RouteFinder™ VPN

Internet Security Appliance

SOHO Internet Security Appliance

RF560VPN

User Guide

MultiTech® Systems

User Guide
RouteFinder SOHO Internet Security Appliance
RF560VPN
PN S000302A Revision A

Revision	Date	Description
A	08/18/03	Initial release.

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Contents

Chapter 1 – Introduction and Description

Welcome to the world of Internet security. Your Multi-Tech SOHO RouteFinder VPN Internet security appliance, Model RF560VPN, is ideal for the small branch office or telecommuter who needs secure access to the corporate LAN.

In addition to providing a WAN Ethernet port for DSL or cable broadband Internet access, it also offers both client-to-LAN and LAN-to-LAN connectivity based on the IPSec protocol. The SOHO RouteFinder supports up to 10 IPSec tunnels and provides 3DES encryption with 1.5 Mbps throughput.

The RF560VPN is a cost-effective, easy-to-manage solution that is ideal for small- to medium-sized businesses through the use of Network Address Translation (NAT). Since NAT provides for the sharing of a single connection, you save the cost of multiple Internet accounts. See the Glossary for more about NAT.

Key Features

- One WAN Ethernet port connects to a DSL or cable modem for shared Internet access.
- Supports up to 10 IPSec VPN tunnels for secure LAN-to-LAN and Client-to-LAN access over the Internet.
- 3DES encryption throughput of 1.5 Mbps.
- Built-in 4-port 10/100M bps switch.
- Built-in firewall and DHCP services with Network Address Translation (NAT).
- Protects your LAN against Denial of Service (DoS) attacks.
- Internet access controls provide client and site filtering.
- Asynchronous port for automatic dial-backup.
- Network monitoring allows the network administrator to view all incoming and outgoing packets, status of connections, and specific connection events via a Syslog server.
- Configuration and management using any Web browser.
- Works with H.323 Voice over IP products including Multi-Tech MultiVOIP gateways or Microsoft NetMeeting.
- PPPoE support.
- Supports Windows Plug and Play
- Flash memory allows easy firmware upgrades.
- IP address mapping/port forwarding.
- Two-year warranty.

- **Secure VPN Connections.** The SOHO RouteFinder VPN uses the IPSec industry standard protocol, data encryption, and the Internet to provide high-performance, secure VPN connections.
- For LAN-to-LAN connectivity, the RouteFinder utilizes the IPSec protocol to provide up to 10 tunnels with strong 168-bit 3DES encryption using IKE and PSK key management. In addition, it provides very high performance with 1.5 Mbps with 3 DES encryption throughput.
- For Client-to-LAN connectivity, Multi-Tech provides optional IPSec client software allowing traveling employees and telecommuters secure access to the company's internal network.
- **Network Security Protection**. Protects a network from invalid access.
- **Prevention of DoS (Denial of Service) –** Prevents the consequences of the Denial of Service, such as network traffic congestion or ping of death.
- **Hacker Attack Logging –** Supports general hacker attack pattern monitoring and logging.
- **Filtering –** Prevents unauthorized packets from entering or leaving the local network.
- **Connects up to 253 Users to the Internet with Broadband Speed.** With the SOHO RouteFinder VPN, up to 253 users are connected to the Internet with only one IP account.
- **LAN Segmentation.** For added LAN security, the RouteFinder can be used to segment the LAN by connecting the corporate servers to one RouteFinder Ethernet port and the Internet Servers to the other Ethernet port. This configuration puts the corporate servers behind a firewall and the Internet servers outside the firewall. To continue to provide Internet access, connect a modem or ISDN terminal adapter to the RouteFinder's asynchronous port.
- **Can Be Configured as a DHCP Server.** The SOHO RouteFinder VPN can be configured as a DHCP server to handle request for Internet services and route to and from the ISP. Server and Client features include:

  DHCP Server – Automatically assigns IP information to the network users.

  DHCP Client – Automatically gets IP information from the ISP DHCP server.

  PPPoE Client – Supports PPPoE client function to connect to the remote PPPoE server.

  Idle Time – Lets you set a specified idle-time before automatically disconnecting.

  Dial-on-Demand – Eliminates the need for dial-up; automatically logs to your ISP.

The RouteFinder RF560VPN

RouteFinder Documentation

The Quick Start Guide

The Quick Start Guide is a shorter version of this User Guide. It is included in printed form with your RF560VPN. Both guides are intended to be used by systems administrators and network managers. They provide the necessary information for a qualified person to unpack, cable, and configure the device for proper operation.

This User Guide

The User Guide can be installed from the CD by clicking Install Manuals on the Installation screen or downloading the file from our Web site at: http://www.multitech.com

Save or Print the User Guide

Once the User Guide is displayed on screen using Adobe Acrobat Reader, you can save the .pdf file to your system or print a copy.

Setup Examples and Other Helpful Documents

There are five reference documents to help you setup and use your RF560VPN.

These reference guides are located on the CD that accompanies your RouteFinder and also on the Multi-Tech Web site.

Description of the Setup Examples

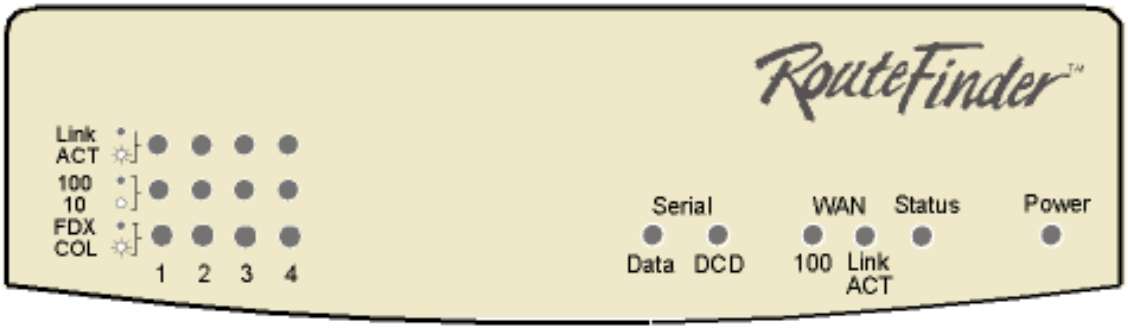
1. Setup Examples for the RF560VPN.
   The four examples show:
   - A LAN-to-LAN VPN configuration between two RF560VPNs. One at Site A and one at Site B. Both RouteFinders use static IP address at their WAN port gateways.
   - A LAN-to-LAN VPN configuration between an RF560VPNs at Site A that uses a static IP through its WAN port and an RF560VPN at Site B that uses a dynamic IP address through its WAN port.
   - A LAN-to-LAN VPN configuration between an RF560VPN at Site A that uses a static IP address at the WAN port and an RF560VPN at Site B that uses dynamic IP addressing through a modem connected to the serial port.
   - A Client-to-LAN configuration between an RF560VPN at Site A and an SSH IPSec Client.

   Each example includes a diagram, a summary chart of input values, an address table you can use to keep track of your values, and explanations of the Web interface screens.

2. RF560VPN Using a NAT Box with an IPSec Pass-Through.
   The two example show:
   - SSH Sentinel IPSec client behind a NAT box doing IPSec Pass-Through to an RF560VPN.
   - An RF560VPN behind a NAT box doing IPSec Pass-Through to another RF560VPN.

3. RF560VPN File Sharing across VPN.
4. Configuring IPSec Tunneling in Windows XP or 2000 and Connecting to an RF560VPN.
5. Advanced Settings - five examples.
6. FQDN and DDNS Examples.

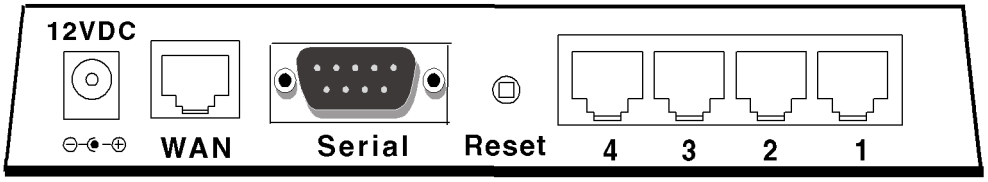
RF560VPN Front Panel



RF560VPN Light Panel

LEDs	Description
Link ACT	Lights when the LAN client is correctly connected to the Ethernet port. Blinks when there is activity on the Ethernet port.
100/10	Lights when the LAN client is connected at 100MB. Off when the LAN client is connected at 10MB.
FDX COL	Lights when the LAN client is connected as full duplex. Off when the LAN client is connected as half duplex. Blinks when there are collisions on the network.
Serial Data	Blinks when the Serial async port is receiving or transmitting data.
Serial DCD	Lights when the Serial async port is properly connected to a remote site.
WAN 100	Lights when a successful connection to the 100BaseT WAN is established. Off when connected to the 10BaseT.
WAN Link / ACT	Lights when the LAN port has a valid Ethernet connection. Blinks when it is receiving or transmitting data.
Status	Blinks when it is starting, saving the configuration, or performing a firmware update. Normally, it should be off.
Power	Lights when power is being supplied to the router.

RF560VPN Back Panel



RF560VPN Back Panel

12VDC Power	The power port connects the AC power adapter.
10/100 BT WAN (10/100BaseT)	The WAN port connects the xDSL modem or cable modem.
Serial	The Serial port connects a standard modem (optional).
Reset	The Reset button resets the router to factory defaults. Press and hold the Reset button until the Status LED of the RF560VPN blinks, and then release it. Do not press this button unless you want to restore all settings to the factory defaults.
Ports 1 - 4	There are 4 LAN ports. You can connect network devices such as PCs, FTP servers, printers, or other devices you want to put on your network.

Chapter 2 – Installation

Safety Warnings

1. Never install telephone wiring during a lightning storm.
2. Never install telephone jacks in a wet location unless the jack is specifically designed for wet locations.
3. This product is to be used with UL and cUL listed computers.
4. Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
5. Avoid using a telephone during an electrical storm. There may be a remote risk of electrical shock from lightening.
6. Do not use the telephone to report a gas leak in the vicinity of the leak.
7. To reduce the risk of fire, use only No. 26 AWG or larger Telecommunications line cord.

System Requirements

- Microsoft I.E 5.5 or later version or Netscape Navigator 7.0 or later version
- One computer with an installed 10Mbps, 100Mbps or 10/100Mbps Ethernet card
- One Modem or ISDN TA (if a dialup backup connection is needed)
- One RJ-45 xDSL/Cable Internet connection
- TCP/IP protocol installed
- UTP network Cable with a RJ-45 connection

Unpacking Your RouteFinder

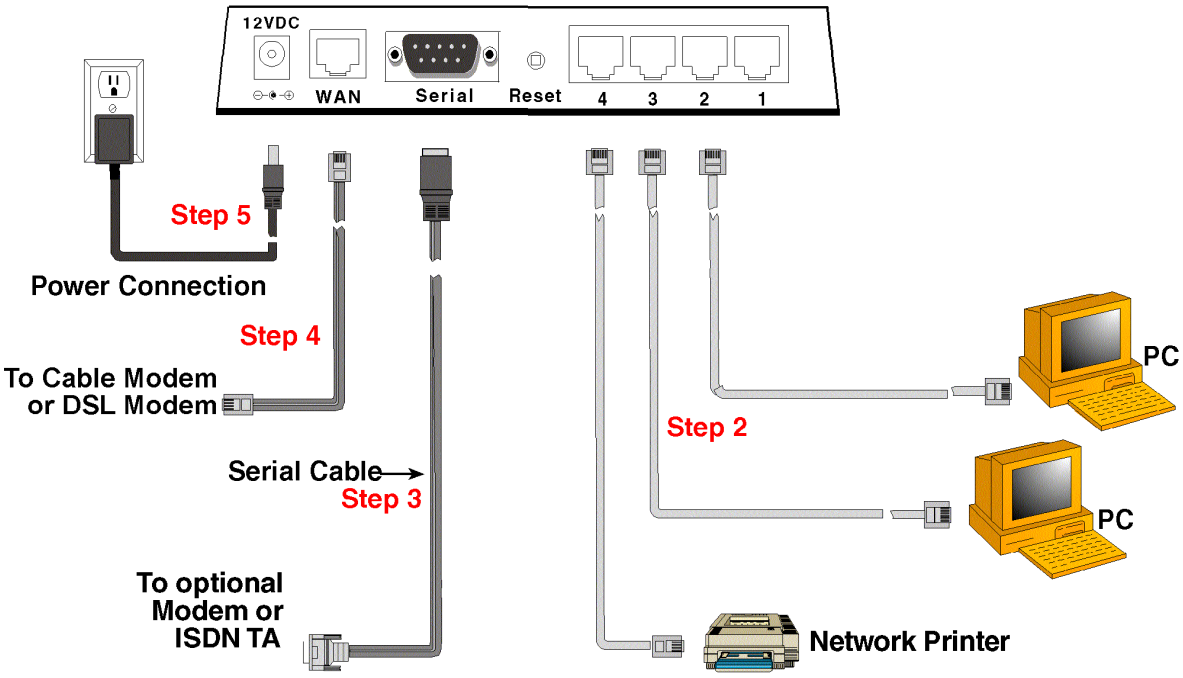
The RF560VPN shipping box contains the following items:

- The RouteFinder RF560VPN
- One RF560VPN System CD
- Power Supply
- A Quick Start Guide

If any of the items is missing or damaged, please contact Multi-Tech Systems.

Cabling Your RouteFinder

Cabling your RouteFinder requires making the appropriate connections to PCs, Cable or DSL modem, analog modem or ISDN TA (optional), AC power and the router. Because this device also provides DHCP server functions, remote access, routing and firewall protection, after your device is properly cabled, you will need to complete your configuration by following the instructions provided in the following chapter or in the Quick Start Guide.



Cabling the RouteFinder RF560VPN

1. Turn the power off on all network devices (PCs, cable modems, DSL modems, analog modems, ISDN TAs, and the router).
2. Plug one end of a cable into the Ethernet port and other into one of the 4 LAN ports. (If you have more than one PC, connect the others in the same way to the other LAN ports).
3. If you are using an analog modem, connect it to the RF560VPN's serial port.
4. Connect a network cable from the DSL modem or cable modem to the WAN port.
5. Connect the provided power supply cable to the 12 VDC power port on the back of the router. Plug the other end of the power supply into an AC power outlet as shown.

You are ready to configure your router and network PCs.

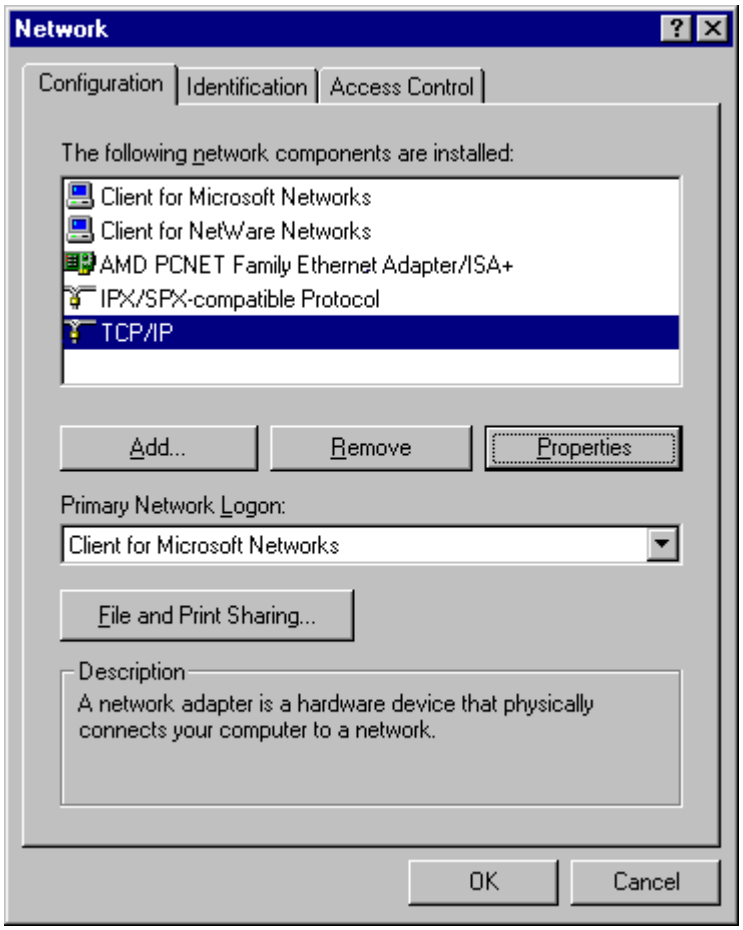
Chapter 3 – Configuring the PC

You must establish TCP/IP communication on each PC (make sure a Network Card or Adapter has been installed into each PC).

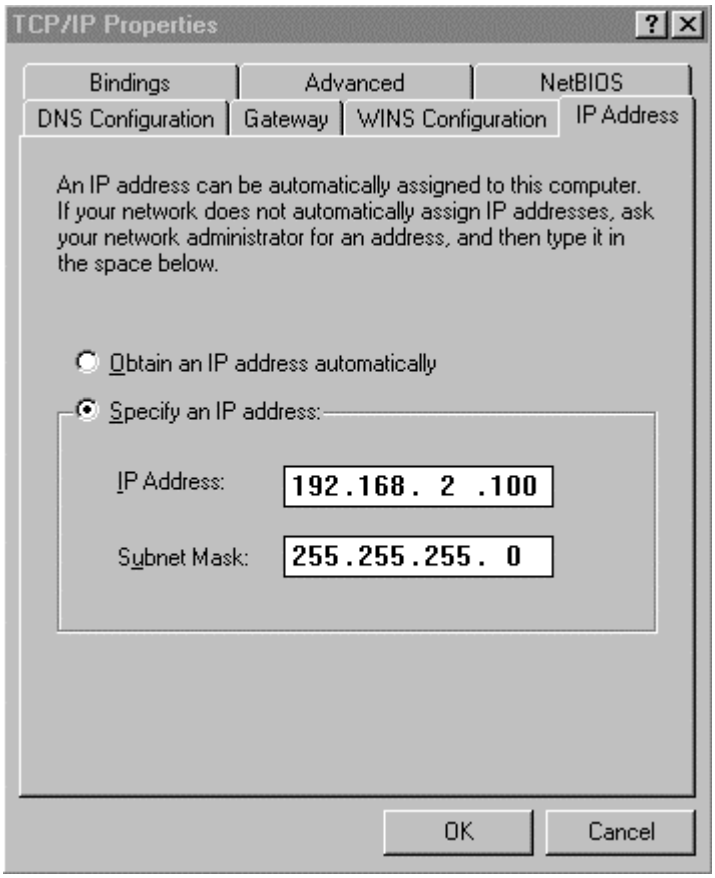
If Your Operating System Is Windows 98/Me:

Note: The following procedures are based on Windows 98. Procedures may differ slightly in Windows Me. For Windows 98, check to see that you have installed the Windows 98 patch dated August 1998.

1. Click **Start | Settings | Control Panel**.
2. Double-click the **Network** icon.
3. On the **Configuration** tab, select the TCP/IP protocol line associated with your network card/adapter.
4. If the TCP/IP protocol line associated with your network card/adapter is listed, proceed to Step 5. If not listed, see Appendix B for installation directions.
5. Then click the **Properties** button.



6. The **TCP/IP Properties** window displays. Click the **IP Address** tab to set your workstation's IP Address.
7. In the **IP Address** dialog box, choose one of the following:
   - To set a Dynamic IP Address, check **Obtain an IP Address Automatically**. Dynamic Addresses are used in the Example Reference Guide in ***Example 2 – Site B*** and ***Example 3 – Site B.***
   - To set a Fixed IP Address, check **Specify an IP address**. Fixed Addresses are used in the Example Reference Guide in all the examples, except the two mentioned above. For our example, set the address to **192.168.2.x**.
8. Click **OK**.

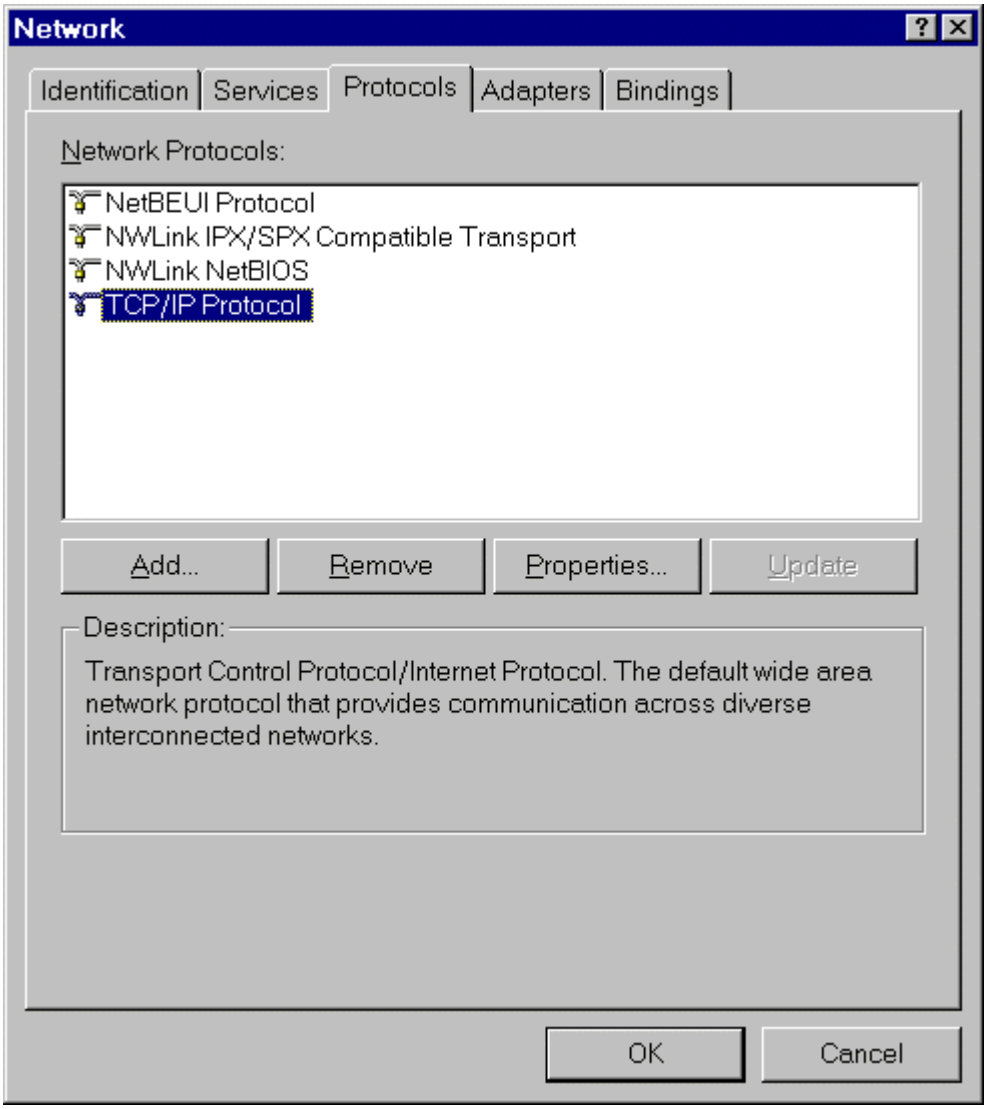


9. You have completed the client settings. Click **OK** to close out of the **Network Control Panel.**
10. Windows will ask you to restart the PC. Click the **Yes** button.

Note: Repeat these steps for each PC on your network.

If Your Operating System Is Windows NT:

1. Click **Start | Settings | Control Panel.**
2. Double-click the **Network** icon.
3. The Network dialog box displays. Click the **Protocols** tab. Select the TCP/IP protocol line associated with your network card/adapter. If TCP/IP is not listed, see Appendix B for installation directions.

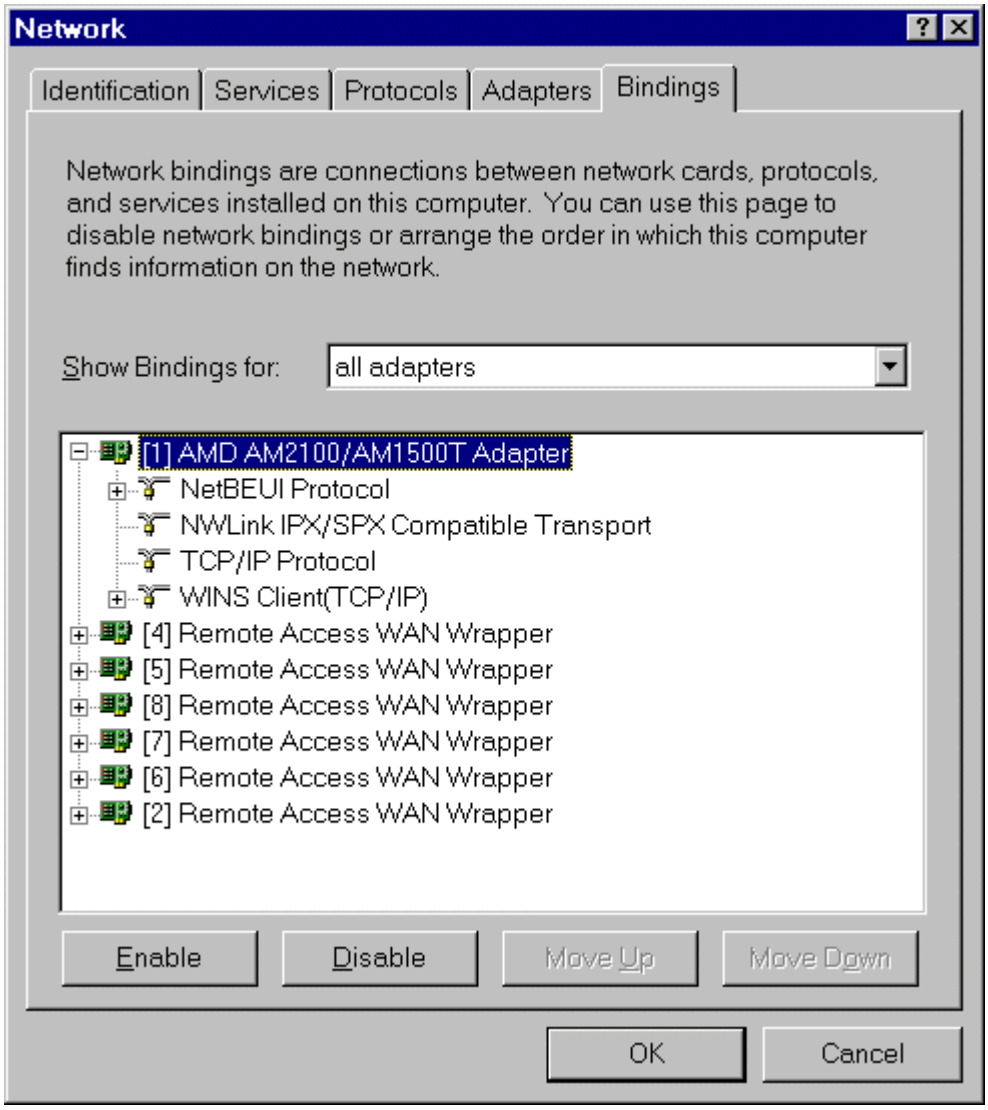


4. Click the **Bindings** tab.

   The **Bindings** dialog box displays.

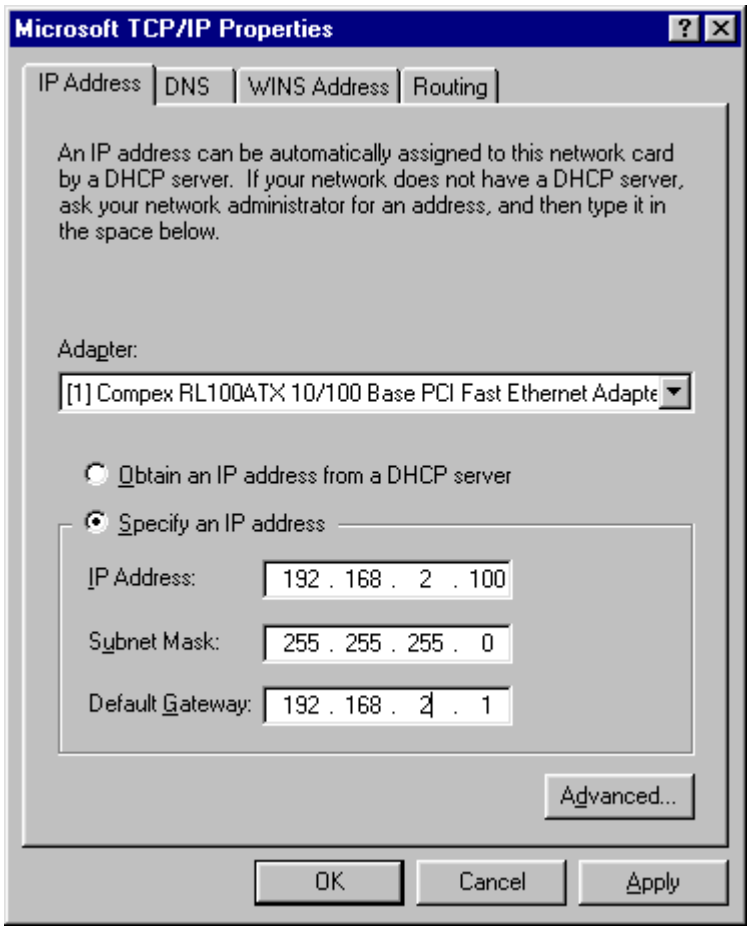
   In the **Show Bindings for** drop-down list box, select **all adapters**. A list of all adapters displays on the lower part of the screen.

   Double-click the entry for your Ethernet card adapter. This expands the list. Verify that TCP/IP Protocol is included in the list below your adapter name.



5. TCP/IP and your adapter are now setup.

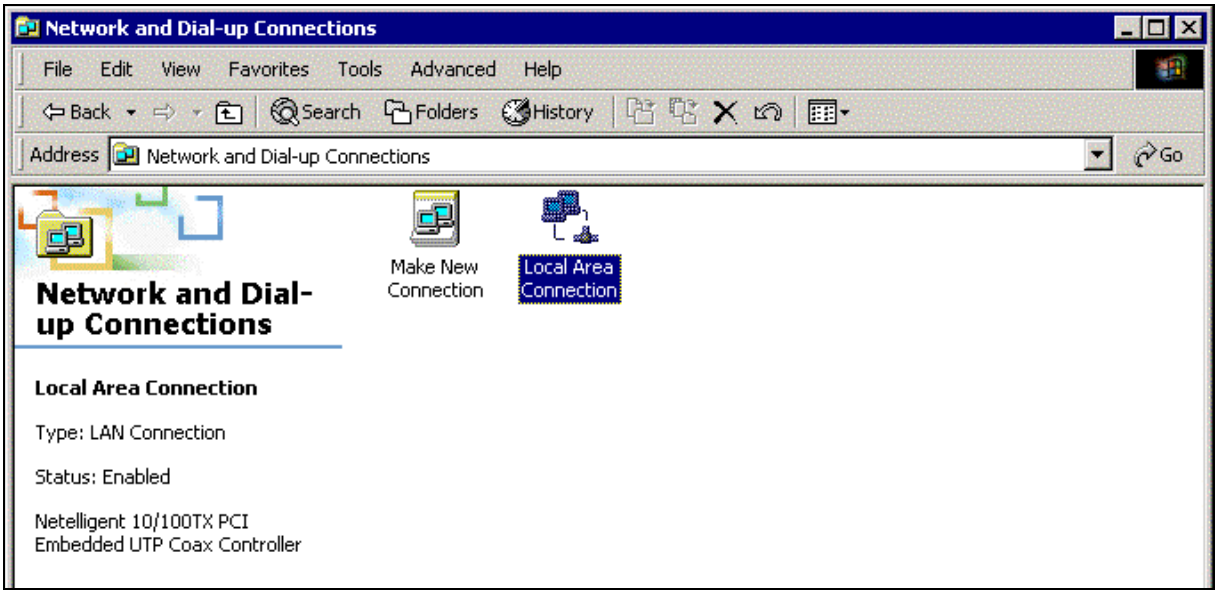
6. Next, select the **Protocol** tab to set your workstation's IP Address.
7. Click the **Properties** button and choose one of the following:
   - To obtain an IP Address automatically, check the ***Obtain an IP Address Automatically*** checkbox.
   - To specify a Fixed IP Address, check the ***Specify an IP Address*** checkbox.
8. Click **OK**.



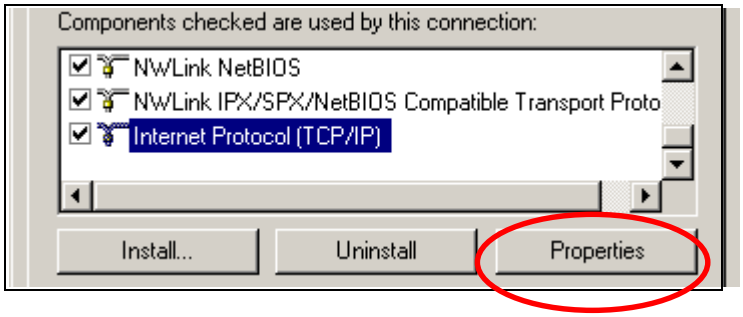
9. Close out of the **Control Panel.**
10. Repeat these steps for each PC on your network.

If Your Operating System Is Windows 2000/XP

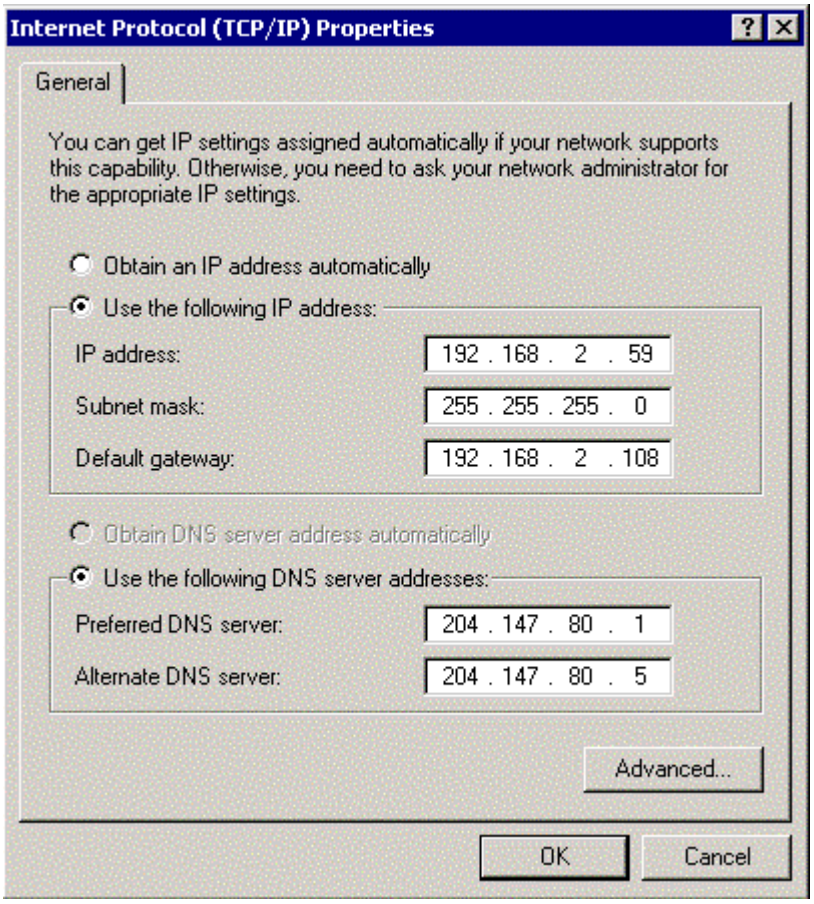
1. Click **Start | Settings | Control Panel.** Double-click the **Network and Dial-Up Connections** icon.
2. The **Network and Dial-Up Connections** screen displays. Right-click the **Local Area Connection** icon and choose **Properties**.



3. The Local Area Connection Properties dialog box displays.
   - Select **Internet Protocol [TCP/IP]**. Once the protocol is selected, the name of your adapter card should display in the **Connect using** box.
   - Click the **Properties** button.



4. The **Internet Protocol (TCP/IP) Properties** dialog box displays. Set your workstation's IP Address.



   - To set a Dynamic IP Address, check Obtain an IP Address Automatically.
   - To set a Fixed IP Address, check Specify an IP address. Fixed Addresses are used in all the examples, except the two mentioned above. For our example, set the address to 192.168.2.x.
5. Click **OK**.
6. Close out of the **Control Panel**.
7. Repeat these steps for each PC on your network.

Chapter 4 – Navigating the Screens

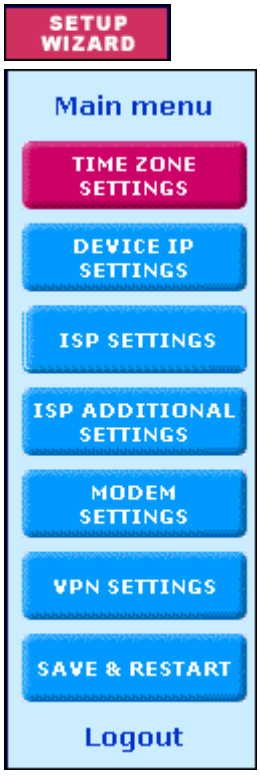
Buttons on the Main Menu

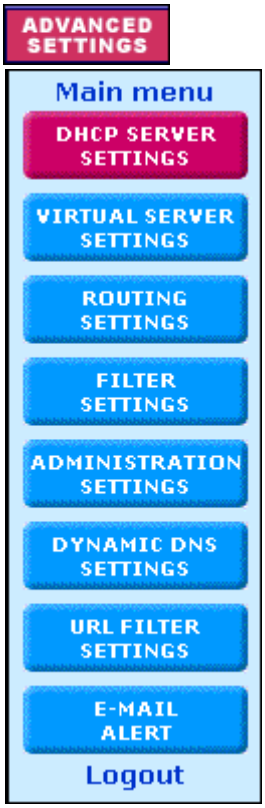
When you select a function by clicking the button at the top of the screen, the button will change from red to blue denoting that this is now the active screen.

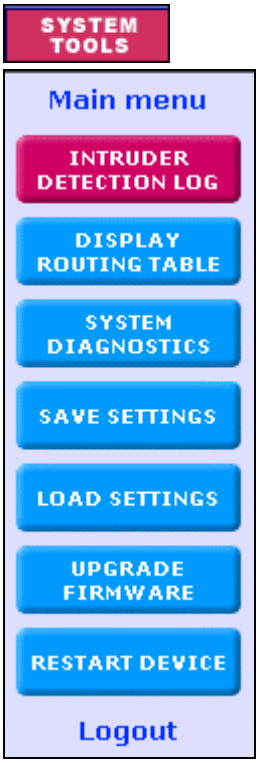
Buttons on the Function Screens

- **Buttons at the Top of the Screen:** These are the main function buttons. They allow you to move from one function to another: Device Information, Device Status, Setup Wizard, Advanced Settings, System Tools, and Help.

- **Buttons on Side of the Screen:** These are submenus under some of the main functions. When you select one of these buttons, it will turn from red to blue denoting that this is now the active selection.
- **Links:** Click on Main Menu to return to the Main Menu. Click on Logout to exit the program.







Chapter 5 – Configuring the RouteFinder Using a Web Browser

Now that the cabling is completed and each PC on the network is configured to accept the IP addresses that the RouteFinder will provide, you are ready to configure your Router.

About the Browser Interface

Initial configuration is required in order for you to begin operation. The browser-based interface eases VPN configuration and management.

About IPSec

The VPN functionality is based on the IPSec protocol and uses 168-bit Triple DES (3DES) encryption to ensure that your information remains private.

Start the RF560VPN Configuration

1. Connect your workstation.

Be sure your workstation is connected to one of the RF560VPN's LAN ports.

2. Apply power.

Apply power to the RF560VPN RouteFinder and allow the LEDs to stabilize on the unit.

3. Set the workstation IP address.

The directions for setting your workstation IP address are covered in Chapter 3.

4. Open a Web browser.

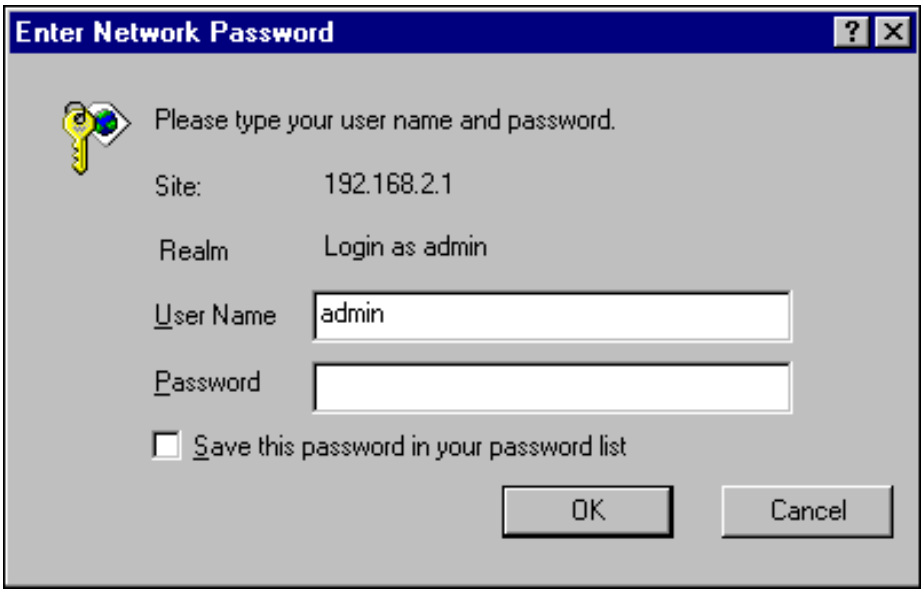
- At the Web browser's address line, type the RF560VPN IP address: http://192.168.2.1. This is the default address of your RouteFinder.
- Press **Enter**.

Note: Make sure your PC's address is on the same network as the router's address. **WINIPCONFIG** and **IPCONFIG** are tools for finding out a PC's IP configuration: the default gateway and the MAC address. In Windows 98/Me, type **WINIPCONFIG**. In Windows 2000/NT, type **IPCONFIG**.

5. The Password dialog box displays. Type your network password.

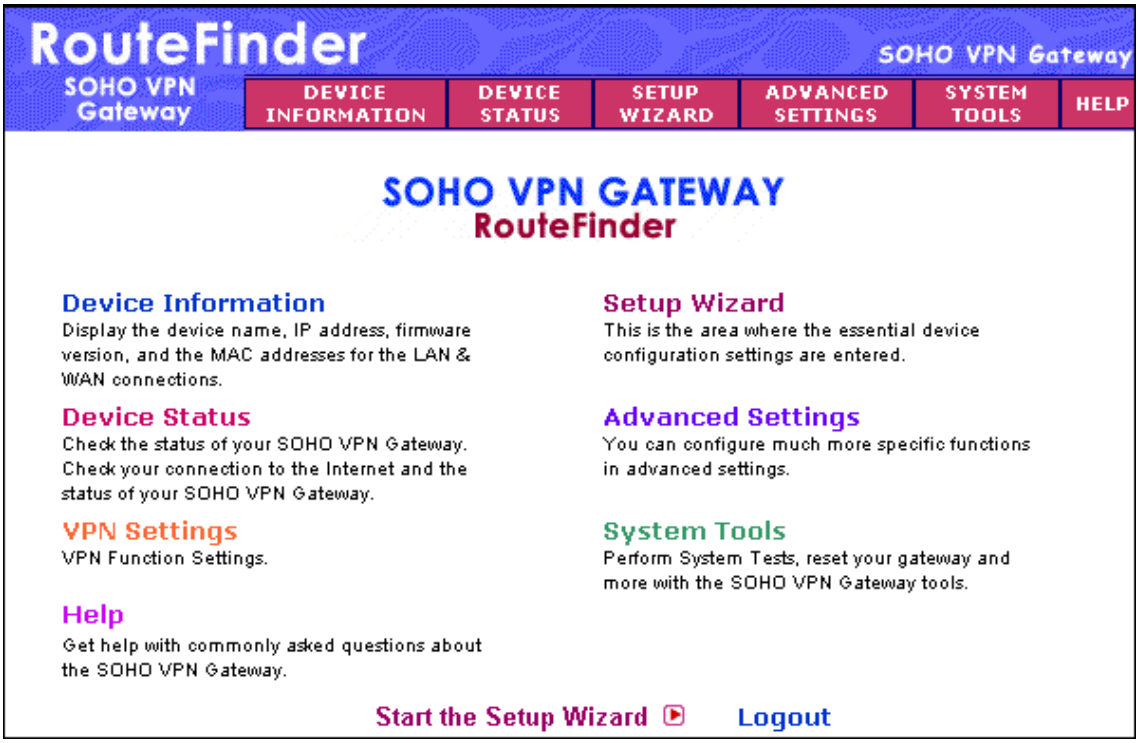
- Type **admin** (*admin* is the default user name) in the user name box. Leave the password box empty.
- Click **OK**. The **Setup Wizard** screen displays.

Note: To change your password, select **Advanced Settings,** and then choose **Administrative Settings**. See Chapter 6.



6. The Main Menu displays.

On the **Main Menu**, click the **Setup Wizard** SETUP WIZARD button.



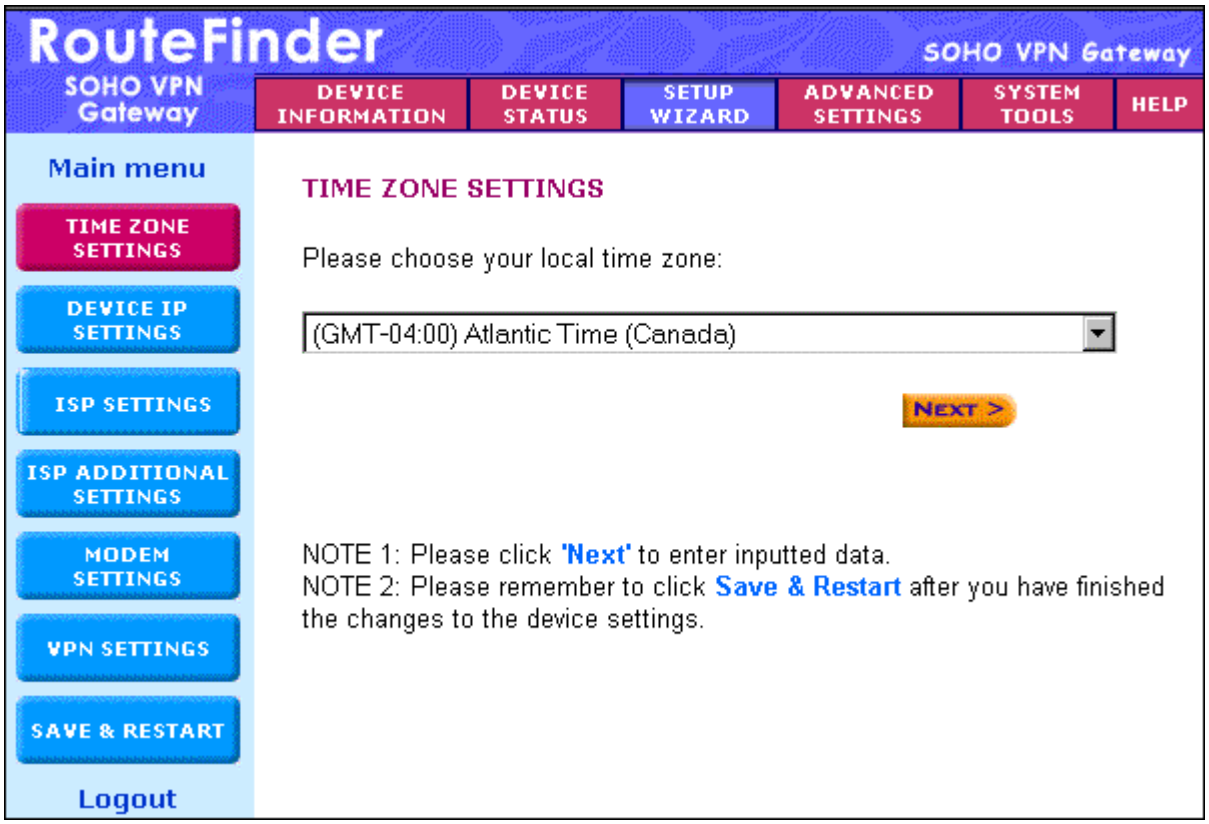
Setup Wizard

SETUP WIZARD When the **Setup Wizard** screen displays, the **Setup Wizard** button will turn blue to indicate that the screen is active.

The following screen is the first **Setup Wizard** screen. From here you will follow a step-by-step process that lets you input all of the basic settings to configure your RF560VPN.

SETUP WIZARD – Time Zone Selection

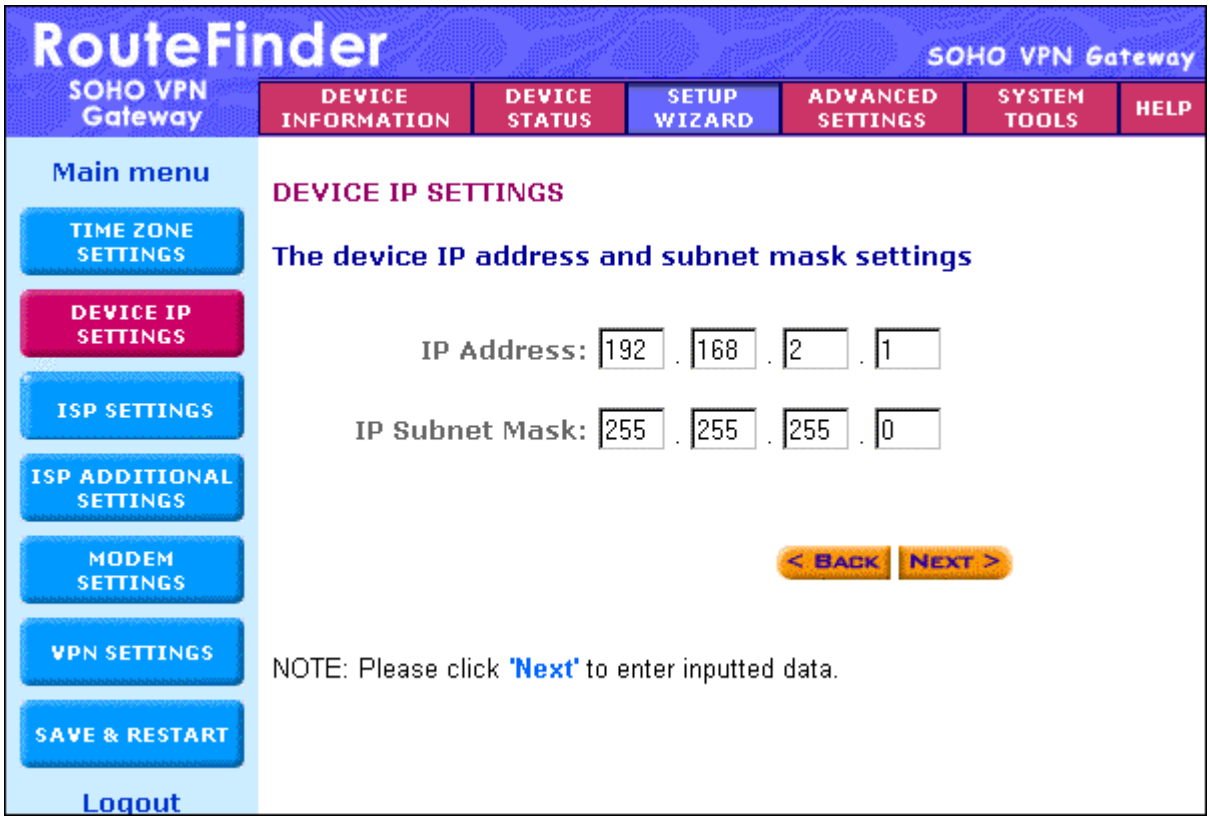
Select the time zone, and then click the Next button to continue. You can also click the buttons on the left side of the screen. These buttons are useful when you want to change the information on individual screens or to choose your own setup order.



SETUP WIZARD – Device IP Settings

On this screen, enter the internal LAN IP address that you want to assign to the LAN port of the RF560VPN. This is **not** the IP address from your ISP – it is the local internal LAN IP address.

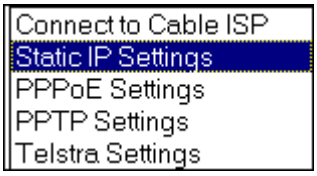
- **Device IP Address:** The default IP address of your RF560VPN: **192.168.2.1**.
- **Device IP Subnet Mask:** The subnet mask can usually be left at its default of **255.255.255.0**.
- Click the **Next** button.



SETUP WIZARD – ISP Settings

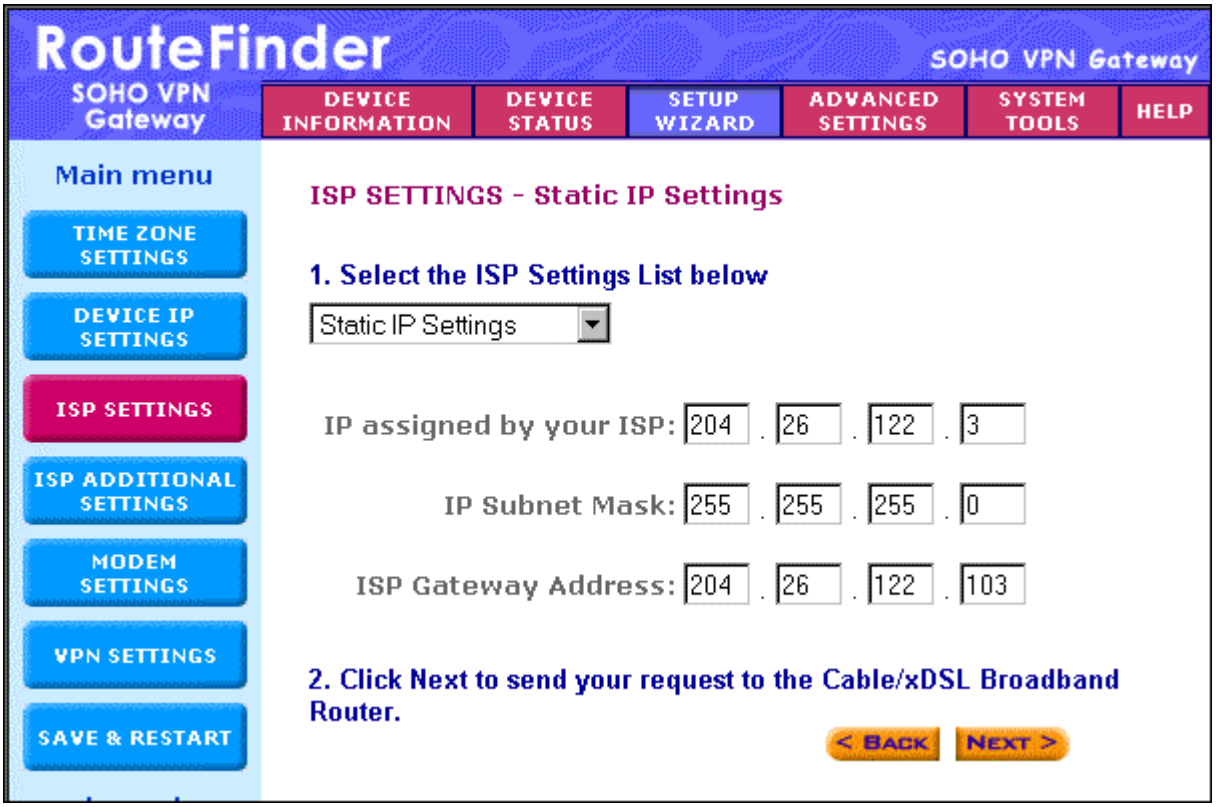
On this screen you can select to have the program automatically get your IP settings from your ISP DHCP server **or** you can choose one of four options for manually inputting your IP settings.

1. From the drop down list box, select the type of settings you will be entering. The default screen is Static IP Settings.



2a. Static IP Settings

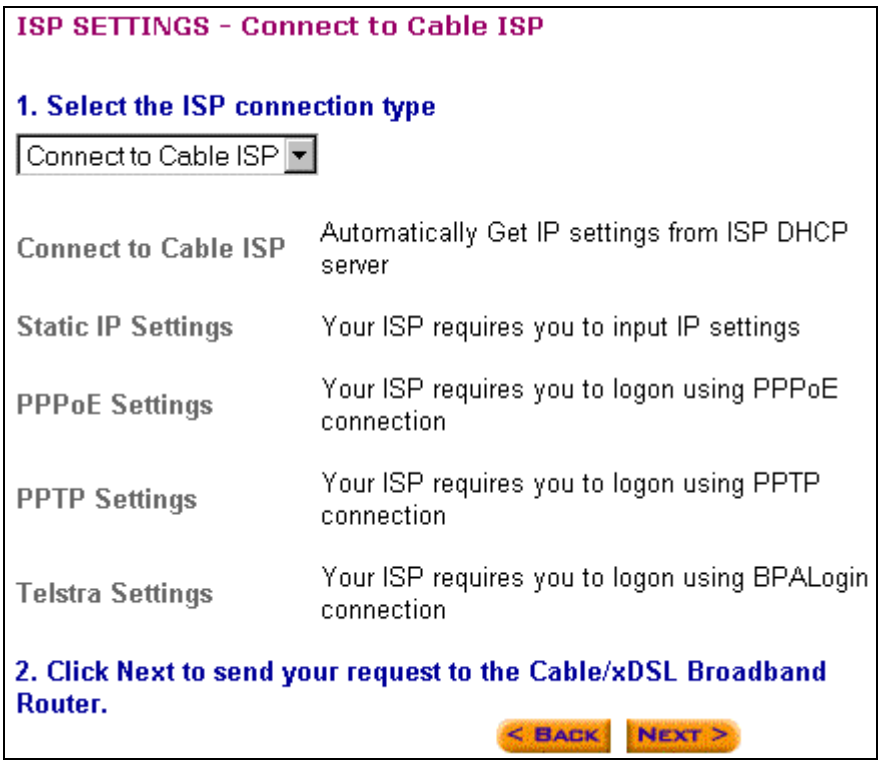
Use this screen when your ISP requires you to enter your ISP settings and you want to use static IP settings. Enter the **IP assigned by your ISP**, your **IP Subnet Mask**, and your **ISP Gateway Address**.



2b. Manually Input IP Settings:

1st Option – Connect to Cable ISP Option – Use this screen to have the program retrieve your IP settings from the ISP DHCP server and to see a description of each option.

- Select **Connect to Cable ISP** and click **Next**.



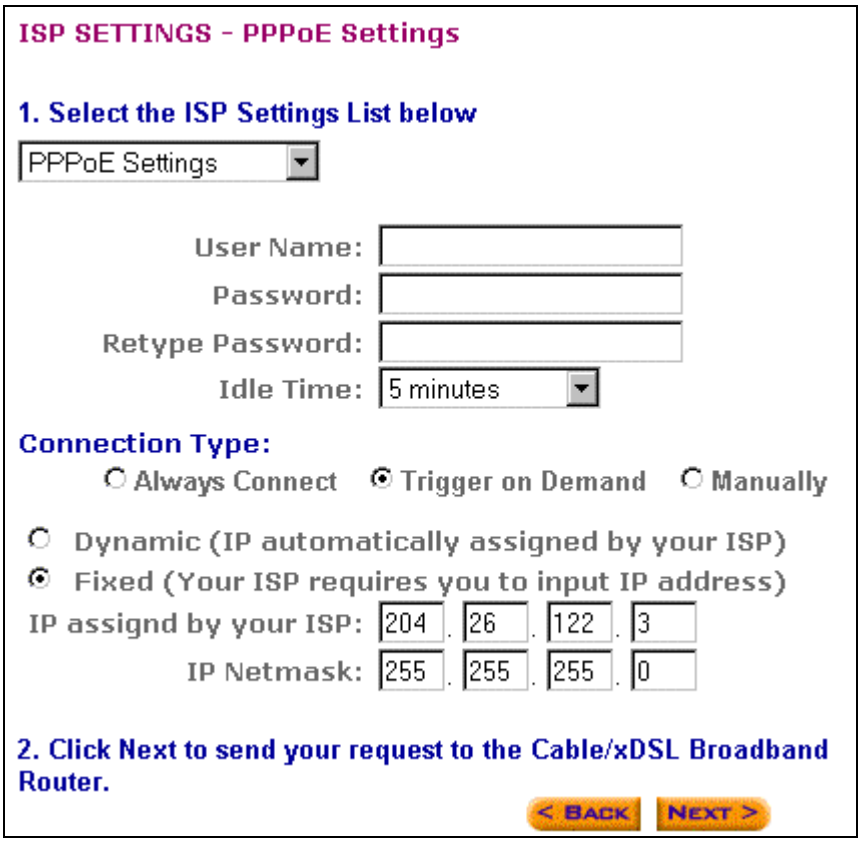
2b. Manually Input IP Settings:

2nd Option – PPPoE Settings – Use this screen when your ISP requires you to enter your ISP settings and you want to use PPPoE settings.

- Enter your **User Name, Password, Retype the Password** (for verification), and select your idle time.
- Select your **Connection Type** by clicking on the desired connection type button.
- Choose either **Dynamic** or **Fixed**. This will determine how you IP address will be assigned.

  A **Dynamic** IP address is one automatically assigned by your ISP.

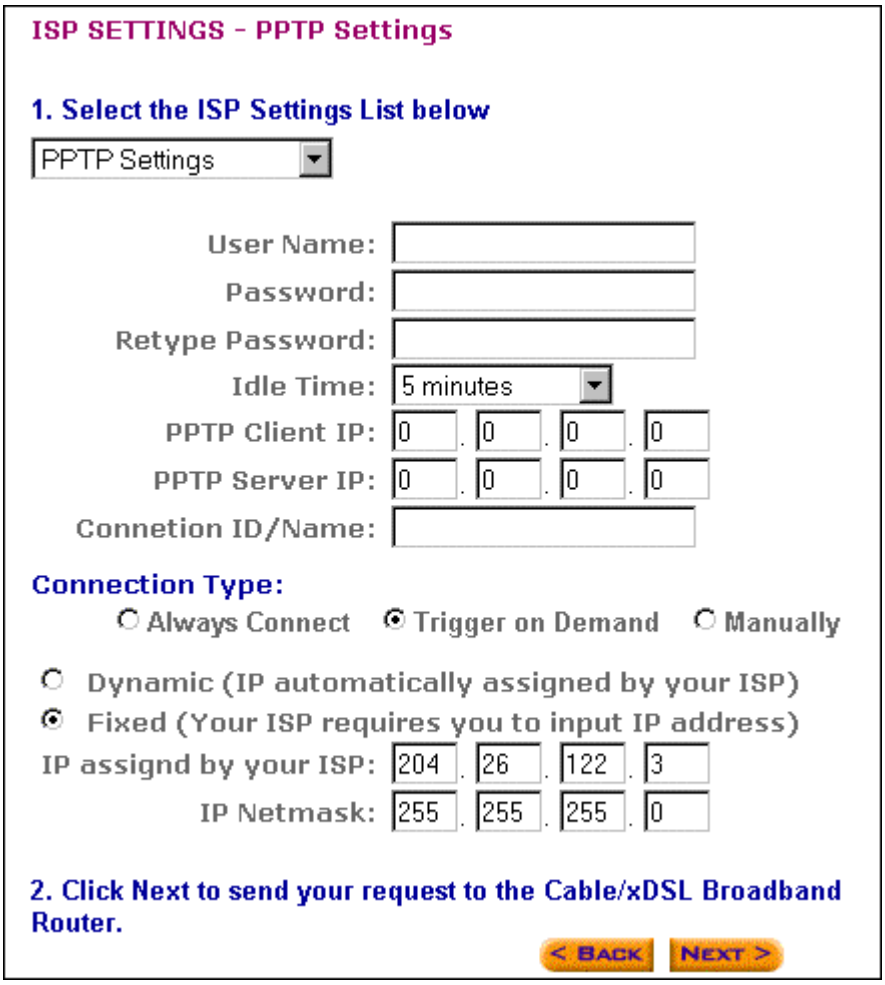
  A **Fixed** IP address is an address that always stays the same. You will have to enter the **Fixed IP address assigned by your ISP** and your **IP Netmask**.
- Click **Next**.



2b. Manually Input IP Settings:

3rd Option – PPTP Settings – Use this screen when your ISP requires you to enter your ISP settings and you want to use PPTP settings.

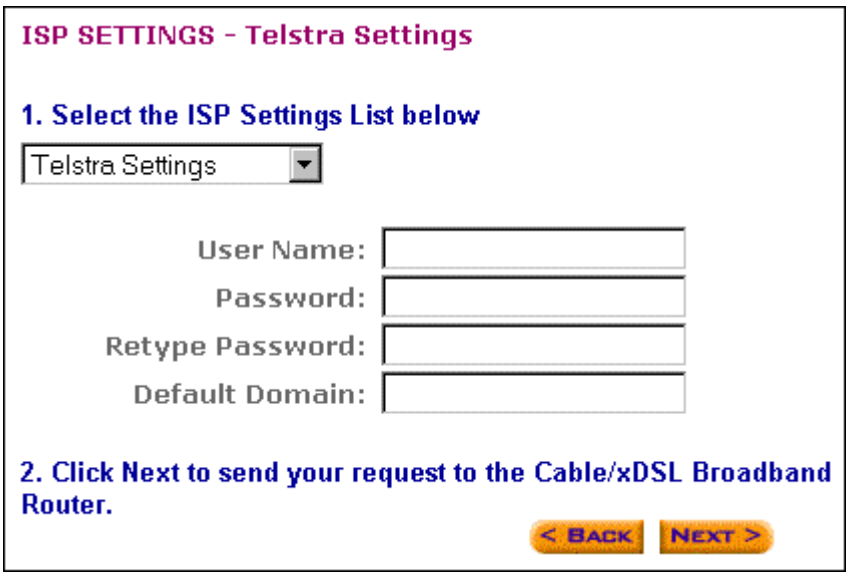
- Enter your **User Name, Password, Retype the Password** (for verification), select your idle time, enter your **PPTP Client IP address**, **PPTP Server IP address**, and your **Connection ID** or **Name**.
- Select your **Connection Type** by clicking on the desired connection type button.
- Choose either **Dynamic** or **Fixed**. This will determine how you IP address will be assigned.
- A **Dynamic** IP address is one automatically assigned by your ISP.
- A **Fixed** IP address is an address that always stays the same. You will have to enter the **Fixed IP address assigned by your ISP** and your **IP Netmask**.
- Click **Next**.



2b. Manually Input IP Settings:

4th Option – Telstra Settings – Use this screen when your ISP requires you to enter your ISP settings and you want to use Telstra settings.

- Enter your **User Name, Password, Retype the Password** (for verification), and your **Default Domain** name.
- Click **Next**.



SETUP WIZARD – ISP Additional Settings

If your ISP requires you to manually input your system information, use the fields on this screen to fulfill that requirement.

1. Check the box labeled **Your ISP requires you to manually setup DNS settings** if your ISP requires this.

   Then enter the DNS (Domain Name Server) address or addresses. These can be left as 0.0.0.0 for a LAN-to-LAN RouteFinder connection.

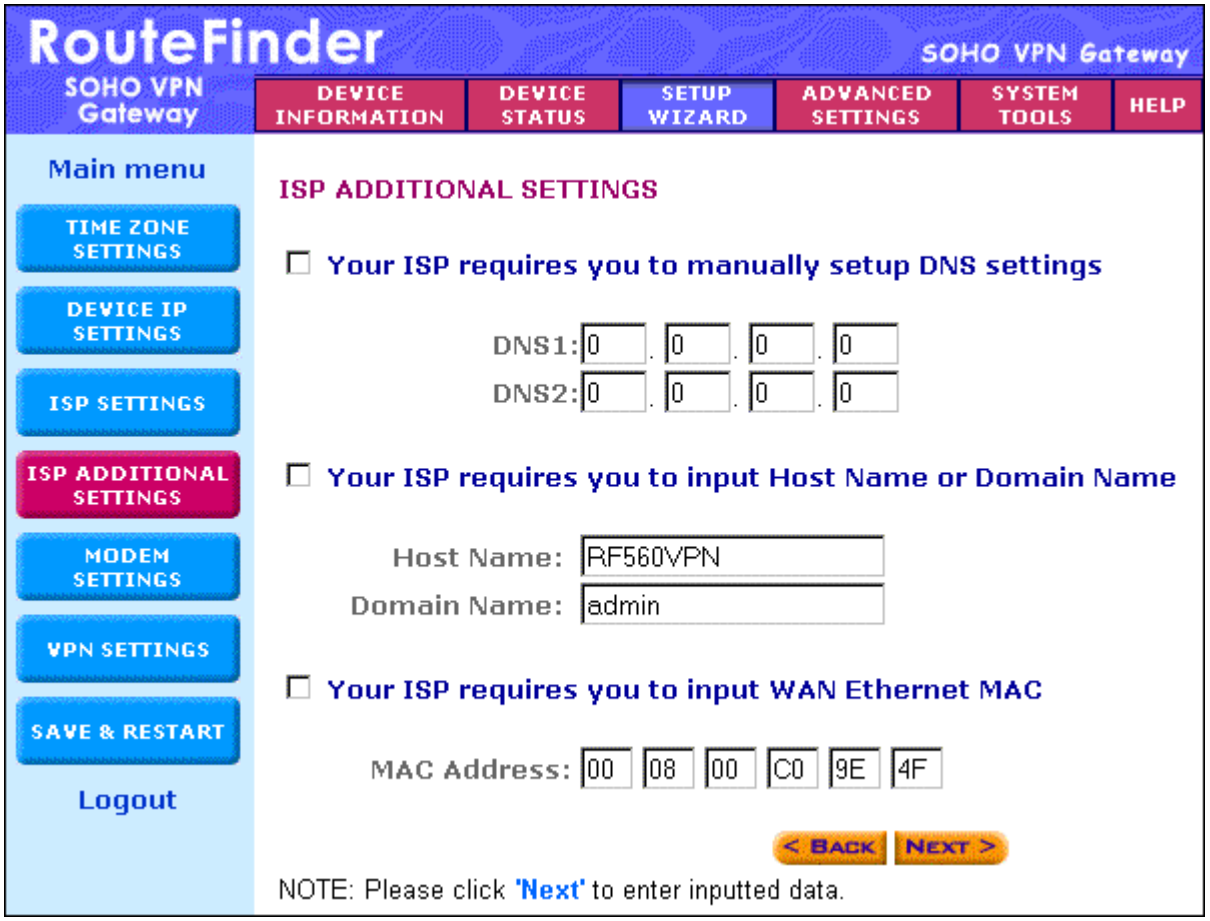
2. Check the box labeled **Your ISP requires you to input Host Name or Domain Name** if your ISP requires this.

   Then enter the **Host Name** and the **Domain Name**.

3. Check the box labeled **Your ISP requires you to input WAN Ethernet MAC** if your ISP requires this.

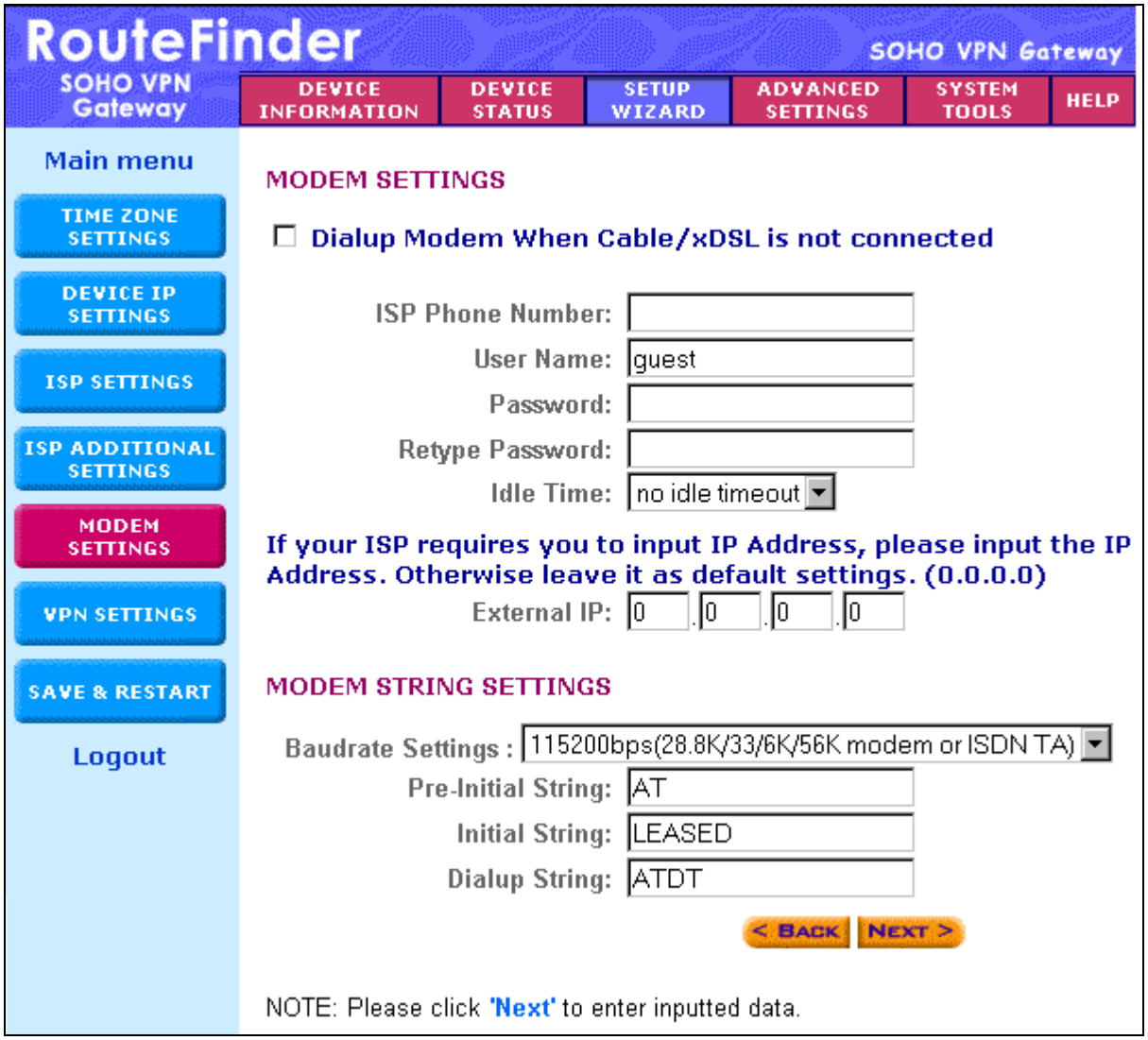
   Then enter the MAC address.

   Click the **Next** button.



SETUP WIZARD – Modem Settings (Optional)

A modem can be used as a dialup backup to the Cable/xDSL connection.



Modem Settings

The checkbox **Dialup Modem When Cable/xDSL is not connected** should be checked in order to use the modem as a backup to cable or xDSL when the cable or xDSL are not working. To add the modem to your setup, connect the modem and input the ISP account settings.

- Enter your **ISP Phone Number**, **User Name, Password, Retype the Password** (for verification), and select your idle time.
- Enter your **External IP** Address if your ISP requires you to input the IP Address.

Modem String Settings

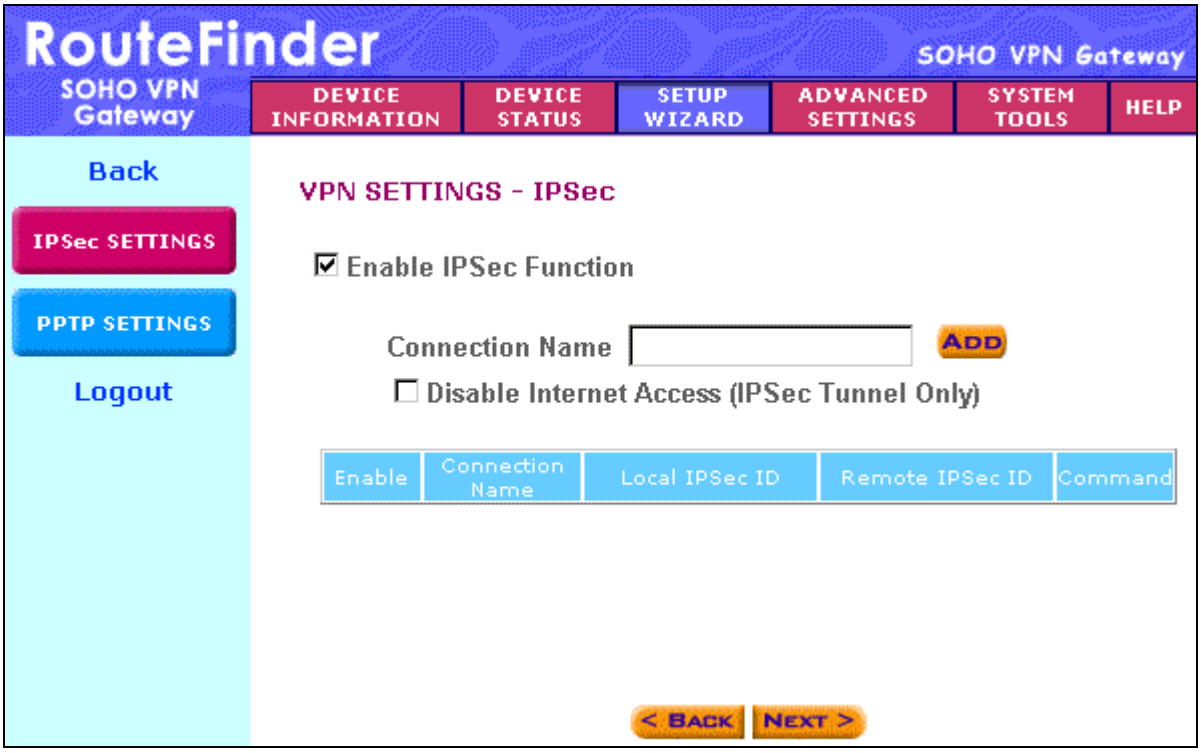
- Select your **Baudrate Settings**.
- Enter your dialing strings: **Pre-Initial String**, **Initial String**, and **Dialup String**.
- Click **Next** to have the system accept your data and to move to the next screen.

SETUP WIZARD – VPN Settings

Use this screen to input your LAN-to-LAN VPN settings and/or your Client-to-LAN VPN settings.

VPN Settings for IPSec

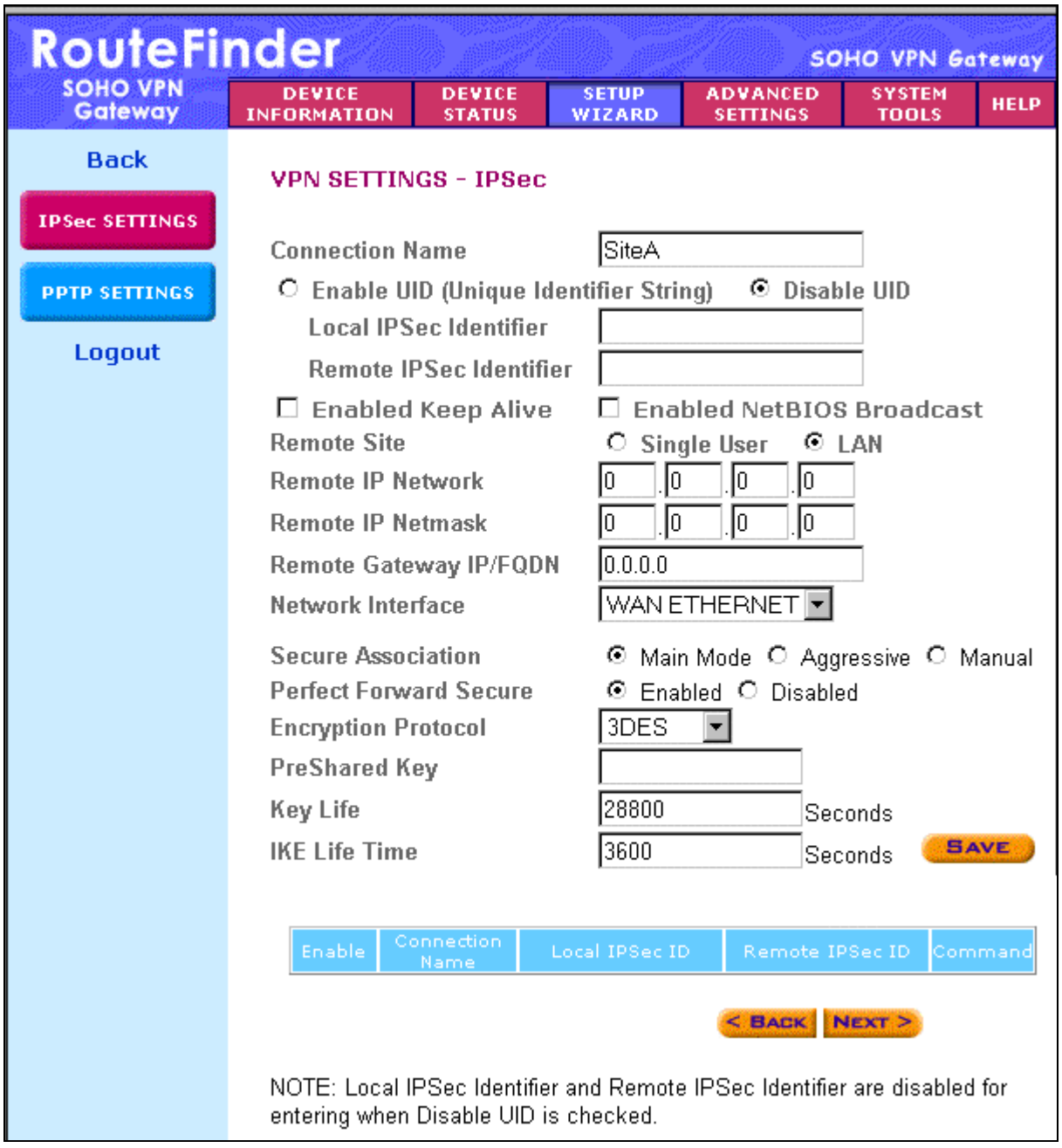
If you select Setup IPSEC Settings, the following screen displays:



- Check the **Enable IPSec Function** checkbox.
- In the **Connection Name** field, type a name that describes a connection you would like to establish.
  Example: **Site A**.
- Click the **Add** button. The **VPN Settings** detail screen will display. Once you have entered the settings, the **Connection Name** displays on the lower half of the screen (see screen above).
- Click the checkbox if you want to **Disable Internet Access (VPN Tunnel Only).**
- You can then edit, delete, or enable/disable this connection by clicking the corresponding buttons.
- To enable this connection, check the **Enable** column next to the connection name.

Note: If you uncheck the **Enable** box, the connection will not be active, but the parameters will remain on the screen for you to enable, edit, or delete as desired.

SETUP WIZARD – Enter the VPN IPSec Connection Settings



VPN Setting Name	Description	Example
Connection Name	The **Connection Name** entered on the previous screen displays here	Site A
Enable/Disable UID	Accept the default **Disable UID** (when this is selected, **Local** and **Remote IPSEC Identifier** are not active). **Enable UID** is an option for compatibility purposes only (other IPSEC VPN gateways might require you to input a Local and Remote IPSec Identifier).	Disable
Enable Keep Alive	When enabled, will automatically renegotiate VPN if a tunnel is temporarily interrupted.	Enabled

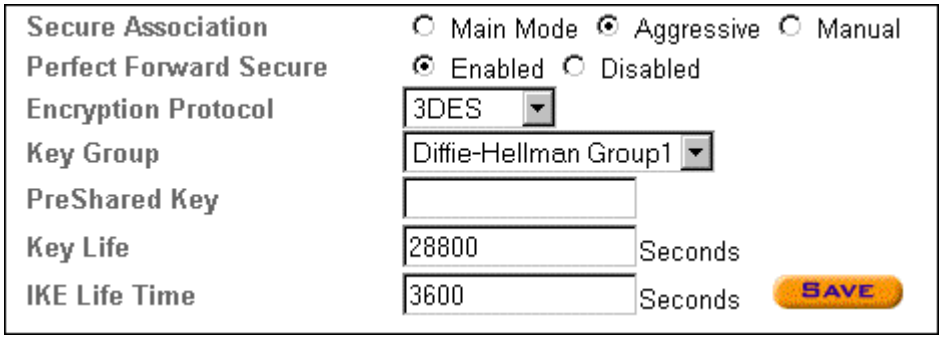
VPN Setting Name	Description	Example
Enable NetBIOS Broadcast	When enabled, will allow Microsoft File and Printer sharing to communicate information about computers on the network.	Enabled
Remote Site	Choose whether the remote site will be used by a single user or a LAN.	
Remote IP Network	Enter Remote IP Network address (LAN) for Site B.	192.168.10.0
Remote IP Netmask	Enter Remote IP Netmask address for Site B.	255.255.255.0
Remote Gateway IP/FQDN	Enter Remote Gateway IP address (WAN) for Site B.	204.26.122.3
Network Interface	Select a Network Interface from the drop-down list box. Other options are Auto and Async.	WAN ETHERNET
Secure Association	**Main Mode** and **Aggressive** are part of the Internet Key Exchange (IKE), a protocol for performing automated key management for IPSec. **Aggressive** is similar but includes a Key Group. **About IKE:** The RF560VPN can be used with a wide range of other IKE compliant VPN devices. IKE creates two types of Security Associations to allow for encrypted traffic. Once configuration is completed on the firewall to create a VPN connection, the IKE process automatically negotiates with the remote VPN device to establish the parameters for individual Security Associations. **Main Mode** provides for increased security during Phase-1 by encrypting the initial IKE traffic at the expense performance. **Aggressive Mode** is used in cases where the initial traffic cannot be encrypted, as is the case for dynamic IP VPN clients or when performance is an important factor. **Manual Mode** is used when the remote VPN device does not support the IKE standard for key management. Manual Mode requires more administration effort while providing for lower overall VPN security, since the same keys are used until the administrator manually changes them. **Main Mode:** Select Main Mode (the default) to set how inbound packets will be filtered. Main Mode primarily encompasses router key exchange and the negotiation of security policy. Selecting Main Mode activates the remaining input settings on this screen.	Main Mode
Enter the Required Information for Main Mode, the Secure Association Default:		
Perfect Forward Secure	Check the Enabled button.	Enable
Encryption Protocol	Select 3DES.	3DES
PreShared Key	Enter the PreShared Key name. You can enter an alphanumeric name, but it must match the security code for the RouteFinder at site B.	102t3t4f
Key Life	Enter the amount of time that tells the router to renegotiate the Key	28800 sec = 8 hours
IKE Life Time	Enter the amount of time that tells the router to renegotiate the IKE security association.	3600 sec = 60 min

Save the VPN Settings

Click the **Save** button. Your defined connections are displayed at the bottom of this screen where you can edit or delete them.

Optional *Aggressive* Secure Association Selection

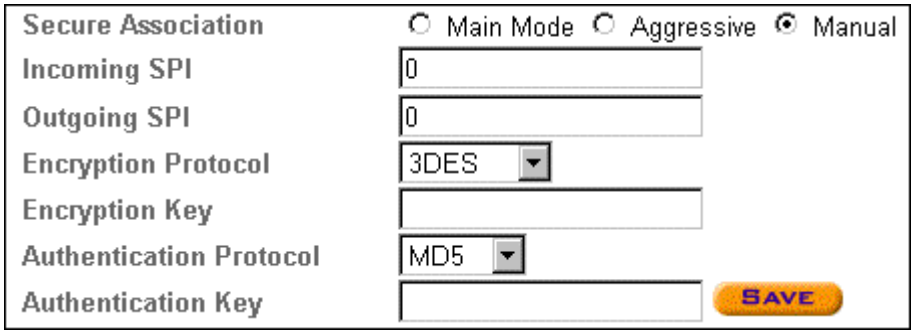
If you selected *Aggressive* for the Secure Association, the following fields display:



Enter the Required Information for *Aggressive*, an Optional Secure Association Selection:		
VPN Setting Name	**Description**	**Example**
Perfect Forward Secure	Check the Enabled button.	Enabled
Encryption Protocol	Select 3DES. Other options are: Null, DES, AES-128, AES-192, AES-256	3DES
Key Group	Accept the Diffie-Hellman Group 1 default. The alternate is Diffie-Hellman Group 2.	Group 1
PreShared Key	Enter a PreShared Key name. You can enter an alphanumeric name. It must match the security code for the RFVPN at Site B.	102t3t4f
Key Life	Enter the amount of time that tells the router to renegotiate the Key	28800 sec = 8 hours
IKE Life Time	Enter the amount of time that tells the Router to renegotiate the IKE security association.	3600 sec = 60 min

Optional *Manual* Secure Association Selection

If you Selected *Manual* for the Secure Association, the following fields display:



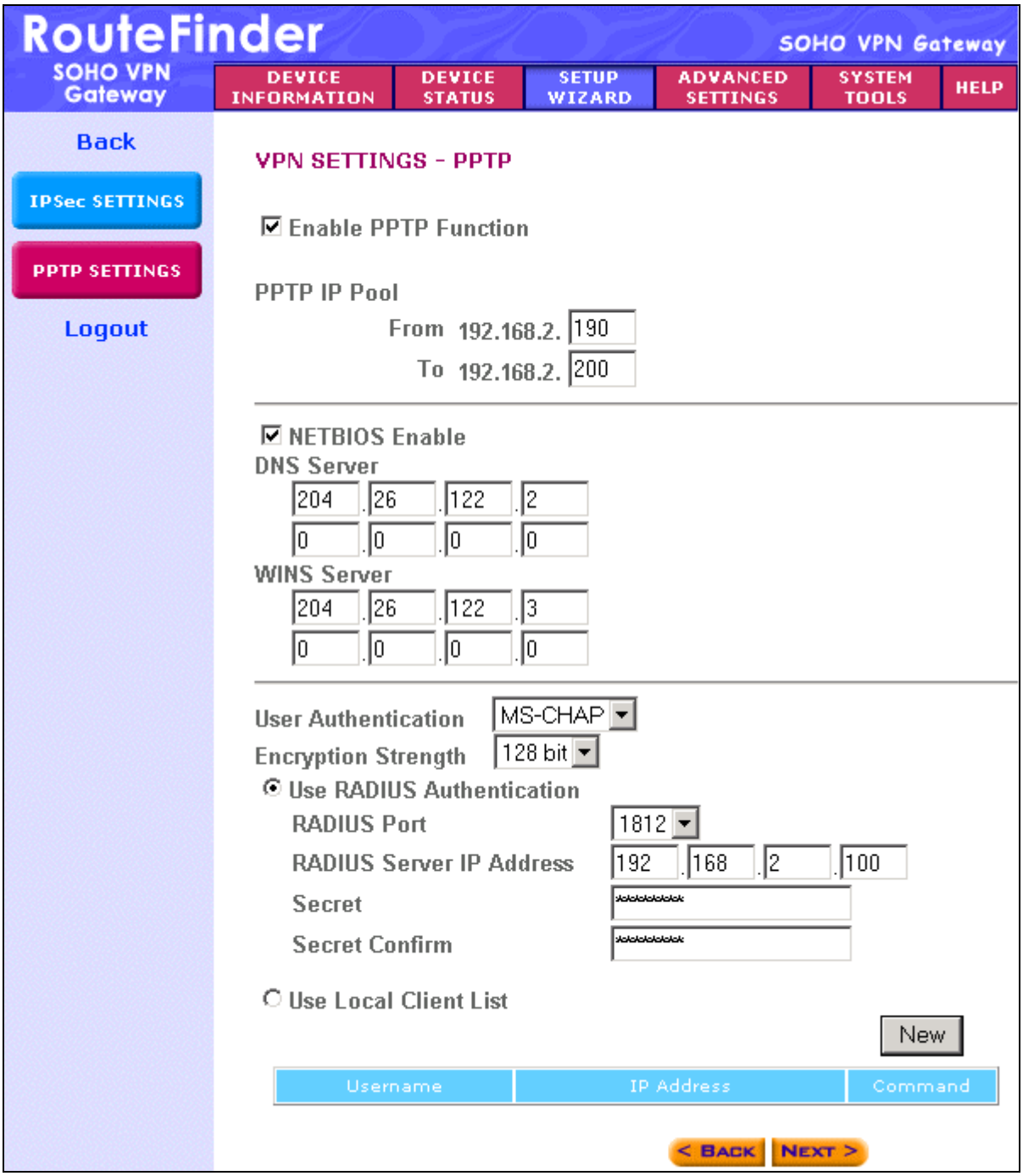
Enter the Required Information for *Manual* Secure Association:		
VPN Setting Name	**Description**	**Example**
Incoming SPI **Outgoing SPI**	The SPI is a unique hexadecimal identifier in the SA that allows the receiving computer to select the SA under which a packet will be processed. The SPI (Security Parameters Index) is a number needed by the manual keying code. Enter any hexadecimal value (3-digit hex number). A number between 0x100 - 0xfff is recommended. If there is more than one manual connection, then the SPI must be different for each manual connection – in this case, one for the **Incoming SPI** and one for the **Outgoing SPI**.	51c 10d
Encryption Protocol	Select 3DES. Other options are: Null, DES, AES-128, AES-192, AES-256	3DES
Encryption Key	Enter a secret, unique hexadecimal value that will be used to identify a computer on one side of the firewall to a computer on the other side. Each one must use the same number. Enter any hexadecimal number up to 24 characters.	12344lkje trew5556 6677788
Authentication Protocol	Select MD5. The alternate choice is SHA-1.	MD5
Authentication Key	Enter a secret, unique value that will be used to identify a computer on one side of the firewall to a computer on the other side. Each one must use the same number. Enter any hexadecimal number up to 16 characters.	99990000t tttgggg

Save the VPN Settings

Click the **Save** button. Your defined connections are displayed at the bottom of this screen where you can edit or delete them.

SETUP WIZARD – VPN PPTP Connection Settings

If you prefer to use PPTP Settings instead of IPSec, click the PPTP Settings button on the left side of the screen. The following screen displays:



VPN Setting Name	Description	Example
Enable PPTP Function	Check the box to enable the PPTP function.	Enable
PPTP IP Pool	Enter a range of IP addresses.	190 - 200

VPN Setting Name	Description	Example
NetBIOS Enable	When enabled, will allow Microsoft File and Printer sharing to communicate information about computers on the network. DNS Server – Enter the address of the DNS Server to be used. WINS Server – Enter the address of WINS Server to be used.	Enabled
User Authentication	Select the User Authentication method to be used. Options are PAP, CHAP, and MS-CHAP	MS-CHAP
Encryption Strength	Select the Encryption Strength. Options are 128 bit or None.	128 bit
Use RADIUS Authentication	Check the **Use RADIUS Authentication** button to enable RADIUS. Then the following information: **RADIUS Port** – Select the port number. Options are 1645, 1646, 1812, and 1813 **RADIUS Server IP Address** – Enter the RADIUS Server IP Address. **Secret** – Enter a secret password. **Secret Confirm** – Retype the secret password for verification.	 1812 192.168.2.100
Use Local Client List	Check this radio button to have your local client list used by the program instead of using RADIUS Authentication.	
New Button	When you click the **New** button, a screen for adding client information displays.	

Save the VPN Settings

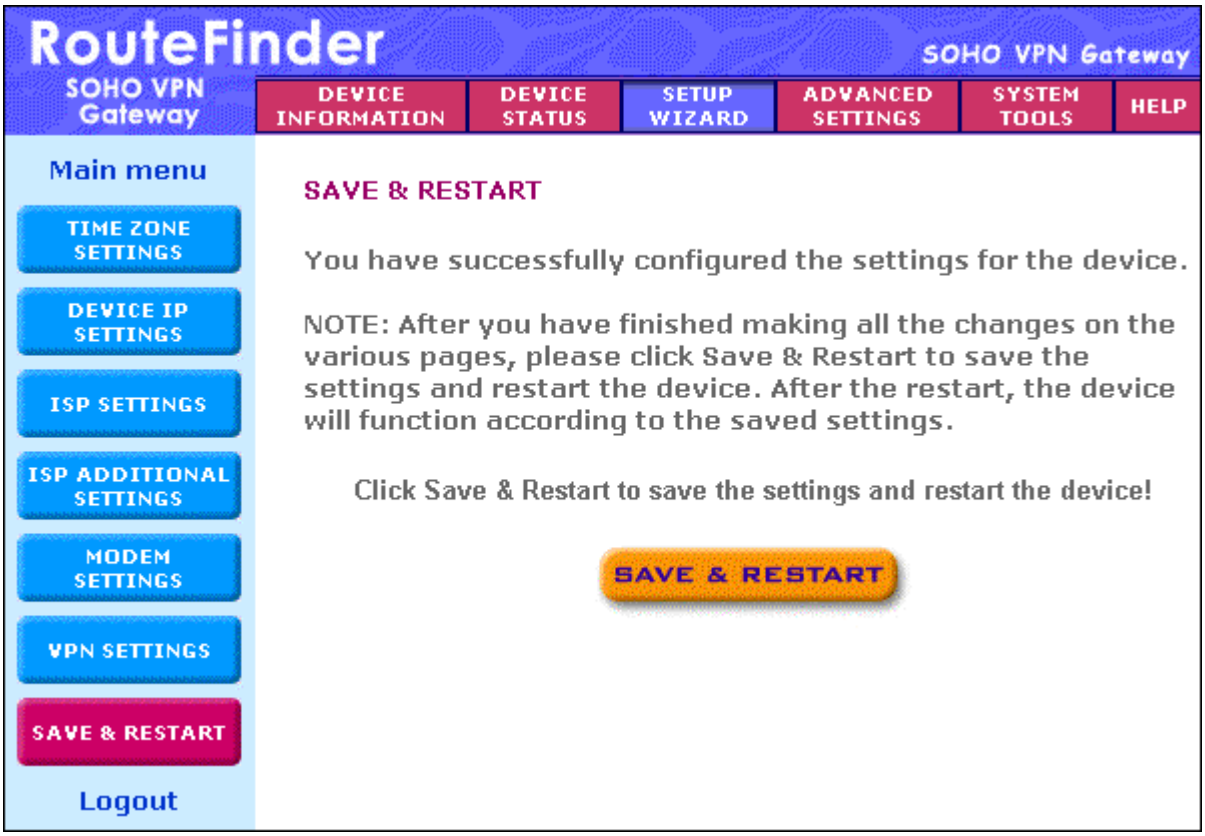
Click the **Next** button to save your settings.

This concludes the basic configuration of your SOHO RouteFinder. It is a good idea to save the settings at this time by clicking the Save and Restart button.

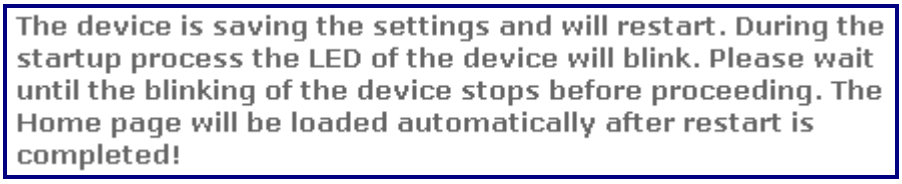
See Chapter 6 in the User Guide for Advanced Settings.

SETUP WIZARD – Save and Restart

After you have finished entering and/or editing the information on the previous screens, click the **Save and Restart** button on the left-hand side of the screen. This will save all of the preceding settings and restart the device**.** After the restart, the device will function according to the saved settings.



During the save and restart process, system messages will let you know that you have successfully configured the settings for the device and saved the settings. You will see a status bar across the bottom of your browser showing the progress of the startup process.



Chapter 6 – Managing the RouteFinder Using a Web Browser

Once the RF560VPN has been configured using the Setup Wizard, the other menu options can be used for managing your router. They allow you to perform the following functions:

DEVICE INFORMATION Find information about your current settings.

DEVICE STATUS Find information about your current connection status.

ADVANCED SETTINGS Set Advanced Setup features.

SYSTEM TOOLS Use Tools for managing the system.

Device Information

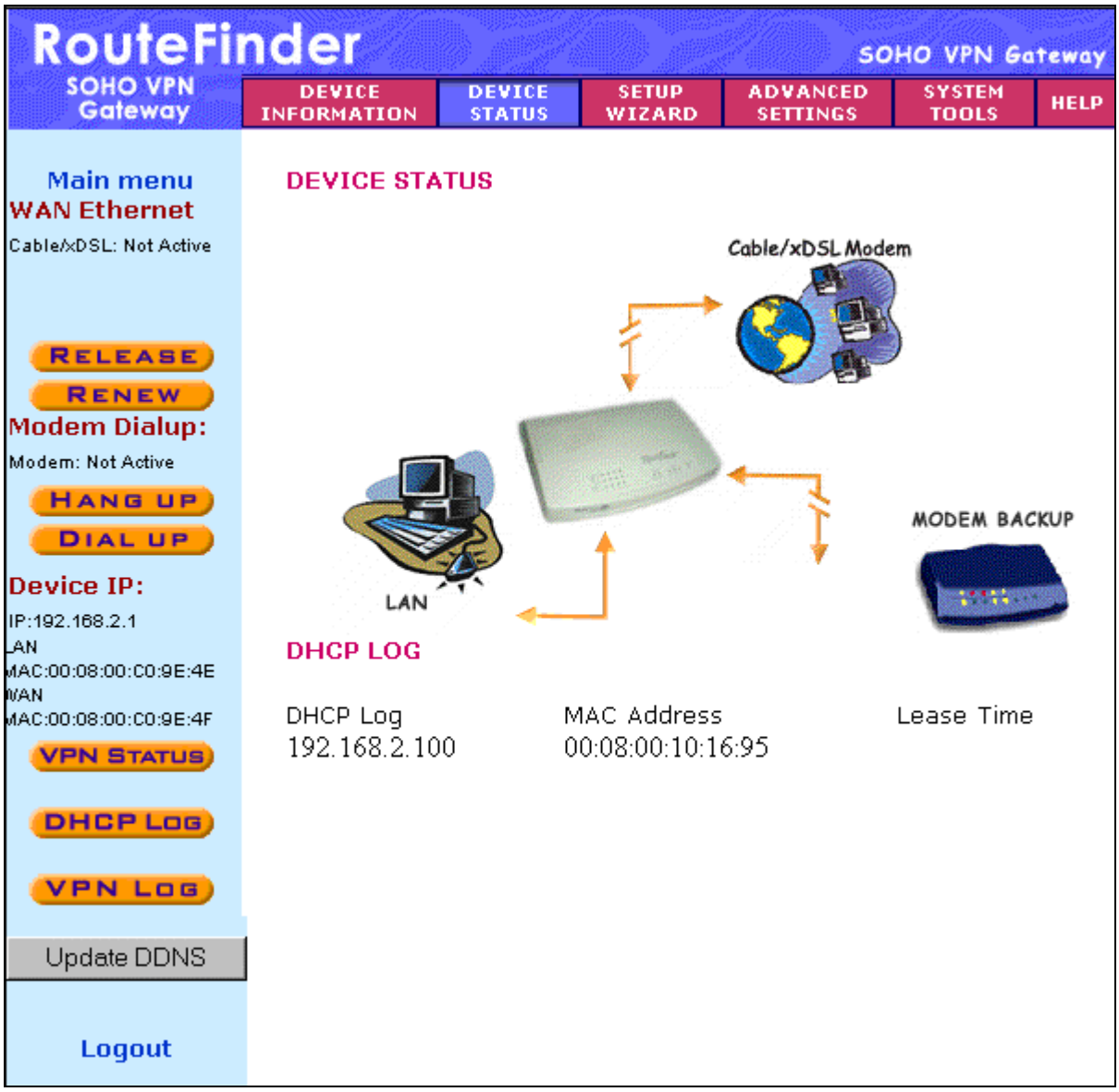
DEVICE INFORMATION Click the **Device Information** button. The **Device Information** screen displays. It shows the current setting of the RF560VPN.

- **Device Name** – The host name of the VPN gateway.
- **IP Address** – The IP address of the VPN gateway.
- **Private LAN Mac Address** – The Mac address of the VPN gateway LAN Ethernet port. This address cannot be changed; it is assigned by Multi-Tech.
- **Public WAN (Cable/xDSL) Mac Address** – The Mac Address of the VPN gateway WAN Ethernet port. This address cannot be changed; it is assigned by Multi-Tech.
- **Firmware** – The current firmware's version number and its release date.

Device Status

Click the **Device Status** button. The **Device Status** screen displays.

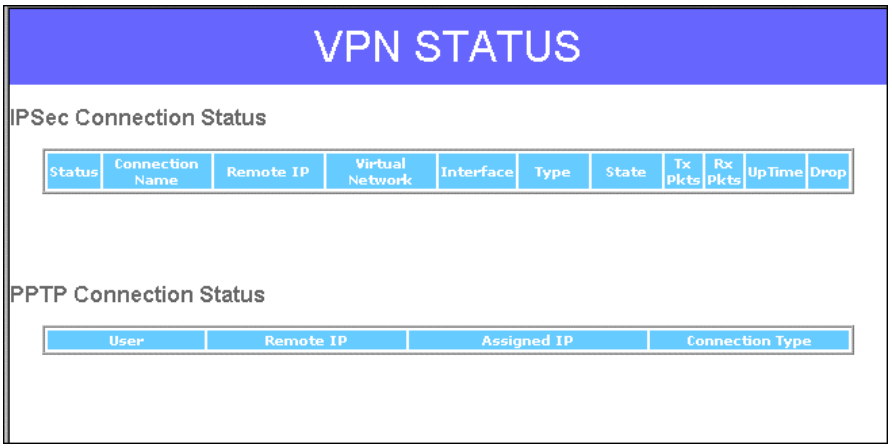
Use the **Device Status** screen to view the status of the current connections. This screen shows the status of the Cable/xDSL modem, the Modem Dialup, and the Device IP addresses. You can view the status of other items by clicking the buttons on left side of the screen.



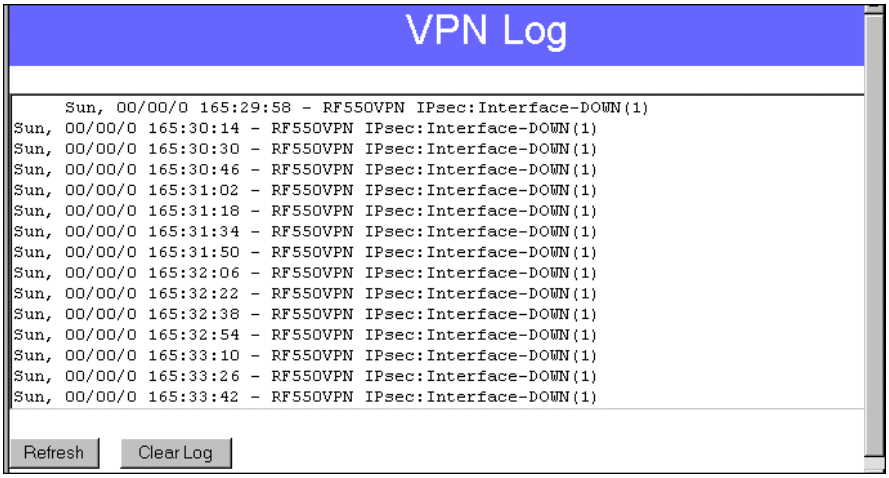
Device Status Screen (Information Displayed on Left Side of Screen)

- **WAN Ethernet –** This test describes the current connection status of the Cable/xDSL Modem. For example, when Cable/xDSL is connected, the screen displays a message **Cable/xDSL: Active**.
- **Release and Renew Buttons -** Click the Release button to terminate the WAN connection. Click the Renew button to establish the WAN connection.
- **Modem Dialup –** A modem can be used as a dialup backup for the Cable/xDSL modem. If the modem is the current connection, a message displays: **Modem: Active**. Otherwise, a message **Not Active** displays.
- **Hang Up and Dial Up Buttons –** Click the **Hang Up** button to force the modem to break its connection. Click the **Dial Up** button to force the modem to dial out.

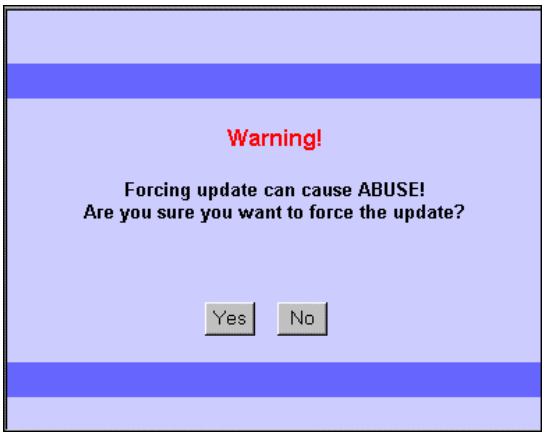
- **VPN Status Button** – Click this button to view the status of the IPSec and PPTP connections.



- **DHCP Log Button –** Click this button to view the current DHCP client information. The information is displayed on the screen as illustrated on the Device Status screen above.
- **VPN Log Button** – Click this button to view the current VPN activity. You will see a screen similar to this one.



- **Update DDNS (Dynamic Domain Name Servers) Button** – Use this option only when you receive a notification from your ISP provider saying that the account will be removed if an update is not performed. If you receive such a notification from your ISP provider, click the **Update DDNS** button. When you click this button, you will first receive the following warning. To continue, click the **Yes** button.

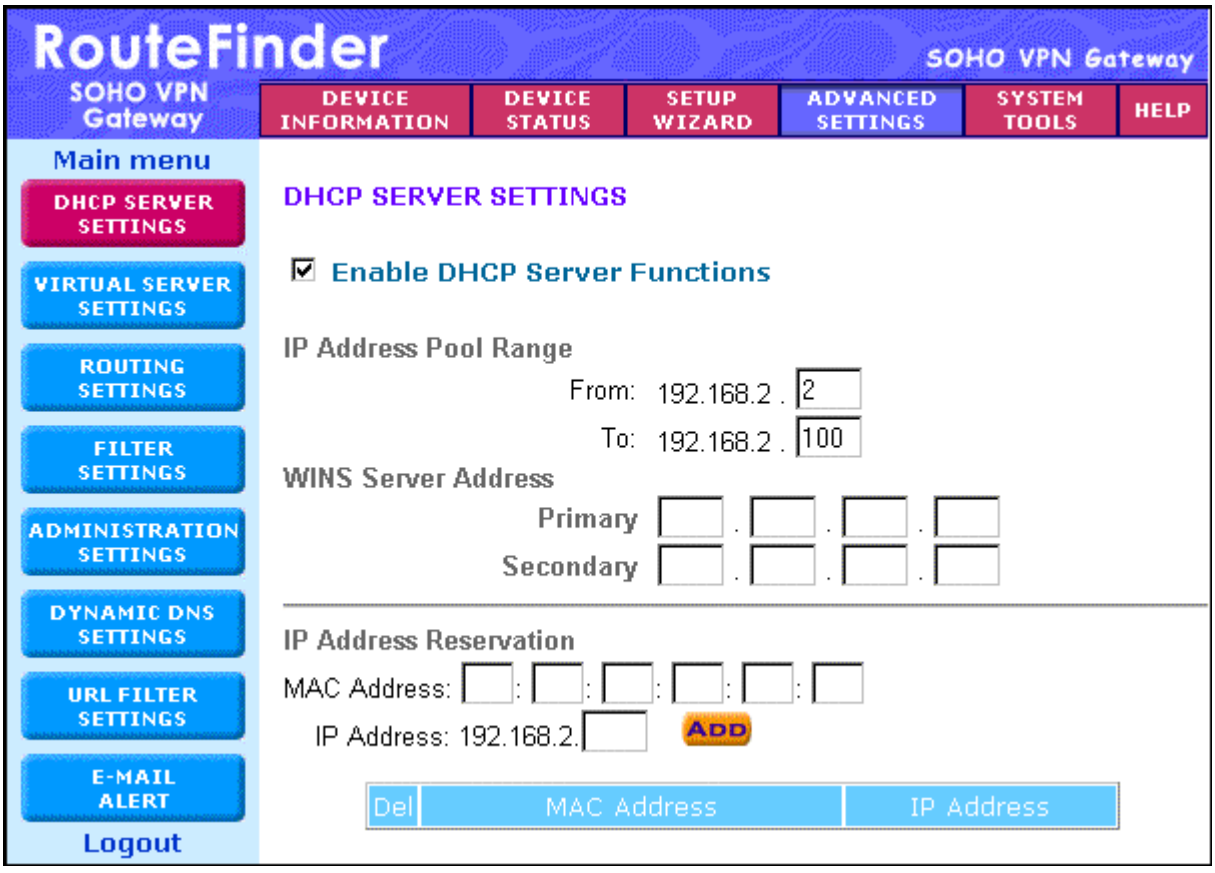


Advanced Settings

ADVANCED SETTINGS Click the **Advanced Settings** button. The **DHCP Server Settings** screen displays first. Use the **Advanced Settings** screens to establish DHCP server settings, virtual server settings, a static routing table, dynamic settings, modem string settings, and administrative settings.

ADVANCED SETTINGS – DHCP Server Settings

- The DHCP server is enabled by default. If you would like to disable it, uncheck the **Enable DHCP Server Functions** box.
- **IP Address Pool Range -** The IP address pool contains the range of the IP addresses that will automatically be assigned to the clients of your network. The default setting is **192.168.2.2** to **192.168.2.100**.
- **WINS Server Address** - Enter the **Primary** and the **Secondary** WINS Server addresses.
- **IP Address Reservation -** You can use the IP address reservation option to give particular computers on your network the same static IP address every time the computer is turned on.
- **Add Button** - Click the **Add** button to save the reserved MAC Address and the reserved IP Address. These addresses will then display on the lower part of this screen. They can then be edited or deleted.



ADVANCED SETTINGS – Virtual Server Settings

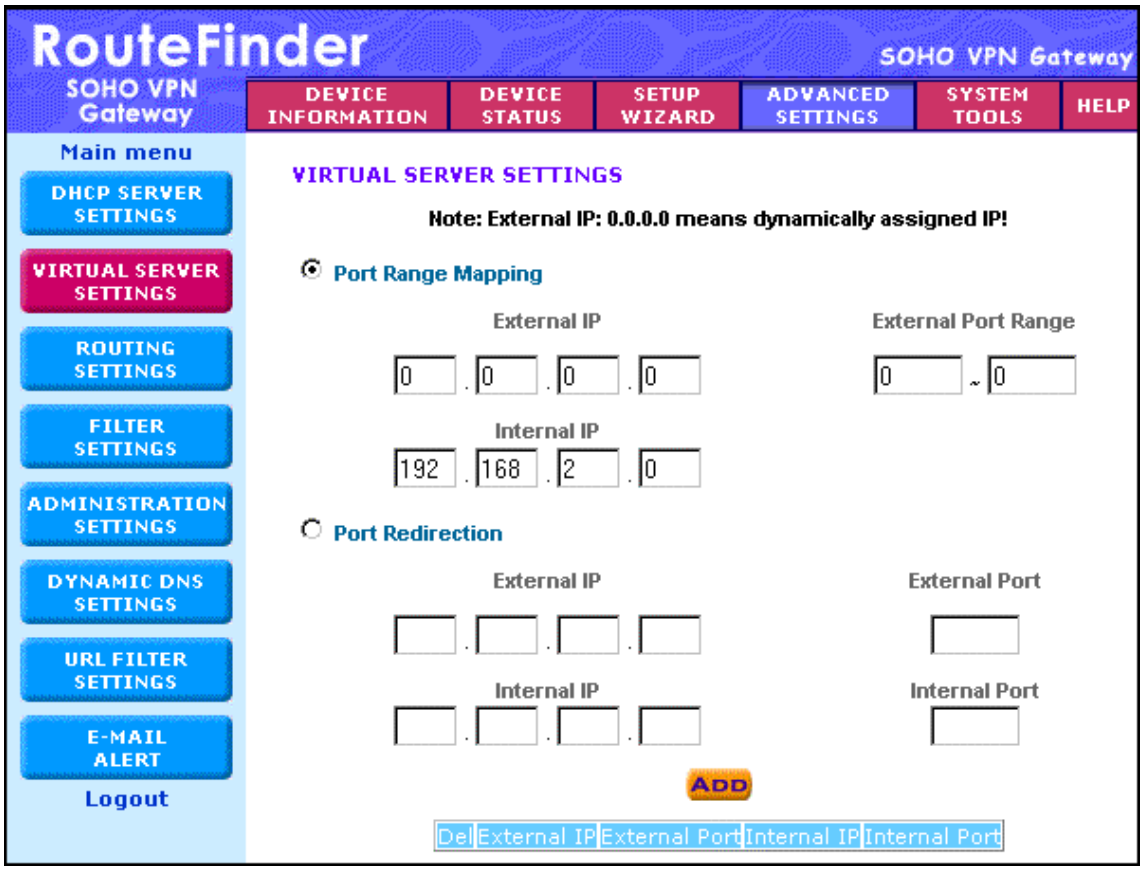
To access this screen, click the **Virtual Server Settings** button on the left side of the screen.

- **Port Range Mapping:** When established, Virtual Server Settings allow clients on the Internet to access your LAN via the Internet.
    - The **Internal IP Address** is the LAN.
    - The **External IP Address** is your WAN IP. If this address is dynamically assigned, then enter all zeroes.

  You can use the IP mapping function to access an FTP server or Telnet server, etc. on your LAN via your ISP Internet connection. Port numbers include:

FTP	20,21
Telnet	23
SMTP	25
DNS	53
TFTP	69
HTTP	80
POP3	110
News	144
SNMP	161
SNMP-trap	162

- **Port Redirection:** If you want to route the Internet through the RF560VPN onto a port other than the port 80h, which is the usual port, follow the example below. This example is reassigning the port to 81h:
    - **Assign port 80h to the external IP**
    - **Assign port 81h to the internal IP**
- Click the **Submit** button when finished.

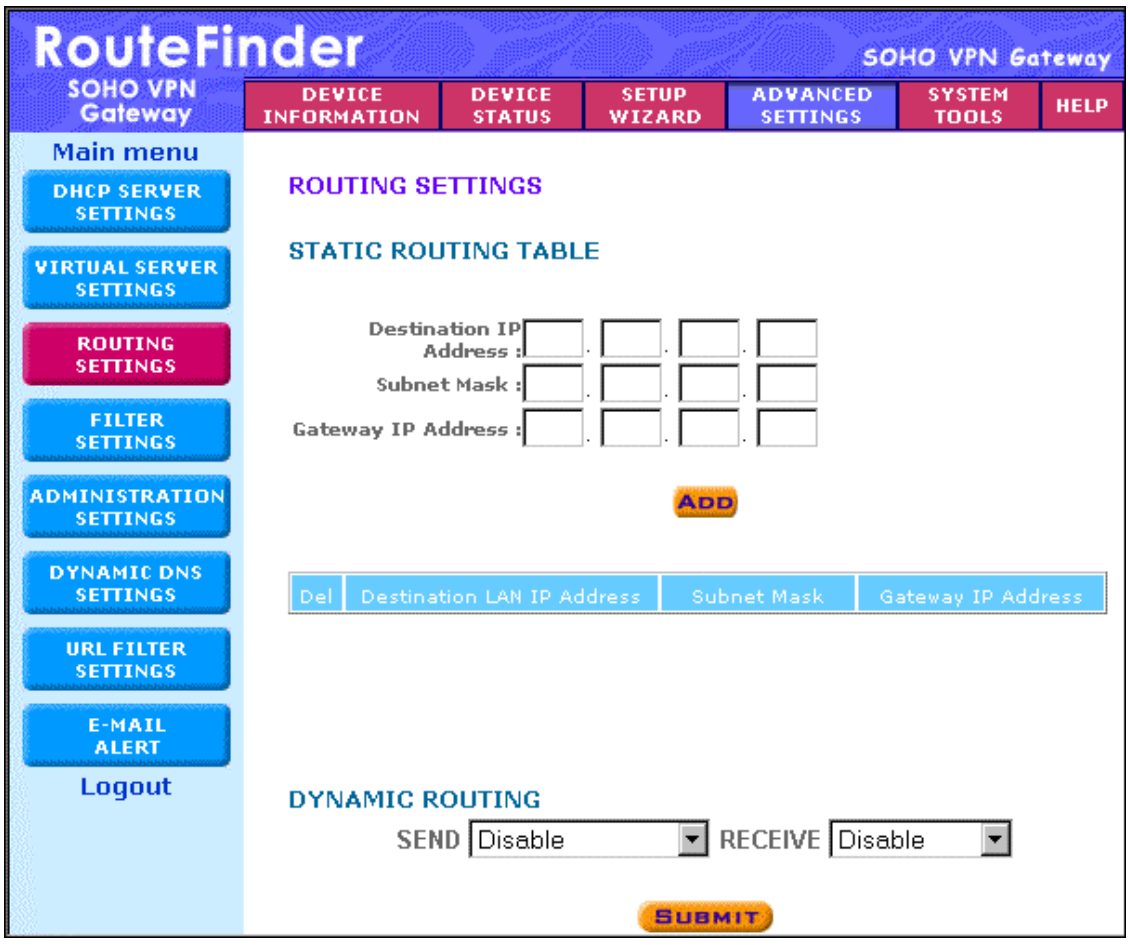


ADVANCED SETTINGS – Routing Settings

To access this screen, click the **Routing Settings** button on the left side of the screen. Routing is the process of moving a packet of data from source to destination. Use this screen to create a routing table that stores routing information so that your network device knows where to redirect the IP packets on the proper network.

- **Static Routing**
  Enter the details for each routing table entry. Click the **Add** button after each entry.
  - **Destination IP Address:** the address of the remote network to which you want to assign a static route.
  - **Subnet Mask:** the Subnet Mask of your network IP address.
  - **Gateway IP Address:** the IP address of the interface used to link to the remote network.

  The entry displays in the lower half of the screen. To change an entry, click the Delete **(Del)** button, and then re-enter the information.
- **Dynamic Routing**
  Dynamic Routing is a routing protocol that adjusts automatically to the changes in the network topology or traffic.
  - Click the drop-down list buttons for the **Send** and **Receive** settings desired.
    Send – Choose the protocol you want to use to transmit the network data. The recommended setting is **Disable**.
    Receive – Choose the protocol you want the RF560VPN to receive network data. The recommended setting is **Disable**.
- Click the **Submit** button to accept these settings.



ADVANCED SETTINGS – Filter Settings

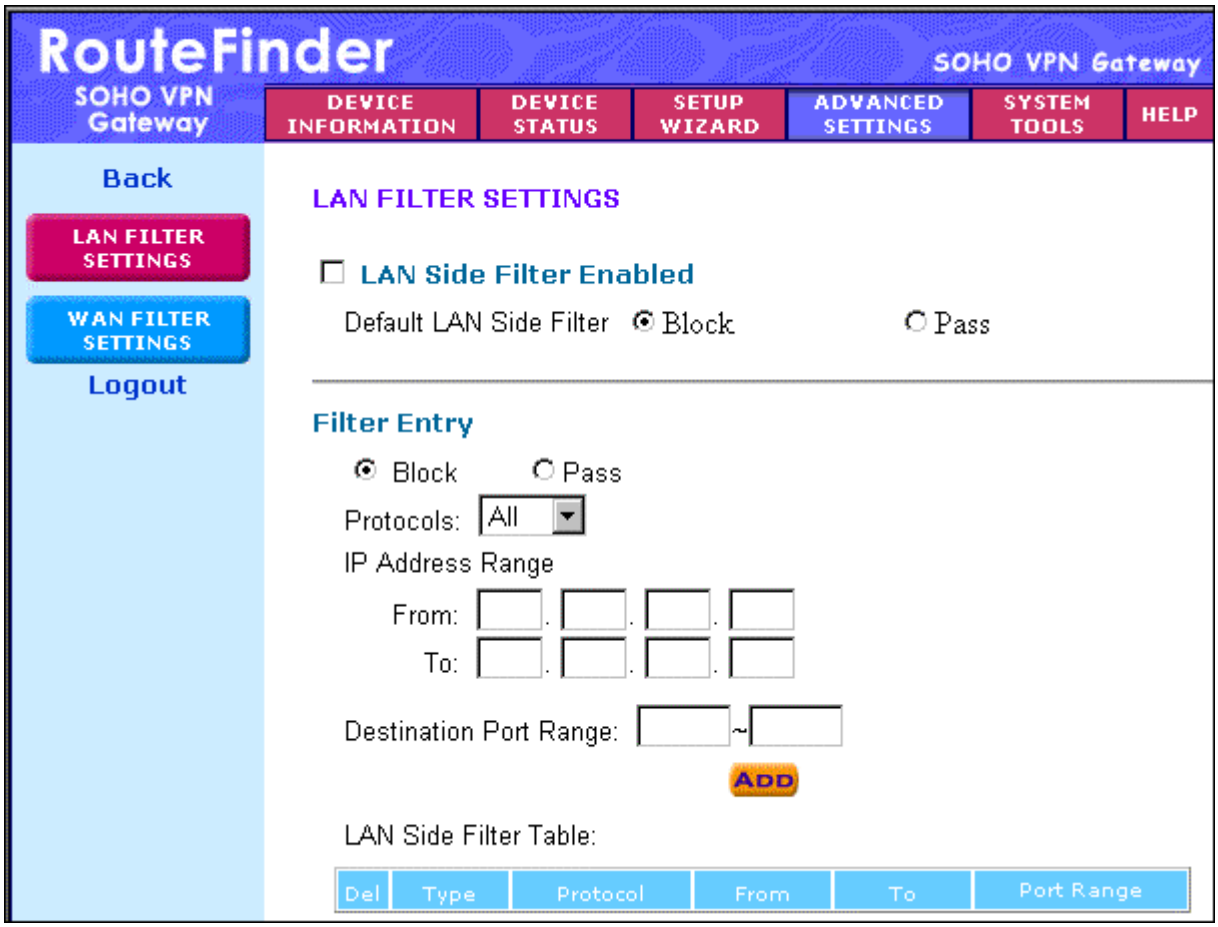
LAN Filter Settings

To access this screen, click the **Filter Settings** button on the left side of the **Advanced Settings** screen.
The **LAN Filter Settings** function allows the network administrator to define whether local users have the permission to access the Internet.

1. Check the **LAN Side Filter Enabled** box to begin a list of users and permissions.
2. Select the LAN side filter: **Block** or **Pass**.
3. Select the client filter settings: **Block** or **Pass**.
4. Select the protocol to be used from the **Protocol** drop-down list box.
5. Enter the client **IP Address Range** and **Destination Port Range**.
6. Click the **Add** button. The entry displays on the lower part of the screen.
7. Continue adding table entries. When complete, click the **Submit** button.

Example - To prevent the local users in IP address range 101 to 200 from accessing port 80 (HTTP), set up the following parameters:

LAN Side Filter Enabled: **Enabled**	Protocol: **TCP**
Default LAN Side Filter: **Pass**	IP Address Range: **101 - 200**
Filter: **Block**	Destination Port Range: **80 - 80 (HTTP)**

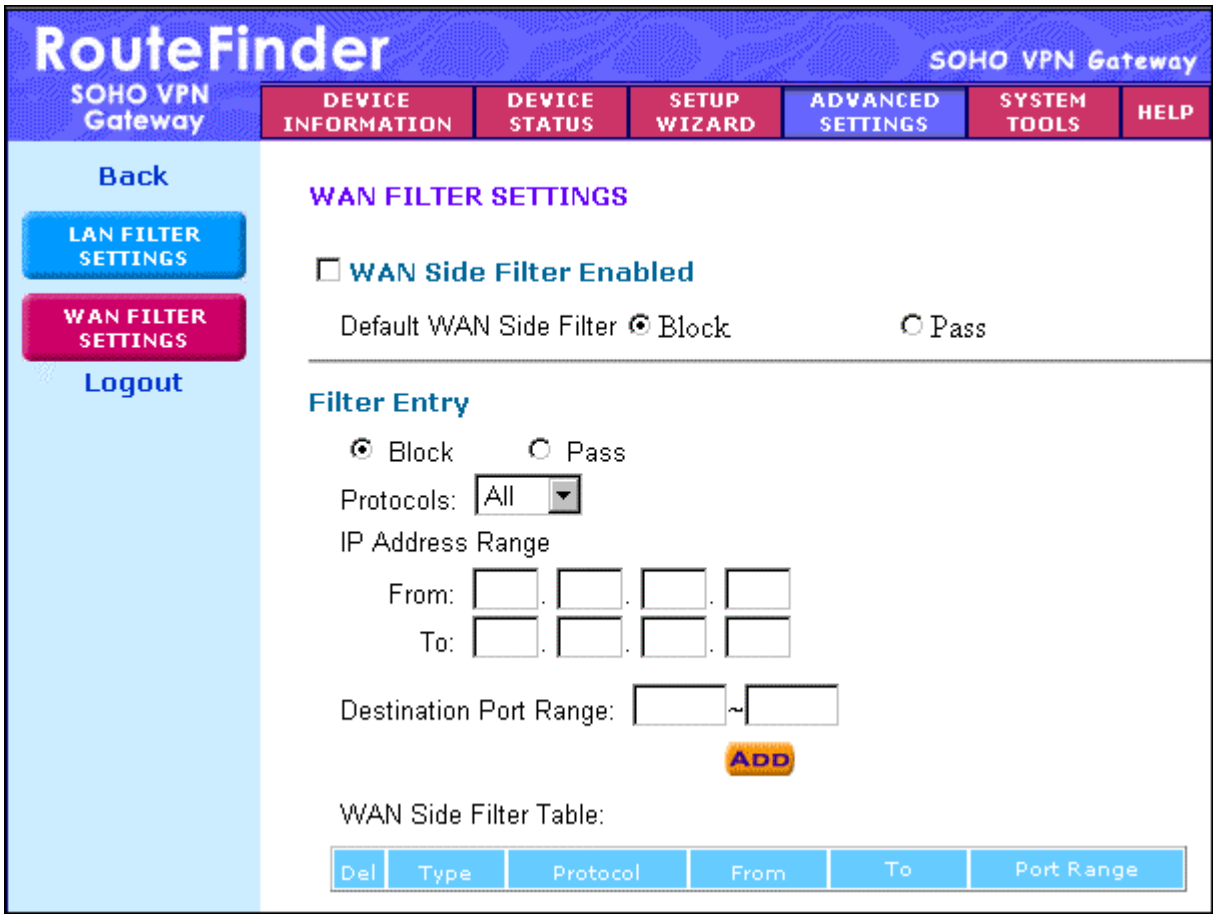


ADVANCED SETTINGS – WAN Filter Settings

To access this screen, click the **Filter Settings** button on the left side of the **Advanced Settings** screen. Then click the **WAN Filter Settings** button on the left side of the screen. The **WAN Filter Settings** screen displays.

The **WAN Filter Settings** function allows the network administrator to define whether remote/outside users have the permission to access the local network. To activate, check the **WAN Side Filter Enabled** box. Then define the policy.

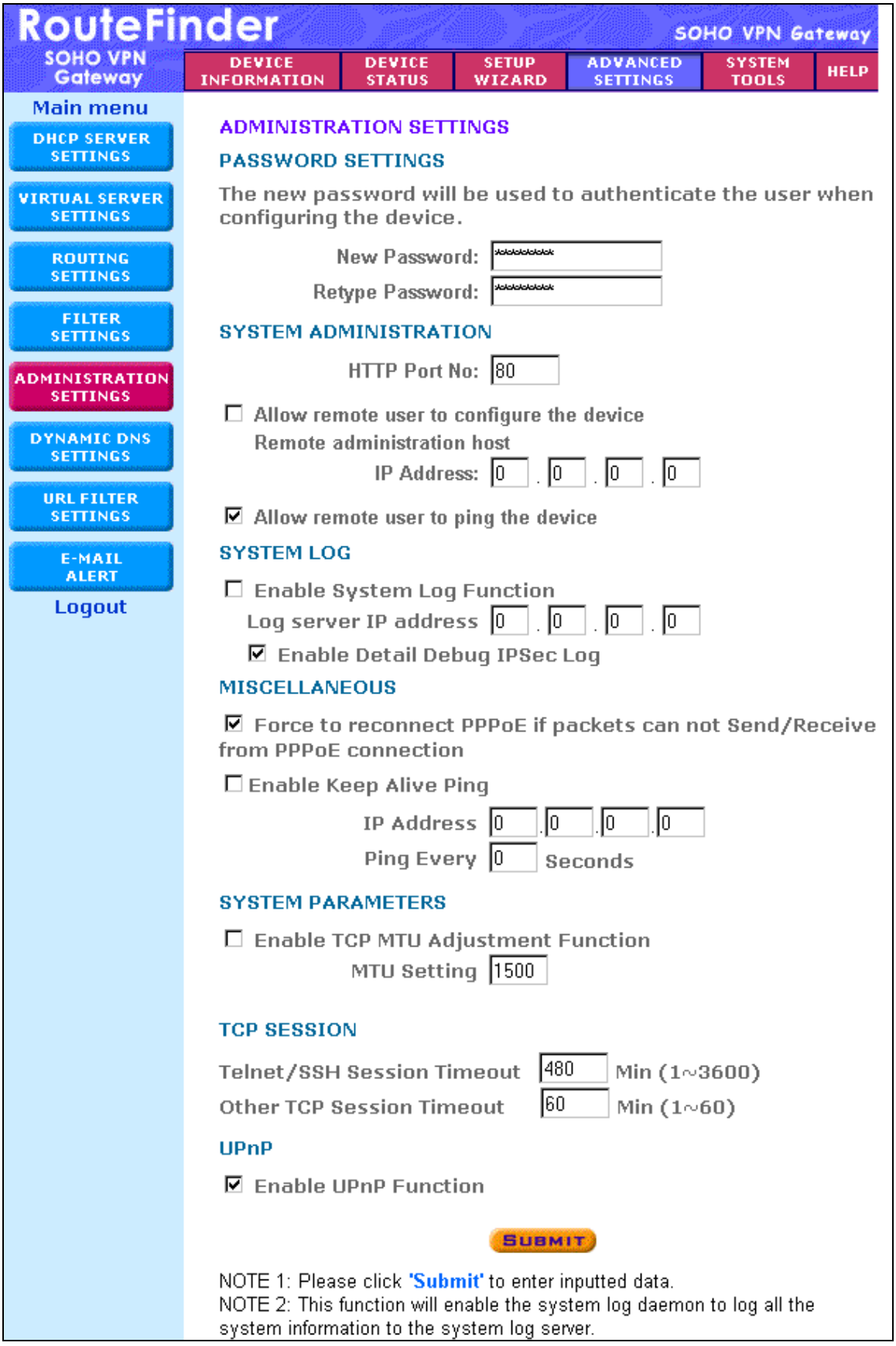
1. Check the **WAN Side Filter Enabled** box to begin a list of users and permissions.
2. Select the WAN side filter: **Block** or **Pass**.
3. Select the client filter settings: **Block** or **Pass**.
4. Select the protocol to be used from the **Protocol** drop-down list box.
5. Enter the client **IP Address Range** and **Destination Port Range**.
6. Click the **Add** button. The entry displays on the lower part of the screen.
7. Continue adding table entries. When complete, click the **Submit** button (not shown on this screen capture).



ADVANCED SETTINGS – Administrative Settings

To access this screen, click the **Administrative Settings** button on the left side of the **Advanced Settings** screen. Use this screen to change your RF560VPN password, set the HTTP port number, set remote user configuration, and establish system log settings.

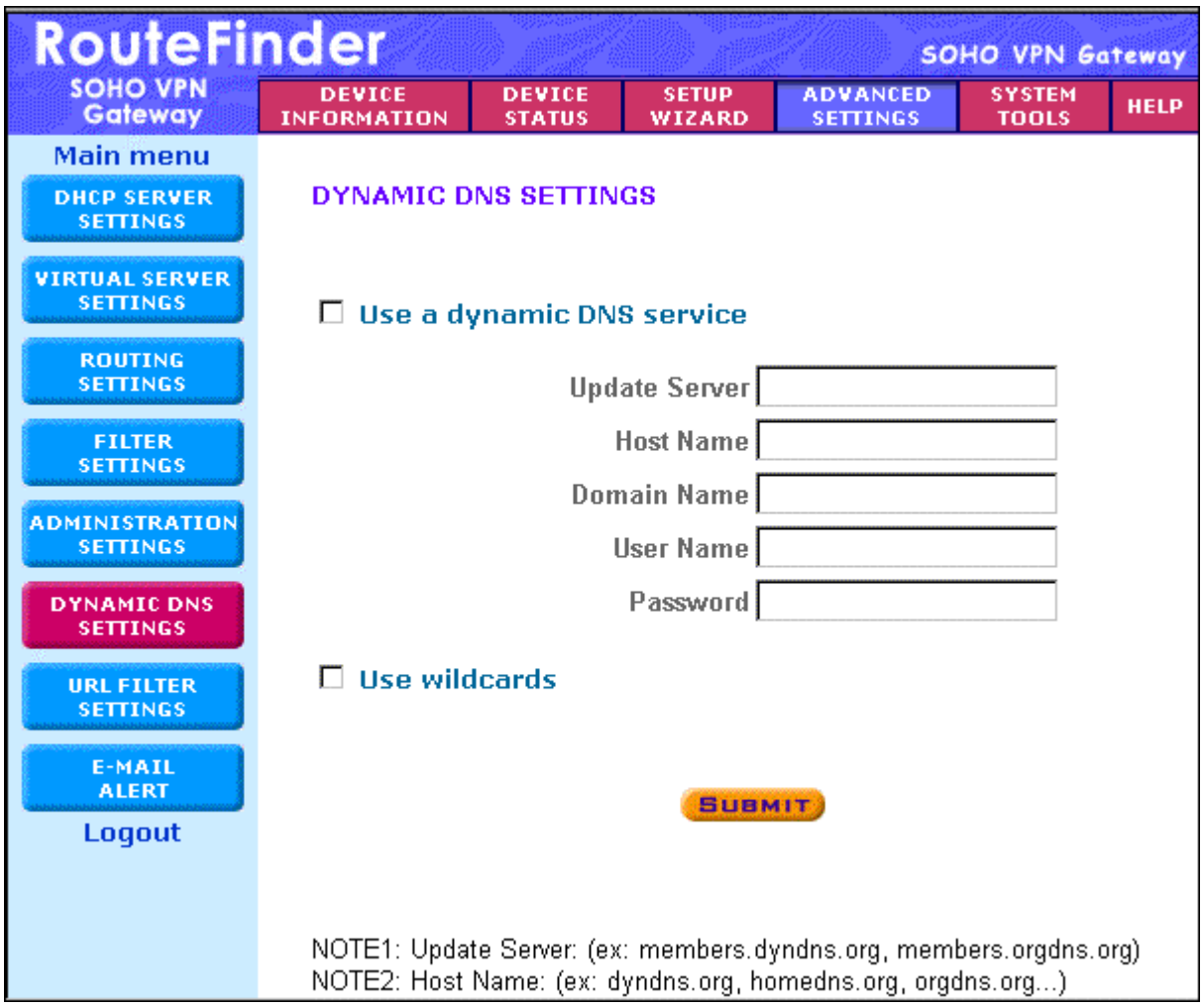
- **Password Settings**
  To set a new password, type a new one in the **New Password** box and re-type it for verification in the **Retype Password** box. If you do not want to change any other item on this screen, click the **Submit** button to accept the password change.
  Important: Use a safe password. Your first name spelled backwards is not a sufficiently safe password. A password such as **xfT35$4** is better.
  Caution: It is important to remember your password. If for any reason you lose or forget your password, you can press the small reset button on the back of the RF560VPN. However, if you do this, **all configurations will be reset**, including the password. You will have to reconfigure all of your RF560VPN settings, but the password is reset to **admin**.
  If you are sure you want to reset all the configurations, hold the reset button until the serial LEDs of the RF560VPN blink, and then release the reset button. This reset action will re-initialize the settings.
- **System Administration**
  The **System Administration** function gives remote users the ability to configure and administrate the RF560VPN through the Internet. The default IP address of the remote administration host is **0.0.0.0**. This address means that any remote user can access and manage the RF560VPN.
  - **HTTP Port Number:** The default value is 80.
  - **Allow Remote User to Configure the Device Check Box:** To give remote users the ability to configure and administrate the RF560VPN, you have to check this box.
  - **IP Address:** Type the RF560VPN WAN IP address into the browser of the specific PC on the network. **http://192.168.100.1:1023**
    http://<WAN IP Address>: <Port Number>
    Important: Once the HTTP port number **(NOT Port 80)** is changed and the users of the LAN terminal want to configure the RF560VPN, the users have to type the LAN IP address with the port number: 192.168.2.3:1023
  - **Ping:** If you want to allow a remote user to **PING** the device, check the corresponding box. See information about PING in the Appendix.
- **System Log**
  If you want to enable the system log function, check the corresponding box and enter the **Log Server IP Address**. This log provides you with a list of all system messages (for example, users that accesses the Internet).
  If you want to enable a **Detail Debug IPSec Log**, check the corresponding box. This option exists to help you in case there is a problem with the VPN connection.
- **Miscellaneous**
  Check the **Force to reconnect PPoE** box to force the reconnection of PPPoE if packets cannot Send/Receive from the PPPoE connection. This ensures that the PPPoE connection is always there.
  Check the **Enable Keep Alive Ping** box if you desire Ping to be kept alive. Enter the address that should be pinged and enter the time in seconds that pinging should occur.
- **System Parameters**
  Check the **Enable TCP MTU Adjust Function** box to enable this function. Enter an MTU setting. This option is to be used with specific applications that require adjusting the packet size.
- **TCP Session**
  Enter the amount of time in minutes allowed before a Telnet/SSH or TCP session will timeout.
- **UPnP**
  Check the **Enable UPnP Function** box to enable this function.


RouteFinder
SOHO VPN Gateway
SOHO VPN Gateway
DEVICE INFORMATION
DEVICE STATUS
SETUP WIZARD
ADVANCED SETTINGS
SYSTEM TOOLS
HELP
Main menu
DHCP SERVER SETTINGS
VIRTUAL SERVER SETTINGS
ROUTING SETTINGS
FILTER SETTINGS
ADMINISTRATION SETTINGS
DYNAMIC DNS SETTINGS
URL FILTER SETTINGS
E-MAIL ALERT
Logout
ADMINISTRATION SETTINGS
PASSWORD SETTINGS
The new password will be used to authenticate the user when configuring the device.
New Password:
Retype Password:
SYSTEM ADMINISTRATION
HTTP Port No: 80
Allow remote user to configure the device
Remote administration host
IP Address: 0 . 0 . 0 . 0
Allow remote user to ping the device
SYSTEM LOG
Enable System Log Function
Log server IP address 0 . 0 . 0 . 0
Enable Detail Debug IPSec Log
MISCELLANEOUS
Force to reconnect PPPoE if packets can not Send/Receive from PPPoE connection
Enable Keep Alive Ping
IP Address 0 . 0 . 0 . 0
Ping Every 0 Seconds
SYSTEM PARAMETERS
Enable TCP MTU Adjustment Function
MTU Setting 1500
TCP SESSION
Telnet/SSH Session Timeout 480 Min (1~3600)
Other TCP Session Timeout 60 Min (1~60)
UPnP
Enable UPnP Function
SUBMIT
NOTE 1: Please click 'Submit' to enter inputted data.
NOTE 2: This function will enable the system log daemon to log all the system information to the system log server.

ADVANCED SETTINGS – Dynamic DNS Settings

DNS (Domain Name Service) is the "middleman" who translates domain names such as multitech.com or yahoo.com into numbers (and, occasionally, the other way around).
The Dynamic DNS service allows you to alias a dynamic IP address to a static host name such as **youname.dyndns.org** or any other name in one of many domains offered by the service.
You must sign up with a DNS service provider in order to use this option.
To set up dynamic DNS, check **Use a dynamic DNS service**. All fields are required to be filled in.

- **Update Server** – Enter the name of your organization with the new DNS indicator: members.**dyndns**.org, members.**orgdns**.org
- **Host Name** – Enter the name of the DNS provider: **dyndns**.org, **orgdns**.org
- **Domain Name** – Enter the name of your domain: **org, com**
- **User Name and Password –** Enter the user's name and password that is to be translated into the user's new DNS name.
- **Use Wildcards** – Wildcards are special characters (for example, *) you can use to represent one or more characters. They act like shortcuts when entering information.

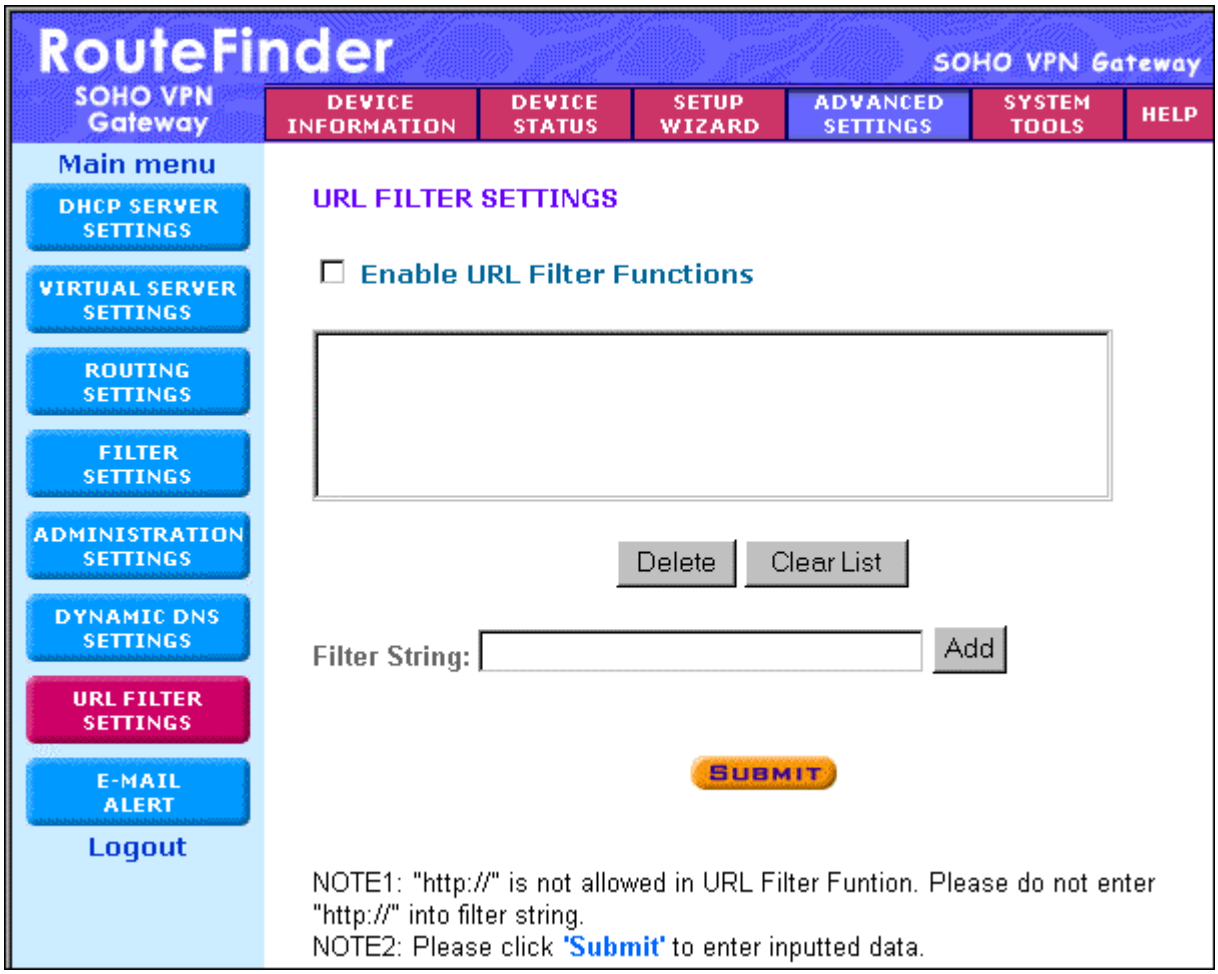


ADVANCED SETTINGS – URL Filter Settings

Enabled **URL Filter Settings** can prevent users from accessing certain Internet sites.

- To enable this option, check **Enable URL Filter Functions.**
- Enter the name of the Internet address in the **Filter String** box.
- Click the **Add** button.

The URL address then displays in the box in the middle of the screen. Once the URL appears here, you can delete one or all entries.

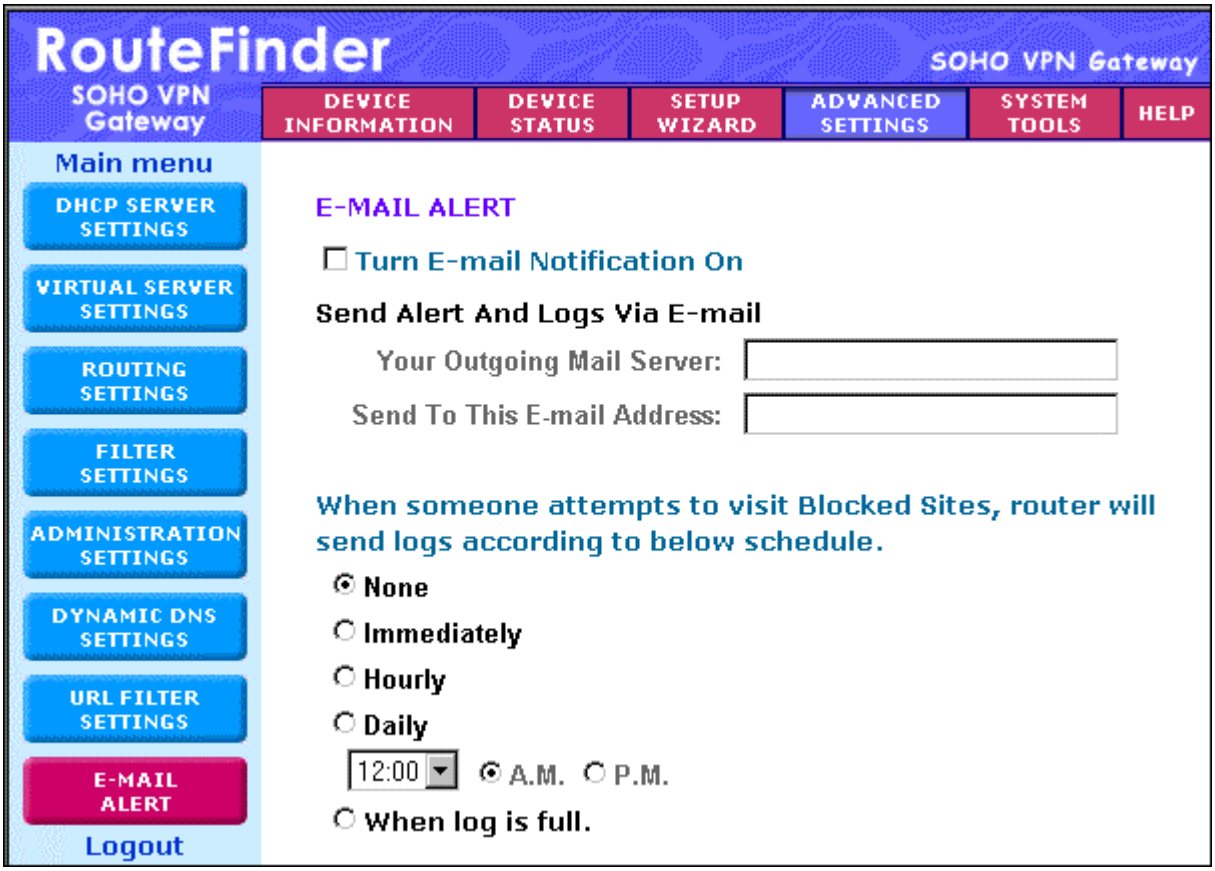


ADVANCED SETTINGS – Email Alert

Email alerts will be sent to the system administrator when users have tried to access URLs that have been filtered (see the screen on the previous page).

- To enable this option, check **Turn Email Notification On**.
- Enter the name of your outgoing mail server.
- Enter the email address of the person who receives this alert.
- Indicate how often you would like the alert to be sent.

Click the **Submit** button (not shown on this screen capture).



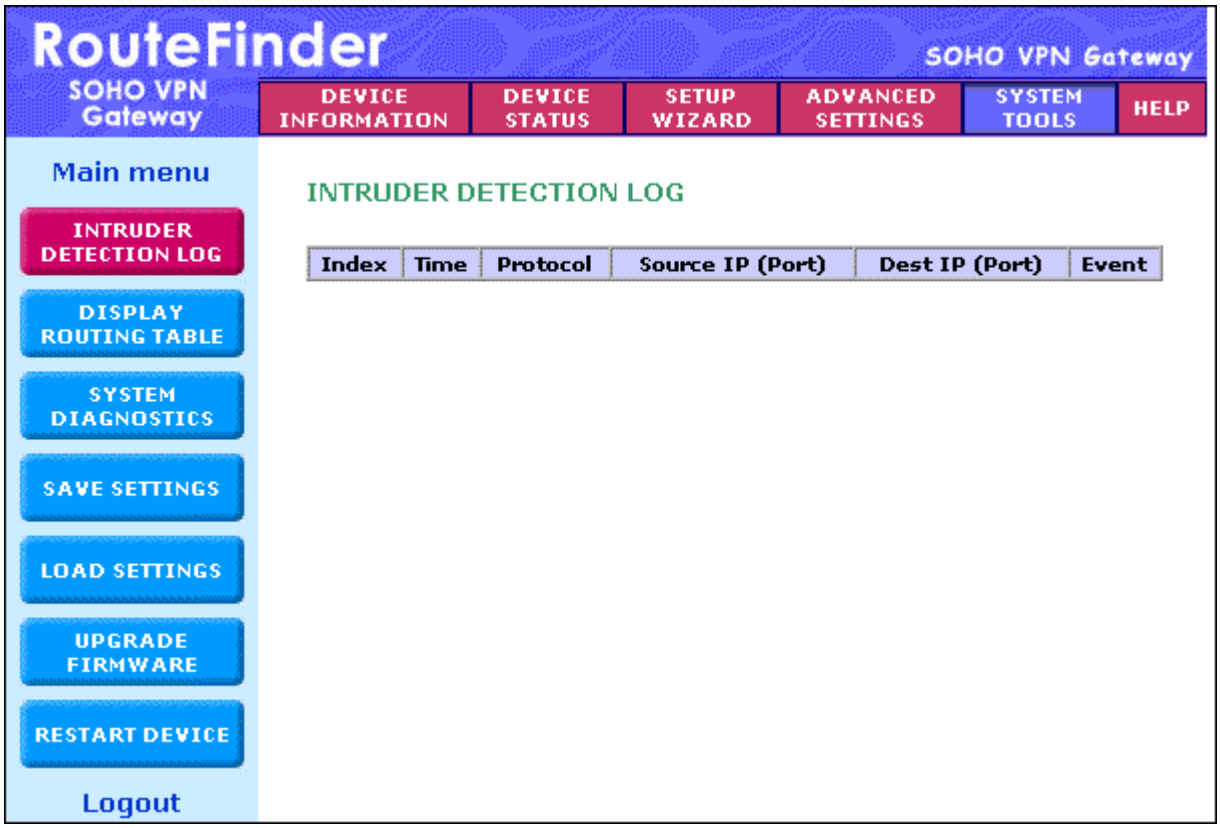
System Tools

Click the **Systems Tools** SYSTEM TOOLS button on the Main Menu. The **Intruder Detection Log** displays first.

The **System Tools** functions allow you to view the Intruder Detection Log, the Routing Table, and a System Diagnosis screen. You can also choose to save your settings, load the RF560VPN default settings, upgrade firmware, and restart the device.

SYSTEM TOOLS – Intruder Detection Log

The event messages of the **Intruder Detection Log** show the possible hacker attacks that have occurred on your Internet gateway. Up to 32 hacker attacks may be logged in this manner.

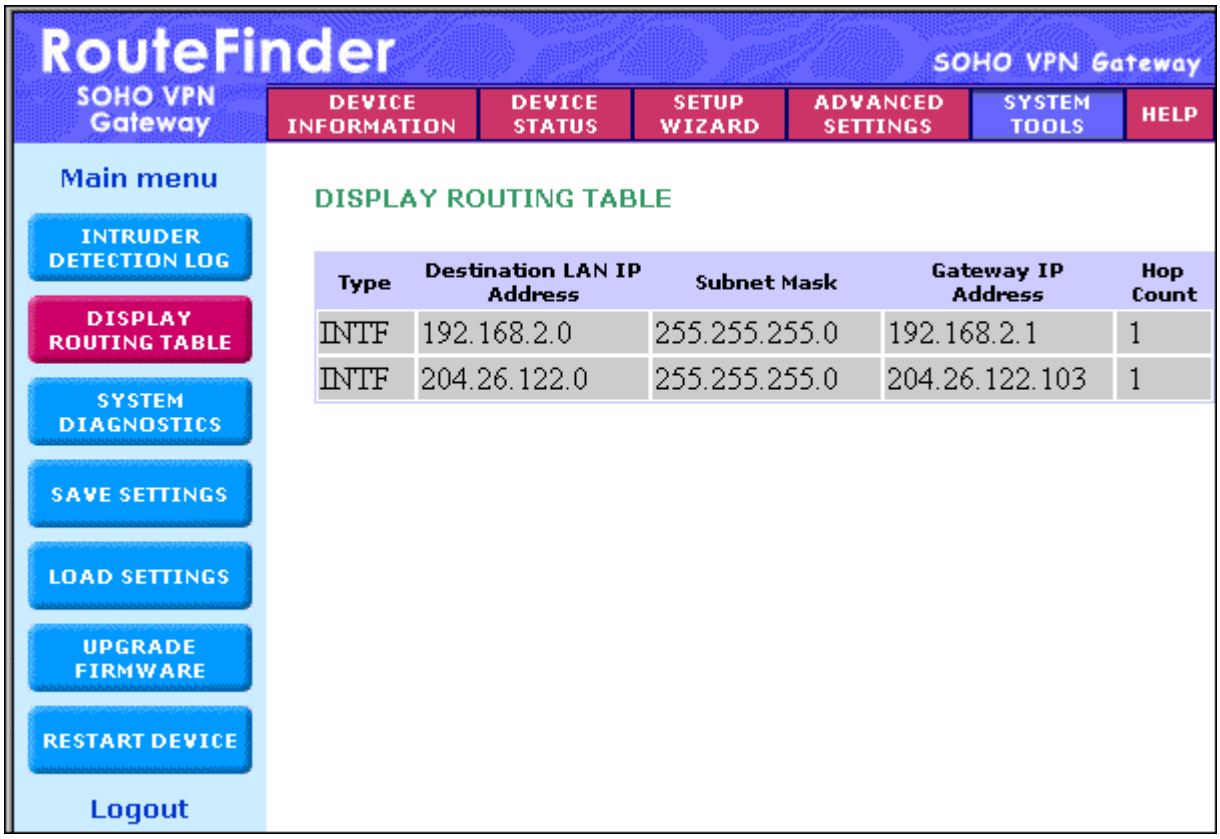


SYSTEM TOOLS – Display Routing Table

To access this screen, click the **Display Routing Table** button from the **System Tools** screen. The **Display Routing Table** screen displays.

This table shows the current routing configuration that you setup on the Routing Table screen.

To exit this screen, select another button on the left side of the screen.



 – System Diagnostics

Click the **System Diagnostics** button from the **System Tools** screen to display (the screen is pictured on the next page).

This screen displays even when one component is not functioning properly. This is the screen you can turn to for troubleshooting your system.

When selected, the **System Diagnostics** function performs a check-up on your RF560VPN to make sure that everything is functioning properly.

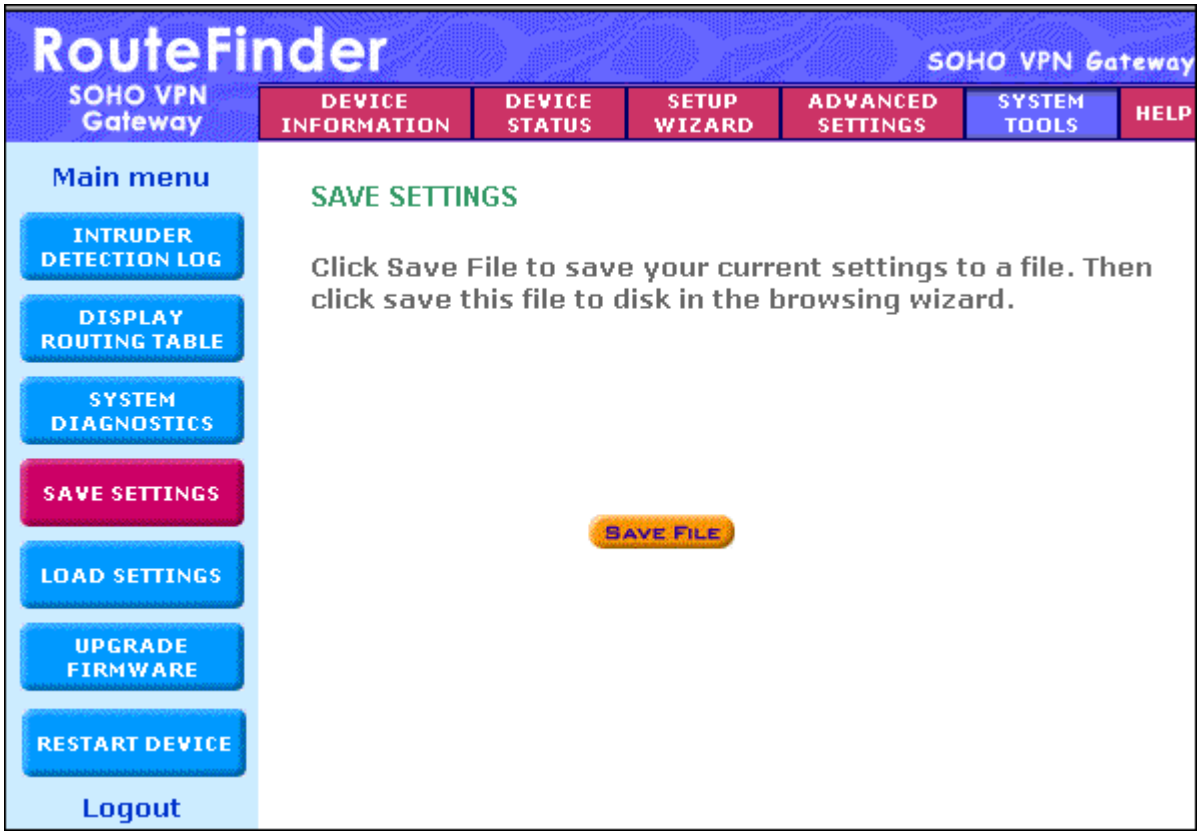
To exit, select another option from the button at the left of the screen.


RouteFinder
SOHO VPN Gateway
SOHO VPN Gateway
DEVICE INFORMATION
DEVICE STATUS
SETUP WIZARD
ADVANCED SETTINGS
SYSTEM TOOLS
HELP
Main menu
INTRUDER DETECTION LOG
DISPLAY ROUTING TABLE
SYSTEM DIAGNOSTICS
SAVE SETTINGS
LOAD SETTINGS
UPGRADE FIRMWARE
RESTART DEVICE
Logout
SYSTEM DIAGNOSTICS
Configuration
Firmware Version: W4.64
ISP Settings
IP assigned method: Statically assigned
IP Address: 204.26.122.3
IP Subnet Mask: 255.255.255.0
Gateway Address: 204.26.122.103
Modem Settings
Telephone Number:
Dial-up User Name:
Idle Timeout: 30 minutes
Pre Initial String: AT
Initial String: AT S0=1
Dialup String: ATDT
Device Settings
Device IP address as: 192.168.2.1
Device Network Mask: 255.255.255.0
DHCP Server: Enabled
Pool from: 192.168.2.2
Pool to: 192.168.2.100
Diagnosis
ISP Status
Static IP address:204.26.122.3
DNS IP address: 0.0.0.0
Modem (async) IP address: 0.0.0.0
Link Status
WAN Disconnected
LAN Connected
Modem Modem is Not Ready
Current WAN connection
Cable/xDSL Not Connected
LAN MAC Table
192.168.2.1 00:08:00:C0:33:76
192.168.2.100 (DHCP IP) 00:08:00:10:16:95 2Day-21Hr-38Min
WAN MAC Table

SYSTEM TOOLS – Save Settings to a File

Use this screen to save your configuration settings to a file. This will provide a backup of your settings in case, for some reason, you have to reset your RF560VPN.

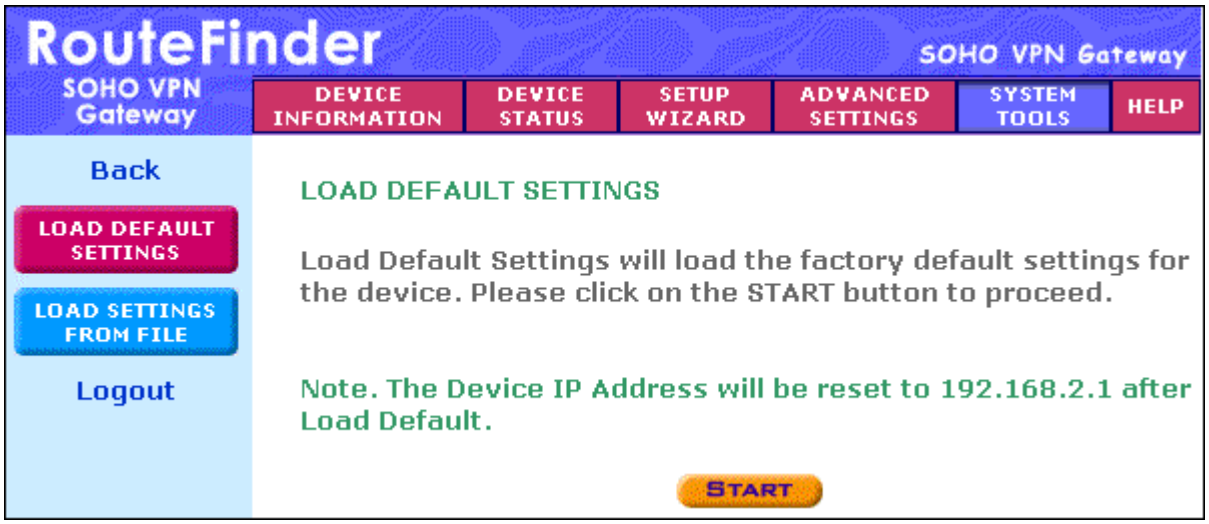
1. Click the **Save File** button.
2. Then click **Save This File to Disk** in the browsing wizard.



SYSTEM TOOLS – Load Default Settings

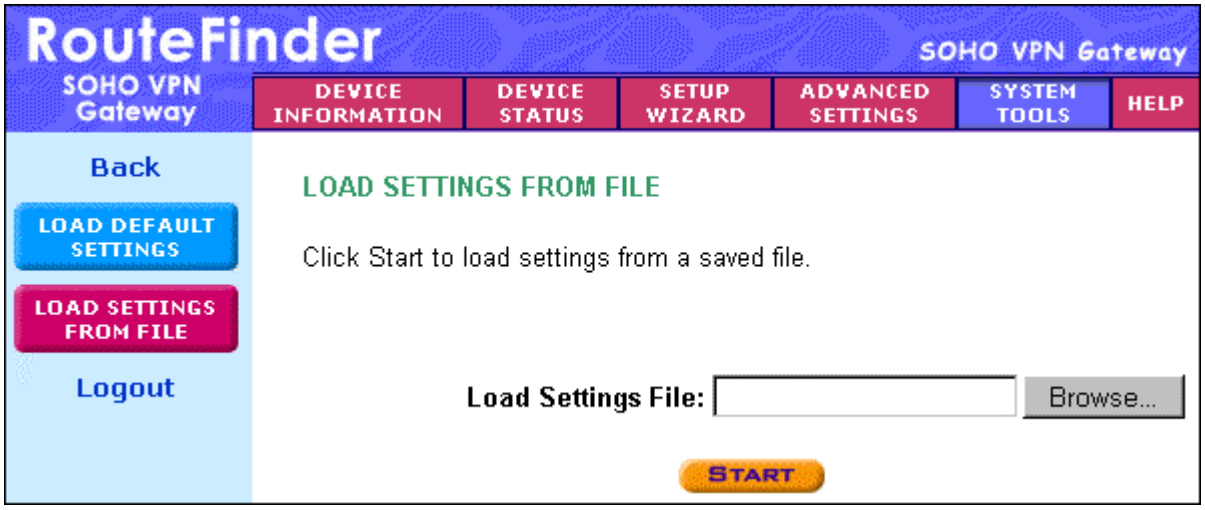
To access this screen, click the **Load Settings** button from the **System Tools** screen. The **Load Default Settings** screen displays.

- Use this screen to load the original RF560VPN factory defaults.
- Click the **Start** button to load the default settings.



SYSTEM TOOLS – Load Settings from a File

1. To load settings from a file, click the **Load Settings from File** button under **Load Settings**. The screen displays.
2. Select the browse button to locate the file.
3. When the file is located, click the **Start** button.



SYSTEM TOOLS – Upgrade Firmware

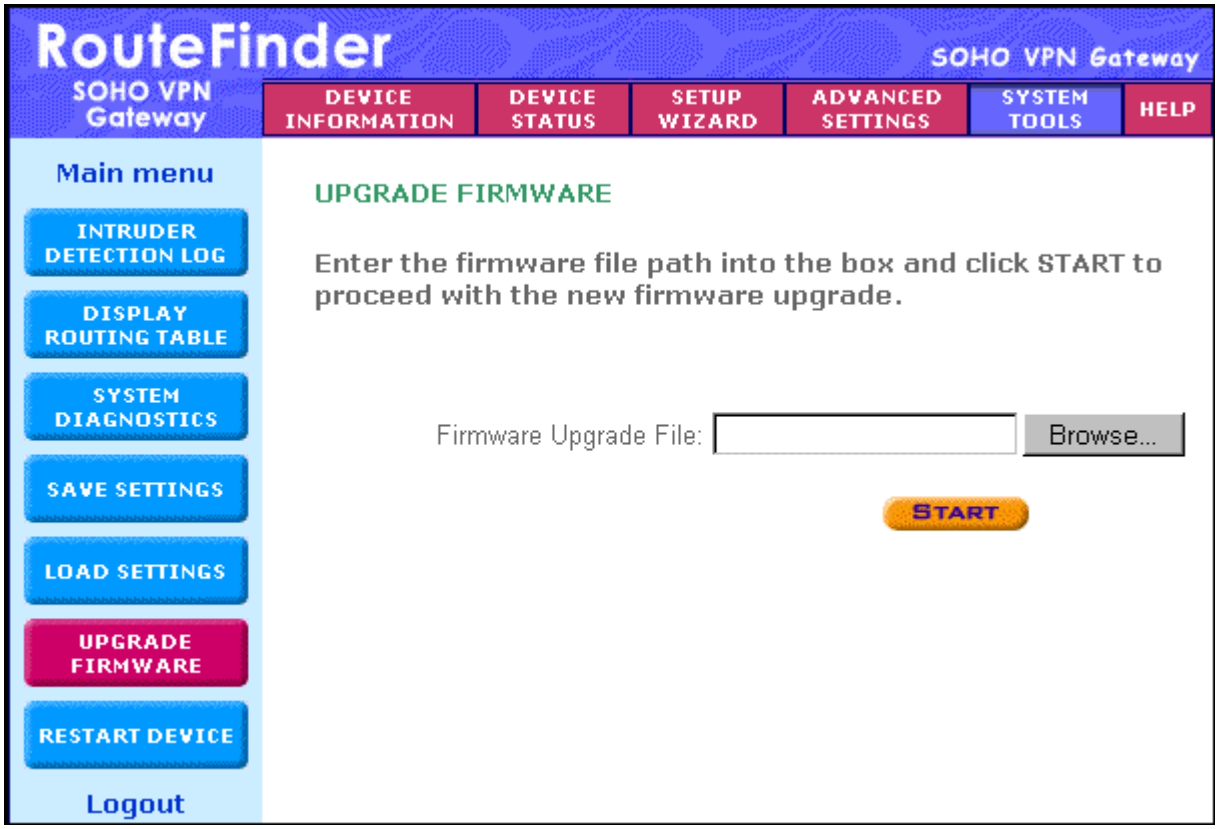
To access this screen, click the **Upgrade Firmware** button from the **System Tools** screen. The **Upgrade Firmware** screen displays.

The **Upgrade Firmware** option allows you to upgrade the newest firmware to your RF560VPN.

How will I be notified of new router firmware upgrades?

All Multi-Tech firmware upgrades are posted on the Multi-Tech Web site at www.multitech.com, where they can be downloaded for free.
Your Router does NOT need the latest firmware upgrade if your Internet connection is already successful, as firmware upgrades will not increase your connection speed or enhance your Router's performance.

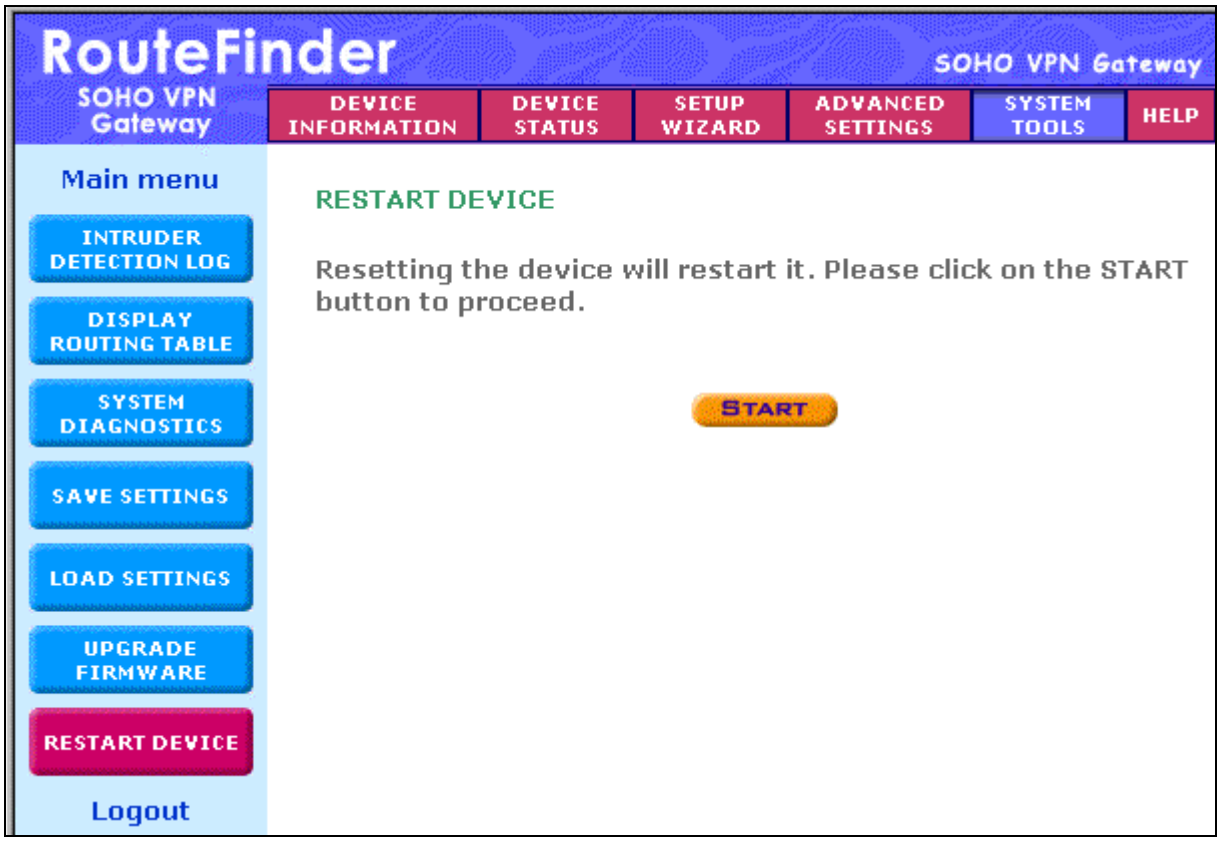
1. Use the browse button to locate the file.
2. Click the **Start** button.
3. To exit this screen, select another option or return to the **Main Menu**.



SYSTEM TOOLS – Restart Device

To access this screen, click the **Restart Device** button from the **System Tools** screen. The **Restart Device** screen displays.

Click on the **Start** button to save the current settings and restart the device.



Chapter 7 – Troubleshooting

This chapter provides a list of common problems encountered while installing, configuring or administering the RF560VPN. In the event you are unable to resolve your problem, refer to the Service, Warranty and Technical Support chapter of this User Guide for information about contacting our Technical Support representatives.

System Diagnostics as a Troubleshooting Tool

The ***System Diagnostics*** function performs a check-up on the SOHO RouteFinder VPN to make sure that it is functioning properly.

To display this screen, launch your Web browser, enter the RF560VPN's IP address (**http://192.168.2.1**) in the browser's address box. Then click the System Tools button and then the **System Diagnostics** button.

You might want to print this page before you call Technical Support.

Problem #1

Other computers can connect to the network device, but my computer can't.

Whenever I click on Internet Explorer or Netscape, I see the Windows Dial-up utility popping up on my screen asking for my phone number and password to dial-up my ISP.

- Remove the TCP/IP dial-up adapter from all computers that will be using your RouteFinder to access the Internet. TCP/IP dial-up adapter is not needed to use the RF560VPN to connect to the Internet.
  1. To remove the Dial-up Adapter, click **Start | Settings | Control Panel**.
  2. Double-click the **Network** icon.
  3. Click the **Dial-up Adapter** and click **Remove**. Restart the computer and try again.

- Ensure you have a correct IP address. From a DOS window in Windows 95/98, type WINIPCFG. From Windows NT, type IPCONFIG. If the address field is listed as 0.0.0.0, the computer does not have an IP address and you must ensure the automatic DHCP configuration has been correctly set up for this computer.

- Ensure that the Web browser is properly configured to connect to the Internet via the LAN.

Problem #2

The RouteFinder is connected to the Cable/DSL, but has problems accessing the Internet.

- Ensure the workstation has TCP/IP properly configured.
- Attempt to ping the IP address of the RF560VPN.
- Use Web browser interface to see if the WAN Ethernet port has successfully acquired a dynamic IP address from the ISP, or if the static IP address is valid.
- Use WINIPCFG (Windows 95/98) or IPCONFIG (Windows NT/ 2000) to check to see if the computer's IP settings are correct.
- Ensure the DNS settings are correct.
- Ensure the Gateway IP address is the device's LAN Ethernet IP address (Server IP address).
- Ensure the IP address netmask is correct.

Problem #3

I configured my RouteFinder but I can't get it to communicate with my modem.

- Check your initialization string. If you are using an ISDN TA and your ISDN TA was not listed as a choice in Setup Wizard, refer to the ISDN TA section in the User Guide for the appropriate initialization string.

Problem #4

My RouteFinder dials-up a connection but can't seem to communicate with the ISP.

- Verify that your baud rate is not set too high for your modem or ISDN TA. The maximum baud rate that your modem or ISDN claims it can achieve may not be attainable due to poor line or connection quality. Use the RouteFinder Web browser management interface to set the baud rate to a lower rate and retry the connection.
- If your connection still doesn't work, contact your ISP.

Problem #5

Sometimes when I try to use the Internet or get my mail, the application can't connect to the Internet immediately.

- The most common reason for this is not due to a problem or error. If you are the first person to make a connection to the Internet through the RF560VPN, there will be a delay when the Dial-On-Demand function automatically makes the connection and logs on to your ISP. Subsequent users will be able to use the connection you've established without a delay.
- If the scenario described above does not fit your situation, use RouteFinder Web browser management interface to view all events that are taking place between the modem and your ISP as you attempt to make a connection (e.g., a busy signal).

Problem #6

After installing my RF560VPN, my modem connection seems to be slower.

- The RouteFinder device should have no effect on the modem speed. However, if more than one client is using the same modem through the RouteFinder, the speed will be reduced.
- Run RouteFinder Web browser management interface to view the number of concurrent client connections to your ISP.

Problem #7

While the Serial async port is in use, my RF560VPN keeps dialing a connection to the Internet, but no one is using the Internet.

- The RF560VPN will only dial the connection if there is a request from one of the computers on the LAN for an IP address on the Internet. Keep in mind that certain applications can be configured to request information from the Internet. For example, Microsoft Outlook can be set up to "check for new mail every x minutes". If this feature is enabled, Outlook will send a request for your Internet POP3 server which will cause your RF560VPN to dial-up your ISP. To determine which computer on your network is processing a request for an Internet connection, use the RouteFinder Web browser management interface. The event messages will provide information about which computer is causing the RF560VPN to dial and which service (port #) the computer is requesting.

Problem #8

The **Please set the Device IP** screen displays while configuring the RF560VPN.

- The system detects that the RouteFinder's LAN Ethernet IP address is not in the same subnet as the PC's. Use RouteFinder Web browser management interface to set the RouteFinder's IP address to the same network as your PC's.

Problem #9

A message appears indicating the input IP address is either not valid on your network or is in conflict with another IP address.

- The system has detected the IP address of the RF560VPN you are configuring is in conflict with another device. Power off the conflicting device and configure the RF560VPN using a different Ethernet LAN IP address.

Chapter 8 – Frequently Asked Questions

Where is the xDSL/Cable Router installed on the network?

In a typical environment, the Router is installed between the Cable/DSL Modem and the LAN. Plug the Cable/DSL Router into the Cable/DSL Modem's Ethernet port.

Does the Router support IPX or AppleTalk?

No. TCP/IP is the only protocol standard for the Internet and has become the global standard for communications. IPX, a NetWare communications protocol used only to route messages from one node to another, and AppleTalk, a communications protocol used on Apple and Macintosh networks, can be used from LAN to LAN connections, but those protocols cannot connect from WAN to LAN.

Does the WAN connection of the xDSL/Cable Router support 100Mbps Ethernet?

Because of the speed limitations of broadband Internet connections, the Cable/DSL Router's current hardware design supports 10Mb Ethernet on its WAN port. It does, of course, support 100Mbps over in the auto-sensing Fast Ethernet 10/100 switch on the LAN side of the router.

What Is Network Address Translation and How Is It Used?

Network Address Translation (NAT) translates multiple IP addresses on the private LAN to one public address that is sent out to the Internet. This adds a level of security since the address of a PC connected to the private LAN is never transmitted on the Internet. Furthermore, NAT allows the Cable/DSL Router to be used with low cost Internet accounts, such as DSL or cable modems, where only one TCP/IP address is provided by the ISP. The user may have many private addresses behind this single address provided by the ISP.

Does the xDSL/Cable Router support any operating system other than Windows 95, Windows 98, Windows 2000, or Windows NT?

Yes, but Multi-Tech does not, at this time, provide technical support for setup, configuration or troubleshooting of any non-Windows operating systems.

Does the Router pass PPTP packets or actively route PPTP sessions?

The Router lets PPTP packets pass through.

What is the maximum number of users supported by the Router?

The Router supports up to 253 users.

Is the Router cross-platform compatible?

Any platform that supports Ethernet & TCP/IP is compatible with the router.

Will the Router function in a Mac environment?
Yes, as long as you have a browser to configure the router.

Will the Router allow you to use your own public IPs and Domain, or do you have to use the IPs provided by the router?

The router mode allows for customization of your public IPs and Domain.

Can multiple gamers on the LAN get on one game server and play simultaneously with just one public IP address?

It depends on which network game or what kind of game server it is. For example, Unreal Games support multi-login with one public IP.

Does the Router replace a modem? That is, is there a cable or DSL modem in the router?

No. The Router must work in conjunction with a cable or DSL modem.

Which modems are compatible with the router?

The Router is compatible with any cable modem or DSL modem that supports Ethernet.

What are the advanced features of the Router?

They include asynchronous port dial-up backup, VPN pass through, hacker attack logging, and Virtual server. See Chapter 1 for a complete list.

What is the maximum number of VPN sessions allowed by the router?

Five.

How do I access the Router's setup pages with a Mac?

The router's setup pages are accessible to the Mac through a browser. Use the default address 192.168.2.1.

Can I choose whether to use UDP or TCP on the Router's ports?

No, the Router does not have this feature. UDP and TCP are both automatically activated at the same time when the Router's service ports are specified to be opened.

Does Multi-Tech provide syslog support?

Yes.

How can I check whether I have static or DHCP (dynamic) IP addresses?

Consult your ISP to confirm this data.

Does the Router support PPP over Ethernet (PPPoE)?
Yes, the router does support PPPoE.

Why does the Router not obtain the IP address assigned by my ISP?

- Make sure that your cable or DSL modem is connected properly.
- Try resetting your cable or DSL modem by powering the modem off and on.
- If you are using dynamic IP addressing, make sure that your cable or DSL modem is DHCP-capable.
- Some ISPs require a MAC address to be registered with them.

If all else fails in the installation, what can I do?

- Reset your cable modem or DSL modem by powering the unit off and on.
- Obtain the latest release of firmware on the RF560VPN at www.multitech.com.
- Reset the Router's factory default by holding down the reset button until the lights start blinking.
- Flash the firmware again to the Router to ensure that it was successfully written to the unit.

How will I be notified of new router firmware upgrades?

All Multi-Tech firmware upgrades are posted on the Multi-Tech Web site at www.multitech.com, where they can be downloaded for free.
Your Router does NOT need the latest firmware upgrade if your Internet connection is already successful, as firmware upgrades will not increase your connection speed or enhance your Router's performance.

Does the Router support IPsec?

The RF560VPN supports IPsec endpoint/gateway.

What type of firewall is the router equipped with?

The Router uses NAT.

I am not able to get my e-mails or my ISP Web page (e.g., http://www.isp.com/). What can I do?

Contact the ISP to get the full URL, or you can do the following:

1. Connect one of the computers directly to the cable modem or DSL modem.
2. Open a command prompt and ping the ISP web server or mail server name given. For example, at the command prompt, type in ping www and press Enter. You should be able to get an IP address when it responds.
3. After you get the IP address, enter the IP address on the mail server option.

Appendix A – Specifications

Processor	50 MHz 32-bit RISC CPU
Memory	**RAM:** 16MB **Flash ROM:** 1MB
LAN Ports	**Number of Ports:** 4 **Interface:** 10BaseT/100BaseTX **Standards:** 802.3
WAN Ports	**Number of Ports:** 2 10BaseT/100Base TX & RS232
Protocols	**Security:** PAP/CHAP, NAT Firewall **Network:** TCP/IP, DHCP (Client/Server), PPPoE, PPP **Filtering:** Protocol, port number, IP address **Routing:** Static, RIP1 **VPN:** IPSec, PPTP pass through
VPN	**Protocol:** IPSec with IKE key management PPTP option supports up to 10 clients **3DES Encryption:** 168-bit; 1.5M bps throughput **Number of Tunnels:** 10
Firewall	Port and IP Filtering, Denial of Service Protection (DoS), Network Address Translation (NAT), and Virtual Server
Management	Local and Remote Management, Logging, Web-Based HTTP & Syslog
Dimensions	201 x 151 x 44 mm (L x W x H); 7.1” x 4.9” x 1.4”
Weight	380g 13 oz
Temperature	**Temperature Range:** 32°–120° F (0–50° C) **Humidity:** 25–85% non-condensing
Power Requirements	External AC Adapter **Input:** 100 ~240V, 0.6A 50-60- Hz **Output:** 12V DC
Approvals	FCC Part 15 (Class B), CE Mark, UL1950, and EN60950
Warranty	2 years

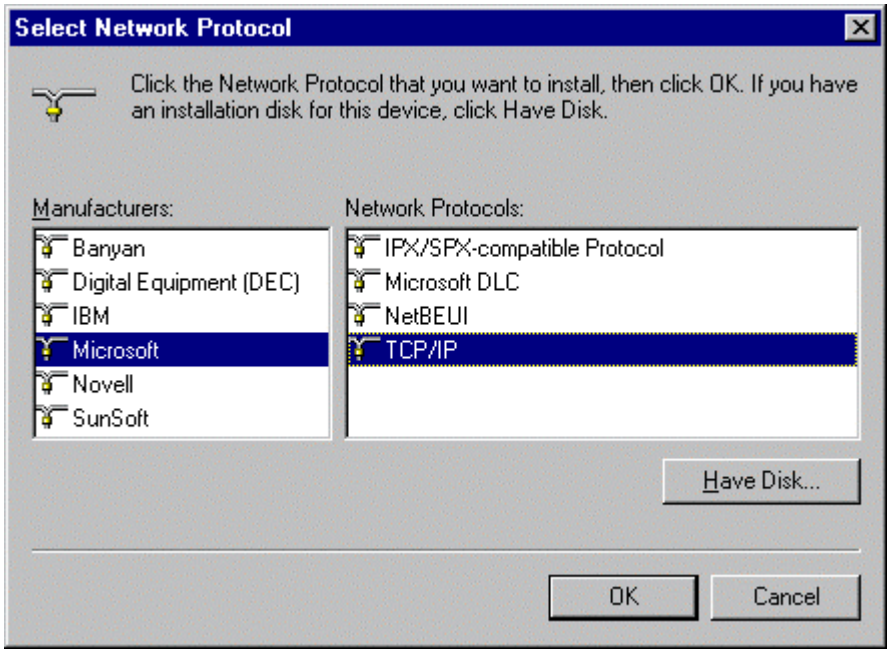
Appendix B – Installing TCP/IP

Windows 98/Me

1. Click **Start** | **Settings** | **Control Panel**, and then double-click the **Network** icon. In the Network dialog box, Configuration tab, click the **Add** button.

2. Select **Protocol** and click **Add**.

3. The **Select Network Protocol** dialog box displays. In the **Manufacturers** box, select **Microsoft** and then select **TCP/IP** in the **Network Protocols** box.



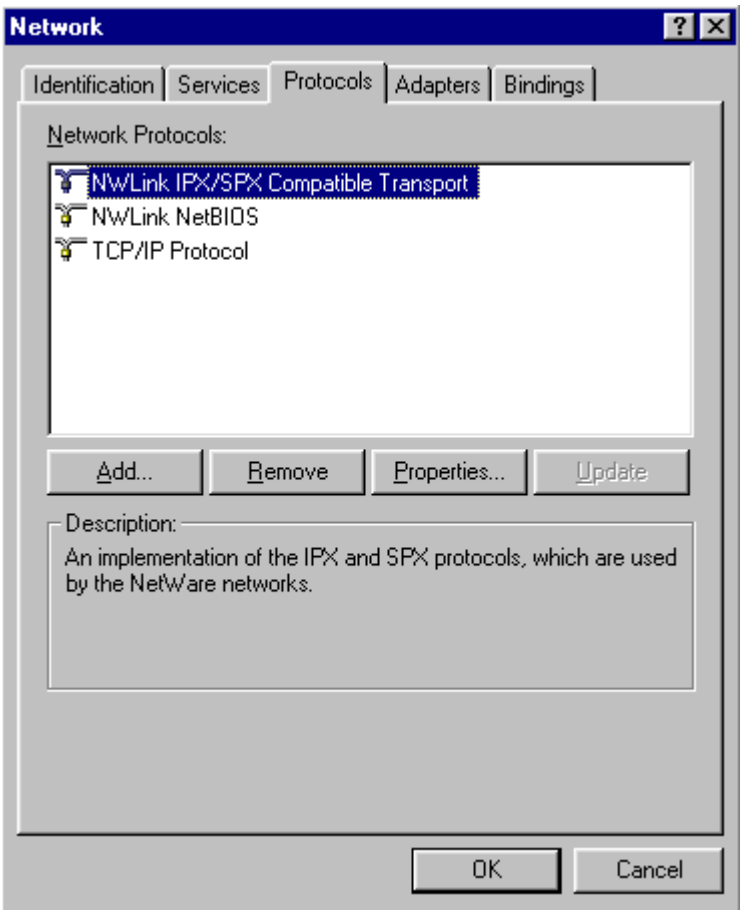
4. Click **OK** and you will be returned to the **Network** dialog box.
   Click **OK** to close out of the Network dialog box.

5. Allow your system to reboot.

Windows NT

1. Click **Start** | **Settings** | **Control Panel**, and then double-click the **Network** icon. In the Network dialog box, click the **Protocols** tab, and click the **Add** button.

   (This screen shows TCP/IP already installed)



2. The **Select Network Protocol** screen displays. Select **TCP/IP** and follow the on-screen instructions to complete installation.
3. Allow your system to reboot.

Windows 2000/XP

TCP/IP is automatically installed in Windows 2000 and Windows XP.

Appendix C – Tools for Your RF560VPN

PING

Ping is an acronym for **P**acket **I**nter**n**et **G**roper. The PING utility is used as a diagnostic tool to determine if a communication path exists between two devices on the network. The utility sends a packet to the specified address and then waits for a reply. PING is used primarily to troubleshoot Internet connections, but it can be used to test the connection between any devices using the TCP/IP protocol.

If you PING an IP address, the PING utility will send four packets and stop.

If you add a -t to the end of the command, the PING utility will send packets continuously.

WINIPCFG and IPCONFIG

These tools find a computer's IP configuration, MAC address, and default gateway.

WINIPCFG (for Windows 95/98)

1. Select **Start** | **Run** and type **WINIPCFG**.
2. The IP address, default gateway (the RF560VPN IP address), and the MAC (adapter address) display.

IPCONFIG (for Window NT/2000)

1. From a DOS Prompt, type **IPCONFIG** and press **Enter**.
2. The IP address, default gateway (the RF560VPN address), and the MAC (adapter address) display.

TRACERT

TRACERT is an extensive PING utility that allows you to trace the route of an IP address. The utility reports the number of router hops, the time for each hop, and any failed attempts to cross a hop. The information that is provided by this utility assists you to locate the specific site of a failed PING. You can run TRACERT at the DOS prompt (e.g., c:\tracert www.yahoo.com). The utility will provide information about the route and number of hops required to reach the destination IP address associated with the network address or URL.

Appendix D – Warranty and Repairs

This chapter covers with the terms of your RouteFinder's warranty and repair policies.

Warranty

Multi-Tech Systems, Inc., (hereafter "MTS") warrants that its products will be free from defects in material or workmanship for a period of two, five, or ten years (depending on model) from date of purchase, or if proof of purchase is not provided, two, five, or ten years (depending on model) from date of shipment.
MTS MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED.
This warranty does not apply to any products which have been damaged by lightning storms, water, or power surges or which have been neglected, altered, abused, used for a purpose other than the one for which they were manufactured, repaired by Customer or any party without MTS's written authorization, or used in any manner inconsistent with MTS's instructions.
MTS's entire obligation under this warranty shall be limited (at MTS's option) to repair or replacement of any products which prove to be defective within the warranty period or, at MTS's option, issuance of a refund of the purchase price. Defective products must be returned by Customer to MTS's factory – transportation prepaid.
MTS WILL NOT BE LIABLE FOR CONSEQUENTIAL DAMAGES, AND UNDER NO CIRCUMSTANCES WILL ITS LIABILITY EXCEED THE PRICE FOR DEFECTIVE PRODUCTS.

Repair Procedures for U.S. and Canadian Customers

In the event that service is required, products may be shipped, freight prepaid, to our Mounds View, Minnesota factory:

Multi-Tech Systems, Inc.
2205 Woodale Drive
Mounds View, MN 55112
Attn: Repairs, Serial # _____

A Returned Materials Authorization (RMA) is not required. Return shipping charges (surface) will be paid by MTS. Please include, inside the shipping box, a description of the problem, a return shipping address (must have street address, not P.O. Box), your telephone number, and if the product is out of warranty, a check or purchase order for repair charges.
For out of warranty repair charges, go to www.multitech.com/documents/warranties
Extended two-year overnight replacement service agreements are available for selected products. Please call MTS at (888) 288-5470, extension 5308 or visit our web site at http://www.multitech.com/programs/orc/ for details on rates and coverages.
Please direct your questions regarding technical matters, product configuration, verification that the product is defective, etc., to our Technical Support department at (800) 972-2439 or email tsupport@multitech.com. Please direct your questions regarding repair expediting, receiving, shipping, billing, etc., to our Repair Accounting department at (800) 328-9717 or (763) 717-5631, or email mtsrepair@multitech.com.
Repairs for damages caused by lightning storms, water, power surges, incorrect installation, physical abuse, or user-caused damages are billed on a time-plus-materials basis.

Repair Procedures for International Customers (Outside U.S.A. and Canada)

Your original point of purchase Reseller may offer the quickest and most economical repair option for your Multi-Tech product. You may also contact any Multi-Tech sales office for information about the nearest distributor or other repair service for your Multi-Tech product.

http://www.multitech.com/COMPANY/offices/DEFAULT.ASP

In the event that factory service is required, products may be shipped, freight prepaid to our Mounds View, Minnesota factory. Recommended international shipment methods are via Federal Express, UPS or DHL courier services, or by airmail parcel post; shipments made by any other method will be refused. A Returned Materials Authorization (RMA) is required for products shipped from outside the U.S.A. and Canada. Please contact us for return authorization and shipping instructions on any International shipments to the U.S.A. Please include, inside the shipping box, a description of the problem, a return shipping address (must have street address, not P.O. Box), your telephone number, and if the product is out of warranty, a check drawn on a U.S. bank or your company's purchase order for repair charges. Repaired units shall be shipped freight collect, unless other arrangements are made in advance.

Please direct your questions regarding technical matters, product configuration, verification that the product is defective, etc., to our Technical Support Department nearest you or email tsupport@multitech.com. When calling the U.S., please direct your questions regarding repair expediting, receiving, shipping, billing, etc., to our Repair Accounting department at

+(763) 717-5631 in the U.S.A., or email mtsrepair@multitech.com.

Repairs for damages caused by lightning storms, water, power surges, incorrect installation, physical abuse, or user-caused damages are billed on a time-plus-materials basis.

Repair Procedures for International Distributors

Procedures for International Distributors of Multi-Tech products are on the distributor web site.

http://www.multitech.com/PARTNERS/login/

10-Sep-01

Appendix E – Regulatory Compliance Information

FCC Part 15 Regulation

This equipment has been tested and found to comply with the limits for a **Class B** digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with 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 can be determined 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 and receiver.
- Plug the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC rules. Operation of this device is subject to the following conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference that may cause undesired operation.
WARNING – Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Industry Canada

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.
Cet appareil numérique de la classe B respecte toutes les exigences du Reglement Canadien sur le matériel brouilleur.

CE

EMC, Safety, and R&TTE Directive Compliance

The CE mark is affixed to this Multi-Tech product to confirm compliance with the following European Community Directives:
Council Directive 89 / 336 / EEC of 3 May 1989 on the approximation of the laws of Member States relating to electromagnetic compatibility.
and
Council Directive 73 /23 / EEC of 9 February 1973 on the harmonization of the laws of Member States relating to electrical equipment designed for use within certain voltage limits:
and
Council Directive 1999 / 5 / EC of March 1999 on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity.

Other Approvals

UL1950
EN60950

Appendix F – Technical Support

The Technical Support section offers information about on-line registration as well as phone numbers for contacting our Technical Support group. Also included is information about accessing our Internet site, and information about ordering accessories for your RouteFinder.
Multi-Tech provides free technical support for as long as your product remains in service. Before calling Technical Support, please read through the Troubleshooting chapter of this User Guide. Also, ensure you have completed the *Recording RouteFinder Information* section below.
To contact our Technical Support group, use one of the following contact options, keeping in mind that phone calls are handled with first priority:

Contacting Technical Support

Country	Using Email	By Phone
France	support@multitech.fr	+(33) 1-64 61 09 81
India	support@multitechindia.com	+(91) 124-340778
U.K.	support@multitech.co.uk	+(44) 118 959 7774
Rest of World	support@multitech.com	800-972-2439 (U.S. & Canada) or +763-785-3500

Recording RouteFinder Information

Before placing a call to our Technical Support staff, record the following information about your Multi-Tech RouteFinder.
Model no.: _____
Serial no.: _____
Firmware version: _____
Software version: _____
Note the status of your RouteFinder in the space provided before calling tech support. Make certain to include screen messages, diagnostic test results, problems with a specific application, etc.

On-line Warranty Registration

If you have access to the World Wide Web, you can register your Multi-Tech product online at the following URL:
http://www.multitech.com/register

Contacting Multi-Tech by Internet

Multi-Tech System, Inc. maintains a Web and an FTP site at:
http://www.multitech.com
ftp://ftp.multitech.com

Ordering Accessories

SupplyNet, Inc. can provide you with replacement transformers, cables and connectors for select Multi-Tech products. You can place an order with SupplyNet via mail, phone, fax or the Internet at:

Mail:	SupplyNet, Inc. 614 Corporate Way Valley Cottage, NY 10989
Phone:	(800) 826-0279
Fax:	(914) 267-2420
Email:	info@thesupplynet.com
Internet:	http://www.thesupplynet.com

Glossary

A

Authentication
The process of determining the identity of a user attempting to access a system and the process of verifying that a particular name really belongs to a particular entity.

Asynchronous
A method of transmitting data which allows characters to be sent at irregular intervals.

B

Baud Rate
Baud Rate refers to the number of bits per second (Bps) that are transmitted between your network device and modem or ISDN TA.

Blocked Cipher
Cipher that encrypts data in blocks of a fixed size: DES, IDEA, and SKIPJACK are block ciphers.

C

Client
A computing entity in a network that seeks service from other entities on the network. Client software generally resides on personal workstations and is used to contact network servers to retrieve information and perform other actives.

D

Data Encryption Standard (DES)
Block cipher that is widely used in commercial systems. It is a Federal standard so it is deemed acceptable by many financial institutions.

Data Key
Crypto key that encrypts data as opposed to a key that encrypts other keys. Also called a session key.

DHCP (Dynamic Host Configuration Protocol)
A protocol that was made to lessen the administrative burden of having to manually configure TCP/IP Hosts on a network. DHCP makes it possible for every computer on a network to extract its IP information from a DHCP server instead of having to be manually configured on each network computer. The DHCP server built-in to your RouteFinder allows every computer on your network to automatically extract IP information from the RouteFinder.
Why is it called Dynamic?
Each time a network client turns on their computer your RouteFinder DHCP server will automatically give them an IP address from the IP address pool configured in the DHCP Configuration dialog box in RouteFinder Web browser management interface. It is called Dynamic because the address that is issued could be different each time a computer connects to the network.

DNS (DomainNameSystem)
A DNS Server can be thought of as the computer at your ISP whose job is to take all the URLs that you type into your web browser and translate them to their corresponding IP address. To use this the DNS translator, you need to know the IP address of your ISP's DNS Server.

Domain Name
The textual name assigned to a host on the Internet. The Domain Name Service (DNS) protocol translates between domain names and numerical IP addresses.

Dynamic Routing
Routing is the process of selecting the correct path for a message. Dynamic routing adjust automatically to changes in network topologies or traffic. It automatically accomplishes load balancing and optimizes performance of the network “on the fly.”

E

Encryption
In general use, the transformation of data into a form unreadable by anyone without a secret decryption key. Its purpose is to ensure privacy by keeping the information hidden from anyone for whom it is not intended.

Ethernet
A LAN (Local Area Network) protocol developed by Xerox and DEC. It is a very commonly used type of LAN.

F

Filtering
An operating parameter used in LAN bridges and routers that when set will cause these devices to block the transfer of packets from one LAN to another.

Firewall
A system designed to prevent unauthorized access to or from a private network. Firewalls are typically installed to give users access to the Internet while protecting their Internal Information. Your RouteFinder uses a firewall technology known as NAT (see NAT). Each message entering or leaving the intranet passes through the firewall. The firewall examines each message and blocks those that do not meet the specified security criteria.

Firmware
Software that has been has been permanently or semi-permanently written to the RouteFinder’s memory. Your RouteFinder supports flash ROM which means you can upgrade the firmware in your network device very easily by downloading a copy of the new firmware from the Multi-Tech Web site and using the RouteFinder Web browser management Firmware function.

FTP (File Transfer Protocol)
A protocol which allows a user on one host to access, and transfer files to and from another host over a network.

G

Gateway
An entrance and exit into a communications network.

I

IKE
Internet Key Exchange – a procedure by which the value of a key is shared between two or more parties.

IP (Internet Protocol)
The Internet Protocol is the network layer for the TCP/IP Protocol Suite. It is a connectionless, best-effort packet switching protocol.

IPSec
A collection of IP security measures that comprise an optional tunneling protocol for IPv6. IPSec supports authentication through an “authentication header” which is used to verify the validity of the originating address in the header of every packet of every packet stream.

Intranet
An Intranet is the use of Internet technologies within a company. Intranets are private networks that exist only within organizations, while the Internet is a global network open to all.

IP Addresses
A computer on the Internet is identified by an IP Address. A computer’s IP address is like a

telephone number. It identifies one address or in this case one computing device. Every computer or device on the network must have a different IP address.
An IP address consists of four groups of numbers called **octets**, which are separated by periods. For example, 213 .0.0.1 is an IP address. An IP address consists of a **network portion** and a **host portion**. The network portion identifies the subnet that the computer belongs to. The host portion identifies the particular computer or node on that network.
IP addresses can either be dynamic (temporary) or static (permanent or fixed). A dynamic IP address is a temporary IP address that is assigned to you by a server (usually a DHCP server) when the computer is powered on. A static IP address is a permanent IP address that is set up on each individual computer. When your RouteFinder dials-up your ISP, your ISP can give it a fixed or dynamic IP address. Likewise, when you power on your computer, the RF560VPN can give your computer a dynamic or fixed IP address.

ISDN TA
(Integrated Services Digital Network Terminal Adapter) ISDN is a high speed digital telephone connection involving the digitization of the telephone network using existing wiring. An ISDN Terminal Adapter can be thought of as an ISDN Modem.

ISP (Internet Service Provider)
An organization that provides Internet services. An ISP is the company that provides the connection from your computer to the Internet. An ISP can offer a range of services, such as dial-up accounts, e-mail, web hosting or News.

L
LAN (Local Area Network)
A data network intended to serve an area of only a few square kilometers or less. This often means a small private network in companies.

M
ML-PPP (Also called MP or MPPP)
Stands for Multilink Point to Point Protocol and is an advancement of the PPP protocol that allows for the bridging or bundling of two ISDN or analog channels for faster connections.

MAC Address
The hardware address of a Device connected to a shared media. To find out the MAC address of your computer please see **Troubleshooting.**

N
NAT Technology
NAT is short for Network Address Translation. NAT is an Internet standard that enables a local-area network to use one set of IP addresses for internal traffic and a second set of IP addresses for external traffic. The RF500S provides the necessary IP address translations. NAT is sometimes referred to as “IP Address Masquerading”. This technology provides a type of firewall by hiding the internal IP addresses.
How does it work?
Every IP address on the Internet is a Registered or legal IP address. Therefore, no two IP addresses on the Internet are the same. For you to use your network device to access the Internet you need a registered IP address from your ISP (Internet Service Provider). Using a registered IP address on your Intranet or LAN is not necessary. When clients on your network start surfing the Internet, your RouteFinder will receive all the requests for information. The RouteFinder will dial-up your ISP and your ISP will give your RouteFinder a registered legal IP address. Your RouteFinder uses this IP address to request information saying, “send all information back to me at this IP address”. In essence it appears as though all your clients requests are coming from that one IP address (hence the name IP masquerading). When all the information comes back through the RouteFinder, it sorts the data using an Address Translation Table and returns the data to the computer on your network that requested it.
If someone on the Internet tries to access your network, the firewall function of the RouteFinder stops the request. The device will not reverse translate network addresses unless you have specifically allowed this feature using the Virtual Server function (IP Mapping).

NetworkAddress
The network portion of an IP address. For a class A network, the network address is the first byte of the IP address. For a class B network, the network address is the first two bytes of the IP address. For a class C network, the network address is the first three bytes of the IP address. In each case, the remainder is the host address. In the Internet, assigned network addresses are globally unique.

P

Packet
A packet is a piece of a message transmitted over a packet-switching network. A packet contains the destination address of the message as well as the data. In IP networks, packets are often called datagrams.

PING
A program that tests whether a particular network destination on the Internet is online (that is, working) by bouncing a “signal” off a specified IP destination address.

Port Number
The term *port* can mean the connector on your computer or it can be thought of as a server number. Every service that travels over phone lines and modems has a standard port number. For example, the World Wide Web service uses the standard port number, **80** and the standard Telnet port is **23**.
Port numbers are controlled and assigned by the IANA (Internet Assigned Numbers Authority). Most computers have a table in their systems containing a list of ports that have been assigned to specific services. You can also find lists of standard port numbers on the World Wide Web.

PPPoE
Point-to-point protocol over the Ethernet. It is a means of connecting from your premises to your Internet Service Provider. Its main advantage is that it determines the need for the ISP to manage the allocation of IP addresses.

PPTP
Point-to-Point Tunneling Protocol – An IP tunneling protocol designed to encapsulate the LAN protocols IPX and Apple Talk within IP for transmission across the Internet and other IP-based networks.

Private Key
Key used in public key crypto that belongs to an individual entity and must be kept secret.

Protocol
A formal description of message formats and the rules two computers must follow to exchange those messages. You can think of protocols like languages. If two computers or devices aren’t speaking the same language to each other, they won’t be able to communicate.

PPP (Point -to- Point Protocol)
PPP enables dial-up connections to the Internet and is the method that your network device connects to the Internet. PPP is more stable than the older SLIP protocol and provides error checking features.

R

Router
A device which forwards traffic between networks. If you request information from a location on your network or the Internet, the router will route the request to the appropriate destination. The router’s job is to listen for requests for IP addresses that are not part of your LAN and then route them to the appropriate network which may either be the Internet or another sub-network on your LAN.

S

Server
A provider of resources (e.g., file servers and name servers). For example, your RouteFinder provides Internet access and is, therefore, an Internet Access Server.

Static Routing
Involves the selection of a route for data traffic on the basis of routing options preset by the network administrator.

Subnet
A portion of a network that shares a common address component. On TCP/IP networks, subnets are all devices whose IP Addresses have the same prefix. For example, all devices with IP addresses starting with 213.0.0 are part of the same subnet.

SubnetMask /IPAddressMask
Subnet mask is what is used to determine what subnet an IP address belongs to. Subnetting enables the network administrator to further divide the host part of the address into two or more subnets.

T

TCP/IP (Transmission Control Protocol/Internet Protocol)
A suite of communication protocols used to connect hosts on the Internet. Every computer that wants to communicate with another computer on the Internet must use the TCP/IP protocol to transmit and route data packets. The format of an IP address is a 32-bit numeric address written as four octets separated by periods. Each number can be zero to 255. Within an isolated network, you can assign IP addresses at random as long as each one is unique. However, connecting a private network to the Internet requires using registered IP addresses to avoid duplication. The four groups of numbers (octets) are used to identify a particular network and host on that network. The InterNIC assigns Internet addresses as Class A, Class B, or Class C. Class A supports 16 million hosts on each of 127 networks. Class B supports 65,000 hosts on each of 16,000 networks. Class C supports 254 hosts on each of 2 million networks. Due to the large increase in access to the Internet, new classless schemes are gradually replacing the system based on classes.

Triple DES (3DES)
Cipher that applies the DES cipher three times with either two or three different DES keys.

Tunneling
As an Internet term, tunneling means to provide a secure temporary path over the Internet or other IP-based network in a VPN (Virtual Private Network) scenario. In this context, tunneling is the process of encapsulating an encrypted data packet in an IP packet for secure transmission across an inherently insecure IP network, such as the Internet.

U

UDP (User Datagram Protocol)
An Internet Standard transport layer protocol. It is a connectionless protocol that adds a level of reliability and multiplexing to IP.

V

Virtual Private Network
A private network built atop a public network. Hosts within the private network use encryption to talk to other hosts; the encryption excludes hosts from outside the private network even if they are on the public network.

W

WAN (Wide Area Network)
A network that connects host computers and sites across a wide geographical area.

Index