11g Wireless Security Router

User Guide

8/05/2003

FCC Interference Statement

This device complies with Part 15 of FCC rule. Operation is subject to the following two conditions:

- ✓ This device may not cause harmful interference.
- ✓ This device must accept any interference received, including interference that may cause undesired operation.

This 11g Wireless Security Router has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used according to the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which is found by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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

FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled anvironment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

CE Declaration of Conformity:

This equipment complies with the specifications relating to electromagnetic compatibility, EN 55022/A1 Class B, and EN 50082-1. This meets the reasonable protection requirements set out in the European Council Directive on the approximation of the laws of the member states relating to Electromagnetic Compatibility Directive (89/336/EEC).

Manufacturer’s Disclaimer State

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Table of Contents

Introduction

Congratulations on your purchase of this 11g Wireless Security Router . This router is the perfect design product combining wireless and Ethernet network technology together. Fully compatible with IEEE 802.11g wireless standard, this device not only allows you to take advantage of mobility, but also to have fast Ethernet connection with built-in four 10/100 auto-sensing switch Ethernet ports. Users on wireless LAN and Ethernet LAN can share files, printers, and other networking resource each other at a blazing speed. Best of all, with NAT technology, all users can share single account of Internet access by having this device connect to a DSL/Cable modem.

Integrated 802.11g wireless AP and 4-port 10/100 Mbps switch, it is quick and easy to deploy wireless and wire LAN without spending extra cost of a wireless access point, hub or switch. All LAN users are able to share internal network data, like files, printers, and other networking resources in a blazing speed. The wireless Router's efficient antenna offers a covered range up to 30 meters indoor (150 meters outdoor) and seamless roaming throughout wireless LAN infrastructure. More over, the wireless operation provides 64 bit key and 128 bit WEP data encryption for high-level security.

With built-in NAT, this device not only provides natural firewall, protecting your network from access by outside users but also extends your LAN connection. Users on the LAN can share a single account of Internet access by having this device connect to a DSL/Cable modem. This Firewall Router allows up to 253 users on the Ethernet LAN simultaneously but makes IP configuration simple and easy. Configured as a DHCP server, the 11g Wireless Security Router assigns an IP Address to every connected PC on Ethernet LAN automatically. Also, DHCP client helps WAN port obtain IP address dynamically assigned by ISP.

With a web-based UI (User Interface), this 11g Wireless Security Router is easy to setup and maintain. With this exclusive user friendly interface, all functions can be configured easily via a web browser such as Netscape Communicator and Internet Explorer.

About this Guide

This guide contains information about installing and configuring your 11g Wireless Security Router . It is designed to guide users through the correct setup procedures for appropriate hardware installation and basic configuration. Later, it shows how to complete advanced configurations to get the best operating performance from this 11g Wireless Security Router .

Chapter 1: Get to know your 11g Wireless Security Router

This chapter describes the package contents and provides a list of features and applications illustrations of the 11g Wireless Security Router .

Chapter 2: Hardware Installation & Setup

This chapter describes the steps for the hardware installation of the 11g Wireless Security Router .

Chapter 3: Internet Access

This chapter describes the steps for the basic configuration and start up of the 11g Wireless Security Router .

Chapter 4: Advanced Applications

This chapter describes how to configure advanced functions in order to get the most from your 11g Wireless Security Router .

Chapter 5: Management

This Chapter describes how to configure management functions in order to manage and get the setting information of your 11g Wireless Security Router .

Chapter 6: Macintosh Setup

This Chapter provides instructions on how to set up your Macintosh computers in your network.

Chapter 7: Trouble Shooting

This chapter describes any potential problems you may encounter and the suggested remedies.

Conventions

The following explains the conventions used throughout this document.

Italics	New words, terms, or special emphasis. E.g. *Getting to know your 11g Wireless Security Router* .
“Boldface”	Buttons, checkboxes, or items that you can select from screens, menus, or dialog boxes. E.g. Click “**OK”** to restart
Boldface Italics	Items in ***Bold Italics*** are samples only and you should enter other names, numbers, or words to substitute.

Chapter 1: Getting to know your 11g Wireless Security Router

This chapter describes the package contents and provides a list of features and application illustrations of the 11g Wireless Security Router.

1-1 About The 11g Wireless Security Router

The 11g Wireless Security Router is a hybrid design product which combines Ethernet technology and wireless access into a single stand-alone unit. The device allows you take advantages of both mobility and fast connection. All PCs whenever on wireless LAN or Ethernet LAN can share files, printers and other network resource. Moreover, all users can share single account of Internet access by having this device connect to a DSL/Cable modem.

Ethernet / Fast Ethernet

Ethernet is the most widely-used network access method, especially in a Local Area Nnetwork (LAN) and is defined by the IEEE as the 802.3 standard. Normally, Ethernet is a shared media LAN. All stations on the segment share the total bandwidth, which could be 10Mbps (Ethernet), 100Mbps (Fast Ethernet), or 1000Mbps (Gigabit Ethernet). With a switched Ethernet, each sender and receiver has the full bandwidth.

Fast Ethernet is defined as IEEE 802.3u standard, a high-speed version of Ethernet with 100Mbps transmission rate.

Wireless LAN

Wireless Local Area Network systems (WLANs) transmit and receive data through the air by using radio frequency (RF). This offers some advantages like mobility, ease of installation, and scalability over traditional wired systems.

Mobility: WLANs combine data connectivity with user mobility. This provides users with access to network anywhere in their organization. For example, users can roam from a conference room to their office without being disconnected from the LAN. This is impossible with wired networks.

Ease of Installation: Eliminating the need to deploy network cable in walls and ceilings, Installing WLANs is easy for novice and expert users alike.

Scalability: WLAN topologies are easy to change in various ways from peer-to-peer networks for a small group of users to full infrastructure networks for hundreds of users roaming over a broad area.

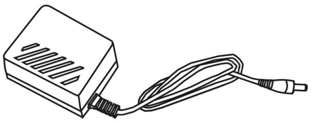
Wireless LAN is suitable for difficult-to-wire and frequently changing environments. It’s also an ideal solution for mobile workers to access network resource and for setting a temporary LAN when necessary

Wireless LANs can be set as “A~~a~~d-hoc” network and “Infrastructure” network. Unlike the “A~~a~~d-hoc network”, where users on the LAN send data directly to each other, the “Infrastructure” network includes an access point and users on the “Infrastructure” network send data to that dedicated access point. 11g Wireless Security Router uses "Infrastructure" network as Wireless LANs. Each wireless LAN PC within the range of the access point can communicate with other wireless LAN PCs within the range.

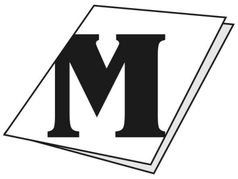
1-2 Contents of the 11g Wireless Security Router Package

After carefully unpacking the shipping carton, check the contents listed below.

Router



Power Adapter



User's Manual

1. 11g Wireless Security Router.
2. Power Adapter.
3. User's Manual
4. UTP Cable (not showing)

1-3 Features of the 11g Wireless Security Router

Your 11g Wireless Security Router contains the following features that make it excellent for network connections.

- ✓ Allows multiple users to access the Internet at the same time by providing maximum Internet utilization to multiple users sharing a single public IP Address.
- ✓ Allows users on Ethernet LAN and Wireless LAN to transfer data to each other through wireless-to-wire bridge.
- ✓ Provides wireless access roaming, best access point selection, loading balance, network traffic filtering included in wireless roaming function.
- ✓ Provides 64bits/128bits key WEP (Wired Equivalent Privacy) wireless data encryption to secure wireless communication.
- ✓ Fully supports 802.11 open and shared key authentications.
- ✓ Integrates four 10/100BASE-T/TX auto-sensing switch ports.
- ✓ Uses NAT to allow your entire network's PCs to connect to the Internet using only one (purchased) IP address.
- ✓ Supports PPPoE that enable user to seamlessly connect to ISPs with the familiar "dial-up" connection interface.
- ✓ Built-in web-based user interface for easy configuration and management through common web browsers such as Netscape Communication 6.0 or later and

Internet Explorer 5.0 or later.

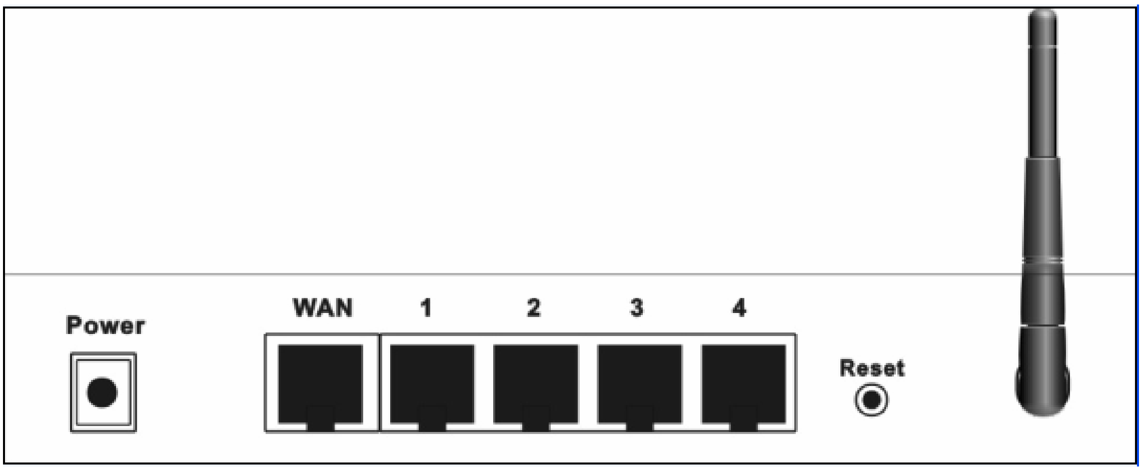
- ✓ Built-in firewall to protect your PCs from outside intruders (NAT).
- ✓ Supports DHCP client to receive both a dynamic IP Address and a fixed IP Address from ISP.
- ✓ Built-in DHCP server to automatically assign and manage LAN IP addresses.
- ✓ Allow administrators to block specific internal users from accessing specified applications or services.
- ✓ Allows external Internet users to access information from the internal target host by setting the Virtual Server.
- ✓ Provides unrestricted two-way communication between one PC on your LAN and certain Internet services such as conferencing, video and gaming applications.
- ✓ Enhances routing performance by using Dynamic and Static routing settings.
- ✓ Allow administrators to change the WAN MAC address of the router.
- ✓ Compatible with all popular Internet applications.

Chapter 2: Hardware Installation & Setup

This chapter provides information about your 11g Wireless Security Router ’s physical features and gives step-by-step installation instructions.

2-1 Rear Panel & Connections

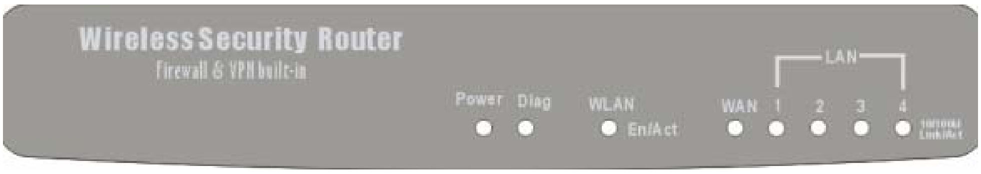
The following figure shows the rear view of the 11g Wireless Security Router and illustrates how the cables connect to the interfaces on the rear panel.



1. Plug one end of the UTP cable into the WAN port, the other into the RJ45 Ethernet jack on your ADSL or Cable modem.
2. Connect a PC, which must have an Ethernet NIC (Network Interface Card) installed, to one of the LAN Ports.
3. Connect the external power supply to the 11g Wireless Security Router.
4. The Reset button is used to reboot and re-initialize the device (press once quickly), or for clearing configuration settings back to factory default values (press for longer than 3 seconds).

2-2 Front Panel LEDs

The following figure shows the front view of the 11g Wireless Security Router .



The LEDs on the front panel indicate the status of the unit. You can easily view the operation of your 11g Wireless Security Router from this panel.

▪ Power:	Green	The Power LED illuminates when the Wireless 11g Router is powered on.
▪ Diag	Red	The Diag LED illuminates when Router goes through its self-diagnosis mode during boot-up. It will turn off upon successful completion of the diagnostic.
For WLAN		
▪ Enable /Activity:	Green	The Links LED illuminates when the wireless option is enabled. When the wireless option is disabled (through the web-based utility), the LED is off. Blinking when there is wireless connection activity.
For WAN port & LAN ports (x4)		
▪ Link/Act & 10/100:	Green	Steady on when a successful 100Mbps connection is made trough the corresponding port. Blinking when data is flowing through this port.
	Yellow	Steady on when a successful 10Mbps connection is made trough the corresponding port. Blinking when data is flowing through this port.

2-3 System Requirements and Setup

To connect to the Internet, an external ADSL or Cable modem and an Internet access account from an ISP is required. In order to operate with the 11g Wireless Security Router , each PC that is to be connected to the 11g Wireless Security Router should have the following things installed:

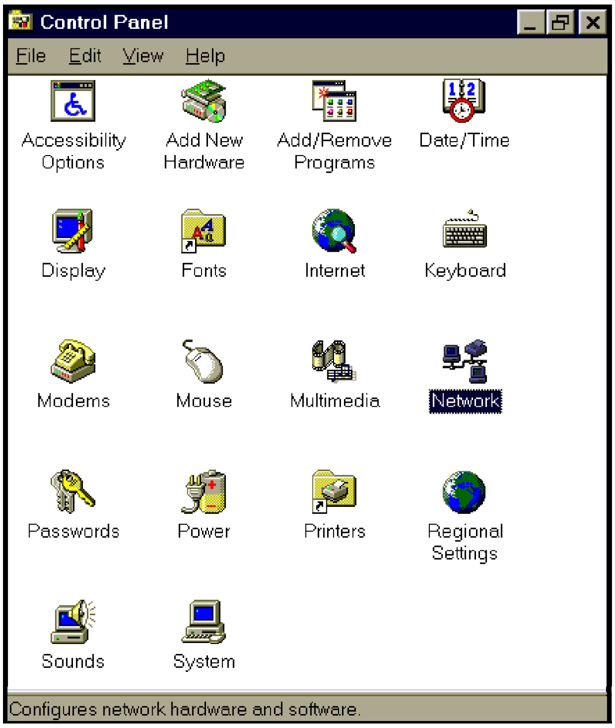
1. Ethernet NIC (Network Interface Card: a 10Base-T or 10/100Base-T/TX Ethernet card), or wireless client card for wireless connection.
2. Standard twisted-pair Ethernet cable (UTP network cable) with RJ-45 connectors.
3. System OS: Windows 95/98, Windows NT4.0, or Windows 2000/XP
4. TCP/IP network protocol.
5. Web browser, such as Microsoft Internet Explorer 5.0 or later, or Netscape Navigator 6.0 or later.

Installing the TCP/IP Protocol

If you are not sure whether the TCP/IP Protocol has been installed, follow these steps to check, and if necessary, install TCP/IP onto your PCs.

1. Click the **“Start”** button. Choose **“Settings”**, then **“Control Panel”**.

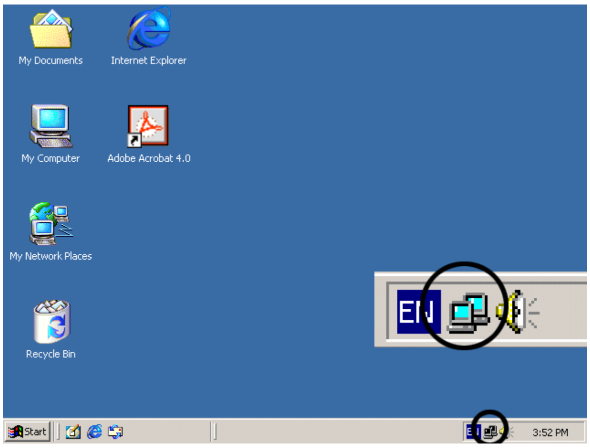
   Double-click the **“Network”** icon. Your Network window should appear.



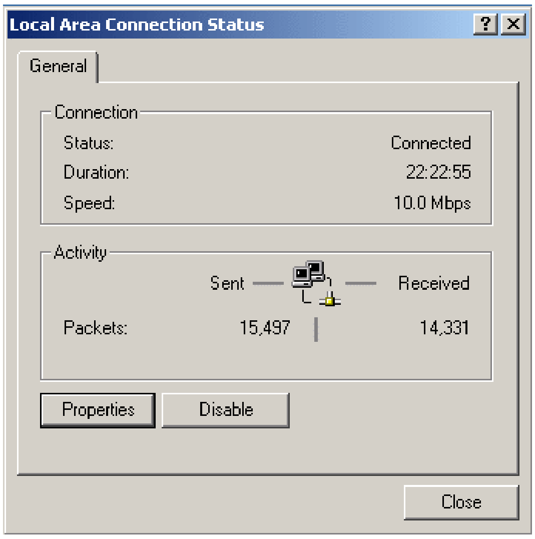
Select the **“Configuration”** tab.

Note: For Windows 2000 & Windows XP Setting

Click the **“Local Area Connection”** icon on the lower right hand side of your desktop screen.



In the **“Local Area Connection Status”** window, click the **“Properties”** button then your Network window will appear.



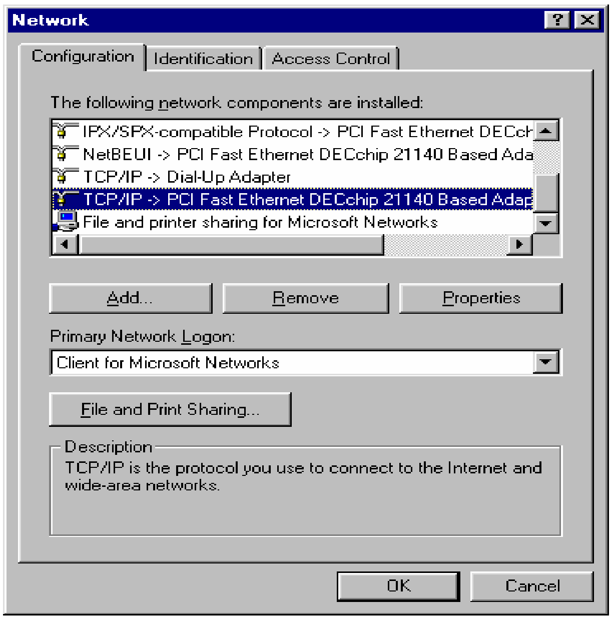
Connection
Status: Connected
Duration: 22:22:55
Speed: 10.0 Mbps

Activity
Sent — Received
Packets: 15,497 | 14,331

There is only one tab, **"General",** in the Network window.

2. Check whether the TCP/IP Protocol has already been installed onto your computer's Ethernet card. Note that TCP/IP Protocol can be installed for a computer's Dial-Up Adapter as well as for the Ethernet card.

   - If yes, go to step 7.
   - If no, click the **"Add"** button.

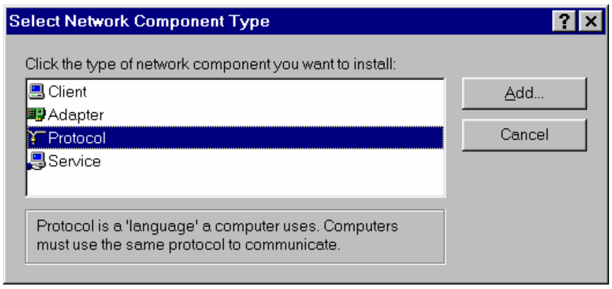


The following network components are installed:
IPX/SPX-compatible Protocol -> PCI Fast Ethernet DECch
NetBEUI -> PCI Fast Ethernet DECchip 21140 Based Ada
TCP/IP -> Dial-Up Adapter
TCP/IP -> PCI Fast Ethernet DECchip 21140 Based Adap
File and printer sharing for Microsoft Networks

Primary Network Logon:
Client for Microsoft Networks

Description
TCP/IP is the protocol you use to connect to the Internet and wide-area networks.

3. Double-click **"Protocol"** in the Select Network Component Type or highlight **"Protocol"** then click **"Add"**.

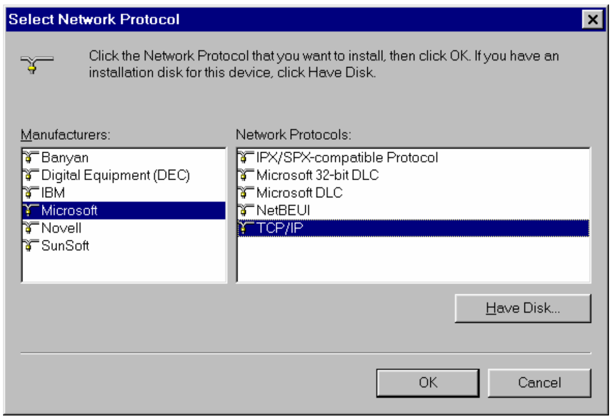

Select Network Component Type

Click the type of network component you want to install:

Protocol is a 'language' a computer uses. Computers must use the same protocol to communicate.

4. Highlight **"Microsoft"** under the list of manufacturers.

   Double-click **"TCP/IP"** from the list on the right or highlight **"TCP/IP"** then click **"OK"** to install TCP/IP.


Select Network Protocol

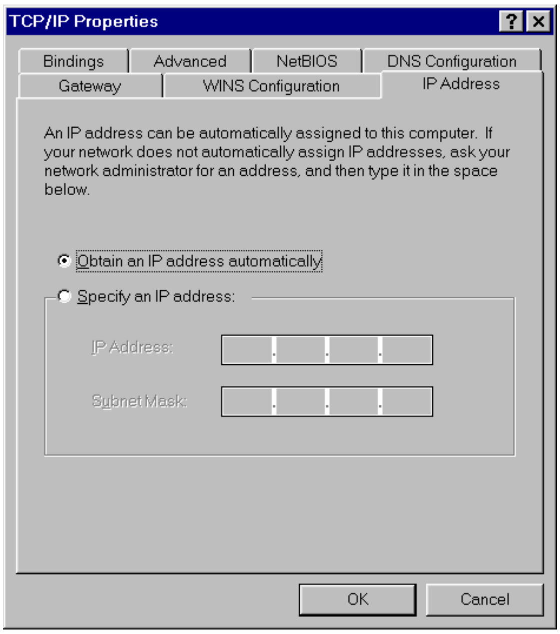
Click the Network Protocol that you want to install, then click OK. If you have an installation disk for this device, click Have Disk.

5. After a few seconds, you will be returned to the Network window. The TCP/IP Protocol should now be on the list of installed network components (see 2 above).

6. Click the "**Properties**" button.

   The TCP/IP Properties window consists of several tabs. Choose the **"IP Address"** tab.

7. Select **"Obtain an IP address automatically"**. Click **"OK"**. Restart your PC to complete the TCP/IP installation.



An IP address can be automatically assigned to this computer. If your network does not automatically assign IP addresses, ask your network administrator for an address, and then type it in the space below.

● Obtain an IP address automatically

○ Specify an IP address:

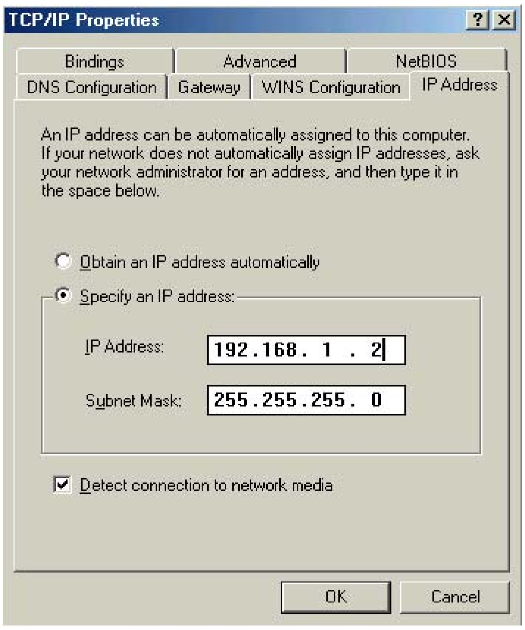
IP Address:

Subnet Mask:

Fixed IP Addresses Configuration

Fixed IP addresses may be assigned to network devices for many reasons, such as the server PCs or printers which are consistently accessed by multiple users. To set up computers with fixed IP Addresses, go to the **"IP Address"** tab of the **"TCP/IP Properties"** window as shown above.

Select **"Specify an IP address"** and enter **"192.168.1.***"** in the **"IP Address"** location (where *** is a number between 2 and 254 used by the 11g Wireless Security Router to identify each computer), and the default **"Subnet Mask" 255.255.255.0"**. Note that no two computer on the same LAN can have the same IP address.



An IP address can be automatically assigned to this computer. If your network does not automatically assign IP addresses, ask your network administrator for an address, and then type it in the space below.

○ Obtain an IP address automatically

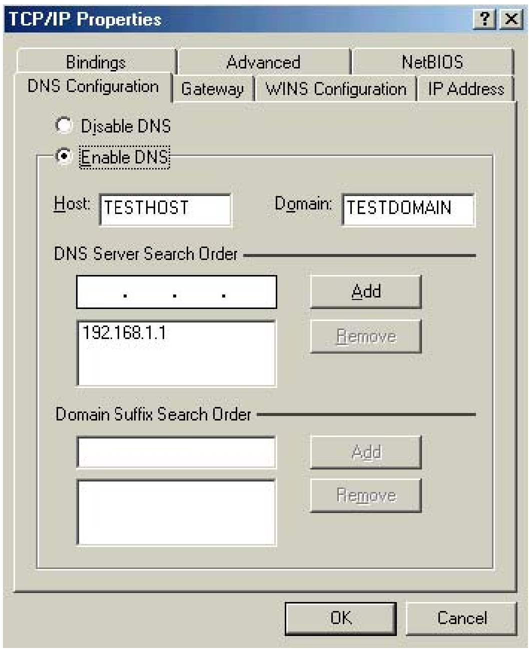
● Specify an IP address:

IP Address: 192.168. 1 . 2

Subnet Mask: 255.255.255. 0

☑ Detect connection to network media

Click on the **“DNS Configuration”** tab and select **“Enable DNS”.** Enter the **“DNS IP Address”** obtained from your ISP in the **“Server Search Order”** location. Then click the **“Add”** button.



TCP/IP Properties

○ Disable DNS

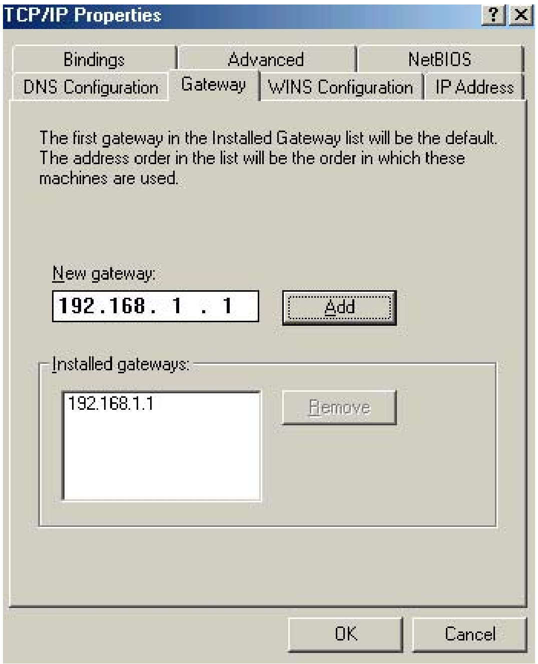
● Enable DNS

Host: TESTHOST   Domain: TESTDOMAIN

DNS Server Search Order
. . .
192.168.1.1

Domain Suffix Search Order

Click on the **“Gateway”** tab and enter the 11g Wireless Security Router ’s default gateway value **192.168.1.1** in the **“New gateway”** field, then click “Add” Botton.



TCP/IP Properties

The first gateway in the Installed Gateway list will be the default. The address order in the list will be the order in which these machines are used.

New gateway:
192 . 168 . 1 . 1

Installed gateways:
192.168.1.1

Click **“OK”**. Restart your PC to complete the TCP/IP installation.

Chapter 3: Internet Access

This chapter describes the procedures necessary to configure the basic functions and begin using your 11g Wireless Security Router . If you follow these procedures correctly, there should be no problem in accessing the Internet via your 11g Wireless Security Router .

3-1 Prepare your network information

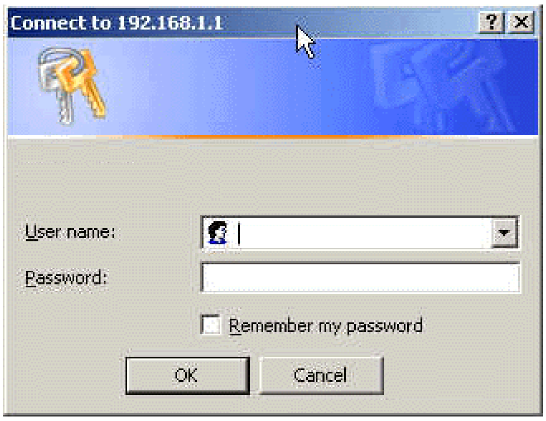
In order to allow quick referencing when setting up your 11g Wireless Security Router , it is suggested you complete the table below with the necessary information. This should be supplied by your ISP.

Provided by some ISPs	Host Name: Domain Name:
IP address given by ISP:	○ Obtain IP Address automatically ○ Static IP IP Address: . . . Subnet Mask: . . . Default Gateway: . . . DNS Server Primary: . . . DNS Server Secondary: . . . DNS Server Third: . . .
PPP authentication:	○ PPPoE ○ PPTP Login Name: Password: ____________________

3-2 Web-based User Interface

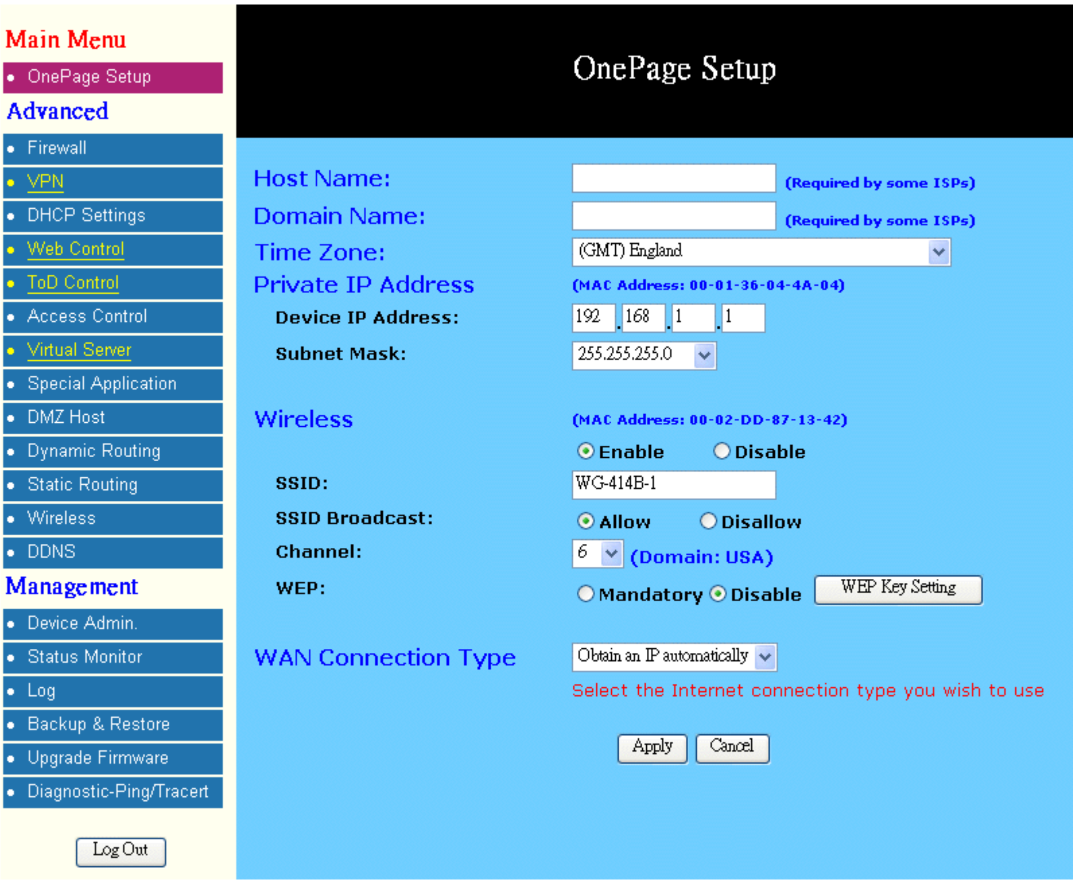
Your 11g Wireless Security Router is designed to use a Web-based User Interface for configuration. Open your web browser and type http://192.168.1.1 in the browser's *address box*. This address is the factory set IP Address of your 11g Wireless Security Router . Press "**Enter**".

The **"Username and Password Required"** prompt box will appear. Leave the Username field empty and type **"admin"** (default password) in the Password field. Click "**OK**". The setup screen will then appear.



3-3 Initial Configuration – Setup

The **"OnePage Setup"** screen is the first screen you will see when you access the *Utility*. If the router has already been successfully installed and set up, this screen's values will already be properly configured.



OnePage Setup

Host Name: (Required by some ISPs)

Domain Name: (Required by some ISPs)

Time Zone: (GMT) England

Private IP Address (MAC Address: 00-01-36-04-4A-04)

Device IP Address: 192 . 168 . 1 . 1

Subnet Mask: 255.255.255.0

Wireless (MAC Address: 00-02-DD-87-13-42)

● Enable ○ Disable

SSID: WG-414B-1

SSID Broadcast: ● Allow ○ Disallow

Channel: 6 (Domain: USA)

WEP: ○ Mandatory ● Disable

WAN Connection Type: Obtain an IP automatically

Select the Internet connection type you wish to use

Host Name: This entry is required by certain ISPs.

Domain Name: This entry is required by certain ISPs.

Time Zone: Select the time zone of your location from the drop down list.

Private IP Address: The “Device IP Address” and “Subnet Mask” of the router are used for the internal LAN. The default values are 192.168.1.1 for the IP Address and 255.255.255.0 for the Subnet Mask.

Wireless: Check “**Enable**” or “**Disable**” to make the wireless LAN function active or inactive**.**

SSID: As the acronym for **Service Set Identifier**, SSID is the unique name shared among all clients and Wireless Security Router in a same wireless network. The SSID must be identical for all points and must not exceed 32 characters.

SSID Broadcast: Router will broadcast the SSID to let WLANs clients easily search and connect to this wireless router by leaving this item as default setting “**Allow**”. Click “**Disallow**” to disable the broadcast.

Channel: Select the appropriate channel number from the drop-down. The permissible channels are different from Regulatory Domains. Make sure that all nodes in the same wireless LAN network use the same channel, or the channel usage is automatic when a connection between client and access point are made.

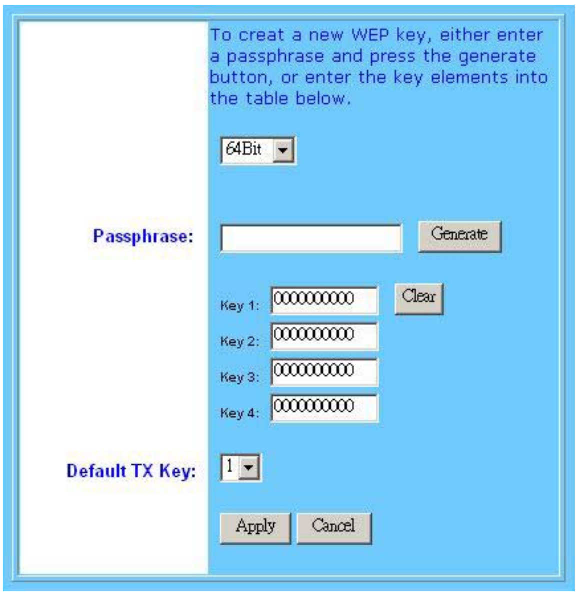
WEP: As the acronym for **Wired Equivalent Privacy**, WEP is an encryption mechanism used to protect your wireless data communications. WEP uses a combination of 64-bit/128-bit keys to encrypt data that is transmitted between all points in a wireless network to insure data security. To code/decode the data transmission, all points must use the identical key. To make the WEP encryption active or inactive, select **“Mandatory”** or **“Disable**”.

WEP Key Setting: As the WEP is active, click the button of **“WEP Key Setting”** to go to the setting page. Select **“64Bit**” or **“128Bit”** encryption algorithm from the drop-down list. There are two ways to generate WEP key:

1. **Passphrase:** Enter a alphanumeric text string in this column then click **“Generate”** button, and four 64-bit or 128-bit encryption key will be created automatically.
2. You can enter the WEP key manually.

You may need to enter the WEP key manually in case to join the existing wireless network. However, if not, the Pass phrase method is recommended. If you are not sure which way to use, check with your network administrator.

Default TX Key: Select one of the four keys to be the encryption key you are going to use in the wireless network. To be sure that all the points in a same wireless network have to have the same encryption key.



To creat a new WEP key, either enter a passphrase and press the generate button, or enter the key elements into the table below.

64Bit

Passphrase:

Key 1: 0000000000

Key 2: 0000000000

Key 3: 0000000000

Key 4: 0000000000

Default TX Key: 1

Click **"Apply"** after making any changes.

WAN Connection Type:

There are four options for WAN connection types, Obtain IP automatically, Static IP, PPPoE, and PPTP.

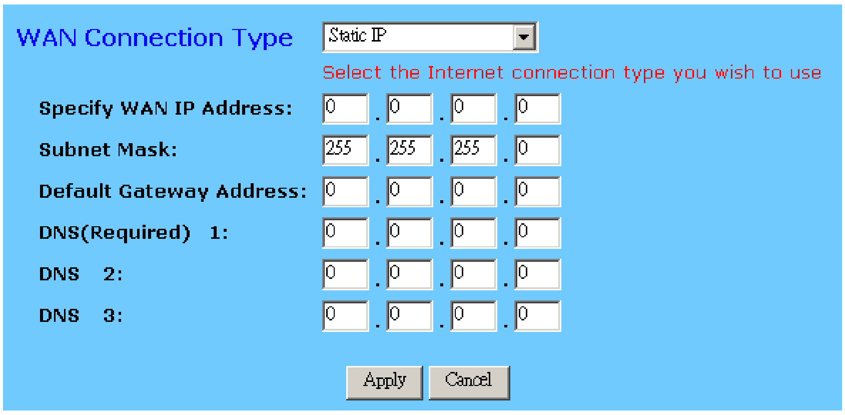
The connection type you need to choose is dependent upon the settings assigned by your ISP. Which connection type you need to choose may differ from ISPs as well as the service you applied for. It depends on your ISP's assignment. If you are unsure which connection type you currently use, contact your ISP to obtain the correct information.

Obtain IP automatically

It is the default option for the router. If your ISP automatically assign a IP address and other values to the 11g Wireless Security Router , leave them there without making any changes.

Static IP

The Public IP Address and Subnet Mask of the router are used by external users of the Internet (including your ISP). If your ISP assigned a fixed IP address, select this item and enter the IP Address and Subnet Mask provided by your ISP.



WAN Connection Type: Static IP

Select the Internet connection type you wish to use

Specify WAN IP Address: 0 . 0 . 0 . 0

Subnet Mask: 255 . 255 . 255 . 0

Default Gateway Address: 0 . 0 . 0 . 0

DNS(Required) 1: 0 . 0 . 0 . 0

DNS 2: 0 . 0 . 0 . 0

DNS 3: 0 . 0 . 0 . 0

Specify WAN IP Address: Enter the IP address provided by your ISP.

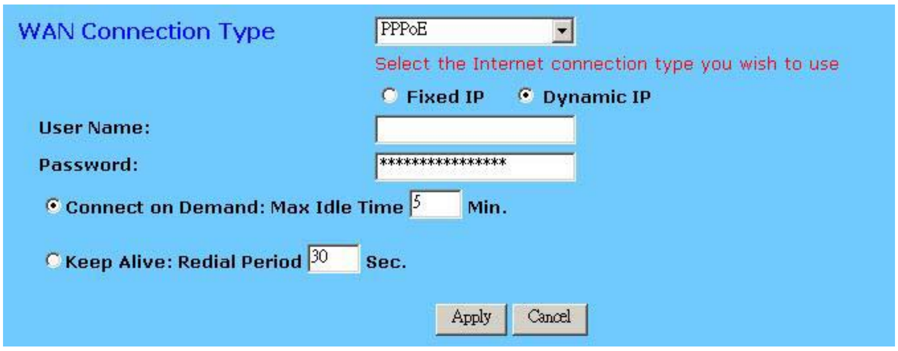
Subnet Mask: Enter the subnet mask values provided by your ISP.

Default Gateway IP Address: Your ISP will provide you with the Default Gateway IP Address.

Domain Name Server (DNS): Your ISP will provide you with at least one DNS IP Address. Multiple DNS IP settings are common. The first available DNS entry is used in most cases.

PPPoE

PPPoE is a dial-up connection type provided by some ISPs. It is a cost–effective way for a user to access this connection type. If your ISP provides PPPoE connectivity, you should choose this item from the drop-down list. Note that if you select PPPoE, please remove any existing PPPoE application on any PCs on your LAN.



WAN Connection Type: PPPoE

Select the Internet connection type you wish to use

○ Fixed IP ● Dynamic IP

User Name:

Password: ****************

● Connect on Demand: Max Idle Time 5 Min.

○ Keep Alive: Redial Period 30 Sec.

User Name: Enter the user name your ISP provides you.

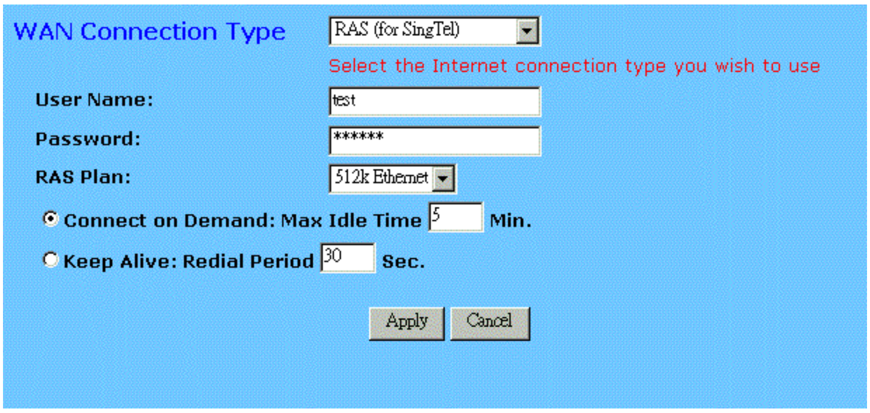
Password: Enter the password your ISP provides you.

Connect-on-demand: It is a utility used to trigger the PPPoE session when there is a packet being sent through the WAN port while it is on disconnected situation. Check the radio button to make this function active, and then you must enter the number of minutes you wish the network to remain idle before disconnection occurs in the “**Max Idle Time”** location.

Keep Alive: This function keeps your PPPoE connection enable even if it remains idle. However, in some situation, PPPoE session cannot be established immediately after disconnection. This is because the system on the ISP’s site may need a little time to restore itself. You may need to check with your ISP to obtain detail of how long you need to wait before re-establish the PPPoE session. Enter this information in the “**Redial Period**” field.

RAS(for SingTel)

If your ISP uses RAS to establish the connection, you should select this item and follow the steps below.



WAN Connection Type: RAS (for SingTel)
Select the Internet connection type you wish to use
User Name: test
Password: ******
RAS Plan: 512k Ethernet
● Connect on Demand: Max Idle Time 5 Min.
○ Keep Alive: Redial Period 30 Sec.

User Name: Enter the user name your ISP provides you.

Password: Enter the password your ISP provides you.

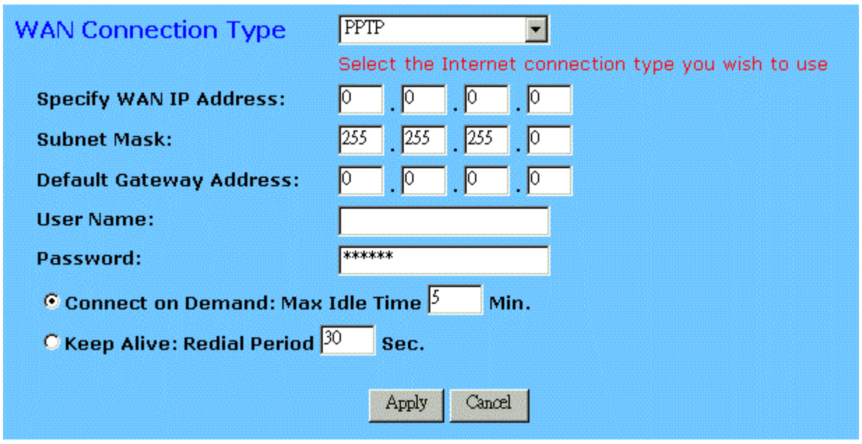
RAS Plan: Choose the connection method that you want to use.

Connect-on-demand: It is a utility used to trigger the RAS session when there is a packet being sent through the WAN port while it is on disconnected situation. Check the radio button to make this function active, and then you must enter the number of minutes you wish the network to remain idle before disconnection occurs in the “**Max Idle Time”** location.

Keep Alive: This function keeps your RAS connection enable even if it remains idle. However, in some situation, RAS session cannot be established immediately after disconnection. This is because the system on the ISP’s site may need a little time to restore itself. You may need to check with your ISP to obtain detail of how long you need to wait before re-establish the RAS session. Enter this information in the “**Redial Period**” field.

PPTP

PPTP is the acronym of Point to Point Tunneling Protocol. Usually, it is used to encapsulate other protocols' packets for transmission over IP network. Some ISPs use this protocol as way to establish the initial connection between the CPE (end-user side) and DSLAM (ISP side). If your ISP uses PPTP to establish the connection, you should select this item and follow the steps below.



WAN Connection Type: PPTP

Select the Internet connection type you wish to use

Specify WAN IP Address: 0 . 0 . 0 . 0

Subnet Mask: 255 . 255 . 255 . 0

Default Gateway Address: 0 . 0 . 0 . 0

User Name:

Password: ******

● Connect on Demand: Max Idle Time 5 Min.

○ Keep Alive: Redial Period 30 Sec.

Specify WAN IP Address: Enter the IP address provided by your ISP. If your ISP provides you an Alcatel Speed Touch^{TM} modem, it is suggested that you enter 10.0.0.150 in this column.

Subnet Mask: Enter the subnet mask values provided by your ISP.

Default Gateway IP Address: Your ISP will provide you with the Default Gateway IP Address. If your ISP provides you an Alcatel Speed Touch^{TM} modem, it is suggested that you enter the 10.0.0.138 in this column.

User Name: Enter the user name provided by your ISP.

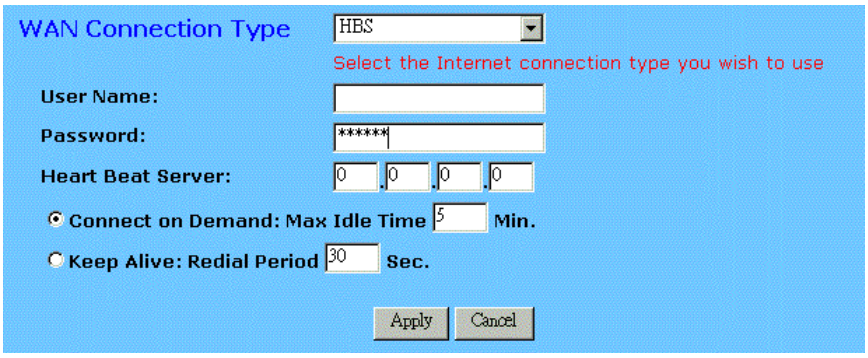
Password: Enter the password provided by your ISP.

Connect-on-demand: It is a utility used to trigger the PPTP session when there is packet being sent through the WAN port while it is on disconnected situation. Check the radio button to make this function active, and then you must enter the number of minutes you wish the network to remain idle before disconnection occurs in the "**Max Idle Time"** location.

Keep Alive: This function keeps your PPTP connection enable even if it remains idle. However, in some situation, PPTP session cannot be established immediately after disconnection. This is because the system on the ISP's site may need a little time to restore itself. You may need to check with your ISP to obtain detail of how long you need to wait before re-establish the PPTP session. Enter this information in the “**Redial Period**” field.

HBS

If your ISP uses HBS to establish the connection, you should select this item and follow the steps below.



WAN Connection Type: HBS

Select the Internet connection type you wish to use

User Name:

Password: ******

Heart Beat Server: 0 . 0 . 0 . 0

● Connect on Demand: Max Idle Time 5 Min.

○ Keep Alive: Redial Period 30 Sec.

User Name: Enter the user name provided by your ISP.

Password: Enter the password provided by your ISP.

Heart Beat Server: Enter the IP address provided by your ISP. This setting is available only for some areas. Check your ISP for more detailed information.

Connect-on-demand: It is a utility used to trigger the HBS session when there is packet being sent through the WAN port while it is on disconnected situation. Check the radio button to make this function active, and then you must enter the number of minutes you wish the network to remain idle before disconnection occurs in the “**Max Idle Time”** location.

Keep Alive: This function keeps your HBS connection enable even if it remains idle. However, in some situation, HBS session cannot be established immediately after disconnection. This is because the system on the ISP’s site may need a little time to restore itself. You may need to check with your ISP to obtain detail of how long you need to wait before re-establish the HBS session. Enter this information in the “**Redial Period**” field.

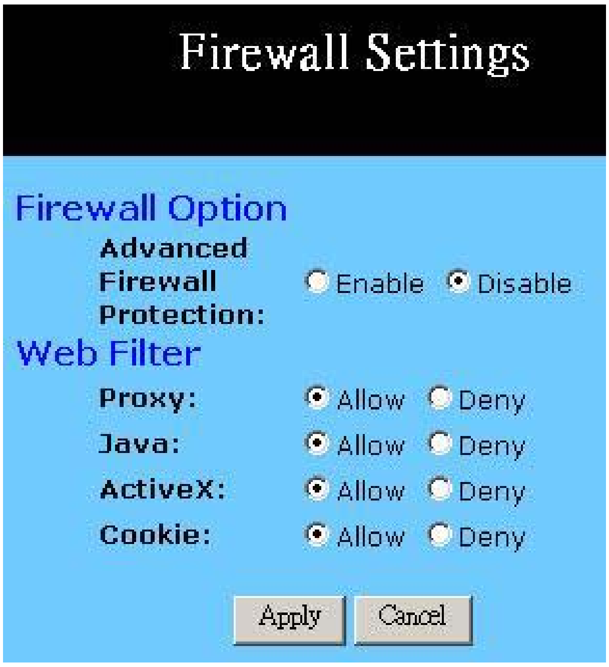
When you have properly configured the Setup page, click “**Apply”**. You can now test to see if the settings are all correct by attempting to connect to the Internet.

Chapter 4: Advanced Applications

This chapter provides information on how to set up and use the advanced functions of your 11g Wireless Security Router .

4-1 Firewall

The settings page allows you to configure advanced Firewall functions, providing superior security for your network environment.



Firewall Settings

Firewall Option

Advanced Firewall Protection: ○ Enable ● Disable

Web Filter

Proxy: ● Allow ○ Deny

Java: ● Allow ○ Deny

ActiveX: ● Allow ○ Deny

Cookie: ● Allow ○ Deny

Firewall Option: Enabling this function will prevent DoS (Denial of Service) attacks and activates the SPI (Stateful Packet Inspection). The SPI function will check any incoming data packets, particularly whenever there is a TCP connection initiated by your LAN PCs.

Web Filter: This feature provides options allowing you to filter any potential risk contained in some web technologies by individually checking “Allow” or “Deny”.

Web proxy is a server your device will connect to when you access any web site. Setting web proxy can speed up access time but also can create other potential security issue. For example, if you configure the Wireless Security Router to block access to 216.115.102.76, which is the IP address of www.yahoo.com, it will fail. This is because your PC will connect to web proxy server instead of connecting to Yahoo’s IP address.

Java & **Active X** are programming languages for web page. However, some potentially harmful Trojan programs and viruses are also written in these languages. If you deny access to either of these, you may run the risk of not having access to certain web pages.

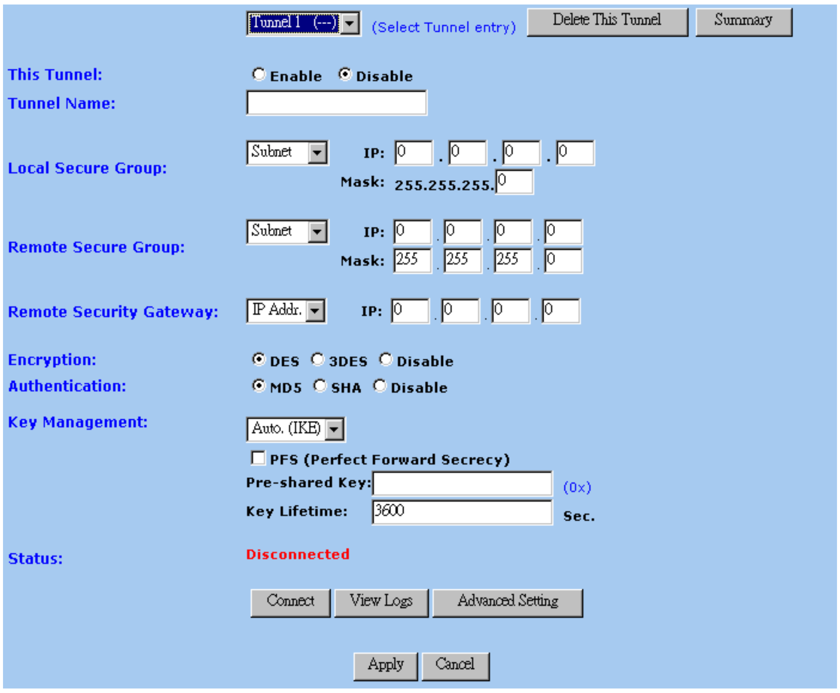
A **cookie** is a small piece of data (usually in the form of a text file), which is stored on your PC when you visit certain web sites. This allows the server to identify your machine at a future date. The cookie normally contains an ID number but can also contain other information.

Apply: Click this button after making any changes for activating the settings.

Cancel: Click this button if you are not satisfied with the settings in this page before clicking Apply.

4-2 VPN Settings

This page allows you to set configuration for Virtual Private Network. Please choose **Advanced – VPN** to get into the following screen.



Tunnel 1 (---) ▾ (Select Tunnel entry)

This Tunnel: ○ Enable ● Disable

Tunnel Name:

Local Secure Group: Subnet ▾ IP: 0 . 0 . 0 . 0 Mask: 255.255.255.0

Remote Secure Group: Subnet ▾ IP: 0 . 0 . 0 . 0 Mask: 255 . 255 . 255 . 0

Remote Security Gateway: IP Addr. ▾ IP: 0 . 0 . 0 . 0

Encryption: ● DES ○ 3DES ○ Disable

Authentication: ● MD5 ○ SHA ○ Disable

Key Management: Auto. (IKE) ▾

□ PFS (Perfect Forward Secrecy)

Pre-shared Key: (0x)

Key Lifetime: 3600 Sec.

Status: Disconnected

Select Tunnel Entry: When you wish to establish a "Tunnel" to transfer security data or information between specific points, you must first select a **"Tunnel"** number from the drop-down box. This will allow you to identify the setting of each individual tunnel.

This Tunnel: Check "**Enable"** on the next column to activate the tunnel.

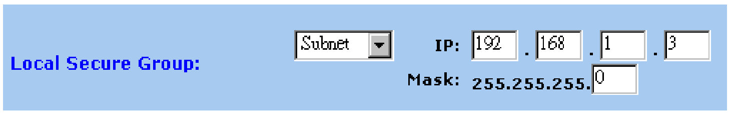
Tunnel Name: Once the tunnel is enabled, you should enter the name of the tunnel in this field. This allows you to differentiate a new tunnel from any others you have created.

Note: The tunnel name set here does not always have to match the name used at the other end of the tunnel. However, certain VPN applications require a tunnel to have the same name at both ends of the tunnel. If the other end point with which you want to establish the tunnel dose not use this Wireless Security Router, it is important that you give the other side precise set up instructions and ensure that these are followed.

Local Secure Group: There are some options that you can choose for this item**:**

(1) **Subnet**

Select this item to allow all the PCs on the LAN side access to the tunnel.

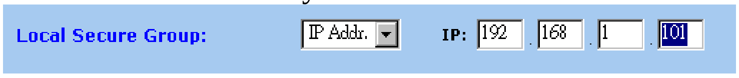


Local Secure Group: Subnet IP: 192 . 168 . 1 . 3
Mask: 255.255.255.0

Refer to the above figure as an example. All **Local Secure Group** computers with IP Addresses 192.168.1.xxx will be able to access the tunnel. When the Subnet setting is selected, the default values of **0** should remain in the **IP** and **Mask** fields.

(2) **IP Address**

8. Selecting this item allows only the specific PC with the IP address you enter in the IP field to the tunnel.

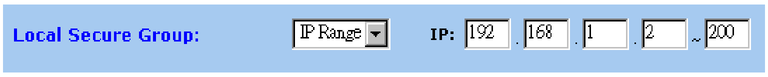


Local Secure Group: IP Addr. IP: 192 . 168 . 1 . 101

Refer to the above figure as an example. Only the PC with IP Address 192.168.1.101 will have the access from the local side of tunnel.

(3) **IP Range**

Selecting this item allows a specific group of PCs access to the tunnel.

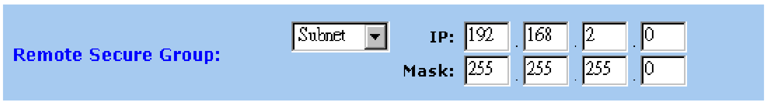


Local Secure Group: IP Range IP: 192 . 168 . 1 . 2 ~ 200

Refer to the above figure as an example. Only the PCs with the IP addresses between 192.168.1.2 and 192.168.1.200 can access the local side of the tunnel.

Remote Secure Group: (1) **Subnet**

Select this item to allow all the PCs on the LAN side access to the tunnel.

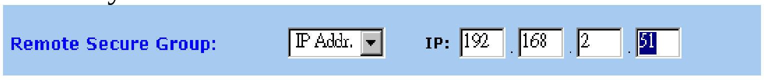


Remote Secure Group: Subnet IP: 192 . 168 . 2 . 0
Mask: 255 . 255 . 255 . 0

All **Remote Secure Group** computers with IP Addresses 192.168.2.xxx will be able to access the tunnel. When the Subnet setting is selected, the default values of **0** should remain in the **IP** and **Mask** fields.

(2) **IP Address**

Selecting this item allows only the specific PC with the IP address you enter in the IP field to the tunnel.

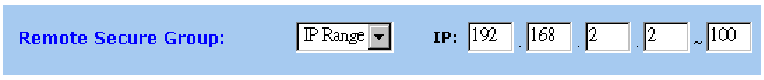


Remote Secure Group: IP Addr. IP: 192 . 168 . 2 . 51

Only the PC with IP Address 192.168.2.51 can access the tunnel from the other end.

(3) **IP Range**

Selecting this item allows a specific group of PCs access to the tunnel.

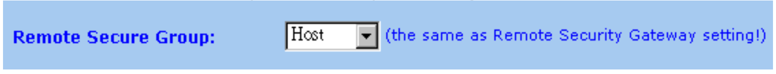


Remote Secure Group: IP Range IP: 192 . 168 . 2 . 2 ~ 100

PCs with IP Address between 192.168.2.2 and 192.168.2.100 can access the tunnel from the other end.

(4) **Host**

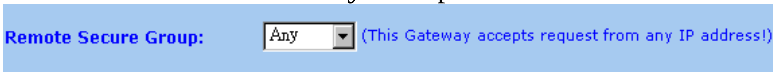
If you select "Host", the value set here should be the same as the Remote Security Gateway setting.



Remote Secure Group: Host (the same as Remote Security Gateway setting!)

(5) **Any**

When this option is selected, the Router accepts remote requests from any IP address, such as mobile users or telecommunications device using dynamic IP address. Note that the router cannot initial VPN connection when "Any" is selected as Remote Security Group.



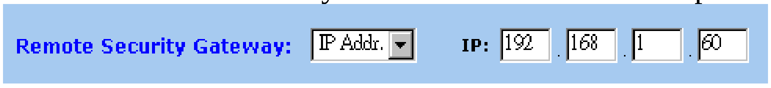
Remote Secure Group: Any (This Gateway accepts request from any IP address!)

Remote Security Gateway:

Define the end point of VPN tunnel in the other side. The remote VPN tunnel end point can be another VPN Router, a VPN Server, or a host with VPN software. For example, if the VPN device at the other end of the tunnel is a VPN router, enter the WAN IP Address of that VPN router in this section. For more detail, refer to the description of "**Example - establish the VPN connection**" on next few pages.

(1) **IP Address**

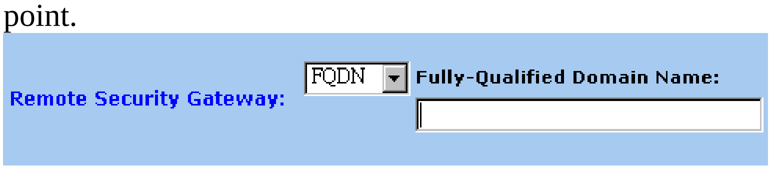
Use IP Address to identify the remote VPN tunnel end point.



Remote Security Gateway: IP Addr. IP: 192 . 168 . 1 . 60

(2) **FQDN**

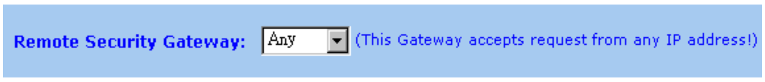
Use domain name to identify the remote VPN tunnel end point.



Remote Security Gateway: FQDN Fully-Qualified Domain Name:

(3) **Any**

Accept remote requests from any IP address. Note that the router cannot initial VPN connection when "Any" is selected.



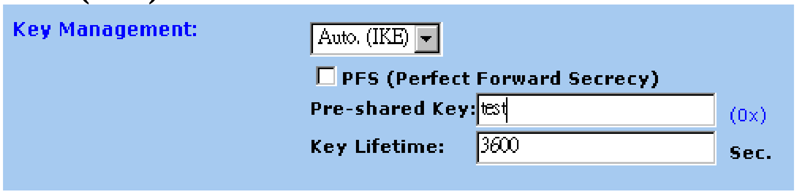
Remote Security Gateway: Any (This Gateway accepts request from any IP address!)

Encryption: This item helps give your VPN connection added security. There are two different type of encryption: "**DES"** or "**3DES"**. DES uses 64-bit encryption key, and 3DES uses 128-bit encryption key. You may choose either of them, but be aware that both end of a VPN tunnel should use the same encryption type. You may also choose not to enable encryption by selecting "**Disable"**.

Authentication: This item adds another level of security. There are two types of authentication: "**MD5"** and "**SHA"**. You may choose either of these but, as with encryption, both ends of the VPN tunnel should use the **same authentication type**. You may also choose not to use the authentication function by selecting "**Disable"**.

Key Management: In addition to use the same encryption type, both side of VPN tunnel should also share the same encryption "**Key**". This is necessary for proper encryption security and allows the encryption to function correctly. By using the **Key Management** drop down list, you can choose two of two methods to set the Encryption Key: "**key**": **Auto (IKE)** or **Manual.**

Auto (IKE):



Key Management: Auto. (IKE)

□ PFS (Perfect Forward Secrecy)

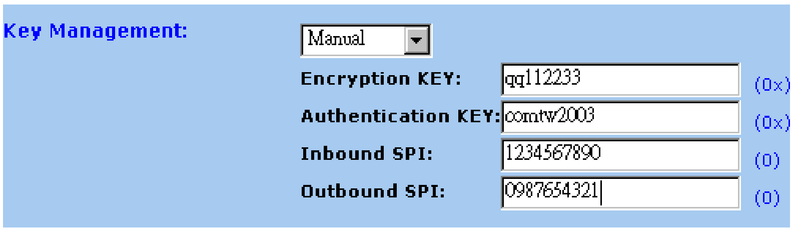
Pre-shared Key: test (0x)

Key Lifetime: 3600 Sec.

With **Auto (IKE),** you must enter a series of characters in the "**Pre-shared Key"** field. In the example shown in the figure above, the word ***Test*** has been used. The program will automatically generate the correct codes to be used in the encryption and authentication basing on the word you entered. You may use any combination of up to 23 alphanumeric characters in this field. No special characters or spaces are allowed.

By entering the number of seconds in the **Key Lifetime** field, you may optionally select to have the key expire at the end of the time you specify. Leave this field blank for the key to last indefinitely.

Manual



Key Management: Manual

Encryption KEY: qq112233 (0x)

Authentication KEY: comtw2003 (0x)

Inbound SPI: 1234567890 (0)

Outbound SPI: 0987654321 (0)

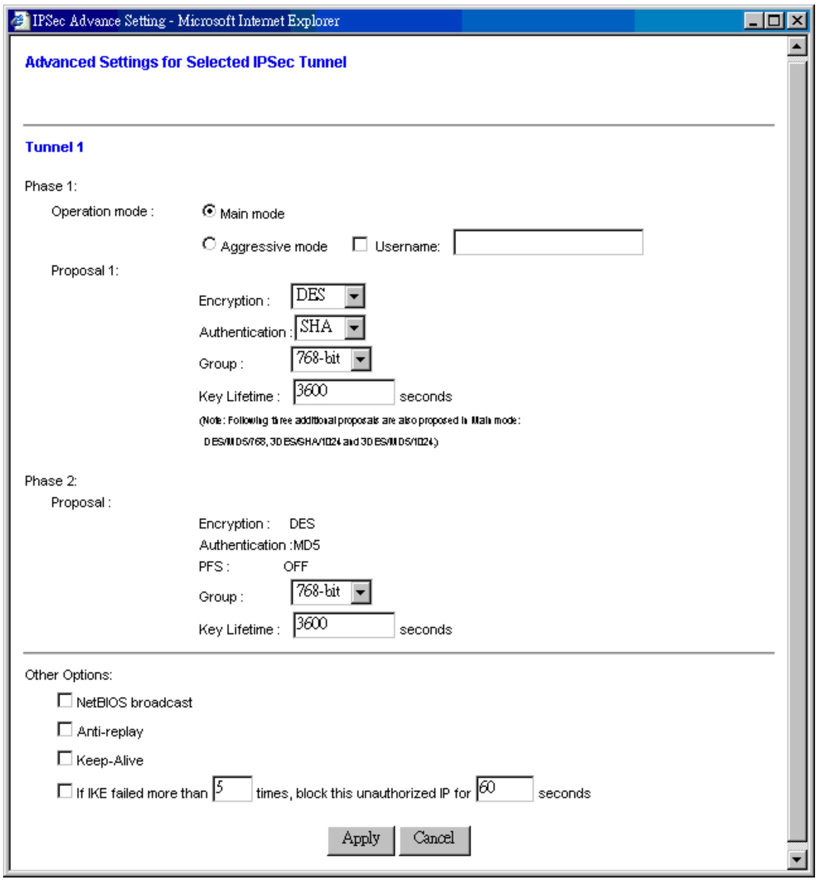
Manual keying allows you to manually enter the keys to be used for encryption and authentication. Enter the Keys (code) you wish to use for encryption and authentication separately in the "**Encryption KEY**" and "**Authentication KEY**" fields. Up to 23 alphanumeric characters are allowed in each field. Be aware that both ends of the VPN tunnel should use the **same key management** method in addition to same encryption and authentication keys.

The "**Inbound SPI"** value set here must match the Outbound SPI value at the other end of the VPN tunnel. Conversely, the "**Outbound SPI"** must match the Inbound SPI value at the other end. Only numeric characters can be used in both these fields.

Status and Connect: After finalizing the settings at both ends of the VPN tunnel, click the "Connect" button to initiate the VPN tunnel. Once a connection is established, the word "**Connected"** should appear under "Status" if the connection is successful. Should the word "**Disconnected"** appear, it is an indication that a problem exists, preventing the successful creation of the tunnel. In this case, you should firstly ensure that your wiring is surely connected. Next, double-check that correct values have been entered in the VPN configuration screen. Lastly, ensure that the settings at the other end of the tunnel are correct as well.

View Logs: This window briefly shows the system log, access log, firewall log and VPN log. Before clicking this button to view the results, please enable **Log** from **Management** item first.

Advanced Setting: To establish a VPN tunnel with another providers' VPN solution, configuration of the advanced setting is sometimes necessary. Click the "**Advanced Setting**" button and the screen shown below will appear.



Advanced Settings for Selected IPSec Tunnel

Tunnel 1

Phase 1:

Operation mode : ● Main mode

○ Aggressive mode □ Username:

Proposal 1:

Encryption : DES

Authentication : SHA

Group : 768-bit

Key Lifetime : 3600 seconds

(Note : Following three additional proposals are also proposed in Main mode :
DES/MD5/768, 3DES/SHA/1024 and 3DES/MD5/1024.)

Phase 2:

Proposal :

Encryption : DES

Authentication :MD5

PFS : OFF

Group : 768-bit

Key Lifetime : 3600 seconds

Other Options:

□ NetBIOS broadcast

□ Anti-replay

□ Keep-Alive

□ If IKE failed more than 5 times, block this unauthorized IP for 60 seconds

Operation mode:
There two options in this mode: **Main** and **Aggressive**. Main mode is the default and is more secure method. Aggressive mode is used when the devices at the remote end of the VPN tunnel use Aggressive mode. Mostly, it is used with dynamic IP addresses. Whenever the Main or Aggressive modes are selected, the router will accept both modes initialed by the remote VPN devices.

Encryption:
Select either DES or 3DES from the drop down list. 3DES is default as it is the more secure option.

Authentication:
Select either MD5 or SHA from the drop down list. SHA default as it is the more secure option.

Group:
Two Diffie-Hellman Groups can be selected from the drop down list: 768-bit and 1024-bit. Diffie-Hellman is a technique that uses public and private key for encryption and decryption.

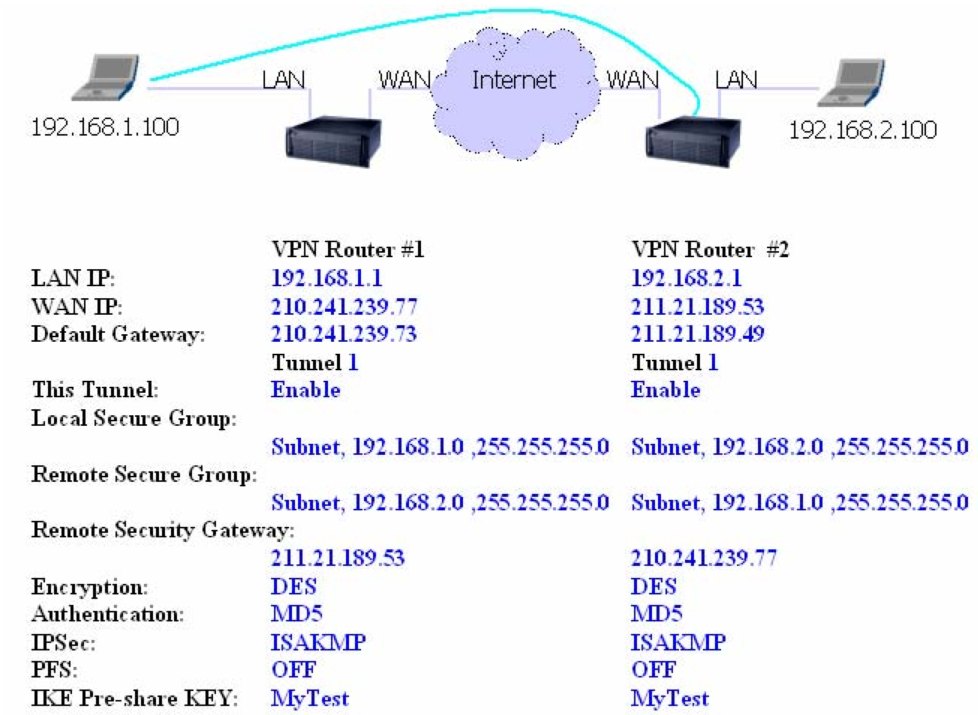
Key Lifetime:
You may optionally select to have the key expire after a period of time that you specify. Enter the number of seconds you'd like the key to be available or leave the field blank for the key to last indefinitely.

	NetBIOS Broadcast: Check the box to allow NetBIOS traffic pass through the VPN tunnel. **Anti-replay:** Check the box to enable this function. This item will keep track of sequence numbers as data packets arrive and ensure security at the IP packet level. **Keep-Alive:** Check the box to re-establish the VPN tunnel connection whenever it is dropped. After the tunnel has been created, this function will keep the connection alive for a period of time. **Unauthorized IP Blocking:** Check the box will allows to block unauthorized IP addresses for a specified period of time after a specific number of IKE failures. Entered the time period and failure level in the fields indicated.
Apply	Click this button after making any changes for activating the settings.
Cancel	Click this button to exit the screen without saving any changes.

Examples - Establishing the VPN connection

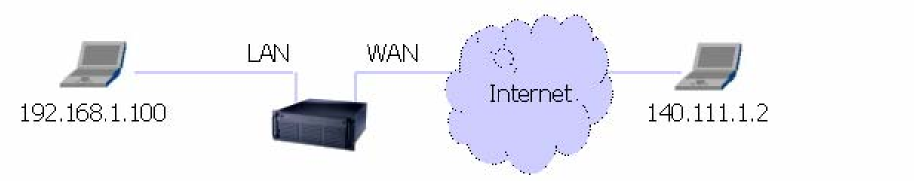
Here we provide 3 examples for establishing a VPN connection.

- **Creating a tunnel between two VPN routers**



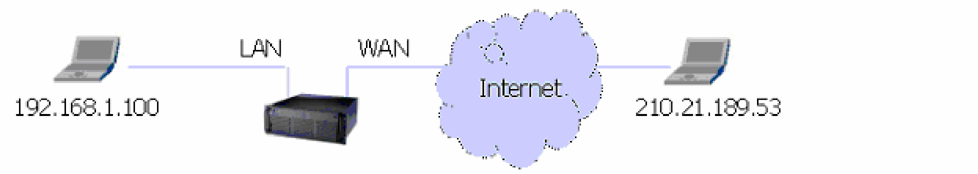
	VPN Router #1	VPN Router #2
LAN IP:	192.168.1.1	192.168.2.1
WAN IP:	210.241.239.77	211.21.189.53
Default Gateway:	210.241.239.73	211.21.189.49
	Tunnel 1	Tunnel 1
This Tunnel:	Enable	Enable
Local Secure Group:	Subnet, 192.168.1.0 ,255.255.255.0	Subnet, 192.168.2.0 ,255.255.255.0
Remote Secure Group:	Subnet, 192.168.2.0 ,255.255.255.0	Subnet, 192.168.1.0 ,255.255.255.0
Remote Security Gateway:	211.21.189.53	210.241.239.77
Encryption:	DES	DES
Authentication:	MD5	MD5
IPSec:	ISAKMP	ISAKMP
PFS:	OFF	OFF
IKE Pre-share KEY:	MyTest	MyTest

- **Creating a tunnel between VPN router and VPN client with fix IP Address**



	VPN Router #1	Win2000 professional/ Safenet/Cisco VPN client
LAN IP:	192.168.1.1	
WAN IP:	140.111.1.1	IP : 140.111.1.2
Default Gateway:	140.111.1.2	140.111.1.1
	Tunnel 1	Tunnel 1
This Tunnel:	Enable	Enable
Local Secure Group:	Subnet, 192.168.1.0 ,255.255.255.0	IP, 140.111.1.2
Remote Secure Group:	IP, 140.111.1.2	Subnet, 192.168.1.0 ,255.255.255.0
Remote Security Gateway:	140.111.1.2	140.111.1.1
Encryption:	DES	DES
Authentication:	MD5	MD5
IPSec:	ISAKMP	ISAKMP
PFS:	OFF	OFF
IKE Pre-share KEY:	MyTest	MyTest

- **Creating a tunnel between VPN router and VPN client with dynamic IP Address**

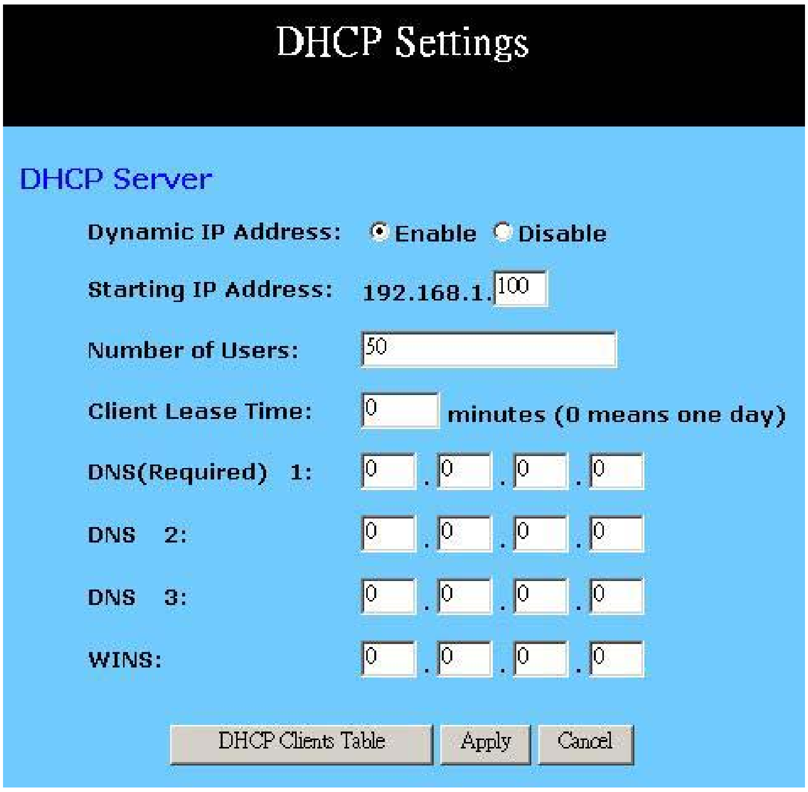


	VPN Router #1	Win2000 professional/ Safenet/Cisco VPN client
LAN IP:	192.168.1.1	
WAN IP:	210.241.239.77	IP : 211.21.189.53
Default Gateway:	210.241.239.73	211.21.189.49
	Tunnel 1	Tunnel 1
This Tunnel:	Enable	Enable
Local Secure Group:	Subnet, 192.168.1.0 ,255.255.255.0	IP : 211.21.189.53
Remote Secure Group:	IP : Any	Subnet, 192.168.1.0 ,255.255.255.0
Remote Security Gateway:	Any	210.241.239.77
Encryption:	DES	DES
Authentication:	MD5	MD5
IPSec:	ISAKMP	ISAKMP
PFS:	OFF	OFF
IKE Pre-share KEY:	MyTest	MyTest

Once you are satisfied that your settings are correct, click the “**Apply”** button. Click the “**Cancel”** button to exit the screen without saving any changes.

4-3 DHCP Configuration

A DHCP (Dynamic Host Configuration Protocol) Server can automatically assign IP Addresses to each computer in your network. Unless you already have one in you LAN, it is highly recommended that you set your router to act as a DHCP server.



DHCP Settings

DHCP Server

Dynamic IP Address: ● Enable ○ Disable

Starting IP Address: 192.168.1.100

Number of Users: 50

Client Lease Time: 0 minutes (0 means one day)

DNS(Required) 1: 0 . 0 . 0 . 0

DNS 2: 0 . 0 . 0 . 0

DNS 3: 0 . 0 . 0 . 0

WINS: 0 . 0 . 0 . 0

Dynamic IP Address: Select **"Enable"** to use the DHCP server option of the router. If you already have a DHCP server in your network, set the router's DHCP option to **"Disable"**.

Starting IP Address: Enter a numerical value, from 2 to 254, for the DHCP server to start at when assigning IP Addresses.

Number of Users: Enter the maximum number of PCs that you want the DHCP server to assign IP Addresses to, with the absolute maximum being 253.

Client Lease Time: Enter the number of time that DHCP clients (The PCs on LAN side) can use the IP Addresses assigned by Router's DHCP server. Before the time is up, DHCP clients have to request to renew the DHCP information.

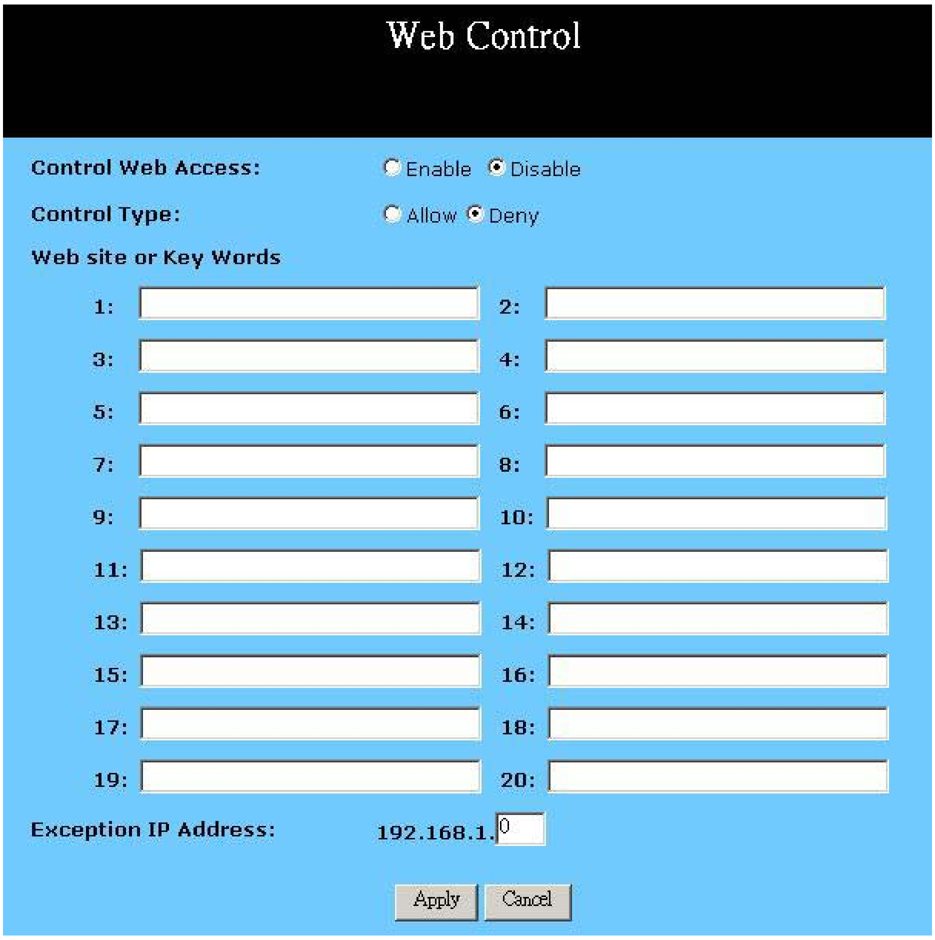
DNS: The IP Address of the Domain Name Server, which is currently used. Multiple DNS IP settings are common. The first DNS entry will be use in most cases.

WINS: Windows Internet Naming Service converts NETBIOS name to IP address. The Windows based PCs are assigned NETBIOS names, which have to be transfer into IP addresses

	if the network transport is TCP/IP. For example, through WINS the two PCs that belong to different subnet can locate each other by name. Enter the IP address of WINS server and it will be assigned to DHCP clients.
DHCP Clients Table	Click the DHCP Clients Table button to show current DHCP client information.
Apply	Click this button after making any changes for activating the settings.
Cancel	Click this button if you are not satisfied with the settings in this page before clicking Apply.

4-4 Web Control

This feature allows you to restrict LAN users access to specific web sites. To block a site, you can enter either a complete URL (Internet address) or keywords included in the URL.



Web Control

Control Web Access: ○ Enable ● Disable

Control Type: ○ Allow ● Deny

Web site or Key Words

1:		2:	
3:		4:	
5:		6:	
7:		8:	
9:		10:	
11:		12:	
13:		14:	
15:		16:	
17:		18:	
19:		20:	

Exception IP Address: 192.168.1.0

Control Web Access:	Check **"Enable"** or **"Disable"** to make this function active or inactive.
Control Type:	Check **"Allow"** to allow users on the network to access

specific website listed on the location only. In contrast, to restrict users on the network to access the website listed on the location, check **“Block”** in this item.

Web site or Key Words: Enter either a complete URL (Internet address) or keywords included in the URL.

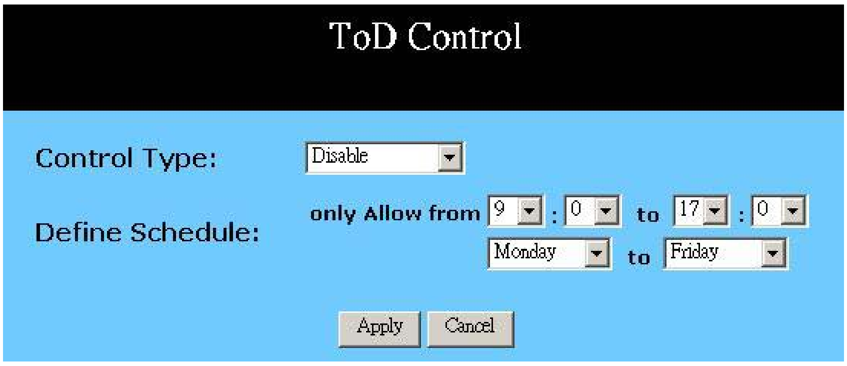
Exception IP Address: Enter the IP Address of LAN PC that will not be restricted by this rule.

Apply Click this button after making any changes for activating the settings.

Cancel Click this button if you are not satisfied with the settings in this page before clicking Apply.

4-5 ToD Control

This feature allows you to limit connection availability according to a nominated time schedule.



ToD Control

Control Type: Disable

Define Schedule: only Allow from 9 : 0 to 17 : 0

Monday to Friday

Control Type: Select the control type from the drop down list and make this function active. Select “**Block Outbound**” to restrict the connection to the Internet from your LAN. Select “**Block Inbound**” to restrict any external connections from Internet to your LAN servers that were set as virtual servers or as DMZ host. Select “**Block Both**” to restrict both incoming and outgoing connections. Select “**Disable**” to turn off this function.

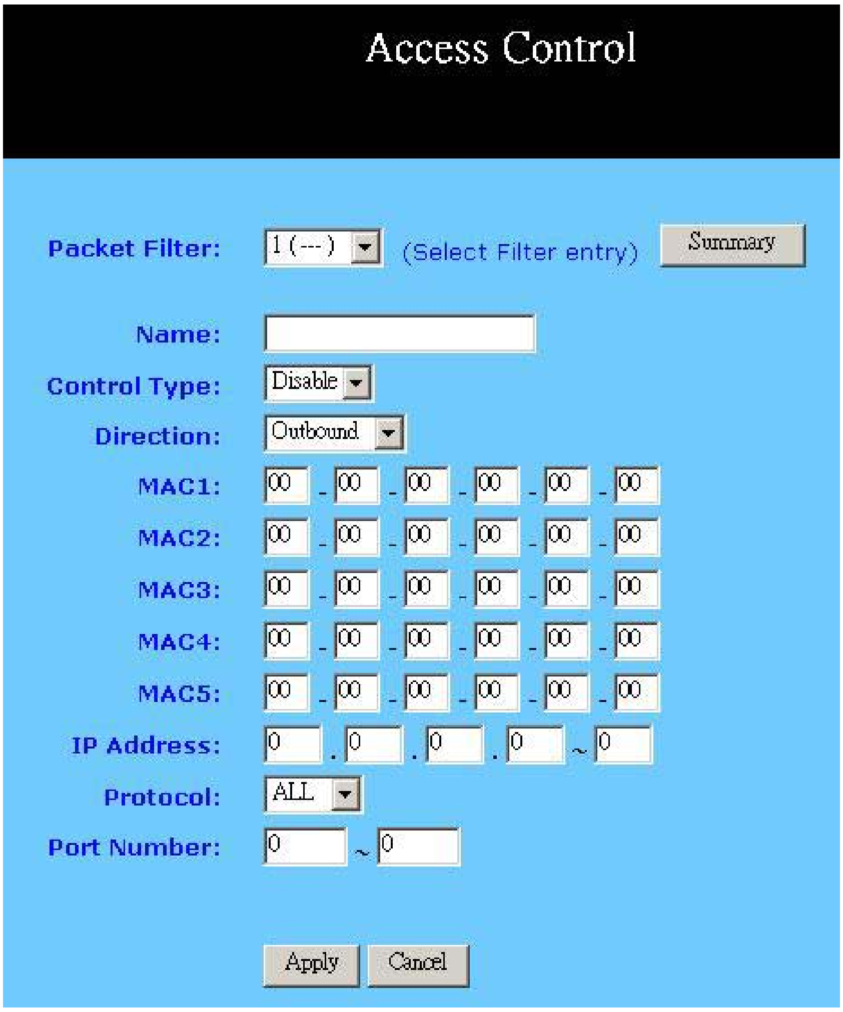
Define Schedule: Set a period of time with beginning and ending from the drop down list.

Apply Click this button after making any changes for activating the settings.

Cancel Click this button if you are not satisfied with the settings in this page before clicking Apply.

4-6 Access Control

The Access Control feature allows administrators to set up to 20 access policies to block or allow certain users from accessing the Internet or specific applications. Before using this function, the network PCs which you want to control the access limitation should be assigned fixed IP Addresses.



Access Control

Packet Filter:	1 (---) (Select Filter entry)
Name:	
Control Type:	Disable
Direction:	Outbound
MAC1:	00 - 00 - 00 - 00 - 00 - 00
MAC2:	00 - 00 - 00 - 00 - 00 - 00
MAC3:	00 - 00 - 00 - 00 - 00 - 00
MAC4:	00 - 00 - 00 - 00 - 00 - 00
MAC5:	00 - 00 - 00 - 00 - 00 - 00
IP Address:	0 . 0 . 0 . 0 ~ 0
Protocol:	ALL
Port Number:	0 ~ 0

Packet Filter: Select the number of policy rules you want to configure. There are up to 20 rules you can set. Note that these rules are sequencied. Rule 1 has higher priority than Rule 2 and so forth.

Name: For each rule, you can enter up to 15 characters to identify it.

Control Type: Select "**Allow**" to limit users/computers access to specific applications you set on this rule. Select "**Deny**" to restrict the users/computers access to specific applications you set on this rule.

Direction: Choose the initial network data traffic direction you wish to block. Select "**Outbound**" to restrict the connection to the Internet from your LAN. Select "**Inbound**" to restrict any external connections from Internet to your LAN.

MAC: This item allows network administrators to use the MAC addresses of PCs to restrict users/computers from accessing the specific application you set in this rule. A MAC address is short for Media Access Control Address and is a hardware address that uniquely identifies each node on network. Enter the MAC addresses of the computers you wish to allow/block in each field.

IP Address: This item allows network administrators to use IP Address of PCs to restrict users/computers from accessing the certain applications you set in this rule. Enter the range of IP addresses if you want them to be included in a controlled group with the same access limitation

Note that if you set both “MAC” and “IP Address” in one rule, the PCs which have the MAC addresses matching in “MAC” field and their IP addresses matching in the “IP Address” field will be allowed/blocked for certain applications.

Protocol: Select the protocol type as **“ICMP”**, **“TCP”** or “**UDP”** from the drop down list. If you are not sure which one to choose, select **“All”**.

Port Number: Enter the range of port numbers that are used by the applications you wish to be blocked. For example, port 80 usually is used as destination port number when you access a web page. Note that if you don’t enter any value in the “**MAC**” and “**IP Address**” column but enter the port number, for example “80”, in this field, it means all the users/PCs will be allowed/denied access to certain applications related to this port, for example “web browsing”.

Summary Click this button to display a summary page showing all the current rules you have set.

Apply Click this button after making any changes for activating the settings.

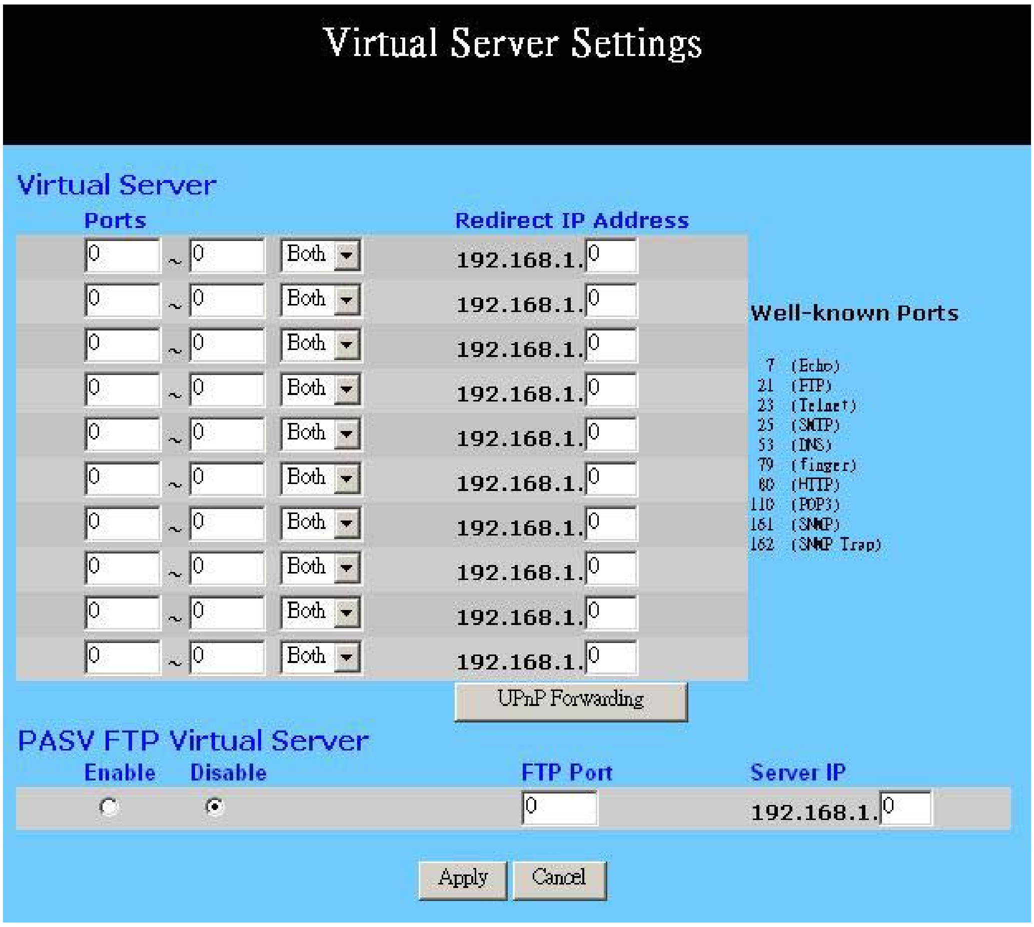
Cancel Click this button to exit the screen without saving any changes.

Here is a sample of Access Control Setting. There is a PC you wish to block in your LAN side with MAC address like ***00-01-36-02-B1-4F***, and an IP Address ***192.168.1.101***. Ether the PC’s MAC address in the “**MAC**” field or the IP address included in the “**IP Address**” range that covers this PC’s IP address. Enter the range of ***20~80*** in the “Port Number” column, then click the “**Apply”** button. As a result, this PC with MAC address ***00-01-36-02-B1-4F*** and IP Address ***192.168.1.101*** will not be able to use the applications which use port numbers from 20 to 80, such as FTP, Telnet and web browsing.

4-7 Virtual Server Settings

The Virtual Server Settings application allows you to set up a maximum of ten public services that can be accessed by external users of the Internet, such as a Web Address, Email, FTP etc.. Each service is provided by a dedicated network computer (server) configured with a fixed IP Address. Although the internal service addresses are not directly accessible to the external user, the Wireless Security Router is able to identify the service requested by the service port number and redirects the request to the appropriate internal IP Address/server. To use this application, it is recommended you use a fixed Public IP Address from your ISP. Note that your Wireless Security Router supports only one server of any particular type.

This router also support UPnP Forwarding. You can use either Virtual Server Settings or UPnP Forwarding by clicking the button to change setting page. Please note that do not set the same function server to different IP Address in different setting pages.



Virtual Server Settings

Virtual Server

Ports				Redirect IP Address
0	~	0	Both ▼	192.168.1. 0
0	~	0	Both ▼	192.168.1. 0
0	~	0	Both ▼	192.168.1. 0
0	~	0	Both ▼	192.168.1. 0
0	~	0	Both ▼	192.168.1. 0
0	~	0	Both ▼	192.168.1. 0
0	~	0	Both ▼	192.168.1. 0
0	~	0	Both ▼	192.168.1. 0
0	~	0	Both ▼	192.168.1. 0
0	~	0	Both ▼	192.168.1. 0

Well-known Ports

7	(Echo)
21	(FTP)
23	(Telnet)
25	(SMTP)
53	(DNS)
79	(finger)
80	(HTTP)
110	(POP3)
161	(SNMP)
162	(SNMP Trap)

PASV FTP Virtual Server

Enable	Disable	FTP Port	Server IP
○	●	0	192.168.1. 0

Set up individual network computers to act as servers and configure each with a fixed IP Address.

Note: In the “One Page Setup” screen, ensure the **“Private IP Address”** is set to the Wireless Security Router’s default setting of 192.168.1.1. If a fixed Public IP Address is to be used, select “**Specify an IP address”** and enter the IP Address and other necessary information provided by your ISP.

Ports: Enter the desired service port numbers in the **“Ports”** fields. You can specify the protocol type as **“TCP”** or **“UDP”** from the drop-down list. If you are not sure which one to select, choose “**Both”**. A selection of well-known service port numbers is provided on this screen.

Redirect IP Address: Enter the appropriate IP Addresses of the service computers in the **“Redirect IP Address”** locations.

Passive FTP Virtual Server: When there is firewall filtering in your network, the Internet user may not be able to access FTP server you set in the LAN side. Setting FTP server at passive mode will be necessary.

Enable/Disable - Click to enable/disable passive FTP function.

FTP Port - Enter the port number (> 1024) that the FTP server will use as data connection port number. The client side should select passive mode and use the same port number entered here.

Server IP Address - Enter the appropriate IP Addresses of the service computers.

Apply Click this button after making any changes for activating the settings.

Cancel Click this button if you are not satisfied with the settings in this page before clicking Apply.

Example:

If the service port number ***80~80*** (representing an HTTP web address) is entered in **“Ports”** and ***192.168.1.100*** is entered in **“Redirect IP Address”**, then all HTTP requests from external Internet users will be directed to the PC/server with the 192.168.1.100 fixed IP Address.

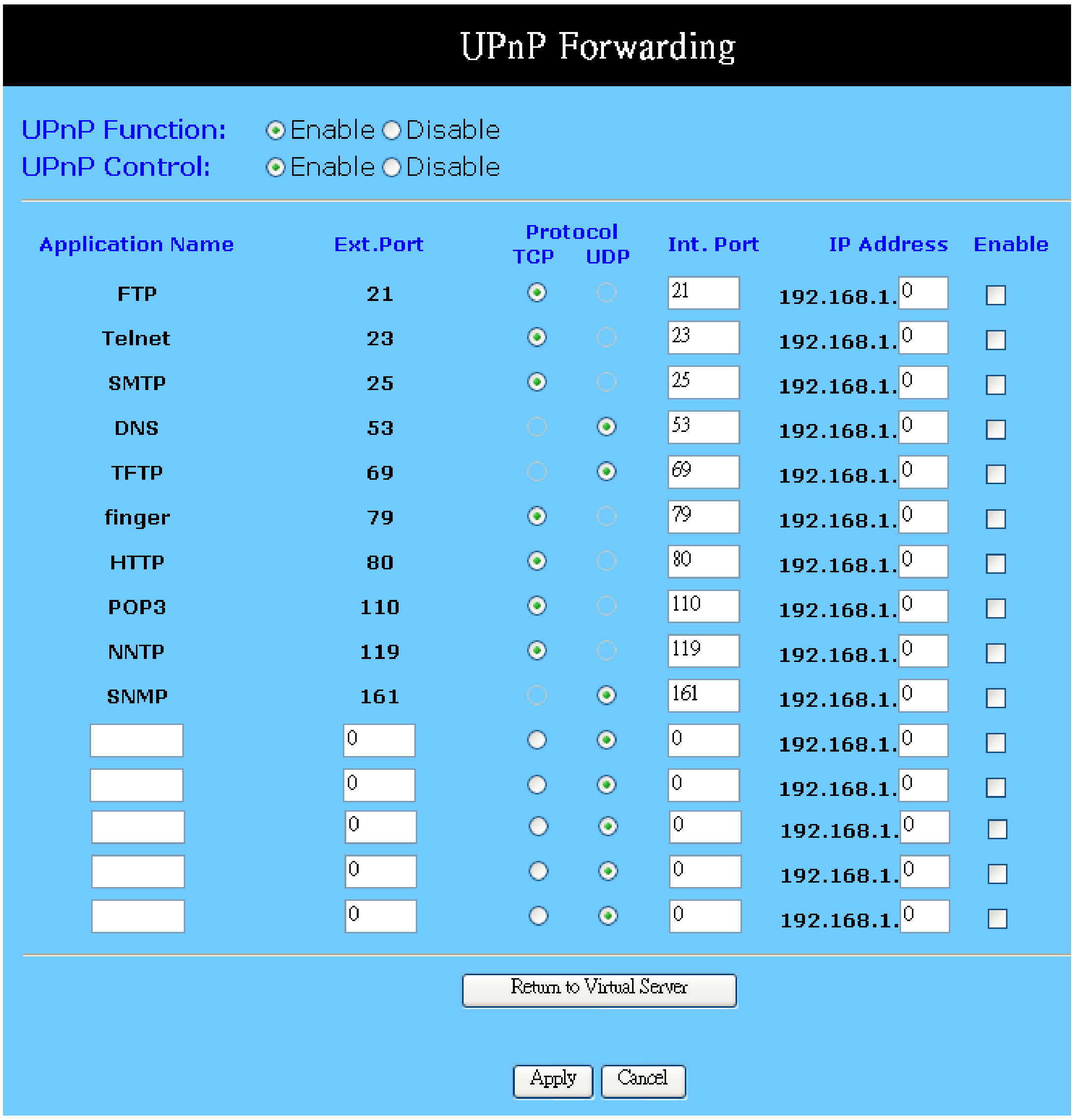
Below is a list of the protocol and port ranges that are used by some common applications.

Application	**Protocol**	**Port Range**
FTP Server	TCP	21
Half Life	UDP	6003, 7002, 27010, 27015, 27025
MSN Messenger	TCP TCP UDP UDP UDP TCP	6891-6900 (File-send) 1863 1863 5190 6901 (Voice) 6901 (Voice)

PC Anywhere host	TCP UDP	5631 5632
Quake 2	UDP	27910
Quake III	UDP	27660 (first player) "C:\Program Files\Quake III Arena\quake3.exe" +set net_port 27660 27661 (second player)
Telnet Server	TCP	23
Web Server	TCP	80

UPnP Forwarding

UPnP (Universal Plug and Play) is a standard introduced from Microsoft and UPnP Forum for interoperability. Currently, this function supported by this device allows you to set virtual server from Windows OS that supports UPnP, such as Windows XP.



UPnP Forwarding

UPnP Function: ● Enable ○ Disable

UPnP Control: ● Enable ○ Disable

Application Name	Ext.Port	Protocol		Int. Port	IP Address	Enable
		TCP	UDP			
FTP	21	●	○	21	192.168.1.0	□
Telnet	23	●	○	23	192.168.1.0	□
SMTP	25	●	○	25	192.168.1.0	□
DNS	53	○	●	53	192.168.1.0	□
TFTP	69	○	●	69	192.168.1.0	□
finger	79	●	○	79	192.168.1.0	□
HTTP	80	●	○	80	192.168.1.0	□
POP3	110	●	○	110	192.168.1.0	□
NNTP	119	●	○	119	192.168.1.0	□
SNMP	161	○	●	161	192.168.1.0	□
	0	○	●	0	192.168.1.0	□
	0	○	●	0	192.168.1.0	□
	0	○	●	0	192.168.1.0	□
	0	○	●	0	192.168.1.0	□
	0	○	●	0	192.168.1.0	□

UPnP Function: Check “**Enable**” will allow LAN side PCs that support UPnP to set virtual server.

Before you enable the UPnP Forwarding, you have to set up individual network computers to act as servers and configure each with a fixed IP Address.

In the “One Page Setup” screen, ensure the **“Private IP Address”** is set to the Router’s default setting of 192.168.1.1. If a fixed Public IP Address is to be used, select “**Specify an IP address”** and enter the IP Address and other necessary information provided by your ISP.

UPnP Control: Check “**Enable**” will allow LAN side PCs that support UPnP to directly configure the settings provided in this page.

Application Name UPnP has ten pre-setting forwarding rules, which are well-known applications. You can enter any name to present the additional settings beside those pre-setting rules.

Ext. Port Most of applications usually use their individual port number for its incoming and outgoing data packets. However, some of the application may use different port number for incoming and outgoing data packets. In this case, you have to enter the port number used by incoming data packets here.

Protocol Specify the protocol type as **“TCP”** or **“UDP”** which is used by specific service.

Int. Ports Most of applications usually use their individual port number for its incoming and outgoing data packets. However, some of the application may use different port number for incoming and outgoing data packets. In this case, you have to enter the port number used by outgoing data packets here.

IP Address Enter the appropriate IP Addresses of the service computers in the **“Redirect IP Address”** locations.

Enable Check to make this forwarding setting active.

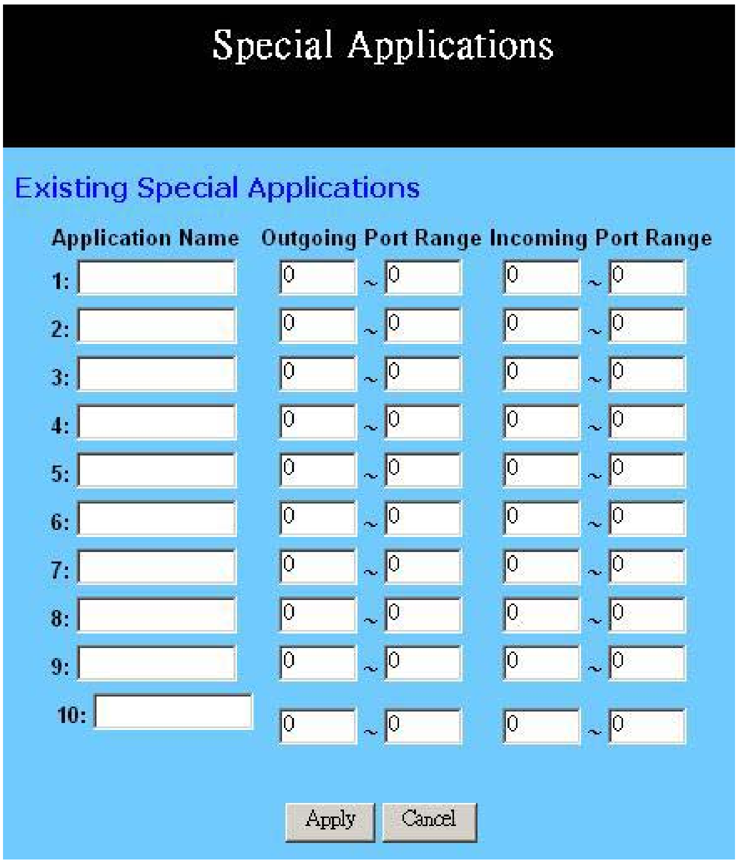
Apply Click this button after making any changes for activating the settings.

Cancel Click this button if you are not satisfied with the settings in this page before clicking Apply.

Example: If the service port number ***80~80*** (representing an HTTP web address) is entered in **“Ports”** and ***192.168.1.100*** is entered in **“Redirect IP Address”**, then all HTTP requests from external Internet users will be directed to the PC/server with the 192.168.1.100 fixed IP Address.

4-8 Special Applications

Some applications use multiple TCP/UDP ports to transmit data. Due to the NAT, these applications cannot work with the Wireless Security Router. Port Triggering allows some of these applications to work properly. Note that only one PC can use each Port Triggering setting at any time.



Special Applications

Existing Special Applications

	Application Name	Outgoing Port Range			Incoming Port Range		
1:		0	~	0	0	~	0
2:		0	~	0	0	~	0
3:		0	~	0	0	~	0
4:		0	~	0	0	~	0
5:		0	~	0	0	~	0
6:		0	~	0	0	~	0
7:		0	~	0	0	~	0
8:		0	~	0	0	~	0
9:		0	~	0	0	~	0
10:		0	~	0	0	~	0

Application name: Enter the name of application you wish to configure in the Name column to identify this setting.

Outgoing Port Range: Enter the port number or range numbers this application uses when it sends packets outbound. The Outgoing Control Port Numbers act as the trigger. When the Wireless Security Router detects the outgoing packets with these port numbers, it will allow the inbound packets with the Incoming Port Numbers that you set in the next column to pass through the Wireless Security Router.

Incoming Port Range: Enter the port number or range numbers the inbound packets carry.

Apply Click this button after making any changes for activating the settings.

Cancel Click this button if you are not satisfied with the settings in this page before clicking Apply.

The following is a list of port numbers used on some popular applications:

Application	Outgoing Control	Incoming Data
Battle.net	6112	6112
DialPad	7175	51200, 51201,51210
ICU II	2019	2000-2038, 2050-2051 2069, 2085,3010-3030
MSN Gaming Zone	47624	2300-2400, 28800-29000
PC to Phone	12053	12120,12122, 24150-24220
Quick Time4	554	6970-6999
wowcall	8000	4000-4020

4-9 DMZ Host

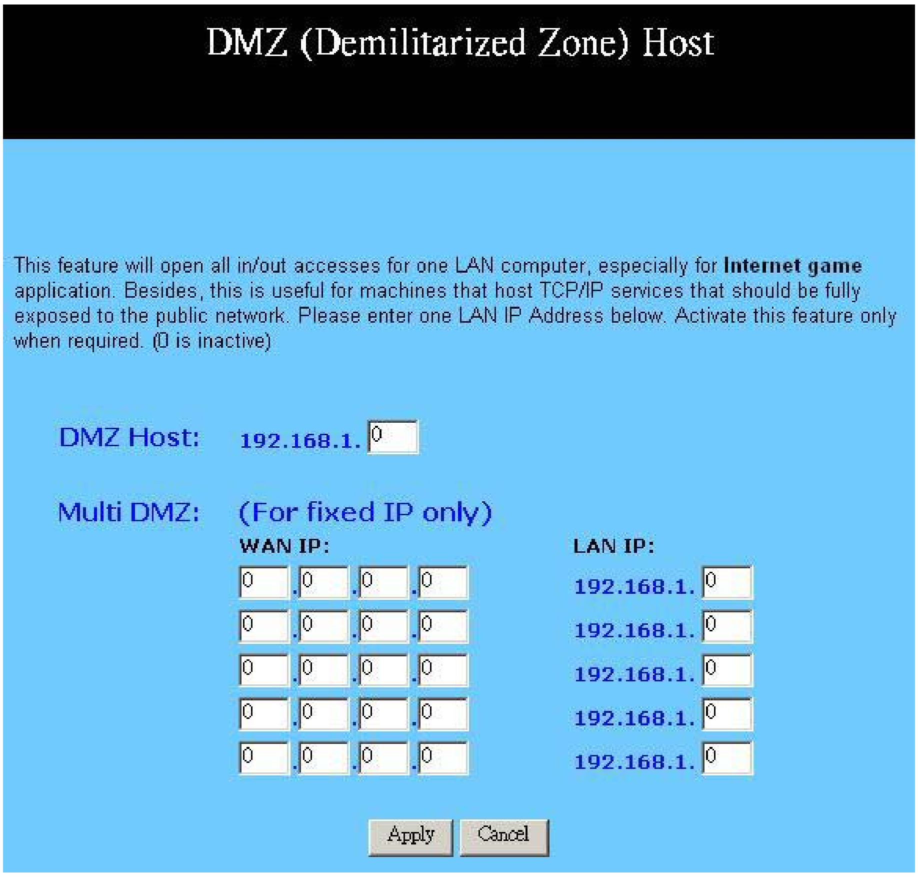
The DMZ Host application allows unrestricted 2-way communication between a single LAN PC and other Internet users or servers. This application is useful for supporting special-purpose services such as video-conferencing and gaming, that require proprietary client software and/or 2-way user communication.

To use this application, you must first obtain a fixed Public IP Address from your ISP. Note that in order to provide unrestricted access, the Firewall provided by the Wireless Security Router to protect this port is disabled, thus creating a potentially serious security risk.

It is recommended that this application is disabled when it is not in use by entering **“0”** in the **“DMZ Host”**field.

The Multi DMZ allows you to map the public IP addresses to your LAN PCs, should you get more than one public IP address from your ISP. This function is useful to set up your servers, such as an FTP server, web server, and so on, with public IP addresses, but still keep them within your LAN group.

With the public IP addresses, Internet users will access your servers more easily and those servers can still communicate with other PCs in you LAN by using Network Neighborhood.



DMZ (Demilitarized Zone) Host

This feature will open all in/out accesses for one LAN computer, especially for **Internet game** application. Besides, this is useful for machines that host TCP/IP services that should be fully exposed to the public network. Please enter one LAN IP Address below. Activate this feature only when required. (0 is inactive)

DMZ Host: 192.168.1. 0

Multi DMZ: (For fixed IP only)

WAN IP:	LAN IP:
0 . 0 . 0 . 0	192.168.1. 0
0 . 0 . 0 . 0	192.168.1. 0
0 . 0 . 0 . 0	192.168.1. 0
0 . 0 . 0 . 0	192.168.1. 0
0 . 0 . 0 . 0	192.168.1. 0

Before setting up a LAN PC to act as a DMZ Host, you should configure it using a fixed IP Address.

Note: In the **“One Page Setup”** screen, ensure the Private IP Address is set to the Wireless Security Router’s default setting of 192.168.1.1. In the Public IP Address area, select **“Specify an IP Address”**, and then enter the IP Address and other necessary information provided by your ISP.

Click the **“DMZ Host”** option in the Advanced Menu and enter the fixed IP Address of the Exposed Host PC in the **“DMZ Host”** IP Address location. Remember, entering **“0”** will disable this application.

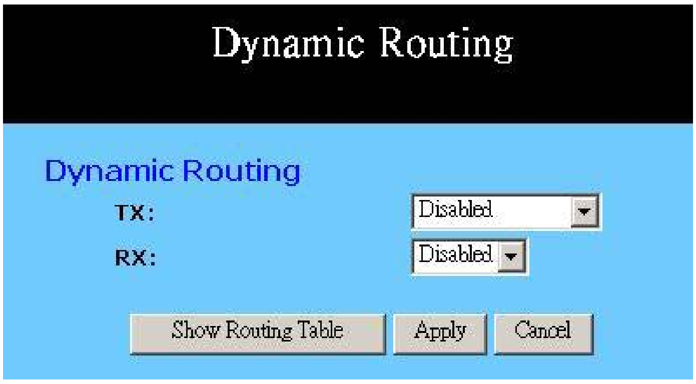
Multi DMZ

1. Enter the valid public IP address in **“WAN IP”** column. Next, enter the private IP address of the PC that you wish to map to in **“LAN IP”** field. Up to five public IP addresses can be entered.

2. Click the “**Apply”** button after making any changes, or click the “**Cancel”** button to exit the screen without saving any changes.

4-10 Dynamic Routing

The Dynamic Routing feature allows your Wireless Security Router to exchange routing information with other routers in the network. Enabling this feature is likely to enhance performance of your Wireless Security Router.



Dynamic Routing

Dynamic Routing

TX: Disabled

RX: Disabled

TX: From the drop-down list, select one of the routing information types, **"RIP-1"**, **"RIP-1 Compatible"**, or **"RIP-2",** to enable the **"TX"** (transmit) function. **"RIP-1"** is the protocol used by older routers. Newer routers should use **"RIP-2"**. **"RIP-1 Compatible"** servers to broadcast RIP-1 and multicast RIP-2.

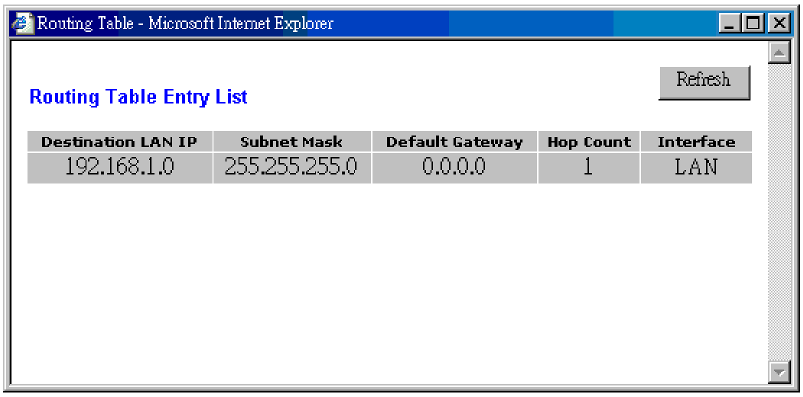
RX: From the drop-down list, select one of the routing information types, **"RIP-1"** or **"RIP-2"**, to enable the **"RX"** (receive) function.

Show Routing Table: Click this button after clicking Apply to see current routing information.

Apply: Click this button after making any changes for activating the settings.

Undo: Click this button if you are not satisfied with the settings in this page before clicking Apply.

Below is Routing Table Entry List. This table shows the status for routing information. You can click Refresh to update the table information.



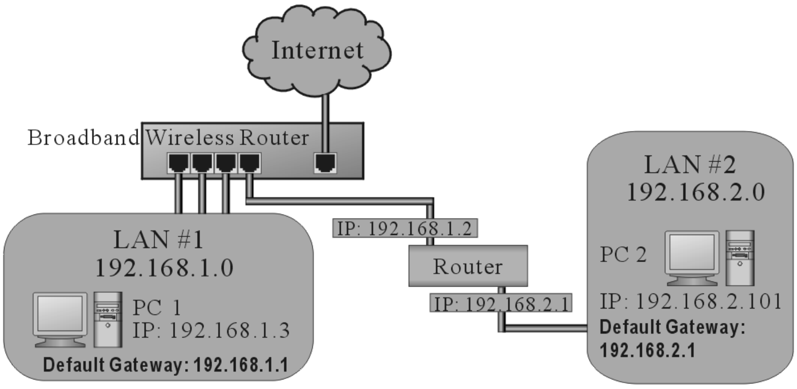
Routing Table - Microsoft Internet Explorer

Routing Table Entry List

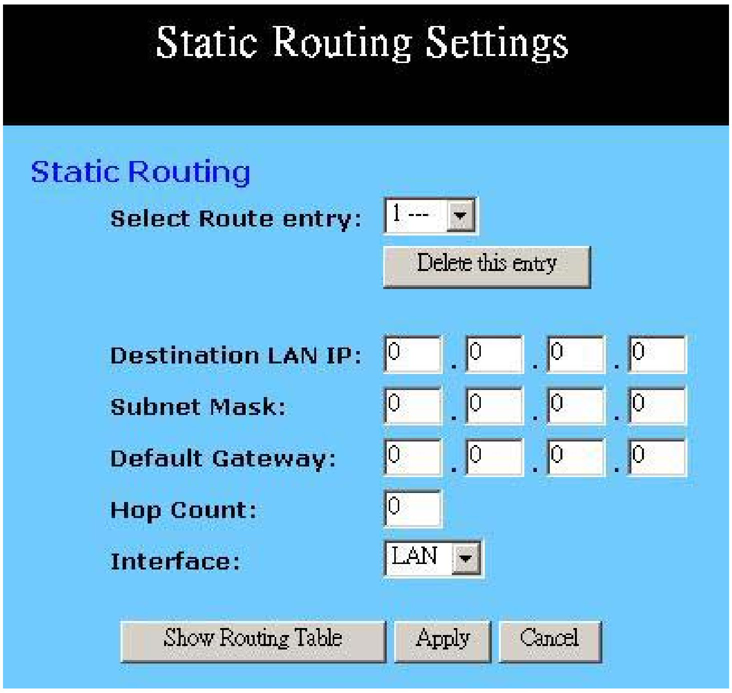
Destination LAN IP	Subnet Mask	Default Gateway	Hop Count	Interface
192.168.1.0	255.255.255.0	0.0.0.0	1	LAN

4-11 Static Routing

The Static Routing feature allows PCs that are connected to the Wireless Security Router, either directly or through a hub/switch (in the immediate LAN), to communicate with other PCs in the respective LAN segment which are connected to the Wireless Security Router through another router (destination LAN). Up to 20 route entries may be input into the Wireless Security Router. The diagram below gives an example of the physical connections required to use Static Routing.



In the above diagram, PC2 in LAN#2 is connected to the Wireless Security Router via another router while PC1 in LAN#1 is connected to the Wireless Security Router directly. Without configuring the Static Routing function, the two PCs would not be able to communicate with each other.



Static Routing Settings

Static Routing

Select Route entry: 1 ---

Delete this entry

Destination LAN IP: 0 . 0 . 0 . 0

Subnet Mask: 0 . 0 . 0 . 0

Default Gateway: 0 . 0 . 0 . 0

Hop Count: 0

Interface: LAN

Show Routing Table | Apply | Cancel

Select Route entry: Select the route entry number from 1 to 20 that you wish to configure.

Delete this entry Delete the selected route entry information.

Destination LAN IP and **Subnet Mask:** Enter the IP Address and Subnet Mask of the destination LAN that the immediate LAN is to communicate with. Taking the above diagram as an example, enter ***192.168.2.0*** in the **"Destination LAN IP"** field and ***255.255.255.0*** in the **"Subnet Mask"** field.

Default Gateway: Enter the IP Address of the router that forwards data packets to the destination LAN. For the above example, enter ***192.168.1.2*** in the **"Default Gateway"** field.

Hop Count: Enter **t**he number of hops required between the LANs to be connected. The Hop Count represents the "cost" of the routing transmission. The default value is 1.

Interface: Choose **LAN** if the Destination LAN is on your Router's LAN side and choose **WAN** if the Destination LAN is on the Router's WAN side.

Show Routing Table Click this button after clicking Apply to see current routing information.

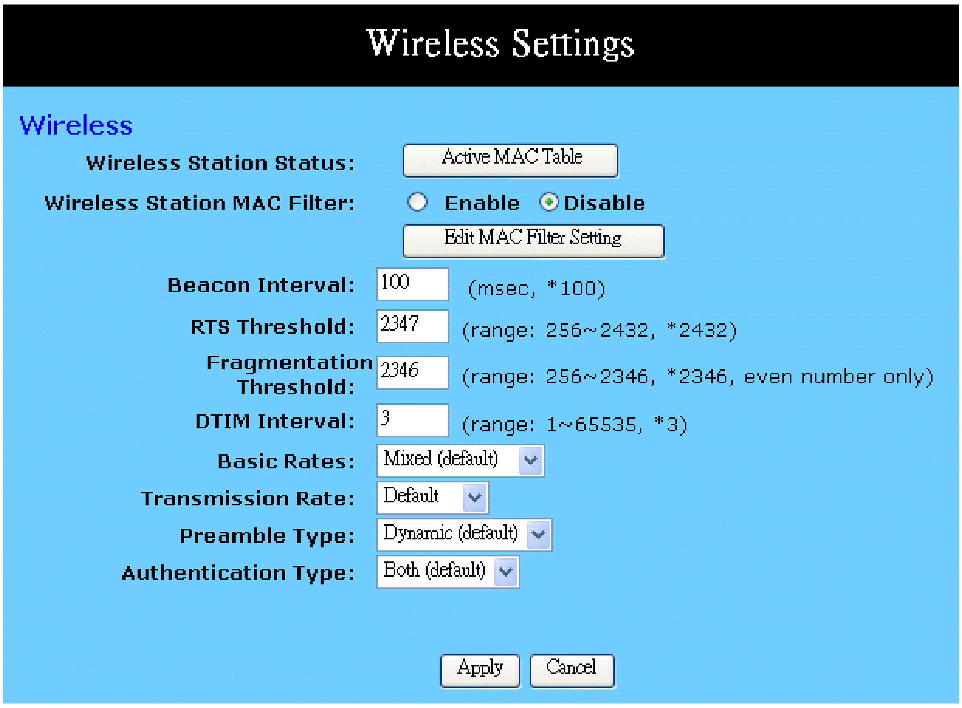
Apply Click this button after making any changes for activating the settings.

Cancel Click this button if you are not satisfied with the settings in this page before clicking Apply.

Referring back to the above diagram, with the proper settings, PC1 would be able to access LAN 1, LAN 2 and the Internet while PC2 can only access LAN 2, LAN1.

4-12 Wireless

This setting page allows you to configure advanced wireless functions. To set those items needs more technology background. Unless you really understand those technical terms, it would be better to leave them as default setting.



Wireless Settings

Wireless

Wireless Station Status: Active MAC Table

Wireless Station MAC Filter: ○ Enable ● Disable

Edit MAC Filter Setting

Beacon Interval: 100 (msec, *100)

RTS Threshold: 2347 (range: 256~2432, *2432)

Fragmentation Threshold: 2346 (range: 256~2346, *2346, even number only)

DTIM Interval: 3 (range: 1~65535, *3)

Basic Rates: Mixed (default)

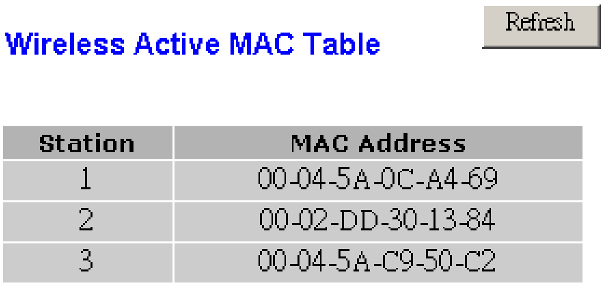
Transmission Rate: Default

Preamble Type: Dynamic (default)

Authentication Type: Both (default)

Apply Cancel

Wireless Station Status: The “**Active MAC Table**” shows the MAC addresses of wireless clients, which have the same ESSID and WEP key with Wireless Security Router. When the “MAC Filter” function is disabled, the background color is gray.
Click the “**Active MAC Table**” button will display all MAC addresses of wireless nodes on your WLAN.



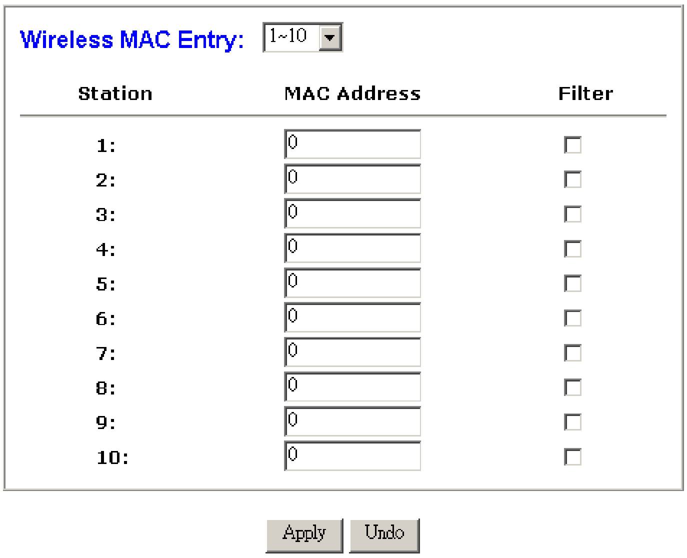
Wireless Active MAC Table

Refresh

Station	MAC Address
1	00-04-5A-0C-A4-69
2	00-02-DD-30-13-84
3	00-04-5A-C9-50-C2

If the MAC Filter function is enabled and the MAC addresses showing in this table have been entered into the “Edit MAC Filter” table, the background color of those MAC addresses will be green. Otherwise, it should be red. If the MAC addresses have been blocked (check the Filter field beside the MAC address in Edit MAC Filter table), the background color will be yellow.

Wireless Station MAC Filter: This function allows you to restrict wireless users to access Internet.
Click “**Edit MAC Filter Setting**” button to open the edit table.



Wireless MAC Entry: 1~10

Station	MAC Address	Filter
1:	0	□
2:	0	□
3:	0	□
4:	0	□
5:	0	□
6:	0	□
7:	0	□
8:	0	□
9:	0	□
10:	0	□

Wireless MAC Entry There are 32 sets divided into four groups in this function. You can choose each group by selecting from the pop-down list. Enter the MAC addresses of the computers you wish to block in the columns and click the Filter field beside the MAC address, and then that user will be blocked to link to WLAN and Internet. If the "Filter" field isn't checked, that MAC address won't be blocked. The MAC address entered here should be 12 continue alphanumeric digits without "-" in between. Click "Apply" to save these changes.

Beacon Interval: It's the signal sent periodically by wireless access point to provide synchronization among the stations in wireless LAN.

RTS Threshold: RTS packet is use to account for potential hidden stations. This feature allows you to set the size of RTS packet.

Fragmentation Threshold: If the length of data frame needing transmission exceeds the fragmentation threshold you set in the column, the data frame will be fragmented. If there is significant interference or high utilization in your wireless network, the smaller fragmentation value can increase the reliability transmission. However, it is more efficient to set the large fragment size.

DTIM Interval: DTIM is the acronym of delivery traffic indication message. It determines how often the MAC Layer forward multicast traffic.

Basic Rate: Leave "Mixed" as default setting to compatible with different wireless standard or select other rates you wish to use to connect with specific wireless standard devices.

Transmission Rate: Leave "Default" setting or select other speed you wish to use.

Preamble Type: Leave "Dynamic" as default setting or select other type to compatible with special setting your client devices use.

Authentication Type: Select either Open System or Share Key as authentication type. If you are not sure, select both.

Apply Click this button after making any changes for activating the settings.

Cancel Click this button if you are not satisfied with the settings in this page before clicking Apply.

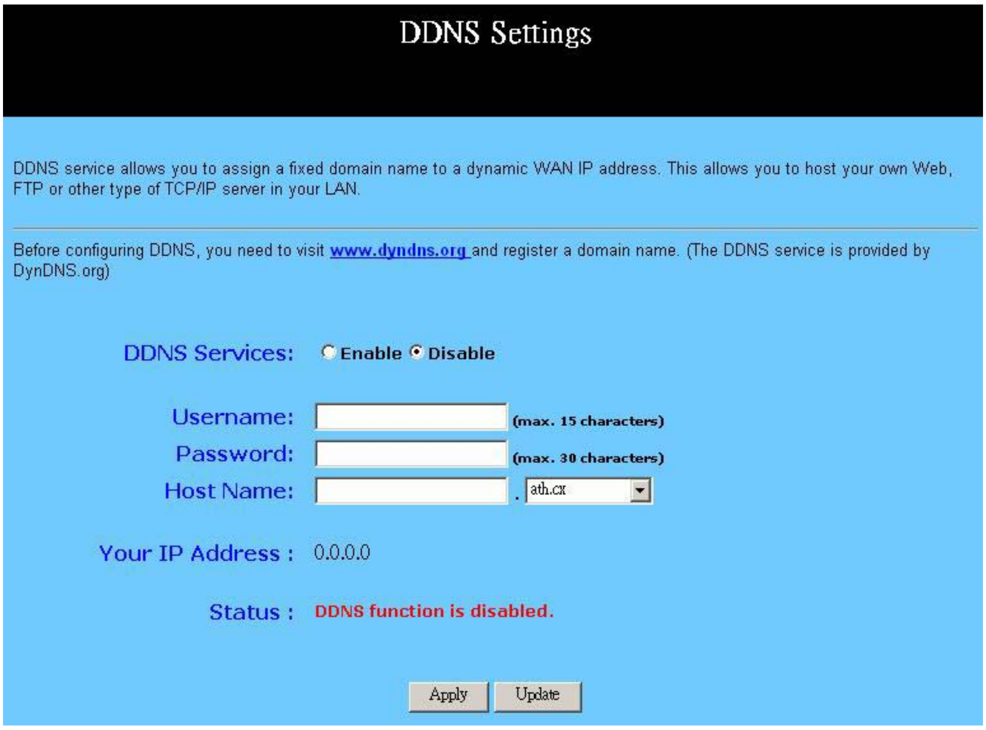
4-13 DDNS

"DDNS" is an acronym for Dynamic Domain Name Service. Whenerver you set up the web servers, mail servers, or sometimes ftp servers, you need **"Domain Name"** to help Internet users reach your servers easily.

Internet actually runs on IP Addresses which are numerical order, for example "66.37.215.53". These IP Address identify the location of each device connected to Internet. However, the human brain does not easily remember this numbering system, so a system that allocate domain name such as "www.dyndns.org" provides an easier method. If you type "66.37.215.53" or "www.dyndns.org" in the web browser's address bar, the browser will show the same web page. This is because both methods relate to the same web server. The **"Domain Name Servers"** used to manage the Internet will translate "www.dyndns.org" into the IP Address "66.37.215.53" in order to allow your browser to find the web server and display the correct web page in your browser.

If your "WAN Connection Type", as shown in One Page Setup section, is "Obtain IP Address Automatically", "PPPoE", or "PPTP" with dynamic IP address assigned by ISP, it will cause an error when you set up the public computer servers in your LAN side PCs. Internet users may not be able to reach your servers because your WAN side IP address may change each time you initiate the connection to your ISP. The DDNS function will help to map your IP address to your domain name when your ISP assigns a new dynamic IP Address.

Note that this DDNS function acts as the client appliance of DDNS service and is only able to be use in conjunction with the service provided by DynDNS.org. Before you begin using this function, you will need to apply to DynDNS.org to be able to use the service. Please visit www.dyndns.org for further information.



DDNS Settings

DDNS service allows you to assign a fixed domain name to a dynamic WAN IP address. This allows you to host your own Web, FTP or other type of TCP/IP server in your LAN.

Before configuring DDNS, you need to visit www.dyndns.org and register a domain name. (The DDNS service is provided by DynDNS.org)

DDNS Services: ○ Enable ● Disable

Username: (max. 15 characters)

Password: (max. 30 characters)

Host Name: . ath.cx

Your IP Address : 0.0.0.0

Status : DDNS function is disabled.

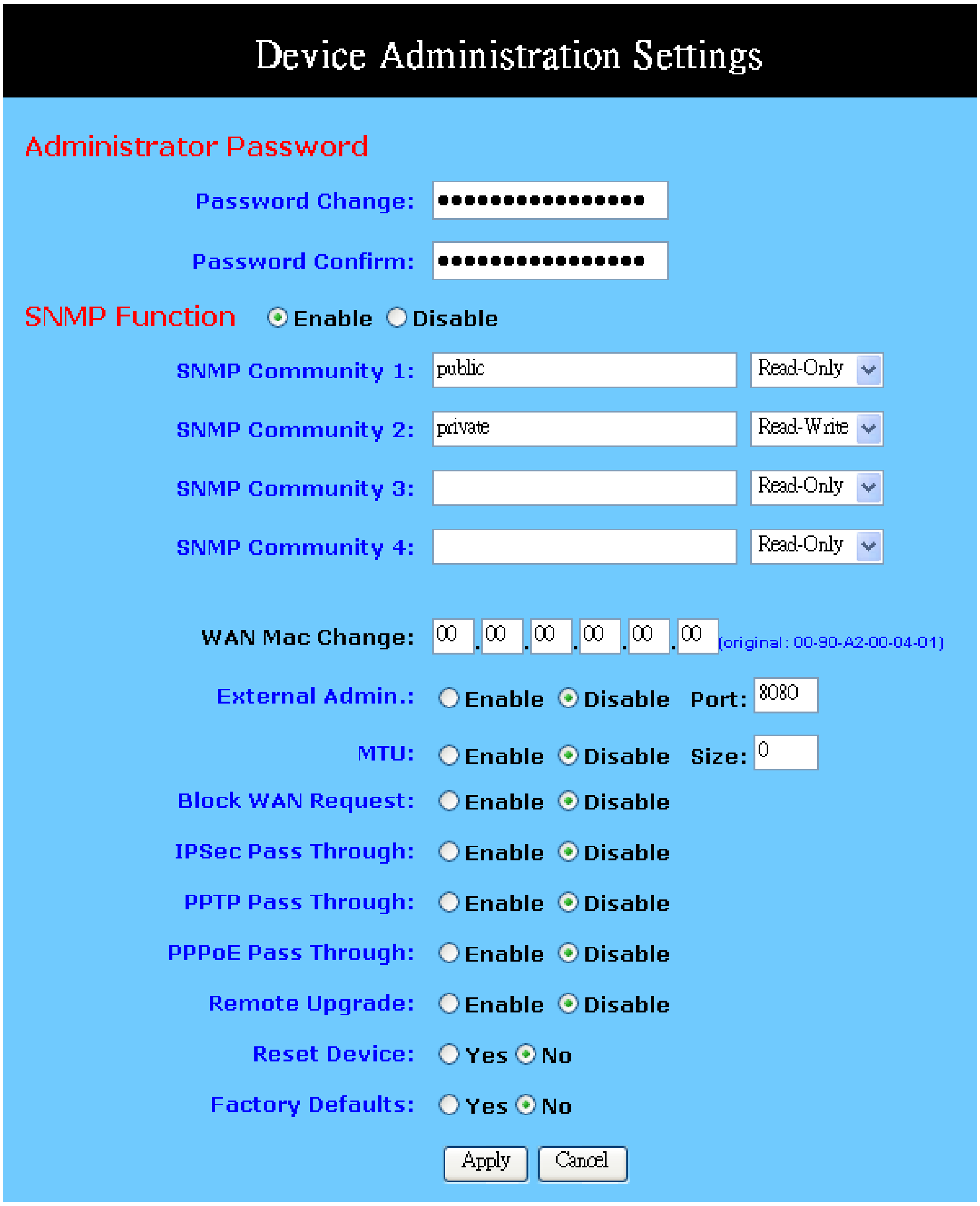
DDNS Service:	Check the "**Enable"** option if you wish to activate this function.
Username:	After you have applied for the DDNS service from DynDNS.org, you will be issued with a Username. Enter this username in the "**Username**" field.
Password:	DynDNS.org, will also issue you with a password. Enter the detail in the "**Password**" field.
Host Name:	DynDNS.org, will provide you with a Host Name. Enter this name in the "**Host Name**" field.
Your IP Address	It displays the IP Address currently assigned by your ISP.
Status:	This displays the current status of the DDNS function.
Apply	Click this button after making any changes for activating the settings.
Update	After clicking Apply to invoke the DDNS settings, you have to click this button to refresh the settings..

Chapter 5: Management

This chapter provides information on using Macintosh computers in your network. The instructions given here are for system software version 8.0 or above, which comes with the TCP/IP Protocol preloaded and supports DHCP Addressing.

5-1 Device Administration Settings

This feature allows the administrator to manage the Wireless Security Router by setting certain parameters. For security reasons, it is strongly recommended that you set Passwords and so that only authorized persons are able to magage this Wireless Security Router. If the Password is left blank, all users on your network can access this router simply by entering the unit's IP Address into their web browser's location window.



Device Administration Settings

Administrator Password

Password Change: ●●●●●●●●●●●●●●●●

Password Confirm: ●●●●●●●●●●●●●●●●

SNMP Function ● Enable ○ Disable

SNMP Community 1: public Read-Only

SNMP Community 2: private Read-Write

SNMP Community 3: Read-Only

SNMP Community 4: Read-Only

WAN Mac Change: 00 . 00 . 00 . 00 . 00 . 00 (original : 00-90-A2-00-04-01)

External Admin.: ○ Enable ● Disable Port: 8080

MTU: ○ Enable ● Disable Size: 0

Block WAN Request: ○ Enable ● Disable

IPSec Pass Through: ○ Enable ● Disable

PPTP Pass Through: ○ Enable ● Disable

PPPoE Pass Through: ○ Enable ● Disable

Remote Upgrade: ○ Enable ● Disable

Reset Device: ○ Yes ● No

Factory Defaults: ○ Yes ● No

Administrator Password: Enter the password you want to use into the **"Password Change"** field and re-enter it into the **"Password Confirm"** field for confirmation. Be sure that the password is less than 64 characters long and without any special characters or spaces..

SNMP Function: As with the Password, SNMP community allows authorized persons to access this router through the SNMP Management tool. The Wireless Security Router provides three fields to enter these communities. The default words *Public* and *Private* are well-known communities that allow authorized persons who know the IP Address of this router to access the read-only information about this router or have the authority to change the configuration. Also, the administrator can define any specific community and configure its limits as Read-Only or Read-Write from the right side drop-down box.

WAN MAC Change: The WAN MAC address can be changed from the original values if necessary. Some ISPs require users to change the WAN MAC address to a registered one when users change their access equipment.

External Admin.: Check **“Enable”** to allow you to configure the Wireless Security Router from the WAN side. To access the setting page from the external side, enter “**http://<WAN IP Address>:8080”** into the web browser address bar and press the “**Enter”** key.

MTU: Check **Enable** if you want to set a maximum limitation for incoming and outgoing packet size. Enter the maximum packet size you wish to set in the **“Size”** column.

Block WAN Request: To prevent hacker intruding your network, check the **Enable** option to enable this function to reject all the unauthorized requests from WAN side.

IPSec Pass Through: Check the **Enable** to allow the IPSec packets to pass through the Wireless Security Router if there is LAN PC using IPSec for data communication with other Internet device.

PPTP Pass Through: Check the **Enable** to allow the PPTP packets to pass through the Wireless Security Router if there is LAN PC using PPTP for data communication with other Internet device.

PPPoE Pass Through: Check the **Enable** to allow the PPPoE packets to pass through the Wireless Security Router if there is LAN PC using PPPoE for data communication with other Internet device.

Remote Upgrade: Check **Enable** if you want to allow the authorized remote users to upgrade firmware from WAN side.

Reset Device: Select **“Yes”** if you want to clear a connection, reboot, and re-initialize the unit without affecting any of your configuration setting.

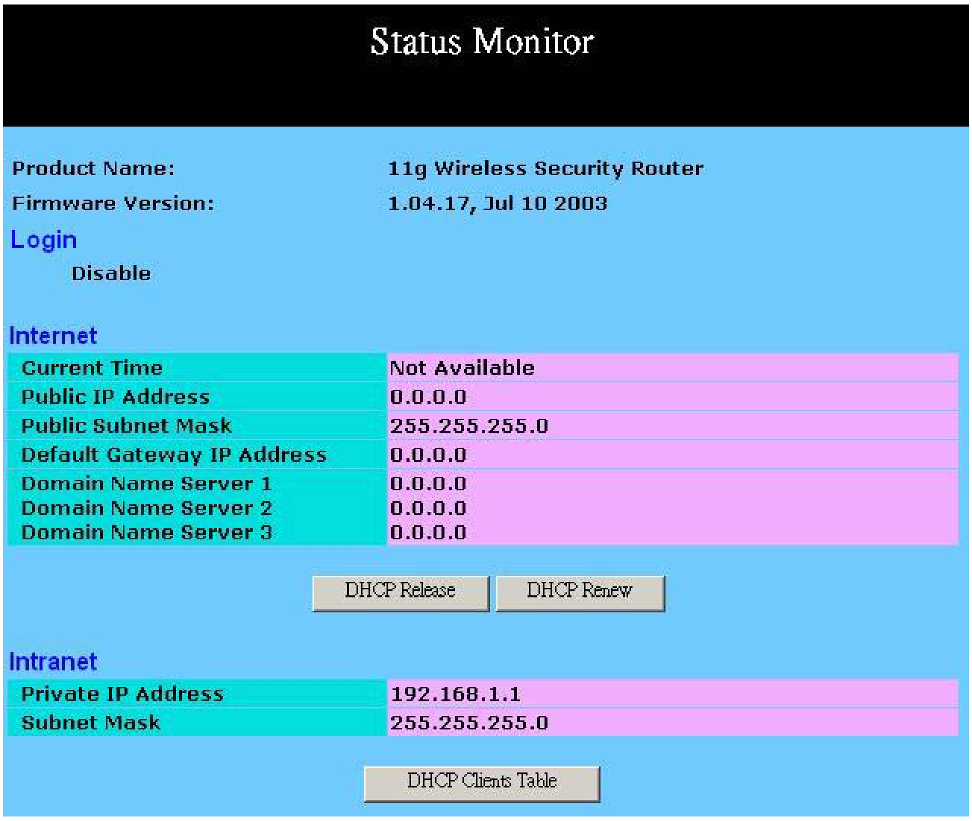
Factory Defaults: Select **“Yes”** if you want to return all the router’s current settings to their factory defaults. Note that do not restore the factory defaults unless it is absolutely necessary.

Apply Click this button after making any changes for activating the settings.

Cancel Click this button if you are not satisfied with the settings in this page before clicking Apply.

5-2 Status Monitor

This screen shows the router's current status. All of the information provided is read-only.



Status Monitor

Product Name:	11g Wireless Security Router
Firmware Version:	1.04.17, Jul 10 2003

Login

Disable

Internet

Current Time	Not Available
Public IP Address	0.0.0.0
Public Subnet Mask	255.255.255.0
Default Gateway IP Address	0.0.0.0
Domain Name Server 1 Domain Name Server 2 Domain Name Server 3	0.0.0.0 0.0.0.0 0.0.0.0

Intranet

Private IP Address	192.168.1.1
Subnet Mask	255.255.255.0

Product Name: This field shows the name of this router.

Firmware Version: This field shows the installed version of the firmware.

Login: This column shows the login information of PPPoE or PPTP. You can manually initiate the connection or make a disconnection by clicking the appropriate buttons. Be aware that, if you make a disconnection here, "**Connect-on-demand**" will not function until the connection button is clicked. Note that "Login" won't show any information if you selected "**Obtain IP automatically**" or "**Static IP**" on the OnePage Setup page.

Internet: This section shows the IP settings status of the router as seen by external users of the Internet. If you selected **"Get IP Address Automatically", "PPPoE", or "PPTP"** in the OnePage Setup, the **" IP Address"**, **"Subnet Mask"**, **"Default Gateway**", and **"Domain Name Server"** (DNS) will show the information retrieved from the DHCP server or ISP which is currently being used. If you selected **" Static IP"**

in “One Page Setup: Public IP Address”, the information will be the same as your input.

DHCP Release: Click this button to eliminate the IP address obtained from DHCP server.

DHCP Renew: Click this button to refresh the IP address from DHCP server.

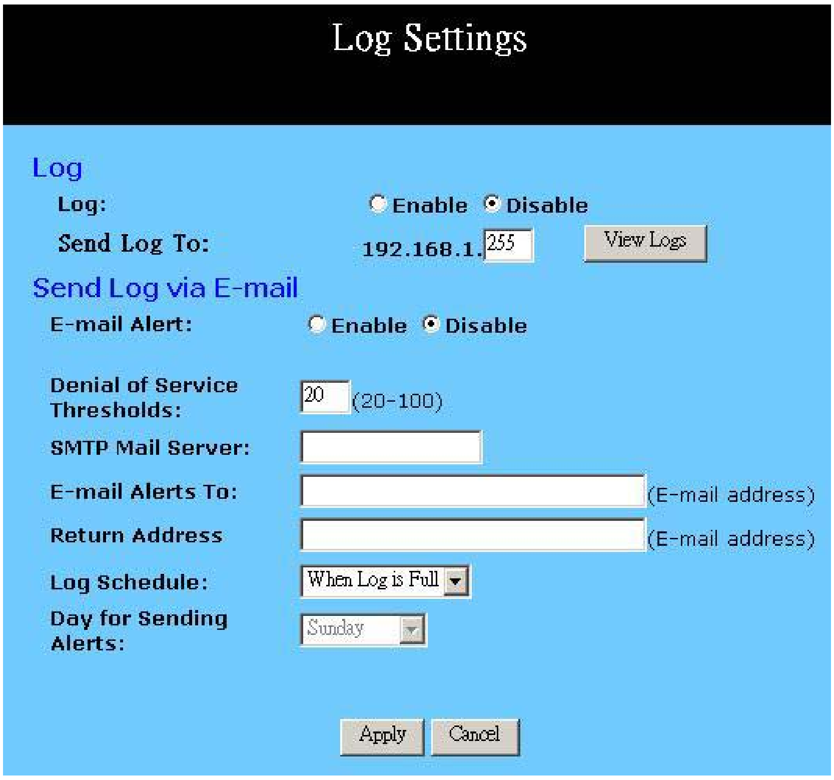
Note that the “DHCP Release” and “DHCP Renew” button only show up when you select **“Get IP Address Automatically”** in the OnePage Setup.

Intranet: This section displays the current **“Private IP Address”** and **“Subnet Mask”** of the router, as seen by users of your internal network.

DHCP Clients Table: If the router is setup to act as a DHCP server, the LAN side IP Address distribution table will appear by clicking this button.

5-3 Log

The Log application provides the administrator with the ability to trace Internet connection. With viewing the Log information, an administrator can send the record to a specific LAN PCs to have the real time monitor.



Log Settings

Log

Log: ○ Enable ● Disable

Send Log To: 192.168.1.255

Send Log via E-mail

E-mail Alert: ○ Enable ● Disable

Denial of Service Thresholds: 20 (20-100)

SMTP Mail Server:

E-mail Alerts To: (E-mail address)

Return Address (E-mail address)

Log Schedule: When Log is Full

Day for Sending Alerts: Sunday

Log: Check the **“Enable”** option if you want to activate this function.

Send Log To: Enter the IP address of the PC that you wish to use to view the Log information.

View Log: Click this button to view the log on-line.

Send Log via E-mail: The Firewall log can be sent via e-mail.

Denial of Service Thresholds: The threshold is used to determine the attempt of establishing connection is DoS attack or not.

SMTP Mail Server: The domain name of IP Address of your ISP's outgoing e-mail server. You may find this information when you apply for e-mail service from your ISP.

E-mail Alert to: Enter the e-mail address you wish to send to.

Return Address: Enter the e-mail address you wish to send to if the alert e-mail cannot be sent to the address above.

Log Schedule: Select from the drop down list that when you wish the alert e-mail will be send:
When Log is Full - The alert e-mail will be sent when log space is full. They are about 30 entries.
Hourly - The alert e-mail will be sent by each hour.
Daily - The alert e-mail will be sent by each day at midnight.
Weekly - The alert e-mail will be sent by each week. When this item is select.

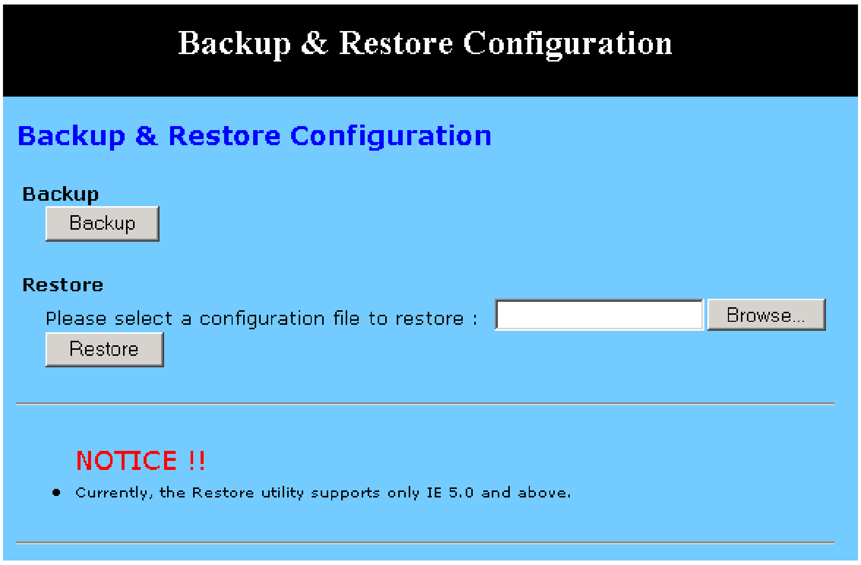
Day of Sending Alert: When "Weekly" is selected as Log Schedule, you can select which day in a week to send the alert e-mail.

Apply Click this button after making any changes for activating the settings.

Cancel Click this button if you are not satisfied with the settings in this page before clicking "Apply".

5-4 Backup & Restore

This function allows you to save router's configuration as backup, or retrieve the configuration file you saved before to turn the setting back.



Backup & Restore Configuration

Backup & Restore Configuration

Backup

Restore

Please select a configuration file to restore :

NOTICE !!

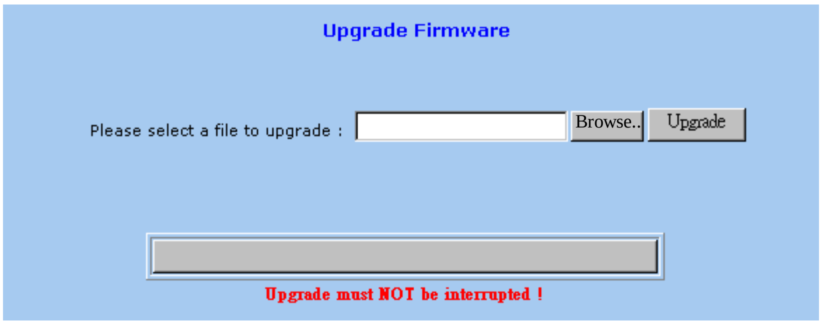
- Currently, the Restore utility supports only IE 5.0 and above.

Backup: Click "Backup" button save the current configuration as a backup file in your hard disk.

Restore: Enter path of the configuration file you saved on the PC. You can click "Browse" to view the folders and select the file. Click "Restore" to retrieve it.

5-5 Upgrade Firmware

This setting page allows you to upgrade the latest version firmware to keep your router up-to-date. Before you upgrade the firmware, you have to get the latest firmware and save it on the PC you use to configure the router.



Upgrade Firmware

Please select a file to upgrade :

Upgrade must NOT be interrupted !

Browse.. To select a file to upgrade, you have to enter path of the latest firmware you saved on the PC. You can choose "**Browse**" to view the folders and select the firmware.

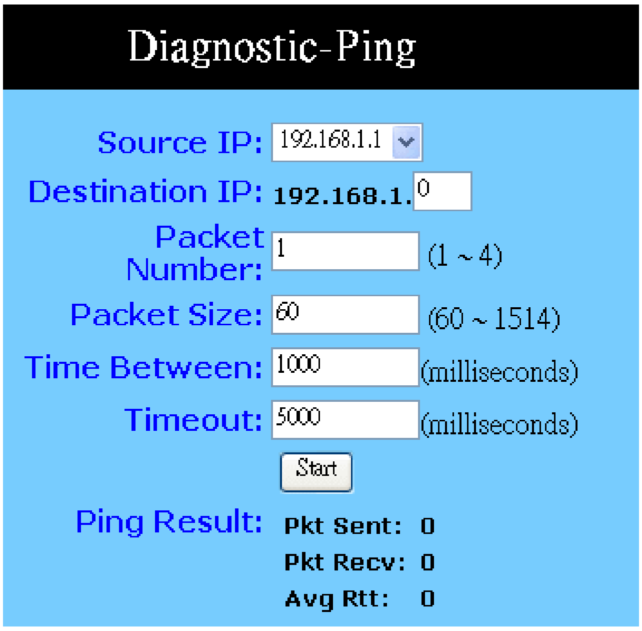
Upgrade After you enter or select the path, click "**Upgrade**" to start the firmware upgrade process.

Note that ***don't power off the router during the firmware upgrading***, otherwise the incompletion of firmware upgrading will cause serious damage to the integrity of the router's firmware that will lead to fail to boot the router again.

5-6 Diagnostic-Ping/Tracert

This function allows you to test the connection between router and LAN or between router and Internet.

Ping



Diagnostic-Ping

Source IP: 192.168.1.1

Destination IP: 192.168.1.0

Packet Number: 1 (1 ~ 4)

Packet Size: 60 (60 ~ 1514)

Time Between: 1000 (milliseconds)

Timeout: 5000 (milliseconds)

Ping Result: Pkt Sent: 0
Pkt Recv: 0
Avg Rtt: 0

Source IP: You can chose to issue the ping test from the LAN side by selecting Router's private IP Address or from the WAN side by selecting Router's WAN IP Address.

Destination IP: Enter the IP Address of destination device you want to ping. If Router's LAN IP address is selected as Source IP, you only can ping LAN side device and vice versa.

Packet Number: Enter the packet numbers you wish to use to ping the destination device. The maximum numbers are four.

Packet Size: Enter the numbers of packet size you wish to use to ping the destination device. The maximum packet sizes are 1514.

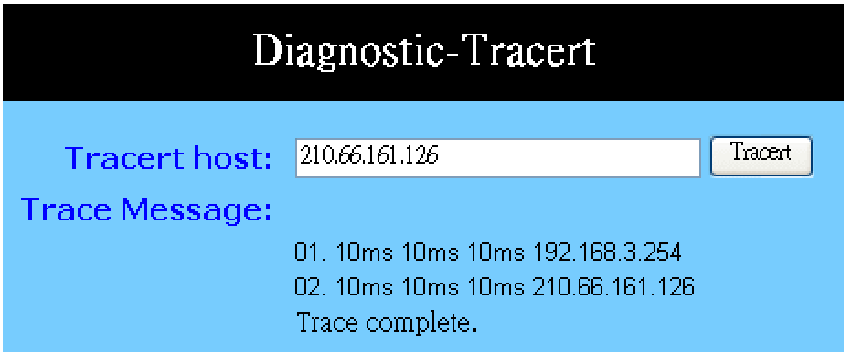
Time Between Enter the numbers of time between two packets.

Time out: Enter the number of time regarding as no response after starting to ping the destination device.

Start: Click this button to begin the ping test.

Ping Result: The result will show the numbers of sending packet, numbers of packet receiving, and the average return time.

Tracert



Tracert host: 210.66.161.126

```
01. 10ms 10ms 10ms 192.168.3.254
02. 10ms 10ms 10ms 210.66.161.126
Trace complete.
```

Tracert Host: Enter the IP Address of destination device that you wish to trace the route between Router and that device.

Trace Message: The result shows the routing information between Router and destination device.

Tracert: Click “Tracert” to start this test.

Chapter 6: Macintosh Setup

This chapter provides information on using Macintosh computers in your network. The instructions given here are for system software version 8.0 or above, which comes with the TCP/IP Protocol preloaded and supports DHCP Addressing.

6-1 Hardware Connections

Connect your Macintosh computer to your 11g Wireless Security Router . If you have a newer computer, there will be a Ethernet port on the back. Older computers will need to have an Ethernet card installed. See your computer's User's Manual for instructions on Ethernet card installation.

6-2 Computer Network Configuration

It is assumed that your computer's system software already has TCP/IP installed. You may manually configure your computer with a fixed IP Address or have an IP Address dynamically assigned to it by the 11g Wireless Security Router 's DHCP server.

6-2.1 Dynamic IP Addressing using DHCP Server.

1. From the **"Apple"** menu, select **"Control Panel"** and click on **"TCP/IP"**.
2. In the **"TCP/IP (A New Name For Your Configuration)"** window, select **"Ethernet"** in the **"Connect via"** location from the drop-down list.
3. In the **"Setup"** area:
   - Select **"Using DHCP Server"** in the **"Configure"** location from the drop-down list.
   - No other data needs to be entered.
   - Close the window.
4. Click **"Save"** from the file menu, then **"Quit"** TCP/IP.
5. Restart the computer.

6-2.2 Manual Configuration of Fixed IP Addresses

1. From the **"Apple"** menu, select **"Control Panel"** and click on **"TCP/IP"**.
2. In the **"TCP/IP (A New Name For Your Configuration)"** window, select **"Ethernet"** in the **"Connect via"** location from the drop-down list.
3. In the **"Setup"** area:

- Select **“Manually”** in the **“Configure”** location from the drop-down list.
- In the **“IP Address”** location, enter the IP Address that you want to assign to the computer. (see the notes on Fixed IP Addresses 2-4 above).
- Enter **“255.255.255.0”** in the **“Subnet Mask”** location.
- Enter **“192.168.1.1”** (the 11g Wireless Security Router ’s default IP Address) in the **“Router Address”** location.
- Enter the ISP’s IP Address in the **“Name Server”** location if your ISP has provided the information.
- Close the window.

4. Click **“Save”** from the file menu then **“Quit”** TCP/IP.
5. Restart the computer.

6-3 11g Wireless Security Router Configuration

To configure your 11g Wireless Security Router , use your Web Browser and follow the instructions given in Chapter 3: Internet Access, section 3.3. To configure advanced settings, see Chapter 4: Advanced Applications.

6-4 Adding 11g Wireless Security Router to Existing Network

If the 11g Wireless Security Router is to be added to an existing Macintosh computer network, the computers will have to be configured to connect to the Internet via the 11g Wireless Security Router .

1. From the **“Apple**” menu, select **“Control Panel”** and click on **“TCP/IP”**.
2. From the **“File”** menu, select **“Configurations”** and select your existing network configuration. Click **“Duplicate”**.
3. Rename your existing configuration. Click **“OK”**, and **“Make Active”**.
4. In the Setup area:
   - Select **“Manually”** in the **“Configure”** location from the drop-down list.
   - In the **“IP Address”** location, enter the IP Address that you want to assign to the computer. (see the note on fixed IP Addresses 2-4 above).
   - Enter **“255.255.255.0”** in the **“Subnet Mask”** location.
   - Enter **“192.168.1.1”** (the 11g Wireless Security Router ’s default IP Address) in the **“Router Address”** location.
   - Enter the ISP’s IP Address in the **“Name Server”** location if your ISP

has provided the information.

- Close the window.

5. Click **“Confirm”**. TCP/IP is now configured for manual IP Addressing.
6. Configure your 11g Wireless Security Router (see 5.3 above).

Chapter 7: Trouble Shooting

This chapter provides solutions to problems you may encounter during installation and operation of your 11g Wireless Security Router .

Hardware

Q: The Power LED is off.

Check that the power cable is properly connected to the 11g Wireless Security Router , the power adapter and the socket.

Q: The LAN Link LED is off.

Check that the computer, hub or switch is properly connected to the 11g Wireless Security Router .

Check that the computer's Ethernet card is properly installed.

Check that the 11g Wireless Security Router and the computer are on the same network segment. If you are not sure, initiate the DHCP function (4-1) and set your computer to obtain an IP address automatically (3-3).

Check that the computer is using an IP address in the range of 192.168.1.2 ~ 192.168.1.254 and is therefore compatible with the 11g Wireless Security Router 's default IP address of 192.168.1.1 (3-3). Check also the Subnet Mask is set to 255.255.255.0

Q: The DIAG LED stays lit.

The DIAG LED should light up when the device is first powered up to indicate it is checking for proper operation. After a few seconds, the LED should go off. If it stays lit, the device is experiencing a problem. Please contact your dealer.

Q: Why can't I configure the 11g Wireless Security Router ?

First, check whether the 11g Wireless Security Router is properly installed or not, including the LAN and WAN connections, and that all devices are switched on.

Next, check the IP configuration of your PC:

- ✓ For Windows 95/98 users: run winipcfg.exe or winipcfg from *Run* on the *Start* menu. If there are no IP addresses shown, click Release All and then click Renew All to get the IP addresses.
- ✓ For Windows NT 4.0 users: run ipconfig.exe or ipconfig from *Run* on the *Start* menu and follow the instruction as above.

Ensure that your PC and the 11g Wireless Security Router are on the same network segment. If you are not sure, initiate the DHCP function and set you PC to obtain an IP address automatically.

Ensure that your PC is using an IP Address within the range 192.168.1.2 to 192.168.1.254 and thus compatible with the 11g Wireless Security Router default IP address of 192.168.1.1

Finally, use the Ping command in MS-DOS mode to verify the network connection:

Ping 127.0.0.1 to check the TCP/IP stack of your computer

Ping gateway IP (Default: 192.168.1.1) to check the internal link of network.

Note if you're not able to view the web configuration screen for the 11g Wireless Security Router , make sure that you remove any proxy setting within your Internet browser, or remove the dial-up settings within your browser.

Q: What can I do if I have forgotten the password for the 11g Wireless Security Router ?

You have to reset the Wireless Security Router back to the factory default setting by pushing the Reset button for longer than 3 seconds. Refer to the user's manual to re-configure the settings.

Q: I cannot access my ISP's home page, why?

Some ISPs, such as @Home, require that their host name be specifically configured into your computer before you can surf their local web pages. If you are unable to access your ISP's home page, enter your ISP's Domain Name into the OnePage Setup (3-3) to enable all computers in your LAN access to it. If you only want to allow computers to access these home pages, open the TCP/IP Properties window (2-4) on these computers, click the **"DNS Configuration"** tab and enter your ISP's Domain Name in the **"Domain Name Search Suffix"** location.

Client Side (Computers)

Q: I can't browse in the Internet via the 11g Wireless Security Router

A: Check the following:

✓ Check that the LAN Link/ACT LED on the front panel is lit to indicate proper connection between the computer and the 11g Wireless Security Router .

✓ Check if both ends of the network cable are properly connected.

✓ Check that TCP/IP is installed on your computer (2-4).

For Windows 95/98, use a MS-Dos prompt to run "winipcfg" ("Ipconfig" for Windows NT). Check that the computer's IP Address is within the range of 192.168.1.2 ~ 192.168.1.254 and the Subnet Mask is 255.255.255.0. If you are using a fixed IP address, also check the Default Gateway IP Address and DNS address in **"More"**.

- ✓ Check that the values as stated above are the same in Status Monitor (4-7).

Q: I get a time out error when I enter a URL or IP address.

A: Check whether other computers work. If they do, ensure the computer’s IP settings are correct (IP Address, Subnet Mask, Gateway IP Address and DNS) (3-3). Then check whether the 11g Wireless Security Router ’s settings are correct (3-3).

Appendix A: Frequently Asked Questions

Q: What is the maximum number of IP Addresses the 11g Wireless Security Router can support?

The 11g Wireless Security Router can support up to 253 IP Addresses in the range of 192.168.1.2~192.168.1.254.

Q: Where should the 11g Wireless Security Router be installed on the network?

In a typical environment, the 11g Wireless Security Router should be installed between the ADSL/Cable modem and your LAN. Connect the 11g Wireless Security Router to the Ethernet port of the ADSL/Cable modem, and connect your PCs to the RJ45 jack on the LAN side.

Q: Does the 11g Wireless Security Router support IPX or AppleTalk?

No. The 11g Wireless Security Router was designed to provide a multiple user LAN with shared Internet access and supports only the TCP/IP Protocol. If your Novell or Apple system is configured with TCP/IP, the 11g Wireless Security Router can support them.

Q: Does the 11g Wireless Security Router support 100Mb Ethernet?

Yes, the 11g Wireless Security Router supports both 10Mb & 100Mb Ethernet on the LAN side.

Q: What is “NAT” and what is it used for?

The Network Address Translation (NAT) Protocol translates multiple IP Addresses on a private LAN into a single public IP Address that is accessible to the Internet. NAT not only provides the basis for multiple IP Address sharing but also adds to the LAN’s security since the multiple IP Addresses of LAN computers are never transmitted directly to the Internet.

Q: How can 11g Wireless Security Router share single user account to multiple users?

11g Wireless Security Router combines the following technologies to enable this function.

NAT (Network Address Translation): NAT is a technology which can create a private network domain behind a public IP. It is usually used as a firewall. It can also be used when there are not enough IP Address.

DHCP (Dynamic Host Configuration Protocol): DHCP is a protocol used to assign IP Address to internal computers automatically. It can save a lot of IP configuration. This protocol is supported by Windows 95/NT, Mac OS, and many other popular OS.

DNS (Domain name service): DNS is a protocol which translates a Domain Name to IP Addresses that Internet host can handle. Addressing systems using Domain name, like www.yahoo.com, is easier to use than an IP address, such as 204.71.177.70.

Q: What operating systems does 11g Wireless Security Router series support?

11g Wireless Security Router uses standard TCP/IP protocol, it can be operated as long as you have the TCP/IP protocol installed in your operating system (For example: Windows 9x, Windows NT, Windows 2000, etc.)

Q: Can I use multiple E-mail accounts if I use 11g Wireless Security Router ?

Yes, you can. Some people think having one Internet account mean that they can only have one E-mail account. However, E-mail is set by mailbox accounts and is different to the account you use to connect to your ISP. If you want more E-mail accounts, you should contact your ISP or you can browse the Internet to apply for a free E-mail account.

Q: Can Internet users access LAN computers?

11g Wireless Security Router uses NAT to router all in/out packets. All external users can only see the IP of the 11g Wireless Security Router but cannot access LAN computers. The LAN computers are well protected with the 11g Wireless Security Router 's natural firewall.

Q: When should I use DMZ host?

Enable DMZ host when you want to have unrestricted communication between your PC and the Internet, for example, playing Internet games (i.e. Ages of Empire) or having multimedia conferences (i.e. NetMeeting).

Q: Does the 11g Wireless Security Router support PPTP of VPN packets pass through?

Yes. 11g Wireless Security Router supports single session PPTP pass through.

Q: Does the 11g Wireless Security Router series support IPsec?

Yes. 11g Wireless Security Router supports single session IPsec pass through.

Appendix B: Technical Specifications

Standards Compliance

IEEE 802.3 10BASE-T
IEEE 802.3u 100BASE-TX
IEEE 802.11g Wireless

Interface

One 10/100Mbps Ethernet RJ45 port on WAN
Four 10/100Mbps auto-sensing Ethernet RJ-45 ports and one uplink port on LAN
Wireless access point

Management

Web-based UI Management

LED Display

Power
DIAG
Enable/Activity for Wireless interface
Link/Activity for both WAN and LAN port(s)

Environment

Operation Temperature: 0 ~ 40 degrees C (32 ~ 104 degrees F)
Storage Temperature: -20 ~ 60 degrees C (-4 ~ 140 degrees F)
Humidity: Operating 10 ~ 85% non-condensing
Storage 5% ~ 90% non-condensing

Dimension

122 (L) x 175 (W) x 31 (H) mm

Power

External, DC 12V, 1A

Mounting

Desktop / Wall-mounting

Appendix C: Configuring IPSec between a Microsoft Windows 2000 or XP PC and Broadband VPN Router

This document illustrates the steps of Microsoft Windows 2000 (or XP) PC establishing a secure IPsec tunnel with this **Broadband VPN Router**. You can find detailed information on configuring the Microsoft Windows 2000 server at the Microsoft website:

Microsoft KB Q252735 - How to Configure IPSec Tunneling in Windows 2000
http://support.microsoft.com/support/kb/articles/Q252/7/35.asp

Microsoft KB Q257225 - Basic IPSec Troubleshooting in Windows 2000
http://support.microsoft.com/support/kb/articles/Q257/2/25.asp

C-1 Environment

Windows XP or Windows 2000

IP Address: 140.111.1.2 *(Note: ISP provided IP Address; this is only an example.)*

Subnet Mask: 255.255.255.0

Broadband VPN Router

WAN

IP Address: 140.111.1.1 *(Note: ISP provided IP Address, this is only an example.)*

Subnet Mask: 255.255.255.0

LAN

IP Address: 192.168.1.1

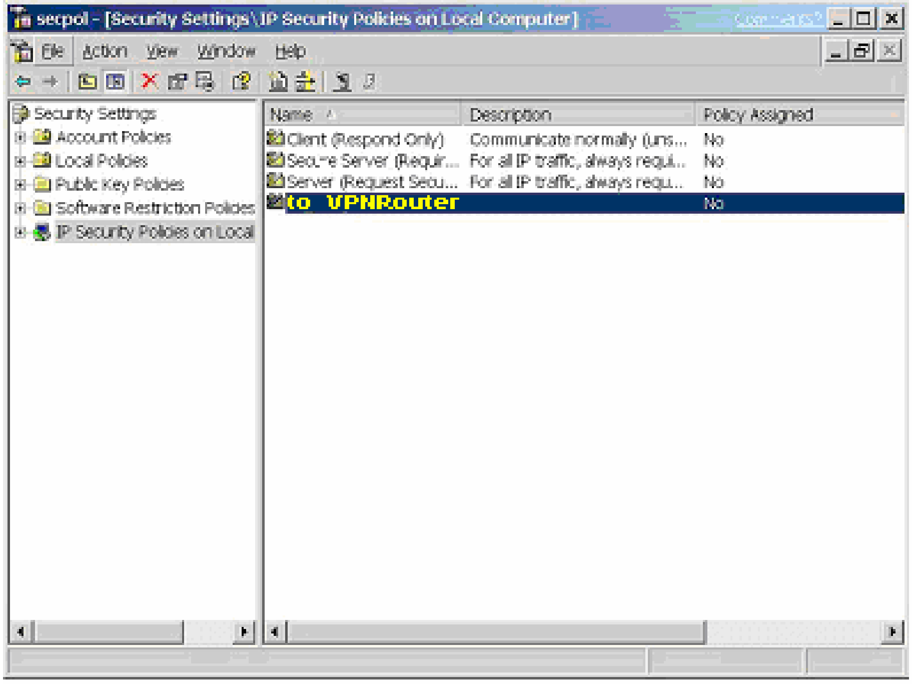
Subnet Mask: 255.255.255.0

C-2 Steps in Windows 2000/XP

C-2.1 Create IPSec Policy

1. Click **Start** button, select **Run**, and type **secpol.msc** in the **open** field.
2. Right-click **IP Security Policies on Local Computer**, and then click **Create IP Security Policy**.
3. Click **Next**, and then type a name for your policy (for example, “**to_VPNRouter**”).

4. Deselect the **Activate the default response rule** check box, and then click **Next** button.
5. Click the **Finish** button, making sure the **Edit** check box is checked.

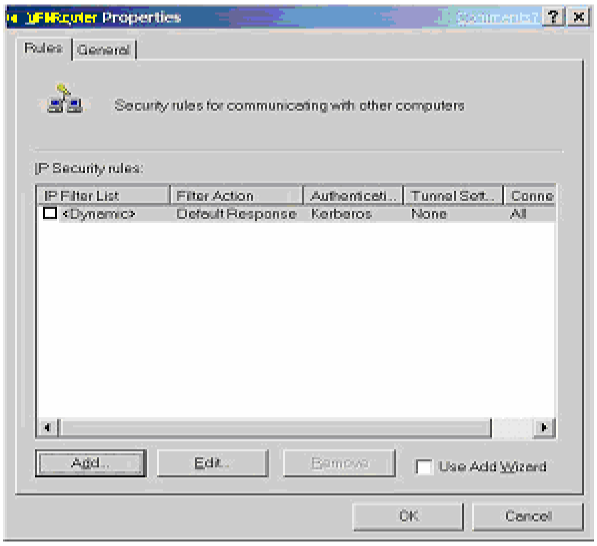

secpol - [Security Settings\IP Security Policies on Local Computer]
File
Action
View
Window
Help
Security Settings
Account Policies
Local Policies
Public Key Policies
Software Restriction Policies
IP Security Policies on Local

Name	Description	Policy Assigned
Client (Respond Only)	Communicate normally (uns...	No
Secure Server (Requir...	For all IP traffic, always requi...	No
Server (Request Secu...	For all IP traffic, always requ...	No
to VPNRouter		No

C-2.2 Build 2 Filter Lists: “WinXP→Broadband VPN Router” and “Broadband VPN Router→WinXP”.

[Filter List 1] WinXP→ Broadband VPN Router

1. In the **to_VPNRouter Properties**, deselect the **Use Add Wizard** check box, and then click **Add** button to create a new rule.

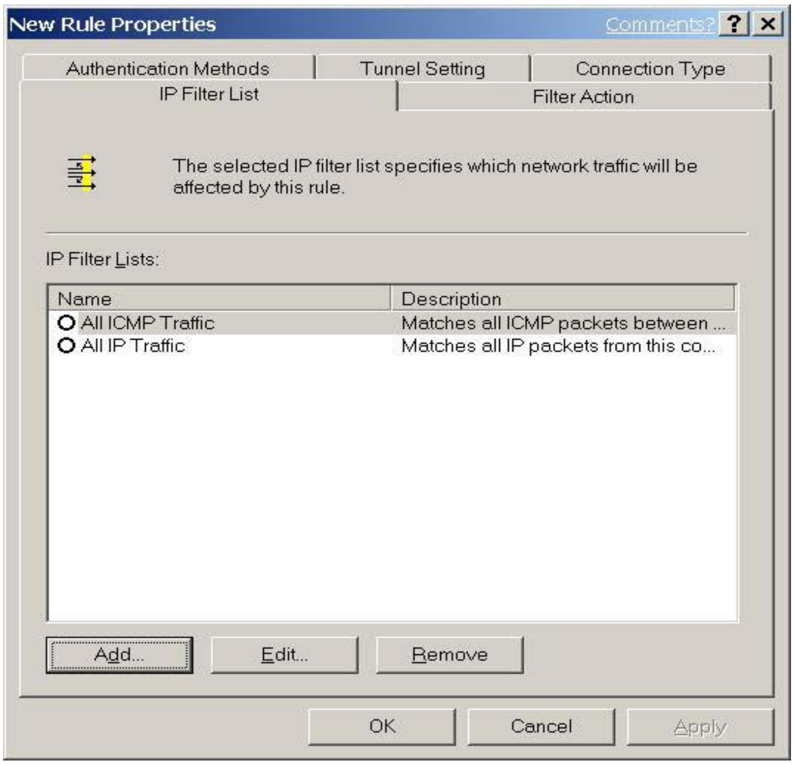


IP Security rules:

IP Filter List	Filter Action	Authenticati...	Tunnel Sett...	Conne
□ <Dynamic>	Default Response	Kerberos	None	All

□ Use Add Wizard

2. From the **IP Filter List** tab, click the **Add** button.

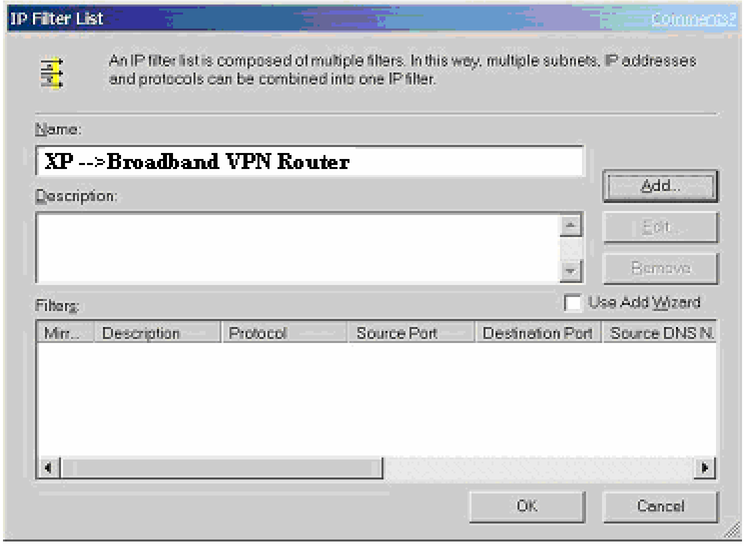


The selected IP filter list specifies which network traffic will be affected by this rule.

IP Filter Lists:

Name	Description
○ All ICMP Traffic	Matches all ICMP packets between ...
○ All IP Traffic	Matches all IP packets from this co...

3. Type an appropriate name "**XP→Broadband VPN Router**" for the filter list, deselect the **Use Add Wizard** check box, and then click **Add** button.



An IP filter list is composed of multiple filters. In this way, multiple subnets, IP addresses and protocols can be combined into one IP filter.

Name: XP -->Broadband VPN Router

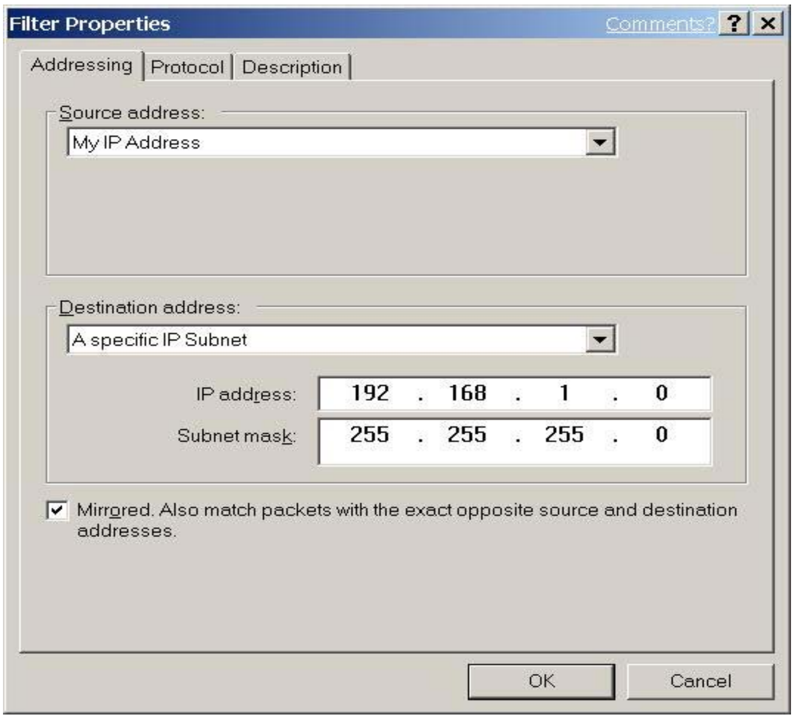
Description:

Filters:

□ Use Add Wizard

Mirr...	Description	Protocol	Source Port	Destination Port	Source DNS N...

4. In the **Source address** area, click **My IP Address**.
5. In the **Destination address** field, select **A specific IP Subnet**, and fill in the **IP Address "192.168.1.0"** and **Subnet mask "255.255.255.0"**.



Source address: My IP Address

Destination address: A specific IP Subnet

IP address: 192 . 168 . 1 . 0

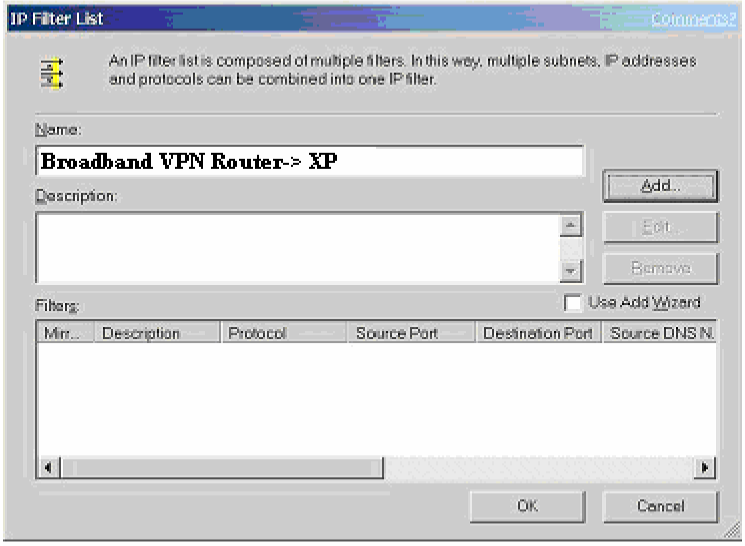
Subnet mask: 255 . 255 . 255 . 0

☑ Mirrored. Also match packets with the exact opposite source and destination addresses.

6. If you want to type a description for your filter, click the **Description** tab.
7. Click **OK** button. Then click **OK**(for WinXP) or **Close** (for Win2000) button on the **IP Filter List** Window.

[Filter List 2] Broadband VPN Router→WinXP

1. On the **IP Filter List** tab, click the **Add** button.
2. Type an appropriate name "**Broadband VPN Router→XP**" for the filter list, click to clear the **Use Add Wizard** check box, and then click **Add**.



An IP filter list is composed of multiple filters. In this way, multiple subnets, IP addresses and protocols can be combined into one IP filter.

Name: Broadband VPN Router-> XP

Description:

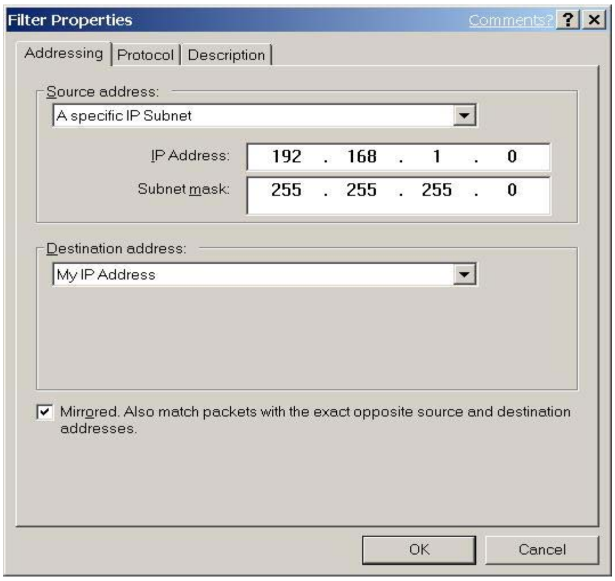
Filters:

☐ Use Add Wizard

3. In the **Source address** area, click **A specific IP Subnet**, and fill in the **IP**

Address "192.168.1.0" and **Subnet mask "255.255.255.0"**.

4. In the **Destination address** area, click **My IP Address**.



Source address: A specific IP Subnet

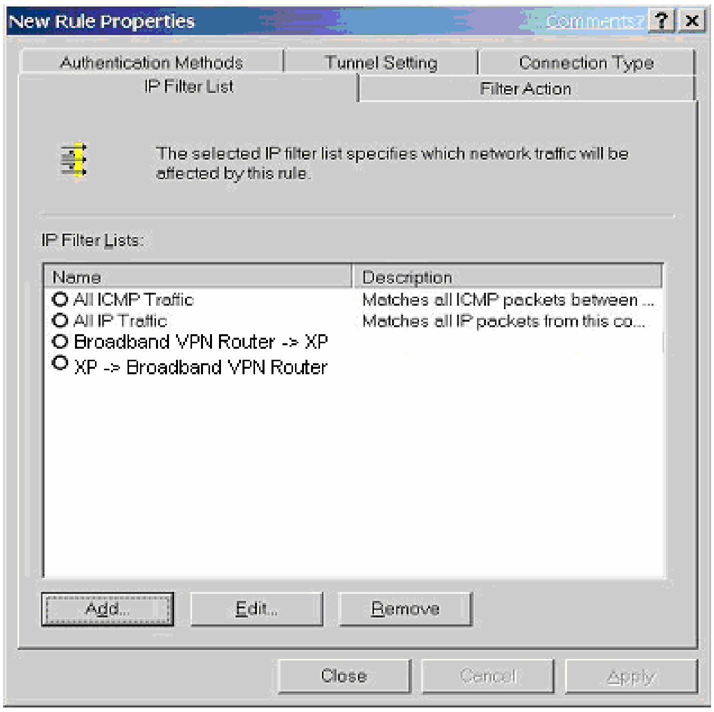
IP Address: 192 . 168 . 1 . 0

Subnet mask: 255 . 255 . 255 . 0

Destination address: My IP Address

☑ Mirrored. Also match packets with the exact opposite source and destination addresses.

5. If you want to type a description for your filter, click the **Description** tab.
6. Click **OK**, and then click **OK**.



The selected IP filter list specifies which network traffic will be affected by this rule.

IP Filter Lists:

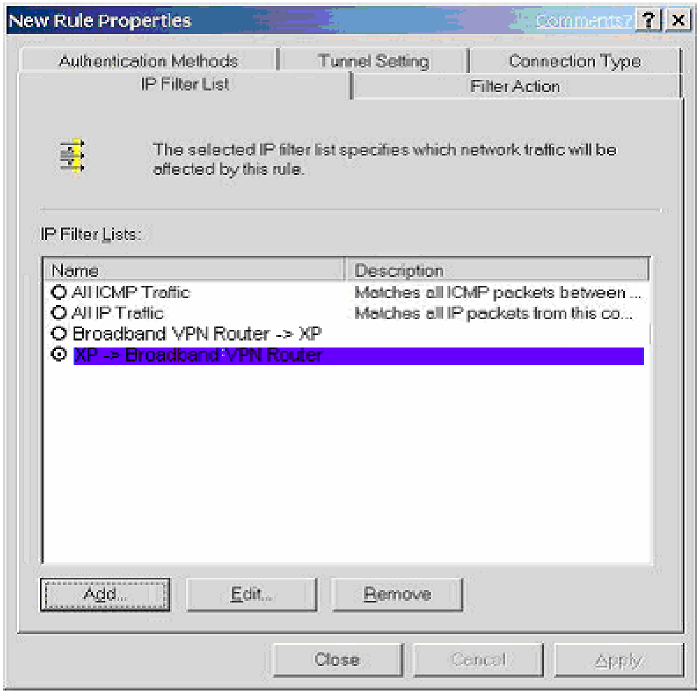
Name	Description
○ All ICMP Traffic	Matches all ICMP packets between ...
○ All IP Traffic	Matches all IP packets from this co...
○ Broadband VPN Router -> XP	
○ XP -> Broadband VPN Router	

C-2.3 Configure Individual Rule of 2 Tunnels

[Tunnel 1] WinXP→Broadband VPN Router

1. From the **IP Filter List** tab, click the filter list "**XP→Broadband VPN**

Router”.

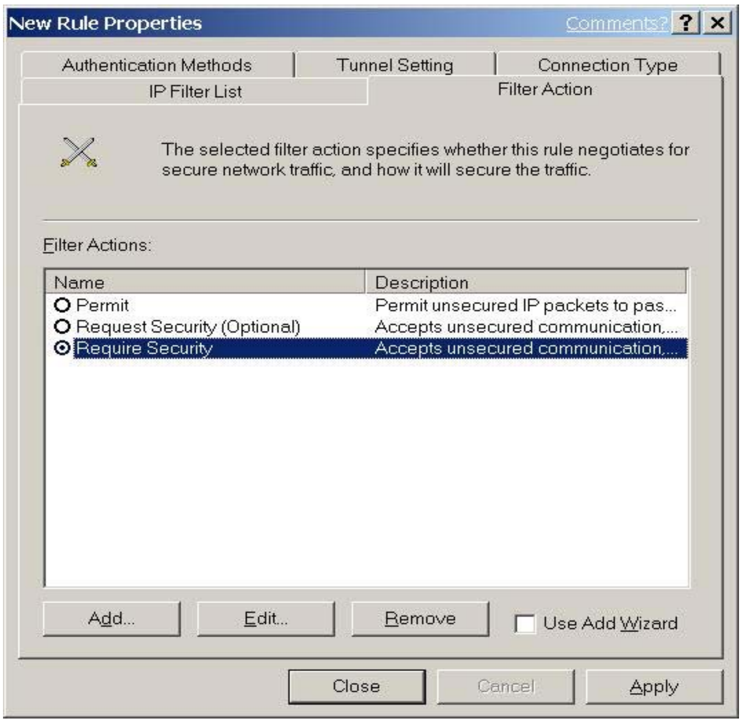


The selected IP filter list specifies which network traffic will be affected by this rule.

IP Filter Lists:

Name	Description
○ All ICMP Traffic	Matches all ICMP packets between ...
○ All IP Traffic	Matches all IP packets from this co...
○ Broadband VPN Router -> XP	
● XP -> Broadband VPN Router	

2. From the **Filter Action** tab, click the filter action “**Require Security**”, and click the **Edit** button.



The selected filter action specifies whether this rule negotiates for secure network traffic, and how it will secure the traffic.

Filter Actions:

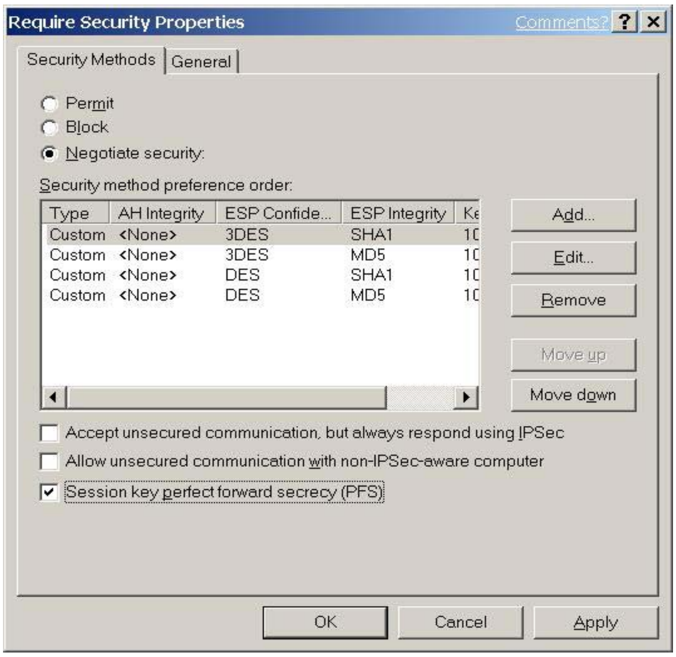
Name	Description
○ Permit	Permit unsecured IP packets to pas...
○ Request Security (Optional)	Accepts unsecured communication,...
● Require Security	Accepts unsecured communication,...

□ Use Add Wizard

3. Check that the **Negotiate security** option is enabled, and deselect the **Accept**

unsecured communication, but always respond using IPsec check box.

4. Select the **Session key Perfect Forward Secrecy (PFS)** and remember to check the **PFS** option on the **Broadband VPN Router**, and then click the **OK** button.



Require Security Properties

Security Methods | General

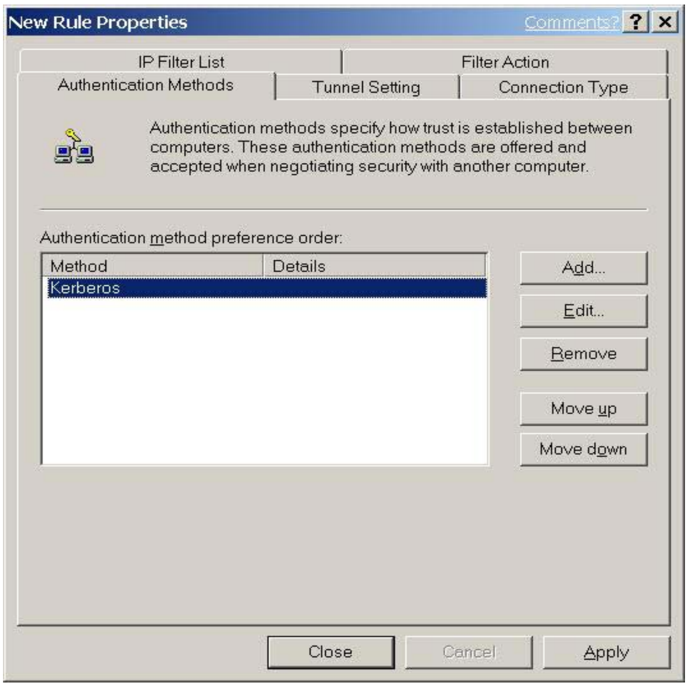
○ Permit
○ Block
● Negotiate security:

Security method preference order:

Type	AH Integrity	ESP Confide...	ESP Integrity	Ke
Custom	<None>	3DES	SHA1	1C
Custom	<None>	3DES	MD5	1C
Custom	<None>	DES	SHA1	1C
Custom	<None>	DES	MD5	1C

□ Accept unsecured communication, but always respond using IPSec
□ Allow unsecured communication with non-IPSec-aware computer
☑ Session key perfect forward secrecy (PFS)

5. From the **Authentication Methods** tab, click the **Edit** button.



New Rule Properties

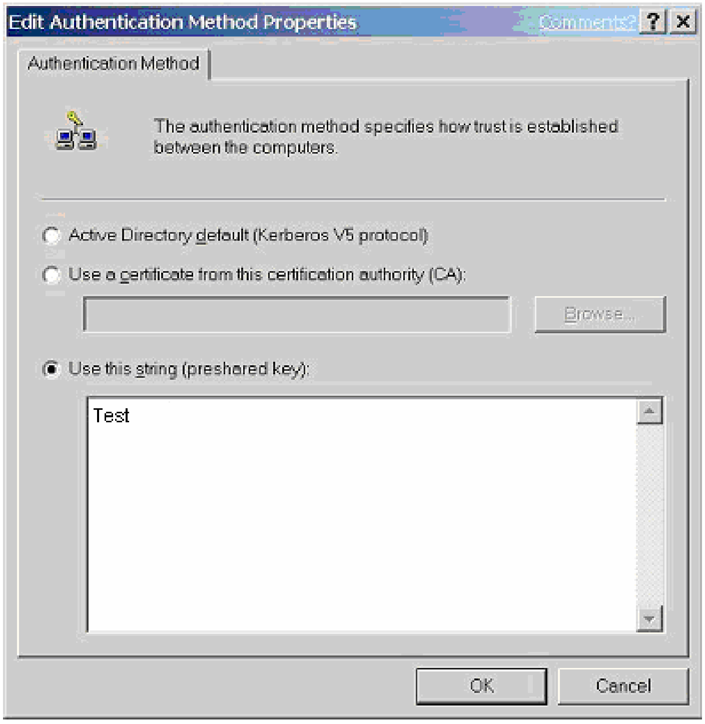
IP Filter List | Filter Action | Authentication Methods | Tunnel Setting | Connection Type

Authentication methods specify how trust is established between computers. These authentication methods are offered and accepted when negotiating security with another computer.

Authentication method preference order:

Method	Details
Kerberos	

6. Change the authentication method to "**Use this string (preshared key)**", enter the string "**Test**", and then click the **OK** button.



The authentication method specifies how trust is established between the computers.

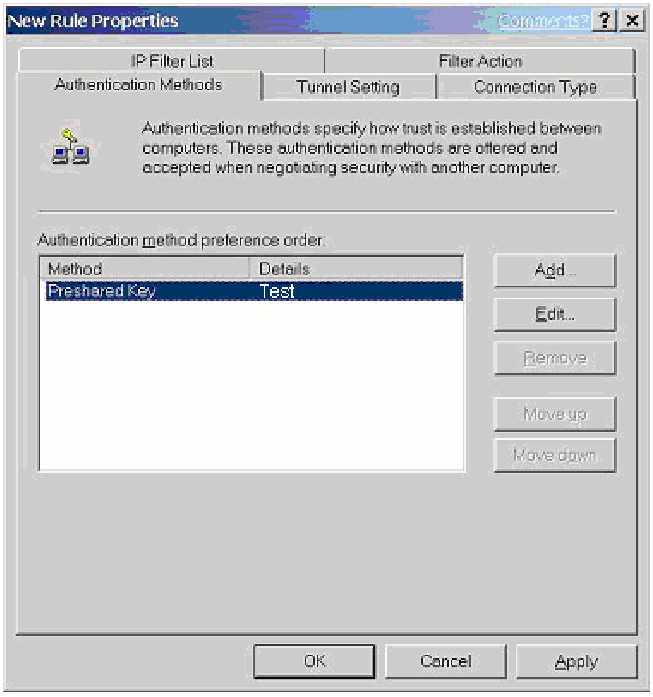
○ Active Directory default (Kerberos V5 protocol)

○ Use a certificate from this certification authority (CA):

● Use this string (preshared key):

Test

This new Preshared key will be displayed in **Authentication method preference order**. Click the **OK** button to continue.

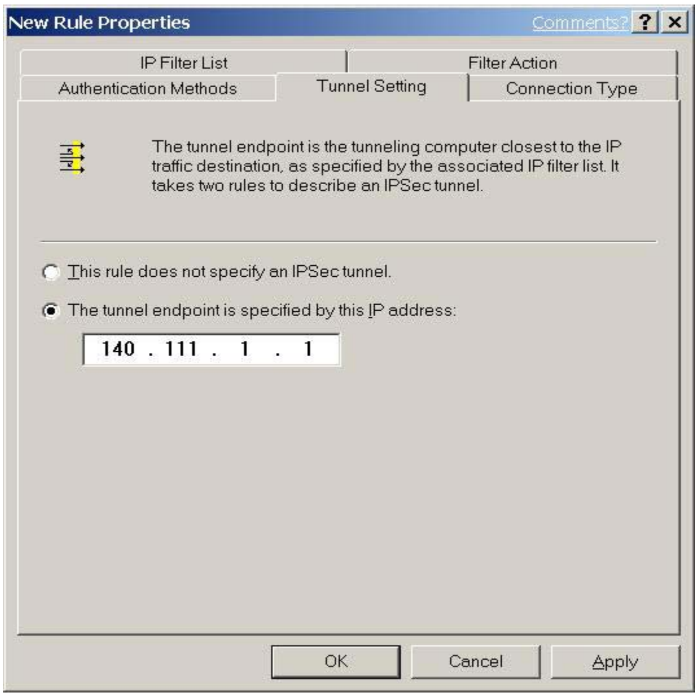


Authentication methods specify how trust is established between computers. These authentication methods are offered and accepted when negotiating security with another computer.

Authentication method preference order:

Method	Details
Preshared Key	Test

7. From the **Tunnel Setting** tab, click **The tunnel endpoint is specified by this IP Address** box, and then type the WAN IP Address “**140.111.1.1**”*(Note: ISP provided IP Address; this is only an example.)*of the **Broadband VPN Router.**



New Rule Properties

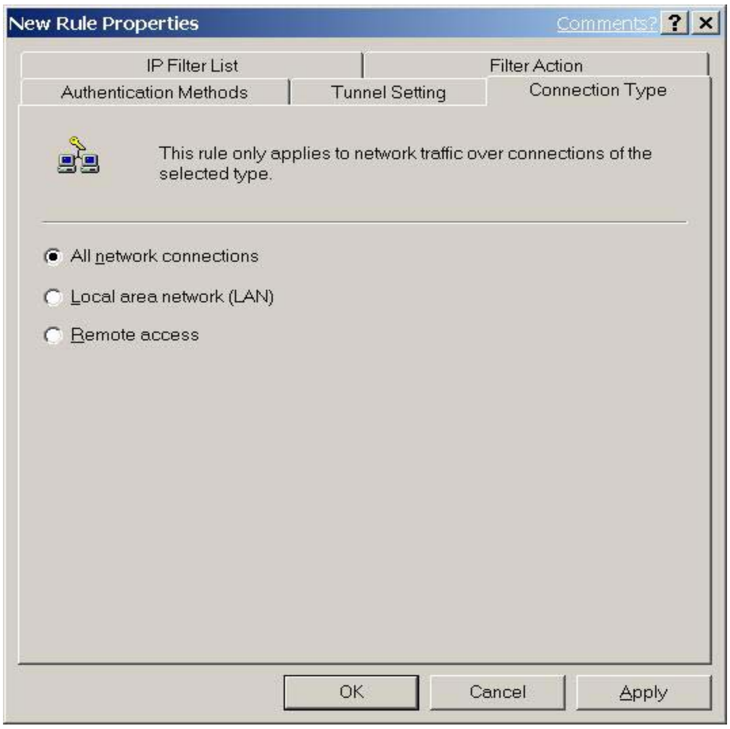
The tunnel endpoint is the tunneling computer closest to the IP traffic destination, as specified by the associated IP filter list. It takes two rules to describe an IPSec tunnel.

○ This rule does not specify an IPSec tunnel.

● The tunnel endpoint is specified by this IP address:

140 . 111 . 1 . 1

8. From the **Connection Type** tab, select **All network connections**, and then click the **OK** or **Close** button to finish this rule.



New Rule Properties

This rule only applies to network traffic over connections of the selected type.

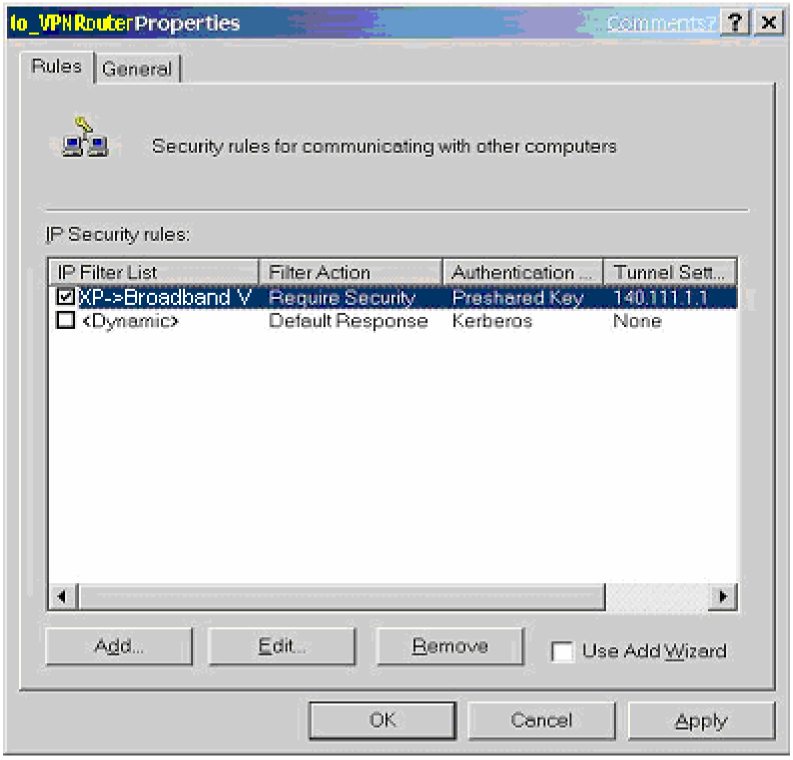
● All network connections

○ Local area network (LAN)

○ Remote access

[Tunnel 2] Broadband VPN Router→ WinXP

1. In the **to_VPNRouter Properties**, deselect the **Use Add Wizard** check box, and then click the **Add** button to create the second IP Filter.



to_VPNRouter Properties

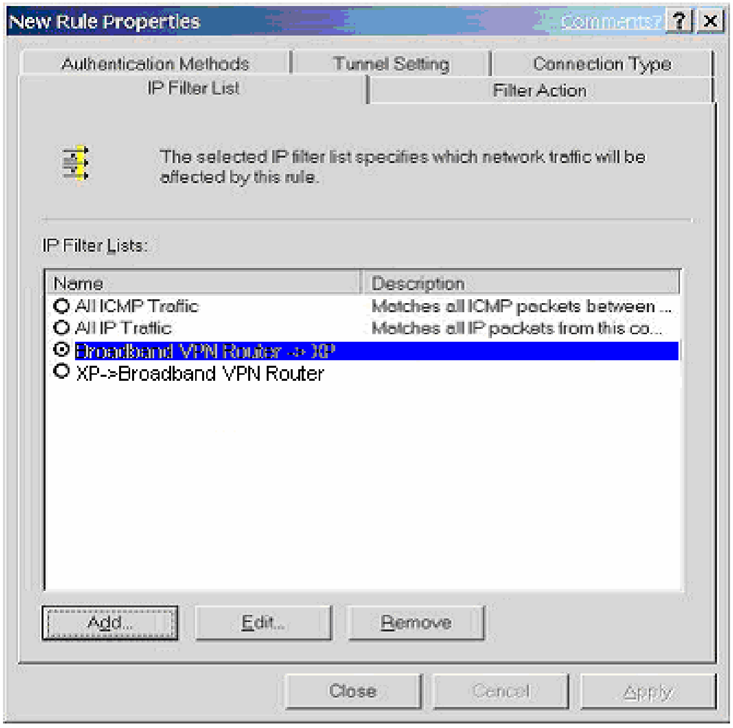
Security rules for communicating with other computers

IP Security rules:

IP Filter List	Filter Action	Authentication ...	Tunnel Sett...
☑ XP->Broadband V	Require Security	Preshared Key	140.111.1.1
☐ <Dynamic>	Default Response	Kerberos	None

☐ Use Add Wizard

2. On the **IP Filter List** tab, click the filter list **“Broadband VPN Router→XP”.**



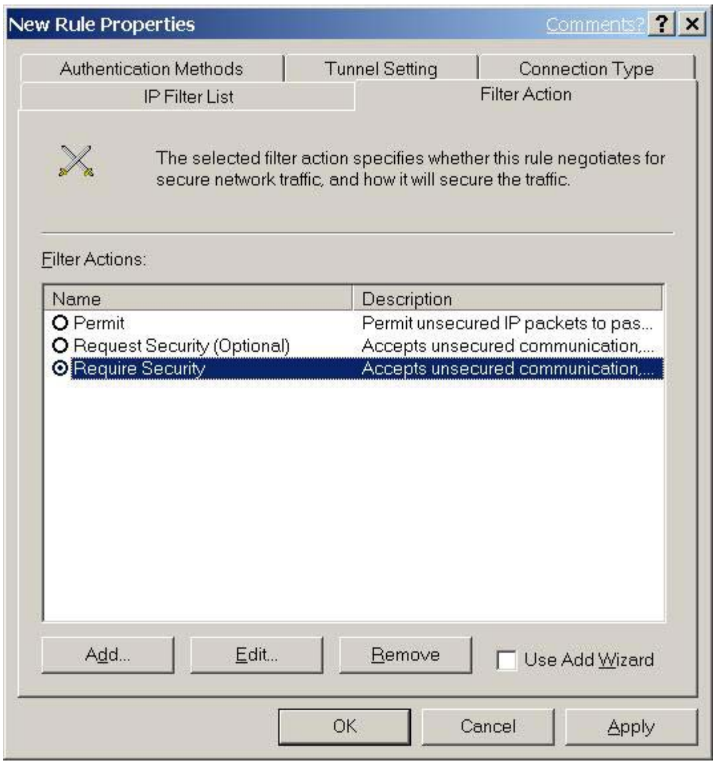
New Rule Properties

The selected IP filter list specifies which network traffic will be affected by this rule.

IP Filter Lists:

Name	Description
○ All ICMP Traffic	Matches all ICMP packets between ...
○ All IP Traffic	Matches all IP packets from this co...
● Broadband VPN Router -> XP	
○ XP->Broadband VPN Router	

3. From the **Filter Action** tab, click the filter action “**Require Security**”.

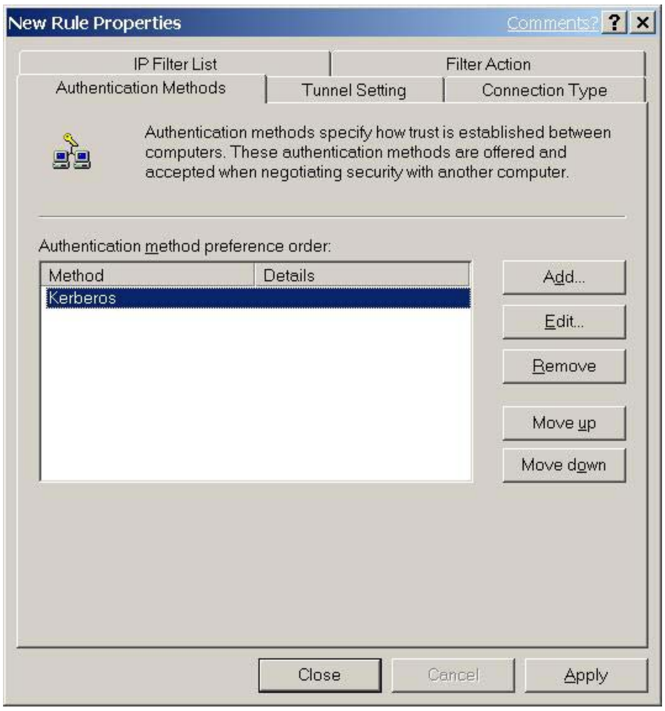


The selected filter action specifies whether this rule negotiates for secure network traffic, and how it will secure the traffic.

Filter Actions:

Name	Description
○ Permit	Permit unsecured IP packets to pas...
○ Request Security (Optional)	Accepts unsecured communication,...
● Require Security	Accepts unsecured communication,...

4. From the **Authentication Methods** tab, click the **Edit** button.

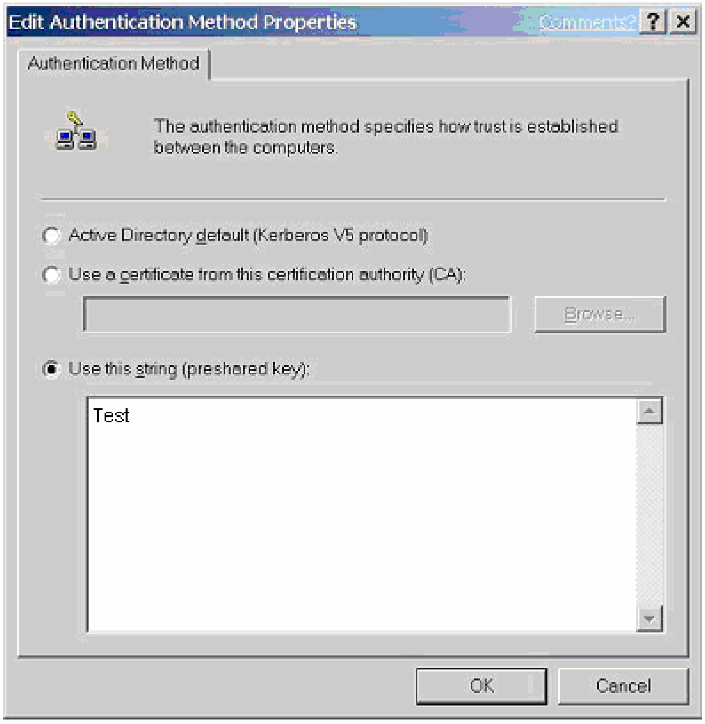


Authentication methods specify how trust is established between computers. These authentication methods are offered and accepted when negotiating security with another computer.

Authentication method preference order:

Method	Details
Kerberos	

5. Change the authentication method to “**Use this string (preshared key)**”, enter the string “**Test**”, and then click the **OK** button.



Edit Authentication Method Properties

Authentication Method

The authentication method specifies how trust is established between the computers.

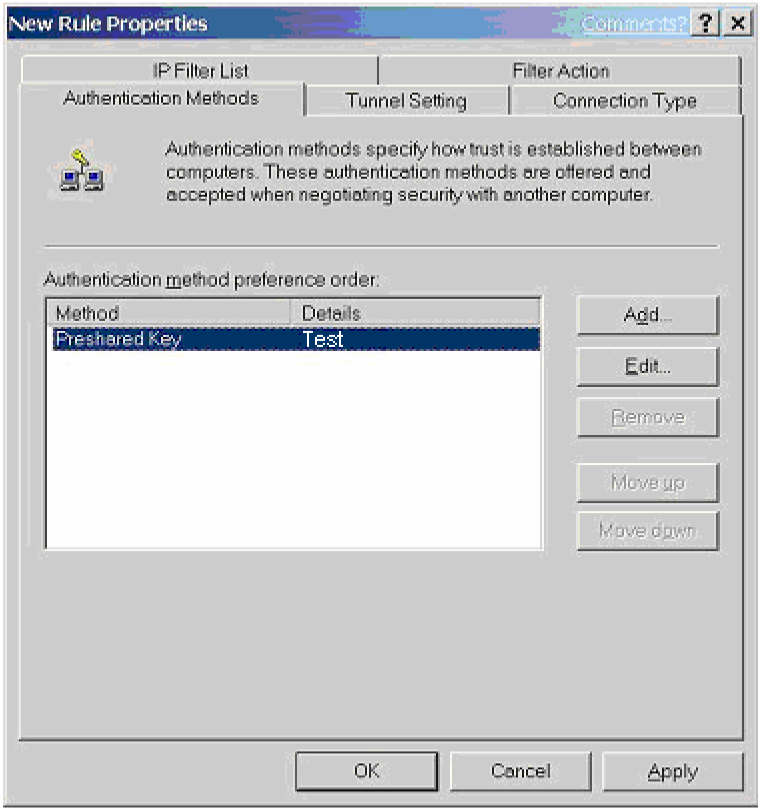
○ Active Directory default (Kerberos V5 protocol)

○ Use a certificate from this certification authority (CA):

● Use this string (preshared key):

Test

This new Preshared key will be displayed in **Authentication method preference order**. Click the **OK** button to continue.



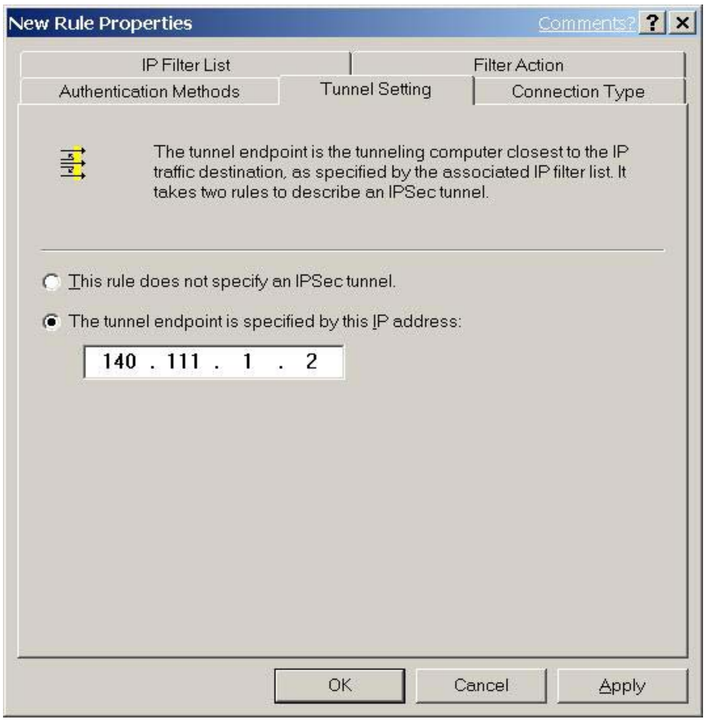
New Rule Properties

Authentication methods specify how trust is established between computers. These authentication methods are offered and accepted when negotiating security with another computer.

Authentication method preference order:

Method	Details
Preshared Key	Test

6. From the **Tunnel Setting** tab, click **The tunnel endpoint is specified by this IP Address** box, and then type the Windows 2000/XP IP Address “**140.111.1.2**”.



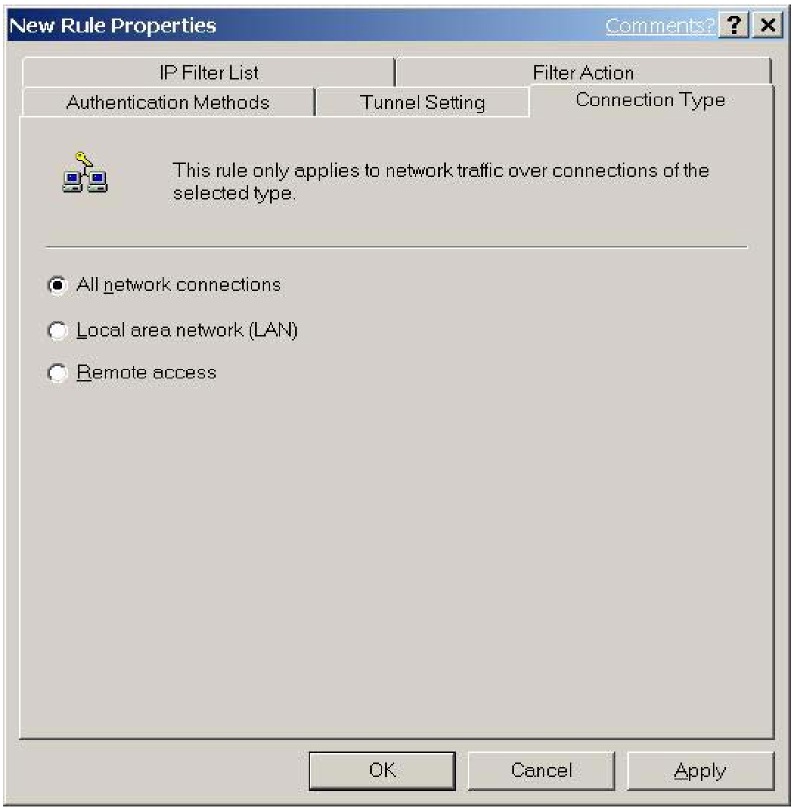
The tunnel endpoint is the tunneling computer closest to the IP traffic destination, as specified by the associated IP filter list. It takes two rules to describe an IPSec tunnel.

○ This rule does not specify an IPSec tunnel.

● The tunnel endpoint is specified by this IP address:

140 . 111 . 1 . 2

7. From the **Connection Type** tab, select **All network connections**, and then click the **OK**(for WinXP) **or Close**(for Win2000) button to finish.



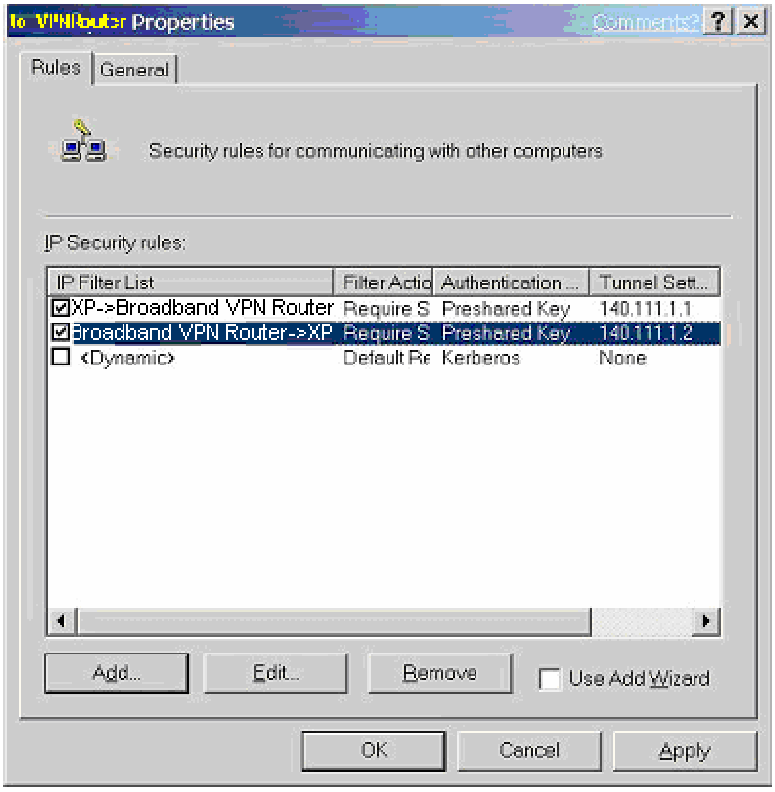
This rule only applies to network traffic over connections of the selected type.

● All network connections

○ Local area network (LAN)

○ Remote access

8. From the **Rules** tab, click the **OK** button to back to the **secpol screen**.



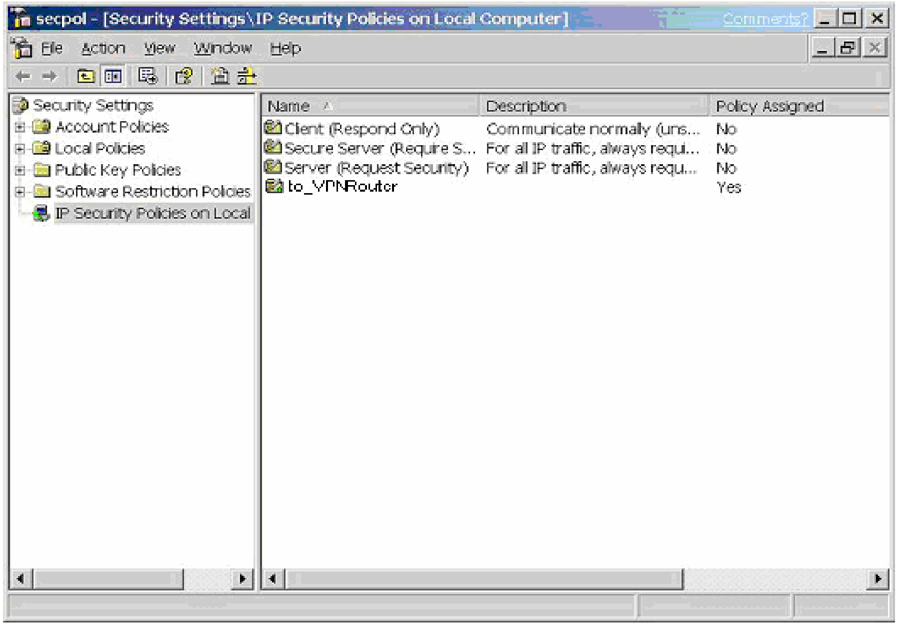
Security rules for communicating with other computers

IP Security rules:

IP Filter List	Filter Actio	Authentication ...	Tunnel Sett...
☑ XP->Broadband VPN Router	Require S	Preshared Key	140.111.1.1
☑ Broadband VPN Router->XP	Require S	Preshared Key	140.111.1.2
☐ <Dynamic>	Default Re	Kerberos	None

C-2.4 Assign New IPsec Policy

1. In the **IP Security Policies on Local Computer** MMC snap-in, right-click policy named "**to_VPNRouter**", and then click **Assign.** A green arrow appears in the folder icon.


secpol - [Security Settings\IP Security Policies on Local Computer]
Comments?
File
Action
View
Window
Help
Security Settings
Account Policies
Local Policies
Public Key Policies
Software Restriction Policies
IP Security Policies on Local

Name	Description	Policy Assigned
Client (Respond Only)	Communicate normally (uns...	No
Secure Server (Require S...	For all IP traffic, always requ...	No
Server (Request Security)	For all IP traffic, always requ...	No
to_VPNRouter		Yes

Appendix D: Glossary

10Base-T / 100Base-T

The adaptation of the Ethernet standard for Local Area Networks (LANs). 10Base-T uses a twisted pair cable with maximum lengths of 100 meters and transmits data at 10Mbps maximum. 100Base-T is similar, but uses two different twisted pair configurations and transmits at 100Mbps maximun.

Ad-hoc Network

Also known as the peer-to-peer network, an ad-hoc network allows all PCs participating in a wireless network and being within range, to communicate with each other. User’s in the same ad-hoc network can share files, printers, and other network resources.

Adapter

A device that makes the connection to a network segment, such as Ethernet and modem cards and adapters.

ADSL

Asymmetric Digital Subscriber Line (ADSL), as it’s name indicates, is an asymmetrical data trasmission technology with higher traffic rate downstream and lower traffic rate upstream. ADSL technology satisfies the bandwidth requirements of applications which demand “asymmetric” traffic, such as web surfing, file downloads and telecommuting.

Bandwidth

The amount of data that can be transmitted in a fixed amount of time.

Browser

A software application used to locate and display Web pages. Examples include Netscape Navigator and Microsoft Internet Explorer.

BSS

BSS is the acronym of Basic Service Set that consists of a wireless access point and a group of wireless client PCs.

Communication Protocols

Communication between devices requires they agree on the format in which the data is to be transmitted, sent and received. The communication protocols are a set of rules that define the data format.

Cookie

A Cookie is a piece of data stored on your PC that a web server can retrieve later to identify your machine. It is normally a text with ID number, but can include other information.

DHCP

DHCP, short for Dynamic Host Configuration Protocol, is a protocol for assigning dynamic IP Addresses to devices on a network. Dynamic Addressing means that a device can have a different IP Address each time it connects to the network.

Domain Name

A name that identifies one or more IP Addresses. For example, the domain name microsoft.com represents about a dozen IP Addresses. Domain names are used in URLs to identify particular Web pages. For example, in the URL http://www.pcwebopedia.com/index.html, the domain name is pcwebopedia.com.

DoS

DoS is the abbreviation for Denial of Service. This occurs when a computer or network is overwhelmed to the point that it can no longer function normally. For example, a hacker may use fake IP addresses to accumulate numerious connections to flood the server he wants to attack.

DDNS

DDNS is an acronym for Dynamic Domain Name Service. It helps map the domain name of a host which has a dynamic public IP address to the IP address that is allocated each time the ISP assigns a new IP address.

DNS

Short for Domain Name Server, DNS translates domain names into IP Addresses and help us recognize and remember domain names as they are alphabetic in form. The Internet actually runs on numbered IP Addresses. DNS servers translate domain names into their respective IP Addresses.

DSSS

Also known as Direct Sequence Spread Spectrum, it is a radio transmission method that continuously changes frequencies.

Ethernet

One of the most common Local Area Network (LAN) protocols. Ethernet uses a bus topology which supports a data transfer rate of 10 Mbps.

ESS

ESS is an acronym for Extend Service Set that consists of several BSS’s.

Firewall

A security system used to enforce an access control policy between an organisation’s networks and the Internet.

IEEE

Short for Institute of Electrical and Electronics Engineers, an organization best known for developing standards for the computer and electronics industry.

Internet

A global network connecting millions of computers for the exchange of data, news and opinions.

Intranet

A network based on the TCP/IP Protocol (an internet) belonging to an organization, and accessible only by that organization's members, employees, or others with authorization.

Infrastructure Network

Unlike “A~~a~~d-hoc” network, where users on a wireless LAN send data to each other directly, users’ on an “Infrastructure” network send data to the other point through a dedicated access point. Additionally, the access point enables users on a wireless LAN to access an existing wired network to take advantage of sharing the wired networks resources, such as files, printers, and Internet access.

IP Address

An identifier for a computer or device on a TCP/IP network. Networks using the TCP/IP Protocol route messages based on the IP Address of the destination. The format of an IP address is a 32-bit numeric address written as four numbers separated by periods. Each number can be from zero to 255.

IPSec

Internet Protocol Security is a security standard for network transmission. It provides authentication and packet encryption over the Internet.

ISP

Short for Internet Service Provider, a company that provides access to the Internet, usually for a monthly fee. The ISP provides a software package, username, password and access phone number allowing users to log on to the Internet, browse the World Wide Web and send and receive e-mail.

Local Area Network (LAN)

A computer network that spans a relatively small area. Most LANs are confined to a single building or group of buildings. However, one LAN can be connected to other LANs over any distance via telephone lines and radio waves. A system of LANs connected in this way is called a wide area network (WAN)

MAC Address

Short for Media Access Control Address and in a hardware address that uniquely identifies each node of a network.

NAT

Short for Network Address Translation, a routing protocol that allows global IP Addresses to be translated into multiple private IP Addresses for use on internal LAN networks. The explosion in the use of the Internet has created a critical problem for the Internet Assigned Numbers Authority (IANA) which is in charge of assigning IP Addresses to Internet users, ISPs etc.. NAT is a technology that has been introduced to help maximize the utilization of assigned IAN and global IP Addresses.

Network Protocol

Network protocols encapsulate and forward data packets from one interface to another.

PAP/CHAP ISP

Short for Password Authentication Protocol and Challenge Handshake Authentication Protocol. Most ISPs use either one for user identification. If your ISP doesn’t support these two protocols, contact your ISP for an authentication script.

PPP

Short for Point-to-Point Protocol, a communications protocol for transmitting information over standard telephone lines between devices from different manufacturers.

PPPoE

Short for PPP over Ethernet, relying on two widely accepted standards, Ethernet and the Point-to-Point Protocol. It’s a communications protocol for transmitting information between devices from different manufacturers over an Ethernet.

PPTP

Short for Point to Point Tunneling Protocol, PPTP encapsulates the packet for transmission over the Internet. It is similar to creating a private “tunnel” over a large public network and has almost equal security to a private network without actually leasing a private line.

Protocol

An agreed format for transmitting, sending and receiving data between two devices.

Roaming

The ability for a wireless device moving from one access point's range to another without losing the connection.

Router

An Internet device that routes requests for information to other routers until the information's location is found and the data can be transmitted back to the origin of the request.

SPI

SPI is an acronym for Stateful Packet Inspection. The SPI engine examines not just the headers of the packet, but also the packet contents, it can then determine more about the packet than just its source and destination information. Moreover, stateful inspection firewalls also close off ports until a connection to the specific port is requested.

TCP/IP

Short for Transmission Control Protocol and Internet Protocol, the suite of communication~~s~~ protocols that enable hosts on the Internet to connect and exchange streams of data.

VPN

VPN is an acronym for Virtual Private Network. Via access control and encryption, VPN brings the same security to data transmission through the Internet as if it being transmitted through a private network. It not only takes advantage of economies of scale but also ensures high level security while the packet is sent over the large public network.

Wide Area Network (WAN)

A system of LANs being connected by telephone lines and radio waves. Although someWANs may be privately owned, they are usually considered a means of public access.

WEP

An acronym for **Wired Equivalent Privacy**. It is an encryption mechanism used to protect your wireless data communications. WEP uses a combination of 64-bit/128-bit keys to encrypt data that is transmitted between all points in a wireless network to insure data security. It is described in the IEEE 802.11 standard.