D-Link DP-311U

Wireless Print Server

Manual

D-Link

Building Networks for People

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Package Contents

Contents of Package:

- **D-Link *DP-311U***
  Fast Ethernet Print Server
- Manual and Warranty on CD
- Printed *Quick Installation Guide*

If any of the above items are missing, please contact your reseller.

System Requirements:

- A computer with an installed Ethernet adapter
- Windows XP/2000/ME/98SE
- Apple Mac OS with AppleTalk
- Linux
- Internet Explorer 6.0, or Netscape Navigator version 6.0 or above, with JavaScript enabled
- Printer must support required Operating System

Introduction

The D-Link DP-311U Print Server is an 802.11b wireless print server that also connects to your Ethernet/Fast Ethernet network. Now you can locate USB printer services virtually anywhere in your home or office. The DP-311U manages the flow of print files from workstations or file servers to connected printers, delivering print jobs to printers much faster than a file server on a PC acting as a print server can. With one USB (v1.1) port, the DP-311U can connect to almost any printer with a USB port.

The DP-311U includes easy-to-use software to install on most Windows-based networks. Protocol support for TCP/IP, NetBEUI, and AppleTalk are provided to ensure seamless connection to major networking Operating Systems.

The DP-311U has a built in Web-Based management feature that allows users to easily configure and manage print queues through TCP/IP. The DP-311U also supports Telnet as an alternative method to configure the unit.

The DP-311U improves network printing services in the following ways:

- The DP-311U delegates print jobs to the connect USB printer. This provides workload relief to your file servers and allows the file servers' full capacity to be used for file access or other direct services to network users. On peer-to-peer networks, workstations can print directly to the Print Server without increasing the load of another workstation or server.
- The DP-311U's USB port, version 1.1, can transmit to high-speed laser printers much faster than a PC's parallel printer port.
- Because the DP-311U is very portable and inexpensive compared to a PC-based print server, and the Print Server connects to your file servers through the network, printers can be deployed to locations of maximum convenience to users.

The DP-311U offers extraordinary flexibility, operating with all major network operating systems and protocols:

- **TCP/IP**
  UNIX lpr/lpd
  Windows NT/2000, Windows 95/98SE/ME, Windows XP
  NetWare 5.x NDPS LPR Remote Printing

- **NetBEUI**
  Windows 2000/XP, Windows 95/98SE/ME, Microsoft LAN Manager, IBM LAN Server

- **AppleTalk**
  MacOS EtherTalk

Windows-based setup and administration software, *PS Admin*, is supplied with the Print Server, making configuration and management quick and easy. The Print Server also supports configuration and management via the Telnet protocol for networks without Windows-compatible systems.

External Features

Port Connectors

The DP-311U's USB port is located on its rear panel. The USB can be configured using the *PS Admin* program or the print server's Telnet interface. (See the *PS Admin User's Guide*, available on the CD that came with the DP-311U, for information about configuring the print server's ports.) The Print Server also supports web configuration permitting users to configure settings through the web browser. The default IP Address is as follows:

- Default IP Address – 192.168.0.10

- Subnet Mask – 255.255.255.0

Note:
The PC's IP Address must be in the same subnet as the Print Server's IP Address for the two devices to communicate. (For example, if your Print Server's IP Address is 192.168.0.10, with a subnet mask of 255.255.255.0, then your computer's IP Address should be 192.168.0.x, where x is a value between 1-254, excluding 10.)

Front Panel LED Indicators

- **Power / USB**

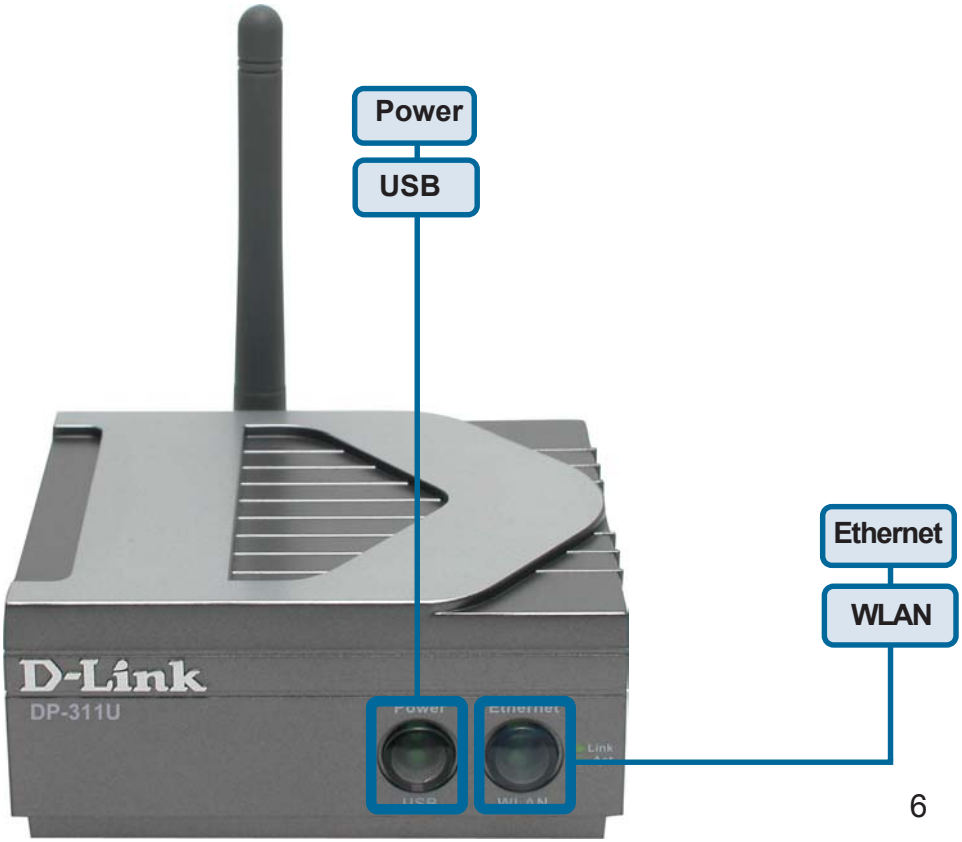
  Steady or flashing green light confirms that the Print Server is powered **ON**. The LED indicator lights up to show that the Print Server is transferring print data through the USB port.

- **Ethernet/WLAN**

  Steady or flashing green light confirms that the Print Server has a good connection to the Ethernet or Fast Ethernet network.

  The indicator blinks off briefly to indicate that the Print Server is receiving or transmitting from the network.

These four indicators are also used by the Print Server's Power-**ON** Self Test (POST) to indicate any hardware failures.



Rear Panel Connectors

Network Cable Connector

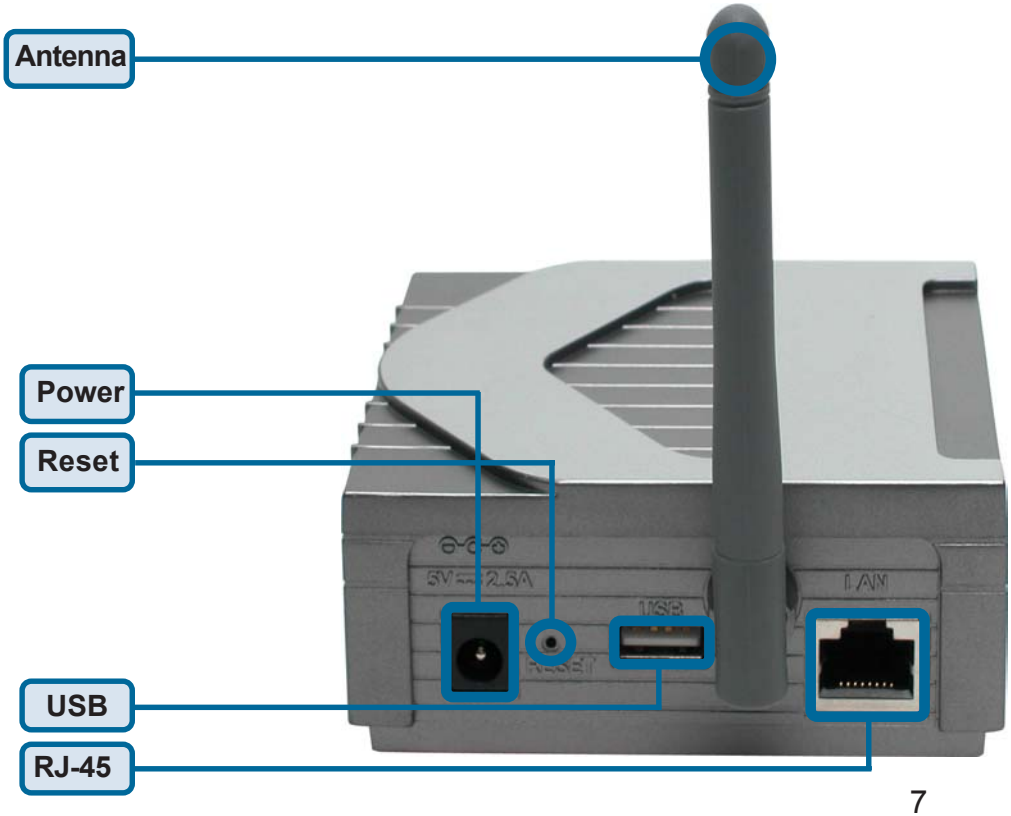
The Print Server's rear panel features an RJ-45 connector for connection to 10Base-T Ethernet cabling or 100Base-TX Fast Ethernet cabling (which should be Category 5 twisted-pair cable). The port supports the NWay protocol, allowing the Print Server to automatically detect or negotiate the transmission speed of the network.

DC Power Connector

The DC power input connector is located on the Print Server's rear panel and is labeled DC 5V.

LED Indicators

The front panel of the Print Server features five LED indicators:



Wireless Basics

D-Link wireless products are based on industry standards to provide easy-to-use and compatible high-speed wireless connectivity within your home, business or public access wireless networks. D-Link wireless products will allow you access to the data you want, when and where you want it. You will be able to enjoy the freedom that wireless networking brings.

A WLAN is a cellular computer network that transmits and receives data with radio signals instead of wires. WLANs are used increasingly in both home and office environments, and public areas such as airports, coffee shops and universities. Innovative ways to utilize WLAN technology are helping people to work and communicate more efficiently. Increased mobility and the absence of cabling and other fixed infrastructure have proven to be beneficial for many users.

Wireless users can use the same applications they use on a wired network. Wireless adapter cards used on laptop and desktop systems support the same protocols as Ethernet adapter cards.

People use wireless LAN technology for many different purposes:

Mobility - Productivity increases when people have access to data in any location within the operating range of the WLAN. Management decisions based on real-time information can significantly improve worker efficiency.

Low Implementation Costs – WLANs are easy to set up, manage, change and relocate. Networks that frequently change can benefit from WLANs ease of implementation. WLANs can operate in locations where installation of wiring may be impractical.

Installation and Network Expansion - Installing a WLAN system can be fast and easy and can eliminate the need to pull cable through walls and ceilings. Wireless technology allows the network to go where wires cannot go - even outside the home or office.

Scalability – WLANs can be configured in a variety of topologies to meet the needs of specific applications and installations. Configurations are easily changed and range from peer-to-peer networks suitable for a small number of users to larger infrastructure networks to accommodate hundreds or thousands of users, depending on the number of wireless devices deployed.

Inexpensive Solution - Wireless network devices are as competitively priced as conventional Ethernet network devices.

Wireless Basics (cont.)

Standards-Based Technology

Based on the IEEE **802.11b** standard, the DP-311U is interoperable with existing compatible 2.4GHz wireless technology with data transfer speeds of up to 11Mbps when used with other D-Link *Air*Plus devices.

Installation Considerations

The D-Link *Air*Plus DP-311U lets you print through your network, using a wireless connection, from virtually anywhere within its operating range. Keep in mind, however, that the number, thickness and location of walls, ceilings, or other objects that the wireless signals must pass through, may limit the range. Typical ranges vary depending on the types of materials and background RF (radio frequency) noise in your home or business. The key to maximizing wireless range is to follow these basic guidelines:

1. Keep the antenna of the DP-311U in an upright position

2. Keep the number of walls and ceilings between the DP-311U and other network devices to a minimum - each wall or ceiling can reduce your D-Link wireless product's range from 3-90 feet (1-30 meters.) Position your devices so that the number of walls or ceilings is minimized.

3. Be aware of the direct line between network devices. A wall that is 1.5 feet thick (.5 meters), at a 45-degree angle appears to be almost 3 feet (1 meter) thick. At a 2-degree angle it looks over 42 feet (14 meters) Keep your product away (at least 3-6 feet or 1-2 meters) from electrical devices or appliances that generate extreme RF noise.5.thick! Position devices so that the signal will travel straight through a wall or ceiling (instead of at an angle) for better reception.

4. Building Materials can impede the wireless signal - a solid metal door or aluminum studs may have a negative effect on range. Try to position wireless devices and computers with wireless adapters so that the signal passes through drywall or open doorways and not other materials.

5. Keep your product away (at least 3-6 feet or 1-2 meters) from electrical devices or appliances that generate extreme RF noise.

Setting up the DP-311U

Installing the Print Server

WARNING: *Configuration problems may result if the Print Server is powered up without first establishing its network connection. Follow this procedure to avoid complications at the configuration stage.*

1. Confirm proper operation of the printer to be connected to the DP-311U,
2. When you have confirmed proper operation of the USB printer, switch it the power **OFF**.
3. Confirm that your network is operating normally.
4. Connect the DP-311U RJ-45 Connector to the network, using a straight through CAT5 cable..
5. While the printer is powered **OFF**, install the USB printer cable to connect the printer's USB port to the USB port of the Print Server.
6. Switch on the connected printer.
7. Plug the AC power adapter's DC output plug into the DC 5V power socket on the rear panel of the Print Server.
8. Plug the power adapter into a power outlet. This will supply power to the Print Server, as it has no external power switch. The green Power LED on the Print Server's front panel should illuminate steadily, and the Print Server's Self-Test will proceed.

Power ON Self-Test

Every DP-311U has been factory-tested to operate properly.

When the DP-311U is powered **ON**, it also automatically performs a Self-Test on each of its major components. The final result of the Self-Test is signaled by the state of the USB LED indicator following the Self-Test. Preliminary to the actual component tests, the LED indicators are tested to confirm their steady and flashing operation.

Immediately after power-up, all three of the green LEDs should illuminate steadily for several seconds. Then the USB LED should flash **ON** three times. Irregularity of the LED during this LED test may mean there is a problem with the LED itself.

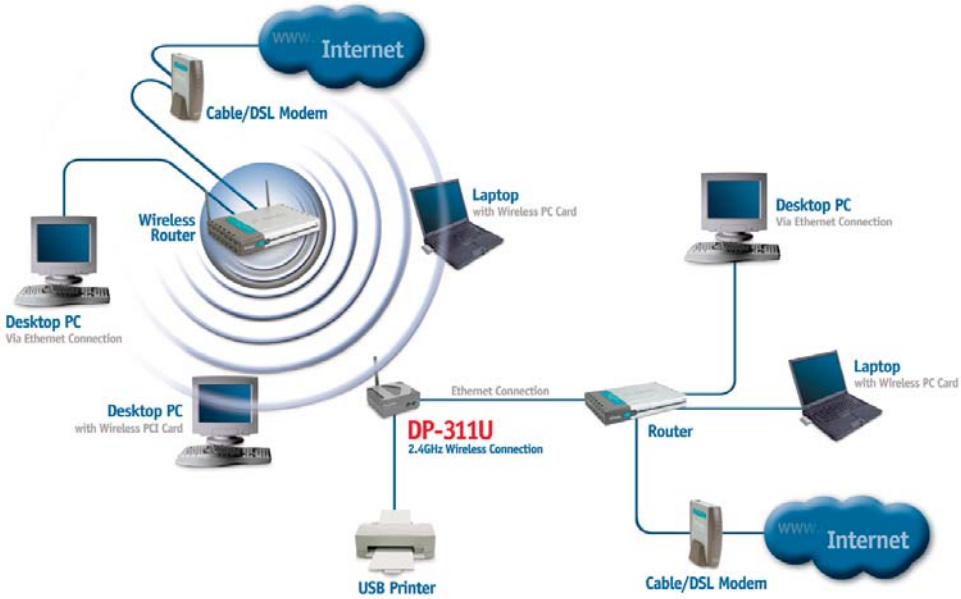
The actual component tests immediately follow the LED tests. A normal (no fault) result is signaled by a flashing of the USB LED, followed by a darkened LED.

If the Self-Test routine detects any component error, then following the LED tests the Self-Test will halt and the LEDs will continuously signal the error according to the following table. In the event of any such error signal, contact your dealer for correction of the faulty unit.

USB LED	Faulty Component
low speed flashing	Need to reload firmware
steady **ON**	DRAM error
1 long 2 short	Timer INT error
1 long 3 short	Flash Protected
1 long 5 short	Flash Erase/Program error
1 long 6 short	LAN Controller error
1 long 7 short	LAN memory error
1 long 11 short	LAN I/O base error
1 long 15 short	Wireless LAN card detect error
1 long 16 short	Wireless LAN card CIS error
1 long 17short	Wireless LAN card I/O error
1 long 18 short	USB error

Getting Started

Below is a sample network using the DP-311U. The DP-311U has a built- in Web-based management feature that allows users to easily configure and manage their print queue through TCP/IP.



Warning!

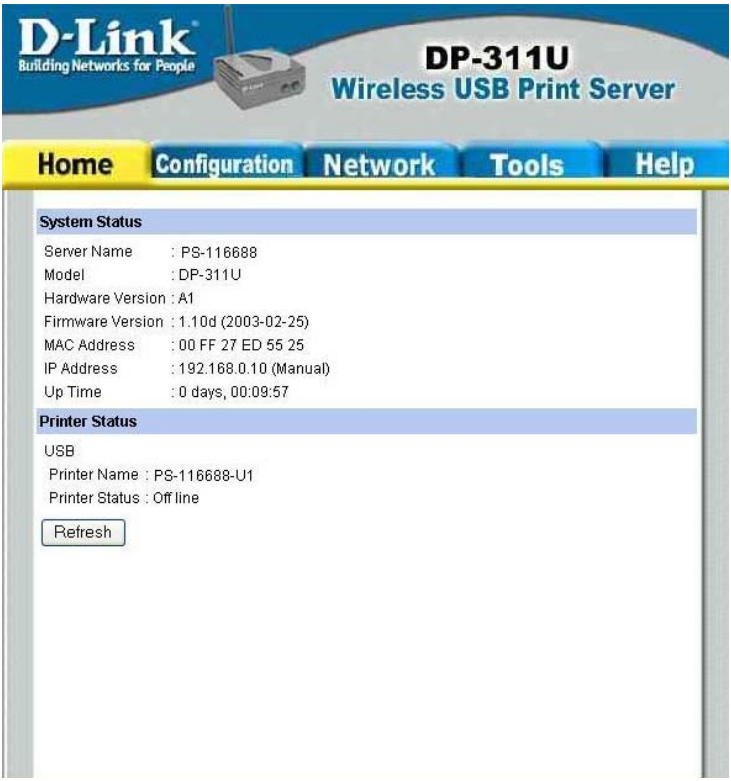
Only a USB printer may be connected to the USB port of the DP-311U. Do not connect any other USB devices to the USB port of the DP-301U; to do so, may damage the unit and will void the warranty for this product.

*For a list of printers that are compatible with the DP-311U, please see the **Appendix** in this manual. The compatibility list is not comprehensive. Even if it is not included in the list, your printer may be compatible with the DP-311U.*

Using the Web Configuration

Open your web browser and type **http://192.168.0.10** in the address box, and press <Enter>. This set of numbers is the default IP Address of your Print Server. ***Please note that the PC's IP Address must correspond with the Print Server's IP Address in the same segment for the two devices to communicate.***

When you entered the default IP address, the main screen of the Print Server's configuration will appear (see below). In addition to the product information, you can access and control the Print Server's configuration through four links on the top of this main screen: **Home, Configuration, Network**, **Tools**, and **Help**.

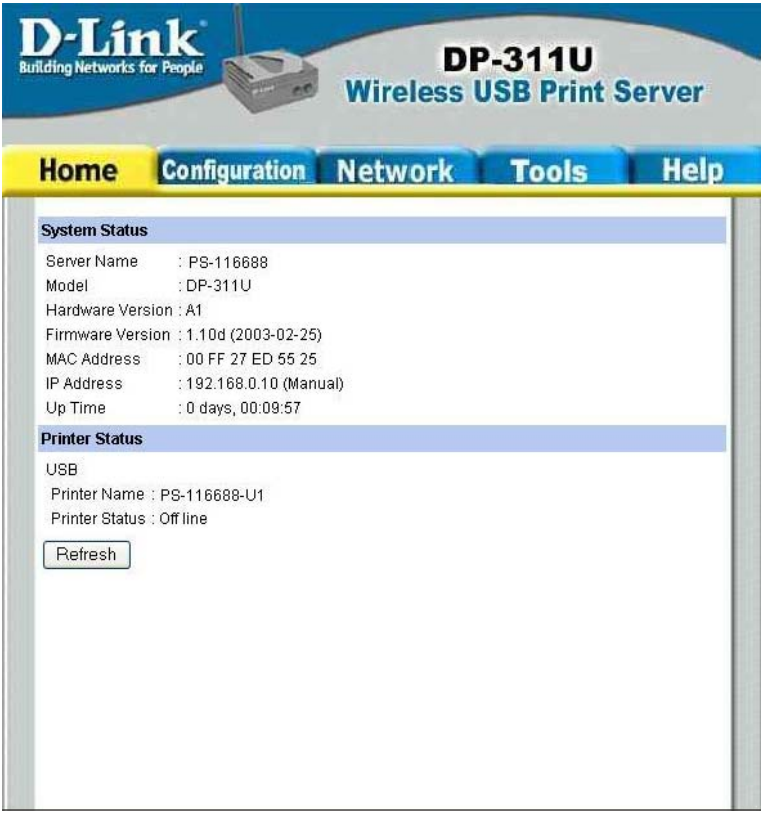


Home

Click on **Home** tab from the tools bar of the main screen to display information of the DP-311U's ***System Status*** and ***Printer Status***.

System Status and Printer Status

When you choose and enter the **Home** tab, it will show you the system information (see below), providing general information regarding the Print Server. Click on the <Refresh**>** button to acquire the most updated information. Once a printer is connected to the Print Server, the Printer Status will show [Online].



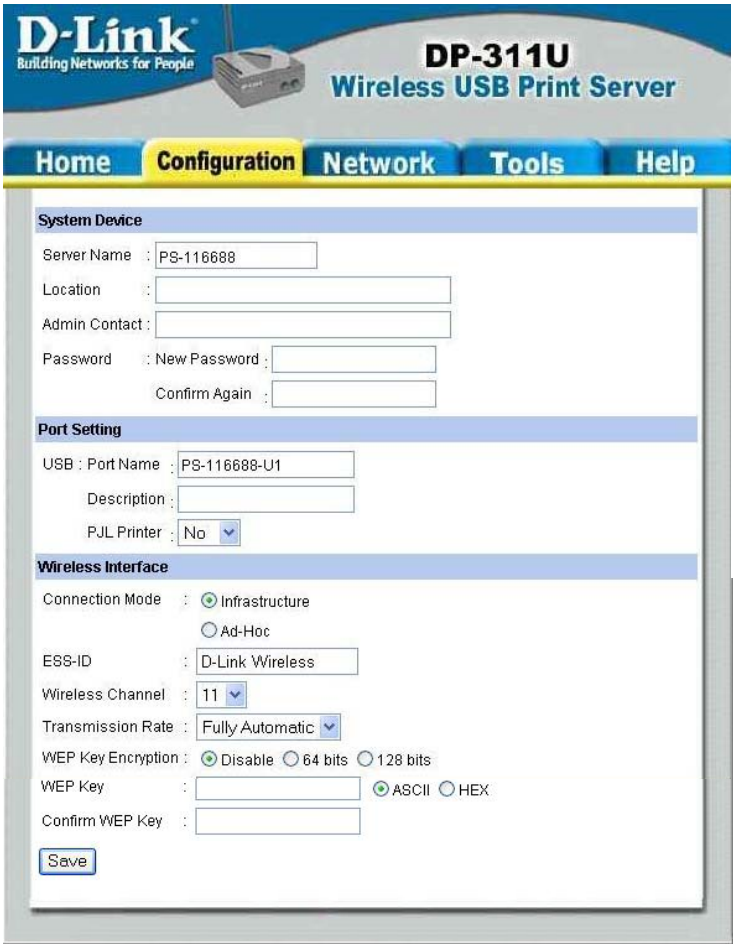
Server Name: The name assigned to the Print Server.
Model: The model of the Print Server.
Hardware Version: The version of the hardware on the Print Server.
Firmware Version: The version of the firmware and release date on the Print Server.
MAC Address: The MAC address of the Ethernet port.
IP Address: The IP Address of the Print Server.
Up Time: The length of time the Print Server has been up.

Configuration

Click on **Configuration** tab from the tools bar of the main screen to enter the Configuration Page; it provides the configuration options that include ***System Device and Port Setting***

System Device and Port Setting

This option will show you settings required to configure the DP-311U Print Server. Consult your printers owner manual for the PJL(Printer Job Language) and print speed supported on your printer. Click the <Save> button on the bottom of the configuration page to ensure the settings are updated and saved.



Server Name: The name assigned to the Print Server.

Location: (optional) Input a comment indicating where the Print Server is located.

Admin Contact: (Optional) Administrator name for the Print Server.

Password: By default the DP-311U does not have a password. This is a security risk; it is recommended that you enter a password for the Print Server.

Port Name: This is the assigned name for the USB port.

Description: (Optional) A brief description for the USB port.

Speed: Printer port speed, High or Low.

PJL Printer: This feature is used to support Hewlett-Packard PJL (Printer Job Language) standard for bi-directional printing.

Connection Mode: Ad-Hoc refers to two or more 802.11b wireless devices that communicate directly with one another without using an access point or any connection to a wired network. Infrastructure refers to an 802.11 network in which wireless devices communicate with each other by first going through an Access Point (AP) or wireless router.

ESS-ID: The workgroup name of your Wireless Network. All wireless devices must all have the same SSID to communicate on the Wireless Network. All D-Link Wireless devices have the default SSID of **default**, all lower case.

Wireless Channel: Displays the channel information. Make sure your the setting here matches the setting on your access point.

Transmission Rate: You can adjust the transmission rate to get the best signal possible depending on your usage and environment.

WEP Key Encryption: 64 bit WEP encryption uses a 10 hexidecimal character key. 128 bit WEP uses a 26 hexidecimal character key. The WEP encryption key must match the WEP settings on your AP or wireless router to connect properly.

WEP Encryption: Enter the WEP key that you wish to use in this field.

Confirm WEP Key: After typing in your WEP key, confirm the WEP Key in this field.

Network

Click on the **Network** tab from the tools bar of the main screen to enter the Network Page; it provides network protocol configuration options that include ***TCP/IP, NetBEUI and AppleTalk***

TCP/IP Protocol

The TCP/IP Protocol section will show you the settings required to configure the DP-311U Print Server for TCP/IP printing. If you forget your IP Address, you can use the *PS Admin* program to configure the DP-311U Print Server. The default IP Address is 192.168.0.10. Click the **<Save>** button to ensure the settings are updated and saved. NOTE: If you change and save the IP Address of the DP-311U, you would have to make similar changes on your web browser to access the web configuration again.

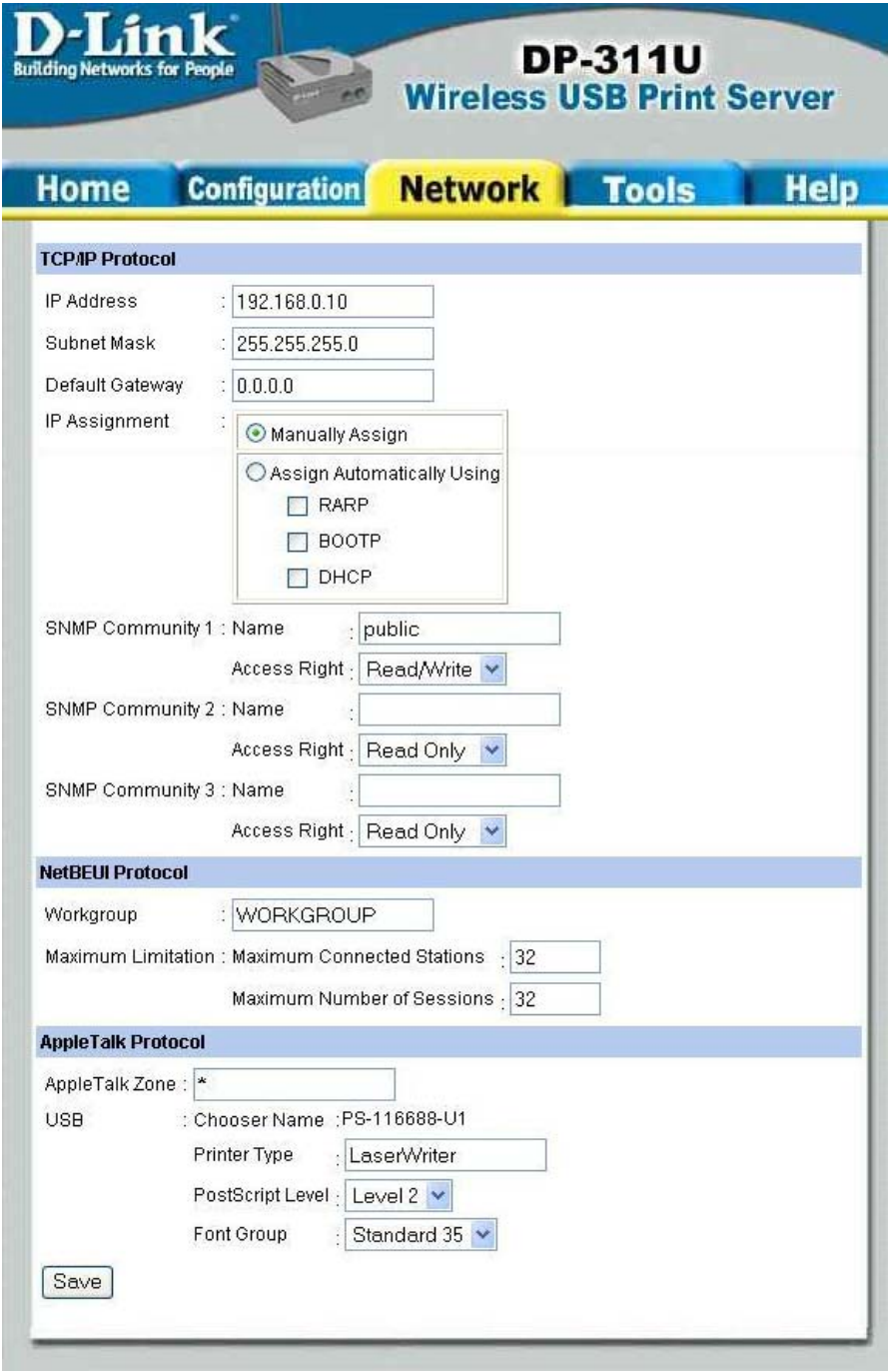
NetBEUI Protocol

The NetBEUI Protocol section will show you the settings required to configure the DP-311U Print Server for NetBEUI printing. Click the **<Save>** button to ensure the settings are updated and saved.

AppleTalk Protocol

The AppleTalk Protocol section will show you the settings required to configure the DP-311U Print Server for AppleTalk printing. Click the **<Save>** button to ensure the settings are updated and saved.

Network


D-Link
Building Networks for People
DP-311U
Wireless USB Print Server
Home
Configuration
Network
Tools
Help
TCP/IP Protocol
IP Address : 192.168.0.10
Subnet Mask : 255.255.255.0
Default Gateway : 0.0.0.0
IP Assignment :
Manually Assign
Assign Automatically Using
RARP
BOOTP
DHCP
SNMP Community 1 : Name : public
Access Right : Read/Write
SNMP Community 2 : Name :
Access Right : Read Only
SNMP Community 3 : Name :
Access Right : Read Only
NetBEUI Protocol
Workgroup : WORKGROUP
Maximum Limitation : Maximum Connected Stations : 32
Maximum Number of Sessions : 32
AppleTalk Protocol
AppleTalk Zone : *
USB : Chooser Name : PS-116688-U1
Printer Type : LaserWriter
PostScript Level : Level 2
Font Group : Standard 35
Save

Tools

Click on **the Tools** link from the tools bar of the main screen to enter the Tools Page; it provides the control options that include ***Print Test*** and ***Reset***.

Print Test

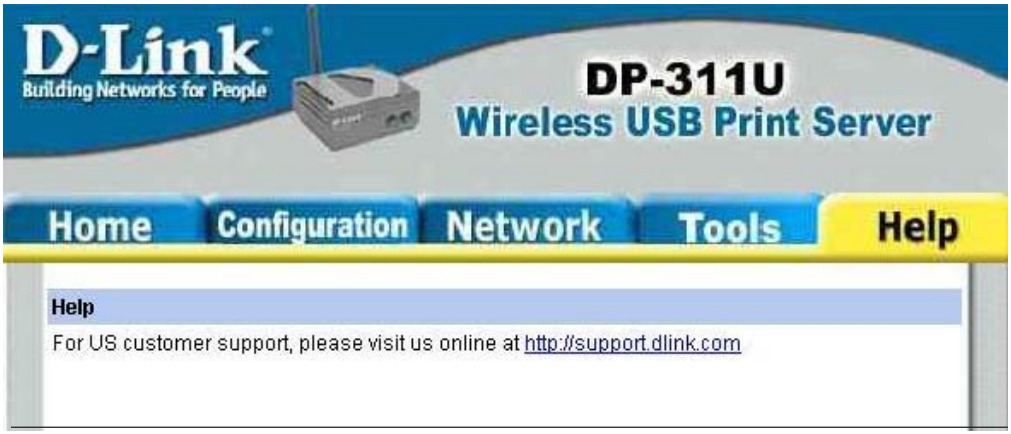
Print Test section will allow you to send an ASCII text page from the print server to your printer. Your USB printer will have to support native DOS mode for the test page to print.

Reset

Reset section will allow you to reset your print server. Click the **<Yes>** button to activate the reset process. Reset will restart the print server. Factory reset will reset all settings to factory default and restart the print server. Default IP address of the print server will be 192.168.0.10 after factory reset.

Help

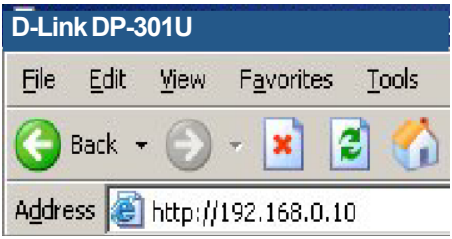
Click on the **Help** link from the tools bar of the main screen to enter the Help Page, it provides a link to D-Link's support website. D-Link's support website will provide the most up to date information on your DP-311U Print Server. Please check the website regularly for product and firmware updates.

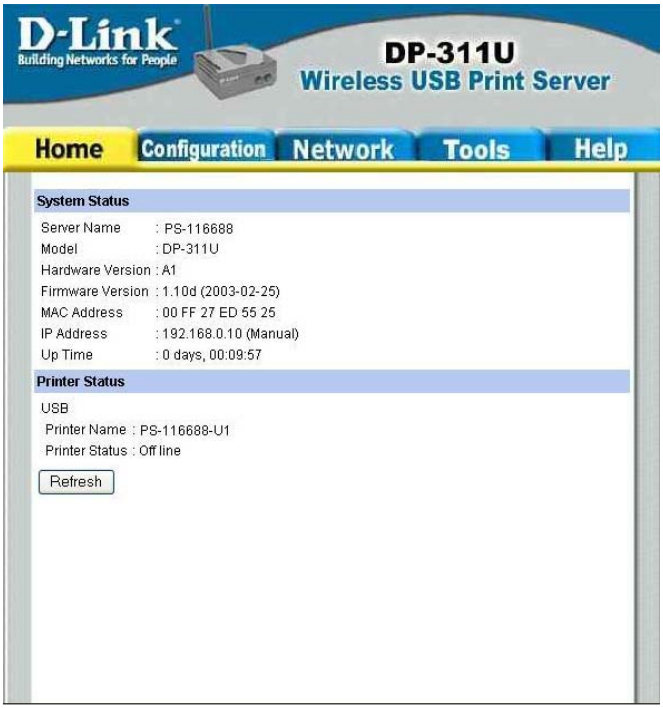


TCP/IP Printing for Windows XP

Open the web browser, and type in the IP Address of the DP-311U.
For example, type **http://192.168.0.10** into the **Location** or **Address** field. Press the **Enter** or **(Return)** Key.

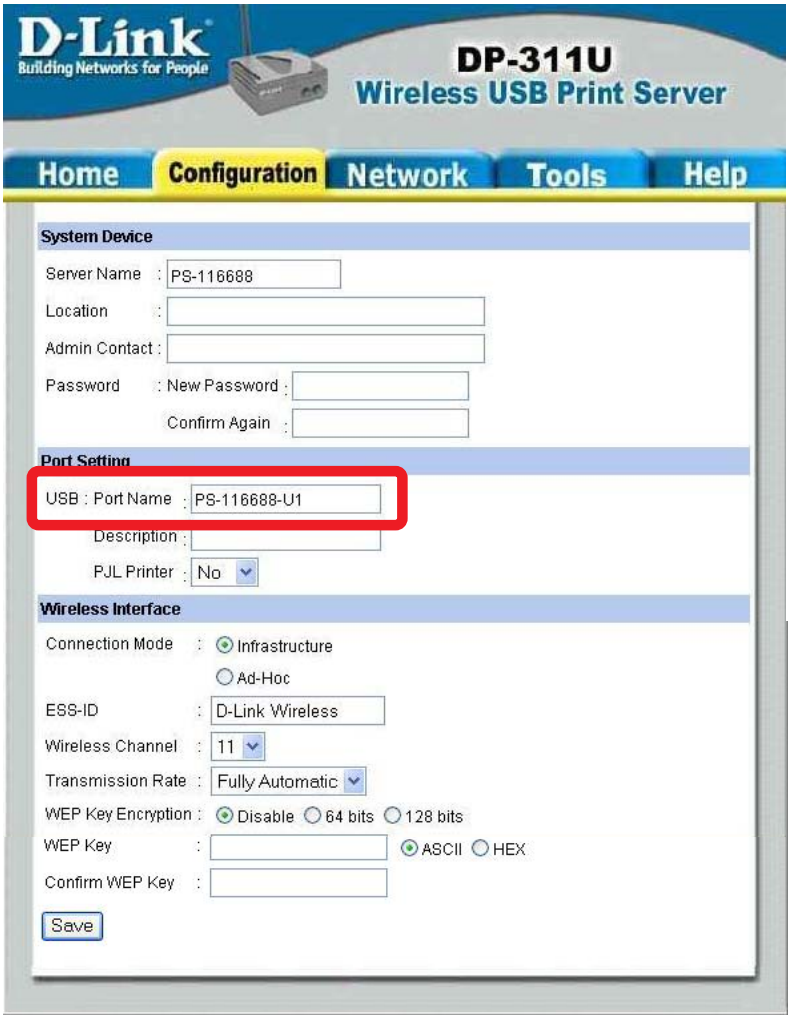
Note:
The PC's IP Address must be in the same subnet as the Print Server's IP Address for the two devices to communicate. (For example, if your Print Server's IP Address is 192.168.0.10, with a subnet mask of 255.255.255.0, then your computer's IP Address should be 192.168.0.x, where x is a value between 1-254, excluding 10.) See *Networking Basics: Assigning a Static IP Address* in this manual to find out how to change an IP Address.





TCP/IP Printing for Windows XP *(continued)*

At the **Configuration** window, write down the **Port Name** for future reference. You will need this information later in the configuration process.



Select your **Connection Mode**

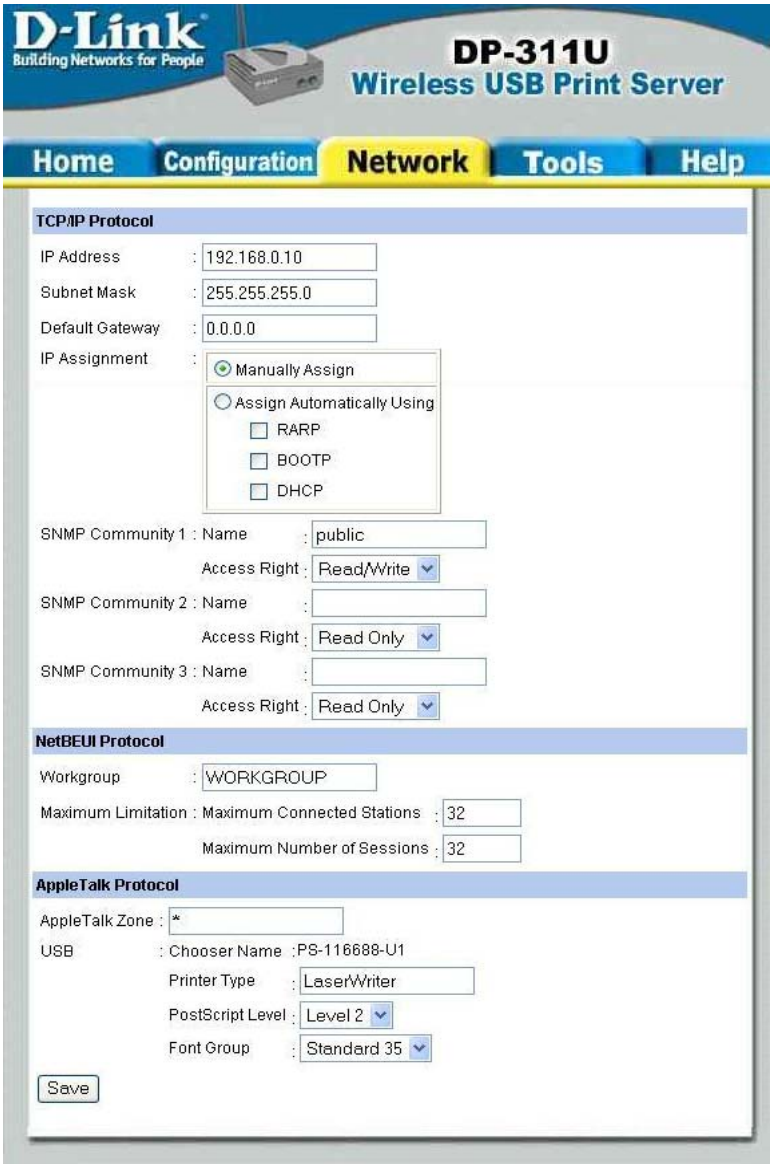
Enter the **ESS-ID** of the remote access point or wireless router you wish to connect to.

If you would like to set **WEP Encryption,** select the encryption level and the key here.

Click **Save**

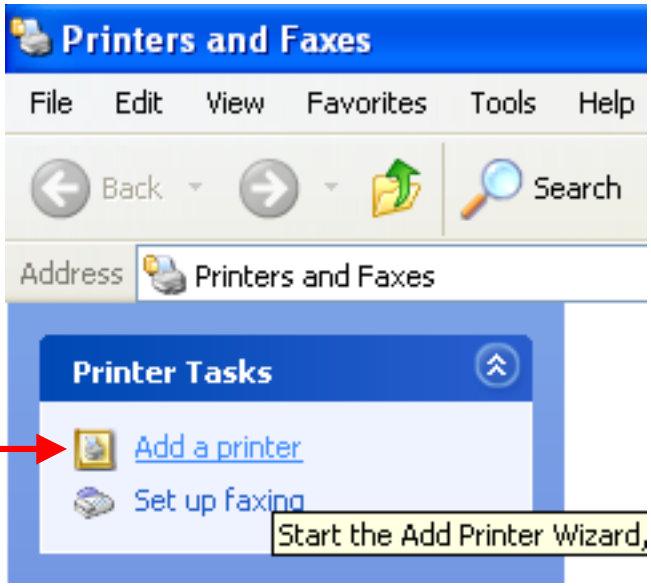
TCP/IP Printing for Windows XP *(continued)*

When you select **TCP/IP Protocol** at the **Network** window, the screen below appears. (We recommend that you keep the default settings as shown.) If you need to make changes, make sure to click **Save** after you have made the changes. (You may wish to make a note of the IP Address.)



TCP/IP Printing for Windows XP *(continued)*

Go to **Start > Settings > Printers and Faxes > Add a Printer**



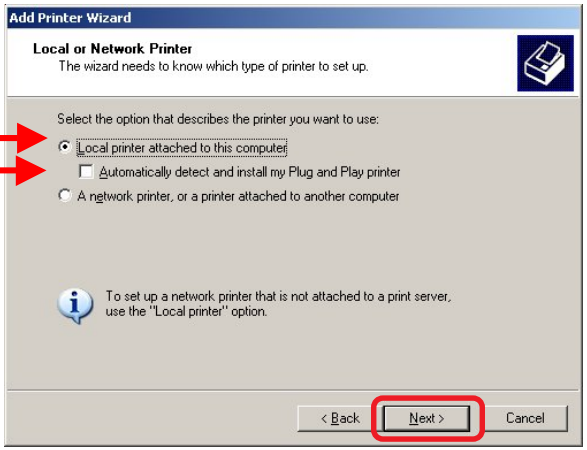
Click **Next**

TCP/IP Printing for Windows XP *(continued)*

Select **Local Printer**

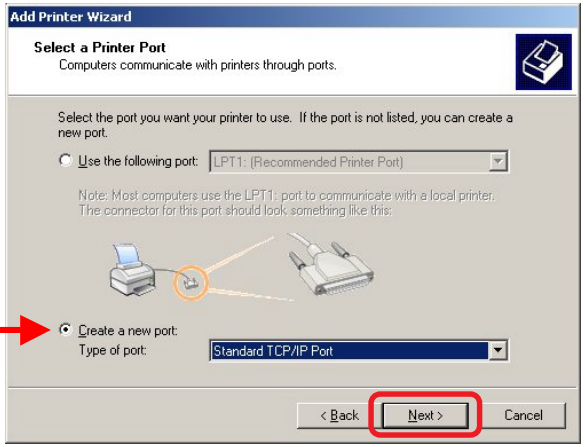
Deselect **Automatically detect and install my Plug and Play printer.**

Click **Next**

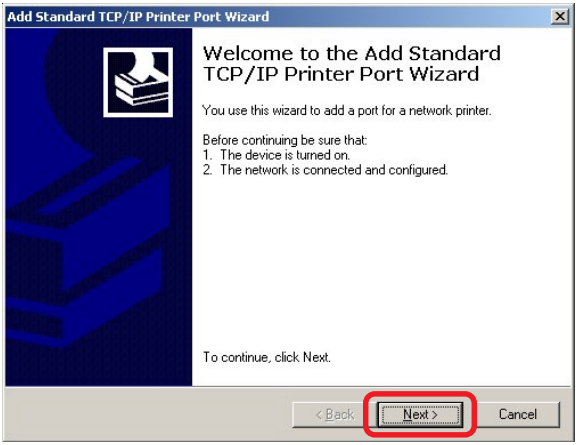


Select **Create a new port.** At the pull-down menu, highlight **Standard TCP/IP Port.**

Click **Next**

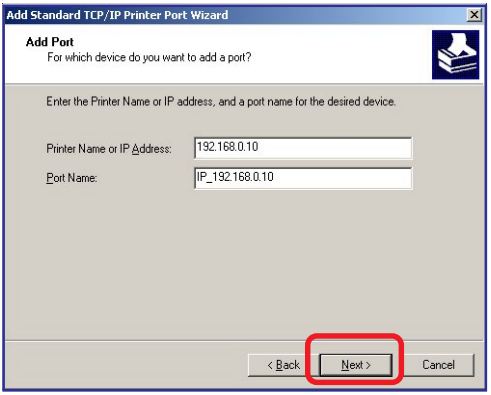


Click **Next**



TCP/IP Printing for Windows XP *(continued)*

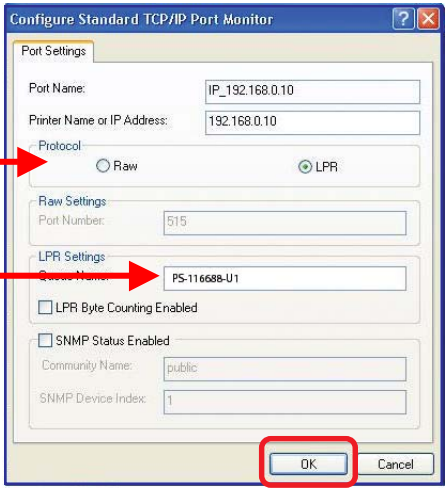
Type in the IP address of the Print Server (i.e. 192.168.0.10). The **Port Name** will automatically be filled in.



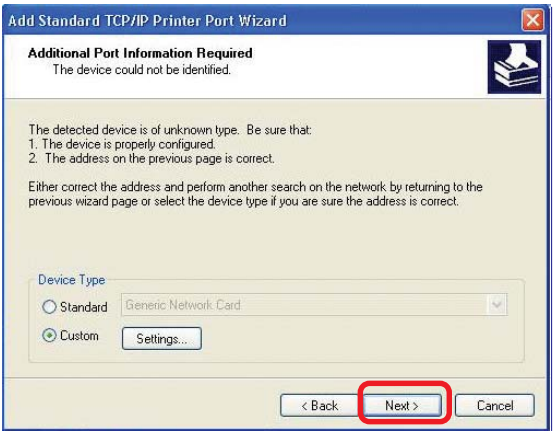
Select "Custom"
Then click on **Settings**.

Select "LPR"

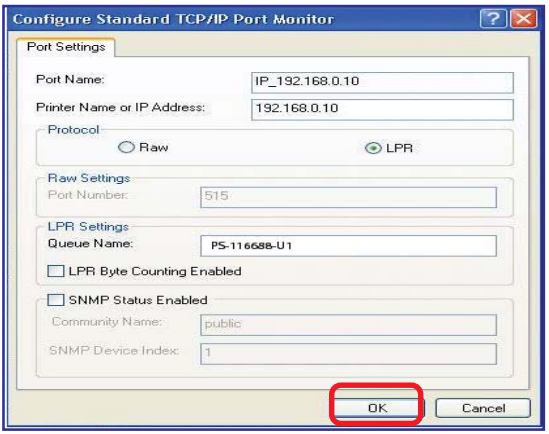
Input the port name of the port being used by the printer



Click OK

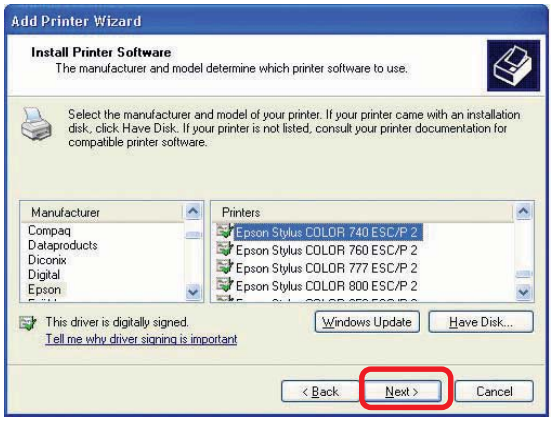


Click Next



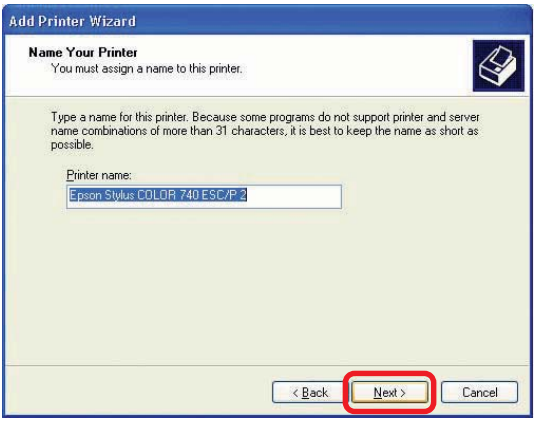
Click Finish

Highlight the printer, as shown. If the desired printer is not on the list, click **Have Disk** and insert the printer driver disk that came with your printer to install the printer drivers.

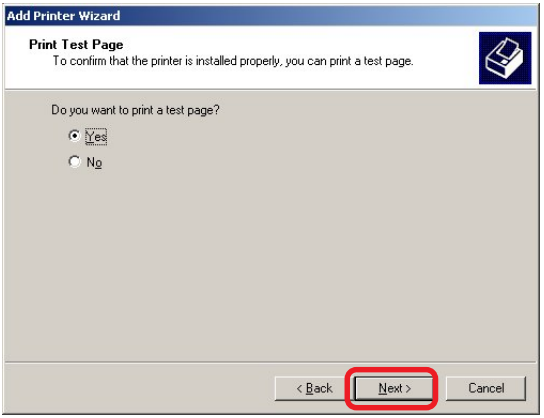


Click **Next**

At this screen, you can input a name for the printer.



Click **Next**



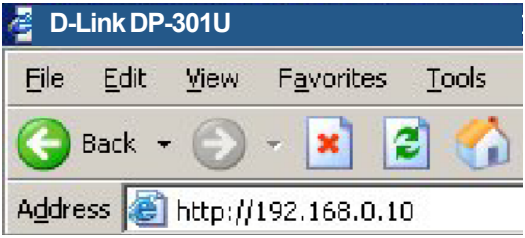
Click **Next**

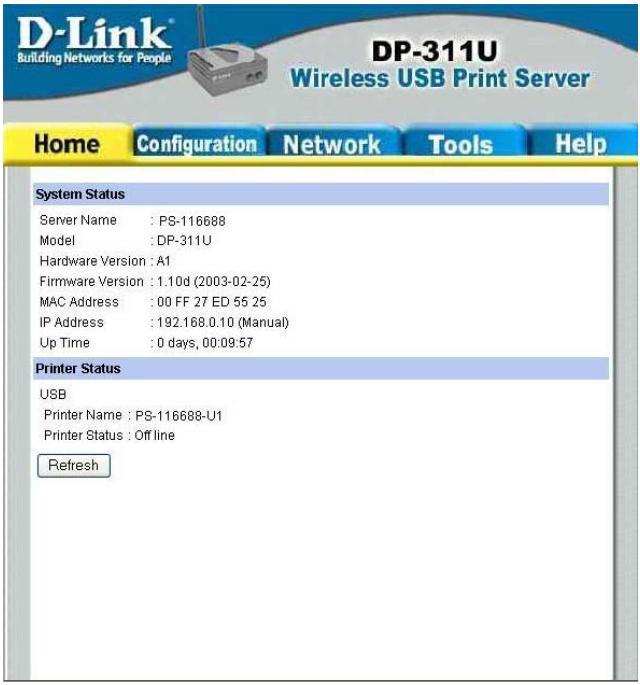
Click **Finish**

TCP/IP Printing for Windows 2000

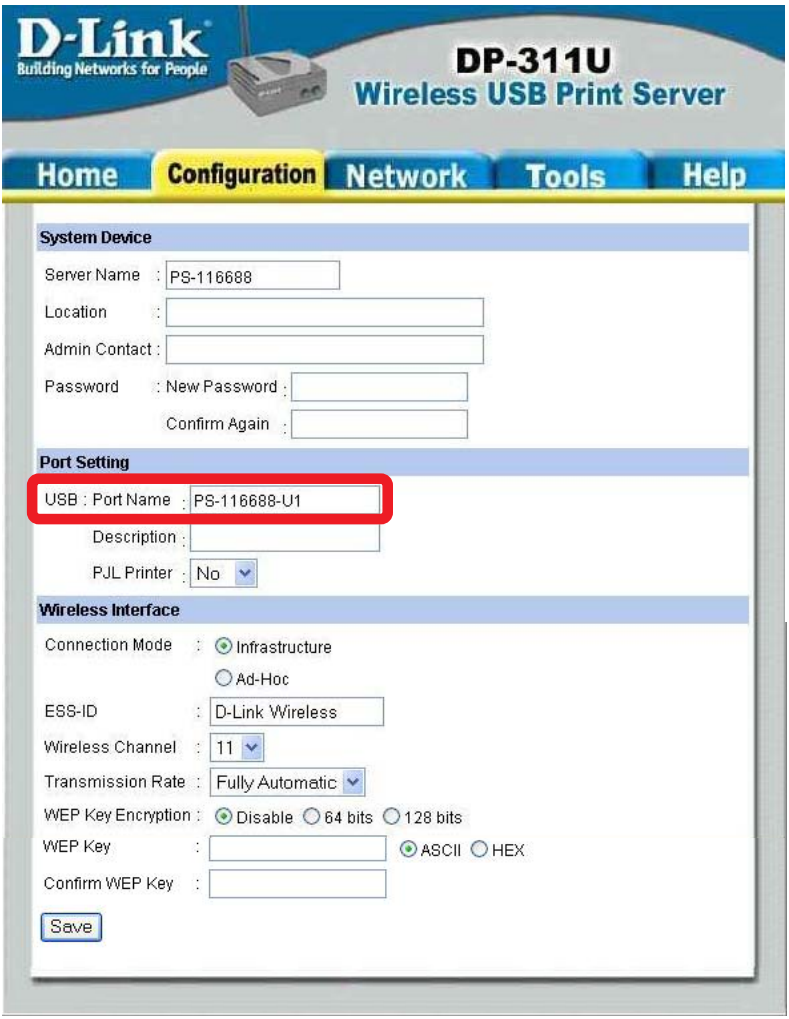
Open the web browser, and type in the IP Address of the DP-311U.
For example, type **http://192.168.0.10** into the **Location** or **Address** field. Press the **Enter** or **(Return)** Key.

Note:
The PC's IP Address must be in the same subnet as the Print Server's IP Address for the two devices to communicate. (For example, if your Print Server's IP Address is 192.168.0.10, with a subnet mask of 255.255.255.0, then your computer's IP Address should be 192.168.0.x, where x is a value between 1-254, excluding 10.)





At the **Configuration** window, write down the **Port Names** for future reference. You will need this information later in the configuration process.



Select your **Connection Mode**

Enter the **ESS-ID** of the remote access point or wireless router you wish to connect to.

If you would like to set **WEP Encryption**, select the encryption level and the key here.

Click **Save**

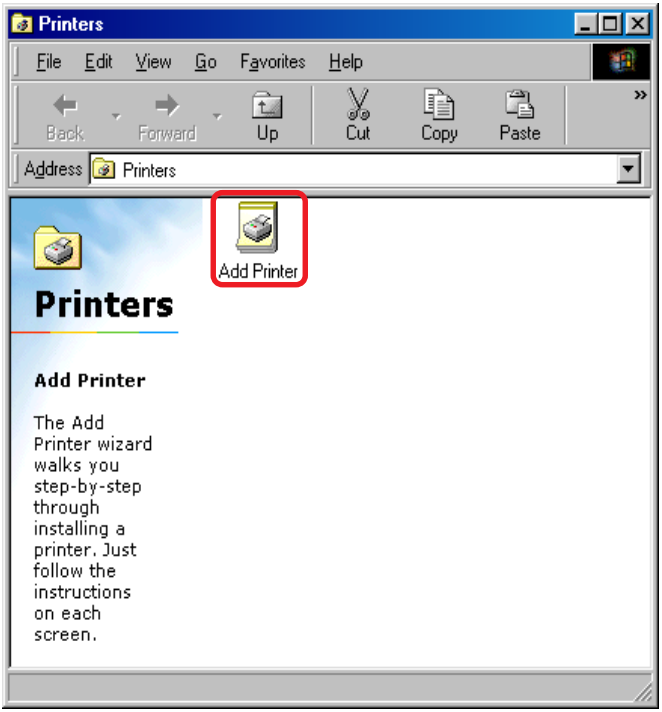
TCP/IP Printing for Windows 2000 *(continued)*

When you select **TCP/IP Protocol** at the **Network** window, the screen below appears. (We recommend that you keep the default settings as shown.) If you need to make changes, make sure to click **Save** after you have made the changes. (You may wish to make a note of the IP Address.)

TCP/IP Printing for Windows 2000 *(continued)*

Go to **Start > Settings > Printers**

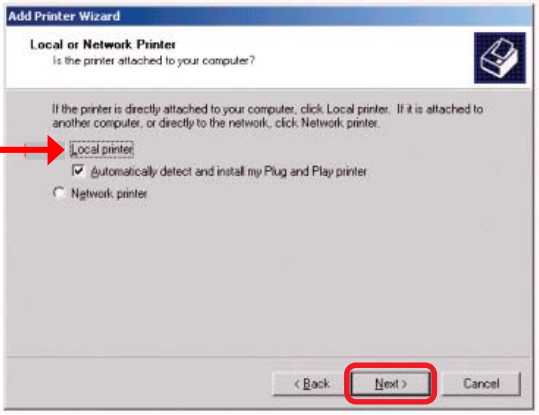
Double-click on the **Add Printer** icon.



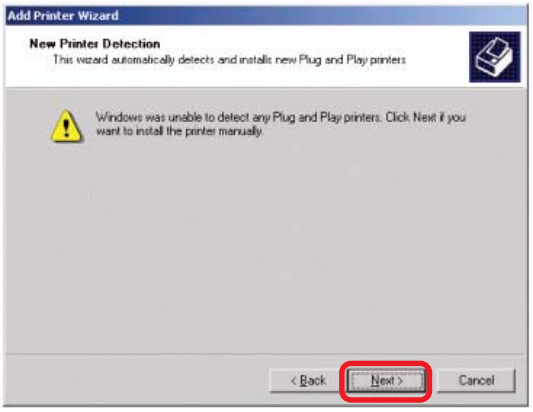
Click **Next**

TCP/IP Printing for Windows 2000 *(continued)*

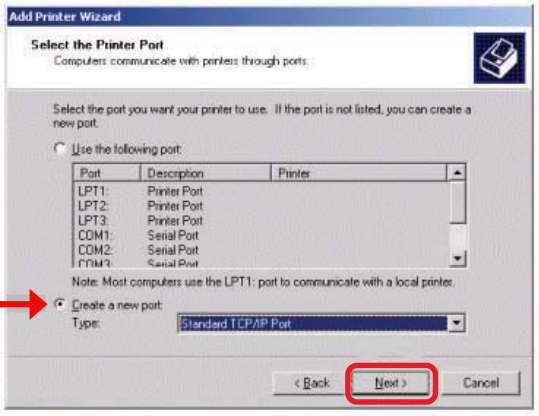
Select **Local Printer**



Click **Next**



Select **Create a new port** at the pull-down menu, highlight **Standard TCP/IP Port.**

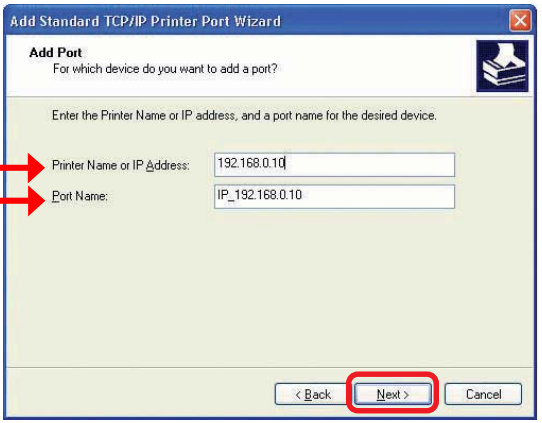


Click **Next**

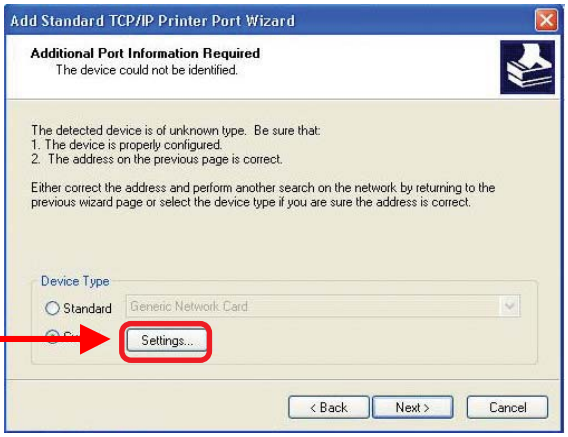
TCP/IP Printing for Windows 2000 *(continued)*

Click **Next**

Type in the IP Address of the Print Server in the **Printer Name or IP Address** field. The **Port Name** field will automatically be filled in.



Click **Next**

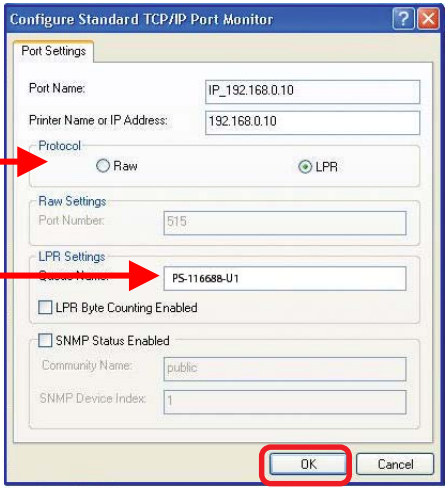


Select "Custom"
Then click on **Settings**.

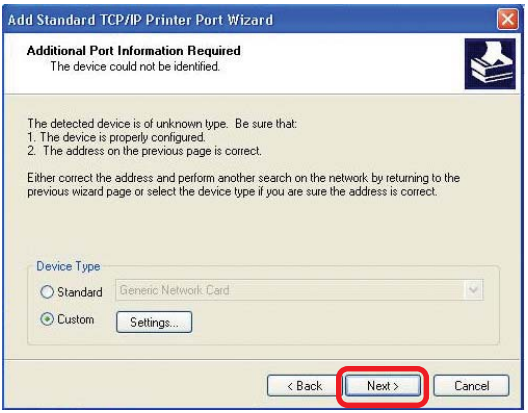
TCP/IP Printing for Windows 2000 *(continued)*

Select "LPR"

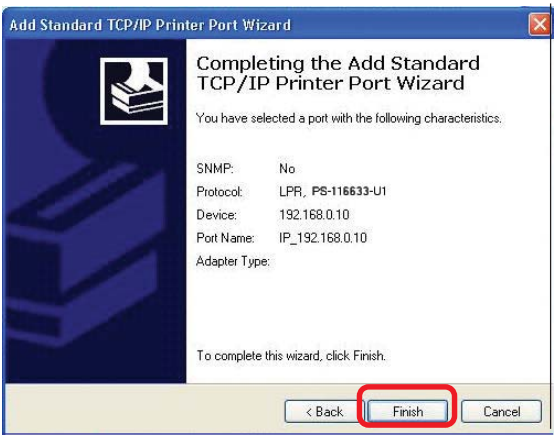
Input the port name of the port being used by the printer



Click OK



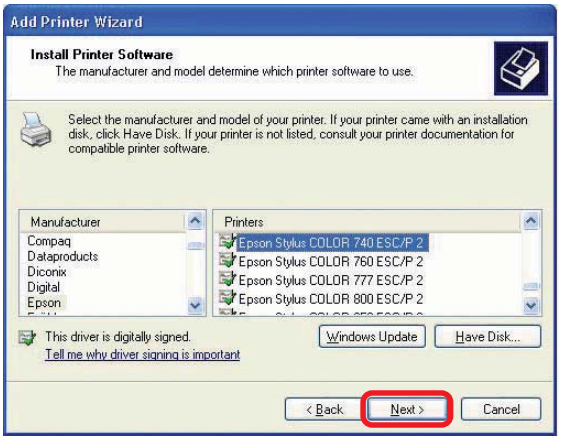
Click **Next**



Click **Finish**

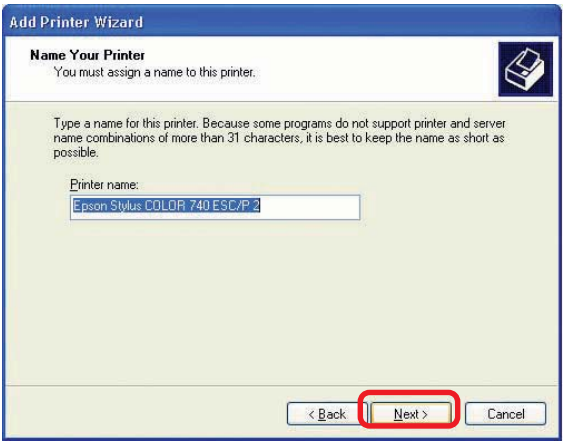
Highlight the printer, as shown. If the desired printer is not on the list, click **Have Disk** and insert the printer driver disk that came with your printer to install the printer drivers.

Click **Next**



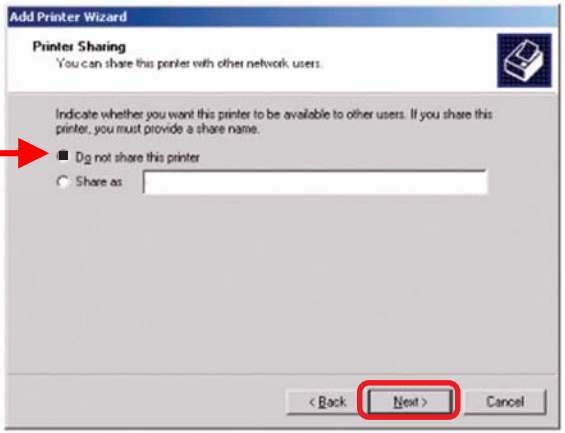
At this screen, you can input a name for the printer.

Click **Next**



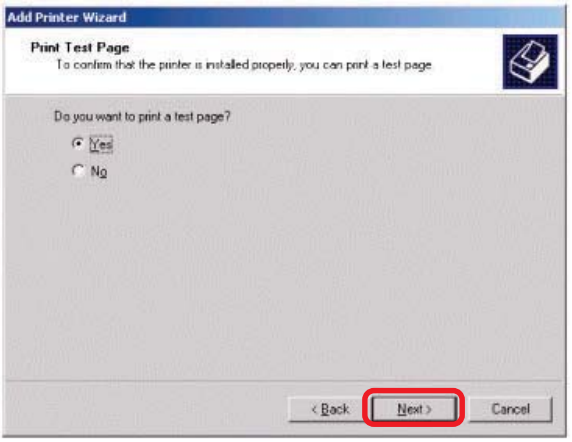
TCP/IP Printing for Windows 2000 *(continued)*

Select **Do not share this printer**

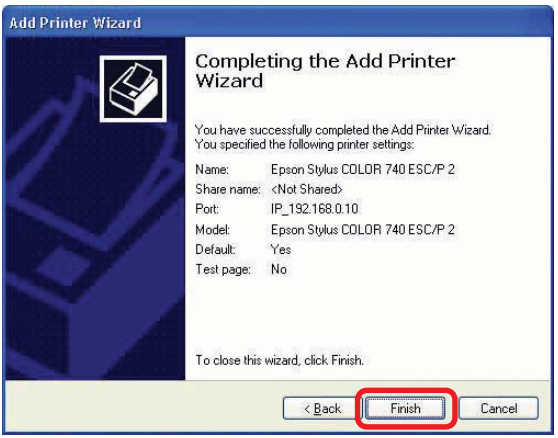


Click **Next**

Select **Yes** to print a test page



Click **Next**



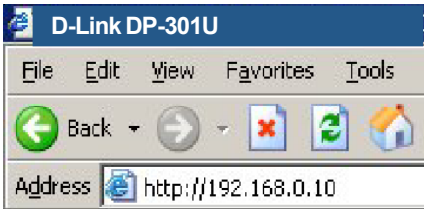
Click **Finish**

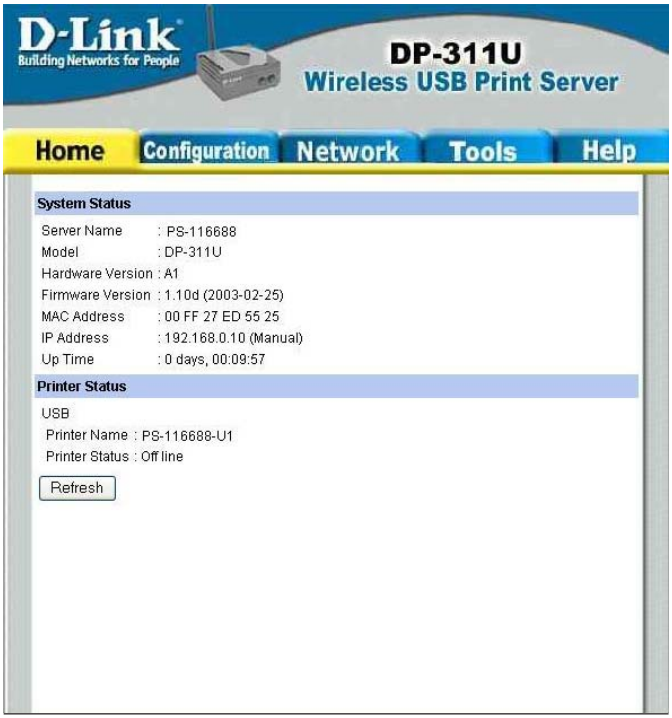
The printer is now ready for printing with Windows 2000 on your network.

TCP/IP Printing for Windows 98SE/Me

Open the web browser, and type in the IP Address of the DP-311U.
For example, type **http://192.168.0.10** into the **Location** or **Address** field. Press the **Enter** or **(Return)** Key.

Note:
The PC's IP Address must be in the same subnet as the Print Server's IP Address for the two devices to communicate. (For example, if your Print Server's IP Address is 192.168.0.10, with a subnet mask of 255.255.255.0, then your computer's IP Address should be 192.168.0.x, where x is a value between 1-254, excluding 10.)





At the **Configuration** window, write down the **Port Name** for future reference. You will need this information later in the configuration process. The **Port Name** shown here is only an example.

Select your **Connection Mode**

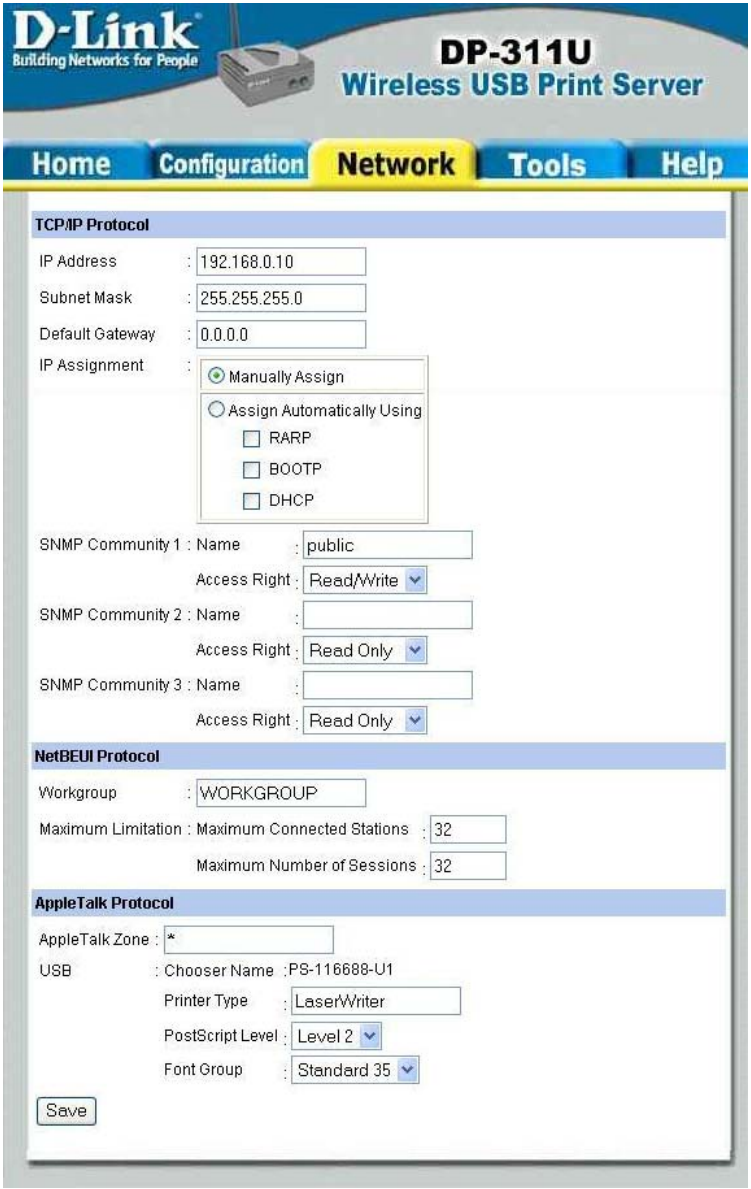
Enter the **ESS-ID** of the remote access point or wireless router you wish to connect to.

If you would like to set **WEP Encryption**, select the encryption level and the key here.

Click **Save**

TCP/IP Printing for Windows 98SE/Me*(continued)*

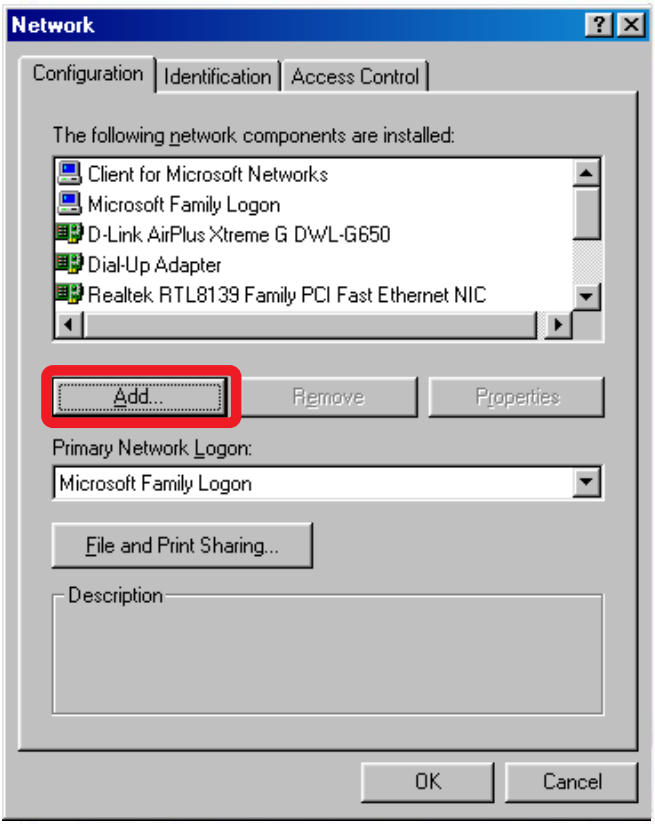
When you select **TCP/IP Protocol** at the **Network** window, the screen below appears. (We recommend that you keep the default settings as shown.) If you need to make changes, make sure to click **Save** after you have made the changes. (You may wish to make a note of the IP Address.)



TCP/IP Printing for Windows 98SE/Me *(continued)*

Go to **Start > Settings > Control Panel**

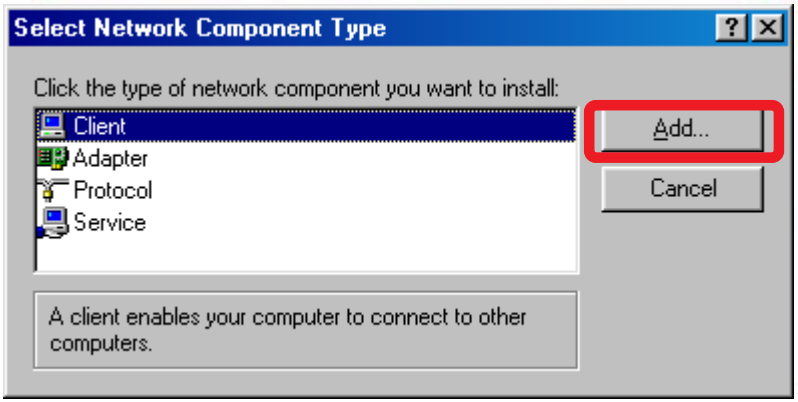
Double-click on **Network**



Click **Add**

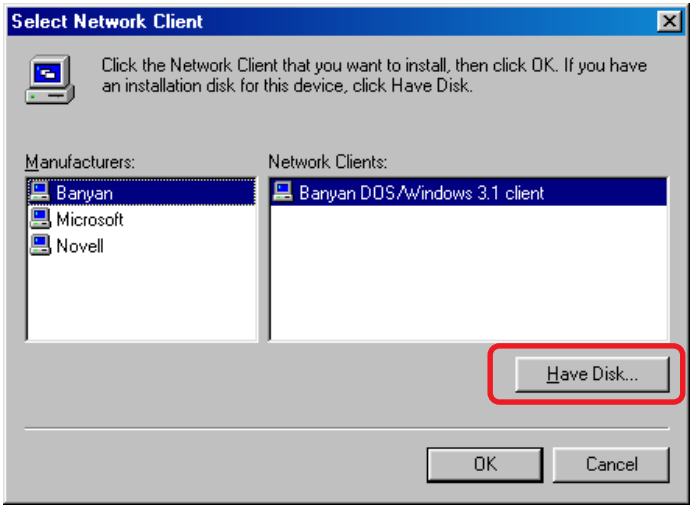
Highlight **Client**

Click **Add**



TCP/IP Printing for Windows 98SE/Me *(continued)*

At this window, click **Have Disk.**

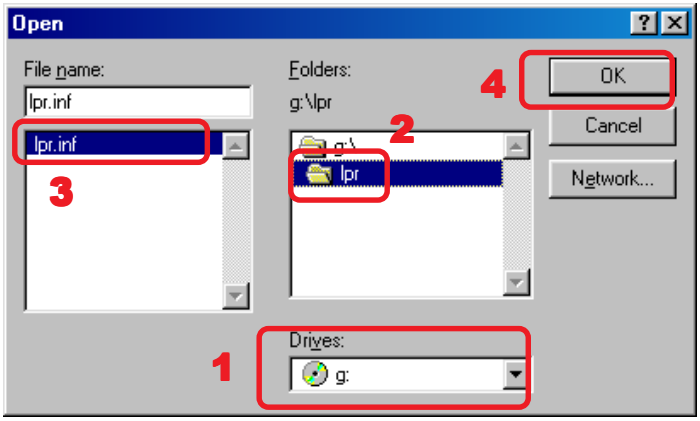


1. Insert the DP-311U CD-ROM into your CD-ROM drive. **Select the letter representing the CD-ROM** drive on your computer from the pull-down menu.

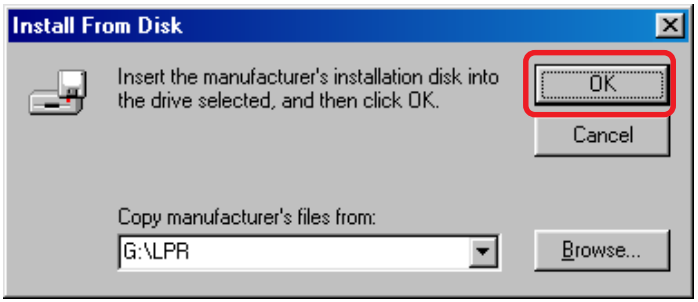
2. Double-click on the folder **lpr.**

3. Highlight **lpr.inf**

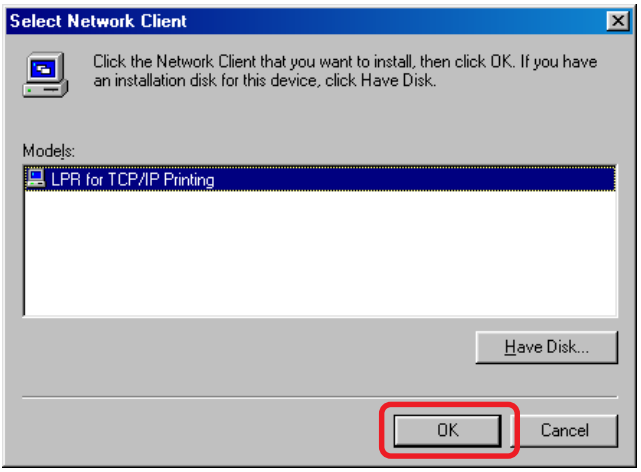
4. Click **OK**



Click **OK** to accept the location of the file.

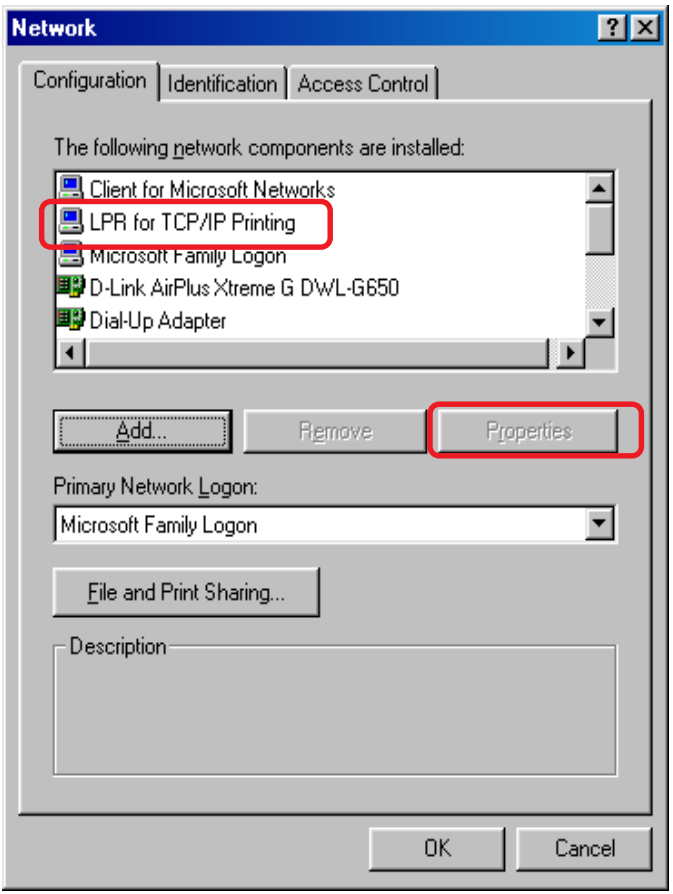


Click **OK**

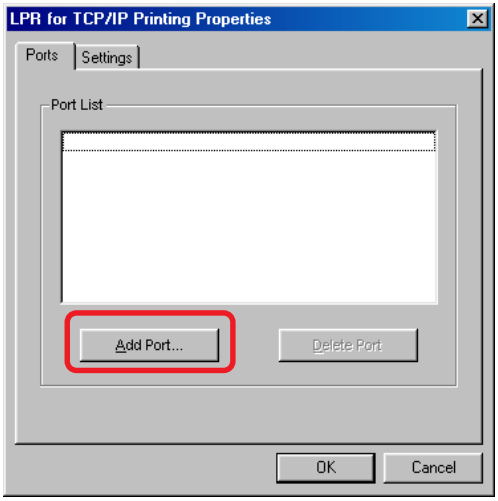


You should now be back to the **Network Properties** Page. Highlight **LPR for TCP/IP Printing.**

Click **Properties**

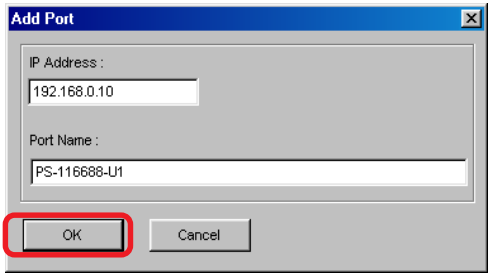


Click **Add Port**



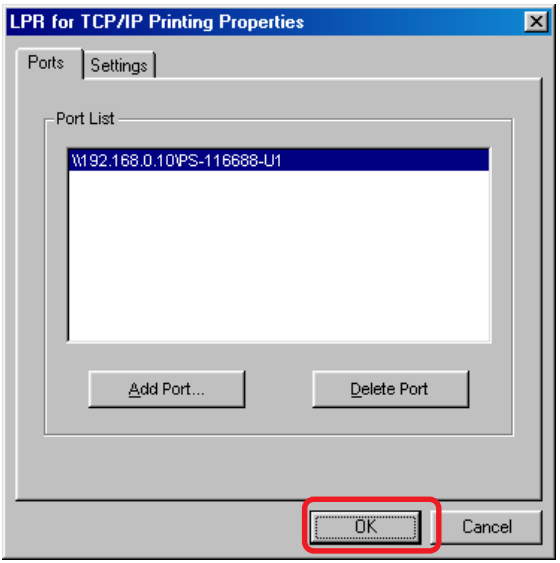
Type in the IP Address of the DP-301U. Make sure the **Port Name** is accurate. (The **Port Name** at right is just an example.)

Click **OK**

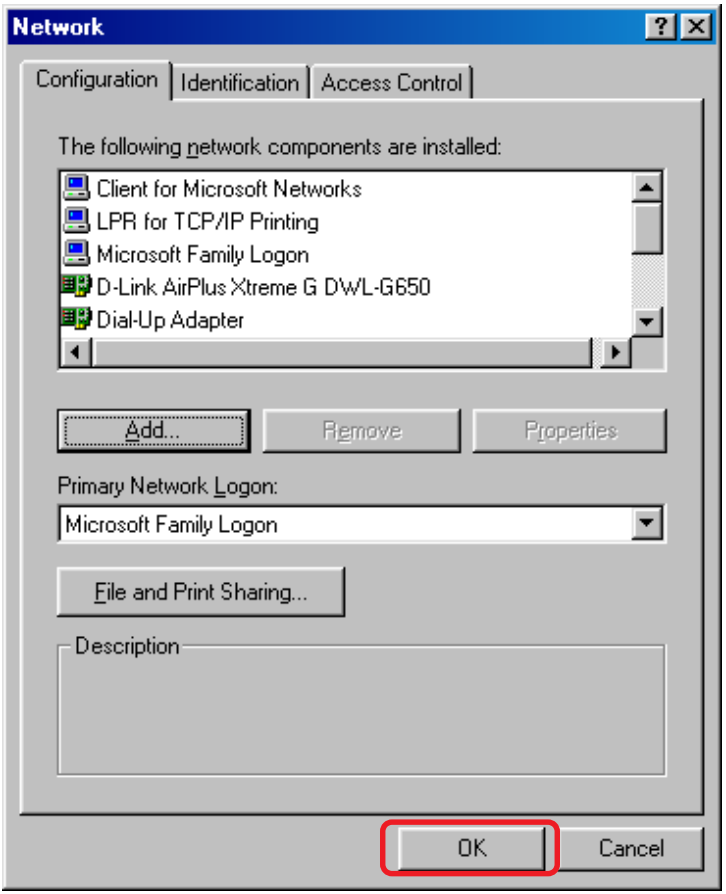


The **Port name** and IP Address will be displayed. (The **Port Name** at right is just an example.)

Click **OK**

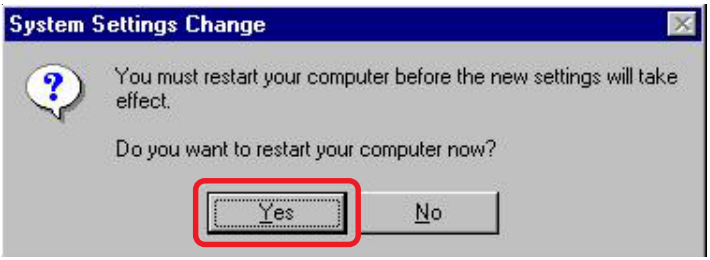


TCP/IP Printing for Windows 98SE/Me *(continued)*



Click **OK**

Windows will ask for a restart.



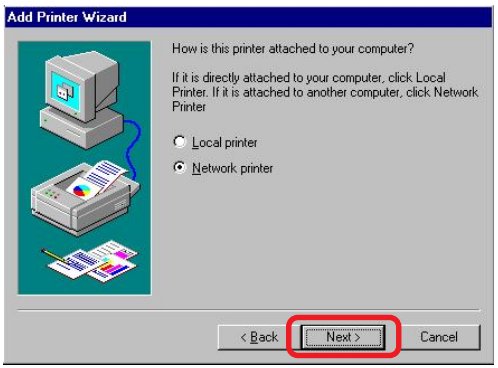
Click **Yes**

TCP/IP Printing for Windows 98SE/Me *continued)*

Once your computer has rebooted, click on
Start > Settings > Printers > Add Printer

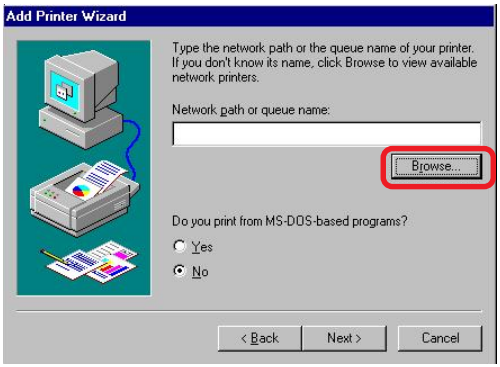
When the *Add Printer Wizard* screen appears, Click **Next.**

Select *Network Printer*.



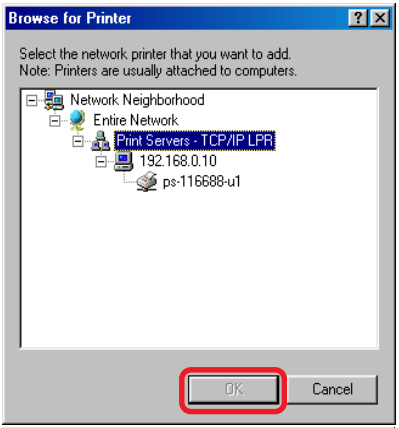
Click **Next**

Type in the path if you know it, or Click **Browse.**



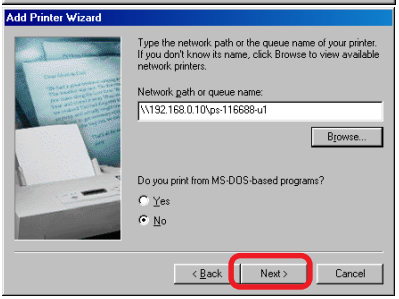
TCP/IP Printing for Windows 98SE/Me *(continued)*

At the next screen, browse for the printer port. Highlight the port as shown. (The **Port Name** in this window is just an example.)



Click **OK**

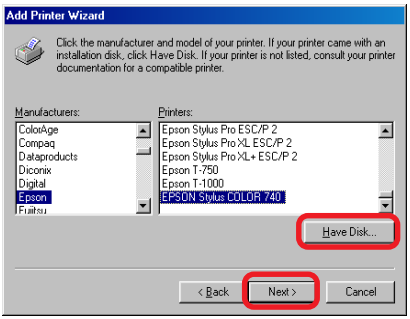
If the network path is not specified, type in the IP Address of the DP-311U and the **Port Name.** (The **Port Name** shown at right is just an example.)



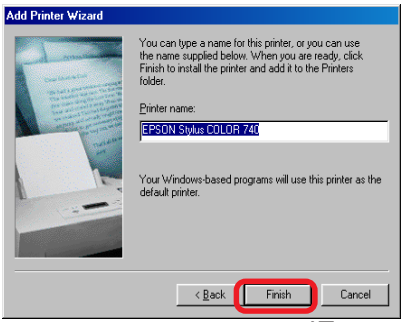
Select **Yes** or **No**, to answer the question: *Do you print from MS-DOS based programs?*

Click **Next**

Highlight the printer, as shown. If the desired printer is not on the list, click **Have Disk** and insert the printer driver disk that came with your printer to install the printer drivers.



Click **Next**

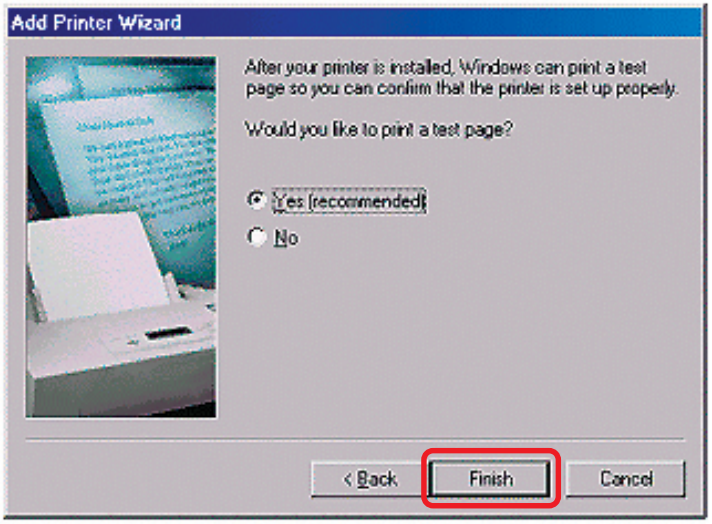


Click **Next**

TCP/IP Printing for Windows 98SE/Me *(continued)*

Select **Yes** to print a test page.

Click **Finish**



Go to Start > Settings > Printers
Check to see that your printer is installed.