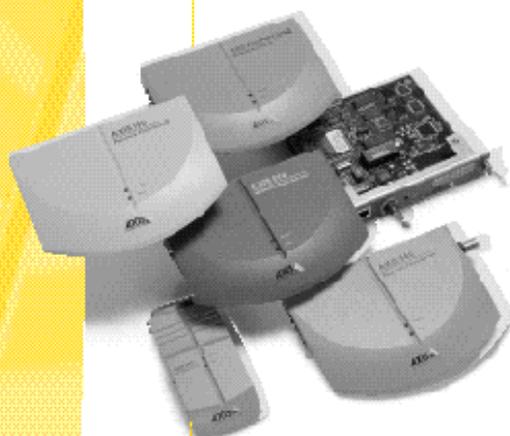


Axis Print Servers

**High Performance Multiprotocol
Print Servers for Virtually All Networks**



U s e r ' s M a n u a l



Preface

Thank you for purchasing the AXIS 570/670 MIO Network Print Server. Our goal in developing this product is to enable you to connect your printers anywhere in your network, allowing all network users access to shared printer resources.

About Axis

Axis Communications, founded in 1984, is one of the world's fastest growing companies in the CD-ROM server, network print server, network camera, network scan servers and IBM printer interface market. The head quarters are located in Lund, Sweden, with subsidiaries in Beijing, Boston, Paris, Shanghai, Singapore, Tokyo, and Hong Kong. Please refer to *Appendix F - How To Contact Axis*, on page 167. Axis Communications has a distributor network operating in more than 60 countries world-wide, marketing five product lines:

Network Print Servers. These intelligent Ethernet and Token Ring print servers support a wide range of LAN protocols. The Axis NPS 530, 550, and AXIS 150, 540, 560, 560/100, 570 are Ethernet print servers, while the Axis NPS 630, 650, and AXIS 640, 660, 670 are Token Ring print servers.

IBM Mainframe and S/3x – AS/400 Printer Interfaces. These products include a wide range of plug-in interfaces and stand-alone products such as the AXIS Cobra+, AXIS 330/370 Cobra, AXIS HP MIO, the AXIS AFP IPDS-to-PostScript converter, and the AXIS AFP MIO/IOP IPDS-to-PCL converters.

Network CD-ROM Servers. AXIS StorPoint CD multiprotocol CD-ROM servers provide a flexible and cost-efficient solution for sharing CD-ROMs across the network. They are available in Ethernet and Token Ring versions.

Network Camera Server. The AXIS NetEye 200 Network Camera attaches directly to an Ethernet network. It supports TCP/IP and Internet-related protocols. This product replaces closed circuit video or PC with framegrabber, at a lower cost.



About this manual

This manual will guide you through simple step-by-step installation and set up procedures.

Introduction. Describes the main features of the AXIS 570/670 MIO Print Server - how it works and where to use it.

Basic Installation. Contains complete instructions on how to connect your AXIS 570/670 MIO to your printer and the network.

Setting Up... Contains six sections, one for each of the network environments supported by your AXIS 570/670 MIO.

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

Emission notices

USA

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

Europe

This digital equipment fulfils the requirements for radiated emission according to limit B of EN55022/1994, 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.)



Trademark acknowledgments

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

AXIS 570/670 MIO User's Manual

Revision 2.1

Part No: 14819

Dated: April 1997

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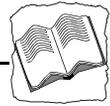


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Section 1 Introduction

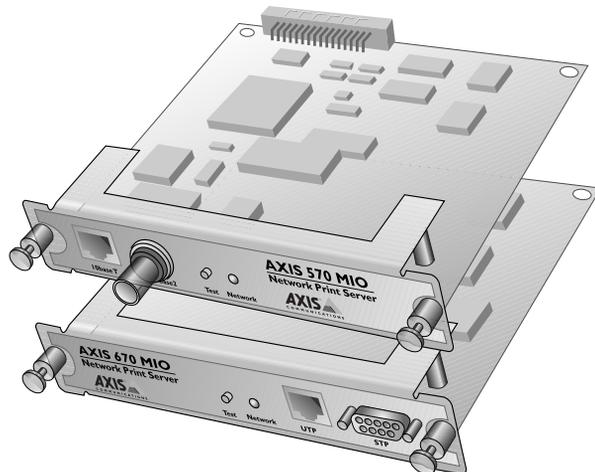
The AXIS 570 MIO and AXIS 670 MIO are plug-in network print servers for the Ethernet and Token Ring environments respectively. The AXIS 570/670 MIO makes it possible to connect your HP printers anywhere in your network, allowing all network users access to shared printer resources.

MIO Port

The AXIS 570/670 MIO connects to HP printers with an MIO port. It is extremely user friendly both to install and to use, because of its powerful built-in features.

Physical Connection

The AXIS 570 MIO and AXIS 670 MIO variants are functionally identical and are differentiated only by the type of networking environment for which each is designed. The AXIS 570 MIO is suitable for Ethernet network environments and may be connected via either a twisted pair (10baseT) cable, or a thin wire (10base2) cable. The AXIS 670 MIO is for the Token Ring environment and connects via STP (media type 1), or UTP (media type 3) cable.



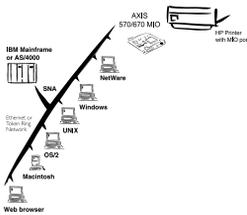
The AXIS 570/670 MIO



Environments

Using state-of-the-art technology, it offers true multi-protocol support and excellent print flexibility. It supports IBM mainframes and AS/400s, NetWare including NDS, more than 20 Unix systems, Windows for Workgroups, Windows 95, Windows NT, OS/2, and Apple EtherTalk (AXIS 570 MIO only) simultaneously. Furthermore, it supports the HTTP protocol over TCP/IP, which means that it can be reached over Internet/Intranet networks using any standard Web browser, e.g. Netscape Navigator, Microsoft Internet Explorer, Chimera, etc.

How it Works



Because of the different types of computers and operating systems employed in today's modern computing environment, it is common for print data to be communicated over a network using a variety of different transport protocols.

The AXIS 570/670 MIO is able to detect which protocol is being used for each print job and then adapt the print data into a form suitable for the target printer.



Installation of the AXIS 570/670 MIO and its integration into the network is performed using one of the Axis software packages; AXIS Print Utility for Windows, AXIS Print Utility for OS/2, *axinstall* for UNIX environments, or AXIS NetPilot™. Furthermore, if you are using the TCP/IP network transport protocol and have access to an Internet browser you may also configure, view status, and upgrade the AXIS 570/670 MIO using HTTP, regardless of your type of platform.



The AXIS NetPilot™ software supplied with the AXIS 570/670 MIO on the AXIS Utilities diskette, makes the job of installation and configuration quick and convenient. AXIS NetPilot™ runs on Windows platforms and provides a quick installation facility so that the AXIS 570/670 MIO can be rapidly put to use. Together with the



World Wide Web

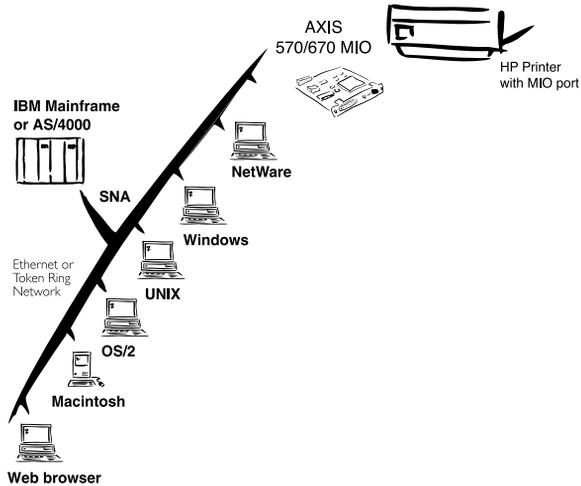


supplied AXIS Print Utilities, AXIS NetPilot™ also provides user friendly facilities with which to tune the configuration in accordance with your networking environment. This allows you to maintain optimum printing performance, even when you make changes to your network.

For more detailed information that is not included in this manual, you are invited to visit our WWW Home Page where you can down-load further technical information. You may also down-load on-line manuals, tools such as the Acrobat Reader and the latest versions of the software utilities. Naturally enough, links to this information are provided from within the AXIS 570/670 MIO Web pages. Your Axis dealer will also be pleased to provide you with any additional information or assistance that you might require. For details on the appropriate WWW address in your region, please refer to *Appendix F - How To Contact Axis*.



Where to use it



The AXIS 570/670 MIO can communicate with all the major computer systems and network protocols. These different protocols can be handled simultaneously making the AXIS 570/670 MIO the ideal print server solution for a mixed environment.

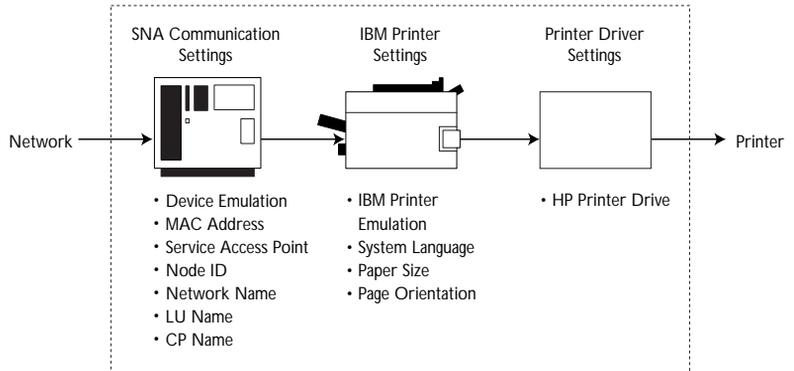
Web browser

Because the AXIS 570/670 MIO comprises its own built-in Web server, it may be configured and managed directly from its own Web pages, using HTTP over a TCP/IP network. Access to the AXIS 570/670 MIO via a Web browser affords the user with a platform-independent management tool that is suitable for all of the supported network environments.



IBM SNA Environment

When using the AXIS 570/670 MIO in the SNA environment, it will appear as a network attached 3270 or 5250 Control Unit with one or several Logical Units. Conversion of the IBM data stream to the appropriate ASCII printer language (PCL5 or PCL4) is made by the AXIS 570/670 MIO. See the figure below:



Schematic diagram of the AXIS 570/670 MIO displaying logical blocks for data conversion

The SNA support gives a number of benefits:

- Stand-alone function, not relying on any intermediate device.
- Gives a very cost-effective and small solution for connecting LAN printers to IBM mainframes and AS/400s.
- Direct printer status feedback is maintained.



NetWare Environment

AXIS NetPilot™ is the preferred utility for installing and integrating the AXIS 570/670 MIO into a NetWare environment. The AXIS 570/670 MIO can be operated in both Print Server Mode and Remote Printer Mode.

It is compatible with both NetWare 4.10 NDS and bindery emulation, as well as NetWare 3.11, 3.12.

In Print Server Mode, the AXIS 570/670 MIO emulates a NetWare Print Server, while in Remote Printer Mode it emulates a workstation running RPRINTER or NPRINTER. Logical printers are supported in both bindery and NDS modes for both PSERVER and NPRINTER.

Windows Environments

The setup operation within a Windows environment may be performed solely with the AXIS Print Utility for Windows, supplied on the AXIS Utilities diskette.

Having installed the AXIS 570/670 MIO onto your network, the AXIS Print Utility for Windows may then also be used to install and maintain the print server ports as Windows ports. Windows 3.1, Windows for Workgroups, Windows 95, and Windows NT are all supported.

OS/2 Environments

The setup operation in an OS/2 environment may be performed solely with the supplied AXIS Print Utility for OS/2.

Use the AXIS Print Utility for OS/2 to install and integrate the AXIS 570/670 MIO into the OS/2 spool system. The printers attached to the AXIS 570/670 MIO will then appear to be directly connected to the file server, and may be used by any client on your network.

UNIX Environment

You can use the AXIS 570/670 MIO as an integral part of your system, so that the printers appear directly connected to the host print spool. Use *axinstall* for the integration.

You can also operate the AXIS 570/670 MIO in an interactive mode to print your host documents.



Several protocols and print methods are provided, your choice of which will be governed by your requirements and the system that you are using. Five print methods are supported: LPD, FTP, PROS A, PROS B, and Reverse Telnet.

The AXIS 570/670 MIO supports any host that uses the TCP/IP protocol suite.

Macintosh
Environment
(AXIS 570 MIO only)

The AXIS 570 MIO will appear to the user as three LaserWriter printers connected to an AppleTalk network. Each may be accessed in the same manner as any other Laserwriter once selected from the Chooser window, in the Apple menu.

Main Features

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

Flexibility It supports SNA, NetWare, Windows 95, Windows NT, Windows for Workgroups, OS/2, Macintosh, and UNIX simultaneously, and five different print methods in the TCP/IP environment. It also allows you to print on up to three printers, simultaneously.

In the IBM Mainframe and AS400 environment, the AXIS 570/670 MIO can emulate IBM coax and twinax print and control functionality. This means that the AXIS 570/670 MIO can effectively replace coax/twinax attached printer and control units on the LAN.

Speed The AXIS ETRAX chip has been specifically designed for LAN products and benefits users with a significantly faster throughput than a direct PC-to-printer connection. The AXIS 570/670 MIO has a sustained data throughput of up to 300 kbytes per second.



- Plug-and-Print** It is not necessary to configure the AXIS 570/670 MIO for standard print operations.
- Easy to Install** Without being a “computer expert” you can install the AXIS 570/670 MIO in minutes, allowing you to quickly realize the benefits afforded by workgroup printing. The AXIS NetPilot™ installation software includes a user friendly Installation Wizard and together with the *axinstall* script for UNIX workstations, allows installation into all of the AXIS 570/670 MIO networking environments.
- For TCP/IP networks, your favorite Web browser may also act as a convenient configuration tool. Links provided within the AXIS 570/670 MIO Web pages allow modification of the configuration parameters and quick access to useful information.
- Furthermore, the basic configuration to get you up and running can be done from the HP printer’s front panel.
- Security** You may set up passwords for all users, restricting both login and printer access.
- Monitoring** The AXIS NetPilot™ software provided allows you to continuously monitor printer status and since the AXIS 570/670 MIO supports IBM SNA, the integrity of your printing is also monitored via interactive communication with the IBM host. The AXIS 570/670 MIO additionally supports SNMP for remote monitoring.
- Futureproof** The AXIS 570/670 MIO can have its Flash memory updated, allowing you to quickly update and enhance its operational features whenever new print server software becomes available. All software updates are free of charge. You may perform the update operation over the network which makes the job of updating your AXIS 570/670 MIO, quick and easy.



Section 2 Basic Installation

Checking and Identifying the Hardware

Unpack and check all the items using the following check list. Contact your dealer if anything is missing or damaged. All packing materials are recyclable.

Caution

The AXIS 570/670 MIO board contains static-sensitive components. Always hold the board by the edges or the rear panel when removed from the anti-static bag. Make sure to take all recommended precautions related to static-sensitive devices.

The AXIS 570/670 MIO Hardware Pack contains:



- AXIS 570 MIO Print Server, part no: 0065-1,
or
AXIS 670 MIO Print Server, part no: 0066-1



- AXIS 570/670 MIO User's Manual, part no: 14819
- AXIS 570/670 MIO User's Printing Guide, part no: 15195
- AXIS 570/670 MIO Quick Installation Guide, part no: 15194
- Product Brochure, part no: 14412



- Axis User Group Registration Form, part no: 15119,
or
Axis User Group Registration Form (USA), part no: 15120



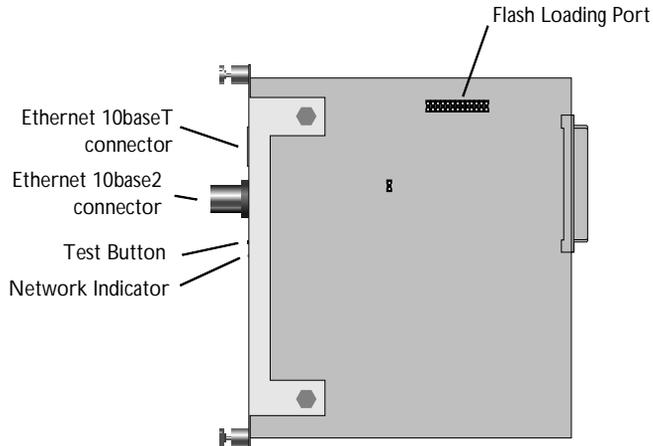
- 3.5" disk with AXIS NetPilot™ Configuration Software and AXIS Print Utility for Windows, part no: 14428
- 3.5" disk with AXIS Print Utility for OS/2, part no: 14232

Optional accessories:

- Flash Loading Kit, part no: 15147



AXIS 570 MIO Physical Description



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 MIO settings.
- Resetting the AXIS 570 MIO parameters to the factory default settings.

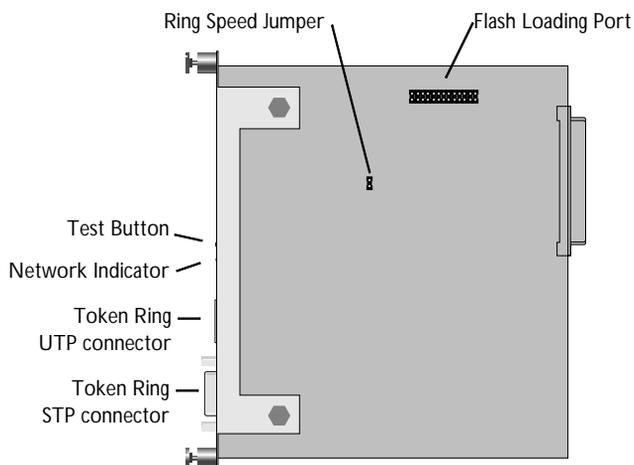
Refer to *Appendix A - The Test Button* for more information about printing and resetting the parameters.

Network Indicator

This flashes to indicate network activity.



AXIS 670 MIO Physical Description



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 MIO settings.
- Resetting the AXIS 670 MIO parameters to the factory default settings.

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

Ring Speed Jumper

This jumper is set to match your network speed. The jumper (S4) is located on the printed circuit board. With the jumper in place, the network speed is 16 Mbit/s. Remove the jumper to select 4 Mbit/s.

Network Indicator

This flashes to indicate network activity.



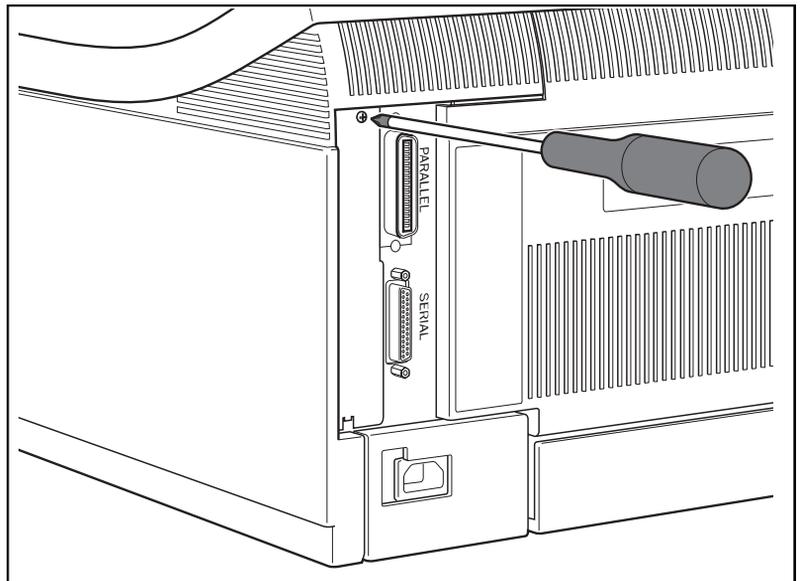
Installing the AXIS 570/670 MIO in the Printer

The AXIS 570/670 MIO board should be installed into the MIO expansion slot at the rear of your HP printer. The guidelines below are for the HP LaserJet 4+, but the installation procedure is similar for all HP printers. If you have a printer other than the LaserJet 4+, consult the printer manual on how to access the MIO slot.

Caution ⚡ The AXIS 570/670 MIO board contains static-sensitive components. To prevent the risk of damage to these components, always hold the board by the edges or the rear panel when removed from the anti-static bag. Make sure to take all recommended precautions related to static-sensitive devices.

You will need one posidrive and one flat screwdriver for the installation.

Follow these steps and refer to the illustrations to install the AXIS 570/670 MIO board:

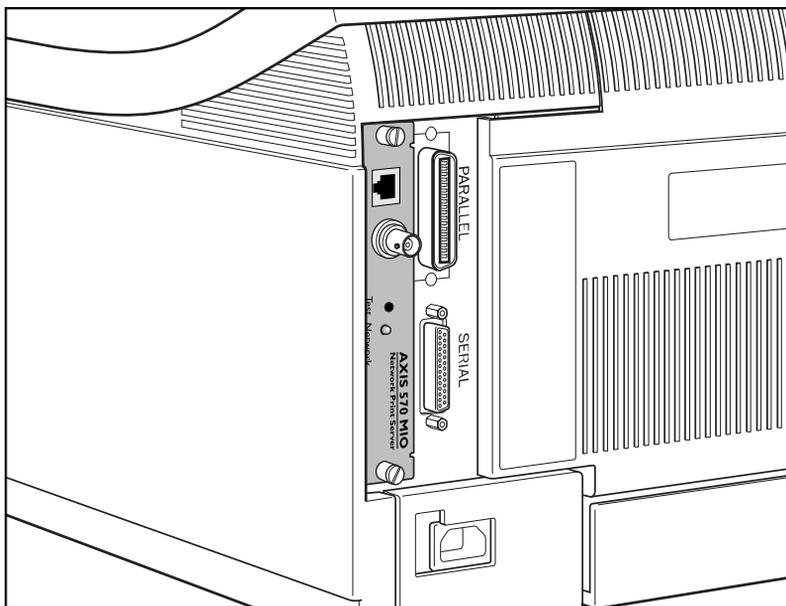


Removing the cover plate (HP LaserJet 4+)



1. Remove the cover plate over the MIO slot.
2. Record the AXIS 570/670 MIO serial number. The serial number is the default Ethernet or Node address and is found on the back of the AXIS 570/670 MIO circuit board. You will need it during the network configuration.
3. Switch off the printer.
4. For AXIS 670 MIO only: Select the network Ring Speed using the jumper S4. With the jumper in place, the network speed is 16 Mbit/s. Remove the jumper to select 4 Mbit/s.
5. Slide the AXIS 570/670 MIO board into place.
6. Tighten the two screws securing the rear panel.
7. Switch on the printer.

The hardware installation is now completed.



The AXIS 570/670 MIO board installed (HP LaserJet 4+)



Test the Connection:

1. Switch on the printer.
2. Press and release the test button on the AXIS 570/670 MIO to print a test page.

The test page shows the most important parameters and the firmware version number. At this stage all that matters is whether the test page has printed satisfactorily.

Connecting the AXIS 570 MIO to the Ethernet Network



1. Switch off the printer.
2. Connect a twisted pair (10baseT) or thin wire (10base2) cable to the AXIS 570 MIO.
3. Switch on the printer.
4. Successful connection of the AXIS 570 MIO to your network will be confirmed by the intermittent flashing of the Network Indicator.
5. You are now ready to install your server onto your network using one of the methods detailed in the *Installation Guide*, on page 20. By commencing with your preferred installation method, you can further verify that your AXIS 570 MIO is properly connected to your network.

Note: Each AXIS 570 MIO Printer Server is pre-configured with a unique Node Address that is identical to the serial number. This can be changed using the AXIS NetPilot™, the Front Panel of the printer or any standard Web browser using HTTP, if required.



Connecting the AXIS 670 MIO to the Token Ring Network

Caution  DO NOT connect or disconnect the network cabling while the AXIS 670 MIO is powered on, otherwise the equipment may be damaged.



1. Switch off the printer.
2. Connect an STP (Media Type 1) or UTP (Media Type 3) cable to the AXIS 670 MIO.
3. Switch on the printer.
4. Successful connection of the AXIS 670 MIO to you network will be confirmed by the intermittent flashing of the Network Indicator.
5. You are now ready to install your server onto your network using one of the methods detailed in the *Installation Guide*, on page 20. By commencing with your preferred installation method, you can further verify that your AXIS 670 MIO is properly connected to your network.

- Notes:**
- To minimise signal noise it is recommended that you use screened or foiled Media Type 3 cabling for 16 Mbit networks and not standard UTP cabling.
 - Each AXIS 670 MIO Print Server is pre-configured with a unique Node Address that is identical to the serial number. This can be changed using the AXIS NetPilot™, the Front Panel of the printer or any standard Web browser using HTTP, if required.



Basic Set Up of the Network

Installation Guide

After connecting the AXIS 570/670 MIO to your network you are now ready to perform the basic setup procedures. The method of installation that you choose should be dictated by your printing requirement and the type of network into which you are integrating. Proceed with an appropriate installation method from the list below:

- IBM • To use the AXIS 570/670 MIO with an IBM mainframe or midrange system, you have to configure your IBM host and the AXIS 570/670 MIO in accordance with:
 - *Basic Set Up with AXIS NetPilot*. Then proceed to:
 - Section 3 *Setting Up - SNA*.
- Windows • If you have access to a Windows platform which uses NetWare you should firstly follow the procedures defined in:
 - *Basic Set Up with AXIS NetPilot*. Then proceed to:
 - Section 4 *Setting Up - NetWare*
- UNIX • Perform the basic TCP/IP set up procedures if your network uses UNIX workstations, as defined in:
 - *Basic Set Up for TCP/IP*. Refer then to:
 - Section 8 *Setting Up - UNIX*
- Windows • If your Windows platform uses NetBIOS/NetBEUI, use the AXIS NetPilot™ only if you want to change the default print server name. If this is unnecessary, proceed directly to:
 - Section 5 *Setting Up - Windows*

If your Windows platform does not use either NetWare or NetBEUI, you must initially perform the basic TCP/IP set up procedures, as defined in:

- *Basic Set Up for TCP/IP*. Refer then to:
- *Windows NT LPD Printing, Section 5*
- OS/2 • If your network uses OS/2 workstations, use the AXIS NetPilot™ only if you want to change the default print server name. If this is unnecessary, proceed directly to:
 - Section 6 *Setting Up - OS/2*



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

Web Based Management

If you are using the TCP/IP protocol suite and also have access to an Internet browser, you may manage your AXIS 570/670 MIO server using HTTP, regardless of your system platform. Should you wish to use this easy-to-use configuration method, you should initially refer to:

- *Basic Set Up for TCP/IP*. Refer then to:
- Section 9 Web Based Management

Front Panel Set-Up

Basic network set-up is most easily done using the AXIS NetPilot™ as described on page 23. If you do not have any computers running Windows and NetWare or NetBIOS/NetBEUI you can also use the printer's front panel to make the necessary configuration as described in "*Editing Using the Printer Front Panel*", on page 135.

Installation Summary

The recommended Installation, Management and Configuration tools for the AXIS 570/670 MIO are summarized in the following table:

Operating System Protocols	Installation	Configuration/ Management
IBM	AXIS NetPilot	AXIS NetPilot
IPX/SPX	AXIS NetPilot	AXIS NetPilot
TCP/IP (UNIX)	AXINSTALL	FTP, SNMP, Web browser
TCP/IP (Windows)	Use LPD Monitor/Spooler*	FTP, SNMP, Web browser
NetBIOS/NetBEUI (Windows)	AXIS Print Utility for Windows	AXIS NetPilot
NetBIOS/NetBEUI (OS/2)	AXIS Print Utility for OS/2	AXIS NetPilot
Apple EtherTalk	Standard using the Chooser	(**)

Recommended Installation, Configuration and Management tools for the AXIS 570/670 MIO

- * You may use the resident LPD monitor in Windows NT to print via TCP/IP. A shareware LPR spooler is available for Windows 95, or Windows for Workgroups. You can download



this software from <http://www.axis.com/techsup/>.

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

- Note:**
- IPX/SPX: used in Novell NetWare
 - TCP/IP: used in UNIX systems, Windows NT, Windows 95, Windows 3.11, Windows for Workgroups...
 - NetBIOS/NetBEUI: used in Windows NT, Windows for Workgroups, Windows 95, LAN Server, LAN Manager



Basic Set Up with AXIS NetPilot™

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

When AXIS NetPilot™ is started, the program searches the network for new Axis units that have not yet been installed. If any new units are found the user is given the option of installing them.



The AXIS Installation Wizard Main window

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

Wizard

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



Environments

You may choose which networking environments you want to configure the AXIS 570/670 MIO for, i.e. SNA, NetWare, TCP/IP, Windows, OS/2 or AppleTalk. You may enable all of the environments if your network comprises various different platforms.

NetWare NDS

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

Print Queues

The default Print Queue names comprise of the print server name followed by the Port name.

Environment	Default Names
NetWare	AXIS1A0003_MIO
Windows	AX1A0003.MIO
AppleTalk	AXIS1A0003_MIO

Example of default Print Queue Names for each of the operating environments

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

The Internet Address

During the Installation Wizard you may choose the method the AXIS 570/670 MIO employs for obtaining an Internet address. ARP, RARP, BOOTP and DHCP are all supported. Refer to page 28 for more information on these methods.

Test Page

The final user prompt in the Installation Wizard allows you to print a test page through NetWare. This page displays the name of all the NetWare servers the AXIS 570/670 MIO is connected to and shows the status of each connection. This will assist diagnosis in the event of a configuration error.

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



- ❑ No serious or permanent damage will be caused if you make a mistake during installation. If at any time you find that printing is not satisfactory, the parameters can easily be changed to tune the system to your requirements.
- ❑ For information on advanced functions, please refer to the AXIS Network Print Server Technical Reference. You may down-load this or other technical information over the Internet by accessing the Axis WWW Home Page at <http://www.axis.com/>. Refer also to *Appendix F - How To Contact Axis*.

Additional References

Refer to one or more of the following sections to learn how you might fine tune the AXIS 570/670 MIO configuration and manage your network printing. Proceed as is appropriate to your type of network.

- Section 3 Setting Up - SNA
- Section 4 Setting Up - NetWare
- Section 5 Setting Up - Windows
- Section 6 Setting Up - OS/2
- Section 7 Setting Up - Macintosh
- Section 8 Setting Up - UNIX



Basic Set Up for TCP/IP

To establish communication with the TCP/IP network, an Internet address and a host name must be mapped to the Ethernet/Node address of your AXIS 570/670 MIO. To do this, you must firstly acquire an unused Internet address and decide upon an appropriate and unique name for your AXIS 570/670 MIO. This information then must be included into your system host table. The procedures for doing this are described below.

Before you start

- | | |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| System privileges | You will need root privileges on your UNIX system, or administrator privileges on a Windows NT server. |
| Ethernet address | You will need to know the Ethernet address of your AXIS 570 MIO to perform the installation. The Ethernet address is based upon the serial number of your AXIS 570 MIO. This means that an AXIS 570 MIO with a serial number of 00408C100086, will have a corresponding Ethernet address of 00 40 8C 10 00 86. The serial number of your unit is located on the back of the circuit board. |
| Node address | In Token Ring networks the node address is either the serial number found on the underside label of the AXIS 670 MIO or a Locally Administrated Address. |



The Internet Address and Host Name in Your Host Table

Enter the Internet address and Host name into your host table using the following step-by-step instructions:

1. Acquire an unused Internet address from your Network Administrator and choose a unique name for your AXIS 570/670 MIO.
2. Add the Internet address and host name to your system host table. On most systems, this is done by appending the following line to the `/etc/hosts` file:

```
<Internet address>          <host name>
```

Example:

```
192.168.3.191                npsname
```

3. Update your Alias Name data bases. If your system utilizes alias name data bases such as Yellow Pages (YP) or Network Information Services (NIS), you should update these. On most systems this is done by entering the following commands:

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

Caution

DO NOT use the default or example Internet address when installing your AXIS 570/670 MIO. If the wrong Internet address is use the AXIS 570/670 MIO will not function correctly. Always consult your Network Administrator before assigning an Internet address.



Set the Internet
Address and Host
Name

You may set the Internet address of the AXIS 570/670 MIO in five different ways, using either ARP, RARP, BOOTP, DHCP or via the printer's Front Panel. The main characteristics of each of these methods are described below:

- ARP - available in UNIX, Windows 95, and Windows NT. This is generally considered to be the easiest method although it does require the Internet address for each new device to be down-loaded individually. It is not appropriate to use this method over routers.
- RARP - available in UNIX, it down-loads the Internet address to each device automatically. It requires a RARP daemon on your system, and operates within a single network segment only.
- BOOTP - available in UNIX and quite similar to RARP, although it can however operate on the entire network. Requires a BOOTP daemon on your system. A request made to an active BOOTP or RARP daemon initiates a search of the Ethernet Address Table (RARP daemon), or Boot Table (BOOTP daemon) for an entry matching the print server's Ethernet address. If a matching entry is found, the daemon then down loads the Internet address to the print server.
- DHCP - available in Windows NT and UNIX systems, it allows for the automatic but temporary assignment of Internet addresses from a central pool. In the absence of either an active RARP or BOOTP daemon running on the host DHCP will, when enabled, cause the selected host to automatically allocate and down load a free Internet Address, Default Router Address and Net Mask to the requesting print server. It also provides validation data that defines how long the Internet addresses will remain valid.
- Setting the Internet address via the printer's Front Panel is described on page 135.

The procedures for using the ARP, RARP, BOOTP and DCHP methods are described in detail below.



- Notes:**
- ❑ Please note that although it is recommended practice to refer to the host name when accessing your AXIS 570/670 MIO, it is perfectly acceptable to replace this name with the Internet address in all instances. Indeed, this becomes a necessity when:
 - the host name has not been included in your system host table
 - attempting to use the ARP command in a Windows 95 or Windows NT environment.

The latter point is demonstrated in the first of the examples below.

Using ARP in Windows
95, Windows NT



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

AXIS 570 MIO Ethernet:

Start a DOS window. Type the following command:

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

Example:

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

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



AXIS 670 Token Ring Print Server:

Start a DOS window. Type the following command:

```
arp -s 802.5 <Internet address> <node address>
ping <Internet address>
arp -d <Internet address>
```

Example:

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

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

- Notes:**
- ❑ In the Windows 95 implementation of ARP you must first, if you have an empty ARP table (seen with `arp -a`), ping an existing unit on your network before setting the IP number of your AXIS 570/670 MIO.
 - ❑ Please note that when you execute the `ping` command for the first time, you will experience a significantly longer response time than is usual.
 - ❑ The `arp -d` command is advised so that the Internet to Ethernet address information is stored as a dynamic parameter within the host's cache memory. Failure to execute this command will mean that the mapping is static and consequently installed permanently on the host.



Using ARP in UNIX You may also use the ARP method for downloading the Internet address within a UNIX environment:



AXIS 570 MIO Ethernet:

Type the following command:

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

Example:

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

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

AXIS 670 MIO Token Ring:

Type the following command:

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

Where the node address is either the serial number found on the underside label of the AXIS 670 MIO or a Locally Administrated Address.

Example:

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

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



- Notes:**
- ❑ The ARP command can vary between different UNIX systems. The 802.5 argument is only required for IBM AIX systems, and some BSD type systems expect the host name and node address in reverse order. Furthermore IBM AIX systems will require the additional argument *ether*. For example:

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

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

Using RARP in UNIX Follow the step-by-step procedure below to use the RARP method:

AXIS 570 MIO Ethernet



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

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

Example:

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

2. Update your host table and alias name databases, as described previously.
3. If it is not already running, start the RARP daemon. This is typically performed using the command `rarpd -a`.
4. Restart the AXIS 570 MIO to down-load the Internet address.



AXIS 670 MIO Token Ring

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

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

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

Where the node address is either the serial number found on the underside label of the AXIS 670 MIO or a Locally Administrated Address.

Example:

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

2. Update your host table and alias name databases, as described previously.
3. If it is not already running, start the RARP daemon. This is typically performed using the command `rarpd -a`.
4. Restart the AXIS 670 MIO to down-load the Internet address.



Using BOOTP
in UNIX



UNIX

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

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

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

Example for AXIS 570 MIO /Ethernet:

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

Example for AXIS 670 MIO /Token Ring:

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

2. Update your host table and alias name databases as described previously.
3. If it is not already running, start the BOOTP daemon. This is typically performed using the command `bootpd`.
4. Restart the AXIS 570/670 MIO to down-load the Internet address, default router address, and net mask.

- Notes:**
- The `ht` and `vm` fields must be entered exactly as in the example.
 - The `ha` field is the Ethernet address and the `ip` field is the Internet address of your AXIS 570/670 MIO.
 - The `gw` and `sm` fields correspond to the default router address and net mask (`DEF_ROUT` and `NET_MASK`).



Using DHCP in Windows



UNIX

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

1. Edit or create a scope in the DHCP manager of the DHCP daemon. The entries included into this scope should include the following:
 - range of IP addresses
 - subnet mask
 - lease duration
 - default router IP address
2. Activate the scope.
3. Enable the DHCP_ENB parameter in the Configuration file of the AXIS 570/670 MIO using AXIS NetPilot™ or any other preferred method.



Section 2: Basic Installation



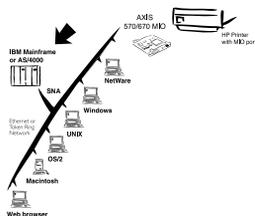
Section 3 Setting Up - SNA

Installation in the SNA environment

Preparing for Installation

The basic installation in the SNA environment consists of two parts:

- Setting up the AXIS 570/670 MIO for SNA printing
- Setting up the host for communication with the AXIS 570/670 MIO.



Setting up the AXIS 570/670 MIO is preferably done using the AXIS NetPilot™, which requires a computer running Windows connected to your LAN. To install your network print server using the Installation Wizard in AXIS NetPilot™ refer to *Section 2 - Basic Installation*.

Alternatively, you can do the setting up using HTTP from a Web browser, or FTP. Once the basic communication parameters are set and a communication link to the host is active, Extended Emulation may be used as yet another set-up alternative.

If you do not have any computers running Windows and NetWare or NetBIOS/NetBEUI you can use the printer's Front Panel to make the necessary SNA configuration. See page 135.

If you intend to operate your AXIS 570/670 MIO in a multi-protocol environment, you should also proceed according to one or more of the following sections, as appropriate to your network.

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



- Note:**
- ❑ The AXIS 570/670 MIO can only be configured for use with a single host, an IBM mainframe or an AS/400.
 - ❑ Although it is possible to define several logical units on the host system the AXIS 570/670 MIO will only print one SNA job at a time. SNA jobs are held in a print queue within the AXIS 570/670 MIO and are processed on a first-come-first-serve basis.

Control Unit Emulation

General

The AXIS 570/670 MIO may be set up to emulate either a LAN attached IBM 3174 or IBM 5494 Control Unit. In the mainframe/VTAM environment it must be set up to emulate an IBM 3174 (3270 CU mode). Proceed to *Host Set-up - IBM Mainframe*, on page 39 for information on the mainframe host setup.

In the IBM AS/400 environment, the AXIS 570/670 MIO may be set up in either mode. We strongly recommend you choose IBM 5494 emulation (5250 CU mode) to achieve maximum functionality. The 5250 CU mode offers a significantly richer set of features for formatting text. Proceed to *Host Set-up - IBM AS/400, 5250 CU mode*, on page 45 for information on to set up the AS/400 for communication with an AXIS 570/670 MIO running in 5250 CU mode.

If you have decided to run the AXIS 570/670 MIO in 3270 CU mode in an IBM AS/400 environment you should proceed to *Host Set-up - IBM AS/400, 3270 CU mode*, on page 54.



Host Set-up - IBM Mainframe

This section describes the changes that are necessary on the IBM host system.

Before you begin

- You have decided that the AXIS 570/670 MIO is going to run in 3270 CU mode.
- Have the serial number, found on the back of the AXIS 570/670 MIO circuit board, available.

Set-up

This section shows how to establish communication between an AXIS 570/670 MIO and a mainframe connected to a LAN through a LAN-to-host gateway. From VTAM's point of view, the AXIS 570/670 MIO will appear as a LAN attached 3174 DSPU (DownStream Physical Unit) running SNA PU2.0 and should be defined as such.

To set-up your host you will typically have to do the following:

1. Make sure that a VTAM Logon-mode entry is available for your AXIS 570/670 MIO.
2. Locate the VTAM Definition for the Major Node where the Print Server definition is to be placed. Using a channel attached 3174 DSPU as a gateway to the host, the VTAM Major Node definition is typically a Local Major Node. If you are using a remotely attached gateway via a 37X5 communications controller into the mainframe, you will be working with a Switched Major Node definition. Add the Print Server PU and LU definitions to the major node definition.
3. Verify the communication.

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 MIO. VTAM for MVS is assumed. The configuration for VM and VSE is similar. Please note that the configuration can vary widely from system to system.



Logon-mode Entry

Create a VTAM Logon-mode entry for your AXIS 570/670 MIO.

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

```
*
* For application output of LU-1 SNA Character Stream (SCS)
*
      TITLE 'SCS570/670'
SCS670  MODEENT  LOGMODE=SCS670,           X
                        FMPPROF=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'014000010000000001000000', 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 'DSC570/670'
DSC670  MODEENT  LOGMODE=DSC670,           X
                        FMPPROF=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 MIO.
*
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 MIO
*
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

```

- Notes:**
- ❑ In the PU definition, IDNUM should be set to the five last digits of the AXIS 570/670 MIO node address, NODE_ADDR. By default NODE_ADDR is the five last digits of the AXIS 570/670 MIO 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 MIO Node address. By default the Node address is identical to the AXIS 570/670 MIO 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 MIO. 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. See *Using Logical Printers to Customize your Printing* on page 111.

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 MIO.
* xxxxxxxx is the 8 last digits of the MAC address of
* the AXIS 570/670 MIO.
*
PU6701      PU      IDBLK=E07,                X
              IDNUM=nnnnn,                    X
              MACADDR=xxxxxxxxxxxxx,          X
              SAPADDR=04
```

- Note:**
- ❑ IDNUM should be set to the five last digits of the AXIS 570/670 MIO node ID. By default, this is the five last digits of the AXIS 570/670 MIO serial number. The last twelve digits of MACADDR should be set to the AXIS 570/670 MIO Node address. By default this is the AXIS 570/670 MIO 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:

```
* 570/670 MIO 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=SCS570/670
DSPULU03  LU  LOCADDR=3,           X
              SSCPFM=USSSCS,       X
              USSTAB=USSTAB,       X
              PACING=1,             X
              VPACING=2,           X
              ISTATUS=ACTIVE,       X
              LOGAPPL=MWTC,        X
              DLOGMOD=SCS570/670
```

Note: If the LAN media is ethernet, the MAC-addresses in the 3174 as well as the AXIS 570/670 MIO have to be reversed byte-wise.

Example: 00408C1B06D4 -> 000231D8602B

Verify the Communication

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

The AXIS 570/670 MIO is now ready for use in the SNA environment. If needed, it can be further adapted to your system using the AXIS NetPilot™ or by printing special configuration commands to it. See *AXIS 570/670 MIO Set-up* on page 61. Please note that you may have to edit the host configuration you have just made according to the new AXIS 570/670 MIO settings.



Note: Visit the Axis WWW Home Page at <http://www.axisinc.com/> or <http://www.axis.com/> for further information on other VTAM set-up procedures.



Host Set-up - IBM AS/400, 5250 CU mode

Before you begin

- You have decided that the AXIS 570/670 MIO is going to run in 5250 CU mode, to provide optimum AS/400 performance.

Automatic Set-up

This setup procedure is based on the OS/400 autoconfiguration feature. Full autoconfiguration support requires OS/400 Version 3 Release 1 or higher. If you have an earlier release than this, refer to *Manual Set-up*, on page 47.

Make sure that the SYSVALs QAUTOCFG and QAUTORMT are enabled. To enable automatic configuration of the APPC-controller, set AUTOCRTCTL to *YES in the line description. Also make sure the user QUSER has enough memory space allocated, *NOMAX is recommended.

Setting Parameters

Prior to attempting autoconfiguration, the following Parameters must be correctly set in the Print Server:

- DEVICE_EMUL must be set to 5494
- H1_ADDR must be set to the MAC address of the host
- H1_LU_NAME must be set to the host system LU name
- H1_NW_NAME must be set to the host system Network Name
- AUTODIAL must be set to YES in order to activate autoconfiguration.

These parameters are explained in detail in the *AXIS 570/670 MIO Set-up*, on page 61.

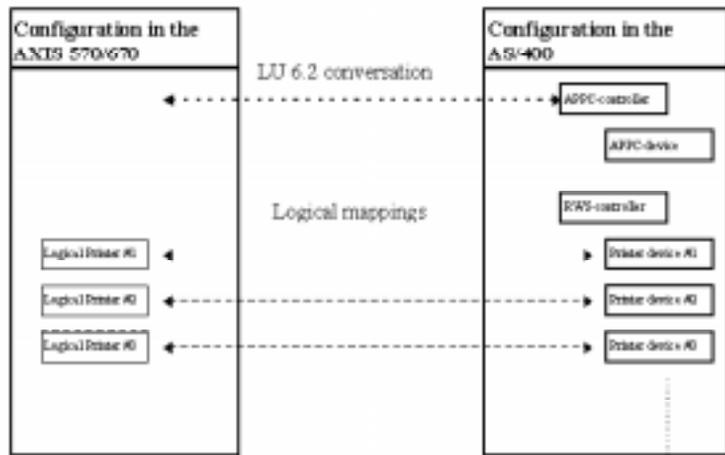
Printer Device Descriptions

Through autoconfiguration, the APPC controller, APPC device, RWS controller as well as printer device descriptions for the logical printers, will be created automatically.



N_PRT_DEV The setting of the N_PRT_DEV parameter defines the maximum number of printer device descriptions that will be created. The default is 1 for AXIS 570/670 MIO. A range of 1-8 is allowed. 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.

Configuration and Mapping The configuration created in the AS/400 and the mapping to the AXIS 570/670 MIO as a result of the autoconfiguration process is illustrated by the figure below.



Configuration created in the AS/400 and the mapping to the AXIS 570/670 MIO as a result of the autoconfiguration



Controller and Device Names The names of the controllers and devices created in the AS/400 during autoconfiguration are by default the last 7 digits from the 570/670 MIO 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 MIO.

Changing Parameters after Autoconfiguration If you want to change some of the critical configuration parameters after autoconfiguration 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.

Proceed to the *AXIS 570/670 MIO Set-up*, on page 61 to customize the Print Server.

Manual Set-up

In OS/400 versions earlier than Version 3 Release 1, RWS controller and printer devices cannot be created automatically and will therefore need to be established manually.

Before attempting manual configuration, make sure that the SYSVAL QAUTOCFG parameter is enabled. Also make sure the user QUSER has enough memory space allocated. *NOMAX is recommended.

Setting Parameters Prior to configuration, the following Parameters must be correctly set in the Print Server:

- DEVICE_EMUL must be set to 5494
- H1_ADDR must be set to the MAC address of the host
- H1_LU_NAME must be set to the host system LU name
- H1_NW_NAME must be set to the host system Network Name
- Set AUTODIAL no NO

These parameters are discussed in *AXIS 570/670 MIO Set-up*, on page 61.



Set-up Procedure The set-up involves the following steps:

1. Creation of APPC-controller.
2. Creation of RWS-controller.
3. Creation of Printer Devices.
4. VARY ON of the controllers and devices.
5. Set the Print Server Parameter AUTODIAL to YES.

Creation of APPC-controller Type CRTCTLAPPC to create a APPC controller description. Set your choices in the panel as follows:

- Controller description: Select the name you want for the controller.
- Link Type: Select *LAN.
- APPN-capable: This must be set to *YES.
- Switched line list: Enter the name of the appropriate Line Description.
- Maximum frame size: Select 1033.
- Remote network identifier: This parameter is the remote network ID where the Print Server is located. This value must match the setting of the Print Server Parameter NWORK_NAME. The default is APPN.
- Remote control point: This parameter is the control point name of the Print Server. This value is used to correlate the APPC controller to a specific RWS controller. This value must match the Print Server Parameter CP_NAME. Refer to the AXIS 570/670 MIO Set-up section for the default value.
- LAN remote adapter address: Enter the MAC address of the Print Server.
- APPN CP session support: Select *NO.
- APPN node type: Select *LENNODE.



Note: The sample below assumes that the local station address etc. has not been changed in the AXIS 570/670 MIO. The values that should be entered are in bold. The underlined values must be entered exactly as shown.

Example:

How to create an APPC controller description

```

                                Create Ctl Desc (APPC) (CRTCTLAPPC)
Type choices, press Enter.
Controller description . . . . . > APPC670A      Name
Link type . . . . . > *LAN                *ANYNW, *FAX, *FR, *IDLC...
Online at IPL . . . . . > *YES                *YES, *NO
APPN-capable . . . . . > *YES                *YES, *NO
Switched line list . . . . . > SSSSSSSSSSSS Name
      + for more values
Maximum frame size . . . . . > 1033          265-16393, 256, 265, 512...
Remote network identifier . . . > APPN          Name, *NETATR, *NONE, *ANY
Remote control point . . . . . > A8CE2149      Name, *ANY
Exchange identifier . . . . .      00000000-FFFFFFF
Initial connection . . . . .      *DIAL          *DIAL, *ANS
Dial initiation . . . . .          *LINKTYPE     *LINKTYPE, *IMMED, *DELAY
LAN remote adapter address . . . 40067000014   000000000001-FFFFFFFFFFFF
APPN CP session support . . . . . *NO          *YES, *NO
APPN node type . . . . .          *LENNODE     *ENDNODE, *LENNODE...
APPN/HPR capable . . . . .        *YES          *YES, *NO

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

```



Creation of
RWS-controller

To create a RWS controller description, type CRTCTRLRWS. Set your choices in the panel:

- Controller description: Select the name you want for the controller.
- Controller type: select 5494.
- Controller model: Select 2.
- Link type: Select *NONE to indicate LU 6.2 attachment.
- Remote Location: Select the remote location name for the controller. This value is used to correlate the RWS controller with a specific APPC controller. This value must match the Print Server Parameter LU_NAME. Refer to the AXIS 570/670 MIO Set-up section for the default value. The default is the same as for the parameter CP_NAME.
- Local location: Select the local location name for this controller. The local location must match the AS/400 LU name and the Print Server Parameter H1_LU_NAME. To display the network attributes, type DSPNETA.
- Remote network identifier: This parameter is the remote network ID where the Print Server is located. This value must match the setting of the Print Server Parameter NWORK_NAME. The default is APPN.
- Autocreate device: In OS/400 Version 3 Release 1 or later, select *ALL if you would like device descriptions automatically created for this controller. Otherwise, select *NONE.
- Switched disconnect: In OS/400 Version 3 Release 1 or later, select *YES if you would like this controller disconnected when the system determines that the last device is no longer in use. Otherwise, select *NO.



Example:
How to create a Remote Workstation Controller description:

```

Create Ctl Desc (Remote WS) (CRTCTLRWS)
Type choices, press Enter.
Controller description . . . . . > RWS670A      Name
Controller type . . . . . > 5494             3174, 3274, 5251, 5294...
Controller model . . . . . > 2                0, 1, 0001, 2, 0002, 12...
Link type . . . . . > NONE             *IDLC, *LAN, *NONE, *SDLC...
Online at IPL . . . . . *YES                *YES, *NO
Remote location . . . . . APPC670A         Name
Local location . . . . . S44A6643        Name, *NETATR
Remote network identifier . . . APPN      Name, *NETATR, *NONE
Autocreate device . . . . . *NONE          *ALL, *NONE
Switched disconnect . . . . . *NO          *YES, *NO
Text 'description' . . . . . 'RWS Controller 670 A'

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

```



Creation of printer devices To create a printer device description, type CRTDEVPRT. Set your choices in the panel as follows:

- Device description: Select the name you want for the device.
- Device class: Select *RMT.
- Device type: The device type is related to the setting of the Printer Server Parameter PREMUL. See the mapping in the table below. Select the device type as in the mapping table below.

PREMUL	Device type	Device model
5224_TX	5224	1
5225_TX	5225	1
5256_TX	5256	1
4214_TX	4214	2
4230_TX	4214	2
3812_TX	3812	1
3816_TX	3812	1
3816S_TX	3812	1

- Device model: Select model as in the table above
- Local location address: Select the local location address of the device. The local address chosen is related to the Logical Printer concept in the Print Server. Local location addresses 01-08 are mapped to Logical Printers #1-8 in the Print Server, i.e. if you want the printout directed to this device to be sent to Logical Printer #2, choose 02 as local location address. You cannot use local address 00, or local addresses above 08, as there are only eight Logical Printers in the AXIS 570/670 MIO. The maximum number of printer devices supported by the AXIS 570/670 MIO is determined by the setting of the Print Server Parameter N_PRT_DEV. Refer to *N_PRT_DEV*, on page 46.
- Attached controller: This parameter must match the controller description name of the RWS controller you created above.
- Font identifier: Select the desired font identifier.



Example: How to create a Printer Device description

```

Create Device Desc (Printer) (CRTDEVPRT)
Type choices, press Enter.
Device description . . . . . > PRT670
Device class . . . . . > *RMT
Device type . . . . . > 3812
Device model . . . . . > 1
Local location address . . . . . > 02
Online at IPL . . . . . *YES
Attached controller . . . . . > RWS670A
Font:
  Identifier . . . . . > 3
  Point size . . . . . *NONE
Form feed . . . . . *TYPE
Separator drawer . . . . . *FILE
Separator program . . . . . *NONE
  Library . . . . .
Printer error message . . . . . *INQ
Name
  *LCL, *RMT, *VRT, *SNPT, *LAN
  3287, 3812, 4019, 4201...
  0, 1, 2, 3, 4, 10, 13, 200...
  00-FE
  *YES, *NO
Name
  3, 5, 11, 12, 13, 18, 19...
  000.1-999.9, *NONE
  *TYPE, *CONT, *CUT, *AUTOCUT
  1-255, *FILE
  Name, *NONE
  Name, *LIBL, *CURLIB
  *INQ, *INFO
More...
F3=Exit F4=Prompt F5=Refresh F10=Additional parameters F12=Cancel
F13=How to use this display F24=More keys

```

Initializing Communication

To initialize the communication with the AXIS 570/670 MIO do the following:

1. Vary on controller and device description
2. Start the printer writer.
3. Set the print server parameter AUTODIAL to YES.

Verify the Communication

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

The AXIS 570/670 MIO is now ready for use in the SNA environment. If needed, it can be further adapted to your system using AXIS NetPilot™ or by printing special configuration commands to it. See *AXIS 570/670 MIO Set-up* on page 61. Please note that you may have to edit the host configuration you have just made according to the new AXIS 570/670 MIO settings.



Host Set-up - IBM AS/400, 3270 CU mode

Before you begin

- You have decided that the AXIS 570/670 MIO is going to run in 3270 CU mode. This does not provide optimum AS/400 performance; the 5250 CU mode is recommended.
- Have the serial number, found on the back of the AXIS 570/670 MIO, available.

Set-up

The set-up consists of four steps:

1. Creating a controller description.
2. Creating a printer device description.
3. Initializing communication.
4. Verifying the communication.

On the following pages you will find sample controller and printer descriptions.

- Notes:**
- You will only be able to print plain text. Native AS/400 printout is limited to 10 CPI and 132 columns per line. The full functionality of OfficeVision (justification, etc.) cannot be utilized, as only 3270-type printers can be emulated by the AXIS 570/670 MIO in 3270 CU mode. The font to be used can, however, be selected. See *Extended IBM Printer Emulation* on page 149.
 - If you have TCP/IP installed on the AS/400, you may wish to use it to print. See *Section 8 Setting Up - UNIX*.
 - The sample below assumes that local station address etc. has not been changed in the AXIS 570/670 MIO. The values that should be entered are in **bold**. The underlined values must be entered exactly as shown.



Controller Description

Create a controller description.

Example:

Controller description (command: CRTCTLRWS).

```

Create Ctl Desc (Remote WS) (CRTCTLRWS)

Type choices, press Enter.

Controller description . . . . . > CTL670           Name
Controller type . . . . . > 3174                 3174, 3274, 5251, 5294...
Controller model . . . . . > 0                   0, 1, 0001, 2, 0002, 12, 0012
Link type . . . . . > *LAN                       *IDL, *LAN, *NONE, *SDLC...
Online at IPL . . . . . > *YES                   *YES, *NO
Switched line list . . . . . > ssssssss          Name
      + for more values
Maximum frame size . . . . . *LINKTYPE          265-1994, 256, 261, 265...
Exchange identifier . . . . . 00100000-FFFFFFF
Initial connection . . . . . *DIAL             *DIAL, *ANS
Dial initiation . . . . . *LINKTYPE           *LINKTYPE, *IMMED, *DELAY
LAN remote adapter address . . . xxxxxxxxxxxx  000000000001-FFFFFFFFFFFF
Text 'description' . . . . . '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

```

Note: The LAN remote adapter address (xxxxxxxxxxxx) should be set to the AXIS 570/670 MIO Node address. By default this is the serial number of your AXIS 570/670 MIO. Switched line list (sssssss) should be set to the Line description name of the Ethernet or Token Ring network in use.



Printer Description Create a printer description.

Example:
Printer description (command: CRTDEVPRT).

```

Create Device Desc (Printer) (CRTDEVPRT)

Type choices, press Enter.

Device description . . . . . > PRT670           Name
Device class . . . . . > *RMT                 *LCL, *RMT, *VRT, *SNPT
Device type . . . . . > 3287                 3287, 3812, 4019, 4201...
Device model . . . . . > 0                   0, 1, 2, 3, 4, 10, 13, 200...
Local location address . . . . . > 02         00-FE
Online at IPL . . . . . > *YES                *YES, *NO
Attached controller . . . . . > CTL670        Name
Separator program . . . . . > *NONE          Name, *NONE
Library . . . . . > *LIBL                   Name, *LIBL, *CURLIB
Printer error message . . . . . > *INQ       *INQ, *INFO
Message queue . . . . . > QSYSOPR          Name, QSYSOPR
Library . . . . . > *LIBL                   Name, *LIBL, *CURLIB
Application type . . . . . > *NONE          *NONE, *NRF, *DEVINIT...
Text 'description' . . . . . > 'HP Printer with AXIS 570/670 MIO'

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

```

- Notes:**
- Attached controller should be set to the name of the previously defined controller description
 - In the LU definition, the LOCADDR number maps to the Logical Printer number of the AXIS 570/670 MIO. 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. See *Using Logical Printers to Customize your Printing* on page 111.
 - A writer and a print queue with the same name as the printer description will be automatically created.

Initializing Communication

To initialize the communication with the AXIS 570/670 MIO do the following:

1. "Vary on" the controller and device description.
2. Start the writer.



Verify the Communication

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

The AXIS 570/670 MIO is now ready for use in the SNA environment. If needed, it can be further adapted to your system using the AXIS NetPilot™ or by printing special configuration commands to it. See *AXIS 570/670 MIO Set-up* on page 61. Please note that you may have to edit the host configuration you have just made according to the new AXIS 570/670 MIO settings.



Gateway Configuration, 3270 CU mode

Some hints specific to SNA gateways are given below.

- AXIS 570/670 MIO 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 MIO 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 MIO on the host, as described in the VTAM section.

When attaching an AXIS 570/670 MIO 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 MIO is attached to this type of gateway, you can map the chosen AXIS 570/670 MIO 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 MIO.

- Note:** If you are bridging between Token Ring and Ethernet through the IBM 3174 Gateway, you have to flip MAC address bit order byte-wise for all MAC addresses on both sides.

Example: 00408C1B06D4 -> 000231D8602B

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 COMMEEXEC 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: AXIS570/670MIO
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 step 2-5.

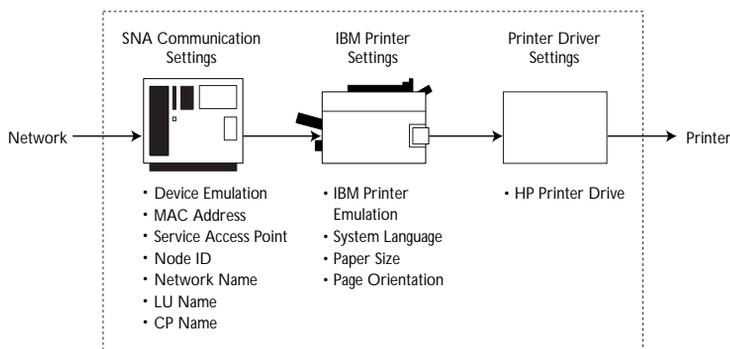


AXIS 570/670 MIO Set-up

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.

Parameters

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



SNA Communication parameters

The following list deals with the SNA host communication parameters that often need to be considered when installing the AXIS 570/670 MIO.

- **Control Unit Device Emulation**

Name: DEVICE_EMUL, *Default:* 3174

Environment: Mainframe and AS/400

Description: 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.

- **Node ID**

Name: NODE_ID, *Default:* E07xxxxx, where “xxxxx” are the last five digits of the Print Server’s MAC address.

Environment: Mainframe only. 3174 emulation.

Description: This is the SNA PU identification. The first three 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.

- **Network Name**

Name: NETWORK_NAME, *Default:* APPN.

Environment: AS/400 only. 5494 emulation.

Description: 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.



- **LU Name**

Name: LU_NAME, **Default:** 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 LU Name A4D60B1C. This will be the name of the APPC device created during autoconfiguration.

Environment: AS/400 only. 5494 emulation.

Description: 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 (RMT-LOCNAME).

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.

- **Control Point Name**

Name: CP_NAME, **Default:** 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 autoconfiguration.

Environment: AS/400 only. 5494 emulation.

Description: 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.

- **Host MAC Address**

Name: H1_ADDR, **Default:** FF FF FF FF FF FF

Environment: Mainframe and AS/400



Description: 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”.

- **Host Network Name**

Name: H1_NW_NAME, **Default:** APPN

Environment: AS/400 only. 5494 emulation.

Description: 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).

- **Host LU Name**

Name: H1_LU_NAME, **Default:** none

Environment: AS/400 only

Description: 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.

- **Automatic Link Establishment**

Name: AUTODIAL, **Default:** no

Environment: Mainframe and AS/400

Description: 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 5250 CU mode, this parameter also controls whether Automatic Configuration should be performed.

IBM Printer Emulation

These parameters select which IBM printer the AXIS 570/670 MIO is going to emulate.

- **Printer Emulation, 3270 CU mode**

Name: PREMUL, *Default:* 3816

Description: The following IBM printers can be emulated in 3270 CU mode.

Value	Description
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

- **Printer Emulation, 5250 CU mode**

Name: PREMUL, *Default:* 3816

Description: The following IBM printers can be emulated in 5250 CU mode.

Value	Description
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 Language, 3270 CU mode**

Name: SYSL, *Default:* 37 US English

Description: The following System Languages are valid in 3270 CU mode:



Value	Description	Value	User defined system language
* 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	

Note: For other languages the USER language can be used and edited.

- **System Language, 5250 CU mode**

Name: SYSL, *Default:* 37 US English

Description: The following System Languages are valid in 5250 CU mode:

Value	Description	Value	User defined system language
* 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.axisinc.com/> or <http://www.axis.com/> for more information on how to edit the character translation tables.

- **Paper Size**

Name: BIN1 - BIN6, **Default:** Letter, COR

Description: If you are not using AXIS NetPilot™ to install your AXIS 570/670 MIO, you must set the paper size for each printer paper bin separately using the BIN1–BIN6 parameters. The parameters take two values, orientation and paper size.

The following orientation values are allowed:

Value	Description
* COR	Computer Output Reduction (COR) is enabled.
PORT	Use portrait as default print orientation.
LAND	Use landscape as default print orientation

The following paper size values are allowed:

Value	Description
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)

- Note:**
- ❑ COR printouts require a Laser Printer and have 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.



ASCII Printer Driver

This parameter should match the printer type you have connected to your AXIS 570/670 MIO:

- **ASCII printer driver**
Name: PRDRIVER, *Default:* PCL5

Description:

Value	Printer
PCL5	PCL5 printer
PCL4	PCL4 printer
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.

Updating parameters

This is most easily done when installing the AXIS 570/670 MIO 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 MIO.

Using extended IBM printer emulation means setting up the AXIS 570/670 MIO 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 B - The Parameter List*, on page 133.

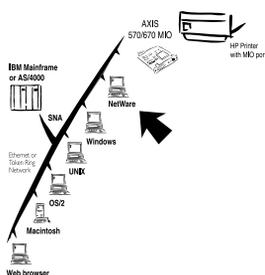
Example:

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;
HI_SAP = 4;
AUTODIAL = NO;
%CONFIG--
PREMUL = 3816_CX;
SYSL = 37;
BIN1 = LETTER, COR;
SAVE;
%CONFIG-
```




Section 4 Setting Up - NetWare



If you have not already done so, you should use the Installation Wizard in AXIS NetPilot™ to install your network print server, refer to *Section 2 - Basic Installation*.

After performing the basic installation, the AXIS 570/670 MIO is ready for printing within the NetWare environment. This section provides information for making further adjustments to the configuration.

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



Section 3	Setting Up - SNA
Section 5	Setting Up - Windows
Section 6	Setting Up - OS/2
Section 7	Setting Up - Macintosh
Section 8	Setting Up - UNIX
Section 9	Web Based Management

Set Up using the AXIS NetPilot™



You may use the AXIS NetPilot™ to:

- Set up the print queues, printers, and print servers.
- Set up the configuration parameters of the AXIS 570/670 MIO.
- Monitor the printers on the network.
- Upgrade the AXIS 570/670 MIO.

- Notes:**
- AXIS NetPilot™ contains an extensive on-line help facility to assist you with any of the operations listed above.
 - The AXIS NetPilot™ software is designed to set up a range of different network environments. Therefore you will encounter windows that are relevant to other systems as well as NetWare.

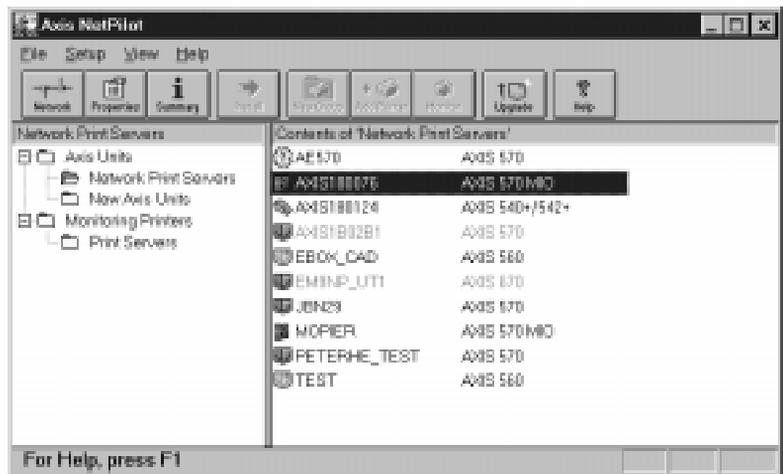


Caution Any network configuration should involve the Network Administrator.

Using AXIS NetPilot to Manage your Print Servers

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

- From “Network Print Servers”, select any installed Axis network print server that you wish to configure.
- From “New Axis Units”, select any Axis network print server wish to install with the Installation Wizard.
- From “Monitoring Printers”, select any group of printers that you wish to monitor.



AXIS NetPilot's main window

Managing Printers and Print Queues

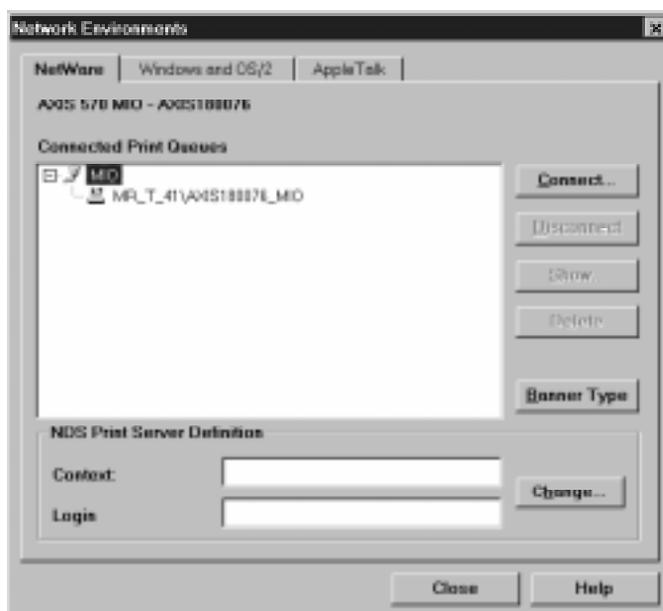
Having installed your AXIS 570/670 MIO in accordance with the basic installation procedures described in *Section 2 - Basic Installation*, your AXIS 570/670 MIO should now feature in the Contents of the “Network Print Servers” pane of the AXIS NetPilot™ Main window.



Examine Queues and Servers

The NetWare Network Environment window detailed below, allows you to examine all Print Queues, to the AXIS 570/670 MIO.

To gain access to this window, simply select the required Network Print Server from AXIS NetPilot™ Main window, and then choose Network from the Setup menu. Alternatively, you may click on the Network Icon on the Toolbar. If you are not already, a dialogue box will then ask you to log on to your NetWare file server.



The AXIS NetPilot NetWare Network Environment window

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

Print Queue Connection

To connect a print queue to a print server port, select the print server port you wish to connect from the NetWare Network Environment window. Click Connect...



The Connect NetWare Print Queues window detailed below, will then be displayed.



The AXIS NetPilot Connect NetWare Print Queues window
Select the location of the print queue from the Resources box.
Click either on an existing NetWare print queue for connection to the server port, or alternatively create a new print queue by clicking on Create Queue...

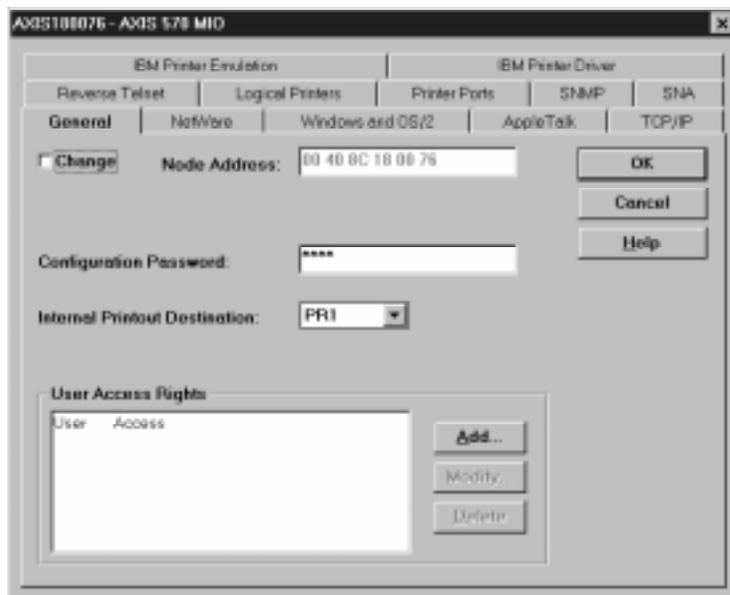
To define the method of printing to be used, select either Print Server Mode or Remote Printer Mode. If you use Remote Printer Mode you must enter the NetWare Print Server name, or make an appropriate selection that will work with the AXIS 570/670 MIO, using the Browse... button.

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



Configuring via the Property Pages

Select the required Network Print Server and then Properties from the Setup menu in the AXIS NetPilot™ Main window, or alternatively click the Properties Icon on the Toolbar. A comprehensive set of Property Pages are then presented with an appropriate array of selection tabs.



A Property Page showing general parameters to be set

AXIS 570/670 MIO Modes

The AXIS 570/670 MIO can run in either Print Server Mode or Remote Printer Mode. The following overview explains the advantages and limitations of each mode.

Property Pages: This is AXIS NetPilot's way of allowing you to inspect and change any of the AXIS 570/670 MIO parameters. There are different Property Pages for each of your network environments. Simply click the NetWare tab to gain access to the NetWare configuration.



Print Server Mode

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

Advantages

- Easy to set up.
- High performance (typically 150-300 kbytes/s).

Limitations

- Requires a NetWare user licence for each AXIS 570/670 MIO to file server link.

Remote Printer Mode

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

Advantages

- NetWare user licences are not required.
- Easy to set up.

Limitations

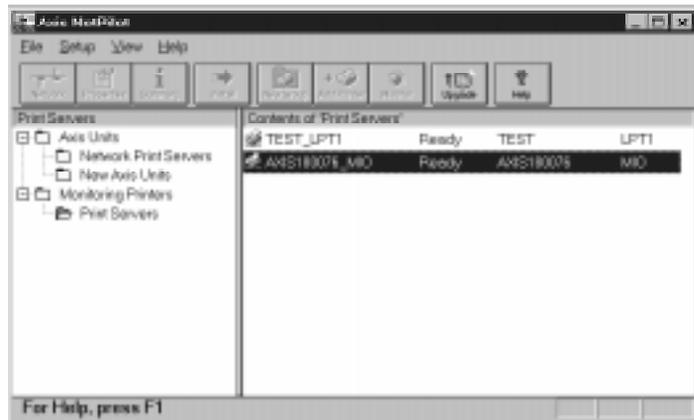
- Lower performance, e.g. typically 20 - 70 kbytes/s for NLM.
- Higher network load.

Monitoring the Printers

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



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



AXIS NetPilot's Monitoring Window



Other NetWare Configuration Methods

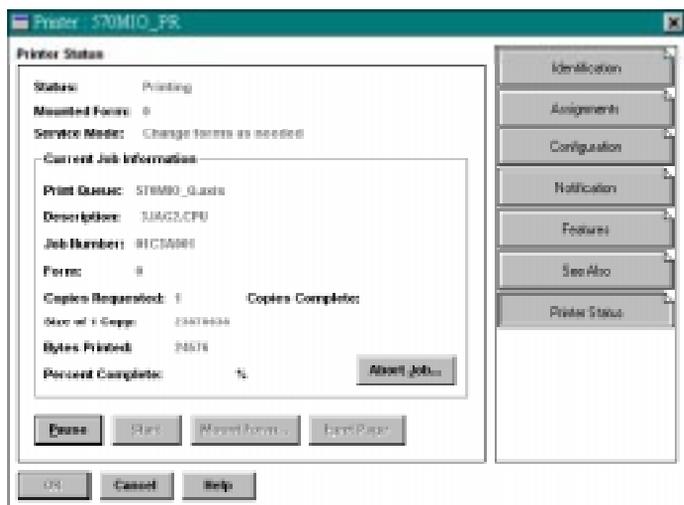
Novell Utilities

After installing the AXIS 570/670 MIO into the NetWare environment using the AXIS NetPilot™, adjustments to the configuration can be made at any time, using the AXIS NetPilot™. Alternatively, you may wish to configure and manage your AXIS 570/670 MIO using either Novell's NetWare Administrator, or PCONSOLE.

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

Printer Status

The NetWare dialog Printer Status menu detailed below, shows the status of an active print job serviced by an AXIS 570/670 MIO network print server. Detailed information concerning the active job is displayed including, Print Queue, print job description, size of print file, percentage of job completed, etc. The administrator also has the ability to abort or pause the print job from this menu.

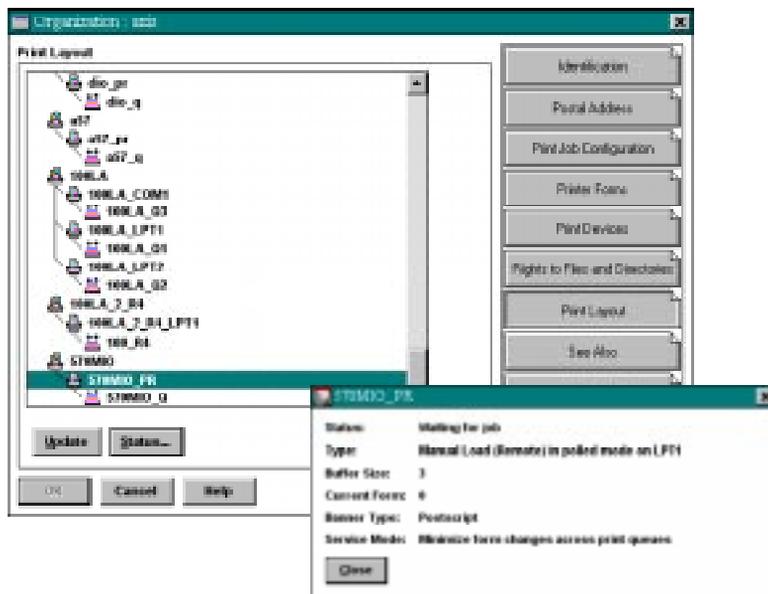


NetWare Administrator Printer Status Menu



Notification Using the NetWare Administrator you may also enable/disable status notification messages for printers connected to the AXIS 570/670 MIO, i.e. Busy, Offline, Out of paper, Paper jam...etc. Print job owners and chosen administrators may be added or removed from the list of persons to be notified.

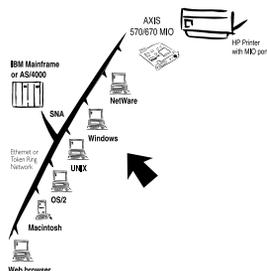
Print Layout A print layout of installed AXIS 570/670 MIOs and their relative print queues may be viewed for any NetWare Organizational Unit. Summary information is also displayed simply by right-clicking on the printer object you wish to examine.



NetWare Print Layout with corresponding information summary



Section 5 Setting Up - Windows



This section describes how to set up your AXIS 570/670 MIO for printing in the Windows environment, after it has been connected to your network.

The following Windows platforms are supported:

- Windows 3.1 (requires add-on network support, see page 83)
- Windows for Workgroups
- Windows 95
- Windows NT

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

Section 3	Setting Up - SNA
Section 4	Setting Up - NetWare
Section 6	Setting Up - OS/2
Section 7	Setting Up - Macintosh
Section 8	Setting Up - UNIX
Section 9	Web Based Management

Installation Using AXIS Print Utility for Windows



Unless you wish to change the default name of your AXIS 570/670 MIO, the setup operation may be performed solely with the AXIS Print Utility for Windows, which is supplied on the AXIS Utilities disk. You should install this utility now if you have not already done so - see the instructions on the AXIS Utilities disk label.

If you wish, you may change the default name of your AXIS 570/670 MIO or amend any of the default parameters, using the AXIS NetPilot™, or any standard Web browser. Refer to *Section 9 - Web Based Management*.



Note: The AXIS Print Utility for Windows is not needed on the client platforms for client-server printing.

About
AXIS Print Utility
for Windows

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

1. Install and maintain the AXIS 570/670 MIO printer port as a Windows printer port.
2. Capture and monitor print jobs directed to the AXIS 570/670 MIO port. Print jobs are directed through a spool directory either at your local hard disk (peer-to-peer mode), or at the file server (client-server mode). The printer port status of your AXIS 570/670 MIO may be monitored and pop-up notification messages can be generated, keeping you informed of completed print jobs or any problematic condition.

For more information about AXIS Print Utility for Windows, see the on-line help.

- Notes:**
- Microsoft Network (NetBIOS/NetBEUI) must be running when using AXIS Print Utility for Windows.
 - AXIS Print Utility for Windows must be running when printing in peer-to-peer mode.



Peer-to-Peer vs. Client-Server Printing

All users requiring access to a network printer in peer-to-peer mode will need to install the AXIS Print Utility for Windows software onto their workstation. Users may then add the required network printer to their systems and use the printer as if it was connected directly to their workstation. Peer-to-peer printing affords the following benefits:

- You can monitor the printer status at all times and be notified when a print job is complete.
- You do not have to rely on a server.

Client-server operation requires only one user to install the AXIS Print Utility for Windows software onto their workstation. This user then adds the printer to his or her workstation (the server) and shares the printer with other users on the network. The other users (the clients) may connect to the printer through the server via the Windows Print Manager in Windows 3.1 and Windows NT platforms and the System Printers folder in Windows 95 platforms.

The client-server mode provides a way of maintaining queue ordering and job priority, but you should note the following:

- You cannot receive printer status or print job notification.
- The workstation set up as the server must be available at all times, and must have sufficient hard disk space to handle the print jobs that pass through it.

- Notes:**
- When using client-server mode, other users may still install the AXIS Print Utility for Windows software, for printing directly to the network printer in Peer-to-Peer mode.
 - When using the client-server mode, it is recommended that the server is setup only on a Windows for Workgroups workstation.

Windows 3.1

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

Setup for Peer-to-Peer Printing

Follow these steps to install your AXIS 570/670 MIO 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 MIO port to be installed. The port will appear as <name>.MIO, where <name> is AX followed by last six digits of your print server number e.g. AX100086.MIO. However, this alphanumeric name will be superseded by any new name given to your AXIS 570/670 MIO when using AXIS NetPilot™.
4. Accept or change the suggested Windows port name and type any required comment in the Description field. Make a note of the Windows port name as you will need this later, then click OK to install the Windows port.
5. In the Port menu, click Connect... to bring up the Windows Printers dialog.
6. Select a printer driver from the list of Installed Printers (or click Add>> to install a new driver), then click Connect...
7. Select the Windows port name from step 4 above (this name can be found at the bottom of the Ports list).
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 MIO.

- Note:** AXIS Print Utility for Windows must be running when you print through your AXIS 570/670 MIO. We strongly recommend that you copy the AXIS Print Utility icon into your StartUp folder.



Client-Server Printing: Server Setup

Follow these steps to install your AXIS 570/670 MIO for client-server printing at a Windows for Workgroups server:

1. Choose a workstation that you want to use as server for network printing. The server must be available at all times and must have sufficient hard disk space for spooling print jobs.
2. Make sure that the printer sharing option is enabled. (Open Network Setup, click Sharing..., check the 'I want to be able to allow others to print to my printer(s)' box).
3. Install AXIS Print Utility for Windows on the server.
4. Set up your AXIS 570/670 MIO as described under - *Setup for Peer-to-Peer Printing*, on page 84.
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).
8. 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 MIO. We strongly recommend that you copy the AXIS Print Utility icon into your StartUp folder.



Client-Server Printing:
Client Setup

Follow these steps to use your AXIS 570/670 MIO for client-server printing at a Windows for Workgroups client:

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

The client setup is completed and you can now print through your AXIS 570/670 MIO.



Windows 95

Setup for Peer-to-Peer Printing

Follow these steps to install your AXIS 570/670 MIO for peer-to-peer printing at a Windows 95 workstation:

1. Double-click the AXIS Print Utility icon.
2. In the Port menu, click Add.
3. In the NPS Port list, select the AXIS 570/670 MIO port to be installed. The port appears as <name>.MIO, where <name> is AX followed by last six digits of your print server number e.g. AX100086.MIO. However, this alphanumeric name will be superseded by any new name given to your AXIS 570/670 MIO when using AXIS NetPilot™.
4. Accept or change the suggested Windows Port name, and type any required comment in the Description field. Make a note of the Windows port name as you will need this later, then click OK to install the Windows port.
5. In the Port menu, click Connect to bring up the Printers folder.
6. Double-click the Add Printer icon. The Add Printer Wizard will then guide you through the installation. Click Next to proceed.
7. Choose Local Printer, then click Next.
8. Choose Manufacturer and Printer, then click Next.
9. Select the Windows port name from step 4, then click Next.
10. Accept the suggested Printer Name, or type in one of your own, then click Next.
11. Click Finish to complete the installation.

The setup is completed and you can now print through your AXIS 570/670 MIO.

- Note:** AXIS Print Utility for Windows must be running when you print through your AXIS 570/670 MIO. We strongly recommend that you establish a shortcut to the AXIS Print Utility within your StartUp file.



Client-Server Printing:
Client Setup

To print in client-server mode from within a Windows 95 environment, it is necessary to setup the server on a Windows for Workgroups workstation.

Follow these steps to use your AXIS 570/670 MIO for client-server printing at a Windows 95 client:

1. Open the Network Neighborhood folder and select the server being used by the printer. Refer to *Client-Server Printing: Server Setup*, on page 85.
2. Select the printer, and follow the Add Printer Wizard to setup the printer on your client.

The client setup is completed and you can now print through your AXIS 570/670 MIO.



Windows NT

Setup for Peer-to-Peer Printing

Follow these steps to install your AXIS 570/670 MIO for peer-to-peer printing at a Windows NT 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 MIO port to be installed. The port appears as <name>.MIO, where <name> is AX followed by last six digits of your print server number e.g. AX100086.MIO. However, this alphanumeric name will be superseded by any new name given to your AXIS 570/670 MIO when using AXIS NetPilot™.
4. Accept or change the suggested Windows Port name, and type any comments in the Description field. Make a note of the Windows Port name as you will need this later, then click OK to install the Windows Port.
5. In the Port menu, click Connect to bring up Print Manager.
6. In the Printer menu, click Create Printer.
7. Type a name in the Printer Name field, select a suitable printer driver from the Driver list, and select Other... in the Print to list.
8. In the Print Destinations dialog, select Local Port, then click OK.
9. In the Port Name field, type: C:\~\<port>
where C:\~ is your spool directory, and <port> is the Windows Port name from step 4. Click OK.
10. Close the Print Manager.

The setup is completed and you can now print through your AXIS 570/670 MIO.

- Note:** AXIS Print Utility for Windows must be running when you print through your AXIS 570/670 MIO. We strongly recommend that you copy the AXIS Print Utility icon into your StartUp folder.



Client-Server Printing:
Client Setup

To print in client-server mode from within a Windows NT environment, it is necessary to setup the server on a Windows for Workgroups workstation.

Follow these steps to use your AXIS 570/670 MIO for client-server printing at a Windows NT client:

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

The client setup is completed and you can now print through your AXIS 570/670 MIO.

Windows NT - LPD Printing

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

If you have not already done so, you should perform the TCP/IP basic setup procedures prior to installing a printer for LPD printing. These procedures are defined in *Basic Set Up for TCP/IP*, on page 26.



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 skip to *Installing a Printer* below.

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

1. In the Control Panel, select Network.
2. Click Add Software..., select "TCP/IP Protocol and related components" and click Continue.
3. Check the "TCP/IP Network Printing Support" and click Continue.
4. Select path and then click Continue.
5. Click OK in the Network Settings dialog box.

Installing a Printer

Proceed as follows 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 printer driver suitable for your printer.
5. In the Print to field, select Other...
6. In the Print Destinations dialog, choose LPR Port, then click OK. The Add LPR Compatible Printer dialog now appears.
7. In the Name or Address field, type the IP address or the alias name of your AXIS 570/670 MIO.
 - If you use an alias name, this must be defined in the *hosts* file on your server prior to the installation. This file is normally located in */winnt35/system32/drivers/etc/hosts*.
8. In the Name of Printer on the Machine field, type the logical printer number you want to use, e.g. pr1. Click OK.
9. Click OK to complete the installation.



Other Windows Configuration Methods

AXIS NetPilot

After installing your printers using the AXIS Print Utility for Windows adjustments to the AXIS 570/670 MIO configuration can be made at any time using the AXIS NetPilot™.

Web Browser

If your network supports TCP/IP, you may alternatively configure the AXIS 570/670 MIO for operation within the Windows environment, using any standard Web browser. Any Windows parameter in the AXIS 570/670 MIO Configuration file may be amended from within the NetBIOS/NetBEUI Configuration Page. You may also monitor the status of your print jobs, download software updates and access useful information. Refer to *Section 9 - Web Based Management* for further information.



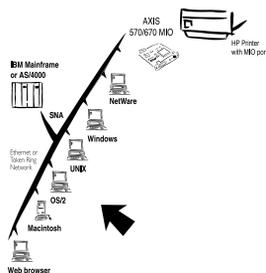
AXIS 570/670 MIO NetBIOS/NetBEUI Configuration Page

FTP

FTP provides another method for configuring the AXIS 570/670 MIO. For further information refer to *Editing using FTP*, on page 133.



Section 6 Setting Up - OS/2



This section describes how to set up your AXIS 570/670 MIO for printing in the OS/2 environment, after it has been connect to your network.

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

- Section 3 Setting Up - SNA
- Section 4 Setting Up - NetWare
- Section 5 Setting Up - Windows
- Section 7 Setting Up - Macintosh
- Section 8 Setting Up - UNIX
- Section 9 Web Based Management

Installation Using AXIS Print Utility for OS/2



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

Should you require to change the default name of your AXIS 570/670 MIO or amend any of default parameters use the AXIS NetPilot™ from any Windows platform that is connected to your network, or WinOS/2 window under OS/2.

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



About AXIS Print Utility for OS/2

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

1. Install and maintain the AXIS 570/670 MIO printer port as an OS/2 printer port.
2. Capture and monitor print jobs directed to the AXIS 570/670 MIO port. Print jobs may be directed through a spool directory either at your local hard disk, or at the file server. The printer port status of your AXIS 570/670 MIO may be monitored and pop-up notification messages can be generated, keeping you informed of completed print jobs or any problematic condition.

Note: The NetBEUI protocol must be active. If not, use MPTS/LAPS (LAN Server) or SETUP (LAN Manager) to activate it.

Install the AXIS 570/670 MIO

1. When AXIS Print Utility for OS/2 is running, click Install to install your AXIS 570/670 MIO. It will then appear in the list as <name>.MIO, where <name> is AX followed by last six digits of your print server number. e.g. AX100086.MIO. However, this alphanumeric name will be superseded by any new name given to your AXIS 570/670 MIO when using AXIS NetPilot™.
2. Select the port that you wish to install, then click Install.

Repeat this procedure for each server using the AXIS 570/670 MIO.

Note: The AXIS Print Utility for OS/2 must be running in order to print using your AXIS 570/670 MIO.



Integrating your AXIS 570/670 MIO into the OS/2 Environment

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

1. Double-click the Print Manager icon, click Setup, then select Printers...
2. Click Add to make a new printer definition, then type a name of your choice in the Name field.
3. Select \PIPE\- 4. Click Add, then click OK to confirm the printer definition.
- 5. Click Setup, then select Queues...
- 6. Click Add to create a print queue, and type a name in the Name field.
- 7. Click Add, then click OK to confirm the queue definition.

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

1. Double-click the Templates folder, then drag the Printer icon out to the Workplace Shell (or into a folder) while holding the right mouse button down.
2. Type a name of your choice in the Name field.
3. Select \PIPE\- 4. Click OK to confirm the printer definition.

Share the Print Queue

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

```
NET SHARE <queue_name> /PRINT
```

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

To share a printer resource when using OS/2 Warp with IBM Peer service, follow the steps below:

1. Click the right mouse button on the printer object.



2. Select Share and then Start sharing. In the dialogue box, enter a Description.
3. Select the check-box Start sharing at LAN workstation startup.
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 MIO.

Other OS/2 Configuration Methods

AXIS NetPilot

After installing your printers using the AXIS Print Utility for OS/2, adjustments to the AXIS 570/670 MIO configuration can be made at any time using the AXIS NetPilot™.

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



Web Browser

If your network supports TCP/IP, you may alternatively configure the AXIS 570/670 MIO for operation within the OS/2 environment, using any appropriate Web browser, e.g. Netscape Navigator for OS/2 Warp. Any OS/2 parameter in the AXIS 570/670 MIO Configuration file may be amended from within the NetNIO/NetBEUI Configuration Page, using HTTP. You may also monitor the status of your print jobs, download software updates and access useful information. Refer to *Section 9 - Web Based Management* for further information.



The AXIS 570/670 MIO NetBIOS/NetBEUI Configuration Page

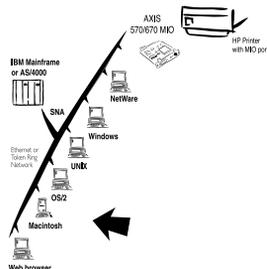
FTP

FTP provides another method for configuring the AXIS 570/670 MIO. For further information refer to *Editing using FTP*, on page 133.





Section 7 Setting Up - Macintosh



This section describes how to set up your AXIS 570 MIO for printing in the AppleTalk environment, after it has been connected to your network.

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

Section 3	Setting Up - SNA
Section 4	Setting Up - NetWare
Section 5	Setting Up - Windows
Section 6	Setting Up - OS/2
Section 8	Setting Up - UNIX
Section 9	Web Based Management

Note: Please note that the AXIS 670 MIO does not support the Apple TokenTalk environment.

Installation Using the Chooser Window

Basic Configuration



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

You may change the default name of your AXIS 570 MIO or amend any of default parameters if you wish. However, to access the *config* file from a Macintosh you will need FTP support such as MacTCP, Fetch or Anarchie. This is described in more detail later in this section.

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



Choosing a Printer

Selecting a Printer

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

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

LaserWriter 7.0 Printer Driver

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

1. Click the LaserWriter icon.
2. If your network has more than one zone, click on the zone you want. If your network has no zones, this box does not appear.
3. Click the name of the printer you want. The default AXIS 570 MIO printer names are shown as: AXIS<nnnnnn>_<port>, where <nnnnnn> is the last six digits of the AXIS 570 MIO serial number, and <port> is MIO. For example: AXIS100086_MIO.
4. Click the close box. This completes the configuration and closes the Chooser.

Repeat this procedure for each Macintosh on the network using the AXIS 570 MIO.

LaserWriter 8.0 Printer Driver

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

1. Click the LaserWriter 8.0 icon.
2. If your network has more than one zone click on the zone you want. If your network has no zones, this box does not appear.



3. Click the name of the printer you want. The default AXIS 570 MIO printer names are shown as:
AXIS<nnnnnn>_<port>, where <nnnnnn> is the last six digits of the AXIS 570 MIO serial number, and <port> is MIO. For example: AXIS100086_MIO.
4. Click the Setup... button, and then the Auto Setup button. If the printer supports bi-directional printing and the appropriate PPD file is available, the installation will now be performed automatically and you should proceed directly to step 6. However, if this is not the case, the PPD file must then be selected manually, as described in step 5.
5. Choose the PPD file matching your printer, and click OK. If your printer does not appear in the PPD file list, contact your printer vendor. You may also use the Generic PPD if you do not need any printer specific features.
6. Click OK, and then click the close box. This completes the configuration and closes the Chooser.

Repeat this procedure for each Macintosh on the network using the AXIS 570 MIO.

Bi-directional support

The AXIS 570 MIO allows the print driver in the Macintosh to directly communicate with the printer and consequently provides the Macintosh with full access to the printer functionality, e.g. automatic down-loading of fonts not resident in the printer. It is also able to generate response messages to Macintosh printer queries, for older printers without bi-directional support.

This functionality maintains backward compatibility with old printers and Macintosh computers.

Verifying the Set Up

To verify communication to the chosen printer, you simply need to print a document from the Macintosh. The basic installation can be considered complete if the print test is satisfactory. The AXIS 570 MIO is now ready to use as a print server.



- Note:** For information on advanced EtherTalk functions such as non-PostScript printer support, please refer to the Axis NPS Print Server Technical Reference. You can obtain this from your dealer or via the WWW. Refer also to *Appendix F - How To Contact Axis*, on page 167.

ASCII, TBCP and BCP

Binary Communication Protocol and Tagged Binary Communication Protocol are communication protocols used by the serial and parallel ports of a printer. They allow 8-bit binary data in files concurrent with the use of some control characters, for communication and print job control. TBCP is required for printing with a binary data stream on some printers, e.g HP printers.

You may select either ASCII or either of these binary data protocols for your printing within the Macintosh environment, by following the step by step 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.
6. Write a text file containing the following:

```
BINARY:YES  
BINARY_TYPE:TBCP
```

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

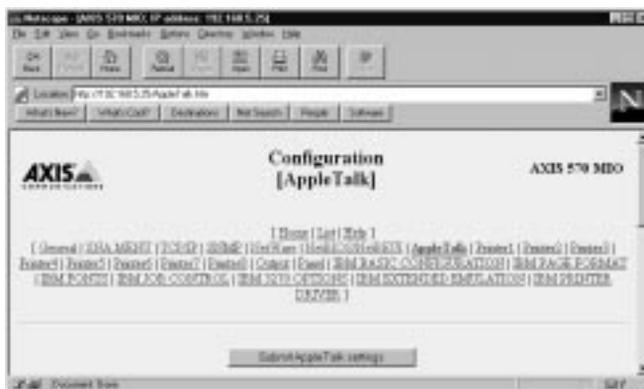


Other Macintosh Configuration Methods

Should you wish to change the AXIS 570 MIO default name or amend any of its default parameters from a Macintosh host, there are a number of configuration methods that you may wish to consider.

Web Browser

If your network supports TCP/IP, you may alternatively configure the AXIS 570 MIO using an appropriate Web browser. Any AppleTalk parameter in the AXIS 570 MIO Configuration file may be amended from within the AppleTalk Configuration Page, using HTTP. You may also monitor the status of your print jobs, download software updates and access useful information. Refer to *Section 9 - Web Based Management*, on page 125 for further information.



The AXIS 570 MIO AppleTalk Configuration Page

AXIS NetPilot

If you have a Windows platform connected to your network you may wish to install and manage the AXIS 570 MIO using the AXIS NetPilot™. Refer to *Basic Set Up with AXIS NetPilot™*, on page 23.



Using FTP

To access the *config* file from a Macintosh you will need FTP support such as MacTCP, Fetch or Anarchie. Follow the following procedure below to modify the *config* file using MAC_FTP:

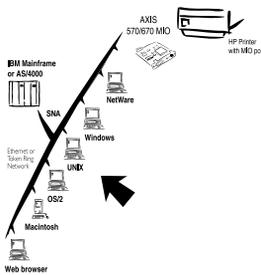
1. Start an FTP session using the command: `ftp <host name>`.
2. Login to the AXIS 570 MIO. Enter `root` as user id and `pass` as password.
3. Upload the *config* file by typing the command: `get config`.
4. Edit the file using your preferred text editor.
5. Down-load the edited *config* file to the AXIS 570 by typing the command: `put config CONFIG`.

- Notes:**
- The method for performing file transfers using FTP varies, depending upon which FTP application you are using.
 - In step 5, it is important that the edited filename is specified in block capitals. Otherwise, the edits are regarded as temporary and will be lost once the printer has been powered down.



Section 8 Setting Up - UNIX

Installation in the UNIX Environment



Having performed the basic TCP/IP setup procedures as defined in *Section 2 - Basic Installation*, you are now able to print in interactive mode using FTP or Reverse Telnet protocols.

However, should you require to integrate the AXIS 570/670 MIO into your host spooler you will now need to use the Axis automatic installation script *axinstall*. This software utility is resident on the AXIS 570/670 MIO and can be up-loaded to your host using FTP, so no disks or tapes are required. Having completed this operation the AXIS 570/670 MIO will appear as though it is directly connected to the host printer spooler.

If you intend to operate your AXIS 570/670 MIO in a multiprotocol environment, you should also proceed according to one or more of the following sections, as appropriate to your network.



Section 3	Setting Up - SNA
Section 4	Setting Up - NetWare
Section 5	Setting Up - Windows
Section 6	Setting Up - OS/2
Section 7	Setting Up - Macintosh
Section 9	Web Based Management



Integration into the Host Printer Spooler

To integrate the AXIS 570/670 MIO into the host printer spooler you will need to use the auto installation script *axinstall*, resident in the AXIS 570/670 MIO. You may install this software onto your host using FTP. To do this, login to the AXIS 570/670 MIO with this command:

```
ftp <host name>
```

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

You will be prompted to enter your user id and password. Use the user id *root*, which has the default password *pass* (*root* is the user id with the highest priority). Up-load the script using the command *get axinstall* as shown in the example below. Text that you enter is in bold.

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

```
> ftp npserver
connected to npserver.
220 AXIS 570/670 MIO FTP Printer Server
ready.
Name (npserver:thomas): root
331 User name ok, need password
Password: pass (not visible)
230 User logged in
ftp> get axinstall
220 PORT command successful.
150 Opening data connection for axinstall
(192,36,253,4,13,223) (0 bytes), (mode ascii).
226 Transfer complete.
local: axinstall remote: axinstall
27545 bytes received in 4.1 seconds (6.5 kbytes/s)
ftp> bye
221 Goodbye.
>
```

Typical FTP session for collecting the *axinstall* script



The *axinstall* script has now been up-loaded to your host. Execute the script with the 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 *- Print Methods on TCP/IP Networks*, on page 108 if you require guidance on the choice of print methods.

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

```
1...SunOS 4 (SUN BSD, Solaris 1.x)
2...SunOS 5 (SUN SYS V, Solaris 2.x)
3...AIX (IBM RS/6000, BULL DPX 20)
4...HP-UX (HP 9000)
5...BOS (BULL DPX 2)
6...DEC OSF/1 (Digital Equipment, Alpha)
7...ULTRIX (Digital Equipment, DEC)
8...IRIX (Silicon Graphics, SGI)
9...SCO UNIX (Santa Cruz Operation)
10...FreeBSD (Berkeley UNIX)
11...Generic BSD (Berkeley UNIX)
12...Generic SYS V R3 (UNIX System V Release 3)
13...Generic SYS V R4 (UNIX System V Release 4)
```

Systems supported by axinstall



Print Methods on TCP/IP Networks

The AXIS 570/670 MIO 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.

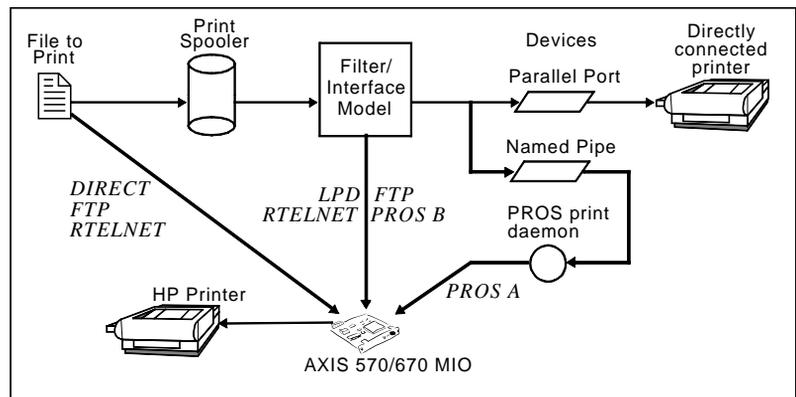


Illustration of different UNIX print methods

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 MIO 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 MIO appears as a device to the system. This makes all filter and model options available. It provides accounting and status logging. Supports bi-directional printing. The printer information read back can be viewed in a log file.

PROS A - Limitations:

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

PROS B **PROS B - Advantages:**

It provides accounting and status logging. Supports bi-directional printing. The printer information read back can be viewed in a log file.

PROS B - Limitations:

A 'C' compiler is required to build the PROS B drivers and in the case of BSD, it may conflict with other input or output filters. It does not allow both input and output filters. Interface programs can not be used in System V.

Reverse Telnet Often used for printing via a terminal server printer port. Only recommended if you already have a Reverse Telnet driver installed.

Advantages:

Easy to set up with previously installed Reverse Telnet drivers.

Limitations:

No status logging. Drivers are not supplied with the AXIS 570/670 MIO. 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 `probsd` (in the `bsd` directory of the AXIS 570/670 MIO) 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.

OS/2 Systems

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.

IBM MVS Systems

A sample JCL script, `jcllex`, is available in the `mvs` directory of the AXIS 570/670 MIO. It gives an example of how to print a file from an MVS mainframe to an AXIS 570/670 MIO using FTP.

IBM AS/400 Systems

SNA is the recommended method for printing from AS/400 systems, as described in *Section 3 - Setting Up - SNA*, on page 37. TCP/IP printing is also possible, although this does impose certain limitations. TCP/IP printing from AS/400 is covered in a white paper available on Internet, via the Axis WWW Home Page at <http://www.axis.com/>.

Windows NT Systems

If you are using Windows NT version 3.5 or later, you can use LPD printing over the TCP/IP protocol. Refer to *Windows NT - LPD Printing*, on page 90 for instructions on installing the TCP/IP protocol stack onto a Windows NT platform.



Using Logical Printers to Customize your Printing

The AXIS 570/670 MIO has a powerful facility for altering the print data. The following actions may be invoked from the AXIS 570/670 MIO:

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

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

Edit the parameters in the AXIS 570/670 MIO *config* file to configure a logical printer. Refer to *Appendix B - The Parameter List*, on page 133.

Character Set Conversion

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

The AXIS 570/670 MIO 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.

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.



There are several different filters to choose from within the PR1_CSET Character Set Conversion. Refer to *Appendix B - The Parameter List*, on page 133. The output from the conversion filter is always IBM PC Set 2 (Code Page 437), and this is the character set the printer must be set up for.

Example:

The Problem: Your network contains three hosts using the character sets IBM PC Set 2, ISO 8859-2, and DEC.

The Solution: Assign each host to a separate logical printer, and install character set conversion filters.

Edit the following entries in your *config* file:

PR1_CSET .	:	NONE
PR2_CSET .	:	ISO>IBM
PR3_CSET .	:	DEC>IBM

The Result:

Logical printer PR1 prints data transparently without conversion.

Logical printer PR2 converts ISO 8859-2 data to IBM PC Set 2.

Logical printer PR3 converts DEC data to IBM PC Set 2.

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



Adding Strings Before and After Print Jobs

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

All strings are entered as hexadecimal byte values.

Example 1:

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

PR5_AFT.	:	04
----------	---	----

Example 2:

You have an HP LaserJet printer with dual input bins, and want to print on pre-printed forms when using the logical printer PR4. The standard forms are taken from bin 1, and the pre-printed forms are taken from bin 2. The strings before and after print jobs should then contain commands to select bin 2 ($\text{^E}_C&14\text{H}$) and bin 1 ($\text{^E}_C&11\text{H}$) respectively. Edit the following entries in your *config* file:

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

String Substitutions

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



All strings must be entered as hexadecimal byte values, and each match and substitute string must be preceded by a count byte. Refer to PR1_STR String Substitutions in *Appendix B - The Parameter List*, on page 133.

Example 1:

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

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

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

Example 2:

To replace the UNIX New Line (hex 0A) with an ASCII NewLine (hex 0D 0A), and the printer command ^EC_G1 (hex 1B 47 31) with ^EC_Y (hex 1B 59) for logical printer PR2, edit the following entry in your *config* file:

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

Note: Extensive use of string substitutions will naturally decrease the throughput rate of the AXIS 570/670 MIO.



ASCII to Postscript Conversion

The AXIS 570/670 MIO logical printers can translate ASCII print data into PostScript format. This makes it possible to print with a PostScript printer from a host that does not support PostScript. The conversion is selected by activating a filter that converts ASCII data into Postscript. This filter may be activated individually for each logical printer.

Example:

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

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

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

When a logical printer is set for PostScript conversion it needs to know the page size, page orientation, page formats and which font is to be used. The default page size is A4 and the default page orientation is Portrait, while the page format parameters are:

Page Format Parameter	Default Value	
Lines per page	66	
Characters per line	0	0=disable line wrap
Characters per inch	10.0	
Lines per inch	60	60 = 60 lines per inch
Left margin	30	30 = 3.0 mm
Top margin	50	50 = 5.0 mm



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

Example:

The following entries are needed in your *config* file to set up logical printer number 2 for ASCII to PostScript conversion with the stated printing characteristics.

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

Read-back of information

The AXIS 570/670 MIO supports bi-directional printing. The information from the printer is read back on the MIO port when the parameter PRx_IN has the default setting of AUTO. However, it is required that the printer also supports bi-directional printing. Through the parameter PRx_IN the communication can be disabled.

Example:

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

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

Debugging using the Hex Dump Mode

When hex dump mode is activated, the print data is printed as hexadecimal byte values rather than characters; printer control commands are also printed as hex values. This allows you to inspect the control and print characters sent to the printer, which is a useful debugging facility for the more difficult printing problems.

Example:



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

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

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



Using Telnet with the AXIS 570/670 MIO

The *Telnet support* makes it possible to log in to the AXIS 570/670 MIO and execute various commands as shown in the example below. Use the following command to log in: `telnet <host name>`. Text that you enter is in bold.

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

AXIS 570/670 MIO TELNET Printer Server

AXIS 570/670 MIO network login: root
Password: pass(not visible)

AXIS 570/670 MIO TELNET Printer Server

Root> help
Commands may be abbreviated:
logoutlogout from TELNET
versionprint current software version
helpprint this list
statusshow current printing status
accountshow current account file
softresetprotocol restart of AXIS 570/670 MIO
hardresetreboot of AXIS 570/670 MIO
defaultstset default parameters in AXIS 570/670 MIO
Root> logout
Goodbye!
Connection closed by foreign host.
>
```

Typical Telnet session to display available commands

Telnet support: Telnet is a TCP/IP command that allows you to manage a remote system, in this case the AXIS 570/670 MIO. The AXIS 570/670 MIO has a number of built in commands that can be executed via Telnet. Recent firmware updates may have changed the commands that are available, so use the help command (as shown above) to list the Telnet facilities in your print server.



Viewing the AXIS
570/670 MIO
Accounting File using
Telnet

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

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

AXIS 570/670 MIO TELNET Printer Server

AXIS 570/670 MIO network login: root
Password: pass (not visible)

AXIS 570/670 MIO TELNET Printer Server

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

Typical Telnet session to view the Accounting File

- Note:** Since the print server supports HTTP, the accounting of the AXIS 570/670 MIO may also be viewed using a Web browser. Click Account on the AXIS 570/670 MIO Home Page to examine the status of any print jobs.



Viewing the
AXIS 570/670 MIO
Status using Telnet

The status command shows which printer port the logical printers are assigned to, and their current status. An example is shown below. Text that you enter is in bold.

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

AXIS 570/670 MIO TELNET Printer Server

AXIS 570/670 MIO network login: root
Password: pass (not visible)

AXIS 570/670 MIO TELNET Printer Server

Root> status
Current printer status:
Printer Port Status Bytes printed Comments
pr1 MIO Occupied Ready
pr2 MIO Available Busy Out of paper
pr3 MIO Available Busy
pr4 MIO Available Busy
pr5 MIO Printing 20916 Ready
pr6 MIO Available Busy Out of paper
pr7 MIO Available Busy
pr8 MIO Available Busy

Root>
```

Typical Telnet session to view AXIS 570/670 MIO status

- Note:** Since the print server supports HTTP, the accounting of the AXIS 570/670 MIO may also be viewed using a Web browser. Click Status on the AXIS 570/670 MIO Home Page to examine the status of any print jobs.



Using SNMP for Remote Monitoring

You may use SNMP (Simple Network Management Protocol) for remote monitoring of the AXIS 570/670 MIO. All major functions applicable to print servers are supported.

General Information

SNMP actually refers to a set of standards for network management, including a protocol, a database structure specification, and a set of data objects. The AXIS 570/670 MIO SNMP implementation runs in the TCP/IP environment.

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

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

The AXIS 570/670 MIO supports all relevant parts of MIB-II. It also includes a private enterprise MIB. For more information see, *The AXIS MIB*, on page 122.



System Requirements for SNMP

The following requirements must be fulfilled in order to make full use of the AXIS 570/670 MIO SNMP support:

- An NMS software that allows you to install private enterprise MIBs.
- A host that supports FTP on which to run the NMS software. Follow these steps to add the AXIS MIB to your NMS software:
 1. Log in to the AXIS 570/670 MIO using FTP.
 2. Up-load the MIB file */snmp/axis.mib* to the NMS host.
 3. Install the AXIS MIB according to instructions in your NMS software documentation.

The AXIS MIB

The AXIS MIB contains a large number of objects which may be categorized as follows:

- Menu objects - used for viewing and changing the AXIS 570/670 MIO configuration from the NMS program. Refer to *Appendix B - The Parameter List*, on page 133.
- Printer status and unit administration objects - used for monitoring AXIS 570/670 MIO print jobs and storing parameter changes permanently.
- Trap objects - used for alarms at various error conditions.

For technical details, you can view the MIB file (*axis.mib*) with any text editor.



Other UNIX Configuration Methods

Web Browser

You may alternatively configure the AXIS 570/670 MIO for operation within the TCP/IP environment, using an appropriate Web browser. Any TCP/IP parameter in the AXIS 570/670 MIO Configuration file may be amended from within the TCP/IP Configuration Page, using HTTP. You may also monitor the status of your print jobs, download software updates and access useful information. Refer to *Section 9 - Web Based Management*, on page 125 for further information.



The AXIS 570 MIO TCP/IP Configuration Page

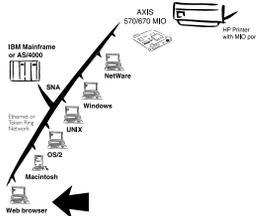
FTP

FTP provides another method for configuring the AXIS 570/670 MIO. For further information refer to *Editing using FTP*, on page 133.





Section 9 Web Based Management



Having established TCP/IP communication as described in *Section 2 - Basic Installation*, you are now able to access your AXIS 570/670 MIO from any standard Web browser.

The Web pages within the AXIS 570/670 MIO provide a quick and easy management tool for performing print server configuration tasks within the supported networking environments. Whether printing from within a SNA, NetWare, UNIX, Windows, OS/2, Macintosh or mixed networking environment, you will find the ease with which you can amend the AXIS 570/670 MIO configuration parameters using HTTP, a considerable benefit.

The information provided within this section will provide an informative and valuable supplement to previous sections of this manual that are relevant to your network. It describes how you may access the Home Page of the AXIS 570/670 MIO and also explains how the unit may be configured for use within your local networking environment.



Web browser

After successfully navigating your way around the AXIS 570/670 MIO Web pages you may proceed to one or more of the following sections, as appropriate to your type of network.

Section 3	Setting Up - SNA
Section 4	Setting Up - NetWare
Section 5	Setting Up - Windows
Section 6	Setting Up - OS/2
Section 7	Setting Up - Macintosh
Section 8	Setting Up - UNIX



Accessing the Web Pages

Preparation

To access the AXIS 570/670 MIO Home Page the Internet address must be set, as described in *Basic Set Up for TCP/IP*, on page 26.

Accessing the Configuration Pages

Follow the steps below to access the Home Page of the AXIS 570/670 MIO. The browser used in the following example is Netscape Navigator.

1. Start the Netscape Navigator.
2. From the File menu, select Open Location...
3. Enter the Internet Address of the AXIS 570/670 MIO as a URL in your browser, as detailed below:



4. If you have assigned a host name, you may refer directly to the host name instead:





5. The Home Page of your AXIS 570/670 MIO will now be displayed in your browser.



The AXIS 570/670 MIO Home Page



HTTP Management Services



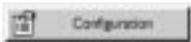
Links to the following services are available from the Home Page of the AXIS 570/670 MIO:

- Configuration
- Management
- Status
- Account
- Help



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

Services Summary



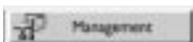
A summary of the services provided from the Home Page follows:

From within the Configuration pages you may:

- Modify configuration parameters of the AXIS 570/670 MIO. A complete list of these parameters is contained in *Appendix B - The Parameter List*, on page 133.
- Enable and disable any of the available networking protocols and modify their operation from appropriate configuration pages.
- Change the node address.
- Amend the root password.

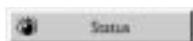
Note: When clicking on either Management or Configuration for the first time, you will be asked to provide a username and password. By default these are set to `root` and `pass`, respectively.

Caution Any network configuration should involve the Network Administrator.

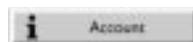


The Management Page allows you to reset the AXIS 570/670 MIO and set the parameters to the factory default values. You may also view basic information about your AXIS 570/670 MIO, i.e. the current software version, Ethernet address, serial number, base URL address, enabled networking protocols.

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



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



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



The AXIS NetPilot™ Help utility is primarily designed to assist users with the use of the AXIS NetPilot™. However, the information contained in this help utility is equally relevant to network configuration and management activities that can be performed via the internal Web pages of the AXIS 570/670 MIO. An HTTP version of the AXIS NetPilot™ Help facility is therefore made available to assist you to with any of the operations detailed above.



Section 9: Web Based Management



Appendix A The Test Button

The Test Button is located on the front panel of the AXIS 570/670 MIO. Press this button to:

- Print a test page, to check the connection to the printer.
- Print a parameter list, to define the current settings within your AXIS 570/670 MIO.
- Reset the AXIS 570/670 MIO parameters to the original factory default settings.

The functionality of the Test Button is determined by the power status of the AXIS 570/670 MIO and the number of times the button is pressed.

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

The Test Page

After installing your AXIS 570/670 MIO into the printer it is recommended that you print out a test page to verify that the interface is functioning correctly. To print a test page press the Test Button once. The printed Test Page contains basic information about the AXIS 570/670 MIO.

The Parameter List

To print the current parameter settings installed in your AXIS 570/670 MIO, press the Test Button twice in rapid succession.

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

- Some of the parameters require that the AXIS 570/670 MIO is restarted before becoming effective.



Factory Default Settings

To reset the AXIS 570/670 MIO to the factory default settings:

1. Switch off the printer.
2. Press and hold the Test button, then switch on the printer. Keep the Test button pressed for at least 20 seconds after restoring power to the printer until the Network indicator flashes at one second intervals.
3. Release the Test button and wait at least five seconds (five indicator flashes).
4. Press and hold the Test button again for at least five seconds until the Network indicator remains constantly lit.

The AXIS 570/670 MIO is now reset to factory default settings. Restart the AXIS 570/670 MIO by switching the printer off and on.

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



Appendix B The Parameter List

This appendix contains an overview of the AXIS 570/670 MIO parameters and how to edit them. A sample parameter list is included in this appendix. However please note that there may be some differences in the parameter list in your print server because of recent firmware updates.

Please refer to the AXIS Network Print Server Technical reference for a complete description of the parameters. Alternatively you may wish to access the Axis WWW Home Page at <http://www.axis.com/>, where you can down-load the latest technical information.

Editing using AXIS NetPilot™

The parameters are most easily edited using the AXIS NetPilot™ software from a Windows platform.

Editing using a Web browser

If your network supports TCP/IP you may view and edit the AXIS 570/670 MIO parameter list using any standard Web browser.

Editing using FTP

You can also use FTP to connect to your AXIS 570/670 MIO. The parameters are stored in a file named *config*. The parameters can be set by editing this file by carrying out these three steps:

1. Up-load the *config* file to your system.
2. Edit the parameter values.
3. Down-load the modified file to the AXIS 570/670 MIO.

To use FTP to change the *config* file:

1. Log in to the AXIS 570/670 MIO. Command:
`ftp <host name>↓`. Enter `root` as user id and `pass` as password.
2. Up-load the config file. Command: `get config↓`
3. Edit the file using your preferred text editor.



4. Down-load the config file. Command: `put config CONFIG`

Editing from a Macintosh

If you are using an Apple EtherTalk system you will need MacTCP on your computer, and an *ftp* utility (e.g. Fetch or Anarchie) to get access to the *config* file from your Macintosh. Proceed as described above.

Editing from an IBM host

Once communication with an IBM host has been established, all the AXIS 570/670 MIO 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 password (pass), the
                          password is optional)
PRBANK = PCL5;
%CONFIG++
NETW_ENB = NO;
%CONFIG--
SAVE;
%CONFIG-
```

Note: For parameters requiring more than one value, the values should be separated using a comma.

Editing Using the Printer Front Panel

A number of parameters controlling basic communication and printer emulation in the SNA environment can be set up using the printer front panel. This is particularly useful in networks where no Windows computers are available to run the AXIS NetPilot™ utility. The parameters that can be set up are:

- SYSL – System Language
- PREMUL – Printer Emulation
- DEVICE_EMUL – Control Unit Device Emulation
- NODE_ID – Node Identifier
- NODE_SAP – Node Service Access Point
- H1_ADDR – Host (destination) MAC Address
- H1_SAP – Host Service Access Point
- H1_NW_NAME – Host Network Name
- H1_LU_NAME – Host LU Name
- AUTO_DIAL – Automatic Link Establishment
- NODE_ADDR – Node Address (AXIS 670 MIO)
- INT_ADDR – IP Address



- ❑ The *Host Network Name* and the *Host LU Name* can be up to eight characters long. Press the Item key to move the cursor. Edit the selected character by using the + and - keys. When the string is correct press the Enter key to store the value. The cursor is indicated by a lower case letter or an underlining character but not if the character is a digit.

To make it possible to enter the parameter values using the HP Printer front panel, the settings have been grouped according to the table below:

MIO Menu	SNA LCL cfg	SNA HST cfg	TCP/PI cfg	General cfg (670 only)
Emul cfg	dev emul	h1 mac addr 1	ip addr 1	node addr 1
sysl	node id 1	h1 mac addr 2	ip addr 2	node addr 2
premul	node id 2	h1 mac addr 3	ip addr 3	node addr 3
page size	node id 3	h1 mac addr 4	ip addr 4	node addr 4
	node id 4	h1 mac addr 5		node addr 5
	node sap	h1 mac addr 6		node addr 6
	auto dial	h1 sap		
		h1 nw name		
		h1 lu name		

AXIS 570/670 MIO MENU TABLE



To access the front panel setup do as follows:

1. Make sure the printer is turned on and that the AXIS 570/670 MIO is properly installed.
2. Press the On line key on the printer once to set the printer off line. Check that the Ready light is off.
3. Press the Menu key repeatedly until the printer display reads "MIO MENU".
4. Press the Item key once. The display shows "CFG=NO*".
5. Press the + key. The display shows "CFG=YES".
6. Press the Enter key. The display shows "CFG=YES*".
7. Press the Item key until the display shows the name of the configuration setting you wish to alter.
8. Press the + key.
9. Press the Enter key.
10. Press the Item key until the name and value of the parameter you wish to edit is displayed.
11. Edit the value by using the + and - keys. If you keep the keys pressed, the value will change more rapidly.
12. Press the Item key and edit all other parameters you wish to alter as their names and values are displayed. When all parameters of a group of settings have been displayed, the Item key will display the name of the next group of settings. If you wish to change other settings, repeat from step 7.
13. When you have made all settings, if the display does not show "PRT PARLIST=NO*", then press the Item key until it does.
14. If you want a printout of the AXIS 570/670 MIO parameter list, press the + key and press Enter.
15. Press the On line key to make the printer ready to accept your print jobs.



The Config File

The remainder of this appendix contains the complete AXIS 570/670 MIO parameter list. The left column shows the parameters and their default values as they appear in the config file, and the right column contains brief descriptions of the parameters. Parameters that can be changed via the printer's Front Panel are marked with an * in the right-hand column. When setting up parameters by printing a configuration file from an IBM system, most parameters require the use of the %CONFIG++ command. These are marked with a vertical double bar in the margin.

--- CONFIG MENU		
NODE_ADDR.	: 00 40 8C 10 00 86	Node Address *
ROOT_PWD.	: pass	Root Password
USERS.	:	User Authority and Printer Access
S_ROUTE.	: AUTO (OFF, SINGLE, ALL, AUTO)	Token Ring Source Routing Mode (<i>Only AXIS 670 MIO</i>)
BASE_URL	: www.axis.com	Default Base URL address

--- 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
NODE_ID	: E0 7x xx xx	Node Identifier (IDBLK/IDNUM value) <i>Only 3270 CU mode</i> *
NODE_SAP	: 4	Node Service Access Point *
NWORK_NAME	: APPN	Node Network Name <i>Only 5250 CU mode</i>
MODE_NAME	: QRMTWSC	Node Mode Name <i>Only 5250 CU mode</i>
LU_NAME	: Axxxxxxx	Node LU Name (<i>5250 CU mode only</i>), where xxxxxxx = server serial number in reverse order
CP_NAME	: Axxxxxxx	Node Control Point Name (<i>5250 CU mode only</i>), where xxxxxxx = server serial number in reverse order
H1_ADDR	: FF FF FF FF FF FF	Host MAC Address *
H1_SAP	: \$4	Host Service Access Point *
H1_NW_NAME	: APPN	Host Network Name <i>Only 5250 CU mode</i> *
H1_MOD_NAME	: QRMTWSC	Host Mode Name <i>Only 5250 CU mode</i>
H1_LU_NAME	: DEFAULT	Host LU Name <i>Only 5250 CU mode</i> *
AUTODIAL.	: NO	Automatic Link Establishment *
DIALTIME.	: 20	Link Establishment Retry Time
JOB_TIME.	: 3	Job Separation Time-out
IR_TIME.	: 10	Intervention Required Time-out
N_PRT_DEV.	: 1 (1-8)	Maximum Number of 5494 Printer Device Descriptions
SNA_HEXDUMP	: NONE (NONE, R1, PR2, PR3, PR4, PR5, PR6, PR7, PR8)	SNA Hexdump Destination



--- TCP/IP MENU		
TCP_ENB.	: YES	TCP/IP Protocol Enabled
INT_ADDR.	: 192 36 253 80	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.	: NO	LPD Banner Page Disabled
DHCP_ENB.	: NO	DHCP Protocol
BOOTP_ENB.	: YES	BOOTP Protocol Enabled
RARP_ENB.	: YES	RARP Protocol Enabled
RTN_OPT.	: YES	Reverse Telnet Options Enabled
RTEL_PR1.	: 0	PR1 Reverse Telnet TCP Port Number (0 for Disabled)
RTEL_PR2.	: 0	PR2 Reverse Telnet TCP Port Number (0 for Disabled)
RTEL_PR3.	: 0	PR3 Reverse Telnet TCP Port Number (0 for Disabled)
RTEL_PR4.	: 0	PR4 Reverse Telnet TCP Port Number (0 for Disabled)
RTEL_PR5.	: 0	PR5 Reverse Telnet TCP Port Number (0 for Disabled)
RTEL_PR6.	: 0	PR6 Reverse Telnet TCP Port Number (0 for Disabled)
RTEL_PR7.	: 0	PR7 Reverse Telnet TCP Port Number (0 for Disabled)
RTEL_PR8.	: 0	PR8 Reverse Telnet TCP Port Number (0 for Disabled)

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

--- NETWARE MENU		
NETW_ENB.	: YES	NetWare Protocol Enabled
PS_NAME.	: AXIS100086	Print Server Name (100086 are the last six digits of the serial number)
JOB_CHECK_DELAY.	: 5	Print Server queue polling interval
CONF_CHECK_DELAY.	: 60	Interval between automatic configuration checks
FR_802_3.	: YES	IEEE 802.3 Frame Type Enabled
FR_ETH_2.	: YES	Ethernet II Frame Type Enabled
FR_802_2.	: YES	IEEE 802.2 Frame Type Enabled
FR_SNAP.	: YES	SNAP Frame Type Enabled
NCP_BURST_MODE.	: YES	NCP Burst Mode Enable
PSEVER_NDS.	:	File server & Name of print server (including context)
PSEVER_BINDERY1.	:	Bindery file server name
PSEVER_BINDERY2.	:	Bindery file server name
PSEVER_BINDERY3.	:	Bindery file server name
PSEVER_BINDERY4.	:	Bindery file server name
PSEVER_BINDERY5.	:	Bindery file server name
PSEVER_BINDERY6.	:	Bindery file server name
PSEVER_BINDERY7.	:	Bindery file server name
PSEVER_BINDERY8.	:	Bindery file server name
PSEVER_BINDERY9.	:	Bindery file server name



Appendix B: The Parameter List

PSEVER_BINDERY10.	:	Bindery file server name
PSEVER_BINDERY11.	:	Bindery file server name
PSEVER_BINDERY12.	:	Bindery file server name
PSEVER_BINDERY13.	:	Bindery file server name
PSEVER_BINDERY14.	:	Bindery file server name
PSEVER_BINDERY15.	:	Bindery file server name
PSEVER_BINDERY16.	:	Bindery file server name
NPRINTER1.	:	Print Server name. Slot
NPRINTER2.	:	Print Server name. Slot
NPRINTER3.	:	Print Server name. Slot
NPRINTER4.	:	Print Server name. Slot
NPRINTER5.	:	Print Server name. Slot
NPRINTER6.	:	Print Server name. Slot
NPRINTER7.	:	Print Server name. Slot
NPRINTER8.	:	Print Server name. Slot

--- LAN SERV/LAN MGR MENU		
LSLM_ENB.	:	LAN Server/LAN Manager Protocol Enabled
NB_FR_TYPE.	:	FR_AUTO (FR_AUTO, FR_802_2, FR_DIX) LAN Server/LAN Manager Protocol Enabled
LPRINT_1.	:	AX100086.MIO Printer 1 Name (<i>100086 are the last six characters of the serial number</i>)
LLOGIC_1.	:	PR1 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8 MIO) Printer 1 Logical Printer
LPRINT_2.	:	Printer 2 Name
LLOGIC_2.	:	PR2 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8 MIO) Printer 2 Logical Printer
LPRINT_3.	:	Printer 3 Name
LLOGIC_3.	:	PR3 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8 MIO) Printer 3 Logical Printer
LPRINT_4.	:	Printer 4 Name
LLOGIC_4.	:	PR4 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8 MIO) Printer 4 Logical Printer
LPRINT_5.	:	Printer 5 Name
LLOGIC_5.	:	PR5 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8 MIO) Printer 5 Logical Printer
LPRINT_6.	:	Printer 6 Name
LLOGIC_6.	:	PR6 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8 MIO) Printer 6 Logical Printer
LPRINT_7.	:	Printer 7 Name
LLOGIC_7.	:	PR7 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8 MIO) Printer 7 Logical Printer
LPRINT_8.	:	Printer 8 Name
LLOGIC_8.	:	PR8 (PR1, PR2, PR3, PR4, PR5, PR6, PR7, PR8 MIO) Printer 8 Logical Printer



--- APPLE TALK MENU		
ATLK_ENB.	: YES	AppleTalk Protocol Enabled
ATK_ZONE.	:	AppleTalk Zone
ZONER_EN.	: YES	HP Zoner Enabled
ATK_FONT.	: DEFAULT (DEFAULT 35N ALL)	PostScript Font Set
BINARY.	: YES	Binary Transfer Enabled
BINARY_TYPE.	: TBCP (TBCP, BCP)	Type of Binary Communication Protocol used if Binary Transfer (see above) is enabled
APRINT_1.	: AXIS100086_MIO	Printer 1 Name (<i>100086 are the last six digits of the serial number</i>)
ATYPE_1.	: LaserWriter	Printer 1 Type
ALOGIC_1.	: PR1 (PR1 PR2 PR3 PR4 PR5 PR6 PR7 PR8 MIO)	Printer 1 Logical Printer
APRINT_2.	: AXIS100086_2	Printer 2 Name (<i>100086 are the last six digits of the serial number</i>)
ATYPE_2.	:	Printer 2 Type
ALOGIC_2.	: PR2 (PR1 PR2 PR3 PR4 PR5 PR6 PR7 PR8 MIO)	Printer 2 Logical Printer

--- PRINTER1 MENU		
PR1_WAIT.	: YES	PR1 Wait on Busy
PR1_IN.	: AUTO (NONE AUTO)	PR1 Read-Back Port
PR1_BEF.	:	PR1 String Before Print Job
PR1_STR.	:	PR1 String Substitutions
PR1_CSET.	: NONE (NONE ISO>IBM 7UK>IBM 7SW>IBM 7GE>IBM 7FR>IBM 7ND>IBM DEC>IBM)	PR1 Character Set Conversion
PR1_FILT.	: NONE (NONE POSTSCR AUTO_PS)	PR1 Printer Language Translation
PR1_AFT.	:	PR1 String After Print Job
PR1_DUMP.	: NO	PR1 Hex Dump Mode
PR1_SIZE.	: A4 (A4 LETTER LEGAL EXECUT)	PR1 PostScript Page Size
PR1_ORNT.	: PORTR (PORTR LANDS R_PORTR R_LANDS)	PR1 PostScript Page Orientation
PR1_FORM.	: 66 0 100 60 30 50	PR1 PostScript Page Format (<i>MPL, MPP, CPI, LPI, LM, TM</i>)
PR1_FONT.	:	PR1 PostScript Font (<i>Courier when not specified</i>)

--- PRINTER2 MENU		
PR2_WAIT.	: YES	PR2 Wait on Busy
PR2_IN.	: AUTO (NONE AUTO)	PR2 Read-Back Port
PR2_BEF.	:	PR2 String Before Print Job
PR2_STR.	:	PR2 String Substitutions
PR2_CSET.	: NONE (NONE ISO>IBM 7UK>IBM 7SW>IBM 7GE>IBM 7FR>IBM 7ND>IBM DEC>IBM)	PR2 Character Set Conversion
PR2_FILT.	: NONE (NONE POSTSCR AUTO_PS)	PR2 Printer Language Translation
PR2_AFT.	:	PR2 String After Print Job
PR2_DUMP.	: NO	PR2 Hex Dump Mode
PR2_SIZE.	: A4 (A4 LETTER LEGAL EXECUT)	PR2 PostScript Page Size
PR2_ORNT.	: PORTR (PORTR LANDS R_PORTR R_LANDS)	PR2 PostScript Page Orientation
PR2_FORM.	: 66 0 100 60 30 50	PR2 PostScript Page Format (<i>MPL, MPP, CPI, LPI, LM, TM</i>)
PR2_FONT.	:	PR2 PostScript Font (<i>Courier when not specified</i>)



Appendix B: The Parameter List

--- PRINTER3 MENU		
PR3_WAIT.	: YES	PR3 Wait on Busy
PR3_IN.	: AUTO (NONE AUTO)	PR3 Read-Back Port
PR3_BEF.	:	PR3 String Before Print Job
PR3_STR.	:	PR3 String Substitutions
PR3_CSET.	: NONE (NONE ISO>IBM 7UK>IBM 7SW>IBM 7GE>IBM 7FR>IBM 7ND>IBM DEC>IBM)	PR3 Character Set Conversion
PR3_FILT.	: NONE (NONE POSTSCR AUTO_PS)	PR3 Printer Language Translation
PR3_AFT.	:	PR3 String After Print Job
PR3_DUMP.	: NO	PR3 Hex Dump Mode
PR3_SIZE.	: A4 (A4 LETTER LEGAL EXECUT)	PR3 PostScript Page Size
PR3_ORNT.	: PORTR (PORTR LANDS R_PORTR R_LANDS)	PR3 PostScript Page Orientation
PR3_FORM.	: 66 0 100 60 30 50	PR3 PostScript Page Format (MPL, MPP, CPI, LPI, LM, TM)
PR3_FONT.	:	PR3 PostScript Font (Courier when not specified)

--- PRINTER4 MENU		
PR4_WAIT.	: YES	PR4 Wait on Busy
PR4_IN.	: AUTO (NONE AUTO)	PR4 Read-Back Port
PR4_BEF.	:	PR4 String Before Print Job
PR4_STR.	:	PR4 String Substitutions
PR4_CSET.	: NONE (NONE ISO>IBM 7UK>IBM 7SW>IBM 7GE>IBM 7FR>IBM 7ND>IBM DEC>IBM)	PR4 Character Set Conversion
PR4_FILT.	: NONE (NONE POSTSCR AUTO_PS)	PR4 Printer Language Translation
PR4_AFT.	:	PR4 String After Print Job
PR4_DUMP.	: NO	PR4 Hex Dump Mode
PR4_SIZE.	: A4 (A4 LETTER LEGAL EXECUT)	PR4 PostScript Page Size
PR4_ORNT.	: PORTR (PORTR LANDS R_PORTR R_LANDS)	PR4 PostScript Page Orientation
PR4_FORM.	: 66 0 100 60 30 50	PR4 PostScript Page Format (MPL, MPP, CPI, LPI, LM, TM)
PR4_FONT.	:	PR4 PostScript Font (Courier when not specified)

--- PRINTER5 MENU		
PR5_WAIT.	: YES	PR5 Wait on Busy
PR5_IN.	: AUTO (NONE AUTO)	PR5 Read-Back Port
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
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_WAIT.	: YES	PR6 Wait on Busy
PR6_IN.	: AUTO (NONE AUTO)	PR6 Read-Back Port
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
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_WAIT.	: YES	PR7 Wait on Busy
PR7_IN.	: AUTO (NONE AUTO)	PR7 Read-Back Port
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
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_WAIT.	: YES	PR8 Wait on Busy
PR8_IN.	: AUTO (NONE AUTO)	PR8 Read-Back Port
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
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_BSYTM.	: 60	MIO Busy Status Time-Out

--- PANEL MENU		
DEF_OUT.	: PR1 (PR1 PR2 PR3 PR4 PR5 PR6 PR7 PR8 MIO)	Internal Printout Destination
LOCK_KEY	: NO	Lock Test Button (no function)



--- 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



Appendix B: The Parameter List

--- IBM PRINTER DRIVER		
PRDRIVER.	: PCL5 (USER, PCL4, PCL5)	Printer Bank 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
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 31 48	Bin 3 Select Sequence
BIN4S.	: 1B 26 6C 32 48	Bin 4 Select Sequence
BIN5S.	: 1B 26 6C 36 48	Bin 5 Select Sequence
BIN6S.	: 1B 26 6C 31 48	Bin 6 Select Sequence
CSIZS.	:	Custom Size Sequence
JOGS.	: 1B 26 6C 31 54	Jog Sequence
SBSET.	: PC850 (PC850, ROMAN8, PC347, ECMA94, USASCII USER)	Symbol Set

--- FONT	FGID	CSSF	SBSET	SPACING	PITCH	HEIGHT	STYLE	STROKE	TYPEFACE
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

Appendix B: The Parameter List



--- FONT	FGID	CSSF	SBSET	SPACING	PITCH	HEIGHT	STYLE	STROKE	TYPEFACE
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	UPRIGHT	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	UPRIGHT	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	UPRIGHT	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	UPRIGHT	MEDIUM	4102
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	MEDIUM	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
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
FONT.	: 3855	100	DEFAULT	PROP	0	0	NONE	BOLD	4148
FONT.	: 3856	100	DEFAULT	PROP	0	0	NONE	MEDIUM	4148
FONT.	: 3857	100	DEFAULT	PROP	0	0	NONE	BOLD	4148
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
FONT.	: 3867	100	DEFAULT	PROP	0	0	UPRIGHT	NONE	4362



Appendix B: The Parameter List

FONT	FGID	CSSF	SBSET	SPACING	PITCH	HEIGHT	STYLE	STROKE	TYPEFACE
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	BOLD	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
FONT.	: 3877	100	DEFAULT	PROP	0	0	UPRIGHT	MEDIUM	31402
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
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

1B 28 31 39 4D
1B 28 35 37 39 4C



Appendix C Extended IBM Printer Emulation

When printing from an IBM host, the AXIS 570/670 MIO allows you to make use of printer functions not found in standard IBM printers. This section gives an overview of some of these functions – please refer to the NPS Technical Reference for a complete description.

The functions covered in this section are:

- Hex Transparency – using all the features of the connected printer from the IBM system environment.
- Bar Codes – printing various standard bar codes.
- Font Selection – easy access to the resident fonts of the connected printer.



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 MIO 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 MIO.

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 to 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` 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.

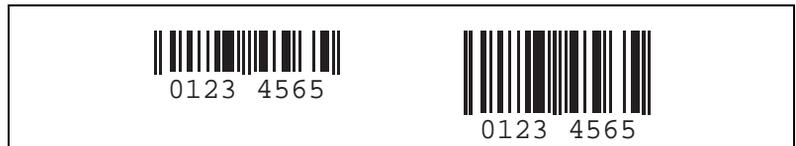
```
%CONFIG+  
BAR 0 = EAN8,12,4,ON;  
BAR 1 = EAN8,12,8,ON;  
SAVE;  
%CONFIG-  
  
%/BAR 0,"0123456"; %/BAR 1,"0123456";
```

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:



Font Selection 3270
CU Mode

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 MIO offers an alternative font selection command.

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
```



Notes: The following fonts are available by default:

FGID	Pitch(CPI)	IBM Font Name	PCL font name
11	10	Courier 10	Courier
86	12	Prestige Elite	Courier
204	13.3	Gothic Text 13	Letter Gothic
230	15	Gothic Text 15	Letter Gothic
244	5	Courier 5	Courier
252	17.1	Courier 17	Courier
281	20	Gothic Text 20	Letter Gothic
290	26.7	Gothic Text 27	Letter Gothic

- These 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).

Font Selection, 5250 CU mode

This appendix lists all the 130 IBM fonts supported by the AXIS 570/670 MIO in 5250 CU mode. Fonts are selected by FGID (Font Global Identifier) as outlined in Section 4. Each IBM font is 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: The following fonts are available by default in 5250 CU mode:

Pitch 5 CPI Fonts	
FGID	IBM Font Name
244	Courier 5
245	Courier Bold 5

Pitch 8 CPI Fonts	
FGID	IBM Font Name
266	Courier Bold 8

Pitch 10 CPI Fonts	
FGID	IBM Font Name
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

Pitch 12 CPI Fonts

FGID	IBM Font Name
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

FGID	IBM Font Name
204	Gothic Text 13



Pitch 15 CPI Fonts	
FGID	IBM Font Name
221	Prestige 15
223	Courier 15
225	Math Symbol 15
229	Serif Text 15
230	Gothic Text 15

Pitch 17 CPI Fonts	
FGID	IBM Font Name
252	Courier 17
253	Courier Bold 17
254	Courier 17 (sub/super)

Pitch 18 CPI Fonts	
FGID	IBM Font Name
258	Courier 18

Pitch 20 CPI Fonts	
FGID	IBM Font Name
281	Gothic Text 20

Pitch 25 CPI Fonts	
FGID	IBM Font Name
289	Gothic Text 25

Pitch 26.7 CPI Fonts	
FGID	IBM Font Name
290	Gothic Text 27

Proportional PSM Fonts	
FGID	IBM Font Name
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)	
FGID	IBM Font Name
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

- ❑ These 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).

Proportional Typographic Fonts (Scalable - User Defined FGIDs)	
FGID	IBM Font Name
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

Proportional Typographic Fonts (Scalable Point Size)	
FGID	IBM Font Name
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
41913	Cursive Bold Italic



Appendix D Updating the Software

Software that can be Updated

- AXIS NetPilot™ configuration software.
- AXIS Print Utility for Windows.
- AXIS Print Utility for OS/2.
- The AXIS 570/670 MIO software held in Flash Memory.
- The axinstall script.
- The AXIS MIB file.

All software updates are free of charge.

Checking if an update is available

Over the Internet you may wish to check the Axis WWW Home Page at <http://www.axis.com/>, where you can down-load the latest versions of the software utilities.

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

Updating the AXIS 570/670 MIO Flash ROM

You can carry out an update to your AXIS 570/670 MIO Flash Memory via the Flash loading port using the optional Flash loading kit, or over the network using AXIS NetPilot™ on a NetWare network.

Flash Memory The AXIS 570/670 MIO 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 AXIS 570/670 MIO as soon as they become available, without having to replace any parts. The new software is simply loaded into the AXIS 570/670 MIO over the network.



Web Browser Support

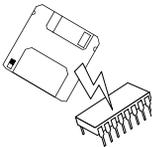
Because the AXIS 570/670 MIO supports the HTTP protocol over TCP/IP, you may download the latest software releases directly from the Software Upgrade Page.

To display the Software Upgrade Page simply click the 'Software upgrade' link within the Management Page. By following the instruction provided you may then automatically initiate a file transfer between the Axis Public Archive Server and your workstation. Once the transfer is complete, you should then download this image file to the AXIS 570/670 MIO using FTP, as described in *Upgrading over the Network using FTP*, below

Your dealer

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

Upgrading the Software

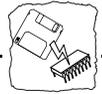


There are three methods with which to update to the AXIS 570/670 MIO Flash memory:

- Flash loading port using the optional Flash loading kit, **or**
- over the network using FTP on a TCP/IP network, **or**
- using the AXIS NetPilot™

The preferred methods are described below.

- Note:**
- Updating instructions are also supplied with the software update.
 - After flash loading the HP printer will show "80 Service (0101)" on the front panel display. To clear this message the printer must be manually turned off and on.



Updating Using the NetPilot

This is the most convenient method for updating AXIS Network Print Server Software. An Installation Wizard is available to guide you through the necessary procedures, simply click on the Upgrade icon of the AXIS NetPilot™ Toolbar to display the Upgrade Wizard menu.

Upgrading over the Network using FTP

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

- The file with the new print server software. The name of this file is in the form *product.version*, e.g. *57m_533.bin* for software release 5.33. You may use any of the aforementioned methods to obtain the new file.
- The AXIS 570/670 MIO must also be installed on the network with TCP/IP as described in *Basic Set Up for TCP/IP*, on page 26.

Follow the procedures below to upgrade the AXIS 570/670 MIO:

1. Log in to the AXIS 570/670 MIO with the command
`ftp <host name>` where `<host name>` is the name assigned in your system host table.
2. You will be prompted for user id and password. Use the user id `root`, which has the default password `pass` (`root` is the user id with the highest priority).
3. Issue the command `binary` to change to binary transfer mode.
4. Issue the command `put <software name> flash` where `<software name>` is the name of the new print server software, e.g. `57m_533.bin`.
5. Wait for the Flash load to finish. This normally takes 1 to 4 minutes. The unit will then automatically restart with the new print server software.

Caution

- Be careful not to interrupt the file transfer. If the transfer is interrupted the AXIS 570/670 MIO may have to be re-initialized by your dealer.
6. Log out using the command `quit`, `bye` or `exit` depending on your FTP version.



- Notes:**
- ❑ Should you encounter any problem that prevents a successful upgrade over your network, it may become necessary to perform the flash loading operation via the flash loading port. In this instance, you are advised to contact your dealer, or Axis via the WWW. Please refer to *How To Contact Axis*, on page 167.



Appendix E 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. Supports both NDS and Bindery Emulation. At least 16 file servers and 96 print queues can be served. Supports user messages. 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.
Unix:	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, Interactive, SCO, SunOS5 (Solaris2.x), HP-UX, IBM AIX, Silicon Graphics IRIX, DEC Alpha OSF/1, BULL (BOS, AIX).
Other Systems:	IBM (MVS, VM, VSE, OS/400), DEC VMS, guidelines for other systems.
Print Methods:	LPD, FTP, PROS, Reverse Telnet.
Apple EtherTalk:	(AXIS 570 MIO 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 (3270 cluster controller SNA), LU type 1 (SCS), LU type 3 (3270 data stream), SNA Node type 2.1 (5494 cluster controller SNA), LU type 6.2, LU type 4.
NetWare:	IPX, SAP, RIP, SPX and NCP (extended with NDS)
Windows and OS/2:	NetBIOS/NetBEUI or TCP/IP
TCP/IP:	LPD, FTP, Telnet, Reverse Telnet, PROS, BOOTP, ARP, RARP, DHCP, ICMP, IP, TCP, UDP, HTTP, SNMP.
Apple EtherTalk:	(AXIS 570 MIO only) AARP, ATP, DDP, NBP, PAP, RTMP, ZIP.



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

Hardware 32 bit RISC Controller, 1 Mbyte Flash memory, 512 Kbytes RAM memory.

Front Panel 1 LED indicator: Network. Push button for information printouts.

Logical Connection

AXIS 570 MIO Running simultaneously any combination of the supported protocols. Use of IEEE802.2, IEEE802.3, SNAP and Ethernet II frame types simultaneously.

AXIS 670 MIO Running simultaneously any combination of the supported protocols. Use of IEEE802.5 (with Early Token release support for 16 Mbps) frame types simultaneously.

Attachments

AXIS 570 MIO 10base2 (Thin) and 10baseT (Twisted Pair) Ethernet.

AXIS 670 MIO Media type 1/DB9/STP and type 3/RJ45/UTP. Support for 4 and 16 Mbps

Security

Unix Root password, User access list and printer access.

NetWare Encrypted passwords.

Logical Printers The logical printer ports can be programmed to perform auto ASCII to Postscript conversion, string before and after job, string substitution, alternative output and character set conversion.



IBM Printer Emulation 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 to 4 and 5256 models 1 to 3.

ASCII printer languages: PCL 4/5 and USER.

Power Requirements Power provided by printer Maximum 400 mA at 5 V DC.

Dimensions

AXIS 570 MIO Height x Width x Depth: 1.1 x 6.0 x 6.1 inches (29 x 152 x 156 mm)

AXIS 670 MIO Height x Width x Depth: 1.1 x 6.0 x 5.6 inches (29 x 152 x 143 mm)

Weight 0.44 lb. (0.2 Kg)

Environmental Temperature: 40 - 105 F (5 - 40°C).
Humidity: 10 - 95% non-condensing.

Approvals

EMC: EN 55022/1994 Class B, EN50082-1/1992. FCC Class A **CE**

Safety: Fire enclosure is required and provided by the HP printer according to HP printer safety specification.

All specifications are subject to change without prior notice



Appendix E: Technical Specifications



Appendix F How To Contact Axis

Technical Support

Should you require any technical assistance, please contact your Axis dealer. If your questions can not be answered immediately, your Axis dealer will forward your queries through the appropriate channels to ensure that you get an expedient response.

Internet and World Wide Web

If you are connected to Internet, please take the time to look at the Axis WWW Home Page at <http://www.axisinc.com/> or <http://www.axis.com/>. Here you can find information about the company and our products. You can also down-load on-line manuals, tools such as the Adobe™ Acrobat Reader for different platforms, and the latest versions of the software utilities. Your Axis dealer will be pleased to provide you with any additional assistance or information that you might require.

You may also access these pages directly Axis WWW Home Page from the internal Web pages of the AXIS 570/670 MIO.



The Axis WWW Home Page.



FTP You may also obtain files and information through anonymous ftp: log in to **ftp.axisinc.com** or **ftp.axis.com** and go to the /pub/axis directory. Alternatively, enter **ftp://ftp.axisinc.com/pub/axis** or **ftp://ftp.axis.com/pub/axis** in your WWW browser.

The Axis Offices To contact an Axis office, choose the one nearest to your region:

Europe, Middle East,
Latin America,
Africa, Australia

Axis Communications AB
Scheelevägen 16
S-223 70 Lund, Sweden
Phone: +46 46 270 18 00
Fax: +46 46 13 61 30
Email: info@axis.com
URL: <http://www.axis.com/>

North America

Axis Communications Inc.
4 Constitution Way, Suite G
Woburn, MA 01801-1030, USA
Phone: 1-800-444-AXIS, (617) 938-1188
Fax: (617) 938-6161
Email: info@axisinc.com
URL: <http://www.axisinc.com/>

France

Axis Communications SA
191 avenue Aristide Briand
94230 Cachan, France
Phone: +33 1 49 69 15 50
Fax: +33 1 49 69 15 59



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

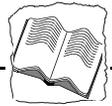
Singapore,
Southeast Asia,
The Pacific **Axis Communications Pte Ltd.**
51 Thomson Road
187B Goldhill Centre
Singapore 307630
Phone: +65 250 8077
Fax: +65 352 1655
Email: axis@axis.com.sg

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Fax: +852 2573 5935
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6 Fu Xing Men Wai Street
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User's Manual Addendum

About this Addendum

This addendum to the AXIS 570/670 MIO User's Manual describes the new features introduced into the product firmware since the release of this manual. These new features are generally associated with the introduction of Double-Byte Character Set (DBCS) support into the product that extends AS/400 5494 Controller and IBM Twinax printer emulation functionality within the AXIS 570/670 MIO.

The information contained within this addendum is to be included in all future document releases and is listed below under the appropriate section headings of the User's Manual.

Introduction

The new DBCS support facilitates printing from an IBM AS/400 host system for certain languages that employ double-byte character sets, namely Chinese, Japanese and Korean.

Setting Up - SNA

Control Unit Emulation

The AXIS 570/670 supports DBCS printing in IBM 5494 emulation (5250 CU mode) only.

Host Set-up - IBM AS/400, 5250 CU mode

The IBM AS/400 host must have DBCS support to print DBCS documents. The QIGC (DBCS version installed indicator) *sysval* should be set to 1. The QIGCCDEFNT *sysval* must be set to a DBCS font installed in the system. These values are normally set to a correct value but may be amended using WRKSYSVAL, if required.

Automatic Set-up

In some cases, it may be necessary to change the Device features and Last code point of the printer device after automatic setup. Should you encounter any problem with corrupt printout, you are advised to change the Device features and Last Code point of the printer device to the value indicated below. You can set these values using WRKDEVD.

Country	Device features	Last code Point
Korea	2424K1	D3FE
Japan	2424J1	68FE
China	2424S1	6FFE

Device features and Last code point for Country options



Creation of printer Devices

The following device type should be used for DBCS printing:

Country	Device Type
Korea	5553 B01
Japan	5553 B01
China	5553 B01

Device types for DBCS printing

The fields "Device features" and "Last code point" must be filled out with the values below:

Country	Device Features	Last Code Point
Korea	2424K1	D3FE
Japan	2424J1	68FE
China	2424S1	6FFE

Device Features and Last Code Point for Country options

AXIS 570/670 MIO Set-up

A number of new printer emulations and system languages have been added for DBCS printing. The national system languages are not implemented in this release and consequently US ASCII is provided instead. However, for future compatibility you are advised to set the correct system language now. To do this, it is necessary to set the AXIS 570/670 MIO in 5494 emulation mode before changing to a 5x27 printer emulation:

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

Note:

- Default fonts will be changed when switching printer emulations.



The Parameter List

The Config File

DBCS support introduces a number of new parameters and parameter values into the 570/670 MIO. Please refer to the 570/670 User's Manual for non-DBCS parameters.

Parameter settings:

--- 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 Language
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 Emulation
--- IBM PAGE FORMAT	
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
DWSISO :NO	Double Width SI/SO
--- IBM FONTS	
CPI5. :244, 2045	CPI FGID Definition
CPI10. :11, 204	10 CPI FGID Definition
CPI12. :86, 230	12 CPI FGID Definition
CPI13. :50103, 50110	13.3 CPI FGID Definition
CPI15. :230, 281	15 CPI FGID Definition
CPI17. :252, 290	17 CPI FGID Definition
CPI18. :50106, 50113	18 CPI FGID Definition
DCPI5. :50114, 50119	5 DCPI FGID Definition
DCPI6. :50115, 50120	6 DCPI FGID Definition
DCPI6.7. :50116, 50121	6.7 DCPI FGID Definition
DCPI7.5. :50117, 50122	7.5 DCPI FGID Definition
DCPI9. :50118, 50123	9.0 DCPI FGID Definition
--- IBM PRINTER DRIVER	
SOS. :	Shift In sequence
SIS. :	Shift Out sequence
LAC. :: HP_PCL (DISABLE, HP_PCL)	LAC Driver
GRD. :HP_PCL (DISABLE, HP_PCL)	Gridline Driver
SBSET. :PC850 (PC850, ROMAN8, PC437, ECMA94,USASCII, PC942, PC891, PC903, PC904, USER)	Symbol set

Note:

- The values for the CPIx and DCPIx parameters will be changed when switching to or from DBCS emulation. Please refer to the Fonts sections below for further information.



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):

Technical Specifications

IBM Printer Emulation

The 570/670 MIO emulates 5227-00x and 5327-00x printers.

The following DBSC tables are used in the AXIS 570/670 MIO:

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 MIO Double-byte Character Tables