BELKIN®

ADSL2+ Modem with Wireless G Router

802.11g

User Manual

F5D7632uk4A

Table of Contents

Thank you for purchasing the Belkin ADSL2+ Modem with Wireless G Router (the Router). In minutes you will be able to share your Internet connection and network your computers with your new Router. The following is a list of features that make your Router an ideal solution for your home or small office network. Please be sure to read through this User Manual completely, and pay special attention to Appendix B entitled “Important Factors for Placement and Setup”.

Product Features

Compatibility with both PCs and Mac® Computers

The Router supports a variety of networking environments including Mac OS® 8.x, 9.x, X v10.x, AppleTalk®, Linux®, Windows® 95, 98SE, Me, NT®, 2000, XP, Vista, and others. You need 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.

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.

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.

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.

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.

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 user interface and you can control access to your network.

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.

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.

Benefits of a Home Network

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 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 Wizard 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

Make Sure You Have the Following

Package Contents

- ADSL2+ Modem with Wireless G Router
- RJ11 Telephone Cord - Gray
- RJ45 Ethernet Networking Cable – Yellow
- ADSL Microfilter*
- Power Adapter
- User Manual and Belkin Setup Assistant Software on CD-ROM

*ADSL microfilter varies by country. If it's not included, you will need to purchase one.

System Requirements

- An active ADSL service with a telephone wall jack for connecting the Router
- At least one computer with a Network Interface Card (NIC) and Internet browser installed and correctly configured
- TCP/IP networking protocol installed on each computer connected to the Router
- No other DHCP server on your local network assigning IP addresses to computers and devices

Setup Assistant Software System Requirements

- A PC running Windows® 2000, XP, or Vista™
- Minimum 500MHz processor and 128MB RAM
- Internet browser

Internet Connection Settings

The Setup Assistant contains a database of Internet Service Providers (ISPs) in each country to help you set up your Router quickly. If your ISP is not on the list, please collect the following information from your ISP before setting up the Router:

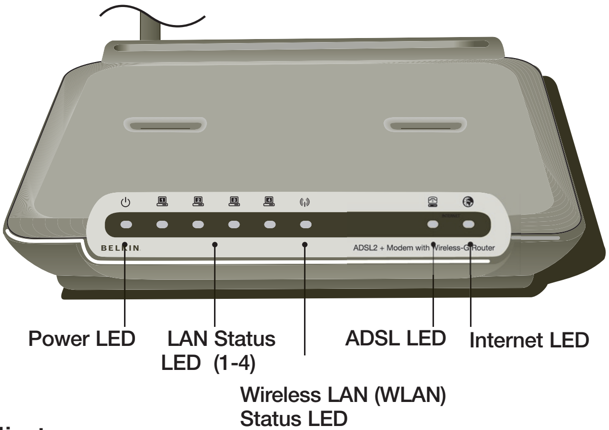
- Internet connection protocol: (PPPoE, PPPoA, Dynamic IP, Static IP)
- Multiplexing method or Encapsulation: (LLC or VC MUX)
- Virtual circuit: VPI (Virtual Path Identifier) ________________________________
  (a number between 0 and 255)
- VCI (Virtual Channel Identifier) ______________________________
  (a number between 1 and 65535)
- For PPPoE and PPPoA users: ADSL account user name and
  password ________________
- For static IP users: IP Address ___ . ___ . ___ . ___
  Subnet Mask ___ . ___ . ___ . ___
  Default Gateway Server ___ . ___ . ___ .
- IP address for Domain Name Server ___ . ___ . ___ . ___ (If given by your ISP)

Knowing your Router

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.

Front Panel

The following illustration shows the front panel of the Router:


BELKIN
ADSL2 + Modem with Wireless-G Router
Power LED
LAN Status LED (1-4)
ADSL LED
Internet LED
Wireless LAN (WLAN) Status LED

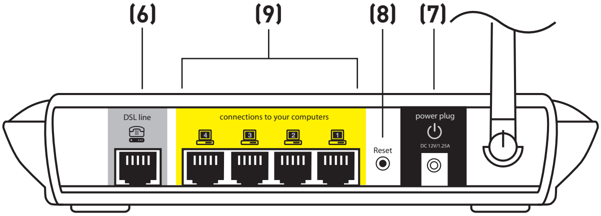
LED Indicators

The Router is equipped with nine LEDs on the front panel as described in the table on the next page (from left to right):

LED	Color	Status	Description
ADSL			
☎	Green	OFF	Power off or ADSL line connection is physically disconnected
		Blinking	Handshaking or training is in progress
		Solid	ADSL line connection is OK
Wireless			
	Green	OFF	Power off or no radio signal (WLAN card is not present or fails to function)
		Blinking	Traffic is going through wireless LAN interface
		Solid	Wireless LAN interface ready to work
Internet			
🌍	Green	OFF	No Internet connection
		Blinking	Transmitting or receiving data
		Solid	Connected to the Internet
LAN 1 to LAN 4			
LAN 1 -4	Green	OFF	Power off or no Ethernet carrier is present
		Blinking	Ethernet carrier is present and user data is going through Ethernet port
		Solid	Ethernet carrier is present
Power			
⏻	Green	OFF	Power off
		Solid	Power on

Rear Panel

The following figure illustrates the rear panel of your Router.



Power Plug — Connect the included power supply to this inlet. Using the wrong type of power adapter may cause damage to your Router.

Ethernet Ports —The Ethernet ports are RJ45, 10/100 auto-negotiation. The ports are labeled 1 through 4. These ports correspond to the numbered LEDs on the front of the Router. Connect your network-enabled computers or any networking devices to one of these ports.

ADSL Line —This port is for connection to your ADSL line. Connect your ADSL line to this port.

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 hold the "Reset" button for one second then release it. When the "Power/Ready" light becomes solid again, the reset is complete.

b. Restoring the Factory Defaults
Press and hold the "Reset" button for 20 seconds then release it. When the "Power/Ready" light becomes solid again, the restore is complete.

Setup Assistant

Belkin has provided 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™ computer be connected directly to your ADSL 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, you must use the “Alternate Setup Method” section of this User Manual.

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

New Router Setup

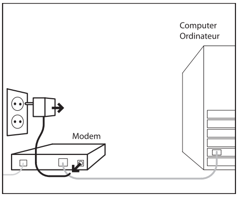
Follow these steps if you are NOT replacing an existing modem. If you are replacing an existing modem, skip to the next section, “Replacing an Existing Modem or Modem Router”, starting on page 9.

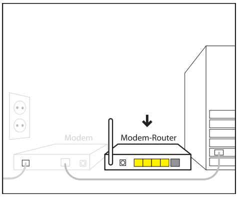
1A.1 Unpack your new Router from the box and place it next to your computer. Raise the Router’s antenna.

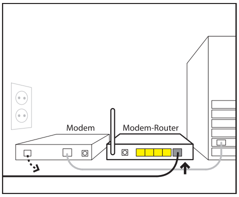
1A.2 Retrieve the yellow RJ45 cable that was included with your Router. First, connect one end to any yellow port labeled “Wired Computers” on the back of your Router. Then, connect the other end to the networking port on the back of your computer. [Insert Ethernet logo]

1A.3 Retrieve the included gray RJ11 phone cord. Connect one end to the gray port labeled “DSL” on the back of your Router. Then, connect the other end to your ADSL connection (either a wall jack or an ADSL splitter).

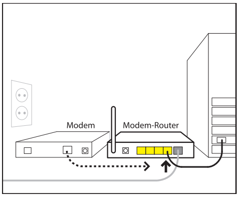
Note: Some ADSL connections require a microfilter. Your ADSL provider can tell you if you need one. Belkin includes a microfilter in regions known to use them. To determine if you need a microfilter, please refer to your ADSL provider’s user manual.







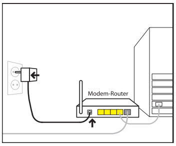
1A.4 Plug your Router's power supply into the black port labeled "Power" on the back of your Router. Wait 20 seconds for the Router to start up. Look at the display on the front of the Router. Make sure the "Wired" and "Modem-Router" icons are lit in green. If they are not, recheck your connections.



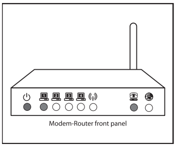
Step 1B: Replacing an Existing Modem or Modem Router

Follow these steps if you currently have a modem or a modem router that you will be replacing with your new Router.

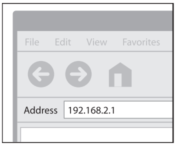
1B.1 **Unpack** your new Router from the box and place it next to your old modem. Raise the Router's antenna. Unplug your old modem's power cord.



1B.2 Locate the cable that connects your old modem to your computer. Unplug that cable from your old modem, and plug it into any yellow port labeled "Wired Computers" on the back of your new Router.

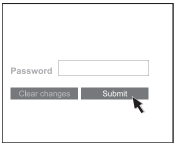


1B.3 Locate the cable that connects your old modem to the ADSL wall jack. Unplug it from your old modem and then connect it to the gray port labeled "DSL" on the back of your Router.

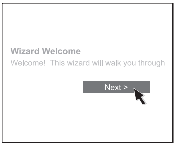


Address 192.168.2.1

1B.4 Plug your Router's power supply into the black port labeled "Power" on the back of your Router.



1B.5 **Wait** 20 seconds for the Router to start up. Look at the display on the front of the Router. Make sure the "ADSL" and "LAN" LEDs are lit in green. If they are not, recheck your connections.



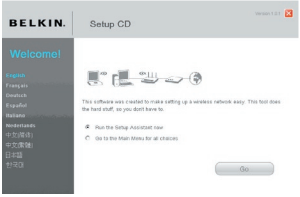
Wizard Welcome

Welcome! This wizard will walk you through

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

2.1 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.

2.2 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.



This software was created to make setting up a wireless network easy. This tool does the hard stuff, so you don't have to.

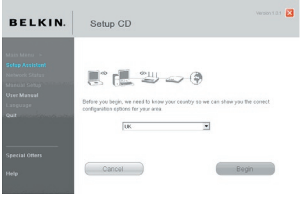
● Run the Setup Assistant now

○ Go to the Main Menu for all choices

IMPORTANT: Run the Setup Assistant from the computer that is directly connected to the Router from Step 1A.2.

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.

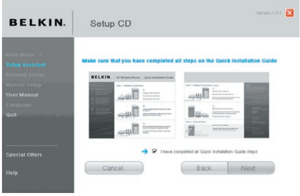
2.3 Select Country. Select your country from the drop-down box. Click "Begin" to continue.



Before you begin, we need to know your country so we can show you the correct configuration options for your area.

UK

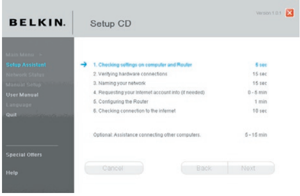
2.4 Confirmation Screen. Verify that you have completed all QIG steps by checking the box to the right of the arrow. Click "Next" to continue.



Make sure that you have completed all steps on the Quick Installation Guide

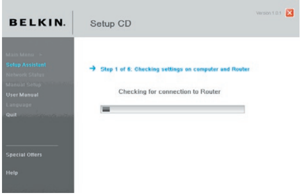
→ ☑ I have completed all Quick Installation Guide steps

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



→ 1. Checking settings on computer and Router	5 sec
2. Verifying hardware connections	15 sec
3. Naming your network	15 sec
4. Requesting your Internet account info (if needed)	0 - 5 min
5. Configuring the Router	1 min
6. Checking connection to the internet	10 sec
Optional: Assistance connecting other computers.	5 - 15 min

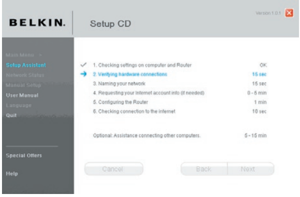
2.6 Checking Settings. The Setup Assistant will now examine your computer's network settings and gather information needed to complete the Router's connection to the Internet.



→ Step 1 of 6: Checking settings on computer and Router

Checking for connection to Router

2.7 Verifying Hardware Connections
The Setup Assistant will now verify your hardware connection.

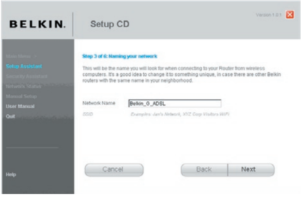


✓ 1. Checking settings on computer and Router OK
→ 2. Verifying hardware connections 15 sec
3. Naming your network 15 sec
4. Requesting your Internet account info (if needed) 0 - 5 min
5. Configuring the Router 1 min
6. Checking connection to the internet 10 sec

Optional: Assistance connecting other computers. 5 - 15 min

2.8 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. Click “Next” to continue.



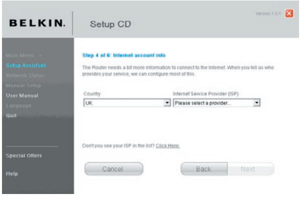
Step 3 of 6: Naming your network

This will be the name you will look for when connecting to your Router from wireless computers. It's a good idea to change it to something unique, in case there are other Belkin routers with the same name in your neighborhood.

Network Name: Belkin_G_ADSL
SSID — Examples: Jan's Network, XYZ Corp Visitors WiFi

2.9 Requesting Internet Account Info (if needed)

If your Internet account requires a login and password, you will be prompted with a screen similar to the illustration below. Select your country or ISP from the drop-down boxes.



Step 4 of 6: Internet account info

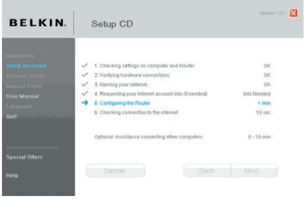
The Router needs a bit more information to connect to the Internet. When you tell us who provides your service, we can configure most of this.

Country: UK
Internet Service Provider (ISP): Please select a provider...

Don't you see your ISP in the list? Click Here.

2.10 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.



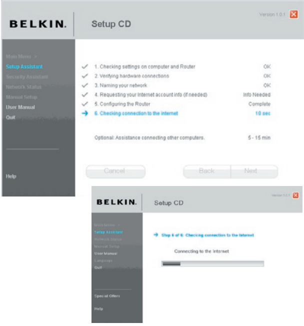
✓ 1. Checking settings on computer and Router OK
✓ 2. Verifying hardware connections OK
✓ 3. Naming your network OK
✓ 4. Requesting your Internet account info (if needed) Info Needed
→ 5. Configuring the Router 1 min
6. Checking connection to the internet 10 sec

Optional: Assistance connecting other computers. 5 - 15 min

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

2.11 Checking Internet Connection

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



✓ 1. Checking settings on computer and Router OK
✓ 2. Verifying hardware connections OK
✓ 3. Naming your network OK
✓ 4. Requesting your Internet account info (if needed) Info Needed
✓ 5. Configuring the Router Complete
→ 6. Checking connection to the internet 10 sec

Optional: Assistance connecting other computers. 5 - 15 min

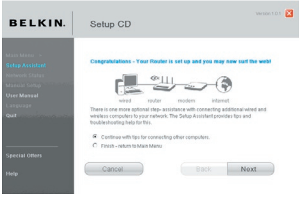
→ Step 6 of 6: Checking connection to the Internet

Connecting 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 “Exit the Assistant” and then click “Next”.



Congratulations - Your Router is set up and you may now surf the web!

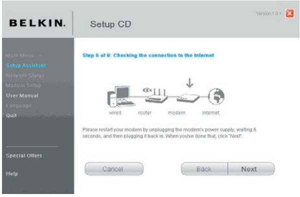
There is one more optional step- assistance with connecting additional wired and wireless computers to your network. The Setup Assistant provides tips and troubleshooting help for this.

● Continue with tips for connecting other computers.

○ Finish - return to Main Menu

Troubleshooting

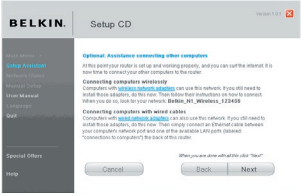
If the Setup Assistant is not able to connect to the Internet, you will see the following screen. Follow the on-screen instructions to go through the troubleshooting steps.



Step 6 of 6: Checking the connection to the Internet

Please restart your modem by unplugging the modem's power supply, waiting 5 seconds, and then plugging it back in. When you've done that, click "Next".

2.12 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.



Optional: Assistance connecting other computers

At this point your router is set up and working properly, and you can surf the internet. It is now time to connect your other computers to the router.

Connecting computers wirelessly

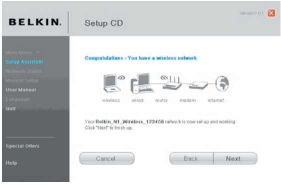
Computers with wireless network adapters can use this network. If you still need to install those adapters, do this now. Then follow their instructions on how to connect. When you do so, look for your network: **Belkin_N1_Wireless_123456**

Connecting computers with wired cables

Computers with wired network adapters can also use this network. If you still need to install those adapters, do this now. Then simply connect an Ethernet cable between your computer's network port and one of the available LAN ports (labeled: "connections to computers") the back of this router.

When you are done with all this click "Next".

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 take you back to the main menu.



Congratulations - You have a wireless network

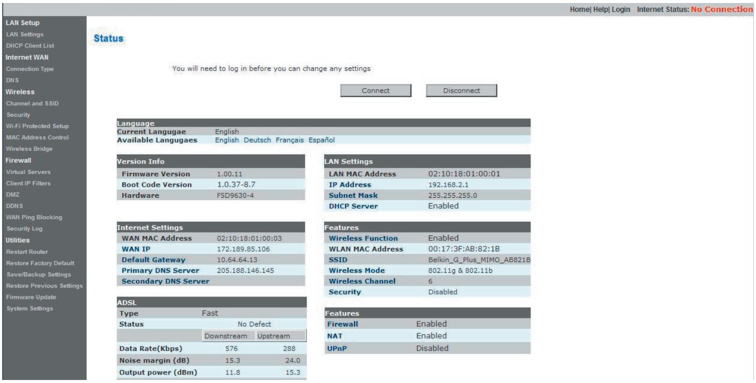
Your **Belkin_N1_Wireless_123456** network is now set up and working. Click "Next" to finish up.

Understanding the Web-Based User Interface

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.

Using Web-Based Manager

Once your host PC is properly configured, start your web browser and type the private IP address of the Router into the URL field: "192.168.2.1" and then click "Enter".



You will need to log in before you can change any settings

Language	
Current Langugae	English
Available Langugaes	English Deutsch Français Español

Version Info	
Firmware Version	1.00.11
Boot Code Version	1.0.37-8.7
Hardware	F5D9630-4

LAN Settings	
LAN MAC Address	02:10:18:01:00:01
IP Address	192.168.2.1
Subnet Mask	255.255.255.0
DHCP Server	Enabled

Internet Settings	
WAN MAC Address	02:10:18:01:00:03
WAN IP	172.189.85.106
Default Gateway	10.64.64.13
Primary DNS Server	205.188.146.145
Secondary DNS Server	

Features	
Wireless Function	Enabled
WLAN MAC Address	00:17:3F:AB:82:1B
SSID	Belkin_G_Plus_MIMO_AB821B
Wireless Mode	802.11g & 802.11b
Wireless Channel	6
Security	Disabled

ADSL		
Type	Fast	
Status	No Defect	
	Downstream	Upstream
Data Rate(Kbps)	576	288
Noise margin (dB)	15.3	24.0
Output power (dBm)	11.8	15.3

Features	
Firewall	Enabled
NAT	Enabled
UPnP	Disabled

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 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. **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.

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. Internet Status Indicator

This indicator is visible in all pages of the Router, showing the connection status of the Router. When the indicator says “connection OK” in GREEN, 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.

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 the “LAN” “Quick Navigation”link on the left side of the screen.

7. Features

Shows the status of the Router’s NAT, 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 “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

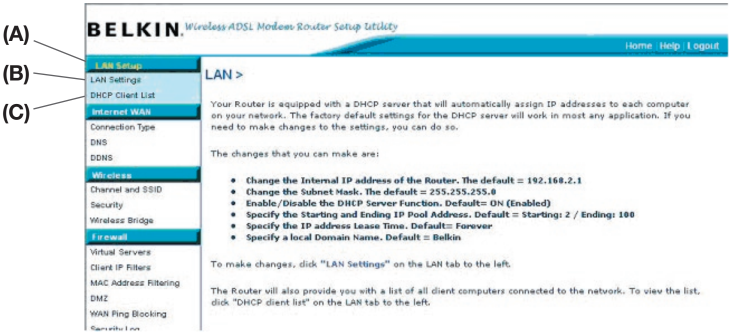
The page you are on can be identified by this name. This manual will sometimes refer to pages by name. For instance, “LAN > LAN Settings” refers to the “LAN Settings” page.

Changing LAN Settings

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

LAN Settings

Clicking on the header of the LAN tab (A) will take you to the LAN tab's 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" (B) or to view the list of connected computers, click on "DHCP Client List" (C).



LAN >

Your Router is equipped vith a DHCP server that vill automatically assign IP addresses to each computer on your network. The factory default settings for the DHCP server vill vork 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, dick "LAN Settings" on the LAN tab to the left.

The Router vill also provide you with a list of all dient computers connected to the network. To viev the list, dick "DHCP dient list" on the LAN tab to the left.

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 advanced setup 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 anything between 0 and 255)
10.x.x.x (where x is anything between 0 and 255)

Subnet Mask

There is no need to change the subnet mask. This is a unique, advanced feature of your Belkin Router.

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".

IP Pool

The range of IP addresses set aside for dynamic assignment to the computers on your network. 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 starting IP address must be lower in number than the ending IP address.

Lease Time

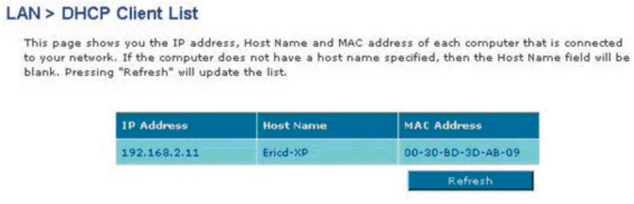
The length of time the DHCP server will reserve the IP address for each computer. We recommend that you leave the lease time set to "Forever". The default setting is "Forever", meaning that any time a computer is assigned an IP address by the DHCP server, the IP address will not change for that particular 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.

Local Domain Name

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".

DHCP Client List

You can view a list of the computers, which are connected to your network. You are able to view the IP address of the computer, the host name (name of the computer in your network), 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.



LAN > DHCP Client List

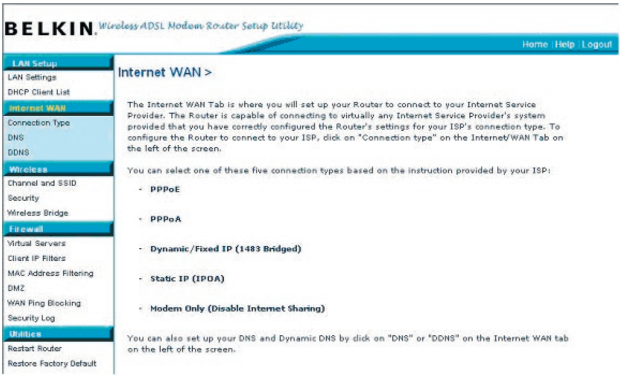
This page shows you the IP address, Host Name and MAC address of each computer that is connected to your network. If the computer does not have a host name specified, then the Host Name field will be blank. Pressing "Refresh" will update the list.

IP Address	Host Name	MAC Address
192.168.2.11	Ericd-XP	00-30-BD-3D-AB-09

Internet WAN

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 ADSL Service Provider’s system provided you have correctly configured the Router’s settings for your ISP’s connection type. Your connection settings are provided to you by your ISP.

To configure the Router with the settings that your ISP gave you, click “Connection Type” (1) on the left side of the screen. Select the connection type you use. If your ISP gave you DNS settings, clicking “DNS” (2) allows you to enter DNS address entries for ISPs that require specific settings. When you have finished making settings, the “Internet Status” indicator will read “Connected” if your Router is set up properly.



Internet WAN >

The Internet WAN Tab is where you will set up your Router to connect to your Internet Service Provider. The Router is capable of connecting to virtually any Internet Service Provider's system provided that you have correctly configured the Router's settings for your ISP's connection type. To configure the Router to connect to your ISP, click on "Connection type" on the Internet/WAN Tab on the left of the screen.

You can select one of these five connection types based on the instruction provided by your ISP:

- **PPPoE**
- **PPPoA**
- **Dynamic/Fixed IP (1483 Bridged)**
- **Static IP (IPOA)**
- **Modem Only (Disable Internet Sharing)**

You can also set up your DNS and Dynamic DNS by click on "DNS" or "DDNS" on the Internet WAN tab on the left of the screen.

Connection Type

From the “Connection Type” page, you can select one of these five connection types based on the instruction provided by your ISP:

PPPoE

PPPoA

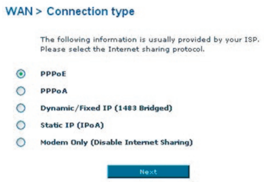
Dynamic IP (1483 Bridged)

Static IP (IPoA)

Modem Only (Disable Internet Sharing)

Note: If you are not sure which connection type to select, please contact your ISP.

Select the type of connection you use by clicking the radio button next to your connection type and then clicking “Next”.



WAN > Connection type

The following information is usually provided by your ISP.
Please select the Internet sharing protocol.

● PPPoE

○ PPPoA

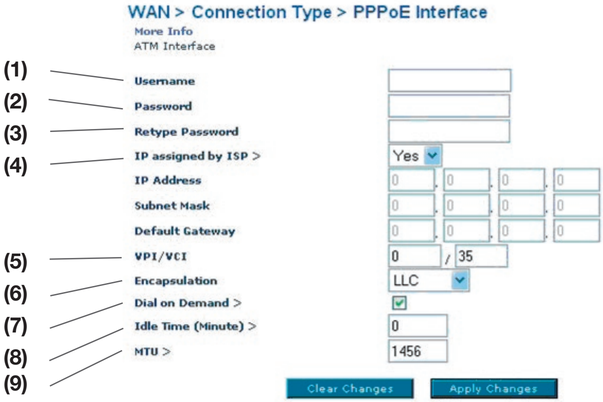
○ Dynamic/Fixed IP (1483 Bridged)

○ Static IP (IPoA)

○ Modem Only (Disable Internet Sharing)

Setting your ISP Connection Type to PPPoE or PPPoA

PPPoE (Point-to-Point Protocol over Ethernet) is the standard method of connecting networked devices. It requires a user name and password to access the network of your ISP for connecting to the Internet. PPPoA (PPP over ATM) is similar to PPPoE, but is mostly implemented in the UK. Select PPPoE or PPPoA and click “Next”. Then, enter the information provided by your ISP, and click “Apply Changes” to activate your settings.



WAN > Connection Type > PPPoE Interface

More Info

ATM Interface

Username	
Password	
Retype Password	
IP assigned by ISP >	Yes
IP Address	0 . 0 . 0 . 0
Subnet Mask	0 . 0 . 0 . 0
Default Gateway	0 . 0 . 0 . 0
VPI/VCI	0 / 35
Encapsulation	LLC
Dial on Demand >	☑
Idle Time (Minute) >	0
MTU >	1456

1. User Name — Enter the user name. (Assigned by your ISP).

2. Password — Enter your password. (Assigned by your ISP).

3. Retype Password — Confirm the password.

(Assigned by your ISP).

4. IP Assigned by ISP — Leave “Yes” if your ISP automatically assigns an IP address. If your ISP assigned a fixed IP address, select “No” and enter assigned values.

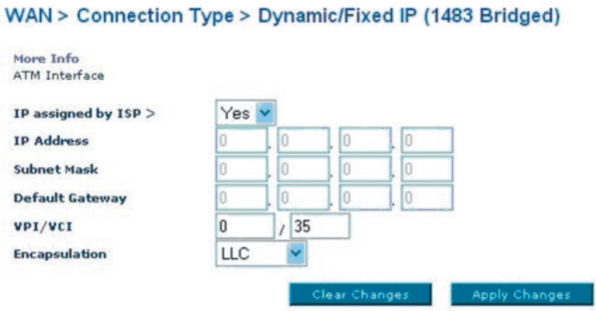
5. **VPI/VCI** — Enter your Virtual Path Identifier (VPI) and Virtual Circuit Identifier (VCI) parameter here. (Assigned by your ISP).

6. **Encapsulation** — Select your encapsulation type (supplied by your ISP) to specify how to handle multiple protocols at the ATM transport layer. VC-MUX: PPPoA Virtual Circuit Multiplexer (null encapsulation) allows only one protocol running per virtual circuit with fewer overheads. LLC: PPPoA Logical Link Control allows multiple protocols running over one virtual circuit (more overhead).

7. **Dial on Demand** — By selecting “Dial on Demand”, your Router will automatically connect to the Internet when a user opens up a web browser.

8. **Idle Time (Minutes)** — Enter the maximum idle time for the Internet connection. After this time has been exceeded, the connection will be terminated.

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



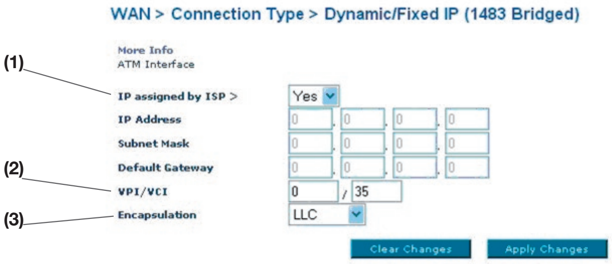
WAN > Connection Type > Dynamic/Fixed IP (1483 Bridged)

More Info
ATM Interface

IP assigned by ISP >	Yes
IP Address	0 . 0 . 0 . 0
Subnet Mask	0 . 0 . 0 . 0
Default Gateway	0 . 0 . 0 . 0
VPI/VCI	0 / 35
Encapsulation	LLC

Setting your Connection Type to Dynamic IP (1483 Bridged)

This connection method bridges your network and ISP’s network together. The Router will obtain an IP address automatically from your ISP’s DHCP server.



WAN > Connection Type > Dynamic/Fixed IP (1483 Bridged)

More Info
ATM Interface

IP assigned by ISP > Yes

IP Address 0 . 0 . 0 . 0

Subnet Mask 0 . 0 . 0 . 0

Default Gateway 0 . 0 . 0 . 0

VPI/VCI 0 / 35

Encapsulation LLC

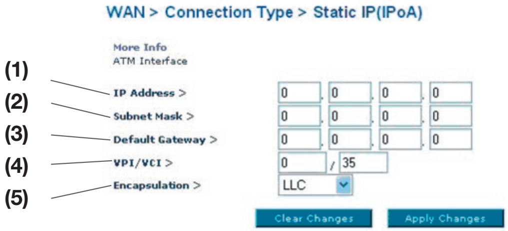
1. IP Assigned by ISP — Leave “Yes” if your ISP automatically assigns an IP address. If your ISP assigned a fixed IP address, select “No” and enter assigned values.

2. VPI/VCI — Enter your VPI and VCI parameter here. These identifiers are assigned by your ISP.

3. Encapsulation — Select LLC or VC MUX your ISP uses.

Setting your ISP Connection Type to Static IP (IPoA)

This connection type is also called “Classical IP over ATM” or “CLIP”, which your ISP provides a fixed IP for your Router to connect to the Internet.



WAN > Connection Type > Static IP(IPoA)

More Info
ATM Interface

IP Address > 0 . 0 . 0 . 0

Subnet Mask > 0 . 0 . 0 . 0

Default Gateway > 0 . 0 . 0 . 0

VPI/VCI > 0 / 35

Encapsulation > LLC

1. IP Address — Enter an IP address assigned by your ISP for the Router WAN interface.

2. Subnet Mask — Enter a subnet mask assigned by your ISP.

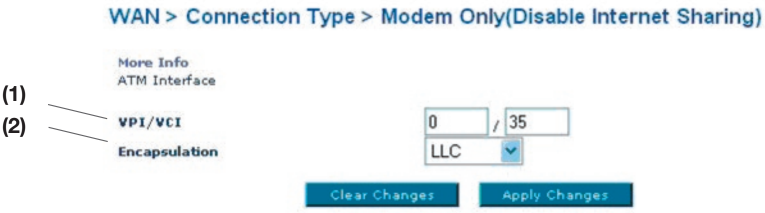
3. Default Gateway — Enter a default gateway IP address. If the Router cannot find the destination address within its local network, it will forward the packets to the default gateway assigned by your ISP.

4. VPI/VCI — Enter your VPI and VCI parameter here. These identifiers are assigned by your ISP.

5. Encapsulation — Select LLC or VC MUX your ISP uses.

Setting your Connection Type to Modem Only (Disable Internet Sharing)

In this mode, the Router simply acts as a bridge passing packets across the DSL port. It requires additional software to be installed on your computers in order to access the Internet.



WAN > Connection Type > Modem Only(Disable Internet Sharing)

More Info
ATM Interface

VPI/VCI 0 / 35

Encapsulation LLC

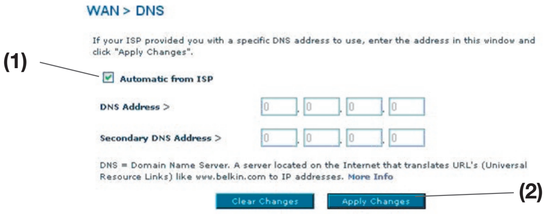
1. VPI/VCI — Enter your VPI and VCI parameter here. (Assigned by your ISP).

2. Encapsulation — Select LLC or VC MUX. (Assigned by your ISP).

DNS (Domain Name Server) Settings

A “Domain Name Server” is a server located on the Internet that translates Universal Resource Links (URLs) like “www.belkin.com” to IP addresses. Many ISPs do not require you to enter this information into the Router. The “Automatic from ISP” box (1) [Designer: call this out in screenshot below] 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” (2) [Designer: call this out in screenshot below] to save the settings.



WAN > DNS

If your ISP provided you with a specific DNS address to use, enter the address in this window and click "Apply Changes".

☑ Automatic from ISP

DNS Address > 0 . 0 . 0 . 0

Secondary DNS Address > 0 . 0 . 0 . 0

DNS = Domain Name Server. A server located on the Internet that translates URL's (Universal Resource Links) like www.belkin.com to IP addresses. More Info

Using DDNS (Dynamic DNS)

The DDNS service allows you to alias a dynamic IP address to a static host name in any of the many domains DynDNS.org offers, allowing your network computers to be more easily accessed from various locations on the Internet. DynDNS.org provides this service, for up to five host names, free to the Internet community. TZO.com is another alternative to DynDNS.org. DDNS service is ideal for a home website, file server, or to make it easy to access your home PC and stored files while you're at work. Using the service can ensure that your host name always points to your IP address, no matter how often your ISP changes it. When your IP address changes, your friends and associates can always locate you by visiting yourname.dyndns.org instead! To register free for your Dynamic DNS host name, please visit http://www.dyndns.org.

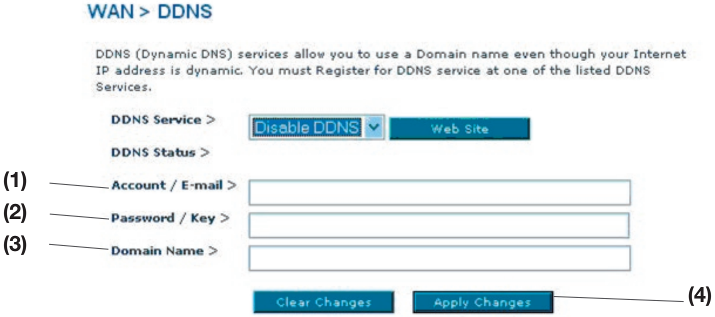
Setting up the Router's Dynamic DNS Update Client

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

1. Enter your DynDNS.org user name in the "Account / E-mail" field (1).
2. Enter your DynDNS.org password in the "Password / Key" field (2).
3. Enter the DynDNS.org domain name you set up with DynDNS.org in the "Domain Name" field (3).
4. Click "Apply Changes" to update your IP address.

Whenever 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 "Apply Changes" button (4).

From the "Connection Type" page, you can select the type of connection you w ant to use by selecting the "Connection Type" from the pull-down list.



WAN > DDNS

DDNS (Dynamic DNS) services allow you to use a Domain name even though your Internet IP address is dynamic. You must Register for DDNS service at one of the listed DDNS Services.

DDNS Service > Disable DDNS

DDNS Status >

Account / E-mail >

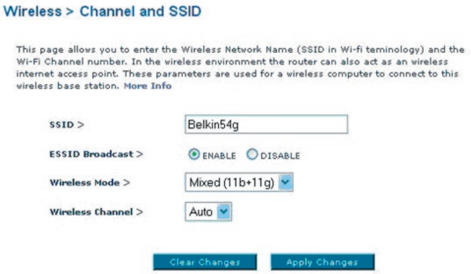
Password / Key >

Domain Name >

Wireless

The “Wireless” tab lets you make changes to the wireless network settings. From this tab, you can make changes to the wireless network name (SSID), operating channel, and encryption security settings.

Channel and SSID



Wireless > Channel and SSID

This page allows you to enter the Wireless Network Name (SSID in Wi-fi teminology) and the Wi-Fi Channel number. In the wireless environment the router can also act as an wireless internet access point. These parameters are used for a wireless computer to connect to this wireless base station. More Info

SSID > Belkin54g

ESSID Broadcast > ● ENABLE ○ DISABLE

Wireless Mode > Mixed (11b+11g)

Wireless Channel > Auto

1. Changing the Wireless Network Name (SSID)

To identify your wireless network, a name called the SSID (Service Set Identifier) is used. 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.

2. Using the ESSID Broadcast Feature

For security purposes, 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, select “DISABLE” 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.

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

3. Using the Wireless Mode Switch

Your Router can operate in three different wireless modes: “Mixed (11b+11g)”, “11g Only”, and “11b Only”. The different modes are explained below.

Mixed (11b+11g) 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 devices compatible with Wi-Fi®. If you have a mix of 802.11b and 802.11g clients in your network, we recommend that you keep the default setting. This setting should only be changed if you have a specific reason to do so.

11g-Only Mode

802.11g-Only 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”.

11b-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.

4. Changing the Wireless Channel

There are a number of operating channels from which to choose. In the United States, there are 11 channels. In the United Kingdom and most of Europe, 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 in which the country you reside. The default is “Auto”. 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.

Encryption/Security

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 wireless products that are compliant with Wi-Fi. 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 mixture of numbers and letters from A–F and 0–9. For 64-bit WEP, you need to enter 10 hex keys. For 128-bit WEP, you need to enter 26 hex keys.

For instance:

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

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

The WEP passphrase is NOT the same as a WEP key. Your wireless card uses this passphrase to generate your WEP keys, but different hardware manufacturers might have different methods for generating the keys. If you have equipment from multiple vendors in your network, you can use the hex WEP key from your Router or access point and enter it manually into the hex WEP key table in your wireless card'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 vendors' websites. There are two types of WPA security: WPA-PSK (no server) and WPA (with 802.1x radius server).

WPA-PSK (no server)

This method 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.

WPA (with 802.1x radius server)

With this system, a radius server distributes the network key to the clients automatically. This is typically found in a business environment.

WPA2

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 AES encryption methods.

WPA2 Requirements

IMPORTANT: In order to use WPA2 security, all your computers and wireless client adapters must be upgraded with patches, drivers, and client utility software that support WPA2. At the time of this User Manual's publication, a couple security patches are available, for free download, from Microsoft®. These patches work only with the Windows XP operating system. Other operating systems are not supported at this time.

For a Windows XP computer that does not have Service Pack 2 (SP2), a file from Microsoft called "Windows XP Support Patch for Wireless Protected Access (KB 826942)" is available for free download at http://www.microsoft.com/downloads/details.aspx?displaylang=en&familyid=009D8425-CE2B-47A4-ABEC-274845DC9E91.

For Windows XP computers with SP2, Microsoft has released a free download to update the wireless client components to support WPA2 (KB893357). The update can be download from: http://www.microsoft.com/downloads/details.aspx?FamilyID=662bb74d-e7c1-48d6-95ee-1459234f4483&DisplayLang=en.

IMPORTANT: You also need to ensure that all your wireless client cards and adapters support WPA2, and that you have downloaded and installed the latest driver. Most of the Belkin wireless cards have updated drivers available for download from the Belkin support site: www.belkin.com/networking. For a list of Belkin wireless products that support WPA/WPA2, please visit our website at www.belkin.com/networking.

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.

Using a Hexadecimal Key

A hexadecimal key is a mixture of numbers and letters from A–F and 0–9. 64-bit keys are five 2-digit numbers. 128-bit keys are 13 2-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.

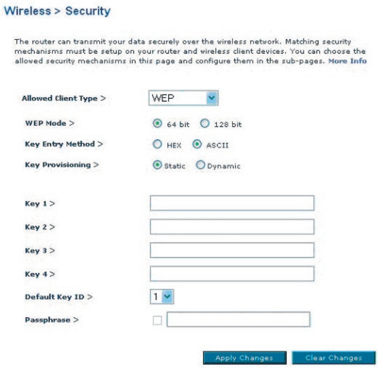
WEP Setup

1. Select "WEP" from the drop-down menu.
2. Select "WEP Mode" of 64-bit or 128-bit.
3. After selecting your WEP mode, you can enter your key by typing in the hex key manually.

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

For instance:

AF 0F 4B C3 D4 = 64-bit key
C3 03 0F AF 0F 4B B2 C3 D4 4B C3 D4 E7 = 128-bit key



Wireless > Security

The router can transmit your data securely over the wireless network. Matching security mechanisms must be setup on your router and wireless client devices. You can choose the allowed security mechanisms in this page and configure them in the sub-pages. More Info

Allowed Client Type >	WEP
WEP Mode >	● 64 bit ○ 128 bit
Key Entry Method >	○ HEX ● ASCII
Key Provisioning >	● Static ○ Dynamic
Key 1 >	
Key 2 >	
Key 3 >	
Key 4 >	
Default Key ID >	1
Passphrase >	□

3. Click "Apply Changes" to finish. Encryption in the 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 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.

Changing the Wireless Security Settings

Your Router is equipped with WPA/WPA2, the latest wireless security standard. It also supports the legacy security standard, WEP. By default, wireless security is disabled. To enable security, you must first determine which standard you want to use. To access the security settings, click "Security" on the "Wireless" tab.

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 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 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.

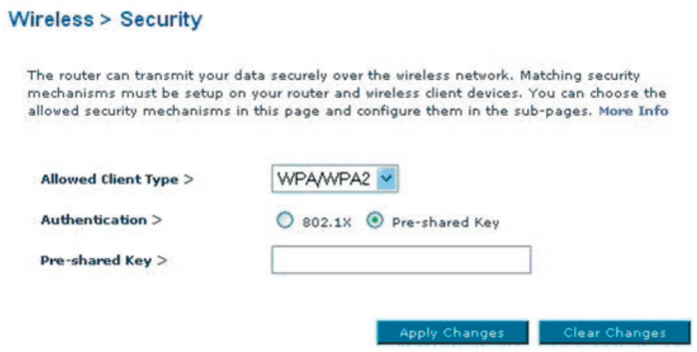
There are two types of WPA security: WPA-PSK (no server) and WPA (with radius server). WPA-PSK (no server) uses a so-called pre-shared key (PSK) as the security key. A pre-shared key is a password that is between eight and 63 characters long. It can be a combination of letters, numbers, and other characters. Each client uses the same key to access the network. Typically, this mode will be used in a home environment. WPA (with radius server) is a configuration wherein a radius server distributes the keys to the clients automatically. This is typically used in a business environment. WPA2 is the second generation of WPA, offering a more advanced encryption technique over WPA.

Setting WPA/WPA2-PSK (no server)

1. From the "Allowed Client Type" drop-down menu, select "WPA/WPA2".

2. For "Authentication", select "Pre-shared Key" for typical home/SOHO use. 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, or symbols. This same key must be used on all of the clients that you set up. For example, your pre-shared key might be something like: "Smith family network key".



Wireless > Security

The router can transmit your data securely over the wireless network. Matching security mechanisms must be setup on your router and wireless client devices. You can choose the allowed security mechanisms in this page and configure them in the sub-pages. More Info

Allowed Client Type > WPA/WPA2

Authentication > ○ 802.1X ● Pre-shared Key

Pre-shared Key >

4. Click "Apply Changes" to finish. You must now set all clients to match these settings.

Setting WPA/WPA2 (with radius server) Settings
If your network uses a radius server to distribute keys to the clients, use this setting.

1. From the "Allowed Client Type" drop-down menu, select "WPA/WPA2".

2. For "Encryption Technique", select "802.1x" for environments with RADIUS servers. This setting will have to be identical on the clients that you set up.

3. Enter the session idle time-out of the radius server into the "Session Idle Timeout" field.

4. Enter the key interval—how often the keys are distributed (in packets)—in the "Re-Authentication Period" field.

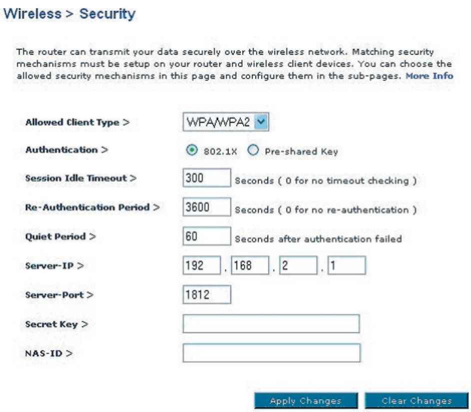
5. Enter the waiting time after authentication failed in the "Quiet Period" field.

6. Enter the IP address and port number of the radius server into the "Server-IP" and "Server-Port" fields.

7. Enter the radius key into the "Secret Key" field.

8. Click "Apply Changes" to finish. You must now set all clients to match these settings.

1 2 3 4 5 6 7 8 9 10 11 section



Wireless > Security

The router can transmit your data securely over the wireless network. Matching security mechanisms must be setup on your router and wireless client devices. You can choose the allowed security mechanisms in this page and configure them in the sub-pages. More Info

Allowed Client Type >	WPA/WPA2
Authentication >	● 802.1X ○ Pre-shared Key
Session Idle Timeout >	300 Seconds (0 for no timeout checking)
Re-Authentication Period >	3600 Seconds (0 for no re-authentication)
Quiet Period >	60 Seconds after authentication failed
Server-IP >	192 . 168 . 2 . 1
Server-Port >	1812
Secret Key >	
NAS-ID >	

Note: Make sure your wireless computers are updated to work with WPA2 and have the correct settings to get proper connection to the Router.

Configuring your Belkin Wireless G Network Cards to Use Security

Note: This section provides information on how to configure your Belkin Wireless G Network Cards to use security. At this point, you should already have your Wireless Router or access point set to use WPA or WEP. In order for you to gain a wireless connection, you will need to set your wireless notebook card and wireless desktop card to use the same security settings.

Connecting your Computer to a Wireless Network that Requires a 64-Bit or 128-Bit WEP Key

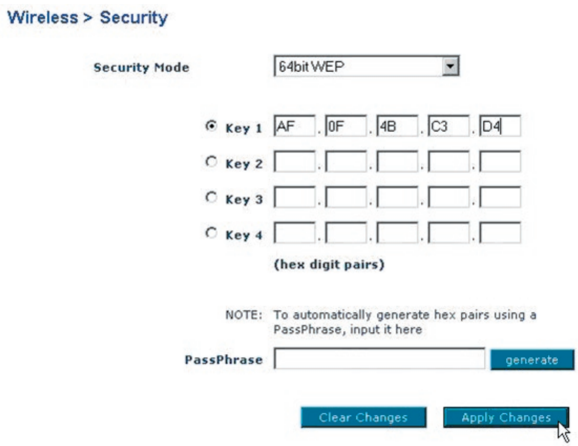
1. Double-click the “Signal Indicator” icon to bring up the “Wireless Network” screen. The “Advanced” button will allow you to view and configure more options of your wireless card.

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

3. Under “Data Encryption”, select “WEP”.

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

5. Type your WEP key in the “Network key” box.



Wireless > Security

Security Mode: 64bit WEP

● Key 1: AF . 0F . 4B . C3 . D4
○ Key 2: . . . .
○ Key 3: . . . .
○ Key 4: . . . .

(hex digit pairs)

NOTE: To automatically generate hex pairs using a PassPhrase, input it here

PassPhrase

Important: A WEP key is a mixture of numbers and letters from A–F and 0–9. For 128-bit WEP, you need to enter 26 keys. For 64-bit WEP, you need to enter 10 keys. This network key needs to match the key you assign to your Router.

6. Click “OK” to save the settings.

Connecting your Computer to a Wireless Network that Requires WPA-PSK (no server)

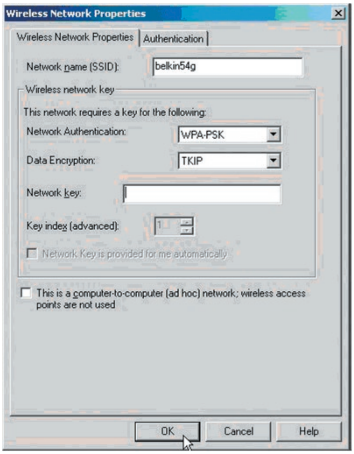
1. Double-click the “Signal Indicator” icon to bring up the “Wireless Network” screen. The “Advanced” button will allow you to view and configure more options of your wireless card.

2. Under the “Wireless Networks” tab, select a network name from the “Available networks” list and click “Configure”.

3. Under “Network Authentication”, select “WPA-PSK (No Server)”.

4. Type your WPA key in the “Network key” box.

Important: WPA-PSK is a mixture of numbers and letters from A–Z and 0–9. For WPA-PSK, you can enter eight to 63 keys. This network key needs to match the key you assign to your Router.



Network name (SSID): belkin54g

Wireless network key

This network requires a key for the following:

Network Authentication: WPA-PSK

Data Encryption: TKIP

Network key:

Key index (advanced): 1

□ Network Key is provided for me automatically

□ This is a computer-to-computer (ad hoc) network; wireless access points are not used

5. Click "OK" to save the settings.

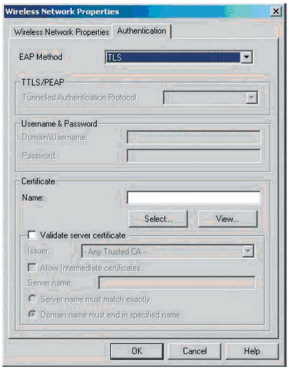
Connecting your Computer to a Wireless Network that Requires WPA (with radius server)

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

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

3. Under "Network Authentication", select WPA.

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



EAP Method: TLS

TTLS/PEAP

Tunnelled Authentication Protocol

Username & Password

Domain\Username:

Password:

Certificate

Name:

□ Validate server certificate

Issuer: - Any Trusted CA -

□ Allow Intermediate certificates

Server name:

○ Server name must match exactly

● Domain name must end in specified name

5. Click “OK” to save the settings.

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

For WPA wireless desktop and wireless notebook cards that are NOT manufactured by Belkin and that are not equipped with WPA-enabled software, a file from Microsoft called “Windows XP Support Patch for Wireless Protected Access” is available as a free download.

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

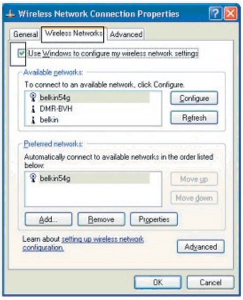
In order to use WPA-PSK, ensure you are using Windows Wireless Network Utility by doing the following:

1. Under Windows XP, click “Start > Control Panel > Network Connections”.

2. Right-click on “Wireless Network Connection”, 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.



Wireless Network Connection Properties

☑ Use Windows to configure my wireless network settings

Available networks:

To connect to an available network, click Configure.

belkin54g
DMR-BVH
belkin

Preferred networks:

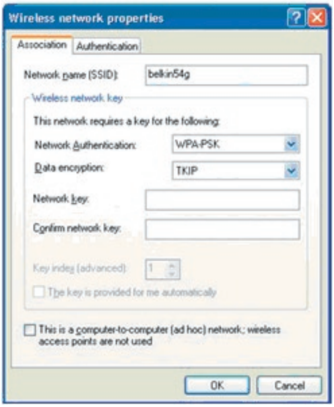
Automatically connect to available networks in the order listed below:

belkin54g

Learn about setting up wireless network configuration.

5. For a home or small-business user, select “WPA-PSK” under “Network Authentication”.

Note: Select “WPA” if you are using this computer to connect to a corporate network that supports an authentication server such as a radius server. Consult your network administrator for further information.



Network name (SSID): belkin54g

Wireless network key

This network requires a key for the following:

Network Authentication: WPA-PSK

Data encryption: TKIP

Network key:

Confirm network key:

Key index (advanced): 1

□ The key is provided for me automatically

□ This is a computer-to-computer (ad hoc) network; wireless access points are not used

6. Select “TKIP” or “AES” under “Data Encryption”. This setting will have to be identical to the Router.

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.

Wireless Range Extension and Bridging

What is a Wireless Bridge?

A wireless bridge is actually an operation “mode” you can use 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.

Note: We can make no guarantees that this feature will interoperate with hardware from other wireless manufacturers.

Note: Please make sure to download the latest firmware version for the Router for optimal performance at: http://web.belkin.com/support.

Adding Another Network Segment Wirelessly

Connecting a network switch or hub to the Router’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. For more information on changing channels, see the "Wireless - Channel and SSID" section 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.

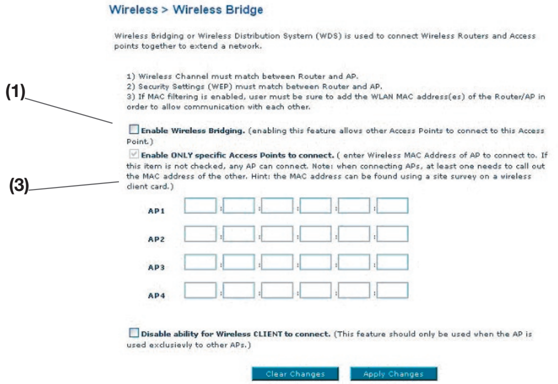
3. Place your secondary access point within range of your Router and near the area where you want to extend the range or add the network segment. Typically, indoor range should be between 100 and 200 feet.

4. Connect power to your access point. Make sure the access point is on and proceed to the next step.

5. 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.

6. You will see the Router's user interface in the browser window. Click "Wireless Bridge" (2) on the left-hand side of the screen. You will see the following screen.

7. Check the box that says, "Enable ONLY specific Access Points to connect" (1)].



Wireless > Wireless Bridge

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

1) Wireless Channel must match between Router and AP.
2) Security Settings (WEP) must match between Router and AP.
3) If MAC filtering is enabled, user must be sure to add the WLAN 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. Hint: the MAC address can be found using a site survey on a wireless client card.)

AP1 □ : □ : □ : □ : □ : □
AP2 □ : □ : □ : □ : □ : □
AP3 □ : □ : □ : □ : □ : □
AP4 □ : □ : □ : □ : □ : □

□ **Disable ability for Wireless CLIENT to connect.** (This feature should only be used when the AP is used exclusievly to other APs.)

8. In the field named "AP1" (3), 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.

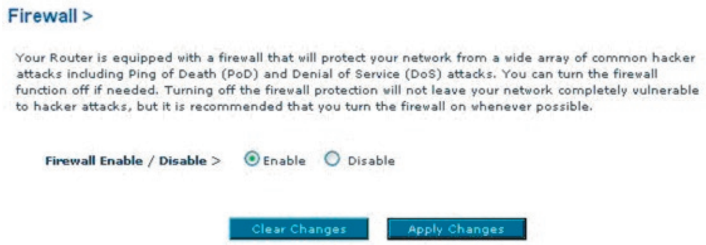
Note: It may take up to a minute for the bridged connection to properly establish itself. In some cases, it may be necessary to restart the access point and the Router to initiate the bridge.

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
- Fragment flooding

The firewall also masks common ports that are frequently used to attack networks. These ports appear to be "Stealth", meaning that essentially they do not exist to a would-be hacker. You can turn the firewall function off if needed; however, it is recommended that you leave the firewall enabled. Disabling the firewall protection will not leave your network completely vulnerable to hacker attacks, but it is recommended that you leave the firewall enabled.



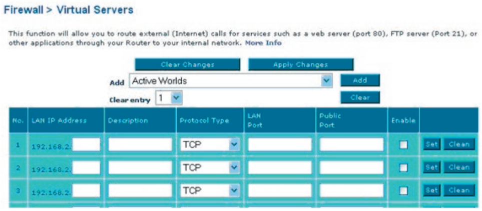
Firewall >

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 > ● Enable ○ Disable

Virtual Servers

Virtual servers 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, machines from the Internet cannot get to them because they cannot be "seen". If you need to configure the virtual server function for a specific application, you will need to contact the application vendor to find out which port settings you need. You can manually input this port information into the Router.



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

No.	LAN IP Address	Description	Protocol Type	LAN Port	Public Port	Enable	
1	192.168.2.		TCP			□	Set Clean
2	192.168.2.		TCP			□	Set Clean
3	192.168.2.		TCP			□	Set Clean

Choosing an Application

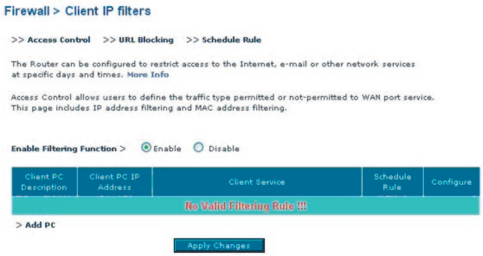
Select your application from the drop-down list. Click "Add". The settings will be transferred to the next available space in the screen. Click "Apply Changes" to save the setting for that application. To remove an application, select the number of the row that you want to remove, then click "Clear".

Manually Entering Settings into the Virtual Server

To manually enter settings, enter the IP address in the space provided for the internal (server) machine, the port(s) required to pass, the port type (TCP or UDP), 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 mixture 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.

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.



Firewall > Client IP filters

>> Access Control >> URL Blocking >> Schedule Rule

The Router can be configured to restrict access to the Internet, e-mail or other network services at specific days and times. More Info

Access Control allows users to define the traffic type permitted or not-permitted to WAN port service. This page includes IP address filtering and MAC address filtering.

Enable Filtering Function > ● Enable ○ Disable

Client PC Description	Client PC IP Address	Client Service	Schedule Rule	Configure
No Valid Filtering Rule !!!				

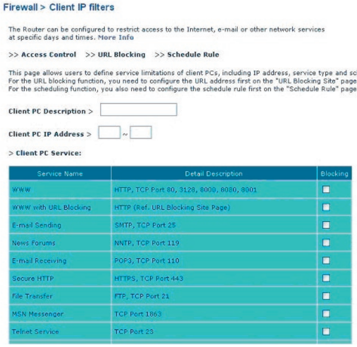
> Add PC

Access Control

Access control allows users to define the outgoing traffic permitted or denied access through the WAN interface. The default is to permit all outgoing traffic. To configure restrictive access to your computers, do the following:

1. Click “Add PC” on the “Access Control” screen.

2. Define the appropriate settings for client PC services (as shown on the following screen).



Firewall > Client IP filters

The Router can be configured to restrict access to the Internet, e-mail or other network services at specific days and times. More Info

>> Access Control >> URL Blocking >> Schedule Rule

This page allows users to define service limitations of client PCs, including IP address, service type and scheduling rule criteria.
For the URL blocking function, you need to configure the URL address first on the "URL Blocking Site" page.
For the scheduling function, you also need to configure the schedule rule first on the "Schedule Rule" page.

Client PC Description >

Client PC IP Address > ~

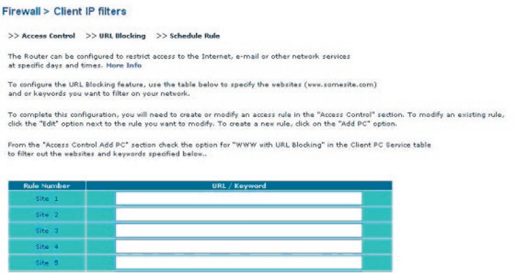
> Client PC Service:

Service Name	Detail Description	Blocking
WWW	HTTP, TCP Port 80, 3128, 8000, 8080, 8001	□
WWW with URL Blocking	HTTP (Ref. URL Blocking Site Page)	□
E-mail Sending	SMTP, TCP Port 25	□
News Forums	NNTP, TCP Port 119	□
E-mail Receiving	POP3, TCP Port 110	□
Secure HTTP	HTTPS, TCP Port 443	□
File Transfer	FTP, TCP Port 21	□
MSN Messenger	TCP Port 1863	□
Telnet Service	TCP Port 23	□

3. Click “OK” and then click “Apply Changes” to save your settings.

URL Blocking

To configure the URL-blocking feature, specify the websites (www.somesite.com) and or keywords you want to filter on your network. Click “Apply Changes” to activate the change. To complete this configuration, you will need to create or modify an access rule in the “Client IP filters” section. To modify an existing rule, click the “Edit” option next to the rule you want to modify. To create a new rule, click on the “Add PC” option. From the “Access Control > Add PC” section, check the option for “WWW with URL Blocking” in the “Client PC Service” table to filter out the websites and keywords specified.



Firewall > Client IP filters

The Router can be configured to restrict access to the Internet, e-mail or other network services at specific days and times. More Info

To configure the URL Blocking feature, use the table below to specify the websites (www.somesite.com) and or keywords you want to filter on your network.

To complete this configuration, you will need to create or modify an access rule in the "Access Control" section. To modify an existing rule, click the "Edit" option next to the rule you want to modify. To create a new rule, click on the "Add PC" option.

From the "Access Control Add PC" section check the option for "WWW with URL Blocking" in the Client PC Service table to filter out the websites and keywords specified below..

Rule Number	URL / Keyword
Site 1	
Site 2	
Site 3	
Site 4	
Site 5	

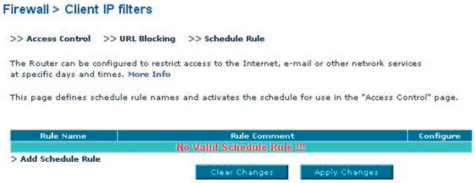
Schedule Rule

You may filter Internet access for local clients based on rules. Each access control rule may be activated at a scheduled time. Define the schedule on the “Schedule Rule”, and apply the rule on the “Access Control” page.

Follow these steps to add a schedule:

1. Click “Add Schedule Rule”.

2. You will see the following screen.



Firewall > Client IP filters

The Router can be configured to restrict access to the Internet, e-mail or other network services at specific days and times. More Info

This page defines schedule rule names and activates the schedule for use in the "Access Control" page.

Rule Name	Rule Comment	Configure
No Valid Schedule Rule !!!		

3. To configure the schedule rule, specify the name, comment, start time, and end time that you want to filter on your network.

4. Click “OK” and then “Apply Changes” to save your settings.

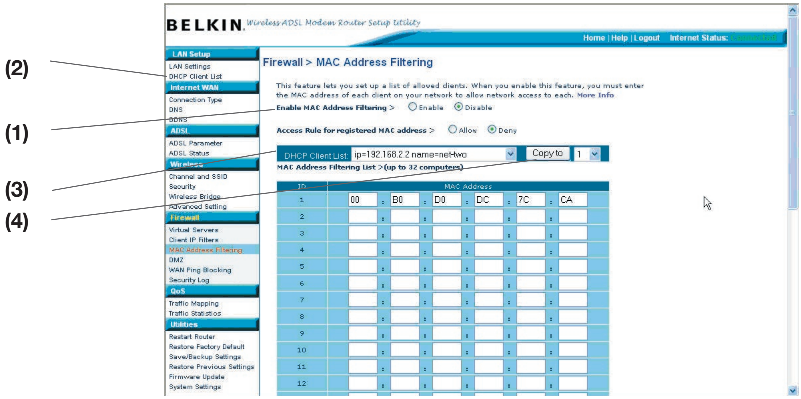
5. To complete this configuration, you will need to create or modify an access rule in the “Client IP filters” section. This activates the schedule for use in the “Access Control” page.

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. The "Block" feature lets you turn on and off access to the network easily for any computer without having to add and remove the computer's MAC address from the list. To enable this feature, select "Enable MAC Address Filtering" (1). Next, select the access rule as "Allow" or "Deny".

Then, enter the MAC address of each computer on your network by selecting from the "DHCP Client List" drop-down box (2) and the ID to copy to (3) before clicking "Copy to". As an alternative method, click in the space provided (4) [Designer: pls callout (4) in the screenshot] and enter the MAC address of the computer you want to add to the list. Click "Apply Changes" (5) to save the settings. Click "Apply Changes" to save the settings.

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).



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 > ○ Enable ● Disable

Access Rule for registered MAC address > ○ Allow ● Deny

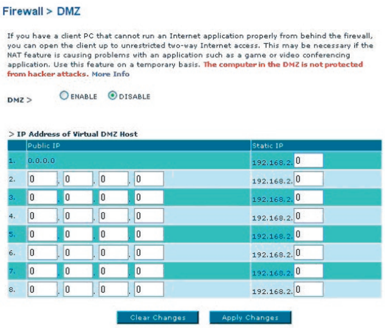
DHCP Client List: ip=192.168.2.2 name=net-two | Copy to | 1

MAC Address Filtering List >(up to 32 computers)

ID	MAC Address
1	00 : B0 : D0 : DC : 7C : CA
2	: : : : :
3	: : : : :
4	: : : : :
5	: : : : :
6	: : : : :
7	: : : : :
8	: : : : :
9	: : : : :
10	: : : : :
11	: : : : :
12	: : : : :

DMZ (Demilitarized Zone)

If you have a client PC that cannot run an Internet application properly from behind the firewall, you can open the client up to unrestricted 2-way Internet access. 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.



Firewall > DMZ

If you have a client PC that cannot run an Internet application properly from behind the firewall, you can open the client up to unrestricted two-way Internet access. 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.** More Info

DMZ > ○ ENABLE ● DISABLE

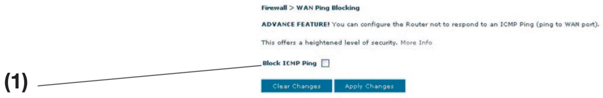
> IP Address of Virtual DMZ Host

	Public IP	Static IP
1.	0.0.0.0	192.168.2. 0
2.	0 . 0 . 0 . 0	192.168.2. 0
3.	0 . 0 . 0 . 0	192.168.2. 0
4.	0 . 0 . 0 . 0	192.168.2. 0
5.	0 . 0 . 0 . 0	192.168.2. 0
6.	0 . 0 . 0 . 0	192.168.2. 0
7.	0 . 0 . 0 . 0	192.168.2. 0
8.	0 . 0 . 0 . 0	192.168.2. 0

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. If you are using multiple static WAN IP addresses, it is possible to select to which WAN IP address the DMZ host will be directed. Type in the WAN IP address to which you wish the DMZ host to direct, enter the last two digits of the IP address of the DMZ host computer, select “Enable”, and click “Apply Changes”.

Blocking an ICMP Ping

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

ADVANCE FEATURE! You can configure the Router not to respond to an ICMP Ping (ping to WAN port).

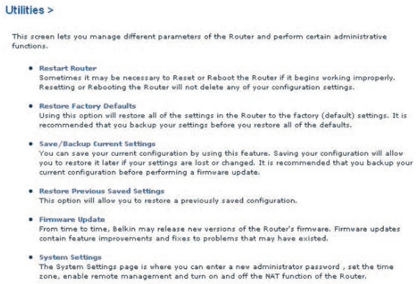
This offers a heightened level of security. More Info

Block ICMP Ping □

To turn off the ping response, select “Block ICMP Ping” (1) and click “Apply Changes”. The Router will not respond to an ICMP ping.

Utilities

The “Utilities” screen lets you manage different parameters of the Router and perform certain administrative functions.



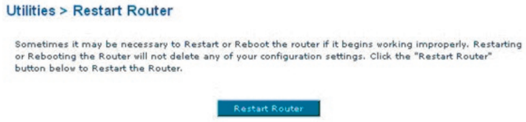
Utilities >

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 and turn on and off the NAT function of the Router.

Restart Router

At times 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.



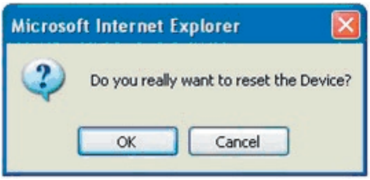
Utilities > Restart Router

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.

Restarting the Router to Restore Normal Operation

1. Click the “Restart Router” button.

2. The following message will appear. Click “OK” to restart your Router.

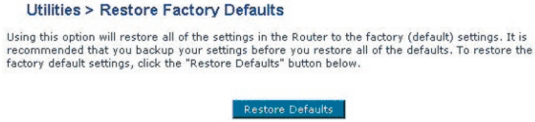


Microsoft Internet Explorer

Do you really want to reset the Device?

Restore Factory Defaults

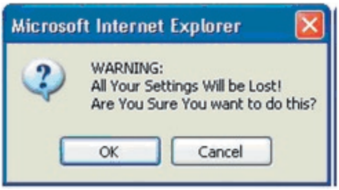
Using this option will restore all of the settings in the Router to the factory (default) settings. It is recommended that you back up your settings before you restore all of the defaults.



Utilities > 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.

1. Click the “Restore Defaults” button.
2. The following message will appear. Click “OK” to restore factory defaults.

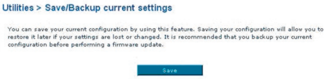


Microsoft Internet Explorer

WARNING:
All Your Settings Will be Lost!
Are You Sure You want to do this?

Saving/Backing up Current Settings

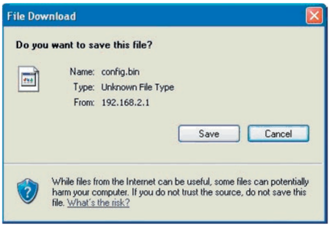
You can save your current configuration by using this feature. Saving your configuration will allow you to restore it later if your settings are lost or changed. It is recommended that you back up your current configuration before performing a firmware update.



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”.



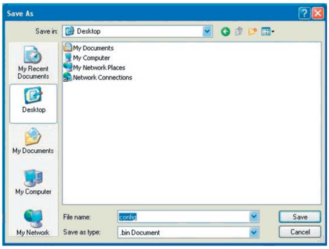
File Download

Do you want to save this file?

Name: config.bin
Type: Unknown File Type
From: 192.168.2.1

While files from the Internet can be useful, some files can potentially harm your computer. If you do not trust the source, do not save this file. What's the risk?

2. A window will open that allows you to select the location in which to save the configuration file. Select a location. There are no restrictions on the file name; however, be sure to name the file so you can locate it yourself later. When you have selected the location and entered the file name, click “Save”.

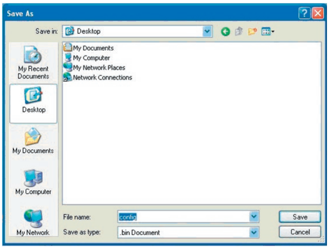


Save As

Save in: Desktop

File name: config
Save as type: .bin Document

3. When the save is complete, you will see the window below. Click “Close”. The configuration is now saved.



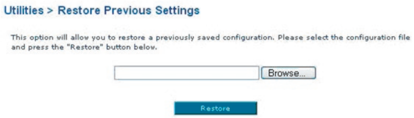
Save As

Save in: Desktop

File name: config
Save as type: .bin Document

Restore Previous Settings

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



Utilities > Restore Previous Settings

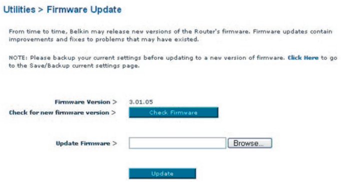
This option will allow you to restore a previously saved configuration. Please select the configuration file and press the "Restore" button below.

1. Click "Browse". A window will open that allows you to select the location of the configuration file. Locate the configuration file, "config.bin", and double-click on it.

2. Then, click "Open".

Updating 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 have existed. When Belkin releases new firmware, you can download the firmware from the Belkin website and update your Router's firmware to the latest version.



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.

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 > 3.01.05

Check for new firmware version >

Update Firmware >

Checking for a New Version of Firmware

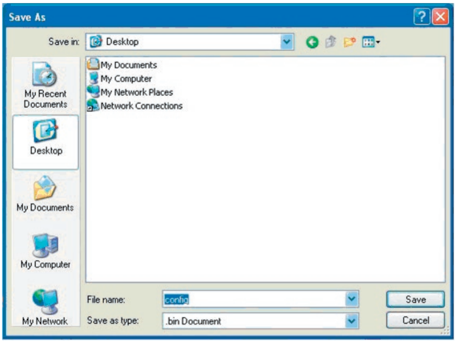
The "Check Firmware" (1) [Designer: pls callout (1) in the screenshot] button allows you to instantly check for a new version of firmware. When you click the button, a new browser window will appear informing you that either no new firmware is available or that there is a new version available. If a new version is available, you will have the option to download it.

Downloading a New Version of Firmware

If you click the "Check Firmware" button and a new version of firmware is available, you will see a screen similar to the one below.

1. To download the new version of firmware, click "Download".

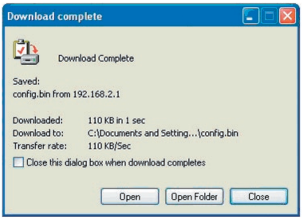
2. A window will open that allows you to select the location where you want to save the firmware file. Select a location. You can name the file anything you want, or use the default name. Be sure to locate the file in a place where you can locate it yourself later. When you have selected the location,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



File name: config

Save as type: .bin Document

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".



Download Complete

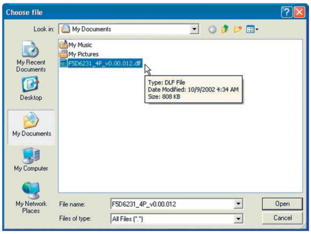
Saved:
config.bin from 192.168.2.1

Downloaded: 110 KB in 1 sec
Download to: C:\Documents and Setting...\config.bin
Transfer rate: 110 KB/Sec

□ Close this dialog box when download completes

Updating the Router's Firmware

1. In the "Firmware Update" page, click "Browse" (2) Designer: pls callout (2) in the screenshot]. A window will open that allows you to select the location of the firmware update file.



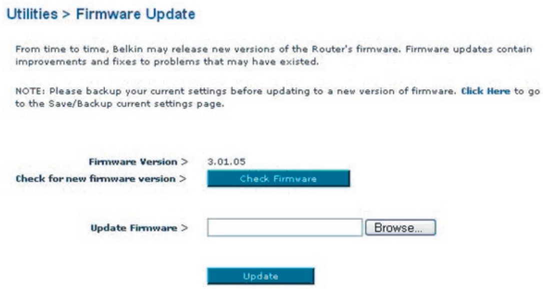
Type: DLF File
Date Modified: 10/9/2002 4:34 AM
Size: 808 KB

File name: F5D6231_4P_v0.00.012

Files of type: All Files (*.*)

2. Browse to the firmware file you downloaded. Select the file by double-clicking on the file name.

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.

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.

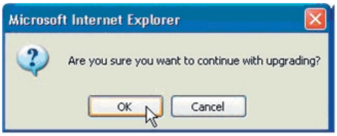
Firmware Version > 3.01.05

Check for new firmware version > Check Firmware

Update Firmware > Browse...

Update

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

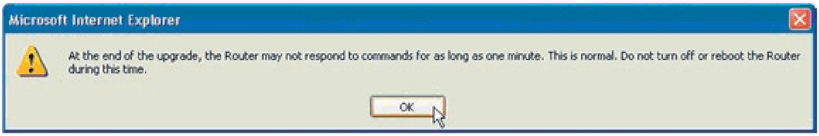


Microsoft Internet Explorer

Are you sure you want to continue with upgrading?

OK Cancel

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".



Microsoft Internet Explorer

At the end of the upgrade, the Router may not respond to commands for as long as one minute. This is normal. Do not turn off or reboot the Router during this time.

OK

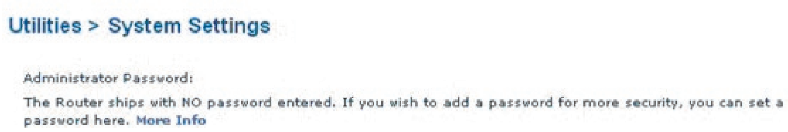
A 60-second countdown will appear on the screen. When the countdown reaches zero, the Router firmware update will be complete. The Router home page should appear automatically. If not, type in the Router's address (default = 192.168.2.1) into the navigation bar of your browser.

System Settings

The "System Settings" page is where you can enter a new administrator password, set the time zone, enable remote management, and turn on and off the UPnP function 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 in to 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.



Utilities > System Settings

Administrator Password:

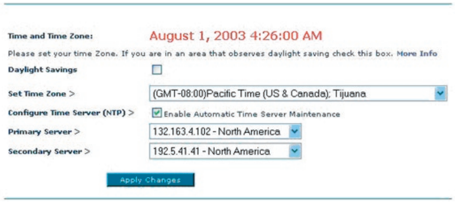
The Router ships with NO password entered. If you wish to add a password for more security, you can set a password here. More Info

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 advanced setup interface. The timer starts when there has been no activity. For example, you have made some changes in the advanced setup 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 in to 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 in to the Router's advanced setup 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 in which you reside. If you reside in an area that observes daylight saving time, then place a check mark in the box next to "Daylight Savings". 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. You now have the option to select a primary and a backup NTP server to keep your Router's clock synchronized with different NTP time servers on the Internet. Select your desired NTP server from the drop-down boxes, or simply keep it as is.



Time and Time Zone: August 1, 2003 4:26:00 AM

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

Daylight Savings □

Set Time Zone > (GMT-08:00)Pacific Time (US & Canada); Tijuana

Configure Time Server (NTP) > ☑ Enable Automatic Time Server Maintenance

Primary Server > 132.163.4.102 - North America

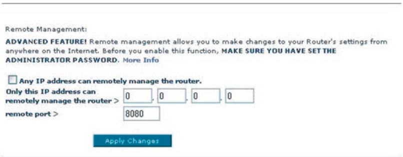
Secondary Server > 192.5.41.41 - North America

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 from which you know you will be accessing the Router 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. The remote-access port defaults to port 8080. You can choose a different port by entering a new port number in the "remote port" field. Click on the "Apply Changes" button to save your settings.



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

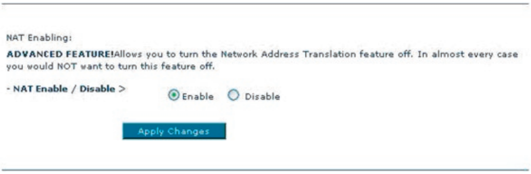
□ **Any IP address can remotely manage the router.**

Only this IP address can remotely manage the router > 0 . 0 . 0 . 0

remote port > 8080

Enabling/Disabling Network Address Translation (NAT)

Note: This advanced feature should be employed by advanced users only. Before enabling this function, MAKE SURE YOU HAVE SET THE ADMINISTRATOR PASSWORD. NAT is the method by which the Router shares the single IP address assigned by your ISP with the other computers on your network. This function should only be used if your ISP assigns you multiple IP addresses or you need NAT disabled for an advanced system configuration. If you have a single IP address and you turn off NAT, the computers on your network will not be able to access the Internet. Other problems may also occur. Turning off NAT will disable your firewall functions.



NAT Enabling:

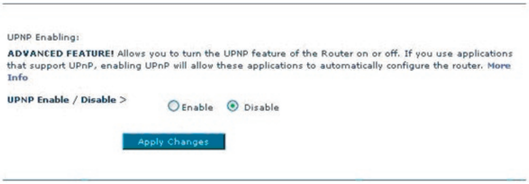
ADVANCED FEATURE!Allows you to turn the Network Address Translation feature off. In almost every case you would NOT want to turn this feature off.

- NAT Enable / Disable > ● Enable ○ Disable

Enabling/Disabling Universal Plug-and-Play (UPnP)

UPnP 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, and in some instances, setting trigger 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. The Router ships with the UPnP feature disabled. If you are using any applications that are UPnP-compliant, and wish to take advantage of the UPnP features, you can enable the UPnP feature. Simply select "Enable" in the "UPnP Enabling" section of the "Utilities" page. Click "Apply Changes" to save the change.



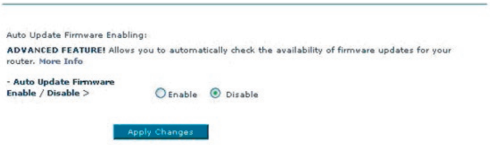
UPNP Enabling:

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 disabled. If you want to disable it, select "Enable" 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

Setting up your Computers

In order for your computer to properly communicate with your Router, you will need to change your computer's "TCP/IP/Ethernet" settings to "Obtain an IP address automatically/Using DHCP". This is normally the default setting in most home computers.

You can set up the computer that is connected to the ADSL 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.

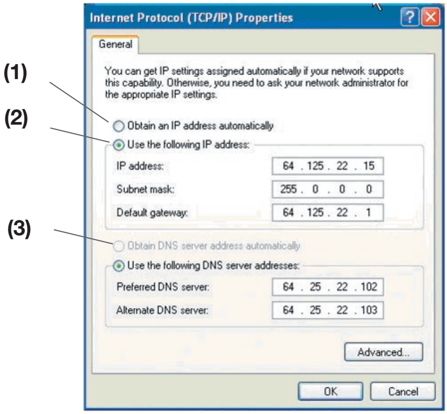
Windows XP, 2000, or NT

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).

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:



You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

○ Obtain an IP address automatically

● Use the following IP address:

IP address: 64 . 125 . 22 . 15

Subnet mask: 255 . 0 . 0 . 0

Default gateway: 64 . 125 . 22 . 1

○ Obtain DNS server address automatically

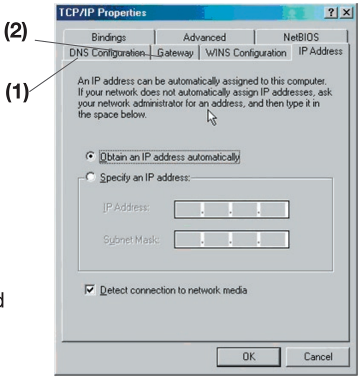
● Use the following DNS server addresses:

Preferred DNS server: 64 . 25 . 22 . 102

Alternate DNS server: 64 . 25 . 22 . 103

5. If “Use the following IP address” (2) [Designer: pls callout (2) in the screenshot above] 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.

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.

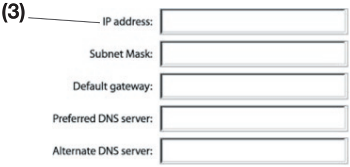


An IP address can be automatically assigned to this computer. If your network does not automatically assign IP addresses, ask your network administrator for an address, and then type it in the space below.

● Obtain an IP address automatically

○ Specify an IP address:

☑ Detect connection to network media



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 down the IP address and subnet mask from the “IP Address” tab (3).

5. Click the “Gateway” tab (2). Write down the gateway address in the chart.

6. Click the “DNS Configuration” tab (1). Write down the DNS address(es) in the chart.

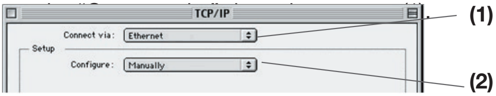
7. If not already selected, select “Obtain an IP address automatically” on the “IP Address” tab. Click “OK”. Restart the computer. When the computer restarts, your network adapter(s) are now configured for use with the Router. Set up the computer that is connected to the cable or DSL modem by FIRST using 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.

Mac OS up to 9.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”.

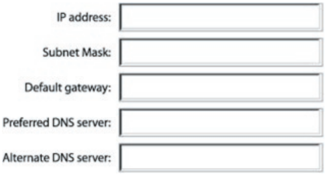
2. You will see the TCP/IP control panel. Select “Ethernet Built-In” or “Ethernet” in



Connect via: Ethernet

Configure: Manually

3. Next to "Configure" (2) [Designer: pls callout (2) in the screenshot above], 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:

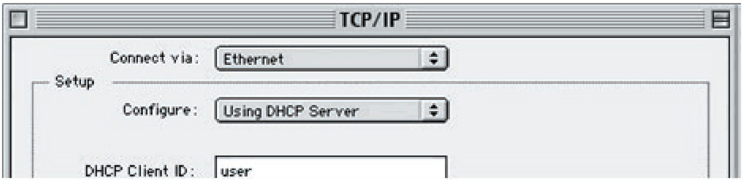
Subnet Mask:

Default gateway:

Preferred DNS server:

Alternate DNS server:

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



TCP/IP

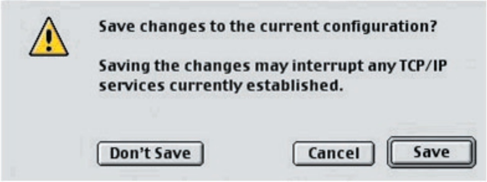
Connect via: Ethernet

Setup

Configure: Using DHCP Server

DHCP Client ID: user

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



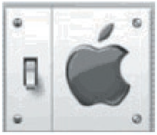
Save changes to the current configuration?

Saving the changes may interrupt any TCP/IP services currently established.

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

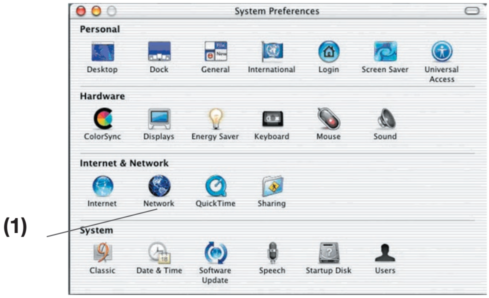
Mac OS X

1. Click on the "System Preferences" icon.

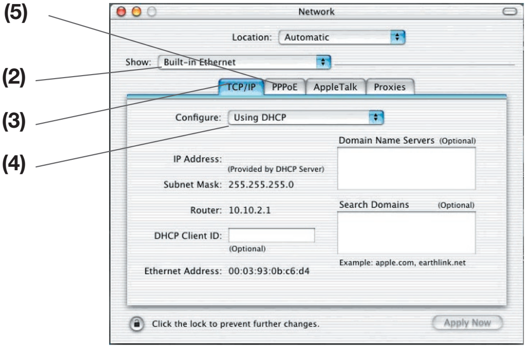


2. Select “Network” (1) from the “System Preferences” menu.

3. Select “Built-in Ethernet” (2) next to “Show” in the “Network” menu.



4. Select the “TCP/IP” tab (3). Next to “Configure” (4), you should see “Manually” or “Using DHCP”. If you do not, check the PPPoE tab (5) 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.



Location: Automatic

Show: Built-in Ethernet

Configure: Using DHCP

Domain Name Servers (Optional)

IP Address:
(Provided by DHCP Server)

Subnet Mask: 255.255.255.0

Router: 10.10.2.1

Search Domains (Optional)

DHCP Client ID:
(Optional)

Example: apple.com, earthlink.net

Ethernet Address: 00:03:93:0b:c6:d4

Click the lock to prevent further changes.

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: ______

Subnet Mask: ______

Default gateway: ______

Preferred DNS server: ______

Alternate DNS server: ______

6. If not already selected, select “Using DHCP” next to “Configure” (4), then click “Apply Now”.

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

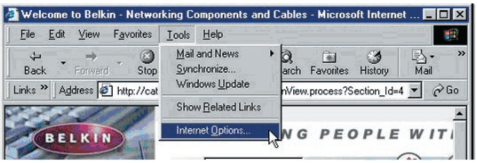
Recommended Web Browser Settings

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.

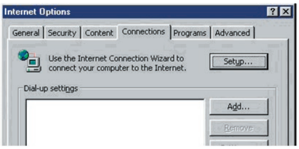
Microsoft Internet Explorer 4.0 or Higher

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.

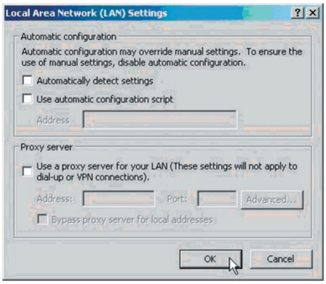


3. Under the "Internet Options" screen, click on "Connections" and select "LAN Settings…".



Use the Internet Connection Wizard to connect your computer to the Internet.

4. 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.



Automatic configuration may override manual settings. To ensure the use of manual settings, disable automatic configuration.

□ Automatically detect settings

□ Use automatic configuration script

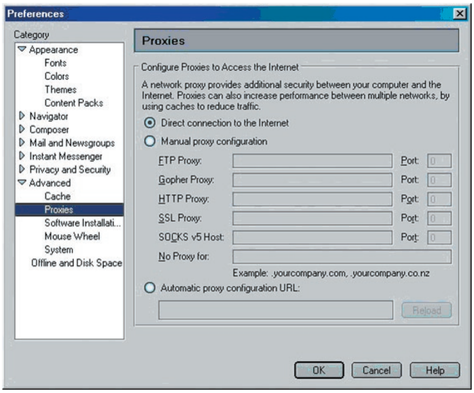
□ Use a proxy server for your LAN (These settings will not apply to dial-up or VPN connections).

□ Bypass proxy server for local addresses

Netscape® Navigator® 4.0 or Higher

1. Start Netscape. Click on "Edit", then "Preferences".

2. In the "Preferences" window, click on "Advanced", then select "Proxies". In the "Proxies" window, select "Direct connection to the Internet".



Proxies

Configure Proxies to Access the Internet

A network proxy provides additional security between your computer and the Internet. Proxies can also increase performance between multiple networks, by using caches to reduce traffic.

● Direct connection to the Internet

○ Manual proxy configuration

FTP Proxy: Port: 0

Gopher Proxy: Port: 0

HTTP Proxy: Port: 0

SSL Proxy: Port: 0

SOCKS v5 Host: Port: 0

No Proxy for:

Example: .yourcompany.com, .yourcompany.co.nz

○ Automatic proxy configuration URL:

Problem:

The ADSL LED is not on.

Solution:

1. Check the connection between the Router and ADSL line. Make sure the cable from the ADSL line is connected to the port on the Router labeled “DSL Line”.
2. Make sure the Router has power. The [Insert: Power Icon] Power LED on the front panel should be illuminated.

Problem:

The Internet LED is not on.

Solution:

1. Make sure the cable from the ADSL line is connected to the port on the Router labeled “DSL Line” and the [Insert: ADSL icon] ADSL LED is on.
2. Make sure you have the correct VPI/VCI, user name, and password from your ISP provider.

Problem:

My connection type is static IP address. I cannot connect to the Internet.

Solution:

Since your connection type is static IP address, your ISP must assign you the IP address, subnet mask, and gateway address. Instead of using the Wizard, go to “Connection Type”, and then select your connection type. Click “Next”, select “Static IP”, and enter your IP address, subnet mask, and default gateway information.

Problem:

I’ve forgotten or lost my password.

Solution:

Press and hold the “Reset” button on the rear panel for at least six seconds to restore the factory defaults.

Problem:

My wireless PC cannot connect to the Router.

Solution:

1. Make sure the wireless PC has the same SSID settings as the Router, and you have the same security settings on the clients such as WPA or WEP encryption.
2. Make sure the distance between the Router and wireless PC are not too far away.

Problem:

The wireless network is often interrupted.

Solution:

1. Move your wireless PC closer to the Router to find a better signal.
2. There may also be interference, possibly caused by a microwave oven or 2.4GHz cordless phones. Change the location of the Router or use a different wireless channel.

Problem:

I can't connect to the Internet wirelessly.

Solution:

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

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

- The "Power" light should be on.
- The "Connected" light should be on, and not blinking.
- The "WAN" light should be either on or blinking.

2. Open your wireless utility software by clicking on the icon in the system tray at the bottom right-hand corner of the screen. If you're using a Belkin Wireless Card, the tray icon should look like this [INSERT ICON] (the icon may be red or green):
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.
If the network has security (encryption) enabled, you will need to enter the network key. For more information regarding security, see the page entitled "Changing the Wireless Security Settings".
2. 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 utility, please attempt the following troubleshooting steps:

1. Temporarily move computer, if possible, five to 10 feet from the Router. Close the wireless utility, and re-open 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 Appendix B entitled "Important Factors for Placement and Setup".

2. Using a computer that is connected to the Router via 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.
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 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 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 entitled “Changing the Wireless Channel” on page XX 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 wireless router, and 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 Range Extender/Access Point that can be connected wirelessly to a Belkin 802.11g 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 to find out more about:
Wireless G Range Extender/Access Point (F5D7132)

Problem:

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

Solution:

1. Log into your Wireless Router or Access Point.
2. Open your web browser and type in the IP address of the Wireless Router or Access Point. (The Router default is 192.168.2.1, the 802.11g Access Point 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".
3. Click the "Wireless" tab on the left of your screen. Select the "Encryption" or "Security" tab to get to the security settings page.
4. Select "128-bit WEP" from the drop-down menu.
5. 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 mixture 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

6. 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 Wireless Card.

Solution:

The Wireless Card must use the same key as the Wireless Router or Access Point. For instance, if your Wireless Router or Access Point uses the key 001122 33445566778899AABBCC, then the Wireless Card must be set to the exact same key.

1. Double-click the “Signal Indicator” icon to bring up the “Wireless Network” screen.
2. The “Advanced” button will allow you to view and configure more options of the card.
3. 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 Wireless Card.
4. Under the “Wireless Network Properties” tab, select a network name from the “Available networks” list and click the “Properties” button.
5. Under “Data Encryption” select “WEP”.
6. Ensure the check box “The key is provided for me automatically” at the bottom is unchecked. If you are using this computer to connect to a corporate network, please consult your network administrator if this box needs to be checked.
7. Type your WEP key in the “Network key” box.

Important: A WEP key is a mixture of numbers and letters from A–F and 0–9. For 128-bit WEP, you need to enter 26 keys. This network key needs to match the key you assign to your Wireless Router or Access Point.

For example: C3 03 0F AF 4B B2 C3 D4 4B C3 D4 E7 E4 = 128-bit key
8. Click “OK”, and then “Apply” to save the settings.
If you are NOT using a Belkin Wireless Card, please consult the manufacturer for that card’s user manual.

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 FAQ 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 802.11g Wireless Desktop Network Card 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://www.belkin.com/uk/support/tech/index.asp

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 (no server)".
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 (PSK). This can be from eight to 63 characters and can be letters, numbers, or 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 Wireless Router or Belkin Access Point for a business.

Solution:

If your network uses a radius server to distribute keys to the clients, use this setting. This is typically used in a business environment.

1. From the “Security Mode” drop-down menu, select “WPA (with server)”.
2. For “Encryption Technique”, select “TKIP” or “AES”. This setting will have to be identical on the clients that you set up.
3. Enter the IP address of the radius server into the “Radius Server” fields.
4. Enter the radius key into the “Radius Key” field.
5. Enter the key interval. Key interval is how often the keys are distributed (in packets).
6. 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 Wireless Card for a home network.

Solution:

Clients must use the same key that the wireless router or access point uses. For instance if the key is “Smith Family Network Key” in the 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” screen.
2. The “Advanced” button will allow you to view and configure more options of the Card.

3. 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 Wireless Card.
4. Under the “Wireless Network Properties” tab, select a network name from the “Available networks” list and click the “Properties” button.
5. Under “Network Authentication” select “WPA-PSK (no server).
6. Type your WPA key in the “Network key” box.

Important: WPA-PSK is a mixture 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 wireless router or access point.

7. Click “OK, then “Apply” to save the settings.

Problem:

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

Solution:

1. Double-click the “Signal Indicator” icon to bring up the “Wireless Network” screen.
2. The “Advanced” button will allow you to view and configure more options of the Card.
3. 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 Wireless Card.
4. Under the “Wireless Network Properties” tab, select a network name from the “Available networks” list and click the “Properties” button.
5. Under “Network Authentication” select “WPA”.
6. In the “Authentication” tab, select the settings that are indicated by your network administrator.
7. 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 Wireless Card for a home network.

Solution:

If you are not using a Belkin Wireless Desktop or Wireless Notebook Network Card that 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. Download the patch from Microsoft by searching the knowledge base for Windows XP WPA.

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 (no server)
1. Under Windows XP, click “Start > Control Panel > Network Connections”.

2. Right-clicking on the “Wireless Networks” tab will display the following screen. Ensure the “Use Windows to configure my wireless network settings” box is checked.
3. Under the “Wireless Networks” tab, click the “Configure” button.
4. For a home or small business user, select “WPA-PSK” under “Network Administration”.

Note: Select WPA (with radius server) if you are using this computer to connect to a corporate network that supports an authentication server such as a radius server. Please consult your network administrator for further information.

5. Select “TKIP” or “AES” under “Date Encryption”. This setting will have to be identical to the wireless router or access point that you set up.
6. Type in your encryption key in the “Network Key” box.

Important: Enter your PSK. 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 Pre-N?
Currently there are four levels of wireless networking standards, which transmit data at very different maximum speeds. Each is based on the designation 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 Pre-N works at 108Mbps. Pre-N, the precursor to the upcoming 802.11n release, promises speeds that exceed 802.11g, and up to twice the wireless coverage area. See the following chart for more detailed information.

Wireless Comparison Chart

Wireless Technology	**802.11b**	**G (802.11g)**	**G Plus (802.11g with HSM)**	**G Plus MIMO (802.11g with MIMO MRC)**	**N1 MIMO (draft 802.11n with MIMO)**
Speed	11Mbps link rate/baseline	5x faster than 802.11b	10x faster than 802.11b	10x faster than 802.11b	Wired speed over the air
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	Common household devices such as cordless phones and microwave ovens may interfere with the unlicensed band 2.4GHz
Compatibility	Compatible with 802.11g	Compatible with 802.11b/g	Compatible with 802.11b/g	Compatible with 802.11b/g	Compatible with draft 802.11n and 802.11b/g
Coverage	Typically 100–200 ft. indoors	Up to 400 ft.	Up to 700 ft.	Up to 1,000 ft.	Up to 1,400 ft.
Advantage	Mature—legacy technology	Common—widespread use for Internet sharing	Enhanced speed and coverage	Better coverage and consistent speed and range	Leading edge—best coverage and throughput

Technical-Support Information

Free Tech Support* *National call rates may apply **www.belkin.com**

You can find additional support information on our website **www.belkin.com** through the tech-support area. If you want to contact technical support by phone, please call the number you need from the list below*.

COUNTRY	NUMBER	INTERNET ADRESS
AUSTRIA	0820 200766	www.belkin.com/uk/networking/
BELGIUM	07 07 00 073	www.belkin.com/nl/networking/
CZECH REPUBLIC	239 000 406	www.belkin.com/uk/networking/
DENMARK	701 22 403	www.belkin.com/uk/networking/
FINLAND	097 25 19 123	www.belkin.com/uk/networking/
FRANCE	08 - 25 54 00 26	www.belkin.com/fr/networking/
GERMANY	0180 - 500 57 09	www.belkin.com/de/networking/
GREECE	00800 - 44 14 23 90	www.belkin.com/uk/networking/
HUNGARY	06 - 17 77 49 06	www.belkin.com/uk/networking/
ICELAND	800 8534	www.belkin.com/uk/networking/
IRELAND	0818 55 50 06	www.belkin.com/uk/networking/
ITALY	02 - 69 43 02 51	www.belkin.com/it/support/tech/issues_more.asp
LUXEMBOURG	34 20 80 85 60	www.belkin.com/uk/networking/
NETHERLANDS	0900 - 040 07 90 €0.10 per minute	www.belkin.com/nl/networking/
NORWAY	81 50 0287	www.belkin.com/uk/networking/
POLAND	00800 - 441 17 37	www.belkin.com/uk/networking/
PORTUGAL	707 200 676	www.belkin.com/uk/networking/
RUSSIA	495 580 9541	www.belkin.com/networking/
SOUTH AFRICA	0800 - 99 15 21	www.belkin.com/uk/networking/
SPAIN	902 - 02 43 66	www.belkin.com/es/support/tech/networkingsupport.asp
SWEDEN	07 - 71 40 04 53	www.belkin.com/se/support/tech/networkingsupport.asp
SWITZERLAND	08 - 48 00 02 19	www.belkin.com/uk/networking/
UNITED KINGDOM	0845 - 607 77 87	www.belkin.com/uk/networking/
OTHER COUNTRIES	+44 - 1933 35 20 00	

IP Address

The “IP address” is the internal IP address of the Router. To access the advanced setup 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 anything between 0 and 255)
10.x.x.x (where x is anything between 0 and 255)

Subnet Mask

Some networks are far too large to allow all traffic to flood all its parts. These networks must be broken down into smaller, more manageable sections, called subnets. The subnet mask is the network address plus the information reserved for identifying the “subnetwork”.

DNS

DNS is an acronym for Domain Name Server. A Domain Name Server is a server located on the Internet that translates URLs (Universal Resource Links) like www.belkin.com to IP addresses. Many ISPs do not require you to enter this information into the Router. 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.

PPPoE

Most ADSL providers use PPPoE as the connection type. If you use an ADSL modem to connect to the Internet, your ISP may use PPPoE to log you into the service.

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.
3. You have to double-click on a desktop icon other than your browser to get on the Internet.

To set the Router to use PPPoE, type in your user name and password in the spaces provided. After you have typed in your information, click “Apply Changes”.

After you apply the changes, the “Internet Status” indicator will read “connection OK” if your Router is set up properly.

PPPoA

Enter the PPPoA information in the provided spaces, and click “Next”. Click “Apply” to activate your settings.

1. User name - Enter the user name. (Assigned by your ISP).
2. Password - Enter your password. (Assigned by your ISP).
3. Retype Password - Confirm the password. (Assigned by your ISP).
4. VPI/VCI - Enter your Virtual Path Identifier (VPI) and Virtual Circuit Identifier(VCI) parameter here. (Assigned by your ISP).

Disconnect after X...

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.

Channel and SSID

To change the channel of operation of the Router, select the desired channel from the drop-down menu and select your channel. Click “Apply Changes” to save the setting. You can also change the SSID. The SSID is the equivalent to the wireless network’s name. You can make the SSID anything you want to. If there are other wireless networks in your area, you should give your wireless network a unique name. Click inside of the SSID box and type in a new name. Click “Apply Changes” to make the change.

ESSID Broadcast

Many wireless network adapters currently on the market possess a feature known as site survey. It scans the air for any available network and allows each computer to automatically select a network from the survey. This occurs if the computer’s SSID is set to “ANY”. Your Belkin Router can block this random search for a network. If you disable the “ESSID Broadcast” feature, the only way a computer can join your network is by its SSID being set to the specific name of the network (like WLAN). Be sure that you know your SSID (network name) before enabling this feature. It is possible to make your wireless network nearly invisible. By turning off the broadcast of the SSID, your network will not appear in a site survey. Obviously, turning off the broadcast feature of the SSID helps increase security.

Encryption

Setting encryption can help keep your network secure. The Router uses Wired Equivalent Privacy (WEP) encryption to protect your data and features two rates of encryption: 64-bit and 128-bit. Encryption works on a system of keys. The key on the computer must match the key on the Router, and there are two ways to make a key. The easiest is to let the Router's software convert a passphrase you've created into a key. The advanced method is to enter the keys manually.

Application Gateways

Application gateways let you specify specific ports to be open for specific applications to work properly with the Network Address Translation (NAT) feature of the Router. A list of popular applications has been included. You can select an application from the popular choices included in the drop-down list. Your selections will be programmed into the Router. From the drop-down list, select the row that you want to copy the settings from, and the row you want to copy to, and then click "Copy To". The settings will be transferred to the row you specified. Click "Apply Changes" to save the setting for that application. If your application is not here, you will need to check with the application vendor to determine which ports need to be configured. You can manually input this port information into the Router.

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. Since your internal computers are protected by a firewall, machines from the Internet cannot get to them because they cannot be "seen". If you need to configure the virtual server function for a specific application, you will need to contact the application vendor to find out which port settings you need.

To manually enter settings, enter the IP address in the space provided for the internal machine, the port type (TCP or UDP), and the LAN and public port(s) required to pass. Then select "Enable" and click "Set". 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.

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.

URL Blocking

To configure the URL-blocking feature, specify the websites (www.somesite.com) and/or keywords you want to filter on your network. Click “Apply Changes” to activate the change. To complete this configuration, you will need to create or modify an access rule in the client IP filters section. To modify an existing rule, click the “Edit” option next to the rule you want to modify. To create a new rule, click on the “Add PC” option. From the “Access Control Add PC” section, check the option for “WWW with URL Blocking” in the “Client PC Service” table to filter out the websites and keywords specified.

Schedule Rule

To configure the schedule rule, specify the name, comment, start time, and end time that you want to filter on your network. This page defines schedule rule names and activates the schedule for use in the “Access Control” page.

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 on your network to allow network access to each or copy the MAC address by selecting the name of the computer from the “DHCP Client List”. To enable this feature, select “Enable”. Next, click “Apply Changes” to save the settings.

DMZ

If you have a client PC that cannot run an Internet application properly from behind the firewall, you can open the client up to unrestricted two-way Internet access. 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 LAN IP address in the “Static IP” field and click “Apply Changes” for the change to take effect. If you have only one public (WAN) IP address, then you can leave the public IP to “0.0.0.0”. If you are using multiple public (WAN) IP addresses, it is possible to select which public (WAN) IP address the DMZ host will be directed to. Type in the public (WAN) IP address you wish the DMZ host to direct to, enter the last two digits of the IP address of the DMZ host computer, and click “Apply Changes”.

Administrator Password

The Router ships with NO password entered. If you wish to add a password for more security, you can set a password from your Router's web-based user interface. Keep your password in a safe place as you will need this password if you need to log into the Router in the future. It is STRONGLY RECOMMENDED that you set a password if you plan to use the remote management feature. The login time-out option allows you to set the period of time that you can be logged into the Router's advanced setup interface. The timer starts when there has been no activity. For example, you have made some changes in the advanced setup 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 advanced setup interface at a time.

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 time, then place a check mark in the box next to "Enable 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.

Remote Management

Before you enable this function, 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.

UPnP

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. 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 and in some instances setting trigger 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. The Router ships with the UPnP feature disabled. If you are using any applications that are UPnP-compliant, and wish to take advantage of the UPnP features, you can enable the UPnP feature. Simply select "Enable" in the "UPnP Enabling" section of the "Utilities" page. Click "Apply Changes" to save the change.

Appendix B: Important Factors for Placement and Setup

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 (or Access Point) Placement

Place your wireless router (or access point), the central connection point of your network, as close as possible to the center of your wireless network devices. To achieve the best wireless network coverage for your "wireless clients" (i.e., computers enabled by Belkin Wireless Notebook Network Cards, Wireless Desktop Network Cards, and Wireless USB Adapters):

- Ensure that your wireless router's (or access point's) networking antennas are parallel to each other, and are positioned vertically (toward the ceiling). If your wireless router (or access point) itself is positioned vertically, point the antennas a much as possible in an upward direction.
- In multistory homes, place the wireless router (or access point) on a floor that is as close to the center of the home as possible. This may mean placing the wireless router (or access point) on an upper floor.
- Try not to place the wireless router (or access point) near a cordless 2.4GHz phone.

2. Avoid Obstacles and Interference

Avoid placing your wireless router (or access point) near devices that may emit radio "noise," such as microwave ovens. 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 wireless router or access point).

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 wireless routers (or access points) 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 wireless router (or access point) to channel 11. See your phone's user manual for detailed instructions.

- If necessary, consider switching to a 900MHz or 5GHz cordless phone.

4. Choose the "Quietest" Channel for your Wireless Network

In locations where homes or offices are close together, such as apartment buildings or office complexes, there may be wireless networks nearby that can conflict with yours.

Use the Site Survey capabilities found in the Wireless LAN Utility of your wireless adapter to locate any other wireless networks that are available (see your wireless adapter's manual), and move your wireless router (or access point) and computers to a channel as far away from other networks as possible.

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

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

These guidelines should allow you to cover the maximum possible area with your wireless router (or access point). 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.

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,

F5D7632uk4A

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 radiated output power of this device is far below the FCC radio frequency exposure limits. Nevertheless, 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. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 20cm (8 inches) during normal operation.

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. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try and correct the interference by one or more of the following measures:

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

Modifications

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

Canada-Industry Canada (IC)

The wireless radio of this device complies with RSS 139 & RSS 210 Industry Canada. This Class B digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe B conforme á la norme NMB-003 du Canada.

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).

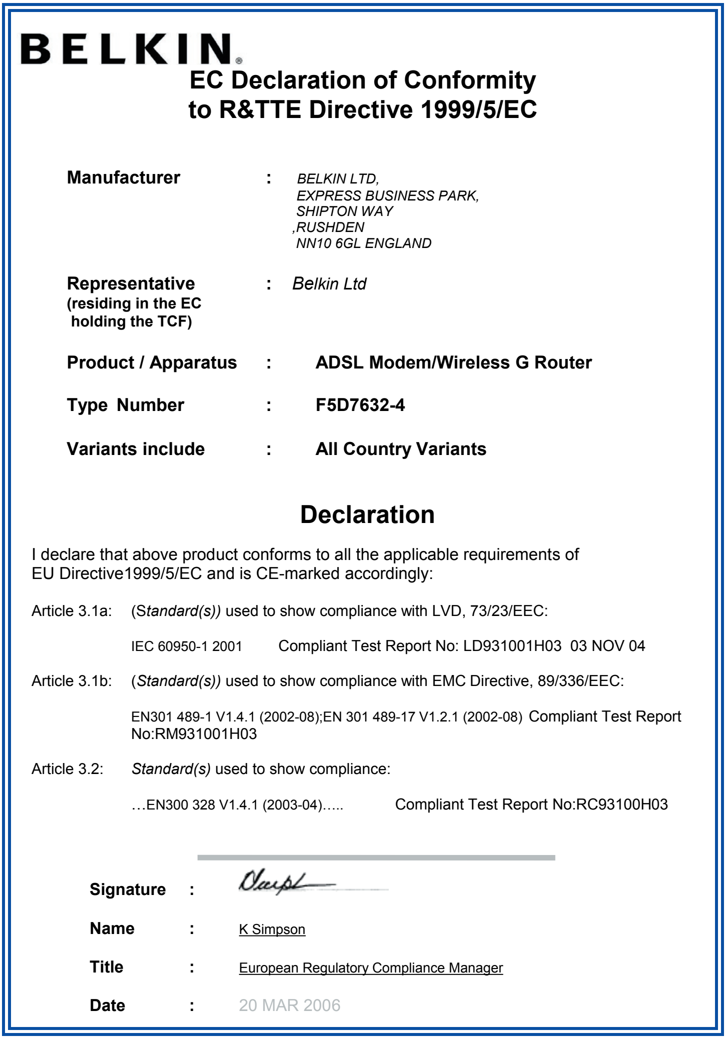
- EN 60950 (IEC60950) – Product Safety
- EN 300 328 Technical requirement for radio equipment
- ETS 300 826 General EMC requirements for radio equipment.

To determine the type of transmitter, check the identification label on your Belkin product.

Products with the CE marking comply with the EMC Directive (89/336/EEC) and the Low Voltage Directive (72/23/EEC) issued by the Commission of the European Community. Compliance with these directives implies conformity to the following European Norms (in brackets are the equivalent international standards).

- EN 55022 (CISPR 22) – Electromagnetic Interference
- EN 55024 (IEC61000-4-2,3,4,5,6,8,11) – Electromagnetic Immunity
- EN 61000-3-2 (IEC610000-3-2) – Power Line Harmonics
- EN 61000-3-3 (IEC610000) – Power Line Flicker
- EN 60950 (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

EC Declaration of Conformity
to R&TTE Directive 1999/5/EC

Manufacturer	**:**	*BELKIN LTD,* *EXPRESS BUSINESS PARK,* *SHIPTON WAY* *,RUSHDEN* *NN10 6GL ENGLAND*
Representative **(residing in the EC** **holding the TCF)**	**:**	*Belkin Ltd*
Product / Apparatus	**:**	**ADSL Modem/Wireless G Router**
Type Number	**:**	**F5D7632-4**
Variants include	**:**	**All Country Variants**

Declaration

I declare that above product conforms to all the applicable requirements of EU Directive1999/5/EC and is CE-marked accordingly:

Article 3.1a: (*Standard(s))* used to show compliance with LVD, 73/23/EEC:

IEC 60950-1 2001 Compliant Test Report No: LD931001H03 03 NOV 04

Article 3.1b: (*Standard(s))* used to show compliance with EMC Directive, 89/336/EEC:

EN301 489-1 V1.4.1 (2002-08);EN 301 489-17 V1.2.1 (2002-08) Compliant Test Report No:RM931001H03

Article 3.2: *Standard(s)* used to show compliance:

…EN300 328 V1.4.1 (2003-04)….. Compliant Test Report No:RC93100H03

Signature	**:**	
Name	**:**	K Simpson
Title	**:**	European Regulatory Compliance Manager
Date	**:**	20 MAR 2006

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Belkin International, Inc., Limited Lifetime Product Warranty

What this warranty covers.

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

What the period of coverage is.

Belkin International, Inc., warrants the Belkin product for the lifetime of the product.

What will we do to correct problems?

Product Warranty.
Belkin will repair or replace, at its option, any defective product free of charge (except for shipping charges for the product).

What is not covered by this warranty?

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

How to get service.

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

1. Contact Belkin International, Inc., at 501 W. Walnut St., Compton CA 90220, Attn: Customer Service, or call (800)-223-5546, within 15 days of the Occurrence. Be prepared to provide the following information:

a. The part number of the Belkin product.
b. Where you purchased the product.
c. When you purchased the product.
d. Copy of original receipt.

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

Belkin International, Inc., reserves the right to review the damaged Belkin product. All costs of shipping the Belkin product to Belkin International, Inc., for inspection shall be borne solely by the purchaser. If Belkin determines, in its sole discretion, that it is impractical to ship the damaged equipment to Belkin

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

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

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

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

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

For information on product disposal please refer to
http://environmental.belkin.com

FOR USE IN AT BE CY CZ DK EE FI FR DE GR HU IE
IT LV LT LU MT NL PL PT SK SI ES SE GB IS LI
NO CH BG RO TR **OPERATES ON CHANNELS 1-13**

Restricted Use in Certain Countries......................................**Class 2 Equipment**

BELKIN®

ADSL2+ Modem with Wireless G Router

BELKIN®

www.belkin.com

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