

**BELKIN.**  
**G Wireless Router**  
**User Manual**

PM01110 F5D7234-4



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# INTRODUCTION

Thank you for purchasing the Belkin G Wireless Router (the Router). The following two short sections discuss the benefits of home networking and outline best practices for maximizing your wireless home network range and performance. Please be sure to read through this User Manual completely, and pay special attention to the section entitled “Placement of your Router for Optimal Performance” on page 2.

## Benefits of a Home Network

- 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 – The Belkin Setup Assistant software makes 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 lets 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 Router for Optimal Performance

### Important Factors for Placement and Setup

Your wireless connection will be stronger the closer your computer is to your Router. Typical indoor operating range for 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 Router and connected devices increases. This may or may not be noticeable to you. As you move farther from your Router, 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 away from the Router 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. Wireless Router Placement

Place your Router, 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 Router's networking antennas are parallel to each other, and are positioned vertically (toward the ceiling). If your Router itself is positioned vertically, point the antennas as much as possible in an upward direction.
- In multistory homes, place the Router on a floor that is as close to the center of the home as possible. This may mean placing the Router on an upper floor.
- Try not to place the Router near a cordless phone.

### 2. Avoid Obstacles and Interference

Avoid placing your Router near devices that may emit radio "noise," such as microwave ovens. Dense objects that can inhibit wireless communication 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 Router).

### 3. Cordless Phones

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 Router and your wireless-enabled computers.
- Unplug and remove the battery from any cordless phone that operates on the 2.4GHz band (check the 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. For example, change the phone to channel 1 and move your Router to channel 11. See your phone's user manual for detailed instructions.
- If necessary, consider switching to a 900MHz 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 found in the wireless utility of your wireless adapter or card to locate any other wireless networks that are available (see your wireless adapter's or card's user manual), and move your Router 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 Belkin wireless networking products, use the detailed Site Survey and wireless channel information included with your Wireless Network Card or Adapter. See your Network Card's user guide for more information.

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

## 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 easiest solution to avoid this is to simply reconnect by rerunning 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 under Windows, see the “Power Options” item in the Control Panel.

If you continue to have difficulty with secure connections, VPNs, and AOL, please review the steps above to be sure you have addressed these issues.

For more information regarding our networking products, visit our website at [www.belkin.com/networking](http://www.belkin.com/networking).

# PRODUCT OVERVIEW

## Product Features

In minutes you will be able to share your Internet connection and network your computers. The following is a list of features that make your new Belkin G Wireless Router an ideal solution for your home or small office network.

### Works with Both PCs and Mac® Computers

The Router supports a variety of networking environments including Mac OS®, 9.x, X v10.x, AppleTalk®, Linux®, Windows® 98, Me, NT®, 2000, XP, Vista®, and others. All that is needed is an Internet browser and a network adapter that supports TCP/IP (the standard language of the Internet).

### Front-Panel LED Display

Lighted LEDs on the front of the Router indicate which functions are in operation. You'll know at-a-glance whether your Router is connected to the Internet. This feature eliminates the need for advanced software and status-monitoring procedures.

### Web-Based Advanced User Interface

You can set up the Router's advanced functions easily through your web browser, without having to install additional software onto the computer. There are no disks to install or keep track of and, best of all, you can make changes and perform setup functions from any computer on the network quickly and easily.

### NAT IP Address Sharing

Your Router employs Network Address Translation (NAT) to share the single IP address assigned to you by your Internet Service Provider while saving the cost of adding IP addresses to your Internet service account.

### SPI Firewall

Your Router is equipped with a firewall that will protect your network from a wide array of common hacker attacks including IP Spoofing, Land Attack, Ping of Death (PoD), Denial of Service (DoS), IP with zero length, Smurf Attack, TCP Null Scan, SYN flood, UDP flooding, Tear Drop Attack, ICMP defect, RIP defect, and fragment flooding.

### Integrated 10/100 4-Port Switch

The Router has a built-in, 4-port network switch to allow your wired computers to share printers, data and MP3 files, digital photos, and much more. The switch features automatic detection so it will adjust to the speed of connected devices. The switch will transfer data between computers and the Internet simultaneously without interrupting or consuming resources.

### Universal Plug-and-Play (UPnP) Compatibility

UPnP (Universal Plug-and-Play) is a technology that offers seamless operation of voice messaging, video messaging, games, and other applications that are UPnP-compliant.

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### Support for VPN Pass-Through

If you connect to your office network from home using a VPN connection, your Router will allow your VPN-equipped computer to pass through the Router and to your office network.

### Built-In Dynamic Host Configuration Protocol (DHCP)

Built-In Dynamic Host Configuration Protocol (DHCP) on-board makes for the easiest possible connection of a network. The DHCP server will assign IP addresses to each computer automatically so there is no need for a complicated networking setup.

### Setup Assistant

The Setup Assistant takes the guesswork out of setting up your Router. This automatic software determines your network settings for you and sets up the Router for connection to your Internet Service Provider (ISP). In a matter of minutes, your Wireless Router will be up and running on the Internet.

**NOTE:** Setup Assistant software is compatible with Windows 2000, XP, Vista, and Mac OS X v10.4 and v10.5. If you are using another operating system, the Wireless Router can be set up using the Alternate Setup Method described in this User Manual (see page 25).

### Integrated 802.11g Wireless Access Point

802.11g is an exciting new wireless technology that achieves data rates up to 54Mbps, nearly five times faster than 802.11b.

### MAC Address Filtering

For added security, you can set up a list of MAC addresses (unique client identifiers) that are allowed access to your network. Every computer has its own MAC address. Simply enter these MAC addresses into a list using the Web-Based Advanced User Interface and you can control access to your network.



# KNOWING YOUR ROUTER

## Package Contents

- Belkin G Wireless Router
- Quick Installation Guide
- Belkin Setup Assistant CD with User Manual
- Belkin RJ45 Ethernet Networking Cable
- Power Supply

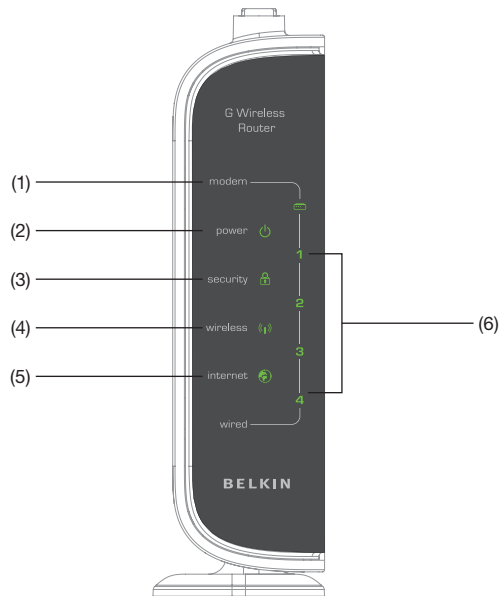
## System Requirements

- Broadband Internet connection such as a cable or DSL modem with RJ45 (Ethernet) connection
- At least one computer with an installed network interface adapter
- TCP/IP networking protocol installed on each computer
- RJ45 Ethernet networking cable
- Internet browser

## Setup Assistant Software System Requirements

- A PC running Windows 2000, XP, or Vista, or a Mac computer running Mac OS X v10.4 or v10.5
- Minimum 512MB RAM
- Internet browser

The Router has been designed to be placed on a desktop. All of the cables exit from the rear of the Router for better organization and utility. The LED indicators are easily visible on the front of the Router to provide you with information about network activity and status.



## 1. Modem LED

This LED lights in GREEN to indicate that your modem is connected properly to the Router. It blinks rapidly when information is being sent over the port between the Router and the modem.

OFF	Not connected to the modem
Solid Green	Connected to the modem
Blinking Green	Router is connecting to the ISP/ indicates modem activity

## 2. Power LED

When you apply power to the Router or restart it, a short period of time elapses while the Router boots up. During this time, the Power LED blinks. When the Router has completely booted up, the Power LED becomes a SOLID light, indicating the Router is ready for use.

OFF	Router is OFF
Blinking Green	Router is booting up
Solid Green	Router is ON and ready

## 3. Security LED

OFF	Wireless security is OFF
Solid Green	Wireless security is ON
Flashing Green	WPS sync in progress

## 4. Wireless LED

OFF	Wireless is OFF
Solid Green	Wireless is ON and ready
Blinking Green	Indicates wireless activity

## 5. Internet LED

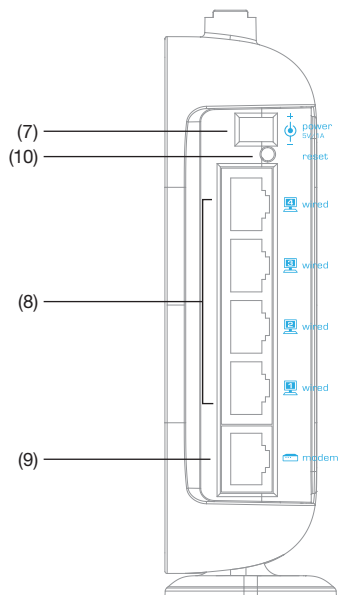
This unique LED shows you when the Router is connected to the Internet. When the light is OFF, the Router is NOT connected to the Internet. When the light is blinking, the Router is attempting to connect to the Internet. When the light is solid GREEN, the Router is connected to the Internet. When using the “Disconnect after x minutes” feature, this LED becomes extremely useful in monitoring the status of your Router’s connection.

OFF	Router is not connected to the Internet
Blinking Green	Router is attempting to connect to the Internet
Solid Green	Router is connected to the Internet

## 6. Wired LEDs (1 – 2 – 3 – 4)

These LEDs are labeled 1–4 and correspond to the numbered ports on the rear of the Router. When a computer is properly connected to one of the wired computer ports on the rear of the Router, the LED will light. GREEN means a 10/100Base-T device is connected. When information is being sent over the port, the LED blinks rapidly.

OFF	No device is linked to the port
Green	10/100Base-T device connected
Blinking Green	Port activity



### 7. Power Jack

Connect the included 5V DC power supply to this jack.

### 8. Connections to Computers (Wired Computer Ports) – Gray

Connect your wired (non-wireless) computers to these ports. These ports are RJ45, 10/100 auto-negotiation, auto-uplinking ports for standard UTP category 5 or 6 Ethernet cable. The ports are labeled 1 through 4. These ports correspond to the numbered LEDs on the front of the Router.

### 9. Connection to Modem (Modem Port) – Yellow

This port is for connection to your cable or DSL modem. Use the cable that was provided with the modem to connect the modem to this port. Use of a cable other than the cable supplied with the cable modem may not work properly.

### 10. Reset Button

The “Reset” button is used in rare cases when the Router may function improperly. Resetting the Router will restore the Router’s normal operation while maintaining the programmed settings. You can also restore the factory default settings by using the “Reset” button. Use the restore option in instances where you may have forgotten your custom password.

#### a. Resetting the Router

Push and release the “Reset” button. The lights on the Router will momentarily flash. The “Power” light will begin to blink. When the “Power” light becomes solid again, the reset is complete.

#### b. Restoring the Factory Defaults

Press and hold the “Reset” button for at least 10 seconds, then release it. The lights on the Router will momentarily flash. The “Power” light will begin to blink. When the “Power” light becomes solid again, the restore is complete.

# CONNECTING AND CONFIGURING YOUR ROUTER

## Verify the contents of your box. You should have the following:

- Belkin G Wireless Router
- Quick Installation Guide
- Belkin Setup Assistant Software CD with User Manual
- RJ45 Ethernet Networking Cable
- Power Supply

## Modem Requirements

Your cable or DSL modem must be equipped with an RJ45 Ethernet port. Many modems have both an RJ45 Ethernet port and a USB connection. If you have a modem with both Ethernet and USB, and are using the USB connection at this time, you will be instructed to use the RJ45 Ethernet port during the installation procedure. If your modem has only a USB port, you can request a different type of modem from your ISP, or you can, in some cases, purchase a modem that has an RJ45 Ethernet port on it.



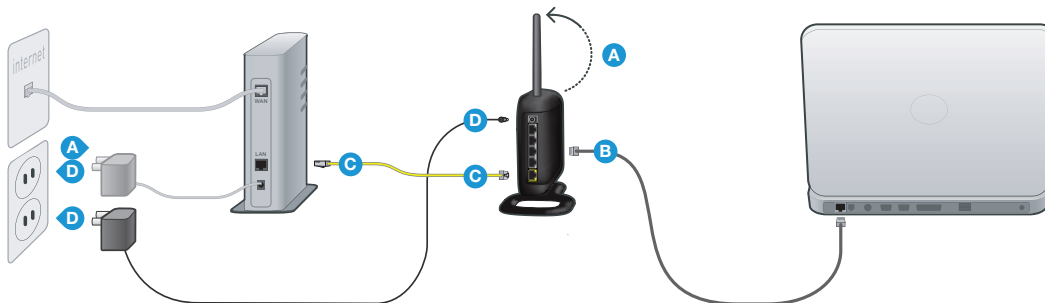
## Setup Assistant

Belkin has provided our Setup Assistant software to make installing your Router a simple and easy task. You can use it to get your Router up and running in minutes. The Setup Assistant requires that your Windows 2000, XP, or Vista, or Mac OS X v10.4 or v10.5, computer be connected directly to your cable or DSL modem and that the Internet connection is active and working at the time of installation. If it is not, you must use the “Alternate Setup Method” section of this User Manual to configure your Router. Additionally, if you are using an operating system other than Windows 2000, XP, or Vista, or Mac OS X v10.4 or v10.5, you must set up the Router using the “Alternate Setup Method” section of this User Manual.

**ALWAYS INSTALL YOUR ROUTER FIRST!** If you are installing numerous network devices for the first time, it is important that your router is connected and running before attempting to install other network components such as notebook cards and desktop cards.

## CONNECTING AND CONFIGURING YOUR ROUTER

### Step 1: Hardware Connections



- A. Unplug your modem's power cord. Put the Router next to the modem. Raise the Router's antenna.
- B. Locate the networking cable that connects your modem and computer. Unplug that cable from your modem, and plug it into any gray port on the back of the Router.
- C. Find your new networking cable (included in the box with your Router) and connect it to the yellow port on the back of the Router. Connect the other end to your modem, in the port that's now free.
- D. Plug in your modem's power cord. Wait 60 seconds for the modem to start up. Plug the Router's power supply into the black port on the back. Plug the other end into the wall outlet.



- E. Wait 20 seconds for the Router to start up. Look at the display on the front of the Router. Make sure the "Wired" and "Power" icons are lit up in blue. If they are not, recheck your connections.

## Step 2: Set Up the Router – Run the Setup Assistant Software

- A. Shut down any programs that are running on your computer at this time. Turn off any firewall or Internet-connection-sharing software on your computer.
- B. Insert the CD into your computer. The Setup Assistant will automatically appear on your computer's screen within 15 seconds. Click on "Go" to run the Setup Assistant. Follow the instructions there.

**IMPORTANT:** Run the Setup Assistant from the computer that is directly connected to the Router from Step 1 – B.



**Note for Windows Users:** If the Setup Assistant does not start up automatically, select your CD-ROM drive from "My Computer" and double-click on the file named "SetupAssistant" to start the Setup Assistant.

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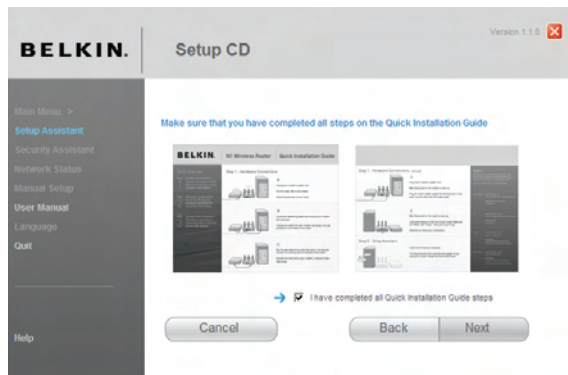
### Select Country

Select your country from the drop-down box. Click “Begin” to continue.



### Confirmation Screen

Verify that you have completed all QIG steps by checking the box to the right of the arrow. Click “Next” to continue.





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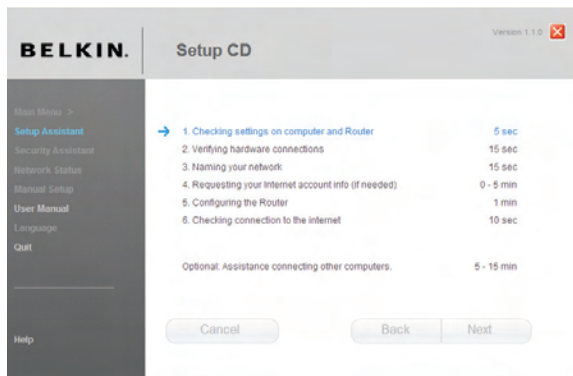
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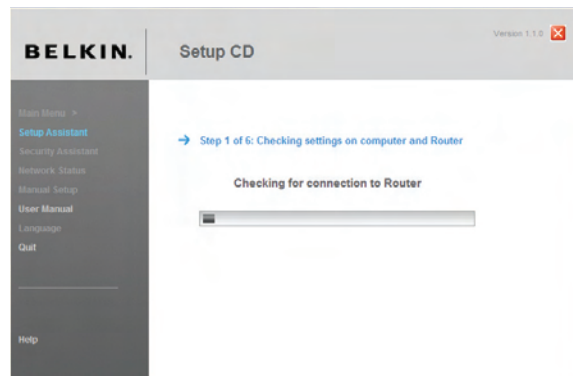
### Progress Screen

Setup Assistant will show you a progress screen each time a step in the setup has been completed.



### 2.1 Checking Settings

The Setup Assistant will now examine your computer's network settings and gather information needed to complete the Router's connection to the Internet.



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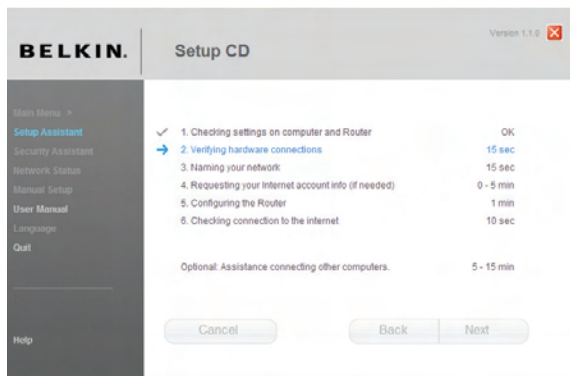
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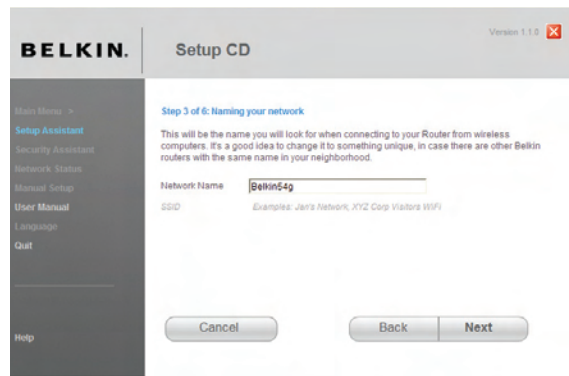
## 2.2 Verifying Hardware Connections

The Setup Assistant will now verify your hardware connection.



## 2.3 Naming your Wireless Network

The Setup Assistant will display the default wireless network name or Service Set Identifier (SSID). This is the name of your wireless network to which your computers or devices with wireless network adapters will connect. You can either use the default or change it to something unique. Write down this name for future reference.



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### 2.4 Requesting Internet Account Info (if needed)

Select your ISP from the drop-down boxes.

The screenshot shows the 'Setup CD' interface for a Belkin router. The title bar includes the 'BELKIN.' logo, 'Setup CD', and 'Version 1.1.0'. A left sidebar contains a 'Main Menu' with options: 'Setup Assistant', 'Security Assistant', 'Network Status', 'Manual Setup', 'User Manual', 'Language', 'Quit', and 'Help'. The main content area is titled 'Step 4 of 6: Internet account info' and contains the text: 'The Router needs a bit more information to connect to the Internet. When you tell us who provides your service, we can configure most of this.' Below this is a label 'Internet Service Provider (ISP)' and a dropdown menu with the text 'Please select a provider...'. At the bottom, there is a link: 'Don't you see your ISP in the list? [Click Here.](#)' and three buttons: 'Cancel', 'Back', and 'Next'.

The screenshot shows the 'Setup CD' interface for a Belkin router, specifically the 'manual entry' sub-step. The title bar includes the 'BELKIN.' logo, 'Setup CD', and 'Version 1.1.0'. The left sidebar is identical to the previous screenshot. The main content area is titled 'Step 4 of 6: Internet account info - manual entry' and contains the text: 'Enter the following information for the connection type you chose on the last screen. Your ISP provided this information.' Below this are several input fields: 'User Name' (containing 'John@MyISP.net'), 'Password' (with a 'View Password' checkbox), 'Service Name', 'Connect on Demand' (checkbox), and 'Timeout' (input field). At the bottom, there are three buttons: 'Cancel', 'Back', and 'Next'.

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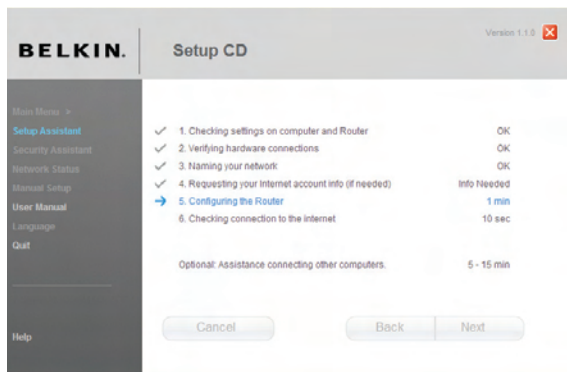
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### 2.5 Configuring the Router

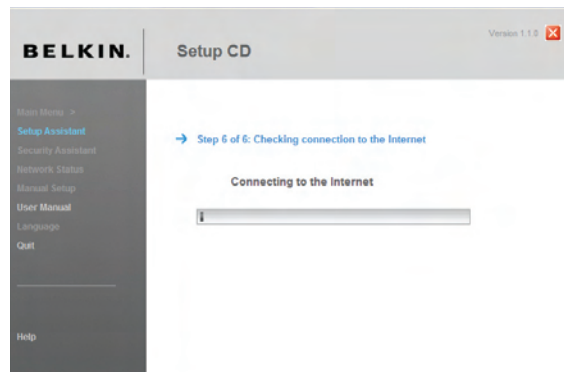
The Setup Assistant will now configure your Router by sending data to the Router and restarting it. Wait for the on-screen instructions.

**Note:** Do not disconnect any cable or power off the Router while the Router is rebooting. Doing so will render your Router inoperable.



### 2.6 Checking Internet Connection

We are almost done. The Setup Assistant will now check your connection to the Internet.



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### Congratulations

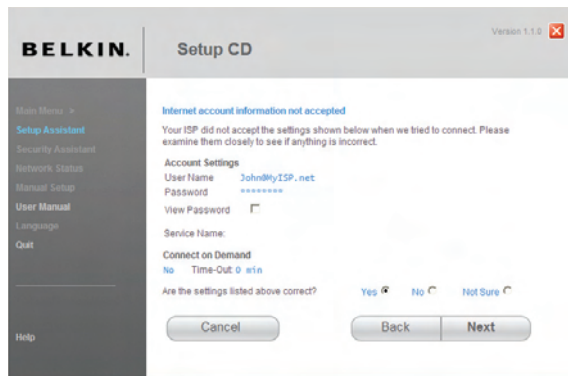
You have finished installing your new Belkin Router. You will see the Congratulations screen when your Router can connect to the Internet. You can begin surfing by opening your browser and going to any website.

You can use the Setup Assistant to set up your other wired and wireless computers to connect to the Internet by clicking “Next”. If you decide to add computers to your Router later, select “Finish—return to Main Menu” and then click “Next”.



### Troubleshooting

If the Setup Assistant is not able to connect to the Internet, you will see the following screen. Follow the on-screen instructions to go through the troubleshooting steps.



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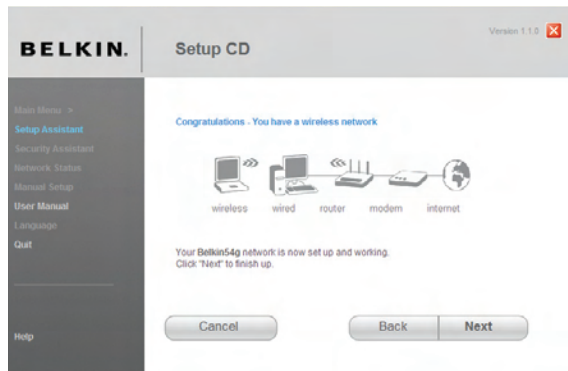
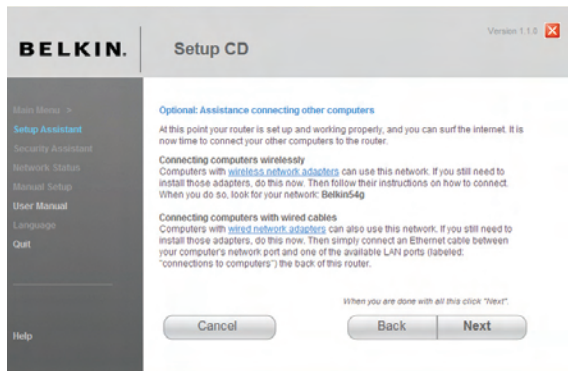
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### 2.7 Optional: Assistance Connecting Other Computers

This optional step will help you to connect additional wired and wireless computers to your network. Follow the on-screen instructions.

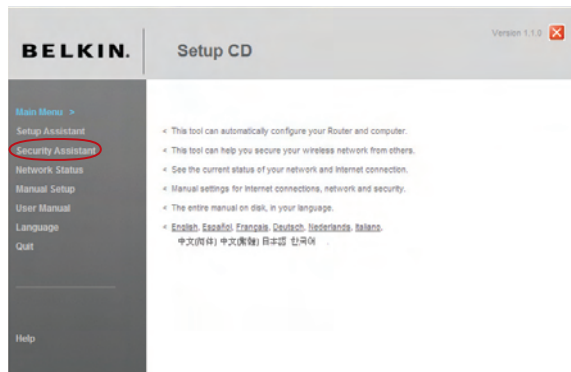
Once you have verified that your other wired and wireless computers are properly connected, your network is set up and working. You can now surf the Internet. Click "Next" to return to the main menu.



### Step 3: Set Up Wireless Security – Run the Security Assistant Software

Now that your network is set up and working, it is recommended that you turn on wireless security to prevent unauthorized access to your network from neighboring wireless-enabled computers. The Security Assistant will guide you through the process. Click “Security Assistant” and follow the on-screen instructions.

**IMPORTANT:** Run the Setup Assistant from the computer that is directly connected to the Router from Steps 1.1B and 1.2B.



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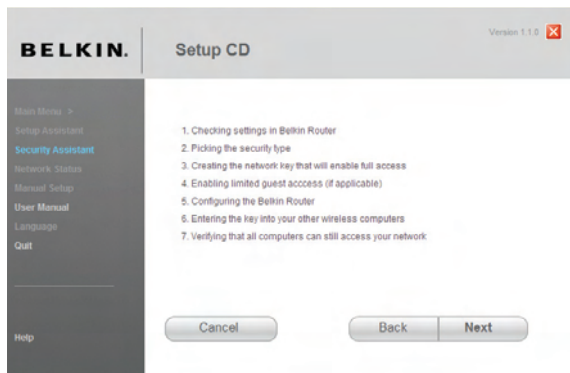
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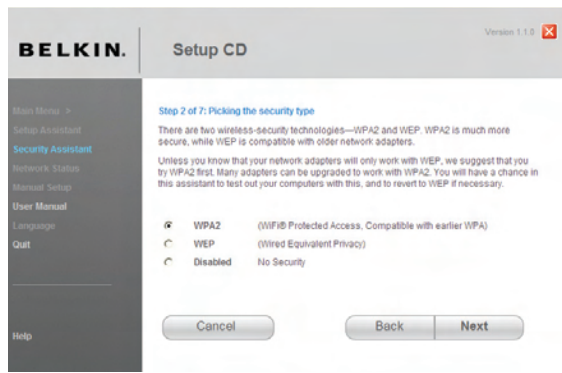
### Progress Screen

The Security Assistant will show you a progress screen each time a step has been completed.



### 3.1 Picking the Security Type

Select the security type for your wireless network and click “Next” to continue.





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### 3.2 Creating a Network Key

Enter a network key (PSK) for your wireless network and click “Next” to continue.

The screenshot shows the Belkin Setup CD interface. At the top, it says "BELKIN. Setup CD" and "Version 1.1.0" with a red close button. On the left is a navigation menu with options: "Basic Menu >", "Setup Assistant", "Security Assistant" (highlighted), "Network Status", "Manual Setup", "User Manual", "Language", "Quit", and "Help". The main content area is titled "Step 3 of 7: Creating a Network Key". It contains the following text: "The key functions like a password, except that once it is entered into your other wireless computers, it stays there. Those computers will always have access to your network unless you change the key on the Router." Below this, it says: "For a secure key, we suggest an easy-to-remember phrase with space, some punctuation, and some words that you can't find in a dictionary. For example, 'My favorite pet is Rex', or 'Pop's place of birth is Warner Springs'. The phrase can be between 8 and 63 characters long." There is a text input field labeled "Network Key" and "PSK" with the value "12345678" entered. At the bottom, there are three buttons: "Cancel", "Back", and "Next".

### 3.3 Transferring the Key

After setting up your wireless security, you will have to transfer the network key to each of your wireless computers. Click on “Transfer Key” if you have a USB flash drive. Follow the on-screen instructions, or click on “Print” to print the information. Manually enter it to each wireless computer. Then, click “Next” to continue.

The screenshot shows the Belkin Setup CD interface. At the top, it says "BELKIN. Setup CD" and "Version 1.1.0" with a red close button. On the left is a navigation menu with options: "Basic Menu >", "Setup Assistant", "Security Assistant" (highlighted), "Network Status", "Manual Setup", "User Manual", "Language", "Quit", and "Help". The main content area is titled "Step 6 of 7: Transferring the key to your wireless computers". It contains the following text: "You will now need to transfer the key to your wireless computers or devices. This can be done easily with a thumb drive (also known as a flash drive). If you do not have one, print or write the information shown below and then manually enter it into each wireless computer. Instructions for connecting are included in the printouts." There is a text input field labeled "Network Key" with the value "12345678" entered. Below the input field are two buttons: "Transfer Key" and "Print". At the bottom, there are three buttons: "Cancel", "Back", and "Next".

## CONNECTING AND CONFIGURING YOUR ROUTER

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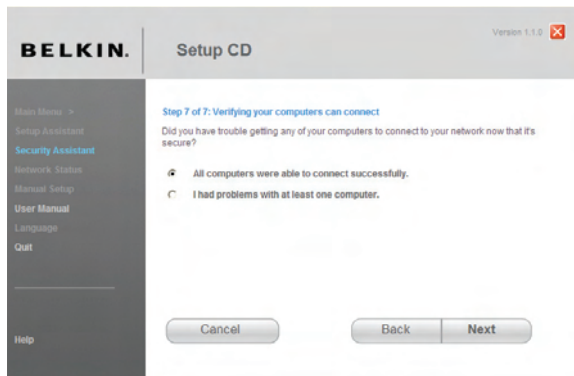
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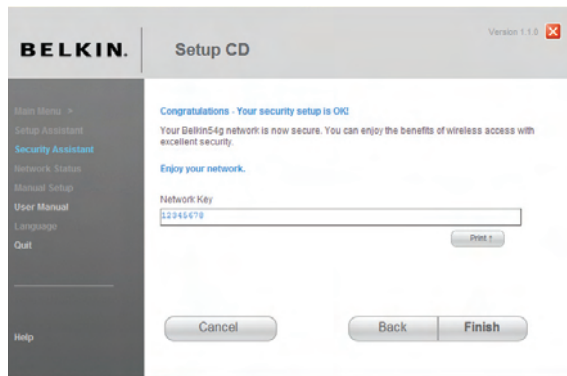
### 3.4 Verifying the Connection

If all your wireless computers are able to connect to the Router, click "Next". If you are having trouble, select "I had problem with at least one computer" and click "Next". Then, follow on-screen instructions.



### Congratulations

Once you have verified that your wireless computers are properly connected, your wireless network is set up and secured. You now can run your network wirelessly and securely. Click "Finish" to take you back to the main menu.



## ALTERNATE SETUP METHOD

The Web-Based Advanced User Interface is a web-based tool that you can use to set up the Router if you don't want to use the Setup Assistant software. You can also use it to manage advanced functions of the Router. From the Web-Based Advanced User Interface, you can perform the following tasks:

- View the Router's current settings and status
- Configure the Router to connect to your ISP with the settings that they provided you
- Change the current network settings such as the Internal IP address, the IP address pool, DHCP settings, and more
- Set the Router's firewall to work with specific applications (port forwarding)
- Set up security features such as client restrictions, MAC address filtering, WEP, and WPA
- Enable the DMZ feature for a single computer on your network
- Change the Router's internal password
- Enable/Disable UPnP (Universal Plug-and-Play)
- Reset the Router
- Back up your configuration settings
- Reset the Router's default settings
- Update the Router's firmware

### Step 1 Connect your Router

- 1.1 Turn off the power to your modem by unplugging the power supply from the modem.
- 1.2 Locate the network cable that is connected between your modem and your computer and unplug it from your computer, leaving the other end connected to your modem.
- 1.3 Plug the loose end of the cable you just unplugged into the port on the back of the Router labeled "Modem".
- 1.4 Connect a new network cable (not included) from the back of the computer to one of the wired computer ports labeled "1-4". Note: It does not matter which numbered port you choose.
- 1.5 Turn your cable or DSL modem on by reconnecting the power supply to the modem.

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Note: Your Router may have ports in different locations than depicted in the illustration above.

**1.6** Before plugging the power cord into the Router, plug the cord into the wall, then plug the cord into the Router's power jack.

**1.7** Verify that your modem is connected to the Router by checking the lights on the front of the Router. The green light labeled "Modem" should be ON if your modem is connected correctly to the Router. If it is not, recheck your connections.



**1.8** Verify that your computer is connected properly to the Router by checking the lights labeled "1-4". The light that corresponds to the numbered port connected to your computer should be ON if your computer is connected properly. If it is not, recheck your connections.

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### Step 2 Set up your Computer's Network Settings to Work with a DHCP Server

See the section in this User Manual called "Manually Configuring Network Settings" for directions.

### Step 3 Configure the Router Using the Web-Based Advanced User Interface

Using your Internet browser, you can access the Router's Web-Based Advanced User Interface. In your browser, type "192.168.2.1" (you do not need to type in anything else such as "http://" or "www"). Then press the "Enter" key.

**PLEASE NOTE:** If you have difficulty accessing the Router's Web-Based Advanced User Interface, go to the section entitled "Manually Configuring Network Settings".

Address

192.168.2.1

### Logging into the Router

You will see the Router's home page in your browser window. The home page is visible to any user who wants to see it. To make any changes to the Router's settings, you have to log in. Clicking the "Login" button or clicking on any one of the links on the home page will take you to the login screen. The Router ships with no password entered. In the login screen, leave the password blank and click the "Submit" button to log in.

#### Login

Before you can change any settings, you need to log in with a password. If you have not yet set a custom password, then leave this field blank and click "Submit".

Password

Default = leave blank

Clear

Submit

### Logging out of the Router

One computer at a time can log into the Router for the purposes of making changes to the settings of the Router. Once a user has logged in to make changes, there are two ways that the computer can be logged out. Clicking the "Logout" button will log the computer out. The second method is automatic. The login will time out after a specified period of time. The default login time-out is 10 minutes. This can be changed from 1 to 99 minutes. For more information, see the section in this manual entitled "Changing the Login Time-Out Setting".

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### Using the Web-Based Advanced User Interface

The home page is the first page you will see when you access the Web-Based Advanced User Interface (UI). The home page shows you a quick view of the Router's status and settings. All advanced setup pages can be reached from this page.

The screenshot displays the Belkin Router Setup Utility interface. The top navigation bar includes the Belkin logo, the title "Router Setup Utility", and links for "Home", "Help", "Logout", and "Internet Status: Connected". A left sidebar contains a menu with categories: LAN Setup, Internet WAN, Wireless, and Firewall. The main content area is titled "Status" and contains three summary tables: Version Info, Internet Settings, LAN Settings, and Features. Numbered callouts (1) through (10) identify specific UI elements: (1) points to the sidebar menu; (2) points to the top navigation bar; (3) points to the "Internet Status: Connected" link; (4) points to the "Status" header; (5) points to the "Version Info" table; (6) points to the "LAN Settings" table; (7) points to the "Features" table; (8) points to the "Internet Settings" table; (9) points to the "Status" header; and (10) points to the "Status" header.

**Router Setup Utility**

Home | Help | Logout | Internet Status: [Connected](#)

**LAN Setup**

- LAN Settings
- DHCP Client List

**Internet WAN**

- Connection Type
- DNS
- MAC Address

**Wireless**

- Channel and SSD
- Security
- Wi-Fi Protected Setup
- Use as Access Point
- Wireless Bridging

**Firewall**

- Virtual Servers
- Client IP Filters
- MAC Address Filtering
- DMZ
- DDNS
- WAN Ping Blocking

**Status**

**Version Info**

Firmware Version	FSD7234-4_US_1.00.00
Boot Version	v1.02
Hardware	FSD7234-4 v1
Serial No.	20745723020019

**Internet Settings**

WAN MAC Address	00:17:3f:ef:7c:73
Connection Type	Dynamic
Subnet Mask	255.255.255.0
Wan IP	192.168.10.11
Default Gateway	192.168.10.1
DNS Address	192.168.10.1

**LAN Settings**

LAN/WLAN MAC	00:17:3f:ef:7c:72
IP Address	192.168.2.1
Subnet Mask	255.255.255.0
DHCP Server	Enabled

**Features**

Firewall Settings	Enabled
SSID	Belkin54g
Security	Enabled
WPS	Enabled

### 1. Quick-Navigation Links

You can go directly to any of the Router's UI pages by clicking directly on these links. The links are divided into logical categories and grouped by tabs to make finding a particular setting easier to find. Clicking on the purple header of each tab will show you a short description of the tab's function.

### 2. Home Button

The "Home" button is available in every page of the UI. Pressing this button will take you back to the home page.

### 3. Internet Status Indicator

This indicator is visible in all pages of the UI, indicating the connection status of the Router. When the indicator says "Connected" in BLUE, the Router is connected to the Internet. When the Router is not connected to the Internet, the indicator will read "no connection" in RED. The indicator is automatically updated when you make changes to the settings of the Router.

### 4. Login/Logout Button

This button enables you to log in and out of the Router with the press of one button. When you are logged into the Router, this button will change to read "Logout". Logging into the Router will take you to a separate login page where you will need to enter a password. When you are logged into the Router, you can make changes to the settings. When you are finished making changes, you can log out of the Router by clicking the "Logout" button. For more information about logging into the Router, see the section called "Logging into the Router".

### 5. Help Button

The "Help" button gives you access to the Router's help pages. Help is also available on many pages by clicking "more info" next to certain sections of each page.



## ALTERNATE SETUP METHOD

### 6. LAN Settings

Shows you the settings of the Local Area Network (LAN) side of the Router. Changes can be made to the settings by clicking on any one of the links (IP Address, Subnet Mask, DHCP Server) or by clicking the “LAN” “Quick Navigation” link on the left side of the screen.

### 7. Features

Shows the status of the Router’s Firewall and Wireless features. Changes can be made to the settings by clicking on any one of the links or by clicking the “Quick Navigation” links on the left side of the screen.

### 8. Internet Settings

Shows the settings of the Internet/WAN side of the Router that connects to the Internet. Changes to any of these settings can be made by clicking on the links or by clicking on the “Internet/WAN” “Quick Navigation” link on the left side of the screen.

### 9. Version Info

Shows the firmware version, boot-code version, hardware version, and serial number of the Router.

### 10. Page Name

The page you are on can be identified by this name. This User Manual will sometimes refer to pages by name. For instance “LAN > LAN Settings” refers to the “LAN Settings” page.

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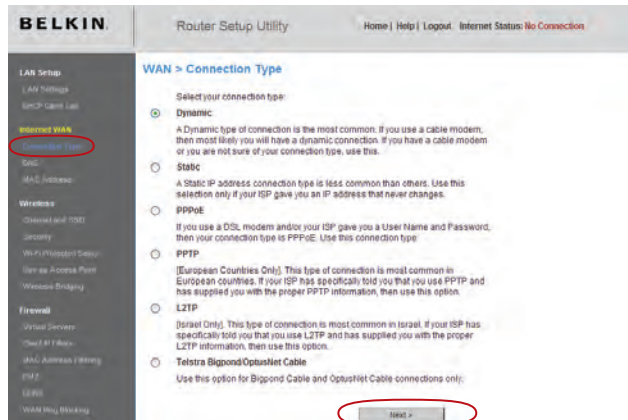
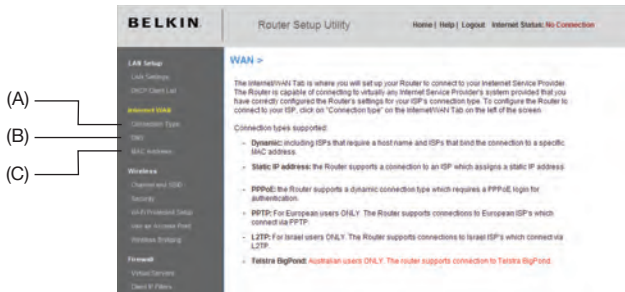
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### Step 4 Configure your Router for Connection to your Internet Service Provider (ISP)

The “Internet/WAN” tab is where you will set up your Router to connect to your Internet Service Provider (ISP). The Router is capable of connecting to virtually any ISP’s system provided you have correctly configured the Router’s settings for your ISP’s connection type. Your ISP connection settings are provided to you by your ISP. To configure the Router with the settings that your ISP gave you, click “Connection Type” (A) on the left side of the screen. Select the connection type you use. If your ISP gave you DNS settings, clicking “DNS” (B) allows you to enter DNS address entries for ISPs that require specific settings. Clicking “MAC address” (C) will let you clone your computer’s MAC address or type in a specific WAN MAC address, if required by your ISP. When you have finished making settings, the “Internet Status” indicator will read “Connected” if your Router is set up properly.

#### Setting your Connection Type

From the “Connection Type” page, you can select the type of connection you use. Select the type of connection you use by clicking the button next to your connection type and then clicking “Next”.



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### Setting your Internet Service Provider (ISP) Connection Type to Dynamic IP

A dynamic connection type is the most common connection type used with cable modems. Setting the connection type to “dynamic” in many cases is enough to complete the connection to your ISP. Some dynamic connection types may require a host name. You can enter your host name in the space provided if you were assigned one. Your host name is assigned by your ISP. Some dynamic connections may require that you clone the MAC address of the PC that was originally connected to the modem.

The screenshot shows the Belkin Router Setup Utility interface. The top navigation bar includes "Home | Help | Logout" and "Internet Status: No Connection". The left sidebar lists various setup categories: LAN Setup, Internet WAN, Wireless, and Firewall. The main content area is titled "WAN > Connection Type > Dynamic IP". It contains instructions: "To enter your Dynamic IP settings, type in your information below and click 'Apply changes'." Below this, there is a "Host Name" label and an empty text input field. A note states: "Host Name - A name that some Internet Service Providers require for connection to their system." A link "Change WAN MAC Address" is visible. At the bottom, there are "Clear Changes" and "Apply Changes" buttons.

### Change WAN MAC Address

If your ISP requires a specific MAC address to connect to the service, you can enter a specific MAC address or clone the current computer's MAC address through this link.

The screenshot shows the Belkin Router Setup Utility interface. The top navigation bar includes "Home | Help | Logout" and "Internet Status: No Connection". The left sidebar lists various setup categories: LAN Setup, Internet WAN, Wireless, and Firewall. The main content area is titled "WAN > MAC address". It contains instructions: "Some ISPs require that you clone (copy) the MAC address of your computer's network card into the Router. If you are not sure then simply clone the MAC address of the computer that was originally connected to the modem before installing the Router. Cloning your MAC address will not cause any problems with your network. More Info". Below this, there is a "WAN Mac Address" label and a numeric input field with the value "00 17 3f af 7c 73". A "Clone Computer's MAC Address" button is present. At the bottom, there are "Clear Changes" and "Apply Changes" buttons.

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### Setting your Internet Service Provider (ISP) Connection Type to Static IP

A static IP address connection type is less common than other connection types. If your ISP uses static IP addressing, you will need your IP address, subnet mask, and ISP gateway address. This information is available from your ISP or on the paperwork that your ISP left with you. Type in your information, then click "Apply Changes". After you apply the changes, the "Internet Status" indicator will read "Connected" if your Router is set up properly.

The screenshot shows the Belkin Router Setup Utility interface. At the top, it says "Router Setup Utility" and "Internet Status: No Connection". The left sidebar has a menu with "Internet WAN" selected. The main content area is titled "WAN > Connection Type > Static IP". Below the title, there is a text prompt: "To enter your Static IP settings, type in your information below and click 'Apply changes'." followed by a link "More Info". There are three input fields: "IP Address >" with four boxes, "Subnet Mask >" with four boxes, and "ISP Gateway Address >" with four boxes. Below these fields is a link "Click here to enter your DNS Settings." and two buttons: "Clear Changes" and "Apply Changes".

#### 1. IP Address

Provided by your ISP. Enter your IP address here.

#### 2. Subnet Mask

Provided by your ISP. Enter your subnet mask here.

#### 3. ISP Gateway Address

Provided by your ISP. Enter the ISP gateway address here.

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### Setting your ISP Connection Type to PPPoE

Most DSL providers use PPPoE as the connection type. If you use a DSL modem to connect to the Internet, your ISP may use PPPoE to log you into the service. If you have an Internet connection in your home or small office that doesn't require a modem, you may also use PPPoE.

The screenshot shows the Belkin Router Setup Utility interface. The top navigation bar includes 'Home | Help | Logout' and 'Internet Status: No Connection'. The left sidebar lists various setup categories: LAN Setup, DHCP Client List, Internet WAN (highlighted), Connection Type, DNS, MAC Address, Wireless, Channel and SSID, Security, Wi-Fi Protected Setup, Jet Set Access Point, Wireless Bridging, Firewall, Mutual Security, Client IP Filter, MAC Address Filtering, DNS, and DDNS. The main content area is titled 'WAN > Connection Type > PPPoE' and contains the following fields and options:

- User Name > [Text Input Field]
- Password > [Text Input Field]
- Retype Password > [Text Input Field]
- Service Name (Optional) > [Text Input Field]
- My Internet IP > [Dropdown Menu: Get Dynamically From ISP]
- My IP Address > [Four Text Input Fields]
- MTU (500-1500) > [Text Input Field: 1454]

Below the fields, there is a note: 'Do not make changes to the MTU setting unless your ISP specifically requires a different setting than 1454. More Info'. A checkbox labeled 'Disconnected after' is followed by a text input field containing '5' and the text 'minutes of no activity'. At the bottom, there are two buttons: 'Clear Changes' and 'Apply Changes'.

Your connection type is PPPoE if:

- 1) Your ISP gave you a user name and password, which is required to connect to the Internet;
- 2) Your ISP gave you software such as WinPOET or Enternet300 that you use to connect to the Internet; or
- 3) You have to double-click on a desktop icon other than your browser to get on the Internet.

## ALTERNATE SETUP METHOD

### 1. User Name

This space is provided to type in your user name that was assigned by your ISP.

### 2. Password

Type in your password and re-type it into the "Retype Password" box to confirm it.

### 3. Service Name (Optional)

A service name is rarely required by an ISP. If you are not sure if your ISP requires a service name, leave this blank.

### 4. My Internet IP

- 1) Get Dynamically From ISP: Getting WAN IP address from ISP automatically.
- 2) Use Static IP address: Need to enter ISP information below fields (My IP Address).

### 5. My IP Address

Provided by your ISP. Enter the IP address here. (Only available when user selects "Use Static IP address" from IP Address Assignment above.)

### 6. MTU

The MTU setting should never be changed unless your ISP gives you a specific MTU setting. Making changes to the MTU setting can cause problems with your Internet connection including disconnection from the Internet, slow Internet access, and problems with Internet applications working properly.

### 7. Disconnect after X minutes...

This feature is used to automatically disconnect the Router from your ISP when there is no activity for a specified period of time. For instance, placing a check mark next to this option and entering "5" into the minute field will cause the Router to disconnect from the Internet after five minutes of no Internet activity. This option should be used if you pay for your Internet service by the minute.

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### Setting your Internet Service Provider (ISP) Connection Type to Point-to-Point Tunneling Protocol (PPTP)

The screenshot shows the Belkin Router Setup Utility interface. The top navigation bar includes the Belkin logo, "Router Setup Utility", and links for "Home", "Help", "Logout", and "Internet Status: No Connection". The left sidebar contains a menu with categories: LAN Setup, Internet/WAN, Wireless, and Firewall. The main content area is titled "WAN > Connection Type > PPTP" and includes a "More Info" link. The configuration fields are as follows:

- PPTP Account > [Text Input]
- PPTP Password > [Text Input]
- Retype Password > [Text Input]
- Host Name > [Text Input]
- Service IP Address > [IP Address Input]
- My Internet IP > [Get Dynamically From ISP (dropdown)]
- My IP Address > [IP Address Input]
- My Subnet Mask > [Subnet Mask Input]
- Connection ID (optional) > [Text Input]

Below the fields, there is a checkbox for "Disconnect after: [ ] minutes of no activity. More Info" and a link "Click here to enter your DNS Settings". At the bottom are "Clear Changes" and "Apply Changes" buttons.

[European Countries Only]. Some ISPs require a connection using PPTP protocol, a type of connection most common in European countries. This sets up a direct connection to the ISP's system. Type in the information provided by your ISP in the space provided. When you have finished, click "Apply Changes". After you apply the changes, the "Internet Status" indicator will read "Connected" if your Router is set up properly.

## ALTERNATE SETUP METHOD

### 1. PPTP Account

Provided by your ISP. Enter your PPTP User ID here.

### 2. PPTP Password

Type in your password and retype it into the "Retype Password" box to confirm it.

### 3. Host Name

Provided by your ISP. Enter your host name here.

### 4. Service IP Address

Provided by your ISP. Enter your PPTP gateway/service IP address here.

### 5. My Internet IP

- 1) Get Dynamically From ISP: Getting WAN IP address from ISP automatically.
- 2) Use Static IP address: Need to enter ISP information below fields (My IP Address).

### 6. My IP Address

Provided by your ISP. Enter the IP address here. (Only available when user selects "Use Static IP address" from IP Address Assignment above.)

### 7. My Subnet Mask

Provided by your ISP. Enter the subnet mask here. (Only available when user selects "Use Static IP address" from IP Address Assignment above.)

### 8. Connection ID (Optional)

Provided by your ISP. Enter the connection ID here.

### 9. Disconnect after X minutes...

This feature is used to automatically disconnect the Router from your ISP when there is no activity for a specified period of time. For instance, placing a check mark next to this option and entering "5" into the minute field will cause the Router to disconnect from the Internet after five minutes of no Internet activity. This option should be used if you pay for your Internet service by the minute.



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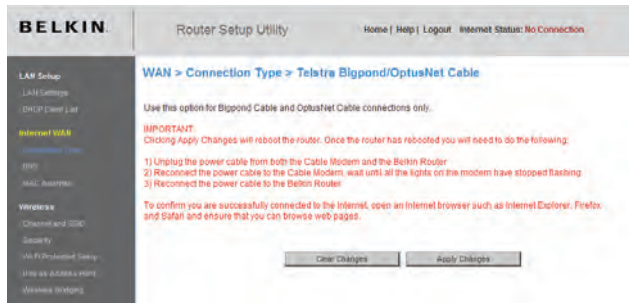
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### Setting your Connection Type if you are a Telstra® BigPond User

[Australia and New Zealand Only]. Use this connection type for BigPond Cable and OptusNet Cable connections only.



Clicking “Apply Changes” will reboot the Router. Once the Router has rebooted, you will need to do the following:

- 1) Unplug the power cable from both the cable modem and the Belkin Router.
- 2) Reconnect the power cable to the cable modem, and wait until all the lights on the modem have stopped flashing.
- 3) Reconnect the power cable to the Belkin Router.

To confirm you are successfully connected to the Internet, open an Internet browser, such as Internet Explorer®, Firefox®, or Safari®, and ensure that you can browse web pages.

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### Setting your Internet Service Provider (ISP) Connection Type to Layer 2 Tunneling Protocol (L2TP)

[Israel Only]. Some ISPs require a connection using L2TP protocol, a type of connection most common in Israel. This sets up a direct connection to the ISP's system. Type in the information provided by your ISP in the space provided. When you have finished, click "Apply Changes". After you apply the changes, the "Internet Status" indicator will read "Connected" if your Router is set up properly.

The screenshot shows the Belkin Router Setup Utility interface. The top navigation bar includes "Home | Help | Logout" and "Internet Status: No Connection". The breadcrumb trail is "WAN > Connection Type > L2TP". The main content area contains the following fields and options:

- L2TP Account >**: A text input field.
- L2TP Password >**: A text input field.
- Retype Password >**: A text input field.
- Host Name >**: A text input field.
- Service IP Address >**: Three separate text input fields for IP address.
- My Internet IP >**: A dropdown menu with "Get Dynamically From ISP" selected.
- My IP Address >**: Three separate text input fields for IP address.
- My Subnet Mask >**: Three separate text input fields for subnet mask.
- Disconnect after**: A text input field followed by "minutes of no activity. [More info](#)".
- Click here to enter your DNS Settings**: A link.
- Buttons: "Clear Changes" and "Apply Changes".

The left sidebar contains a navigation menu with categories: LAN Setup, Internet WAN (highlighted), DNS, Wireless, Security, and Firewall.

#### 1. L2TP Account

Provided by your ISP. Enter your L2TP User ID here.

#### 2. L2TP Password

Type in your password and retype it into the "Retype Password" box to confirm it.

#### 3. Host Name

Provided by your ISP. Enter your host name here.

#### 4. Service IP Address

Provided by your ISP. Enter your L2TP gateway/service IP address here.

#### 5. My Internet IP

- 1) Get Dynamically From ISP: Gets WAN IP address from ISP automatically.
- 2) Use Static IP address: Need to enter ISP information below fields (My IP Address).

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### 6. My IP Address

Provided by your ISP. Enter the IP address here. (Only available when user selects “Use Static IP address” from IP Address Assignment above.)

### 7. My Subnet Mask

Provided by your ISP. Enter the subnet mask here. (Only available when user selects “Use Static IP address” from IP Address Assignment above.)

### 8. Disconnect after X minutes...

This feature is used to automatically disconnect the Router from your ISP when there is no activity for a specified period of time. For instance, placing a check mark next to this option and entering “5” into the minute field will cause the Router to disconnect from the Internet after five minutes of no Internet activity. This option should be used if you pay for your Internet service by the minute.

### Setting Custom Domain Name Server (DNS) Settings

A “Domain Name Server” is a server located on the Internet that translates Universal Resource Locators (URLs) like “www.belkin.com” into IP addresses. Many Internet Service Providers (ISPs) do not require you to enter this information into the Router. The “Automatic from ISP” box should be checked if your ISP did not give you a specific DNS address. If you are using a static IP connection type, then you may need to enter a specific DNS address and secondary DNS address for your connection to work properly. If your connection type is dynamic or PPPoE, it is likely that you do not have to enter a DNS address. Leave the “Automatic from ISP” box checked. To enter the DNS address settings, uncheck the “Automatic from ISP” box and enter your DNS entries in the spaces provided. Click “Apply Changes” to save the settings.

The screenshot shows the Belkin Router Setup Utility interface. The page title is "Router Setup Utility" with navigation links for "Home | Help | Logout" and "Internet Status: No Connection". The left sidebar contains a menu with options: LAN Setup, LAN Settings, DHCP Client List, Internet WAN, Connected Type, IP, MAC Address, Wireless, Channel and SSID, Security, and WiFi Protected Setup. The main content area is titled "WAN > DNS" and includes the instruction: "If your ISP provided you with a specific DNS address to use, enter the address in this window and click 'Apply Changes'". There is a checked checkbox for "Automatic from ISP". Below it are two rows of input fields: "DNS Address" and "Secondary DNS Address", each with four boxes. At the bottom, there are two buttons: "Clear Changes" and "Apply Changes". A small note at the bottom explains that DNS is a Domain Name Server that translates URLs into IP addresses, with a link for "More Info".

## ALTERNATE SETUP METHOD

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### Configuring your WAN Media Access Controller (MAC) Address

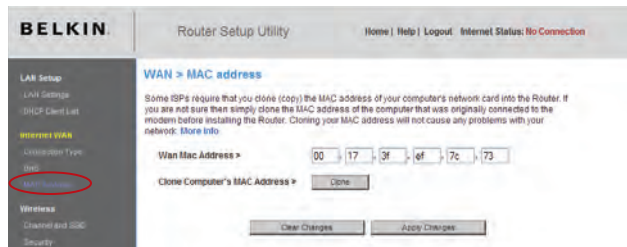
All network components including cards, adapters, and routers, have a unique “serial number” called a MAC address. Your Internet Service Provider may record the MAC address of your computer’s adapter and only let that particular computer connect to the Internet service. When you install the Router, its own MAC address will be “seen” by the ISP and may cause the connection not to work. Belkin has provided the ability to clone (copy) the MAC address of the computer into the Router. This MAC address, in turn, will be seen by the ISP’s system as the original MAC address and will allow the connection to work. If you are not sure whether your ISP needs to see the original MAC address, simply clone the MAC address of the computer that was originally connected to the modem. Cloning the address will not cause any problems with your network.

### Cloning your MAC Address

To clone your MAC address, make sure that you are using the computer that was **ORIGINALLY CONNECTED** to your modem before the Router was installed. Click the “Clone” button. Click “Apply Changes”. Your MAC address is now cloned to the Router.

### Entering a Specific MAC Address

In certain circumstances you may need a specific WAN MAC address. You can manually enter one in the “MAC Address” page. Type in a MAC address in the spaces provided and click “Apply Changes” to save the changes. The Router’s WAN MAC address will now be changed to the MAC address you specified.



# USING THE WEB-BASED ADVANCED USER INTERFACE

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Using your Internet browser, you can access the Router's Web-Based Advanced User Interface. In your browser, type "192.168.2.1" (do not type in anything else such as "http://" or "www"), then press the "Enter" key.

You will see the Router's home page in your browser window.

## Viewing the LAN Settings

Clicking on the header of the "LAN Setup" tab will take you its header page. A quick description of the functions can be found here. To view the settings or make changes to any of the LAN settings, click on "LAN Settings", or to view the list of connected computers, click on "DHCP Client List".

The screenshot shows the Belkin Router Setup Utility interface. The left sidebar has a menu with "LAN Setup" highlighted in red. The main content area is titled "LAN >" and contains the following text:

Your Router is equipped with a DHCP server that will automatically assign IP addresses to each computer on your network. The factory default settings for the DHCP server will work in most any application. If you need to make changes to the settings, you can do so.

The changes that you can make are:

- Change the Internal IP address of the Router. The default = 192.168.2.1
- Change the Subnet Mask. The default = 255.255.255.0
- Enable/Disable the DHCP Server Function. Default= ON (Enabled)
- Specify the Starting and Ending IP Pool Address. Default = Starting: 2 / Ending: 100
- Specify the IP address Lease Time. Default= Forever
- Specify a Local Domain Name. Default = Belkin

To make changes, click "LAN Settings" on the LAN tab to the left.

The Router will also provide you with a list of all client computers connected to the network. To view the list, click "DHCP Client List" on the LAN tab to the left.

## Changing LAN Settings

All settings for the internal LAN setup of the Router can be viewed and changed here.

The screenshot shows the Belkin Router Setup Utility interface with the "LAN > LAN settings" page. The left sidebar has "LAN Setup" highlighted in red. The main content area is titled "LAN > LAN settings" and contains the following text:

You can make changes to the Local Area Network (LAN) here. For changes to take effect, you must press the "Apply Changes" button at the bottom of the screen.

IP Address >      
[More info](#)

Subnet Mask >      
[More info](#)

DHCP server >  On  Off  
The DHCP server function makes setting up a network very easy by assigning IP addresses to each computer on the network. It is not necessary to make any changes here. [More info](#)

IP Pool Starting Address >      
IP Pool Ending Address >

Lease Time >

The length of time the DHCP server will reserve the IP address for each computer.

Local Domain Name >   
(Optional)  
A feature that lets you assign a name to your network. [More info](#)

## USING THE WEB-BASED ADVANCED USER INTERFACE

### 1. IP Address

The “IP address” is the internal IP address of the Router. The default IP address is “192.168.2.1”. To access the Web-Based Advanced User Interface, type this IP address into the address bar of your browser. This address can be changed if needed. To change the IP address, type in the new IP address and click “Apply Changes”. The IP address you choose should be a non-routable IP. Examples of a non-routable IP are: 192.168.x.x (where x is anywhere between 0 and 255), and 10.x.x.x (where x is anything between 0 and 255).

### 2. Subnet Mask

There is no need to change the subnet mask. This is a unique, advanced feature of your Belkin Router. It is possible to change the subnet mask if necessary; however, do NOT make changes to the subnet mask unless you have a specific reason to do so. The default setting is “255.255.255.0”.

### 3. DHCP Server

The DHCP server function makes setting up a network very easy by assigning IP addresses to each computer on the network automatically. The default setting is “On”. The DHCP server can be turned OFF if necessary; however, in order to do so you must manually set a static IP address for each computer on your network. To turn off the DHCP server, select “Off” and click “Apply Changes”.

### 4. IP Pool

The range of IP addresses set aside for dynamic assignment to the computers on your network. The default is 2–100 (99 computers). If you want to change this number, you can do so by entering a new starting and ending IP address and clicking on “Apply Changes”. The DHCP server can assign 100 IP addresses automatically. This means that you cannot specify an IP address pool larger than 100 computers. For example, starting at 50 means you have to end at 150 or lower so as not to exceed the 100-client limit. The starting IP address must be lower in number than the ending IP address.

## 5. Lease Time

The length of time the DHCP server will reserve the IP address for each computer. We recommend that you leave the lease time set to “Forever”. The default setting is “Forever”, meaning that any time a computer is assigned an IP address by the DHCP server, the IP address will not change for that particular computer. Setting lease times for shorter intervals such as one day or one hour frees IP addresses after the specified period of time. This also means that a particular computer’s IP address may change over time. If you have set any of the other advanced features of the Router such as DMZ or client IP filters, these are dependent on the IP address. For this reason, you will not want the IP address to change.

## 6. Local Domain Name

The default setting is “Belkin”. You can set a local domain name (network name) for your network. There is no need to change this setting unless you have a specific advanced need to do so. You can name the network anything you want such as “MY NETWORK”.

## Viewing the DHCP Client List Page

You can view a list of the computers (known as clients), which are connected to your network. You are able to view the IP address of the computer, the host name (if the computer has been assigned one), and the MAC address of the computer’s network interface card (NIC). Pressing the “Refresh” button will update the list. If there have been any changes, the list will be updated.

**BELKIN** Router Setup Utility    Home | Help | Logout    Internet Status: No Connection

**LAN Setup**

- LAN Settings
- Advanced DHCP**
- Internet WAN
- Connection Type
- IPv6
- MAC Address
- Wireless
- Channel and SSID
- Security
- WPA Protected Setup
- WPA-PSK Auto Setup
- Wireless Blocking
- Firewall
- Open UPnP
- Local IP Scan

**LAN > DHCP Client List**

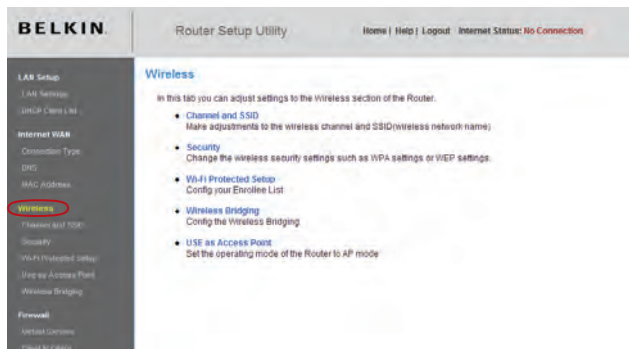
This page shows you the IP address, Host Name and MAC address of each computer that is connected to your network. If the computer does not have a host name specified, then the Host Name field will be blank. Pressing "Refresh" will update the list.

IP Address	Host Name	MAC Address
192.168.2.2	BELKIN-TEST1	00:16:36:2e:ea:c4
192.168.2.3	unknown	00:1e:c2:c3:bc:a2

Refresh

## Configuring the Wireless Network Settings

Clicking on the header of the “Wireless” tab will take you to the “Wireless” header page. Under the “Wireless” tab, there are links that allow you to make changes to the wireless network settings.



### Changing the Wireless Network Name (SSID)

To identify your wireless network, a name called the SSID (Service Set Identifier) is used. The default SSID of the Router is “belkin54g”. You can change this to anything you want to or you can leave it unchanged. If there are other wireless networks operating in your area, you will want to make sure that your SSID is unique (does not match that of another wireless network in the area). To change the SSID, type in the SSID that you want to use in the “SSID” field and click “Apply Changes”. The change is immediate. If you make a change to the SSID, your wireless-equipped computers may also need to be reconfigured to connect to your new network name. Refer to the documentation of your wireless network adapter for information on making this change.





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### Using the Wireless Mode Switch

Your Router can operate in four different wireless modes: “g and b”, “g only”, “b only”, and “off”. The different modes are explained (below).

#### Wireless > Channel and SSID

To make changes to the wireless settings of the router, make the changes here. Click “Apply Changes” to save the settings. [More Info](#)

Wireless Channel >	Auto <input type="button" value="v"/> Current: 1
SSID >	<input type="text" value="Belkin54g"/>
Wireless Mode >	<input type="button" value="g and b"/> <input type="button" value="v"/>
Broadcast SSID >	off <input type="button" value="v"/> <a href="#">More Info</a>
Protected Mode >	<input type="button" value="g and b"/> <input type="button" value="v"/> <a href="#">More Info</a>
	<input type="button" value="g only"/> <input type="button" value="v"/>
	<input type="button" value="b only"/> <input type="button" value="v"/>

#### QoS Configuration

802.11e QoS >   [More Info](#)

### g and b Mode

In this mode, the Router is compatible with 802.11b and 802.11g wireless clients simultaneously. This is the factory default mode and ensures successful operation with all Wi-Fi-compatible devices. If you have a mix of 802.11b and 802.11g clients in your network, we recommend setting the Router to g and b mode. This setting should only be changed if you have a specific reason to do so.

### g only Mode

802.11g mode works with 802.11g clients only. This mode is recommended only if you want to prevent 802.11b clients from accessing your network. To switch modes, select the desired mode from the “Wireless Mode” drop-down box. Then, click “Apply Changes”.

### b only Mode

We recommend you DO NOT use this mode unless you have a very specific reason to do so. This mode exists only to solve unique problems that may occur with some 802.11b client adapters and is NOT necessary for interoperability of 802.11g and 802.11b standards.

### off Mode

This option will turn off the wireless functionality.

### When to use b only Mode

In some cases, older 802.11b clients may not be compatible with 802.11g wireless. These adapters tend to be of inferior design and may use older drivers or technology. Switching to this mode can solve problems that sometimes occur with these clients. If you suspect that you are using a client adapter that falls into this category of adapters, first check with the adapter vendor to see if there is a driver update. If there is no driver update available, switching to b only mode may fix your problem. **Please note that switching to b only mode will decrease 802.11g performance.**

### Changing the Wireless Channel

There are a number of operating channels you can choose from. In the United States, there are 11 channels. In Australia, the United Kingdom, and most of Europe and Asia, there are 13 channels. In a small number of other countries, there are other channel requirements. Your Router is configured to operate on the proper channels for the country you reside in. The default channel is 11 (unless you are in a country that does not allow channel 11). The channel can be changed if needed. If there are other wireless networks operating in your area, your network should be set to operate on a channel that is different than the other wireless networks. For best performance, use a channel that is at least five channels away from the other wireless network. For instance, if another network is operating on channel 11, then set your network to channel 6 or below. To change the channel, select the channel from the drop-down list. Click "Apply Changes". The change is immediate.

### Wireless > Channel and SSID

To make changes to the wireless settings of the router, make the changes here. Click "Apply Changes" to save the settings. [More Info](#)

Wireless Channel >

Auto

Current: 1

SSID >

Auto

g

Wireless Mode >

1

2

3

4

5

6

7

8

9

10

11

on

Broadcast SSID >

More Info

Protected Mode >

More Info

### QoS Configuration

802.11e QoS >

More Info

Clear Changes

Apply Changes

### Using the Broadcast SSID Feature

**Note:** This advanced feature should be employed by advanced users only.

For security, you can choose not to broadcast your network's SSID. Doing so will keep your network name hidden from computers that are scanning for the presence of wireless networks. To turn off the broadcast of the SSID, remove the check mark from the box next to "Broadcast SSID", and then click "Apply Changes". The change is immediate. Each computer now needs to be set to connect to your specific SSID; an SSID of "ANY" will no longer be accepted. Refer to the documentation of your wireless network adapter for information on making this change.

### QoS (Quality of Service) Configuration

QoS prioritizes important data on your network, such as multimedia content and Voice over IP (VoIP), so it will not be interfered with by other data being sent over the network. Based on 802.11e, you can turn this feature on or off by selecting it from the drop-down menu and choosing the acknowledgement mode you want to use. If you plan to stream multimedia content or use VoIP on your network, we recommend that you enable the QoS feature.

### Protected Mode Switch

As part of the 802.11g specification, Protected mode ensures proper operation of 802.11g clients and access points when there is heavy 802.11b traffic in the operating environment. When Protected mode is ON, 802.11g scans for other wireless network traffic before it transmits data. Therefore, using this mode in environments with HEAVY 802.11b traffic or interference achieves best performance results. If you are in an environment with very little—or no—other wireless network traffic, your best performance will be achieved with Protected mode OFF.

## Securing your Wi-Fi® Network

Here are a few different ways you can maximize the security of your wireless network and protect your data from prying eyes and ears. This section is intended for the home, home office, and small office user.

At the time of this User Manual's publication, there are four encryption methods available.

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-bit keys)	More secure than 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

### Wired Equivalent Privacy (WEP)

WEP is a common protocol that adds security to all Wi-Fi-compliant wireless products. WEP was designed to give 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 WEP

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 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 and 128-bit WEP.

### Encryption Keys

After selecting either the 64-bit or 128-bit WEP 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 on your network and you will not be able to successfully communicate within your network.

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 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

The WEP passphrase is NOT the same as a WEP key. Your Router uses this passphrase to generate your WEP keys, but different hardware manufacturers might have different methods on generating the keys. If you have multiple vendors' equipment in your network, the easiest thing to do is to use the hex WEP key from your Router or access point and enter it manually into the hex WEP key table in your Router's configuration screen.

### Wi-Fi Protected Access™ (WPA™)

WPA is a new Wi-Fi standard that was designed to improve upon the security features of WEP. To use WPA security, the drivers and software of your wireless equipment must be upgraded to support WPA. These updates will be found on the wireless vendor's website. There are two types of WPA security: WPA-PSK and WPA2.

WPA-PSK uses what is known as a pre-shared key as the network key. A network key is basically 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.

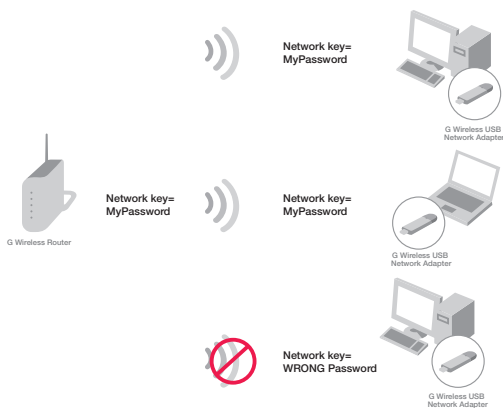
WPA2™ requires Advanced Encryption Standard (AES) for encryption of data, which offers much greater security than WPA. WPA uses both Temporal Key Integrity Protocol (TKIP) and (AES) for encryption.

For a list of Belkin wireless products that support WPA, please visit our website at [www.belkin.com/networking](http://www.belkin.com/networking).

## USING THE WEB-BASED ADVANCED USER INTERFACE

### Sharing the Same Network Keys

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



The Wireless G Desktop Card cannot access the network because it is using a different network key than the network key that is configured on the G Wireless Router.

### Using a Hexadecimal Key

A hexadecimal key is a combination of numbers and letters from A–F and 0–9. 64-bit keys are five two-digit numbers. 128-bit keys are 13 two-digit numbers.

For instance:

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

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

In the boxes below, make up your key by writing in two characters between A–F and 0–9 in each box. You will use this key to program the encryption settings on your Router and your wireless computers.

**Note to Mac users:** Original Apple® AirPort® products support 64-bit encryption only. Apple AirPort 2 products can support 64-bit or 128-bit encryption. Please check your product to see which version you are using. If you cannot configure your network with 128-bit encryption, try 64-bit encryption.

## WEP Setup

### 64-Bit WEP Encryption

1. Select “64-bit WEP” from the “Security” menu’s “Security Mode”.
2. After selecting your WEP encryption mode, you can enter your key by typing in the hex key manually, or you can put a check mark in “Passphrase”, then type in your passphrase. Click “Generate” to generate four different hex keys.

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

3. Click “Apply Changes” to save the setting.

The screenshot shows the 'Wireless > Security' configuration page. The 'Security Mode' dropdown is set to '64bit WEP'. Below it, there are four key input fields labeled 'Key 1' through 'Key 4'. 'Key 1' is selected and contains the hex values 'AF', '0F', '4B', 'C3', and 'D4'. The other keys are empty. A note indicates that a passphrase can be used to generate keys automatically. At the bottom, there are 'Clear Changes' and 'Apply Changes' buttons.

**WARNING:** If you are configuring the G Wireless Router or access point from a computer with a wireless client, you will need to ensure that security is turned ON for this wireless client. If this is not done, your client will lose its wireless connection.

## 128-Bit WEP Encryption

**Note to Mac users:** The passphrase option will not operate with Apple AirPort. To configure encryption for your Mac computer, set the encryption using the manual method described in the next section.

1. Select “128-bit WEP” from the “Security” menu’s “Security Mode”.
2. After selecting your WEP encryption mode, you can enter your key by typing in the hex key manually, or you can put a check mark in “Passphrase”, then type in your passphrase. Click “Generate” to generate the hex keys.
3. Click “Apply Changes” to save the setting.

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

### Wireless > Security

Security Mode

Key

C3	03	0F	AF	0F
4B	B2	C3	D4	4B
C3	D4	E7	(13 hex digit pairs)	

NOTE: To automatically generate hex pairs using a PassPhrase, input it here [More Info](#)

PassPhrase

**WARNING:** If you are configuring the G Wireless Router or access point from a computer with a wireless client, you will need to ensure that security is turned ON for this wireless client. If this is not done, your client will lose its wireless connection.



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### Changing the Wireless Security Settings

Your Router is equipped with the latest security standard called Wi-Fi Protected Access 2 (WPA2) and the legacy security standard called Wired Equivalent Privacy (WEP). Your Router also supports the Wi-Fi Protected Setup™ (WPS) specification, which simplifies the setup of a wireless network. WPS uses familiar methodologies, such as typing in a Personal Identification Number (PIN) or pushing a button, to enable users to automatically configure network names and strong WPA/WPA2 data encryption and authentication. 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” tab.

### Using Wi-Fi Protected Setup

WPS uses WPA2 (described below) for encryption. It does not provide additional security, but rather, standardizes the method for securing your wireless network. You may use either the Push Button (S/W) Configuration (PBC) method or PIN method to allow a device access to your wireless network. Conceptually, the two methods work as follows:

**PBC:** Click the “Start PBC” button located on the WPS user interface page of your Router. Then, initiate the WPS procedure on the client device within two minutes. Refer to your client’s documentation on this procedure. Clicking the “Start PBC” button will automatically enable WPS. The client has now been securely added to your wireless network.

**PIN:** The client device has a PIN number (eight digits) that is associated with WPS. Enable WPS through the user interface shown below. Enter the client’s PIN into the Router’s internal registrar (accessed through this user interface). The client will be automatically enrolled into your wireless network within two minutes.

The screenshot shows the Belkin Router Setup Utility interface. The main heading is "Router Setup Utility" with navigation links for Home, Help, Logout, and Internet Status (No Connection). The left sidebar contains a menu with categories: LAN Setup, Internet WAN, Wireless, Firewall, and Utilities. The "Wireless" category is expanded, and the "Security" option is highlighted with a red circle. The main content area is titled "Wireless > Wi-Fi Protected Setup". It shows "Wi-Fi Protected Setup (WPS)" is "Enabled". Below this, there is a description of WPS and an "Apply Changes" button. The "1) Personal Information Number (PIN) Method" section is active, showing a text input field for "Enter Client Device PIN" and an "Enroll" button. Below this, there are instructions for using an external Registrar and buttons for "Generate New PIN" and "Restore Default PIN". The "2) Push Button Configuration (PBC) Method" section is also visible, with a "Start PBC" button. The "3) Manual Configuration Method" section is partially visible at the bottom.

## USING THE WEB-BASED ADVANCED USER INTERFACE

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1. Wi-Fi Protected Setup (WPS): Enabled or Disabled.
2. Personal Identification Number (PIN) Method: In this method, a wireless client wishing to access your network must supply a 4- or 8-digit PIN to the Router. After clicking “Enroll”, you must start the WPS handshaking procedure from the client within two minutes.
3. Router PIN: If an external registrar is available, you may enter in the Router’s PIN to the registrar. Click “Generate New PIN” to change the PIN from the default value. Click “Restore Default PIN” to reset the PIN value.
4. Push Button Configuration (PBC) Method: PBC is an alternate method to connect to a WPS network. Click the “Start PBC” button located on the WPS user interface page of your Router, and then initiate the PBC on the client device. Alternatively, click the “Start PBC” soft button to start this process.
5. Manual Configuration Method: This section lists the default security settings if not using WPS.

The Router features WPA2, which is the second generation of the WPA-based 802.11i standard. It offers a higher level of wireless security by combining advanced network authentication and stronger Advanced Encryption Standard (AES) encryption methods.

### WPA Setup

Note: To use WPA security, all your clients must be upgraded to drivers and software that support it. At the time of this User Manual’s publication, a security patch download is available, for free, from Microsoft®. This patch works only with the Windows XP operating system. You also need to download the latest driver for your Belkin Wireless G Desktop or Notebook Network Card from the Belkin support site. Other operating systems are not supported at this time. Microsoft’s patch only supports devices with WPA-enabled drivers such as Belkin 802.11g products.

WPA uses a so-called pre-shared key as the security key. A pre-shared key is a password that is between eight and 63 characters long. It can be a combination of letters, numbers, and other characters. Each client uses the same key to access the network. Typically, this mode will be used in a home environment.

WPA2 is the second generation of WPA, offering a more advanced encryption technique over WPA.

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### Setting WPA/WPA2

#### Wireless > Security

Security Mode

Authentication

Encryption Technique

Password(PSK) >

**WPA/WPA2-Personal(PSK)**  
Wireless Protected Access (WPA/WPA2) 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 must use the same key (Pre-Shared Key). [More Info](#)

Obscure PSK

1. Select “WPA/WPA2-Personal (PSK)” from the “Security Mode” drop-down box.
2. Select “WPA-PSK” for just WPA authentication, or “WPA2-PSK” for just WPA2 authentication, or you may select “WPA-PSK + WPA2-PSK” for WPA and WPA2 as the authentication type.
3. Enter your pre-shared 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 that you set up. This pre-shared key will allow users full access to your network including shared files and printers.

4. Click “Apply Changes” to finish. You must now set all clients to match these settings depending on the type of access you want them to have.

### Guest Access

The guest pre-shared key allows guest users an Internet-only access to restrict them from entering your network and having access to files on your PCs. Enter your pre-shared key for guest access. This can be from eight to 63 characters and can be letters, numbers, or symbols. Click “Apply Changes” to finish.

Wireless > Security

Security Mode

Authentication

Encryption Technique

Password(PSK) >

**WPA/WPA2-Personal(PSK)**  
Wireless Protected Access (WPA/WPA2) 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 must use the same key (Pre-Shared Key). [More Info](#)

Obscure PSK

**Guest Password(PSK)**

**Guest Password(PSK)**  
To enable Guest Access which allows guests to access only the Internet connection and not the local network please enter a password below for guests to use.

### Setting up WPA for Wireless Desktop and Wireless Notebook Cards that are NOT Manufactured by Belkin

If you do NOT have a Belkin WPA Wireless Desktop or Wireless Notebook Card and it is not equipped with WPA-enabled software, a file from Microsoft called “Windows XP Support Patch for Wireless Protected Access” is available for free download.

**Please Note:** The file that Microsoft has made available works only with Windows XP. Other operating systems are not supported at this time.

**Important:** You also need to ensure that the wireless card manufacturer supports WPA and that you have downloaded and installed the latest driver from their support site.

Supported Operating Systems:

- Windows XP Professional
- Windows XP Home Edition

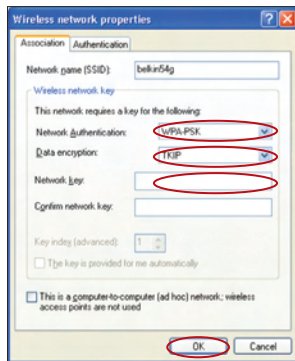
### Setting up Windows XP Wireless Network Utility to use WPA-PSK

In order to use WPA-PSK, ensure you are using the Windows Wireless Network Utility by doing the following:

1. Under Windows XP, click “Start > Control Panel > Network Connections”.
2. Right-click on “Wireless Network Connection Properties” and select “Properties”.
3. Clicking on the “Wireless Networks” tab will display the following screen. Ensure the “Use Windows to configure my wireless network settings” box is checked.



4. Under the “Wireless Networks” tab, click the “Configure” button and you will see the following screen.



5. For a home or small business user, select “WPA-PSK” under “Network Authentication”.
6. Select “TKIP” or “AES” under “Data Encryption”. This setting will have to be identical to the Router that you set up.
7. Type in your encryption key in the “Network key” box.

**Important:** Enter your pre-shared 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 that you set up.

8. Click “OK” to apply settings.

### Using the Access Point Mode

Note: This advanced feature should be employed by advanced users only. The Router can be configured to work as a wireless network access point. Using this mode will defeat the NAT IP sharing feature and DHCP server. In Access Point (AP) mode, the Router will need to be configured with an IP address that is in the same subnet as the rest of the network that you will bridge to. The default IP address is 192.168.2.254 and subnet mask is 255.255.255.0. These can be customized for your need.

1. Enable the AP mode by selecting “Enable” in the “Use as Access Point only” page. When you select this option, you will be able to change the IP settings.
2. Set your IP settings to match your network. Click “Apply Changes”.
3. Connect a cable from the “Modem” port on the Router to your existing network.

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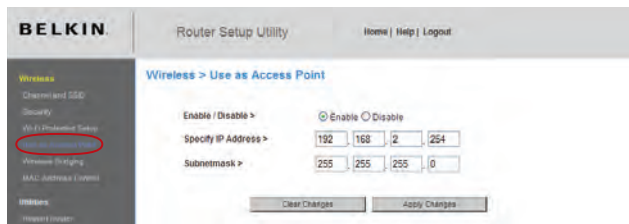
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The Router is now acting as an access point. To access the Router's Web-Based Advanced User Interface again, type the IP address you specified into your browser's navigation bar. You can set the encryption settings, MAC address filtering, SSID, and channel normally.



### Wireless Range Extension and Bridging

Wireless range extension and bridging works with the following models only:

F5D7231-4 Wireless G Plus Router

F5D7234-4 G Wireless Router

F5D7130 Wireless G Range Extender/Access Point

F5D7132 Wireless G Universal Range Extender

Please make sure to download the latest firmware version for the Router or Access Point for optimal performance:

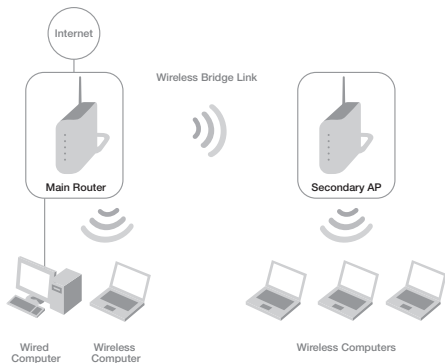
<http://web.belkin.com/support>.

### What is a Wireless Bridge?

A wireless bridge is a “mode” in which your Wireless Router can directly connect to a secondary Wireless Access Point. Note that you can only bridge your Belkin G Wireless Router (model F5D7234-4, F5D7231-4) to a Belkin Wireless G Range Extender/Access Point (model F5D7132, F5D7130). We do not support bridging with access points of other manufacturers at this time. You can use the bridge mode to extend the range of your wireless network, or add an extension of your network in another area of your office or home without running cables.

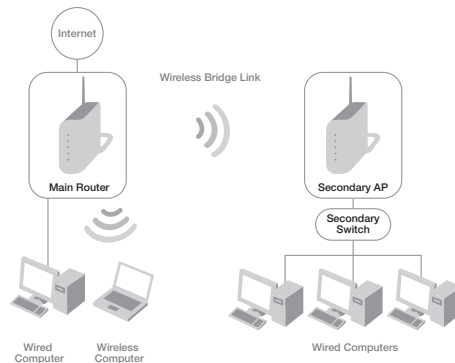
## Range Extension

Range extension will extend the wireless coverage area in your home or office. The example on the next page illustrates the use of bridging to extend the range of your wireless network. In this example, the Router is set up to connect to an Access Point located in another area. Laptops can roam or move between the two wireless coverage areas.



## Adding Another Network Segment Wirelessly

Bridging an Access Point to your Router allows you to add a network segment in another area in the home or office without running wires. Connecting a network switch or hub to the Access Point's RJ45 jack will allow a number of computers connected to the switch access to the rest of the network.



### Setting Up a Bridge Between your Router and a Secondary Access Point

Bridging your Belkin Router to a secondary Access Point requires that you access the Router's Advanced Setup Utility and enter the MAC address of the Access Point in the appropriate area. There are also a few other requirements. **PLEASE BE SURE TO FOLLOW THE STEPS BELOW, CAREFULLY.**

1. Set your Access Point to the same channel as the Router. By default, the Router and Access Point channels are set to channel 11 at the factory. If you have never changed the channel, you don't need to do anything (for more information on changing channels, see page 48 of this User Manual).
2. Find the Access Point's MAC address on the bottom of the Access Point. There are two MAC addresses on the bottom label. You will need the MAC address named "WLAN MAC Address". The MAC address starts with 0030BD and is followed by six other numbers or letters (i.e. 0030BD-XXXXXX). Write the MAC address below. Go to the next step.





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- Place your secondary Access Point within range of your Router and near the area where you want to extend the range or add the network segment. Typically, indoor range should be between 100 and 200 feet.
- Connect power to your Access Point. Make sure the Access Point is on and proceed to the next step.
- From a computer already connected to your Router, access the Advanced Setup Utility by opening your browser. In the address bar, type in "192.168.2.1". Do not type in "www" or "http://" before the number. Note: If you have changed your Router's IP address, use that IP address.

- You will see the Router's user interface in the browser window. Click "Wireless Bridge" on the left-hand side of the screen. You will see the following screen.

**BELKIN** Router Setup Utility Home | Help | Logout Internet Status: No Connection

### Wireless > Wireless bridge

Wireless Bridging or Wireless Distribution System (WDS) is used to connect Wireless Routers and Access Points together to extend a network.

- Wireless channels must match between Router and AP.
- Security settings (WEP) must match between Router and AP.
- If MAC filtering is enabled, user must be sure to add the VLAN/MAC address(es) of the Router/AP in order to allow communication with each other.

Enable Wireless Bridging. (enabling this feature allows other Access Points to connect to this Access Point.)

Enable ONLY specific Access Points to connect. (Enter Wireless MAC Address of AP to connect to. If this item is not checked, any AP can connect. Note: when connecting APs, at least one needs to call out the MAC address of the other. Visit the MAC Address can be found using a site survey on a wireless client card.)

AP1	[v]	[v]	[v]	[v]	[v]	[v]	[v]
AP2	[v]	[v]	[v]	[v]	[v]	[v]	[v]
AP3	[v]	[v]	[v]	[v]	[v]	[v]	[v]
AP4	[v]	[v]	[v]	[v]	[v]	[v]	[v]

Disable ability for Wireless CLIENTS to connect. (This feature should only be used when the AP is used exclusively to connect wireless to other APs.)

**Left-hand navigation menu:** LAN Setup, LAN Settings, DHCP Client List, Internet WAB, Connection Type, DNS, MAC Address, Wireless, Channel and GSK, Security, Wi-Fi Protected Setup, Use as Access Point, **Wireless Bridge** (circled), Firewall, Virtual Servers, Client IP Filter.

7. Check the box that says “Enable ONLY specific Access Points to connect”.
8. In the fields named “AP1”, type in the MAC address of your secondary Access Point. When you have typed in the address, click “Apply Changes”.
9. Bridging is now set up.

### Configuring the Firewall

Your Router is equipped with a firewall that will protect your network from a wide array of common hacker attacks including:

- IP Spoofing
- SYN flood
- Land Attack
- UDP flooding
- Ping of Death (PoD)
- Tear Drop Attack
- Denial of Service (DoS)
- ICMP defect
- IP with zero length
- RIP defect
- Smurf Attack
- Fragment flooding
- TCP Null Scan

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The firewall also masks common ports that are frequently used to attack networks. These ports appear to be “Stealth”, meaning that for all intents and purposes, they do not exist to a would-be hacker. You can turn the firewall function off if needed; however, while disabling the firewall protection will not leave your network completely vulnerable to hacker attacks, it is recommended that you leave the firewall enabled.

### Firewall >

Your Router is equipped with a firewall that will protect your network from a wide array of common hacker attacks including Ping of Death (PoD) and Denial of Service (DoS) attacks. You can turn the firewall function off if needed. Turning off the firewall protection will not leave your network completely vulnerable to hacker attacks, but it is recommended that you turn the firewall on whenever possible.

Firewall Enable / Disable >  Disable  Enable

### Configuring Internal Forwarding Settings

The “Virtual Servers” function will allow you to route external (Internet) calls for services such as a web server (port 80), FTP server (Port 21), or other applications through your Router to your internal network. Since your internal computers are protected by a firewall, computers outside your network (over the Internet) cannot get to them because they cannot be “seen.” You will need to contact the application vendor to find out which port settings you need.

Firewall > Virtual servers

This function will allow you to route external (Internet) calls for services such as a web server (port 80), FTP server (Port 21), or other applications through your Router to your internal network. [More Info](#)

Add Active Worlds

Clear entry 1

	Enable	Description	Inbound port	Type	Private IP address	Private port
1.	<input type="checkbox"/>		-	TCP	192.168.2.	-
2.	<input type="checkbox"/>		-	TCP	192.168.2.	-
3.	<input type="checkbox"/>		-	TCP	192.168.2.	-
4.	<input type="checkbox"/>		-	TCP	192.168.2.	-
5.	<input type="checkbox"/>		-	TCP	192.168.2.	-
6.	<input type="checkbox"/>		-	TCP	192.168.2.	-
7.	<input type="checkbox"/>		-	TCP	192.168.2.	-
8.	<input type="checkbox"/>		-	TCP	192.168.2.	-

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### Entering Settings into the Virtual Server

To enter settings, enter the IP address in the space provided for the internal (server) machine, and the port(s) required to pass. Then select the port type (TCP or UDP), check the "Enable" box, and click "Apply Changes". Each inbound port entry has two fields with five characters maximum per field that allows a start and end port range, e.g. [xxxxx]-[xxxxx]. For each entry, you can enter a single port value by filling in the two fields with the same value (e.g. [7500]-[7500]) or a wide range of ports (e.g. [7500]-[9000]). If you need multiple single port values or a combination of ranges and a single value, you must use multiple entries up to the maximum of 20 entries (e.g. 1. [7500]-[7500], 2. [8023]-[8023], 3. [9000]-[9000]). You can only pass one port per internal IP address. Opening ports in your firewall can pose a security risk. You can enable and disable settings very quickly. It is recommended that you disable the settings when you are not using a specific application.

### Setting Client IP Filters

The Router can be configured to restrict access to the Internet, email, or other network services at specific days and times. Restriction can be set for a single computer, a range of computers, or multiple computers.

The screenshot shows the router's configuration page for "Firewall > Client IP filters". On the left is a navigation menu with "Virtual Servers" highlighted in red. The main content area has a blue header "Firewall > Client IP filters" and a sub-header "The Router can be configured to restrict access to the Internet, e-mail or other network services at specific days and times. [More info](#)". Below this is a table with columns: IP, Port, Type, Block Time, Day, Time, and Enable. The table contains five rows of configuration entries for IP 192.168.2.1.

IP	Port	Type	Block Time	Day	Time	Enable
192.168.2.1		<input type="radio"/> TCP <input type="radio"/> UDP <input checked="" type="radio"/> BOTH	<input type="radio"/> Always <input type="radio"/> Block	SUN	12:00 A.M. - 12:00 A.M.	<input type="checkbox"/>
192.168.2.1		<input type="radio"/> TCP <input type="radio"/> UDP <input checked="" type="radio"/> BOTH	<input type="radio"/> Always <input type="radio"/> Block	SUN	12:00 A.M. - 12:00 A.M.	<input type="checkbox"/>
192.168.2.1		<input type="radio"/> TCP <input type="radio"/> UDP <input checked="" type="radio"/> BOTH	<input type="radio"/> Always <input type="radio"/> Block	SUN	12:00 A.M. - 12:00 A.M.	<input type="checkbox"/>
192.168.2.1		<input type="radio"/> TCP <input type="radio"/> UDP <input checked="" type="radio"/> BOTH	<input type="radio"/> Always <input type="radio"/> Block	SUN	12:00 A.M. - 12:00 A.M.	<input type="checkbox"/>
192.168.2.1		<input type="radio"/> TCP <input type="radio"/> UDP <input checked="" type="radio"/> BOTH	<input type="radio"/> Always <input type="radio"/> Block	SUN	12:00 A.M. - 12:00 A.M.	<input type="checkbox"/>

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To restrict Internet access to a single computer for example, enter the IP address of the computer you wish to restrict access to in the IP fields. Next, enter "80" in both the port fields. Select "Both". Select "Block". You can also select "Always" to block access all of the time. Select the day to start on top, the time to start on top, the day to end on the bottom, and the time to stop on the bottom. Select "Enable". Click "Apply Changes". The computer at the IP address you specified will now be blocked from Internet access at the times you specified. Note: Be sure you have selected the correct time zone under "Utilities> System Settings> Time Zone".

IP	Port	Type	Block Time	Day	Time	Enable
192.168.2	22	<input type="radio"/> TCP <input type="radio"/> UDP <input checked="" type="radio"/> BOTH	<input type="radio"/> Always <input checked="" type="radio"/> Block	SUN	12:00 A.M.	<input type="checkbox"/>
	22			SUN	12:00 A.M.	

## Setting MAC Address Filtering

The MAC address filter is a powerful security feature that allows you to specify which computers are allowed on the network. Any computer attempting to access the network that is not specified in the filter list will be denied access. When you enable this feature, you must enter the MAC address of each client (computer) on your network to allow network access to each.

### Firewall > MAC address filtering

This feature lets you set up a list of allowed clients. When you enable this feature, you must enter the MAC address of each client on your network to allow network access to each. [More Info](#)

Enable MAC Address Filtering >

MAC Address Filtering List >

Block	Host	MAC Address	<< Add
<input type="checkbox"/>			

Clear Changes

Apply Changes

To enable this feature, select “MAC Address Filtering” and click “Enable MAC Address Filtering”. Next, enter the MAC address of each computer on your network by clicking in the space provided and entering the MAC address of the computer you want to add to the list. Click “Add”, then “Apply Changes” to save the settings. You can have a MAC-address-filtering list of up to 32 computers.

**Note:** You will not be able to delete the MAC address of the computer you are using to access the Router’s administrative functions (the computer you are using now).

## Enabling the Demilitarized Zone (DMZ)

The DMZ feature allows you to specify one computer on your network to be placed outside of the firewall. This may be necessary if the firewall is causing problems with an application such as a game or video conferencing application. Use this feature on a temporary basis. The computer in the DMZ is NOT protected from hacker attacks. Note: If your ISP subscription provides you with additional public (WAN) IP addresses, additional computers can be placed outside the firewall provided each computer uses a different public (WAN) IP.

### Firewall > DMZ

**DMZ**  
 The DMZ feature allows you to specify one computer on your network to be placed outside of the NAT firewall. This may be necessary if the NAT feature is causing problems with an application such as a game or video conferencing application. Use this feature on a temporary basis. **The computer in the DMZ is not protected from hacker attacks.** To put a computer in the DMZ, enter the last digits of its IP address in the field below and select “Enable”. Click “Apply Changes” for the change to take effect. [More Info](#)

IP Address of Virtual DMZ Host >

	Static IP	Private IP	Enable
1.		192.168.2. <input type="text"/>	<input type="checkbox"/>

To put a computer in the DMZ, enter the last digits of its IP address in the IP field and select “Enable”. Click “Apply Changes” for the change to take effect.

### Setting up the Router's Dynamic DNS (DDNS) Update Client

You must register with DynDNS.org's free update service before using this feature. Once you have your registration, follow the directions below.

#### Firewall > DDNS

DDNS (Dynamic DNS) allows you to provide Internet users with a fixed domain name (instead of an IP address which may periodically change), allowing your router and applications set up in your router's virtual servers to be accessed from various locations on the Internet without knowing your current IP address. You must create an account with the DDNS service in order to use DDNS. [More Info](#)

DDNS Service >	<input type="button" value="Disable DDNS"/> <input type="button" value="Web Site"/>
DDNS Status >	Disabled
User Name >	<input type="text"/>
Password/Key >	<input type="text"/>
Domain Name >	<input type="text"/> <input type="text"/> <input type="text"/>
<input type="button" value="Clear Changes"/> <input type="button" value="Update DDNS / Apply"/>	

1. Select DynDNS as the "DDNS Service".
2. Enter your DynDNS.org user name in the "User Name" field.
3. Enter your DynDNS.org password in the "Password" field.
4. Enter the DynDNS.org domain name you set up with DynDNS.org in the "Domain Name" field.
5. Click "Update Dynamic DNS" to update your IP address.

If your IP address assigned by your ISP changes, the Router will automatically update DynDNS.org's servers with your new IP address. You can also do this manually by clicking the "Update Dynamic DNS" button.

## WAN Ping Blocking

Computer hackers use what is known as “pinging” to find potential victims on the Internet. By pinging a specific IP address and receiving a response from the IP address, a hacker can determine that something of interest might be there. The Router can be set up so it will not respond to an ICMP ping from the outside. This heightens the level of security of your Router.

### Firewall > WAN Ping Blocking

**ADVANCED FEATURE!** You can configure the Router not to respond to an ICMP Ping (ping to the WAN port). This offers a heightened level of security. [More info](#)

Block ICMP Ping >

To turn off the ping response, select “Block ICMP Ping” and click “Apply Changes”. The Router will not respond to an ICMP ping.

## Utilities Tab

This screen lets you manage different parameters of the Router and perform certain administrative functions.

### Utilities >

This screen lets you manage different parameters of the Router and perform certain administrative functions.

- **Restart Router**  
Sometimes it may be necessary to Reset or Reboot the Router if it begins working improperly. Resetting or Rebooting the Router will not delete any of your configuration settings.
- **Restore Factory Defaults**  
Using this option will restore all of the settings in the Router to the factory (default) settings. It is recommended that you backup your settings before you restore all of the defaults.
- **Save/Backup Current Settings**  
You can save your current configuration by using this feature. Saving your configuration will allow you to restore it later if your settings are lost or changed. It is recommended that you backup your current configuration before performing a firmware update.
- **Restore Previous Saved Settings**  
This option will allow you to restore a previously saved configuration.
- **Firmware Update**  
From time to time, Belkin may release new versions of the Router's firmware. Firmware updates contain feature improvements and fixes to problems that may have existed.
- **System Settings**  
The System Settings page is where you can enter a new administrator password, set the time zone, enable remote management, turn on and off UPNP, turn on and off Auto Update Firmware, and turn on and off the NAT function of the Router.



### Restarting the Router

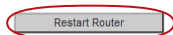
Sometimes it may be necessary to restart or reboot the Router if it begins working improperly. Restarting or rebooting the Router will NOT delete any of your configuration settings.

#### Restarting the Router to Restore Normal Operation

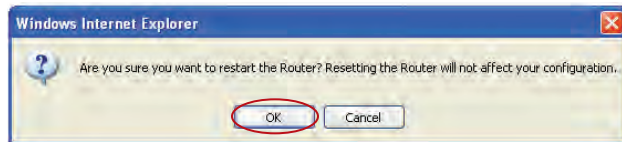
1. Click the "Restart Router" button.

##### Utilities > Restart Router

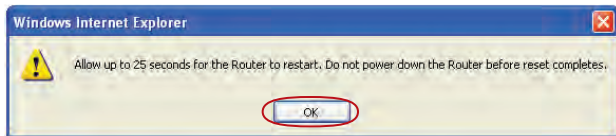
Sometimes it may be necessary to Restart or Reboot the Router if it begins working improperly. Restarting or Rebooting the Router will not delete any of your configuration settings. Click the "Restart Router" button below to Restart the Router.



2. The following message will appear. Click "OK".



3. The following message will appear. Restarting the Router can take up to 25 seconds. It is important not to turn off the power to the Router during the restart.



4. A 25-second countdown will appear on the screen. When the countdown reaches zero, the Router will be restarted. The Router's home page should appear automatically. If not, type in the Router's address (default = 192.168.2.1) into the navigation bar of your browser.

### Restoring Factory Default Settings

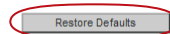
Using this option will restore all of the settings in the Router to the factory (default) settings. It is recommended that you back up your settings before you restore all of the defaults.

1. Click the "Restore Defaults" button.

#### [Utilities > Restore factory defaults](#)

##### Restore factory defaults

Using this option will restore all of the settings in the Router to the factory (default) settings. It is recommended that you backup your settings before you restore all of the defaults. To restore the factory default settings, click the "Restore Defaults" button below.



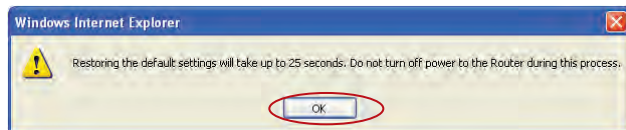
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2. The following message will appear. Click “OK”.

4. A 25-second countdown will appear on the screen. When the countdown reaches zero, the Router’s defaults will be restored. The Router’s home page should appear automatically. If it does not, type the Router’s address (default = 192.168.2.1) into the navigation bar of your browser.

3. The following message will appear. Restoring the defaults includes restarting the Router. It can take up to 25 seconds. It is important not to turn the power to the Router off during the restart.

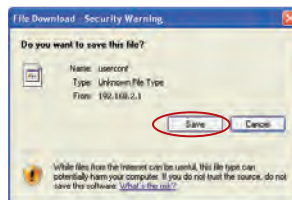


### Saving a Current Configuration

You can save your current configuration by using this feature. Saving your configuration will allow you to restore it later if your settings are lost or changed. It is recommended that you back up your current configuration before performing a firmware update.

#### Utilities > Save/Backup current settings

You can save your current configuration by using this feature. Saving your configuration will allow you to restore it later if your settings are lost or changed. It is recommended that you backup your current configuration before performing a firmware update.



1. Click "Save". A window called "File Download" will open. Click "Save".

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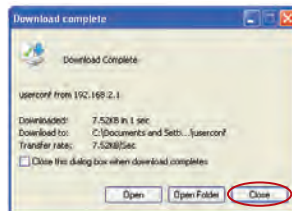
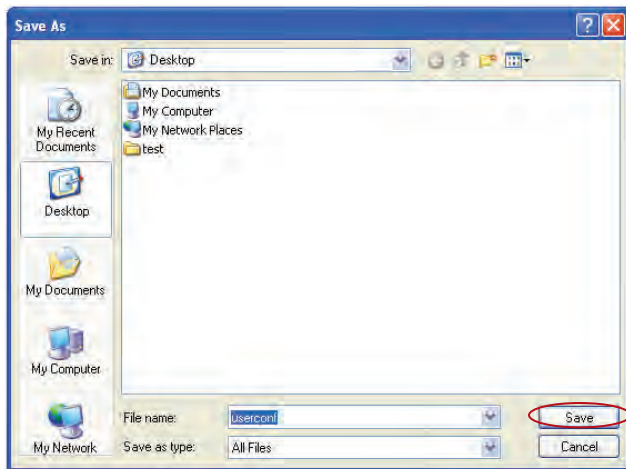
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2. A window will open that allows you to select the location where you want to save the configuration file. Select a location. You can name the file anything you want, or use the default name “user.conf”. Be sure to name the file so you can locate it yourself later. When you have selected the location and name of the file, click “Save”.



3. When the save is complete, you will see the following window. Click “Close”.

The configuration is now saved.

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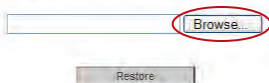
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### Restoring a Previous Configuration

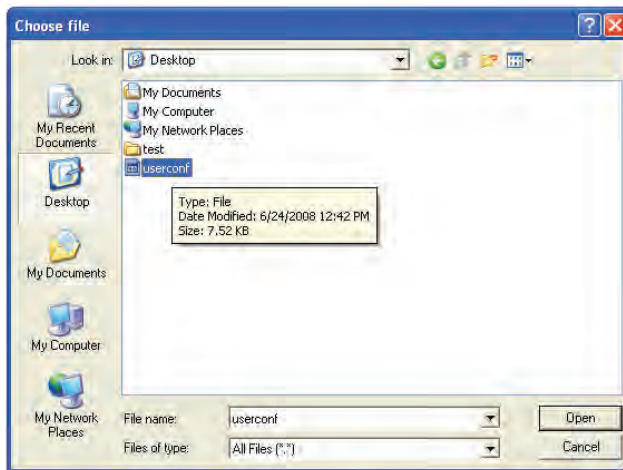
This option will allow you to restore a previously saved configuration.

#### Utilities > Restore previous saved settings

This option will allow you to restore a previously saved configuration.

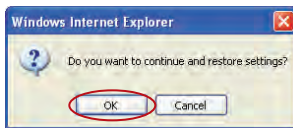


1. Click "Browse". A window will open that allows you to select the location of the configuration file. All configuration files end with a ".conf". Locate the configuration file you want to restore and double-click on it. Then, click on the "Restore" button on the "Restore previous saved settings" page.



## USING THE WEB-BASED ADVANCED USER INTERFACE

2. You will be asked if you want to continue. Click "OK".



3. A reminder window will appear. It will take up to 25 seconds for the configuration restoration to complete. Click "OK".



4. A 25-second countdown will appear on the screen. When the countdown reaches zero, the Router's configuration will be restored. The Router's home page should appear automatically. If not, type in the Router's address (default = 192.168.2.1) into the navigation bar of your browser.

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## Updating the Firmware

From time to time, Belkin may release new versions of the Router's firmware. Firmware updates contain feature improvements and fixes to problems that may exist. When Belkin releases new firmware, you can download the firmware from the Belkin update website and update your Router's firmware to the latest version.

### Searching for a New Version of Firmware

From <http://www.belkin.com/support/downloads.asp>, type in the Belkin part number "F5D7234-4" in the "Search" field. Click "Search".

From the results page, click "F5D7234-4 Firmware update - North America".





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### Downloading a New Version of Firmware

You will now be taken to the download page of “F5D7234-4 Firmware update - North America”.

The screenshot shows the Belkin website interface. The main content area is titled "Manuals and Drivers" and "F5D7234-4 Firmware update - North America". Below the title, there is a table of files for download:

Files:	SIZE:
<a href="#">F5D7234-4_4.03.03.BIN</a>	106.6 KB
<a href="#">F5D7234-4_4.03.03.BIN</a>	1.03 MB

1. To download the new version of firmware, click the download logo (📄).

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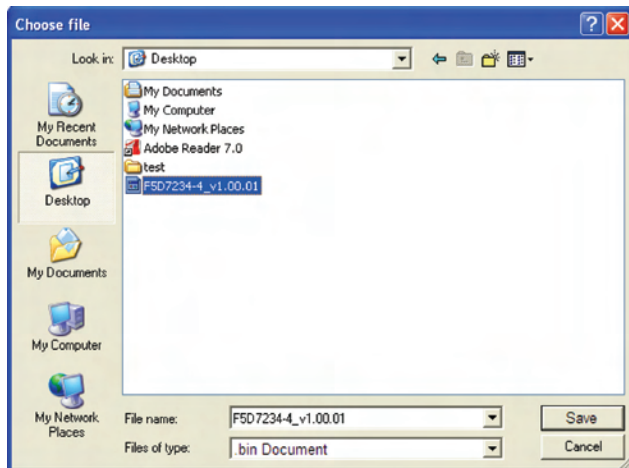
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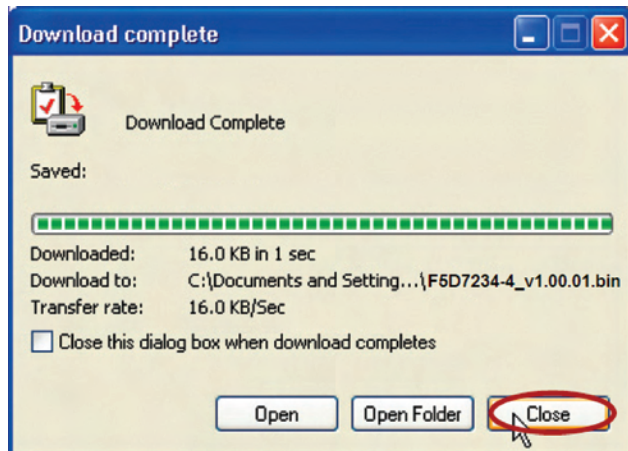
2. A window will open that allows you to select the location where you want to save the firmware file. Select a location. You can name the file anything you want, or use the default name. Be sure to save the file in a place where you can locate it yourself later.

**Note:** We suggest saving this to your desktop to make it easy to locate the file. When you have selected the location, click “Save”.



3. When the save is complete, you will see the following window. Click “Close”.

The download of the firmware is complete. To update the firmware, follow the next steps in “Updating the Router’s Firmware”.



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### Updating the Router's Firmware

1. In the "Firmware Update" page, click "Browse". A window will open that allows you to select the location of the firmware update file.
2. Browse to the firmware file you downloaded. Select the file by double-clicking on the file name.

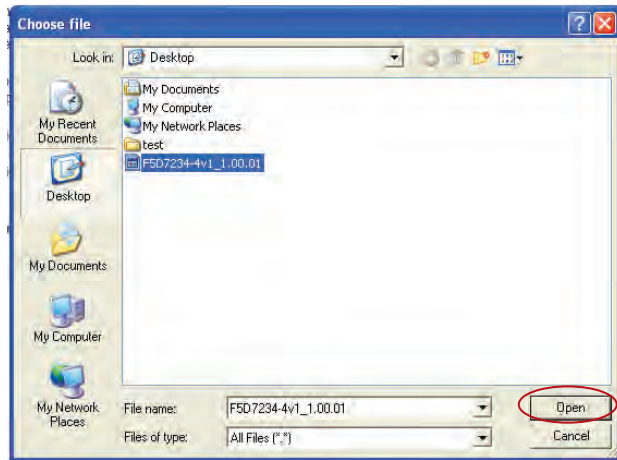
#### Utilities > Firmware update

From time to time, Belkin may release new versions of the Router's firmware. Firmware updates contain improvements and fixes to problems that may have existed. Click the link below to see if there is a new firmware update available for this Router.

NOTE: Please backup your current settings before updating to a new version of firmware. [Click Here](#) to go to the Save/Backup current settings page.

Firmware Version F5D7234-4\_US\_1.00.00  
Check For New Firmware Version >

Update Firmware >

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3. The "Update Firmware" box will now display the location and name of the firmware file you just selected. Click "Update".

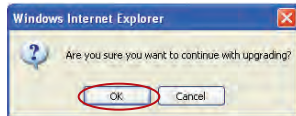
### Utilities > Firmware update

From time to time, Belkin may release new versions of the Router's firmware. Firmware updates contain improvements and fixes to problems that may have existed. Click the link below to see if there is a new firmware update available for this Router.

NOTE: Please backup your current settings before updating to a new version of firmware. [Click Here](#) to go to the Save/Backup current settings page.

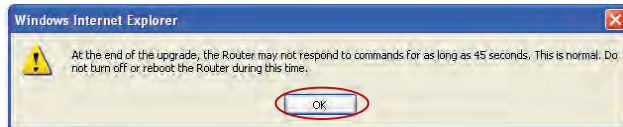
Firmware Version    FSD7234-4\_US\_1.00.00  
Check For New  
Firmware Version >   

Update Firmware >   



4. You will be asked if you are sure you want to continue. Click "OK".

5. You will see one more message. This message tells you that the Router may not respond for as long as one minute as the firmware is loaded into the Router and the Router is rebooted. Click "OK".



6. A 45-second countdown will appear on the screen. When the countdown reaches zero, the Router's firmware update will be complete. The Router's home page should appear automatically. If not, type in the Router's address (default = 192.168.2.1) into the navigation bar of your browser.

The firmware update is complete.

## USING THE WEB-BASED ADVANCED USER INTERFACE

### Changing System Settings

The “System Settings” page is where you can enter a new administrator password, set the time zone, and enable remote management of the Router.

### Setting or Changing the Administrator Password

The Router ships with NO password entered. If you wish to add a password for greater security, you can set a password here. Write down your password and keep it in a safe place, as you will need it if you need to log into the Router in the future. It is also recommended that you set a password if you plan to use the remote management feature of your Router.

#### Administrator Password:

The Router ships with NO password entered. If you wish to add a password for more security, you can set a password here. [More Info](#)

- Type in current Password>

- Type in new Password>

- Confirm new Password>

- Login Timeout>

 (1-99 minutes)

### Changing the Login Time-Out Setting

The login time-out option allows you to set the period of time that you can be logged into the Router’s Web-Based Advanced User Interface. The timer starts when there has been no activity. For example, you have made some changes in the Web-Based Advanced User Interface, then left your computer alone without clicking “Logout”. Assuming the time-out is set to 10 minutes, then 10 minutes after you leave, the login session will expire. You will have to log into the Router again to make any more changes. The login time-out option is for security purposes and the default is set to 10 minutes.

**Note:** Only one computer can be logged into the Router’s Web-Based Advanced User Interface at one time.

## Setting the Time and Time Zone

The Router keeps time by connecting to a Simple Network Time Protocol (SNTP) server. This allows the Router to synchronize the system clock to the global Internet. The synchronized clock in the Router is used to record the security log and control client filtering. Select the time zone that you reside in. If you reside in an area that observes daylight saving, then place a check mark in the box next to "Automatically Adjust Daylight Saving". The system clock may not update immediately. Allow at least 15 minutes for the Router to contact the time servers on the Internet and get a response. You cannot set the clock yourself.

**Time and Time Zone:** January 01, 2000 12:01:09 AM

Please set your time Zone. If you are in an area that observes daylight saving check this box. [More Info](#)

- Time Zone > (GMT-08:00) Pacific Time(US, Canada): Tijuana ▼
- Daylight Savings >  Automatically Adjust Daylight Saving
- Primary NTP Server > 192.43.244.18-NorthAmerica ▼
- Backup NTP Server > 132.163.4.102-NorthAmerica ▼

## Enabling Remote Management

Before you enable this advanced feature of your Belkin Router, **MAKE SURE YOU HAVE SET THE ADMINISTRATOR PASSWORD**. Remote management allows you to make changes to your Router's settings from anywhere on the Internet. There are two methods of remotely managing the Router. The first is to allow access to the Router from anywhere on the Internet by selecting "Any IP address can remotely manage the Router". By typing in your WAN IP address from any computer on the Internet, you will be presented with a login screen where you need to type in the password of your Router. The second method is to allow a specific IP address only to remotely manage the Router. This is more secure, but less convenient. To use this method, enter the IP address you know you will be accessing the Router from in the space provided and select "Only this IP address can remotely manage the Router". Before you enable this function, it is **STRONGLY RECOMMENDED** that you set your administrator password. Leaving the password empty will potentially open your Router to intrusion.

### Remote Management:

**ADVANCED FEATURE!** Remote management allows you to make changes to your Router's settings from anywhere on the Internet. Before you enable this function, **MAKE SURE YOU HAVE SET THE ADMINISTRATOR PASSWORD**. [More Info](#)

- Any IP address can remotely manage the router.
- Only this IP address can remotely manage the router> . . . .
- Remote Access Port> 8080

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### Enabling/Disabling UPnP

UPnP (Universal Plug-and-Play) is yet another advanced feature offered by your Belkin Router. It is a technology that offers seamless operation of voice messaging, video messaging, games, and other applications that are UPnP-compliant. Some applications require the Router's firewall to be configured in a specific way to operate properly. This usually requires opening TCP and UDP ports. An application that is UPnP-compliant has the ability to communicate with the Router, basically "telling" the Router which way it needs the firewall configured. If you are using any applications that are UPnP-compliant, and wish to take advantage of the UPnP features, do not worry, this Router ships with the UPnP feature enabled as default setting. If you want to disable the UPnP feature, simply select "Disable" in the "UPnP Enabling/Disabling" section of the "Utilities" page. Click "Apply Changes" to save the change.

#### UPnP Enabling:

**ADVANCED FEATURE!** Allows you to turn the UPnP feature of the Router on or off. If you use applications that support UPnP, enabling UPnP will allow these applications to automatically configure the router. [More Info](#)

- UPnP Enable / Disable >

Enable  Disable

### Enabling/Disabling Auto Firmware Update

This innovation provides the Router with the built-in capability to automatically check for a new version of firmware and alert you that the new firmware is available. When you log into the Router's Web-Based Advanced User Interface, the Router will perform a check to see if new firmware is available. If so, you will be notified. You can choose to download the new version or ignore it. The Router ships with this feature enabled. If you want to disable it, select "Disable" and click "Apply Changes".

#### Auto Update Firmware Enabling:

**ADVANCED FEATURE!** Allows you to automatically check the availability of firmware updates for your router. [More Info](#)

- Auto Update Firmware  
Enable / Disable >

Enable  Disable

Clear Changes

Apply Changes

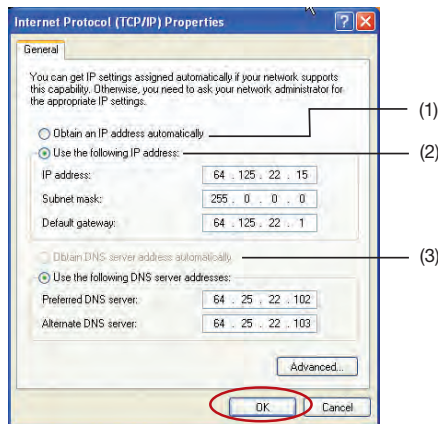
## MANUALLY CONFIGURING NETWORK SETTINGS

In order for your computer to properly communicate with your Router, you will need to change your PC's TCP/IP settings to DHCP.

### Manually Configuring Network Adapters in Windows 2000, NT, XP, or Vista

1. Click "Start", "Settings", then "Control Panel".
2. Double-click on the "Network and dial-up connections" icon (Windows 2000) or the "Network" icon (Windows XP or Vista).
3. Right-click on the "Local Area Connection" associated with your network adapter and select "Properties" from the drop-down menu.
4. In the "Local Area Connection Properties" window, click "Internet Protocol (TCP/IP)" and click the "Properties" button. The following screen will appear:
5. If "Use the following IP address" (2) is selected, your Router will need to be set up for a static IP connection type. Write the address information in the table below. You will need to enter this information into the Router.

IP address:	<input type="text"/>
Subnet Mask:	<input type="text"/>
Default gateway:	<input type="text"/>
Preferred DNS server:	<input type="text"/>
Alternate DNS server:	<input type="text"/>



6. If not already selected, select "Obtain an IP address automatically" (1) and "Obtain DNS server address automatically" (3). Click "OK".

**Your network adapter(s) are now configured for use with the Router.**



## Manually Configuring Network Adapters in Windows 98SE or Me

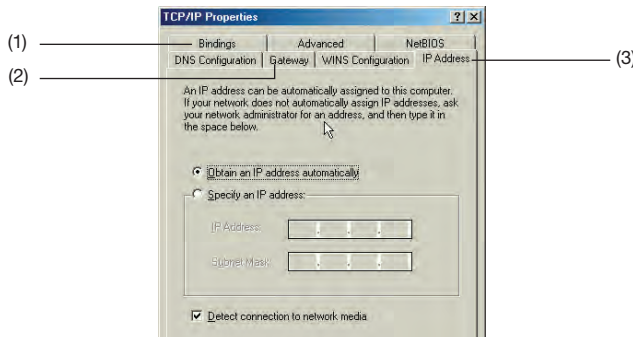
1. Right-click on “My Network Neighborhood” and select “Properties” from the drop-down menu.
2. Select “TCP/IP -> settings” for your installed network adapter. You will see the following window.
3. If “Specify an IP address” is selected, your Router will need to be set up for a static IP connection type. Write the address information in the table below. You will need to enter this information into the Router.
4. Write in the IP address and subnet mask from the “IP Address” tab (3).
5. Click the “Gateway” tab (2). Write the gateway address down in the chart.

IP address:	<input type="text"/>
Subnet Mask:	<input type="text"/>
Default gateway:	<input type="text"/>
Preferred DNS server:	<input type="text"/>
Alternate DNS server:	<input type="text"/>

6. Click the “DNS Configuration” tab (1). Write the DNS address(es) in the chart.
7. If not already selected, select “Obtain IP address automatically” in the “IP Address” tab. Click “OK”.

### Restart the computer. When the computer restarts, your network adapter(s) are now configured for use with the Router.

Set up the computer that is connected to the cable or DSL modem FIRST using these steps. You can also use these steps to add computers to your Router after the Router has been set up to connect to the Internet.

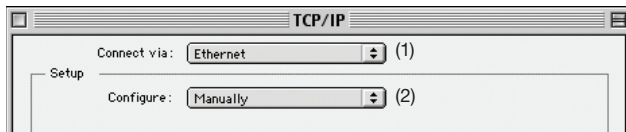


## MANUALLY CONFIGURING NETWORK SETTINGS

### Manually Configuring Network Adapters in Mac OS up to v9.x

In order for your computer to properly communicate with your Router, you will need to change your Mac computer's TCP/IP settings to DHCP.

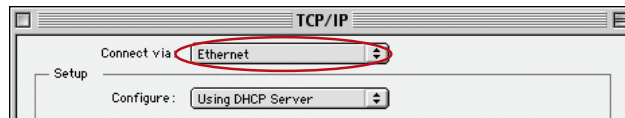
1. Pull down the Apple menu. Select "Control Panels" and select "TCP/IP".
2. You will see the TCP/IP control panel. Select "Ethernet Built-In" or "Ethernet" in the "Connect via:" drop-down menu (1).



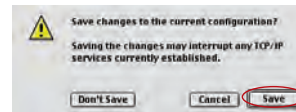
3. Next to "Configure" (2), if "Manually" is selected, your Router will need to be set up for a static IP connection type. Write the address information in the table below. You will need to enter this information into the Router.

IP address:	<input type="text"/>
Subnet Mask:	<input type="text"/>
Default gateway:	<input type="text"/>
Preferred DNS server:	<input type="text"/>
Alternate DNS server:	<input type="text"/>

4. If not already set, at "Configure:", choose "Using DHCP Server". This will tell the computer to obtain an IP address from the Router.



5. Close the window. If you made any changes, the following window will appear. Click "Save".



Restart the computer. When the computer restarts, your network settings are now configured for use with the Router.

## MANUALLY CONFIGURING NETWORK SETTINGS

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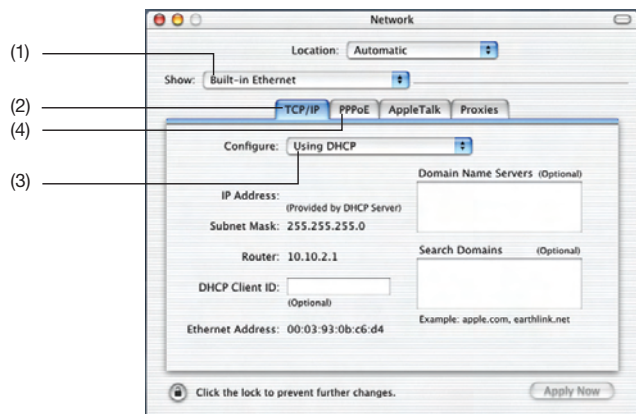
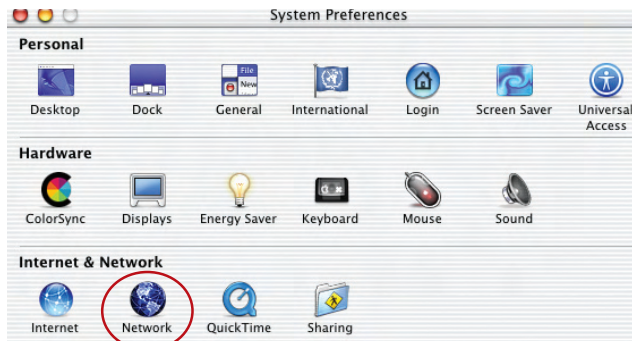
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### Manually Configuring Network Adapters in Mac OS X v10.x

1. Click on the “System Preferences” icon.



2. Select “Network” from the “System Preferences” menu.



3. Select “Built-in Ethernet” (1) next to “Show” in the “Network” menu.
4. Select the “TCP/IP” tab (2). Next to “Configure:” (3), you should see “Manually” or “Using DHCP”. If you do not, check the PPPoE tab (4) to make sure that “Connect using PPPoE” is NOT selected. If it is, you will need to configure your Router for a PPPoE connection type using your user name and password.

## MANUALLY CONFIGURING NETWORK SETTINGS

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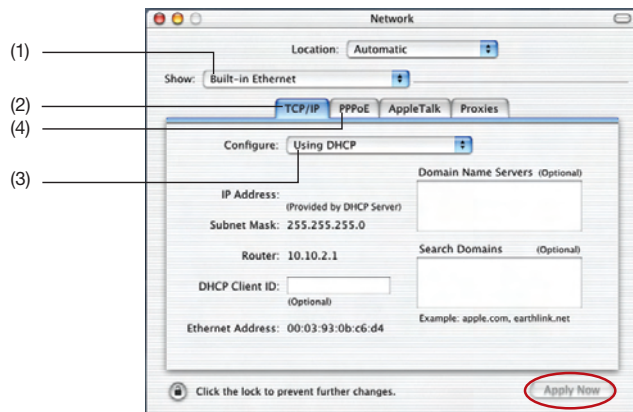
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5. If “Manually” is selected, your Router will need to be set up for a static IP connection type. Write the address information in the table below. You will need to enter this information into the Router.

IP address:	<input type="text"/>
Subnet Mask:	<input type="text"/>
Router Address:	<input type="text"/>
Name Server Address:	<input type="text"/>

6. If not already selected, select “Using DHCP” next to “Configure:” (3), then click “Apply Now”.

**Your network adapter(s) are now configured for use with the Router.**

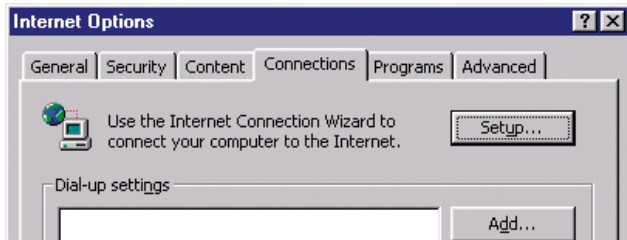
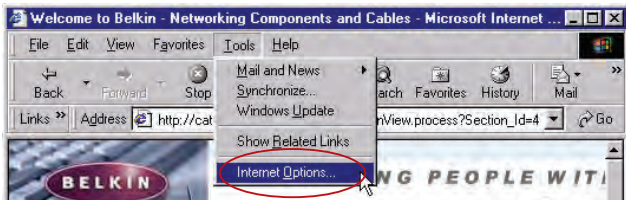


## RECOMMENDED WEB BROWSER SETTINGS

In most cases, you will not need to make any changes to your web browser's settings. If you are having trouble accessing the Internet or the Web-Based Advanced User Interface, then change your browser's settings to the recommended settings in this section.

### Internet Explorer 4.0 or Higher

1. Start your web browser. Select "Tools" then "Internet Options".
2. In the "Internet Options" screen, there are three selections: "Never dial a connection", "Dial whenever a network connection is not present", and "Always dial my default connection". If you can make a selection, select "Never dial a connection". If you cannot make a selection, go to the next step.



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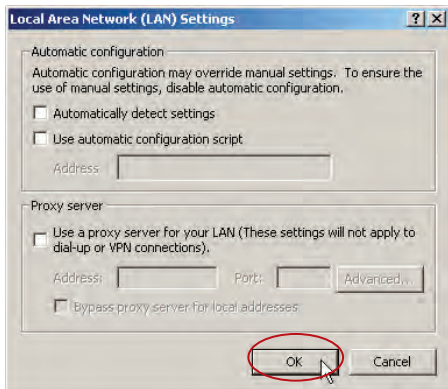
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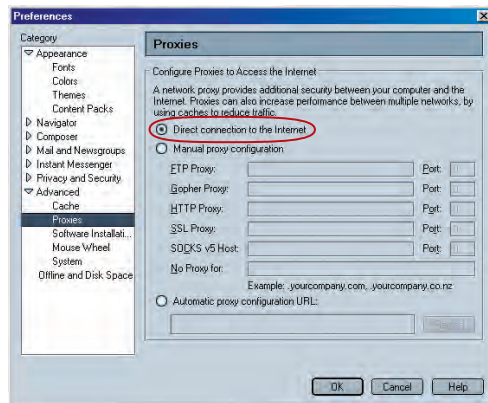
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- Under the “Internet Options” screen, click on “Connections” and select “LAN Settings...”.
- Make sure there are no check marks next to any of the displayed options: “Automatically detect settings”, “Use automatic configuration script”, and “Use a proxy server”. Click “OK”. Then click “OK” again in the “Internet Options” page.



### Netscape® Navigator® 4.0 or Higher

- Start Netscape. Click on “Edit” then “Preferences”.
- In the “Preferences” window, click on “Advanced” then select “Proxies”. In the “Proxies” window, select “Direct connection to the Internet”.



## TROUBLESHOOTING

### Problem:

Installation CD does not automatically start.

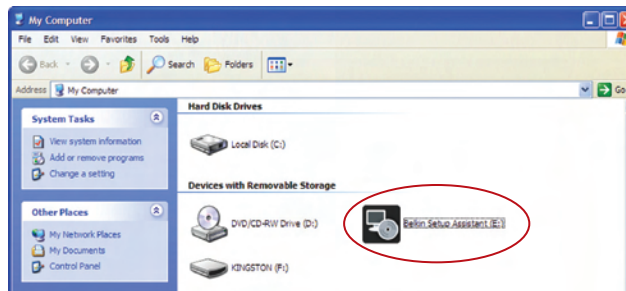
### Solution:

If the CD-ROM does not start the Setup Assistant automatically, it could be that the computer is running other applications that are interfering with the CD drive.

1. If the Setup Assistant screen does not appear within 15–20 seconds, open up your CD-ROM drive by double-clicking on the “My Computer” icon that is located on your desktop.

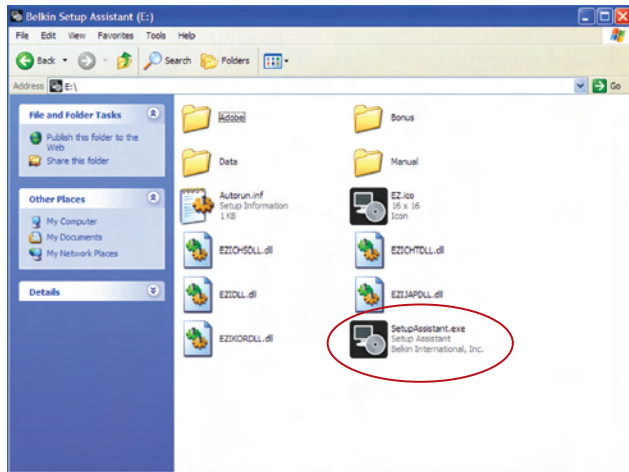


2. Next, double-click on the CD-ROM drive that the Setup Assistant Software CD has been placed in to start the installation.



## TROUBLESHOOTING

3. The Setup Assistant should start within a few seconds. If, instead, a window appears showing the files on the CD, double-click on the icon labeled "SetupAssistant.exe".
4. If the Setup Assistant still does not start, reference the section titled "Manually Configuring Network Settings" (page 86 of this User Manual) for an alternate setup method.





**Problem:**

The Setup Assistant cannot find my Router.

**Solution:**

If the Setup Assistant is not able to find the Router during the installation process, please check the following items:

1. If the Setup Assistant is not able to find the Router during the installation process, there may be third-party firewall software installed on the computer attempting to access the Internet. Examples of third-party firewall software are ZoneAlarm, BlackICE PC Protection, McAfee Personal Firewall, and Norton Personal Firewall.

If you do have firewall software installed on your computer, please make sure that you properly configure it. You can determine if the firewall software is preventing Internet access by temporarily turning it off. If, while the firewall is disabled, Internet access works properly, you will need to change the firewall settings to function properly when it is turned on.

Please refer to the instructions provided by the publisher of your firewall software for instructions on configuring the firewall to allow Internet access.

2. Unplug power to the Router for 10 seconds, and then plug the power back into the Router. Ensure that the Router's Power light is on; it should be solid green. If not, check to make sure that the AC adapter is correctly connected to the Router and plugged into a wall outlet.
3. Ensure that you have a cable (use the cable included with the Router) connected between (1) the network (Ethernet) port on the back of the computer and (2) one of the LAN ports, labeled "1" through "4", on the back of the Router.

Note: The computer should NOT be connected to the port labeled "Modem" on the back of the Router.

4. Try shutting down and restarting your computer, then rerunning the Setup Assistant.

If the Setup Assistant is still unable to find the Router, reference the section titled "Manually Configuring Network Settings" for installation steps.

### Problem:

The Setup Assistant cannot connect my Router to the Internet.

### Solution:

If the Setup Assistant is not able to connect the Router to the Internet, please check the following items:

1. Use the troubleshooting suggestions within the Setup Assistant. If the troubleshooting screen does not open automatically, click on the “Troubleshoot” button in the lower, right-hand corner of the Setup Assistant window.
2. If your ISP requires a user name and password, make sure that you have typed in your user name and password correctly. Some user names require that the ISP’s domain be at the end of the name. Example: “myname@myisp.com”. The “@myisp.com” part of the user name may need to be typed as well as your user name.

If you continue to have no Internet connection, reference the section titled “Manually Configuring Network Settings” (page 86 of this User Manual) for alternate setup method.

### Problem:

- The Setup Assistant completed installation, but my web browser doesn’t work.
- I am unable to connect to the Internet. The Router’s “Internet” light is off and the “Modem” light is blinking.

### Solution:

If you cannot connect to the Internet, the “Internet” light is off, and the “Modem” light is blinking, the problem may be that your modem and Router are not connected properly.

1. Make sure the network cable between the modem and the Router is connected. We strongly recommend using the cable that was supplied with your cable or DSL modem for this purpose. The cable should be connected at one end to the Router’s “Modem” port, and at the other end to the network port on your modem.
2. Unplug the cable or DSL modem from its power source for three minutes. After three minutes, plug the modem back into its power source. This may force the modem to properly recognize the Router.
3. Unplug the power to your Router, wait 10 seconds, and then reconnect the power. This will cause the Router to reattempt communication with the modem.

If the “Modem” light on the Router is not lit after completing these steps, please contact Belkin Technical Support.

4. Try shutting down and restarting your computer.

**Problem:**

- The Setup Assistant completed installation, but my web browser doesn't work.
- I am unable to connect to the Internet. The Router's "Modem" light is on and the "Internet" light is blinking.

**Solution:**

If you cannot connect to the Internet, the "Modem" light is on, and the "Internet" light is blinking, the problem may be that your connection type may not match the ISP's connection.

- If you have a "static IP address" connection, your ISP must assign you the IP address, subnet mask, and gateway address. Please refer to the section entitled "Alternate Setup Method" for details on changing this setting.
- If you have a "PPPoE" connection, your ISP will assign you a user name and password and sometimes a service name. Make sure the Router connection type is configured to PPPoE and the settings are entered properly. Please refer to the section entitled "Alternate Setup Method" for details on changing this setting.
- You may need to configure your Router to meet the specific requirements of your ISP. To search our Knowledge Base for ISP-specific issues, go to: <http://web.belkin.com/support> and type in "ISP"

If you are still unable to access the Internet after verifying these settings, please contact Belkin Technical Support.

**Problem:**

- The Setup Assistant completed, but my web browser doesn't work.
- I am unable to connect to the Internet. The "Modem" light on my Router is blinking and the "Internet" light is solid.

**Solution:**

If the "Modem" light is blinking and the "Internet" light is solid, but you are unable to access the Internet, there may be third-party firewall software installed on the computer attempting to access the Internet. Examples of third-party firewall software are ZoneAlarm, BlackICE PC Protection, McAfee Personal Firewall, and Norton Personal Firewall.

If you do have firewall software installed on your computer, please make sure that you properly configure it. You can determine if the firewall software is preventing Internet access by temporarily turning it off. If, while the firewall is disabled and Internet access works properly, you will need to change the firewall settings to function properly when it is turned on.

Please refer to the instructions provided by the publisher of your firewall software for instructions on configuring the firewall to allow Internet access.

If you are still unable to access the Internet after disabling any firewall software, please contact Belkin Technical Support.

**Problem:**

I can't connect to the Internet wirelessly.

**Solution:**

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

1. Look at the lights on your Router. Your Belkin Router's lights should be as follows:
  - The "Power" light should be on.
  - The "Internet" light should be on and not blinking.
  - The "Modem" light should be either on or blinking.
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 are also using a Belkin Wireless Card or Adapter with this Router, the tray icon should look like this:
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"—those wireless networks it can connect to.

**Does the name of your wireless network appear in the results?**

Yes, my network name is listed—go to the troubleshooting solution titled "I can't connect to the Internet wirelessly, but my network name is listed".

No, my network name is not listed—go to the troubleshooting solution titled "I can't connect to the Internet wirelessly, and my network name is not listed".

### Problem:

I can't connect to the Internet wirelessly, but my network name is listed.

### Solution:

If the name of your network 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. For more information regarding security, see the section entitled "Securing your Wi-Fi Network" in this User Manual.
3. Within a few seconds, the tray icon in the lower, left-hand corner of your screen should turn green, indicating a successful connection to the network.

### Problem:

I can't connect to the Internet wirelessly, and my network name is not listed.

### Solution:

If the correct network name is not listed under "Available Networks" in the wireless configuration utility, please attempt the following troubleshooting steps:

1. Temporarily move your computer, if possible, five to 10 feet away from the Router. Close the wireless configuration utility, and reopen it. If the correct network name now appears under "Available Networks", you may have a range or interference problem. Please see the suggestions discussed in the section titled "Placement of your Router for Optimal Performance" in this User Manual.
2. Using a computer that is connected to the Router through a network cable (as opposed to wirelessly), ensure that "Broadcast SSID" is enabled. This setting is found on the Router's wireless "Channel and SSID" configuration page.

If you are still unable to access the Internet after completing these steps, please contact Belkin Technical Support.

### **Problem:**

My wireless network performance is inconsistent.

Data transfer is sometimes slow.

Signal strength is poor.

I am having difficulty establishing and/or maintaining a Virtual Private Network (VPN) connection.

### **Solution:**

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 away from the Router or access point.

In order to determine if wireless issues are related to range, we suggest temporarily moving the computer, if possible, five to 10 feet away from the Router.

### **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 the section titled "Changing the Wireless Channel" on page 48 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 wireless 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 user manual.

### Problem:

How do I extend the range of my wireless network?

### Solution:

Belkin recommends using one of the following products to extend wireless network coverage throughout large homes or offices:

- **Wireless Access Point:** A wireless access point can effectively double the coverage area of your wireless network. An access point is typically placed in the area not currently covered by your G Wireless Router, and is connected to the Router using either an Ethernet cable or through your home's power lines using two Powerline Ethernet Adapters.
- For 802.11g (54g™) wireless networks, Belkin offers a Wireless G Range Extender/Access Point that can be connected wirelessly to a Belkin G Wireless Router, without requiring an Ethernet cable or Powerline Ethernet Adapters.

These Belkin products are available at your local retailer, or can be ordered from Belkin directly.

For network/range extension information, please visit: [www.belkin.com/networking](http://www.belkin.com/networking) to find out more about:

Wireless G Range Extender/Access Point (F5D7130)

Powerline Ethernet Adapter (F5D4070)

Powerline USB Adapter (F5D4050)

**Problem:**

I am having difficulty setting up Wired Equivalent Privacy (WEP) security on a Belkin Wireless Router or Belkin Access Point.

**Solution:**

1. Log into your Wireless Router or Access Point.

Open your web browser and type in the IP address of the Wireless Router or Access Point. (The Router's default is 192.168.2.1, the Access Point's default is 192.168.2.254.) Log into your Router by clicking on the "Login" button in the top, right-hand corner of the screen. You will be asked to enter your password. If you never set a password, leave the password field blank and click "Submit".

Click the "Wireless" tab on the left of your screen. Select the "Encryption" or "Security" tab to get to the security settings page.

2. Select "128-bit WEP" from the drop-down menu.
3. After selecting your WEP encryption mode, you can type in your hex WEP key manually, or you can type in a passphrase in the "Passphrase" field and click "Generate" to create a WEP key from the passphrase. Click "Apply Changes" to finish. You must now set all of your clients to match these settings. 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 example:

**C3 03 0F AF 4B B2 C3 D4 4B C3 D4 E7 E4** = 128-bit key

4. Click "Apply Changes" to finish. Encryption in the Wireless Router 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 configuring the Wireless Router or Access Point from a computer with a wireless client, you will need to ensure that security is turned on for this wireless client. If this is not done, you will lose your wireless connection.

**Note to Mac users:** Original Apple AirPort products support 64-bit encryption only. Apple AirPort 2 products can support 64-bit or 128-bit encryption. Please check your Apple AirPort product to see which version you are using. If you cannot configure your network with 128-bit encryption, try 64-bit encryption.



**Problem:**

I am having difficulty setting up Wired Equivalent Privacy (WEP) security on a Belkin client card (Wireless Network Card or Adapter).

**Solution:**

The client card must use the same key as the G Wireless Router or access point. For instance, if your Wireless Router or access point uses the key 00112233445566778899AABBCC, then the client card must be set to the exact same key.

1. Double-click the "Signal Indicator" icon to bring up the "Wireless Network Utility" screen. The "Advanced" button will allow you to view and configure more options of your client card.
2. Once the "Advanced" button is clicked, the Belkin Wireless LAN Utility will appear. This Utility will allow you to manage all the advanced features of the Belkin client card.
3. Under the "Wireless Network Properties" tab, select a network name from the "Available Networks" list and click the "Properties" button.
4. Under "Data Encryption", select "WEP".

5. Ensure the 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.
6. Type your WEP key in the "Network key" box.

**Important:** A WEP key is a combination of numbers and letters from A–F and 0–7. For 128-bit WEP, you need to enter 26 keys. This network key needs to match the key you assign to your G Wireless Router or access point.

For example: **C3030FAF4BB2C3D44BC3D4E7E4** = 128-bit key

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

If you are NOT using a Belkin wireless client card, please consult the manufacturer's user manual for that wireless client card.

**Problem:**

Do Belkin products support WPA?

**Solution:**

**Note:** To use WPA security, all your clients must be upgraded to drivers and software that support it. At the time of this publication, a security patch download is available, for free, from Microsoft. This patch works only with the Windows XP operating system.

Download the patch here:

<http://www.microsoft.com/downloads/details.aspx?FamilyID=009d8425-ce2b-47a4-abec-274845dc9e91&displaylang=en>

You also need to download the latest driver for your Belkin Wireless 802.11g Desktop or Notebook Network Card from the Belkin support site. Other operating systems are not supported at this time. Microsoft's patch only supports devices with WPA-enabled drivers such as Belkin 802.11g products.

Download the latest driver at <http://web.belkin.com/support> for the following products:

F5D7000, F5D7001, F5D7010, F5D7011, F5D7230-4, F5D7234-4, F5D7231-4, F5D7130

**Problem:**

I am having difficulty setting up Wi-Fi Protected Access (WPA) security on a Belkin Wireless Router or Belkin Access Point for a home network.

**Solution:**

1. From the "Security Mode" drop-down menu, select "WPA-PSK".
2. For "Encryption Technique", select "TKIP" or "AES". This setting will have to be identical on the clients that you set up.
3. Enter your pre-shared key. This can be from eight to 63 characters and can be letters, numbers, symbols, or spaces. This same key must be used on all of the clients that you set up. For example, your PSK might be something like: "Smith family network key".
4. Click "Apply Changes" to finish. You must now set all clients to match these settings.

### Problem:

I am having difficulty setting up Wi-Fi Protected Access (WPA) security on a Belkin client card (Wireless Network Card or Adapter) for a home network.

### Solution:

Clients must use the same key that the G Wireless Router or access point uses. For instance, if the key is "Smith Family Network Key" in the G Wireless Router or access point, the clients must also use that same key.

1. Double-click the "Signal Indicator" icon to bring up the "Wireless Network Utility" screen. The "Advanced" button will allow you to view and configure more options of your client card.
2. Once the "Advanced" button is clicked, the Belkin Wireless LAN Utility will appear. This Utility will allow you to manage all the advanced features of the Belkin client card.
3. Under the "Wireless Network Properties" tab, select a network name from the "Available Networks" list and click the "Properties" button.

4. Under "Network Authentication", select "WPA-PSK".

5. 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, you can enter eight to 63 characters. This network key needs to match the key you assign to your G Wireless Router or access point.

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

**Problem:**

I am having difficulty setting up Wi-Fi Protected Access (WPA) security on a Belkin client card (Wireless Network Card or Adapter) for a business.

**Solution:**

1. Double-click the "Signal Indicator" icon to bring up the "Wireless Network Utility" screen. The "Advanced" button will allow you to view and configure more options of your client card.
2. Once the "Advanced" button is clicked, the Belkin Wireless LAN Utility will appear. This Utility will allow you to manage all the advanced features of the Belkin client card.
3. Under the "Wireless Network Properties" tab, select a network name from the "Available Networks" list and click the "Properties" button.
4. Under "Network Authentication", select "WPA".
5. In the "Authentication" tab, select the settings that are indicated by your network administrator.
6. Click "OK", then "Apply" to save the settings.

**Problem:**

I am having difficulty setting up Wi-Fi Protected Access (WPA) security and I am NOT using a Belkin client card for a home network.

**Solution:**

If you are NOT using a Belkin WPA Wireless Desktop or Wireless Notebook Network Card and it is not equipped with WPA-enabled software, a file from Microsoft called "Windows XP Support Patch for Wireless Protected Access" is available for free download:

<http://www.microsoft.com/downloads/details.aspx?FamilyID=009d8425-ce2b-47a4-abec-274845dc9e91&displaylang=en>

**Note:** The file that Microsoft has made available works only with Windows XP. Other operating systems are not supported at this time. You also need to ensure that the wireless card manufacturer supports WPA and that you have downloaded and installed the latest driver from their support site.

Supported Operating Systems:

- Windows XP Professional
- Windows XP Home Edition

**Enabling WPA-PSK**

1. In systems running Windows XP, click "Start > Control Panel > Network Connections".
2. Right-click on the "Wireless Networks" tab. The "Wireless Network Connection Properties" screen appears. Ensure the "Use Windows to configure my wireless network settings" box is checked.
3. Under the "Wireless Networks" tab, click the "Configure" button, and you will see the client card properties screen.
4. For a home or small business user, select "WPA-PSK" under "Network Administration".
5. Select "TKIP" or "AES" under "Data Encryption". This setting will have to be identical to the G Wireless Router or access point that you set up.
6. Type in your encryption key in the "Network key" box.  
**Important:** Enter your pre-shared 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 that you set up.
7. Click "OK" to apply settings.

### What is the difference between 802.11b, 802.11g, 802.11a, and N?

Currently there are four levels of wireless networking standards, which transmit data at very different maximum speeds. Each is based on the designation 802.11(x), so named by the IEEE, the board that is responsible for certifying networking standards. The most common wireless networking standard, 802.11b, transmits information at 11Mbps; 802.11a and 802.11g work at 54Mbps; and N works at 300Mbps. See the following chart for more detailed information.

Wireless Technology	G (802.11g)	G Plus MIMO (802.11g with MIMO MRC)	N MIMO (draft 802.11n with MIMO)	N1 MIMO (draft 802.11n with MIMO)
Speed*	Up to 54Mbps*	Up to 54Mbps*	Up to 300Mbps*	Up to 300Mbps*
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	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
Compatibility	Compatible with 802.11b/g	Compatible with 802.11b/g	Compatible with draft 802.11n** and 802.11b/g	Compatible with draft 802.11n** and 802.11b/g
Coverage*	Up to 400 ft.*	Up to 1,000 ft.*	Up to 1,200 ft.*	Up to 1,400 ft.*
Advantage	Common—widespread use for Internet sharing	Better coverage and consistent speed and range	Enhanced speed and coverage	Leading edge—best coverage and throughput

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

\*\*This Router is compatible with products based on the same version of the draft 802.11n specifications and may require a software upgrade for best results.

## 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:

#### F5D7234-4

to which this declaration relates:

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

The device shall be used in such a manner that the potential for human contact during normal operation is minimized.

When connecting an external antenna to the device, the antenna shall be placed in such a manner to minimize the potential for human contact during normal operation. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

#### Federal Communications Commission Notice

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.

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

#### IMPORTANT NOTE:

##### FCC Radiation Exposure Statement:

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

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

2.4GHz operation of this product in the USA is firmware-limited to channels 1 through 11.

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## 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)

The wireless radio of this device complies with RSS 210 Industry Canada. This Class B digital apparatus complies with Canadian ICES-003.

Operation is subject to the following two conditions:

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

### IMPORTANT NOTE:

#### IC Radiation Exposure Statement:

This equipment complies with Canada radiation exposure limits set forth for uncontrolled environments. This equipment should be installed and operated with a minimum distance of 20cm between the radiator and your body.

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

Cet appareil numérique de la classe B conforme à la norme NMB-003 du Canada.

## 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) – Product Safety
- EN 300 328 Technical requirement for radio equipment
- EN 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 (IEC61000-3-2) – Power Line Harmonics
- EN 61000-3-3 (IEC61000) – Power Line Flicker
- EN 60950-1 (IEC60950) – 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. ("Belkin") 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 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). Belkin reserves the right to discontinue any of its products without notice, and disclaims any limited warranty to repair or replace any such discontinued products. In the event that Belkin is unable to repair or replace the product (for example, because it has been discontinued), Belkin will offer either a refund or a credit toward the purchase of another product from Belkin.com in an amount equal to the purchase price of the product as evidenced on the original purchase receipt as discounted by its natural use.

### What is not covered by this warranty?

All above warranties are null and void if the Belkin product is not provided to Belkin for inspection upon Belkin's request at the sole expense of the purchaser, or if Belkin 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 reserves the right to review the damaged Belkin product. All costs of shipping the Belkin product to Belkin 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, 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 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. 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 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®**

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