XENTINO TMH/I 2-58 Load Balance Router
User's Manual

V1028 (Mar/19/2008)

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CHAPTER 1. INTRODUCTIONS

1.1 About Load Balance Router

TMH/I 258 Load Balance Router provides
* 4x 10/100 Mbps Ethernet ports (WAN port)
* 1x 10/100 Mbps Ethernet port (DMZ port).
* 8x 10/100 Mbps Ethernet port (LAN port)

WAN port is using to connect to broadband transmission equipments such as ADSL modem or CABLE modem for user and far end to download or upload data in high speed. Broadband Router provides 8 LAN port to connect to computer via cable. You can also connect LAN port with HUB/SWITCH device to extend the amount of connection device/user if necessary. Families with multiple PCs could share one ISP account and play exciting games against each other through Broadband Router. The switch function could also reduce the traffic in internal LAN.

Important Feature:

- Allows multi-user to use with single user account at the same time
- Web configuration tool
- Multiple DMZ Host (PPPoE, FIX IP)
- Multiple Virtual Server
- Multiple NAT function
- Protocol Route Control (IP Binding Function, by IP & port number)
- Protocol Bandwidth Control (by application protocol port number)
- IP/URL Blocking
- User Bandwidth Control Function (by user IP address)
- Outgoing wan link selected (by user IP address)
- H.323 VoIP ALG included
- Remote Configuration Through Internet
- System Log
- Mail Alert
- Firewall
- Backup / Restore Router configuration file from PC
- Display real time router configuration parameter
- Out-Bound Firmware (for Out-Bound Router)
- In/Out-Bound Firmware (for In-Bound Router)

1.2 Interface

- 4 * 10/100Mbps WAN ports, RJ45, auto sensing
- 1 * 10/100Mbps DMZ ports, RJ45, auto sensing
- 8 * 10/100Mbps LAN port, RJ45, auto sensing
- DC input 5V/2.8A
- Default Switch (load factory default)

1.3 Package

- 1 * Broadband Router
- 1 * CD-ROM containing Broadband Router user's manual
- 1 * AC Adapter suitable for your electric service
- 1 * Network cable with RJ-45 connectors for LAN connection

When you open your package, make sure all of the above items are included and not damaged. If you see that any components are damaged, please notify your dealer immediately.

1-4 Quick Understanding Router (FAQ)

- **General FAQ**

  Q1: How many WAN ports can I use with Load-Balance Router?

  Q2: What types of Internet Connection do you support?

  Q3: How do I configure my Router?

  Q4: How many Internet connections do you support?

  Q5: Do I require cooperation with my ISP?

- **Configure FAQ**

  Q1: Can I change Router administrator user name & password?

  Q2: If push Reset SW, is that function only restore back factory default value?

  Q3: How can I know Router system status & each interface activity if I want to Know whether the configuration is correct or not?

  Q4: Can DMZ host function support PPPoE & FIX IP mode?

  Q5: What is configuration file back up & Restore meaning?

  Q6: How to check real time configuration parameter?

- **User Management FAQ**

  Q1: Can I specific dedicate packet (by port number) through dedicate WAN port?

  Q2: Can I specific dedicate packet (by application /protocol) through dedicate WAN port?

  Q3: Can I specific dedicate packet (by IP address) through dedicate WAN port?

  Q4: Can I assign fix IP address to dedicated PC when using HDCP?

- **Bandwidth Management FAQ**

  Q1: How to limit FTP or other application bandwidth usage?

  Q2: Can I control bandwidth usage for each computer in my network?

- **Router Management FAQ**

  Q1: Can I check router status from Internet?

  Q2: What kind of data I can see from “Data Monitor” function?

  Q3: How is link failure detected?

  Q4: How do I know when ADSL link has failed?

- **Internet Access FAQ**

Q1: What if I have different speed at Internet connection?

Q2: How to choose “Load Balancing “work mode” ?

Q3: Can I connect Router WAN port to another device (Switch, router)

Q4: What happen, if I get multiple IP address from ISP?

Q5: Some Web site with SSL feature (Banking, Game Server) not allow access with multiple IP, how to solve this issue?

Q6: Does Router support VPN pass through function?

Q7: Does Router support VOIP pass through function

Q8: Can I limit packet go to dedicated WAN port just by protocol port number?

Q9: Can I limit packet go to dedicated WAN port just by IP address?

Q10: Sometime virus attack network by using “PING” command from Internet Can I set up router to reject “PING” command from Internet?

◆ **General FAQ**

Q1: How many WAN ports can I use with Router?

Default you can use 4 WAN port connect to ADSL/CABLE modem
Maximum is 5 wan port . DMZ port can be set up to wan 5

Q2: What types of Internet Connection do you support?

You can connect WAN port to ADSL modem or CABLE modem.

Q3: How do I configure my Router?

Use Web Browser to configure router, follow the procedure in the manual
.

Q4: Do I require cooperation with my ISP?

Only need to know the Username & password from the ISP and what kind
Of IP address you have (fix IP or Dynamic IP)

◆ **Configure FAQ**

Q1: Can I change Router administrator user name & password?

User name can not be changed, you only can change password, maximum
Character length for password can up to 30 with case sensitive

Q2: Default SW function is restored factory default value only?

No, the switch function can be configured to perform following function.
"Restore factory default value" or "Restore latest configuration file".

Q3: How can I know Router system status & each interface activity if I want to know whether the configuration is correct or not?

Using "Data Monitor" function, you can monitor router traffic status.

Q4: Can DMZ host function support PPPoE & FIX IP mode?

Yes, in DMZ function, you can use specific DMZ host by PPPoE mode or
FIX IP mode.

Q5: What is configuration file back up & Restore meaning?

You can save /restore router configuration file to/from PC, in order
To prevent router crush or load factory default by accident.

Q7: How to check real time configuration parameter?

This router can list real time " configuration parameter" to administrator.
Just using "configuration show" function.

- **User Management FAQ**

  Q1: Can I specific dedicate packet (by IP address & Port number) through dedicate WAN port?

  Yes, using “IP Binding” function when you set up router.

  .

  Q2: Can I specific dedicate packet (by application /protocol) through dedicate WAN port?

  Yes, using “Bandwidth Control” function when you set up router.

  Q3: Can I specific dedicate packet (by IP address) through dedicate WAN port?

  Yes, using “ QoS” function when you set up router.

  Q4: Can I assign fix IP address to dedicated PC when I using HDCP?

  Yes, using “Configure LAN & DHCP” function, you can assign fix IP address To PC by match PC NIC card MAC address.

- **Bandwidth Management FAQ**

  Q1: How to limit FTP or other application bandwidth usage?

  In “Bandwidth Usage” function, you can set bandwidth using by each application

  Q2: Can I control bandwidth usage for each computer in my network?

  Yes, in “QoS” function, allow you to control each PC bandwidth usage.

- **Router Management FAQ**

  Q1: Can I check router status from Internet?

  Yes, just enable router “remote configure” function.

  Q2: What kind of data I can see from “Data Monitor” function?

  You can see “real time packet” & “accumulated packet” for each port

  Q3: How is link failure detected?

  Enable “Health Check” function, router will detect ADSL link status.

  Q4: How do I know when ADSL link has failed?

  By “Mail Alert” function, router can send mail to administrator when Detect critical condition.

◆ **Internet Access FAQ**

Q1: What if I have different speed at ADSL link?

There is no problem for Router to connect ADSL line with different speed

Q2: How to choose Load Balancing "working mode"?

If ADSL lines have same speed, we suggest you to choose "session mode". With different ADSL speed, you can use "Weight Round Robin" or "Traffic mode"

Q3: Can I connect Router WAN port to another device (Switch, router)?

Yes, Router WAN port can be connect to another device, but need to point Out where is gateway address to let Router know

.

Q4: What happen, if I get multiple IP address from ISP?

You can assign extra IP address to DMZ host or VoIP GW

Q5: Web site with SSL feature (Banking, Game Server) will not allow access with multiple IP address, how to solve this issue?

Using Router "IP Binding" function, let outgoing data packet to SSL Web Site will only use dedicated ADSL line.

Q6: Does Router support VPN pass through function?

Yes, router support IPSEC & PPTP pass through function

Q7: Does Router support VOIP pass through function

Yes, router have included H.323 VoIP ALG inside

Q8: Can I limit packet go to dedicated WAN port just by protocol port number?

Yes, use " special port assignment " function in Load Balance field.

Q9: Can I limit packet go to dedicated WAN port just by IP address?

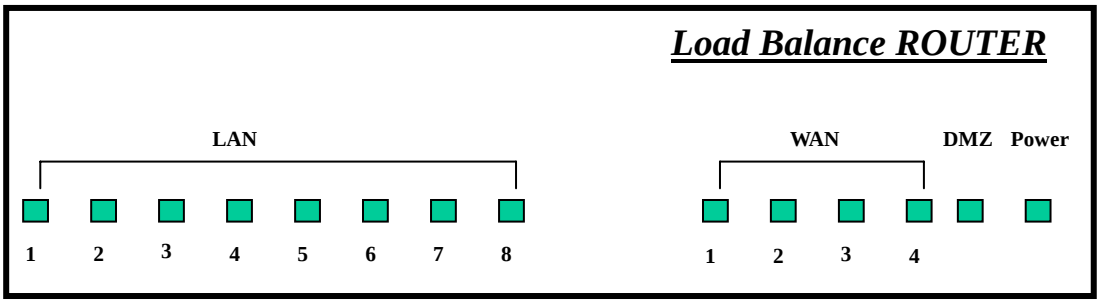
Yes, use " special IP assignment " function in Load Balance field.

Q10: Sometime virus attack network by using "PING" command from Internet, Can I set up router to reject "PING" command from Internet?

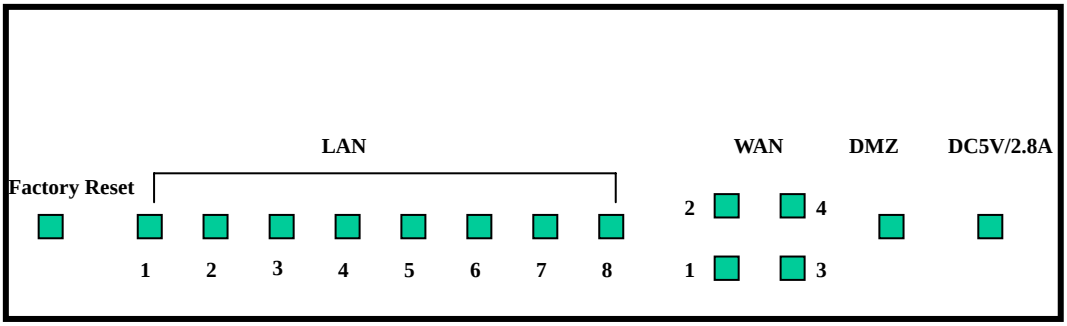
Yes, use " enable/disable " function in DoS field.

CHAPTER 2 ROUTER INTRODUCTION

2.1. Front Panel View



2.2 Real Panel View



DC 5V/2.8A: Connecting to AC adapter.

WAN: Broadband Router provides four RJ45 type WAN ports connecting to broadband transmission equipments such as ADSL or CABLE Modem via RJ45 cable.

LAN: Broadband Router provides one RJ45 type LAN port connecting to your network devices such as Hub/Switch via RJ45 cable. Using a HUB/Switch will allow more PC connecting to Broadband Router.

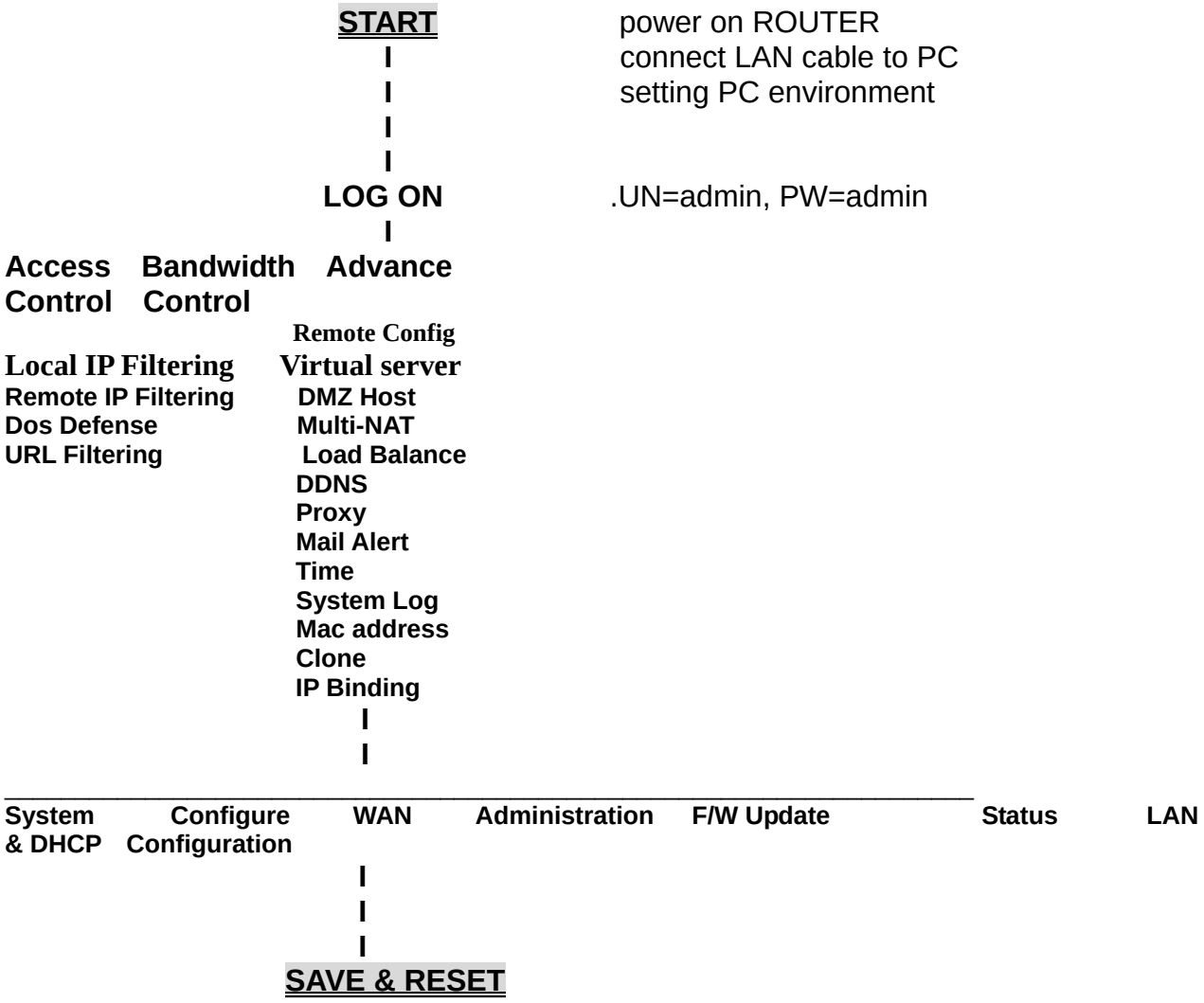
Factory Reset: If Broadband Router occurs any system crash, you may press this button to reload factory default value or reset back to latest configuration file

2. 3 LED Indicator

LEDs	Indication	
WAN1~4	Off	Disconnected or undetected
	Green	Linked
	Green Flash	Data Transmission
	Red	Collision
LAN 1~8	Green	Link 100M
	Green Flash	100Mbps Data Transmission
	Off	Disconnected or undetected
	Orange	Link 10M
	Orange Flash	10M Data Transmission
DMZ	Green	Link
Power	Green Frozen Green Blinking	Router Initialize Active Stage

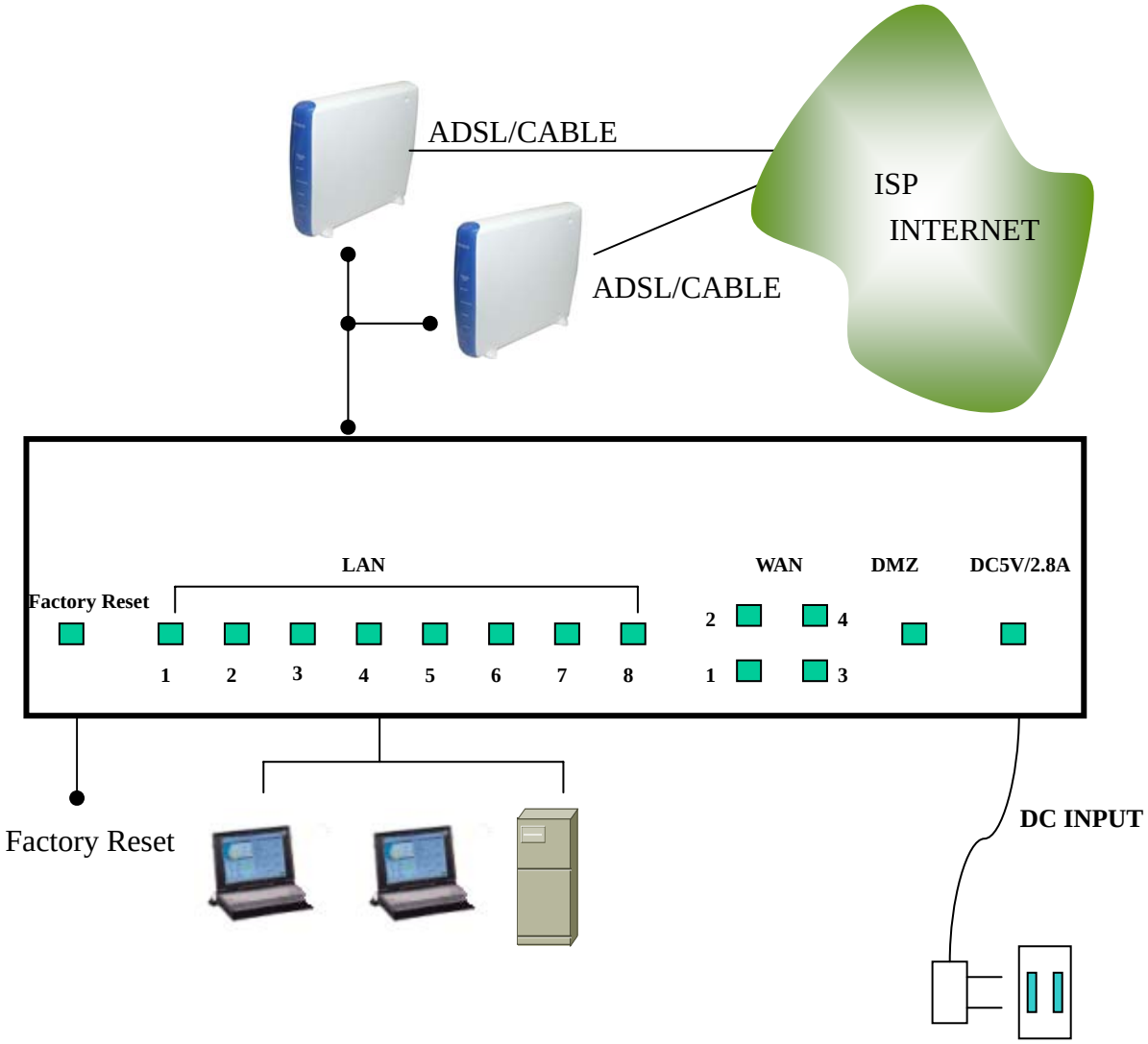
2.4 How to configure router

This equipment provide 3 working mode for different usage, in order to set proper parameter in each function/mode, you can follow this flow chart before you start to configure router.



CHAPTER 3. CONNECT ROUTER

3.1 Connection Diagram



Broadband Router provides 8 LAN port connecting to your network devices such as PC, HUB and SWITCH via RJ45 cable. Using a HUB/SWITCH will allow more PC connecting to Broadband Router. WAN ports are using to connect your ADSL or CABLE Modem to the broadband ISP.

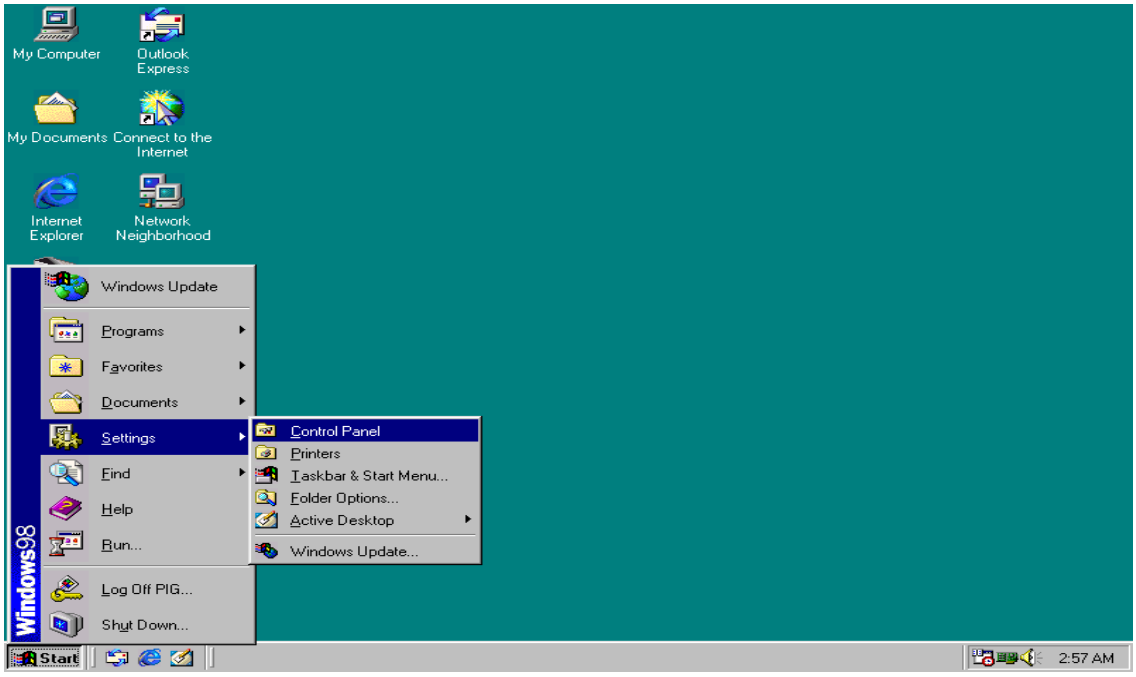
For RJ45 cable type, both WAN/LAN port support auto MDI/MDIX Function, you can choose cross over type or straight type RJ-45 cable

3.2 Connection Procedure

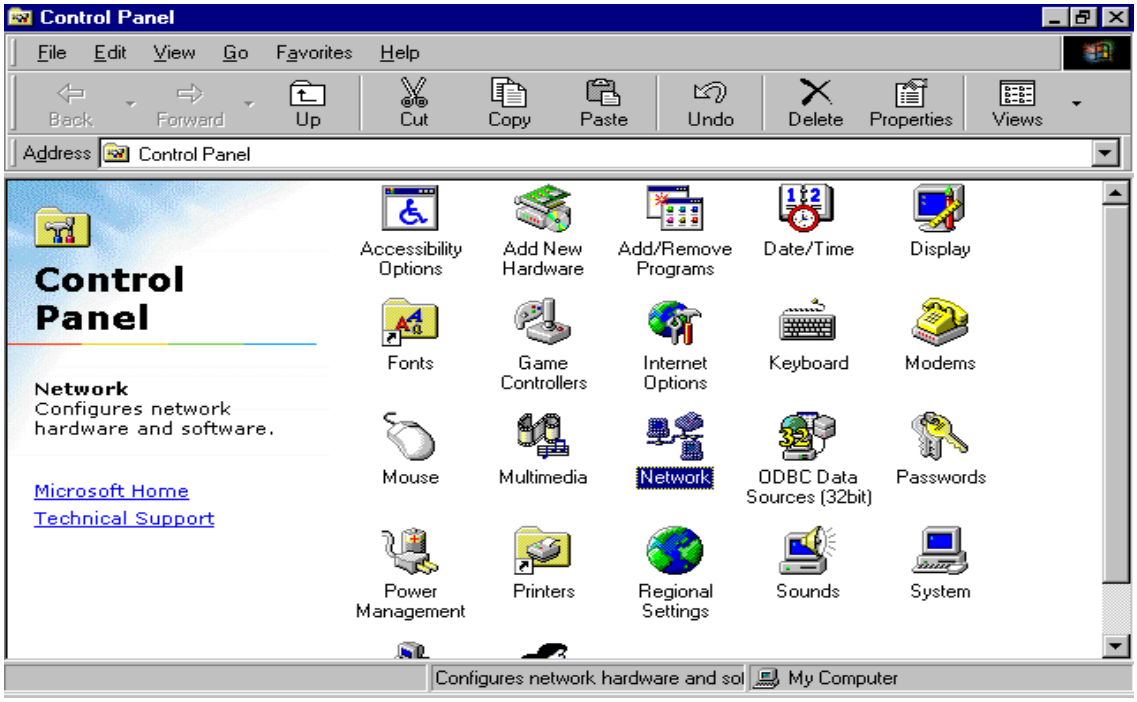
1. Plug in DC power adapter to Router.
2. Connect the Router WAN port RJ45 modular jack to ADSL/CABLE Modem Ethernet port with the RJ45 cable.
3. Connect the Router LAN port RJ45 modular jack to HUB/SWITCH LAN port by RJ45 cable.
4. Connect PC LAN card port to HUB/SWITCH LAN port.
5. Plug in AC power cord to power source

4 .1 Windows 95/98/ME

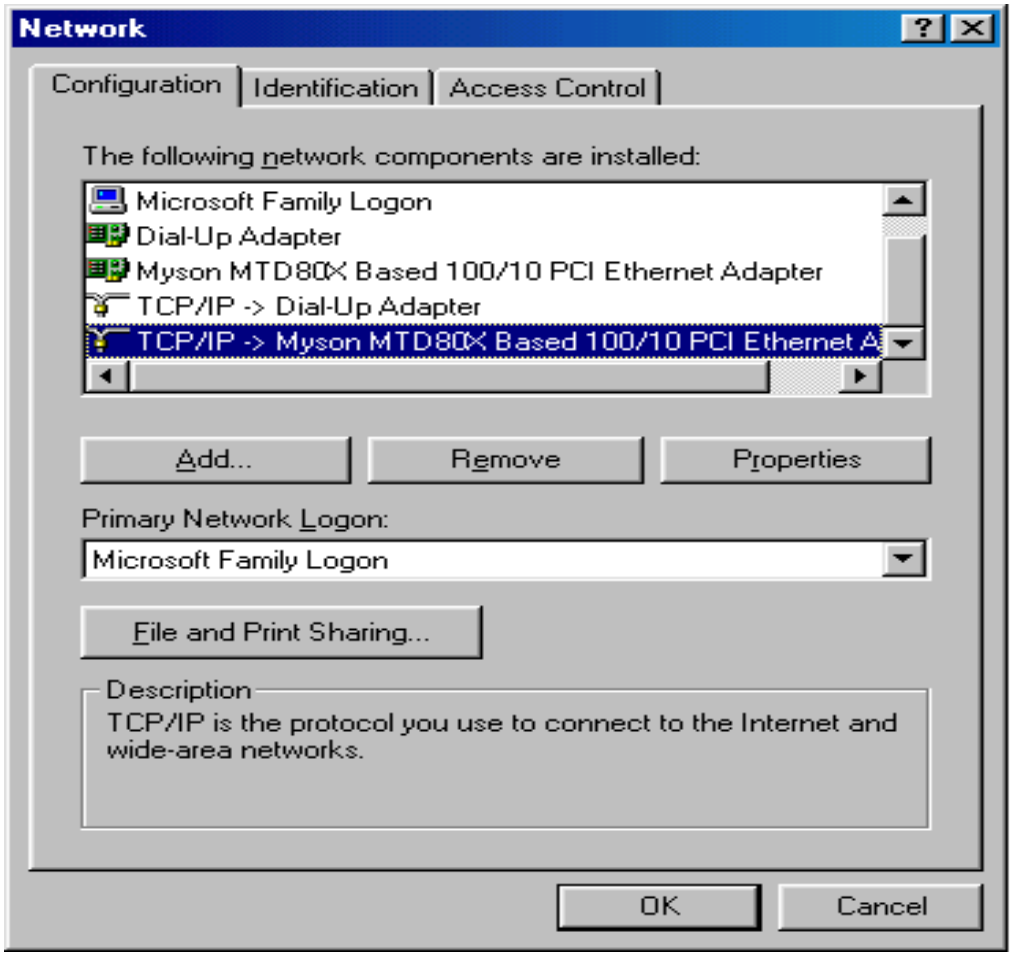
1. Select **Control Panel** from **Start→Settings**.



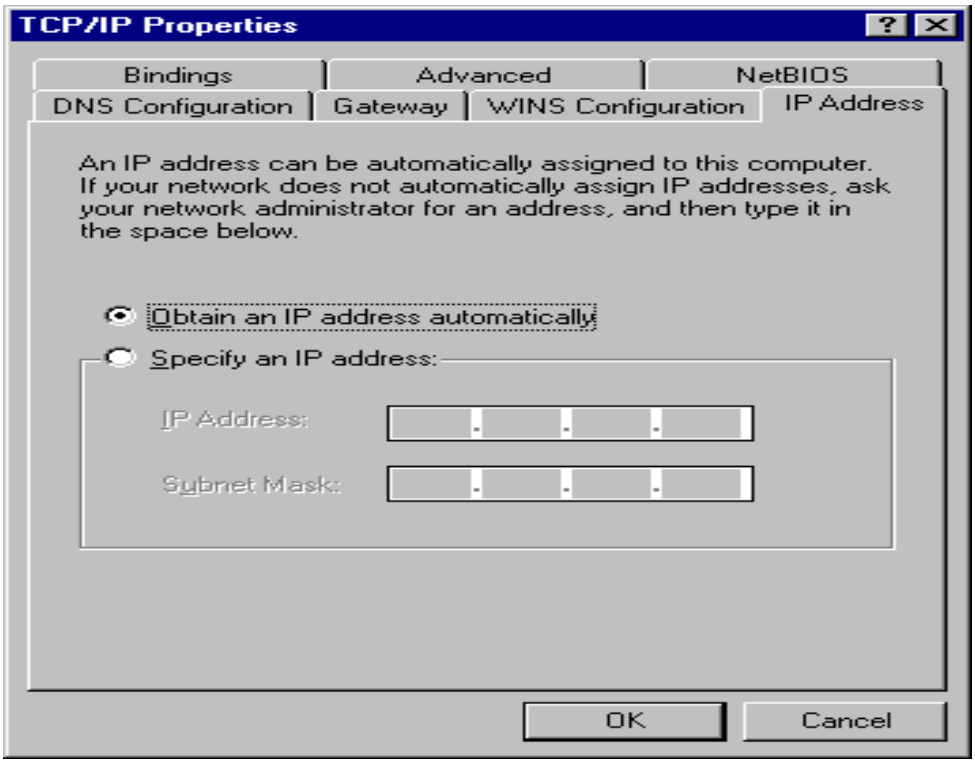
2. Double click **Network** icon.



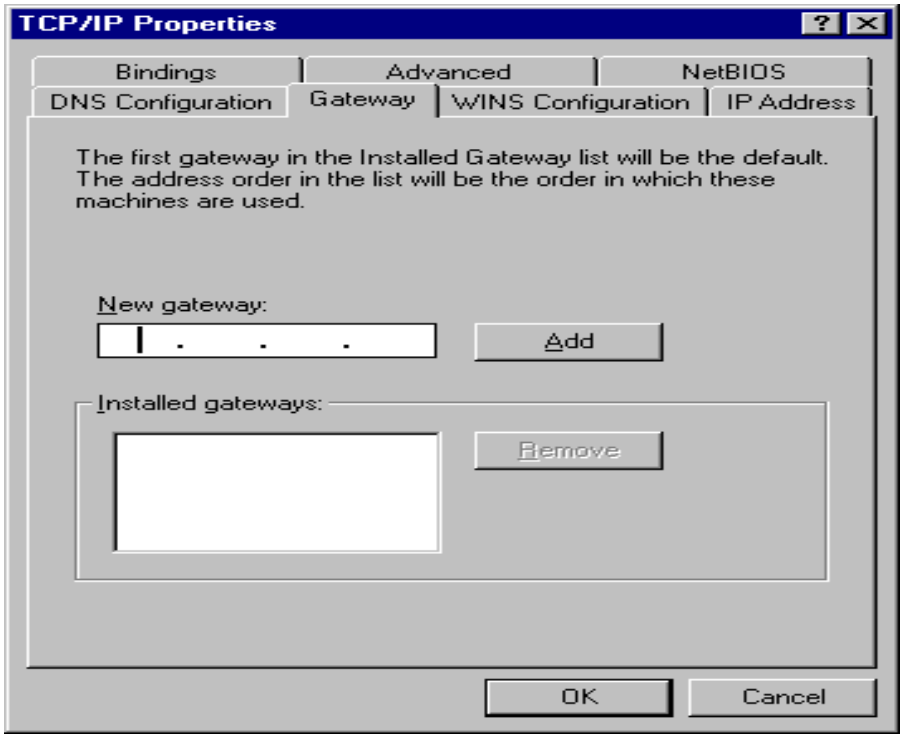
3. Select TCP/IP->**xxxx**, where **xxxx** is the name of network adapter you are using and then click **Properties**.



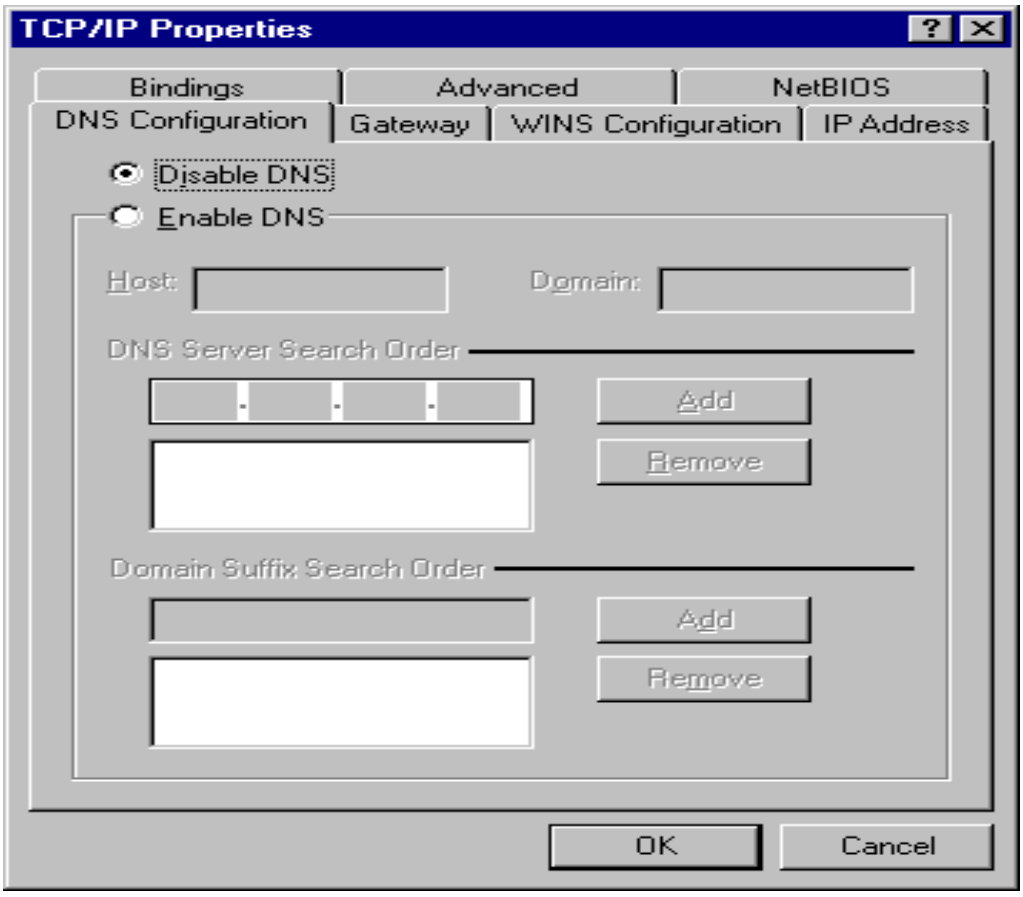
4. Verify your IP Address option is at **Obtain an IP address automatically**.



5. Let your Gateway setting remain empty.

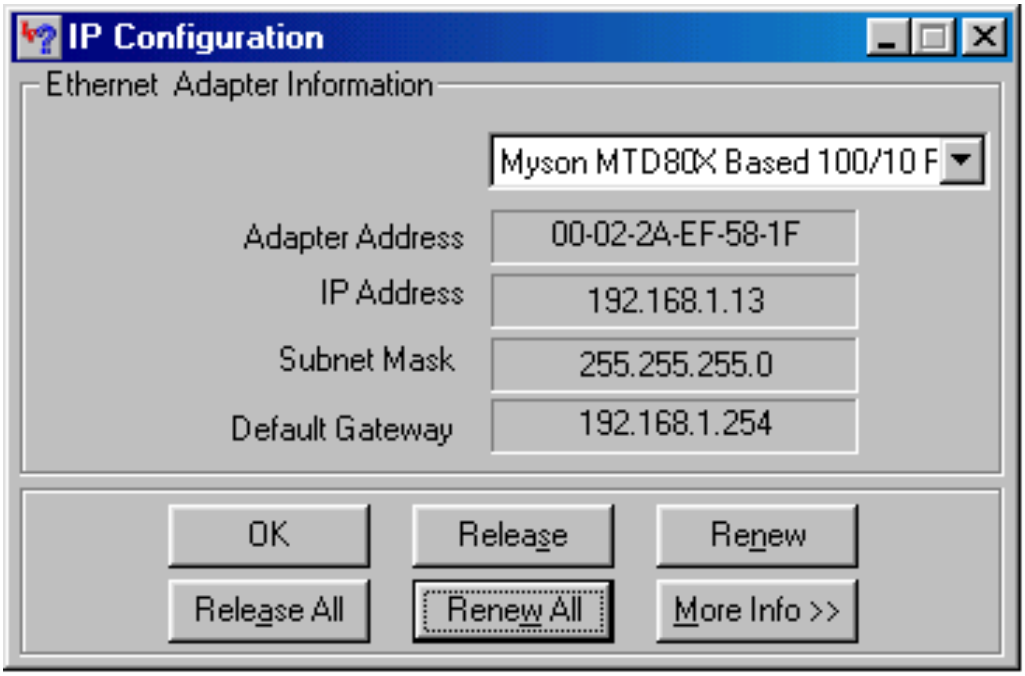


6. Verify your DNS Configuration option is at **Disable DNS**, The Broadband Router will assign it automatically, then click **OK**. But also you may select **Enable DNS**, then key in the value manually if you preferred.



7. Select **Run** item from **Start** menu. Type in **winipcfg** and then click **OK**.

8. Select the network adapter you are using from pull-down list. Click **Release All** and then **Renew All** to get the information about IP Address, Subnet Mask, and default Gateway that Broadband Router gained. Then click **OK**.

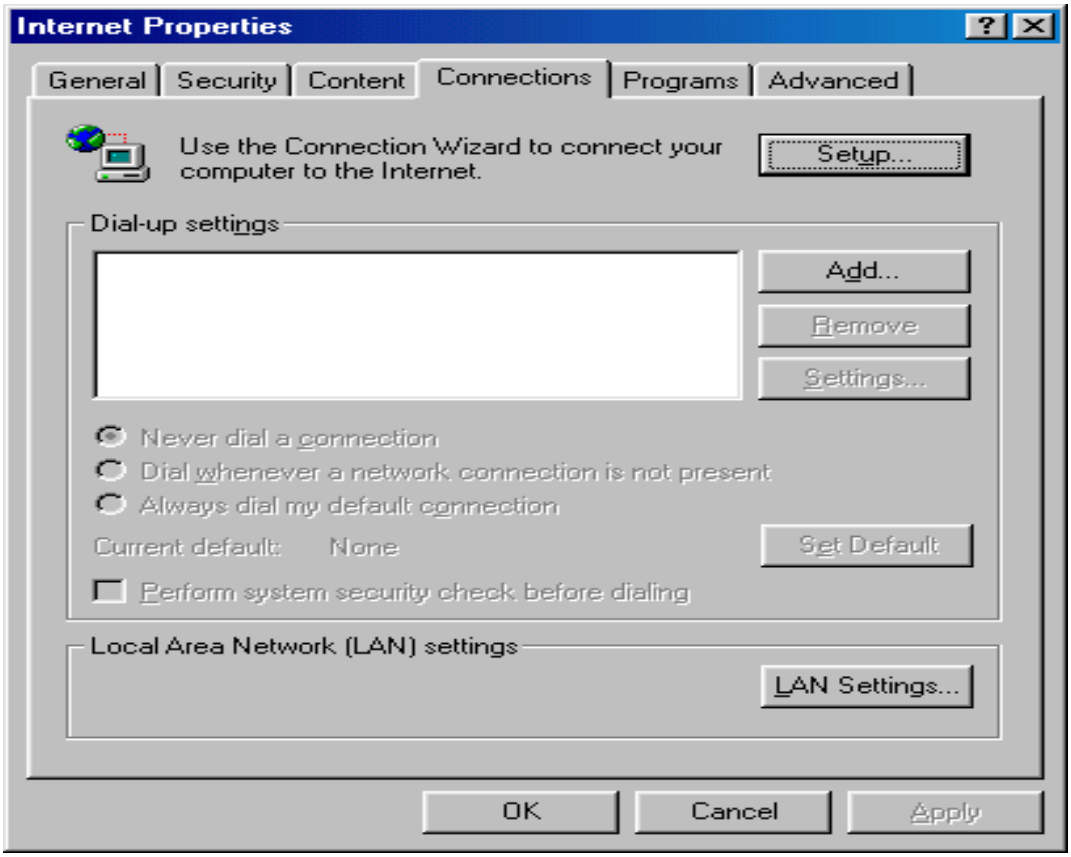


9. You must uncheck the Proxy server function before login the web configuration. The way of uncheck the Proxy server in Internet Explorer and Netscape is described as follow.

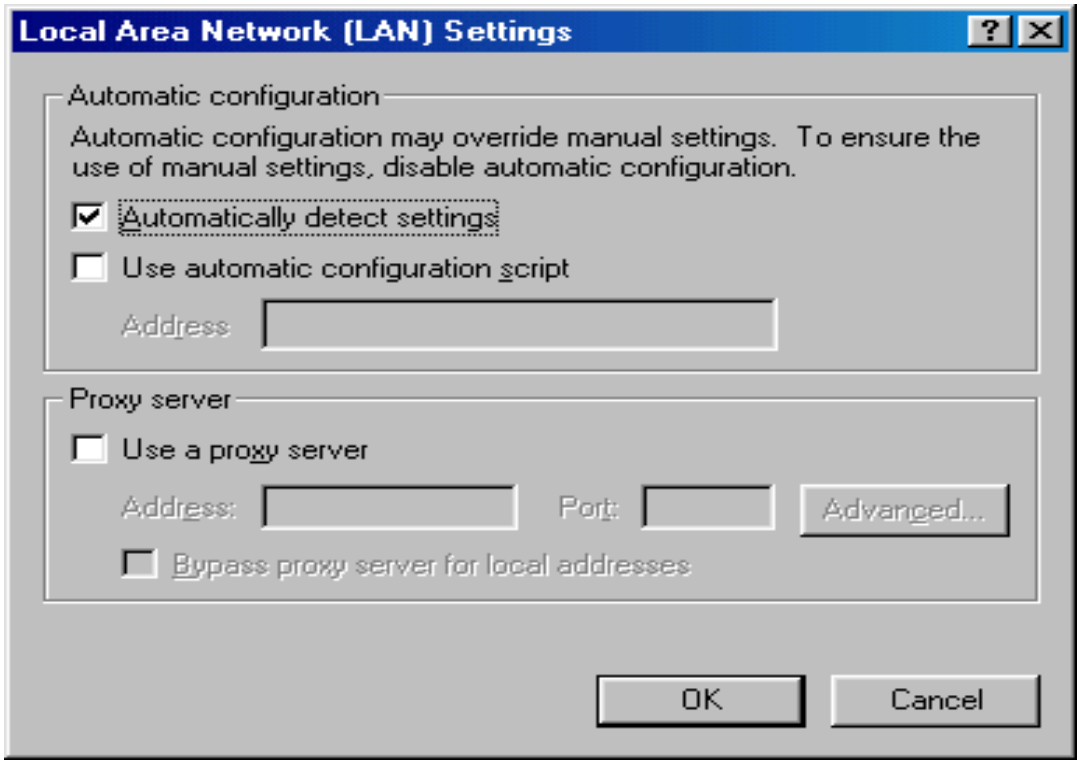
Internet Explorer

- Highlight **Internet Explorer** on desktop and then right-click your mouse to select **Properties**.

- Select LAN Settings in **Connections** tab.

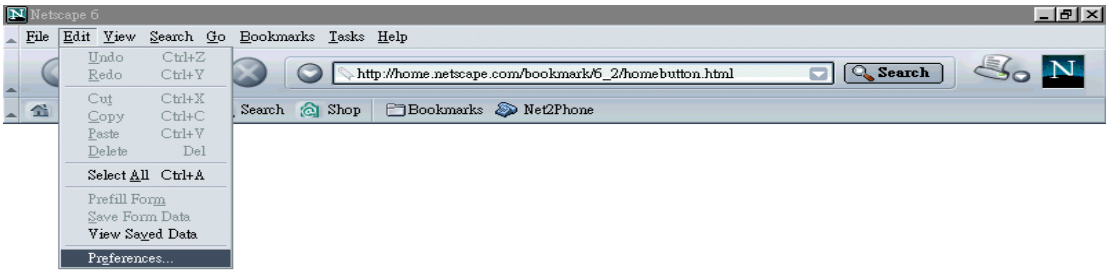


- Uncheck the check box of **Proxy server** and then click **OK**. (You may enable Proxy server function after logout if you need to use it.)

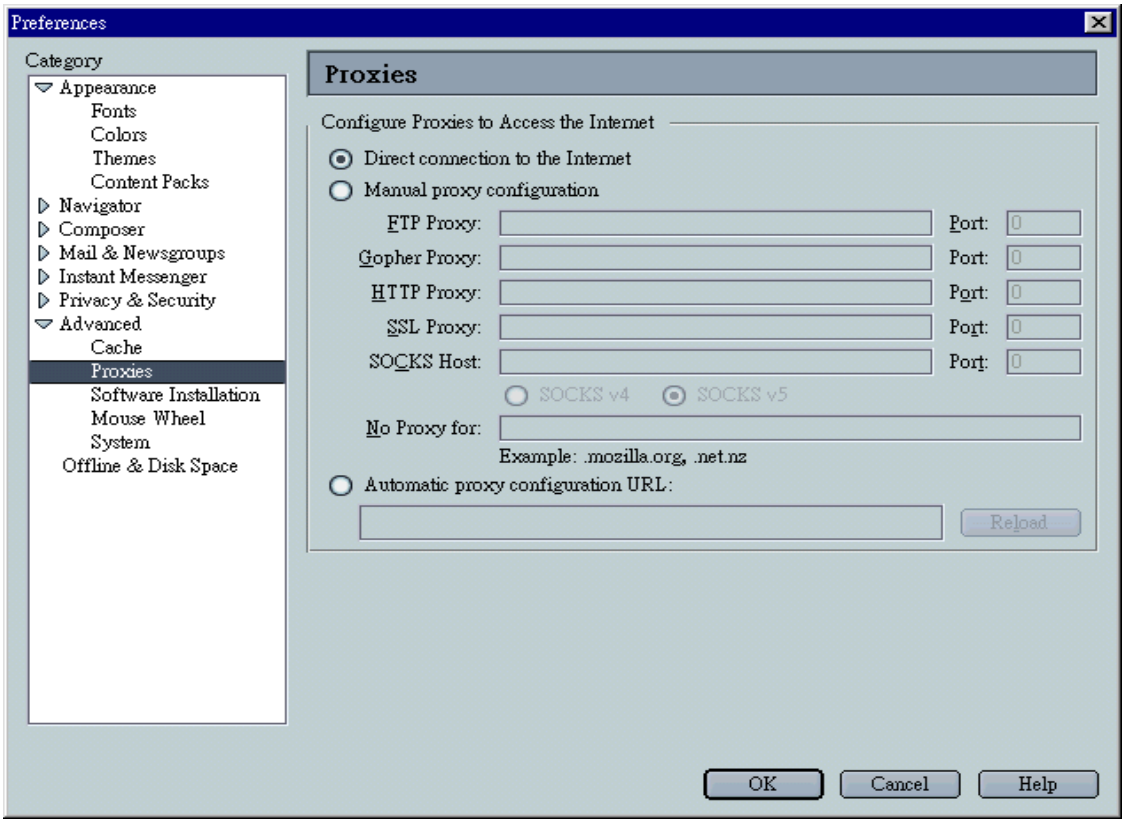


Netscape

- Open Netscape and click the stop button. Click **Perferences** from **Edit** pull-down list.



- Select **Proxies** from **Advanced** item. Select **Direct connection to the Internet** and then click **OK**.

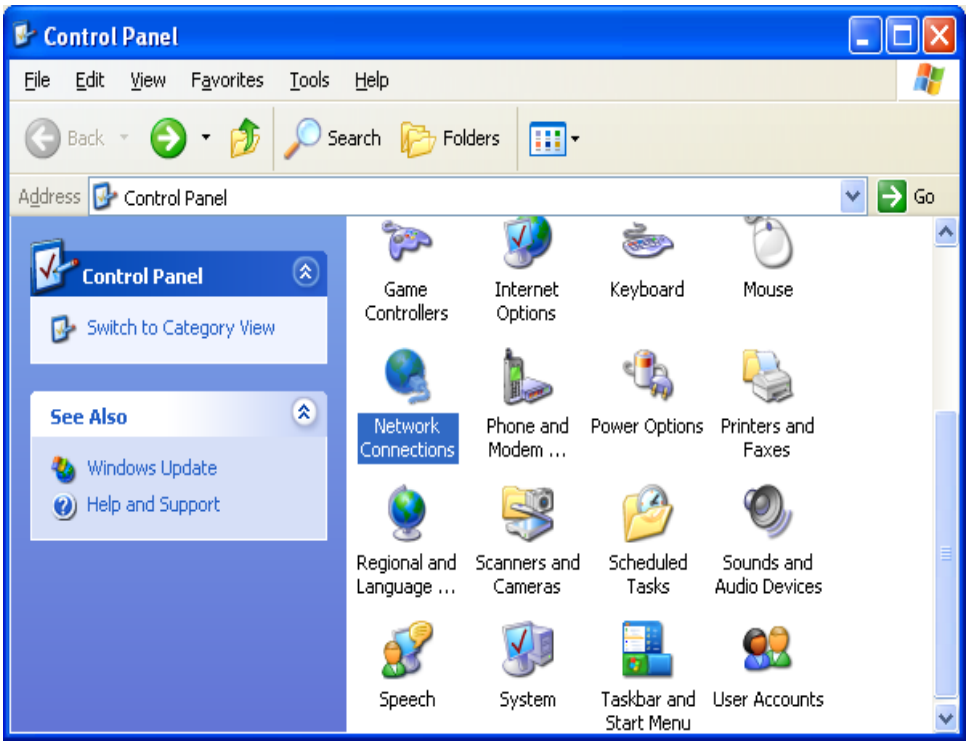


10. Type the default IP address **192.168.1.254** the address bar of the browser to open web configuration.

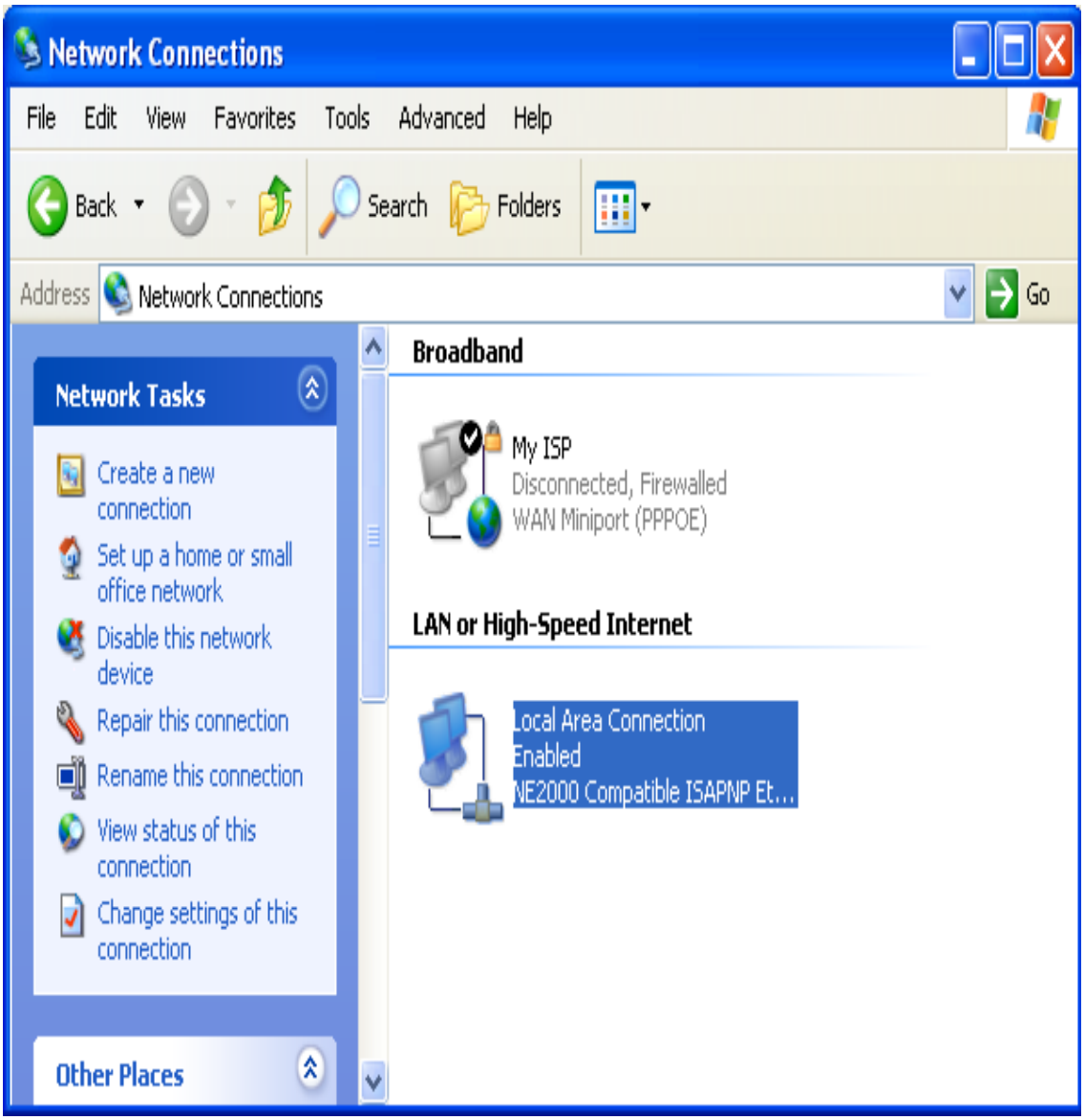
4.2 Windows 2000/XP

1. Select **Control Panel** from **Start**.

2. Double click **Network Connections** icon.

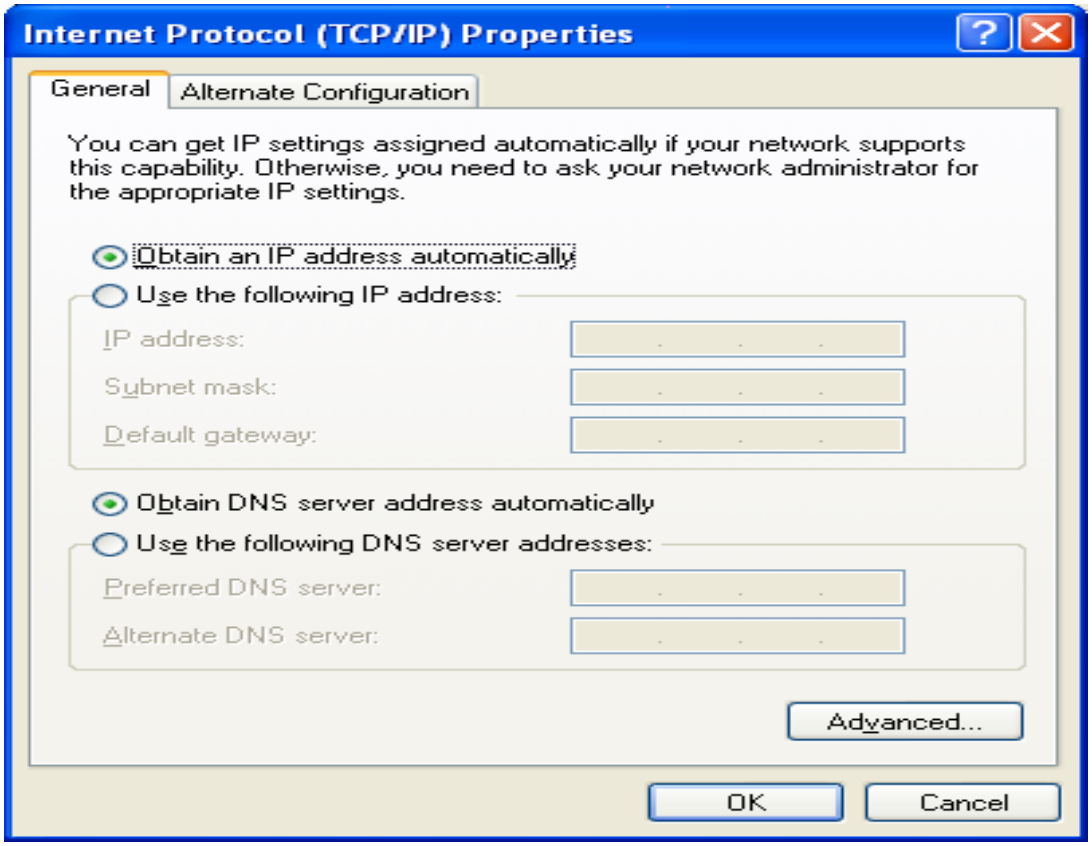


3. Choose the network adapter you are using and then right-click mouse to select **Properties**.

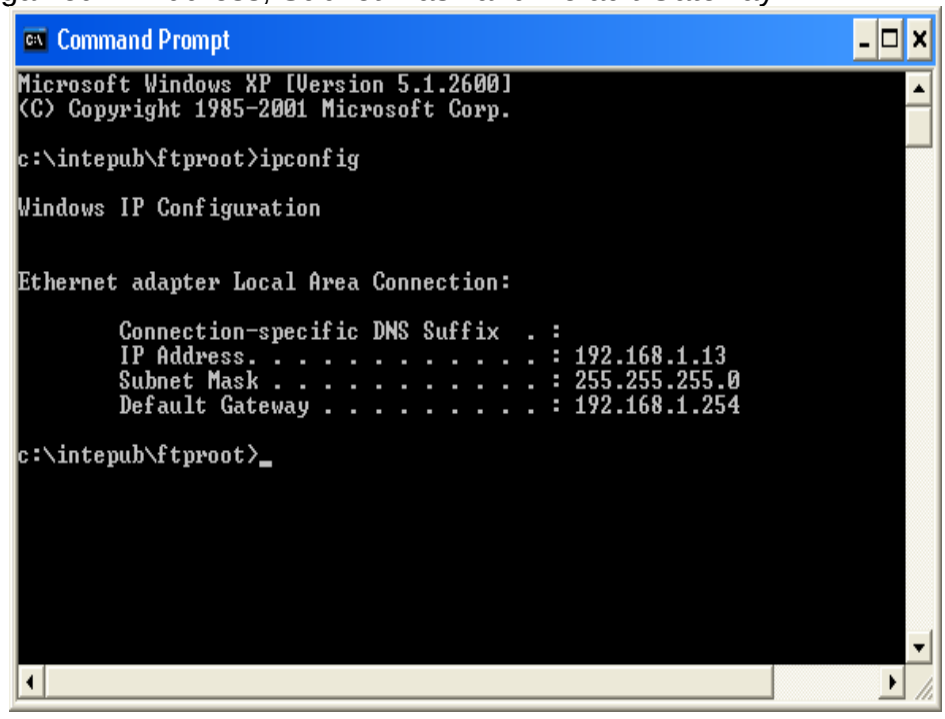


4. Select **Internet Protocol [TCP/IP]** and then click **Properties**.

5. Select **Obtain an IP address automatically** and **DNS server address automatically**. Then click **OK**.



6. Key in **ipconfig** from **Start→All Programs→Accessories→Command Prompt** to view the gained IP Address, Subnet Mask and Default Gateway.

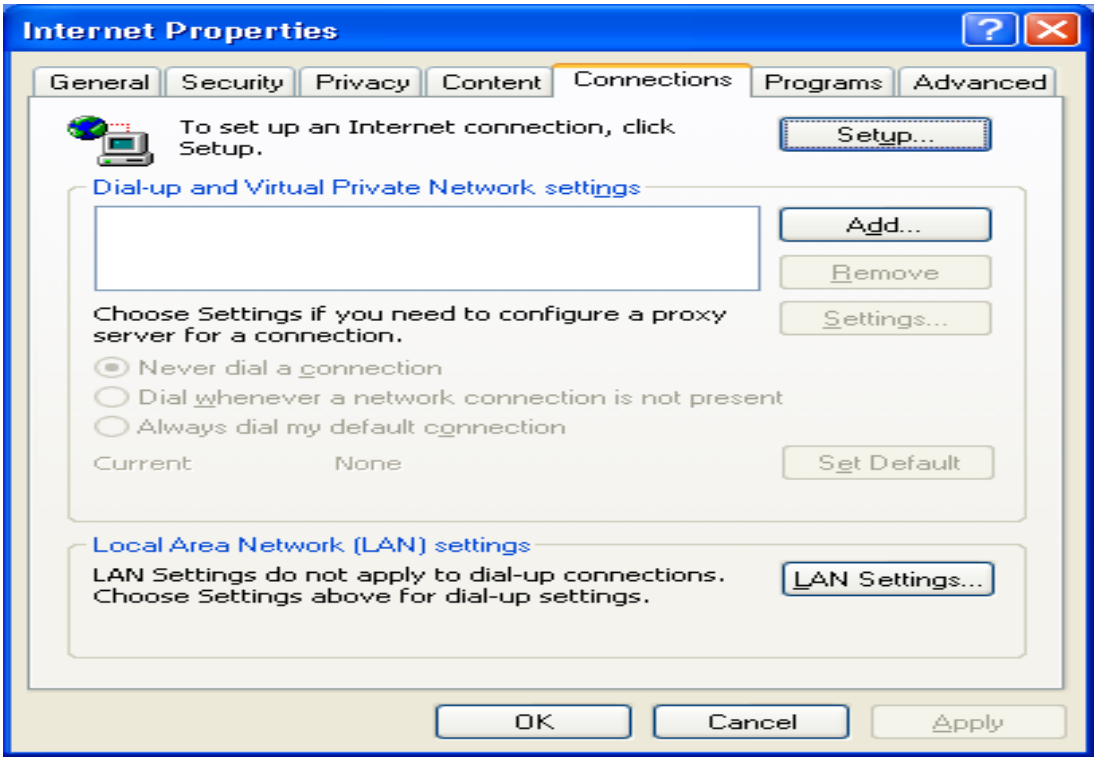


7. You must uncheck the Proxy server before logining the web configuration.

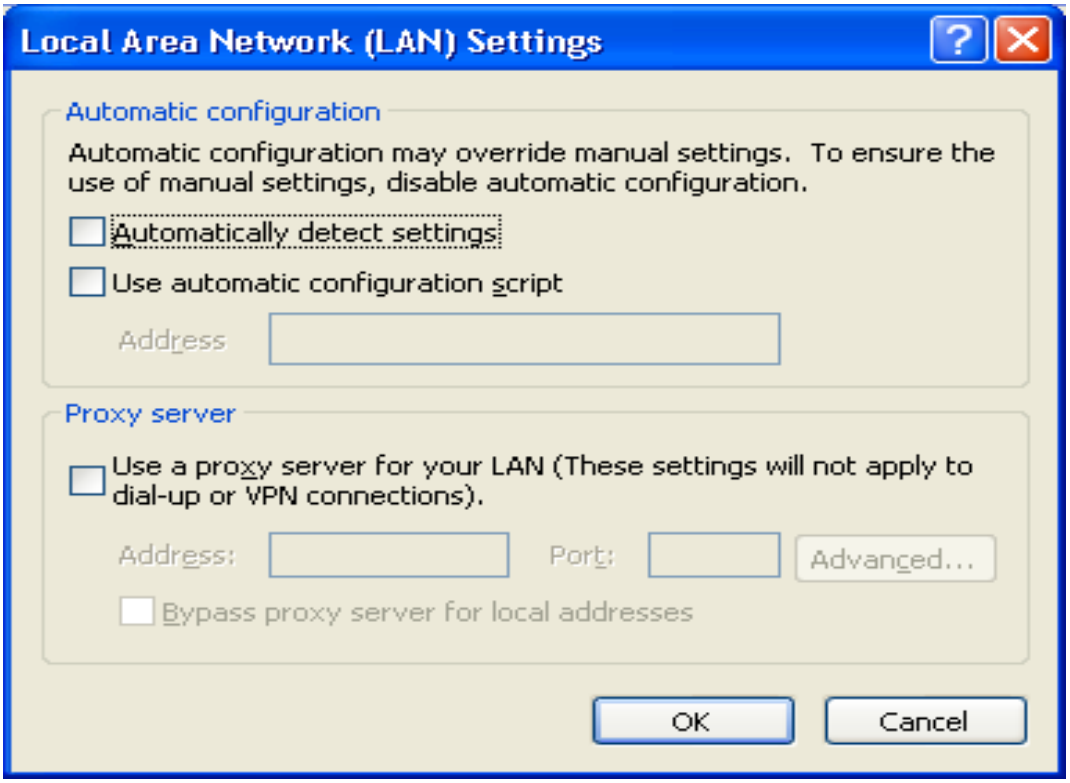
Internet Explorer

- Select **Internet Explorer** from **Start** and then right-click your mouse to select **Internet Properties**.

- Select **LAN Settings** in **Connections** tab.

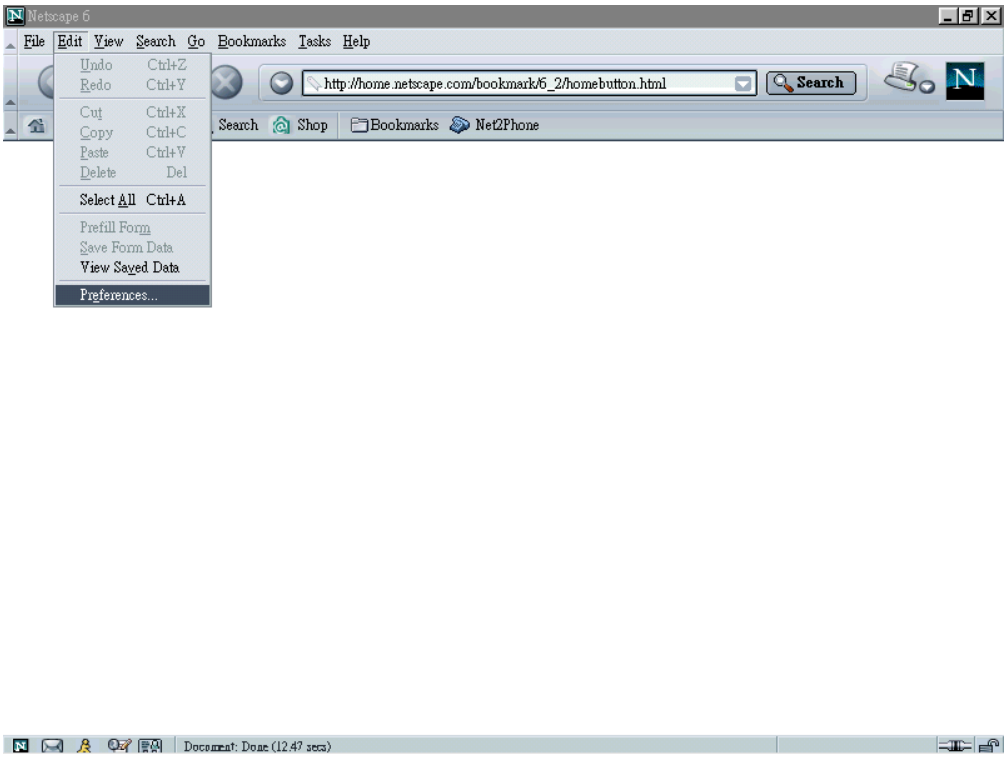


- Uncheck the check box of **Proxy server** and then click **OK**. (You may enable Proxy server function after logout the web configuration if you need to use it.)

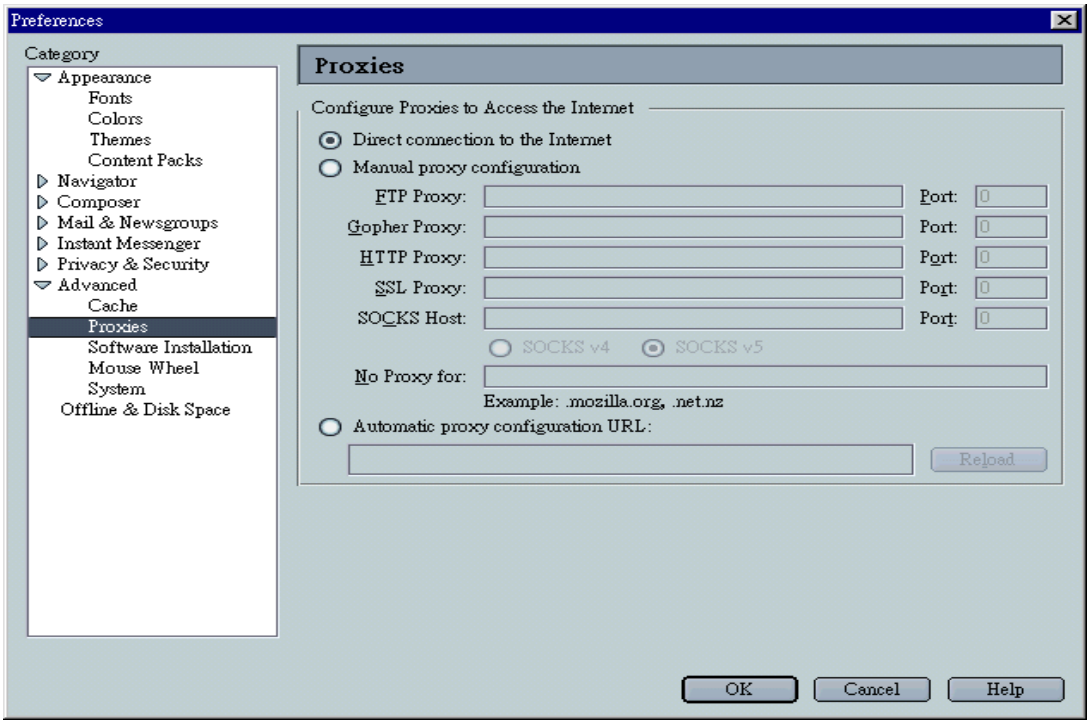


Netscape

- Open Netscape and click the stop button. Click **Perferences** from **Edit** pull-down list.



- Select **Proxies** from **Advanced** item. Select **Direct connection to the Internet** and then click **OK**.



8. Type the default IP address **192.168.1.254** the address bar of the browser to open web configuration.

CHAPTER 5 CONFIGURE ROUTER

5.1 Administration

5.1.1 Log on-

Type the default IP address **192.168.1.254** in the address bar of the IE browser. Then enter default User name and password. The user name and password both are **admin**.

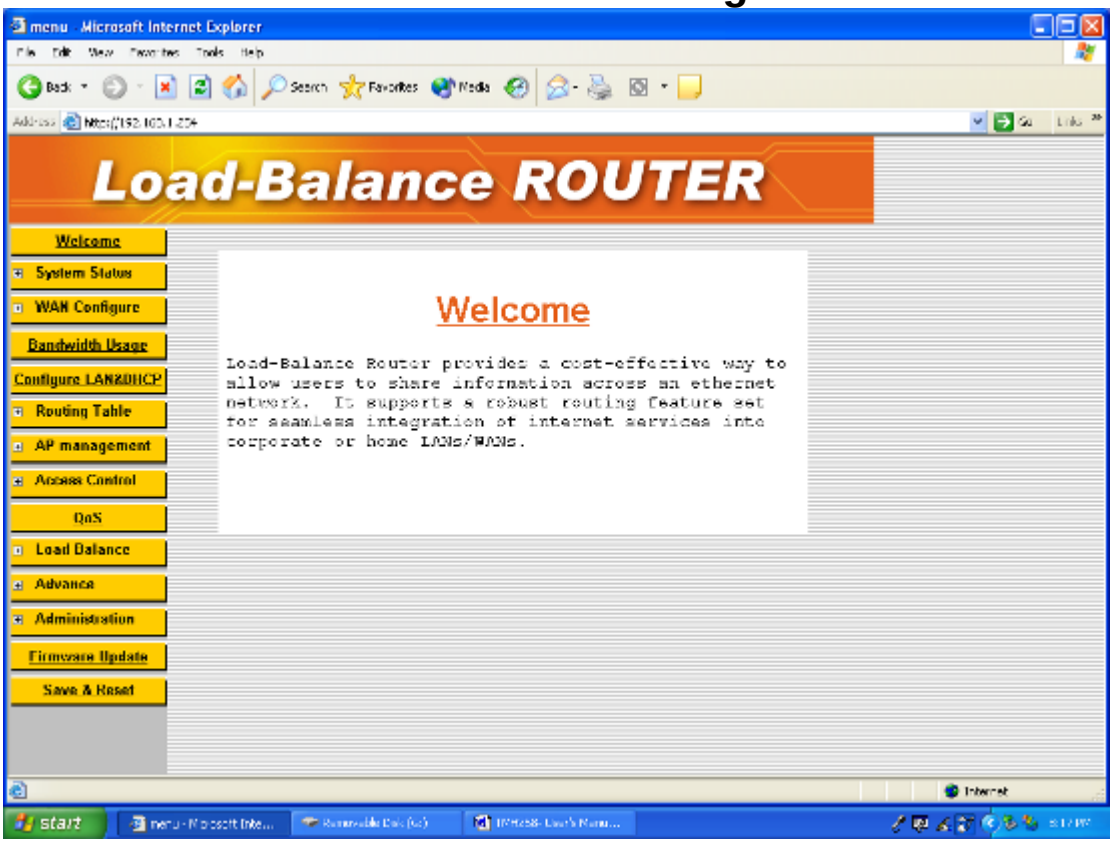
LOG ON

Web configuration display includes

. Welcome
. System Status,
. WAN Configure
. Bandwidth Usage Control
. Configure LAN&DHCP
. Routing Table
. AP management
. Access Control
. QoS
. Load Balance
. Advance
. Administration
. Firmware Update
. Save & Reset

The various configuration menus are explained below.

Welcome Home Page



You can select various function list in the left side of Welcome display

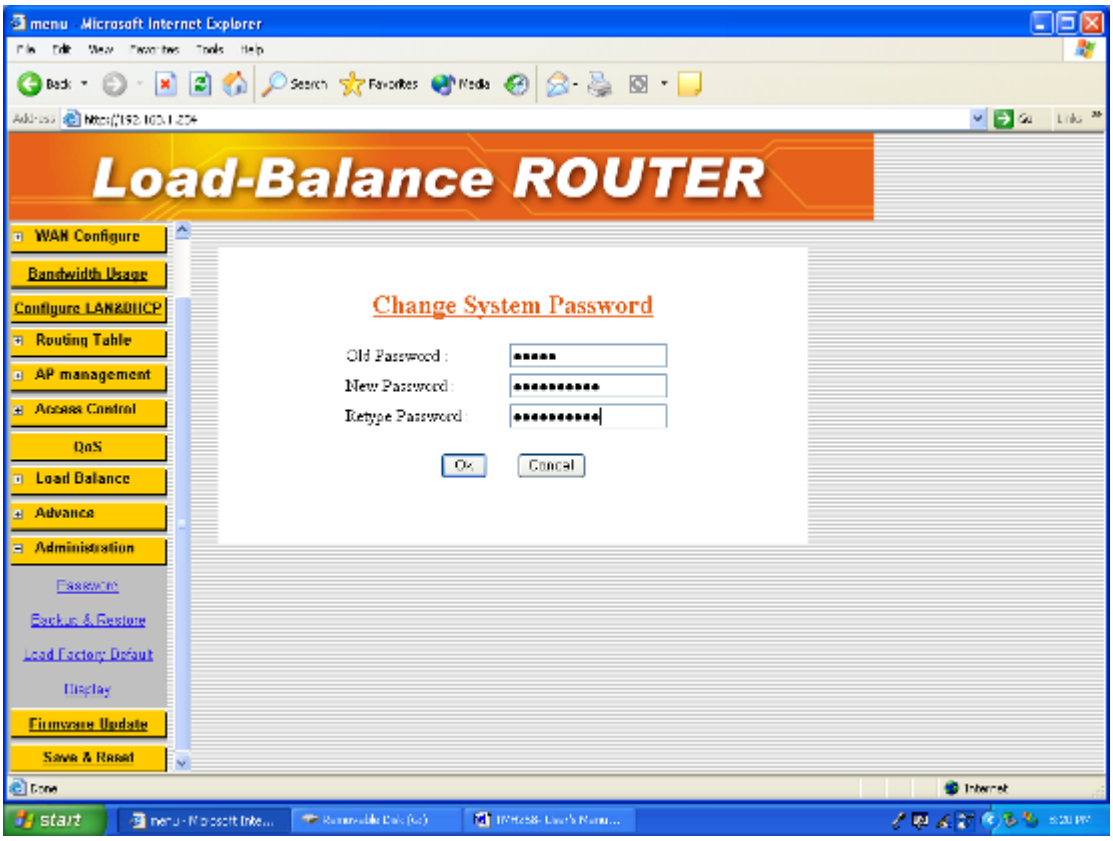
5.1.2 Change Password

Use this function to change the **Password** that is used for access the web configuration. Type in the **Old Password, New Password** and **Retype Password** in their respective fields and then click **Ok**, the password will be changed to new one after re-boot.

"Password length can up to 30 alphanumeric characters with case sensitive"

WE SUGGESTED YOU TO CHANGE ROUTER PASSWORD AND KEEP IT IN SAFETY PLACE AFTER YOU RECEIVED ROUTER AND FINISH ALL ROUTER PARAMETER SETTING.

CHANGE SYSTEM PASSWORD



5.1.3 Load Factory Default

Use this function to reset all the settings to their factory default values or latest configuration file. Click Ok after selection, the ROUTER will restart automatically.

RESET BUTTO OPTION

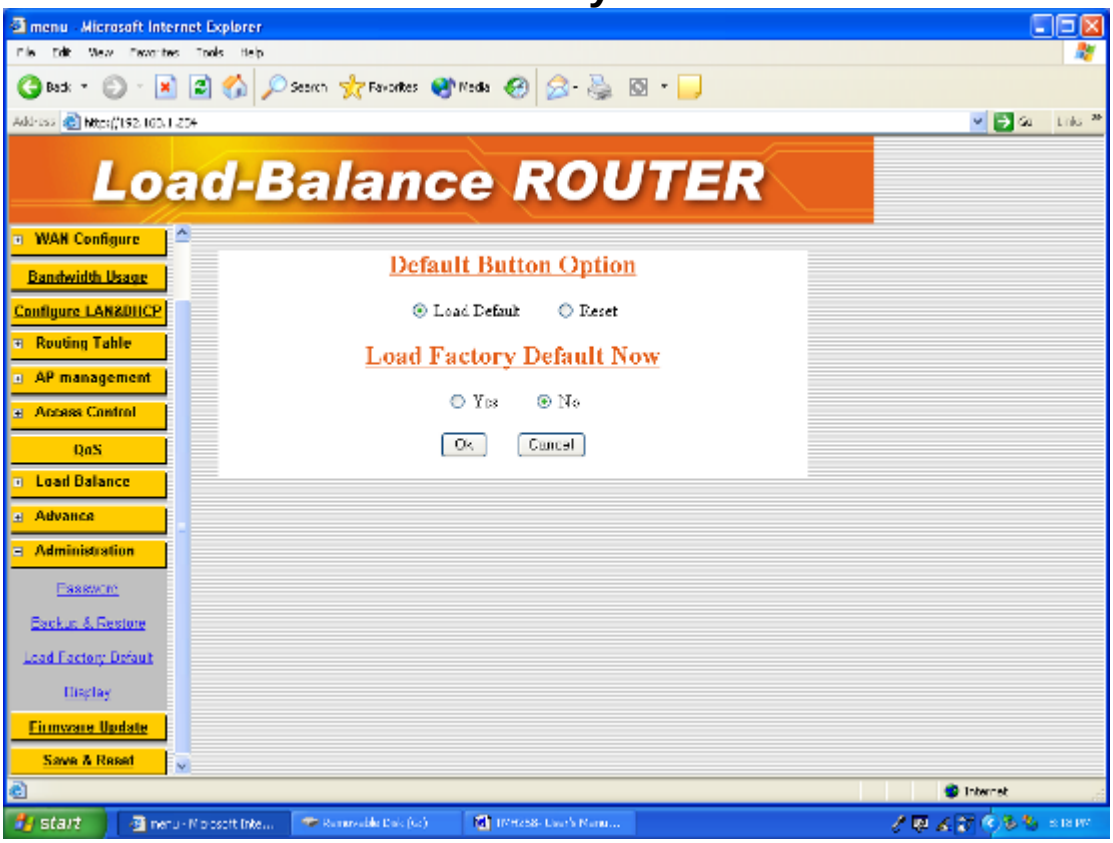
This option is used to define Default button on the back penal of the router.

- Load Default: press Default button, the factory default configuration will be loaded
- Reset: press Default button, the latest configuration file will be loaded

LOAD FACTORY DEFAULT

Tick “Yes” option then click “Ok”, you can load the factory default value immediately. If you only want to submit new setting for Default Button Option without load the factory default, tick the No Option before click Ok.

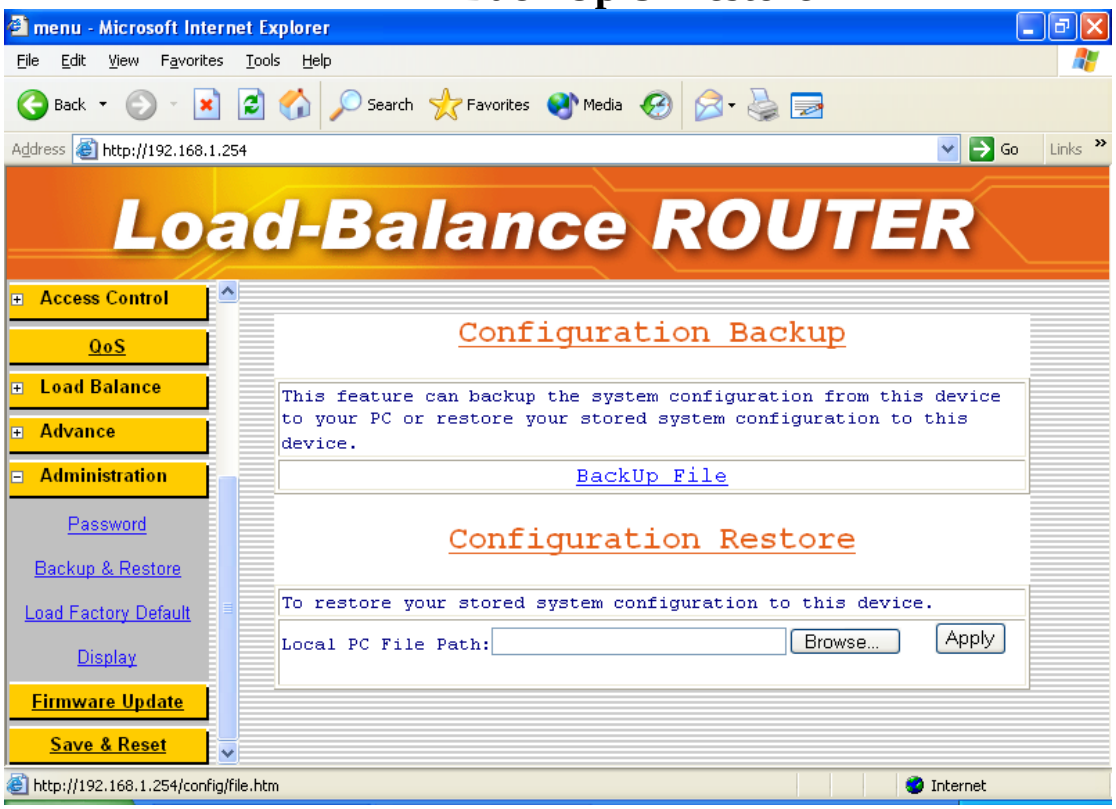
Load Factory Default



5.1.4 Back Up & Restore

Use **Back Up & Restore** function to save all the settings parameter to PC for safety issue, in order to avoid all parameter lose when system crush..

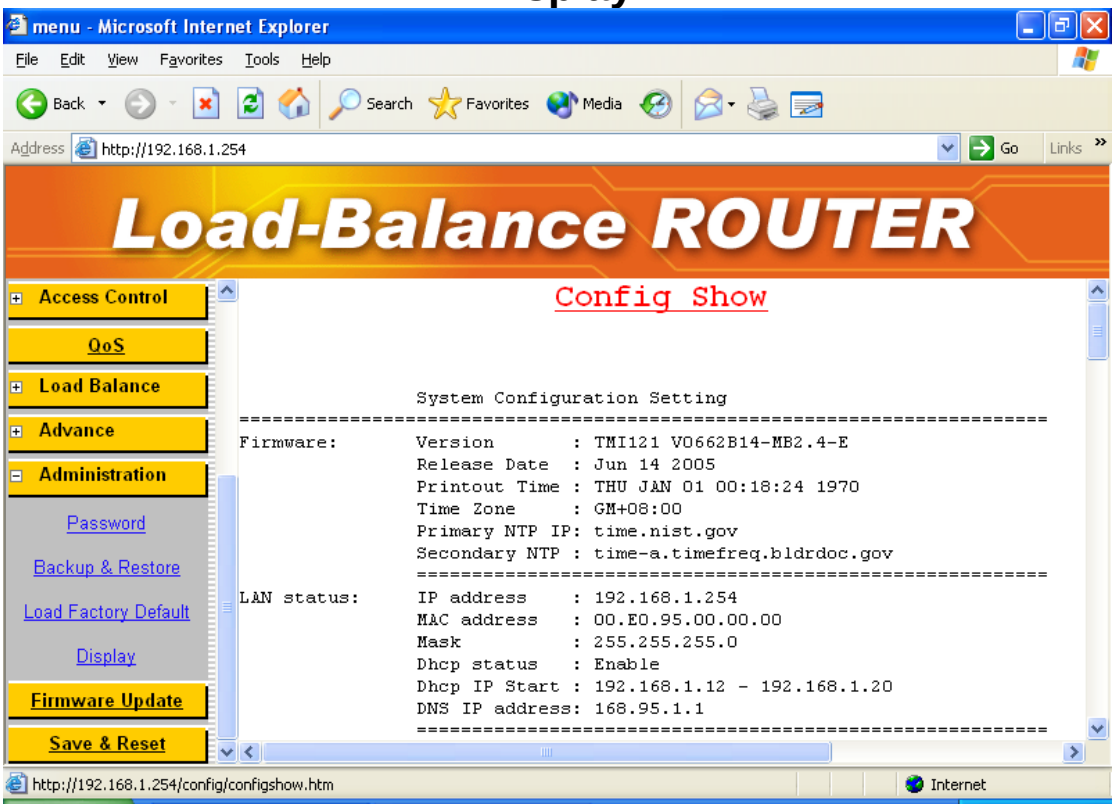
Back Up & Restore



5.1.5 Display

You can this function to check all the parameter setting in this router, in order to save time to check every display.

Display



5.2 System Status

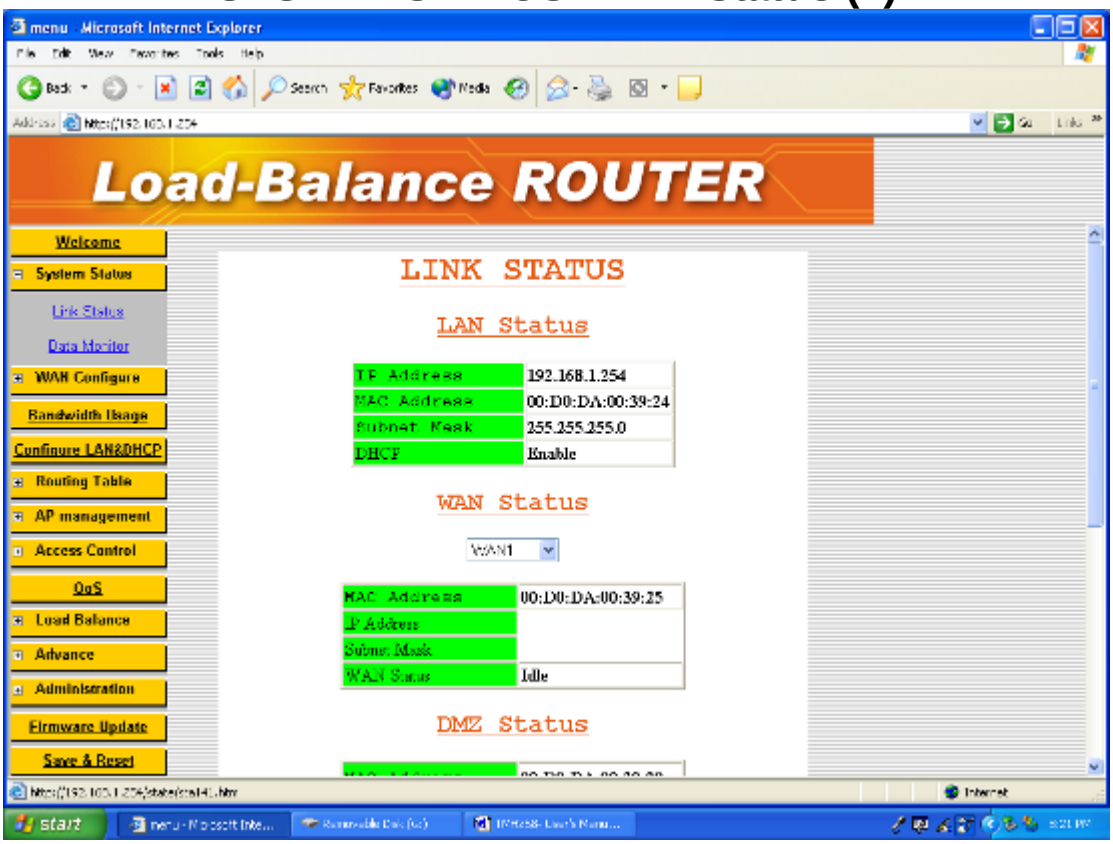
5.2.1 Link Status

You can get the following information in Link Status window

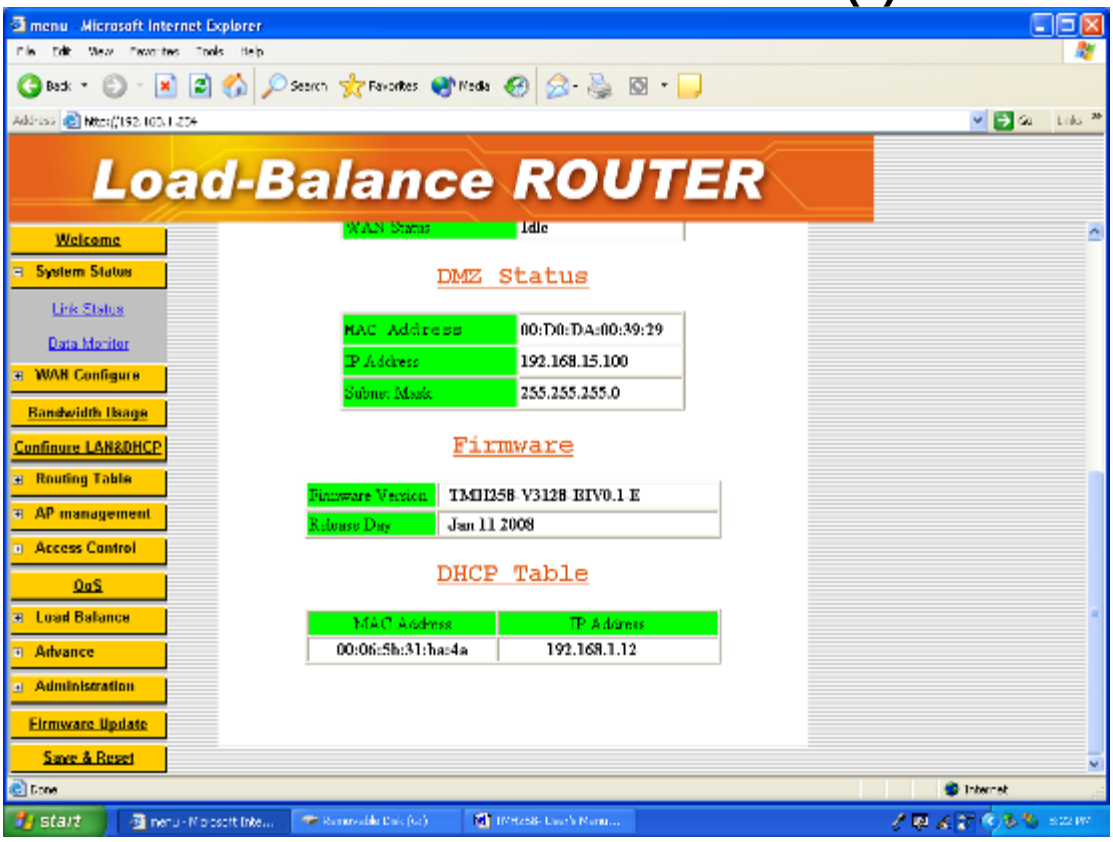
- **LAN Status**,
- **WAN Status**,
- **Firmware Version**
- **DHCP TABLE**

LAN Status: Shows the information of **MAC Address**, **IP Address**, **Subnet Mask** and **DHCP Status** (Enable/Disable).
WAN Status: Shows the information of **MAC Address**, **IP Address**, and **Subnet Mask** on each or all **WAN** ports
Firmware version: version of software and its released date.
DHCP TABLE: Shows the information of **MAC Address** and **IP Address**.

SYSTEM STATUS - Link Status (1)



SYSTEM STATUS - Link Status (2)



5.2.2 Data Monitor

Differ with Link Status window, Data Monitor window provide detail packet transfer status, it include 2 kinds of data

Real Time Data happen in each WAN port

Current Session

TCP Session:

UDP Session:

ICMP Session:

Total Session:

Current Bandwidth

Download Speed:

Upload Speed:

Accumulated packet happen in each WAN port

Data Counter

Usage: % of total packet send through each WAN port

Example: WAN1 usage% = WAN1 total packets_____ %
(WAN1+WAN2) total packets

Byte Transmit: ……remark (A)

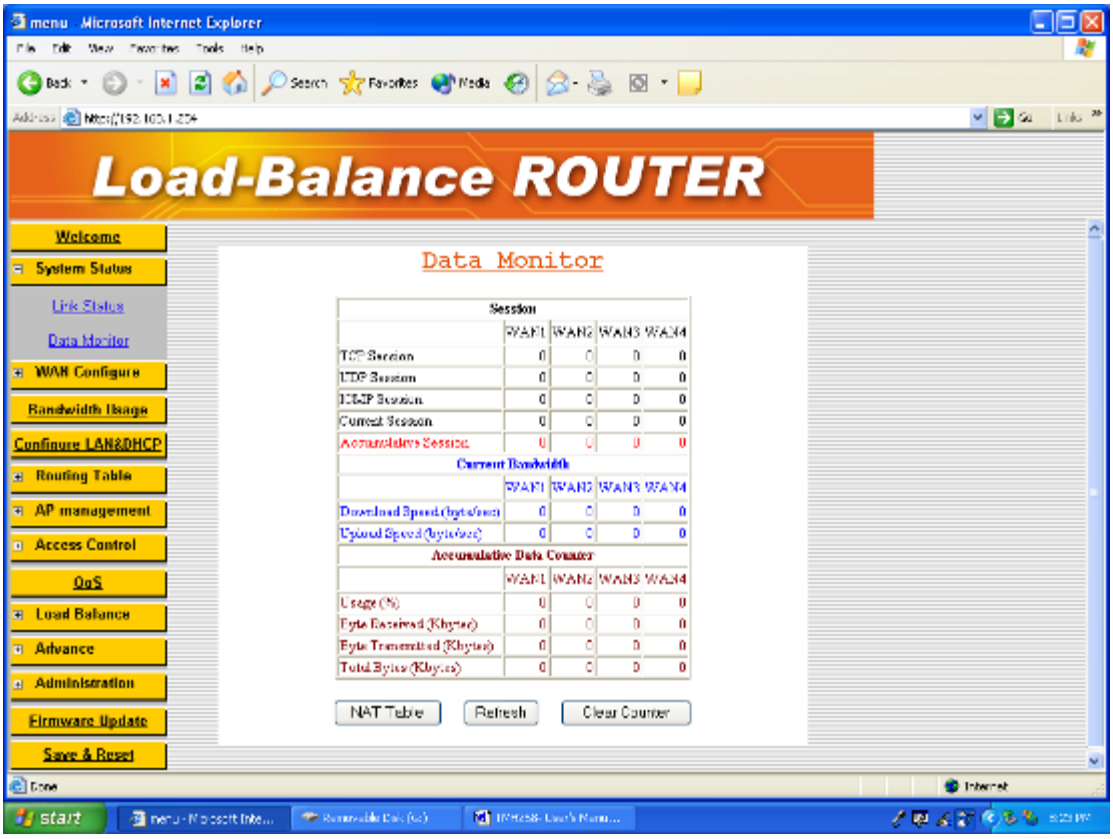
Byte Receive: …….remark (A)

Total Bytes: Total packets transfer by each WAN port ……remark (A)

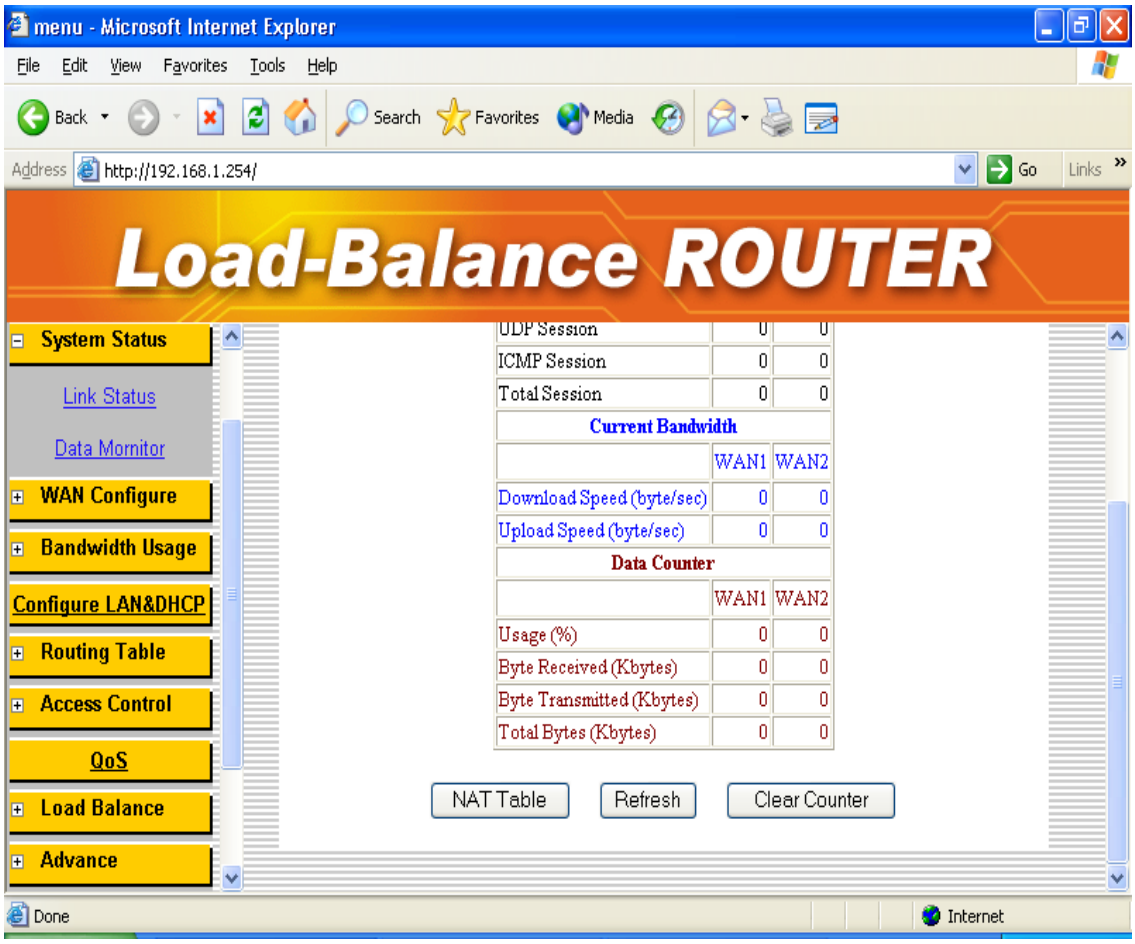
Remark (A): Packet starts accumulate from.

* Router power on
* Click “ clear counter”
* Counter reach upper limit number (4294967K) will reset from 0 automatically.

SYSTEM STATUS - Data Monitor (1)



SYSTEM STATUS - Data Monitor (2)

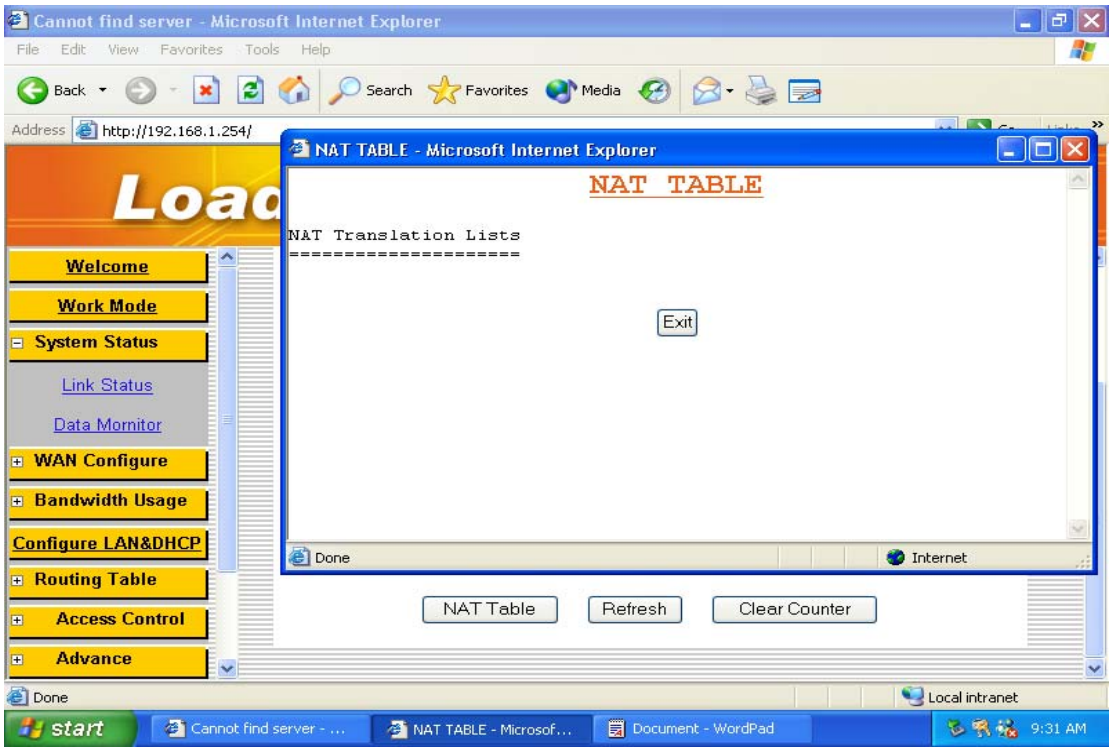


NAT Table: list current user detail NAT data.

Refresh: update data monitor table to display newest data

Clear Counter: reset **Data Counter** data to 0,re-start accumulate.

SYSTEM STATUS – Data Monitor – NAT Table



5.3 WAN Configuration

-Configure WAN1/WAN2/WAN3/WAN4

There are several **WAN** function can be made in this display, you can configure functions to each WAN port separately.

Connect to

-**Internet**: WAN port is connect to Internet through ADSL/Cable modem

-**Intranet**: WAN port is connect to another router LAN port, work together with “Static Route” function, can restrict specific IP packet to a dedicate route path.

Healthy Check

-Enable: Router will check ADSL link automatically to check whether link alive or not ,if link fail, the Router will switch packet to another exist link(except TCP packet), the router will switch back to ADSL link again after router check ADSL line link again

Router provide 3 method to check ADSL link, you can choose it with each method or both

- Ping IP : to test IP in Internet
- DNS : test DNS in Internet
- Time Server

Suggest to select at least 2 method to check ADSL link, in order to avoid router making wrong action due to Internet Server disable.

-**Disable**: no **Healthy Check** function,

if without “Time Server” exist, this function will disable automatically

Healthy Check can be set up to test 3 different destination IP, in order to avoid

wrong operation (in case destination server fail)

WAN TYPE
Three kinds of **WAN** types to let you select on each **WAN** port:

1. **[Dynamic IP]**
   . connect to CABLE MODEM.
   Obtain an IP address from ISP automatically.
   Usually it's used to connect CABLE modem. You won't need to assign IP Address, the Broadband Router will get the IP address for you automatically.

2. **[PPPoE]** (Gateway / Basic NAT Mode only)
   . Connect to Dial Up DSL
   Some ISPs require use of PPPoE to connect to their service.
   Connect to ISP via dial-up connecting, ISP will assign a legal IP to you after the user Id and password had been passed when the connection is made (The user Id and password here are provided by your ISP.)

3. **[Static IP]**
   . connect to Leased DSL
   ISP assigns you a static IP address.
   When used the leased line of ADSL. ISP will provide you the relative IP, Subnet Mask, Gateway and DNS. You need to indicate the static IP manually.

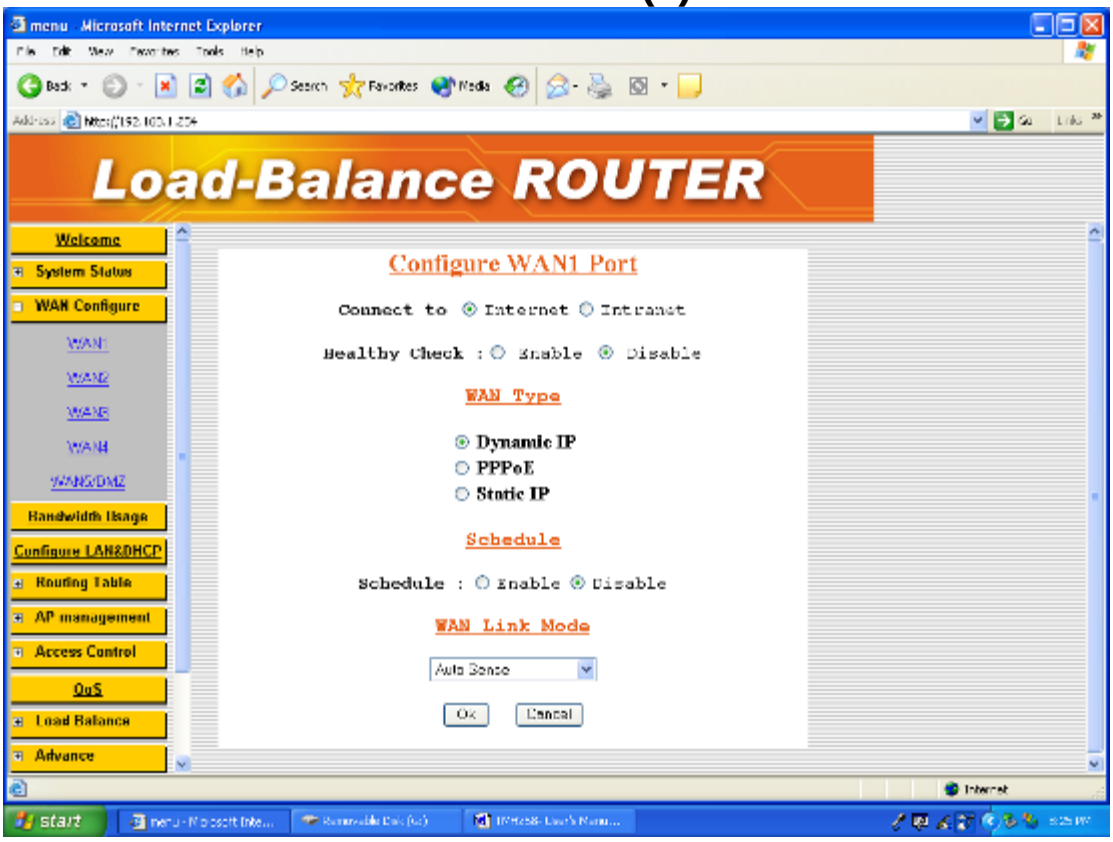
SCHEDULE
This function allow you to control each WAN port link up/down time by daily/weekly
Start Time (hh: mm)
End Time(hh: mm)
Using 00 ~23 to indicate Hours.
Example 17:00 means 05:00 PM
Weekly: choose by day

Note: When enable SCHEDULE function, the Line will up/down following the timer set, no matter DOD function is enable or not.

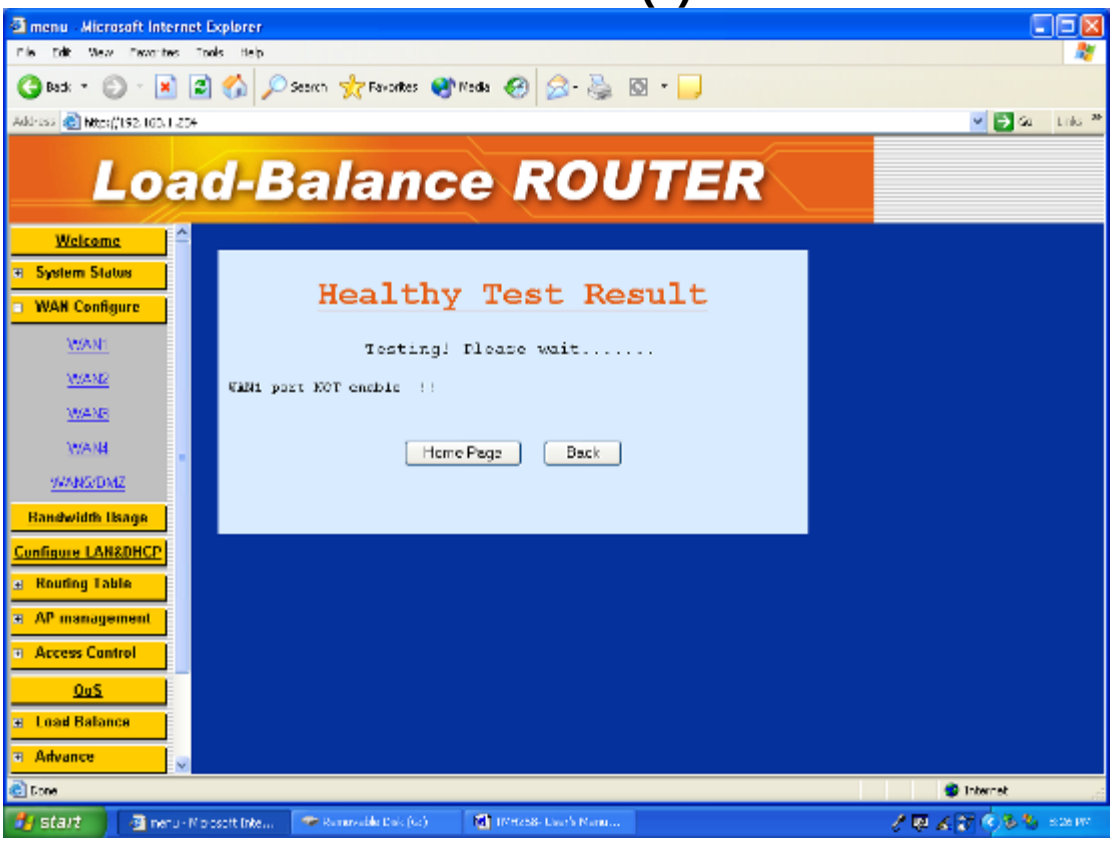
WAN SPEED: you need to enter speed of each WAN port (K bps)
Otherwise ROUTER **will not work properly** in
- Load Balance: Traffic Mode
- Bandwidth Usage Control

WAN Link Mode:
You can choose WAN port work mode with ADSL modem
Auto Sense
10Mbps Half Duplex
10Mbps Full Duplex
100Mbps Half Duplex
100Mbps Full Duplex

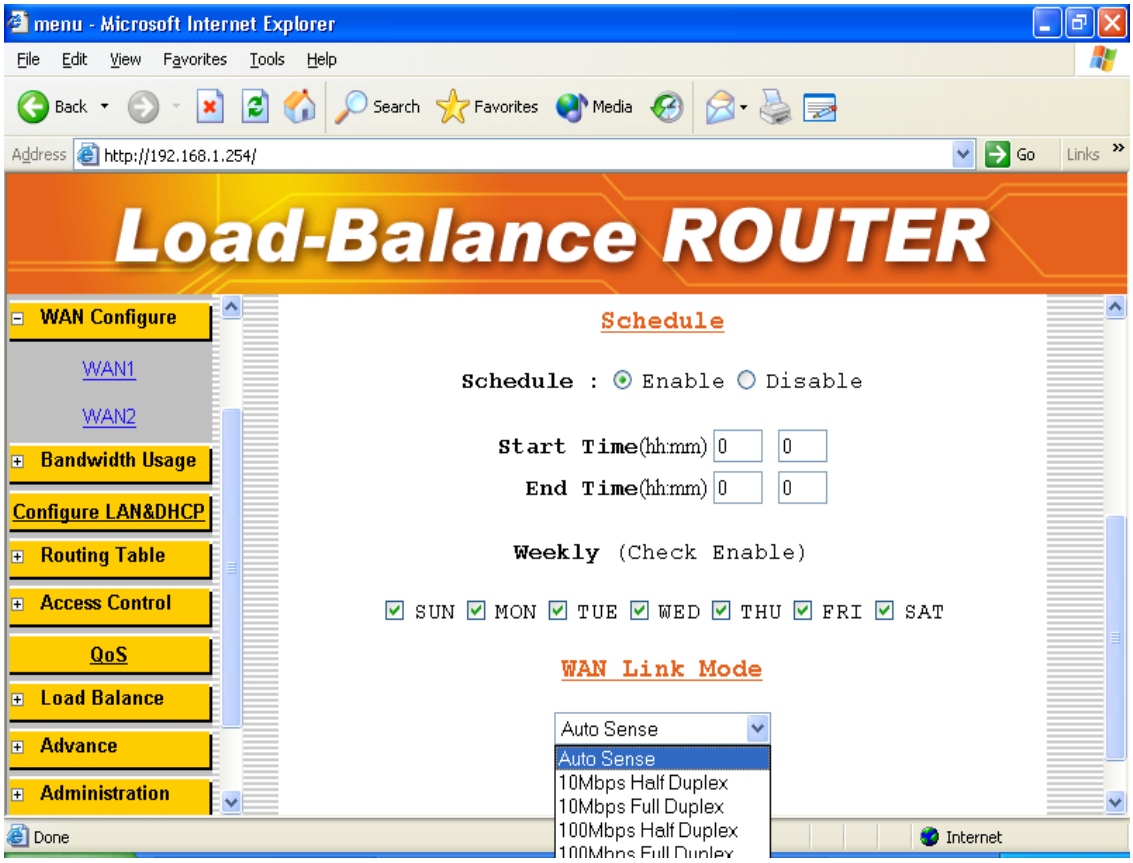
WAN CONFIGURE (1)– WAN1



WAN CONFIGURE (2)– WAN1



WAN CONFIGURE - SCHEDULE



5.3.1 [Dynamic IP]

connect to CABLE MODEM

When choose Dynamic IP, you only need to save this selection When finish setting all parameter, reboot router.

5.3.2 PPPoE/Dial Up DSL Type

Select [PPPoE /Dial Up DSL] and you will need to enter the ID and Password. Sometimes you also need to input the Service Name if ISP requires for it. Max Idle Time is using to disconnect the ADSL connection automatically after the idle period you define. The unit is minute and the default is 0. This default value let Broadband Router remain connecting all the time unless disconnected by user manually or ISP. If you define the period as 3, and the Broadband Router will auto disconnect after idling 3 minutes. Supposing that you don't have the Service Name, you may ask your ISP for it.

Account: User Name, provide by ISP, up to 60 characters can be enter.
Password: provide by ISP, up to 60 characters can be enter.
Max Idle Time: o =no check, check by minutes
Dial On Demand (DOD): auto connects function.

Manual: You need to initiate WAN connection manually, by clicking "WAN1 connect" or "WAN2 connect" button in "System Status" - "Link Status" menu. However, power up or reset also can initiate the WAN connection.
Dial-on-demand: Whenever a user is trying to access the Internet from his computer, this WAN port will start connection automatically if it is disconnected.
Always-on: The WAN port will try to establish the connection as long as it is

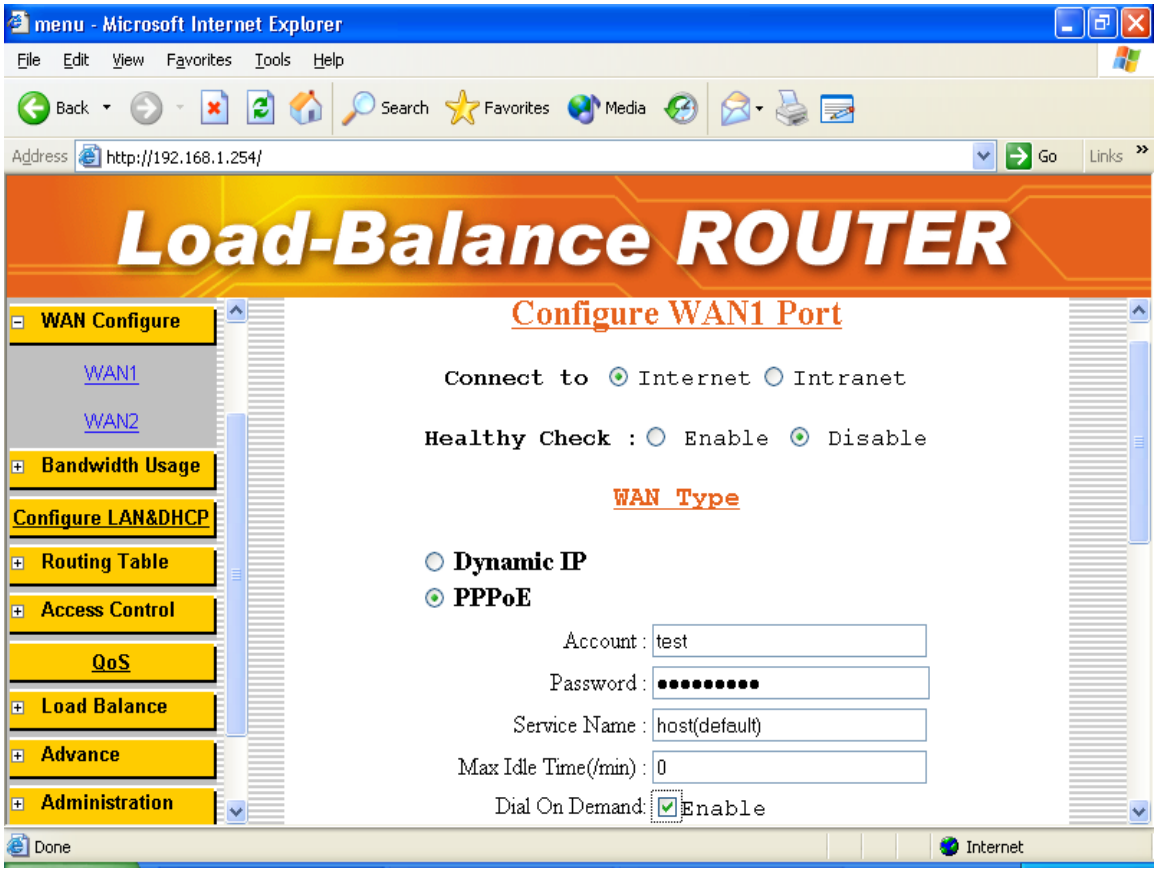
disconnected, no matter this port is used or not.

about "always on " function, normally you need to combine "Health check " function together, then "always on" will be work more prefect because there have a ADSL modem between router & ISP equipment. in physical layer, if ADSL line fail but ADSL modem still alive , our router can not detect line is broken unless ISP send a disconnect packet to router so if ADSL line is in abnormal up-down, sometimes router can not get disconnect packet from ISP. may be in ISP side . it treat line already disconnect, but router seems it still "connected" .

If you enable " Health check " in each line. then router can automatically send packet out through WAN to detect whether line is active or not (1 packet/30 sec) this function will cover entire network to secure packet will not lose in defect-line , include router-->ADSL modem--> ADSL line--> ISP Equipment---> Interest.

It's better to enable at least 2 option in "Health Check" , in order to avoid misjudgments when only 1 option selected and that "option Server fail"

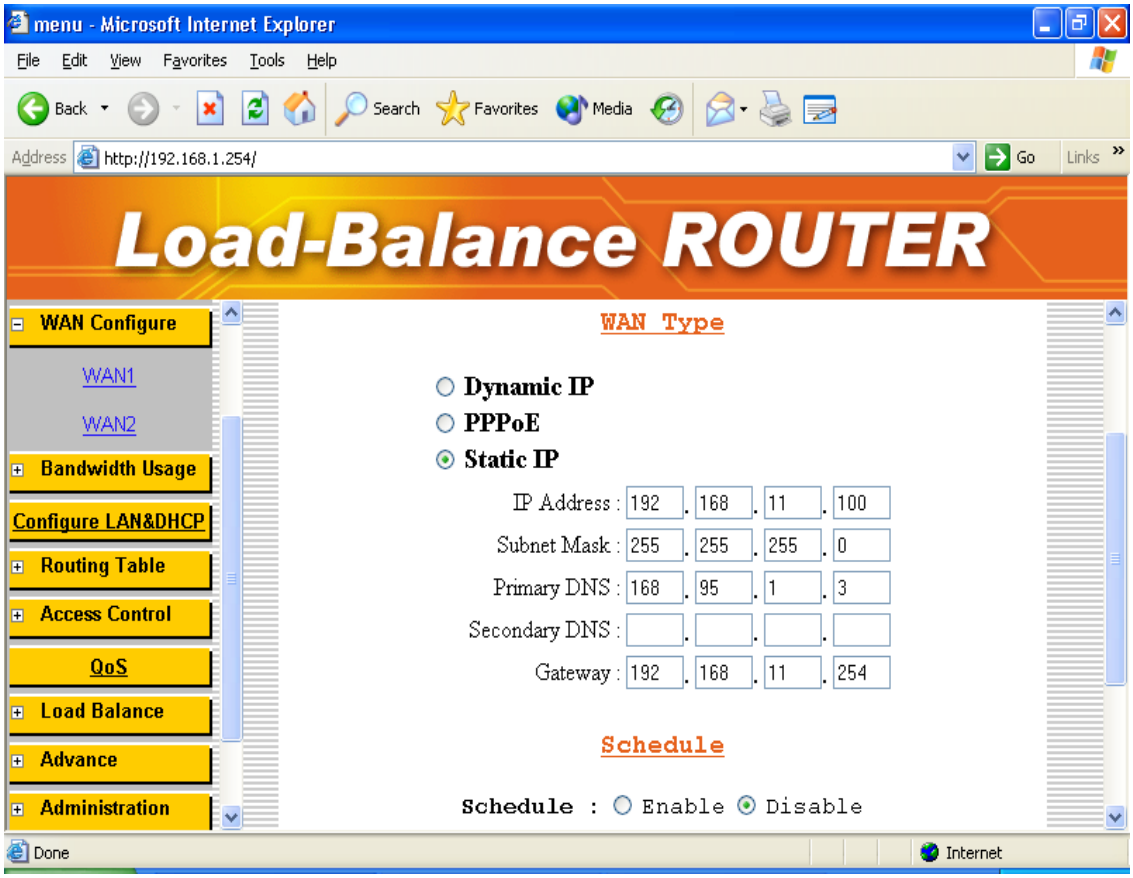
CONFIGURE WAN - PPPOE



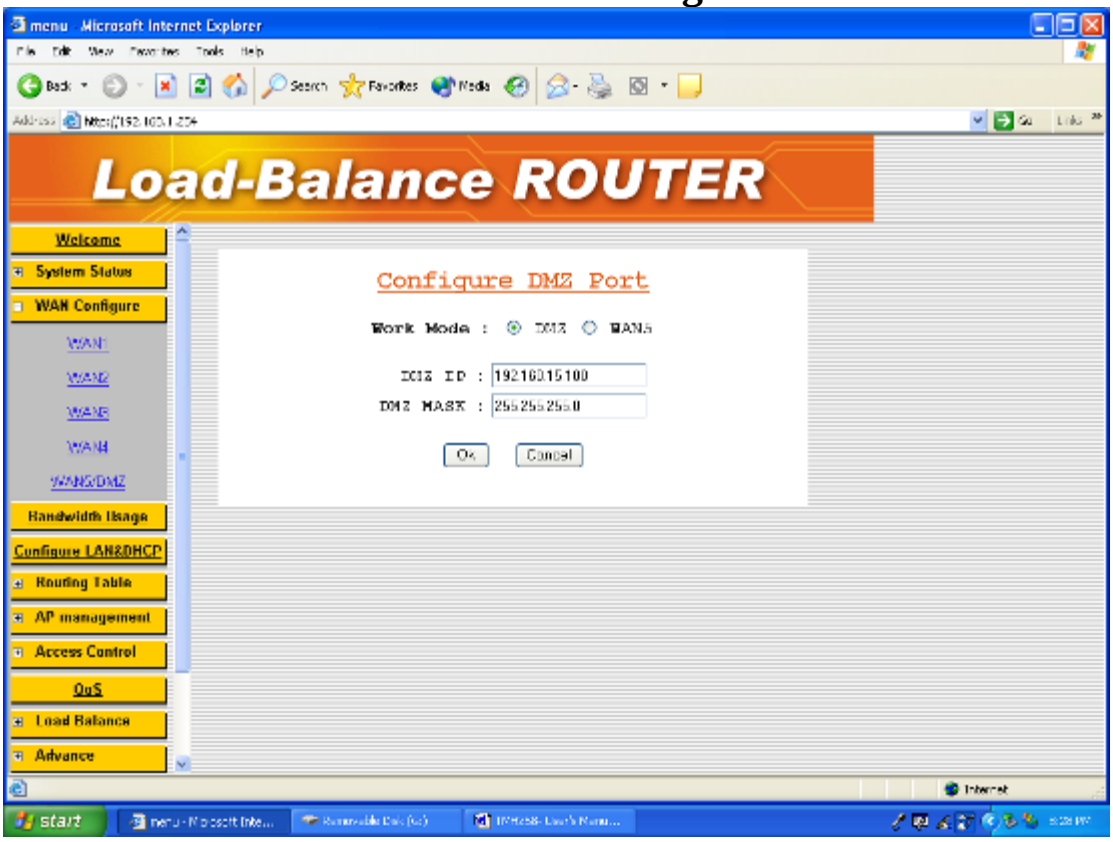
5.3.3 Static IP/Leased DSL Type

If you select **[Static IP/Leased DSL]** , you will need to input the IP Address, Subnet Mask, Primary DNS, Secondary DNS and Gateway provided by your ISP. The picture below is an example of static IP's settings.

WAN CONFIGURE - STATIC IP



DMZ/WAN5 configure



DMZ port can be configured into WAN5 as well. Default is DMZ port

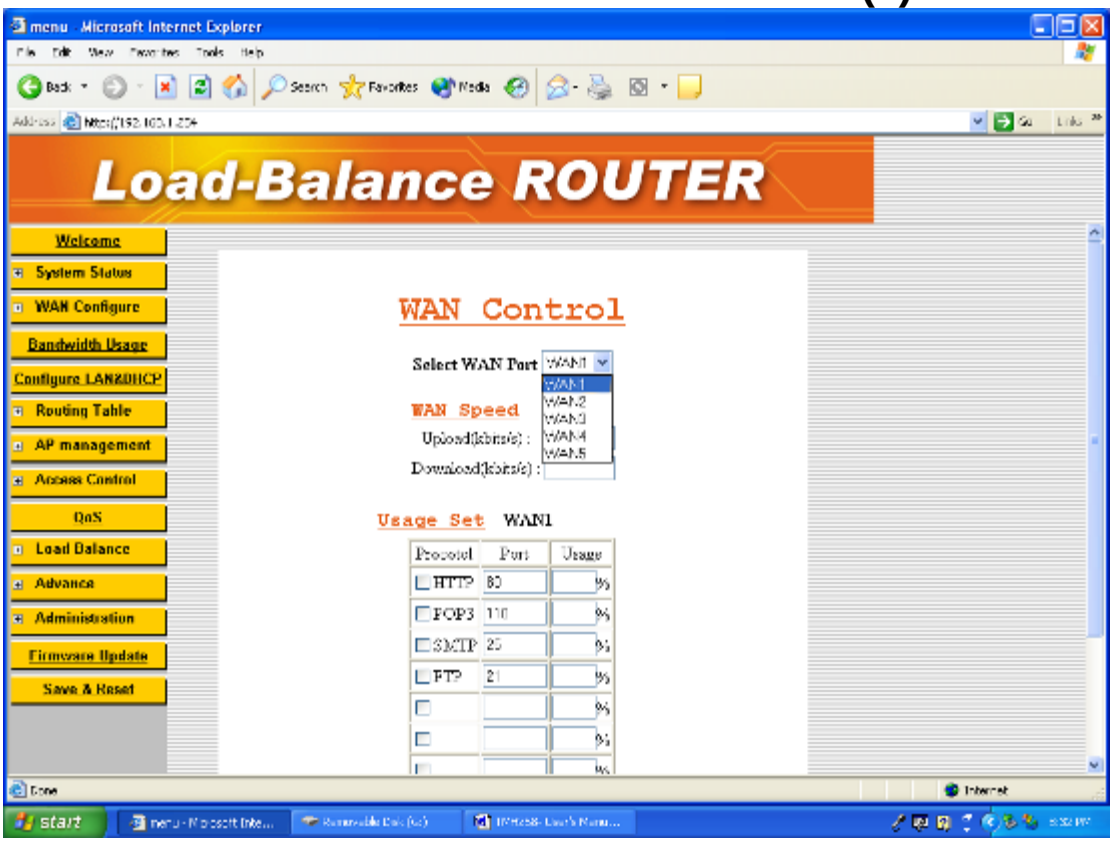
5.4 Bandwidth Usage Control

This is a very useful function, it can let you to control WAN port bandwidth usage by each protocol. Like FTP
When someone use FTP to transfer file, it will occupied
Heavy bandwidth, by using this function, you can limit
Dedicated application bandwidth

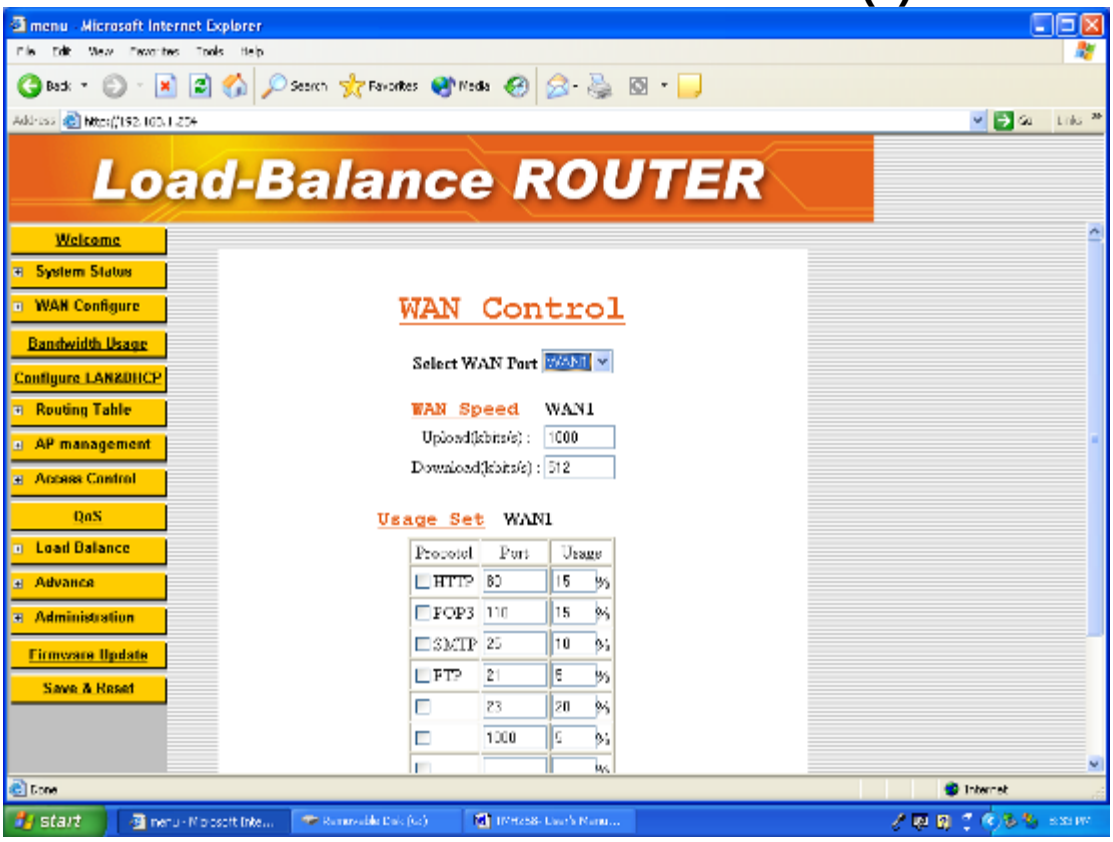
For example:

In following display. FTP, HTTP & Mail bandwidth will be limit in certain Percentage. This router provide 3 most often use protocol in the table,
Just fill in port number and % usage for each application
Protocol … name of protocol data packet will be limit.
Port … protocol port number
Usage: % of WAN speed can be use.
protocol % usage cannot exceed 100% for each WAN port.
Router provides another 4-user self-define port number for easy use , just fill in port number for each protocol

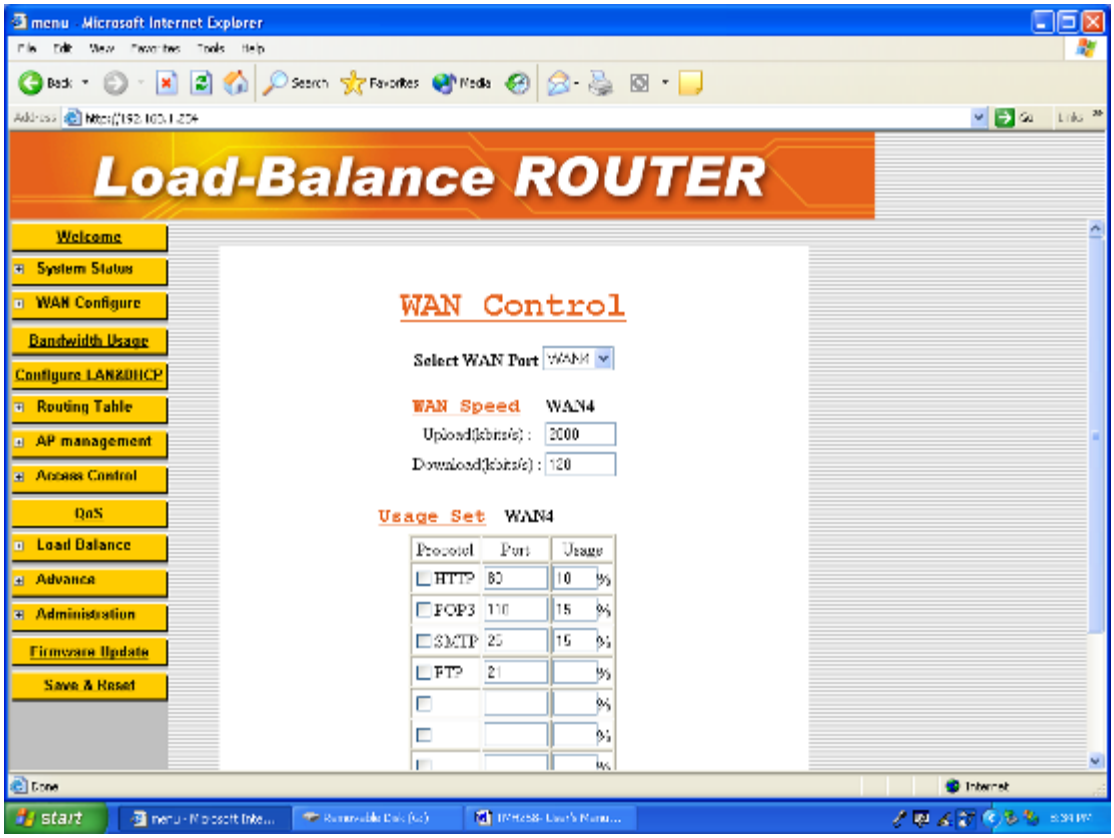
BANDWIDTH USAGE CONTROL (1)



BANDWIDTH USAGE CONTROL (2)



BANDWIDTH USAGE CONTROL (3)



5.5 Configure LAN&DHCP

This function configures the LAN ports

- IP address
- Subnet Mask
- DHCP.

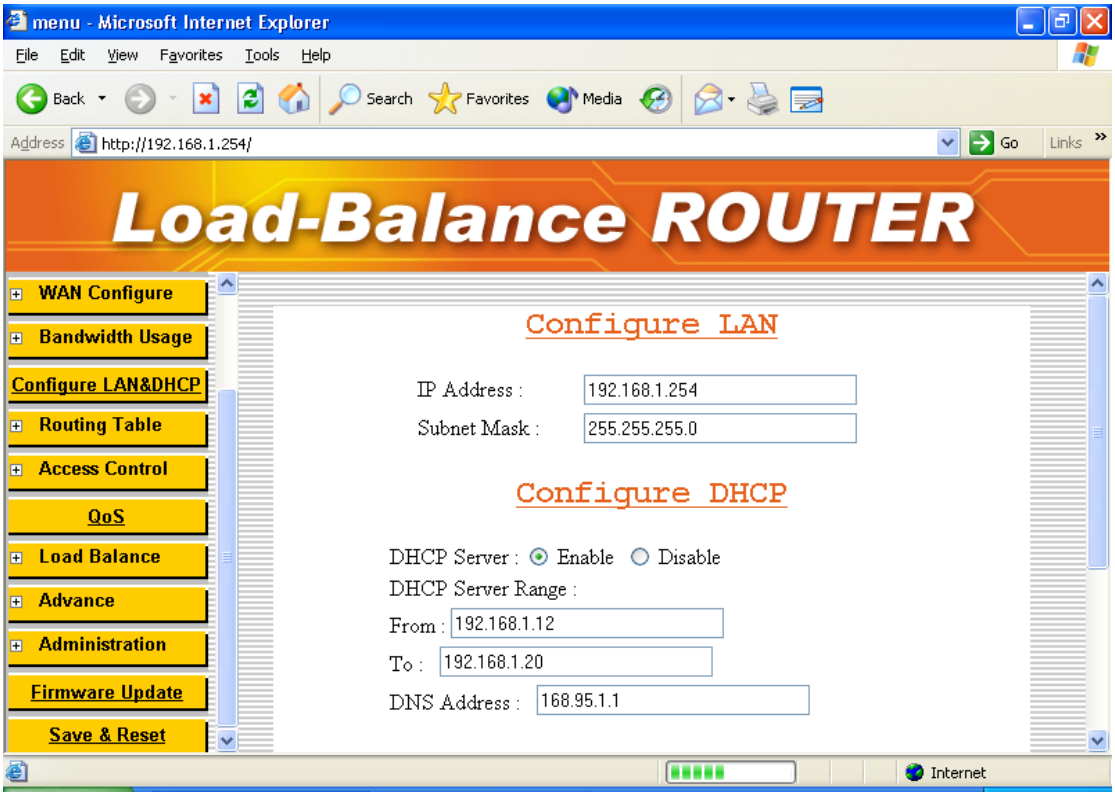
You can choose using DHCP server or not, the Dynamic Host Configuration Protocol (DHCP) allows the Broadband Router to dynamically assign IP addresses to network devices. Dynamic IP assignment alleviates the need for the network administrator to maintain and monitor IP address assignments and simplifies IP use because the IP addresses are automatically and dynamically assigned when a station powers-on. You will need to indicate the range of DHCP server and DNS address if you enable DHCP server function.

You can also reserve some IP's to specific computers. You need to enter the name (MAC address) of the network card installed in your computer to assign a particular IP to it. Enter the relative values and then click **ADD**.

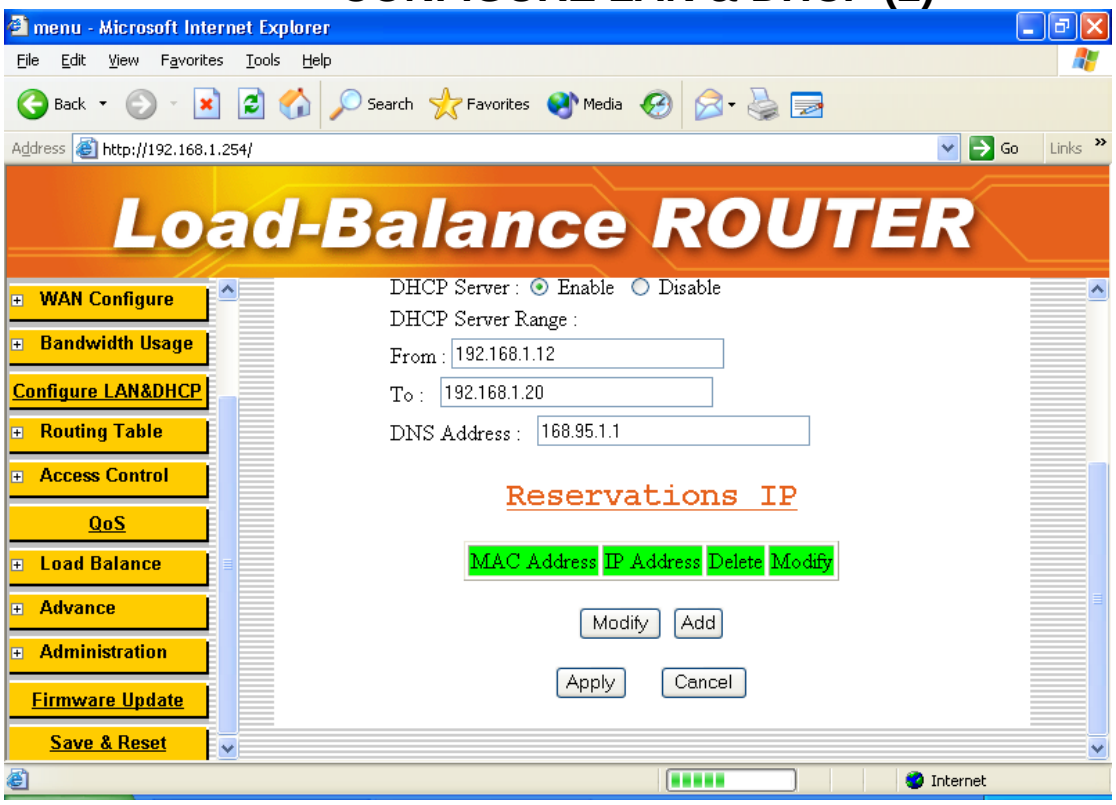
When enable DHCP Server in "From", "TO" field, you can reserve up to **253** IP address to DHCP server.

Fill in local DNS Server IP address in "**DNS Address"** field, you can ask your local ISP to provide this information.

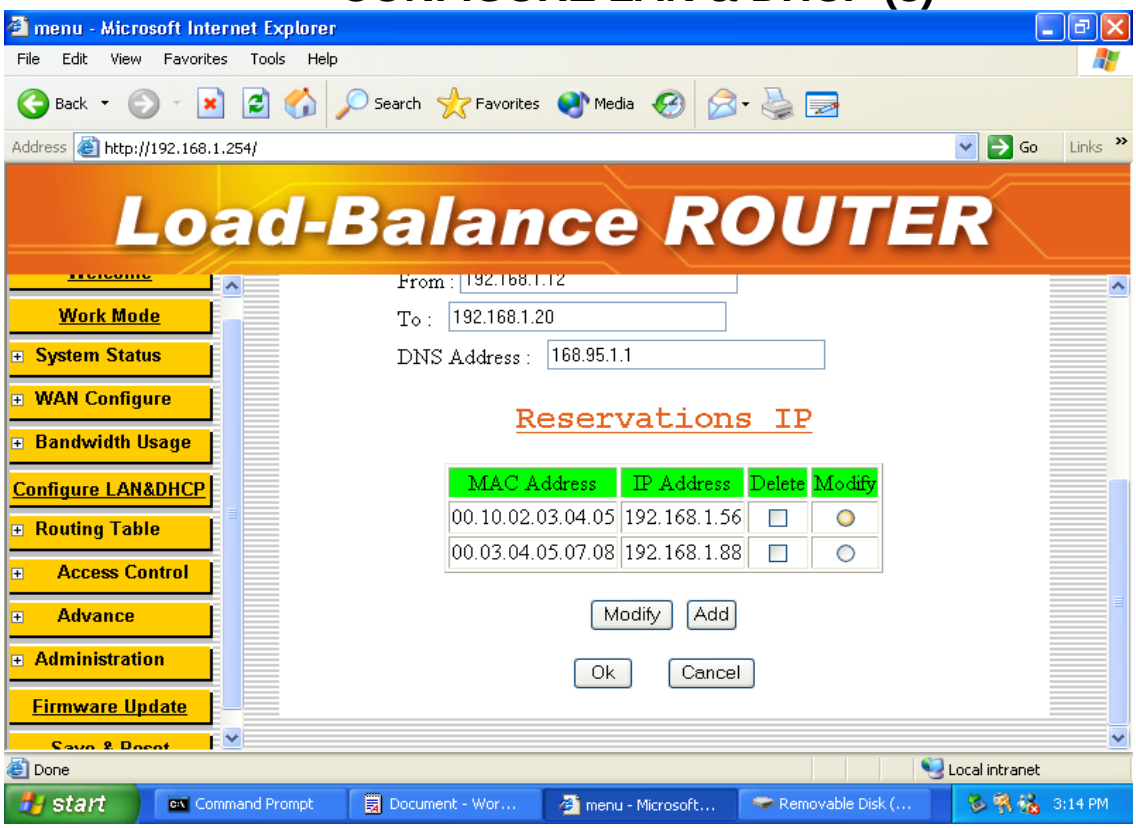
CONFIGURE LAN & DHCP (1)



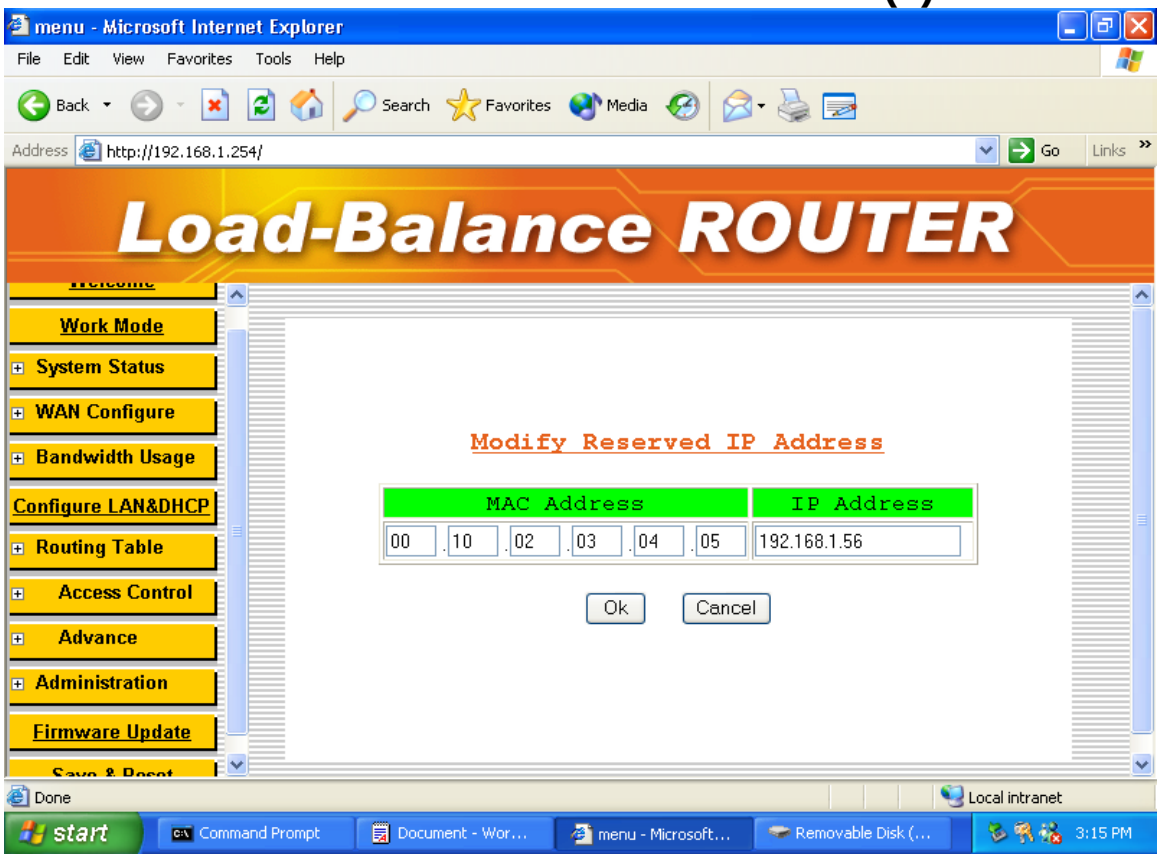
CONFIGURE LAN & DHCP (2)



CONFIGURE LAN & DHCP (3)



CONFIGURE LAN & DHCP (4)



5.6 Routing Table

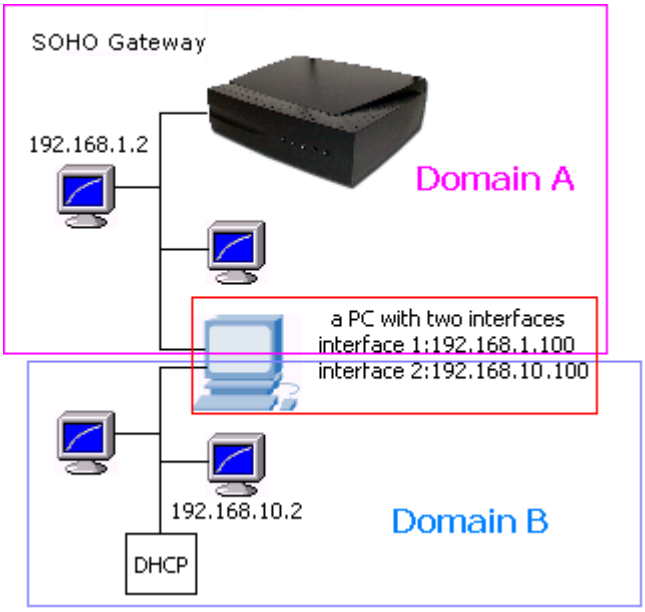
5.6.1 Configure

Static Routing:

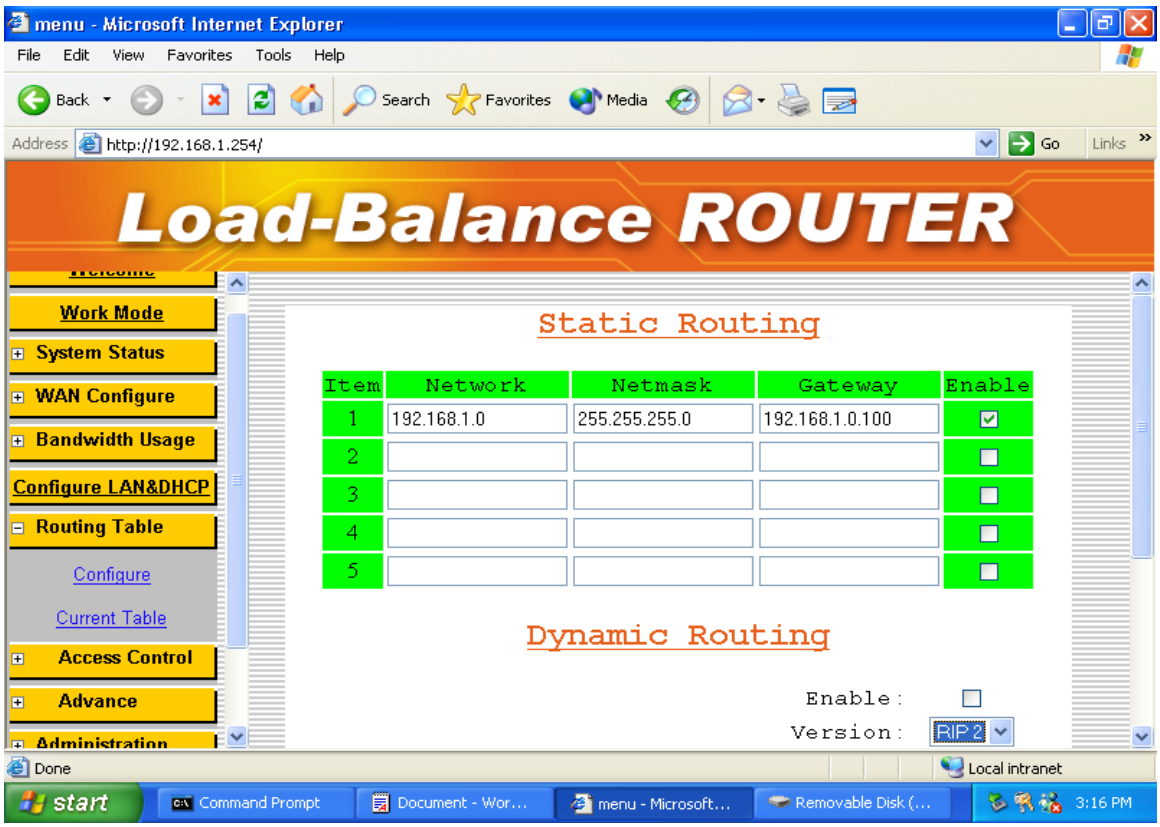
This function allows manually defined by users as the only path to the destination. Users can configure the static routing path to Broadband Router.

For example:

There have one pc with two interfaces in this area, one interface is connected to Broadband Router (domain A), and the other connected to another Server (domain B). Users need to set the static routing path in Broadband Router to let is recognize that there is another domain in this area. These settings enable the packets from domain A reach the destination in domain B via the gateway configured in Broadband Router.



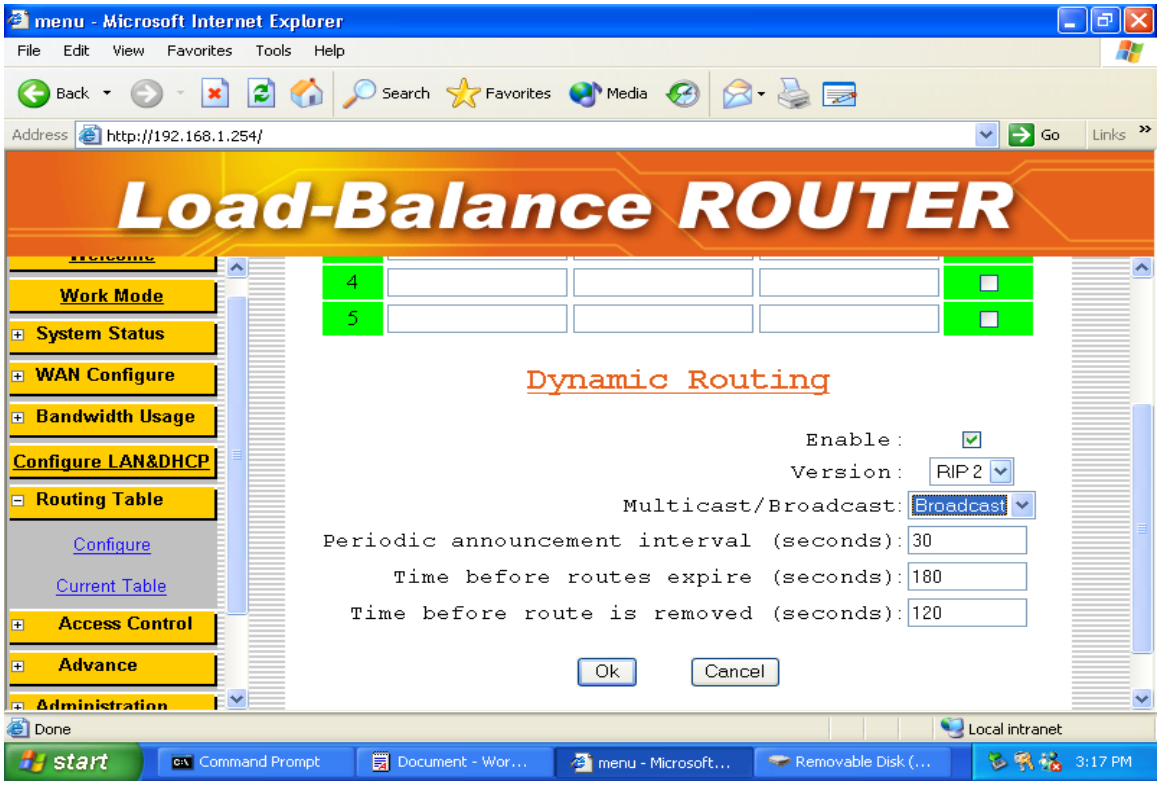
ROUNTING TABLE – STATIC ROUTING



Dynamic Routing:

Dynamic Routing allows router learns of path to destination by receiving periodic updates from others. The protocol used in communication between routers is RIP 1/2 (Routing Information Protocol). RIP1 supports only broadcast mode while RIP2 supports broadcast and multicast mode.

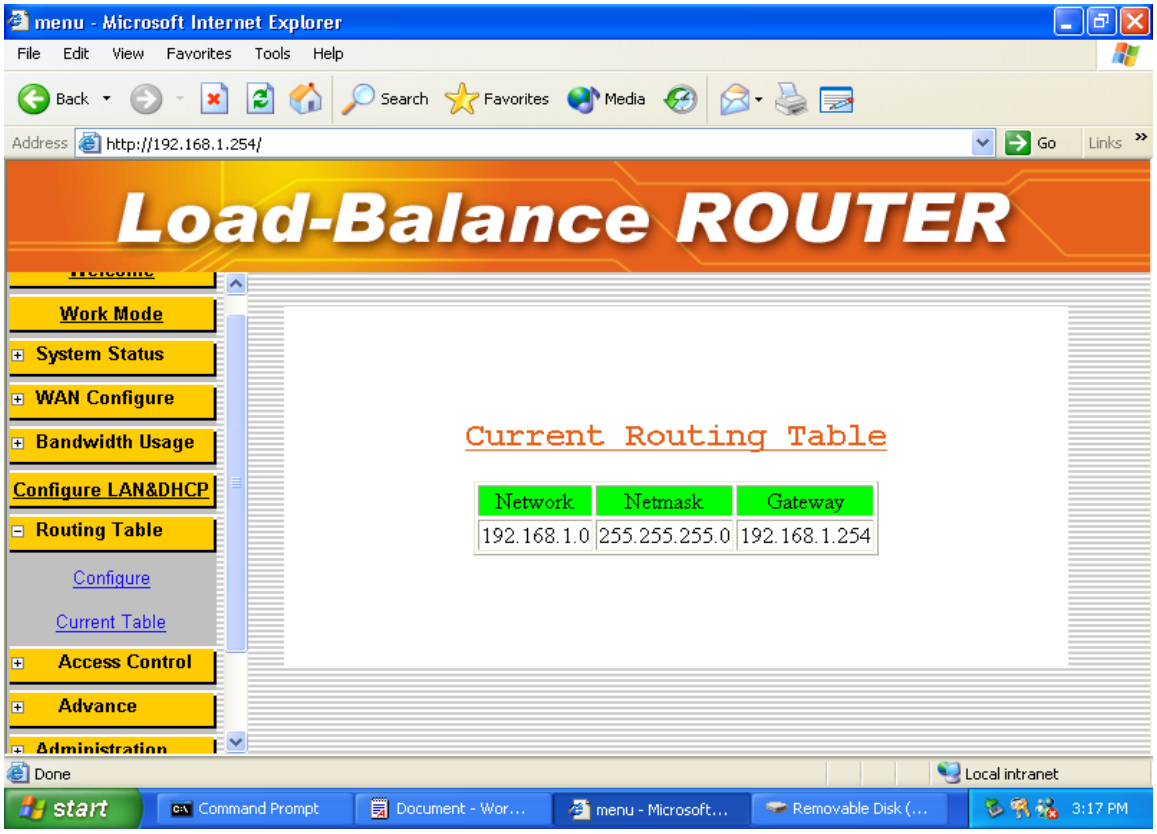
ROUTING TABLE - DYNAMIC ROUTING



5.6.2 Current Routing Table

This display shows the valid routing paths in Broadband Router. Users can view the information about current routing paths.

ROUNTING TABLE – CURRENT ROUTING TABLE

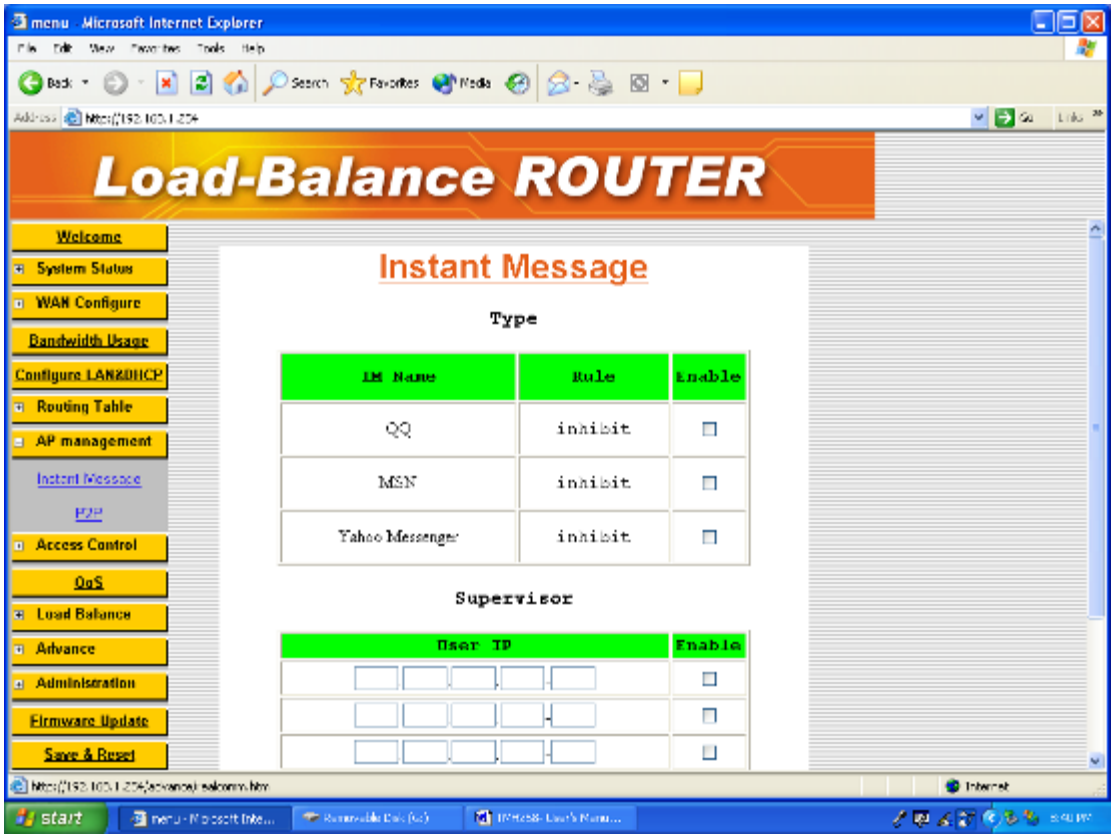


5.6.3 AP Management

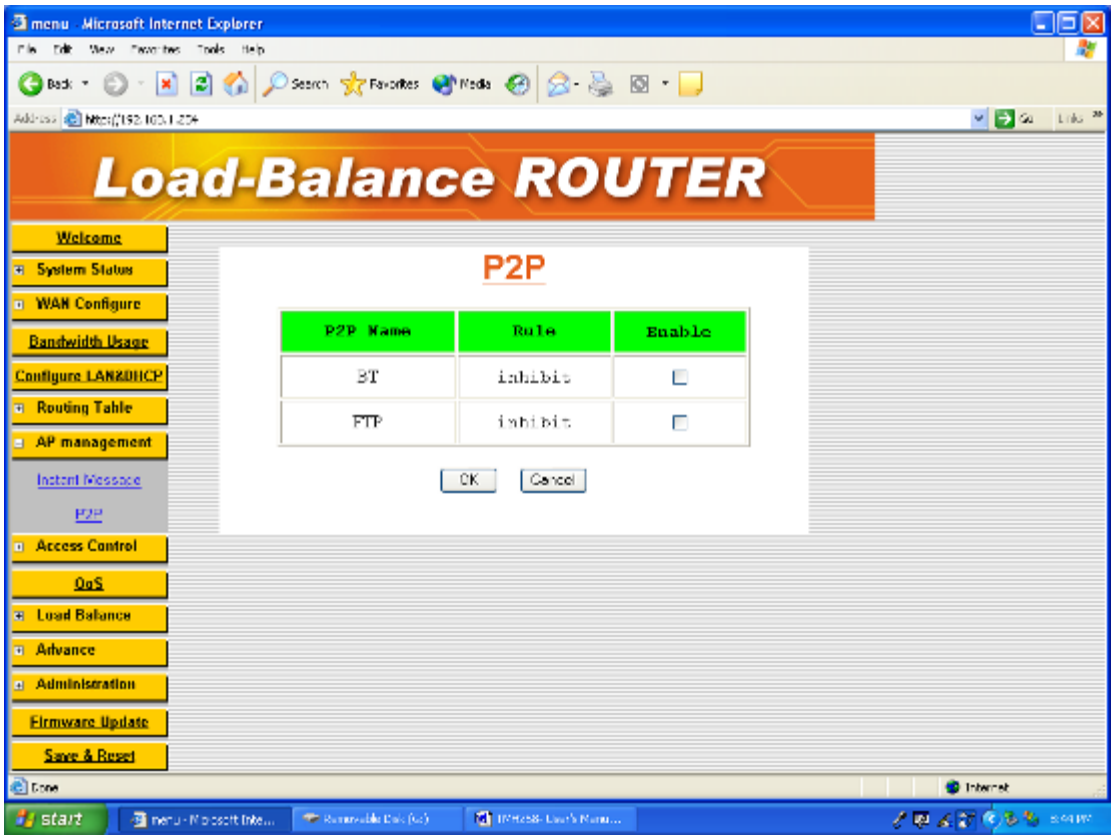
Router can block below traffic packet from LAN to WAN. For some exception

Router allow 5 special user IP can access Internet without limitation when enable block function

Instant Message Blocking



P2P BT Blocking


menu - Microsoft Internet Explorer
Load-Balance ROUTER
Welcome
System Status
WAN Configure
Bandwidth Usage
Configure LAN&DHCP
Routing Table
AP management
Instant Message
P2P
Access Control
QoS
Load Balance
Advance
Administration
Firmware Update
Save & Reset
P2P
P2P Name
Rule
Enable
BT
inhibit
FTP
inhibit
OK
Cancel

5.7 Access Control

5.7.1 Local IP Filtering

- Gateway Mode only

Broadband Router allows you to do accessed restriction of block/allow outgoing IP packets by protocol (port number).

You may restrict some IP's only to perform limited protocols or allow them to execute partial protocols. And the first thing you have to know is the port numbers and their usages.

Local IP Filtering allows you set ten items and item 1 has the highest priority. In principle, the same IP should not list in different items. If IP settings confliction occurs, item with higher priority would be the obeyed rules.

You can reserve dedicate IP address to dedicated user from "**Configure LAN**" display **->** "**Reservations IP**" function, by using this function, user can have dedicated IP address match to their computer NIC MAC address.

There are ten items in this function. You can allow or restrict specific IP(s) to access some port numbers.

Example 1, if you restrict the PC of IP 192.168.1.13-192.168.1.15 to access HTTP, the settings are:

Item 1: Enable
Filter entry: Block
Port Number: 80
IP address: 192.168.1.13-192.168.1.15

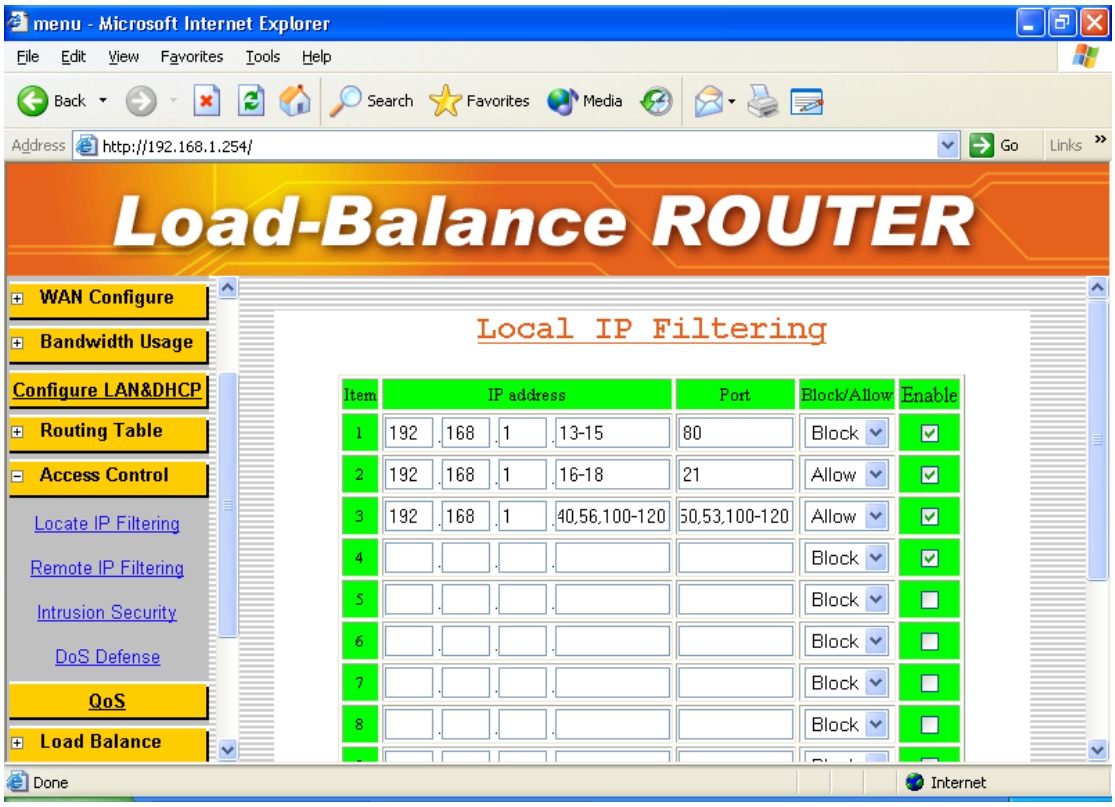
Example 2, if you allow the PC of IP 192.168.1.16-192.168.1.18 to access FTP only, the settings are:

Item 2: Enable
Filter entry: Allow
Port Number: 21
IP address: 192.168.1.16-192.168.1.18

Example 3, if you allow the PC of IP 192.168.1.40, 192.168.1.56, 192.168.1.100-192.168.1.120 to access port 50, port53, port100-120 only, the settings are:

Item 3: Enable
Filter entry: Allow
Port Number: 50, 53, 100-120
IP address: 192.168.1.40, 192.168.1.56, 192.168.1.100-120

LOCAL IP FILTERING



Note: Port and IP address can accept digits 0-9, “,” and “-“ only.

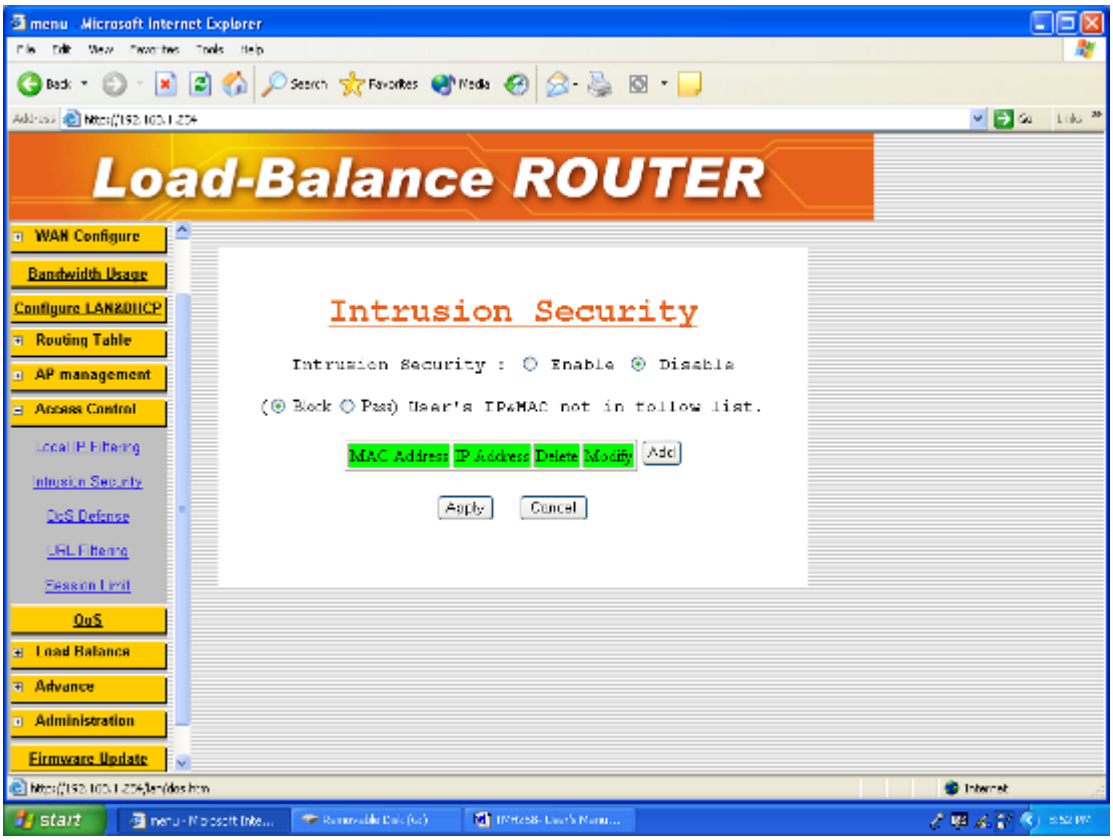
Protocol Port No. List

Protocol	Service	Port no.	Protocol	Service	Port no.
TCP	FTP	21	TCP	LADP	389
TCP	SSH	22	TCP	HTTPS	443
TCP	TELNET	23	UDP	IKE	500
TCP	SMTP	25	TCP	RLOGIN	513
UDP	DNS	53	UDP	SYSLOG	514
UDP	TFTP	69	UDP	TALK	517,518
TCP	GOTHER	70	UDP	RIP	520
TCP	FINGER	79	TCP	AFPOWERTCP	548
TCP	HTTP	80	TCP	Net-Meeting	1503,1702
TCP	POP3	110	TCP	L2TP	1701
UDP	NFS	111	TCP	PPTP	1723
TCP	NNTP	119	TCP	AOL	5190~5194
UDP	NTP	123	UDP	PC Anywhere	5631~5632
TCP	IMAP	143	TCP	XWINDOW	6000-6063
UDP	SNMP	161	TCP	IRC	6660~6669
TCP	BGP	179	TCP	Real-Media	7070
TCP	WAIS	210	TCP		6000-6063

5.7.2 Intrusion Security

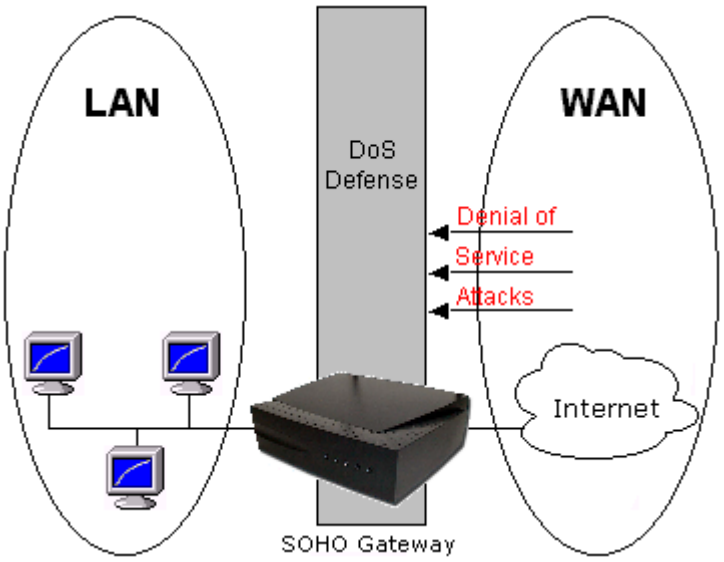
By set up this table, Router can be defined as “BLOCK” or “PASS” function following by the table content.

Intrusion Security

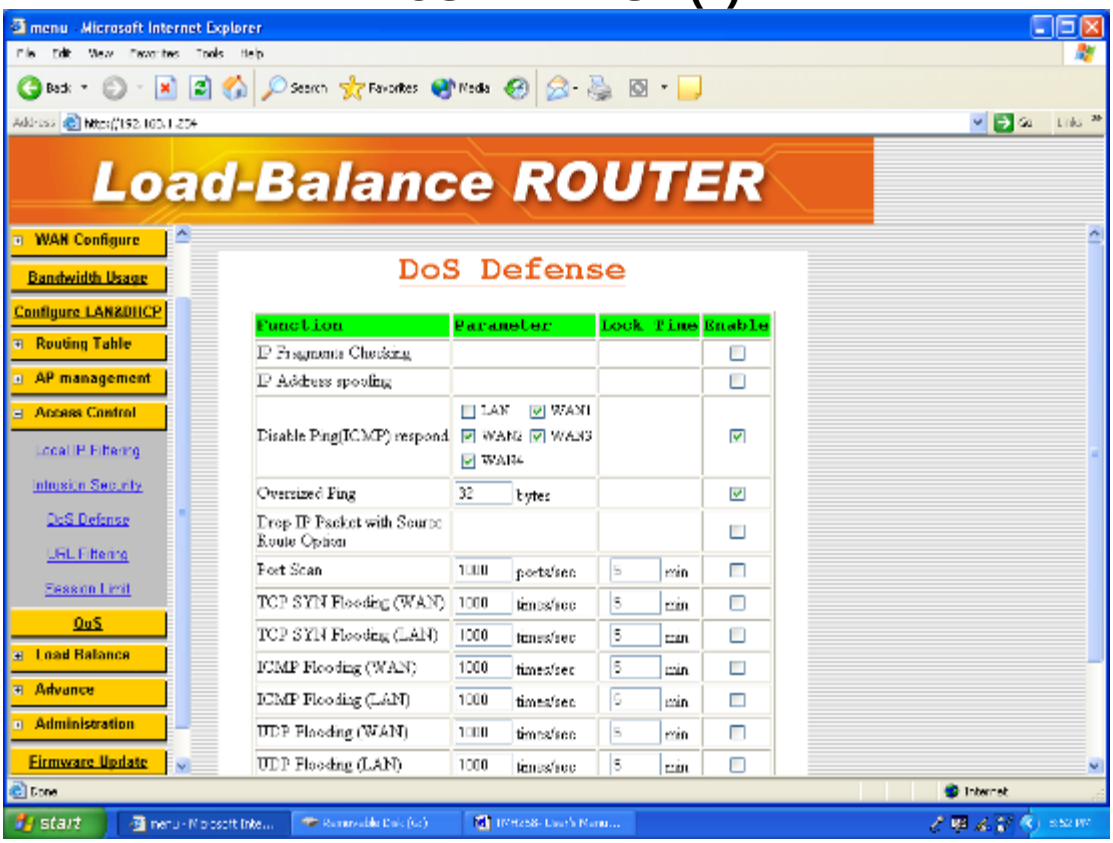


5.7.3 DoS Defense

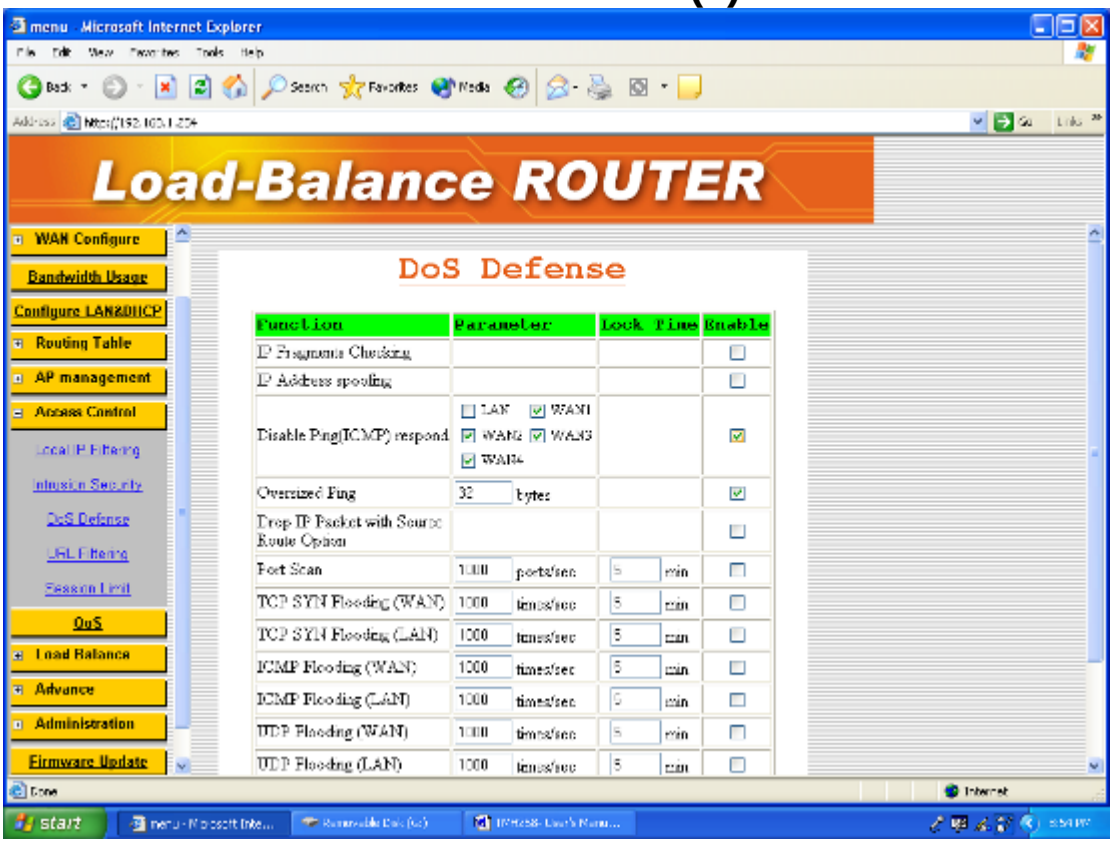
This Broadband Router also provides with DoS (Denial of Service Defense) function to protect your network servers, hosts, routers and other devices from the attacking of villain using mass data transmission. The default value in
The display is the optimize parameter for Router.



DOS DEFENSE (1)

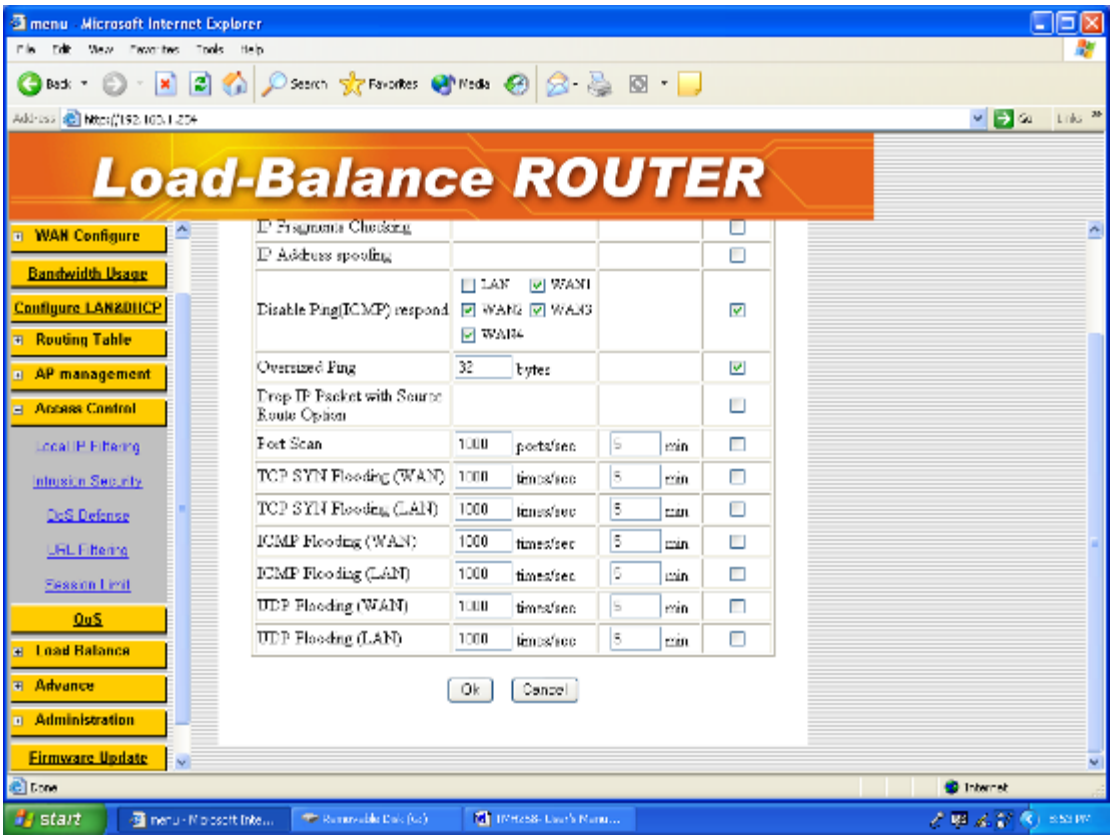


DOS DEFENSE (2)



* Some virus are using “PING” command to attack network, this Router can be defined as accept or reject “PING” command from WAN or LAN.

DOS DEFENSE (3)



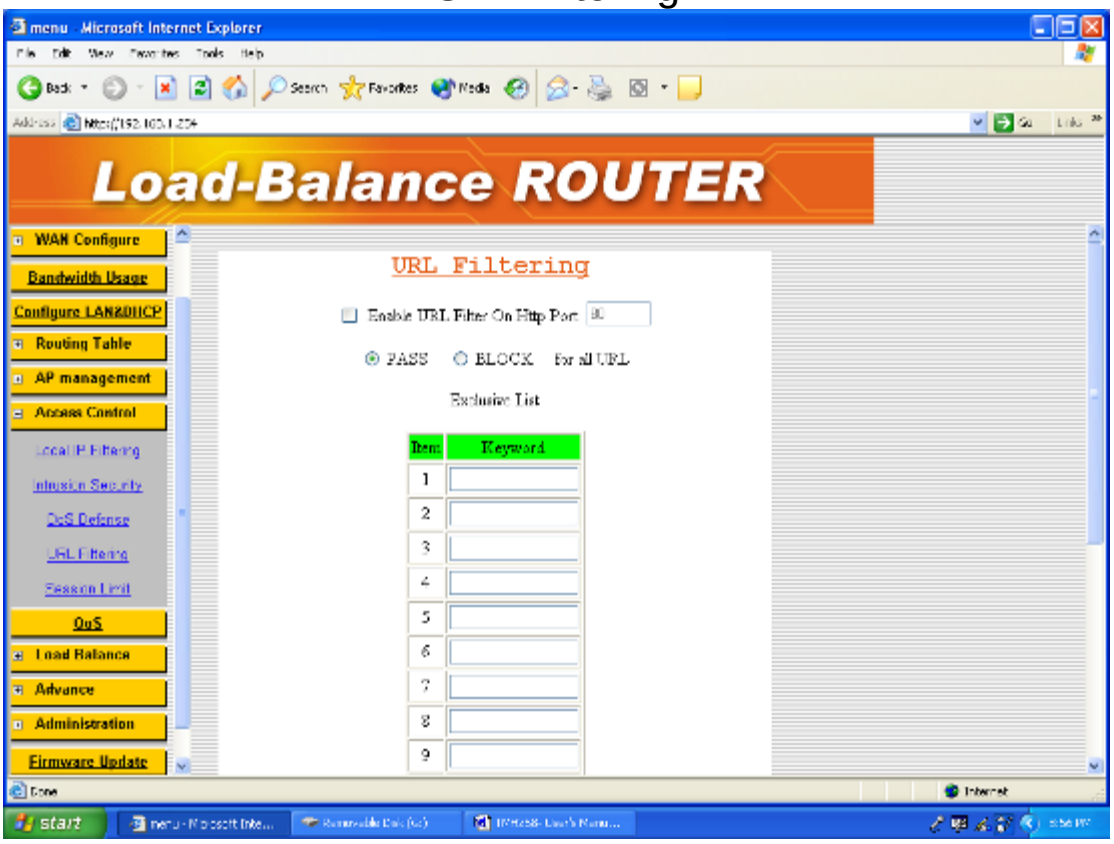
Function	Description
IP Fragments Checking	Checking the IP fragments. When it finds someone from WAN side tries to attack your network using overlap IP fragments in a bad attention, this function will check over these packets and drop them.
IP Address spoofing	Finding out whether the source address(s) and destination address(s) are legal IP's or not. If they are illegal IP's or multicast addresses, this function will cast these packets away.
Oversized Ping	Dropping the packets of "ping" which exceed the size you set. The default value is 32 bytes.
Drop IP Packet with Source Route Option	Casing a packet away when it contains source route option(s) in its IP.
Port Scan	When an IP from Internet tries to scan the IP of Broadband Router up to 10000ports/sec (default value), this function will drop all the packets from this IP within 5 minutes (default value).
TCP SYN Flooding (WAN)	When a destination address and destination port of Broadband Router receives TCP SYN packet from WAN over 10000 times (default value) in one second, Broadband Router will close this address and port for 5 minutes (default value) temporarily.
TCP SYN Flooding (LAN)	When an IP in LAN of Broadband Router tries to send TCP SYN packet over 10000 times (default value) in one second, Broadband Router will close this source address for 5 minutes (default value) temporarily.
ICMP Flooding (WAN)	When a destination address of Broadband Router receives ICMP from WAN over 10000 times (default value) in one second, Broadband Router will close this address for 5 minutes (default value) temporarily.
ICMP Flooding (LAN)	When an IP in LAN of Broadband Router tries to send ICMP over 10000 times (default value) in one second, Broadband Router will close this source address for 5 minutes (default value) temporarily.
UDP Flooding (WAN)	When a destination address of Broadband Router receives UDP from WAN over 10000 times (default value) in one second, Broadband Router will close this address for 5 minutes (default value) temporarily.
UDP Flooding (LAN)	When an IP in LAN of Broadband Router tries to send UDP over 10000 times (default value) in one second, Broadband Router will close this source address for 5 minutes (default value) temporarily.

5.7.4 URL Filtering

Besides restrict users by local/destination IP, Broadband Router provides you to do accessed restriction for user by URL as well.
You may restrict some URL address that are not allow to reach

Keyword: destination URL that prohibit users to reach
Enable: enable restrict function

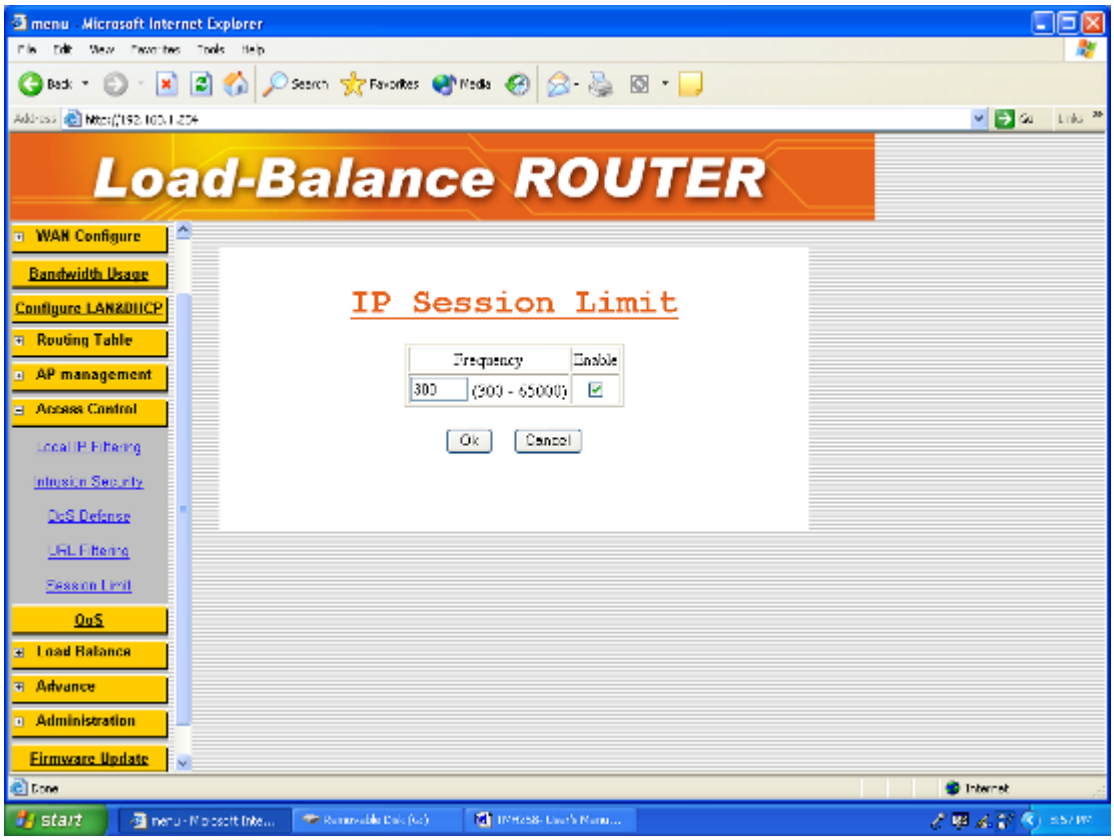
URL Filtering



5.7.5 Session Limit

For each user IP default session limit is 300. session no per each user can be change from 300 to 65,000

Session Limit



5.8 QoS

With this function, you can set up **USER BANDWIDTH** with Maximum & Minimum bandwidth value.

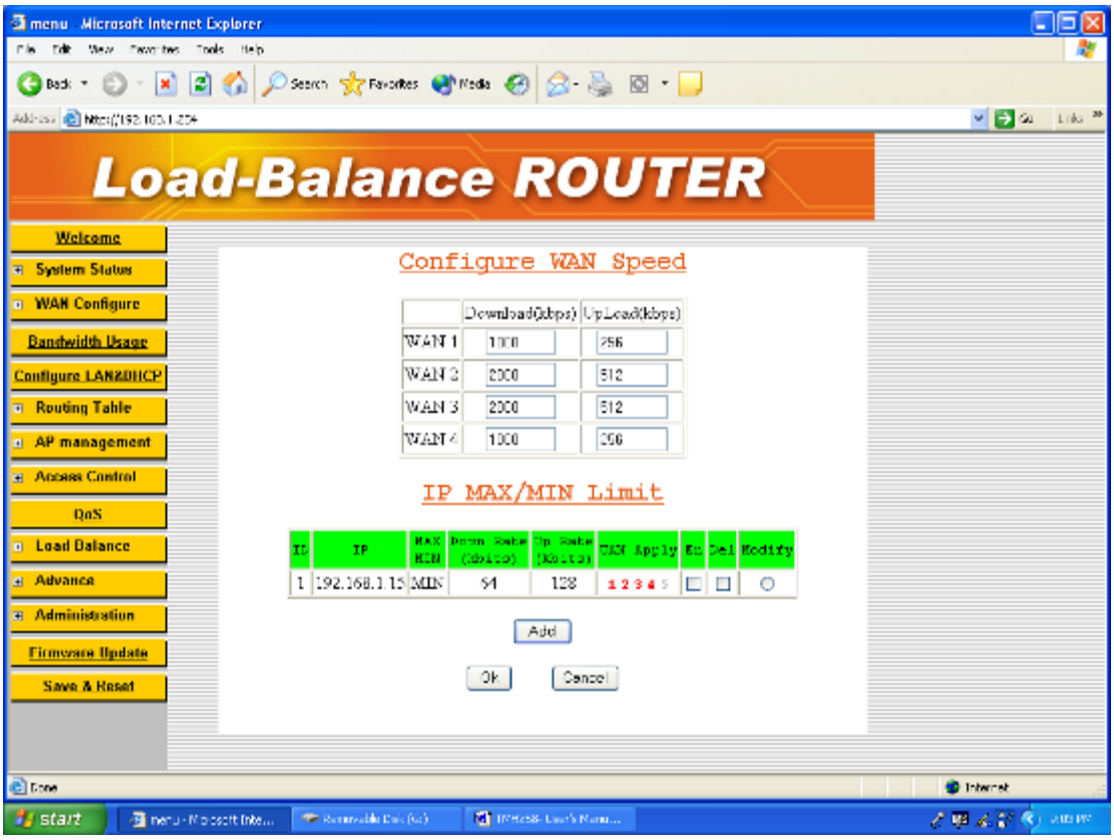
Configure WAN Speed

The WAN speeds must be configured for the QoS configuration to take effect.

IP MAX/MIN Limit

Allocate bandwidths to users.

- IP: IP address of specified user.
- MAX: Bandwidth limitation to this user.
- MIN: Minimal Bandwidth kept for this user before allocating any bandwidth from this user to others.
- Down Rate: Download speed.
- Up Rate: Upload speed.
- WAN Apply: Which WAN you want the allocation to take effect. (Do not use this option to specify which WAN to use for this user.)



5.9 Load Balance

5.9.1 Mode

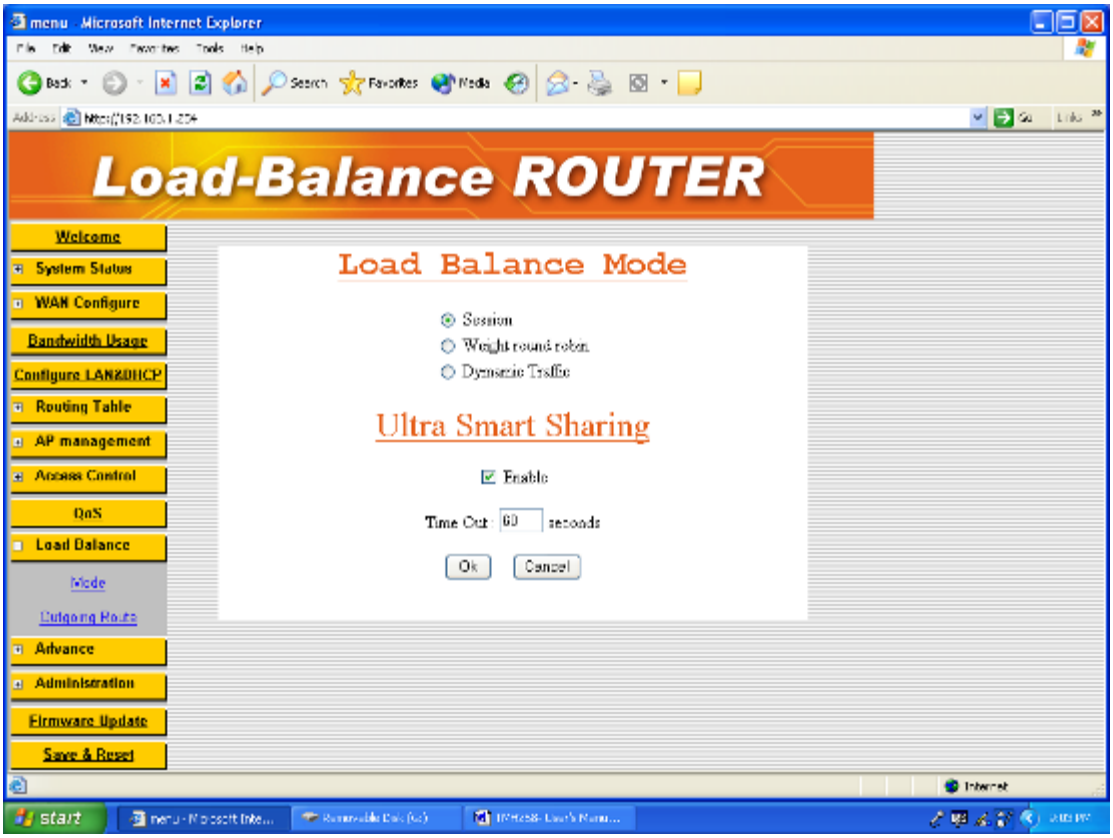
Broadband Router provides three load balance work modes:

Session	All the enabled WAN ports have the same (1:1) bandwidth rate.
Weight round robin	Configure the WAN ports bandwidth rate manually.
Traffic	Router will find the lowest loading WAN port to transmit and receive data automatically.
Ultra Smart Sharing	Enable this function router will lock User packet at dedicated WAN port, base on 1'st User packet send through which WAN port (suitable for Game, Voip …etc)
Time out Timer	Default is 60 second, range from 30 ~255. user will be remove from WAN user list ,if no user packet RX/TX through WAN port after timer expired

Session mode:

When choose this mode, the router will assign each coming session To each WAN port one by one, no matter how traffic loading on each WAN port.

LOAD BALANCE

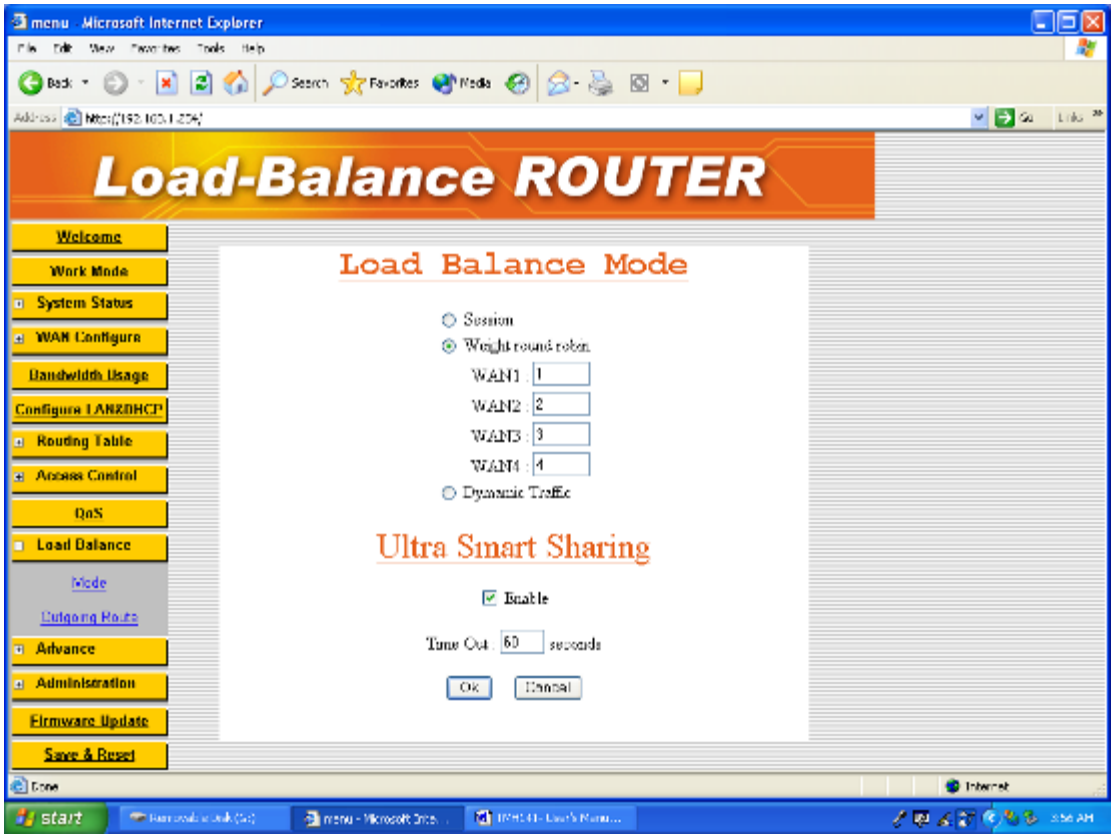


Weight Round Robin mode:

Configure the WAN ports bandwidth rate manually, means you can Distribute each coming session from users to each WAN port, following the Rate that you assign in each WAN port.

The session number in each WAN can be numbered from **1 to 100**, The suggest number is under 1 ~10. if rate is 1:1 for each WAN port , the router function will act like Session mode

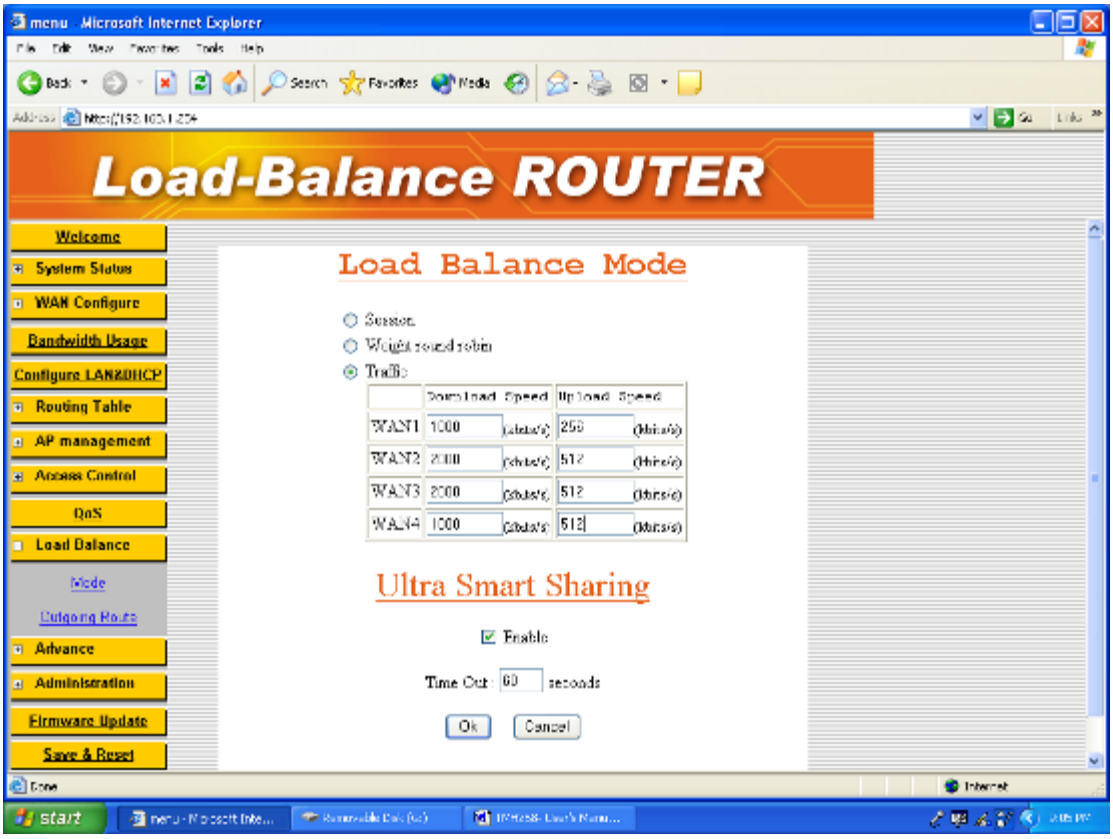
LOAD BALANCE



Traffic Mode:

Router will find the lowest loading WAN port to transmit and receive data automatically. you need to enter correct ADSL/CABLE WAN speed in here.

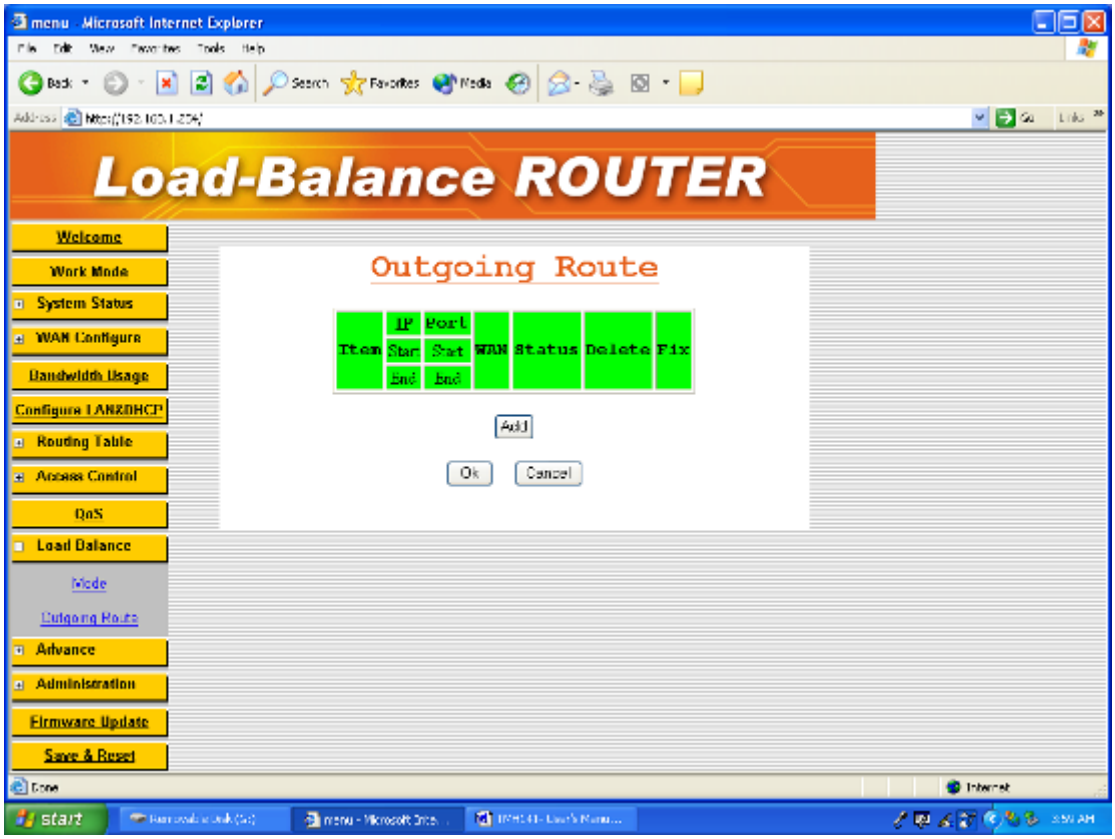
LOAD BALANCE



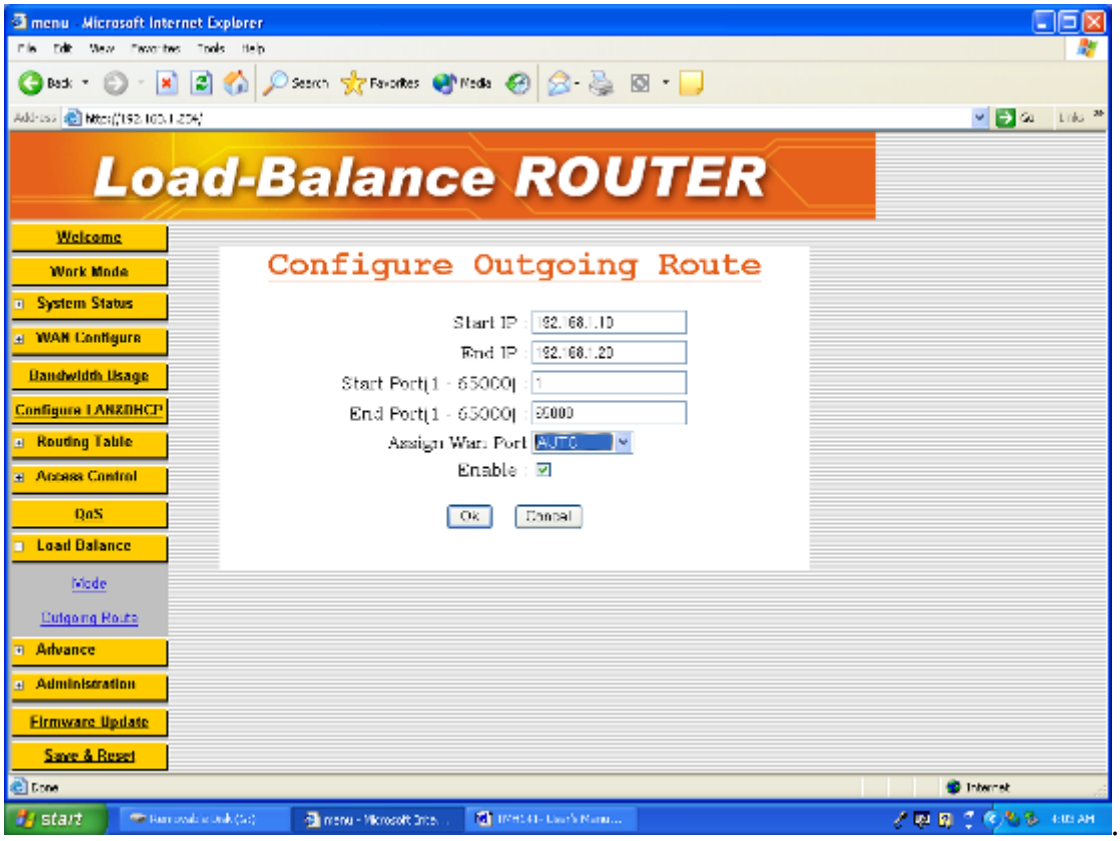
5.9.2 Outgoing Route

This function can let you arrange data packet from specific IP address access Internet by assigned WAN port .with this function, you can easily let VOIP packet or special user can use high bandwidth WAN port in order to have best performance

Outgoing Route



1.Add new IP, please click “Add” bottom



(2) enter IP range in “Start IP “ & “End IP”

(3) enter port range in “Start Port “ & “End Port” for ex.if only port 80 just enter 80 in both “Start Port “ & “End Port”

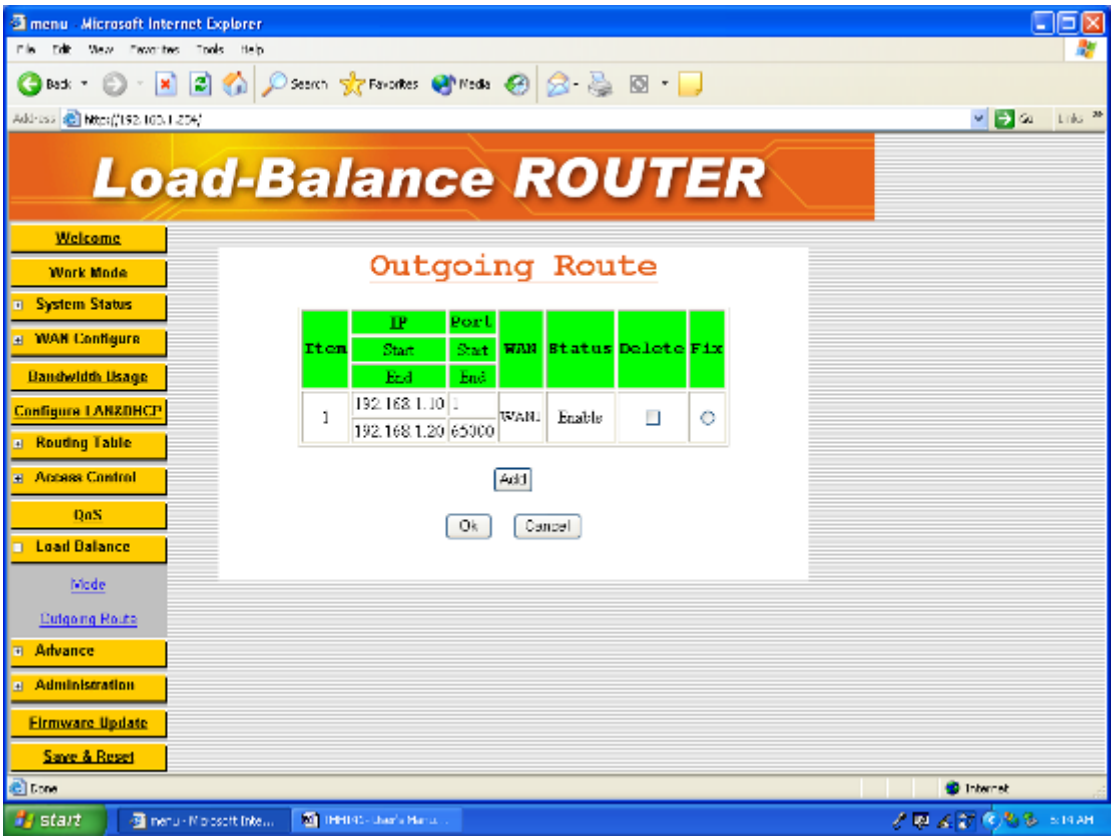
(4) enable this function for IP 192.168.1.10 to 192.168.1.20

(5) Select “WAN port”

Auto : wan port selected automatically by router

Wan 1 : only selected WAN1 , if WAN1 disconnect , router will drop Data packet

WAN1 first : first select WAN1, if WAN 1 disconnect at beginning then Router will select another available wan automatically



Delete : if want to delete existed IP. Selected “delete” then click “ok”

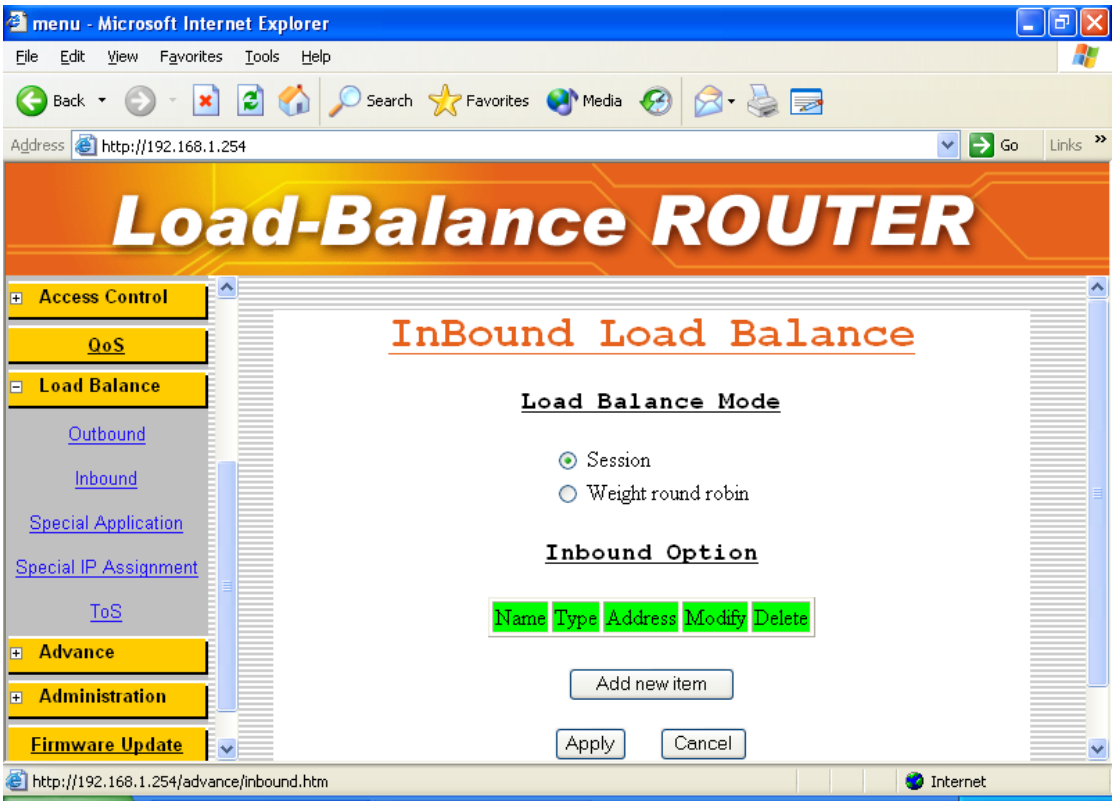
Fix : if want to modify existed IP. Selected “Fix” then click “ok”

5.9.3 In-Bound (In-Bound Router Support Only)

In-Bound function can let you load sharing traffic that coming from Internet to access you internal server to each WAN link, this function can increase WAN

Utilization. For detail usage, please refer to Chapter 6

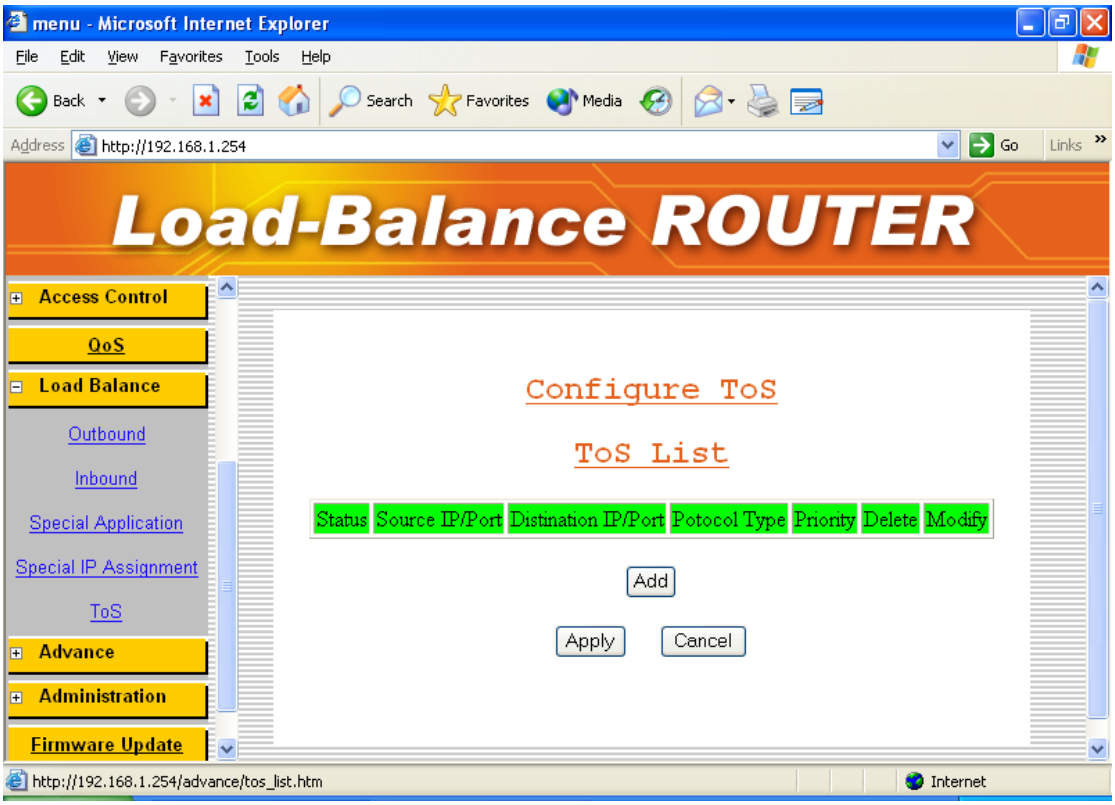
In-Bound



5.9.4 TOS

TOS function can let you setting the priority for dedicated packet.

TOS



5.10 Advance

5.10.1 Remote Configure

The ROUTER can be managed from any PC from INTERNET. If enable “remote configure” function in this display, access to the Web-based interface is available via the INTERNET, If not enabled, access is only available to PCs from LAN.

Access from LAN …… specific 192.168.1.254 in the URL field

Access from INTERNET …specific WAN port IP address in the URL field

ROUTER provide easy method to access from INTERNET via “Dynamic IP” & “Dynamic port”

Remote IP: specific dedicated PC can be remote access ROUTER

- Leaving these fields blank will allow access by all PCs.
- if enter specific IP address, only this address PC can access from remote
- The address must be Internet IP addresses.

Remote Port: The port number used when connecting remotely.

Example: If the local user

. Enable the remote configure function

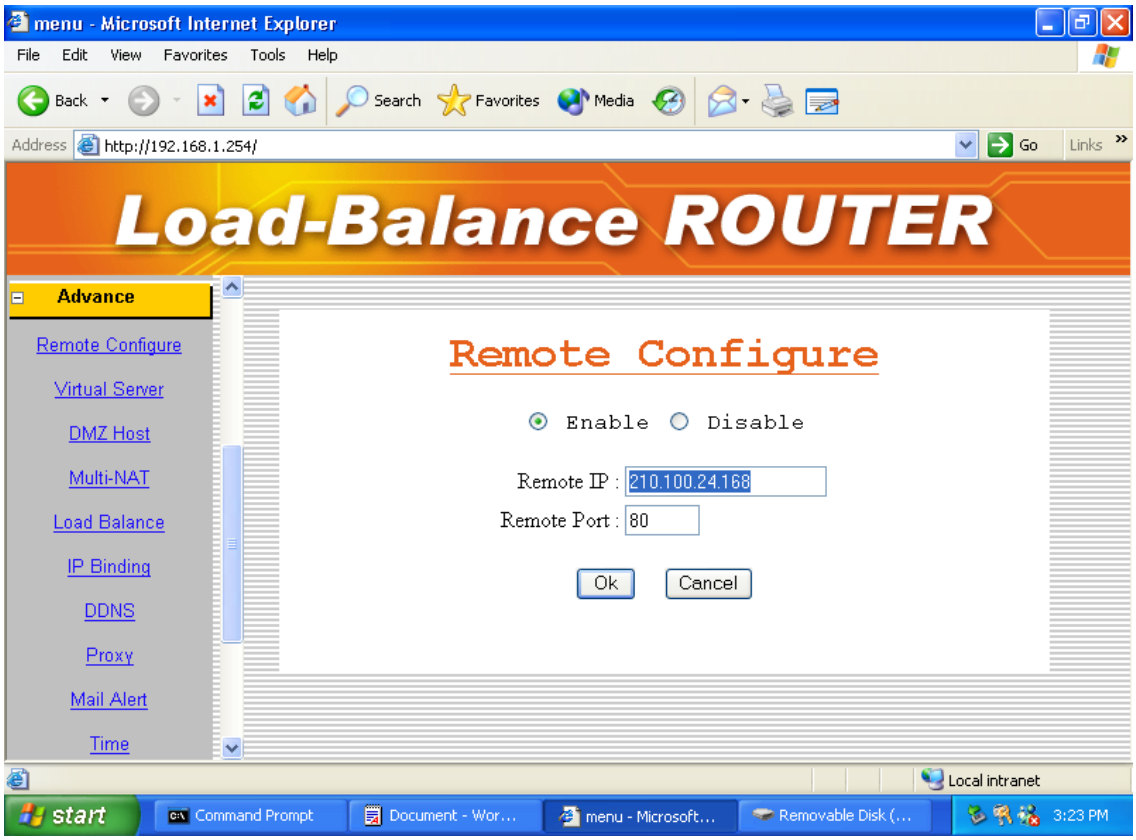
. Remote port is ***80*** **(default is 80, can be different port number)**

. Remote IP is blank.

. ROUTER WAN port IP is ***110.111.112.1***

When the user of remote side want to access the ROUTER web configure, the remote user only need to enter ***http:// 110.111.112.1:80***

REMOTE CONFIGURE



5.10.2 Virtual Server / VPN Pass Through /ALG options

This Router support

- VPN Pass Through ..…... IPSEC/PPTP
- H.323 ALG include…..VoIP Gateway can be connect direct to this router LAN port, and open the correspond VoIP port number.

You may have FTP, MAIL, VPN or other server on your LAN. If you would like to allow the global users access some servers providing special services on your LAN. This function can help you to do this.

Provide with global port & local port mapping function, let you easily Configured internal server with same port number mapping to WAN IP different port number.

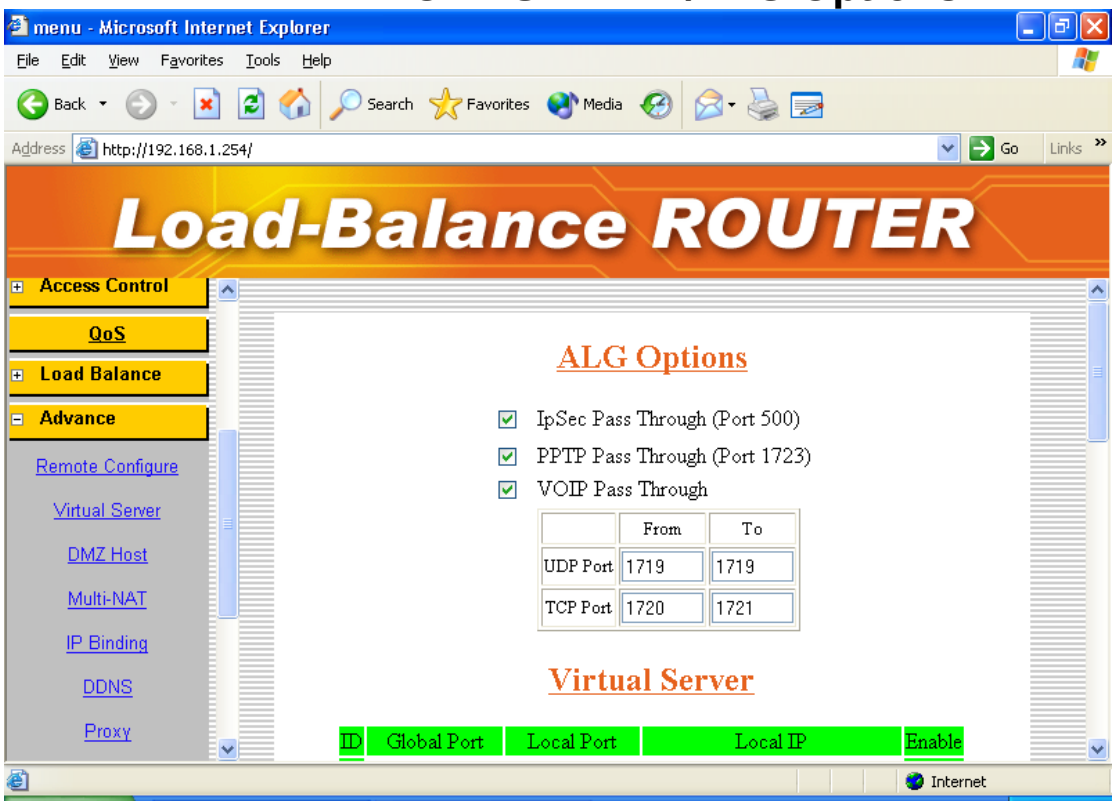
Global port: WAN virtual protocol number
Local port: used by internal server port number
Local IP: local server IP address

For multi-wan port router, no matter data packet coming in from which WAN port (WAN IP address) , router will check incoming data port number only.

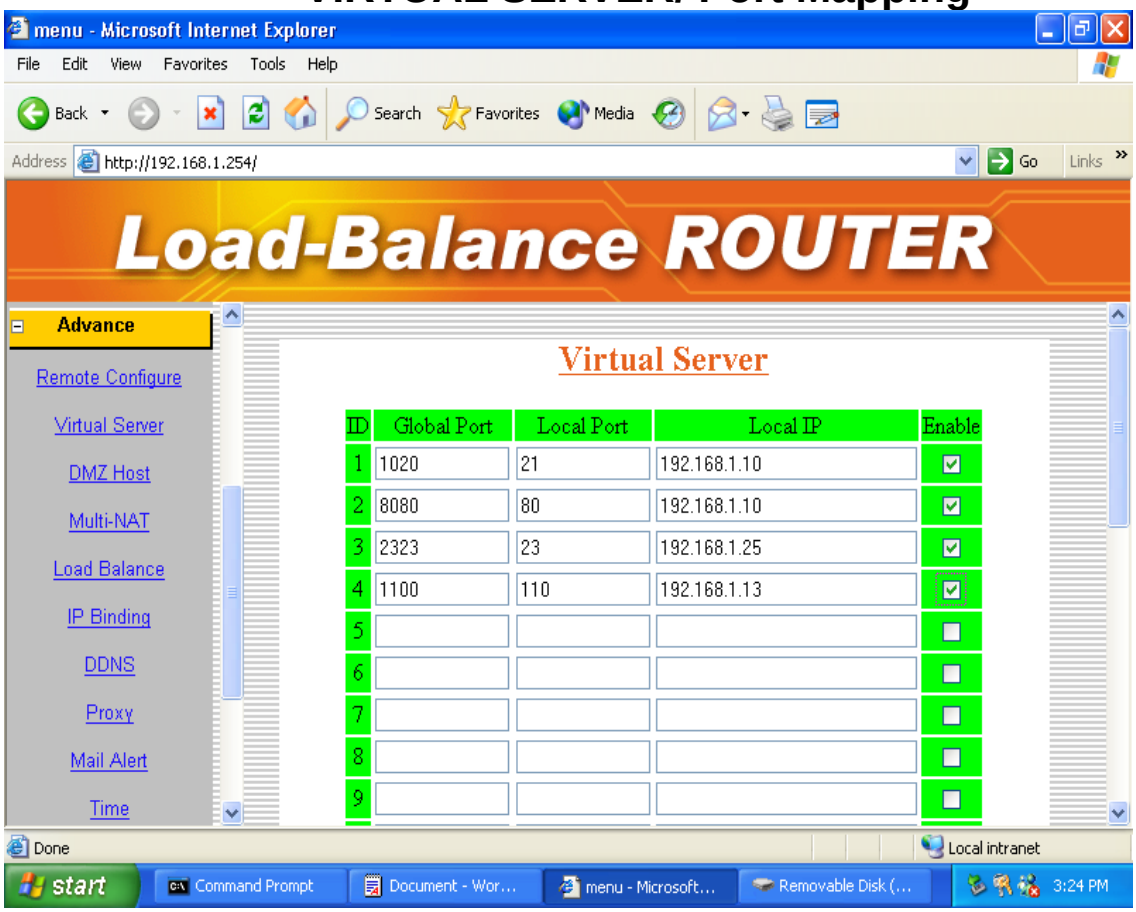
For example:

Global port number 1021 map into local server IP 192.168.1.10 port 21
Global port number 8080 map into local server IP 192.168.1.10 port 80
Global port number 2323 map into local server IP 192.168.1.25 port 23
Global port number 1100 map into local server IP 192.168.1.13 port 21
you can also configure
Global port number 1022 map into local server IP 192.168.1.20 port 21
some port number in local server with different global port number

VIRTUAL SERVER/ALG Options



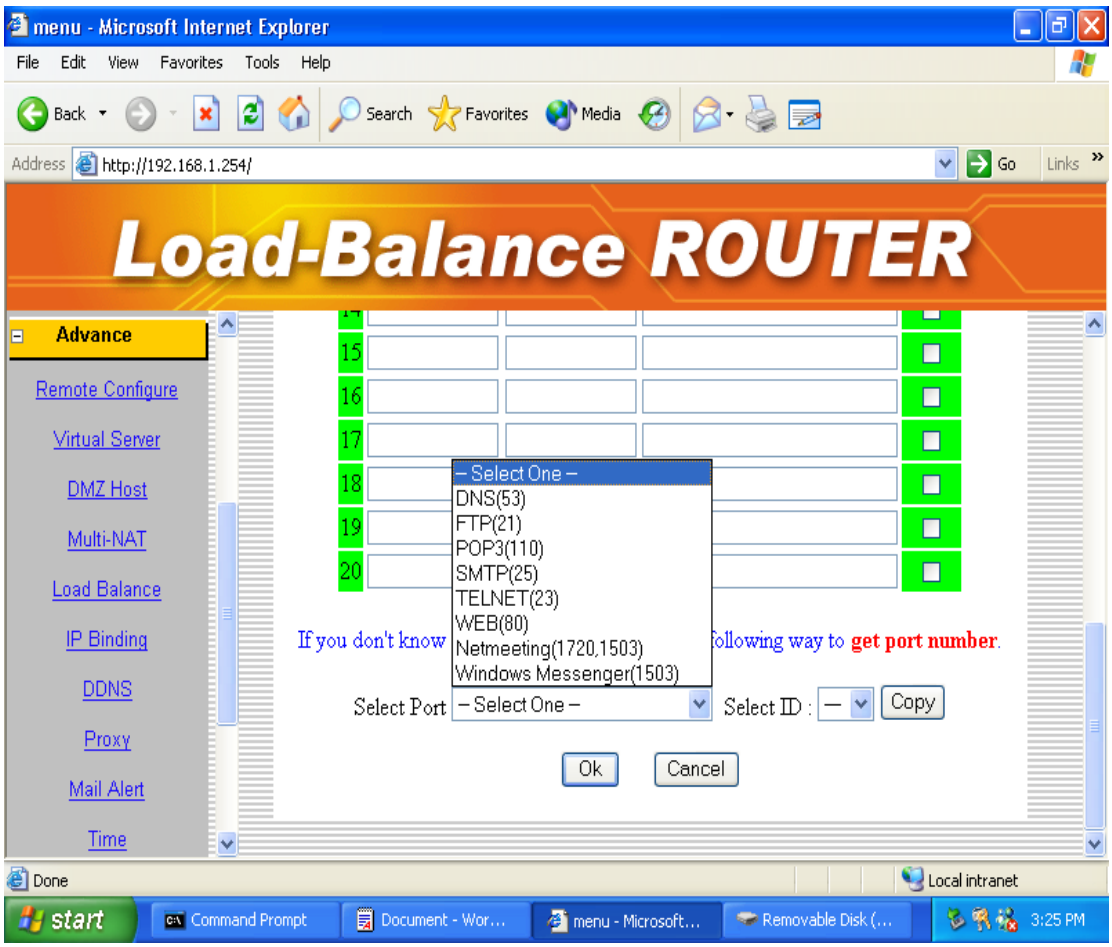
VIRTUAL SERVER/ Port Mapping



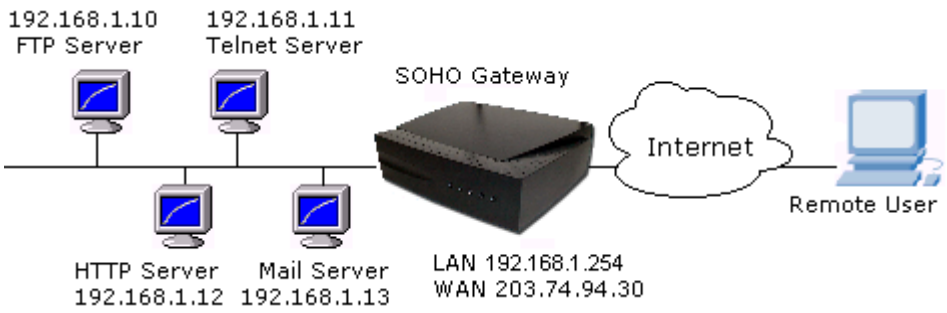
To use VPN Pass-Through function, you need to configure following port number in Virtual Server Table List.

protocol	port number
PPTP	1723
IKE (IPSec)	500

VIRTUAL SERVER



VIRTUAL SERVER



For example,

Supposing you want to have four servers providing FTP, HTTP, Mail and Telnet services, you must enter four virtual servers and enable them.

If users key in ftp://203.74.94.30, Broadband Router will send the data of FTP protocol to the server of 192.168.1.10.

If users use telnet software to connect to203.74.94.30, they will connect to the server of 192.168.1.11.

If users key in http://203.74.94.30, Broadband Router will send the data of HTTP protocol to the server of 192.168.1.12.

If users use the email to connect to 203.74.94.30, they can receive the mails in Mail server of 192.168.1.13.

5.10.3 DMZ Host

Dynamic IP DMZ

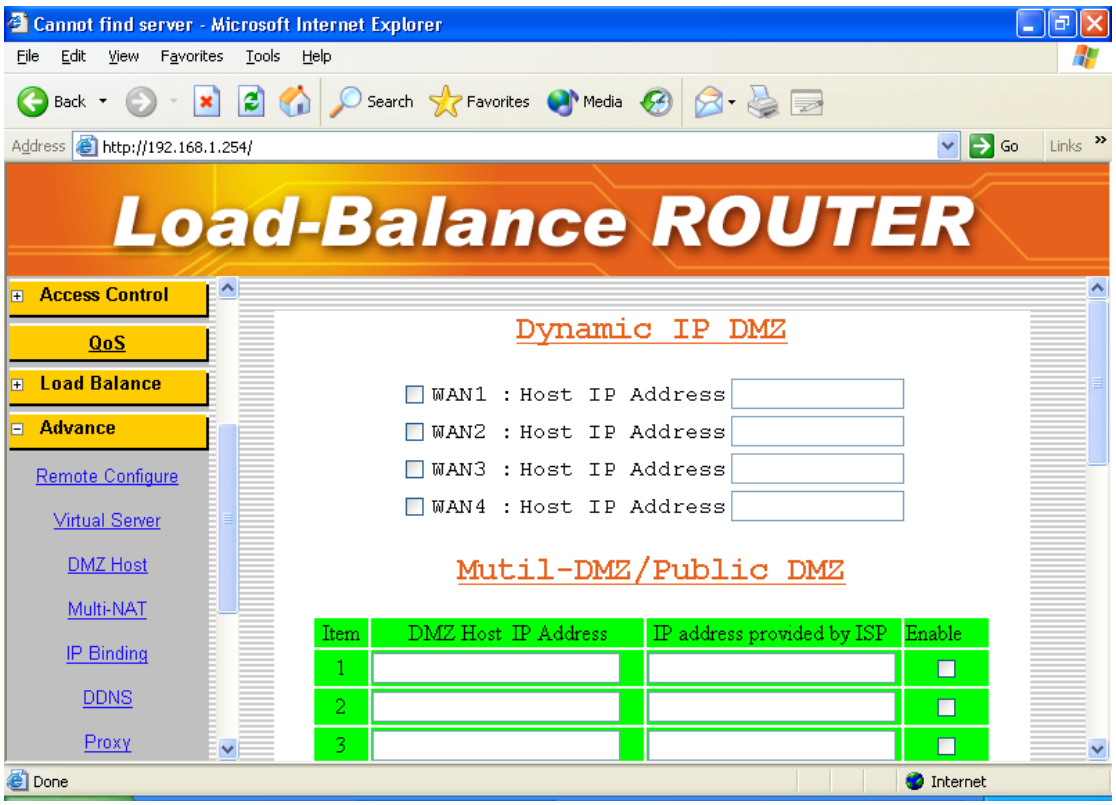
WAN : Host IP Address (PPPoe Mode)

When WAN port IP assigned by ISP obtained by PPPoE(**Dynamic IP**), you can fill in DMZ host that inside the network, the router will mapping WAN IP to internal DMZ host automatically.

Multi-DMZ/Public DMZ

When using this function, the WAN port IP need to be **FIX IP** assigned by ISP

DMZ HOST



The **Demilitarized Zone (DMZ)** function provides a way for public servers (Web, e-mail, FTP, etc.) to be visible to the outside world (while still being protected from DoS (Denial of Service) attacks such as SYN flooding and Ping of Death). These public servers can also still be accessed from the secure LAN.

By default the firewall allows traffic between the WAN and the DMZ, traffic from the DMZ to the LAN is denied, and traffic from the LAN to the DMZ is allowed. Internet users can have access to host servers configured in DMZ Host list but no access to the LAN, unless special filter rules allowing access were configured by the administrator or the user is an authorized remote user.

It is highly recommended that you keep all sensitive information off of the public servers. Store sensitive information in computers on LAN.

If you would like to grant remote users the right to access one of your computers on LAN to perform some actions such as Internet games, you must enable the function of DMZ. When remote users access your legal IP(s), Broadband Router will transmit these packets to the corresponding virtual IP(s).

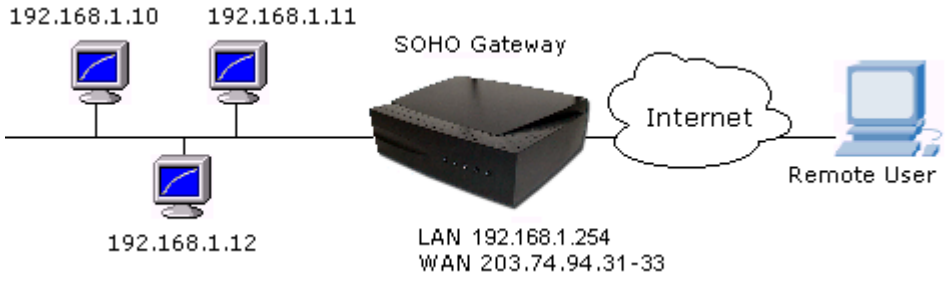
This Router support 2 type DMZ Host.(FIX IP Mode)

- **Multi-DMZ**

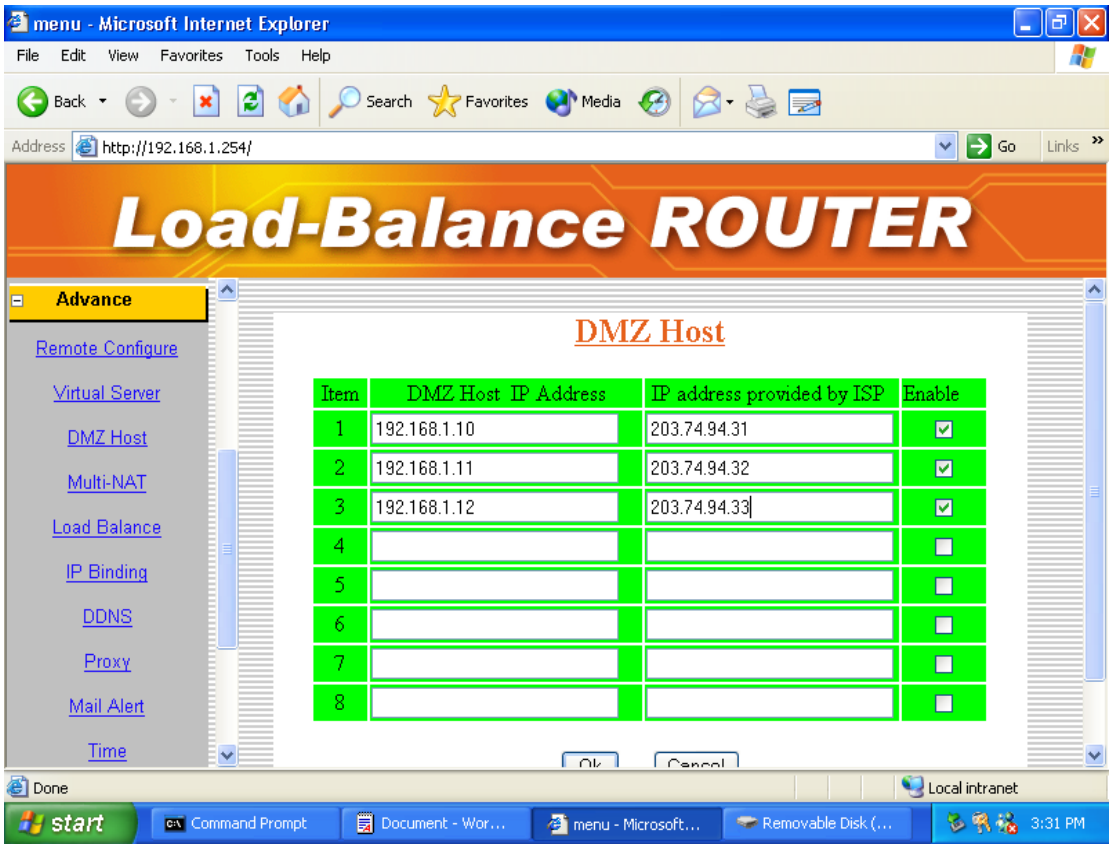
- **Public -DMZ**

Type (1) : Multi-DMZ
several DMZ Hosts

if you own several legal IPs, you can assign which legal IP correspond to which IP on your LAN. This assignment will let most protocol to access the assigned IP on the LAN.



DMZ HOST



Type (2) : Public DMZ
Public IP Mapping

This Router provide “Public IP Mapping” function, with this function, can let you map legal IP between ROUTER WAN & LAN interface. This application will be very useful to let you connect GAME Server or VOIP gateway inside the LAN, because most GAME SERVER or VOIP gateway need legal IP address to operation

For Example:

ISP provide following legal IP address to your office.(FIX IP)

203.74.94.31
203.74.94.32
203.74.94.33
203.74.94.34

By using DMZ function, you can configure DMZ host as follow.

DMZ Host IP Address	IP address provided by ISP	
192.168.1.10	203.74.94.32	(private DMZ host)
203.74.94.33	203.74.94.33	(for GAME SERVER)
203.74.94.34	203.74.94.34	(for VOIP gateway)

After configure ROUTER as above DMZ HOST table, the ROUTER will let data packet that destination address point to 203.74.94.33/34 pass through into inside GAME SRVER and VOIP gateway .The ROUTER also allow LAN user (like 192.168.1.xx) can access GAME SERVER or VOIP gateway.

NOTE:

if using “Public IP Mapping” function, the GAME SERVER & VOIP gateway will not have DoS function protect by this ROUTER.

5.10.4 Multi-NAT

Multi-NAT function allow you to configure multiple LAN IP Domain to each WAN port(total 10 LAN IP can be defined), after configure multiple NAT function It will act like have virtual router connect to Broadband Router LAN port, all traffic between each LAN IP domain , will send and receive through broadband router. it will provide following benefit .

.* restrict broadcast storm in single IP domain.

.* Broadband router can check each packet with DoS function enable.

LAN IP: separated LAN IP domain.

Subnet Mask: mask for IP domain.

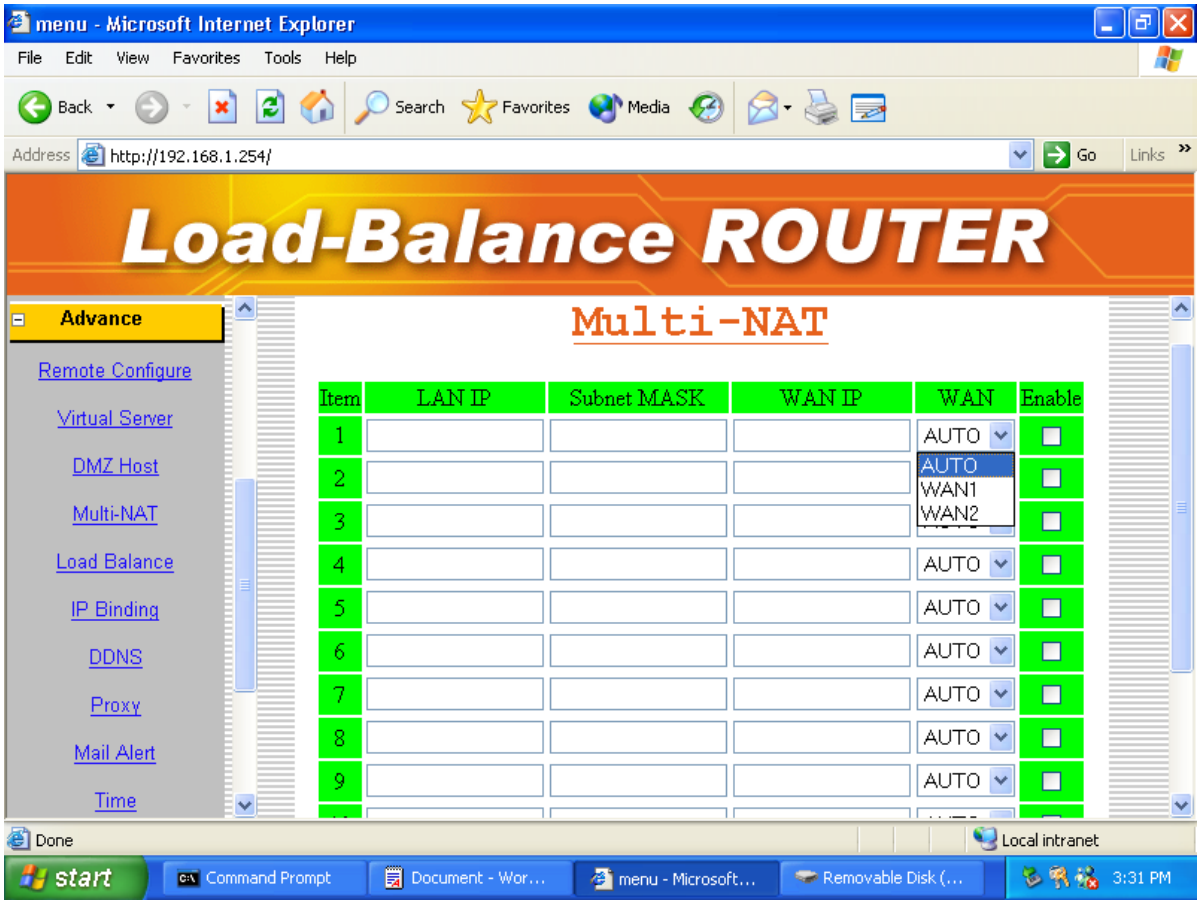
WAN IP: specific WAN IP address that match to LAN IP domain.

You can leave **blank** in this field for PPPoE connection/
Or write down specific WAN IP address, if WAN port had
Define multiple IP address on it (DMZ used)
Blank: router will send packet follow by WAN filed selected .

WAN: WAN1, WAN2, AUTO

WAN1/2/3/4 …router will route packet to correspond LAN/WAN
AUTO…….router will route packet follow by "load balance"
Function selected

MULTI-NAT



5.10.6 IP Binding (Protocol Route Control)

In Internet world, there have some Game Server ,SSL protocol user or Personal Server have special request for connection, these special request include.

(1). Use special port number to perform specific function.

(2). Not allow user connect with multiple WAN IP address

For Example,

if user use load Balance function provide by router to connect Server, Server might response with many login display back to user, because each session comes different WAN port with different IP address, Server treat it like different request

By enable this function, you can specific the IP packet will go through dedicate WAN port to reach dedicate destination server. they will show only 1 IP address.

That means if destination server address show in this display, when user wants to reach these destination server, the packet will only go through dedicate WAN port, it can not have load balance function.

Note:

IP Address: destination server IP address, it will be restrict to dedicated WAN port.

" if do not specific destination Host IP address in this field, the port number specific in the port number field will be limit packet transfer in dedicated WAN port.

Starting port: the packet of specific protocol port number will be restricted.

End port: the packet of specific protocol port number will be restricted

The protocol port number start from 0 to 65535, you can decide what range of port number will be restrict. if enter.

0	0	all packet will be restrict to dedicated WAN port
blank	blank	all packet will be restrict to dedicated WAN port
80	80	only packet type of port 80 will be restrict, the rest type packet will not be restrict, can use load balance function.
1	21	only packet type of port 1 to port 21 will be restrict, the rest type packet will not be restrict, can use load balance function.

WAN: select WAN port to be transfer packet for dedicated destination packet.

Example (1)

IP Address	***Start port***	*End Port*	***WAN***
210.3.1.23	0	65535	WAN1

All packet go to Internet Host with IP 210.3.1.23 will be restrict to dedicated WAN 1

Example (2)

IP Address	***Start port***	*End Port*	***WAN***
210.3.1.23	0	0	WAN2

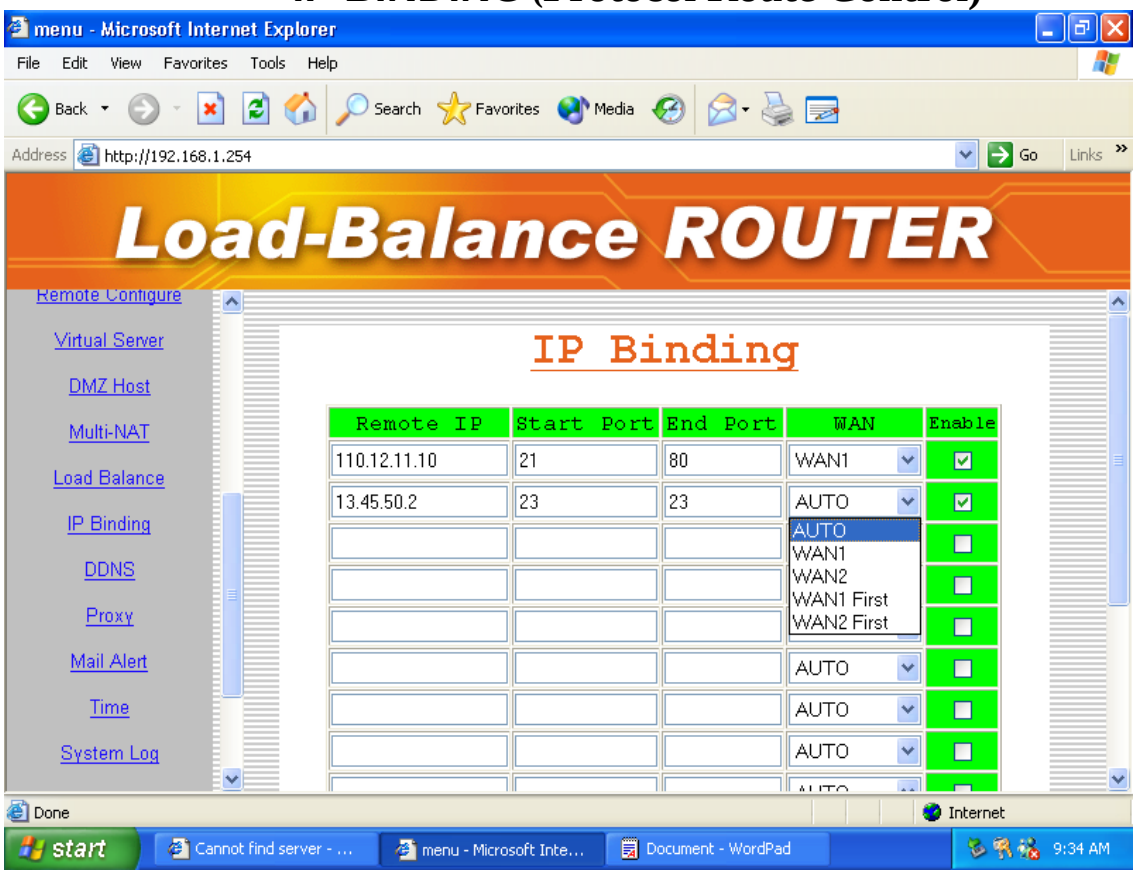
Packet type belong to protocol 23 that go to Internet Host with IP 210.3.1.23 will be restrict to dedicated WAN2

Example (3)

IP Address	***Start port***	*End Port*	***WAN***
Blank	21	21	WAN1

Packet type belong to protocol 21(FTP) that go to any of Internet Host will be restrict to dedicated WAN1

IP BINDING (Protocol Route Control)

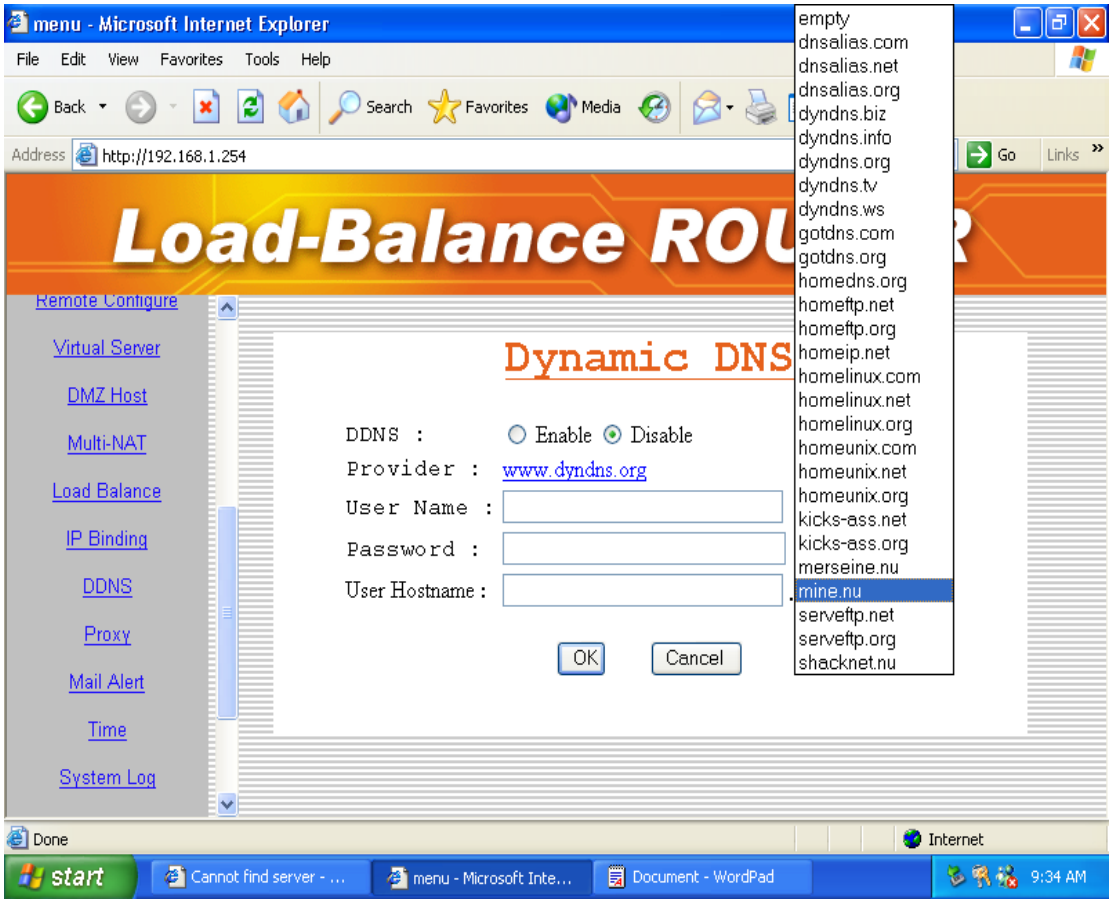


5.10.7 DDNS (Gateway Mode / Basic NAT Mode only)

You need to apply for a free DNS domain name from www.dyndns.org. Broadband Router will update the WAN IP address to DDNS's database once a WAN port was connected to Internet if DDNS function is enabled. And the users in Internet can find out the Broadband Router via this domain name.

User Name: please apply from www.dyndns.org
Password: please apply from www.dyndns.org
User Hostname: please apply from www.dyndns.org

DYNAMIC DNS

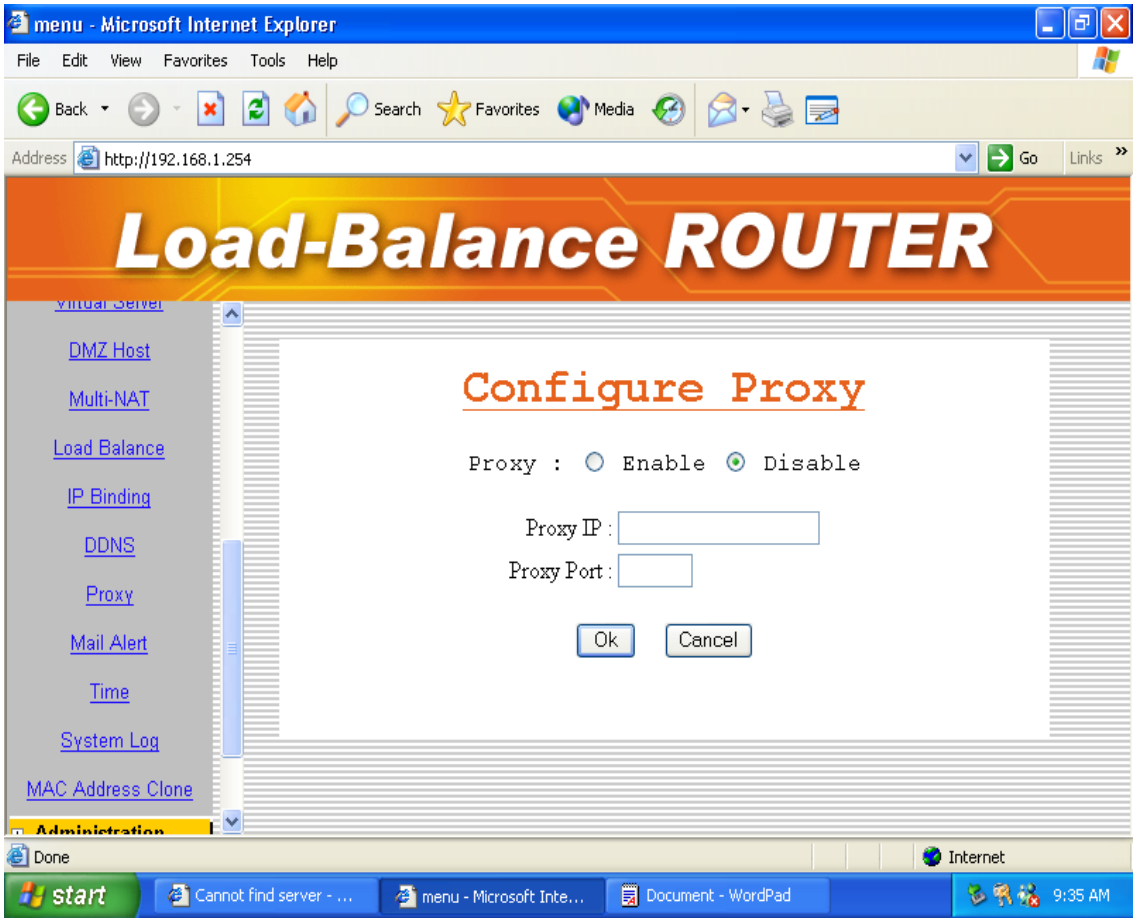


5.10.8 Proxy

This function work together with **Mail Alert** function, if there have Proxy Server in your local LAN, please fill in necessary Proxy information in this display.

Some environment needs to fill in Proxy information.

PROXY



5.10.9 Mail Alert

- Gateway Mode / Basic NAT Mode only -

Enter the **Receiver/ Sender** e-mail Address in the fields and check the items you want. System will send e-mails to **Receiver** address once the conditions meet the setting.

Receiver mail address: The mail address that will receive alert mail

Sender mail address: The mail address that send out alert mail, you Should fill in a legal format address **(ex . router@yahoo.com)**

Example 1

When "log record " is 50, means when condition happen 50 times. The router will send 50-log message together to **Receiver.**

Example 2

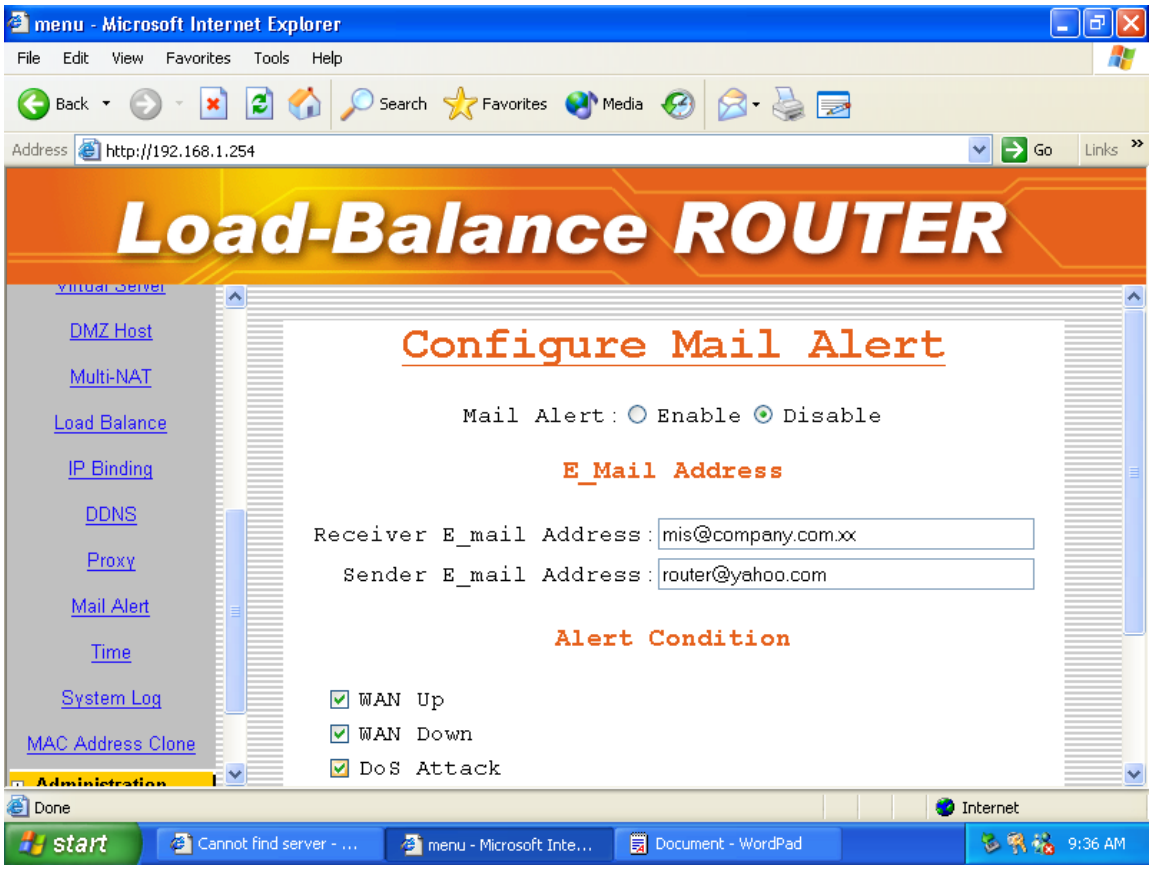
When "log record " is 1, means when each condition happen. The router will send log message to **Receiver** every time**.**

"**log record**" range : **1~150**.

Broadband Router provides four condition selections:

WAN Up	System will send the mail, once WAN port(s) is connected to Internet.
WAN Down	System will send the mail, once WAN port(s) is disconnected from Internet.
DoS Attack	System will send the mail, once the selected is conditions in DoS occurred.(need to enable DoS function)
System log	System will send the mail of log information, once the log records conform to your setting.

MAIL ALERT

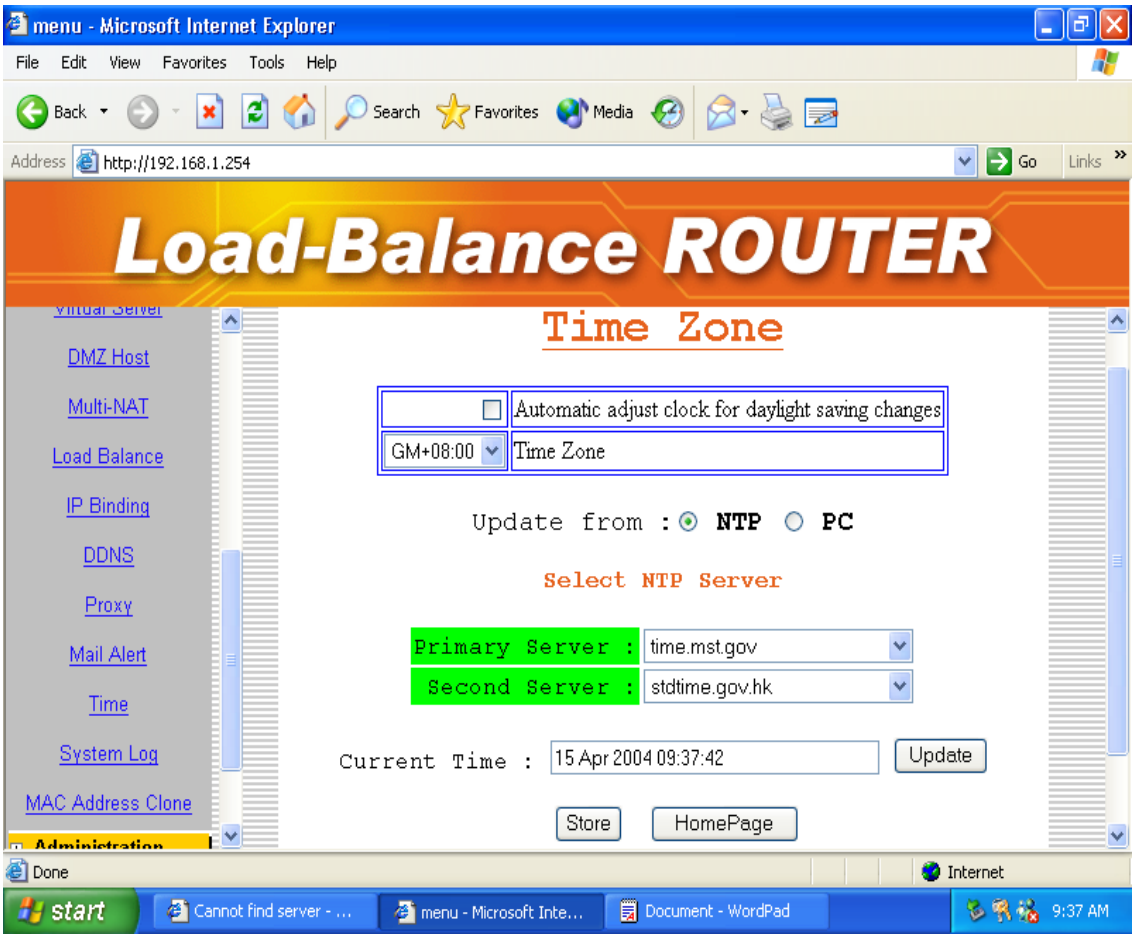

menu - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address http://192.168.1.254
Go Links
Load-Balance ROUTER
Virtual Server
DMZ Host
Multi-NAT
Load Balance
IP Binding
DDNS
Proxy
Mail Alert
Time
System Log
MAC Address Clone
Administration
Configure Mail Alert
Mail Alert : Enable Disable
E_Mail Address
Receiver E_mail Address : mis@company.com.xx
Sender E_mail Address : router@yahoo.com
Alert Condition
WAN Up
WAN Down
DoS Attack
Done
Internet
start
Cannot find server - ...
menu - Microsoft Inte...
Document - WordPad
9:36 AM

5.10.10 Time

Broadband Router will obtain the GMT (Greenwich Mean Time) after connected to Internet. You need to indicate the local time so that the system could show the correct time. For example, Taiwan's local time is GMT + 8 hours.

Select "Automatic adjust clock for daylight saving changes" will display the time one hour earlier than local time.

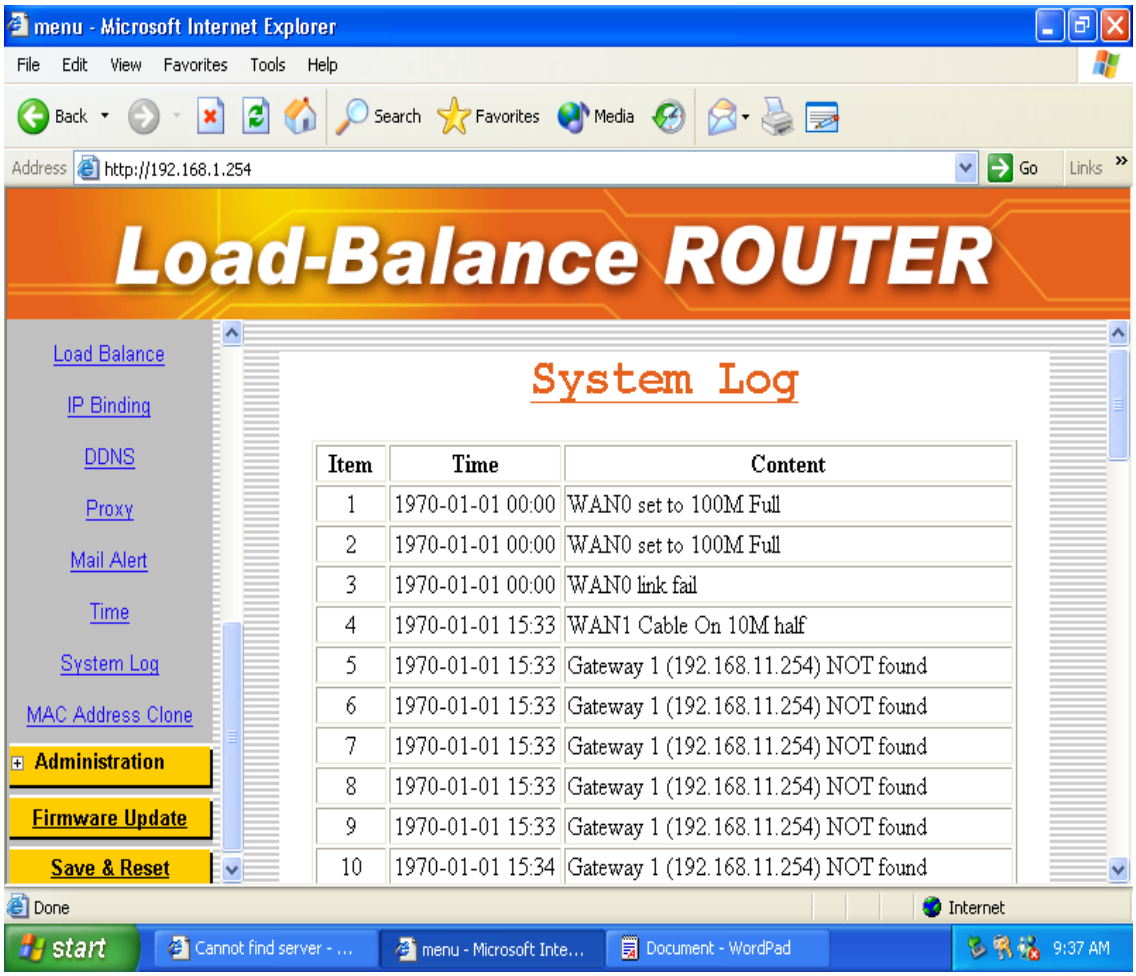
TIME



5.10.11 System Log

Show all the records after Broadband Router Power on, such as WAN port up/down, WAN IP address, the obtained time, DDNS current corresponding WAN IP address and so forth. You can also save these data to files.

SYSTEM LOG

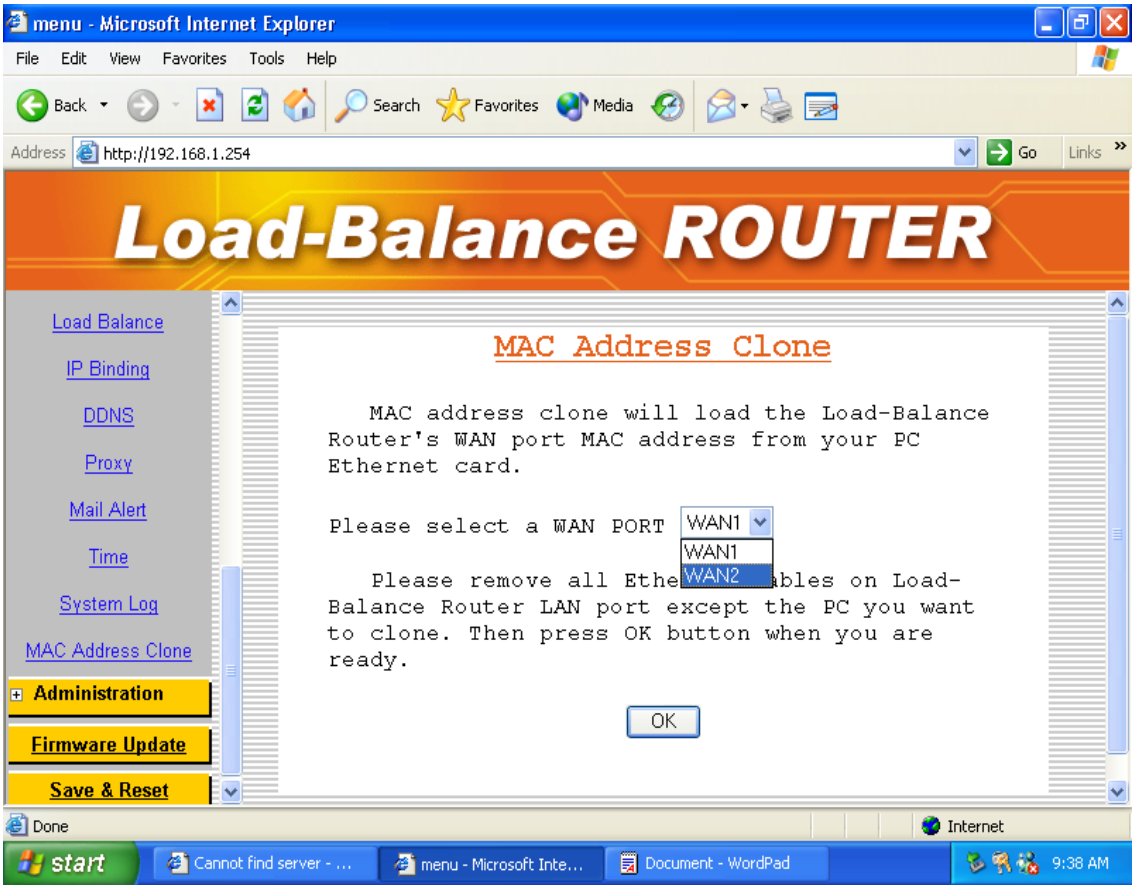


5.10.12 MAC Address Clone

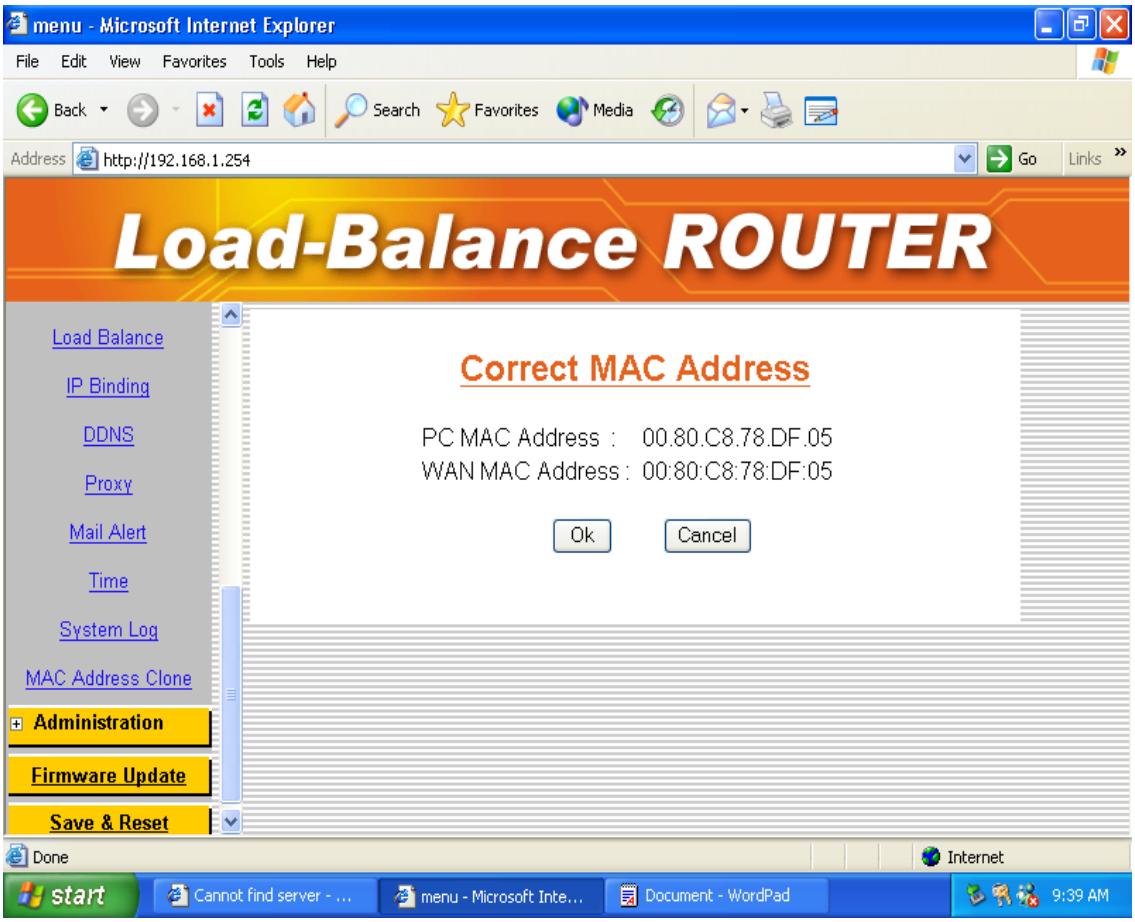
If your ISP blocked the MAC address of a network card, you may use MAC Address Clone to duplicate the MAC address to the Mac address in each WAN port.

Remove all Ethernet cable on Broadband Router LAN port except for the PC you want to clone. Then press **Ok** when you ready.

MAC ADDRESS CLONE



MAC ADDRESS CLONE



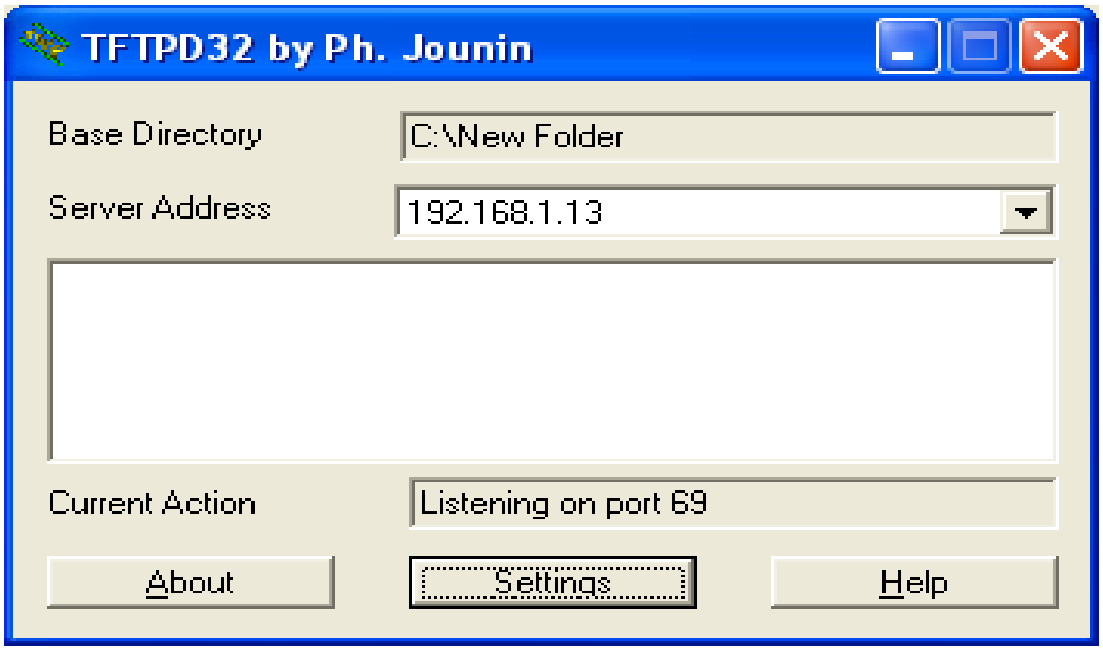
you need to **reboot** your Broadband Router after finished cloning to make new MAC address takes effects.

5.11 Firmware Update

Broadband Router allows you to easily update the embedded firmware.
We will occasionally provide new firmware on the web site to help you updating the firmware of your Broadband Router.
Follow the procedure to update your firmware after downloaded the new code.

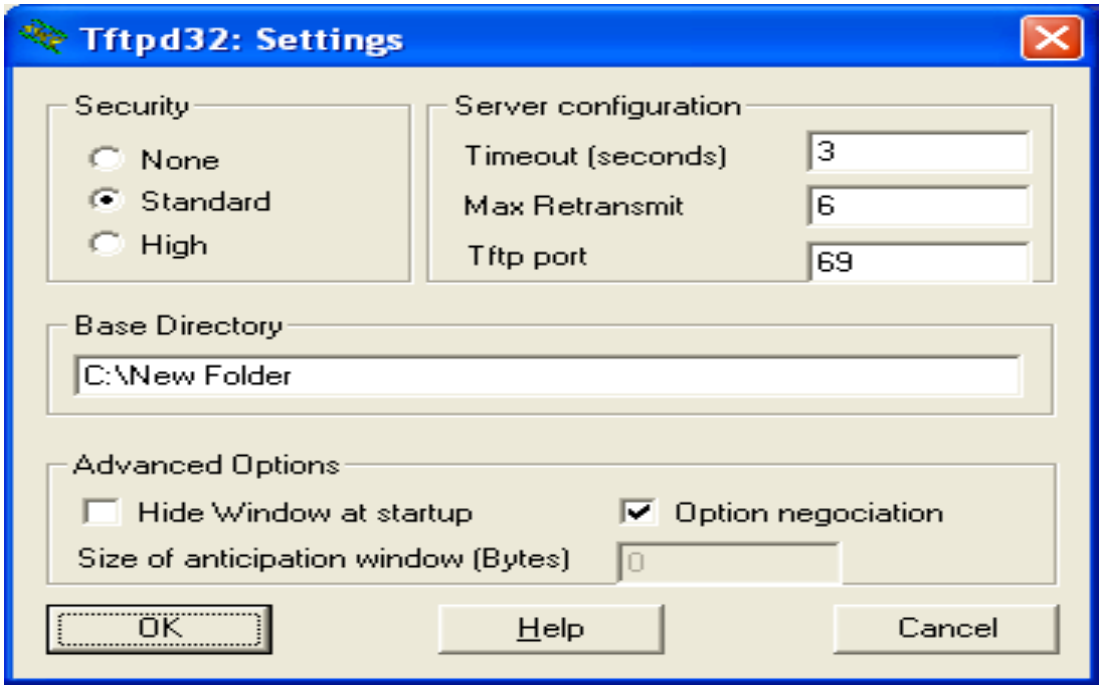
Method 1:
Run a TFTP server program such as TFTPD32. (TFTPD32 is a shareware and you may download it or other TFTP server programs from Internet.)

FIRMWARE UPDATE



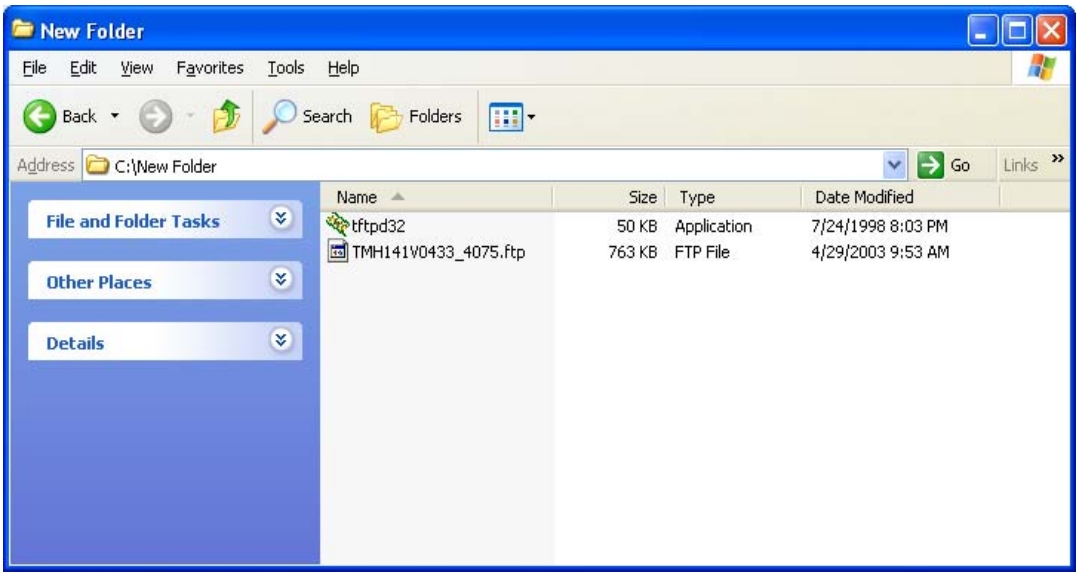
Make a base directory in this server.

FIRMWARE UPDATE



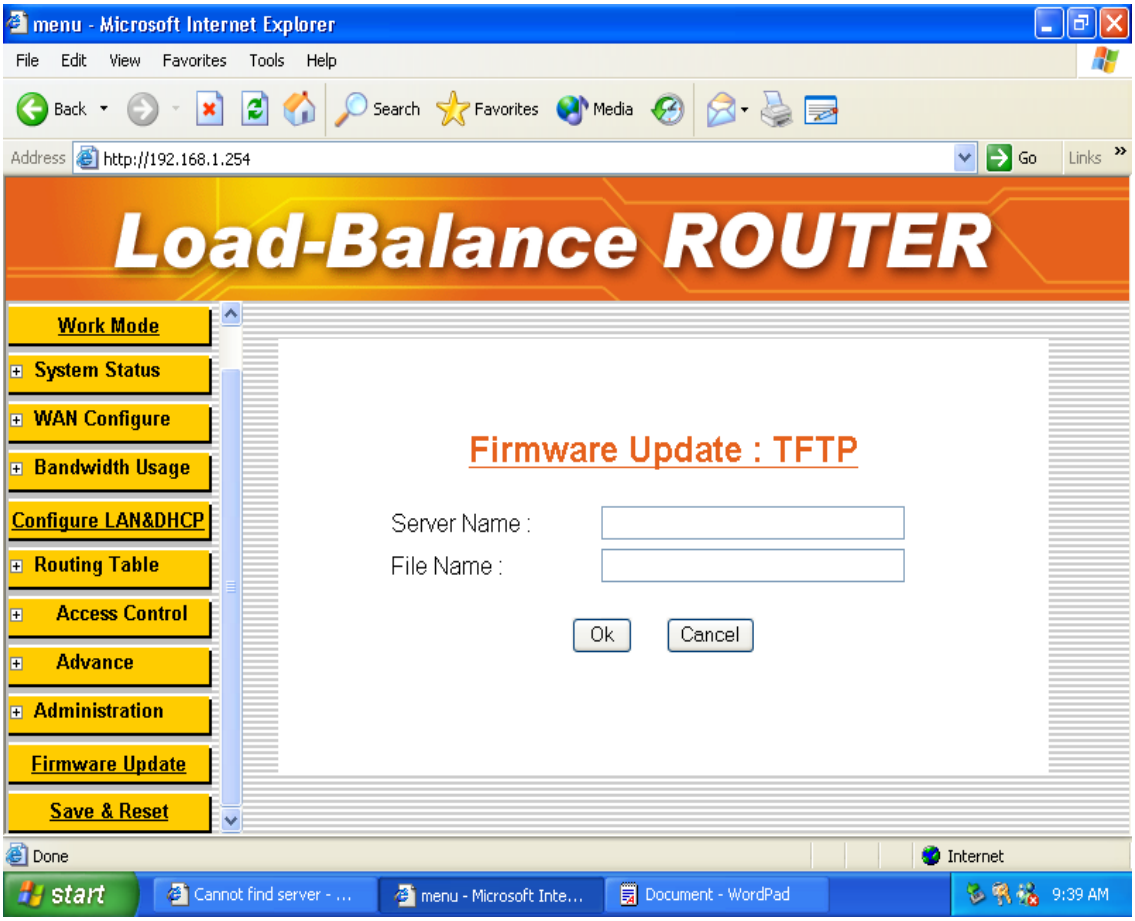
Save the image file of firmware to the directory of TFTPD32.

FIRMWARE UPDATE


New Folder
File Edit View Favorites Tools Help
Back Search Folders
Address C:\New Folder
Go Links
File and Folder Tasks
Other Places
Details
Name Size Type Date Modified
tftpd32 50 KB Application 7/24/1998 8:03 PM
TMH141V0433_4075.ftp 763 KB FTP File 4/29/2003 9:53 AM

Enter the **Server Name** and **File Name** in the new folder fields of **Firmware Update** window and then click **Ok**.

FIRMWARE UPDATE



You will see the updating processing. After finishing update procedure, you must **reboot** Broadband Router to run new code.

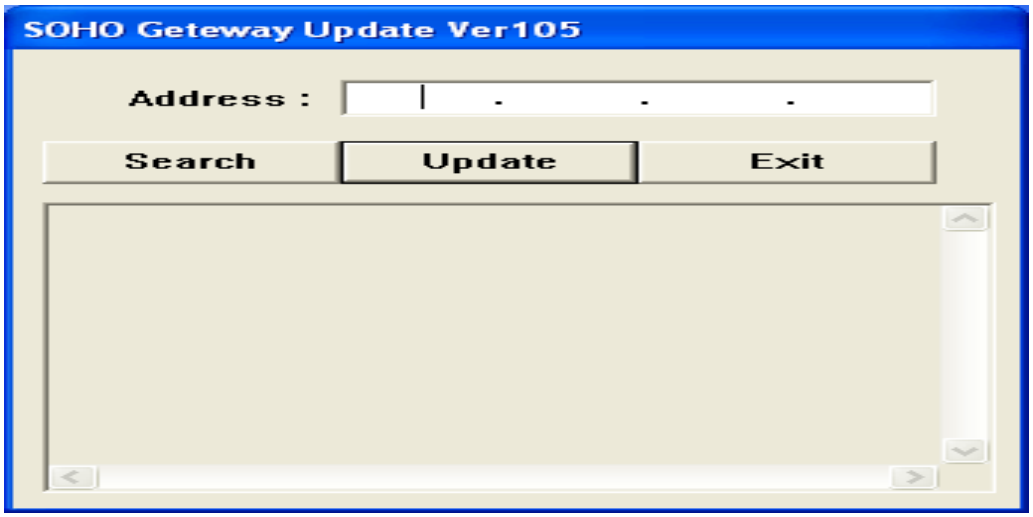
Method 2:

Double click the executable file (the file with exe extension file name) you downloaded. Here we take **v105.exe** as the example of new version file.

FIRMWARE UPDATE

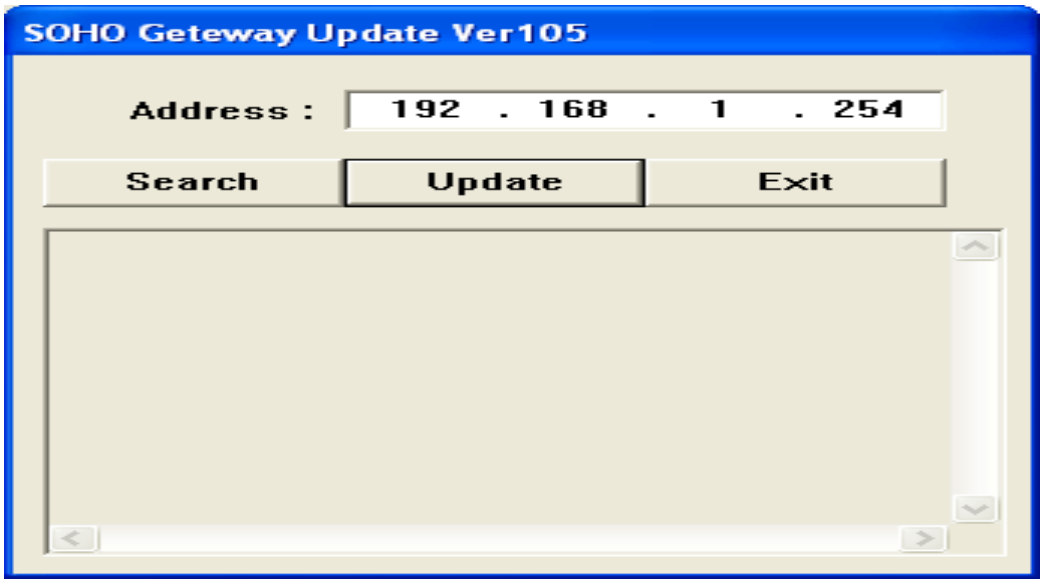
Click **Search** to find the IP of Broadband Router.

FIRMWARE UPDATE



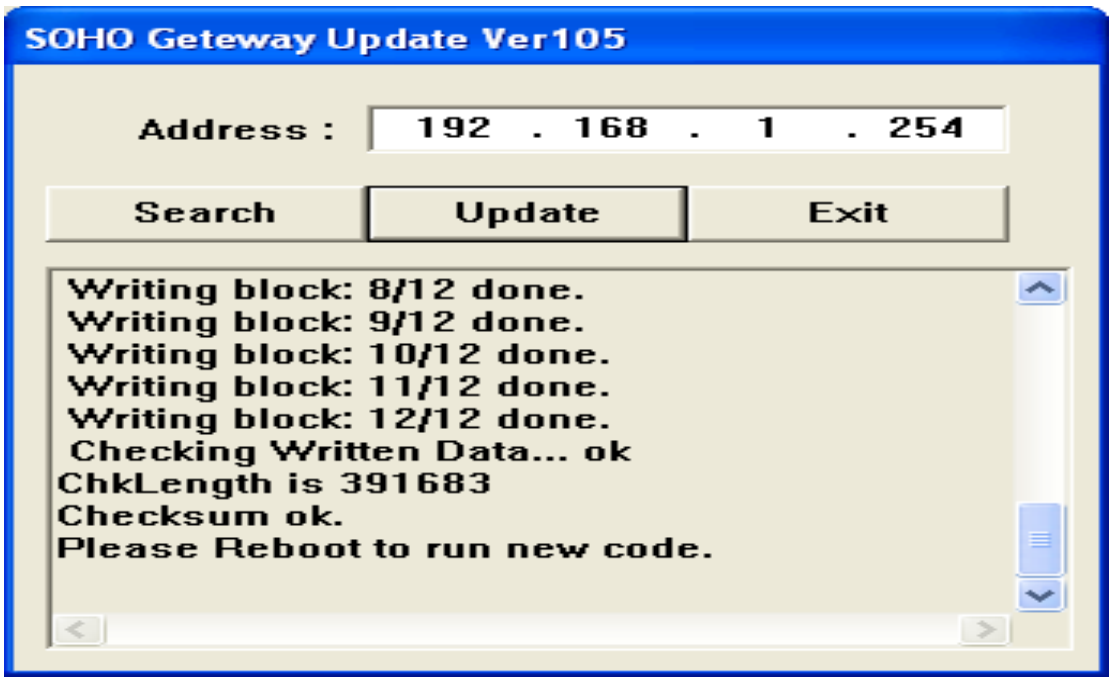
The IP address of Broadband Router is **192.168.1.254 (default value)**.

FIRMWARE UPDATE



Click **Update** to update the firmware.

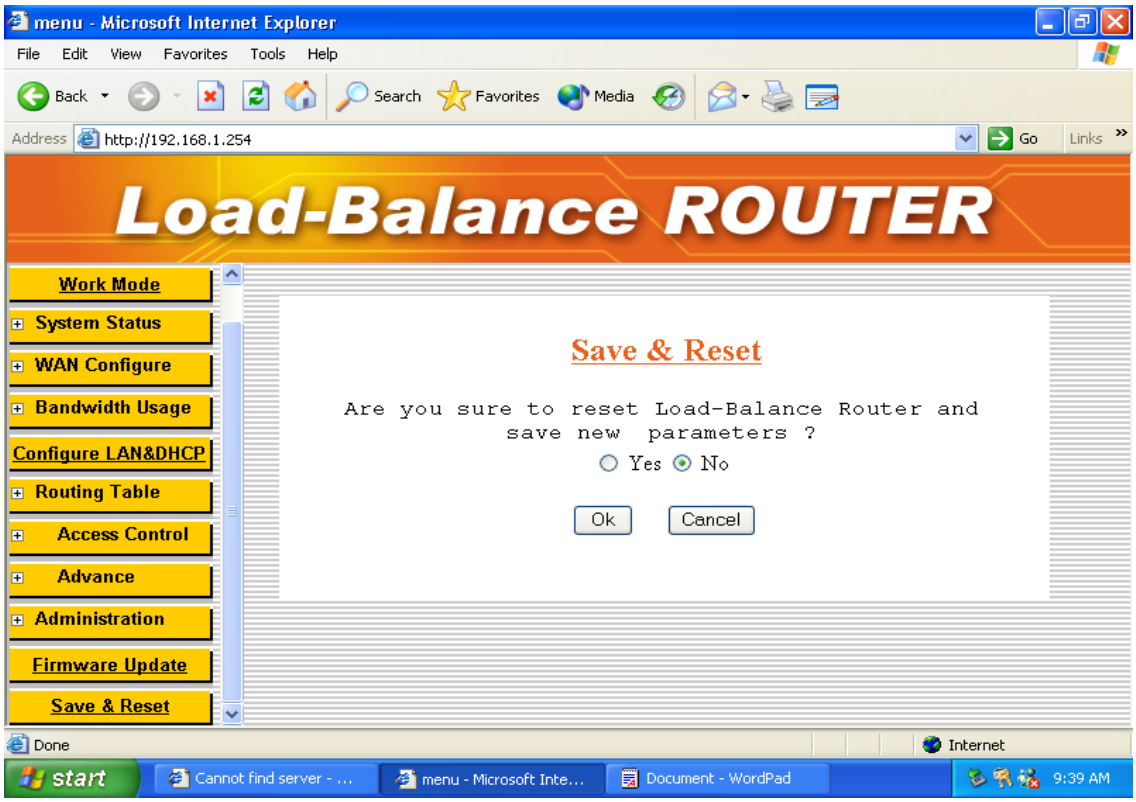
FIRMWARE UPDATE



5.12 Save & Reset

In order to save the configuration changes that have been made to the Broadband Router you must save them to the Broadband Router's Flash memory. If you do not save the changes, the configuration settings will be lost in the event of a power loss or system reboot to the Broadband Router.

SAVE & RESET



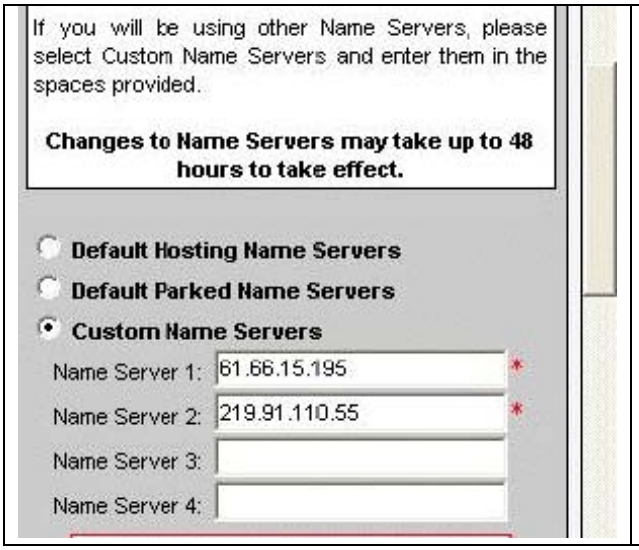
CHAPTER 6 IN-BOUND FUNCTION

Authorities DNS is just a fancy term for the official IP address keeper/provider of particular Domain (or Internet) name, such as www.example.com is analogous to a telephone book where a person's name is associated with his telephone number. Wikipedia, the free encyclopedia has a good general discussion of DNS: http://en.wikipedia.org/wiki/Domain_Name_System

This IN-BOUND ROUTER DNS server contains the names and Internet addresses of servers that you wish to host. In order for all DNS requests for your domain names to be ultimately routed to your IN-BOUND ROUTER, it has to be setup at the registrar of your Internet name. In general, logon to your registrar site, and manage your domain name. For example, www.example.com Currently is located at a WEBhosting company: Domain servers in listed order:
NS0.DNSMADEEASY.COM NS1.DNSMADEEASY.COM
NS2.DNSMADEEASY.COM NS3.DNSMADEEASY.COM
NS4.DNSMADEEASY.COM We need to change www.example .com to be hosted by IN-BOUND ROUTER; so we follow the registrar's instructions and delete: NS2, NS3, and NS4, and assign:
Domain servers:
Domain servers:

Name	IP address
NS0.EXAMPLE.COM	WAN1
NS1.EXAMPLE.COM	WAN2

The name is arbitrary; what are important are the IP addresses. It is absolutely necessary for WAN1 to be a static address, and for redundant, fault-tolerant accesses, WAN2 should also be a static address. It would take approximately 24 – 48 hours for this change to take effect throughout the Internet. Below is the actual display of godaddy for Name Servers.

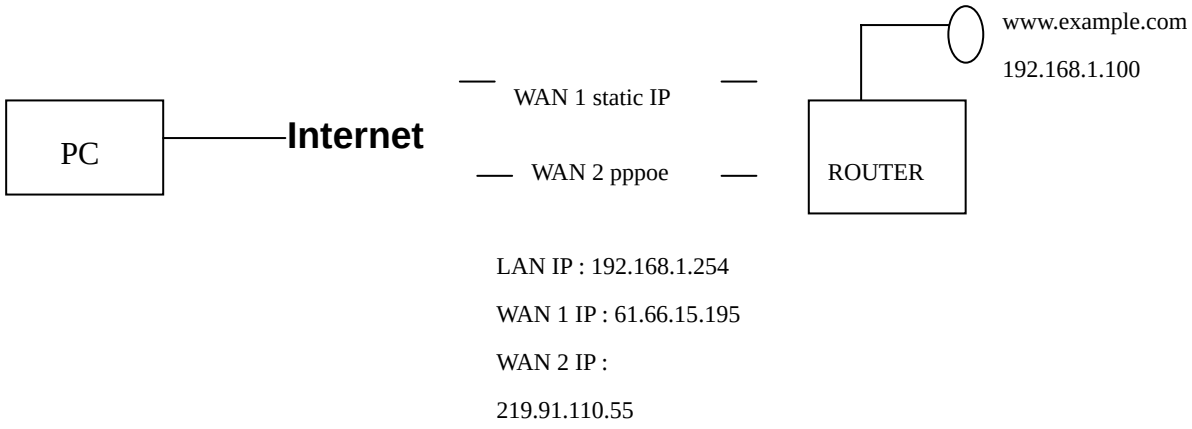


All registrars have the same basic name server facility. For www.example.com, we use godaddy.com, and the process is: Login Manage domain Set Name Servers We enter WAN1 and WAN2 for Custom Name Servers.

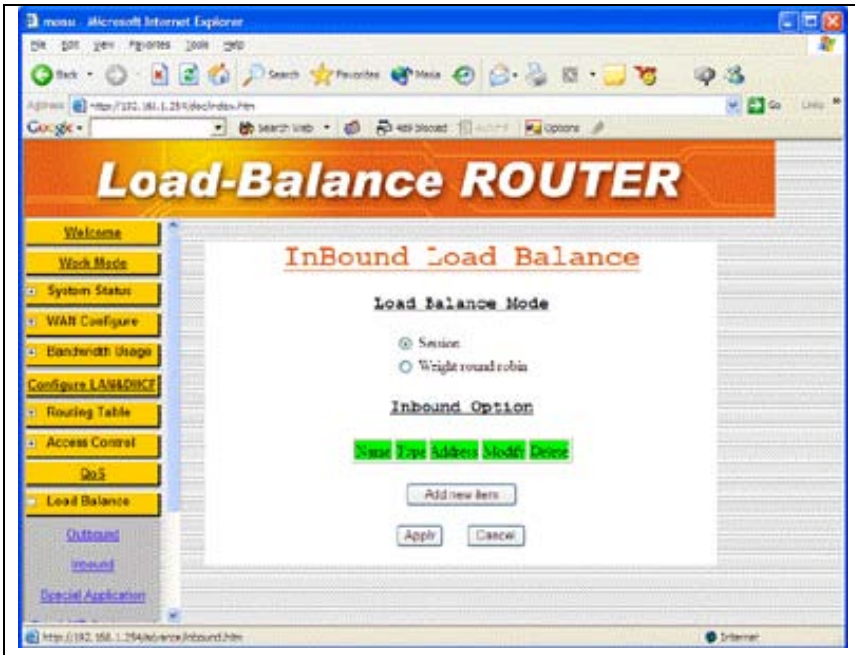
Once the above change is in effect, let us consider:

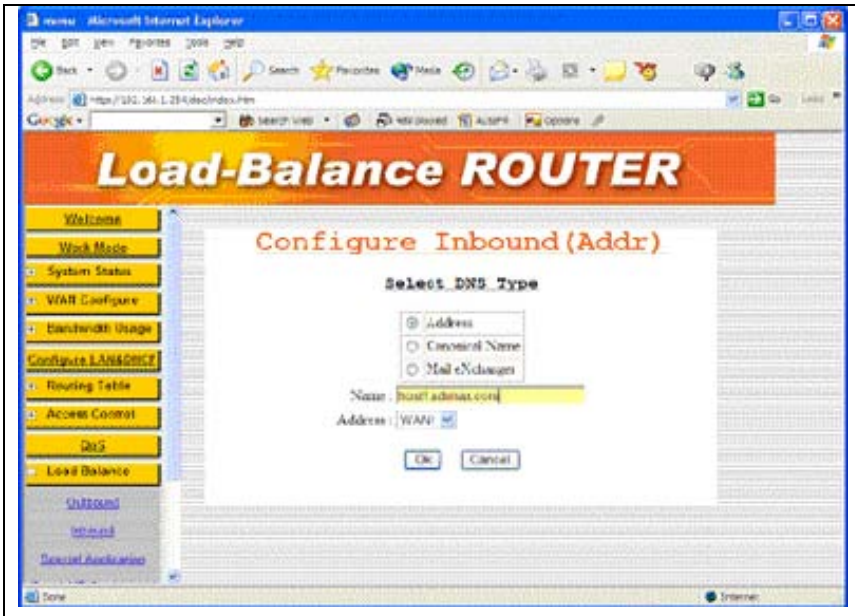
1.1 Simple Load Balancing (2 WAN lines; Session 1:1)

Let us assume that the upload speed of WAN1 and WAN2 are the same; so we will use inbound load-balancing setting: Session with a load-balancing ratio of 1:1.



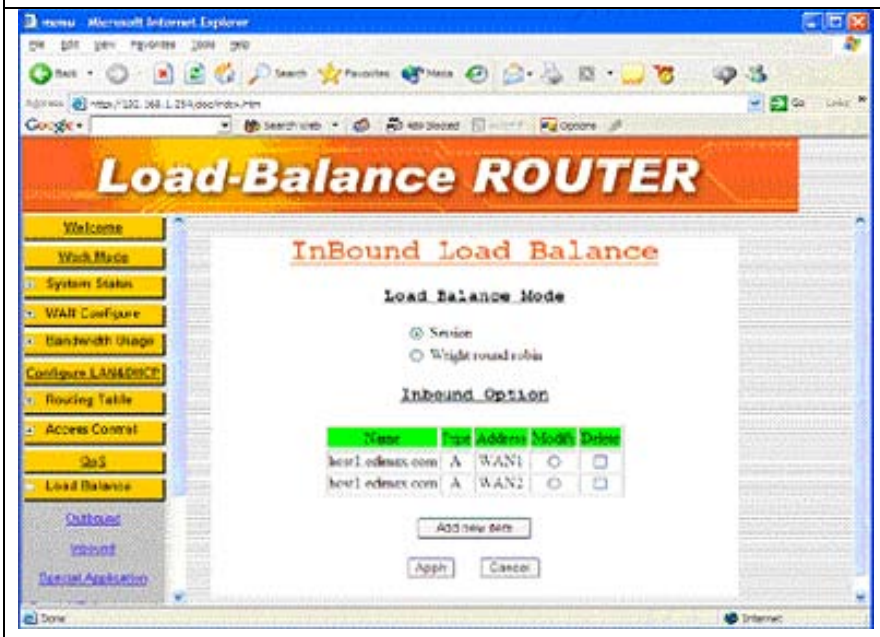
In the IN-BOUND ROUTER router configuration: Load Balance > Inbound

	Click on [Add New Item]

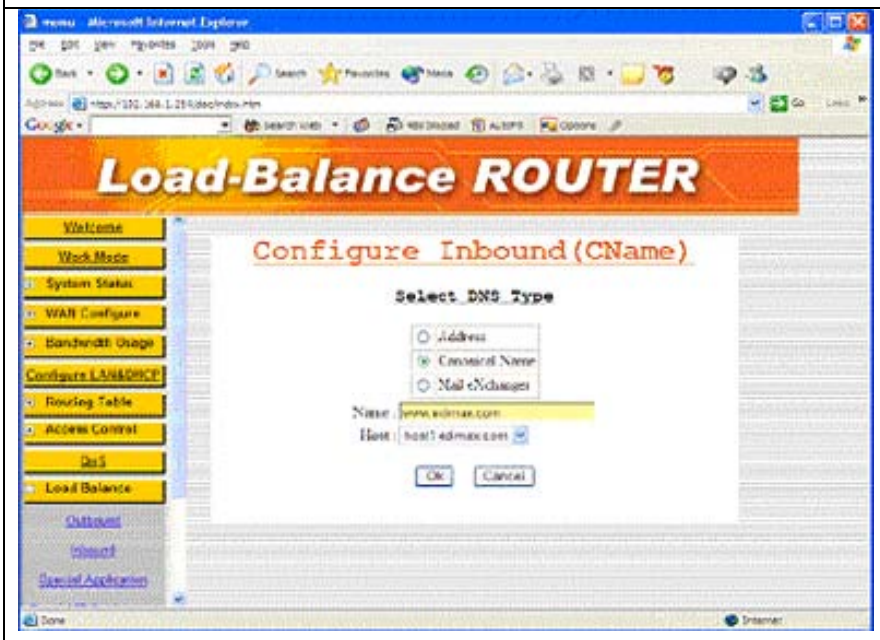


We will enter a make up name: host1.example.com 2 times, once for WAN1 and once for WAN2 with DNS Type: Address This display show the 1st time for WAN1. After Clicking [OK]. Repeat the immediate previous figure, one more time with the same name but this time for WAN2.

You don't need to explicitly enter any IP address.

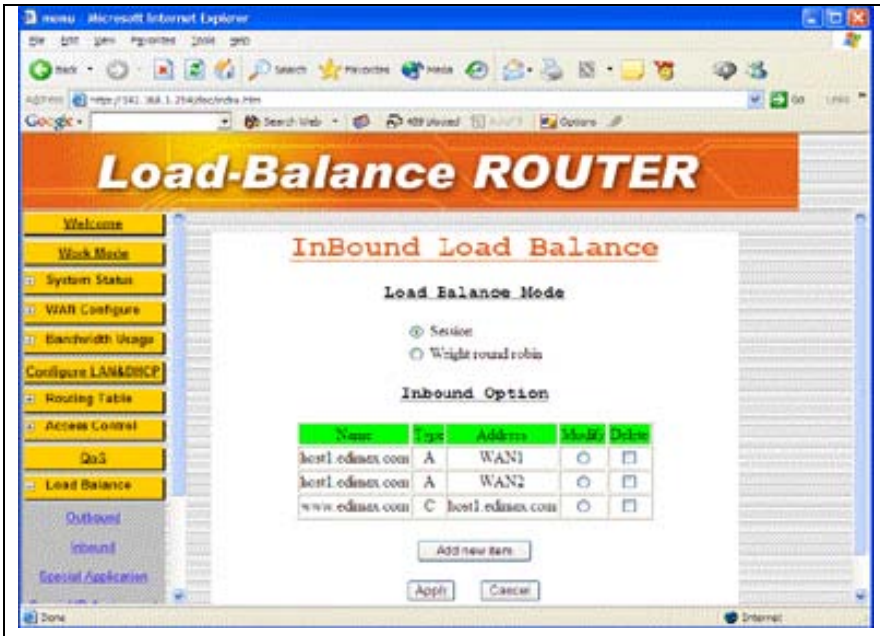


Now, we have 2 entries in the DNS table: Click on [Add New Item] again



This time we are adding the DNS record with the real name that we wanted for our WEBserver. Select DNS Type: Canonical Name

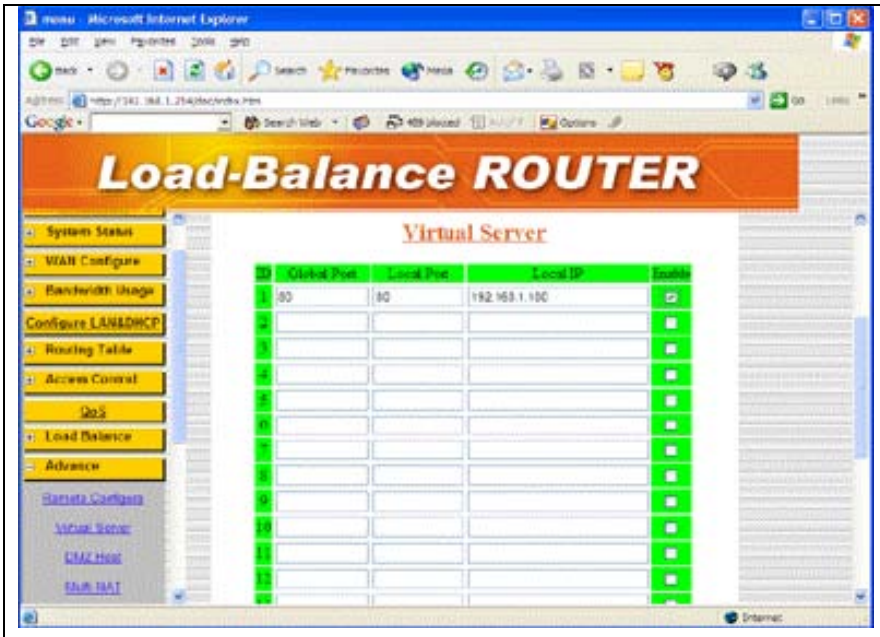
Name: www.example.com
Host: host1.example.com



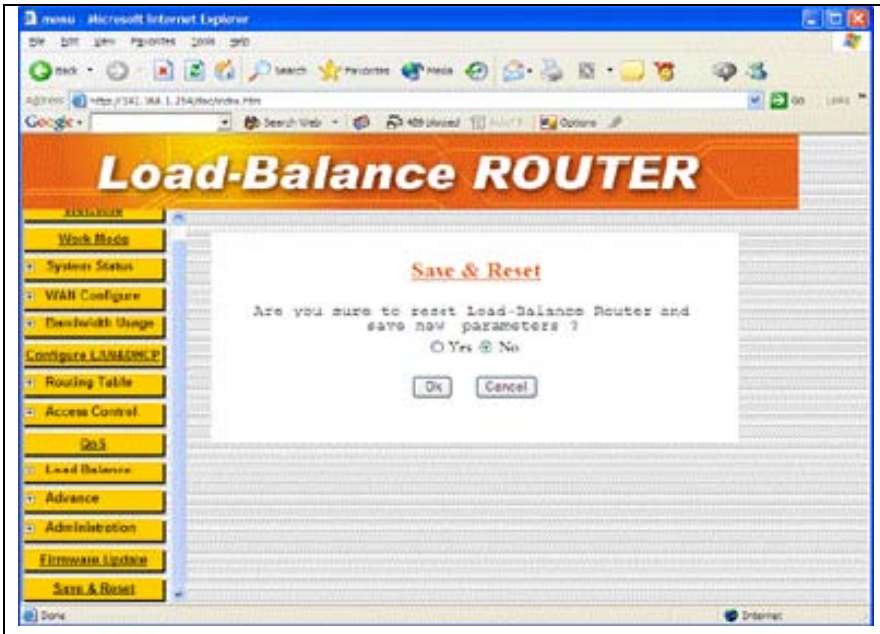
We have configured the IN-BOUND ROUTER DNS server for the simplest case.

Now that the IN-BOUND ROUTER Inbound Load-balancing DNS Server is configured all requests from the Internet for www.example.com will return the IP address of either WAN1 or WAN2. We'll still need to configure the virtual server.

In the IN-BOUND ROUTER router configuration: Advance > Virtual Server



The port for www.example.com is 80 and the IP address is: 192.168.1.100 Enter: Global Port: 80 Local Port : 80 Local IP : 192.168.1.100
Check : enable
Then Click on APPLY

	In order for the Inbound Load Balancing to take effect, we will need to do a system reset. Select Yes and Click on Ok

Now after the reset sequence in completed, you are configured for Inbound Load Balancing.

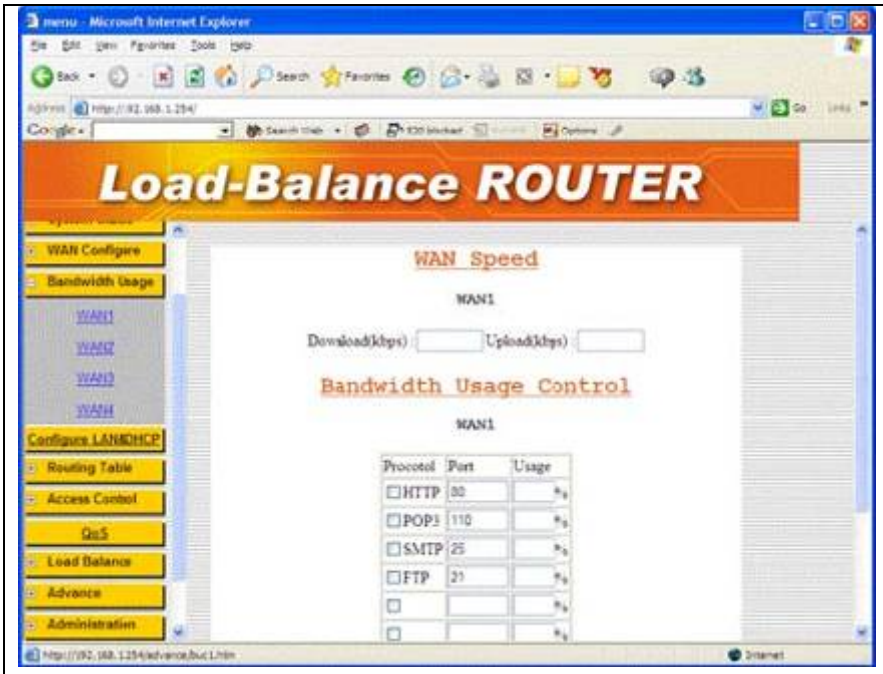
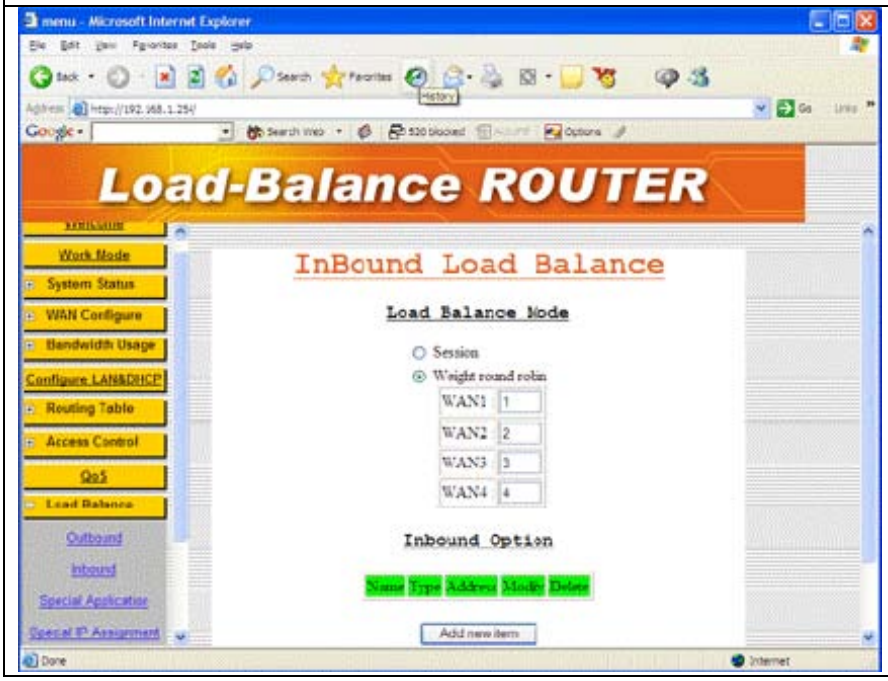
1.2 Advanced Load Balancing

We will describe Inbound Load Balancing using “Weighted round robin” algorithm for: three Internet servers:

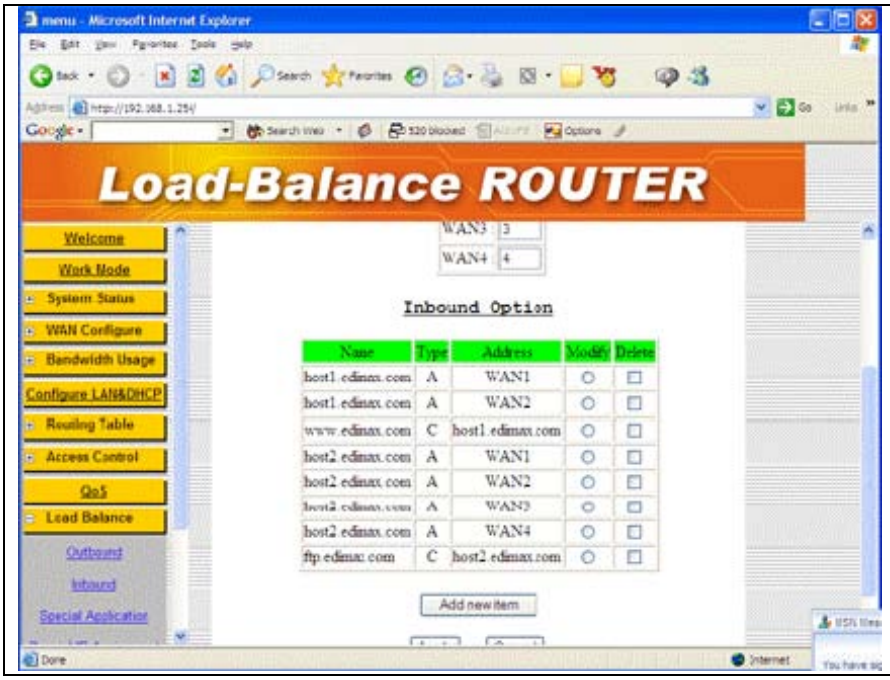
1. Web server, www.example.com, using WAN1 – WAN2, with ratio of 1:2
2. FTP server, ftp.example.com, using WAN1 –WAN4, with ration of 1:2:3:4
3. Mail server, mail.example.com, using WAN3 & WAN4, with ratio of 3:4

The ratio of 1:2, as in case 2 above means that for subsequent users’ DNS request, for every return of IP address of WAN1, there will be two IP address of WAN2.

For the Load Balancing “Weighted round robin” algorithm, you should specify the data rate of each individual WAN ports.

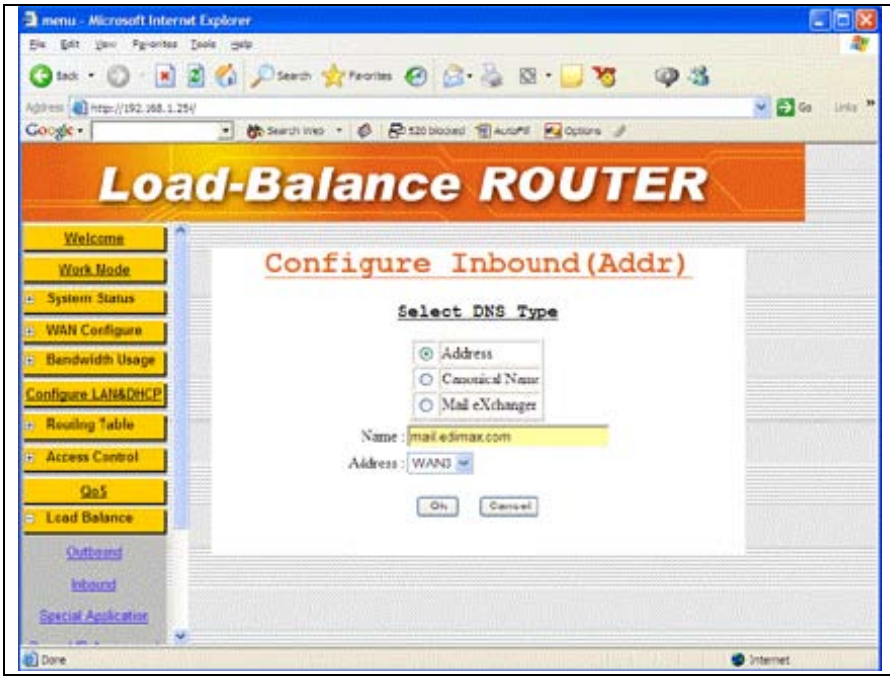
	Main Page > +Bandwidth Usage Select the WAN port that you want to enter the bandwidth. Enter the Download & UpLoad data rate of the WAN ports into their respective fields. Do the same for the other WAN ports.
	Main Page > Load Balancing > Inbound > Inbound Load Balance This figure is for the 4WAN ROUTER; with the 2WAN ROUTER there will only be WAN1 and WAN2. You are entering the ratio for each WAN port into their respective fields.

Add the appropriate entries into the Inbound Option table. The entries are similar to the entries for www.example.com in previous section 3.1. We will use host2 for ftp.example.com , and here are the results so far.

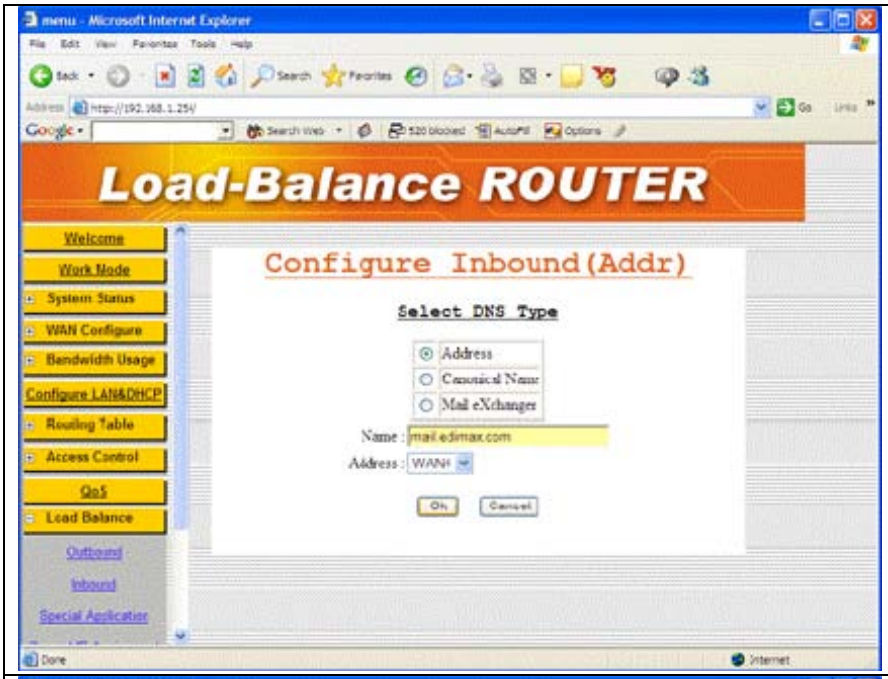


Main Page > Load Balancing > Inbound > Inbound Load Balance
This figure is the display for entering: www.example.com and ftp.example.com

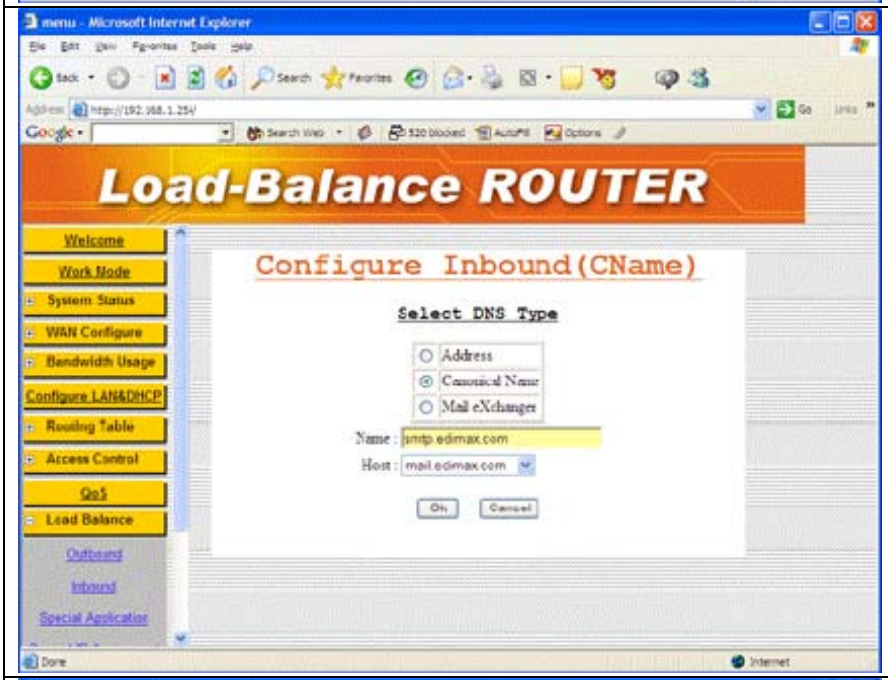
The mail server requires some additional steps.



Main Page > Load Balancing > Inbound > Add New Item > Configure Inbound(Addr) for the Mail server address entry, we add: Name: mail.example.com to WAN3 rather than host3.example.com



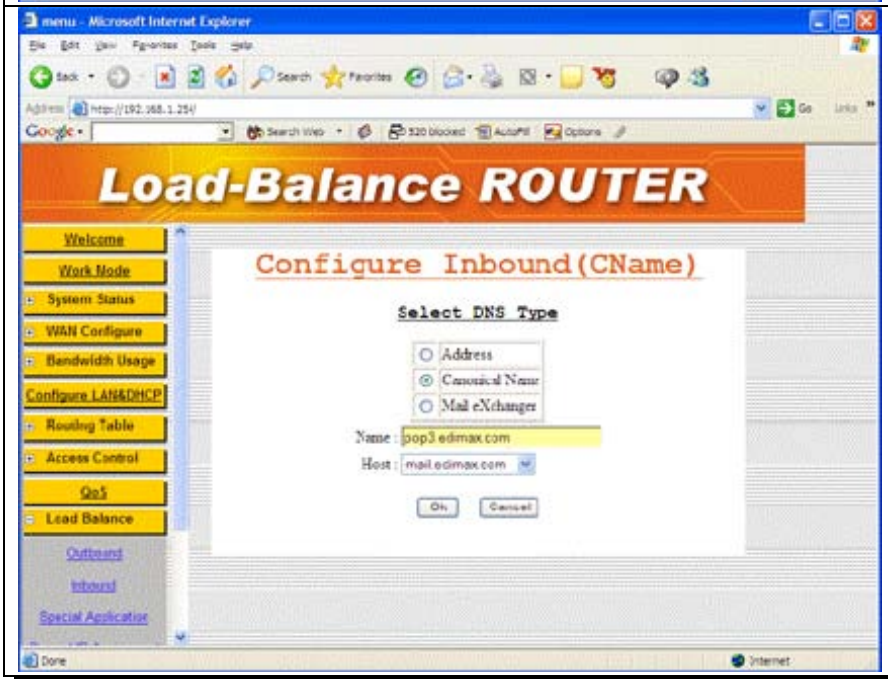
Main Page > Load Balancing > Inbound > Add New Item > Configure Inbound(Addr) similarly another address with the name: mail.example.com to WAN4
rather than host3.example.com



Main Page > Load Balancing > Inbound > Add New Item > Configure Inbound(CName)

Select Canonical Name

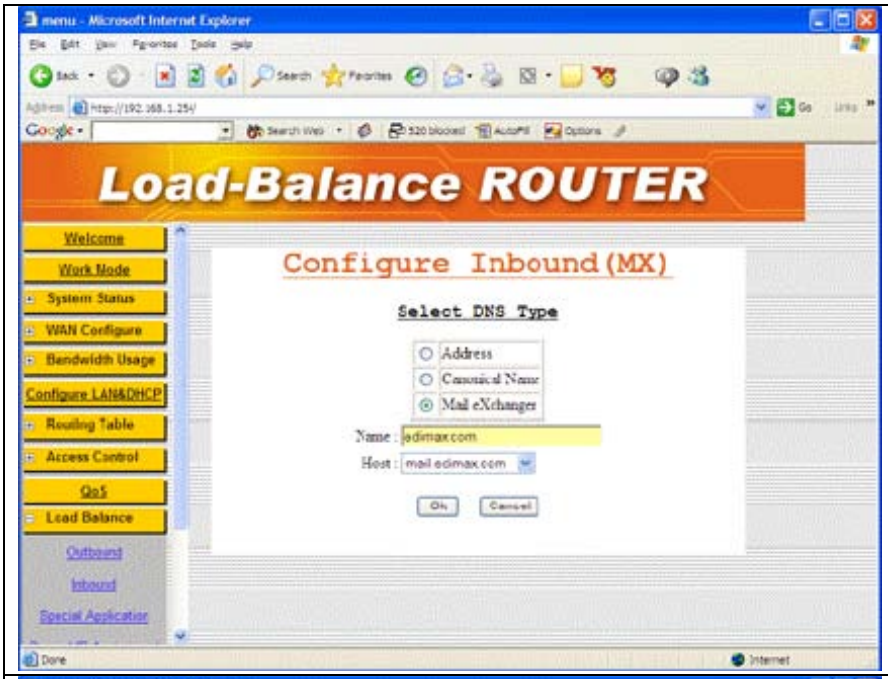
Then Enter: Name: smtp.example.com



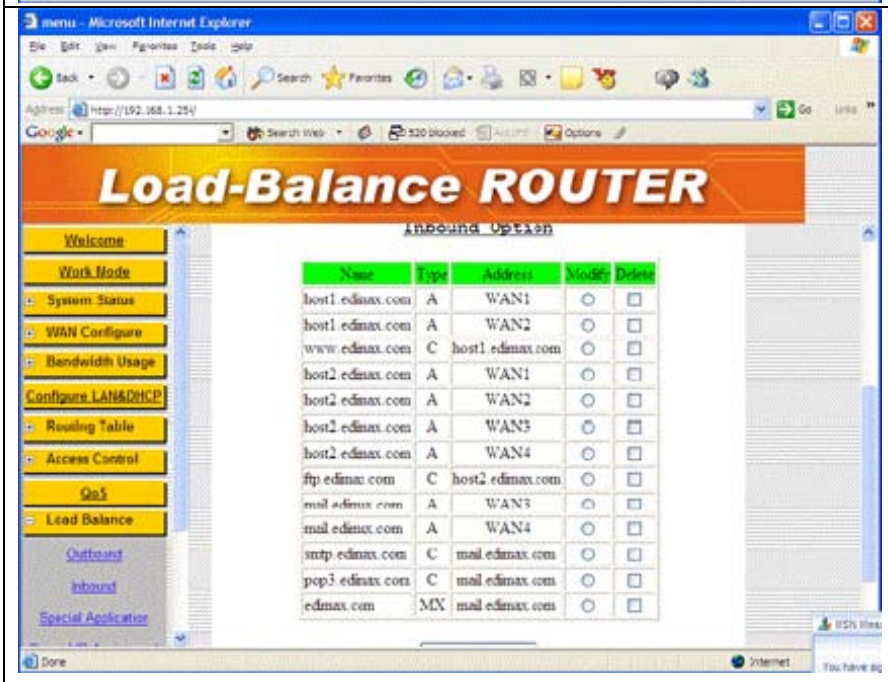
Main Page > Load Balancing > Inbound > Add New Item > Configure Inbound(CName)

Similarly, do it again for pop3.example.com. Select Canonical Name

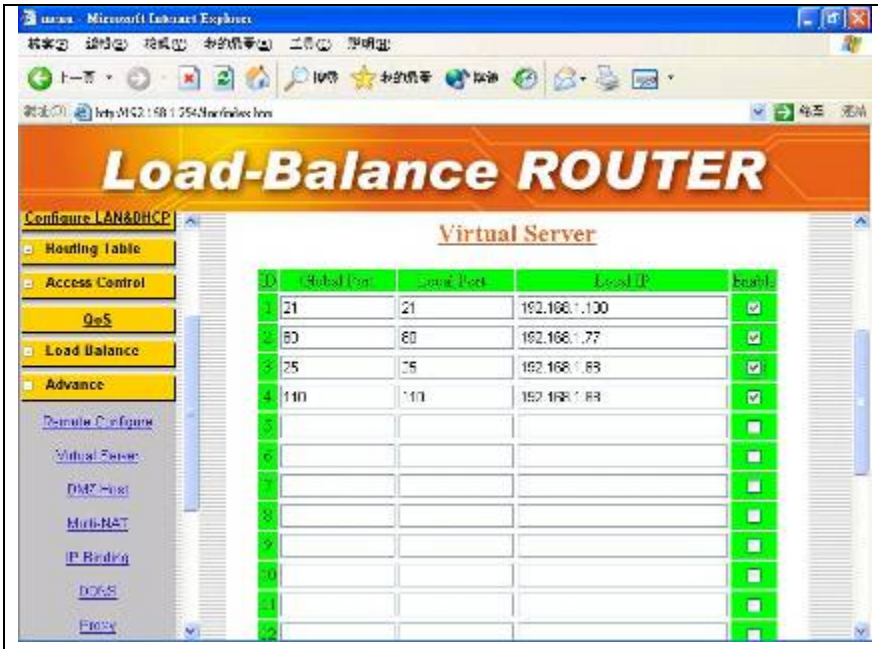
Then Enter: Name: pop3.example.com



Main Page > Load Balancing > Inbound > Add New Item > Configure Inbound(MX) Since we are configuring a Mail Server: Select Mail eXchange as DNS type and enter: Name: example.com Host: mail.example.com



Main Page > Load Balancing > Inbound The Mail Server is configured by the bottom 5 entries of the DNS Name table and it is configured for WAN3 and WAN4, which means that it is for the 4 WAN ROUTER. However, it is similar for the 2 WAN ROUTER.



Main Page > Advance > Virtual Server

Now that we get the IN-BOUND ROUTER DNS server configured, we still have the link the WAN IP addresses to the Internal & local LAN servers. This is done by the Vertual Server.

Enter Global Port Local Port Local IP Select Enable

The ratio that was specified: WAN1, WAN2, WAN3, WAN4 = 1:2:3:4

www.example.com uses WAN1 and WAN2 with a ratio of 1:2 The IP addresses returned for the Web Server accesses, when the IN-BOUND ROUTER DNS server is queried are: WAN1, WAN2, WAN2, WAN1, WAN2, WAN2, …etc ftp.example.com uses WAN1 – WAN4 with a ratio of 1:2:3:4

The IP addresses returned for the FTP Server accesses, when the IN-BOUND ROUTER DNS server is queried are: WAN1, WAN2, WAN2, WAN3, WAN3, WAN3, WAN4, WAN4, WAN4, WAN4, and the sequence will repeat. Mail.example.com uses WAN3 and WAN4 with a ratio of 3:4

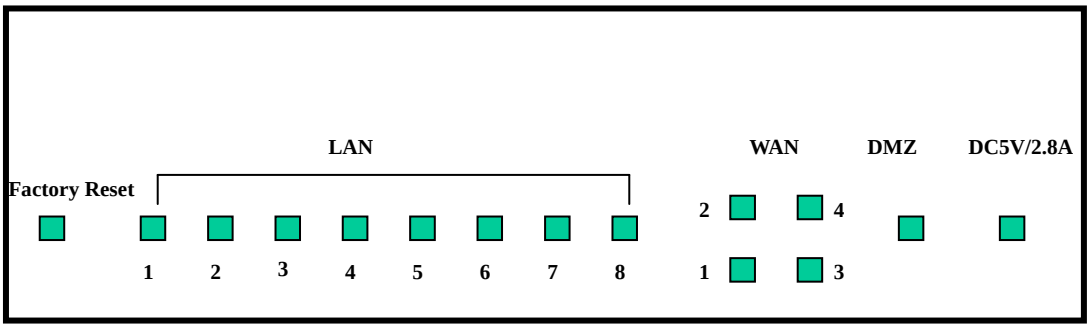
The IP addresses returned for the Mail Server accesses, when the IN-BOUND ROUTER DNS server is queried are: WAN3, WAN3, WAN3, WAN4, WAN4, WAN4, WAN4, and the sequence will repeat.

Please note: For multiple Internet servers, if you have Multiple Public Static IPs, you may use the Multiple DMZ to map public static IP address to each server. Or, if you are using Apache or Microsoft Windows Server, then you can use the Virtual Hosting and Virtual Servers function respectively.

CHAPTER 7. HARDWARE LOAD DEFAULT

If you need to reset the settings of Broadband Router to factory default values or back to latest configuration file, please follow the description step by step to load the factory default settings or back to latest configuration file for the device. Please be careful. Do not press the **Factory Reset** button unless you want to clear the current data.

1. Plug in the power code and then press on the **Factory Reset** button **2 seconds**
2. Release the **Factory Reset** button.
3. Broadband Router will load the default settings or back to latest configuration file and do self-test
4. Complete the reset procedure.



CHAPTER 8. APPENDIX

8.1 TCP/IP Protocol Port Number List

Protocol Port No. List

Protocol	Service	Port no.	Protocol	Service	Port no.
TCP	FTP	21	TCP	LADP	389
TCP	SSH	22	TCP	HTTPS	443
TCP	TELNET	23	UDP	IKE	500
TCP	SMTP	25	TCP	RLOGIN	513
UDP	DNS	53	UDP	SYSLOG	514
UDP	TFTP	69	UDP	TALK	517,518
TCP	GOTHER	70	UDP	RIP	520
TCP	FINGER	79	TCP	AFPOWERTCP	548
TCP	HTTP	80	TCP	Net-Meeting	1503,1702
TCP	POP3	110	TCP	L2TP	1701
UDP	NFS	111	TCP	PPTP	1723
TCP	NNTP	119	TCP	AOL	5190~5194
UDP	NTP	123	UDP	PC Anywhere	5631~5632
TCP	IMAP	143	TCP	XWINDOW	6000-6063
UDP	SNMP	161	TCP	IRC	6660~6669
TCP	BGP	179	TCP	Real-Media	7070
TCP	WAIS	210	TCP		6000-6063