AXIS 5900

Network Print Server

Quick Installation Guide

Regulatory Information

Safety Notices – Take some time to read through the safety notices before installing the AXIS 5900. Please observe all safety markings and instructions when using this product.

Important!: – must be observed to avoid operational impairment. Do not proceed any of the above notices, until you have fully understood the implications.

Radio Transmission Regulatory information – Tested to comply with FCC Standards FOR HOME OR OFFICE USE. This product must be installed and used in strict accordance with the instructions given in the user documentation. The AXIS 5900 complies with the following radio frequency and safety standards:

Europe – EU Declaration of Conformity. This device complies with the requirements of the R&TTE Directive 1999/5/EC with essential test suites as per standards EN 60950 Safety of Information Technology equipment:
ETS 300 328 Technical requirements for radio equipment
ETS 300 826 General EMC requirements for radio equipment

CE

USA – Federal Communications Commission FCC. This device complies with Part 15 of FCC Rules. Operation of the device is subject to the following two conditions:

(1) This device may not cause harmful interference

(2) This device must accept any interference that may cause undesired operation.

Important! – The channel must be set according to the radio frequency requirements in your country:

Country	Frequency	Available Channels	Default Channel
Europe	2.412-2.472 GHz	1-13	11
France	2.457-2.472 GHz	10-13 (indoor use only)	11
Japan	2.484 GHz	14	14
US/Canada	2.412-2.462 GHz	1-11	11

Approvals – The AXIS 5900 is approved for use in the EU member states, Japan, Switzerland and the US.

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Table of Contents

Overview

This guide includes installation instructions for the AXIS 5900 network print server in **Windows** (95, 98, NT, Me, 2000, XP), **UNIX** and **Macintosh** environments over **TCP/IP** for wireless and wired networks.

The instructions in this guide are based on the settings found in a new and unconfigured AXIS 5900. To establish this status in a previously configured AXIS 5900, you can reset it to factory default settings. See *Resetting the Print Server* on page 22 for instructions.

Note:

> For installation instructions covering **NetWare**, **OS/2** and **Windows** over **NetBIOS/NetBEUI** and **IPX/SPX**, see the AXIS 5900 User's Manual, available from the AXIS Network Product CD and the Axis web site at www.axis.com.

Hardware Inventory

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.

Hardware	Model	Part Number
Print Server	AXIS 5900	0158-001-01

Power Supply		PS-F part no.	PS-H part no.
	Country		
PS-F and PS-H are interchangeable	Europe	18424	19108
	UK	18425	19109
	Australia	18428	19111
	USA / Japan	18480	19110
	Korea		19112

Media	Title	Part Number
CD	AXIS Network Product CD	version 1.1
Printed Materials	AXIS 5900 Quick Installation Guide	19091

Optional accessories	Description	Part Number
Cables	Parallel Printer Cable	13360
	Centronics to Mini-centronics Cable	16453
Ribbons	Self-adhesive velcro ribbons	13282 & 13283

AXIS Network Product CD includes AXIS Utilities Software, Product Software, White Papers, User Documentation, etc. All documents presented on the CD are in PDF format.

> You can download Acrobat Reader from the AXIS Network Product CD or from Adobe's web site at www.adobe.com.
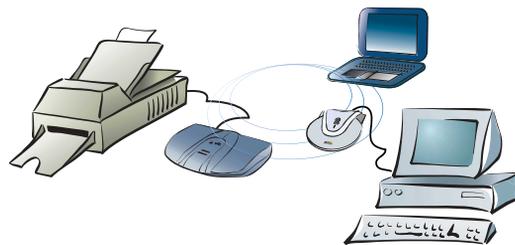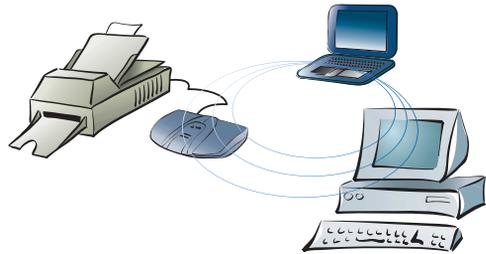
Introduction

The AXIS 5900 is a print server that can be used for either wireless or wired printing and can be installed either over the wireless LAN or using an Ethernet interface. When operating wirelessly, the AXIS 5900 print server communicates either in **ad-hoc** mode, where the workstation/laptop communicates directly with the print server or **infrastructure** mode, where there is an 802.11b access point acting as a bridge between the workstation/laptop and the print server.

802.11b Operating Modes

ad hoc mode (default)

Workstations and laptop computers communicate directly over the WLAN.

Infrastructure mode

Workstations and laptop computers communicate over the WLAN and the LAN through an access point.

Note:

In Macintosh environments, the **ad hoc mode** is referred to as **computer to computer mode** and the **infrastructure mode** is referred to as **Airport network**

802.11b Security

Unauthorized access to the WLAN can be prevented by using **WEP** which is a security protocol for encrypting data transmitted over the WLAN. When WEP is enabled, the workstation or laptop attempting to access the WLAN must use a **WEP key** to authenticate its data transmissions.
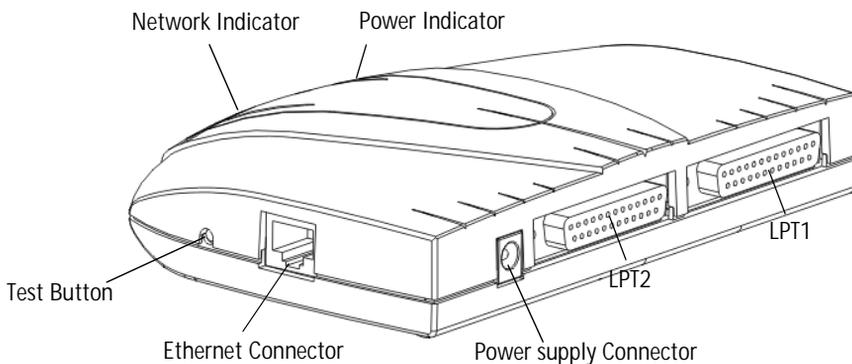
Connecting the Hardware

1. Make sure that the printer is switched off and that the power supply is disconnected from the AXIS 5900.

2. Locate the serial number, found on the underside label of the AXIS 5900, and write it down. Example: Ser. No. 00 40 8c 18 16 36

3. Connect your printer(s) to the print server's LPT1 or LPT2 port using a printer cable.

4. Connect your AXIS 5900 to your network (Ethernet Connector), using a twisted pair category 5 cable.

    Notes:

    > You can install the AXIS 5900 without using a network cable, simply skip step 4 in these instructions.

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

6. Connect the power supply to the AXIS 5900. The Network Indicator will start flashing when the print server is correctly connected to the network.

7. Wait 1 minute and press the test button once. A test page will be printed on the connected printer, keep it handy during the installation. The **test page** will show the assigned (permanent or temporary) IP address of the print server.

Installation Overview

Select the appropriate method to establish a connection between the workstation / laptop and the AXIS 5900. The tables below provide an overview of the installation procedures:

Setting up using the Ethernet interface

Description	Action...
To establish communication with the network, an IP address must be assigned to your AXIS 5900	*IP address assignment* on page 8
Set the **WLAN Network Mode** and enter the **SSID**, **WLAN channel** and **WEP keys** according to your network	*Configuring the AXIS 5900 for wireless printing* on page 12
On power up, the AXIS 5900 will automatically select WLAN communication if there is no Ethernet cable connected	Disconnect the network cable
The AXIS 5900 must be restarted for the WLAN settings to take effect	Disconnect and reconnect the AXIS 5900 power supply

Setting up over the WLAN

Before you begin, configure the WLAN settings on your **workstation / laptop** as described below (refer to the user documentation of your WLAN network interface for instructions):

- Select **ad hoc mode**
- Set the **SSID** to **AXIS** followed by the last 6 digits of the serial number which is found on the underside label of the AXIS 5900 e.g. AXIS181636. The SSID is case sensitive and must be entered exactly as stated above i.e. in upper-case letters.
- Set the **WLAN channel** to **11** (channel **14** in Japan)
- Disable the **WEP** parameter

Proceed with the following:

Description	Action...
To establish communication with the network, an IP address must be assigned to your AXIS 5900	*IP address assignment* on page 8
Once the connection has been established, set the **WLAN Network Mode** and enter the **SSID**, **WLAN channel** and **WEP keys** according to your network	*Configuring the AXIS 5900 for wireless printing* on page 12
The AXIS 5900 must be restarted for the WLAN settings to take effect	Disconnect and reconnect the AXIS 5900 power supply

Note:

> Once the print server's connection to the network has been established and verified, you can reset the workstation / laptop to its original settings i.e. the network mode, SSID, WLAN channel and WEP keys

IP address assignment

Method:	Server Required:	Comment:
DHCP	DHCP server	Dynamic assignment of IP addresses
RARP	RARP server	Static assignment of IP addresses
BOOTP	BOOTP server	Static assignment of IP addresses
Auto-IP		Automatic assignment of IP addresses

All methods are enabled by default

If you are working in a Windows network with automatic IP address assignment, your print server will obtain an IP address automatically when you connect it to the network. Follow the instructions on this page to verify the IP address:

1. Open a web browser (e.g. Internet Explorer or Netscape Communicator).

2. In the Web browser's **Location/Address** field, enter the print server's IP address, found on the test page (see *Connecting the Hardware* on page 6) and press **Enter**.

3. If the **Network Print Server** web page appears in your Web browser, the IP address was set automatically when you connected the AXIS 5900 to your network. Proceed to *Configuring the AXIS 5900 for wireless printing* on page 12.

4. If the **Network Print Server** web page does **not** appear, you need to set the print server's IP address manually using one of the methods described in *Manual IP address assignment* on page 9.

   Notes:

   - Use a Web browser with JavaScript support and Java enabled.

   - The AXIS 5900 supports WINS (Windows Internet Name Service), which is recommended when setting the IP address using DHCP in Windows environments.

   - If you are working in a WINS/ DDNS network, you can access the print server's web pages using its default host name: In the Web browser's **Location/Address** field, enter the default print server name **AXISxxxxxx** (*xxxxxx* are the last six digits of the serial number, found on the print server's underside label). **Example**: If the serial number is 00 40 8c 18 16 36, type AXIS181636 and press **Enter**.

   - DHCP, RARP and BOOTP can be used to set the IP address in UNIX, see the AXIS 5900 User's Manual for details.

   - See the AXIS 5900 User's Manual for installation instructions in a NetBIOS/NetBEUI environment. The User's Manual is available from the AXIS Network Product CD and from the Axis web site at www.axis.com

   - If you are working in a network that does **not** use dynamic IP address assignment, refer to *Manual IP address assignment* on page 9 to assign an IP address to the print server manually.

Manual IP address assignment

To establish communication with the TCP/IP network, an IP Address must be assigned to your AXIS 5900. Choose the appropriate method according to your network:

- **AXIS IP JumpStarter™** is an easy-to-use Windows application that allows you to assign an IP address to your AXIS 5900 and find Axis servers already installed in your network. Refer to *Setting the IP address using AXIS IP JumpStarter* on page 10 for instructions.
- **arp/ping** - use this method to set the IP address for each new device individually. This method cannot be used over routers. Refer to *Setting the IP address using arp/ping* on page 11 for instructions.
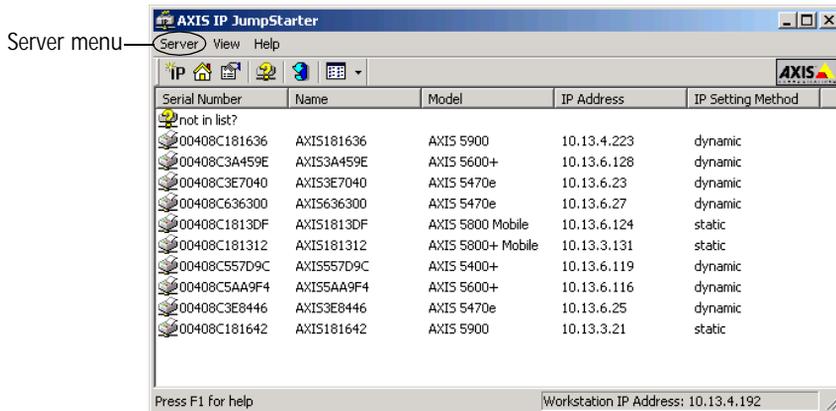
Note:

> If you are using host names, you can map a unique host name to the IP address. Refer to your system manuals for instructions on how this is performed on your system.

Setting the IP address using AXIS IP JumpStarter

Use AXIS IP JumpStarter to set the IP address. Install AXIS IP JumpStarter which is available from the AXIS Network Product CD or from the Axis web site at www.axis.com.

1. Select the required server from the serial number list in the IP JumpStarter dialog window.

2. From the **Server** menu, select **Set IP Address**.

3. Click the radio button that corresponds to your choice of IP setting method.

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

5. Enter the server root password (by default set to **pass**), and click **OK**.

6. The AXIS 5900 will appear in the list with the assigned IP address.

7. To access the print server's web pages, highlight the AXIS 5900 in the list and select **Server Home Page** from the **Server** menu.

Note:

> If your print server does not appear in the serial number list, refer to the AXIS IP JumpStarter online help files or the AXIS 5900 User's Manual which is available from the AXIS Network Product CD or from the Axis web site at www.axis.com
>
> See also *Troubleshooting* on page 21 to check the WLAN connection.

Setting the IP address using arp/ping

Refer to the appropriate section below to assign an IP address to your AXIS 5900 using arp/ping:

Windows

Open a Command Prompt and enter the following syntax:

	Syntax	Example
1.	arp -s <Internet address> <Ethernet address>	arp -s 192.168.3.191 00-40-8c-18-16-36
2.	ping <Internet address>	ping 192.168.3.191
3.	arp -d <Internet address>	arp -d 192.168.3.191

The host will return **reply from 192.168.3.191**, or a similar message. This indicates that the address has been set and that communication is established. You are now ready to print using FTP or Reverse Telnet.

UNIX, Mac OS X

Open a Terminal and enter the following syntax:

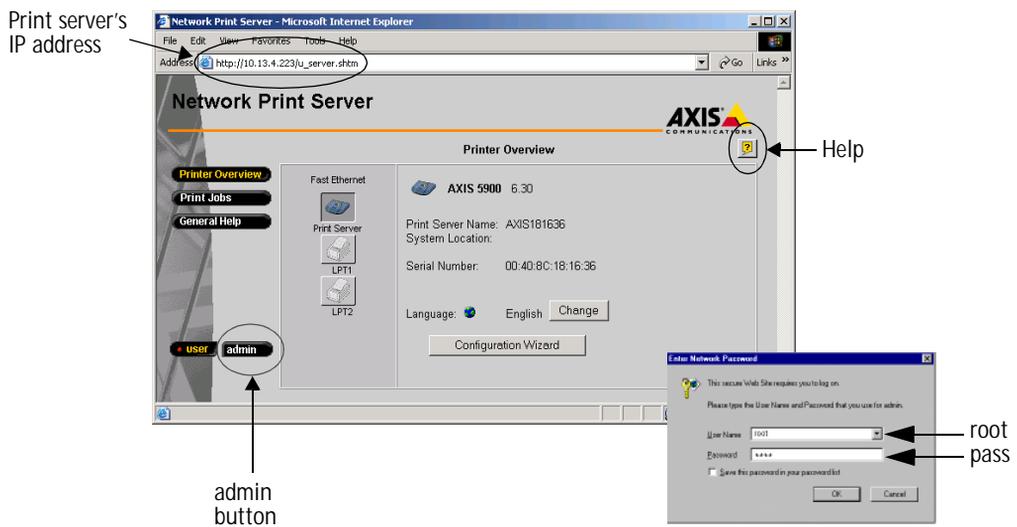|	Syntax	Example
1.	arp -s <host name> <Ethernet address> temp	arp -s psname 00:40:8c:18:16:36 temp
2.	ping <host name>	ping psname

The host will return **psname is alive**, or a similar message. This indicates that the address has been set and that communication is established. You are now ready to print using FTP or Reverse Telnet.

Notes:

- The Ethernet Address is the same as the serial number, found on the print server's underside label. Enter the Ethernet Address in the same format as in the example above.

- Setting the IP address with `arp` and `ping` is only possible in the first ten minutes after re-booting the print server.

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

- The `arp` command varies between different UNIX systems.

- You need root privileges on your UNIX system in order to execute the `arp` command and run *axinstall* (refer to the AXIS 5900 User's Manual for more information).

- Some BSD type systems expect the host name and serial number in reverse order. Furthermore IBM AIX systems will require the additional argument `ether`.
  Example: `arp -s ether` <host name> <Ethernet Address> `temp`

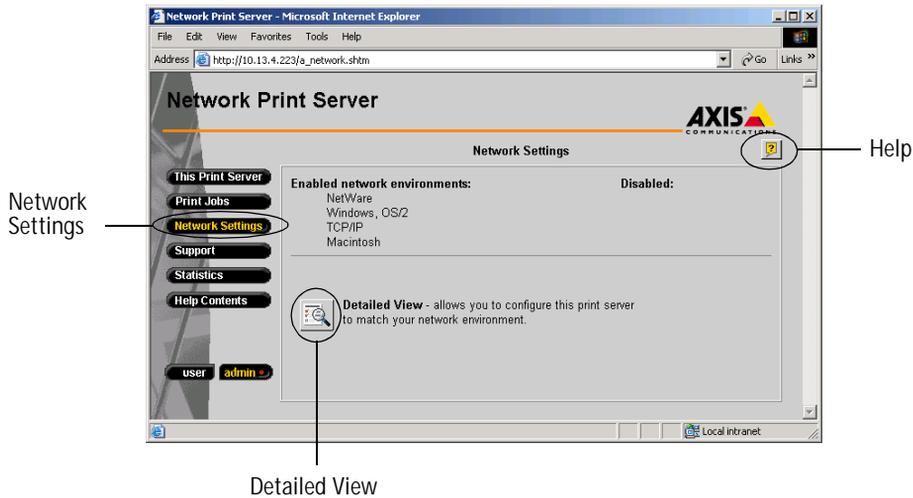## Configuring the AXIS 5900 for wireless printing

1. Start your web browser (e.g. Netscape Communicator 4.7 or Microsoft Internet Explorer 4.0)

2. In the **Location/Address** field, type the host name or the IP address of your AXIS 5900.

3. Click the **admin** button to enter the administrator's pages. Enter the default user name **root** and password **pass**.

Print server's IP address

Help

admin button

root
pass

4. Click **General Settings** on the **admin** page and select **Auto Sense** or **WLAN** from the Network Mode drop down list to enable wireless communication.

Network Mode	Description
Auto Sense	Auto Sense is the default setting. If there is a network cable connected, the AXIS 5900 will communicate over Ethernet. IF there is no cable connected, the AXIS 5900 will automatically communicate over WLAN
WLAN	Select WLAN if the AXIS 5900 is to communicate over WLAN only. If this setting is selected, the AXIS 5900 will communicate over WLAN even if the Ethernet cable is still connected (requires restart)
ETHERNET	Select ETHERNET if the AXIS 5900 is to communicate over ETHERNET only

5. To access the WLAN settings page, click **Network Settings | Detailed View | WLAN**
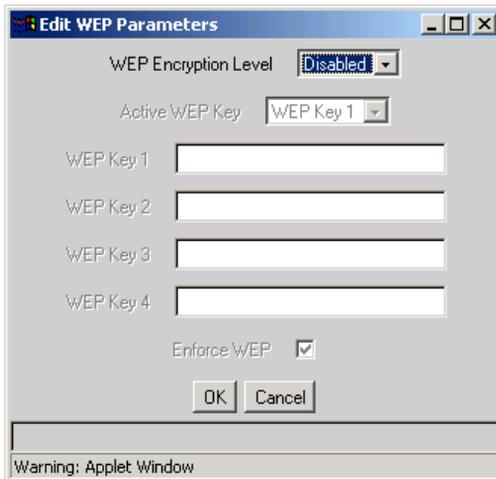

Help

Network
Settings

Detailed View

WLAN Parameters

Refer to the table below for a description of the WLAN parameter settings used to configure the
AXIS 5900 for wireless printing:

WLAN Parameters	Description
WLAN Node Address	The WLAN node address that is identical to the AXIS 5900 serial number which is found on the underside label on the print server, e.g. Note:Ser.No: 00:40:8C:18:16:36 WLAN Node Address: 00 40 8C 18 16 36
WLAN Network Speed	Select the appropriate network speed according to your network environment or select Auto Sense
WLAN Network Mode	Select Ad Hoc mode for peer to peer printing or Infrastructure mode for wireless communication via an access point. Note: The WLAN Network Mode must match the mode of the workstation / laptop. This is set using the computer's wireless configuration software.
WLAN SSID	The default SSID (service set identifier) in the AXIS 5900 is 'AXIS' followed by the last six digits of the serial number, e.g. AXIS181636 Note: the SSID must match the SSID of the WLAN network interface. This is set using the computer's wireless configuration software.
WLAN Channel	The default setting is channel 11 (Japan - channel 14)
WLAN Fragmentation Threshold WLAN RTS Threshold	These parameters are used to optimize the data transmission in accordance with the IEEE 802.11b standard.

WEP Parameters

1. Click the **Edit WEP Parameters** button. You will be prompted for the root password (default **pass**).

2. Edit the WEP parameters and click **OK** to save your settings.

WEP Parameters	Description
Edit WEP Parameters	Note: Java must be enabled in your web browser.
WEP Encryption Level	WEP security. The default setting is that WEP encryption is disabled. Select 64 Bit or 128 Bit security level. 128 Bit encryption level is the highest level of security but may reduce the performance level.
Active WEP key	Select the appropriate WEP key as specified by the network administrator
WEP key x	Enter the WEP keys (hexadecimal values) specified by the network administrator
Enforce WEP	When this parameter is enabled, the print server will not allow access to clients attempting to transmit data without WEP encryption.

Note:

Once you have clicked the **OK** button, the WEP parameter settings will be saved and will not be cancelled by clicking **Cancel** on the WLAN page.

Once you have entered the WLAN settings to match your network, click **OK**. For the new settings to take effect, restart the AXIS 5900 by disconnecting and reconnecting the power supply. Proceed to *Configuring Printers* on page 15 to set up your AXIS 5900 and the connected printers for printing.

Configuring Printers

Follow the instructions to configure network printers for printing in Windows, UNIX and Macintosh over WLAN or LAN. In some cases, you need to install printing software. The software is available from the AXIS Network Product CD and the Axis web site at www.axis.com

Refer to the table below for the appropriate method:

Operating Systems	Methods
Windows 2000/XP	*Installing Printers in Windows 2000/XP* on page 15
Windows 95/98/NT/Me	*Installing Printers in Windows 95/98/NT/Me* on page 16
UNIX/Linux	*Installing Printers in UNIX* on page 17
Mac OS X	*Installing Printers in Mac OS X* on page 18

Note:

To establish communication with the TCP/IP network, you must assign an IP address to your AXIS 5900.

Installing Printers in Windows 2000/XP

Use the standard Windows method for adding a printer in Windows 2000/XP:

Go to Start | Settings | Printers and click the **Add Printer** icon to start the **Add Printer Wizard**. Select the appropriate radio button:

- **Local printer** - If you are connecting directly to the print server (peer-to-peer printing), select **Local Printer** and click **Next**. Click the **Create a new port** radio button and select **Standard TCP/IP Port** from the list. Follow the **Add Standard TCP/IP Port Wizard** to complete the installation (You need to know the IP address of your print server and the model of the connected printer).
- **Network printer** - If your print server has already been installed by the administrator on another computer, select **Network printer** and click **Next**. Follow the instructions in the **Add Printer Wizard** to complete the installation.

For additional instructions, please refer to the relevant sections in the AXIS 5900 User's Manual which is available from the AXIS Network Product CD or the Axis web site at www.axis.com

Proceed to *Management and configuration* on page 19 for information on supported management and configuration tools.

Installing Printers in Windows 95/98/NT/Me

AXIS Print Monitor is the recommended tool to use for network printing in Windows 95/98/NT/Me. It allows Axis Network Print Servers to be connected in the same simple fashion as a local printer port.

Note:

> For peer-to-peer printing, AXIS Print Monitor must be installed on all printing clients, while it is only necessary to install it on the server for client-server printing.

1. Install the AXIS Print Monitor software which can be downloaded from the AXIS Network Product CD or from the Axis Communications web site at http://www.axis.com. Once installed, AXIS Print Monitor is automatically initialized upon system startup.

2. Go to **Start | Settings | Printers** in the Windows Start menu and double-click the **Add Printer** icon to launch the **Add Printer Wizard**.

3. Select **My Computer** in the first dialog and click **Next**.

4. Click **Add Port** and select **AXIS Port** from the list and click **OK**.

5. Continue to follow the instructions in the **Add Printer Wizard** to complete the installation using the AXIS Port Monitor online help files.

If you need additional information, refer to the AXIS 5900 User's Manual which is available from the AXIS Network Product CD or the Axis web site at www.axis.com.

Proceed to *Management and configuration* on page 19 for information on supported management and configuration tools.

Installing Printers in UNIX

The *axinstall* script is an installation and management utility for Axis print servers. With this installation script, the printer connected to the Axis print server will appear as though it is directly connected to the host print spooler. If you want to integrate your AXIS 5900 into your host spooler, you can use the Axis installation script *axinstall,* or perform a manual integration.

axinstall

Follow these instructions to download axinstall to your host:

1. Open a Terminal and log in to the AXIS 5900 by typing:

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

2. Enter **root** as the default user id and **pass** as the default Administrator password.

3. Enter the following command to download the *axinstall* script (make sure you use the ascii transfer mode):

```
get axinstall
```

4. Enter the following command to install the AXIS 5900 using the *axinstall* script. Follow the instructions that appear when the script has started.

```
sh axinstall
```

   Alternatively, make the axinstall script executable by entering the following command.

```
./axinstall
```

   Note:

   LPRng is not supported by *axinstall*

If you need additional instructions, please refer to the relevant sections in the AXIS 5900 User's Manual which is available from the AXIS Network Product CD or the Axis web site at www.axis.com

Proceed to *Management and configuration* on page 19 for information on supported management and configuration tools.

Installing Printers in Mac OS X

This section describes setting up your AXIS 5900 for printing in the Macintosh environment (Mac OS X).

Note:

> For installation descriptions on older versions Mac OS, refer to the AXIS 5900 User's Manual which is available from the AXIS Network Product CD or the Axis web site at http://www.axis.com

1. Select **Print Center** from the **Applications | Utilities** folder.

2. Click **Add Printer**...

3. From the Printer List dialog, select **LPR Printers using IP**.

4. Enter the IP address or Host name of your AXIS 5900.

5. Select **Use Default Queue on Server** or enter LPT1 or LPT2 in the **Queue Name** field.

6. Select an appropriate printer driver for your printer or, if is not available in the list, select **Generic**. You can also browse for a printer driver on your computer or network by selecting **Other**... from the list.

7. Click **Add** to complete the installation.

If you need additional instructions, please refer to the relevant sections in the AXIS 5900 User's Manual which is available from the AXIS Network Product CD or the Axis web site at www.axis.com

Proceed to *Management and configuration* on page 19 for information on supported management and configuration tools.

Management and configuration

The following table shows the management and configuration tools that are available for the AXIS 5900.

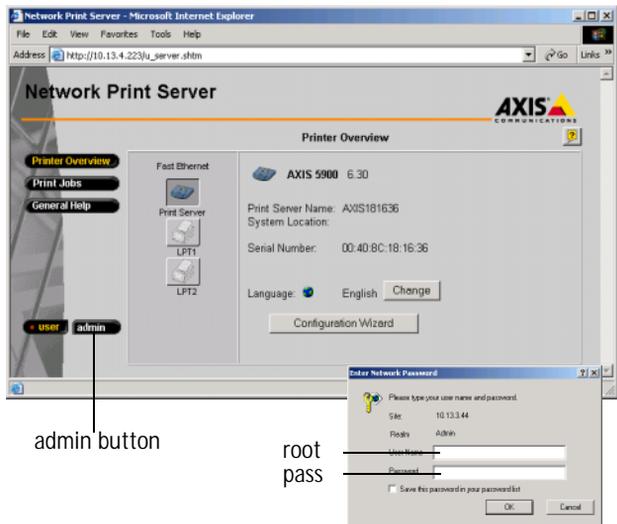| Protocols	Operating Systems	Configuration/Management methods
TCP/IP	Windows 95/98/NT/Me/2000/XP UNIX Mac OS X	**Web Browser**, AXIS ThinWizard, FTP, Telnet, SNMP, HP Web JetAdmin
IPX/SPX	NetWare	AXIS NetPilot, HP JetAdmin, Novell Utilities
NetBIOS/NetBEUI	Windows 95/98/NT/Me/2000 OS/2	AXIS NetPilot

Note:

> Please refer to the AXIS 5900 User's Manual for a comprehensive description of the supported configuration and management tools.

Using a Web Browser

Follow the instructions below to access the built-in web pages of your AXIS 5900:

1. Enter the print server's IP address (or host name) in the **Location/Address** field of your Web browser. Press **Enter**.

2. The **Printer Overview** page will appear. Click the **admin** button to access the Administration web pages.

3. You will be prompted for a password, enter the default user name **root** and the default password **pass**. Click **OK**.

admin button

root
pass

Note:

> It is highly recommended that the default password is changed to prevent unauthorized access to the print server's configuration pages. This is done from the **admin** | **General Settings** | **General** tab in the **Root Password** field.
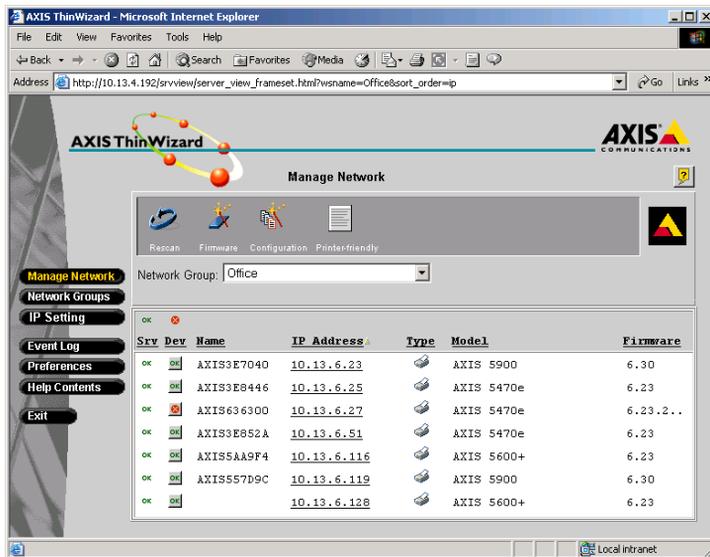
Using AXIS ThinWizard

The AXIS ThinWizard management tool allows you to manage and upgrade multiple ThinServer products. You can find, monitor and upgrade your Axis print servers remotely in any TCP/IP network using a standard Web browser.

Install AXIS ThinWizard on a designated server in your network. The AXIS ThinWizard software is available on the AXIS Network Product CD, but can also be downloaded from the Axis web site at **http://www.axis.com/**

Follow the instructions below to use AXIS ThinWizard:

1. Start a Web browser from a client in your network.

2. Enter the IP address or the host name of the server, where you installed AXIS ThinWizard.

3. Enter the user id and the password and click the **Log in** button.

4. The AXIS ThinWizard interface appears. Select a network group from the list. If the list is empty, you must first create a group. In that case, just click the Network Groups button and follow the instructions.

For more information, please refer to the AXIS ThinWizard on-line help.

Troubleshooting

Check the following if you experience problems when trying to print over the WLAN:

- The Network Mode parameter must be set to Auto Sense or WLAN. This parameter is set on the admin | General Settings page.

- Your web browser must have Java (JVM) enabled (for the WEP security functionality)

- Check that the WLAN network interface is properly configured in the workstation/laptop trying to access the AXIS 5900 print server.

- All communicating clients must be in the same operating mode, i.e. ad hoc or infrastructure mode.

  Note:

  In Macintosh environments, the **ad hoc mode** is referred to as **computer to computer mode** and the **infrastructure mode** is referred to as **Airport network**.

- Check that the SSID and the WEP keys are set according to your WLAN network settings. See *WLAN Parameters* on page 13 for more information.

- Check that the radio frequency channel setting is the same on all communicating clients and that the channel is set according to the requirements in your country.
  Frequency bands and channels:

Country	Frequency	Available Channels	Default Channel
Europe	2.412-2.472 GHz	1-13	11
France	2.457-2.472 GHz	10-13 (indoor use*)	11
Japan	2.484 GHz	14	14
US/Canada	2.412-2.462 GHz	1-11	11

  * (France) outdoor use permitted on private property with prior authorization
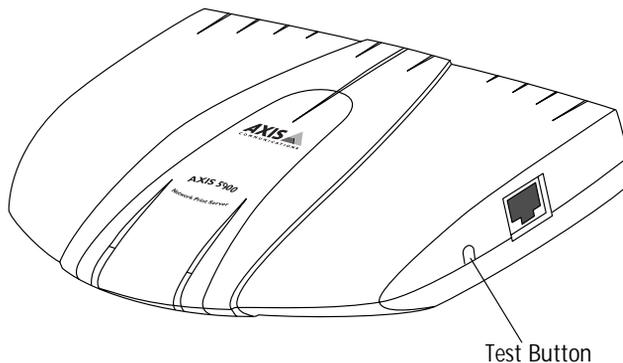
Resetting the Print Server

Follow the instructions below to reset the AXIS 5900 parameters to the default values (Factory Default):

Important!

A Factory Default will reset the internal settings of the print server to default and should be performed with caution. All parameters except Node Address (NODE_ADDR), Internet Address (IP_ADDR) and DHCP enabled or disabled (DHCP_ENABLE.) will be reset.

1. Remove the external power supply to switch off the AXIS 5900.

2. Press and hold down the test button, while you plug the external power supply back in. Continue to hold down the test button, until the network indicator begins to flash at one second intervals. This should take at least 5 seconds.

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

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

5. Restart the AXIS 5900 by disconnecting and reconnecting the external power supply. The print server is now reset to the factory default settings.

Test Button

Features

- **Easy to install** - the AXIS 5900 can be installed over the wireless LAN or using an Ethernet interface. Once the installation is complete, you can disconnect the network cable and restart the AXIS 5900 by disconnecting and reconnecting the power supply. If there is no Ethernet cable connected, the AXIS 5900 will automatically communicate over the WLAN.

- **Security** - the AXIS 5900 supports up to 128 bit WEP encryption of print data

- **Auto-IP Functionality** - in the absence of an IP address management mechanism such as DHCP, this method enables the host to automatically take a link-local IPv4 address. Auto-IP is supported by Windows 98, Me, 2000, XP and Mac OS version 8.5 or higher

- **E-mail Notification** - the Print Server automatically notifies administrators by e-mail when the printer needs assistance (e.g. toner or paper refill)

- **NetWare Packet Signature** - (Level 3 = best possible) protects servers and clients using the NetWare Core Protocol™ services. NCP packet signature prevents packet forgery by requiring the server and the client to sign each NCP packet. See your Novell NetWare documentation for detailed information.

- **Safe flash loading** - the AXIS 5900 is equipped with 8 MB RAM, thus allowing a new version of firmware to be downloaded and stored in the memory before the old firmware version is deleted.

- **Flash Loading from the Web** - now even easier to upgrade, as you can do it directly over the web without client software.

- **Manual Network Speed Selection** - allows you to select the network speed manually:
WLAN: 1 Mbps, 2 Mbps, 5.5 Mbps, 11 Mbps, Auto Sense
Ethernet: 10_HALF_DX, 10_FULL_DX, 100_HALF_DX, 100_FULL_DX, Auto Sense
WLAN and Ethernet are both set to 'Auto Sense' by default.

- **Multi-Language Support** - available in English, French, German, Japanese and Spanish.

- **Automatic Printer-type Selection in AppleTalk** - the print server automatically selects binary protocol and printer type.

- **Firmware Upgrades** - all Axis print server firmware upgrades are obtainable from the Axis Communications web site at http://www.axis.com. You can also download this firmware by logging in to the print server's **admin** web pages.