GIGABYTE™

TECHNOLOGY

GN-B46B

Wireless Broadband Router

User Guide

Rev.1.0 First Edition

Federal Communication Commission Interference Statement

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

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

FCC Caution: To assure continued compliance, any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

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

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

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Chapter1 Introduction

Overview

GN-B46B Router is a full function broadband router. This router equip with powerful firewall and DoS protection, which can give the user maximum protection to prevent from damage by malicious internet user. The UPnP and MSN messenger support can provide the environment for user to surfing internet with out any trouble. The GN-B46B wireless router is composed of the Realtek CCU, 802.11b wireless, Switch and 10/100 Ethernet. This product adopts the direct sequence spread spectrum (DSSS) technology and the DBPSK, DQPSK, and CCK modulation mode to provide a very stable wireless communication quality and an excellent signal receiving capability. This product features the compact size, low power consumption, and power management functions, and provides a high-speed wireless data communication.

Features

- Conforms to IEEE 802.11b specification.
- Transmits data rate up to the maximum speed of 11Mbps.
- Dynamically scales the data rate to 11, 5.5, 2, and 1Mbps.
- Support 64-bit /128-bit WEP encryption.
- Support PPPoE and PPPoE Unnumbered DSL connection
- Support up to 4 WAN configuration records
- Support DHCP client for cable/DSL connection
- Support DHCP server with static and dynamic style
- Support UPnP IGD 1.0
- Support MSN messenger and most Internet applications
- Support Firewall Filtering
- Support Virtual Server
- Support DMZ
- Support Stateful Packet Inspection (SPI)
- Support DoS Protection
- Support Stealth Mode
- VPN Packets Pass Through (Support PPTP/IPSec/L2TP Protocol)
- Log Management (Support Firewall/UPnP/WAN Connection Log)
- Easy Web Management
- Support WAN side Remote Management
- DNS Relay
- Web based Firmware upgrade
- MDI/MDIX Auto crossover detect

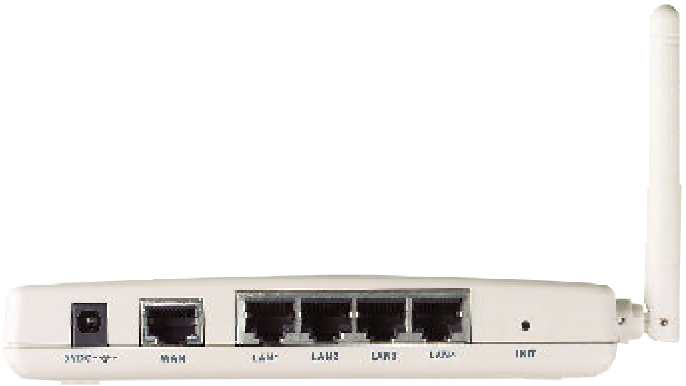
Package Contents

Before the installation procedures, please ensure the components are not damaged during the shipping. The shipment of the GN-B46B includes:

- One GN-B46B Wireless Broadband Router
- One AC Power Adapter
- One User Guide

Please contact your local distributor or authorized reseller immediately for any missing or damaged components. If you require returning the damaged product, you must pack it in the original packing material or the warranty will be voided.

The Rear Panel



The router's ports are located on the router's rear panel.

- **Power**

  The power port is where you connect the power adapter.

- **One Ethernet WAN Port**

  RJ-45, Auto-sensing and Auto-MDI/MDIX for 10/100M Ethernet WAN connection

- **Four Ethernet LAN Port**

  RJ-45, Auto-sensing and Auto-MDI/MDIX for 10/100M Ethernet LAN connection

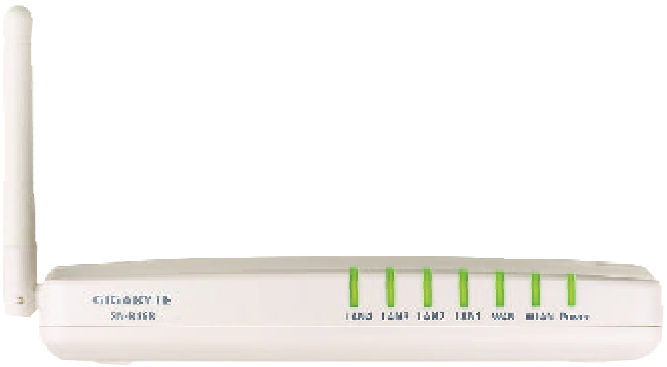
- **Init Bottom**

  Initial reset (Init to factory default)

- **Wireless antenna**

  One 2.4 GHz antenna

The Front Panel LEDs



The router's LEDs display information about the router's status.

- **Power** (Green Light)

  The indicator will light on for 5 secs, then off for 5 secs, then blink for 10 secs, after that it will stay on. If the indicator does not show up by the previous procedures, please check your device.

- **WLAN** (Green Light)

Blinking	Package transmit

- **WAN** (Green Light)

On	ADSL/Cable Modem is connected to WAN port.
Blinking	Transmit or receive data via the WAN port.

- **LAN1- LAN4**

On	10/100 Mbps Network Connection
Blinking	10/100 Mbps Data Transmission Rate

Chapter 2 Connect to the Router

Preparation

It needs to prepare these three things before you begin:

1. An active Internet service such as that provided by an cable or ADSL broadband account.
2. Make sure the Internet Service Provider (ISP) configuration information for your ADSL account.

Hardware Requirements

To use the Wireless Broadband Router on your network, each computer needs an installed Ethernet Network Interface Card (NIC) and an Ethernet cable (RJ-45) or a PCMCIA wireless adapter for laptop computer.

System Requirements

- A Computer with Windows, Macintosh, or Linux-based operating system.
- A Javascript-enabled web browser program which supports HTTP uploads such as Microsoft Internet Explorer or Netscape Navigator version 4.0 or above.

Internet Configuration Requirements

In order to connect your router to Internet, you will need one or more of these configuration parameters provided by your ISP:

- Host and Domain Names
- ISP Login Name and Password
- ISP Domain Name Server (DNS) Address
- Fixed IP Address which is also known as Static IP Address
- Subnet mask
- Default Gateway

Wired Connect to a PC

Step1. Turn off your network's hardware, including the Router, PCs and cable or ADSL modem.

Step2. Connect an Ethernet cable form your cable or ADSL modem to the WAN port of the GN-B46B.

Step3. Connect one end of an Ethernet cable to one of the LAN ports (LAN 1-4) on the router, and the other end to an Ethernet port on a PC.

Step4. Connect the power adapter to the power connection slot of the GN-B46B, and then plug the power adapter into a power outlet.

Step5. Power on the cable or ADSL modem, PCs. The connection procedure is completed then go to the "Chapter3 Configuration of the PCs".

Note: *Please check if the light of the WAN port of the GN-B46B is lit. If not, try to use the cross over Ethernet cable.*

Wireless Connect to a PC

Step1. Turn off your network's hardware, including the Router, PCs and cable or ADSL modem.

Step2. Connect an Ethernet cable form your cable or ADSL modem to the WAN port of the GN-B46B.

Step3. Connect the power adapter to the power connection slot of the GN-B46B, and then plug the power adapter into a power outlet.

Step4. Power on the cable or ADSL modem, PCs. The connection procedure is completed then go to the "Chapter3 Configuration of the PCs".

Note: *If you use wireless connection, please refer to the wireless LAN card manual which provided by your wireless card manufacture. The SSID of the Wireless LAN card should be the same as the SSID of the GN-B46B. The default value is "GIGABYTE" (or "any", if your wireless LAN card can support.), please do notice the form of the SSID value whether is captial or not.*

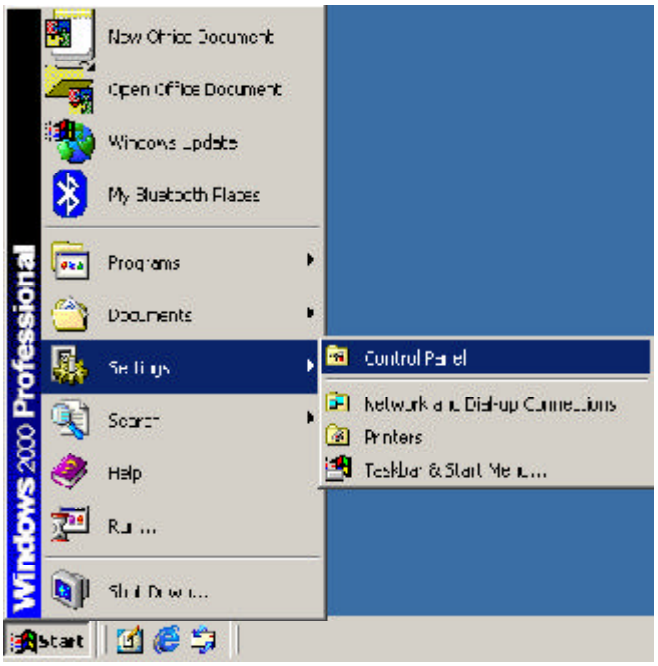
Chapter3 Configuration of the PCs

Overview

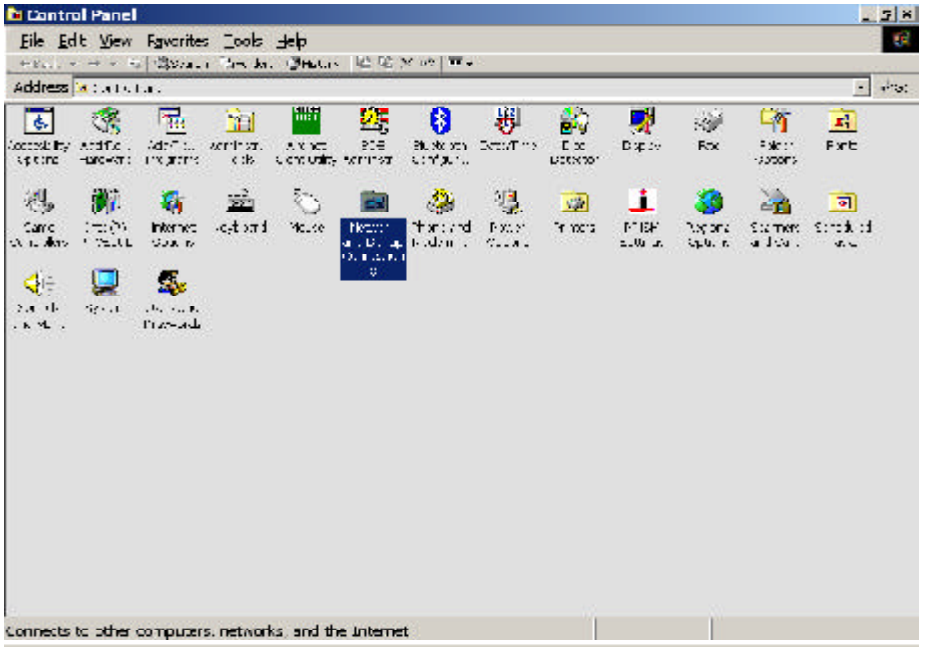
To connect to the router, your computer needs to be configured to obtain an IP address automatically via DHCP server. Please follow the instructure to perform the setup under the TCP/IP network environment. By default Windows 98, Me, 2000 and XP has TCP/IP installed. If you have not installed the TCP/IP communication Protocol, please install it now, and then select your operating system for the setup.

The Settings under Windows 2000

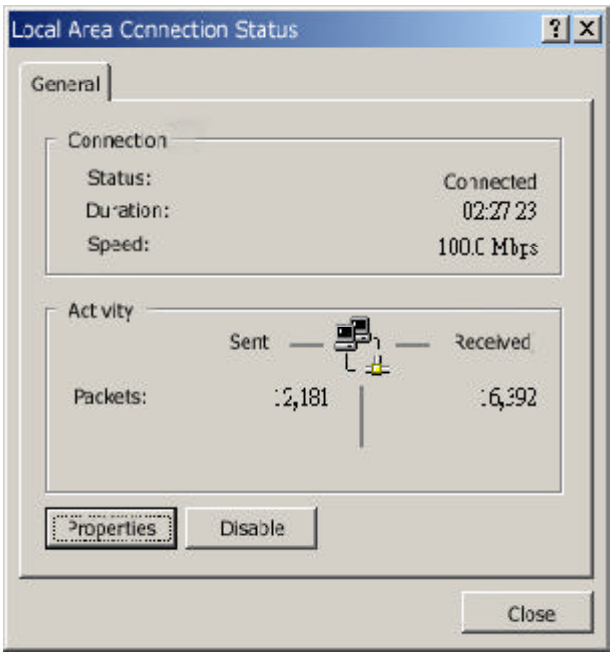
Step1. Click "**Start**" in the desktop of the Windows to select "**Settings**", and then select "**Control Panel**".



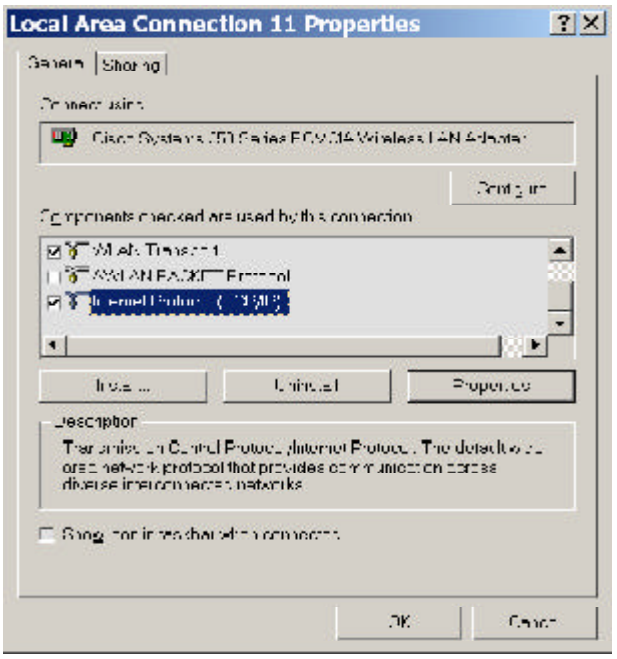
Step2. Double-click the "**Network and Dial-up Connections**" icon.



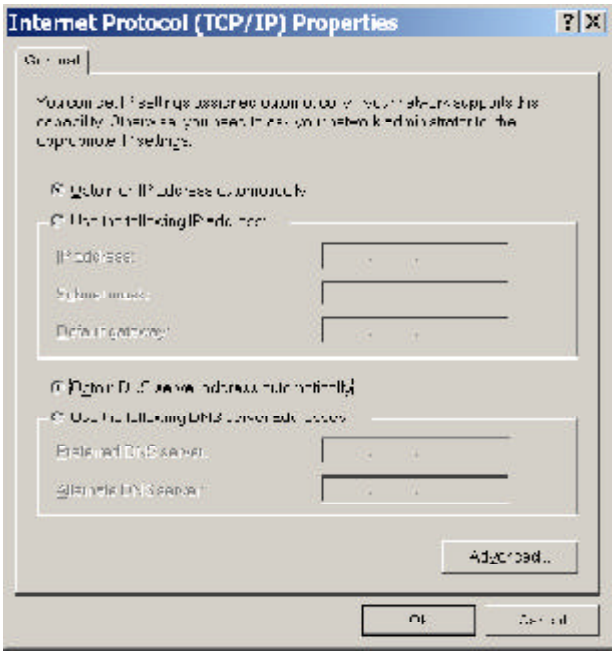
Step3. Double-click the "**LAN CONNECTION**" and click the "**Properties**" button.



Step4. The "**Local Area Connection Properties**" dialog box will appear. Verfiy that the Internet Protocol (TCP/IP) item is checked. And then double-click the "**Internet Protocol (TCP/IP)**" item.

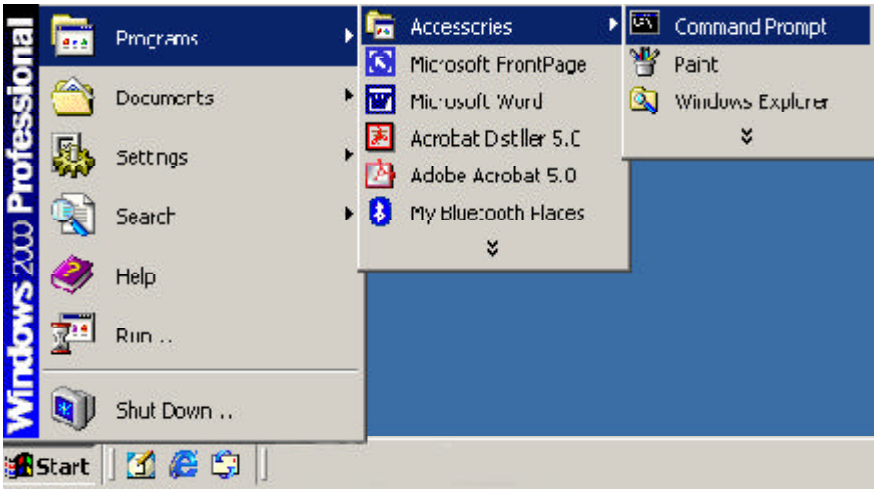


Step5. Select "**Obtain an IP address automatically**" and "**Obtain DNS server address automatically**", click the "**OK**" button to return to Local Area Connection Properties. Click the "**OK**" button again to complete the PC configuration.

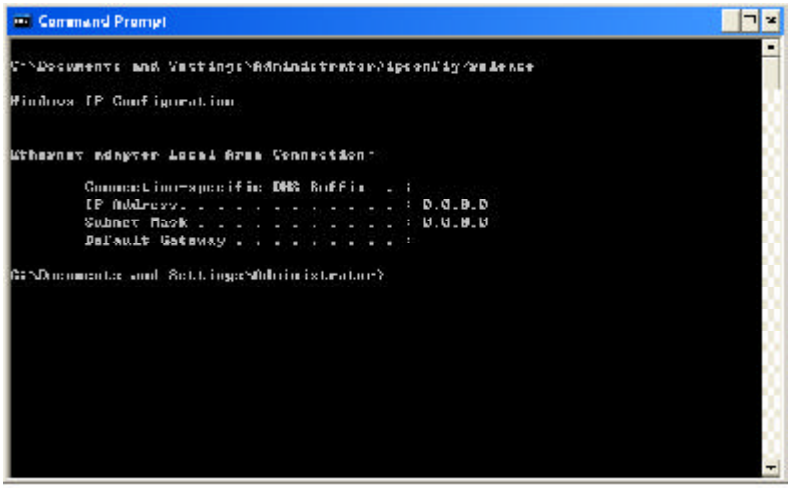


Now, the computer will obtain an IP address automatically from GN-B46B then you can go to the Step10 directly. If you would like to obtain an IP address manually, please refer to Step6~Step9.

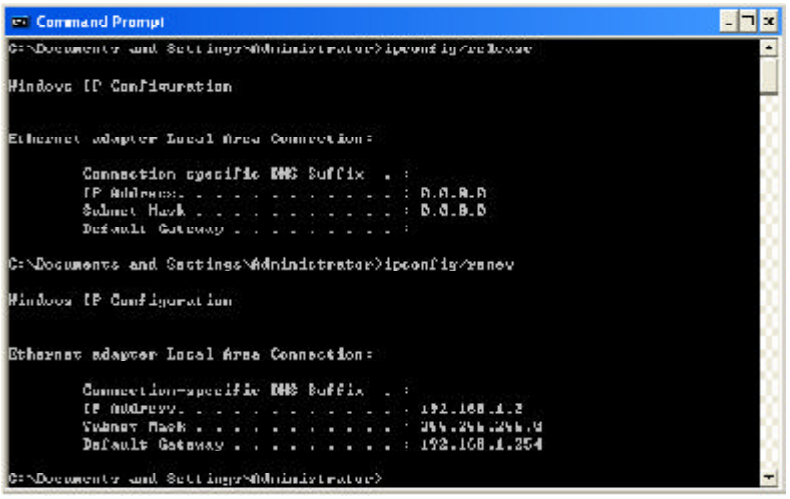
Step6. Click "**Start**" at the desktop of the Windows, and then "**Programs**", "**Accessories**" and "**Command Prompt**" in sequence.



Step7. Key in the command "**ipconfig / release**" in DOS mode and then enter.

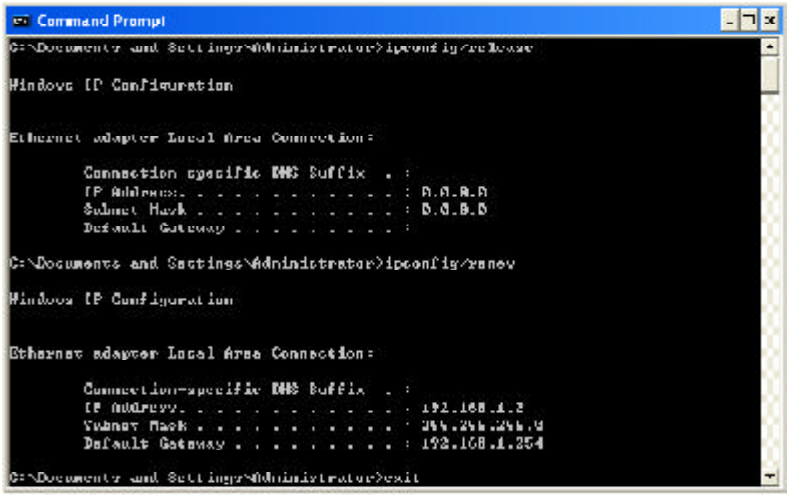


Step8. Key in the command "**ipconfig / renew**" and then enter.

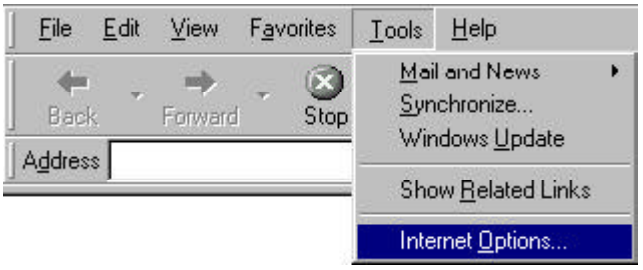


Note: *If the IP address of the GN-B46B is 192.168.1.254, the IP address of your computer must be 192.168.1.X (where "X" is a number between 1 and 253. Each computer on your network must have a different IP address within that range where "X" represents a number between 1 and 253.) The default gateway must be 192. 168.1.254.*

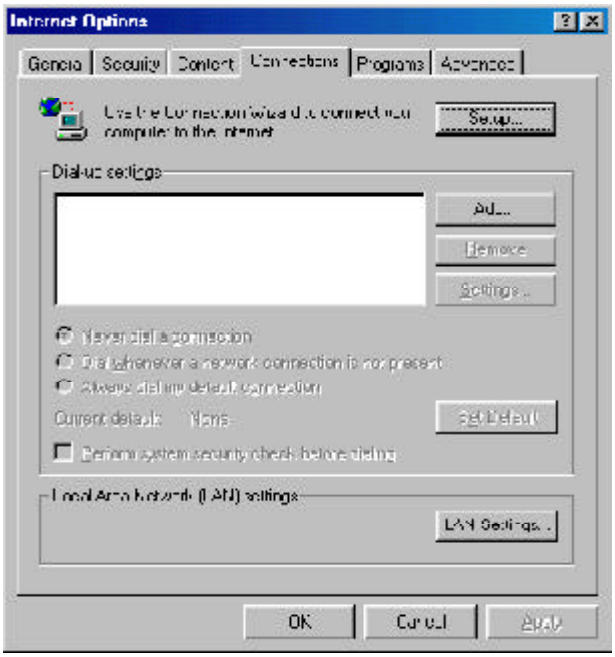
Step9. Key in "**exit**" and then enter.



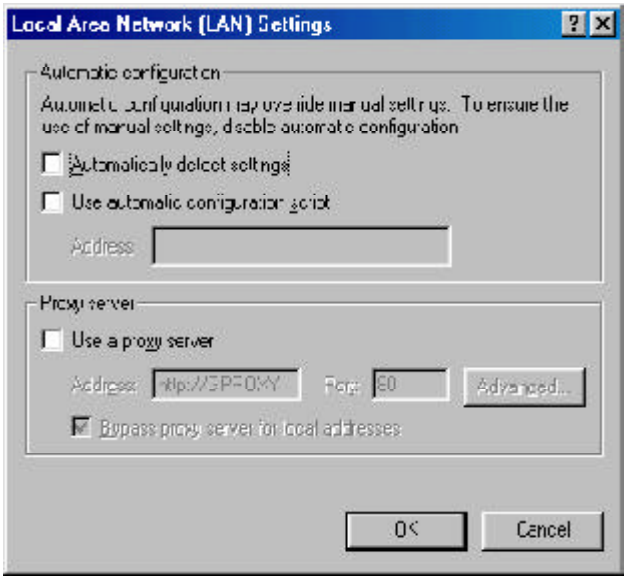
Step10. In your "**IE Browser**" select "**Internet Options**" under "**Tools**".



Step11. In this dialog box, please click the "**LAN Settings**" on the "**Connections**" tab.



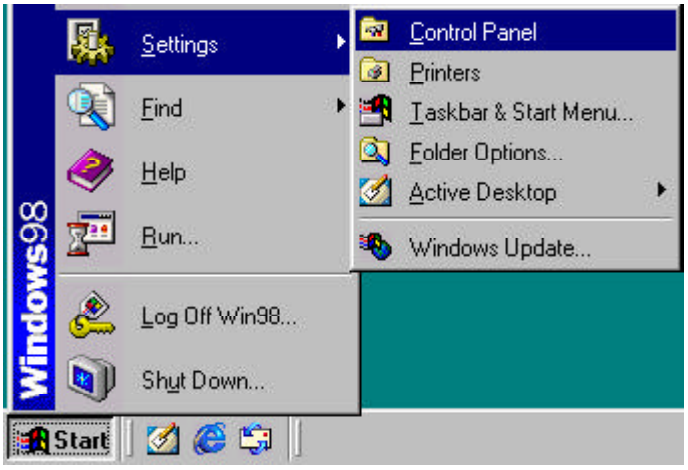
Step12. Please <u>DO NOT</u> tick all of the selection boxes. Click the "**OK**" button after finishing with the setup, and go to the "**Chapter4 Basic Setup for Router**".



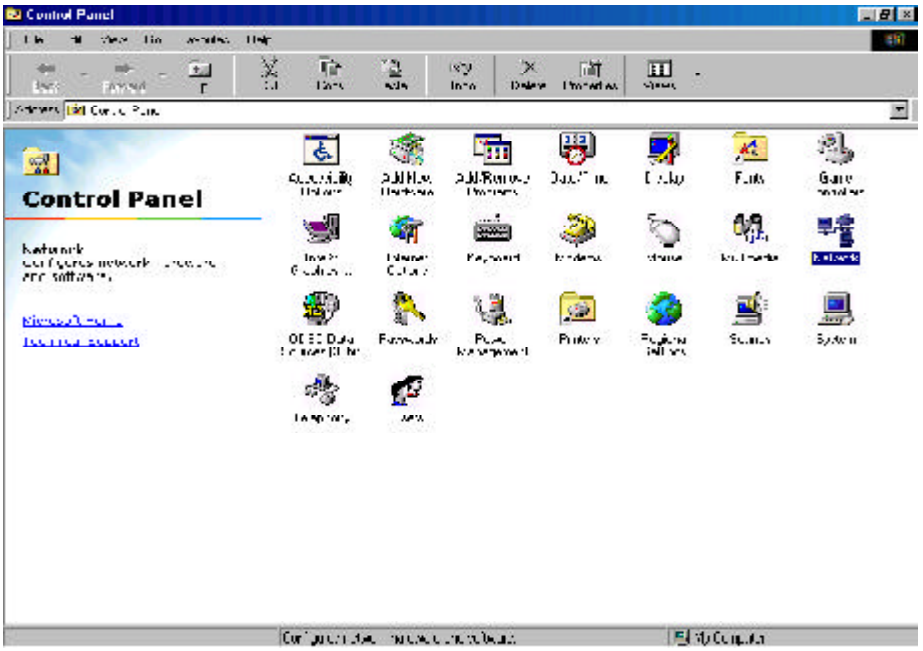
Note: *If your ISP Company has a designated Proxy setting, Key in the setting after you complete the GN-B46B configuration.*

The Settings under Windows 95/98/Me

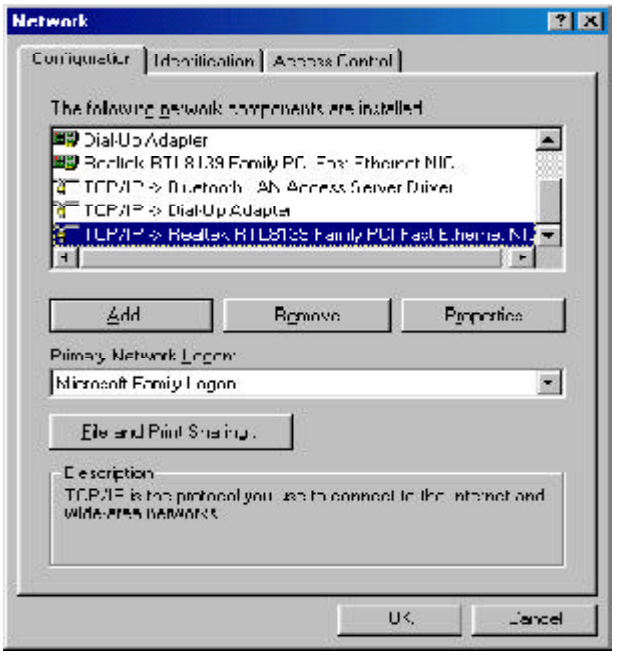
Step1. Click "**Start**" at the desktop of the Windows and select "**Settings**", and then select the "**Control Panel**".



Step2. Double-click the "**Network**" icon.

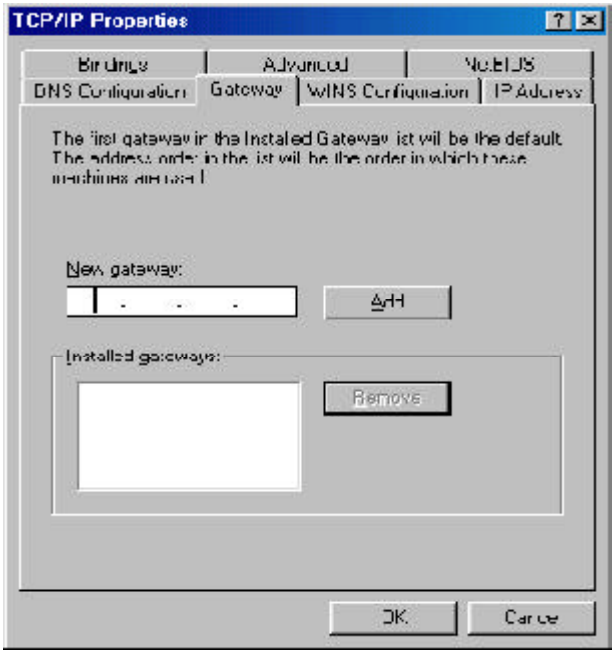


Step3. On the Configuration tab, please choose your appropriate setting "**TCP/IP-> your network LAN card**" and click "**Properties**" button.

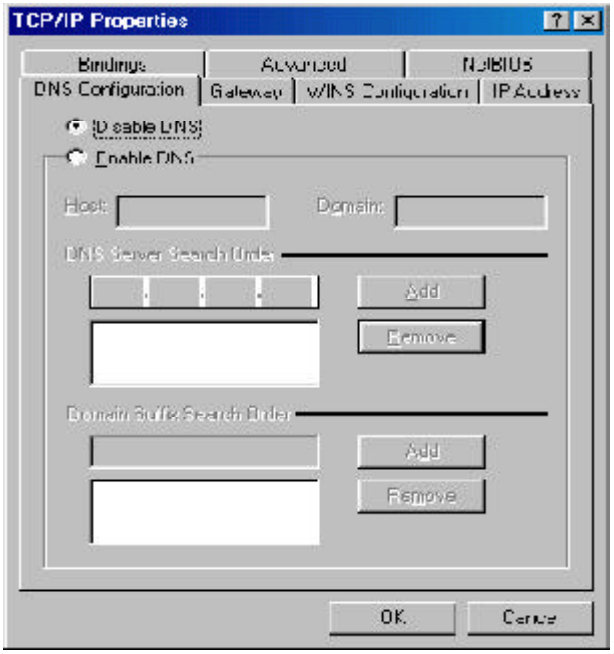


Step4. Select the "**IP Address**" tab. Please select "**Obtain an IP address automatically**" and then select the "**Gateway**" tab.

Step5. On the "**Gateway**" tab, please clear all *installed gateways* and do not fill any of the blanks and then select the "**DNS Configuration**" tab.



Step6. On the "**DNS Configuration**" tab, please select "**Disable DNS**" and then click the "**OK**" button.



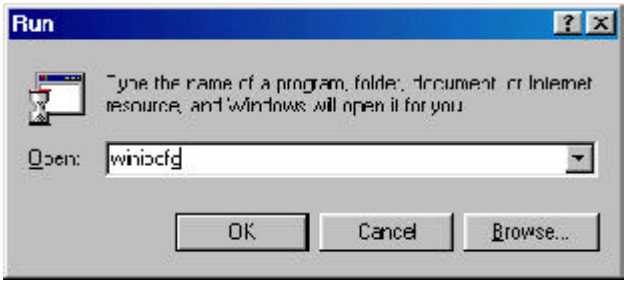
Step7. Click the "**OK**" button again. Windows will ask you to restart your PC. Please click the "**Yes**" button. If Windows does not ask you to restart , please restart your computer anyway.

Note: *The Windows may ask you for the original Windows installation disk or additional files. Please insert your Windows CD-ROM into your CD-ROM drive and check the correct location, e.g., D:\win98, D:\win9x, etc. (If "D" is your CD-ROM drive).*

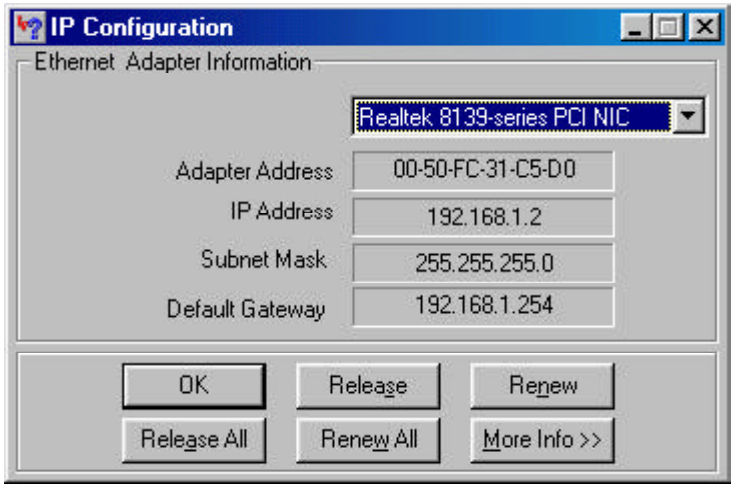
After booting the computer, the computer will obtain an IP address automatically from the GN-B46B then you can go to the Step11 directly. If you would like to obtain an IP address manually, please refer to Step8~Step10.

Step8. Click "**Start**" at the desktop of the Windows and select "**Run..**".

Step9. Key in "**winipcfg**" and click the "**OK**" button.

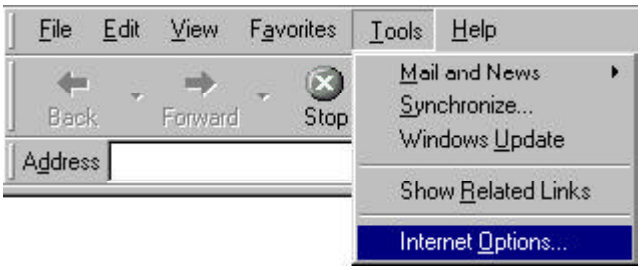


Step10. In the pulled down menu, please select your network LAN card and click the "**Release All**" button, and then click the "**Renew All**" button. Click the "**OK**" button.

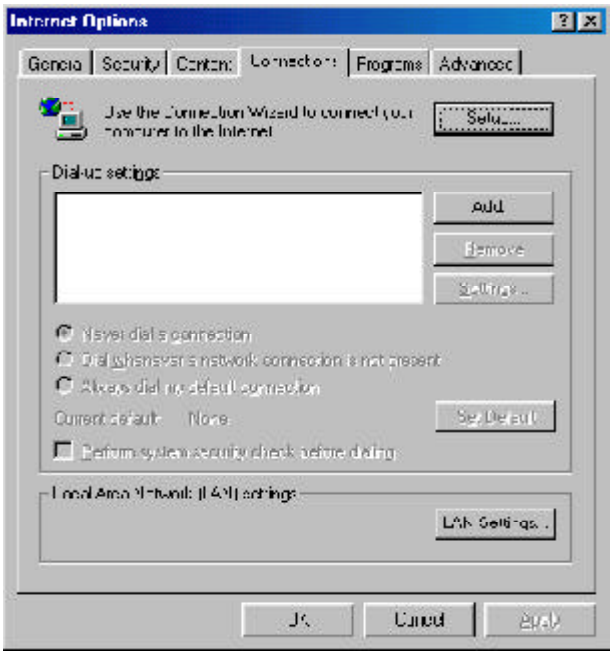


Note: *If the IP address of the GN-B46B is 192.168.1.254, the IP address of your computer must be 192.168.1.X (where "X" is a number between 1 and 253. Each computer on your network must have a different IP address within that range where "X" represents a number between 1 and 253.) The default gateway must be 192. 168.1.254.*

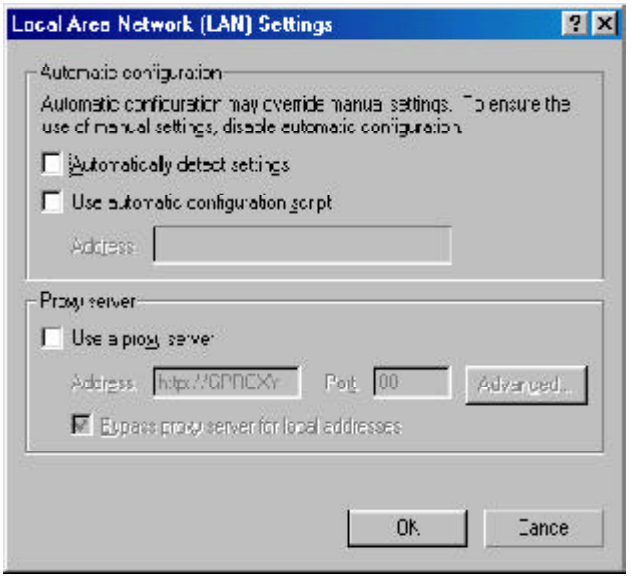
Step11. In your "**IE Browser**" select "**Internet Options**" under "**Tools**".



Step12. In this dialog box, please click the "**LAN Settings**" on the "**Connections**" tab.



Step13. Please <u>DO NOT</u> tick all of the selection boxes. Click the "**OK**" button after finishing with the setup, and go to the "**Chapter4 Basic Setup for Router**".

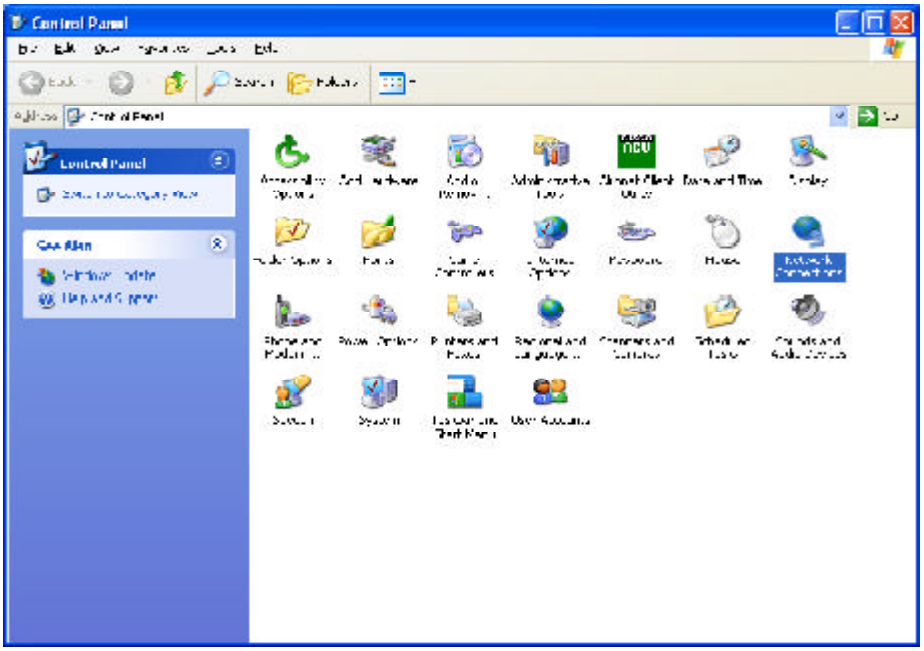


Note: *If your ISP Company has a designated Proxy setting, Key in the setting after you complete the GN-B46B configuration.*

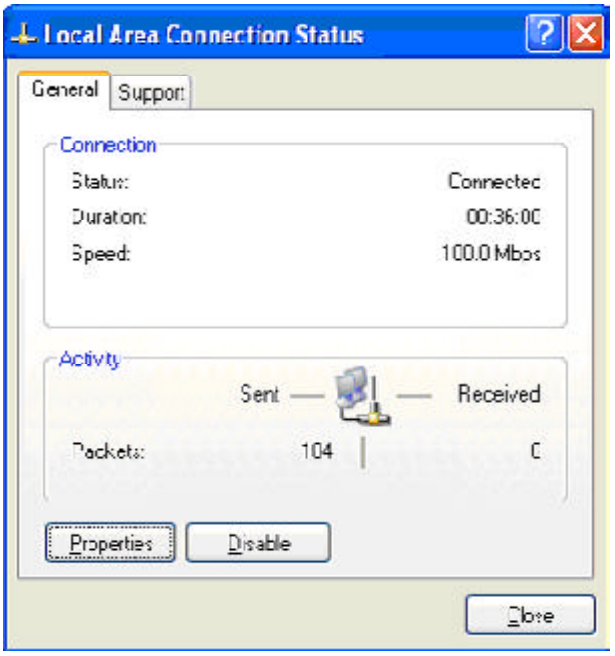
The Settings under Windows XP

Step1. Click "**Start**" in the desktop of the Windows to select "**Settings**", and then select "**Control Panel**".

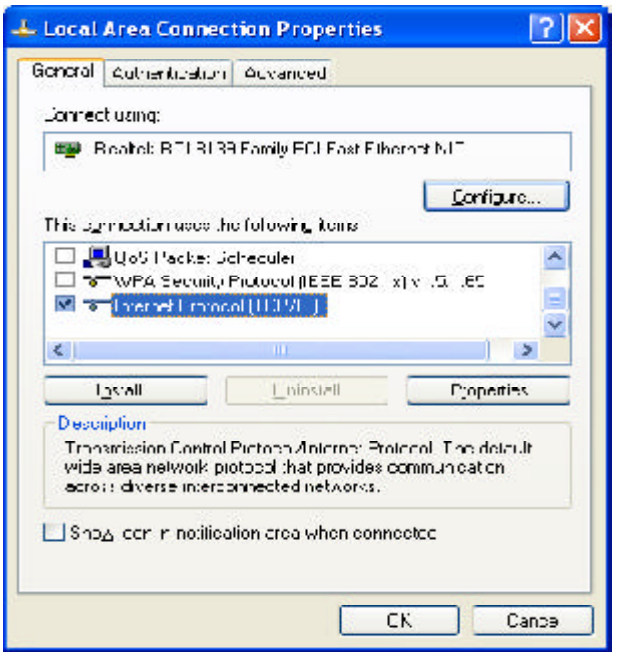
Step2. Double-click the "**Network and Dial-up Connections**" icon.



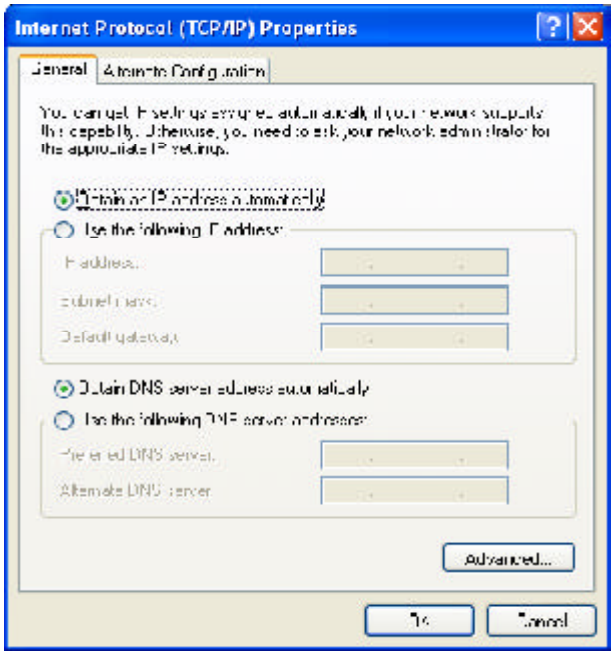
Step3. Double-click the "**LAN CONNECTION**" and click the "**Properties**" button.



Step4. The "**Local Area Connection Properties**" dialog box will appear. Verfiy that the Internet Protocol (TCP/IP) item is checked. And then double-click the "**Internet Protocol (TCP/IP)**" item.

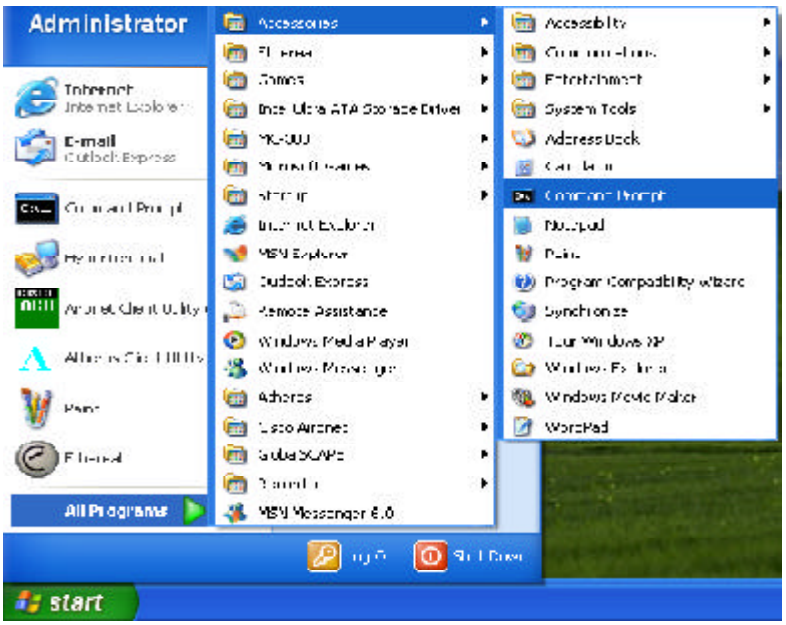


Step5. Select "**Obtain an IP address automatically**" and "**Obtain DNS server address automatically**", click the "**OK**" button to return to Local Area Connection Properties. Click the "**OK**" button again to complete the PC configuration.

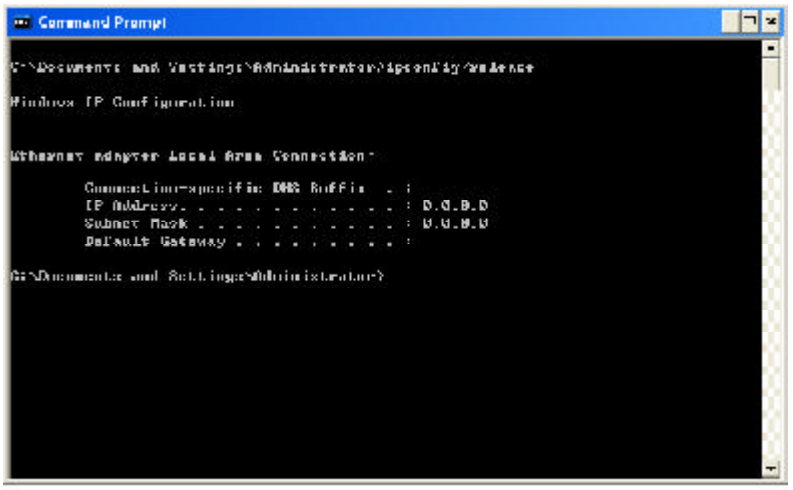


Now, the computer will obtain an IP address automatically from GN-B46B then you can go to the Step10 directly. If you would like to obtain an IP address manually, please refer to Step6~Step9.

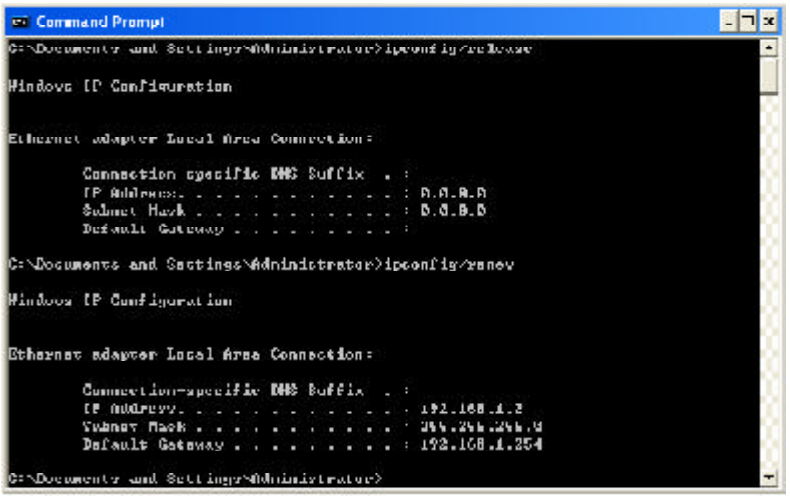
Step6. Click "**Start**" at the desktop of the Windows, and then "**Programs**", "**Accessories**" and "**Command Prompt**" in sequence.



Step7. Key in the command "**ipconfig / release**" in DOS mode and then enter.

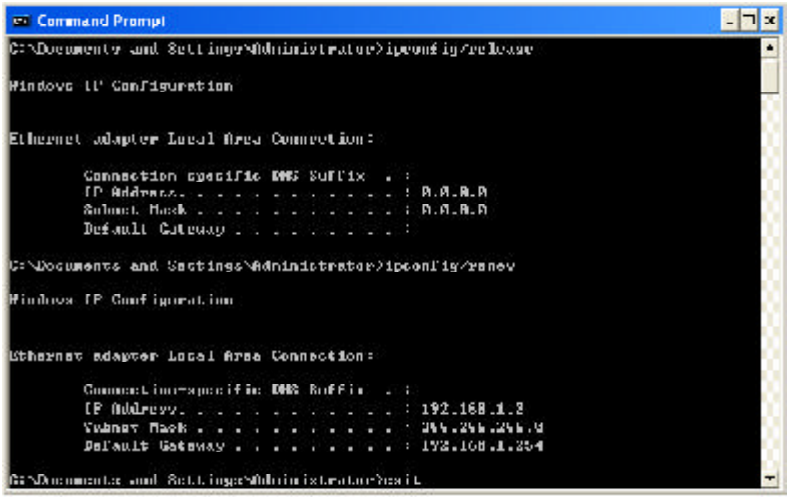


Step8. Key in the command "**ipconfig / renew**" and then enter.

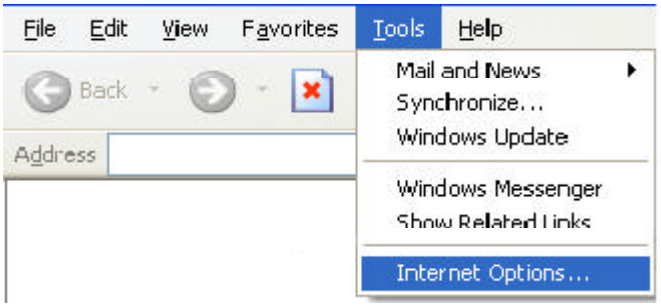


Note: *If the IP address of the GN-B46B is 192.168.1.254, the IP address of your computer must be 192.168.1.X (where "X" is a number between 1 and 253. Each computer on your network must have a different IP address within that range where "X" represents a number between 1 and 253.) The default gateway must be 192. 168.1.254.*

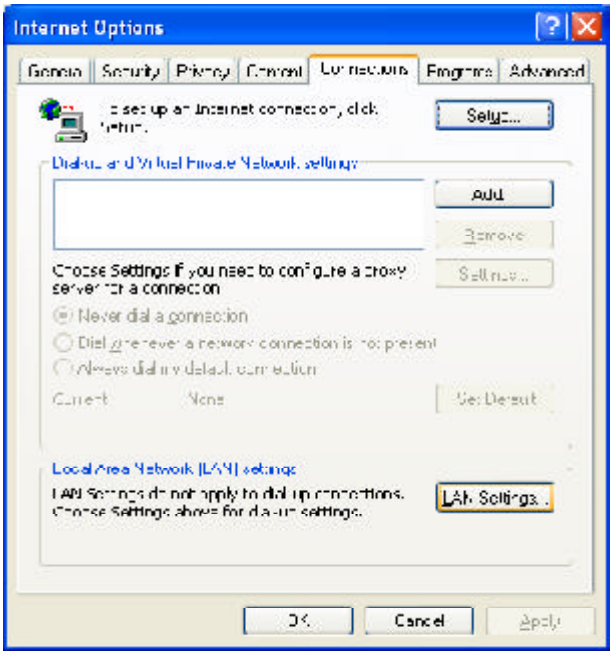
Step9. Key in "**exit**" and then enter.



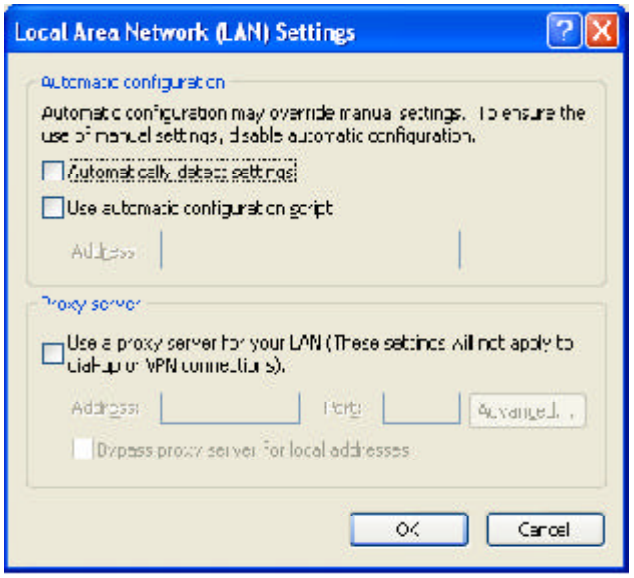
Step10. In your "**IE Browser**" select "**Internet Options**" under "**Tools**".



Step11. In this dialog box, please click the "**LAN Settings**" on the "**Connections**" tab.



Step12. Please DO NOT tick all of the selection boxes. Click the "**OK**" button after finishing with the setup, and go to the "**Chapter4 Basic Setup for Router**".



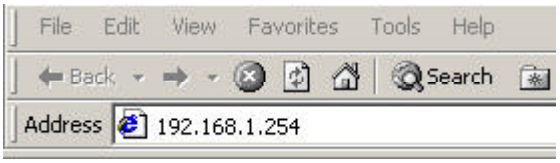
Note: *If your ISP Company has a designated Proxy setting, Key in the setting after you complete the GN-B46B configuration.*

Chapter4 Basic Setup for Router

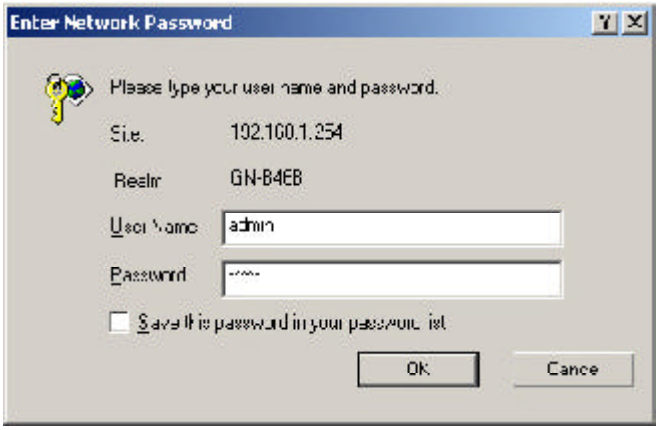
The GN-B46B provides Web based configuration. You can configure your GN-B46B through your Internet Explorer browser or Netscape Communicator.

Log in to the Router

Step1. Key in the preset IP address"**192.168.1.254**" in the address column in the browser, and then press enter.



Step2. The dialogue box will appear as shown in the following diagram, and key in the default user name "**admin**" for the wideband network GN-B46B and the default password "**admin**", and then press "**OK**".



Setup Wizard

Step3. The homepage of the GN-B46B will appear as shown below, and click the "**Setup Wizard**" on the screen, and such Setup Wizard will guide you to complete the necessary steps for the setup on screen as follows.

LAN Setup

Step4. "**LAN Setup**" is shown in the diagram. *Each setup item of the local area network is default setting, and is not necessary to make change to it* for normal operation. Please input the settings on your own if change is needed.

IP Address & Subnet Mask

The values are the Router's IP Address and Subnet Mask. The default values are 192.168.1.254 for the IP Address and 255.255.255.0 for the Subnet Mask.

DHCP Setup

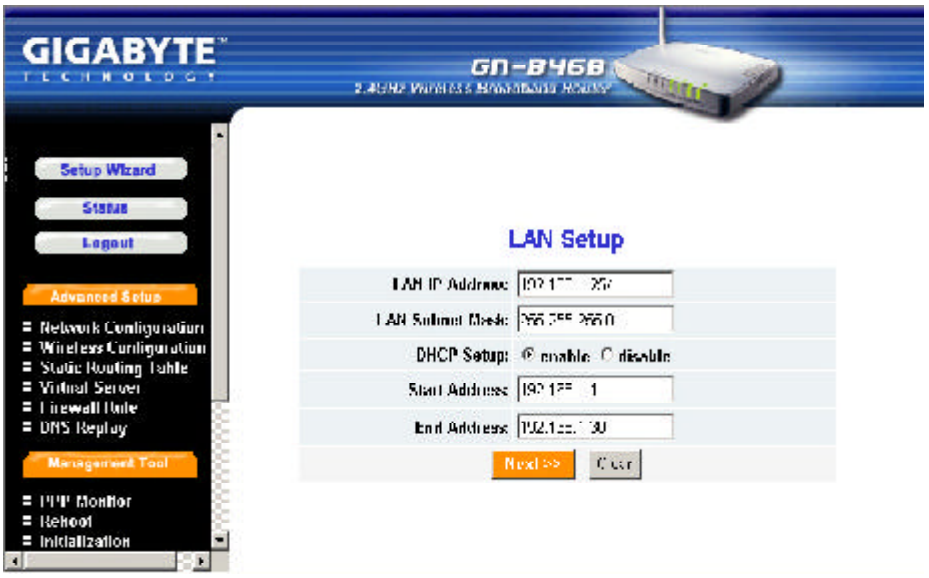
- "**enabled**" indicates that the DHCP function of the router is initialized, and will automatically assign an IP Address to the computer that is connected to the LAN end of the router.
- "**disabled**" indicates that all IP Address of all the computers need to assign the IP address manually.

DHCP Start Address / End Address

When the DHCP setting is “enable”, the GN-B46B uses this allocable range of the IP address as the initial value to assign the IP to the PC connected to the LAN end.

For example,
The DHCP start address is 192.168.1.1 and the end address is 192.168.1.50.
The IP allocable range of the DHCP is from 192.168.1.1 to 192.168.1.50.

Click “**Next**”, go to next step.



Step5. Choose your desired wide area network mode.

- "**PPPoE**"**:** If you are using the hourly rate for the ADSL, please select this item. And then please follow Step 6
- "**Dynamic IP Address**"**:** If you use the wideband fixed connection of ADSL/ Cable Modem, but do not have a static IP, please select this item. And then please follow Step 10
- "**Static IP Address**"**:** If you use the wideband fixed connection of ADSL/ Cable Modem, but have a static IP, please select this item. And then please follow Step 14
- "**PPPoE Unnumber**": If you are the user of the PPPoE Unnumber, please select this item. And then please follow Step18.

After your desired wide area network mode is selected, please press "**Next**".

PPPoE

Step6. If you select "**PPPoE**" under the WAN TYPE SELECT, key in the User ID and password. The wideband company provides the above data, and press "**Finish**" to go to next step.

- ***PPPoE User ID and Password:***

  The "User ID" and "Password" are your ISP assigned to you.

Step7. Press "**Reboot**" to go to next step.

Step8. Please wait a moment.

Step9. The IE browser will be automatically connected to the main menu, and your setup has completed by then. Please use your IE connect to Internet.

Note: *If you can connect to the Internet , the setting is completed. If you use the Wireless Lan Card connection or need further setting, please continue to* ***Chapter5 Advanced Setup****.*

Dynamic IP Address

Step10. If you select the "**Dynamic IP Address**" in the WAN TYPE SELECT, the following screen will appear. Please key in the Host Name if your ISP has provided. And then press "**Finish**" to go to next step.

Step11. Press "**Reboot**" to go to next step.

Step12. Please wait a moment.

Step13. The IE browser will be automatically connected to the main menu, and your setup has completed by then. Please use your IE connect to Internet.

Note: *If you can connect to the Internet , the setting is completed. If you use the Wireless Lan Card connection or need further setting, please continue to* ***Chapter5 Advanced Setup****.*

Static IP Address

Step14. If you select "**Static IP Address**" in the WAN TYPE SELECT, please key in the data provided by the wideband company in the following fields as shown below. And then press "**Finish**" to go to next step.

Note: *If your wideband company gives you more than one IP address, then select one of them to fill in the column in the following fields.*

Step15. Press "**Reboot**" to go to next step.

Step16. Please wait a moment.

Step17. The IE browser will be automatically connected to the main menu, and your setup has completed by then. Please use your IE connect to Internet.

Note: *If you can connect to the Internet , the setting is completed. If you use the Wireless Lan Card connection or need further setting, please continue to* ***Chapter5 Advanced Setup****.*

PPPoE Unnumber

Step18. If you select "**PPPoE Unnumber**" in the WAN TYPE SELECT, please key in the data provided by the wideband company in the following fields as shown below. And then press "**Finish**" to go to next step.

Note: *If your wideband company gives you more than one IP address, then select one of them to fill in the column in the following fields.*

Step19. Press "**Reboot**" to go to next step.

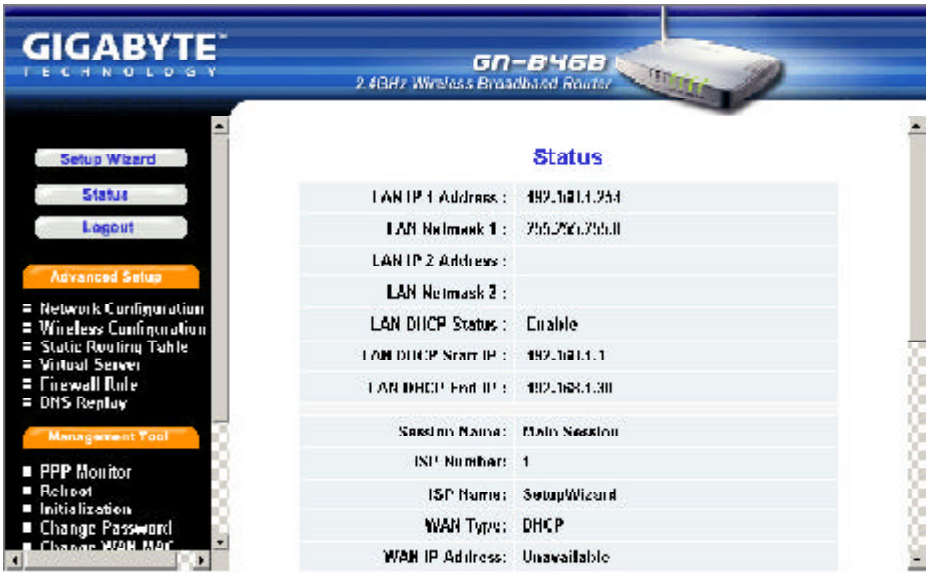
Step20. Please wait a moment.

Step21. The IE browser will be automatically connected to the main menu, and your setup has completed by then. Please use your IE connect to Internet.

Note: *If you can connect to the Internet , the setting is completed. If you use the Wireless Lan Card connection or need further setting, please continue to* ***Chapter5 Advanced Setup****.*

Status

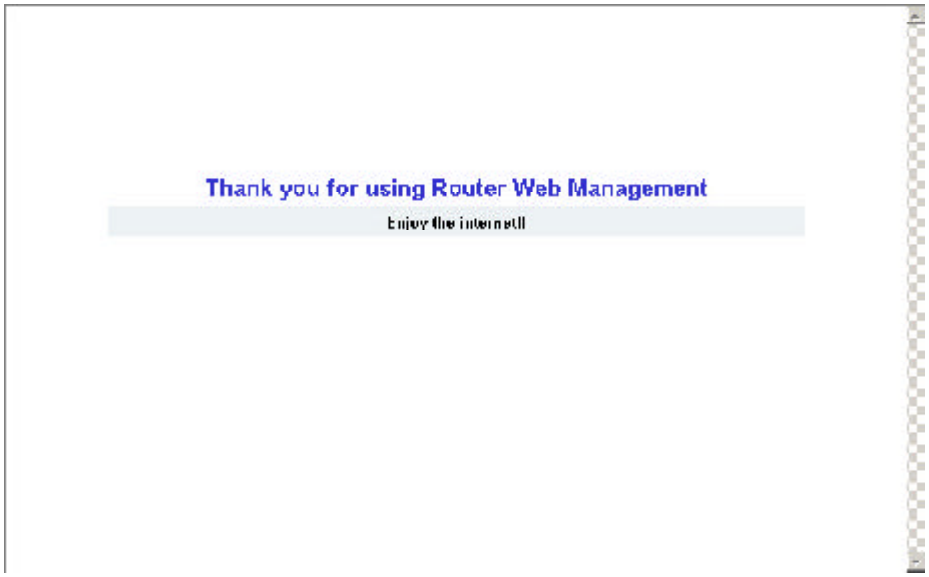
You can use this status screen to view the router's current connection status.and configuration.



Logout

As you finished the configuration of the GN-B46B, please choose "**Logout**".

Note: *After 5 minutes idle time, the system will be logout automatically.*



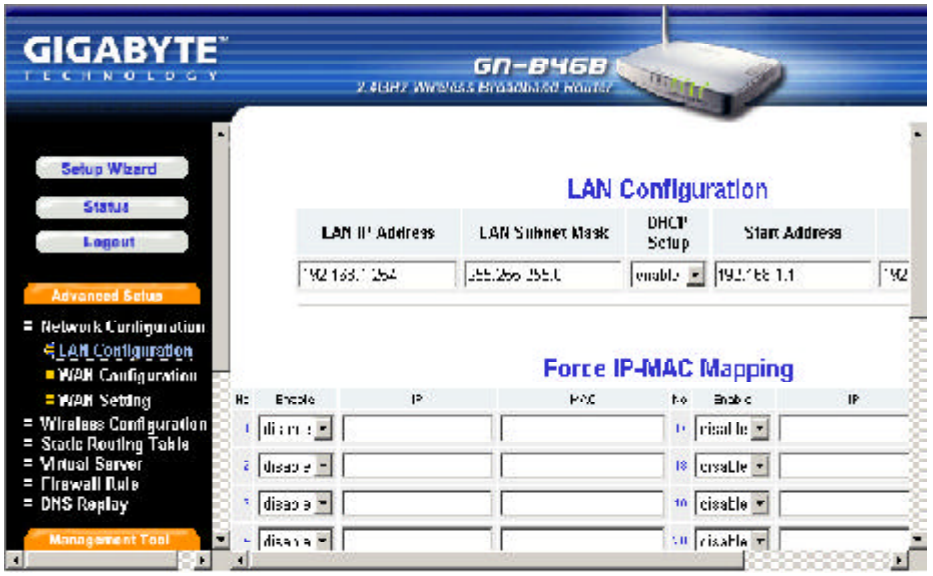
Chapter5 Advanced Setup

This chapter will show you the advanced setup of the GN-B46B if you need require special configuration.

Network Configuration

The Network Configuration function allows you to access to the LAN Configuration, WAN Confguration and WAN Configuration Setting.

LAN Configuration

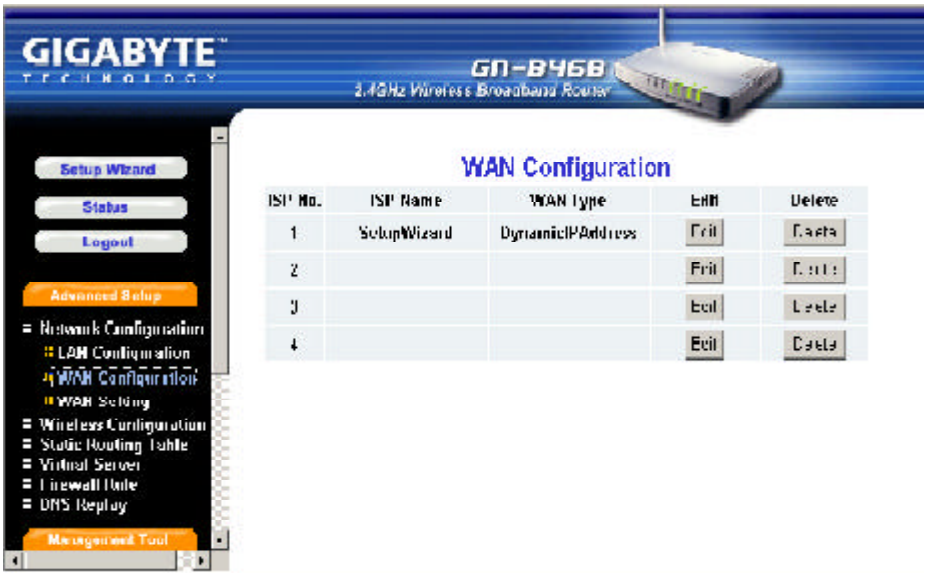


- ***LAN Configuration***
  From this table, you can modify the LAN setting if it necessary.

- ***Force IP-MAC Mapping***
  This function allows you to assign a specific IP address to one specific PC.

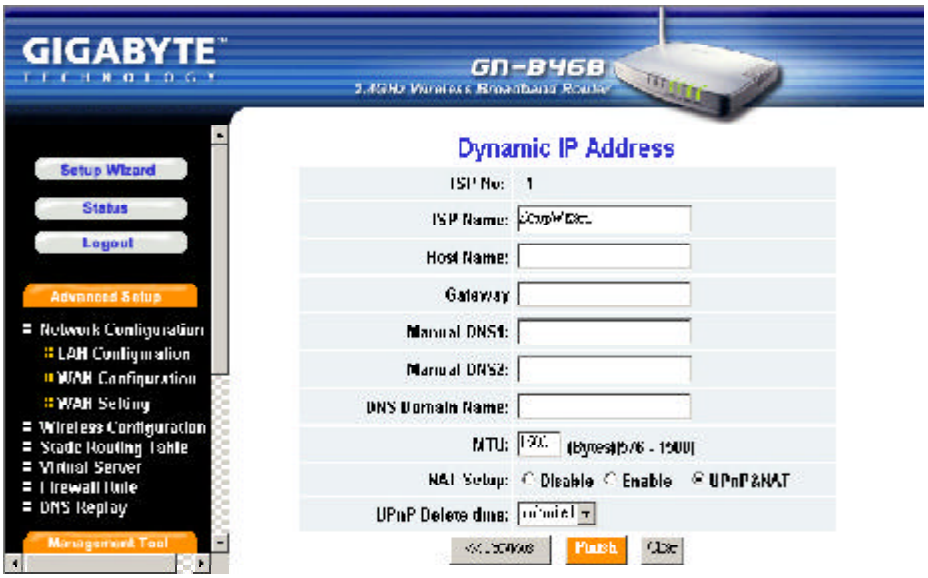
Verify the desired setting and then click the "**Submit**" button to set the value into GN-B46B.

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.

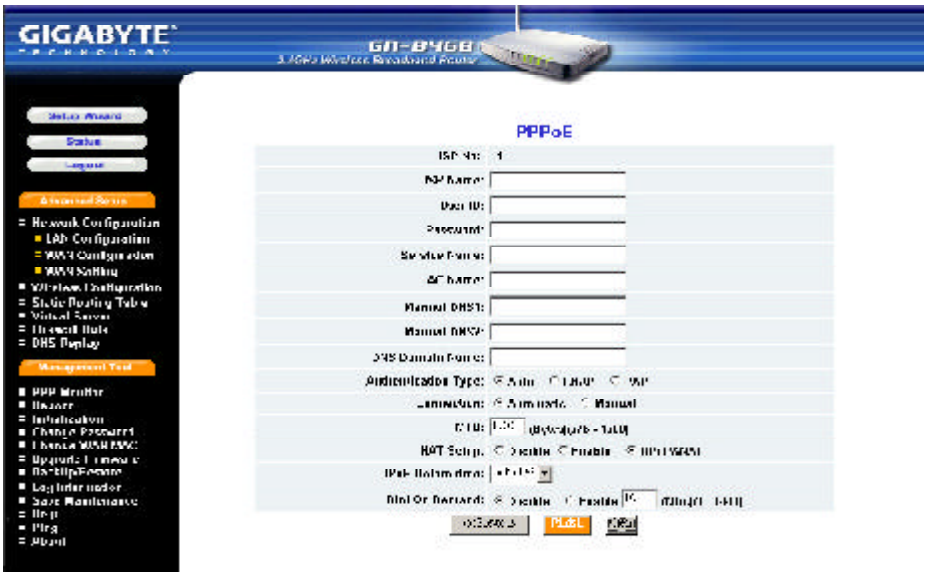
WAN Configuration Setting

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.

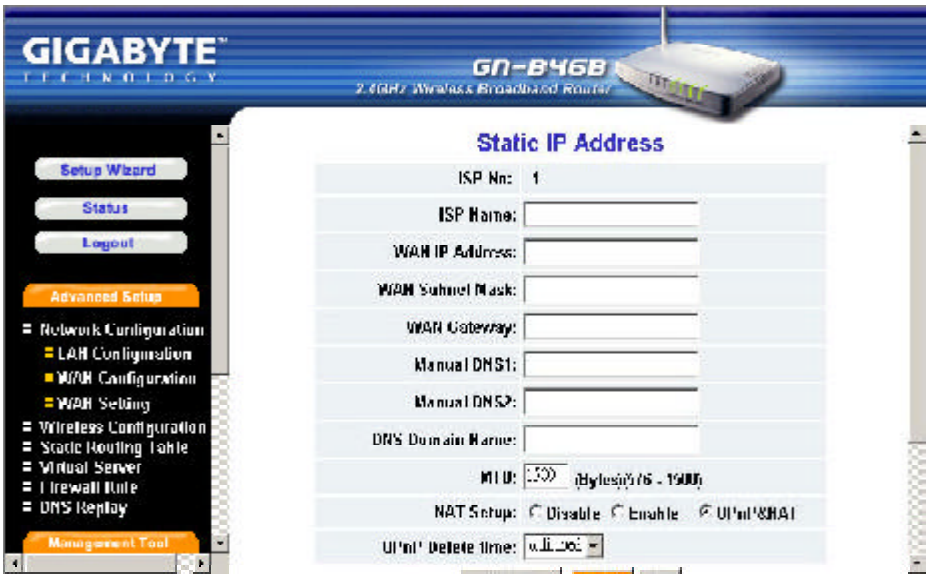
  Password Authentication Protocol(PAP) is a simple authentication protocol for PPP allowing a router to identify itself with another router by sending a simple name and password combination. PAP is defined in RFC1334.

- ***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.

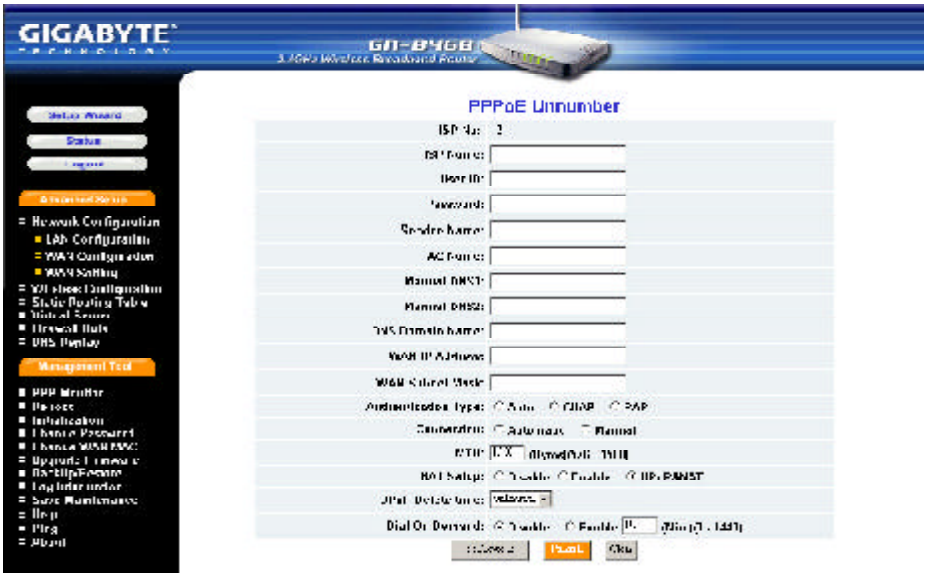
Static IP Address



- ***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



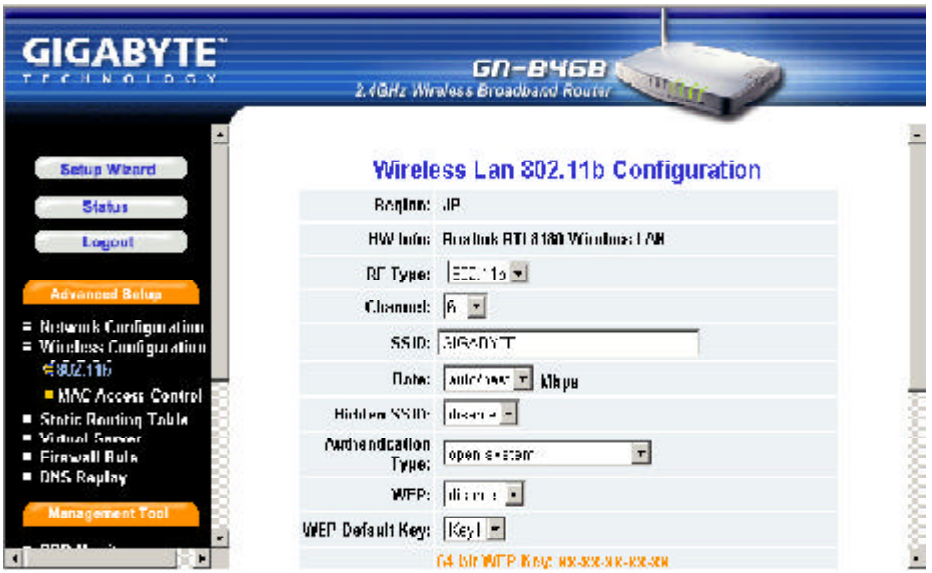
- ***ISP Name, User ID, Passwaord, Service Name, AC Name, DNS1 and DNS2, DNS Domain Name, WAN IP Address, WAN Subnet Mask***

  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.

64 (40) Bits WEP Key: xx-xx-xx-xx-xx
128 (104) bits WEP Key: xx-xx-xx-xx-xx-xx-xx-xx-xx-xx-xx-xx-xx

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***

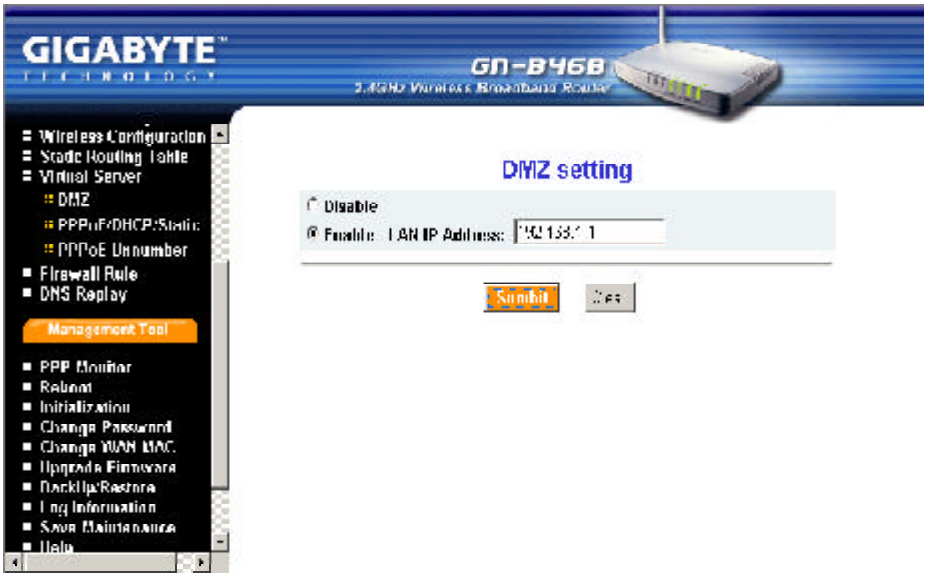
  Type a numeber between 1 and 15 as the Metric value. This represents the number of routers between your network and the destination. Usually, a setting of 2 or 3 works, but if this is a direct connection, set is to 1. The default value is 1.

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.

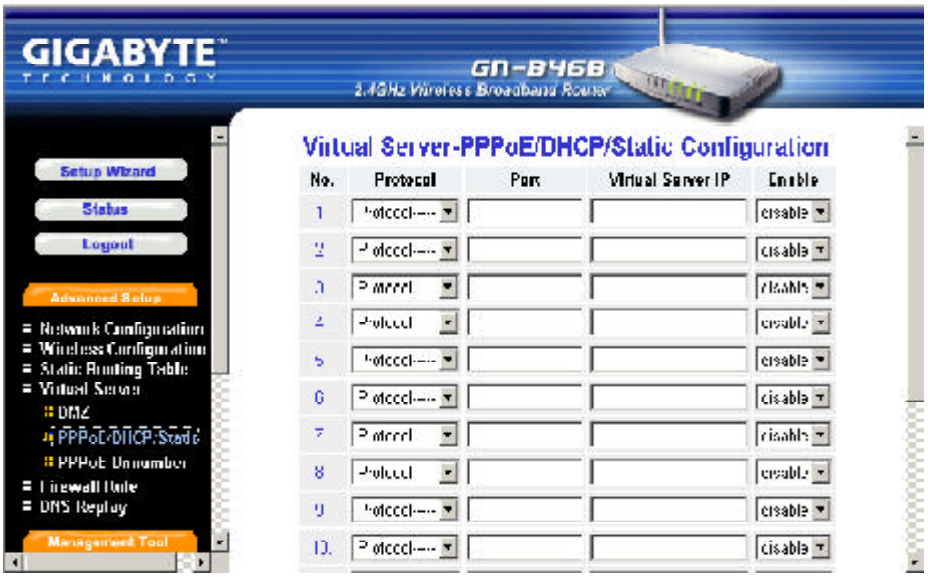
DMZ



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

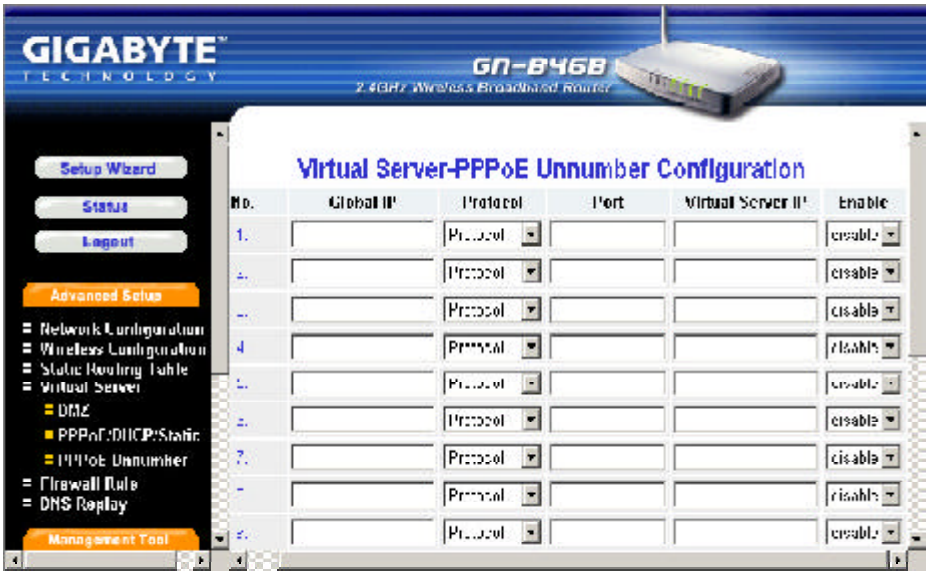


Virtual Server provides a way to let the PC at the WAN end connect to a server of a PC at the LAN end. Taking the IP address 192.168.1.1 of a PC on a FTP at the LAN for example:

- 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

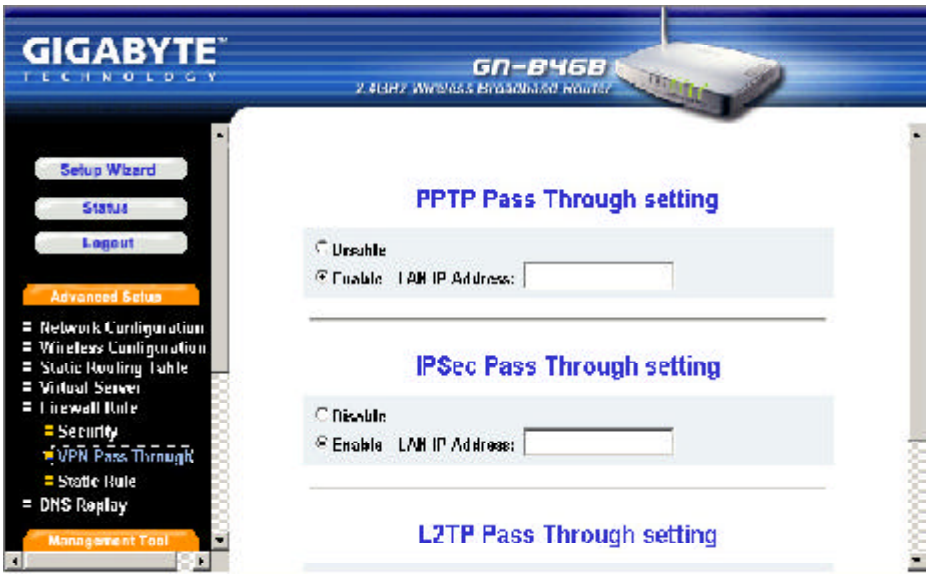
The Firewall Rule allows you to configure your own security policy to prevent unauthorized Internet users from accessing private networks or corporate LAN's and Intranets.

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***

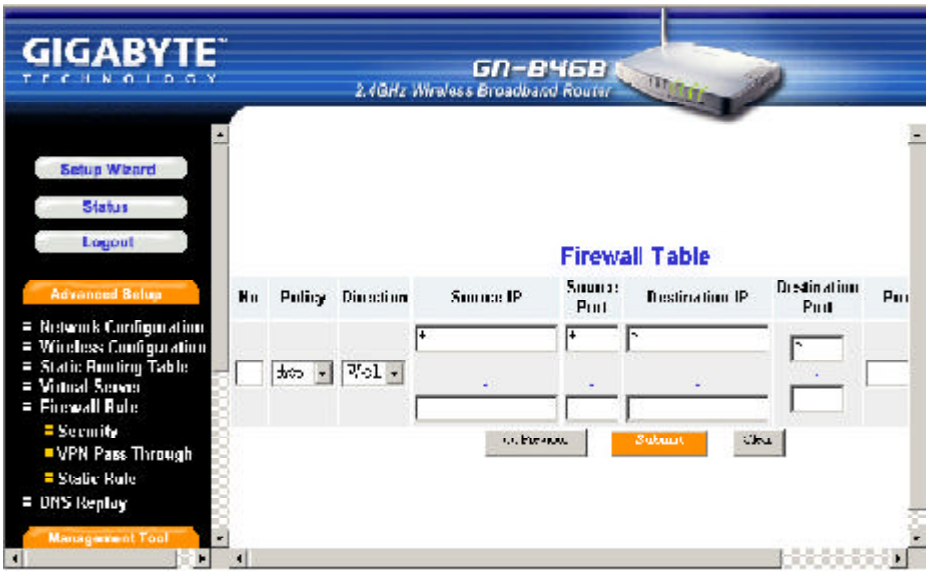
  L2TP stands for Layer 2 Tunneling Protocol. It is an extension of the Point-to-Point Tunneling Protocol and is also used to establish virtual private networks.

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

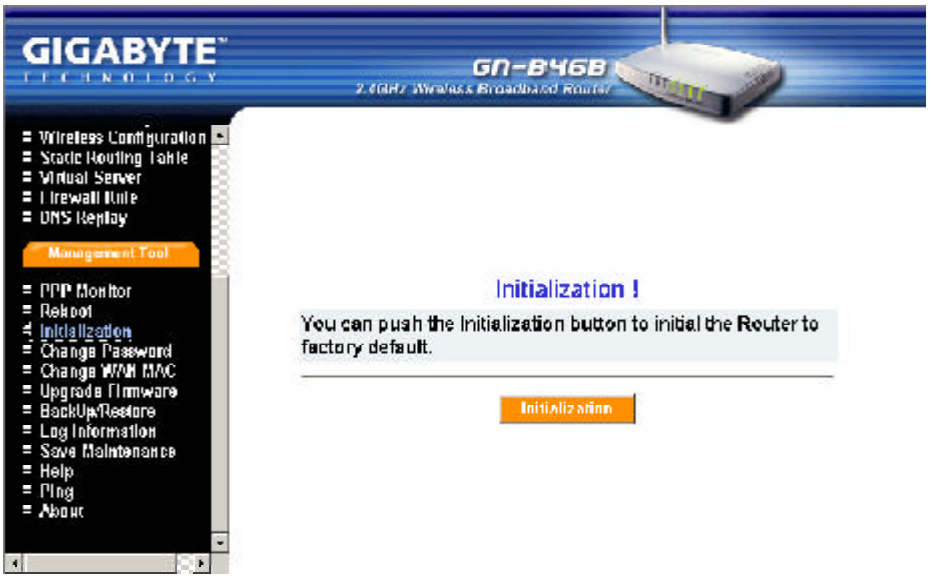
The PPP Monitor will show you the WAN connection status.

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

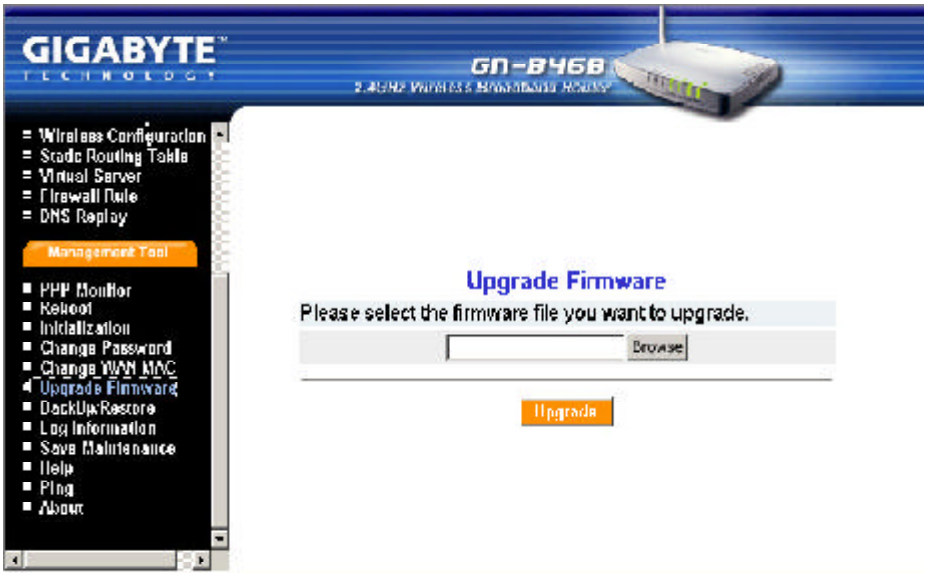
User can change the administration password of the GN-B46B to prevent other user access to the GN-B46B. Please enter the account and a new password and confirm the password and then click "**Submit**". You have to enter this new password to log in when you want to configure the GN-B46B next time.

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

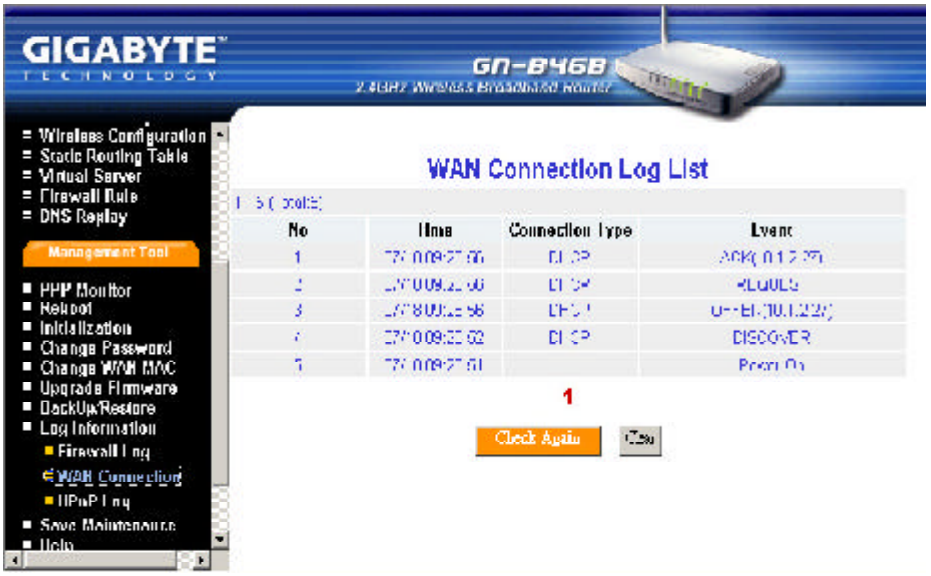
The "**BackUP**" button allows you to save the configuration of the GN-B46B to a temp file on your PC. You can then click the "**Restore**" button to restore the saved backup configuration file.

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. IEEE 802.11b 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)	
Peak 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	

Limited Warranty

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.

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