BELKIN®

High-Speed Mode Wireless G Notebook Network Card

Connect your laptop computer to a **FASTER** wireless network

125 HIGH SPEED MODE

((G)) 802.11g **125** High-Speed Mode 2.4GHz • Wireless

35% FASTER

User Manual

F5D7011

Table of Contents

Introduction

Thank you for purchasing the Belkin High-Speed Mode Wireless G Notebook Network Card (the Card). Now you can take advantage of this great new technology without using cables. The High-Speed Mode Wireless G Notebook Network Card works like a conventional network card, but without the wires. The easy installation and setup will have you networking wirelessly in minutes. Please be sure to read through this User Manual completely, and pay special attention to the section entitled "Placement of your Wireless Networking Hardware for Optimal Performance".

Advantages of a wireless network

- **Mobility** – you no longer need a dedicated "computer room"— you can work on a networked laptop or desktop computer anywhere within your wireless range

- **Easy installation** – Belkin Easy Installation Wizards make setup simple

- **Flexibility** – set up and access printers, computers, and other networking devices from anywhere in your home

- **Easy Expansion** – the wide range of Belkin networking products let you expand your network to include devices such as printers and gaming consoles

- **No cabling required** – you can spare the expense and hassle of retrofitting Ethernet cabling throughout the home or office

- **Widespread industry acceptance** – choose from a wide range of interoperable networking products

Introduction

Placement of your Wireless Networking Hardware for Optimal Performance

Your wireless connection will be stronger the closer your computer is to your Wireless Router (or Access Point). Typical indoor operating range for your wireless devices is between 100 and 200 feet. In the same way, your wireless connection and performance will degrade somewhat as the distance between your Wireless Router (or Access Point) connected devices increases. This may or may not be noticeable to you. As you move further from your Wireless Router (or Access Point), connection speed may decrease. Factors that can weaken signals simply by getting in the way of your network's radio waves are metal appliances or obstructions, and walls.

If you have concerns about your network's performance that might be related to range or obstruction factors, try moving the computer to a position between five and ten feet from the Wireless Router (or Access Point), in order to see if distance is the problem. If difficulties persist even at close range, please contact Belkin Technical Support.

Note: While some of the items listed below can affect network performance, they will not prohibit your wireless network from functioning; if you are concerned that your network is not operating at its maximum effectiveness, this checklist may help.

1. Placement of your Wireless Router or Access Point

Place your Wireless Router (or Access Point), the central connection point of your network, as close as possible to the center of your wireless network devices.

To achieve the best wireless network coverage for your "wireless clients," (i.e. computers enabled by Belkin Wireless Notebook Network Cards, Wireless Desktop Network Cards, and Wireless USB Adapters):

•   Ensure that your Wireless Router (or Access Point) antennas are parallel to each other, and are positioned vertically (toward the ceiling). If your Wireless Router (or Access Point) itself is positioned vertically, point the antennas as much as possible in an upward direction.

•   In multistory homes, place the Wireless Router (or Access Point) on a floor that is as close to the center of the home as possible. This may mean placing the Wireless Router (or Access Point) on an upper floor.

•   Try not to place the Wireless Router (or Access Point) near a cordless 2.4GHz phone.

Introduction

2. Avoid Obstacles and Interference

Avoid placing your Wireless Router (or Access Point) near devices that may emit radio "noise", such as microwave ovens. Other objects that can inhibit Wireless communication can include:

- Refrigerators
- Washers and/or dryers
- Metal cabinets
- Large aquariums
- Metallic-based UV tinted windows

If your wireless signal seems weak in some spots, make sure that objects such as these are not blocking the signal's path between your computers and Wireless Router (or Access Point).

3. Cordless Phone Placement

If the performance of your wireless network is impaired after attending to the above issues, and you have your cordless phone:

- Try moving cordless phones away from Wireless Router or Access Point and your wireless-enabled computers
- Unplug and remove the battery from any cordless phone that operate on the 2.4GHz band (check manufacturers information). If this fixes the problem, your phone may be interfering.
- If your phone supports channel selection, change the channel on the phone to the furthest channel from your wireless network, as possible. For example, change the phone to channel 1 and move your Wireless Router (or Access Point) to channel 11. See your phone's user manual for detailed instructions.
- If necessary, consider switching to a 900MHz or 5GHz cordless phone.

4. Choose the "quietest" channel for your wireless network

In locations where homes or offices are close together, such as apartment buildings or office complexes, there may be wireless networks nearby that can conflict with yours. Use the Site Survey capabilities of your Wireless LAN Utility to locate any other wireless

networks, and move your Wireless Router (or Access Point) and computers to a channel as far away from other networks as possible.

Experiment with more than one of the available channels, in order to find the clearest connection and avoid interference from neighboring cordless phones or other wireless devices.

Use the detailed Site Survey and wireless channel information included in your User Guide for more information.

5. Secure connections, VPNs, and AOL

Secure connections are connections that typically require a user name and password, and are used where security is important. Secure connections include:

- Virtual Private Network (VPN) connections, often used to connect remotely to an office network
- The "Bring Your Own Access" program from America Online (AOL), which lets you use AOL through broadband provided by another cable or DSL service
- Most on-line banking websites
- Many commercial websites which require a username and password to access your account

Secure connections can be interrupted by a computer's power management setting, which causes it to "go to sleep." The simplest solution to avoid this is to simply reconnect by re-running the VPN or AOL software, or by re-logging into the secure web site.

A second alternative is to change your computer's power management settings so it does not go to sleep; however, this may not be appropriate for portable computers. To change your power management setting under Windows, see the "Power Options" item in the Control Panel.

If you continue to have difficulty with Secure Connection, VPNs and AOL please review steps 1-4 above to be sure you have addressed these issues.

These guidelines should allow you to cover the maximum possible area with your Wireless Router. Should you need to cover an even wider area, we suggest Belkin's Wireless Range Extender/Access Point.

For more information regarding our networking products, visit our website at www.belkin.com/networking or call Belkin Technical Support.

Overview

Product Features

The Card complies with the IEEE 802.11g standard in order to communicate with other 802.11g-compliant wireless devices at 54Mbps or the faster 125 High-Speed Mode (HSM)*. The card is compatible with all 802.11g devices as well as other 802.11b products at 11Mbps. 802.11g products operate on the same 2.4GHz frequency band as 802.11b Wi-Fi products.

- 2.4GHz ISM (Industrial, Science, and Medical) band operation
- Integrated easy-to-use Wireless Configuration Utility
- CardBus interface, for operation in virtually any notebook computer
- WPA, 64-bit WEP (Wired Equivalent Privacy), or 128-bit encryption
- Wireless access to networked resources
- Support for both Infrastructure and Ad-Hoc (peer-to-peer) networking modes
- Easy installation and use
- Internal antenna
- LED power and network link indicators

*When operating in High-Speed Mode, this Wi-Fi device may achieve an actual throughput of up to or greater than 34.1 Mbps, which is the equivalent throughput of a system following 802.11g protocol and operating at a signaling rate of 125 Mbps. Actual throughput will vary depending on environmental, operational and other factors.

Applications and Advantages

- **Wireless roaming with a laptop around the home or office**
  Offers the freedom of networking without cables

- **Connection rates of up to 54Mbps or 125Mbps*** using HSM
  provides immediate, higher-speed wireless connectivity at home,
  work, and hot spot locations without compromising the use of
  existing 802.11b products

- **Compatibility with 802.11b products**
  802.11g wireless LAN solutions are backward-compatible with
  existing Wi-Fi (IEEE 802.11b) products and with other products
  that display the 54g mark and/or 125HSM mark

- **Difficult-to-wire environments**
  Enables networking in buildings with solid or finished walls, or
  open areas where wiring is difficult to install

- **Frequently changing environments**
  Adapts easily in offices or environments that frequently rearrange
  or change locations

- **Temporary LANs for special projects or peak time**
  Sets up temporary networks, (such as at trade shows, exhibitions
  and constructions sites), on a short-term basis; also companies
  who need additional workstations for a peak activity period.

- **SOHO (Small Office/Home Office) networking needs**
  Provides the easy and quick, small network installation SOHO
  users need.

Product Specifications

Host Interface	32-bit Cardbus
Power Consumption	Tx/Rx peak 550/350mA @ 3.3 VDC(max)
Operating Temperature	32 –185 degrees F (0 –85 degrees C)
Storage Temperature	-40 –194 degrees F (-40 – 90 degrees C)
Humidity	(Max. 95% (non-condensing)
Typical Operating Range	Up to 200 feet (Wireless performance may vary depending on the networking environment)

*When operating in High-Speed Mode, this Wi-Fi device may achieve an actual throughput
of up to or greater than 34.1 Mbps, which is the equivalent throughput of a system
following 802.11g protocol and operating at a signaling rate of 125 Mbps. Actual throughput
will vary depending on environmental, operational and other factors.

Overview

(a) Power LED
Lights up when the Card receives power

(b) Link LED
Lights up when the Card links to a wireless network
Slowly flashes when not linked to a wireless network

(c) Card Connector
Part of the Card that fits into your computer's
CardBus slot

System Requirements

•   PC-compatible laptop with one available CardBus slot

•   Windows$^®$ 98SE, Me, 2000, XP

Package Contents

•   High-Speed Mode Wireless G Notebook Network Card

•   Quick Installation Guide

•   Installation Software CD

•   User Manual

Installing and Setting up the Card

WARNING: INSTALL THE SOFTWARE BEFORE INSERTING THE CARD.

1.1 Insert the Installation Software CD into your CD-ROM drive.

1. 2 The Belkin Setup Utility will automatically appear.
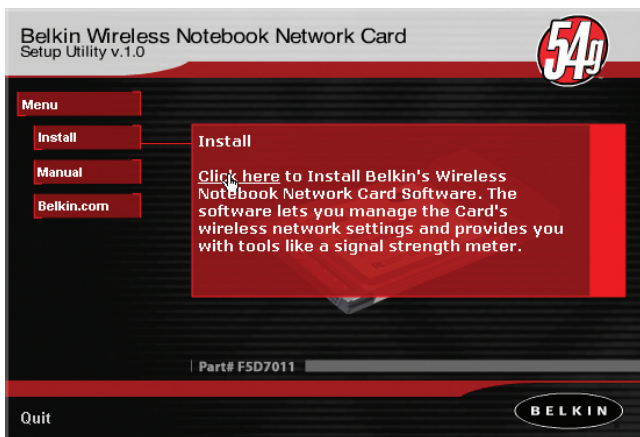
Note: If the Setup Utility screen does not appear within 20 seconds, open your CD-ROM drive by double-clicking on the "My Computer" icon and insert the CD. Double-click on the CD-ROM drive that the installation CD has been placed in to start the installation. Then, double-click on the folder named "Files". Next, double-click on the icon named "setup.exe".

1.3 In the menu window, drag your mouse over the "Install" button then select "Click here" to start the software installation program.
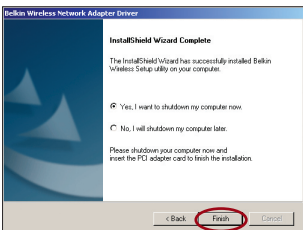
Installing and Setting up the Card
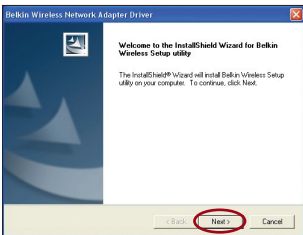
1.4 The installer will now start. Click "Next" and follow the on-screen instructions.

| Step 2 | Plug the Card in an Available CardBus Slot of your Laptop |
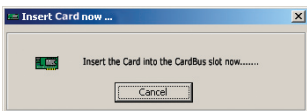
2.1 During the install process, you will be prompted to insert your Card. Insert the Card, label side UP, into your computer's CardBus slot firmly until it stops. The power light on the top will turn on when it is inserted properly.

Note: If your system did not prompt you to insert your Card after the installation is completed, please do so now.

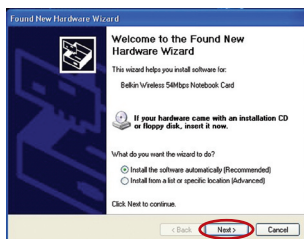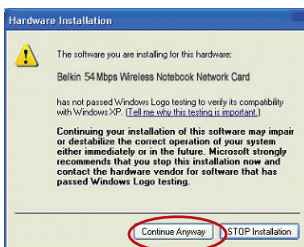**2.2** After the installation is complete, click "Finish".

Installing and Setting up the Card

| Step 3	Let Windows Finish the Installation

3.1 Depending on the version of Windows you are using, you might see the "Found New Hardware Wizard" screen. Select "Install the software automatically (Recommended)" and click "Next".


3.2 You might also see a screen similar to this one. This **DOES NOT** mean there is a problem. Select "Continue Anyway" and follow the on-screen instructions.

3.3 If you are using Windows 98SE or Me, you will be asked to restart your computer. If you are using Windows 2000 or XP, click "Finish" to finish the installation process.
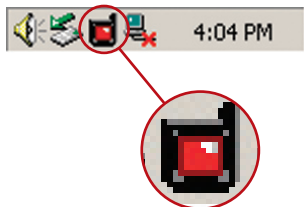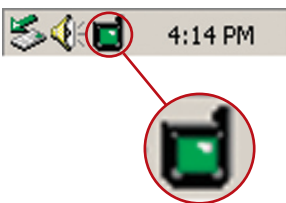

3.4 When the installation is complete, a small Signal Indicator icon in your system tray (bottom right corner of most screens) will appear. Double-click the Signal Indicator icon to bring up the Wireless Network" screen.

10
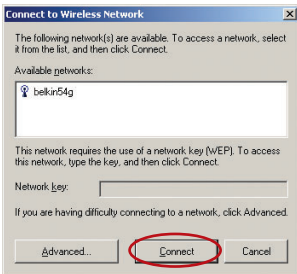
3.5 Select the network you want to connect to under "Available networks" and click "Connect".

3.6 The Signal Indicator icon in your system tray should now turn green (yellow if the signal is weak.)
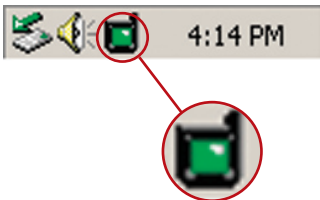
Installation is now complete!

Using the Belkin Wireless LAN Utility

How to Access the Belkin Wireless LAN Utility

Double-click the Signal Indicator icon to bring up the "Wireless Network" screen.
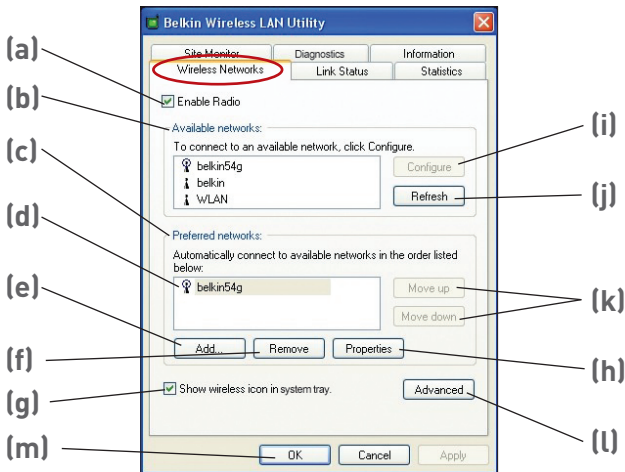

The following screen will appear:

Next, click on the "Advanced" button to enable the Belkin Wireless LAN Utility. This utility will allow you to view and configure the wireless settings of your card.

Using the Belkin Wireless LAN Utility

Setting Wireless Network Preferences

Click on the "Wireless Networks" tab.

(a)
(b)
(c)
(d)
(e)
(f)
(g)
(m)

(i)
(j)
(k)
(h)
(l)

(a) Enable Radio
Use this option to turn your wireless network radio ON or OFF. You may want to turn the radio off while in airplanes or to conserve the battery life of your mobile computer. When the radio is disabled, the power LED on your Card will turn off and the system tray wireless network icon will be depicted with an "X".

(b) Available Networks
This displays a list of wireless networks in your area. If you don't see a name in the box, click on the "Refresh" **(j)** button to rescan for any available networks. To connect to a network, select a network name in the Available Networks list box and click the "Configure" **(i)** button Click "OK" **(m)** in the "Wireless Network Properties" box to add the network name to the "Preferred Networks" **(c)** list. Wait up to one minute for the network connection to be made. Your computer is connected to the selected network when you see a blue bubble **(d)** on top of the icon for that network.

(c) Preferred Networks
Displays a list of the networks that you have previously configured. The one with the blue bubble **(d)** is the network you are currently connected to. You may rank the networks by selecting the network

name in the "Preferred Networks" list then clicking on the "Move Up" and "Move Down" **(k)** buttons. Networks appearing higher on the list will be preferred over networks listed lower on the list. If a preferred network is unavailable, the Card will attempt to connect to the next available network on the list.

(e, f) Add, Remove
You may "Add" **(e)** and "Remove" **(f)** networks from the Preferred Networks list by using these buttons.
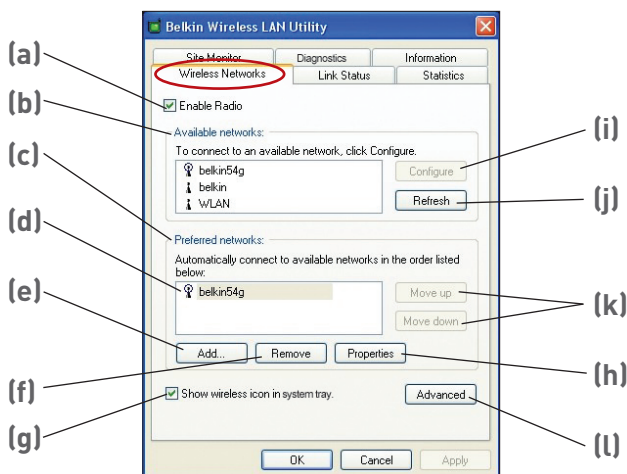
(g) System Tray Icon
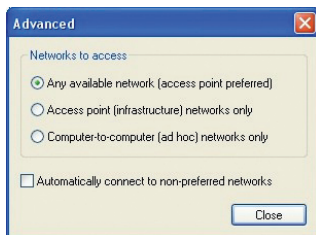Check this box so that the wireless icon appears on your system tray.

(h) Properties
To change the properties and WEP (security) settings of a network, select a network from the Preferred Networks **(c)** then click on the "Properties" **(h)** button.

(l) Advanced
Allows you to select the type of networks you want to connect to. When the "Advanced" **(l)** button is checked, the screen on the next page will appear.

Using the Belkin Wireless LAN Utility

Advanced

Networks to access

⊙ Any available network (access point preferred)
○ Access point (infrastructure) networks only
○ Computer-to-computer (ad hoc) networks only

☐ Automatically connect to non-preferred networks

Close

Any Available Network (access point preferred)

When this option is selected, the Card will attempt to connect to any available network in the area. Access point networks will be preferred over ad-hoc networks. Access Point (Infrastructure) networks only mode allows you to connect to the Internet by accessing the wireless router or wireless access point or your network

Access Point (Infrastructure) Networks Only

When this option is selected, the Card will attempt to connect to any available wireless router or access point in the area. Ad-Hoc networks will be excluded from the list of available networks when this option is selected.

Computer-to-Computer (Ad-Hoc) Networks Only

When this option is selected, the Card will attempt to connect to any available computer in the area that's also configured to be used in Ad-Hoc mode. The wireless router or access point will be excluded from the list of available networks when this option is selected.

Securing your Wi-Fi® Network

Here are a few different ways to maximize the security of your wireless network and protect your data from unwanted intrusion. This section is intended for the home, home office, and small office user. At the time of publication, three encryption methods are available.

Encryption Methods:

Name	64-bit Wired Equivalent Privacy	128-bit Encryption	Wi-Fi Protected Access	Wi-Fi Protected Access
Acronym	64-bit WEP	128-bit WEP	WPA-TKIP	WPA-AES
Security	Good	Better	Best	Best
Features	Static keys	Static keys	Dynamic key encryption and mutual authentication	Dynamic key encryption and mutual authentication
	Encryption keys based on RC4 algorithm (typically 40-bit keys)	Added security over 64-bit WEP using a key length of 104 bits, plus 24 additional bits of system-generated data	TKIP (temporal key integrity protocol) added so that keys are rotated and encryption is strengthened	AES (Advanced Encryption Standard) does not cause any throughput loss.

WEP (Wired Equivalent Privacy)

WEP (Wired Equivalent Privacy) is a common protocol that adds security to all Wi-Fi-compliant wireless products. WEP gives wireless networks the equivalent level of privacy protection as a comparable wired network.

64-Bit WEP

64-bit WEP was first introduced with 64-bit encryption, which includes a key length of 40 bits plus 24 additional bits of system-generated data (64 bits total). Some hardware manufacturers refer to 64-bit as 40-bit encryption. Shortly after the technology was introduced, researchers found that 64-bit encryption was too easy to decode.

Using the Belkin Wireless LAN Utility

128-Bit Encryption

As a result of 64-bit WEP's potential security weaknesses, a more secure method of 128-bit encryption was developed. 128-bit encryption includes a key length of 104 bits plus 24 additional bits of system-generated data (128 bits total). Some hardware manufacturers refer to 128-bit as 104-bit encryption.

Most of the new wireless equipment in the market today supports both 64-bit WEP and 128-bit WEP encryption, but you might have older equipment that only supports 64-bit WEP. All Belkin wireless products will support both 64-bit WEP and 128-bit encryption.

Encryption Keys

After selecting either the 64-bit WEP or 128-bit encryption mode, it is critical that you generate an encryption key. If the encryption key is not consistent throughout the entire wireless network, your wireless networking devices will be unable to communicate with one another.

You can enter your key by typing in the hex key. A hex (hexadecimal) key is a mixture of numbers and letters from A–F and 0–9. For 64-bit WEP, you need to enter 10 hex keys. For 128-bit WEP, you need to enter 26 hex keys.

For instance:

AF 0F 4B C3 D4 = 64-bit WEP key

C3 03 0F AF 0F 4B B2 C3 D4 4B C3 D4 E7 = 128-bit key

Write down the hex WEP key from your wireless router or access point and enter it manually into the hex WEP key table in your Card's configuration screen.

WPA (Wi-Fi Protected Access)

WPA (Wi-Fi Protected Access) is a new Wi-Fi standard that improves upon the security features of WEP. To use WPA security, the drivers and software of your wireless equipment must be upgraded to support it. These updates will be found on your wireless vendor's website. There are two types of WPA security: WPA-PSK (no server), and WPA (with radius server).

WPA-PSK (no server) uses what is known as a pre-shared key as the network key. A network key is a password that is between 8 and 63 characters long. It can be a combination of letters, numbers, or characters. Each client uses the same network key to access the network. Typically, this is the mode that will be used in a home environment.
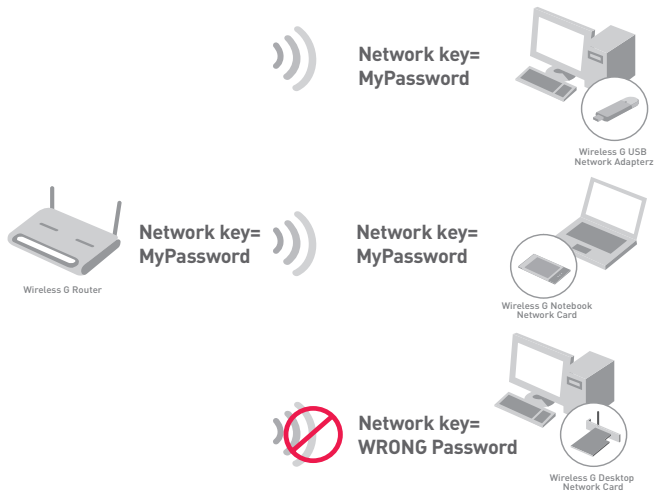
WPA (with radius server) is a system where a radius server distributes the network key to the clients automatically. This is typically found in a business environment.

For a list of Belkin wireless products that support WPA, please visit our website at **www.belkin.com/networking**.

Most Wireless products ship with security turned off. So once you have your network working, you may need to activate WEP or WPA and make sure all your wireless devices are sharing the same network key.

The following diagram shows the effect of not having the correct network key throughout your network.

Network key=
MyPassword

Wireless G USB
Network Adapterz

Network key=
MyPassword

Network key=
MyPassword

Wireless G Router

Wireless G Notebook
Network Card

Network key=
WRONG Password

Wireless G Desktop
Network Card

The Card cannot access the network because it uses a different network key than the one configured on the wireless router.

Setting Up your Belkin Wireless Router or Access Point to Use Security

To start using security, you need to first enable WEP or WPA for your wireless router or access point. For Belkin Wireless Routers (or Access Points), these security features can be configured by using the web-based interface. See your wireless router (or access point) manual for directions on how to access the management interface.

Changing the Wireless Security Settings

The Belkin Wireless G Router and Belkin G Range Extender/Access Point are equipped with the latest WPA security feature. They also support the legacy WEP security standard. By default, wireless security is disabled.

To enable security, you will need to determine which standard you want to use. To access the security settings, click "Security" on the wireless section using the web-based interface. (See your wireless router or access point manual for directions on how to access the security settings.)

WEP Setup

64-Bit WEP Encryption

1. Select "64-bit WEP" from the drop-down menu.

2. After selecting your WEP encryption mode, you can enter your key by typing in the hex key manually, or you can type in a passphrase in the "Passphrase" field and click "Generate" to create a key.

A hex (hexadecimal) key is a mixture of numbers and letters from A–F and 0–9. For 64-bit WEP, you need to enter 10 hex keys.

For instance:

AF 0F 4B C3 D4 = 64-bit WEP Key

3. Click "Apply Changes" to finish. Encryption in the wireless router or access point is now set. Each of your computers on your wireless network will now need to be configured with the same security settings.

WARNING: If you are using a wireless client to turn on the security settings in your wireless router or access point, you will temporarily lose your wireless connection until you activate security on your wireless client. Please record the key prior to applying changes in the wireless router or access point. If you don't remember the hex key, your client will be locked out of the wireless router or access point.

128-Bit WEP Encryption

1. Select "128-bit WEP" from the drop-down menu.

2. After selecting your WEP encryption mode, you can enter your key manually by typing in the hex key manually, or you can type in a passphrase in the "Passphrase" field and click "Generate" to create a key.

A hex (hexadecimal) key is a mixture of numbers and letters from A–F and 0–9. For 128-bit WEP, you need to enter 26 hex keys.

For instance:

C3 03 0F AF 0F 4B B2 C3 D4 4B C3 D4 E7 = 128-bit WEP key

3. Click "Apply Changes" to finish. Encryption in the wireless router or access point is now set. Each of the computers on your wireless network will now need to be configured with the same security settings.

WARNING: If you are using a wireless client to turn on the security settings in your wireless router or access point, you will temporariy lose your wireless connection until you activate security on your wireless client. Please record the key prior to applying changes in the wireless router or access point. If you don't remember the hex key, your client will be locked out of the wireless router or access point.

WPA-PSK (no server)

Choose this setting if your network does not use a radius server. WPA-PSK (no server) is typically used in home and small office networking.

1. From the Security Mode drop-down menu, select "WPA-PSK (no server)".

2. Enter your network key. This can be from 8 to 63 characters and can be letters, numbers, or symbols. This same key must be used on all of the clients (network cards) that you want to include in your wireless network.

Wireless > Security

Security Mode	WPA-PSK (no server) ▼
Encryption Technique	TKIP ▼ Default is TKIP
Pre-shared Key (PSK)	MyPassword

WPA-PSK (no server)
Wireless Protected Access with a Pre-Shared Key: The key is a password, in the form of a word, phrase or series of letters and numbers. The key must be between **8** and **63** characters long and can include spaces and symbols. Each client that connects to the network must use the same key (Pre-Shared Key)

☐ Obscure PSK

Clear Changes   Apply Changes

3. Click "Apply Changes" to finish. You must now set all clients (network cards) to match these settings.

Using the Belkin Wireless LAN Utility

WPA (with server) Settings

Choose this setting if your network uses a radius server to distribute keys to the clients (network cards). WPA (with server) is typically used in business networks.

1. From the Security Mode drop-down menu, select "WPA (with Radius Server)".

2. Enter the IP address of the radius server into the "Radius Server" fields.

3. Enter the radius key into the "Radius Key" field.

4. Enter the key interval. The key interval is how often the keys are distributed (in packets).

Wireless > Security

WPA (with server)
Advanced Setting - Wireless Protected Access using a server to distribute keys to the clients: This option requires that a Radius server is running on the network.

Security Mode	WPA (with Radius Server)
Encryption Technique	TKIP
Radius Server	. . .
Radius Port	1812
Radius Key	
Re-Key Interval	900 (seconds)

Clear Changes   Apply Changes

5. Click "Apply Changes" to finish. You must now set all clients (network cards) to match these settings.

IMPORTANT: You must now set all wireless network cards/ adapters to match these settings.

**Configuring your Belkin Wireless G Notebook and Wireless G Desktop Network Cards to Use Security**

At this point, you should already have your wireless router or access point set to use WPA or WEP. In order for you to gain wireless connection, you will need to set your Wireless G Notebook and Wireless G Desktop Network Cards to use the same security settings.

Connecting your Computer to a Wireless Router or Access Point that requires a 64-Bit or 128-Bit WEP Key:

1. Double-click the Signal Indicator icon to bring up the "Wireless Network" screen. The "Advanced" button will allow you to view and configure more options of your Card.

2. Under the "Wireless Network" tab, select a network name from the "Available networks" list and click "Configure".

3. Under "Data Encryption" select "WEP".

4. Ensure that the check box "The key is provided for me automatically" at the bottom is **unchecked**. If you are using this computer to connect to a corporate network, please consult your network administrator if this box needs to be checked.

Using the Belkin Wireless LAN Utility

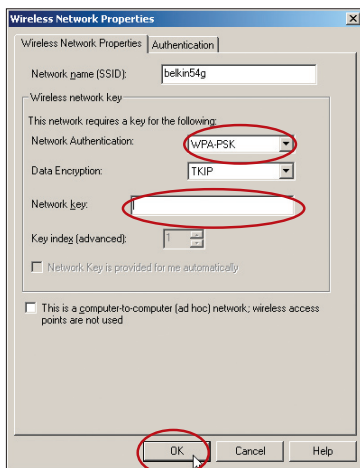**5.** Type your WEP key in the "Network key" box.
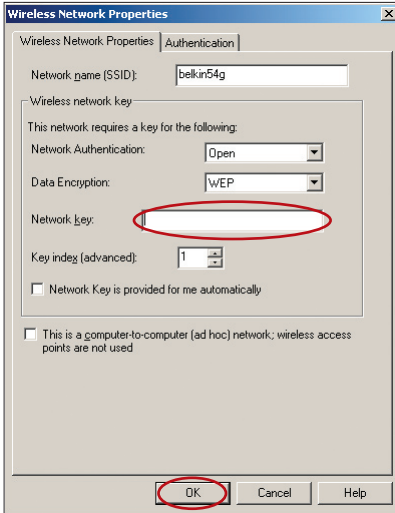
Important: A WEP key is a mixture of numbers and letters from A–F and 0–9. For 128-bit WEP, you need to enter 26 keys. For 64-bit WEP, you need to enter 10 keys. This network key needs to match the key you assign to your wireless router or access point.

6. Click "OK", and then "Apply" to save the settings.

Using the Belkin Wireless LAN Utility

Connecting your Computer to a Wireless Router or Access Point that uses WPA-PSK (no server)

1. Double-click the "Signal Indicator" icon to bring up the "Wireless Network Properties" screen. The "Advanced" button will allow you to view and configure more options of your Card.

2. Under the "Wireless Networks" tab, select a network name from the "Available networks" list and click "Configure". The following screen will appear.

3. Under "Network Authentication" select "WPA-PSK".

4. Type your WPA key in the "Network key" box.

    Important: WPA-PSK is a combination of numbers and letters from A–Z and 0–9. For WPA-PSK. The key must be between 8 and 63 characters long, and needs to match the key you assign to your wireless router or access point.

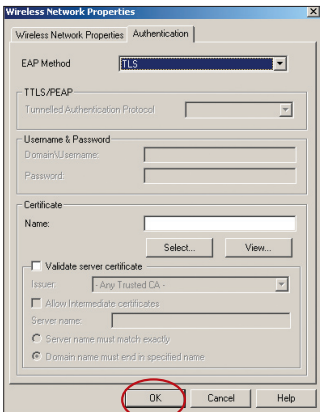5. Click "OK", then "Apply" to save the settings.

Using the Belkin Wireless LAN Utility

Connecting your Computer to a Wireless Router or Access Point that uses WPA (with Radius Server)

1. Double-click the "Signal Indicator" icon [image] to bring up the "Wireless Network Properties" screen. The "Advanced" button will allow you to view and configure more options of your Card.
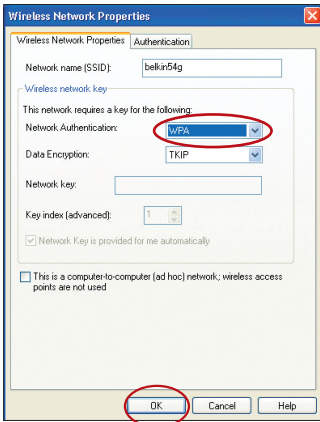
2. Under the "Wireless Networks" tab, select a network name from the "Available networks" list and click "Configure". The screen to the left will appear.

3. Under "Network Authentication" select "WPA".

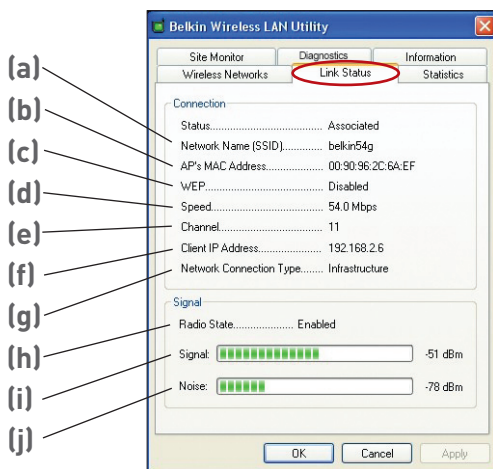4. Under the "Authentication" tab, select the settings that are indicated by your network administrator.

5. Click "OK", to save the settings.

Monitoring the Status of your Network Connection

Click on the "Link Status" tab.

(a)
(b)
(c)
(d)
(e)
(f)
(g)
(h)
(i)
(j)

(a) Network Name (SSID)
The SSID is the wireless network name. This field shows the current network name that you are connected to.

(b) AP's MAC Address
Shows the MAC address of the wireless router or access point that you are connected to.

(c) WEP
Shows whether the network you are associated with has WEP encryption enabled or disabled.

(d) Speed
Displays the data rate of the current connection.

(e) Channel
Shows the current channel (1-11) you are using. When connected to a wireless router or access point, the channel is set automatically. When connected to another computer using Ad-Hoc mode, the channel can be set manually. All computers using Ad-Hoc mode (computer-to-computer) need to operate under the same channel.

(f) Client IP Address
Shows the IP address of the computer. The IP address is obtained automatically by default. You may set the IP address manually through Windows Networking Properties.

(g) Network Connection Type
Shows the current wireless mode the Card is operating in. There are two operating modes: Infrastructure and Ad-Hoc. Infrastructure is the most common mode to operate in. Infrastructure mode is used when connecting your PC to a wireless router or a wireless access point. Ad-Hoc mode is used to connect two or more computers together without the use of a wireless router or an access point.

(h) Radio State
Shows whether the radio of your wireless client is enabled or disabled.

(i) Signal
Displays the wireless signal strength in decibels (dBm). The decibel scale is negative, so smaller absolute values correspond to stronger signals (i.e. -20 dBm is stronger than -80 dBm). The signal to noise ratio (SNR) is the difference between the signal and the noise (e.g. if the noise is -80 dBm and the signal is -20 dBm, the SNR is 60 dB); the larger the SNR, the better. In general, connections should have an SNR greater than 20 dBm, or the user may experience poor reliability and/or performance. If the signal is less than -50 dBm, the user should consider repositioning their workstation Wireless Router or Access Point, rotating the Wireless Router or Access Point's antennas, or Limiting their Transmission Rate (described on page 38 of the troubleshooting section of the manual), to ensure a reliable wireless connection.

(j) Noise
Displays the intensity of the external noise, on this wireless channel, in decibels (dBm). If the noise is greater than -70 dBm, the user should consider changing the wireless channel used in their Wireless Router or Access Point, to ensure a reliable wireless connection.

Monitoring Data Transfer

Click on the "Statistics" tab.

The Statistics tab shows you how much data has been sent and received and if any errors occurred. This screen is mostly for diagnostics. Note that the number of data packets lost is recorded. A large number of lost data packets may indicate that there is a problem or interference in your area. **(See the Troubleshooting section for tips on how to improve performance.)**