

User's Manual

Wireless ARM9 4port Full function version with VPN

For internal reference only

Charlie 20031002

Note: This page should be removed before sending to Customer

1. This manual is modified based on 4-port wireless router, so some pictures are 4-port router. You may need to change them to fit your needs. **Note: Watch out COM port, and Printer port, if this product doesn't have them, you have to remove them.**

2. **Some functions are implemented on specific models only (the blue words)**

Charlie 20020807

4. add DHCP: gateway, Wireless: Pass-phrase Generator, Wizard: No ISP, MISC: Domain Filters, Ping Test, System Log: email alert, Syslog

Charlie 20020918

5. UI is totally re-modified (change a lot).

6. Add Primary/secondary DNS, Primary/secondary WINS,

Charlie 20020919

7. Add Primary setting: Virtual Computers, DHCP: Lease Time, Wireless: **802.1X Setting**, System Time, VPN,

Charlie 20021007

8. Add 802.11G, Appendix B XP/2000 IPSEC configuration

9. Correct Chapter 5 Printer Setup

Charlie 20030526

10. Add RIPv1, RIPv2, SNMPv2, Log type, Email Alert – Username and Password, PPPOE –MTU, PPTP, L2TP Server, PPTP/L2TP pass through, URL Blocking,

20031002

Base on R1.94l3vTIG

Note: Although this Manual is based on WQS4V7, but this version is not exactly for WQS4V7, this is a full function version (for all WQS4x7/ WQS4x8 series), so it has some features that Nobrand WQS4V7 doesn't have. Please refer to your UI and remove those you don't need.

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FCC Interference Statement

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

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

CE Declaration of Conformity

This equipment complies with the requirements relating to electromagnetic compatibility, EN 55022/A1 Class B, and EN 50082-1. This meets the essential protection requirements of the European Council Directive 89/336/EEC on the approximation of the laws of the member states relation to electromagnetic compatibility.

Information to user.

The users manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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Chapter 1 Introduction

Congratulations on your purchase of this outstanding Wireless Broadband Router. This product is specifically designed for Small Office and Home Office needs. It provides a complete SOHO solution for Internet surfing, and is easy to configure and operate even for non-technical users. Instructions for installing and configuring this product can be found in this manual. Before you install and use this product, please read this manual carefully for fully exploiting the functions of this product.

Functions and Features

- **High speed for wireless LAN connection**
Up to 54Mbps data rate by incorporating Orthogonal Frequency Division Multiplexing (OFDM).
- **Roaming**
Provide seamless roaming within the IEEE 802.11b(11M) and IEEE 802.11g (54M) WLAN infrastructure.
- **IEEE 802.11b compatible (11M)**
Allowing inter-operation among multiple vendors.
- **IEEE 802.11g compatible (54M)**
Allowing inter-operation among multiple vendors.
- **Auto fallback**
54M, 48M, 36M, 24M, 18M, 12M, 6M data rate with auto fallback in 802.11g mode.
11M, 5.5M, 2M, 1M data rate with auto fallback in 802.11b mode
- **Broadband modem and NAT Router**
Connects multiple computers to a broadband (cable or DSL) modem or an Ethernet router to surf the Internet.
- **Auto-sensing Ethernet Switch**
Equipped with a 4-port auto-sensing Ethernet switch.
- **VPN supported**
Supports multiple PPTP sessions and allows you to setup VPN server and VPN clients.
- **Printer sharing (Optional)**
Embeds a print server to allow all of the networked computers to share one printer.
Built-in both DB25 host to connect to DB25 printer and USB host to connect to USB printer for printer sharing
- **Firewall**
All unwanted packets from outside intruders are blocked to protect your Intranet.
- **DHCP server supported**
All of the networked computers can retrieve TCP/IP settings automatically from this product.
- **Web-based configuring**
Configurable through any networked computer's web browser using Netscape or Internet Explorer.

- **Packet filter supported**

Packet Filter allows you to control access to a network by analyzing the incoming and outgoing packets and letting them pass or halting them based on the IP address of the source and destination.

- **Universal Plug and Play (UPnP) supported**

Universal Plug and Play (UPnP) enable devices such as PCs, routers or other devices to be plugged into a network and automatically know about each other.

- **Virtual Server supported**

Enables you to expose WWW, FTP and other services on your LAN to be accessible to Internet users.

- **User-Definable Application Sensing Tunnel**

User can define the attributes to support the special applications requiring multiple connections, like Internet gaming, video conferencing, Internet telephony and so on, then this product can sense the application type and open multi-port tunnel for it.

- **DMZ Host supported**

Lets a networked computer be fully exposed to the Internet; this function is used when special application sensing tunnel feature is insufficient to allow an application to function correctly.

- **Domain Filter Supported**

let you prevent users under this device from accessing specific URLs.

- **URL Blocking Supported**

URL Blocking can block hundreds of websites connection by simply a **keyword**.

- **SNMP Supported**

In brief, SNMP, the Simple Network Management Protocol, is a protocol designed to give a user the capability to remotely manage a computer network by polling and setting terminal values and monitoring network events.

- **Routing Table Supported**

Routing Tables allow you to determine which physical interface address to use for outgoing IP data grams. If you have more than one routers and subnets, you will need to enable routing table to allow packets to find proper routing path and allow different subnets to communicate with each other.

- **System time Supported**

Allow you to synchronize system time with network time server.

- **Statistics of WAN Supported**

Enables you to monitor inbound and outbound packets

- **VPN Supported**
Enables you to create virtual private tunnels to remote VPN gateways.
- **L2TP Server**
L2TP Server enables user to build a virtual private network (VPN) connection from the remote user to the corporate LAN.
- **PPTP Server**
PPTP Server enables user to build a virtual private network (VPN) connection from the remote user to the corporate LAN.
- **802.1X supported**
When the 802.1X function is enable, the Wireless user must Authenticate to this router first to use the Network service.
- **Virtual Computers supported:** Virtual Computer enables you to use the original NAT feature, and allows you to setup the one-to-one mapping of multiple global IP address and local IP address.

Packing List

- Wireless broadband router unit
- Installation CD-ROM
- Power adapter
- CAT-5 UTP Fast Ethernet cable

Chapter 2 Hardware Installation

2.1 Panel Layout (your product may need to be modified)

2.1.1. Front Panel



Figure 2-1 Front Panel

LED:

LED	Function	Color	Status	Description
POWER	Power indication	Green	On	Power is being applied to this product.
M1	System status 1	Orange	Blinking	This product is functioning properly.

WAN	WAN port activity	Green	On	The WAN port is linked.
			Blinking	The WAN port is sending or receiving data.
Wireless	Wireless activity	Green	Blinking	Sending or receiving data via wireless
Link/Act. 1~4	Link status	Green	On	An active station is connected to the corresponding LAN port.
			Blinking	The corresponding LAN port is sending or receiving data.
10/100	Data Rate	Green	On	Data is transmitting in 100Mbps on the corresponding LAN port.
USB	USB port activity	Green	On	The USB port is linked.
			Blinking	The USB port is sending or receiving data.

Port:

RESET

To reset system settings to factory defaults, please follow the steps:

1. Power off the device,
2. Press the reset button and hold,
3. Power on the device,
4. Keep the button pressed about 5 seconds,
5. Release the button,
6. Watch the M1 LED, they will flash 8 times and then M1 flash once per second.

2.1.2. Rear Panel



Figure 2-2 Rear Panel

Ports:

Port	Description
5VDC	Power inlet: DC 5V, 1.5A (minimum)
WAN	the port where you will connect your cable (or DSL) modem or Ethernet router.
Port 1-4	the ports where you will connect networked computers and other devices.
USB	USB Ports for USB printer.
PRINTER	Printer Port (Optional)
COM	Serial port (connect analog modem or console cable)(optional)

2.2 Procedure for Hardware Installation

1. Decide where to place your Wireless Broadband Router

You can place your Wireless Broadband Router on a desk or other flat surface, or you can mount it on a wall. For optimal performance, place your Wireless Broadband Router in the center of your office (or your home) in a location that is away from any potential source of interference, such as a metal wall or microwave oven. This location must be close to power and network connection.

2. Setup LAN connection

- a. Wired LAN connection: connects an Ethernet cable from your computer's Ethernet port to one of the LAN ports of this product.
- b. Wireless LAN connection: locate this product at a proper position to gain the best transmit performance.

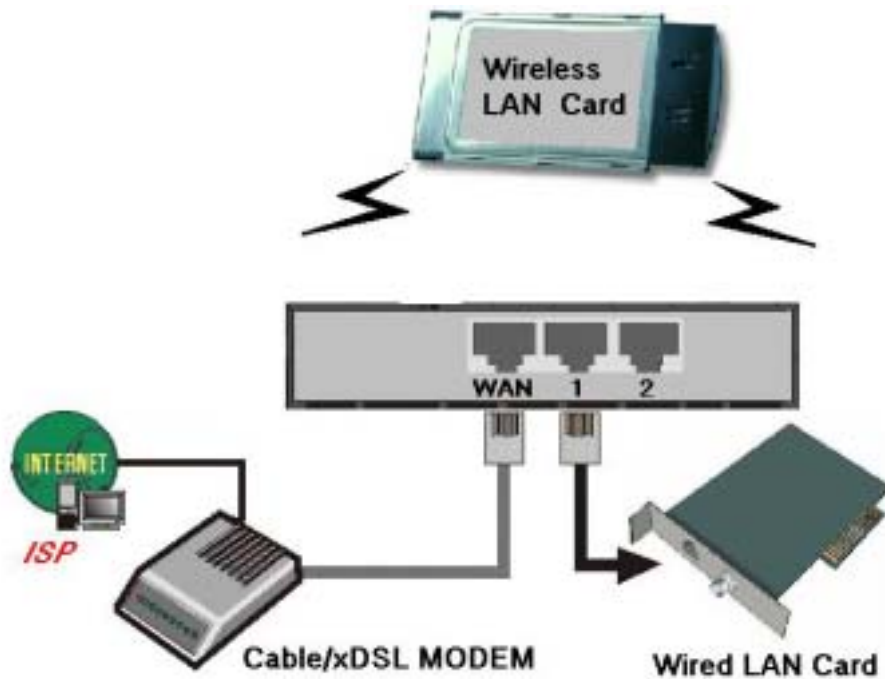


Figure 2-3 Setup of LAN and WAN connections for this product.

3. Setup WAN connection

Prepare an Ethernet cable for connecting this product to your cable/xDSL modem or Ethernet backbone. Figure 2-3 illustrates the WAN connection.

4. Connecting this product with your printer (optional)

Use the printer cable to connect your printer to the printer port of this product. (Optional)

5. Power on

Connecting the power cord to power inlet and turning the power switch on, this product will automatically enter the self-test phase. When it is in the self-test phase, the indicators M1 will be lighted ON for about 10 seconds, and then M1 will be flashed 3 times to indicate that the self-test operation has finished. Finally, the M1 will be continuously flashed once per second to indicate that this product is in normal operation.

Chapter 3 Network Settings and Software Installation

To use this product correctly, you have to properly configure the network settings of your computers and install the attached setup program into your MS Windows platform (Windows 95/98/NT/2000).

3.1 Make Correct Network Settings of Your Computer

The default *IP address* of this product is 192.168.123.254, and the default *subnet mask* is 255.255.255.0. These addresses can be changed on your need, but the default values are used in this manual. If the TCP/IP environment of your computer has not yet been configured, you can refer to **Appendix A** to configure it. For example,

1. configure *IP* as 192.168.123.1, *subnet mask* as 255.255.255.0 and *gateway* as 192.168.123.254, or more easier,
2. configure your computers to load TCP/IP setting automatically, that is, via DHCP server of this product.

After installing the TCP/IP communication protocol, you can use the ***ping*** command to check if your computer has successfully connected to this product. The following example shows the ping procedure for Windows 95 platforms. First, execute the ***ping*** command

ping 192.168.123.254

If the following messages appear:

Pinging 192.168.123.254 with 32 bytes of data:

Reply from 192.168.123.254: bytes=32 time=2ms TTL=64

a communication link between your computer and this product has been successfully established. Otherwise, if you get the following messages,

Pinging 192.168.123.254 with 32 bytes of data:

Request timed out.

There must be something wrong in your installation procedure. You have to check the following items in sequence:

1. *Is the Ethernet cable correctly connected between this product and your computer?*

Tip: The LAN LED of this product and the link LED of network card on your computer must be lighted.

2. *Is the TCP/IP environment of your computers properly configured?*

Tip: If the IP address of this product is 192.168.123.254, the IP address of your computer must be 192.168.123.X and default gateway must be 192.168.123.254.

3.2 Install the Software into Your Computers (Optional)

Skip this section if you do not want to use the print server function of this product.

*Notice: Only Windows 95/98 need to install this Printer Driver. If you are using Windows 2000/XP, please refer to **Chapter 5 Printer** - 5.2 Configuring on Windows 2000 and XP Platforms.*

Step 1: Insert the installation CD-ROM into the CD-ROM drive. The following window will be shown automatically. If it isn't, please run "install.exe" on the CD-ROM.



Step 2: Click on the **INSTALL** button. Wait until the following **Welcome** dialog to appear, and click on the **Next** button.



Step 3: Select the destination folder and click on the **Next** button. Then, the setup program will begin to install the programs into the destination folder.



Step 4: When the following window is displayed, click on the **Finish** button.



Step 5: Select the item to restart the computer and then click the **OK** button to reboot your computer.



Step 6: After rebooting your computer, the software installation procedure is finished.

Now, you can configure the NAT Router (refer to Chapter 4) and setup the Print Server (refer to Chapter 5).

Chapter 4 Configuring Wireless Broadband Router

This product provides Web based configuration scheme, that is, configuring by your Web browser, such as Netscape Communicator or Internet Explorer. This approach can be adopted in any MS Windows, Macintosh or UNIX based platforms.

4.1 Start-up and Log in

System Status		
Item	WAN Status	Sidenote
Remaining Lease Time	00:00:00	
IP Address	0.0.0.0	
Subnet Mask	0.0.0.0	
Gateway	0.0.0.0	
Domain Name Server	0.0.0.0	

Item	Peripheral Status	Sidenote
Printer(DB25)	Not ready	
Printer(USB)	Not ready	

Statistics of WAN	Inbound	Outbound
Octets	0	0
Unicast Packets	0	0
Non-unicast Packets	0	0

Help Refresh Device Time: Wed Oct 01 00:02:36 2003

Activate your browser, and **disable the proxy** or **add the IP address of this product into the exceptions**. Then, type this product's IP address in the *Location* (for Netscape) or *Address* (for IE) field and press ENTER. For example: ***http://192.168.123.254***.

After the connection is established, you will see the web user interface of this product. There are two appearances of web user interface: *for general users* and *for system administrator*.

To log in as an administrator, enter the system password (the factory setting is "**admin**") in the **System Password** field and click on the **Log in** button. If the password is correct, the web appearance will be changed into administrator configure mode. As listed in its main menu, there are several options for system administration.

4.2 Status

The screenshot displays the web interface of a Multi-Functional Broadband NAT Router. On the left is a blue sidebar with the 'Administrator's Main Menu' containing links for Status, Wizard, Basic Setting, Forwarding Rules, Security Setting, Advanced Setting, and Tools, along with a 'Log Out' button. The main content area is titled 'System Status' and contains three tables. The first table shows WAN status with fields like Remaining Lease Time, IP Address, Subnet Mask, Gateway, and Domain Name Server, all currently set to 0.0.0.0. The second table shows peripheral status for DB25 and USB printers, both marked as 'Not ready'. The third table shows WAN statistics for Octets, Unicast Packets, and Non-unicast Packets, all at 0. At the bottom, there are buttons for 'View Log', 'Clients List', 'Help', and 'Refresh', and a 'Device Time' display showing 'Wed Oct 01 00:00:16 2003'.

Item	WAN Status	Sidenote
Remaining Lease Time	00:00:00	Renew
IP Address	0.0.0.0	
Subnet Mask	0.0.0.0	
Gateway	0.0.0.0	
Domain Name Server	0.0.0.0	

Item	Peripheral Status	Sidenote
Printer(DB25)	Not ready	
Printer(USB)	Not ready	

Statistics of WAN	Inbound	Outbound
Octets	0	0
Unicast Packets	0	0
Non-unicast Packets	0	0

[View Log](#) [Clients List](#) [Help](#) [Refresh](#)
Device Time: Wed Oct 01 00:00:16 2003

This option provides the function for observing this product's working status:

A. WAN Port Status.

If the WAN port is assigned a dynamic IP, there may appear a **“Renew”** or **“Release”** button on the *Sidenote* column. You can click this button to renew or release IP manually.

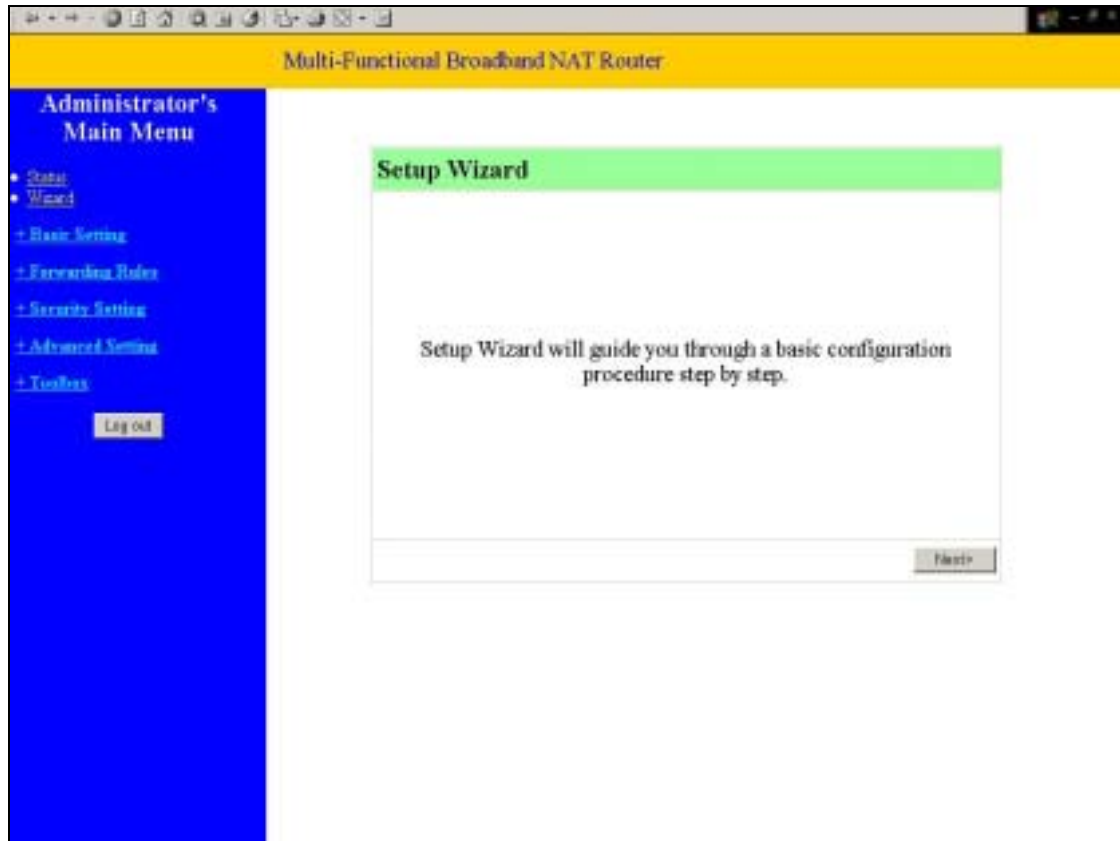
B. Modem Status.

C. Printer Status. There two printer types: Printer (DB25) and Printer (USB). The possible kinds of printer status include *“Ready”*, *“Not ready”*, *“Printing...”*, and *“Device error”*.

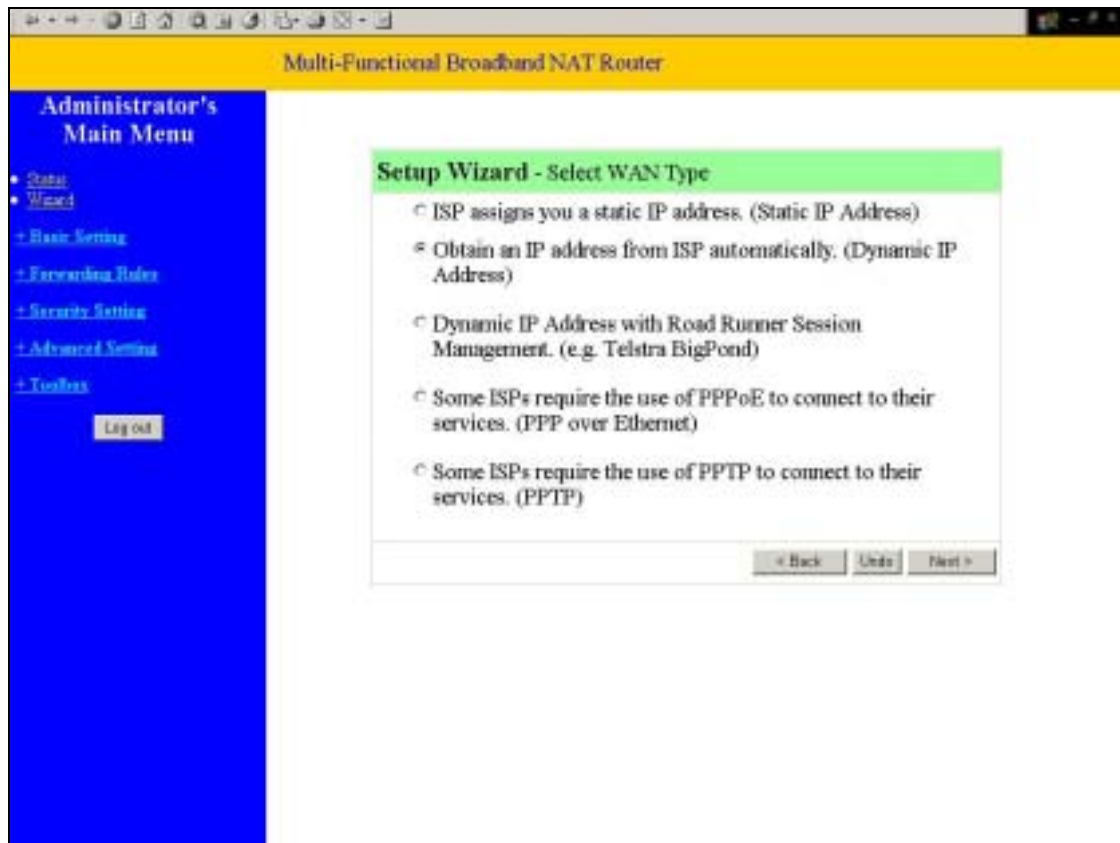
When a job is printing, there may appear a “Kill Job” button on the Sidenote column. You can click this button to kill current printing job manually.

D. Statistics of WAN: enables you to monitor inbound and outbound packets

4.3 Wizard

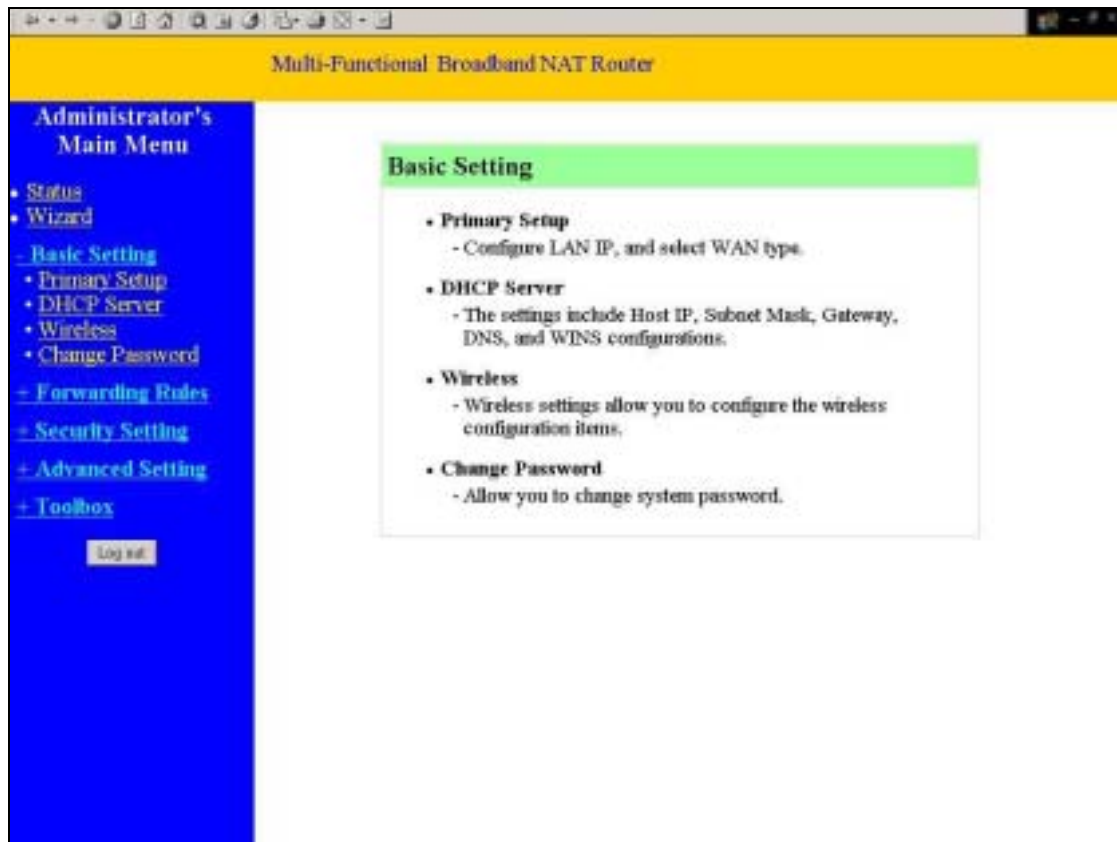


Setup Wizard will guide you through a basic configuration procedure step by step.
Press **"Next >"**



Setup Wizard - Select WAN Type: For detail settings, please refer to **4.4.1 primary setup**.

4.4 Basic Setting



4.4.1 Primary Setup – WAN Type, Virtual Computers

Multi-Functional Broadband NAT Router

Administrator's Main Menu

- [Status](#)
- [Wizard](#)
- [Basic Setting](#)
 - [Primary Setup](#)
 - [DHCP Server](#)
 - [Wireless](#)
 - [Change Password](#)
- [Forwarding Rules](#)
- [Security Setting](#)
- [Advanced Setting](#)
- [Toolbox](#)

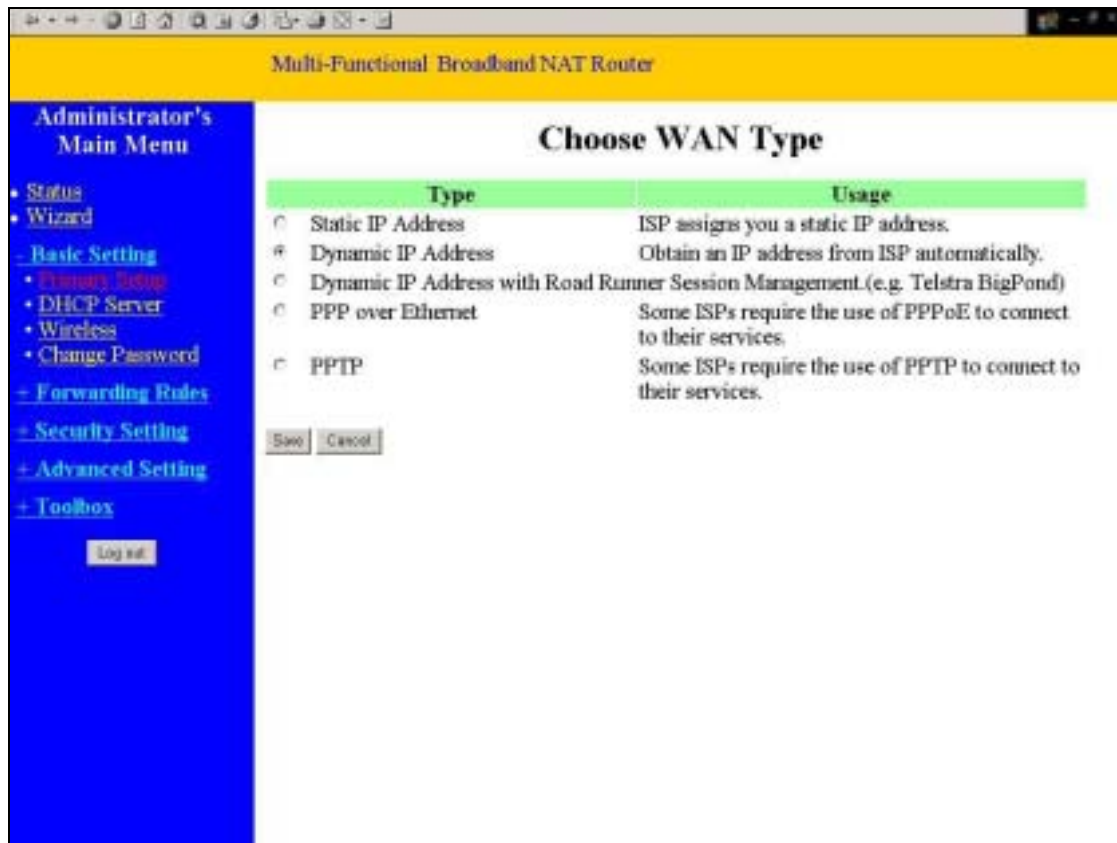
[Log out](#)

Primary Setup

Item	Setting
▶ LAN IP Address	192.168.1.23.254
▶ WAN Type	Dynamic IP Address Change
▶ Host Name	(optional)
▶ WAN's MAC Address	FF-FF-FF-FF-FF-FF Clone MAC
▶ Renew IP Forever	☐ Enable (Auto-reconnect)

[Save](#) [Undo](#) [Virtual Computers...](#) [Help](#)

Press “Change”



This option is primary to enable this product to work properly. The setting items and the web appearance depend on the WAN type. Choose correct WAN type before you start.

1. **LAN IP Address:** the local IP address of this device. The computers on your network must use the LAN IP address of your product as their Default Gateway. You can change it if necessary.
2. **WAN Type:** WAN connection type of your ISP. You can click **Change** button to choose a correct one from the following four options:
 - A. *Static IP Address:* ISP assigns you a static IP address.
 - B. *Dynamic IP Address:* Obtain an IP address from ISP automatically.
 - C. *Dynamic IP Address with Road Runner Session Management.*(e.g. Telstra BigPond)
 - D. *PPP over Ethernet:* Some ISPs require the use of PPPoE to connect to their services.
 - E. *PPTP:* Some ISPs require the use of PPTP to connect to their services.
 - F. *Dial-up Network: To surf the Internet via PSTN/ISDN.*

4.4.1.1 Static IP Address

WAN IP Address, Subnet Mask, Gateway, Primary and Secondary DNS: enter the proper setting provided by your ISP.

4.4.1.2 Dynamic IP Address

1. *Host Name:* optional. Required by some ISPs, for example, @Home.
2. *Renew IP Forever:* this feature enables this product to renew your IP address automatically when

the lease time is expiring-- even when the system is idle.

4.4.1.3 Dynamic IP Address with Road Runner Session Management.(e.g. Telstra BigPond)

LAN IP Address is the IP address of this product. It must be the default gateway of your computers.

WAN Type is *Dynamic IP Address*. If the WAN type is not correct, change it!

Host Name: optional. Required by some ISPs, e.g. @Home.

- *Renew IP Forever*: this feature enable this product renew IP address automatically when the lease time is being expired even the system is in idle state.

4.4.1.4 PPP over Ethernet

1. *PPPoE Account and Password*: the account and password your ISP assigned to you. For security, this field appears blank. If you don't want to change the password, leave it empty.
2. *PPPoE Service Name*: optional. Input the service name if your ISP requires it. Otherwise, leave it blank.
3. *Maximum Idle Time*: the amount of time of inactivity before disconnecting your PPPoE session. Set it to zero or enable Auto-reconnect to disable this feature.

4.4.1.5 PPTP

1. *My IP Address and My Subnet Mask*: the private IP address and subnet mask your ISP assigned to you.
2. *Server IP Address*: the IP address of the PPTP server.
3. *PPTP Account and Password*: the account and password your ISP assigned to you. If you don't want to change the password, keep it empty.
4. *Connection ID*: optional. Input the connection ID if your ISP requires it.
5. *Maximum Idle Time*: the time of no activity to disconnect your PPTP session. Set it to zero or enable Auto-reconnect to disable this feature. If Auto-reconnect is enabled, this product will automatically connect to ISP after system is restarted or connection is dropped.

Primary Setup	
Item	Setting
▶ LAN IP Address	192.168.123.217
▶ WAN Type	PPTP Change...
▶ My IP Address	10.0.0.140
▶ My Subnet Mask	255.255.255.0
▶ Server IP Address	10.0.0.138
▶ PPTP Account	
▶ PPTP Password	
▶ Connection ID	Input if ISP requires it (optional)
▶ Maximum Idle Time	300 seconds ☐ Auto-reconnect

4.4.1.6 Dial-up Network

1. *Dial-up Telephone, Account and Password*: assigned by your ISP. For security, this field appears blank. If you don't want to change the password, leave it empty.
2. *Primary and Secondary DNS*: If they are configured as "0.0.0.0.", they will be automatically assigned upon connection.
3. *Maximum Idle Time*: the amount of time of inactivity before disconnecting your dial-up session.
4. *Baud Rate*: the communication speed between this product and your MODEM or ISDN TA.
5. *Extra Setting*: (initialization string) optional. Used to optimize the communication quality between the ISP and your MODEM or ISDN TA

4.4.1.7 Virtual Computers

The screenshot shows the 'Virtual Computers' configuration page of a 'Multi-Functional Broadband NAT Router'. On the left is a blue sidebar with the 'Administrator's Main Menu' containing links for 'Status', 'Wizard', 'Basic Setting' (with sub-links for 'Primary Setup', 'DHCP Server', and 'Change Password'), 'Forwarding Rules', 'Security Setting', 'Advanced Setting', and 'Toolbox'. A 'Log Out' button is at the bottom of the sidebar. The main area has a yellow header and a table for configuring virtual computers. The table has four columns: 'ID', 'Global IP', 'Local IP', and 'Enable'. It contains five rows, each with an ID from 1 to 5, an empty 'Global IP' input field, a 'Local IP' field with '192.168.123.' and an empty suffix box, and an 'Enable' checkbox. Below the table are 'Save', 'Undo', and 'Help' buttons.

ID	Global IP	Local IP	Enable
1		192.168.123.	☐
2		192.168.123.	☐
3		192.168.123.	☐
4		192.168.123.	☐
5		192.168.123.	☐

Virtual Computer enables you to use the original NAT feature, and allows you to setup the one-to-one mapping of multiple global IP address and local IP address.

- *Global IP*: Enter the global IP address assigned by your ISP.
- *Local IP*: Enter the local IP address of your LAN PC corresponding to the global IP address.
- *Enable*: Check this item to enable the Virtual Computer feature.

4.4.2 DHCP Server

The screenshot shows a web-based configuration interface for a Multi-Functional Broadband NAT Router. The interface has a yellow header bar with the router's name. On the left is a blue sidebar with the 'Administrator's Main Menu' containing links for Status, Wizard, Basic Setting, Firewall Setting, DHCP Server, Change Password, Forwarding Rules, Security Setting, Advanced Setting, and Tools, along with a Log Out button. The main content area is titled 'DHCP Server' and contains a table with two columns: 'Item' and 'Setting'. The table lists five items: DHCP Server (with radio buttons for Disable and Enable), Lease Time (with a text input and 'Minutes' label), IP Pool Starting Address (with a text input showing '100'), IP Pool Ending Address (with a text input showing '199'), and Domain Name (with a text input). Below the table are buttons for Save, Undo, More>, Clients List, Fixed Mapping, and Help.

Item	Setting
DHCP Server	☐ Disable ☒ Enable
Lease Time	Minutes
IP Pool Starting Address	100
IP Pool Ending Address	199
Domain Name	

Save Undo More> Clients List Fixed Mapping Help

Press “More>>”

Multi-Functional Broadband NAT Router

Administrator's Main Menu

- [Status](#)
- [Wizard](#)
- [Basic Setting](#)
 - [Primary Setup](#)
 - [DHCP Server](#)
 - [Change Password](#)
- [Forwarding Rules](#)
- [Security Setting](#)
- [Advanced Setting](#)
- [Toolbox](#)

[Log Out](#)

DHCP Server

Item	Setting
▶ DHCP Server	☐ Disable ☒ Enable
▶ Lease Time	Minutes
▶ IP Pool Starting Address	100
▶ IP Pool Ending Address	199
▶ Domain Name	
▶ Primary DNS	0.0.0.0
▶ Secondary DNS	0.0.0.0
▶ Primary WINS	0.0.0.0
▶ Secondary WINS	0.0.0.0
▶ Gateway	0.0.0.0 (optional)

[Save](#) [Undo](#) [Clients List](#) [Fixed Mapping](#) [Help](#)

The settings of a TCP/IP environment include host IP, Subnet Mask, Gateway, and DNS configurations. It is not easy to manually configure all the computers and devices in your network. Fortunately, DHCP Server provides a rather simple approach to handle all these settings. This product supports the function of DHCP server. If you enable this product's DHCP server and configure your computers as "automatic IP allocation" mode, then when your computer is powered on, it will automatically load the proper TCP/IP settings from this product. The settings of DHCP server include the following items:

1. **DHCP Server:** Choose "Disable" or "Enable."
2. **Lease Time:** this feature allows you to configure IP's lease time (DHCP client).
3. **IP pool starting Address/ IP pool starting Address:** Whenever there is a request, the DHCP server will automatically allocate an unused IP address from the *IP address pool* to the requesting computer. You must specify the starting and ending address of the IP address pool.
4. **Domain Name:** Optional, this information will be passed to the client.
5. **Primary DNS/Secondary DNS:** This feature allows you to assign DNS Servers
6. **Primary WINS/Secondary WINS:** This feature allows you to assign WINS Servers
7. **Gateway:** The Gateway Address would be the IP address of an alternate Gateway.
This function enables you to assign another gateway to your PC, when DHCP server offers an

IP to your PC.

4.4.3 Wireless Setting, and 802.1X setting

Multi-Functional Broadband NAT Router

Administrator's Main Menu

- Status
- Wizard
- Basic Setting
 - Primary Setup
 - DHCP Server
 - Wireless
 - Change Password
- Forwarding Rules
- Security Setting
- Advanced Setting
- Toolbox

Log out

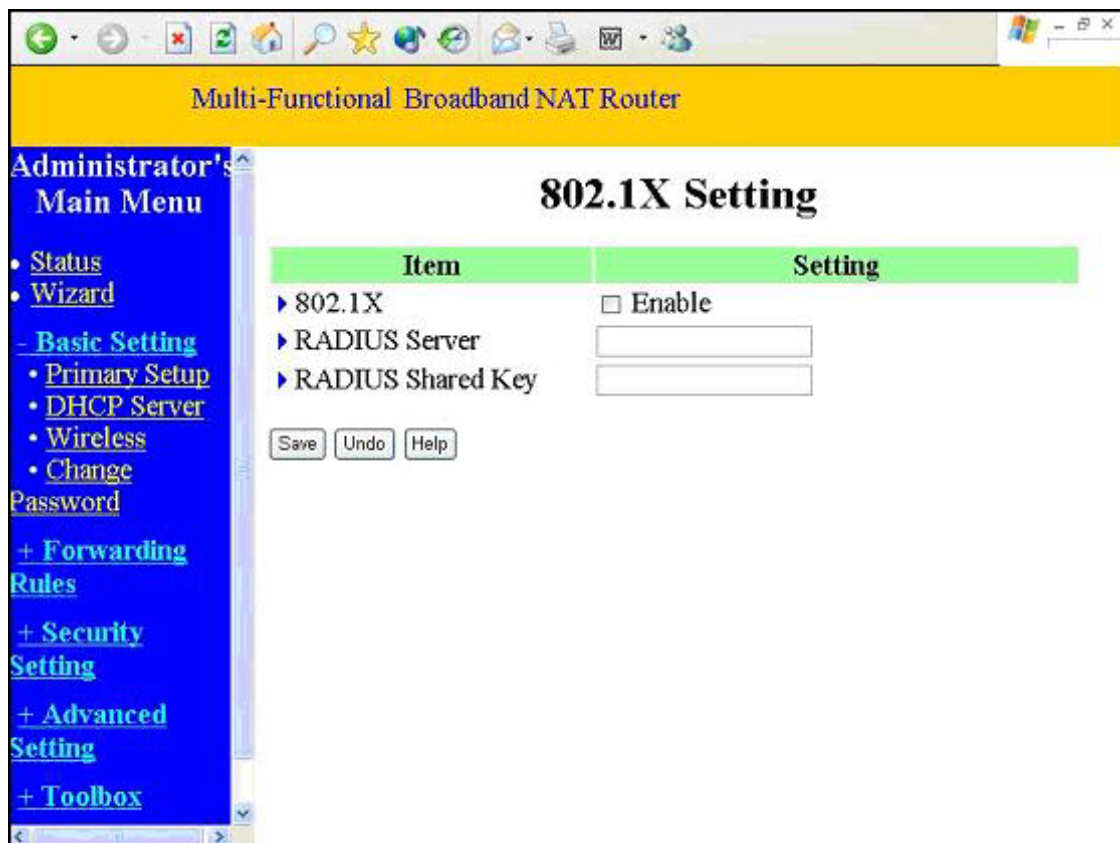
Wireless Setting

Item	Setting
▶ Network ID(SSID)	default
▶ Channel	11
▶ WEP Security	☒ Disable WEP ☐ Enable IEEE 64 bit Shared Key security ☐ Enable IEEE 128 bit Shared Key security
◂ WEP Key 1	
◂ WEP Key 2	
◂ WEP Key 3	
◂ WEP Key 4	

Save Undo MAC Address Control Help

Wireless settings allow you to set the wireless configuration items.

1. **Network ID(SSID):** Network ID is used for identifying the Wireless LAN (WLAN). Client stations can roam freely over this product and other Access Points that have the same Network ID. (The factory setting is “*default*”)
2. **Channel:** The radio channel number. The permissible channels depend on the Regulatory Domain. The factory setting is as follow: **channel 6** for North America; **channel 7** for European (ETSI); **channel 7** for Japan.
3. **WEP Security:** Select the data privacy algorithm you want. Enabling the security can protect your data while it is transferred from one station to another. The standardized IEEE 802.11 WEP (128 or 64-bit) is used here.
4. **WEP Key 1, 2, 3 & 4:** When you enable the 128 or 64 bit WEP key security, please select one WEP key to be used and input 26 or 10 hexadecimal (0, 1, 2...8, 9, A, B...F) digits.
5. **Pass-phrase Generator:** Since hexadecimal characters are not easily remembered, this device offers a conversion utility to convert a simple word or phrase into hex.
6. **802.1X Setting**



802.1X

CheckBox was used to switch the function of the 802.1X. When the 802.1X function is enable, the Wireless user must **authenticate** to this router first to use the Network service.

RADIUS Server

IP address or the 802.1X server's domain-name.

RADIUS Shared Key

Key value shared by the RADIUS server and this router. This key value is consistent with the key value in the RADIUS server.

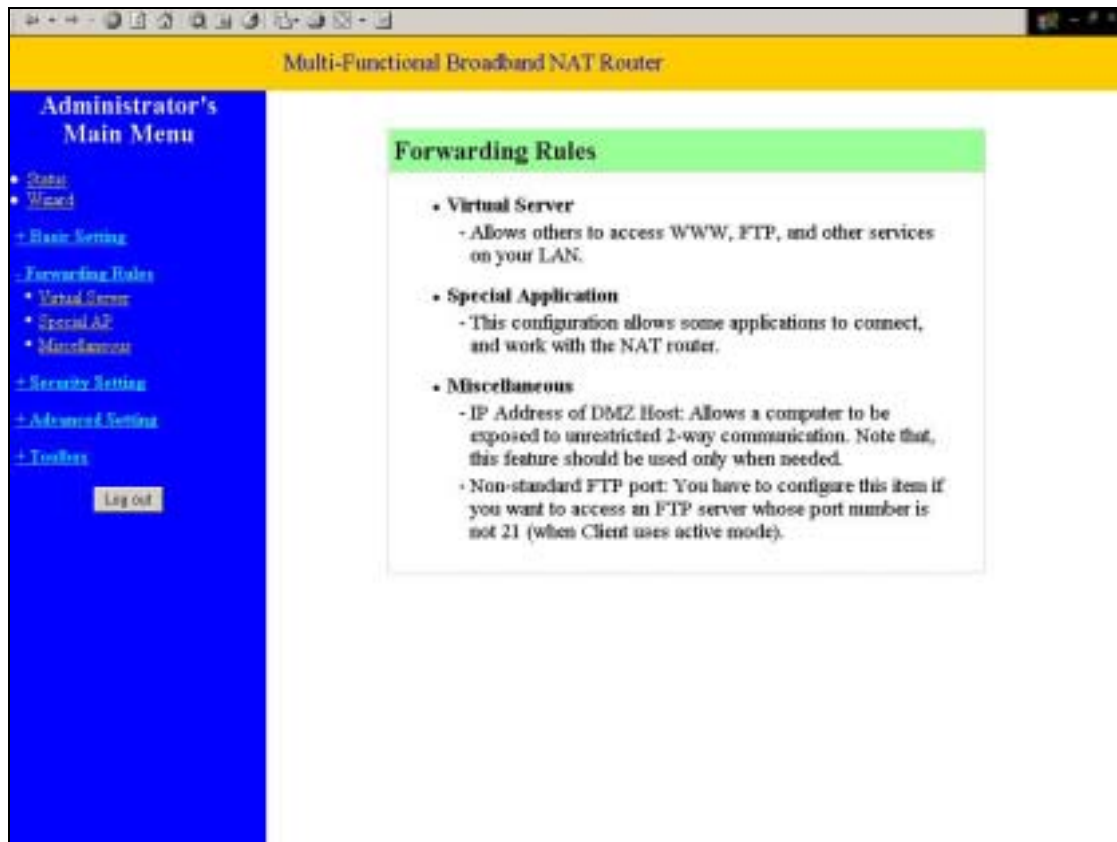
4.4.4 Change Password

The screenshot shows a web browser window displaying the configuration page of a Multi-Functional Broadband NAT Router. The page has a yellow header bar with the title "Multi-Functional Broadband NAT Router". On the left, there is a blue sidebar menu titled "Administrator's Main Menu" containing links for Status, Wizard, Basic Setting (with sub-links for Primary Setup, DHCP Server, Wireless, and Change Password), Forwarding Rules, Security Setting, Advanced Setting, and Toolbox. A "Log out" button is at the bottom of the sidebar. The main content area is titled "Change Password" and features a table with two columns: "Item" and "Setting". The table contains three rows: "Old Password", "New Password", and "Reconfirm", each with a corresponding text input field. Below the input fields are "Save" and "Undo" buttons.

Item	Setting
Old Password	
New Password	
Reconfirm	

You can change Password here. We **strongly** recommend you to change the system password for security reason.

4.5 Forwarding Rules



4.5.1 Virtual Server

ID	Service Ports	Server IP	Enable	Use Rules
1		192.168.123.1	☐	0
2		192.168.123.2	☐	0
3		192.168.123.3	☐	0
4		192.168.123.4	☐	0
5		192.168.123.5	☐	0
6		192.168.123.6	☐	0
7		192.168.123.7	☐	0
8		192.168.123.8	☐	0
9		192.168.123.9	☐	0
10		192.168.123.10	☐	0
11		192.168.123.11	☐	0
12		192.168.123.12	☐	0
13		192.168.123.13	☐	0
14		192.168.123.14	☐	0
15		192.168.123.15	☐	0
16		192.168.123.16	☐	0
17		192.168.123.17	☐	0
18		192.168.123.18	☐	0
19		192.168.123.19	☐	0
20		192.168.123.20	☐	0

Well known services: ID:

Schedule rule:

This product's NAT firewall filters out unrecognized packets to protect your Intranet, so all hosts behind this product are invisible to the outside world. If you wish, you can make some of them accessible by enabling the *Virtual Server Mapping*.

A virtual server is defined as a **Service Port**, and all requests to this port will be redirected to the computer specified by the **Server IP**. **Virtual Server** can work with **Scheduling Rules**, and give user more flexibility on Access control. For Detail, please refer to **Scheduling Rule**.

For example, if you have an FTP server (port 21) at 192.168.123.1, a Web server (port 80) at 192.168.123.2, and a VPN server at 192.168.123.6, then you need to specify the following virtual server mapping table:

Service Port	Server IP	Enable
--------------	-----------	--------

21	192.168.123.1	V
80	192.168.123.2	V
1723	192.168.123.6	V

4.5.2 Special AP

The screenshot shows the web interface of a Multi-Functional Broadband NAT Router. The left sidebar contains the 'Administrator's Main Menu' with links to Status, Wizard, Basic Setting, Forwarding Rules (Virtual Server, Special AP, Multicast), Security Setting, Advanced Settings, and Toolbars. A 'Log out' button is at the bottom of the sidebar. The main content area is titled 'Special Applications' and contains a table with columns: ID, Trigger, Incoming Ports, and Enable. The table has 8 rows. Below the table is a 'Popular applications' section with a dropdown menu (showing '-- select one --'), a 'Copy to' button, and an 'ID' dropdown. At the bottom of the main area are 'Save', 'Undo', and 'Help' buttons.

ID	Trigger	Incoming Ports	Enable
1			☐
2			☐
3			☐
4			☐
5			☐
6			☐
7			☐
8			☐

Popular applications: ID:

Some applications require multiple connections, like Internet games, Video conferencing, Internet telephony, etc. Because of the firewall function, these applications cannot work with a pure NAT router. The **Special Applications** feature allows some of these applications to work with this product. If the mechanism of *Special Applications* fails to make an application work, try setting your computer as the **DMZ** host instead.

1. **Trigger**: the outbound port number issued by the application..
2. **Incoming Ports**: when the trigger packet is detected, the inbound packets sent to the specified port numbers are allowed to pass through the firewall.

This product provides some predefined settings. Select your application and click **Copy to** to add the predefined setting to your list.

Note! At any given time, only one PC can use each Special Application tunnel.

4.5.3 Miscellaneous Items

The screenshot shows a web-based configuration interface for a 'Multi-Functional Broadband NAT Router'. On the left is a blue sidebar titled 'Administrator's Main Menu' with links for 'Status', 'Wizard', 'Basic Setting', 'Forwarding Rules' (with sub-links for 'Virtual Server', 'Special AP', and 'Miscellaneous'), 'Security Setting', 'Advanced Setting', and 'Toolbox'. A 'Log Out' button is at the bottom of the sidebar. The main content area is titled 'Miscellaneous Items' and contains a table with three columns: 'Item', 'Setting', and 'Enable'. The table has two rows: 'IP Address of DMZ Host' with a text input field containing '192.168.123.' and an unchecked checkbox, and 'Non-standard FTP port' with an empty text input field and an unchecked checkbox. Below the table are 'Save', 'Undo', and 'Help' buttons.

Item	Setting	Enable
IP Address of DMZ Host	192.168.123.	☐
Non-standard FTP port		☐

IP Address of DMZ Host

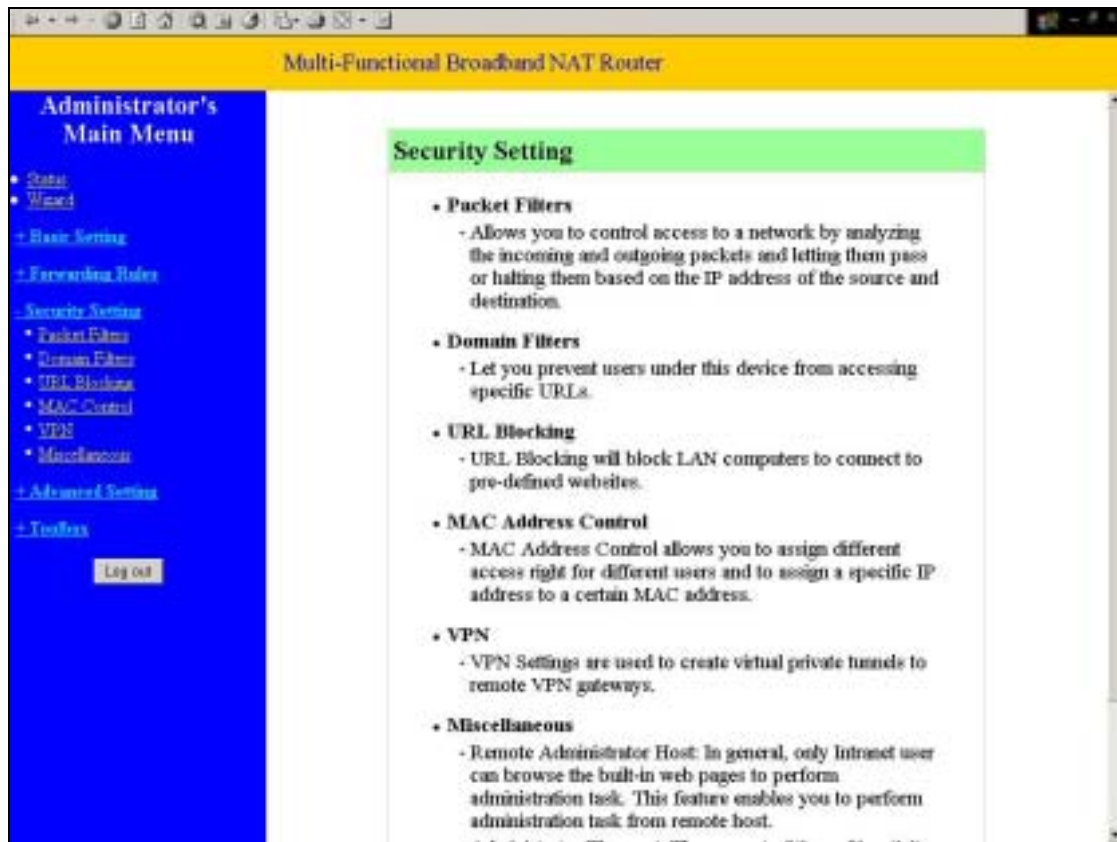
DMZ (DeMilitarized Zone) Host is a host without the protection of firewall. It allows a computer to be exposed to unrestricted 2-way communication for Internet games, Video conferencing, Internet telephony and other special applications.

NOTE: This feature should be used only when needed.

Non-standard FTP port

You have to configure this item if you want to access an FTP server whose port number is not 21. *This setting will be lost after rebooting.*

4.6 Security Settings



4.6.1 Packet Filter

Multi-Functional Broadband NAT Router

Administrator's Main Menu

- Status
- Wizard
- Basic Settings
- Forwarding Rules
- Security Settings
 - Packet Filter
 - Domain Filter
 - URL Blockage
 - MAC Control
 - VPN
 - Miscellaneous
- Advanced Settings
- Toolbox

Log out

Outbound Packet Filter

Item: Outbound Filter Setting: ☐ Enable

☐ Allow all to pass except those match the following rules.
☐ Deny all to pass except those match the following rules.

ID	Source IP: Ports	Destination IP: Ports	Enable	Use Rule#
1			☐	
2			☐	
3			☐	
4			☐	
5			☐	
6			☐	
7			☐	
8			☐	

Schedule rule: Copy to ID:

Save Undo Inbound Filter MAC Level Help

Packet Filter enables you to control what packets are allowed to pass the router. Outbound filter applies on all outbound packets. However, Inbound filter applies on packets that destined to Virtual Servers or DMZ host only. You can select one of the two filtering policies:

1. Allow all to pass except those match the specified rules
2. Deny all to pass except those match the specified rules

You can specify 8 rules for each direction: inbound or outbound. For each rule, you can define the following:

- Source IP address
- Source port address
- Destination IP address
- Destination port address
- Protocol: TCP or UDP or both.
- Use Rule#

For source or destination IP address, you can define a single IP address (4.3.2.1) or a range of IP

addresses (4.3.2.1-4.3.2.254). An empty implies all IP addresses.

For source or destination port, you can define a single port (80) or a range of ports (1000-1999). Add prefix "T" or "U" to specify TCP or UDP protocol. For example, T80, U53, U2000-2999. No prefix indicates both TCP and UDP are defined. An empty implies all port addresses. [Packet Filter can work with Scheduling Rules](#), and give user more flexibility on Access control. For Detail, please refer to [Scheduling Rule](#).

Each rule can be enabled or disabled individually.

Inbound Filter:

To enable **Inbound Packet Filter** click the check box next to **Enable** in the **Inbound Packet Filter** field.

Suppose you have SMTP Server (25), POP Server (110), Web Server (80), FTP Server (21), and News Server (119) defined in Virtual Server or DMZ Host.

Example 1:

Inbound Packet Filter				
Item		Setting		
▶ Inbound Filter		☒ Enable		
☐ Allow all to pass except those match the following rules.				
☒ Deny all to pass except those match the following rules.				
ID	Source IP : Ports		Destination IP : Ports	Enable
1	1.2.3.100-1.2.3.149	:	:	☒
2	1.2.3.10-1.2.3.20	:	:	☒
3	:	:	:	☐
4	:	:	:	☐
5	:	:	:	☐
6	:	:	:	☐
7	:	:	:	☐
8	:	:	:	☐
Save Undo Outbound Filter... MAC Level... Help				
Saved! The change takes effective immediately!				

(1.2.3.100-1.2.3.149) They are allow to send mail (port 25), receive mail (port 110),

and browse the Internet (port 80)

(1.2.3.10-1.2.3.20) They can do everything (block nothing)

Others are all blocked.

Example 2:

Inbound Packet Filter			
Items		Setting	
▶ Inbound Filter		☒ Enable	
☒ Allow all to pass except those match the following rules. ☐ Deny all to pass except those match the following rules.			
ID	Source IP : Ports	Destination IP : Ports	Enable
1	1.2.3.100-1.2.3.119	21	☒
2	1.2.3.100-1.2.3.119	119	☒
3			☐
4			☐
5			☐
6			☐
7			☐
8			☐

Save Undo Outbound Filter... MAC Level... Help Saved! The change takes effective immediately!

(1.2.3.100-1.2.3.119) They can do everything except read net news (port 119) and transfer files via FTP (port 21)

Others are all allowed.

After **Inbound Packet Filter** setting is configured, click the **save** button.

Outbound Filter:

To enable **Outbound Packet Filter** click the check box next to **Enable** in the **Outbound Packet Filter** field.

Example 1:

Outbound Packet Filter					
Item			Setting		
▶ Outbound Filter			☒ Enable		
☐ Allow all to pass except those match the following rules.					
☒ Deny all to pass except those match the following rules.					
ID	Source IP:Ports		Destination IP:Ports		Enable
1	100-192.168.123.149			25-110	☒
2	23.10-192.168.123.20				☒
3					☐
4					☐
5					☐
6					☐
7					☐
8					☐
Save Undo Inbound Filter... MAC Level... Help					

(192.168.123.100-192.168.123.149) They are allowed to send mail (port 25), receive mail (port 110), and browse Internet (port 80); port 53 (DNS) is necessary to resolve the domain name.

(192.168.123.10-192.168.123.20) They can do everything (block nothing)
Others are all blocked.

Example 2:

Outbound Packet Filter

Item	Setting		
▶ Outbound Filter ☒ Enable ☒ Allow all to pass except those match the following rules. ☐ Deny all to pass except those match the following rules.			
ID	Source IP:Ports	Destination IP:Ports	Enable
1	[100-192.168.123.119]	[] [21]	☒
2	[100-192.168.100.119]	[] [119]	☒
3	[] []	[] []	☐
4	[] []	[] []	☐
5	[] []	[] []	☐
6	[] []	[] []	☐
7	[] []	[] []	☐
8	[] []	[] []	☐

Save Undo Inbound Filter... MAC Level... Help

(192.168.123.100-192.168.123.119) They can do everything except read net news (port 119) and transfer files via FTP (port 21)

Others are allowed

After **Outbound Packet Filter** setting is configured, click the **save** button.

4.6.2 Domain Filter

Multi-Functional Broadband NAT Router

Administrator's Main Menu

- Status
- Wizard
- Basic Setting
- Forwarding Rules
- Security Settings
 - Packet Filter
 - Domain Filter
 - URL Block
 - MAC Control
 - VPN
 - Miscellaneous
- Advanced Settings
- Tools

Log out

Domain Filter

Item	Setting
Domain Filter	☐ Enable
Log DNS Query	☐ Enable
Privilege IP Addresses Range	From To

ID	Domain Suffix	Action	Enable
1		☐ Drop ☐ Log	☐
2		☐ Drop ☐ Log	☐
3		☐ Drop ☐ Log	☐
4		☐ Drop ☐ Log	☐
5		☐ Drop ☐ Log	☐
6		☐ Drop ☐ Log	☐
7		☐ Drop ☐ Log	☐
8		☐ Drop ☐ Log	☐
9		☐ Drop ☐ Log	☐
10	* (all others)	☐ Drop ☐ Log	☐

Save Undo Help

Domain Filter let you prevent users under this device from accessing specific URLs.

Domain Filter Enable

Check if you want to enable Domain Filter.

Log DNS Query

Check if you want to log the action when someone accesses the specific URLs.

Privilege IP Addresses Range

Setting a group of hosts and privilege these hosts to access network without restriction.

Domain Suffix

A suffix of URL to be restricted. For example, ".com", "xxx.com".

Action

When someone is accessing the URL met the domain-suffix, what kind of action you want.

Check **drop** to block the access. *Check* **log** to log these access.

Enable

Check to enable each rule.

Example:

Domain Filter			
Item	Setting		
▶ Domain Filter	☒ Enable		
▶ Log DNS Query	☒ Enable		
▶ Privilege IP Addresses Range	From 1 To 10		

ID	Domain Suffix	Action	Enable
1	sex.com	☒ Drop ☒ Log	☒
2	girl.com	☐ Drop ☒ Log	☒
3	erotica.com	☒ Drop ☐ Log	☒
4		☐ Drop ☐ Log	☐
5		☐ Drop ☐ Log	☐
6		☐ Drop ☐ Log	☐
7		☐ Drop ☐ Log	☐
8		☐ Drop ☐ Log	☐
9		☐ Drop ☐ Log	☐
10	* (all others)	☐ Drop ☐ Log	-

In this example:

1. URL include “sex.com” will be blocked, and the action will be record in log-file.
2. URL include “girl.com” will not be blocked, but the action will be record in log-file.
3. URL include “erotica.com” will be blocked, but the action will not be record in log-file.
4. IP address X.X.X.1~ X.X.X.10 can access network without restriction.

4.6.3 URL Blocking

Multi-Functional Broadband NAT Router

Administrator's Main Menu

- Status
- Wizard
- Basic Settings
 - Forwarding Rules
- Security Settings
 - Packet Filter
 - Domain Filter
 - URL Blocking
 - MAC Control
 - VPN
 - Miscellaneous
- Advanced Settings
- Tools

Log out

URL Blocking

Item: URL Blocking Setting: ☐ Enable

ID	URL	Enable
1		☐
2		☐
3		☐
4		☐
5		☐
6		☐
7		☐
8		☐
9		☐
10		☐

Save Undo Help

URL Blocking will block LAN computers to connect to pre-defined Websites.

The major difference between “Domain filter” and “URL Blocking” is Domain filter require user to input suffix (like .com or .org, etc), while URL Blocking require user to input a keyword only. In other words, Domain filter can block specific website, while URL Blocking can block hundreds of websites by simply a **keyword**.

URL Blocking Enable

Checked if you want to enable URL Blocking.

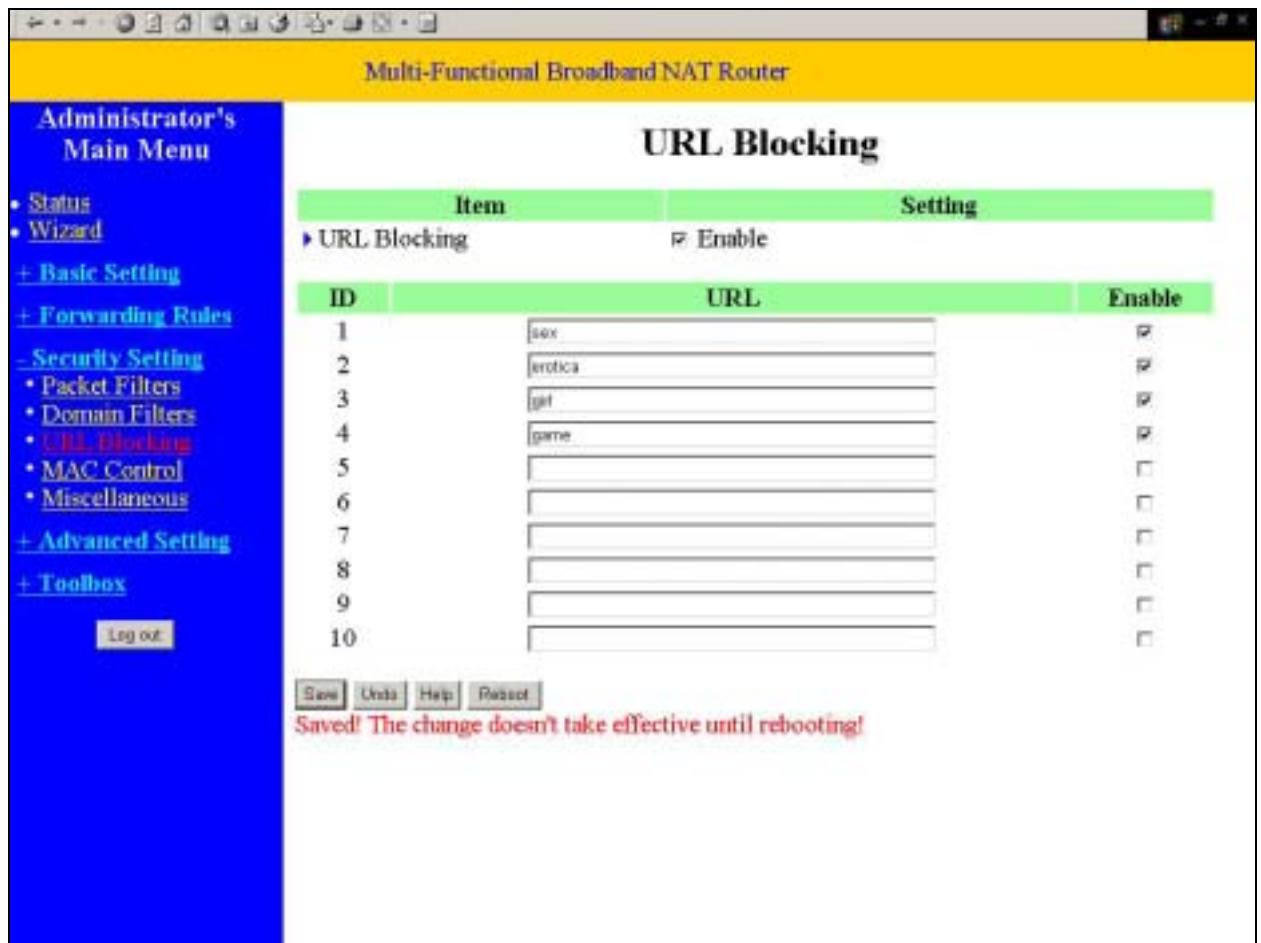
URL

If any part of the Website's URL matches the pre-defined word, the connection will be blocked.

For example, you can use pre-defined word "sex" to block all websites if their URLs contain pre-defined word "sex".

Enable

Checked to enable each rule.



In this example:

- 1.URL include “sex” will be blocked, and the action will be record in log-file.
- 2.URL include “erotica” will be blocked, but the action will be record in log-file
- 3.URL include “girl” will not be blocked, but the action will be record in log-file.
4. URL include “game” will be blocked, but the action will be record in log-file

4.6.4 MAC Address Control

Multi-Functional Broadband NAT Router

Administrator's Main Menu

- Status
- Wizard
- + Basic Setting
- + Forwarding Rules
- Security Setting
 - Packet Filters
 - Domain Filters
 - **MAC Control**
 - VPN
 - Miscellaneous
- + Advanced Setting
- + Toolbox

Log out

MAC Address Control

Item **Setting**

• MAC Address Control ☐ Enable

☐ Connection control Wireless and wired clients with C checked can connect to this device; and unspecified MAC addresses to connect.

☐ Association control Wireless clients with A checked can associate to the wireless LAN; and unspecified MAC addresses to associate.

ID	MAC Address	IP Address	C	A
1		192.168.123.	☐	☐
2		192.168.123.	☐	☐
3		192.168.123.	☐	☐
4		192.168.123.	☐	☐

DHCP clients: Copy to:

Previous page Next page Save Undo Help

MAC Address Control allows you to assign different access right for different users and to assign a specific IP address to a certain MAC address.

MAC Address Control Check "Enable" to enable the "MAC Address Control". All of the settings in this page will take effect only when "Enable" is checked.

Connection control Check "Connection control" to enable the controlling of which wired and wireless clients can connect to this device. If a client is denied to connect to this device, it means the client can't access to the Internet either. Choose "allow" or "deny" to allow or deny the clients, whose MAC addresses are not in the "Control table" (please see below), to connect to this device.

Assosiation control Check "Association control" to enable the controlling of which wireless client can associate to the wireless LAN. If a client is denied to associate to the wireless LAN, it means the client can't send or receive any data via this device. Choose "allow" or "deny" to

allow or deny the clients, whose MAC addresses are not in the "Control table", to associate to the wireless LAN.

Control table

ID	MAC Address	IP Address	C	A
1		192.168.123	☐	☐
2		192.168.123	☐	☐
3		192.168.123	☐	☐
4		192.168.123	☐	☐

"Control table" is the table at the bottom of the "MAC Address Control" page. Each row of this table indicates the MAC address and the expected IP address mapping of a client. There are four columns in this table:

MAC Address	MAC address indicates a specific client.
IP Address	Expected IP address of the corresponding client. Keep it empty if you don't care its IP address.
C	When " Connection control " is checked, check " C " will allow the corresponding client to connect to this device.
A	When " Association control " is checked, check " A " will allow the corresponding client to associate to the wireless LAN.

In this page, we provide the following Combobox and button to help you to input the MAC address.

DHCP clients -- select one --

Copy to ID --

You can select a specific client in the “DHCP clients” Combobox, and then click on the “Copy to” button to copy the MAC address of the client you select to the ID selected in the “ID” Combobox.

Previous page and Next Page To make this setup page simple and clear, we have divided the “Control table” into several pages. You can use these buttons to navigate to different pages.

4.6.5 VPN setting

Multi-Functional Broadband NAT Router

Administrator's Main Menu

- Status
- Wizard
- + Basic Setting
- + Forwarding Rules
- Security Settings
 - Packet Filter
 - Domain Filter
 - URL Blocking
 - MAC Control
 - VPN
 - Miscellaneous
- + Advanced Settings
- + Tools

Log out

VPN Settings

Item	Setting
▶ VPN	☐ Enable
▶ Max. number of tunnels	

ID	Tunnel Name	Method
1		[i-E] More
2		[i-E] More
3		[i-E] More
4		[i-E] More
5		[i-E] More

<< Previous Next >> Save Undo Dynamic VPN Settings L2TP Server Setting...
PPTP Server Setting... Help

VPN Settings are settings that are used to create virtual private tunnels to remote VPN gateways. The tunnel technology supports data confidentiality, data origin authentication and data integrity of network information by utilizing encapsulation protocols, encryption algorithms, and hashing algorithms.

- **VPN enable item**

VPN protects network information from ill network inspectors. But it greatly degrades network throughput. Enable it when you really need a security tunnel. It is disabled for default.

- **Max. number of tunnels item**

Since VPN greatly degrades network throughput, the allowable maximum number of tunnels is limited. Be careful to set the value for allowing the number of tunnels can be created simultaneously. Its value ranges from 1 to 5.

- **Tunnel name**

Indicate which tunnel that is focused now.

- **Method**

IPSec VPN supports two kinds of key-obtained methods: manual key and automatic key exchange. Manual key approach indicates that two end VPN gateways setup authenticator and encryption key by system managers manually. However, IKE approach will perform automatic Internet key exchange. System managers of both end gateways only need set the same pre-shared key.

Function of Buttons

More: To setup detailer configuration for manual key or IKE approaches by clicking the "More" button.

4.6.5.1 VPN Settings - IKE

The screenshot shows the configuration interface for a Multi-Functional Broadband NAT Router. The left sidebar contains the Administrator's Main Menu with options like Status, Wizard, Basic Setting, Extensible Rules, Security Settings, and Advanced Settings. The main area is titled 'VPN Settings - Tunnel 1 - IKE' and contains a table with two columns: 'Item' and 'Setting'.

Item	Setting
Tunnel Name	
Local Subnet	0.0.0.0
Local Netmask	0.0.0.0
Remote Subnet	0.0.0.0
Remote Netmask	0.0.0.0
Remote Gateway	
Preshare Key	
IKE Proposal index	Select IKE Proposal
IPSec Proposal index	Select IPSec Proposal

At the bottom of the form, there are buttons for 'Save', 'Undo', 'Back', and 'Help', along with a status indicator 'No change!'.

•VPN Settings - IKE

There are three parts that are necessary to setup the configuration of IKE for the dedicated tunnel: basic setup, IKE proposal setup, and IPSec proposal setup.

Basic setup includes the setting of following items: local subnet, local netmask, remote subnet, remote netmask, remote gateway, and pre-shared key. The tunnel name is derived from previous page of VPN setting. IKE proposal setup includes the setting of a set of frequent-used IKE proposals and the selecting from the set of IKE proposals. Similarly, IPSec proposal setup includes the setting of a set of frequent-used IPSec proposals and the selecting from the set of IPSec proposals.

- Basic setup:

Local subnet

The subnet of LAN site of local VPN gateway. It can be a host, a partial subnet, and the whole subnet of LAN site of local gateway.

Local netmask

Local netmask combined with local subnet to form a subnet domain.

Remote subnet

The subnet of LAN site of remote VPN gateway, it can be a host, a partial subnet, and the whole subnet of LAN site of remote gateway.

Remote netmask

Remote netmask combined with remote subnet to form a subnet domain of remote end.

Remote gateway

The IP address of remote VPN gateway.

Pre-shared key

The first key that supports IKE mechanism of both VPN gateways for negotiating further security keys. The pre-shared key must be same for both end gateways.

Function of Buttons

Select IKE proposal: Click the button to setup a set of frequent-used IKE proposals and select from the set of IKE proposals for the dedicated tunnel. proposals for the dedicated tunnel.

Select IPSec proposal: Click the button to setup a set of frequent-used IPSec proposals and select from the set of IKE proposals for the dedicated tunnel.

4.6.5.2 VPN Settings - Set IKE Proposal

The screenshot shows the 'VPN Settings - Tunnel 1 - Set IKE Proposal' configuration page. On the left is a blue sidebar with the 'Administrator's Main Menu' containing links for Status, Wizard, Basic Setting, Forwarding Rules, Security Settings (Packet Filter, Domain Filter, URL Blockage, MAC Control, VPN, Miscellaneous), Advanced Settings, and Tools. A 'Log out' button is at the bottom of the sidebar. The main content area has a yellow header 'Multi-Functional Broadband NAT Router' and a title 'VPN Settings - Tunnel 1 - Set IKE Proposal'. It features a table with columns 'Item' and 'Setting'. The 'Item' column lists 'IKE Proposal index' with a dropdown menu showing 'Empty' and a 'Remove' button. Below this is a table with 10 rows, each representing an IKE proposal. The columns are: ID, Proposal Name, DH Group, Encrypt. algorithm, Auth. algorithm, Life Time, and Life Time Unit. All 'DH Group' and 'Auth. algorithm' columns are set to 'Group 1' and 'SHA1' respectively. The 'Encrypt. algorithm' column is set to '3DES'. The 'Life Time' column is set to '0' and the 'Life Time Unit' column is set to 'Sec'. At the bottom, there is a 'Proposal ID' dropdown menu with the text 'select one', an 'Add to Proposal index' button, and a row of buttons: 'Save', 'Undo', 'Back', and 'Help'.

ID	Proposal Name	DH Group	Encrypt. algorithm	Auth. algorithm	Life Time	Life Time Unit
1		Group 1	3DES	SHA1	0	Sec
2		Group 1	3DES	SHA1	0	Sec
3		Group 1	3DES	SHA1	0	Sec
4		Group 1	3DES	SHA1	0	Sec
5		Group 1	3DES	SHA1	0	Sec
6		Group 1	3DES	SHA1	0	Sec
7		Group 1	3DES	SHA1	0	Sec
8		Group 1	3DES	SHA1	0	Sec
9		Group 1	3DES	SHA1	0	Sec
10		Group 1	3DES	SHA1	0	Sec

•VPN Settings - Set IKE Proposal

IKE Proposal index

A list of selected proposal indexes from the IKE proposal pool listed below. The selecting activity is performed by selecting a proposal ID and clicking "add to" button in the bottom of the page. There are only four indexes can be chosen from the proposal pool for the dedicated tunnel. Remove button beside the index list can remove selected proposal index before.

Proposal name

It indicates which IKE proposal to be focused. First char of the name with 0x00 value stands for the IKE proposal is not available.

• **DH group**

There are three groups can be selected: group 1 (MODP768), group 2 (MODP1024), group 5 (MODP1536).

Encryption algorithm

There are two algorithms can be selected: 3DES and DES.

Authentication algorithm

There are two algorithms can be selected: SHA1 and MD5.

Life time

The unit of life time is based on the value of Life Time Unit. If the value of unit is second, the value of life time represents the life time of dedicated VPN tunnel between both end gateways. Its value ranges from 300 seconds to 172,800 seconds. If the value of unit is KB, the value of life time represents the maximum allowable amount of transmitted packets through the dedicated VPN tunnel between both end gateways. Its value ranges from 20,480 KBs to 2,147,483,647 KBs.

Life time unit

There are two units can be selected: second and KB.

Proposal ID

The identifier of IKE proposal can be chosen for adding corresponding proposal to the dedicated tunnel. There are total ten proposals can be set in the proposal pool. At most only four proposals from the pool can be applied to the dedicated tunnel as shown in the proposal index list.

Function of Buttons

Add to button: Click it to add the chosen proposal indicated by proposal ID to IKE Proposal index list. The proposals in the index list will be used in phase 1 of IKE negotiation for getting the IKSAMP SA of dedicated tunnel.

4.6.5.3 VPN Settings -Set IPsec Proposal

Multi-Functional Broadband NAT Router

Administrator's Main Menu

- Status
- Wizard
- Basic Setting
- Forwarding Rules
- Security Settings
 - Packet Filter
 - Tunnel Filter
 - URL Blockage
 - MAC Control
 - VPN
 - Miscellaneous
- Advanced Settings
- Tools

Log out

VPN Settings - Tunnel 1 - Set IPsec Proposal

Item: IPsec Proposal index

Setting: - Empty -

Remove

ID	Proposal Name	DH Group	Encap. protocol	Encrypt. algorithm	Auth. algorithm	Life Time	Life Time Unit
1		None	ESP	3DES	None	0	Sec.
2		None	ESP	3DES	None	0	Sec.
3		None	ESP	3DES	None	0	Sec.
4		None	ESP	3DES	None	0	Sec.
5		None	ESP	3DES	None	0	Sec.
6		None	ESP	3DES	None	0	Sec.
7		None	ESP	3DES	None	0	Sec.
8		None	ESP	3DES	None	0	Sec.
9		None	ESP	3DES	None	0	Sec.
10		None	ESP	3DES	None	0	Sec.

Proposal ID: - select one - Add to Proposal index

Save Undo Back Help

•VPN Settings -Set IPsec Proposal

IPsec Proposal index

A list of selected proposal indexes from the IPsec proposal pool listed below. The selecting activity is performed by selecting a proposal ID and clicking "add to" button in the bottom of the page. There are only four indexes can be chosen for the dedicated tunnel. Remove button beside the index list can remove selected proposal index before.

Proposal name

It indicates which IPsec proposal to be focused. First char of the name with 0x00 value stands for the proposal is not available.

• DH group

There are three groups can be selected: group 1 (MODP768), group 2 (MODP1024), group 5 (MODP1536). But none also can be selected here for IPsec proposal.

Encapsulation protocol

There are two protocols can be selected: ESP and AH.

Encryption algorithm

There are two algorithms can be selected: 3DES and DES. But when the encapsulation protocol is AH, encryption algorithm is unnecessarily set.

Authentication algorithm

There are two algorithms can be selected: SHA1 and MD5. But none also can be selected here for IPSec proposal.

Life time

The unit of life time is based on the value of Life Time Unit. If the value of unit is second, the value of life time represents the life time of dedicated VPN tunnel between both end gateways. Its value ranges from 300 seconds to 172,800 seconds. If the value of unit is KB, the value of life time represents the maximum allowable amount of transmitted packets through the dedicated VPN tunnel between both end gateways for. Its value ranges from 20,480 KBs to 2,147,483,647 KBs.

Life time unit

There are two units can be selected: second and KB.

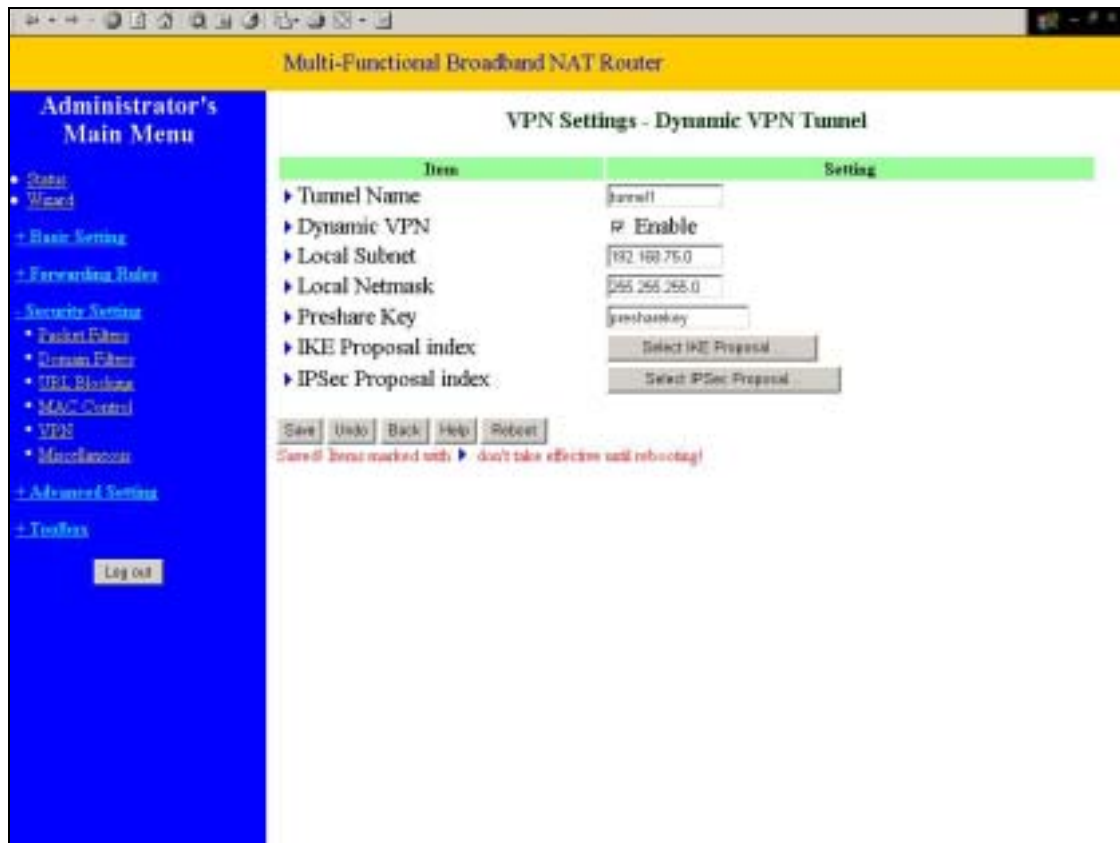
Proposal ID

The identifier of IPSec proposal can be chosen for adding the proposal to the dedicated tunnel. There are total ten proposals can be set in the proposal pool. At most only four proposals from the pool can be applied to the dedicated tunnel as shown in the proposal index list.

Function of Buttons

Add to button: Click it to add the chosen proposal indicated by proposal ID to IPSec Proposal index list. The proposals in the index list will be used in phase 2 of IKE negotiation for getting the IPSec SA of dedicated tunnel.

4.6.5.4 VPN Settings - Dynamic VPN Tunnel



When using **VPN Dynamic IP Setting**, this router is working as a Dynamic VPN server. Dynamic VPN Server will not check VPN client IP information, so user can build VPN tunnel with VPN gateway from any remote host regardless of its IP information.

4.6.5.6 VPN Settings – L2TP Server

The screenshot shows the configuration interface for an L2TP Server on a Multi-Functional Broadband NAT Router. The interface is divided into a left sidebar menu and a main configuration area.

Administrator's Main Menu:

- Status
- Wizard
- + Basic Setting
- + Extension Rules
- + Security Settings
 - Packet Filter
 - Domain Filter
 - URL Blocking
 - MAC Control
 - VPN
 - Miscellaneous
- + Advanced Setting
- + Tools
- Log out

VPN Settings - L2TP Server:

Item	Setting
L2TP Server	☐ Enable
Virtual IP of L2TP Server	0 0 1
Authentication Protocol	☒ PAP ☐ CHAP ☐ MSCHAP

ID	Tunnel Name	User Name	Password
1			
2			
3			
4			
5			

Buttons: Back, Save, Undo, Help

L2TP (Layer2 Tunneling protocol) combine features of both Point-to-Point Tunneling Protocol (PPTP) and Layer 2 Forwarding (L2F) technology. L2TP provides security for a virtual private network (VPN) connection from the remote user to the corporate LAN.

User can build up to five L2TP tunnels for L2TP clients. Each tunnel can accept more than one client. User is required to configure Virtual IP of L2TP Server, Authentication Protocol, L2TP Tunnel Name and User Account, Password.

Virtual IP of L2TP Server: L2TP server's virtual IP. User must assign a virtual IP for L2TP Server.

Authentication Protocol: Protocols that Clients can use to authenticate to Server.

L2TP Tunnel, Username and Password: Each tunnel defined a username and password that clients can use to connect to L2TP Server.

4.6.5.7 VPN Settings – PPTP Server

The screenshot shows the 'VPN Settings - PPTP Server' configuration page on a 'Multi-Functional Broadband NAT Router'. The page has a blue sidebar menu on the left and a main configuration area on the right. The sidebar menu includes 'Status', 'Wizard', 'Basic Setting', 'Forwarding Rules', 'Security Settings' (with sub-items: Packet Filter, Domain Filter, URL Blocking, MAC Control, VPN, and Miscellaneous), 'Advanced Setting', and 'Toolbox'. A 'Log out' button is at the bottom of the sidebar. The main configuration area is titled 'VPN Settings - PPTP Server' and contains the following settings:

Item	Setting
PPTP Server	☐ Enable
Virtual IP of PPTP Server	0 0 0 .1
Authentication Protocol	☒ PAP ☐ CHAP ☐ MSCHAP

ID	Tunnel Name	User Name	Password
1			
2			
3			
4			
5			

At the bottom of the main configuration area are buttons for 'Back', 'Save', 'Undo', and 'Help'.

PPTP (Point-to-Point Tunneling Protocol) is a tunneling protocol for connecting clients and servers. PPTP can be used to create a Virtual Private Network (VPN) between the remote user and the corporate LAN.

User can build up to five PPTP tunnels for PPTP clients. Each tunnel can accept more than one client. User is required to configure Virtual IP of PPTP Server, Authentication Protocol, PPTP Tunnel Name and User Account, Password.

Virtual IP of PPTP Server: PPTP server's virtual IP. User must assign a virtual IP for PPTP Server.

Authentication Protocol: Protocols that Clients can use to authenticate to Server.

PPTP Tunnel Name, Username and Password: Each tunnel defined a username and password that clients can use to connect to PPTP Server.

4.6.5 Miscellaneous Items

The screenshot shows a web browser window displaying the configuration page for a "Multi-Functional Broadband NAT Router". The page has a yellow header and a blue sidebar on the left titled "Administrator's Main Menu". The sidebar contains links for "Status", "Wizard", "Basic Settings", "Forwarding Rules", "Security Settings", "Advanced Settings", and "Tools". The "Miscellaneous Items" section is selected in the sidebar. The main content area is titled "Miscellaneous Items" and contains a table with three columns: "Item", "Setting", and "Enable". The table lists several configuration items, each with a checkbox in the "Enable" column. Below the table are "Save", "Undo", and "Help" buttons.

Item	Setting	Enable
▶ Remote Administrator Host / Port	0.0.0.0 / 255	☐
▶ Administrator Time-out	0 seconds (0 to disable)	☐
▶ Discard PING from WAN side		☐
▶ SPI mode		☐
▶ DoS Attack Detection		☐
▶ VPN PPTP Pass-Through		☒
▶ VPN IPSec Pass-Through		☒

Save Undo Help

Remote Administrator Host/Port

In general, only Intranet user can browse the built-in web pages to perform administration task. This feature enables you to perform administration task from remote host. If this feature is enabled, only the specified IP address can perform remote administration. If the specified IP address is 0.0.0.0, any host can connect to this product to perform administration task. You can use subnet mask bits "/nn" notation to specified a group of trusted IP addresses. For example, "10.1.2.0/24".

NOTE: When Remote Administration is enabled, the web server port will be shifted to 88. You can change web server port to other port, too.

Administrator Time-out

The time of no activity to logout automatically. Set it to zero to disable this feature.

Discard PING from WAN side

When this feature is enabled, any host on the WAN cannot ping this product.

SPI Mode

When this feature is enabled, the router will record the packet information pass through the router like IP address, port address, ACK, SEQ number and so on. And the router will check every incoming packet to detect if this packet is valid.

DoS Attack Detection

When this feature is enabled, the router will detect and log the DoS attack comes from the Internet. Currently, the router can detect the following DoS attack: SYN Attack, WinNuke, Port Scan, Ping of Death, Land Attack etc.

VPN PPTP/IPSec Pass-Through

Please enable this feature, if you need to establish a PPTP or IPSEC connection that will pass through this device.