WAN Configuration

This page is the further configuration of the WAN connection. You can setup up to 4 WAN connection entries. Each entry may has it's own connection type (PPPoE, PPPoE Unnumber, Dynamic IP address, Static IP address) and some other properties. For example, when you click the "**Edit**" button of the ISP No.1 (WAN Type: Dynamic IP Address) on the table then there will appear the screen as follows.

Click "**Next**".
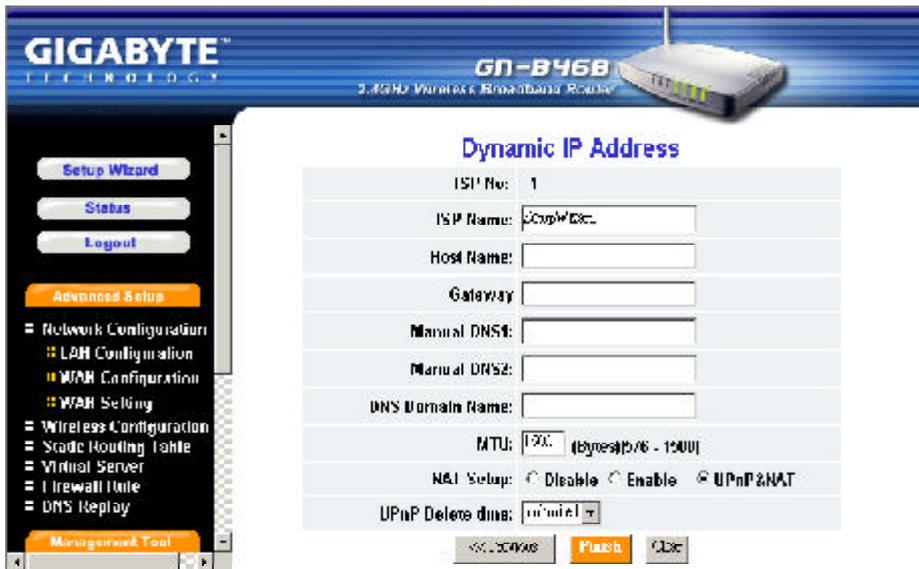
■ **ISP Name, Host Name, Gateway, DNS1 and DNS2 Address, DNS Domain Name**

Those information are provided by your ISP company.

■ **MTU(Maximum Transmission Unit)**

This defines the maximum size of the packets sent from your computer onto the network. Any messages larger than the MTU are divided into smaller packets before being sent. Leave this on the default value(1500) unless you have a particular reason to change it.

■ **NAT Setup**

The Internet is expanding at an exponential rate. As the amount of information and resources increases, it is becoming a requirement for even the smallest businesses and homes to connect to the Internet. Network Address Translation (NAT) is a method of connecting multiple computers to the Internet (or any other IP network) using one IP address. This allows home users and small businesses to connect their network to the Internet cheaply and efficiently.

Universal Plug and Play (UPnP) is an architecture for pervasive peer-to-peer network connectivity of PCs and intelligent devices or appliances, particularly within the home. UPnP builds on Internet standards and technologies, such as TCP/IP, HTTP, and XML, to enable these devices to automatically connect with one another and work together to make networking - particularly home networking - possible for more people.

Normal user please select "**NAT enable**" or "**UPnP&NAT**" then connect to the Internet in general.

Verify the desired setting and then click the "**Finish**" button to set the value into GN-B46B. And then the screen will transfer to WAN configuration setting page.

WAN Configuration Setting

There are four WAN configuration setting you may setup on WAN Configuration page. From this page, you can select which WAN Configuration Setting you would like to use now.

Verify the desired setting and then click the "**Submit**" button to set the value into GN-B46B.

📖 *Other WAN Type of the WAN configuration:*

PPPoE
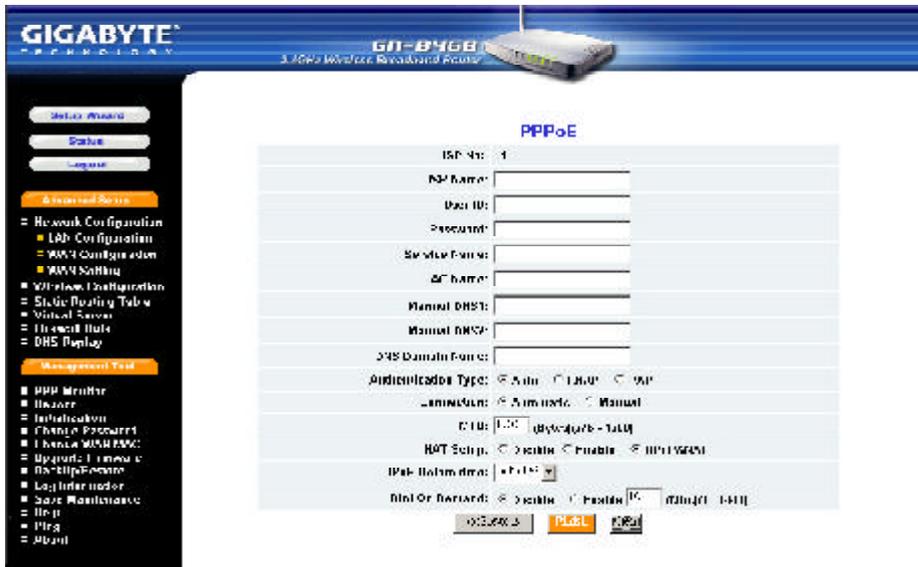
- ■ *ISP Name, User ID, Password, Service Name, AC Name, DNS1 and DNS2 Address, DNS Domain Name*

    Those information are provided by your ISP company.

- ■ *Authentication Type*

    You may choose between "**Auto**", "**CHAP**" and "**PAP**". The default is set to "**Auto**".

    Challenge Handshake Authentication Protocol(CHAP). This is the preferred method of authentication for PPP dialup links. With CHAP, the server sends a challenge to which the remote router sends an encrypted reply containing a secret key.

    Password Authentication Protocol(PAP) is a simple authentication protocol for PPP allowing a router to identify itself with another router by sending a simple name and password combination. PAP is defined in RFC1334.

■ **Dial on Demand**

Enable When you are not using the Internet for a while then the WAN connection will be automaticly disconnected. If you want to use the Internet again then the WAN connection will be automaticly reconnected to WAN.

Disable When the WAN connection is automatically disconnected and you want to use the Internet again then you will have to manually reconnect to Internet.

Static IP Address

■ *ISP Name, WAN IP Address, WAN Subnet Mask, WAN Gateway, DNS1 and DNS2, DNS Domain Name*

Those information are provided by your ISP company. If your ISP company gives you more than one IP address, and then select one of them to fill in the above form.

PPPoE Unnumber

- ■ *ISP Name, User ID, Passwaord, Service Name, AC Name, DNS1 and DNS2, DNS Domain Name, WAN IP Address, WAN Subnet Mask*

  Those information are provided by your ISP company.

Wireless Configuration

This chapter will show you how to configure the wireless feature of your GN-B46B router.

802.11b

- ■ *Region*

  Because of the different region has a different open channel regulation, please check whether the default region value is your local area. If it did not appear properly region please contact your local distributor or authorized reseller immediately.

- ■ *HW info*

  The information of the Wireless Lan Card.

- ■ *RF Type*

  Only suppourt IEEE802.11b standard.

- ■ *Channel*

  Please choose the channel, which you can get best performance. Normally, it doesn't need to change. The default value is channel 6.

■ **SSID**

The SSID is the name represent the router in the wireless network. This SSID string is case sinsitive of up to 32 ASCII characters. The default value is "GIGABYTE", if the setup value is the default value, like "router". Only can accept the computer connection, which use the wireless card SSID (or ESSID) set up, is "router".

■ **Rate**

You can select one of the rates among 1M, 2M, 5.5M and 11M based on your need. The default value is "**auto/best**".

■ **Hidden SSID**

This setting allows you to hide the SSID in wireless transmission. Those who don't know the SSID will be able connect to the router. The default value is "**disable**".

■ **Authentication Type**

You may choose between "**Open System**", "**Shared Key**", and "**Open system & Shared Key**". The Authentication Type default is set to "**Open System**".

Open System, in which the sender and the recipient do NOT share a secret key. Each party generates its own key-pair and asks the receiver to accept the randomly generated key. Once accepted, this key is used for a short time only. Then a new key is generated and agreed upon.

Shared Key is both the sender and the recipient share a secret key.

If the "**Shared Key**" option is selected, it will not be able to perform the option "**disable**" of the WEP.

■ **WEP Key**

WEP (Wired Equivalent Privacy) is a data privacy mechanism based on a 64/128-bit shared key algorithm, as described in the IEEE 802.1x standard. When the "disable" is selected there is no WEP encryption. When either "64bits" or "128bits" selected there is encrypted date transfer to prevent unauthorized user to access the wireless network.

There are two levels of encryption 64 bits and 128 bits. The 64 bits encryption is referenced as a lower level encryption. The 128 bits encryption is referenced as a higher level encryption.

<u>64 (40) Bits WEP Key: xx-xx-xx-xx-xx</u>
<u>128 (104) bits WEP Key: xx-xx-xx-xx-xx-xx-xx-xx-xx-xx-xx-xx-xx</u>

The 64 bits WEP encryption use 40 bits as a secret key, which can controlled by user, and 24 bits as the initialize vector, which user can not control. These two portions plus together is 64 bits encryption. Some other vendor's product might refer as 40 bits encryption. It is the same thing.

The 128 bits WEP encryption use 104 bits as a secret key, which can controlled by user, and 24 bits as the initialize vector, which user can not control. These two portions plus together is 128 bits encryption. Some other vendor's product might refer as 104 bits encryption. It is the same thing.

MAC Access Control

The MAC Access Control allows the router to define up to 32 hosts which are allowed to access to the WAN port. To disable the MAC Access Control function, keep the default value, **Disable**. To set up a MAC setting, click **Enable**.

Static Routing Table

Under some of Internet environments, some of the subnet do not go through the default gateway. Users can add those routing information to Static Routing Table themselves.

■ **_Destination IP_**

The Destination IP address is the address of the network or host to which the static route is assigned.

■ **_Netmask_**

The Netmask determines which portion of a destination LAN IP address is the network portion, and which portion is the host portion.

■ **_Gateway_**

This is the IP address of the gateway device that allows for contact between the router and the network or host.

■ **_Metric_**

Type a numeber between 1 and 15 as the Metric value. This represents the number of routers between your network and the destination. Usually, a setting of 2 or 3 works, but if this is a direct connection, set is to 1. The default value is 1.

Verify the desired setting and then click the "**Submit**" button to set the value into GN-B46B.

Virtual Server

Virtual server setting split into two different case. Case 1 is router having only 1 global IP address, PPPoE/DHCP/Static is this case. Case 2 is router having more than 1 global IP address, normal having 8 or 16 IP address, PPPoE unnumbered is this case. In case 1, virtual server only need to configure LAN host information, because WAN IP address always the same, but in case 2, virtual server also need to configure which WAN IP address need redirect to internal LAN host.

DMZ

If you have a computer that cannot run an Internet application (e.g. internet game, vedio conferencing, or VPN connections) properly from behind the NAT firewall, then you can open the computer up to unrestricted two-way Internet access.To use the DMZ, you have to set a static IP address for the computer. The IP Address (such as 192.168.1.1) of the computer at the LAN terminal can be used to input to the field of LAN IP Address.

Verify the desired setting and then click the "**Submit**" button to set the value into GN-B46B.

PPPoE/DHCP/Static
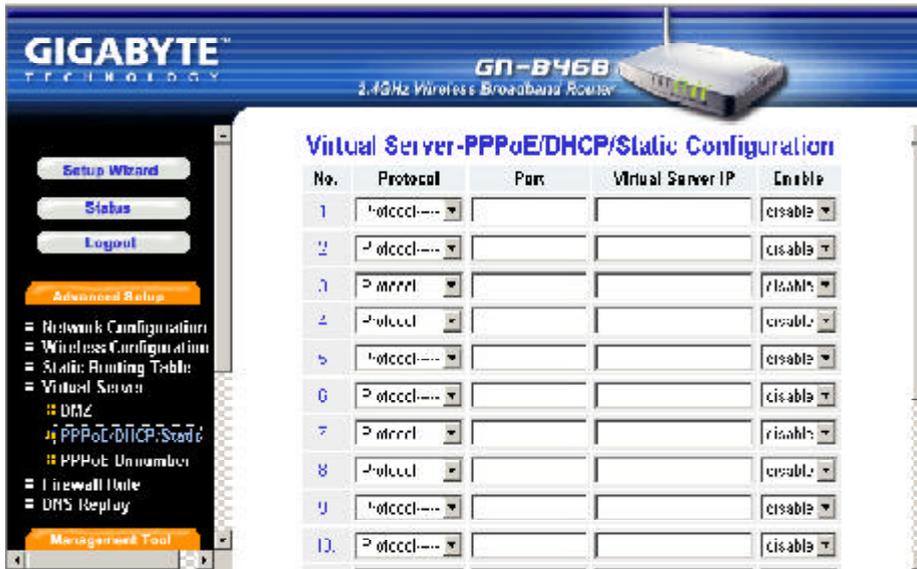
Virtual Server provides a way to let the PC at the WAN end connect to a server of a PC at the LAN end. Taking the IP address 192.168.1.1 of a PC on a FTP at the LAN for example:

▶ Protocol: TCP
▶ Port: 21
▶ Vitrual Server IP: 192.168.1.1
▶ Enable: enable

The PC at the WAN end can connect to the internal FTP server at the IP address 192.168.1.1 via the WAN end of the IP address of the FTP B46B.

PPPoE Unnumber
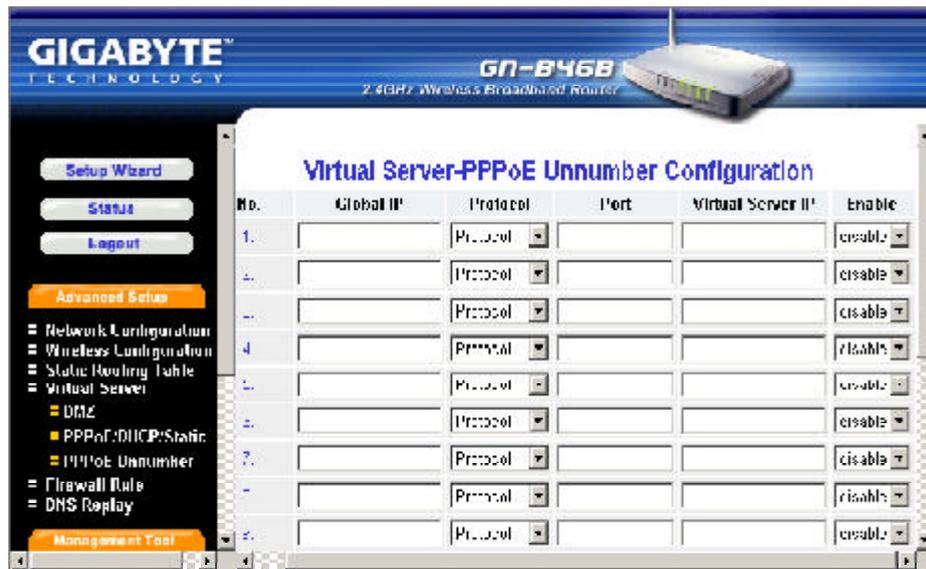
The PPPoE Unnumer user may have multiple global IP addresses, therefore each IP address needs to setup specifically.

> **Note:** *Your ISP may provides you a group of the Global IP,*
> *e.g. 61.222.10.1 ~ 61.222.10.7(But only can use 61.222.10.2~61.222.10.6)*

Taking the IP address 192.168.1.1 of a PC on a FTP at the LAN for example:

► Global IP: 61.222.10.2
► Protocol: TCP
► Port: 21
► Vitrual Server IP: 192.168.1.1
► Enable: enable

The PC at the Global IP 61.222.10.2 can connect to the internal FTP server at the IP address 192.168.1.1 via the WAN end of the IP address of the FTP GN-B46B.

Firewall Rule

The Firewall Rule allows you to configure your own security policy to prevent unauthorized Internet users from accessing private networks or corporate LAN's and Intranets.

Security

The security configuration provides a security list for you configure, includes Security One-Touch Setting, Stealth Mode, and Unfriendly Access Detection.
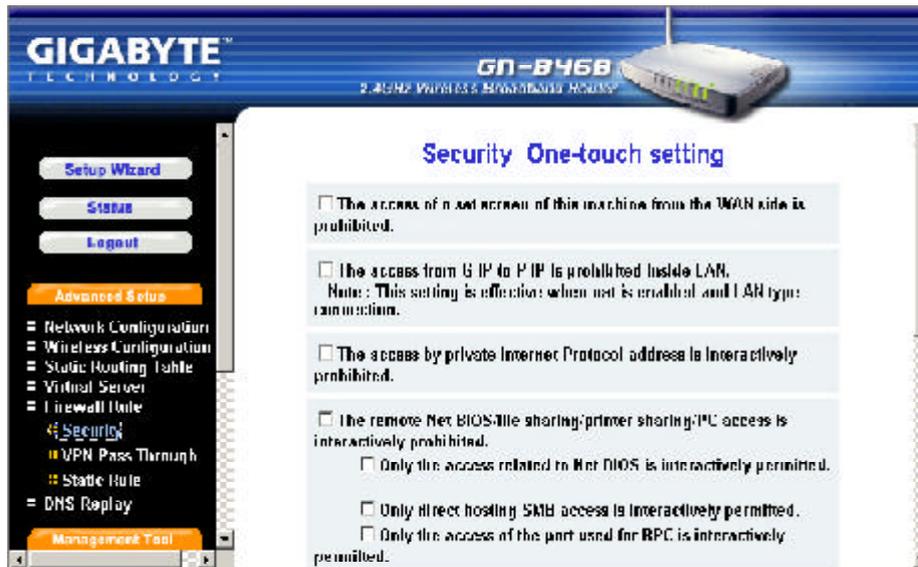
From this security setting list, you can check which security rule you want and then click "**Submit**" button to set the value into GN-B46B

VPN Pass Through
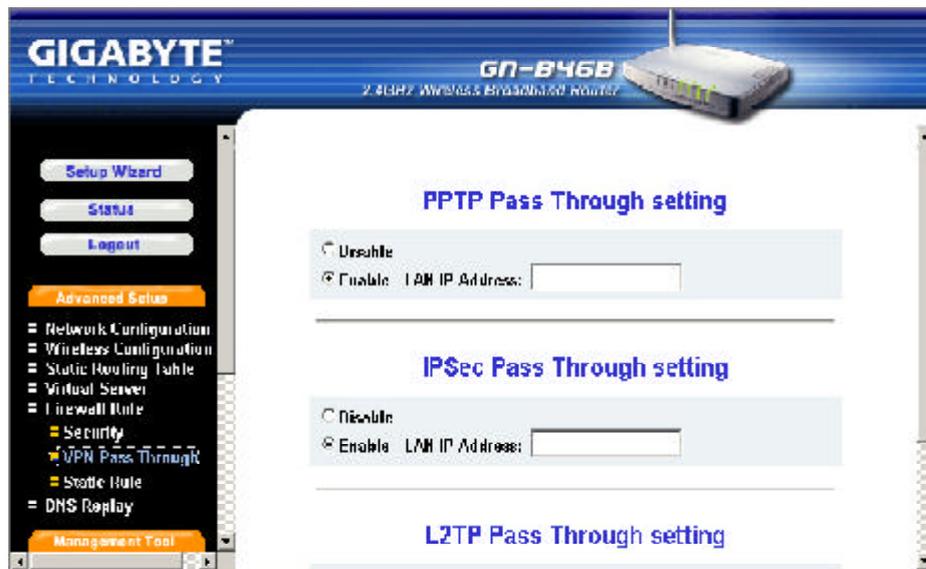
Virtual private networks (VPN)are secured private network connections, built on top of publicly-accessible infrastructure, such as the Internet or the public telephone network. VPNs typically employ some combination of encryption, digital certificates, strong user authentication and access control to provide security to the traffic they carry. They usually provide connectivity to many machines behind a gateway or firewall.

GN-B46B supports Internet-industry standards technology to provide customers with open interoperable VPN solutions such as Internet Protocol Security (IPSec) and Layer 2 Tunneling Protocol (L2TP) as well as Point-to-Point Tunneling Protocol (PPTP).

- ■ *PPTP Pass Through setting*

    PPTP stands for Point-to-Point Tunneling Protocol. It basically allows you to establish a connection to a corporate network and you can share files and other data as if your machine were actually on that local network.

- ■ *IPSec Pass Through setting*

    IPSec stands for IP Security. It provides authentication and encryption over the Internet. It functions at Layer 3 and thus secures everything on the network. It has become a standard protocol used for virtual private networks (VPNs).

■ **L2TP Pass Through setting**

L2TP stands for Layer 2 Tunneling Protocol. It is an extension of the Point-to-Point Tunneling Protocol and is also used to establish virtual private networks.

Enable/Disable VPN pass through. If administrator configure a host to enable VPN pass through, router will automatically setting virtual server and firewall setting for this host. All VPN packets will be transparent and will redirect to this host. VPN pass through works, either VPN server behind the LAN side or VPN server locate at WAN side. For different VPN pass through setting, only 1 host can be configured as pass through.

Static Rule

This screen allows you to edit the firewall rule table manually. It helps protect your local network against attack from outside and provides a method of restricting users on the local network from accessing the Internet. Additionally, it can filter out specific packets to trigger the router to place an outgoing connection.

Please click "**Add**" to edit the rule table, there will appear the screen as shown below.

- ■ *Rule Number (No.)*
    From 1~64, rule 1 has highest priority, rule 64 has lowest priority

■ **Policy**

Under this option two settings are possible: "**accept**" or "**drop**".

■ **Direction**

Sets the direction of packet flow. For the Data Filter:

a. **W->L**, WAN to LAN, specifies the rule for filtering incoming packets.
b. **L->W**, LAN to WAN, specifies the rule for filtering outgoing packets.

■ **Protocol**

Specifies the protocol(s) this static rule will apply to. Under this option eight settings are possible: "**TCP**", "**UDP**", "**TCP & UDP**", "**TCPEST**", "**ICMP**", "**GRE**", "**ESP**", "*****".

■ **Log**

Enable or disable the log function for this rule.

Verify the desired setting and then click the "**Submit**" button to set the value into GN-B46B.

DNS Reply

The default value of the DNS replay is "**Enable**". The DNS query packets will send through the router. When a DNS query packet enters the router, and the router will sends an answer to the host that sent the DNS query packet. And then users have to set the IP address of the router as the IP address of the DNS.

Chapter6 Management Tool

This chapter will show you how to use the management tool to manage and maintain your wireless broadband router.

PPP Monitor

The PPP Monitor will show you the WAN connection status.

Reboot

This function allows you to restart the GN-B46B.

Initilization

You can use this function to initial the router to factory defult value. Or you can press the "**init**" botton on the GN-B46B, then the router will be restart and the system setting will restore to the factory default value.
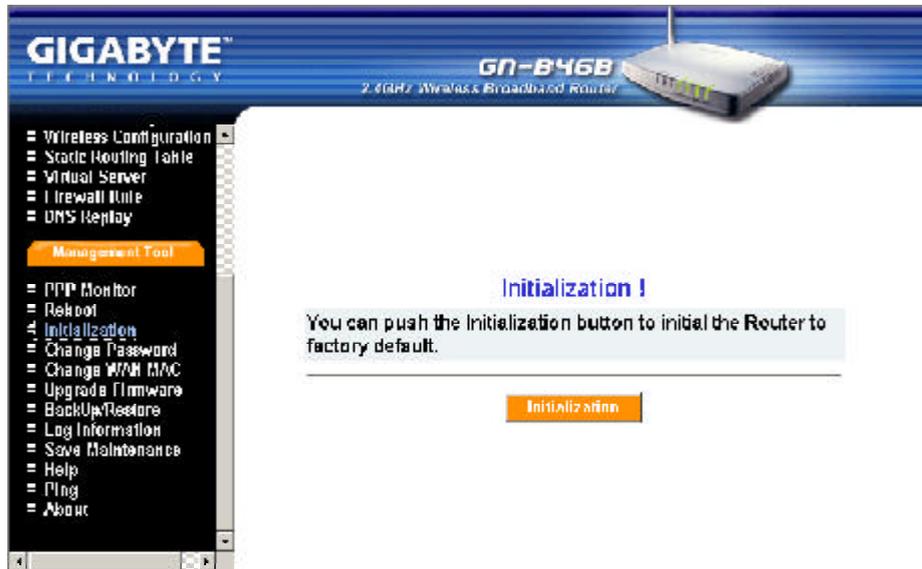
Change Password

User can change the administration password of the GN-B46B to prevent other user access to the GN-B46B. Please enter the account and a new password and confirm the password and then click "**Submit**". You have to enter this new password to log in when you want to configure the GN-B46B next time.
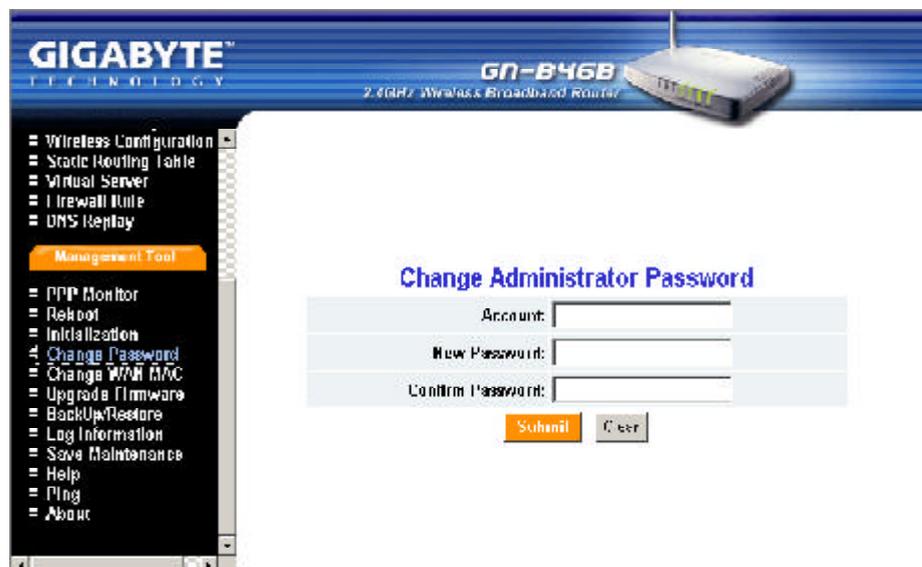
Change WAN MAC

If your ISP company asks you to use the original MAC address. You can select the "**Assign WAN MAC**" and enter the "**New WAN MAC Address**". The MAC address is from your Network Interface Card (NIC) that you registered with your ISP company. If you want to restore to the factory default value, please select "**Restore Default WAN MAC**". Verify the desired setting and then click the "**Submit**" button.

Upgrade Firmware

This tool allows you to upgrade the latest firmware of the GN-B46B using a file provided by Gigabyte. You can download the upgraded firmware version from Gigabyte website. Please click "**Browse**" and select your desired upgrade file (firmware version), and then click "**Upgrade**".
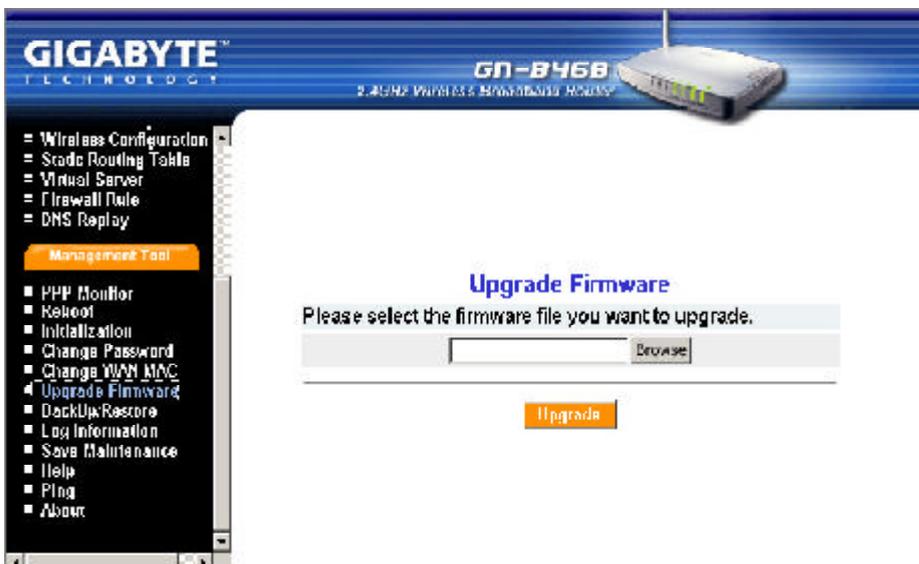
BackUp Restore

The "**BackUP**" button allows you to save the configuration of the GN-B46B to a temp file on your PC. You can then click the "**Restore**" button to restore the saved backup configuration file.

Log Information

From here, you can veiw the record of the firewall log, WAN connection and the UPnP log. If you want to reload the data of the log list, please click "**Check Again**" button.

Firewall Log

WAN Connection

UPnP Log

Save Maintenance

Please save the log and the status information if you have the support requirement. And then send this file to Gigabyte supporting team for further investigation your question.

Ping

This "Ping" function allows you to verify the status of the IP address on the network. Please enter a IP address then click "**Ping**".

Chapter7 Troubleshooting

This chapter gives information about troubleshooting your wireless broadband router. Read the descriptions below to help you diagnose and solve the problem.

Q: **What to do if you forget your password or forget the IP address of the router?**

A: Please press the "**init**" bottom on the router. The router will be restart and the system setting will restore to the default value.

Q: **Unable to connect to the Internet?**

A: 1. Please confirm whether or not the power cord is connected properly, and the power indicating light of the router is normal.
2. Please confirm whether or not all of the settings described in this manual are set.
3. Please confirm if ADSL or Cable Modem operates properly, and if the ISP network service expires.
4. Please confirm if your network cable is connected properly, and the LED status is normal.

Q: **Unable to access the router's Web Configuration Interface?**

A: 1. Please check the Ethernet connection between the PC and the router is correctness.
2. Make sure your computer's IP address is on the same subnet as the router.
3. Make sure you are using the correct login information.

Q: **Where is the router installed on the network?**

A: In a typical environment, the router is installed between the ADSL or Cable Modem and the LAN. Plug the router into the Ethernet port of the ADSL or Cable Modem.

Q: **What is the IEEE802.11b standard?**

A: It also referred to as 802.11 High Rate or Wi-Fi. It is an extension to 802.11 that applies to wireless LANS and provides 11 Mbps transmission (with a fallback to 5.5, 2 and 1 Mbps) in the 2.4 GHz band. 802.11b uses only DSSS. 802.11b was a 1999 ratification to the original 802.11 standard, allowing wireless functionality comparable to Ethernet.

Q: Can the router act as DHCP server?

A: Yes. The router has the DHCP server function built-in.

Q: What is WEP?

A: Wired Equivalent Privacy. Security mechanism defined within the 802.11 standard designed to make the link integrity of the wireless medium equal to wired cable. Data privacy mechanism based on a 40 bits (128 bit optional) shared key algorithm, as described in the IEEE 802.11 standard.

Appendix A: Glossary

ADSL

Asymmetric digital subscriber line (ADSL) is a new modem technology that converts existing twisted-pair telephone lines into access paths for high-speed communications of various sorts.

Auto-MDI/MDIX

On a network hub or switch, an auto-MDI/MDIX port automatically senses if it needs to act as a MDI or MDIX port. The auto-MDI/MDIX capability eliminates the need for crossover cables.

Auto-negotiate

To automatically determine the correct settings. The term is often used with communications and networking.

DHCP

The Dynamic Host Configuration Protocol (DHCP) is an Internet protocol for automating the configuration of computers that use TCP/IP. DHCP can be used to automatically assign IP addresses, to deliver TCP/IP stack configuration parameters such as the subnet mask and default router, and to provide other configuration information such as the addresses for printer, time and news servers.

DMZ

In computer networks, a DMZ (demilitarized zone) is a computer host or small network inserted as a "neutral zone" between a company's private network and the outside public network. It prevents outside users from getting direct access to a server that has company data. Typically, the DMZ contains devices accessible to Internet traffic, such as Web (HTTP) servers, FTP servers, SMTP (e-mail) servers and DNS servers.

DNS

The Domain Name System (DNS) is a distributed Internet directory service. DNS is used mostly to translate between domain names and IP addresses, and to control Internet email delivery. Most Internet services rely on DNS to work, and if DNS fails, web sites cannot be located and email delivery stalls.

Dynamic IP Address

An IP address that is automatically assigned to a client station in a TCP/IP network, typically by a DHCP server.

Firewall

A system designed to prevent unauthorized access to or from a private network. Firewalls can be implemented in both hardware and software, or a combination of both. Firewalls are frequently used to prevent unauthorized Internet users from accessing private networks connected to the Internet, especially intranets. All messages entering or leaving the intranet pass through the firewall, which examines each message and blocks those that do not meet the specified security criteria.

Gateway

A device, usually a router, that connects hosts on a local network to other networks.

IP Address

Every machine on the Internet has a unique identifying number, called an IP Address. A typical IP address looks like this: 216.27.61.137

IPSec

IPSec stands for IP Security. It provides authentication and encryption over the Internet. It functions at Layer 3 and thus secures everything on the network. It has become a standard protocol used for virtual private networks (VPNs).

MAC Address

On a local area network (LAN) or other network, the MAC (Media Access Control) address is your computer's unique hardware number. Usually written in the form 01:23:45:67:89:ab

MTU

The size in bytes of the largest packet that can be sent or received.

NAT

A technique by which several hosts share a single IP addree for access to the Internet.

Ping (Packet Internet Groper)

A utility to determine whether a specific IP address is accessible. It works by sending a packet to the specified address and waiting for a reply. PING is used primarily to trouble-shoot Internet connections.

PPPoE

Point-to-Point over Ethernet is a protocol for connecting remote hosts to the Internet over an always-on connection by simulating a dial-up connection.

Router

A device that forwards data packets along networks. A router is connected to at least two networks, commonly two LANs or WANs or a LAN and its ISP's network. Routers are located at gateways, the places where two or more networks connect.

SSID

The SSID is the name represent the router in the wireless network.

Subnet Mask

A mask used to determine what subnet an IP address belongs to. An IP address has two components, the network address and the host address. Subnetting enables the network administrator to further divide the host part of the address into two or more subnets.

TCP/IP

TCP/IP (Transmission Control Protocol/Internet Protocol), the suite of communications protocols used to connect hosts on the Internet.

VPN

Virtual private networks are secured private network connections, built on top of publicly-accessible infrastructure, such as the Internet or the public telephone network. VPNs typically employ some combination of encryption, digital certificates, strong user authentication and access control to provide security to the traffic they carry. They usually provide connectivity to many machines behind a gateway or firewall.

WAN

Wide Area Network, a communication network that covers a relatively large geographic area, consisting of two or more LANs. Broadband communication over the WAN is often through public networks such as the ADSL or Cable systems, or through leased lines or satellites. In its most basic definition, the Internet could be considered a WAN.

WEP

WEP (Wired Equivalent Privacy) is a data privacy mechanism based on a 64/128-bit shared key algorithm, as described in the IEEE 802.11 standard.

Appendix B: Specification

Physical Interface

The broadband router includes 4 RJ-45 Ethernet LAN ports, 1 RJ-45 WAN port, one init hole and one antenna.

Item	Feature	Description
1.	LAN Port x 4	RJ-45, Auto-sensing for 10/100M Ethernet LAN connection.
2.	WAN Port x 1	RJ-45, Auto-sensing for 10/100M Ethernet LAN connection.
3.	Init Bottom	Initial reset
4.	Wireless	1 external antenna and 1 internal antenna support diversity. IEEE802.11b Realtek

802.11b System Specification

System	
Standards	IEEE802.11b compliant
Modulation	1Mbps: DBPSK; 2Mbps: DQPSK; 5.5 and 11 Mbps: CCK
Data Rate	1, 2, 5.5, 11 Mbps
Security	64/128 bit WEP; 802.1x
Operating Range	Open space: 100-300m; Indoor: 30-100m

RF		
Frequency Band	2.400 ~ 2.4835 GHz (subject to local regulation)	
Radio Technology	DSSS (Direct Sequence Spread Spectrum)	
Number of Channel	11 Channels (US, Canada)	4 Channels (France)
	13 Channels (Most European countries, ETS)	
Output power	19 dBm @ Nominal Temp Range	
Receive Sensitivity	Typical - 81 dBm @ 11 Mbps date rate at nominal temperature	
Antenna	1 external antenna and 1 internal antenna support diversity	

Regulatory and Environmental Compliance		
EMC certification	FCC part 15 (USA)	DGT (Taiwan)
	CE (Europe)	
Temperature Range	Operating: 0 ~ 40 degree C, Storage: -20 ~ 65 degree C	
Humidity	10% ~ 85% Non-condensing	

Software	
Roaming	Yes
Management Utility	WEB Configuration for Network link

Mechanical	
Packaging	Generic, Gigabyte, private labeling optional
LED indicator	Power/Status LED, Wireless, LAN x 4, WAN x 1
Gross Weight	240 + 5g
Dimension	110mm x 160mm x 25mm

<u>Limited Warranty</u>

1-Year Warranty

Gigabyte warrants to the original consumer/purchaser that the product free from defects in material and workmanship for no limited time from the original manufactory shipment date. This warranty does not cover the product if it is damaged in the process of being installed or improperly used.

Gigabyte may replace or repair the product with either new or reconditioned parts. Repaired or replaced products will be returned to you at the same revision level as received or higher at Gigabyte's option. Gigabyte reverses the right to replace discounted products with an equivalent generation product.

KEEP THIS STUB FOR YOUR PURCHASING RECORD

Customer:	
Phone No:	
Address:	
Email:	
Model:	
Serial:	
Date of Purchase:	
Place of Purchase:	
From Whom:	
Distributor:	

<u>Customer Satisfaction</u>

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