

The Printer Tab - Logical Port

The Logical Printers tab contains the logical printer settings of the PrintServer. Configure them for each Logical Printer.

The PrintServer has three logical or virtual printer ports. For example, you can have three different configurations for your USB printer: Logical Printer 1 for landscape orientation, Logical Printer 2 for double-sided copies, and Logical Printer 3 for manual feed. Then you will map Logical Printers 1, 2, and 3 to the physical printer on the PrintServer's USB port.

Select Printer

Logical Printer No. From the *Logical Printer Port No.* drop-down menu, select the number (1-3) of the printer you wish to configure. Click the **Get Data** button to update the display with the current data for the selected logical printer.

Details

Pre-string (Hex). Enter the printer control string (in hexadecimal characters) to be sent to the printer before each print job. This string cannot exceed 30 characters.

Post String (Hex). Enter the printer control string (in hexadecimal characters) to be sent to the printer after each print job. This string cannot exceed 30 characters.

Convert LF to CR+LF. If checked, LF (line feed) characters are changed to CR+LF (carriage return + line feed).

Click the **Save** button to apply your changes, or click **Cancel** to cancel your changes.



Figure 6-10: Printer - Logical Port

The Status Tab - Device

The Device tab allows you to view information about the PrintServer.

Server Details

The PrintServer's settings and status information are displayed here. No values can be changed on this screen. This screen is for information only.

Upgrade. If you want to upgrade the PrintServer's firmware, follow these instructions:

1. Visit www.linksys.com and download the firmware upgrade file for the Wireless-G PrintServer.
2. Extract the file on your computer.
3. On the *Device* screen, click the **Upgrade** button.
4. On the *Firmware Upgrade* screen, enter the location of the extracted firmware file, or click the **Browse** button to find this file.
5. Click the **Start Upgrade** button, and follow the on-screen instructions.

On the *Device* screen, click the **Refresh** button to retrieve this information again.

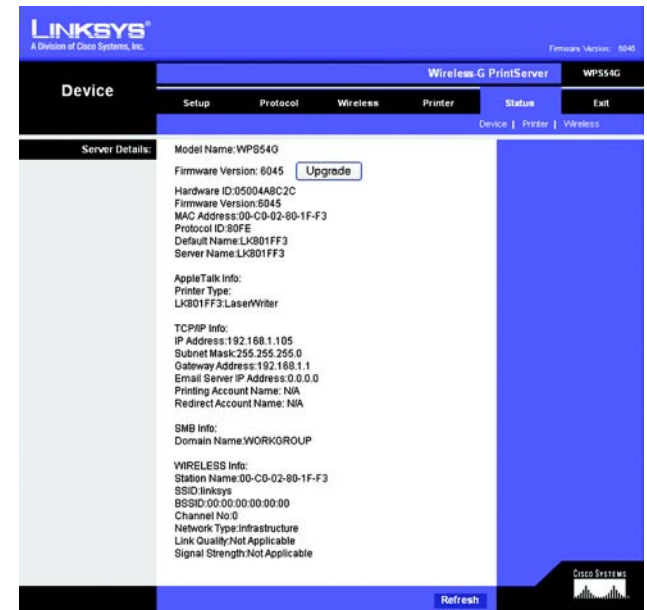


Figure 6-11: Status Tab - Device

firmware: the programming code that runs a networking device

download: to receive a file transmitted over a network

upgrade: to replace existing software or firmware with a newer version



Figure 6-12: Firmware Upgrade

The Status Tab - Printer

The Printer tab allows you to view information about the Printers. No values can be changed on this screen. This screen is for information only.

Port 1 (USB Port)

The port's status information is displayed here. No values can be changed on this screen. This screen is for information only.

Print Test Page. Click the **Print Test Page** button to print a test page on the connected printer.

Clicking the **Refresh** button causes the PrintServer to retrieve the status information again.

The Status Tab - Wireless

The Wireless tab allows you to view information about the PrintServer's wireless connection. No values can be changed on this screen. This screen is for information only.

Link Info

Settings and current transmission rate for the wireless connection are displayed here.

Throughput

The throughput information for the wireless connection is displayed here.

Clicking the **Refresh** button causes the PrintServer to retrieve information about the wireless connection again.

The Exit Tab

This tab is used exclusively for exiting the Web-based Utility.

Select the **Exit** tab, and a new screen will appear. Click the **Yes** button to exit the Utility, or click **No** to continue using the Utility.



Figure 6-13: Status Tab - Printer



Figure 6-14: Status Tab - Wireless



Figure 6-15: Exit

Chapter 7: Bi-Admin Management

Overview

If you use Windows, then you can manage the PrintServer using its web-based utility (see “Chapter 6: Configuring the PrintServer Using the Web-based Utility”) or an advanced utility program called Bi-Admin. (If you use a Macintosh or other non-Windows operating system, you can manage the PrintServer only by using its web-based utility.)

Bi-Admin is provided on the PrintServer’s Setup CD-ROM and is fully compatible with Windows 98, Me, 2000, and XP. It allows you to change the PrintServer’s internal settings, check on the unit’s status, and perform basic diagnostic tests. Note that the Bi-Admin program must be installed only on the network administrator’s computer. First, install Bi-Admin on your computer. Then, you will be able to use the management utility.

Bi-Admin Installation

1. Make sure you have no programs or applications running on your computer.
2. If you haven’t already done so, insert the Setup CD-ROM into the computer’s CD-ROM drive. The Setup CD-ROM should run automatically. Click **Exit** to exit the Setup Wizard.
3. Then click the **Start** button and choose **Run**. In the box that appears, enter **D:\Utility\Setup.exe** (if “D” is the letter of your CD-ROM drive).
4. The *Welcome* screen of the Bi-Admin Setup program will appear first. Click **Next** to continue with the Bi-Admin installation, or click **Cancel** to quit the setup program, and then close the open programs.



Figure 7-1: Bi-Admin Setup Welcome

5. The *Choose Destination Location* screen will appear. Choose the location where the B-Admin folder will be installed. To install the driver in the default location, click **Next**. If you want the folder to be installed in a different location, click the **Browse** button and select the location. Then click **Next**.

Click **Back** to return to the previous screen. Click **Cancel** to end the Bi-Admin installation.

6. The *Select Program Folder* screen will appear. An icon will be added to the program folder listed. You may change the name for the program folder, if you wish. Click **Next**.

Click **Back** to return to the previous screen. Click **Cancel** to end the Bi-Admin installation.

7. When the Bi-Admin is installed, the *Setup Complete* screen will appear. Click **Finish**.

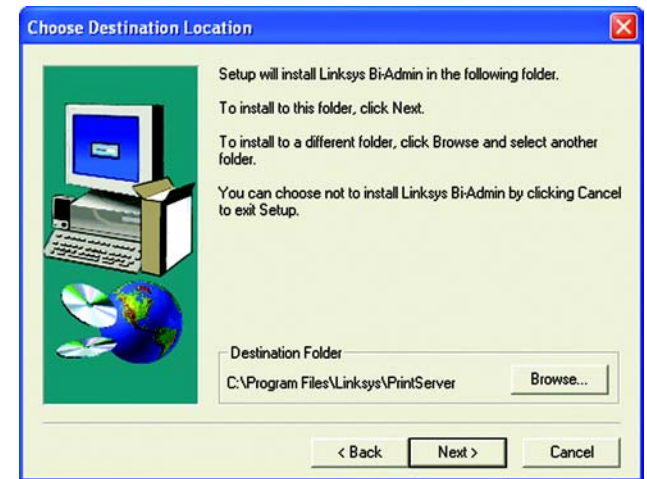


Figure 7-2: Choose Destination Location

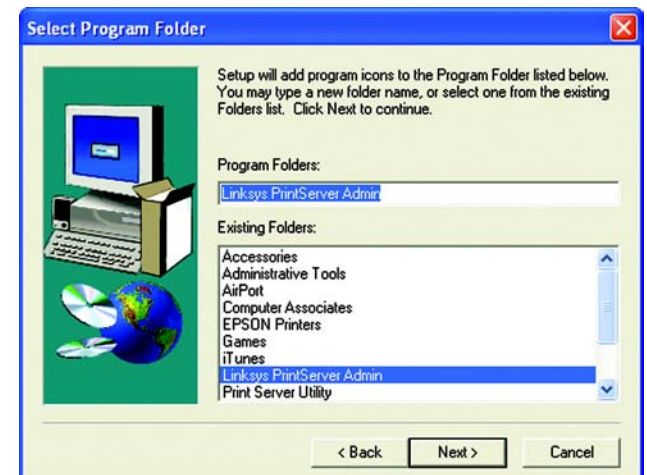


Figure 7-3: Select Program Folder

Starting the Bi-Admin Management Utility

1. To start the Bi-Admin program, click **Start, Programs, Print Server Utility**, and then **Bi-Admin Management Utility**. If the Bi-Admin Management Utility icon has been created, you can just double-click it instead. You can drag the shortcut icon onto your Desktop for easy access to the Bi-Admin Management Utility.
2. When the Bi-Admin Management Utility appears, it will ask for the Connected Protocol. Make sure the box next to *TCP/IP* is checked. Click the **OK** button.
3. The Bi-Admin Management Utility will automatically scan the network for the PrintServer.

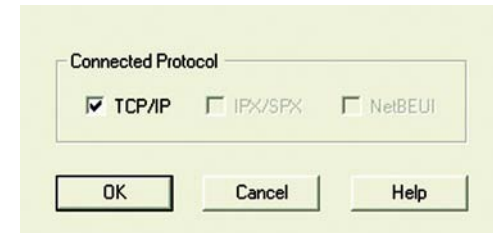


Figure 7-4: Connected Protocol

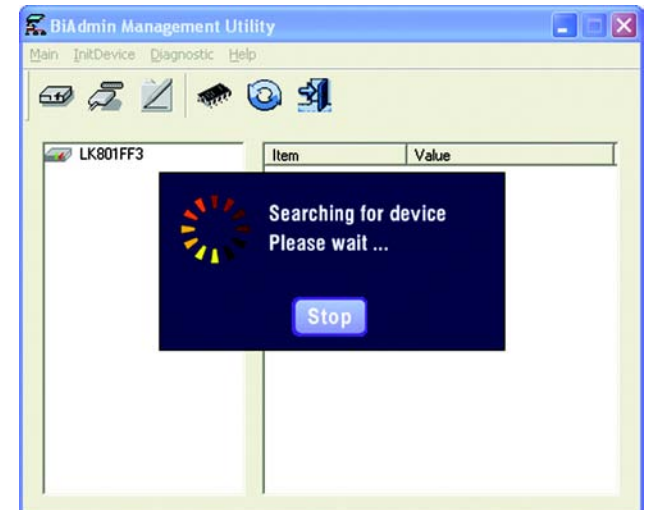


Figure 7-5: Searching for Device

The Bi-Admin Management Utility

The *Bi-Admin Management Utility* screen will appear next. Any hardware found on the network will appear on the left-hand side of the screen. The Utility can be managed from this screen. The menu and icon options will be explained in this section.

Menu Options

Main. The options are Device Status, Printer Status, Configure, Upgrade, Refresh, and Exit. These options are the same as the icons that are displayed below the menu options (viewed from left to right), and are described below:

- **Device Status.** This option allows you to view all of the device settings, optionally save the device settings to a file, or restore a previously saved file to the device.

If you click **Device Status**, the *Device Information* screen will appear. A list of the PrintServer's device settings is displayed, including Hardware ID, Firmware version, Protocol ID, Default Name, Server Name, and MAC Address. To save the information in a .txt (text) file, click the **Save to file** button.

To choose a different device that you configured, click the **Open** button. You may then browse for your file, select it, and then click **Open**. The contents of the file will display on the right-hand side of the screen. To save the file to the PrintServer, click **Restore to Device**.

Click the **Exit** button to return to the *Bi-Admin Management Utility* screen. For more information, click the **Help** button.

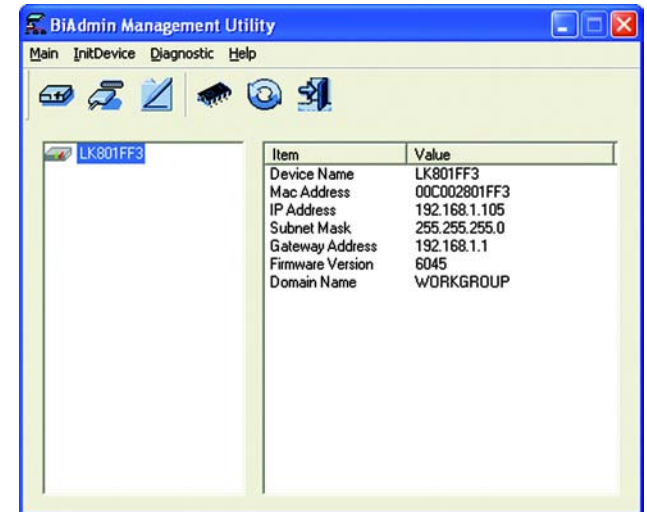


Figure 7-6: Bi-Admin Management Utility

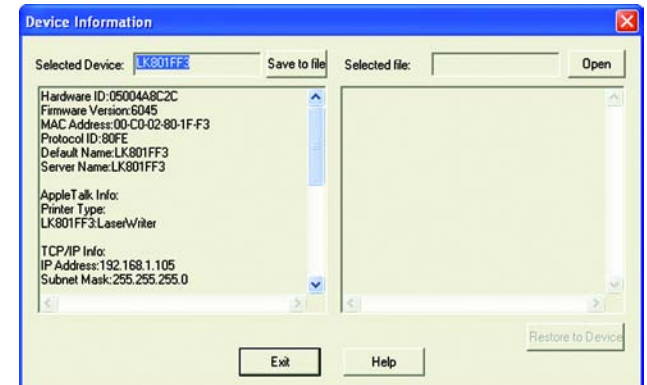


Figure 7-7: Device Information

- **Printer Status.** This option allows you to view the printer status, as well as set port and printer parameters.

If you click **Printer Status**, the *Printer Status* screen will appear. The Device Name will be displayed and the Current Selected Port will be highlighted. The status information for this port will be displayed.

Click the **Back** button to return to the *Bi-Admin Management Utility* screen. Click **Refresh** to refresh the screen. For more information, click the **Help** button.

If the printer is bi-directional and not busy, the Printer Configuration button will appear on the *Printer Status* screen. Click this button to view the printer's Environmental Variable and Variable Value items. If the items are not read-only, you can change them based on the options of your printer.

For more information, click the **Help** button.

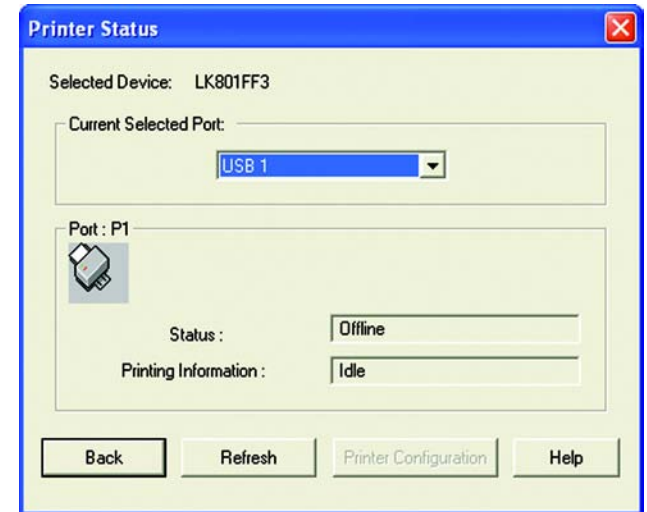


Figure 7-8: Printer Status

- **Configure.** You may configure the PrintServer with this option.

If you click **Configure**, the *Configuration* screen will appear. It displays eight tabs: System, TCP/IP, AppleTalk, NetBEUI, Internet Printing, Port, Wireless, and SNMP. The tabs will be described below.

System

- **Device Name.** Enter the Device Name in the field provided.
- **Comment.** Enter any comments in the *Comment* field.
- **Device Password.** To change the password, select **Change Device Password**, enter the new password in the *Password* field, and then re-enter the password in the *Confirm Password* field.
- **Protocol.** Select the protocol you want to use for your network: TCP/IP, AppleTalk, NetBEUI, IPX/SPX.

Click the **Get Defaults** button if you want to cancel your changes and use the default settings.

When finished making your changes on this tab, click the **OK** button to save these changes, or click the **Cancel** button to undo your changes. For more information, click the **Help** button.

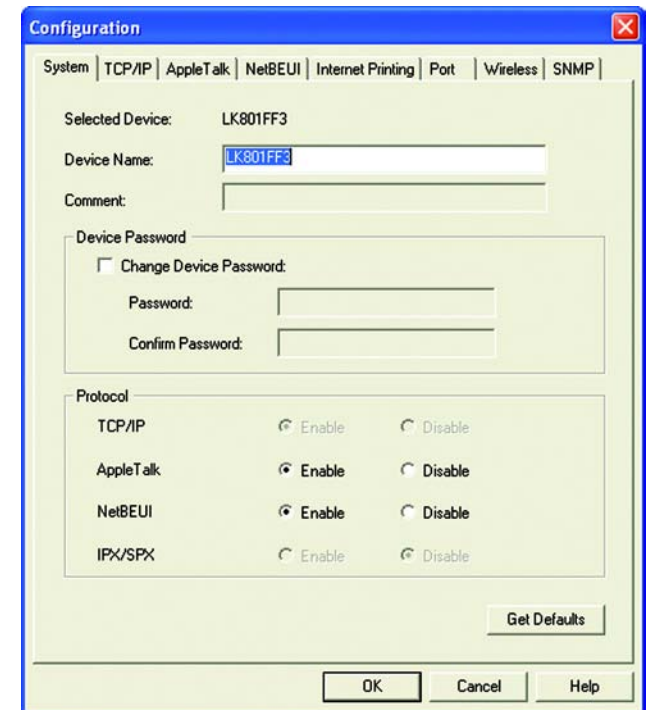


Figure 7-9: Configuration - System

TCP/IP

- **Dynamic IP Address (DHCP).** If your network router is using DHCP to assign IP addresses, select **Dynamic IP Address (DHCP)**. By default, **Dynamic IP Address (DHCP)** is enabled.
- **Fixed IP Address.** If you need to assign the PrintServer a fixed IP address (also known as static IP address), select **Fixed IP Address**, and enter the appropriate values under IP Address, Subnet Mask, and Gateway. Make sure the IP Address and Subnet Mask are appropriate for your network. If you change the PrintServer's IP address, make sure you that you reconnect to the PrintServer using that new IP address. Otherwise, you will not be communicating with the PrintServer. In most cases, the Gateway IP address is the IP address of your router, and you should complete the *Gateway* field if you will use the PrintServer for Internet printing. (To find out your router's IP address, consult your router's documentation.)
- **TCP session.** If your TCP session has ended, you can attempt a new connection. In the *Retry interval* field, enter how often you want the PrintServer to attempt a connection. In the *Retry count* field, enter the maximum number of attempts.

Click the **Get Defaults** button if you want to cancel your changes and use the default settings.

When finished making your changes on this tab, click the **OK** button to save these changes, or click the **Cancel** button to undo your changes. For more information, click the **Help** button.

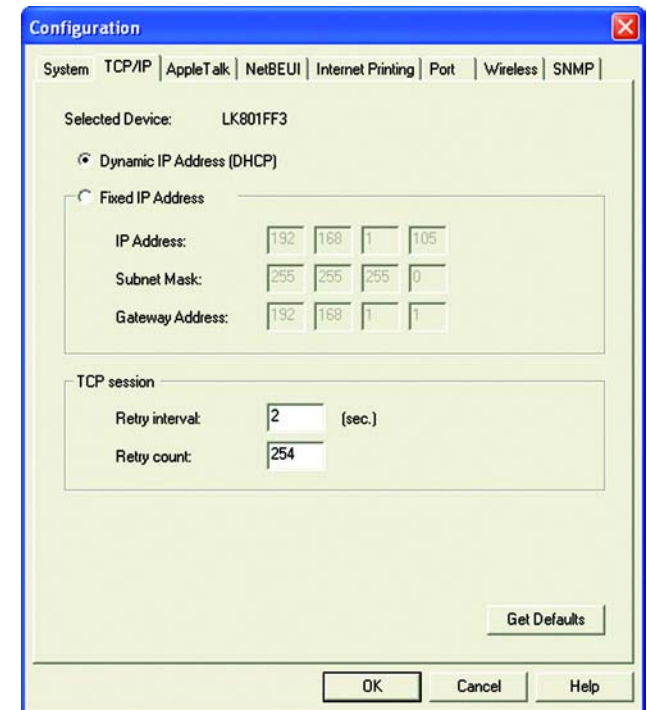


Figure 7-10: Configuration - TCP/IP

Apple Talk

- **Zone Name.** Typically only Macintoshes use AppleTalk, although other platforms can use it if they have the necessary, third-party software installed. Enter the Zone Name in the field provided.
- **Port Setting.** Select the port number from the drop-down menu. The Printer Type can be obtained from the manufacturer of the printer. Enter the type of printer in the *Printer Type* field. For each printer connected to the PrintServer, you will choose the Communications Protocol that allows the devices on the network to communicate. Select the type of Communication Protocol you will use, **ASCII** or **Binary** for each printer, according to the recommendation of the printer's manufacturer. For more information, refer to the printer's documentation.

Click the **Get Defaults** button if you want to cancel your changes and use the default settings.

When finished making your changes on this tab, click the **OK** button to save these changes, or click the **Cancel** button to undo your changes. For more information, click the **Help** button.

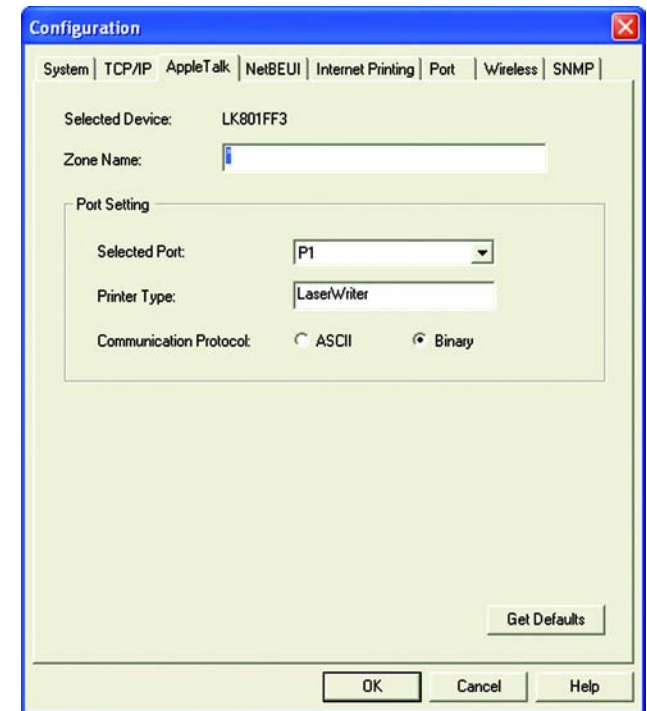


Figure 7-11: Configuration - AppleTalk

NetBEUI

- Domain Name.** Enter the name of the domain that you want the PrintServer associated with in the *Domain Name* field. If you are unsure of the Domain Name, you can find it out by looking on any computer already on the network. In Windows 98, right-click **Network Neighborhood** and select **Properties**. Under the Identification tab, there will be listed that computer's name, and the Domain to which it is connected. For Windows Me, 2000, or XP, right-click **My Network Places**. In Windows Me, choose **Properties** from the menu that appears. In Windows 2000 or XP, choose **Properties** from the menu that appears. Then, right-click **Local Area Connection** and choose **Properties**. The Domain name will appear. If you want the PrintServer to be connected to that same Domain, enter that Domain name here. If no Domain name exists there, you will use the Workgroup name from that window.
- Port Setting.** You can specify the Response Time that you prefer for the PrintServer. This is the amount of time (measured in seconds) that the PrintServer will wait for a response from the network before "timing out." You also have the option to use this feature, Abort Print Job if Error. Selecting Yes here will terminate the printing if there is an error of any kind. If you select No, print jobs that have errors will be sent to the printer, but might not print properly.

Click the **Get Defaults** button if you want to cancel your changes and use the default settings.

When finished making your changes on this tab, click the **OK** button to save these changes, or click the **Cancel** button to undo your changes. For more information, click the **Help** button.

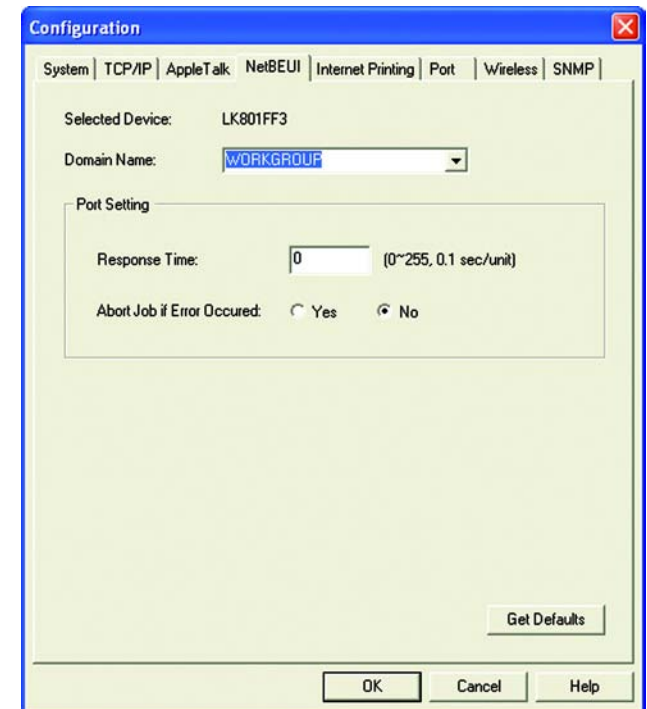


Figure 7-12: Configuration - NetBEUI

Internet Printing

- **Mail Server.** Enter the address of your mail server in the *Mail Server IP Address* fields. (This value must be a fixed IP address.) Enter the Mail Account name and Password next. Enter the password again in the *Confirm Password* field. Then, enter the time interval for the PrintServer to check for e-mail to be printed, in hours and minutes in the *Check Mail Interval* field. You may also specify an e-mail address to which mails that cannot be printed are routed; this is useful for both graphic-intensive e-mails and for troubleshooting purposes. Enter this e-mail address in the *Redirect Mail Account* field.
- **Printer.** Select the Default Printer Port from the drop-down menu. In the field provided, enter the Printer Model, which can be found through the Device Manager.
- **Options.** Place a check mark next to the options you want to enable: **Print Every Mail**, **Banner Printing** (enabled by default), or **Mail response when Printed**.

Click the **Get Defaults** button if you want to cancel your changes and use the default settings.

When finished making your changes on this tab, click the **OK** button to save these changes, or click the **Cancel** button to undo your changes. For more information, click the **Help** button.

The screenshot shows the 'Configuration' dialog box with the 'Internet Printing' tab selected. The 'Selected Device' is 'LK801FF3'. Under the 'Mail Server' section, the 'Mail Server IP Address' is set to '0.0.0.0'. The 'Mail Account' and 'Password' fields are empty, and the 'Confirm Password' field is also empty. The 'Check Mail Interval' is set to '0 : 1 (hh : mm)'. The 'Redirect Mail Account' field is empty. Under the 'Printer' section, the 'Default Printer Port' is set to 'P1' and the 'Printer Model' field is empty. Under the 'Options' section, the 'Print Every Mail' checkbox is unchecked, the 'Banner Printing' checkbox is checked, and the 'Mail Response when Printed' checkbox is unchecked. At the bottom right, there is a 'Get Defaults' button. At the bottom center, there are 'OK', 'Cancel', and 'Help' buttons.

Figure 7-13: Configuration - Internet Printing

Port

- **Physical Port.** Select the number of the Selected Physical Port from the drop-down menu. Select the Handshake Signal, **Busy Only** or **Busy & Ack**. Select the Printer Type, **High Speed** or **Low Speed**.
- **Logical Port.** Select the Selected Logical Port from the drop-down menu and then the physical port you want to map it to from the drop-down menu for *Map to Physical Port*. If you select Yes for Convert LF to LF+CR, the LF (line feed) characters are changed to LF+CR (line feed + carriage return). In the field for *Prefix of Job*, enter the printer control string (in hexadecimal characters) to be sent to the printer before each print job. This string cannot exceed 30 characters. In the field for *Suffix of Job*, enter the printer control string (in hexadecimal characters) to be sent to the printer after each print job. This string cannot exceed 30 characters.

Click the **Get Defaults** button if you want to cancel your changes and use the default settings.

When finished making your changes on this tab, click the **OK** button to save these changes, or click the **Cancel** button to undo your changes. For more information, click the **Help** button.

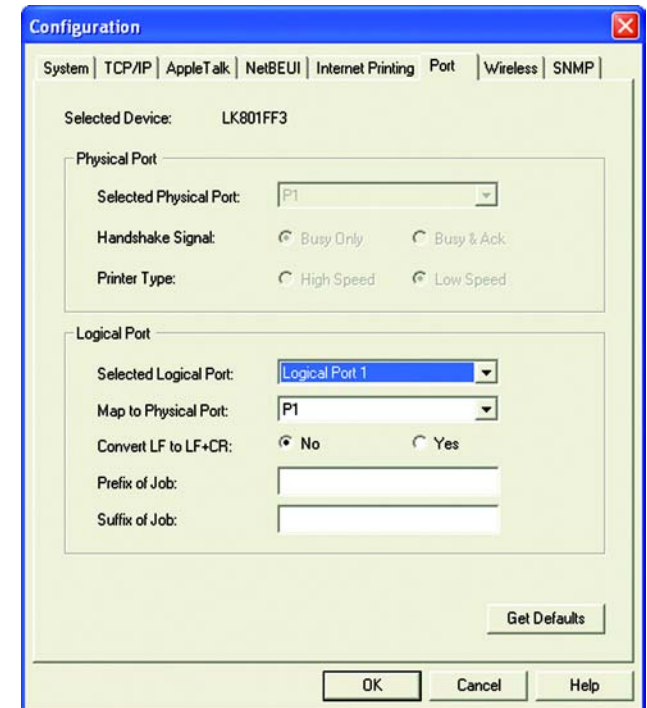


Figure 7-14: Configuration - Port

Wireless

- **SSID (Service Set Identifier).** In the *SSID* field, enter the name of your wireless network. This is the unique name shared by all devices in a wireless network. The SSID is case-sensitive and should have 32 characters or fewer.
- **Channel No.** If your network is set to ad-hoc mode, select your network's channel setting from the *Channel No.* drop-down menu.
- **Network Type.** The Network Type setting shows a choice of two wireless modes. Select **Infrastructure** if you want the PrintServer to communicate using an access point or wireless router. Select **Ad-Hoc** if you want the PrintServer to communicate without using an access point or wireless router.
- **WEP Encryption.** If you want to enable WEP encryption for greater wireless security, click the **Enable** radio button. If you want to disable WEP encryption, keep the default, **Disable**. From the *WEP Authentication* drop-down menu, select your wireless network's authentication type. The default is set to **Open System**, for which the sender and the recipient do NOT use a WEP key for authentication. You can also choose **Shared Key**, when the sender and recipient use a WEP key for authentication. This setting should match the one on your network's access point or wireless router.

In the *WEP Keys* section, select the level of WEP encryption, **64 bits** or **128-bits**. From the drop-down menu, select the Default Key used by your wireless network. This indicates which WEP key your network uses for WEP encryption. In the **Key1 (hex) to Key4 (hex)** fields, enter your network's WEP keys. If you are using 64-bit WEP encryption, then the key must consist of exactly 10 hexadecimal characters. If you are using 128-bit WEP encryption, then the key must consist of exactly 26 hexadecimal characters. Valid hexadecimal characters are "0"-"9" and "A"-"F".

Click the **Link Info** button if you want to view information about the wireless connection.

Click the **Get Defaults** button if you want to cancel your changes and use the default settings.

When finished making your changes on this tab, click the **OK** button to save these changes, or click the **Cancel** button to undo your changes. For more information, click the **Help** button.

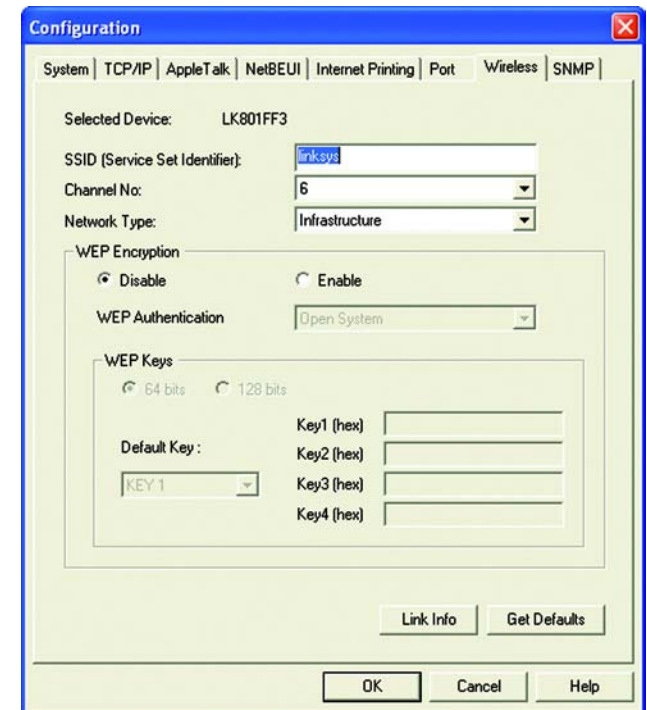


Figure 7-15: Configuration - Wireless

SNMP

- **SysContact.** Enter the name of the contact person in the *SysContact* field.
- **SysLocation.** Enter the location of the contact person in the *SysLocation* field.
- **Configuration Item.** From the *Configuration Item* box, select the number of the management station (M1-M4) or trap receiver (T1-T4). The selected item's information will be displayed below.

For management stations, you can change the station's IP address, Community String, and Access Permission level. In the *Manager IP Address* fields, enter the IP address of the management station with the SNMP program installed. In the *Community String* field, enter the name of the SNMP community, which is usually **public** or **private**. In the *Access Permission* section, select the desired level of access for this management station, **Read Only**, **Read/Write**, or **Not Accessible**.

For trap receivers, you can change the trap receiver's IP address, Community String, Trap Option, and Trap Severity level. In the *Trap Receive IP Address* fields, enter the IP address of the trap receiver that will be sent the trap messages or notifications. In the *Community String* field, enter the name of the SNMP community, which is usually **public** or **private**. For the Trap Option setting, select **Enable** or **Disable**. For the Trap Severity setting, select the desired level of severity, with 1 meaning least severe.

Click the **Get Defaults** button if you want to cancel your changes and use the default settings.

When finished making your changes on this tab, click the **OK** button to save these changes, or click the **Cancel** button to undo your changes. For more information, click the **Help** button.

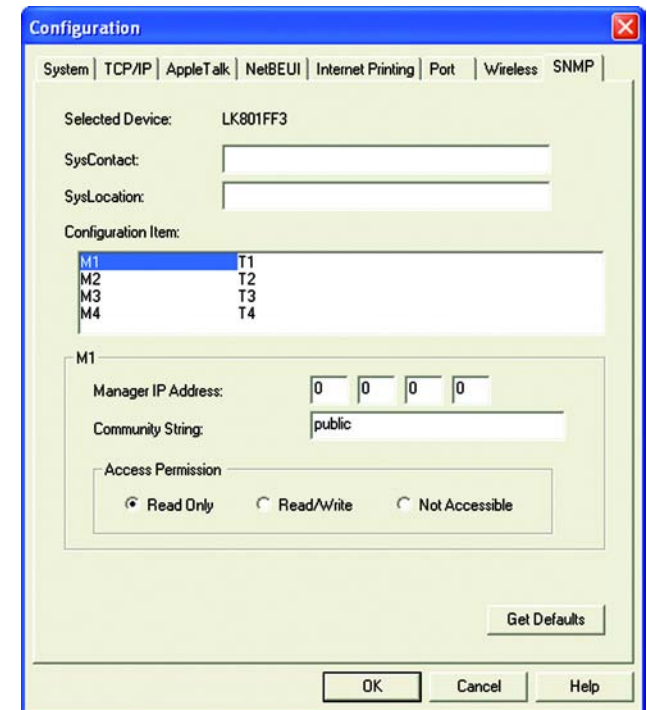


Figure 7-16: Configuration - SNMP

- **Upgrade.** You may use this option to upgrade the firmware of the PrintServer. Follow these instructions:
 1. On the *Upgrade* screen, click the **Files** button.
 2. The *Detected LAN Cards* screen will appear. Select the LAN card the PrintServer is connected to, and then click the **OK** button.
 3. Follow the on-screen instructions, and select the firmware file you want to use.
 4. View the *BIN File Information* screen, and click the **OK** button if you have selected the correct firmware file. Click the **Cancel** button to select a different firmware file.
 5. On the *Upgrade* screen, click the **Upgrade** button. Click the **Cancel** button to cancel the firmware upgrade. For more information, click the **Help** button.
- **Refresh.** This option allows you to refresh the device list after you change the name or IP address of a device. The screen does not refresh automatically.
- **Exit.** This option allows you to exit the Bi-Admin program.

InitDevice. The available options are Reset Device, Restore to Factory Default, Attached Remote, and Connected Protocol.

If you click Attached Remote, the *Add Cross Segment Printer* screen appears. To add a cross segment print server, enter its IP address in the fields provided, and click the **Set** button.

Click **Cancel** to undo any changes. For more information, click the **Help** button.

Diagnostic. Diagnostic allows you to print a test page from either of the PrintServer's ports.

Help. The two options are Help Topics and About Bi-Admin. These help files offer extensive advice and details about all of the PrintServer's functions and capabilities.

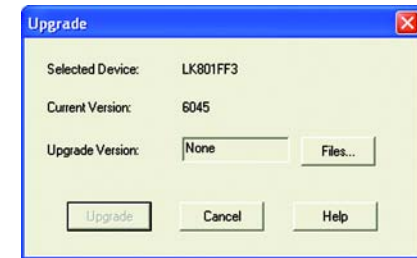


Figure 7-17: Upgrade



Figure 7-18: Detected LAN Cards

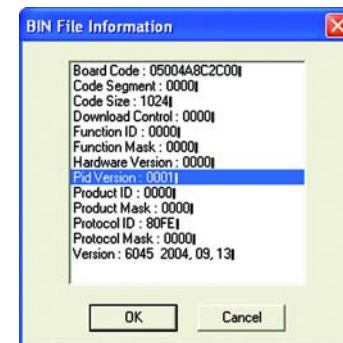


Figure 7-19: BIN File Information

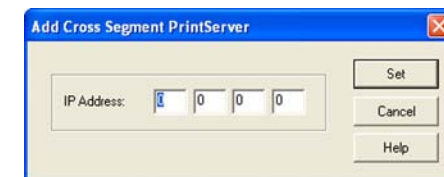


Figure 7-20: Add Cross Segment PrintServer

Chapter 8: Internet Printing Protocol (IPP)

Overview

Internet Printing Protocol (IPP) is a standards-based system that allows remote printing from a PC to any accessible printer. Normally, the printer will be attached to a computer or other device that functions as an IPP Server. For client PCs, it is necessary to install a compatible IPP Client program. The Client must also know the IP Address or URL of the IPP Server.

The PrintServer contains the necessary firmware to act as an IPP Server. No additional configuration is necessary. However, the following requirements must be met:

- The PrintServer must have a valid IP Address. For printing via the Internet, the PrintServer's IP Address must be external (allocated by your ISP), rather than an IP Address on your local LAN.
- Any Router, Gateway, or Firewall linking your LAN to the Internet must NOT block IPP. (IPP uses Port Services 631/TCP)
- You must advise clients of the correct URL or IP Address of the IPP Server. To use a URL rather than an IP Address, you need to register the domain name for the URL.
- Unless clients are using Windows 2000 or XP, you must provide your clients with the supplied IPP Client software. If it is not convenient to provide the CD-ROM, supply the setup.exe file, located in the IPP folder.

Windows IPP Client Setup

Installing using setup.exe

1. Run this program, located at d:\driver\ipp\setup.exe, to unzip the included files.
2. The IPP Setup program will then run.
3. Follow the prompts to complete the installation.

IPP Client Configuration for Windows 98, Me, 2000, and XP

1. Run the **Add IPP Port program** entry created by the installation.
2. On the *Output Select* screen, enter the IP Address or URL of the IPP Server.
3. If Internet access from your location is via a Proxy Server, check **Access IPP Server via Proxy Server**, and enter details of your Proxy Server. (This will be the same as your browser configuration.)
4. Click **Select Device Port** to view the available ports on the IPP Server, and select the appropriate port. A connection to the IPP Server will be established at this time.
5. Click **OK** to create the IPP port on your system. You will see a message confirming that the port has been created, and then you will see the *AddPort* screen.
6. Perform one of these steps.

Select an existing printer to use the new port, and click **OK**.

OR

Click the **Add New Printer** button to create a new printer that will use the IPP port. This will start the Add Printer Wizard. Follow the prompts to complete the process. Make sure that the new printer uses the IPP port.

Installation is now complete.

- To create additional IPP ports, repeat the entire procedure.
- The Proxy Server and other options are set individually for each IPP port.

Changing the IPP Port Settings

After the IPP port is created, you can reach the *Configure IPP Port* screen by performing these steps:

1. Open the **Printers** folder (**Start => Settings => Printers**).
2. Right-click **IPP Printer** and select **Properties**.
3. Click the **Port Settings** or **Configure Port** button (Details or Port tab, depending on your version of Windows). The *Configure IPP Port* screen will appear.

There are two settings, Retry Interval and Retry Count, which can be adjusted if you have problems connecting to the IPP Server.

- The Retry Interval sets the time interval (in seconds) between connection attempts. Increase this number if you have a poor connection, or the remote server is very busy.
- The Retry Count sets how many connection attempts will be made. Increase this number if you have a poor connection, or the remote server is very busy.

IPP Client Setup for Windows XP

Windows XP has its own IPP Client, and there is no need to install the supplied IPP Client Software. To use this IPP Client with the PrintServer, follow this procedure:

1. Click the **Start** button.
2. Select **Settings** and click **Printers and Faxes**.
3. Click **Add a printer**.
4. On the *Welcome to the Add Printer Wizard* screen, click the **Next** button.
5. On the *Local or Network Printer* screen, select **A network printer, or a printer attached to another computer**, and click the **Next** button.



Figure 8-1: Windows XP - Local or Network Printer

6. On the *Specify a Printer* screen, select **Connect to a printer on the Internet or on a home or office network**, and enter the URL of the IPP Server as follows (ip_address represents the IP Address of the IPP Server, and 631 represents the port number).

Port 1 ip_address:631/ipp/P1



NOTE: These entries are case-sensitive. They must be entered as shown, with “ipp” in lowercase and P1 in uppercase.

7. If the connection can be established, and the printer on that port is online, the *Connect to Printer* dialog box will be displayed. This screen notifies you that the printer driver is not installed. Click the **OK** button.
8. Select the printer manufacturer and model to match the printer connected to the appropriate port on the IPP Server.
9. Click the **OK** button and follow the prompts to complete the Wizard.

The IPP printer is now ready for use.

IPP Client Setup for Windows 2000

Windows 2000 has its own IPP Client, and there is no need to install the supplied IPP Client Software. To use this IPP Client with the PrintServer, follow this procedure:

1. Click the **Start** button.
2. Select **Settings** and click **Printers**.
3. Double-click **Add Printer**.
4. On the *Welcome to the Add Printer Wizard* screen, click the **Next** button.
5. Select **Network Printer** and click **Next** to see the *Locate your Printer* screen.
6. Select **Connect to a printer on the Internet or on your intranet**, and enter the URL of the IPP Server as follows (ip_address represents the IP Address of the IPP Server, and 631 represents the port number).

Port 1 ip_address:631/ipp/P1



NOTE: These entries are case-sensitive. They must be entered as shown, with “ipp” in lowercase and P1 in uppercase.

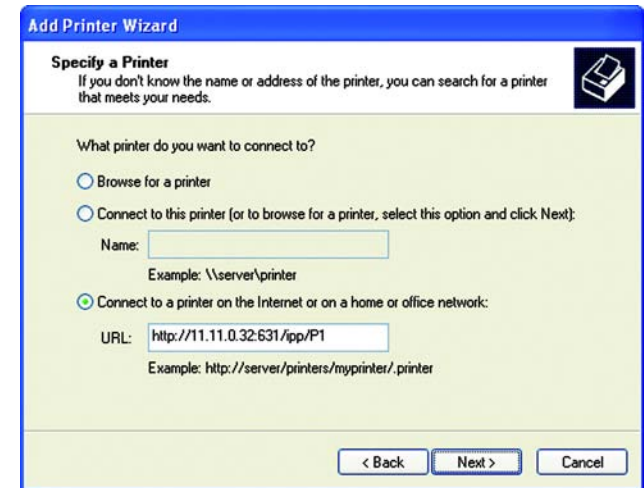


Figure 8-2: Windows XP - Specify a Printer



Figure 8-3: Windows 2000 - Locate Your Printer

Wireless-G PrintServer

7. If the connection can be established, and the printer on that port is online, the *Connect to Printer* dialog box will be displayed. This screen notifies you that the printer driver is not installed. Click the **OK** button.
8. Select the printer manufacturer and model to match the printer connected to the appropriate port on the IPP Server.
9. Click the **Next** button and follow the prompts to complete the Wizard.

The IPP printer is now ready for use.

Using IPP Printers

The IPP Printer can be selected and used like any other Windows printer. If the IPP Server is not on your network, your Internet connection needs to be active.

If you wish to check the availability of the remote IPP Server, you can use the Query IPP Printer program installed with the Add IPP Port program.

An IPP Server may be unavailable for any of the following reasons:

- It is powered off.
- A printer problem has caused the IPP Server to cease responding, and a restart (reboot) is required.
- The Server's IP Address has changed.
- The Internet connection for the IPP Server is down.
- Network congestion causes the connection attempt to time out.

If using the supplied IPP Client software, there are two settings, Retry Interval and Retry Count, which can be adjusted if you have problems connecting to the IPP Server.

See the previous section, "Changing the IPP Port Settings," for details.

Appendix A: Troubleshooting

This appendix consists of “Common Problems and Solutions”. Provided are possible solutions to problems that may occur during the installation and operation of the PrintServer. Read the descriptions below to help you solve your problems. If you can’t find an answer here, check the Linksys website at www.linksys.com.

Common Problems and Solutions

1. All the LEDs on the front of the PrintServer are not lit.

Check the power adapter and the connection to the electrical outlet.

2. The PrintServer’s Power LED lights up orange or flashes continuously.

Reset the PrintServer. Unplug the power adapter and plug it back in, or press the **Reset** button on the back of the PrintServer for approximately ten seconds.

3. I am using DHCP, and the PrintServer gets an IP address conflict involving the PrintServer.

If the PrintServer is left powered on when the DHCP server, which is usually the network router, is powered off, the PrintServer will retain its IP address without informing the DHCP server. Reset the PrintServer so it will obtain a new IP address. This problem may also occur if you assigned a static IP address within the range used by the DHCP server. If so, use another address NOT within the range used by the DHCP server.

4. The PrintServer’s Ethernet LED is not lit.

Check your Ethernet network cable and make sure that the appropriate Ethernet or Link LED on your router or switch is lit.

5. A printer connected to the PrintServer cannot print or prints garbage.

Do the following:

- Check the cable connection between the PrintServer and printer.
- Make sure the printer driver in the application program or Windows matches the printer.
- Make sure the printer is not too long, less than 10 feet.

6. The Configuration button on the Printer Status screen in Bi-Admin is grayed out, even though my printer is bi-directional.

The button is unavailable until the printer has finished its print jobs and sits idle.

7. To start over, I need to set the PrintServer to its factory default settings.

Unplug the PrintServer's power adapter. Press the **Reset** button while you plug in the PrintServer's power adapter. Continue to hold the **Reset** button for 10 seconds and then release it. This will reset the password, wireless, and other settings on the PrintServer to the factory defaults. In other words, the PrintServer will revert to its original factory configuration.

8. I need to upgrade the firmware.

In order to upgrade the firmware with the latest features, follow these steps:

1. Go to the Linksys website at <http://www.linksys.com> and download the latest firmware for the PrintServer. Then extract the firmware file on your PC.
2. Open the PrintServer's Web-based Utility. Click **Status** and then **Device**.
3. Click the **Upgrade** button, and follow the on-screen instructions.

9. I want to manually change my printer's IP address.

Follow these steps:

1. Click **Start**, **Settings**, and **Control Panel**.
2. Double-click **Printers and Faxes**.
3. Right-click the printer you want.
4. Click **Properties**.
5. Click the **Ports** tab.
6. Select the IP port and click **Configure Port**.
7. On the *Port Settings* screen, change the IP address and click the **OK** button.

Appendix B: Wireless Security

Linksys wants to make wireless networking as safe and easy for you as possible. The current generation of Linksys products provide several network security features, but they require specific action on your part for implementation. So, keep the following in mind whenever you are setting up or using your wireless network.

Security Precautions

The following is a complete list of security precautions to take:

1. Change the default SSID.
2. Disable SSID Broadcast.
3. Change the default password for the Administrator account.
4. Enable MAC Address Filtering.
5. Change the SSID periodically.
6. Use the highest encryption algorithm possible. Use WPA if it is available. Please note that this may reduce your network performance.
7. Change the WEP encryption keys periodically.

To ensure network security, at least steps one through five should be followed.

Security Threats Facing Wireless Networks

Wireless networks are easy to find. Hackers know that in order to join a wireless network, wireless networking products first listen for “beacon messages”. These messages can be easily decrypted and contain much of the network’s information, such as the network’s SSID (Service Set Identifier). Here are the steps you can take:

Change the administrator’s password regularly. With every wireless networking device you use, keep in mind that network settings (SSID, WEP keys, etc.) are stored in its firmware. Your network administrator is the only person who can change network settings. If a hacker gets a hold of the administrator’s password, he, too, can change those settings. So, make it harder for a hacker to get that information. Change the administrator’s password regularly.



Note: Some of these security features are available only through the network router or access point. Refer to the router or access point’s documentation for more information.

SSID. There are several things to keep in mind about the SSID:

1. Disable Broadcast
2. Make it unique
3. Change it often

Most wireless networking devices will give you the option of broadcasting the SSID. While this option may be more convenient, it allows anyone to log into your wireless network. This includes hackers. So, don't broadcast the SSID.

Wireless networking products come with a default SSID set by the factory. (The Linksys default SSID is "linksys".) Hackers know these defaults and can check these against your network. Change your SSID to something unique and not something related to your company or the networking products you use.

Change your SSID regularly so that any hackers who have gained access to your wireless network will have to start from the beginning in trying to break in.

MAC Addresses. Enable MAC Address filtering. MAC Address filtering will allow you to provide access to only those wireless nodes with certain MAC Addresses. This makes it harder for a hacker to access your network with a random MAC Address.

WEP Encryption. Wired Equivalent Privacy (WEP) is often looked upon as a cure-all for wireless security concerns. This is overstating WEP's ability. Again, this can only provide enough security to make a hacker's job more difficult.

There are several ways that WEP can be maximized:

1. Use the highest level of encryption possible
2. Use "Shared Key" authentication
3. Change your WEP key regularly

WPA. Wi-Fi Protected Access (WPA) is the newest and best available standard in Wi-Fi security. Two modes are available: Pre-Shared Key and RADIUS. Pre-Shared Key gives you a choice of two encryption methods: TKIP (Temporal Key Integrity Protocol), which utilizes a stronger encryption method and incorporates Message Integrity Code (MIC) to provide protection against hackers, and AES (Advanced Encryption System), which utilizes a symmetric 128-Bit block data encryption. RADIUS (Remote Authentication Dial-In User Service) utilizes a RADIUS server for authentication and the use of dynamic TKIP, AES, or WEP.



Important: Always remember that each device in your wireless network **MUST** use the same encryption method and encryption key or your wireless network will not function properly.

WPA Pre-Shared Key. If you do not have a RADIUS server, select the type of algorithm, TKIP or AES, enter a password in the Pre-Shared key field of 8-64 characters, and enter a Group Key Renewal period time between 0 and 99,999 seconds, which instructs the Router or other device how often it should change the encryption keys.

WPA RADIUS. WPA used in coordination with a RADIUS server. (This should only be used when a RADIUS server is connected to the Router or other device.) First, select the type of WPA algorithm, **TKIP** or **AES**. Enter the RADIUS server's IP Address and port number, along with a key shared between the device and the server. Last, enter a Group Key Renewal period, which instructs the device how often it should change the encryption keys.

RADIUS. WEP used in coordination with a RADIUS server. (This should only be used when a RADIUS server is connected to the Router or other device.) First, enter the RADIUS server's IP Address and port number, along with a key shared between the device and the server. Then, select a WEP key and a level of WEP encryption, and either generate a WEP key through the Passphrase or enter the WEP key manually.

Implementing encryption may have a negative impact on your network's performance, but if you are transmitting sensitive data over your network, encryption should be used.

These security recommendations should help keep your mind at ease while you are enjoying the most flexible and convenient technology Linksys has to offer.

Appendix C: About Bi-Directional Printing

Normal printing only sends print signals from a PC to a printer. Bi-directional printing, also called bitronic printing, refers to a printer's ability to do just the opposite—talk back to a PC to notify it of a print job status, paper jams, etc. This two-way communication technology can be found in HP, IBM, Panasonic, and other laser or color printers where close contact between the PC and printer is key. In color printing, for example, the printer “informs” the PC of its constant status in order to mix color inks correctly for optimal quality output.

Bi-directional communication, communication from a printer to a PC, is normally handled by a combination of the printer hardware and special software on your computer. Using a bi-directional printer on a network poses unique challenges. Unlike a direct PC-to-printer connection during which a bi-directional printer can easily send its signals back to the host PC through the computer's parallel or USB port (which is normally located only a few feet away from the printer), a networked printer faces the problem of having to route messages bound for a particular PC through a large array of hubs, switches, file servers, and computers. Unfortunately, most printers are not equipped to handle the complexities of printer-to-PC communication across a network. That does not mean that they can't be used on a network, however.

Linksys designed the PrintServers to function with both regular as well as bi-directional printers. However, the PrintServer cannot pass messages from the printer back to the printing PC—this limitation is simply an industry standard, and not one of the PrintServer itself.

However, the PrintServer can check any printer's online and printing status on the network using the Bi-Admin management utility software packaged with the PrintServer. The status-checking feature built into the management software does not require a bi-directional printer to function. If your printer came with special bi-directional software allowing you to monitor printer status, do not use it with the PrintServer—the software is most likely not network-capable. For best results, turn off the printer's bi-directional function either by (1) removing any bi-directional printing software from your network computers, and/or (2) turning off the printer's bi-directional print feature inside of the printer's on-board menus (if it has menus). Your printer's user guide should be able to provide specific instructions for doing this.

Appendix D: Upgrading Firmware

Use the PrintServer's Web-based Utility to upgrade its firmware. Follow these instructions:

1. Visit www.linksys.com and download the firmware upgrade file for the Wireless-G PrintServer.
2. Extract the file on your computer.
3. Open the PrintServer's Web-based Utility.
4. Click the **Status** tab, and then click the **Device** tab.
5. On the *Device* screen, click the **Upgrade** button.
6. On the *Firmware Upgrade* screen, enter the location of the extracted firmware file, or click the **Browse** button to find this file.
7. Click the **Start Upgrade** button, and follow the on-screen instructions.

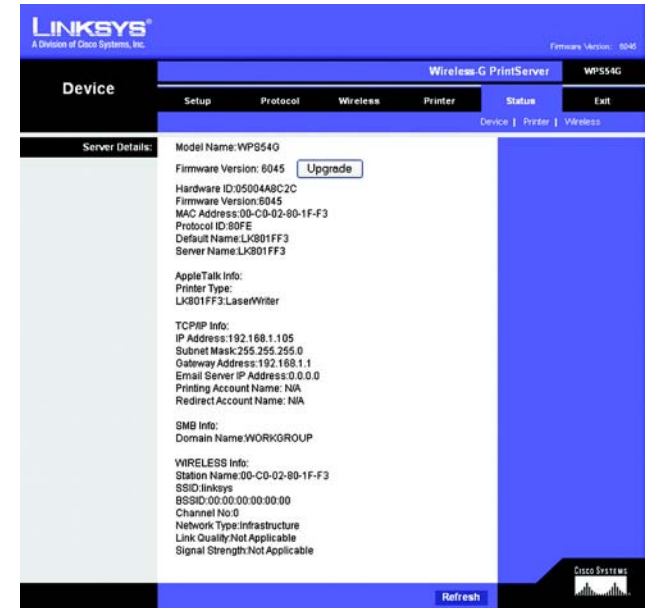


Figure D-1: Status Tab - Device



Figure D-2: Firmware Upgrade

Appendix E: Windows Help

All Linksys wireless products require Microsoft Windows. Windows is the most used operating system in the world and comes with many features that help make networking easier. These features can be accessed through Windows Help and are described in this appendix.

TCP/IP

TCP/IP is a set of instructions, or protocol, all PCs follow to communicate over a network. This is true for wireless networks as well. Your PCs will not be able to utilize wireless networking without having TCP/IP enabled. Windows Help provides complete instructions on enabling TCP/IP.

Shared Resources

If you wish to share printers, folder, or files over your network, Windows Help provides complete instructions on utilizing shared resources.

Network Neighborhood/My Network Places

Other PCs on your network will appear under Network Neighborhood or My Network Places (depending upon the version of Windows you're running). Windows Help provides complete instructions on adding PCs to your network.

Appendix F: Glossary

802.11b - A wireless networking standard that specifies a maximum data transfer rate of 11Mbps and an operating frequency of 2.4GHz.

802.11g - A wireless networking standard that specifies a maximum data transfer rate of 54Mbps, an operating frequency of 2.4GHz, and backward compatibility with 802.11b devices.

Access Point - A device that allows wireless-equipped computers and other devices to communicate with a wired network. Also used to expand the range of a wireless network.

Adapter - A device that adds network functionality to your PC.

Ad-hoc - A group of wireless devices communicating directly with each other (peer-to-peer) without the use of an access point.

AES (Advanced Encryption Standard) - A security method that uses symmetric 128-bit block data encryption.

Backbone - The part of a network that connects most of the systems and networks together, and handles the most data.

Bandwidth - The transmission capacity of a given device or network.

Beacon Interval - Data transmitted on your wireless network that keeps the network synchronized.

Bit - A binary digit.

Boot - To start a device and cause it to start executing instructions.

Bridge - A device that connects different networks.

Broadband - An always-on, fast Internet connection.

Browser - An application program that provides a way to look at and interact with all the information on the World Wide Web.

Buffer - A shared or assigned memory area that is used to support and coordinate different computing and networking activities so one isn't held up by the other.

Byte - A unit of data that is usually eight bits long

Cable Modem - A device that connects a computer to the cable television network, which in turn connects to the Internet.

CSMA/CA (Carrier Sense Multiple Access/Collision Avoidance) - A method of data transfer that is used to prevent data collisions.

CTS (Clear To Send) - A signal sent by a wireless device, signifying that it is ready to receive data.

Daisy Chain - A method used to connect devices in a series, one after the other.

Database - A collection of data that is organized so that its contents can easily be accessed, managed, and updated.

DDNS (Dynamic Domain Name System) - Allows the hosting of a website, FTP server, or e-mail server with a fixed domain name (e.g., www.xyz.com) and a dynamic IP address.

Default Gateway - A device that forwards Internet traffic from your local area network.

DHCP (Dynamic Host Configuration Protocol) - A networking protocol that allows administrators to assign temporary IP addresses to network computers by "leasing" an IP address to a user for a limited amount of time, instead of assigning permanent IP addresses.

DMZ (Demilitarized Zone) - Removes the Router's firewall protection from one PC, allowing it to be "seen" from the Internet.

DNS (Domain Name Server) - The IP address of your ISP's server, which translates the names of websites into IP addresses.

Domain - A specific name for a network of computers.

Download - To receive a file transmitted over a network.

DSL (Digital Subscriber Line) - An always-on broadband connection over traditional phone lines.

DSSS (Direct-Sequence Spread-Spectrum) - Frequency transmission with a redundant bit pattern resulting in a lower probability of information being lost in transit.

DTIM (Delivery Traffic Indication Message) - A message included in data packets that can increase wireless efficiency.

Dynamic IP Address - A temporary IP address assigned by a DHCP server.

EAP (Extensible Authentication Protocol) - A general authentication protocol used to control network access. Many specific authentication methods work within this framework.

EAP-PEAP (Extensible Authentication Protocol-Protected Extensible Authentication Protocol) - A mutual authentication method that uses a combination of digital certificates and another system, such as passwords.

EAP-TLS (Extensible Authentication Protocol-Transport Layer Security) - A mutual authentication method that uses digital certificates.

Encryption - Encoding data transmitted in a network.

Ethernet - A networking protocol that specifies how data is placed on and retrieved from a common transmission medium.

Finger - A program that tells you the name associated with an e-mail address.

Firewall - A set of related programs located at a network gateway server that protects the resources of a network from users from other networks.

Firmware - The programming code that runs a networking device.

Fragmentation - Breaking a packet into smaller units when transmitting over a network medium that cannot support the original size of the packet.

FTP (File Transfer Protocol) - A protocol used to transfer files over a TCP/IP network.

Full Duplex - The ability of a networking device to receive and transmit data simultaneously.

Gateway - A device that interconnects networks with different, incompatible communications protocols.

Half Duplex - Data transmission that can occur in two directions over a single line, but only one direction at a time.

Hardware - The physical aspect of computers, telecommunications, and other information technology devices.

HTTP (HyperText Transport Protocol) - The communications protocol used to connect to servers on the World Wide Web.

Infrastructure - A wireless network that is bridged to a wired network via an access point.

IP (Internet Protocol) - A protocol used to send data over a network.

IP Address - The address used to identify a computer or device on a network.

IPCONFIG - A Windows 2000 and XP utility that displays the IP address for a particular networking device.

IPSec (Internet Protocol Security) - A VPN protocol used to implement secure exchange of packets at the IP layer.

ISM band - Radio bandwidth utilized in wireless transmissions.

ISP (Internet Service Provider) - A company that provides access to the Internet.

LAN - The computers and networking products that make up your local network.

LEAP (Lightweight Extensible Authentication Protocol) - A mutual authentication method that uses a username and password system.

MAC (Media Access Control) Address - The unique address that a manufacturer assigns to each networking device.

Mbps (MegaBits Per Second) - One million bits per second; a unit of measurement for data transmission.

mIRC - An Internet Relay Chat program that runs under Windows.

Multicasting - Sending data to a group of destinations at once.

NAT (Network Address Translation) - NAT technology translates IP addresses of a local area network to a different IP address for the Internet.

Network - A series of computers or devices connected for the purpose of data sharing, storage, and/or transmission between users.

NNTP (Network News Transfer Protocol) - The protocol used to connect to Usenet groups on the Internet.

Node - A network junction or connection point, typically a computer or work station.

OFDM (Orthogonal Frequency Division Multiplexing) - Frequency transmission that separates the data stream into a number of lower-speed data streams, which are then transmitted in parallel to prevent information from being lost in transit.

Packet - A unit of data sent over a network.

Passphrase - Used much like a password, a passphrase simplifies the WEP encryption process by automatically generating the WEP encryption keys for Linksys products.

Ping (Packet INternet Groper) - An Internet utility used to determine whether a particular IP address is online.

POP3 (Post Office Protocol 3) - A standard mail server commonly used on the Internet.

Port - The connection point on a computer or networking device used for plugging in cables or adapters.

Power over Ethernet (PoE) - A technology enabling an Ethernet network cable to deliver both data and power.

PPPoE (Point to Point Protocol over Ethernet) - A type of broadband connection that provides authentication (username and password) in addition to data transport.

PPTP (Point-to-Point Tunneling Protocol) - A VPN protocol that allows the Point to Point Protocol (PPP) to be tunneled through an IP network. This protocol is also used as a type of broadband connection in Europe.

Preamble - Part of the wireless signal that synchronizes network traffic.

RADIUS (Remote Authentication Dial-In User Service) - A protocol that uses an authentication server to control network access.

RJ-45 (Registered Jack-45) - An Ethernet connector that holds up to eight wires.

Roaming - The ability to take a wireless device from one access point's range to another without losing the connection.

Router - A networking device that connects multiple networks together.

RTS (Request To Send) - A networking method of coordinating large packets through the RTS Threshold setting.

Server - Any computer whose function in a network is to provide user access to files, printing, communications, and other services.

SMTP (Simple Mail Transfer Protocol) - The standard e-mail protocol on the Internet.

SNMP (Simple Network Management Protocol) - A widely used network monitoring and control protocol.

Software - Instructions for the computer. A series of instructions that performs a particular task is called a "program".

SOHO (Small Office/Home Office) - Market segment of professionals who work at home or in small offices.

SPI (Stateful Packet Inspection) Firewall - A technology that inspects incoming packets of information before allowing them to enter the network.

Spread Spectrum - Wideband radio frequency technique used for more reliable and secure data transmission.

SSID (Service Set Identifier) - Your wireless network's name.

Static IP Address - A fixed address assigned to a computer or device that is connected to a network.

Static Routing - Forwarding data in a network via a fixed path.

Subnet Mask - An address code that determines the size of the network.

Switch - 1. A data switch that connects computing devices to host computers, allowing a large number of devices to share a limited number of ports. 2. A device for making, breaking, or changing the connections in an electrical circuit.

TCP (Transmission Control Protocol) - A network protocol for transmitting data that requires acknowledgement from the recipient of data sent.

TCP/IP (Transmission Control Protocol/Internet Protocol) - A set of instructions PCs use to communicate over a network.

Telnet - A user command and TCP/IP protocol used for accessing remote PCs.

TFTP (Trivial File Transfer Protocol) - A version of the TCP/IP FTP protocol that has no directory or password capability.

Throughput - The amount of data moved successfully from one node to another in a given time period.

TKIP (Temporal Key Integrity Protocol) - a wireless encryption protocol that provides dynamic encryption keys for each packet transmitted.

Topology - The physical layout of a network.

TX Rate - Transmission Rate.

UDP (User Datagram Protocol) - A network protocol for transmitting data that does not require acknowledgement from the recipient of the data that is sent.

Upgrade - To replace existing software or firmware with a newer version.

Upload - To transmit a file over a network.

URL (Uniform Resource Locator) - The address of a file located on the Internet.

VPN (Virtual Private Network) - A security measure to protect data as it leaves one network and goes to another over the Internet.

Wireless-G PrintServer

WAN (Wide Area Network)- The Internet.

WEP (Wired Equivalent Privacy) - A method of encrypting network data transmitted on a wireless network for greater security.

WINIPCFG - A Windows 98 and Me utility that displays the IP address for a particular networking device.

WLAN (Wireless Local Area Network) - A group of computers and associated devices that communicate with each other wirelessly.

WPA (Wi-Fi Protected Access) - a wireless security protocol using TKIP (Temporal Key Integrity Protocol) encryption, which can be used in conjunction with a RADIUS server.

Appendix G: Specifications

Model	WPS54G ver. 2.0
Standards	IEEE 802.11g, IEEE 802.11b, IEEE 802.3, USB 2.0
Ports	Power, Ethernet, USB Printer
Button	Reset
Cabling Type	USB 2.0, UTP CAT5
LEDs	Power, Ethernet, Wireless, USB
Security Features	WEP, WPA-PSK
WEP Key Bits	64, 128
Dimensions (W x H x D)	5.24" x 0.98" x 2.76" (133 mm x 25 mm x 70 mm)
Unit Weight	3.80 oz. (0.11 kg)
Power	5 V DC, 2A
Certifications	FCC, CE
Operating Temp.	0°C to 40°C (32°F to 104°F)
Storage Temp.	-20°C to 70°C (-4°F to 158°F)
Operating Humidity	10% to 85%, Non-Condensing
Storage Humidity	5% to 90%, Non-Condensing

Appendix H: Warranty Information

LIMITED WARRANTY

Linksys warrants to You that, for a period of three years (the “Warranty Period”), your Linksys Product will be substantially free of defects in materials and workmanship under normal use. Your exclusive remedy and Linksys' entire liability under this warranty will be for Linksys at its option to repair or replace the Product or refund Your purchase price less any rebates. This limited warranty extends only to the original purchaser.

If the Product proves defective during the Warranty Period call Linksys Technical Support in order to obtain a Return Authorization Number, if applicable. BE SURE TO HAVE YOUR PROOF OF PURCHASE ON HAND WHEN CALLING. If You are requested to return the Product, mark the Return Authorization Number clearly on the outside of the package and include a copy of your original proof of purchase. RETURN REQUESTS CANNOT BE PROCESSED WITHOUT PROOF OF PURCHASE. You are responsible for shipping defective Products to Linksys. Linksys pays for UPS Ground shipping from Linksys back to You only. Customers located outside of the United States of America and Canada are responsible for all shipping and handling charges.

ALL IMPLIED WARRANTIES AND CONDITIONS OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE LIMITED TO THE DURATION OF THE WARRANTY PERIOD. ALL OTHER EXPRESS OR IMPLIED CONDITIONS, REPRESENTATIONS AND WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF NON-INFRINGEMENT, ARE DISCLAIMED. Some jurisdictions do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to You. This warranty gives You specific legal rights, and You may also have other rights which vary by jurisdiction.

This warranty does not apply if the Product (a) has been altered, except by Linksys, (b) has not been installed, operated, repaired, or maintained in accordance with instructions supplied by Linksys, or (c) has been subjected to abnormal physical or electrical stress, misuse, negligence, or accident. In addition, due to the continual development of new techniques for intruding upon and attacking networks, Linksys does not warrant that the Product will be free of vulnerability to intrusion or attack.

TO THE EXTENT NOT PROHIBITED BY LAW, IN NO EVENT WILL LINKSYS BE LIABLE FOR ANY LOST DATA, REVENUE OR PROFIT, OR FOR SPECIAL, INDIRECT, CONSEQUENTIAL, INCIDENTAL OR PUNITIVE DAMAGES, REGARDLESS OF THE THEORY OF LIABILITY (INCLUDING NEGLIGENCE), ARISING OUT OF OR RELATED TO THE USE OF OR INABILITY TO USE THE PRODUCT (INCLUDING ANY SOFTWARE), EVEN IF LINKSYS HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. IN NO EVENT WILL LINKSYS' LIABILITY EXCEED THE AMOUNT PAID BY YOU FOR THE PRODUCT. The foregoing limitations will apply even if any warranty or remedy provided under this Agreement fails of its essential purpose. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to You.

Please direct all inquiries to: Linksys, P.O. Box 18558, Irvine, CA 92623.

Appendix I: Regulatory Information

FCC Statement

This product has been tested and complies with the specifications for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used according to the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which is found by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment or devices
- Connect the equipment to an outlet other than the receiver's
- Consult a dealer or an experienced radio/TV technician for assistance

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

We declare that the product is limited in CH1~CH11 by specified firmware controlled in the USA.

Safety Notices

Caution: To reduce the risk of fire, use only No.26 AWG or larger telecommunication line cord.

Do not use this product near water, for example, in a wet basement or near a swimming pool.

Avoid using this product during an electrical storm. There may be a remote risk of electric shock from lightning.

Industry Canada (Canada)

This device complies with Canadian ICES-003 and RSS210 rules.

Cet appareil est conforme aux normes NMB-003 et RSS210 d'Industry Canada.

Operation is subject to the following two conditions:

1. This device may not cause interference and
2. This device must accept any interference, including interference that may cause undesired operation of the device.

IMPORTANT NOTE:

IC Radiation Exposure Statement:

This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Règlement d'Industry Canada

Les conditions de fonctionnement sont sujettes à deux conditions:

1. Ce périphérique ne doit pas causer d'interférence et.
2. Ce périphérique doit accepter toute interférence, y compris les interférences pouvant perturber le bon fonctionnement de ce périphérique.

User Information for Consumer Products Covered by EU Directive 2002/96/EC on Waste Electric and Electronic Equipment (WEEE)

This document contains important information for users with regards to the proper disposal and recycling of Linksys products. Consumers are required to comply with this notice for all electronic products bearing the following symbol:

English

Environmental Information for Customers in the European Union

European Directive 2002/96/EC requires that the equipment bearing this symbol on the product and/or its packaging must not be disposed of with unsorted municipal waste. The symbol indicates that this product should be disposed of separately from regular household waste streams. It is your responsibility to dispose of this and other electric and electronic equipment via designated collection facilities appointed by the government or local authorities. Correct disposal and recycling will help prevent potential negative consequences to the environment and human health. For more detailed information about the disposal of your old equipment, please contact your local authorities, waste disposal service, or the shop where you purchased the product.

Ceština/Czech

Informace o ochraně životního prostředí pro zákazníky v zemích Evropské unie

Evropská směrnice 2002/96/ES zakazuje, aby zařízení označené tímto symbolem na produktu anebo na obalu bylo likvidováno s netříděným komunálním odpadem. Tento symbol udává, že daný produkt musí být likvidován odděleně od běžného komunálního odpadu. Odpovídáte za likvidaci tohoto produktu a dalších elektrických a elektronických zařízení prostřednictvím určených sběrných míst stanovených vládou nebo místními úřady. Správná likvidace a recyklace pomáhá předcházet potenciálním negativním dopadům na životní prostředí a lidské zdraví. Podrobnější informace o likvidaci starého vybavení si laskavě vyžádejte od místních úřadů, podniku zabývajícího se likvidací komunálních odpadů nebo obchodu, kde jste produkt zakoupili.



Dansk/Danish

Miljøinformation for kunder i EU

EU-direktiv 2002/96/EF kræver, at udstyr der bærer dette symbol på produktet og/eller emballagen ikke må bortskaffes som usorteret kommunalt affald. Symbolet betyder, at dette produkt skal bortskaffes adskilt fra det almindelige husholdningsaffald. Det er dit ansvar at bortskaffe dette og andet elektrisk og elektronisk udstyr via bestemte indsamlingssteder udpeget af staten eller de lokale myndigheder. Korrekt bortskaffelse og genvinding vil hjælpe med til at undgå mulige skader for miljøet og menneskers sundhed. Kontakt venligst de lokale myndigheder, renovationstjenesten eller den butik, hvor du har købt produktet, angående mere detaljeret information om bortskaffelse af dit gamle udstyr.

Deutsch/German

Umweltinformation für Kunden innerhalb der Europäischen Union

Die Europäische Richtlinie 2002/96/EC verlangt, dass technische Ausrüstung, die direkt am Gerät und/oder an der Verpackung mit diesem Symbol versehen ist nicht zusammen mit unsortiertem Gemeindeabfall entsorgt werden darf. Das Symbol weist darauf hin, dass das Produkt von regulärem Haushaltsmüll getrennt entsorgt werden sollte. Es liegt in Ihrer Verantwortung, dieses Gerät und andere elektrische und elektronische Geräte über die dafür zuständigen und von der Regierung oder örtlichen Behörden dazu bestimmten Sammelstellen zu entsorgen. Ordnungsgemäßes Entsorgen und Recyceln trägt dazu bei, potentielle negative Folgen für Umwelt und die menschliche Gesundheit zu vermeiden. Wenn Sie weitere Informationen zur Entsorgung Ihrer Altgeräte benötigen, wenden Sie sich bitte an die örtlichen Behörden oder städtischen Entsorgungsdienste oder an den Händler, bei dem Sie das Produkt erworben haben.

Eesti/Estonian

Keskkonnaalane informatsioon Euroopa Liidus asuvatele klientidele

Euroopa Liidu direktiivi 2002/96/EÜ nõuete kohaselt on seadmeid, millel on tootel või pakendil käesolev sümbol, keelatud kõrvaldada koos sorteerimata olmejäätmetega. See sümbol näitab, et toode tuleks kõrvaldada eraldi tavalistest olmejäätmevoogudest. Olete kohustatud kõrvaldama käesoleva ja ka muud elektri- ja elektroonikaseadmed riigi või kohalike ametiasutuste poolt ette nähtud kogumispunktide kaudu. Seadmete korrektne kõrvaldamine ja ringlussevõtt aitab vältida võimalikke negatiivseid tagajärgi keskkonnale ning inimeste tervisele. Vanade seadmete kõrvaldamise kohta täpsema informatsiooni saamiseks võtke palun ühendust kohalike ametiasutustega, jäätmekäitlusfirmaga või kauplusega, kust te toote ostsite.

Español/Spanish

Información medioambiental para clientes de la Unión Europea

La Directiva 2002/96/CE de la UE exige que los equipos que lleven este símbolo en el propio aparato y/o en su embalaje no deben eliminarse junto con otros residuos urbanos no seleccionados. El símbolo indica que el producto en cuestión debe separarse de los residuos domésticos convencionales con vistas a su eliminación. Es responsabilidad suya desechar este y cualesquiera otros aparatos eléctricos y electrónicos a través de los puntos de recogida que ponen a su disposición el gobierno y las autoridades locales. Al desechar y reciclar correctamente estos aparatos estará contribuyendo a evitar posibles consecuencias negativas para el medio ambiente y la salud de las personas. Si desea obtener información más detallada sobre la eliminación segura de su aparato usado, consulte a las autoridades locales, al servicio de recogida y eliminación de residuos de su zona o pregunte en la tienda donde adquirió el producto.

Ελληνικά/Greek

Στοιχεία περιβαλλοντικής προστασίας για πελάτες εντός της Ευρωπαϊκής Ένωσης

Η Κοινοτική Οδηγία 2002/96/EC απαιτεί ότι ο εξοπλισμός ο οποίος φέρει αυτό το σύμβολο στο προϊόν και/ή στη συσκευασία του δεν πρέπει να απορρίπτεται μαζί με τα μικτά κοινотικά απορρίμματα. Το σύμβολο υποδεικνύει ότι αυτό το προϊόν θα πρέπει να απορρίπτεται ξεχωριστά από τα συνήθη οικιακά απορρίμματα. Είστε υπεύθυνος για την απόρριψη του παρόντος και άλλου ηλεκτρικού και ηλεκτρονικού εξοπλισμού μέσω των καθορισμένων εγκαταστάσεων συγκέντρωσης απορριμμάτων οι οποίες παρέχονται από το κράτος ή τις αρμόδιες τοπικές αρχές. Η σωστή απόρριψη και ανακύκλωση συμβάλλει στην πρόληψη πιθανών αρνητικών συνεπειών για το περιβάλλον και την υγεία. Για περισσότερες πληροφορίες σχετικά με την απόρριψη του παλιού σας εξοπλισμού, παρακαλώ επικοινωνήστε με τις τοπικές αρχές, τις υπηρεσίες απόρριψης ή το κατάστημα από το οποίο αγοράσατε το προϊόν.

Français/French

Informations environnementales pour les clients de l'Union européenne

La directive européenne 2002/96/CE exige que l'équipement sur lequel est apposé ce symbole sur le produit et/ou son emballage ne soit pas jeté avec les autres ordures ménagères. Ce symbole indique que le produit doit être éliminé dans un circuit distinct de celui pour les déchets des ménages. Il est de votre responsabilité de jeter ce matériel ainsi que tout autre matériel électrique ou électronique par les moyens de collecte indiqués par le gouvernement et les pouvoirs publics des collectivités territoriales. L'élimination et le recyclage en bonne et due forme ont pour but de lutter contre l'impact néfaste potentiel de ce type de produits sur l'environnement et la santé publique. Pour plus d'informations sur le mode d'élimination de votre ancien équipement, veuillez prendre contact avec les pouvoirs publics locaux, le service de traitement des déchets, ou l'endroit où vous avez acheté le produit.

Italiano/Italian

Informazioni relative all'ambiente per i clienti residenti nell'Unione Europea

La direttiva europea 2002/96/EC richiede che le apparecchiature contrassegnate con questo simbolo sul prodotto e/o sull'imballaggio non siano smaltite insieme ai rifiuti urbani non differenziati. Il simbolo indica che questo prodotto non deve essere smaltito insieme ai normali rifiuti domestici. È responsabilità del proprietario smaltire sia questi prodotti sia le altre apparecchiature elettriche ed elettroniche mediante le specifiche strutture di raccolta indicate dal governo o dagli enti pubblici locali. Il corretto smaltimento ed il riciclaggio aiuteranno a prevenire conseguenze potenzialmente negative per l'ambiente e per la salute dell'essere umano. Per ricevere informazioni più dettagliate circa lo smaltimento delle vecchie apparecchiature in Vostro possesso, Vi invitiamo a contattare gli enti pubblici di competenza, il servizio di smaltimento rifiuti o il negozio nel quale avete acquistato il prodotto.

Latviešu valoda/Latvian

Ekoloģiska informācija klientiem Eiropas Savienības jurisdikcijā

Direktīvā 2002/96/EK ir prasība, ka aprīkojumu, kam pievienota zīme uz paša izstrādājuma vai uz tā iesaiņojuma, nedrīkst izmest nešķīrotā veidā kopā ar komunālajiem atkritumiem (tiem, ko rada vietēji iedzīvotāji un uzņēmumi). Šī zīme nozīmē to, ka šī ierīce ir jāizmet atkritumos tā, lai tā nenonāktu kopā ar parastiem majsaimniecības atkritumiem. Jūsu pienākums ir šo un citas elektriskas un elektroniskas ierīces izmest atkritumos, izmantojot īpašus atkritumu savākšanas veidus un līdzekļus, ko nodrošina valsts un pašvaldību iestādes. Ja izmešana atkritumos un pārstrāde tiek veikta pareizi, tad mazinās iespējamais kaitējums dabai un cilvēku veselībai. Sīkākas ziņas par novecojušu aprīkojuma izmešanu atkritumos jūs varat saņemt vietējā pašvaldībā, atkritumu savākšanas dienestā, kā arī veikalā, kur iegādājāties šo izstrādājumu.

Lietuvškai/Lithuanian

Aplinkosaugos informacija, skirta Europos Sąjungos vartotojams

Europos direktyva 2002/96/EC numato, kad įrangos, kuri ir (arba) kurios pakuotė yra pažymėta šiuo simboliu, negalima šalinti kartu su nerūšiuotomis komunalinėmis atliekomis. Šis simbolis rodo, kad gaminį reikia šalinti atskirai nuo bendro buitinių atliekų srauto. Jūs privalote užtikrinti, kad ši ir kita elektros ar elektroninė įranga būtų šalinama per tam tikras nacionalinės ar vietinės valdžios nustatytas atliekų rinkimo sistemas. Tinkamai šalinant ir perdurbant atliekas, bus išvengta galimos žalos aplinkai ir žmonių sveikatai. Daugiau informacijos apie jūsų senos įrangos šalinimą gali pateikti vietinės valdžios institucijos, atliekų šalinimo tarnybos arba parduotuvės, kuriose įsigijote tą gaminį.

Malti/Maltese

Informazzjoni Ambjentali għal Kliġenti fl-Unjoni Ewropea

Id-Direttiva Ewropea 2002/96/KE titlob li t-tagħmir li jkun fih is-simbolu fuq il-prodott u/jew fuq l-ippakkjar ma jistax jintrema ma' skart municiġpali li ma għiex iſseparat. Is-simbolu jindika li dan il-prodott għandu jintrema separatament minn ma' l-iskart domestiku regolari. Hija responsabbiltà tiegħek li tarmi dan it-tagħmir u kull tagħmir iehor ta' l-elettriku u elettroniku permezz ta' faċilitajiet ta' għbir appuntati apposta mill-gvern jew mill-awtoritajiet lokali. Ir-rimi b'mod korrett u r-riciklagg jghin jipprevjeni konsegwenzi negattivi potenzjali għall-ambjent u għas-saħha tal-bniedem. Għal aktar informazzjoni dettaljata dwar ir-rimi tat-tagħmir antik tiegħek, jekk jogħġbok ikkuntattja lill-awtoritajiet lokali tiegħek, is-servizzi għar-rimi ta' l-iskart, jew il-hanut minn fejn xtrajt il-prodott.

Magyar/Hungarian

Környezetvédelmi információ az európai uniós vásárlók számára

A 2002/96/EC számú európai uniós irányelv megkívánja, hogy azokat a termékeket, amelyekben, és/vagy amelyek csomagolásán az alábbi címke megjelenik, tilos a többi szelektálatlan lakossági hulladékkal együtt kidobni. A címke azt jelöli, hogy az adott termék kidobásakor a szokványos háztartási hulladékelszállítási rendszerektől elkülönített eljárást kell alkalmazni. Az Ön felelőssége, hogy ezt, és más elektromos és elektronikus berendezéseit a kormányzati vagy a helyi hatóságok által kijelölt gyűjtőrendszeren keresztül számolja fel. A megfelelő hulladékfeldolgozás segít a környezetre és az emberi egészségre potenciálisan ártalmas negatív hatások megelőzésében. Ha elavult berendezéseinek felszámolásához további részletes információra van szüksége, kérjük, lépjen kapcsolatba a helyi hatóságokkal, a hulladékfeldolgozási szolgálattal, vagy azzal üzlettel, ahol a terméket vásárolta.

Nederlands/Dutch

Milieu-informatie voor klanten in de Europese Unie

De Europese Richtlijn 2002/96/EC schrijft voor dat apparatuur die is voorzien van dit symbool op het product of de verpakking, niet mag worden ingezameld met niet-gescheiden huishoudelijk afval. Dit symbool geeft aan dat het product apart moet worden ingezameld. U bent zelf verantwoordelijk voor de vernietiging van deze en andere elektrische en elektronische apparatuur via de daarvoor door de landelijke of plaatselijke overheid aangewezen inzamelingskanalen. De juiste vernietiging en recycling van deze apparatuur voorkomt mogelijke negatieve gevolgen voor het milieu en de gezondheid. Voor meer informatie over het vernietigen van uw oude apparatuur neemt u contact op met de plaatselijke autoriteiten of afvalverwerkingsdienst, of met de winkel waar u het product hebt aangeschaft.

Norsk/Norwegian

Miljøinformasjon for kunder i EU

EU-direktiv 2002/96/EF krever at utstyr med følgende symbol avbildet på produktet og/eller pakningen, ikke må kastes sammen med usortert avfall. Symbolet indikerer at dette produktet skal håndteres atskilt fra ordinær avfallsinnsamling for husholdningsavfall. Det er ditt ansvar å kvitte deg med dette produktet og annet elektrisk og elektronisk avfall via egne innsamlingsordninger slik myndighetene eller kommunene bestemmer. Korrekt avfallshåndtering og gjenvinning vil være med på å forhindre mulige negative konsekvenser for miljø og helse. For nærmere informasjon om håndtering av det kasserte utstyret ditt, kan du ta kontakt med kommunen, en innsamlingsstasjon for avfall eller butikken der du kjøpte produktet.

Polski/Polish

Informacja dla klientów w Unii Europejskiej o przepisach dotyczących ochrony środowiska

Dyrektywa Europejska 2002/96/EC wymaga, aby sprzęt oznaczony symbolem znajdującym się na produkcie i/lub jego opakowaniu nie był wyrzucany razem z innymi niesortowanymi odpadami komunalnymi. Symbol ten wskazuje, że produkt nie powinien być usuwany razem ze zwykłymi odpadami z gospodarstw domowych. Na Państwu spoczywa obowiązek wyrzucania tego i innych urządzeń elektrycznych oraz elektronicznych w punktach odbioru wyznaczonych przez władze krajowe lub lokalne. Pozbywanie się sprzętu we właściwy sposób i jego recykling pomogą zapobiec potencjalnie negatywnym konsekwencjom dla środowiska i zdrowia ludzkiego. W celu uzyskania szczegółowych informacji o usuwaniu starego sprzętu, prosimy zwrócić się do lokalnych władz, służb oczyszczania miasta lub sklepu, w którym produkt został nabyty.

Português/Portuguese

Informação ambiental para clientes da União Europeia

A Directiva Europeia 2002/96/CE exige que o equipamento que exibe este símbolo no produto e/ou na sua embalagem não seja eliminado junto com os resíduos municipais não separados. O símbolo indica que este produto deve ser eliminado separadamente dos resíduos domésticos regulares. É da sua responsabilidade eliminar este e qualquer outro equipamento eléctrico e electrónico através dos instalações de recolha designadas pelas autoridades governamentais ou locais. A eliminação e reciclagem correctas ajudarão a prevenir as consequências negativas para o ambiente e para a saúde humana. Para obter informações mais detalhadas sobre a forma de eliminar o seu equipamento antigo, contacte as autoridades locais, os serviços de eliminação de resíduos ou o estabelecimento comercial onde adquiriu o produto.

Slovenčina/Slovak

Informácie o ochrane životného prostredia pre zákazníkov v Európskej únii

Podľa európskej smernice 2002/96/ES zariadenie s týmto symbolom na produkte a/alebo jeho balení nesmie byť likvidované spolu s netriedeným komunálnym odpadom. Symbol znamená, že produkt by sa mal likvidovať oddelene od bežného odpadu z domácností. Je vašou povinnosťou likvidovať toto i ostatné elektrické a elektronické zariadenia prostredníctvom špecializovaných zberných zariadení určených vládou alebo miestnymi orgánmi. Správna likvidácia a recyklácia pomôže zabrániť prípadným negatívnym dopadom na životné prostredie a zdravie ľudí. Ak máte záujem o podrobnejšie informácie o likvidácii starého zariadenia, obráťte sa, prosím, na miestne orgány, organizácie zaoberajúce sa likvidáciou odpadov alebo obchod, v ktorom ste si produkt zakúpili.

Slovenčina/Slovene

Okoljske informacije za stranke v Evropski uniji

Evropska direktiva 2002/96/EC prepoveduje odlaganje opreme, označene s tem simbolom – na izdelku in/ali na embalaži – med običajne, nerazvrščene odpadke. Ta simbol opozarja, da je treba izdelek odvreči ločeno od preostalih gospodinjstvih odpadkov. Vaša odgovornost je, da to in preostalo električno in elektronsko opremo odnesete na posebna zbirališča, ki jih določijo državne ustanove ali lokalna uprava. S pravičnim odlaganjem in recikliranjem boste preprečili morebitne škodljive vplive na okolje in zdravje ljudi. Če želite izvedeti več o odlaganju stare opreme, se obrnite na lokalno upravo, odpad ali trgovino, kjer ste izdelek kupili.

Suomi/Finnish

Ympäristöä koskevia tietoja EU-alueen asiakkaille

EU-direktiivi 2002/96/EY edellyttää, että jos laitteistossa on tämä symboli itse tuotteessa ja/tai sen pakkauksessa, laitteistoa ei saa hävittää lajittelemattoman yhdyskuntajätteen mukana. Symboli merkitsee sitä, että tämä tuote on hävitettävä erillään tavallisesta kotitalousjätteestä. Sinun vastuullasi on hävittää tämä elektroniikkatuote ja muut vastaavat elektroniikkatuotteet viemällä tuote tai tuotteet viranomaisten määräämään keräyspisteeseen. Laitteiston oikea hävittäminen estää mahdolliset kielteiset vaikutukset ympäristöön ja ihmisten terveyteen. Lisätietoja vanhan laitteiston oikeasta hävitystavasta saa paikallisilta viranomaisilta, jätteenhävityspalvelusta tai siitä myymälästä, josta ostit tuotteen.

Svenska/Swedish

Miljöinformation för kunder i Europeiska unionen

Det europeiska direktivet 2002/96/EC kräver att utrustning med denna symbol på produkten och/eller förpackningen inte får kastas med osorterat kommunalt avfall. Symbolen visar att denna produkt bör kastas efter att den avskiljts från vanligt hushållsavfall. Det faller på ditt ansvar att kasta denna och annan elektrisk och elektronisk utrustning på fastställda insamlingsplatser utsedda av regeringen eller lokala myndigheter. Korrekt kassering och återvinning skyddar mot eventuella negativa konsekvenser för miljön och personhälsa. För mer detaljerad information om kassering av din gamla utrustning kontaktar du dina lokala myndigheter, avfallshanteringen eller butiken där du köpte produkten.

For more information, visit www.linksys.com.

Appendix J: Contact Information

Need to contact Linksys?

Visit us online for information on the latest products and updates to your existing products at:

<http://www.linksys.com> or
[ftp.linksys.com](ftp://ftp.linksys.com)

Can't find information about a product you want to buy on the web? Do you want to know more about networking with Linksys products? Give our advice line a call at:
Or fax your request in to:

800-546-5797 (LINKSYS)
949-823-3002

If you experience problems with any Linksys product, you can call us at:
Don't wish to call? You can e-mail us at:

800-326-7114
support@linksys.com

If any Linksys product proves defective during its warranty period, you can call the Linksys Return Merchandise Authorization department for obtaining a Return Authorization Number at:
(Details on Warranty and RMA issues can be found in the Warranty Information section in this Guide.)

949-823-3000