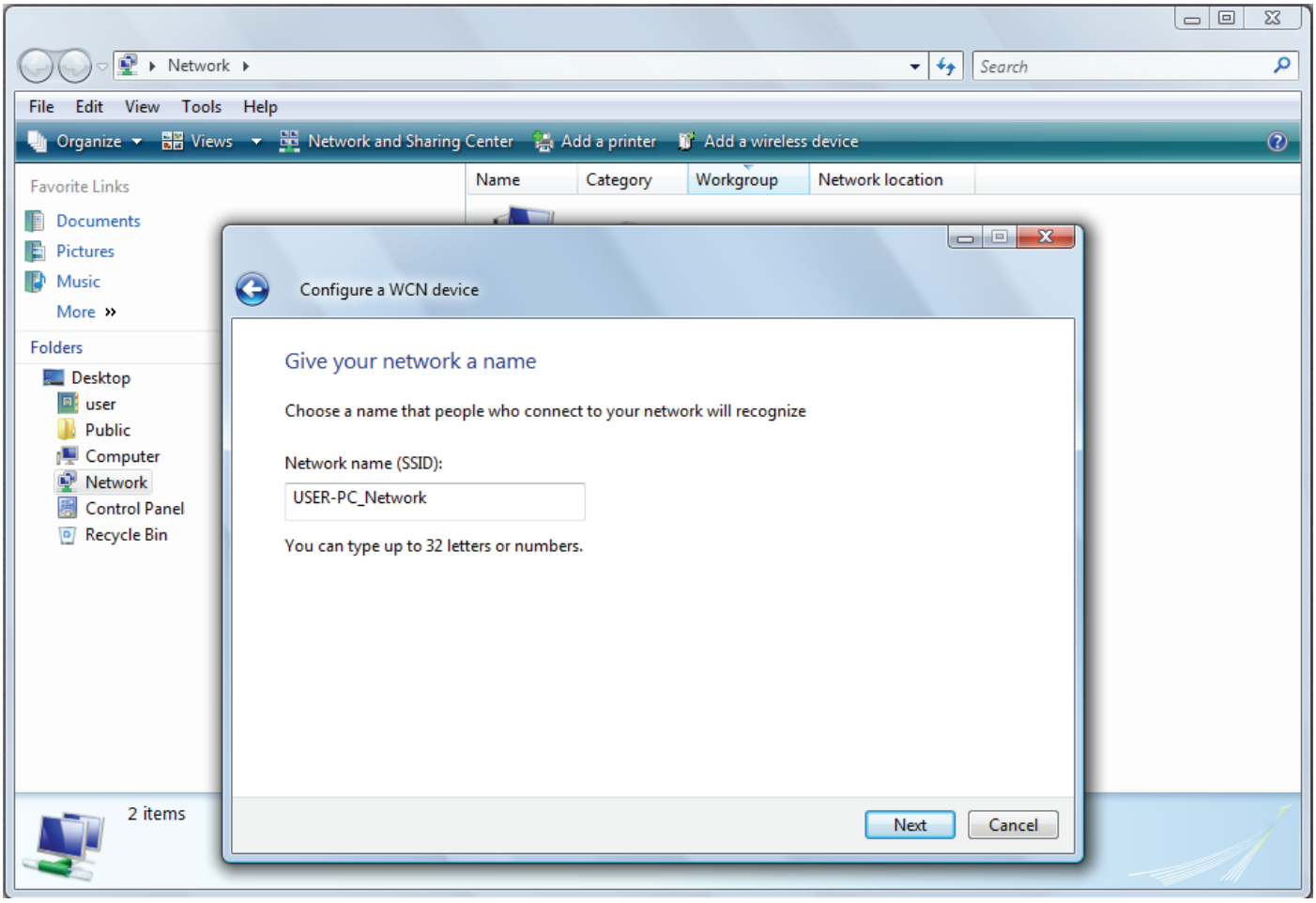
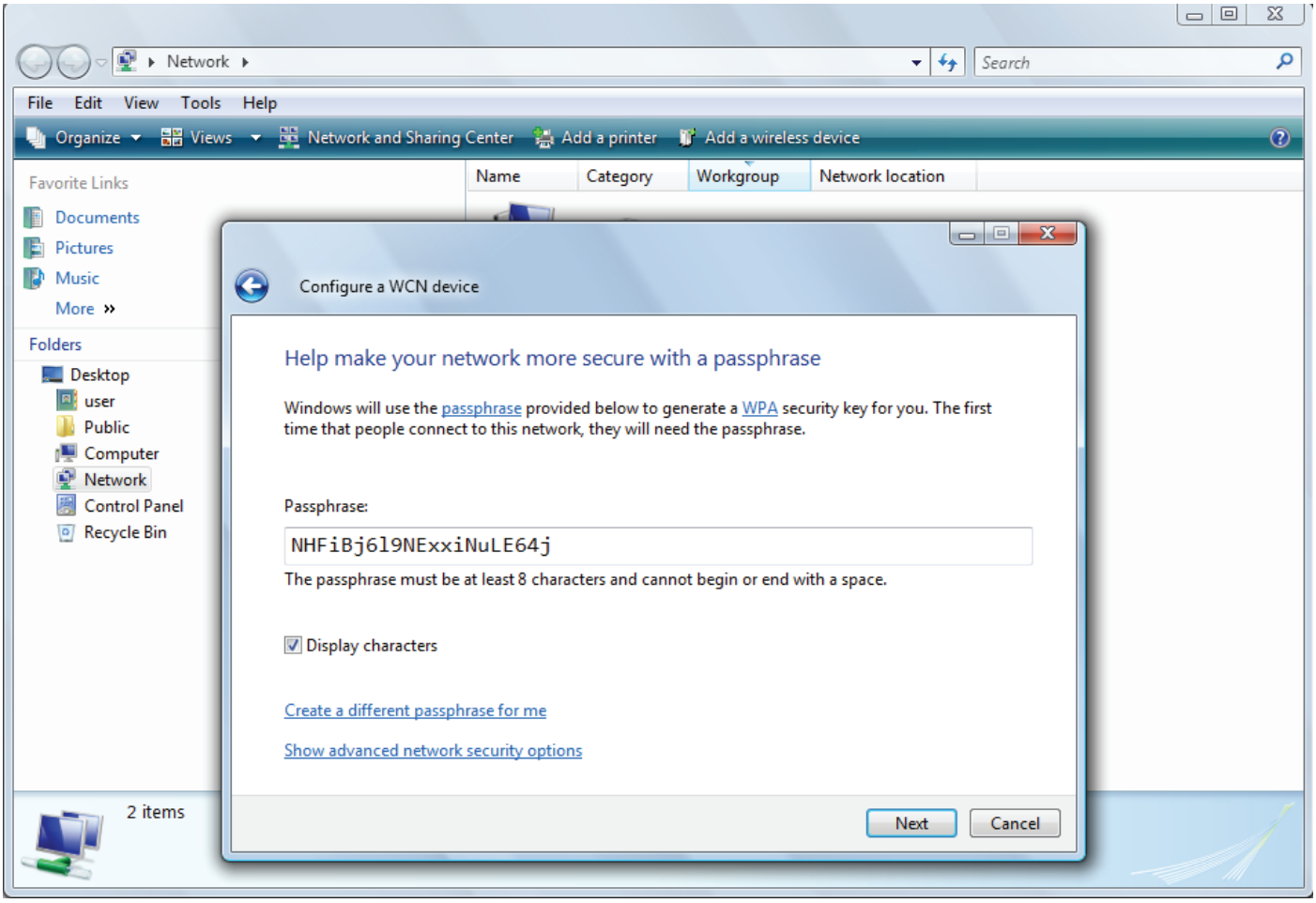
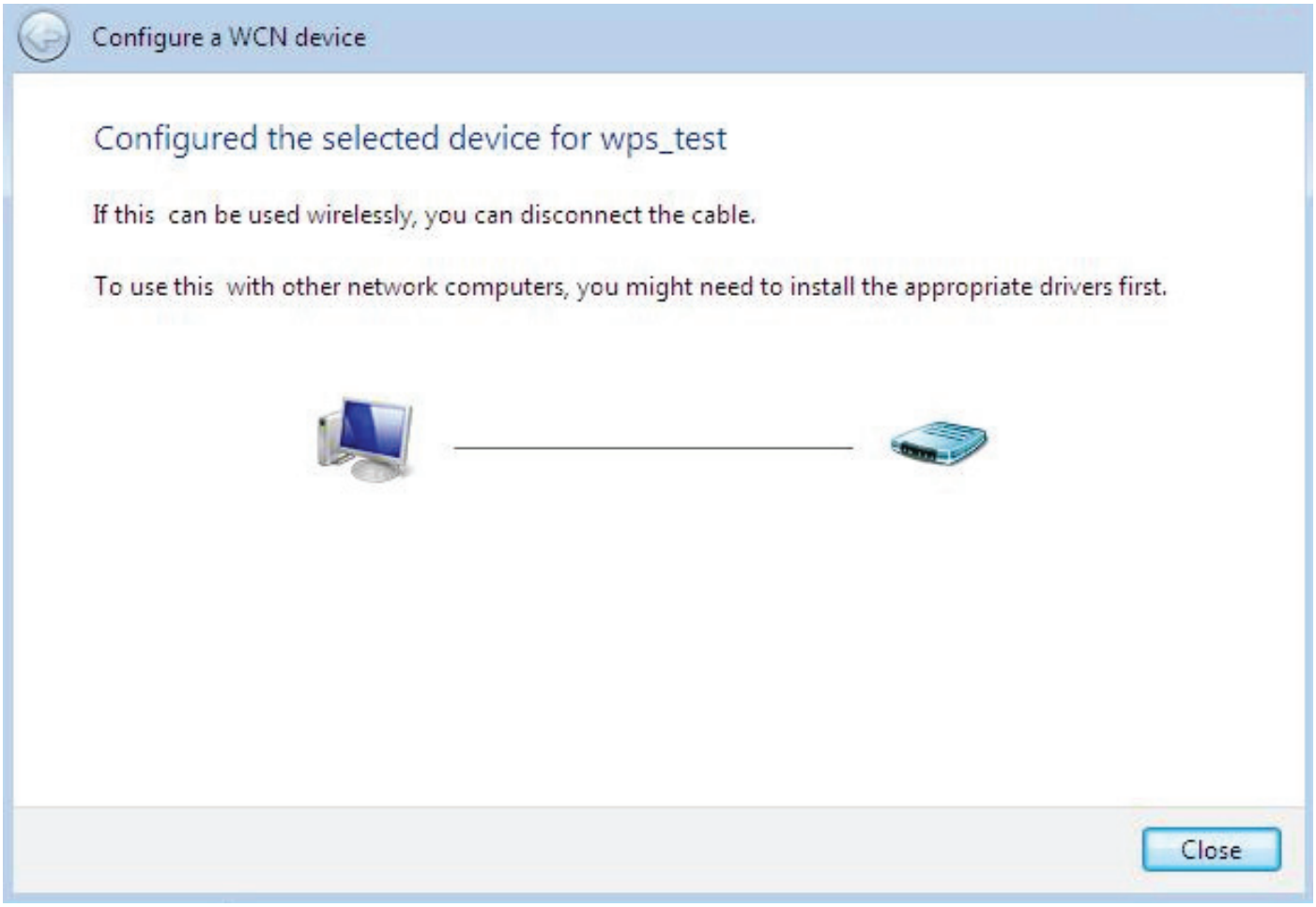
4. Enter the AP SSID then click Next.



5. Enter the passphrase then click Next.

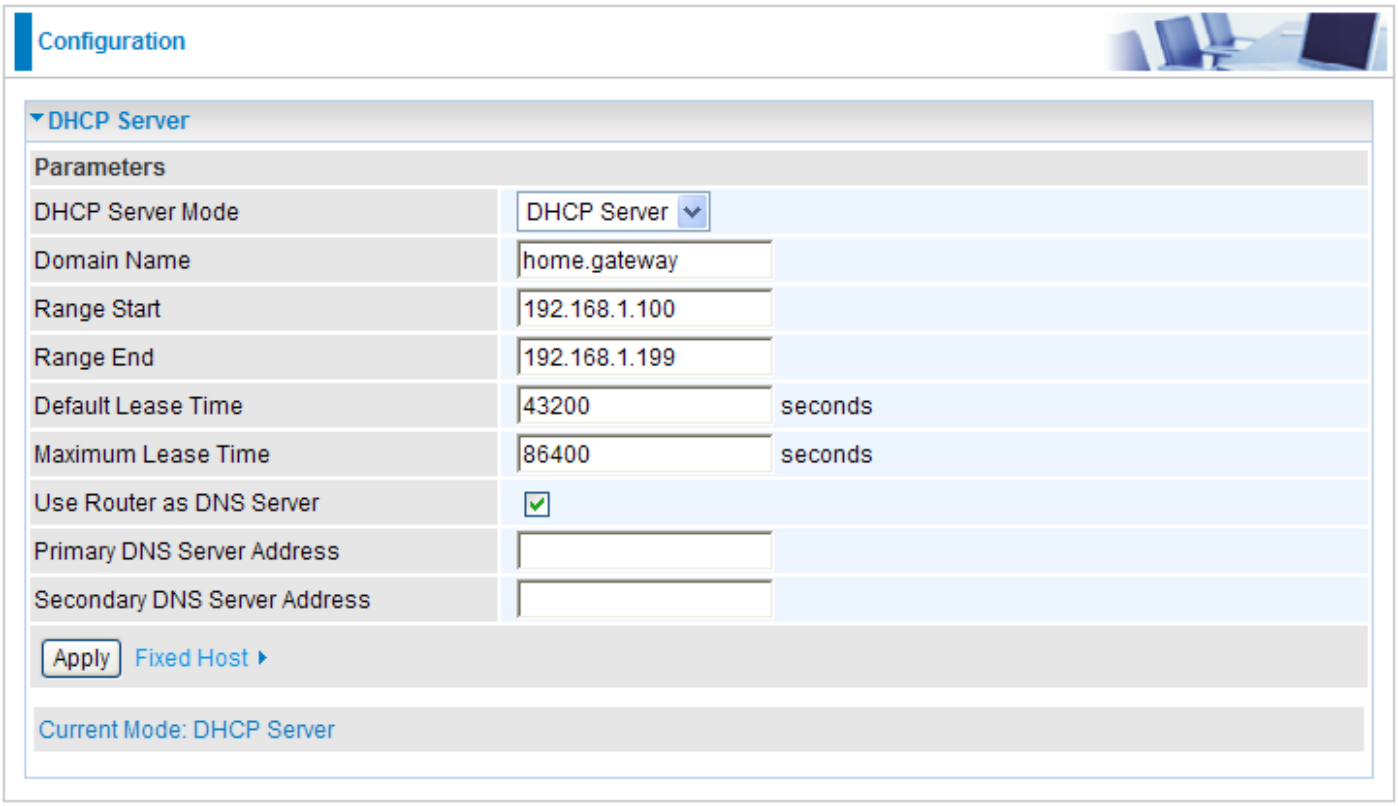


6. When you have come to this step, you will have comleted the Wi-Fi network setup using the built-in WCN feature in Windows Vista.



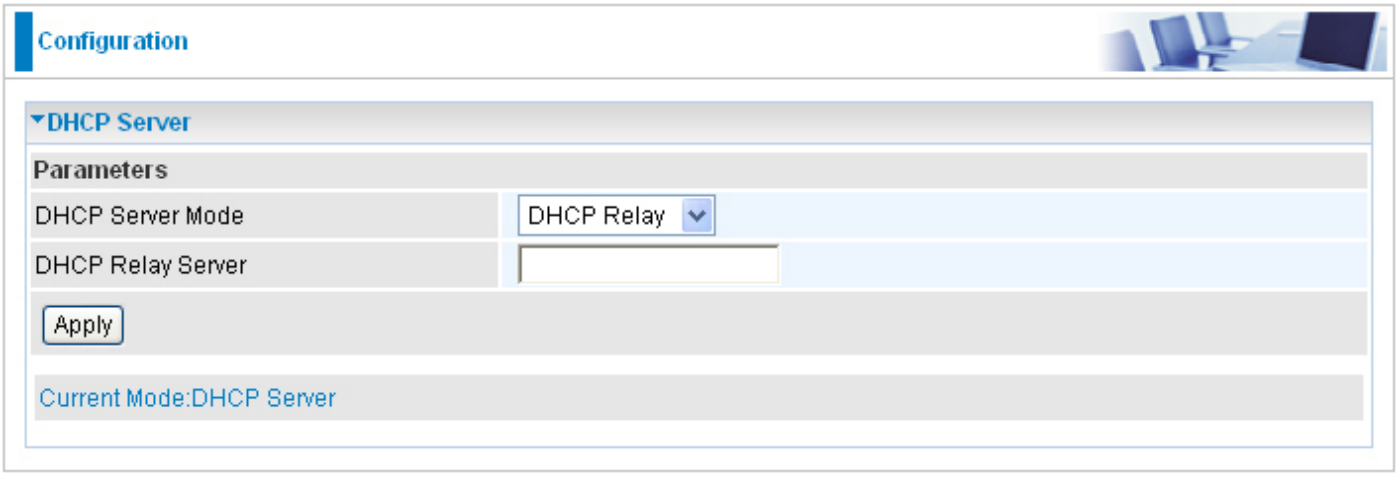
DHCP Server

DHCP allows networked devices to obtain information on the parameter of IP, Netmask, Gateway as well as DNS through the Ethernet Address of the device.



To configure the router's DHCP Server, select **DHCP Server** from the DHCP Server Mode drop-down menu. You can then configure parameters of the DHCP Server including the domain, IP pool (starting IP address and ending IP address to be allocated to PCs on your network), lease time for each assigned IP address (the period of time the IP address assigned will be valid), DNS IP address and the gateway IP address. These details are sent to the DHCP client (i.e. your PC) when it requests an IP address from the DHCP server. If you check "Use Router as a DNS Server", the Router will perform the domain name lookup, find the IP address from the outside network automatically and forward it back to the requesting PC in the LAN (your Local Area Network). Click Apply to enable this function.

If you select **DHCP Relay** from the DHCP Server Mode drop-down menu, you must enter the IP address of the DHCP server that assigns an IP address to the DHCP client in the LAN. Use this function only if advised to do so by your network administrator or ISP. Click Apply to enable this function.



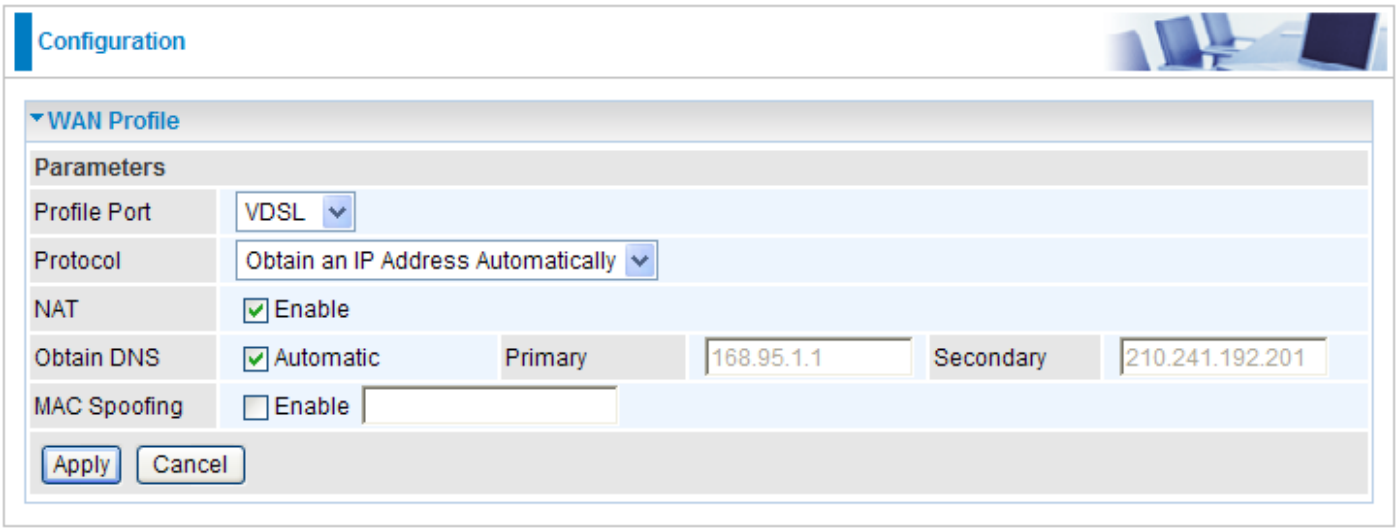
WAN - Wide Area Network

A WAN (Wide Area Network) is a computer network that covers a broad geographical area (eg. Internet) that is used to connect LAN and other types of network systems.

WAN Profile - Main Port: VDSL

Obtain an IP Address Automatically (VDSL)

When connecting to the ISP, your router also functions as a DHCP client. By configuring DHCP settings, the device is able to obtain IP settings automatically from the ISP.



Protocol: Select the protocol you will use in the device.

NAT: The NAT (Network Address Translation) feature allows multiple users to access the Internet through a single IP account by sharing the single IP address. If users on your LAN have their own public IP addresses to access the Internet, NAT function can be disabled.

Obtain DNS: Select this check box to activate DNS.

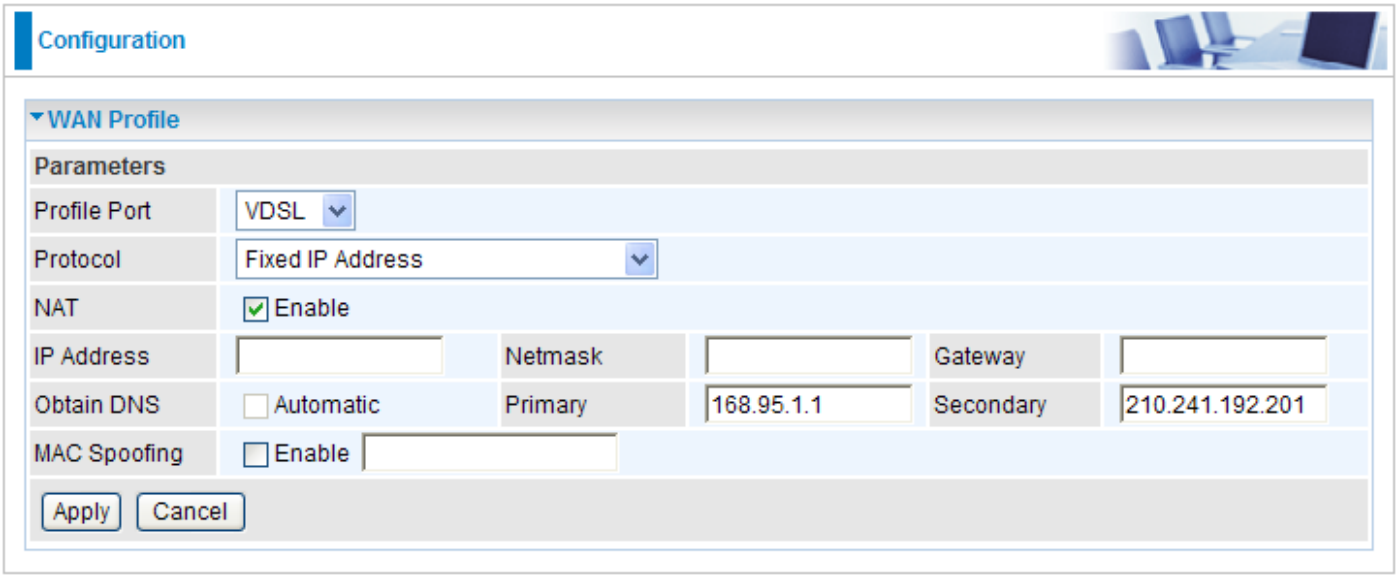
Primary DNS/ Secondary DNS: Enter the IP addresses of the DNS servers. The DNS servers are passed to the DHCP clients along with the IP address and the netmask.

MAC Spoofing: This option is required by some service providers. You must fill the MAC address specified by your service provider when this information is required. It will temporarily change your router's MAC address to the one you have specified in this field. The default setting is set to disable.

Click Apply to confirm the settings.

Fixed IP Address (VDSL)

A Static WAN connection will be configured according to the IP properties defined by your ISP.



Protocol: Select the protocol you will use in the device.

NAT: The NAT (Network Address Translation) feature allows multiple users to access the Internet through a single IP account by sharing the single IP address. If users on your LAN have their own public IP addresses to access the Internet, NAT function can be disabled.

IP Address: Enter your fixed IP address. Each IP address entered in the field must be in the appropriate IP form, which is four IP octets separated by a dot (x.x.x.x). The Router will not accept the IP address if it is not in this format.

Netmask: User can change it to others such as 255.255.255.128. Type the netmask assigned to you by your ISP (if given)

Gateway: Enter the IP address of the default gateway (if given).

Obtain DNS: Select this check box to activate DNS.

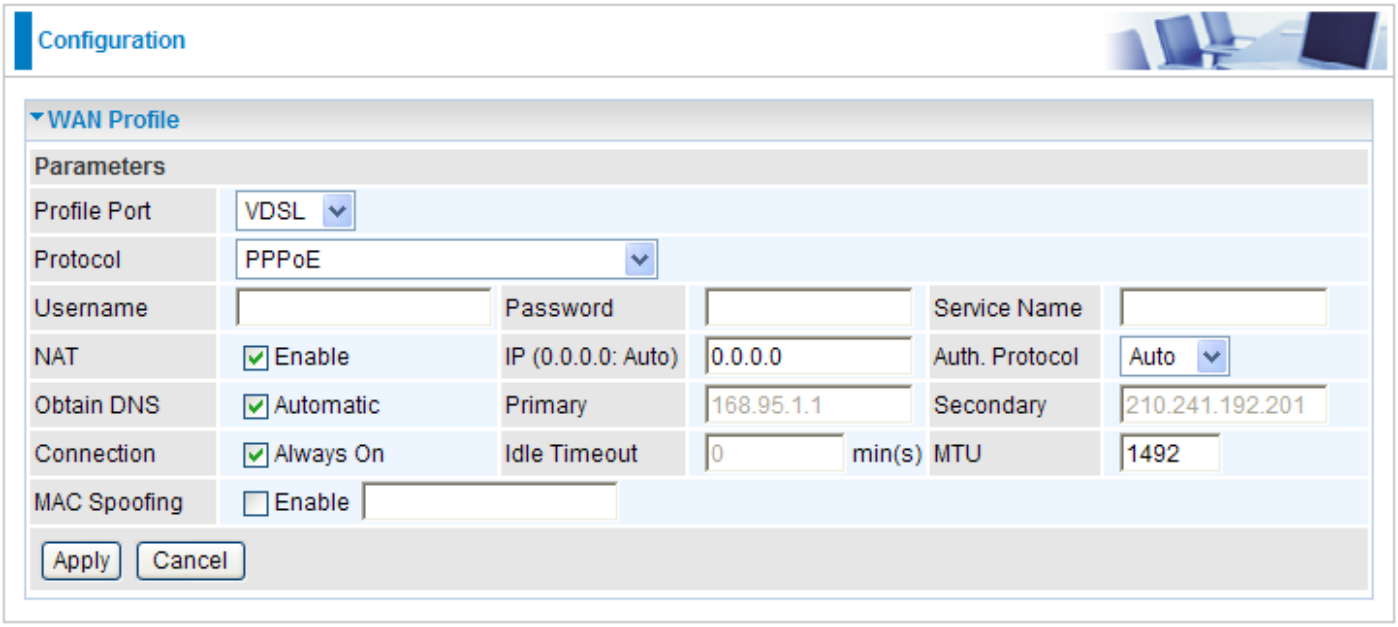
Primary DNS/ Secondary DNS: Enter the IP addresses of the DNS servers. The DNS servers are passed to the DHCP clients along with the IP address and the netmask.

MAC Spoofing: This option is required by some service providers. You must fill the MAC address specified by your service provider when this information is required. It will temporarily change your router's MAC address to the one you have specified in this field. The default setting is set to disable.

Click Apply to confirm the settings.

PPPoE (VDSL)

PPPoE (PPP over Ethernet) provides access control in a manner which is similar to dial-up services using PPP.



Protocol: Select the protocol you will use in the device.

Username: Enter the username provided by your ISP. You can input up to 256 alphanumeric characters (case sensitive). This is in the format of “username@ispname” instead of simply “username”.

Password: Enter the password provided by your ISP. You can input up to 32 alphanumeric characters (case sensitive).

Service Name: This item is for identification purposes. If it is required, your ISP will provide you the necessary information. Maximum input is 32 alphanumeric characters.

NAT: The NAT (Network Address Translation) feature allows multiple users to access the Internet through a single IP account by sharing the single IP address. If users on your LAN have their own public IP addresses to access the Internet, NAT function can be disabled.

IP (0.0.0.0.Auto): Enter your fixed IP address. Leave this at 0.0.0.0 to automatically obtain an IP address from your ISP.

Auth. Protocol: Default is Auto. Please consult your ISP on whether to use Pap or Chap.

Obtain DNS: Select this check box to activate DNS.

Primary DNS/ Secondary DNS: Enter the IP addresses of the DNS servers. The DNS servers are passed to the DHCP clients along with the IP address and the netmask.

Connection: Click on **Always On** to establish a PPPoE session during start up and to automatically re-establish the PPPoE session when disconnected by the ISP. You may uncheck the item to disable this function.

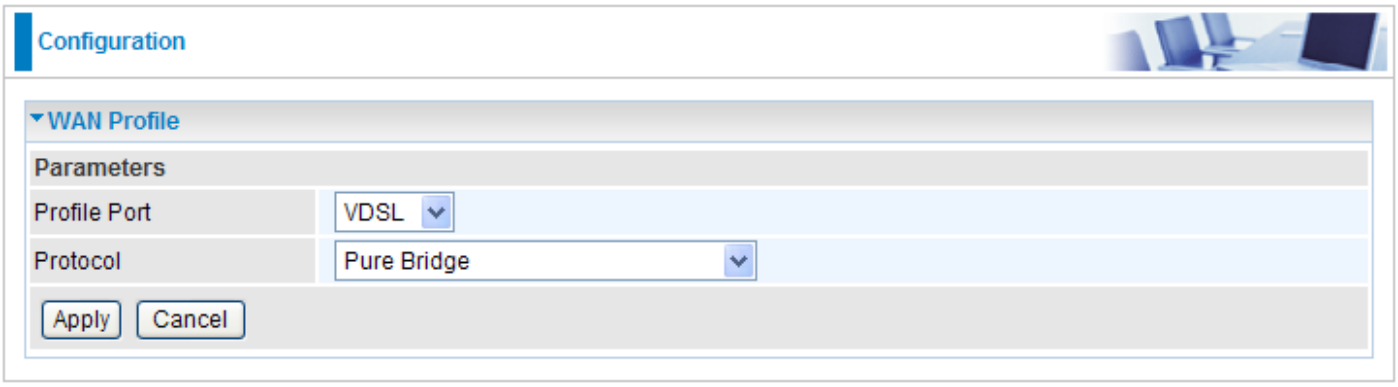
Idle Timeout: Auto-disconnect the broadband firewall gateway when there is no activity on the line for a predetermined period of time.

MTU: Maximum Transmission Unit. The size of the largest datagram (excluding media-specific headers) that IP will attempt to send through the interface.

MAC Spoofing: This option is required by some service Providers. You must fill the MAC address specified by your service provider when this information is required. It will temporarily change your router's MAC address to the one you have specified in this field. The default setting is set to disable.

Click Apply to confirm the settings.

Pure Bridge (VDSL)



Protocol: Select the protocol you will use in the device.

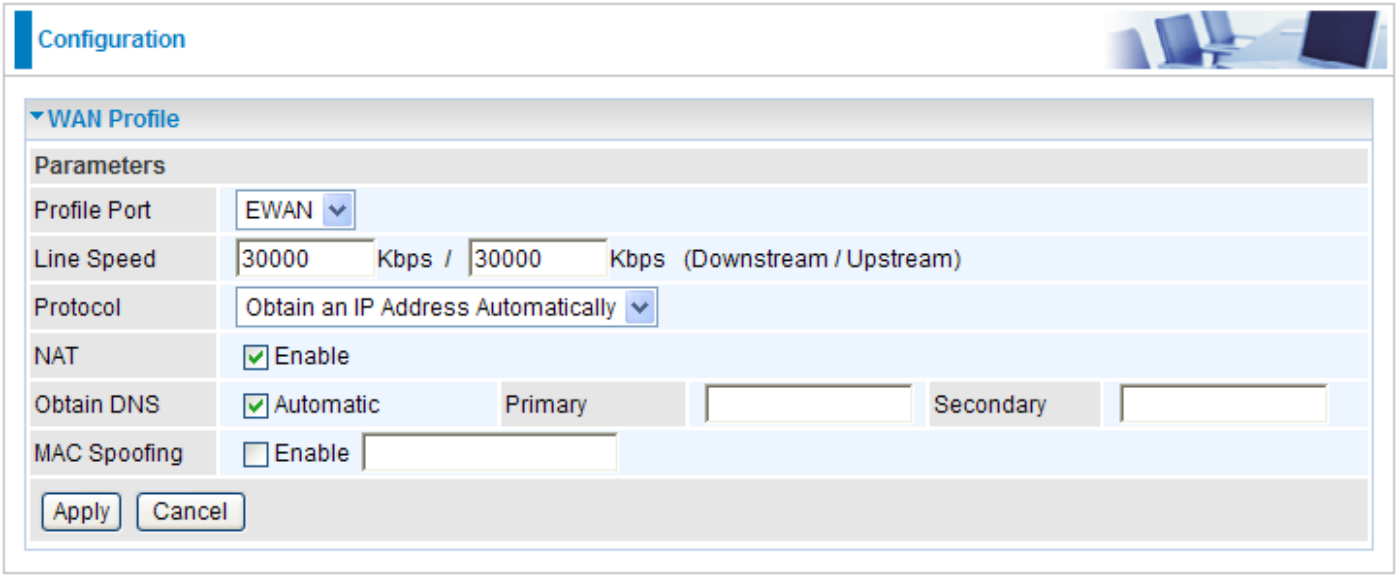
Click Apply to confirm the change.

WAN Profile - Main Port: EWAN

Besides using VDSL to get connected to the Internet, the VDSL router offers its Ethernet port 4 as a WAN port to be used to connect to Cable Modems and fibre optic lines. This alternative, yet faster method to connect to the internet will provide users with more flexibility to get online.

Obtain an IP Address Automatically (EWAN)

When connecting to the ISP, your router also functions as a DHCP client. By configuring DHCP settings, the device is able to obtain IP settings automatically from the ISP.



Protocol: Select the protocol you will use in the device.

Line Speed: Set the downstream and upstream of your connection in kilobytes per second. The connection speed is used by QoS settings.

Protocol: Select the protocol you will use in the device.

NAT: The NAT (Network Address Translation) feature allows multiple users to access the Internet through a single IP account by sharing the single IP address. If users on your LAN have their own public IP addresses to access the Internet, NAT function can be disabled.

Obtain DNS: Select this check box to activate DNS.

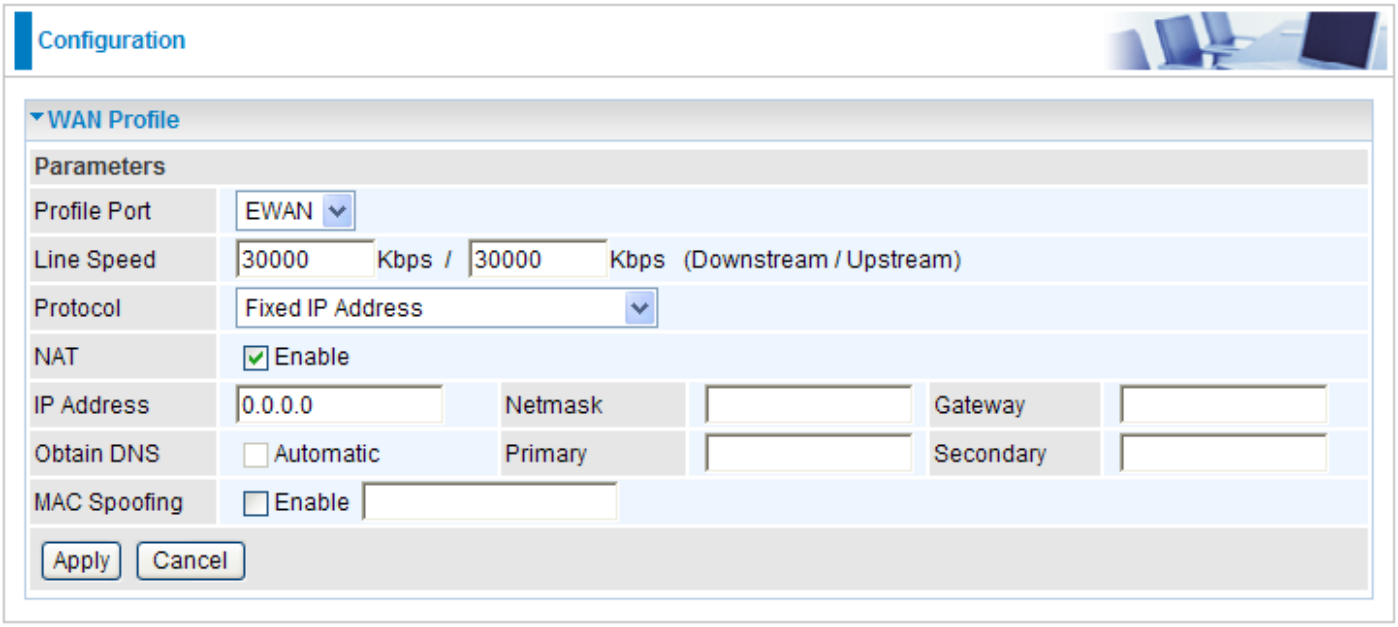
Primary DNS/ Secondary DNS: Enter the IP addresses of the DNS servers. The DNS servers are passed to the DHCP clients along with the IP address and the netmask.

MAC Spoofing: This option is required by some service providers. You must fill the MAC address specified by your service provider when this information is required. It will temporarily change your router's MAC address to the one you have specified in this field. The default setting is set to disable.

Click Apply to confirm the settings.

Fixed IP Address (EWAN)

A Static WAN connection will be configured according to the IP properties defined by your ISP.



Line Speed: Set the downstream and upstream of your connection in kilobytes per second. The connection speed is used by QoS settings.

Protocol: Select the protocol you will use in the device.

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IP Address: Enter your fixed IP address. Each IP address entered in the field must be in the appropriate IP form, which is four IP octets separated by a dot (x.x.x.x). The Router will not accept the IP address if it is not in this format.

Netmask: User can change it to others such as 255.255.255.128. Type the netmask assigned to you by your ISP (if given)

Gateway: Enter the IP address of the default gateway (if given).

Obtain DNS: Select this check box to activate DNS.

Primary DNS/ Secondary DNS: Enter the IP addresses of the DNS servers. The DNS servers are passed to the DHCP clients along with the IP address and the netmask.

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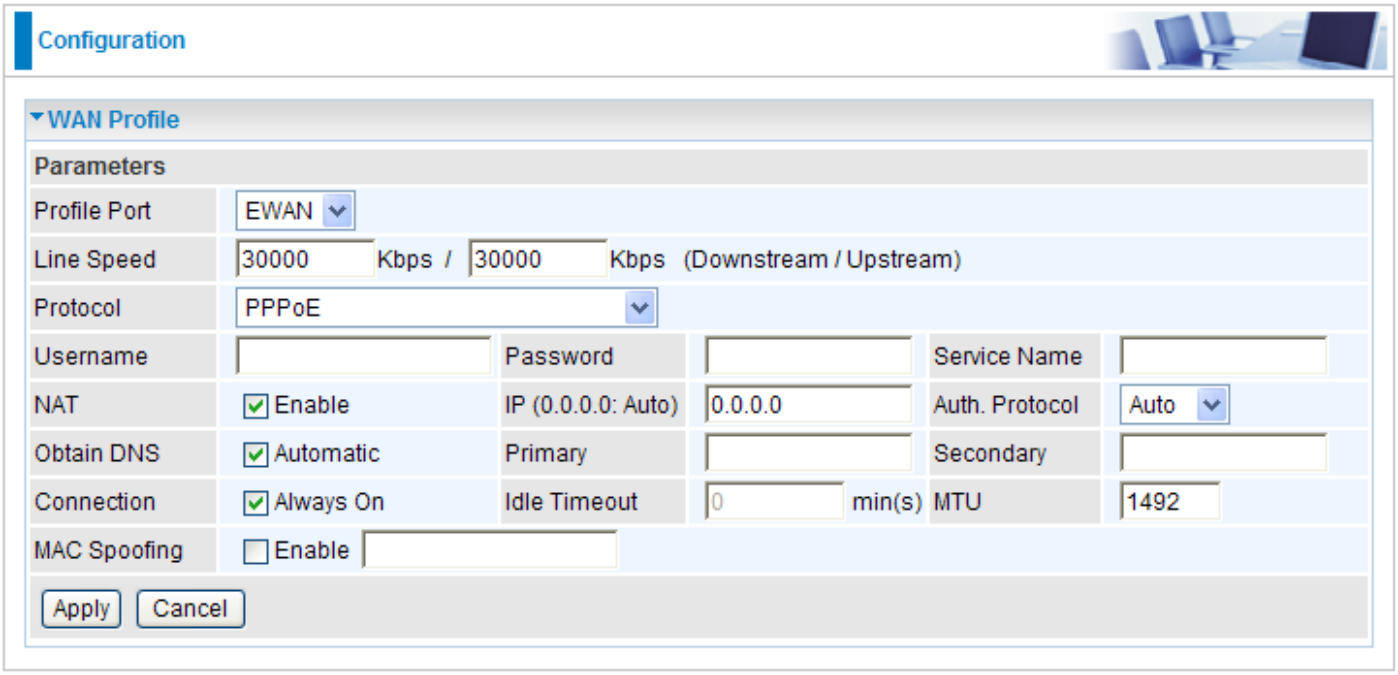
Click Apply to confirm the settings.

PPPoE (EWAN)

PPPoE (PPP over Ethernet) provides access control in a manner which is similar to dial-up services using PPP.



Line Speed: Set the downstream and upstream of your connection in kilobytes per second. The connection speed is used by QoS settings.

Protocol: Select the protocol you will use in the device.

Username: Enter the username provided by your ISP. You can input up to 256 alphanumeric characters (case sensitive). This is in the format of “username@ispname” instead of simply “username”.

Password: Enter the password provided by your ISP. You can input up to 32 alphanumeric characters (case sensitive).

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Auth. Protocol: Default is Auto. Please consult your ISP on whether to use Pap or Chap.

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MTU: Maximum Transmission Unit. The size of the largest datagram (excluding media-specific headers) that IP will attempt to send through the interface.

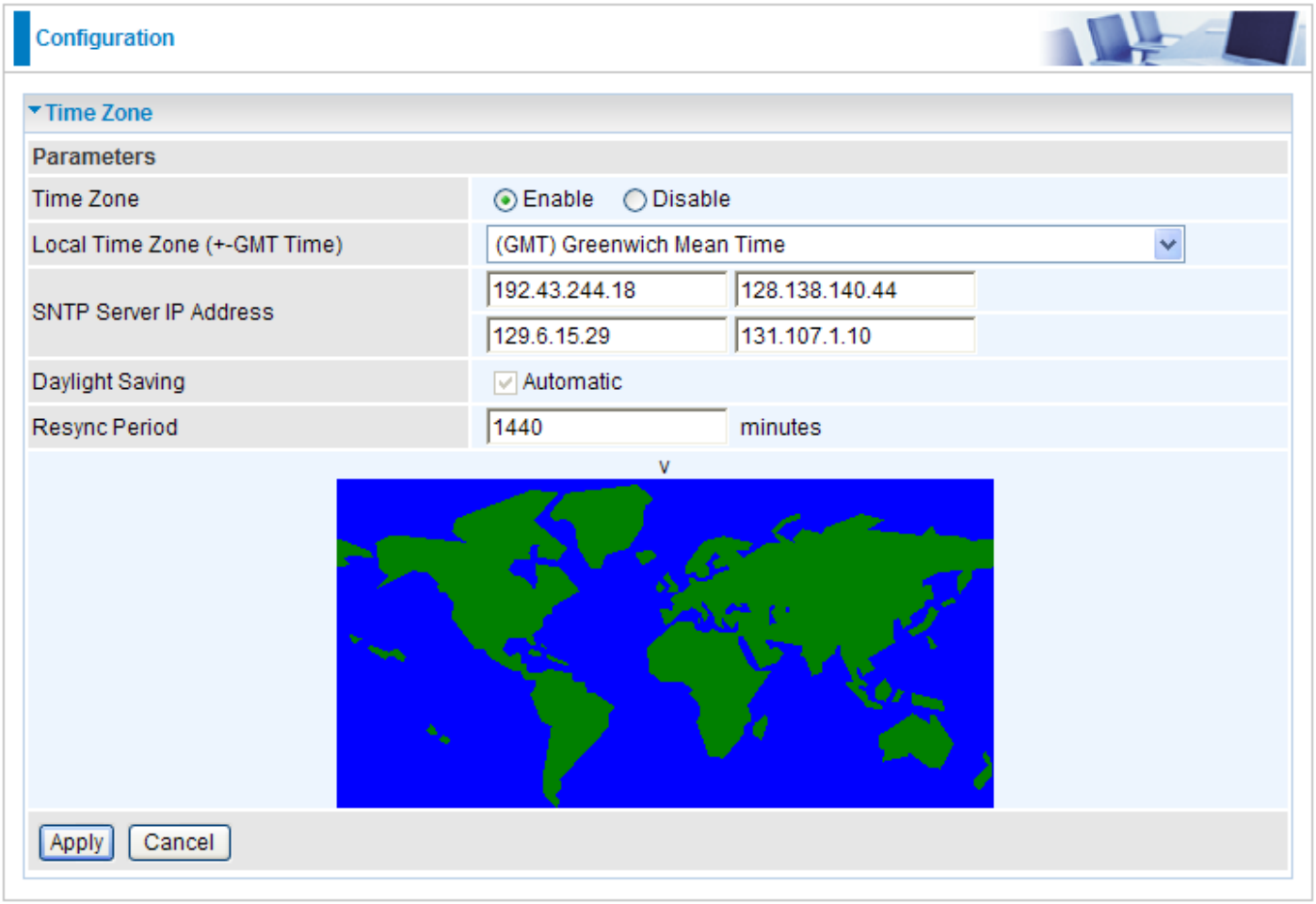
MAC Spoofing: This option is required by some service Providers. You must fill the MAC address specified by your service provider when this information is required. It will temporarily change your router's MAC address to the one you have specified in this field. The default setting is set to disable.

Click Apply to confirm the settings.

System

There are the items within the System section: **Time Zone**, **Firmware Upgrade**, **Backup/Restore**, **Restart**, **User Management** and **Mail alert**.

Time Zone



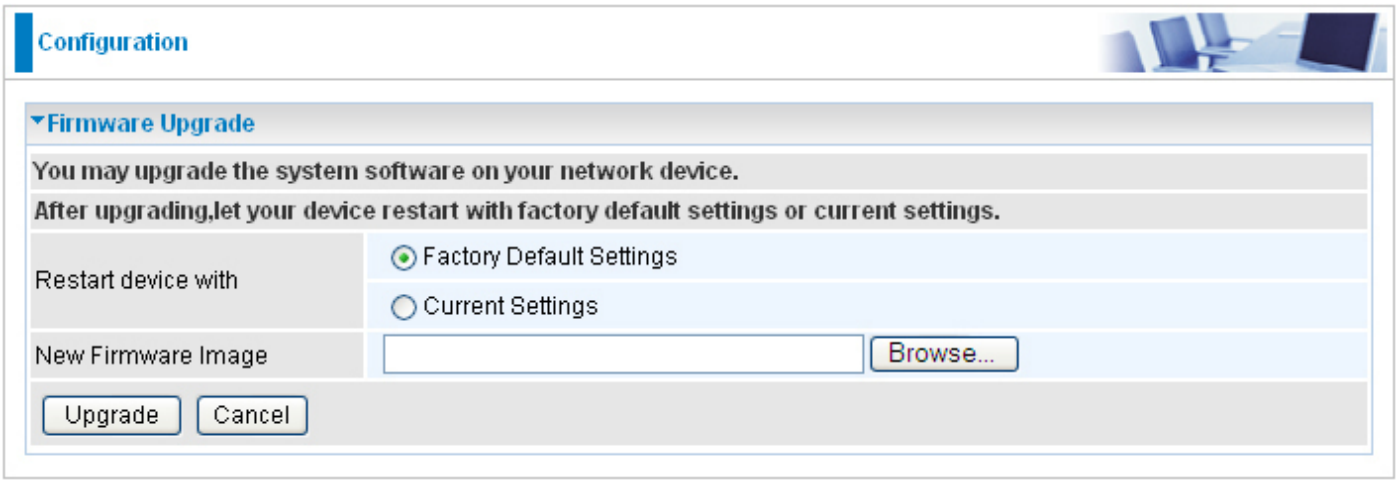
The router does not have a real time clock on board; instead, it uses the Simple Network Time Protocol (SNTP) to get the most current time from an SNTP server outside your network. Choose your local time zone from the drop down menu. To apply the selected local time zone, click Enable and click the Apply button. After a successful connection to the Internet, the router will retrieve the correct local time from the SNTP server you have specified. If you prefer to specify an SNTP server other than those in the drop-down list, simply enter its IP address in their appropriate blanks provided as shown above. Your ISP may also provide an SNTP server for you to use.

Resync Period (in minutes) is the periodic interval the router will wait before it re-synchronizes the router's time with that of the specified SNTP server. In order to avoid unnecessarily increasing the load on your specified SNTP server you should keep the poll interval as high as possible – at the absolute minimum every few hours or even days.

Click Apply to confirm the settings.

Firmware Upgrade

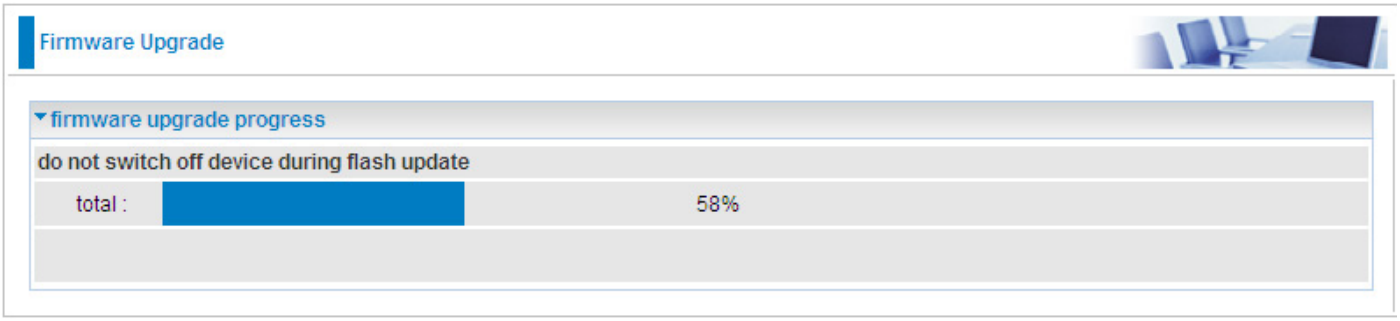
Your router's firmware is the software that enables it to operate and provides all its functionality. Think of your router as a dedicated computer, and the firmware as the software that runs in your router. Thus, by upgrading the newly improved version of the firmware allows you the advantage to use newly integrated features.

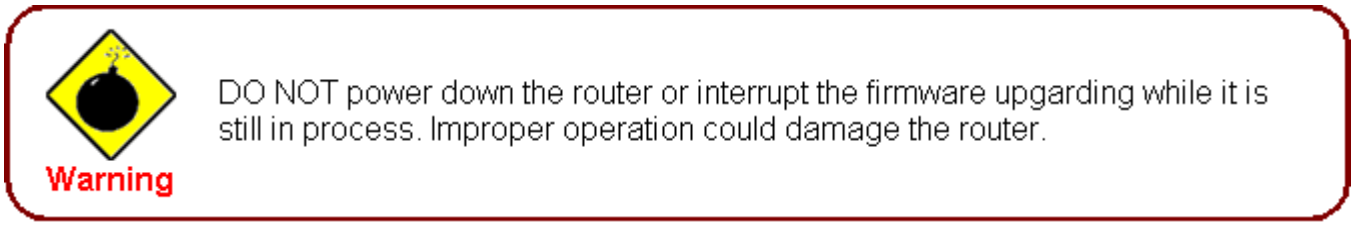


Factory Default Settings: If select this setting, the device will reboot to restore the parameters of all its applications to its default values.

Current Settings: If select this setting, the device will reboot and retain the customized settings of all applications.

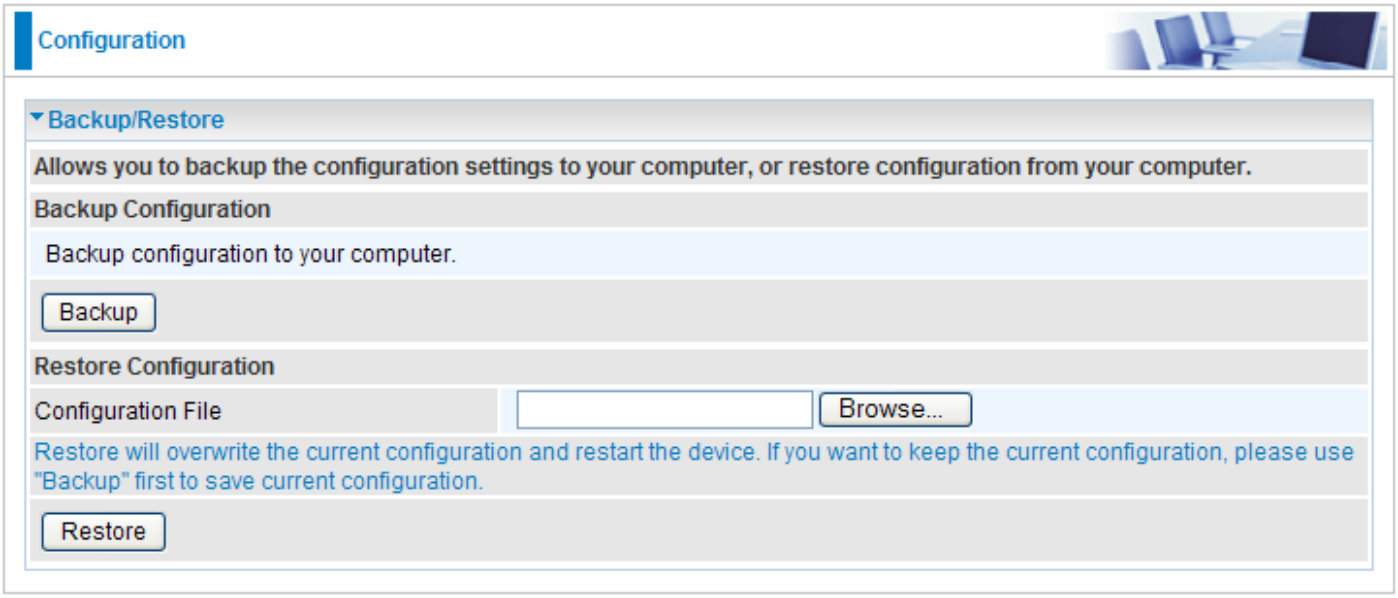
Click on Browse to select the new firmware image file you have downloaded to your PC. Once the correct file is selected, click Upgrade to update the firmware to your router.





Backup / Restore

These functions allow you to save a backup of the current configuration of your router to a defined location on your PC, or to restore a previously saved configuration. This is useful if you wish to experiment with different settings, knowing that you have a backup in hand in case any mistakes occur. It is advisable that you backup your router configuration before making any changes to your router configuration.



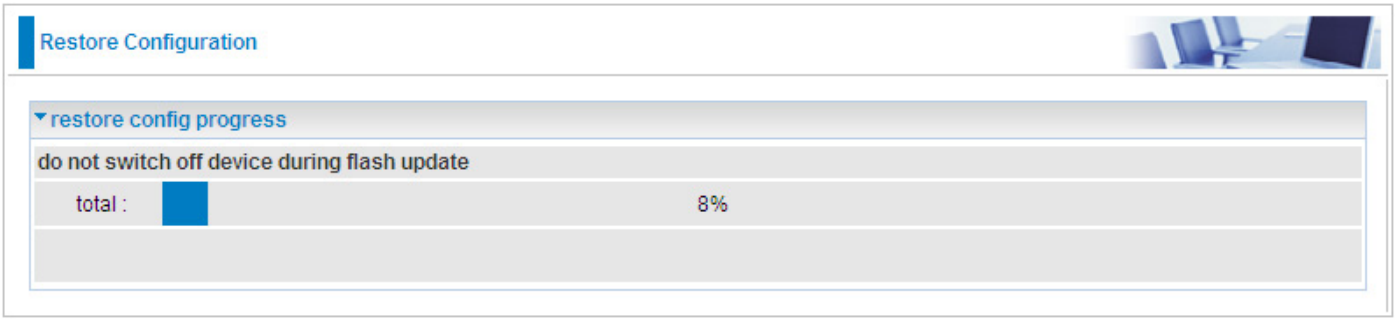
Backup Configuration

Press Backup to select where on your local PC you want to store your setting file. You may also want to change the name of the file when saving if you wish to keep multiple backups.

Restore Configuration

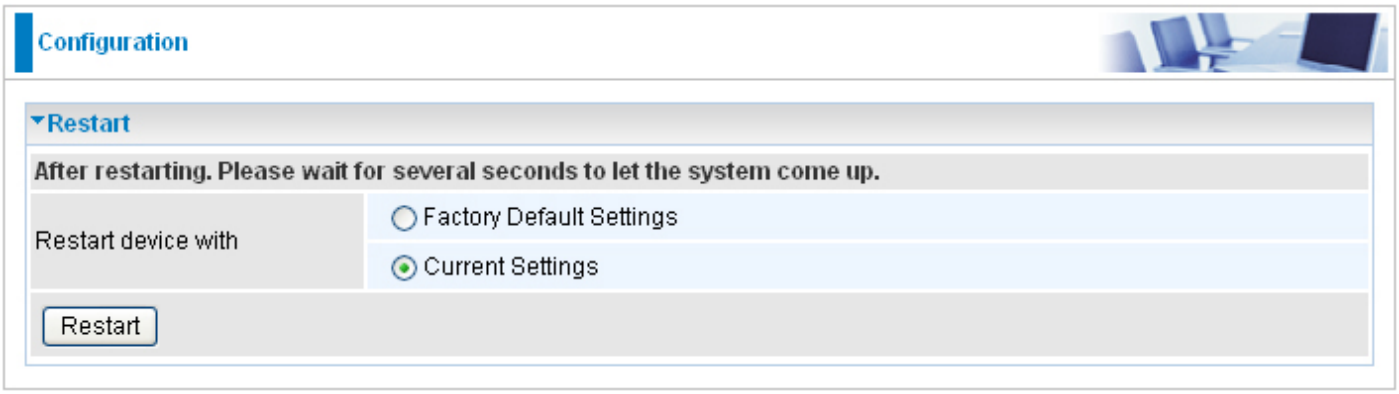
Press Browse to select a file from your PC to restore. You should only restore your router setting that has been generated by the Backup function which is created with the current version of the router firmware. Settings files saved to your PC should not be manually edited in any way.

Select the settings files you wish to use, and press Restore to load the setting into the router. Click Restore to begin restoring the configuration and wait for the router to restart before performing any actions.



Restart

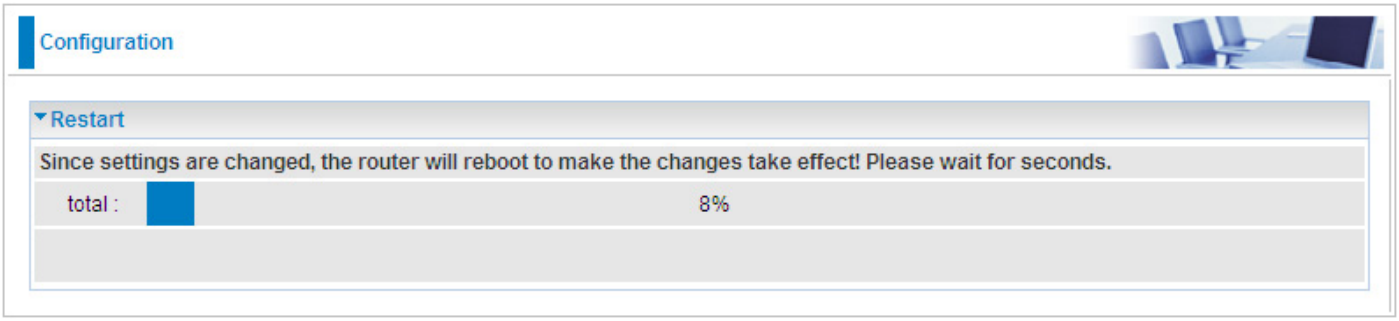
There are 2 options for you to choose from before restarting the your 8200N device. You can either choose to restart your device to restore it to the Factory Default Settings or to restart the device with your current settings applied. Restarting your device to Factory Default Setting will be useful especially after you have accidentally changed your settings that may result in undesirable outcome.



If you wish to restart the router using the factory default settings (for example, after a firmware upgrade or if you have saved an incorrect configuration), select Factory Default Settings to reset to factory default settings.

Click Restart with option Current Settings to reboot your router (and restore your last saved configuration).

After selecting the type of setting you want the device to restart with, click the Restart button to initiate the process. After restarting, please wait several minutes to let the selected setting applied to the system.

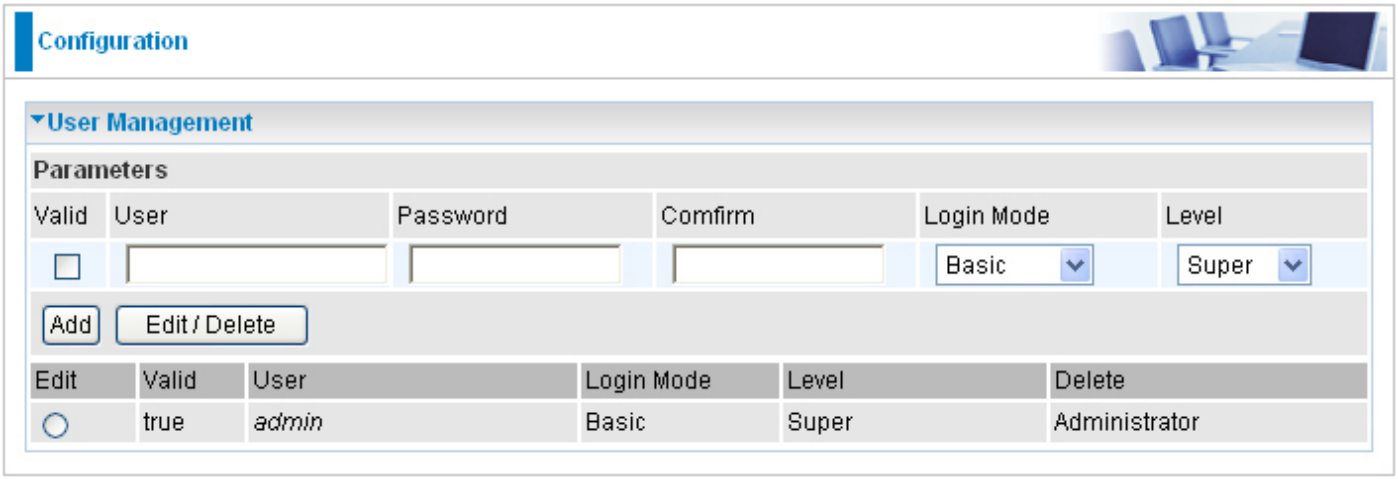


You may also reset your router to factory settings by holding the small Reset pinhole button more than 1 second on the back of your router.

User Management

In order to prevent unauthorized access to your router configuration interface, it requires all users to login with a username and password. Therefore only system administrator can access the system.

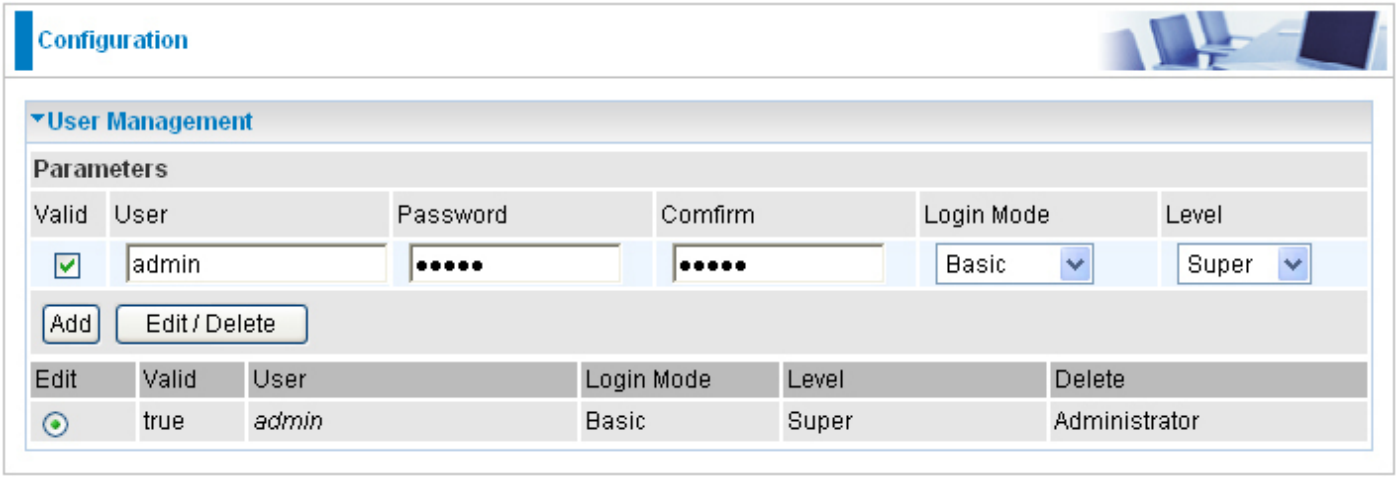
This feature allows you to set up multiple user accounts which contains a unique password of its own. In addition, you can also edit any existing user accounts or add new users to allow access to the device configuration interface.



Edit Account Information

You can change the informations of any account whether the account is active or valid.

1. To edit an account, click on the Edit radio button of the account you want to edit. Once selected, all information of that account will be displayed.
2. Delete the information to be edited and replace it with the new one.



3. When it is done, simply click on the Edit/Delete button to save your changes.

Note: It is highly recommended that you change the password immediately to prevent security breach to your GUI.

Add an account

1. Check the Valid checkbox, fill in all the information: User name, Comment (optional), Password, Confirm Password.
2. When it is done, click the Add button.

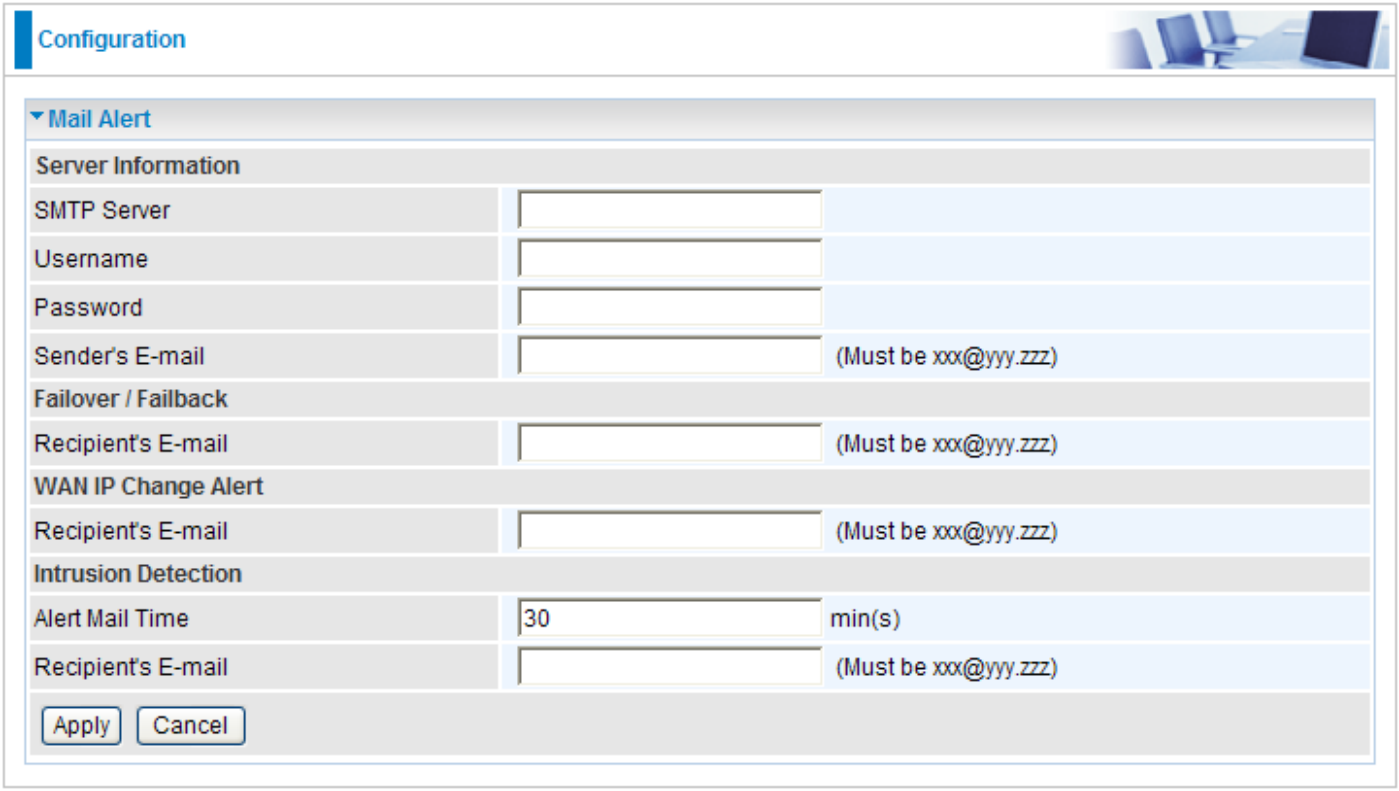
Delete a User Account

1. Check the Delete checkbox of the account you want to delete.
2. Then click the Edit/Delete to confirm the deletion.

Note: You can delete any user account except for the default admin account. Thus there is no delete radio button available for this account.

Mail Alert

Mail Alert allows administrator to receive notifications from the router through email about important events that is occurring in real time. This allows administrator to be able to take immediate actions to counteract any possible hacking or to restore the router to its original status should any failover / failback ever occurs.



Server Information

SMTP Server: Enter the SMTP (mail) server address.

Username: Enter the username of your SMTP server.

Password: Enter the password associated with the username.

Sender's E-mail: Enter the email address you wish to send the mail alert email to.

Failover / Failback

Recipient's E-mail: Enter the email address you wish to send the Failover / Failback email to.

WAN IP Change Alert

Recipient's E-mail: Enter the email address you wish to send the WAN IP Change email to.

Intrusion Detection

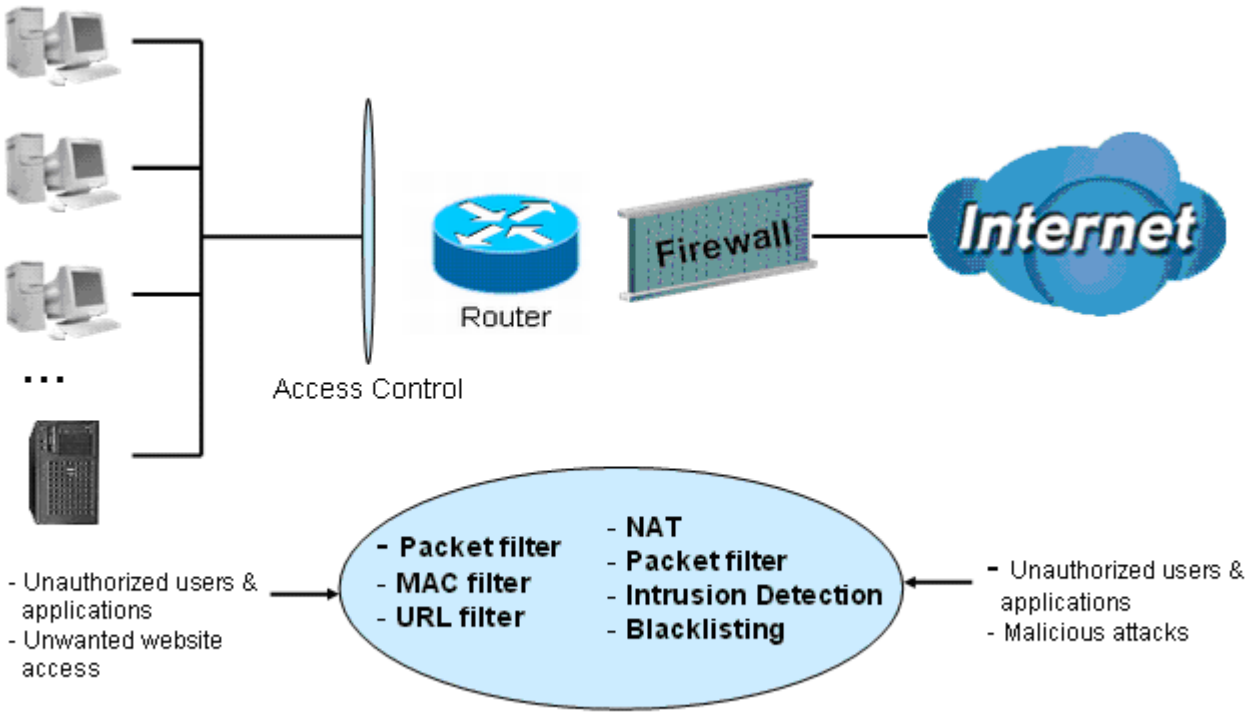
Alert Mail Time: Set the time for sending the Alert mail.

Recipient's E-mail: Enter the email address you wish to send the Intrusion Detection email to.

Click Apply to confirm the settings.

Firewall and Access Control

Your router includes a full SPI (Stateful Packet Inspection) firewall for controlling Internet access from your LAN, as well as helping to prevent attacks from hackers. In addition to this, when using NAT (Network Address Translation) the router acts as a “natural” Internet firewall, since all PCs on your LAN use private IP addresses that cannot be directly accessed from the Internet. See the WAN configuration section for more details on NAT.



Firewall & Filter

Firewall: Prevents access from outside your network.

NAT natural firewall: This masks LAN users’ IP addresses, which are invisible to outside users on the Internet, making it much more difficult for a hacker to target a machine on your network. This natural firewall is on when the NAT function is enabled.

Firewall Security and Policy (General Settings): Inbound direction of Packet Filter rules prevent unauthorized computers or applications accessing your local network from the Internet.

Intrusion Detection: Enable Intrusion Detection to detect, prevent, and log malicious attacks.

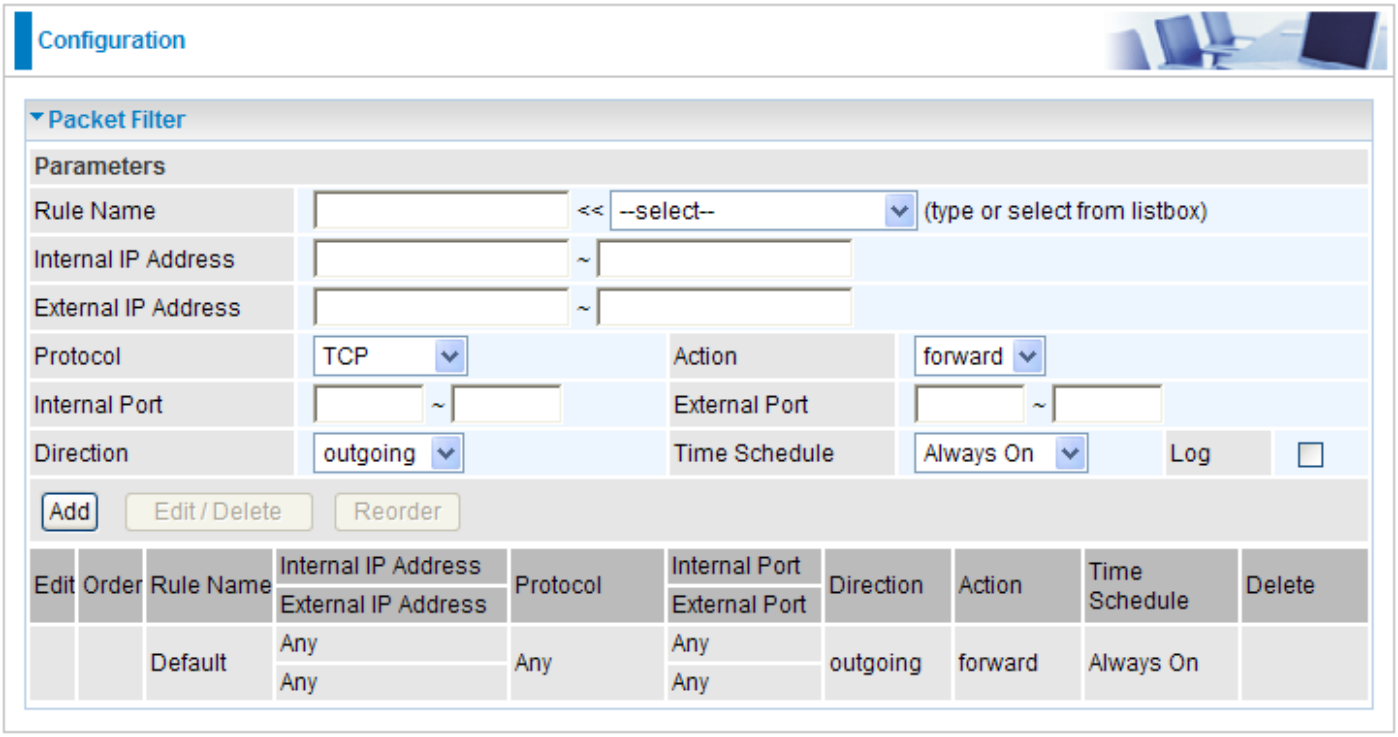
MAC Filter rules: Prevents unauthorized computers accessing the Internet.

URL Filter: Blocks PCs on your local network from unwanted websites.

A detailed explanation of each of the following items appears in the Firewall section below: **Packet Filter**, **MAC Filter**, **Intrusion Detection**, **Block WAN PING** and **URL Filter**.

Packet Filter

Packet filtering enables you to configure your router to block specific internal / external users (IP address) from Internet access, or disable specific service requests (Port number) to / from the Internet. This configuration program allows you to set up different filter rules for different users based on their IP addresses or their network Port number. The relationship among all filters is “or” operation, which means that the router checks these different filter rules one by one, starting from the first rule. As long as one of the rules is satisfied, the specified action will be taken.



Rule Name: User defined description for entry identification. The maximum name length is 32 characters, and then can choose an application that they want from the listbox.

Internal IP Address / External IP Address: This is the Address-Filter used to allow or block traffic to/rom particular IP address(es). Input the range you want to filter out. If you leave these four fields empty or enter 0.0.0.0, it means any IP address.

Protocol: Specify the packet type (TCP, UDP, TCP/UDP) that the rule applies to. Select TCP if you wish to search for the connection-based application service on the remote server using the port number. Or select UDP if you want to search for the connectionless application service on the remote server using the port number.

Action: If a packet matches this filter rule, forward (allows the packets to pass) or drop (disallow the packets to pass) this packet.

Internal Port: This Port or Port Range defines the ports allowed to be used by the Remote/WAN to connect to the application. Default is set the range from 1 to 65535. It is recommended that this option be configured by an advanced user.

External Port: This is the Port or Port Range that defines the application.

Direction: Determine whether the rule is for outgoing packets or for incoming packets.

Time Schedule: It is self-defined time period. You may specify a time schedule for your prioritization policy. For setup and detail, refer to Time Schedule section.

Log: Check the checking box if you wish to generate logs when the filer rule is applied to a packet.

Add: Click this button to add a new packet filter rule and the added rule will appear at the bottom table.

Edit: Check Edit next to the item you wish to edit, and then change parameters as desired. Complete it by press “Edit/Delete”.

Delete: Check Edit next to the item you wish to delete, and press “Edit/Delete” to remove this rule.

Order: Be aware that packet filtering parameters appear in priority order i.e. the first one takes precedence over all other rules. There is a sort function next to the Rule Name column, you can move the rule to higher or lower priority by clicking the Order arrow, and press “Reorder” to save the new priority.

Edit	Order	Rule Name	Internal IP Address External IP Address	Protocol	Internal Port External Port	Action	Direction	Delete
○	↓	FTP	Any Any	TCP	Any 21 ~ 21	outgoing	drop	☐
○	↑	HTTP	Any Any	TCP	Any 80 ~ 80	outgoing	drop	☐
		Default	Any Any	Any	Any Any	outgoing	forward	

MAC Filter

A MAC (Media Access Control) address is the unique network hardware identifier for each PC on your network's interface (i.e. its Network Interface Card or Ethernet card). Using your router's MAC Address Filter function, you can configure the network to block specific machines from accessing your LAN.

There are no pre-defined MAC address filter rules, you can add the filter rules to meet your requirements.

The format of MAC address could be: xx:xx:xx:xx:xx:xx or xx-xx-xx-xx-xx-xx.

Filter Action

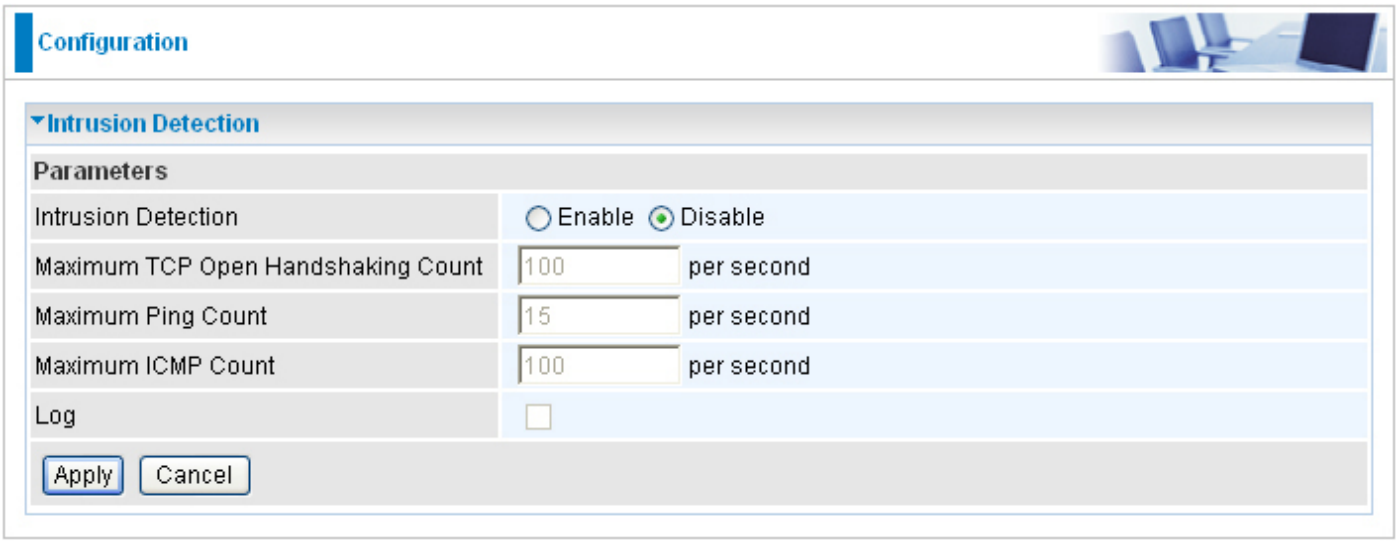
Action: Select an action for MAC Filter. This feature is disabled by default. Check Allow or Block to activate the filter.

Server Information

MAC Address: Enter the MAC addresses you wish to have the filter rule applies.

Intrusion Detection

The router Intrusion Detection System (IDS) is used to detect hacker's attack and intrusion attempts from the Internet. If the IDS function of the firewall is enabled, inbound packets are filtered and blocked depending on whether they are detected as possible hacker attacks, intrusion attempts or other connections that the router determines to be suspicious.



Intrusion Detection: Check Enable if you wish to detect intruders accessing your computer without permission.

Maximum TCP Open Handshaking Count: This is a threshold value to decide whether a SYN Flood attempt is occurring or not. Default value is 100 TCP SYN per seconds.

Maximum Ping Count: This is a threshold value to decide whether an ICMP Echo Storm is occurring or not. Default value is 15 ICMP Echo Requests (PING) per second.

Maximum ICMP Count: This is a threshold to decide whether an ICMP flood is occurring or not. Default value is 100 ICMP packets per seconds except ICMP Echo Requests (PING).

Log: Check Log if you wish to generate logs when the filer rule is applied to the Intrusion Detection.

Click Apply to confirm the settings.

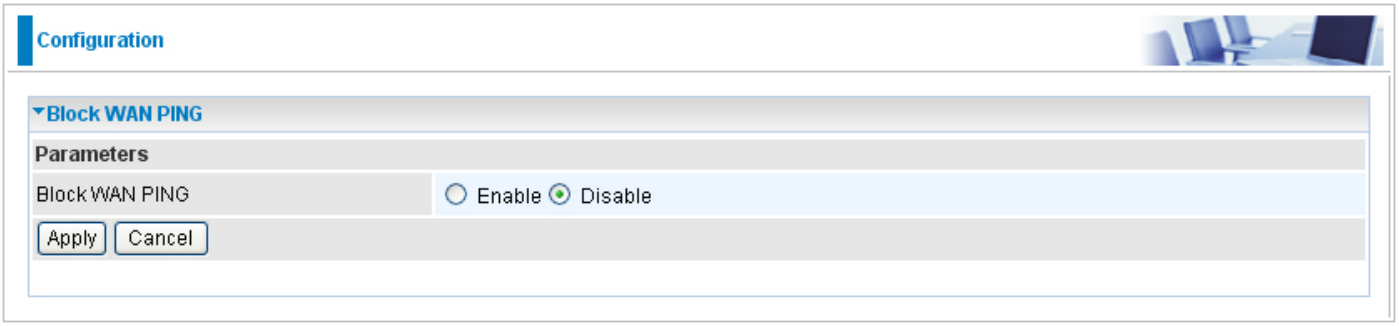
Table: Hacker attack types recognized by the IDS

Intrusion Name	Detect Parameter	Blacklist	Type of Block Duration	Drop Packet	Show Log
Ascend Kill	Ascend Kill data	Src IP	DoS	Yes	Yes
WinNuke	TCP Port 135, 137~139, Flag: URG	Src IP	DoS	Yes	Yes
Smurf	ICMP type 8 Des IP is broadcast	Dst IP	Victim Protection	Yes	Yes
Land attack	SrcIP = DstIP			Yes	Yes
Echo/CharGen Scan	UDP Echo Port and CharGen Port			Yes	Yes
Echo Scan	UDP Dst Port = Echo(7)	Src IP	Scan	Yes	Yes
CharGen Scan	UDP Dst Port = CharGen(19)	Src IP	Scan	Yes	Yes
X'mas Tree Scan	TCP Flag: X'mas	Src IP	Scan	Yes	Yes
IMAP SYN/FIN Scan	TCP Flag: SYN/FIN DstPort: IMAP(143) SrcPort: 0 or 65535	Src IP	Scan	Yes	Yes
SYN/FIN/RST/ACK Scan	TCP No Existing session And Scan Hosts more than five.	Src IP	Scan	Yes	Yes
Net Bus Scan	TCP No Existing session DstPort = Net Bus 12345,12346, 3456	SrcIP	Scan	Yes	Yes
Back Orifice Scan	UDP, DstPort = Orifice Port (31337)	SrcIP	Scan	Yes	Yes
SYN Flood	Max TCP Open Handshaking Count (Default 100 c/sec)				Yes
ICMP Flood	Max ICMP Count (Default 100 c/sec)				Yes
ICMP Echo	Max PING Count (Default 15 c/sec)				Yes

Src IP: Source IP
Src Port: Source Port
Dst Port: Destination Port
Dst IP: Destination IP

Block WAN Ping

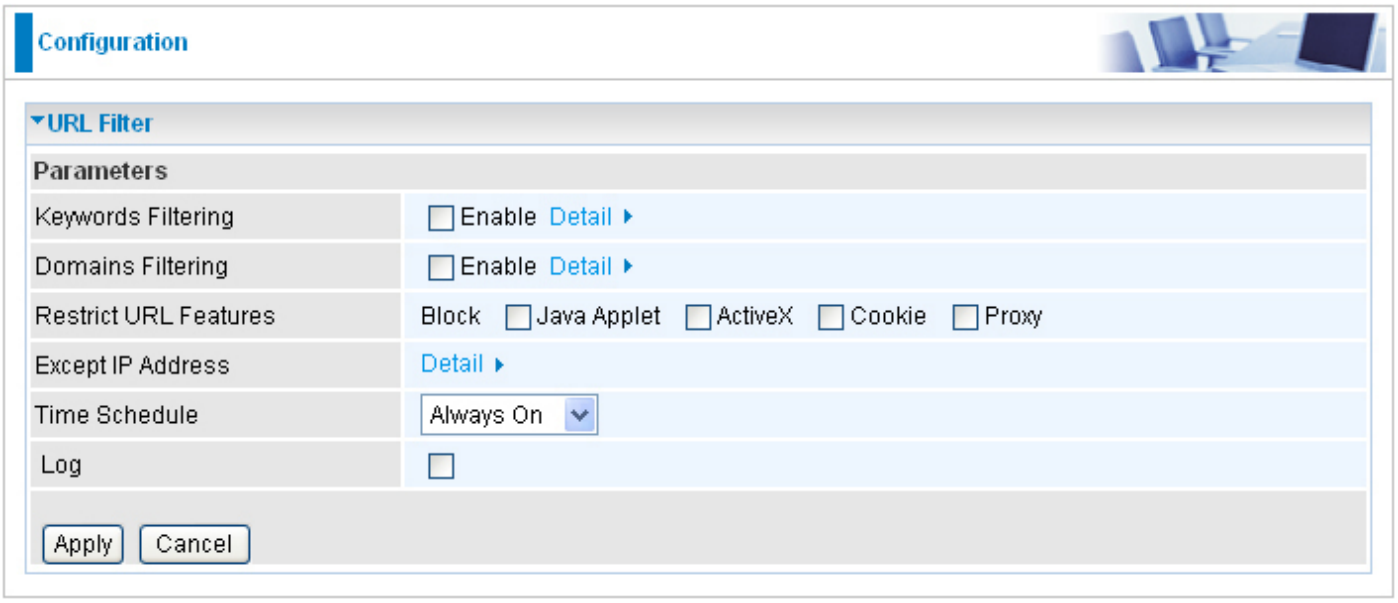
This feature is to be enabled when you want the public WAN IP address on your router not to respond to any ping command.



This feature is disabled by default. To activate the Block WAN PING feature, check the Enable box then click the Apply button.

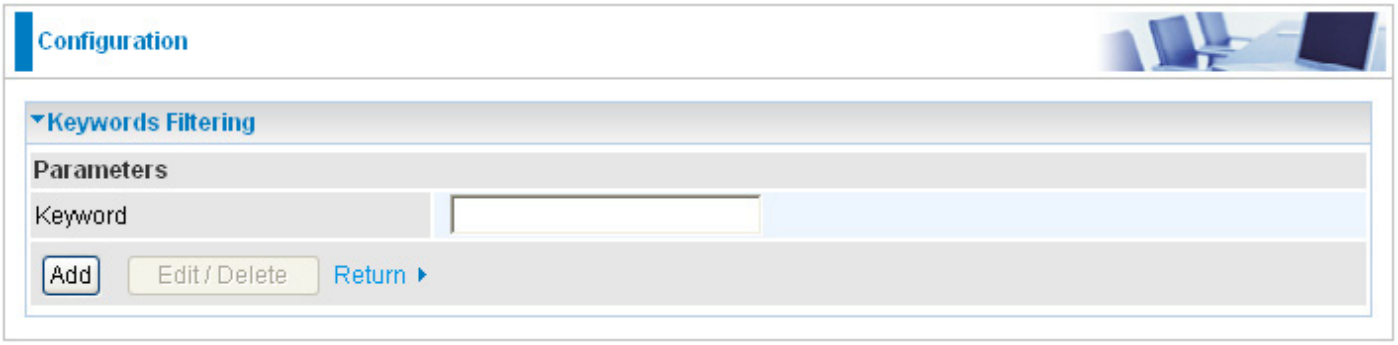
URL Filter

URL (Uniform Resource Locator) (e.g. an address in the form of http://www.abcde.com or http://www.example.com) filter rule allows you to prevent users on your network from accessing specific websites defined by their URL. There are no predefined URL filter rules, therefore you can add filter rules to meet your requirements.



Keywords Filtering: Allow blocking against specific keywords within a particular URL rather than having to specify a complete URL (e.g. to block any image called “advertisement.gif”). When enabled, your specified keywords list will be checked to see if any keywords are present in URLs accessed to determine if the connection attempt should be blocked. Please note that the URL filter blocks web browser (HTTP) connection attempts using port 80 only.

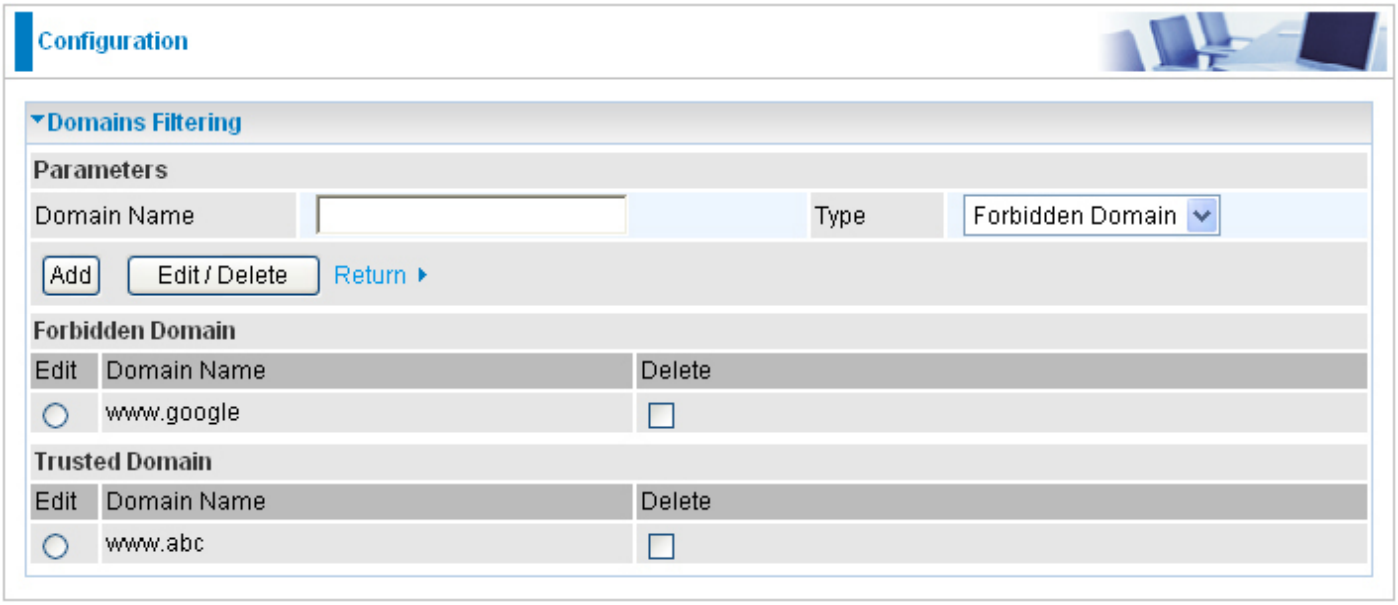
For example, if the URL is **http://www.abc.com/abcde.html**, it will be dropped as the keyword “abcde” occurs in the URL.



Domains Filtering: This function checks the whole URL not the IP address, in URLs accessed against your list of domains to block or allow. If it is matched, the URL request will be sent (Trusted) or dropped (Forbidden). For this function to be activated, both check-boxes must be checked. Here is the checking procedure:

1. Check the domain in the URL to determine if it is in the trusted list. If yes, the connection attempt is sent to the remote web server.
2. If not, check if it is listed in the forbidden list. If yes, then the connection attempt will be dropped.
3. If the packet does not match either of the above two items, it is sent to the remote web server.

4. Please be note that the completed URL, “www” + domain name shall be specified. For example to block traffic to **www.google.com.au**, enter “**www.google**” or “**www.google.com**”.



Restrict URL Features: This function enhances the restriction to your URL rules.

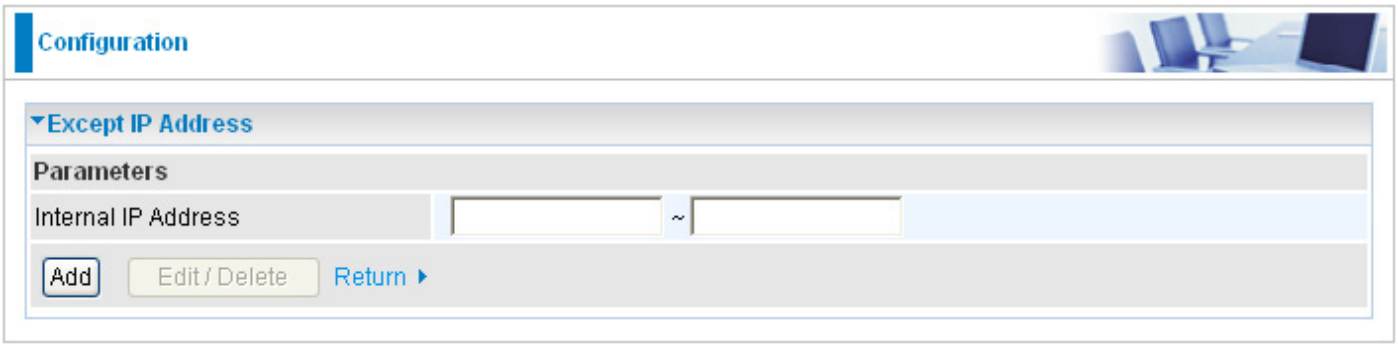
Block Java Applet: Blocks Web content which includes the Java Applet to prevent someone who wants to damage your system via the standard HTTP protocol.

Block ActiveX: Blocks ActiveX.

Block Cookies: Blocks Cookies.

Block Proxy: Blocks Proxy.

Except IP Address: The except IP address list.



Time Schedule: It is self-defined time period. You may specify a time schedule for your prioritization policy. For setup and detail, refer to Time Schedule section.

Log: Check this checking box if you wish to generate logs when the filer rule is applied to the URL Filter.

Click Apply to confirm the settings.