TW100-BRF104

Broadband Router + Firewall

User's Guide

Version 1.00
November 2001

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Chapter 1 Introduction

1.1 About the TW100-BRF104 Broadband Router+Firewall

The TW100-BRF104 Broadband Router+Firewall provides continuous, high-speed 11 Mbps access between your Ethernet devices. In addition, it connects your entire network to the Internet through an external broadband access device (such as a cable modem or DSL modem) that is normally intended for use by a single computer.

The TW100-BRF104 Broadband Router+Firewall provides you with multiple Web Patrol options, plus browsing activity reporting and instant alerts - both via e-mail. Parents and network administrators can establish restricted access policies based on time-of-day, Website addresses and address keywords, and share high-speed cable/DSL Internet access for up to 253 personal computers. Network Address Translation (NAT) and DoS prevention protects you from hackers.

With minimum setup, you can install and use the Broadband Router+Firewall within minutes.

1.2 Key Features

- Built in 4-port LAN 10/100 Mbps Ethernet UTP Switch
  - Half-duplex or full-duplex operation
  - Allows LAN connections at 10 megabits per second (Mbps) or 100 Mbps
  - Auto sensing Ethernet (10BASE-T) or Fast Ethernet (100BASE-Tx) transmissions
  - Normal/uplink selective switch at the 4th LAN port
- One Ethernet UTP port for WAN connection
  - Ethernet connection to a wide area network (WAN) device, such as a cable modem or DSL modem
- Embedded FTP Server for firmware upgrade
- Embedded FTP Server configuration backup and restore
- Scripting and spoofing for major cable providers
- Restore Factory Defaults Button to reset to factory default IP address, password, and other configurations

- Embedded Web Configurator for easy setup and management
- Security
  - DoS (Denial of Service) prevention
  - SPI (Stateful Packet Inspection)
  - Applications Services Management
  - Login capability
  - Web browsing Patrol by using URL keyword blocking
  - Auditing and e-mail reporting of web browsing activities
  - Network Address Translation (NAT) hides local computers from the Internet
  - Powerful packet filtering capabilities
  - Incoming port forwarding and DMZ for specific services
- Protocol Support
  - IP routing
  - Dynamic extended Network Address Translation (NAT+) with port forwarding for operation with a single static or dynamic IP address
  - Dynamic Host Configuration Protocol (DHCP) server for dynamically assigning network configuration information to computers on the LAN
  - DHCP client for dynamically obtaining configuration information from the Internet Service Provider (ISP)
  - DNS Proxy for simplified configuration
  - PPP over Ethernet (PPPoE) support
  - PPTP support

1.3 Features in Detail

1.3.1 NAT Implementation

The implementation of NAT allows for specific ports redirection, and provides support for the following “NAT-unfriendly” applications:

- NetMeeting

- CuSeeMe
- Microsoft PPTP client
- Microsoft Traceroute
- RealAudio
- VDOlive
- IRC
- ICQ
- Quake, Quake variants, and other popular games
- Port Forwarding

The Broadband Router+Firewall also allows VPN (IPSec & PPTP) packets to pass though NAT.

1.3.2 Scripting Requirements

The TW100-BRF104 Broadband Router+Firewall supports login scripting and monitoring requirements for major cable modem deployments such as RoadRunner.

1.3.3 Security

The TW100-BRF104 Broadband Router+Firewall is equipped with several features designed to maintain security, as described in this section.

➢ **Password Security**

PAP and CHAP support (RFC 1334 plus major vendor variations) if required in login script.

➢ **Computers Hidden By NAT**

Network address translation (NAT) opens a temporary path to the Internet for requests originating from the local network. Requests originating from outside the LAN are discarded, preventing users outside the LAN from finding and directly accessing the computers on the LAN.

➢ **Port Forwarding With NAT**

Although NAT prevents Internet locations from directly accessing the computers on the LAN, the Broadband Router+Firewall allows you to direct incoming traffic to specific computers based on the service port number of the incoming request, or to one designated “DMZ” host computer.

1.3.4 Firewall

➢ **Access Control (Application Services Management)**

Block selected application services, such as ICQ, MSN messenger, on-line games, and so on.

- **DoS (Denial Of Service) Prevention**

  Protect the devices in the LAN from hacker attacks.

- **Real Time Alert**

  While services are to access, or hacker attempt to attack, a real time alert via email will be sent to the assigned administrator.

- **Schedule**

  The TW100-BRF104 allows the user to specify the day and time to blocking.

- **Trusted Host**

  The TW100-BRF104 allows the user to specify one Trusted host from blocking by the fixed IP address.

- **Periodical Reports And Logs**

  - The Security events and services activities will be recorded sequentially. The log will always keep the latest 128 entries.
  - The log can be sent to the assigned administrator via email by weekly, daily, or every periodical report page.

1.3.5 Web Patrol

With its Web Patrol features, the TW100-BRF104 Broadband Router+Firewall prevents objectionable web contents from reaching your computers. Its Web Patrol features include:

- **Web Patrol By Domain Or Keyword**

  The TW100-BRF104 uses Web Patrol to enforce your network's Internet access policies. The Broadband Router+Firewall allows you to control access to Internet content by screening for keywords within Web URLs.

- **Alert Of Inappropriate Use**

  You can configure the Broadband Router+Firewall to send an immediate alert e-mail message to you whenever a local user attempts to access a blocked Web site.

- **Schedule**

  The TW100-BRF104 allows the user to specify the day and time to blocking.

- **Trusted Host**

  The TW100-BRF104 allows the user to specify one Trusted host from blocking by the fixed IP address.

- **Periodical Reports And Logs**

- The URL of websites visited will be recorded sequentially. The log will always keep the latest 128 websites entries. The string of each entry should be no more than 128 bytes.
- The log of websites visited can be sent to the assigned administrator via email by weekly, daily, or every periodical report page included the latest 128 websites visited list.

1.3.6 Auto-sensing 10/100 Ethernet

With its internal, 4-port 10/100 switch, The TW100-BRF104 Broadband Router+Firewall can connect to either a 10 Mbps standard Ethernet network or a 100 Mbps Fast Ethernet network. The local LAN interface is auto-sensing and is capable of full-duplex or half-duplex operation.

The TW100-BRF104 Broadband Router+Firewall provides a Normal/Uplink button. By pushing the button once, the 4th Local Ethernet port can have either a 'normal' connection (e.g. connecting to a computer) or an 'uplink' connection (e.g. connecting to a Broadband Router+Firewall, switch, or hub).

1.3.7 TCP/IP

The TW100-BRF104 Broadband Router+Firewall supports the Transmission Control Protocol/Internet Protocol (TCP/IP) and Routing Information Protocol (RIP).

- **IP Address Masquerading By Dynamic NAT+**

  The TW100-BRF104 Broadband Router+Firewall allows several networked computers to share an Internet account using only a single IP address, which may be statically or dynamically assigned by your Internet service provider (ISP). This technique, an extension of Network Address Translation (NAT), is also known as IP address masquerading and allows the use of an inexpensive single-user ISP account.

- **Automatic Configuration Of Attached Computers By DHCP**

  The TW100-BRF104 Broadband Router+Firewall dynamically assigns network configuration information, including IP, gateway, and domain name server (DNS) addresses, to attached computers on the LAN using the Dynamic Host Configuration Protocol (DHCP). This feature greatly simplifies configuration of LAN-attached computers.

- **DNS Proxy**

  When DHCP is enabled and no DNS addresses are specified, the Broadband Router+Firewall provides its own address as a DNS server to the attached computers. The Broadband Router+Firewall obtains actual DNS addresses from the ISP during connection setup and forwards DNS requests from the LAN.

- **PPP Over Ethernet (PPPoE) And PPTP**

  PPP over Ethernet and PPTP are protocols for connecting remote hosts to the Internet over an always-on connection by simulating a dial-up connection.

1.3.8 Easy Installation and Management

You can install, configure, and operate the TW100-BRF104 Broadband Router+Firewall within minutes after connecting it to the network. The following features simplify installation and management tasks:

- **Web Configurator**

  The **Web Configurator** allows you to easily configure your Broadband Router+Firewall from almost any type of personal computer, such as Windows, Macintosh, or Linux.

- **Visual Monitoring**

  The TW100-BRF104 Broadband Router+Firewall front panel LEDs provide an easy way to monitor its status and activity.

1.4 Application

The TW100-BRF104 Broadband Router+Firewall is a small-office or home-office device that allows a small LAN to access the Internet or a remote office through an external single-host device such as a cable modem or xDSL modem. By integrating NAT and DoS prevention, TW100-BRF104 provides not only the ease of installation and Internet access, but also the most completed security solution to protect your intranet and efficient network management for data traffic.

The TW100-BRF104 has four single auto-sensing 10/100BASE-T Ethernet ports for connection to the user's local network, and a single 10BASE-T port for connection to an external WAN-access device.

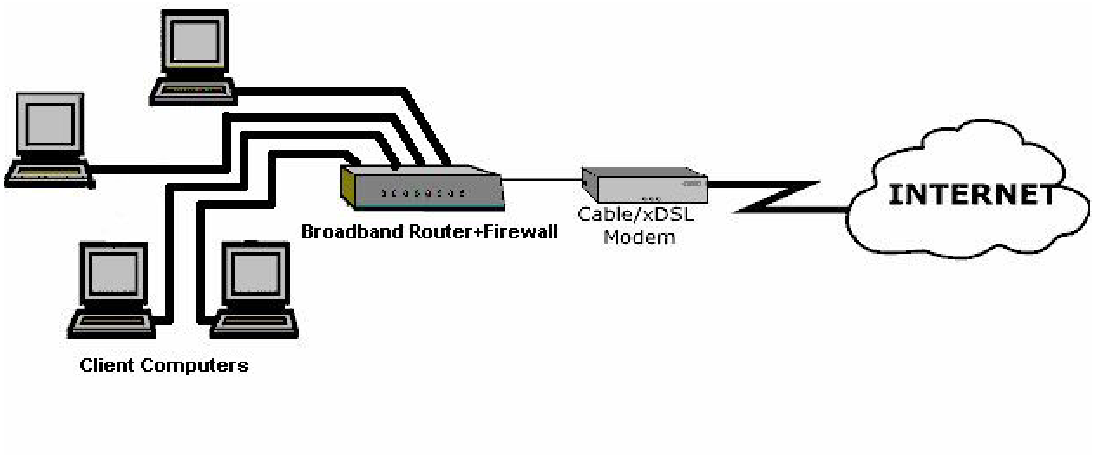


Figure 1-1 Broadband Router+Firewall Application

Chapter 2
Hardware Setup

2.1 Package Contents

The product package should contain the following items:

- The Broadband Router+Firewall
- User's Guide on the CD-ROM
- Quick Installation Guide (in print)
- 5VDC, 2.4A power adaptor
- One straight-through category 5 Ethernet cable

If any of the parts are incorrect, missing, or damaged, contact your dealer. Keep the box, sleeve, including the original packing materials, in case you need to return the Broadband Router+Firewall for repair.

2.2 System Requirements

The TW100-BRF104 Broadband Router+Firewall is intended for use in a network of personal computers that are interconnected by twisted-pair Ethernet cables.

2.2.1 Computer Requirements

To install and run the TW100-BRF104 Broadband Router+Firewall over your network of computers, each computer must have the following:

- An Ethernet Network Interface Card (NIC).

For interconnecting your wired Ethernet devices, the TW100-BRF104 Broadband Router+Firewall provides a 4-port switch capable of either 10 Mbps or 100 Mbps operation. Links operating at 100 Mbps must be connected with Category 5 cable.

2.2.2 Access Device Requirement

The shared broadband access device (cable modem or DSL modem) must provide a standard 10BASE-T Ethernet interface.

2.3 TW100-BRF104 Broadband Router+Firewall Front Panel

The TW100-BRF104 Broadband Router+Firewall front panel LEDs provide an easy way to monitor its status and activity.

Table 2-1 Front Panel LEDs

LED LABEL	**Power**	**Test**	**Internet**	**Local** **1 2 3 4**
LED COLOR LED STATUS	Green	Green Yellow	Green	Green Yellow
Green steady	Power On	Test OK	Link	10 Mbps Link
Green blink	N/A	- Diagnostic: G/Y blinking reciprocally within 1 min - Error: G/Y blinking reciprocally after 1 min	Transmitting/Receiving	10 Mbps Transmitting/Receiving
Yellow steady	N/A		N/A	100 Mbps Link
Yellow blink	N/A		N/A	100 Mbps Transmitting/Receiving
OFF	Power Off	Off	No Connection	No Connection

2.4 TW100-BRF104 Broadband Router+Firewall Back Panel

The TW100-BRF104 Broadband Router+Firewall contains port connections, and power connection. The rear panel contains the following features:

- 5 VDC power adapter outlet
- Internet Ethernet port for connecting the Broadband Router+Firewall to a cable or DSL modem
- Four Local Fast Ethernet ports for connecting the Broadband Router+Firewall to local computers
- Normal/Uplink push button for Internet Port and the 4th Local Port
- Default Restore button

Table 2-2 Back Panel Connectors

BACK PANEL CONNECTOR	DESCRIPTION
LAN Ethernet Port	Four 10/100M BASE-T RJ-45 connectors
WAN Ethernet Port	One RJ-45 10BASE-T connector
Cascade Uplink Switches	One uplink switch to set LAN port #4 as normal port or uplink port

	One uplink switch to set WAN port as normal/uplink
Restore Factory Defaults Button	Capable of restoring the factory default settings. The switch is accessible by inserting a pin through the hole in the rear panel.
Power Supply	5 VDC at 2.4 Amp Max.

2.5 Connecting the Broadband Router+Firewall

Before using your Broadband Router+Firewall, you need to do the followings:

- Connect your local Ethernet network to the LAN port(s) of the Broadband Router+Firewall.
- Connect your cable or DSL modem to the WAN port of the Broadband Router+Firewall.
- Connect the power adapter.

2.5.1 Connecting to your Local Ethernet Network

The TW100-BRF104 Broadband Router+Firewall incorporates a four-port switch for connection to your local Ethernet network. The Fast Ethernet ports are marked **Local 10/100M**, and are capable of operation at either 10 Mbps (10BASE-T) or 100 Mbps (100BASE-Tx), depending on the Ethernet interface of the attached computer, hub, or switch. For any connection that will operate at 100 Mbps, you must use a Category 5 (Cat 5) rated cable, such as the Ethernet cable included with the Broadband Router+Firewall.

Connect up to four computers directly to any of the four LAN ports of the Broadband Router+Firewall using standard Ethernet cables.

If your local network consists of more than four hosts, you will need to connect your Broadband Router+Firewall to another hub or switch: Connect any port 4 of your TW100-BRF104 Broadband Router+Firewall to any port of an Ethernet hub or switch using a standard or crossover Ethernet cable.

2.5.2 Connecting to Your Internet Access Device

To connect the Broadband Router+Firewall to the WAN use the Ethernet cable provided with your cable modem or DSL modem, connect the Broadband Router+Firewall's WAN port to the 10BASE-T Ethernet port on your modem.

The attached modem device must provide a standard 10BASE-T Ethernet connection. The TW100-BRF104 Broadband Router+Firewall does not include a cable for this connection. Instead, use the Ethernet cable provided with your access device or any other standard 10BASE-T Ethernet cable. If you are using a DSL modem, the modem's connection to the phone line remains unchanged.

The Ethernet cable supplied by your ISP for connecting to your cable or DSL modem may be an Ethernet crossover cable or a straight-through cable. You can push the normal/uplink button in the Broadband Router+Firewall to connect the modem well.

2.5.3 Connecting the Power Adapter

To connect the Broadband Router+Firewall to the power adapter:

1. Plug the connector of the power adapter into the 5 VDC adapter outlet on the rear panel of the Broadband Router+Firewall.
2. Plug the other end of the adapter into a standard wall outlet.
3. Verify that the POWER LED on the Broadband Router+Firewall is light.

2.5.4 Verifying Power and Connections

After applying power to the Broadband Router+Firewall, complete the following steps to verify that power is correctly applied and that you have the proper connections:

1. When power is first applied, verify that the Power LED is steady on (green and not blinking).
2. After approximately 30~60 seconds, verify that:
   - ➢ The Test LED is steady green on. If this LED is still blinking after one minute, then an error has occurred. If it is reciprocally blinking with yellow and green within one minute, the Broadband Router+Firewall is performing self-diagnostic tests.
   - ➢ The Local LEDs are lit green for any local ports that are connected to a 10 Mbps device and are lit yellow when connected to a 100 Mbps device. These LEDs blink when there is traffic.
   - ➢ The Internet LED is lit steady green when a link has been established to a connected device. This LED blinks when there is traffic.

2.6 Back to Factory Defaults

The factory default configuration settings are:

- Web Configurator password is 1234
- The IP address to 192.168.1.1

You can erase the current configuration and restore factory defaults in two ways:

1. Use the **Restore Factory Default Configurations** function of the Web Configurator.

2. Use the **Restore Factory Defaults** button on the rear panel of the Broadband Router+Firewall. Use this method for cases when the Web Configurator password or IP address is not known.

2.6.1 Procedure To Use the Restore Factory Defaults Button

1. Press the **Restore Factory Defaults** button for 10 seconds, and then release it. If the TEST LED begins to blink, the defaults have been restored and the router is now rebooting. Otherwise, go to step 2.
2. Disconnect the power from the router.
3. While depressing the **Restore Factory Defaults** button, reconnect power to the router.
4. Continue to hold the **Restore Factory Defaults** button. The TEST LED will begin to blink, then will flicker very quickly after about 10 or 15 seconds. This indicates that the defaults have been restored and the device is now rebooting.
5. Release the **Restore Factory Defaults** button and wait for the device to reboot.

You are now ready to begin configuration of your network, as described in the following chapter.

Chapter 3
Preparing Your Network

3.1 Introduction

This chapter describes how to prepare your computer network to connect to the Internet through the TW100-BRF104 Broadband Router+Firewall and how to order broadband Internet service from an Internet service provider (ISP).

3.2 Preparing Your Personal Computers for IP Networking

The TW100-BRF104 Broadband Router+Firewall uses the Transmission Control Protocol/Internet Protocol (TCP/IP). In order to access the Internet through the Broadband Router+Firewall, each computer on your network must have TCP/IP installed and selected as the networking protocol.

Most operating systems include the software components you need to install and use TCP/IP on your computer:

- Windows 95 or later (including Windows NT) includes the software components for establishing a TCP/IP network.
- Windows 3.1 does not include a TCP/IP component. You need to purchase a third-party TCP/IP application.
- Macintosh Operating System 7 or later includes the software components for establishing a TCP/IP network.
- All versions of UNIX or Linux include TCP/IP components.

Follow the instructions provided with your operating system or networking software to install TCP/IP on your computer. Although TCP/IP is built into the Windows operating system (starting with Windows 95), you need to enable and configure it (see later).

In your IP network, all computers and the Broadband Router+Firewall must be assigned IP addresses. Each computer must also have certain other IP configuration information such as a subnet mask (netmask), a domain name server (DNS) address, and a default gateway address. In most cases, you should install TCP/IP so that the computer obtains its specific network configuration information from a DHCP server during boot-up.

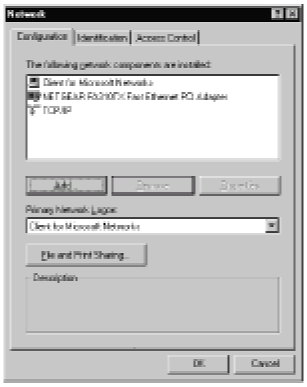
The TW100-BRF104 Broadband Router+Firewall is shipped pre-configured as a DHCP server. The gateway assigns the following TCP/IP configuration information automatically when the computers are rebooted:

- Computer IP addresses - 192.168.1.2 through 192.168.1.32
- Subnet mask - 255.255.255.0
- Gateway address - 192.168.1.1

These addresses are part of the IETF-designated private address range for use in private networks.

3.3 Configuring Windows 95 or later for IP Networking

As part of the computer preparation process, you need to manually install and configure TCP/IP on each networked computer. Before starting, locate your Windows CD; you may need to insert it during the TCP/IP installation process.



The following network components are installed:

Client for Microsoft Networks
NETGEAR FA310TX Fast Ethernet PCI Adapter
TCP/IP

Primary Network Logon: Client for Microsoft Networks

You must have a network adapter, the TCP/IP protocol, and Client for Microsoft Networks.

Figure 3-1 Configuring Windows for IP Networking

3.3.1 To configure Microsoft Windows 95 or later for IP networking:

1. On the Windows taskbar, click the **Start** button, point to **Settings**, and then click **Control Panel**.
2. Double-click the **Network** icon.

The Network window opens, which displays a list of installed components:

You must have a network adapter, the TCP/IP protocol, and Client for Microsoft Networks.

If you need the adapter:

a. Click the **Add** button.

b. Select **Adapter**, and then click **Add**.

c. Select the manufacturer and model of your network adapter, and then click **OK**.

If you need TCP/IP:

a. Click the **Add** button.

b. Select **Protocol**, and then click **Add**.

c. Select **Microsoft**.

It is not necessary to remove any other network components shown in the Network window in order to install the adapter, TCP/IP, or Client for Microsoft Networks.

d. Select **TCP/IP**, and then click **OK**.

If you need Client for Microsoft Networks:

a. Click the **Add** button.

b. Select **Client**, and then click **Add**.

c. Select **Microsoft**.

d. Select **Client for Microsoft Networks**, and then click **OK**.

3. Restart your computer for the changes to take effect.

3.3.2 Configuring TCP/IP Properties

After the TCP/IP protocol components are installed, each computer must be assigned specific information about itself and resources that are available on its network. The simplest way to configure this information is to allow the computer to obtain the information from the internal DHCP server of the TW100-BRF104 Broadband Router+Firewall.

If you are using DHCP with the recommended default addresses, you can configure your computers by following these steps:

1. Install TCP/IP on each computer, leaving the computer configured to obtain configuration settings automatically (by DHCP).
2. Connect your Ethernet-interfaced computers to the Broadband Router+Firewall.
3. Restart the TW100-BRF104 Broadband Router+Firewall and allow it to boot.

4. Restart each computer.

If an ISP technician configured your computer during the installation of a broadband modem, or if you configured it using instructions provided by your ISP, you may need to copy the current configuration information for use in the configuration of your TW100-BRF104 Broadband Router+Firewall.

3.3.3 Verifying TCP/IP Properties (Windows)

After your computer is configured and has rebooted, you can check the TCP/IP configuration using:

- **winipcfg.exe** for Windows 95, 98, and Millennium utility
- **ipconfig.exe** for Windows NT and Win 2000 Professional systems

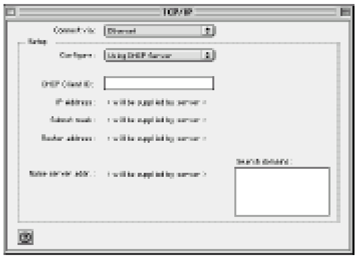
To check your computer's TCP/IP configuration:

1. On the Windows taskbar, click the **Start** button, and then click **Run**. The Run window opens.
2. Type `winipcfg`, and then click OK. The IP Configuration window opens, which lists (among other things), your IP address, subnet mask, and default gateway.
3. Select your network adapter. The window is updated to show your settings, which should match the values below if you are using the default TCP/IP settings:
   - The IP address is between 192.168.1.2 and 192.168.1.32
   - The subnet mask is 255.255.255.0
   - The default gateway is 192.168.1.1

3.4 Configuring the Macintosh for IP Networking

Beginning with Macintosh Operating System 7, TCP/IP is already installed on the Macintosh. On each networked Macintosh, you will need to configure TCP/IP to use DHCP by following these steps:

1. From the Apple menu, select **Control Panels**, then **TCP/IP**. The TCP/IP Control Panel opens:



TCP/IP

Connect via: Ethernet

Setup

Configure: Using DHCP Server

DHCP Client ID:

IP Address: < will be supplied by server >

Subnet mask: < will be supplied by server >

Router address: < will be supplied by server >

Name server addr.: < will be supplied by server >

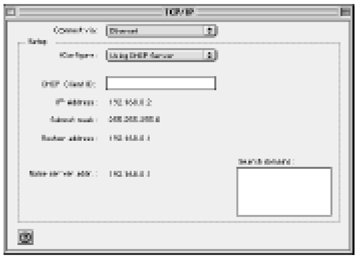
Search domains:

Figure 3-2 Macintosh TCP/IP

2. From the **Connect via** box, select your Macintosh's Ethernet interface.
3. From the **Configure** box, select **Using DHCP Server**. You can leave the DHCP Client ID box empty.
4. Close the TCP/IP Control Panel.
5. Repeat this for each Macintosh on your network.

3.4.1 Verifying TCP/IP Properties (Macintosh)

After your Macintosh is configured and has rebooted, you can check the TCP/IP configuration by returning to the TCP/IP Control Panel. From the **Apple** menu, select **Control Panels**, then **TCP/IP**.



TCP/IP

Connect via: Ethernet

Setup

Configure: Using DHCP Server

DHCP Client ID:

IP Address: 192.168.1.2

Subnet mask: 255.255.255.0

Router address: 192.168.1.1

Name server addr.: 192.168.1.1

Search domains:

Figure 3-3 Verifying Macintosh TCP/IP

The panel is updated to show your settings, which should match the values below if you are using the default TCP/IP settings:

- The IP Address is between 192.168.1.2 and 192.168.1.32
- The Subnet mask is 255.255.255.0
- The Broadband Router+Firewall address is 192.168.1.1

If you do not see these values, you may need to restart your Macintosh or you may need to switch the **Configure** setting to a different option, then back again to **Using DHCP Server**.

3.5 Your Internet Account

For access to the Internet, you need to contract with an Internet service provider (ISP) for a single-user Internet access account using an external broadband access device such as a cable modem or DSL modem. This modem must be a separate physical box (not a card) and must provide an Ethernet port intended for connection to a Network Interface Card (NIC) in a computer.

For a single-user Internet account, your ISP supplies TCP/IP configuration information for one computer. With a typical account, much of the configuration information is dynamically assigned when your computer is first booted up while connected to the ISP, and you will not need to know that dynamic information.

In order to share the Internet connection among several computers, your Broadband Router+Firewall takes the place of the single computer, and you need to configure it with the TCP/IP information that the single computer would normally use. When the Broadband Router+Firewall's WAN port is connected to the broadband modem, the Broadband Router+Firewall appears to be a single computer to the ISP. The Broadband Router+Firewall then allows the computers on the local network to masquerade as the single computer to access the Internet through the broadband modem. The method used by the Broadband Router+Firewall to accomplish this is called Network Address Translation (NAT) or IP masquerading.

3.5.1 Login Protocols

Some ISPs require a special login protocol. In this case, you will need to know what type of protocol is used, and you will need a login name and password. The two common protocols are:

- **PPP over Ethernet (PPPoE)**

  Two common PPPoE clients are WinPOET and EntreNet.

- **RoadRunner**

  Not all RoadRunner service areas require a login protocol. If your ISP is RoadRunner, you should ask whether your computer must run a RoadRunner login program.

After your network and Broadband Router+Firewall are configured, the Broadband Router+Firewall will perform the login task when needed, and you will no longer need to login from your computer.

3.5.2 Account Information

Unless the ISP dynamically assigns these items, your ISP should give you the following basic information for your account:

- An IP address and subnet mask
- A gateway IP address, which is the address of the ISP's Broadband Router+Firewall
- One or more domain name server (DNS) IP addresses
- Host name and domain suffix

  For example, your account's full server names may look like this: `mail.xxx.yyy.com`. In this example, the domain suffix is `xxx.yyy.com`.

If the ISP dynamically supplies any of these items, your Broadband Router+Firewall automatically acquires them.

If an ISP technician configured your computer during the installation of the broadband modem, or if you configured it using instructions provided by your ISP, you need to copy configuration information from your computer's Network TCP/IP Properties window (or Macintosh TCP/IP Control Panel) before reconfiguring your computer for use with the Broadband Router+Firewall. These procedures are described next.

3.5.3 Obtaining ISP Configuration Information (Windows)

As mentioned above, you may need to collect configuration information from your computer so that you can use this information when you configure the TW100-BRF104 Broadband Router+Firewall. Following this procedure is only necessary when your ISP does not dynamically supply the account information.

To get the information you need to configure the Broadband Router+Firewall for Internet access:

1. On the Windows taskbar, click the **Start** button, point to **Settings**, and then click **Control Panel**.
2. Double-click the **Network** icon.
3. The Network window opens, which displays a list of installed components.
4. Select **TCP/IP**, and then click **Properties**.
5. The TCP/IP Properties dialog box opens.
6. Select the **IP Address** tab.

   If an IP address and subnet mask are shown, write down the information. If an address is present, your account uses a fixed (static) IP address. If no address is present, your account uses a dynamically-assigned IP address. Click **Obtain an IP address automatically**.
7. Select the **Gateway** tab.

   If an IP address appears under Installed Gateways, write down the address. This is the ISP's gateway address. Select the address and then click **Remove** to remove the gateway address.
8. Select the **DNS Configuration** tab.

If any DNS server addresses are shown, write down the addresses. If any information appears in the Host or Domain information box, write it down. Click **Disable DNS**.

9. Click **OK** to save your changes and close the **TCP/IP Properties** dialog box.
10. You are returned to the **Network** window.
11. Click **OK**.
12. Reboot your computer at the prompt. You may also be prompted to insert your Windows CD.

3.5.4 Obtaining ISP Configuration Information (Macintosh)

As mentioned above, you may need to collect configuration information from your Macintosh so that you can use this information when you configure the TW100-BRF104 Broadband Router+Firewall. Following this procedure is only necessary when your ISP does not dynamically supply the account information.

To get the information you need to configure the Broadband Router+Firewall for Internet access:

1. From the **Apple** menu, select **Control Panels**, then **TCP/IP**.
2. The **TCP/IP Control Panel** opens, which displays a list of configuration settings. If the **Configure** setting is **Using DHCP Server**, your account uses a dynamically assigned IP address. In this case, close the Control Panel and skip the rest of this section.
3. If an IP address and subnet mask are shown, write down the information.
4. If an IP address appears under Broadband Router+Firewall address, write down the address. This is the ISP's gateway address.
5. If any **Name Server** addresses are shown, write down the addresses. These are your ISP's DNS addresses.
6. If any information appears in the **Search** domains information box, write it down.
7. Change the **Configure** setting to **Using DHCP Server**.
8. Close the **TCP/IP Control Panel**.

3.6 Ready For TW100-BRF104 Broadband Router+Firewall Configuration

After configuring all of your computers for TCP/IP networking and connecting them to the LAN network of your TW100-BRF104, you are ready to access and configure the Broadband Router+Firewall.

Chapter 4
Introducing The Web Configurator

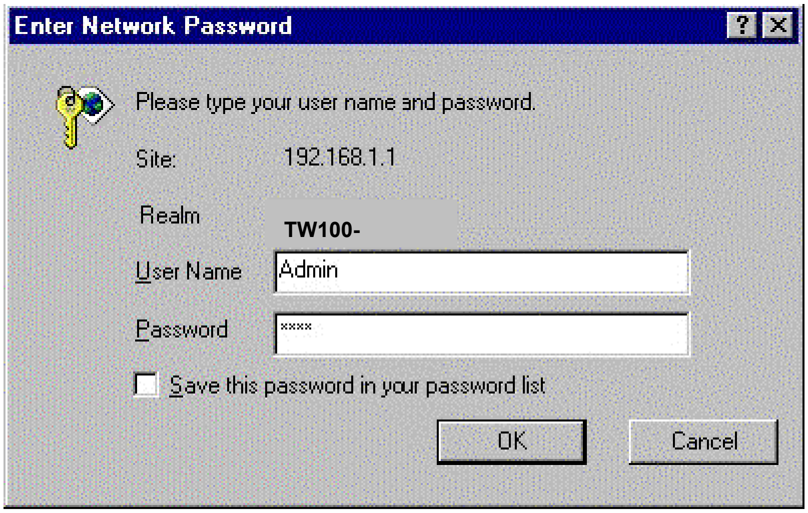
This chapter introduces the embedded Web configurator and shows you how to log in and perform basic configuration of your TW100-BRF104 Broadband Router+Firewall. The Web configurator was designed with ease-of-use paramount yet still allow fine-tuning of the powerful advanced features of the TW100-BRF104 Broadband Router+Firewall.

4.1 Web Configurator And Browsers

In order to use the Web Configurator, your computer must have a web browser program installed such as Microsoft Internet Explorer or Netscape Navigator. Because the embedded Web Configurator uses Java, your Web browser must be Java-enabled and support HTTP uploads. Free browser programs are readily available for Windows, Macintosh, or UNIX/Linux.

4.1.1 Logging Into The Web Configurator

1. Turn on the Broadband Router+Firewall and wait for initialization to complete. Allow at least one minute and verify that the TEST LED is off.
2. Reboot your computer to obtain DHCP configuration from the Broadband Router+Firewall.
3. Launch your web browser.
4. In the Address box of your browser, type **http://192.168.1.1** and press ENTER.
5. A login window opens as shown next. This screen may have a different appearance in other browsers.



Please type your user name and password.

Site: 192.168.1.1

Realm TW100-

User Name Admin

Password ****

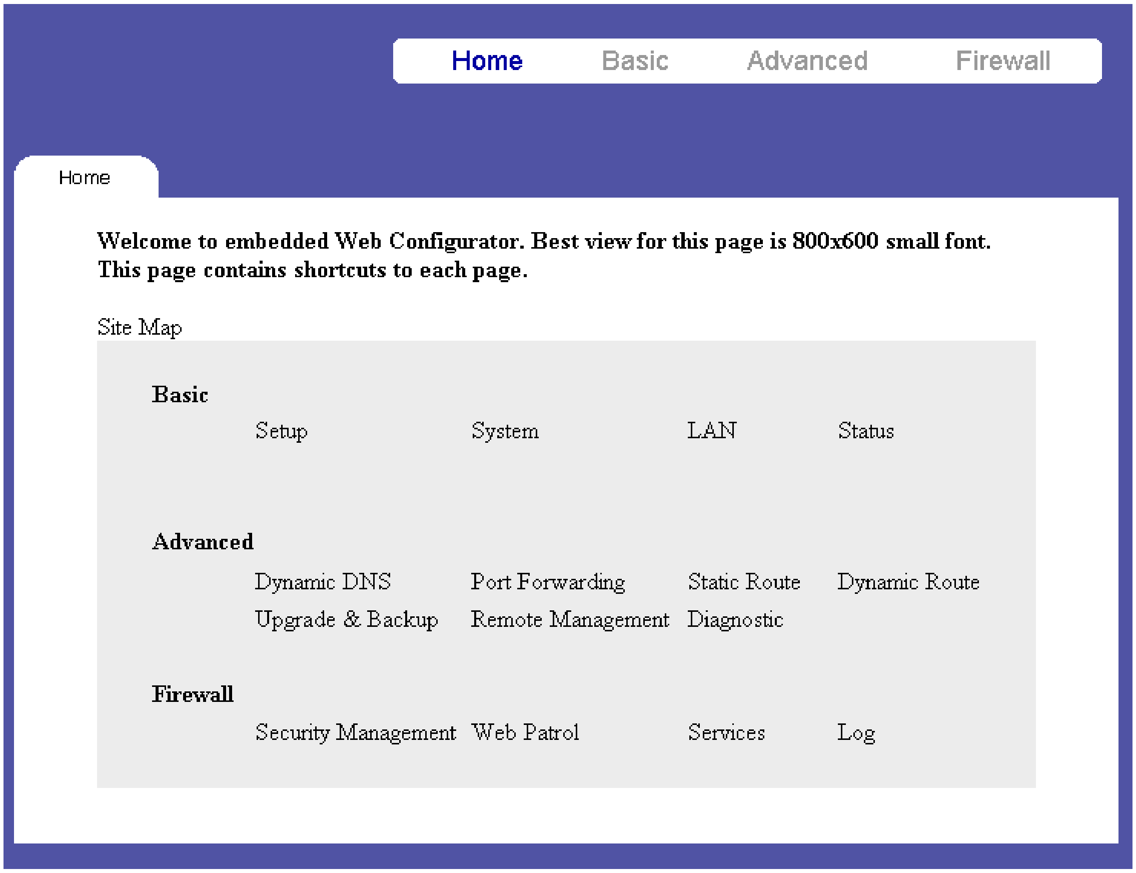
□ Save this password in your password list

Figure 4-1 Login Window

6. Type ‘`admin`’ (not case sensitive) in the **User Name** box, ‘`1234`**’** in the **Password** box, and then click **OK**. If your Broadband Router+Firewall password was previously changed, enter the current password.

4.2 Introducing The Embedded Web Configurator

After a successful login you will see the following screen. This page contains hyperlinks to its related setup page.



Welcome to embedded Web Configurator. Best view for this page is 800x600 small font.
This page contains shortcuts to each page.

Site Map

Basic

Setup	System	LAN	Status

Advanced

Dynamic DNS	Port Forwarding	Static Route	Dynamic Route
Upgrade & Backup	Remote Management	Diagnostic	

Firewall

Security Management	Web Patrol	Services	Log

Figure 4-2 Embedded Web Configurator Home

The recommended screen resolution is 800 by 600 pixels using small fonts; however you may have to scroll in some pages where the convenience of having all information displayed in one page outweighs the inconvenience of scrolling.

The top of the screen has four “buttons”. Click a “button” to see a range of related configuration screens.

1. **Home** consists of just this screen.
2. Click **Basic** to set up your WAN, LAN, system information such as name, password and time/date and display system information and statistics.

3. Click **Advanced** to configure dynamic DNS, port forwarding, static routes, dynamic routes, remote management, upload firmware/configuration files and restore/backup configuration files.
4. Click **Firewall** to configure the firewall including DoS, content filtering, enable/disable services, scheduling, and display logs.

Click the **Help** button to see embedded HTML help on the screen.

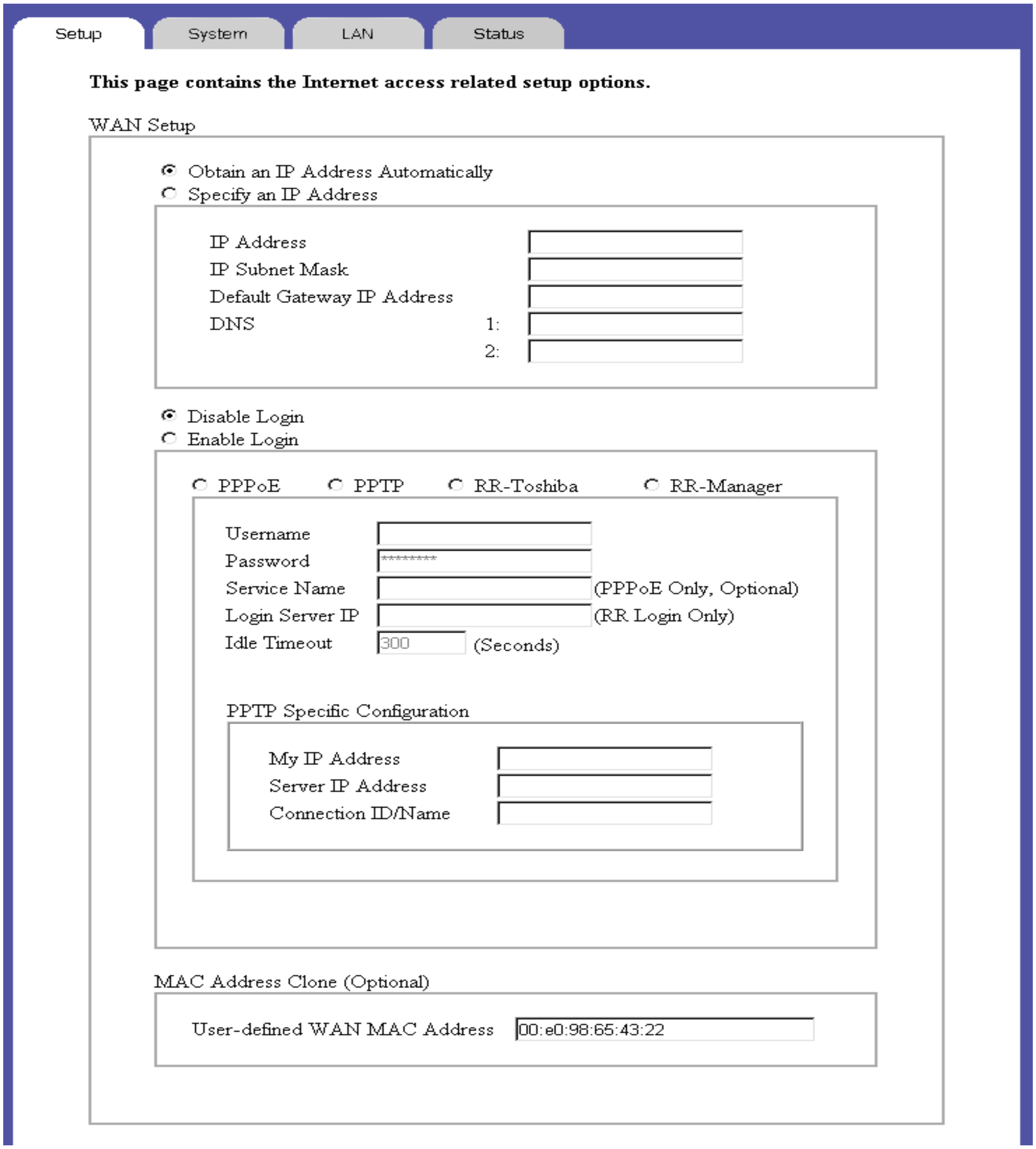
The next three chapters discuss the setup screens under Basic, Advanced and Firewall.

Chapter 5
The Basic Setup Screens

This chapter discusses how to set up your WAN (Internet), LAN (Local), system information such as name, password and time/date and display system information and statistics.

5.1 Setup

Click the **Setup** tab to display the next screen. Use this screen to configure Internet access related setup options. You may have to scroll down to see the whole screen. The table following the screen describes the fields displayed in the screen.



This page contains the Internet access related setup options.

WAN Setup

● Obtain an IP Address Automatically
○ Specify an IP Address

IP Address
IP Subnet Mask
Default Gateway IP Address
DNS 1:
2:

● Disable Login
○ Enable Login

○ PPPoE ○ PPTP ○ RR-Toshiba ○ RR-Manager

Username
Password ********
Service Name (PPPoE Only, Optional)
Login Server IP (RR Login Only)
Idle Timeout 300 (Seconds)

PPTP Specific Configuration

My IP Address
Server IP Address
Connection ID/Name

MAC Address Clone (Optional)

User-defined WAN MAC Address 00:e0:98:65:43:22

Figure 5-1 WAN Setup

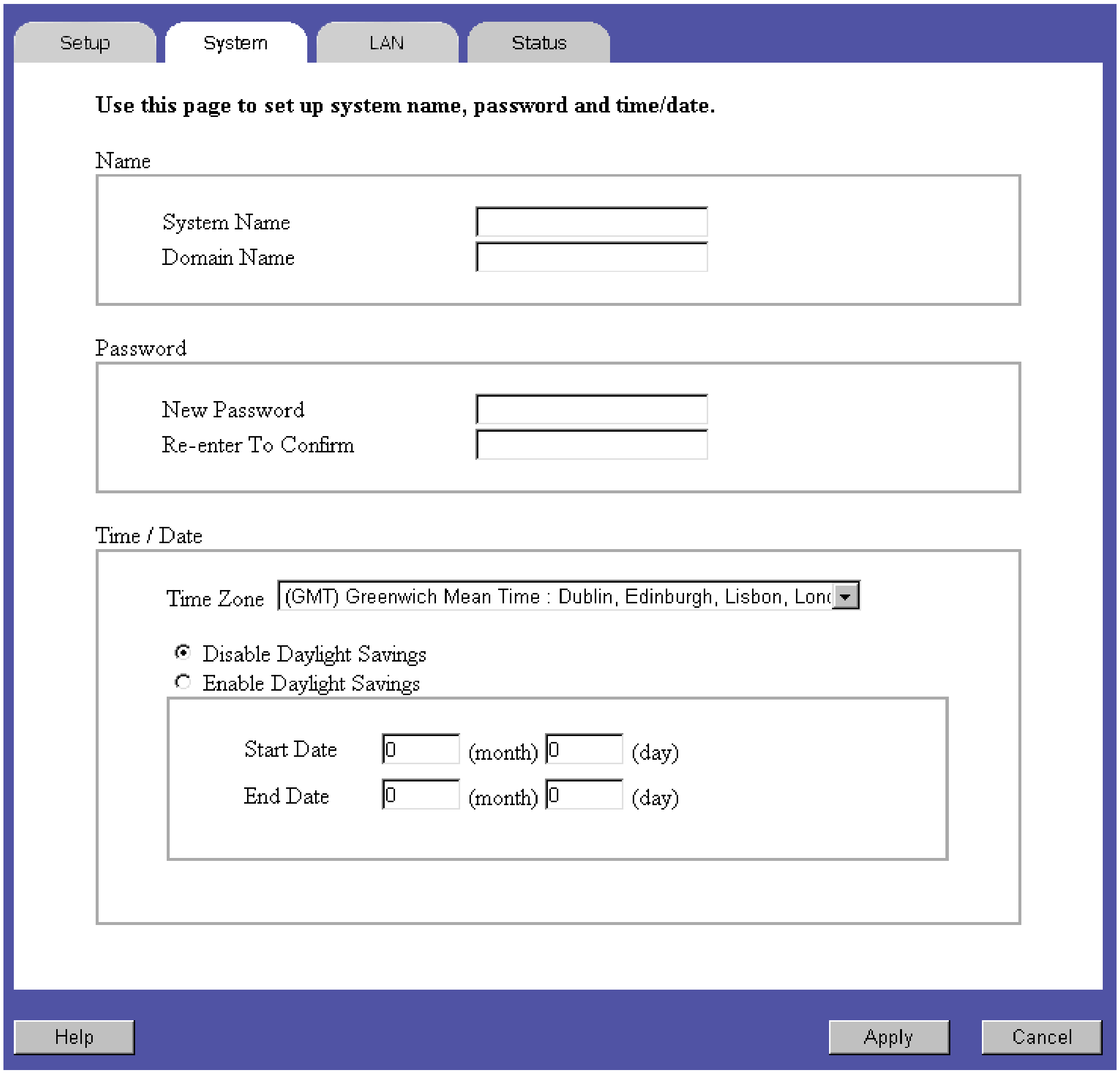
Table 5-1 WAN Setup

FIE D	DESCRIPTION
Obtain an IP Address Automatically	Select this option if the assigns a dynamic IP address to the TW100-BRF104.
Specify an IP Address	Select this option if the assigns a static IP address to the TW100-BRF104 and fill in the next four fields.
IP Address	Enter the IP address of this device in dotted decimal notation.
IP Subnet Mask	Your TW100-BRF104 will automatically calculate the subnet mask based on the IP address that you assign. Unless you are implementing subnetting, use the computed subnet mask.
Default Gateway IP Address	Enter the IP address of default gateway in dotted decimal notation. This should be given to you by your ISP.
DNS 1, 2	Use DNS (Domain Name System) to map a domain name to its corresponding IP address and vice versa. The DNS server is extremely important because without it, you must know the IP address of a machine before you can access it. There are two ways that an ISP disseminates the DNS server addresses. The first is for an ISP to tell a customer the DNS server addresses, usually in the form of an information sheet, when you sign up. If your ISP gives you the DNS server addresses, enter them in these fields**.** The second is to leave them blank, i.e., 0.0.0.0 — in this case, the TW100-BRF104 acts as a DNS proxy.
Disable Login	Select this option if you don’t have to login to access the Internet.
Enable Login	Select this option if you have to login to access the Internet then choose which service fill in its related login service details in the following fields
PPPoE	PPPoE is an IETF Draft standard (RFC 2516) specifying how a personal computer (computer) interacts with a broadband modem (i.e. xDSL, cable, etc.) connection. PPPoE provides a login & authentication method that the existing Microsoft Dial-Up Networking software can activate, and therefore requires no new learning or procedures for Windows users.
PPTP	Point-to-Point Tunneling Protocol (PPTP) is a network protocol that enables secure transfer of data from a remote client to a private server, creating a Virtual Private Network (VPN) using TCP/IP-based networks PPTP supports on-demand, multi-protocol, and virtual private networking over

FIELD	DESCRIPTION
	public networks, such as the Internet.
RR-Toshiba RR-Manager	Choose RoadRunner if your ISP is Time Warner's RoadRunner. Select **RR-Toshiba** (RoadRunner Toshiba authentication method) or **RR-Manager** (RoadRunner Manager authentication method).
Username	Enter the login name given to you by your ISP.
Password	Enter the password associated with the login name above.
Service Name (PPPoE Only, Optional)	If you need a PPPoE service name to identify and reach the PPPoE server, enter the PPPoE service name provided to you in the this field.
Login Server IP (RR Login Only)	The TW100-BRF104 will find the RoadRunner Server IP if this field is left blank. If it does not, then you must enter the authentication server IP address.
Idle Timeout (Seconds)	This value specifies the idle time (i.e., the length of time there is no traffic from the TW100-BRF104 to the remote node) in seconds that can elapse before the TW100-BRF104 automatically disconnects the login connection. *This option only applies when the TW100-BRF104 initiates the call***.**
PPTP Specific Configuration	Enter the following information for PPTP login service.
My IP Address	Enter the IP address of the WAN Ethernet port.
Server IP Address	Enter the IP address of the ANT (ADSL Network Termination) modem.
Connection ID/Name	Enter the connection ID or connection name in the ANT (ADSL Network Termination). It must follow the “c:id” and “n:name” format. This field is optional and depends on the requirements of your xDSL Modem.
MAC Address Clone (Optional)	The following MAC address field allows users to configure the WAN port's MAC address by cloning the MAC address from a computer on your LAN. Once it is successfully configured, the address will be copied to the configuration file. It will not change unless you change the setting here or upload a different configuration file.
User-defined WAN MAC Address	Enter the MAC Address of the workstation on the LAN whose MAC you are cloning here.
Help	Click this button for HTML help on this screen.
Apply	Click this button to save your changes back to the Broadband Router+Firewall.
Cancel	Click this button to cancel any configuration changes you made in this screen.

5.2 System

Click the **System** tab to display the next screen. Use this screen to configure system name, password and time/date. You may have to scroll down to see the whole screen. The table following the screen describes the fields displayed in the screen.



Use this page to set up system name, password and time/date.

Name

System Name

Domain Name

Password

New Password

Re-enter To Confirm

Time / Date

Time Zone (GMT) Greenwich Mean Time : Dublin, Edinburgh, Lisbon, Lon(

● Disable Daylight Savings
○ Enable Daylight Savings

Start Date 0 (month) 0 (day)

End Date 0 (month) 0 (day)

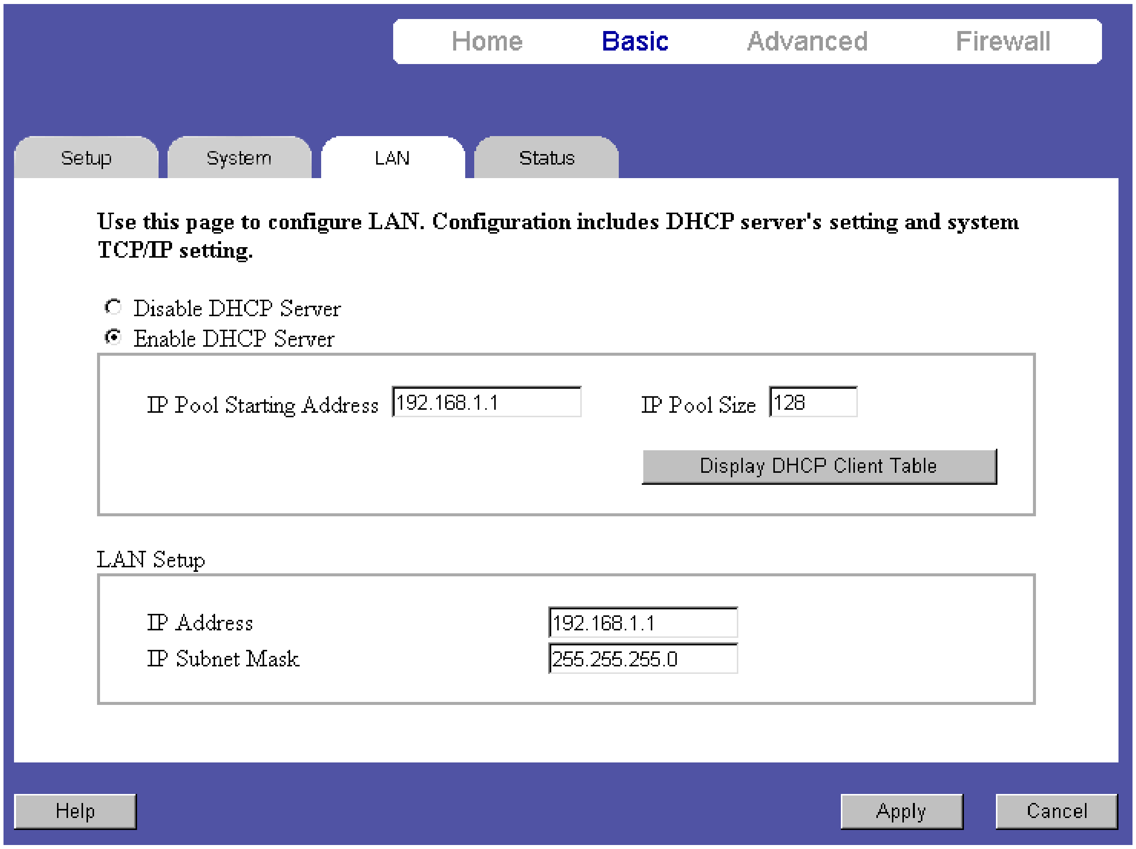
Figure 5-2 System Setup

Table 5-2 System Setup

FIELD	DESCRIPTION
Name	
System Name	**System Name** is for identification purposes. We recommend you enter your computer's "Computer name".
Domain Name	The **Domain Name** entry is what is propagated to the DHCP clients on the LAN. If you leave this field blank, the domain name obtained by DHCP from the ISP is used. While you must enter the **System Name** on each individual computer, the domain name can be assigned from this device via DHCP.
Password	For your first login, enter the default password 1234. As you type the password, the screen displays an (X) for each character you type. Please note that if there is no activity for longer than five minutes after you log in, you will automatically be logged you out and you will see a blank screen.
New Password	Enter your new system password in this field.
Re-enter To Confirm	Re-type your new system password for confirmation.
Time / Date	
Time Zone	Select the time zone you are in from the drop down list box. This setting will be used for the blocking schedule and also for time-stamping log entries. The Broadband Router+Firewall uses the Network Time Protocol (NTP) to obtain the current time and date from one of several Network Time Servers on the Internet. This menu displays the current time.
Disable Daylight Savings	If you are not using daylight savings time, select this option.
Enable Daylight Savings	If you use daylight savings time, select this option.
Start Date (month, day)	If using daylight savings time, enter the month and day that it starts on.
End Date (month, day)	If using daylight savings time, enter the month and day that it ends on
Help	Click this button for HTML help on this screen.
Apply	Click this button to save your changes back to the Broadband Router+Firewall.
Cancel	Click this button to cancel any configuration changes you made in this screen.

5.3 LAN Setup

Click the **LAN** tab to display the next screen. Use this screen to configure the DHCP server and system TCP/IP settings. The table following the screen describes the fields displayed in the screen.



Use this page to configure LAN. Configuration includes DHCP server's setting and system TCP/IP setting.

○ Disable DHCP Server
● Enable DHCP Server

IP Pool Starting Address: 192.168.1.1
IP Pool Size: 128

LAN Setup

IP Address: 192.168.1.1
IP Subnet Mask: 255.255.255.0

Figure 5-3 LAN Setup

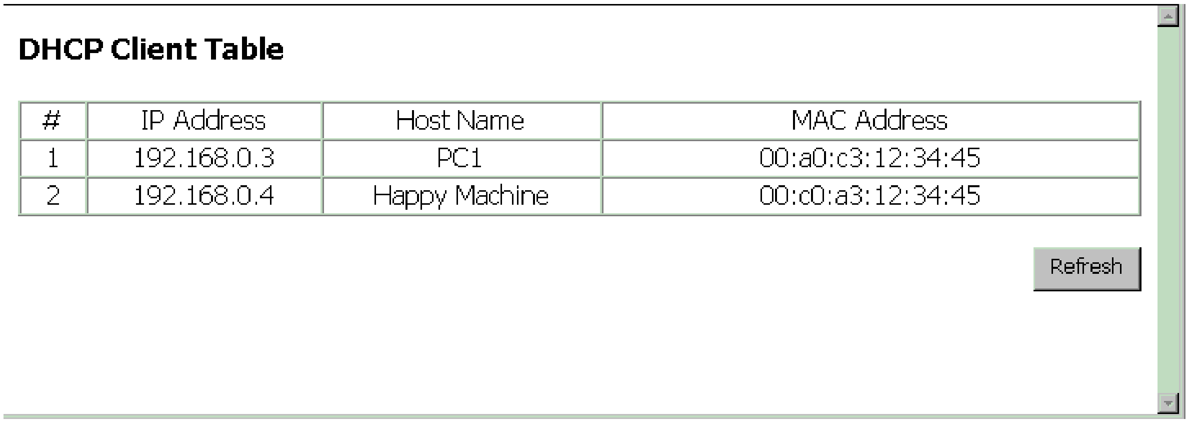
Table 5-3 LAN Setup

FIE D	DESCRIPTION
Disable DHCP Server	DHCP (Dynamic Host Configuration Protocol, RFC 2131 and RFC 2132) allows individual clients to obtain TCP/IP configuration at start-up from a server. You can configure the Broadband Router+Firewall as a DHCP server or disable it. Select this field to disable DHCP service. Make sure you have another DHCP server on your LAN, or else the workstation must be manually configured.
Enable DHCP Server	Select this option to configure your Broadband Router+Firewall as a DHCP server so it will provide the TCP/IP configuration for the clients.

FIE D	DESCRIPTION
IP Pool Starting Address	The Broadband Router+Firewall is pre-configured with a pool of 32 IP addresses. It allocates 31 IP addresses (excluding the device itself) in the lower range for other server machines, e.g., server for mail, FTP, telnet, web, etc., that you may have.
IP Pool Size	This field specifies the size, or count of the IP address pool.
LAN Setup	
IP Address	Enter the IP address of your Broadband Router+Firewall in dotted decimal notation
IP Subnet Mask	Your Broadband Router+Firewall will automatically calculate the subnet mask based on the IP address that you assign. Unless you are implementing subnetting, use the subnet mask computed by the Broadband Router+Firewall.
Help	Click this button for HTML help on this screen.
Apply	Click this button to save your changes back to the Broadband Router+Firewall.
Cancel	Click this button to cancel any configuration changes you made in this screen.

5.3.1 Display DHCP Client Table

Click the **Display DHCP Client Table** button to pop up the next screen.



DHCP Client Table

#	IP Address	Host Name	MAC Address
1	192.168.0.3	PC1	00:a0:c3:12:34:45
2	192.168.0.4	Happy Machine	00:c0:a3:12:34:45

Figure 5-4 DHCP Client Table

The DHCP Table shows all IP address assignments that have been made by the Broadband Router+Firewall's DHCP server. For each computer client, the table shows the IP address, NetBIOS Host Name, and Ethernet

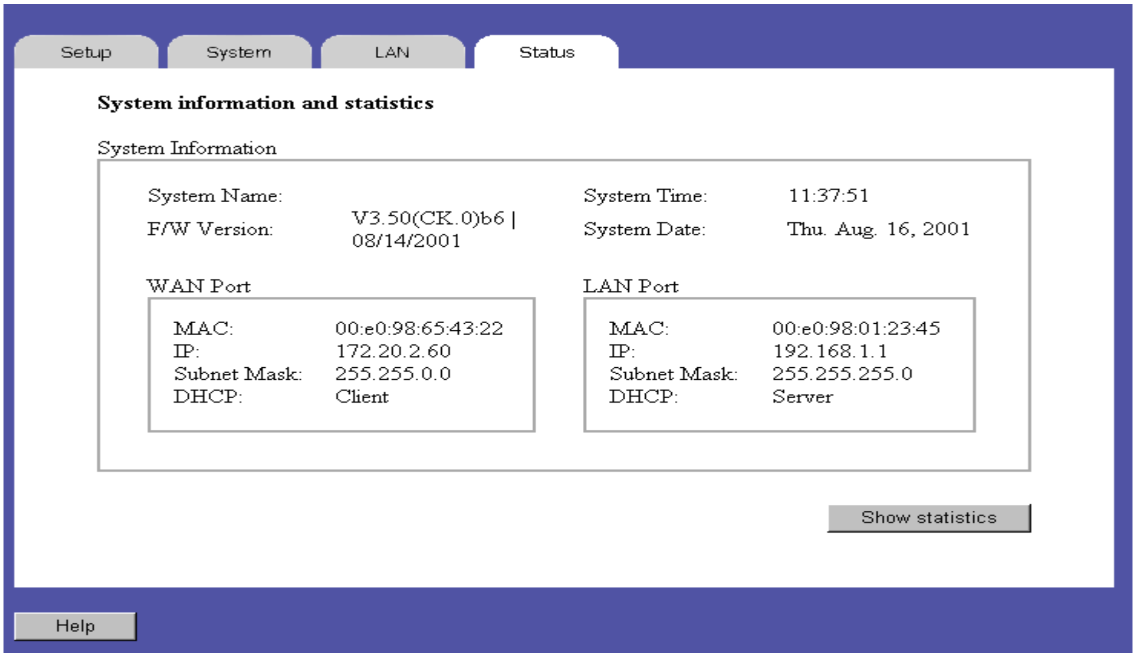
MAC address. If the Broadband Router+Firewall is rebooted, the table data is lost until each PC renews its DHCP lease.

Table 5-4 DHCP Client Table

FIE D	DESCRIPTION
#	This is the client index number.
IP Address	This is the IP address of the client specified above.
Host Name	This is the host name of said client.
MAC Address	This is the MAC (Media Access Control) address of said client.
Refresh	Click this button to reload the above information.

5.4 Status

Click the **Status** tab to display the next screen. Use this screen to display system information and statistics. The table following the screen describes the fields displayed in the screen.



System information and statistics

System Information

System Name:

F/W Version: V3.50(CK.0)b6 | 08/14/2001

System Time: 11:37:51

System Date: Thu. Aug. 16, 2001

WAN Port

MAC: 00:e0:98:65:43:22
IP: 172.20.2.60
Subnet Mask: 255.255.0.0
DHCP: Client

LAN Port

MAC: 00:e0:98:01:23:45
IP: 192.168.1.1
Subnet Mask: 255.255.255.0
DHCP: Server

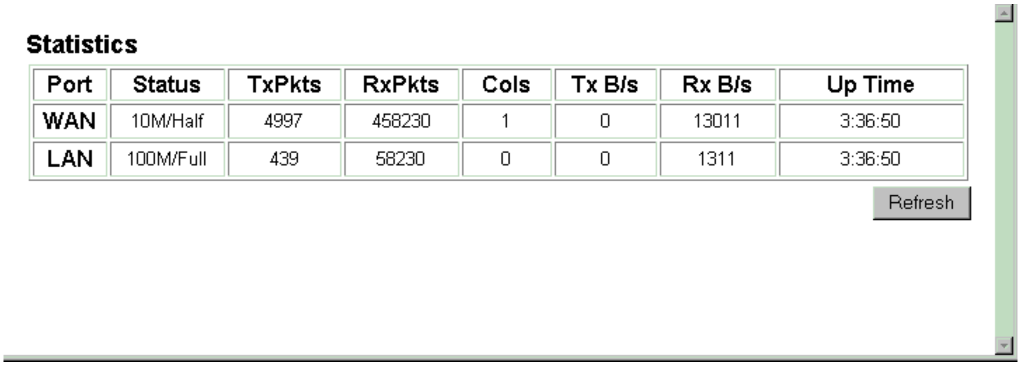
Figure 5-5 Status Screen

Table 5-5 Status Screen

FIELD	DESCRIPTION
System Information	The next five fields display general information about the Broadband Router+Firewall system.
System Name	This is the Broadband Router+Firewall's system name + domain name assigned in the **System** screen. For example, System Name= xxx; Domain Name= baboo.mickey.com; Name= xxx.baboo.mickey.com
F/W Version:	This is the Networking Operating System firmware version and the date created, for example, V3.25(CA.1)C0.
System Time	This displays the current time as set in the **System** screen.
System Date	This displays the current date as set in the **System** screen.
System Up Time	The total time the Broadband Router+Firewall has been on.
WAN Port	The next four fields display general information about the Internet Port.
MAC	The Internet port Ethernet address.
IP	The Internet port IP address.
Subnet Mask	The Internet port IP mask.
DHCP	The Internet port DHCP role (client or none). If set to **None**, the Broadband Router+Firewall is configured to use a fixed IP address on the WAN or to use PPPoE. If set to **Client**, the Broadband Router+Firewall is configured to obtain an IP address dynamically from the ISP.
LAN Port	The next four fields display general information about the Local Port.
MAC	The Local port Ethernet address.
IP	The Local port IP address.
Subnet Mask	The Local port IP mask.
DHCP	The Local port DHCP role (server or none). If set to **None**, the Broadband Router+Firewall will not assign IP addresses to local computers on the LAN. If set to **Server**, the Broadband Router+Firewall is configured to assign IP addresses to local computers on the LAN.
Show Statistics	Click this button to bring up the screen shown next.
Help	Click this button for HTML help on this screen.

5.4.1 Statistics

Click the **Show Statistics** button to bring up the next screen.



Statistics

Port	Status	TxPkts	RxPkts	Cols	Tx B/s	Rx B/s	Up Time
WAN	10M/Half	4997	458230	1	0	13011	3:36:50
LAN	100M/Full	439	58230	0	0	1311	3:36:50

Figure 5-6 Statistics Screen

Table 5-6 Statistics Screen

F ELD	DESCRIPTION
WAN/LAN	The following statistics are displayed for both LAN and WAN respectively.
Port	The statistics for the WAN (Internet) and LAN (local) Ethernet ports. For each port, the screen displays the following information.
Status	Shows the port speed and duplex setting if you're using **Ethernet Encapsulation** and **Down** (line is down), **idle** (line (ppp) idle), **dial** (starting to trigger a call) and **drop** (dropping a call) if you're using **PPPoE Encapsulation**.
TxPkts	The number of transmitted packets on this port since reset or manual clear.
RxPkts	The number of received packets on this port since reset or manual clear.
Cols	The number of collisions on this port since reset or manual clear.
Tx B/s	Shows the transmission speed in Bytes per second on this port.
Rx B/s	Shows the reception speed in Bytes per second on this port.
Up Time	The time elapsed since the last power cycle or reset.
Refresh	Click this button to update the screen data.

Chapter 6
The Advanced Setup Screens

This chapter discusses how to configure dynamic DNS, port forwarding, static routes, dynamic routes, backing up/restoring the configuration file, uploading new software, remote management, and Diagnostic.

6.1 Dynamic DNS

Click the **Dynamic DNS** tab to display the next screen. Use this screen to configure dynamic Domain Name Server

Your router supports Dynamic Domain Name Service (DDNS). In a Dynamic DNS service, an IP registry server provides a public central database where dynamically-assigned IP addresses can be stored and retrieved by hostname lookup. The Dynamic DNS server also stores password-protected e-mail addresses along with IP addresses and hostnames and accepts queries based on e-mail addresses.

You can update your current dynamic IP address with one or many dynamic DNS services so that anyone can contact you (in *NetMeeting*, *CU-SeeMe*, etc.). You can also access your FTP server or Web site on your own computer using a DNS-like address (e.g. *myhost.dhs.org*, where *myhost* is a name of your choice) which will never change instead of using an IP address that changes each time you reconnect. Your friends or relatives will always be able to call you even if they don't know your IP address.

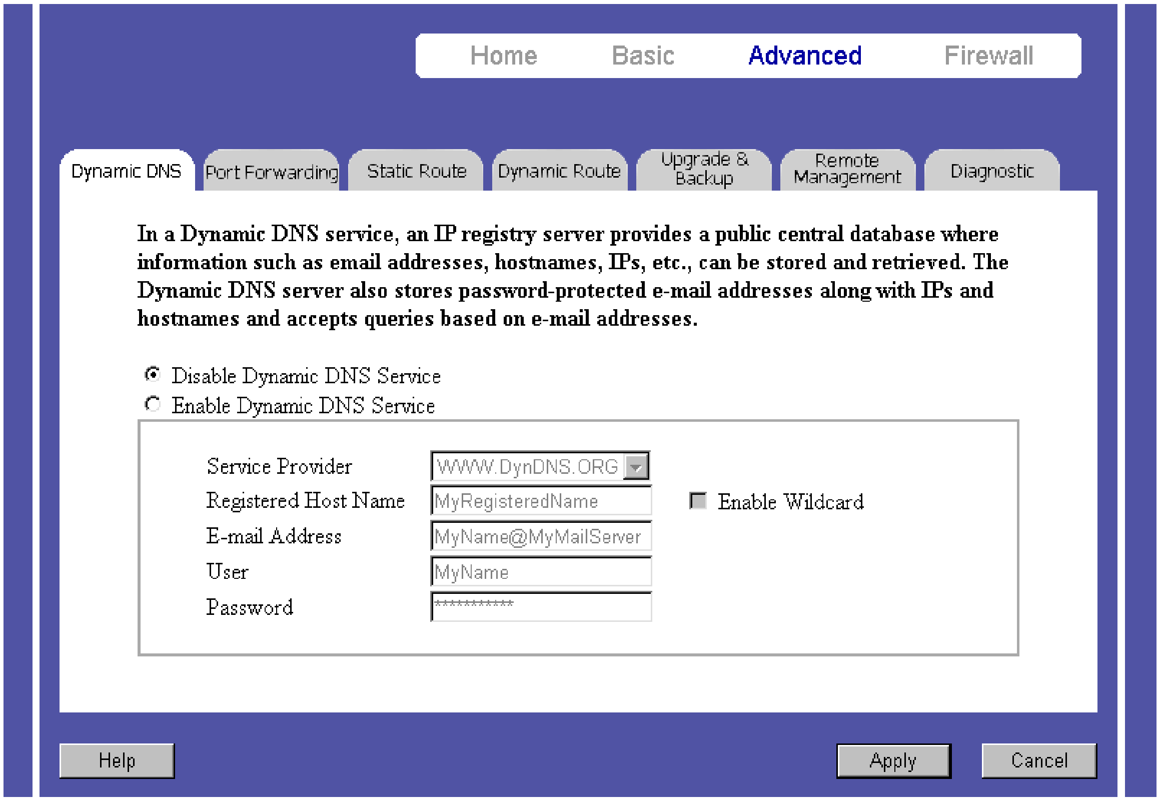
First of all, you need to have registered a dynamic DNS account with www.dyndns.org. This is for people with a dynamic IP from their ISP or DHCP server that would still like to have a DNS name.

The Broadband Router+Firewall, at the time of writing, supports the www.dyndns.org client. You can apply to this client for Dynamic DNS service.

6.1.1 DYNDNS Wildcard

Enabling the wildcard feature for your host causes ***.**yourhost.dyndns.org to be aliased to the same IP address as yourhost.dyndns.org. This feature is useful if you want to be able to use for example *www*.yourhost.dyndns.org and still reach your hostname.

The table following the figure describes the fields contained within.



In a Dynamic DNS service, an IP registry server provides a public central database where information such as email addresses, hostnames, IPs, etc., can be stored and retrieved. The Dynamic DNS server also stores password-protected e-mail addresses along with IPs and hostnames and accepts queries based on e-mail addresses.

● Disable Dynamic DNS Service
○ Enable Dynamic DNS Service

Service Provider	WWW.DynDNS.ORG	
Registered Host Name	MyRegisteredName	□ Enable Wildcard
E-mail Address	MyName@MyMailServer	
User	MyName	
Password	***********	

Figure 6-1 Dynamic DNS Setup

Table 6-1 Dynamic DNS Setup

F ELD	DESCRIPTION
Disable Dynamic DNS Service	Select this option to disable Dynamic DNS Service.
Enable Dynamic DNS Service	Select this option to enable Dynamic DNS Service and then fill in the following fields.
Service Provider	This is the name of your Dynamic DNS client. This field is read-only.
Registered Host Name	Enter the domain name assigned to your Broadband Router+Firewall by your Dynamic DNS provider.
Enable Wildcard	Your Broadband Router+Firewall supports DYNDNS Wildcard. Select this option to

F ELD	DESCRIPTION
	enable DYNDNS Wildcard.
E-mail Address	Enter your e-mail address.
User	Enter your user name.
Password	Enter the password assigned to you.
Help	Click this button for HTML help on this screen.
Apply	Click this button to save your changes back to the Broadband Router+Firewall.
Cancel	Click this button to cancel any configuration changes you made in this screen.

6.2 Port Forwarding

Click the **Port Forwarding** tab to display the next screen.

6.2.1 Configuring for Port Forwarding to Local Servers

Although the router causes your entire local network to appear as a single machine to the Internet, you can make local servers for different services (for example, FTP or HTTP) visible and available to the Internet. This is done using this screen.

Requested services are identified by port numbers in an incoming IP packet. For example, a packet that is sent to the external IP address of your router and destined for port number 80 is an HTTP (Web server) request, and port 21 is an FTP request. Examples of port numbers are shown at the top of the PORTS menu, although you are not limited to these choices.

See IETF RFC1700, “Assigned Numbers,” for port numbers for common protocols.

Many residential broadband ISP accounts do not allow you to run any server processes (such as a Web or FTP server) from your location. Your ISP may periodically check for servers and may suspend your account if it discovers any active services at your location. If you are unsure, refer to the Acceptable Use Policy of your ISP.

Use this screen to configure the router to forward incoming protocols to IP addresses on your local network based on the port number. In addition to servers for specific protocols, you can also specify a Default Server (also called DMZ) to which all other incoming protocols are forwarded. To configure port forwarding to a local server:

1. Enter a port number in an unused **Service Port Range**.
2. To forward only one port, enter it again in the **Service Port Range** after the "~".
3. To specify a range of ports, enter the last port to be forwarded in this box.
4. Enter the IP address of the local server in the corresponding **Server IP Address** box.
5. Click **Apply** at the bottom of the menu.

Local Web and FTP Server Example

If a local computer, with a private address of 192.168.1.33, acts as a Web and FTP server, configure the Port Forwarding menu to forward ports 80 (HTTP) and 21 (FTP) to local address 192.168.1.33 as shown in the next table. In order for a remote user to access this server from the Internet, the remote user must know the IP address that has been assigned by your ISP. If this address is 172.16.1.23, for example, an Internet user can access your Web server by directing the browser to http://172.16.1.23. The assigned IP address can be found in the Status Screen, where it is shown as the WAN IP Address.

Some considerations for this application are:

- If your account's IP address is assigned dynamically by your ISP, the IP address may change periodically as the DHCP lease expires.
- If the IP address of the local computer is assigned by DHCP, it may change when the computer is rebooted. To avoid this, change the configuration of your computers to use fixed private addresses rather than DHCP-assigned addresses.

Table 6-2 Port Table Entries (Example)

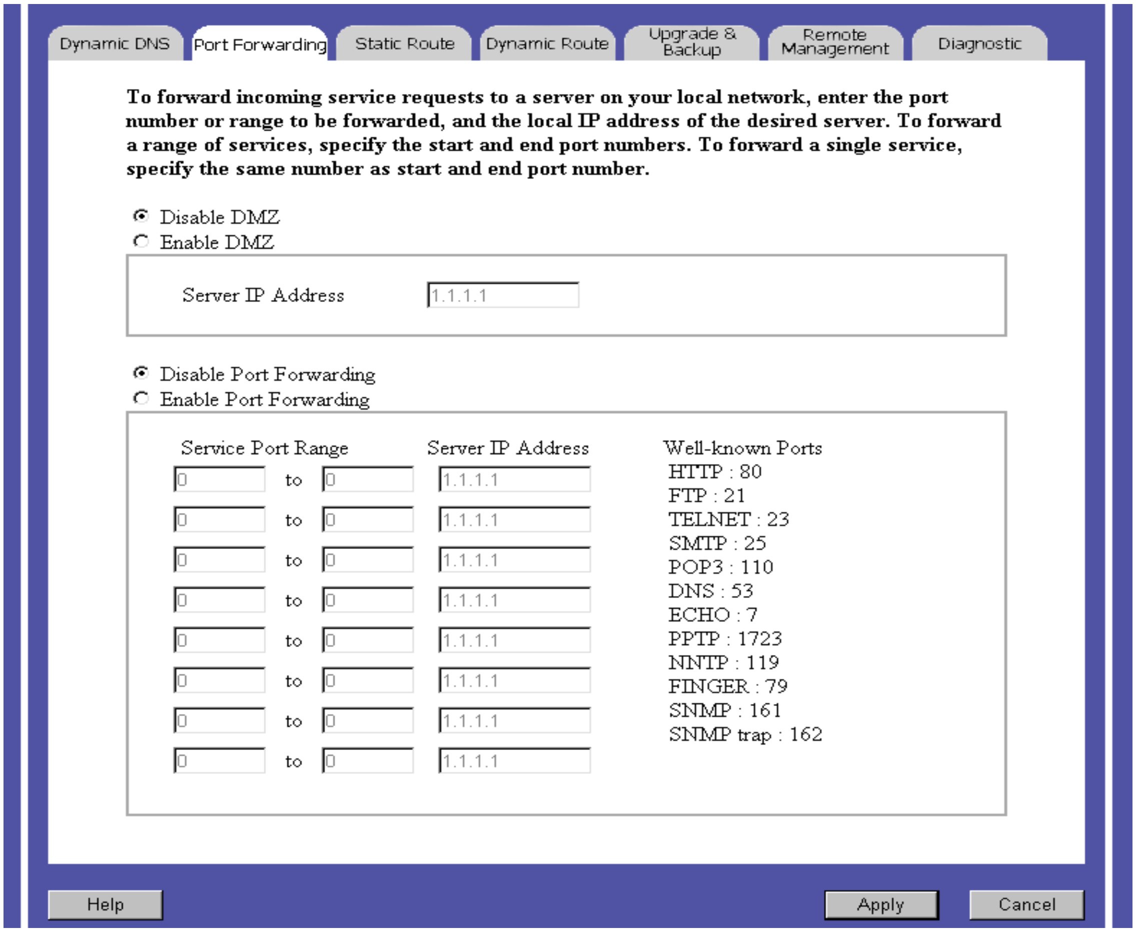
PORT #	SERVER IP ADDRESS
Default	0.0.0.0
80 (HTTP)	192.168.1.33
21 (FTP)	192.168.1.33

Local computers must access the local server using the computers' local LAN address (192.168.1.33 in this example). Attempts by local computers to access the server using the external IP address (172.16.1.23 in this example) will fail.

Local Game Host or Videoconference Example

Some online games and videoconferencing applications are incompatible with NAT. The Broadband Router+Firewall is programmed to recognize some of these applications and to work properly with them, but there are other applications that may not function well. In some cases, one local computer can run the application properly if that computer's IP address is entered as the default in the Port Forwarding Menu. If one local computer acts as a game or videoconference host, enter its IP address as the default.

The table following the figure describes the fields contained within.



To forward incoming service requests to a server on your local network, enter the port number or range to be forwarded, and the local IP address of the desired server. To forward a range of services, specify the start and end port numbers. To forward a single service, specify the same number as start and end port number.

● Disable DMZ
○ Enable DMZ

Server IP Address 1.1.1.1

● Disable Port Forwarding
○ Enable Port Forwarding

Service Port Range			Server IP Address
0	to	0	1.1.1.1
0	to	0	1.1.1.1
0	to	0	1.1.1.1
0	to	0	1.1.1.1
0	to	0	1.1.1.1
0	to	0	1.1.1.1
0	to	0	1.1.1.1
0	to	0	1.1.1.1

Well-known Ports
HTTP : 80
FTP : 21
TELNET : 23
SMTP : 25
POP3 : 110
DNS : 53
ECHO : 7
PPTP : 1723
NNTP : 119
FINGER : 79
SNMP : 161
SNMP trap : 162

Figure 6-2 Port Forwarding

Table 6-3 Port Forwarding

F ELD	DESCRIPTION
Disable DMZ	Select this option to disable DMZ (De-Militarized Zone).
Enable DMZ	Select this option to enable DMZ (De-Militarized Zone).
Server IP Address	Enter the IP address of the server on your local network to which you want to forward incoming service requests.
Disable Port Forwarding	Select this option to disable Port Forwarding.
Enable Port Forwarding	Select this option to enable Port Forwarding.
Service Port Range	Enter the port number or range to be forwarded, and the local IP address of the desired server. To forward a range of services, specify the start and end port numbers. To forward a single service, specify the same number as start and end port number.
Server IP Address	Enter the local IP address of the desired server here.
Well-known Ports	These are the well-known port numbers. See IETF RFC1700, “Assigned Numbers,” for port numbers for common protocols. HTTP : 80 ECHO : 7 FTP : 21 PPTP : 1723 TELNET : 23 NNTP : 119 SMTP : 25 FINGER : 79 POP3 : 110 SNMP : 161 DNS : 53 SNMP trap : 162
Help	Click this button for HTML help on this screen.
Apply	Click this button to save your changes back to the Broadband Router+Firewall.
Cancel	Click this button to cancel any configuration changes you made in this screen.

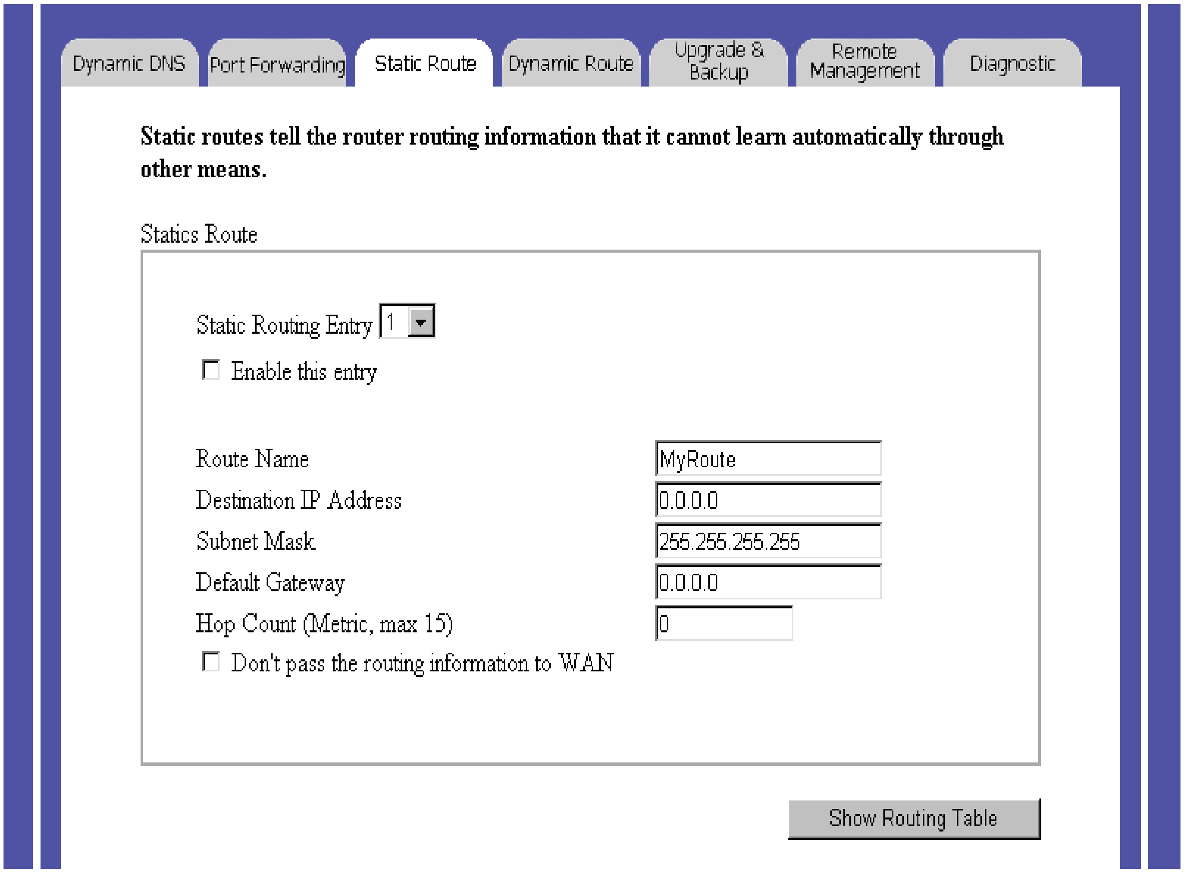
6.3 Static Route

Click the **Static Route** tab to display the next screen. Use this screen to configure static routes.

Static routes tell the Broadband Router+Firewall routing information that it cannot learn automatically through other means. This can arise in cases where RIP is disabled on the LAN or you have multiple routers or multiple IP subnets located on your network.

Each remote node specifies only the network to which the gateway is directly connected and the Broadband Router+Firewall has no knowledge of the networks beyond. Under normal circumstances, the router has adequate routing information after it has been configured for Internet access, and you do not need to configure additional static routes. You must configure static routes only for unusual cases such as multiple routers or multiple IP subnets located on your network.

The table following the figure describes the fields contained within.



Static routes tell the router routing information that it cannot learn automatically through other means.

Statics Route

Static Routing Entry 1

□ Enable this entry

Route Name	MyRoute
Destination IP Address	0.0.0.0
Subnet Mask	255.255.255.255
Default Gateway	0.0.0.0
Hop Count (Metric, max 15)	0

□ Don't pass the routing information to WAN

Figure 6-3 Static Route

Table 6-4 Static Route

F ELD	DESCRIPTION
Static Routing Entry	Select the static route entry you want to edit or create from the drop down list box.
Enable this entry	Select this checkbox to make this static route active.
Route Name	Enter a descriptive name for this route for identification purposes only.
Destination IP Address	Enter the IP network address of the final destination. Routing is always based on network number.
Subnet Mask	Enter the subnet mask for this destination. If you need to specify a route to a single host, use a subnet mask of 255.255.255.255 in the subnet mask field to force the network number to be identical to the host ID.
Default Gateway	Enter the IP address of the gateway to the destination network. The gateway is the next router that your router contacts in order to forward packets to the destination. On the LAN, the gateway must be a router on the same segment as the router. Over the WAN, the gateway will be the IP address of the router at your ISP.
Hop Count (Metric, max 15)	This is the “cost” of transmission for routing purposes. IP routing uses hop count as the measurement of cost with a minimum of **1** for directly connected networks. Enter a number that approximates the cost for this link. The number need not be precise, but it must be between **1** and **15**. In practice, **2** or **3** is usually a good number.
Don't pass the routing information to WAN	Select this checkbox if you do not want routing information passed to the WAN.
Show Routing Table	Click this button to display the static routing table.
Help	Click this button for HTML help on this screen.
Apply	Click this button to save your changes back to the Broadband Router+Firewall.
Cancel	Click this button to cancel any configuration changes you made in this screen.

6.3.1 Static Route Example

As an example of when a static route is needed, consider the following case:

- Your primary Internet access is through a cable modem to an ISP.
- You have a router on your home network for connecting to the company where you are employed. This router’s address on your LAN is 192.168.1.100.
- Your company’s network is 134.177.0.0.

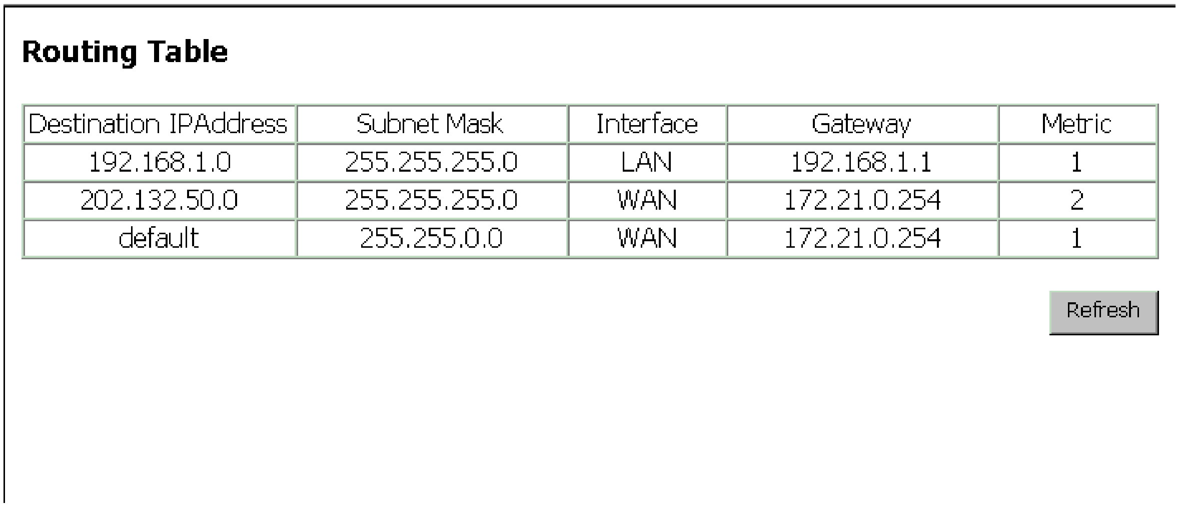
When you first configured your router, two implicit static routes were created. A default route was created with your ISP as the gateway, and a second static route was created to your local network for all 192.168.x.x addresses. With this configuration, if you attempt to access a device on the 134.177.0.0 network, your router will forward your request to the ISP. The ISP forwards your request to the company where you are employed, and the request will likely be denied by the company's firewall.

In this case you must define a static route, telling your router that 134.177.0.0 should be accessed through your home router at 192.168.1.100. In this example:

- The **Destination IP Address** and **IP Subnet Mask** fields specify that this static route applies to all 134.177.x.x addresses.
- The **Gateway IP Address** field specifies that all traffic for these addresses should be forwarded to your home router at 192.168.1.100.
- A **Metric** value of either 1 or 2 is good.
- **Private** is selected only as a precautionary security measure in case RIP is activated.

6.3.2 Show Routing Table

Click **Show Routing Table** in **Static Route** to display the static routing table. The table following the figure describes the fields contained within.



Routing Table

Destination IPAddress	Subnet Mask	Interface	Gateway	Metric
192.168.1.0	255.255.255.0	LAN	192.168.1.1	1
202.132.50.0	255.255.255.0	WAN	172.21.0.254	2
default	255.255.0.0	WAN	172.21.0.254	1

Figure 6-4 Show Routing Table

Table 6-5 Show Static Routing Table

F ELD	DESCRIPTION
Destination IP Address & Subnet Mask	The Destination IP Address and IP Subnet Mask fields specify the IP address and subnet mask to which this static route applies.
Interface	This is the LAN or WAN interface.
Gateway	The Gateway IP Address specifies the address that all traffic should be forwarded to.
Metric	IP routing uses hop count or metric as the measurement of cost with a minimum of **1** for directly connected networks.
Refresh	Click this button to update the screen data.

6.4 Dynamic Route

Click the **Dynamic Route** tab to display the next screen. Use this screen to configure dynamic routes.

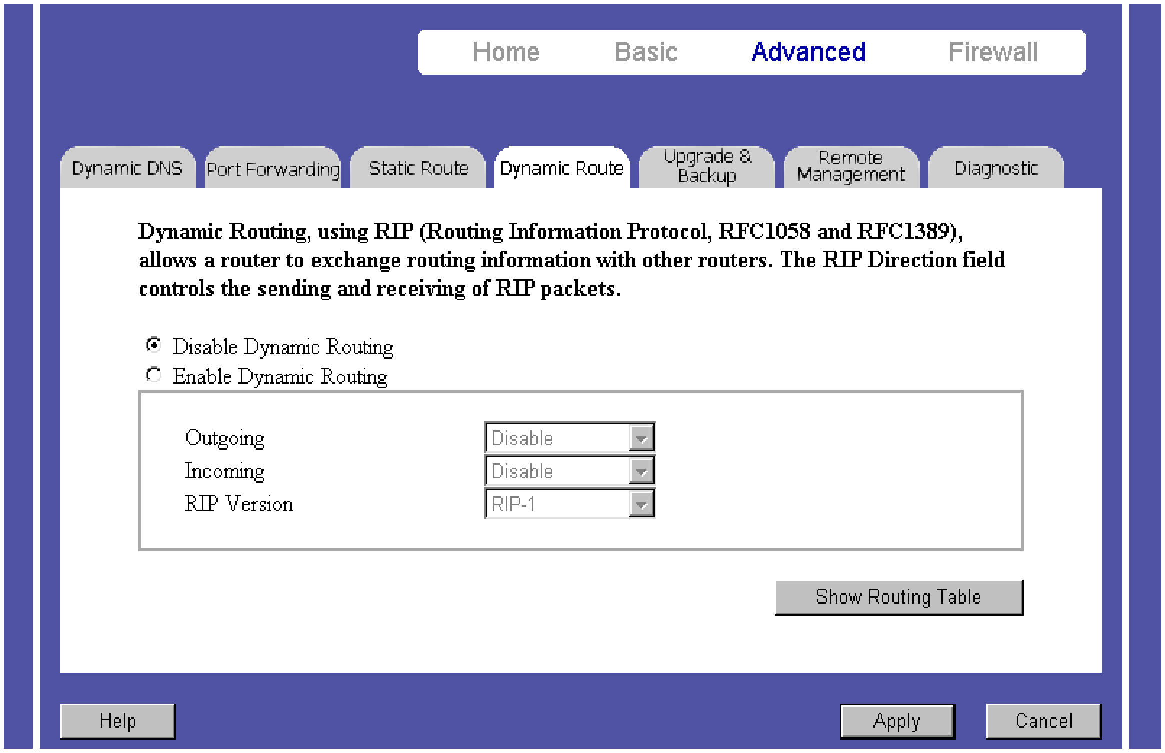
Dynamic routes use RIP (Routing Information Protocol, RFC1058 and RFC1389) to allow a router to exchange routing information with other routers. The RIP Direction field controls the sending and receiving of RIP packets.

RIP (Routing Information Protocol, RFC-1058 and RFC-1389) allows a router to exchange routing information with other routers. The **Outgoing and Incoming** fields control the sending and receiving of RIP packets. When both are enabled or **Outgoing** only is enabled, the Broadband Router+Firewall will broadcast its routing table periodically. When both are enabled or **Incoming** only is enabled, it will incorporate the RIP information that it receives; when both are disabled, it will not send any RIP packets and will ignore any RIP packets received.

The **RIP Version** field controls the format and the broadcasting method of the RIP packets that the Broadband Router+Firewall sends (it recognizes both formats when receiving). **RIP-1** is universally supported; but **RIP-2** carries more information. **RIP-1** is probably adequate for most networks, unless you have an unusual network topology.

Both **RIP-2B** and **RIP-2M** sends the routing data in RIP-2 format; the difference being that **RIP-2B** uses subnet broadcasting while **RIP-2M** uses multicasting. Multicasting can reduce the load on non-router machines since they generally do not listen to the RIP multicast address and so will not receive the RIP packets. However, if one router uses multicasting, then all routers on your network must use multicasting, also.

The table following the figure describes the fields contained within.



Dynamic Routing, using RIP (Routing Information Protocol, RFC1058 and RFC1389), allows a router to exchange routing information with other routers. The RIP Direction field controls the sending and receiving of RIP packets.

● Disable Dynamic Routing
○ Enable Dynamic Routing

Outgoing: Disable
Incoming: Disable
RIP Version: RIP-1

Figure 6-5 Dynamic Route

Table 6-6 Dynamic Route

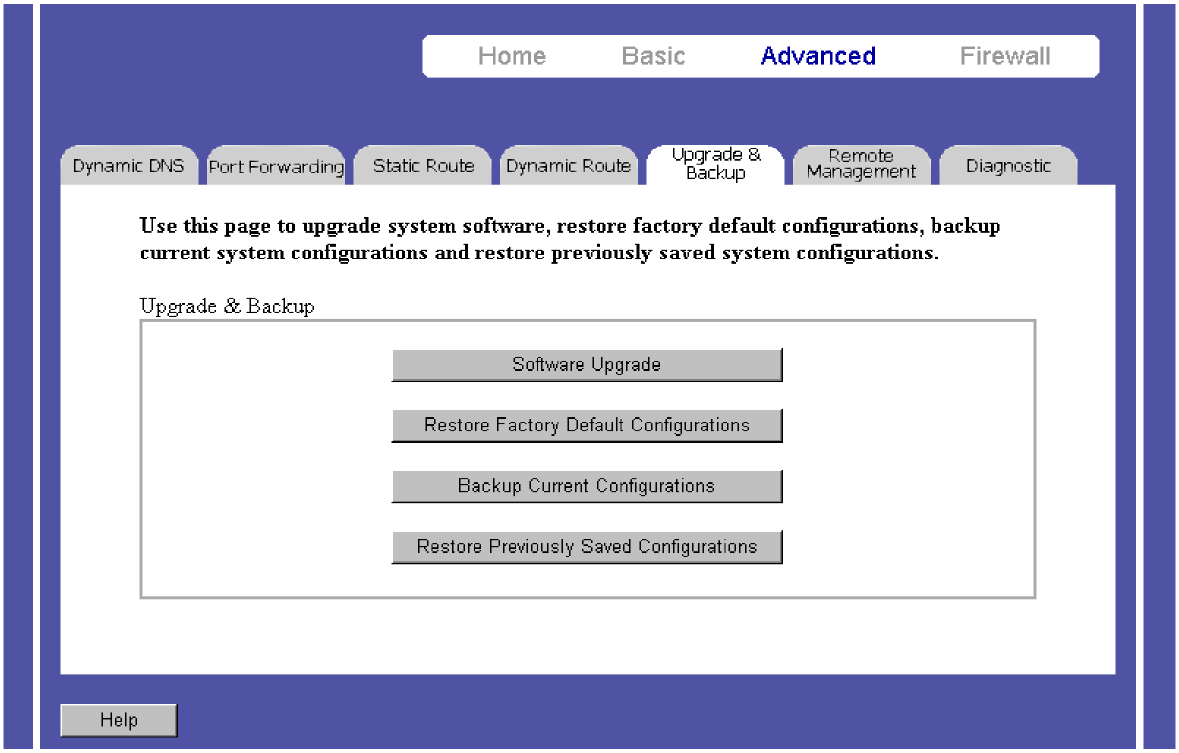
F ELD	DESCRIPTION
Disable Dynamic Routing	Select this checkbox to disable RIP broadcasts.
Enable Dynamic Routing	Select this checkbox to enable RIP broadcasts.
Outgoing	Select **Enable** if you want the Broadband Router+Firewall to broadcast its routing table periodically; otherwise select **Disable**.
Incoming	Select **Enable** if you want the Broadband Router+Firewall to incorporate the RIP information that it receives; otherwise select **Disable**.
RIP Version	Select **RIP-1/RIP-2B/RIP-2M** from the drop down list box

F ELD	DESCRIPTION
Show Routing Table	Click this button to display the dynamic routing table.
Help	Click this button for HTML help on this screen.
Apply	Click this button to save your changes back to the Broadband Router+Firewall.
Cancel	Click this button to cancel any configuration changes you made in this screen.

6.5 Upgrade and Backup

Click the **Upgrade and Backup** tab to display the next screen. Use this screen to upgrade system software, restore factory default configurations, back up current system configurations to your computer, and restore previously saved system configurations back to the system.

The table following the figure describes the fields contained within.



Use this page to upgrade system software, restore factory default configurations, backup current system configurations and restore previously saved system configurations.

Upgrade & Backup

Figure 6-6 Upgrade and Backup

Table 6-7 Upgrade and Backup

FIE .D	DESCRIPTION
Software Upgrade	Save and unzip the latest software on your computer, then click this button to upload the new software to your Broadband Router+Firewall.
Restore Factory Default Configurations	Click this button to upload the default configuration file to your Broadband Router+Firewall.
Backup Current Configurations	Click this button to save a copy of your current configuration file to your computer.
Restore Previously Saved Configurations	Click this button to upload a previously saved configuration file to the Broadband Router+Firewall.
Help	Click this button for HTML help on this screen.

6.5.1 Upgrade System Software

The routing software is stored in FLASH memory, and can be upgraded as new software is released. Upgrade files can be downloaded from our website. If the upgrade file is compressed (.ZIP file), you must first extract the binary (.BIN) file before sending it to the Broadband Router+Firewall. The upgrade file can be sent to the Broadband Router+Firewall using your browser.

The Web browser used to upload new firmware into the Broadband Router+Firewall must support HTTP uploads. We recommend using Netscape Navigator 3.0 or above.

Click **Software Upgrade** in the **Upgrade and Backup** screen to upload new software to your Broadband Router+Firewall. Type a path in the **File Path** field or click **Browse** to find your (unzipped) system software, then click **Upgrade**. This file should have a “bin” extension.

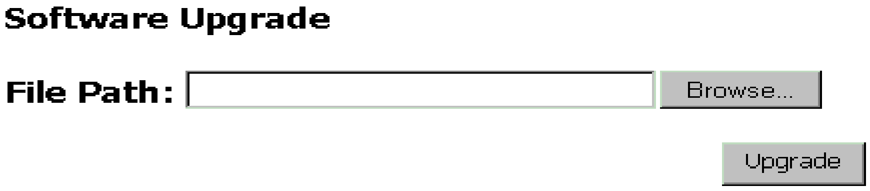


Figure 6-7 Upgrade System Software

When uploading software to the Broadband Router+Firewall, it is important not to interrupt the Web browser by closing the window, clicking a link, or loading a new page. If the browser is interrupted, it may corrupt the software.

When the upload is complete, your Broadband Router+Firewall will automatically restart. In some cases, you may need to reconfigure the router after upgrading.

6.5.2 Restore Factory Default Configurations

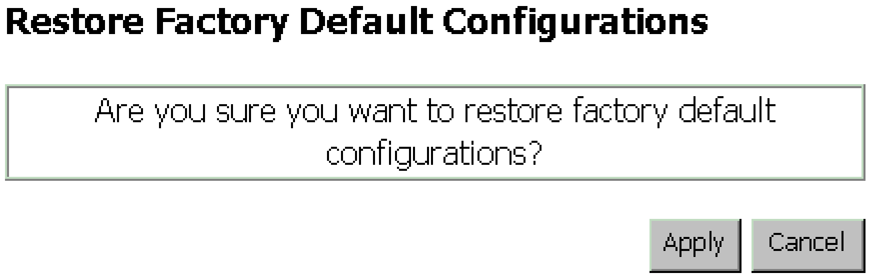
Click **Restore Factory Default Configurations** in the **Upgrade and Backup** screen to upload the Broadband Router+Firewall's default configuration file to your system.

The factory default configuration settings are:

- Web Configurator password is 1234.
- The IP address to 192.168.1.1.

You can erase the current configuration and restore factory defaults in two ways:

1. Use the **Restore Factory Default Configurations** function of the Web Configurator. Click **Apply** in the following screen.
2. Use the **Restore Factory Defaults** button on the rear panel of the Broadband Router+Firewall. Use this method for cases when the Web Configurator password or IP address is not known.



Restore Factory Default Configurations

Are you sure you want to restore factory default configurations?

Figure 6-8 Restore Factory Default Configurations

6.5.3 Backup Current Configurations

Click **Backup Current Configurations** in the **Upgrade and Backup** screen to save a copy of your current configuration file to your computer. Click **Browse**, then choose a location on your computer where you wish to save the Broadband Router+Firewall's current configuration, then click **Backup**.

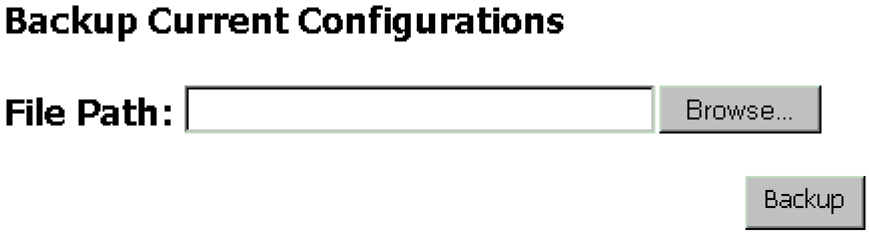


Figure 6-9 Backup Current Configurations

6.5.4 Restore Previously Saved Configurations

Click **Restore Previously Saved Configurations** in the **Upgrade and Backup** screen to upload a previously saved configuration file to the system

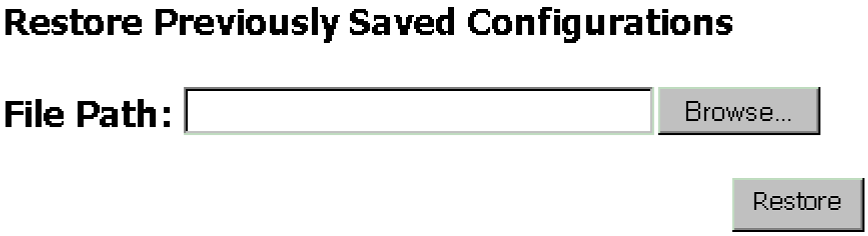


Figure 6-10 Restore Previously Saved Configurations

6.6 Remote Management

Click the **Remote Management** tab to display the next screen. Remote management setup is for embedded web and FTP services. Users can customize the service port, access interface, and the trusted client IP address to enhance security and flexibility.

This feature allows you to manage your Broadband Router+Firewall from a remote location, via the Internet (**WAN**), via the **LAN**, both (**LAN & WAN**) or neither (**Disable**).

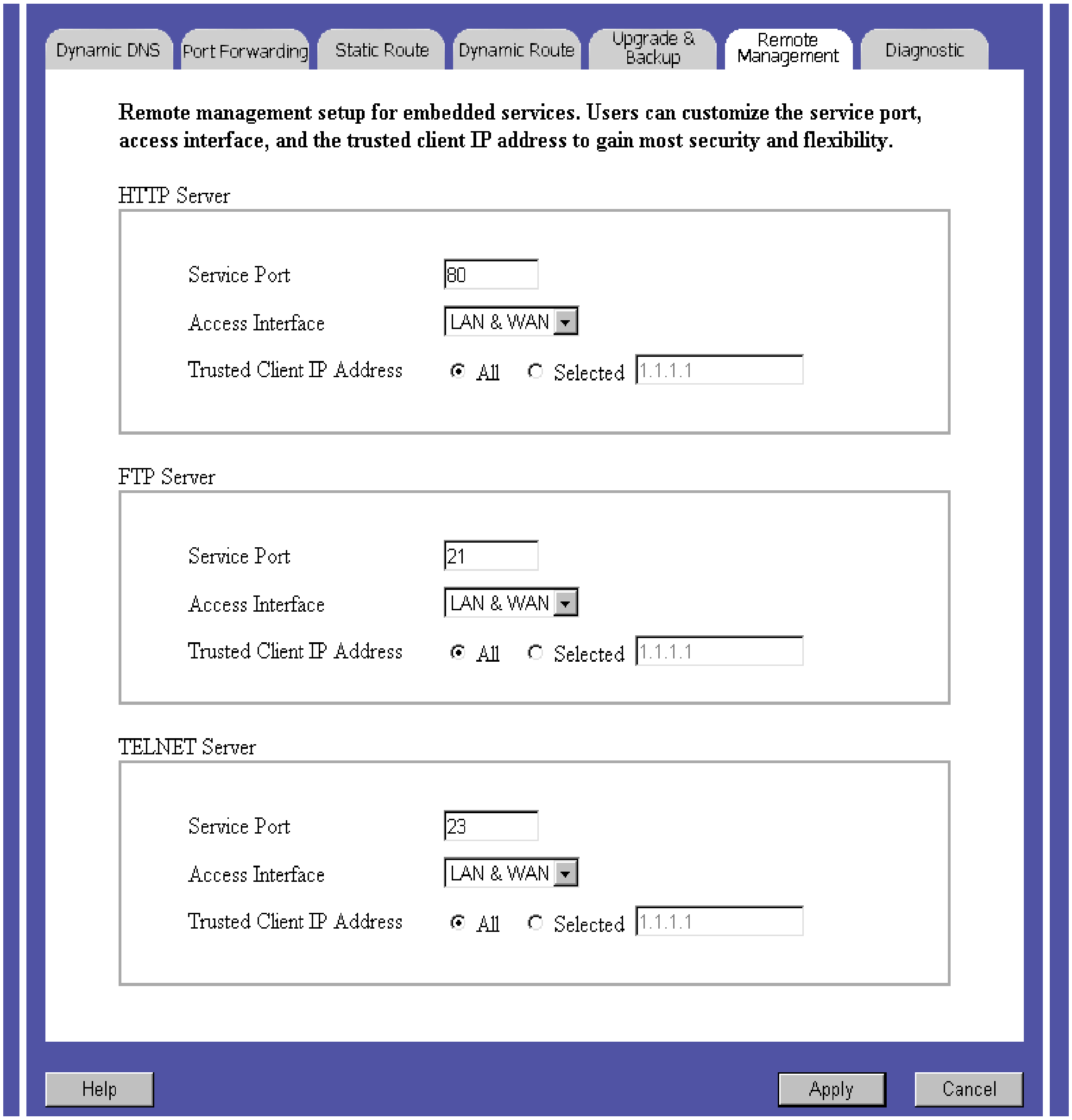
Once you have enabled remote management for the HTTP server, enter **http://<WAN IP Address>:8080** into the browser of any PC on the network (LAN or WAN) and press the **Enter** key. You will then be able to alter the Broadband Router+Firewall configuration settings.

To disable Remote Management, click **Disable** in the **Access Interface** field of either the HTTP server or the FTP server, then click on **Apply**.

If you remotely upgrade the Broadband Router+Firewall's default configuration file to your system, remember the factory default configuration settings are:

- Web Configurator password is 1234.
- The IP address is 192.168.1.1.

The table following the figure describes the fields contained within.



Remote management setup for embedded services. Users can customize the service port, access interface, and the trusted client IP address to gain most security and flexibility.

HTTP Server

Service Port: 80

Access Interface: LAN & WAN

Trusted Client IP Address: ● All ○ Selected 1.1.1.1

FTP Server

Service Port: 21

Access Interface: LAN & WAN

Trusted Client IP Address: ● All ○ Selected 1.1.1.1

TELNET Server

Service Port: 23

Access Interface: LAN & WAN

Trusted Client IP Address: ● All ○ Selected 1.1.1.1

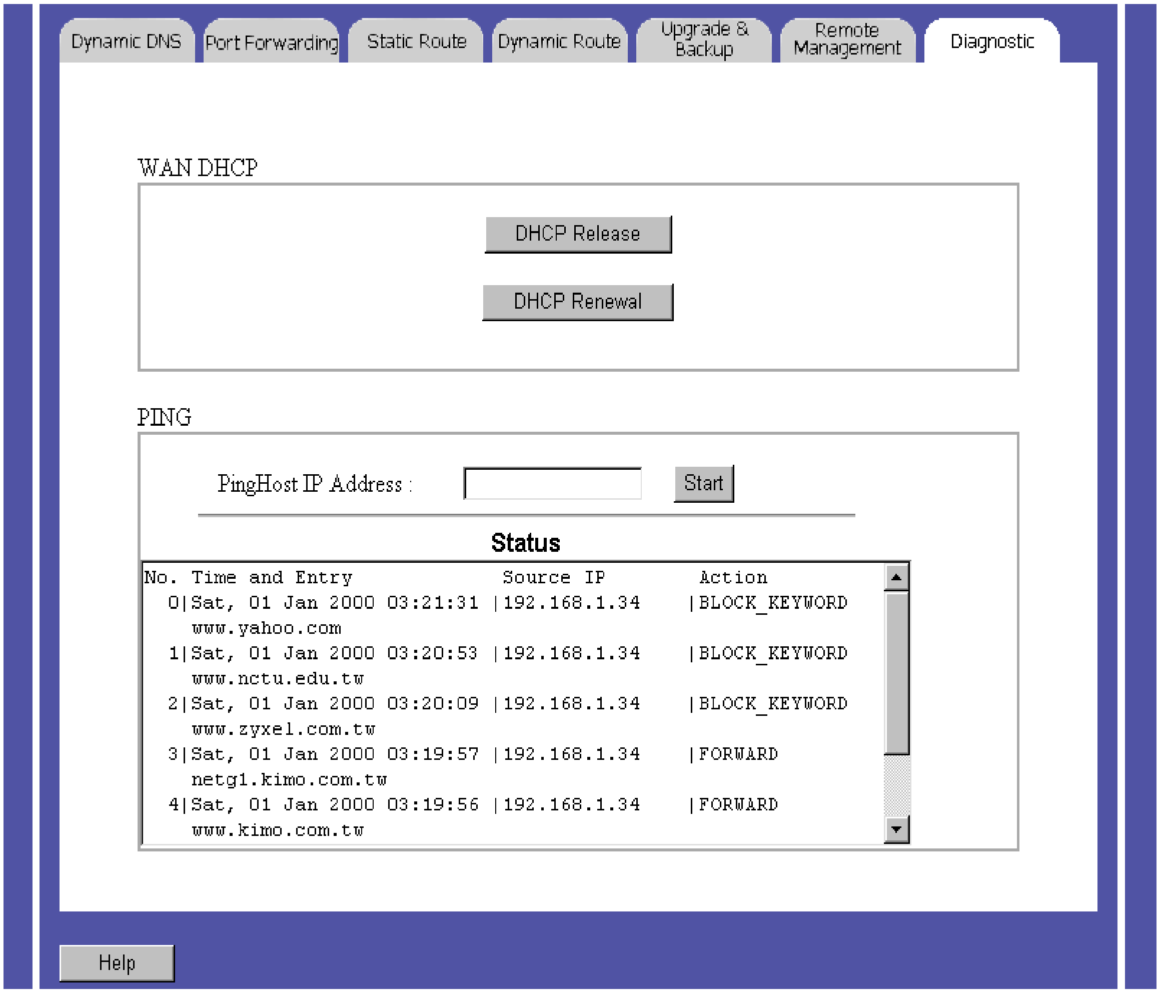
Figure 6-11 Remote Management

Table 6-8 Remote Management

F ELD	DESCRIPTION
HTTP Server	
Service Port	80 is the service port number for web services.
Access Interface	Select which interface you want to remotely manage via web server from or disable remote management via web server here. • **LAN** • **LAN and WAN** • **WAN** • **Disable**
Trusted Client IP Address	The Broadband Router+Firewall allows you to specify one Trusted Host, which is a computer that will be exempt from blocking and logging. Since the Trusted Host will be identified by an IP address, you should configure that computer with a fixed IP address.
All	Select this option if all computers on your LAN are exempt from logging and blocking.
Selected	Select this option if just one computer is exempt from logging and blocking and enter its IP address.
FTP Server	
Service Port	21 is the service port number for FTP services.
Access Interface	Select which interface you want to remotely manage via FTP server from or disable remote management via FTP server here. • **LAN** • **LAN and WAN** • **WAN** • **Disable**
Trusted Client IP Address	The Broadband Router+Firewall allows you to specify one Trusted Host, which is a computer that will be exempt from blocking and logging. Since the Trusted Host will be identified by an IP address, you should configure that computer with a fixed IP address.
All	Select this option if all computers on your LAN are exempt from logging and blocking
Selected	Select this option if just one computer is exempt from logging and blocking and enter its IP address.
Help	Click this button for HTML help on this screen.
Apply	Click this button to save your changes back to the Broadband Router+Firewall.
Cancel	Click this button to cancel any configuration changes you made in this screen.

6.7 Diagnostic

The diagnostic facility allows you to test the different aspects of your TW100-BRF104 to determine if it is working properly.



```
No. Time and Entry               Source IP       Action
  0|Sat, 01 Jan 2000 03:21:31 |192.168.1.34    |BLOCK_KEYWORD
    www.yahoo.com
  1|Sat, 01 Jan 2000 03:20:53 |192.168.1.34    |BLOCK_KEYWORD
    www.nctu.edu.tw
  2|Sat, 01 Jan 2000 03:20:09 |192.168.1.34    |BLOCK_KEYWORD
    www.zyxel.com.tw
  3|Sat, 01 Jan 2000 03:19:57 |192.168.1.34    |FORWARD
    netg1.kimo.com.tw
  4|Sat, 01 Jan 2000 03:19:56 |192.168.1.34    |FORWARD
    www.kimo.com.tw
```

Figure 6-12 Diagnostic

Table 6-9 Diagnostic

F ELD	DESCRIPTION
WAN DHCP	DHCP functionality can be enabled on the LAN or WAN. The TW100-BRF104 can act either as a WAN DHCP client or “none”, i.e., you have a static IP. The WAN DHCP Release and Renewal conveniently allow you to release and/or renew the assigned WAN IP address, subnet mask and default Router in a fashion similar to “winipcfg”.
DHCP Release	
DHCP Renewal	
PING	By Pinging some Host on Internet, you can see if your TW100-BRF104 is connecting to Internet properly.
Ping Host IP Address	Enter the Host IP address you want to ping.
Help	Click this button for HTML help on this screen.

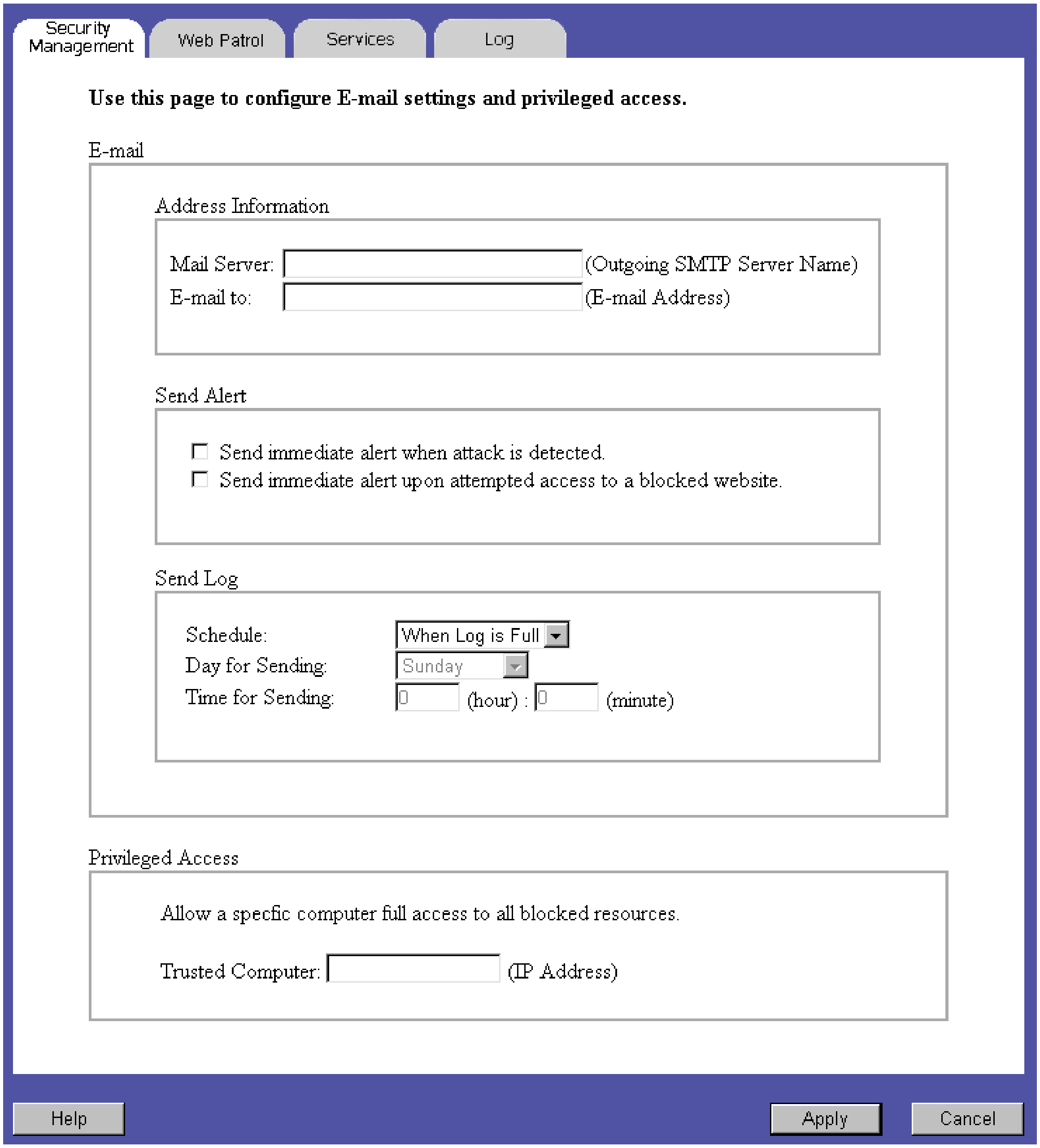
Chapter 7
The Firewall Screens

This chapter discusses how to configure e-mail settings for alert and log, privileged access, web patrol, schedule web access, block/schedule specific services and display logs of these events.

7.1 Security Management

Click the **Security Management** tab to display the next screen. Use this screen to configure e-mail settings, and privileged access.

The table following the figure describes the fields contained within.



Use this page to configure E-mail settings and privileged access.

E-mail

Address Information

Mail Server: (Outgoing SMTP Server Name)
E-mail to: (E-mail Address)

Send Alert

☐ Send immediate alert when attack is detected.
☐ Send immediate alert upon attempted access to a blocked website.

Send Log

Schedule: When Log is Full
Day for Sending: Sunday
Time for Sending: 0 (hour) : 0 (minute)

Privileged Access

Allow a specfic computer full access to all blocked resources.

Trusted Computer: (IP Address)

Figure 7-1 Security Management

Table 7-1 Security Management

F ELD	DESCRIPTION
E-mail	Alerts and logs are sent out via e-mails through the following configurations.
Address Information	
Mail Server	Enter the name of your outgoing (SMTP) mail server. You can enter either the server name (such as mail.myISP.com) or its IP Address. If you leave this box blank, log and alert messages are not sent via e-mail.
E-mail to	Enter the e-mail address to which logs and alerts are sent. This e-mail address will be used as the From address. If you leave this box blank, the log is not sent via e-mail to any address.
Send Alert	
Send immediate alert when attack is detected.	Select this checkbox when you to be immediately alerted to attacks on your network.
Send immediate alert upon attempted access to a blocked website.	Select this checkbox when you to be immediately alerted to a user on your network attempting to access a blocked site.
Send Log	
Schedule:	Schedule how often the log should be e-mailed to you. Choose from **When log is full/Weekly/Daily/None.** If the **Weekly**, **Daily,** or **Hourly** option is selected and the log fills up before the specified period, the log is automatically e-mailed to the specified e-mail address. After the log is sent, the log is cleared from the Broadband Router+Firewall's memory. If the Broadband Router+Firewall cannot e-mail the log file, the log buffer may fill up. In this case, the Broadband Router+Firewall overwrites the log and discards its contents. The Broadband Router+Firewall uses the Network Time Protocol (NTP) to obtain the current time and date from one of several Network Time Servers on the Internet.
Day for Sending	If you chose **Weekly** in the previous field, choose which day you'd like logs e-mailed to you in this field.
Time for Sending	If you chose **Weekly** or **Daily** in the **Schedule** field, choose what time of day in hour-minute format you'd like logs e-mailed to you in this field.
Privileged Access	Privileged Access means you allow a specific computer on your LAN full access to all blocked resources.
Trusted Computer	Enter the IP Address of the privileged computer in this field. Since the Trusted Host will be identified by an IP address, you should configure that PC with a fixed IP

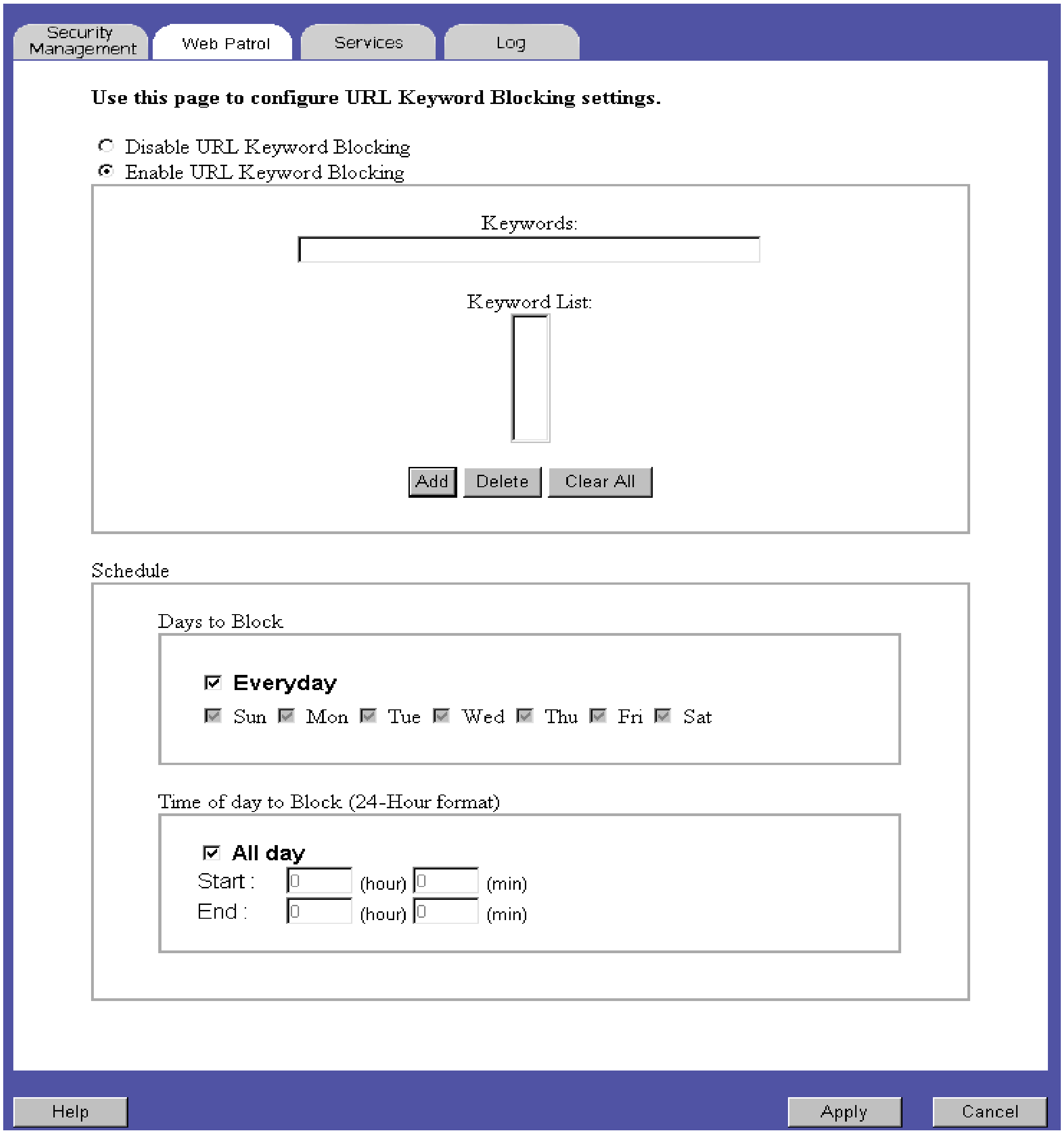
F ELD	DESCRIPTION
	address.
Help	Click this button for HTML help on this screen.
Apply	Click this button to save your changes back to the Broadband Router+Firewall.
Cancel	Click this button to cancel any configuration changes you made in this screen.

7.2 Web Patrol

Click the **Web Patrol** tab to display the next screen. Use this screen to enforce your network's Internet access policies by configuring web URLs filtering and scheduling web access.

Internet Web Patrol allows schools and businesses to create and enforce Internet access policies tailored to your needs. Web Patrol is the ability to block objectionable content from reaching your computers restrict certain web features or specific URLs by screening for keywords within web URLs.

The table following the figure describes the fields contained within.



Use this page to configure URL Keyword Blocking settings.

○ Disable URL Keyword Blocking
● Enable URL Keyword Blocking

Keywords:

Keyword List:

Schedule

Days to Block

☑ **Everyday**

☑ Sun ☑ Mon ☑ Tue ☑ Wed ☑ Thu ☑ Fri ☑ Sat

Time of day to Block (24-Hour format)

☑ **All day**

Start : 0 (hour) 0 (min)
End : 0 (hour) 0 (min)

Figure 7-2 Web Patrol

Table 7-2 Web Patrol

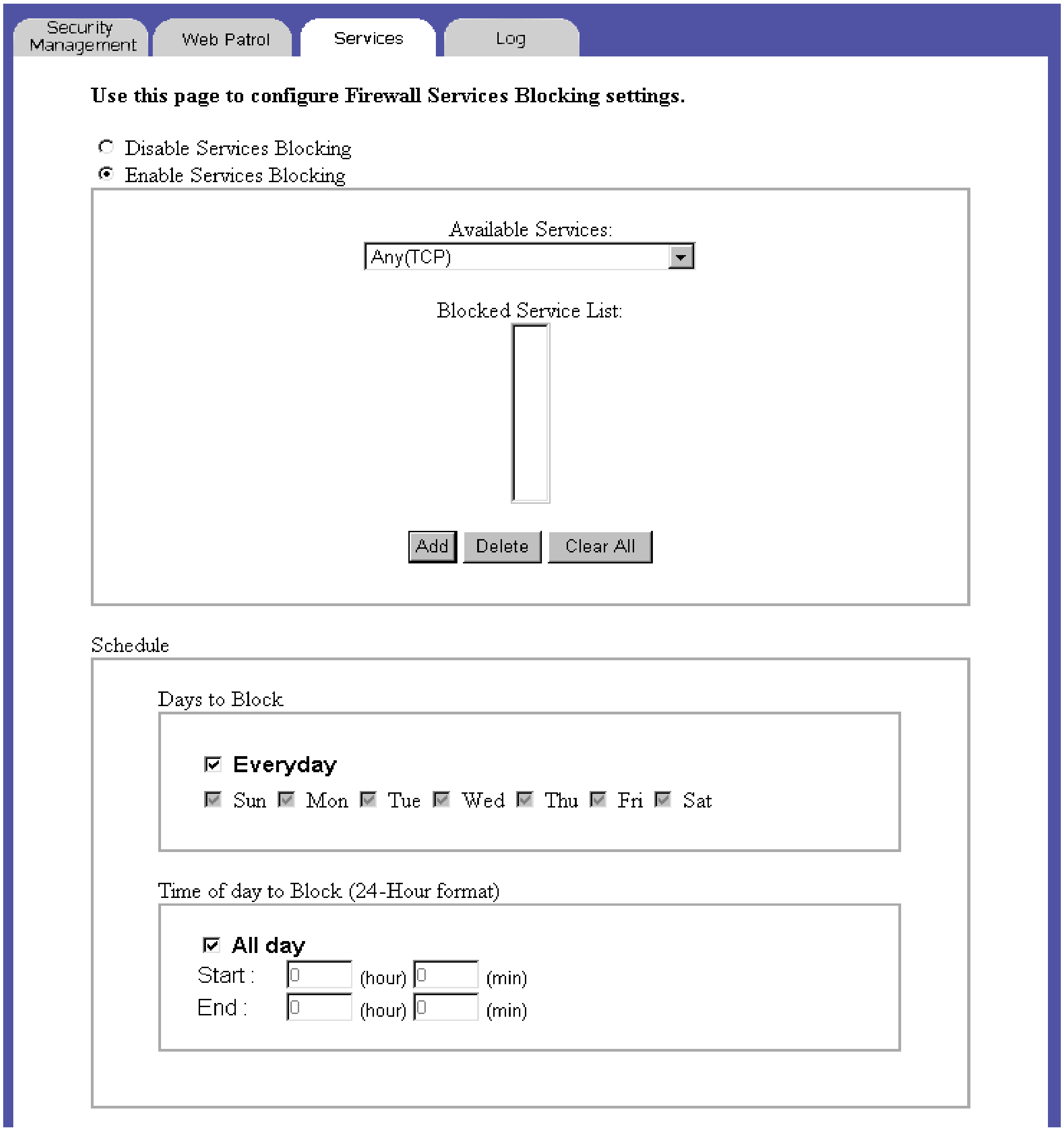
F ELD	DESCRIPTION
Disable URL Keyword Blocking	Select this option to disable screening for keywords within Web URLs.
Enable URL Keyword Blocking	Select this option to enable screening for keywords within Web URLs. Be sure that a time period for blocking is specified on Schedule setup in this screen. Keyword application examples: • If the keyword "XXX" is specified, the URL <http://www.badstuff.com/xxx.html> is blocked. • If the keyword “com” is specified, only websites with other domain suffixes (such as .edu or .gov) can be viewed. • If you wish to block all Internet browsing access during a scheduled period, enter the keyword “.” and set the schedule in the menu below.
Keywords	Enter the keyword here and then click the **Add** button below.
Keyword List	Your new keyword will appear in this list. Up to 255 entries are supported in the Keyword list.
Add	Enter the keyword in the **Keywords** field and then click this button.
Delete	Select a keyword in the Keyword List text box, and then click this button to delete that keyword from the list.
Clear All	Click this button to clear all keywords from the Keyword List text box.
Schedule	Schedule days and time that URL keyword blocking should be active in the following fields.
Days to Block	
Everyday	Select this checkbox if URL keyword blocking should be active everyday.
Day	Select which day(s) URL keyword blocking should be active here.
Time of day to Block (24-Hour format)	Select what time of day URL keyword blocking should be active here. Use military time, e.g., 6 PM should be entered as 18:00
All day	Select this checkbox if URL keyword blocking should be active all day.
Start	Select what time of day in hour-min format URL keyword blocking should begin.
End	Select what time of day in hour-min format URL keyword blocking should end.
Help	Click this button for HTML help on this screen.
Apply	Click this button to save your changes back to the Broadband Router+Firewall.

F ELD	DESCRIPTION
Cancel	Click this button to cancel any configuration changes you made in this screen.

7.3 Services

Click the **Services** tab to display the next screen. Use this screen to block services and schedule when to block them.

The table following the figure describes the fields contained within.



Use this page to configure Firewall Services Blocking settings.

○ Disable Services Blocking
● Enable Services Blocking

Available Services:
Any(TCP)

Blocked Service List:

Schedule

Days to Block

☑ **Everyday**
☑ Sun ☑ Mon ☑ Tue ☑ Wed ☑ Thu ☑ Fri ☑ Sat

Time of day to Block (24-Hour format)

☑ **All day**
Start : 0 (hour) 0 (min)
End : 0 (hour) 0 (min)

Figure 7-3 Services

Table 7-3 Services

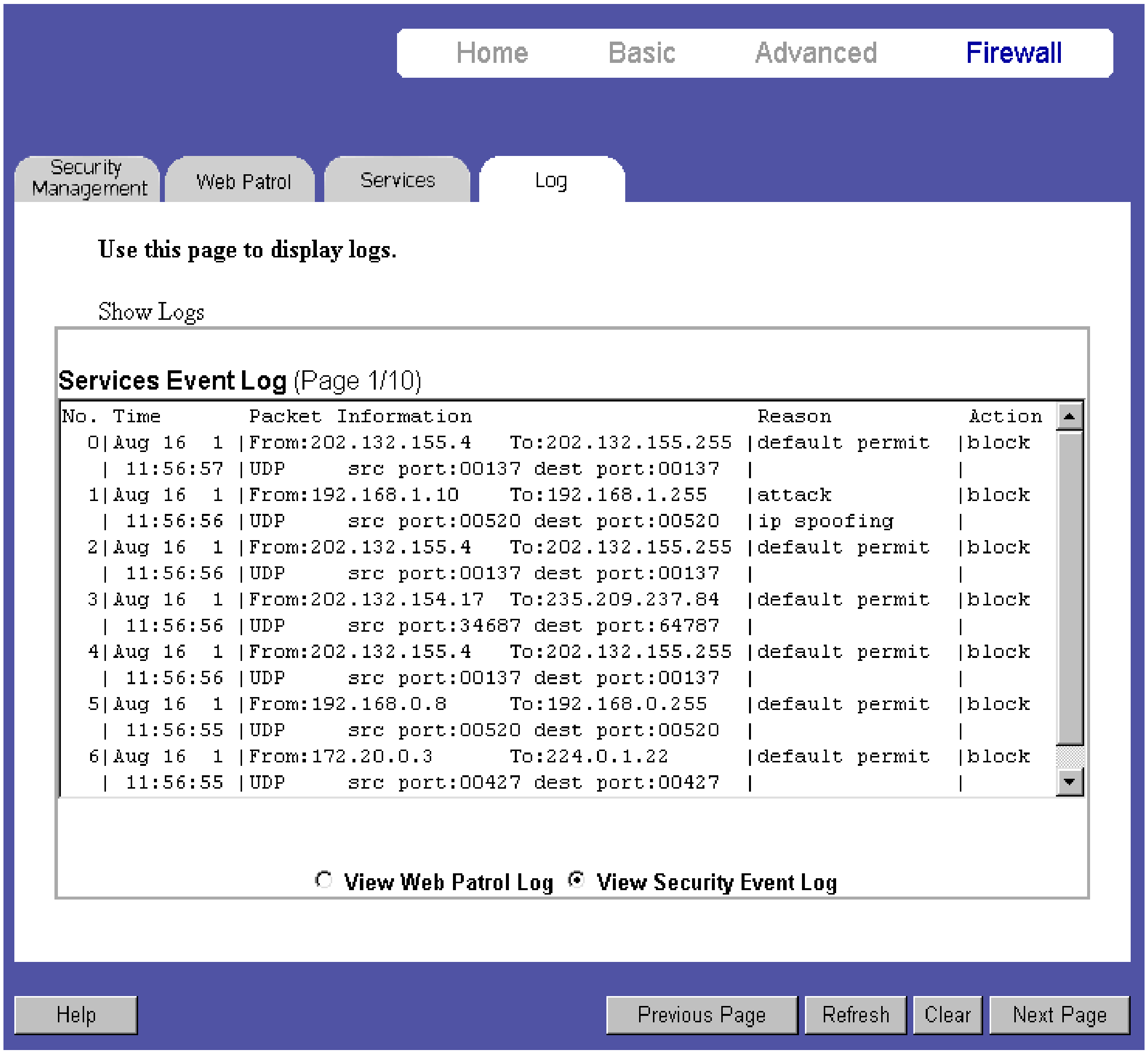
F ELD	DESCRIPTION
Disable Services Blocking	Select this option to disable services blocking.
Enable Services Blocking	Select this option to enable services blocking.
Available Services	Select the service you want to block from the pre-configured drop down list box and then click the **Add** button below. Be sure that a time period for blocking is specified on Schedule setup in this screen.
Blocked Service List	The service you want to block will appear in this list.
Add	Select the service from the **Available Services** list box and then click this button.
Delete	Select the service from the **Available Services** list box, then click this button to delete that service from the **Blocked Service List**.
Clear All	Click this button to clear all blocked services from the **Blocked Service List**.
Schedule	Schedule days and times that services blocking should be active in the following fields.
Days to Block	
Everyday	Select this checkbox if services blocking should be active everyday.
Day	Select which day(s) services blocking should be active here.
Time of day to Block (24-Hour format)	Select what time of day services blocking should be active here. Use military time, e.g., 6 PM should be entered as 18:00
All day	Select this checkbox if services blocking should be active all day.
Start	Select what time of day in hour-min format services blocking should begin.
End	Select what time of day in hour-min format services blocking should end.
Help	Click this button for HTML help on this screen.
Apply	Click this button to save your changes back to the Broadband Router+Firewall.
Cancel	Click this button to cancel any configuration changes you made in this screen.

7.4 Log

Click the **Log** tab to display the next screen. Use this screen to view logs of the screens you configured in the firewall.

7.4.1 Security/Services Event Log

Select **Security/Services Event Log** in the **Log** screen to view this log. The log is a detailed record of attacks and services accessing on your network. Up to 128 entries are stored in the log. No log entries will be made for the Privileged Access computer.



Use this page to display logs.

Show Logs

Services Event Log (Page 1/10)

```
No. Time        Packet Information                        Reason           Action
  0|Aug 16  1 |From:202.132.155.4   To:202.132.155.255 |default permit  |block
   | 11:56:57 |UDP      src port:00137 dest port:00137 |                |
  1|Aug 16  1 |From:192.168.1.10    To:192.168.1.255   |attack          |block
   | 11:56:56 |UDP      src port:00520 dest port:00520 |ip spoofing     |
  2|Aug 16  1 |From:202.132.155.4   To:202.132.155.255 |default permit  |block
   | 11:56:56 |UDP      src port:00137 dest port:00137 |                |
  3|Aug 16  1 |From:202.132.154.17  To:235.209.237.84  |default permit  |block
   | 11:56:56 |UDP      src port:34687 dest port:64787 |                |
  4|Aug 16  1 |From:202.132.155.4   To:202.132.155.255 |default permit  |block
   | 11:56:56 |UDP      src port:00137 dest port:00137 |                |
  5|Aug 16  1 |From:192.168.0.8     To:192.168.0.255   |default permit  |block
   | 11:56:55 |UDP      src port:00520 dest port:00520 |                |
  6|Aug 16  1 |From:172.20.0.3      To:224.0.1.22      |default permit  |block
   | 11:56:55 |UDP      src port:00427 dest port:00427 |                |
```

○ View Web Patrol Log ● View Security Event Log

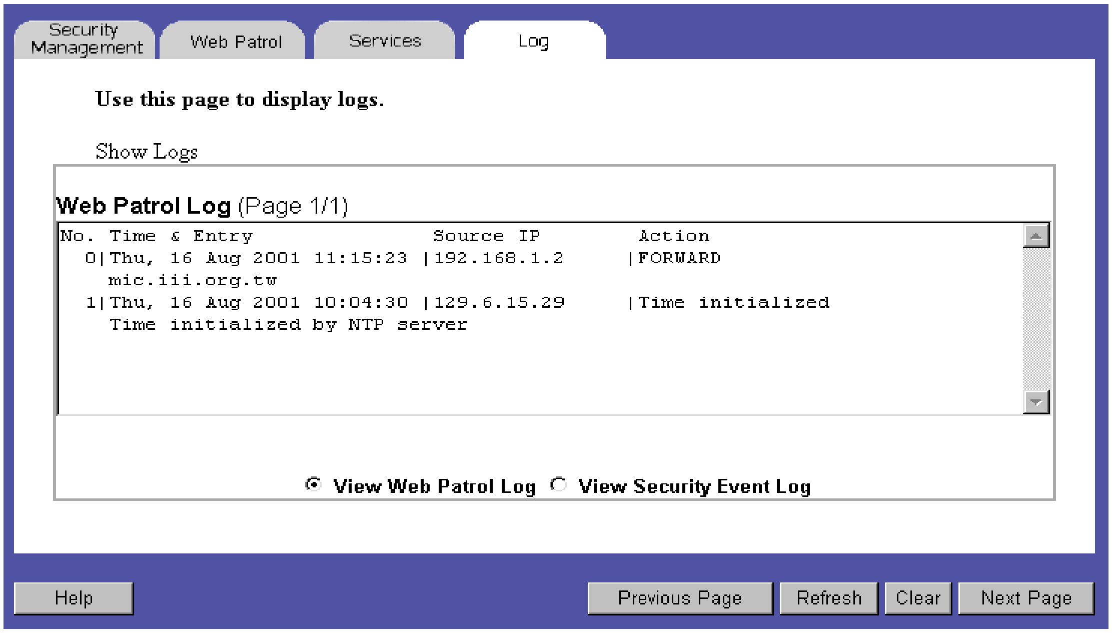
Figure 7-4 Security/Services Event Log

Table 7-4 Security/Services Event Log

F ELD	DESCRIPTION
No.	This is the log index number. 128 entries are available numbered from 0 to 127. The log will keep the record of the latest 128 entries.
Time	This is the date and time the log of this event occurred.
Packet Information	From and To IP addresses, source and destination ports, and type of packet going through the Router+Firewall.
Reason	Show attacks and services filtering policy.
Action	This field displays whether the packet was blocked.
Previous Page	Click this button to view the previous page in the log.
Refresh	Click this button to refresh this log window.
Clear	Click this button to clear the log data.
Next Page	Click this button to view the next page in the log.
Help	Click this button for HTML help on this screen.

7.4.2 Web Patrol Log

Select **Web Patrol Log** in the **Log** screen to view this log. The log is a detailed record of what websites you have accessed or attempted to access. Up to 128 entries are stored in the log. Log entries will only appear when keyword blocking is enabled, and no log entries will be made for the Trusted Host.



Use this page to display logs.

Show Logs

Web Patrol Log (Page 1/1)

```
No. Time & Entry                  Source IP        Action
  0|Thu, 16 Aug 2001 11:15:23 |192.168.1.2     |FORWARD
    mic.iii.org.tw
  1|Thu, 16 Aug 2001 10:04:30 |129.6.15.29     |Time initialized
    Time initialized by NTP server
```

● View Web Patrol Log ○ View Security Event Log

Figure 7-5 Web Patrol Log

Table 7-5 Web Patrol Log

F ELD	DESCRIPTION
No.	This is the log index number. 128 entries are available numbered from 0 to 127. The log will keep the record of the latest 128 entries.
Time and Entry	This is the date and time the log of this event occurred. Below the time is the name or IP address of the website visited or attempted to access
Source IP	This is the IP address of the computer that attempted to access this website.
Action	This field displays whether the packet was blocked, forwarded, or neither (BLOCK, FORWARD, or NONE). "NONE" means that no action is dictated by this rule.
Previous Page	Click this button to view the previous page in the log.
Refresh	Click this button to refresh this log window.
Clear	Click this button to clear the log data.
Next Page	Click this button to view the next page in the log.
Help	Click this button for HTML help on this screen.

Chapter 8
Troubleshooting

The following section provides possible solutions to problems regarding the installation and operation of the Broadband Router+Firewall. If your situation is described here, the problem should be solved by applying the corresponding solution.

Also check the FAQs which follow for other environment related information about your Broadband Router+Firewall.

8.1 Problem Scenarios

The following section describes various problem scenarios and the steps you should take to solve them. If your questions are not addressed here, refer to customer support.

8.1.1 I can't connect to the Broadband Router+Firewall.

- The Broadband Router+Firewall is properly installed, LAN connections are OK, and it is turned on.
- Ensure that your computer and the Broadband Router+Firewall are on the same network segment. If you are not sure, initiate the DHCP function, and let the computer get the IP address automatically.
- Ensure that your computer is using an IP Address within the default range of 192.168.1.2 to 192.168.1.254 and thus compatible with the Broadband Router+Firewall default IP Address of 192.168.1.1
- Also, the Subnet Mask should be set to 255.255.255.0 to match the Broadband Router+Firewall. In the Broadband Router+Firewall, you can check these settings by using Control Panel -> Network to check the Properties for the TCP/IP protocol.

8.1.2 The Test LED stays lit when it shouldn't.

The Test LED lights up when the device is first powered up. Meantime, the system will boot up itself and check for proper operation. After finishing the checking procedure, the LED turns off to show the system is working fine. If the LED remains lit after this time, the device is not working properly. Try to re-flash the firmware by assigning a static IP address to the computer, then upgrade the firmware again. If that doesn't help, contact your dealer for further inspection.

8.1.3 I can’t browse through the Broadband Router+Firewall.

- Check if both ends of the network cable and power adapter are properly connected. Check if the status LEDs on the front panel are functioning properly.
- If using Windows 95 or Windows 98, check the TCP/IP setup on the client side. Run **winipcfg** by clicking on the **Start** button, then selecting **Run**, and typing **winipcfg** in the Run box and press **Enter**. The computer should have an IP address of 192.168.1.xxx ("xxx" is from 2 to 254.) Subnet Mask is 255.255.255.0, the default gateway IP should be the Router’s IP Address, and DNS (in "More".)
- Same as above, check the same setup values in the **Basic -> Status** page of the Broadband Router+Firewall.

8.1.4 When I enter a URL or IP address, I get a time out error.

- Check if other computers work. If they do, ensure that your workstations IP settings are correct (IP address, Subnet Mask, Default gateway and DNS).
- If the computers are configured correctly, but still not working, check the Broadband Router+Firewall. Ensure that it is connected and ON. Connect to it and check its settings. (If you cannot connect to it, check the LAN and power connections.)
- If the Broadband Router+Firewall is configured correctly, check your Internet connection (DSL/Cable modem etc.) to see that it is working correctly.
- Manually configure the TCP/IP with a DNS address provided by your ISP.

8.1.5 I can’t obtain an IP address from my cable or DSL modem.

- Ensure that all of your cabling is properly connected and that all of the router’s WAN and LAN LEDs are correctly illuminated.
- Power down your cable or DSL modem for a few seconds. Turn it back on. After the modem goes through its self-test, check to see if you now have an IP address.
- Ensure that your cable or DSL modem is DHCP-capable.
- You may have to enter the router or host name in the Setup page of the Broadband Router+Firewall’s web configurator. Go to the **Basic -> Setup** section of the web configurator for more information.
- Your ISP may require MAC Addresses. Check with your ISP. This address can be obtained in the **Basic -> Status** screen of the web configurator.

8.2 FAQ

Check these FAQs for additional information about your Broadband Router+Firewall configuration in various environments.

8.2.1 What is the maximum number of IP addresses that the Broadband Router+Firewall will support?

The Broadband Router+Firewall will support up to 253 IP addresses.

8.2.2 Where is the Broadband Router+Firewall installed on the network?

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

8.2.3 Does the Broadband Router+Firewall 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.

8.2.4 Does the WAN connection of the Broadband Router+Firewall support 100Mb Ethernet?

Because of the speed limitations of broadband Internet connections, the Broadband Router+Firewall’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 Broadband Router+Firewall.

8.2.5 What is Network Address Translation and what is it used for?

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 Broadband Router+Firewall 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.

8.2.6 Does the Broadband Router+Firewall support any operating system other than Windows 95, Windows 98, Windows 2000, or Windows NT?

Yes.

8.2.7 How do I get Napster to work with the Broadband Router+Firewall?

Napster is fully compatible with the Broadband Router+Firewall, but you must make sure that, during installation, you select “no idea” when asked about your firewall selection. Set your proxy settings to “No Proxy Server” in your *File>Preferences.*

8.2.8 Web page hangs, corrupt downloads, or nothing but junk characters is displayed on the screen. What do I need to do?

Force your NIC to 10Mbps or half duplex mode, and turn off the "Auto-negotiate" feature of your NIC as a temporary measure. (Please look at the Network Control Panel, in your Ethernet Adapter's Advanced Properties tab.). Make sure that your proxy setting is disabled in the browser.

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

Reset the Broadband Router+Firewall by holding down the restore button for at least three seconds and reset your cable or DSL modem by powering the unit off and then on. Obtain and flash the latest firmware release.

8.2.10 Does the Broadband Router+Firewall support IPSec?

Yes, but only pass through IPSec is supported.

8.2.11 Will the Broadband Router+Firewall function in a Macintosh environment?

Yes, but the router's setup pages are accessible only through Internet Explorer v4.0 or Netscape Navigator v4.0 or higher for Macintosh.

8.2.12 With which type of firewall is the gateway equipped?

The Broadband Router+Firewall uses NAT and TCP/IP port inspections. In addition, it also support SPI (Stateful Packet Inspection), DoS prevention, Services management, and Web Patrol.

8.2.13 I am not able to get the web configuration screen for the Broadband Router+Firewall. What can I do?

You may have to remove the proxy settings on your Internet browser, e.g., Netscape Navigator or Internet Explorer. Or remove the dial-up settings on your browser. Check with your browser documentation.

8.2.14 What is DMZ?

Demilitarized Zone (DMZ) allows one IP Address (computer) to be exposed to the Internet. Some applications require multiple TCP/IP ports to be open. It is recommended that you set your computer with a static IP if you want to use DMZ.

8.2.15 If DMZ is used, does the exposed user share the public IP with the Broadband Router+Firewall?

No.

8.2.16 Does the Broadband Router+Firewall pass PPTP packets or actively route PPTP sessions?

The Broadband Router+Firewall allows PPTP packets to pass through.

8.2.17 Is the Broadband Router+Firewall cross-platform compatible?

Any platform that supports Ethernet and TCP/IP is compatible with the Broadband Router+Firewall.

8.2.18 Will the Broadband Router+Firewall allow me to use my own public IPs and Domain, or do I have to use the IPs provided by the Broadband Router+Firewall?

The Broadband Router+Firewall mode allows for customization of your public IPs and Domain.

8.2.19 How many ports can be simultaneously forwarded?

Theoretically, the Broadband Router+Firewall can establish 520 sessions at the same time, but you can only forward 10 ranges of ports.

8.2.20 Does the Broadband Router+Firewall replace a modem? Is there a cable or DSL modem in the Broadband Router+Firewall?

No, this version of the Broadband Router+Firewall must work in conjunction with a cable or DSL modem.

8.2.21 Which modems are compatible with the Broadband Router+Firewall?

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

8.2.22 How can I check whether I have static DHCP IP Addresses?

Consult your ISP to confirm the information.