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

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

#### Cloning your MAC Address

To clone your MAC address, make sure that you are using the computer that was ORIGINALLY CONNECTED to your modem before the Router was installed. Click the "Clone" button **(1)**. Click "Apply Changes" **(3)**. Your MAC address is now cloned to the Router.

### **Entering a Specific MAC Address**

In certain circumstances you may need a specific WAN MAC address. You can manually enter one in the "MAC Address" page. Type in a MAC address in the spaces provided **(2)** and click "Apply Changes" **(3)** to save the changes. The Router's WAN MAC address will now be changed to the MAC address you specified.

BELKIN	Router Sehap Hose/Holp/Legont Internet States: Connected
LAN Setup LAN Settings	WAN > MAC address
DHOP Client List Inferret WAN Connection Type DVS	Some TDPs require that you draw (oury) the MAC address of your compander's retronk over into the Booker. If you are than them them the them the the MAC address of the compander that was singleally connected to the modem before installing the Roter. Cleang your MAC address will not cause any problems with your mether. Netre: Table
MAC ADDress Wireless	Wan Mac Address > 00 90 48 22 13 14 (2)
	Clane Computer's NAC Address > Clane
Firewall Virtual Servera Client IP Filtera	Clear Changes Apply Changes
	(3)
Security Log Utilities Restart Router	

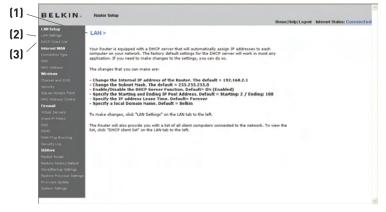
Using your Internet browser, you can access the Router's Web-Based Advanced User Interface. In your browser, type "192.168.2.1" (do not type in anything else such as "http://" or "www") then press the "Enter" key.

Address 192.168.2.1
---------------------

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

### Viewing the LAN Settings

Clicking on the header of the LAN tab **(1)** 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" **(2)** or to view the list of connected computers, click on "DHCP client list" **(3)**.



### **Changing LAN Settings**

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

LKIN	Router Setup	Home/Help/Legout Internet Status; Connected
tup nos	LAN > LAN Settings	
ent List I WAN	You can make changes to the Local Area Network (LAN) here. For changes to t must press the "Apply Changes" button at the bottom of the screen.	ake effect, you [1]
Pess	IP Address > 192 . 168 . 2 . 1	(2)
and SSID	Subnet Nask > [255], [255], [0	
ocess Point Fess Control	DHCP server > On O Off The DHCP server function makes setting up a network very easy by assigning each computer on the network. It is not necessary to make any changes here.	IP addresses to [3]
ervers Filters	IP Pool Starting         192         168         2         2           IP Pool Starting         192         168         2         100	[4]
a Blocking Ling	Address > 192 188 2 100	(5)
louter	The length of time the DHCP server will reserve the IP address for each compo	iter.
Factory Default okup: Settings	Local Domain Name > Belkin	(6)
Previous Settings e Update	A feature that lets you assign a name to your network. More Info	
lettings	Clear Changes Apply Changes	

### 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 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)

### 2. Subnet Mask

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

### 3. DHCP Server

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

### 4. IP Pool

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

### 5. Lease Time

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

### 6. Local Domain Name

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

### Viewing the DHCP Client List Page

You can view a list of the computers (known as clients), which are connected to your network. You are able to view the IP address **(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.

BELKIN	Router Setup					
					Home   Help   Logout	Internet Status: Connected
LAN Setup	LAN > DHCP C	lien List	(2)	(3)		
INCP Client List		1				
nternet WAN	This page shows yo	u the IP addres	s, Host Name and M	MC address of each computer that	6	
connection Type	connected to your n Name field will be b	etwork. If the i	computer does not it	have a host name specified, then the	h Host	
DNS .	Name held will be b	iana. Pressing	kerresh. will updab	e the list.		
MC Address		1				
Vireless		IP Address	Host Name	MAC Address		
harvel and \$510	100	168.2.2	IBM T42	00.11/25/43/85/09		
lecurity	102	.100.2.2	IDM_142		(4)	
Ise as Access Point				Refresh	[4]	
AAC Address Control						
irewall						
Irbusi Servera						
Siant IP Filters						
XMZ XCNS						
INN Ping Blocking						
lecurity Log						
tities.						
lestart Router						
lestore Factory Default						
ave/Daokup Settings						
leatore Previous Settings						
irmware Update						
System Settings						

### **Configuring the Wireless Network Settings**

The "Wireless" tab lets you make changes to the wireless network settings. From this tab you can make changes to the wireless network name or Service Set Identifier (SSID), operating channel, encryption security settings, and configure the Router to be used as an access point.

### Changing the Wireless Network Name (SSID)

To identify your wireless network, a name called the SSID is used. The SSID is your network name. The default network name of the Router is "Belkin N1 Wireless" followed by six digits that are unique to your Router. Your network name will look something like "Belkin\_N1\_Wireless\_123456". You can change this to anything you choose, or you can leave it unchanged. Keep in mind, if you decide to change your wireless network name, and there are other wireless networks operating in your area, your network name needs to be different from other wireless networks that may be operating in your area. To change the SSID, type in the SSID that you want to use in the SSID field **(1)** and click "Apply Changes" **(2)**. 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.

BELKIN	Router Setup Home Help Logout Internet Status: Conn	nected
LAN Setup Lan Betrags OxfP Closef Last Internet WAH Connection Type OXF MAC Address Wirelease Connect and OSID Beoutly Use suit Address Point MAC Address Control	Wireless > Channel and SSID To make changes to the wireless settings of the router, make the changes here. Click 74pp/ Changer's to sport the settings. There Enfo Wireless Channel > 6 SSID > Bedin, HWireless, 12346 Wireless Node > 8021168921110 Nore Enfo Bandwidth > 20440hft W Breadcast SSIS > Insee Enfo Protected Node > 0	
Freewoll Visitual Bervare Chart IP Filters DATE DATE DATE MAILTON BENDING WAILTON BENDING WAILTON Bechart Inder Bestarte Provisions Statings Armoure Upstate System Settings	Citer Changes Apply Changes [2]	

**Note:** Please periodically check for new Router firmware updates from the "Utilities > Firmware update" page. Newer firmware can fix problems, add wireless features, and/or improve wireless performance (see page 66).

### **Changing the Wireless Channel**

There are a number of operating channels from which you can choose—in the United States, there are 11 and in the United Kingdom (and most of Europe), there are 13. In a small number of other countries, there are other channel requirements. Your Router is configured to operate on the proper channels for the country in which you reside. 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.

### Using the Wireless Mode Switch

This switch allows you to set the Router's wireless modes. There are several modes.

Note: Some modes may require firmware updates to be enabled.

1) 802.11b+g+n

Setting the Router to this mode will allow 802.11b-, 802.11g-, and 802.11n-compliant devices to join the network.

2) Off

This mode will turn OFF the Router's access point, so no wireless devices can join the network. Turning off the wireless function of your Router is a great way to secure your network when you are away from home for a long period of time, or don't want to use the wireless feature of the Router at a certain time.

# Using the Web-Based Advanced User Interface

BELKIN	Router Setup		Home Help Logout Internet Status: Connected
LAN Setup Luh Setup Solid Duer Luk Solid Duer Luk Solid Duer Luk Mich Advers Soundh Under Advers Soundh Under Advers Solid Frewal Kan Annes Solid Frewal Solid Sol	"Apply Changes" to see Wireless Channel > SSID > Wireless Mode > Bandwidth > Broadcast SSID > Protected Mode >	D mireless sating of the rooter, make the changes here. the settings. Nove Info  Bekin Jul Wieless, 12456 Bekin Jul Wieles, 12456 Bekin Info 2040Mrit W More Info On W Nove Info ear Changes Apply Changes	

### Using the Bandwidth Switch

This switch allows you to set the Router's wireless bandwidth modes. There are several modes available:

#### 1) 20MHz only

Setting the Router to this mode allows only 20MHz operation. This mode is compatible with N1, draft 802.11n-, 802.11g-, and 802.11b-compliant devices, but will limit N1, draft 802.11n-compliant devices' bandwidth by half. Reducing bandwidth to 20MHz-only operation might solve some wireless problems.

#### 2) 40MHz only

Setting the Router to this mode allows only 40MHz operation. This mode is compatible only with N1, draft 802.11n-compliant devices. It may affect legacy 802.11b/g devices. Use only when you have a pure N1, draft 802.11n wireless network.

#### 3) 20MHz/40MHz Auto

Setting the Router to this mode allows it to switch automatically between 20MHz and 40MHz operation. This mode enables 40MHz operation, to maximize speed for N1, draft 802.11n-compliant devices when conditions permit. When a legacy 802.11g access point is presented and occupies an adjacent secondary channel, the Router automatically reverts to 20MHz operation to maximize compatibility. We recommend using this as the default mode.

### Using the Broadcast SSID Feature

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

### **Protected Mode Switch**

Protected mode ensures proper operation of N1, draft 802.11n-compliant devices on your wireless network when 802.11g or 802.11b devices are present or when there is heavy 802.11g or 802.11b traffic in the operating environment. Use protected mode if your network consists of a mix of Belkin N1 Wireless Cards and 802.11g or 802.11b cards on your network. If you are in an environment that includes little to no 802.11g or 802.11b wireless performance with protected mode OFF. Conversely, in an environment with HEAVY 802.11g or 802.11b traffic or interference, you will achieve the best N1 wireless performance with protected mode ON. This will ensure N1 wireless performance is not affected.

### **Changing the Wireless Security Settings**

Your Router is equipped with the latest security standard called Wi-Fi Protected Access 2 (WPA2). It also supports the legacy security standard called Wired Equivalent Privacy (WEP). By default, wireless security is disabled. To enable security, you will need to determine which standard you want to use. To access the security settings, click "Security" on the "Wireless" tab.

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

# WPA2 Requirements

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

For Windows XP computers that do 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://support.microsoft.com/?kbid=826942

For Windows XP with Service Pack 2, Microsoft has released a free download to update the wireless client components to support WPA2 (KB893357). The update is available from: http:// support.microsoft.com/default.aspx?scid=kb;en-us;893357

**IMPORTANT:** You also need to ensure that all your wireless client cards/adapters support WPA2, and that you have downloaded and installed the latest driver. Most of the Belkin wireless cards have driver updates available for download from the Belkin support site: www.belkin.com/networking.

### Setting WPA/WPA2-Personal (PSK)

Like WPA security, WPA2 is available in both WPA2-Personal (PSK) mode and WPA2-Enterprise (RADIUS) mode. Typically, WPA2-Personal (PSK) is the mode that will be used in a home environment, while WPA2-Enterprise (RADIUS) is implemented in a business environment where an external radius server distributes the network key to the clients automatically. This guide will focus on WPA2-Personal (PSK) usage. Please refer to the User Manual for more information about wireless security and different types of wireless security.

- After you've set up your Router, go to the "Security" page under "Wireless" and select "WPA/WPA2-Personal (PSK)" from the "Security Mode" drop-down menu.
- For "Authentication", select "WPA-PSK", "WPA2-PSK", or "WPA-PSK + WPA2-PSK". This setting will have to be identical on the wireless clients that you set up. "WPA-PSK + WPA2-PSK" mode will allow the Router to support clients running either WPA or WPA2 security.
- **3.** "Encryption Technique", select "TKIP", "AES", or "TKIP+AES". This setting will have to be identical on the wireless clients that you set up.
- 4. Enter your pre-shared key (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 wireless clients that you set up. For example, your PSK might be something like: "Smith family network key". Click "Apply Changes" to finish. You must now set all wireless clients to match these settings.

		Home/Help/Logout Internet Status: Connect
LAN Setup LAN Settings DHCP Clark List	Wireless > Security	
Internet WAN Connection Type	Security Node	WPA-PSK(no server)
	Authentication	WPA-PSK + WPA2-PSK 💌
NC Address Areless	Encryption Technique	TKIP + AES V Default is TKIP
Channel and SSID Security Use as Access Point MAC Adcess Control Firewall Virtual Servars Chart IP Fitters DMZ	Pre-shared Key (PSK)	TSP More Additional A
	Obscure PSK	Clear Changes Apply Changes
<b>Hilties</b> Natart Router		
leatore Previous Settings		

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

# Setting WPA Security

**Note:** To use WPA security, your wireless network cards must be equipped with software that supports WPA. At the time this User Manual was published, a security patch from Microsoft is available for free download. This patch works only with Windows XP.

Your Router supports WPA-PSK (no server). WPA-PSK uses what is known as a pre-shared key as the security key. A pre-shared key is basically a password that is between eight and 39 characters long. It can be a combination of letters, numbers, or characters. Each client uses the same key to access the network. Typically this is the mode that will be used in a home environment.

### Setting WPA-PSK

- 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. This can be from eight to 39 characters and can be letters, numbers, or symbols. This same key must be used on all of the clients that you set up.
- **4.** Click "Apply Changes" to finish. You must now set all clients to match these settings.

BELKIN	Router Setup	Home  Help  Logout	Internet Status: No Connection
LAN Setup LAN Setup Convertiget Internet WAN Convertiget MAC Address Concret and SISD Concert Mac Address Part MAC Address Control Freest Victual Servers	Wireless > Security Security Hode Authentication Encryption Technique Pre-shared Key (PSK)	WPA-PSK(to served) WPA-PSK WPA-PSK WPA-PSK WPA-PSK (no server) WPA-PSK (no server) WPA-PSK (no server) work and a non-phased top; The key is a passessed, in the form of a word, phase or servers of latter; and numbers. The key must be between B and 63 charathers long and an numbers. The key must be between B and 63 charathers in a passessed.	
Cleard IP Filters DAZ DAS DAS Security Log URAINE Restore Factory Default Security Coder Restore Factory Default Security Endog Restore Factory Default Factore Factory Default	Obscure PSK	Hore Info Clear Changes Apply Changes	
Firemere Update System Settings			

# Setting WEP Encryption

**Note to Mac users:** The "Passphrase" option will not operate with Apple<sup>®</sup> AirPort<sup>®</sup>. To configure encryption for your Mac computer, set the encryption using the manual method described in the next section.

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

BELKIN	Router Setup	Home/Help/Logost Internet Status: Connected
LAN Setup LAN Setups	Wireless > Security	
DHCP Client Ust Internet WAN Connection Type	Security Node	128bitWEP V Nore Info
DNS MAC Address		
Wireless Channel and SSID		
Security Use as Access Point		, (13 hex digit pairs)
MAC Address Control		
Virtual Servers Client IP Filters	N	OTE: To automatically generate hex pairs using a PassPhrase, check the box on the left and input the passphrase here
DMZ	PassPhrase	generate
DONS WAN Ping Blocking		Clear Changes Apply Changes
Security Log Utilities		and analysis address
Restart Router Restore Factory Default		
Save/Backup Settings		
Restore Previous Settings Firmmare Update		
System Settings		

**3.** Encryption in the Router is now set. Each of your computers on your wireless network will now need to be configured with the same passphrase. Refer to the documentation of your wireless network adapter for information on making this change.

### Using a Hexadecimal Key

A hexadecimal key is a mixture of numbers and letters from A–F and 0–9. 64-bit keys are 10 digits long and can be divided into five two-digit numbers. 128-bit keys are 26 digits long and can be divided into 13 two-digit numbers.

For instance:

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

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

Example:	AF	1F 48	8 63	D4	1				
64-bit:									
128-bit:									

**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.

### Using the Access Point Mode

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

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

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

BELKIN	Router Setup	Home   Help   Logout	Internet Status: Connected
LAN Setup	Wireless > Use as Access Point		
Internet WAN	ADVANCED FEATURES The Router can be configured to act as strictly an Access Point,		
Connection Type	bypassing all of the routing and firewall functions. To do so, select "Enable" and type in the IP		
	address you want the Access Point to have.		
	Hore Into		
Wireless	143		
	Enable / Disable		
	Clear Changes Apply Changes		
	Ciear Changes Apply Changes		
firemal			
	(2)		
	(=)		
Security Log			
Restart Router			
Restore Previous Settings			

### Setting MAC Address Control

The MAC address filter is a powerful security feature that allows you to specify which computers are allowed on the wireless network. **Note:** This list applies only to wireless computers. This list can be configured so any computer attempting to access the wireless 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) to which you want to allow network access. 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.

BELKIN	Router Selap Honey Holp Layout Internet Status: Connected
LAN Setup LAN Settings	WAN > MAC address
DHCP Client List Informet WAN Connection Type DNS	Some ISP register the space decay if the MLC address of space empeddent restriction care into the Monte, If via as an use them empty class the MLC address in the MLC address are singleting connected to the modern before invaliding the NovArc. Claning your MAC address will not cause any problems with your anterior. Never IsBn
MAC Address Wireless	Wan Mac Address > 00 90 48 22 13 14
Channel and SSID Security Upe as Access Point MAC Address Control	Clone Computer's NAC Address > Clone
Firewall Vidual Servers Client IP Filters	Clear Changes Apply Changes
DM2 DDNS WAN Prog Blocking	
Security Log Utilities	
Restart Router Restore Factory Default	
Save/Dackup Settings Restore Previous Settings Firmware Update	
System Settings	

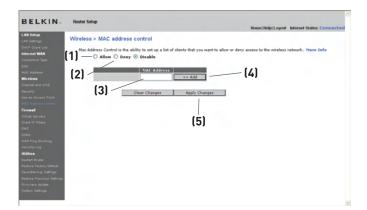
### Setting up an Allow Access List

- 1. Select the "Allow" radio button (1) to begin setting up a list of computers allowed to connect to the wireless network.
- 2. Next, in the "MAC Address" field that is blank (3), type in the MAC address of the wireless computer you want to be able to access the wireless network, then click "<<Add" (4).
- **3.** Continue to do this until all of the computers you want to add have been entered.
- 4. Click "Apply Changes" (5) to finish.

### Setting up a Deny Access List

The "Deny Access" list lets you specify computers that you DO NOT want to access the network. Any computer in the list will not be allowed access to the wireless network. All others will.

- 1. Select the "Deny" radio button (2) to begin setting up a list of computers to be denied access to the wireless network.
- 2. Next, in the "MAC Address" field that is blank (3), type in the MAC address of the wireless computer you want to deny access to the wireless network, then click "<<Add" (4).
- **3.** Continue to do this until all of the computers you want to deny access to have been entered.
- 4. Click "Apply Changes" (5) to finish.



# **Configuring the Firewall**

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

- IP Spoofing
- 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 for all intents and purposes, 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.

BELKIN	Poster Setup Home(Help(Logost Internet Status: Connected
LAN Setup	Firewall >
DHCP Chert List Internet WAN Connection Type SNI	have Applied is analysed with a formalities will problem for an endown from a wide array of extension backer and/one should find the of the other and the applied field of the applied formal should be an endown for firward in Audits of Kraeded. Turking of the formal protection will not keep your retends completely widewards to hade attacks, but it is recommended that you have the forward in Audeever possible.
Wroless	Firewall Enable / Disable > O Disable 🛞 Enable
	Clear Changes Apply Changes
frend	
lecurity Log	
Rillien Instat Ender	
leatore Factory Default	
estore Previous Settings	

### **Configuring Internal Forwarding Settings**

The Virtual Servers function will allow you to route external (Internet) calls for services such as a web server (port 80), FTP server (Port 21), or other applications through your Router to your internal network. Since your internal computers are protected by a firewall, computers outside your network (over the Internet) cannot get to them because they cannot be "seen". A list of common applications has been provided in case you need to configure the Virtual Server function for a specific application. If your application is not listed, you will need to contact the application vendor to find out which port settings you need.

AN Setup							Home   Help   Logouf	arrest and the construct
AN Sellinge	Fire	ewall > \	/irtual server	rs				
WCP Client List		This funct	or sole line or	to mute external (Inte	math calls for	services such as a web serv	**	
dernet WAN		(port 80),	PTP server (Port	21), or other application	ins through yo	ur Router to your internal		
onnection Type N1		NONIA.	Hore Into					
AC ASP465				Clear Changes	Apply Chi	inges		
irciens			Add Active V	forlds		₩ Add		
arriel and \$100 curlly			Clear entry	all 🛩		Clear		
a as Access Foint		Enable	Description	Inbound port	Туре	Private IP address	Private port	
C Address Control	1.				TOP 💌	192.168.2.		
hal Servers et IP filters	2.				TOP V	192.168.2.		
2 *5	з.				TOP V	192.168.2.		
A Ping Blocking	4.				TOP M	192.168.2.		
ities Iters	5.				TOP M	192.168.2.	· · ·	
nore Fectory Default	6.				TOP V	192.168.2	· · ·	
nethicinge tettinge Aure Previous Settinge	7.				TCP 💌	192.168.2		
mvare Updale Rem Settings	σ.				TOP V	192.368.2		
					TOP -			

### **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

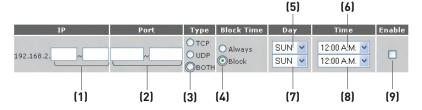
To manually enter settings, enter the IP address in the space provided for the internal (server) machine, the port(s) required to pass (use a comma between multiple ports), select the port type (TCP or UDP), and click "Apply Changes". You can only pass one port per internal IP address. Opening ports in your firewall can pose a security risk. You can enable and disable settings very quickly. It is recommended that you disable the settings when you are not using a specific application.

### Setting Client IP Filters

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

Setup Setings P. Clark Lut rest WAN wotion Table	Firewall > The Router ca at specific day	n be configure	d to restrict acce	ss to the Inte	met, e-mail or	other network	k services		
	1	2	Port	Type	Block Time	Day	Time	Enable	
Address sless mel and SSID	192.160.2		H	OTCP OUDP OBOTH	O Always O Block	SUN V SUN V	12:00 A.M. ¥ 12:00 A.M. ¥		
rity as Access Port Address Control	192.160.2.		H	OTCP OUDP OBOTH	O Always O Block	SUN V	1200 AM. ¥ 1200 AM. ¥		
nall of Servers 6 IP Filters	192.160.2.	-	н	O TCP O UDP O BOTH	O Always O Block	SUN V SUN V	1200 AM. ¥ 1200 AM. ¥		
s I Ping Blocking rity Log	192.168.2.	-	H	OTCP OUDP OBOTH	O Always 💿 Block	SUN V SUN V	1200 AM. ¥ 1200 AM. ¥		
ben ben art Router ore Factory Default	192.168.2	-	H	OTCP OUDP OBOTH	O Always O Block	SUN V SUN V	12:00 AM. ¥ 12:00 AM. ¥		
etteckup Settings ore Previous Settings vare Update	192.160.2.		H	OTCP OUDP OBOTH	O Always O Block	SUN V SUN V	12:00 A.M. ¥ 12:00 A.M. ¥		

To restrict Internet access to a single computer for example, enter the IP address of the computer you wish to restrict access to in the IP fields (1). Next, enter "80" in both the port fields (2). Select "Both" (3). Select "Block" (4). You can also select "Always" to block access all of the time. Select the day to start on top (5), the time to start on top (6), the day to end on the bottom (7), and the time to stop (8) on the bottom. Select "Enable" (9). Click "Apply Changes". The computer at the IP address you specified will now be blocked from Internet access at the times you specified. Note: Be sure you have selected the correct time zone under "Utilities> System Settings> Time Zone".



### Enabling the Demilitarized Zone (DMZ)

The DMZ feature allows you to specify one computer on your network to be placed outside of the firewall. This may be necessary if the firewall is causing problems with an application such as a game or video conferencing application. Use this feature on a temporary basis. The computer in the DMZ is NOT protected from hacker attacks.

BELKIN	Roufer Setup Home Help Logout Internet Status: Connected
LAN Setup LAN Settings	Firewall > DMZ
DHCP Client List Internet WAH Connection Type DNS MAC Address	The DN2 feature allows you to specify one computer on your network to be placed outside of the NAT freewall. This may be necessary if the NAT feature is eauring problems with an application such as a game ar video conferencing application. Use this feature on a temperary basis. The computer in the DN2 is not protected from Andeer attacks. To so a computer in the DN2, enter the last digits of its IP address in the field below and select "Inable". Click "Submit" for the change to take effect. Here Info
Wireless	IP Address of Virtual DM2 Host >
Channel and SSID Security	Static IP Private IP Enable
Use as Access Point MAC Address Control	1. 10.5.30.46 192.166.2
Freewell Victual Servers Crient IP Hiters Date Other Date Other Heaters Restore Router Restore Router Restore Practices Datings Restore Practices Datings Restore Practices Datings Restore Practices Datings	Clear Changes Apply Changes

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 which WAN IP address the DMZ host will be directed to. Type in the 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, select "Enable" and click "Apply Changes".

### Using Dynamic DNS

The Dynamic DNS 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.

The Dynamic DNS<sup>SM</sup> 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 "User Name" field (1).
- 2. Enter your DynDNS.org password in the "Password" field (2).
- **3.** Enter the DynDNS.org domain name you set up with DynDNS.org in the "Domain Name" field **(3)**.
- 4. Click "Update Dynamic DNS" 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 "Update Dynamic DNS" button **(4)**.

BELKIN	Router Setup
BELKIN	Home/Help/Logout Infernet Status: Connected
LAN Setup LAN Setings DHCP Client Unit	Firewall > DDNS
Internet WAN	
Connection Type ONS MAC Address	Dynamic DAti allows you to pervide Internet users with a first domain name (instead of an IP address which may periodically change), allowing your rotater and adjuctations set or in your rotate's virtual servers to be accessed from virus locations on the Internet without knowing your current IP address. Your Wreless Router supports dynamic DAtS through CynDMS and (https://www.lynds.org). Your wort oreka an account keffer using this service. These Info
Wireless Channel and SSID Security	User Name > [1]
Use as Access Port MAC Address Control Firewall	Password > [2]
Tirtual Servers Client IP Filters DM2	Clear Changes Update Dynamic DMS [4]
DONS .	
WAN Fing Blocking	
Security Log	
Utilijen	
Restart Router	
Restore Factory Default Save Backup Settings	
Restore Previous Settings	
Firmware Update	
System Settings	

### **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 your Router's security level.

BELKIN	Router Setup			Home Help L
LAN Setup LAN Settings	Firewall > WAI	N Ping Blocking		
DHCP Client List Internet WAN		REI You can configure the Router heightened level of security. More		ping to the WAN
		Block ICMP Ping >	2	(1)
Wircless Channel and SSID		Clear Changes	Apply Changes	
			,	
Firewall Virtual Servers Client IP Filters				
Security Log Utilities				

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.
<ul> <li>Restart Bouter Sometimes is may be necessary to Reset or Reboot the Router if it begins working improperly. Resetting or Rebooting the Router will not delte any of your configuration settings.</li> </ul>
Bestare Factory Defaults     If the settings in the Router to the factory (default) settings. It is recommended that you backup your     setings before sour restore all of the defaults.
<ul> <li>Save/Backup Current Settings The data 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 moremeded that you backup your current configuration before performing a firmware update.</li> </ul>
Restore Previous Saved Settings This option will allow you to restore a previously saved configuration.
Firmmane Epidate     form, Beline may release new versions of the Router's firmware. Firmware updates contain feature improvements and fixes to problem shut may have existed.
<ul> <li>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 ad off the NMT function of the Router.</li> </ul>

### **Restarting the Router**

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

ELKIN

### Restarting the Router to Restore Normal Operation

- 1. Click the "Restart Router" button.
- 2. The following message will appear. Click "OK".



3. The following message will appear. Restarting the Router can take up to 60 seconds. It is important not to turn off the power to the Router during the restart.



4. A 60-second countdown will appear on the screen. When the countdown reaches zero, the Router will be restarted. 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.

### **Restoring Factory Default Settings**

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

BELKIN

Double Salar

Utilities > Restore f

- 1. Click the "Restore Defaults" button.
- The following message will appear. Click "OK".

- The following message will appear. Restoring the defaults includes restarting the Router. It can take up to 60 seconds. It is important not to turn the power to the Router off during the restart.
- 4. A 60-second countdown will appear on the screen. When the countdown reaches zero, the Router's defaults will be restored. The Router home page should appear automatically. If it does not, type in the Router's address (default = 192.168.2.1) into the navigation bar of your browser.



the factory (default) settings. It is

Bestore Defaults





### Saving a Current Configuration

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



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

Do you	want to save this file?
	Name: user.conf
-	Type: Unknown File Type
	From: 192.168.2.1
	Save Cancel
	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

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



 When the save is complete, you will see the window below. Click "Close".

The configuration is now saved.

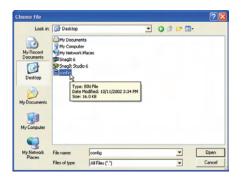
Download com	plete 🔲 🗖 🔀
Down Saved: config.bin from 1	iload Complete 92.168.2.1
Downloaded: Download to: Transfer rate: Close this dial	16.0 KB in 1 sec C:\Documents and Setting\config.bin 16.0 KB/Sec og box when download completes
	Open Open Folder

### **Restoring a Previous Configuration**

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

BELKIN	Router Setup	House   Help   Logout	Internet State
LAR Selap LAR Selange BICP Close Lust Information Tase BiS MAC Address Waters Course and SISS Secondly Uses and Course Print MAC Address Content	Utities > Reatore previous saved settings The option will also not a return a previously saved configuration.		

1. Click "Browse". A window will open that allows you to select the location of the configuration file. All configuration files end with a ".bin". Locate the configuration file you want to restore and double-click on it.



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



**3.** A reminder window will appear. It will take up to 60 seconds for the configuration restoration to complete. Click "OK".



4. A 60-second countdown will appear on the screen. When the countdown reaches zero, the Router's configuration will be restored. 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.

# **Updating the Firmware**

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

BELKIN	Router Setup			Homei Helpi Logout	Intern
LAN Settup LAN Settings DHCP Oliver List Internet WAN Connection Type DNS MAC Asspess	contain improvements an is a new firmware update	may release new version d fixes to problems that n available for this Router. r current settings before (	is of the Router's firmware. Fir nay have existed. Click the lin updating to a new version of fi	mware updates k below to see if there	
Wreless Diannel and SSID Security Use as Access Point MAC Address Control Firewall	Check For New Firmware Version >	Check Firmware	Browse_		

### Checking for a New Version of Firmware

The "Check Firmware" **(1)** 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.