INTRODUCTION

Thank you for purchasing the Belkin N Wireless Router (the Router). Following are two short sections—the first discusses the benefits of home networking, and the other outlines best practices that maximize 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 N Wireless Router" on the next page. By following our simple setup instructions you will be able to use your Belkin Home Network to:

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

Advantages of a Wireless Network

Here are some of the advantages of setting up a Belkin Wireless Network:

- Mobility – you'll no longer need a dedicated "computer room"—now you can work on a networked laptop or desktop computer anywhere within your wireless range
- Easy installation – Belkin's Setup Assistant 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 let you expand your network to include devices such as printers and gaming consoles
- No cabling required – you can spare the expense and hassle of retrofitting Ethernet cabling throughout the home or office
- Widespread industry acceptance – choose from a wide range of interoperable networking products

Revolutionary N Wireless Technology with MIMO (N MIMO)

Your Belkin N Wireless Router uses a new smart-antenna technology called Multiple Input Multiple Output (MIMO). N MIMO complies with the IEEE draft 802.11n specification. It increases speed, range, reliability, and spectral efficiency for wireless networking systems.

The element that makes Belkin's N MIMO technology different from a conventional radio is the use of multiple antennas and two simultaneous data streams to deliver wireless transfers around your home or office. A conventional radio uses one antenna to transmit a data stream. Belkin's N MIMO, on the other hand, uses two antennas. This design helps combat distortion and interference. Belkin's N MIMO is multidimensional. It builds on one-dimensional smart-antenna technology by simultaneously transmitting two data streams through the same channel, which increases wireless capacity.

Another element that enhances Belkin's N MIMO is the use of aggregation as specified in the draft 802.11n specification. By shortening the space between packets and combining multiple smaller packets into one larger packet, Belkin's N MIMO can transmit more data through available bandwidth.

Think of conventional radio transmission as a two-lane highway. The speed limit governs the maximum allowable flow of traffic through that lane. Compared with conventional radios, one-dimensional smart antenna systems help move traffic through that lane faster and more reliably—analogous to a four-lane road on which traffic consistently moves at a rate closer to the speed limit. Belkin's N MIMO helps traffic move at the speed limit and opens more lanes—to become the superhighway in this example. The rate of traffic flow is multiplied by the number of lanes that are opened.

Placement of your N Wireless Router

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 further 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 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. 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).
- 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 2.4GHz 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 your Router and your wireless-enabled computers.
- Unplug and remove the battery from any cordless phone that operates on the 2.4GHz band (check manufacturer's information). If this fixes the problem, your phone may be interfering.
- If your phone supports channel selection, change the channel on the phone to the farthest channel from your wireless network. 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 to locate any other wireless networks that are available (see your wireless adapter'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. 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 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 simplest 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** or call Belkin Technical Support at:

US: 877-736-5771

UK: 0845 607 77 87

Australia: 1800 235 546

New Zealand: 0800 235 546

Singapore: 65 64857620

Europe: www.belkin.com/support

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 N 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® 8.x, 9.x, X v10.x, 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).

Patent-Pending Network Status 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 additional 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, four-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)

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

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, second generation of Belkin's renowned Easy Install Wizard, 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 Router will be up and running on the Internet.

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

Integrated N Wireless Access Point

N MIMO is an exciting new wireless technology based on the draft IEEE 802.11n specification. It employs MIMO (Multiple Input Multiple Output) smart-antenna technology that achieves data rates of up to 300Mbps.*

***NOTE:** The standard transmission rate—300Mbps—is the physical data rate. Actual data throughput will be lower.

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.

Package Contents

- Belkin N Wireless Router
- Quick Installation Guide
- Belkin Setup Assistant Software CD
- RJ45 Ethernet Networking Cable
- Power Supply
- User Manual on the Setup Assistant CD

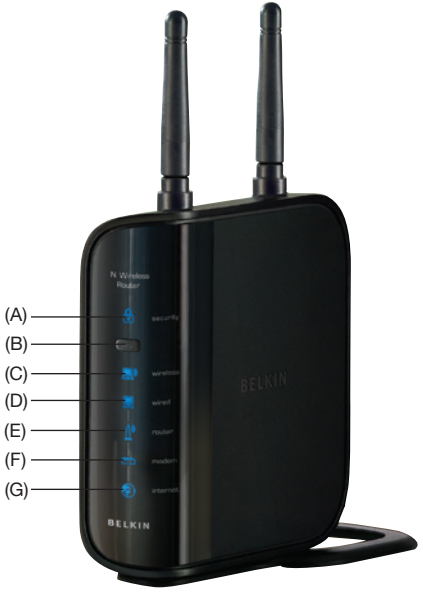
System Requirements

- 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 browserr

Setup Assistant Software System Requirements

- A computer running Windows® 2000, XP, or Vista®; or Mac OS® X v10.x
- Minimum 1GHz processor and 128MB 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 Network Status Display is easily visible on the FRONT of the Router to provide you with information about network activity and status.



A. Wireless Security

OFF	Wireless security is off
Solid Blue	Wireless security is on

B. Wi-Fi Protected Setup (WPS) button

This button is used for the Wi-Fi Protected Setup feature. Please refer to the “Changing the Wireless Security Settings” section.

C. Wireless-Computer Status

OFF	Wireless computer is not present
Solid Blue	Wireless computer is connected to the Router
Blinking Amber	Problem with wireless computer connecting properly to the Router

D. Wired-Computer Status

OFF	Wired computer is not present
Solid Blue	Wired computer is connected to the Router
Blinking Amber	Problem with wired computer connecting properly to the Router

E. Router/Power Status

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 “router” icon blinks. When the Router has completely booted up, the “router” icon becomes a solid light, indicating the Router is ready for use.

OFF	Router is off
Blinking Blue	Router is booting up
Solid Blue	Router is on and ready

F. Modem Status

This icon lights in blue to indicate that your modem is connected properly to the Router. It turns amber when problem is detected.

OFF	Router is NOT connected to modem
Solid Blue	Router is connected to modem and functioning properly
Blinking Amber	Problem with modem

G. Internet Status

This unique icon 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 amber, the Router is attempting to connect to the Internet. When the light is solid blue, the Router is connected to the Internet. When using the “Disconnect after x minutes” feature, this icon becomes extremely useful in monitoring the status of your Router’s connection.

OFF	Router is NOT connected to the Internet
Blinking Amber	Router is attempting to connect to the Internet
Solid Blue	Router is connected to the Internet

H. Connections to Wired Computers – 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.

I. Connection to Modem – 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 one supplied with the cable modem may not work properly.

J. Power Jack – Black

Connect the included 12V/1A DC power supply to this jack.

K. Reset Button – Red

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.

i. Resetting the Router

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

ii. 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/Ready" light will begin to blink. When the "Power/Ready" light becomes solid again, the restore is complete.

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

- Belkin N Wireless Router
- RJ45 Ethernet Networking Cable
- Power Supply
- Belkin Setup Assistant Software CD
- User Manual on the Setup Assistant CD

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.

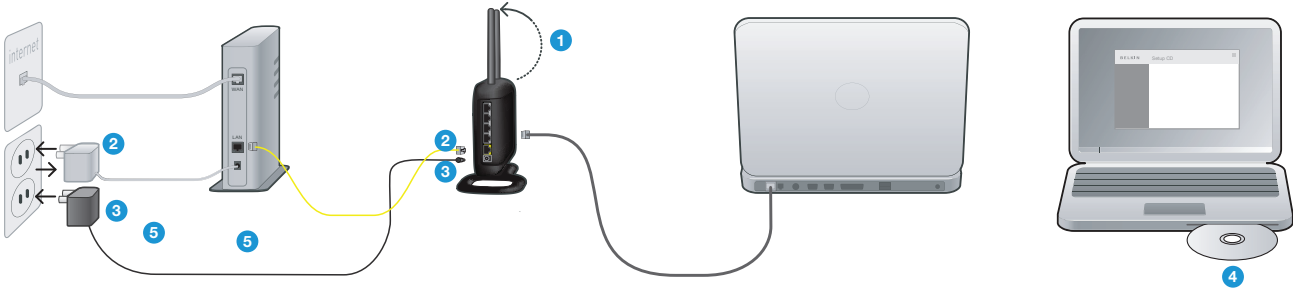
Ethernet

USB

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 computer be connected directly to your Router 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.x, you must set up the Router using the "Alternate Setup Method" section of this User Manual.

Step 1: Hardware Connections – Follow the Quick Installation Guide (QIG)



1. Unplug your existing modem's power supply.

   Find the cable connecting your modem and computer. Unplug it from the modem and plug it into the gray port on the Belkin Router.

   If you are replacing an existing router, find the cable connecting the computer and old router. Disconnect it from the old router and plug it into the gray port on the new router.

2. Connect the new cable (provided in the box) to the yellow port on the Router. Plug the other end into the modem.

3. Plug in your modem's power supply. Wait 60 seconds for the modem to start up.

   Plug the Router's power supply into a wall outlet, and the other end into the black port on the Belkin Router. As the Router wakes up, lights will come on; recheck your connections if the "router" and the "wired" lights are not a steady blue after 20 seconds.

4. Locate the CD in this guide and insert it into your computer. The Setup Assistant should appear automatically. If it doesn't, open the CD in My Computer (Windows®) or the Finder (Mac OS® X) and double-click on the "Setup Assistant" icon.

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.

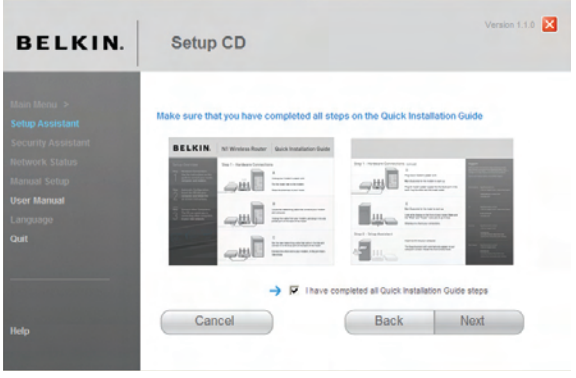
Note for Windows Users: If the Setup Assistant does not start up automatically, select your CD-ROM drive from "My Computer" and double-click on the file named "SetupAssistant" to start the Setup Assistant.

Select Country

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

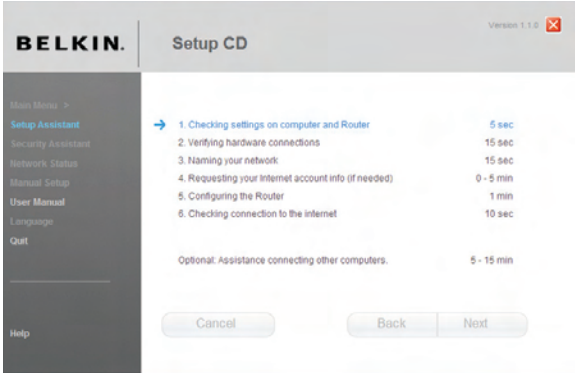
Confirmation Screen

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



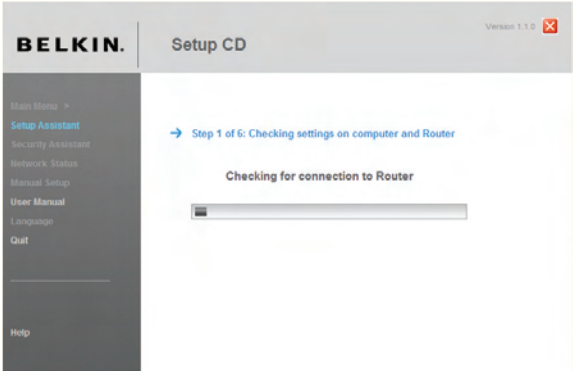
Progress Screen

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



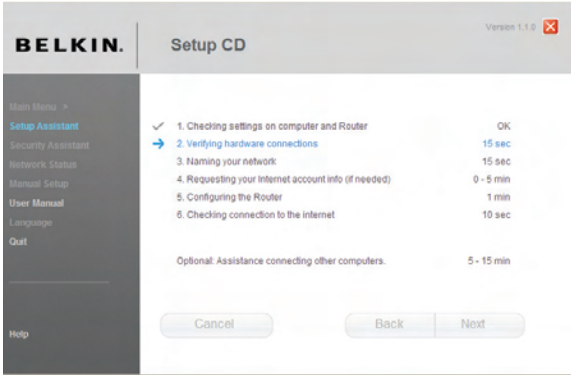
2.1 Checking Settings

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



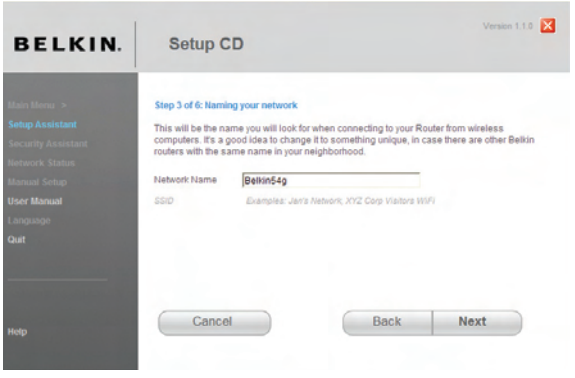
2.2 Verifying Hardware Connections

The Setup Assistant will now verify your hardware connection.



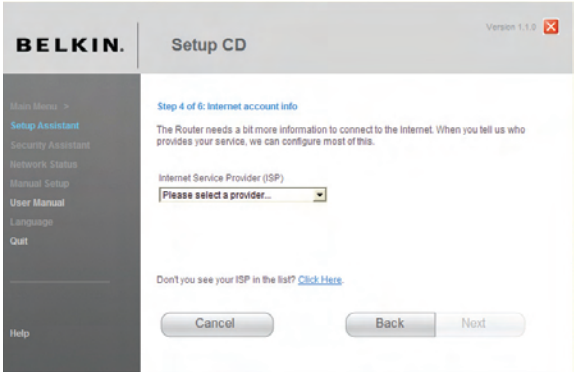
2.3 Naming your Wireless Network

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.

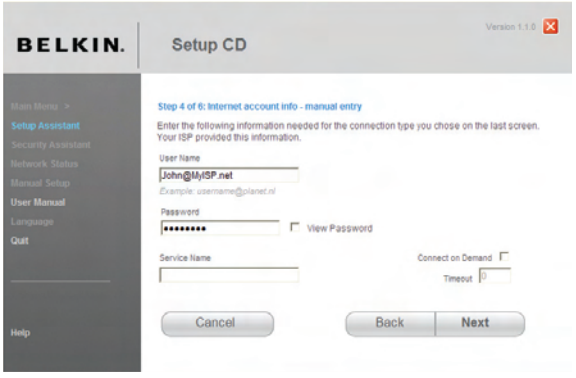


2.4 Requesting Internet Account Info (if needed)

Select your ISP from the drop-down boxes.



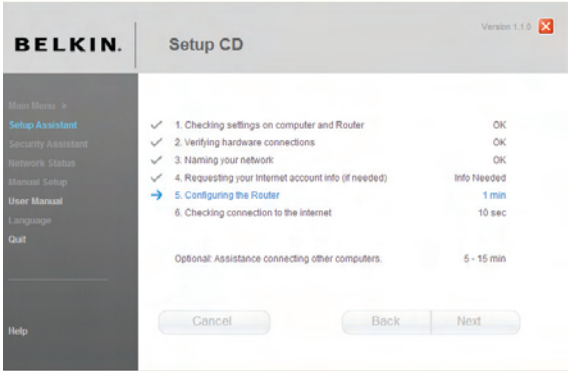
If your Internet account requires a login and password, you will be prompted with a screen similar to the illustration below. Click “Next” to continue.



2.5 Configuring the Router

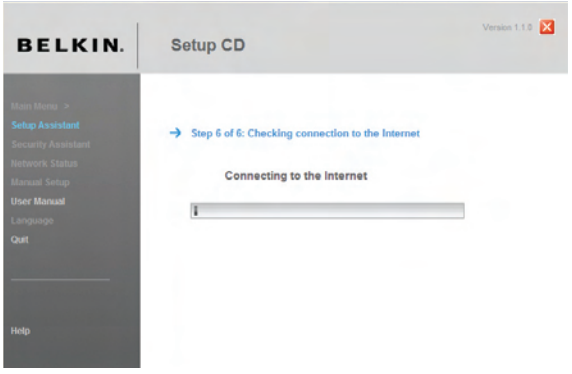
The Setup Assistant will now configure your Router by sending data to the Router and restarting it. Wait for the on-screen instructions.

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

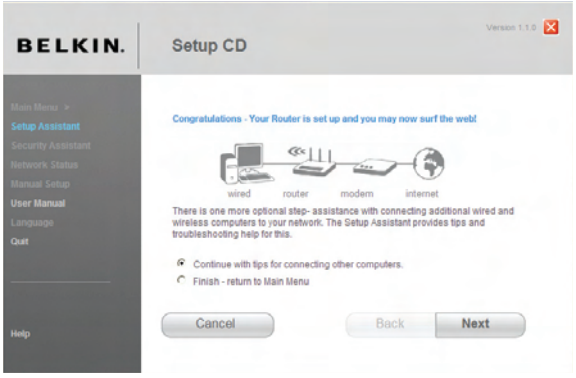
We are almost done. The Setup Assistant will now check your connection to the Internet.



Congratulations

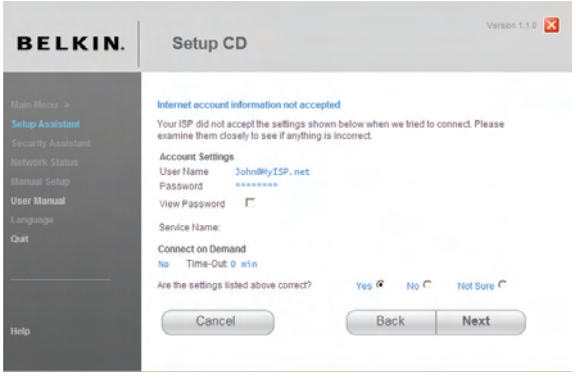
You have finished installing your new Belkin Router. You will see the Congratulations screen when your Router can connect to the Internet. You can begin surfing by opening your browser and going to any website.

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”.



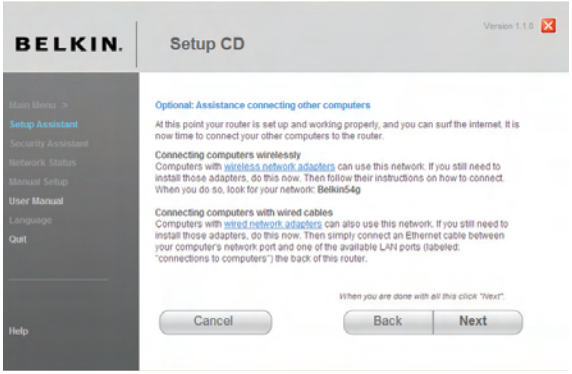
Troubleshooting

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.

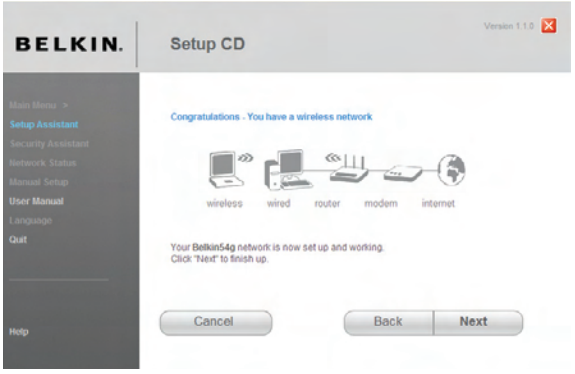


2.7 Optional: Assistance Connecting Other Computers

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



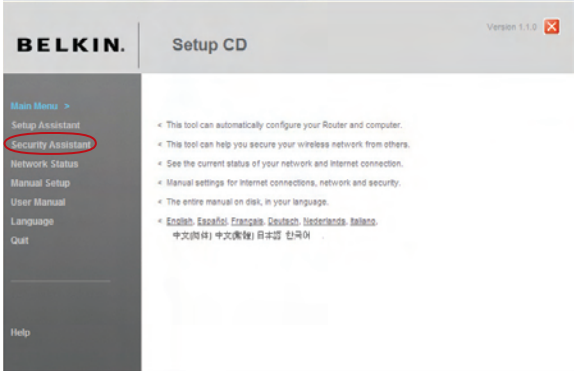
Once you have verified that your other wired and wireless computers are properly connected, your network is set up and working. You can now surf the Internet. Click “Next” to return to the main menu.



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

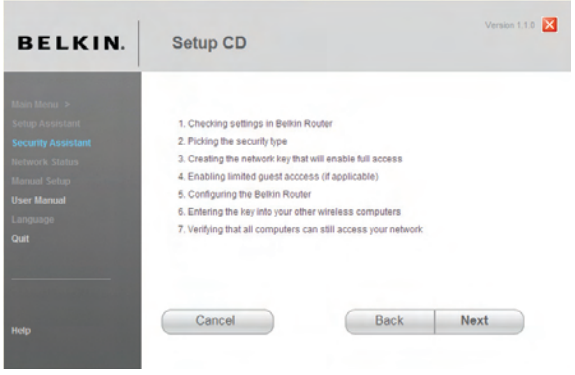
Now that your network is set up and working, it is recommended that you turn on wireless security to prevent unauthorized access to your network from neighboring wireless-enabled computers. The Security Assistant will guide you through the process. Click “Security Assistant” and follow the on-screen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

IMPORTANT: Run the Setup Assistant from the computer that is directly connected to the Router from Steps 1 - B.



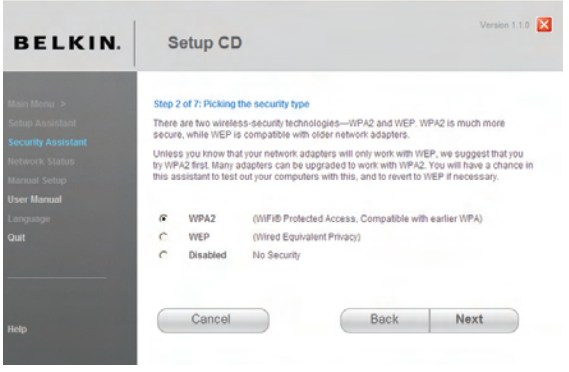
Progress Screen

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



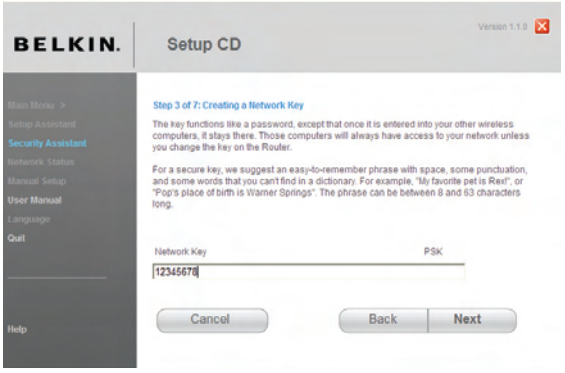
3.1 Picking the Security Type

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



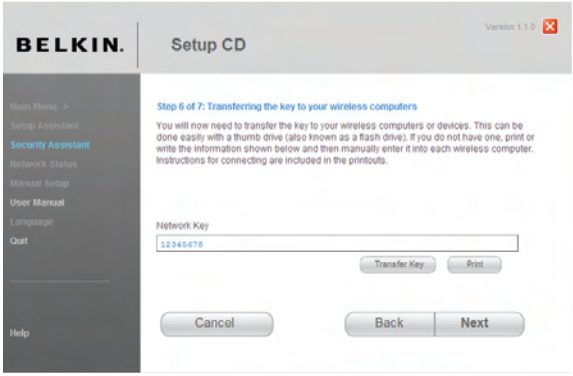
3.2 Creating a Network Key

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



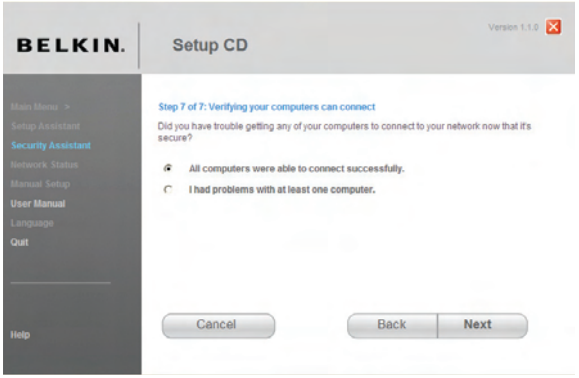
3.3 Transferring the Key

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.



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.