AXIS OfficeBasic USB Wireless G
User's Manual

Regulatory Information

Safety Notices - Take some time to read through the safety notices before installing the AXIS OfficeBasic USB Wireless G. 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 OfficeBasic USB Wireless G complies with the following radio frequency and safety standards:

Europe - This digital equipment fulfils the requirements for radiated emission according to limit B of EN55022, and the requirements for immunity according to EN55024 residential, commercial, and light industry.

Technical requirements for radio equipment according to EN 300 328-1 (2001-12) and 300 328-2 (2001-12)

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:

Japan - This is a class B product based on the standard of the Voluntary Control Council for Interference from Information Technology Equipment (VCCI). If this is used near a radio or television receiver in a domestic environment, it may cause radio interference. Install and use the equipment according to the instruction manual.

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Safety: EN60950

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

Support Services – Should you require technical assistance, please contact your Axis dealer. If your questions cannot be answered immediately, your Axis dealer will forward your queries through the appropriate channels to ensure you a rapid response. If you are connected to the Internet, you can find on-line manuals, technical support, software updates, application software, corporate information, etc. at http://www.axis.com/techsup

USERS MANUAL AXIS OBWG
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Product Overview

This User's Manual provides detailed information on using the AXIS OfficeBasic USB Wireless G print server (with firmware version 9.02.32x or higher) in **Microsoft Windows** (2000, XP, Server 2003) and **Mac OS** (TCP/IP and AppleTalk) environments. Instructions on how to install the AXIS OfficeBasic USB Wireless G are described in the Installation Guide.

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.

Print Server	Model	Part Number
AXIS OfficeBasic USB Wireless G	PROD UNIT AXIS OB USB W <EUR> ch 1-13 PROD UNIT AXIS OB USB W <US> ch 1-11 PROD UNIT AXIS OB USB W <JP> ch 1-14	0208-001-01 0208-004-01 0208-005-01

Media	Title	Part Number
CD	AXIS OfficeBasic USB Wireless G CD	Rev 1.0 or higher
Printed Material	AXIS OfficeBasic USB Wireless G User's Guide	Rev. 1.0 or higher

Accessories	Description	Part Number
Cable	USB	24238

Power Adapter	Model	Part Number
PS-N	Europe UK USA/Japan Australia	23514 23515 23516 23517

Print Server Management

The embedded web server provides access to configuration and management pages for the print server and the connected printer, see *Print Server Management from a Web Browser*, on page 19.

Alternatively, the print server can be configured from the provided Windows-based software OBW Setup Wizard, see *Windows Setup*, on page 13.

Wireless Operating Modes

The AXIS OfficeBasic USB Wireless G print server can be used in Infrastructure and Ad-Hoc network modes using 802.11b and 802.11g wireless standards.

Infrastructure (Access Point)

In Infrastructure mode, computers communicate with the print server by first going through an Access Point. The Access Point is a hardware device that communicates with the print server and can be connected to computers on a wired Local Area Network (LAN) or, wirelessly, to computers that are equipped with a wireless card.
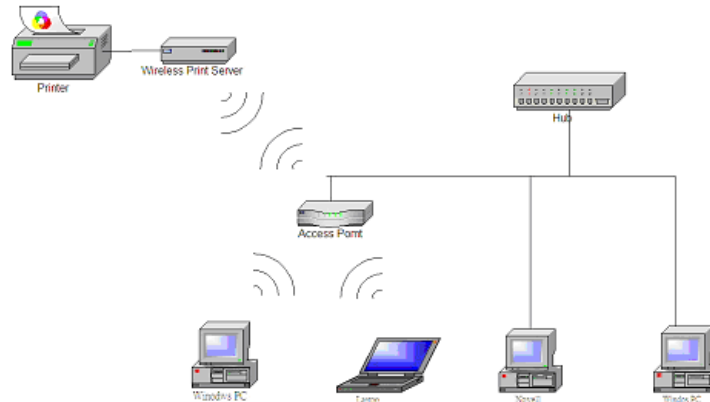
Infrastructure mode is most commonly used, both for printing and configuration purposes. See *Windows Setup,* on page 13 or *Mac OS Setup,* on page 17 for installation instructions.

Ad Hoc (Peer to Peer)

Workstations and laptop computers communicate directly over the WLAN with the print server.
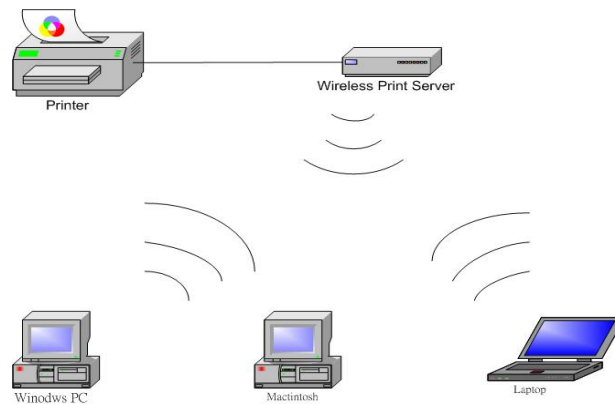
Ad Hoc is used for configuration and printing purposes. If you lose contact with the print server, you can try reaching it using Ad Hoc mode, see *Installation Guide.*

Wireless Frequency Bands and Channels

When setting up a wireless network, it is important 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

Windows Printing Methods

This chapter describes three alternative methods for printing when using the **Infrastructure** mode. These may be used if printing problems are experienced after installing the AXIS OfficeBasic USB Wireless G.

# Standard TCP/IP – Raw TCP Method in Windows 2000/XP/2003

To add a network printer to your printer list in Windows 2000/XP/2003 using Standard TCP/IP – Raw TCP:

1. Make sure your print server has a valid IP address, see *Setting the Print Server's IP Address*, on page 10**.**

2. **Windows XP/Server 2003:**
   Go to **Start** | **(Settings)** | **Printers and Faxes** and click the **Add a Printer** icon to start the **Add Printer Wizard**. Click **Next.**

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

3. Select **Local Printer attached to this computer** and make sure the **Automatically detect and install my Plug and Play printer** check box is <u>not</u> checked. Click **Next.**
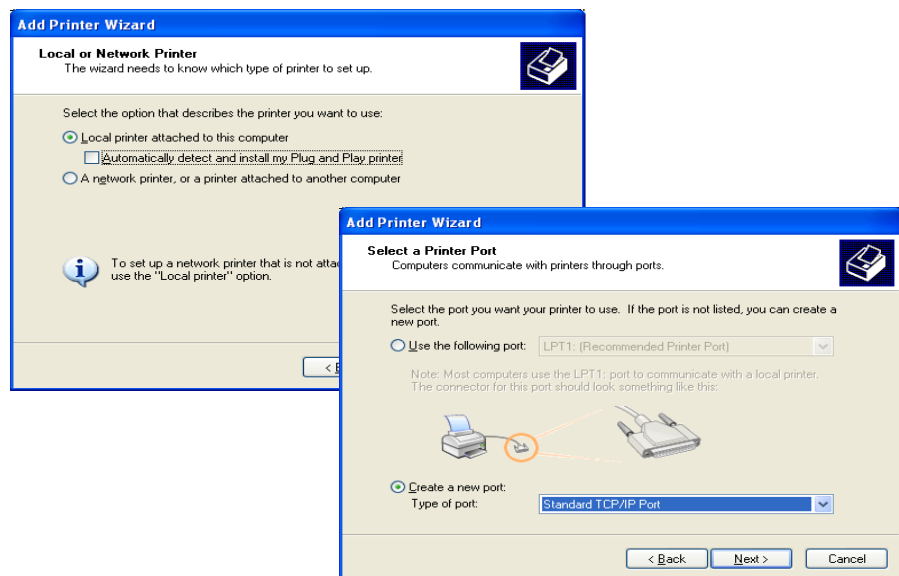

4. Click the **Create a new port** radio button and select **Standard TCP/IP Port** from the list. Click **Next** and the **Add Standard TCP/IP Printer Port Wizard** starts. Click **Next**.

5. In the **Printer Name or IP Address** field, enter the IP address of the AXIS OfficeBasic USB Wireless G (*Example: 192.168.3.191*)
   The **Port Name** field will be filled in automatically. Click **Next**.
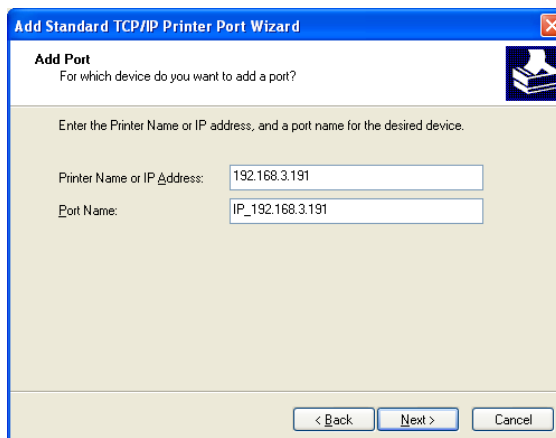
6. Go to step 7 if using Windows XP SP2 or later. Otherwise, select **Device Port**: **LPT1** and click **Next**.
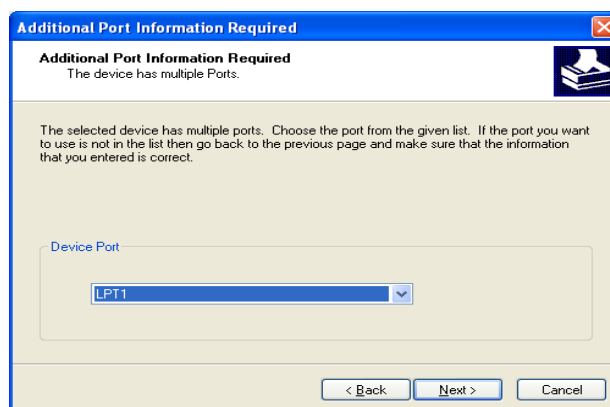
7. Select **Manufacturer and Printer** from the lists. Click **Next** and **Finish**.

8. If you already have the printer's driver installed, you will be asked whether to keep it or to replace it. Click **Next**. Supply a name for the printer and choose whether you want to make it your default printer. Click **Next**.

9. Choose whether you want to share the printer with other network users, print a test page, etc. Select the appropriate radio button and click **Next** and **Finish**.
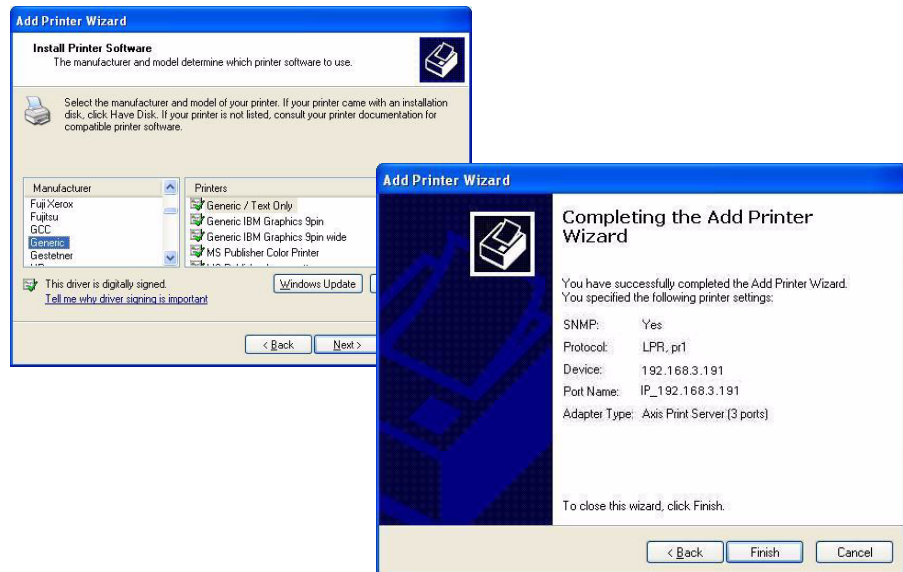
10. Next, from **Printers (and Faxes),** highlight the installed printer and right-click, choose **Properties,** then **Ports | Configure Port.**
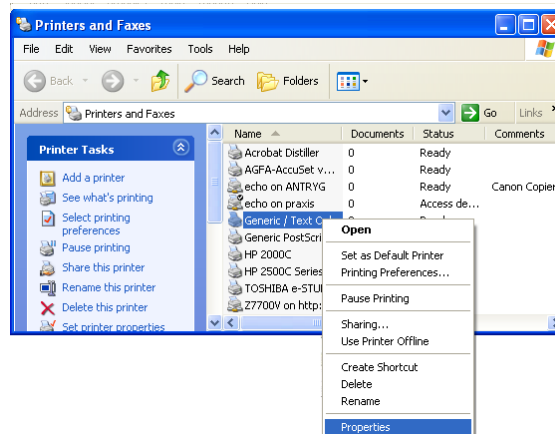
11. Change Protocol from LPR to **Raw**. Port number **9100** is automatically selected. Click **OK**.

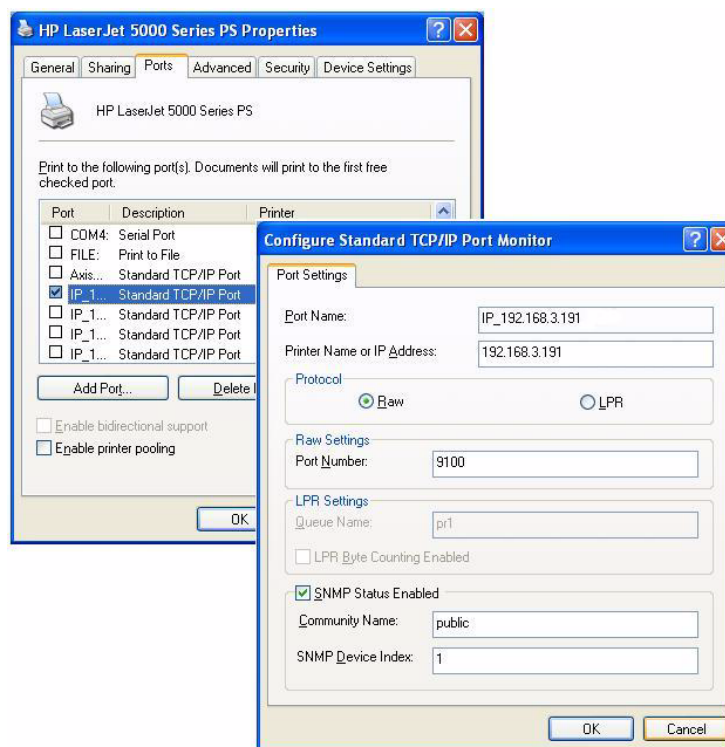12. Print a test page to verify the installation.

Using the Microsoft LPR Monitor in Windows 2000/XP

This section describes how to set up a Windows 2000/XP server for LPR printing, using the built-in Microsoft LPR Monitor, **Print Services for UNIX**.

Basic Setup   If you have not already done so, you should perform the TCP/IP basic setup procedures prior to installing a printer for LPR printing.

Preparing for
LPR Printing   Follow the following steps to prepare for LPR printing:

1. Open the **Control Panel**.

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

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

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

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

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

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

Installing an LPR printer | Follow the instructions below to use the standard Windows method for installing an LPR printer in Windows 2000/XP/Server 2003:

Windows 2000/XP/Server 2003:

1. Make sure your print server has a valid IP address, see *Setting the Print Server's IP Address*, on page 10**.**

2. **Windows XP/Server 2003:**
   Go to **Start** | **(Settings)** | **Printers and Faxes** and click the **Add a Printer** icon to start the **Add Printer Wizard**. Click **Next.**

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

3. Select **Local Printer**. Click **Next.**

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

5. Type the name of your AXIS OfficeBasic USB Wireless G or IP address *(Example: 192.168.3.191)* in the **Name or address of server providing LPD** field and enter the port you want to use in the **Name of printer or print queue on that server** filed *(Example: usb or lp1)*. Click **OK.**

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

Important!

- Make sure that the **Automatically detect and install my Plug and Play printer** checkbox is <u>not</u> checked
- Press **F1** to access the Windows online help system if you need additional help when installing a printer/print server using this method.

IPP (Internet Printing Protocol) Configuration

With IPP, you can send a document to any Internet-connected printer. IPP is platform-independent and can be used to print over any LAN or WAN that supports TCP/IP.

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

- An *IPP client* installed on your computer together with appropriate printer drivers. The IPP client is a tool that adds destination printers to your printer list. A list of available IPP clients can be viewed in *IPP clients*, on page 14.
- The printer to which you want to send your print job needs to be connected to *a print server with IPP functionality*. Axis print servers make it possible for a printer to receive print jobs from an IPP client. The IPP-functionality of the print server is automatically activated upon installation.

IPP Printing Requirements	Before you print to an IPP printer you need to know: • the print server's IP-address or host name • the local printer port name, which for AXIS OfficeBasic USB Wireless G is **lp1**. • the brand and model of the printer in order to install the appropriate printer driver.
Address–scheme for IPP printers	The AXIS OfficeBasic USB Wireless G supports the IPP 1.0 standard (which uses the **http:** address scheme) and the IPP 1.1 standard (which uses the ipp:// standard).
Example using host name in the 1.0 standard:	If "192.168.3.191" is the IP address of the print server, "631" is the port number and "lp1" is the local printer port name, then the syntax of the address scheme will be **http://192.168.3.191:631/lp1**.
Example using host name in the 1.1 standard:	If "192.168.3.191" is the IP address of the print server and "lp1" is the local printer port name, then the syntax of the address scheme will be **ipp://192.168.3.191/lp1**.
IPP clients	An *IPP client* needs to be installed on your computer together with an appropriate printer driver for proper IPP functionality. An IPP client is a tool that adds destination printers to your printer list.
Examples of available IPP clients	• **For Windows 2000/XP/2003**: the Microsoft IPP Client (automatically installed with OS). Microsoft Windows IPP client **does not** support IPP 1.1! • **For Windows 2000**: the Internet Printer Connection software from Hewlett Packard (can be downloaded from the Hewlett Packard web site).
Firewall Considerations	If there are one or more firewalls between the IPP Client and the server, you may have to make some changes to the firewall configuration. IPP uses TCP Port 631 for printing, so any firewalls between client and server must be configured to allow bi-directional traffic on that port.
IPP Printing from Windows	In this example the print server's IP address is 192.168.3.191. Thus, the IPP printer's syntax is **http://192.168.3.191:631/lp1**. 1. **Windows XP/Server 2003:** Go to **Start** │ **(Settings)** │ **Printers and Faxes** and click the **Add a Printer** icon to start the **Add Printer Wizard.** Click **Next.** **Windows 2000:** Go to **Start** │ **Settings** │ **Printers** and click the **Add Printer** icon to start the **Add Printer Wizard.** Click **Next.** 2. The Wizard will ask you if you want to install a local printer or a network printer. Choose **Network Printer** and click **Next.**

3. Enter the printer address in the **URL** field, e.g. http://192.168.3.191:631/lp1 and click **Next**:
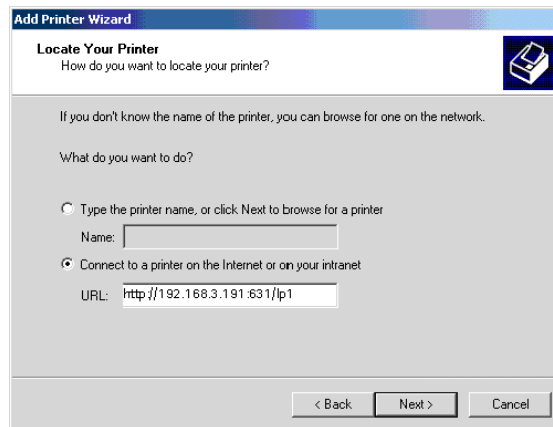
4. If you do not have a driver corresponding to the destination printer installed on your computer, the Wizard will prompt you to install one. Click **OK**. The Installation Wizard will ask you to select a printer driver corresponding to the destination printer. Select the printer driver from the list and click **OK**.

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

6. The new printer is added to your **Select Printer** window. Print a test page to verify the installation.

Mac OS Setup

This chapter contains instructions for the following setup procedures:

IP Printing in Mac OS X, on page 17

Installation on Mac OS 9.1 or older, using AppleTalk, on page 17

IP Printing in Mac OS X

1. Make sure the print server has obtained a valid IP address, see page 10.

2. Make sure the USB cable is properly connected to the printer.

3. From the **Apple** menu, select **Go** | **Applications** | **Utilities** and start the **Print Center**.

4. Click **Add** in the **Printer List**.

5. Select **IP Printing** from the top drop-down menu.

6. In the **Printer's Address** field, enter the print server's IP address or DNS name.

7. Either accept using the default user queue on the server by making sure the **Use default queue on server** check box is checked, or enter **lp1** in the **Queue name** field:
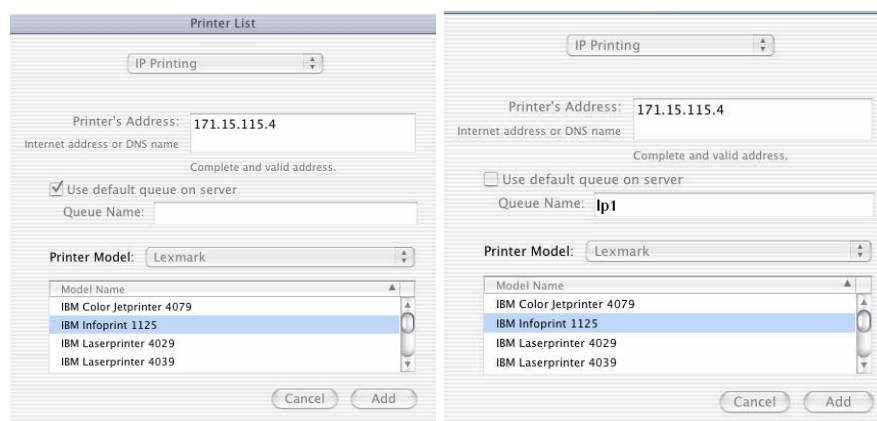
8. From the **Printer Model** drop-down list, select the printer manufacturer and model. Click **Add**.

9. Your newly added printer will appear in the **Printer List** as the default printer (bold). Test the installation by sending a print job to the printer.

Installation on Mac OS 9.1 or older, using AppleTalk

Basic Configuration   On Mac OS 9.1 or older, basic configuration in AppleTalk is performed simply by opening the Chooser window and selecting a printer.

Choosing a Printer

Selecting a Printer   The method for choosing a printer varies depending on which version of LaserWriter printer driver you are using.

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

LaserWriter 7.0
Printer Driver   Follow the instructions below to choose a printer:

1. Select **Chooser** from the **Apple** menu.

2. Click the **LaserWriter** icon.

3. If your network has more than one zone, click on the zone you want. (If your network does not have any zones, this box will not appear.)

4. Click the name of the printer you want — the ports are shown as <host name>_<port>. **Example: AX100086_USB.**

5. Click the **Close** box. This completes the configuration and closes the Chooser.

Repeat this procedure for each Macintosh computer on the network using the print server.

LaserWriter 8.0
Printer Driver   Follow the instructions below to choose a printer:

1. Select **Chooser** from the **Apple** menu.

2. Click the **LaserWriter 8.0** icon.

3. If your network has more than one zone click on the zone you want. (If your network does not have any zones, this box will not appear.)

4. Click the name of the printer you want — the ports are shown as <host name>_<port>. **Example**: AX100086_USB.**

5. Click **Setup...** , select the PPD file that matches your printer and click **OK**. If your printer does not appear in the PPD file list, please contact your printer vendor. Use the Generic PPD if you do not need any printer specific features.

6. Click **OK**, and then click the **Close** box. This completes the configuration and closes the Chooser.

Repeat this procedure for each Macintosh computer on the network using the print server.

Print Server Management

There are several tools and options to manage and edit print server settings:

- *Print Server Management from a Web Browser*, on page 19
- *Print server management using the Reset button*, on page 28

Alternatively, the provided Windows-based software AXIS OBW Wizard, can be used for basic print server configuration. See *Windows Setup*, on page 13.

Print Server Management from a Web Browser

All Axis print servers contain an embedded web server that can be accessed through a web browser. The embedded web server provides access to configuration and management pages for the print server and the connected printer.

Before you can use the embedded web server, the print server must be configured with an IP address, See *Setting the Print Server's IP Address*, on page 10.

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

2. The **Wireless Print Server** page will appear. From here you can configure all print server settings.
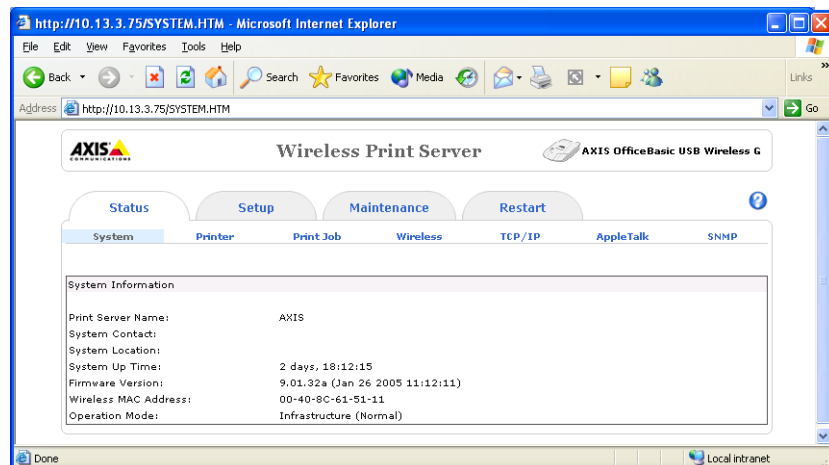
Notes:

- A quick way of finding the print server's IP address is to press the reset button for 5 seconds to print a test page. The DHCP or static IP address is printed on the test page, however, not all printers support printing test pages.
- The print server's web interface will appear in the same language as your browser uses, see *Technical Specifications*, on page 39 for supported languages.

Status

The **Status** menu displays the status of the System, Printer, Print Jobs, Wireless settings, TCP/IP, AppleTalk and SNMP. The entries in the Status menu are for viewing only, they are edited from the **Setup** menu, explained on page 22.

System Status

Print Server Name: Displays the name of the print server. If nothing is modified, the default name is AXISXXXXXX, where X represent the last six digits of the print server's serial number. The serial number can be found on the label on the underside of the print server.

System Contact: Displays the name of the contact person in charge of the print server.

System Location: Displays the name of the print server's physical location. *Example: "Room A, color printer"*

System UpTime: Displays the uptime of the print server. When the print server is powered on, it will start counting.

Firmware Version: Displays the print server's firmware version. See *Upgrading the Print Server's Firmware*, on page 31 for more information on firmware.

Wireless MAC Address: Displays the Mac Address (Node ID) of the print server. All print servers have a unique Mac Address, and the serial number for the print server is based on the Mac Address. See *Print Server's Serial Number*, on page 9 for more information.

Wireless Operation Mode: Displays the current wireless operation mode of the print server.

Printer Status

Manufacturer: Displays the manufacturer of the connected printer.

Model: Displays the model of the connected printer.

Supported Printing Language: Displays the printer languages supported by the connected printer.

Current Status: Displays the connected printer's status.

Printer Usage: Displays information about Job Count and Printed Pages.

Print Job Status

Displays the current print jobs, including information on the Job, User, Elapsed Time, Protocol, Port, Status and Bytes Printed.

Wireless Status

Mode: Displays the wireless operation mode of your print server.

AP's MAC Address: Displays the MAC address of your wireless Access Point.

SSID: Displays the SSID of your wireless network.

Channel Number: Displays the current channel number.

Data Transmit Rate: Displays the current transmit rate: Auto or 1 - 54Mbps.

Transmit Mode: Displays the data transmission mode: b Only, g Only or Auto.

Signal Strength: Displays the strength of the Access Point signal.

Signal Quality: Displays the quality of the Access Point signal.

Authentication Type: Displays the authentication used: Open System, Shared Key, WPA-PSK, WPA2-PSK.

Encryption: Displays the encryption used: None, WEP-64, WEP-128, WPA-PSK(TKIP), WPA-PSK(CCMP), WPA2-PSK(TKIP), WPA2-PSK(CCMP).

TCP/IP Status

Use DHCP/BOOTP: Displays DHCP/ BOOTP status. If there is a DHCP/BOOTP server on your network, the print server can obtain IP settings automatically, provided that this parameter is **On**.

IP Address: Displays the IP address of the print server. The IP address must meet the IP addressing requirements of the network segment.

Subnet Mask: Displays the subnet mask of the print server. The subnet mask must meet the IP addressing requirements of the network segment.

Default router: Displays the default router used by the print server.

Rendezvous Settings: Displays if Rendezvous is enabled or disabled.

Service Name: Displays the print server's Rendezvous service name.

AppleTalk Status

AppleTalk: Displays if Appletalk is enabled or disabled.

AppleTalk Zone: If no zone exists, the zone name is displayed as an asterisk (*).

Port Name: AXxxxxxx_USB, where xxxxxx represent the last six digits of the print server's serial number, found on the print server's label.

Type: Displays the printer type connected to the print server.

Binary protocol:

- **TBCP** enables the print server to use the TBCP (Tagged Binary Communication Protocol) to transfer print data to the printer.
- **BCP** enables the print server to use the BCP (Binary Communications Protocol) to transfer print data to the printer.
- **ASCII** disables all binary transfers, select this alternative for all non-PostScript printers and for ASCII PostScript printing.

SNMP Status

SNMP Communities: Displays SNMP communities from the print server. There are two communities **(SNMP Community 1, 2)** that control messages from the

network management of the print server.

SNMP Trap Settings: Displays SNMP traps sent from the print server.

Send SNMP Traps: Displays if the print server's ability to send SNMP Traps is Enabled or Disabled.

Use Authentication Traps: If Enabled, an authentication failure trap is sent to the trap destination address if you have entered the wrong trap community.

Trap Address 1: Displays the first IP address to which SNMP traps are sent. It corresponds to the trapAddress SNMP object.

Trap Address 2: Displays the second IP address to which SNMP traps are sent. It corresponds to the trapAddress SNMP object.

Setup

All print server parameters are configured from the **Setup** menu. From here the Network Administrator can edit settings that govern System, Printer, TCP/IP, SNMP, AppleTalk, etc.

All print server settings have *default values* that have been carefully selected by Axis. In most instances, there is no need to change these default values.

System
: **Print Server Name**: Enter a name for the print server if you wish.
If nothing is specified, the default print server name is **AXISXXXXXX**, where X represent the last 6 digits of the print server's serial number. The serial number can be found on the label on the underside of the print server

System Contact: Enter the name of the contact person in charge of the print server if you wish.

System Location: Enter a descriptive name for the physical location of the print server if you wish. *Example: "Room A, color printer".*

Password: Enter an access password for the print server's web pages if you wish. *The default password is* **pass**. *The default user name is* **root.**

Wireless Setup

Basic Settings
: **Mode:** Select the wireless setting mode you wish to use in your network.

- **Infrastructure** (Workstations and laptops communicate over the WLAN and the LAN through an Access Point with the print server).
- **Ad-Hoc** (Workstations and laptop computers communicate directly over the WLAN with the print server).

Select SSID: Select or manually enter an SSID. Click **Site Survey** to scan your wireless network for available Access Points.
Default SSID in Infrastructure mode = <ANY>
Default SSID in Ad-Hoc (Diagnostic) mode= WLAN-PS.

SSID = Service Set Identifier: The SSID identifies a specific wireless LAN. Before associating with a particular wireless LAN, a station must have the same SSID as the Access Point. By default, Access Points include the SSID in the beacon frame to enable sniffing functions and automatically configure the wireless network interface card with the proper SSID.

In order to communicate in a WLAN, the print server, Access Point and laptop must all have the same **Basic Settings** and **Security Settings**.

If you use change any encryption settings by mistake, you may lose contact with the print server. Follow the steps in *Reinstating contact with the wireless network*, on page 36 to recover the connection.

Channel: Specify a channel number corresponding to your wireless environ-memt. See *Wireless Frequency Bands and Channels*, on page 7.
Default Channel= 6

Data Transmit Rates: Select the data transmission rate of your wireless print server: Auto or 1 - 54Mbps.
Default = Auto.

Transmit Mode: Select the data transmission mode for your wireless print server: b Only, g Only or Auto.
Default = Auto.

Advanced Settings: **Beacon Interval:** This setting specifies the amount of time between beacons in kilo-microseconds (Kmsec). One kilo-microsecond equals 1024 microseconds.
Default = 100 msec (ms).

Before a station enters power save mode, the station needs the beacon interval to know when to wake up to receive the beacon (and learn whether there are buffered frames at the access point).

Preamble: **(Long/Short)** The radio preamble is a section of data at the head of the packet containing information that the access point and the client devices need when sending and receiving packets. It allows you to select a long or short

radio preamble. A short preamble improves throughput performance.

- **Long** uses a 128 bit sync field
- **Short** uses a 56 bit sync field

Default = Long.

Security Settings

Authentication Type:

- **Open System:** This is the default value, which is most commonly used.
- **Shared Key:** When chosen, Shared Key is the print server's only means of authentication. First the Access Point sends an un-encrypted challenge text string to any device attempting to communicate with it. The device requesting authentication encrypts the challenge text and sends it back to the Access Point. If the challenge text is encrypted correctly, the Access Point allows the requesting device to authenticate.
- **WPA-PSK**: When WPA-PSK is selected, a **Pre-shared Key** must be entered for authentication and encryption.
- **WPA2-PSK**: When WPA2-PSK is selected, a **Pre-shared Key** must be entered for authentication and encryption.

Encryption:

- **None** (Open System): No encryption is used.
- **WEP-64bit** (Open System or Shared Ke**y):** For 64-bit (sometimes called 40-bit) WEP encryption, enter the key which contains 5 alphanumeric characters or 10 hexadecimal digits. For example: AbZ12 (alphanumeric format) or ABCDEF1234 (hexadecimal format).
- **WEP-128bit** (Open System or Shared Key): For 128-bit WEP encryption, enter the key which contains 13 alphanumeric characters or 26 hexadecimal digits. Note: Depending on the number of characters you enter, a number of zeros (0) will be added after your entry to reach 26 digits.

WEP Key: Enter your WEP key.

Pre-shared Key (Passphrase): The same **Pre-shared Key** (or Passphrase) as defined in the Access Point must be entered. The characters are case-sensitive. A strong PSK passphrase that uses a mixture of letters, numbers, and non-alphanumeric characters is recommended.

- **WPA-PSK(TKIP):** TKIP (Temporal Key Integrity Protocol) is the certified encryption algorithm for use with WPA and can be used with older devices.
- **WPA-PSK(CCMP):** CCMP (Counter Mode with Cipher Block Chaining Message Authentication Code Protocol) is another type of encryption, and is stronger than TKIP and requires that the router supports IPSec, long keys and AES.
- **WPA2-PSK(TKIP):** Also called 802.11i, it uses the concept of a Robust Security Network and uses TKIP and CCMP (Counter Mode CBC MAC Protocol), which provides for a stronger, scalable solution.
- **WPA2-PSK(CCMP):** Also called 802.11i, it uses the concept of a Robust Security Network and uses AES and CCMP (Counter Mode CBC MAC Protocol), which provides for a stronger, scalable solution.

TCP IP

TCP/IP Settings

Obtain TCP/IP settings automatically (use DHCP/BOOTP): If you click this radio button, the print server will obtain IP settings automatically, provided there is a DHCP/BOOTP server on your network.

Use the following TCP/IP settings: if you click this radio button, you will disable DHCP in the print server and must enter the below parameters manually:

- **IP Address:** Enter the IP address of the print server. The IP address must meet the IP addressing requirements of the network segment.
- **Subnet Mask:** Enter the subnet mask of the print server. The subnet mask must meet the IP addressing requirements of the network segment. Specify the subnet mask used for determining when the traffic should be sent via a router. This number combined with the IP address identifies on which network the print server is located. The normal class C subnet mask value is usually 255.255.255.0. The value: 0.0.0.0, indicates that all network segments are accessible.
- **Default router:** Enter the default router used by the print server. Specify the IP address for the default router. All traffic directed outside the local network, defined by the subnet mask, is sent to the default router. Any re-routing via other routers is done automatically. The setting 0.0.0.0 indicates that no default router is set. If that is the case, the print server anticipates that there is a router available that automatically senses and redirects the print server's packets to destinations outside the local network segment.

Rendezvous Settings

Rendezvous Settings: Enable or disable the Rendezvous protocol. Rendezvous is enabled by default in the print server.

Service Name: Enter a Rendezvous Service Name for the print server. If nothing is specified, the default service name is the print server name, i.e. **AXISxxxxxx Wireless Print Server,** where xxxxxx represent the last six digits of the print server's serial number.

AppleTalk

AppleTalk Settings

AppleTalk: Select **Enabled** or **Disabled.**
Default = Enabled

Zone Name: Enter an AppleTalk Zone name that you want the print server to belong to or leave it as the default value (the print server automatically searches and links itself to the default zone that is set on the AppleTalk router, if found). If no zone exists, the print server displays the zone name as an asterisk (*).

Port Name: Enter a name for identification purposes or leave the default value (recommended). The print server's default port name is **AXxxxxxx_USB,** where xxxxxx represent the last six digits of the print server's serial number, found on the label. The print server will append the last six digits to the name you specify. *Example: AX181cf0_USB*

Printer Configuration	**Type:** Enter a descriptive name for the type of printer connected to the print server.

Binary protocol: Select printing protocol used by the print server:

- **TBCP** enables the print server to use the TBCP (Tagged Binary Communication Protocol) to transfer print data to the printer
- **BCP** enables the print server to use the BCP (Binary Communications Protocol) to transfer print data to the printer.
- **ASCII** disables all binary transfers, select this alternative for all non-PostScript printers and for ASCII PostScript printing.

SNMP	TCP/IP networks use a standard management protocol called Simple Network Management Protocol (SNMP). SNMP is widely used in the industry as a solution for remote network management and monitoring of networking devices. SNMP includes a protocol, a database structure specification, and a set of database objects. The print server's SNMP implementation runs in a TCP/IP environment.

SNMP Community Settings	**SNMP Community Name 1, 2:** Provide a community name for each SNMP request for authentication purposes. There are two communities (**SNMP Community 1, 2**) that control messages from the network management of the print server. The default community name is **public** (case-sensitive), with Read Only access rights.

Privilege: Grant **Read-Only** or **Read-Write** access rights to the above communities.

SNMP Trap Settings	**Send SNMP Traps: Enable or Disable** the print server's ability to send SNMP Traps. When an unusual condition or activity occurs, the SNMP agent alerts the SNMP manager through SNMP traps. Enable the function of sending SNMP Authentication Failure trap message to the network administrator, if the community name within a SNMP request is not correct.

Use Authentication Traps: If **Enabled**, an authentication failure trap is sent to the trap destination address.

Trap Address 1: Enter an IP address to which SNMP traps are sent.

Trap Address 2: Enter a second IP address to which SNMP traps are sent.

Maintenance

Factory Default   Click **Factory Default** then **OK** to reload all default settings in the print server.

- Performing a Factory Default will erase all settings of the print server to default and should be performed with caution!
- After performing a Factory Default, the default wireless settings will be:
  - Infrastructure mode
  - SSID = <ANY> (will connect with the Access Point that has the best signal in your wireless network)
  - Data transmit rate = Auto
  - Transmit mode = Auto
  - Authentication Type = Open System
  - Channel = 6
  - DHCP enabled

Firmware Upgrade   Click **Firmware Upgrade** to browse to your firmware directory and reload the print server with new firmware. (You must first download firmware from **www.axis.com/techsup/firmware,** select the appropraite print server model and click **Download flash file**. Save the firmware flash file locally on your computer or in a network directory.)

Restart

Click **OK** to restart the print server. The print server can also be restarted by disconnecting and the re-connecting the external power supply, or by pushing the external Reset button once.

Print server management using the Reset button

The reset button can be used for several operations, see *Print Server Setup*, on page 8 for the physical location of the Reset button.

Reset the Print Server:

1. Verify that the DIP switch is on "Nor."

2. Press the reset button once.

WARNING! This will restart the print server and stop all on-going and pending print jobs!

Print a Test Page

The DIP switch can be set on either "Nor." or "Diag."

1. Hold down the reset button for 5 seconds.

2. The test page will be printed on the connected printer.

The test page displays information on these parameters:
- Device Name (print server name)
- Firmware version
- MAC address
- IP address
- Subnet Mask
- Default Router
- SSID
- Channel
- WPA-PSK enabled or disabled
- AppleTalk enabled or disabled
- AppleTalk Port Name
- Rendezvous enabled or disabled
- Rendezvous service name
- Site survey

Perform a Factory Default:

1. Verify that the DIP switch is on "Nor."

2. Disconnect the external power supply.

3. Hold down the reset button.

4. Reconnect the external power supply. Wait for 5 seconds, and release the button.

5. Release the reset button.

6. The print server will restart.

Important!

- Performing a Factory Default will erase all settings of the print server to default and should be performed with caution!

- After performing a Factory Default, the default wireless settings will be:
    - Infrastructure mode
    - SSID = <ANY> (will connect with the Access Point that has the best signal in your wireless network)
    - Data transmit rate = Auto
    - Transmit mode = Auto
    - Authentication Type = Open System
    - Channel = 6
    - DHCP enabled

AXIS OfficeBasic USB Wireless G

Upgrading the Print Server's Firmware

The print server's *firmware** is stored in its Flash memory. This memory retains data content even after the power is removed. Flash memory allows data to be erased and re-written, which is why you can install firmware updates in your print server as they become available, without having to replace any parts. New firmware can simply be loaded into the AXIS OfficeBasic USB Wireless G over the network.

* Firmware is internal print server software that determines its functionality.

You can obtain all print server firmware free of charge from the following locations:

- www.axis.com
- your local dealer

Caution!

- Be careful not to interrupt the file transfer. If the transfer is interrupted, the print server may have to be re-initialized by your dealer.
- Before upgrading the print server, ensure that it is not printing jobs. You have to wait until the print job is finished before you can proceed.

Upgrading the Firmware

You can upgrade the AXIS OfficeBasic USB Wireless G firmware from the print server's internal Web pages (HTTP).

Updating instructions are supplied with the firmware release notes.

Upgrading from the Print Server's Internal Web Pages

Follow these instructions to upgrade the firmware of your print server from its internal Web pages:

1. Go to **www.axis.com/techsup/firmware,** select your print server model and click **Download flash file**. Save the firmware flash file locally on your computer or in a network directory.

2. Open a Web browser, enter the IP address of your print server and press **Enter**. The print server's internal web pages will appear.
   (See *Print Server Management*, on page 19) for detailed instructions).

3. Click **Maintenance** | **Firmware Upgrade**.

4. Click the **Browse** button. A new window will open. Browse to the directory where you saved the new firmware and click **Upgrade**.

5. The new firmware will be loaded into the print server and the print server will restart (Power LED will blink 5 times).

Appendix 1: Set a Temporary IP Address with Arp/Ping

You can assign a **temporary** IP address to the print server using arp/ping and then access the print server's internal web pages to assign **a fixed IP address**:

1. Locate the print server's **serial number (S/N)** found on the print server's underside label. The Ethernet address is based on the serial number:

Serial number:	MAC/Ethernet address:
00408c181cf0	00-40-8c-18-1c-f0 (Windows) 00:40:8c:18:1c:f0 (Mac OS)

2. Open a Command Prompt or Terminal and enter the following syntax:

	Syntax	Example Windows (Command prompt)
1	arp –s <IP address> <Ethernet address>	arp –s 192.168.3.191 00-40-8c-18-1c-f0
2	ping <IP address>	ping 192.168.3.191

	Syntax	Example Mac OS (Terminal)
1	arp –s <IP address> <Ethernet address>	arp –s 192.168.3.191 00:40:8c:18:1c:f0
2	ping <IP address>	ping 192.168.3.191

3. The host will return **psname is alive** (Mac OS Terminal) **or Reply from 192.168.3.191…** (Windows Command prompt) or a similar message. This indicates that a temporary IP address has been set and that communication is established.

4. Next, open a web browser (e.g. Internet Explorer).

5. In the Web browser's **Location/Address** field, enter the print server's IP address and press **Enter**.

6. The print server's web page will appear. Go to **Setup │ TCP/IP**:
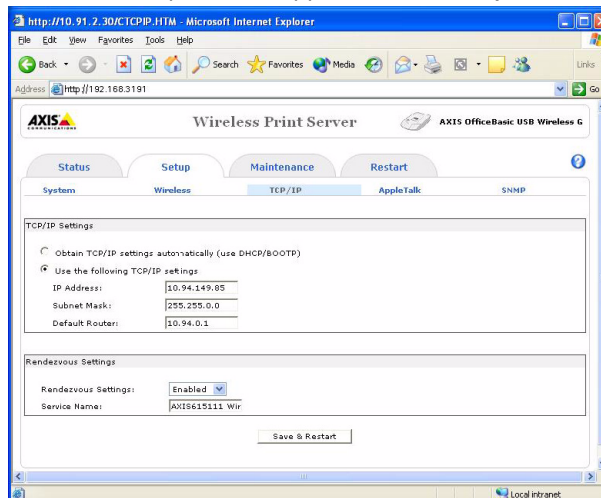
7. Assign a fixed IP address to the print server: select **Use the following TCP/IP settings** radio-button and enter a valid **IP address, Subnet Mask** and **Default Router**.

8. Click **Save and Restart**. The new, static IP address will be loaded.

9. Check the communication by entering the new IP address in the browser and that the print server's web pages appear again.

-   When you execute the `ping` command for the first time, you may experience a significantly longer response time than usual.
-   The IP address and serial number used here are sample values. You must acquire a new and unused IP address from your network administrator.

Appendix 2: Enabling WEP/WPA in the AXIS OfficeBasic USB Wireless G

You may experience problems connecting to the AXIS OfficeBasic USB Wireless G if your WLAN is Infrastructure-based (with an Access Point) and uses WEP/WPA encryption and/or does not broadcast the SSID. Follow these instructions to connect and install the AXIS OfficeBasic USB Wireless G print server:

1. Switch the print server's DIP switch to DIAG mode.

2. Create a new profile or use an existing one on your laptop to connect to the print server, as described in the Installation Guide.

3. Install and run AXIS OBW Wizard.

4. From the **Select A Print Server** screen, select your print server and click **Next**.

5. On the **Change Settings** screen select **Yes** and click **Next**.

6. On the **Basic Wireless Settings** screen keep Infrastructure (default) as communication type.

7. Keep **<ANY>** as default SSID or change it to match your WLAN settings.

8. Keep **Auto** as default Data transmit rate or change it to match your WLAN settings. Click **Next**.

9. On **Security and WEP Encryption Settings** screen, choose the appropriate encryption method.

10. Choose Type (64-bit or 128-bit), Key Format (Alphanumeric or Hexadecimal) and enter an Encryption Key to match your WLAN settings. Click **Next**.

11. In **TCP/IP Settings**, specify a fixed or dynamic IP address, then click **Next**. A fixed IP address is highly recommended; select Specify an IP address and fill the settings to match your WLAN settings. Click **Next**.

12. Click **Next** again to save your settings.

13. Click **Cancel** on the **Select A Printer** screen (as you are not going to install a printer).

14. Switch the print server's DIP switch back to NORMAL.

15. From a workstation on your LAN, open a Web browser, enter the IP address of your print server to verify the AP connection in the WEP/WPA encrypted WLAN and press **Enter**. The print server's internal web pages will appear.

For detailed information about WEP/WPA settings, see *Setup*, on page 22.

Appendix 3: Troubleshooting

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

- Check that the WLAN network interface is properly configured in the work-station/laptop trying to access the print server.
- All communicating clients must be in the same operating mode, i.e. Ad-Hoc or Infrastructure mode.
- Check that the SSID and the WPA keys are set according to your WLAN net-work settings.
- Check that the radio frequency channel setting is the same on all communi-cating 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

Reinstating contact with the wireless network

In order to communicate with the print server, the laptop must have the same settings as the print server under **Setup | Basic Settings**.
If you use WEP/WPA encryption on your WLAN and accidentally change the WEP format or keys in the print server, you will lose contact with the print server.

Default Ad Hoc settings in the Print Server

The print server has these default **Ad Hoc settings** (under **Setup | Wireless**). These settings cannot be modified!

- Communication type = Ad Hoc
- SSID = WLAN-PS
- Channel = 6
- Data transmit rates = Auto
- Transmit mode = Auto

Follow these steps to recover the connection:

1. Switch the print server's DIP switch to DIAG.

2. On your laptop, create a new profile using the wireless PCCARD/PCMCIA's management program. The settings in this profile must correspond with the print server's Ad Hoc settings, described in *Default Ad Hoc settings in the Print Server*, on page 36. Make sure a connection is established with the print server.
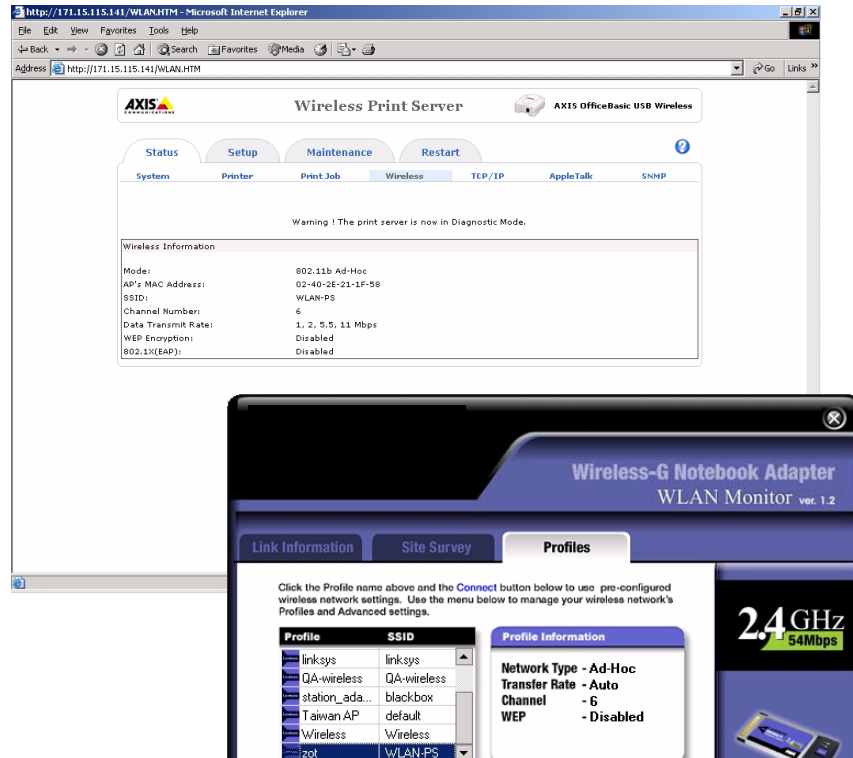
Ad Hoc settings in print server and corresponding settings in laptop's WLAN management program

3. In the print server's web interface, configure all wireless settings under **Setup | Wireless** according to your WLAN settings (Wireless mode, WEP encryption, WEP keys, etc.). Click **Save and Restart**.

These changes will not affect settings when the print server is in DIAG Mode. The changes will take place when the DIP switch is switched to NORMAL and the print server is re-powered.

4. Switch the print server's DIP switch back to Normal mode and re-power the print server (disconnect then reconnect the external power supply).

5. On your laptop, access the previous profile used before losing contact with the print server and reactivate it. You should now be able to make contact with the print server again.

Frequently Asked Questions

Q: Print jobs are sent to the print queue successfully, but fail to be sent to the printer?

A: Possible explanation and solution:

The printer is off-line, jammed or out of paper.

Solution:

Check the print server connection by logging into the print server's web pages and ensure that the printer is not jammed or out of paper.

Q: Print jobs start printing, but print very slowly or print unknown characters.

A: Possible explanation and solution:

A printer driver is missing or is incompatible with that printer. Using a print driver that is not specific for the printer can cause printing errors. Install the proper printer driver. If these printer drivers are not available to you, please contact your printer manufacturer.

Q: The setup Wizard can't find the print server

A: Possible explanation and solution:

Encryption may be enabled. Try to use Ad-hoc setting to reconnect. Also, ensure that the print server is on the same network segment and print a test page to see if the print server has connected to the network.

Q: The IP address is 0.0.0.0

A: Possible explanation and solution:

The print server has recently been restarted and has not yet acquired an IP address.

Solution:

Print another test page after a minute has passed.

Technical Specifications

Supported Printers:	Support for printers and digital copiers from Brother, Canon, Epson, HP, IBM, Kyocera, Lexmark, Minolta, NEC, Oce, OKI, Ricoh, Sharp, Star, TEC, Toshiba, Zebra, Xerox, etc.

AXIS OfficeBasic USB Wireless G does not support printing with host-based printers, e.g. CAPT, GDI, PPA.

Supported Systems:
- Microsoft Windows 2000, XP and 2003
- Apple Mac OS 9, Mac OS X

Network Connection: IEEE 802.11b and 802.11g technology in ad-hoc and infrastructure modes.

11 Channels (USA and Canada)
13 Channels (Europe)
14 Channels (Japan)

Supported Web Browsers: Any standard web browser (Netscape 6.x or higher and MS Internet Explorer 5.x or higher).

Supported Protocols:
- TCP/IP: ARP, Auto-IP, BOOTP, DHCP, HTTP, ICMP, IP, IPP, LPR, SNMP v1, TCP, TFTP, UDP, Raw TCP, Rendezvous
- Apple EtherTalk: AAPR, ATP, DDP, NBP, PAP, RTMP, ZIP
- NetBIOS/NetBEUI
- WEP, WPA, WPA2

Installation, management and maintenance
- Internal web pages for configuration, monitoring and firmware upgrade.
- Windows installation tool compliant with Apple Rendezvous.
- Firmware upgrade using the print server's web pages and TFTP.

Supported Languages: English, German, French, Italian, Spanish, Japanese.

Supported Standards: IEEE 802.11b, 802.11g and 802.11i.

Printer Connection:
- USB 2.0 High speed
- Bi-directional support for Apple EtherTalk and Reverse Telnet.

Hardware:
- ARM9-based RISC microprocessor, operating at 176 MHz.
- Memory: 2 MB Flash, 8 MB SDRAM

Front Panel:
- 3 LED indicators: Power, WLAN and USB
- Diagnostic DIP switch
- Reset button to print test page and perform factory default.

Power Consumption:	Power provided by external power supply (Type PS-N, 5V 2A). Maximum consumption 4 W.

Dimensions:
- Height 2.5 cm / 1.0 in
- Width 6.4 cm / 2.5 in
- Depth 11.4 cm / 4.5 in
- Weight 74 g / 2.6 oz

Environmental:
- Temperature: 40-105F (5 - 40 C)
- Humidity 0- 70 %

Approvals:
- EMC:
  - EN 55022/1998
  - EN 55024: 1998
  - EN 61000-3-2
  - EN 61000-3-3
  - VCCI Class B
  - C-Tick
  - FCC Part 15 subpart C, Class B
- Safety:
  - EN 60950

Included Accessories:
- Printed installation guide
- Power supply
- Installation CD
- USB cable

All specifications are subject to change without prior notice.

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