BELKIN®

ADSL Modem with Wireless G Router

Designed to Meet ADSL2+ Specification

Share

Network your computers and share your ADSL Internet access

802.11g

54 Mbps

2.4GHz • Wireless

User Manual

F5D7632uk4v3000

Table of Contents

1 Introduction 3
- Product Features 3
- Benefits of a Home Network 5
- Advantages of a Belkin Wireless Network. 5

2 Make Sure You Have the Following 6
- Package Contents 6
- System Requirements 6
- Internet Connection Settings 6

3 Knowing your Router 5

4 Connecting your Router 10
- Positioning your Router 10
- Connecting your Computers 10
- Connecting your ADSL Line. 11
- Powering up your Router 12
- Running the Setup Wizard 13

5 Manually Configuring Your Router 17
- Understanding the Web-Based User Interface 17
- Changing LAN Settings 19
- DHCP Client List. 21
- Internet WAN. 21
- Wireless 28
- Firewall 48
- Utilities 57

6 Setting up your Computers 69
- Manually Configuring Network Adapters. 69
- Recommended Web Browser Settings 76

7 Troubleshooting 78

8 Technical Support Information. 92

9 Appendixes 93
- Appendix A: Glossary 93
- Appendix B: Important Factors for Placement and Setup . . . 98
- Appendix C: Internet Connection Setting Table 102

10 Information 104

Thank you for purchasing the Belkin ADSL 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, and XP, 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 Easy Installation 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

- ADSL Modem with Wireless G Router
- RJ11 Telephone Cord - Gray
- RJ45 Ethernet Networking Cable — Yellow
- USB 1.0 Cable — Blue
- ADSL Microfilter*
- Power Adapter
- User Manual CD

  *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

Internet Connection Settings

Please collect the following information from your Internet Service Provider (ISP) before setting up the ADSL Modem Wireless G 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)

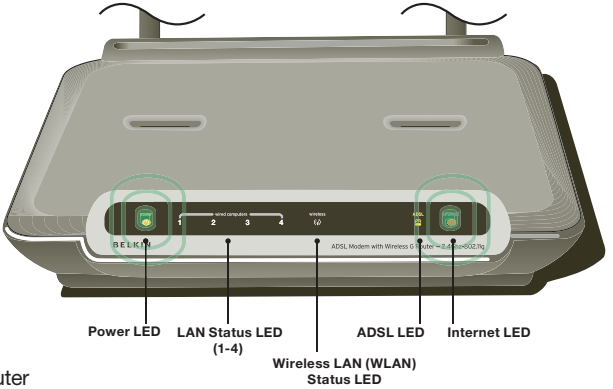
Note: See Appendix C in this User Manual for some common DSL Internet setting parameters. If you are not sure, please contact your ISP.

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 illustration shows the front panel of the Router:



1. Power LED

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

Power ⏻	**OFF**	Power off
	Green	Power on
	Red	Router failed to start

2. LAN Status LEDs

These LAN Status LEDs are labeled 1–4 and correspond to the numbered ports on the rear of the Router. When a computer is properly connected to one of the LAN ports on the rear of the Router, the LED will light. Solid GREEN means a computer or a network-enabled device is connected. When information is being sent over the port, the LED blinks rapidly. ORANGE indicates a 10Base-T connection.

LAN 1– 4	**OFF**	No device is connected
	Orange	Ethernet link is up and 10Base-T device connected
	Orange blinking	When 10Base-T device transmitting or receiving data
	Green	Ethernet link is up and 100Base-T connected
	Green blinking	When 100Base-T device transmitting or receiving data

3. WLAN Status LED

The WLAN Status LED is solid GREEN when you enable the wireless LAN function. It flashes when the Router is transmitting or receiving data wirelessly.

WLAN	**OFF**	WLAN is off
	Green	WLAN is up and connected
	Green blinking	When transmitting or receiving data

4. ADSL LED

The ADSL LED flashes GREEN during negotiation with your ISP. It stays GREEN when the Router is connected properly to your ADSL service.

ADSL	**OFF**	No ADSL connection
	Green blinking	Negotiating connection
	Green	ADSL link is up and connected

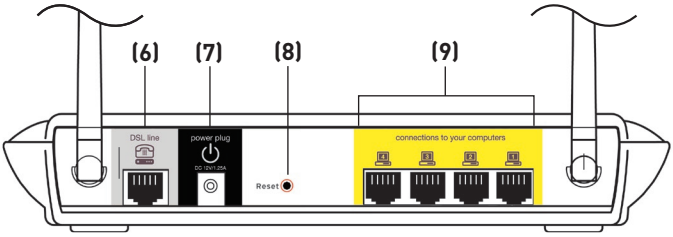
5. Internet LED

The Internet LED shows you when the Router is connected to the Internet. When the LED is OFF, the Router is NOT connected to the Internet. When the LED is solid GREEN, the Router is connected to the Internet. When the LED is blinking, the Router is transmitting or receiving data from the Internet.

Internet	**OFF**	No Internet connection
	Green	Connected to the Internet
	Green blinking	When transmitting or receiving data
	Red	Failed to get IP

Back Panel

The following figure illustrates the rear panel of your Router.



6. DSL Line

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

7. Power Plug

Connect the included 15V DC power supply to this inlet. Using the wrong type of power adapter may cause damage to your Router.

8. 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 five seconds then release it. When the Power/Ready light becomes solid again, the restore is complete.

9. 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.

Positioning your Router

Your wireless connection will be stronger the closer your computer is to your Router. Typical indoor operating range for your wireless devices is between 100 and 200 feet. In the same way, your wireless connection and performance will degrade somewhat as the distance between your Router connected devices increases. This may or may not be noticeable to you. As you move farther from your Router, connection speed may decrease. Factors that can weaken signals simply by getting in the way of your network's radio waves are metal appliances, or obstructions, and walls. Please see "Appendix B: Important Factors for Placement and Setup" in this User Manual for more guidelines.

If you have concerns about your network's performance that might be related to range or obstruction factors, try moving the computer to a position between five and 10 feet from the Router, in order to see if distance is the problem. If difficulties persist even at close range, please see the Troubleshooting section for solutions.

Connecting your Computers

1. Power off your computers and networking equipment.
2. Connect your computer to one of the YELLOW RJ45 ports on the rear of the Router labeled "connections to your computers" by using an Ethernet networking cable (one Ethernet network cable is supplied).

Connecting your ADSL Line

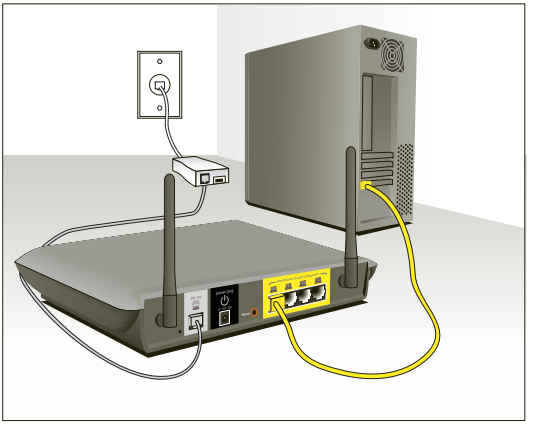
Connection for the Router to the ADSL line varies by country and region. Typically it involves a microfilter or a microfilter with built-in splitter to allow simultaneous use of ADSL service and telephone service on the same telephone line. Please read the following steps carefully and select appropriate method.

1. If your telephone service and ADSL service are on the same telephone line, ADSL microfilters are needed for each telephone and device, such as answering machine, fax machine, and caller ID display. Additional splitters may be used to separate telephone lines for telephone and the Router.

   Note: Do not connect the ADSL microfilter between the walljack and the router. This will prevent ADSL service from reaching the modem.

2. If your telephone service and ADSL service are on the same telephone line and you are using an ADSL microfilter with built-in splitter, connect the splitter to the telephone wall jack providing ADSL service. Then, connect the telephone cord from the ADSL microfilter RJ11 port generally labeled “DSL” to the gray RJ11 port labeled “DSL line” on the back of your Router. Connect telephony device to the other port on the ADSL splitter commonly labeled “Phone”. An additional ADSL microfilter is needed for another telephone and device on the same line.

   Note: One RJ11 telephone cord is supplied. When inserting an RJ11 plug, be sure the tab on the plug clicks into position to ensure that it is properly seated.



3. If you have a dedicated ADSL service telephone line with an RJ11 wall jack, simply connect a telephone cord from the wall jack to the gray RJ11 port labeled “DSL line” on the back of your Router.

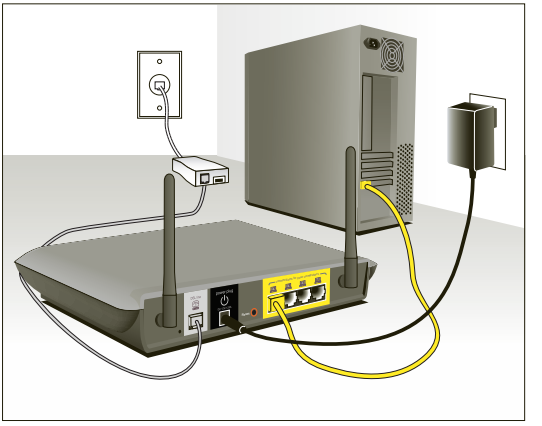
4. If you have an RJ45 wall jack for your ADSL service, connect an RJ45-to-RJ11 converter to the wall jack. Then connect one end of a telephone cord to the converter and the other end to the gray RJ11 port labeled “DSL line” on the back of your Router.

   Note: ADSL microfilter may or may not be provided depending on your country.

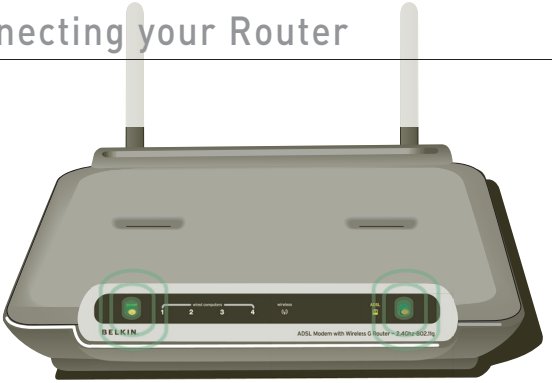
Powering up your Router

1. Connect the supplied power adapter to the Router power-input plug labeled “Power”.

   Note: For safety and performance reasons, only use the supplied power adapter to prevent damage to the Router.



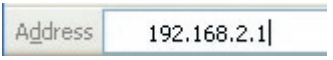
2. After connecting the power adapter and the power source is turned on, the Router’s power icon ⏻ on the front panel should be on. It might take a few minutes for the Router to fully start up.



3. Turn on your computers. After your computers boot up, the LAN status LED on the front of the Router will be on for each port to which a wired computer is connected. These lights show you the connection and activity status. Now you are ready to configure the Router for ADSL connection.

Running the Setup Wizard

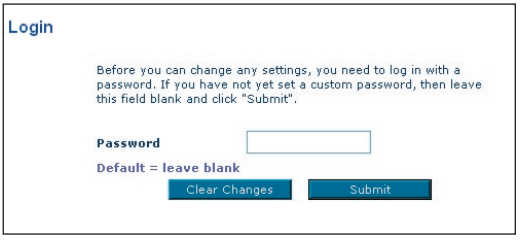
1. You can access the web-based management user interface of the Router using the Internet browser on a computer connected to the Router. Type “192.168.2.1” (do not type in anything else such as “http://” or “www”) in your browser’s address bar. Then press the “Enter” key.



Note: It is strongly recommended that you use a computer physically connected to the Router with an RJ45 cable for initial setup. Using a wirelessly connected computer for initial setup is not recommended.

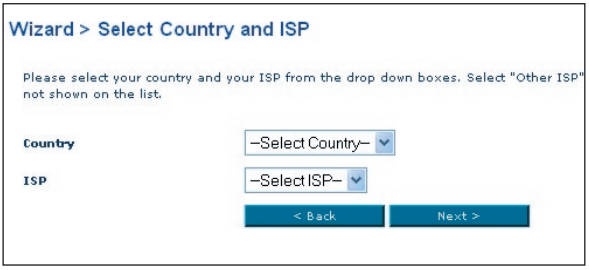
2. The following screen will appear in your browser to prompt you to login. The Router shi ps with no password entered. In the login screen, leave the password blank and click the “Submit” button to log in.

Note: It is strongly recommended that you change the password to your own, for increased security. Please read the following section entitled “**Manually configuring your Router**”, for details on how to change your password and to reference other security features.



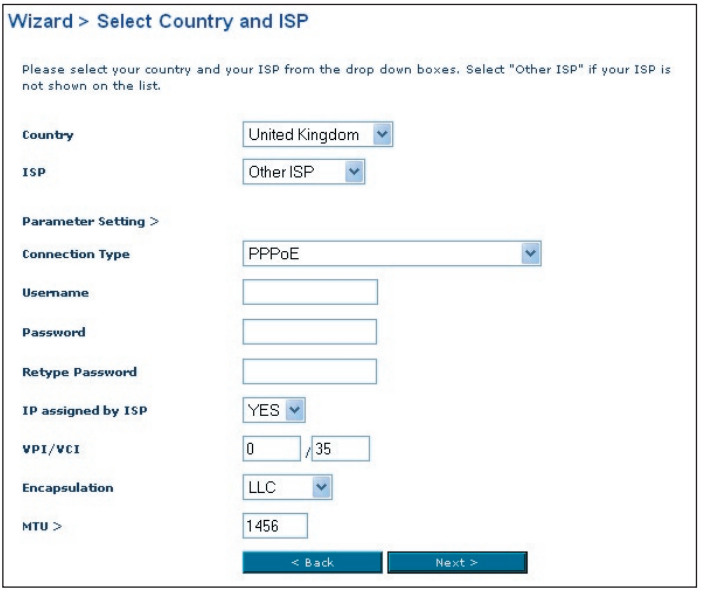
3. The Setup Wizard will start automatically for express configuration (recommended) Click “Next” to continue.

4. The first step is to select your country and ISP, and click “Next”. If your country and/or ISP is not listed, select “Other Country” or “Other ISP.”



5. Then select your connection type, PPPoE, PPPoA, or other types. For the “PPPoE” or “PPPoA” you will see the following screen (opposite page). Enter the required values provided by your ISP and click “Next”.

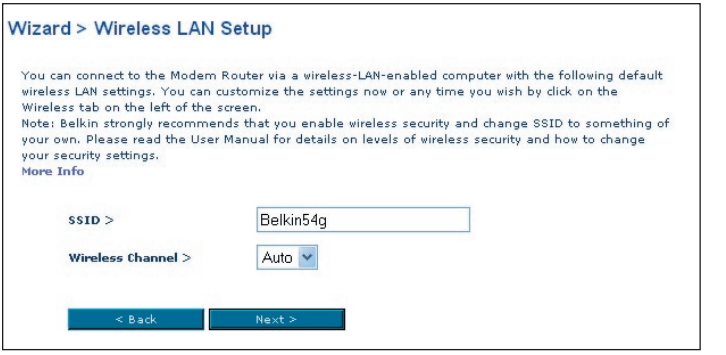
Note: For more detailed instruction on other connection types, please refer to the “Manually Configuring your Router” section of this User Manual.



6. Now the Wireless LAN Setup screen will show. You can connect to the Router via a wireless-LAN-enabled computer with the following default wireless LAN settings:

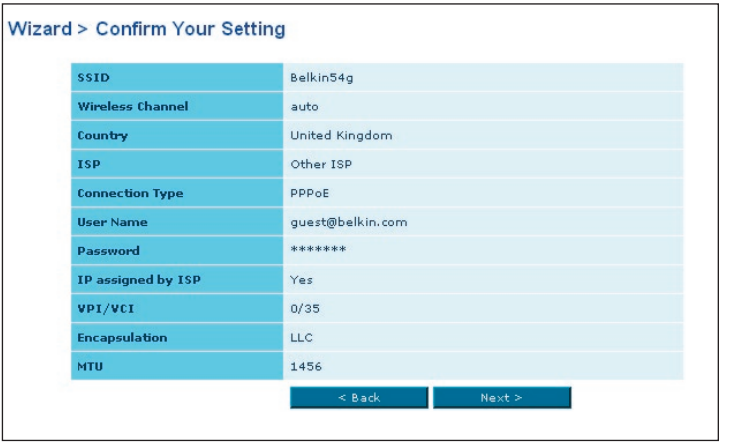
SSID = Belkin54g **Wireless Channel = Auto** **Security = off**

Note: Belkin strongly recommends that you enable wireless security to WEP or WPA and change SSID to something of your own. Please read the User Manual for details on levels of wireless security and how to change your security settings



7. Double-check the settings shown on the following screen. You can click “Back” to change the settings or click “Next” to confirm

Note: You can always restart the Setup Wizard or use the Navigation Menu on the left to change your setting.

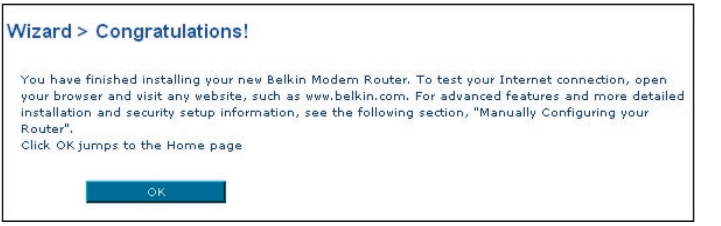


Wizard > Confirm Your Setting

SSID	Belkin54g
Wireless Channel	auto
Country	United Kingdom
ISP	Other ISP
Connection Type	PPPoE
User Name	guest@belkin.com
Password	*******
IP assigned by ISP	Yes
VPI/VCI	0/35
Encapsulation	LLC
MTU	1456

< Back Next >

8. Congratulations! You have finished installing your new Belkin Router. Click “OK” to activate your settings. To test your Internet connection, open your browser and visit any website, such as **www.belkin.com**. For advanced features and more detailed installation and security setup information, see the following section, **“Manually Configuring your Router”**.



Wizard > Congratulations!

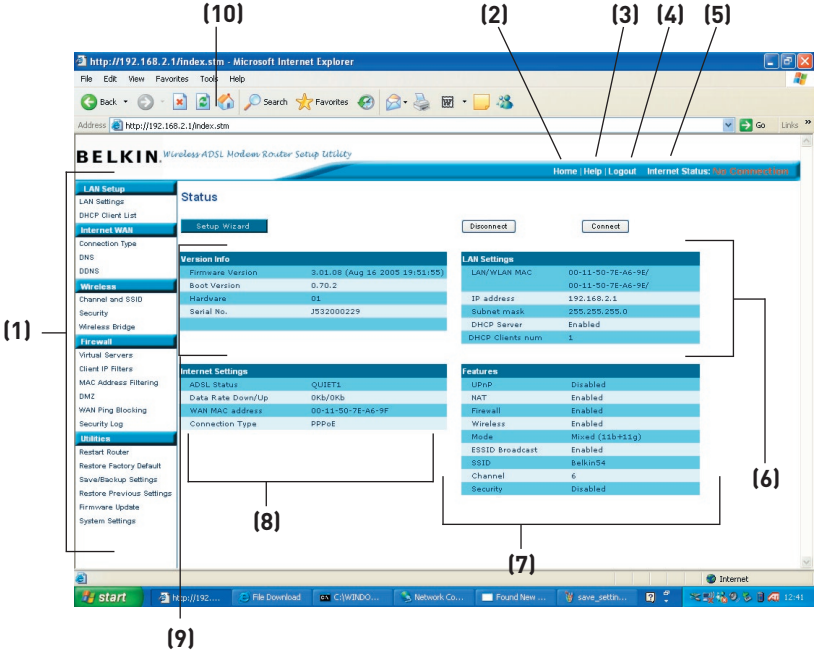
You have finished installing your new Belkin Modem Router. To test your Internet connection, open your browser and visit any website, such as www.belkin.com. For advanced features and more detailed installation and security setup information, see the following section, "Manually Configuring your Router".
Click OK jumps to the Home page

OK

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.

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 UPnP, NAT, and firewall 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

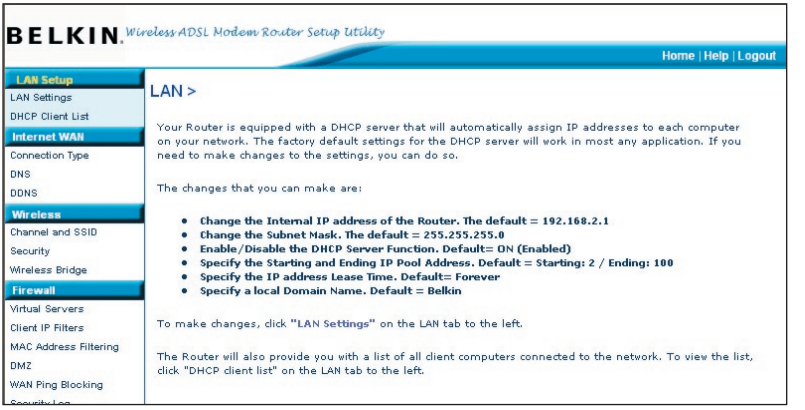
The page you are on can be identified by this name. This manual will sometimes refer to pages by name. For instance, “LAN > LAN Settings” refers to the “LAN Settings” page.

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).



1. IP Address

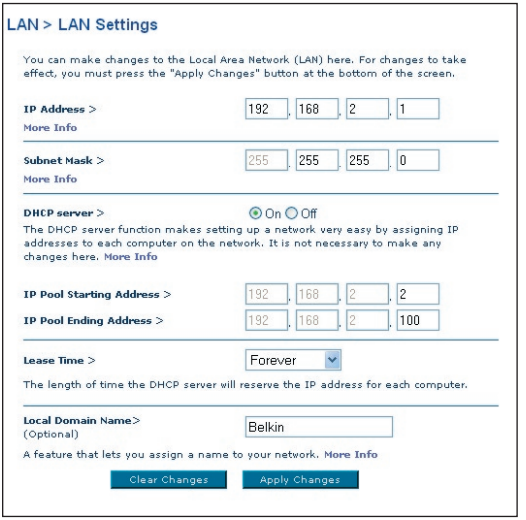
The "IP address" is the internal IP address of the Router. The default IP address is "192.168.2.1". To access the setup interface, type this IP address into the address bar of your browser. This address can be changed if needed. To change the IP address, type in the new IP address and click "Apply Changes". 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)

2. Subnet Mask

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



3. DHCP Server

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

4. IP Pool

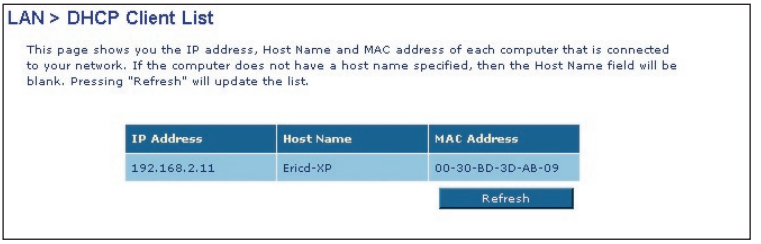
The IP Pool is the range of IP addresses set aside for dynamic assignment to the computers on your network. The default is 2–100 (99 computers). If you want to change this number, you can do so by entering a new starting and ending IP address and clicking on “Apply Changes”. The DHCP server can assign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

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

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

DHCP Client List

You can view a list of the computers (known as clients), which are connected to your network. You are able to view the IP address (1) of the computer, the host name (2) (if the computer has been assigned one), and the MAC address (3) of the computer’s Network Interface Card (NIC). Pressing the “Refresh” (4) button will update the list. If there have been any changes, the list will be updated.

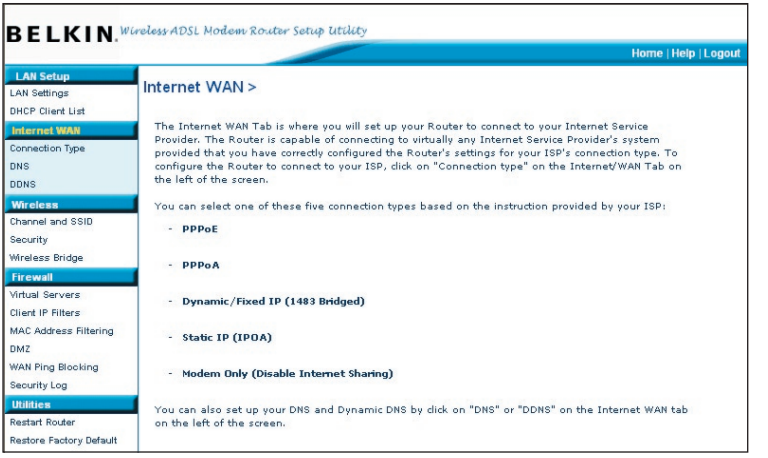


Internet WAN

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 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.



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

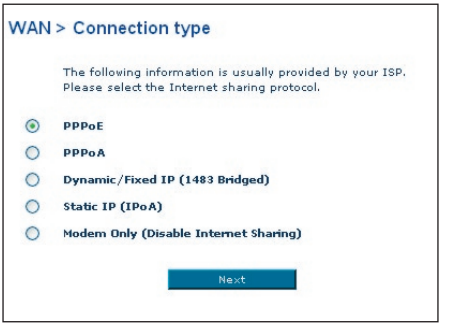
Dynamic IP (1483 Bridged)

Static IP (IPoA)

Modem Only (Disable Internet Sharing)

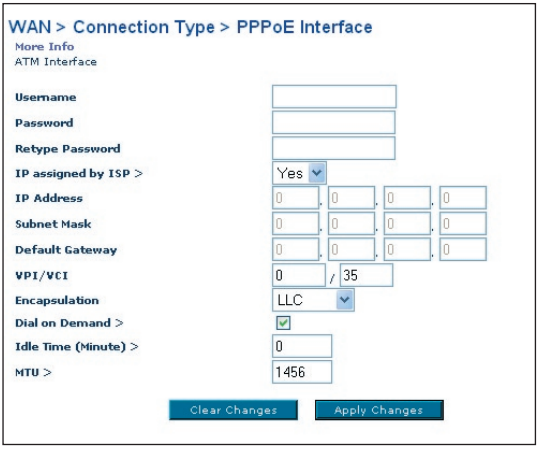
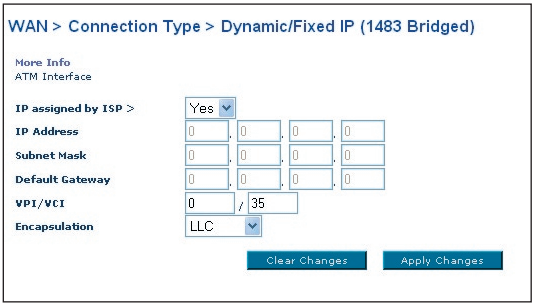
Note: See Appendix C in this User Manual for some common DSL Internet setting parameters. If you are not sure, please contact your ISP.

Select the type of connection you use by clicking the radio button (1) next to your connection type and then clicking “Next”.



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.



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 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 you 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.