

Instant Wireless™ Series

Wireless Presentation Gateway



Use this guide to install:

WPG11

User Guide

 **LINKSYS**™

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Linksys P.O. Box 18558, Irvine, CA 92623.

FCC STATEMENT

This Instant Wireless™ Wireless Presentation Gateway 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

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.

UG-WPG11-051002A KL

Table of Contents

Chapter 1: Introduction	1
The Linksys Wireless Presentation Gateway	1
Features	1
Package Contents	2
Chapter 2: Getting to Know the Wireless Presentation Gateway	3
The Wireless Presentation Gateway's Ports	3
The Wireless Presentation Gateway's LEDs	4
Chapter 3: Connecting the Wireless Presentation Gateway	5
Chapter 4: Installing the Wireless Presentation Gateway's Player	6
Overview and Autorun	6
Installing the Player	7
Using the Player	8
Chapter 5: Troubleshooting	11
Appendix A: Planning Your Wireless Network	15
Appendix B: Upgrading the Wireless Presentation Gateway's Firmware	17
Appendix C: Using the Wireless Presentation Gateway in High-Speed Mode	18
Appendix D: Glossary	20
Appendix E: Specifications	25
Environmental	25
Appendix F: Warranty Information	26
Appendix G: Contact Information	27

Chapter 1: Introduction

The Linksys Wireless Presentation Gateway

Whether you're giving presentations in the conference room or the board room, the Instant Wireless™ Wireless Presentation Gateway brings you the convenience and reliability of wireless networking! Not only are wires no longer a problem but neither is location. Connect to the Instant Wireless™ Wireless Presentation Gateway from your wireless laptop via Infrastructure mode or from any 802.11b wireless PC that's in line of sight via Infrastructure mode, making multimedia easier than it's ever been before!

The Instant Wireless™ Wireless Presentation Gateway can be placed within your conference room or anywhere near the projector. A high-powered, built-in antenna means that you're ready to present from anywhere within line of sight, eliminating the need for cumbersome cables. So, you've got the flexibility and performance you need to make great presentations combined with the ease of wireless networking as only Linksys can provide.

Features

- Interoperable with IEEE 802.11b (DSSS) 2.4GHz-Compliant Equipment
- No Additional Drivers Are Needed
- Up to 11 Mbps High-Speed Transfer Rate
- Line of Sight Wireless Connectivity
- Low Interference and High Susceptibility Guarantee Reliable Performance
- Equipped with One Standard VGA Port for Compatibility with Virtually Any Presentation Projector
- Easy and Quick Setup
- Free Technical Support—24 Hours a Day, 7 Days a Week for North America Only
- 1-Year Limited Warranty

Package Contents



Figure 1-1

- One Instant Wireless™ Wireless Presentation Gateway
- Two Removable Antennas
- One Power Adapter
- One Setup CD-ROM with User Guide
- Registration Card and Quick Installation (not shown)



Note: As with any video system, image quality is only as good as the weakest link in the video signal chain. In most cases, that weakest link is the infrastructure cable. This especially holds true for wireless transmission systems. To achieve the best possible image quality with a wireless system, dedicate as much bandwidth as possible to the video presentation.

Chapter 2: Getting to Know the Wireless Presentation Gateway

The Wireless Presentation Gateway's Ports



Figure 2-1

- Reset** To reset the Wireless Presentation Gateway to its factory default settings, hold the Reset button in for about ten seconds.
- TO Monitor/Projector** At this console port, you will connect the serial cable that connects to the monitor or projector where your presentation will be displayed.
- Power** The Power adapter jack is where you will connect your power.

The Wireless Presentation Gateway's LEDs



Figure 2-2

Power	<i>Red.</i> The Power LED will light up when the Wireless Presentation Gateway is powered on.
WLAN Act	<i>Green.</i> The WLAN Act LED blinks when the Wireless Presentation Gateway is active.
WLAN Link	<i>Yellow.</i> The WLAN Link LED indicates the status of the link. The WLAN Link LED will be lit steadily when the Wireless Presentation Gateway is connected to the wireless network.



Note: As with any video system, image quality is only as good as the weakest link in the video signal chain. In most cases, that weakest link is the infrastructure cable. This especially holds true for wireless transmission systems. To achieve the best possible image quality with a wireless system, dedicate as much bandwidth as possible to the video presentation.

Chapter 3: Connecting the Wireless Presentation Gateway

1. Connect the serial cable, connected to your monitor or projector, to the Wireless Presentation Gateway's "TO Monitor/Projector" console port.
2. Plug the supplied power adapter into the jack on the Wireless Presentation Gateway's back panel. Then, plug the other end into a power outlet.
3. Proceed to Chapter 4: The Wireless Presentation Gateway's Player.

The installation is complete.

Chapter 4: The Wireless Presentation Gateway's Player

Overview and Autorun

With the Wireless Presentation Gateway's Player, you can connect to the Wireless Presentation Gateway from any PC in your wireless network. To install the Player, insert the Setup CD-ROM into your CD-ROM drive. The CD's autorun program should start automatically, bringing up the screen shown in Figure 4-1. If the autorun does not start automatically, click the **Start** button, select **Run**, and type **d:\setup.exe** in the Open field to start the autorun program. You will then see the screen in Figure 4-1.



Figure 4-1

The autorun screen presents you with several options for using the Wireless Presentation Gateway. Clicking the **Install** tab will start the installation procedure, placing the Player on your current PC. Clicking **Uninstall** will begin a simple procedure for removing the Player. Click the **User Guide** tab to view this User Guide. If you need to contact Linksys for technical support, click the **Contact Us** tab for that information. Clicking the **Exit** tab will close the autorun.

Installing the Player

Click the **Install** tab on the autorun screen (as shown in Figure 4-1) and you will begin the installation procedure, bringing up a screen like that shown in Figure 4-2. Click the **Next** button to continue the installation procedure.

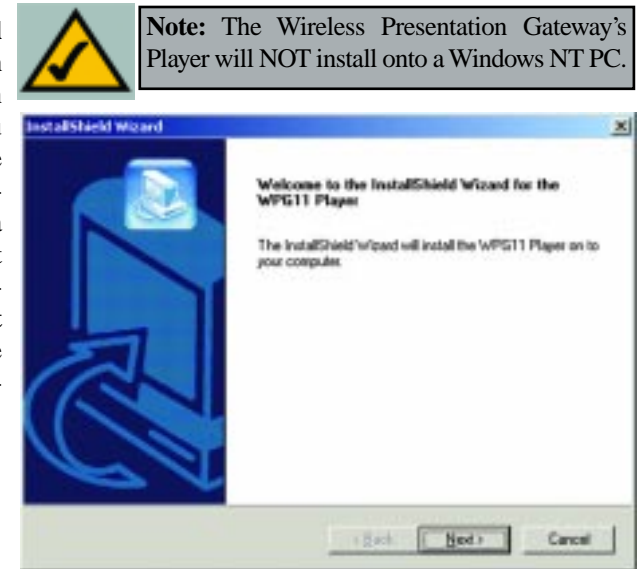


Figure 4-2

The next screen, like that shown in Figure 4-3, will allow you to choose where the Player will be installed. By default, the destination folder is C:\Program Files\WPG11 Player. You can change this, if you wish, by clicking the **Browse** button and selecting another destination where it will be installed. Once the destination has been selected, click the **Next** button to continue.

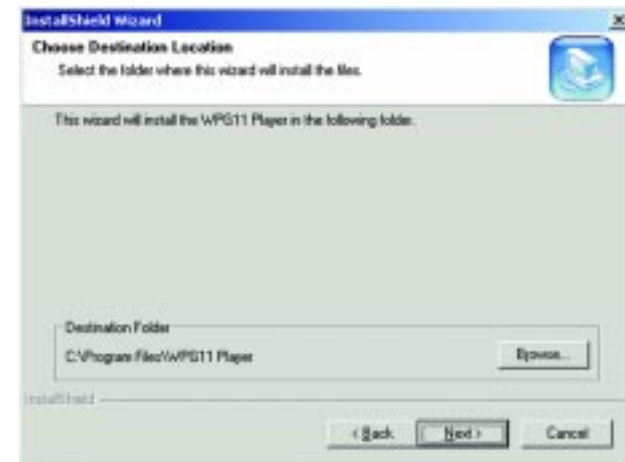


Figure 4-3

The Player will now install. When you see the final installation screen, like that shown in Figure 4-4, click the **Finish** button.

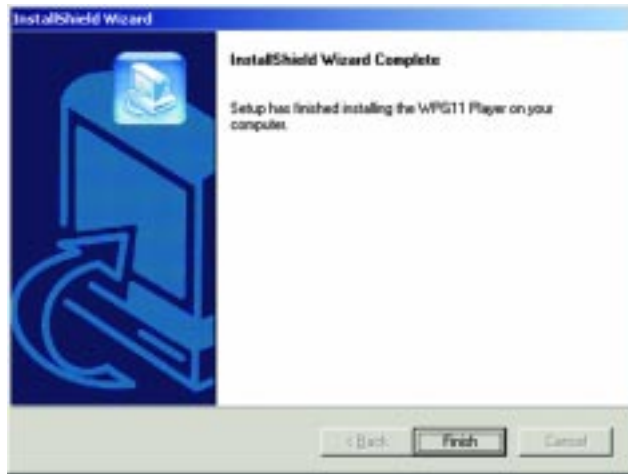


Figure 4-4

Using the Player

To use the Player, simply double-click the Linksys desktop icon (like that shown in Figure 4-5) or select the program from the Program Folder. This will bring up the Wireless Presentation Gateway Player screen, as shown in Figure 4-6.



Figure 4-5

On the Player's Welcome screen, you will be given the option of using the Wireless Presentation Gateway in High-Speed Mode. This mode will allow faster transfer of data to your projector or monitor, but will isolate your wireless PC and not allow access to your network or the Internet while the PC is utilizing the Wireless Presentation Gateway. For more information on High-Speed Mode, see Appendix C: Using the Wireless Presentation Gateway in High-Speed Mode.

Click the radio button beside High-Speed Mode if you choose to use this mode. Then, click the **Next** button to continue.



Figure 4-6

The following screen, shown in Figure 4-7, will allow you to select which Wireless Presentation Gateway you will be using. If no Wireless Presentation Gateway is found, a screen will appear with instructions on how to manually detect the Wireless Presentation Gateway. Once you've selected the Wireless Presentation Gateway from the drop-down menu, click the **Next** button to continue.



Figure 4-7

The next screen, shown in Figure 4-8, allows you to select your Presentation Options. Basic Color allows faster speed with less color, while True Color gives you more color at a slower speed. Choose the option that works best with your presentation.



Figure 4-8

Click the **Take Control of the Presentation Gateway** button to start your presentation. To pause your presentation or allow access to another user, click the **Give Control to Another User** button. When you have completed using the Wireless Presentation Gateway, click the **Exit** button.



Note: An easy way to pause and resume your presentation when using the Wireless Presentation Gateway is to use the hotkey combination of ALT + F12. With the ALT + F12 hotkey combination, you can pause and resume your presentation easily from your keyboard.

Chapter 5: Troubleshooting

This section provides possible solutions to problems regarding the installation and operation of the Wireless Presentation Gateway. If you can't find an answer here, check the Linksys website at www.linksys.com.

Can I run an application from a remote computer over the wireless network?

This will depend on whether or not the application is designed to be used over a network. Consult the application's user guide to determine if it supports operation over a network.

Can I use the Presentation Gateway with non-Linksys wireless equipment?

Yes, as long as you use it with wireless equipment that complies with the IEEE 802.11b standard.

What is the IEEE 802.11b standard?

It is the IEEE standard for wireless networks. This standard allows wireless LAN hardware from different manufacturers to communicate.

What IEEE 802.11b features are supported?

The product supports the following IEEE 802.11 functions:

- CSMA/CA plus Acknowledge protocol
- Multi-Channel Roaming
- Automatic Rate Selection
- RTS/CTS feature
- Fragmentation
- Power Management

The Presentation Gateway's Player cannot detect the Presentation Gateway.

Verify that the Presentation Gateway's power is on and all of your wireless equipment complies with the 802.11B standard.

Why can't I access the Internet/Intranet while using the Presentation Gateway?

Make sure you are not using the Presentation Gateway in High-Speed Mode. This would prevent access to the Internet or Intranet.

What is Ad-hoc?

An Ad-hoc wireless LAN is a group of computers, each with a WLAN adapter, connected as an independent wireless LAN. An Ad-hoc wireless LAN is applicable at a departmental scale for a branch or SOHO operation.

What is Infrastructure?

An integrated wireless and wired LAN is called an Infrastructure configuration. Infrastructure is applicable to enterprise scale for wireless access to a central database, or wireless application for mobile workers.

What is Roaming?

Roaming is the ability of a portable computer user to communicate continuously while moving freely throughout an area greater than that covered by a single Wireless Network Access Point. Before using the roaming function, the workstation must make sure that it is the same channel number as the Wireless Network Access Point of the dedicated coverage area.

To achieve true seamless connectivity, the wireless LAN must incorporate a number of different functions. Each node and Wireless Network Access Point, for example, must always acknowledge receipt of each message. Each node must maintain contact with the wireless network even when not actually transmitting data. Achieving these functions simultaneously requires a dynamic RF networking technology that links Wireless Network Access Points and nodes. In such a system, the user's end node undertakes a search for the best possible access to the system. First, it evaluates such factors as signal strength and quality, as well as the message load currently being carried by each Wireless Network Access Point and the distance of each Wireless Network Access Point to the wired backbone. Based on that information, the node next selects the right Wireless Network Access Point and registers its address. Communications between end node and host computer can then be transmitted up and down the backbone.

As the user moves on, the end node's RF transmitter regularly checks the system to determine whether it is in touch with the original Wireless Network Access Point or whether it should seek a new one. When a node no longer receives acknowledgment from its original Wireless Network Access Point, it undertakes a new search. Upon finding a new Wireless Network Access Point, it then re-registers, and the communication process continues.

What is a BSS ID?

A specific Ad-hoc LAN is called a Basic Service Set (BSS). Computers in a BSS must be configured with the same BSS ID.

What is an ESS ID?

An Infrastructure configuration could also support roaming capability for mobile workers. More than one BSS can be configured as an Extended Service Set (ESS). Users within an ESS could roam freely between BSSs while maintaining a continuous connection to the wireless network stations and Wireless Network Access Points.

What is ISM band?

The FCC and their counterparts outside of the U.S. have set aside bandwidth for unlicensed use in the ISM (Industrial, Scientific and Medical) band. Spectrum in the vicinity of 2.4 GHz, in particular, is being made available worldwide. This presents a truly revolutionary opportunity to place convenient high speed wireless capabilities in the hands of users around the globe.

What is Spread Spectrum?

Spread Spectrum technology is a wideband radio frequency technique developed by the military for use in reliable, secure, mission-critical communications systems. It is designed to trade off bandwidth efficiency for reliability, integrity, and security. In other words, more bandwidth is consumed than in the case of narrowband transmission, but the trade-off produces a signal that is, in effect, louder and thus easier to detect, provided that the receiver knows the parameters of the spread-spectrum signal being broadcast. If a receiver is not tuned to the right frequency, a spread-spectrum signal looks like background noise. There are two main alternatives, Direct Sequence Spread Spectrum (DSSS) and Frequency Hopping Spread Spectrum (FHSS).

What is DSSS? What is FHSS? And what are their differences?

Frequency Hopping Spread Spectrum (FHSS) uses a narrowband carrier that changes frequency in a pattern that is known to both transmitter and receiver. Properly synchronized, the net effect is to maintain a single logical channel. To an unintended receiver, FHSS appears to be short-duration impulse noise. Direct Sequence Spread Spectrum (DSSS) generates a redundant bit pattern for each bit to be transmitted. This bit pattern is called a chip (or chipping code). The longer the chip, the greater the probability that the original data can be recovered. Even if one or more bits in the chip are damaged during transmission, statistical techniques embedded in the radio can recover the original data without the need for retransmission. To an unintended receiver, DSSS appears as low power wideband noise and is rejected (ignored) by most narrowband receivers.

Would the information be intercepted while transmitting on air?

WLAN features two-fold protection in security. On the hardware side, as with Direct Sequence Spread Spectrum technology, it has the inherent security feature of scrambling. On the software side, the WLAN series offers the encryption function (WEP) to enhance security and access control. Users can set it up depending upon their needs.

Can Instant Wireless products support file and printer sharing?

Instant Wireless products perform the same function as LAN products. Therefore, Instant Wireless products can work with NetWare, Windows NT/2000, or other LAN operating systems to support printer or file sharing.

I am using 802.11b-compliant wireless equipment but still cannot connect to my wireless network.

Verify that you are using the same IP domain as that of your wireless network.



Note: As with any Video system, image quality is only as good as the weakest link in the video signal chain. In most cases, that weakest link is the infrastructure cable. This especially holds true for wireless transmission systems. To achieve the best possible image quality with a wireless system, dedicate as much bandwidth as possible to the video presentation.

Appendix A: Planning Your Wireless Network

Network Topology

A wireless LAN is exactly like a regular LAN, except that each network device in the LAN uses wireless technology to connect to the network. Computers in a wireless LAN must be configured to share the same radio channel.

Wireless components provides LAN access for wireless network devices. An integrated wireless and wired LAN is called an Infrastructure configuration. A group of wireless users and an access point compose a Basic Service Set (BSS). Each PC equipped with a wireless adapter in a BSS can talk to any computer in a wired LAN infrastructure.

An infrastructure configuration extends the accessibility of a wireless user to a wired LAN, and doubles the effective wireless transmission range for wireless PCs. Since the access point is able to forward data within its BSS, the effective transmission range in an infrastructure LAN is doubled.

The use of a unique ID in a Basic Service Set is essential.

The Wireless LAN Infrastructure configuration is appropriate for enterprise-scale wireless access to a central database, or as a wireless application for mobile users.

Roaming

Infrastructure mode also supports roaming capabilities for mobile users. More than one BSS can be configured as an Extended Service Set (ESS). This continuous network allows users to roam freely within an ESS. All wireless PCs within one Extended Service Set must be configured with the same SSID.

Selecting a feasible radio channel and optimum access point position is recommended. Proper access point positioning combined with a clear radio signal will greatly enhance performance.

Ad-hoc versus Infrastructure Mode

Unlike wired networks, wireless networks have two different modes in which they may be set up: **Infrastructure** and **Ad-hoc**. Choosing between these two modes depends on whether or not the wireless network needs to share data or peripherals with a wired network or not.

If the computers on the wireless network need to be accessible by a wired network or need to share a peripheral, such as a printer, with the wired network computers, the wireless network should be set up in the Infrastructure mode, as shown in Figure A-1. The basis of Infrastructure mode centers around an access point, which serves as the main point of communications in a wireless network. Access points transmit data to PCs equipped with wireless network card, which can roam within a certain radial range of the access point. Multiple access points can be arranged in succession to extend the roaming range, and can be set up to communicate with your Ethernet hardware as well.



Figure A-1

If the wireless network is relatively small and needs to share resources only with the other computers on the wireless network, then the Ad-hoc mode can be used, as shown in Figure A-2. Ad-hoc mode allows computers equipped with wireless transmitters and receivers to communicate directly with each other, eliminating the need for an access point. The drawback of the Ad-hoc mode is that wireless-equipped computers are not able to communicate with computers on a wired network. In addition, communication between the wire-



Figure A-2

less-equipped computers is limited by the distance and interference directly between them.

Appendix B: Upgrading the Wireless Presentation Gateway's Firmware

The Wireless Presentation Gateway functions with the use of firmware, programming written in the unit's internal memory. It is this firmware that enables the Wireless Presentation Gateway to function with the Player and makes it easy to use.

Occasionally, this firmware will be upgraded, which could increase the Wireless Presentation Gateway's stability or make it easier to use. New versions of the firmware can be found on the Linksys web site at www.linksys.com.

To upgrade this firmware, download it from the website and then double-click the file wherever it has been saved. You will be walked through instructions on how to upgrade the firmware.

Appendix C: Using the Wireless Presentation Gateway in High-Speed Mode

The Wireless Presentation Gateway allows for High-Speed presentation transfer rates with its High-Speed Mode. In High-Speed Mode, your presentation will be transferred to the projector at a faster rate but you will be unable to connect to the Internet or an Intranet. When not using the High-Speed Mode, Internet and Intranet connection is possible.

For an idea of how this works, please see Figure C-1 for how your wireless PC would function when using the Wireless Presentation Gateway in High-Speed Mode.



Figure C-1

Notice that there is no Internet or Intranet connection allowed in High-Speed Mode. When High-Speed mode is not employed, however, Internet and Intranet access is functional, as shown in Figure C-2.



Figure C-2

Appendix D: Glossary

Adapter - Printed circuit board that plugs into a PC to add to capabilities or connectivity to a PC. In a networked environment, a network interface card (NIC) is the typical adapter that allows the PC to connect to the intranet and/or Internet.

Ad-hoc Network - An ad-hoc network is a group of computers, each with a wireless adapter, connected as an independent 802.11 wireless LAN. Ad-hoc wireless computers operate on a peer-to-peer basis, communicating directly with each other without the use of an access point. Ad-hoc mode is also referred to as an Independent Basic Service Set (IBSS) or as peer-to-peer mode, and is useful at a departmental scale or SOHO operation.

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 facility, in terms of how much data the facility can transmit in a fixed amount of time; expressed in bits per second (bps).

Bit - A binary digit. The value - 0 or 1-used in the binary numbering system. Also, the smallest form of data.

BSS (Basic Service Set) - An infrastructure network connecting wireless devices to a wired network using a single access point.

CSMA/CA (Carrier Sense Multiple Access/Collision Avoidance) - In local area networking, this is the CSMA technique that combines slotted time-division multiplexing with carrier sense multiple access/collision detection (CSMA/CD) to avoid having collisions occur a second time.

CTS (Clear To Send) - An RS-232 signal sent from the receiving station to the transmitting station that indicates it is ready to accept data.

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

Download - To receive a file transmitted over a network. In a communications session, download means receive, upload means transmit.

Driver - A workstation software module that provides an interface between a network interface card and the upper-layer protocol software running in the computer; it is designed for a specific NIC, and is installed during the initial installation of a network-compatible client operating system.

DSSS (Direct-Sequence Spread Spectrum) - DSSS generates a redundant bit pattern for all data transmitted. This bit pattern is called a chip (or chipping code). Even if one or more bits in the chip are damaged during transmission, statistical techniques embedded in the receiver can recover the original data without the need for retransmission. To an unintended receiver, DSSS appears as low power wideband noise and is rejected (ignored) by most narrowband receivers. However, to an intended receiver (i.e. another wireless LAN endpoint), the DSSS signal is recognized as the only valid signal, and interference is inherently rejected (ignored).

Encryption - A security method that applies a specific algorithm to data in order to alter the data's appearance and prevent other devices from reading the information.

ESS (Extended Service Set) - A set of more than two or more BSSs (multiple access points) forming a single network.

Ethernet - IEEE standard network protocol that specifies how data is placed on and retrieved from a common transmission medium. Has a transfer rate of 10 Mbps. Forms the underlying transport vehicle used by several upper-level protocols, including TCP/IP and XNS.

FHSS (Frequency Hopping Spread Spectrum) - FHSS continuously changes (hops) the carrier frequency of a conventional carrier several times per second according to a pseudo-random set of channels. Because a fixed frequency is not used, and only the transmitter and receiver know the hop patterns, interception of FHSS is extremely difficult.

Firmware - Code that is written onto read-only memory (ROM) or programmable read-only memory (PROM). Once firmware has been written onto the ROM or PROM, it is retained even when the device is turned off.

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

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

Hardware - Hardware is the physical aspect of computers, telecommunications, and other information technology devices. The term arose as a way to distinguish the "box" and the electronic circuitry and components of a computer from the program you put in it to make it do things. The program came to be known as the software.

Hop - The link between two network nodes.

IEEE (The Institute of Electrical and Electronics Engineers) - The IEEE describes itself as "the world's largest technical professional society, promoting the development and application of electrotechnology and allied sciences for the benefit of humanity, the advancement of the profession, and the well-being of our members."

The IEEE fosters the development of standards that often become national and international standards. The organization publishes a number of journals, has many local chapters, and several large societies in special areas, such as the IEEE Computer Society.

Infrastructure Network - An infrastructure network is a group of computers or other devices, each with a wireless adapter, connected as an 802.11 wireless LAN. In infrastructure mode, the wireless devices communicate with each other and to a wired network by first going through an access point. An infrastructure wireless network connected to a wired network is referred to as a Basic Service Set (BSS). A set of two or more BSS in a single network is referred to as an Extended Service Set (ESS). Infrastructure mode is useful at a corporation scale, or when it is necessary to connect the wired and wireless networks.

ISM band - The FCC and their counterparts outside of the U.S. have set aside bandwidth for unlicensed use in the ISM (Industrial, Scientific and Medical) band. Spectrum in the vicinity of 2.4 GHz, in particular, is being made available worldwide. This presents a truly revolutionary opportunity to place convenient high-speed wireless capabilities in the hands of users around the globe.

LAN - A local area network (LAN) is a group of computers and associated devices that share a common communications line and typically share the resources of a single processor within a small geographic area (for example, within an office building).

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

Network - A system that transmits any combination of voice, video and/or data between users.

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

Port - A pathway into and out of the computer or a network device. For example, the serial and parallel ports on a personal computer are external sockets for plugging in communications lines, modems and printers.

Roaming - In an infrastructure mode wireless network, this refers to the ability to move out of one access point's range and into another and transparently reassociate and reauthenticate to the new access point. This reassociation and reauthentication should occur without user intervention and ideally without interruption to network connectivity. A typical scenario would be a location with multiple access points, where users can physically relocate from one area to another and easily maintain connectivity.

RTS (Request To Send) - An RS-232 signal sent from the transmitting station to the receiving station requesting permission to transmit.

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

Spread Spectrum - Spread Spectrum technology is a wideband radio frequency technique developed by the military for use in reliable, secure, mission-critical communications systems. It is designed to trade off bandwidth efficiency for reliability, integrity, and security. In other words, more bandwidth is consumed than in the case of narrowband transmission, but the trade off produces a signal that is, in effect, louder and thus easier to detect, provided that the receiver knows the parameters of the spread-spectrum signal being broadcast. If a receiver is not tuned to the right frequency, a spread-spectrum signal looks like background noise. There are two main alternatives, Direct Sequence Spread Spectrum (DSSS) and Frequency Hopping Spread Spectrum (FHSS).

SSID (Service Set Identifier) - A unique name shared among all points in a wireless network. The SSID must be identical for each point in the wireless network and is case-sensitive. Also known as "ESS ID."

TCP/IP (Transmission Control Protocol/Internet Protocol) - The basic communication language or set of protocols for communications over a network (developed specifically for the Internet). TCP/IP defines a suite or group of protocols and not only TCP and IP.

Topology - A network's topology is a logical characterization of how the devices on the network are connected and the distances between them. The most common network devices include hubs, switches, routers, and gateways. Most large networks contain several levels of interconnection, the most important of which include edge connections, backbone connections, and wide-area connections.

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

Upload - To transmit a file over a network. In a communications session, upload means transmit, download means receive.

Workgroup - Two or more individuals that share files and databases.

Appendix E: Specifications

Standard	IEEE 802.11b
Channels	11 Channels (US, Canada) 13 Channels (Europe) 14 Channels (Japan)
Operating Range	Up to 100m (328 ft.)
LEDs	Power, WLAN Act, WLAN Link

Environmental

Dimensions	7.3" x 6.5" x 1.9" (186 mm x 165 mm x 48 mm)
Unit Weight	16 oz. (0.46 kg)
Power	External, 5V AC 2.5A
Certifications	FCC Class B, CE Mark
Operating Temp.	32°F to 131°F (0°C to 55°C)
Storage Temp.	14°F to 149°F (-10°C to 65°C)
Operating Humidity	10% to 90% Non-Condensing
Storage Humidity	10% to 90% Non-Condensing

Appendix F: Warranty Information

BE SURE TO HAVE YOUR PROOF OF PURCHASE AND A BARCODE FROM THE PRODUCT'S PACKAGING ON HAND WHEN CALLING. RETURN REQUESTS CANNOT BE PROCESSED WITHOUT PROOF OF PURCHASE.

IN NO EVENT SHALL LINKSYS' LIABILITY EXCEED THE PRICE PAID FOR THE PRODUCT FROM DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THE PRODUCT, ITS ACCOMPANYING SOFTWARE, OR ITS DOCUMENTATION. LINKSYS DOES NOT OFFER REFUNDS FOR ANY PRODUCT.

LINKSYS OFFERS CROSS SHIPMENTS, A FASTER PROCESS FOR PROCESSING AND RECEIVING YOUR REPLACEMENT. LINKSYS PAYS FOR UPS GROUND ONLY. ALL CUSTOMERS LOCATED OUTSIDE OF THE UNITED STATES OF AMERICA AND CANADA SHALL BE HELD RESPONSIBLE FOR SHIPPING AND HANDLING CHARGES. PLEASE CALL LINKSYS FOR MORE DETAILS.

Appendix G: Contact Information

For help with the installation or operation of this product, contact Linksys Customer Support at one of the phone numbers or Internet addresses below.

Sales Information	800-546-5797 (LINKSYS)
Tech Support	800-326-7114
RMA Issues	949-261-1288
Fax	949-261-8868
Email	support@linksys.com
Web	http://www.linksys.com
FTP Site	ftp.linksys.com



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