Belkin
Wireless G Notebook Card

User Manual
F5D7010v8

Table of Contents

Introduction

Thank you for purchasing the Belkin Wireless G Notebook Card. Now you can take advantage of this great new technology and gain the freedom to network your home and office computers wirelessly. This Card allows you to connect a notebook computer to your network. 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".

Benefits of a Home Network
Your Belkin Home Network will allow you to:

• Share one high-speed Internet connection with all the computers
in your home
• Share resources, such as files, and hard drives among all the
connected computers in your home
• Share a single printer with the entire family
• Share documents, music, video, and digital pictures
• Store, retrieve, and copy files from one computer to another
• Simultaneously play games online, check Internet email,
and chat

Advantages of a Wireless Network

• **Mobility** –you'll no longer need a dedicated "computer room"—now 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

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) and connected devices increases. This may or may not
be noticeable to you. As you move farther 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 10 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 Cards, Wireless Desktop Cards, and Wireless USB Adapters):

• Ensure that your wireless router's (or access point's) 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.

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 a cordless phone:

• Try moving cordless phones away from the wireless router (or access point) and your wireless-enabled computers.
• Unplug and remove the battery from any cordless phone that operates on the 2.4GHz band (check manufacturer's 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 farthest 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. (Your channel selection will vary depending on your region.) 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 Belkin Wireless Networking 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.

For more Belkin wireless networking products, use the detailed Site Survey and wireless channel information included in your User Manual.

5. Secure Connections, VPNs, and AOL
Secure connections 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 online banking websites

• Many commercial websites that require a user name 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 website.

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 in Windows, see the
"Power Options" item in the Control Panel.

If you continue to have difficulty with Secure Connections, VPNs, and AOL,
please review steps 1–4 in the previous pages 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 the
Belkin 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. 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, WPA2, 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
• Data rate of up to 54Mbps (802.11g), or 11Mbps (802.11b)
• Easy installation and use
• LED power and network link indicators

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** Provides immediate high-speed wireless connectivity at home, work, and hotspot 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

• **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 construction sites, which need networks 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 450/260mA @
3.3VDC (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 400 ft. (231m) (wireless performance may vary depending on the networking environment)

(insert image p.7 of P74682)

(a) Link LED
Lights up when the Card links to a wireless network
(b) Activity LED
Lights up when the Card is active
(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® 2000, XP, or Vista™

Package Contents
• Wireless G Notebook Card
• Quick Installation Guide

• Installation Software CD
• User Manual

Installing and Setting up the Card

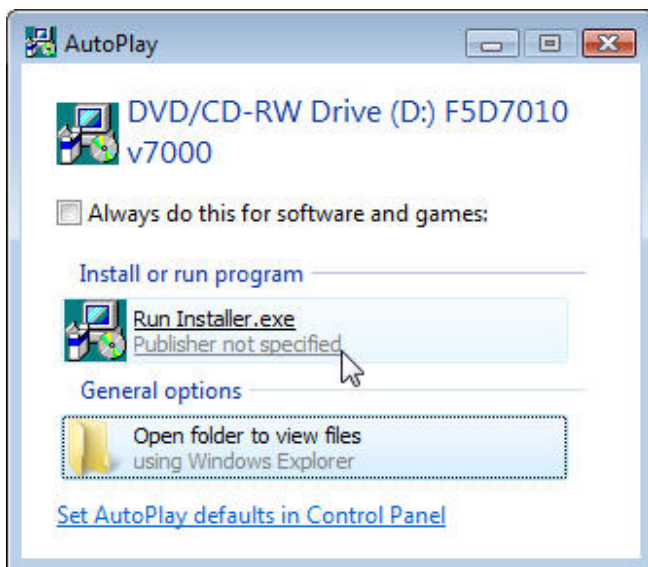**For users of Windows Vista, refer to the following installation steps:**
1A. Install
IMPORTANT: INSTALL THE SOFTWARE BEFORE INSERTING THE CARD.

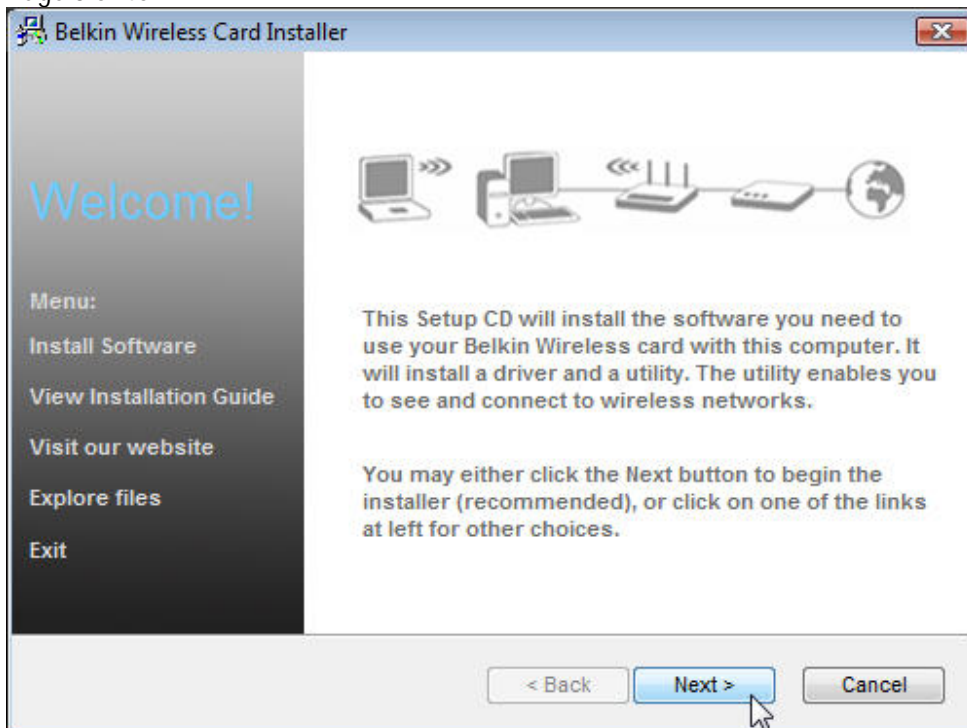1A.1 Insert the Installation Software CD into your CD-ROM drive.

1A.2 Select the "Run Installer.exe" option.

Insert screen shot

1A.3 You may see a window titled, "An unidentified program wants access to your computer". Click "Allow".

 1A.4 Click "Next" to begin the installation process. (Insert screen shot)

1A.5 You may see a window titled, "Windows can't verify the publisher of this driver software". This is normal and does not indicate a problem. Our software has been fully tested and is compatible with this operating system. (Insert screen shot)
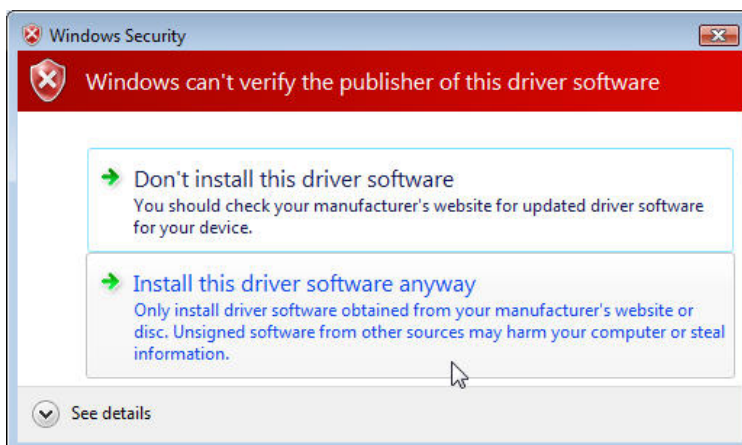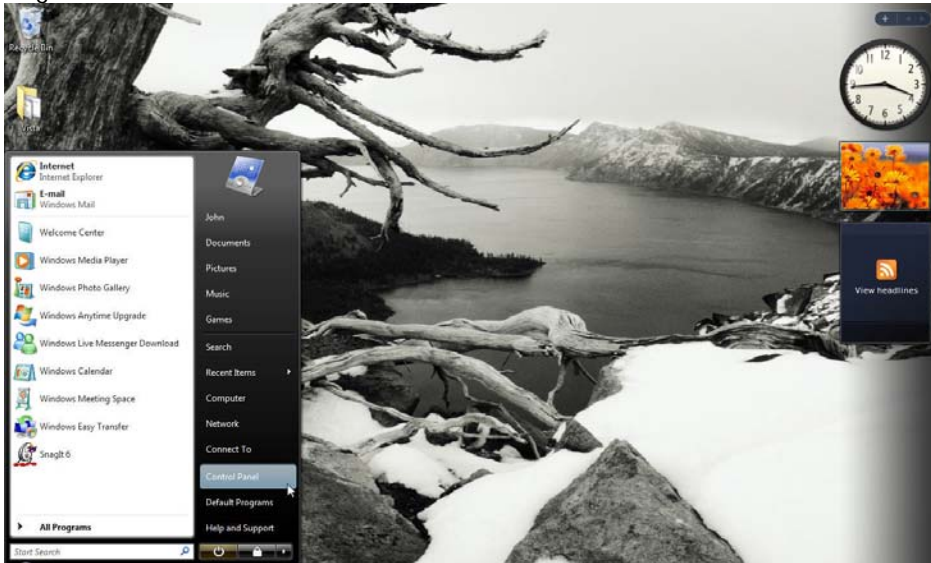

1A.6 When prompted, plug in your Card. (Insert screen shot)

1A.7   When the installation completes, click "Finish". Your installation is now complete. (Insert screen shot)
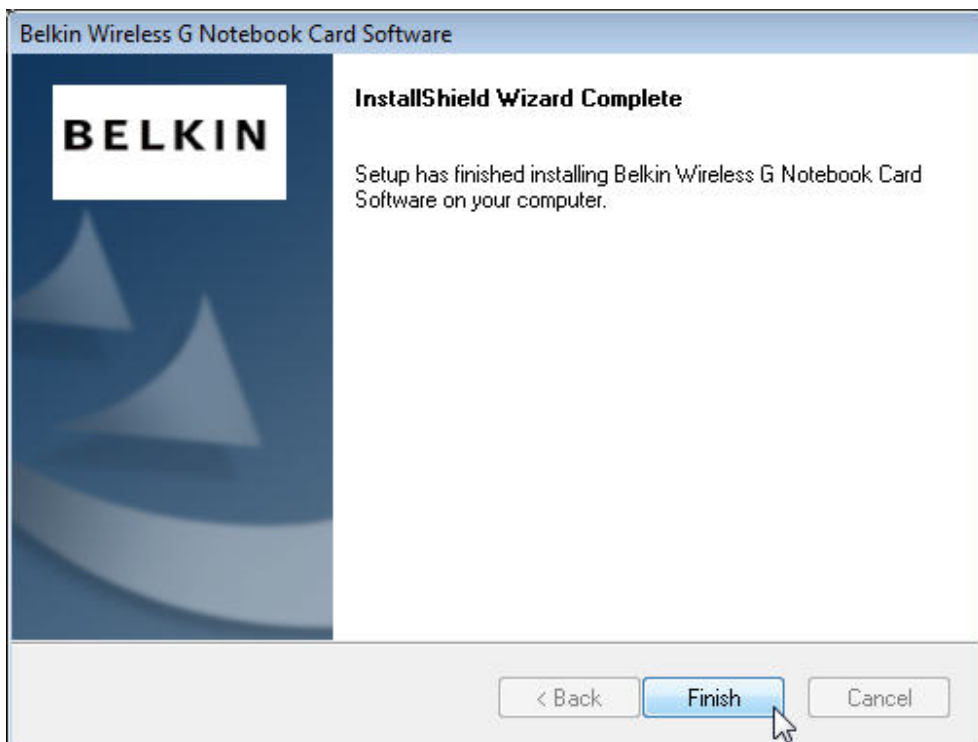
1A.8   To connect to the Internet, open the Network and Sharing Center by first opening the Control Panel from the "Start" menu. (Insert screen shot)

1A.9   In the Control Panel, click on "View network status and tasks". (Insert screen shot)
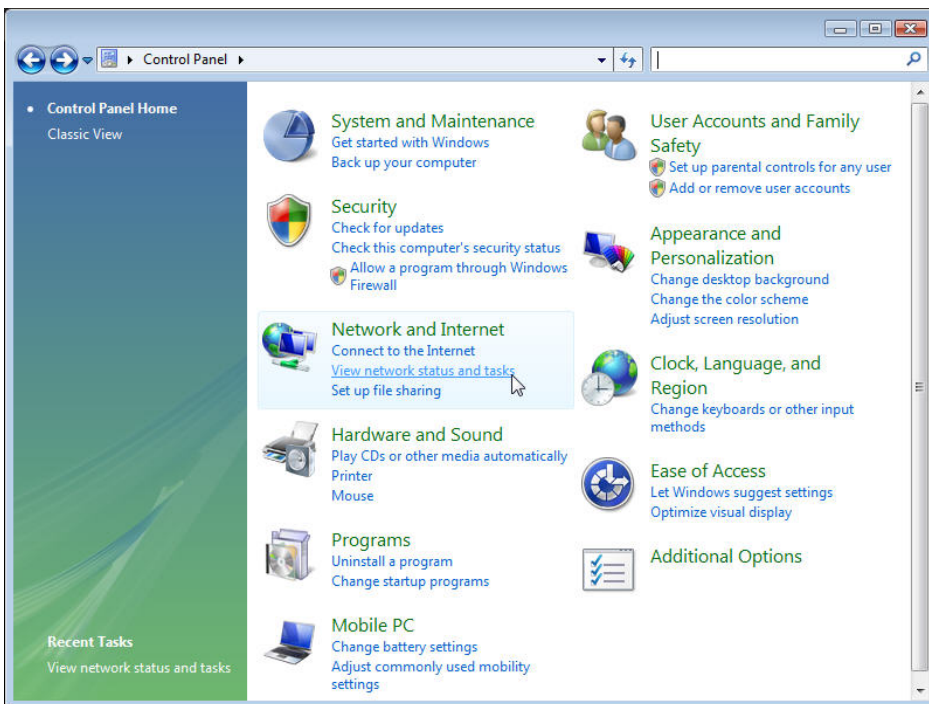
1A.10 In the Network and Sharing Center, click on "Connect to a network". (Insert screen shot)
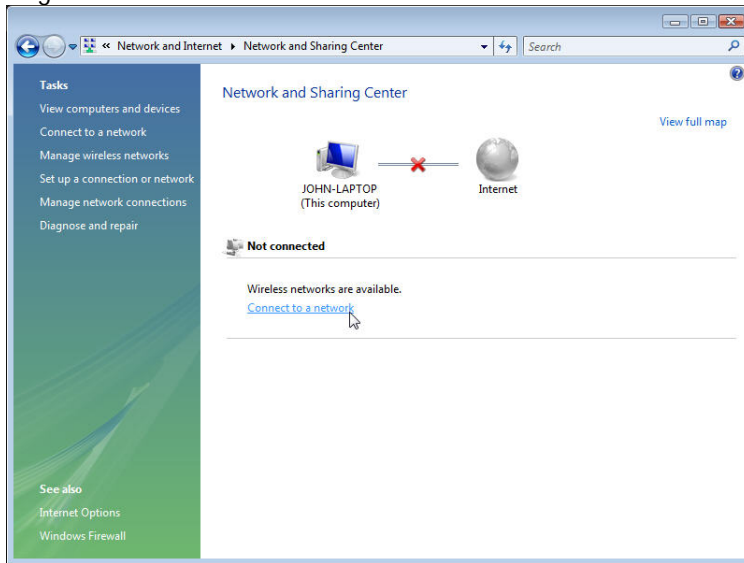
1A.11 Select an available wireless network and click "Connect". (Insert screen shot)
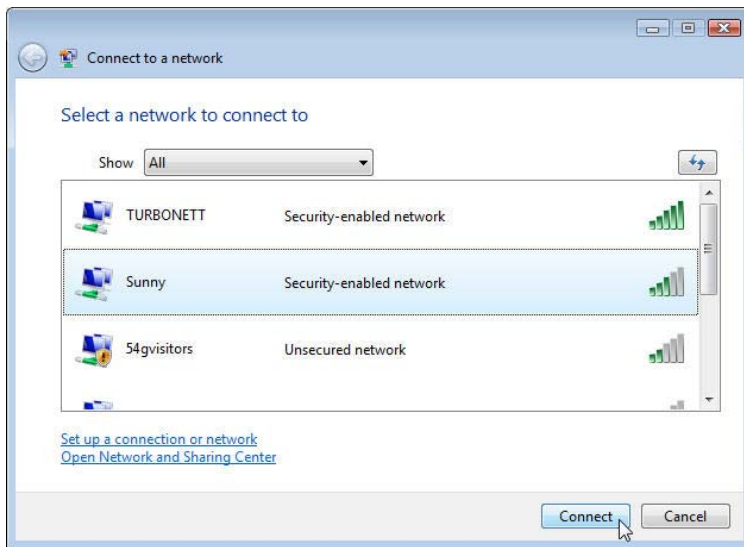
1A.12 Your Card will attempt to connect to the selected network. (Insert screen shot)
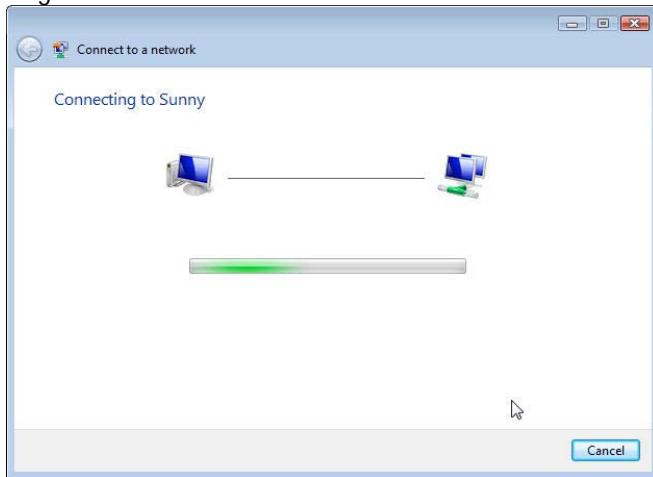
1A.13 Depending on the security settings of your wireless network, you may be prompted to enter in a network security key or a passphrase. Click "Connect" after you have done so. (Insert screen shot)
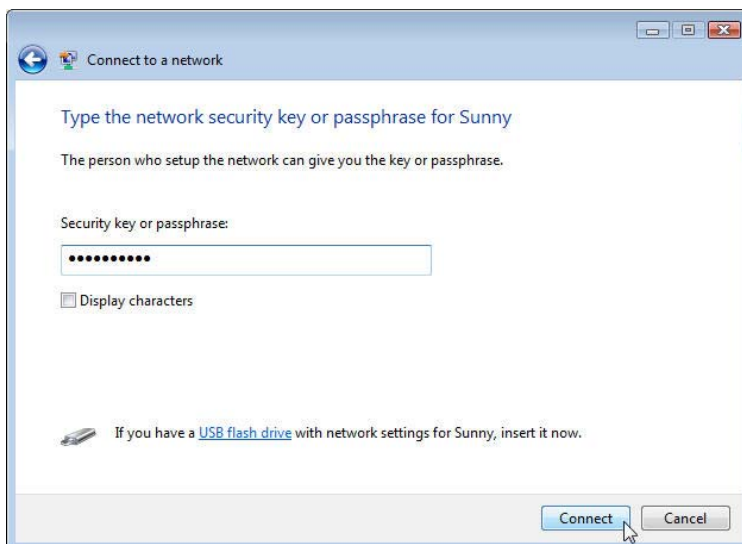
1A.14 After connecting to the network, you may choose to save this network and connect automatically once your Card is in range. (Insert screen shot)
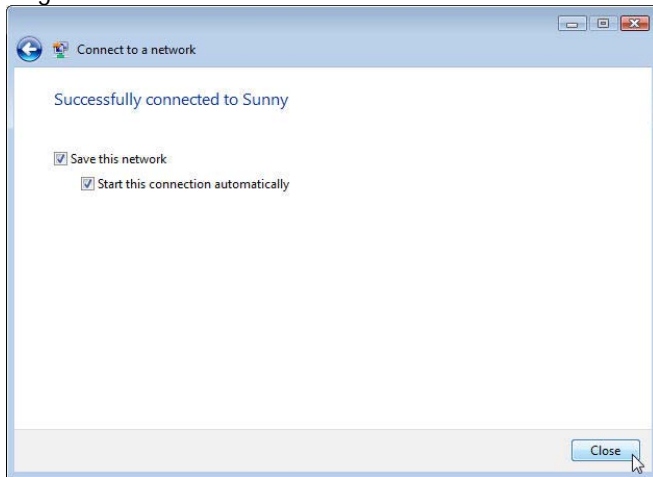
1A.15   The Network and Sharing Center should now show the network connection that you have just made. The links on the left of the window allow you to configure your network connections. (Insert screen shot)
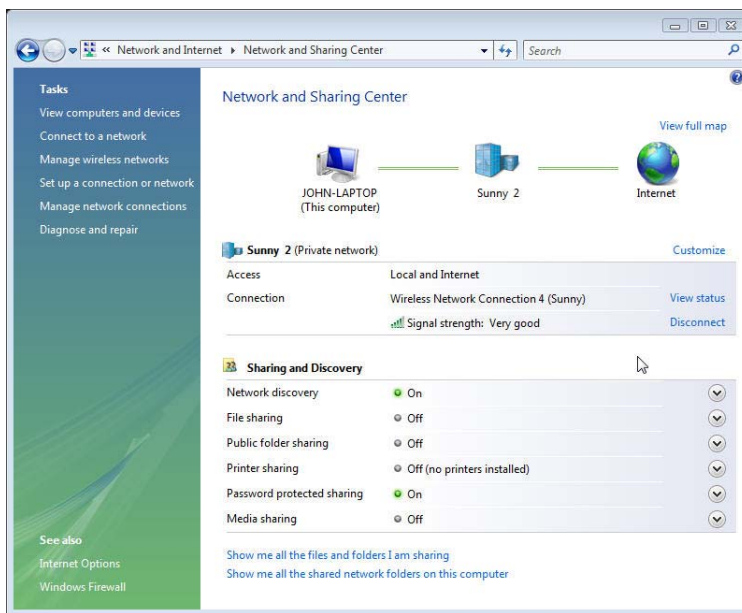
For users of other Windows operating systems, refer to the following installation steps:

1B. Install
IMPORTANT: INSTALL THE SOFTWARE BEFORE INSERTING THE CARD.

1B.1 Insert the Installation Software CD into your CD-ROM drive.

1B.2 The Belkin Wireless Card Installer screen will automatically appear. (This may take 15–20 seconds.) Click "Next" to start the installation.
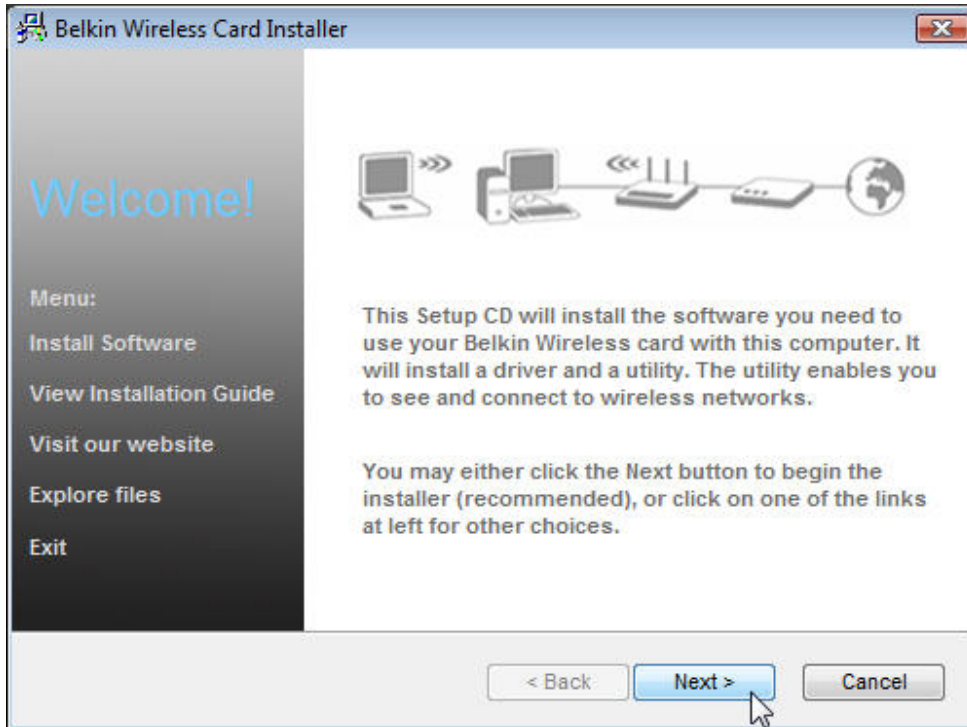
Note: If the Belkin Setup Utility screen does not appear within 20 seconds, access your CD-ROM by double-clicking on the "My Computer" icon; then double-click on the CD-ROM drive into which the installation CD has been placed. Double-click on the folder named "files", then double-click on the icon named "setup.exe".

1B.3 The first in a series of progress-monitoring screens will let you know where you are in the setup process.

1B.4 You might see a screen similar to this one. This DOES NOT mean there is a problem. Our software has been fully tested and is compatible with this operating system. Select "Continue Anyway" and follow the on-screen instructions.

Software Installation

The software you are installing has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.)

Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the software vendor for software that has passed Windows Logo testing.

[Continue Anyway]   [STOP Installation]

2. Insert
Insert the Card into your Computer

(Please insert image of CardBus insert into laptop)

2.1 Please insert your Card, then click "OK".

Install Adapter

Please insert your Wireless Lan Card now !

[OK]

2.2 The installation is now complete. Click "Finish" to exit.
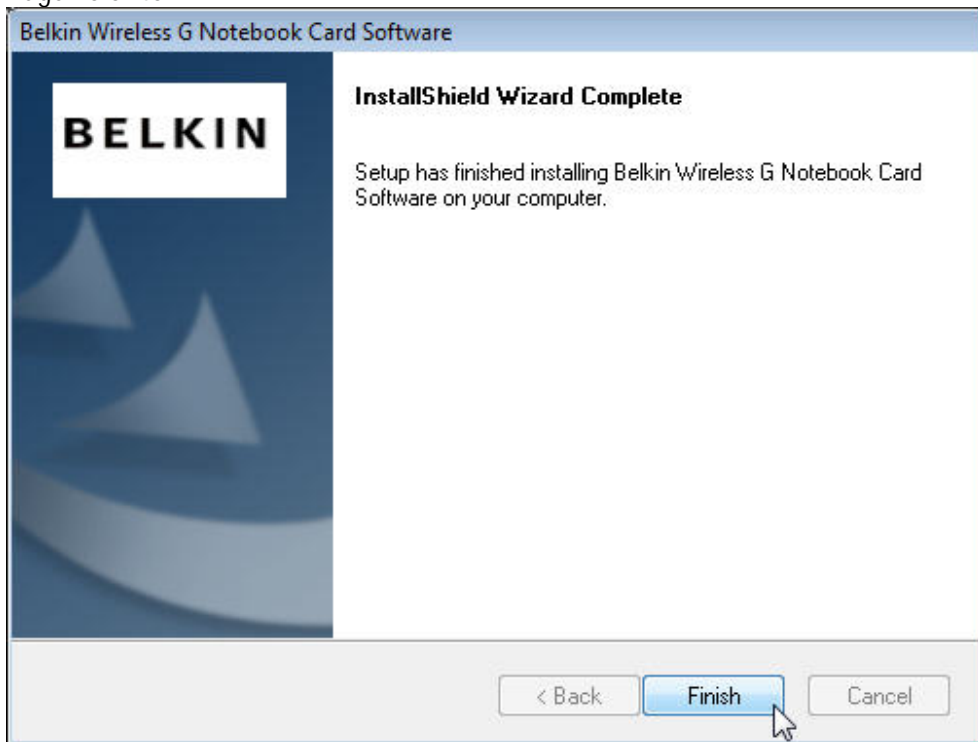
2.3 Your computer may need to reboot for the changes to take effect. Close all other applications and save your data. Then, select "Yes, I want to restart my computer now." Click "OK" to reboot.

3. Configure
Connect to a Network

3.1 After restarting your computer, double-click the Belkin Wireless Networking Utility icon on the desktop screen.

[insert F5D7010v8-06.jpg]

3.2 The Belkin Wireless Networking Utility screen will appear.

[insert F5D7010v8-07.jpg]

3.3 Select a network to connect to from the "Available Networks" list and click "Connect".

[insert F5D7010v8-09.jpg]
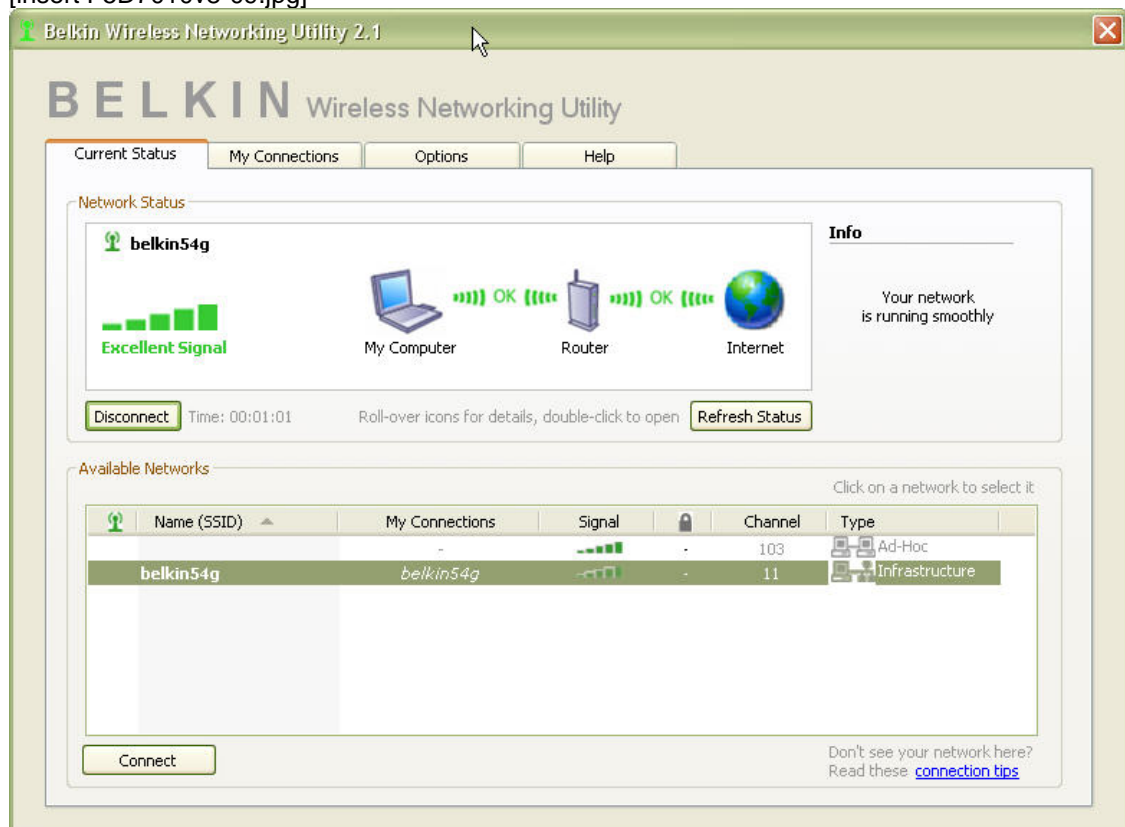
Note: In order to see your available networks, you must be near a working wireless router or access point.

3.4 The Belkin Wireless Networking Utility icon can also be found on the system tray.

[insert F5D7010v8-10.jpg]

Note: Double-clicking on the Belkin Wireless Networking Utility icon on the system tray will bring up the "Utility" screen.

Installation is now complete.

Using the Belkin Wireless Networking Utility

After successfully installing the Belkin Wireless Networking Utility (WNU), configurations for wireless connection and security are just a few easy clicks away.

Accessing the Belkin Wireless Networking Utility from the Windows System Tray

To access the WNU, simply place your mouse pointer and right-click over the WNU icon on the Windows task tray.
[insert F5D7010v8-10.jpg]   [insert F5D7010v8-11.jpg]

If the icon is not present, click on "Start > Programs > Belkin > Belkin Wireless Utility".

[insert F5D7010v8-22.jpg]
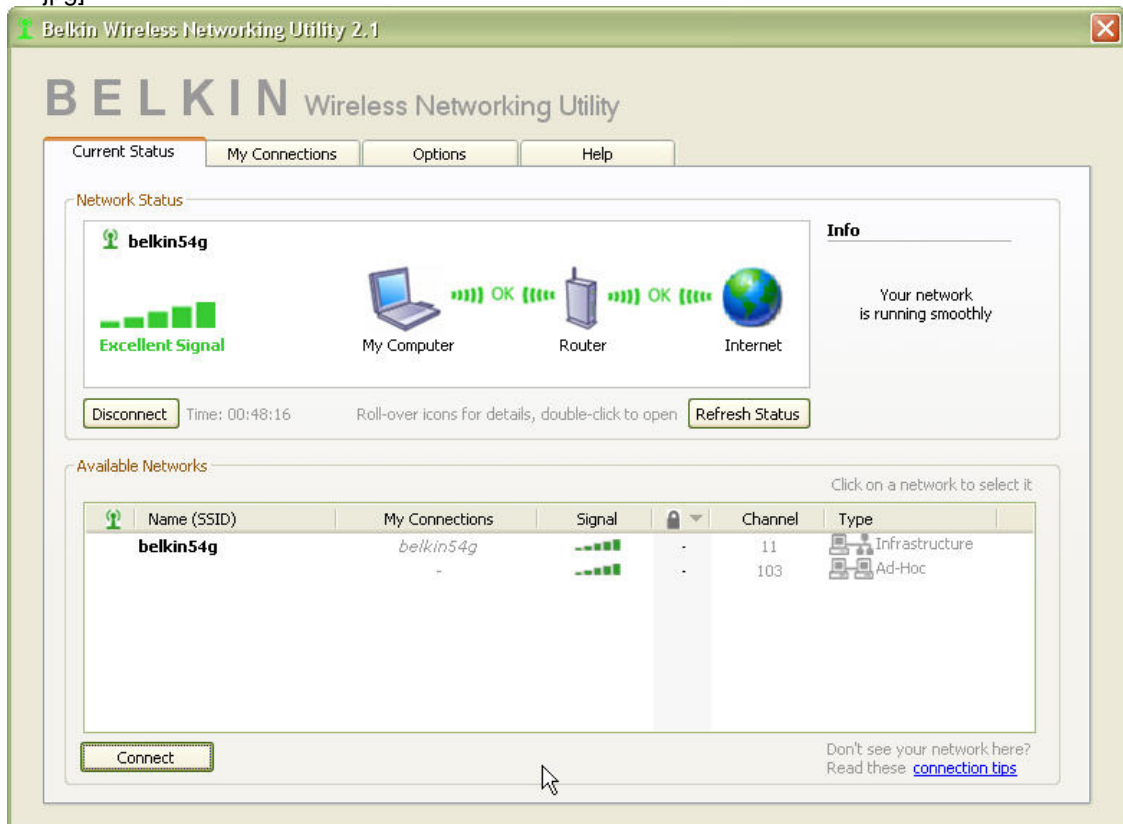
The WNU's default screen is the "Current Status" tab. The "Current Status" tab displays the current Network Status and Available Networks.

Network Status

This window displays the connectivity status of the current network. It even displays connectivity between the computer and router, and router and Internet. In the event of a connectivity problem, this window can be used to determine the problem's source (e.g. computer, router, or Internet/modem).

Available Networks

This window displays the available networks at the current location as well as their SSID, Signal Strength, Security Type, Channel, and Network Type.

Lost Wireless Connection

If the current wireless connection is lost, a window will pop up and the WNU will attempt to reconnect.

Connection Failure

Other options will appear during attempts to reconnect. To stop connecting, click "Stop" and to reattempt connection, click "Retry".
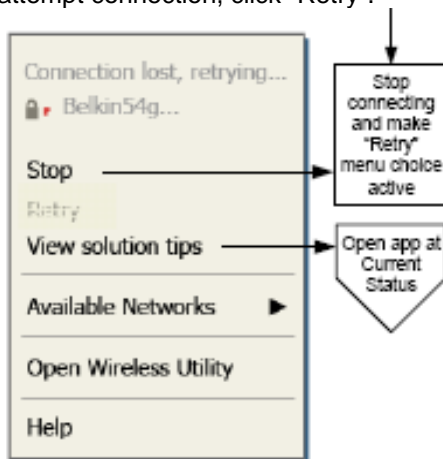
Right-Click during connection failure

Network Status and Solution Tips

To further understand the current Network Status, click "Open Wireless Utility". The default screen will be the "Current Status" tab and the "Network Status" section determines which connections are good and/or faulty.

[insert F5D7010v8-12.jpg]
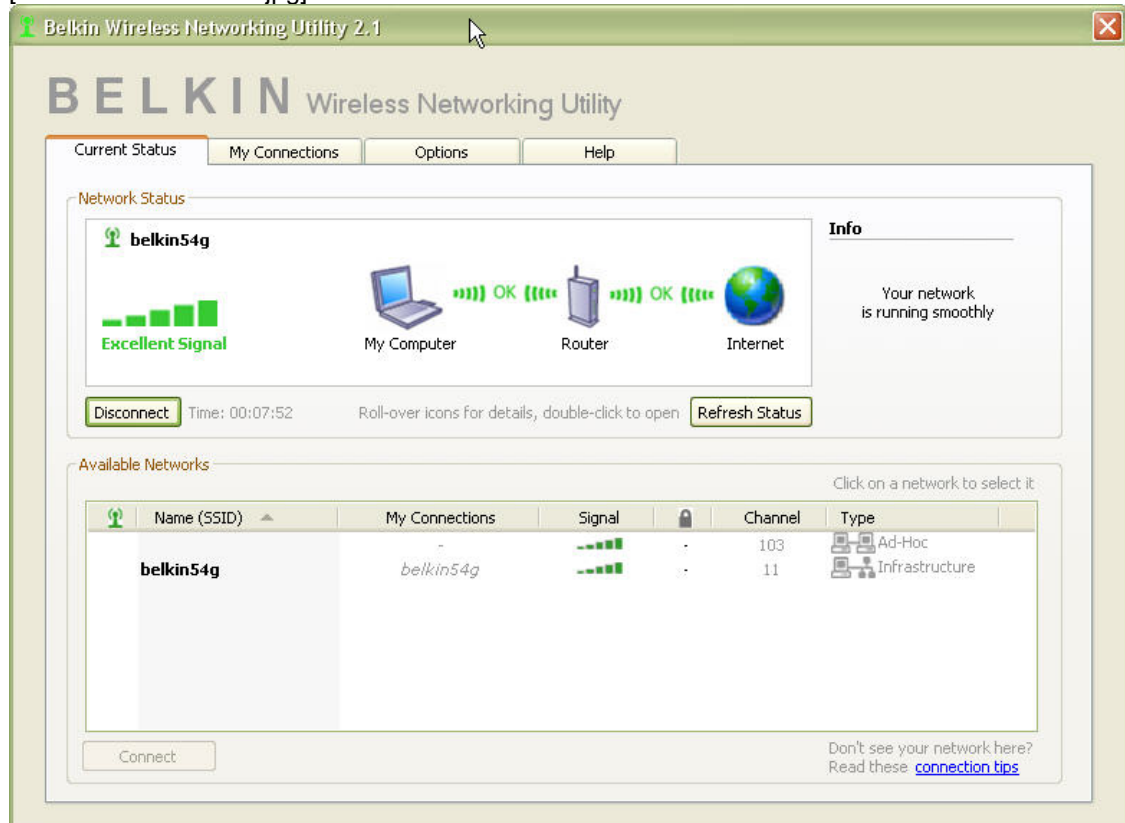
The WNU also features a "Solution Tips" section that provides troubleshooting guidelines.

Setting Wireless Network Profiles

The "My Connections" tab on the WNU allows you to add, edit, and delete connection profiles. It also displays signal strength, security, and network type.

[insert F5D7010v8-13.jpg]
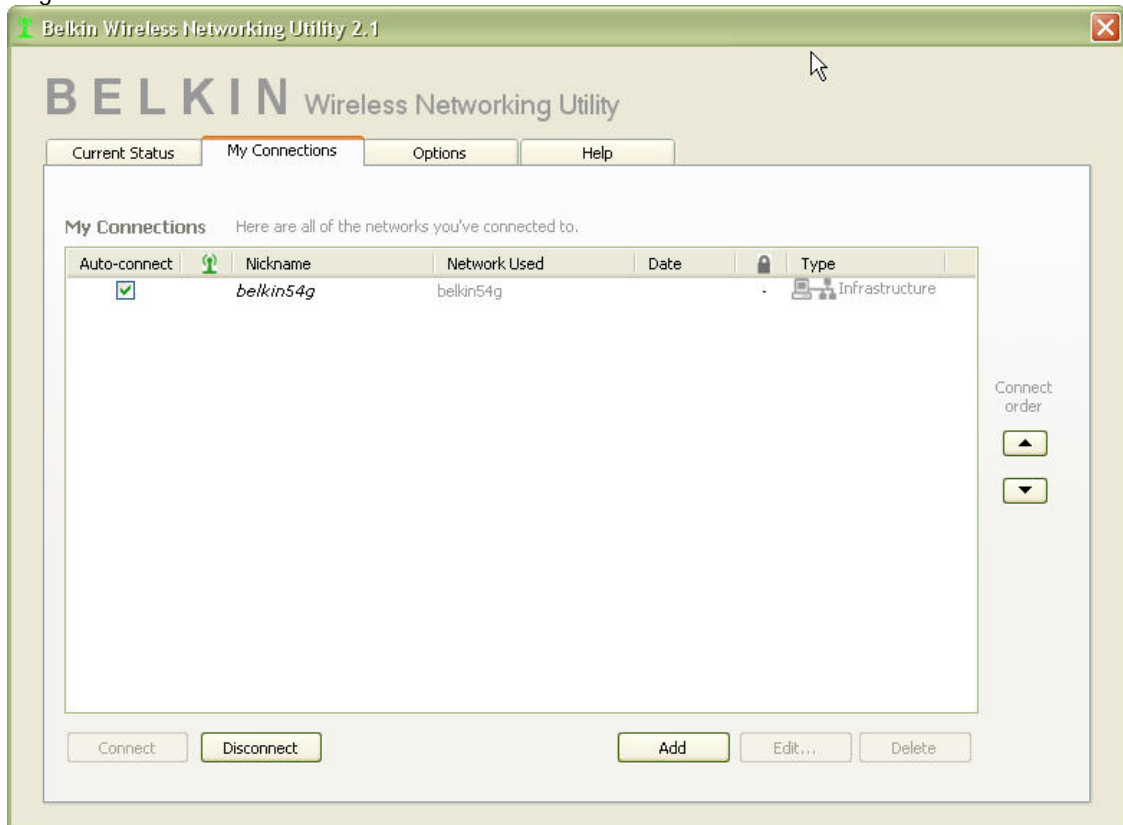
The following section, intended for the home, home-office, and small-office user, presents a few different ways to maximize the security of your wireless network.

At the time of publication, four Encryption Methods are available:

Encryption Methods:

Name	64-Bit Wired Equivalent Privacy	128-Bit Wired Equivalent Privacy	Wi-Fi Protected Access-TKIP	Wi-Fi Protected Access 2
Acronym	64-bit WEP	128-bit WEP	WPA-TKIP/AES (or just WPA)	WPA2-AES (or just WPA2)
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-	More secure than 64-bit WEP using a key length of 104 bits plus	TKIP (Temporal Key Integrity Protocol) added so that keys are rotated and	AES (Advanced Encryption Standard) does not cause any

bit keys)	24 additional bits of system-generated data	encryption is strengthened	throughput loss

(insert chart from P74488-A, p.16)

WEP (Wired Equivalent Privacy)
WEP 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.

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 combination 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 WEP 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 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 three types of WPA security: WPA-PSK (no server),WPA (with radius server), and WPA2.

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 eight 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) works best in a business environment, in which a radius server automatically distributes the network key to clients.

WPA2 requires Advanced Encryption Standard (AES) for encryption of data, which offers much greater security than WPA. WPA uses both Temporal Key Integrity Protocol (TKIP) and (AES) for encryption.

Configuring your Belkin Wireless G Notebook Card 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 Card to use the same security settings.

Changing the Wireless Security Settings
Your Belkin Wireless G Notebook Card supports advanced security technology, including Wi-Fi Protected Access™ 2 (WPA2™), Wired Equivalent Privacy (WEP), and Wi-Fi Protected Setup™ (WPS), which simplifies the setup of a wireless network. WPS uses familiar methodologies, such as typed Personal Identification Number (PIN) entry and push-button network-name configuration. This automatically enables strong WPA/WPA2 data encryption and authentication.   Refer to the following section for information on manually connecting to secured networks.

When attempting to connect to a WPS-enabled network, the following screen will appear:
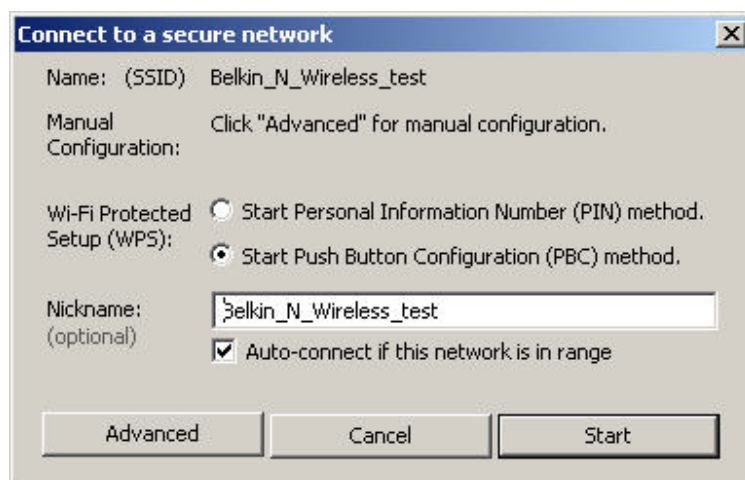
1. Personal Identification Number (PIN) Method: In this method, your Wireless G Notebook Card generates a PIN to be entered into your router.

2. Push-Button Configuration (PBC) Method.

3. Advanced Configuration Method: For manual connection to a secured network.

WPS uses WPA2 (described below) for encryption. It does not provide additional security. Instead, it standardizes the method for securing your wireless network. On your client utility, WPS-enabled networks are denoted with the key icon. You may use either the PBC method or PIN method to allow a device access to your wireless network. The two methods work as follows:

PBC: Push and hold the WPS button located on the back of your router for three seconds. Then, initiate the WPS procedure on the client utility within two minutes. Select the network name in the utility and click "Connect". Your client will automatically exchange the security information and be added to your wireless network. The PBC method can also be initiated from the client device.

You will see the following message if the procedure is initiated from the router:

If the process is started from the client, you will see this message

WPS operating

Initiating – Please wait...

[Cancel]

PIN: Your notebook computer has an 8-digit PIN that is associated with WPS. Select the WPS-enabled network and click "Connect" to start the WPS process. Choose the PIN-method option and complete the WPS procedure on your router's setup utility.

WPS operating

Initiating - Please add Client Device PIN 30860698 to Router or an external Registrar within 2 minutes.

[Cancel]
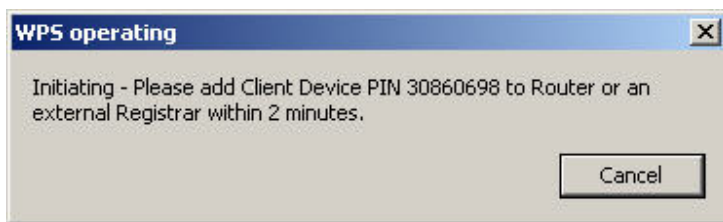
You will see the following message during the connection process:

WPS operating

In Progress – Please wait...

[Cancel]

The client will be automatically enrolled into your wireless network within two minutes.

WPS operating

Success – The device is connected to the Router

[Close]

If **desired, you may connect manually to a WPS-enabled network. Click on the advanced tab to open the following window:**
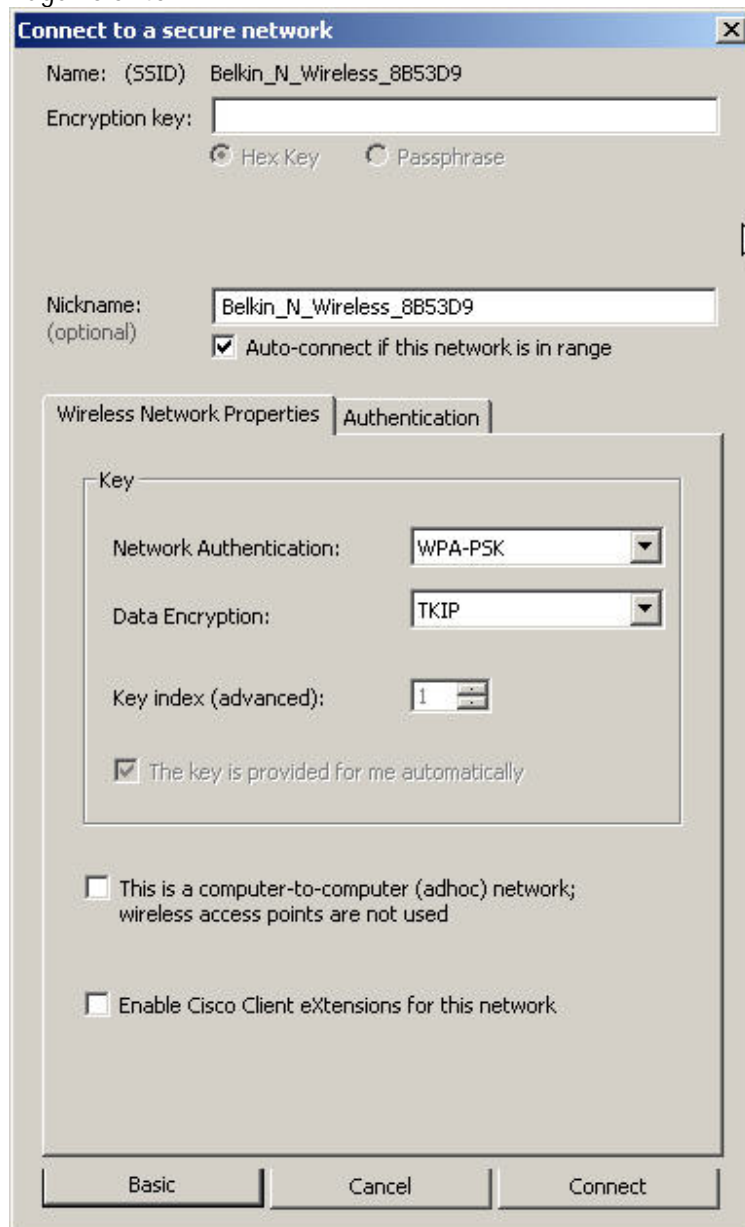
Enter in the encryption key and security method in order to join this network. The following section describes how to connect to a secure network that does not support WPS.

To connect to a secure network, you will first need to determine which standard is used by the router (or access point). (See your wireless router's or access point's manual for directions on how to access the security settings.)

[insert F5D7010v8-18.jpg]
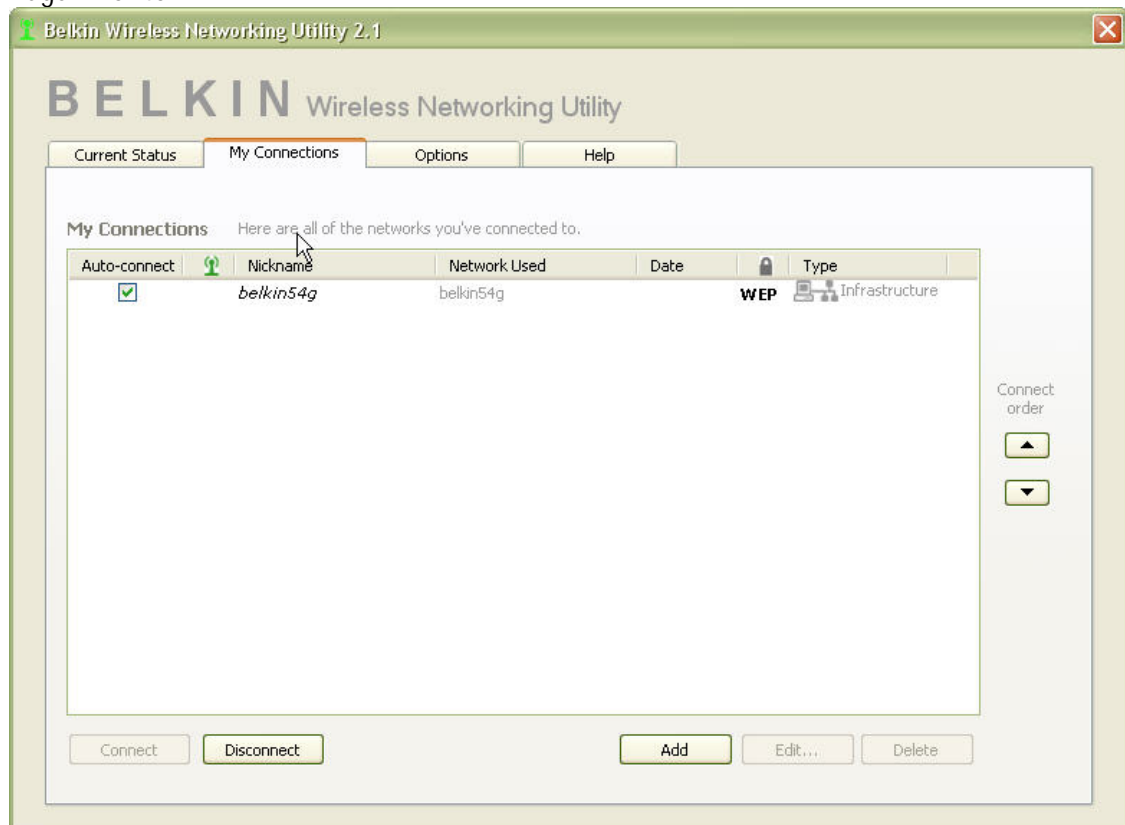
To access the security settings on your Card, click the "My Connections" tab and point to the connection for which you want to change security settings. Click "Edit" to change settings.

WEP Setup
64-Bit WEP Encryption
1. Select "WEP" from the "Data Encryption" drop-down menu.
2. After selecting your WEP encryption mode, you can enter your key by typing in the hex key manually.
A hex (hexadecimal) key is a combination 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

insert F5D7010v8-15.jpg]
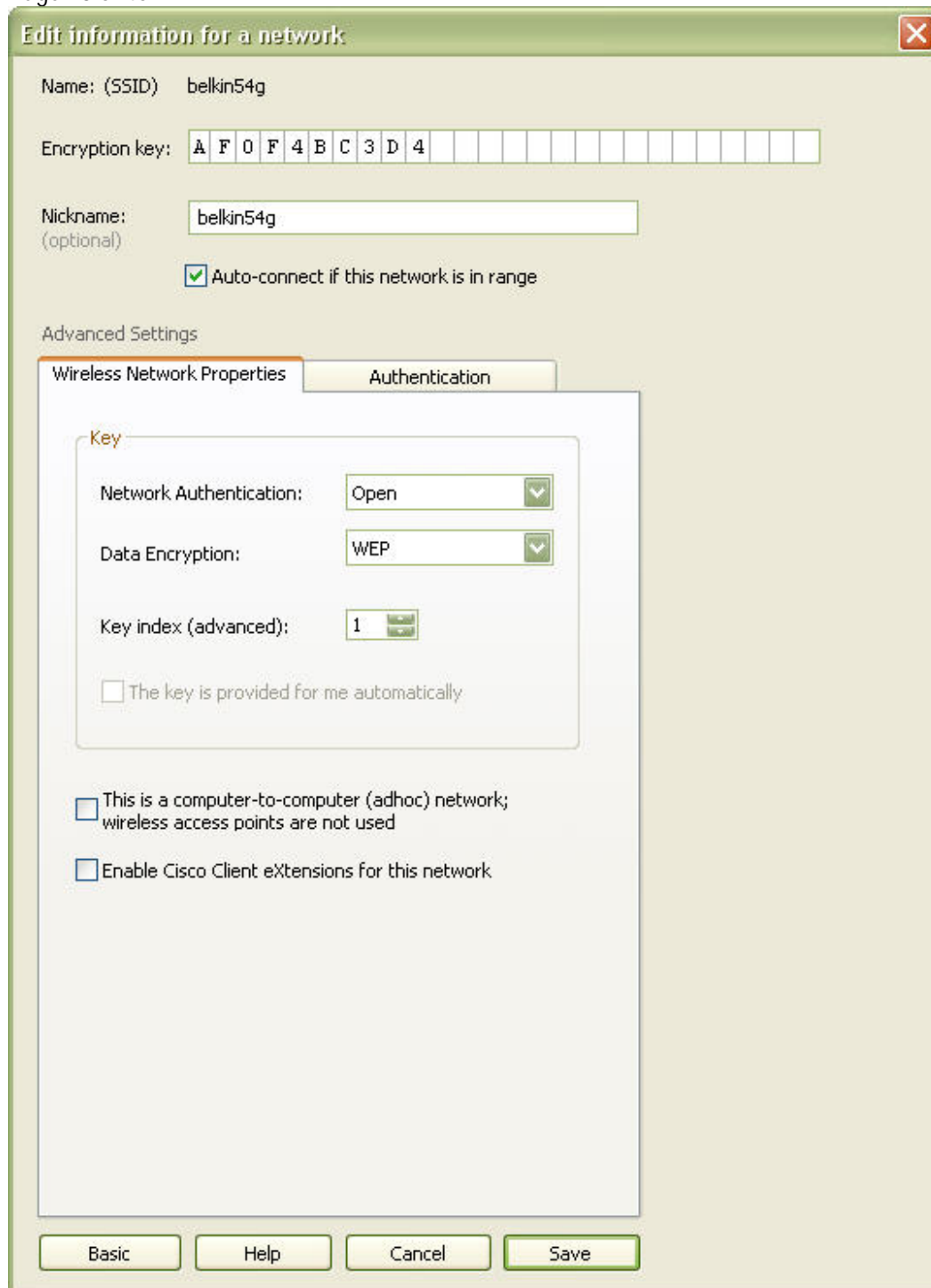
3. Click "Save" to finish. Encryption in the wireless router (or access point) is now set. Each of your computers on your wireless network will now need to be configured with the same security settings.

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 "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. A hex (hexadecimal) key is a combination 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

[insert F5D7010v8-16.jpg]

Edit information for a network

Name: (SSID)   belkin54g

Encryption key: C 3 0 3 0 F A F 0 F 4 B B 2 C 3 D 4 4 B C 3 D 4 E 7

Nickname: belkin54g
(optional)

☑ Auto-connect if this network is in range

Advanced Settings

| Wireless Network Properties | Authentication |

Key

Network Authentication: Open

Data Encryption: WEP

Key index (advanced):   1

☐ The key is provided for me automatically

☐ This is a computer-to-computer (adhoc) network; wireless access points are not used

☐ Enable Cisco Client eXtensions for this network

| Basic | Help | Cancel | Save |

3. Click "Save" 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 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).
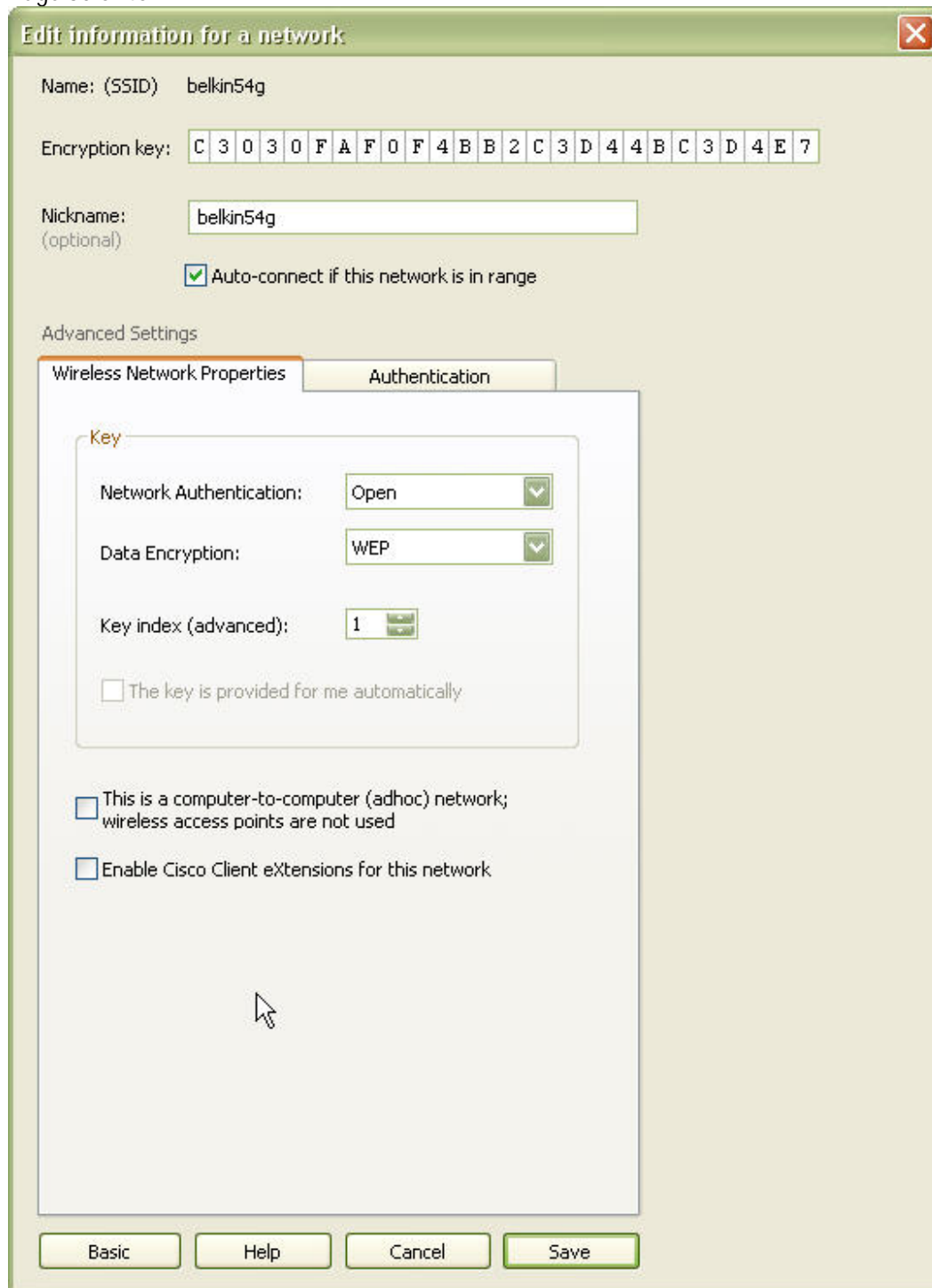
WPA-PSK (no server)
Choose this setting if your network does not use a radius server. WPA-PSK (no server) is typically used in home and small office networking.
1. From the "Network Authentication" drop-down menu, select "WPA-PSK (no server)".
2. Enter your network key. This can be from eight to 63 characters 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.

[insert F5D7010v8-17.jpg]
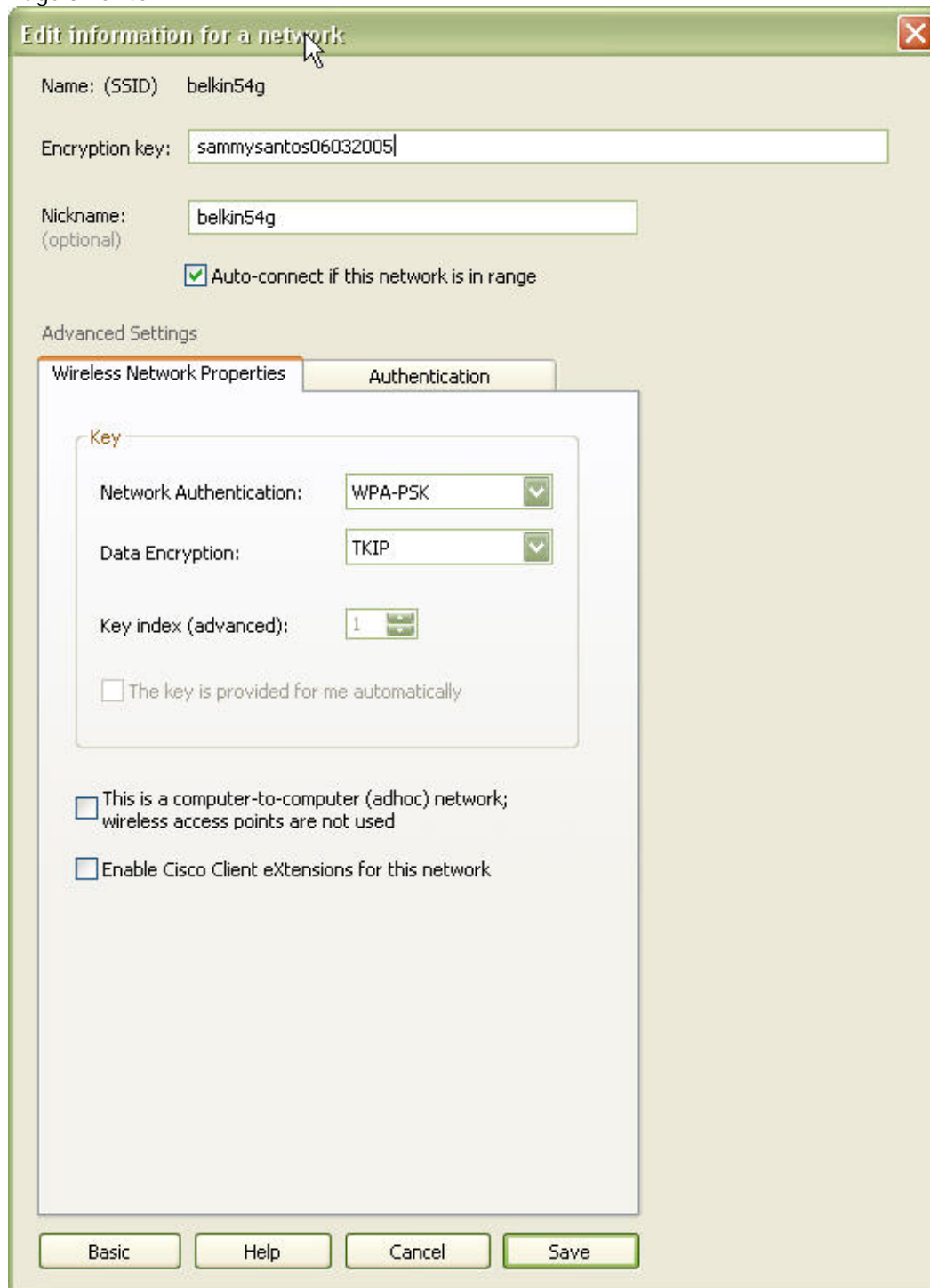
3. Click "Save" to finish. You must now set all clients (network cards) to match these settings.

Wireless Networking Utility Options

[insert F5D7010v8-19.jpg]
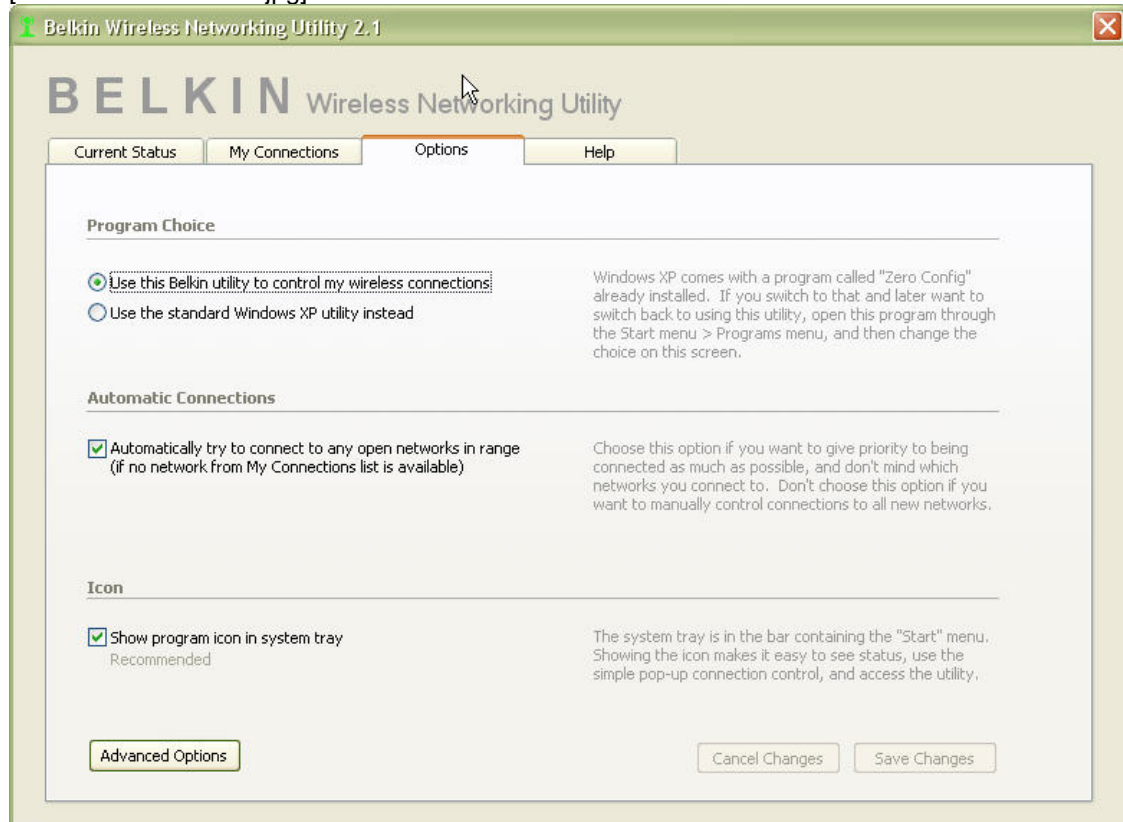
The "Options" tab on the WNU provides the user the ability to customize his or her WNU settings.

Wireless Networking Utility Help

The WNU "Help" tab provides users with access to online and telephone support, as well as advanced diagnostic tools.

[insert F5D7010v8-20.jpg]
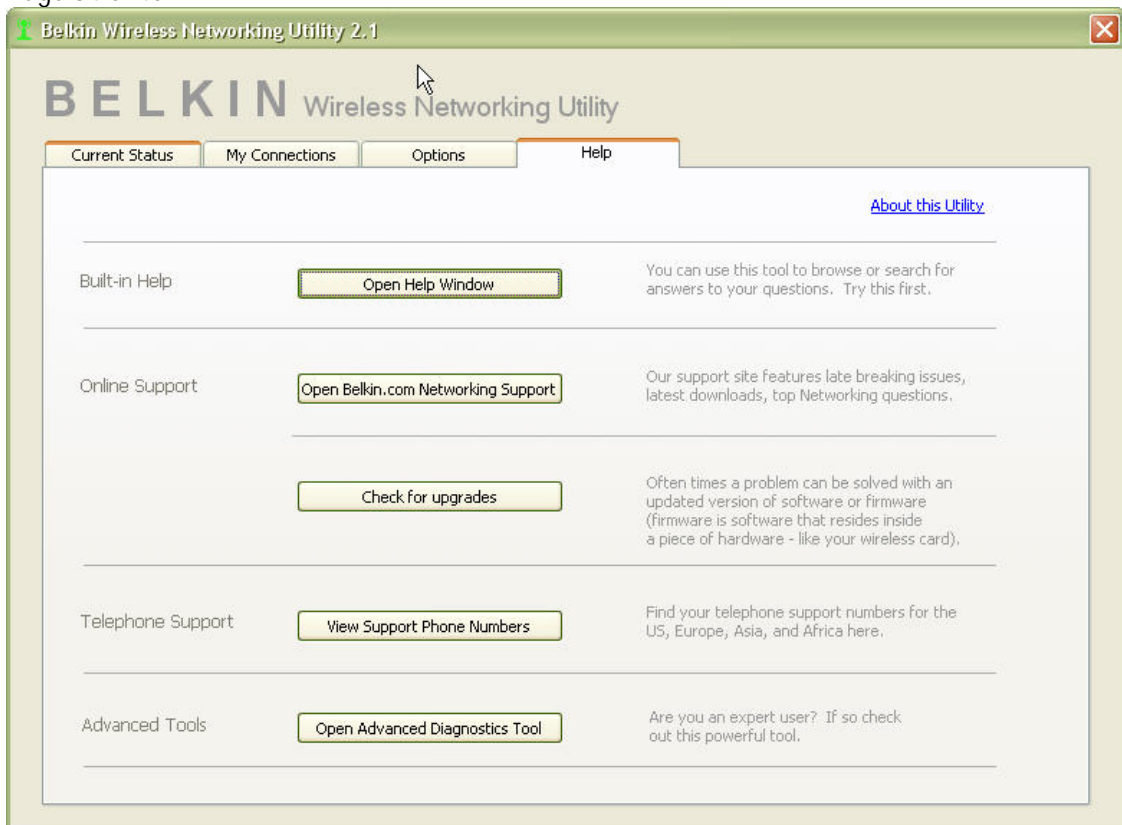
Advanced Diagnostic Tools

The "Advanced Diagnostic Tools" section is the central control panel for all the settings of the hardware and software components of the wireless network. It provides an array of tests and connectivity services to ensure optimal network performance.

[insert F5D7010v8-21.jpg]
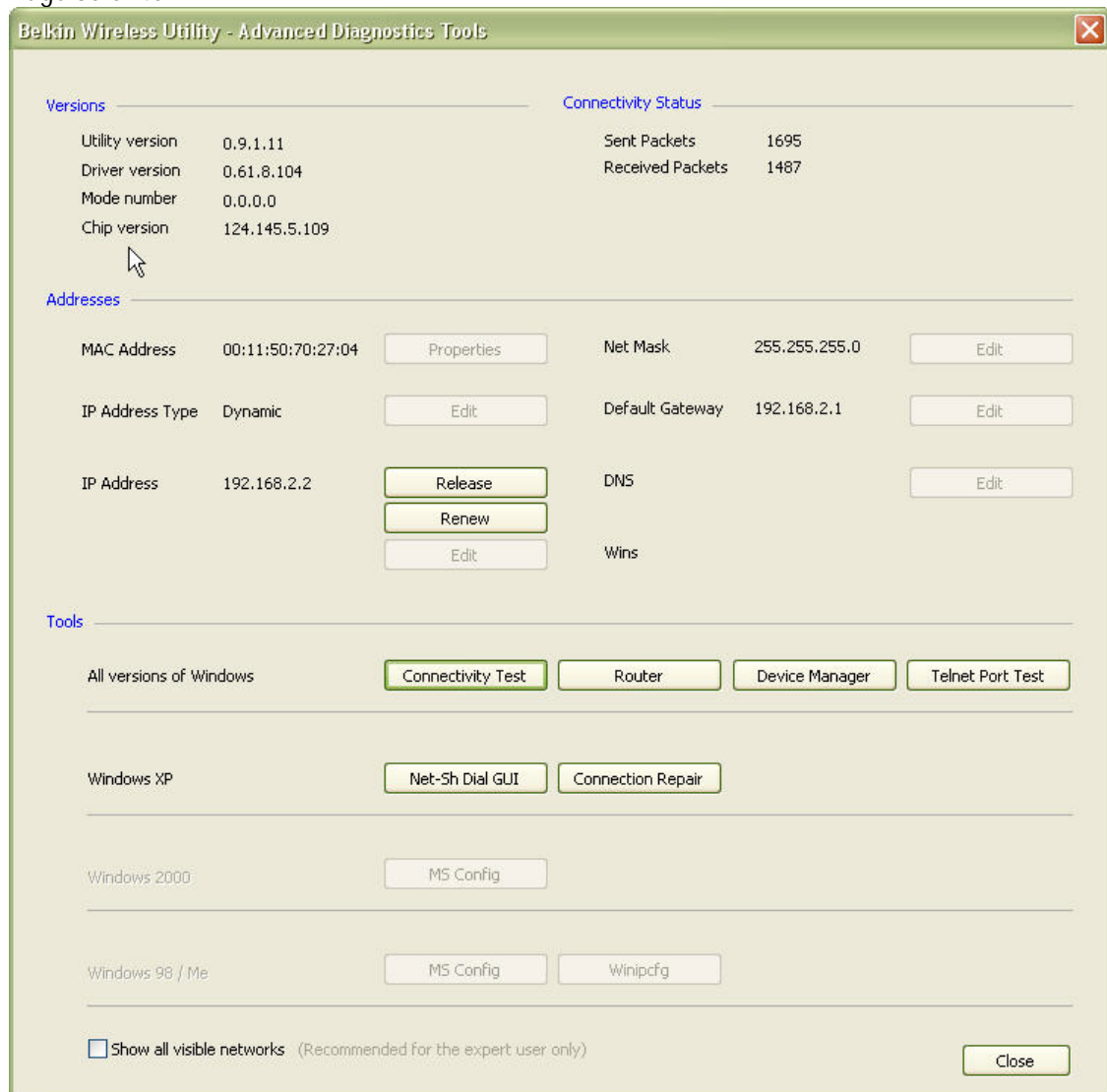
Troubleshooting

I can't connect to the Internet wirelessly.

If you are unable to connect to the Internet from a wireless computer, please check the following items:

1. Look at the lights on your wireless router. If you're using a Belkin Wireless Router, the lights should be as follows:

• The "Power" light should be on.

• The "Connected" light should be on, and not blinking.

• The "WAN" light should be either on or blinking.

If your Belkin Wireless Router's lights have the above characteristics, go to number **2** below.

If this is **NOT** the case, make sure:

• The router's power cord is plugged in.

• All cables are connected between the router and the modem.
• All the modem's LEDs are functioning correctly. If not, see your modem's user manual.
• Reboot the router.
• Reboot the modem.
If you continue to have issues, please contact Belkin Technical Support.
If you are not using a Belkin Wireless Router, consult that router manufacturer's user guide.

2. Open your wireless utility software by clicking on the icon in the system tray at the bottom right-hand corner of the screen. If you're using a Belkin Wireless Card, the tray icon should look like this (the icon may be red or green):

[insert F5D7010v8-06.jpg]

3. The exact window that opens will vary depending on the model of wireless card you have; however, any of the utilities should have a list of "Available Networks".

Available networks are wireless networks to which you can connect.
If you are using a Belkin 802.11g (G Plus) Router, or Belkin 802.11g (54g) Router, "Belkin54g" is the default name.

If you are using a Belkin 802.11b Router, the default name should be "WLAN".

If you are NOT using a Belkin Router, please consult your router manufacturer's user manual for the default name.

The name of your wireless network appears in "Available Networks".
If the correct network name is listed in the "Available Networks" list, please follow the steps below to connect wirelessly:
1. Click on the correct network name in the "Available Networks" list.
2. If the network has security (encryption) enabled, you will need to enter the network key. Click "Connect". For more information regarding security, see the page entitled: "Securing your Wi-Fi Network" on page 19 of this User Manual.
3. Within a few seconds, the tray icon in the lower right-hand corner of your screen should turn green, indicating a successful connection to the network.

If you are still unable to access the Internet after connecting to the wireless network, please contact Belkin Technical Support.

**The name of your wireless network DOES NOT appear in the list
of "Available Networks".**
If the correct network name is not listed, check the SSID settings to see if they
match. The SSID is case-sensitive and the spelling on each computer must be
exactly the same in order for the Card to connect to the wireless router (or
access point).

Note: To check the SSID settings or look for an available network, double-click
the Signal Indicator icon to bring up the "Wireless Networks" screen. Click "Add"
if you do not see the network you are trying to connect to and type in the SSID.
For more information about setting up an SSID, please reference your router
manufacturer's user manual.
If issues persist even at close range, please contact Belkin Technical Support.

Installation CD-ROM does not start Belkin Wireless Networking Utility.
If the CD-ROM does not start the Belkin Wireless Networking Utility automatically,
it could be that the computer is running other applications that are interfering with
the CD drive. If the Belkin Wireless Networking Utility screen does not appear
within 15-20 seconds, open up your CD-ROM drive by double-clicking on the "My
Computer" icon. Next, 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".

Power LED does not come ON; Card is not working.
If the LED indicators are not ON, the problem may be that the Card is not
connected or installed properly. Verify that the Card is plugged firmly into the
CardBus slot of your computer. Check to see that the drivers for the Card have
been installed. Right-click on the "My Computer" icon on your desktop. Choose
"Properties" and navigate to the "Device Manager" and see if your CardBus Card
is listed without any errors. If an error is indicated, contact Belkin Technical
Support.

**Link LED is blinking slowly; I cannot connect to a wireless network or the
Internet.**
If your Card appears to be functioning properly, but you cannot connect to a
network or you have a red wireless icon at the bottom of your screen, the
problem may be that there is a mismatch between the network name (SSID)
settings in your wireless network properties.

Check the SSID settings to see if they match. The SSID is case-sensitive and the
spelling on each computer must be exactly the same in order for the Card to
connect to the wireless router (or access point).

Note: To check the SSID settings or look for an available network, double-click the Signal Indicator icon to bring up the "Wireless Networks" screen. Click "Add" if you do not see the network you are trying to connect to and type in the SSID. For more information about setting up an SSID, please reference your router manufacturer's user manual. If issues persist even at close range, please contact Belkin Technical Support.

Link LED is solid but I cannot connect to the Internet.
If you have a signal but can't get online or obtain an IP address, the problem may be that there is a mismatch between the encryption key settings in your computer and wireless router (or access point). Check the WEP key settings to see if they match. The key is case-sensitive and the spelling on each computer and wireless router (or access point) must be exactly the same in order for the Card to connect to the router. For more information about encryption, please see "Securing your Wi-Fi Network" on page 19 of this User Manual.
If issues persist even at close range, please contact Belkin Technical Support.

Data transfer is sometimes slow.
Wireless technology is radio-based, which means connectivity and the throughput performance between devices decreases when the distance between devices increases. Other factors that will cause signal degradation (metal is generally the worst culprit) are obstructions such as walls and metal appliances. As a result, the typical indoor range of your wireless devices will be between 100 to 200 feet. Note also that connection speed may decrease as you move farther from the wireless router (or access point).

In order to determine if wireless issues are related to range, we suggest temporarily moving the computer, if possible, to five to 10 feet away from the wireless router (or access point). Please see the section titled "Placement of your Wireless Networking Hardware for Optimal Performance" on page 2 of this User Manual. If issues persist even at close range, please contact Belkin Technical Support.

Signal strength is poor.
Wireless technology is radio-based, which means connectivity and the throughput performance between devices **decreases** when the distance between devices **increases**. Other factors that will cause signal degradation (metal is generally the worst culprit) are obstructions such as walls and metal appliances. As a result, the typical indoor range of your wireless devices will be between 100 to 200 feet. Note also that connection speed may decrease as you move farther from the wireless router (or access point). In order to determine if wireless issues are related to range, we suggest temporarily moving the computer, if possible, to five to 10 feet away from wireless router (or access point).

Changing the wireless channel – Depending on local wireless traffic and interference, switching the wireless channel of your network can improve performance and reliability. The default channel the router is shipped with is

channel 11. You may choose from several other channels depending on your region; see your router's (or access point's) user manual for instructions on how to choose other channels.

Limiting the wireless transmit rate – Limiting the wireless transmit rate can help improve the maximum wireless range, and connection stability. Most wireless cards have the ability to limit the transmission rate. To change this property, go to the Windows Control Panel, open "Network Connections" and double-click on your Card's connection. In the "Properties" dialog, select the "Configure" button on the "General" tab (Windows 98 users will have to select the Wireless Card in the list box and then click "Properties"), then choose the "Advanced" tab and select the rate property. Wireless client cards are usually set to automatically adjust the wireless transmit rate for you, but doing so can cause periodic disconnects when the wireless signal is too weak; as a rule, slower transmission rates are more stable. Experiment with different connection rates until you find the best one for your environment; note that all available transmission rates should be acceptable for browsing the Internet. For more assistance, see your wireless card's literature. If issues persist even at close range, please contact Belkin Technical Support.

Why are there two wireless utilities in my system tray?
Which one do I use?
There are several features and advantages from using the Belkin Wireless Networking Utility over the Windows XP Wireless Zero Configuration utility. We offer a site survey, detailed link information, and adapter diagnosis, to name a few.

It's essential to know which utility is managing your Card. We recommend using the Belkin Wireless Networking Utility. To use the Belkin Wireless Networking Utility, follow the steps below:

Step 1 Right-click on the network status icon in the system tray and select the "Status" tab.

Step 2 From the "Status" tab, uncheck the "Use Windows to configure my wireless network settings" box. Once the box is unchecked, click the "Close" button to close the window.

You are now using the Belkin Wireless Networking Utility to configure the Card.

Card does not perform or connection is unstable when computer has
a second built-in wireless network card (such as a mini PCI or
Intel® Centrino™).
This condition occurs if your computer has a built-in wireless card while your Belkin Wireless Card is also active. This happens because Windows must now handle two active wireless connections.

You need to disable the built-in wireless card from your computer under "Network Adapters" in the Device Manager.

Card does not perform or connection is slow when computer has a built-in wired Ethernet card.
This condition occurs if your computer has an active Ethernet card while your Wireless Card is also active. This happens because Windows must now handle two active network connections. You need to disable the Ethernet card from your computer under "Network Adapters" in the Device Manager.

What's the difference between 802.11b, 802.11g, 802.11a, and Pre-N?

Currently there are four levels of wireless networking standards, which transmit data at very different maximum speeds. Each is based on the designation for certifying network standards. The most common wireless networking standard, 802.11b, transmits information at 11Mbps; 802.11a and 802.11g work at 54Mbps; and Pre-N works at 108Mbps. Pre-N, the precursor to the upcoming 802.11n release, promises speeds that exceed 802.11g, and up to twice the wireless coverage area. See the following chart for more detailed information.

Wireless Comparison Chart

Wireless Technology	802.11b	802.11g	802.11a	Belkin Pre-N
Speed	11Mbps	54Mbps	54Mbps	600% faster than standard 802.11g*
Frequency	Common household devices such as cordless phones and microwave ovens may interfere with the unlicensed band 2.4GHz	Common household devices such as cordless phones and microwave ovens may interfere with the unlicensed band 2.4GHz	5GHz— uncrowded band	Common household devices such as cordless phones and microwave ovens may interfere with the unlicensed band 2.4GHz
Compatibility	Compatible with 802.11g	Compatible with 802.11b	Incompatible with 802.11b or 802.11g	Compatible with 802.11g or 802.11b
Coverage*	Depends on interference— typically 100–200 ft. indoors	Depends on interference— typically 100–200 ft. indoors	Interference range is typically 50–100 ft.	Up to 800% wider coverage than standard 802.11g*
Advantage	Mature—legacy technology	Common— widespread use for Internet sharing	Less interference— great for multimedia application	Leading edge— best coverage and throughput

*Distance and connection speeds will vary depending on your networking environment.

Technical Support

You can find technical support information at **www.belkin.com** or **www.belkin.com/networking**. If you want to contact technical support by phone, please call:

US: 877-736-5771
800-223-5546 ext. 2263
310-898-1100 ext. 2263
UK: 0845 607 77 87
Australia: 1800 235 546
New Zealand: 0800 235 546
Singapore: 65 64857620
Europe: www.belkin.com/support

Information

FCC Statement

DECLARATION OF CONFORMITY WITH FCC RULES FOR ELECTROMAGNETIC COMPATIBILITY
We, Belkin International, Inc., of 501 West Walnut Street, Compton, CA 90220, declare under our sole responsibility that the product, F5D7010v8,
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.

Caution: Exposure to Radio Frequency Radiation.
Nevertheless, the device shall be used in such a manner that the potential for human contact during normal operation is minimized.
This EUT is compliance with SAR for general population/uncontrolled exposure limits in ANSI/IEEE C95.1-1999 and had been tested in accordance with the measurement methods and procedures specified in OET Bulletin 65 Supplement C.

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

Federal Communications Commission Notice
IEEE 802.11b or 11g operation of this product in the USA is firmware-limited to channels 1 through 11. This equipment has been tested and found to comply with the limits 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 in accordance with 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 can be determined by turning the equipment off and on, the user is encouraged to try and correct the interference by one or more of the following measures:

• Reorient or relocate the receiving antenna.
• Increase the distance between the equipment and the receiver.
• Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
• Consult the dealer or an experienced radio/TV technician for help.

Modifications
The FCC requires the user to be notified that any changes or modifications to this device that are not expressly approved by Belkin International, Inc., may void the user's authority to operate the equipment.

Canada-Industry Canada (IC)
To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p) is not more than that permitted for successful communication.

The wireless radio of this device complies with RSS 210 Industry
Canada. This Class B digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe B conforme á la norme NMB-003 du 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.

Europe-European Union Notice
Radio products with the CE 0682 or CE alert marking comply with the R&TTE Directive (1995/5/EC) issued by the Commission of the European Community. Compliance with this directive implies conformity to the following European Norms (in brackets are the equivalent international standards).
• EN 60950-1 (IEC60950-1) – Product Safety
• EN 300 328 Technical requirement for radio equipment
• ETS 301 489 General EMC requirements for radio equipment.
To determine the type of transmitter, check the identification label on your Belkin product.

Products with the CE marking comply with the EMC Directive (89/336/EEC) and the Low Voltage Directive (72/23/EEC) issued by the Commission of the European Community. Compliance with these directives implies conformity to the following European Norms (in brackets are the equivalent international standards).
• EN 55022 (CISPR 22) – Electromagnetic Interference
• EN 55024 (IEC61000-4-2,3,4,5,6,8,11) – Electromagnetic Immunity

• EN 61000-3-2 (IEC610000-3-2) – Power Line Harmonics
• EN 61000-3-3 (IEC610000) – Power Line Flicker
• EN 60950-1 (IEC60950-1) – Product Safety
Products that contain the radio transmitter are labeled with CE 0682 or CE alert marking and may also carry the CE logo.

Belkin International, Inc., Limited Lifetime Product Warranty

What this warranty covers.
Belkin International, Inc., warrants to the original purchaser of this Belkin product that the product shall be free of defects in design, assembly, material, or workmanship.

What the period of coverage is.
Belkin International, Inc., warrants the Belkin product for the lifetime of the product.

What will we do to correct problems?
Product Warranty.
Belkin will repair or replace, at its option, any defective product free of charge (except for shipping charges for the product).

What is not covered by this warranty?
All above warranties are null and void if the Belkin product is not provided to Belkin International, Inc., for inspection upon Belkin's request at the sole expense of the purchaser, or if Belkin International, Inc., determines that the Belkin product has been improperly installed, altered in any way, or tampered with. The Belkin Product Warranty does not protect against acts of God such as flood, lightning, earthquake, war, vandalism, theft, normal-use wear and tear, erosion, depletion, obsolescence, abuse, damage due to low voltage disturbances (i.e. brownouts or sags), non-authorized program, or system equipment modification or alteration.

How to get service.
To get service for your Belkin product you must take the following steps:

1.   Contact Belkin International, Inc., at 501 W. Walnut St., Compton CA 90220, Attn: Customer Service, or call (800)-223-5546, within 15 days of the Occurrence. Be prepared to provide the following information:
        a. The part number of the Belkin product.
        b. Where you purchased the product.
        c. When you purchased the product.
        d. Copy of original receipt.

2.   Your Belkin Customer Service Representative will then instruct you on how to forward your receipt and Belkin product and how to proceed with your claim.

Belkin International, Inc., reserves the right to review the damaged Belkin product. All costs of shipping the Belkin product to Belkin International, Inc., for inspection shall be borne solely by the purchaser. If Belkin determines, in its sole discretion, that it is impractical to ship the damaged equipment to Belkin International, Inc., Belkin may designate, in its sole discretion, an equipment repair facility to inspect and estimate the cost to repair such equipment. The cost, if any, of shipping the equipment to and from such repair facility and of such estimate shall be borne solely by the purchaser. Damaged equipment must remain available for inspection until the claim is finalized. Whenever claims are settled, Belkin International, Inc., reserves the right to be subrogated under any existing insurance policies the purchaser may have.

How state law relates to the warranty.
THIS WARRANTY CONTAINS THE SOLE WARRANTY OF BELKIN INTERNATIONAL, INC., THERE ARE NO OTHER WARRANTIES, EXPRESSED OR, EXCEPT AS REQUIRED BY LAW, IMPLIED, INCLUDING THE IMPLIED WARRANTY OR CONDITION OF QUALITY, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, AND SUCH IMPLIED WARRANTIES, IF ANY, ARE LIMITED IN DURATION TO THE TERM OF THIS WARRANTY.

Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you.

IN NO EVENT SHALL BELKIN INTERNATIONAL, INC., BE LIABLE FOR INCIDENTAL, SPECIAL, DIRECT, INDIRECT, CONSEQUENTIAL OR MULTIPLE DAMAGES SUCH AS, BUT NOT LIMITED TO, LOST BUSINESS OR PROFITS ARISING OUT OF THE SALE OR USE OF ANY BELKIN PRODUCT, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

This warranty gives you specific legal rights, and you may also have other rights, which may vary from state to state. Some states do not allow the exclusion or limitation of incidental, consequential, or other damages, so the above limitations may not apply to you.

BELKIN
Wireless G Notebook Card

Belkin Tech Support
US: 877-736-5771
800-223-5546 ext. 2263
310-898-1100 ext. 2263
UK: 0845 607 77 87
Australia: 1800 235 546
New Zealand: 0800 235 546

Singapore: 65 64857620
Europe: www.belkin.com/support

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