



**LevelOne**

**FBR-1413TX**

**1W,4L Broadband Router**

**User Manual**

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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 radio interference in a commercial environment. This equipment can generate, use and radiate radio frequency energy and, if not installed and used in accordance with the instructions in this manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause interference, in which case the user, at his own expense, will be required to take whatever measures are necessary to correct the interference.

## **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.

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# Chapter 1 Introduction

Congratulations on your purchase of this outstanding LevelOne FBR-1413TX Broadband Router. This product is specifically designed for Small Office and Home Office needs. It provides a complete SOHO solution for Internet surfing and office resources sharing, and it is easy to configure and operate for even 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

- **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.
- **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.

- **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.

- **Network time Supported**

Allow you to synchronize system time with network time server.

- **Statistics of WAN Supported**

Enables you to monitor inbound and outbound packets

## **Packing List**

- FBR-1413TX Broadband router unit
- Installation CD-ROM
- Power adapter

## Chapter 2 Hardware Installation

### 2.1 Panel Layout

#### 2.1.1. Front Panel

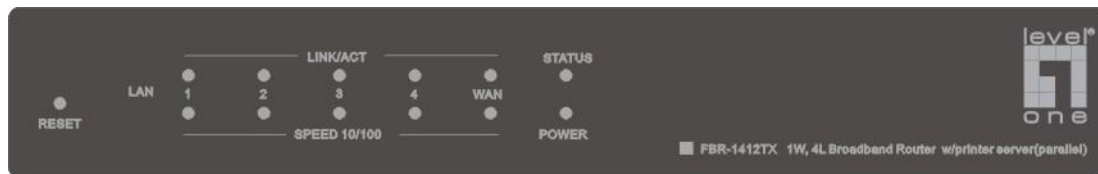


Figure 2-1 Front Panel

LED:

LED	Function	Color	Status	Description
Status	System status indicators	Orange	Blinking	Status is flashed once per second to indicate system is alive.
WAN	WAN port activity	Green	On	The WAN port is linked.
Link/Act. 1~4	Link status	Green	Blinking	The WAN port is sending or receiving data.
			On	An active station is connected to the corresponding LAN port.
Speed 10/100	Data Rate	Green	Blinking	The corresponding LAN port is sending or receiving data.
			On	Data is transmitting in 100Mbps on the corresponding LAN port.
POWER	Power status indicator	Orange	On	The power is active.



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 Status LED , it will flash 8 times and then Status flash once per second.

### 2.1.2. Rear Panel

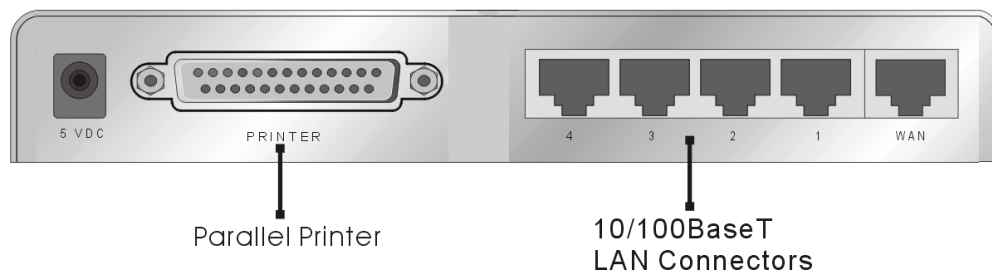


Figure 2-2 Rear Panel

Ports:

Port	Description
<b>5VDC</b>	Power inlet: DC 5V, 1.5A (minimum)
<b>WAN</b>	the port where you will connect your cable (or DSL) modem or Ethernet router.
<b>Port 1-4</b>	the ports where you will connect networked computers and other devices.

## 2.2 Installation Requirements

FBR-1413TX can be positioned at any convenient place in your office or house. No special wiring or cooling requirements is needed. However, you should comply with the following guidelines to install:

- Place this product on a flat horizontal plane.
- Keep this product away from any heating devices.
- Do not place this product in dusty or wet environment.

The recommended operational specifications of this product are:

Temperature	0 °C ~ 55 °C
Humidity	5 % ~ 90 %

In addition, remember to turn off the power, remove the power cord from the outlet, and keep your hands dry when you try to install the hardware of this product.

## 2.3 Procedure for Hardware Installation

1. **Setup LAN connection:** connect an Ethernet cable from your computer's Ethernet port to one of the LAN ports of this product.
2. **Setup WAN connection:** prepare an Ethernet cable for connecting this product to your cable/xDSL modem or Ethernet backbone.
3. **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 "STATUS" LED indicator will be lighted ON for about 5 seconds, and then STATUS LED will be flashed 3 times to indicate that the self-test operation has finished. Finally, the "STATUS" LED 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 LevelOne FBR-1413TX 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?*

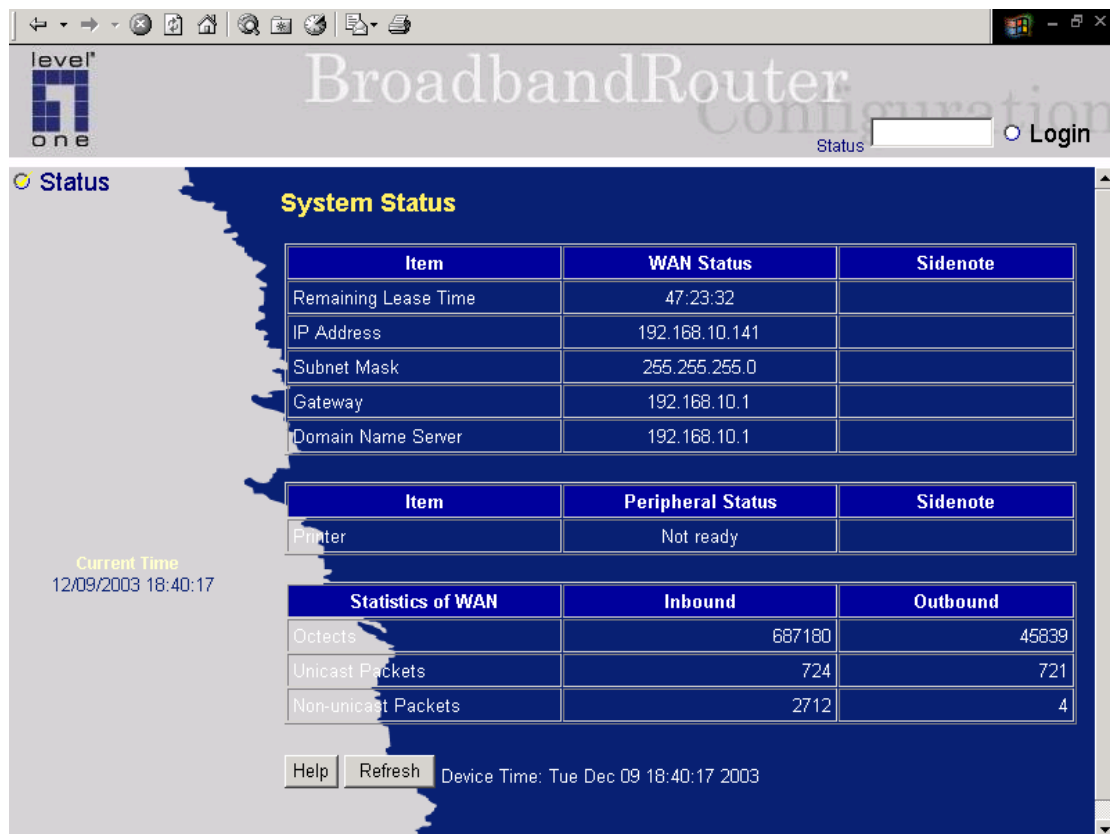
**Tip:** If the IP address of this product is 192.168.123.254, the IP address of your computer must be 192.168.123.X and default gateway must be 192.168.123.254.

Now, you can configure the NAT Router (refer to Chapter 4).

## Chapter 4 Configuring NAT Router

LevelOne FBR-1407TX 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



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 shows the 'level one' BroadbandRouter configuration interface. The 'Status' tab is selected, displaying the 'System Status' section. It includes a table for WAN Status with columns for Item, WAN Status, and Sidenote. The WAN Status table shows details for the WAN connection, including IP Address, Subnet Mask, Gateway, and Domain Name Server. Below this is a table for Peripheral Status, showing the status of the Printer. At the bottom, there is a table for Statistics of WAN, showing Inbound and Outbound traffic statistics. The current time is displayed as 12/09/2003 18:40:32. The device time is also shown as Tue Dec 09 18:40:32 2003.

level one BroadbandRouter

Status/ Wizard/ Basic Setting/ Forwarding Rules/ Security Setting/ Advanced Setting/ Toolbox Logout

Status

System Status

Item	WAN Status	Sidenote
Remaining Lease Time	47:23:17	Renew
IP Address	192.168.10.141	Release
Subnet Mask	255.255.255.0	
Gateway	192.168.10.1	
Domain Name Server	192.168.10.1	

Item	Peripheral Status	Sidenote
Printer	Not ready	

Statistics of WAN	Inbound	Outbound
Octects	687274	45919
Unicast Packets	725	722
Non-unicast Packets	2712	4

Current Time 12/09/2003 18:40:32

View Log... Clients List... Help Refresh

Device Time: Tue Dec 09 18:40:32 2003

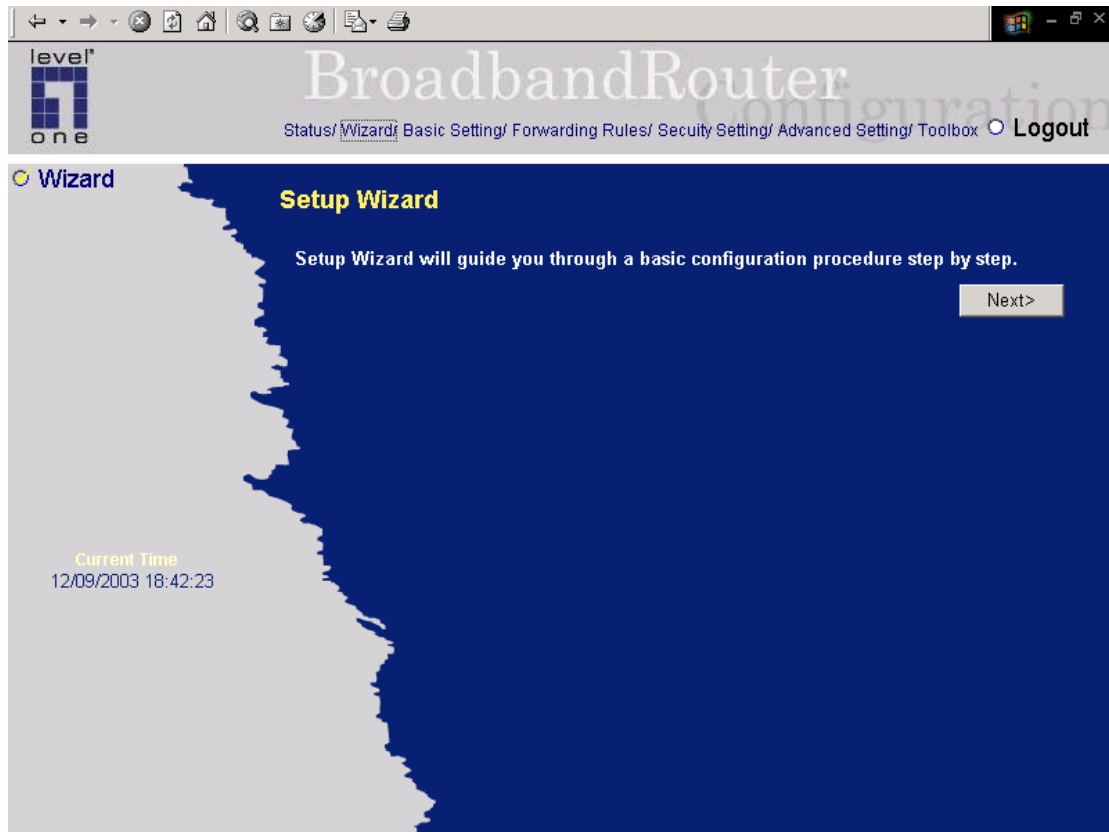
This option provides the function for observing this product's working status:

A. WAN Port Status.

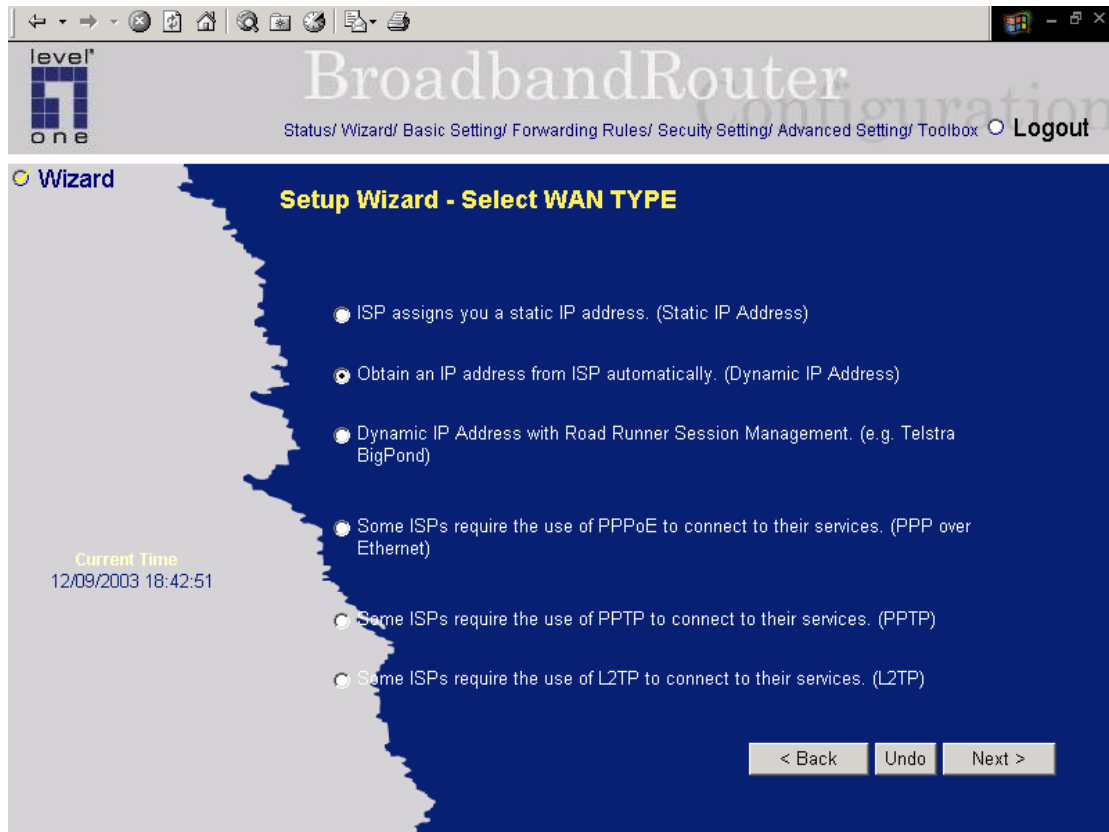
If the WAN port is assigned a dynamic IP, there may appear a “**Renew**” or “**Release**” button on the *Sidenote* column. You can click this button to renew or release IP manually.

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

## 4.3 Wizard



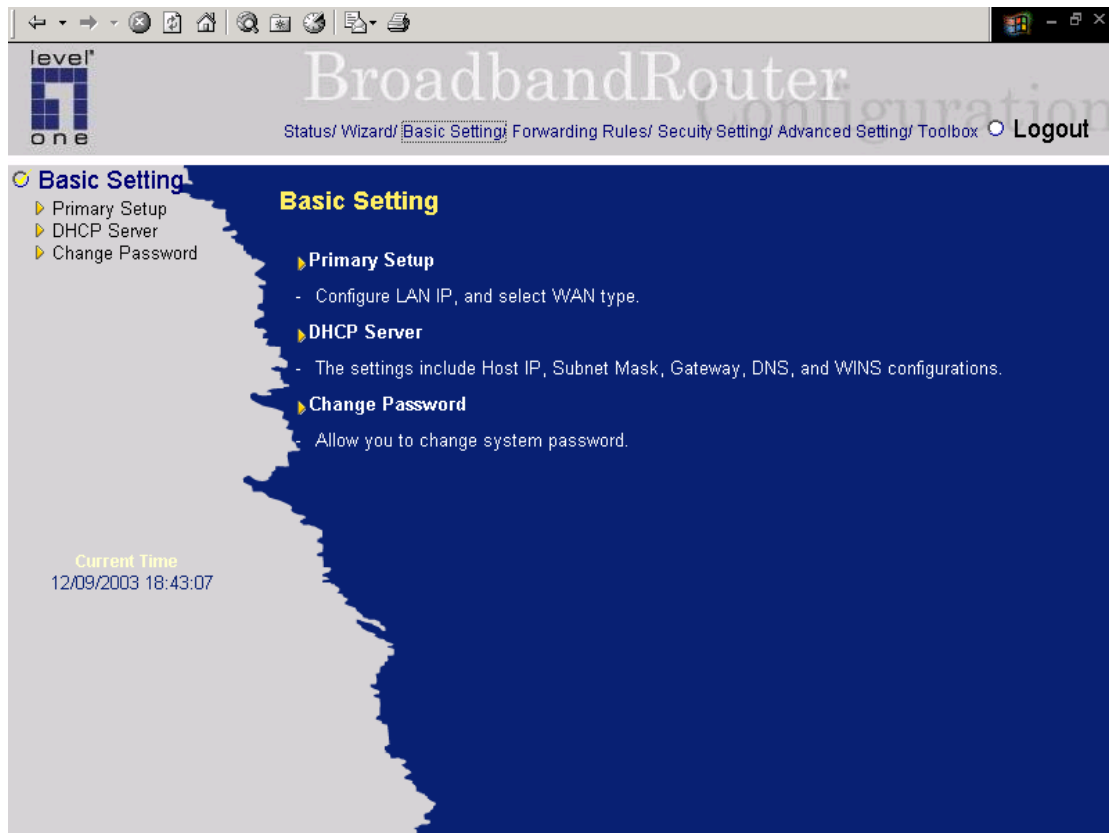
Setup Wizard will guide you through a basic configuration procedure step by step.  
Press "Next >"



**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

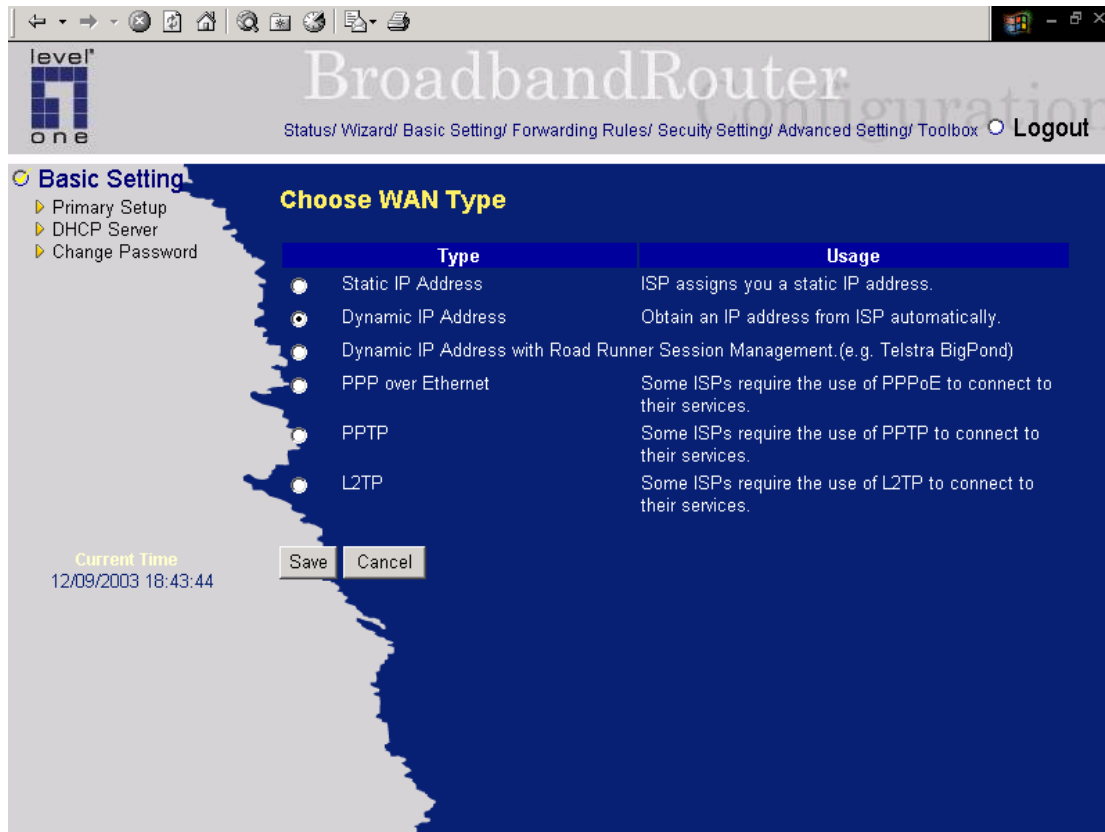
The screenshot shows a web browser window displaying the configuration interface for a level one BroadbandRouter. The browser's address bar shows the URL `http://192.168.1.1/`. The page has a blue header with the level one logo and the title "BroadbandRouter Configuration". Below the header is a navigation menu with links: Status/ Wizard/ Basic Setting/ Forwarding Rules/ Security Setting/ Advanced Setting/ Toolbox. The "Basic Setting" link is selected, and a sidebar on the left shows a tree view with "Basic Setting" expanded, containing "Primary Setup", "DHCP Server", and "Change Password". The "Primary Setup" section is active, displaying a table of configuration items. The table has two columns: "Item" and "Setting". The items are: LAN IP Address (192.168.123.254), WAN Type (Dynamic IP Address with a "Change..." button), Host Name (empty field with "(optional)" text), WAN's MAC Address (FF-FF-FF-FF-FF-FF with a "Clone MAC" button), and Renew IP Forever (a checkbox labeled "Enable (Auto-reconnect)"). At the bottom of the table are buttons for "Save", "Undo", "Virtual Computers...", and "Help". In the bottom left corner, the "Current Time" is displayed as "12/09/2003 18:43:32".

Item	Setting
LAN IP Address	192.168.123.254
WAN Type	Dynamic IP Address <a href="#">Change...</a>
Host Name	<input type="text"/> (optional)
WAN's MAC Address	FF-FF-FF-FF-FF-FF <a href="#">Clone MAC</a>
Renew IP Forever	<input type="checkbox"/> Enable (Auto-reconnect)

Save Undo Virtual Computers... Help

Current Time  
12/09/2003 18:43:32

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. *L2TP:* Some ISPs require the use of L2TP to connect to their services.

#### 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	192.168.123.254
▶ WAN Type	PPTP <input type="button" value="Change..."/>
▶ My IP Address	0.0.0.0
▶ My Subnet Mask	255.255.255.0
▶ Server IP Address	0.0.0.0
▶ PPTP Account	<input type="text"/>
▶ PPTP Password	<input type="password"/>
▶ Connection ID	<input type="text"/> (optional)
▶ Maximum Idle Time	600 seconds <input type="checkbox"/> Auto-reconnect

Saved! The change doesn't take effective until rebooting!

#### 4.4.1.6 L2TP

1. *IP Mode: The IP Mode assigned by your ISP. You can select either Static IP Address or Dynamic IP address.*
2. *My IP Address and My Subnet Mask: the private IP address and subnet mask your ISP assigned to you when your IP Mode is Static IP Address.*
3. *Server IP Address: the IP address of the L2TP server.*
4. *L2TP Account and Password: the account and password your ISP assigned to you. If you don't want to change the password, keep it empty.*

*Maximum Idle Time: the time of no activity to disconnect your L2TP 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.*

### Example1 (Static IP Address):

The screenshot shows the 'BroadbandRouter Configuration' web interface. The 'Basic Setting' menu is expanded, showing 'Primary Setup', 'DHCP Server', and 'Change Password'. The 'Primary Setup' section is active. On the left, the 'Current Time' is 12/01/2003 09:40:16. The 'Item' and 'Setting' table is as follows:

Item	Setting
LAN IP Address	192.168.123.254
WAN Type	L2TP <a href="#">Change...</a>
IP Mode	Static IP Address
IP Address	0.0.0.0
Subnet Mask	255.255.255.0
Server IP Address	0.0.0.0
L2TP Account	myaccount
L2TP Password	*****
Maximum Idle Time	300 seconds <input type="checkbox"/> Auto-reconnect

At the bottom of the settings table are buttons for 'Save', 'Undo', and 'Help'.

### Example2 (Dynamic IP Address):

The screenshot shows the 'BroadbandRouter Configuration' web interface, similar to Example 1. The 'Current Time' is 12/01/2003 09:40:52. The 'IP Mode' is set to 'Dynamic IP Address'. The 'Item' and 'Setting' table is as follows:

Item	Setting
LAN IP Address	192.168.123.254
WAN Type	L2TP <a href="#">Change...</a>
IP Mode	Dynamic IP Address
IP Address	0.0.0.0
Subnet Mask	0.0.0.0
Server IP Address	0.0.0.0
L2TP Account	myaccount
L2TP Password	*****
Maximum Idle Time	300 seconds <input type="checkbox"/> Auto-reconnect

At the bottom of the settings table are buttons for 'Save', 'Undo', and 'Help'.

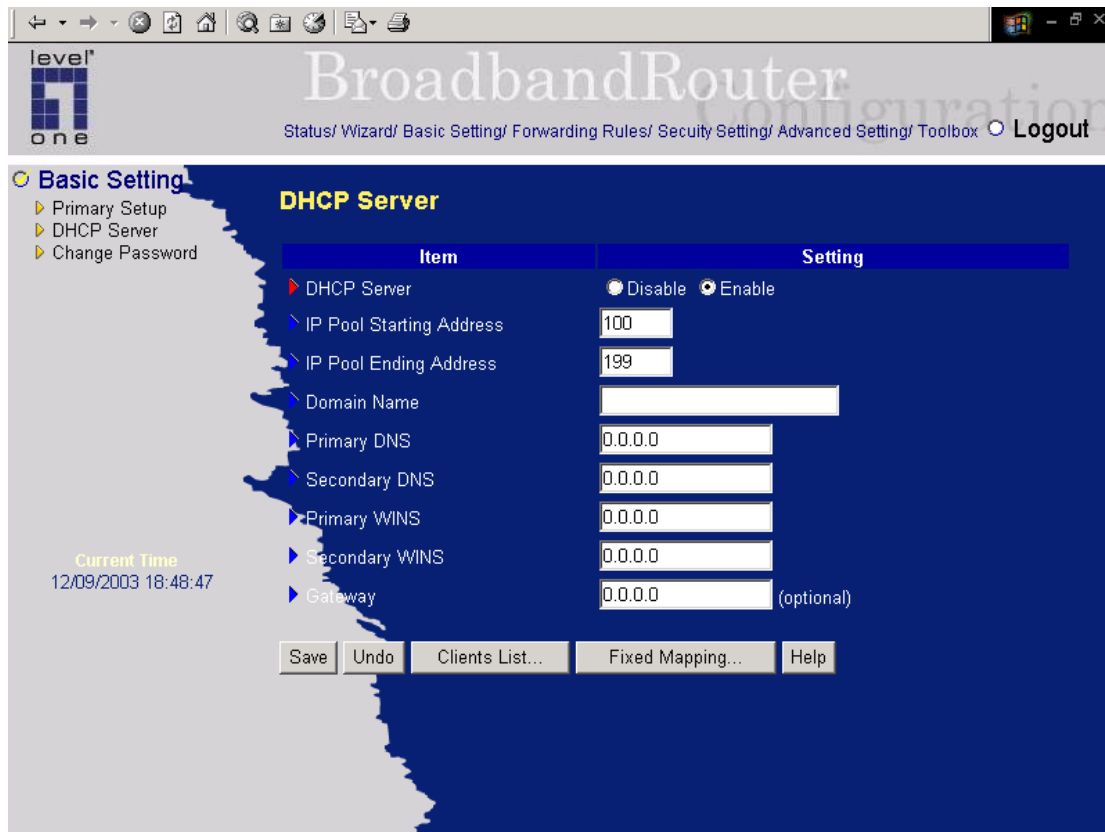
#### 4.4.2 DHCP Server

The screenshot shows the configuration interface for a level one BroadbandRouter. The browser window title is "level one BroadbandRouter Configuration". The navigation bar includes "Status/ Wizard/ Basic Setting/ Forwarding Rules/ Security Setting/ Advanced Setting/ Toolbox" and a "Logout" link. The left sidebar shows the "Basic Setting" menu with sub-items: "Primary Setup", "DHCP Server", and "Change Password". The main content area is titled "DHCP Server" and contains a table with two columns: "Item" and "Setting".

Item	Setting
DHCP Server	<input type="radio"/> Disable <input checked="" type="radio"/> Enable
IP Pool Starting Address	<input type="text" value="100"/>
IP Pool Ending Address	<input type="text" value="199"/>
Domain Name	<input type="text"/>

Below the table are several buttons: "Save", "Undo", "More>>", "Clients List...", "Fixed Mapping...", and "Help". In the bottom left corner, the "Current Time" is displayed as "12/09/2003 18:48:20".

Press **"More>>"**

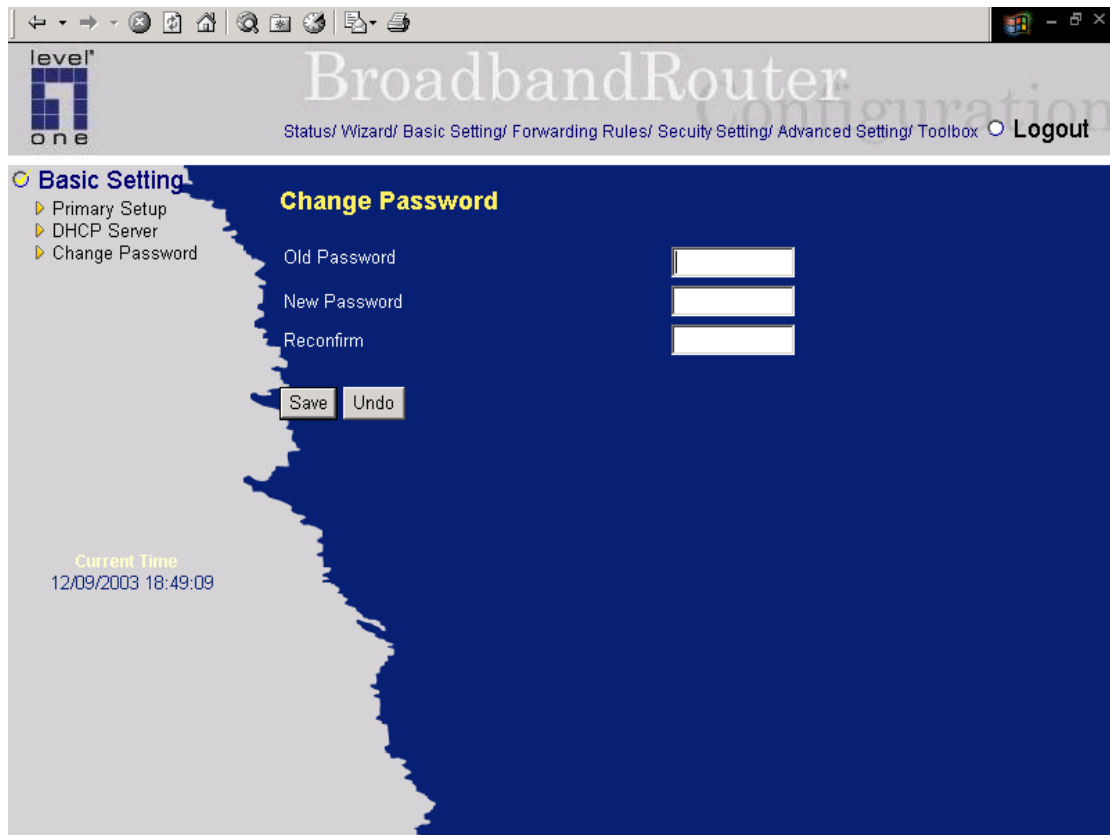


The settings of a TCP/IP environment include host IP, Subnet Mask, Gateway, and DNS configurations. It is not easy to manually configure all the computers and devices in your network. Fortunately, DHCP Server provides a rather simple approach to handle all these settings. This product supports the function 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. **IP pool starting Address/ IP pool ending 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.
3. **Domain Name:** Optional, this information will be passed to the client.
4. **Primary DNS/Secondary DNS:** This feature allows you to assign DNS Servers
5. **Primary WINS/Secondary WINS:** This feature allows you to assign WINS Servers
6. **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.



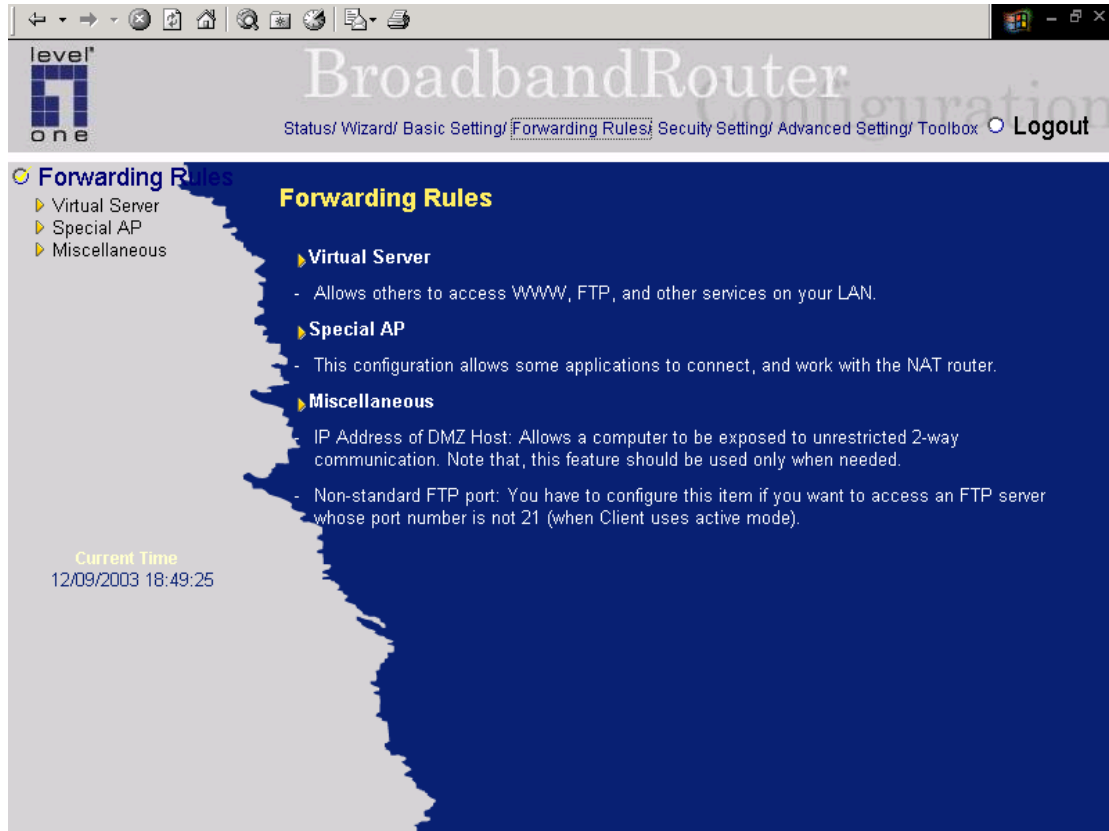
### 4.4.3 Change Password



The screenshot shows a web browser window displaying the configuration interface for a 'level one BroadbandRouter'. The browser's address bar and toolbar are visible at the top. The page header includes the 'level one' logo and the title 'BroadbandRouter'. A navigation menu at the top right lists 'Status/ Wizard/ Basic Setting/ Forwarding Rules/ Security Setting/ Advanced Setting/ Toolbox' and a 'Logout' link. On the left side, a sidebar menu shows 'Basic Setting' selected, with sub-items 'Primary Setup', 'DHCP Server', and 'Change Password'. The main content area has a dark blue background and is titled 'Change Password' in yellow. It contains three input fields for 'Old Password', 'New Password', and 'Reconfirm', each followed by a small vertical line indicating password strength. Below these fields are 'Save' and 'Undo' buttons. In the bottom left corner of the main area, the 'Current Time' is displayed as '12/09/2003 18:49:09'.

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

The screenshot shows the LevelOne BroadbandRouter configuration interface. The top navigation bar includes links for Status, Wizard, Basic Setting, Forwarding Rules, Security Setting, Advanced Setting, and Toolbox, along with a Logout button. The main content area is titled "Virtual Server" and features a table with 15 rows for configuring virtual servers. Each row includes an ID, Service Ports, Server IP, and Enable Use Rule# columns. The "Current Time" is displayed as 12/09/2003 18:49:49. Below the table, there are dropdown menus for "Well known services" and "Schedule rule", a "Copy to" button, and an "ID" dropdown. At the bottom, there are "Save", "Undo", and "Help" buttons.

ID	Service Ports	Server IP	Enable Use Rule#
1		192.168.123.	<input type="checkbox"/> 0
2		192.168.123.	<input type="checkbox"/> 0
3		192.168.123.	<input type="checkbox"/> 0
4		192.168.123.	<input type="checkbox"/> 0
5		192.168.123.	<input type="checkbox"/> 0
6		192.168.123.	<input type="checkbox"/> 0
7		192.168.123.	<input type="checkbox"/> 0
8		192.168.123.	<input type="checkbox"/> 0
9		192.168.123.	<input type="checkbox"/> 0
10		192.168.123.	<input type="checkbox"/> 0
11		192.168.123.	<input type="checkbox"/> 0
12		192.168.123.	<input type="checkbox"/> 0
13		192.168.123.	<input type="checkbox"/> 0
14		192.168.123.	<input type="checkbox"/> 0
15		192.168.123.	<input type="checkbox"/> 0

Well known services: -- select one --  
Schedule rule: (00)Always  
Copy to ID: --  
Buttons: Save, Undo, Help

LevelOne FBR-1413TX'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*.

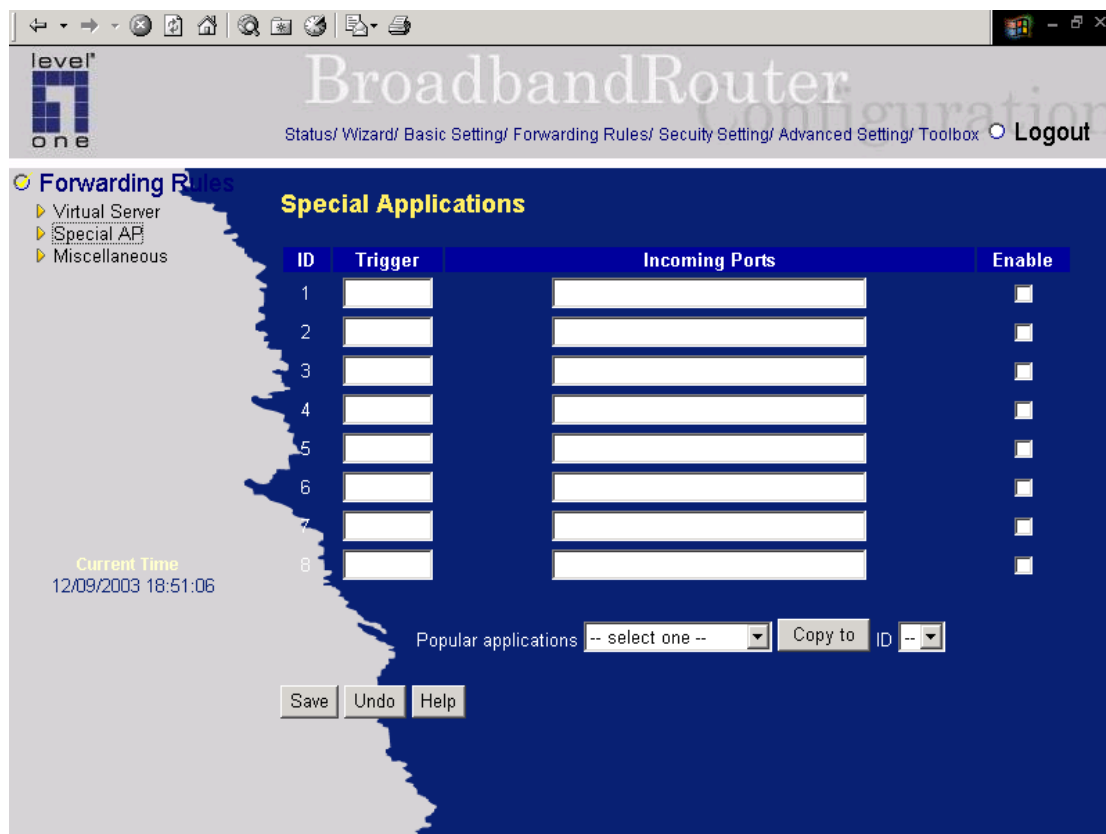
A virtual server is defined as a **Service Port**, and all requests to this port will be redirected to the computer specified by the **Server IP**. **Virtual Server** can work with **Scheduling Rules**, and give user more flexibility on Access control. For Detail, please refer to **Scheduling Rule**.

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



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.

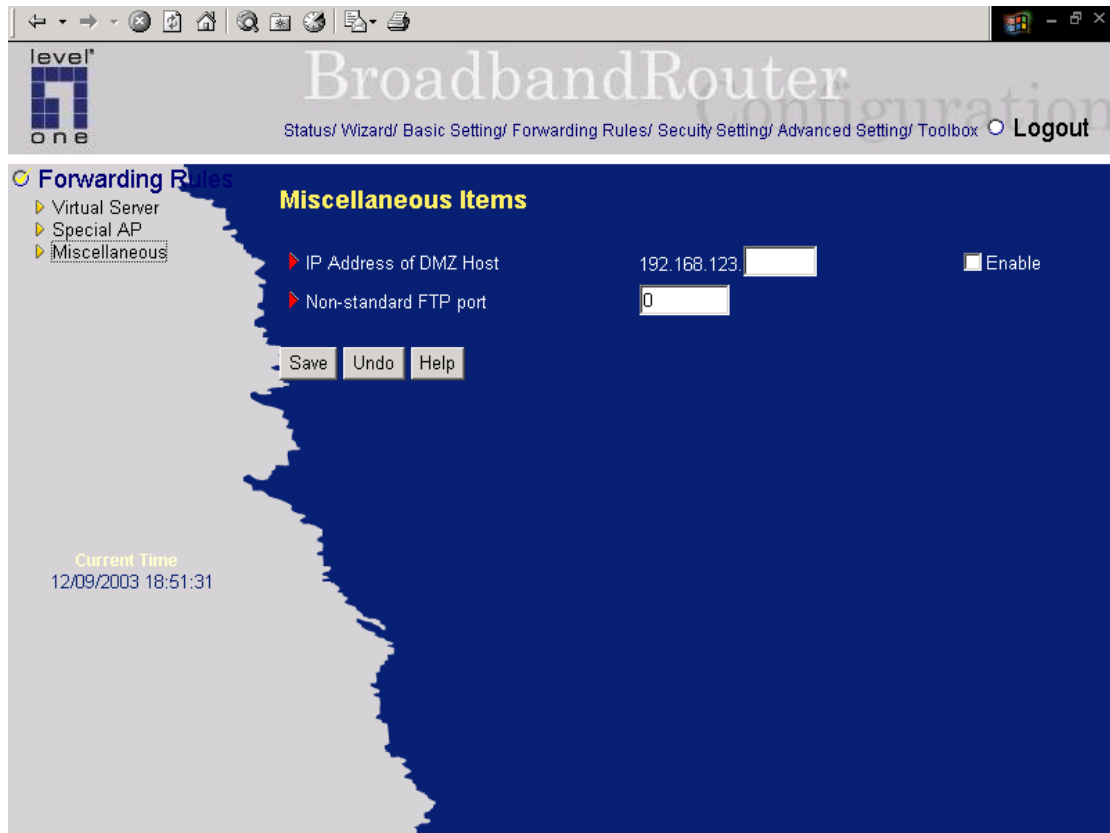
1. **Trigger:** the outbound port number issued by the application..
2. **Incoming Ports:** when the trigger packet is detected, the inbound packets sent to the specified

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



#### IP Address of DMZ Host

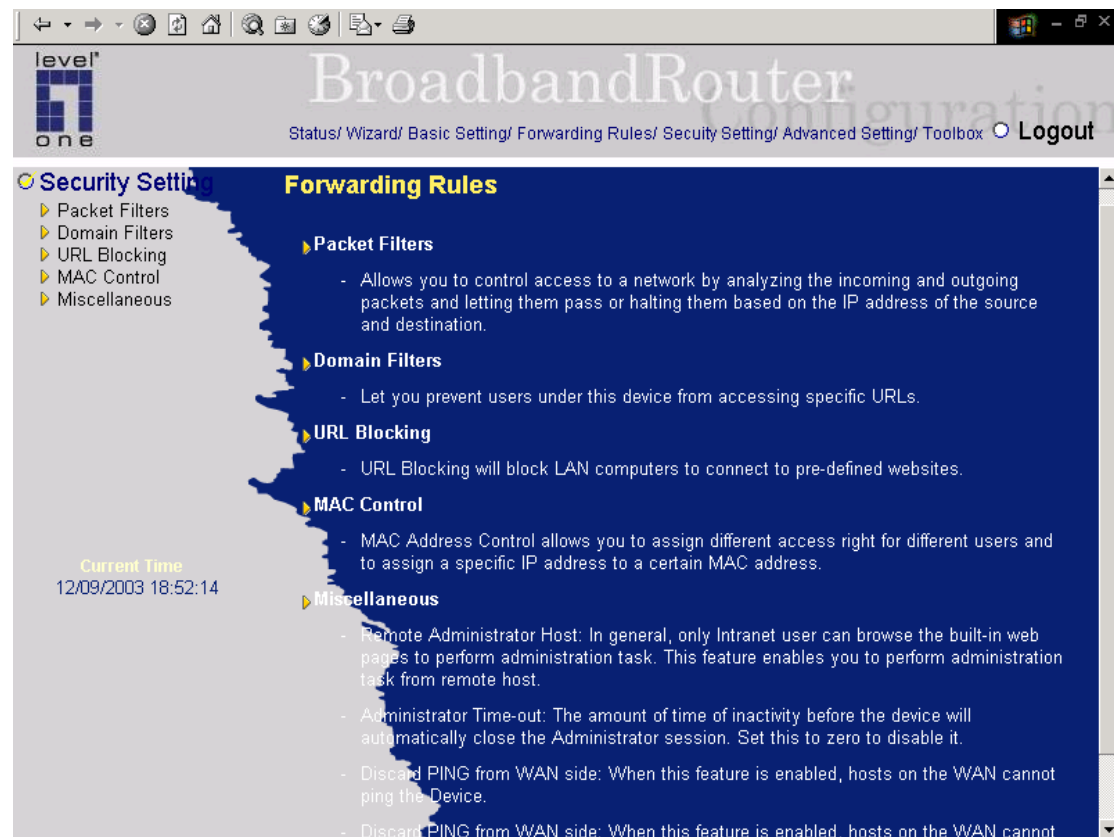
DMZ (DeMilitarized Zone) Host is a host without the protection of firewall. It allows a computer to be exposed to unrestricted 2-way communication for Internet games, Video conferencing, Internet telephony and other special applications.

*NOTE: This feature should be used only when needed.*

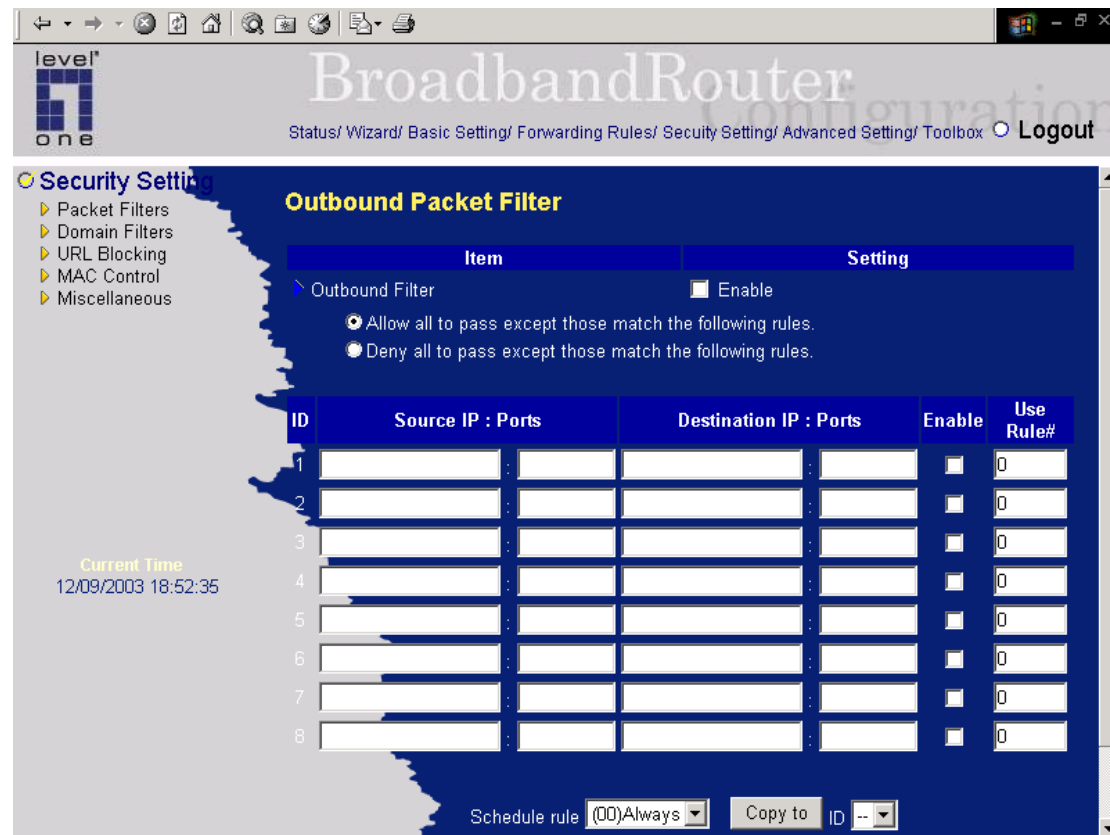
#### Non-standard FTP port

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



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:

ID	Source IP : Ports	Destination IP : Ports	Enable	Use Rule#
1	100-192.168.123.149	25-110	<input checked="" type="checkbox"/>	0
2	23.10-192.168.123.20		<input checked="" type="checkbox"/>	0
3			<input type="checkbox"/>	0
4			<input type="checkbox"/>	0
5			<input type="checkbox"/>	0
6			<input type="checkbox"/>	0
7			<input type="checkbox"/>	0
8			<input type="checkbox"/>	0

(192.168.123.100-192.168.123.149) They are allow to send mail (port 25), receive mail (port 110), and browse the Internet (port 80)

(192.168.123.10-192.168.123.20) They can do everything (block nothing)

Others are all blocked.

## Example 2:

ID	Source IP : Ports	Destination IP : Ports	Enable	Use Rule#
1	100-192.168.123.119	21	<input checked="" type="checkbox"/>	0
2	100-192.168.123.119	119	<input checked="" type="checkbox"/>	0
3			<input type="checkbox"/>	0
4			<input type="checkbox"/>	0
5			<input type="checkbox"/>	0
6			<input type="checkbox"/>	0
7			<input type="checkbox"/>	0
8			<input type="checkbox"/>	0

(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 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	<input checked="" type="checkbox"/> Enable
<input type="radio"/> Allow all to pass except those match the following rules. <input checked="" type="radio"/> Deny all to pass except those match the following rules.	

ID	Source IP : Ports	Destination IP : Ports	Enable	Use Rule#
1	100-192.168.123.149 :	: 25-110	<input checked="" type="checkbox"/>	0
2	23.10-192.168.123.20 :	:	<input checked="" type="checkbox"/>	0
3	:	:	<input type="checkbox"/>	0
4	:	:	<input type="checkbox"/>	0
5	:	:	<input type="checkbox"/>	0
6	:	:	<input type="checkbox"/>	0
7	:	:	<input type="checkbox"/>	0

(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	<input checked="" type="checkbox"/> Enable
<input checked="" type="radio"/> Allow all to pass except those match the following rules. <input type="radio"/> Deny all to pass except those match the following rules.	

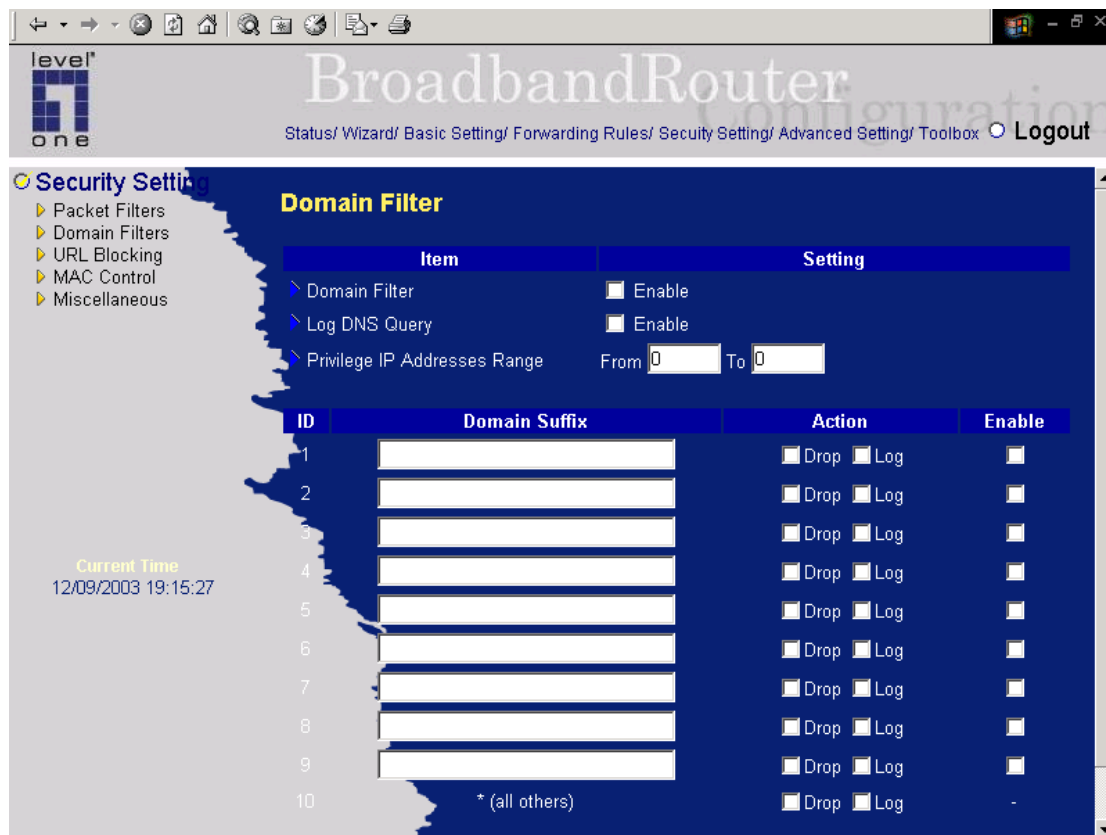
ID	Source IP : Ports	Destination IP : Ports	Enable	Use Rule#
1	100-192.168.123.119 :	: 21	<input checked="" type="checkbox"/>	0
2	100-192.168.123.119 :	: 119	<input checked="" type="checkbox"/>	0
3	:	:	<input type="checkbox"/>	0
4	:	:	<input type="checkbox"/>	0
5	:	:	<input type="checkbox"/>	0

(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



**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

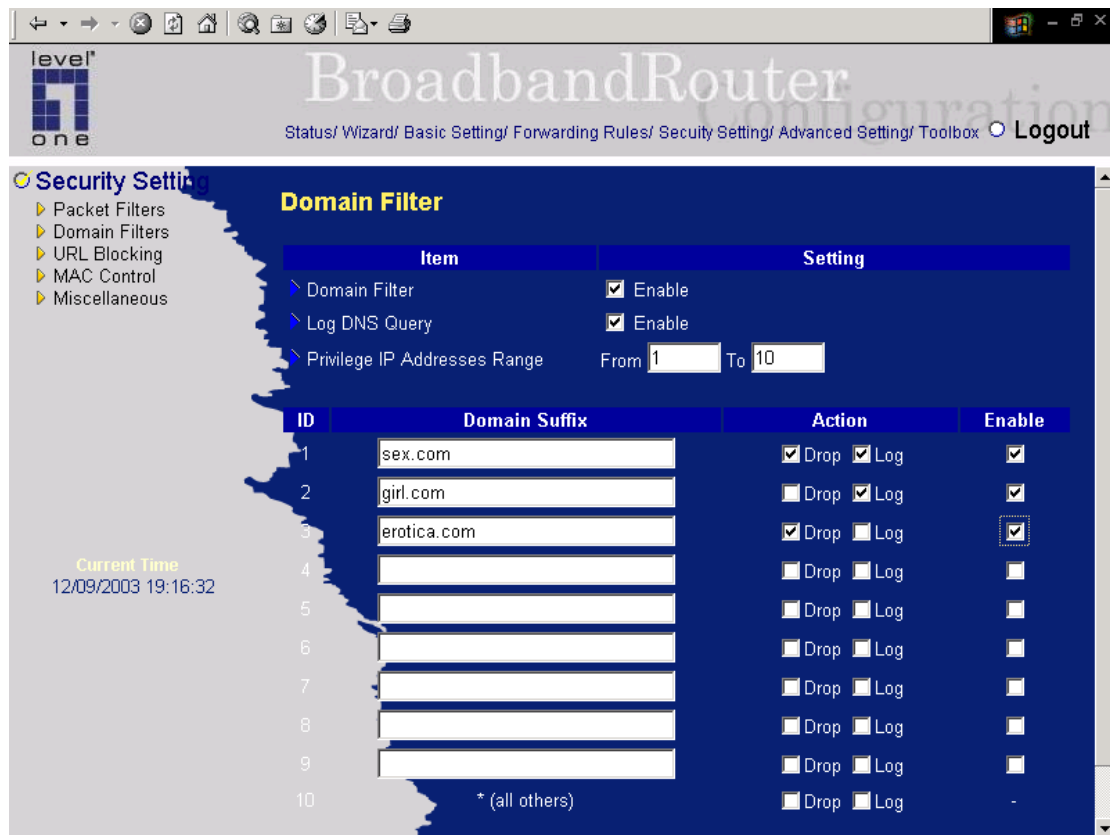
When someone is accessing the URL met the domain-suffix, what kind of action you want.

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

### Enable

*Check* to enable each rule.

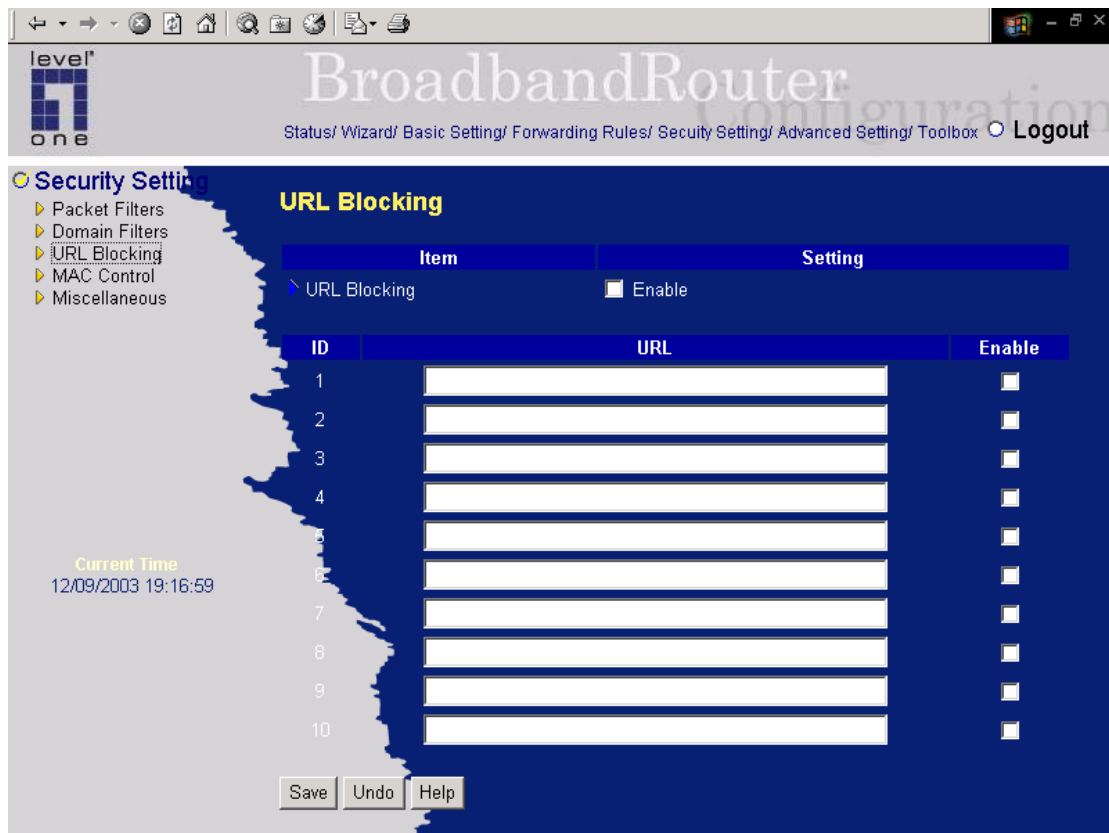
## Example:



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



**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.

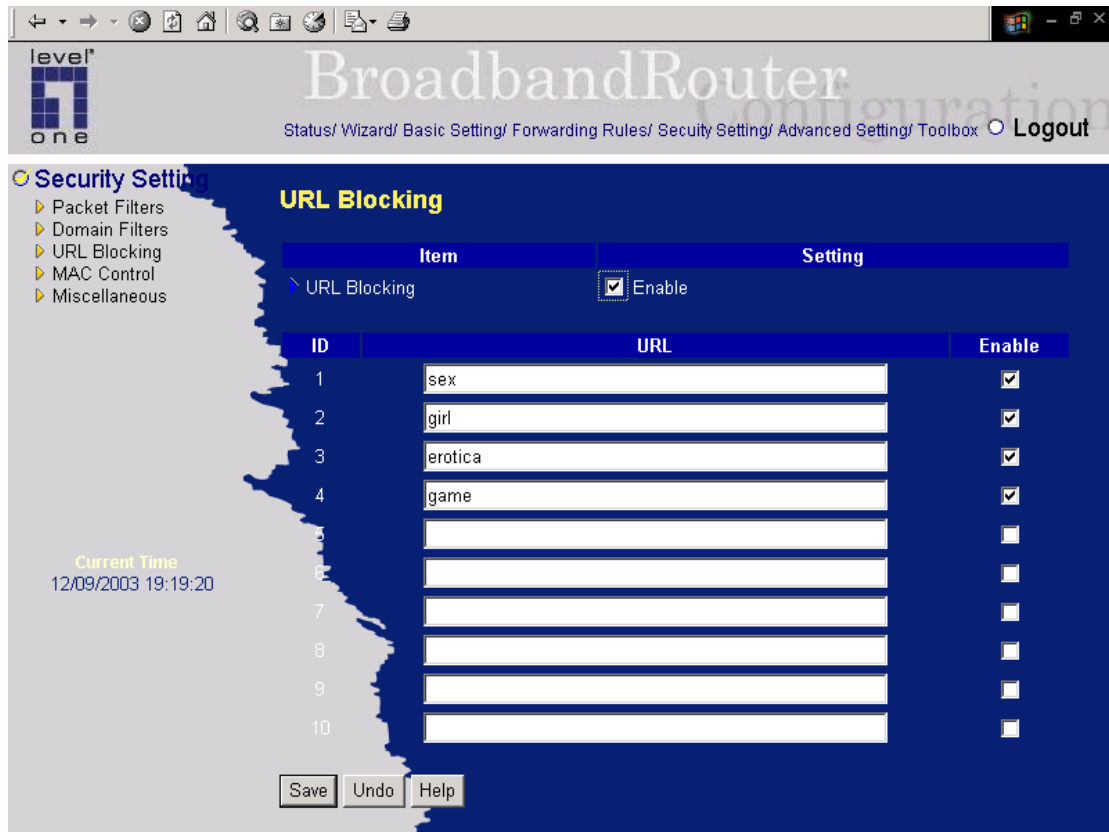
#### **URL**

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

The screenshot shows the 'BroadbandRouter' configuration interface. The top navigation bar includes 'Status/ Wizard/ Basic Setting/ Forwarding Rules/ Security Setting/ Advanced Setting/ Toolbox' and a 'Logout' link. The left sidebar shows a tree view under 'Security Setting' with options: 'Packet Filters', 'Domain Filters', 'URL Blocking', 'MAC Control' (selected), and 'Miscellaneous'. The main content area is titled 'MAC Address Control' and contains the following elements:

- Item Setting:** A table with two columns: 'Item' and 'Setting'.

Item	Setting
MAC Address Control	<input checked="" type="checkbox"/> Enable
Connection control	<input type="checkbox"/> Clients with C checked can connect to this device; and unspecified MAC addresses to connect. <span>allow</span>
- Control Table:** A table with four columns: 'ID', 'MAC Address', 'IP Address', and 'C'.

ID	MAC Address	IP Address	C
1	<input type="text"/>	192.168.123. <input type="text"/>	<input type="checkbox"/>
2	<input type="text"/>	192.168.123. <input type="text"/>	<input type="checkbox"/>
3	<input type="text"/>	192.168.123. <input type="text"/>	<input type="checkbox"/>
4	<input type="text"/>	192.168.123. <input type="text"/>	<input type="checkbox"/>
- DHCP clients:** A dropdown menu with '-- select one --' and a 'Copy to' button.
- Navigation:** Buttons for '<< Previous', 'Next >>', 'Save', 'Undo', and 'Help'.

Current Time: 12/09/2003 19:20:09

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 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.



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

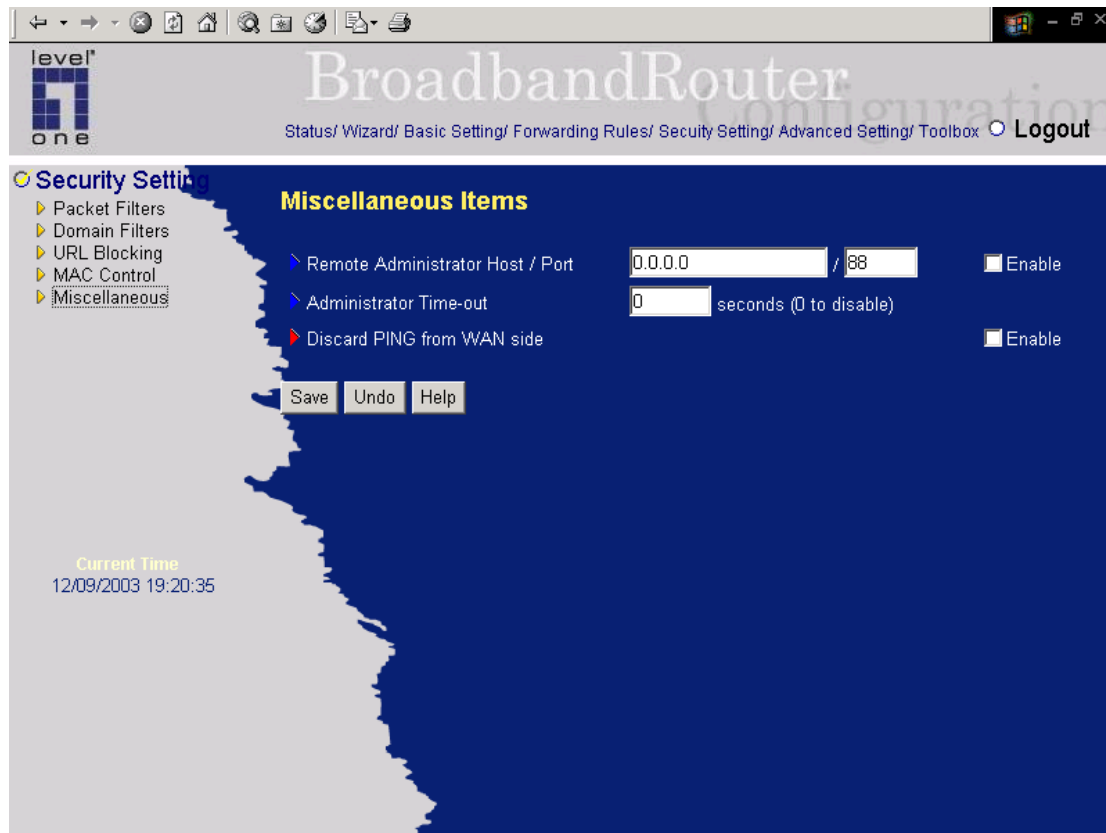
In this page, we provides the following Combobox and button to help you to input the MAC address.



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 Miscellaneous Items



#### 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.

## 4.7 Advanced Setting

The screenshot shows the 'level one BroadbandRouter' configuration interface. The top navigation bar includes links for Status, Wizard, Basic Setting, Forwarding Rules, Security Setting, Advanced Setting (selected), and Toolbox, along with a Logout button. On the left, the 'Advanced Setting' menu is expanded, showing options for System Time, System Log, Dynamic DNS, SNMP, Routing, and Schedule Rule. The main content area is titled 'Forwarding Rules' and lists several configuration options with brief descriptions:

- System Time**: Allow you to set device time manually or consult network time from NTP server.
- System Log**: Send system log to a dedicated host or email to specific receipts.
- Dynamic DNS**: To host your server on a changing IP address, you have to use dynamic domain name service (DDNS).
- SNMP**: Gives a user the capability to remotely manage a computer network by polling and setting terminal values and monitoring network events.
- Routing**: If you have more than one routers and subnets, you may want to enable routing table to allow packets to find proper routing path and allow different subnets to communicate with each other.
- Schedule Rule**: Apply schedule rules to Packet Filters and Virtual Server.

A 'Current Time' display on the left shows '12/09/2003 19:20:58'.

### 4.7.1 System Time

This screenshot shows the 'System Time' configuration page within the BroadbandRouter interface. The left sidebar shows the 'Advanced Setting' menu with 'System Time' selected. The main area contains three radio button options for setting the time:

- Get Date and Time by NTP Protocol** (selected): Includes a 'Sync Now!' button, a 'Time Server' dropdown set to 'time.nist.gov', and a 'Time Zone' dropdown set to '(GMT+08:00) Beijing, Hong Kong, Singapore, Taipei'.
- Set Date and Time using PC's Date and Time**: Includes a 'PC Date and Time' text field showing '12/09/2003 19:23:12'.
- Set Date and Time manually**: Includes fields for Date (Year: 2003, Month: Dec, Day: 1) and Time (Hour: 0, Minute: 0, Second: 0).

At the bottom are 'Save', 'Undo', and 'Help' buttons. A 'Current Time' display on the left shows '12/09/2003 19:22:47'.

**Get Date and Time by NTP Protocol**

*Selected* if you want to Get Date and Time by NTP Protocol.

**Time Server**

Select a NTP time server to consult UTC time

**Time Zone**

Select a time zone where this device locates.

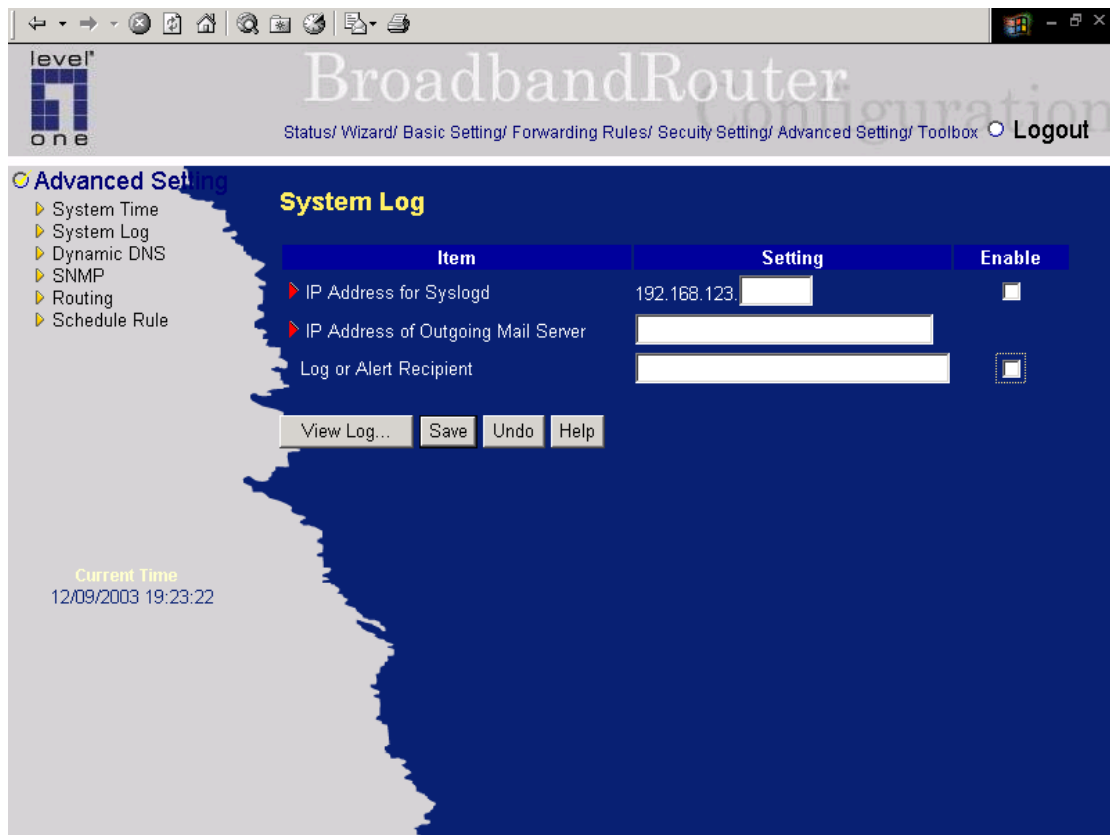
**Set Date and Time manually**

*Selected* if you want to Set Date and Time manually.

**Function of Buttons**

**Sync Now:** Synchronize system time with network time server

## 4.7.2 System Log



This page support two methods to export system logs to specific destination by means of syslog(UDP) and SMTP(TCP). The items you have to setup including:

### IP Address for Syslogd

Host IP of destination where syslogs will be sent to.

Check **Enable** to enable this function.

### IP Address of Outgoing Mail Server

Input the IP Address of Outgoing Mail Server.

For example, "192.168.1.100".

### Log or Alert Recipient

The recipients who will receive these logs. Check **Enable** to enable Email alert(send syslog via email).

### 4.7.3 Dynamic DNS

The screenshot shows the 'level one BroadbandRouter' configuration interface. The top navigation bar includes links for Status, Wizard, Basic Setting, Forwarding Rules, Security Setting, Advanced Setting, and Toolbox, along with a Logout button. The left sidebar lists various configuration options under 'Advanced Setting', including System Time, System Log, Dynamic DNS, SNMP, Routing, and Schedule Rule. The main content area is titled 'Dynamic DNS' and contains a table with two columns: 'Item' and 'Setting'. The 'DDNS' item has a radio button for 'Enable' selected. The 'Provider' is set to 'DynDNS.org(Dynamic)'. The 'Host Name', 'Username / E-mail', and 'Password / Key' fields are empty. At the bottom of the table are 'Save', 'Undo', and 'Help' buttons. A 'Current Time' display shows '12/09/2003 19:23:44'.

Item	Setting
DDNS	<input checked="" type="radio"/> Disable <input checked="" type="radio"/> Enable
Provider	DynDNS.org(Dynamic)
Host Name	
Username / E-mail	
Password / Key	

Save Undo Help

Current Time  
12/09/2003 19:23:44

To host your server on a changing IP address, you have to use dynamic domain name service (DDNS).

So that anyone wishing to reach your host only needs to know the name of it. Dynamic DNS will map the name of your host to your current IP address, which changes each time you connect your Internet service provider.

Before you enable **Dynamic DNS**, you need to register an account on one of these Dynamic DNS servers that we list in **provider** field.

To enable **Dynamic DNS** click the check box next to **Enable** in the **DDNS** field.

Next you can enter the appropriate information about your Dynamic DNS Server.

You have to define:

Provider

Host Name

Username/E-mail

Password/Key

You will get this information when you register an account on a Dynamic DNS server.

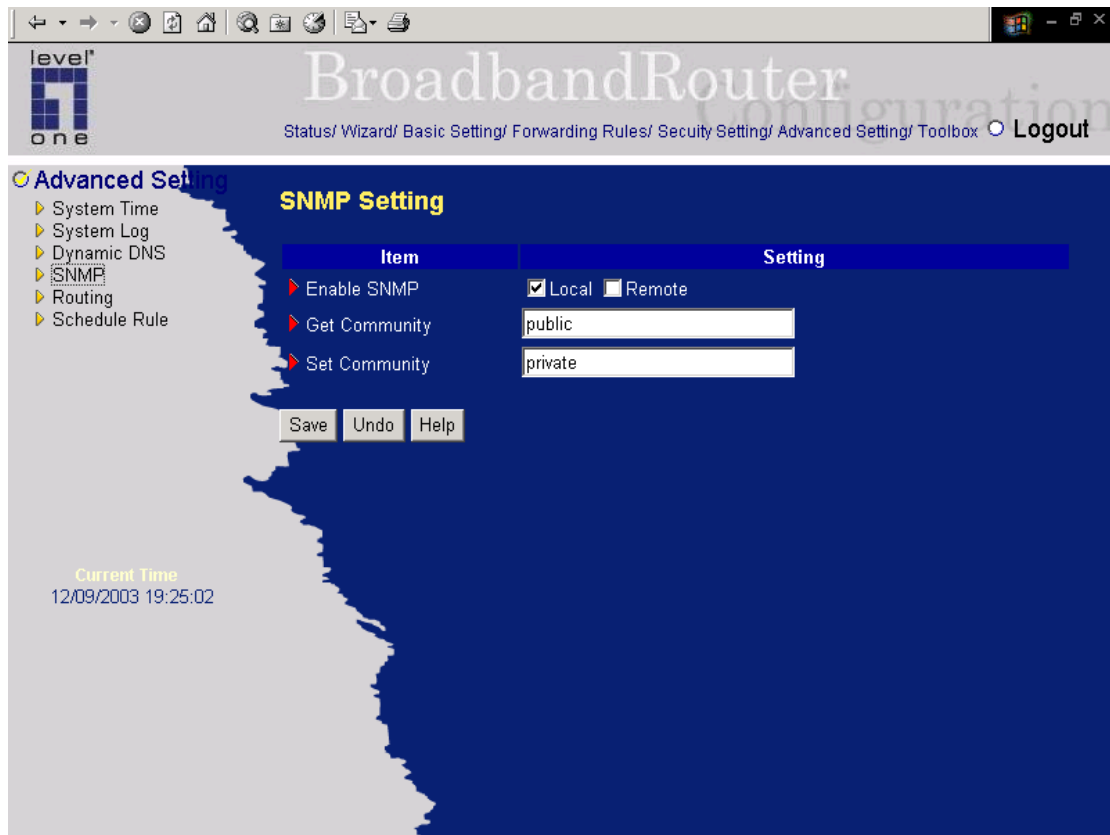
**Example:**

Item	Setting
DDNS	<input type="radio"/> Disable <input checked="" type="radio"/> Enable
Provider	DynDNS.org(Dynamic)
Host Name	user.dyndns.org
Username / E-mail	user@xxx.xxx.xxx
Password / Key	*****

Save Undo Help

After Dynamic DNS setting is configured, click the save button.

## 4.7.4 SNMP Setting



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.

### Enable SNMP

You must check either Local or Remote or both to enable SNMP function. If *Local* is checked, this device will response request from LAN. If *Remote* is checked, this device will response request from WAN.

### Get Community

Setting the community of GetRequest your device will response.

### Set Community

Setting the community of SetRequest your device will accept.

### Example:



### SNMP Setting

Item	Setting
▶ Enable SNMP	<input checked="" type="checkbox"/> Local <input checked="" type="checkbox"/> Remote
▶ Get Community	<input type="text" value="public"/>
▶ Set Community	<input type="text" value="private"/>

1. This device will response to SNMP client which's **get community** is set as "public"
2. This device will response to SNMP client which's **set community** is set as "private"
3. This device will response request from both LAN and WAN

## 4.7.5 Routing Table

The screenshot shows the 'level one BroadbandRouter' configuration page. The 'Advanced Setting' menu is open, and the 'Routing' option is selected. The 'Routing Table' section displays a table with 8 rows for configuring static routes. Each row has columns for ID, Destination, Subnet Mask, Gateway, Hop, and an Enable checkbox. The 'Current Time' is shown as 12/09/2003 19:25:49. At the bottom of the table are 'Save', 'Undo', and 'Help' buttons.

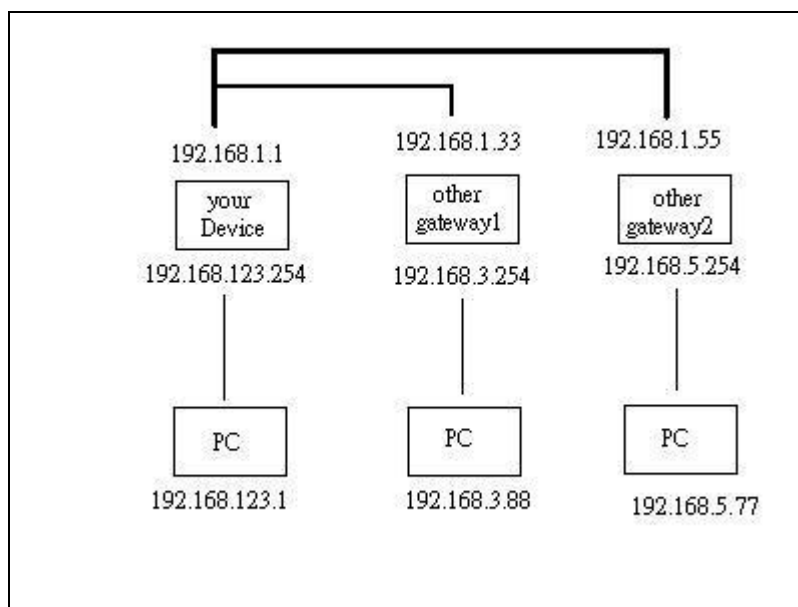
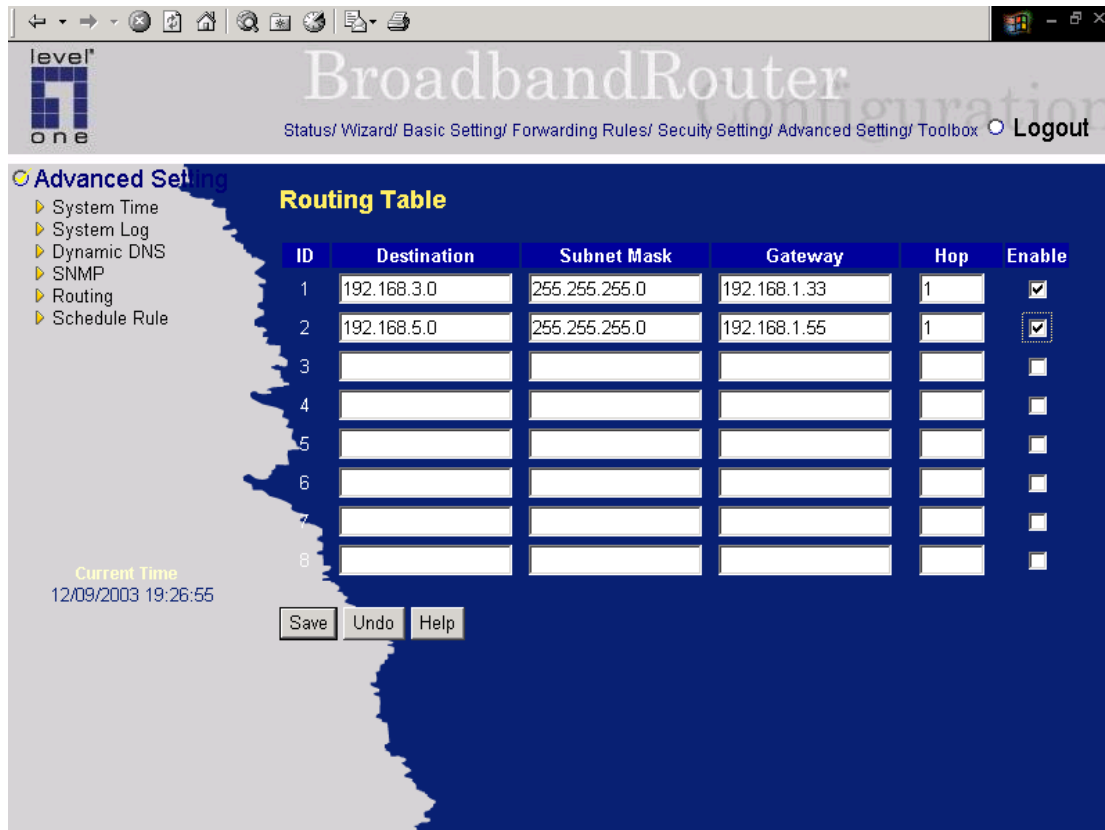
ID	Destination	Subnet Mask	Gateway	Hop	Enable
1					<input type="checkbox"/>
2					<input type="checkbox"/>
3					<input type="checkbox"/>
4					<input type="checkbox"/>
5					<input type="checkbox"/>
6					<input type="checkbox"/>
7					<input type="checkbox"/>
8					<input type="checkbox"/>

**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.

Routing Table settings are settings used to setup the functions of static and dynamic routing.

**Static Routing:** For static routing, you can specify up to 8 routing rules. You can enter the destination IP address, subnet mask, gateway, hop for each routing rule, and then enable or disable the rule by checking or unchecking the Enable checkbox.

**Example:**



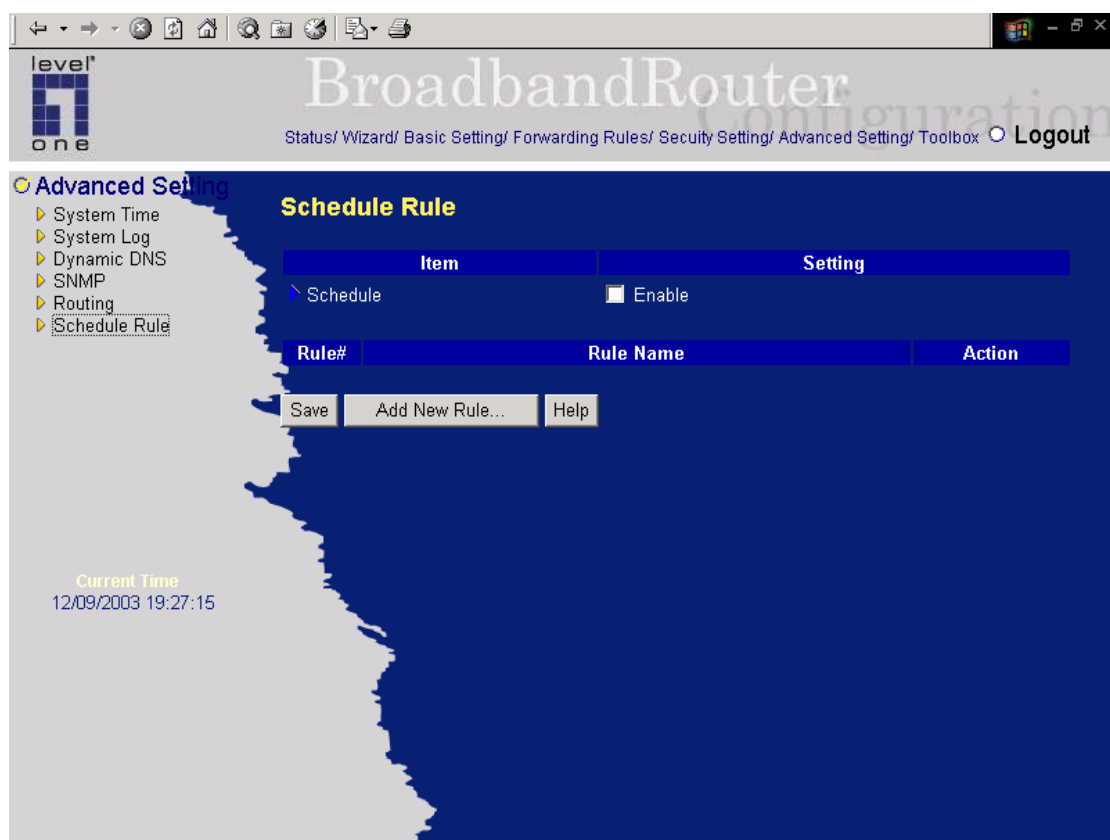
So if, for example, the host wanted to send an IP data gram to 192.168.3.88, it would use the above table to determine that it had to go via 192.168.1.33 (a gateway),

And if it sends Packets to 192.168.5.77 will go via 192.168.1.55

Each rule can be enabled or disabled individually.

After **routing table** setting is configured, click the **save** button.

## 4.7.6 Schedule Rule



You can set the schedule time to decide which service will be turned on or off. Select the “enable” item.

Press “**Add New Rule**”

You can write a rule name and set which day and what time to schedule from “Start Time” to “End Time”. The following example configure “FTP time” as everyday 14:10 to 16:20

level one BroadbandRouter Configuration

Status/ Wizard/ Basic Setting/ Forwarding Rules/ Security Setting/ Advanced Setting/ Toolbox Logout

**Advanced Setting**

- System Time
- System Log
- Dynamic DNS
- SNMP
- Routing
- Schedule Rule

**Schedule Rule Setting**

Name of Rule 1:

Week Day	Start Time (hh:mm)	End Time (hh:mm)
Sunday	<input type="text"/> : <input type="text"/>	<input type="text"/> : <input type="text"/>
Monday	<input type="text"/> : <input type="text"/>	<input type="text"/> : <input type="text"/>
Tuesday	<input type="text"/> : <input type="text"/>	<input type="text"/> : <input type="text"/>
Wednesday	<input type="text"/> : <input type="text"/>	<input type="text"/> : <input type="text"/>
Thursday	<input type="text"/> : <input type="text"/>	<input type="text"/> : <input type="text"/>
Friday	<input type="text"/> : <input type="text"/>	<input type="text"/> : <input type="text"/>
Saturday	<input type="text"/> : <input type="text"/>	<input type="text"/> : <input type="text"/>
Every Day	14 : 10	16 : 20

Current Time: 12/09/2003 19:27:51

Save Undo Help Back

After configure Rule 1→

level one BroadbandRouter Configuration

Status/ Wizard/ Basic Setting/ Forwarding Rules/ Security Setting/ Advanced Setting/ Toolbox Logout

**Advanced Setting**

- System Time
- System Log
- Dynamic DNS
- SNMP
- Routing
- Schedule Rule

**Schedule Rule**

Schedule: ☒ Enable

Rule#	Rule Name	Action
1	FTP time	Edit Delete

Save Add New Rule... Help

Current Time: 12/09/2003 19:29:01

### Schedule Enable

*Selected* if you want to Enable the Scheduler.

### Edit

To edit the schedule rule.

### Delete

To delete the schedule rule, and the rule# of the rules behind the deleted one will decrease one automatically.

Schedule Rule can be apply to Virtual server and Packet Filter, for example:

Exanple1: **Virtual Server** – Apply Rule#1 (ftp time: everyday 14:10 to 16:20)

The screenshot shows the 'level one BroadbandRouter Configuration' web interface. The 'Forwarding Rules' section is active, with 'Virtual Server' selected. A table lists 15 virtual server entries. The first entry (ID 1) is configured with 'Service Ports' set to '21', 'Server IP' set to '192.168.123.', and 'Enable' checked. The 'Use Rule#' column shows '1' for the first entry and '0' for the others. Below the table, the 'Well known services' dropdown is set to 'FTP (21)' and the 'Schedule rule' dropdown is set to '(01)FTP time'. A 'Copy to' button and an 'ID' dropdown (set to '1') are also visible. At the bottom, there are 'Save', 'Undo', and 'Help' buttons. The current time is displayed as '12/09/2003 18:49:50'.

ID	Service Ports	Server IP	Enable	Use Rule#
1	21	192.168.123.	<input checked="" type="checkbox"/>	1
2		192.168.123.	<input type="checkbox"/>	0
3		192.168.123.	<input type="checkbox"/>	0
4		192.168.123.	<input type="checkbox"/>	0
5		192.168.123.	<input type="checkbox"/>	0
6		192.168.123.	<input type="checkbox"/>	0
7		192.168.123.	<input type="checkbox"/>	0
8		192.168.123.	<input type="checkbox"/>	0
9		192.168.123.	<input type="checkbox"/>	0
10		192.168.123.	<input type="checkbox"/>	0
11		192.168.123.	<input type="checkbox"/>	0
12		192.168.123.	<input type="checkbox"/>	0
13		192.168.123.	<input type="checkbox"/>	0
14		192.168.123.	<input type="checkbox"/>	0
15		192.168.123.	<input type="checkbox"/>	0

Well known services: FTP (21)  
Schedule rule: (01)FTP time  
Copy to ID: 1  
Save Undo Help

Example2: **Packet Filter** – Apply Rule#1 (ftp time: everyday 14:10 to 16:20).

level one BroadbandRouter Configuration

Status/ Wizard/ Basic Setting/ Forwarding Rules/ Security Setting/ Advanced Setting/ Toolbox Logout

**Security Setting**

- Packet Filters
- Domain Filters
- URL Blocking
- MAC Control
- Miscellaneous

**Outbound Filter** ☒ Enable

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

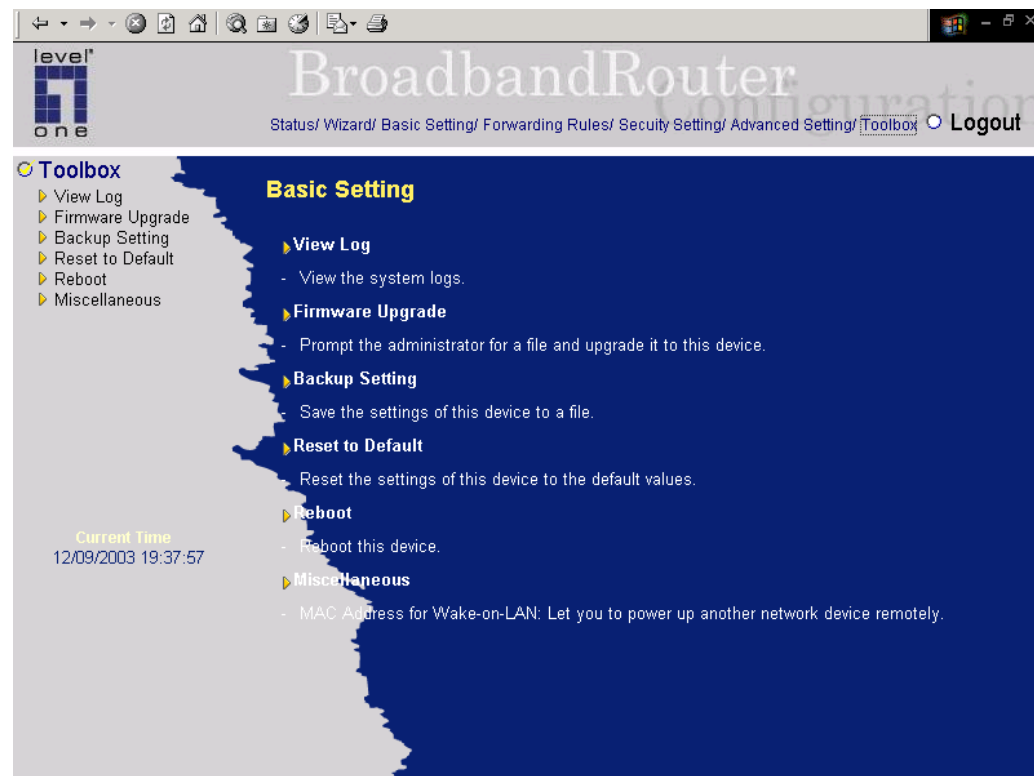
ID	Source IP : Ports	Destination IP : Ports	Enable	Use Rule#
1		20-21	<input checked="" type="checkbox"/>	1
2			<input type="checkbox"/>	0
3			<input type="checkbox"/>	0
4			<input type="checkbox"/>	0
5			<input type="checkbox"/>	0
6			<input type="checkbox"/>	0
7			<input type="checkbox"/>	0
8			<input type="checkbox"/>	0

Current Time  
12/09/2003 18:52:28

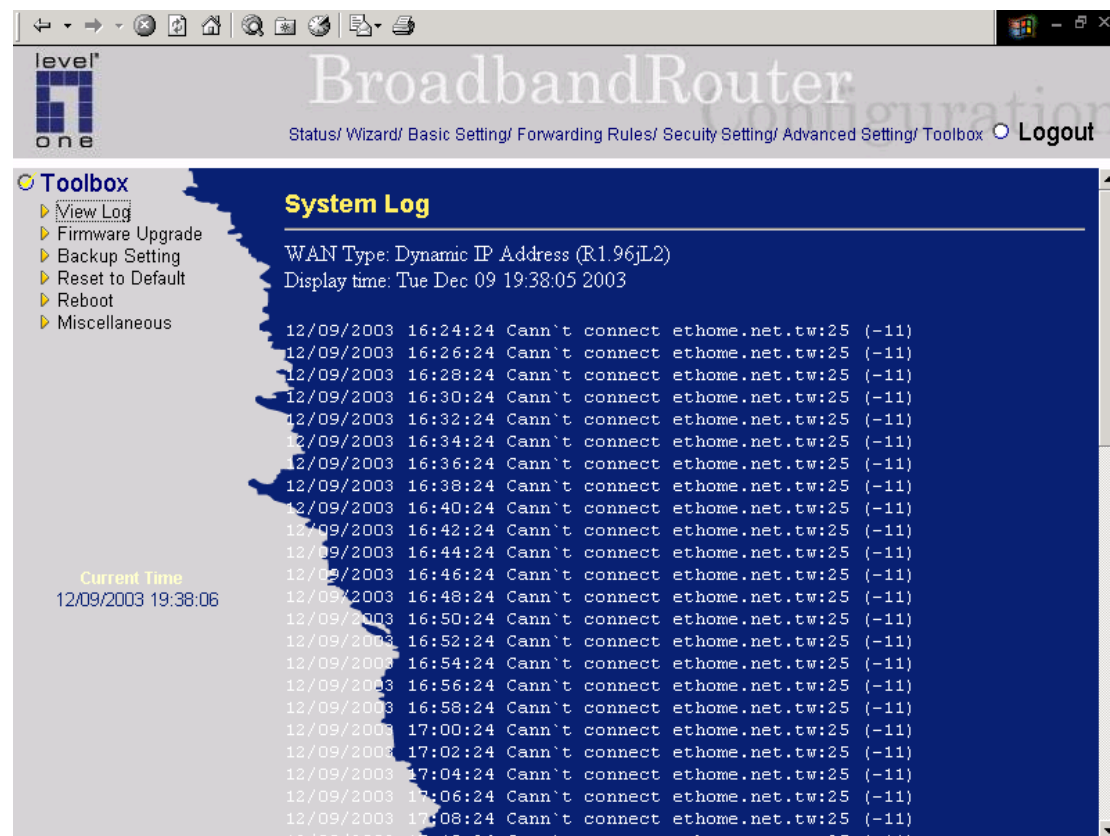
Schedule rule (01)FTP time Copy to ID 1

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

## 4.8 Toolbox



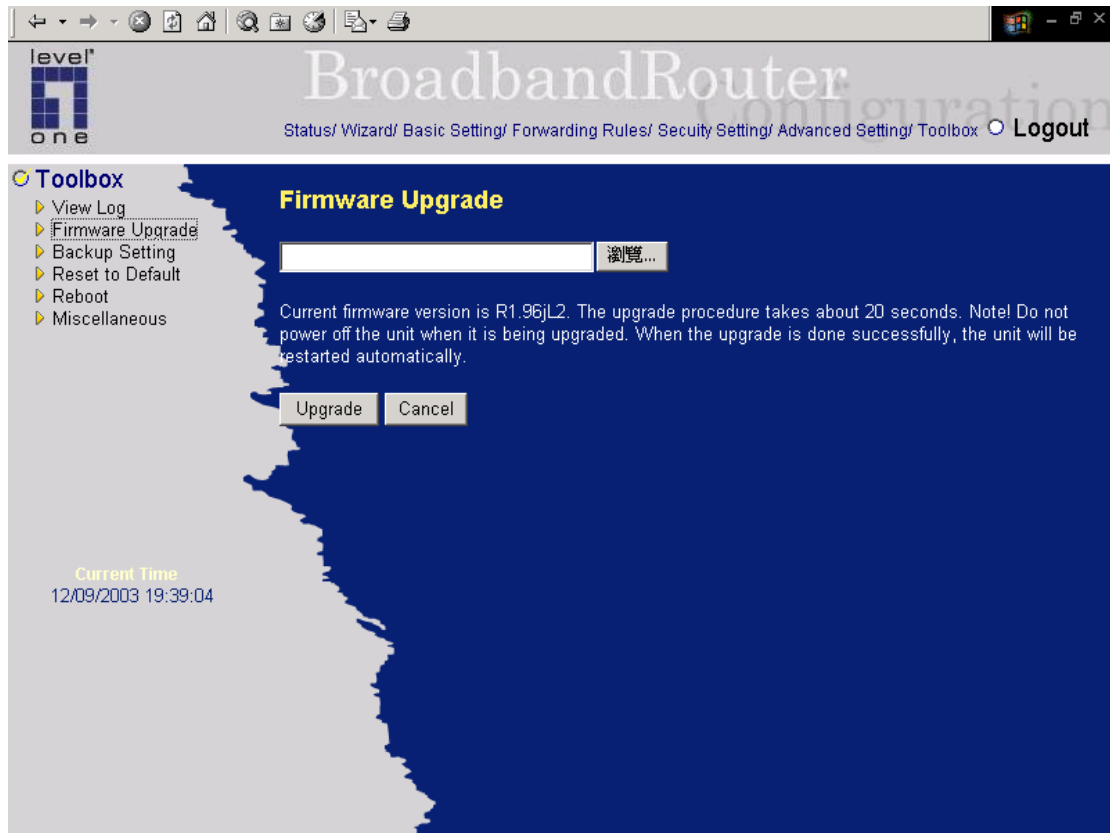
### 4.8.1 System Log



You can View system log by clicking the **View Log** button

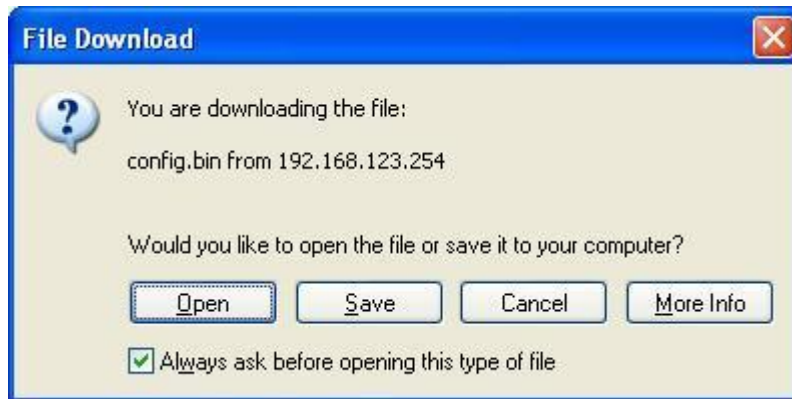


## 4.8.2 Firmware Upgrade



You can upgrade firmware by clicking **Firmware Upgrade** button.

### 4.8.3 Backup Setting



You can backup your settings by clicking the **Backup Setting** button and save it as a bin file. Once you want to restore these settings, please click **Firmware Upgrade** button and use the bin file you saved.

### 4.8.4 Reset to default



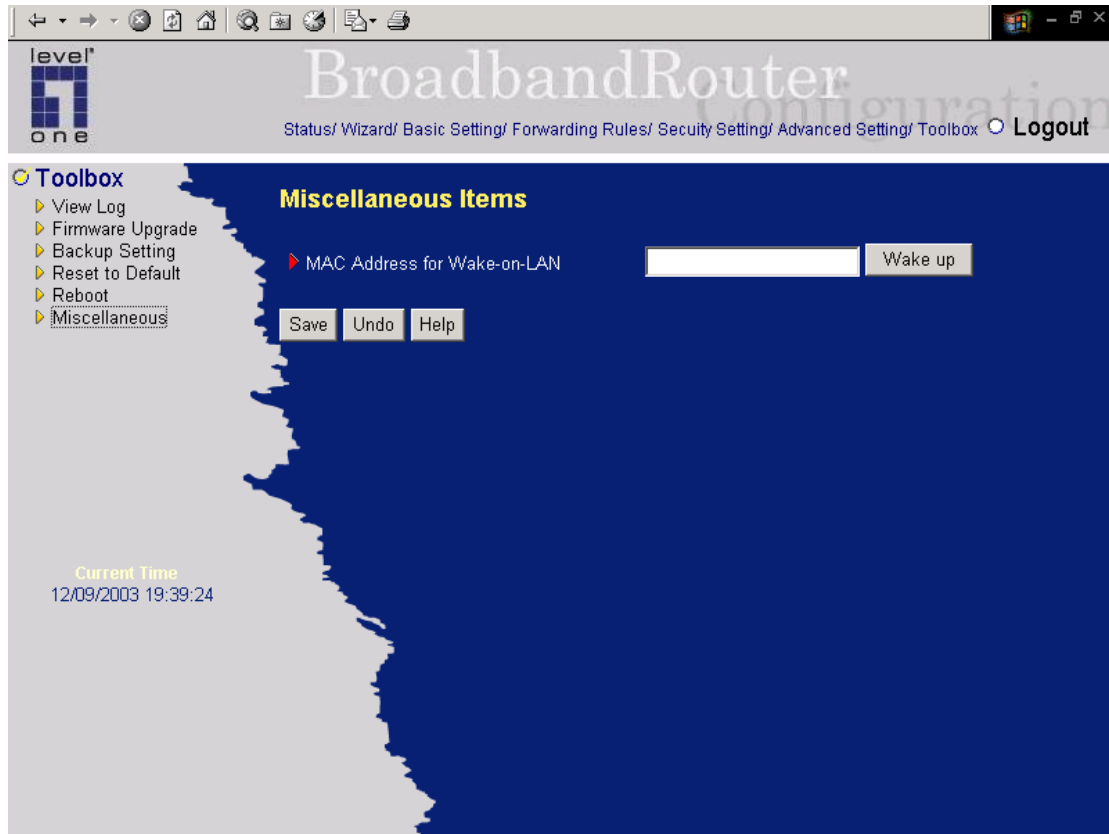
You can also reset this product to factory default by clicking the **Reset to default** button.

### 4.8.5 Reboot



You can also reboot this product by clicking the **Reboot** button.

## 4.8.6 Miscellaneous Items



### MAC Address for Wake-on-LAN

Wake-on-LAN is a technology that enables you to power up a networked device remotely. In order to enjoy this feature, the target device must be Wake-on-LAN enabled and you have to know the MAC address of this device, say 00-11-22-33-44-55. Clicking "Wake up" button will make the router to send the wake-up frame to the target device immediately.

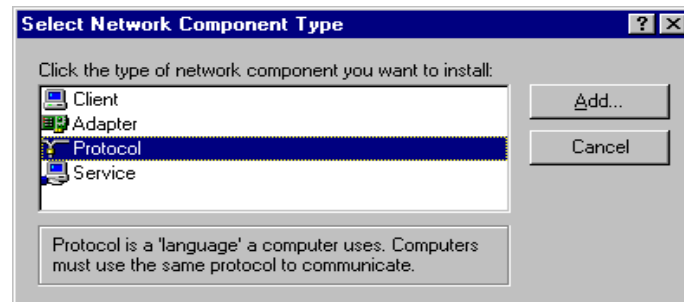


## Appendix A TCP/IP Configuration for Windows 95/98

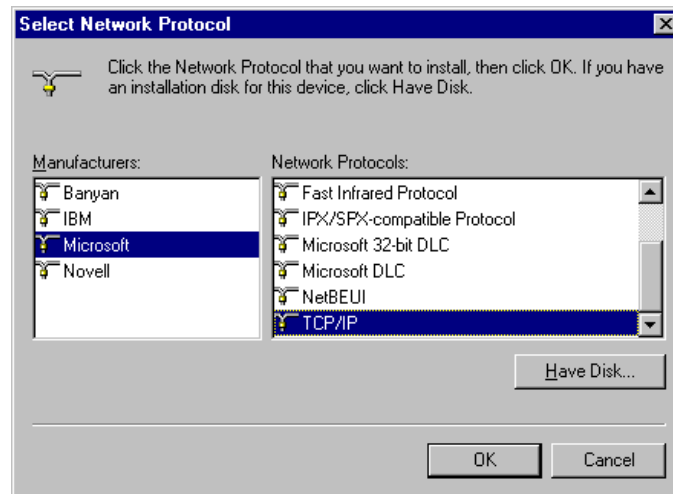
This section introduces you how to install TCP/IP protocol into your personal computer. And suppose you have been successfully installed one network card on your personal computer. If not, please refer to your network card manual. Moreover, the Section B.2 tells you how to set TCP/IP values for working with this NAT Router correctly.

### A.1 Install TCP/IP Protocol into Your PC

1. Click **Start** button and choose **Settings**, then click **Control Panel**.
2. Double click **Network** icon and select **Configuration** tab in the Network window.
3. Click **Add** button to add network component into your PC.
4. Double click **Protocol** to add TCP/IP protocol.



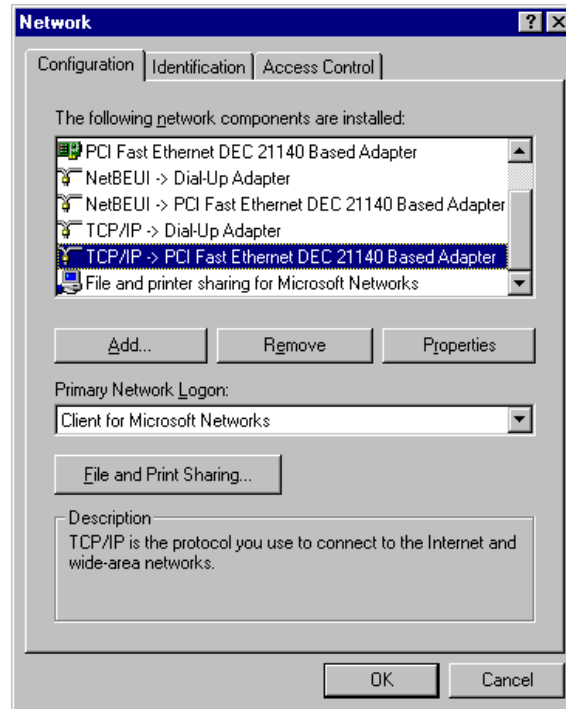
5. Select **Microsoft** item in the *manufactures* list. And choose **TCP/IP** in the *Network Protocols*. Click **OK** button to return to Network window.



6. The TCP/IP protocol shall be listed in the Network window. Click **OK** to complete the install procedure and restart your PC to enable the TCP/IP protocol.

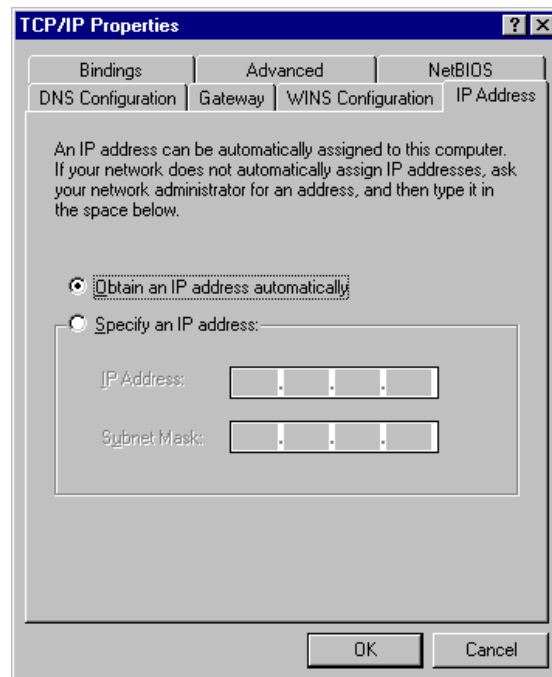
## A.2 Set TCP/IP Protocol for Working with NAT Router

1. Click **Start** button and choose **Settings**, then click **Control Panel**.
2. Double click **Network** icon. Select the TCP/IP line that has been associated to your network card in the **Configuration** tab of the Network window.



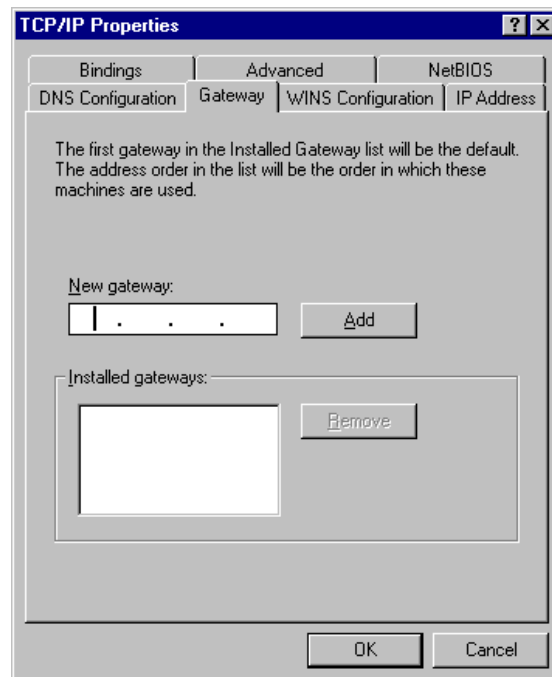
3. Click **Properties** button to set the TCP/IP protocol for this NAT Router.
4. Now, you have two setting methods:
  - A. Get IP via DHCP server

- a. Select *Obtain an IP address automatically* in the *IP Address* tab.





- b. Don't input any value in the *Gateway* tab.

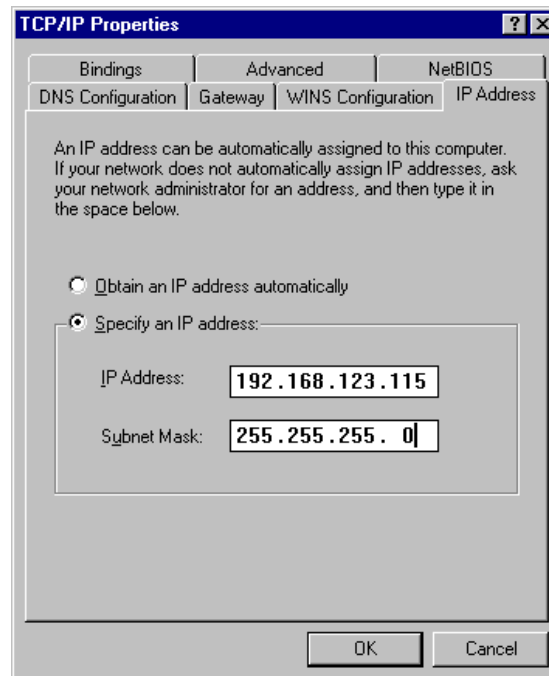


- c. Choose **Disable DNS** in the *DNS Configuration* tab.

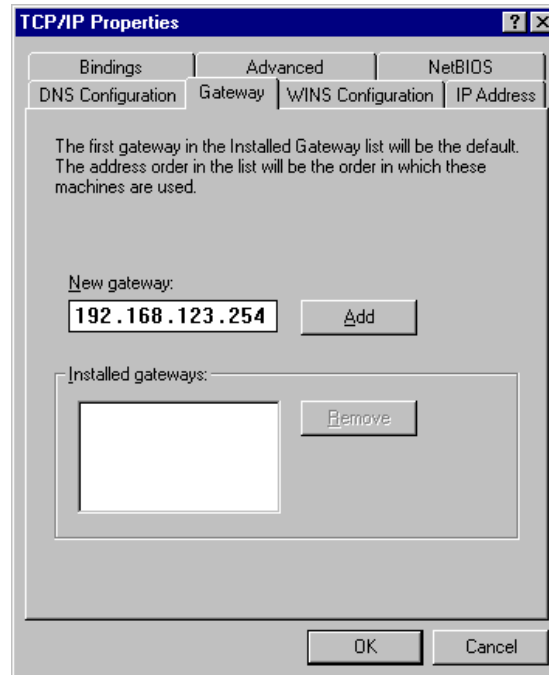
The image shows a screenshot of the 'TCP/IP Properties' dialog box, specifically the 'DNS Configuration' tab. The dialog box has a title bar with a question mark and a close button. Below the title bar are four tabs: 'Bindings', 'Advanced', 'NetBIOS', and 'DNS Configuration'. The 'DNS Configuration' tab is selected. Inside this tab, there are two radio buttons: 'Disable DNS' (which is selected) and 'Enable DNS'. Below these radio buttons are two text boxes labeled 'Host:' and 'Domain:'. Underneath these are two sections for search order. The first section is 'DNS Server Search Order', which contains a list box with three empty slots separated by dots, and two buttons labeled 'Add' and 'Remove'. The second section is 'Domain Suffix Search Order', which contains a list box with one empty slot and two buttons labeled 'Add' and 'Remove'. At the bottom of the dialog box are two buttons: 'OK' and 'Cancel'.

B. Configure IP manually

- a. Select ***Specify an IP address*** in the *IP Address* tab. The default IP address of this product is 192.168.123.254. So please use 192.168.123.xxx (xxx is between 1 and 253) for *IP Address* field and 255.255.255.0 for *Subnet Mask* field.



- b. In the *Gateway* tab, add the IP address of this product (default IP is 192.168.123.254) in the *New gateway* field and click **Add** button.



- c. In the *DNS Configuration* tab, add the DNS values which are provided by the ISP into *DNS Server Search Order* field and click **Add** button.

The image shows a screenshot of the 'TCP/IP Properties' dialog box, specifically the 'DNS Configuration' tab. The dialog box has a title bar with a question mark and a close button. Below the title bar are three tabs: 'Bindings', 'Advanced', and 'NetBIOS'. The 'DNS Configuration' tab is selected. Inside this tab, there are two radio buttons: 'Disable DNS' (which is unselected) and 'Enable DNS' (which is selected). Below the radio buttons, there are two text boxes: 'Host' (containing 'MyComputer') and 'Domain' (empty). Below these is a section titled 'DNS Server Search Order' with a horizontal line. Under this line, there is a text box containing '168.95.192.1' and an 'Add' button. Below this, there is another text box containing '168.95.1.1' and a 'Remove' button. Below the 'DNS Server Search Order' section is a section titled 'Domain Suffix Search Order' with a horizontal line. Under this line, there are two empty text boxes, each with an 'Add' button and a 'Remove' button. At the bottom of the dialog box are 'OK' and 'Cancel' buttons.