameters are set to match your needs.

Configuring the AS/400 Host System

The AS/400 setup consists of four steps:

- Adding the AXIS 570/670 IP address to the AS/400 TCP/IP host table.

- Creating an output queue.

- Creating a virtual controller.

- Creating a virtual printer.

Many of the settings presented in the following panel example can be left at their default settings. However, the settings that you must change are highlighted in **bold** text and the settings that you must enter exactly as shown in the example are highlighted in **bold underlined** text.

Adding the AXIS 570/670 to the AS/400 Host Table

Follow the steps below to add the AXIS 570/670 IP Address to the AS/400 Host table.

1. Issue the command GO CFGTCP to enter the AS/400 TCP/IP configuration panel.

2. Choose 10 to work with TCP/IP host table entries.

3. From within this panel dialog, choose 1 (Add). A panel similar to the example below will be displayed.

4. Press F11 to display keywords.

5. Enter the Internet address (INTNETADR) **XXX.XXX.XXX.XXX,** where **xxx.xxx.xxx.xxx** is the same as the IP Address for the AXIS 570/670.

6. Enter a Host name of your choosing at the name (HOSTNAME) line. This name will later be used for referring to the Print Server in the remaining dialog panels displayed in this section.

```
Add TCP/IP Host Table Entry (ADDTCPHTE)
 Type choices, press Enter.
 Internet address . . . . . . . INTNETADR   > XXX.XXX.XXX.XXX
 Host names:                     HOSTNAME
   Name . . . . . . . . . . . .             > AXIS570

                                            + for more values
 Text 'description' . . . . . . .
```

Creating the Output Queue

Follow the steps below to Create an Output Queue.

1. Issue the command **CRTOUTQ** to create an output queue. A panel similar to the example on page 83 will be displayed.

Note: ❏ The queue must be in the QUSRSYS library. Otherwise, it is not possible to connect a printer to the queue.

2. Choose a name for the printer queue and enter it at the Output queue (OUTQ) line.

3. Type **QUSRSYS** at the Library line.

4. Define the Remote system (RMTSYS). This entry must be the same as the TCP/IP host table name, defined in the previous example, e.g. **AXIS570**.

5. Define the Remote printer queue (RMTPRTQ). This entry refers to an internal printer queue in the Print Server, which is sent with the print job and used to specify which Logical Printer in the Print Server is to be used for each job. The legal choices are defined in the table below:

Printer Queue Name	Logical Printer Destination
SCSPR1	PR1
SCSPR2	PR2
SCSPR3	PR3
SCSPR4	PR4
SCSPR5	PR5
SCSPR6	PR6
SCSPR7	PR7
SCSPR8	PR8

6. Enter **1** as the number of Writers to autostart (AUTOSTRWTR).

7. Enter ***IP** at the Connection type (CNNTYPE) line to indicate TCP/IP as the transport protocol for the SCS data stream.

8. Type ***OTHER** at the Destination type (DESTTYPE) line.

9. The Host Print transform (TRANSFORM) entry specifies if the AS/400 will do EBCDIC-to-ASCII transformation of the print data. Enter ***NO**, since this is done in the Print Server.

10. Press the ENTER key to create the queue.

Example:

```
Create Output Queue (CRTOUTQ)
  Type choices, press Enter.
   Output queue . . . . . . . . . OUTQ          > AX570PR1
   Library  . . . . . . . . . . .               >   QUSRSYS
 Maximum spooled file size:       MAXPAGES
   Number of pages . . . . . . .                   *NONE
   Starting time . . . . . . . .
   Ending time . . . . . . . . .
             + for more values
 Order of files on queue  . . . . SEQ             *FIFO
 Remote system  . . . . . . . . . RMTSYS        > AXIS570

 Remote printer queue . . . . . . RMTPRTQ       > SCSPR1

                                                    More...


 Writers to autostart . . . . . . AUTOSTRWTR    > 1
 Queue for writer messages  . . . MSGQ            QSYSOPR
   Library . . . . . . . . . . .                   *LIBL
 Connection type  . . . . . . . . CNNTYPE       > *IP
 Destination type . . . . . . . . DESTTYPE      > *OTHER
 Host print transform . . . . . . TRANSFORM     > *NO
 User data transform  . . . . . . USRDTATFM       *NONE
   Library . . . . . . . . . . .
 Destination options. . . . . . . DESTOPT         *NONE

 Print separator page . . . . . . SEPPAGE         *YES
 User defined option  . . . . . . USRDFNOPT       *NONE
             + for more values

                                                    More...

```

Creating a virtual controller

Follow the steps below to create a virtual printer:

1. Enter the command **CRTCTLVWS**. A dialog panel similar to the example below will be displayed.

2. Press F11 to display keywords.

3. Enter the controller name at the `Controller description (CTLD)` line, e.g. **AXIS570**.

4. Press the ENTER key to create the virtual controller.

    Example:

    ```
    Create Ctl Desc (Virtual WS) (CRTCTLVWS)


     Type choices, press Enter.


     Controller description . . . . CTLD    > AXIS570
     Online at IPL  . . . . . . . . ONLINE    *YES
     Text description . . . . . . . TEXT      *BLANK
    ```

Creating a virtual printer

Follow the steps below to create a virtual printer:

1. Issue the command **CRTDEVPRT**. A dialog panel similar to the example on page 86 will be displayed

2. Press F11 to display keywords.

3. Enter the printer name at the `Device description (DEVD)` line. The printer name provided must be the same as the `Output queue (OUTQ)`, previously defined above when creating the output queue. This name is later used as destination when sending print jobs to the AXIS 570/670.

4. Type ***VRT** at the `Device class (DEVCLS)` line, to define the AXIS 570/670 as a virtual printer.

5. With reference to the table below, enter the appropriate `Device type (TYPE)` and `Device Model (MODEL)`.

Notes: ❏ These entries must correlate to the IBM Printer Emulation (PREMUL) parameter setting within the AXIS 570/670.

❏ The IBM Printer Emulation (PREMUL) parameter is explained in *Appendix A - SNA Parameter Overview*.

PREMUL	Device Type	Device Model
5224_TX	5224	I
5225_TX	5225	I
5226_TX	5226	I
4214_TX	4214	2
4230_TX	4214	2
3812_TX	3812	I
3816_TX	3812	I
3816S_TX	3812	I

6. Define the Attached controller (CTL). This entry must match the name of the Virtual controller, created previously.

7. Enter a FGID number at the Font Identifier (FONT) line. Lists of all supported FGIDs are available in *Appendix G - IPDS Fonts*, on page 239 and *Appendix D - IBM Fonts*, on page 225.

8. Press the ENTER key to create the virtual printer

Notes: ❏ A message Output queue AX570PR1 in QUSRSYS already exists (or similar) may be returned after pressing the ENTER key. This message can be disregarded.

❏ Several virtual printers and output queues can be attached to the virtual controller. This is useful if you want to choose different Logical Printers in the AXIS 570/670 when sending print jobs from the host.

Example:

```
Create Device Desc (Printer) (CRTDEVPRT)


 Type choices, press Enter.


 Device description . . . . . . . DEVD        > AX570PR1
 Device class . . . . . . . . . . DEVCLS      > *VRT
 Device type  . . . . . . . . . . TYPE        > 3812
 Device model . . . . . . . . . . MODEL       > 1
 Online at IPL  . . . . . . . . . ONLINE       *YES
 Attached controller  . . . . . . CTL         > AXIS570
 Font:                            FONT
   Identifier . . . . . . . . . .             > 11
   Point size . . . . . . . . . .              *NONE
 Form feed  . . . . . . . . . . . FORMFEED     *TYPE
 Separator drawer . . . . . . . . SEPDRAWER    *FILE
 Separator program  . . . . . . . SEPPGM       *NONE
   Library  . . . . . . . . . .
 Printer error message  . . . . . PRTERRMSG    *INQ
 Message queue  . . . . . . . . . MSGQ         QSYSOPR
   Library  . . . . . . . . . .                *LIBL
                                                          More...
```

Verifying the Communication   The easiest way to test the communication is by sending a print job to the AXIS 570/670.

Note: ❏ In the above example, the printout is directed to the destination AX570PR1 and targets Logical printer #1 in the AXIS 570/670.

The AXIS 570/670 is now ready for use in the AS/400 environment.

Section 5 Setting Up - IBM Mainframe

This section describes how to configure the AXIS 570/670 for printing of SCS, 3270 and IPDS data streams using SNA and TCP/IP transport protocols in the IBM Mainframe environment.

Proceed to the setup section that is relevant to your network environment, as described in the table below:

Printing protocol	Data streams	Action
SNA	SCS	*SNA Printing, on page 88*
	3270DS	*SNA Printing*, on page 88
	IPDS	*SNA Printing*, on page 88
TN3270E (TCP/IP)	SCS	*TCP/IP TN3270E Printing*, on page 98
	3270DS	*TCP/IP TN3270E Printing*, on page 98
	IPDS	*TCP/IP TN3270E Printing*, on page 98
PPR/PPD (TCP/IP)	IPDS	*PPR/PPD Printing - IPDS data streams*, on page 112

Note: ❏ IPDS is only supported by the AXIS 570e and AXIS 670e models.

If you intend to operate your AXIS 570/670 in a multiprotocol environment, you should also proceed to the other relevant sections in this manual, namely:

Section 4 - Setting Up - AS/400

Section 6 - Setting Up - NetWare

Section 7 - Setting Up - Windows

Section 8 - Setting Up - OS/2

Section 9 - Setting Up - Macintosh

Section 10 - Setting Up - UNIX

IBM Mainframe

IBM Mainframe

SNA Printing

Important! ❏ The AXIS 570/670 must be set up to emulate an IBM 3174 (3174 CU mode) in the Mainframe/VTAM environment.

The AXIS 570/670 supports printing of SCS, 3270 and IPDS data streams via the SNA transport protocol.

Note: ❏ IPDS data streams are only supported by the AXIS 570e and AXIS 670e models.

Configuring for SNA printing in 3174 CU Mode is described in three separate stages:

• Configuring the IBM Mainframe Host system

• Configuring the AXIS 570/670

• Verifying the communication

Configuring the Mainframe Host System

These procedures are compulsory for printing in the IBM Mainframe environment.

Configuring the host system requires you to do the following:

• Make sure that a VTAM Logon-mode entry is available for your AXIS 570/670.

• Create the VTAM Definition for the Major Node where the Print Server definition is to be placed.

Note: ❏ Although it is possible to define several logical units on the host system the AXIS 570/670 will only print one SNA job at a time. SNA jobs are held in a print queue within the AXIS 570/670 and are processed on a first-come-first-serve basis.

Before you begin ❏ Make note of the AXIS 570/670 serial number that is found on the underside label of the unit.

Procedures

Important! ❏ When using a concentrator gateway between the host and your print server, it is not necessary to define separate VTAM Major Node and PU definitions for the AXIS 570/670. You will instead be working with the gateway VTAM definitions. Since the AXIS 570/670 will appear to the host as one or several LU's attached to the gateway PU, you need only add LU definitions to the gateway major node definition and then proceed to item 3 below.

1. Define a VTAM Major Node Definition where the Print Server definitions will be placed. Using a channel attached 3174 as a gateway to the host, this definition is typically defined as a Local Major Node. If you are using a remotely attached gateway via a 37X5 communications controller or a LAN attached 3172, you will be working with a Switched Major Node definition.

2. Add the Print Server PU and LU definitions to the major node definition.
    Note: For Switched Major Node definitions you need to:

    > • Add the IDBLK (default = E07) and IDNUM (default = last 5 digits of the 570/670 MAC address) entries to the PU definition.
    >
    > • Code a PATH definition using the unit's full 12 digit MAC address.
    > *Example:* An AXIS 670 with a MAC/node address of 000231B80937 will be defined as:
    > ```
    > PA6701        PATH        DIALNO=0104000231B80937, GID=1,
    > FID=1, GRPNM=gggggg
    > ```

3. Ensure that the corresponding VTAM Logon-mode entries are available and that the appropriate LU session types (LU1 or LU3) are used.

4. Vary ACTive the VTAM Major Node definition for the AXIS 570/670.

Sample Sessions The examples below are based on samples given in VTAM Customization (IBM part no: SC23-0112), with some changes to optimize use for AXIS 570/670.

VTAM for MVS is assumed, although the configuration for VM and VSE is similar.

Logon-mode Entry Creating a VTAM Logon-mode entry for your AXIS 670.

Example: (Logon-mode entry for LU type 1 printing.)

```
*
* For application output of LU-1 SNA Character Stream (SCS)
*
         TITLE 'SCS670'
SCS670   MODEENT   LOGMODE=SCS670,                            X
                   FMPROF=X'03',                              X
                   TSPROF=X'03',                              X
                   PRIPROT=X'B1',                             X
                   SECPROT=X'B0',                             X
                   COMPROT=X'3080',                           X
                   RUSIZES=X'8585',                           X
                   PSERVIC=X'01400001000000000001000000',     X
                   PSNDPAC=X'03',                             X
                   SRCVPAC=X'03'
```

Example: (Logon-mode entry for LU type 3 printing.)

```
*
* For application output of LU-3 3270 Data Stream (3270DS)
*
         TITLE 'DSC670'
DSC670   MODEENT   LOGMODE=DSC670,                            X
                   FMPROF=X'03',                              X
                   TSPROF=X'03',                              X
                   PRIPROT=X'B1',                             X
                   SECPROT=X'90',                             X
                   COMPROT=X'3080',                           X
                   RUSIZES=X'8585',                           X
                   PSERVIC=X'030000000000185018507F00',       X
                   PSNDPAC=X'03',                             X
                   SRCVPAC=X'03'
```

Switched major node definitions

The example below shows how the print server PU, PATH, and LU definitions may be coded in a switched major node definition.

```
* PU definition
* E07xxxxxx is the node ID set in AXIS 570/670.
*
PU6701  PU          ADDR=04,                                  X
                    PUTYPE=2,                                 X
                    IDBLK=E07,                                X
                    IDNUM=nnnnn,                              X
                    MAXPATH=1,                                X
                    SSCPFM=USSSCS,                            X
                    USSTAB=USSMAST,                           X
                    VPACING=(0)
*
* Path definition
* xxxxxxxxxxxx is the 12 last digits of the MAC
* address of the AXIS 570/670
*
PA6701  PATH        DIALNO=0104xxxxxxxxxxxx,                  X
                    GID=1,                                    X
                    PID=1,                                    X
                    GRPNM=gggggg
*
* LU definitions.Use either LU6701 or LU6703
*
* LU type 1 (SCS)
*
LU6701  LU          LOCADDR=2,                                X
                    DLOGMOD=SCS670,                           X
                    VPACING=7,                                X
                    PACING=3
*
* LU type 3 (3270DS)
*
LU6703  LU          LOCADDR=2,                                X
                    DLOGMOD=DSC670,                           X
                    VPACING=7,                                X
                    PACING=3
```

IBM Mainframe

Notes: ❑   In the PU definition, IDNUM should be set to the five last digits of the AXIS 570/670 node address, NODE_ADDR. By default NODE_ADDR is the five last digits of the AXIS 570/670 serial number.

❏ In the path definition, PATH DIALNO should be comprised with its first two digits equal to the place holder, the next two set to the SAP and the remaining twelve digits set to the AXIS 570/670 Ethernet or Node address. By default the Ethernet/Node address is identical to the AXIS 570/670 serial number. A valid GRPNM must also be supplied.

❏ In the LU definition, the LOCADDR number maps to the Logical Printer number of the AXIS 570/670. The first eight Local Addresses pass the printout through Logical Printer 1-8. However, some IBM systems do not allow Local Address 1 to be used for printing. Refer to *Section 12 - Using Logical Printers*, on page 193 for more information about logical printers.

Example (PU definition for an IBM 9370):
Path is not used for a locally attached 9370 Token Ring adapter. Replace the PATH and PU definitions in the previous example with the PU definition below.

```
*
* PU definition for 9370
* E07nnnnn is the node ID set in AXIS 570/670.
* xxxxxxxx is the 8 last digits of the MAC address of
* the AXIS 570/670.
*
PU6701          PU         IDBLK=E07,                          X
                           IDNUM=nnnnn,                         X
                           MACADDR=xxxxxxxxxxxx,                X
                           SAPADDR=04
```

Note: ❏ IDNUM should be set to the five last digits of the AXIS 670 node ID. By default, this is the five last digits of the AXIS 670 serial number. The last twelve digits of MACADDR should be set to the AXIS 670 Node address. By default this is the AXIS 670 serial number.

Local Major Node Definitions   The example below shows how the print server PU and LU definitions may be coded in a local major node definition:

```
* 670 DSPU DEFINITION
DSPU670  PU  CUADDR=E31,                              X
             MODETAB=MODE3290,                        X
             PUTYPE=2,ISTATUS=ACTIVE,MAXBFRU=1
DSPULU02 LU  LOCADDR=2                                X
             SSCPFM=USSSCS,                           X
             USSTAB=USSTAB,                           X
             PACING=1,                                X
             VPACING=2,                               X
             ISTATUS=ACTIVE,                          X
             LOGAPPL=MWTC,                            X
             DLOGMOD=SCS670
DSPULU03 LU  LOCADDR=3,                               X
             SSCPFM=USSSCS,                           X
             USSTAB=USSTAB,                           X
             PACING=1,                                X
             VPACING=2,                               X
             ISTATUS=ACTIVE,                          X
             LOGAPPL=MWTC,                            X
             DLOGMOD=SCS670
```

IBM Mainframe

Note: ❏ If the LAN media at the remote (Print Server) location differs from that at the host location (e.g. Remote LAN = Ethernet and Host LAN = Token Ring), the MAC address definitions must be modified, as outlined below:

Print Server Modifications:

The AXIS 570/670 Host MAC address (H1_MAC_ADDR) must be bit-order reversed for each byte,
e.g. if the host address is 08005AB77D49 the converted address will be 10005AEDBE92

Host Modifications:

The required Host modifications are dependent upon the VTAM definition for the Major Node where the Print Server definition is placed.

- Case 1: VTAM Major Node definition is a Switched Major Node.
  The MAC address of the AXIS 570/670 must be bit-order reversed in the PATH entry. An AXIS 570 with a MAC/node address of 00408C1B06D4 will be defined using the MAC/node address 000231D8602B as follows:

```
PA5701 PATH DIALNO=0104000231D8602B,
GID=1, PID=1, GRPNM=gggggg
```

- Case 2: VTAM Major Node definition is a Local Major Node.
  When using a channel attached controller as gateway to the host, the MAC address of the AXIS 570/670 is configured in the gateway. The address must be reversed, as in case 1 above.

Configuring the AXIS 570/670

To perform the instructions presented in this section, you should first assign an IP address to your AXIS 570/670 using one of the methods presented in *Assigning an IP address*, on page 36.

Note: ❏ If your network does not support the TCP/IP protocol suite, you can still configure the AXIS 570/670 using the AXIS NetPilot installation tool. Appropriate instructions are available in the AXIS NetPilot online help.

The purpose of the configuration of the 570/670 is to emulate a LAN attached IBM 3174 Control Unit running SNA PU2.0.

Follow the instructions below to configure the AXIS 570/670 using a Web browser:

1. Start a Web browser, e.g. Internet Explorer or Netscape Navigator.

IBM Mainframe

2. Enter the IP address or the host name of the AXIS 570/670 in the location field and press the ENTER key on your keyboard. The internal Web pages of the AXIS 570/670 appear. You may be asked to enter a user name and a password. The default values are *root* and *pass*, respectively.

3. Click the **Configuration** button.

4. Select **SNA** from the header.

5. Select 3174 from the **3174/5494 Emulation Parameter** drop-down list.

6. Enter the SSAP in the **Local SAP value** text field.

7. Enter the LAN-to-host gateway MAC address in the **Host MAC address** text field.

8. Enter the host SSAP in the **Host SAP value** text field.

9. Enter the node identifier xxxnnnnn, where xxx = IDBLK and nnnnn = IDNUM, in the **Local node ID** text field. These values must match the entries that were defined in the VTAM PU setup.

10. Click the **Submit SNA settings** button.

Depending on your choice of data streams, continue the installation by selecting the appropriate set of instructions below:

IPDS data streams *(AXIS 570e and AXIS 670e only)*

1. Select **IBM IPDS Configuration** from the header.

2. Select your preferred system language from the **System Language** drop-down list and click the **Submit IBM IPDS Configuration settings** button.

3. Select **IBM IPDS Printer Driver** from the header.

4. Select the paper size for each paper bin from the **Paper Size** drop-down list and click the **Submit IBM IPDS Printer Driver settings** button.

5. Select **SNA** from the header.

6. Select the appropriate IPDS printer emulation from each **Logical unit data streams** drop-down list that corresponds to the logical printer you want to use.

7. Set the **Automatic link establishment (dialing)** radio button to Yes and click the **Submit SNA settings** button.

SCS and 3270 data streams

1. Select **IBM BASIC CONFIGURATION** from the header.

2. Select your preferred system language from the **System Language** drop-down list.

3. Select a coax printer emulation from the **Printer Emulation** drop-down list.

4. Click the **Submit IBM BASIC CONFIGURATION settings** button.

5. Select **IBM PRINTER DRIVER** from the header.

6. Make sure that the **Printer Driver** parameter is matching your printer and click the **Submit IBM PRINTER DRIVER settings** button.

7. Select **IBM PAGE FORMAT** from the header.

8. Select the appropriate page properties and click the **Submit IBM PAGE FORMAT settings** button.

9. *3270DS only:* Select **IBM 3270 OPTIONS** from the header if you want to set the optional 3270 parameters.

10. *3270DS only:* Select the appropriate data stream settings and click the **Submit IBM 3270 OPTIONS settings** button from the header.

11. Select **SNA** from the header.

12. *AXIS 570e and AXIS 670e only:* Check that you have selected SCS from the appropriate Logical Unit Data stream drop-down lists.

13. Set the **Automatic link establishment (dialing)** radio button to Yes and click the **Submit SNA settings** button.

Verifying the Communication Link

The easiest way to test the communication is by sending a print job to the AXIS 570/670. If there are problems, press the test button once to print the test page where you can find the present SNA link status.

Procedures

1. Power on the Print Server and wait for 2 minutes.

2. Press the test button once to print a test page and ensure that the SNA status line is defined as either:

   •Idle

   •Actv

   •LU-1

   •LU-3

Note: ❏ Please refer to Axis' Technical Notes and FAQ on the Axis Web site, if the status line indicates that the SNA link is not active.

The AXIS 570/670 is now ready for use in the SNA environment.

IBM Mainframe

TCP/IP TN3270E Printing

The following procedures describe how to configure the AXIS 570/670 for SCS, 3270DS and IPDS printing, using TCP/IP TN3270E.

This is achieved by establishing communication between the AXIS 570/670 and Mainframe host via a TN3270E server, using the TCP/IP transport protocol for the SCS, 3270 and IPDS data streams, as illustrated below:
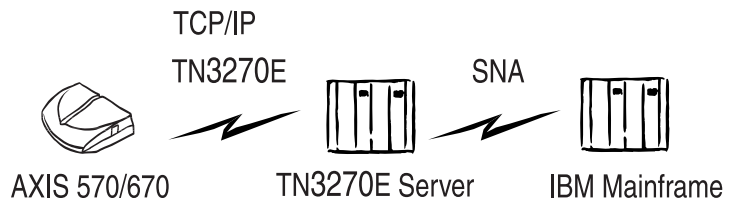
Configuring for TN3270E printing is described in four separate stages:

• Configuring the IBM Mainframe Host system

• Configuring the AXIS 570/670

• Configuring the TN3270E server

• Verifying the communication

Configuring the Mainframe host

Consult your TN3270E server documentation and make sure that the appropriate VTAM host system definitions are set up for mainframe-to-TN3270E server SNA communication.

IBM Mainframe

Configuring the
AXIS 570/670

Follow instructions below to configure the AXIS 570/670 using a
Web browser:

1. Start a Web browser, e.g. Internet Explorer or Netscape Navigator.

2. Enter the IP address or the host name of the AXIS 570/670 in the
    location field and press the ENTER key on your keyboard. The
    internal Web pages of the AXIS 570/670 appear. You may be
    asked to enter a user name and a password. The default values are
    root and *pass*, respectively.

3. Click the **Configuration** button.

4. Ensure that the IP address, subnet mask and default router are
    appropriately set for your network.

5. Select **TN3270E** from the header.

6. Enter the IP address of your TN3270E server in the **Server IP
    Address** field.

7. Enter the printer device name in the **Printer name** field. The
    name may comprise the letters A-Z and the numerals 0-9, but
    must begin with a letter. A maximum of 8 characters are allowed.
    This name must correspond to the configured printer name in the
    TN3270E server.

8. Enter the TN3270E server's Telnet port number in the **Port** field.
    The default port number (23) can be used in most environments.

9. Select which logical printer to use from the **Logical Printer** drop-
    down list.

10. *AXIS 570e/670e only:* Select your IPDS printer emulation from
    the **IPDS printer emulation** drop-down list.

11. Set **Auto Connect** to ON.

12. Repeat steps 5-10 for each session you want to set up.

Note: ❑ The AXIS 570/670 supports eight semi-concurrent TN3270E host sessions. Since the IBM Emulator resident in the AXIS 570/670 is single user, only one print job can be processed at a time. Incoming print requests are held in a queue inside the AXIS 570/670 and processed in a first-come-first-served fashion.

13. Click the **Submit TN3270E settings** button to initialize the TN3270E sessions.

Depending on your choice of data streams, continue the installation by selecting the appropriate set of instructions below:

IPDS data streams *(AXIS 570e and AXIS 670e only)*

1. Select **IBM IPDS Configuration** from the header.

2. Select your preferred system language from the **System Language** drop-down list and click the **Submit IBM IPDS Configuration settings** button.

3. Select **IBM IPDS Printer Driver** from the header.

4. Select the paper size for each paper bin from the **Paper Size** drop-down list and click the **Submit IBM IPDS Printer Driver settings** button.

5. Click the **TCP/IP** tab and ensure that the IP address, subnet mask and default router are appropriately set for your network.

SCS and 3270 data streams

1. Select **IBM BASIC CONFIGURATION** from the header.

2. Select your preferred system language from the **System Language** drop-down list.

3. Select a coax printer emulation from the **Printer Emulation** drop-down list and click the **Submit IBM BASIC CONFIGURATION settings** button.

4. Select **IBM PRINTER DRIVER** from the header.

5. Make sure that the **Printer Driver** parameter is matching your printer and click the **Submit IBM PRINTER DRIVER settings** button.

6. Select **IBM PAGE FORMAT** from the header.

7. Select the appropriate page properties and click the **Submit IBM PAGE FORMAT settings** button.

8. *3270DS only:* Select **IBM 3270 OPTIONS** from the header if you want to set the optional 3270 parameters.

9. *3270DS only:* Select the appropriate data stream settings and click the **Submit IBM 3270 OPTIONS settings** button from the header.

IBM Mainframe

Configuring the TN3270E server

The TN3270E server software is integral to many different router/servers.

Configuration examples for two popular TN3270E-capable servers are described below, namely:

- Microsoft SNA Server

- Novell NetWare for SAA.
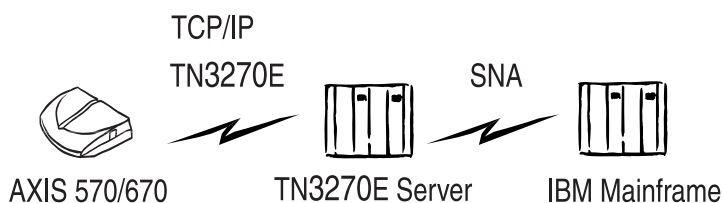
Typical AXIS 570/670 TCP/IP TN3270E Network Configuration

Notes:
- ❏ Configuration procedures can vary for other TN3270E servers.

- ❏ For additional information about configuring other TN3270E servers, refer to the Technical Notes section on the AXIS Web pages.

Microsoft SNA Server

Communication is established in two separate stages, SNA Server-to-Host connection and SNA Server to AXIS 570/670 connection, described below:

SNA Server-to-Host Connection

Follow the steps below to set-up a SNA Server-to-Host connection for the AXIS 570/670:

1. Start Microsoft SNA Server Manager and click the Servers folder. The Main SNA Server Manager Window is featured in the illustration below.

2. Insert a new Connection to the host under Connections. Refer to the online help for assistance on how to configure the connection.

3.   Select the new connection and Insert a 3270 Application LU (LUA) to this connection.

4.   Set the LU Number to the LU Number specified in the host.

5.   Set the LU Name to the name you want to use for the printer device. This is the same name that you specify in the TN3270E Printer Name parameter of the AXIS 570/670.

6.   Click OK.
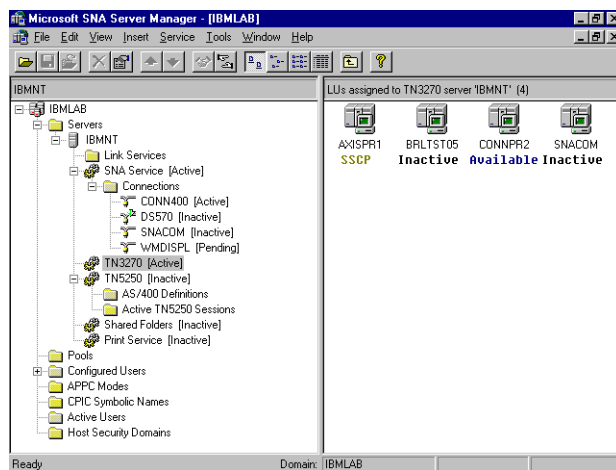
SNA Server Manager Main Window

SNA Server - AXIS 570/670 connection

1.   Select the new LUA and drag it to the TN3270 connection definition (highlighted in the SNA Server Manager Window above).

2.   Select the properties of the LUA.

3.   Click on the TN3270 tab in the properties popup window.

4.   Select Generic Printer Type.

5.   Click on the IP Address List tab.

6. Specify the IP Address of the client(s) that you want to assign to this LU. This is the IP address of the AXIS 570/670, i.e. the same as the INT_ADDR parameter in the Print Server.

7. Click OK.

Verifying the Communication:

1. Activate the connection you created in step 2 of the above *SNA Server - AXIS 570/670 connection* procedures. The status of the connection should be "active".

2. Make sure the corresponding LU in the host is activated.

3. Activate the TN3270 connection to the AXIS 570/670. The LUA should change status to SSCP.

4. Check that the printer is connected to the AXIS 570/670

5. Send a print job from the host.

The AXIS 570/670 is now ready for use.

Notes: ❏ You can check the status of the TN3270E connection by printing a test page from the Print Server. This is done by pressing the test button once. Make sure the TN3270E status (St:) line for your server connection is defined as either:

- SSCP

- LU-1

- LU-3

❏ For additional information about configuring other TN3270E servers, refer to the Technical Notes via the AXIS Web pages.

IBM Mainframe

NetWare for SAA Server

To set-up a TN3270E Server connection to the AXIS 570/670 you have to set up PU and LU definitions. This is done by following the steps below:

1. Start the NWSAA Administrator.

2. Double click on the NWSAA Node. The panel below will appear.

3. Enter the Node ID for the host.

4. Leave the rest at their default settings.

| NetWare for SAA Version: | 2.20.10 |
| Number of installed user licenses: | 125 |

Peer PU profile default setting

Profile Name:	NWSAA
SNA network ID:	SEEDB
Peripheral node CP name:	CPNAME
Node ID (block/PU ID):	05D 66204 hex
Local/partner SAP for independent LUs:	04 hex

Description

TN3270

Ok   Cancel   Help

Peer PU profile

5. Click on the TN3270 icon. The panel below will appear.

6. Select All Available Host PU profiles.

7. Enter the user name, from the User List, that you want all TN3270 clients to use.

8. Specify the maximum number of TELNET connections you want to allow each TN3270 client.

9. Leave the rest at their default settings and click OK.

Host PU profiles

10. Press the "insert" key to create a new Host PU Profile. Choose Host PU Profile from the list displayed in the dialog. Then the panel below will appear.

11. Enter a unique name as PU profile name.

12. Enter the number of dependent LUs you want for this PU.

13. Enter the starting LU number.

14. Enter the Node ID (the same ID as for item 3 above).

15. Choose logical adapter.

16. Set maximum frame size to transmit inbound to match the MAXDATA in the host definition.

17. Enter the host node address.

18. Leave the rest at their default settings.

PU Profile name & Logical adapter

19. Click the LU Defaults icon. The panel below will appear

20. Set Default LU category to Public.

21. Set Default LU type to `Printer (LU type 1 or 3)`.

22. Specify the VTAM LU name prefix. Click OK.

Notes: ❏ When the LUs are created the default names for the Printer Devices will be <name prefix> followed by a two digit number starting at the number you entered in the starting dependent LU number field (refer to step 13 above).

❏ In the example below, eight LUs are created automatically. The LU names created will be `BRLTST04` through to `BRLTST0B`. These names must correspond to the Printer Names you specify for the TN3270E sessions in the Print Server.

IBM Mainframe

Printer LU

You can now generate a configuration report from NW for SAA. To do this, simply mark the server icon in the left window and select `Generate Server Configuration Report` from the function menu.

The following table is a summary of a report generated by this command for the example above.

Profile Name	NWSAA
SNA Network ID:	**SEEDB**
Peripheral node control point name:	**CPNAME**
Block ID/PU ID:	**05D 66204**
Local/Partner SAP for ILUs:	**04**
Logical Adapter:	**E100B_1**
PU Profile:	**NWSAAPU**
Adapter Name	**E100B_1**
Adapter Type:	LLC 802.2
Terminate peer link if no active APPC sessions:	No
Logical adapter number:	0
Number of local service access points:	2
Enable adapter at startup:	Yes
PU Profile Name	**NWSAAPU**
Number of dependent LUs:	**8**
Starting dependent LU number:	**4**
Peripheral node control point name:	**NWSAAPU**
Node ID (block/PU ID):	**05D 66204**
Offline test mode:	No
Assign only LUs activated by the host:	Yes
Enable SDDLU Support:	No
Adapter Name:	**E100B_1**
Adapter Type:	LLC 802.2
Maximum Session Count:	9
VTAM Name Prefix:	**BRLTST**
Default LU Type:	1

Profile Name	NWSAA
Default Model Number:	2
Default LU Category:	Public
Maximum frame size to transmit inbound:	0521
Remote node address:	**020066800000**
Remote Service Access Point:	04
Local Service Access Point:	04
Enable PU profile at startup:	Yes

LU id	Category	VTAM LU Name	Type	Mod	Termination Method
0	Public		14	2	TSELF
4	Public	BRLTST04	1	2	TSELF
5	Public	BRLTST05	1	2	TSELF
6	Public	BRLTST06	1	2	TSELF
7	Public	BRLTST07	1	2	TSELF
8	Public	BRLTST08	1	2	TSELF
9	Public	BRLTST09	1	2	TSELF
10	Public	BRLTST0A	1	2	TSELF
11	Public	BRLTST0B	1	2	TSELF

PU Profile Names	NetWare SAA
Maximum connections per client	5
Use IP client name	No
TN3270 NetWare User ID	**Admin**
Client Response Timer	120
Printer End of Job Timer	9999

Summary of a report generated by Generate Server
Configuration Report (bold text = not default).

Verifying the Communication:

Follow the steps below to test the communication by sending a print job to the AXIS570/670.

1. Make sure the printer is connected to the AXIS 570/670 and the corresponding LU in the host is activated.

2. Send a print job from the host.

The AXIS 570/670 is now ready for use. If needed, it can be further adapted to your system using the AXIS NetPilot™, Web-based configuration pages or IBM Printer Emulation (see *Appendix C - Extended IBM Printer Emulation*).

Note: ❏ You can check the status of the TN3270E connection by printing a test page from the Print Server. This is done by pressing the test button once. Make sure the TN3270E status (St:) line for your server connection is defined as either:

- • SSCP

- • LU-1

- • LU-3

❏ For additional information about configuring other TN3270E servers, refer to the Technical Notes via the AXIS Web pages.

PPR/PPD Printing - IPDS data streams

Note: ❏ IPDS is only supported by the AXIS 570e and the AXIS 670e models.

The configuration procedures presented in this section are divided into three separate steps:

- Configuring the AXIS 570/670

- Configuring of the IBM Mainframe host

- Verifying the communication between the AXIS 570/670 and the IBM Mainframe

Before you begin   Make sure that you are running:

- PSF/MVS Version 2.2.0 with APAR OW15599.

- MVS Scheduler APAR OW12236.

- TCP/IP v3r1

IBM Mainframe

Configuring the Mainframe host

1. Define the `Communication Control Unit`, e.g. 3172, to MVS.

2. Modify the PSF/MVS Start-up Procedure with the following entry:
   Example:

```
//WRT4317 PROC
//* The PSF/MVS TCP/IP Writer Procedure */
//* PRINTDEV
//PRT4317 CNTL
//      MGMTMODE=OUTAVAIL,
//      DISCINTV=0,
//      IPADDR='xxx.xxx.xxx.xxx',
//      PORTNO=5001,
//PRT4317 ENDCNTL
```

Note that `xxx.xxx.xxx.xxx` denotes the IP address of your AXIS 570e/670e.

3. Define the printer to JES2 or to JES3.
   JES2:

```
FSSDEF FSSNAME=FSS4317, PROC=WRT4317, HASPFSSM=HASPFSSM,
PRT4317 FSS=FSS1, MODE=FSS, PRMODE=(LINE, PAGE, SOSI1),
         CLASS=C, UCS=0, SEP, NOSEPDS, CKPTPAGE=100,
          DRAIN, MARK, TRKCELL=YES
```

Make sure that the parameter `PROC` matches the `PROC` name in the PSF/MVS Start-up Procedure.

JES3:

```
FSSDEF TYPE=WTR FSSNAME=FSS4317, PNAME=WRT4317, SYSTEM=SYS1, TERM=NO
DEVICE, JNAME=PRT4317, JUNIT=(,SYS1, ,OFF), FSSNAME=FSS4317,
        MODE=FSS, PM=(LINE, PAGE, SOSI1), CHARS=(YES, GT12)
```

Make sure that the parameters `PNAME` and `JNAME` match the `PROC` name in the PSF/MVS Start-up Procedure.

IBM Mainframe

Configuring the AXIS 570e/670e

Follow the instructions below to configure your AXIS 570e/670e using a standard Web browser:

1. Start a Web browser, e.g. Internet Explorer or Netscape Navigator.

2. Enter the IP address or the host name of the AXIS 570e/670e in the location field and press the ENTER key on your keyboard. The internal Web pages of the AXIS 570e/670e appear. You may be asked to enter a user name and a password. The default values are *root* and *pass*.

3. Click the **Configuration** button.

4. Select **TCP/IP** from the header.

5. The Reverse Telnet parameters PR1, PR2 and PR3 are by default setup for IPDS data streams, emulating an IBM 4028 printer model 1 on the port numbers 5001, 5002 and 5003 respectively. If you need to change a port number, enter a new number in the text field and click the **Submit TCP/IP settings** button. Otherwise you do not have to do anything.

6. Select **IBM IPDS Configuration settings** from the header.

7. Select your preferred system language from the **IPDS System Language** drop-down list.

8. Click the **Submit IBM IPDS Configuration settings** button.

9. Select **IBM IPDS PRINTER DRIVER** from the header.

10. Select the appropriate page properties and click the **Submit IBM IPDS PRINTER DRIVER settings** button.

Verifying the communication

By sending a print job from the Mainframe to the AXIS 570e/670e, you can verify that the setup procedures have been performed correctly and that communication is established.

Section 6 Setting Up - NetWare
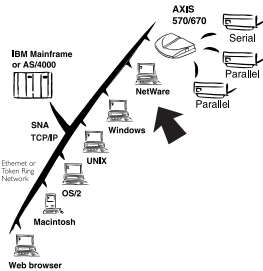
If you have performed the basic installations as described in *Basic Setup with AXIS NetPilot*, on page 32, the AXIS 570/670 is now ready for printing within the NetWare environment.

However, if you need a more advanced installation that is not covered by the AXIS NetPilot Installation Wizard, you are advised to perform the additional instructions presented in *Advanced Installation using AXIS NetPilot*, on page 118.

If you want to install the AXIS 570/670 using NDPS, you should **not** use the AXIS NetPilot Installation Wizard at all. You should instead follow the instructions in *Setup using NDPS*, on page 116.

If you intend to operate your AXIS 570/670 in a multiprotocol environment, you should also proceed to the other relevant sections in this manual, namely:

NetWare

Setup using NDPS

The AXIS 570/670 supports Novell Distributed Print Services (NDPS), which is Novell's new generation architecture for printing and printer administration.

Before the AXIS 570/670 can be installed, you must install NDPS and an HP Gateway on your NetWare file server. The HP Gateway is included with the NDPS software and is automatically installed together with NDPS. The AXIS 570/670 uses the HP Gateway when communicating with an NDPS printer.

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

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

❏   You can disable the NDPS feature by setting HP_JETADMIN in the AXIS 570/670 parameter list to NO.

NetWare

Installing the
AXIS 570/670

You can select to install the connected printers as public or controlled printers. Follow the instructions below to install the AXIS 570/670 using NDPS:

Public Access

1. Make sure that the HP Gateway is configured to automatically create a public access printer, before you connect the AXIS 570/670 to the network.

2. Connect the AXIS 570/670 to the NetWare network.

As soon as the HP Gateway finds the AXIS 570/670, it will automatically create a public access printer. All users have access to the public access printer, which is found with the Novell Printer Manager.

Controlled Access

1. Make sure that the HP Gateway is **not** configured to automatically create a public access printer, before you connect the AXIS 570/670 to the network.

2. Connect the AXIS 570/670 to the NetWare network.

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

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

NetWare

Advanced Installation using AXIS NetPilot

Having installed your AXIS 570/670 print server in accordance with the basic installation procedures described in *Basic Setup with AXIS NetPilot*, on page 32, your AXIS 570/670 print server should now feature in the 'Network Print Servers' folder located in the AXIS NetPilot main window.

NetWare Network Environment Window

The NetWare Network Environment window allows you to connect additional print queues to your AXIS 570/670 as well as create new ones.

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

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

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

3. If you are not logged on to your NetWare file server, a dialog box will ask you to log on.
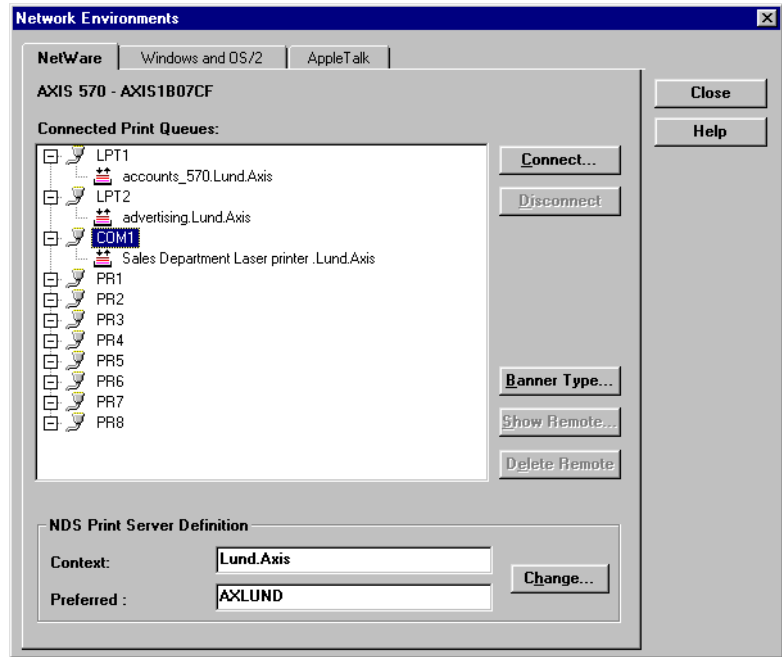
NetWare

The AXIS NetPilot NetWare Network Environment window

The AXIS 570/670 periodically updates the configuration by scanning the NDS tree or, in the case of NetWare versions 3.x, the designated file servers.

NetWare

Connecting
Print Queues

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

1. Open the NetWare Network Environment window.

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

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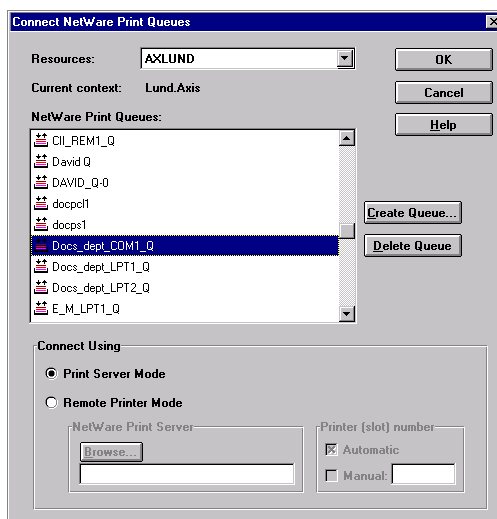
The AXIS NetPilot Connect NetWare Print Queues window

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

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

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

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

NetWare

8. Select **Print Server Mode** or **Remote Printer Mode**. If you selected Print Server Mode, advance directly to step 11, otherwise continue with step 9. Please refer to *Printing Methods*, on page 122, for further information about the two printing methods.

9. Select an appropriate NetWare Print Server name, that will be associated with the AXIS 570/670 print server, by using the **Browse...** button.

Note: ❑ You cannot type or edit the name manually.

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

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

NetWare

Printing Methods

The following overview explains the advantages and limitations of the two supported Netware printing methods.

Print Server Mode   The AXIS 570/670 logs in to a file server(s) and repeatedly polls the print queues for print jobs. In this fashion, the AXIS 570/670 emulates a NetWare print server, that is a workstation running PSERVER. It provides high printing speed with low network load and is the recommended mode for medium to large sized networks. Each print server in PSERVER mode takes one NetWare license.

Advantages   • High performance, typically 150-400 kbytes/s.

Limitations   • In bindery mode, this printing method requires a NetWare user licence for each AXIS 570/670 to file server link.

Remote Printer Mode   The AXIS 570/670 connects to a PSERVER NetWare program running on the file server, or to a dedicated workstation running PSERVER.EXE. It then automatically receives print jobs from the file server. In this fashion, the AXIS 570/670 emulates a workstation running the NetWare remote printer software RPRINTER, or NPRINTER. This mode is only recommended for small networks where the number of NetWare user licences is a major issue.

Advantages   • NetWare user licences are not required.

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

• Higher network load.

NetWare

Section 7 Setting Up - Windows
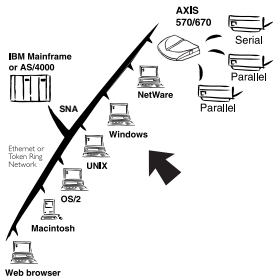
Having connected the AXIS 570/670 to your network, this section describes how to use the AXIS Print Utilities for printing in the Windows environment. Identify your Windows platform and choose the appropriate installing instructions from the list below.

Windows 95 and **Windows 98**, please refer to:

- *Using the AXIS Print Monitor for Windows 95/98 and NT*, on page 124
- *Windows 95 and Windows 98*, on page 126

Windows NT, please refer to:

- *Using the AXIS Print Monitor for Windows 95/98 and NT*, on page 124
- *Windows NT*, on page 130

Windows 3.1 and **Windows for Workgroups**, please refer to:

- *Using the AXIS Print Utility for Windows*, on page 139
- *Windows 3.1 and Windows for Workgroups*, on page 141

Windows clients using **LANtastic**, please refer to:

- *Windows Clients using LANtastic*, on page 143

If you intend to use the AXIS 570/670 in a multiprotocol environment, you should also refer to the following sections:

Section 4 Setting Up - AS/400, on page 49
Section 5 Setting Up - IBM Mainframe, on page 87
Section 6 Setting Up - NetWare, on page 115
Section 8 Setting Up - OS/2, on page 145
Section 9 Setting Up - Macintosh, on page 149
Section 10 Setting Up - UNIX, on page 155

Windows

Windows

Using the AXIS Print Monitor for Windows 95/98 and NT

AXIS Print Monitor should be used for network printing in Windows 95, Windows 98 and Windows NT environments. It allows AXIS Network Print Servers to be connected in the same simple fashion as a local printer port and once installed, is automatically initialized upon system startup.

Install the AXIS Print Monitor software now if you have not already done so. It is available on the AXIS Online CD.

If you want to change the default name or amend any of the AXIS 570/670 default parameters, you can do so using the AXIS NetPilot, or any standard Web browser. Refer to *Section 11 Management & Configuration*, on page 161.

About AXIS Print Monitor	AXIS Print Monitor is a Windows component that has been developed for peer-to-peer printing under Windows 95, Windows 98 and Windows NT that allows your print jobs to be sent directly to the print server.

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

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

- You can easily monitor the status of your printers, by enabling error condition pop-up messages.

- You do not have to rely on a server.

Client-Server Printing — AXIS Print Monitor needs only to be installed on one server to perform client-server printing. The installed printers must be configured to be shared to allow clients to use them. Pop-up messages should not be enabled on the server as the status of shared printers will not be reported to the client platforms. Pop-up messages are only displayed on the server.

User Dialog — Although the AXIS Print Monitor user dialog varies depending on which platform you are using, i.e. Windows 95, Windows 98, Windows NT 4.0 or Windows NT 3.5x, the functionality is exactly the same.

Note: ❑ The AXIS Print Monitor may be used for DOS printing when installed on Windows NT platforms. However, in Windows 95/98 this is only possible from a client workstation, in a client-server configuration. The AXIS Print Utility for Windows should be used if DOS peer-to-peer printing is performed on a Windows 95/98 platform. Please refer to *Using the AXIS Print Utility for Windows*, on page 139.

Windows

Windows 95 and Windows 98

Using the
AXIS Print Monitor
with Windows 95/98

Follow the procedures below to install Axis printer ports from a
Windows 95 or Windows 98 workstation:

NetBIOS/NetBEUI

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

2. After clicking **Next>** in the first dialog, the Wizard asks you to
   select Local printer or Network printer. Select **Local printer** as the
   AXIS 570/670 emulates a local printer port. Click **Next>**.

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

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

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

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

6. Select the AXIS Printer Port from the Available Ports list. The
   port names appear as <name>.LP1, <name>.LP2, and
   <name>.CM1, where <name> is AX followed by the last six digits
   of the AXIS 570/670 serial number, e.g. AX100086. Click the
   Configure Port button.

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

Windows

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

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

TCP/IP (LPR)   To be able to print using LPR, you must have installed the AXIS 570/670 in the TCP/IP environment as described in *Assigning an IP address*, on page 36.

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

2. After clicking **Next>** in the first dialog, the Wizard asks you to select Local printer or Network printer. Select **Local printer** as the AXIS 570/670 emulates a local printer port. Click **Next>**.

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

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

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

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

6. Select the AXIS LPR Port you want to use and click **OK**. Available LPR ports appear as <port name>@<IP address> or <port name>@<host name>, e.g. PR1@192.36.254.101. If you want to install a new LPR port, select the Printers@LPR port and perform all procedures defined in steps 10-17. Click the **Configure Port** button.

Windows

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

Note: ❏ The Printers@LPR port cannot be used for printing and consequently cannot be configured.

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

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

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

10. The printer you have defined is displayed in the 'Printers' folder. Right-click the printer object and select **Properties** from the **Context** menu.

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

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

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

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

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

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

17. Click the **Apply** button.

The Axis Printer Port is now installed.

Shared printer from a Windows 95 client

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

1. Open the **Control Panel**.

2. Open the 'Printers' folder.

3. Click **Add Printer**.

4. Select **Network Print Server** and then go to **Next**.

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

6. Go to **Next** and then **Finish**.

Windows

Windows NT

Using the AXIS Print Monitor with Windows NT 4.0

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

NetBIOS/NetBEUI

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

2. The Wizard asks you to select My Computer or Network printer server. Select **My Computer**, as the AXIS 570/670 emulates a local printer port.

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

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

5. Select the AXIS Port you want to add. The ports appear as <name>.LP1, <name>.LP2, and <name>.CM1, where <name> is AX followed by the last six digits of the AXIS 570/670 serial number, e.g. AX100086. Click **OK**.

6. Close the Printer Ports window.

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

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

Windows

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

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

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

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

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

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

TCP/IP (LPR)   To be able to print using LPR, you must have installed the AXIS 570/670 in the TCP/IP environment as described in *Assigning an IP address*, on page 36.

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

2. The Wizard asks you to select My Computer or Network printer server. Select **My Computer**, as the AXIS 570/670 emulates a local printer port. Click **Next>**.

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

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

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

Windows

Windows

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

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

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

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

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

11. Choose an appropriate printer driver for your printer. If the desired print driver already appears in the displayed Manufacturers and Printer Models list dialog, highlight your selection, click **Next>** and proceed directly to step 14. It is only necessary to perform steps 12 - 13 if your printer does not appear in the list.

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

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

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

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

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

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

<table>
<tr><td>Using the
AXIS Print Monitor
with
Windows NT 3.5x</td><td>Follow the procedure below to install Axis printer ports from a
Windows NT 3.5x workstation:</td></tr>
</table>

NetBIOS/NetBEUI:

1. Open the Print Manager and select **Create Printer** from the **Printer** menu.

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

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

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

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

5. Select the printer driver you want to install.

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

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

8. Select the AXIS Port you wish to add and then click **OK**. The ports appear as <name>.LP1, <name>.LP2, and <name>.CM1, where <name> is AX followed by the last six digits of the AXIS 570/670 serial number, e.g. AX100086.

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

10. Click **OK**.

Windows

Windows

TCP/IP (LPR)   To be able to print using LPR, you must have installed the AXIS 570/670 in the TCP/IP environment as described in *Assigning an IP address*, on page 36.

1. Open the Print Manager and select **Create Printer** from the **Printer** menu.

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

3. Choose an appropriate printer driver for your printer from the drop-down Driver list. If the desired printer driver already appears in the displayed Manufacturers and Printer Models list dialog, proceed directly to step 6. It is only necessary to perform steps 4 - 5 if your printer does not appear in the model list.

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

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

5. Select the printer driver you want to install.

6. Select **Other...** from the "Print to" drop-down list.

7. Select **AXIS Port** from the list of available Print Monitors in the Print Destination dialog. Click **OK**.

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

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

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

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

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

13. Select whether you want to share the printer with other network users. Click **OK**.

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

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

Using the Microsoft LPD monitor with Windows NT 4.0

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

Basic Setup

If you have not already done so, you should perform the TCP/IP basic setup procedures prior to installing a printer for LPD printing. These procedures are defined in *Assigning an IP address*, on page 36.

Preparing for LPR/LPD printing

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

Follow the following steps to prepare for LPR/LPD printing:

1. Open the **Control Panel** and click the **Network** icon.

2. Select **Protocols**.

3. Add **TCP\IP Protocol**.

4. Select **Services**.

5. Add **MS TCP\IP Printing**.

Installing a printer   Follow the instructions below to install a printer for LPD printing:

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

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

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

4. In Add LPR compatible printer, enter the host name or IP address of the AXIS 570/670 as the print server to provide LPD.

5. Enter 'pr1', 'pr2', ... 'pr8' as the name of printer or print queue on that server.

6. Choose a suitable printer driver for your printer and go to **Next**.

7. Enter a printer name and go to **Next**.

8. Select **Shared** if you want to share the printer over the network.

9. Enter a share name.

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

Windows

Using the Microsoft LPD monitor with Window NT 3.5x

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

Basic Setup

If you have not already done so, you should perform the TCP/IP basic setup procedures prior to installing a printer for LPD printing. These procedures are defined in *Assigning an IP address*, on page 36.

Install the TCP/IP Protocol Stack

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

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

1. In the **Control Panel**, select **Network**.

2. Click **Add Software...**

3. Select **"TCP/IP Protocol and related components"** and then click **Continue**.

4. Check **"TCP/IP Network Printing Support"** and then click **Continue**.

5. Select path and then click **Continue**.

6. Click **OK** in the Network Settings dialog box.

Windows

Installing a Printer   Follow the following step-by-step instructions to install a printer for LPD printing.

1. In the **Control Panel**, click the **Print Manager**.

2. In the **Printer** menu, select **Create Printer**.

3. In the Printer Name field, type a name for your printer.

4. Choose a suitable printer driver for your printer.

5. In the Print to field, select **Other...**

6. In the Print Destinations dialog, choose **LPR Port** and then click **OK**. The Add LPR Compatible Printer dialog will now appear.

7. In the Name or Address field, type the IP address or the host name of your AXIS 570/670. If you use a host name, this must be defined in the *hosts* file on your server prior to the installation. This file is normally located in */winnt35/system32/drivers/etc/hosts.*

8. In the Name of Printer on the Machine field, type the logical printer number you want to use, e.g. pr1. Click **OK**.

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

Windows

Using the AXIS Print Utility for Windows

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

AXIS Print Utility for Windows is supplied on the AXIS Online CD in the *software\prt_srv\utility\axpuw\latest* folder. Install this utility now if you have not already done so.

About AXIS Print Utility for Windows

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

- Install and maintain AXIS 570/670 printer ports as Windows printer ports.

- Capture and monitor print jobs directed to the AXIS 570/670 ports.

Print jobs are directed through a spool directory located on your local hard disk (peer-to-peer mode), or on the file server (client-server mode). The printer port status of your AXIS 570/670 can be monitored and pop-up notification messages can be generated, keeping you informed of completed print jobs or any problem condition.

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

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

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

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

❑ If you want to change the default name of your AXIS 570/670 or amend any of the default parameters, you can do so using the AXIS NetPilot, or any standard Web browser. Refer to *Section 11 Management & Configuration*, on page 161.

Windows

Windows

Peer-to-Peer vs. Client-Server Printing

Windows for Workgroups and Windows 3.1 users, requiring access to a network printer in peer-to-peer mode, will need to install the AXIS Print Utility for Windows software onto their workstation. Users may then add the required network printer to their systems and use the printer as if it was connected directly to their workstation. Peer-to-peer printing offers the following benefits:

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

• You do not have to rely on a server.

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

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

• You cannot receive printer status or print job notification.

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

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

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

Windows 3.1 and Windows for Workgroups

Windows 3.1

In order to print to a network printer, Windows 3.1 requires the installation of network support, such as the LAN Server or LAN Manager Workstation software. When installed, proceed as described under Windows for Workgroups below.

Windows for
Workgroups

Peer-to-Peer Printing

Follow the instructions below to install your AXIS 570/670 for peer-to-peer printing at a Windows for Workgroups workstation:

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

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

3. In the NPS Port list, select the AXIS 570/670 port. The ports appear as <name>.LP1, <name>.LP2, and <name>.CM1, where <name> is AX followed by the last six digits of the AXIS 570/670 serial number, e.g AX100086.

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

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

6. Select a printer driver from the list of Installed Printers (or click Add>> to install a new driver), then click **Connect...**

7. Select the Windows port name from step 4 above (this name can be found at the bottom of the Ports list).

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

The setup is completed and you can now print through your AXIS 570/670.

Windows

Windows

Note: ❑ AXIS Print Utility for Windows must be running when you print through your AXIS 570/670. It is strongly recommended that you copy the AXIS Print Utility icon into your StartUp folder.

Client-Server Printing:
Server Setup

Follow the instructions below to install your AXIS 570/670 for client-server printing at a Windows for Workgroups server:

1. Choose a workstation that you want to use as a server for network printing. The server must be available at all times and must have sufficient hard disk space for spooling print jobs.

2. Open **Network Setup**, click **Sharing...**, check the **I want to be able to allow others to print to my printer(s)** box.

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

4. Set up your AXIS 570/670 as described under *Peer-to-Peer Printing,* on page 141.

5. Open **Print Manager** and select your printer.

6. In the **Printer** menu, select **Share Printer As...**

7. Type a printer name in the **Share As** field (this is the printer name seen by the clients, see Client Setup below).
   Check the **Re-share at Startup** box, then click **OK**.

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

Note: ❑ The AXIS Print Utility for Windows must be running when you print through your AXIS 570/670. It is strongly recommended that you copy the AXIS Print Utility icon into your StartUp folder.

Client-Server Printing: Follow these steps to use your AXIS 570/670 for client-server printing
Client Setup   at a Windows for Workgroups client:

1. In the **Control Panel**, select **Printers**.

2. Select a printer driver from the list of Installed Printers, or click
    Add>> to install a new driver. Click **Connect...**

3. Select **Network...** in the Device Name list, select a local port
    (LPT1 - LPT3) to redirect to your network printer.

4. In the **Show Shared Printers on list**, select the server from Server
    Setup above.

5. In the Shared Printers list, select the printer you want to use.

6. Click **OK**, **OK** and **Close**.

7. Exit the Control Panel.

The client setup is completed and you can now print through your
AXIS 570/670.

Windows Clients using LANtastic

From any Windows client, the AXIS 570/670 can also be used for
network printing in LANtastic environments.

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

- Refer to *Using the AXIS Print Utility for Windows*, on page 139, if
  you are using a Windows for Workgroups client.

- Refer to *Using the AXIS Print Monitor for Windows 95/98 and NT*,
  on page 124, if you are using a Windows 95, Windows 98 or
  Windows NT client.

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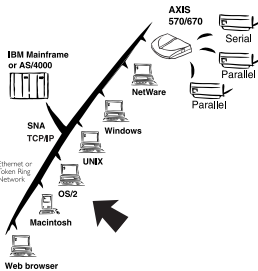
Windows

Windows

Section 8 Setting Up - OS/2

Having connected the AXIS 570/670 to your network, this section now describes how to set up your AXIS 570/670 for printing in the OS/2 environment.

If you intend to operate your AXIS 570/670 in a multiprotocol environment, you should also proceed to the other relevant sections in this manual, namely:

Using the AXIS Print Utility for OS/2

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

AXIS Print Utility for OS/2 is supplied on the AXIS Online CD in the *software\prt_srv\utility\axpu\latest* folder. Install this utility now if you have not already done so.

If you want to change the default name or any of the AXIS 570/670 default parameters, you can do so using any standard Web browser or AXIS NetPilot from any Windows platform that is connected to your network, or WinOS/2 window under OS/2.

Refer to *Section 11 Management & Configuration*, on page 161, for more information.

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

OS/2

About AXIS Print
Utility for OS/2

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

- Install and maintain the AXIS 570/670 printer ports as OS/2 printer ports.

- Capture and monitor print jobs directed to the AXIS 570/670 ports.

Print jobs are directed through a spool directory located on your local hard disk (peer-to-peer mode), or on the file server (client-server mode). The printer port status of your AXIS 570/670 can be monitored and pop-up notification messages can be generated, keeping you informed of completed print jobs or any problem condition.

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

❏ If you are using OS/2 version 2.x and wish to print through TCP/IP, we recommend that you use the IBM TCP/IP for OS/2 product. It supports the LPD and interactive FTP print methods.

Installing the
AXIS 570/670

1. When AXIS Print Utility for OS/2 is running, click **Install** to install your AXIS 570/670. The ports appear in the list as <name>.LP1, <name>.LP2 and <name>.CM1, where <name> is AX followed by the last six digits of your print server serial number. e.g. AX100086.LP1.

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

Repeat this procedure for each server using the AXIS 570/670.

Note: ❏ The AXIS Print Utility for OS/2 must be running in order to print using your AXIS 570/670.

OS/2

Integrating your AXIS 570/670 into the OS/2 Environment

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

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

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

3. Select \PIPE\<name>.LP1, \PIPE\<name>.LP2 or \PIPE\<name>.CM1 from the Device list, then select a printer driver suitable for your printer.

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

5. Click **Setup**, then select **Queues...**

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

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

Creating
a Print Queue
(OS/2 version 2.x
and OS/2 Warp)

1. Double-click the **Templates** folder, then drag the **Printer** icon out to the Workplace Shell (or into a folder) while holding the right mouse button down.

2. Type a name of your choice in the Name field.

3. Select \PIPE\<name>.LP1, \PIPE\<name>.LP2 or \PIPE\<name>.CM1 from the Port list, and select a printer driver suitable for your printer from the Standard Printer list.

4. Click **OK** to confirm the printer definition.

OS/2

Sharing the Print Queue

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

NET SHARE <queue_name> /PRINT

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

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

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

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

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

4. Click **OK**.

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

1. Open **LAN Server Administration**.

2. Open your domain and then **Resource Definition**.

3. Drag and drop a printer from the template.

4. Enter the Alias name, select a Server name and the previously created Spooler Queue Name.

5. Click **OK**.

The setup is completed and you can now print through your AXIS 570/670.

OS/2

Section 9 Setting Up - Macintosh
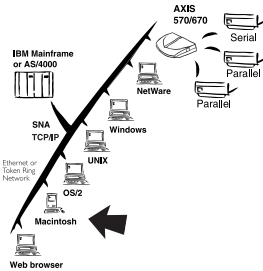
Having connected the AXIS 570/570e to your network, this section now describes how to set up your AXIS 570/570e for printing in Macintosh environments using AppleTalk.

If you intend to operate your AXIS 570/570e in a multiprotocol environment, you should also proceed to the other relevant sections in this manual, namely:

Section 4 Setting Up - AS/400, on page 49
Section 5 Setting Up - IBM Mainframe, on page 87
Section 6 Setting Up - NetWare, on page 115
Section 7 Setting Up - Windows, on page 123
Section 8 Setting Up - OS/2, on page 145
Section 10 Setting Up - UNIX, on page 155

Notes: ❏ Only the AXIS 570 and the AXIS 570e models support the Apple EtherTalk environment.

❏ The AXIS 670 and the AXIS 670e models do NOT support the Apple TokenTalk environment.

Installation Using the Chooser Window

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

You can change the default name of your AXIS 570/570e or any of default parameters by editing the *config* file. To access the *config* file from a Macintosh, you can use:

•   any standard Web browser

•   FTP using MacTCP, Fetch or Anarchie

Macintosh

In order to use any of the methods, you must assign an IP address to the AXIS 570/570e as described in *Setting Parameters*, on page 153.

Choosing a Printer

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

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

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

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

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

2. Click the **LaserWriter** icon.

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

4. Click the name of the printer you want. The default AXIS 570/570e printer names are shown as: AXIS<nnnnnn>_<port>, where <nnnnnn> is the last six digits of the AXIS 570/570e serial number, and <port> is LPT1, LPT2 and COM1 respectively. For example: AXIS100086_LPT1.

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

Repeat this procedure for each Macintosh computer on the network using the AXIS 570/570e.

Macintosh

LaserWriter 8.0
Printer Driver

Follow the instructions below to choose a printer:

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

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

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

4. Click the name of the printer you want. The default AXIS 570/570e printer names are shown as: AXIS<nnnnnn>_<port>, where <nnnnnn> is the last six digits of the AXIS 570/570e serial number, and <port> is LPT1, LPT2 and COM1 respectively. For example: AXIS100086_LPT1.

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

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

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

Repeat this procedure for each Macintosh computer on the network using the AXIS 570/570e.

Macintosh

Bi-directional support

The AXIS 570/570e allows the printer driver to communicate directly with the printer and consequently facilitates complete functional control over print jobs, e.g. automatic downloading of fonts not resident in the printer.

This functionality has backward compatibility with older printers and Macintosh computers, which means that the AXIS 570/570e can generate appropriate responses to Macintosh printer queries, when the connected printer does not support bi-directional communication.

Verifying the Setup

You simply need to print a document from the Macintosh computer to verify communication to the chosen printer. The basic installation can be considered complete if the print test is satisfactory. The AXIS 570/570e is now ready to use as a print server.

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

ASCII, TBCP and BCP

The Binary Communication Protocol (BCP) and the Tagged Binary Communication Protocol (TBCP) are communication protocols used by the serial and parallel ports of a printer. They allow 8-bit binary data in files concurrent with the use of some control characters, for communication and print job control. TBCP is required for printing with a binary data stream on some printers, e.g HP printers.

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

Macintosh

Setting Parameters   In AppleTalk, you can change a limited number of the parameters of the AXIS 570/570e. You can:

- enable and disable binary data transfers for your printing

- select the type of binary transfer protocol to use

- specify the AppleTalk printer type

- set the IP address

However, by assigning an IP address to your AXIS 570/570e, you have access to all of print server's parameters via any standard Web browser or via FTP. Refer to *Section 11 Management & Configuration*, on page 161 for more information.

Example: The following example describes how you set the AXIS 570/570e parameters in AppleTalk.

Important: DO NOT use the parameter values from this example when configuring your AXIS 570/570e. You should select values that are appropriate for your printers and network settings.

Follow the instructions below:

1. Open the Chooser.

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

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

4. Close the Chooser.

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

Macintosh

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

```
BINARY.            :YES
BINARY_TYPE.       :BCP
INT_ADDR.          :192.168.3.191
ATYPE_1.           :EPSONLQ2
```

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

Refer to *Appendix B - The Parameter List*, on page 131, for information about which values that are valid for each parameter.

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

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

9. Close the Chooser.

Note: ❏   The _CFG port disappears 60 minutes after the AXIS 570/570e has been powered on. If you want it to reappear, you must restart your AXIS 570/570e.

Section 10 Setting Up - UNIX

Installation in the UNIX Environment
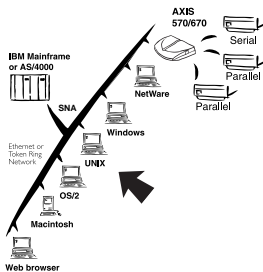
Having performed the basic TCP/IP setup procedures as defined in *Assigning an IP address*, on page 36, you are now able to print in interactive mode using LPR, FTP or Reverse Telnet protocols.

However, should you require to integrate the AXIS 570/670 into your host spooler, you can use the Axis automatic installation script *axinstall*. This utility software is resident on the AXIS 570/670 and can be downloaded to your host using FTP, so no disks are required. The *axinstall* script is also available on the AXIS Online CD. Having completed this operation, the printer connected to the AXIS 570/670 will appear as though they are directly connected to the host printer spooler.

If you intend to operate your AXIS 570/670 in a multiprotocol environment, you should also proceed according to one or more of the following sections, as appropriate to your network.

Section 4 Setting Up - AS/400, on page 49
Section 5 Setting Up - IBM Mainframe, on page 87
Section 6 Setting Up - NetWare, on page 115
Section 7 Setting Up - Windows, on page 123
Section 8 Setting Up - OS/2, on page 145
Section 9 Setting Up - Macintosh, on page 149

UNIX

Integration into the
Host Printer Spooler

To integrate the AXIS 570/670 into the host printer spooler, you can use the auto installation script *axinstall*, resident in the AXIS 570/670. Follow the instructions below to install *axinstall* onto your host using FTP:

1. Login to the AXIS 570/670 using the command:
   `ftp <host name>` or `ftp <IP address>`

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

3. Download the script using the command:
   `get axinstall`

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

```
> ftp npserver
connected to npserver.
220 AXIS 570/670 FTP Print Server v5.55 Dec 16 1998
ready.
Name (npsserver:thomas): root
331 User name ok, need password
Password: pass          (not visible)
230 User logged in
ftp> get axinstall
200 PORT command successful.
150 Opening data connection for axinstall
(192,36,253,4,13,223), (mode ascii).
226 Transfer complete.
local: axinstall remote: axinstall
61187 bytes received in 14 seconds (4.2 kbytes/s)
ftp> bye
221 Goodbye.
>
```

Typical FTP session for collecting the axinstall script

UNIX

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

```
sh axinstall
```

You will be guided through the installation by a step-by-step procedure. During the installation you will be asked to select a print method; we suggest you choose LPD or, for more functionality, use the PROS filter or named pipe methods. Please refer to the following pages if you need guidance on the choice of print methods.

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

```
1....SunOS 4 (SUN BSD, Solaris 1.x)
2....SunOS 5 (SUN SYS V, Solaris 2.x)
3....AIX (IBM RS/6000, BULL DPX 20)
4....HP-UX (HP 9000)
5....BOS (BULL DPX 2)
6....DEC OSF/1 (Digital Equipment, Alpha)
7....ULTRIX (Digital Equipment, DEC)
8....IRIX (Silicon Graphics, SGI)
9....SCO UNIX (Santa Cruz Operation)
10...FreeBSD (Berkeley UNIX)
11...Generic BSD (Berkeley UNIX)
12...Generic SYS V R3 (UNIX System V Release 3)
13...Generic SYS V R4 (UNIX System V Release 4)
```

Systems supported by axinstall

Print Methods on TCP/IP Networks

The AXIS 570/670 supports several different print methods in the TCP/IP environment. *axinstall* will suggest a print method suitable for your particular UNIX system, but you might want to use another method depending on your printing requirements (banner pages, status logging, etc).

The diagram below shows the alternative data paths taken by some of the UNIX print methods. This illustrates some of the advantages and limitations of the different methods. Use the following information to determine which method to adopt.
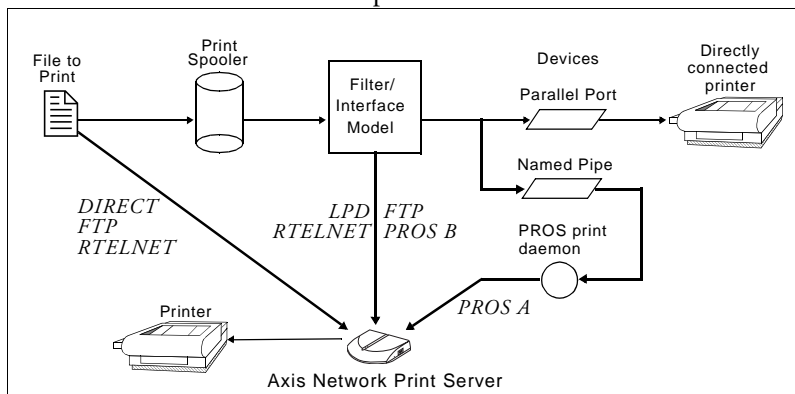
Illustration of different UNIX print methods

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

Advantages:
Easy to set up – install the AXIS 570/670 as a remote queue in System V, or add a remote printer to /etc/printcap using the rm and rp fields (BSD).

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

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

Advantages:
Uses industry standard network software on the host.

Limitations:
No printer status logging. In the case of BSD it may conflict with
other input or output filters and does not allow both input and
output filters. In System V no filters or interface programs can be
used.

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

PROS A   **PROS A - Advantages:**
The AXIS 570/670 appears as a device to the system. This makes
all filter and model options available. It provides accounting and
status logging. Supports bi-directional printing. The printer
information read back can be viewed in a log file.

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

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

PROS B - Limitations:
A 'C' compiler is required to build the PROS B drivers and in the
case of BSD, it may conflict with other input or output filters. It
does not allow both input and output filters. Interface programs
can not be used in System V.

UNIX

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

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

Limitations:
No status logging. Drivers are not supplied with the AXIS 570/670. Existing drivers may be slow.

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

If the system has BSD socket type networking support, then prosbsd (in the bsd directory of the AXIS 570/670) can be used as a starting point. It receives print data from stdin, and writes a log file to stderr. Nothing is written to stdout.

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

| IBM MVS Systems | A sample JCL script, jcl_ex, is available in the mvs directory of the AXIS 570/670. It gives an example of how to print a file from an MVS mainframe to an AXIS 570/670 using FTP. |

Section 11 Management & Configuration

The management and configuration tools that are supported by the AXIS 570/670 allows you to:

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

- Receive extended information about the print jobs

- Receive printer port status

- Monitor your printers

- Reset the AXIS 570/670

Configuration Overview

The method you should use to manage and configure your AXIS 570/670 is depending on the operating system protocols of your network. The table below displays which method to use for each supported environment.

Operating System Protocols	Configuration/Management methods
IBM Host (AS/400, IBM Mainframe)	• From an IBM Host - See page 191
IPX/SPX (NetWare)	• AXIS NetPilot - See page 169 • HP JetAdmin - See page 186 • Novell Utilities - See page 189
TCP/IP (AS/400, IBM Mainframe, UNIX, Windows 95/98/NT, Windows 3.1/WfW)	• Web Browser - See page 162 • AXIS ThinWizard - See page 166 • FTP - See page 177 • telnet - See page 180 • SNMP - See page 184 • HP Web JetAdmin - See page 186
NetBIOS/NetBEUI (Windows 95/98/NT, Windows 3.1/WfW, OS/2)	• AXIS NetPilot - See page 169
AppleTalk	• Web browser - See page 162 • Mac-FTP - See page 177 • AXIS NetPilot via a PC platform in the same network - See page 169

Using a Web browser

Once you have established the AXIS 570/670 in the TCP/IP environment, as described in *Assigning an IP address* on page 36, you are free to access the AXIS 570/670 Web pages from any standard Web browser.

Accessing the Web Pages

Follow the steps below to access the internal home page of the AXIS 570/670. The browser used in the following example is Netscape Navigator 4.3.

1. Start your Web browser.

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

3. Type the host name or the IP address of your AXIS 570/670 in the Open Page dialog, as detailed below:
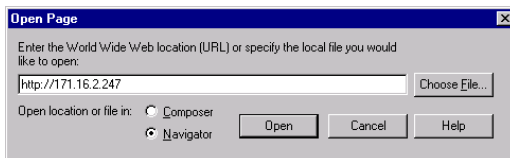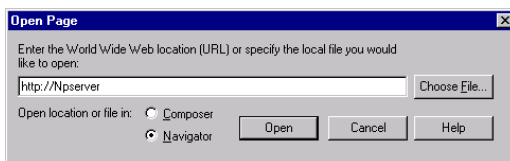
You can alternatively type the host name or the IP address directly into the Web browser's Location text field.

The home page of your AXIS 570/670 appears in your browser.
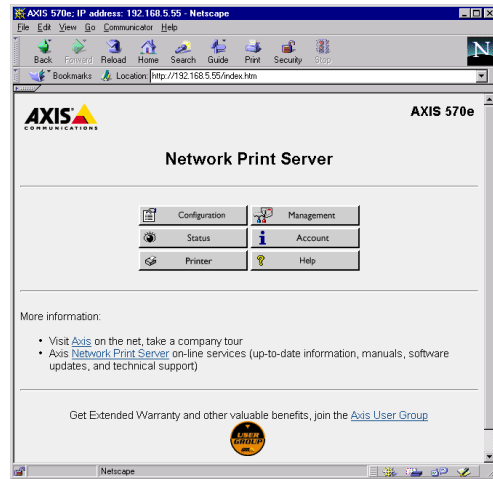
The AXIS 570/670 Home Page

Web interface Services

Links to the following services are available from the internal home page of the AXIS 570/670:

- Configuration

- Management

- Status

- Account

- Printer

- Help

An additional link to the Axis home page is also available from the AXIS 570/670 home page.

A summary of the services available from the AXIS 570/670 Home Page follows:

From the Configuration pages you can:

Configuration

• Modify configuration parameters, including the node address and root password. A complete parameters list can be found in *Appendix B - The Parameter List*, on page 131.

• Enable or disable any of the available networking protocols and modify their operation from the appropriate configuration pages.

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

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

Management

From the Management page, you can reset the print server and set the parameters to the factory default values. You can also view basic information about your AXIS 570/670, e.g. the current software version, Ethernet address, serial number, base URL address and enabled networking protocols.

Status

From the Status page, you can view the status of the connected printer ports, such as the number of bytes printed for each print job, etc.

Account

The Account page maintains and displays a historical record of print jobs that includes the user, logical printer, protocol, file size, elapsed time and off-line time.

Printer

The Printer page displays the current status and management information of the printers connected to the AXIS 570/670, including printer model, printer languages, etc. The extent of this information is depending on the printer model.

The Help page contains a short description of the configuration and management activities that can be performed via the internal Web pages of the AXIS 570/670.

Using AXIS ThinWizard

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

The internal Web pages of Axis ThinServer products integrate directly into AXIS ThinWizard, giving you access to the services described in *Using a Web browser* on page 162.

Once you have established the AXIS 570/670 in the TCP/IP environment, as described in *Assigning an IP address* on page 36, you are free to access the AXIS 570/670 from AXIS ThinWizard.

Installing AXIS ThinWizard

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

The AXIS ThinWizard software is available on the AXIS Online CD.

Starting AXIS ThinWizard

Follow the instructions below to start the AXIS ThinWizard:

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

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

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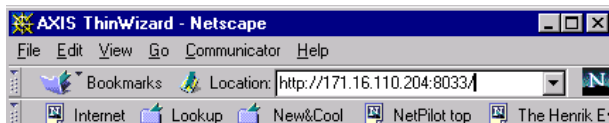
4. The AXIS ThinWizard start page appears in the Web browser. Enter your user name and the password and click the **Log in** button.

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

Creating a Network Group

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

Follow the instructions below to create a network group:

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

2. Click the **Create** button.

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

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

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

Managing the print servers

Follow the instructions below to access the AXIS 570/670 using AXIS ThinWizard:

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

2. Select the network group, including the AXIS 570/670, from the drop-down list. All AXIS servers included in the network group appear in the window.

3. Click the link of the AXIS 570/670 to access its internal Web page.
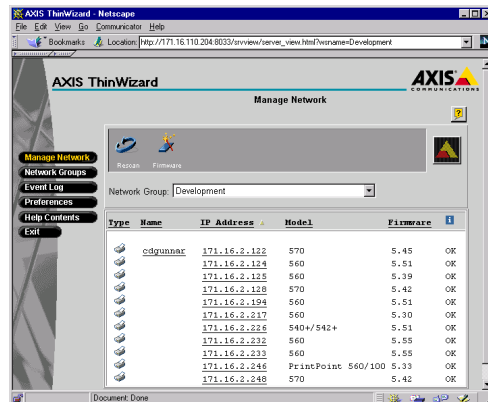
You are now free to manage and configure the AXIS 570/670 as described in *Web interface Services* on page 163.

Upgrading Axis Servers

Refer to *Upgrading using AXIS ThinWizard* on page 204, for more information about upgrading Axis Servers using AXIS ThinWizard.

Additional Information

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

Using AXIS NetPilot

AXIS NetPilot is the recommended tool to use for configuring the AXIS 570/670 in networks that support communication via the IPX/SPX or the NetBIOS/NetBEUI protocols.

AXIS NetPilot allows you to:

- Change the AXIS 570/670 parameter values

- Modify network environment settings

- Monitor your printers on the network

- Create logical groups of print servers to simplify administration

- Upgrade the AXIS 570/670

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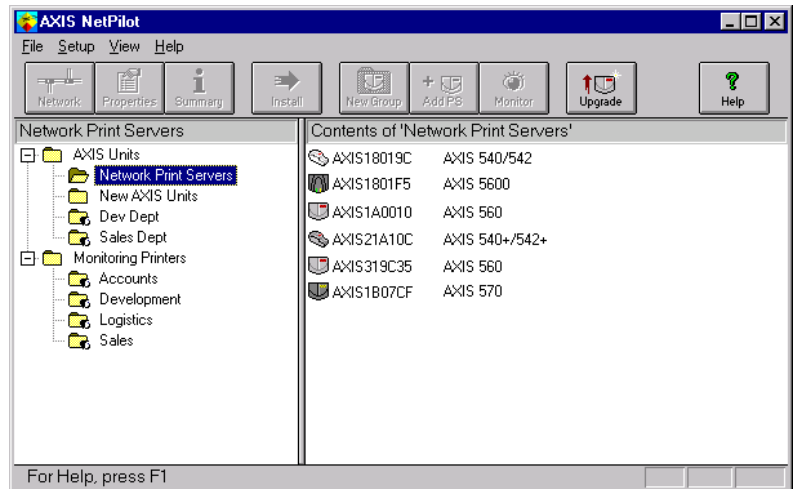
The main window of AXIS NetPilot

Changing the parameter values

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

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

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

The Property Pages

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

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

1. Select the AXIS 570/670 from the 'Network Print Servers' folder.

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

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

4. Change the value.

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

The Parameter List Editor

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

- Edit the AXIS 570/670 *config* file.

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

- configure several network print servers simultaneously.

Follow the instructions below to use the Parameter List Editor:

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

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

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

4. Edit the *config* file.

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

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

Modifying the network environments

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

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

1. Select the AXIS 570/670 from the 'Network Print Servers' folder.

2. Click on the **Network** button on the toolbar or select **Network** from the **Setup** menu.

3. Select the tab corresponding to the environment that you want to modify.

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

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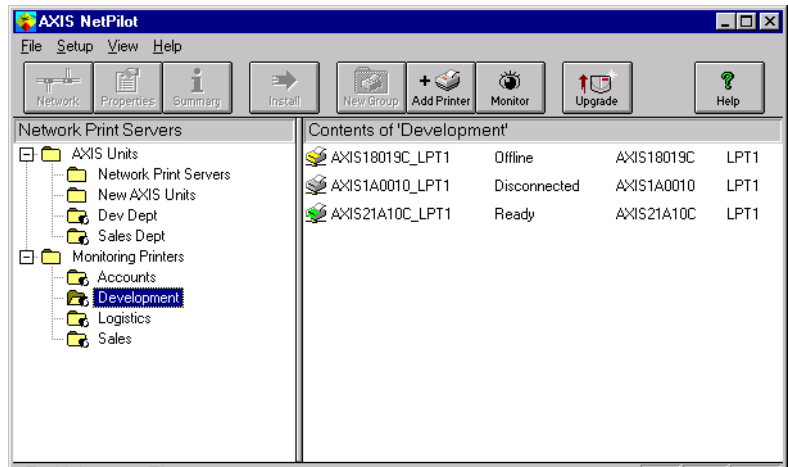
AXIS NetPilot's Monitoring Window

Creating a printer group   Follow the instructions below to create a printer group:

1. Select the 'Monitoring Printers' folder.

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

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

You can create as many printer groups as you want.

Adding a printer to a printer group

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

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

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

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

Examining printers

Follow the instructions below to monitor the printers:

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

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

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

Grouping logically connected Print Servers together

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

Creating a Print Server Group

Follow the instructions below to create a print server group:

1. Select the 'AXIS Units' folder.

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

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

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

Adding a Print Server to a Print Server Group

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

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

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

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

Examining Print Servers

Follow the instructions below to monitor the print servers:

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

2. Select the print server.

Printer Information

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

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

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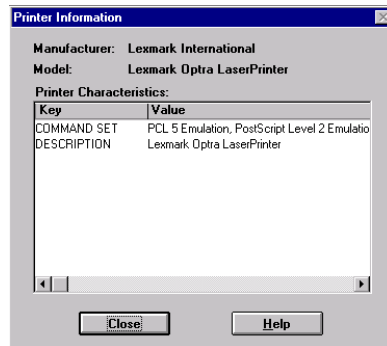
AXIS NetPilot Printer Information window

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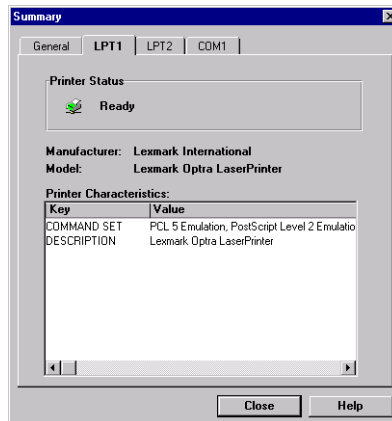
AXIS NetPilot Summary window

Upgrading the Print Server   You can use the AXIS NetPilot Upgrade Wizard to upgrade the AXIS 570/670 software. Please refer to *Section 13 Upgrading the software*, on page 203, for details.

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

Using FTP

Having assigned an IP address to your AXIS 570/670, as described in *Assigning an IP address* on page 36, you can change the AXIS 570/670 parameter settings using the File Transport Protocol (FTP).

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

1. Log in to the AXIS 570/670 by typing:
   ftp <host name> or ftp <IP address> in a DOS window
   (Windows and OS/2) or in a UNIX shell.

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

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

4. Edit the file using your preferred text editor.

5. Save the *config* file to the AXIS 570/670 by typing:
   put config CONFIG

Notes: ❏ It is important that the destination file is specified in capital letters. Otherwise the edits are temporary and will be lost once the AXIS 570/670 has been powered down.

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

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

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

Example:

```
> ftp npserver
connected to npserver.
220 AXIS 570/670 FTP Print Server v5.58 Dec 16 1998
ready.
Name (npserver:thomas): root
331 User name ok, need password
Password: pass          (not visible)
230 User logged in
ftp> get config
200 PORT command successful.
150 Opening data connection for config
(192,36,253,4,13,223), (mode ascii).
226 Transfer complete.
8588 bytes received in 0.24 seconds (35.63 kbytes/s)
ftp> put config CONFIG
200 PORT command successful.
150 Opening data connection for CONFIG
(192,36,253,4,13,223), (mode ascii).
226 Transfer complete.
8588 bytes received in 0.45 seconds (19.04 kbytes/s)
ftp> bye
221 Goodbye.
>
```

Viewing the *Account* File

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

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

1. Log in to the AXIS 570/670 by typing:
   ftp <host name> or ftp <IP address> in a DOS windows (Windows and OS/2) or in a UNIX shell.

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

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

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

Viewing the *Status* File

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

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

1. Log in to the AXIS 570/670 by typing:
   ftp <host name> or ftp <IP address> in a DOS windows (Windows and OS/2) or in a UNIX shell.

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

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

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

FTP Help

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

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

Using Telnet

Having assigned an IP address to your AXIS 570/670, as described in *Assigning an IP address* on page 36, you can manage your AXIS 570/670 using the telnet protocol.

Viewing
the *Account* File

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

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

1. Log in to the AXIS 570/670 by typing:
   telnet <host name> or telnet <IP address> in a DOS window (Windows and OS/2) or in a UNIX shell.

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

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

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

Example:

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

AXIS 570/670 TELNET Print Server v5.58 Dec 16 1998

AXIS 570/670 network login: root
Password: pass          (not visible)

AXIS 570/670 TELNET Print Server v5.58 Dec 16 1998

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

 1           Thomas     FTP       pr2 C 1885   2     0
 2           Joe        LPT       pr1 C 23074  4     0
 3           RICHARD    PSERVER   pr2 C 43044  5     0
 4           MacUser    APPLE     pr1 C 6717   2     0
 5           LSLM_userNetBIOS     pr2 C 36995  3     0
 6           patrick    PROS      pr5 P 83208  9     0
Root>
```

Typical Telnet session to view the *Account* File

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

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

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

1. Log in to the AXIS 570/670 by typing:
   telnet <host name> or telnet <IP address> in a DOS windows (Windows and OS/2) or in a UNIX shell.

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

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

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

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

1. Log in to the AXIS 570/670 by typing:
   telnet <host name> or telnet <IP address> in a DOS windows (Windows and OS/2) or in a UNIX shell.

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

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

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

Printing Hexdumps The AXIS 570/670 allows you to record a trace of the communication between the AXIS 570/670 and the host.

The AXIS 570/670 supports hexdump printing for the SNA, TN3270E, TN5250E, LPR/LPD and Raw TCP/IP printing protocols.

Follow the instructions below to perform a hexdump printout for the SNA printing protocol:

1. Log in to the AXIS 570/670 by typing:
   `telnet <host name>` or `telnet <IP address>` in a DOS windows (Windows and OS/2) or in a UNIX shell.

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

3. Enable the AXIS 570/670 to hexdump mode by typing:
   `snahexdump`

4. Select **Start Logging** from the **Terminal** menu in the Telnet window. Specify a file name and select the folder where you want to save the file.

5. Start the print job.

6. When the print job is finished, select **Stop Logging** from the **Terminal** menu.

7. Enter the quit command

Replace the command in step 3 above with `tnehexdump` for the TN3270E and TN5250E protocols, `lpdhexdump` for the LPR/LPD protocol, or `rtnhexdump` for the reverse Telnet protocol.

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

Using SNMP

You can use SNMP (Simple Network Management Protocol) for remotely monitoring and configuring of the AXIS 570/670. All major functions for print servers are supported.

General Information   SNMP refers to a set of standards for network management, including a protocol, a database structure specification, and a set of data objects. The AXIS 570/670 SNMP implementation runs in the TCP/IP environment.

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

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

The AXIS 570/670 supports all relevant parts of MIB-II and also includes a private enterprise MIB. Refer to *The AXIS MIB,* on page 185.

System Requirements for SNMP

The following requirements must be fulfilled in order to make full use of the AXIS 570/670 SNMP support:

- NMS software that allows you to install private enterprise MIBs

- A host, supporting FTP, on which to run the NMS software

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

1. Log in to the AXIS 570/670 using FTP.

2. Download the MIB file */snmp/axis.mib* to the NMS host.

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

The AXIS MIB

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

- Menu objects - used for viewing and changing the AXIS 570/670 configuration from the NMS program. Refer to *Appendix B - The Parameter List*, on page 123.

- Printer status and unit administration objects - used for monitoring AXIS 570/670 print jobs and storing parameter changes permanently.

- Trap objects - used for alarms at various error conditions.

For technical details, you can view the MIB file (*axis.mib*) with any text editor.

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

Using HP administration tools

The AXIS 570/670 is fully compatible with the HP JetAdmin and the HP Web JetAdmin printer management software. You can use either tool to install and configure your printer devices, and monitor the current status of your AXIS 570/670.

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

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

❏ It is not possible to upgrade the AXIS 570/670 Flash Memory from the HP JetAdmin.

❏ If the AXIS 570/670 has been configured with HP JetAdmin or HP Web JetAdmin, you cannot configure it with AXIS NetPilot unless you first reset it to the factory default settings.

Exceptions

Even though the AXIS 570/670 is fully compatible with the HP JetAdmin tool, the AXIS 570/670 behaves differently than an HP print server in certain situations. The exceptions from the traditional HP JetAdmin functionality are presented below.

The print server concept

HP JetAdmin considers each printer port of the HP print server as an independent print server. One physical HP print server will act as one or three print servers depending on the number of supported printer ports. HP JetAdmin always considers the AXIS 570/670 as one print server, independently on the number of supported ports. The effects of this different behavior are:

- You can change a printer port's properties from any of the AXIS 570/670 printer ports' property pages. This can not be done with an HP print server.

- If you are performing a reset on one of the AXIS 570/670 printer ports, all three ports will be reset.

- From each port you can view all print queues connected to the print server and not only the queues connected to the specific printer port. To be able to distinguish between the queues, they must be named <queue_name>!<logical_printer_number>.

- The AXIS 570/670 printer ports have the same name. They are only distinguished by suffixes. If you change the name on one of the AXIS 570/670 printer ports, all three port names will be changed. Note that the port names displayed in HP JetAdmin will not change until one of the refresh commands in the Device Refresh menu has been performed.

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

The Serial Printer Port   HP JetAdmin does not support serial printer ports. If you must change the default settings of the serial printer port of the AXIS 570/670, it is recommended that you use the AXIS NetPilot. This will become necessary when you are installing a printer on your serial port. Follow the steps below to change the serial port parameters using AXIS NetPilot.

1. Start the AXIS NetPilot.

2. Select your AXIS 570/670 and click **Install** on the AXIS NetPilot toolbar. Select **with current configuration**.

3. Your AXIS 570/670 has been transferred to the 'Network Print Servers' folder. Select your AXIS 570/670 and click the **Property** button on the AXIS NetPilot toolbar.

4. Select the **Printer Ports** tab.

5. Select **COM1** from the Printer Port drop-down list.

6. Select **XON/XOFF** from the Handshake Protocol drop-down list, set the Baud Rate to 38400 and select 1 stop bit. Click OK.

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

If your network supports TCP/IP you can also change the serial port parameters by using the AXIS 570/670 Web interface.

Using Novell Utilities

After installing the AXIS 570/670 into the NetWare environment using AXIS NetPilot, you can manage your AXIS 570/670, using either Novell's NetWare Administrator, or PCONSOLE.

NetWare
Administration

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

Printer Status

The Printer Status menu, detailed below, shows the status of an active print job serviced by an AXIS 570/670 network print server. It displays detailed information concerning the active job including, Print Queue, print job description, size of print file, percentage of job completed, etc. You can also abort or pause the print job from this menu.

Printer : FUNKYFACE_LPT1

Printer Status

Status:	Printing
Mounted Form:	0
Service Mode:	Change forms as needed

Current Job Information

Print Queue:	funkyface_LPT1_Q.Lund.Axis
Description:	NEYE1.PS
Job Number:	0165A001
Form:	0
Copies Requested: 1	Copies Complete:
Size of 1 Copy:	4006329
Bytes Printed:	1601536
Percent Complete: 39	%

Abort Job...

Pause   Start   Mount Form...   Eject Page

OK   Cancel   Help

Identification
Assignments
Configuration
Notification
Features
See Also
Printer Status

NetWare Administrator Printer Status Menu

Notification   You can use the NetWare Administrator to enable or disable status notification messages for printers connected to the AXIS 570/670, e.g. Busy, Off-line, Out of paper, Paper jam, etc. You can also add or remove print job owners and administrators from the list of persons to be notified.

Print Layout   You can view installed AXIS 570/670 Network Print Servers and their relative print queues for any NetWare Organizational Unit. You can also display summary information by right-clicking on the printer object you want to examine.
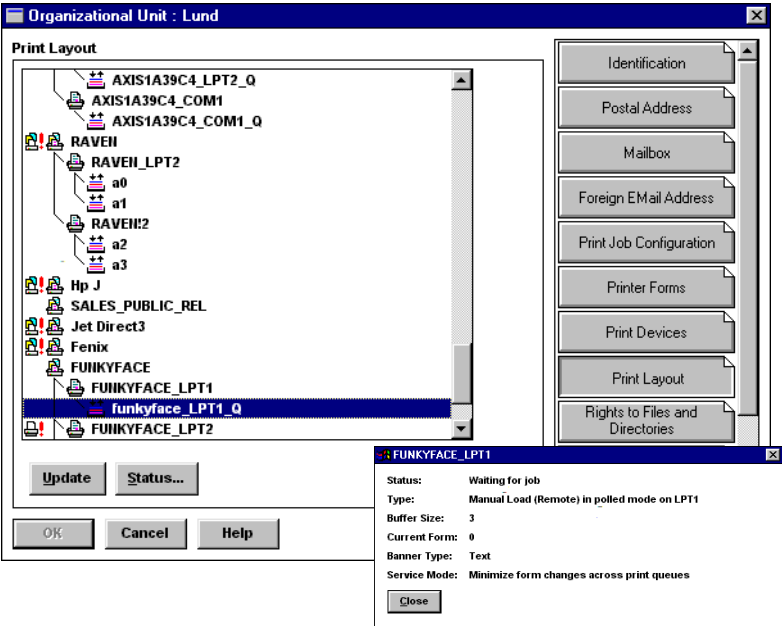
NetWare Print Layout with corresponding information summary

Configuring the Print Server from an IBM host

Once communication with an IBM host has been established, all the AXIS 570/670 parameters can be edited by printing a file containing special configuration commands. To start the configuration, the command %CONFIG+ is entered in the file. To protect your settings, a password must be provided. By default, the password is pass. When all parameters are set, the command SAVE is used to store the parameters permanently. The command %CONFIG- leaves the configuration mode and resumes normal printing. The syntax for the file to print is:

```
%CONFIG+ <password;>
IBM_PRINTING_PARAMETER_NAME = VALUE;
SAVE;
%CONFIG-
```

In order to maintain backward compatibility and increase security, many parameters that are not related to the IBM printing operation have to be preceded by the %CONFIG++ command. When all parameters are set, enter %CONFIG--. The parameters requiring %CONFIG++ are clearly marked in the parameter listing on the following pages.

```
%CONFIG+ <password;>
IBM_PRINTING_PARAMETER_NAME = VALUE;
%CONFIG++
PARAMETER_NAME = VALUE;
%CONFIG--
SAVE;
%CONFIG-
```

Example: Select the PCL5 printer driver and disable the NetWare protocol:

```
%CONFIG+ password;      (If you have not changed the default
PRDRIVER = PCL5;        password (pass), the password is optional.)
%CONFIG++
NETW_ENB = NO;
%CONFIG--
SAVE;
%CONFIG-
```

Note: ❏   For parameters requiring more than one value, the values should
             be separated using a comma.

Section 12 Using Logical Printers

Using Logical Printers to Customize your Printing

The AXIS 570/670 has a powerful facility for altering the print data. This means that your desired print format can be realized on any type of printer. The following actions can be invoked from the AXIS 570/670:

- The character set can be changed to suit the printer

- Strings can be added before and after the print data

- Strings within the print data can be substituted

- ASCII to PostScript conversion

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

- Hex Dump mode to assist with printing problems

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

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

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

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

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

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

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

❏ In *Appendix B - The Parameter List*, on page 131, you can find a complete list of the AXIS 570/670 parameters.

❏ Refer to *Section 11 Management & Configuration*, on page 161, for more information about the available management tools.

Character Set Conversion

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

The AXIS 570/670 solution to this problem is to assign a character set conversion filter to a logical printer, and then link that logical printer to the host causing the problem.

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

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

Follow the instructions below to change the conversion filter:

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

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

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

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

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

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

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

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

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

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

Adding Strings Before and After Print Jobs

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

All strings are entered as hexadecimal byte values.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Follow the instructions below to substitute command strings:

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

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

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

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

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

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

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

Follow the instructions below to substitute command strings:

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

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

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

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

Note: ❏ Extensive use of string substitutions will naturally decrease the throughput rate of the AXIS 570/670.

ASCII to Postscript Conversion

The AXIS 570/670 logical printers can translate ASCII print data into PostScript format. This makes it possible to print with a PostScript printer from a host that does not support PostScript. The conversion is selected by activating a filter that converts ASCII data into Postscript. This filter can be activated individually for each logical printer.

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

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

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

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

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

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

PostScript Settings

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

•   page size

•   page orientation

•   page formats

•   which font is to be used

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

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

Page Format Parameter	Default Value	
Lines per page	66	
Characters per line	0	0=disable line wrap
Characters per inch	10.0	
Lines per inch	60	60 = 60 lines per inch
Left margin	30	30 = 3.0 mm
Top margin	50	50 = 5.0 mm

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

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

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

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

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

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

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

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

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

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

Redirecting Print Jobs when a printer is busy

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

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

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

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

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

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

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

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

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

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

Notes: ❏   Logical Printer redirections cannot be nested. PR3, in the example above, cannot be redirected to another logical printer. The print job must wait if PR3 is busy as well.

❏   When the primary and secondary printers are busy, the print job will be printed on the printer that first finishes its active print job.

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

Read-back of information

The AXIS 570/670 supports bi-directional printing. The information from the printer is read back on the parallel port when the parameter Read Back Port (PRx_IN) has the default setting of AUTO. However, it is required that the printer also supports bi-directional printing.

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

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

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

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

Debugging using the Hex Dump Mode

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

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

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

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

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

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

Section 13 Upgrading the software

The following software can be upgraded free of charge:

• AXIS NetPilot configuration software

• AXIS ThinWizard

• AXIS Print Monitor for Windows 95/98 and Windows NT

• AXIS Print Utility for Windows

• AXIS Print Utility for OS/2

• The AXIS 570/670 print server software held in Flash Memory

• The *axinstall* script

• The AXIS MIB file

Obtaining the Updated Software

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

• AXIS Online CD

• Over the Internet, by accessing the AXIS home page at
  http://www.axis.com

• Anonymous ftp, by logging in to ftp.axis.com and accessing the
  folder */pub/axis/*

• your local dealer

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

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

Upgrading the firmware Software
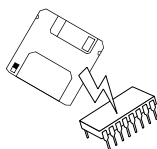
You can upgrade the AXIS 570/670 Flash memory using one of the following methods:

- AXIS ThinWizard (TCP/IP)

- FTP (TCP/IP)

- AXIS NetPilot Upgrade Wizard (IPX/SPX)

Note: ❏ Updating instructions are also supplied with the software update.

Upgrading using AXIS ThinWizard

AXIS ThinWizard is a tool that enables batch upgrading of several print servers and should be used for upgrading the flash memory in TCP/IP networks.

You must assign the AXIS 570/670 with an IP address, as described in *Assigning an IP address,* on page 36, before you can use this upgrading method.

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

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

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

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

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

Refer to *Using AXIS ThinWizard,* on page 166, for more information about AXIS ThinWizard.

Upgrading over the
Network using FTP

To upgrade over the network using FTP you will need the file with the new print server software. The name of this file is in the form product_version.bin, e.g. 570_558.bin for software release 5.58. You can use any of the previously mentioned methods to obtain the new file.

You must assign the AXIS 570/670 with an IP address, as described in *Assigning an IP address,* on page 36, before you can use this upgrading method.

Follow the procedures below to upgrade the AXIS 570/670:

Caution! ❏ Be careful not to interrupt the file transfer. If the transfer is interrupted the AXIS 570/670 may have to be re-initialized by your dealer.

1. Log in to the AXIS 570/670 with the command:
    ftp <host name>, or ftp <IP address>

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

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

4. Type the command put <software name> flash, where <software name> is the name of the new print server software, e.g. 570_558.bin

5. Wait for the Flash loading operation to finish. This normally takes 1 to 4 minutes. The unit automatically restarts with the new print server software.

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

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

Upgrading using AXIS NetPilot

This method is recommended for upgrading the flash memory in NetWare networks. An Upgrade Wizard is available to guide you through the necessary procedures.

Follow the instructions below to upgrade your print servers:

1. Obtain the firmware file, using one of the methods presented on page 203.

2. Put the file in the AXIS NetPilot 'Upgrade' folder. This folder resides in the same folder as the AXIS NetPilot program and was created when AXIS NetPilot was installed on your client.

3. Start the Upgrade Wizard by clicking on the **Upgrade** icon on the AXIS NetPilot toolbar.

4. Proceed the installation by following the instructions that are presented to you in the Upgrade Wizard.

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

Appendix A SNA Parameter Overview

This appendix provides summary information for parameters that control the basic operation of the SNA communication, and IBM printer emulation. It further describes how these parameters may be changed.

An overview of how parameters are mapped during the auto-configuration process is also provided.

IBM AS/400

IBM Mainframe

IBM AS/400

IBM Mainframe

Communication Parameters

In most environments, the basic communication parameters need to be customized in order to establish a communication link to the host system. This includes setting the Host MAC Address and Host Name parameters in the Print Server. In this chapter you will find instructions on how to update these parameters.

SNA Communications Process

There are several parameters that control the basic operation of the SNA communication, and IBM printer emulation. The diagram below shows how they relate to the SNA printing process.
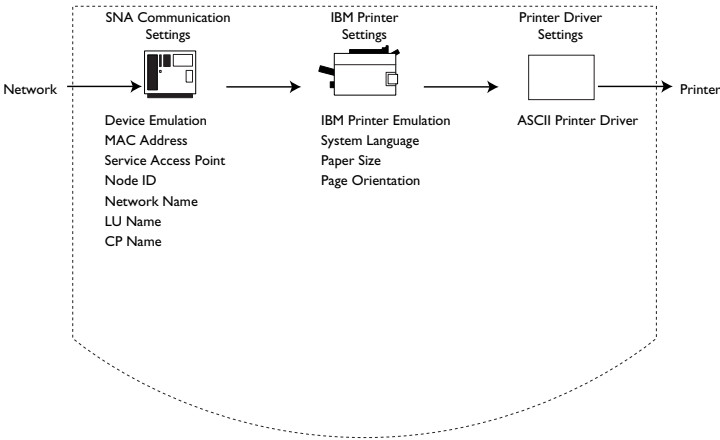
Schematic diagram displaying basic SNA operation and IBM printer emulation

Parameter Summary   The following tables summarize SNA host communication parameters that must be considered when installing the AXIS 570/670.

The parameters are presented as:

- Common Mainframe and AS/400 parameters

- Mainframe specific parameters

- AS/400 specific parameters

Common Mainframe
& AS/400 Parameters

Parameter	Name	Default	Description
DEVICE_EMUL	Control Unit Device Emulation	3174	This parameter controls the Control Unit emulation mode. When set to 3174, the Print Server will appear as a 3174 PU 2.0 node to the host. This mode may be used for both mainframe and AS/400 environments. When set to 5494, the Print Server will appear as a 5494 T2.1 node to the host. This is the recommended mode for the AS/400 environment. The 5494 mode cannot be used in the mainframe environment.
H1_ADDR	Host MAC Address	FF FF FF FF FF FF	This is the Host Ethernet/Token Ring MAC address. It is normally set to the MAC address of the host. When the Print Server is connected to the host through a gateway, this parameter should be set to the MAC address of the gateway. For a directly attached AS/400 system, this value is found in the "Line Description".
AUTODIAL	Automatic Link Establishment	no	This parameter controls whether the print server will automatically try to establish the link when the print server is switched on, or if communication is lost. When running 5494 CU mode, this parameter also controls whether Automatic Configuration should be performed.

IBM AS/400

IBM Mainframe

Mainframe Specific Parameters

Parameter	Name	Default	Description

NODE_ID	Node ID	E07xxxxx, where "xxxxx" are the last five digits of the Print Server's MAC address.	This is the SNA PU identification.
			  The first 3 digits is the IDBLK and the last five is the IDNUM.
			  When defining a VTAM Switched Major Node, this parameter should match the IDBLK and IDNUM values specified in the PU definition.
			  Hexadecimal characters (0-9 and A-F) only are allowed.

AS/400 Specific Parameters

Parameter	Name	Default	Emulation	Description

NWORK_NAME	Network Name	APPN	5494 only	This is the Print Server Network Name.
				  The value of this parameter is normally the same as the "Host Network Name", indicating that both the Print Server and the AS/400 system are located on the same APPN network.
				  The Network Name may comprise the letters A-Z and/or numerals 0-9, but must begin with a letter.
				  The letters used should all be in UPPERCASE and a maximum of 8 characters are allowed.

IBM AS/400

IBM Mainframe

Parameter	Name	Default	Emulation	Description
LU_NAME	LU Name	Axxxxxxx, where "xxxxxxx" is the last 7 characters of the AXIS 570/670 serial number, in reverse order, e.g. if s.no. = 00 40 8C 1B 06 D4 the default LU Name = A4D60B1C. This will be the name of the APPC device and controller created during auto-configuration	5494 only	This parameter defines the LU name of the Print Server. The default value is normally used. If an RWS controller for this Print Server is already defined on the AS/400 system, you may issue the DSPCTLD command to make sure that this parameter matches the Remote location name (RMTLOCNAME). The LU Name may comprise the letters A-Z and/or numerals 0-9, but must begin with a letter. The letters used should all be in UPPERCASE and a maximum of 8 characters are allowed.
CP_NAME (AXIS 570 and AXIS 670 only)	Control Point Name	Axxxxxxx, where "xxxxxxx" is the last seven characters of the Print Server serial number, in reverse order, i.e. a print server with serial number 00 40 8C 1B 06 D4 will have the default CP Name A4D60B1C. This will be the name of the APPC controller created during auto-configuration.	5494 only	This parameter defines the Control Point name of the Print Server. The default value is normally used. If an APPC controller for this Print Server is already defined on the AS/400 system, you may issue the DSPCTLD command to make sure that this parameter matches the Remote control point name (RMTCPNAME). The CP Name may comprise the letters A-Z and/or numerals 0-9, but must begin with a letter. The letters used should all be in UPPERCASE and a maximum of 8 characters are allowed.
H1_NW_NAME	Host Network Name	APPN	5494 only.	This is the AS/400 Host System Network Name. This host parameter may be viewed by issuing the DSPNETA command on the AS/400 system. It is presented as the "Local network ID" (LCLNETID).

Parameter	Name	Default	Emulation	Description
H1_LU_NAME	Host LU Name	DEFAULT	5494 only	This parameter defines the LU name of the AS/400 system that should match the Local location name (LCLLOCNAME), defined in the AS/400 system. Issue the DSPNETA command to view LCLLOCNAME.
				If a remote workstation for this Print Server is already defined on the AS/400 system, issue the DSPCTLD command to ensure that this parameter matches LCLLOCNAME. If the Local location name is set to *NETATR, you should use the DSPNETA command to view LCLLOCNAME.
				The Host LU Name may comprise the letters A-Z and/or numerals 0-9, but must begin with a letter. The letters used should all be in UPPERCASE and a maximum of 8 characters are allowed.

Updating parameters

This is most easily done when installing the AXIS 570/670 using the Installation Wizard in AXIS NetPilot, which requires a computer running Windows attached to your LAN.

Alternatively, you can do the setting up using FTP, or HTTP from a Web browser, or using extended IBM printer emulation. To set parameters using a Web browser, you first need to assign an IP address to the AXIS 570/670.

Using extended IBM printer emulation means setting up the AXIS 570/670 by printing a file containing extended IBM emulation commands to it after you have established communication with your IBM host. The configuration is started by inserting the sequence %CONFIG+ in your text. To protect your settings, a password must be provided. By default, the password is pass. You may then set the parameter values directly using the syntax shown below:

Syntax:

```
<Parameter name> = <value> [, <value>];
```

When all parameters have been set the SAVE command saves the settings permanently. The %CONFIG- command resumes normal printing. In order to maintain backward compatibility, some parameters must be preceded by a %CONFIG++ command. See also "Appendix I - *The Parameter List*" on page 263.

Example:
To set the parameters to their default values, enter the following in your document and print it.

```
%CONFIG+ password                    (If you have not changed the default
                     password (pass), the password is optional.)

PRDRIVER = PCL5;
%CONFIG++
NODE_SAP = 4;
H1_SAP = 4;
AUTODIAL = NO;
%CONFIG--
PREMUL = 3816;
SYSL = 37;
BIN1 = LETTER, COR;
SAVE;
%CONFIG-
```

Changing Parameters after Auto-configuration

If you want to change some of the critical configuration parameters after auto-configuration is completed, you should first set AUTODIAL to NO, then remove all descriptions in the AS/400, and then change the parameter(s) and set AUTODIAL to YES to initiate a new configuration process.

Auto-configuration and Mapping

The configuration created in the AS/400 and the mapping to the AXIS 570/670 as a result of the auto-configuration process is illustrated by the figure below.
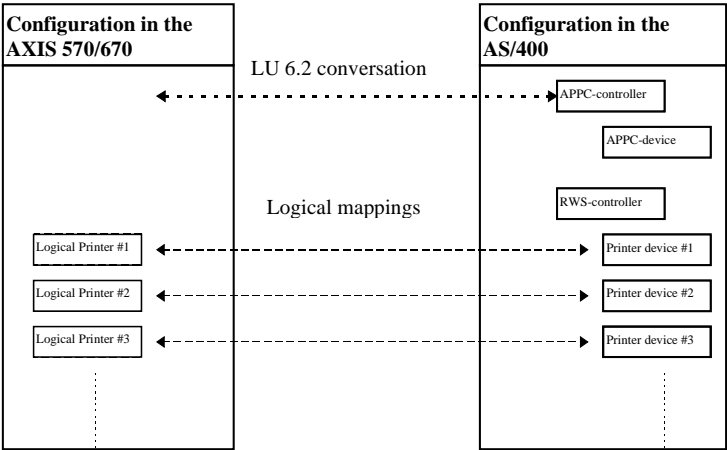
Illustration of the configuration created in the AS/400 and the mapping to the AXIS 570/670 as a result of the auto-configuration

Printer Device Descriptions

Through auto-configuration, the APPC controller, APPC device, RWS controller as well as printer device descriptions for the logical printers, will be created automatically.

Controller and Device Names

The names of the controllers and devices created in the AS/400 during auto-configuration are by default the last 7 digits from the 570/670 serial number in reverse order, preceded by the letter "A".

For example, serial number "00408C180102" will result in APPC-controller "A201081C", APPC-device "A201081C" and RWS-controller "A2010RMT".

Printer devices will be named "A201PRT01", A201PRT02", A201PRT02"… The designation "PRTnn" corresponds to the logical printers in the Print Server, i.e. printer device "A201PRT01" will be mapped to Logical Printer #1. By default, all Logical Printers are mapped to the Physical Port LPT1.

Proceed to the *SNA Printing - 5494 Mode,* on page 51 to customize the Print Server.

Notes: ❏   *AXIS 570 and AXIS 670 only:* The setting of the N_PRT_DEV parameter defines the maximum number of printer device descriptions that will be created. The default is 3, although a range of 1-8 is allowed.

        ❏   *AXIS 570 and AXIS 670 only:* If the N_PRT_DEV parameter is set to 3, device descriptions for local location addresses 01-03 are relevant. If the setting is 1, only local location address 01 will be available.

IBM AS/400

IBM Mainframe

Appendix B SNA Gateways

Gateway Configuration, 3174 CU mode

Some hints specific to SNA gateways are given below.

- AXIS 570/670 appears to a gateway as a Down Stream Physical Unit (DSPU), with eight LUs, 1 to 8 (LU 1 may not be available).

- Only gateways that communicate with DSPUs using SNA over LLC type 2 are supported.

- There are basically two types of gateways that the AXIS 570/670 can be attached to: pass-through gateways and concentrator gateways, as described below.

Pass-through gateway

Devices attached downstream to this type of gateway are completely visible to the host. In other words, each DSPU will have a PU definition on the host. Examples of pass-through gateways are IBM 3745 Communications Controller, IBM 3174 Establishment Controller, IBM 3172 LAN Interconnect Controller, etc.

You need to set up at least one PU and LU definition for each AXIS 570/670 on the host, as described in the VTAM section.

When attaching an AXIS 570/670 to a remote pass-through gateway, you need to set the mapping of SDLC or sub-channel address to MAC address in the gateway.

Concentrator gateway, general

A concentrator gateway typically behaves as a PU (or a few PUs) to the host, even though a number of PUs may be available downstream. If it is an SDLC or channel attached gateway, typically only one SDLC or sub-channel address will be used. Examples of concentrator gateways are: IBM Communications Manager/2 (OS/2), Novell NetWare for SAA (NetWare 3.x), Microsoft SNA Server (Windows NT), etc.

When an AXIS 570/670 is attached to this type of gateway, you can map the chosen AXIS 570/670 LU to any host LU you like. This way, several print servers may be accessed through the same gateway.

Pooling of LUs may not be used for AXIS 570/670.

IBM Mainframe

Note: ❑ If the LAN media at the remote (Print Server) location differs from that at the host location (e.g. Remote LAN = Ethernet and Host LAN = Token Ring), the MAC address definitions must be modified, as outlined below:

<u>Print Server Modifications:</u>

The AXIS 570/670 Host MAC address (H1_MAC_ADDR) must be bit-order reversed for each byte,
e.g. if the host address is 08005AB77D49 the converted address will be 10005AEDBE92

<u>Host Modifications:</u>

The required Host modifications are dependent upon the VTAM definition for the Major Node where the Print Server definition is placed.

• Case 1: VTAM Major Node definition is a Switched Major Node.
The MAC address of the AXIS 570/670 must be bit-order reversed in the PATH entry. An AXIS 570 with a MAC/node address of 00408C1B06D4 will be defined using the MAC/node address 000231D8602B as follows:

```
PA5701 PATH DIALNO=0104000231D8602B,
GID=1, PID=1, GRPNM=gggggg
```

• Case 2: VTAM Major Node definition is a Local Major Node.
When using a channel attached controller as gateway to the host, the MAC address of the AXIS 570/670 is configured in the gateway. The address must be reversed, as in case 1 above.

Concentrator Gateway, NetWare   This is an outline of the procedure for configuring to a Novell NetWare for SAA v 2.0 Server. More information is provided in the Support section of the Axis WWW Home Page.

1. Customize the AUTOEXEC and STARTUP files on the server. Add the LOAD statements for the LAN and WAN cards, the BTRIEVE database, and the NetWare for SAA 2.0 Gateway i.e. LOAD COMMEXEC and LOAD NWSAA.

2. Configure the Communication Executive (this and the following subjects are done on a WorkStation).

3. Configure SNA Network ID. Either change the default value or let it stay on default.

4. Configure Data Link Adapters. The configuration is done on the Data Link Adapters Definitions screen by pressing insert for a new adapter config, then you always enter the Logical adapter name, Link type, Logical adapter number and Service status.

5. Configure PU and LUs. On the Configure PU Profile screen you can set default LU attributes, starting dependent LU address, number of dependent LUs, give CP a name, enable off-line test mode, status assignment of LUs activated by host, status call host at workstation attach, status PU profile start-up and logical adapter name. On the Configure Dependent LUs screen you can set VTAM LU name, lock for a session, LU type and model and preserve host session.

6. Assign LU Resources and Access Control Lists (ACLs). On the Configure Dedicated LUs you can dedicate a LU to a person or device or group of persons. This person(s) is described in the access control lists.

7. Configure Downstream PU. Choose Configure Downstream PUs and press insert. Give it a name and fill in starting LU address or leave at default, type in number of DownStream LUs and logical adapter name:

Example:

```
              Configure Downstream PU Connection

Downstream PU name (CP name): _____DPUname
Starting downstream LU address: _____2
Number of downstream LUs: _____1
Logical adapter name: _____
```

The CSCON adds new parameters according to the adapter type you have set. The resulting screen can look like this:

Example:

```
Netware Comm Services Config V2.0 Wednesday 1996 September 4 16.27
  Configure LUs for Downstream PUs _____Downstream PU: AXIS570
  DLU __Address __PU Profile __LU Address __LU Type __Model __VTAM LU Name
  002 __(0x02) ____SAA_MAIN ____15 (0x0F) __Printer _____ACP4
```

Concentrator gateway, Microsoft

This is an outline of the procedure for configuring to a Microsoft SNA Server. More information is provided in the Support section of the Axis WWW Home Page.

1. Configure host connection.

2. Configure downstream connection.

3. Select host connection and assign one or more DownStream LUs to it.

4. Select downstream connection and associate the DownStream LUs (from step 3) with that connection.

5. If necessary, reorder the DownStream LU numbers, that is, the LU numbers used by the downstream system.

6. To connect multiple PUs (boxes) repeat steps 2-5.

Appendix C Extended IBM Printer Emulation

When printing from an IBM host, the AXIS 570/670 allows you to make use of the following printer functions not found in standard IBM printers:

- Configuration Mode
- Hex Transparency
- User Defined Strings
- String Substitutions
- Bar Codes
- Font Selection.

This appendix provides a brief overview of some of these functions. Please refer to the AXIS 570/670 Technical Reference (supplied on the AXIS Online CD) for further information.

Configuration Mode

The Configuration Mode provides a way to configure your AXIS 570/670 from your IBM system.

User Defined Strings

The User Definable Strings are a set of 256 programmable sequences. The UDS are useful for storing long sequences, such as printer function sequences, within the AXIS 570/670. Each sequence can be activated by inserting a short control command in your documents.

String Substitutions

The String Substitution function searches the output data stream for specified sequences of AIC characters (Match Strings), and substitutes them with other sequences (Substitute Strings). Up to 128 pairs of Match/Substitute Strings may be defined.

IBM Mainframe

Font Selection   Fonts can be selected directly by FGID (Extended Emulation commands or SCS SFG commands) or indirectly by pitch SCS SCD/SPD commands.

Notes: ❏   SFG control code is only supported by Twinax page printer emualations.

❏   Matrix printers only support a few fonts.

Hex Transparency   The Transparency function allows you to send ASCII data to the printer directly from the host application. The data may be Postscript, PCL, HP-GL or any other language supported by the printer. This gives you access to all the features of the connected printer from within the IBM environment.

When the percent and less-than characters (%<) are received, the AXIS 570/670 will switch to hex transparency mode. The following data (given as hexadecimal byte values or quoted text) is passed directly to the printer without any conversion. The hex transparency mode continues until the greater-than and percent characters (>%) are received.

Example:
The following example shows how to embed HP-PCL 'start underline' (<ESC>&d0D) and 'stop underline' (<ESC>&d0@) commands in your documents:

```
The word %<1B26643044>%underline%<1B266440>% is
underlined.
You may use %<1B,"&d0D">%quoted text%<1B,"&d0@">% as
well.
```

Resulting printout:

```
The word underline is underlined
You may use quoted text as well.
```

Bar Codes

The bar code function gives you easy access to a range of standard bar code types resident in the AXIS 570/670. Bar codes can only be printed on PCL printers.

Before the bar codes can be printed, a bar code format has to be defined. This format sets the type and size of the bar code to be printed. Up to 16 such formats can be predefined. The definitions are made by setting up the BAR parameter.

The BAR parameter takes several arguments, separated by commas, as shown below:

```
BAR <number>=<type>,<width>,<height>,<text mode>,
<check mode>;
```

- **number** is the bar code definition number in the range 0–15. This number is used to refer to the definition when printing the bar code.

- **type** is the predefined bar code type. Valid values are:

Value	Description	Value	Description
CODE39	Code 39	CODE128	Code 128
UPCA	UPC version A	INT2OF5	2 of 5 Interleaved
EAN8	EAN-8	CODABAR	Codabar matrix
EAN13	EAN-13		

- **width** is the bar code module width in 1/1000 inch. Valid range is 1 to 1000. The default value is 12.

- **height** is the bar code element height in 1/24 inch. Valid range is 1 to 500. The default value is 12.

- **text mode** selects if human readable text is printed under the bar code or not. 'YES' or 'ON' will turn on text, 'NO' or 'OFF' will turn off text. The default mode is 'ON'.

- **check mode** selects if a check digit will be generated or not. 'YES' or 'ON' will generate a check digit, 'NO' or 'OFF' will not generate a check digit. The default mode is 'ON'. The check digit will always be generated for bar code types UPCA, EAN8 and EAN13, regardless of the setting of **check mode**.

To set up the BAR parameter it is convenient to use the %CONFIG

IBM Mainframe

command in your document. To print bar codes, bar code commands may be included anywhere in your documents. They begin with 'percent-slash' (%/) followed by the word BAR. Then follows the number of the bar code definition to be used, a comma, and the sequence to be printed. The command is ended by a semi-colon (;).

Example 1:
Setting up the bar code parameters and printing bar codes.

```
%CONFIG+
BAR 0 = EAN8,12,4,ON;
BAR 1 = EAN8,12,8,ON;
SAVE;
%CONFIG-

%/BAR 0,"0123456"; %/BAR 1,"0123456";
```

Example 2:
Once the BAR parameter has been set up, you will only need to use the bar code commands to print the bar codes.

```
%/BAR 0,"0123456";                    %/BAR 1,"0123456";
```

Resulting printout:
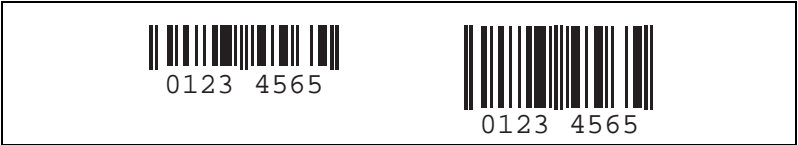
AXIS Cobra products compatibility

The AXIS 570/670 supports a subset of the AXIS Cobra products' extended printer emulation syntax, including the bar codes syntax. Please refer to the Technical Reference for more information.

Appendix D IBM Fonts

Font Selection, Coax Printer Emulations

Fonts can be indirectly selected by the IBM system using pitch selection (CPI). In order to gain full access to the fonts the AXIS 570/670 offers an alternative font selection command. Please note that matrix printers only support a few fonts.

Font selection commands may be included anywhere in your documents. They begin with 'percent-slash' (%/) followed by the word FONT and the font number (Font Global Identifier, FGID). An optional point size value, preceded by a comma, may be included. The command is ended by a semi-colon (;).

Example:
The following example shows how to select the 10 CPI Courier (fixed pitch) font.

```
%/FONT 11;This is 10 CPI Courier
```

Resulting printout:

```
This is 10 CPI Courier
```

Font Selection, Twinax Printer Emulations

Fonts are selected by a FGID (Font Global Identifier) and mapped to a printer resident PCL font, selected to make a close match to the original IBM font. The IBM to PCL font mapping is controlled by the Font Definition Table. All entries in this table are fully editable, and you can also add new entries.

Notes: ❏ Refer to *Appendix H - DBCS Support* for details on DBCS font types supported by the AXIS 570/670.

Available Fonts

The fixed pitch fonts are not scalable. If a Point Size is specified, it will be used to compress or expand the character spacing. (%/FONT 11,105; will compress the 10 CPI font to 10.5 CPI without changing the size of the characters).

	FGID	IBM Font Name
Pitch 5 CPI Fonts	244	Courier 5
	245	Courier Bold 5
Pitch 8 CPI Fonts	266	Courier Bold 8
Pitch 10 CPI Fonts	3	OCR-B
	5	Orator
	11	Courier 10
	12	Prestige Pica
	13	Artisan 10
	18	Courier Italic 10
	19	OCR-A
	20	Pica
	30	Math Symbol 10
	38	Orator Bold
	39	Gothic Bold 10
	40	Gothic Text 10
	41	Roman Text 10
	42	Serif Text 10
	43	Serif Italic 10
	46	Courier Bold 10
	60	Prestige Bold 10

IBM AS/400

IBM Mainframe

	FGID	IBM Font Name
Pitch 12 CPI Fonts	66	Gothic Text 12
	68	Gothic Italic 12
	69	Gothic Bold 12
	70	Serif Text 12
	71	Serif Italic 12
	72	Serif Bold 12
	80	Math Symbol 12
	84	Script
	85	Courier 12
	86	Prestige Elite
	87	Letter Gothic 12
	91	Light Italic 12
	108	Courier Bold 12
	110	Letter Gothic Bold
	111	Prestige Elite Bold
	112	Prestige Elite Italic
Pitch 13.3 CPI Fonts	204	Gothic Text 13
Pitch 15 CPI Fonts	221	Prestige 15
	223	Courier 15
	225	Math Symbol 15
	229	Serif Text 15
	230	Gothic Text 15
Pitch 17 CPI Fonts	252	Courier 17
	253	Courier Bold 17
	254	Courier 17 (sub/super)
Pitch 18 CPI Fonts	258	Courier 18
Pitch 20 CPI Fonts	281	Gothic Text 20
Pitch 25 CPI Fonts	289	Gothic Text 25
Pitch 26.7 CPI Fonts	290	Gothic Text 27

IBM AS/400

IBM Mainframe

	FGID	IBM Font Name
Proportional PSM Fonts	155	Boldface Italic
	158	Modern
	159	Boldface
	160	Essay
	162	Essay Italic
	163	Essay Bold
	173	Essay Light
	175	Document
Proportional Typographic Fonts (Fixed Point Size)	751	Sonoran-Serif 8-pt Roman Medium
	1051	Sonoran-Serif 10-pt Roman Medium
	1053	Sonoran-Serif 10-pt Roman Bold
	1056	Sonoran-Serif 10-pt Roman Italic Medium
	1351	Sonoran-Serif 12-pt Roman Medium
	1653	Sonoran-Serif 16-pt Roman Bold
	2103	Sonoran-Serif 24-pt Roman Bold

IBM AS/400

IBM Mainframe

	FGID	IBM Font Name
Proportional Typographic Fonts (Scalable - User Defined FGIDs)	3840	CG Times
	3841	CG Times Bold
	3842	CG Times Italic
	3843	CG Times Bold Italic
	3844	CG Omega
	3845	CG Omega Bold
	3846	CG Omega Italic
	3847	CG Omega Bold Italic
	3848	Coronet
	3849	Clarendon Condensed
	3850	Univers Medium
	3851	Univers Bold
	3852	Univers Medium Italic
	3853	Univers Bold Italic
	3854	Univers Medium Condensed
	3855	Univers Bold Condensed
	3856	Univers Medium Condensed Italic
	3857	Univers Bold Condensed Italic
	3858	Antique Olive
	3859	Antique Olive Bold
	3860	Antique Olive Italic
	3861	Garamond Antiqua
	3862	Garamond Halbfett
	3863	Garamond Kursiv
	3864	Garamond Kursiv Halbfett
	3865	Marigold
	3866	Albertus Medium
	3867	Albertus Extra Bold
	3868	Arial
	3869	Arial Bold
	3870	Arial Italic
	3871	Arial Bold Italic
	3872	Times New
	3873	Times New Bold
	3874	Times New Italic
	3875	Times New Bold Italic
	3876	Symbol
	3877	Wingdings

	FGID	IBM Font Name
Proportional Typographic Fonts (Scalable Point Size)	**5687**	Times Roman
	5707	Times Roman Bold
	5815	Times Roman Italic
	5835	Times Roman Bold Italic
	6199	Palatino
	6219	Palatino Bold
	6327	Palatino Italic
	6347	Palatino Bold Italic
	16951	Century Schoolbook
	16971	Century Schoolbook Bold
	17079	Century Schoolbook Italic
	17099	Century Schoolbook Bold Italic
	33335	Optima
	33355	Optima Bold
	33463	Optima Italic
	33483	Optima Bold Italic
	33591	Futura Book
	33601	Futura Heavy
	33719	Futura Book Italic
	33729	Futura Heavy Italic
	34103	Helvetica
	34123	Helvetica Bold
	34231	Helvetica Italic
	34251	Helvetica Bold Italic
	41783	Cursive
	41803	Cursive Bold
	41911	Cursive Italic
	41931	Cursive Bold Italic

Appendix E   IBM Print Formatting

This Appendix provides general parameter information relating to non-IPDS IBM print formatting.

IBM Printer Emulation

The following tables display the valid printer emulations that can be used in coax and twinax printer emulations.

Coax Printer Emulations

Parameter	Default	Printer Emulation Options	Printer Description
PREMUL	3816_cx	**3812_cx**	IBM 3812 model 2 non-IPDS, page printer
		*3816_cx	IBM 3816 models 01A and 01D non-IPDS, page printer with 5219 diskette
		3287_cx	IBM 3287 model 2C, matrix printer
		3268_cx	IBM 3268 model 2C, matrix printer
		3262_cx	IBM 3262 models 3 and 13, matrix printer
		4214_cx	IBM 4214 model 1 matrix printer
		4224_cx	IBM 4224 model 2 non-IPDS, matrix printer
		4230_cx	IBM 4230 model 201 matrix printer

Twinax Printer Emulations

Parameter Name	Default	Printer Emulation Options	Printer Description
PREMUL	3816_cx	**3812_tx**	IBM 3812 model 1 and 2 page printer
		3816_tx	IBM 3816 models 01S and 01D, page printer with 5219 diskette
		4214_tx	IBM 4214 model 2 matrix printer
		5224_tx	IBM 5224 models 1 and 2, matrix printer
		5225_tx	IBM 5225 models 1 through 4, matrix printer
		5256_tx	IBM 5256 models 1 through 3, matrix printer
		4230_tx	IBM 4230 model 101 matrix printer

System Languages The following tables describe the valid system languages that can be used in coax and twinax mode.

Coax mode

Parameter Name	Default	Value	Description	Value	User defined system language
SYSL	37 US English	*37	US English, Portuguese Alternate and Canadian Bilingual	286	Austrian/German Alternate
		260	Canadian French	287	Danish/Norwegian Alternate
		273	Austrian/German	288	Swedish/Finnish Alternate
		274	Belgian	289	Spanish
		275	Brazilian	293	APL
		277	Danish/Norwegian	297	French Azerty
		278	Swedish/Finnish	361	International Typographic
		280	Italian	500	Internat. Set 5 & Swiss Bilingual
		281	Japanese English	871	Icelandic
		282	Portuguese	892	OCR-A
		284	Spanish and Spanish Speaking	893	OCR-B
		285	UK English	USER	

Twinax mode

Parameter Name	Default	Value	Description	Value	User defined system language
SYSL	37 US English	* 37	US English, Portuguese Alternate and Canadian Bilingual	281	Japanese English
		256	New Spanish Word Processing	282	Portuguese
		273	Austrian/German	284	Spanish and Spanish Speaking
		274	Belgian	285	UK English
		275	Brazilian	297	French Azerty
		277	Danish/Norwegian	500	Internat. Set 5 & Swiss Bilingual
		278	Swedish/Finnish	871	Icelandic
		280	Italian	USER	

Notes: ❏   For other languages the USER language can be used and edited.

❏   Visit the Axis WWW Home Page at **http://www.axis.com/** for more information on how to edit the character translation tables.

Paper Size   If you are not using AXIS NetPilot™ to install your AXIS 570/670, you must set the paper size for each printer paper bin separately using the BIN1–BIN6, MANUAL, ENVELOPE and CONTINUOUS parameters.

The parameters take two values, orientation and paper size. The following tables describe the paper sizes that can be used in coax and twinax mode.

Parameters	Default	Printer Emulation Options	Printer Description
BIN1 - BIN 6, MANUAL, ENVELOPE, CONTINUOUS	LETTER	EXEC	7.25 × 10.5 inches
		LETTER	8.5 × 11 inches
		LEGAL	8.5 × 14 inches
		A4	210 × 297 mm (8.27 ◊ 11.69 inches)
		A3	297 × 420 mm (11.69 ◊ 16.54 inches)
		B4	250 × 353 mm (10.12 ◊ 14.33 inches)
		MON	3.8 × 7.5 inches (Monarch envelopes)
		C10	4.1 × 9.4 inches (COM-10 envelopes)
		DL	4.3 × 8.6 inches (DL envelopes)
		CUSTOM	User defined size (see AXIS Network Print Server Technical Reference for details)

Paper Orientation   The following table describes the valid paper options:

Parameters	Default	Printer Emulation Options	Printer Description
BIN1 - BIN 6, MANUAL, ENVELOPE, CONTINUOUS	COR	COR	Computer Output Reduction (COR) is enabled.
		PORT	Use portrait as default print orientation.
		LAND	Use landscape as default print orientation

Notes: ❑ COR printouts require a Laser Printer with the following characteristics:

- Landscape orientation.
- Vertically compressed to 70%.
- Horizontally compressed by using a font of higher character density.
- Top and left margins of 0.5 inches each by default.

IBM AS/400

IBM Mainframe

ASCII Printer Driver   This parameter should match the printer type you have connected to your AXIS 570/670:

Parameter	Default	Printer Emulation Options	Printer Description
PRDRIVER	PCL5	GENERIC	Generic Printer Driver
		PCL5	PCL5 printer
		PCL4	PCL4 printer
		IBM_PRO	IBM Proprinter
		EPSON_FX	Epson FX
		EPSON_LQ	Epson LQ
		USER	Editable Printer Driver.

Notes: ❏ If you wish to edit the control sequences within a printer driver, the USER driver must be selected. See AXIS Network Print Server Technical Reference for details. The Technical Reference is available on the AXIS Online CD.

❏ The printer driver chosen for the AXIS 570/670 is common to both its two parallel ports and serial port. It is not possible to configure different drivers for each port.

IBM AS/400

IBM Mainframe

Appendix F IPDS Parameter Overview

IBM AS/400

IBM Mainframe

Before you print IPDS data streams, a set of basic parameters should be set. The following IPDS parameters displays the most important IPDS parameters:

Parameter	Parameter short name	Default value
Virtual Memory Kb	PS_VM.	2000
True Color Support	PS_COLSUP	Disabled
Duplex Support	PS_DUPSUP	Enabled
IPDS System Language	IPDS_SYSL.	37 (US-English)
Bin x Paper size	PS_BINx	Letter
Default Input Bin	PS_DIB	Bin 1

Note: ❏ The 'x' in **Bin x paper size** and **PS_BINx** denotes any of the five supported paper bins.

Virtual Memory Kb

This value defines how much memory the AXIS 570/670 can use in the PostScript printer for storing resources. This value **must** match the memory size of your printer.

The default value is 2000 kbytes.

True Color Support

The Color Support setting determines how color information is to be interpreted. Enabled means that color commands are sent to the printer. Disabled means that color information is converted to black-and-white patterns.

The default setting is Disabled.

Duplex Support

The Duplex Support setting determines whether duplex support for the attached printer shall be reported to the host. Enabled means that duplex commands are transferred to the printer. Disabled means that duplex printing is not supported.

The default setting is disabled.

IBM AS/400

IBM Mainframe

IPDS System Language

The AXIS 570/670 must be set up for the System Language of your IBM system configuration in order to obtain correct language specific characters.

The default selection is US English (Code Page 37).

The following table describes the valid IPDS system languages:

Value	Description	Value	User defined system language
*37	US English, Portuguese Alternate and Canadian Bilingual	289	Spanish Alternate
256	International set 1	290	Japanese-Katakana
259	Symbols set 7	293	APL
260	Canadian French	297	French Azerty
273	Austrian/German	361	International Typographic
274	Belgian	420	Arabic Bilingual
275	Brazilian	423	Greek 183
277	Danish/Norwegian	424	Hebrew
278	Swedish/Finnish	437	Multinational
280	Italian	500	Internat. Set 5 & Swiss Bilingual
281	Japanese English	803	Hebrew Character Set A
282	Portuguese	870	latin 2 Multilingual
284	Spanish and Spanish Speaking	871	Icelandic
285	UK English	880	Cyrillic Multilingual
286	Austrian/German Alternate	892	OCR-A
287	Danish/Norwegian Alternate	893	OCR-B
288	Swedish/Finnish Alternate	1026	Latin 5

Bin x Paper Size

The physical paper size selection must match the actual paper size you are using for Bin x. The predefined sizes are *Executive, Letter, Legal, A4,* and *A3*.

The default size is A4.

If you are using another paper format, select *Custom*. This selection requires that you define the paper size by setting the parameters **Physical Paper Length** and **Physical Paper Width** to the appropriate values.

Default Input Bin

This selection defines which input paper bin should be used as default at power up.

The default selection is Bin 1.

Appendix G IPDS Fonts

This section describes how IPDS fonts are handled by the AXIS 570/670. There are two different approaches to font handling:

- downloading fonts from the host.

- using fonts that are already resident in the printer.

Both methods are supported by the AXIS 570/670.

Host Downloaded Fonts

IPDS provides functions for downloading fonts from the host computer. The font resolutions of 240 and 300 dpi are automatically converted by AXIS 570/670 to the resolution of the attached PostScript printer.

Note: ❑ AS/400 downloaded fonts requires **[AFP = *YES]** in the AS/400 device description.

Font Smoothing A downloaded 240 dpi font may appear jagged when printed on a 300 dpi printer. The AXIS 570/670 uses a font smoothing feature to enhance the appearance of these fonts. The font smoothing may be disabled if you want to speed up the font loading or if your printer has insufficient PostScript virtual memory.

❑ The font smoothing is optimized for printers with 300 dpi resolution. If your printer has a resolution of 600 dpi or higher, the smoothing effect will be less significant. In these cases we recommend you to disable the font smoothing to avoid the reduction in performance.

IBM AS/400

IBM Mainframe

Printer Resident Fonts

The rest of this section deals with printer resident fonts. The table in *Supported Resident Fonts*, on page 242, lists all IBM fonts that are recognized by the AXIS 570/670, and the corresponding PostScript printer fonts. The non-standard PostScript fonts are resident in the AXIS 570/670 (OCR-B is one example), so you do not need font cards etc. to use the listed fonts.

In IPDS mode, printer resident fonts can be selected by the system referring to the FGID (Font Global IDentifier) and FW (Font Width). AXIS 570/670 supports a large set of resident fonts.

Note: ❑ *(IBM Mainframe only)* For PSF systems, resident fonts need to be mapped to the host font name and code page. In PSF/MVS, this is done using the APSRMARK utility and in PSF/VM using the APRFTBLV (RSCS) or APRFTIDB files. For more information, refer to the PSF/MVS and PSF/VM manuals.

The FGIDs are grouped according to the following table:

FGID (hex)	FGID (dec)	TYPE
0001 - 0041	1 -65	10 CPI
0042 - 0099	66 - 153	12 CPI
009A - 00C8	154 - 200	Proportional PSM
00C9 - 00D2	201 - 210	13 CPI
00D3 - 00EF	208 - 239	15 CPI
00F0 - 00F7	240 - 247	5 CPI
00F8 - 0103	248 - 259	17 CPI
0104 - 0111	260 - 273	8 CPI
0112 - 0117	274 - 279	17 CPI
0118 - 011B	280 - 283	20 CPI
011C - 0120	284 - 288	25 CPI
0121 - 012B	289 - 299	27 CPI
012C - 01FF	300 - 511	10 CPI

0200 - 0EFF	512 - 3839	Typographic
0F00 - 0FFF	3840 - 4095	User Defined Fonts
1000 - FFFE	4096 - 65534	Typographic

IBM AS/400

IBM Mainframe

Supported Resident Fonts

The following table shows the IBM fonts that are recognized by the AXIS 570/670 as valid resident font selections. The actual PostScript printer font is also listed.

All fonts marked with an '@' are close in appearance to the original, and are reported to the host as supported resident fonts.

All fonts marked with a '%' are dynamically scalable to any point size by specifying a font width, see *Scalable Fonts*, on page 253.

Notes	FGID		FW		IBM Font Name	PostScript Font
	hex	dec	hex	dec		
@	0003	3	0090	144	OCR-B.10	OCRB
	0005	5	0090	144	Orator.10	Courier
@	000B	11	0090	144	Courier.10	Courier
	000D	13	0090	144	Artisan.10	Courier
@	0012	18	0090	144	Courier.italic.10	Courier-Oblique
	0014	20	0090	144	Pica.10	Courier
	001A	26	0090	144	Matrix.Gothic.10	Courier
	001E	30	0090	144	Math-symbol.10	Courier
@	0024	36	0090	144	Letter-Gothic.10	LetterGothic
	0026	38	0090	144	Orator.bold.10	Courier-Bold
@	0027		0090	144	Gothic-text.bold.10	OCR B-Bold
@	0028		0090	144	Gothic-text.10	OCR B
	0029		0090	144	Roman-text.10	OCR B
	002A		0090	144	Serif-text.10	OCR B
	002B		0090	144	Serif-text.italic.10	OCR B
	002C		0090	144	Katakana-gothic.10	OCR B-Italic
	002D		0090	144	APL.10	Courier
@	002E		0090	144	Courier.bold.10	Courier-Bold

Notes	FGID		FW		IBM Font Name	PostScript Font
	hex	dec	hex	dec		
	0032	50	0090	144	Shalom.bold.10	Courier-Bold
@	0039	57	0090	144	Courier.italic.bold.10	Courier-Bold-Oblique
	003C	60	0090	144	Prestige.bold.10	Courier-Bold
	0042	66	0078	120	Gothic-text.12	OCR B
	0044	68	0078	120	Gothic-text.italic.12	OCR B-Italic
	0045	69	0078	120	Gothic-text.bold.12	OCR B-Bold
	0046	70	0078	120	Serif-text.12	OCR B
	0047	71	0078	120	Serif-text.italic.12	OCR B-Italic
	0048	72	0078	120	Serif-text.bold.12	OCR B-Bold
	0050	80	0078	120	Math-symbol.12	Courier
	0054	84	0078	120	Script.12	Courier-Oblique
@	0055	85	0078	120	Courier.12	Courier
	0056	86	0078	120	Prestige.12	Courier
@	0057	87	0078	120	Letter-Gothic.12	LetterGothic
	005B	91	0078	120	Light.italic.12	Courier-Oblique
@	006C	108	0078	120	Courier.bold.12	Courier-Bold
@	006D	109	0078	120	Letter-Gothic.italic.12	LetterGothic-Italic
@	006E	110	0078	120	Letter-Gothic.bold.12	LetterGothic-Bold
	006F	111	0078	120	Prestige.bold.12	Courier-Bold
	0070	112	0078	120	Prestige.italic.12	Courier-Oblique
	009B	155	0078	120	Boldface.italic.PSM	Time-BoldItalic
	009E	158	0078	120	Modern.PSM	Times-Roman
	009F	159	0078	120	Boldface.PSM	Times-Bold
	00A0	160	0078	120	Essay.PSM	Helvetica
	00A2	162	0078	120	Essay.italic.PSM	Helvetica-Oblique
	00A3	163	0078	120	Essay.bold.PSM	Helvetica-Bold

IBM AS/400

IBM Mainframe

IBM AS/400

IBM Mainframe

Notes	FGID		FW		IBM Font Name	PostScript Font
	hex	dec	hex	dec		
	00A8	168	0078	120	Barak.bold.PSM	Times-Bold
	00AD	173	0078	120	Essay.light.PSM	Helvetica
	00AF	175	0078	120	Document.PSM	Time-Roman
	00B1	177	0078	120	Bold.italic.PSM	Times-BoldItalic
	00CC	204	006C	108	Gothic.text.13	OCRB
@	00D6	214	0060	96	Courier.bold.15	Courier-Bold
	00DD	221	0060	96	Prestige.15	Courier
	00DE	222	0060	96	Gothic.15	OCRB
@	00DF	223	0060	96	Courier.15	Courier
	00E1	225	0060	96	Math-symbol.15	Courier
@	00E3	227	0060	96	Letter-Gothic.15	LetterGothic
	00E5	229	0060	96	Serif-text.15	OCR B
	00E6	230	0060	96	Gothic-text.15	OCR B
@	00F4	244	0120	288	Courier.5	Courier
@	00F5	245	0120	288	Courier.bold.5	Courier-Bold
@	00FC	252	0056	86	Courier.17	Courier
@	00FD	253	0056	86	Courier.bold.17	Courier-Bold
@	00FE	254	0056	86	Courier.17 sub/superscript	Courier
@	00FF	255	0056	86	Matrix-Gothic.17	LetterGothic
@	0106	262	00B4	180	Courier.8	Courier
@	0112	274	0056	86	Letter-Gothic.17	LetterGothic
	0118	280	0048	72	APL.20	Courier
@	0119	281	0048	72	Gothic-text.20	LetterGothic
@	011D	285	003C	60	Letter-Gothic.25	LetterGothic
@	0122	290	0036	54	Gothic-text.27	LetterGothic
@	02EF	751	0036	54	Sonoran-serif.8pt	Times-Roman

IBM AS/400

IBM Mainframe

Notes	FGID		FW		IBM Font Name	PostScript Font
	hex	dec	hex	dec		
@	041B	1051	0042	66	Sonoran-serif.10pt	Times-Roman
@	041D	1053	0042	66	Sonoran-serif.bold.10pt	Times-Bold
@	0420	1056	0042	66	Sonoran-serif.italic.10pt	Times-Italic
@	0547	1351	004E	78	Sonoran-serif.12pt	Times-Roman
@	0675	1653	006C	108	Sonoran-serif.bold.16pt	Times-Bold
@	0837	2103	00A2	162	Sonoran-serif.bold.24pt	Times-Bold
	0F00 to 0F7F	3840 to 3967	any	any	User Definable Fonts	any
@	1137	4407	002A	42	Sonoran-serif.6pt	Times-Roman
@	1137	4407	0036	54	Sonoran-serif.8pt	Times-Roman
@	1137	4407	003C	60	Sonoran-serif.9pt	Times-Roman
@	1137	4407	0042	66	Sonoran-serif.10pt	Times-Roman
@	1137	4407	0048	72	Sonoran-serif.11pt	Times-Roman
@	1137	4407	004E	78	Sonoran-serif.12pt	Times-Roman
@	114B	4427	003C	60	Sonoran-serif.bold.9pt	Times-Bold
@	114B	4427	0042	66	Sonoran-serif.bold.10pt	Times-Bold
@	114B	4427	0060	96	Sonoran-serif.bold.14pt	Times-Bold
@	114B	4427	006C	108	Sonoran-serif.bold.16pt	Times-Bold
@	114B	4427	0084	132	Sonoran-serif.bold.20pt	Times-Bold
@	114B	4427	00A2	162	Sonoran-serif.bold.24pt	Times-Bold
@	11B7	4535	003C	60	Sonoran-serif.italic.9pt	Times-Italic
@	11B7	4535	0042	66	Sonoran-serif.italic.10pt	Times-Italic
@	11B7	4535	0048	72	Sonoran-serif.italic.11pt	Times-Italic
@	11CB	4555	003C	60	Sonoran-serif.bold.italic.9pt	Times-BoldItalic
@	11CB	4555	0042	66	Sonoran-serif.bold.italic.10pt	Times-BoldItalic
@	11CB	4555	004E	78	Sonoran-serif.bold.italic.12pt	Times-BoldItalic
@	11CB	4555	0078	120	Sonoran-serif.bold.italic.18pt	Times-BoldItalic

Notes	FGID		FW		IBM Font Name	PostScript Font
	hex	dec	hex	dec		
@	11CB	4555	0084	132	Sonoran-serif.bold.italic.20pt	Times-BoldItalic
@%	4237	16951	0066	102	Century Schoolbook.12 pt	NewCenturySchlbk
@%	4237	16951	0078	120	Century Schoolbook.14 pt	NewCenturySchlbk
@%	424B	16971	0066	102	Century Schoolbook.bold.12 pt	NewCenturySchlbk-Bold
@%	424B	16971	0078	120	Century Schoolbook.bold.14 pt	NewCenturySchlbk-Bold
@%	42B7	17079	0066	102	Century Schoolbook.italic.12 pt	NewCenturySchlbk-Italic
@%	42B7	17079	0078	120	Century Schoolbook.italic.14 pt	NewCenturySchlbk-Italic
@%	42CB	17099	0066	102	Century Schoolbook.bold.italic12 pt	NewCenturySchlbk-Bo-It
@%	42CB	17099	0078	120	Century Schoolbook.bold.italic.14 pt	NewCenturySchlbk-Bo-It
@%	1637	5687	0028	40	Times.Roman.6pt	Times-Roman
@%	1637	5687	0035	53	Times.Roman.8pt	Times-Roman
@%	1637	5687	0043	67	Times.Roman.10pt	Times-Roman
@%	1637	5687	0050	80	Times.Roman.12pt	Times-Roman
@%	1637	5687	005D	93	Times.Roman.14pt	Times-Roman
@%	1637	5687	0078	120	Times.Roman.18pt	Times-Roman
@%	1637	5687	00A0	160	Times.Roman.24pt	Times-Roman
@%	164B	5707	0028	40	Times.bold.6pt	Times-Bold
@%	164B	5707	0035	53	Times.bold.8pt	Times-Bold
@%	164B	5707	0043	67	Times.bold.10pt	Times-Bold
@%	164B	5707	0050	80	Times.bold.12pt	Times-Bold
@%	164B	5707	005D	93	Times.bold.14pt	Times-Bold
@%	164B	5707	0078	120	Times.bold.18pt	Times-Bold
@%	164B	5707	00A0	160	Times.bold.24pt	Times-Bold
@%	16B7	5815	0028	40	Times.italic.6pt	Times-Italic
@%	16B7	5815	0035	53	Times.italic.8pt	Times-Italic
@%	16B7	5815	0043	67	Times.italic.10pt	Times-Italic

IBM AS/400

IBM Mainframe

Notes	FGID		FW		IBM Font Name	PostScript Font
	hex	dec	hex	dec		
@%	16B7	5815	0050	80	Times.italic.12pt	Times-Italic
@%	16B7	5815	005D	93	Times.italic.14pt	Times-Italic
@%	16B7	5815	0078	120	Times.italic.18pt	Times-Italic
@%	16B7	5815	00A0	160	Times.italic.24pt	Times-Italic
@%	16CB	5835	0028	40	Times.bold.italic.6pt	Times-boldItalic
@%	16CB	5835	0035	53	Times.bold.italic.8pt	Times-boldItalic
@%	16CB	5835	0043	67	Times.bold.italic.10pt	Times-boldItalic
@%	16CB	5835	0050	80	Times.bold.italic.12pt	Times-boldItalic
@%	16CB	5835	005D	93	Times.bold.italic.14pt	Times-boldItalic
@%	16CB	5835	0078	120	Times.bold.italic.18pt	Times-boldItalic
@%	16CB	5835	00A0	160	Times.bold.italic.24pt	Times-boldItalic
@%	8537	34103	0028	40	Helvetica.6pt	Helvetica
@%	8537	34103	0035	53	Helvetica.8pt	Helvetica
@%	8537	34103	0043	67	Helvetica.10pt	Helvetica
@%	8537	34103	0050	80	Helvetica.12pt	Helvetica
@%	8537	34103	005D	93	Helvetica.14pt	Helvetica
@%	8537	34103	0078	120	Helvetica.18pt	Helvetica
@%	8537	34103	00A0	160	Helvetica.24pt	Helvetica
@%	854B	34123	0028	40	Helvetica.bold.6pt	Helvetica-Bold
@%	854B	34123	0035	53	Helvetica.bold.8pt	Helvetica-Bold
@%	854B	34123	0043	67	Helvetica.bold.10pt	Helvetica-Bold
@%	854B	34123	0050	80	Helvetica.bold.12pt	Helvetica-Bold
@%	854B	34123	005D	93	Helvetica.bold.14pt	Helvetica-Bold
@%	854B	34123	0078	120	Helvetica.bold.18pt	Helvetica-Bold
@%	854B	34123	00A0	160	Helvetica.bold.24pt	Helvetica-Bold
@%	85B7	34231	0028	40	Helvetica.italic.6pt	Helvetica-Oblique

Notes	FGID		FW		IBM Font Name	PostScript Font
	hex	dec	hex	dec		
@%	85B7	34231	0035	53	Helvetica.italic.8pt	Helvetica-Oblique
@%	85B7	34231	0043	67	Helvetica.italic.10pt	Helvetica-Oblique
@%	85B7	34231	0050	80	Helvetica.italic.12pt	Helvetica-Oblique
@%	85B7	34231	005D	93	Helvetica.italic.14pt	Helvetica-Oblique
@%	85B7	34231	0078	120	Helvetica.italic.18pt	Helvetica-Oblique
@%	85B7	34231	00A0	160	Helvetica.italic.24pt	Helvetica-Oblique
@%	85CB	34251	0028	40	THelvetica.bold.italic.6pt	Helvetica-BoldOblique
@%	85CB	34251	0035	53	Helvetica.bold.italic.8pt	Helvetica-BoldOblique
@%	85CB	34251	0043	67	Helvetica.bold.italic.10pt	Helvetica-BoldOblique
@%	85CB	34251	0050	80	Helvetica.bold.italic.12pt	Helvetica-BoldOblique
@%	85CB	34251	005D	93	Helvetica.bold.italic.14pt	Helvetica-BoldOblique
@%	85CB	34251	0078	120	Helvetica.bold.italic.18pt	Helvetica-BoldOblique
@%	85CB	34251	00A0	160	Helvetica.bold.italic.24pt	Helvetica-BoldOblique

Notes:
- ❏ FW (Font Width) is in $1/1440$", and denotes the width of a word space for the specific font.

- ❏ Certain FGIDs are replaced by another FGIDs, see Immediate Font Substitutions below.

- ❏ *(IBM Mainframe only)* For PSF/MVS, sample APSRMARK jobs can be found in SYS1.SAMPLIB. The fonts can be marked with the APSWMSTD and APSWMGML sample jobs for 3812 and 3816 printers. The APSW4028 is used with the 4028 printer.

- ❏ *(IBM Mainframe only)* To mark a resident font in APSRMARK, the font character width tables must exist on the system.

The AXIS 570/670 supports extended font mapping at PostScript level, making it possible to redefine any of the FGIDs in the table above. See User Definable Fonts and Extended Font Mapping later in this section for details.

Immediate Font Substitutions

Certain FGIDs will be immediately substituted by the AXIS 570/670. The substitution table depends on the selected IBM printer emulation.

The following fonts are substituted for the IBM 4028 emulation:

FGID		Selected IBM Fonts	FGID		Substituted IBM Font
hex	dec		hex	dec	
000D	13	Artisan.10	0024	36	Letter-Gothic.10
0014	20	Pica.10	000B	11	Courier.10
001A	26	Matrix.gothic.10	0024	36	Letter-Gothic.10
001E	30	Math-symbol.10	000B	11	Courier.10
0028	40	Gothic-text.10	0024	36	Letter-Gothic.10
0029	41	Roman-text.10	000C	12	Prestige.10
002A	42	Serif-text.10	000B	11	Courier.10
002B	43	Serif-text.italic.10	0012	18	Courier.italic.10
002C	44	Katakana-gothic.10	0015	21	Katakana.10
0042	66	Gothic-text.12	0057	87	Letter-Gothic.12
0044	68	Gothic-text.italic.12	006D	109	Letter-Gothic.italic.12
0045	69	Gothic-text.bold.12	006E	110	Letter-Gothic.bold.12
0046	70	Serif-text.12	0055	85	Courier.12
0047	71	Serif-text.italic.12	005C	92	Courier.italic.12
0050	80	Math-symbol.12	0056	86	Prestige.12
006B	107	Elite.12	0055	85	Courier.12
00AD	173	Essay.light.PSM	00A0	160	Essay.PSM
00AF	175	Document.PSM	009E	158	Modern.PSM
00B0	176	Bold.PSM	009F	159	Boldface.PSM
00B1	177	Bold.italic.PSM	009B	155	Boldface.italic.PSM
00E5	229	Serif-text.15	00DF	223	Courier.15
00E6	230	Gothic-text.15	00DE	222	Gothic.15

IBM AS/400

IBM Mainframe

FGID		Selected IBM Fonts	FGID		Substituted IBM Font
hex	dec		hex	dec	
02EF	751	Sonoran-serif.8pt	1637	5687	Times.Roman.8pt
02F8	760	Times-Roman.6pt	1637	5687	Times.Roman.6pt
02F9	761	Times.bold.12pt	164B	5707	Times.bold.12pt
02FA	762	Times.bold.14pt	164B	5707	Times.bold.14pt
02FB	763	Times.italic.12pt	16B7	5815	Times.italic.12pt
02FC	764	Times.bold.italic.10pt	16CB	5835	Times.bold.italic.10pt
02FD	765	Times.bold.italic.12pt	16CB	5835	Times.bold.italic.12pt
041B	1051	Sonoran-serif.10pt	1637	5687	Times.Roman.10pt
041D	1053	Sonoran-serif.bold.10p	164B	5707	Times.bold.10pt
0420	1056	Sonoran-serif.italic.10p	16B7	5815	Times.italic.10pt
0547	1351	Sonoran-serif.12pt	1637	5687	Times.Roman.12pt
0675	1653	Sonoran-serif.bold.16pt	164B	5707	Times.bold.16pt
070B	1803	Sonoran-serif.bold.18pt	164B	5707	Times.bold.18pt
0837	2103	Sonoran-serif.bold.24pt	164B	5707	Times.bold.24pt

The following fonts are substituted for the IBM 3812/3816 emulation:

| FGID | | Selected IBM Fonts | FGID | | Substituted IBM Font |
hex	dec		hex	dec	
000D	13	Artisan.10	000B	11	Courier.10
0014	20	Pica.10	0056	86	Prestige.12
001A	26	Matrix.gothic.10	0028	40	Gothic-text.10
001E	30	Math-symbol.10	000B	11	Courier.10
0029	41	Roman-text.10	0028	40	Gothic-text.10
002A	42	Serif-text.10	0028	40	Gothic-text.10
0046	70	Serif-text.12	0042	66	Gothic-text.12
0047	71	Serif-text.italic.12	0044	68	Gothic-text.italic.12
0048	72	Serif-text.bold.12	0045	69	Gothic-text.bold.12
0050	80	Math-symbol.12	0056	86	Prestige.12
005B	91	Light-italic.12	0070	112	Prestige.italic.12
006B	107	Elite.12	0055	85	Courier.12
009E	158	Modern.PSM	00AF	175	Document.PSM
00B0	176	Bold.PSM	009F	159	Boldface.PSM
00B1	177	Bold.italic.PSM	009B	155	Boldface.italic.PSM
00DD	221	Prestige.15	00E6	230	Gothic-text.15
00DE	222	Gothic.15	00E6	230	Gothic-text.15
00E1	225	Math-symbol.15	00DF	223	Courier.15
00E5	229	Serif-text.15	00E6	230	Gothic-text.15

IBM AS/400

IBM Mainframe

Unsupported Fonts

All FGIDs that do not appear in the Supported Fonts table on page 242 or the Immediate Font Substitutions table on page 249 are considered unsupported.

A selection of an unsupported FGID value will result in a substitution to a default font. The AXIS 570/670 uses the same default fonts as the emulated IBM printers. The default fonts for different FGID ranges are shown in the table below:

FGID (hex)	FGID (dec)	Type	Default Font	
0001 - 0041	1-65	10 CPI	11	Courier.10
0042 - 0099	66 - 153	12 CPI	85	Courier.12
009A - 00C8	154 - 200	Proportional PSM	175	Document.PSM
00C9 - 00D2	201 - 210	13 CPI	204	Gothic-text.13
00D3 - 00EF	211 - 239	15 CPI	223	Courier.15
00F0 - 00F7	240 - 247	5 CPI	244	Courier.5
00F8 - 0103	248 - 259	17 CPI	274	Letter-Gothic.17
0104 - 0111	260 - 273	8 CPI	262	Courier.8
0112 - 0117	274 - 279	17 CPI	274	Letter-Gothic.17
0118 - 011B	280 - 283	20 CPI	281	Letter-Gothic.20
011C - 0120	284 - 288	25 CPI	285	Letter-Gothic.25
0121 - 012B	289 - 299	27 CPI	29	Letter-Gothic.27
012C - 01FF	300 - 511	10 CPI	11	Courier.10
0200 - 0EFF	512 - 3839	Typographic	85	Courier.12
0F00 - 0F7F	3840 - 3967	User Defined Fonts	printer dependent	
0F80 - 0FFF	3968 - 4095	User Defined Fonts	85	Courier.12
1000 - FFFF	4096 - 65535	Typographic	85	Courier.12

Typographical Fonts

This section deals with font width selections for typographical (proportional pitch) fonts.

Note that when an unsupported typographical font (FGID range 512 - 65534) is selected, the resulting font will be a fixed pitch (see the table on the previous page), and the selected font width value will be ignored.

Default Font
Width

When the default font width is selected, the AXIS 570/670 will set a font width in one of the following ways depending on the selected IBM printer emulation:

IBM 4028

The font width is set to 67 (corresponding to a 10 point font).

IBM 3812/3816

The font width is set to the smallest available value for the selected FGID according to the font list in *Supported Resident Fonts*, on page 242. For FGID 16951 (Century Schoolbook), the resulting font width is 102 (12 points), and for FGID 5687 (Times Roman), the resulting font width is 40 (6 points).

Scalable Fonts

If the selected font width (point size) is not available for the selected FGID, the AXIS 570/670 will set a point size in one of the following ways depending on the font:

Times Roman,
Helvetica
and Century
Schoolbook

The font width value is converted to a point size used to dynamically scale the selected font. This means that you have a completely free choice of point sizes (only limited by the host application) when printing with these fonts.

Any other
typographical font

The nearest smaller available font width for the selected FGID will be used. If a smaller font width isn't available, the nearest larger font width will be used.

IBM AS/400

IBM Mainframe

Appendix H   DBCS Support

The AXIS 570/670 supports Double-Byte Character Set (DBCS) for SNA and TN5250E printing. This facilitates printing from an IBM AS/400 host system for languages employing double-byte character sets.

The following Chinese, Japanese and Korean DBCS tables are used in the AXIS 570/670:

Country	Printer Emulation	Character Table
Korea (KS)	5x27_002_TX_KS	KS
Korea (KSSM)	5x27_002_TX_KSSM	KSSM
Japan	5x27_001_TX	Shift - JIS
China	5x27_005_TX	GB

AXIS 570/670 Double-byte Character Tables

Important ! The AXIS 570/670 supports only SNA DBCS printing in IBM 5494 emulation.

Configuring the AS/400 Host, 5494 CU mode

Follow the instructions below to configure the AS/400 Host for DBCS support:

1. Type **WRKSYSVAL** on the AS/400 command line.

2. Check that the DBCS version installed indicator (QIGC) *sysval* is set to 1 (on).

3. Check that the QIGCCDEFNT *sysval* is set to a DBCS font installed in the system.

4. Proceed with steps 1-10 as detailed in *Configuring the AS/400 Host System,* on page 52.

IBM AS/400

IBM Mainframe

Configuring the AXIS 570/670

A number of printer emulations exist for DBCS printing and you are advised to set the correct system language. To do this, follow the instructions below:

1. Perform steps 1-7 as detailed in *Configuring the AXIS 570/670,* on page 54.

2. From the IBM Printer Emulation tab ensure that the basic configuration parameters are defined as follows:

Country	Printer Emulation	System Language
Korea (KS)	5x27_002_TX_KS	833
Korea (KSSM)	5x27_002_TX_KSSM	833
Japan	5x27_001_TX	890
China	5x27_005_TX	836

Printer Emulation and System Language for Country options

3. Perform steps 9-12 as detailed in *Configuring the AXIS 570/670,* on page 54.

Note: ❏   Default fonts will be changed when switching printer emulations.

Verifying the Communications Link

Having configured the AS/400 host AXIS 570/670 in accordance with the above, verify that the communications link is functioning correctly by following instructions 1-4 detailed in *Verifying the Communication Link,* on page 57.

IBM AS/400

IBM Mainframe

Amending Device Features

After automatic setup, it may be necessary to change the Device features and Last Code Point of the printer device. Failure to do so may cause corruption within your print data.

Follow the instructions below, to set the appropriate Device features and Last Code Point for your chosen printer device:

1. Make sure that the writer is stopped by typing **ENDWTR xxxxPRT01** on the AS/400 command line, where ***xxxxPRT01*** is the printer device name. Press ENTER.

2. Type **VRYCFG CFGOBJ(xxxxPRT01) CFGTYPE(*DEV) STATUS(*OFF)** to vary off the printer device, where ***xxxxPRT01*** is the printer device name. Press ENTER.

3. Type **CHGDEVPRT xxxxPRT01** to change the printer device name, where ***xxxxPRT01*** is the printer device name. Press F4.

4. Under DBCS Feature (IGCFEAT) amend the Device Features and Last Code Point to the appropriate value corresponding to the country language.

Country	Device features	Last Code Point
Korea	2424K1	D3FE
Japan	2424J1	68FE
China	2424S1	6FFE

Device features and Last Code Point for Country options

5. Type **VRYCFG CFGOBJ(xxxxPRT01) CFGTYPE(*DEV) STATUS(*ON)** on the AS/400 command line to vary on the printer device, where ***xxxxPRT01*** is the printer device name. Press ENTER.

6. Type **STRPRTWTR xxxxPRT01** to start the Writer, where ***xxxxPRT01*** is the printer device name. Press ENTER.

7. Direct a printout to this printer device to confirm that the above changes have been implemented correctly.

Extended IBM Printer Emulation

Extended emulation will only work in SBCS mode. Before entering extended emulation you will have to change to single byte mode by sending shift in.

```
<SI>(SCS Shift In Control Code)
%CONFIG+
SAVE;
%CONFIG-
<SO>(SCS Shift Out Control Code)
```

Example (with DBCS mode before entering extended emulation)

Note: For more information refer to *Appendix C - Extended IBM Printer Emulation*

Font Tables

The following tables define the DBCS font types supported in the
AXIS 570/670 (5494 CU Mode):

DBCS FONTS (China)		
FGID	**IBM Font Name**	
50100	SimSun	10 CPI
50101	SimSun	10 CPI
50114	SimSun	10 CPI
50102	SimSun	12 CPI
50115	SimSun	12 CPI
50103	SimSun	13.3 CPI
50116	SimSun	13.3 CPI
50107	SimSun	14.3 CPI
50108	SimSun	14.3 CPI
50119	SimSun	14.3 CPI
50104	SimSun	15 CPI
50105	SimSun	15 CPI
50117	SimSun	15 CPI
50109	SimSun	17.1 CPI
50120	SimSun	17.1 CPI
50106	SimSun	18 CPI
50118	SimSun	18 CPI
50110	SimSun	18.9 CPI
50121	SimSun	18.9 CPI
50111	SimSun	21.5 CPI
50112	SimSun	21.5 CPI
50122	SimSun	21.5 CPI
50113	SimSun	25.7 CPI
50123	SimSun	25.7 CPI

IBM AS/400

IBM Mainframe

DBCS FONTS (Japan)		
FGID	**IBM Font Name**	
50000	MS Mincho	10 CPI
50001	MS Mincho	10 CPI
50014	MS Mincho	10 CPI
50002	MS Mincho	12 CPI
50015	MS Mincho	12 CPI
50003	MS Mincho	13.3 CPI
50016	MS Mincho	13.3 CPI
50007	MS Mincho	14.3 CPI
50008	MS Mincho	14.3 CPI
50019	MS Mincho	14.3 CPI
50004	MS Mincho	15 CPI
50005	MS Mincho	15 CPI
50017	MS Mincho	15 CPI
50009	MS Mincho	17.1 CPI
50020	MS Mincho	17.1 CPI
50006	MS Mincho	18 CPI
50018	MS Mincho	18 CPI
50010	MS Mincho	18.9 CPI
50021	MS Mincho	18.9 CPI
500111	MS Mincho	21.5 CP
50012	MS Mincho	21.5 CPI
50022	MS Mincho	21.5 CPI
50013	MS Mincho	25.7 CPI
50023	MS Mincho	25.7 CPI

DBCS FONTS (Korea KS)		
FGID	**IBM Font Name**	
50030	HanYang	10 CPI
50031	HanYang	10 CPI
50044	HanYang	10 CPI
50032	HanYang	12 CPI
50045	HanYang	12 CPI
50033	HanYang	13.3 CPI
50046	HanYang	13.3 CPI
50037	HanYang	14.3 CPI
50038	HanYang	14.3 CPI
50049	HanYang	14.3 CPI
50034	HanYang	15 CPI
50035	HanYang	15 CPI
50047	HanYang	15 CPI
50039	HanYang	17.1 CPI
50050	HanYang	17.1 CPI
50036	HanYang	18 CPI
50048	HanYang	18 CPI
50040	HanYang	18.9 CPI
50051	HanYang	18.9 CPI
50041	HanYang	21.5 CPI
50042	HanYang	21.5 CPI
50052	HanYang	21.5 CPI
50043	HanYang	25.7 CPI
50053	HanYang	25.7 CPI

DBCS FONTS (Korea KSSM)		
FGID	**IBM Font Name**	
50130	Compst	10 CPI
50131	Compst	10 CPI
50144	Compst	10 CPI
50132	Compst	12 CPI
50145	Compst	12 CPI
50133	Compst	13.3 CPI
50146	Compst	13.3 CPI
50137	Compst	14.3 CPI
50138	Compst	14.3 CPI
50149	Compst	14.3 CPI
50134	Compst	15 CPI
50135	Compst	15 CPI
50147	Compst	15 CPI
50139	Compst	17.1 CPI
50150	Compst	17.1 CPI
50136	Compst	18 CPI
50148	Compst	18 CPI
50140	Compst	18.9 CPI
50151	Compst	18.9 CPI
50141	Compst	21.5 CPI
50142	Compst	21.5 CPI
50152	Compst	21.5 CPI
50143	Compst	25.7 CPI
50153	Compst	25.7 CPI

Appendix I   The Parameter List

This appendix provides an overview of the AXIS 570/670 parameters. Please refer to the AXIS Network Print Server Technical Reference for a complete description of the parameters. The Technical Reference is available on the AXIS Online CD. Alternatively, you can access the Axis WWW Home Page at **http://www.axis.com/**, where you can download the latest technical information.

The *Config* File

The left-hand column shows the parameters and their default values as they appear in the *config* file and the right-hand column shows the name of the parameters as they appear in the internal Web pages.

After you have changed them, most parameters take effect for the next print job. If *Requires Restart* appears in a parameter description, you must restart the AXIS 570/670, before the new setting for that parameter takes effect. Restart is also required when the Ring Speed switch is changed on the AXIS 670 and AXIS 670e.

Please refer to *Section 11 Management & Configuration*, on page 161, for more information about how to change the parameters.

Note: ❏ The password parameters, ROOT_PWD and PROS_PWD only appear when you are logged in to the AXIS 570/670 using *root.* The password parameters will not be printed when you are printing the parameter list using the test button.

```
--- GENERAL MENU
```

NODE_ADDR.	: 00 40 8C 10 00 86	Node Address
ROOT_PWD.	: pass	Root Password
USERS.	:	User and Printer Access List
BASE URL.	: www.axis.com	Base URL
S_ROUTE.	: AUTO (OFF, SINGLE, ALL, AUTO)	Token Ring Source Routing Mode *(AXIS 670 and AXIS 670e only)*
HP_JETADMIN.	: AUTO_SENSE (AUTO_SENSE, YES, NO)	HP JetAdmin Support
DEF_OUT.	: PR1 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, LPT1, COM1, LPT2)	Internal Printout Destination

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

```
--- SNA MENU
```

SNA_ENB.	: YES	SNA Protocol Enabled
DEVICE_EMUL.	: 3174 (3174, 5494)	Control Unit Device Emulation
SNA_FR_TYPE.	: FR_802_2 (FR_AUTO, FR_802_2, FR_DIX)	SNA Ethernet Frame Type *(AXIS 570 and AXIS 570e only)*
NODE_ID.	: E0 7x xx xx	Node Identifier (IDBLK/IDNUM value), where x xx xx are the five last digits of the print server's serial number.
NODE_SAP.	: $4	Node Service Access Point
NWORK_NAME.	: APPN	Node network Name
MODE_NAME.	: QRMTWSC	Node Mode Name *(AXIS 570 and AXIS 670 only)*
LU_NAME.	: A xxx xxx	Node Logical Unit Name, where xxx xxx are the last six digits of the print server's serial number in reverse order.
CP_NAME.	: A xxx xxx	Node Control Point Name, where xxx xxx are the last six digits of the print server's serial number in reverse order. *(AXIS 570 and AXIS 670 only)*
H1_SAP.	: $4	Host Service Access point
H1_ADDR.	: FF FF FF FF FF FF	Host MAC Address
H1_NW_NAME.	: APPN	Host Network Name
H1_MOD_NAME.	: QRMTWSC	Host Mode Name
H1_LU_NAME.	: DEFAULT	Host Logical Unit Name
LU_DS1.	: SCS (SCS, IPDS_3812-2, IPDS_4028, NONE)	Logical Unit 1 Data stream *(AXIS 570e and AXIS 670e only)*
LU_DS2.	: SCS (SCS, IPDS_3812-2, IPDS_4028, NONE)	Logical Unit 2 Data stream *(AXIS 570e and AXIS 670e only)*
LU_DS3.	: SCS (SCS, IPDS_3812-2, IPDS_4028, NONE)	Logical Unit 3 Data stream *(AXIS 570e and AXIS 670e only)*
LU_DS4.	: NONE (SCS, IPDS_3812-2, IPDS_4028, NONE)	Logical Unit 4 Data stream *(AXIS 570e and AXIS 670e only)*
LU_DS5.	: NONE (SCS, IPDS_3812-2, IPDS_4028, NONE)	Logical Unit 5 Data stream *(AXIS 570e and AXIS 670e only)*
LU_DS6.	: NONE (SCS, IPDS_3812-2, IPDS_4028, NONE)	Logical Unit 6 Data stream *(AXIS 570e and AXIS 670e only)*
LU_DS7.	: NONE (SCS, IPDS_3812-2, IPDS_4028, NONE)	Logical Unit 7 Data stream *(AXIS 570e and AXIS 670e only)*
LU_DS8.	: NONE (SCS, IPDS_3812-2, IPDS_4028, NONE)	Logical Unit 8 Data stream *(AXIS 570e and AXIS 670e only)*
AUTO_DIAL.	: NO	Automatic Link Establishment
DIAL_TIME.	: 20	Link Establishment Retry Time
JOB_TIME.	: 10	Job Separation Time-out
IR_TIME.	: 0	Intervention Required Time-out
N_PRT_DEV.	: 3	Maximum Number of 5494 Printer Device Descriptions *(AXIS 570 and AXIS 670 only)*
SNA_HEXDUMP.	: NONE (NONE, PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8)	SNA Hexdump Destination

```
--- TN3270E MENU
```

TN3270E_1.	: OFF, 0 0 0 0, 23, PR1, 4028-2, AXPR1 *(AXIS 570e, AXIS 670e)*	TN3270E Session #1 Setup
	: OFF, 0 0 0 0, 23, PR1, AXPR1 *(AXIS 570, AXIS 670)*	
TN3270E_2.	: OFF, 0 0 0 0, 23, PR1, 4028-2, AXPR2 *(AXIS 570e, AXIS 670e)*	TN3270E Session #2 Setup
	: OFF, 0 0 0 0, 23, PR1, AXPR2 *(AXIS 570, AXIS 670)*	
TN3270E_3.	: OFF, 0 0 0 0, 23, PR1, 4028-2, AXPR3 *(AXIS 570e, AXIS 670e)*	TN3270E Session #3 Setup
	: OFF, 0 0 0 0, 23, PR1, AXPR3 *(AXIS 570, AXIS 670)*	
TN3270E_4.	: OFF, 0 0 0 0, 23, PR1, 4028-2, AXPR4 *(AXIS 570e, AXIS 670e)*	TN3270E Session #4 Setup
	: OFF, 0 0 0 0, 23, PR1, AXPR4 *(AXIS 570, AXIS 670)*	
TN3270E_5.	: OFF, 0 0 0 0, 23, PR1, 4028-2, AXPR5 *(AXIS 570e, AXIS 670e)*	TN3270E Session #5 Setup
	: OFF, 0 0 0 0, 23, PR1, AXPR5 *(AXIS 570, AXIS 670)*	
TN3270E_6.	: OFF, 0 0 0 0, 23, PR1, 4028-2, AXPR6 *(AXIS 570e, AXIS 670e)*	TN3270E Session #6 Setup
	: OFF, 0 0 0 0, 23, PR1, AXPR6 *(AXIS 570, AXIS 670)*	
TN3270E_7.	: OFF, 0 0 0 0, 23, PR1, 4028-2, AXPR7 *(AXIS 570e, AXIS 670e)*	TN3270E Session #7 Setup
	: OFF, 0 0 0 0, 23, PR1, AXPR7 *(AXIS 570, AXIS 670)*	
TN3270E_8.	: OFF, 0 0 0 0, 23, PR1, 4028-2, AXPR8 *(AXIS 570e, AXIS 670e)*	TN3270E Session #8 Setup
	: OFF, 0 0 0 0, 23, PR1, AXPR8 *(AXIS 570, AXIS 670)*	
TN3270E_IR.	: 0	Intervention Required Time-out

```
--- TN5250E MENU
```

TN5250E_1.	: OFF, 0 0 0 0, 23, PR1, AXPR1	TN5250E Session #1 Setup
TN5250E_2.	: OFF, 0 0 0 0, 23, PR1, AXPR2	TN5250E Session #2 Setup
TN5250E_3.	: OFF, 0 0 0 0, 23, PR1, AXPR3	TN5250E Session #3 Setup
TN5250E_4.	: OFF, 0 0 0 0, 23, PR1, AXPR4	TN5250E Session #4 Setup
TN5250E_5.	: OFF, 0 0 0 0, 23, PR1, AXPR5	TN5250E Session #5 Setup
TN5250E_6.	: OFF, 0 0 0 0, 23, PR1, AXPR6	TN5250E Session #6 Setup
TN5250E_7.	: OFF, 0 0 0 0, 23, PR1, AXPR7	TN5250E Session #7 Setup
TN5250E_8.	: OFF, 0 0 0 0, 23, PR1, AXPR8	TN5250E Session #8 Setup

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

TCP_ENB.	: YES	TCP/IP Enabled
INT_ADDR.	: 0 0 0 0	Internet Address
DEF_ROUT.	: 0 0 0 0	Default Router Address
		(0.0.0.0 for no router)
NET_MASK.	: 0 0 0 0	Net Mask
		(e.g. 255.255.255.0 for class C, 0.0.0.0 for auto-sense)
PROS_PWD.	: netprinter	PROS Password
PROS_PRT.	: 35	PROS TCP Port Number
LPD_BANN.	: OFF (OFF, AUTO, LAST)	LPD Banner Page Mode
DHCP_ENB.	: YES	DHCP Enabled
BOOTP_ENB.	: YES	BOOTP Enabled
RARP_ENB.	: YES	RARP Enabled
WINS_ENB.	: YES	WINS Enabled
WINS_ADDR1.	: 0 0 0 0	Primary WINS server Address
WINS_ADDR2.	: 0 0 0 0	Secondary WINS server Address
NBT_SCOPE ID. :		NBT Scope ID
		(Defines the NetBIOS scope to be used with WINS name registration)
RTN_OPT.	: 0	Reverse Telnet Options Enabled
RTN_PR1.	: 5001, IPDS_4028_1 *(AXIS 570e, AXIS 670e)* : 0, ASCII *(AXIS 570, AXIS 670)*	PR1 Reverse Telnet Port Number and data stream
RTN_PR2.	: 5002, IPDS_4028_1 *(AXIS 570e, AXIS 670e)* : 0, ASCII *(AXIS 570, AXIS 670)*	PR2 Reverse Telnet Port Number and data stream
RTN_PR3.	: 5003, IPDS_4028_1 *(AXIS 570e, AXIS 670e)* : 0, ASCII *(AXIS 570, AXIS 670)*	PR3 Reverse Telnet Port Number and data stream
RTN_PR4.	: 5011, SCS	PR4 Reverse Telnet Port Number and data stream
RTN_PR5.	: 5012, SCS	PR5 Reverse Telnet Port Number and data stream
RTN_PR6.	: 5013, SCS	PR6 Reverse Telnet Port Number and data stream
RTN_PR7.	: 0, ASCII	PR7 Reverse Telnet Port Number and data stream
RTN_PR8.	: 0, ASCII	PR8 Reverse Telnet Port Number and data stream

```
---  SNMP MENU
```

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

```
---  NETWARE MENU
```

NETW_ENB.	: YES	NetWare Enabled
PS_NAME.	: AXIS100086	Print Server Name *(100086 are the last six digits of the serial number)*
JOB_CHECK_DELAY.	: 5	Job Check Delay (Print Server queue polling interval)
CONF_CHECK_DELAY.	: 300	Configuration Check Delay (Interval between automatic configuration checks)
FR_802_3.	: YES *(AXIS 570 & AXIS 570e only)*	IEEE 802.3 Frame Type Enabled
FR_ETH_2.	: YES *(AXIS 570 & AXIS 570e only)*	Ethernet II Frame Type Enabled
FR_802_2.	: YES	IEEE 802.2 Frame Type Enabled
FR_SNAP.	: YES	SNAP Frame Type Enabled
NCP_BURST_MODE.	: YES	NCP Burst Mode Enabled *(Requires Restart)*
PSERVER_NDS.	:	PSERVER NDS (File server & Name of print server, including context)
PSERVER_BINDERY1.	:	PSERVER Bindery 1 (Bindery file server name)
PSERVER_BINDERY2.	:	PSERVER Bindery 2 (Bindery file server name)
PSERVER_BINDERY3.	:	PSERVER Bindery 3 (Bindery file server name)
PSERVER_BINDERY4.	:	PSERVER Bindery 4 (Bindery file server name)
PSERVER_BINDERY5.	:	PSERVER Bindery 5 (Bindery file server name)
PSERVER_BINDERY6.	:	PSERVER Bindery 6 (Bindery file server name)
PSERVER_BINDERY7.	:	PSERVER Bindery 7 (Bindery file server name)
PSERVER_BINDERY8.	:	PSERVER Bindery 8 (Bindery file server name)
PSERVER_BINDERY9.	:	PSERVER Bindery 9 (Bindery file server name)
PSERVER_BINDERY10.	:	PSERVER Bindery 10 (Bindery file server name)
PSERVER_BINDERY11.	:	PSERVER Bindery 11 (Bindery file server name)
PSERVER_BINDERY12.	:	PSERVER Bindery 12 (Bindery file server name)
PSERVER_BINDERY13.	:	PSERVER Bindery 13 (Bindery file server name)
PSERVER_BINDERY14.	:	PSERVER Bindery 14 (Bindery file server name)
PSERVER_BINDERY15.	:	PSERVER Bindery 15 (Bindery file server name)
PSERVER_BINDERY16.	:	PSERVER Bindery 16 (Bindery file server name)
NPRINTER1.	:	NPRINTER/RPRINTER 1 (Print Server name and slot number)
NPRINTER2.	:	NPRINTER/RPRINTER 2 (Print Server name and slot number)
NPRINTER3.	:	NPRINTER/RPRINTER 3 (Print Server name and slot number)
NPRINTER4.	:	NPRINTER/RPRINTER 4 (Print Server name and slot number)
NPRINTER5.	:	NPRINTER/RPRINTER 5 (Print Server name and slot number)
NPRINTER6.	:	NPRINTER/RPRINTER 6 (Print Server name and slot number)
NPRINTER7.	:	NPRINTER/RPRINTER 7 (Print Server name and slot number)
NPRINTER8.	:	NPRINTER/RPRINTER 8 (Print Server name and slot number)

IBM AS/400

IBM Mainframe

Windows

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

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

NetWare

OS/2

Macintosh

```
--- APPLETALK MENU (AXIS 570 and AXIS 570e only)
```

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

UNIX

```
---  PRINTER1 MENU
```

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

```
---  PRINTER2 MENU
```

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

```
---   PRINTER3 MENU
```

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

```
---   PRINTER4 MENU
```

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

```
---   PRINTER5 MENU
```

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

```
---   PRINTER6 MENU
```

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

```
---   PRINTER7 MENU
```

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

```
---   PRINTER8 MENU
```

PR8_OUT. : LPT1 (NONE, LPT1, COM1, LPT2)	PR8 Physical Port
PR8_SCND. : PR8 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8, LPT1, COM1, LPT2)	PR8 Secondary Printer
PR8_WAIT. : YES	PR8 Wait on Busy
PR8_IN. : AUTO (AUTO, NONE, COM1)	PR8 Read Back Port *(Read-Back of information)*
PR8_BEF. :	PR8 String Before Print Job
PR8_STR. :	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 Enabled
PR8_SIZE. : A4 (A4, LETTER, LEGAL, EXECUT)	PR8 PostScript Page Size
PR8_ORNT. : PORTR (PORTR, LANDS, R_PORTR, R_LANDS)	PR8 PostScript Page Orientation
PR8_FORM. : 66 0 100 60 30 50	PR8 PostScript Page Format *(MPL, MPP, CPI, LPI, LM, TM)*
PR8_FONT. :	PR8 PostScript Font *(Courier when not specified)*

```
---  OUTPUT MENU
```

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

```
---  IBM IPDS Configuration (AXIS 570e & AXIS 670e only)
```

IPDS_SYSL.   : 37 (37, 256, 259, 260, 273, 274, 275, 277
            278, 280, 281, 282, 284, 285, 286,
            287, 288, 289, 297, 290, 293, 361,
            420, 423, 424, 437, 500, 803, 870,
             871, 880, 892, 893, 1026)
	IPDS System Languages

IPDS_SOJS. :	IPDS Start of Job Sequence
IPDS_EOJS. :	IPDS End of Job Sequence

```
---  IBM IPDS Printer Driver (AXIS 570e & AXIS 670e only)
```

PS_HSF. : 100	Horizontal Scale Factor (%)
PS_VSF. : 100	Vertical Scale Factor (%)
PS_COLSUP. : Disabled	True Color Support
PS_DUPSUP. : Enabled	Duplex Support
PS_LFSM. : Enabled	Load Font Smoothing
PS_ERRH. : Disabled	Post Script Error Handler
PS_OPTDUP. : Disabled	Optimize Duplex
PS_OPTOVL. : Enabled	Optimize Overlay Handling
PS_IPLINK. : Off (Off, Sheet, Bin)	Input Path Linking
PS_VM. : 2000	Virtual Memory (KBytes)
PS_DIB. : Bin1 (Bin1, Bin2)	Default Input Bin
PS_BIN1. : Default, Letter, 0, 0, 0, 0, 0, 0	PostScript Bin 1 Settings (Bin number, paper size, width, length, horizontal scale factor, vertical scale factor, horizontal offset, vertical offset)
PS_BIN2. : Default, Letter, 0, 0, 0, 0, 0, 0	PostScript Bin 2 Settings (Bin number, paper size, width, length, horizontal scale factor, vertical scale factor, horizontal offset, vertical offset)
PS_BIN3. : Default, Letter, 0, 0, 0, 0, 0, 0	PostScript Bin 3 Settings (Bin number, paper size, width, length, horizontal scale factor, vertical scale factor, horizontal offset, vertical offset)
PS_BIN4. : Default, Letter, 0, 0, 0, 0, 0, 0	PostScript Bin 4 Settings (Bin number, paper size, width, length, horizontal scale factor, vertical scale factor, horizontal offset, vertical offset)
PS_BIN5. : Default, Letter, 0, 0, 0, 0, 0, 0	PostScript Bin 5 Settings (Bin number, paper size, width, length, horizontal scale factor, vertical scale factor, horizontal offset, vertical offset)

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

```
---   IBM BASIC CONFIGURATION
```

SYSL.	: 37 (37, 256, 260, 273, 274, 275, 277, 278 280, 281, 282, 284, 285, 286, 287, 288, 289, 290, 293, 297, 340, 361, 500, 833, 836, 871, 892, 893, USER)	System Languages
PREMUL.	: 3816_CX (3287_CX, 3268_CX, 3262_CX, 4214_CX, 4224_CX, 4230_CX, 3812_CX, 3816s_CX, 3816_CX, 5224_TX, 5225_TX, 5256_TX, 4214_TX, 4230_TX, 3812_TX, 3816s_TX, 3816_TX, 5X27_001_TX 5X27_002_KS_TX, 5X27_002_KSSM_TX 5X27_003_TX, 5X27_005_TX)	IBM Printer Emulations

```
---   IBM PAGE FORMAT
```

MPL.	: 66, ENA	Maximum Page Length
MPP.	: 132, ENA	Maximum Print Position
LPI.	: 6 (3, 4, 6, 8)	Lines per Inch
CPI.	: 10 (5, 10, 12, 13.3, 15, 17, 18)	Characters per Inch
DCPI.	: 5.0 (5.0, 6.0, 6.7, 7.5, 9.0)	Double Byte CPI
AUTORI.	: YES	Automatic Orientation
PCORI.	: NO	Landscape PC Orientation
LM.	: 0, 0, 48	Left Margin (Portrait-, Landscape- and COR-Mode)
TM.	: 26, 26, 74	Top Margin (Portrait-, Landscape- and COR-Mode)
LDSF.	: 94, 94, 70	Line Density Scale Factor (Portrait-, Landscape- and COR-Mode)
DEFBIN.	: BIN1 (BIN1, BIN2, BIN3, BIN4, BIN5, BIN6, MANUAL, ENVELOPE, CONTINUOUS)	Default Input Bin
DWSISO.	: NO	Double Width SI/SO
BIN1.	: COR, LETTER, 0, 0	Bin 1 Orientation and Paper Size
BIN2.	: COR, LETTER, 0, 0	Bin 2 Orientation and Paper Size
BIN3.	: COR, LETTER, 0, 0	Bin 3 Orientation and Paper Size
BIN4.	: COR, LETTER, 0, 0	Bin 4 Orientation and Paper Size
BIN5.	: COR, LETTER, 0, 0	Bin 5 Orientation and Paper Size
BIN6.	: COR, LETTER, 0, 0	Bin 6 Orientation and Paper Size
MANUAL.	: COR, LETTER, 0, 0	Manual Feeder Orientation and Paper Size
ENVELOPE.	: COR, LETTER, 0, 0	Envelope Feeder Orientation and Paper Size
CONTINUOUS.	: COR, LETTER, 0, 0	Continuous Orientation and Paper Size
SIMBF.	: YES	Simulate Boldface

```
---   IBM FONTS
```

CPI5.	: 244, 11	5 CPI FGID Definition (Portrait-, Landscape- and COR-mode)
CPI10.	: 11, 204	10 CPI FGID Definition (Portrait-, Landscape- and COR-mode)
CPI12.	: 86, 230	12 CPI FGID Definition (Portrait-, Landscape- and COR-mode)
CPI13.	: 50103, 281	13 CPI FGID Definition (Portrait-, Landscape- and COR-mode)
CPI15.	: 230, 281	15 CPI FGID Definition (Portrait-, Landscape- and COR-mode)
CPI17.	: 252, 281	17 CPI FGID Definition (Portrait-, Landscape- and COR-mode)
CPI18.	: 50106, 281	18 CPI FGID Definition (Portrait-, Landscape- and COR-mode)
DCPI5.	: 50101, 50108	5.0 DCPI FGID Definition (Portrait-, Landscape- and COR-mode)
DCPI6.	: 50102, 50109	6.0 DCPI FGID Definition (Portrait-, Landscape- and COR-mode)
DCPI6.7.	: 50103, 50110	6.7 DCPI FGID Definition (Portrait-, Landscape- and COR-mode)
DCPI7.5.	: 50104, 50111	7.5 DCPI FGID Definition (Portrait-, Landscape- and COR-mode)
DCPI9.	: 50106, 50113	9.0 DCPI FGID Definition (Portrait-, Landscape- and COR-mode)
CPI8COR.	: 86	8 CPI FGID Definition (COR-mode)
CPI20COR.	: 281	20 CPI FGID Definition (COR-mode)
CPI25COR.	: 289	25 CPI FGID Definition (COR-mode)
CPI27COR.	: 290	27 CPI FGID Definition (COR-mode)
PROPOCOR.	: 230	Proportional FGID Definition (COR-mode)
TYPOCOR.	: 230	Typographical FGID Definition (COR-mode)

Note: ❏   The values of the CPIx and DCPIx parameters will be changed when switching to or from DBCS emulation.

```
---   IBM JOB CONTROL
```

SOJS.	: 1B 45 1B 26 6C 30 4C	Start of Job Sequence
EOJS.	: 1B 45	End of Job Sequence
REINIT.	: YES	Re-send Current Settings

```
---   IBM 3270 OPTIONS
```

CASE.	: DUAL (DUAL, MONO)	Case
BASCOL.	: BLACK, ENA	Base Color
XSTRN.	: 0	Extended SCS Transparency
AUTNL.	: 1	Automatic New Line at MPP+1
ADDNL.	: 1	Additional New Line at MPP+1
FFWPB.	: 0	Form Feed within Print Buffer
FFEOPB.	: 1	Form Feed at End of Print Buffer
NULSUP.	: 0	Null Suppression
FFCPOS.	: 0	Form Feed Command position
AFEOPB.	: 0	Auto Func after End of Print Buffer.

```
---   IBM EXTENDED EMULATION
```

XEMUL.	: YES	Extended Emulation Status
WARN.	: NO	Warning Switch
SSUBST.	: YES	Extended Emulation String Substitution
SBTS.	:	Single Byte Transparency Sequence
TLIS.	: 025 03C	Transparency Lead-in Sequence
TTRS.	: 03E 025	Transparency Trailer Sequence
FLIS.	: 025 02F	Function Mode Lead-in Sequence
EECS.	: 025 041 058 049 053	Extended Emulation Mode Control Sequence
COBXEM.	: SETALL (OFF, SETESC, SETALL)	Cobra Extended Emulation Mode
CCLIS.	: 025 050	Cobra Config Lead-in Sequence

```
---   UDS
```

-------	User Defined String Definitions

```
---  BAR    NUMBER    TYPE    WIDTH    HEIGHT    TEXT-MODE
CHECK-MODE
```

--------	Bar Code Definitions

```
---  SSTR
```

--------	Substitution String Definitions

```
---  MSTR
```

--------	Match String Definitions

```
---  IBM PRINTER DRIVER
```

PRDRIVER.	: PCL5 (USER, GENERIC, PCL4, PCL5, IBM_PRO, EPSON_FX, EPSON_LQ)	Printer Driver Selection
BACKSPS.	: 08	Backspace Sequence
CRS.	: 0D	Carriage Return Sequence
LFS.	: 0A	Line Feed Sequence
NLS.	: 0D 0A	New Line Sequence
FFS.	: 0C	Form Feed Sequence
SOS.	:	Shift Out Sequence
SIS.	:	Shift In Sequence
BLKS.	:	Black Color Sequence
GRNS.	:	Green Color Sequence
BLUS.	:	Blue Color Sequence
REDS.	:	Red Color Sequence
MAGS.	:	Magenta Color Sequence
CYNS.	:	Cyan Color Sequence
YELS.	:	Yellow Color Sequence
BIN1S.	: 1B 26 6C 31 48	Bin 1 Select Sequence
BIN2S.	: 1B 26 6C 34 48	Bin 2 Select Sequence
BIN3S.	: 1B 26 6C 35 48	Bin 3 Select Sequence
BIN4S.	: 1B 26 6C 32 30 48	Bin 4 Select Sequence
BIN5S.	: 1B 26 6C 32 31 48	Bin 5 Select Sequence
BIN6S.	: 1B 26 6C 32 32 48	Bin 6 Select Sequence
MANUALS.	: 1B 26 6C 32 48	Manual Bin Select Sequence
ENVELOPES.	: 1B 26 6C 36 48	Envelope bin Select Sequence
CONTINUOUS.	: 1B 26 6C 31 48	Continuous Select Sequence
CSIZS.	:	Custom Size Sequence
LAC.	: HP_PCL (DISABLE, HP_PCL)	LAC Driver
GRD.	: HP_PCL (DISABLE, HP_PCL)	Gridline Driver
JOGS.	: 1B 26 6C 31 54	Jog Sequence
SSUS.	:	Symbol Set User String
SBSET.	: PC850 (PC850, ROMAN8, PC437, ECMA94, USASCII, PC942, PC891, PC903, PC904, USER)	Symbol Set

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

```
--- FONT    FGID   CSSF   SBSET     SPACING PITCH HEIGHT  STYLE    STROKE  TYPEFACE  STRING
-----------------------------------------------------------------------------------------------------------
FONT.   : 3,     98,    DEFAULT, FIXED,   100,  0,     UPRIGHT, MEDIUM, 4102     1B 28 31 4F
FONT.   : 5,     98,    DEFAULT, FIXED,   100,  0,     UPRIGHT, MEDIUM, 4102
FONT.   : 11,    98,    DEFAULT, FIXED,   100,  0,     UPRIGHT, MEDIUM, 4099
FONT.   : 12,    98,    DEFAULT, FIXED,   100,  0,     UPRIGHT, MEDIUM, 4099
FONT.   : 13,    98,    DEFAULT, FIXED,   100,  0,     UPRIGHT, MEDIUM, 4099
FONT.   : 18,    98,    DEFAULT, FIXED,   100,  0,     ITALIC,  MEDIUM, 4099
FONT.   : 19,    98,    DEFAULT, FIXED,   100,  0,     UPRIGHT, MEDIUM, 4200     1B 28 30 4F
FONT.   : 20,    98,    DEFAULT, FIXED,   100,  0,     UPRIGHT, MEDIUM, 4099
FONT.   : 30,    98,    DEFAULT, FIXED,   100,  0,     UPRIGHT, MEDIUM, 4099
FONT.   : 38,    98,    DEFAULT, FIXED,   100,  0,     UPRIGHT, BOLD  , 4102
FONT.   : 39,    98,    DEFAULT, FIXED,   135,  0,     UPRIGHT, BOLD  , 4102
FONT.   : 40,    98,    DEFAULT, FIXED,   135,  0,     UPRIGHT, MEDIUM, 4102
FONT.   : 41,    98,    DEFAULT, FIXED,   100,  0,     UPRIGHT, MEDIUM, 4099
FONT.   : 42,    98,    DEFAULT, FIXED,   100,  0,     UPRIGHT, MEDIUM, 4099
FONT.   : 43,    98,    DEFAULT, FIXED,   100,  0,     ITALIC,  MEDIUM, 4099
FONT.   : 46,    98,    DEFAULT, FIXED,   100,  0,     UPRIGHT, BOLD  , 4099
FONT.   : 60,    98,    DEFAULT, FIXED,   100,  0,     UPRIGHT, BOLD  , 4099
FONT.   : 66,    98,    DEFAULT, FIXED,   150,  0,     UPRIGHT, MEDIUM, 4102
FONT.   : 68,    98,    DEFAULT, FIXED,   150,  0,     ITALIC,  MEDIUM, 4102
FONT.   : 69,    98,    DEFAULT, FIXED,   150,  0,     UPRIGHT, BOLD  , 4102
FONT.   : 70,    98,    DEFAULT, FIXED,   120,  0,     UPRIGHT, MEDIUM, 4099
FONT.   : 71,    98,    DEFAULT, FIXED,   120,  0,     ITALIC,  MEDIUM, 4099
FONT.   : 72,    98,    DEFAULT, FIXED,   120,  0,     UPRIGHT, BOLD  , 4099
FONT.   : 80,    98,    DEFAULT, FIXED,   120,  0,     UPRIGHT, MEDIUM, 4099
FONT.   : 84,    98,    DEFAULT, FIXED,   120,  0,     UPRIGHT, MEDIUM, 4099
FONT.   : 85,    98,    DEFAULT, FIXED,   120,  0,     UPRIGHT, MEDIUM, 4099
FONT.   : 86,    98,    DEFAULT, FIXED,   120,  0,     UPRIGHT, MEDIUM, 4099
FONT.   : 87,    98,    DEFAULT, FIXED,   130,  0,     UPRIGHT, MEDIUM, 4102
FONT.   : 91,    98,    DEFAULT, FIXED,   120,  0,     ITALIC,  MEDIUM, 4099
FONT.   : 108,   98,    DEFAULT, FIXED,   120,  0,     UPRIGHT, BOLD  , 4099
FONT.   : 110,   98,    DEFAULT, FIXED,   130,  0,     UPRIGHT, BOLD  , 4102
FONT.   : 111,   98,    DEFAULT, FIXED,   120,  0,     UPRIGHT, BOLD  , 4099
FONT.   : 112,   98,    DEFAULT, FIXED,   120,  0,     ITALIC,  MEDIUM, 4099
FONT.   : 155,   100,   DEFAULT, PROP,    0,    110,   ITALIC,  BOLD  , 4101
FONT.   : 158,   100,   DEFAULT, PROP,    0,    110,   UPRIGHT, MEDIUM, 4101
FONT.   : 159,   100,   DEFAULT, PROP,    0,    110,   UPRIGHT, BOLD  , 4101
FONT.   : 160,   100,   DEFAULT, PROP,    0,    110,   UPRIGHT, MEDIUM, 4148
FONT.   : 162,   100,   DEFAULT, PROP,    0,    110,   ITALIC,  MEDIUM, 4148
FONT.   : 163,   100,   DEFAULT, PROP,    0,    110,   UPRIGHT, BOLD  , 4148
FONT.   : 173,   100,   DEFAULT, PROP,    0,    110,   UPRIGHT, LIGHT , 4148
FONT.   : 175,   100,   DEFAULT, PROP,    0,    110,   UPRIGHT, MEDIUM, 4101
FONT.   : 204,   98,    DEFAULT, FIXED,   167,  0,     UPRIGHT, MEDIUM, 4102
FONT.   : 221,   98,    DEFAULT, FIXED,   150,  0,     UPRIGHT, MEDIUM, 4099
FONT.   : 223,   98,    DEFAULT, FIXED,   150,  0,     UPRIGHT, MEDIUM, 4099
FONT.   : 225,   98,    DEFAULT, FIXED,   150,  0,     ITALIC,  MEDIUM, 4099
FONT.   : 229,   98,    DEFAULT, FIXED,   150,  0,     UPRIGHT, MEDIUM, 4099
FONT.   : 230,   98,    DEFAULT, FIXED,   180,  0,     UPRIGHT, MEDIUM, 4102
FONT.   : 244,   98,    DEFAULT, FIXED,   100,  0,     UPRIGHT, MEDIUM, 4099
FONT.   : 245,   98,    DEFAULT, FIXED,   100,  0,     ITALIC,  BOLD  , 4099
FONT.   : 252,   98,    DEFAULT, FIXED,   171,  0,     UPRIGHT, MEDIUM, 4099
FONT.   : 253,   98,    DEFAULT, FIXED,   171,  0,     UPRIGHT, BOLD  , 4099
FONT.   : 254,   98,    DEFAULT, FIXED,   220,  0,     UPRIGHT, MEDIUM, 4099
FONT.   : 258,   98,    DEFAULT, FIXED,   180,  0,     ITALIC,  MEDIUM, 4099
FONT.   : 266,   98,    DEFAULT, FIXED,   100,  0,     UPRIGHT, BOLD  , 4099
FONT.   : 281,   98,    DEFAULT, FIXED,   233,  0,     UPRIGHT, MEDIUM, 4102
FONT.   : 289,   98,    DEFAULT, FIXED,   267,  0,     UPRIGHT, MEDIUM, 4102
FONT.   : 290,   98,    DEFAULT, FIXED,   300,  0,     ITALIC,  MEDIUM, 4102
```

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

```
--- FONT   FGID   CSSF   SBSET     SPACING PITCH HEIGHT  STYLE     STROKE   TYPEFACE  STRING
-----------------------------------------------------------------------------------------------------
FONT.   : 751,    100,   DEFAULT, PROP,    0,    80,     UPRIGHT,  MEDIUM,  4101
FONT.   : 1051,   100,   DEFAULT, PROP,    0,    100,    UPRIGHT,  MEDIUM,  4101
FONT.   : 1053,   100,   DEFAULT, PROP,    0,    100,    UPRIGHT,  BOLD,    4101
FONT.   : 1056,   100,   DEFAULT, PROP,    0,    100,    ITALIC,   MEDIUM,  4101
FONT.   : 1351,   100,   DEFAULT, PROP,    0,    120,    UPRIGHT,  MEDIUM,  4101
FONT.   : 1653,   100,   DEFAULT, PROP,    0,    160,    UPRIGHT,  BOLD,    4101
FONT.   : 2103,   100,   DEFAULT, PROP,    0,    240,    UPRIGHT,  BOLD,    4101
FONT.   : 3840,   100,   DEFAULT, PROP,    0,    0,      UPRIGHT,  MEDIUM,  4101
FONT.   : 3841,   100,   DEFAULT, PROP,    0,    0,      UPRIGHT,  BOLD,    4101
FONT.   : 3842,   100,   DEFAULT, PROP,    0,    0,      ITALIC,   MEDIUM,  4101
FONT.   : 3843,   100,   DEFAULT, PROP,    0,    0,      ITALIC,   BOLD,    4101
FONT.   : 3844,   100,   DEFAULT, PROP,    0,    0,      UPRIGHT,  MEDIUM,  4113
FONT.   : 3845,   100,   DEFAULT, PROP,    0,    0,      UPRIGHT,  BOLD,    4113
FONT.   : 3846,   100,   DEFAULT, PROP,    0,    0,      ITALIC,   MEDIUM,  4113
FONT.   : 3847,   100,   DEFAULT, PROP,    0,    0,      ITALIC,   BOLD,    4113
FONT.   : 3848,   100,   DEFAULT, PROP,    0,    0,      ITALIC,   MEDIUM,  4116
FONT.   : 3849,   100,   DEFAULT, PROP,    0,    0,      NONE,     MEDIUM,  4140      1B 28 73 34 53
FONT.   : 3850,   100,   DEFAULT, PROP,    0,    0,      UPRIGHT,  MEDIUM,  4148
FONT.   : 3851,   100,   DEFAULT, PROP,    0,    0,      UPRIGHT,  BOLD,    4148
FONT.   : 3852,   100,   DEFAULT, PROP,    0,    0,      ITALIC,   MEDIUM,  4148
FONT.   : 3853,   100,   DEFAULT, PROP,    0,    0,      ITALIC,   BOLD,    4148
FONT.   : 3854,   100,   DEFAULT, PROP,    0,    0,      NONE,     MEDIUM,  4148      1B 28 73 34 53
FONT.   : 3855,   100,   DEFAULT, PROP,    0,    0,      NONE,     BOLD,    4148      1B 28 73 34 53
FONT.   : 3856,   100,   DEFAULT, PROP,    0,    0,      NONE,     MEDIUM,  4148      1B 28 73 35 53
FONT.   : 3857,   100,   DEFAULT, PROP,    0,    0,      NONE,     BOLD,    4148      1B 28 73 35 53
FONT.   : 3858,   100,   DEFAULT, PROP,    0,    0,      UPRIGHT,  MEDIUM,  4168
FONT.   : 3859,   100,   DEFAULT, PROP,    0,    0,      UPRIGHT,  BOLD,    4168
FONT.   : 3860,   100,   DEFAULT, PROP,    0,    0,      ITALIC,   MEDIUM,  4168
FONT.   : 3861,   100,   DEFAULT, PROP,    0,    0,      UPRIGHT,  MEDIUM,  4197
FONT.   : 3862,   100,   DEFAULT, PROP,    0,    0,      UPRIGHT,  BOLD,    4197
FONT.   : 3863,   100,   DEFAULT, PROP,    0,    0,      ITALIC,   MEDIUM,  4197
FONT.   : 3864,   100,   DEFAULT, PROP,    0,    0,      ITALIC,   BOLD,    4197
FONT.   : 3865,   100,   DEFAULT, PROP,    0,    0,      UPRIGHT,  MEDIUM,  4297
FONT.   : 3866,   100,   DEFAULT, PROP,    0,    0,      UPRIGHT,  NONE,    4362      1B 28 73 31 42
FONT.   : 3867,   100,   DEFAULT, PROP,    0,    0,      UPRIGHT,  NONE,    4362      1B 28 73 34 42
FONT.   : 3868,   100,   DEFAULT, PROP,    0,    0,      UPRIGHT,  MEDIUM,  16602
FONT.   : 3869,   100,   DEFAULT, PROP,    0,    0,      UPRIGHT,  BOLD,    16602
FONT.   : 3870,   100,   DEFAULT, PROP,    0,    0,      ITALIC,   MEDIUM,  16602
FONT.   : 3871,   100,   DEFAULT, PROP,    0,    0,      ITALIC,   BOLD,    16602
FONT.   : 3872,   100,   DEFAULT, PROP,    0,    0,      UPRIGHT,  MEDIUM,  16901
FONT.   : 3873,   100,   DEFAULT, PROP,    0,    0,      UPRIGHT,  MEDIUM,  16901
FONT.   : 3874,   100,   DEFAULT, PROP,    0,    0,      ITALIC,   MEDIUM,  16901
FONT.   : 3875,   100,   DEFAULT, PROP,    0,    0,      ITALIC,   BOLD,    16901
FONT.   : 3876,   100,   DEFAULT, PROP,    0,    0,      UPRIGHT,  MEDIUM,  16686     1B 28 31 39 4D
FONT.   : 3877,   100,   DEFAULT, PROP,    0,    0,      UPRIGHT,  MEDIUM,  31402     1B 28 35 37 39 4C
FONT.   : 5687,   100,   DEFAULT, PROP,    0,    0,      UPRIGHT,  MEDIUM,  16901
FONT.   : 5707,   100,   DEFAULT, PROP,    0,    0,      UPRIGHT,  BOLD,    16901
FONT.   : 5815,   100,   DEFAULT, PROP,    0,    0,      ITALIC,   MEDIUM,  16901
FONT.   : 5835,   100,   DEFAULT, PROP,    0,    0,      ITALIC,   BOLD,    16901
FONT.   : 6199,   100,   DEFAULT, PROP,    0,    0,      UPRIGHT,  MEDIUM,  4197
FONT.   : 6219,   100,   DEFAULT, PROP,    0,    0,      UPRIGHT,  BOLD,    4197
FONT.   : 6327,   100,   DEFAULT, PROP,    0,    0,      ITALIC,   MEDIUM,  4197
FONT.   : 6347,   100,   DEFAULT, PROP,    0,    0,      ITALIC,   BOLD,    4197
FONT.   : 16951,  100,   DEFAULT, PROP,    0,    0,      UPRIGHT,  MEDIUM,  4101
FONT.   : 16971,  100,   DEFAULT, PROP,    0,    0,      UPRIGHT,  BOLD,    4101
FONT.   : 17079,  100,   DEFAULT, PROP,    0,    0,      ITALIC,   MEDIUM,  4101
FONT.   : 17099,  100,   DEFAULT, PROP,    0,    0,      ITALIC,   BOLD,    4101
```

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

```
--- FONT   FGID   CSSF   SBSET    SPACING PITCH HEIGHT  STYLE     STROKE  TYPEFACE  STRING
-----------------------------------------------------------------------------------------------------
FONT.   : 33335, 100,  DEFAULT, PROP,   0,    0,    UPRIGHT, MEDIUM, 4113
FONT.   : 33355, 100,  DEFAULT, PROP,   0,    0,    UPRIGHT, BOLD,   4113
FONT.   : 33463, 100,  DEFAULT, PROP,   0,    0,    ITALIC,  MEDIUM, 4113
FONT.   : 33483, 100,  DEFAULT, PROP,   0,    0,    ITALIC,  BOLD,   4113
FONT.   : 33591, 100,  DEFAULT, PROP,   0,    0,    UPRIGHT, MEDIUM, 16602
FONT.   : 33601, 100,  DEFAULT, PROP,   0,    0,    UPRIGHT, BOLD,   16602
FONT.   : 33719, 100,  DEFAULT, PROP,   0,    0,    ITALIC,  MEDIUM, 16602
FONT.   : 33729, 100,  DEFAULT, PROP,   0,    0,    ITALIC,  BOLD,   16602
FONT.   : 34103, 100,  DEFAULT, PROP,   0,    0,    UPRIGHT, MEDIUM, 4148
FONT.   : 34123, 100,  DEFAULT, PROP,   0,    0,    UPRIGHT, BOLD,   4148
FONT.   : 34231, 100,  DEFAULT, PROP,   0,    0,    ITALIC,  MEDIUM, 4148
FONT.   : 34251, 100,  DEFAULT, PROP,   0,    0,    ITALIC,  BOLD,   4148
FONT.   : 41783, 100,  DEFAULT, PROP,   0,    0,    UPRIGHT, MEDIUM, 4116
FONT.   : 41803, 100,  DEFAULT, PROP,   0,    0,    UPRIGHT, BOLD,   4116
FONT.   : 41911, 100,  DEFAULT, PROP,   0,    0,    ITALIC,  MEDIUM, 4116
FONT.   : 41931, 100,  DEFAULT, PROP,   0,    0,    ITALIC,  BOLD,   4116
FONT.   : 50000, 100,  PC942,   PROP,   0,    144,  UPRIGHT, MEDIUM, 28752     1B 28 31 39 4B 1B 26 74 33 31 50
FONT.   : 50001, 100,  PC942,   PROP,   0,    144,  UPRIGHT, MEDIUM, 28752     1B 28 31 39 4B 1B 26 74 33 31 50
FONT.   : 50002, 100,  PC942,   PROP,   0,    120,  UPRIGHT, MEDIUM, 28752     1B 28 31 39 4B 1B 26 74 33 31 50
FONT.   : 50003, 100,  PC942,   PROP,   0,    108,  UPRIGHT, MEDIUM, 28752     1B 28 31 39 4B 1B 26 74 33 31 50
FONT.   : 50004, 100,  PC942,   PROP,   0,    96,   UPRIGHT, MEDIUM, 28752     1B 28 31 39 4B 1B 26 74 33 31 50
FONT.   : 50005, 100,  PC942,   PROP,   0,    96,   UPRIGHT, MEDIUM, 28752     1B 28 31 39 4B 1B 26 74 33 31 50
FONT.   : 50006, 100,  PC942,   PROP,   0,    80,   UPRIGHT, MEDIUM, 28752     1B 28 31 39 4B 1B 26 74 33 31 50
FONT.   : 50007, 100,  PC942,   PROP,   0,    101,  UPRIGHT, MEDIUM, 28752     1B 28 31 39 4B 1B 26 74 33 31 50
FONT.   : 50008, 100,  PC942,   PROP,   0,    101,  UPRIGHT, MEDIUM, 28752     1B 28 31 39 4B 1B 26 74 33 31 50
FONT.   : 50009, 100,  PC942,   PROP,   0,    84,   UPRIGHT, MEDIUM, 28752     1B 28 31 39 4B 1B 26 74 33 31 50
FONT.   : 50010, 100,  PC942,   PROP,   0,    76,   UPRIGHT, MEDIUM, 28752     1B 28 31 39 4B 1B 26 74 33 31 50
FONT.   : 50011, 100,  PC942,   PROP,   0,    67,   UPRIGHT, MEDIUM, 28752     1B 28 31 39 4B 1B 26 74 33 31 50
FONT.   : 50012, 100,  PC942,   PROP,   0,    67,   UPRIGHT, MEDIUM, 28752     1B 28 31 39 4B 1B 26 74 33 31 50
FONT.   : 50013, 100,  PC942,   PROP,   0,    56,   UPRIGHT, MEDIUM, 28752     1B 28 31 39 4B 1B 26 74 33 31 50
FONT.   : 50014, 100,  PC942,   PROP,   0,    144,  UPRIGHT, MEDIUM, 28752     1B 28 31 39 4B 1B 26 74 33 31 50
FONT.   : 50015, 100,  PC942,   PROP,   0,    120,  UPRIGHT, MEDIUM, 28752     1B 28 31 39 4B 1B 26 74 33 31 50
FONT.   : 50016, 100,  PC942,   PROP,   0,    108,  UPRIGHT, MEDIUM, 28752     1B 28 31 39 4B 1B 26 74 33 31 50
FONT.   : 50017, 100,  PC942,   PROP,   0,    96,   UPRIGHT, MEDIUM, 28752     1B 28 31 39 4B 1B 26 74 33 31 50
FONT.   : 50018, 100,  PC942,   PROP,   0,    80,   UPRIGHT, MEDIUM, 28752     1B 28 31 39 4B 1B 26 74 33 31 50
FONT.   : 50019, 100,  PC942,   PROP,   0,    101,  UPRIGHT, MEDIUM, 28752     1B 28 31 39 4B 1B 26 74 33 31 50
FONT.   : 50020, 100,  PC942,   PROP,   0,    84,   UPRIGHT, MEDIUM, 28752     1B 28 31 39 4B 1B 26 74 33 31 50
FONT.   : 50021, 100,  PC942,   PROP,   0,    76,   UPRIGHT, MEDIUM, 28752     1B 28 31 39 4B 1B 26 74 33 31 50
FONT.   : 50022, 100,  PC942,   PROP,   0,    67,   UPRIGHT, MEDIUM, 28752     1B 28 31 39 4B 1B 26 74 33 31 50
FONT.   : 50023, 100,  PC942,   PROP,   0,    56,   UPRIGHT, MEDIUM, 28752     1B 28 31 39 4B 1B 26 74 33 31 50
FONT.   : 50030, 100,  PC891,   PROP,   0,    144,  UPRIGHT, MEDIUM, 43088     1B 28 31 39 48 1B 26 74 33 38 50
FONT.   : 50031, 100,  PC891,   PROP,   0,    144,  UPRIGHT, MEDIUM, 43088     1B 28 31 39 48 1B 26 74 33 38 50
FONT.   : 50032, 100,  PC891,   PROP,   0,    120,  UPRIGHT, MEDIUM, 43088     1B 28 31 39 48 1B 26 74 33 38 50
FONT.   : 50033, 100,  PC891,   PROP,   0,    108,  UPRIGHT, MEDIUM, 43088     1B 28 31 39 48 1B 26 74 33 38 50
FONT.   : 50034, 100,  PC891,   PROP,   0,    96,   UPRIGHT, MEDIUM, 43088     1B 28 31 39 48 1B 26 74 33 38 50
FONT.   : 50035, 100,  PC891,   PROP,   0,    96,   UPRIGHT, MEDIUM, 43088     1B 28 31 39 48 1B 26 74 33 38 50
FONT.   : 50036, 100,  PC891,   PROP,   0,    80,   UPRIGHT, MEDIUM, 43088     1B 28 31 39 48 1B 26 74 33 38 50
FONT.   : 50037, 100,  PC891,   PROP,   0,    101,  UPRIGHT, MEDIUM, 43088     1B 28 31 39 48 1B 26 74 33 38 50
FONT.   : 50038, 100,  PC891,   PROP,   0,    101,  UPRIGHT, MEDIUM, 43088     1B 28 31 39 48 1B 26 74 33 38 50
FONT.   : 50039, 100,  PC891,   PROP,   0,    84,   UPRIGHT, MEDIUM, 43088     1B 28 31 39 48 1B 26 74 33 38 50
FONT.   : 50040, 100,  PC891,   PROP,   0,    76,   UPRIGHT, MEDIUM, 43088     1B 28 31 39 48 1B 26 74 33 38 50
FONT.   : 50041, 100,  PC891,   PROP,   0,    67,   UPRIGHT, MEDIUM, 43088     1B 28 31 39 48 1B 26 74 33 38 50
FONT.   : 50042, 100,  PC891,   PROP,   0,    67,   UPRIGHT, MEDIUM, 43088     1B 28 31 39 48 1B 26 74 33 38 50
FONT.   : 50043, 100,  PC891,   PROP,   0,    56,   UPRIGHT, MEDIUM, 43088     1B 28 31 39 48 1B 26 74 33 38 50
```

```
--- FONT   FGID   CSSF   SBSET    SPACING PITCH HEIGHT  STYLE    STROKE  TYPEFACE  STRING
-------------------------------------------------------------------------------------------------
FONT.   : 50044, 100,   PC891,   PROP,   0,    144,    UPRIGHT, MEDIUM, 41040   1B 28 31 39 48 1B 26 74 33 38 50
FONT.   : 50045, 100,   PC891,   PROP,   0,    120,    UPRIGHT, MEDIUM, 41040   1B 28 31 39 48 1B 26 74 33 38 50
FONT.   : 50046, 100,   PC891,   PROP,   0,    108,    UPRIGHT, MEDIUM, 41040   1B 28 31 39 48 1B 26 74 33 38 50
FONT.   : 50047, 100,   PC891,   PROP,   0,    96,     UPRIGHT, MEDIUM, 41040   1B 28 31 39 48 1B 26 74 33 38 50
FONT.   : 50048, 100,   PC891,   PROP,   0,    80,     UPRIGHT, MEDIUM, 41040   1B 28 31 39 48 1B 26 74 33 38 50
FONT.   : 50049, 100,   PC891,   PROP,   0,    101,    UPRIGHT, MEDIUM, 41040   1B 28 31 39 48 1B 26 74 33 38 50
FONT.   : 50050, 100,   PC891,   PROP,   0,    84,     UPRIGHT, MEDIUM, 41040   1B 28 31 39 48 1B 26 74 33 38 50
FONT.   : 50051, 100,   PC891,   PROP,   0,    76,     UPRIGHT, MEDIUM, 41040   1B 28 31 39 48 1B 26 74 33 38 50
FONT.   : 50052, 100,   PC891,   PROP,   0,    67,     UPRIGHT, MEDIUM, 41040   1B 28 31 39 48 1B 26 74 33 38 50
FONT.   : 50053, 100,   PC891,   PROP,   0,    56,     UPRIGHT, MEDIUM, 41040   1B 28 31 39 48 1B 26 74 33 38 50
FONT.   : 50060, 100,   PC904,   PROP,   0,    144,    UPRIGHT, MEDIUM, 0
FONT.   : 50061, 100,   PC904,   PROP,   0,    144,    UPRIGHT, MEDIUM, 0
FONT.   : 50062, 100,   PC904,   PROP,   0,    120,    UPRIGHT, MEDIUM, 0
FONT.   : 50063, 100,   PC904,   PROP,   0,    108,    UPRIGHT, MEDIUM, 0
FONT.   : 50064, 100,   PC904,   PROP,   0,    96,     UPRIGHT, MEDIUM, 0
FONT.   : 50065, 100,   PC904,   PROP,   0,    96,     UPRIGHT, MEDIUM, 0
FONT.   : 50066, 100,   PC904,   PROP,   0,    80,     UPRIGHT, MEDIUM, 0
FONT.   : 50067, 100,   PC904,   PROP,   0,    101,    UPRIGHT, MEDIUM, 0
FONT.   : 50068, 100,   PC904,   PROP,   0,    101,    UPRIGHT, MEDIUM, 0
FONT.   : 50069, 100,   PC904,   PROP,   0,    84,     UPRIGHT, MEDIUM, 0
FONT.   : 50070, 100,   PC904,   PROP,   0,    76,     UPRIGHT, MEDIUM, 0
FONT.   : 50071, 100,   PC904,   PROP,   0,    67,     UPRIGHT, MEDIUM, 0
FONT.   : 50072, 100,   PC904,   PROP,   0,    67,     UPRIGHT, MEDIUM, 0
FONT.   : 50073, 100,   PC904,   PROP,   0,    56,     UPRIGHT, MEDIUM, 0
FONT.   : 50074, 100,   PC904,   PROP,   0,    144,    UPRIGHT, MEDIUM, 0
FONT.   : 50075, 100,   PC904,   PROP,   0,    120,    UPRIGHT, MEDIUM, 0
FONT.   : 50076, 100,   PC904,   PROP,   0,    108,    UPRIGHT, MEDIUM, 0
FONT.   : 50077, 100,   PC904,   PROP,   0,    96,     UPRIGHT, MEDIUM, 0
FONT.   : 50078, 100,   PC904,   PROP,   0,    80,     UPRIGHT, MEDIUM, 0
FONT.   : 50079, 100,   PC904,   PROP,   0,    101,    UPRIGHT, MEDIUM, 0
FONT.   : 50080, 100,   PC904,   PROP,   0,    84,     UPRIGHT, MEDIUM, 0
FONT.   : 50081, 100,   PC904,   PROP,   0,    76,     UPRIGHT, MEDIUM, 0
FONT.   : 50082, 100,   PC904,   PROP,   0,    67,     UPRIGHT, MEDIUM, 0
FONT.   : 50083, 100,   PC904,   PROP,   0,    56,     UPRIGHT, MEDIUM, 0
FONT.   : 50100, 100,   PC903,   PROP,   0,    144,    UPRIGHT, MEDIUM, 37058   1B 28 31 38 43 1B 26 74 33 38 50
FONT.   : 50101, 100,   PC903,   PROP,   0,    144,    UPRIGHT, MEDIUM, 37058   1B 28 31 38 43 1B 26 74 33 38 50
FONT.   : 50102, 100,   PC903,   PROP,   0,    120,    UPRIGHT, MEDIUM, 37058   1B 28 31 38 43 1B 26 74 33 38 50
FONT.   : 50103, 100,   PC903,   PROP,   0,    108,    UPRIGHT, MEDIUM, 37058   1B 28 31 38 43 1B 26 74 33 38 50
FONT.   : 50104, 100,   PC903,   PROP,   0,    96,     UPRIGHT, MEDIUM, 37058   1B 28 31 38 43 1B 26 74 33 38 50
FONT.   : 50105, 100,   PC903,   PROP,   0,    96,     UPRIGHT, MEDIUM, 37058   1B 28 31 38 43 1B 26 74 33 38 50
FONT.   : 50106, 100,   PC903,   PROP,   0,    80,     UPRIGHT, MEDIUM, 37058   1B 28 31 38 43 1B 26 74 33 38 50
FONT.   : 50107, 100,   PC903,   PROP,   0,    101,    UPRIGHT, MEDIUM, 37058   1B 28 31 38 43 1B 26 74 33 38 50
FONT.   : 50108, 100,   PC903,   PROP,   0,    101,    UPRIGHT, MEDIUM, 37058   1B 28 31 38 43 1B 26 74 33 38 50
FONT.   : 50109, 100,   PC903,   PROP,   0,    84,     UPRIGHT, MEDIUM, 37058   1B 28 31 38 43 1B 26 74 33 38 50
FONT.   : 50110, 100,   PC903,   PROP,   0,    76,     UPRIGHT, MEDIUM, 37058   1B 28 31 38 43 1B 26 74 33 38 50
FONT.   : 50111, 100,   PC903,   PROP,   0,    67,     UPRIGHT, MEDIUM, 37058   1B 28 31 38 43 1B 26 74 33 38 50
FONT.   : 50112, 100,   PC903,   PROP,   0,    67,     UPRIGHT, MEDIUM, 37058   1B 28 31 38 43 1B 26 74 33 38 50
FONT.   : 50113, 100,   PC903,   PROP,   0,    56,     UPRIGHT, MEDIUM, 37058   1B 28 31 38 43 1B 26 74 33 38 50
FONT.   : 50114, 100,   PC903,   PROP,   0,    144,    UPRIGHT, MEDIUM, 37058   1B 28 31 38 43 1B 26 74 33 38 50
FONT.   : 50115, 100,   PC903,   PROP,   0,    120,    UPRIGHT, MEDIUM, 37058   1B 28 31 38 43 1B 26 74 33 38 50
FONT.   : 50116, 100,   PC903,   PROP,   0,    108,    UPRIGHT, MEDIUM, 37058   1B 28 31 38 43 1B 26 74 33 38 50
FONT.   : 50117, 100,   PC903,   PROP,   0,    96,     UPRIGHT, MEDIUM, 37058   1B 28 31 38 43 1B 26 74 33 38 50
FONT.   : 50118, 100,   PC903,   PROP,   0,    80,     UPRIGHT, MEDIUM, 37058   1B 28 31 38 43 1B 26 74 33 38 50
FONT.   : 50119, 100,   PC903,   PROP,   0,    101,    UPRIGHT, MEDIUM, 37058   1B 28 31 38 43 1B 26 74 33 38 50
FONT.   : 50120, 100,   PC903,   PROP,   0,    84,     UPRIGHT, MEDIUM, 37058   1B 28 31 38 43 1B 26 74 33 38 50
FONT.   : 50121, 100,   PC903,   PROP,   0,    76,     UPRIGHT, MEDIUM, 37058   1B 28 31 38 43 1B 26 74 33 38 50
FONT.   : 50122, 100,   PC903,   PROP,   0,    67,     UPRIGHT, MEDIUM, 37058   1B 28 31 38 43 1B 26 74 33 38 50
FONT.   : 50123, 100,   PC903,   PROP,   0,    56,     UPRIGHT, MEDIUM, 37058   1B 28 31 38 43 1B 26 74 33 38 50
```

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

```
--- FONT    FGID   CSSF   SBSET     SPACING PITCH HEIGHT  STYLE     STROKE  TYPEFACE  STRING
-----------------------------------------------------------------------------------------------------------------
FONT.     : 50130, 100,   PC891,    PROP,   0,    144,    UPRIGHT, MEDIUM, 43088     1B 28 31 38 48 1B 26 74 33 38 50
FONT.     : 50131, 100,   PC891,    PROP,   0,    144,    UPRIGHT, MEDIUM, 43088     1B 28 31 38 48 1B 26 74 33 38 50
FONT.     : 50132, 100,   PC891,    PROP,   0,    120,    UPRIGHT, MEDIUM, 43088     1B 28 31 38 48 1B 26 74 33 38 50
FONT.     : 50133, 100,   PC891,    PROP,   0,    108,    UPRIGHT, MEDIUM, 43088     1B 28 31 38 48 1B 26 74 33 38 50
FONT.     : 50134, 100,   PC891,    PROP,   0,    96,     UPRIGHT, MEDIUM, 43088     1B 28 31 38 48 1B 26 74 33 38 50
FONT.     : 50135, 100,   PC891,    PROP,   0,    96,     UPRIGHT, MEDIUM, 43088     1B 28 31 38 48 1B 26 74 33 38 50
FONT.     : 50136, 100,   PC891,    PROP,   0,    80,     UPRIGHT, MEDIUM, 43088     1B 28 31 38 48 1B 26 74 33 38 50
FONT.     : 50137, 100,   PC891,    PROP,   0,    101,    UPRIGHT, MEDIUM, 43088     1B 28 31 38 48 1B 26 74 33 38 50
FONT.     : 50138, 100,   PC891,    PROP,   0,    101,    UPRIGHT, MEDIUM, 43088     1B 28 31 38 48 1B 26 74 33 38 50
FONT.     : 50139, 100,   PC891,    PROP,   0,    84,     UPRIGHT, MEDIUM, 43088     1B 28 31 38 48 1B 26 74 33 38 50
FONT.     : 50140, 100,   PC891,    PROP,   0,    76,     UPRIGHT, MEDIUM, 43088     1B 28 31 38 48 1B 26 74 33 38 50
FONT.     : 50141, 100,   PC891,    PROP,   0,    67,     UPRIGHT, MEDIUM, 43088     1B 28 31 38 48 1B 26 74 33 38 50
FONT.     : 50142, 100,   PC891,    PROP,   0,    67,     UPRIGHT, MEDIUM, 43088     1B 28 31 38 48 1B 26 74 33 38 50
FONT.     : 50143, 100,   PC891,    PROP,   0,    56,     UPRIGHT, MEDIUM, 43088     1B 28 31 38 48 1B 26 74 33 38 50
FONT.     : 50144, 100,   PC891,    PROP,   0,    144,    UPRIGHT, MEDIUM, 41040     1B 28 31 38 48 1B 26 74 33 38 50
FONT.     : 50145, 100,   PC891,    PROP,   0,    120,    UPRIGHT, MEDIUM, 41040     1B 28 31 38 48 1B 26 74 33 38 50
FONT.     : 50146, 100,   PC891,    PROP,   0,    108,    UPRIGHT, MEDIUM, 41040     1B 28 31 38 48 1B 26 74 33 38 50
FONT.     : 50147, 100,   PC891,    PROP,   0,    96,     UPRIGHT, MEDIUM, 41040     1B 28 31 38 48 1B 26 74 33 38 50
FONT.     : 50148, 100,   PC891,    PROP,   0,    80,     UPRIGHT, MEDIUM, 41040     1B 28 31 38 48 1B 26 74 33 38 50
FONT.     : 50149, 100,   PC891,    PROP,   0,    101,    UPRIGHT, MEDIUM, 41040     1B 28 31 38 48 1B 26 74 33 38 50
FONT.     : 50150, 100,   PC891,    PROP,   0,    84,     UPRIGHT, MEDIUM, 41040     1B 28 31 38 48 1B 26 74 33 38 50
FONT.     : 50151, 100,   PC891,    PROP,   0,    76,     UPRIGHT, MEDIUM, 41040     1B 28 31 38 48 1B 26 74 33 38 50
FONT.     : 50152, 100,   PC891,    PROP,   0,    67,     UPRIGHT, MEDIUM, 41040     1B 28 31 38 48 1B 26 74 33 38 50
FONT.     : 50153, 100,   PC891,    PROP,   0,    56,     UPRIGHT, MEDIUM, 41040     1B 28 31 38 48 1B 26 74 33 38 50
```

Appendix J   Test Button

The test button is located on the front right hand side of the AXIS 570/670 and is used for:

- Printing a test page, checking the connection to the printer.

- Printing a parameter list, showing the AXIS 570/670 current settings.

- Resetting the AXIS 570/670 parameters to the factory default settings.

The Test Page   Press the test button once to print a test page. If the test page prints, the parallel interface is functioning correctly. The printed Test Page contains basic information about the AXIS 570/670. It is recommended that you print a test page every time you have connected the AXIS 570/670 to a printer.

Note: ❏ The test page is printed on LPT1 by default. If you want to print the test page on LPT2 instead, you should set the **Internal Printout Destination** parameter to **LPT2**.

The Parameter List   Press the test button twice to print a parameter list showing the current AXIS 570/670 settings. This list provides comprehensive details of all the parameters and their current status. Refer to *Appendix B - The Parameter List*, on page 131.

If you want to change any of the parameters, use one of the methods that are described in
Section 11 Management & Configuration, on page 161.

Note: ❏ The parameter list is printed on LPT1 by default. If you want to print the parameter list on LPT2 instead, you should set the **Internal Printout Destination** parameter to **LPT2**.

Factory Default
Settings

Follow the instructions below to reset the AXIS 570/670 to the factory default settings:

1. Remove the external power supply to switch off the AXIS 570/670.

2. Press and hold down the test button, while you plug the external power supply back in. Continue to hold down the test button, until the network indicator begins to flash at one second intervals. This should take at least 5 seconds.

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

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

5. Restart the AXIS 570/670 by switching it off and on.

The AXIS 570/670 is now reset to factory default settings.

Note: ❑ All parameter except Node Address (NODE_ADDR) and Internet Address (IP_ADDR) are reset. If you want to change these parameters, use either AXIS NetPilot or any standard Web browser. Please refer to *Section 11 Management & Configuration*, on page 161.

Appendix K Technical Specifications

Supported Systems

IBM Mainframe and AS/400:	IBM S/370, S/390, IBM 30xx, 43xx, 47xx, 937x, IBM 81xx and AS/400.

Novell NetWare: Versions 3.11, 3.12, 4.10 and above, supporting both NDS and Bindery Emulation. A maximum of 16 bindery file servers and 96 print queues can be served. NDPS supported by versions 4.11 and above.
User messages are also supported.
Print Methods: RPRINTER/NPRINTER, PSERVER

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

IBM LAN Server: LAN Server 1.3 and above, running under OS/2 ver 1.3 and above including OS/2 Warp, OS/2 Warp Connect.

Microsoft Windows: Windows NT ver. 3.5 and above, Windows for Workgroups, Windows 95, Windows 98.

LANtastic: LANtastic 7.0, from any of the supported Windows clients, defined above.

All Operating Systems supporting the TCP/IP suite of protocols, including:

BSD Systems: BSD 4.2, 4.3, 4.4, SunOS4 (Solaris 1.x), DEC Ultrix etc.

System V Systems: R3, R4, AT&T, Inter-active, SCO, SunOS5 (Solaris 2.x), HP-UX, IBM AIX, Silicon Graphics IRIX, DEC Alpha OSF/1, BULL (BOS, AIX).

Other Systems: IBM (MVS, VM, VSE, OS/400), DEC VMS, guidelines for other systems.

Print Methods: SNA, TN3270E, TN5250E, PPR/PPD, LPR/LPD, FTP, PROS (named pipe & filtered, Reverse Telnet.

Apple EtherTalk: *(AXIS 570 and 570e only)* Print Method: AppleTalk Phase 2

WWW: Netscape Navigator 3.0 and MS Internet Explorer 3.0 or compatible browsers.

Supported Protocols

IBM: SNA PU type 2.0 (3174 establishment controller SNA), LU type 1 (SCS/IPDS), LU type 3 (3270DS/IPDS), SNA PU type 2.1 (5494 remote control unit SNA), LU type 6.2, LU type 4 (SCS, IPDS), TCP/IP TN3270E transport of SCS, 3270DS and IPDS, TCP/IP TN5250E transport of SCS, TCP/IP PPR/PPD transport of IPDS, Raw TCP/IP transport of SCS, TCP/IP LPR/LPD transport of SCS.

(IPDS only supported by AXIS 570e and AXIS 670e)

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

NetWare:	IPX, SAP, RIP, SPX, SNMP and NCP (extended with NDS), NLSP, DIAG.
Windows and OS/2:	NetBIOS/NetBEUI and TCP/IP, WINS.
LANtastic	NetBIOS/NetBEUI
TCP/IP:	LPD, FTP, Telnet, Reverse Telnet, PROS, BOOTP, ARP, RARP, DHCP, ICMP, IP, TCP, UDP, HTTP, SNMP, TFTP, SLP.
Apple EtherTalk:	*(AXIS 570 and 570e only)* AARP, ATP, DDP, NBP, PAP, RTMP, ZIP.

Network Management   SNMP-MIB II compliant (over UDP/IP and IPX), private enterprise MIB included. LAN Network Manager for OS/2, Print server status in NWAdmin/PCONSOLE.

Hardware

AXIS 570/670	32 bit RISC Controller, 2 Mbyte Flash memory. 0.5 MB RAM memory
AXIS 570e/670e	32 bit RISC Controller, 2 Mbyte Flash memory. 2 MB RAM memory

Front Panel   2 LED indicators: Power and Network.
Test button for information printouts.
Slide switch for TokenRing speed *(AXIS 670 and AXIS 670e only)*

Logical Connection

AXIS 570/570e:	Running simultaneously any combination of the supported protocols. Use of IEEE802.2, IEEE802.3, SNAP and Ethernet II frame types simultaneously.
AXIS 670/670e:	Running simultaneously any combination of the supported protocols. Use of IEEE802.2 and IEEE802.5 (with Early Token release support for 16 Mbps) frame types simultaneously.

Attachments

AXIS 570:	10base2 (Thin) and 10baseT (Twisted Pair) Ethernet.
AXIS 570e	10baseT (Twisted Pair) Ethernet or 100baseTX (Twisted Pair category 5) Fast Ethernet.
AXIS 670/670e:	Media type 1/DB9/STP and type 3/RJ45/UTP. Support for 4 and 16 Mbps networks.

Security

UNIX:	Root password, User access list and printer access.
NetWare:	Encrypted passwords.

Logical Printers   Eight virtual printers can be programmed to perform auto ASCII to PostScript conversion, string before and after job, string substitution, alternative output and character set conversion.

Parallel Printers	Two IEEE 1284 compliant, high-speed parallel ports with 25 pin DSUB connectors. Bi-directional support for Apple, Reverse Telnet and PROS. Sustained throughput up to 400 kbytes/s using NetWare or LAN Server/LAN Manager.
IBM Printer Emulation	IPDS printers: 3812 models 2, 3816, 4028 models 1 & 2
	IBM 3270 non-IPDS printers: 3262 models 3 & 13, 3268 model 2C, 3287 model 2C, 3812 model 2, 3816 models 01A and 01D, 4214 model 1, 4224 model 2 and 4230 model 201.
	AS/400 non-IPDS printers: 3812 models 1 & 2, 3816 models 01S & 01D with 5219 diskette, 4214 model 2, 4230 model 101, 5224 models 1 & 2, 5225 models 1 - 4 and 5256 models 1 - 3, 5227-00x and 5327-00x models.
	ASCII printer languages: PostScript level 2, PCL 4/5, IBM Proprinter, Epson (FX, LQ) and Generic printer.
	(IPDS only supported by AXIS 570e and AXIS 670e).
Serial Printer	1 serial port, RS 232, 9 pin DSUB. XON/XOFF or RTS/CTS. Data rates up to 115,200 baud.

Power Consumption

AXIS 570e	Maximum 5.1W. Power provided by external supply (Type PS-D, 12v 800 mA).
AXIS 570:	Maximum 3.5W. Power provided by external supply (Type PS-B, 12v 500 mA).
AXIS 670/670e:	Maximum 4.0W. Power provided by external supply (Type PS-B, 12v 500 mA)

Dimensions	Height x Width x Depth
AXIS 570/570e:	1.0 x 7.0 x 4.7 inches (2.5 x 17.5 x 12.0 cm)
AXIS 670/670e:	1.0 x 6.5 x 4.7 inches (2.5 x 16.2 x 12.0 cm)
Weight	0.86 lb. (0.39 kg)
Environmental	Temperature: 40° - 105° F (5° - 40° C). Humidity: 10 - 95% non-condensing.

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

Approvals

EMC: EN 55022/1994, EN50082-1/1992. FCC Class A. $C \epsilon$

Safety: EN 60950. Approved power supplies for all countries

All specifications are subject to change without prior notice

Appendix L   Glossary

3270DS   3270 Data Stream is a control language used for the 3270 family of terminals and controllers. Also used for printing.

AIX   Advanced Interactive eXecutive. A version of the UNIX operating system from IBM that runs on various IBM computers including Mainframe systems.

APPC   Advanced Program-to-Program Communication. SNA facility (based on LU6.2 and PU2.1) for general purpose inter-program communications. Often used synonymously with LU6.2 but LU6.2 is the architecture and APPC is the programming interface.

ARP   Address Resolution Protocol. A protocol within TCP/IP networks that allows a host to find the physical address of a node on the same network. It is available in UNIX, Windows 95, Windows 98 and Windows NT. ARP cannot be used across routers.

ASCII   American Standard Code for Information Interchange, a plain text format used by computers.

BOOTP   BOOT Protocol. A TCP/IP protocol, used for downloading start-up information such as the IP address to hosts on the network. It is only available in UNIX. BOOTP requires a BOOTP daemon on your system. A request made to an active BOOTP daemon initiates a search of the Boot Table for an entry matching the print server's Ethernet address. If a matching entry is found, the daemon downloads the IP address to the print server.

BSD   Berkeley Software Distribution. The University of California, Berkeley additions to the UNIX operating system.

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

config **file** This is a file that resides in the print server's memory and contains all the parameters that determine the AXIS 570/670 functionality. By editing the *config* file (changing the parameter settings), you can configure the AXIS 570/670 to meet the printing needs of your network.

DHCP Dynamic Host Configuration Protocol. DHCP is available in Windows NT and UNIX systems, and allows for the automatic but temporary assignment of IP addresses from a central pool. DHCP causes the selected host to automatically allocate and download an unused IP address to the requesting print server. It also provides validation data that defines how long the IP addresses will remain valid.

To fully benefit from this method, the AXIS 570/670 also supports the WINS host name resolution protocol, which is available in Windows NT networks.

DNS Domain Name Service. Reflects the server names and addresses within a network.

EBCDIC Extended Binary Coded Decimal Interchange Code. Coded 8-bit character set used by SNA and native IBM data streams.

FEP Front End Processor. Generic term for a specialized computer linked to a host machine to support a specialized function (e.g. communications). IBM 3705, 3720, 3725, and 3745 are communications FEPs.

Flash Memory The print server software is stored in Flash Memory. This memory is provided by a silicon chip that like any other ROM device, retains data content even after power is removed. However, Flash Memory is unique because it allows its data to be erased and re-written. This means that you can install software updates for your server as soon as they become available, without having to replace any parts. The new software is simply loaded into the server over the network.

FTP File Transfer Protocol. A TCP/IP protocol used for logging into a network and transferring files.

HPR   High Performance Routing. IBM implementation of APPN (Advanced Peer-to-Peer Networking). Includes pro-active congestion control and non-disruptive re-routing

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

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

IBM   International Business Machines Corp.

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

IPDS   Intelligent Printer Data Stream. An IBM protocol for data sent to page printers. It's a page description language analogous to PostScript.

LED   Light Emitting Diode.

Logical Printer   A logical printer acts as a filter between the network and the physical printer. It appears to the user as a normal printer with additional characteristics. For example a UNIX workstation may only send a line feed (LF) to a shared printer that needs carriage return (CR) and LF. The logical printer can solve this problem by adding a CR.

LPD   Line Printer Daemon protocol. A print server protocol widely used on the Internet.

LPR   Line PRinter. The Unix print command. This does not actually print files but rather copies or links them to a spool area from where a daemon copies them to the printer.

LU   Logical Unit. The user's 'port' into an SNA network. LU1 is a high performance print stream. LU2 is a 3270 terminal data stream. LU3 is a 3270 print data stream. LU6 is a host-to-host data exchange stream. LU7 is the 5250 data stream.

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

LU6.2 IBM Peer-to-peer data stream for NOS functions. Supports asynchronous (store-and-forward) networking.

MIB Management Information Base. A database of network configuration information used by SNMP and CMIP to monitor or change network settings.

NAU Network Adressable Unit. Entities within an SNA network (SSCP, PU, LU) that can send or receive requests and responses. An SNA network is made up of NAUs and the underlying path control network.

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

NCP(2) Network Control Program. SNA program resident in the FEP. NCP off-loads certain line protocol and routing functions from the host CPU.

NDS NetWare Directory Services. Manages network resources such as NetWare servers and volumes.

PPR/PPD Page Printer Requester/Page Printer Daemon. Bidirectional IBM proprietary TCP/IP application protocol. Supported on AS/400s and Mainframes for transporting IPDS printer data over TCP/IP. This is not an open standard.

PU Physical Unit type within SNA. The software in an SNA node controlling the node's communications hardware.

PU2.1 SNA PU type 2.1 allows local user ports to communicate without going thorough a host node's SSCP services. Printer Requester/Page Printer Daemon. Bidirectional IBM proprietary TCP/IP application protocol. Supported on AS/400s and Mainframes for transporting IPDS printer data over TCP/IP. This is not an open standard.

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

RISC   Reduced Instruction Set Computing. A processor that recognizes only a limited number of assembly-language instructions.

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

SAP(2)   Service Access Point. Field defined by the IEEE 802.2 specification that is part of an address specification. Thus, the destination plus the DSAP define the recipient of a packet. The same applies to the SSAP

SCS   SNA Character String. A sequence of control commands that allows sophisticated control of printers and other devices.

SNA   Systems Network Architecture. IBM's data communications architecture defining levels of protocols for communications between terminals and applications as well as between programs. Originally SNA was strictly host-based with VTAM controlling the network except for path control which was provided by NCP in the FEP. Recently, with the APPN/APPC and HPR additions SNA has become more distributed.

SNMP   Simple Network Management Protocol. A TCP/IP protocol for managing and monitoring nodes on a network.

SSCP   System Services Control Point. SNA software within VTAM which handles network name/address conversion, device configuration, network diagnostics and recovery. The SSCP is a NAU located on a host node in the network.

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

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

TFTP   Trivial File Transport Protocol. A simpler version of the FTP protocol.

TN3270E   Extension to the Telnet protocol for transporting 3270 terminal and print data over TCP/IP.

TN5250E   Extension to the Telnet protocol for transporting 5250 terminal and print data over TCP/IP.

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

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

VTAM   Virtual Telecommunications Access Method. Mainframe software that performs network control and management. VTAM's most important objective is to provide the SSCP services.

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

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

Index

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX

IBM AS/400

IBM Mainframe

Windows

NetWare

OS/2

Macintosh

UNIX