USER GUIDE

Broadband Firewall Router with 4-Port Switch/VPN Endpoint

Model: BEFSX41
About This Guide

Icon Descriptions

While reading through the User Guide you may see various icons that call attention to specific items. Below is a description of these icons:

NOTE: This check mark indicates that there is a note of interest and is something that you should pay special attention to while using the product.

WARNING: This exclamation point indicates that there is a caution or warning and it is something that could damage your property or product.

WEB: This globe icon indicates a noteworthy website address or e-mail address.

Online Resources

Website addresses in this document are listed without http:// in front of the address because most current web browsers do not require it. If you use an older web browser, you may have to add http:// in front of the web address.

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Chapter 1: Product Overview

Thank you for choosing the Linksys by Cisco Broadband Firewall Router with 4-Port Switch/VPN Endpoint. The Router lets you access the Internet through its four switched ports. You can also use the Router to share resources such as computers, printers and files. A variety of security features help to protect your data and your privacy while online. Security features include a Stateful Packet Inspection (SPI) firewall and NAT technology. Configuring the Router is easy using the provided browser-based utility.

Front Panel

- **Power** (Green) The Power LED lights up and will stay on while the Router is powered on. It flashes when the Router goes through its self-diagnostic mode during every boot-up or upgrades its firmware.
- **DMZ** (Green) This feature lights up when DMZ is enabled.
- **1-4** (Green) These numbered LEDs correspond with the numbered ports on the Router’s back panel. These LEDs have a dual function. If the LED is continuously lit, the Router is successfully connected to a device through that port. A flashing LED indicates network activity over that port.
- **Internet** (Green) The Internet LED lights up when there is a connection made through the Internet port. A flashing LED indicates network activity over the Internet port.

Back Panel

- **Reset** There are two ways to reset the Router to its factory default settings. Use a straightened paper clip or similar object to press and hold the Reset button for approximately five seconds. You can also restore the defaults from the Administration > Factory Defaults screen of the Router’s web-based utility.
- **Internet** The Internet port is where you will connect your cable or DSL Internet connection.
- **1-4** These Ethernet ports (1, 2, 3, 4) connect the Router to computers on your wired network and other Ethernet network devices.
- **Power** The Power port is where you will connect the power adapter.
Chapter 2: Advanced Configuration

After setting up the Router with the Setup Wizard (located on the CD-ROM), the Router will be ready for use. However, if you’d like to change its advanced settings, use the Router’s web-based utility. This chapter describes each web page of the utility and each page’s key functions. You can access the utility via a web browser on a computer connected to the Router.

The web-based utility has these main tabs: Setup, Security, Restrict Access, Applications & Gaming, Administration, and Status. Additional tabs will be available after you click one of the main tabs.

NOTE: When first installing the Router, you should use the Setup Wizard on the Setup CD-ROM. If you want to configure advanced settings, use this chapter to learn about the web-based utility.

How to Access the Web-Based Utility

To access the web-based utility, launch the web browser on your computer, and enter the Router’s default IP address, 192.168.1.1, in the Address field. Then, press Enter.

A login screen will appear. Leave the User Name field blank. The first time you open the web-based utility, use the default password admin. (You can set a new password from the Administration > Management screen.) Click OK to continue.

Internet Setup

The Internet Setup section configures the Router to your Internet connection. Most of this information can be obtained through your Internet Service Provider (ISP).

Internet Connection Type

Select the type of Internet connection your ISP provides from the drop-down menu. These are the available types:

- Obtain an IP Automatically (DHCP)
- Static IP
- PPPoE
- RAS
- PPTP
- Heart Beat Signal
- L2TP

Obtain an IP Automatically

By default, the Router’s Internet Connection Type is set to Obtain an IP automatically, which should be kept only if your ISP supports DHCP or you are connecting through a dynamic IP address. (This option usually applies to cable connections.)

Host Name/Domain Name Enter a Host Name and Domain Name if required by your ISP.

MTU The MTU option specifies the largest packet size permitted for network transmission. Select Enable if you do not want the Router to regulate this packet size.
(otherwise, leave it set at Disable) and enter the value desired. You should leave this value in the 1200 to 1500 range. Most DSL users should use the default of 1492.

Static IP

If you are required to use a permanent IP address to connect to the Internet, select Static IP.

**IP Address** Enter the Router’s IP address, as seen from the Internet. This is provided by your ISP.

**Subnet Mask** Enter the Router’s subnet mask, as seen by users on the Internet (including your ISP). This is provided by your ISP.

**Default Gateway** Your ISP will provide you with the IP address of the ISP server.

**Primary DNS and Secondary DNS** Your ISP will provide you with at least one DNS (Domain Name System) Server IP Address.

**Host Name/Domain Name** Enter a Host Name and Domain Name if required by your ISP.

**MTU** The MTU option specifies the largest packet size permitted for network transmission. Select Enable if you do not want the Router to regulate this packet size (otherwise, leave it set at Disable) and enter the value desired. You should leave this value in the 1200 to 1500 range. Most DSL users should use the default of 1492.

**PPPoE**

Some DSL-based ISPs use PPPoE (Point-to-Point Protocol over Ethernet) to establish Internet connections. If you are connected to the Internet through a DSL line, check with your ISP to see if they use PPPoE. If they do, you will have to enable PPPoE.

**User Name and Password** Enter the User Name and Password provided by your ISP.

**Service Name** If provided by your ISP, enter the Service Name.

**Connect on Demand: Max Idle Time** You can configure the Router to cut the Internet connection after it has been inactive for a specified period of time (Max Idle Time). If your Internet connection has been terminated due to inactivity, Connect on Demand enables the Router to automatically re-establish your connection as soon as you attempt to access the Internet again. To use this option, select Connect on Demand. In the Max Idle Time field, enter the number of minutes you want to have elapsed before your Internet connection terminates. The default Max Idle Time is 5 minutes.

**Keep Alive: Redial Period** If you select this option, the Router will periodically check your Internet connection. If you are disconnected, then the Router will automatically re-establish your connection. To use this option, select Keep Alive. In the Redial Period field, you specify how often you want the Router to check the Internet connection. The default Redial Period is 30 seconds.

**Host Name/Domain Name** Enter a Host Name and Domain Name if required by your ISP.

**MTU** The MTU option specifies the largest packet size permitted for network transmission. Select Enable if you do not want the Router to regulate this packet size (otherwise, leave it set at Disable) and enter the value desired. You should leave this value in the 1200 to 1500 range. Most DSL users should use the default of 1492.

When you are finished, click the **Save Settings** button. Then click the **Status** tab, and click the **Connect** button to start the connection.
RAS
Remote Access Service (RAS) is a service that applies to connections in Singapore only. For users in Singapore, check with Singtel for information on RAS.

User Name and Password Enter the User Name and Password provided by Singtel.

RAS Plan Select the type of plan you have.

Connect on Demand: Max Idle Time You can configure the Router to cut the Internet connection after it has been inactive for a specified period of time (Max Idle Time). If your Internet connection has been terminated due to inactivity, Connect on Demand enables the Router to automatically re-establish your connection as soon as you attempt to access the Internet again. To use this option, select Connect on Demand. In the Max Idle Time field, enter the number of minutes you want to have elapsed before your Internet connection terminates. The default Max Idle Time is 5 minutes.

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Host Name/Domain Name Enter a Host Name and Domain Name if required by your ISP.

MTU The MTU option specifies the largest packet size permitted for network transmission. Select Enable if you do not want the Router to regulate this packet size (otherwise, leave it set at Disable) and enter the value desired. You should leave this value in the 1200 to 1500 range. Most DSL users should use the default of 1492.

When you are finished, click the Save Settings button. Then click the Status tab, and click the Connect button to start the connection.

PPTP
Point-to-Point Tunneling Protocol (PPTP) is a service that applies to connections in Europe only.

IP Address Enter the Router’s IP address, as seen from the Internet. This is provided by your ISP.

Subnet Mask Enter the Router’s subnet mask, as seen by users on the Internet (including your ISP). This is provided by your ISP.

Default Gateway Your ISP will provide you with the IP address of the ISP server.

User Name and Password Enter the User Name and Password provided by your ISP.

Connect on Demand: Max Idle Time You can configure the Router to cut the Internet connection after it has been inactive for a specified period of time (Max Idle Time). If your Internet connection has been terminated due to inactivity, Connect on Demand enables the Router to automatically re-establish your connection as soon as you attempt to access the Internet again. To use this option, select Connect on Demand. In the Max Idle Time field, enter the number of minutes you want to have elapsed before your Internet connection terminates. The default Max Idle Time is 5 minutes.

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Host Name/Domain Name Enter a Host Name and Domain Name if required by your ISP.

MTU The MTU option specifies the largest packet size permitted for network transmission. Select Enable if you do not want the Router to regulate this packet size (otherwise, leave it set at Disable) and enter the value
desired. You should leave this value in the 1200 to 1500 range. Most DSL users should use the default of 1492.

When you are finished, click the **Save Settings** button. Then click the **Status** tab, and click the **Connect** button to start the connection.

**Heart Beat Signal**

Heart Beat Signal is a service used in Australia only. If you are using a Heart Beat Signal connection, check with your ISP for the necessary setup information.

**User Name and Password** Enter the User Name and Password provided by your ISP.

**Heart Beat Server** Enter the IP address of your ISP's Heart Beat server. This is provided by your ISP.

**Connect on Demand: Max Idle Time** You can configure the Router to cut the Internet connection after it has been inactive for a specified period of time (Max Idle Time). If your Internet connection has been terminated due to inactivity, Connect on Demand enables the Router to automatically re-establish your connection as soon as you attempt to access the Internet again. To use this option, select **Connect on Demand**. In the **Max Idle Time** field, enter the number of minutes you want to have elapsed before your Internet connection terminates. The default Max Idle Time is 5 minutes.

**Keep Alive: Redial Period** If you select this option, the Router will periodically check your Internet connection. If you are disconnected, then the Router will automatically re-establish your connection. To use this option, select **Keep Alive**. In the **Redial Period** field, you specify how often you want the Router to check the Internet connection. The default Redial Period is 30 seconds.

**Host Name/Domain Name** Enter a Host Name and Domain Name if required by your ISP.

**MTU** The MTU option specifies the largest packet size permitted for network transmission. Select **Enable** if you do not want the Router to regulate this packet size (otherwise, leave it set at Disable) and enter the value desired. You should leave this value in the 1200 to 1500 range. Most DSL users should use the default of 1492.

When you are finished, click the **Save Settings** button. Then click the **Status** tab, and click the **Connect** button to start the connection.

**L2TP**

L2TP is a service that applies to connections in Israel only.

**Server IP Address** Enter the IP address of the L2TP server. This is provided by your ISP.

**User Name and Password** Enter the User Name and Password provided by your ISP.

**Connect on Demand: Max Idle Time** You can configure the Router to cut the Internet connection after it has been inactive for a specified period of time (Max Idle Time). If your Internet connection has been terminated due to inactivity, Connect on Demand enables the Router to automatically re-establish your connection as soon as you attempt to access the Internet again. To use this option, select **Connect on Demand**. In the **Max Idle Time** field, enter the number of minutes you want to have elapsed before your Internet connection terminates. The default Max Idle Time is 5 minutes.

**Keep Alive: Redial Period** If you select this option, the Router will periodically check your Internet connection. If you are disconnected, then the Router will automatically re-establish your connection. To use this option, select **Keep Alive**. In the **Redial Period** field, you specify how often you want the Router to check the Internet connection. The default Redial Period is 30 seconds.

**Host Name/Domain Name** Enter a Host Name and Domain Name if required by your ISP.

**MTU** The MTU option specifies the largest packet size permitted for network transmission. Select **Enable** if you do not want the Router to regulate this packet size (otherwise, leave it set at Disable) and enter the value desired. You should leave this value in the 1200 to 1500 range. Most DSL users should use the default of 1492.

When you are finished, click the **Save Settings** button. Then click the **Status** tab, and click the **Connect** button to start the connection.
Chapter 2

Advanced Configuration

Network Setup

The Network Setup section changes the settings on the network connected to the Router’s Ethernet ports.

**Local IP Address** The default value is **192.168.1.1**.

**Subnet Mask** The default value is **255.255.255.0**.

**Network Address Server Settings (DHCP)**

The settings allow you to configure the Router’s Dynamic Host Configuration Protocol (DHCP) server function. The Router can be used as a DHCP server for your network. A DHCP server automatically assigns an IP address to each computer on your network. If you choose to enable the Router’s DHCP server option, make sure there is no other DHCP server on your network.

- **Local DHCP Server** DHCP is enabled by factory default. If you already have a DHCP server on your network, or you don’t want a DHCP server, then select **Disable** (no other DHCP features will be available).

- **Start IP Address** Enter a value for the DHCP server to start with when issuing IP addresses. Because the Router’s default IP address is 192.168.1.1, the Start IP Address must be 192.168.1.2 or greater, but smaller than 192.168.1.253. The default is **192.168.1.100**.

- **Number of Address** Enter the maximum number of computers that you want the DHCP server to assign IP addresses to. This number cannot be greater than 253. The default is **50**.

- **DHCP Address Range** Displayed here is the range of available IP addresses.

- **Client Lease Time** The Client Lease Time is the amount of time a network user will be allowed connection to the Router with their current dynamic IP address. Enter the amount of time, in minutes, that the user will be “leased” this dynamic IP address. After the time is up, the user will be automatically assigned a new dynamic IP address. The default is **0** minutes, which means one day.

- **Time Setting** For an accurate keeping in the Router’s logs and functions, select your local time zone from the drop-down menu. Select **Default NTP Server** or **User-Defined NTP Server**.

Click **Save Settings** to apply your changes, or click **Cancel Changes** to cancel your changes.

**Setup > DDNS**

The Router offers a Dynamic Domain Name System (DDNS) feature. DDNS lets you assign a fixed host and domain name to a dynamic Internet IP address. It is useful when you are hosting your own website, FTP server, or other server behind the Router.

Before you can use this feature, you need to sign up for DDNS service with a DDNS service provider, www.dyndns.org or www.TZO.com. If you do not want to use this feature, keep the default setting, **Disabled**.

**DDNS**

**DDNS Service**

If your DDNS service is provided by DynDNS.org, then select **DynDNS.org** from the drop-down menu. If your DDNS service is provided by TZO, then select **TZO**. The features available on the **DDNS** screen will vary, depending on which DDNS service provider you use.

**DynDNS.org**

- **User Name** Enter the User Name for your DDNS account.
- **Password** Enter the Password for your DDNS account.
- **Host Name** The is the DDNS URL assigned by the DDNS service.
- **Internet IP Address** The Router’s Internet IP address is displayed here. Because it is dynamic, it will change.
- **Status** The status of the DDNS service connection is displayed here.

Click **Save Settings** to apply your changes, or click **Cancel Changes** to cancel your changes.
Chapter 2

Advanced Configuration

TZ0.com

E-mail Address, TZO Password Key, and Domain Name Enter the settings of the account you set up with TZO.

Internet IP Address The Router’s Internet IP address is displayed here. Because it is dynamic, it will change.

Status The status of the DDNS service connection is displayed here.

Click Save Settings to apply your changes, or click Cancel Changes to cancel your changes.

Setup > Advanced Routing

This screen is used to set up the Router’s advanced functions. Dynamic Routing automatically adjusts how packets travel on your network. Static Routing sets up a fixed route to another network destination.

Advanced Routing

NAT

Enable/Disable If this Router is hosting your network’s connection to the Internet, keep the default, Enable. If another router exists on your network, select Disable. When the NAT setting is disabled, the Dynamic Routing feature can be enabled.

Dynamic Routing (RIP)

Enable/Disable This feature enables the Router to automatically adjust to physical changes in the network’s layout and exchange routing tables with the other router(s). The Router determines the network packets’ route based on the fewest number of hops between the source and the destination. When the NAT setting is enabled, the Dynamic Routing feature is automatically disabled. When the NAT setting is disabled, this feature is available. Select Enable to use the Dynamic Routing feature.

Transmit RIP Version To use dynamic routing for transmission of network data, select the protocol you want: RIP1, RIP1-Compatible, or RIP2.

Receive RIP Version To use dynamic routing for reception of network data, select the protocol you want, RIP1 or RIP2.

MAC Clone

MAC Clone Service To have the MAC address cloned, select Enable.

MAC Address Enter the MAC address registered with your ISP here.

Clone Click this button to clone the MAC address of the computer you are using.

Click Save Settings to apply your changes, or click Cancel Changes to cancel your changes.

Setup > Advanced Routing

Setup > MAC Address Clone

A MAC address is a 12-digit code assigned to a unique piece of hardware for identification. Some ISPs will require you to register a MAC address in order to access the Internet. If you do not wish to re-register the MAC address with your ISP, you may assign the MAC address you have currently registered with your ISP to the Router with the MAC Address Clone feature.

MAC Clone

MAC Clone Service To have the MAC address cloned, select Enable.

MAC Address Enter the MAC address registered with your ISP here.
**Static Routing**

A static route is a pre-determined pathway that network information must travel to reach a specific host or network. Enter the information described below to set up a new static route.

**Select Entry** To set up a static route between the Router and another network, select a number from the drop-down list. Click **Delete Entry** to delete a static route.

**Destination IP Address** Enter the IP address of the remote network or host to which you want to assign a static route.

**Subnet Mask** Enter the subnet mask. This determines which portion of a Destination IP Address is the network portion, and which portion is the host portion.

**Gateway** Enter the IP address of the gateway device that allows for contact between the Router and the remote network or host.

**Hop Count** Enter the maximum number of steps between network nodes that data packets will travel. A node is any device on the network, such as a computer, print server, or router.

**Interface** Select the appropriate interface. This tells you whether the Destination IP Address is on the **LAN** (Local Area Network) or the **Internet**.

Click **Show Routing Table** to view the static routes you have already set up.

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**Security > Firewall**

The **Firewall** screen allows you to enable or disable the firewall, which shields your network from outside users, and manage different filters, which provide additional protection. Filters block specific internal users from accessing the Internet and block anonymous Internet requests and/or multicasting.

**Additional Filters**

This area allows you to block, or filter, certain Internet applications from your network. Click the box next to those applications you wish to filter.

**Firewall Protection** To add Firewall Protection, click **Enabled**. If you do not want Firewall Protection, click **Disabled**.

**Filter Proxy** Use of WAN proxy servers may compromise the Router’s security. Denying Filter Proxy will disable access to any WAN proxy servers. To enable proxy filtering, click **Enabled**.

**Filter Cookies** A cookie is data stored on your PC and used by Internet sites when you interact with them. To enable cookie filtering, click **Enabled**.

**Filter Java Applets** Java is a programming language for websites. If you deny Java Applets, you run the risk of not having access to Internet sites created using this programming language. To enable Java Applet filtering, click **Enabled**.

**Filter ActiveX** ActiveX is a programming language for websites. If you deny ActiveX, you run the risk of not having access to Internet sites created using this programming language. To enable ActiveX filtering, click **Enabled**.

Use these features to enhance your network’s security and filter multicasting.

**Block WAN Requests**

**Block Anonymous Internet Requests** This feature makes it more difficult for outside users to work their way into your network. This feature is enabled by default. Select **Disabled** to allow anonymous Internet requests.

**Filter Multicast** Multicasting allows for multiple transmissions to specific recipients at the same time. If multicasting is permitted, then the Router will allow IP multicast packets to be forwarded to the appropriate
computers. Select **Enabled** to filter multicasting. This feature is disabled by default.

**Filter Internet NAT Redirection**  This feature uses port forwarding to block access to local servers from local networked computers. Select **Enabled** to filter Internet NAT redirection. This feature is disabled by default.

Click **Save Settings** to apply your changes, or click **Cancel Changes** to cancel your changes.

**Security > VPN**

The **VPN** screen allows you to enable VPN tunnels.

### VPN Passthrough

**IPSec Passthrough**  Internet Protocol Security (IPSec) is a suite of protocols used to implement secure exchange of packets at the IP layer. To allow IPSec tunnels to pass through the Router, keep the default, **Enabled**.

**PPPoE Passthrough**  Point-to-Point over Ethernet (PPPoE) Passthrough allows your computer(s) to use the PPPoE client software provided by your ISP. Some ISPs may request that you use this feature on the Router. To allow PPPoE Passthrough, keep the default, **Enabled**.

**PPTP Passthrough**  Point-to-Point Tunneling Protocol (PPTP) allows the Point-to-Point Protocol (PPP) to be tunneled through an IP network. To allow PPTP tunnels to pass through the Router, keep the default, **Enabled**.

Click **Save Settings** to apply your changes, or click **Cancel Changes** to cancel your changes.

### Establishing a Tunnel

The Router creates a tunnel or channel between two endpoints, so that the data or information between these endpoints is secure. To establish this tunnel, select the tunnel you wish to create in the **Select Tunnel Entry** dropdown box. It is possible to create up to two simultaneous tunnels. To delete a tunnel, click the **Delete** button. To view a summary of that tunnel, click the **Summary** button.

Then check the box next to **Enable** to enable the tunnel.

Once the tunnel is enabled, enter the name of the tunnel in the **Tunnel Name** field. This is to allow you to identify multiple tunnels and does not have to match the name used at the other end of the tunnel.

**Local Secure Group and Remote Secure Group**

A Local Secure Group is a computer(s) on your network that can access the tunnel. A Remote Secure Group is a computer(s) on the remote end of the tunnel that can access the tunnel. Under Local Secure Group and Remote Secure Group, you may choose one of three options: **Subnet**, **IP Address**, and **IP Range**. Under Remote Secure Group, you have two additional options: **Host** and **Any**.

**Subnet**  If you select **Subnet** (which is also the default), this will allow all computers on the local subnet to access the tunnel. When using the Subnet setting, the default values of **0** should remain in the last fields of the IP and Mask settings.
IP Address If you select IP Address, only the computer with the specific IP Address that you enter will be able to access the tunnel.

IP Range If you select IP Range, it will be a combination of Subnet and IP Address. You can specify a range of IP Addresses within the Subnet which will have access to the tunnel.

The next two options are for Remote Secure Groups only.

Host If you select Host for the Remote Secure Group, then the Remote Secure Group will be the same as the Remote Security Gateway setting: IP Address, FQDN (Fully Qualified Domain Name), or Any.

Any If you select Any for the Remote Security Group, the local VPN Router will accept a request from any IP address. This setting should be chosen when the other endpoint is using DHCP or PPPoE on the Internet side.

Remote Security Gateway

The Remote Security Gateway is the VPN device, such as a second VPN Router, on the remote end of the VPN tunnel. Under Remote Security Gateway, you have three options: IP Address, FQDN, and Any. In this section, you can also set the levels and types of encryption and authentication.

IP Address If you select IP Address, enter the IP Address of the VPN device at the other end of the tunnel. The remote VPN device can be another VPN Router, a VPN Server, or a computer with VPN client software that supports IPSec. The IP Address may either be static (permanent) or dynamic (changing), depending on the settings of the remote VPN device. Make sure that you have entered the IP Address correctly, or the connection cannot be made. Remember, this is NOT the IP Address of the local VPN Router, but the IP Address of the remote VPN Router or device with which you wish to communicate.

FQDN (Fully Qualified Domain Name) If you select FQDN, enter the FQDN of the VPN device at the other end of the tunnel. The remote VPN device can be another VPN Router, a VPN Server, or a computer with VPN client software that supports IPSec. The FQDN is the host name and domain name for a specific computer on the Internet, for example, vpn.myvpnserver.com.

Any If you select Any for the Remote Security Gateway, the VPN device at the other end of the tunnel will accept a request from any IP address. The remote VPN device can be another VPN Router, a VPN Server, or a computer with VPN client software that supports IPSec. If the remote user has an unknown or dynamic IP address (such as a professional on the road or a telecommuter using DHCP or PPPoE), then Any should be selected.

Encryption Using Encryption also helps make your connection more secure. There are two different types of encryption: DES or 3DES (3DES is recommended because it is more secure). You may choose either of these, but it must be the same type of encryption that is being used by the VPN device at the other end of the tunnel. Or, you may choose not to encrypt by selecting Disable.

Authentication Authentication acts as another level of security. There are two types of authentication: MD5 and SHA (SHA is recommended because it is more secure). As with encryption, either of these may be selected, provided that the VPN device at the other end of the tunnel is using the same type of authentication. Or, both ends of the tunnel may choose to Disable authentication.

Key Management

In order for any encryption to occur, the two ends of the tunnel must agree on the type of encryption and the way the data will be decrypted. This is done by sharing a “key” to the encryption code. Under Key Management, you may choose automatic or manual key management.

Automatic Key Management Select Auto (IKE) and enter a series of numbers or letters in the Pre-shared Key field. Check the box next to PFS (Perfect Forward Secrecy) to ensure that the initial key exchange and IKE proposals are secure. Based on this word, which MUST be entered at both ends of the tunnel if this method is used, a key is generated to scramble (encrypt) the data being transmitted over the tunnel, where it is unscrambled (decrypted). You may use any combination of up to 24 numbers or letters in this field. No special characters or spaces are allowed. In the Key Lifetime field, you may optionally select to have the key expire at the end of a time period of your choosing. Enter the number of seconds you’d like the key to be useful, or leave it blank for the key to last indefinitely.

Manual Key Management Similarly, you may choose Manual keying, which allows you to generate the key yourself. Enter your key into the Encryption KEY field. Then enter an Authentication KEY into that field. These fields must both match the information that is being entered in the fields at the other end of the tunnel. Up to 24 alphanumeric characters are allowed to create the Encryption Key. Up to 20 alphanumeric characters are allowed to create the Authentication Key.

The Inbound SPI and Outbound SPI fields are different, however. The Inbound SPI value set here must match the Outbound SPI value at the other end of the tunnel. The Outbound SPI here must match the Inbound SPI value at the other end of the tunnel. That is, the Inbound SPI and Outbound SPI values would be opposite on the other end of the tunnel. Only numbers can be used in these fields. After you click the Save Settings button, hexadecimal characters (series of letters and numbers) are displayed in the Inbound SPI and Outbound SPI fields.

The Status field at the bottom of the screen will show when a tunnel is active.

To connect a VPN tunnel, click the Connect button. The View Logs button, when logging is enabled on the
Log screen of the Administration tab, will show you VPN activity on a separate screen. The VPN Log screen displays successful connections, transmissions and receptions, and the types of encryption used. For more advanced VPN options, click the Advanced Setting button to open the Advanced Setting screen.

When finished making your changes on this screen, click the Save Settings button to save these changes, or click the Cancel Changes button to undo your changes.

Advanced VPN Tunnel Setup

From the Advanced Settings screen you can adjust the settings for specific VPN tunnels.

Phase 1

Phase 1 is used to create a security association (SA), often called the IKE SA. After Phase 1 is completed, Phase 2 is used to create one or more IPSec SAs, which are then used to key IPSec sessions.

Operation Mode There are two modes: Main and Aggressive, and they exchange the same IKE payloads in different sequences. Main mode is more common; however, some people prefer Aggressive mode because it is faster. Main mode is for normal usage and includes more authentication requirements than Aggressive mode. Main mode is recommended because it is more secure. No matter which mode is selected, the VPN Router will accept both Main and Aggressive requests from the remote VPN device. If a user on one side of the tunnel is using a Unique Firewall Identifier, this should be entered under the Username field.

Encryption Select the length of the key used to encrypt/decrypt ESP packets. There are two choices: DES and 3DES. 3DES is recommended because it is more secure.

Authentication Select the method used to authenticate ESP packets. There are two choices: MD5 and SHA. SHA is recommended because it is more secure.

Group There are two Diffie-Hellman Groups to choose from: 768-Bit and 1024-Bit. Diffie-Hellman refers to a cryptographic technique that uses public and private keys for encryption and decryption.

Key Lifetime In the Key Lifetime field, you may optionally select to have the key expire at the end of a time period of your choosing. Enter the number of seconds you'd like the key to be used until a re-key negotiation between each endpoint is completed.

Other Settings

NetBIOS broadcast Check the box next to NetBIOS broadcast to enable NetBIOS traffic to pass through the VPN tunnel.

Anti-replay Check the box next to Anti-replay to enable the Anti-replay protection. This feature keeps track of sequence numbers as packets arrive, ensuring security at the IP packet-level.

Keep-Alive Check the box next to Keep-Alive to re-establish the VPN tunnel connection whenever it is dropped. Once the tunnel is initialized, this feature will keep the tunnel connected for the specified amount of idle time.

Unauthorized IP Blocking Check this box to block unauthorized IP addresses. Complete the on-screen sentence to specify how many times IKE must fail before blocking that unauthorized IP address for a length of time that you specify (in seconds).

When finished making your changes on this screen, click the Save Settings button to save these changes, or click the Cancel Changes button to undo your changes.

Restrict Access

The Restrict Access tab allows you to block or allow network access as well as manage specific kinds of Internet usage.
Internet Access

**Internet Access Policy**  Access is managed by a policy. An access policy is established with the settings on this screen (after **Save Settings** is clicked). Selecting a policy from the drop-down menu will display that policy’s settings on this screen. To delete a policy, select that policy’s number and click the **Delete** button. To view the policies established, click the **Summary** button (policies can be deleted from the summary screen by selecting the policy or policies and clicking the **Delete** button).

**Enter Policy Name**  Each policy can be named, using no more than 30 characters, so you can remember what it’s for.

**PCs**  Click the **Edit List** button to select which PCs will be affected by the policy. You can enter the PC by MAC Address or IP Address. You can also enter a range of IP Addresses if you wish this policy to affect a group of PCs. After making your changes, click the **Save Settings** button to apply your changes or **Cancel Changes** to cancel your changes.

**Days/Times**  When will this policy be in effect? On every day? At certain times? Select if you wish to **Allow** or **Deny** access during the times in this section. Select the individual days or select **Everyday**. Select **24 Hours** or enter a range of hours in which the policy will be in effect.

**Blocked Services**  To block specific port services, such as POP3, SNMP, etc., select the service you wish to block from the pull-down menu and enter a range of ports in the fields beside it. If the service is not listed, you can add or even edit a service by clicking the **Add/Edit Service** button.

**Website Blocking by URL Address**  Enter the URL of any website you wish to block in these fields.

**Website Blocking by Keyword**  If you don’t know the address of the website you wish to block, you can enter keywords specific to the site in these fields. The Router will block access to sites that use those keywords.

**To Create an Internet Access Policy:**

1. Enter a Policy Name in the field provided. Select **Internet Access** as the Policy Type. Click the **Edit List** button. This will open the **List of PCs** screen. From this screen, you can enter the IP address or MAC address of any PC to which this policy will apply. You can even enter ranges of PCs by IP address. Click the **Apply** button to save your settings, the **Cancel** button to undo any changes, and the **Close** button to return to the **Filters** tab.
2. If you wish to deny or allow Internet access for those PCs you listed on the List of PCs screen, click the option.

3. You can filter access to various services accessed over the Internet, such as FTP or Telnet, by selecting a service from the drop-down menus next to Blocked Services. If a service isn’t listed, you can click the Service button to open the Service screen and add a service to the list. You will need to enter a Service name, as well as the Protocol and Port Range used by the service.

4. By selecting the appropriate setting next to Days and Time, choose when Internet access will be filtered.

5. Lastly, click the Save Settings button to activate the policy.

### Applications & Gaming > Port Range Forwarding

The Port Range Forwarding screen allows you to set up public services on your network, such as web servers, ftp servers, e-mail servers, or other specialized Internet applications. (Specialized Internet applications are any applications that use Internet access to perform functions such as videoconferencing or online gaming. Some Internet applications may not require any forwarding.)

When users send these types of requests to your network via the Internet, the Router will forward those requests to the appropriate servers (computers). Before using forwarding, you should assign static IP addresses to the designated servers.

If you need to forward all ports to one computer, click the DMZ tab.

#### To Create an Inbound Traffic Policy

1. Enter a Policy Name in the field provided. Select Inbound Traffic as the Policy Type.

2. Enter the IP Address from which you want to block. Select the Protocol: TCP, UDP, or Both. Enter the port number or select Any. Enter the IP Address to which you want to block.

3. Select Deny or Allow as appropriate.

4. By selecting the appropriate setting next to Days and Time, choose when the Inbound Traffic will be filtered.

5. Lastly, click the Save Settings button to activate the policy.

When finished making your changes on this tab, click the Save Settings button to save these changes, or click the Cancel Changes button to undo your changes.

Internet Access can be filtered by URL Address, by entering the address in a Website Blocking by URL Address field, or by entering a keyword in one of the Website Blocking by Keyword fields.

#### Port Range Forwarding

To forward a port, enter the information on each line for the criteria required.

**Application** In this field, enter the name you wish to give the application. Each name can be up to 12 characters.

**Start and End** Enter the number or range of port(s) used by the server or Internet applications. Check with the Internet application documentation for more information.

**Protocol** Select the protocol used for this application, either TCP or UDP, or Both.

**IP Address** For each application, enter the IP address of the PC running the specific application.

**Enabled** Select Enabled to enable port forwarding for the applications you have defined.
Click **Save Settings** to apply your changes, or click **Cancel Changes** to cancel your changes.

Applications & Gaming > Port Triggering

The *Port Triggering* screen allows the Router to watch outgoing data for specific port numbers. The IP address of the computer that sends the matching data is remembered by the Router, so that when the requested data returns through the Router, the data is pulled back to the proper computer by way of IP address and port mapping rules.

![Applications and Gaming > Port Triggering](image)

**Port Triggering**

**Application**  Enter the application name of the trigger.

**Triggered Range**

**Start Port and End Port**  For each application, enter the starting and ending port numbers of the triggered port number range. Check with the Internet application documentation for the port number(s) needed.

**Forwarded Range**

**Start Port and End Port**  For each application, enter the starting and ending port numbers of the forwarded port number range. Check with the Internet application documentation for the port number(s) needed.

Click **Save Settings** to apply your changes, or click **Cancel Changes** to cancel your changes.

Applications & Gaming > UPnP Forwarding

The *UPnP Forwarding* screen displays preset application settings as well as options to customize port services for other applications.

![Applications and Gaming > UPnP Forwarding](image)

**UPnP Forwarding**

**Application**

Ten applications are preset. For custom applications, enter the name of your application in one of the available fields.

The preset applications are among the most widely used Internet applications. They include the following:

**FTP (File Transfer Protocol)**  A protocol used to transfer files over a TCP/IP network (Internet, UNIX, etc.). For example, after developing the HTML pages for a website on a local machine, they are typically uploaded to the web server using FTP.

**Telnet**  A terminal emulation protocol commonly used on Internet and TCP/IP-based networks. It allows a user at a terminal or computer to log onto a remote device and run a program.

**SMTP (Simple Mail Transfer Protocol)**  The standard e-mail protocol on the Internet. It is a TCP/IP protocol that defines the message format and the message transfer agent (MTA), which stores and forwards the mail.

**DNS (Domain Name System)**  The way that Internet domain names are located and translated into IP addresses. A domain name is a meaningful and easy-to-remember “handle” for an Internet address.

**TFTP (Trivial File Transfer Protocol)**  A version of the TCP/IP FTP protocol that has no directory or password capability.

**Finger**  A UNIX command used on the Internet to find out information about a particular user, such as a telephone number, whether the user is currently logged on, and the last time the user was logged on. The person being
“fingered” must have placed his or her profile on the system in order for the information to be available. Fingering requires entering the full user@domain address.

**HTTP (HyperText Transport Protocol)** The communications protocol used to connect to servers on the World Wide Web. Its primary function is to establish a connection with a web server and transmit HTML pages to the client web browser.

**POP3 (Post Office Protocol 3)** A standard mail server commonly used on the Internet. It provides a message store that holds incoming e-mail until users log on and download it. POP3 is a simple system with little selectivity. All pending messages and attachments are downloaded at the same time. POP3 uses the SMTP messaging protocol.

**NNTP (Network News Transfer Protocol)** The protocol used to connect to Usenet groups on the Internet. Usenet newsreaders support the NNTP protocol.

**SNMP (Simple Network Management Protocol)** A widely used network monitoring and control protocol. Data is passed from SNMP agents, which are hardware and/or software processes reporting activity in each network device (hub, router, bridge, etc.), to the workstation console used to oversee the network. The agents return information contained in a MIB (Management Information Base), which is a data structure that defines what is obtainable from the device and what can be controlled (turned off, on, etc.).

**Ext. Port**. Enter the number of the external port used by the server in the Ext. Port column. Check with the Internet application documentation for more information.

**TCP or UDP** Select the protocol UDP or TCP for each application. You cannot select both protocols.

**Int. Port** Enter the number of the internal port used by the server in the Int. Port column. Check with the Internet application software documentation for more information.

**IP Address** Enter the IP address of the server that you want the Internet users to be able to access.

**Enabled** Select Enabled to enable the service you have defined.

Click **Save Settings** to apply your changes, or click **Cancel Changes** to cancel your changes.

### Applications & Gaming > DMZ

The DMZ feature allows one network computer to be exposed to the Internet for use of a special-purpose service such as Internet gaming or videoconferencing. DMZ hosting forwards all the ports at the same time to one PC. The Port Range Forwarding feature is more secure because it only opens the ports you want to have opened, while DMZ hosting opens all the ports of one computer, exposing the computer to the Internet.

**DMZ**

Any PC whose port is being forwarded must have its DHCP client function disabled and should have a new static IP address assigned to it because its IP address may change when using the DHCP function.

**DMZ Port** To disable DMZ hosting, keep the default, **Disable**. To expose one PC, select **Enable**. Then configure the following setting:

**DMZ Host Address**

**Assigned by the DMZ Port** The DMZ host is the first PC connected to Port 4/DMZ of the Router, either directly or through a hub or switch. The Router will only allow one PC to be the DMZ host.

**Specify an IP Address behind the DMZ Port** If you have multiple PCs connected to Port 4/DMZ via a hub or switch, you can specify which PC is the DMZ host. To expose a computer with a specific IP address, enter that computer’s IP address in this field.

**Specify a MAC Address behind the DMZ Port** If you have multiple PCs connected to Port 4/DMZ via a hub or switch, you can specify which PC is the DMZ host. To expose a PC with a specific MAC address, enter that computer’s MAC address in this field.

**Current DMZ Host** The IP address of the current DMZ host is displayed here.

Click **Save Settings** to apply your changes, or click **Cancel Changes** to cancel your changes.

### Administration > Management

The Management screen allows the network’s administrator to manage specific Router functions for access and security.
Chapter 2

Advanced Configuration

Router Access

Local Router Access

To ensure the Router’s security, you will be asked for your password when you access the Router’s web-based utility. The default is admin.

Router Password  Enter a new password for the Router.

Re-enter to confirm  Enter the password again to confirm.

Remote Router Access

Remote Upgrade  If you want to be able to upgrade the Router remotely, from outside the local network, select Enabled. (You must have the Remote Administration feature enabled as well.) Otherwise, keep the default, Disabled.

Remote Administration  To permit remote access of the Router, from outside the local network, select Enabled. Otherwise, keep the default, Disabled.

Administration Port  Enter the port number that will be open to outside access.

NOTE: When you are in a remote location and wish to manage the Router, enter http://<Internet_IP_address>:port, depending on whether you use HTTP or HTTPS. Enter the Router’s specific Internet IP address in place of <Internet_IP_address>, and enter the Administration Port number in place of the word port.

SNMP

The Router supports Simple Network Management Protocol (SNMP), which is a widely used network monitoring and control protocol. This allows network supervisors to monitor the Router using network management systems such as HP OpenView.

Enabled/Disabled  To use SNMP, select Enabled. If you do not want to use SNMP, keep the default, Disabled.

Get Community  Enter the password that allows read-only access to the Router’s SNMP information.

Set Community  Enter the password that allows read/write access to the Router’s SNMP information.

UPnP

Universal Plug and Play (UPnP) allows Windows XP or Vista to automatically configure the Router for various Internet applications, such as gaming and videoconferencing.

UPnP  If you want to use UPnP, keep the default setting, Enabled. Otherwise, select Disabled.

Allow Users to Make Configuration Changes  Keep the default, Enabled, if you want to be able to make manual changes to the Router while using the UPnP feature. Otherwise, select Disabled.

Allow Users to Disable Internet Access  Keep the default, Enabled, if you want to be able to prohibit any and all Internet connections. Otherwise, select Disabled.

Click Save Settings to apply your changes, or click Cancel Changes to cancel your changes.

Administration > Log

The Router can keep logs of all traffic for your Internet connection.
Chapter 2

Advanced Configuration

Log

The Log screen provides you with options for email alerts and a log of all incoming and outgoing URLs or IP addresses for your Internet connection.

Email alerts To enable the Router to send email alerts in the event of Denial of Service attacks and the like, click the radio button beside Enable. If you do not wish to have email alerts, click the radio button beside Disable.

Denial of Service Thresholds This limit, from 20 to 100, is the amount of Denial of Service (DOS) attacks the Router detects before sending an email alert.

SMTP Mail Server This is the IP Address or full mail server name (e.g. mail.domain.com) of your mail server.

Email address for alert logs This is the email address where you would like the email alerts sent.

Return email address Your mail server may require a return email address. Enter that here. If you're unsure as to what address to enter, enter the same email address for Email address for alert logs.

Log To disable the Log function, keep the default setting, No. To monitor traffic between the network and the Internet, select Yes. With logging enabled, you can choose to view temporary logs or keep a permanent record using the Logviewer software.

Logviewer IP Address For a permanent record of these logs, the Logviewer software must be used. Download this software from the Linksys website, www.linksys.com. The Logviewer software saves all incoming and outgoing activity in a permanent file on your computer’s hard drive. Enter the fixed IP address of the computer running the Logviewer software. The Router will now send updated logs to that computer.

On the All screen, select the log you wish to view: All, System Log, or Access Log.

Administration > Diagnostics

Diagnostics allow you to check the connections of your network components as well as locations outside your network via the Internet.

Ping Target IP This is the IP Address of the PC or network component, or location outside of your network, that you wish to test.

Ping Size Enter the amount of data, measured in bytes, sent in the ping test here. This number can be between 60 and 1514 bytes, more data being sent with a higher number.

No. of Pings How many times in this test do you want the Router to ping the location? This number can be between 1 and 4 and should be entered here.

Ping Interval How long, in milliseconds, would you like the Router to wait between pings? This number can be between 0 and 9999 milliseconds.

Ping Timeout How long should the Router wait before it times out after an unsuccessful test? An unsuccessful test is determined when a location does not respond to a ping. This number can be between 0 and 9999 milliseconds.

Start Test Click the Start Test button to begin the diagnostic tests.

The results of the test will be listed below the Start Test button.

When you are finished running your tests, click the Save Settings button to save these settings for future tests, or click the Cancel Changes button to return the settings to their previous state.

Administration > Factory Defaults

The Administration > Factory Defaults screen allows you to restore the Router’s configuration to its factory default settings.
Chapter 2
Advanced Configuration

Administration > Factory Defaults

NOTE: Do not restore the factory defaults unless you are having difficulties with the Router and have exhausted all other troubleshooting measures. Once the Router is reset, you will have to re-enter all of your configuration settings.

Factory Defaults

Restore Factory Defaults To reset the Router’s settings to the default values, select Yes and click Save Settings. Then follow the on-screen instructions. Any settings you have saved will be lost when the default settings are restored.

Administration > Firmware Upgrade

The Firmware Upgrade screen allows you to upgrade the Router’s firmware. Do not upgrade the firmware unless you are experiencing problems with the Router or the new firmware has a feature you want to use.

Upgrade Firmware


Please select a file to upgrade Click Browse and select the extracted firmware upgrade file.

Upgrade After you have selected the appropriate file, click this button, and follow the on-screen instructions.

Status > Router

The Router screen displays information about the Router and its current settings.

Information

Firmware Version This is the version number of the Router’s current firmware.

MAC Address This is the Router’s MAC address, as seen by your ISP.

Status

Login Type The type of your Internet connection is displayed here.

Internet IP Address Your current IP address is shown here.

Subnet Mask and Default Gateway The Router’s Subnet Mask and Default Gateway addresses are displayed here for DHCP and static IP connections.

DNS 1-3 Shown here is the DNS (Domain Name System) IP address currently used by the Router.

Current Time As selected from the Setup tab, this will show the current time in your time zone.
DHCP Renew  Click the **DHCP Renew** button to replace your Gateway's current IP address with a new IP address.

**DHCP Release**  Click the **DHCP Release** button to delete your Gateway's current IP address.

Click **Refresh** to update the on-screen information.

**Status > Local Network**

The **Local Network** screen displays information about the local, wired network.

- **Local MAC Address**  The MAC address of the Router's local, wired interface is displayed here.
- **IP Address**  This shows the Router's IP address, as it appears on your local network.
- **Subnet Mask**  This shows the subnet mask of the Router.
- **DHCP Server**  The status of the Router's DHCP server function is displayed here.
- **DHCP Clients Table**  Click this button to view a list of PCs that are using the Router as a DHCP server.

DHCP Client Table

The DHCP Client Table lists computers and other devices that have been assigned IP addresses by the Router. The DHCP Server IP Address is the IP address of the Router. The table lists the Client Hostname, IP Address, MAC Address, and Interface for each DHCP client. To remove a DHCP client, select the client and click **Delete**. To retrieve the most up-to-date information, click **Refresh**.

Click **Refresh** to update the on-screen information.
Appendix A: Troubleshooting

Your computer cannot connect to the Internet.

Follow these instructions until your computer can connect to the Internet:

- Make sure that the Router is powered on. The Power LED should be green and not flashing.
- If the Power LED is flashing, then power off all of your network devices, including the modem, Router, and computers. Then power on each device in the following order:
  1. Cable or DSL modem
  2. Router
  3. Computer
- Check the cable connections. The computer should be connected to one of the ports numbered 1-4 on the Router, and the modem must be connected to the Internet port on the Router.

The modem does not have an Ethernet port.

The modem is a dial-up modem for traditional dial-up service. To use the Router, you need a cable/DSL modem and high-speed Internet connection.

You cannot use the DSL service to connect manually to the Internet.

After you have installed the Router, it will automatically connect to your Internet Service Provider (ISP), so you no longer need to connect manually.

The DSL telephone line does not fit into the Router’s Internet port.

The Router does not replace your modem. You still need your DSL modem in order to use the Router. Connect the telephone line to the DSL modem, insert the setup CD into your computer, and then follow the on-screen instructions.

When you double-click the web browser, you are prompted for a username and password. If you want to get rid of the prompt, follow these instructions.

Launch the web browser and perform the following steps (these steps are specific to Internet Explorer but are similar for other browsers):

1. Select Tools > Internet Options.
2. Click the Connections tab.
3. Select Never dial a connection.
4. Click OK.

The Router does not have a coaxial port for the cable connection.

The Router does not replace your modem. You still need your cable modem in order to use the Router. Connect your cable connection to the cable modem, insert the setup CD into your computer, and then follow the on-screen instructions.

You need to modify the settings on the Router.

Open the web browser (for example, Internet Explorer or Firefox), and enter the Router’s IP address in the address field (the default IP address is 192.168.1.1). When prompted, leave the User name field blank and enter the password to the Router (the default is admin). Click the appropriate tab to change the settings.

WEB: If your questions are not addressed here, refer to the Linksys website, www.linksys.com.
# Appendix B: Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>BEFSX41</th>
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<tbody>
<tr>
<td>Standards</td>
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<td>Ports</td>
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<td>Button</td>
<td>Reset</td>
</tr>
<tr>
<td>Cabling Type</td>
<td>Ethernet Category 5</td>
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<tr>
<td>LEDs</td>
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</table>

## Environmental

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Unit Weight</td>
<td>13.40 oz. (380 g)</td>
</tr>
<tr>
<td>Power</td>
<td>External, 12V DC, 1A</td>
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<tr>
<td>Certifications</td>
<td>FCC, CE</td>
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<td>Operating Temp.</td>
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<tr>
<td>Storage Temp.</td>
<td>-4 to 158°F (-20 to 70°C)</td>
</tr>
<tr>
<td>Operating Humidity</td>
<td>10 to 85%, Noncondensing</td>
</tr>
<tr>
<td>Storage Humidity</td>
<td>5 to 90%, Noncondensing</td>
</tr>
</tbody>
</table>

Specifications are subject to change without notice.
Appendix C: Warranty Information

Limited Warranty

Linksys warrants this Linksys hardware product against defects in materials and workmanship under normal use for the Warranty Period, which begins on the date of purchase by the original end-user purchaser and lasts for the period specified below:

- One (1) year for new product
- Ninety (90) days for refurbished product

This limited warranty is non-transferable and extends only to the original end-user purchaser. Your exclusive remedy and Linksys’ entire liability under this limited warranty will be for Linksys, at its option, to (a) repair the product with new or refurbished parts, (b) replace the product with a reasonably available equivalent new or refurbished Linksys product, or (c) refund the purchase price of the product less any rebates. Any repaired or replacement products will be warranted for the remainder of the original Warranty Period or thirty (30) days, whichever is longer. All products and parts that are replaced become the property of Linksys.

Exclusions and Limitations

This limited warranty does not apply if: (a) the product assembly seal has been removed or damaged, (b) the product has been altered or modified, except by Linksys, (c) the product damage was caused by use with non-Linksys products, (d) the product has not been installed, operated, repaired, or maintained in accordance with instructions supplied by Linksys, (e) the product has been subjected to abnormal physical or electrical stress, misuse, negligence, or accident, (f) the serial number on the Product has been altered, defaced, or removed, or (g) the product is supplied or licensed for beta, evaluation, testing or demonstration purposes for which Linksys does not charge a purchase price or license fee.

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Obtaining Warranty Service

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**Technical Support**

This limited warranty is neither a service nor a support contract. Information about Linksys’ current technical support offerings and policies (including any fees for support services) can be found at: [www.linksys.com/support](http://www.linksys.com/support).

This limited warranty is governed by the laws of the jurisdiction in which the Product was purchased by you.

Please direct all inquiries to: Linksys, P.O. Box 18558, Irvine, CA 92623.
Appendix D: Regulatory Information

FCC Statement

This product has been tested and complies with the specifications for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used according to the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which is found by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment or devices
- Connect the equipment to an outlet other than the receiver’s
- Consult a dealer or an experienced radio/TV technician for assistance

Safety Notices

- Caution: To reduce the risk of fire, use only No.26 AWG or larger telecommunication line cord.
- Do not use this product near water, for example, in a wet basement or near a swimming pool.
- Avoid using this product during an electrical storm. There may be a remote risk of electric shock from lightning.

**WARNING:** This product contains lead, known to the State of California to cause cancer, and birth defects or other reproductive harm. Wash hands after handling.

Industry Canada Statement

This Class B digital apparatus complies with Canadian ICES-003.

Operation is subject to the following two conditions:
1. This device may not cause interference and
2. This device must accept any interference, including interference that may cause undesired operation of the device.

Avis d’Industrie Canada

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

Le fonctionnement est soumis aux conditions suivantes:
1. Ce périphérique ne doit pas causer d’interférences;
2. Ce périphérique doit accepter toutes les interférences reçues, y compris celles qui risquent d’entraîner un fonctionnement indésirable.
Appendix D
Regulatory Information

User Information for Consumer Products

This document contains important information for users with regards to the proper disposal and recycling of Linksys products. Consumers are required to comply with this notice for all electronic products bearing the following symbol:

![WEEE Symbol]

English - Environmental Information for Customers in the European Union

European Directive 2002/96/EC requires that the equipment bearing this symbol on the product and/or its packaging must not be disposed of with unsorted municipal waste. The symbol indicates that this product should be disposed of separately from regular household waste streams. It is your responsibility to dispose of this and other electric and electronic equipment via designated collection facilities appointed by the government or local authorities. Correct disposal and recycling will help prevent potential negative consequences to the environment and human health. For more detailed information about the disposal of your old equipment, please contact your local authorities, waste disposal service, or the shop where you purchased the product.

Dansk (Danish) - Miljøinformation for kunder i EU


Deutsch (German) - Umweltinformation für Kunden innerhalb der Europäischen Union

Appendix D

Regulatory Information

Français (French) - Informations environnementales pour les clients de l’Union européenne

La directive européenne 2002/96/CE exige que l’équipement sur lequel est apposé ce symbole Σ sur le produit et/ou son emballage ne soit pas jeté avec les autres ordures ménagères. Ce symbole indique que le produit doit être éliminé dans un circuit distinct de celui pour les déchets des ménages. Il est de votre responsabilité de jeter ce matériau ainsi que tout autre matériel électrique ou électronique par les moyens de collecte indiqués par le gouvernement et les pouvoirs publics des collectivités territoriales. L’élimination et le recyclage en bonne et due forme ont pour but de lutter contre l’impact négatif potentiel de ce type de produits sur l’environnement et la santé publique. Pour plus d’informations sur le mode d’élimination de votre ancien équipement, veuillez prendre contact avec les pouvoirs publics locaux, le service de traitement des déchets, ou l’endroit où vous avez acheté le produit.

Italiano (Italian) - Informazioni relative all’ambiente per i clienti residenti nell’Unione Europea

La direttiva europea 2002/96/EC richiede che le apparecchiature contrassegnate con questo simbolo Σ sul prodotto e/o l’imballaggio non siano smaltite insieme ai rifiuti urbani non differenziati. Il simbolo indica che questo prodotto non deve essere smaltito insieme ai normali rifiuti domestici. È responsabilità del proprietario smaltire sia questi prodotti sia le altre apparecchiature elettriche ed elettroniche mediante le specifiche strutture di raccolta indicate dal governo o dagli enti pubblici locali. Il corretto smaltimento ed il riciclaggio aiuteranno a prevenire conseguenze potenzialmente negative per l’ambiente e per la salute dell’essere umano. Per ricevere informazioni più dettagliate circa lo smaltimento delle vecchie apparecchiature in Vostro possesso, Vi invitiamo a contattare gli enti pubblici di competenza, il servizio di smaltimento rifiuti o il negozio nel quale avete acquistato il prodotto.

Latviešu valoda (Latvian) - Ekoloģiska informācija klientiem Eiropas Savienības jurisdikcijā

Regulatory Information

Appendix D

European Directives


Malti (Maltese) - Informazzjoni Ambjentali ghal Klijenti fl-Unjoni Ewropea
Id-Direttiva Ewropea 2002/96/KE titlob li t-tagħmir li jkun fih fl-Unjoni Ewropea. Ir-rimi b'mod korrett u r-riċiklaġġ jgħin permezz ta' faċilitajiet ta' ġbir appuntati apposta mill-gvern jew dan it-tagħmir u kull tagħmir ieħor ta' l-elettriku u elettroniku jindika li dan il-prodott għandu jintrema separatament minn ma' jintrema ma' skart muniċipali li ma ġiex isseparat. Is-simbolu az alábbi címke azokat a termékeket, amelyeken, és/vagy amelyek csomagolásán európai uniós vásárlók számára.

Magyar (Hungarian) - Környezetvédelmi információ az európai uniós vásárlók számára
De Europese Richtlijn 2002/96/EC schrijft voor dat apparatuur die is voorzien van dit symbool Ξ op het product of de verpakking, niet mag worden ingezameld met niet-gescheiden huishoudelijk afval. Dit symbool geeft aan dat het product apart moet worden ingezameld. U bent zelf verantwoordelijk voor de vernietiging van deze en andere elektrische en elektronische apparatuur via de daarvoor door de landelijke of plaatselijke overheid aangewezen inzamelingssystemen. De juiste vernietiging en recycling van deze apparatuur voorkomt mogelijke negatieve gevolgen voor het milieu en de gezondheid. Voor meer informatie over het vernietigen van uw oude apparatuur neemt u contact op met de plaatselijke autoriteiten of afvalverwerkingsdienst, of met de winkel waar u het product hebt aangeschaft.

Nederlands (Dutch) - Milieu-informatie voor klanten in de Europese Unie
De Europese Richtlijn 2002/96/EC schrijft voor dat apparatuur die is voorzien van dit symbool Ξ op het product of de verpakking, niet mag worden ingezameld met niet-gescheiden huishoudelijk afval. Dit symbool geeft aan dat het product apart moet worden ingezameld. U bent zelf verantwoordelijk voor de vernietiging van deze en andere elektrische en elektronische apparatuur via de daarvoor door de landelijke of plaatselijke overheid aangewezen inzamelingssystemen. De juiste vernietiging en recycling van deze apparatuur voorkomt mogelijke negatieve gevolgen voor het milieu en de gezondheid. Voor meer informatie over het vernietigen van uw oude apparatuur neemt u contact op met de plaatselijke autoriteiten of afvalverwerkingsdienst, of met de winkel waar u het product hebt aangeschaft.

Norsk (Norwegian) - Miljøinformasjon for kunder i EU

Polski (Polish) - Informacja dla klientów w Unii Europejskiej o przepisach dotyczących ochrony środowiska
Dyrektywa Europejska 2002/96/EC wymaga, aby sprzęt oznaczony symbolem Ξ znajdującym się na produkcie i/lub jego opakowaniu nie był wyrzucany razem z innymi niesortowanymi odpadami komunalnymi. Symbol ten wskazuje, że produkt nie powinien być usuwany razem ze zwykłymi odpadami z gospodarstw domowych. Na Państwu spoczywa obowiązek wyrzucania tego i innych urządzeń elektrycznych oraz elektronicznych w punktach odbioru wyznaczonych przez władze krajowe lub lokalne. Pozbywanie się sprzętu we właściwym sposób i jego recykling pomaga zapobiec potencjalnie negatywnym konsekwencjom dla środowiska i zdrowia ludzkiego. W celu uzyskania szczegółowych informacji o usuwaniu starego sprzętu, prosimy zwrócić się do lokalnych władz, służb oczyszczania miasta lub sklepu, w którym produkt został nabyty.

Broadband Firewall Router with 4-Port Switch/VPN Endpoint 27
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28Broadband Firewall Router with 4-Port Switch/VPN Endpoint

Português (Portuguese) - Informação ambiental para clientes da União Europeia

A Directiva Europeia 2002/96/CE exige que o equipamento que exibe este símbolo \(\notin\) no produto e/ou na sua embalagem não seja eliminado junto com os resíduos municipais não separados. O símbolo indica que este produto deve ser eliminado separadamente dos resíduos domésticos regulares. É da sua responsabilidade eliminar este e qualquer outro equipamento elétrico e electrónico através das instalações de recolha designadas pelas autoridades governamentais ou locais. A eliminação e reciclagem correctas ajudarão a prevenir as consequências negativas para o ambiente e para a saúde humana. Para obter informações mais detalhadas sobre a forma de eliminar o seu equipamento antigo, contacte as autoridades locais, os serviços de eliminação de resíduos ou o estabelecimento comercial onde adquiriu o produto.

Română (Romanian) - Informaţii de mediu pentru clienţii din Uniunea Europeană


Slovenčina (Slovak) - Informácie o ochrane životného prostredia pre zákazníkov v Európskej unii

Podľa európskej smernice 2002/96/ES zariadenie s týmto symbolom \(\notin\) na izdielku in/ali na embalaži z nesortiranimi komunálnymi odpadmi. Symbol znamená, že produkt by sa mal likvidovať inak od domácnosti. Je vašou povinnosťou likvidovať toto elektroničné zariadenie prostredníctvom špecializovaných zbieracích zariadení určených vládou alebo miestnymi orgánmi. Správna likvidácia a recyklácia pomôže zabrániť pripadnému negatívnomu dopadom na životné prostredie a zdravie. Ak máte záujem o uvedené informácie o likvidácii starého zariadenia, obrátte sa, prosím, na miestne orgány, organizácie, zaobľúránce sa likvidáciou odpadov alebo obchod, v ktorem ste si produkt zakúpili.

Slovenščina (Slovene) - Okoljske informacije za stranke v Evropski uniji

Evropska direktiva 2002/96/ES prepoveduje odlaganje opreme s tem simbolom \(\notin\) – na izdelku in/ali na embalaži z nesortiranimi komunalnimi odpadki. Ta simbol opozarja, da je treba izdelek zavržeti ločeno od preostalih gospodinjskih odpadkov. Vaša odgovornost je, da to in preostalo električno in elektronsko opremo oddate na posebna zbiralnišča, ki jih določijo državne upravne ustanove ali lokalne oblasti. S pravilnim odlaganjem in recikliranjem boste preprečili morebitne škodljive vplive na okolje in zdravje ljudi. Če želite izvedeti več o odlaganju stare opreme, se obrnite na lokalne oblasti, odlagališča odpadov ali trgovino, kjer ste izdelek kupili.

Suomi (Finnish) - Ympäristöä koskevia tietoja EU-alueen asiakkaille


Svenska (Swedish) - Miljöinformation för kunder i Europeiska unionen


WEB: For additional information, please visit www.linksys.com
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Appendix E

Software License Agreement

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END OF SCHEDULE 1

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Appendix E

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