DrayTek

Vigor2920 Series

Dual-WAN Security Router

Your reliable networking solutions partner

User's Guide

V2.1

Vigor2920 Series
Dual-WAN Security Router
User's Guide

Version: 2.1

Firmware Version: V3.3.7

Date: 31/10/2011

Copyright Information

Copyright Declarations

Trademarks

The following trademarks are used in this document:

- Microsoft is a registered trademark of Microsoft Corp.
- Windows, Windows 95, 98, Me, NT, 2000, XP, Vista and Explorer are trademarks of Microsoft Corp.
- Apple and Mac OS are registered trademarks of Apple Inc.
- Other products may be trademarks or registered trademarks of their respective manufacturers.

Safety Instructions and Approval

Safety Instructions

- Read the installation guide thoroughly before you set up the router.
- The router is a complicated electronic unit that may be repaired only be authorized and qualified personnel. Do not try to open or repair the router yourself.
- Do not place the router in a damp or humid place, e.g. a bathroom.
- The router should be used in a sheltered area, within a temperature range of +5 to +40 Celsius.
- Do not expose the router to direct sunlight or other heat sources. The housing and electronic components may be damaged by direct sunlight or heat sources.
- Do not deploy the cable for LAN connection outdoor to prevent electronic shock hazards.
- Keep the package out of reach of children.
- When you want to dispose of the router, please follow local regulations on conservation of the environment.

Warranty

We warrant to the original end user (purchaser) that the router will be free from any defects in workmanship or materials for a period of two (2) years from the date of purchase from the dealer. Please keep your purchase receipt in a safe place as it serves as proof of date of purchase. During the warranty period, and upon proof of purchase, should the product have indications of failure due to faulty workmanship and/or materials, we will, at our discretion, repair or replace the defective products or components, without charge for either parts or labor, to whatever extent we deem necessary tore-store the product to proper operating condition. Any replacement will consist of a new or re-manufactured functionally equivalent product of equal value, and will be offered solely at our discretion. This warranty will not apply if the product is modified, misused, tampered with, damaged by an act of God, or subjected to abnormal working conditions. The warranty does not cover the bundled or licensed software of other vendors. Defects which do not significantly affect the usability of the product will not be covered by the warranty. We reserve the right to revise the manual and online documentation and to make changes from time to time in the contents hereof without obligation to notify any person of such revision or changes.

Be a Registered Owner

Web registration is preferred. You can register your Vigor router via http://www.DrayTek.com.

Firmware & Tools Updates

Due to the continuous evolution of DrayTek technology, all routers will be regularly upgraded. Please consult the DrayTek web site for more information on newest firmware, tools and documents.

http://www.DrayTek.com

European Community Declarations

Manufacturer: DrayTek Corp.
Address: No. 26, Fu Shing Road, HuKou Township, HsinChu Industrial Park, Hsin-Chu, Taiwan 303
Product: Vigor2920 Series Router

DrayTek Corp. declares that Vigor2920 Series of routers are in compliance with the following essential requirements and other relevant provisions of R&TTE Directive 1999/5/EEC.

The product conforms to the requirements of Electro-Magnetic Compatibility (EMC) Directive 2004/108/EC by complying with the requirements set forth in EN55022/Class B and EN55024/Class B.

The product conforms to the requirements of Low Voltage (LVD) Directive 2006/95/EC by complying with the requirements set forth in EN60950-1.

Regulatory Information

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.

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 may accept any interference received, including interference that may cause undesired operation.

Please visit http://www.DrayTek.com/user/AboutRegulatory.php

This product is designed for 2.4GHz WLAN network throughout the EC region and Switzerland with restrictions in France. Please see the user manual for the applicable networks on your product.

Table of Contents

1 Preface

Vigor2920 series is a broadband router. It integrates IP layer QoS, NAT session/bandwidth management to help users control works well with large bandwidth.

By adopting hardware-based VPN platform and hardware encryption of AES/DES/3DS, the router increases the performance of VPN greatly, and offers several protocols (such as IPSec/PPTP/L2TP) with up to 2 VPN tunnels.

The object-based design used in SPI (Stateful Packet Inspection) firewall allows users to set firewall policy with ease. CSM (Content Security Management) provides users control and management in IM (Instant Messenger) and P2P (Peer to Peer) more efficiency than before. By the way, DoS/DDoS prevention and URL/Web content filter strengthen the security outside and control inside.

Object-based firewall is flexible and allows your network be safe. In addition, Vigor2920 series supports USB interface for connecting USB printer to share printer or USB storage device for sharing files.

Vigor2920 series provides two-level management to simplify the configuration of network connection. The user mode allows user accessing into WEB interface via simple configuration. However, if users want to have advanced configurations, they can access into WEB interface through admin mode.

1.1 Web Configuration Buttons Explanation

Several main buttons appeared on the web pages are defined as the following:

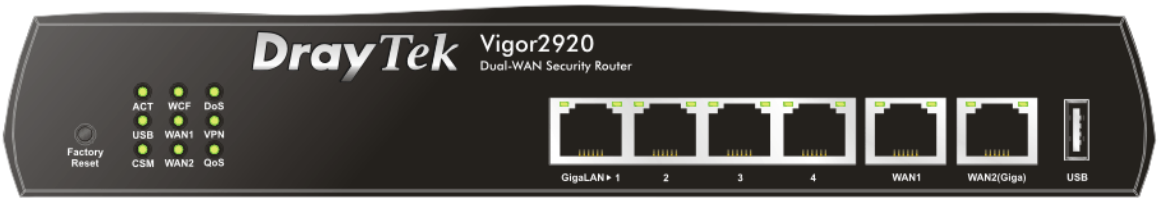
OK	Save and apply current settings.
Cancel	Cancel current settings and recover to the previous saved settings.
Clear	Clear all the selections and parameters settings, including selection from drop-down list. All the values must be reset with factory default settings.
Add	Add new settings for specified item.
Edit	Edit the settings for the selected item.
Delete	Delete the selected item with the corresponding settings.

Note: For the other buttons shown on the web pages, please refer to Chapter 4 for detailed explanation.

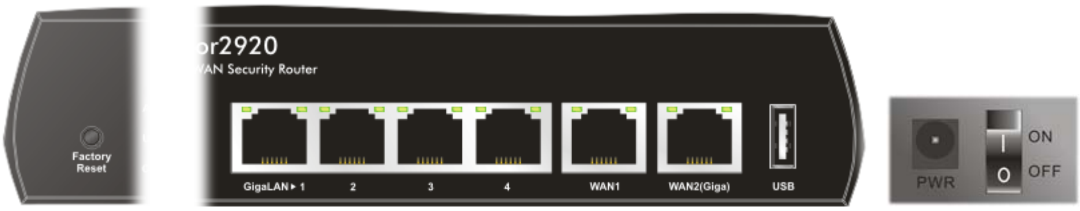
1.2 LED Indicators and Connectors

Before you use the Vigor router, please get acquainted with the LED indicators and connectors first.

1.2.1 For Vigor2920

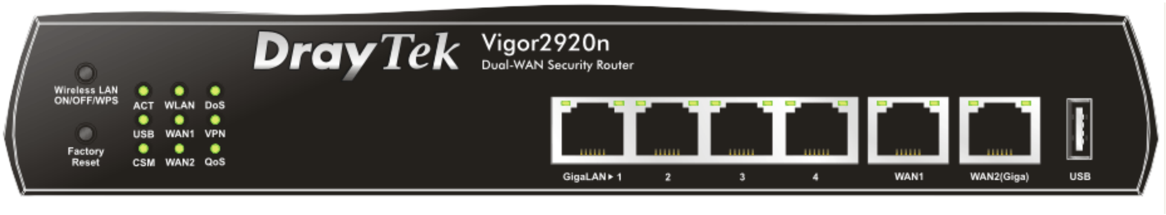


LED		Status	Explanation
ACT (Activity)		Blinking	The router is powered on and running normally.
		Off	The router is powered off.
USB		On	USB device is connected and ready for use.
		Blinking	The data is transmitting.
CSM		On	The profile(s) of CSM (Content Security Management) for IM/P2P, URL/Web Content Filter application is enabled from **Firewall** >>**General Setup**. (Such profile must be established under **CSM** menu).
WCF		On	The Web Content Filter is active. (It is enabled from **Firewall** >> **General Setup**).
WAN1/2		On	The WAN1 or WAN2 connection is ready.
		Blinking	It will blink while transmitting data.
DoS		On	The DoS/DDoS function is active.
		Blinking	It will blink while an attack is detected.
VPN		On	The VPN tunnel is active.
QoS		On	The QoS function is active.
LED on Connector			
WAN1	Left LED (Green)	On	The port is connected.
		Off	The port is disconnected.
		Blinking	The data is transmitting.
	Right LED (Green)	On	The port is connected with 100Mbps.
		Off	The port is connected with 10Mbps when left LED is on.
WAN2(Giga)	Left LED (Green)	On	The port is connected.
		Off	The port is disconnected.
		Blinking	The data is transmitting.
	Right LED (Green)	On	The port is connected with 1000Mbps.
		Off	The port is connected with 10/100Mbps when left LED is on.
GigaLAN 1/2/3/4	Left LED (Green)	On	The port is connected.
		Off	The port is disconnected.
		Blinking	The data is transmitting.
	Right LED (Green)	On	The port is connected with 1000Mbps.
		Off	The port is connected with 10/100Mbps when left LED is on.



Interface	Description
Factory Reset	Restore the default settings. Usage: Turn on the router (ACT LED is blinking). Press the hole and keep for more than 5 seconds. When you see the ACT LED begins to blink rapidly than usual, release the button. Then the router will restart with the factory default configuration.
GigaLAN (1-4)	Connecters for local networked devices.
WAN1/WAN2(Giga)	Connecters for remote networked devices.
USB	Connecter for 3G Modem or printer.
PWR	Connecter for a power adapter.
ON/OFF	Power Switch.

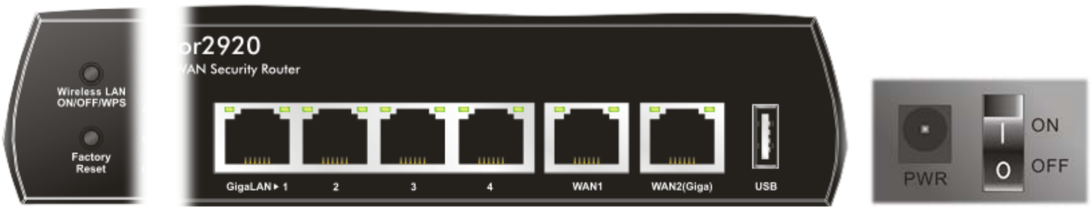
1.2.2 For Vigor2920n



LED	Status	Explanation
ACT (Activity)	Blinking	The router is powered on and running normally.
	Off	The router is powered off.
USB	On	USB device is connected and ready for use.
	Blinking	The data is transmitting.
CSM	On	The profile(s) of CSM (Content Security Management) for IM/P2P, URL/Web Content Filter application is enabled from **Firewall >>General Setup**. (Such profile must be established under **CSM** menu).
WLAN	On	Wireless access point is ready.
	Blinking	It will blink slowly while wireless traffic goes through. If ACT and WLAN LEDs blink quickly and simultaneously when WPS is working, and it will return to normal condition after two minutes. (You need to setup WPS within 2 minutes.)
WAN1/2	On	The WAN1 or WAN2 connection is ready.
	Blinking	It will blink while transmitting data.
DoS	On	The DoS/DDoS function is active.
	Blinking	It will blink while an attack is detected.
VPN	On	The VPN tunnel is active.
QoS	On	The QoS function is active.

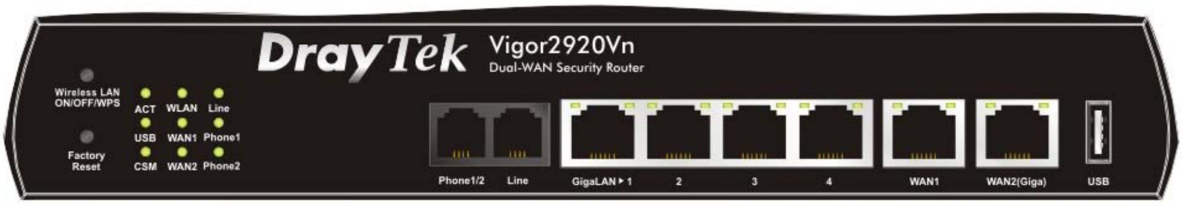
LED on Connector

WAN1	Left LED (Green)	On	The port is connected.
		Off	The port is disconnected.
		Blinking	The data is transmitting.
	Right LED (Green)	On	The port is connected with 100Mbps.
		Off	The port is connected with 10Mbps when left LED is on.
WAN2(Giga)	Left LED (Green)	On	The port is connected.
		Off	The port is disconnected.
		Blinking	The data is transmitting.
	Right LED (Green)	On	The port is connected with 1000Mbps.
		Off	The port is connected with 10/100Mbps when left LED is on.
GigaLAN 1/2/3/4	Left LED (Green)	On	The port is connected.
		Off	The port is disconnected.
		Blinking	The data is transmitting.
	Right LED (Green)	On	The port is connected with 1000Mbps.
		Off	The port is connected with 10/100Mbps when left LED is on.



Interface	Description
Wireless LAN ON/OFF/WPS	Press "Wireless LAN ON/OFF/WPS" button once to wait for client device making network connection through WPS. Press "Wireless LAN ON/OFF/WPS" button twice to enable (WLAN LED on) or disable (WLAN LED off) wireless connection.
Factory Reset	Restore the default settings. Usage: Turn on the router (ACT LED is blinking). Press the hole and keep for more than 5 seconds. When you see the ACT LED begins to blink rapidly than usual, release the button. Then the router will restart with the factory default configuration.
GigaLAN (1-4)	Connecters for local networked devices.
WAN1/WAN2(Giga)	Connecters for remote networked devices.
USB	Connecter for 3G Modem or printer.
PWR	Connecter for a power adapter.
ON/OFF	Power Switch.

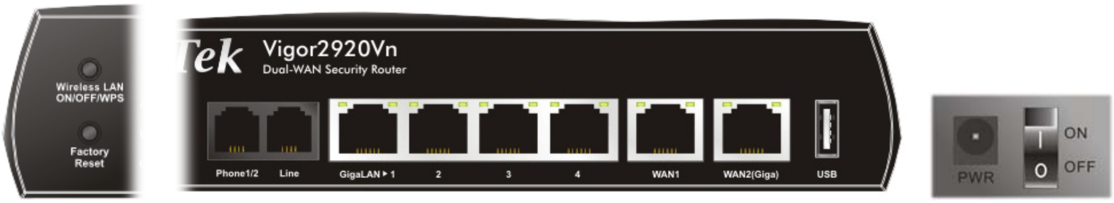
1.2.3 For Vigor2920Vn



LED	Status	Explanation
ACT (Activity)	Blinking	The router is powered on and running normally.
	Off	The router is powered off.
USB	On	USB device is connected and ready for use.
	Blinking	The data is transmitting.
CSM	On	The profile(s) of CSM (Content Security Management) for IM/P2P, URL/Web Content Filter application can be enabled from **Firewall >>General Setup**. (Such profile must be established under **CSM** menu).
WLAN	On	Wireless access point is ready.
	Blinking	It will blink slowly while wireless traffic goes through. If ACT and WLAN LEDs blink quickly and simultaneously when WPS is working, and it will return to normal condition after two minutes. (You need to setup WPS within 2 minutes.)
WAN1/2	On	The WAN1 or WAN2 connection is ready.
	Blinking	It will blink while transmitting data.
Line	On	A PSTN phone call comes (in and out). However, when the phone call is disconnected, the LED will be off.
	Off	There is no PSTN phone call.
Phone 1/2	On	The phone connected to this port is off-hook.
	Off	The phone connected to this port is on-hook.
	Blinking	A phone call comes.

LED on Connector

WAN1/ WAN2 (Giga)	Left LED (Green)	On	The port is connected.
		Off	The port is disconnected.
		Blinking	The data is transmitting.
	Right LED (Green)	On	The port is connected with 1000Mbps.
		Off	The port is connected with 10/100Mbps when left LED is on.
GigaLAN 1/2/3/4	Left LED (Green)	On	The port is connected.
		Off	The port is disconnected.
		Blinking	The data is transmitting.
	Right LED (Green)	On	The port is connected with 1000Mbps.
		Off	The port is connected with 10/100Mbps when left LED is on.



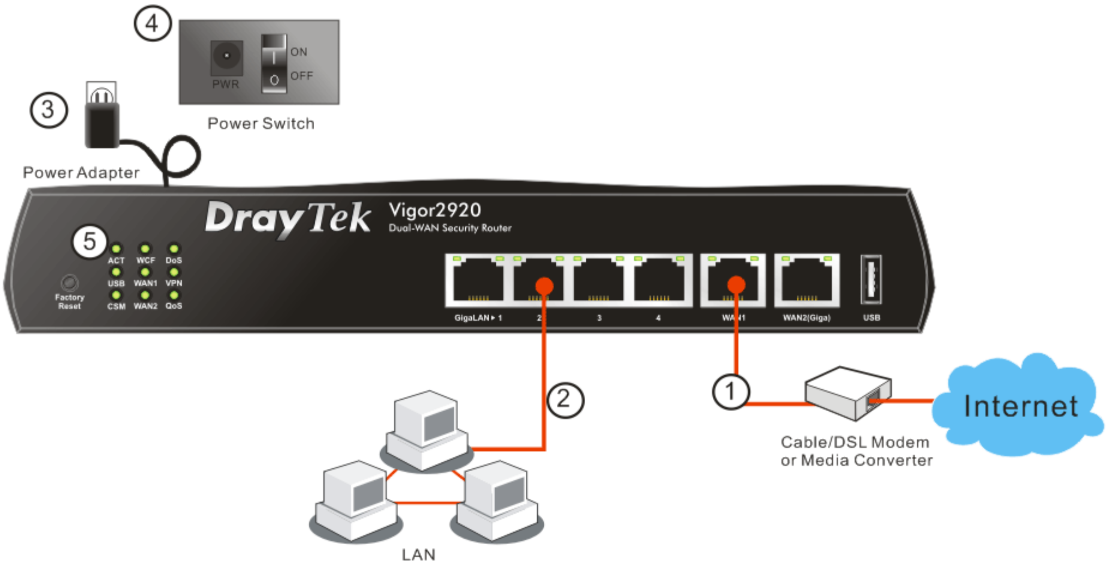
Interface	Description
Wireless LAN ON/OFF/WPS	Press "Wireless LAN ON/OFF/WPS" button once to wait for client device making network connection through WPS. Press "Wireless LAN ON/OFF/WPS" button twice to enable (WLAN LED on) or disable (WLAN LED off) wireless connection.
Factory Reset	Restore the default settings. Usage: Turn on the router (ACT LED is blinking). Press the hole and keep for more than 5 seconds. When you see the ACT LED begins to blink rapidly than usual, release the button. Then the router will restart with the factory default configuration.
Phone 1/2	Connecter for analog phone(s).
Line	Connector for PSTN life line.
GigaLAN (1-4)	Connecters for local networked devices.
WAN1/WAN2(Giga)	Connecters for remote networked devices.
USB	Connecter for Mobile HDD, 3G Modem or printer.
PWR	Connecter for a power adapter.
ON/OFF	Power Switch.

1.3 Hardware Installation

Before starting to configure the router, you have to connect your devices correctly.

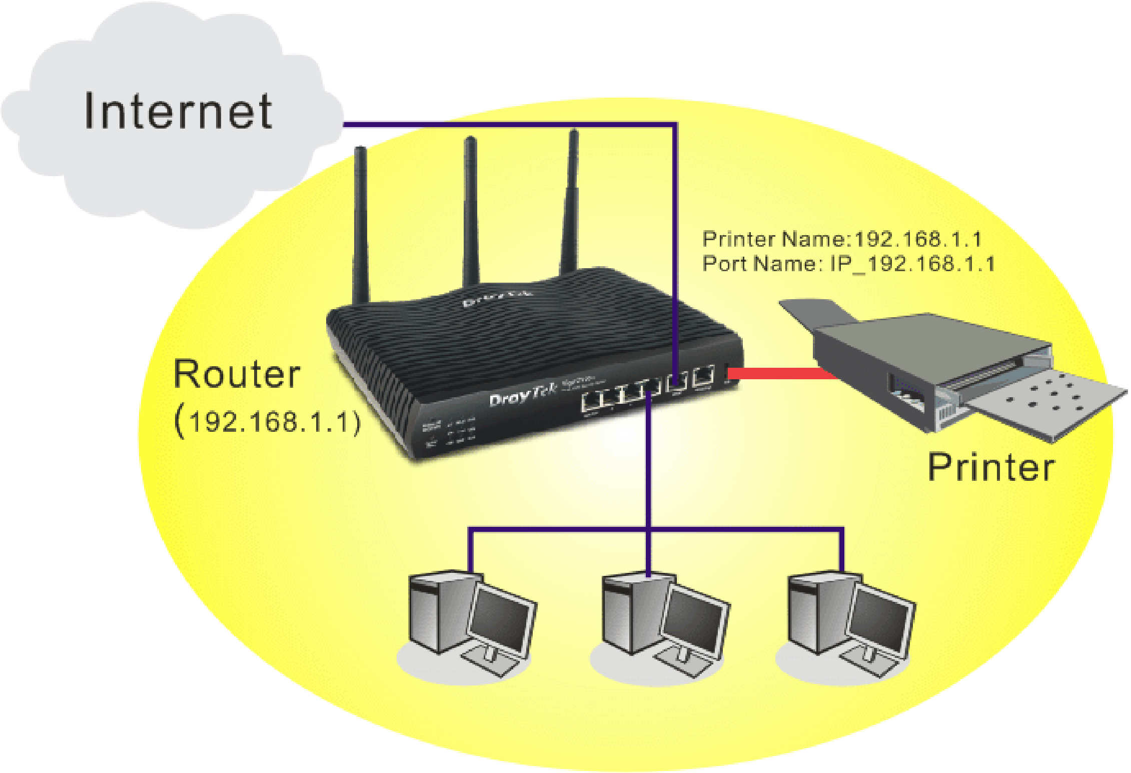
1. Connect the cable Modem/DSL Modem/Media Converter to any WAN port of router with Ethernet cable (RJ-45).
2. Connect one end of an Ethernet cable (RJ-45) to one of the **LAN** ports of the router and the other end of the cable (RJ-45) into the Ethernet port on your computer.
3. Connect one end of the power adapter to the router’s power port on the rear panel, and the other side into a wall outlet.
4. Power on the device by pressing down the power switch on the rear panel.
5. The system starts to initiate. After completing the system test, the **ACT** LED will light up and start blinking.

(For the detailed information of LED status, please refer to section 1.1.)



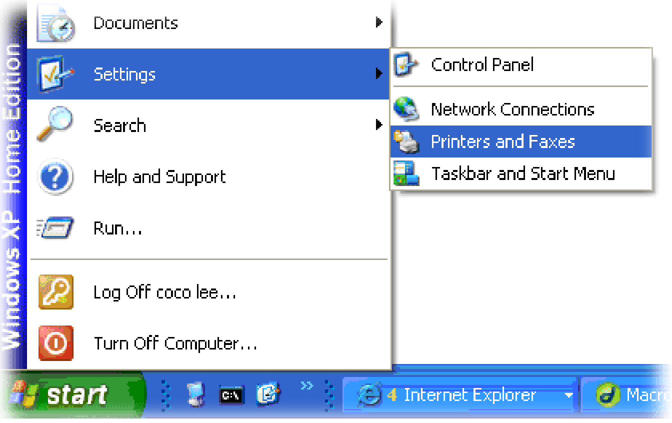
1.4 Printer Installation

You can install a printer onto the router for sharing printing. All the PCs connected this router can print documents via the router. The example provided here is made based on Windows XP/2000. For Windows 98/SE/Vista, please visit **www.DrayTek.com**.

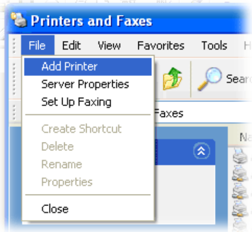


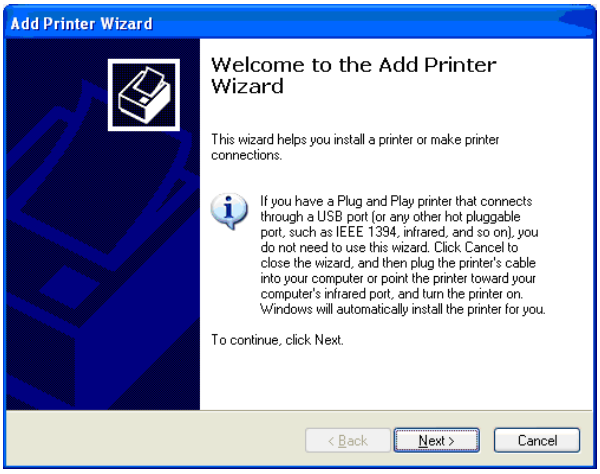
Before using it, please follow the steps below to configure settings for connected computers (or wireless clients).

1. Connect the printer with the router through USB/parallel port.
2. Open **Start->Settings-> Printer and Faxes**.



3. Open **File->Add Printer**. A welcome dialog will appear. Please click **Next**.




Add Printer Wizard

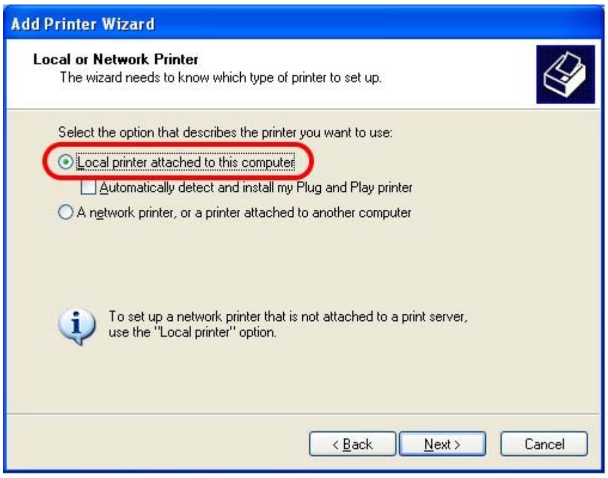
Welcome to the Add Printer Wizard

This wizard helps you install a printer or make printer connections.

If you have a Plug and Play printer that connects through a USB port (or any other hot pluggable port, such as IEEE 1394, infrared, and so on), you do not need to use this wizard. Click Cancel to close the wizard, and then plug the printer's cable into your computer or point the printer toward your computer's infrared port, and turn the printer on. Windows will automatically install the printer for you.

To continue, click Next.

4. Click Local printer attached to this computer and click Next.


Add Printer Wizard

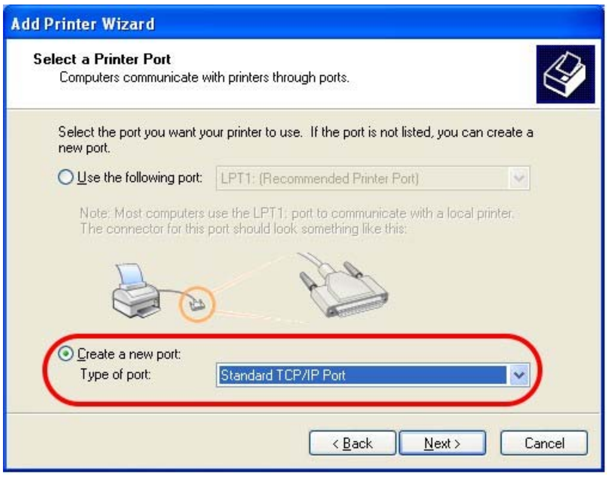
Local or Network Printer
The wizard needs to know which type of printer to set up.

Select the option that describes the printer you want to use:

● Local printer attached to this computer
□ Automatically detect and install my Plug and Play printer
○ A network printer, or a printer attached to another computer

To set up a network printer that is not attached to a print server, use the "Local printer" option.

5. In this dialog, choose **Create a new port Type of port** and use the drop down list to select **Standard TCP/IP Port**. Click **Next**.


Add Printer Wizard

Select a Printer Port
Computers communicate with printers through ports.

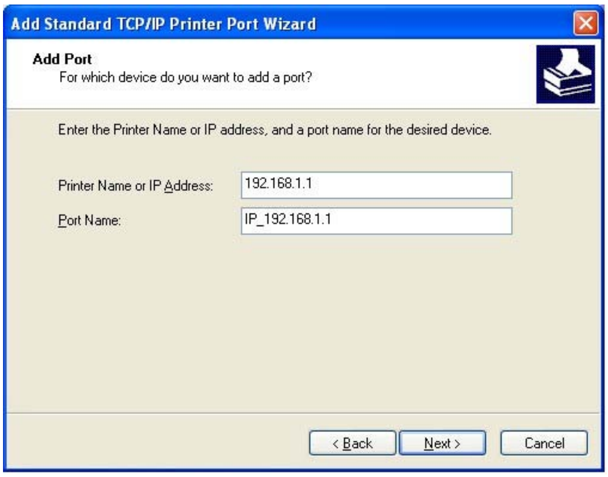
Select the port you want your printer to use. If the port is not listed, you can create a new port.

○ Use the following port: LPT1: (Recommended Printer Port)

Note: Most computers use the LPT1: port to communicate with a local printer. The connector for this port should look something like this:

● Create a new port:
Type of port: Standard TCP/IP Port

6. In the following dialog, type **192.168.1.1** (router's LAN IP) in the field of **Printer Name or IP Address** and type **IP_192.168.1.1** as the port name. Then, click **Next**.



Add Standard TCP/IP Printer Port Wizard

Add Port

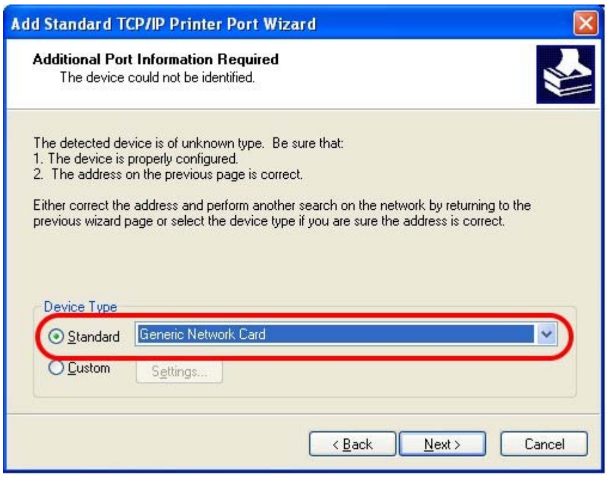
For which device do you want to add a port?

Enter the Printer Name or IP address, and a port name for the desired device.

Printer Name or IP Address: 192.168.1.1

Port Name: IP_192.168.1.1

7. Click Standard and choose Generic Network Card.



Add Standard TCP/IP Printer Port Wizard

Additional Port Information Required

The device could not be identified.

The detected device is of unknown type. Be sure that:
1. The device is properly configured.
2. The address on the previous page is correct.

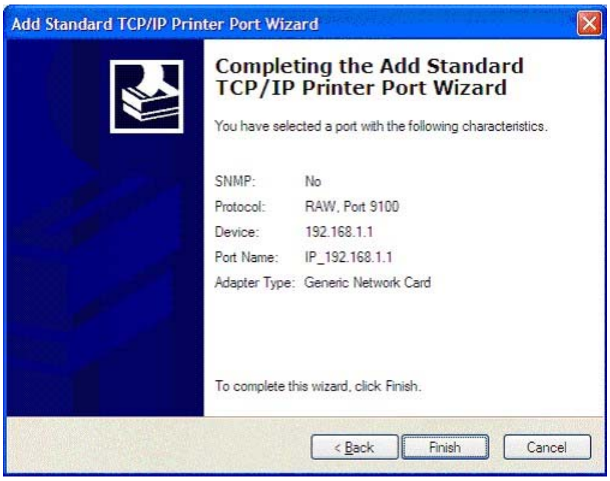
Either correct the address and perform another search on the network by returning to the previous wizard page or select the device type if you are sure the address is correct.

Device Type

● Standard Generic Network Card

○ Custom

8. Then, in the following dialog, click **Finish**.



Add Standard TCP/IP Printer Port Wizard

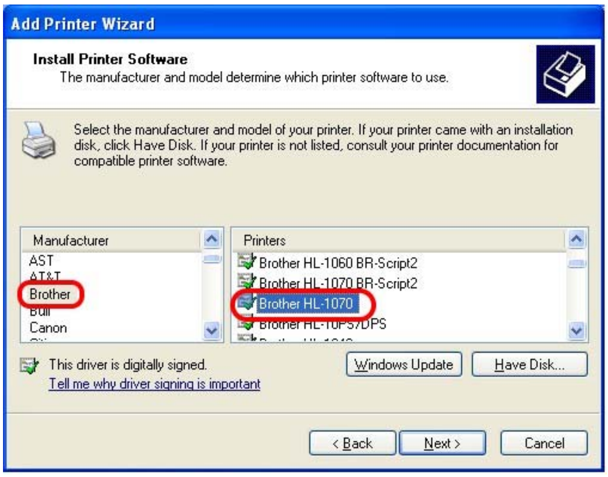
Completing the Add Standard TCP/IP Printer Port Wizard

You have selected a port with the following characteristics.

SNMP: No
Protocol: RAW, Port 9100
Device: 192.168.1.1
Port Name: IP_192.168.1.1
Adapter Type: Generic Network Card

To complete this wizard, click Finish.

9. Now, your system will ask you to choose right name of the printer that you installed onto the router. Such step can make correct driver loaded onto your PC. When you finish the selection, click **Next**.



Add Printer Wizard

Install Printer Software

The manufacturer and model determine which printer software to use.

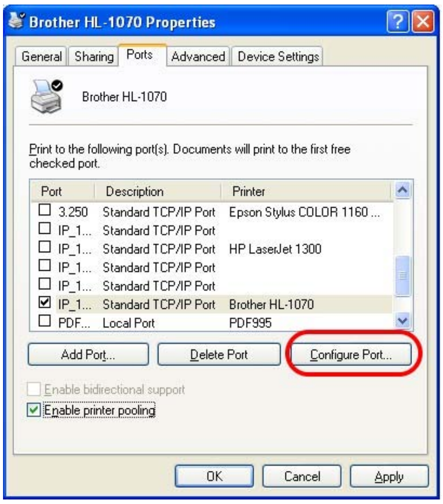
Select the manufacturer and model of your printer. If your printer came with an installation disk, click Have Disk. If your printer is not listed, consult your printer documentation for compatible printer software.

Manufacturer	Printers
AST	Brother HL-1060 BR-Script2
AT&T	Brother HL-1070 BR-Script2
Brother	Brother HL-1070
Bull	Brother HL-10PS/DPS
Canon	

This driver is digitally signed.

Tell me why driver signing is important

10. For the final stage, you need to go back to **Control Panel-> Printers** and edit the property of the new printer you have added.



Brother HL-1070 Properties

Brother HL-1070

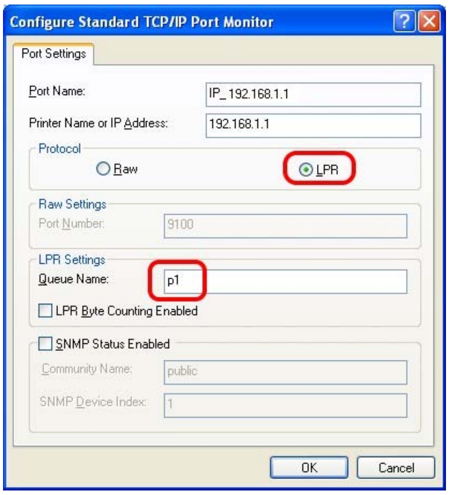
Print to the following port(s). Documents will print to the first free checked port.

Port	Description	Printer
☐ 3.250	Standard TCP/IP Port	Epson Stylus COLOR 1160 ...
☐ IP_1...	Standard TCP/IP Port	
☐ IP_1...	Standard TCP/IP Port	HP LaserJet 1300
☐ IP_1...	Standard TCP/IP Port	
☐ IP_1...	Standard TCP/IP Port	
☑ IP_1...	Standard TCP/IP Port	Brother HL-1070
☐ PDF...	Local Port	PDF995

☐ Enable bidirectional support

☑ Enable printer pooling

11. Select "**LPR**" on Protocol, type **p1** (number 1) as Queue Name. Then click **OK**. Next please refer to the red rectangle for choosing the correct protocol and LPR name.



Configure Standard TCP/IP Port Monitor

Port Name: IP_192.168.1.1

Printer Name or IP Address: 192.168.1.1

Protocol: ○ Raw ● LPR

Raw Settings

Port Number: 9100

LPR Settings

Queue Name: p1

☐ LPR Byte Counting Enabled

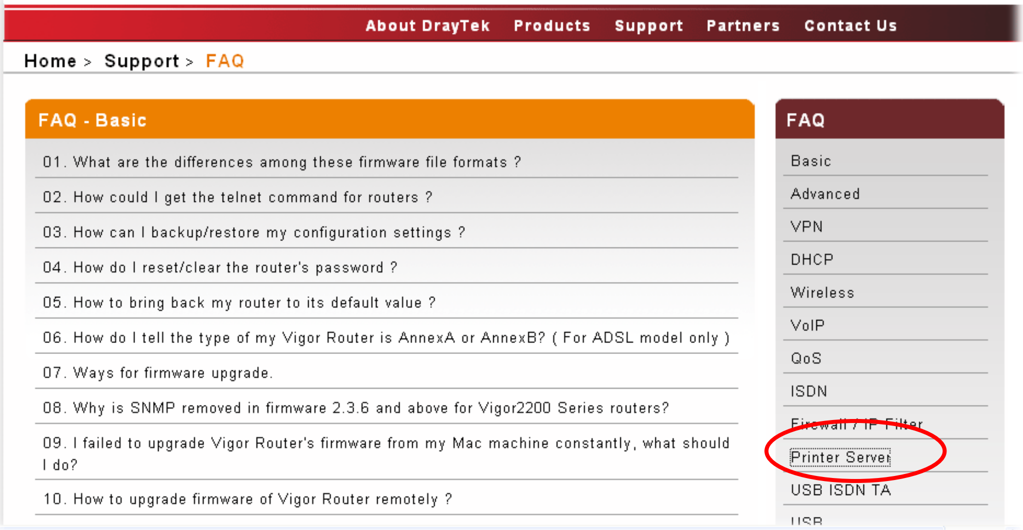
☐ SNMP Status Enabled

Community Name: public

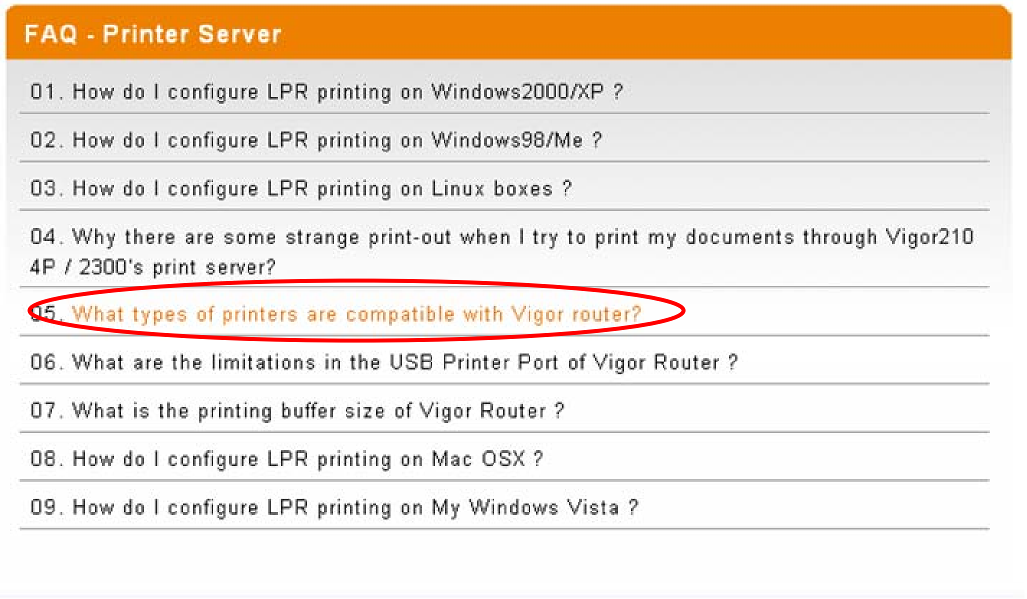
SNMP Device Index: 1

The printer can be used for printing now. Most of the printers with different manufacturers are compatible with vigor router.

Note 1: Some printers with the fax/scanning or other additional functions are not supported. If you do not know whether your printer is supported or not, please visit www.DrayTek.com to find out the printer list. Open **Support >FAQ**; find out the link of **Printer Server** and click it; then click the **What types of printers are compatible with Vigor router?** link.



01. What are the differences among these firmware file formats ?
02. How could I get the telnet command for routers ?
03. How can I backup/restore my configuration settings ?
04. How do I reset/clear the router's password ?
05. How to bring back my router to its default value ?
06. How do I tell the type of my Vigor Router is AnnexA or AnnexB? (For ADSL model only)
07. Ways for firmware upgrade.
08. Why is SNMP removed in firmware 2.3.6 and above for Vigor2200 Series routers?
09. I failed to upgrade Vigor Router's firmware from my Mac machine constantly, what should I do?
10. How to upgrade firmware of Vigor Router remotely ?



01. How do I configure LPR printing on Windows2000/XP ?
02. How do I configure LPR printing on Windows98/Me ?
03. How do I configure LPR printing on Linux boxes ?
04. Why there are some strange print-out when I try to print my documents through Vigor2104P / 2300's print server?
05. What types of printers are compatible with Vigor router?
06. What are the limitations in the USB Printer Port of Vigor Router ?
07. What is the printing buffer size of Vigor Router ?
08. How do I configure LPR printing on Mac OSX ?
09. How do I configure LPR printing on My Windows Vista ?

Note 2: Vigor router supports printing request from computers via LAN ports but not WAN port.

This page is left blank.

2 Basic Settings

For using the router properly, it is necessary for you to change the password of web configuration for security and adjust primary basic settings.

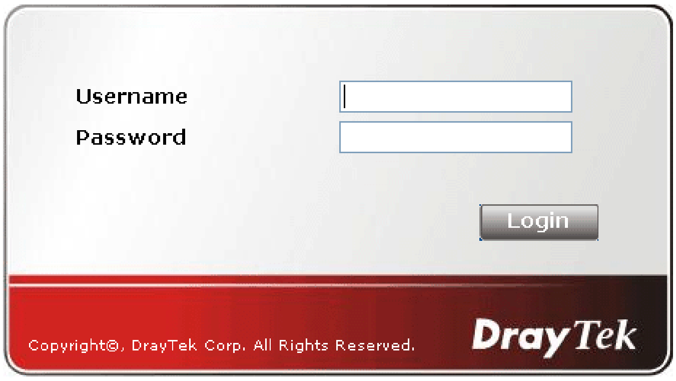
This chapter explains how to setup a password for accessing into the web configurator of Vigor router and how to adjust settings for accessing Internet successfully.

2.1 Accessing Web Page

1. Make sure your PC connects to the router correctly.

> **Notice:** You may either simply set up your computer to get IP dynamically from the router or set up the IP address of the computer to be the same subnet as **the default IP address of Vigor router 192.168.1.1**. For the detailed information, please refer to the later section - Trouble Shooting of the guide.

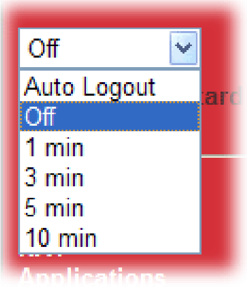
2. Open a web browser on your PC and type **http://192.168.1.1.** The following window will be open to ask for username and password.



3. Please type "admin/admin" on Username/Password and click **Login**.

> **Notice:** If you fail to access to the web configuration, please go to "Trouble Shooting" for detecting and solving your problem.

4. The web page can be logged out according to the chosen condition. The default setting is **Auto Logout**, which means the web configuration system will logout after 5 minutes without any operation. Change the setting for your necessity.



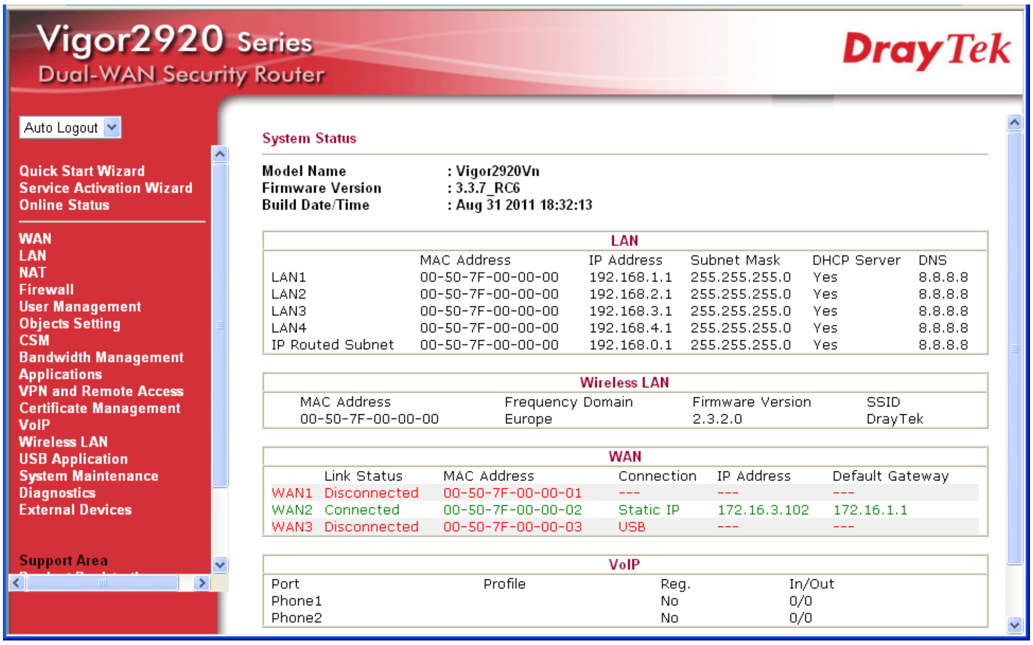
2.2 Changing Password

Please change the password for the original security of the router.

1. Open a web browser on your PC and type **http://192.168.1.1.** A pop-up window will open to ask for username and password.

2. Please type “admin/admin” as Username/Password for accessing into the web configurator with admin mode.

3. Now, the **Main Screen** will appear.



System Status

Model Name : Vigor2920Vn
Firmware Version : 3.3.7_RC6
Build Date/Time : Aug 31 2011 18:32:13

LAN

	MAC Address	IP Address	Subnet Mask	DHCP Server	DNS
LAN1	00-50-7F-00-00-00	192.168.1.1	255.255.255.0	Yes	8.8.8.8
LAN2	00-50-7F-00-00-00	192.168.2.1	255.255.255.0	Yes	8.8.8.8
LAN3	00-50-7F-00-00-00	192.168.3.1	255.255.255.0	Yes	8.8.8.8
LAN4	00-50-7F-00-00-00	192.168.4.1	255.255.255.0	Yes	8.8.8.8
IP Routed Subnet	00-50-7F-00-00-00	192.168.0.1	255.255.255.0	Yes	8.8.8.8

Wireless LAN

MAC Address	Frequency Domain	Firmware Version	SSID
00-50-7F-00-00-00	Europe	2.3.2.0	DrayTek

WAN

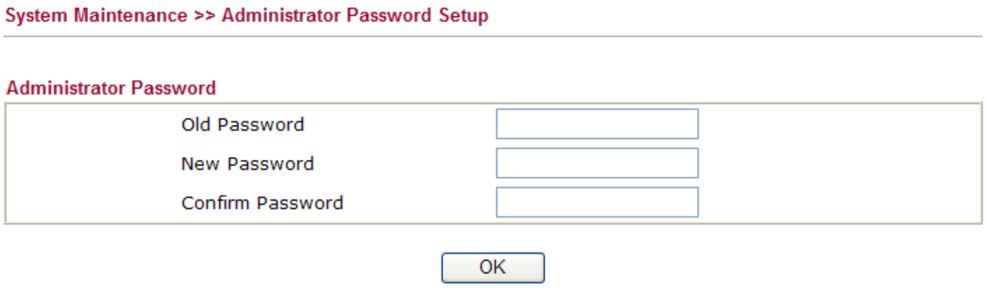
	Link Status	MAC Address	Connection	IP Address	Default Gateway
WAN1	Disconnected	00-50-7F-00-00-01	---	---	---
WAN2	Connected	00-50-7F-00-00-02	Static IP	172.16.3.102	172.16.1.1
WAN3	Disconnected	00-50-7F-00-00-03	USB	---	---

VoIP

Port	Profile	Reg.	In/Out
Phone1		No	0/0
Phone2		No	0/0

Note: The home page will change slightly in accordance with the type of the router you have.

4. Go to **System Maintenance** page and choose **Administrator Password.**



System Maintenance >> Administrator Password Setup

Administrator Password

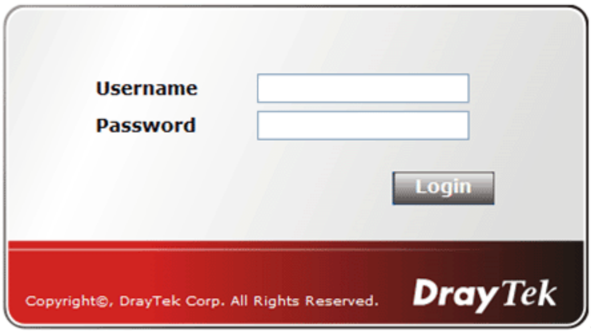
Old Password

New Password

Confirm Password

5. Enter the login password on the field of **Old Password**. Type a new password in **New Password** and **Confirm New Password** fields. Then click **OK** to continue.

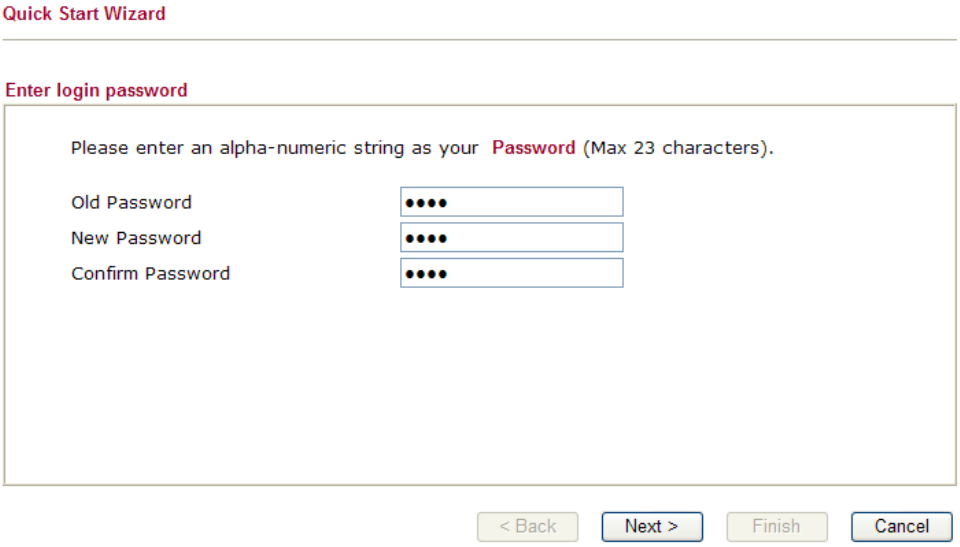
6. Now, the password has been changed. Next time, use the new password to access the Web Configurator for this router.



2.3 Quick Start Wizard

Notice: Quick Start Wizard for user mode operation is the same as for admin mode operation.

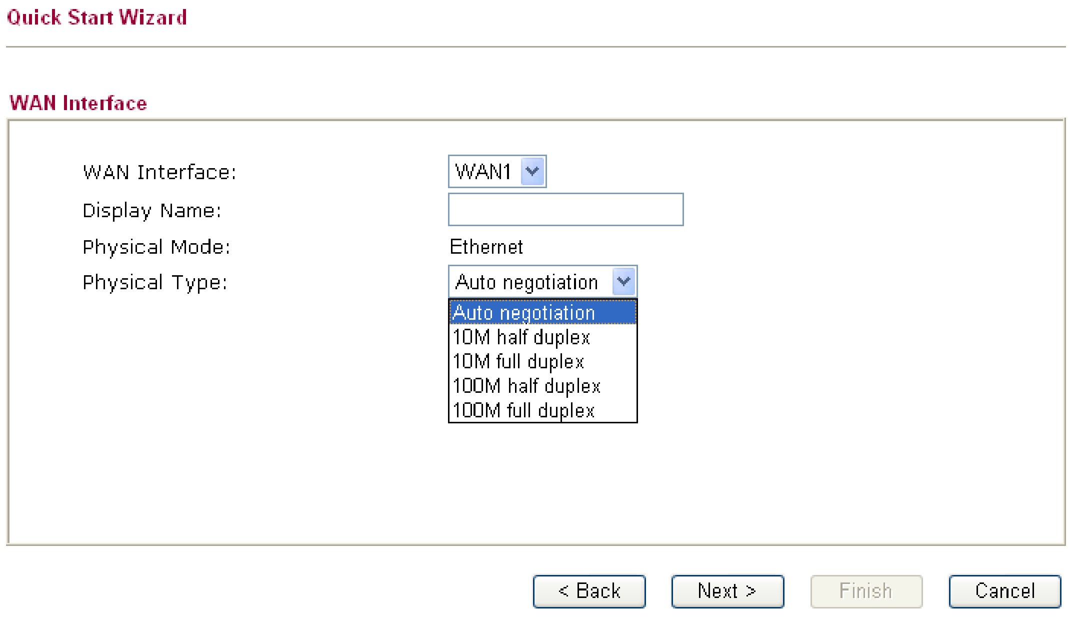
If your router can be under an environment with high speed NAT, the configuration provide here can help you to deploy and use the router quickly. The first screen of **Quick Start Wizard** is entering login password. After typing the password, please click **Next**.



Please enter an alpha-numeric string as your Password (Max 23 characters).

Old Password	••••
New Password	••••
Confirm Password	••••

On the next page as shown below, please select the WAN interface that you use. If Ethernet interface is used, please choose WAN1/2 (based on the physical hardware connection); if 3G USB modem is used, please choose WAN3. Choose **Auto negotiation** as the physical type for your router. Then click **Next** for next step.



Quick Start Wizard

WAN Interface

WAN Interface: WAN1

Display Name:

Physical Mode: Ethernet

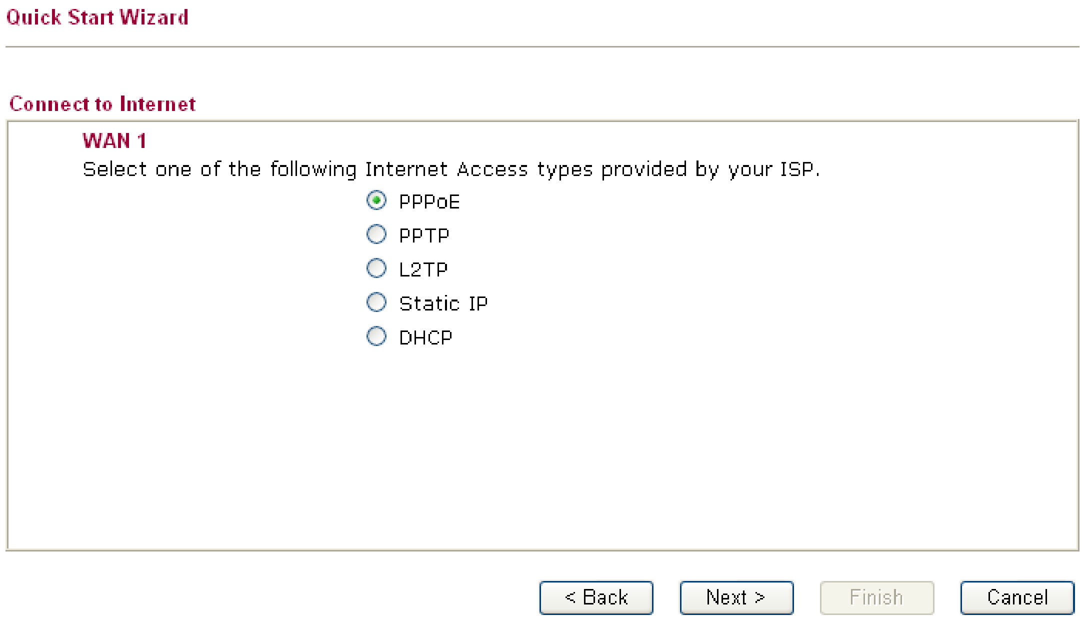
Physical Type: Auto negotiation

WAN1/WAN2 and WAN3 will bring up different configuration page. Refer to the following for detailed information.

2.3.1 For WAN1/WAN2

Choose WAN1/WAN2 and click **Next** to display the following page.

Please select the appropriate Internet access type according to the information from your ISP. For example, you should select PPPoE mode if the ISP provides you PPPoE interface. Then click **Next** for next step.



Quick Start Wizard

Connect to Internet

WAN 1

Select one of the following Internet Access types provided by your ISP.

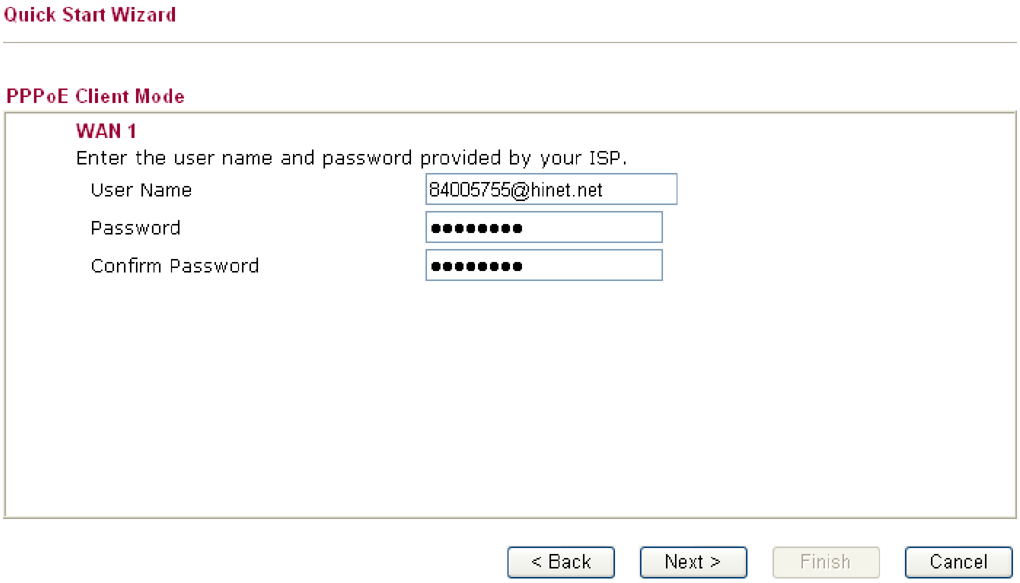
● PPPoE
○ PPTP
○ L2TP
○ Static IP
○ DHCP

2.3.1.1 PPPoE

PPPoE stands for **Point-to-Point Protocol over Ethernet**. It relies on two widely accepted standards: PPP and Ethernet. It connects users through an Ethernet to the Internet with a common broadband medium, such as wireless device or cable modem. All the users over the Ethernet can share a common connection.

PPPoE is used for most of modem users. All local users can share one PPPoE connection for accessing the Internet. Your service provider will provide you information about user name, password, and authentication mode.

If your ISP provides you the **PPPoE** connection, please select **PPPoE** for this router. The following page will be shown:



Quick Start Wizard

PPPoE Client Mode

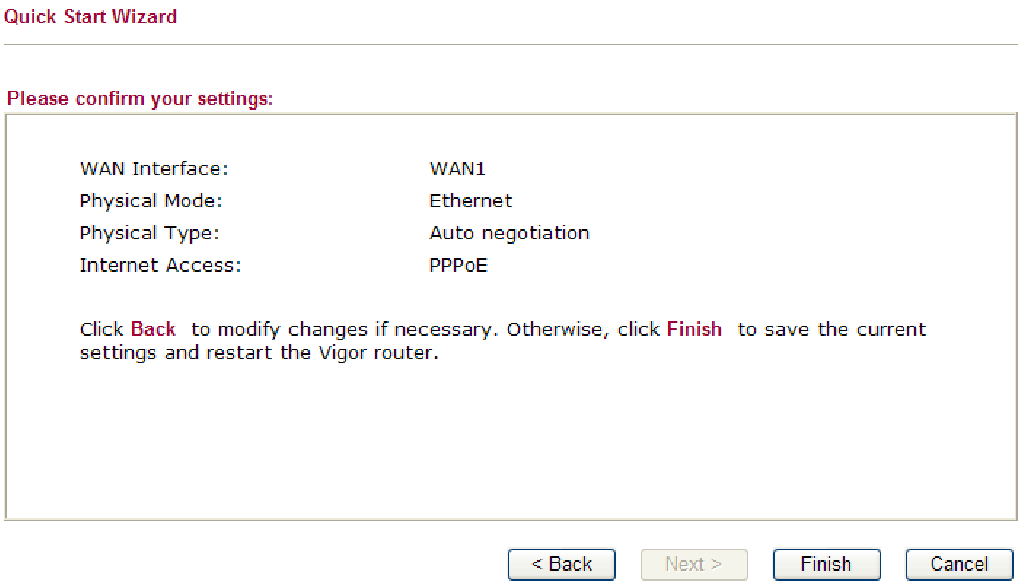
WAN 1

Enter the user name and password provided by your ISP.

User Name	84005755@hinet.net
Password	●●●●●●●●
Confirm Password	●●●●●●●●

User Name	Assign a specific valid user name provided by the ISP.
Password	Assign a valid password provided by the ISP.
Confirm Password	Retype the password.

Click **Next** for viewing summary of such connection.



Quick Start Wizard

Please confirm your settings:

WAN Interface:	WAN1
Physical Mode:	Ethernet
Physical Type:	Auto negotiation
Internet Access:	PPPoE

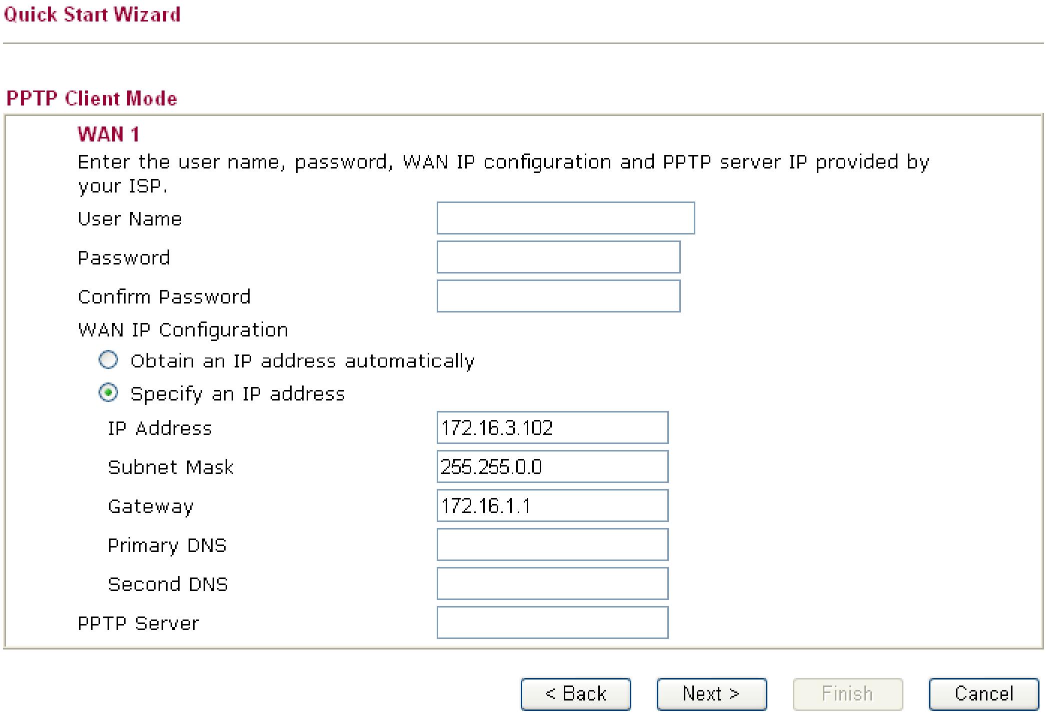
Click Back to modify changes if necessary. Otherwise, click Finish to save the current settings and restart the Vigor router.

Click **Finish.** A page of **Quick Start Wizard Setup OK!!!** will appear. Then, the system status of this protocol will be shown.

Quick Start Wizard Setup OK !!!

2.3.1.2 PPTP/L2TP

Click **PPTP/L2TP** as the protocol. Type in all the information that your ISP provides for this protocol.



Quick Start Wizard

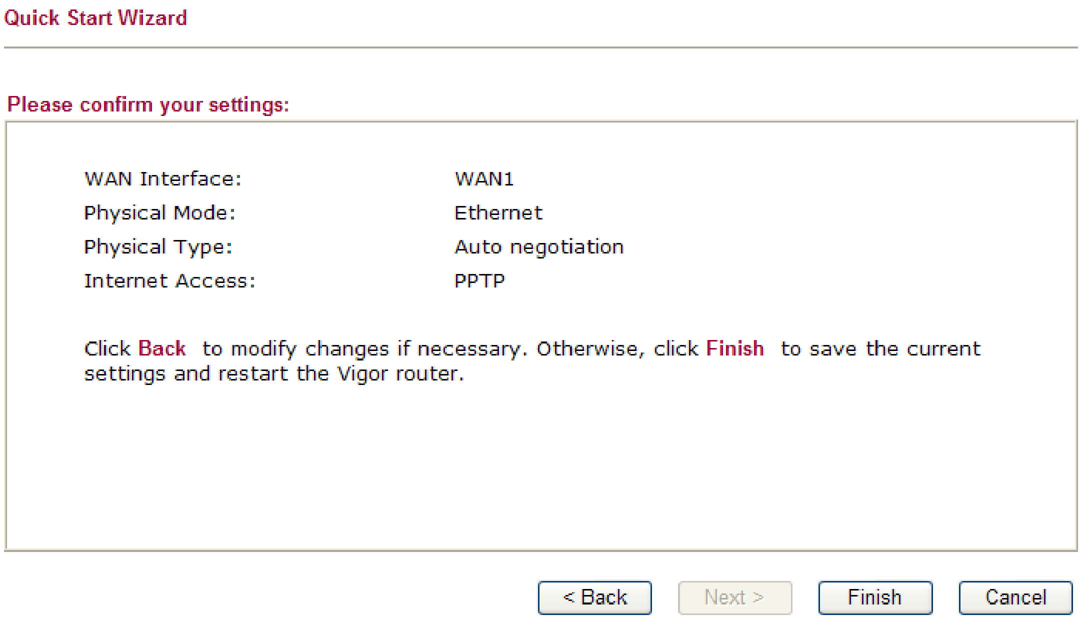
PPTP Client Mode

WAN 1

Enter the user name, password, WAN IP configuration and PPTP server IP provided by your ISP.

User Name	
Password	
Confirm Password	
WAN IP Configuration	
○ Obtain an IP address automatically	
● Specify an IP address	
IP Address	172.16.3.102
Subnet Mask	255.255.0.0
Gateway	172.16.1.1
Primary DNS	
Second DNS	
PPTP Server	

Click **Next** for viewing summary of such connection.



Quick Start Wizard

Please confirm your settings:

WAN Interface:	WAN1
Physical Mode:	Ethernet
Physical Type:	Auto negotiation
Internet Access:	PPTP

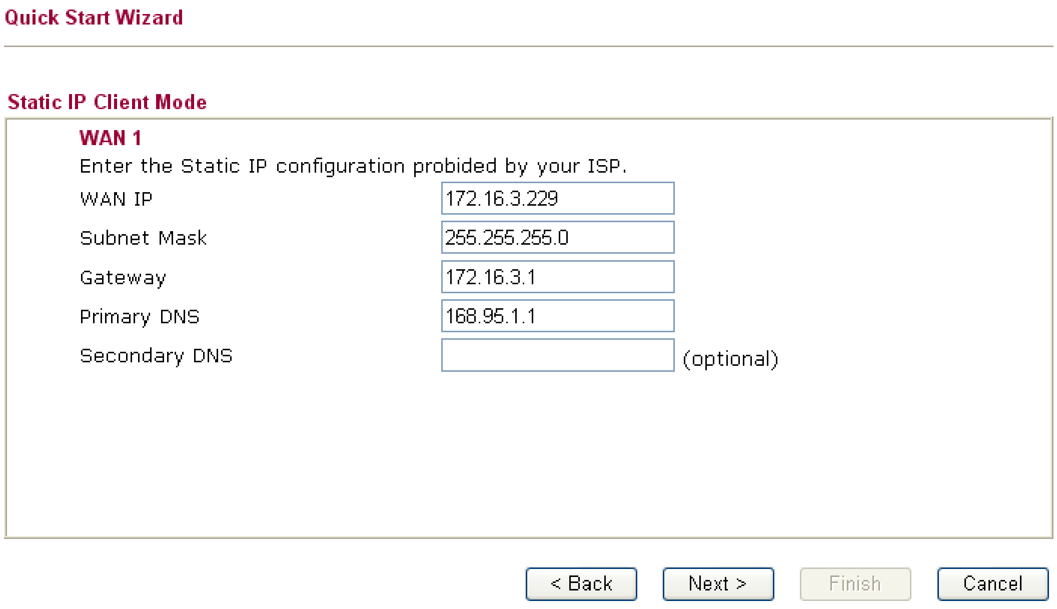
Click Back to modify changes if necessary. Otherwise, click Finish to save the current settings and restart the Vigor router.

Click **Finish.** A page of **Quick Start Wizard Setup OK!!!** will appear. Then, the system status of this protocol will be shown.

Quick Start Wizard Setup OK !!!

2.3.1.3 Static IP

Click **Static IP** as the protocol. Type in all the information that your ISP provides for this protocol.



Quick Start Wizard

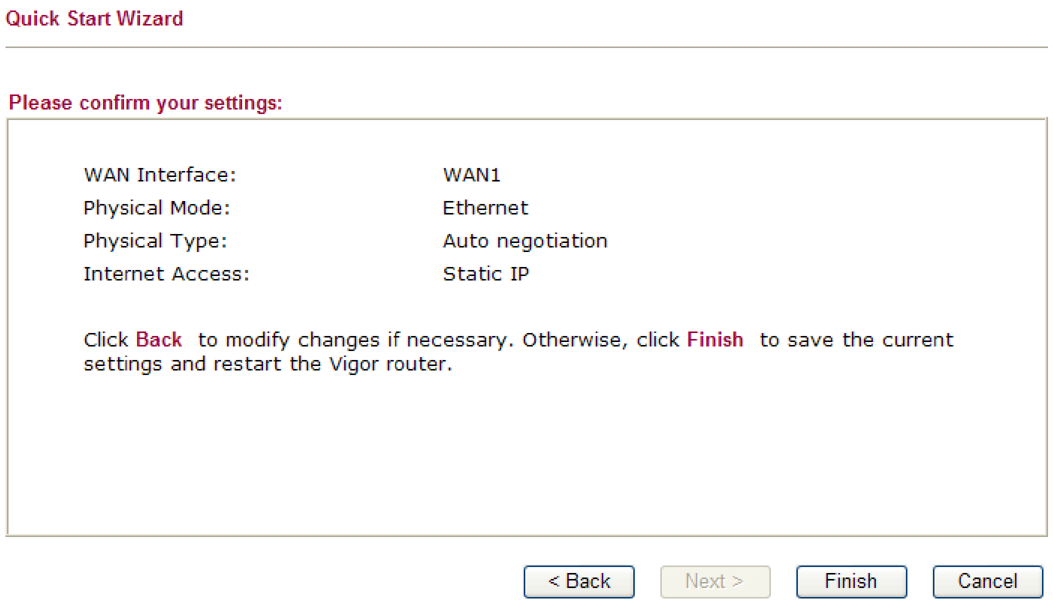
Static IP Client Mode

WAN 1

Enter the Static IP configuration probided by your ISP.

WAN IP	172.16.3.229
Subnet Mask	255.255.255.0
Gateway	172.16.3.1
Primary DNS	168.95.1.1
Secondary DNS	(optional)

After finishing the settings in this page, click **Next** to see the following page.



Quick Start Wizard

Please confirm your settings:

WAN Interface:	WAN1
Physical Mode:	Ethernet
Physical Type:	Auto negotiation
Internet Access:	Static IP

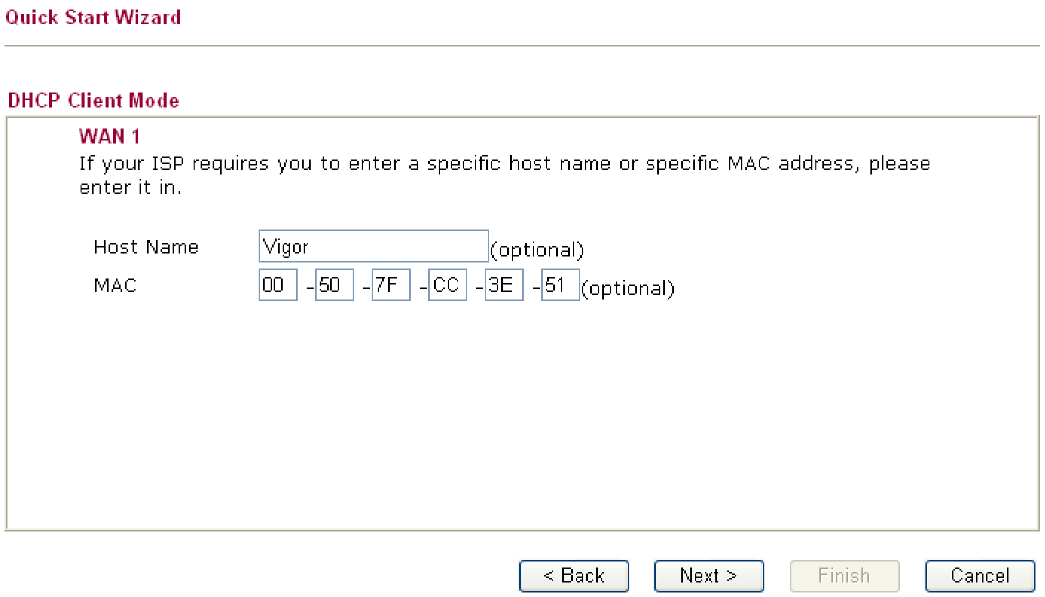
Click Back to modify changes if necessary. Otherwise, click Finish to save the current settings and restart the Vigor router.

Click **Finish.** A page of **Quick Start Wizard Setup OK!!!** will appear. Then, the system status of this protocol will be shown.

Quick Start Wizard Setup OK !!!

2.3.1.4 DHCP

Click **DHCP** as the protocol. Type in all the information that your ISP provides for this protocol.



Quick Start Wizard

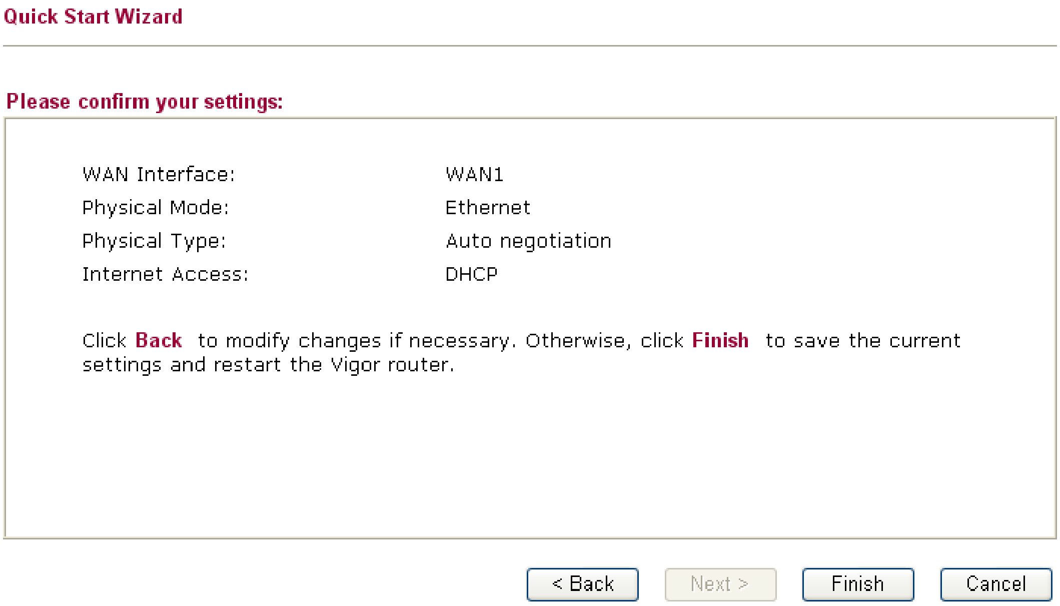
DHCP Client Mode

WAN 1

If your ISP requires you to enter a specific host name or specific MAC address, please enter it in.

Host Name	Vigor (optional)
MAC	00 - 50 - 7F - CC - 3E - 51 (optional)

After finishing the settings in this page, click **Next** to see the following page.



Quick Start Wizard

Please confirm your settings:

WAN Interface:	WAN1
Physical Mode:	Ethernet
Physical Type:	Auto negotiation
Internet Access:	DHCP

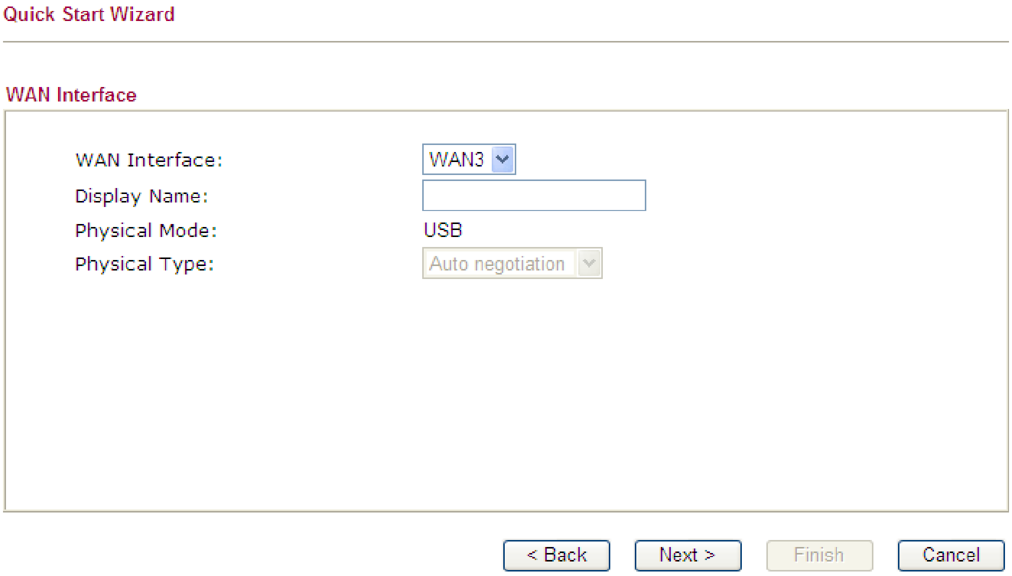
Click Back to modify changes if necessary. Otherwise, click Finish to save the current settings and restart the Vigor router.

Click **Finish.** A page of **Quick Start Wizard Setup OK!!!** will appear. Then, the system status of this protocol will be shown.

Quick Start Wizard Setup OK !!!

2.3.2 For WAN3

To use 3G USB modem for network connection, please choose WAN3.

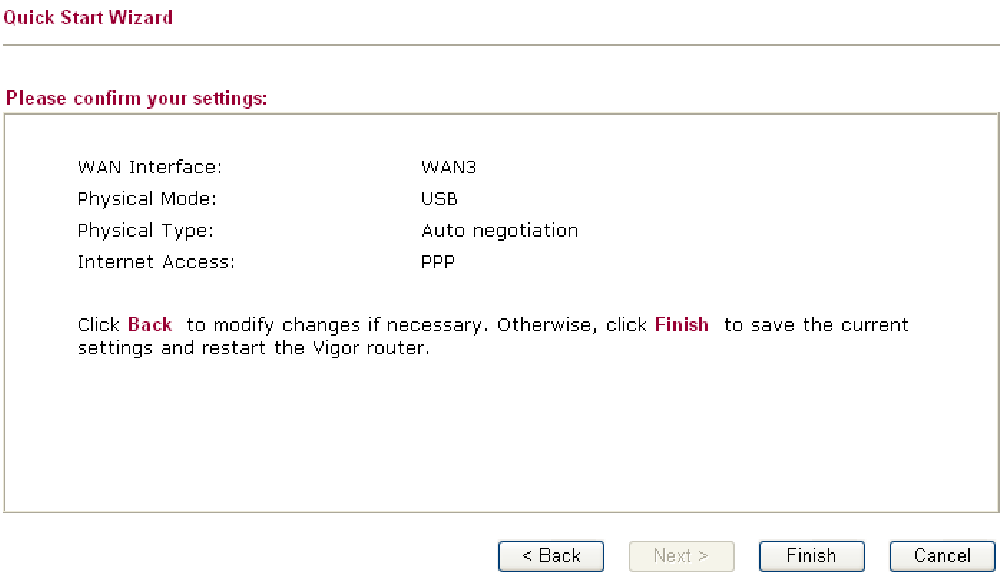


Quick Start Wizard

WAN Interface

WAN Interface:	WAN3
Display Name:	
Physical Mode:	USB
Physical Type:	Auto negotiation

Then, click **Next** to continue.



Quick Start Wizard

Please confirm your settings:

WAN Interface: WAN3
Physical Mode: USB
Physical Type: Auto negotiation
Internet Access: PPP

Click Back to modify changes if necessary. Otherwise, click Finish to save the current settings and restart the Vigor router.

Click **Finish.** A page of **Quick Start Wizard Setup OK!!!** will appear. Then, the system status of this protocol will be shown.

Quick Start Wizard Setup OK !!!

2.4 Service Activation Wizard

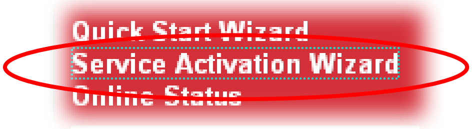
Service Activation Wizard can guide you to activate WCF service (Web Content Filter) with a quick and easy way.

> **Note:**Web Content Filter (WCF) is not a built-in service of Vigor router, but a service powered by Commtouch. If you want to use such service (trial or formal edition), you have to perform the procedure of activation first. For the service of formal edition, please contact with your dealer for detailed information.

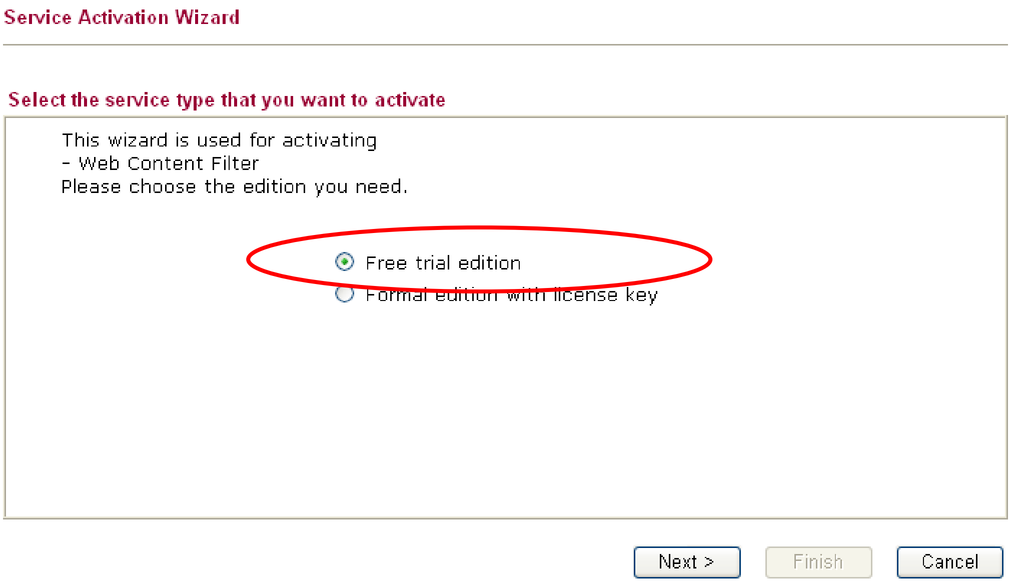
Service Activation Wizard is a tool which allows you to use trial version or update the license of WCF directly without accessing into the server (***MyVigor***) located on http://myvigor.draytek.com. For using Web Content Filter Profile, please refer to later section **Web Content Filter Profile** for detailed information.

Now, follow the steps listed below to activate WCF feature for your router.

1. Open **Service Activation Wizard**.



2. The screen of **Service Activation Wizard** will be shown as follows. Choose the one you need and click **Next**. In this case, we choose to activate free trial edition.



Service Activation Wizard

Select the service type that you want to activate

This wizard is used for activating
- Web Content Filter
Please choose the edition you need.

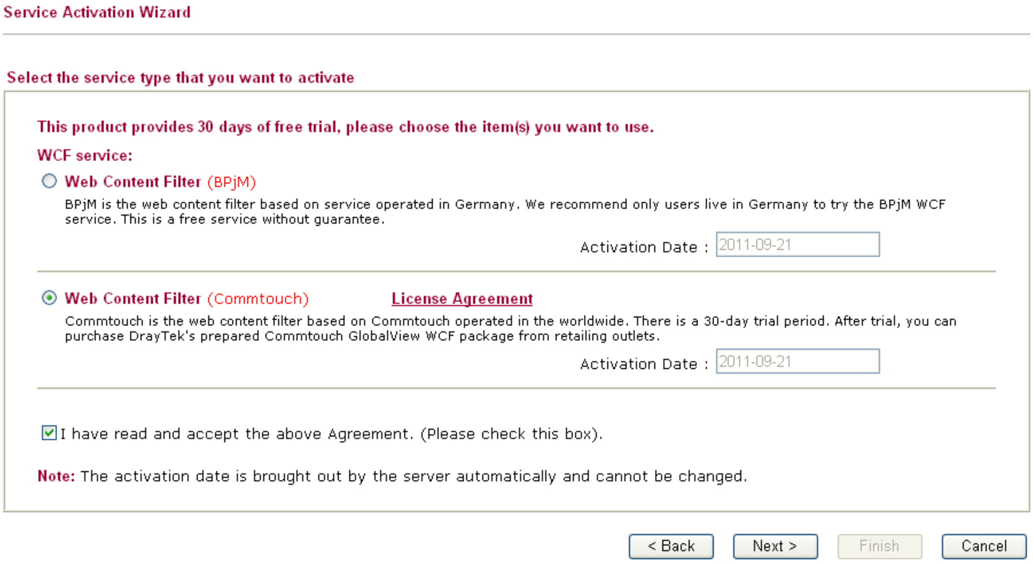
● Free trial edition
○ Formal edition with license key

Free trial edition: it offers a period of trial for you to get acquainted with WCF function.

Formal edition with license key: it offers a period of valid time (e.g., one year) for WCF function.

Note: If you activate **Formal edition with license key** first, the free trial edition will be invalid.

3. In the following page, you can activate the Web content filter services at the same time or individually. When you finish the selection, please click **Next**.



Service Activation Wizard

Select the service type that you want to activate

This product provides 30 days of free trial, please choose the item(s) you want to use.

WCF service:

○ Web Content Filter (BPjM)
BPjM is the web content filter based on service operated in Germany. We recommend only users live in Germany to try the BPjM WCF service. This is a free service without guarantee.
Activation Date : 2011-09-21

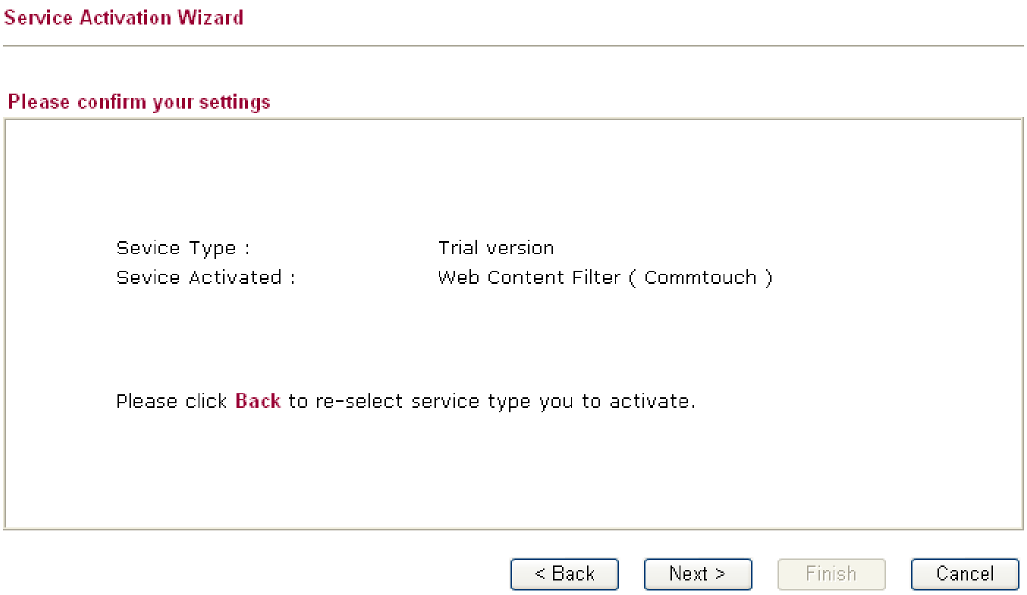
● Web Content Filter (Commtouch) License Agreement
Commtouch is the web content filter based on Commtouch operated in the worldwide. There is a 30-day trial period. After trial, you can purchase DrayTek's prepared Commtouch GlobalView WCF package from retailing outlets.
Activation Date : 2011-09-21

☑ I have read and accept the above Agreement. (Please check this box).

Note: The activation date is brought out by the server automatically and cannot be changed.

Commtouch is the web content filter based on Commtouch operated in the worldwide. There is a 30-day trial period. After trial, you can purchase DrayTek's prepared Commtouch GlobalView WCF package from retailing outlets.

4. Setting confirmation page will be displayed as follows, please click **Next**.



Service Activation Wizard

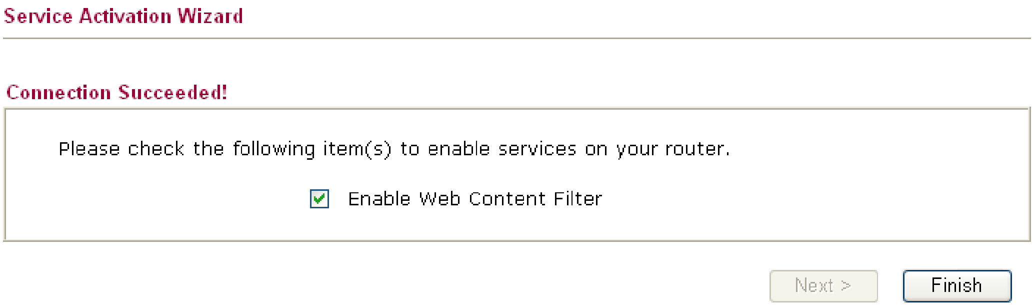
Please confirm your settings

Sevice Type : Trial version

Sevice Activated : Web Content Filter (Commtouch)

Please click Back to re-select service type you to activate.

5. Wait for a moment till the following page appears.



Service Activation Wizard

Connection Succeeded!

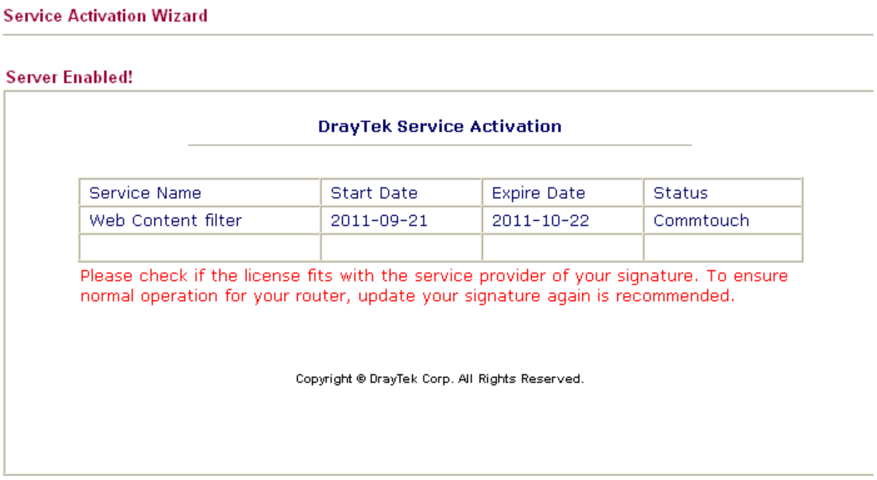
Please check the following item(s) to enable services on your router.

☑ Enable Web Content Filter

When such page appears, you can enable or disable these services for your necessity. Then, click **Finish.**

Note: The service will be activated and applied as the default rule configured in **Firewall>>General Setup**.

6. Now, the web page will display the service that you have activated according to your selection(s). The valid time for the free trial of these services is 30-day.



Service Activation Wizard

Server Enabled!

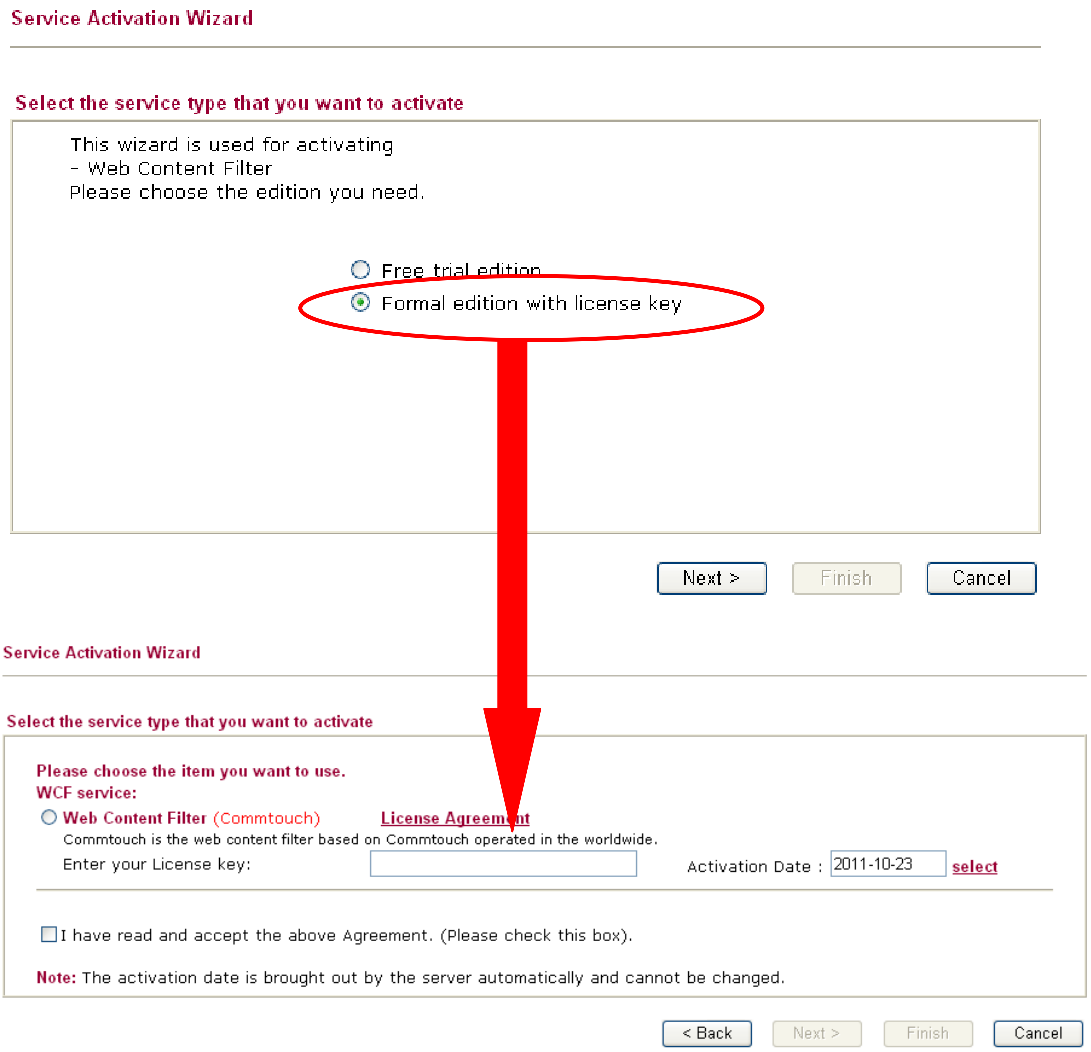
DrayTek Service Activation

Service Name	Start Date	Expire Date	Status
Web Content filter	2011-09-21	2011-10-22	Commtouch

Please check if the license fits with the service provider of your signature. To ensure normal operation for your router, update your signature again is recommended.

Copyright © DrayTek Corp. All Rights Reserved.

Later, if you need to extend the license valid time for the **same service**, you can also use the **Service Activation Wizard** again to reach your goal by clicking the radio button of **Formal edition with license key** and clicking **Next.**



Service Activation Wizard

Select the service type that you want to activate

This wizard is used for activating
- Web Content Filter
Please choose the edition you need.

○ Free trial edition
● Formal edition with license key

Service Activation Wizard

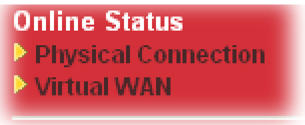
Select the service type that you want to activate

Please choose the item you want to use.
WCF service:
○ Web Content Filter (Commtouch) License Agreement
Commtouch is the web content filter based on Commtouch operated in the worldwide.
Enter your License key: Activation Date : 2011-10-23 select

□ I have read and accept the above Agreement. (Please check this box).

Note: The activation date is brought out by the server automatically and cannot be changed.

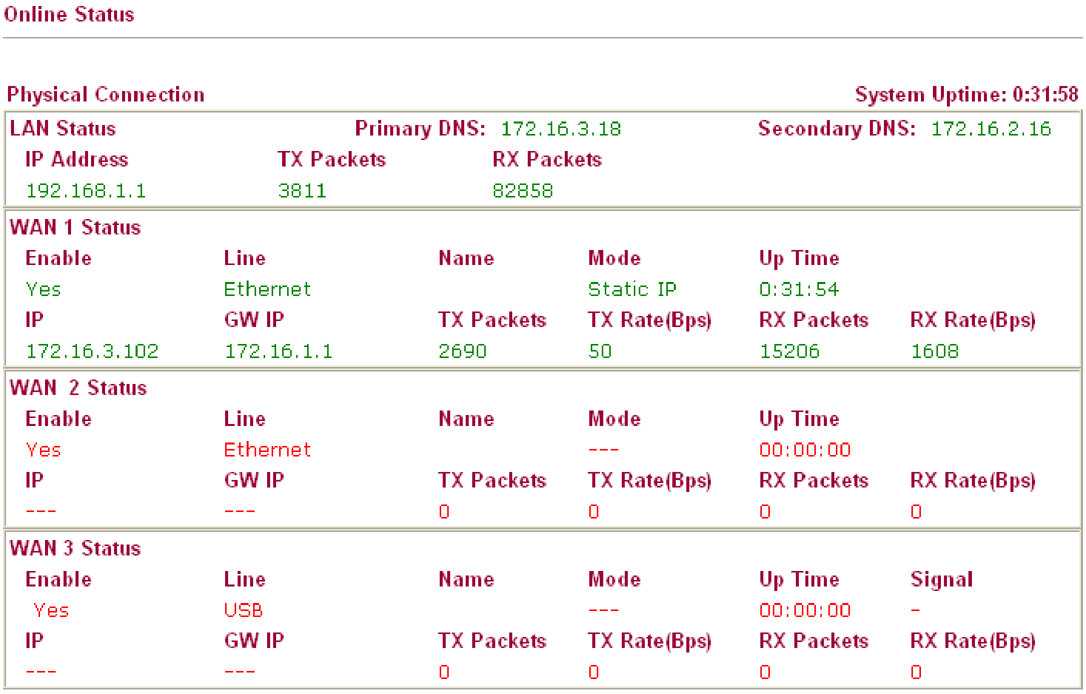
2.5 Online Status



2.5.1 Physical Connection

Such page displays the physical connection status such as LAN connection status, WAN connection status, ADSL information, and so on.

If you select **PPPoE** as the protocol, you will find out a link of **Dial PPPoE** or **Drop PPPoE** in the Online Status web page.



Online Status

Physical Connection System Uptime: 0:31:58

LAN Status		Primary DNS: 172.16.3.18	Secondary DNS: 172.16.2.16
IP Address	TX Packets	RX Packets	
192.168.1.1	3811	82858	

WAN 1 Status					
Enable	Line	Name	Mode	Up Time	
Yes	Ethernet		Static IP	0:31:54	
IP	GW IP	TX Packets	TX Rate(Bps)	RX Packets	RX Rate(Bps)
172.16.3.102	172.16.1.1	2690	50	15206	1608

WAN 2 Status					
Enable	Line	Name	Mode	Up Time	
Yes	Ethernet		---	00:00:00	
IP	GW IP	TX Packets	TX Rate(Bps)	RX Packets	RX Rate(Bps)
---	---	0	0	0	0

WAN 3 Status					
Enable	Line	Name	Mode	Up Time	Signal
Yes	USB		---	00:00:00	-
IP	GW IP	TX Packets	TX Rate(Bps)	RX Packets	RX Rate(Bps)
---	---	0	0	0	0

Detailed explanation is shown below:

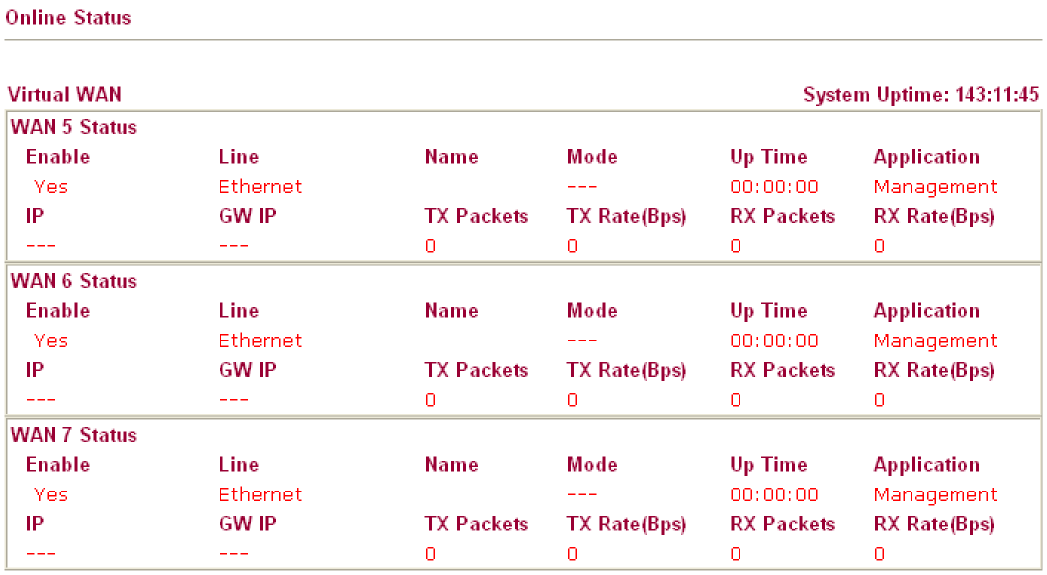
Item	Description
LAN Status	**Primary DNS** - Displays the IP address of the primary DNS. **Secondary DNS** - Displays the IP address of the secondary DNS. **IP Address** - Displays the IP address of the LAN interface. **TX Packets** - Displays the total transmitted packets at the LAN interface. **RX Packets** - Displays the total number of received packets at the LAN interface.
WAN 1 Status ~ WAN 3 Status	**Line** - Displays the physical connection of this interface.

Item	Description
	Name - Displays the name set in WAN1/WAN web page. **Mode** - Displays the type of WAN connection (e.g., PPPoE). **Up Time** - Displays the total uptime of the interface. **IP** - Displays the IP address of the WAN interface. **GW IP** - Displays the IP address of the default gateway. **TX Packets** - Displays the total transmitted packets at the WAN interface. **TX Rate** - Displays the speed of transmitted octets at the WAN interface. **RX Packets** - Displays the total number of received packets at the WAN interface. **RX Rate** - Displays the speed of received octets at the WAN interface.

Note: The words in green mean that the WAN connection of that interface is ready for accessing Internet; the words in red mean that the WAN connection of that interface is not ready for accessing Internet.

2.5.2 Virtual WAN

Such page displays the virtual WAN connection information. Virtual WAN are used by TR-069 management, VoIP service and so on. The Application field will list the purpose of such WAN connection.



Online Status

Virtual WAN

System Uptime: 143:11:45

WAN 5 Status

Enable	Line	Name	Mode	Up Time	Application
Yes	Ethernet		---	00:00:00	Management
IP	GW IP	TX Packets	TX Rate(Bps)	RX Packets	RX Rate(Bps)
---	---	0	0	0	0

WAN 6 Status

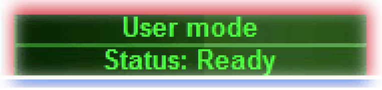
Enable	Line	Name	Mode	Up Time	Application
Yes	Ethernet		---	00:00:00	Management
IP	GW IP	TX Packets	TX Rate(Bps)	RX Packets	RX Rate(Bps)
---	---	0	0	0	0

WAN 7 Status

Enable	Line	Name	Mode	Up Time	Application
Yes	Ethernet		---	00:00:00	Management
IP	GW IP	TX Packets	TX Rate(Bps)	RX Packets	RX Rate(Bps)
---	---	0	0	0	0

2.6 Saving Configuration

Each time you click **OK** on the web page for saving the configuration, you can find messages showing the system interaction with you.


User mode
Status: Ready

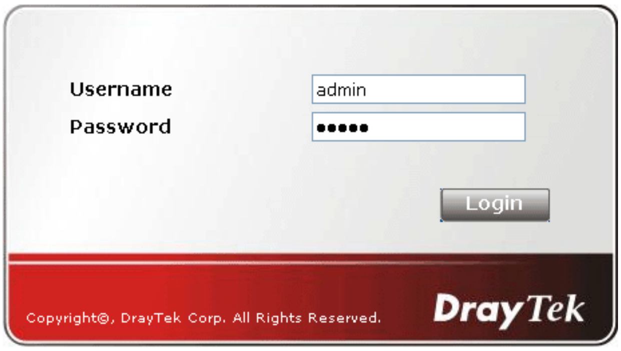
Ready indicates the system is ready for you to input settings.

Settings Saved means your settings are saved once you click **Finish** or **OK** button.

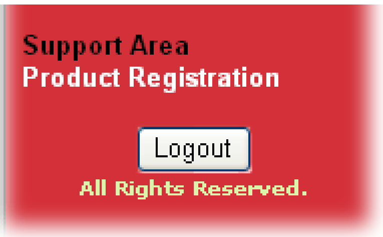
2.7 Registering Vigor Router

You have finished the configuration of Quick Start Wizard and you can surf the Internet at any time. Now it is the time to register your Vigor router to MyVigor website for getting more service. Please follow the steps below to finish the router registration.

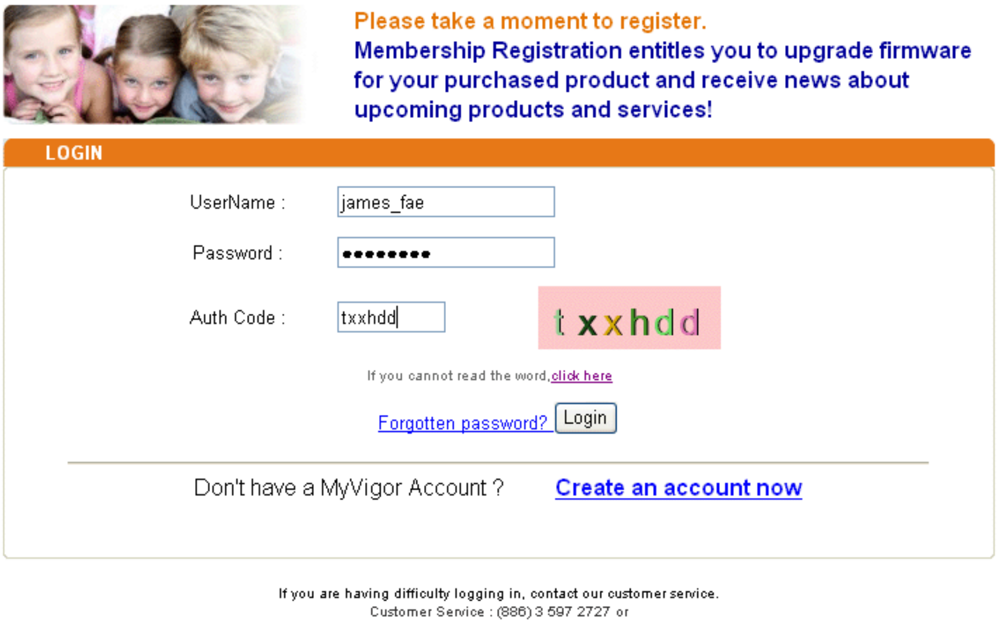
1. Please login the web configuration interface of Vigor router by typing "**admin/admin**" as User Name / Password.


Username admin
Password ●●●●●

2. Click **Support Area>>Production Registration** from the home page.



3. A **Login** page will be shown on the screen. Please type the account and password that you created previously. And click **Login**.



Please take a moment to register.

Membership Registration entitles you to upgrade firmware for your purchased product and receive news about upcoming products and services!

LOGIN

UserName : james_fae

Password : •••••••••

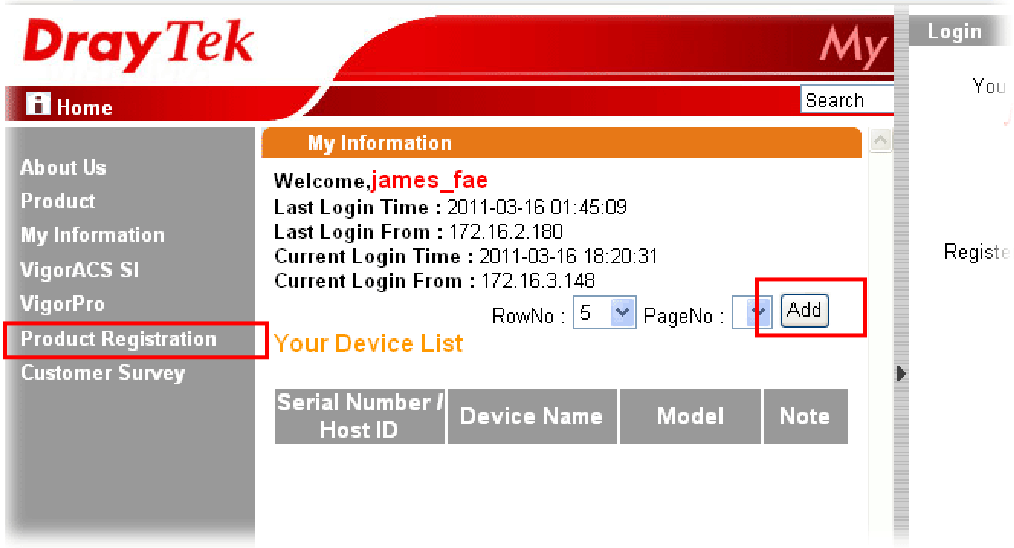
Auth Code : txxhdd

If you cannot read the word, click here

Don't have a MyVigor Account ? Create an account now

If you are having difficulty logging in, contact our customer service.
Customer Service : (886) 3 597 2727 or

4. The following page will be displayed after you logging in MyVigor. From this page, please click **Add** or **Product Registration**.



My Information

Welcome,james_fae

Last Login Time : 2011-03-16 01:45:09

Last Login From : 172.16.2.180

Current Login Time : 2011-03-16 18:20:31

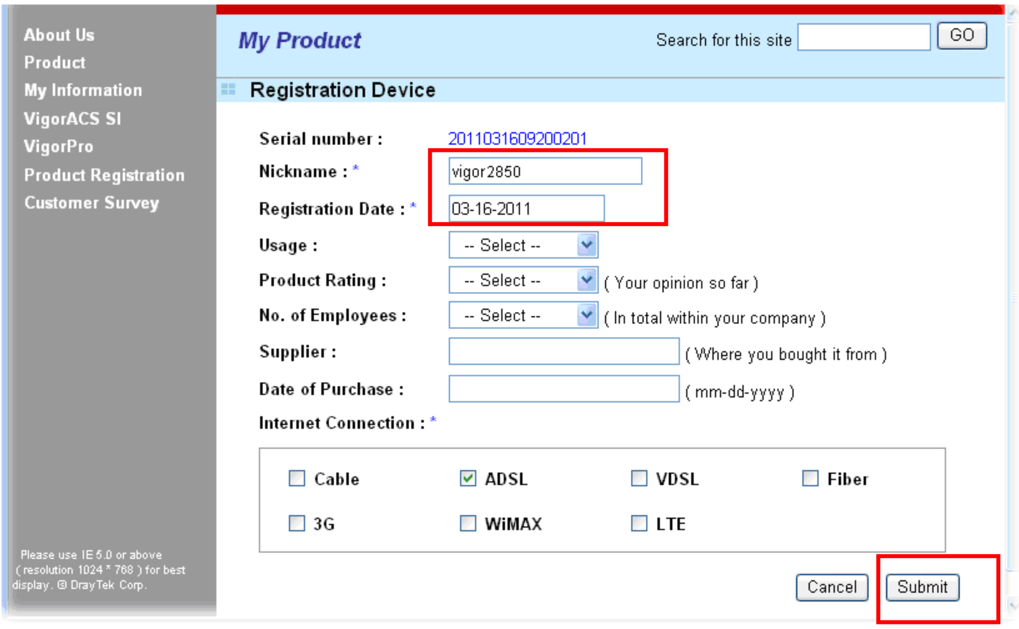
Current Login From : 172.16.3.148

RowNo : 5 PageNo : Add

Your Device List

Serial Number / Host ID	Device Name	Model	Note

5. When the following page appears, please type in Nickname (for the router) and choose the right registration date from the popup calendar (it appears when you click on the box of Registration Date). After adding the basic information for the router, please click **Submit**.



Registration Device

Serial number : 2011031609200201

Nickname : * vigor2850

Registration Date : * 03-16-2011

Usage : -- Select --

Product Rating : -- Select -- (Your opinion so far)

No. of Employees : -- Select -- (In total within your company)

Supplier : (Where you bought it from)

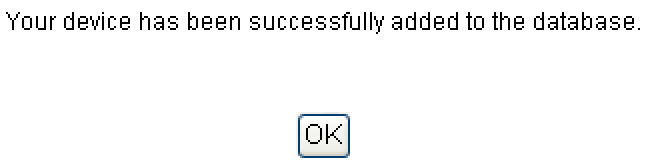
Date of Purchase : (mm-dd-yyyy)

Internet Connection : *

□ Cable ☑ ADSL □ VDSL □ Fiber

□ 3G □ WiMAX □ LTE

6. When the following page appears, your router information has been added to the database.



Your device has been successfully added to the database.

Now, you have finished the product registration.

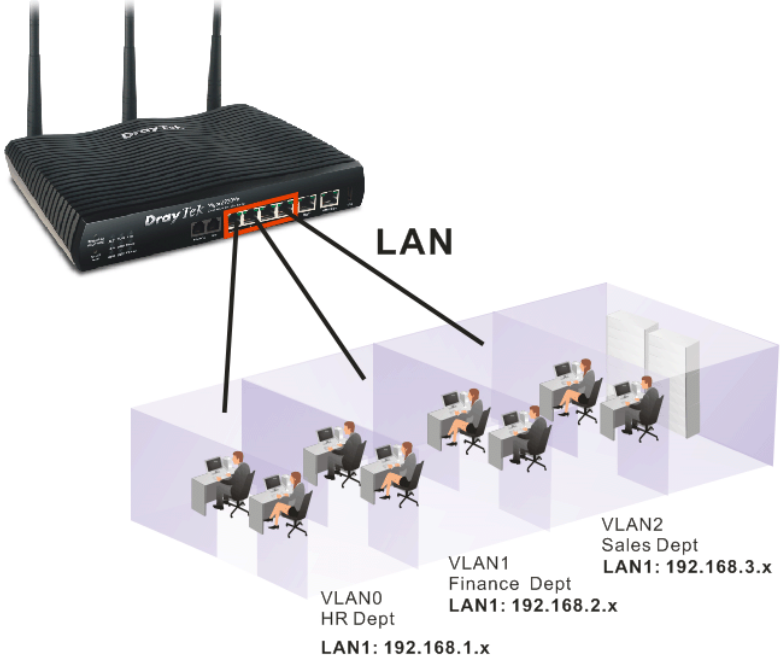
3 Tutorials and Applications

3.1 How to configure Multi-Subnet for Vigor Router

There are two types of VLAN. One is Port Based VLAN; the other is Tag Based VLAN. Refer to the following sections for learning the usage of VLAN.

I. Port Based VLAN

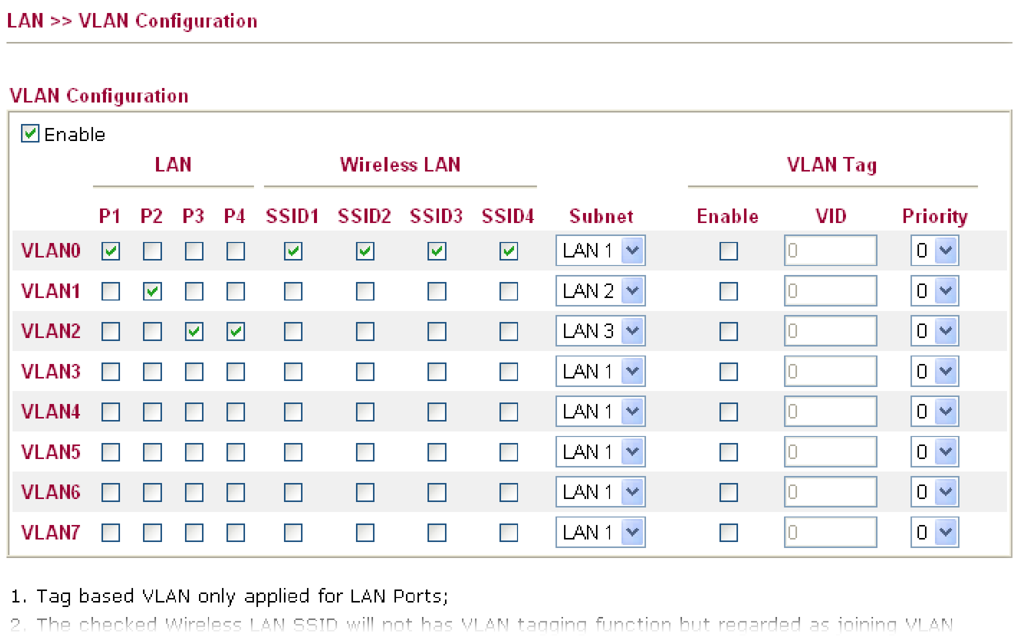
Vigor2920 can divide the physical LAN ports into several groups. For example, it can divide the internal departments of a company into three different groups. Each group uses different network segment. See the following graphic for an example.



Group 0 (VLAN0)(Human Resource):	LAN Port 1 IP: 192.168.1.0/24
Group 1 (VLAN1)(Finance Dept):	LAN Port 2 IP: 192.168.2.0/24
Group 2 (VLAN2)(Sales Dept.):	LAN Port 3/Port 4 IP: 192.168.3.0/24

Configuration:

1. In the page of **LAN** >> **VLAN Configuration**, check the box of **Enable** to enable the function of VLAN Configuration.
2. For VLAN0 setting, check **P1** and set **LAN1** as the **Subnet**.
3. For VLAN1 setting, check **P2** and set **LAN2** as the **Subnet**.
4. For VLAN2 setting, check **P3** and **P4**, and set **LAN3** as the **Subnet**.



LAN >> VLAN Configuration

VLAN Configuration

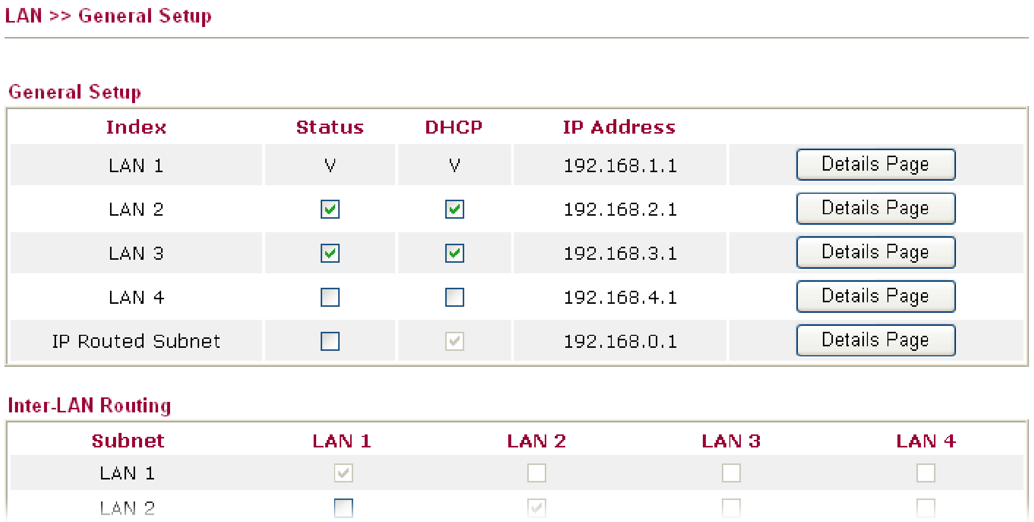
☑ Enable

	LAN				Wireless LAN					VLAN Tag		
	P1	P2	P3	P4	SSID1	SSID2	SSID3	SSID4	Subnet	Enable	VID	Priority
VLAN0	☑	□	□	□	☑	☑	☑	☑	LAN 1	□	0	0
VLAN1	□	☑	□	□	□	□	□	□	LAN 2	□	0	0
VLAN2	□	□	☑	☑	□	□	□	□	LAN 3	□	0	0
VLAN3	□	□	□	□	□	□	□	□	LAN 1	□	0	0
VLAN4	□	□	□	□	□	□	□	□	LAN 1	□	0	0
VLAN5	□	□	□	□	□	□	□	□	LAN 1	□	0	0
VLAN6	□	□	□	□	□	□	□	□	LAN 1	□	0	0
VLAN7	□	□	□	□	□	□	□	□	LAN 1	□	0	0

1. Tag based VLAN only applied for LAN Ports;

2. The checked Wireless LAN SSID will not has VLAN tagging function but regarded as joining VLAN

5. In the page of **LAN** >> **General Setup**, check the **Status** box of LAN2 and LAN3 and enable the function of DHCP.



LAN >> General Setup

General Setup

Index	Status	DHCP	IP Address	
LAN 1	V	V	192.168.1.1	Details Page
LAN 2	☑	☑	192.168.2.1	Details Page
LAN 3	☑	☑	192.168.3.1	Details Page
LAN 4	□	□	192.168.4.1	Details Page
IP Routed Subnet	□	☑	192.168.0.1	Details Page

Inter-LAN Routing

Subnet	LAN 1	LAN 2	LAN 3	LAN 4
LAN 1	☑	□	□	□
LAN 2	□	☑	□	□

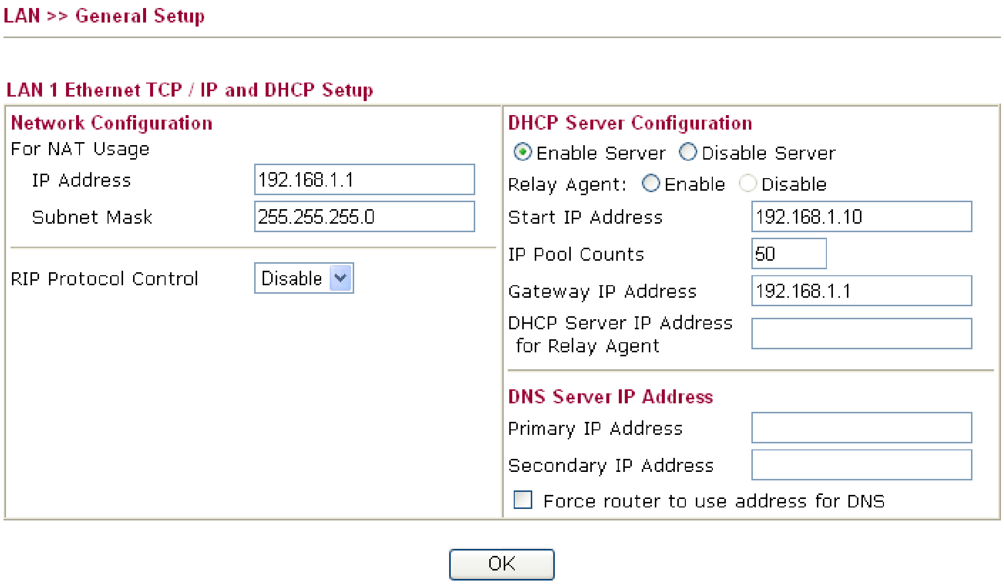
After finishing the above configuration, the equipment connecting to Vigor2920 LAN Port can get the corresponding IP address of the network segment.

The equipment connecting to Vigor2920 LAN Port 1 (LAN1) can get the IP address of 192.168.1.0/24

The equipment connecting to Vigor2920 LAN Port 2 (LAN2) can get the IP address of 192.168.2.0/24

The equipment connecting to Vigor2920 LAN Port 3 and Port 4 (LAN3) can get the IP address of 192.168.3.0/24

For the detailed settings of the network segment, open **LAN>>General Setup** and click **Details Page.** Adjust the settings for your request. Refer to the following figure.



LAN >> General Setup

LAN 1 Ethernet TCP / IP and DHCP Setup

Network Configuration

For NAT Usage

IP Address	192.168.1.1
Subnet Mask	255.255.255.0
RIP Protocol Control	Disable

DHCP Server Configuration

● Enable Server ○ Disable Server

Relay Agent: ○ Enable ○ Disable

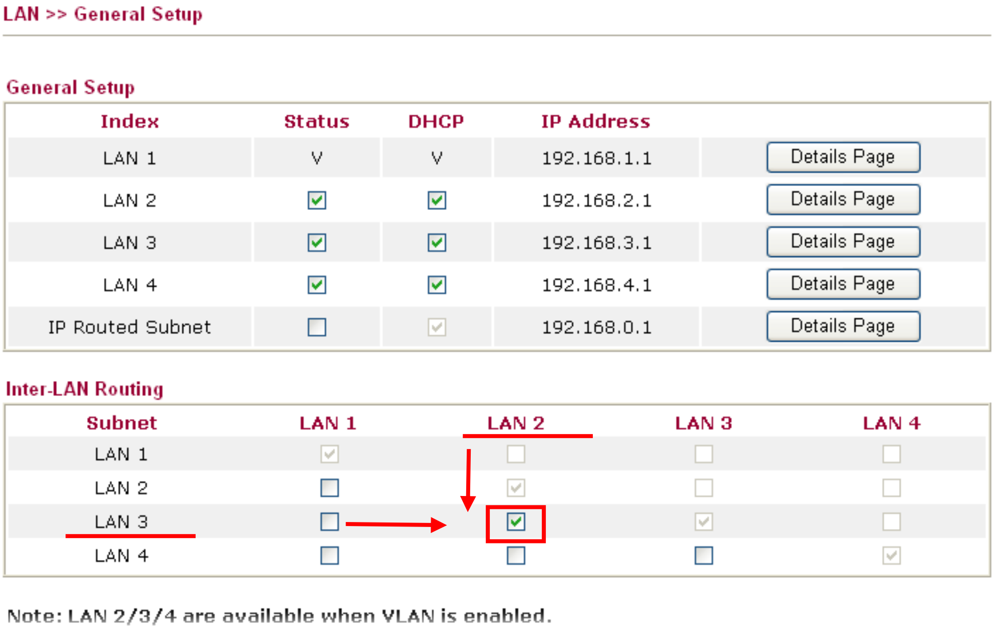
Start IP Address	192.168.1.10
IP Pool Counts	50
Gateway IP Address	192.168.1.1
DHCP Server IP Address for Relay Agent	

DNS Server IP Address

Primary IP Address	
Secondary IP Address	

□ Force router to use address for DNS

6. To make any two of VLAN groups linked with each other, just check the boxes of the ones in the field of **Inter-LAN Routing** in the page of **LAN** >> **General Setup**. Refer to the following figure. LAN2 and LAN3 are linked.



LAN >> General Setup

General Setup

Index	Status	DHCP	IP Address	
LAN 1	V	V	192.168.1.1	Details Page
LAN 2	☑	☑	192.168.2.1	Details Page
LAN 3	☑	☑	192.168.3.1	Details Page
LAN 4	☑	☑	192.168.4.1	Details Page
IP Routed Subnet	□	☑	192.168.0.1	Details Page

Inter-LAN Routing

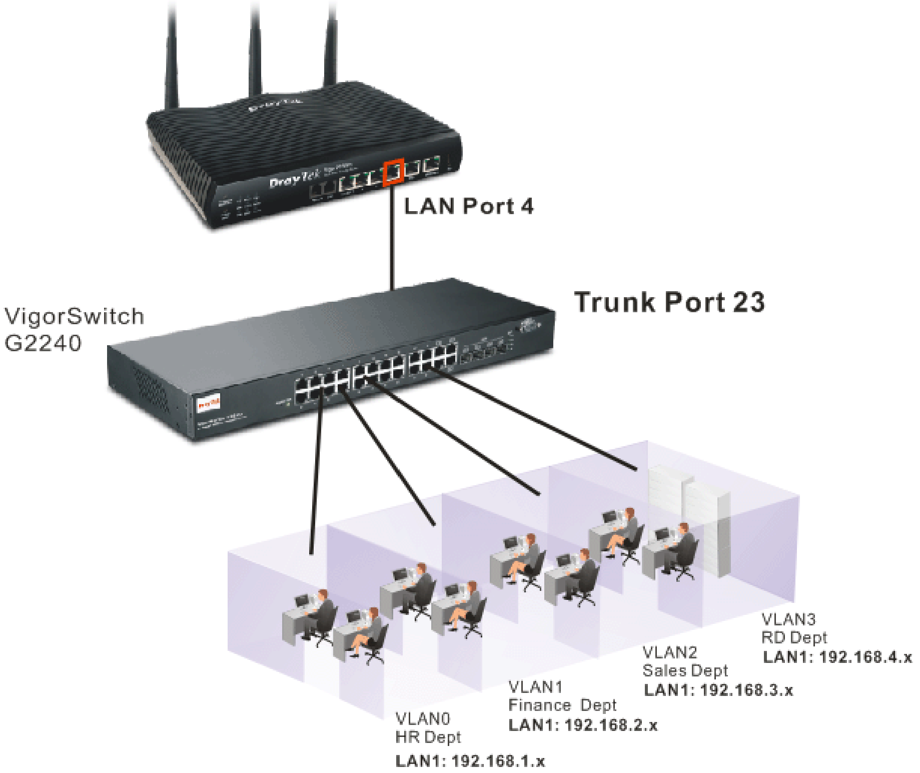
Subnet	LAN 1	LAN 2	LAN 3	LAN 4
LAN 1	☑	□	□	□
LAN 2	□	☑	□	□
LAN 3	□	☑	☑	□
LAN 4	□	□	□	☑

Note: LAN 2/3/4 are available when VLAN is enabled.

II. Tag Based VLAN

By identifying the tagged message, Vigor2920 can divide the LAN Port into several VLAN groups. Such LAN port with tagged information will accept the packets only with VLAN ID number.

For example, Vigor2920 can divide the internal departments of a company into four different groups by using VigorSwitch 2240. Each group uses different network segment and does not link for each other. VigorSwitch 2240 Trunk Port 23 and Vigor2920 LAN Port 4 are connected with network cable. See the following graphic for an example.

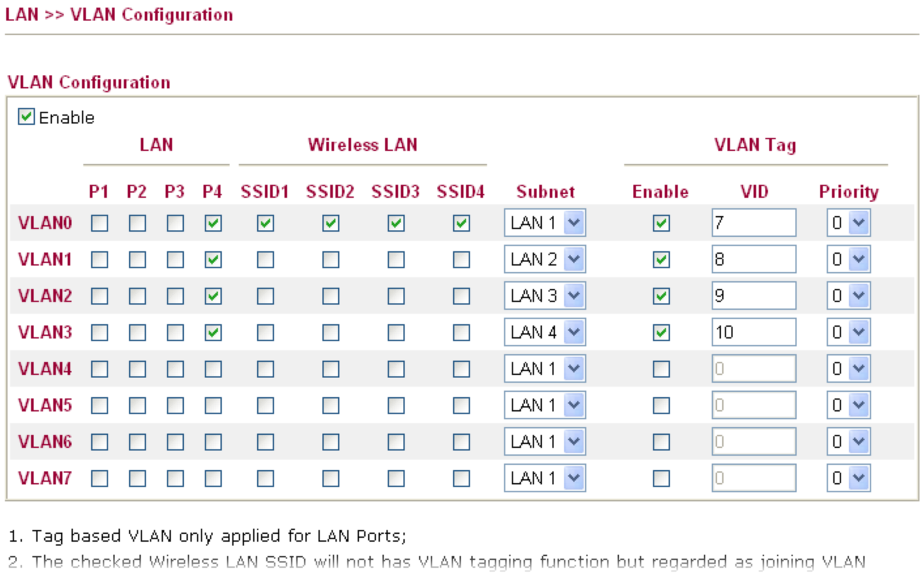


Group 0 (VLAN0)(Human Resource):	LAN Port 4 IP: 192.168.1.0/24
Group 1 (VLAN1)(Finance Dept):	LAN Port 4 IP: 192.168.2.0/24
Group 2 (VLAN2)(Sales Dept.):	LAN Port 4 IP: 192.168.3.0/24
Group 3 (VLAN3)(R&D):	LAN Port 4 IP: 192.168.4.0/24

Configuration

1. In the page of **LAN** >> **VLAN Configuration**, check the box of **Enable** to enable the function of VLAN Configuration.
2. To activate the function of VLAN Tag for VLAN0 setting, check the box of **Enable** and type the value (7) for VID setting. Then check **P4** and set **LAN1** as the **Subnet**.
3. To activate the function of VLAN Tag for VLAN1 setting, check the box of **Enable** and type the value (8) for VID setting. Then check **P4** and set **LAN2** as the **Subnet**.
4. To activate the function of VLAN Tag for VLAN2 setting, check the box of **Enable** and type the value (9) for VID setting. Then check **P4** and set **LAN3** as the **Subnet**.

5. To activate the function of VLAN Tag for VLAN3 setting, check the box of **Enable** and type the value (10) for VID setting. Then check **P4** and set **LAN4** as the **Subnet**.



LAN >> VLAN Configuration

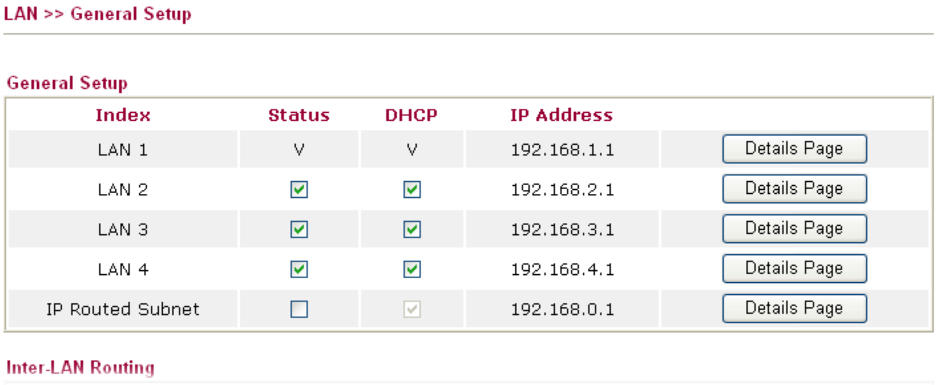
VLAN Configuration

☑ Enable

	LAN				Wireless LAN					VLAN Tag		
	P1	P2	P3	P4	SSID1	SSID2	SSID3	SSID4	Subnet	Enable	VID	Priority
VLAN0	□	□	□	☑	☑	☑	☑	☑	LAN 1	☑	7	0
VLAN1	□	□	□	☑	□	□	□	□	LAN 2	☑	8	0
VLAN2	□	□	□	☑	□	□	□	□	LAN 3	☑	9	0
VLAN3	□	□	□	☑	□	□	□	□	LAN 4	☑	10	0
VLAN4	□	□	□	□	□	□	□	□	LAN 1	□	0	0
VLAN5	□	□	□	□	□	□	□	□	LAN 1	□	0	0
VLAN6	□	□	□	□	□	□	□	□	LAN 1	□	0	0
VLAN7	□	□	□	□	□	□	□	□	LAN 1	□	0	0

1. Tag based VLAN only applied for LAN Ports;
2. The checked Wireless LAN SSID will not has VLAN tagging function but regarded as joining VLAN

6. In the page of **LAN** >> **General Setup**, check the **Status** box of LAN2, LAN3 and LAN4 and enable the function of DHCP.



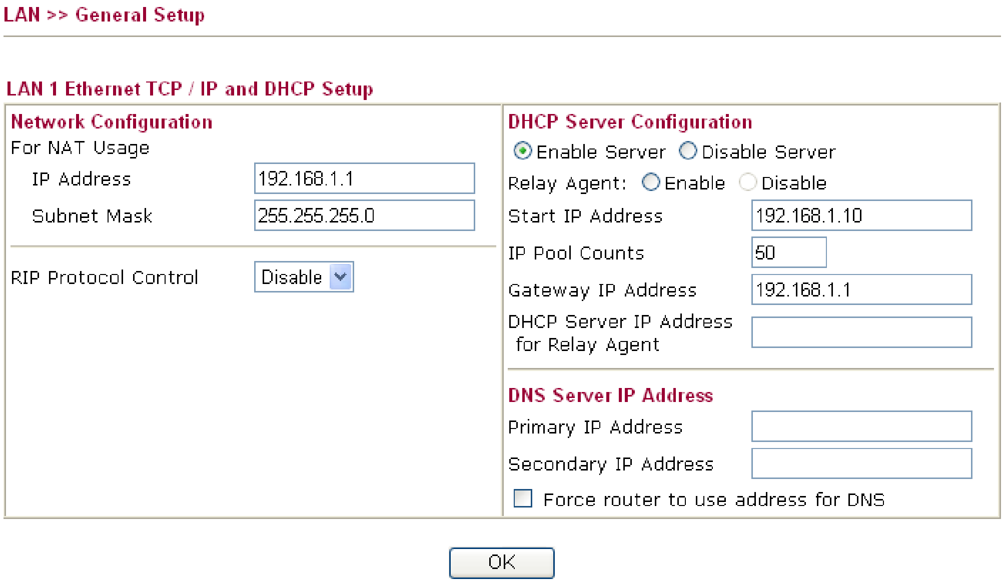
LAN >> General Setup

General Setup

Index	Status	DHCP	IP Address	
LAN 1	V	V	192.168.1.1	Details Page
LAN 2	☑	☑	192.168.2.1	Details Page
LAN 3	☑	☑	192.168.3.1	Details Page
LAN 4	☑	☑	192.168.4.1	Details Page
IP Routed Subnet	□	☑	192.168.0.1	Details Page

Inter-LAN Routing

For the detailed settings of the network segment, open **LAN>>General Setup** and click **Details Page.** Adjust the settings for your request. Refer to the following figure.



LAN >> General Setup

LAN 1 Ethernet TCP / IP and DHCP Setup

Network Configuration

For NAT Usage

IP Address	192.168.1.1
Subnet Mask	255.255.255.0
RIP Protocol Control	Disable

DHCP Server Configuration

● Enable Server ○ Disable Server

Relay Agent: ○ Enable ○ Disable

Start IP Address	192.168.1.10
IP Pool Counts	50
Gateway IP Address	192.168.1.1
DHCP Server IP Address for Relay Agent	

DNS Server IP Address

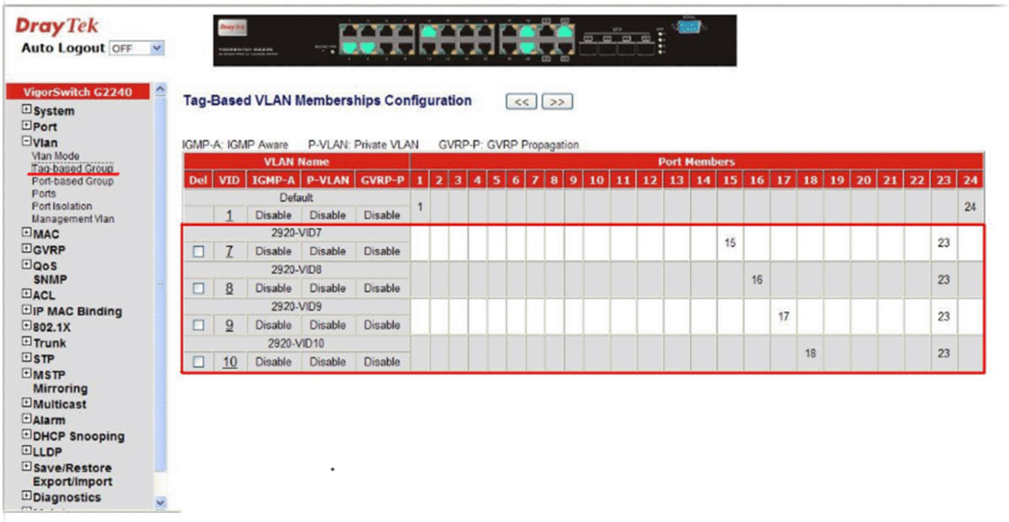
Primary IP Address	
Secondary IP Address	

□ Force router to use address for DNS

OK

Configuration for VigorSwitch 2240:

1. Open **Vlan>>Tag-based Group**.
2. Add four VID groups. In this case, we can explanation it with Port 15, 16, 17, 18 and Trunk Port 23.



Tag-Based VLAN Memberships Configuration

IGMP-A: IGMP Aware P-VLAN: Private VLAN GVRP-P: GVRP Propagation

VLAN Name					Port Members																							
Del	VID	IGMP-A	P-VLAN	GVRP-P	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Default																												
	1	Disable	Disable	Disable	1																							24
2920-VID7																												
□	7	Disable	Disable	Disable															15								23	
2920-VID8																												
□	8	Disable	Disable	Disable																16							23	
2920-VID9																												
□	9	Disable	Disable	Disable																	17						23	
2920-VID10																												
□	10	Disable	Disable	Disable																		18					23	

VLAN Name 2920-VID7, Port Members = 15 、23

VLAN Name 2920-VID8, Port Members = 16 、23

VLAN Name 2920-VID9, Port Members = 17 、23

VLAN Name 2920-VID10, Port Members = 18 、23

3. Open **Vlan>> Ports** and set the VID value with role for each Port:

   Port 15 VID = 7 Role = Access

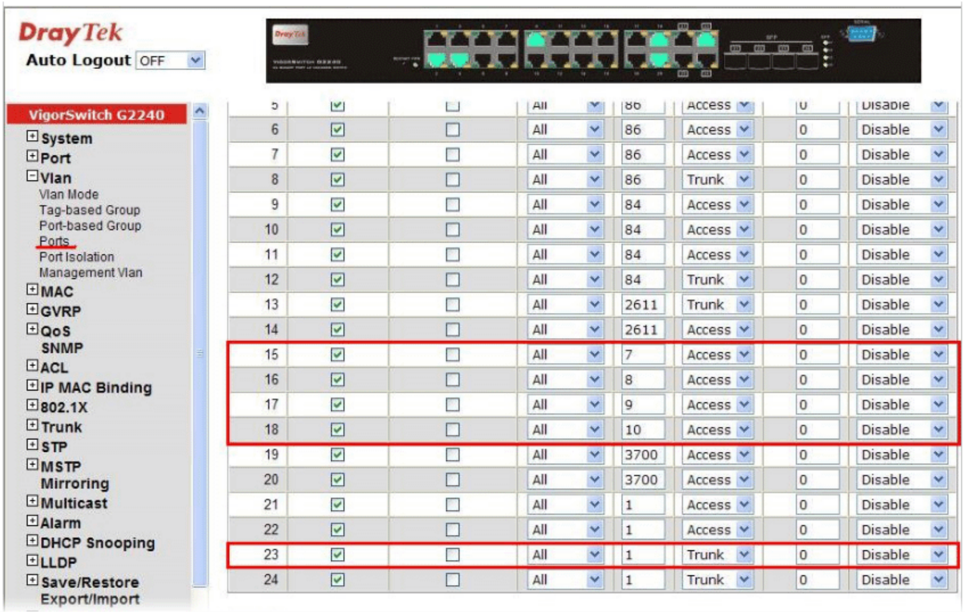
   Port 16 VID = 8 Role = Access

   Port 17 VID = 9 Role = Access

   Port 18 VID = 10 Role = Access

   Port 23 VID = 1 Role = Trunk

   Port 23 is set with Trunk in this example and will transfer the packets with VLAN Tag information. That is, packets with VID 7, 8, 9 and 10 will be transferred to Vigor2920 by Port 23 and VID information will be retained.



5	☑	□	All	86	Access	0	Disable
6	☑	□	All	86	Access	0	Disable
7	☑	□	All	86	Access	0	Disable
8	☑	□	All	86	Trunk	0	Disable
9	☑	□	All	84	Access	0	Disable
10	☑	□	All	84	Access	0	Disable
11	☑	□	All	84	Access	0	Disable
12	☑	□	All	84	Trunk	0	Disable
13	☑	□	All	2611	Trunk	0	Disable
14	☑	□	All	2611	Access	0	Disable
15	☑	□	All	7	Access	0	Disable
16	☑	□	All	8	Access	0	Disable
17	☑	□	All	9	Access	0	Disable
18	☑	□	All	10	Access	0	Disable
19	☑	□	All	3700	Access	0	Disable
20	☑	□	All	3700	Access	0	Disable
21	☑	□	All	1	Access	0	Disable
22	☑	□	All	1	Access	0	Disable
23	☑	□	All	1	Trunk	0	Disable
24	☑	□	All	1	Trunk	0	Disable

4. After finishing the above configuration, the equipment connecting to VigorSwitch Port 15, 16, 17 and 18 can get the corresponding IP address(es) of the network segment.

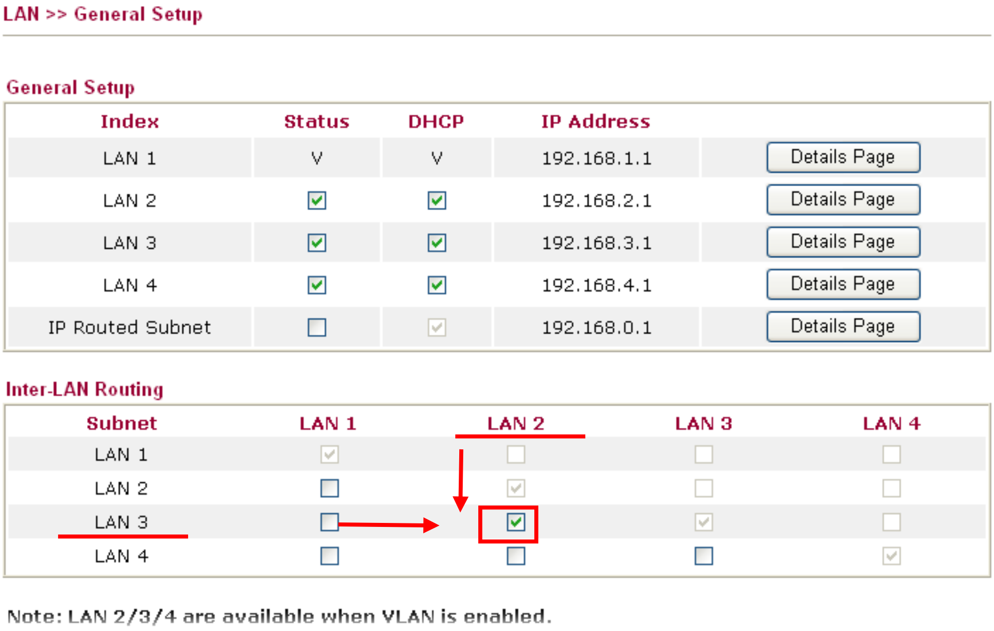
   The equipment connecting to VigorSwitch Port 15 can get the IP address of 192.168.1.0/24

   The equipment connecting to VigorSwitch Port 16 can get the IP address of 192.168.2.0/24

   The equipment connecting to VigorSwitch Port 17 can get the IP address of 192.168.3.0/24

   The equipment connecting to VigorSwitch Port 18 can get the IP address of 192.168.4.0/24

7. To make any two of VLAN groups of Tag Based VLAN linked with each other, just check the boxes of the ones in the field of **Inter-LAN Routing** in the page of **LAN** >> **General Setup**. Refer to the following figure. LAN2 and LAN3 are linked.



LAN >> General Setup

General Setup

Index	Status	DHCP	IP Address	
LAN 1	V	V	192.168.1.1	Details Page
LAN 2	☑	☑	192.168.2.1	Details Page
LAN 3	☑	☑	192.168.3.1	Details Page
LAN 4	☑	☑	192.168.4.1	Details Page
IP Routed Subnet	□	☑	192.168.0.1	Details Page

Inter-LAN Routing

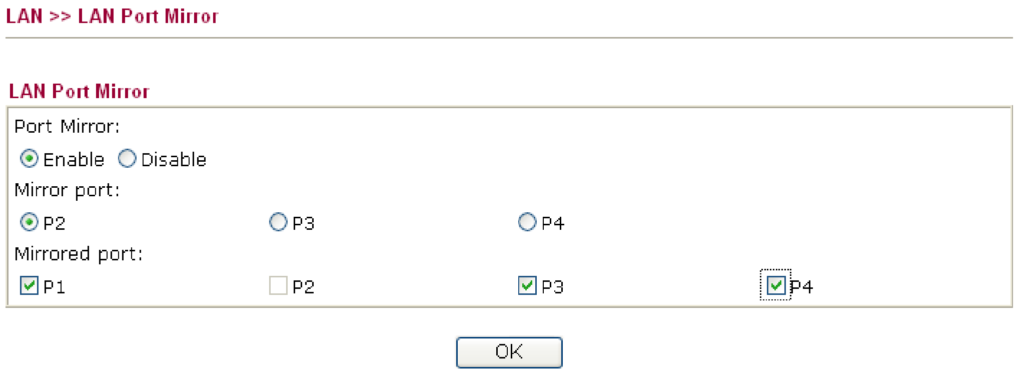
Subnet	LAN 1	LAN 2	LAN 3	LAN 4
LAN 1	☑	□	□	□
LAN 2	□	☑	□	□
LAN 3	□	☑	☑	□
LAN 4	□	□	□	☑

Note: LAN 2/3/4 are available when VLAN is enabled.

3.2 How to use SmartMonitor with Vigor2920 series

For the models that support SmartMonitor, you can connect the device installed with SmartMonitor to the monitor port of Vigor router, then all the traffic in other LAN port will forward to the monitor port. But, there is no hardware monitor port for Vigor2920 series. Therefore we need to configure mirror port setting in the web configurator of Vigor2920 for using SmartMonitor.

1. Please go to **LAN** > **LAN Port Mirror** to setup the mirror port.



LAN >> LAN Port Mirror

LAN Port Mirror

Port Mirror:

● Enable ○ Disable

Mirror port:

● P2 ○ P3 ○ P4

Mirrored port:

☑ P1 □ P2 ☑ P3 ☑ P4

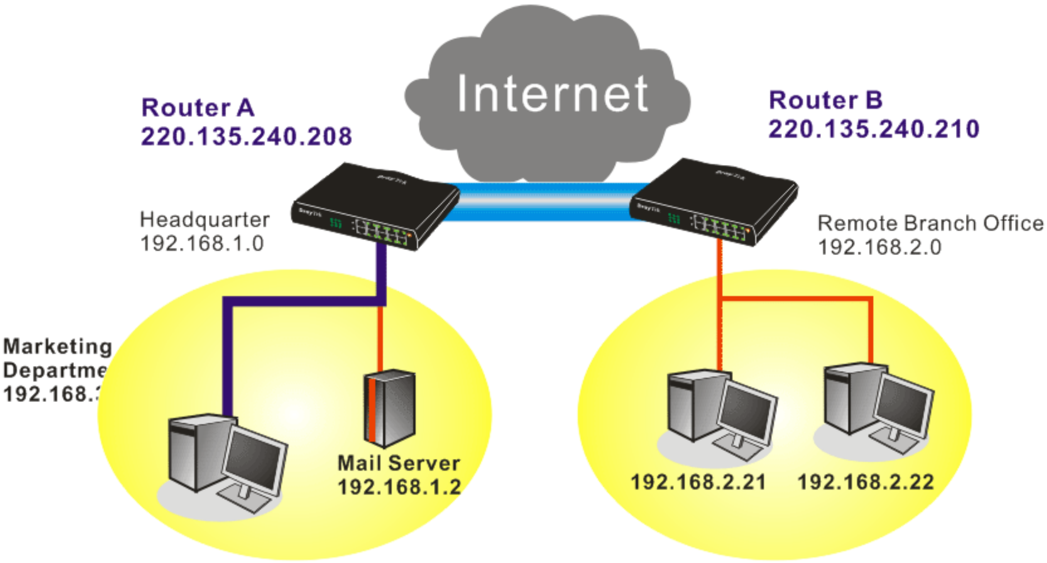
2. Please enable the Port Mirror function first.
3. Select the Mirror port and Mirrored port, the traffics of mirrored ports will be forwarded to mirror port. For example, if we select **P2** as mirror port and mirrored ports are P1, P3 and P4, then P1, P3 and P4 will forward the traffic to P2.

When the LAN Port Mirror is configured correctly, just connect the PC installed with SmartMonitor to the mirror port.

Note: Please pay attention that the mirror port will fail to get IP from Vigor2920. It means that any computer connects to mirror port can not access Vigor2920 or Internet, and only can be used as a "monitor" device.

3.3 Create a LAN-to-LAN Connection Between Remote Office and Headquarter

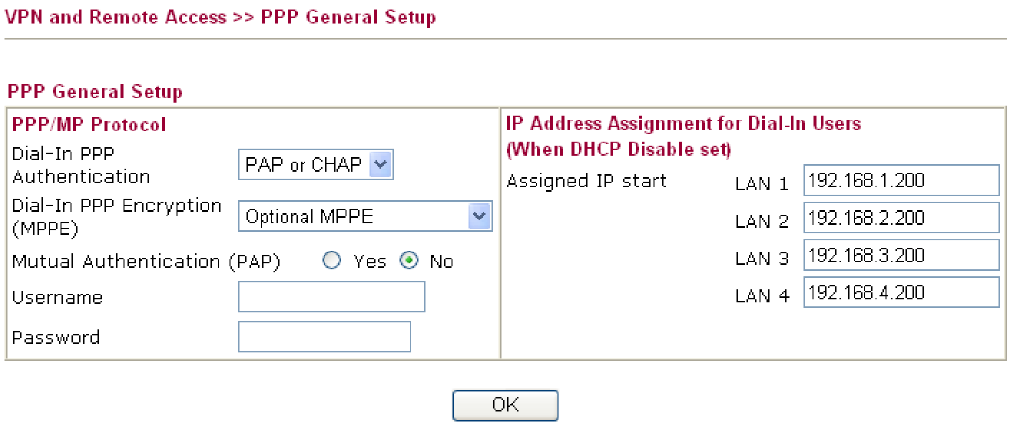
The most common case is that you may want to connect to network securely, such as the remote branch office and headquarter. According to the network structure as shown in the below illustration, you may follow the steps to create a LAN-to-LAN profile. These two networks (LANs) should NOT have the same network address.



Settings in Router A in headquarter:

1. Go to **VPN and Remote Access** and select **Remote Access Control** to enable the necessary VPN service and click **OK**.

2. Then,
   For using **PPP** based services, such as PPTP, L2TP, you have to set general settings in **PPP General Setup**.



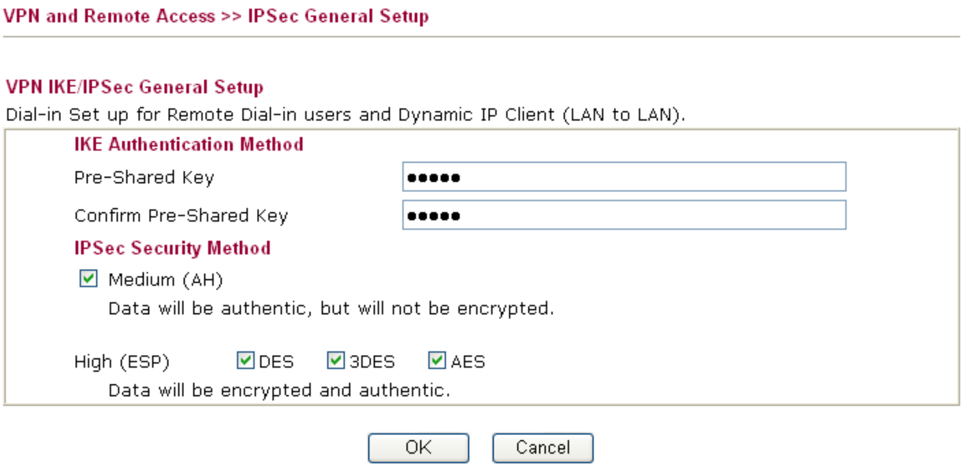
VPN and Remote Access >> PPP General Setup

PPP General Setup

PPP/MP Protocol		IP Address Assignment for Dial-In Users (When DHCP Disable set)		
Dial-In PPP Authentication	PAP or CHAP	Assigned IP start	LAN 1	192.168.1.200
Dial-In PPP Encryption (MPPE)	Optional MPPE		LAN 2	192.168.2.200
Mutual Authentication (PAP)	○ Yes ● No		LAN 3	192.168.3.200
Username			LAN 4	192.168.4.200
Password				

OK

For using **IPSec**-based service, such as IPSec or L2TP with IPSec Policy, you have to set general settings in **IPSec General Setup**, such as the pre-shared key that both parties have known.



VPN and Remote Access >> IPSec General Setup

VPN IKE/IPSec General Setup

Dial-in Set up for Remote Dial-in users and Dynamic IP Client (LAN to LAN).

IKE Authentication Method

Pre-Shared Key: ●●●●●

Confirm Pre-Shared Key: ●●●●●

IPSec Security Method

☑ Medium (AH)

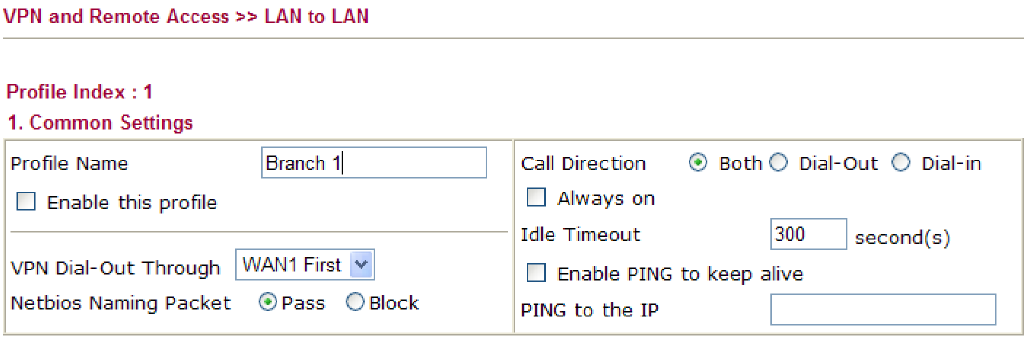
Data will be authentic, but will not be encrypted.

High (ESP) ☑ DES ☑ 3DES ☑ AES

Data will be encrypted and authentic.

3. Go to **LAN-to-LAN**. Click on one index number to edit a profile.

4. Set **Common Settings** as shown below. You should enable both of VPN connections because any one of the parties may start the VPN connection.



VPN and Remote Access >> LAN to LAN

Profile Index : 1

1. Common Settings

Profile Name: Branch 1

□ Enable this profile

VPN Dial-Out Through: WAN1 First

Netbios Naming Packet: ● Pass ○ Block

Call Direction: ● Both ○ Dial-Out ○ Dial-in

□ Always on

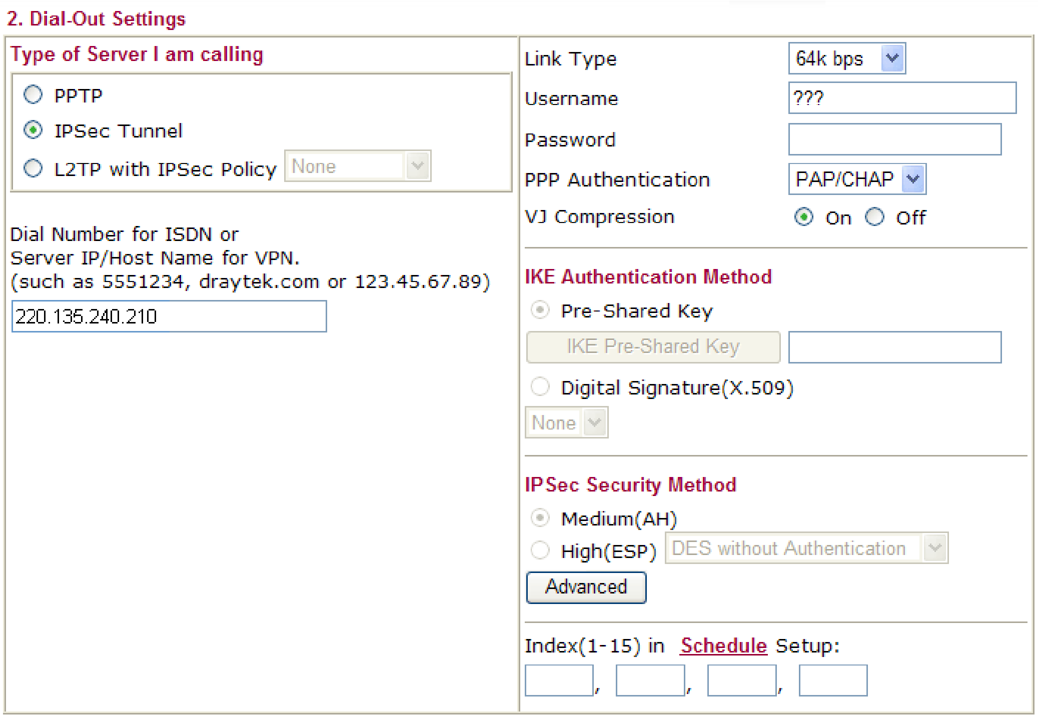
Idle Timeout: 300 second(s)

□ Enable PING to keep alive

PING to the IP:

5. Set **Dial-Out Settings** as shown below to dial to connect to Router B aggressively with the selected Dial-Out method.

If an ***IPSec-based*** service is selected, you should further specify the remote peer IP Address, IKE Authentication Method and IPSec Security Method for this Dial-Out connection.



2. Dial-Out Settings

Type of Server I am calling

○ PPTP
● IPSec Tunnel
○ L2TP with IPSec Policy [None]

Dial Number for ISDN or
Server IP/Host Name for VPN.
(such as 5551234, draytek.com or 123.45.67.89)
220.135.240.210

Link Type	64k bps
Username	???
Password	
PPP Authentication	PAP/CHAP
VJ Compression	● On ○ Off

IKE Authentication Method

● Pre-Shared Key
IKE Pre-Shared Key
○ Digital Signature(X.509)
None

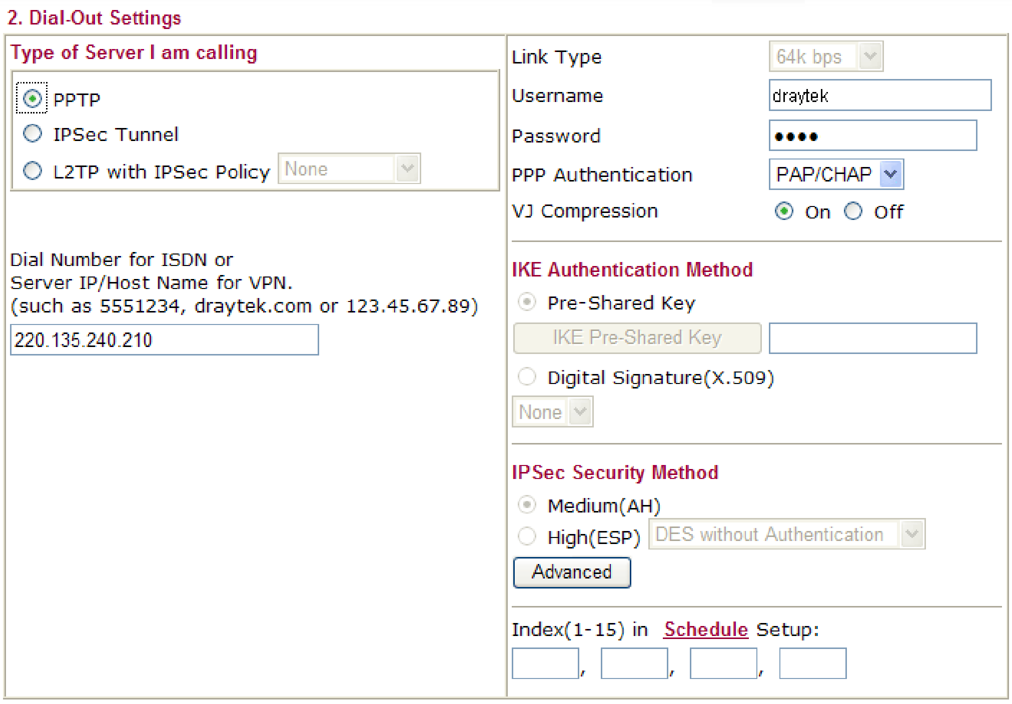
IPSec Security Method

● Medium(AH)
○ High(ESP) DES without Authentication

Advanced

Index(1-15) in Schedule Setup:
, , ,

If a ***PPP-based service*** is selected, you should further specify the remote peer IP Address, Username, Password, PPP Authentication and VJ Compression for this Dial-Out connection.



2. Dial-Out Settings

Type of Server I am calling

● PPTP
○ IPSec Tunnel
○ L2TP with IPSec Policy [None]

Dial Number for ISDN or
Server IP/Host Name for VPN.
(such as 5551234, draytek.com or 123.45.67.89)
220.135.240.210

Link Type	64k bps
Username	draytek
Password	••••
PPP Authentication	PAP/CHAP
VJ Compression	● On ○ Off

IKE Authentication Method

● Pre-Shared Key
IKE Pre-Shared Key
○ Digital Signature(X.509)
None

IPSec Security Method

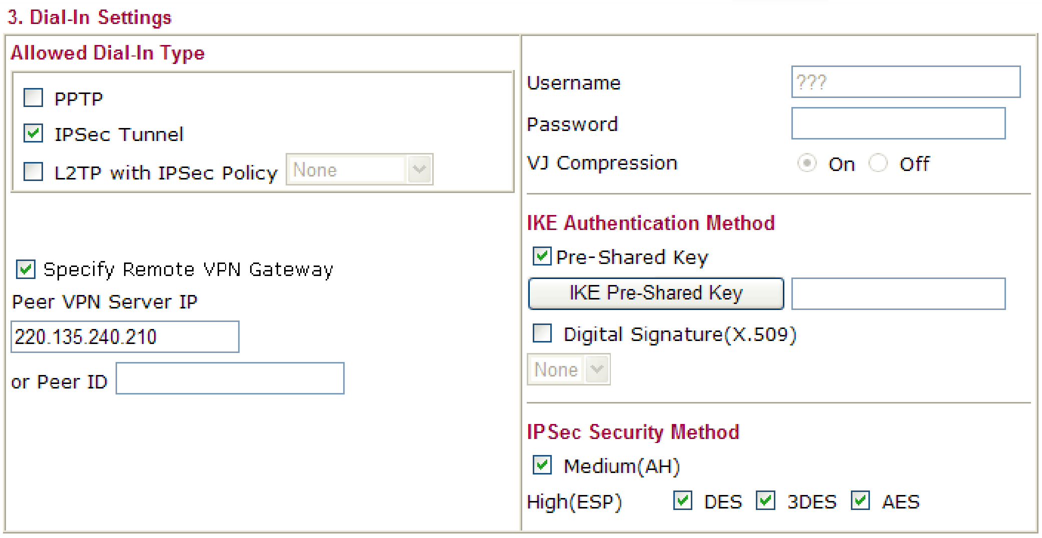
● Medium(AH)
○ High(ESP) DES without Authentication

Advanced

Index(1-15) in Schedule Setup:
, , ,

6. Set **Dial-In settings** to as shown below to allow Router B dial-in to build VPN connection.

If an ***IPSec-based*** service is selected, you may further specify the remote peer IP Address, IKE Authentication Method and IPSec Security Method for this Dial-In connection. Otherwise, it will apply the settings defined in **IPSec General Setup** above.



3. Dial-In Settings

Allowed Dial-In Type

□ PPTP

☑ IPSec Tunnel

□ L2TP with IPSec Policy None

☑ Specify Remote VPN Gateway

Peer VPN Server IP

220.135.240.210

or Peer ID

Username ???

Password

VJ Compression ● On ○ Off

IKE Authentication Method

☑ Pre-Shared Key

IKE Pre-Shared Key

□ Digital Signature(X.509)

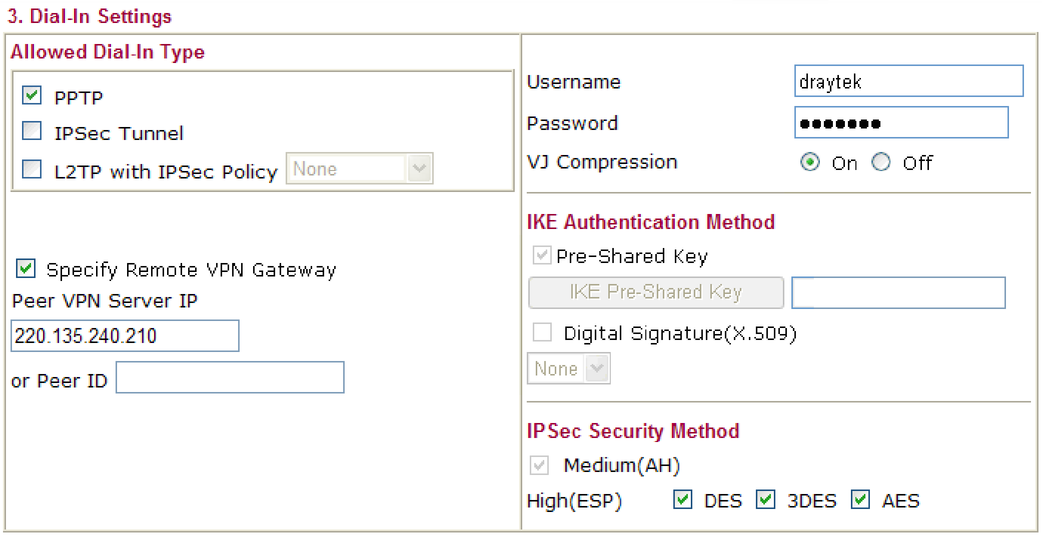
None

IPSec Security Method

☑ Medium(AH)

High(ESP) ☑ DES ☑ 3DES ☑ AES

If a ***PPP-based service*** is selected, you should further specify the remote peer IP Address, Username, Password, and VJ Compression for this Dial-In connection.



3. Dial-In Settings

Allowed Dial-In Type

☑ PPTP

□ IPSec Tunnel

□ L2TP with IPSec Policy None

☑ Specify Remote VPN Gateway

Peer VPN Server IP

220.135.240.210

or Peer ID

Username draytek

Password ●●●●●●●

VJ Compression ● On ○ Off

IKE Authentication Method

☑ Pre-Shared Key

IKE Pre-Shared Key

□ Digital Signature(X.509)

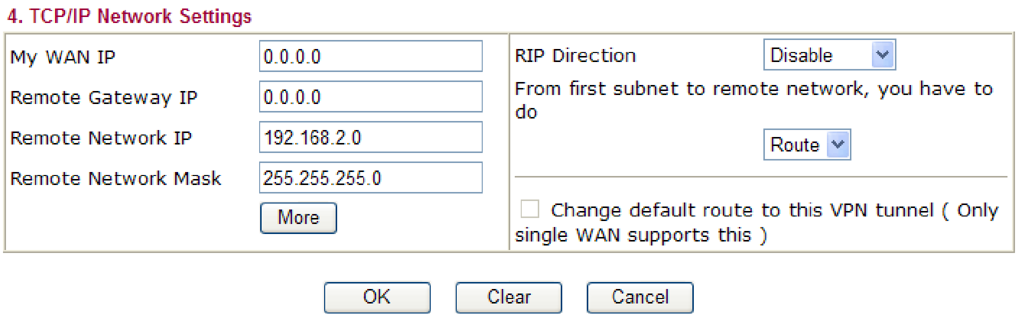
None

IPSec Security Method

☑ Medium(AH)

High(ESP) ☑ DES ☑ 3DES ☑ AES

7. At last, set the remote network IP/subnet in **TCP/IP Network Settings** so that Router A can direct the packets destined to the remote network to Router B via the VPN connection.



4. TCP/IP Network Settings

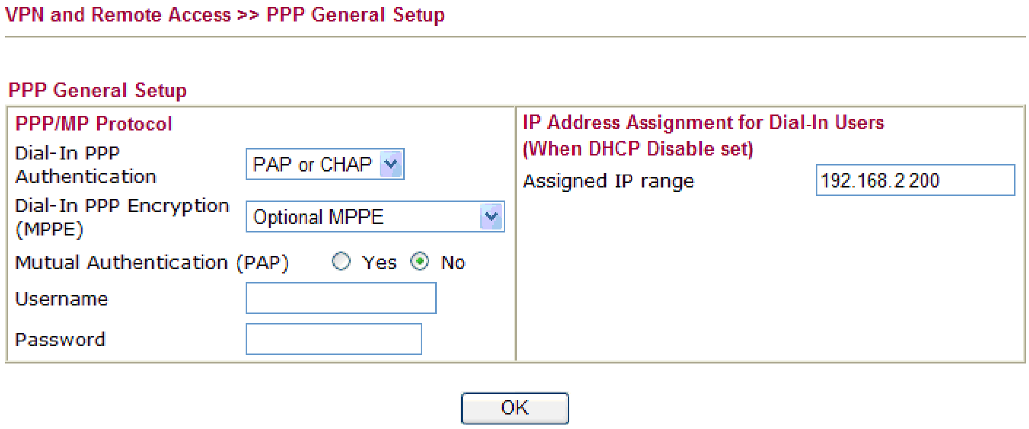
My WAN IP	0.0.0.0
Remote Gateway IP	0.0.0.0
Remote Network IP	192.168.2.0
Remote Network Mask	255.255.255.0
	More

RIP Direction	Disable
From first subnet to remote network, you have to do	Route

□ Change default route to this VPN tunnel (Only single WAN supports this)

Settings in Router B in the remote office:

1. Go to **VPN and Remote Access** and select **Remote Access Control** to enable the necessary VPN service and click **OK**.
2. Then, for using **PPP based** services, such as PPTP, L2TP, you have to set general settings in **PPP General Setup**.



VPN and Remote Access >> PPP General Setup

PPP General Setup

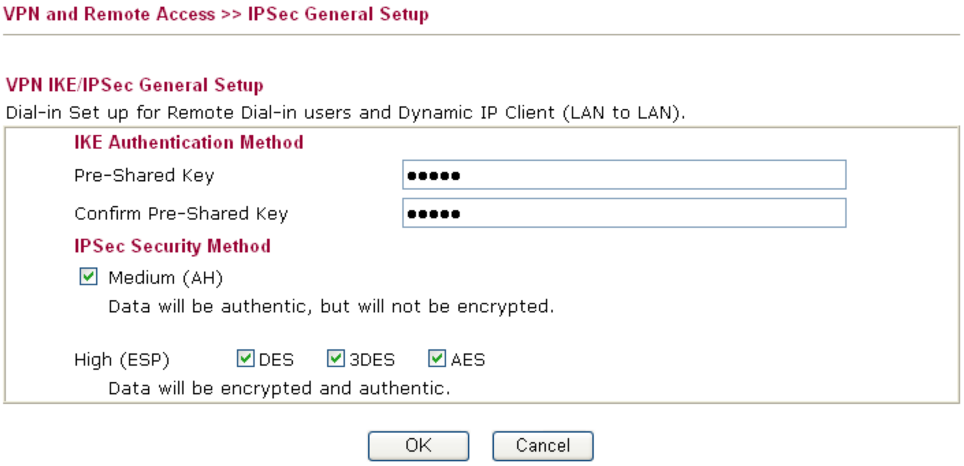
PPP/MP Protocol

Dial-In PPP Authentication	PAP or CHAP
Dial-In PPP Encryption (MPPE)	Optional MPPE
Mutual Authentication (PAP)	○ Yes ● No
Username	
Password	

IP Address Assignment for Dial-In Users (When DHCP Disable set)

Assigned IP range	192.168.2.200

For using **IPSec-based** service, such as IPSec or L2TP with IPSec Policy, you have to set general settings in **IPSec General Setup**, such as the pre-shared key that both parties have known.



VPN and Remote Access >> IPSec General Setup

VPN IKE/IPSec General Setup

Dial-in Set up for Remote Dial-in users and Dynamic IP Client (LAN to LAN).

IKE Authentication Method

Pre-Shared Key	●●●●●
Confirm Pre-Shared Key	●●●●●

IPSec Security Method

☑ Medium (AH)

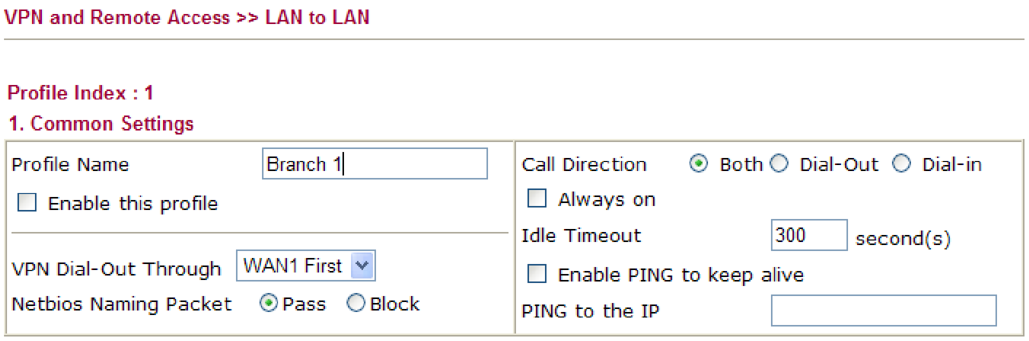
Data will be authentic, but will not be encrypted.

High (ESP) ☑ DES ☑ 3DES ☑ AES

Data will be encrypted and authentic.

3. Go to **LAN-to-LAN**. Click on one index number to edit a profile.

4. Set **Common Settings** as shown below. You should enable both of VPN connections because any one of the parties may start the VPN connection.



VPN and Remote Access >> LAN to LAN

Profile Index : 1

1. Common Settings

Profile Name: Branch 1

□ Enable this profile

VPN Dial-Out Through: WAN1 First

Netbios Naming Packet: ● Pass ○ Block

Call Direction: ● Both ○ Dial-Out ○ Dial-in

□ Always on

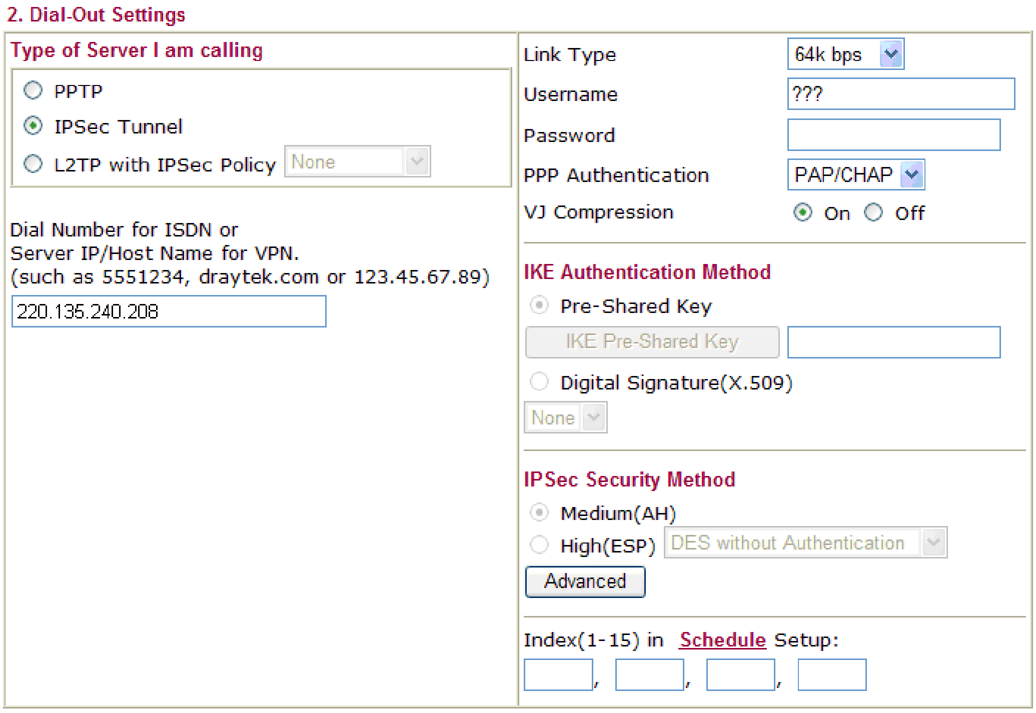
Idle Timeout: 300 second(s)

□ Enable PING to keep alive

PING to the IP:

5. Set **Dial-Out Settings** as shown below to dial to connect to Router A aggressively with the selected Dial-Out method.

If an ***IPSec-based*** service is selected, you should further specify the remote peer IP Address, IKE Authentication Method and IPSec Security Method for this Dial-Out connection.



2. Dial-Out Settings

Type of Server I am calling

○ PPTP

● IPSec Tunnel

○ L2TP with IPSec Policy: None

Dial Number for ISDN or Server IP/Host Name for VPN.
(such as 5551234, draytek.com or 123.45.67.89)

220.135.240.208

Link Type: 64k bps

Username: ???

Password:

PPP Authentication: PAP/CHAP

VJ Compression: ● On ○ Off

IKE Authentication Method

● Pre-Shared Key

IKE Pre-Shared Key:

○ Digital Signature(X.509)

None

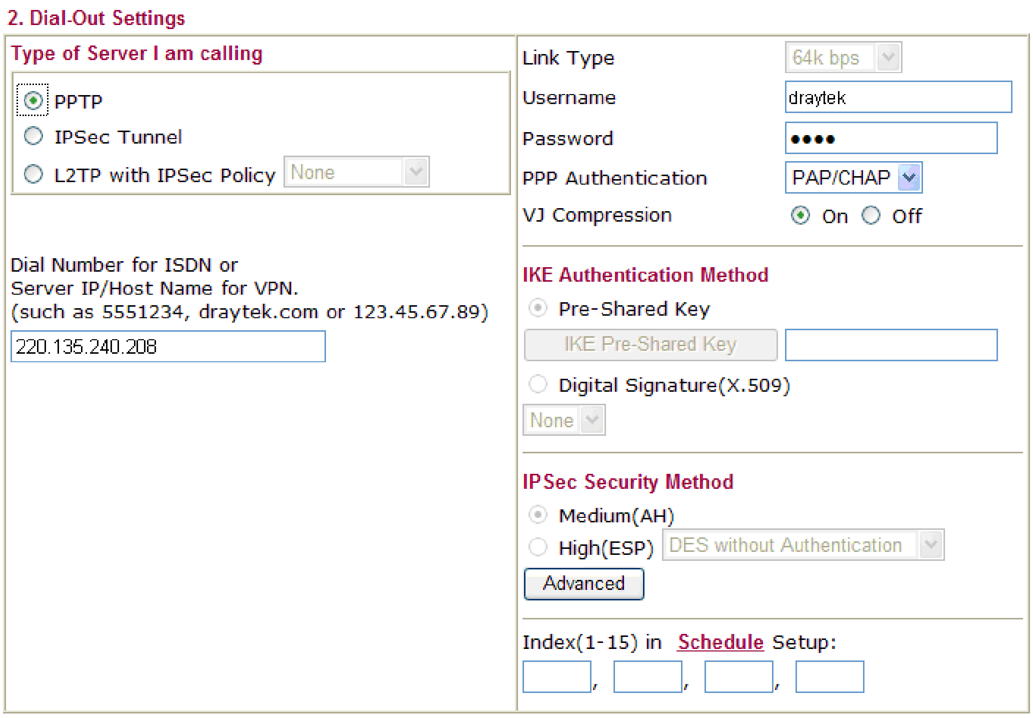
IPSec Security Method

● Medium(AH)

○ High(ESP): DES without Authentication

Index(1-15) in Schedule Setup:

If a ***PPP-based*** service is selected, you should further specify the remote peer IP Address, Username, Password, PPP Authentication and VJ Compression for this Dial-Out connection.



2. Dial-Out Settings

Type of Server I am calling

● PPTP
○ IPSec Tunnel
○ L2TP with IPSec Policy None

Dial Number for ISDN or
Server IP/Host Name for VPN.
(such as 5551234, draytek.com or 123.45.67.89)
220.135.240.208

Link Type 64k bps
Username draytek
Password ••••
PPP Authentication PAP/CHAP
VJ Compression ● On ○ Off

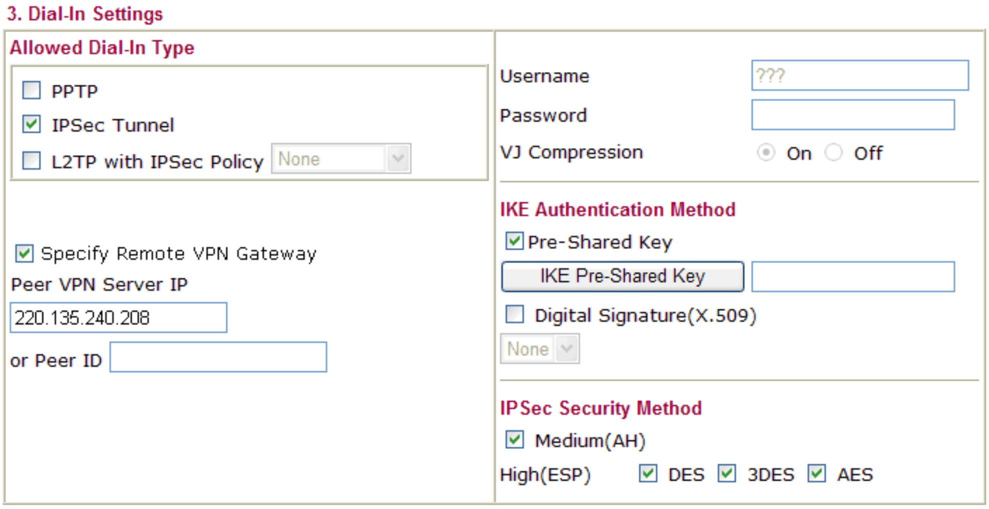
IKE Authentication Method
● Pre-Shared Key
IKE Pre-Shared Key
○ Digital Signature(X.509)
None

IPSec Security Method
● Medium(AH)
○ High(ESP) DES without Authentication
Advanced

Index(1-15) in Schedule Setup:
, , ,

6. Set **Dial-In settings** to as shown below to allow Router A dial-in to build VPN connection.

If an ***IPSec-based*** service is selected, you may further specify the remote peer IP Address, IKE Authentication Method and IPSec Security Method for this Dial-In connection. Otherwise, it will apply the settings defined in **IPSec General Setup** above.



3. Dial-In Settings

Allowed Dial-In Type

□ PPTP
☑ IPSec Tunnel
□ L2TP with IPSec Policy None

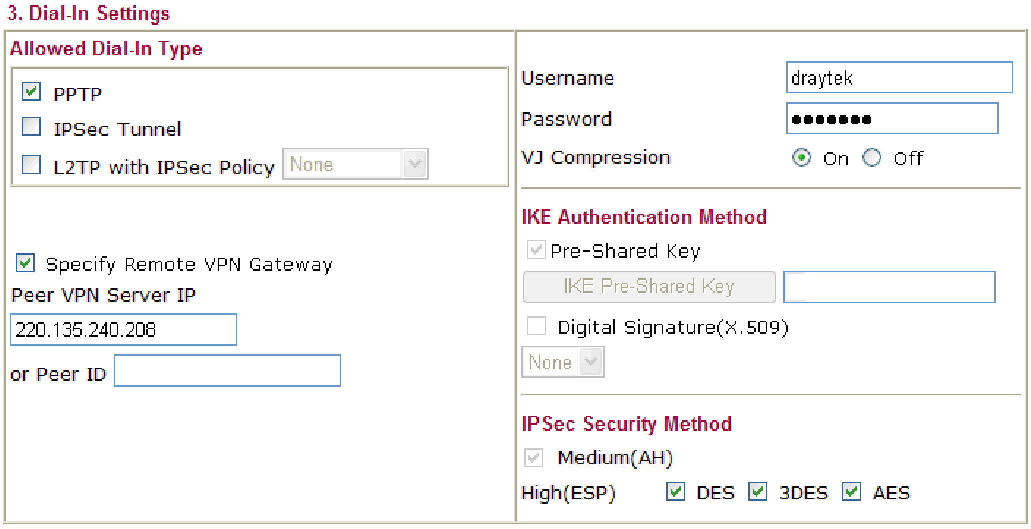
☑ Specify Remote VPN Gateway
Peer VPN Server IP
220.135.240.208
or Peer ID

Username ???
Password
VJ Compression ● On ○ Off

IKE Authentication Method
☑ Pre-Shared Key
IKE Pre-Shared Key
□ Digital Signature(X.509)
None

IPSec Security Method
☑ Medium(AH)
High(ESP) ☑ DES ☑ 3DES ☑ AES

If a ***PPP-based*** service is selected, you should further specify the remote peer IP Address, Username, Password, and VJ Compression for this Dial-In connection.



3. Dial-In Settings

Allowed Dial-In Type

☑ PPTP
☐ IPSec Tunnel
☐ L2TP with IPSec Policy None

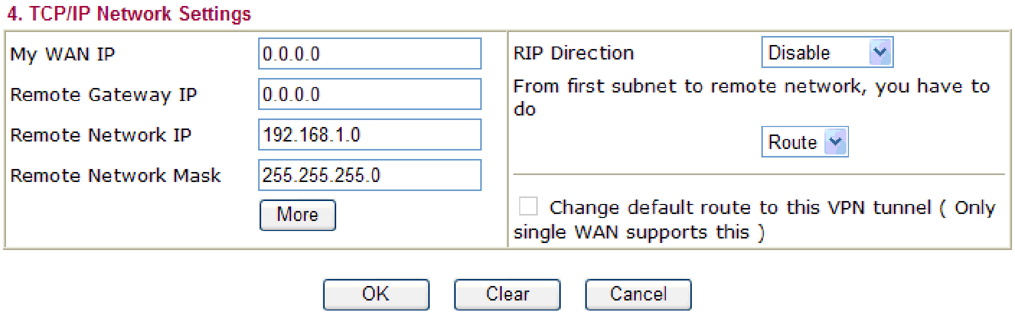
☑ Specify Remote VPN Gateway
Peer VPN Server IP
220.135.240.208
or Peer ID

Username: draytek
Password: ●●●●●●●
VJ Compression: ● On ○ Off

IKE Authentication Method
☑ Pre-Shared Key
IKE Pre-Shared Key
☐ Digital Signature(X.509)
None

IPSec Security Method
☑ Medium(AH)
High(ESP) ☑ DES ☑ 3DES ☑ AES

7. At last, set the remote network IP/subnet in **TCP/IP Network Settings** so that Router B can direct the packets destined to the remote network to Router A via the VPN connection.



4. TCP/IP Network Settings

My WAN IP: 0.0.0.0
Remote Gateway IP: 0.0.0.0
Remote Network IP: 192.168.1.0
Remote Network Mask: 255.255.255.0
More

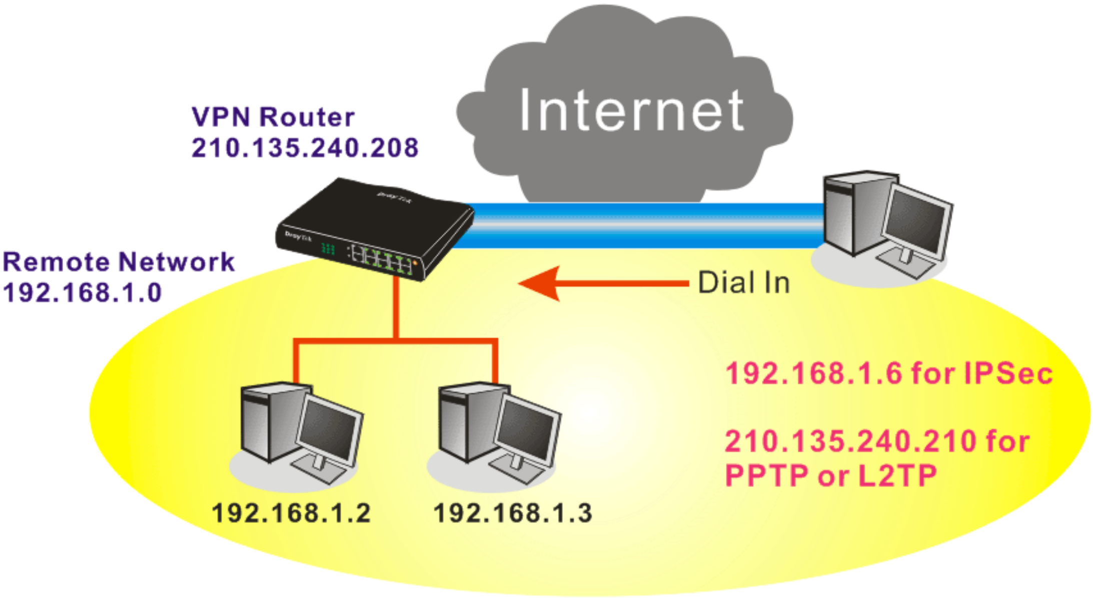
RIP Direction: Disable
From first subnet to remote network, you have to do
Route

☐ Change default route to this VPN tunnel (Only single WAN supports this)

OK Clear Cancel

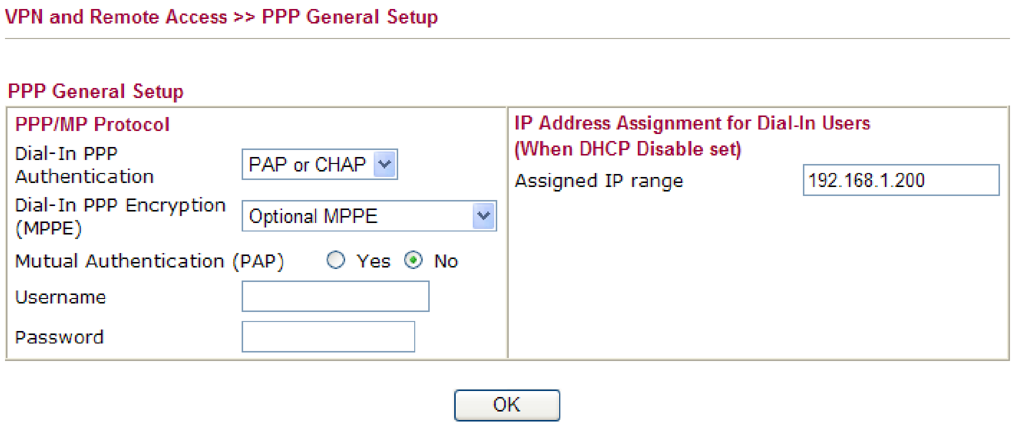
3.4 Create a Remote Dial-in User Connection Between the Teleworker and Headquarter

The other common case is that you, as a teleworker, may want to connect to the enterprise network securely. According to the network structure as shown in the below illustration, you may follow the steps to create a Remote User Profile and install Smart VPN Client on the remote host.



Settings in VPN Router in the enterprise office:

1. Go to **VPN and Remote Access** and select **Remote Access Control** to enable the necessary VPN service and click **OK**.
2. Then, for using PPP based services, such as PPTP, L2TP, you have to set general settings in **PPP General Setup**.



VPN and Remote Access >> PPP General Setup

PPP General Setup

PPP/MP Protocol

Dial-In PPP Authentication: PAP or CHAP

Dial-In PPP Encryption (MPPE): Optional MPPE

Mutual Authentication (PAP): ○ Yes ● No

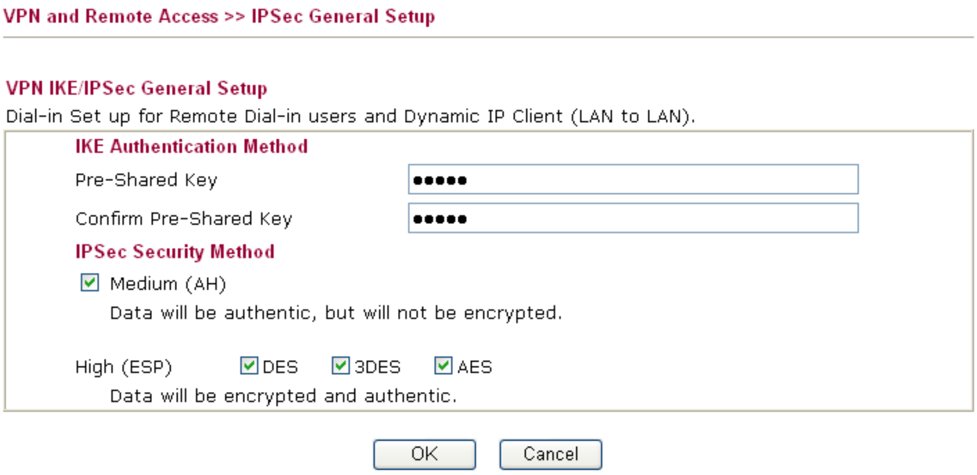
Username:

Password:

IP Address Assignment for Dial-In Users (When DHCP Disable set)

Assigned IP range: 192.168.1.200

For using IPSec-based service, such as IPSec or L2TP with IPSec Policy, you have to set general settings in **IKE/IPSec General Setup**, such as the pre-shared key that both parties have known.



VPN and Remote Access >> IPSec General Setup

VPN IKE/IPSec General Setup

Dial-in Set up for Remote Dial-in users and Dynamic IP Client (LAN to LAN).

IKE Authentication Method

Pre-Shared Key: ●●●●●

Confirm Pre-Shared Key: ●●●●●

IPSec Security Method

☑ Medium (AH)

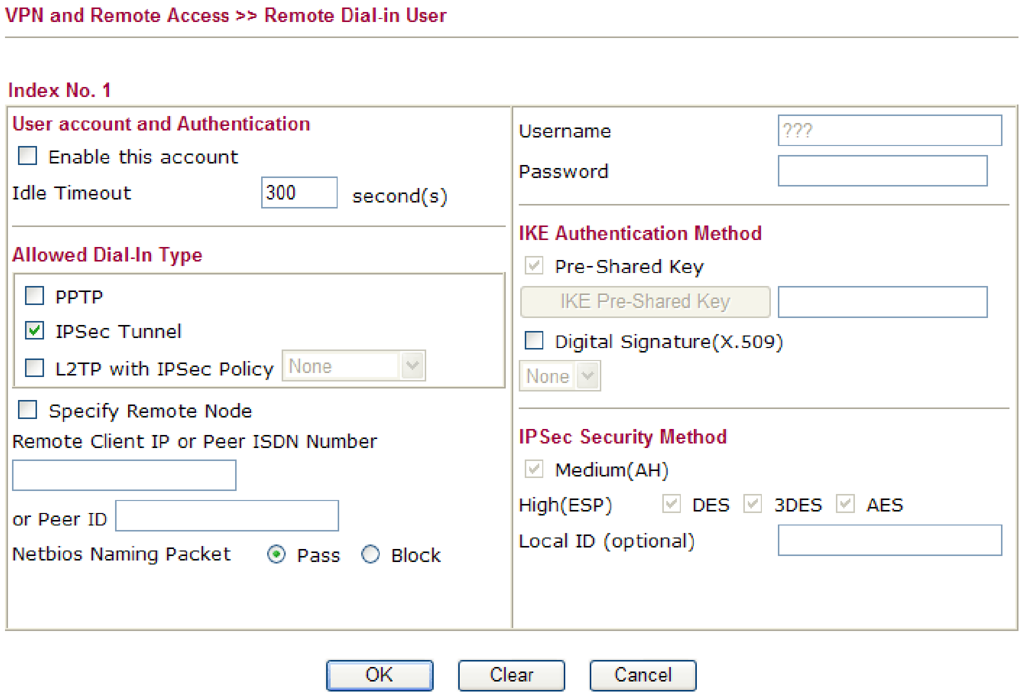
Data will be authentic, but will not be encrypted.

High (ESP) ☑ DES ☑ 3DES ☑ AES

Data will be encrypted and authentic.

3. Go to **Remote Dial-In User**. Click on one index number to edit a profile.
4. Set **Dial-In** settings to as shown below to allow the remote user dial-in to build VPN connection.

   If an ***IPSec-based*** service is selected, you may further specify the remote peer IP Address, IKE Authentication Method and IPSec Security Method for this Dial-In connection. Otherwise, it will apply the settings defined in **IPSec General Setup** above.



VPN and Remote Access >> Remote Dial-in User

Index No. 1

User account and Authentication

☐ Enable this account

Idle Timeout: 300 second(s)

Allowed Dial-In Type

☐ PPTP

☑ IPSec Tunnel

☐ L2TP with IPSec Policy: None

☐ Specify Remote Node

Remote Client IP or Peer ISDN Number:

or Peer ID:

Netbios Naming Packet: ● Pass ○ Block

Username: ???

Password:

IKE Authentication Method

☑ Pre-Shared Key

IKE Pre-Shared Key

☐ Digital Signature(X.509)

None

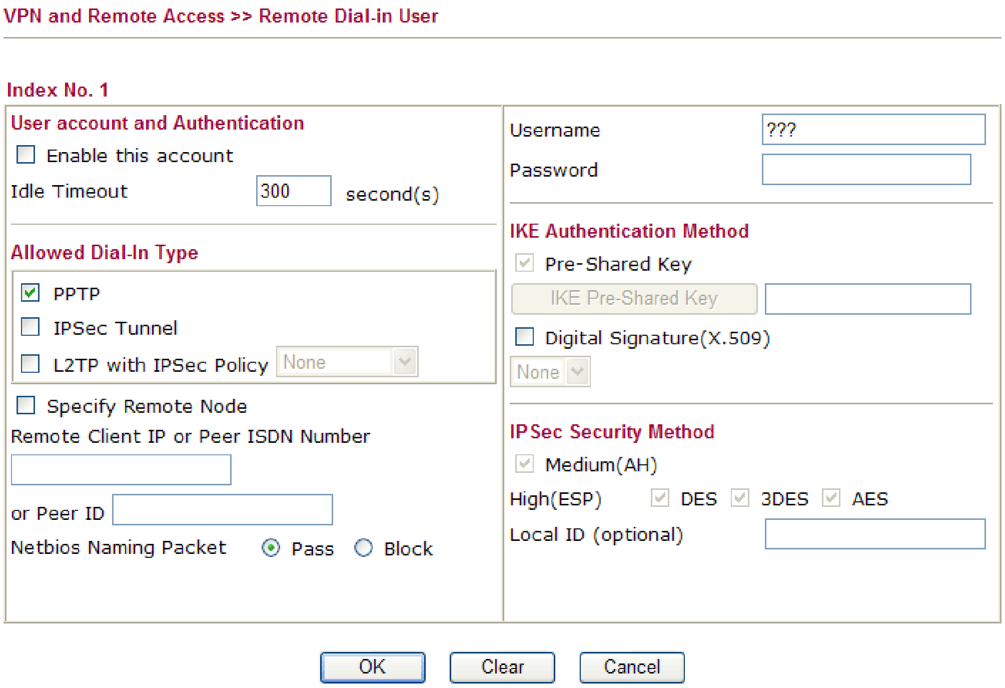
IPSec Security Method

☑ Medium(AH)

High(ESP) ☑ DES ☑ 3DES ☑ AES

Local ID (optional):

If a ***PPP-based*** service is selected, you should further specify the remote peer IP Address, Username, Password, and VJ Compression for this Dial-In connection.



VPN and Remote Access >> Remote Dial-in User

Index No. 1

User account and Authentication

□ Enable this account

Idle Timeout 300 second(s)

Allowed Dial-In Type

☑ PPTP

□ IPSec Tunnel

□ L2TP with IPSec Policy None

□ Specify Remote Node

Remote Client IP or Peer ISDN Number

or Peer ID

Netbios Naming Packet ● Pass ○ Block

Username ???

Password

IKE Authentication Method

☑ Pre-Shared Key

IKE Pre-Shared Key

□ Digital Signature(X.509)

None

IPSec Security Method

☑ Medium(AH)

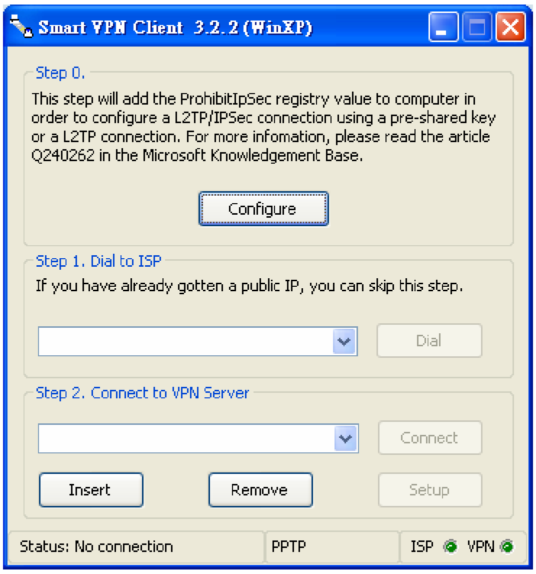
High(ESP) ☑ DES ☑ 3DES ☑ AES

Local ID (optional)

Settings in the remote host:

1. For Win98/ME, you may use "Dial-up Networking" to create the PPTP tunnel to Vigor router. For Win2000/XP, please use "Network and Dial-up connections" or “Smart VPN Client”, complimentary software to help you create PPTP, L2TP, and L2TP over IPSec tunnel. You can find it in CD-ROM in the package or go to www.DrayTek.com download center. Install as instructed.

2. After successful installation, for the first time user, you should click on the **Step 0. Configure** button. Reboot the host.



Smart VPN Client 3.2.2 (WinXP)

Step 0.

This step will add the ProhibitIpSec registry value to computer in order to configure a L2TP/IPSec connection using a pre-shared key or a L2TP connection. For more infomation, please read the article Q240262 in the Microsoft Knowledgement Base.

Step 1. Dial to ISP

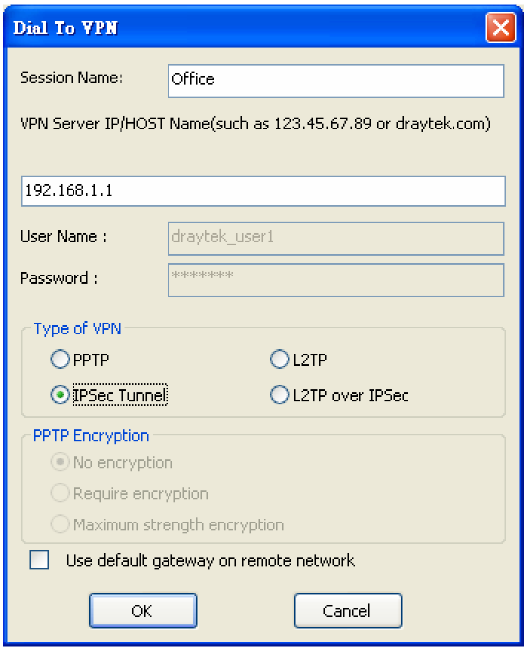
If you have already gotten a public IP, you can skip this step.

Step 2. Connect to VPN Server

Status: No connection PPTP ISP VPN

3. In **Step 2. Connect to VPN Server**, click **Insert** button to add a new entry.

If an IPSec-based service is selected as shown below,



Dial To VPN

Session Name: Office

VPN Server IP/HOST Name(such as 123.45.67.89 or draytek.com)

192.168.1.1

User Name : draytek_user1

Password : ********

Type of VPN

○ PPTP ○ L2TP

● IPSec Tunnel ○ L2TP over IPSec

PPTP Encryption

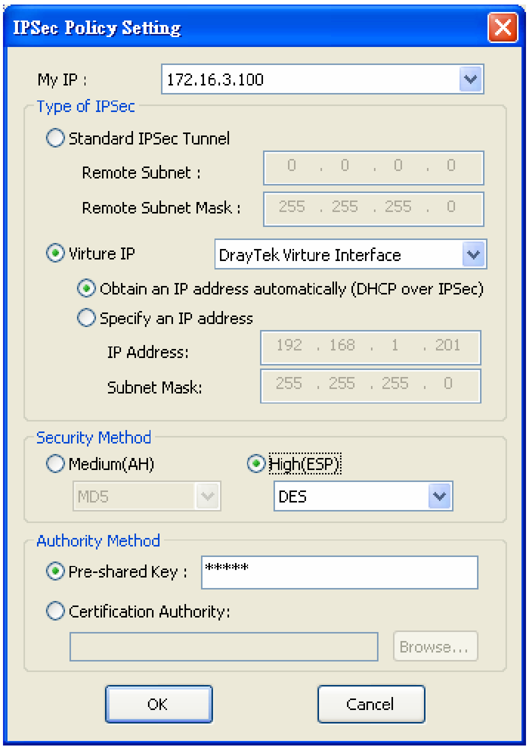
● No encryption

○ Require encryption

○ Maximum strength encryption

□ Use default gateway on remote network

You may further specify the method you use to get IP, the security method, and authentication method. If the Pre-Shared Key is selected, it should be consistent with the one set in VPN router.



IPSec Policy Setting

My IP : 172.16.3.100

Type of IPSec

○ Standard IPSec Tunnel

Remote Subnet : 0 . 0 . 0 . 0

Remote Subnet Mask : 255 . 255 . 255 . 0

● Virture IP DrayTek Virture Interface

● Obtain an IP address automatically (DHCP over IPSec)

○ Specify an IP address

IP Address: 192 . 168 . 1 . 201

Subnet Mask: 255 . 255 . 255 . 0

Security Method

○ Medium(AH) MD5

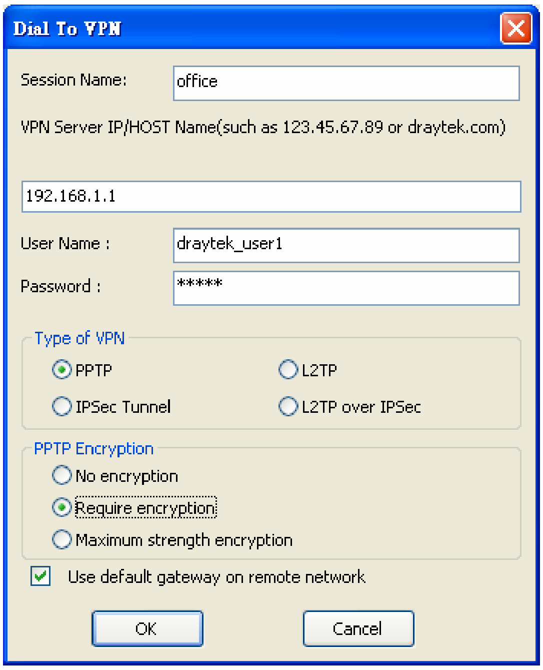
● High(ESP) DES

Authority Method

● Pre-shared Key : ******

○ Certification Authority:

If a PPP-based service is selected, you should further specify the remote VPN server IP address, Username, Password, and encryption method. The User Name and Password should be consistent with the one set up in the VPN router. To use default gateway on remote network means that all the packets of remote host will be directed to VPN server then forwarded to Internet. This will make the remote host seem to be working in the enterprise network.



Dial To VPN

Session Name: office

VPN Server IP/HOST Name(such as 123.45.67.89 or draytek.com)

192.168.1.1

User Name : draytek_user1

Password : *****

Type of VPN

● PPTP ○ L2TP

○ IPSec Tunnel ○ L2TP over IPSec

PPTP Encryption

○ No encryption

● Require encryption

○ Maximum strength encryption

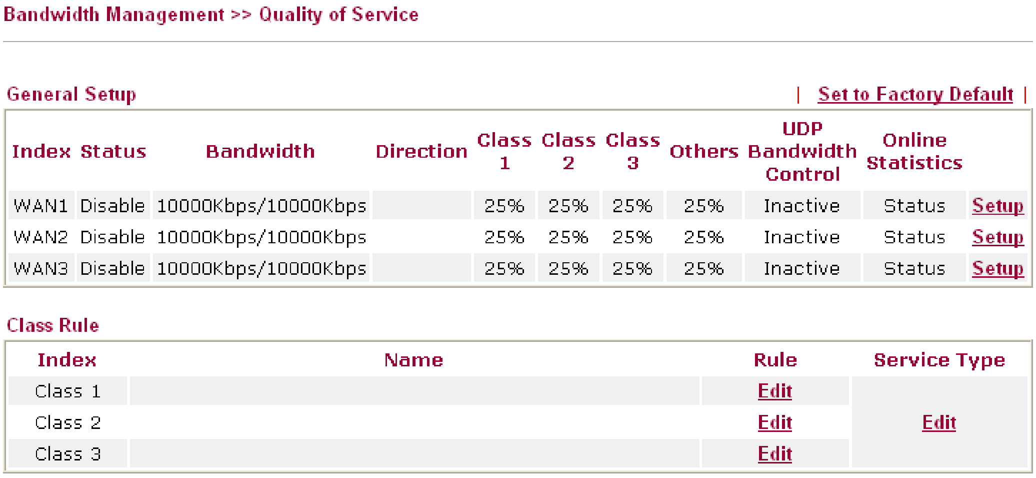
☑ Use default gateway on remote network

4. Click **Connect** button to build connection. When the connection is successful, you will find a green light on the right down corner.

3.5 QoS Setting Example

Assume a teleworker sometimes works at home and takes care of children. When working time, he would use Vigor router at home to connect to the server in the headquarter office downtown via either HTTPS or VPN to check email and access internal database. Meanwhile, children may chat on Skype in the restroom.

1. Go to **Bandwidth Management>>Quality of Service.**



Bandwidth Management >> Quality of Service

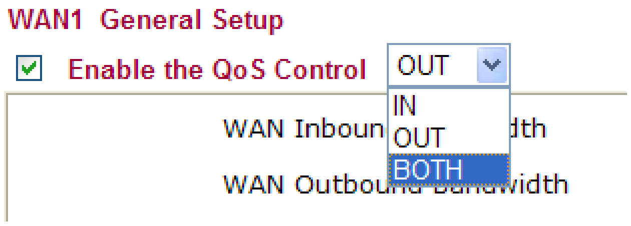
General Setup | Set to Factory Default |

Index	Status	Bandwidth	Direction	Class 1	Class 2	Class 3	Others	UDP Bandwidth Control	Online Statistics	
WAN1	Disable	10000Kbps/10000Kbps		25%	25%	25%	25%	Inactive	Status	Setup
WAN2	Disable	10000Kbps/10000Kbps		25%	25%	25%	25%	Inactive	Status	Setup
WAN3	Disable	10000Kbps/10000Kbps		25%	25%	25%	25%	Inactive	Status	Setup

Class Rule

Index	Name	Rule	Service Type
Class 1		Edit	Edit
Class 2		Edit	
Class 3		Edit	

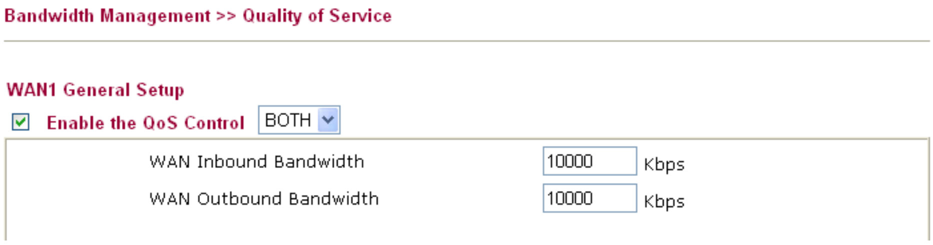
2. Click **Setup** link of WAN. Make sure the QoS Control on the left corner is checked. And select **BOTH** in **Direction**.



WAN1 General Setup

☑ Enable the QoS Control OUT

3. Set Inbound/Outbound bandwidth.



Bandwidth Management >> Quality of Service

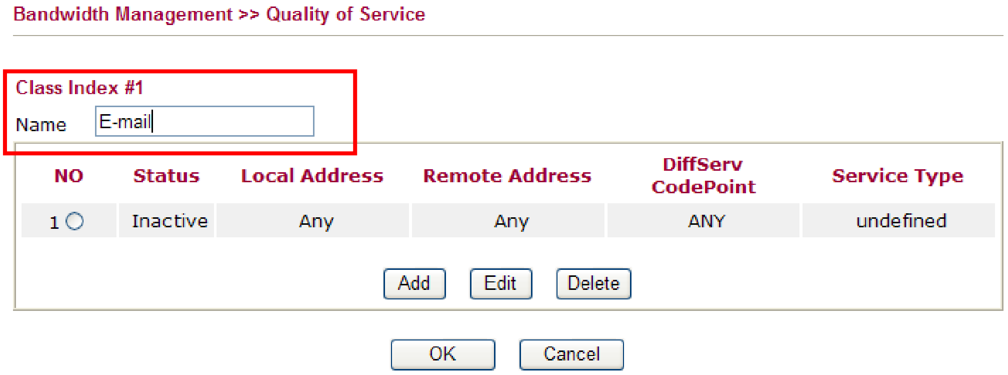
WAN1 General Setup

☑ Enable the QoS Control BOTH

WAN Inbound Bandwidth	10000	Kbps
WAN Outbound Bandwidth	10000	Kbps

Note: The rate of outbound/inbound must be smaller than the real bandwidth to ensure correct calculation of QoS. It is suggested to set the bandwidth value for inbound/outbound as 80% - 85% of physical network speed provided by ISP to maximize the QoS performance.

4. Return to previous page. Enter the Name of Index Class 1 by clicking **Edit** link. Type the name "**E-mail**" for Class 1.



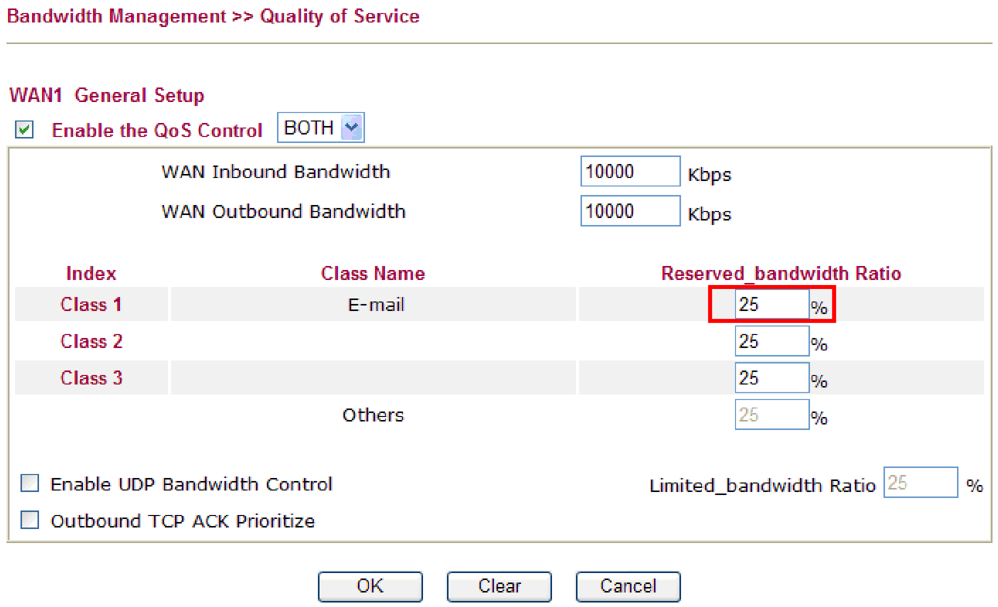
Bandwidth Management >> Quality of Service

Class Index #1

Name E-mail

NO	Status	Local Address	Remote Address	DiffServ CodePoint	Service Type
1 ○	Inactive	Any	Any	ANY	undefined

5. For this index, the user will set reserved bandwidth (e.g., 25%) for **E-mail** using protocol POP3 and SMTP.



Bandwidth Management >> Quality of Service

WAN1 General Setup

☑ Enable the QoS Control BOTH

WAN Inbound Bandwidth 10000 Kbps

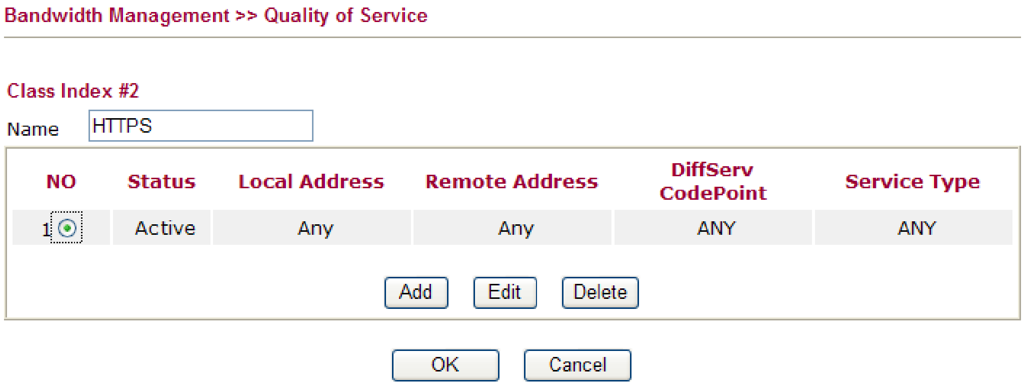
WAN Outbound Bandwidth 10000 Kbps

Index	Class Name	Reserved_bandwidth Ratio
Class 1	E-mail	25 %
Class 2		25 %
Class 3		25 %
	Others	25 %

□ Enable UDP Bandwidth Control Limited_bandwidth Ratio 25 %

□ Outbound TCP ACK Prioritize

6. Return to previous page. Enter the Name of Index Class 2 by clicking **Edit** link. In this index, the user will set reserved bandwidth for **HTTPS**. And click **OK**.



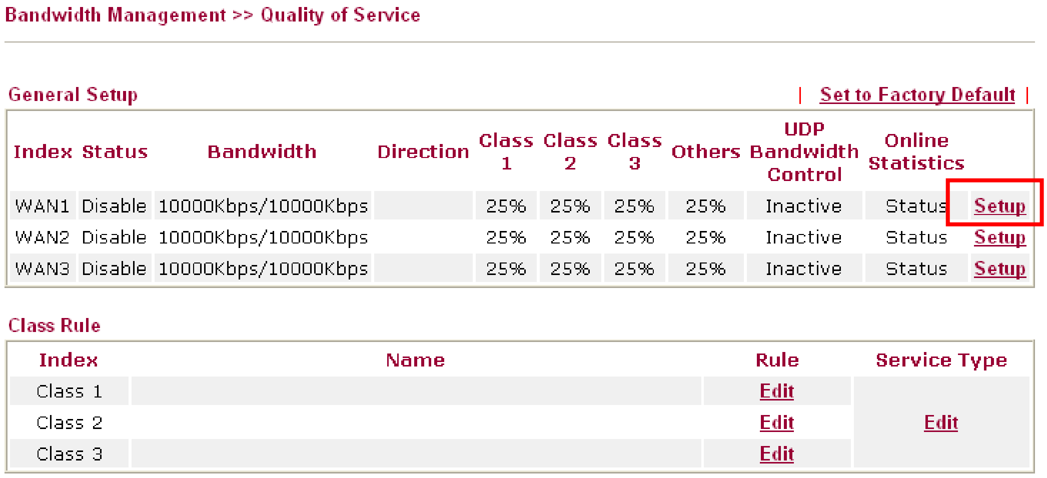
Bandwidth Management >> Quality of Service

Class Index #2

Name HTTPS

NO	Status	Local Address	Remote Address	DiffServ CodePoint	Service Type
1 ●	Active	Any	Any	ANY	ANY

7. Click **Setup** link for WAN.



Bandwidth Management >> Quality of Service

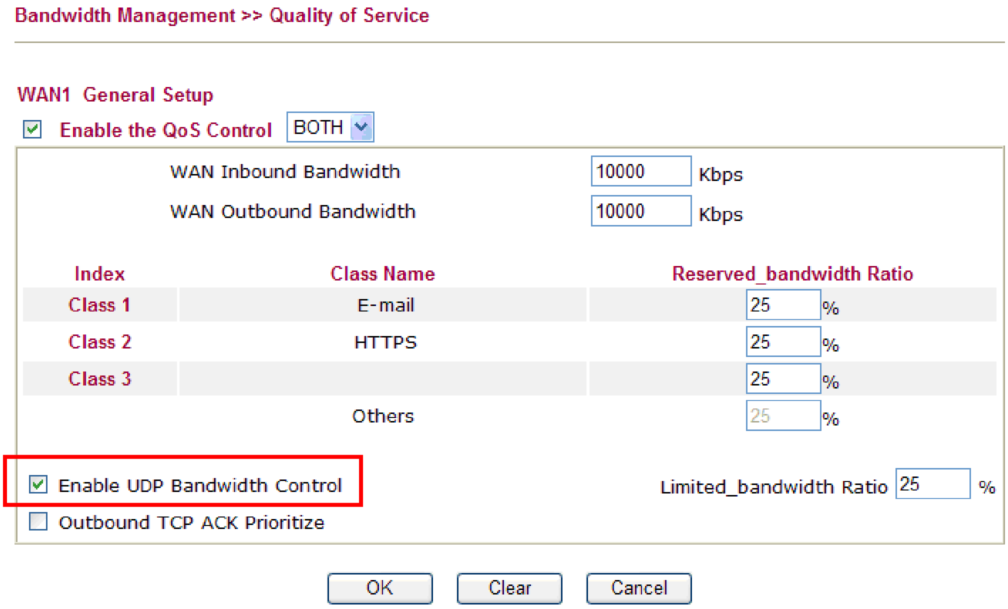
General Setup | Set to Factory Default |

Index	Status	Bandwidth	Direction	Class 1	Class 2	Class 3	Others	UDP Bandwidth Control	Online Statistics	
WAN1	Disable	10000Kbps/10000Kbps		25%	25%	25%	25%	Inactive	Status	Setup
WAN2	Disable	10000Kbps/10000Kbps		25%	25%	25%	25%	Inactive	Status	Setup
WAN3	Disable	10000Kbps/10000Kbps		25%	25%	25%	25%	Inactive	Status	Setup

Class Rule

Index	Name	Rule	Service Type
Class 1		Edit	Edit
Class 2		Edit	
Class 3		Edit	

8. Check **Enable UDP Bandwidth Control** on the bottom to prevent enormous UDP traffic of influent other application. Click **OK**.



Bandwidth Management >> Quality of Service

WAN1 General Setup

☑ Enable the QoS Control BOTH

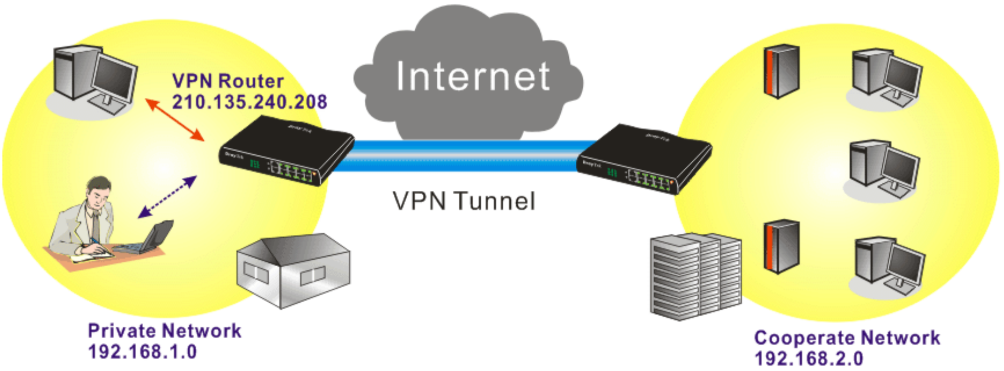
WAN Inbound Bandwidth	10000	Kbps
WAN Outbound Bandwidth	10000	Kbps

Index	Class Name	Reserved_bandwidth Ratio
Class 1	E-mail	25 %
Class 2	HTTPS	25 %
Class 3		25 %
	Others	25 %

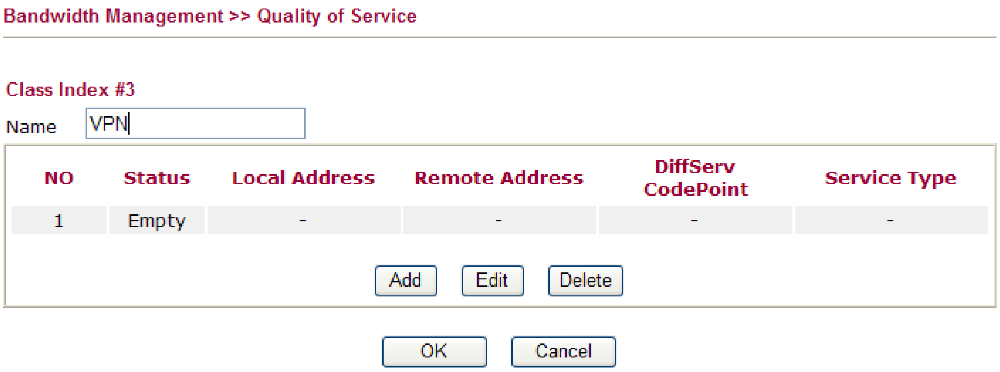
☑ Enable UDP Bandwidth Control Limited_bandwidth Ratio 25 %

☐ Outbound TCP ACK Prioritize

9. If the worker has connected to the headquarter using host to host VPN tunnel. (Please refer to Chapter 3 VPN for detail instruction), he may set up an index for it. Enter the Class Name of Index 3. In this index, he will set reserved bandwidth for 1 VPN tunnel.



10. Click **Edit** to open a new window.



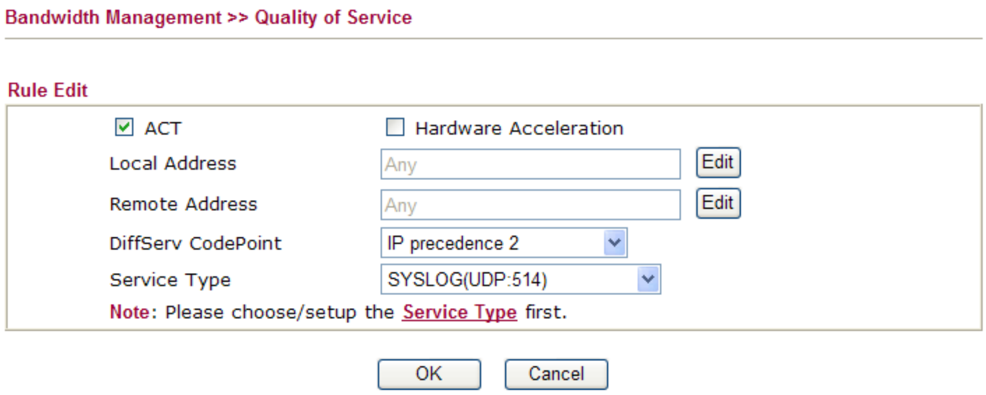
Bandwidth Management >> Quality of Service

Class Index #3

Name VPN

NO	Status	Local Address	Remote Address	DiffServ CodePoint	Service Type
1	Empty	-	-	-	-

11. Click **Edit** to open the following window. Check the **ACT** box, first.



Bandwidth Management >> Quality of Service

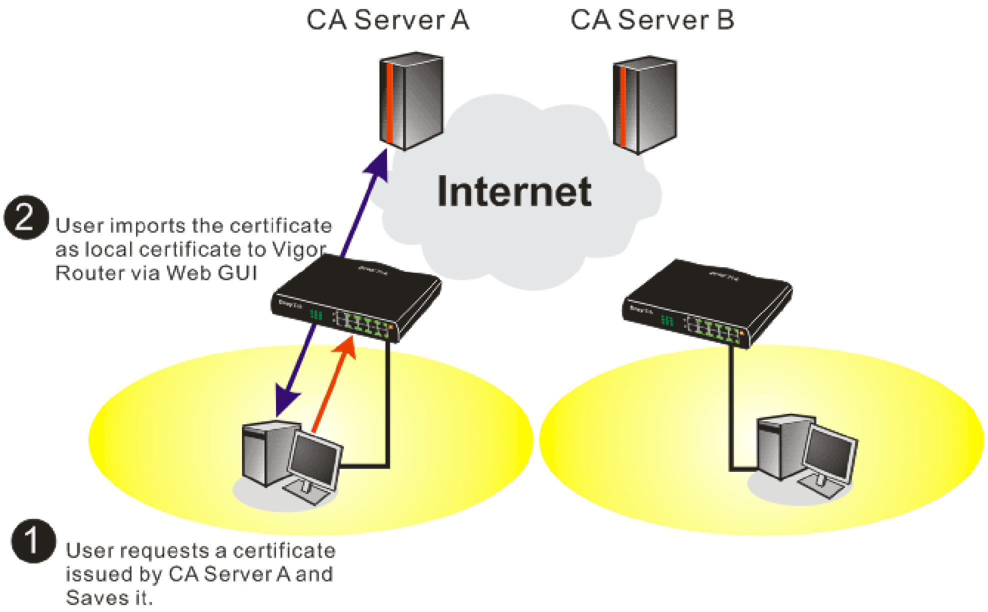
Rule Edit

☑ ACT	□ Hardware Acceleration
Local Address	Any [Edit]
Remote Address	Any [Edit]
DiffServ CodePoint	IP precedence 2
Service Type	SYSLOG(UDP:514)

Note: Please choose/setup the Service Type first.

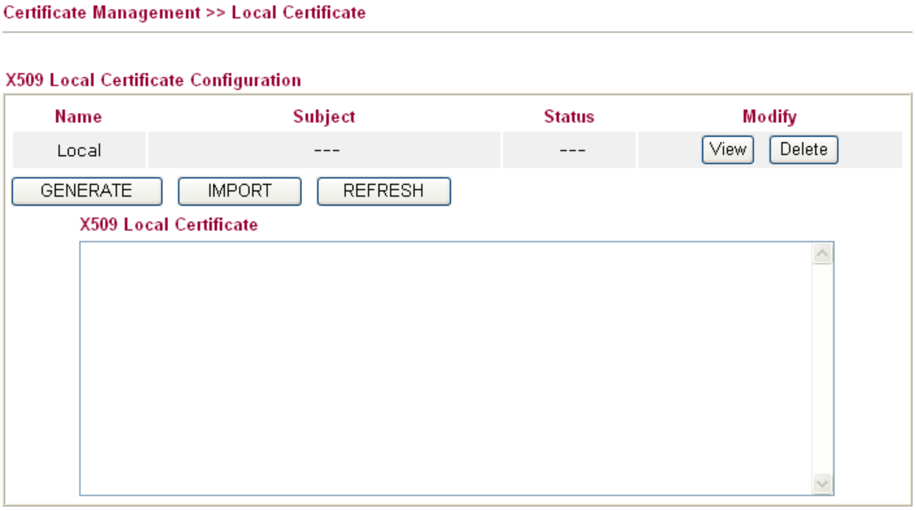
12. Then click **Edit** of **Local Address** to set a worker’s subnet address. Click **Edit** of **Remote Address** to set headquarter’s IP address. Leave other fields and click **OK**.

3.6 Request a certificate from a CA server on Windows CA Server



CA Server A
CA Server B
Internet
2
User imports the certificate as local certificate to Vigor Router via Web GUI
1
User requests a certificate issued by CA Server A and Saves it.

1. Go to **Certificate Management** and choose **Local Certificate**.



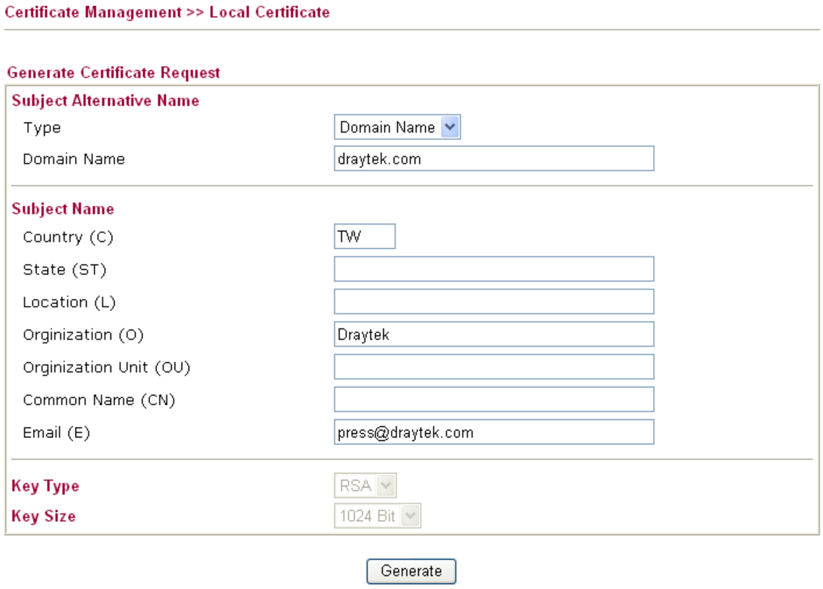
Certificate Management >> Local Certificate

X509 Local Certificate Configuration

Name	Subject	Status	Modify
Local	---	---	View Delete

X509 Local Certificate

2. You can click **GENERATE** button to start to edit a certificate request. Enter the information in the certificate request.

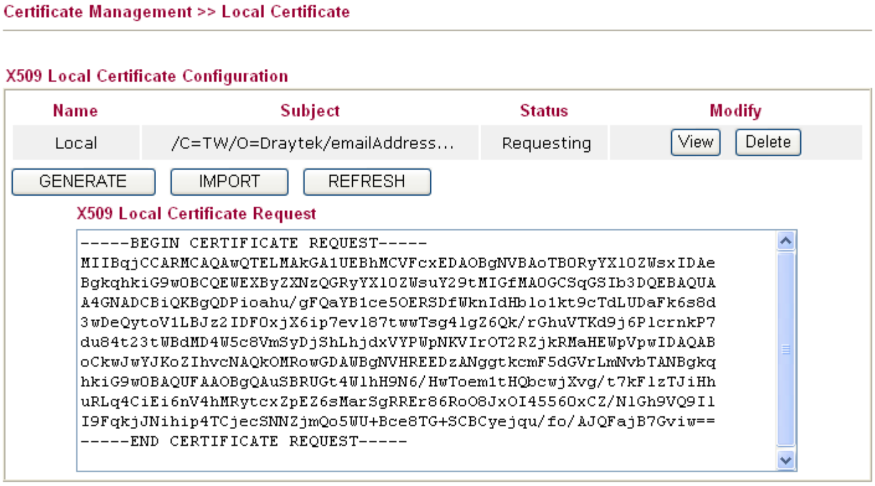


Certificate Management >> Local Certificate

Generate Certificate Request

Subject Alternative Name	
Type	Domain Name
Domain Name	draytek.com
Subject Name	
Country (C)	TW
State (ST)	
Location (L)	
Orginization (O)	Draytek
Orginization Unit (OU)	
Common Name (CN)	
Email (E)	press@draytek.com
Key Type	RSA
Key Size	1024 Bit

3. Copy and save the X509 Local Certificate Requet as a text file and save it for later use.



Certificate Management >> Local Certificate

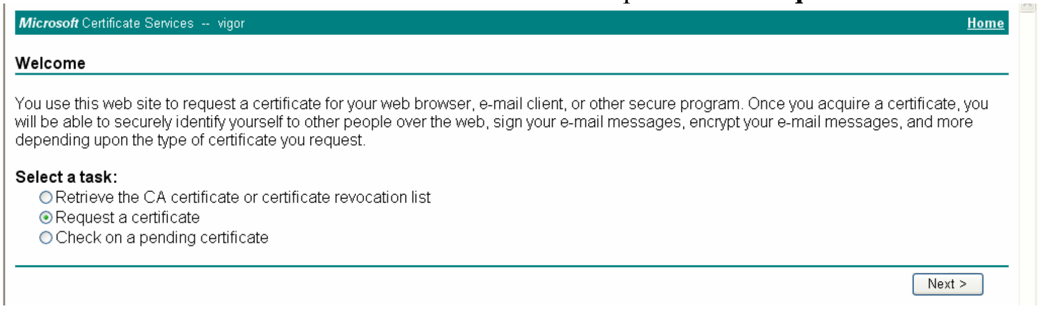
X509 Local Certificate Configuration

Name	Subject	Status	Modify
Local	/C=TW/O=Draytek/emailAddress...	Requesting	View Delete

X509 Local Certificate Request

```
-----BEGIN CERTIFICATE REQUEST-----
MIIBqjCCARMCAQAwQTELMAkGA1UEBhMCVFcxEDAOBgNVBAoTBORyYXl0ZWsxIDAe
BgkqhkiG9w0BCQEWEXByZXNzQGRyYXl0ZWsuY29tMIGfMA0GCSqGSIb3DQEBAQUA
A4GNADCBiQKBgQDPioahu/gFQaYB1ce5OERSDfWknIdHblo1kt9cTdLUDaFk6s8d
3wDeQytoV1LBJz2IDFOxjX6ip7evl87twwTsg4lgZ6Qk/rGhuVTKd9j6PlcrnkP7
du84t23tWBdMD4W5c8VmSyDjShLhjdxVYPWpNKVIrOT2RZjkRMaHEWpVpwIDAQAB
oCkwJwYJKoZIhvcNAQkOMRowGDAWBgNVHREEDzANggtkcmF5dGVrLmNvbTANBgkq
hkiG9w0BAQUFAAOBgQAuSBRUGt4WlhH9N6/HwToem1tHQbcwjXvg/t7kFlzTJiHh
uRLq4CiEi6nV4hMRytcxZpEZ6sMarSgRREr86RoO8JxOI4556OxCZ/NlGh9VQ9Il
I9FqkjJNihip4TCjecSNNZjmQo5WU+Bce8TG+SCBCyejqu/fo/AJQFajB7Gviw==
-----END CERTIFICATE REQUEST-----
```

4. Connect to CA server via web browser. Follow the instruction to submit the request. Below we take a Windows 2000 CA server for example. Select **Request a Certificate**.



Microsoft Certificate Services -- vigor

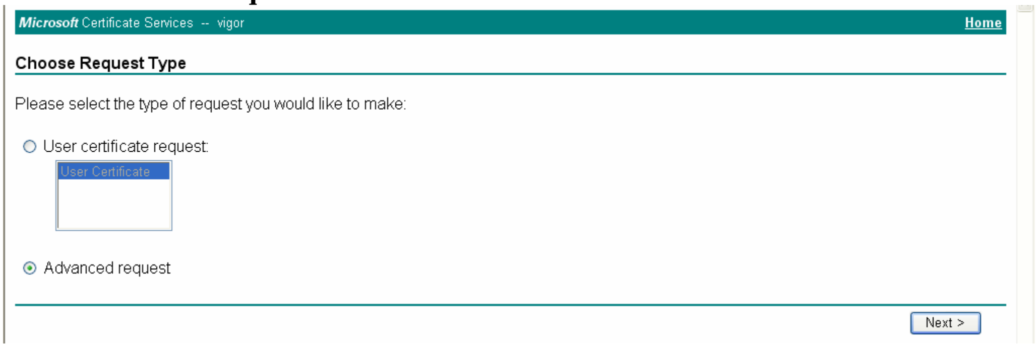
Welcome

You use this web site to request a certificate for your web browser, e-mail client, or other secure program. Once you acquire a certificate, you will be able to securely identify yourself to other people over the web, sign your e-mail messages, encrypt your e-mail messages, and more depending upon the type of certificate you request.

Select a task:

○ Retrieve the CA certificate or certificate revocation list
● Request a certificate
○ Check on a pending certificate

Select **Advanced request**.



Microsoft Certificate Services -- vigor

Home

Choose Request Type

Please select the type of request you would like to make:

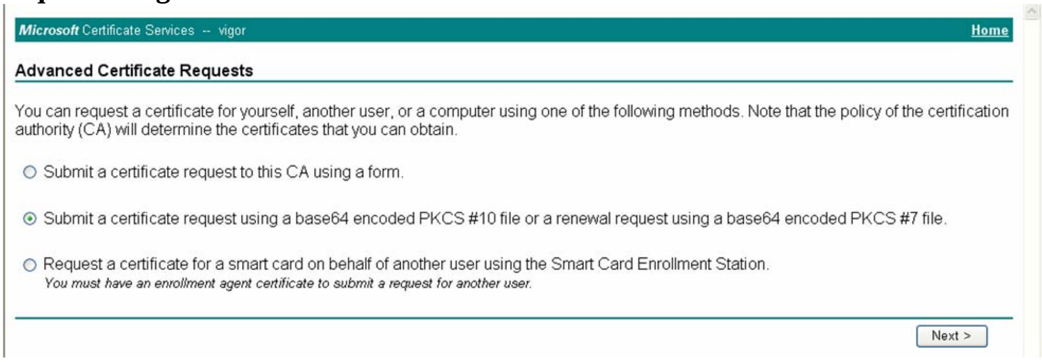
○ User certificate request:

User Certificate

● Advanced request

Next >

Select **Submit a certificate request a base64 encoded PKCS #10 file or a renewal request using a base64 encoded PKCS #7 file**



Microsoft Certificate Services -- vigor

Home

Advanced Certificate Requests

You can request a certificate for yourself, another user, or a computer using one of the following methods. Note that the policy of the certification authority (CA) will determine the certificates that you can obtain.

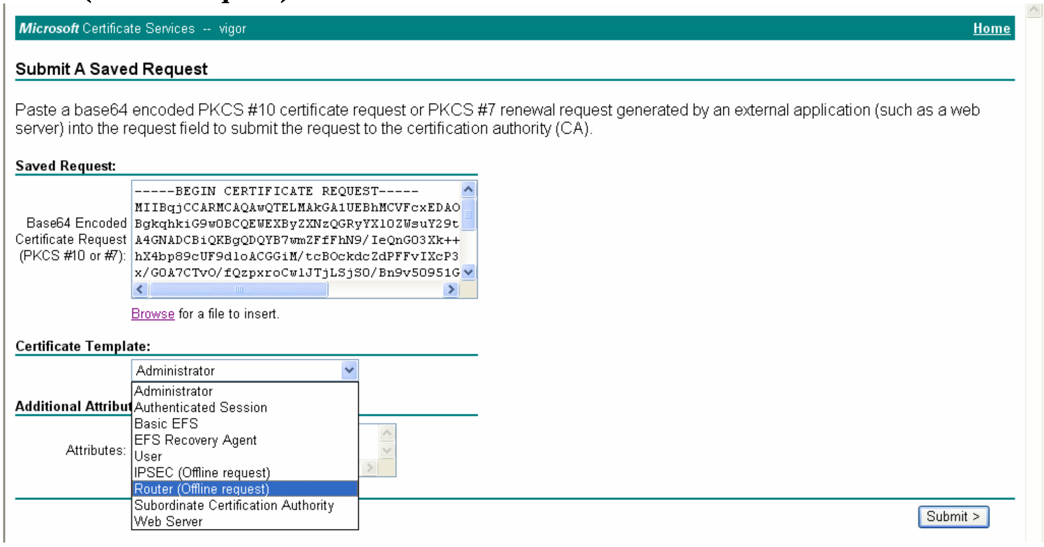
○ Submit a certificate request to this CA using a form.

● Submit a certificate request using a base64 encoded PKCS #10 file or a renewal request using a base64 encoded PKCS #7 file.

○ Request a certificate for a smart card on behalf of another user using the Smart Card Enrollment Station.
You must have an enrollment agent certificate to submit a request for another user.

Next >

Import the X509 Local Certificate Requet text file. Select **Router (Offline request)** or **IPSec (Offline request)** below.



Microsoft Certificate Services -- vigor

Home

Submit A Saved Request

Paste a base64 encoded PKCS #10 certificate request or PKCS #7 renewal request generated by an external application (such as a web server) into the request field to submit the request to the certification authority (CA).

Saved Request:

Base64 Encoded Certificate Request (PKCS #10 or #7):

```
-----BEGIN CERTIFICATE REQUEST-----
MIIBqjCCARMCAQAwQTELMAkGA1UEBhMCVFcxEDAO
BgkqhkiG9w0BCQEWEXByZXNzQGRyYXl0ZWsuY29t
A4GNADCBiQKBgQDQYB7wmZFfFhN9/IeQnGO3Xk++
hX4bp89cUF9dloACGGiM/tcBOckdcZdPFFvIXcP3
x/GOA7CTvO/fQzpxroCwlJTjLSjSO/Bn9v50951G
```

Browse for a file to insert.

Certificate Template:

Administrator

Additional Attribut

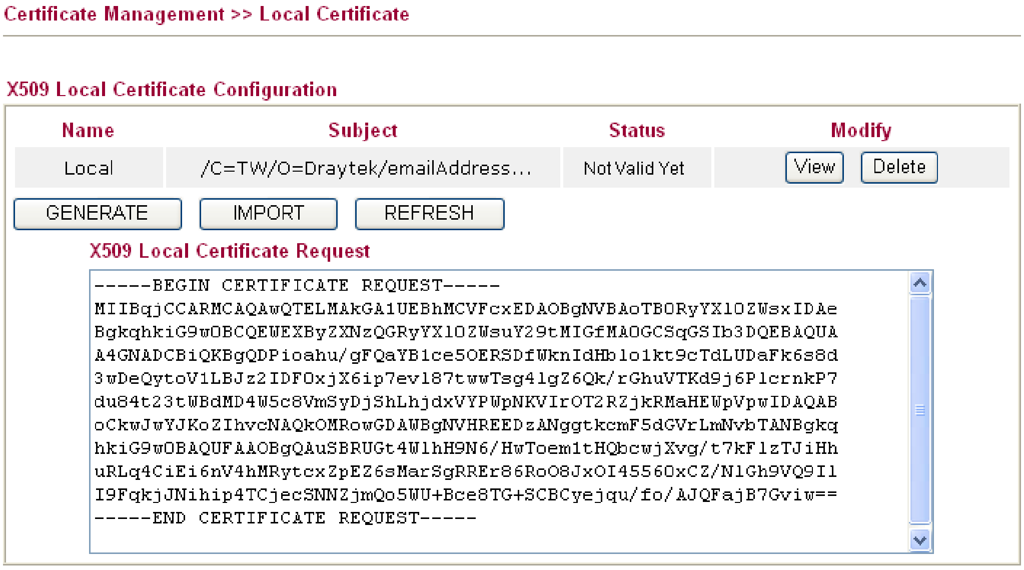
Attributes:

Submit >

Then you have done the request and the server now issues you a certificate. Select **Base 64 encoded** certificate and **Download CA certificate**. Now you should get a certificate (.cer file) and save it.

5. Back to Vigor router, go to **Local Certificate**. Click **IMPORT** button and browse the file to import the certificate (.cer file) into Vigor router. When finished, click refresh and

you will find the below window showing "------BEGINE CERTIFICATE------....."



Certificate Management >> Local Certificate

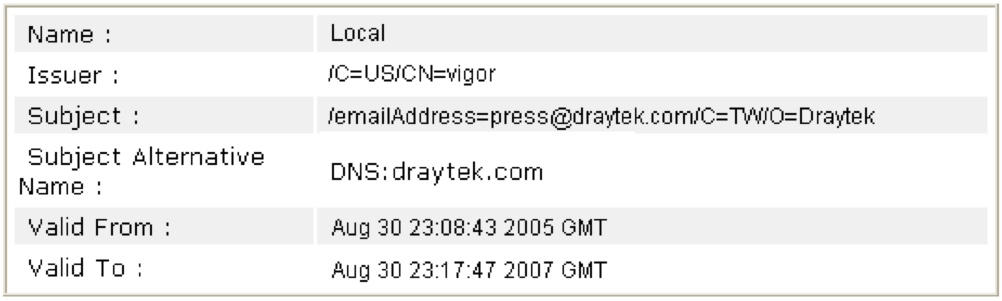
X509 Local Certificate Configuration

Name	Subject	Status	Modify
Local	/C=TW/O=Draytek/emailAddress...	Not Valid Yet	View Delete

X509 Local Certificate Request

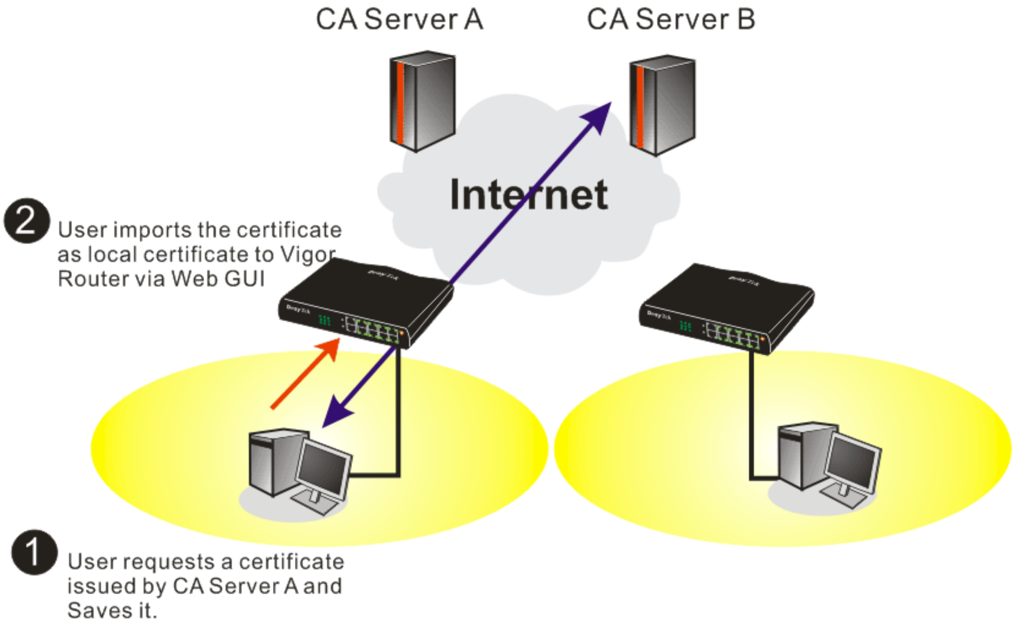
```
-----BEGIN CERTIFICATE REQUEST-----
MIIBqjCCARMCAQAwQTELMAkGA1UEBhMCVFcxEDAOBgNVBAoTB0RyYXl0ZWsxIDAe
BgkqhkiG9w0BCQEWEXByZXNzQGRyYXl0ZWsuY29tMIGfMA0GCSqGSIb3DQEBAQUA
A4GNADCBiQKBgQDPioahu/gFQaYB1ce5OERSDfWknIdHblo1kt9cTdLUDaFk6s8d
3wDeQytoV1LBJz2IDFOxjX6ip7evl87twwTsg4lgZ6Qk/rGhuVTKd9j6PlcrnkP7
du84t23tWBdMD4W5c8VmSyDjShLhjdxVYPWpNKVIrOT2RZjkRMaHEWpVpwIDAQAB
oCkwJwYJKoZIhvcNAQkOMRowGDAWBgNVHREEDzANggtkcmF5dGVrLmNvbTANBgkq
hkiG9w0BAQUFAAOBgQAuSBRUGt4WlhH9N6/HwToem1tHQbcwjXvg/t7kFlzTJiHh
uRLq4CiEi6nV4hMRytcxZpEZ6sMarSgRREr86RoO8JxOI4556OxCZ/N1Gh9VQ9Il
I9FqkjJNihip4TCjecSNNZjmQo5WU+Bce8TG+SCBCyejqu/fo/AJQFajB7Gviw==
-----END CERTIFICATE REQUEST-----
```

6. You may review the detail information of the certificate by clicking **View** button.

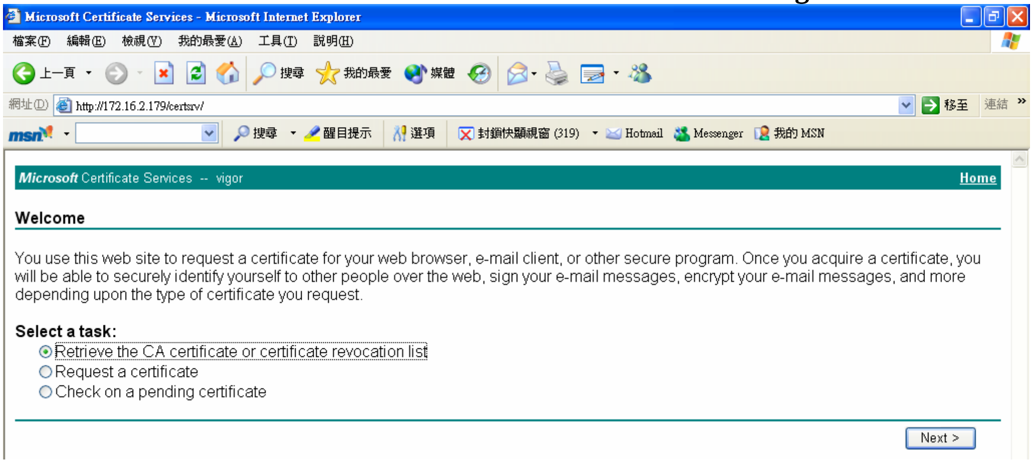


Name :	Local
Issuer :	/C=US/CN=vigor
Subject :	/emailAddress=press@draytek.com/C=TW/O=Draytek
Subject Alternative Name :	DNS:draytek.com
Valid From :	Aug 30 23:08:43 2005 GMT
Valid To :	Aug 30 23:17:47 2007 GMT

3.7 Request a CA Certificate and Set as Trusted on Windows CA Server


CA Server A
CA Server B
Internet
2 User imports the certificate as local certificate to Vigor Router via Web GUI
1 User requests a certificate issued by CA Server A and Saves it.

1. Use web browser connecting to the CA server that you would like to retrieve its CA certificate. Click **Retrive the CA certificate or certificate recoring list**.


Microsoft Certificate Services - Microsoft Internet Explorer
檔案(F) 編輯(E) 檢視(V) 我的最愛(A) 工具(T) 說明(H)
上一頁 搜尋 我的最愛 媒體
網址(D) http://172.16.2.179/certsrv/
移至 連結
msn 搜尋 醒目提示 選項 封鎖快顯視窗 (319) Hotmail Messenger 我的 MSN

Microsoft Certificate Services -- vigor **Home**

Welcome

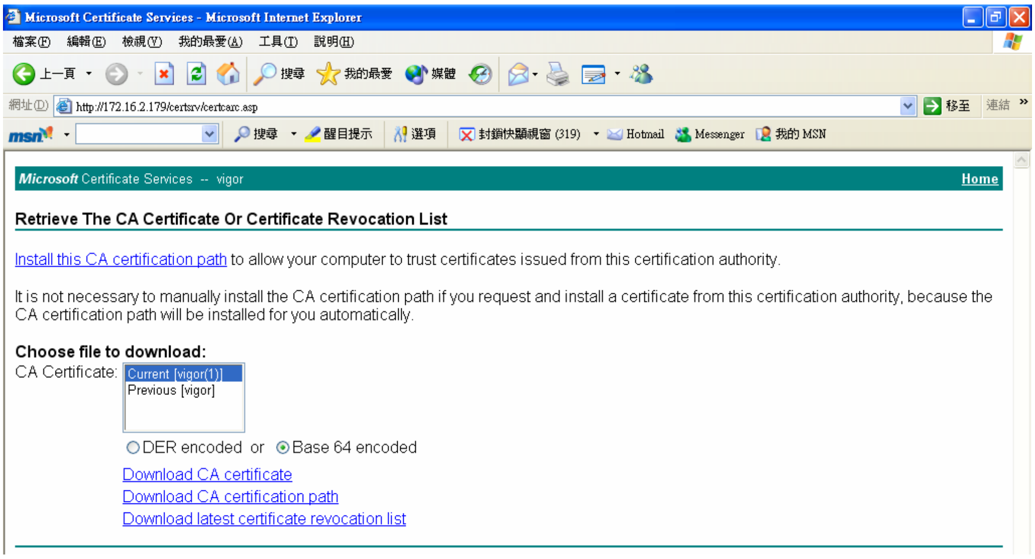
You use this web site to request a certificate for your web browser, e-mail client, or other secure program. Once you acquire a certificate, you will be able to securely identify yourself to other people over the web, sign your e-mail messages, encrypt your e-mail messages, and more depending upon the type of certificate you request.

Select a task:

● Retrieve the CA certificate or certificate revocation list
○ Request a certificate
○ Check on a pending certificate

Next >

2. In **Choose file to download**, click CA Certificate **Current** and **Base 64 encoded,** and **Download CA certificate** to save the .cer. file.


Microsoft Certificate Services - Microsoft Internet Explorer
http://172.16.2.179/certsrv/certcarc.asp
Microsoft Certificate Services -- vigor
Home

Retrieve The CA Certificate Or Certificate Revocation List

Install this CA certification path to allow your computer to trust certificates issued from this certification authority.

It is not necessary to manually install the CA certification path if you request and install a certificate from this certification authority, because the CA certification path will be installed for you automatically.

Choose file to download:

CA Certificate: Current [vigor(1)]
Previous [vigor]

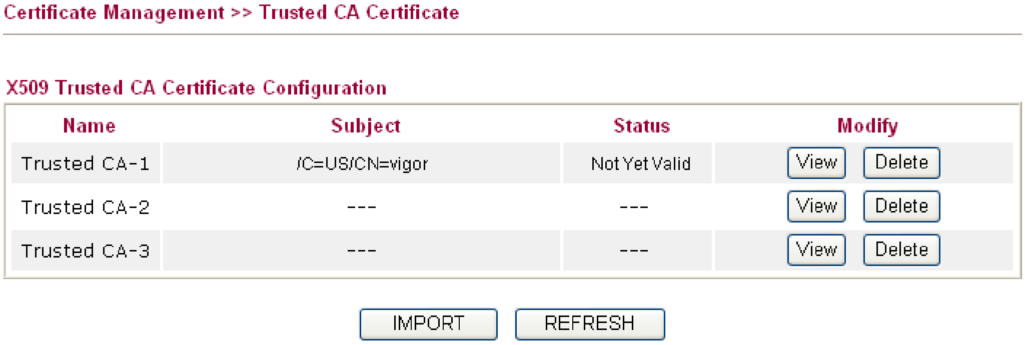
○ DER encoded or ● Base 64 encoded

Download CA certificate

Download CA certification path

Download latest certificate revocation list

3. Back to Vigor router, go to **Trusted CA Certificate**. Click **IMPORT** button and browse the file to import the certificate (.cer file) into Vigor router. When finished, click refresh and you will find the below illustration.

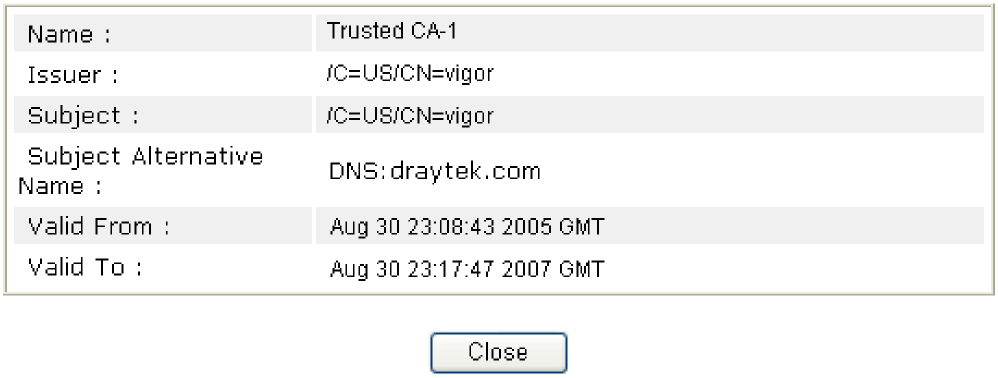


Certificate Management >> Trusted CA Certificate

X509 Trusted CA Certificate Configuration

Name	Subject	Status	Modify
Trusted CA-1	/C=US/CN=vigor	Not Yet Valid	View Delete
Trusted CA-2	---	---	View Delete
Trusted CA-3	---	---	View Delete

4. You may review the detail information of the certificate by clicking **View** button.



Name :	Trusted CA-1
Issuer :	/C=US/CN=vigor
Subject :	/C=US/CN=vigor
Subject Alternative Name :	DNS:draytek.com
Valid From :	Aug 30 23:08:43 2005 GMT
Valid To :	Aug 30 23:17:47 2007 GMT

Note: Before setting certificate configuration, please go to **System Maintenance** >> **Time and Date** to reset current time of the router first.

3.8 Creating an Account for MyVigor

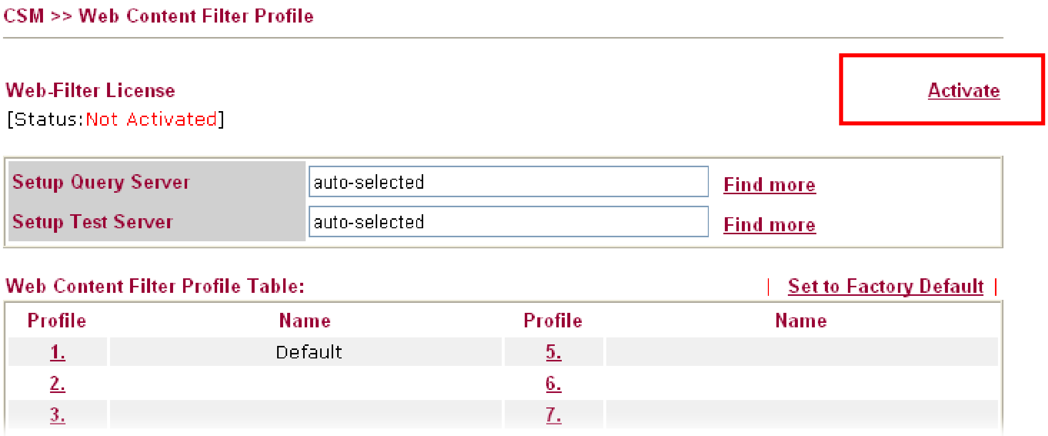
The website of MyVigor (a server located on http://myvigor.draytek.com) provides several useful services (such as Web Content Filter) to filtering the web pages for the sake of protecting your system.

In general, **Service Activation Wizard** can activate WCF service for the router by using simple steps. However, if you (for example, a company) purchase several different routers and activate the services respectively, you might need an account to achieve the goal of management.

Please follow the sections below to create an account for MyVigor.

3.8.1 Creating an Account via Vigor Router

1. Click **CSM>> Web Content Filter Profile**. The following page will appear.



CSM >> Web Content Filter Profile

Web-Filter License
[Status:Not Activated]

Activate

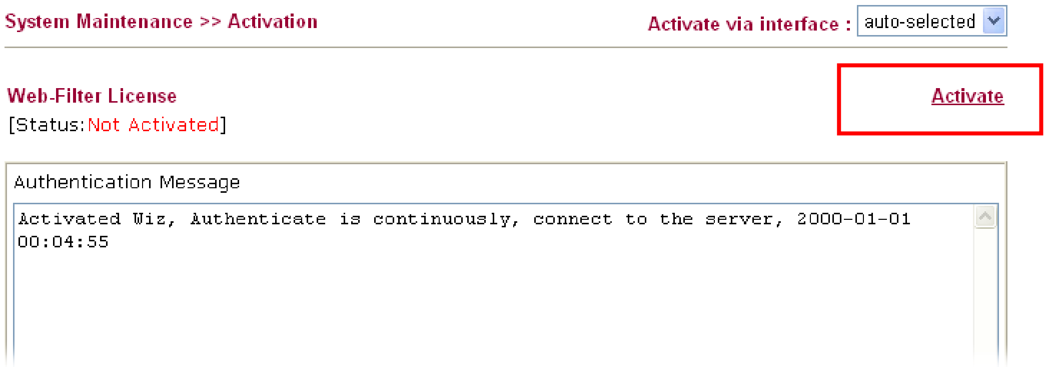
Setup Query Server	auto-selected	Find more
Setup Test Server	auto-selected	Find more

Web Content Filter Profile Table: | Set to Factory Default |

Profile	Name	Profile	Name
1.	Default	5.	
2.		6.	
3.		7.	

Or

Click **System Maintenance>>Activation** to open the following page.



System Maintenance >> Activation

Activate via interface : auto-selected

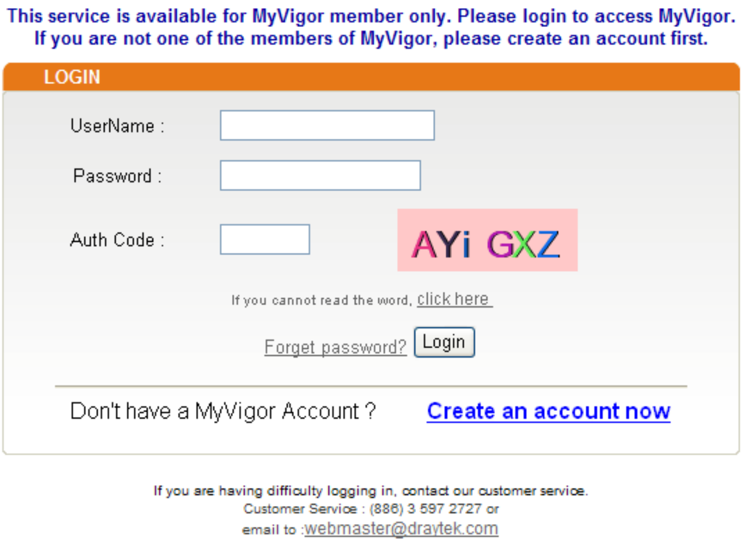
Web-Filter License
[Status:Not Activated]

Activate

Authentication Message

```
Activated Wiz, Authenticate is continuously, connect to the server, 2000-01-01
00:04:55
```

2. Click the **Activate** link. A login page for MyVigor web site will pop up automatically.



This service is available for MyVigor member only. Please login to access MyVigor.
If you are not one of the members of MyVigor, please create an account first.

LOGIN

UserName :

Password :

Auth Code : AYi GXZ

If you cannot read the word, click here

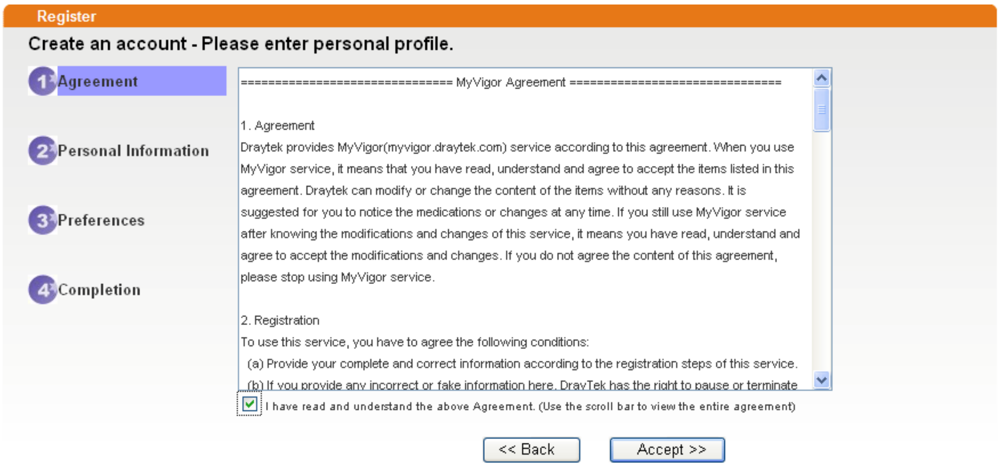
Forget password? Login

Don't have a MyVigor Account ? Create an account now

If you are having difficulty logging in, contact our customer service.
Customer Service : (886) 3 597 2727 or
email to :webmaster@draytek.com

3. Click the link of **Create an account now**.

4. Check to confirm that you accept the Agreement and click **Accept**.



Register

Create an account - Please enter personal profile.

1 Agreement

2 Personal Information

3 Preferences

4 Completion

============================== MyVigor Agreement ==============================

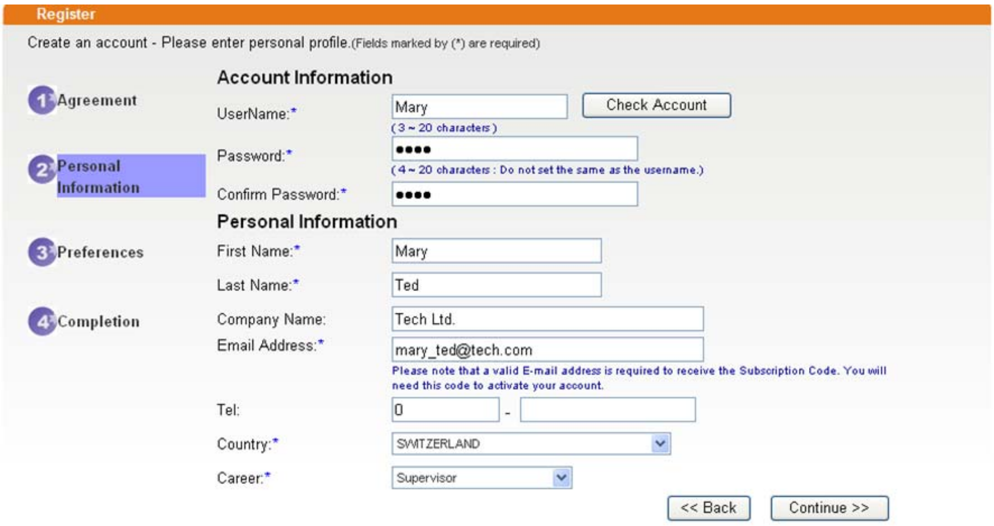
1. Agreement
Draytek provides MyVigor(myvigor.draytek.com) service according to this agreement. When you use MyVigor service, it means that you have read, understand and agree to accept the items listed in this agreement. Draytek can modify or change the content of the items without any reasons. It is suggested for you to notice the medications or changes at any time. If you still use MyVigor service after knowing the modifications and changes of this service, it means you have read, understand and agree to accept the modifications and changes. If you do not agree the content of this agreement, please stop using MyVigor service.

2. Registration
To use this service, you have to agree the following conditions:
(a) Provide your complete and correct information according to the registration steps of this service.
(b) If you provide any incorrect or fake information here, DrayTek has the right to pause or terminate

☑ I have read and understand the above Agreement. (Use the scroll bar to view the entire agreement)

<< Back Accept >>

5. Type your personal information in this page and then click **Continue**.



Register

Create an account - Please enter personal profile.(Fields marked by (*) are required)

Account Information

UserName:* Mary [Check Account]
(3 ~ 20 characters)

Password:* ●●●●
(4 ~ 20 characters : Do not set the same as the username.)

Confirm Password:* ●●●●

Personal Information

First Name:* Mary

Last Name:* Ted

Company Name: Tech Ltd.

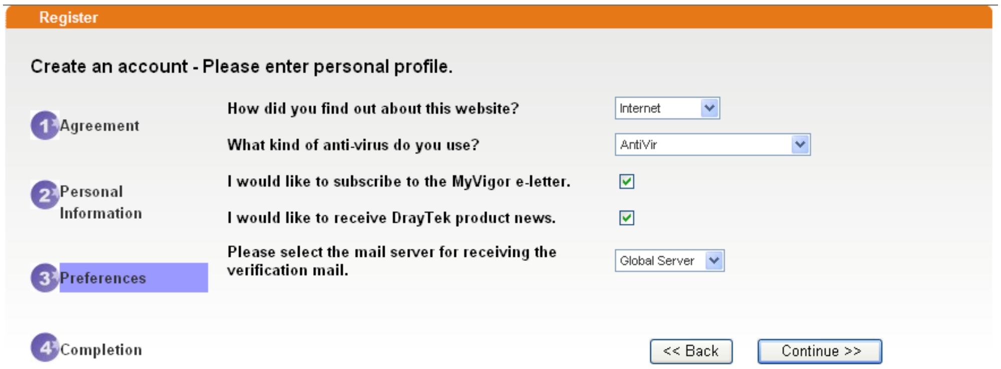
Email Address:* mary_ted@tech.com
Please note that a valid E-mail address is required to receive the Subscription Code. You will need this code to activate your account.

Tel: 0 -

Country:* SWITZERLAND

Career:* Supervisor

6. Choose proper selection for your computer and click **Continue**.



Register

Create an account - Please enter personal profile.

How did you find out about this website? Internet

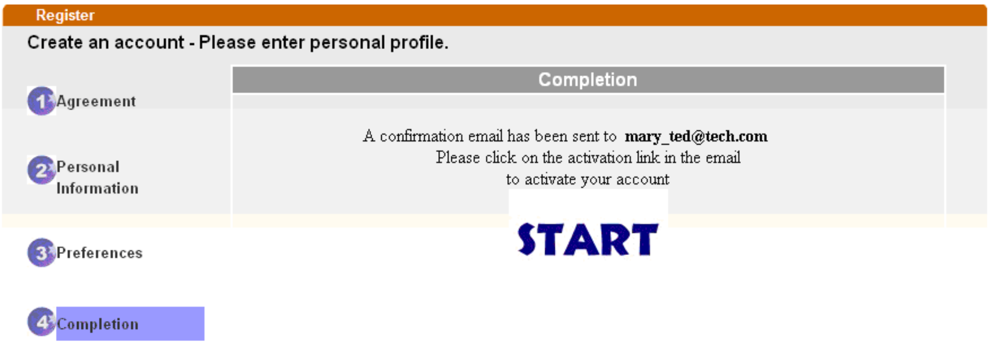
What kind of anti-virus do you use? AntiVir

I would like to subscribe to the MyVigor e-letter. ☑

I would like to receive DrayTek product news. ☑

Please select the mail server for receiving the verification mail. Global Server

7. Now you have created an account successfully. Click START.



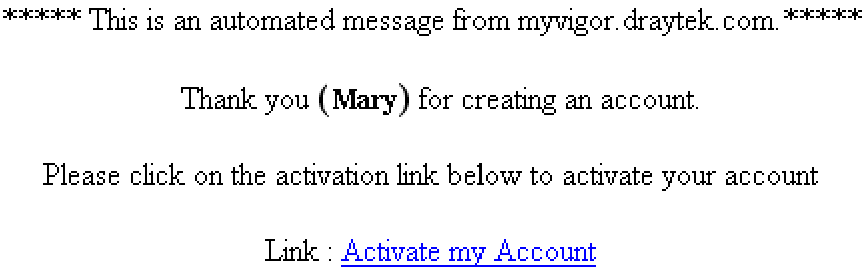
Register

Create an account - Please enter personal profile.

Completion

A confirmation email has been sent to **mary_ted@tech.com**
Please click on the activation link in the email
to activate your account

8. Check to see the confirmation ***email*** with the title of **New Account Confirmation Letter from myvigor.draytek.com**.



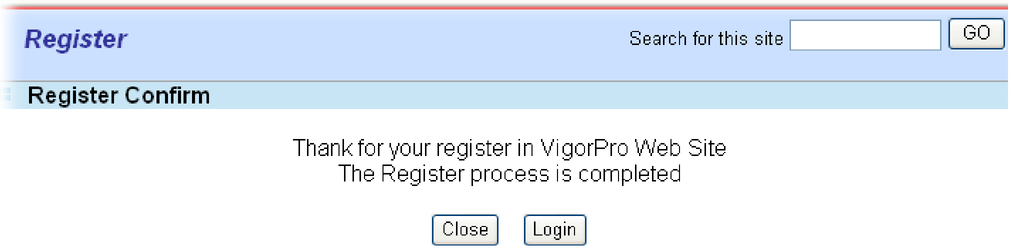
****** This is an automated message from myvigor.draytek.com.******

Thank you (**Mary**) for creating an account.

Please click on the activation link below to activate your account

Link : Activate my Account

9. Click the **Activate my Account** link to enable the account that you created. The following screen will be shown to verify the register process is finished. Please click **Login**.

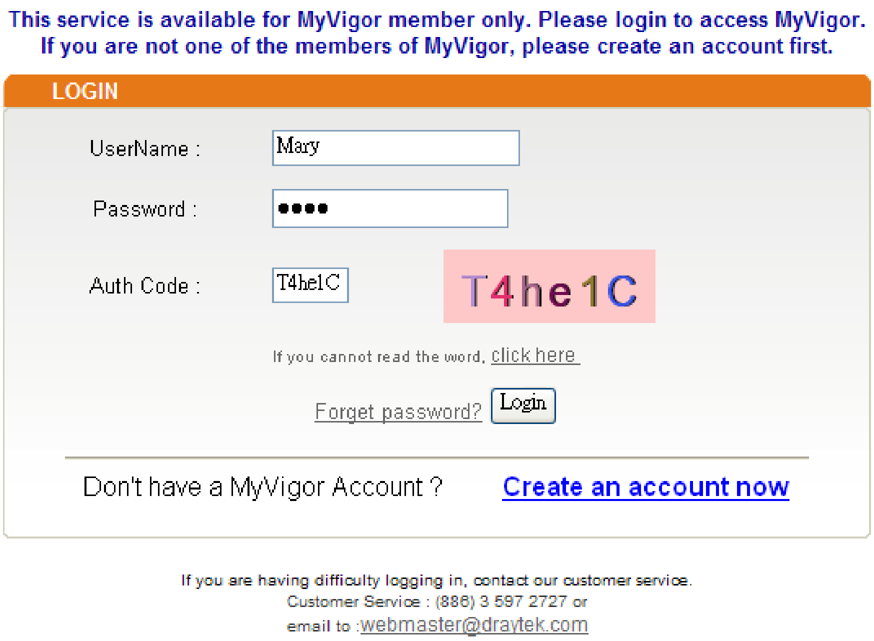


Register

Register Confirm

Thank for your register in VigorPro Web Site
The Register process is completed

10. When you see the following page, please type in the account and password (that you just created) in the fields of **UserName** and **Password**.



This service is available for MyVigor member only. Please login to access MyVigor.
If you are not one of the members of MyVigor, please create an account first.

LOGIN

UserName : Mary

Password : ●●●●

Auth Code : T4he1C

If you cannot read the word, click here

Forget password? Login

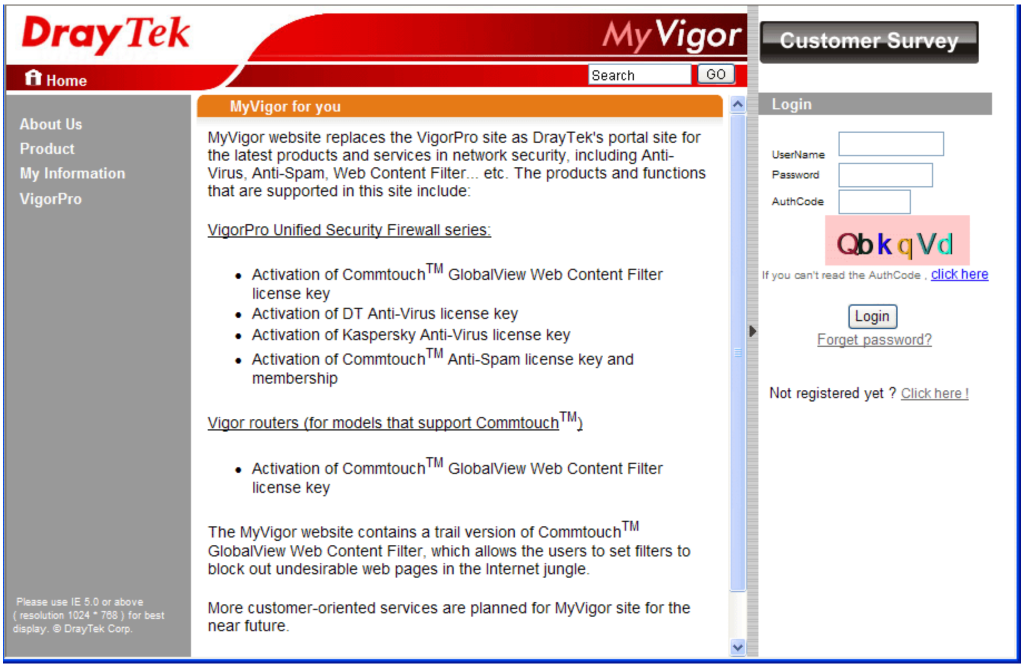
Don't have a MyVigor Account ? Create an account now

If you are having difficulty logging in, contact our customer service.
Customer Service : (886) 3 597 2727 or
email to :webmaster@draytek.com

11. Now, click **Login**. Your account has been activated. You can access into MyVigor server to activate the service (e.g., WCF) that you want.

3.8.2 Creating an Account via MyVigor Web Site

1. Access into http://myvigor.draytek.com. Find the line of **Not registered yet?**. Then, click the link **Click here!** to access into next page.



MyVigor for you

MyVigor website replaces the VigorPro site as DrayTek's portal site for the latest products and services in network security, including Anti-Virus, Anti-Spam, Web Content Filter... etc. The products and functions that are supported in this site include:

VigorPro Unified Security Firewall series:

- Activation of Commtouch™ GlobalView Web Content Filter license key
- Activation of DT Anti-Virus license key
- Activation of Kaspersky Anti-Virus license key
- Activation of Commtouch™ Anti-Spam license key and membership

Vigor routers (for models that support Commtouch™)

- Activation of Commtouch™ GlobalView Web Content Filter license key

The MyVigor website contains a trail version of Commtouch™ GlobalView Web Content Filter, which allows the users to set filters to block out undesirable web pages in the Internet jungle.

More customer-oriented services are planned for MyVigor site for the near future.

Please use IE 5.0 or above (resolution 1024 * 768) for best display. © DrayTek Corp.

Login

UserName

Password

AuthCode

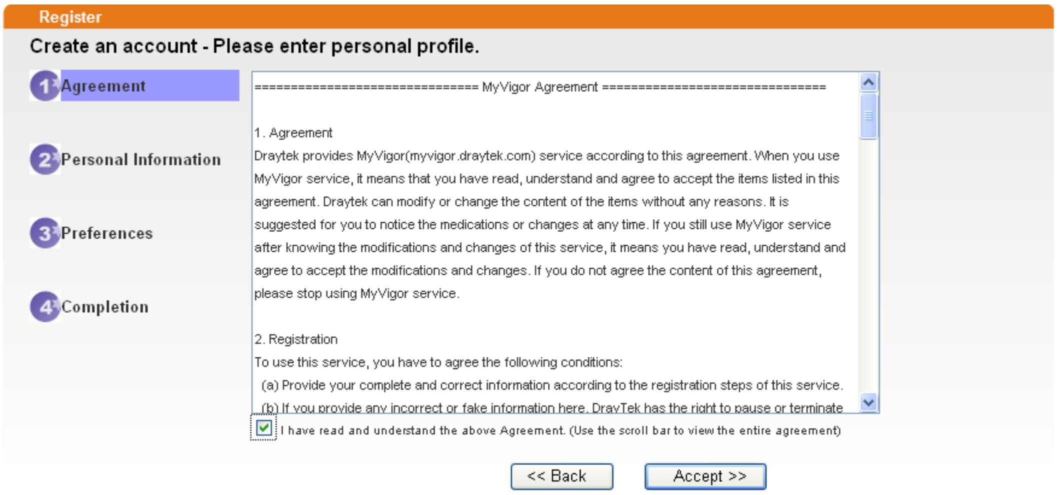
If you can't read the AuthCode , click here

Login

Forget password?

Not registered yet ? Click here !

2. Check to confirm that you accept the Agreement and click **Accept**.



Create an account - Please enter personal profile.

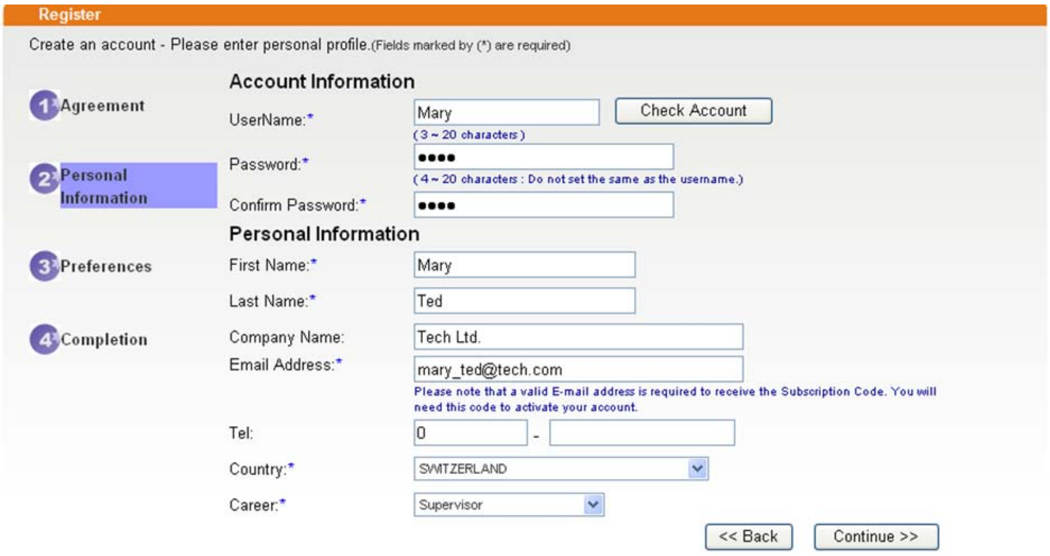
============================= MyVigor Agreement =============================

1. Agreement
Draytek provides MyVigor(myvigor.draytek.com) service according to this agreement. When you use MyVigor service, it means that you have read, understand and agree to accept the items listed in this agreement. Draytek can modify or change the content of the items without any reasons. It is suggested for you to notice the medications or changes at any time. If you still use MyVigor service after knowing the modifications and changes of this service, it means you have read, understand and agree to accept the modifications and changes. If you do not agree the content of this agreement, please stop using MyVigor service.

2. Registration
To use this service, you have to agree the following conditions:
(a) Provide your complete and correct information according to the registration steps of this service.
(b) If you provide any incorrect or fake information here, DrayTek has the right to pause or terminate

☑ I have read and understand the above Agreement. (Use the scroll bar to view the entire agreement)

3. Type your personal information in this page and then click **Continue**.



Create an account - Please enter personal profile.(Fields marked by (*) are required)

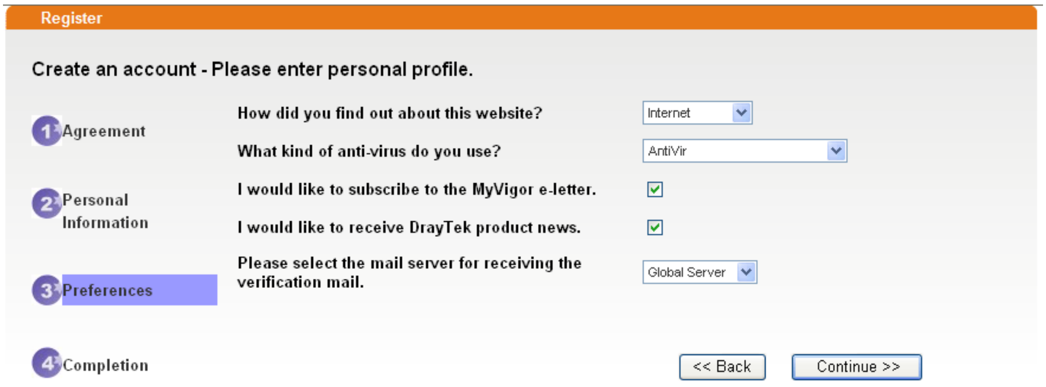
Account Information

UserName:* Mary
(3 ~ 20 characters)
Password:* ●●●●
(4 ~ 20 characters : Do not set the same as the username.)
Confirm Password:* ●●●●

Personal Information

First Name:* Mary
Last Name:* Ted
Company Name: Tech Ltd.
Email Address:* mary_ted@tech.com
Please note that a valid E-mail address is required to receive the Subscription Code. You will need this code to activate your account.
Tel: 0 -
Country:* SWITZERLAND
Career:* Supervisor

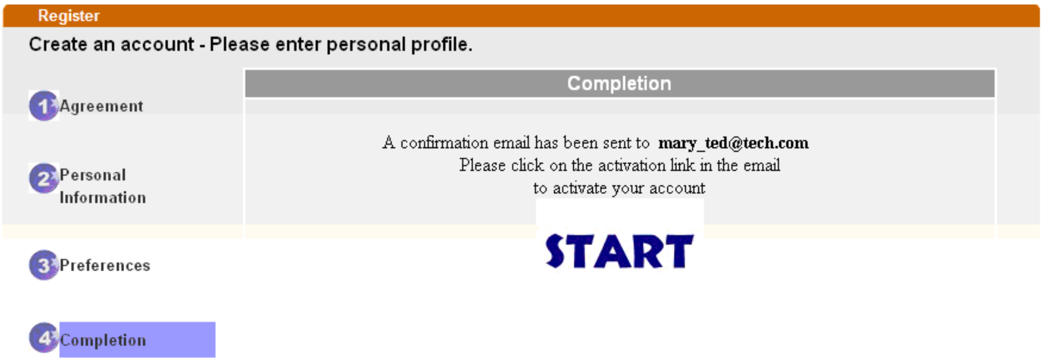
4. Choose proper selection for your computer and click **Continue**.



Create an account - Please enter personal profile.

How did you find out about this website? Internet
What kind of anti-virus do you use? AntiVir
I would like to subscribe to the MyVigor e-letter. ☑
I would like to receive DrayTek product news. ☑
Please select the mail server for receiving the verification mail. Global Server

5. Now you have created an account successfully. Click START.

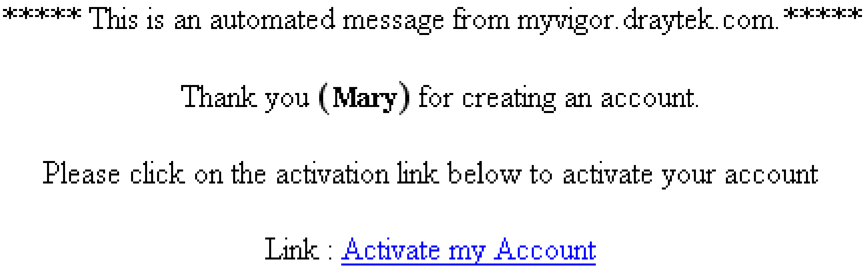


Create an account - Please enter personal profile.

Completion

A confirmation email has been sent to **mary_ted@tech.com**
Please click on the activation link in the email
to activate your account

6. Check to see the confirmation ***email*** with the title of **New Account Confirmation Letter from myvigor.draytek.com**.



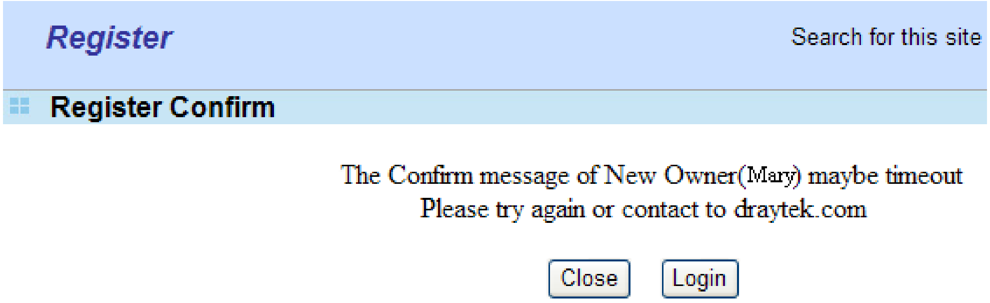
****** This is an automated message from myvigor.draytek.com.******

Thank you (**Mary**) for creating an account.

Please click on the activation link below to activate your account

Link : Activate my Account

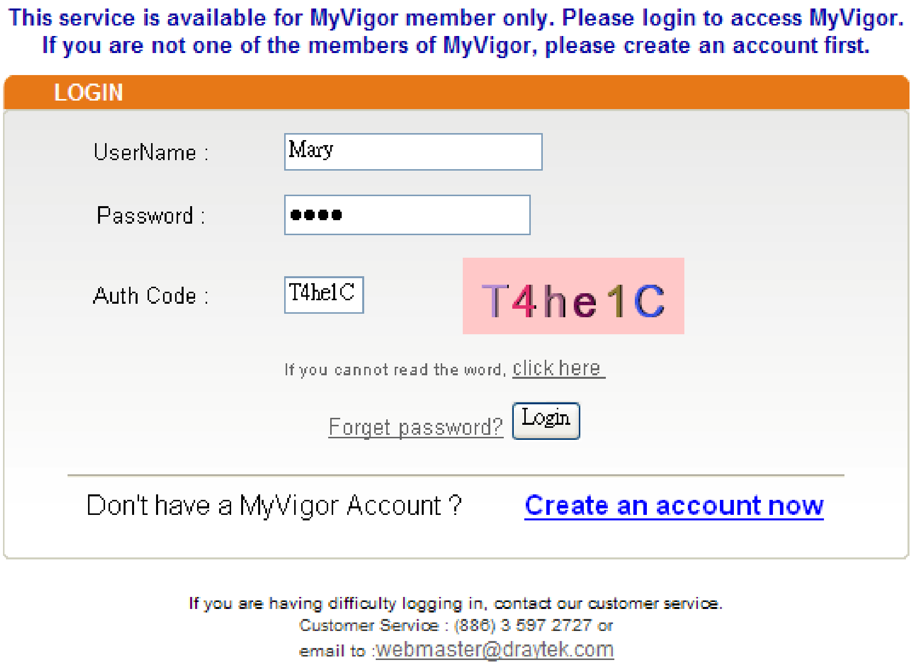
7. Click the **Activate my Account** link to enable the account that you created. The following screen will be shown to verify the register process is finished. Please click **Login**.



Register Confirm

The Confirm message of New Owner(Mary) maybe timeout
Please try again or contact to draytek.com

8. When you see the following page, please type in the account and password (that you just created) in the fields of **UserName** and **Password**. Then type the code in the box of Auth Code according to the value displayed on the right side of it.



This service is available for MyVigor member only. Please login to access MyVigor.
If you are not one of the members of MyVigor, please create an account first.

LOGIN

UserName : Mary

Password : ●●●●

Auth Code : T4he1C

If you cannot read the word, click here

Don't have a MyVigor Account ?

If you are having difficulty logging in, contact our customer service.
Customer Service : (886) 3 597 2727 or
email to :webmaster@draytek.com

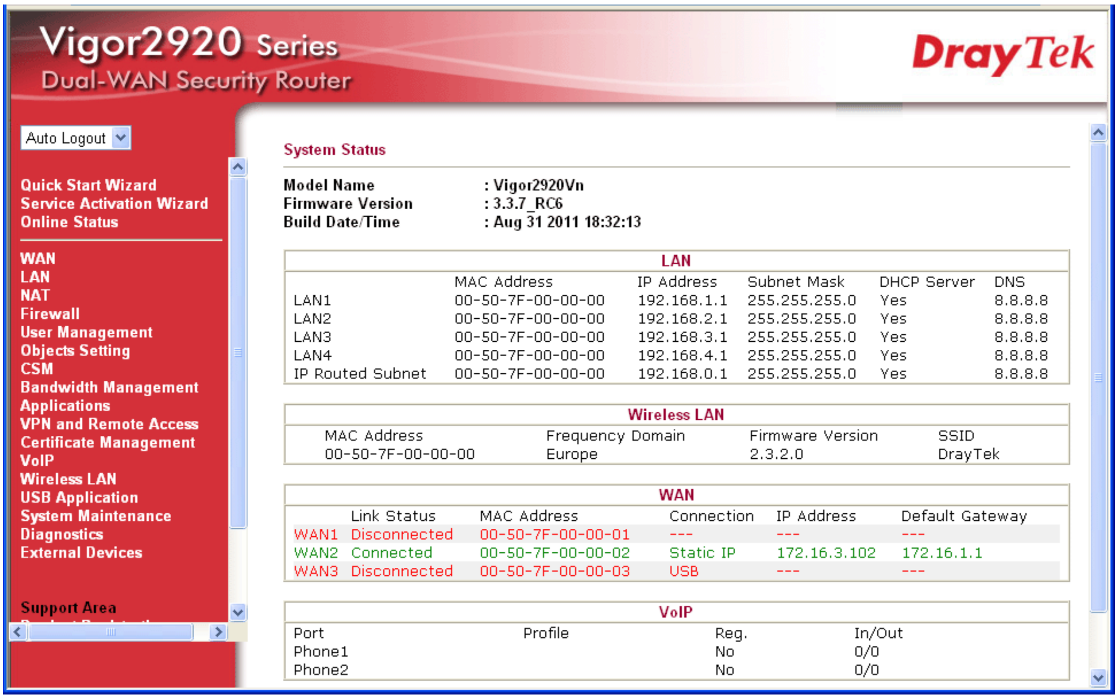
Now, click **Login**. Your account has been activated. You can access into MyVigor server to activate the service (e.g., WCF) that you want.

4 Web Configuration

This chapter will guide users to execute advanced (full) configuration through admin mode operation.

1. Open a web browser on your PC and type **http://192.168.1.1.** The window will ask for typing username and password.
2. Please type "admin/admin" on Username/Password for administration operation.

Now, the **Main Screen** will appear. Be aware that "Admin mode" will be displayed on the bottom left side.



System Status

Model Name : Vigor2920Vn
Firmware Version : 3.3.7_RC6
Build Date/Time : Aug 31 2011 18:32:13

LAN

	MAC Address	IP Address	Subnet Mask	DHCP Server	DNS
LAN1	00-50-7F-00-00-00	192.168.1.1	255.255.255.0	Yes	8.8.8.8
LAN2	00-50-7F-00-00-00	192.168.2.1	255.255.255.0	Yes	8.8.8.8
LAN3	00-50-7F-00-00-00	192.168.3.1	255.255.255.0	Yes	8.8.8.8
LAN4	00-50-7F-00-00-00	192.168.4.1	255.255.255.0	Yes	8.8.8.8
IP Routed Subnet	00-50-7F-00-00-00	192.168.0.1	255.255.255.0	Yes	8.8.8.8

Wireless LAN

MAC Address	Frequency Domain	Firmware Version	SSID
00-50-7F-00-00-00	Europe	2.3.2.0	DrayTek

WAN

	Link Status	MAC Address	Connection	IP Address	Default Gateway
WAN1	Disconnected	00-50-7F-00-00-01	---	---	---
WAN2	Connected	00-50-7F-00-00-02	Static IP	172.16.3.102	172.16.1.1
WAN3	Disconnected	00-50-7F-00-00-03	USB	---	---

VoIP

Port	Profile	Reg.	In/Out
Phone1		No	0/0
Phone2		No	0/0

4.1 WAN

Quick Start Wizard offers user an easy method to quick setup the connection mode for the router. Moreover, if you want to adjust more settings for different WAN modes, please go to **WAN** group.

4.1.1 Basics of Internet Protocol (IP) Network

IP means Internet Protocol. Every device in an IP-based Network including routers, print server, and host PCs, needs an IP address to identify its location on the network. To avoid address conflicts, IP addresses are publicly registered with the Network Information Centre (NIC). Having a unique IP address is mandatory for those devices participated in the public network but not in the private TCP/IP local area networks (LANs), such as host PCs under the management of a router since they do not need to be accessed by the public. Hence, the NIC has reserved certain addresses that will never be registered publicly. These are known as ***private*** IP addresses, and are listed in the following ranges:

From 10.0.0.0 to 10.255.255.255
From 172.16.0.0 to 172.31.255.255
From 192.168.0.0 to 192.168.255.255

What are Public IP Address and Private IP Address

As the router plays a role to manage and further protect its LAN, it interconnects groups of host PCs. Each of them has a private IP address assigned by the built-in DHCP server of the Vigor router. The router itself will also use the default **private IP** address: 192.168.1.1 to communicate with the local hosts. Meanwhile, Vigor router will communicate with other network devices through a **public IP** address. When the data flow passing through, the Network Address Translation (NAT) function of the router will dedicate to translate public/private addresses, and the packets will be delivered to the correct host PC in the local area network. Thus, all the host PCs can share a common Internet connection.

Get Your Public IP Address from ISP

In ADSL deployment, the PPP (Point to Point)-style authentication and authorization is required for bridging customer premises equipment (CPE). Point to Point Protocol over Ethernet (PPPoE) connects a network of hosts via an access device to a remote access concentrator or aggregation concentrator. This implementation provides users with significant ease of use. Meanwhile it provides access control, billing, and type of service according to user requirement.

When a router begins to connect to your ISP, a serial of discovery process will occur to ask for a connection. Then a session will be created. Your user ID and password is authenticated via **PAP** or **CHAP** with **RADIUS** authentication system. And your IP address, DNS server, and other related information will usually be assigned by your ISP.

Network Connection by 3G USB Modem

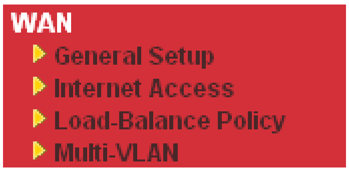
For 3G mobile communication through Access Point is popular more and more, Vigor2920 adds the function of 3G network connection for such purpose. By connecting 3G USB Modem to the USB port of Vigor2920, it can support HSDPA/UMTS/EDGE/GPRS/GSM and the future 3G standard (HSUPA, etc). Vigor2920n/Vn with 3G USB Modem allows you to receive 3G signals at any place such as your car or certain location holding outdoor activity and share the bandwidth for using by more people. Users can use four LAN ports on the router to access Internet. Also, they can access Internet via 802.11n wireless function of Vigor2920/Vn, and enjoy the powerful firewall, bandwidth management, VPN features of Vigor2920n/Vn series.

Mobile Coffee shop
Internet
Web surfing, E-Mail, Instant messaging etc.
VPN
3.5G HSDPA USB Modem

After connecting into the router, 3G USB Modem will be regarded as the third WAN port. However, the original Ethernet WAN1/WAN2 still can be used and Load-Balance can be done in the router. Besides, 3G USB Modem in WAN3 also can be used as backup device.

Therefore, when WAN1/WAN2 is not available, the router will use 3.5G for supporting automatically. The supported 3G USB Modem will be listed on Draytek web site. Please visit www.draytek.com for more detailed information.

Below shows the menu items for **WAN**.



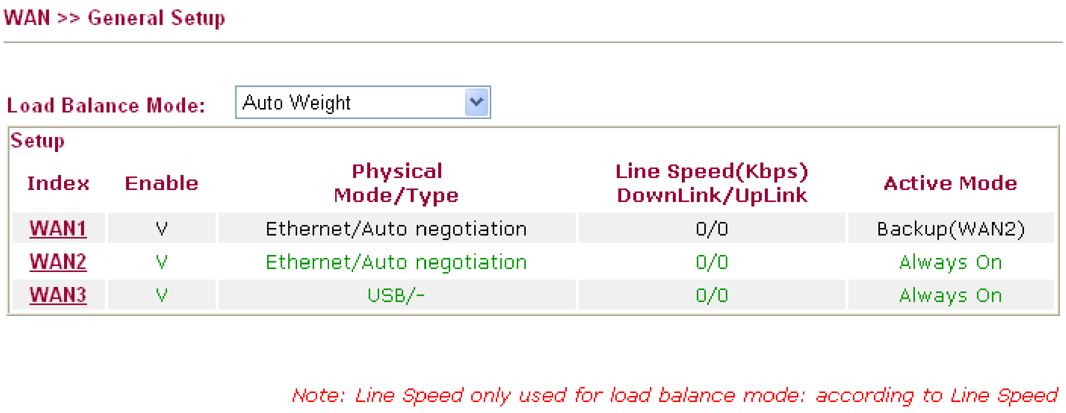
4.1.2 General Setup

This section will introduce some general settings of Internet and explain the connection modes for WAN1, WAN2 and WAN3 in details.

This router supports multiple-WAN function. It allows users to access Internet and combine the bandwidth of the multiple-WAN to speed up the transmission through the network. Each WAN port can connect to different ISPs even if the ISPs use different technology to provide telecommunication service (such as Cable modem). If any connection problem occurred on one of the ISP connections, all the traffic will be guided and switched to the normal communication port for proper operation. Please configure WAN1, WAN2 and WAN3 settings.

This webpage allows you to set general setup for WAN1, WAN2 and WAN3 respectively.

Note: In default, WAN1 is enabled. WAN2 is optional.



WAN >> General Setup

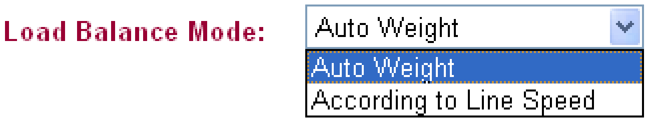
Load Balance Mode: Auto Weight

Setup

Index	Enable	Physical Mode/Type	Line Speed(Kbps) DownLink/UpLink	Active Mode
WAN1	V	Ethernet/Auto negotiation	0/0	Backup(WAN2)
WAN2	V	Ethernet/Auto negotiation	0/0	Always On
WAN3	V	USB/-	0/0	Always On

Note: Line Speed only used for load balance mode: according to Line Speed

Each item is explained as follows:

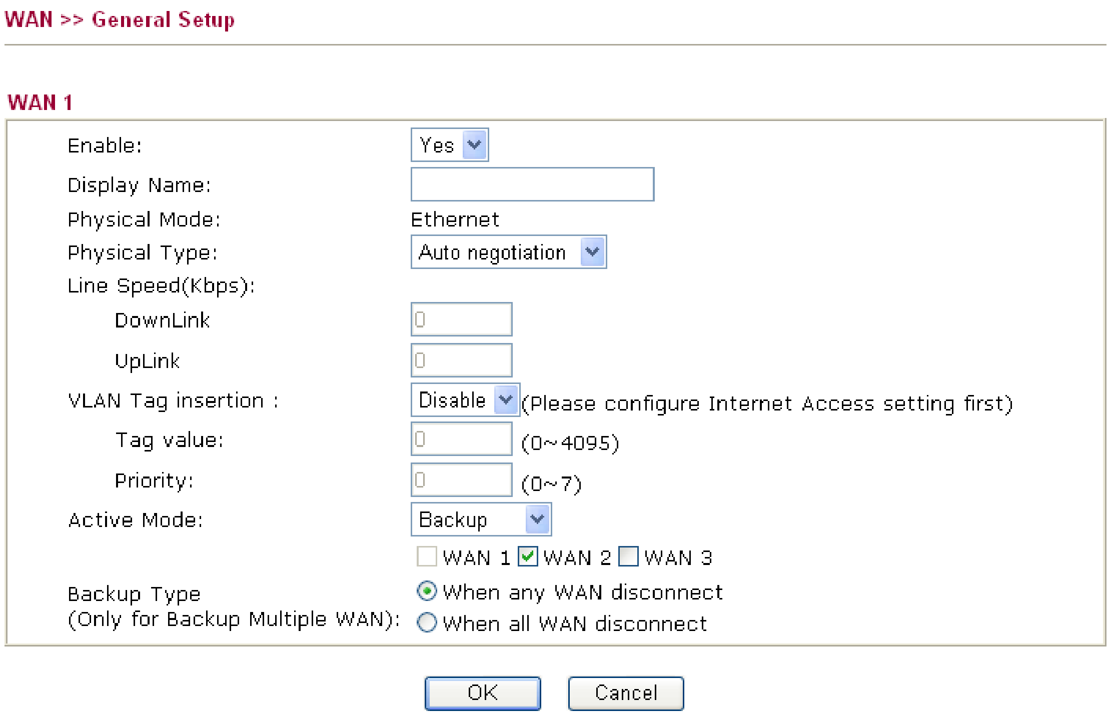
Item	Description
Load Balance Mode	This option is available for multiple-WAN for getting enough bandwidth for each WAN port. If you know the practical bandwidth for your WAN interface, please choose the setting of **According to Line Speed**. Otherwise, please choose **Auto Weight** to let the router reach the best load balance.  Load Balance Mode: Auto Weight
Index	Click the WAN interface link under Index to access into the

	WAN configuration page.
Enable	**V** means such WAN interface is enabled and ready to be used.
Physical Mode / Type	Display the physical mode and physical type of such WAN interface.
Line Speed	Display the downstream and upstream rate of such WAN interface.
Active Mode	Display whether such WAN interface is connected and allows to access into Internet always, or such WAN interface will be treated as backup WAN interface.

Note: In default, each WAN port is enabled.

Detailed Settings for WAN1/WAN2 Interface (via Ethernet)

Be aware that WAN2 is fixed with physical mode of Giga Ethernet.



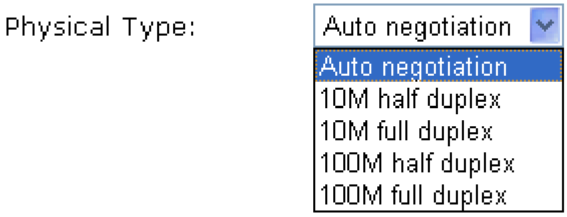
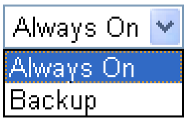
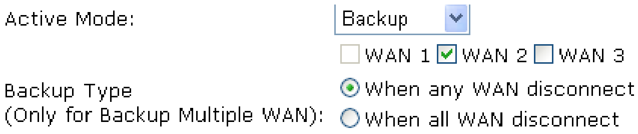
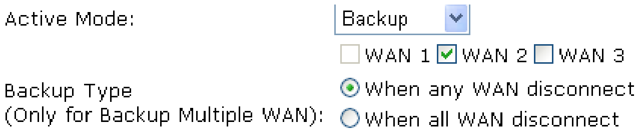
WAN >> General Setup

WAN 1

Enable:	Yes
Display Name:	
Physical Mode:	Ethernet
Physical Type:	Auto negotiation
Line Speed(Kbps):	
DownLink	0
UpLink	0
VLAN Tag insertion :	Disable (Please configure Internet Access setting first)
Tag value:	0 (0~4095)
Priority:	0 (0~7)
Active Mode:	Backup □ WAN 1 ☑ WAN 2 □ WAN 3
Backup Type (Only for Backup Multiple WAN):	● When any WAN disconnect ○ When all WAN disconnect

Available settings are explained as follows:

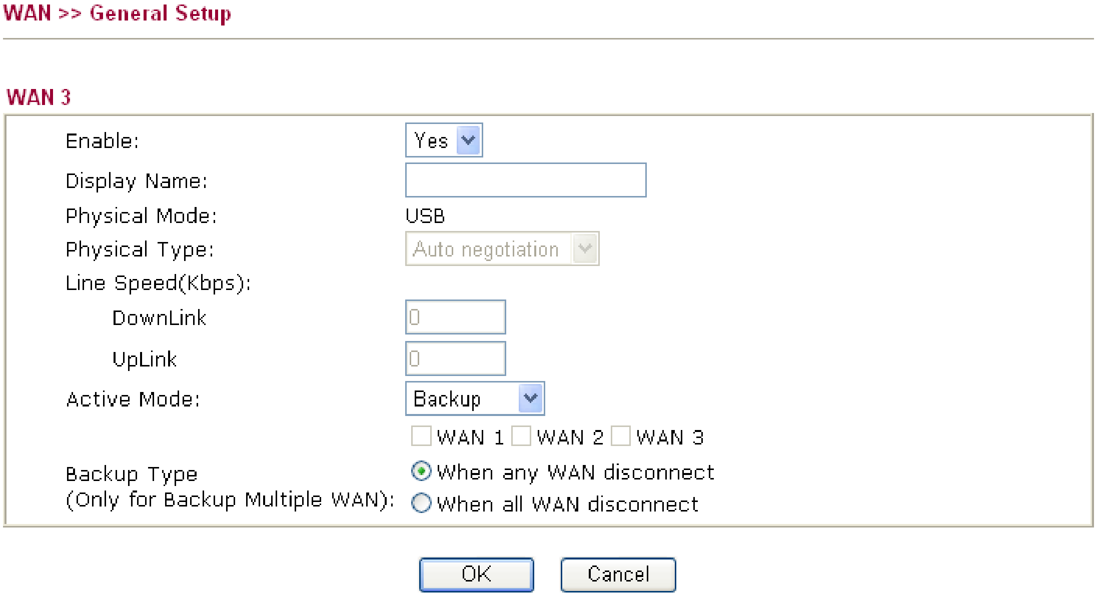
Item	Description
Enable	Choose **Yes** to invoke the settings for this WAN interface. Choose **No** to disable the settings for this WAN interface.
Display Name	Type the description for such WAN interface.
Physical Mode	Display the physical mode of such WAN interface.
Physical Type	You can change the physical type for WAN2 or choose **Auto negotiation** for determined by the system.

	 Physical Type: Auto negotiation Auto negotiation 10M half duplex 10M full duplex 100M half duplex 100M full duplex
Line Speed	If your choose **According to Line Speed** as the **Load Balance Mode**, please type the line speed for downloading and uploading for such WAN interface. The unit is kbps.
VLAN Tag insertion	**Enable** – Enable the function of VLAN with tag. The router will add specific VLAN number to all packets on the WAN while sending them out. Please type the tag value and specify the priority for the packets sending by WAN1. **Disable** – Disable the function of VLAN with tag. **Tag value** – Type the value as the VLAN ID number. The range is form 0 to 4095. **Priority** – Type the packet priority number for such VLAN. The range is from 0 to 7.
Active Mode and Backup Type	**Active Mode –** Determine the WAN interface will be active for always (**Always On**) or be treated as a backup WAN interface (**Backup Type**).  Always On Always On Backup **Backup Type –** Determine the role of such WAN interface. It will be changed according to the **Active Mode** specified. If you choose **Always On** as **Active Mode**, such interface will be used for access into Internet all the time.  Active Mode: Backup □ WAN 1 ☑ WAN 2 □ WAN 3 Backup Type (Only for Backup Multiple WAN): ● When any WAN disconnect ○ When all WAN disconnect If you choose **Backup** as the **Active Mode**, you have to specify which WAN interface will be selected to backup multiple WANs. However, ignore this setting if you want to backup a single WAN.  Active Mode: Backup □ WAN 1 ☑ WAN 2 □ WAN 3 Backup Type (Only for Backup Multiple WAN): ● When any WAN disconnect ○ When all WAN disconnect **When any WAN disconnect** – Such backup WAN will be activated when any master WAN interface disconnects. **When all WAN disconnect** – Such backup WAN will be activated only when all master WAN interfaces disconnect.

After finished the above settings, click **OK** to save the settings.

Detailed Settings for WAN3 Interface (via USB)

To use 3G network connection through 3G USB Modem, please configure **WAN3** interface.



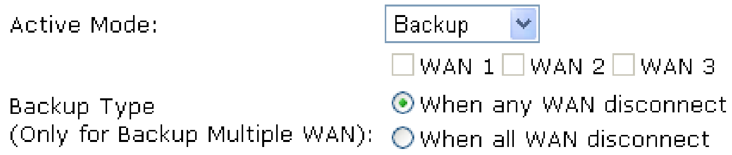
WAN >> General Setup

WAN 3

Enable:	Yes
Display Name:	
Physical Mode:	USB
Physical Type:	Auto negotiation
Line Speed(Kbps):	
DownLink	0
UpLink	0
Active Mode:	Backup □ WAN 1 □ WAN 2 □ WAN 3
Backup Type (Only for Backup Multiple WAN):	● When any WAN disconnect ○ When all WAN disconnect

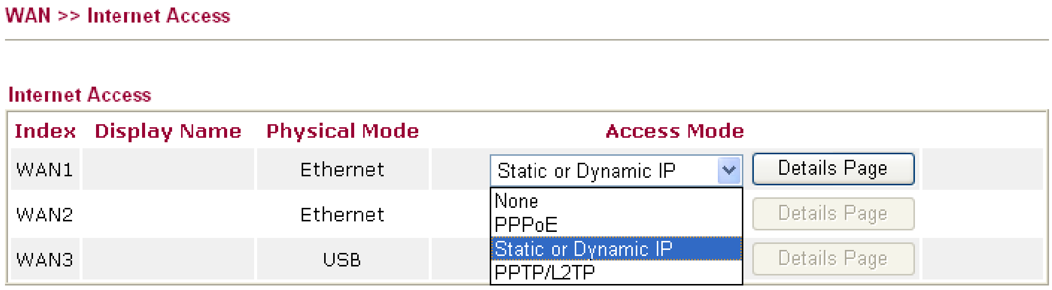
Available settings are explained as follows:

Item	Description
Enable	Choose **Yes** to invoke the settings for this WAN interface. Choose **No** to disable the settings for this WAN interface.
Display Name	Type the description for such WAN interface.
Physical Mode	Display the physical mode of such WAN interface.
Physical Type	In such WAN interface, no type can be selected.
Line Speed	If your choose **According to Line Speed** as the **Load Balance Mode**, please type the line speed for downloading and uploading for such WAN interface. The unit is kbps.
Active Mode and Backup Type	**Active Mode –** Determine the WAN interface will be active for always (**Always On**) or be treated as a backup WAN interface (**Backup WAN**). **Backup Type –** Determine the role of such WAN interface. It will be changed according to the **Active Mode** specified. If you choose **Always On** as **Active Mode**, such interface will be used for access into Internet all the time. If you choose **Backup** as the **Active Mode**, you have to specify which WAN interface will be selected to backup multiple

	WANs. However, ignore this setting if you want to backup a single WAN.  Active Mode: Backup □ WAN 1 □ WAN 2 □ WAN 3 Backup Type (Only for Backup Multiple WAN): ● When any WAN disconnect ○ When all WAN disconnect **When any WAN disconnect** – Such backup WAN will be activated when any master WAN interface disconnects. **When all WAN disconnect** – Such backup WAN will be activated only when all master WAN interfaces disconnect.

4.1.3 Internet Access

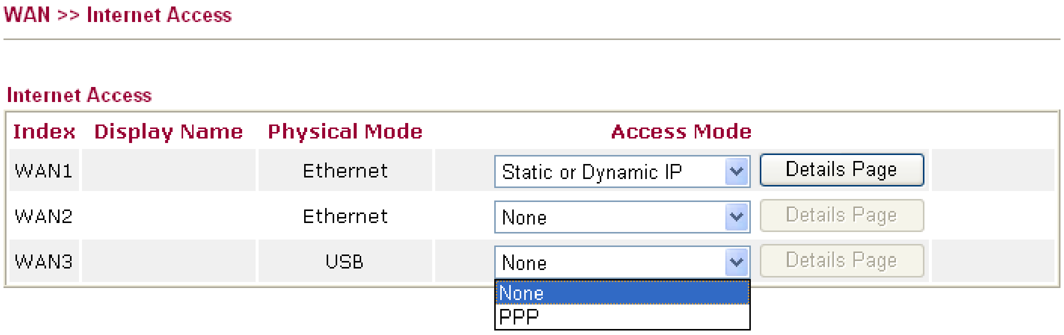
For the router supports multi-WAN function, the users can set different WAN settings (for WAN1/WAN2/WAN3) for Internet Access. Due to different Physical Mode for WAN interfaces, the Access Mode for these connections also varies. Refer to the following figures



WAN >> Internet Access

Internet Access

Index	Display Name	Physical Mode	Access Mode	
WAN1		Ethernet	Static or Dynamic IP	Details Page
WAN2		Ethernet		Details Page
WAN3		USB		Details Page



WAN >> Internet Access

Internet Access

Index	Display Name	Physical Mode	Access Mode	
WAN1		Ethernet	Static or Dynamic IP	Details Page
WAN2		Ethernet	None	Details Page
WAN3		USB	None	Details Page

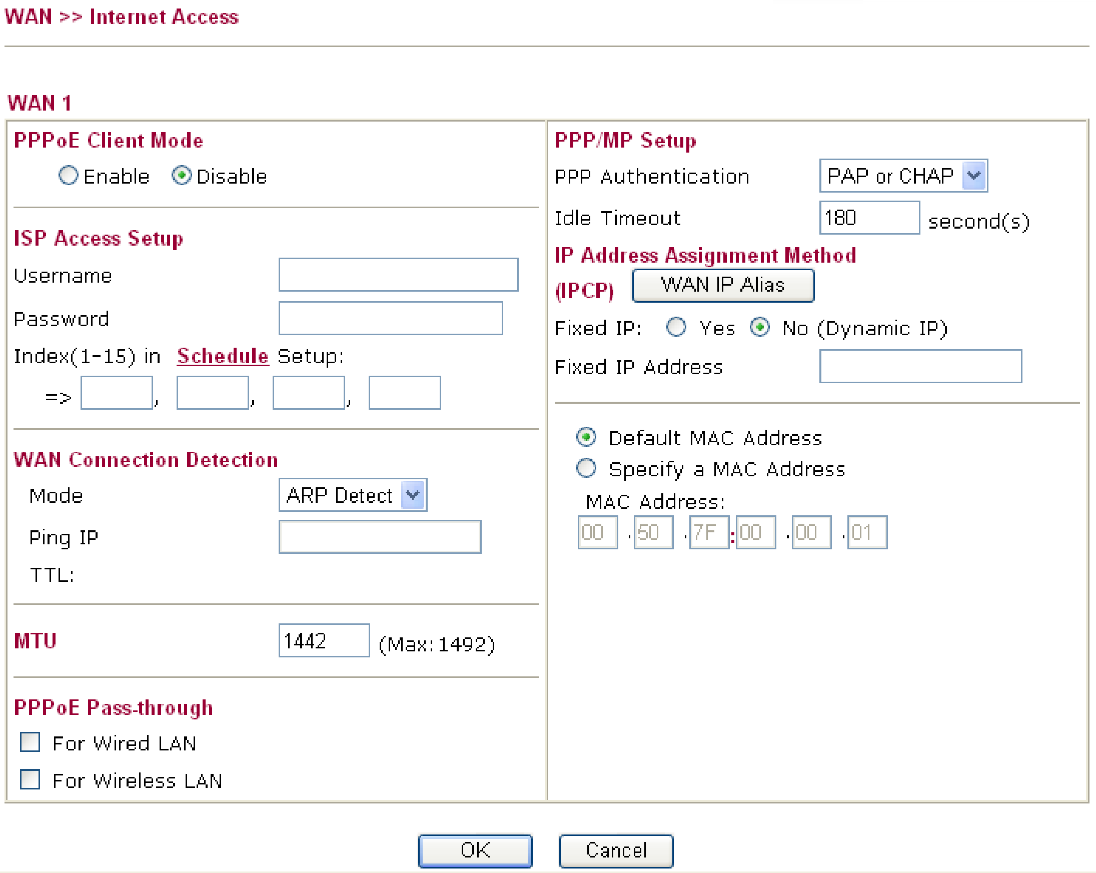
Each item is explained as follows:

Item	Description
Index	Display the WAN interface.
Display Name	It shows the name of the WAN1/WAN2/WAN3 that entered in general setup.
Physical Mode	It shows the physical connection for WAN1(Ethernet)/WAN2 (Ethernet) /WAN3 (3G USB Modem) according to the real network connection.
Access Mode	Use the drop down list to choose a proper access mode. The details page of that mode will be popped up. If not, click

	Details Page for accessing the page to configure the settings.
Details Page	This button will open different web page according to the access mode that you choose in WAN interface.

Details Page for PPPoE in WAN1/WAN2

To choose PPPoE as the accessing protocol of the internet, please select **PPPoE** from the **Internet Access** menu. The following web page will be shown.



WAN >> Internet Access

WAN 1

PPPoE Client Mode

○ Enable ● Disable

ISP Access Setup

Username

Password

Index(1-15) in Schedule Setup:

=> , , ,

WAN Connection Detection

Mode: ARP Detect

Ping IP

TTL:

MTU: 1442 (Max:1492)

PPPoE Pass-through

□ For Wired LAN

□ For Wireless LAN

PPP/MP Setup

PPP Authentication: PAP or CHAP

Idle Timeout: 180 second(s)

IP Address Assignment Method (IPCP)

WAN IP Alias

Fixed IP: ○ Yes ● No (Dynamic IP)

Fixed IP Address

● Default MAC Address

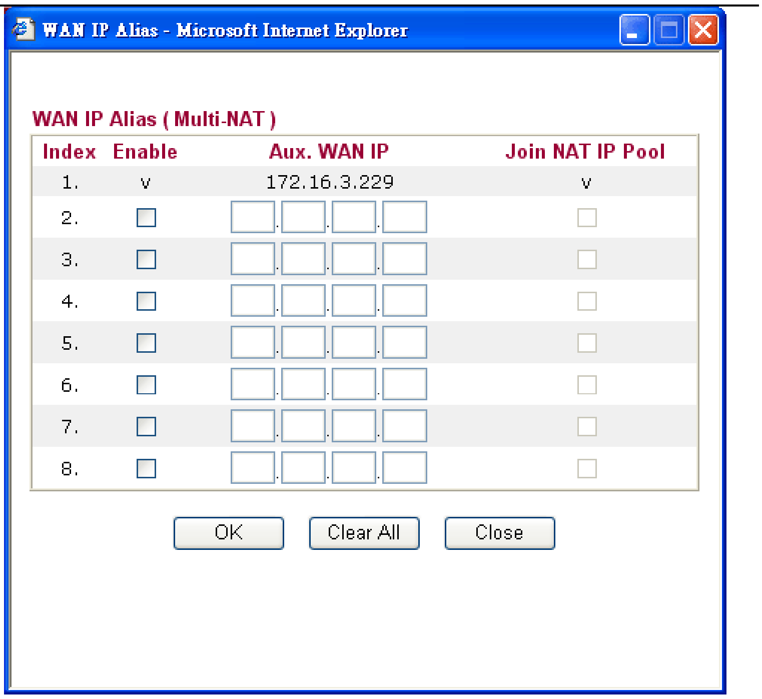
○ Specify a MAC Address

MAC Address: 00 . 50 . 7F : 00 . 00 . 01

Available settings are explained as follows:

Item	Description
PPPoE Client Mode	Click **Enable** for activating this function. If you click **Disable**, this function will be closed and all the settings that you adjusted in this page will be invalid.
ISP Access Setup	Enter your allocated username, password and authentication parameters according to the information provided by your ISP. **Username** – Type in the username provided by ISP in this field. **Password** – Type in the password provided by ISP in this field. **Index (1-15) in Schedule Setup -** You can type in four sets of time schedule for your request. All the schedules can be set previously in **Application – Schedule** web page and you can

Item	Description
	use the number that you have set in that web page.
WAN Connection Detection	Such function allows you to verify whether network connection is alive or not through ARP Detect or Ping Detect. **Mode** – Choose **ARP Detect** or **Ping Detect** for the system to execute for WAN detection. **Ping IP** – If you choose Ping Detect as detection mode, you have to type IP address in this field for pinging. **TTL (Time to Live)** – Displays value for your reference. TTL value is set by telnet command.
MTU	It means Max Transmit Unit for packet. The default setting is 1442.
PPPoE Pass-through	The router offers PPPoE dial-up connection. Besides, you also can establish the PPPoE connection directly from local clients to your ISP via the Vigor router. When PPPoA protocol is selected, the PPPoE package transmitted by PC will be transformed into PPPoA package and sent to WAN server. Thus, the PC can access Internet through such direction. **For Wired LAN** – If you check this box, PCs on the same network can use another set of PPPoE session (different with the Host PC) to access into Internet. **For Wireless LAN** – If you check this box, PCs on the same wireless network can use another set of PPPoE session (different with the Host PC) to access into Internet.
PPP/MP Setup	**PPP Authentication** – Select **PAP only** or **PAP or CHAP** for PPP. If you want to connect to Internet all the time, you can check **Always On**. **Idle Timeout** – Set the timeout for breaking down the Internet after passing through the time without any action.
IP Address Assignment Method (IPCP)	Usually ISP dynamically assigns IP address to you each time you connect to it and request. In some case, your ISP provides service to always assign you the same IP address whenever you request. In this case, you can fill in this IP address in the Fixed IP field. Please contact your ISP before you want to use this function. **WAN IP Alias -** If you have multiple public IP addresses and would like to utilize them on the WAN interface, please use WAN IP Alias. You can set up to 8 public IP addresses other than the current one you are using.

<table>
<tr><th>Item</th><th>Description</th></tr>
<tr><td></td><td>


WAN IP Alias (Multi-NAT)

<table>
<tr><th>Index</th><th>Enable</th><th>Aux. WAN IP</th><th>Join NAT IP Pool</th></tr>
<tr><td>1.</td><td>v</td><td>172.16.3.229</td><td>v</td></tr>
<tr><td>2.</td><td>☐</td><td>. . .</td><td>☐</td></tr>
<tr><td>3.</td><td>☐</td><td>. . .</td><td>☐</td></tr>
<tr><td>4.</td><td>☐</td><td>. . .</td><td>☐</td></tr>
<tr><td>5.</td><td>☐</td><td>. . .</td><td>☐</td></tr>
<tr><td>6.</td><td>☐</td><td>. . .</td><td>☐</td></tr>
<tr><td>7.</td><td>☐</td><td>. . .</td><td>☐</td></tr>
<tr><td>8.</td><td>☐</td><td>. . .</td><td>☐</td></tr>
</table>

Fixed IP – Click **Yes** to use this function and type in a fixed IP address in the box of **Fixed IP Address**.

Default MAC Address – You can use **Default MAC Address** or specify another MAC address by typing on the boxes of MAC Address for the router.

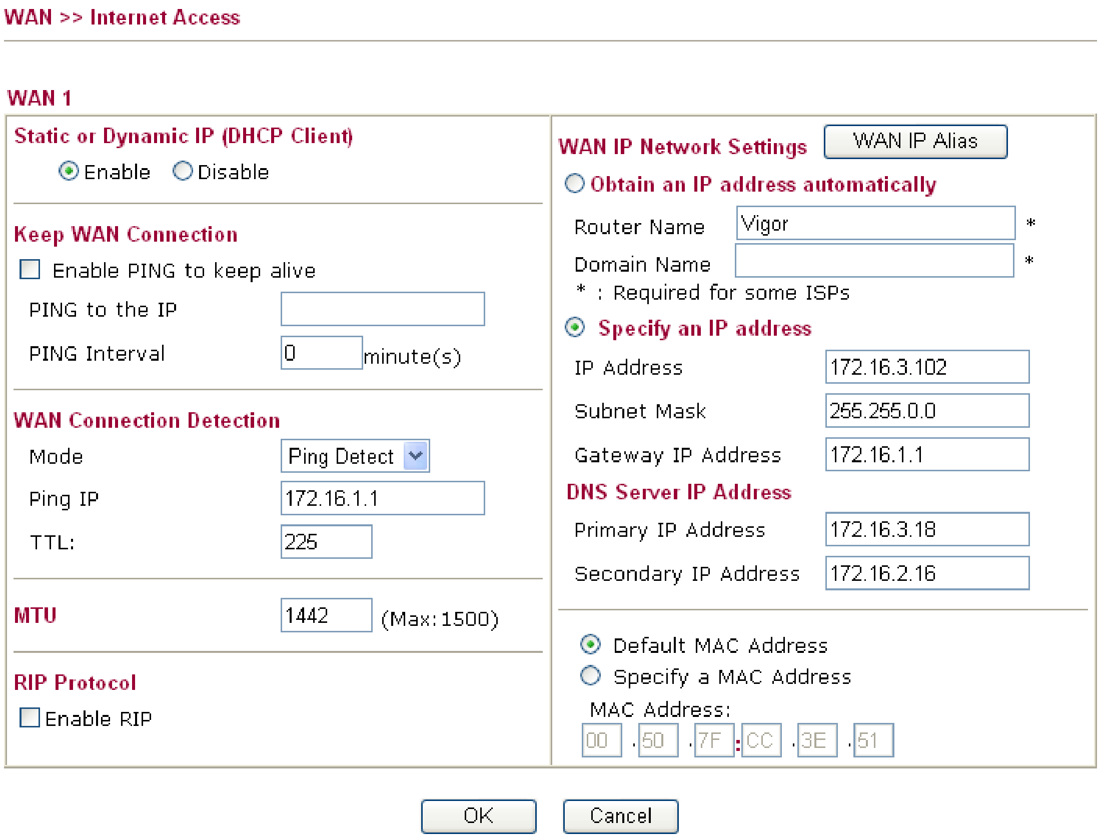
Specify a MAC Address – Type the MAC address for the router manually.
</td></tr>
</table>

After finishing all the settings here, please click **OK** to activate them.

Details Page for Static or Dynamic I P in WAN1/WAN2

For static IP mode, you usually receive a fixed public IP address or a public subnet, namely multiple public IP addresses from your ISP service providers. In most cases, a Cable service provider will offer a fixed public IP. If you have a public subnet, you could assign an IP address or many IP address to the WAN interface.

To use **Static or Dynamic IP** as the accessing protocol of the internet, please choose **Static or Dynamic IP** mode from **Internet Access** menu. The following web page will be shown.



WAN >> Internet Access

WAN 1

Static or Dynamic IP (DHCP Client)

● Enable ○ Disable

Keep WAN Connection

□ Enable PING to keep alive

PING to the IP:

PING Interval: 0 minute(s)

WAN Connection Detection

Mode: Ping Detect

Ping IP: 172.16.1.1

TTL: 225

MTU: 1442 (Max:1500)

RIP Protocol

□ Enable RIP

WAN IP Network Settings [WAN IP Alias]

○ Obtain an IP address automatically

Router Name: Vigor *

Domain Name: *

* : Required for some ISPs

● Specify an IP address

IP Address: 172.16.3.102

Subnet Mask: 255.255.0.0

Gateway IP Address: 172.16.1.1

DNS Server IP Address

Primary IP Address: 172.16.3.18

Secondary IP Address: 172.16.2.16

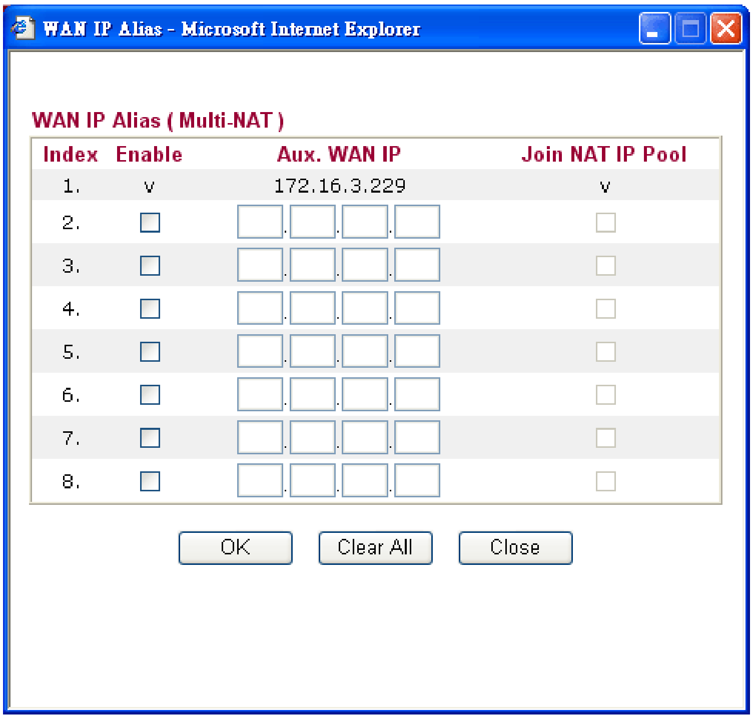
● Default MAC Address

○ Specify a MAC Address

MAC Address: 00 . 50 . 7F : CC . 3E . 51

Available settings are explained as follows:

Item	Description
Static or Dynamic IP	Click **Enable** for activating this function. If you click **Disable**, this function will be closed and all the settings that you adjusted in this page will be invalid.
Keep WAN Connection	Normally, this function is designed for Dynamic IP environments because some ISPs will drop connections if there is no traffic within certain periods of time. Check **Enable PING to keep alive** box to activate this function. **PING to the IP** - If you enable the PING function, please specify the IP address for the system to PING it for keeping alive. **PING Interval** - Enter the interval for the system to execute the PING operation.
WAN Connection Detection	Such function allows you to verify whether network connection is alive or not through ARP Detect or Ping Detect. **Mode** – Choose **ARP Detect** or **Ping Detect** for the system to execute for WAN detection. **Ping IP** – If you choose Ping Detect as detection mode, you have to type IP address in this field for pinging. **TTL (Time to Live)** – Displays value for your reference. TTL value is set by telnet command.
MTU	It means Max Transmit Unit for packet. The default setting is 1442.

<table>
<tr><th>Item</th><th>Description</th></tr>
<tr><td><b>RIP Protocol</b></td><td>Routing Information Protocol is abbreviated as RIP(RFC1058) specifying how routers exchange routing tables information. Click <b>Enable RIP</b> for activating this function.</td></tr>
<tr><td><b>WAN IP Network Settings</b></td><td>
<p>This group allows you to obtain an IP address automatically and allows you type in IP address manually.</p>
<p><b>WAN IP Alias -</b> If you have multiple public IP addresses and would like to utilize them on the WAN interface, please use WAN IP Alias. You can set up to 8 public IP addresses other than the current one you are using.</p>

<p>WAN IP Alias - Microsoft Internet Explorer</p>
<p>WAN IP Alias (Multi-NAT)</p>
<table>
<tr><th>Index</th><th>Enable</th><th>Aux. WAN IP</th><th>Join NAT IP Pool</th></tr>
<tr><td>1.</td><td>v</td><td>172.16.3.229</td><td>v</td></tr>
<tr><td>2.</td><td>□</td><td>. . .</td><td>□</td></tr>
<tr><td>3.</td><td>□</td><td>. . .</td><td>□</td></tr>
<tr><td>4.</td><td>□</td><td>. . .</td><td>□</td></tr>
<tr><td>5.</td><td>□</td><td>. . .</td><td>□</td></tr>
<tr><td>6.</td><td>□</td><td>. . .</td><td>□</td></tr>
<tr><td>7.</td><td>□</td><td>. . .</td><td>□</td></tr>
<tr><td>8.</td><td>□</td><td>. . .</td><td>□</td></tr>
</table>

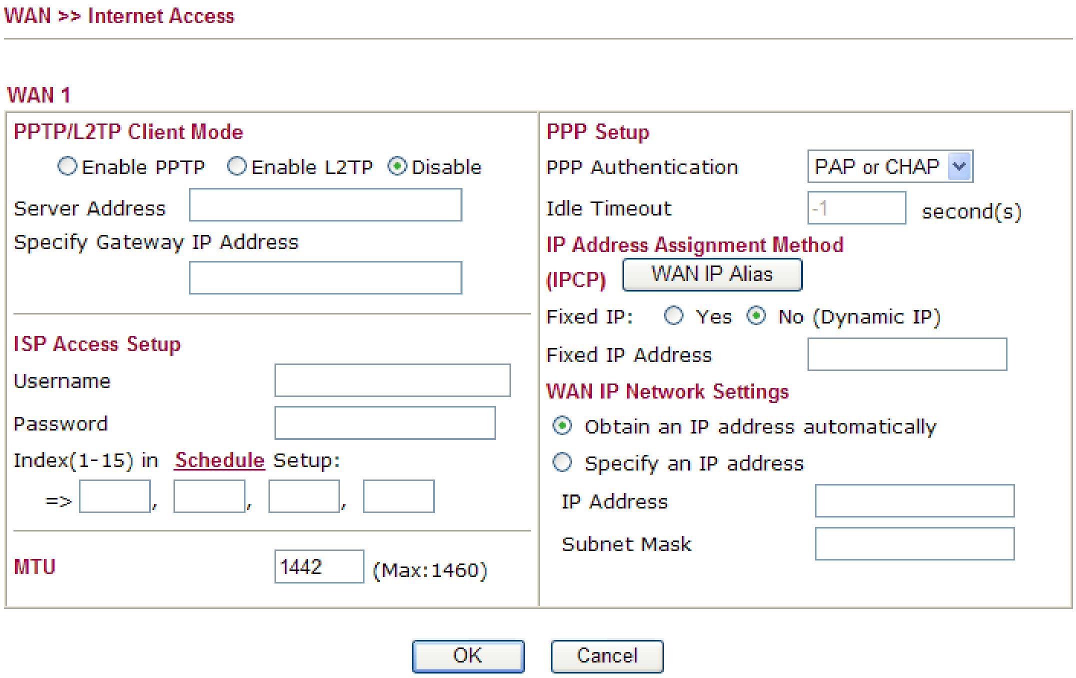
<p><b>Obtain an IP address automatically</b> – Click this button to obtain the IP address automatically if you want to use <b>Dynamic IP</b> mode.</p>
<p><b><i>Router Name</i></b><i>:</i> Type in the router name provided by ISP.</p>
<p><b><i>Domain Name</i></b><i>:</i> Type in the domain name that you have assigned.
<b>Specify an IP address</b> – Click this radio button to specify some data if you want to use <b>Static IP</b> mode.</p>
<p><b><i>IP Address</i></b><i>:</i> Type the IP address.</p>
<p><b><i>Subnet Mask</i></b><i>:</i> Type the subnet mask.</p>
<p><b><i>Gateway IP Address</i></b><i>:</i> Type the gateway IP address.</p>
<p><b><i>Default MAC Address</i></b>: Click this radio button to use default MAC address for the router.</p>
<p><b><i>Specify a MAC Address</i></b>: Some Cable service providers specify a specific MAC address for access authentication. In such cases you need to click the <b>Specify a MAC Address</b> and enter the MAC address in the MAC Address field.</p>
</td></tr>
</table>

Item	Description
	DNS Server IP Address - Type in the primary IP address for the router if you want to use **Static IP** mode. If necessary, type in secondary IP address for necessity in the future.

After finishing all the settings here, please click **OK** to activate them.

Details Page for PPTP/L2TP in WAN1/WAN2

To use **PPTP/L2TP** as the accessing protocol of the internet, please choose **PPTP/L2TP** from **Internet Access** menu. The following web page will be shown.



WAN >> Internet Access

WAN 1

PPTP/L2TP Client Mode

○ Enable PPTP ○ Enable L2TP ● Disable

Server Address

Specify Gateway IP Address

ISP Access Setup

Username

Password

Index(1-15) in Schedule Setup:

=> , , ,

MTU 1442 (Max:1460)

PPP Setup

PPP Authentication: PAP or CHAP

Idle Timeout: -1 second(s)

IP Address Assignment Method (IPCP)

Fixed IP: ○ Yes ● No (Dynamic IP)

Fixed IP Address

WAN IP Network Settings

● Obtain an IP address automatically

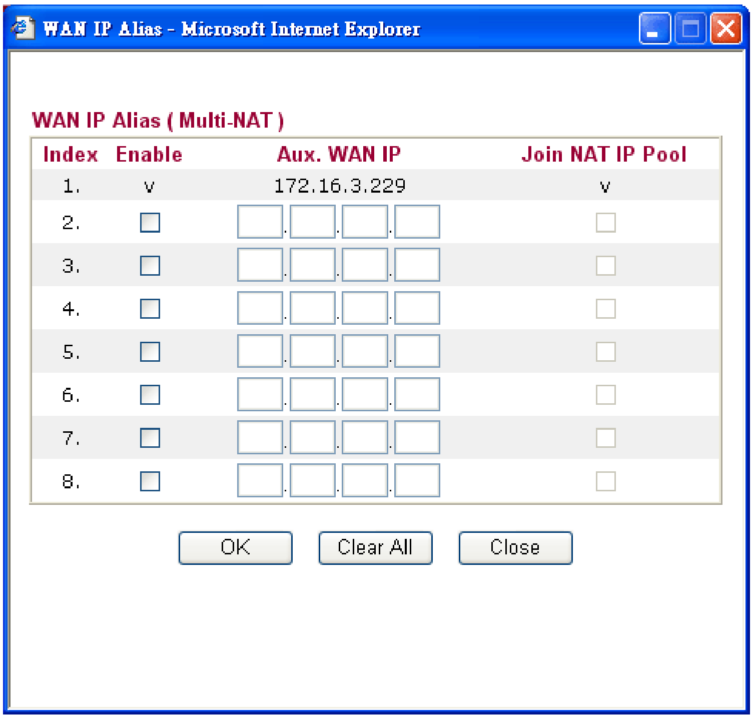
○ Specify an IP address

IP Address

Subnet Mask

Available settings are explained as follows:

Item	Description
PPTP/L2TP Client Mode	**Enable PPTP-** Click this radio button to enable a PPTP client to establish a tunnel to a DSL modem on the WAN interface. **Enable L2TP -** Click this radio button to enable a L2TP client to establish a tunnel to a DSL modem on the WAN interface. **Disable** – Click this radio button to close the connection through PPTP or L2TP. **Server Address -** Specify the IP address of the PPTP/L2TP server if you enable PPTP/L2TP client mode. **Specify Gateway IP Address** – Specify the gateway IP address for DHCP server.
ISP Access Setup	**Username -**Type in the username provided by ISP in this field. **Password -**Type in the password provided by ISP in this field. **Index (1-15) in Schedule Setup -** You can type in four sets of time schedule for your request. All the schedules can be set previously in **Application – Schedule** web page and you can

<table>
<tr><th>Item</th><th>Description</th></tr>
<tr><td></td><td>use the number that you have set in that web page.</td></tr>
<tr><td><b>MTU</b></td><td>It means Max Transmit Unit for packet. The default setting is 1442.</td></tr>
<tr><td><b>PPP Setup</b></td><td><b>PPP Authentication -</b> Select <b>PAP only</b> or <b>PAP or CHAP</b> for PPP.
<b>Idle Timeout -</b> Set the timeout for breaking down the Internet after passing through the time without any action.</td></tr>
<tr><td><b>IP Address Assignment Method(IPCP)</b></td><td><b>Fixed IP -</b> Usually ISP dynamically assigns IP address to you each time you connect to it and request. In some case, your ISP provides service to always assign you the same IP address whenever you request. In this case, you can fill in this IP address in the Fixed IP field. Please contact your ISP before you want to use this function. Click <b>Yes</b> to use this function and type in a fixed IP address in the box.
<b>WAN IP Alias -</b> If you have multiple public IP addresses and would like to utilize them on the WAN interface, please use WAN IP Alias. You can set up to 8 public IP addresses other than the current one you are using.


WAN IP Alias (Multi-NAT)
<table>
<tr><th>Index</th><th>Enable</th><th>Aux. WAN IP</th><th>Join NAT IP Pool</th></tr>
<tr><td>1.</td><td>v</td><td>172.16.3.229</td><td>v</td></tr>
<tr><td>2.</td><td>□</td><td>. . .</td><td>□</td></tr>
<tr><td>3.</td><td>□</td><td>. . .</td><td>□</td></tr>
<tr><td>4.</td><td>□</td><td>. . .</td><td>□</td></tr>
<tr><td>5.</td><td>□</td><td>. . .</td><td>□</td></tr>
<tr><td>6.</td><td>□</td><td>. . .</td><td>□</td></tr>
<tr><td>7.</td><td>□</td><td>. . .</td><td>□</td></tr>
<tr><td>8.</td><td>□</td><td>. . .</td><td>□</td></tr>
</table>

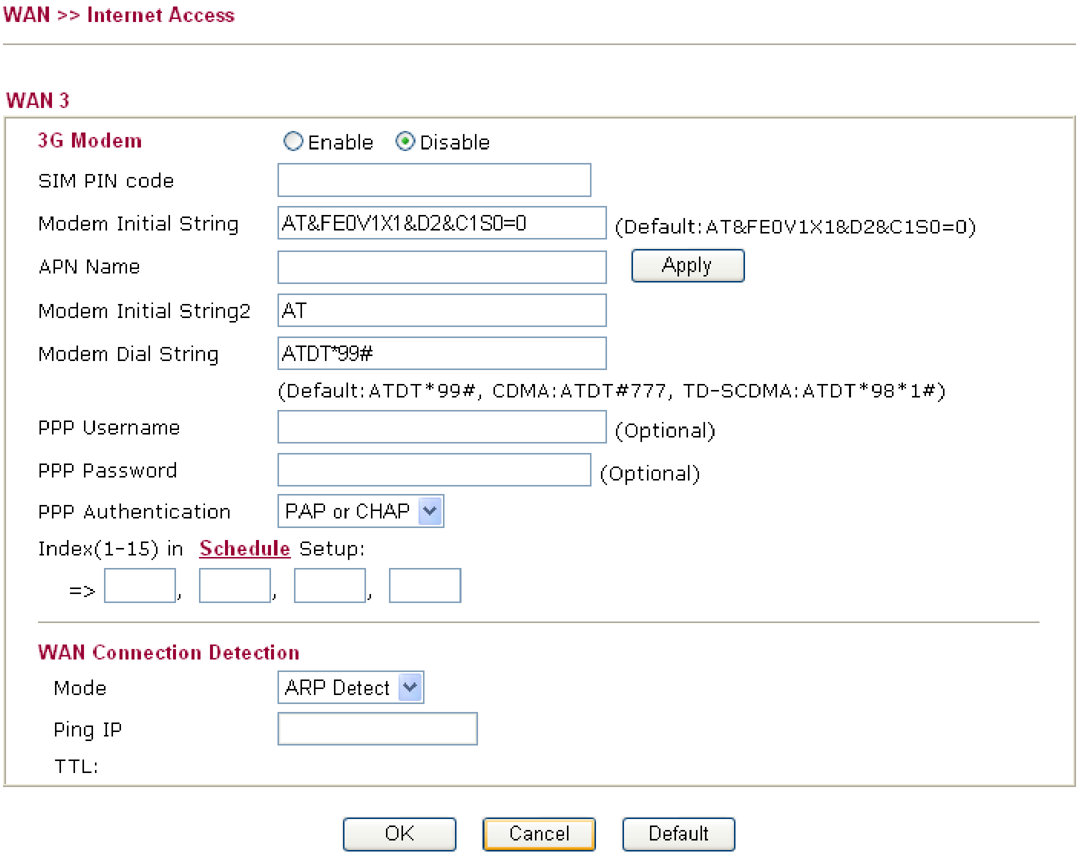
<b>Fixed IP -</b> Usually ISP dynamically assigns IP address to you each time you connect to it and request. In some case, your ISP provides service to always assign you the same IP address whenever you request. In this case, you can fill in this IP address in the Fixed IP field. Please contact your ISP before you want to use this function. Click <b>Yes</b> to use this function and type in a fixed IP address in the box.
<b>Fixed IP Address -</b>Type a fixed IP address.</td></tr>
<tr><td><b>WAN IP Network</b></td><td><b>Obtain an IP address automatically</b> – Click this button to</td></tr>
</table>

Item	Description
Settings	obtain the IP address automatically. **Specify an IP address** – Click this radio button to specify some data. **IP Address** – Type the IP address. **Subnet Mask** – Type the subnet mask.

After finishing all the settings here, please click **OK** to activate them.

Details Page for PPP in WAN3

To use **PPP** (for 3G USB Modem) as the accessing protocol of the internet, please choose **Internet Access** from **WAN** menu. Then, select **PPP** mode for WAN3. The following web page will be shown.



WAN >> Internet Access

WAN 3

3G Modem ○ Enable ● Disable

SIM PIN code

Modem Initial String: AT&FE0V1X1&D2&C1S0=0 (Default:AT&FE0V1X1&D2&C1S0=0)

APN Name

Modem Initial String2: AT

Modem Dial String: ATDT*99#

(Default:ATDT*99#, CDMA:ATDT#777, TD-SCDMA:ATDT*98*1#)

PPP Username (Optional)

PPP Password (Optional)

PPP Authentication: PAP or CHAP

Index(1-15) in Schedule Setup:

=> , , ,

WAN Connection Detection

Mode: ARP Detect

Ping IP

TTL:

Available settings are explained as follows:

Item	Description
3G Modem	Click **Enable** for activating this function. If you click **Disable**, this function will be closed and all the settings that you adjusted in this page will be invalid.
SIM PIN code	Type PIN code of the SIM card that will be used to access Internet.
Modem Initial String	Such value is used to initialize USB modem. Please use the default value. If you have any question, please contact to your ISP.

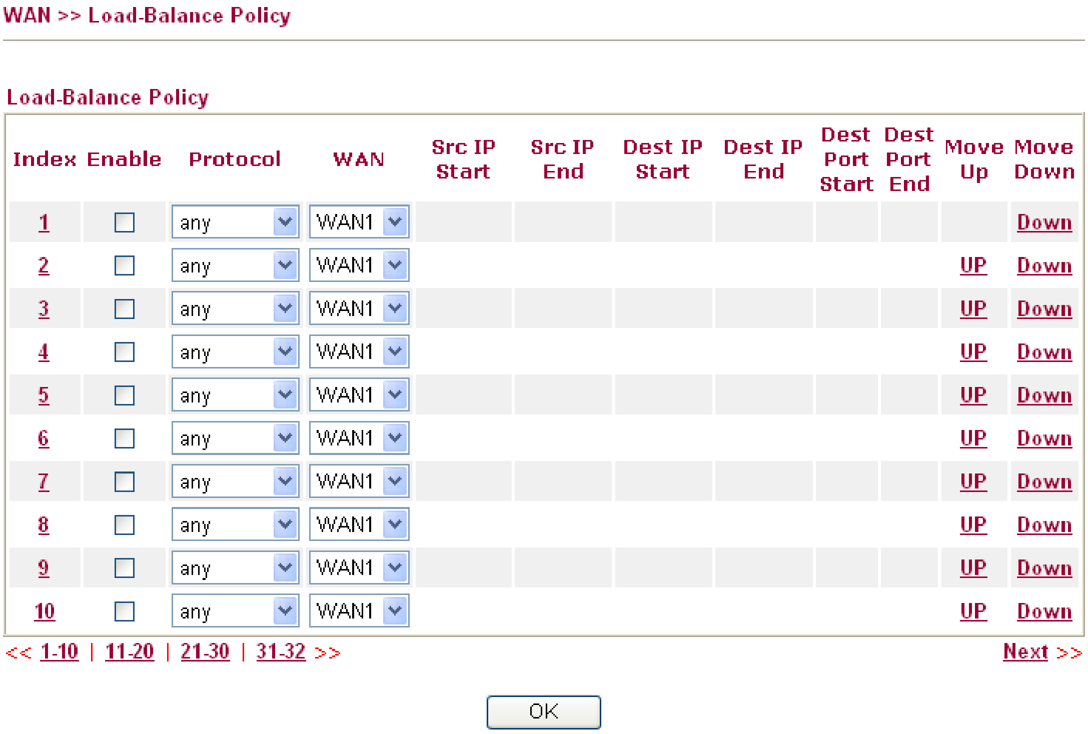
Item	Description
APN Name	APN means Access Point Name which is provided and required by some ISPs. Type the name and click Apply.
Modem Initial String2	The initial string 1 is shared with APN. In some cases, users may need another initial ***AT*** command to restrict 3G band or do any special settings.
Modem Dial String	Such value is used to dial through USB mode. Please use the default value. If you have any question, please contact to your ISP.
PPP Username	Type the PPP username (optional).
PPP Password	Type the PPP password (optional).
PPP Authentication	Selecting this option means the router will attempt to authenticate dial-in users with the CHAP protocol first. If the dial-in user does not support this protocol, it will fall back to use the PAP protocol for authentication.
Index (1-15)	Set the PCs on LAN to work at certain time interval only. You may choose up to 4 schedules out of the 15 schedules pre-defined in **Applications** >> **Schedule** setup. The default setting of this filed is blank and the function will always work.
WAN Connection Detection	Such function allows you to verify whether network connection is alive or not through ARP Detect or Ping Detect. **Mode** – Choose **ARP Detect** or **Ping Detect** for the system to execute for WAN detection. **Ping IP** – If you choose Ping Detect as detection mode, you have to type IP address in this field for pinging. **TTL (Time to Live)** – Displays value for your reference. TTL value is set by telnet command.

After finishing all the settings here, please click **OK** to activate them.

4.1.4 Load-Balance Policy

This router supports the function of load balancing. It can assign traffic with protocol type, IP address for specific host, a subnet of hosts, and port range to be allocated in WAN interface. The user can assign traffic category and force it to go to dedicate network interface based on the following web page setup. Twenty policies of load-balance are supported by this router.

Note: Load-Balance Policy is running only when more than one WAN interface is activated.



WAN >> Load-Balance Policy

Load-Balance Policy

Index	Enable	Protocol	WAN	Src IP Start	Src IP End	Dest IP Start	Dest IP End	Dest Port Start	Dest Port End	Move Up	Move Down
1	□	any	WAN1								Down
2	□	any	WAN1							UP	Down
3	□	any	WAN1							UP	Down
4	□	any	WAN1							UP	Down
5	□	any	WAN1							UP	Down
6	□	any	WAN1							UP	Down
7	□	any	WAN1							UP	Down
8	□	any	WAN1							UP	Down
9	□	any	WAN1							UP	Down
10	□	any	WAN1							UP	Down

<< 1-10 | 11-20 | 21-30 | 31-32 >>

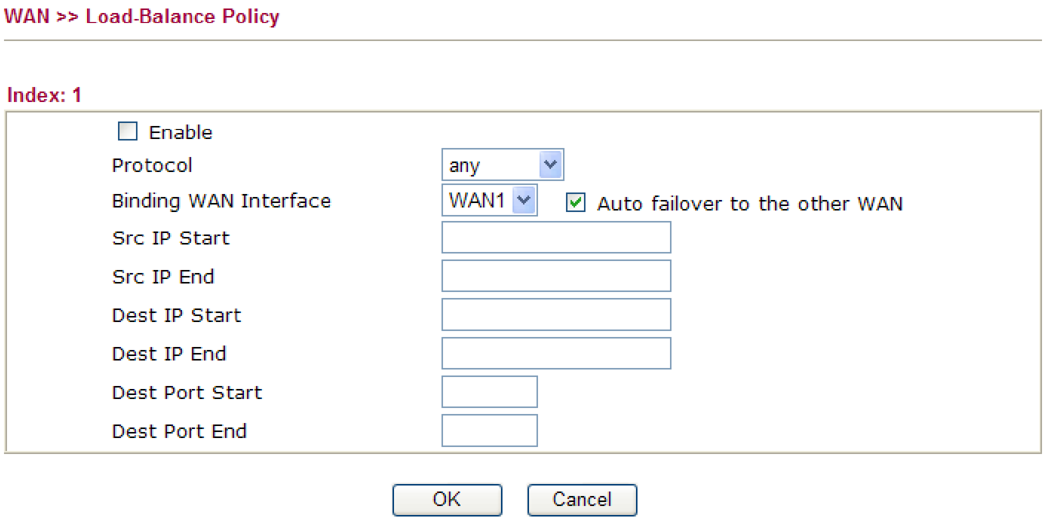
Next >>

OK

Each item is explained as follows:

Item	Description
Index	Click the number of index to access into the load-balance policy configuration web page.
Enable	Check this box to enable this policy.
Protocol	Use the drop-down menu to change the protocol for the WAN interface.
WAN	Use the drop-down menu to change the WAN interface.
Src IP Start	Displays the IP address for the start of the source IP
Src IP End	Displays the IP address for the end of the source IP.
Dest IP Start	Displays the IP address for the start of the destination IP.
Dest IP End	Displays the IP address for the end of the destination IP.
Dest Port Start	Displays the IP address for the start of the destination port.
Dest Port End	Displays the IP address for the end of the destination port.
Move UP/Move Down	Use **Up** or **Down** link to move the order of the policy.

Click any Index number link to access into the following page for configuring load-balance policy.

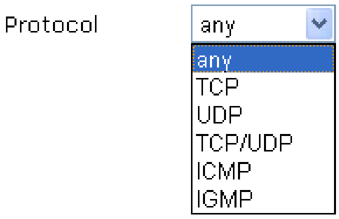


WAN >> Load-Balance Policy

Index: 1

☐ Enable	
Protocol	any
Binding WAN Interface	WAN1 ☑ Auto failover to the other WAN
Src IP Start	
Src IP End	
Dest IP Start	
Dest IP End	
Dest Port Start	
Dest Port End	

Available settings are explained as follows:

Item	Description
Enable	Check this box to enable this policy.
Protocol	Use the drop-down menu to choose a proper protocol for the WAN interface.  Protocol: any
Binding WAN interface	Choose the WAN interface (WAN1 / WAN2 / WAN3) for binding. **Auto failover to other WAN** – Check this button to lead the data passing through other WAN automatically when the selected WAN interface is failover.
Src IP Start	Type the source IP start for the specified WAN interface.
Src IP End	Type the source IP end for the specified WAN interface. If this field is blank, it means that all the source IPs inside the LAN will be passed through the WAN interface.
Dest IP Start	Type the destination IP start for the specified WAN interface.
Dest IP End	Type the destination IP end for the specified WAN interface. If this field is blank, it means that all the destination IPs will be passed through the WAN interface.
Dest Port Start	Type the destination port start for the destination IP.
Dest Port End	Type the destination port end for the destination IP. If this field is blank, it means that all the destination ports will be passed through the WAN interface.

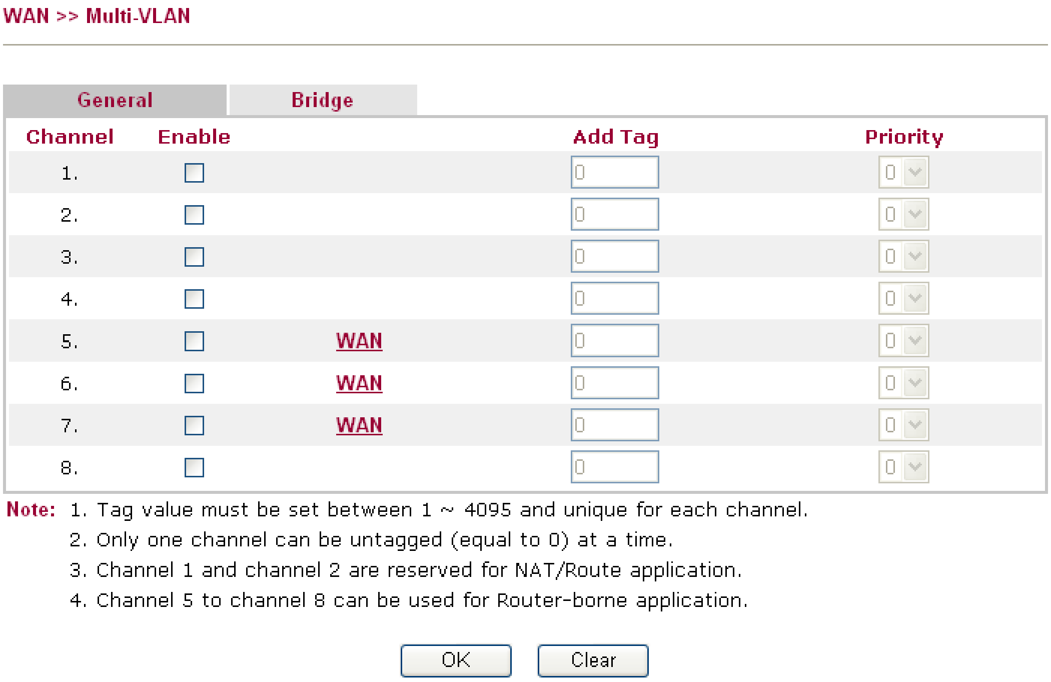
After finishing all the settings here, please click **OK** to save the configuration.

4.1.5 Multi-VLAN

This router allows you to create multi-VLAN for different purposes of data transferring. Simply go to **WAN** and select **Multi-VLAN**.

General

The system allows you to set up to eight channels for multi-VLAN.



Channel	Enable		Add Tag	Priority
1.	□		0	0
2.	□		0	0
3.	□		0	0
4.	□		0	0
5.	□	WAN	0	0
6.	□	WAN	0	0
7.	□	WAN	0	0
8.	□		0	0

Note: 1. Tag value must be set between 1 ~ 4095 and unique for each channel.
2. Only one channel can be untagged (equal to 0) at a time.
3. Channel 1 and channel 2 are reserved for NAT/Route application.
4. Channel 5 to channel 8 can be used for Router-borne application.

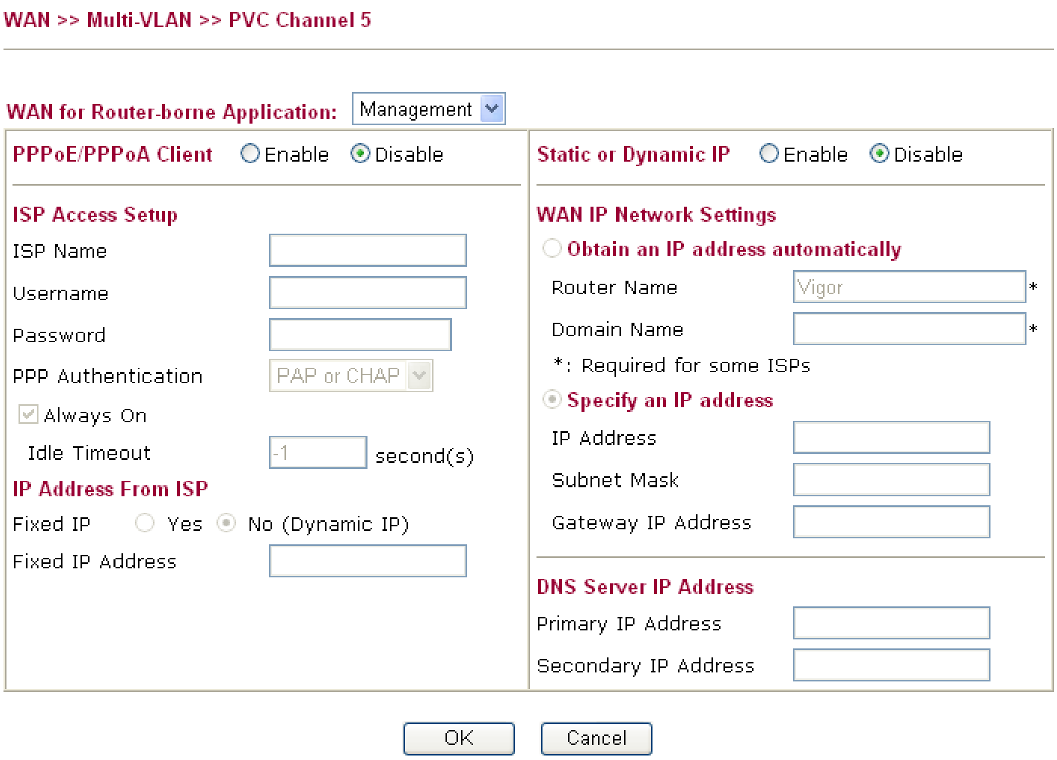
Available settings are explained as follows:

Item	Description
Channel	Display the number of each channel.
Enable	Check this box to enable that channel. The channels that you enabled here will be shown in the **Multi-VLAN** channel drop down list on the web page of **Internet Access**. Though you can enable eight channels in this page, yet only one channel can be chosen on the web page of **Internet Access**.
Add Tag	To identify the usage of VLAN, check this box to invoke this setting. And type the number for VLAN ID (number).
Priority	To add the packet priority number for such VLAN. The range is from 0 to 7.

After finishing all the settings here, please click **OK** to save the configuration.

WAN link for Channel 5, 6 and 7

They are provided for router-borne application such as **TR-069**. The settings must be applied and obtained from your ISP. For your special request, please contact with your ISP and then click WAN link of Channel 5, 6 or 7 to configure your router.



WAN >> Multi-VLAN >> PVC Channel 5

WAN for Router-borne Application: Management

PPPoE/PPPoA Client ○ Enable ● Disable

ISP Access Setup

ISP Name

Username

Password

PPP Authentication: PAP or CHAP

☑ Always On

Idle Timeout: -1 second(s)

IP Address From ISP

Fixed IP ○ Yes ● No (Dynamic IP)

Fixed IP Address

Static or Dynamic IP ○ Enable ● Disable

WAN IP Network Settings

○ Obtain an IP address automatically

Router Name: Vigor *

Domain Name *

*: Required for some ISPs

● Specify an IP address

IP Address

Subnet Mask

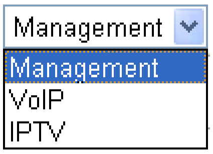
Gateway IP Address

DNS Server IP Address

Primary IP Address

Secondary IP Address

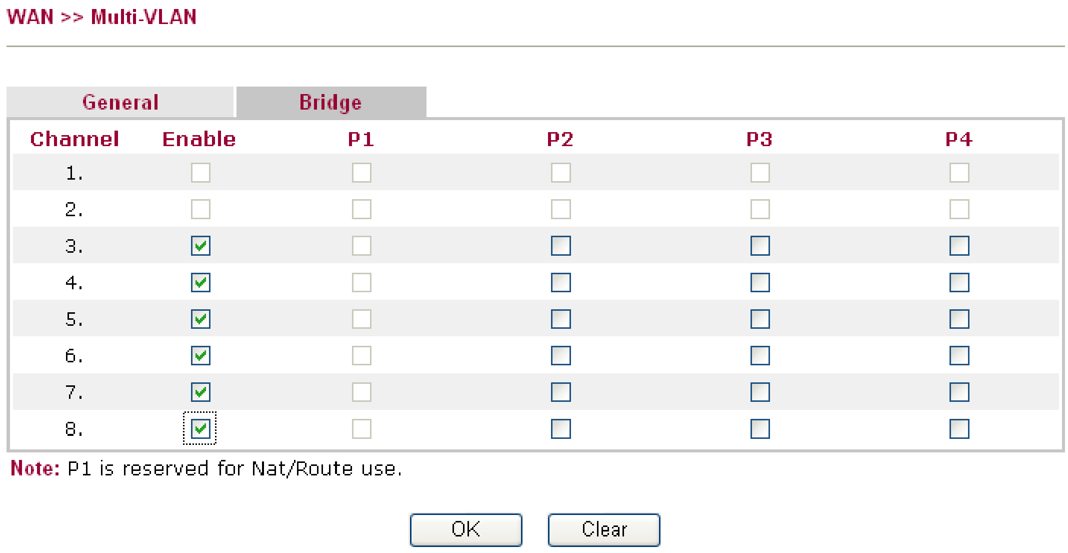
Available settings are explained as follows:

Item	Description
WAN for Router-borne Application	Choose the router service for channel 5, 6 or 7. **Management** - It can be specified for general management (Web configuration/telnet/TR069). If you choose Management, the configuration for this VLAN will be effective for Web configuration/telnet/TR-069. **VoIP** - It can be specified for VoIP only. If you choose VoIP, the configuration for this VLAN will be effective for VoIP data transmitting and receiving. **IPTV** - Packets from IGMP proxy will be sent out from such WAN interface. Therefore, the setting for IGMP shall be configured with **PVC** in the page of **Application>>IGMP**. 

For other settings, refer to **Details Page for PPPoE in WAN1.**

Bridge

General page lets you set the first channel. As to set the third channel, please click the **Bridge** tab to open **Bridge** configuration page.



WAN >> Multi-VLAN

General | Bridge

Channel	Enable	P1	P2	P3	P4
1.	□	□	□	□	□
2.	□	□	□	□	□
3.	☑	□	□	□	□
4.	☑	□	□	□	□
5.	☑	□	□	□	□
6.	☑	□	□	□	□
7.	☑	□	□	□	□
8.	☑	□	□	□	□

Note: P1 is reserved for Nat/Route use.

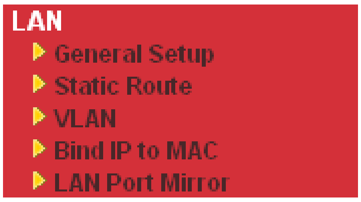
Available settings are explained as follows:

Item	Description
Enable	Check this box to enable that channel. Only channel 3 to 8 can be set in this page, for channel 1 to 2 are reserved for NAT using.
P1 to P4	It means the LAN port 1 to 4. Check the box to designate the LAN port for channel 3 to 8.

Click **Clear** to remove all the configurations in this page if you do not satisfy it. When you finish the configuration, please click **OK** to save and exit this page.

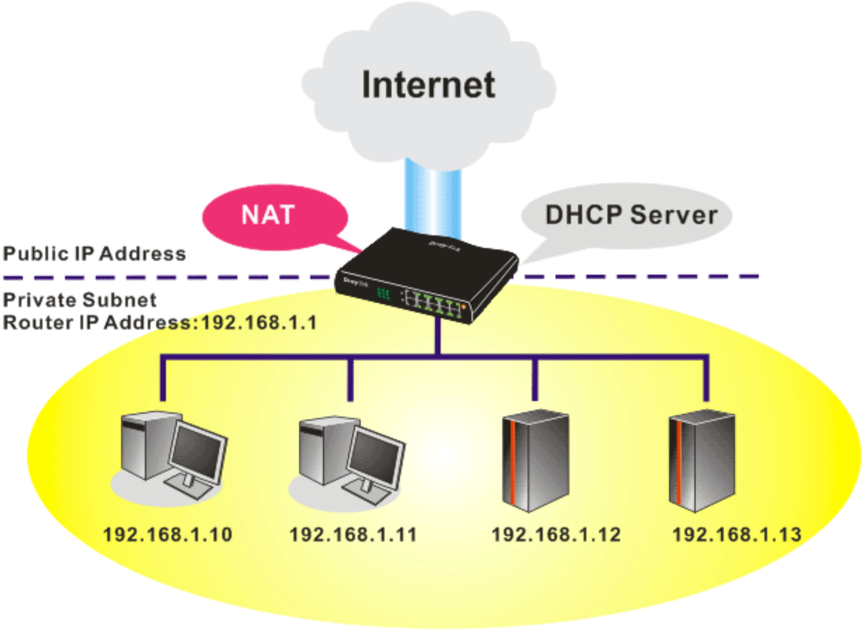
4.2 LAN

Local Area Network (LAN) is a group of subnets regulated and ruled by router. The design of network structure is related to what type of public IP addresses coming from your ISP.

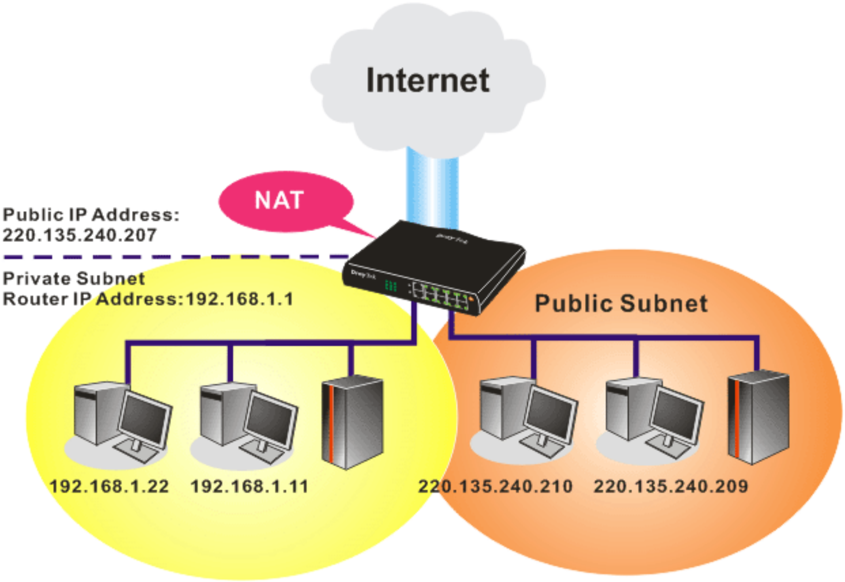


4.2.1 Basics of LAN

The most generic function of Vigor router is NAT. It creates a private subnet of your own. As mentioned previously, the router will talk to other public hosts on the Internet by using public IP address and talking to local hosts by using its private IP address. What NAT does is to translate the packets from public IP address to private IP address to forward the right packets to the right host and vice versa. Besides, Vigor router has a built-in DHCP server that assigns private IP address to each local host. See the following diagram for a briefly understanding.



In some special case, you may have a public IP subnet from your ISP such as 220.135.240.0/24. This means that you can set up a public subnet or call second subnet that each host is equipped with a public IP address. As a part of the public subnet, the Vigor router will serve for IP routing to help hosts in the public subnet to communicate with other public hosts or servers outside. Therefore, the router should be set as the gateway for public hosts.



What is Routing Information Protocol (RIP)

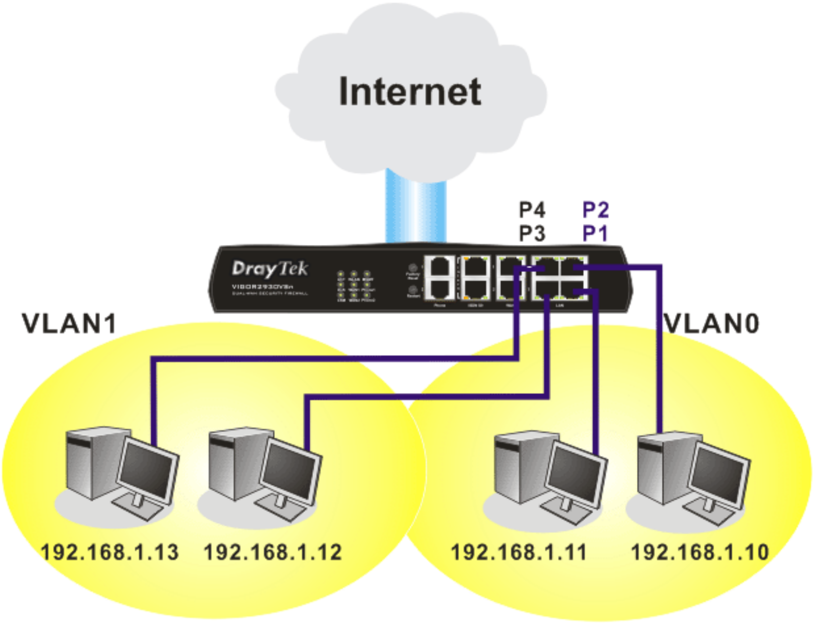
Vigor router will exchange routing information with neighboring routers using the RIP to accomplish IP routing. This allows users to change the information of the router such as IP address and the routers will automatically inform for each other.

What is Static Route

When you have several subnets in your LAN, sometimes a more effective and quicker way for connection is the **Static routes** function rather than other method. You may simply set rules to forward data from one specified subnet to another specified subnet without the presence of RIP.

What are Virtual LANs and Rate Control

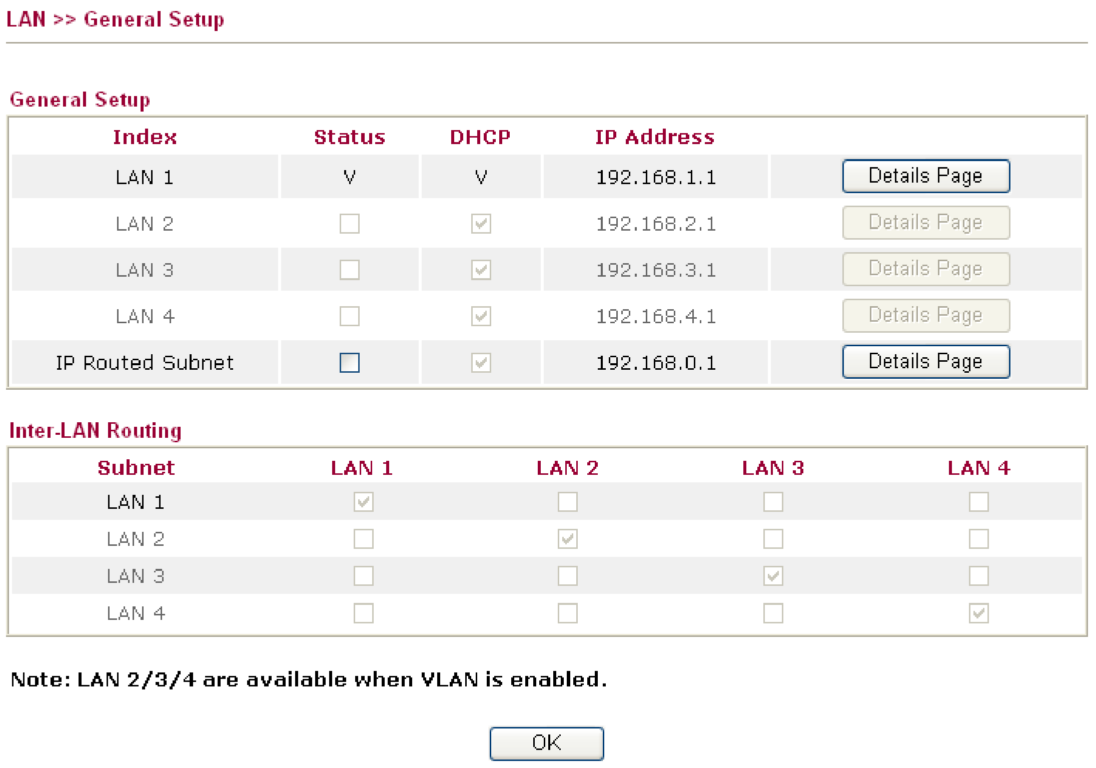
You can group local hosts by physical ports and create up to 4 virtual LANs. To manage the communication between different groups, please set up rules in Virtual LAN (VLAN) function and the rate of each.



4.2.2 General Setup

This page provides you the general settings for LAN. Click **LAN** to open the LAN settings page and choose **General Setup**.

There are four subnets provided by the router which allow users to divide groups into different subnets (LAN1 – LAN4). In addition, different subnets can link for each other by configuring **Inter-LAN Routing**. At present, LAN1 setting is fixed with NAT mode only. LAN2 – LAN4 can be operated under **NAT** or **Route** mode. IP Routed Subnet can be operated under Route mode.



LAN >> General Setup

General Setup

Index	Status	DHCP	IP Address	
LAN 1	V	V	192.168.1.1	Details Page
LAN 2	□	☑	192.168.2.1	Details Page
LAN 3	□	☑	192.168.3.1	Details Page
LAN 4	□	☑	192.168.4.1	Details Page
IP Routed Subnet	□	☑	192.168.0.1	Details Page

Inter-LAN Routing

Subnet	LAN 1	LAN 2	LAN 3	LAN 4
LAN 1	☑	□	□	□
LAN 2	□	☑	□	□
LAN 3	□	□	☑	□
LAN 4	□	□	□	☑

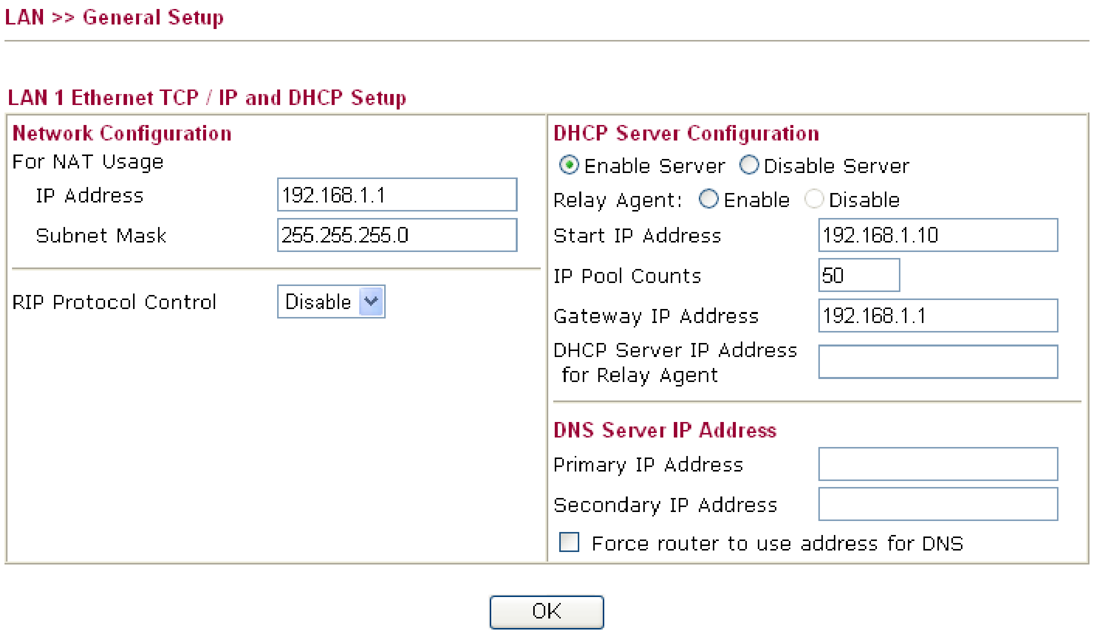
Note: LAN 2/3/4 are available when VLAN is enabled.

Each item is explained as follows:

Item	Description
General Setup-----	Allow to configure settings for each subnet respectively.
Index	Display all of the LAN items.
Status	Basically, LAN1 status is enabled in default. LAN2, LAN3, LAN3 and IP Routed Subnet can be observed by checking the box of **Status**.
DHCP	LAN1 is configured with DHCP in default. If required, please check the DHCP box for each LAN.
IP Address	Display the IP address for each LAN item.
Details Page	Click it to access into the setting page. Each LAN will have different LAN configuration page. **Each LAN must be configured in different subnet.**
Inter-LAN Routing	Check the box to link two or more different subnets (LAN and LAN).

After finishing all the settings here, please click **OK** to save the configuration.

Details Page for LAN1



LAN >> General Setup

LAN 1 Ethernet TCP / IP and DHCP Setup

Network Configuration

For NAT Usage

IP Address	192.168.1.1
Subnet Mask	255.255.255.0
RIP Protocol Control	Disable

DHCP Server Configuration

● Enable Server ○ Disable Server

Relay Agent: ○ Enable ○ Disable

Start IP Address	192.168.1.10
IP Pool Counts	50
Gateway IP Address	192.168.1.1
DHCP Server IP Address for Relay Agent	

DNS Server IP Address

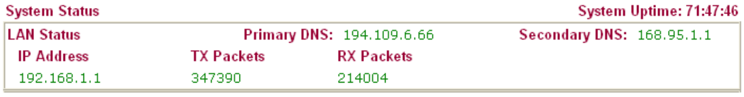
Primary IP Address	
Secondary IP Address	

□ Force router to use address for DNS

OK

Available settings are explained as follows:

Item	Description
Network Configuration	**IP Address -** Type in IP address for connecting to a local private network (Default: 192.168.1.1). **Subnet Mask -** Type in an address code that determines the size of the network. (Default: 255.255.255.0/ 24) **RIP Protocol Control - Disable** deactivates the RIP protocol. It will lead to a stoppage of the exchange of routing information between routers. (Default) **Enable** can activate the RIP protocol.
DHCP Server Configuration	DHCP stands for Dynamic Host Configuration Protocol. The router by factory default acts a DHCP server for your network so it automatically dispatch related IP settings to any local user configured as a DHCP client. It is highly recommended that you leave the router enabled as a DHCP server if you do not have a DHCP server for your network. **Enable Server -** Let the router assign IP address to every host in the LAN. **Disable Server –**If your LAN has another DHCP server, please click it to disable the DHCP server of this device. However, If you LAN does not have any DHCP server, you can manually assign IP address to every host in the LAN. **Relay Agent –**Specify which subnet that DHCP server is located the relay agent should redirect the DHCP request to. **Start IP Address -** Enter a value of the IP address pool for the DHCP server to start with when issuing IP addresses. If the 1st IP address of your router is 192.168.1.1, the starting IP address must be 192.168.1.2 or greater, but smaller than 192.168.1.254. **IP Pool Counts -** Enter the maximum number of PCs that you want the DHCP server to assign IP addresses to. The default is

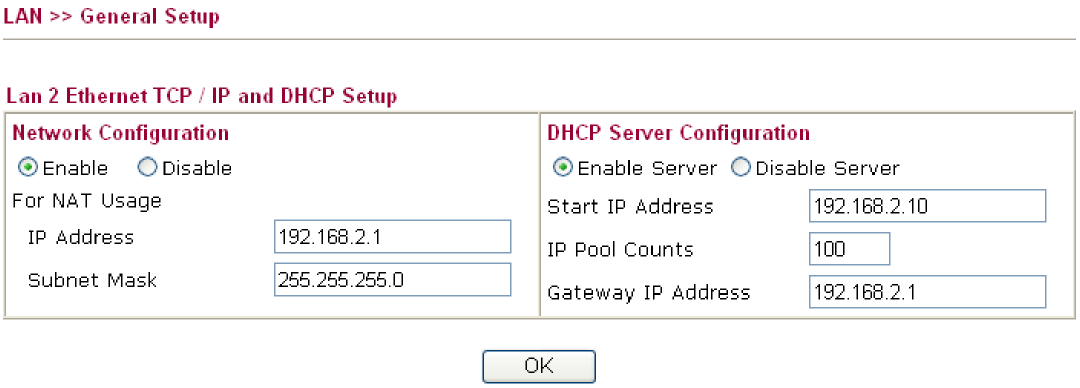
Item	Description
	50 and the maximum is 253. **Gateway IP Address -** Enter a value of the gateway IP address for this subnet. The value is usually as same as the 1st IP address of the router, which means the router is the default gateway. **DHCP Server IP Address for Relay Agent -** Set the IP address of the DHCP server you are going to use so the Relay Agent can help to forward the DHCP request to the DHCP server.
DNS Server IP Address	DNS stands for Domain Name System. Every Internet host must have a unique IP address, also they may have a human-friendly, easy to remember name such as www.yahoo.com. The DNS server converts the user-friendly name into its equivalent IP address. **Primary IP Address -**You must specify a DNS server IP address here because your ISP should provide you with usually more than one DNS Server. If your ISP does not provide it, the router will automatically apply default DNS Server IP address: 194.109.6.66 to this field. **Secondary IP Address -** You can specify secondary DNS server IP address here because your ISP often provides you more than one DNS Server. If your ISP does not provide it, the router will automatically apply default secondary DNS Server IP address: 194.98.0.1 to this field. The default DNS Server IP address can be found via Online Status:  System Status System Uptime: 71:47:46 LAN Status Primary DNS: 194.109.6.66 Secondary DNS: 168.95.1.1 IP Address TX Packets RX Packets 192.168.1.1 347390 214004 If both the Primary IP and Secondary IP Address fields are left empty, the router will assign its own IP address to local users as a DNS proxy server and maintain a DNS cache. If the IP address of a domain name is already in the DNS cache, the router will resolve the domain name immediately. Otherwise, the router forwards the DNS query packet to the external DNS server by establishing a WAN (e.g. DSL/Cable) connection. **Force router to use address for DNS -** Force Vigor router to use DNS servers in this page instead of DNS servers given by the Internet Access server (PPPoE, PPTP, L2TP or DHCP server).

After finishing all the settings here, please click **OK** to save the configuration.

There are two common scenarios of LAN settings that stated in Chapter 3. For the configuration examples, please refer to that chapter to get more information for your necessity.

Details Page for LAN2/LAN3/LAN4

Details Page for LAN2 to LAN4 will be available only when VLAN settings for LAN2 to LAN4 are configured and activated.



LAN >> General Setup

Lan 2 Ethernet TCP / IP and DHCP Setup

Network Configuration		DHCP Server Configuration	
● Enable ○ Disable		● Enable Server ○ Disable Server	
For NAT Usage		Start IP Address	192.168.2.10
IP Address	192.168.2.1	IP Pool Counts	100
Subnet Mask	255.255.255.0	Gateway IP Address	192.168.2.1

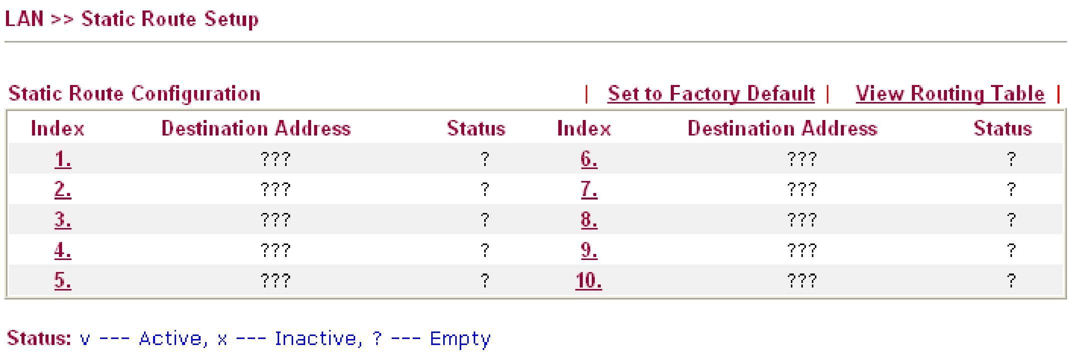
Available settings are explained as follows:

Item	Description
Network Configuration	Click **Enable** to enable such configuration. Click **Disable** to disable such configuration. **For NAT Usage -** Click this radio button to invoke NAT function. **IP Address -** Type in private IP address for connecting to a local private network (Default: 192.168.1.1). **Subnet Mask -** Type in an address code that determines the size of the network. (Default: 255.255.255.0/ 24)
DHCP Server Configuration	DHCP stands for Dynamic Host Configuration Protocol. The router by factory default acts a DHCP server for your network so it automatically dispatch related IP settings to any local user configured as a DHCP client. It is highly recommended that you leave the router enabled as a DHCP server if you do not have a DHCP server for your network. If you want to use another DHCP server in the network other than the Vigor Router's, you can let Relay Agent help you to redirect the DHCP request to the specified location. **Enable Server -** Let the router assign IP address to every host in the LAN. **Disable Server –** Let you manually assign IP address to every host in the LAN. **Start IP Address -** Enter a value of the IP address pool for the DHCP server to start with when issuing IP addresses. If the 1st IP address of your router is 192.168.1.1, the starting IP address must be 192.168.1.2 or greater, but smaller than 192.168.1.254. **IP Pool Counts -** Enter the maximum number of PCs that you want the DHCP server to assign IP addresses to. The default is 50 and the maximum is 253. **Gateway IP Address -** Enter a value of the gateway IP address for the DHCP server. The value is usually as same as the 1st IP address of the router, which means the router is the default gateway.

After finishing all the settings here, please click **OK** to save the configuration.

4.2.3 Static Route

Go to **LAN** to open setting page and choose **Static Route**.



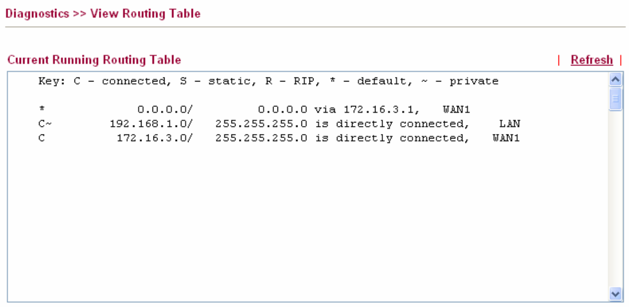
LAN >> Static Route Setup

Static Route Configuration | Set to Factory Default | View Routing Table |

Index	Destination Address	Status	Index	Destination Address	Status
1.	???	?	6.	???	?
2.	???	?	7.	???	?
3.	???	?	8.	???	?
4.	???	?	9.	???	?
5.	???	?	10.	???	?

Status: v --- Active, x --- Inactive, ? --- Empty

Each item is explained as follows:

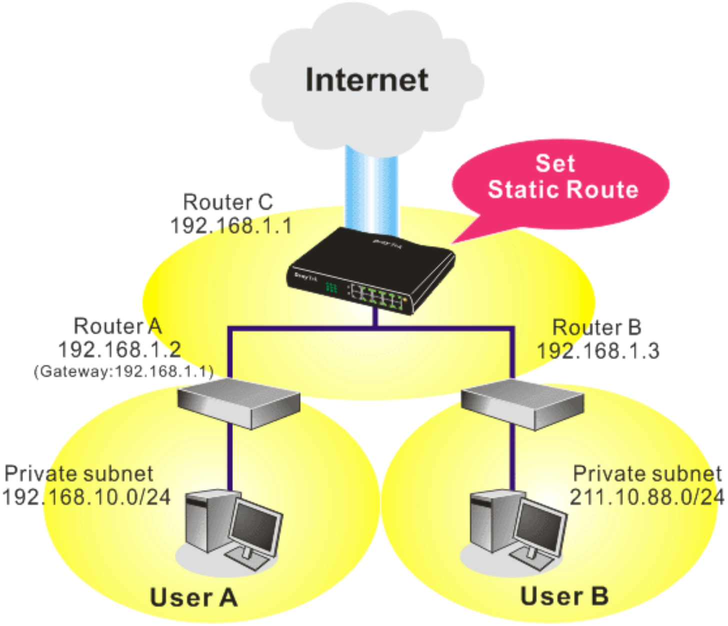
Item	Description
Index	The number (1 to 10) under Index allows you to open next page to set up static route.
Destination Address	Displays the destination address of the static route.
Status	Displays the status of the static route.
Viewing Routing Table	Displays the routing table for your reference.  Diagnostics >> View Routing Table Current Running Routing Table | Refresh | Key: C - connected, S - static, R - RIP, * - default, ~ - private * 0.0.0.0/ 0.0.0.0 via 172.16.3.1, WAN1 C~ 192.168.1.0/ 255.255.255.0 is directly connected, LAN C 172.16.3.0/ 255.255.255.0 is directly connected, WAN1

Add Static Routes to Private and Public Networks

Here is an example of setting Static Route in Main Router so that user A and B locating in different subnet can talk to each other via the router. Assuming the Internet access has been configured and the router works properly:

- use the Main Router to surf the Internet.
- create a private subnet 192.168.10.0 using an internal Router A (192.168.1.2)
- create a public subnet 211.100.88.0 via an internal Router B (192.168.1.3).
- have set Main Router 192.168.1.1 as the default gateway for the Router A 192.168.1.2.

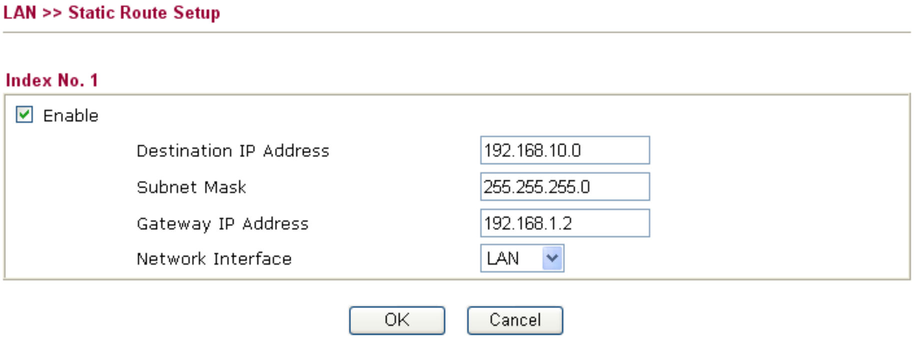
Before setting Static Route, user A cannot talk to user B for Router A can only forward recognized packets to its default gateway Main Router.



1. Go to **LAN** page and click **General Setup**, select 1st Subnet as the **RIP Protocol Control.** Then click the **OK** button.

> **Note:** There are two reasons that we have to apply RIP Protocol Control on 1st Subnet. The first is that the LAN interface can exchange RIP packets with the neighboring routers via the 1st subnet (192.168.1.0/24). The second is that those hosts on the internal private subnets (ex. 192.168.10.0/24) can access the Internet via the router, and continuously exchange of IP routing information with different subnets.

2. Click the **LAN - Static Route** and click on the **Index Number 1.** Check the **Enable** box. Please add a static route as shown below, which regulates all packets destined to 192.168.10.0 will be forwarded to 192.168.1.2. Click **OK**.

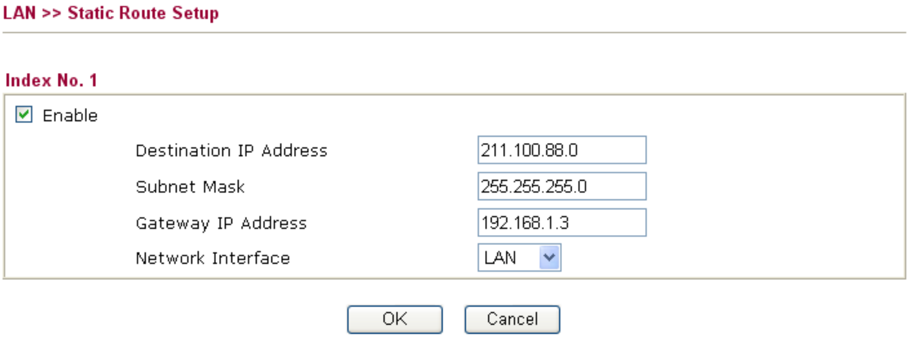

LAN >> Static Route Setup

Index No. 1

☑ Enable

Destination IP Address	192.168.10.0
Subnet Mask	255.255.255.0
Gateway IP Address	192.168.1.2
Network Interface	LAN

3. Return to **Static Route Setup** page. Click on another **Index Number** to add another static route as show below, which regulates all packets destined to 211.100.88.0 will be forwarded to 192.168.1.3.



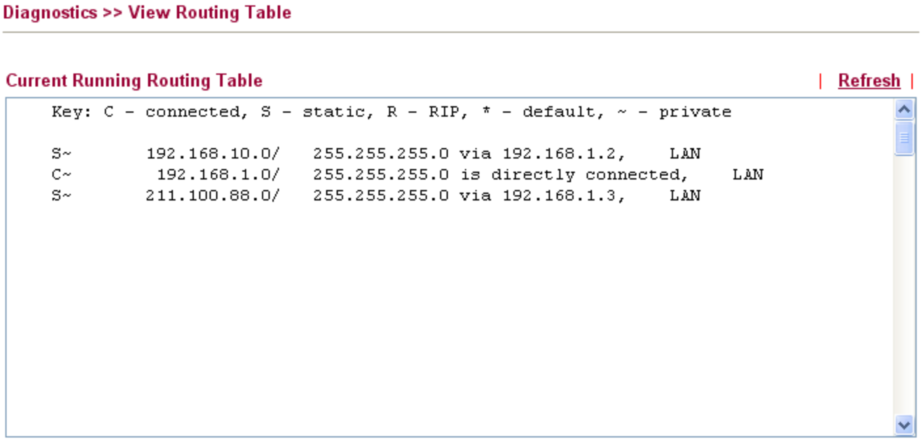
LAN >> Static Route Setup

Index No. 1

☑ Enable

Destination IP Address	211.100.88.0
Subnet Mask	255.255.255.0
Gateway IP Address	192.168.1.3
Network Interface	LAN

4. Go to **Diagnostics** and choose **Routing Table** to verify current routing table.



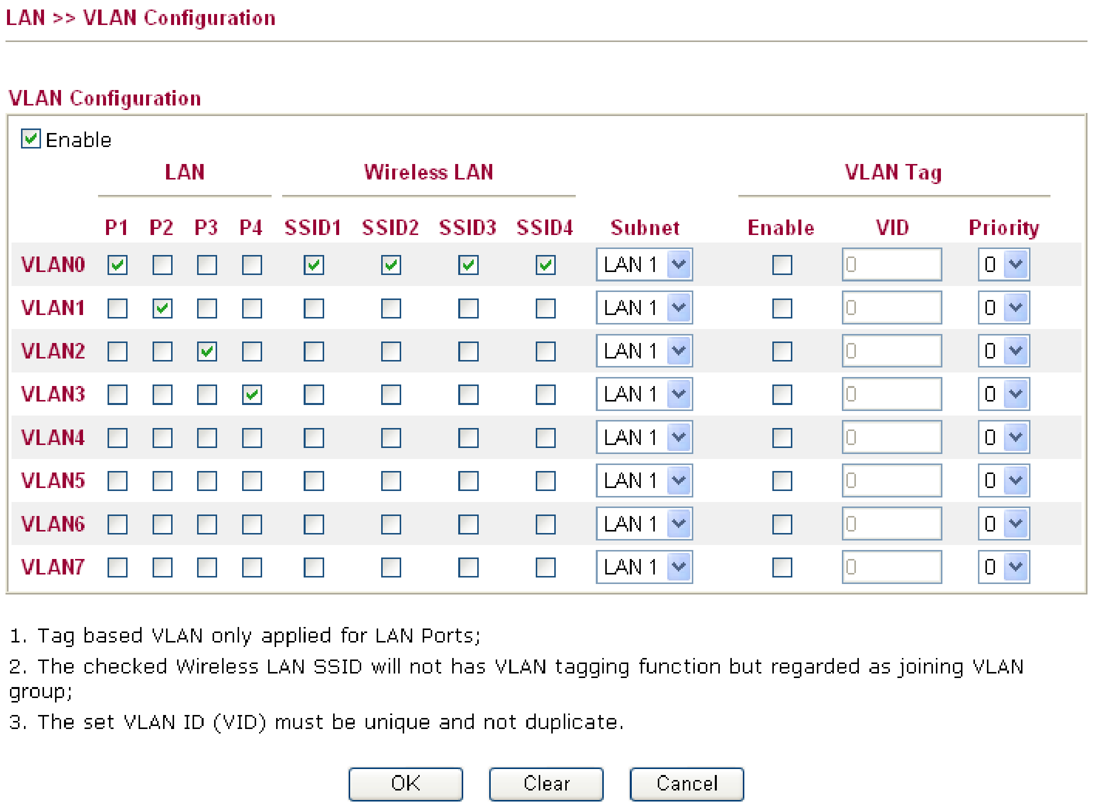
Diagnostics >> View Routing Table

Current Running Routing Table

```
    Key: C - connected, S - static, R - RIP, * - default, ~ - private

    S~       192.168.10.0/   255.255.255.0 via 192.168.1.2,    LAN
    C~        192.168.1.0/   255.255.255.0 is directly connected,    LAN
    S~       211.100.88.0/   255.255.255.0 via 192.168.1.3,    LAN
```

4.2.4 VLAN

Virtual LAN function provides you a very convenient way to manage hosts by grouping them based on the physical port. You can also manage the in/out rate of each port. Go to **LAN** page and select **VLAN**. The following page will appear. Click **Enable** to invoke VLAN function.



LAN >> VLAN Configuration

VLAN Configuration

☑ Enable

	LAN				Wireless LAN					VLAN Tag		
	P1	P2	P3	P4	SSID1	SSID2	SSID3	SSID4	Subnet	Enable	VID	Priority
VLAN0	☑	□	□	□	☑	☑	☑	☑	LAN 1	□	0	0
VLAN1	□	☑	□	□	□	□	□	□	LAN 1	□	0	0
VLAN2	□	□	☑	□	□	□	□	□	LAN 1	□	0	0
VLAN3	□	□	□	☑	□	□	□	□	LAN 1	□	0	0
VLAN4	□	□	□	□	□	□	□	□	LAN 1	□	0	0
VLAN5	□	□	□	□	□	□	□	□	LAN 1	□	0	0
VLAN6	□	□	□	□	□	□	□	□	LAN 1	□	0	0
VLAN7	□	□	□	□	□	□	□	□	LAN 1	□	0	0

1. Tag based VLAN only applied for LAN Ports;
2. The checked Wireless LAN SSID will not has VLAN tagging function but regarded as joining VLAN group;
3. The set VLAN ID (VID) must be unique and not duplicate.

Available settings are explained as follows:

Item	Description
VLAN Tag	**Enable** – Enable the function of VLAN with tag. The router will add specific VLAN number to all packets on the LAN while sending them out. Please type the tag value and specify the priority for the packets sending by LAN. **Disable** – Disable the function of VLAN with tag. **VID** – Type the value as the VLAN ID number. The range is form 0 to 4095. **Priority** – Type the packet priority number for such VLAN. The range is from 0 to 7.
LAN	**P1 – P4** – Check the LAN port(s) to be grouped under the selected VLAN.
Wireless LAN	**SSID1 – SSID4** – Check the SSID box (es) for the wireless clients to be grouped under the selected VLAN.
Subnet	Choose one of them to make the selected VLAN mapping to the specified subnet only. For example, LAN1 is specified for VLAN0. It means that PCs grouped under VLAN0 can get the IP address (es) that specified by the subnet.

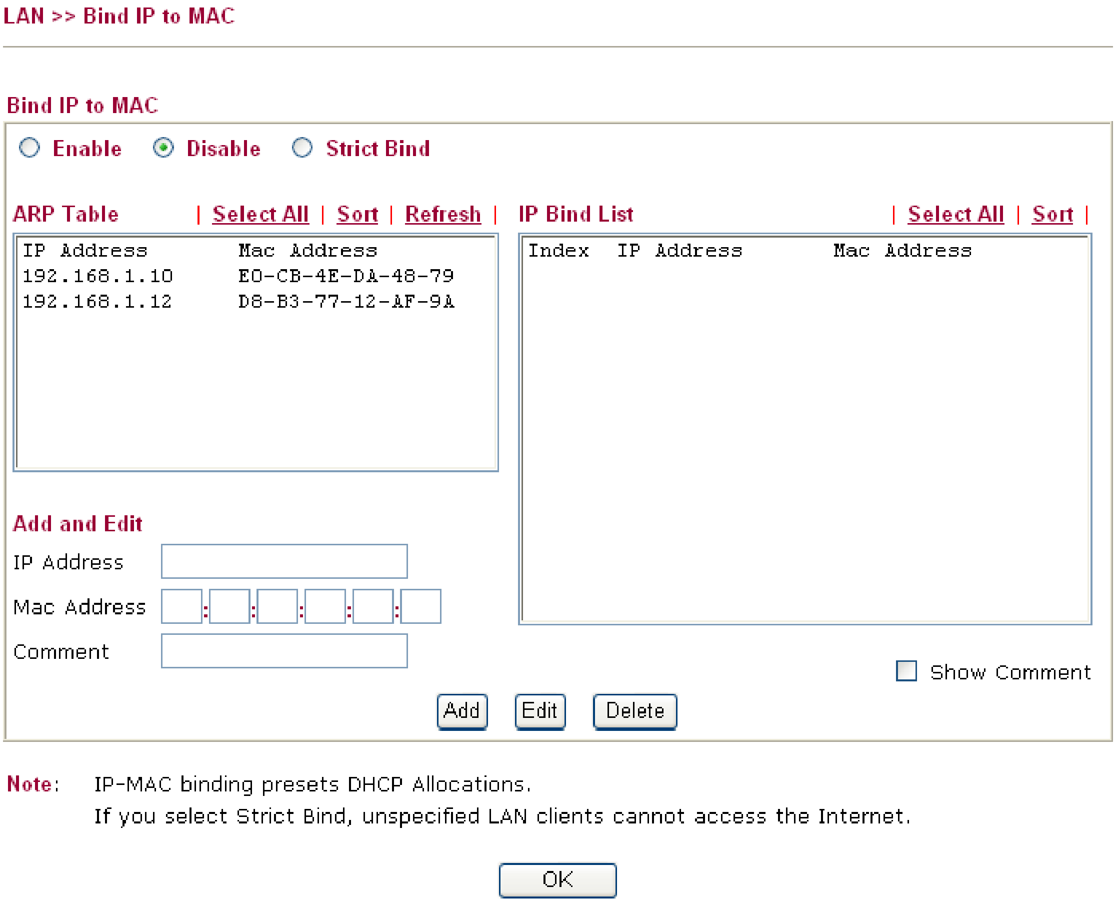
After finishing all the settings here, please click **OK** to save the configuration.

Note: Settings in this page only applied to LAN port but not WAN port.

4.2.5 Bind IP to MAC

This function is used to bind the IP and MAC address in LAN to have a strengthening control in network. When this function is enabled, all the assigned IP and MAC address binding together cannot be changed. If you modified the binding IP or MAC address, it might cause you not access into the Internet.

Click **LAN** and click **Bind IP to MAC** to open the setup page.



LAN >> Bind IP to MAC

Bind IP to MAC

○ Enable ● Disable ○ Strict Bind

ARP Table | Select All | Sort | Refresh |

```
IP Address          Mac Address
192.168.1.10        E0-CB-4E-DA-48-79
192.168.1.12        D8-B3-77-12-AF-9A
```

IP Bind List | Select All | Sort |

```
Index  IP Address          Mac Address
```

Add and Edit

IP Address

Mac Address : : : : :

Comment

□ Show Comment

Note: IP-MAC binding presets DHCP Allocations.
If you select Strict Bind, unspecified LAN clients cannot access the Internet.

Available settings are explained as follows:

Item	Description
Enable	Click this radio button to invoke this function. However, IP/MAC which is not listed in IP Bind List also can connect to Internet.
Disable	Click this radio button to disable this function. All the settings on this page will be invalid.
Strict Bind	Click this radio button to block the connection of the IP/MAC which is not listed in IP Bind List.

ARP Table	This table is the LAN ARP table of this router. The information for IP and MAC will be displayed in this field. Each pair of IP and MAC address listed in ARP table can be selected and added to IP Bind List by clicking **Add** below.
Select All	Click this link to select all the items in the ARP table.
Sort	Reorder the table based on the IP address.
Refresh	Refresh the ARP table listed below to obtain the newest ARP table information.
Add and Edit	**IP Address** – Type the IP address that will be used for the specified MAC address. **Mac Address** – Type the MAC address that is used to bind with the assigned IP address. **Comment** – Type a brief description for such list.
IP Bind List	It displays a list for the IP bind to MAC information.
Add	It allows you to add the one you choose from the ARP table or the IP/MAC address typed in **Add and Edit** to the table of **IP Bind List**.
Edit	It allows you to edit and modify the selected IP address and MAC address that you create before.
Delete	You can remove any item listed in **IP Bind List**. Simply click and select the one, and click **Delete**. The selected item will be removed from the **IP Bind List**.

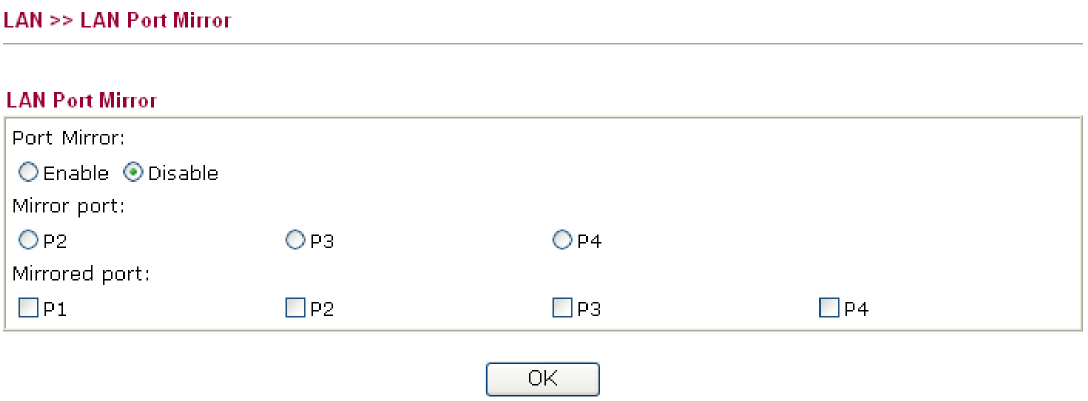
After finishing all the settings here, please click **OK** to save the configuration.

> **Note:** Before you select **Strict Bind**, you have to bind one set of IP/MAC address for one PC. If not, no one of the PCs can access into Internet. And the web configurator of the router might not be accessed.

4.2.6 LAN Port Mirror

LAN port mirror can be applied for the users in LAN. Generally speaking, this function copies traffic from one or more specific ports to a target port. This mechanism helps manager track the network errors or abnormal packets transmission without interrupting the flow of data access the network. By the way, user can apply this function to monitor all traffics which user needs to check.

There are some advantages supported in this feature. First, it is more economical without other detecting equipments to be set up. Second, it may be able to view traffic on one or more ports within a VLAN at the same time. Third, it can transfer all data traffics to be mirrored to one analyzer connect to the mirroring port. Last, it is more convenient and easy to configure in user's interface.



LAN >> LAN Port Mirror

LAN Port Mirror

Port Mirror:

○ Enable ● Disable

Mirror port:

○ P2 ○ P3 ○ P4

Mirrored port:

□ P1 □ P2 □ P3 □ P4

Available settings are explained as follows:

Item	Description
Port Mirror	Check **Enable** to activate this function. Or, check **Disable** to close this function.
Mirror Port	Select a port to view traffic sent from mirrored ports.
Mirrored port	Select which ports are necessary to be mirrored.

After finishing all the settings here, please click **OK** to save the configuration.

4.3 NAT

Usually, the router serves as an NAT (Network Address Translation) router. NAT is a mechanism that one or more private IP addresses can be mapped into a single public one. Public IP address is usually assigned by your ISP, for which you may get charged. Private IP addresses are recognized only among internal hosts.

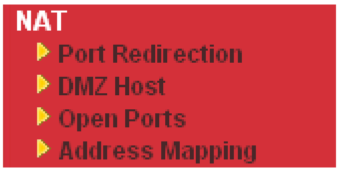
When the outgoing packets destined to some public server on the Internet reach the NAT router, the router will change its source address into the public IP address of the router, select the available public port, and then forward it. At the same time, the router shall list an entry in a table to memorize this address/port-mapping relationship. When the public server response, the incoming traffic, of course, is destined to the router's public IP address and the router will do the inversion based on its table. Therefore, the internal host can communicate with external host smoothly.

The benefit of the NAT includes:

- **Save cost on applying public IP address and apply efficient usage of IP address.** NAT allows the internal IP addresses of local hosts to be translated into one public IP address, thus you can have only one IP address on behalf of the entire internal hosts.
- **Enhance security of the internal network by obscuring the IP address.** There are many attacks aiming victims based on the IP address. Since the attacker cannot be aware of any private IP addresses, the NAT function can protect the internal network.

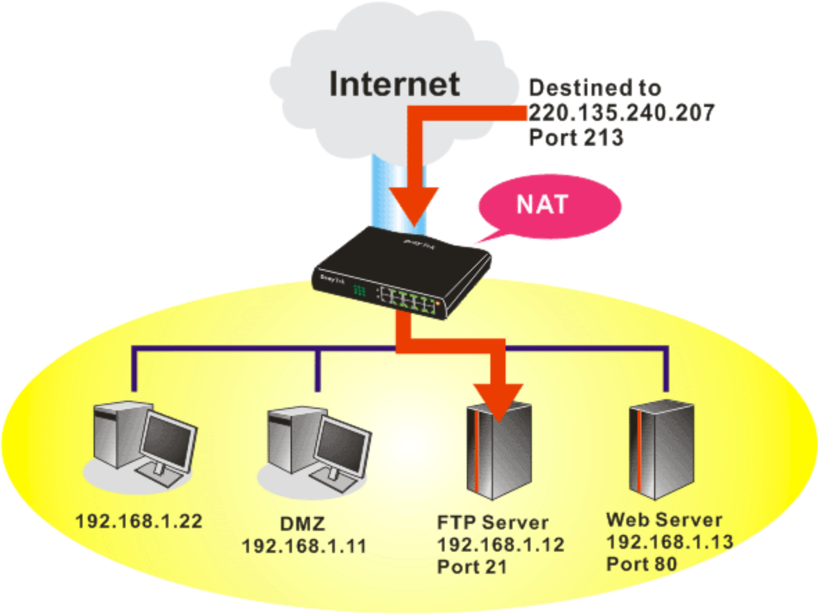
On NAT page, you will see the private IP address defined in RFC-1918. Usually we use the 192.168.1.0/24 subnet for the router. As stated before, the NAT facility can map one or more IP addresses and/or service ports into different specified services. In other words, the NAT function can be achieved by using port mapping methods.

Below shows the menu items for NAT.



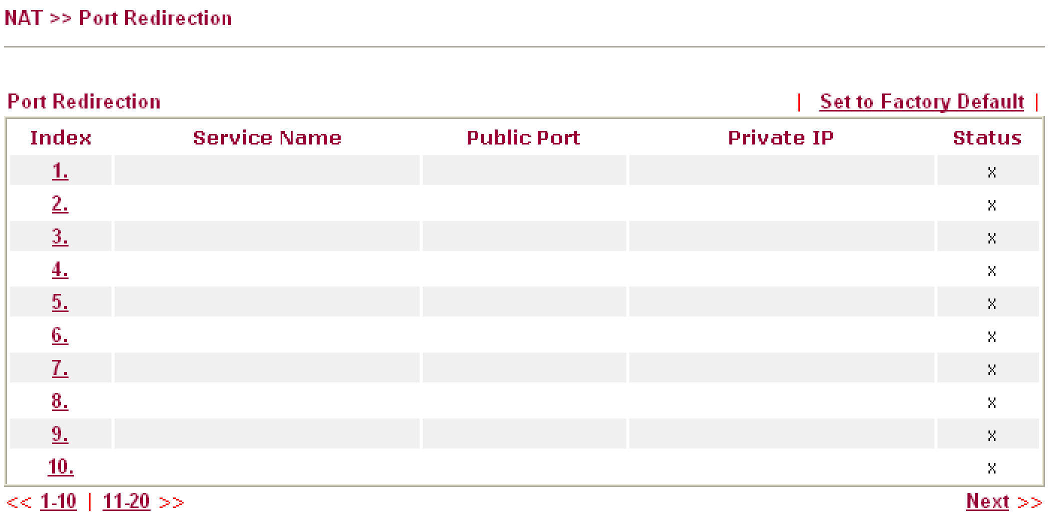
4.3.1 Port Redirection

Port Redirection is usually set up for server related service inside the local network (LAN), such as web servers, FTP servers, E-mail servers etc. Most of the case, you need a public IP address for each server and this public IP address/domain name are recognized by all users. Since the server is actually located inside the LAN, the network well protected by NAT of the router, and identified by its private IP address/port, the goal of Port Redirection function is to forward all access request with public IP address from external users to the mapping private IP address/port of the server.



The port redirection can only apply to incoming traffic.

To use this function, please go to **NAT** page and choose **Port Redirection** web page. The **Port Redirection Table** provides 20 port-mapping entries for the internal hosts.



NAT >> Port Redirection

Port Redirection | Set to Factory Default |

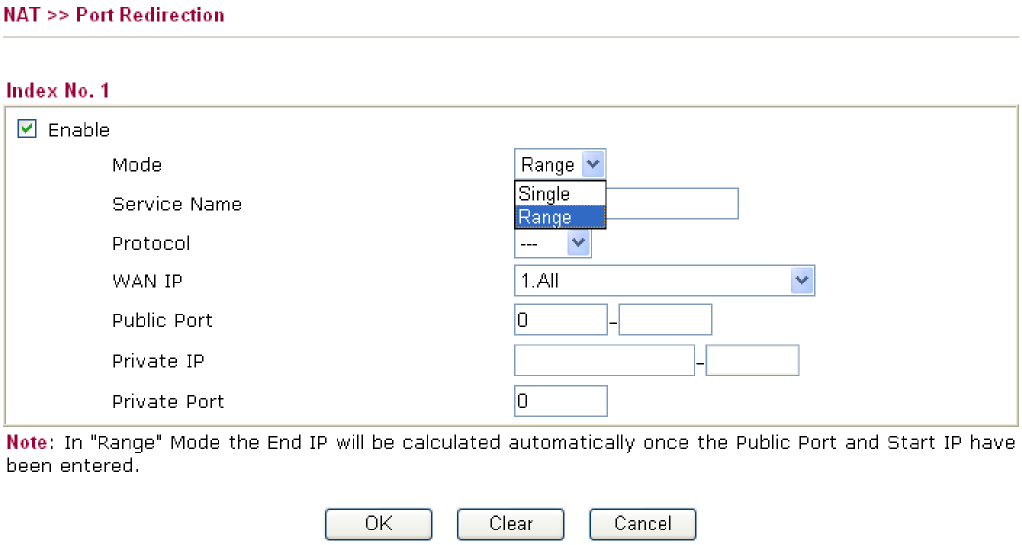
Index	Service Name	Public Port	Private IP	Status
1.				x
2.				x
3.				x
4.				x
5.				x
6.				x
7.				x
8.				x
9.				x
10.				x

<< 1-10 | 11-20 >> Next >>

Each item is explained as follows:

Item	Description
Index	Display the number of the profile.
Service Name	Display the description of the specific network service.
Public Port	Display the port number which will be redirected to the specified **Private IP and Port** of the internal host.
Private IP	Display the IP address of the internal host providing the service.
Status	Display if the profile is enabled (v) or not (x).

Press any number under Index to access into next page for configuring port redirection.



NAT >> Port Redirection

Index No. 1

☑ Enable

Mode	Range (Single / Range)
Service Name	
Protocol	---
WAN IP	1.All
Public Port	0 -
Private IP	-
Private Port	0

Note: In "Range" Mode the End IP will be calculated automatically once the Public Port and Start IP have been entered.

Available settings are explained as follows:

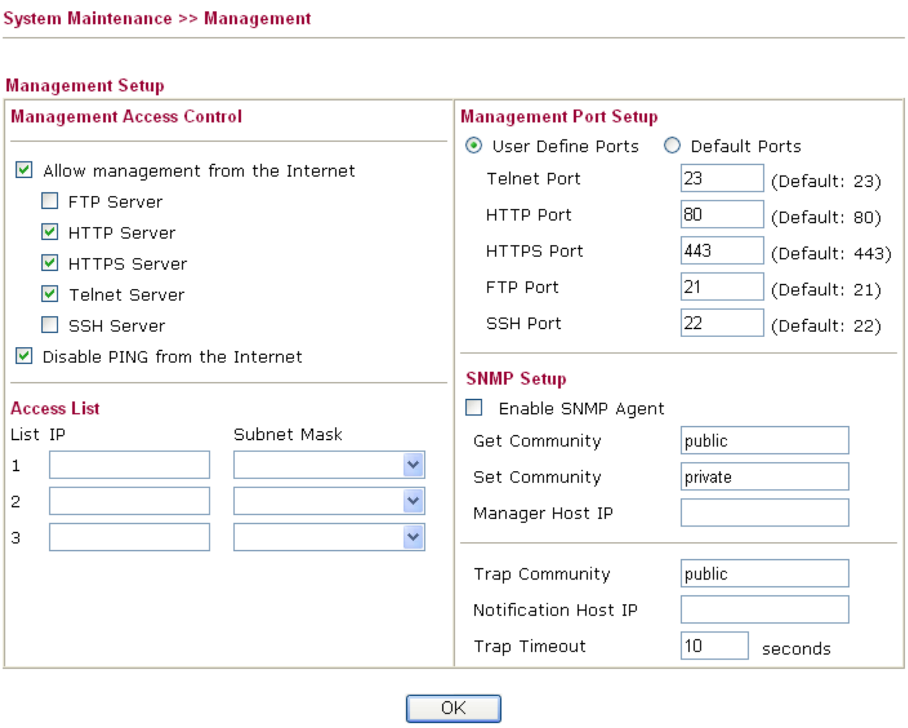
Item	Description

Enable	Check this box to enable such port redirection setting.
Mode	Two options (Single and Range) are provided here for you to choose. To set a range for the specific service, select **Range**. In Range mode, if the public port (start port and end port) and the starting IP of private IP had been entered, the system will calculate and display the ending IP of private IP automatically.
Service Name	Enter the description of the specific network service.
Protocol	Select the transport layer protocol (TCP or UDP).
WAN IP	Select the WAN IP used for port redirection. There are eight WAN IP alias that can be selected and used for port redirection. The default setting is **All** which means all the incoming data from any port will be redirected to specified range of IP address and port.
Public Port	Specify which port can be redirected to the specified **Private IP and Port** of the internal host. If you choose **Range** as the port redirection mode, you will see two boxes on this field. Simply type the required number on the first box. The second one will be assigned automatically later.
Private IP	Specify the private IP address of the internal host providing the service. If you choose **Range** as the port redirection mode, you will see two boxes on this field. Type a complete IP address in the first box (as the starting point) and the fourth digits in the second box (as the end point).
Private Port	Specify the private port number of the service offered by the internal host.

After finishing all the settings here, please click **OK** to save the configuration.

Note that the router has its own built-in services (servers) such as Telnet, HTTP and FTP etc. Since the common port numbers of these services (servers) are all the same, you may need to reset the router in order to avoid confliction.

For example, the built-in web configurator in the router is with default port 80, which may conflict with the web server in the local network, http://192.168.1.13:80. Therefore, you need to **change the router's http port to any one other than the default port 80** to avoid conflict, such as 8080. This can be set in the **System Maintenance** >>**Management Setup**. You then will access the admin screen of by suffixing the IP address with 8080, e.g., http://192.168.1.1:8080 instead of port 80.



System Maintenance >> Management

Management Setup

Management Access Control

☑ Allow management from the Internet
- □ FTP Server
- ☑ HTTP Server
- ☑ HTTPS Server
- ☑ Telnet Server
- □ SSH Server

☑ Disable PING from the Internet

Access List

List	IP	Subnet Mask
1		
2		
3		

Management Port Setup

● User Define Ports ○ Default Ports

Telnet Port	23	(Default: 23)
HTTP Port	80	(Default: 80)
HTTPS Port	443	(Default: 443)
FTP Port	21	(Default: 21)
SSH Port	22	(Default: 22)

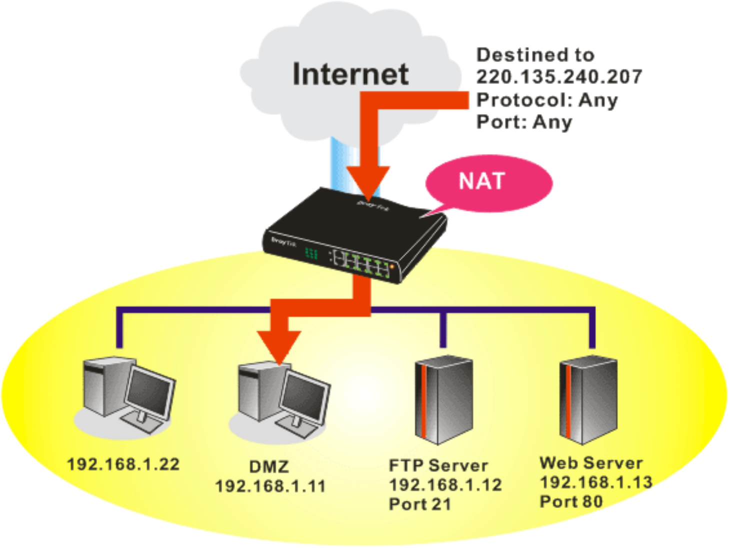
SNMP Setup

□ Enable SNMP Agent

Get Community	public
Set Community	private
Manager Host IP	
Trap Community	public
Notification Host IP	
Trap Timeout	10 seconds

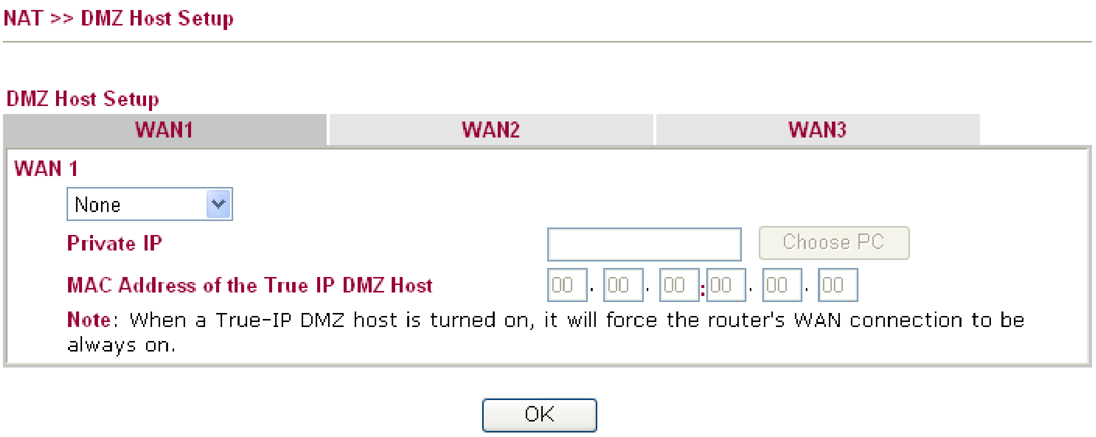
4.3.2 DMZ Host

As mentioned above, **Port Redirection** can redirect incoming TCP/UDP or other traffic on particular ports to the specific private IP address/port of host in the LAN. However, other IP protocols, for example Protocols 50 (ESP) and 51 (AH), do not travel on a fixed port. Vigor router provides a facility **DMZ Host** that maps ALL unsolicited data on any protocol to a single host in the LAN. Regular web surfing and other such Internet activities from other clients will continue to work without inappropriate interruption. **DMZ Host** allows a defined internal user to be totally exposed to the Internet, which usually helps some special applications such as Netmeeting or Internet Games etc.



The security properties of NAT are somewhat bypassed if you set up DMZ host. We suggest you to add additional filter rules or a secondary firewall.

Click **DMZ Host** to open the following page:



NAT >> DMZ Host Setup

DMZ Host Setup

WAN1	WAN2	WAN3

WAN 1

None

Private IP Choose PC

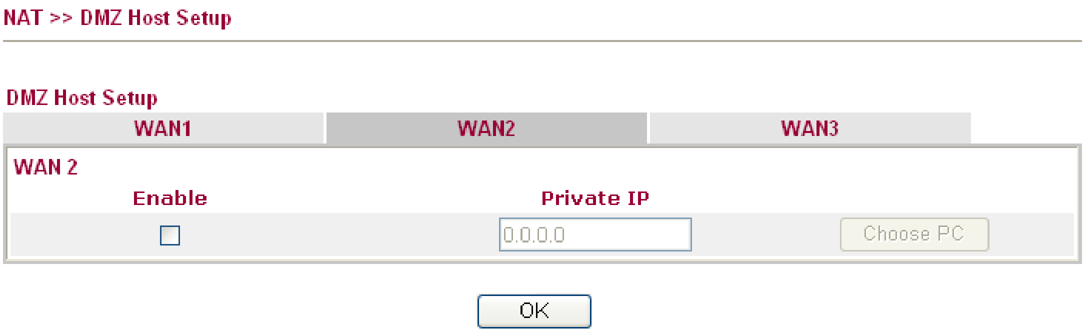
MAC Address of the True IP DMZ Host 00 . 00 . 00 : 00 . 00 . 00

Note: When a True-IP DMZ host is turned on, it will force the router's WAN connection to be always on.

OK

DMZ Host for WAN2 and WAN3 is slightly different with WAN1. **Active True IP** selection is available for WAN1 only.

See the following figure.



NAT >> DMZ Host Setup

DMZ Host Setup

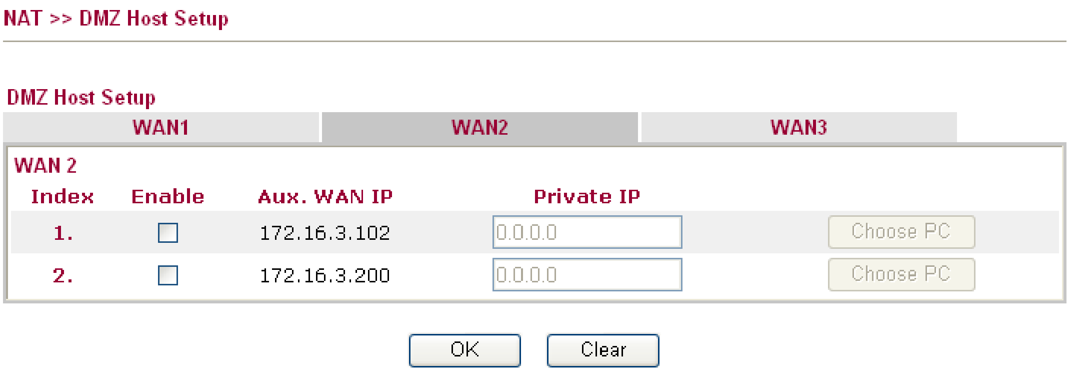
WAN1	WAN2	WAN3

WAN 2

Enable	Private IP	
□	0.0.0.0	Choose PC

OK

If you previously have set up **WAN Alias** for **PPPoE** or **Static or Dynamic IP** mode in WAN2 interface**,** you will find them in **Aux. WAN IP** for your selection.



NAT >> DMZ Host Setup

DMZ Host Setup

WAN1	WAN2	WAN3

WAN 2

Index	Enable	Aux. WAN IP	Private IP	
1.	□	172.16.3.102	0.0.0.0	Choose PC
2.	□	172.16.3.200	0.0.0.0	Choose PC

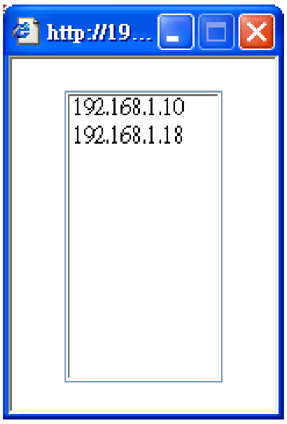
OK Clear

Available settings are explained as follows:

Item	Description
Enable	Check to enable the DMZ Host function.
Private IP	Enter the private IP address of the DMZ host, or click Choose PC to select one.

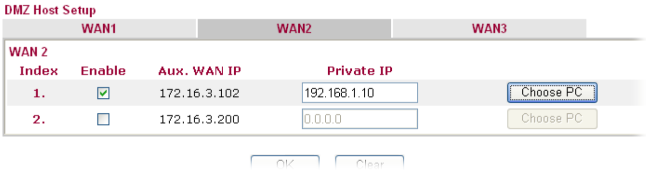
Choose PC

Click this button and then a window will automatically pop up, as depicted below. The window consists of a list of private IP addresses of all hosts in your LAN network. Select one private IP address in the list to be the DMZ host.



192.168.1.10
192.168.1.18

When you have selected one private IP from the above dialog, the IP address will be shown on the following screen. Click **OK** to save the setting.


DMZ Host Setup

WAN 2

Index	Enable	Aux. WAN IP	Private IP	
1.	☑	172.16.3.102	192.168.1.10	Choose PC
2.	□	172.16.3.200	0.0.0.0	Choose PC

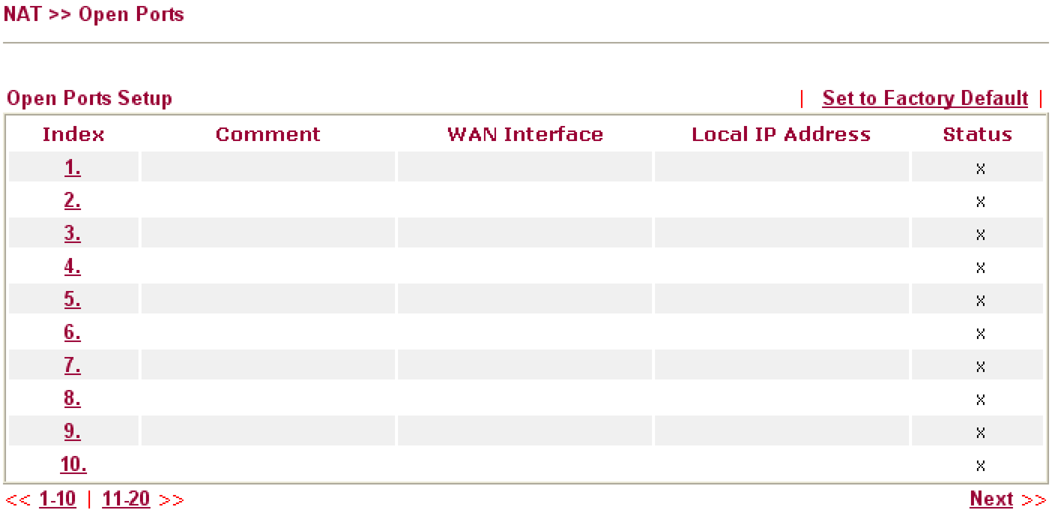
After finishing all the settings here, please click **OK** to save the configuration.

4.3.3 Open Ports

Open Ports allows you to open a range of ports for the traffic of special applications.

Common application of Open Ports includes P2P application (e.g., BT, KaZaA, Gnutella, WinMX, eMule and others), Internet Camera etc. Ensure that you keep the application involved up-to-date to avoid falling victim to any security exploits.

Click **Open Ports** to open the following page:


NAT >> Open Ports

Open Ports Setup | Set to Factory Default |

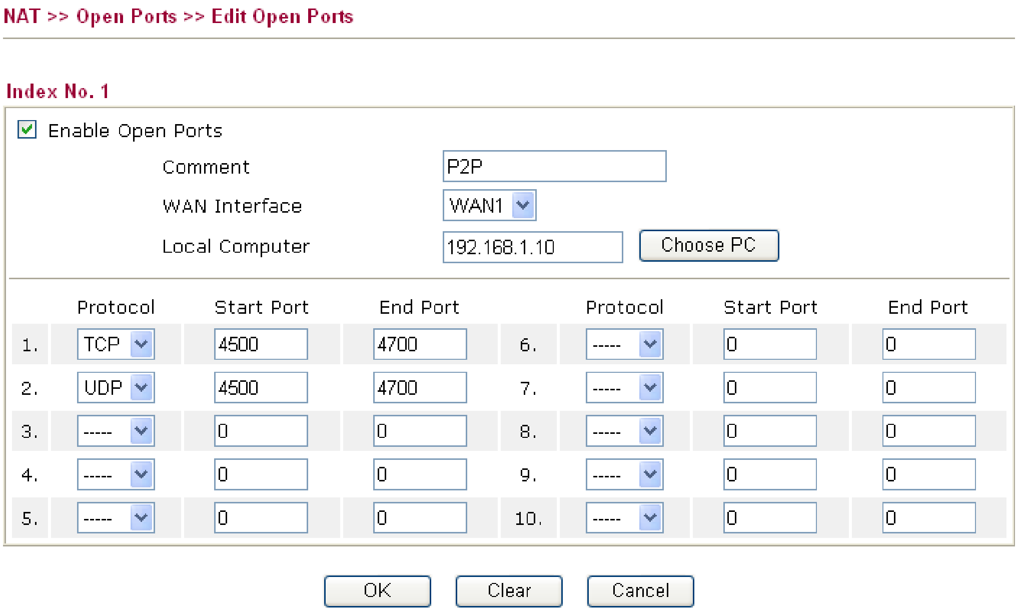
Index	Comment	WAN Interface	Local IP Address	Status
1.				x
2.				x
3.				x
4.				x
5.				x
6.				x
7.				x
8.				x
9.				x
10.				x

<< 1-10 | 11-20 >> Next >>

Each item is explained as follows:

Item	Description
Index	Indicate the relative number for the particular entry that you want to offer service in a local host. You should click the appropriate index number to edit or clear the corresponding entry.
Comment	Specify the name for the defined network service.
Local IP Address	Display the private IP address of the local host offering the service.
Status	Display the state for the corresponding entry. X or V is to represent the **Inactive** or **Active** state.

To add or edit port settings, click one index number on the page. The index entry setup page will pop up. In each index entry, you can specify 20 port ranges for diverse services.



NAT >> Open Ports >> Edit Open Ports

Index No. 1

☑ Enable Open Ports

Comment: P2P

WAN Interface: WAN1

Local Computer: 192.168.1.10 [Choose PC]

	Protocol	Start Port	End Port		Protocol	Start Port	End Port
1.	TCP	4500	4700	6.	-----	0	0
2.	UDP	4500	4700	7.	-----	0	0
3.	-----	0	0	8.	-----	0	0
4.	-----	0	0	9.	-----	0	0
5.	-----	0	0	10.	-----	0	0

Available settings are explained as follows:

Item	Description
Enable Open Ports	Check to enable this entry.
Comment	Make a name for the defined network application/service.
WAN Interface	Specify the WAN interface that will be used for this entry.
Local Computer	Enter the private IP address of the local host or click **Choose PC** to select one. **Choose PC -** Click this button and, subsequently, a window having a list of private IP addresses of local hosts will automatically pop up. Select the appropriate IP address of the local host in the list.
Protocol	Specify the transport layer protocol. It could be **TCP**, **UDP**, or ----- (none) for selection.
Start Port	Specify the starting port number of the service offered by the local host.

End Port	Specify the ending port number of the service offered by the local host.

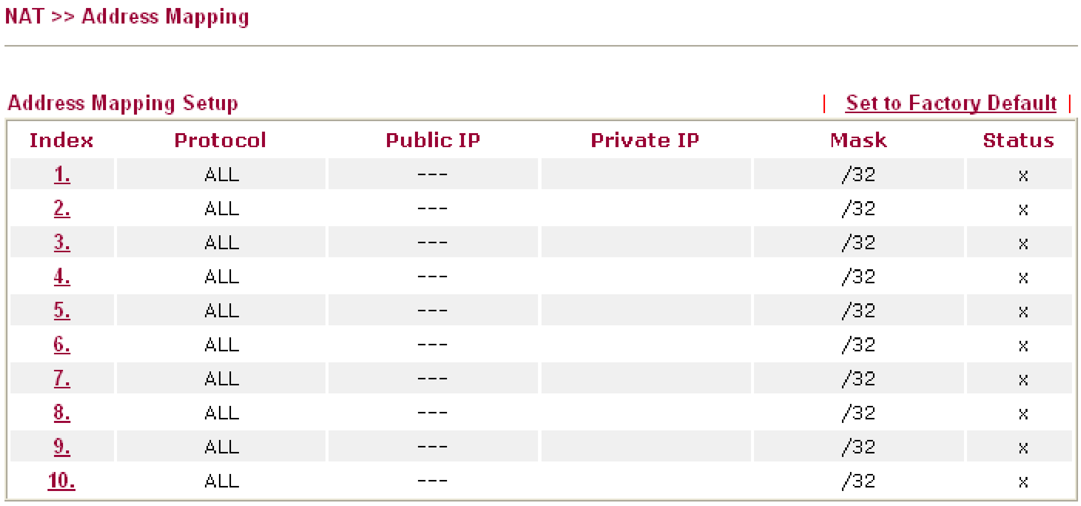
After finishing all the settings here, please click **OK** to save the configuration.

4.3.4 Address Mapping

This page is used to map specific private IP to specific WAN IP alias.

If you have "a group of IP Addresses" and want to apply to the router, please use WAN IP alias function to record these IPs first. Then, use address mapping function to map specific private IP to specific WAN IP alias.

For example, you have IP addresses ranging from 86.123.123.1 ~ 86.123.123.8. However, your router uses 86.123.123.1, and the rest of the IPs are recorded in WAN IP alias. You want that private IP 192.168.1.10 can use 86.123.123.2 as source IP when it sends packet out to Internet. You can use address mapping function to achieve this demand. Simply type 192.168.1.10 as the Private IP; and type 86.123.123.2 as the WAN IP.



NAT >> Address Mapping

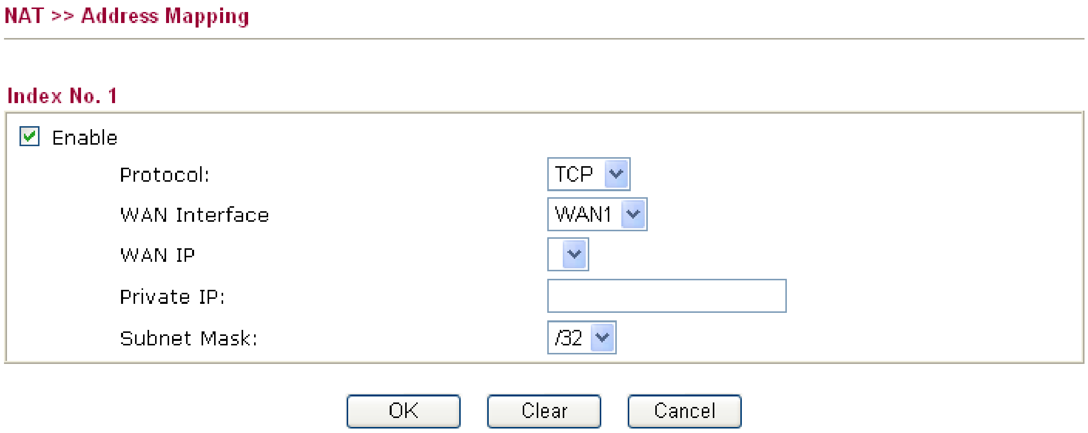
Address Mapping Setup | Set to Factory Default |

Index	Protocol	Public IP	Private IP	Mask	Status
1.	ALL	---		/32	x
2.	ALL	---		/32	x
3.	ALL	---		/32	x
4.	ALL	---		/32	x
5.	ALL	---		/32	x
6.	ALL	---		/32	x
7.	ALL	---		/32	x
8.	ALL	---		/32	x
9.	ALL	---		/32	x
10.	ALL	---		/32	x

Available settings are explained as follows:

Item	Description
Index	Indicate the relative number for the particular entry that you want to configure You should click the appropriate index number to edit or clear the corresponding entry.
Protocol	Display the protocol used for this address mapping.
Public IP	Display the public IP address selected for this entry, e.g., 172.16.3.102.
Private IP	Display the private IP set for this address mapping, e.g., 192.168.1.10.
Mask	Display the subnet mask selected for this address mapping.
Status	Display the status for the entry, enable or disable.

Click the index number link to open the configuration page.



NAT >> Address Mapping

Index No. 1

☑ Enable

Protocol:	TCP
WAN Interface	WAN1
WAN IP	
Private IP:	
Subnet Mask:	/32

Available settings are explained as follows:

Item	Description
Enable	Check to enable this entry.
Protocol	Specify the transport layer protocol. It could be **TCP**, **UDP**, or **ALL** for selection. ALL ALL TCP UDP
WAN Interface	Choose the WAN interface for such address mapping profile.
WAN IP	Select an IP address (the selections provided here are set in **IP Alias List** of **Network** >>**WAN** interface). Local host can use this IP to connect to Internet. If you want to choose any one of the Public IP settings, you must specify some IP addresses in the IP Alias List of the Static/DHCP Configuration page first. If you did not type in any IP address in the IP Alias List, the Public IP setting will be empty in this field. When you click **OK**, a message will appear to inform you.
Private IP	Assign an IP address (e.g., 192.168.1.10) or a subnet to be compared with the Public IP address for incoming packets.
Subnet Mask	Select a value of subnet mask for private IP address.

After finishing all the settings here, please click **OK** to save the configuration.

4.4 Firewall

4.4.1 Basics for Firewall

While the broadband users demand more bandwidth for multimedia, interactive applications, or distance learning, security has been always the most concerned. The firewall of the Vigor router helps to protect your local network against attack from unauthorized outsiders. It also restricts users in the local network from accessing the Internet. Furthermore, it can filter out specific packets that trigger the router to build an unwanted outgoing connection.

Firewall Facilities

The users on the LAN are provided with secured protection by the following firewall facilities:

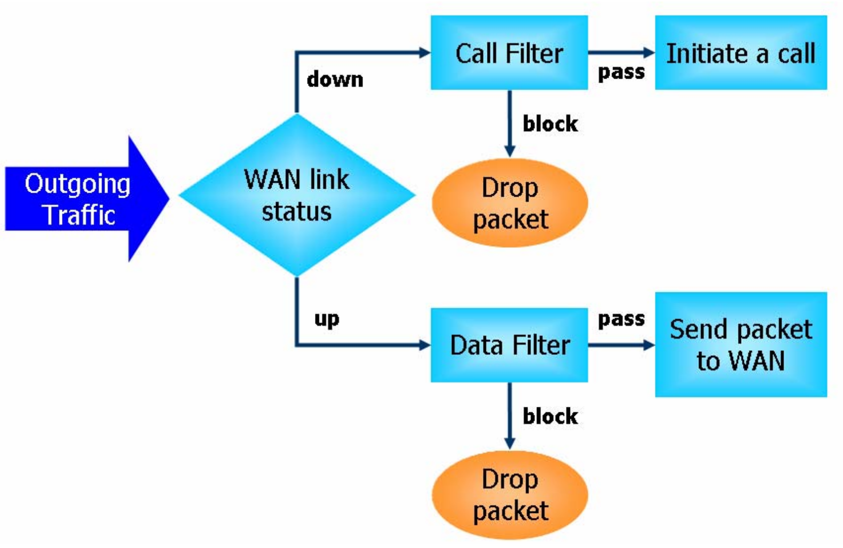
- User-configurable IP filter (Call Filter/ Data Filter).
- Stateful Packet Inspection (SPI): tracks packets and denies unsolicited incoming data
- Selectable Denial of Service (DoS) /Distributed DoS (DDoS) attacks protection

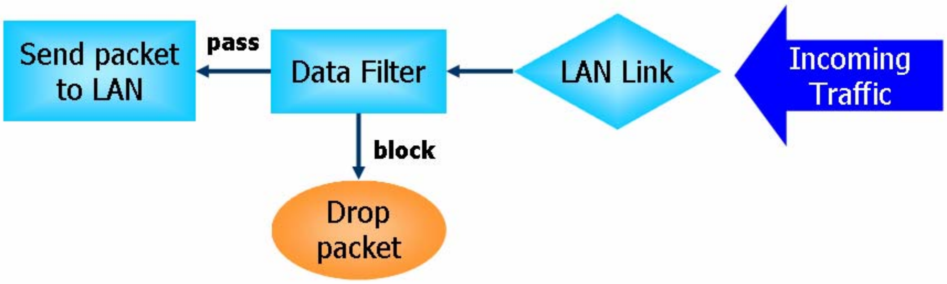
IP Filters

Depending on whether there is an existing Internet connection, or in other words “the WAN link status is up or down”, the IP filter architecture categorizes traffic into two: **Call Filter** and **Data Filter**.

- **Call Filter -** When there is no existing Internet connection, **Call Filter** is applied to all traffic, all of which should be outgoing. It will check packets according to the filter rules. If legal, the packet will pass. Then the router shall **“initiate a call”** to build the Internet connection and send the packet to Internet.
- **Data Filter -** When there is an existing Internet connection, **Data Filter** is applied to incoming and outgoing traffic. It will check packets according to the filter rules. If legal, the packet will pass the router.

The following illustrations are flow charts explaining how router will treat incoming traffic and outgoing traffic respectively.





Stateful Packet Inspection (SPI)

Stateful inspection is a firewall architecture that works at the network layer. Unlike legacy static packet filtering, which examines a packet based on the information in its header, stateful inspection builds up a state machine to track each connection traversing all interfaces of the firewall and makes sure they are valid. The stateful firewall of Vigor router not just examine the header information also monitor the state of the connection.

Denial of Service (DoS) Defense

The **DoS Defense** functionality helps you to detect and mitigate the DoS attack. The attacks are usually categorized into two types, the flooding-type attacks and the vulnerability attacks. The flooding-type attacks will attempt to exhaust all your system's resource while the vulnerability attacks will try to paralyze the system by offending the vulnerabilities of the protocol or operation system.

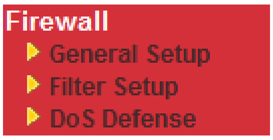
The **DoS Defense** function enables the Vigor router to inspect every incoming packet based on the attack signature database. Any malicious packet that might duplicate itself to paralyze the host in the secure LAN will be strictly blocked and a Syslog message will be sent as warning, if you set up Syslog server.

Also the Vigor router monitors the traffic. Any abnormal traffic flow violating the pre-defined parameter, such as the number of thresholds, is identified as an attack and the Vigor router will activate its defense mechanism to mitigate in a real-time manner.

The below shows the attack types that DoS/DDoS defense function can detect:

1. SYN flood attack
2. UDP flood attack
3. ICMP flood attack
4. Port Scan attack
5. IP options
6. Land attack
7. Smurf attack
8. Trace route
9. SYN fragment
10. Fraggle attack
11. TCP flag scan
12. Tear drop attack
13. Ping of Death attack
14. ICMP fragment
15. Unknown protocol

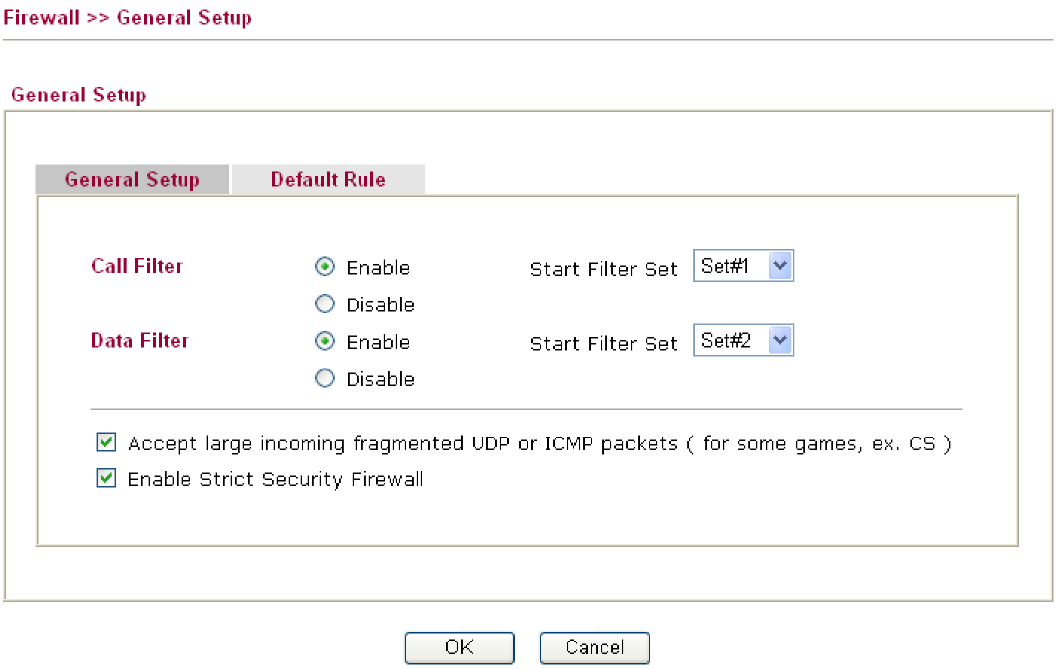
Below shows the menu items for Firewall.



4.4.2 General Setup

General Setup allows you to adjust settings of IP Filter and common options. Here you can enable or disable the **Call Filter** or **Data Filter**. Under some circumstance, your filter set can be linked to work in a serial manner. So here you assign the **Start Filter Set** only. Also you can configure the **Log Flag** settings, **Apply IP filter to VPN incoming packets**, and **Accept incoming fragmented UDP packets**.

Click **Firewall** and click **General Setup** to open the general setup page.



Firewall >> General Setup

General Setup

Call Filter ● Enable ○ Disable Start Filter Set Set#1

Data Filter ● Enable ○ Disable Start Filter Set Set#2

☑ Accept large incoming fragmented UDP or ICMP packets (for some games, ex. CS)

☑ Enable Strict Security Firewall

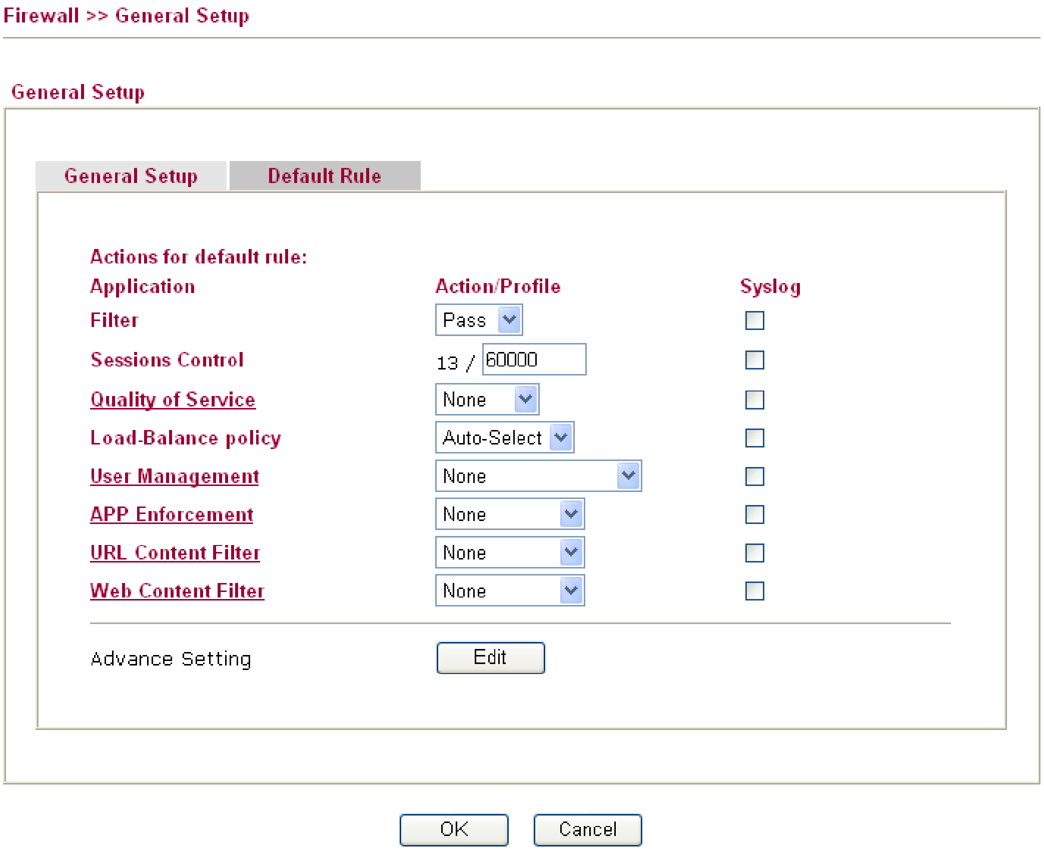
Available settings are explained as follows:

Item	Description
Call Filter	Check **Enable** to activate the Call Filter function. Assign a start filter set for the Call Filter.
Data Filter	Check **Enable** to activate the Data Filter function. Assign a start filter set for the Data Filter.
Accept large incoming…	Some on-line games (for example: Half Life) will use lots of fragmented UDP packets to transfer game data. Instinctively as a secure firewall, Vigor router will reject these fragmented packets to prevent attack unless you enable "**Accept large incoming fragmented UDP or ICMP Packets**". By checking this box, you can play these kinds of on-line games. If security concern is in higher priority, you cannot enable "**Accept large incoming fragmented UDP or ICMP Packets**".
Enable Strict Security Firewall	Check the box to enable such function. All the packets, while transmitting through Vigor router, will be filtered by firewall settings configured by Vigor router if such feature is enabled. If the firewall system does not have any response (pass or block) for these packets, such as no response coming from web content filter, then the router's firewall will block the packets directly.

After finishing all the settings here, please click **OK** to save the configuration.

Default Rule Page

Such page allows you to choose filtering profiles including QoS, Load-Balance policy, WCF, APP Enforcement, URL Content Filter for data transmission via Vigor router.



Firewall >> General Setup

General Setup

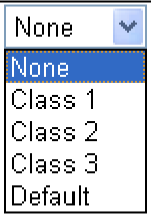
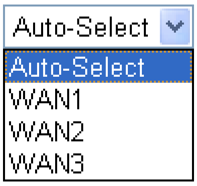
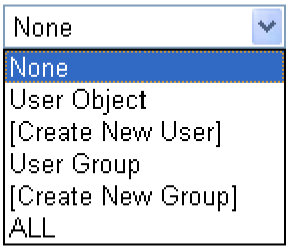
Actions for default rule:

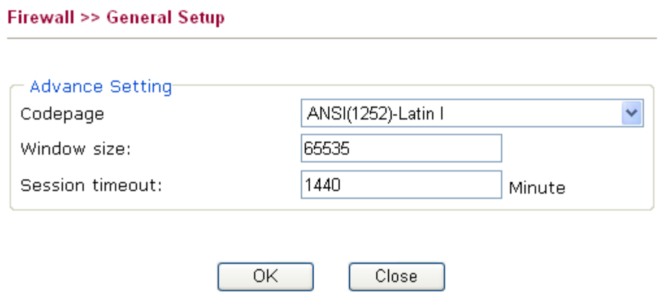
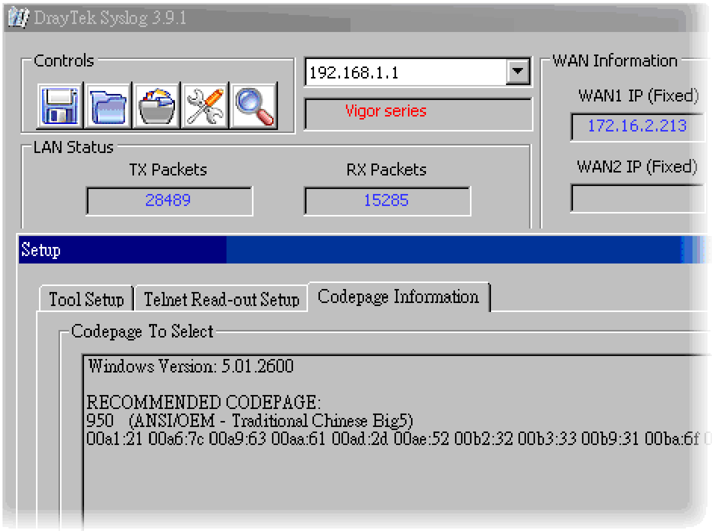
Application	Action/Profile	Syslog
Filter	Pass	□
Sessions Control	13 / 60000	□
Quality of Service	None	□
Load-Balance policy	Auto-Select	□
User Management	None	□
APP Enforcement	None	□
URL Content Filter	None	□
Web Content Filter	None	□

Advance Setting — Edit

Available settings are explained as follows:

Item	Description
Filter	Select **Pass** or **Block** for the packets that do not match with the filter rules. Filter — Pass: Pass, Block
Sessions Control	The number typed here is the total sessions of the packets that do not match the filter rule configured in this page. The default setting is 60000.
Quality of Service	Choose one of the QoS rules to be applied as firewall rule. For detailed information of setting QoS, please refer to the related section later.

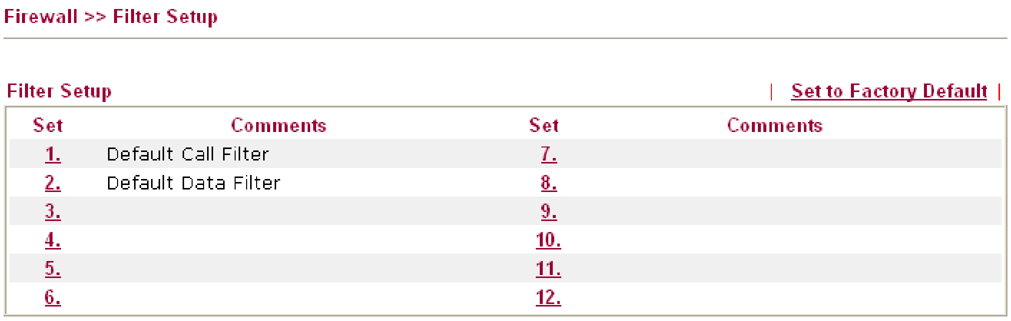
Item	Description
	 None None Class 1 Class 2 Class 3 Default
Load-Balance Policy	Choose the WAN interface for applying Load-Balance Policy.
	 Auto-Select Auto-Select WAN1 WAN2 WAN3
User Management	Such item is available only when **Rule-Based** is selected in User **Management>>General Setup**. The general firewall rule will be applied to the user/user group/all users specified here.  None None User Object [Create New User] User Group [Create New Group] ALL **Note:** When there is no user profile or group profile existed, **Create New User** or **Create New Group** item will appear for you to click to create a new one.
APP Enforcement	Select an **APP Enforcement** profile for global IM/P2P application blocking. If there is no profile for you to selelct, please choose **[Create New]** from the drop down list in this page to create a new profile. All the hosts in LAN must follow the standard configured in the **APP Enforcement** profile selected here. For detailed information, refer to the section of **APP Enforcement** profile setup. For troubleshooting needs, you can specify to record information for IM/P2P by checking the Log box. It will be sent to Syslog server. Please refer to section **Syslog/Mail Alert** for more detailed information.
URL Content Filter	Select one of the **URL Content Filter** profile settings (created in **CSM>> URL Content Filter**) for applying with this router. Please set at least one profile for choosing in **CSM>> URL Content Filter** web page first. Or choose **[Create New]** from the drop down list in this page to create a new profile. For troubleshooting needs, you can specify to record information for **URL Content Filter** by checking the Log box. It will be sent to Syslog server. Please refer to section **Syslog/Mail Alert** for more detailed information.
Web Content Filter	Select one of the **Web Content Filter** profile settings (created in **CSM>> Web Content Filter**) for applying with this router. Please set at least one profile for anti-virus in **CSM>> Web Content Filter** web page first. Or choose **[Create New]** from

Item	Description
	the drop down list in this page to create a new profile. For troubleshooting needs, you can specify to record information for **Web Content Filter** by checking the Log box. It will be sent to Syslog server. Please refer to section **Syslog/Mail Alert** for more detailed information.
Advance Setting	Click **Edit** to open the following window. However, it is **strongly recommended** to use the default settings here.  Firewall >> General Setup Advance Setting Codepage: ANSI(1252)-Latin I Window size: 65535 Session timeout: 1440 Minute OK Close **Codepage -** This function is used to compare the characters among different languages. Choose correct codepage can help the system obtaining correct ASCII after decoding data from URL and enhance the correctness of URL Content Filter. The default value for this setting is ANSI 1252 Latin I. If you do not choose any codepage, no decoding job of URL will be processed. Please use the drop-down list to choose a codepage. If you do not have any idea of choosing suitable codepage, please open Syslog. From Codepage Information of Setup dialog, you will see the recommended codepage listed on the dialog box.  DrayTek Syslog 3.9.1 Controls 192.168.1.1 Vigor series WAN Information WAN1 IP (Fixed): 172.16.2.213 WAN2 IP (Fixed): LAN Status TX Packets: 28489 RX Packets: 15285 Setup Tool Setup | Telnet Read-out Setup | Codepage Information Codepage To Select Windows Version: 5.01.2600 RECOMMENDED CODEPAGE: 950 (ANSI/OEM - Traditional Chinese Big5) 00a1:21 00a6:7c 00a9:63 00aa:61 00ad:2d 00ae:52 00b2:32 00b3:33 00b9:31 00ba:6f **Window size** – It determines the size of TCP protocol (0~65535). The more the value is, the better the performance will be. However, if the network is not stable, small value will be proper. **Session timeout** – Setting timeout for sessions can make the best utilization of network resources.

After finishing all the settings here, please click **OK** to save the configuration.

4.4.3 Filter Setup

Click **Firewall** and click **Filter Setup** to open the setup page.

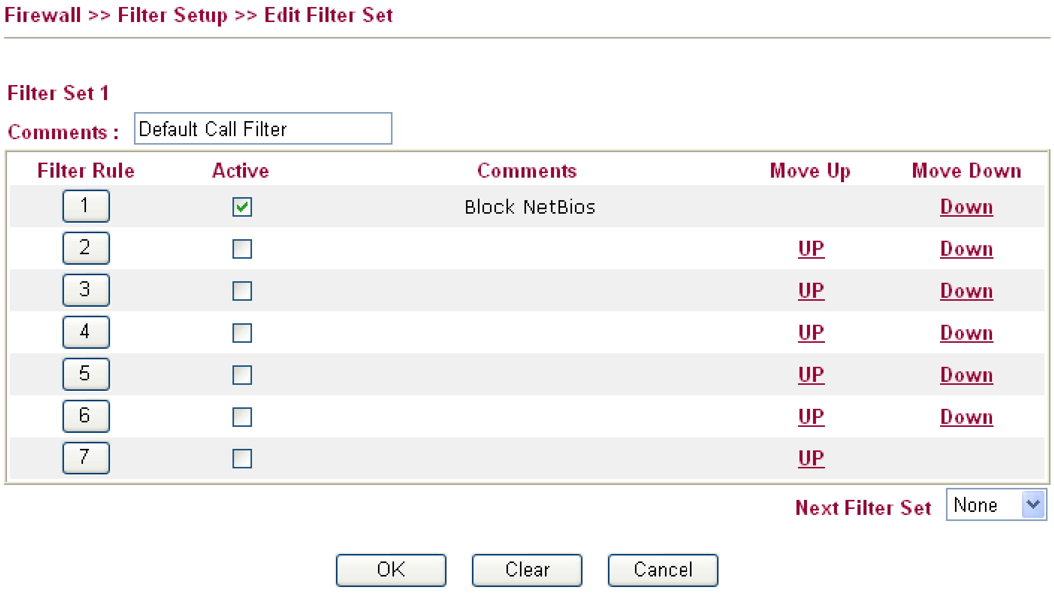


Firewall >> Filter Setup

Filter Setup | Set to Factory Default |

Set	Comments	Set	Comments
1.	Default Call Filter	7.	
2.	Default Data Filter	8.	
3.		9.	
4.		10.	
5.		11.	
6.		12.	

To edit or add a filter, click on the set number to edit the individual set. The following page will be shown. Each filter set contains up to 7 rules. Click on the rule number button to edit each rule. Check **Active** to enable the rule.



Firewall >> Filter Setup >> Edit Filter Set

Filter Set 1

Comments : Default Call Filter

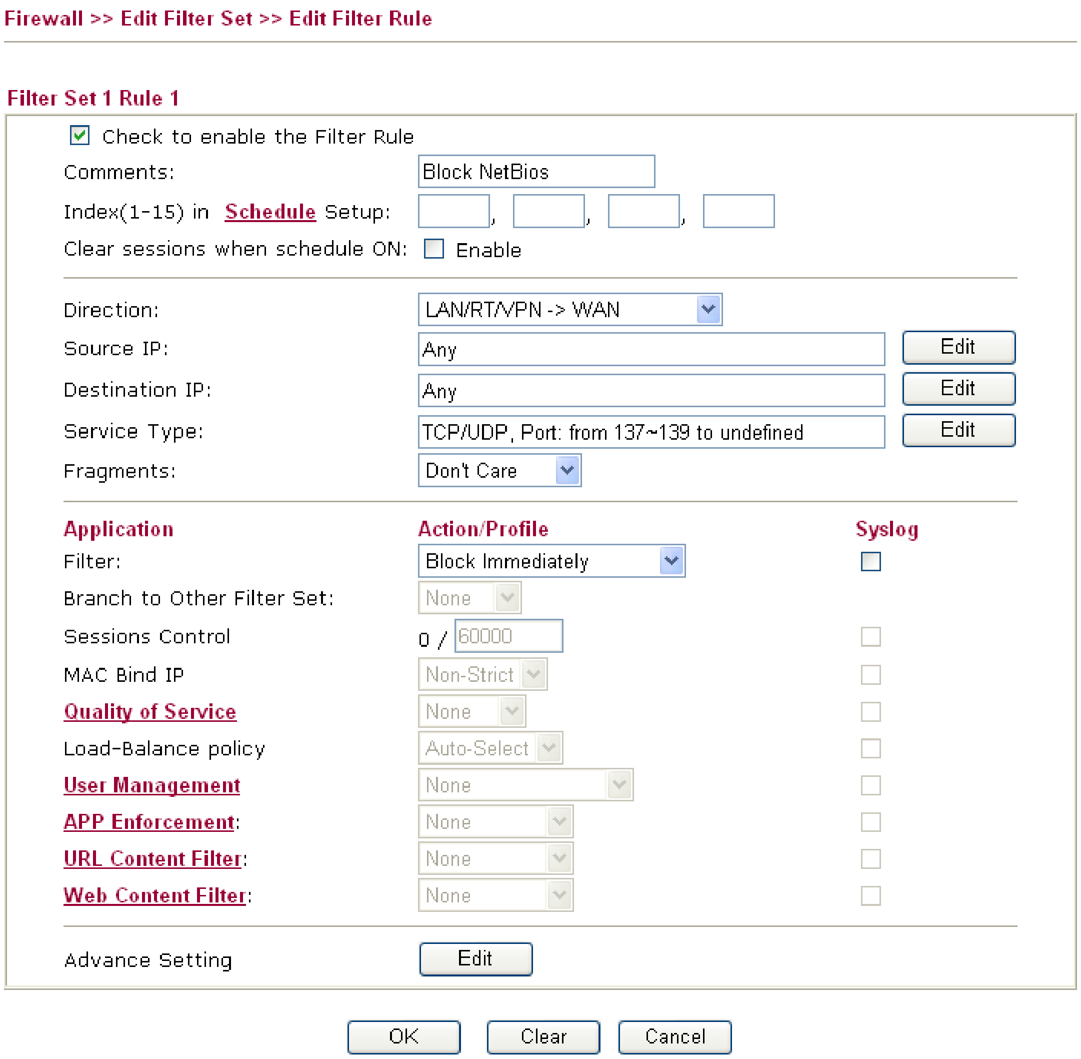
Filter Rule	Active	Comments	Move Up	Move Down
1	☑	Block NetBios		Down
2	□		UP	Down
3	□		UP	Down
4	□		UP	Down
5	□		UP	Down
6	□		UP	Down
7	□		UP	

Next Filter Set: None

Available settings are explained as follows:

Item	Description
Filter Rule	Click a button numbered (1 ~ 7) to edit the filter rule. Click the button will open Edit Filter Rule web page. For the detailed information, refer to the following page.
Active	Enable or disable the filter rule.
Comment	Enter filter set comments/description. Maximum length is 23–character long.
Move Up/Down	Use **Up** or **Down** link to move the order of the filter rules.
Next Filter Set	Set the link to the next filter set to be executed after the current filter run. Do not make a loop with many filter sets.

To edit **Filter Rule**, click the **Filter Rule** index button to enter the **Filter Rule** setup page.



Firewall >> Edit Filter Set >> Edit Filter Rule

Filter Set 1 Rule 1

☑ Check to enable the Filter Rule

Comments: Block NetBios

Index(1-15) in Schedule Setup: , , ,

Clear sessions when schedule ON: □ Enable

Direction: LAN/RT/VPN -> WAN

Source IP: Any

Destination IP: Any

Service Type: TCP/UDP, Port: from 137~139 to undefined

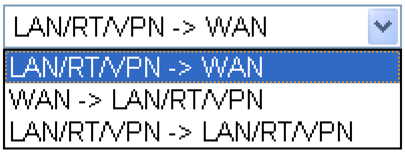
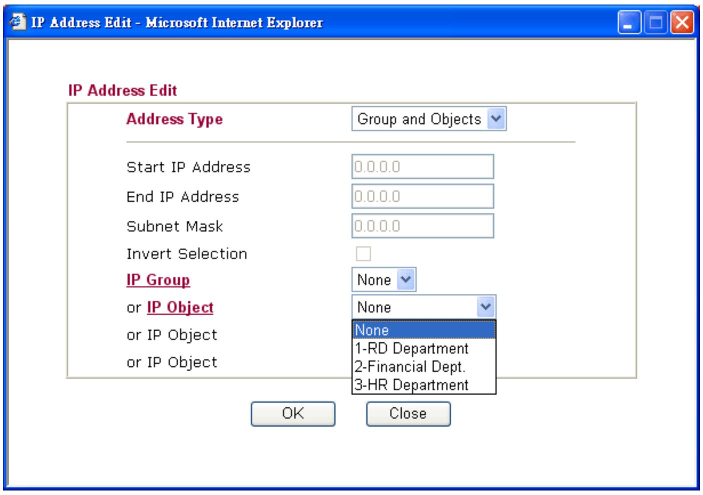
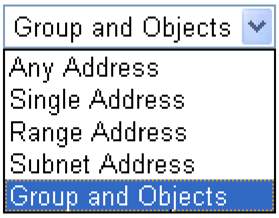
Fragments: Don't Care

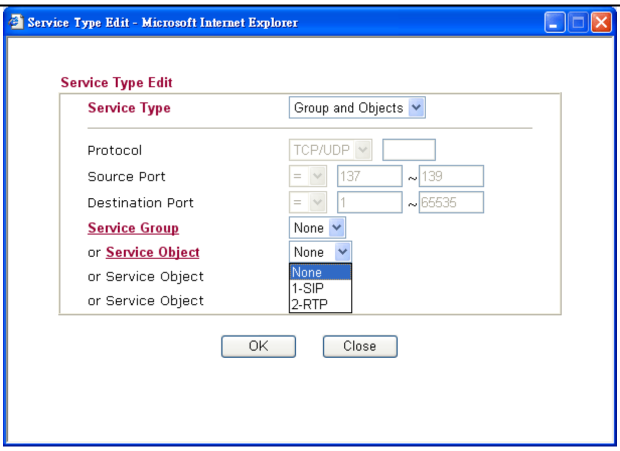
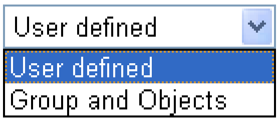
Application	Action/Profile	Syslog
Filter:	Block Immediately	□
Branch to Other Filter Set:	None	
Sessions Control	0 / 60000	□
MAC Bind IP	Non-Strict	□
Quality of Service	None	□
Load-Balance policy	Auto-Select	□
User Management	None	□
APP Enforcement:	None	□
URL Content Filter:	None	□
Web Content Filter:	None	□

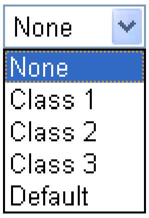
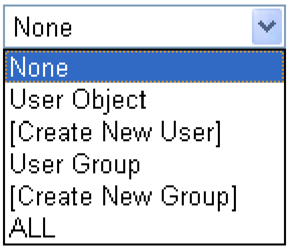
Advance Setting

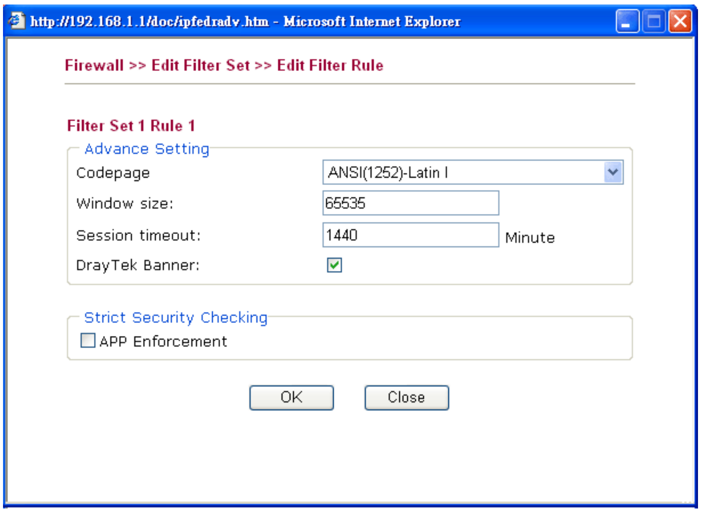
Available settings are explained as follows:

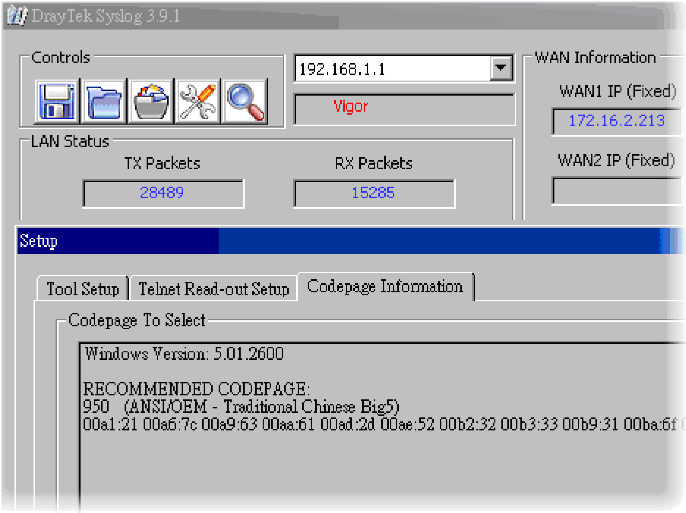
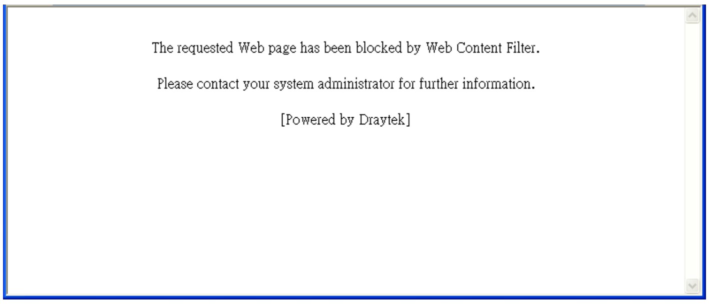
Item	Description
Check to enable the Filter Rule	Check this box to enable the filter rule.
Comments	Enter filter set comments/description. Maximum length is 14-character long.
Index(1-15)	Set PCs on LAN to work at certain time interval only. You may choose up to 4 schedules out of the 15 schedules pre-defined in **Applications** >> **Schedule** setup. The default setting of this field is blank and the function will always work.
Clear sessions when schedule ON	Check this box to clear all the sessions when the schedule is configured and specified above.
Direction	Set the direction of packet flow. It is for **Data Filter** only. For the **Call Filter**, this setting is not available since **Call Filter** is only applied to outgoing traffic.

Item	Description
	 LAN/RT/VPN -> WAN LAN/RT/VPN -> WAN WAN -> LAN/RT/VPN LAN/RT/VPN -> LAN/RT/VPN **Note:** RT means routing domain for 2nd subnet.
Source/Destination IP	Click **Edit** to access into the following dialog to choose the source/destination IP or IP ranges.  IP Address Edit - Microsoft Internet Explorer IP Address Edit Address Type: Group and Objects Start IP Address: 0.0.0.0 End IP Address: 0.0.0.0 Subnet Mask: 0.0.0.0 Invert Selection: □ IP Group: None or IP Object: None None 1-RD Department 2-Financial Dept. 3-HR Department or IP Object or IP Object OK Close To set the IP address manually, please choose **Any Address/Single Address/Range Address/Subnet Address** as the Address Type and type them in this dialog. In addition, if you want to use the IP range from defined groups or objects, please choose **Group and Objects** as the Address Type.  Group and Objects Any Address Single Address Range Address Subnet Address Group and Objects From the **IP Group** drop down list, choose the one that you want to apply. Or use the **IP Object** drop down list to choose the object that you want.
Service Type	Click **Edit** to access into the following dialog to choose a suitable service type.

Item	Description
	 Service Type Edit - Microsoft Internet Explorer Service Type Edit Service Type: Group and Objects Protocol: TCP/UDP Source Port: = 137 ~ 139 Destination Port: = 1 ~ 65535 Service Group: None or Service Object: None or Service Object or Service Object To set the service type manually, please choose **User defined** as the Service Type and type them in this dialog. In addition, if you want to use the service type from defined groups or objects, please choose **Group and Objects** as the Service Type.  **Protocol** - Specify the protocol(s) which this filter rule will apply to. **Source/Destination Port –** ***(=)*** – when the first and last value are the same, it indicates one port; when the first and last values are different, it indicates a range for the port and available for this service type. ***(!=)*** – when the first and last value are the same, it indicates all the ports except the port defined here; when the first and last values are different, it indicates that all the ports except the range defined here are available for this service type. ***(>)*** – the port number greater than this value is available. ***(<)*** – the port number less than this value is available for this profile. **Service Group/Object** - Use the drop down list to choose the one that you want.
Fragments	Specify the action for fragmented packets. And it is used for **Data Filter** only. ***Don’t care*** -No action will be taken towards fragmented packets. ***Unfragmented*** -Apply the rule to unfragmented packets. ***Fragmented*** - Apply the rule to fragmented packets. ***Too Short*** - Apply the rule only to packets that are too short to contain a complete header.
Filter	Specifies the action to be taken when packets match the rule. **Block Immediately** - Packets matching the rule will be dropped immediately.

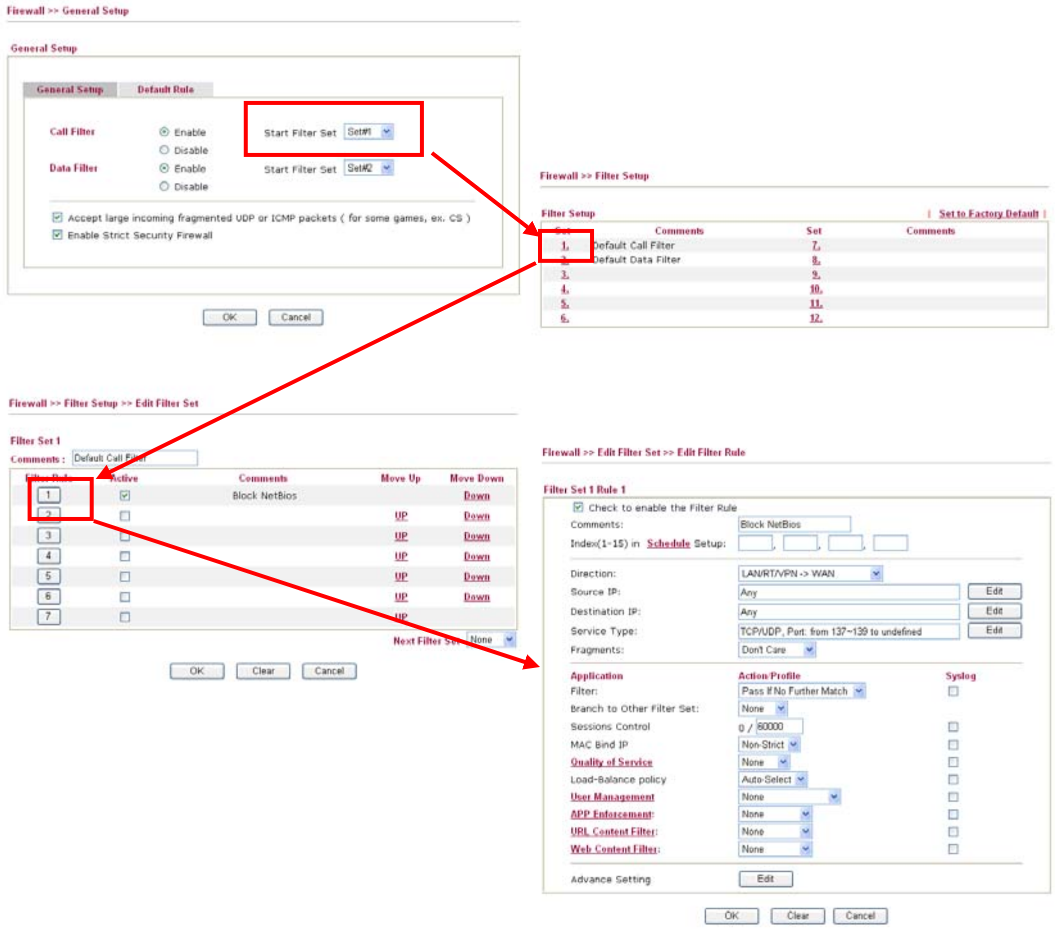
Item	Description
	Pass Immediately - Packets matching the rule will be passed immediately. **Block If No Further Match** - A packet matching the rule, and that does not match further rules, will be dropped. **Pass If No Further Match** - A packet matching the rule, and that does not match further rules, will be passed through.
Branch to other Filter Set	If the packet matches the filter rule, the next filter rule will branch to the specified filter set. Select next filter rule to branch from the drop-down menu. Be aware that the router will apply the specified filter rule for ever and will not return to previous filter rule any more.
Sessions Control	The number typed here is the total sessions of the packets that do not match the filter rule configured in this page. The default setting is 60000.
MAC Bind IP	**Strict** – Make the MAC address and IP address settings configured in **IP Object** for **Source IP** and **Destination IP** be bound for applying such filter rule. **No-Strict -** no limitation.
Quality of Service	Choose one of the QoS rules to be applied as firewall rule. For detailed information of setting QoS, please refer to the related section later. 
Load-Balance policy	Choose the WAN interface for applying Load-Balance Policy.
User Management	Such item is available only when **Rule-Based** is selected in User **Management>>General Setup**. The general firewall rule will be applied to the user/user group/all users specified here.  None None User Object [Create New User] User Group [Create New Group] ALL **Note:** When there is no user profile or group profile existed, **Create New User** or **Create New Group** item will appear for you to click to create a new one.
APP Enforcement	Select an **APP Enforcement** profile for global IM/P2P application blocking. If there is no profile for you to select, please choose **[Create New]** from the drop down list in this page to create a new profile. All the hosts in LAN must follow the standard configured in the **APP Enforcement** profile selected here. For detailed information, refer to the section of

Item	Description
	APP Enforcement profile setup. For troubleshooting needs, you can specify to record information for IM/P2P by checking the Log box. It will be sent to Syslog server. Please refer to section **Syslog/Mail Alert** for more detailed information.
URL Content Filter	Select one of the **URL Content Filter** profile settings (created in **CSM>> URL Content Filter**) for applying with this router. Please set at least one profile for choosing in **CSM>> URL Content Filter** web page first. Or choose **[Create New]** from the drop down list in this page to create a new profile. For troubleshooting needs, you can specify to record information for **URL Content Filter** by checking the Log box. It will be sent to Syslog server. Please refer to section **Syslog/Mail Alert** for more detailed information.
Web Content Filter	Select one of the **Web Content Filter** profile settings (created in **CSM>> Web Content Filter**) for applying with this router. Please set at least one profile for anti-virus in **CSM>> Web Content Filter** web page first. Or choose **[Create New]** from the drop down list in this page to create a new profile. For troubleshooting needs, you can specify to record information for **Web Content Filter** by checking the Log box. It will be sent to Syslog server. Please refer to section **Syslog/Mail Alert** for more detailed information.
Advance Setting	Click **Edit** to open the following window. However, it is **strongly recommended** to use the default settings here.
	 http://192.168.1.1/doc/ipfedradv.htm - Microsoft Internet Explorer Firewall >> Edit Filter Set >> Edit Filter Rule Filter Set 1 Rule 1 Advance Setting Codepage: ANSI(1252)-Latin I Window size: 65535 Session timeout: 1440 Minute DrayTek Banner: ☑ Strict Security Checking ☐ APP Enforcement OK Close **Codepage -** This function is used to compare the characters among different languages. Choose correct codepage can help the system obtaining correct ASCII after decoding data from URL and enhance the correctness of URL Content Filter. The default value for this setting is ANSI 1252 Latin I. If you do not choose any codepage, no decoding job of URL will be processed. Please use the drop-down list to choose a codepage. If you do not have any idea of choosing suitable codepage, please open Syslog. From Codepage Information of Setup dialog, you will see the recommended codepage listed on the dialog box.

Item	Description
	 DrayTek Syslog 3.9.1 Controls 192.168.1.1 Vigor WAN Information WAN1 IP (Fixed) 172.16.2.213 WAN2 IP (Fixed) LAN Status TX Packets 28489 RX Packets 15285 Setup Tool Setup Telnet Read-out Setup Codepage Information Codepage To Select Windows Version: 5.01.2600 RECOMMENDED CODEPAGE: 950 (ANSI/OEM - Traditional Chinese Big5) 00a1:21 00a6:7c 00a9:63 00aa:61 00ad:2d 00ae:52 00b2:32 00b3:33 00b9:31 00ba:6f **Window size** – It determines the size of TCP protocol (0~65535). The more the value is, the better the performance will be. However, if the network is not stable, small value will be proper. **Session timeout**–Setting timeout for sessions can make the best utilization of network resources. However, Queue timeout is configured for TCP protocol only; session timeout is configured for the data flow which matched with the firewall rule. **DrayTek Banner** – Please uncheck this box and the following screen will not be shown for the unreachable web page. The default setting is Enabled.  The requested Web page has been blocked by Web Content Filter. Please contact your system administrator for further information. [Powered by Draytek] **Strict Security Checking -** All the packets, while transmitting through Vigor router, will be filtered by firewall settings configured by Vigor router. When the resource is inadequate, the packets will be blocked if Strict Security Checking is enabled. If Strict Security Checking is not enabled, then the packets will pass through the router.

Example

As stated before, all the traffic will be separated and arbitrated using on of two IP filters: call filter or data filter. You may preset 12 call filters and data filters in **Filter Setup** and even link them in a serial manner. Each filter set is composed by 7 filter rules, which can be further defined. After that, in **General Setup** you may specify one set for call filter and one set for data filter to execute first.



Firewall >> General Setup

General Setup

Call Filter ● Enable ○ Disable Start Filter Set Set#1

Data Filter ● Enable ○ Disable Start Filter Set Set#2

☑ Accept large incoming fragmented UDP or ICMP packets (for some games, ex. CS)

☑ Enable Strict Security Firewall

Firewall >> Filter Setup

Filter Setup | Set to Factory Default |

Set	Comments	Set	Comments
1.	Default Call Filter	7.	
2.	Default Data Filter	8.	
3.		9.	
4.		10.	
5.		11.	
6.		12.	

Firewall >> Filter Setup >> Edit Filter Set

Filter Set 1

Comments : Default Call Filter

Filter Rule	Active	Comments	Move Up	Move Down
1	☑	Block NetBios		Down
2	□		UP	Down
3	□		UP	Down
4	□		UP	Down
5	□		UP	Down
6	□		UP	Down
7	□		UP	

Next Filter Set None

Firewall >> Edit Filter Set >> Edit Filter Rule

Filter Set 1 Rule 1

☑ Check to enable the Filter Rule

Comments: Block NetBios

Index(1-15) in Schedule Setup: , , ,

Direction: LAN/RT/VPN -> WAN

Source IP: Any

Destination IP: Any

Service Type: TCP/UDP, Port: from 137~139 to undefined

Fragments: Don't Care

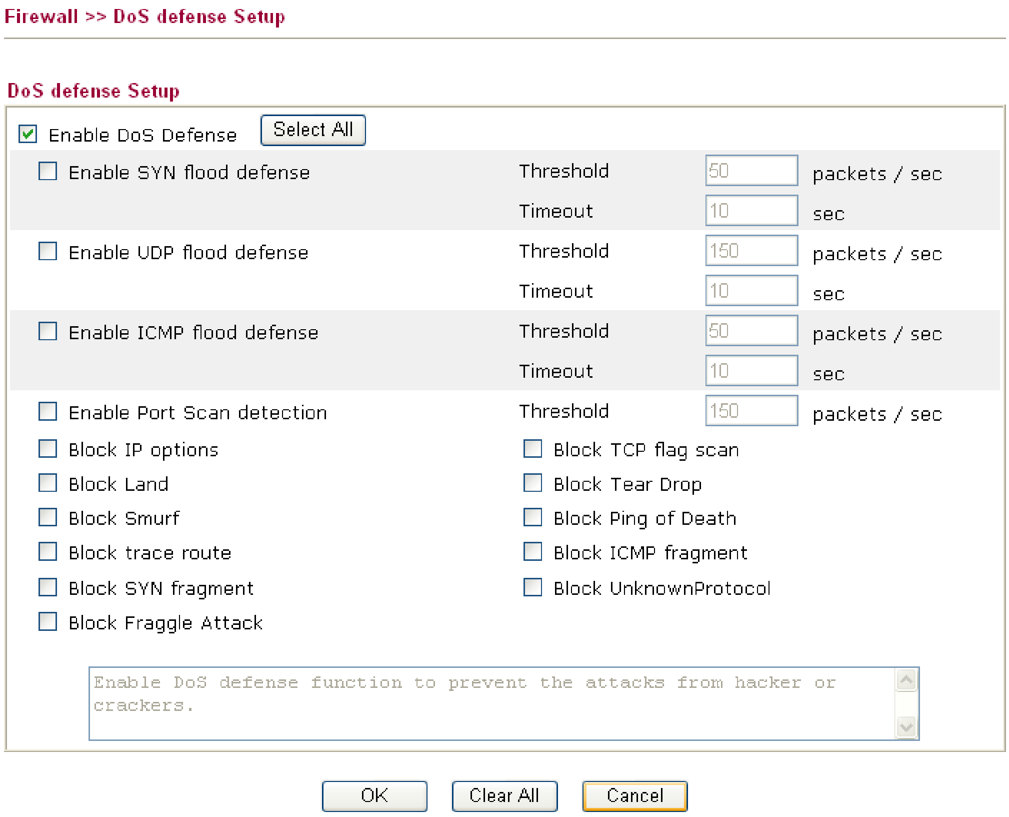
Application	Action/Profile	Syslog
Filter:	Pass If No Further Match	□
Branch to Other Filter Set:	None	
Sessions Control	0 / 60000	□
MAC Bind IP	Non-Strict	□
Quality of Service	None	□
Load-Balance policy	Auto-Select	□
User Management	None	□
APP Enforcement:	None	□
URL Content Filter:	None	□
Web Content Filter:	None	□

Advance Setting

4.4.4 DoS Defense

As a sub-functionality of IP Filter/Firewall, there are 15 types of detect/ defense function in the **DoS Defense** setup. The DoS Defense functionality is disabled for default.

Click **Firewall** and click **DoS Defense** to open the setup page.



Firewall >> DoS defense Setup

DoS defense Setup

☑ Enable DoS Defense [Select All]

□ Enable SYN flood defense	Threshold	50	packets / sec
	Timeout	10	sec
□ Enable UDP flood defense	Threshold	150	packets / sec
	Timeout	10	sec
□ Enable ICMP flood defense	Threshold	50	packets / sec
	Timeout	10	sec
□ Enable Port Scan detection	Threshold	150	packets / sec

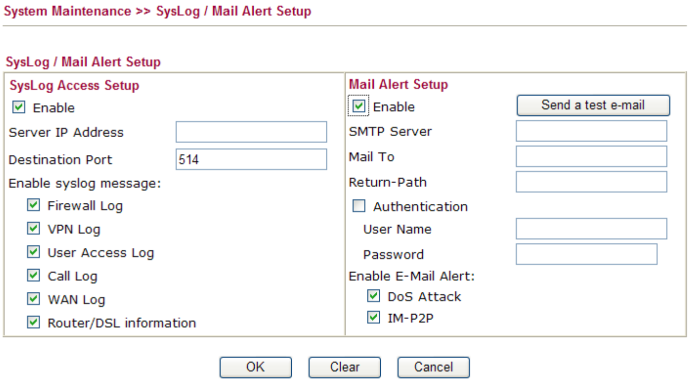
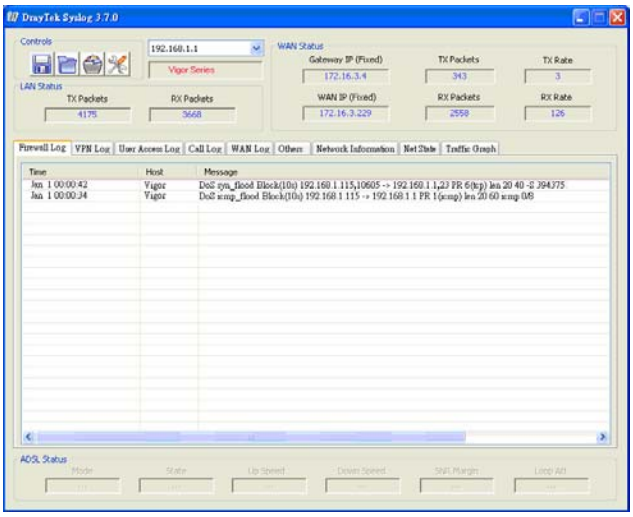
□ Block IP options	□ Block TCP flag scan
□ Block Land	□ Block Tear Drop
□ Block Smurf	□ Block Ping of Death
□ Block trace route	□ Block ICMP fragment
□ Block SYN fragment	□ Block UnknownProtocol
□ Block Fraggle Attack	

Enable DoS defense function to prevent the attacks from hacker or crackers.

Available settings are explained as follows:

Item	Description
Enable Dos Defense	Check the box to activate the DoS Defense Functionality.
Select All	Click this button to select all the items listed below.
Enable SYN flood defense	Check the box to activate the SYN flood defense function. Once detecting the Threshold of the TCP SYN packets from the Internet has exceeded the defined value, the Vigor router will start to randomly discard the subsequent TCP SYN packets for a period defined in Timeout. The goal for this is prevent the TCP SYN packets' attempt to exhaust the limited-resource of Vigor router. By default, the threshold and timeout values are set to 50 packets per second and 10 seconds, respectively.
Enable UDP flood defense	Check the box to activate the UDP flood defense function. Once detecting the Threshold of the UDP packets from the Internet has exceeded the defined value, the Vigor router will start to randomly discard the subsequent UDP packets for a period defined in Timeout. The default setting for threshold and timeout are 150 packets per second and 10 seconds, respectively.
Enable ICMP flood	Check the box to activate the ICMP flood defense function.

Item	Description
defense	Similar to the UDP flood defense function, once if the Threshold of ICMP packets from Internet has exceeded the defined value, the router will discard the ICMP echo requests coming from the Internet. The default setting for threshold and timeout are 50 packets per second and 10 seconds, respectively.
Enable PortScan detection	Port Scan attacks the Vigor router by sending lots of packets to many ports in an attempt to find ignorant services would respond. Check the box to activate the Port Scan detection. Whenever detecting this malicious exploration behavior by monitoring the port-scanning Threshold rate, the Vigor router will send out a warning. By default, the Vigor router sets the threshold as 150 packets per second.
Block IP options	Check the box to activate the Block IP options function. The Vigor router will ignore any IP packets with IP option field in the datagram header. The reason for limitation is IP option appears to be a vulnerability of the security for the LAN because it will carry significant information, such as security, TCC (closed user group) parameters, a series of Internet addresses, routing messages...etc. An eavesdropper outside might learn the details of your private networks.
Block Land	Check the box to enforce the Vigor router to defense the Land attacks. The Land attack combines the SYN attack technology with IP spoofing. A Land attack occurs when an attacker sends spoofed SYN packets with the identical source and destination addresses, as well as the port number to victims.
Block Smurf	Check the box to activate the Block Smurf function. The Vigor router will ignore any broadcasting ICMP echo request.
Block trace router	Check the box to enforce the Vigor router not to forward any trace route packets.
Block SYN fragment	Check the box to activate the Block SYN fragment function. The Vigor router will drop any packets having SYN flag and more fragment bit set.
Block Fraggle Attack	Check the box to activate the Block fraggle Attack function. Any broadcast UDP packets received from the Internet is blocked. Activating the DoS/DDoS defense functionality might block some legal packets. For example, when you activate the fraggle attack defense, all broadcast UDP packets coming from the Internet are blocked. Therefore, the RIP packets from the Internet might be dropped.
Block TCP flag scan	Check the box to activate the Block TCP flag scan function. Any TCP packet with anomaly flag setting is dropped. Those scanning activities include *no flag scan*, *FIN without ACK scan*, *SYN FINscan*, *Xmas scan* and *full Xmas scan*.
Block Tear Drop	Check the box to activate the Block Tear Drop function. Many machines may crash when receiving ICMP datagrams (packets) that exceed the maximum length. To avoid this type of attack, the Vigor router is designed to be capable of discarding any

Item	Description
	fragmented ICMP packets with a length greater than 1024 octets.
Block Ping of Death	Check the box to activate the Block Ping of Death function. This attack involves the perpetrator sending overlapping packets to the target hosts so that those target hosts will hang once they re-construct the packets. The Vigor routers will block any packets realizing this attacking activity.
Block ICMP Fragment	Check the box to activate the Block ICMP fragment function. Any ICMP packets with more fragment bit set are dropped.
Block Unknown Protocol	Check the box to activate the Block Unknown Protocol function. Individual IP packet has a protocol field in the datagram header to indicate the protocol type running over the upper layer. However, the protocol types greater than 100 are reserved and undefined at this time. Therefore, the router should have ability to detect and reject this kind of packets.
Warning Messages	We provide Syslog function for user to retrieve message from Vigor router. The user, as a Syslog Server, shall receive the report sending from Vigor router which is a Syslog Client. All the warning messages related to **DoS Defense** will be sent to user and user can review it through Syslog daemon. Look for the keyword **DoS** in the message, followed by a name to indicate what kind of attacks is detected.  

System Maintenance >> SysLog / Mail Alert Setup

SysLog / Mail Alert Setup

SysLog Access Setup

☑ Enable

Server IP Address

Destination Port 514

Enable syslog message:

☑ Firewall Log

☑ VPN Log

☑ User Access Log

☑ Call Log

☑ WAN Log

☑ Router/DSL information

Mail Alert Setup

☑ Enable

SMTP Server

Mail To

Return-Path

□ Authentication

User Name

Password

Enable E-Mail Alert:

☑ DoS Attack

☑ IM-P2P

DrayTek Syslog 3.7.0

Controls: 192.168.1.1, Vigor Series

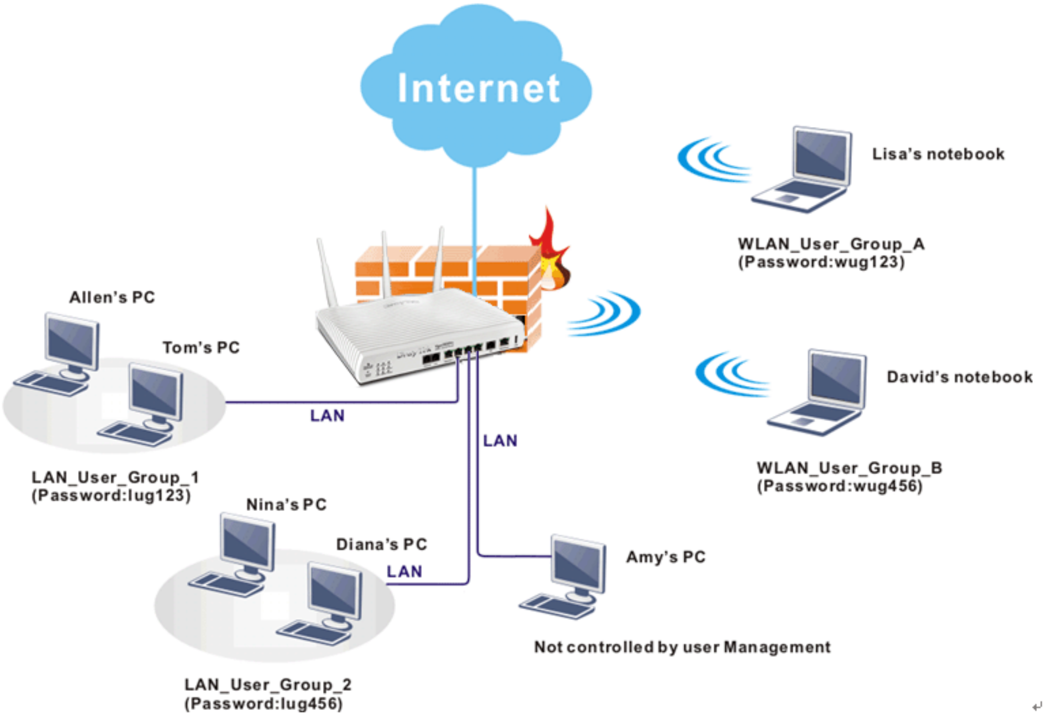
LAN Status: TX Packets 4175, RX Packets 3668

WAN Status: Gateway IP (Fixed) 172.16.3.4, TX Packets 343, TX Rate 3, WAN IP (Fixed) 172.16.3.229, RX Packets 2558, RX Rate 126

```
Time            Host   Message
Jan 1 00:00:42  Vigor  DoS syn_flood Block(10s) 192.168.1.115,10605 -> 192.168.1.1,23 PR 6(tcp) len 20 40 -S 394375
Jan 1 00:00:34  Vigor  DoS icmp_flood Block(10s) 192.168.1.115 -> 192.168.1.1 PR 1(icmp) len 20 60 icmp 0/8
```

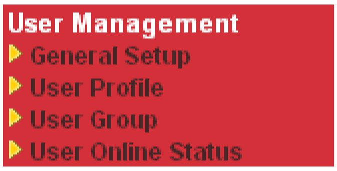
4.5 User Management

User Management is a security feature which disallows any IP traffic (except DHCP-related packets) from a particular host until that host has correctly supplied a valid username and password. Instead of managing with IP address/MAC address, User Management function manages hosts with user account. Network administrator can give different firewall policies or rules for different hosts with different User Management accounts. This is more flexible and convenient for network management. Not only offering the basic checking for Internet access, User Management also provides additional firewall rules, e.g. CSM checking for protecting hosts.



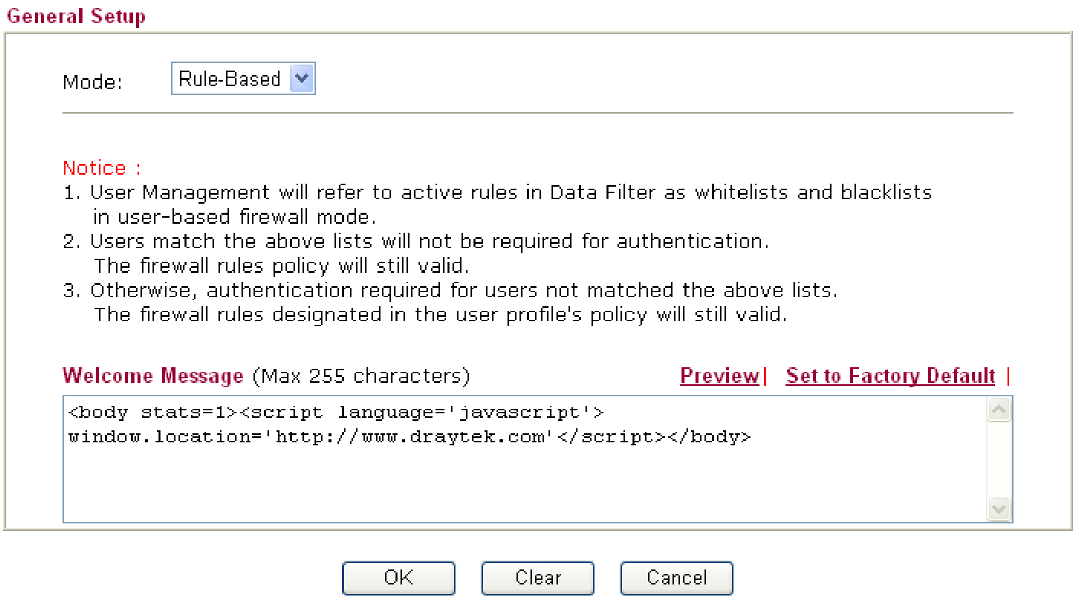
Note: Filter rules configured under Firewall usually are applied to the host (the one that the router installed) only. With user management, the rules can be applied to every user connected to the router with customized profiles.

Note: If **Transparency Mode** is selected in **Firewall>>General Setup**, User Management cannot be used any more. Please uncheck Transparency Mode first if you want to utilize user management to handle users in LAN, WAN or WLAN.



4.5.1 General Setup

General Setup can determine the standard (rule-based or user-based) for the users controlled by User Management. The mode (standard) selected here will influence the contents of the filter rule(s) applied to every user.



General Setup

Mode: Rule-Based

Notice :
1. User Management will refer to active rules in Data Filter as whitelists and blacklists in user-based firewall mode.
2. Users match the above lists will not be required for authentication. The firewall rules policy will still valid.
3. Otherwise, authentication required for users not matched the above lists. The firewall rules designated in the user profile's policy will still valid.

Welcome Message (Max 255 characters) Preview | Set to Factory Default |

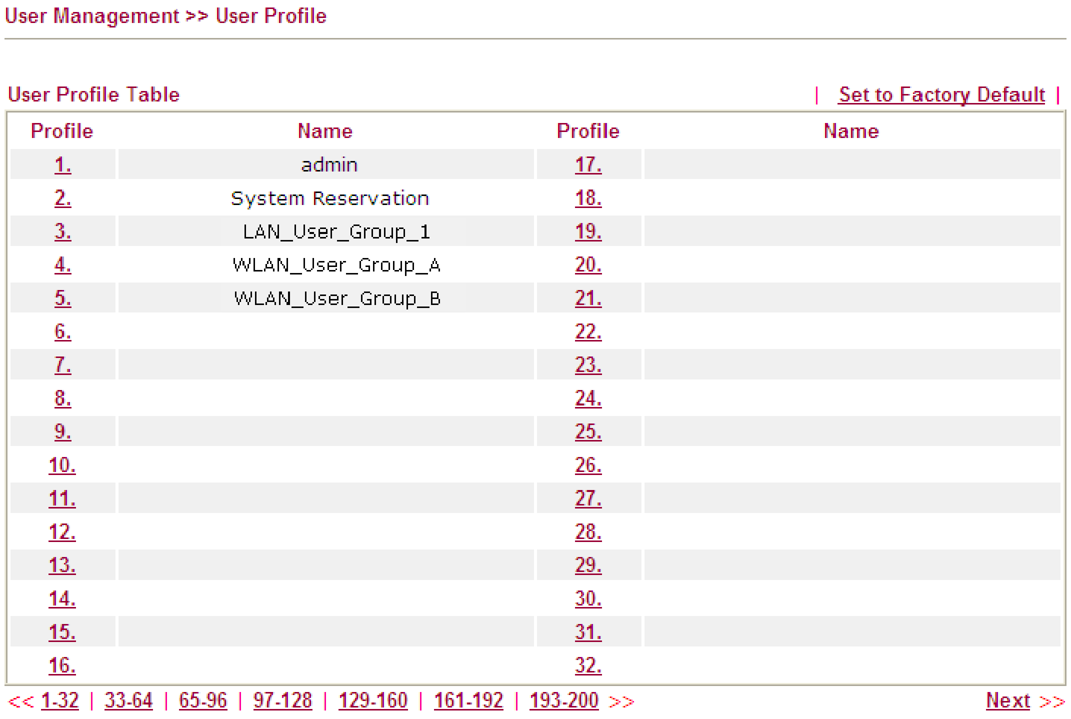
```
<body stats=1><script language='javascript'>
window.location='http://www.draytek.com'</script></body>
```

Available settings are explained as follows:

Item	Description
Mode	There are two modes offered here for you to choose. Each mode will bring different filtering effect to the users involved. **User-Based -** If you choose such mode, the router will apply the filter rules configured in **User Management>>User Profile** to the users. **Rule-Based** –If you choose such mode, the router will apply the filter rules configured in **Firewall>>General Setup** and **Filter Rule** to the users.

4.5.2 User Profile

This page allows you to set customized profiles (up to 200) which will be applied for users controlled under **User Management**. Simply open **User Management>>User Profile**.



User Management >> User Profile

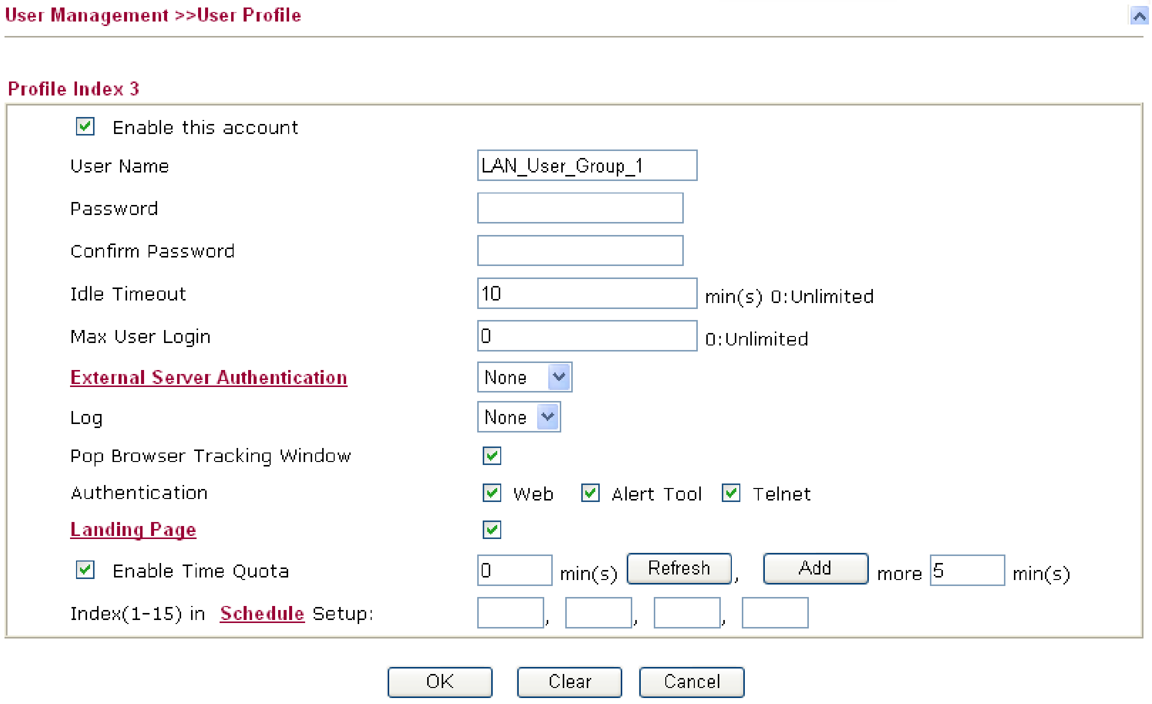
User Profile Table | Set to Factory Default |

Profile	Name	Profile	Name
1.	admin	17.	
2.	System Reservation	18.	
3.	LAN_User_Group_1	19.	
4.	WLAN_User_Group_A	20.	
5.	WLAN_User_Group_B	21.	
6.		22.	
7.		23.	
8.		24.	
9.		25.	
10.		26.	
11.		27.	
12.		28.	
13.		29.	
14.		30.	
15.		31.	
16.		32.	

<< 1-32 | 33-64 | 65-96 | 97-128 | 129-160 | 161-192 | 193-200 >> Next >>

To set the user profile, please click any index number link to open the following page. Notice that profile 1 (**admin**) and profile 2 **(System Reservation)** are factory default settings. Profile 2 is reserved for future use.

Click any index number to open the following configuration page:

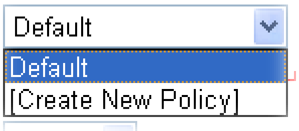


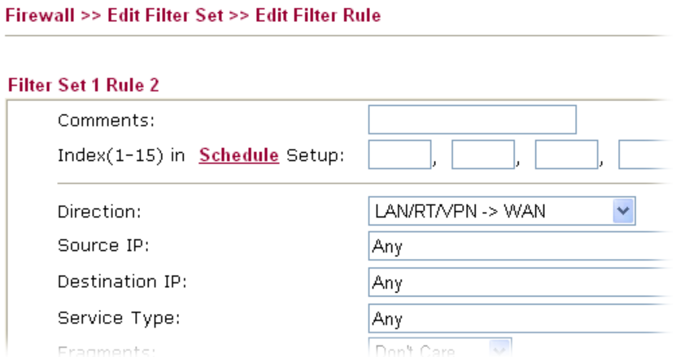
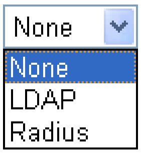
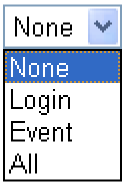
User Management >>User Profile

Profile Index 3

☑ Enable this account	
User Name	LAN_User_Group_1
Password	
Confirm Password	
Idle Timeout	10 min(s) 0:Unlimited
Max User Login	0 0:Unlimited
External Server Authentication	None
Log	None
Pop Browser Tracking Window	☑
Authentication	☑ Web ☑ Alert Tool ☑ Telnet
Landing Page	☑
☑ Enable Time Quota	0 min(s) Refresh , Add more 5 min(s)
Index(1-15) in Schedule Setup:	, , ,

Available settings are explained as follows:

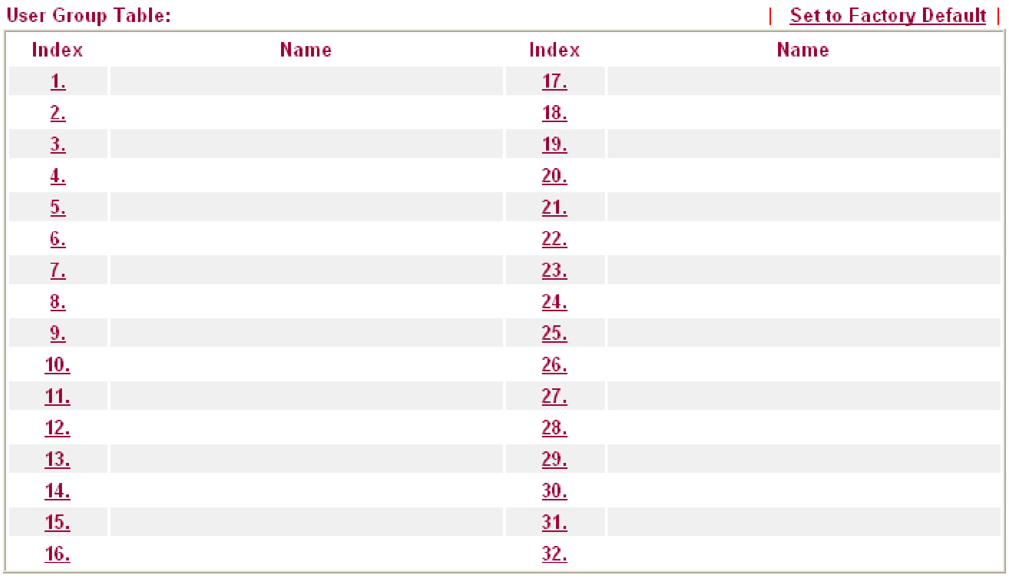
Item	Description
Enable this account	Check this box to enable such user profile.
User Name	Type a name for such user profile (e.g., *LAN_User_Group_1, WLAN_User_Group_A, WLAN_User_Group_B,* etc). When a user tries to access Internet through this router, an authentication step must be performed first. The user has to type the User Name specified here to pass the authentication. When the user passes the authentication, he/she can access Internet via this router. However the accessing operation will be restricted with the conditions configured in this user profile.
Password	Type a password for such profile (e.g., *lug123, wug123,wug456,* etc). When a user tries to access Internet through this router, an authentication step must be performed first. The user has to type the password specified here to pass the authentication. When the user passes the authentication, he/she can access Internet via this router with the limitation configured in this user profile.
Confirm Password	Type the password again for confirmation.
Idle Timeout	If the user is idle over the limitation of the timer, the **network connection will be stopped for such user.** By default, the Idle Timeout is set to 10 minutes.
Max User Login	Such profile can be used by many users. You can set the limitation for the number of users accessing Internet with the conditions of such profile. The default setting is 0 which means no limitation in the number of users.
Policy	It is available only when **User-Based** mode selected in **User Management>>General Setup**.  **Default** – If you choose such item, the filter rules pre-configured in **Firewall** can be adopted for such user profile. **Create New Policy** – If you choose such item, the following page will be popped up for you to define another filter rule as a new policy.

Item	Description
	 Firewall >> Edit Filter Set >> Edit Filter Rule Filter Set 1 Rule 2 Comments: Index(1-15) in Schedule Setup: , , , Direction: LAN/RT/VPN -> WAN Source IP: Any Destination IP: Any Service Type: Any Fragments: Don't Care For the detailed configuration, simply refer to **Firewall>>Filter Rule**. The firewall filter rules that are not selected in **Firewall>>General>>Default rule** can be available for use in **User Management>>User Profile**.
External Service Authentication	The router will authenticate the dial-in user by itself or by external service such as LDAP server or Radius server. If LDAP or Radius is selected here, it is not necessary to configure the password setting above. 
Log	Time of login/log out, block/unblock for the user(s) can be sent to and displayed in Syslog. Please choose any one of the log items to take down relational records for the user(s). 
Pop Browser Tracking Window	If such function is enabled, a pop up window will be displayed on the screen with time remaining for connection if Idle Timeout is set. However, the system will update the time periodically to keep the connection always on. Thus, Idle Timeout will not interrupt the network connection.
Authentication	Any user (from LAN side or WLAN side) tries to connect to Internet via Vigor router must be authenticated by the router first. There are three ways offered by the router for the user to choose for authentication. **Web** – If it is selected, the use can type the URL of the router from any browser. Then, a login window will be popped up and ask the user to type the user name and password for authentication. If succeed, a **Welcome Message** (configured in **User Management** >> **General Setup)** will be displayed. After authentication, the destination URL (if requested by the user) will be guided automatically by the router. **Alert Tool** – If it is selected, the user can open Alert Tool and

Item	Description
	type the user name and password for authentication. A window with remaining time of connection for such user will be displayed. Next, the user can access Internet through any browser on Windows. Note that Alert Tool can be downloaded from DrayTek web site. **Telnet** – If it is selected, the user can use Telnet command to perform the authentication job.
Landing Page	When a user tries to access into the web configurator of Vigor2920 series with the user name and password specified in this profile, he/she will be lead into the web page configured in Landing Page field in **User Management>>General Setup**. Check this box to enable such function.
Enable Time Quota	Time quota means the total connection time allowed by the router for the user with such profile. Check the box to enable the function of time quota. The first box displays the remaining time of the network connection. The second box allows to type the number of time (unit is minute) which is available for the user (using such profile) to access Internet. **Refresh** – Click this button to recalculate the time quota. **Add** – Click this box to set the time quota for such profile.
Index (1-15) in Schedule Setup	You can type in four sets of time schedule for your request. All the schedules can be set previously in **Application >> Schedule** web page and you can use the number that you have set in that web page.

4.5.3 User Group

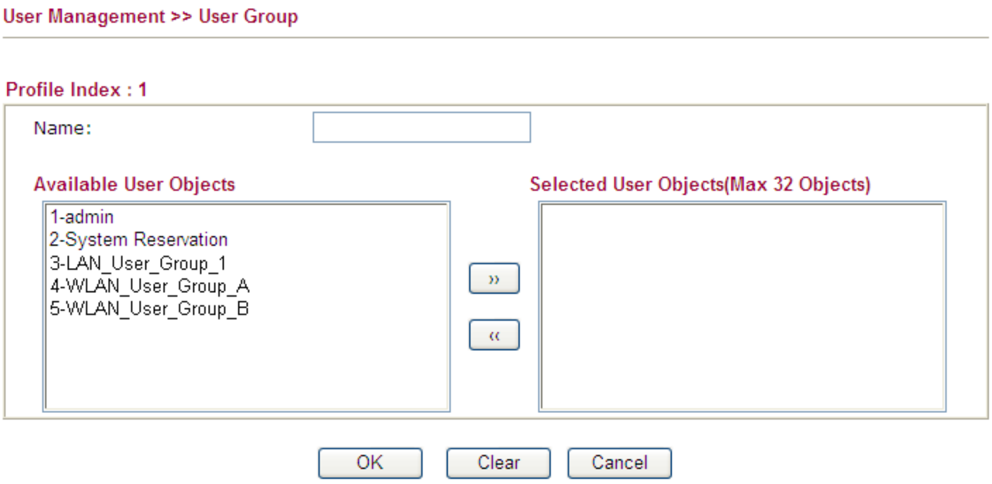
This page allows you to bind several user profiles into one group. These groups will be used in **Firewall>>General Setup** as part of filter rules.



User Group Table: | Set to Factory Default |

Index	Name	Index	Name
1.		17.	
2.		18.	
3.		19.	
4.		20.	
5.		21.	
6.		22.	
7.		23.	
8.		24.	
9.		25.	
10.		26.	
11.		27.	
12.		28.	
13.		29.	
14.		30.	
15.		31.	
16.		32.	

Please click any index number link to open the following page.



User Management >> User Group

Profile Index : 1

Name:

Available User Objects

1-admin
2-System Reservation
3-LAN_User_Group_1
4-WLAN_User_Group_A
5-WLAN_User_Group_B

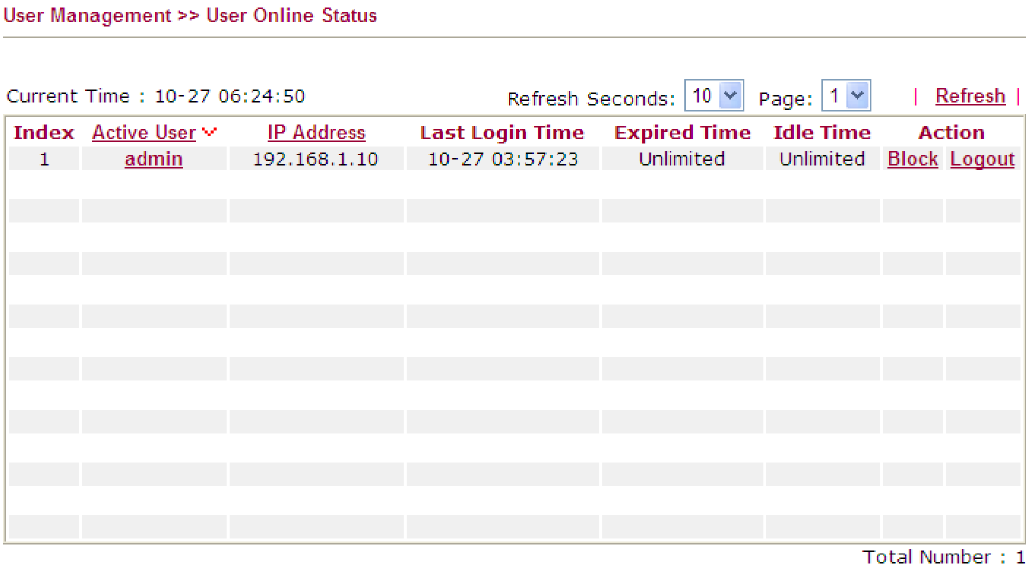
Selected User Objects(Max 32 Objects)

Available settings are explained as follows:

Item	Description
Name	Type a name for this user group.
Available User Objects	You can gather user profiles (objects) from **User Profile** page within one user group. All the available user objects that you have created will be shown in this box. Notice that user object, Admin and Dial-In User are factory settings. User defined profiles will be numbered with 3, 4, 5 and so on.
Selected User Objects	Click » button to add the selected user objects in this box.

4.5.4 User Online Status

This page displays the user(s) connected to the router and refreshes the connection status in an interval of several seconds.



User Management >> User Online Status

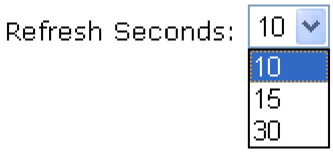
Current Time : 10-27 06:24:50

Refresh Seconds: 10 Page: 1

Index	Active User	IP Address	Last Login Time	Expired Time	Idle Time	Action
1	admin	192.168.1.10	10-27 03:57:23	Unlimited	Unlimited	Block Logout

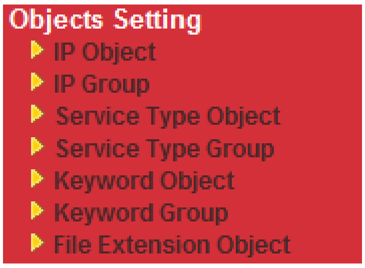
Total Number : 1

Available settings are explained as follows:

Item	Description
Refresh Seconds	Use the drop down list to choose the time interval of refreshing data flow that will be done by the system automatically.  Refresh Seconds: 10 10 15 30
Refresh	Click this link to refresh this page manually.
Index	Display the number of the data flow.
Active User	Display the users which connect to Vigor router currently. You can click the link under the username to open the user profile setting page for that user.
IP Address	Display the IP address of the device.
Last Login Time	Display the login time that such user connects to the router last time.
Expired Time	Display the expired time of the network connection for the user.
Idle Time	Display the idle timeout setting for such profile.
Action	**Block -** can prevent specified user accessing into Internet. **Unblock** – the user will be blocked. **Logout** – the user will be logged out forcefully.

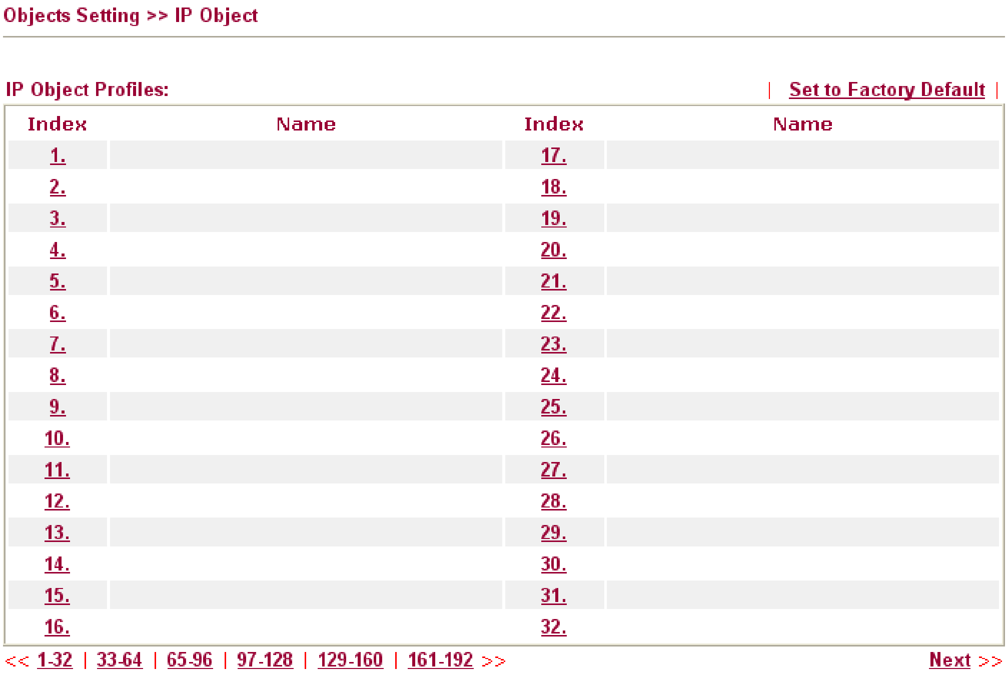
4.6 Objects Settings

For IPs in a range and service ports in a limited range usually will be applied in configuring router's settings, therefore we can define them with ***objects*** and bind them with ***groups*** for using conveniently. Later, we can select that object/group that can apply it. For example, all the IPs in the same department can be defined with an IP object (a range of IP address).



4.6.1 IP Object

You can set up to 192 sets of IP Objects with different conditions.



Objects Setting >> IP Object

IP Object Profiles: | Set to Factory Default |

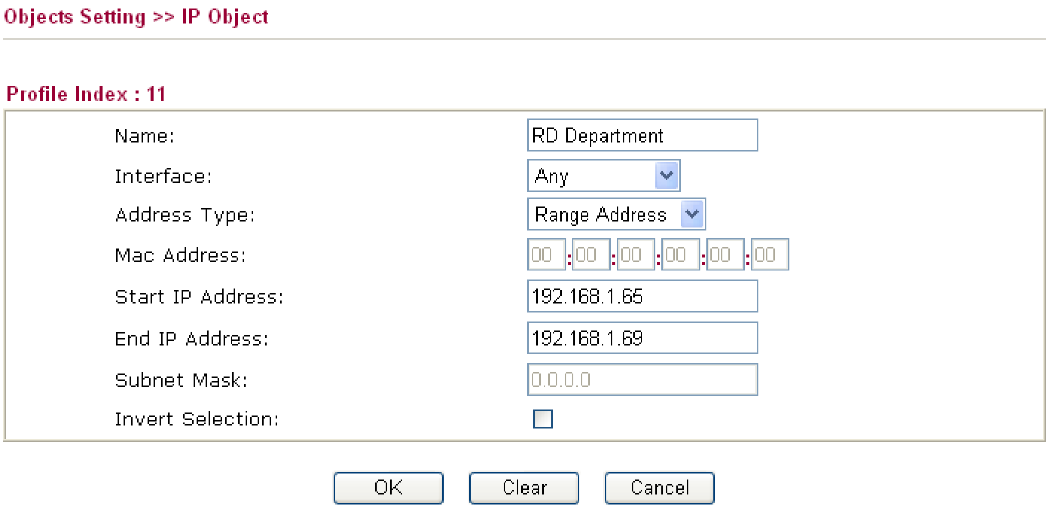
Index	Name	Index	Name
1.		17.	
2.		18.	
3.		19.	
4.		20.	
5.		21.	
6.		22.	
7.		23.	
8.		24.	
9.		25.	
10.		26.	
11.		27.	
12.		28.	
13.		29.	
14.		30.	
15.		31.	
16.		32.	

<< 1-32 | 33-64 | 65-96 | 97-128 | 129-160 | 161-192 >> Next >>

Available settings are explained as follows:

Item	Description
Name	Display a name for this profile.
Set to Factory Default	Clear all profiles.

Click the number under Index column for settings in detail.

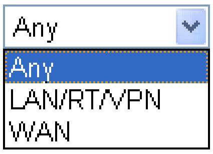
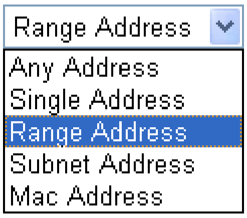


Objects Setting >> IP Object

Profile Index : 11

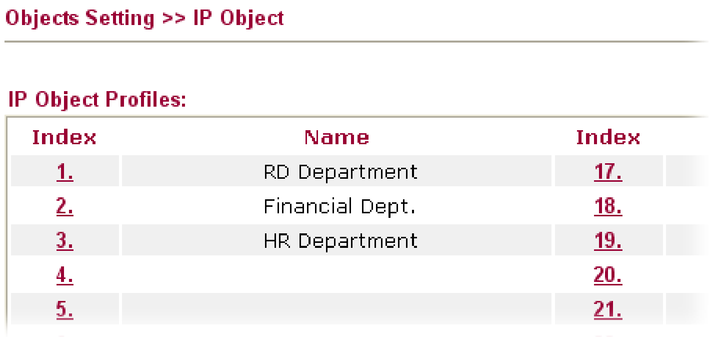
Name:	RD Department
Interface:	Any
Address Type:	Range Address
Mac Address:	00 : 00 : 00 : 00 : 00 : 00
Start IP Address:	192.168.1.65
End IP Address:	192.168.1.69
Subnet Mask:	0.0.0.0
Invert Selection:	□

Available settings are explained as follows:

Item	Description
Name	Type a name for this profile. Maximum 15 characters are allowed.
Interface	Choose a proper interface.  For example, the **Direction** setting in **Edit Filter Rule** will ask you specify IP or IP range for WAN or LAN or any IP address. If you choose LAN as the **Interface** here, and choose LAN as the direction setting in **Edit Filter Rule**, then all the IP addresses specified with LAN interface will be opened for you to choose in **Edit Filter Rule** page.
Address Type	Determine the address type for the IP address. Select **Single Address** if this object contains one IP address only. Select **Range Address** if this object contains several IPs within a range. Select **Subnet Address** if this object contains one subnet for IP address. Select **Any Address** if this object contains any IP address. Select **Mac Address** if this object contains Mac address.  Range Address Any Address Single Address Range Address Subnet Address Mac Address
MAC Address	Type the MAC address of the network card which will be controlled.

Item	Description
Start IP Address	Type the start IP address for Single Address type.
End IP Address	Type the end IP address if the Range Address type is selected.
Subnet Mask	Type the subnet mask if the Subnet Address type is selected.
Invert Selection	If it is checked, all the IP addresses except the ones listed above will be applied later while it is chosen.

Below is an example of IP objects settings.



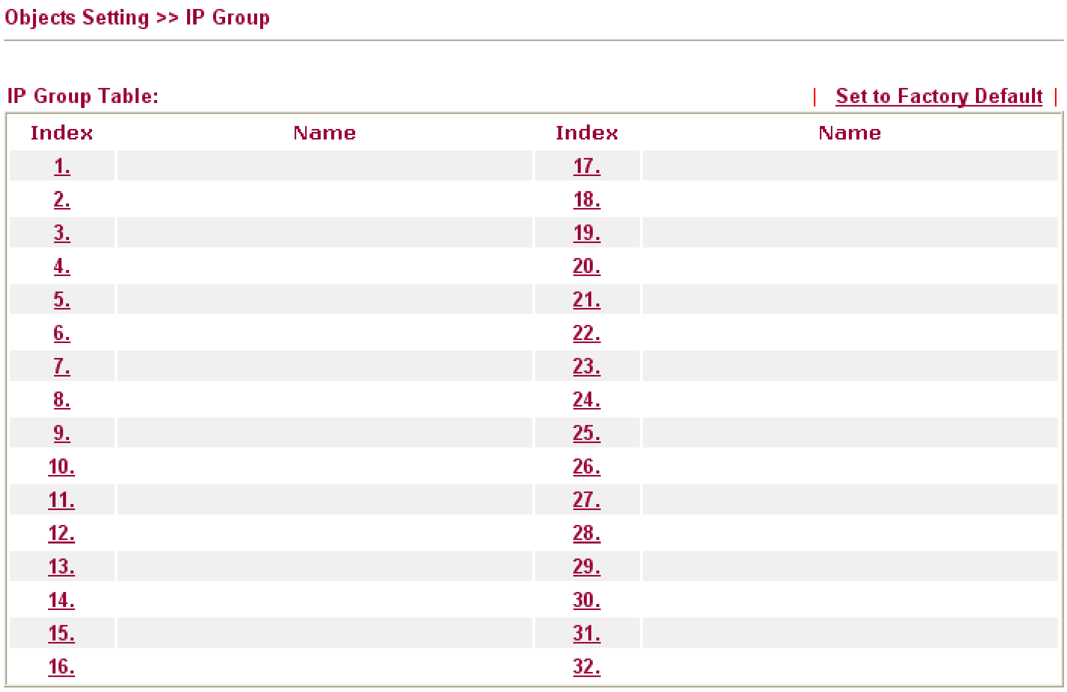
Objects Setting >> IP Object

IP Object Profiles:

Index	Name	Index
1.	RD Department	17.
2.	Financial Dept.	18.
3.	HR Department	19.
4.		20.
5.		21.

4.6.2 IP Group

This page allows you to bind several IP objects into one IP group.



Objects Setting >> IP Group

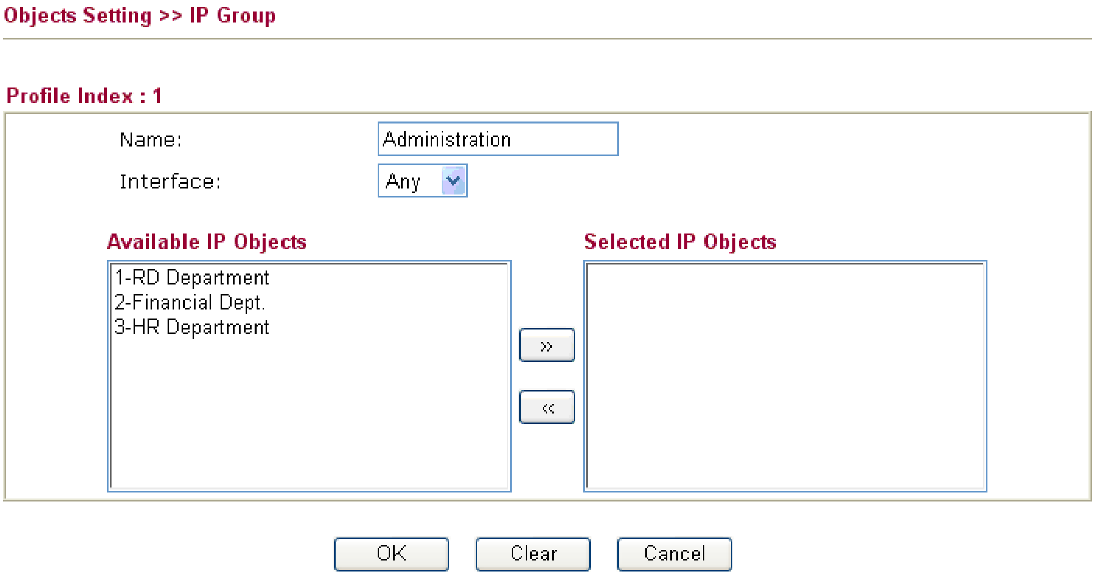
IP Group Table: | Set to Factory Default |

Index	Name	Index	Name
1.		17.	
2.		18.	
3.		19.	
4.		20.	
5.		21.	
6.		22.	
7.		23.	
8.		24.	
9.		25.	
10.		26.	
11.		27.	
12.		28.	
13.		29.	
14.		30.	
15.		31.	
16.		32.	

Available settings are explained as follows:

Item	Description
Name	Display a name for this IP group profile.
Set to Factory Default	Clear all profiles.

Click the number under Index column for settings in detail.



Objects Setting >> IP Group

Profile Index : 1

Name:	Administration
Interface:	Any

Available IP Objects

1-RD Department
2-Financial Dept.
3-HR Department

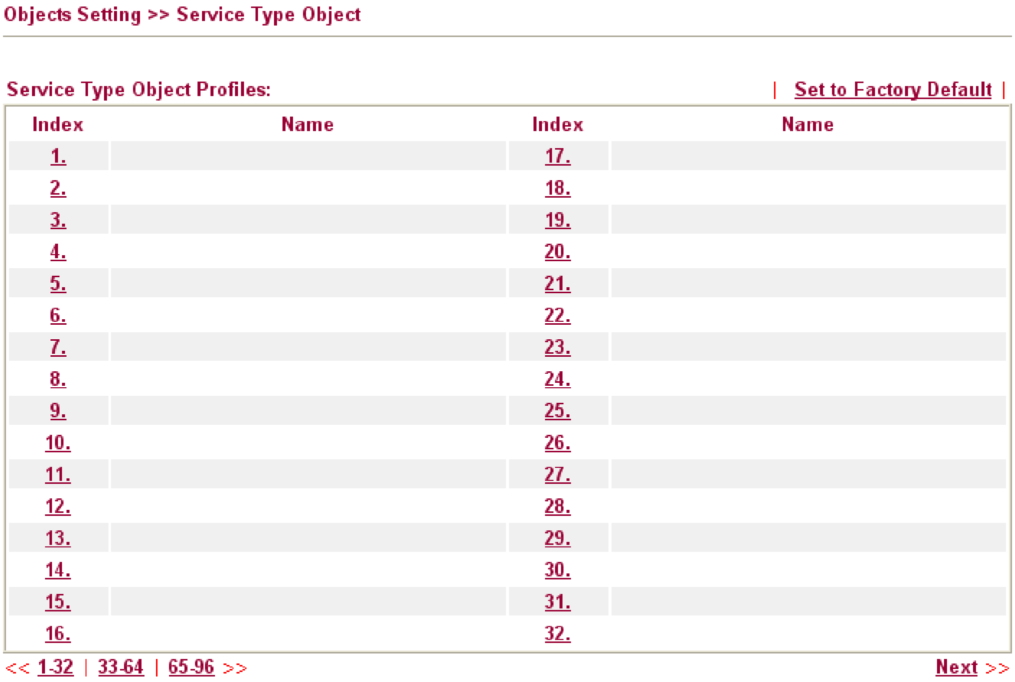
Selected IP Objects

Available settings are explained as follows:

Item	Description
Name	Type a name for this profile. Maximum 15 characters are allowed.
Interface	Choose WAN, LAN or Any to display all the available IP objects with the specified interface.
Available IP Objects	All the available IP objects with the specified interface chosen above will be shown in this box.
Selected IP Objects	Click >> button to add the selected IP objects in this box.

4.6.3 Service Type Object

You can set up to 96 sets of Service Type Objects with different conditions.

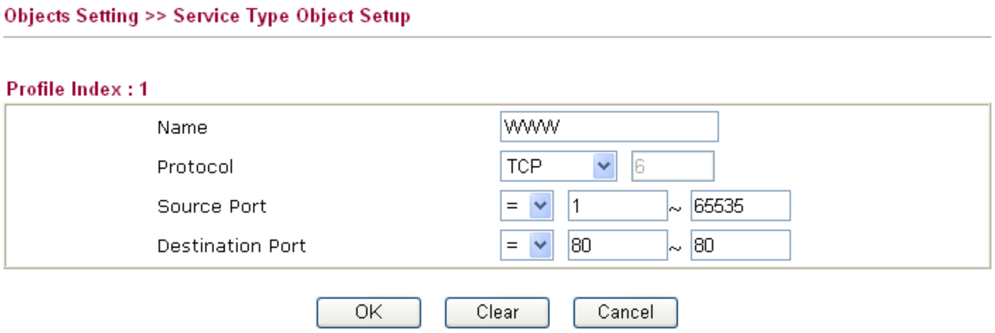

Objects Setting >> Service Type Object
Service Type Object Profiles:
| Set to Factory Default |
<< 1-32 | 33-64 | 65-96 >>
Next >>

Index	Name	Index	Name
1.		17.	
2.		18.	
3.		19.	
4.		20.	
5.		21.	
6.		22.	
7.		23.	
8.		24.	
9.		25.	
10.		26.	
11.		27.	
12.		28.	
13.		29.	
14.		30.	
15.		31.	
16.		32.	

Available settings are explained as follows:

Item	Description
Name	Display a name for this profile.
Set to Factory Default	Clear all profiles.

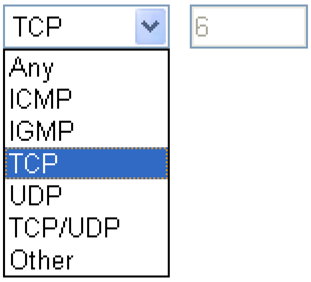
Click the number under Index column for settings in detail.



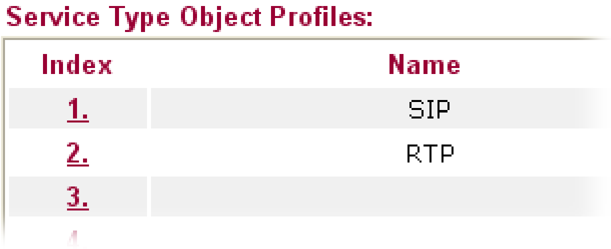
Name	WWW
Protocol	TCP 6
Source Port	= 1 ~ 65535
Destination Port	= 80 ~ 80

Available settings are explained as follows:

Item	Description
Name	Type a name for this profile.
Protocol	Specify the protocol(s) which this profile will apply to.

Item	Description
	 TCP 6 Any ICMP IGMP TCP UDP TCP/UDP Other
Source/Destination Port	**Source Port** and the **Destination Port** column are available for TCP/UDP protocol. It can be ignored for other protocols. The filter rule will filter out any port number. *(=)* – when the first and last value are the same, it indicates one port; when the first and last values are different, it indicates a range for the port and available for this profile. *(!=)* – when the first and last value are the same, it indicates all the ports except the port defined here; when the first and last values are different, it indicates that all the ports except the range defined here are available for this service type. *(>)* – the port number greater than this value is available. *(<)* – the port number less than this value is available for this profile.

Below is an example of service type objects settings.

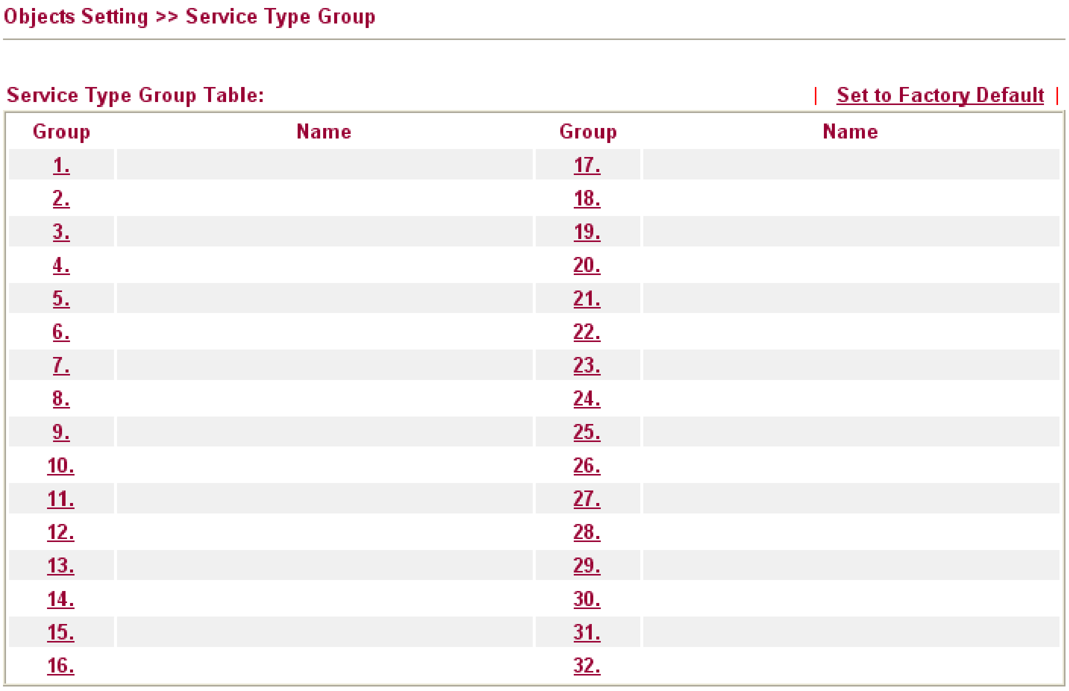


Service Type Object Profiles:

Index	Name
1.	SIP
2.	RTP
3.	
4	

4.6.4 Service Type Group

This page allows you to bind several service types into one group.



Objects Setting >> Service Type Group

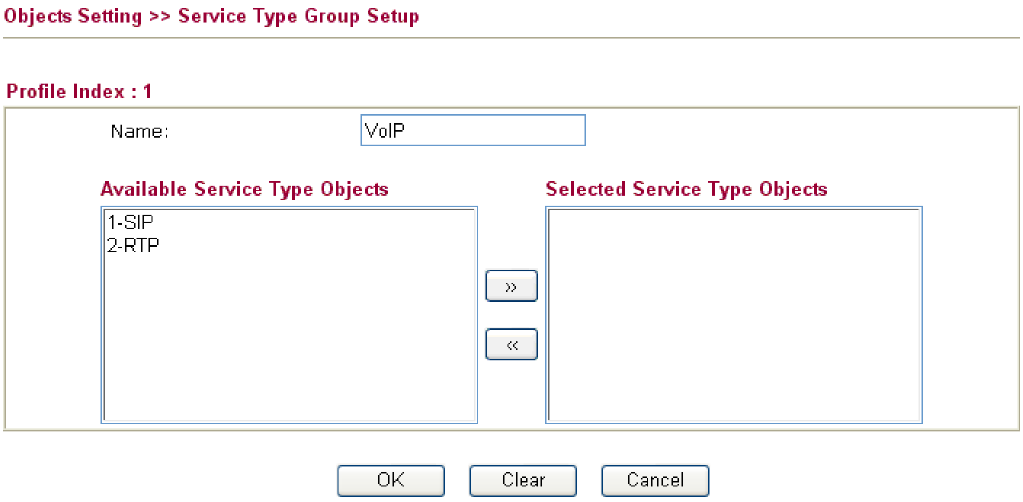
Service Type Group Table: | Set to Factory Default |

Group	Name	Group	Name
1.		17.	
2.		18.	
3.		19.	
4.		20.	
5.		21.	
6.		22.	
7.		23.	
8.		24.	
9.		25.	
10.		26.	
11.		27.	
12.		28.	
13.		29.	
14.		30.	
15.		31.	
16.		32.	

Available settings are explained as follows:

Item	Description
Name	Display a name for this profile.
Set to Factory Default	Clear all profiles.

Click the number under Index column for settings in detail.



Objects Setting >> Service Type Group Setup

Profile Index : 1

Name: VoIP

Available Service Type Objects

1-SIP
2-RTP

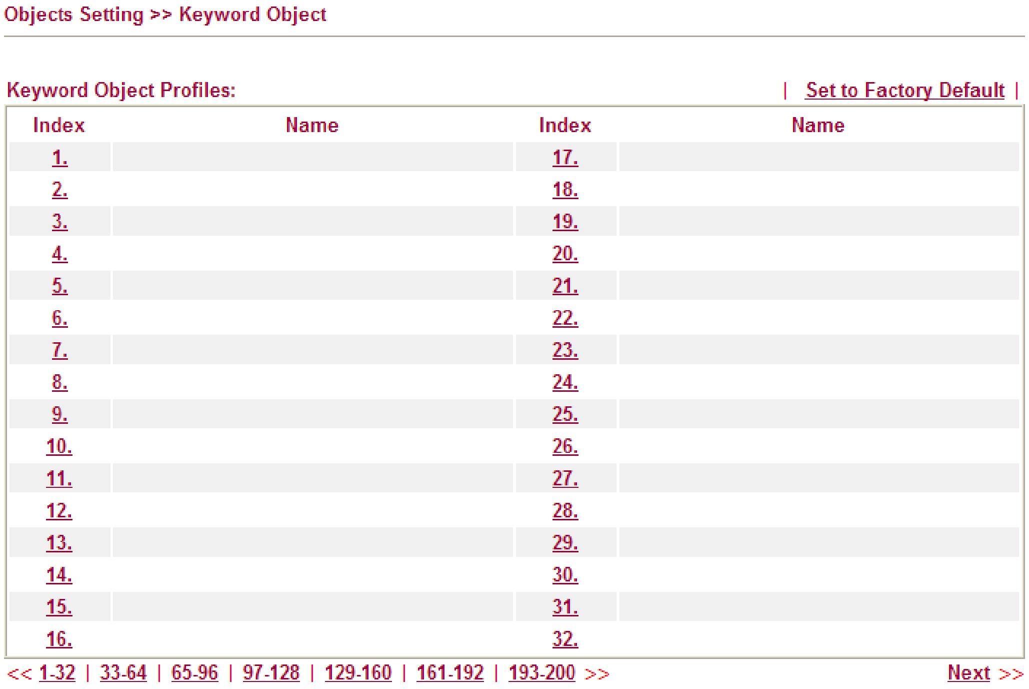
Selected Service Type Objects

Available settings are explained as follows:

Item	Description
Name	Type a name for this profile.
Available Service Type Objects	All the available service objects that you have added on **Objects Setting>>Service Type Object** will be shown in this box.
Selected Service Type Objects	Click >> button to add the selected IP objects in this box.

4.6.5 Keyword Object

You can set 200 keyword object profiles for choosing as black /white list in **CSM >>URL Web Content Filter Profile.**



Objects Setting >> Keyword Object

Keyword Object Profiles: | Set to Factory Default |

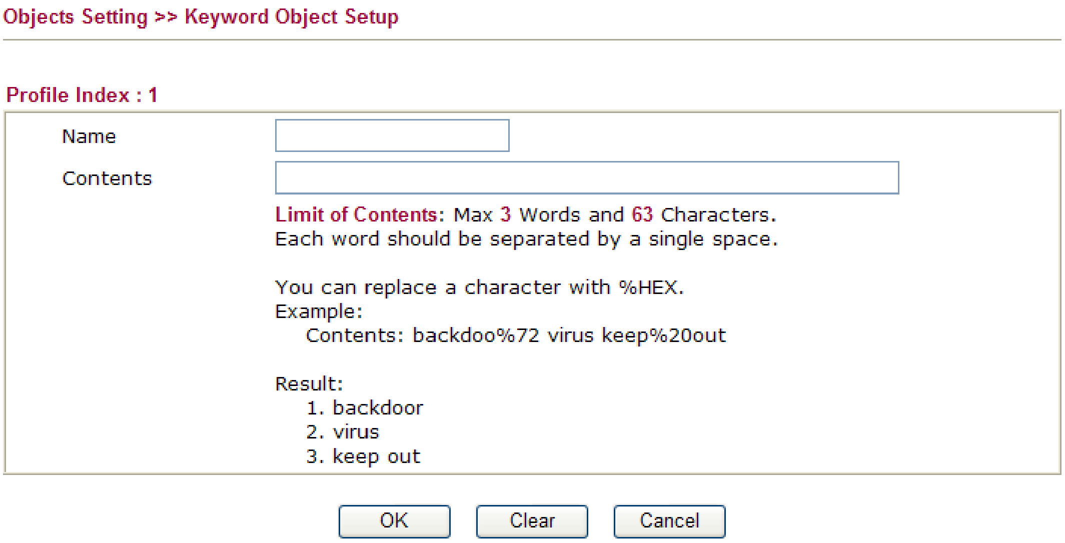
Index	Name	Index	Name
1.		17.	
2.		18.	
3.		19.	
4.		20.	
5.		21.	
6.		22.	
7.		23.	
8.		24.	
9.		25.	
10.		26.	
11.		27.	
12.		28.	
13.		29.	
14.		30.	
15.		31.	
16.		32.	

<< 1-32 | 33-64 | 65-96 | 97-128 | 129-160 | 161-192 | 193-200 >> Next >>

Available settings are explained as follows:

Item	Description
Name	Display a name for this profile.
Set to Factory Default	Clear all profiles.

Click the number under Index column for setting in detail.



Objects Setting >> Keyword Object Setup

Profile Index : 1

Name	
Contents	

Limit of Contents: Max 3 Words and 63 Characters.
Each word should be separated by a single space.

You can replace a character with %HEX.
Example:
Contents: backdoo%72 virus keep%20out

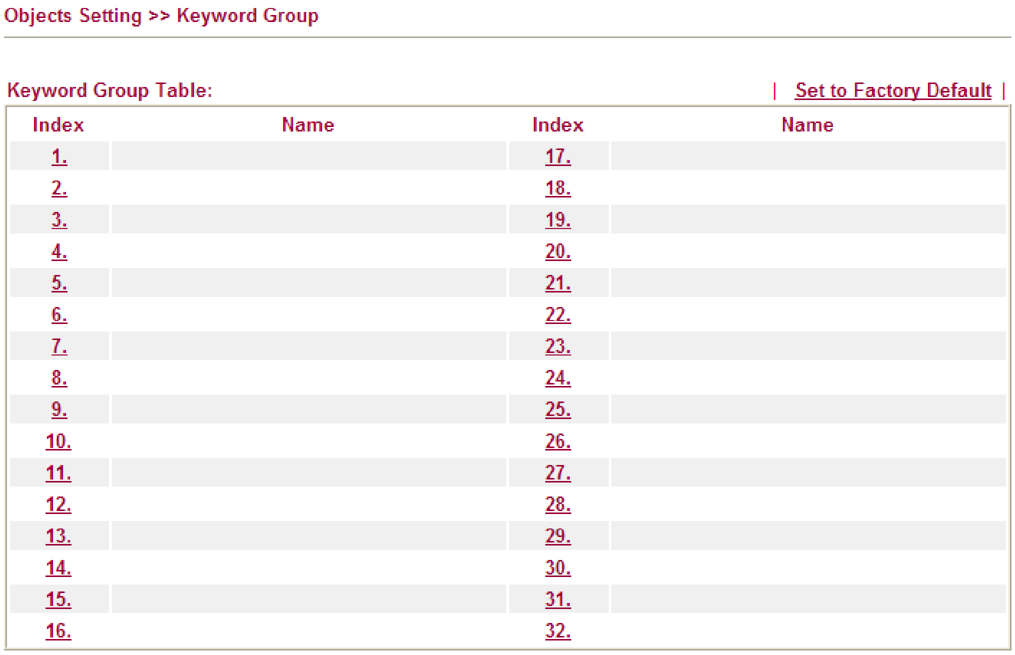
Result:
1. backdoor
2. virus
3. keep out

Available settings are explained as follows:

Item	Description
Name	Type a name for this profile, e.g., game.
Contents	Type the content for such profile. For example, type *gambling* as Contents. When you browse the webpage, the page with gambling information will be watched out and be passed/blocked based on the configuration on Firewall settings.

4.6.6 Keyword Group

This page allows you to bind several keyword objects into one group. The keyword groups set here will be chosen as black /white list in **CSM >>URL /Web Content Filter Profile**.



Objects Setting >> Keyword Group

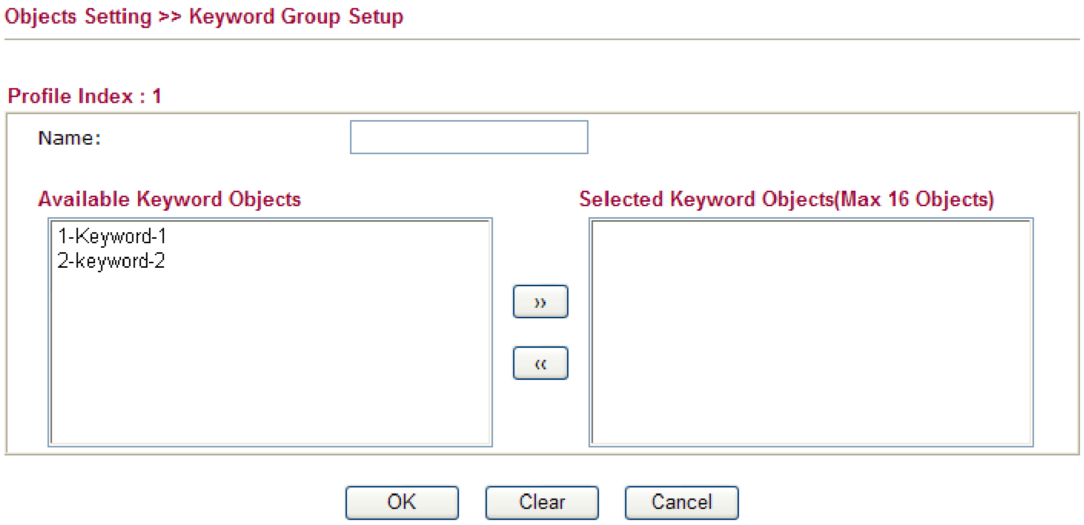
Keyword Group Table: | Set to Factory Default |

Index	Name	Index	Name
1.		17.	
2.		18.	
3.		19.	
4.		20.	
5.		21.	
6.		22.	
7.		23.	
8.		24.	
9.		25.	
10.		26.	
11.		27.	
12.		28.	
13.		29.	
14.		30.	
15.		31.	
16.		32.	

Available settings are explained as follows:

Item	**Description**
Name	Display a name for this profile.
Set to Factory Default	Clear all profiles.

Click the number under Index column for setting in detail.



Objects Setting >> Keyword Group Setup

Profile Index : 1

Name:

Available Keyword Objects

1-Keyword-1
2-keyword-2

Selected Keyword Objects(Max 16 Objects)

Available settings are explained as follows:

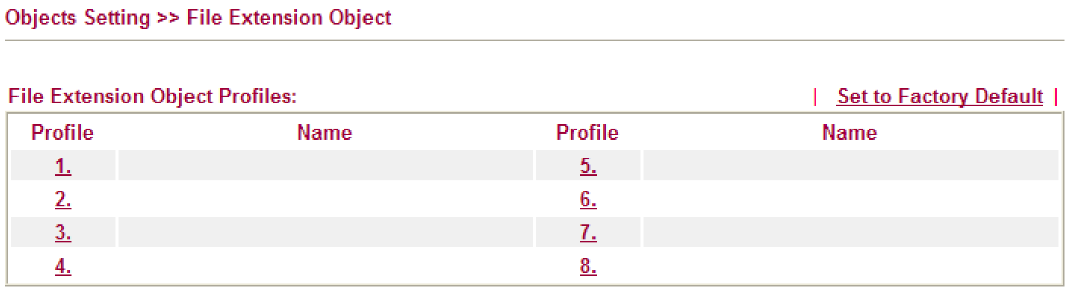
Item	**Description**
Name	Type a name for this group.

Item	Description
Available Keyword Objects	You can gather keyword objects from **Keyword Object** page within one keyword group. All the available Keyword objects that you have created will be shown in this box.
Selected Keyword Objects	Click » button to add the selected Keyword objects in this box.

4.6.7 File Extension Object

This page allows you to set eight profiles which will be applied in **CSM>>URL Content Filter**. All the files with the extension names specified in these profiles will be processed according to the chosen action.

Profile 1 with name of "default" is the default profile, some files with the file extensions specified in this profile will be ignored and not be scanned by Vigor router.



Objects Setting >> File Extension Object

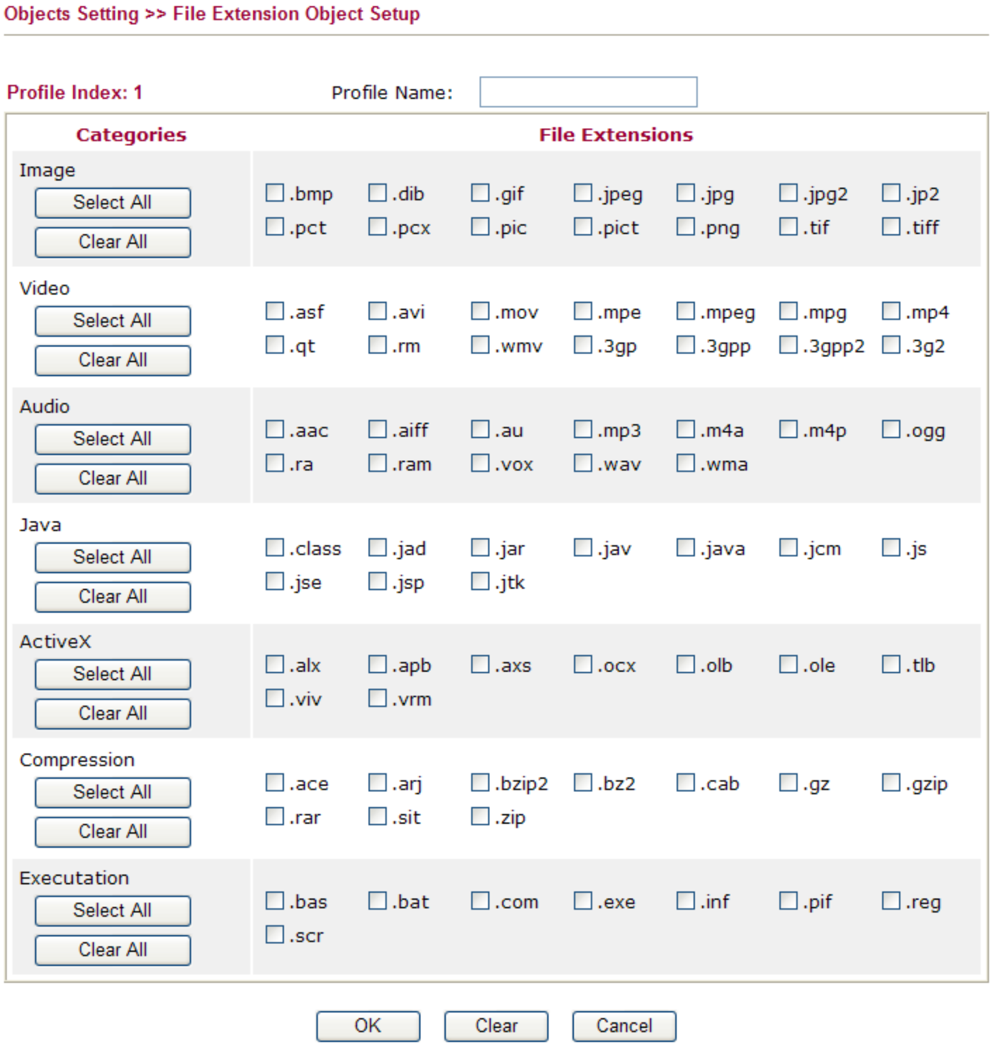
File Extension Object Profiles: | Set to Factory Default |

Profile	Name	Profile	Name
1.		5.	
2.		6.	
3.		7.	
4.		8.	

Available settings are explained as follows:

Item	Description
Name	Display a name for this profile.
Set to Factory Default	Clear all profiles.

Click the number under Profile column for configuration in details.



Objects Setting >> File Extension Object Setup

Profile Index: 1 Profile Name:

Categories	File Extensions						
Image Select All Clear All	□.bmp	□.dib	□.gif	□.jpeg	□.jpg	□.jpg2	□.jp2
	□.pct	□.pcx	□.pic	□.pict	□.png	□.tif	□.tiff
Video Select All Clear All	□.asf	□.avi	□.mov	□.mpe	□.mpeg	□.mpg	□.mp4
	□.qt	□.rm	□.wmv	□.3gp	□.3gpp	□.3gpp2	□.3g2
Audio Select All Clear All	□.aac	□.aiff	□.au	□.mp3	□.m4a	□.m4p	□.ogg
	□.ra	□.ram	□.vox	□.wav	□.wma		
Java Select All Clear All	□.class	□.jad	□.jar	□.jav	□.java	□.jcm	□.js
	□.jse	□.jsp	□.jtk				
ActiveX Select All Clear All	□.alx	□.apb	□.axs	□.ocx	□.olb	□.ole	□.tlb
	□.viv	□.vrm					
Compression Select All Clear All	□.ace	□.arj	□.bzip2	□.bz2	□.cab	□.gz	□.gzip
	□.rar	□.sit	□.zip				
Executation Select All Clear All	□.bas	□.bat	□.com	□.exe	□.inf	□.pif	□.reg
	□.scr						

Available settings are explained as follows:

Item	Description
Profile Name	Type a name for this profile.

Type a name for such profile and check all the items of file extension that will be processed in the router. Finally, click **OK** to save this profile.

4.7 CSM Profile

Content Security Management (CSM)

CSM is an abbreviation of **Content Security Management** which is used to control IM/P2P usage, filter the web content and URL content to reach a goal of security management.

APP Enforcement Filter

As the popularity of all kinds of instant messenger application arises, communication cannot become much easier. Nevertheless, while some industry may leverage this as a great tool to connect with their customers, some industry may take reserve attitude in order to reduce employee misusage during office hour or prevent unknown security leak. It is similar situation for corporation towards peer-to-peer applications since file-sharing can be convenient but insecure at the same time. To address these needs, we provide CSM functionality.

URL Content Filter

To provide an appropriate cyberspace to users, Vigor router equips with **URL Content Filter** not only to limit illegal traffic from/to the inappropriate web sites but also prohibit other web feature where malicious code may conceal.

Once a user type in or click on an URL with objectionable keywords, URL keyword blocking facility will decline the HTTP request to that web page thus can limit user's access to the website. You may imagine **URL Content Filter** as a well-trained convenience-store clerk who won't sell adult magazines to teenagers. At office, **URL Content Filter** can also provide a job-related only environment hence to increase the employee work efficiency. How can URL Content Filter work better than traditional firewall in the field of filtering? Because it checks the URL strings or some of HTTP data hiding in the payload of TCP packets while legacy firewall inspects packets based on the fields of TCP/IP headers only.

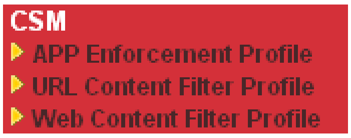
On the other hand, Vigor router can prevent user from accidentally downloading malicious codes from web pages. It's very common that malicious codes conceal in the executable objects, such as ActiveX, Java Applet, compressed files, and other executable files. Once downloading these types of files from websites, you may risk bringing threat to your system. For example, an ActiveX control object is usually used for providing interactive web feature. If malicious code hides inside, it may occupy user's system.

Web Content Filter

We all know that the content on the Internet just like other types of media may be inappropriate sometimes. As a responsible parent or employer, you should protect those in your trust against the hazards. With Web filtering service of the Vigor router, you can protect your business from common primary threats, such as productivity, legal liability, network and security threats. For parents, you can protect your children from viewing adult websites or chat rooms.

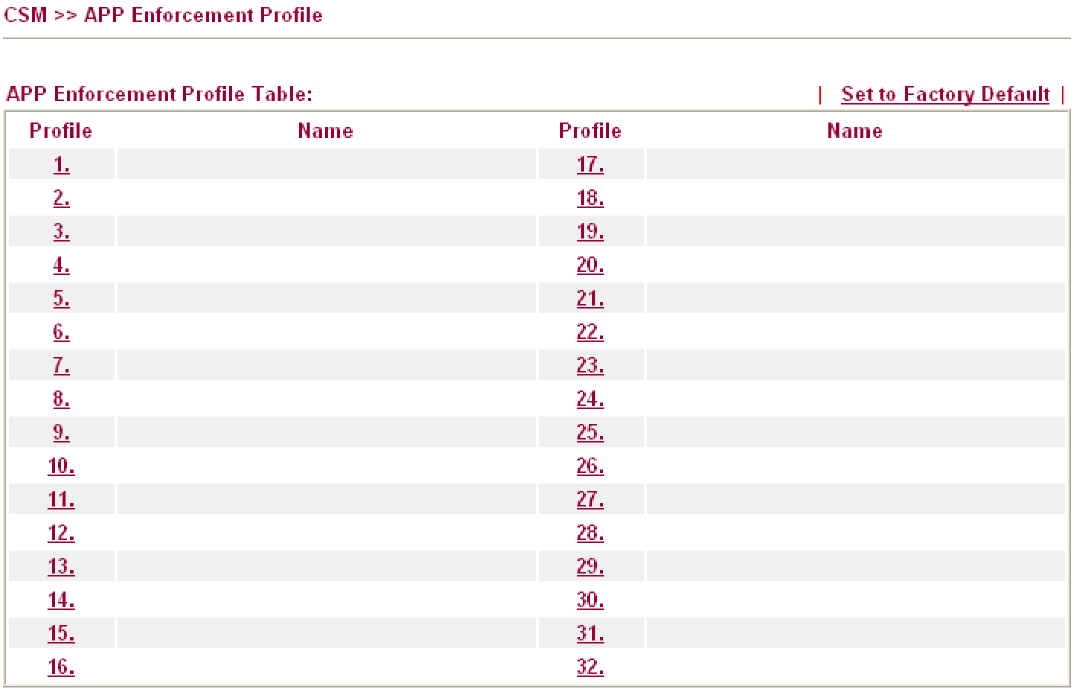
Once you have activated your Web Filtering service in Vigor router and chosen the categories of website you wish to restrict, each URL address requested (e.g.www.bbc.co.uk) will be checked against our server database. This database is updated as frequent as daily by a global team of Internet researchers. The server will look up the URL and return a category to your router. Your Vigor router will then decide whether to allow access to this site according to the categories you have selected. Please note that this action will not introduce any delay in your Web surfing because each of multiple load balanced database servers can handle millions of requests for categorization.

Note: The priority of URL Content Filter is higher than Web Content Filter.



4.7.1 APP Enforcement Profile

You can define policy profiles for IM (Instant Messenger)/P2P (Peer to Peer)/Protocol/Misc application. This page allows you to set 32 profiles for different requirements. The APP Enforcement Profile will be applied in **Default Rule** of **Firewall>>General Setup** for filtering.



CSM >> APP Enforcement Profile

APP Enforcement Profile Table: | Set to Factory Default |

Profile	Name	Profile	Name
1.		17.	
2.		18.	
3.		19.	
4.		20.	
5.		21.	
6.		22.	
7.		23.	
8.		24.	
9.		25.	
10.		26.	
11.		27.	
12.		28.	
13.		29.	
14.		30.	
15.		31.	
16.		32.	

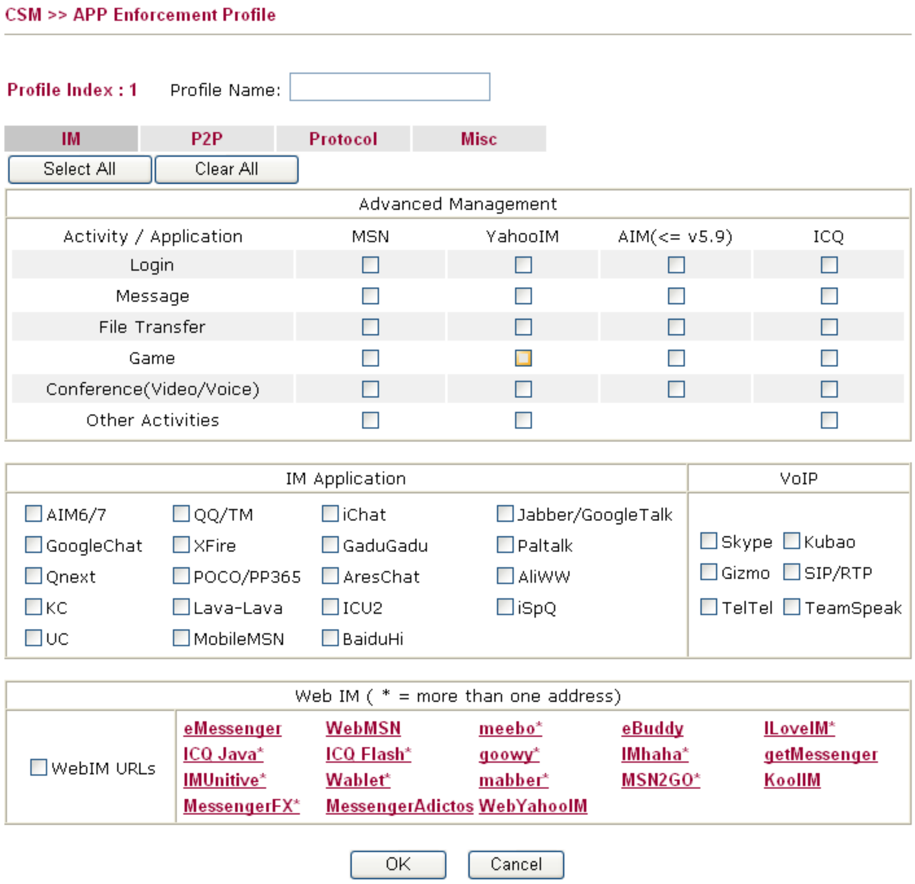
Each item is explained as follows:

Item	Description
Set to Factory Default	Clear all profiles.
Profile	Display the number of the profile which allows you to click to set different policy.
Name	Display the name of the APP Enforcement Profile.

Click the number under Index column for settings in detail.

There are four tabs IM, P2P, Protocol and Misc displayed on this page. Each tab will bring out different items that you can choose to disallow people using.

Below shows the items which are categorized under **IM**.



CSM >> APP Enforcement Profile

Profile Index : 1 Profile Name:

Advanced Management

Activity / Application	MSN	YahooIM	AIM(<= v5.9)	ICQ
Login	□	□	□	□
Message	□	□	□	□
File Transfer	□	□	□	□
Game	□	□	□	□
Conference(Video/Voice)	□	□	□	□
Other Activities	□	□		□

IM Application				VoIP	
□ AIM6/7	□ QQ/TM	□ iChat	□ Jabber/GoogleTalk		
□ GoogleChat	□ XFire	□ GaduGadu	□ Paltalk	□ Skype	□ Kubao
□ Qnext	□ POCO/PP365	□ AresChat	□ AliWW	□ Gizmo	□ SIP/RTP
□ KC	□ Lava-Lava	□ ICU2	□ iSpQ	□ TelTel	□ TeamSpeak
□ UC	□ MobileMSN	□ BaiduHi			

Web IM (* = more than one address)

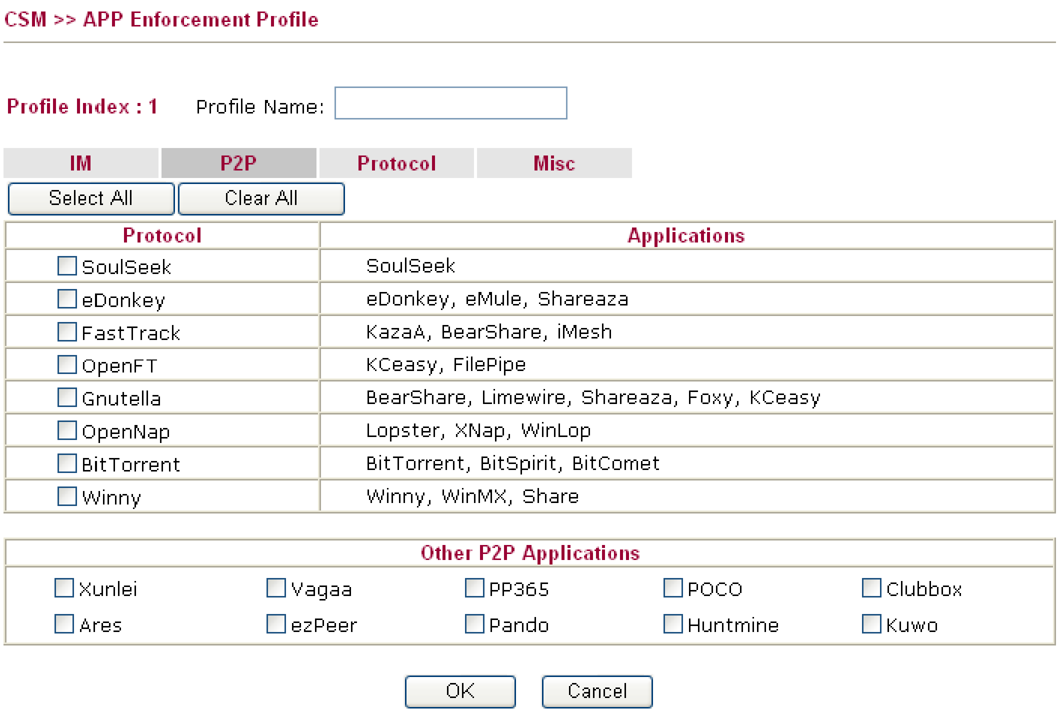
□ WebIM URLs	eMessenger	WebMSN	meebo*	eBuddy	ILoveIM*
	ICQ Java*	ICQ Flash*	goowy*	IMhaha*	getMessenger
	IMUnitive*	Wablet*	mabber*	MSN2GO*	KoolIM
	MessengerFX*	MessengerAdictos	WebYahooIM		

Available settings are explained as follows:

Item	Description
Profile Name	Type a name for the CSM profile.
Select All	Click it to choose all of the items in this page.
Clear All	Uncheck all the selected boxes.

The profiles configured here can be applied in the **Firewall>>General Setup** and **Firewall>>Filter Setup** pages as the standard for the host(s) to follow.

The items categorized under **P2P** -----



CSM >> APP Enforcement Profile

Profile Index : 1   Profile Name:

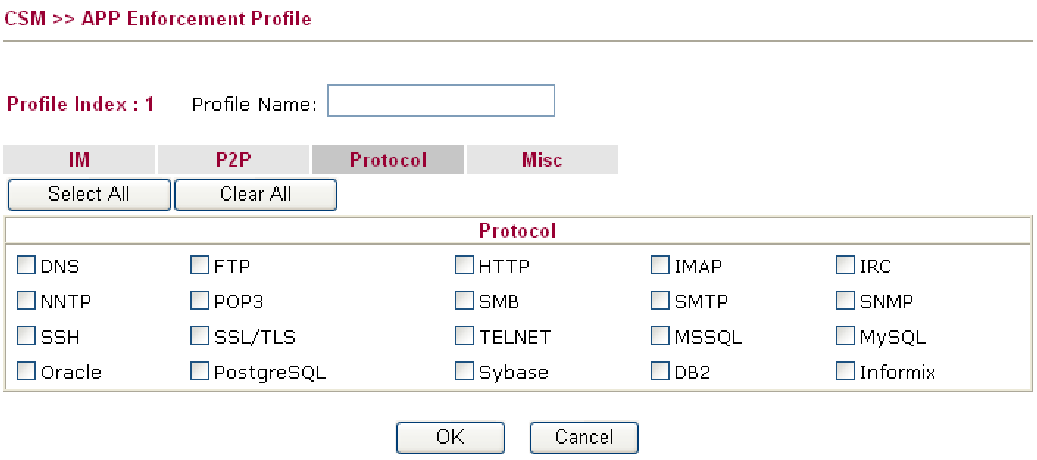
Protocol	Applications
□ SoulSeek	SoulSeek
□ eDonkey	eDonkey, eMule, Shareaza
□ FastTrack	KazaA, BearShare, iMesh
□ OpenFT	KCeasy, FilePipe
□ Gnutella	BearShare, Limewire, Shareaza, Foxy, KCeasy
□ OpenNap	Lopster, XNap, WinLop
□ BitTorrent	BitTorrent, BitSpirit, BitComet
□ Winny	Winny, WinMX, Share

Other P2P Applications

□ Xunlei   □ Vagaa   □ PP365   □ POCO   □ Clubbox

□ Ares   □ ezPeer   □ Pando   □ Huntmine   □ Kuwo

The items categorized under **Protocol**.



CSM >> APP Enforcement Profile

Profile Index : 1   Profile Name:

Protocol

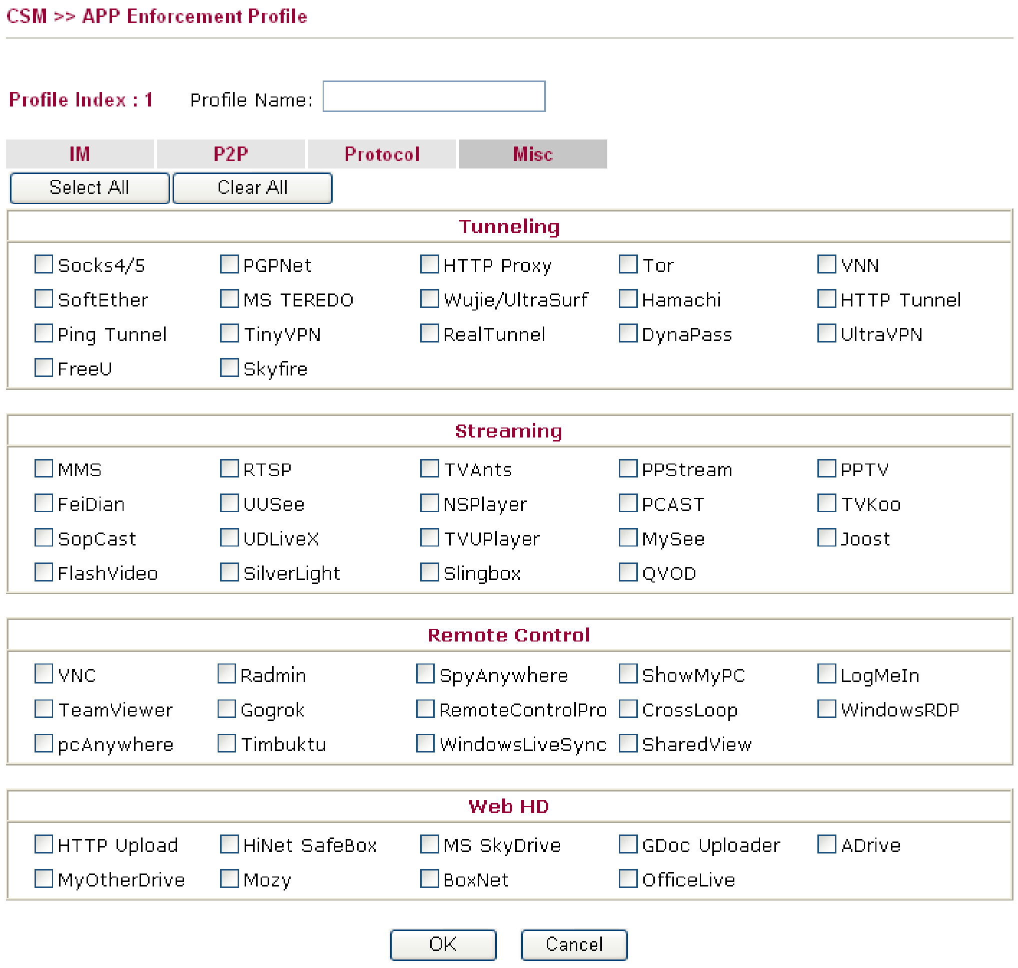
□ DNS   □ FTP   □ HTTP   □ IMAP   □ IRC

□ NNTP   □ POP3   □ SMB   □ SMTP   □ SNMP

□ SSH   □ SSL/TLS   □ TELNET   □ MSSQL   □ MySQL

□ Oracle   □ PostgreSQL   □ Sybase   □ DB2   □ Informix

The items categorized under **Misc** -----



CSM >> APP Enforcement Profile

Profile Index : 1 Profile Name:

Tunneling

□ Socks4/5	□ PGPNet	□ HTTP Proxy	□ Tor	□ VNN
□ SoftEther	□ MS TEREDO	□ Wujie/UltraSurf	□ Hamachi	□ HTTP Tunnel
□ Ping Tunnel	□ TinyVPN	□ RealTunnel	□ DynaPass	□ UltraVPN
□ FreeU	□ Skyfire			

Streaming

□ MMS	□ RTSP	□ TVAnts	□ PPStream	□ PPTV
□ FeiDian	□ UUSee	□ NSPlayer	□ PCAST	□ TVKoo
□ SopCast	□ UDLiveX	□ TVUPlayer	□ MySee	□ Joost
□ FlashVideo	□ SilverLight	□ Slingbox	□ QVOD	

Remote Control

□ VNC	□ Radmin	□ SpyAnywhere	□ ShowMyPC	□ LogMeIn
□ TeamViewer	□ Gogrok	□ RemoteControlPro	□ CrossLoop	□ WindowsRDP
□ pcAnywhere	□ Timbuktu	□ WindowsLiveSync	□ SharedView	

Web HD

□ HTTP Upload	□ HiNet SafeBox	□ MS SkyDrive	□ GDoc Uploader	□ ADrive
□ MyOtherDrive	□ Mozy	□ BoxNet	□ OfficeLive	

4.7.2 URL Content Filter Profile

To provide an appropriate cyberspace to users, Vigor router equips with **URL Content Filter** not only to limit illegal traffic from/to the inappropriate web sites but also prohibit other web feature where malicious code may conceal.

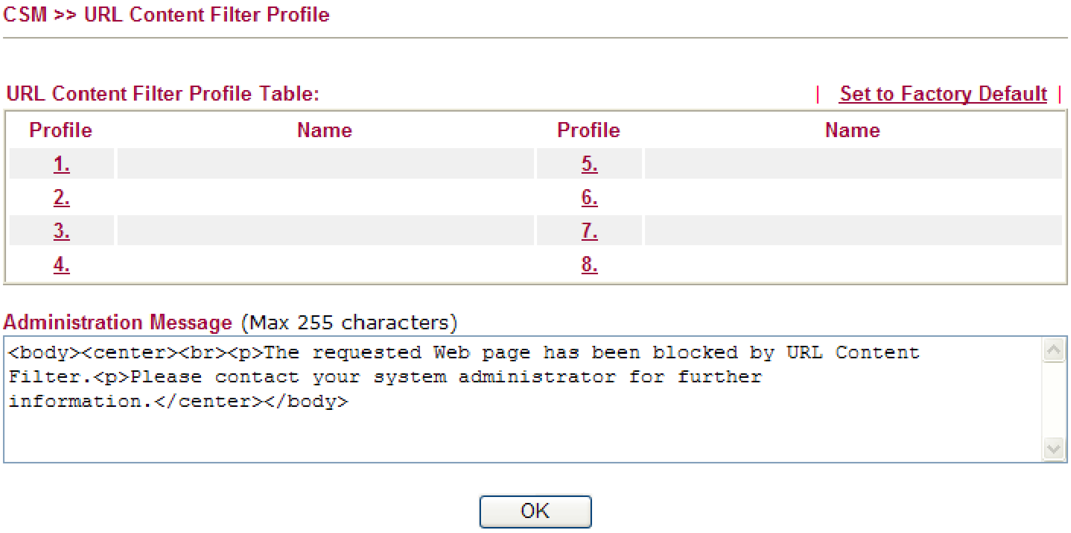
Once a user type in or click on an URL with objectionable keywords, URL keyword blocking facility will decline the HTTP request to that web page thus can limit user's access to the website. You may imagine **URL Content Filter** as a well-trained convenience-store clerk who won't sell adult magazines to teenagers. At office, **URL Content Filter** can also provide a job-related only environment hence to increase the employee work efficiency. How can URL Content Filter work better than traditional firewall in the field of filtering? Because it checks the URL strings or some of HTTP data hiding in the payload of TCP packets while legacy firewall inspects packets based on the fields of TCP/IP headers only.

On the other hand, Vigor router can prevent user from accidentally downloading malicious codes from web pages. It's very common that malicious codes conceal in the executable objects, such as ActiveX, Java Applet, compressed files, and other executable files. Once downloading these types of files from websites, you may risk bringing threat to your system. For example, an ActiveX control object is usually used for providing interactive web feature. If malicious code hides inside, it may occupy user's system.

For example, if you add key words such as “sex”, Vigor router will limit web access to web sites or web pages such as “www.sex.com”, ”www.backdoor.net/images/sex/p_386.html”. Or you may simply specify the full or partial URL such as “www.sex.com” or “sex.com”.

Also the Vigor router will discard any request that tries to retrieve the malicious code.

Click **CSM** and click **URL Content Filter Profile** to open the profile setting page.



URL Content Filter Profile Table:

| Set to Factory Default |

Profile	Name	Profile	Name
1.		5.	
2.		6.	
3.		7.	
4.		8.	

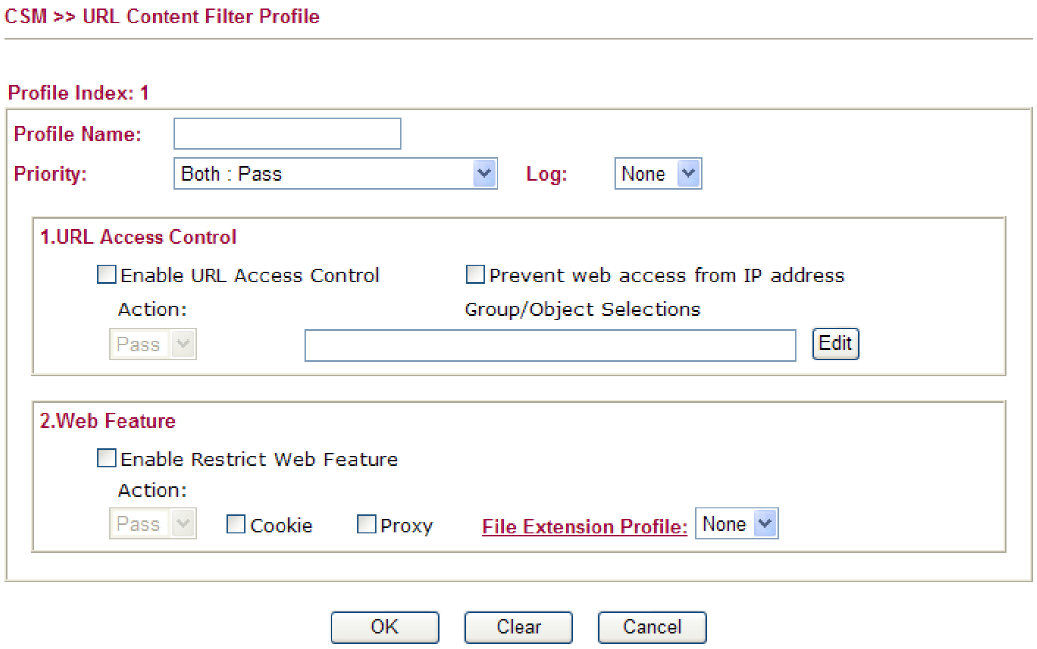
Administration Message (Max 255 characters)

```
<body><center><br><p>The requested Web page has been blocked by URL Content
Filter.<p>Please contact your system administrator for further
information.</center></body>
```

Each item is explained as follows:

Item	**Description**
Set to Factory Default	Clear all profiles.
Profile	Display the number of the profile which allows you to click to set different policy.
Name	Display the name of the URL Content Filter Profile.

You can set eight profiles as URL content filter. Simply click the index number under Profile to open the following web page.



CSM >> URL Content Filter Profile

Profile Index: 1

Profile Name:

Priority: Both : Pass

Log: None

1.URL Access Control

□ Enable URL Access Control

□ Prevent web access from IP address

Action: Pass

Group/Object Selections

2.Web Feature

□ Enable Restrict Web Feature

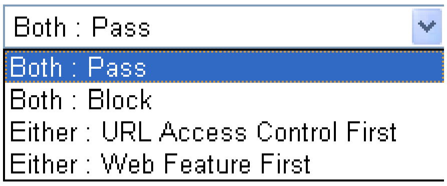
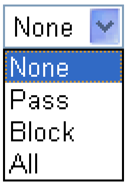
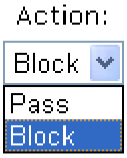
Action: Pass

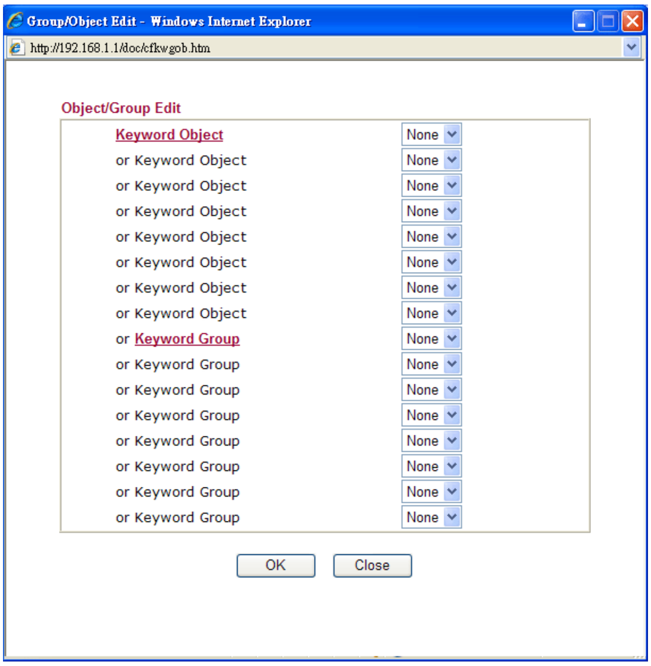
□ Cookie □ Proxy

File Extension Profile: None

Available settings are explained as follows:

Item	Description
Profile Name	Type a name for the CSM profile.
Priority	It determines the action that this router will apply. **Both: Pass** – The router will let all the packages that match with the conditions specified in URL Access Control and Web Feature below passing through. When you choose this setting, both configuration set in this page for URL Access Control and Web Feature will be inactive. **Both: Block** –The router will block all the packages that match with the conditions specified in URL Access Control and Web Feature below. When you choose this setting, both configuration set in this page for URL Access Control and Web Feature will be inactive. **Either: URL Access Control First** – When all the packages matching with the conditions specified in URL Access Control and Web Feature below, such function can determine the priority for the actions executed. For this one, the router will process the packages with the conditions set below for URL first, then Web feature second. **Either: Web Feature First** –When all the packages matching with the conditions specified in URL Access Control and Web Feature below, such function can determine the priority for the actions executed. For this one, the router will process the packages with the conditions set below for web feature first, then URL second.

Item	Description
	 Both : Pass Both : Pass Both : Block Either : URL Access Control First Either : Web Feature First
Log	**None** – There is no log file will be recorded for this profile. **Pass** – Only the log about Pass will be recorded in Syslog. **Block** – Only the log about Block will be recorded in Syslog. **All** – All the actions (Pass and Block) will be recorded in Syslog. 
URL Access Control	**Enable URL Access Control -** Check the box to activate URL Access Control. Note that the priority for **URL Access Control** is higher than **Restrict Web Feature**. If the web content match the setting set in URL Access Control, the router will execute the action specified in this field and ignore the action specified under Restrict Web Feature. **Prevent web access from IP address -** Check the box to deny any web surfing activity using IP address, such as http://202.6.3.2. The reason for this is to prevent someone dodges the URL Access Control. You must clear your browser cache first so that the URL content filtering facility operates properly on a web page that you visited before. **Action** – This setting is available only when **Either : URL Access Control First** or **Either : Web Feature First** is selected. ***Pass* -** Allow accessing into the corresponding webpage with the keywords listed on the box below. ***Block* -** Restrict accessing into the corresponding webpage with the keywords listed on the box below. If the web pages do not match with the keyword set here, it will be processed with reverse action.  **Group/Object Selections** – The Vigor router provides several frames for users to define keywords and each frame supports multiple keywords. The keyword could be a noun, a partial noun, or a complete URL string. Multiple keywords within a frame are separated by space, comma, or semicolon. In addition, the maximal length of each frame is 32-character long. After specifying keywords, the Vigor router will decline the connection request to the website whose URL string matched to any user-defined keyword. It should be

Item	Description
	noticed that the more simplified the blocking keyword list is, the more efficiently the Vigor router performs.  Group/Object Edit - Windows Internet Explorer http://192.168.1.1/doc/cfkwgob.htm Object/Group Edit Keyword Object None or Keyword Object None or Keyword Object None or Keyword Object None or Keyword Object None or Keyword Object None or Keyword Object None or Keyword Object None or Keyword Group None or Keyword Group None or Keyword Group None or Keyword Group None or Keyword Group None or Keyword Group None or Keyword Group None or Keyword Group None OK Close
Web Feature	**Enable Restrict Web Feature -** Check this box to make the keyword being blocked or passed. **Action -** This setting is available only when **Either: URL Access Control First** or **Either: Web Feature Firs** is selected. **Pass** allows accessing into the corresponding webpage with the keywords listed on the box below. ***Pass* -** Allow accessing into the corresponding webpage with the keywords listed on the box below. ***Block* -** Restrict accessing into the corresponding webpage with the keywords listed on the box below. If the web pages do not match with the specified feature set here, it will be processed with reverse action. **Cookie -** Check the box to filter out the cookie transmission from inside to outside world to protect the local user's privacy. **Proxy -** Check the box to reject any proxy transmission. To control efficiently the limited-bandwidth usage, it will be of great value to provide the blocking mechanism that filters out the multimedia files downloading from web pages. **File Extension Profile –** Choose one of the profiles that you configured in **Object Setting>> File Extension Objects** previously for passing or blocking the file downloading.

4.7.3 Web Content Filter Profile

Note: Web Content Filter (WCF) service is powered by **Commtouch**, the partner of DrayTek. The product name is GlobalView WCF.

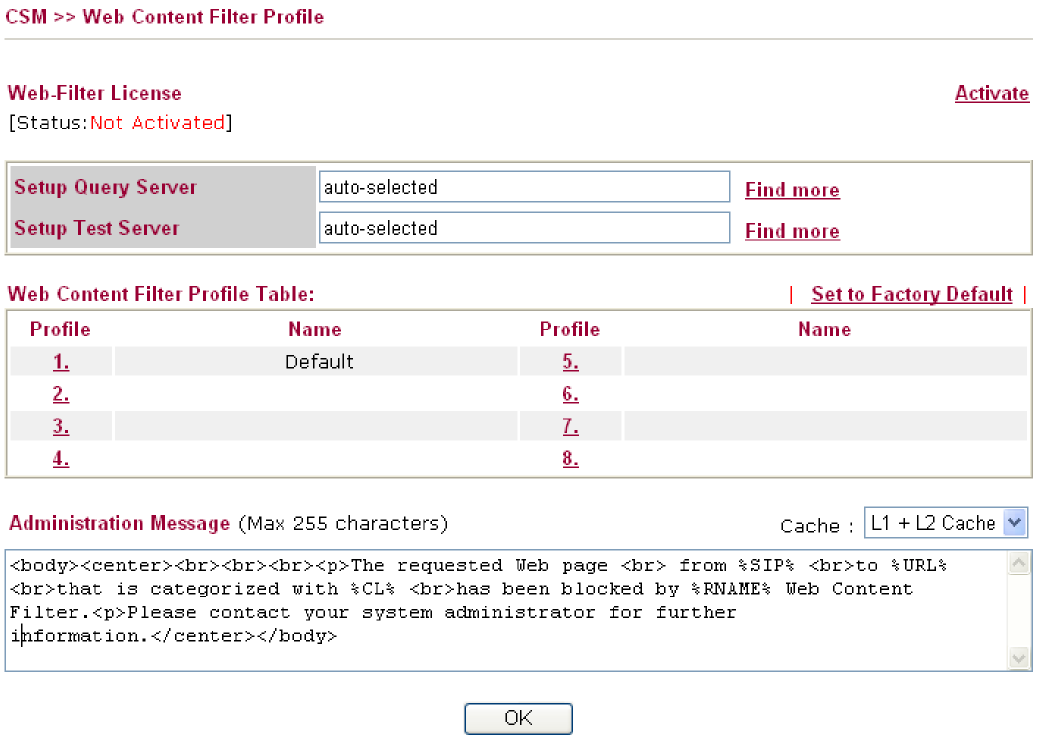
There are three ways to activate WCF on vigor router, using **Service Activation Wizard**, by means of **CSM>>Web Content Filter Profile** or via **System Maintenance>>Activation**.

Service Activation Wizard allows you to use trial version or update the license of WCF directly without accessing into the server (***MyVigor***) located on http://myvigor.draytek.com.

However, if you use the **Web Content Filter Profile** page to activate WCF feature, it is necessary for you to access into the server (***MyVigor***) located on http://myvigor.draytek.com. Therefore, you need to register an account on http://myvigor.draytek.com for using corresponding service. Please refer to section of creating MyVigor account.

WCF adopts the mechanism developed and offered by certain service provider (e.g., DrayTek). No matter activating WCF feature or getting a new license for web content filter, you have to click **Activate** to satisfy your request. Be aware that service provider matching with Vigor router currently offers a period of time for trial version for users to experiment. If you want to purchase a formal edition, simply contact with the channel partner or your dealer.

Click **CSM** and click **Web Content Filter Profile** to open the profile setting page. The default setting for Setup Query Server /Setup Test Server is **auto-selected**. You can choose another server for your necessity by clicking **Find more** to open http://myvigor.draytek.com for searching another qualified and suitable one.



CSM >> Web Content Filter Profile

Web-Filter License
[Status:Not Activated]

Activate

Setup Query Server	auto-selected	Find more
Setup Test Server	auto-selected	Find more

Web Content Filter Profile Table: | Set to Factory Default |

Profile	Name	Profile	Name
1.	Default	5.	
2.		6.	
3.		7.	
4.		8.	

Administration Message (Max 255 characters) Cache : L1 + L2 Cache

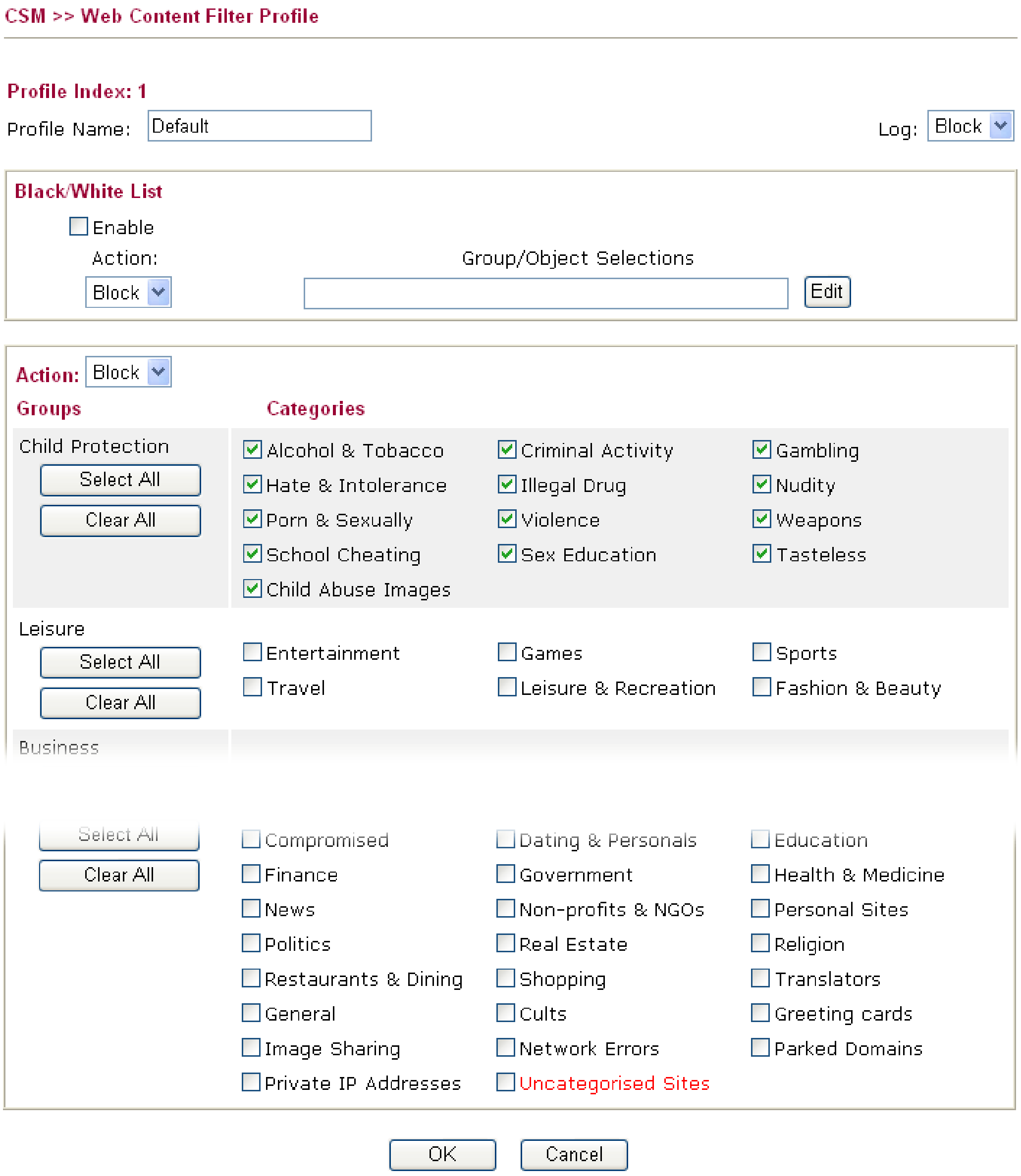
```
<body><center><br><br><br><p>The requested Web page <br> from %SIP% <br>to %URL%
<br>that is categorized with %CL% <br>has been blocked by %RNAME% Web Content
Filter.<p>Please contact your system administrator for further
information.</center></body>
```

Available settings are explained as follows:

Item	Description
Activate	Click it to access into MyVigor for activating WCF service.
Setup Query Server	It is recommended for you to use the default setting, auto-selected. You need to specify a server for categorize searching when you type URL in browser based on the web

Item	Description
	content filter profile. **Such server is powered by Commtouch.**
Setup Test Server	It is recommended for you to use the default setting, auto-selected. **Such server is powered by Commtouch.**
Find more	Click it to open http://myvigor.draytek.com for searching another qualified and suitable server.
Set to Factory Default	Click this link to retrieve the factory settings.
Cache	**None** – the router will check the URL that the user wants to access via WCF precisely, however, the processing rate is normal. Such item can provide the most accurate URL matching. **L1** – the router will check the URL that the user wants to access via WCF. If the URL has been accessed previously, it will be stored for a short time (about 1 second) in the router to be accessed quickly if required. Such item can provide accurate URL matching with faster rate. **L2** – the router will check the URL that the user wants to access via WCF. If the data has been accessed previously, the IP addresses of source and destination IDs will be memorized for a short time (about 1 second) in the router. When the user tries to access the same destination ID, the router will check it by comparing the record stored. If it matches, the page will be retrieved quickly. Such item can provide URL matching with the fastest rate. **L1+L2 Cache** – the router will check the URL with fast processing rate combining the feature of L1 and L2.

Eight profiles are provided here as Web content filters. Simply click the index number under Profile to open the following web page. The items listed in Categories will be changed according to the different service providers. If you have and activate another web content filter license, the items will be changed simultaneously. All of the configuration made for web content filter will be deleted automatically. Therefore, please backup your data before you change the web content filter license.



CSM >> Web Content Filter Profile

Profile Index: 1

Profile Name: Default

Log: Block

Black/White List

□ Enable

Action: Block

Group/Object Selections

Edit

Action: Block

Groups / Categories

Child Protection (Select All / Clear All)
☑ Alcohol & Tobacco ☑ Criminal Activity ☑ Gambling
☑ Hate & Intolerance ☑ Illegal Drug ☑ Nudity
☑ Porn & Sexually ☑ Violence ☑ Weapons
☑ School Cheating ☑ Sex Education ☑ Tasteless
☑ Child Abuse Images

Leisure (Select All / Clear All)
□ Entertainment □ Games □ Sports
□ Travel □ Leisure & Recreation □ Fashion & Beauty

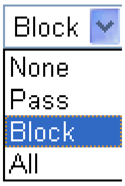
Business (Select All / Clear All)
□ Compromised □ Dating & Personals □ Education
□ Finance □ Government □ Health & Medicine
□ News □ Non-profits & NGOs □ Personal Sites
□ Politics □ Real Estate □ Religion
□ Restaurants & Dining □ Shopping □ Translators
□ General □ Cults □ Greeting cards
□ Image Sharing □ Network Errors □ Parked Domains
□ Private IP Addresses □ Uncategorised Sites

OK Cancel

Note: If the Web Content Filter (WCF) powered by Commtouch is not activated, the above settings will not be valid.

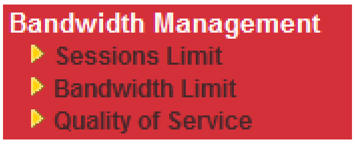
Available settings are explained as follows:

Item	Description
Black/White List	**Enable –** Activate white/black list function for such profile. **Group/Object Selections –** Click **Edit** to choose the group or object profile as the content of white/black list. **Pass - allow** accessing into the corresponding webpage with the characters listed on **Group/Object Selections**. If the web pages do not match with the specified feature set here, they will be processed with the categories listed on the box below. **Block - restrict** accessing into the corresponding webpage with the characters listed on **Group/Object Selections**. If the web pages do not match with the specified feature set here, they will be processed with the categories listed on the box below.

Item	Description
Action	**Pass** - allow accessing into the corresponding webpage with the categories listed on the box below. **Block** - restrict accessing into the corresponding webpage with the categories listed on the box below. If the web pages do not match with the specified feature set here, it will be processed with reverse action.
Log	**None** – There is no log file will be recorded for this profile. **Pass** – Only the log about Pass will be recorded in Syslog. **Block** – Only the log about Block will be recorded in Syslog. **All** – All the actions (Pass and Block) will be recorded in Syslog. 

4.8 Bandwidth Management

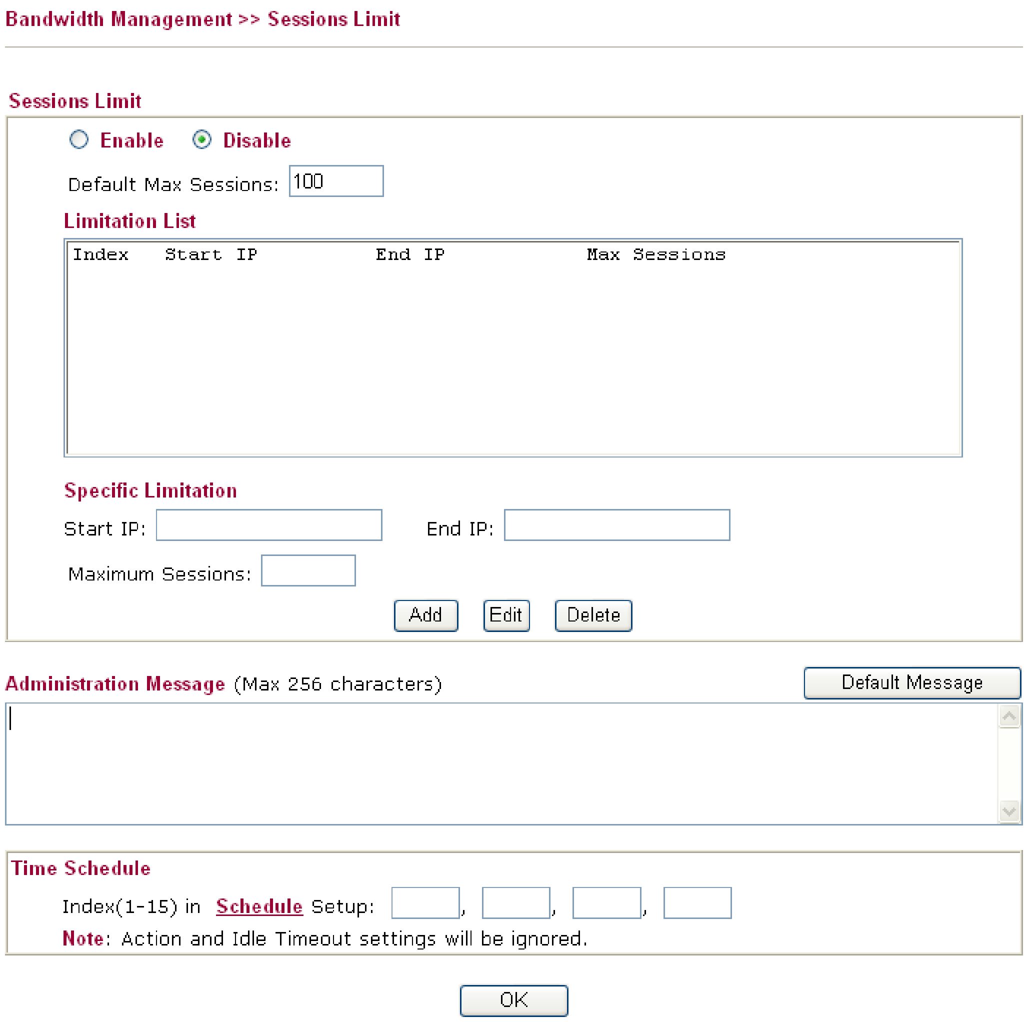
Below shows the menu items for Bandwidth Management.



4.8.1 Sessions Limit

A PC with private IP address can access to the Internet via NAT router. The router will generate the records of NAT sessions for such connection. The P2P (Peer to Peer) applications (e.g., BitTorrent) always need many sessions for procession and also they will occupy over resources which might result in important accesses impacted. To solve the problem, you can use limit session to limit the session procession for specified Hosts.

In the **Bandwidth Management** menu, click **Sessions Limit** to open the web page.



Bandwidth Management >> Sessions Limit

Sessions Limit

○ Enable ● Disable

Default Max Sessions: 100

Limitation List

```
Index    Start IP            End IP              Max Sessions
```

Specific Limitation

Start IP: End IP:

Maximum Sessions:

Administration Message (Max 256 characters)

Time Schedule

Index(1-15) in Schedule Setup: , , ,

Note: Action and Idle Timeout settings will be ignored.

To activate the function of limit session, simply click **Enable** and set the default session limit.

Available settings are explained as follows:

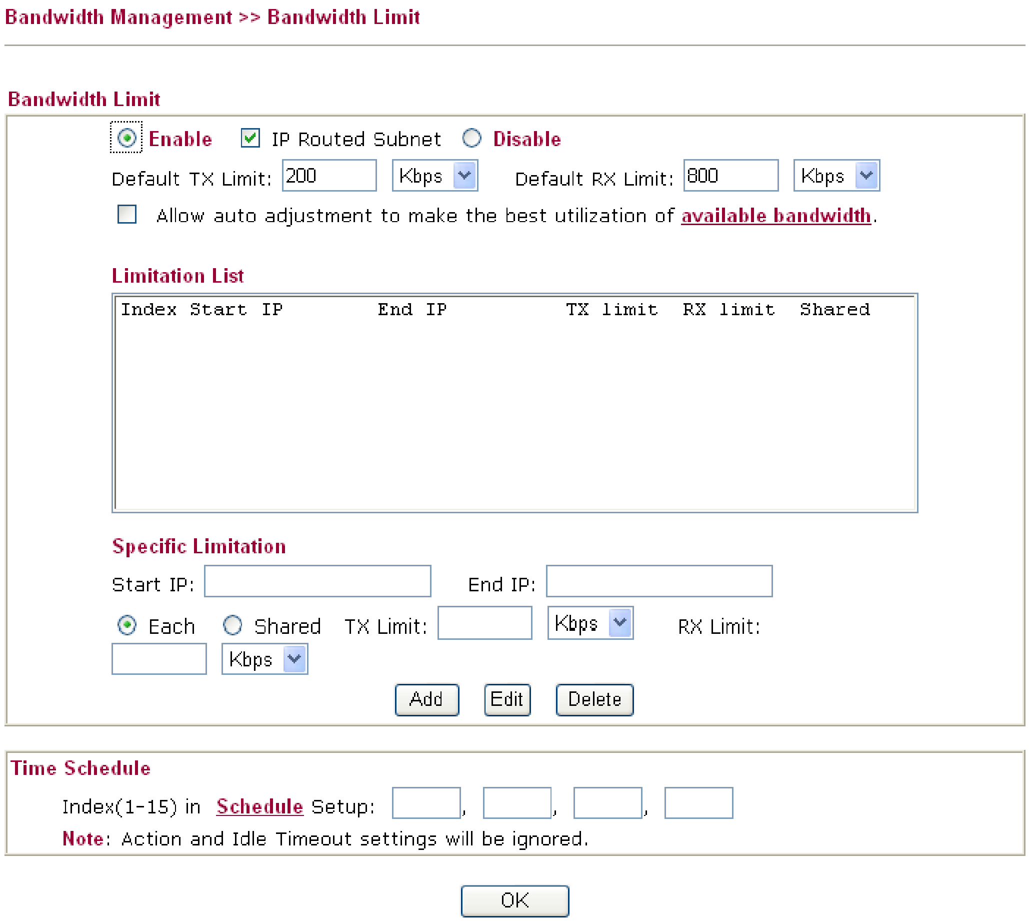
Item	Description
Enable	Click this button to activate the function of limit session.
Disable	Click this button to close the function of limit session.
Default session limit	Defines the default session number used for each computer in LAN.
Limitation List	Displays a list of specific limitations that you set on this web page.
Start IP	Defines the start IP address for limit session.
End IP	Defines the end IP address for limit session.
Maximum Sessions	Defines the available session number for each host in the specific range of IP addresses. If you do not set the session number in this field, the system will use the default session limit for the specific limitation you set for each index.
Add	Adds the specific session limitation onto the list above.
Edit	Allows you to edit the settings for the selected limitation.

Item	Description
Delete	Remove the selected settings existing on the limitation list.
Administration Message	Type the words which will be displayed when reaches the maximum number of Internet sessions permitted.
Default Message	Click this button to apply the default message offered by the router.
Index (1-15) in Schedule Setup	You can type in four sets of time schedule for your request. All the schedules can be set previously in **Application** >> **Schedule** web page and you can use the number that you have set in that web page.

4.8.2 Bandwidth Limit

The downstream or upstream from FTP, HTTP or some P2P applications will occupy large of bandwidth and affect the applications for other programs. Please use Limit Bandwidth to make the bandwidth usage more efficient.

In the **Bandwidth Management** menu, click **Bandwidth Limit** to open the web page.



Bandwidth Management >> Bandwidth Limit

Bandwidth Limit

● Enable ☑ IP Routed Subnet ○ Disable

Default TX Limit: 200 Kbps Default RX Limit: 800 Kbps

□ Allow auto adjustment to make the best utilization of available bandwidth.

Limitation List

```
Index Start IP          End IP           TX limit   RX limit   Shared
```

Specific Limitation

Start IP: End IP:

● Each ○ Shared TX Limit: Kbps RX Limit: Kbps

Time Schedule

Index(1-15) in Schedule Setup: , , ,

Note: Action and Idle Timeout settings will be ignored.

To activate the function of limit bandwidth, simply click **Enable** and set the default upstream and downstream limit.

Available settings are explained as follows:

Item	Description
Enable	Click this button to activate the function of limit bandwidth. **IP Routed Subnet** – Check this box to apply the bandwidth limit to the second subnet specified in **LAN>>General Setup**.
Disable	Click this button to close the function of limit bandwidth.
Default TX limit	Define the default speed of the upstream for each computer in LAN.
Default RX limit	Define the default speed of the downstream for each computer in LAN.
Allow auto adjustment to make the best utilization of available bandwidth.	Router will detect if there is enough bandwidth remained for using according to the bandwidth limit set by the user. If yes, the router will adjust the available bandwidth for users to enhance the total utilization.
Limitation List	Display a list of specific limitations that you set on this web page.
Start IP	Define the start IP address for limit bandwidth.
End IP	Define the end IP address for limit bandwidth.
Each/Shared	Select **Each** to make each IP within the range of Start IP and End IP having the same speed defined in TX limit and RX limit fields; select **Shared** to make all the IPs within the range of Start IP and End IP share the total bandwidth of TX limit and RX limit.
TX limit	Define the limitation for the speed of the upstream. If you do not set the limit in this field, the system will use the default speed for the specific limitation you set for each index.
RX limit	Define the limitation for the speed of the downstream. If you do not set the limit in this field, the system will use the default speed for the specific limitation you set for each index.
Add	Add the specific speed limitation onto the list above.
Edit	Allow you to edit the settings for the selected limitation.
Delete	Remove the selected settings existing on the limitation list.
Index (1-15) in Schedule Setup	You can type in four sets of time schedule for your request. All the schedules can be set previously in **Application** >> **Schedule** web page and you can use the number that you have set in that web page.

4.8.3 Quality of Service

Deploying QoS (Quality of Service) management to guarantee that all applications receive the service levels required and sufficient bandwidth to meet performance expectations is indeed one important aspect of modern enterprise network.

One reason for QoS is that numerous TCP-based applications tend to continually increase their transmission rate and consume all available bandwidth, which is called TCP slow start. If other applications are not protected by QoS, it will detract much from their performance in the overcrowded network. This is especially essential to those are low tolerant of loss, delay or jitter (delay variation).

Another reason is due to congestions at network intersections where speeds of interconnected circuits mismatch or traffic aggregates, packets will queue up and traffic can be throttled back to a lower speed. If there's no defined priority to specify which packets should be discarded (or in another term "dropped") from an overflowing queue, packets of sensitive applications mentioned above might be the ones to drop off. How this will affect application performance?

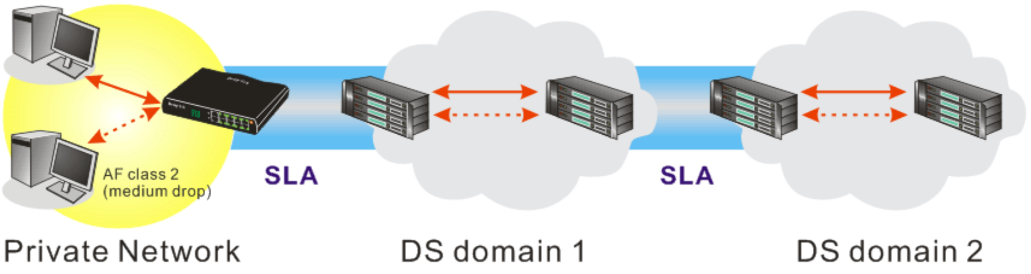
There are two components within Primary configuration of QoS deployment:

- Classification: Identifying low-latency or crucial applications and marking them for high-priority service level enforcement throughout the network.
- Scheduling: Based on classification of service level to assign packets to queues and associated service types

The basic QoS implementation in Vigor routers is to classify and schedule packets based on the service type information in the IP header. For instance, to ensure the connection with the headquarter, a teleworker may enforce an index of QoS Control to reserve bandwidth for HTTPS connection while using lots of application at the same time.

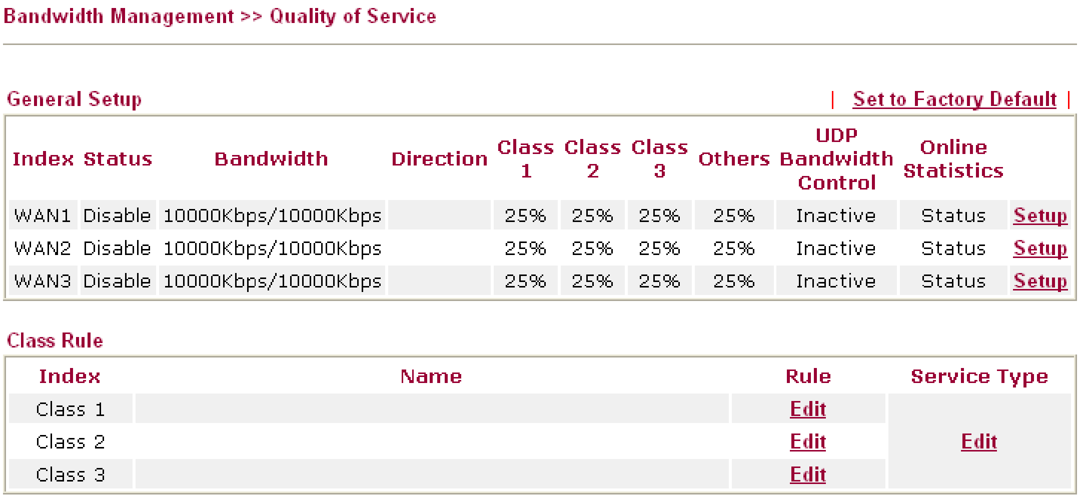
One more larger-scale implementation of QoS network is to apply DSCP (Differentiated Service Code Point) and IP Precedence disciplines at Layer 3. Compared with legacy IP Precedence that uses Type of Service (ToS) field in the IP header to define 8 service classes, DSCP is a successor creating 64 classes possible with backward IP Precedence compatibility. In a QoS-enabled network, or Differentiated Service (DiffServ or DS) framework, a DS domain owner should sign a Service License Agreement (SLA) with other DS domain owners to define the service level provided toward traffic from different domains. Then each DS node in these domains will perform the priority treatment. This is called per-hop-behavior (PHB). The definition of PHB includes Expedited Forwarding (EF), Assured Forwarding (AF), and Best Effort (BE). AF defines the four classes of delivery (or forwarding) classes and three levels of drop precedence in each class.

Vigor routers as edge routers of DS domain shall check the marked DSCP value in the IP header of bypassing traffic, thus to allocate certain amount of resource execute appropriate policing, classification or scheduling. The core routers in the backbone will do the same checking before executing treatments in order to ensure service-level consistency throughout the whole QoS-enabled network.



However, each node may take different attitude toward packets with high priority marking since it may bind with the business deal of SLA among different DS domain owners. It's not easy to achieve deterministic and consistent high-priority QoS traffic throughout the whole network with merely Vigor router's effort.

In the **Bandwidth Management** menu, click **Quality of Service** to open the web page.



Bandwidth Management >> Quality of Service

General Setup | Set to Factory Default |

Index	Status	Bandwidth	Direction	Class 1	Class 2	Class 3	Others	UDP Bandwidth Control	Online Statistics	
WAN1	Disable	10000Kbps/10000Kbps		25%	25%	25%	25%	Inactive	Status	Setup
WAN2	Disable	10000Kbps/10000Kbps		25%	25%	25%	25%	Inactive	Status	Setup
WAN3	Disable	10000Kbps/10000Kbps		25%	25%	25%	25%	Inactive	Status	Setup

Class Rule

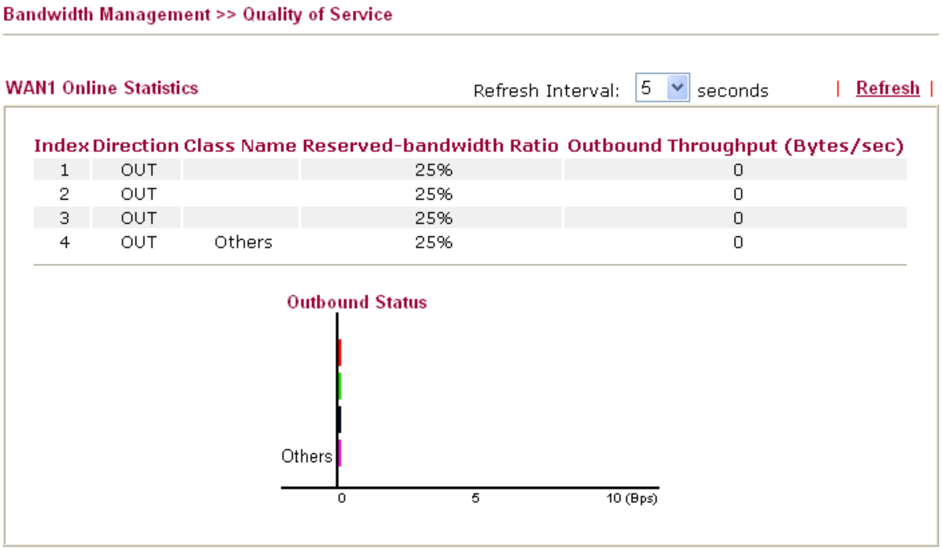
Index	Name	Rule	Service Type
Class 1		Edit	Edit
Class 2		Edit	
Class 3		Edit	

This page displays the QoS settings result of the WAN interface. Click the **Setup** link to access into next page for the general setup of WAN interface. As to class rule, simply click the **Edit** link to access into next for configuration.

You can configure general setup for the WAN interface, edit the Class Rule, and edit the Service Type for the Class Rule for your request.

Online Statistics

Display an online statistics for quality of service for your reference. This feature is available only when the Quality of Service for WAN interface is enabled.



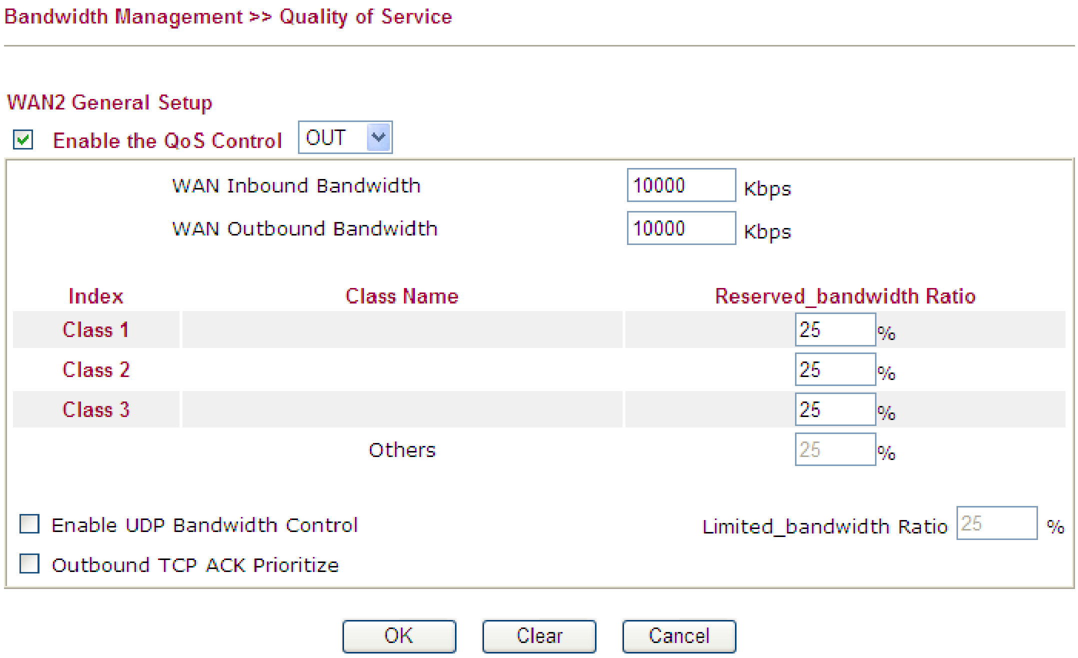
Bandwidth Management >> Quality of Service

WAN1 Online Statistics Refresh Interval: 5 seconds | Refresh |

Index	Direction	Class Name	Reserved-bandwidth Ratio	Outbound Throughput (Bytes/sec)
1	OUT		25%	0
2	OUT		25%	0
3	OUT		25%	0
4	OUT	Others	25%	0

General Setup for WAN Interface

When you click **Setup**, you can configure the bandwidth ratio for QoS of the WAN interface. There are four queues allowed for QoS control. The first three (Class 1 to Class 3) class rules can be adjusted for your necessity. Yet, the last one is reserved for the packets which are not suitable for the user-defined class rules.



Bandwidth Management >> Quality of Service

WAN2 General Setup

☑ Enable the QoS Control OUT

WAN Inbound Bandwidth 10000 Kbps

WAN Outbound Bandwidth 10000 Kbps

Index	Class Name	Reserved_bandwidth Ratio
Class 1		25 %
Class 2		25 %
Class 3		25 %
	Others	25 %

□ Enable UDP Bandwidth Control Limited_bandwidth Ratio 25 %

□ Outbound TCP ACK Prioritize

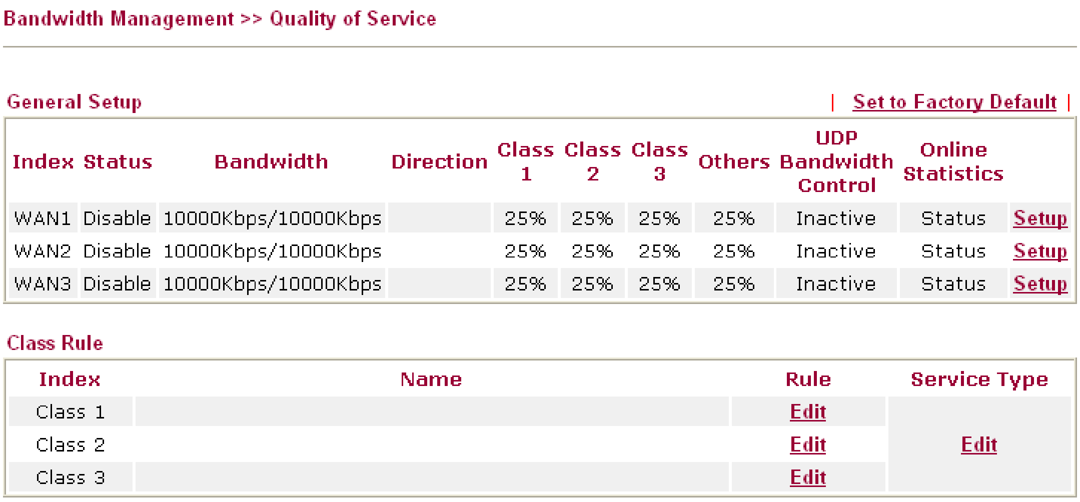
Available settings are explained as follows:

Item	Description
Enable the QoS Control	The factory default for this setting is checked. Please also define which traffic the QoS Control settings will apply to. **IN-** apply to incoming traffic only. **OUT**-apply to outgoing traffic only. **BOTH-** apply to both incoming and outgoing traffic. Check this box and click **OK**, then click **Setup** link again. You will see the **Online Statistics** link appearing on this page.
WAN Inbound Bandwidth	It allows you to set the connecting rate of data input for WAN. For example, if your ADSL supports 1M of downstream and 256K upstream, please set 1000kbps for this box. The default value is 10000kbps.
WAN Outbound Bandwidth	It allows you to set the connecting rate of data output for WAN. For example, if your ADSL supports 1M of downstream and 256K upstream, please set 256kbps for this box. The default value is 10000kbps. **Note:** The rate of outbound/inbound must be smaller than the real bandwidth to ensure correct calculation of QoS. It is suggested to set the bandwidth value for inbound/outbound as 80% - 85% of physical network speed provided by ISP to maximize the QoS performance.

Item	Description
Reserved Bandwidth Ratio	It is reserved for the group index in the form of ratio of **reserved bandwidth to upstream speed** and **reserved bandwidth to downstream speed**.
Enable UDP Bandwidth Control	Check this and set the limited bandwidth ratio on the right field. This is a protection of TCP application traffic since UDP application traffic such as streaming video will exhaust lots of bandwidth.
Outbound TCP ACK Prioritize	The difference in bandwidth between download and upload are great in ADSL2+ environment. For the download speed might be impacted by the uploading TCP ACK, you can check this box to push ACK of upload faster to speed the network traffic.
Limited_bandwidth Ratio	The ratio typed here is reserved for limited bandwidth of UDP application.

Edit the Class Rule for QoS

The first three (Class 1 to Class 3) class rules can be adjusted for your necessity. To add, edit or delete the class rule, please click the **Edit** link of that one.



Bandwidth Management >> Quality of Service

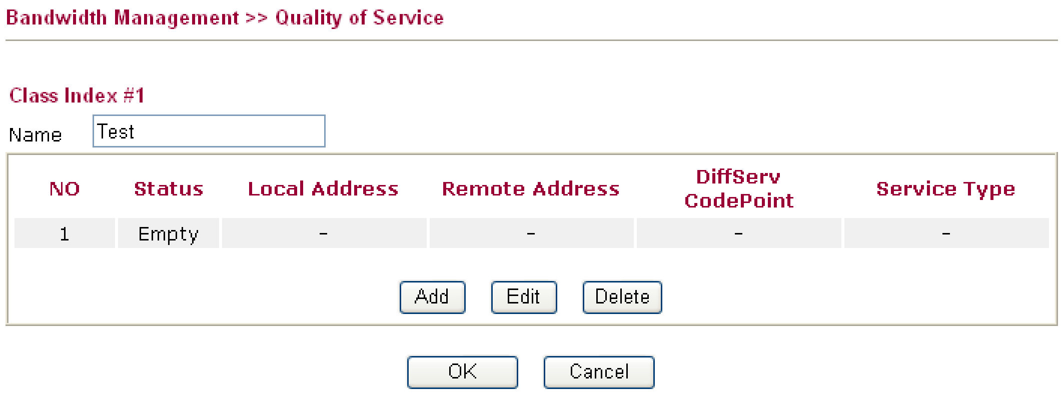
General Setup | Set to Factory Default |

Index	Status	Bandwidth	Direction	Class 1	Class 2	Class 3	Others	UDP Bandwidth Control	Online Statistics	
WAN1	Disable	10000Kbps/10000Kbps		25%	25%	25%	25%	Inactive	Status	Setup
WAN2	Disable	10000Kbps/10000Kbps		25%	25%	25%	25%	Inactive	Status	Setup
WAN3	Disable	10000Kbps/10000Kbps		25%	25%	25%	25%	Inactive	Status	Setup

Class Rule

Index	Name	Rule	Service Type
Class 1		Edit	Edit
Class 2		Edit	
Class 3		Edit	

After you click the **Edit** link, you will see the following page. Now you can define the name for that Class. In this case, “Test” is used as the name of Class Index #1.



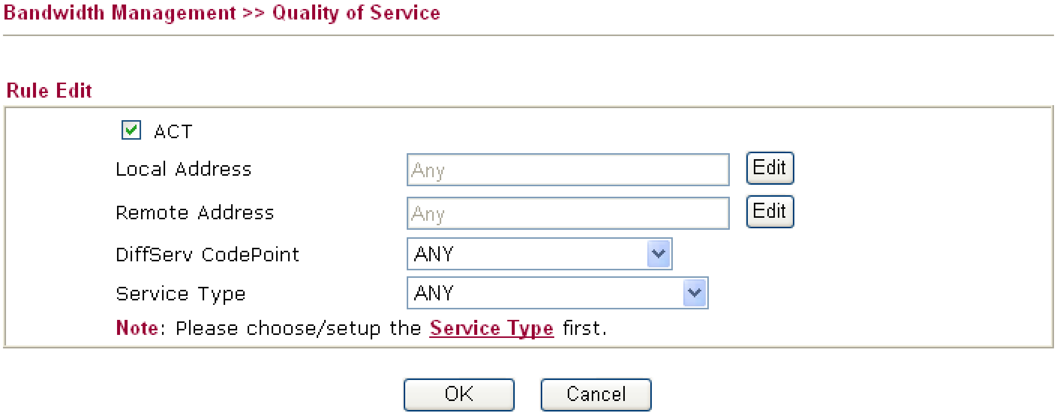
Bandwidth Management >> Quality of Service

Class Index #1

Name: Test

NO	Status	Local Address	Remote Address	DiffServ CodePoint	Service Type
1	Empty	-	-	-	-

For adding a new rule, click **Add** to open the following page.



Bandwidth Management >> Quality of Service

Rule Edit

☑ ACT

Local Address: Any [Edit]

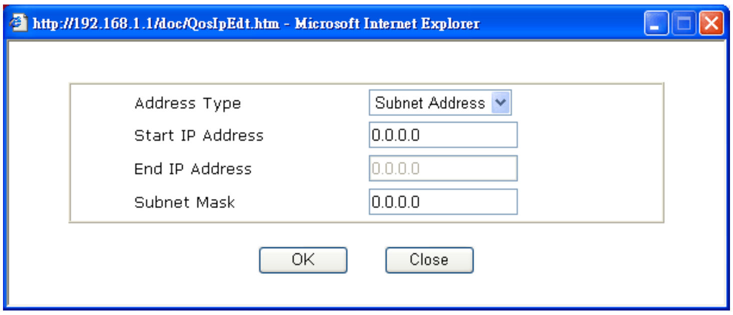
Remote Address: Any [Edit]

DiffServ CodePoint: ANY

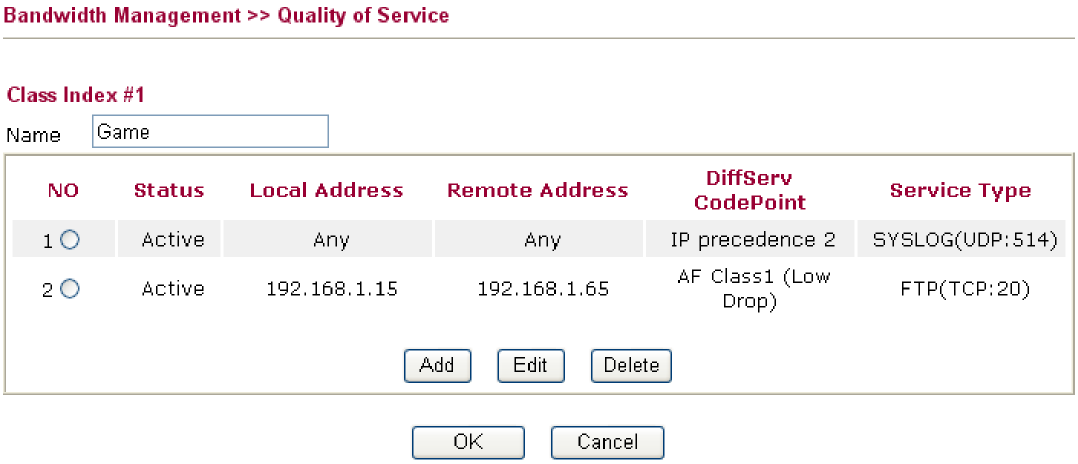
Service Type: ANY

Note: Please choose/setup the Service Type first.

Available settings are explained as follows:

Item	Description
ACT	Check this box to invoke these settings.
Local Address	Click the **Edit** button to set the local IP address (on LAN) for the rule.
Remote Address	Click the **Edit** button to set the remote IP address (on LAN/WAN) for the rule.
Edit	It allows you to edit source address information.  http://192.168.1.1/doc/QosIpEdt.htm - Microsoft Internet Explorer Address Type: Subnet Address Start IP Address: 0.0.0.0 End IP Address: 0.0.0.0 Subnet Mask: 0.0.0.0 OK Close **Address Type –** Determine the address type for the source address. For **Single Address**, you have to fill in Start IP address. For **Range Address**, you have to fill in Start IP address and End IP address. For **Subnet Address**, you have to fill in Start IP address and Subnet Mask.
DiffServ CodePoint	All the packets of data will be divided with different levels and will be processed according to the level type by the system. Please assign one of the levels of the data for processing with QoS control.
Service Type	It determines the service type of the data for processing with QoS control. It can also be edited. You can choose the predefined service type from the Service Type drop down list. Those types are predefined in factory. Simply choose the one that you want for using by current QoS.

By the way, you can set up to 20 rules for one Class. If you want to edit an existed rule, please select the radio button of that one and click **Edit** to open the rule edit page for modification.


Bandwidth Management >> Quality of Service

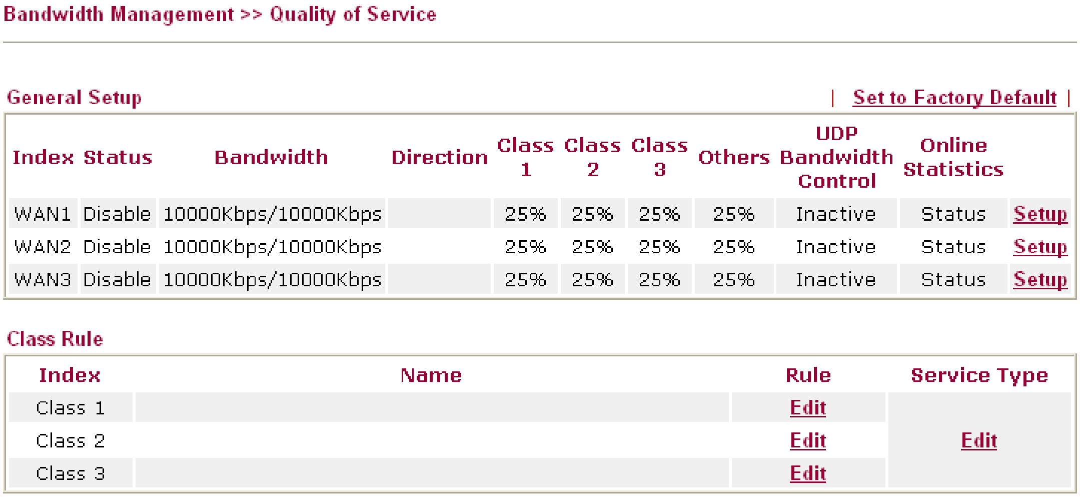
Class Index #1

Name: Game

NO	Status	Local Address	Remote Address	DiffServ CodePoint	Service Type
1 ○	Active	Any	Any	IP precedence 2	SYSLOG(UDP:514)
2 ○	Active	192.168.1.15	192.168.1.65	AF Class1 (Low Drop)	FTP(TCP:20)

Edit the Service Type for Class Rule

To add a new service type, edit or delete an existed service type, please click the Edit link under Service Type field.


Bandwidth Management >> Quality of Service

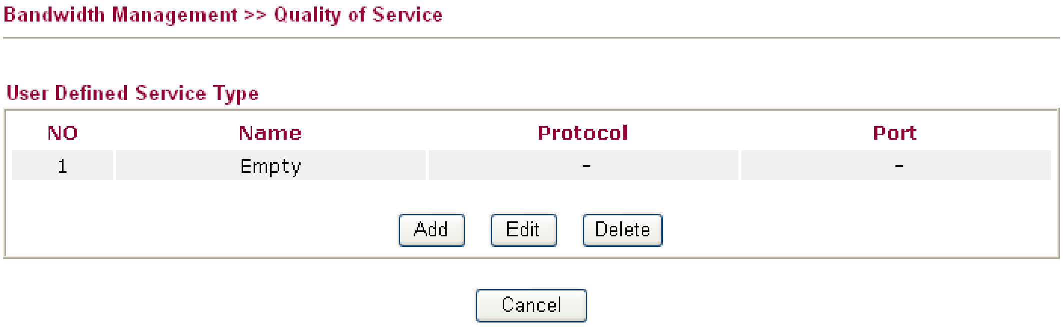
General Setup | Set to Factory Default |

Index	Status	Bandwidth	Direction	Class 1	Class 2	Class 3	Others	UDP Bandwidth Control	Online Statistics	
WAN1	Disable	10000Kbps/10000Kbps		25%	25%	25%	25%	Inactive	Status	Setup
WAN2	Disable	10000Kbps/10000Kbps		25%	25%	25%	25%	Inactive	Status	Setup
WAN3	Disable	10000Kbps/10000Kbps		25%	25%	25%	25%	Inactive	Status	Setup

Class Rule

Index	Name	Rule	Service Type
Class 1		Edit	Edit
Class 2		Edit	
Class 3		Edit	

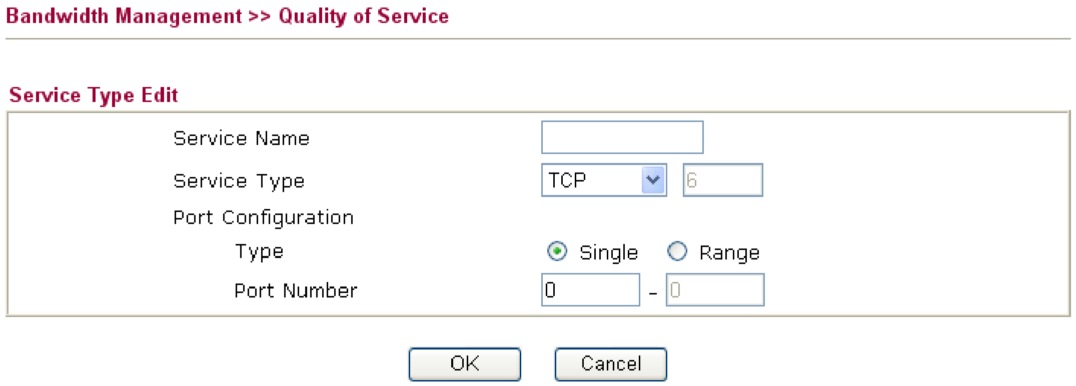
After you click the **Edit** link, you will see the following page.


Bandwidth Management >> Quality of Service

User Defined Service Type

NO	Name	Protocol	Port
1	Empty	-	-

For adding a new service type, click **Add** to open the following page.



Bandwidth Management >> Quality of Service

Service Type Edit

Service Name	
Service Type	TCP 6
Port Configuration	
Type	● Single ○ Range
Port Number	0 - 0

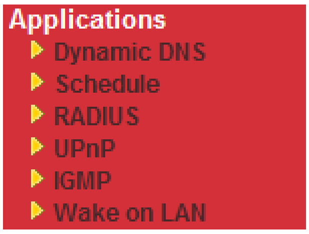
Available settings are explained as follows:

Item	Description
Service Name	Type in a new service for your request.
Service Type	Choose the type (TCP, UDP or TCP/UDP) for the new service.
Port Configuration	Click **Single** or **Range** as the **Type**. If you select Range, you have to type in the starting port number and the end porting number on the boxes below. **Port Number** – Type in the starting port number and the end porting number here if you choose Range as the type.

By the way, you can set up to 10 service types. If you want to edit/delete an existed service type, please select the radio button of that one and click **Edit/Edit** for modification.

4.9 Applications

Below shows the menu items for Applications.



4.9.1 Dynamic DNS

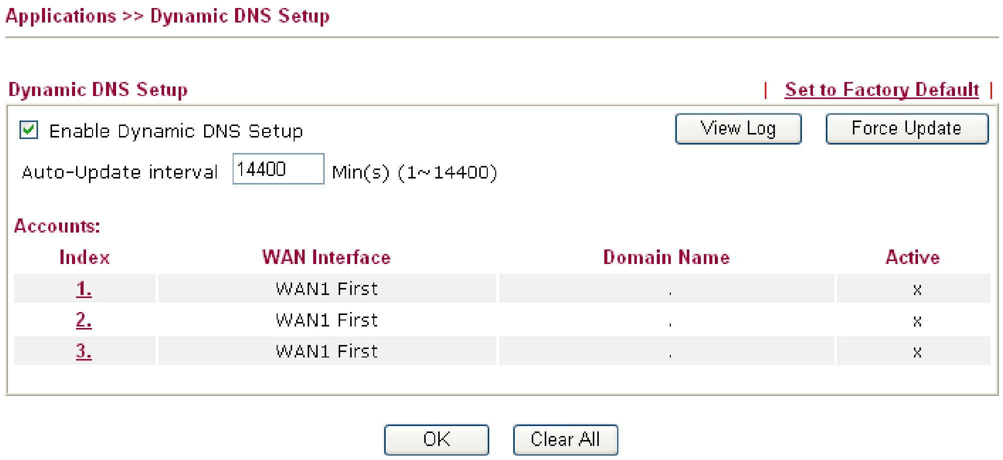
The ISP often provides you with a dynamic IP address when you connect to the Internet via your ISP. It means that the public IP address assigned to your router changes each time you access the Internet. The Dynamic DNS feature lets you assign a domain name to a dynamic WAN IP address. It allows the router to update its online WAN IP address mappings on the specified Dynamic DNS server. Once the router is online, you will be able to use the registered domain name to access the router or internal virtual servers from the Internet. It is particularly helpful if you host a web server, FTP server, or other server behind the router.

Before you use the Dynamic DNS feature, you have to apply for free DDNS service to the DDNS service providers. The router provides up to three accounts from three different DDNS service providers. Basically, Vigor routers are compatible with the DDNS services supplied by most popular DDNS service providers such as **www.dyndns.org, www.no-ip.com, www.dtdns.com, www.changeip.com, www.dynamic- nameserver.com.** You should visit their websites to register your own domain name for the router.

Enable the Function and Add a Dynamic DNS Account

1. Assume you have a registered domain name from the DDNS provider, say *hostname.dyndns.org*, and an account with username: *test* and password: *test*.

2. In the DDNS setup menu, check **Enable Dynamic DNS Setup**.


Applications >> Dynamic DNS Setup

Dynamic DNS Setup | Set to Factory Default |

☑ Enable Dynamic DNS Setup [View Log] [Force Update]

Auto-Update interval 14400 Min(s) (1~14400)

Accounts:

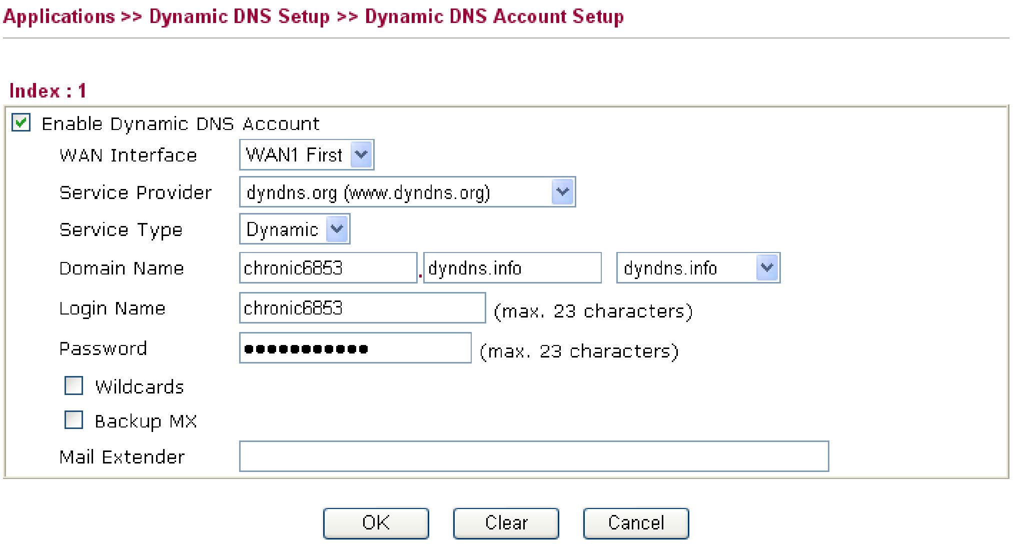
Index	WAN Interface	Domain Name	Active
1.	WAN1 First	.	x
2.	WAN1 First	.	x
3.	WAN1 First	.	x

Available settings are explained as follows:

Item	Description
Set to Factory Default	Clear all profiles and recover to factory settings.
Enable Dynamic DNS Setup	Check this box to enable DDNS function.

Item	Description
Auto-Update interval	Set the time for the router to perform auto update for DDNS service.
View Log	Display DDNS log status.
Force Update	Force the router updates its information to DDNS server.
Index	Click the number below Index to access into the setting page of DDNS setup to set account(s).
WAN Interface	Display the WAN interface used.
Domain Name	Display the domain name that you set on the setting page of DDNS setup.
Active	Display if this account is active or inactive.

3. Select Index number 1 to add an account for the router. Check **Enable Dynamic DNS Account**, and choose correct Service Provider: dyndns.org, type the registered hostname: *hostname* and domain name suffix: dyndns.org in the **Domain Name** block. The following two blocks should be typed your account Login Name: *test* and Password: *test*.


Applications >> Dynamic DNS Setup >> Dynamic DNS Account Setup

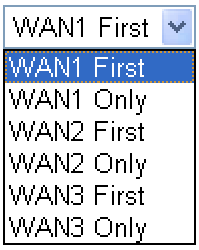
Index : 1

☑ Enable Dynamic DNS Account

WAN Interface	WAN1 First
Service Provider	dyndns.org (www.dyndns.org)
Service Type	Dynamic
Domain Name	chronic6853 . dyndns.info dyndns.info
Login Name	chronic6853 (max. 23 characters)
Password	●●●●●●●●●●● (max. 23 characters)
□ Wildcards	
□ Backup MX	
Mail Extender	

Available settings are explained as follows:

Item	Description
Enable Dynamic DNS Account	Check this box to enable the current account. If you did check the box, you will see a check mark appeared on the Active column of the previous web page in step 2).
WAN Interface	**WAN1/WAN2/WAN3 First -** While connecting, the router will use WAN1/WAN2/WAN3 as the first channel for such account. If WAN1/WAN2/WAN3 fails, the router will use another WAN interface instead. **WAN1/WAN2/WAN3 Only -** While connecting, the router will use WAN1/WAN2/WAN3 as the only channel for such account.

Item	Description
	 WAN1 First WAN1 First WAN1 Only WAN2 First WAN2 Only WAN3 First WAN3 Only
Service Provider	Select the service provider for the DDNS account.
Service Type	Select a service type (Dynamic, Custom or Static). If you choose Custom, you can modify the domain that is chosen in the Domain Name field.
Domain Name	Type in one domain name that you applied previously. Use the drop down list to choose the desired domain.
Login Name	Type in the login name that you set for applying domain.
Password	Type in the password that you set for applying domain.
Wildcard and Backup MX	The Wildcard and Backup MX features are not supported for all Dynamic DNS providers. You could get more detailed information from their websites.

4. Click **OK** button to activate the settings. You will see your setting has been saved.

The Wildcard and Backup MX features are not supported for all Dynamic DNS providers. You could get more detailed information from their websites.

Disable the Function and Clear all Dynamic DNS Accounts

In the DDNS setup menu, uncheck **Enable Dynamic DNS Setup**, and push **Clear All** button to disable the function and clear all accounts from the router.

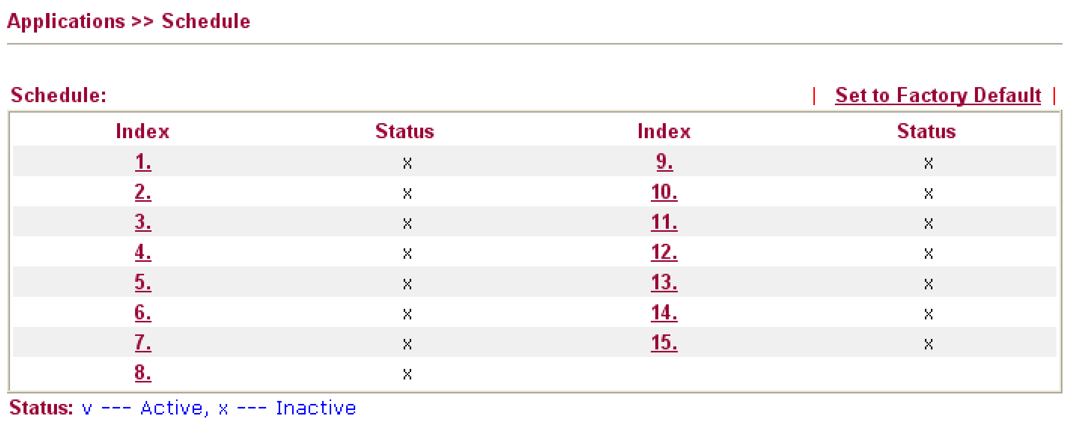
Delete a Dynamic DNS Account

In the DDNS setup menu, click the **Index** number you want to delete and then push **Clear All** button to delete the account.

4.9.2 Schedule

The Vigor router has a built-in real time clock which can update itself manually or automatically by means of Network Time Protocols (NTP). As a result, you can not only schedule the router to dialup to the Internet at a specified time, but also restrict Internet access to certain hours so that users can connect to the Internet only during certain hours, say, business hours. The schedule is also applicable to other functions.

You have to set your time before set schedule. In **System Maintenance>> Time and Date** menu, press **Inquire Time** button to set the Vigor router's clock to current time of your PC. The clock will reset once if you power down or reset the router. There is another way to set up time. You can inquiry an NTP server (a time server) on the Internet to synchronize the router's clock. This method can only be applied when the WAN connection has been built up.



Applications >> Schedule

Schedule: | Set to Factory Default |

Index	Status	Index	Status
1.	x	9.	x
2.	x	10.	x
3.	x	11.	x
4.	x	12.	x
5.	x	13.	x
6.	x	14.	x
7.	x	15.	x
8.	x		

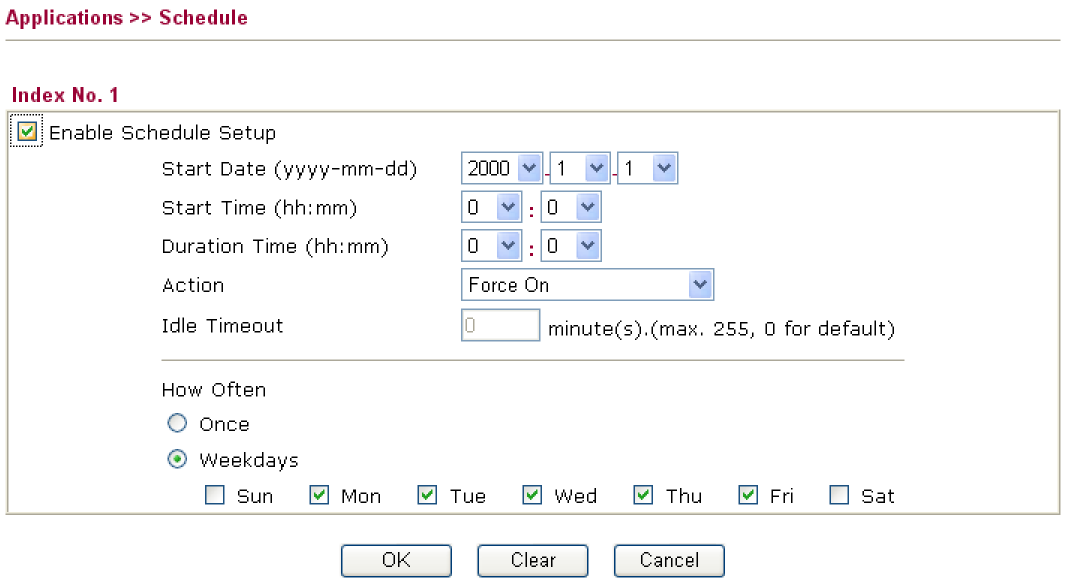
Status: v --- Active, x --- Inactive

Each item is explained as follows:

Item	Description
Set to Factory Default	Clear all profiles and recover to factory settings.
Index	Click the number below Index to access into the setting page of schedule.
Status	Display if this schedule setting is active or inactive.

You can set up to 15 schedules. Then you can apply them to your **Internet Access** or **VPN and Remote Access >> LAN-to-LAN** settings.

To add a schedule, please click any index, say Index No. 1. The detailed settings of the call schedule with index 1 are shown below.



Applications >> Schedule

Index No. 1

☑ Enable Schedule Setup

Start Date (yyyy-mm-dd)	2000 - 1 - 1
Start Time (hh:mm)	0 : 0
Duration Time (hh:mm)	0 : 0
Action	Force On
Idle Timeout	0 minute(s).(max. 255, 0 for default)

How Often

○ Once

● Weekdays

□ Sun ☑ Mon ☑ Tue ☑ Wed ☑ Thu ☑ Fri □ Sat

Available settings are explained as follows:

Item	Description
Enable Schedule Setup	Check to enable the schedule.
Start Date (yyyy-mm-dd)	Specify the starting date of the schedule.

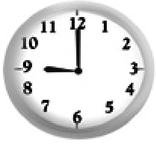
Item	Description
Start Time (hh:mm)	Specify the starting time of the schedule.
Duration Time (hh:mm)	Specify the duration (or period) for the schedule.
Action	Specify which action Call Schedule should apply during the period of the schedule. **Force On** -Force the connection to be always on. **Force Down** -Force the connection to be always down. **Enable Dial-On-Demand** -Specify the connection to be dial-on-demand and the value of idle timeout should be specified in **Idle Timeout** field. **Disable Dial-On-Demand** -Specify the connection to be up when it has traffic on the line. Once there is no traffic over idle timeout, the connection will be down and never up again during the schedule.
Idle Timeout	Specify the duration (or period) for the schedule. **How often** -Specify how often the schedule will be applied **Once** -The schedule will be applied just once **Weekdays** -Specify which days in one week should perform the schedule.

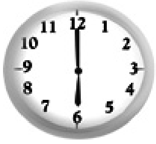
Example

Suppose you want to control the PPPoE Internet access connection to be always on (Force On) from 9:00 to 18:00 for whole week. Other time the Internet access connection should be disconnected (Force Down).

Office Hour:

(Force On)





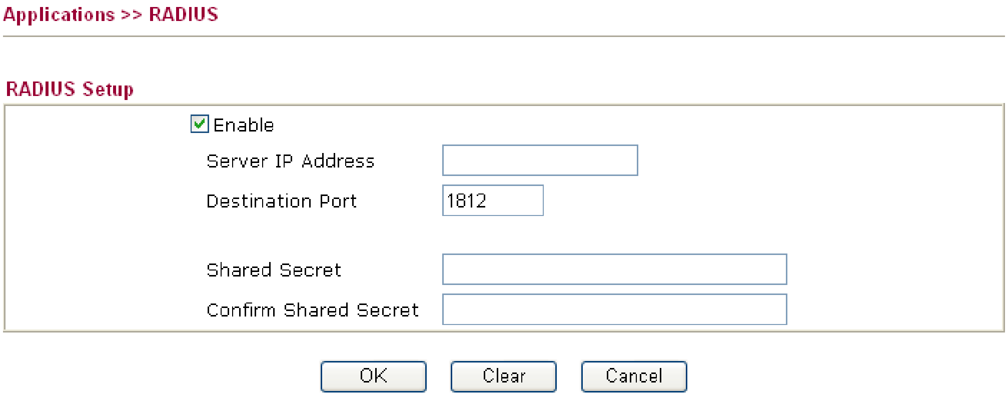
Mon - Sun **9:00 am** **to** **6:00 pm**

1. Make sure the PPPoE connection and **Time Setup** is working properly.
2. Configure the PPPoE always on from 9:00 to 18:00 for whole week.
3. Configure the **Force Down** from 18:00 to next day 9:00 for whole week.
4. Assign these two profiles to the PPPoE Internet access profile. Now, the PPPoE Internet connection will follow the schedule order to perform **Force On** or **Force Down** action according to the time plan that has been pre-defined in the schedule profiles.

4.9.3 RADIUS

Remote Authentication Dial-In User Service (RADIUS) is a security authentication client/server protocol that supports authentication, authorization and accounting, which is widely used by Internet service providers. It is the most common method of authenticating and authorizing dial-up and tunneled network users.

The built-in RADIUS client feature enables the router to assist the remote dial-in user or a wireless station and the RADIUS server in performing mutual authentication. It enables centralized remote access authentication for network management.



Applications >> RADIUS

RADIUS Setup

☑ Enable

Server IP Address

Destination Port 1812

Shared Secret

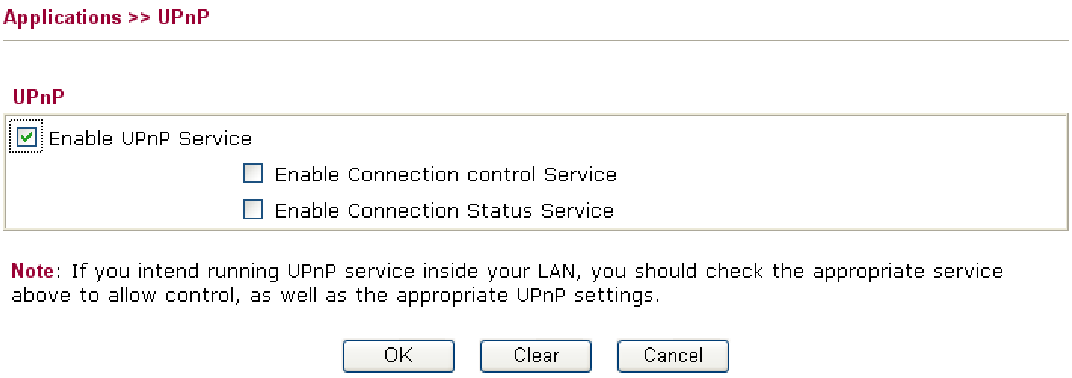
Confirm Shared Secret

Available settings are explained as follows:

Item	Description
Enable	Check to enable RADIUS client feature.
Server IP Address	Enter the IP address of RADIUS server
Destination Port	The UDP port number that the RADIUS server is using. The default value is 1812, based on RFC 2138.
Shared Secret	The RADIUS server and client share a secret that is used to authenticate the messages sent between them. Both sides must be configured to use the same shared secret.
Confirm Shared Secret	Re-type the Shared Secret for confirmation.

4.9.4 UPnP

The **UPnP** (Universal Plug and Play) protocol is supported to bring to network connected devices the ease of installation and configuration which is already available for directly connected PC peripherals with the existing Windows 'Plug and Play' system. For NAT routers, the major feature of UPnP on the router is “NAT Traversal”. This enables applications inside the firewall to automatically open the ports that they need to pass through a router. It is more reliable than requiring a router to work out by itself which ports need to be opened. Further, the user does not have to manually set up port mappings or a DMZ. **UPnP is available on Windows XP** and the router provide the associated support for MSN Messenger to allow full use of the voice, video and messaging features.



Applications >> UPnP

UPnP

☑ Enable UPnP Service

□ Enable Connection control Service

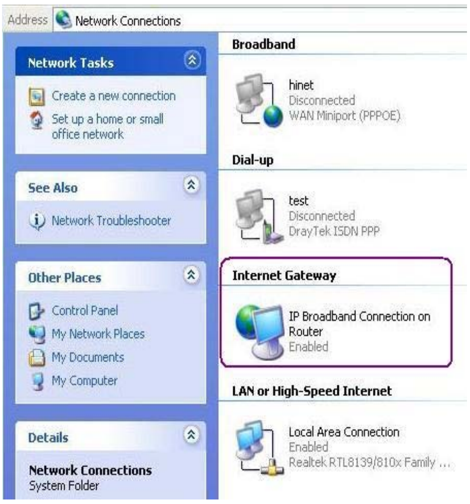
□ Enable Connection Status Service

Note: If you intend running UPnP service inside your LAN, you should check the appropriate service above to allow control, as well as the appropriate UPnP settings.

Available settings are explained as follows:

Item	Description
Enable UPNP Service	Accordingly, you can enable either the **Connection Control Service** or **Connection Status Service**.

After setting **Enable UPNP Service** setting, an icon of **IP Broadband Connection on Router** on Windows XP/Network Connections will appear. The connection status and control status will be able to be activated. The NAT Traversal of UPnP enables the multimedia features of your applications to operate. This has to manually set up port mappings or use other similar methods. The screenshots below show examples of this facility.



Broadband

hinet
Disconnected
WAN Miniport (PPPOE)

Dial-up

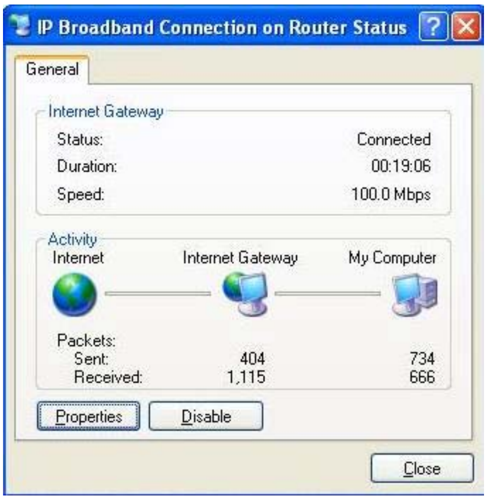
test
Disconnected
DrayTek ISDN PPP

Internet Gateway

IP Broadband Connection on Router
Enabled

LAN or High-Speed Internet

Local Area Connection
Enabled
Realtek RTL8139/810x Family ...



IP Broadband Connection on Router Status

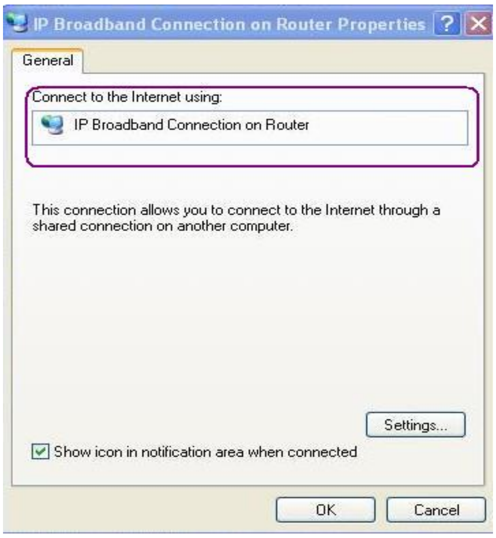
Internet Gateway

Status:	Connected
Duration:	00:19:06
Speed:	100.0 Mbps

Activity

	Internet	Internet Gateway	My Computer
Packets:			
Sent:		404	734
Received:		1,115	666

The UPnP facility on the router enables UPnP aware applications such as MSN Messenger to discover what are behind a NAT router. The application will also learn the external IP address and configure port mappings on the router. Subsequently, such a facility forwards packets from the external ports of the router to the internal ports used by the application.



IP Broadband Connection on Router Properties

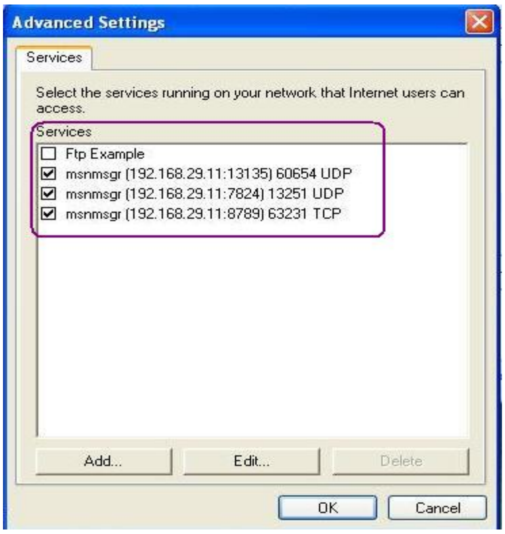
General

Connect to the Internet using:

IP Broadband Connection on Router

This connection allows you to connect to the Internet through a shared connection on another computer.

☑ Show icon in notification area when connected



Advanced Settings

Services

Select the services running on your network that Internet users can access.

Services

☐ Ftp Example
☑ msnmsgr (192.168.29.11:13135) 60654 UDP
☑ msnmsgr (192.168.29.11:7824) 13251 UDP
☑ msnmsgr (192.168.29.11:8789) 63231 TCP

The reminder as regards concern about Firewall and UPnP

Can't work with Firewall Software

Enabling firewall applications on your PC may cause the UPnP function not working properly. This is because these applications will block the accessing ability of some network ports.

Security Considerations

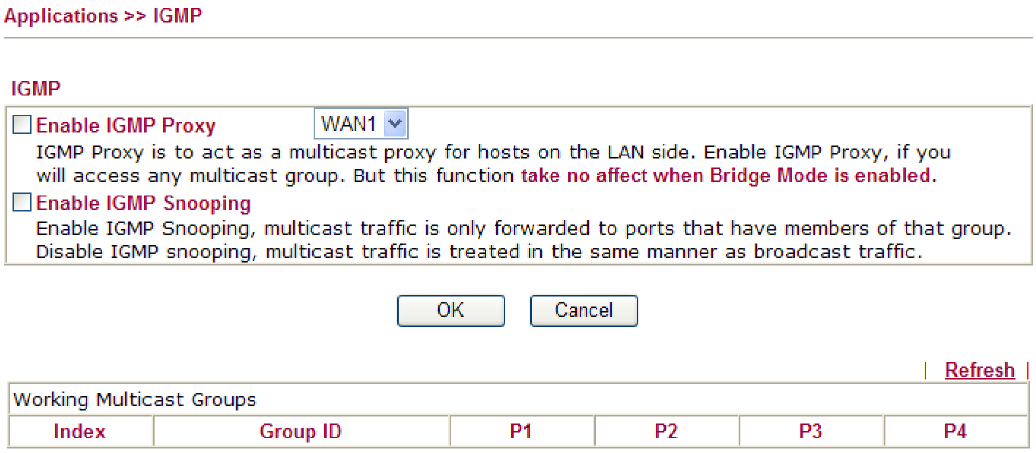
Activating the UPnP function on your network may incur some security threats. You should consider carefully these risks before activating the UPnP function.

- Some Microsoft operating systems have found out the UPnP weaknesses and hence you need to ensure that you have applied the latest service packs and patches.
- Non-privileged users can control some router functions, including removing and adding port mappings.

The UPnP function dynamically adds port mappings on behalf of some UPnP-aware applications. When the applications terminate abnormally, these mappings may not be removed.

4.9.5 IGMP

IGMP is the abbreviation of *Internet Group Management Protocol*. It is a communication protocol which is mainly used for managing the membership of Internet Protocol multicast groups.



Applications >> IGMP

IGMP

□ Enable IGMP Proxy WAN1

IGMP Proxy is to act as a multicast proxy for hosts on the LAN side. Enable IGMP Proxy, if you will access any multicast group. But this function **take no affect when Bridge Mode is enabled.**

□ Enable IGMP Snooping

Enable IGMP Snooping, multicast traffic is only forwarded to ports that have members of that group. Disable IGMP snooping, multicast traffic is treated in the same manner as broadcast traffic.

Working Multicast Groups

Index	Group ID	P1	P2	P3	P4

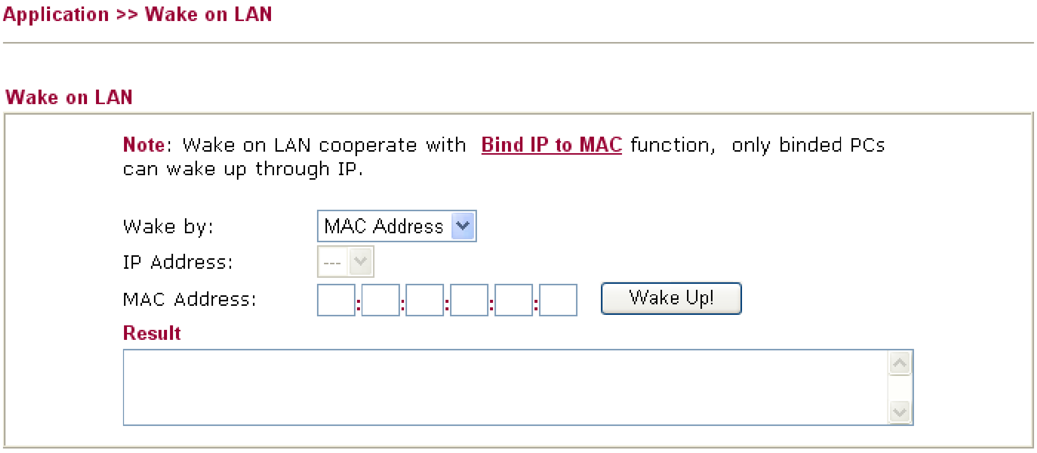
Available settings are explained as follows:

Item	Description
Enable IGMP Proxy	Check this box to enable this function. The application of multicast will be executed through WAN port. In addition, such function is available in NAT mode.
Enable IGMP Snooping	Check this box to enable this function. Multicast traffic will be forwarded to ports that have members of that group. Disabling IGMP snooping will make multicast traffic treated in the same manner as broadcast traffic.
Group ID	This field displays the ID port for the multicast group. The available range for IGMP starts from 224.0.0.0 to 239.255.255.254.
P1 to P4	It indicates the LAN port used for the multicast group.
Refresh	Click this link to renew the working multicast group status.

4.9.6 Wake on LAN

A PC client on LAN can be woken up by the router it connects. When a user wants to wake up a specified PC through the router, he/she must type correct MAC address of the specified PC on this web page of **Wake on LAN** of this router.

In addition, such PC must have installed a network card supporting WOL function. By the way, WOL function must be set as "Enable" on the BIOS setting.



Application >> Wake on LAN

Wake on LAN

Note: Wake on LAN cooperate with **Bind IP to MAC** function, only binded PCs can wake up through IP.

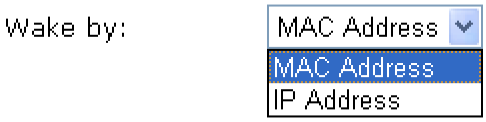
Wake by: MAC Address

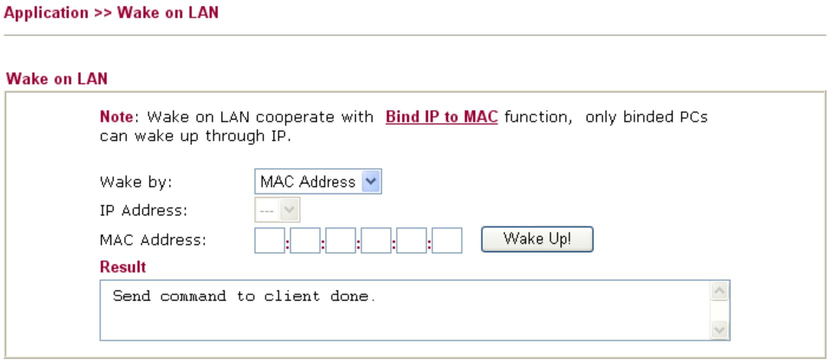
IP Address: ---

MAC Address: __ : __ : __ : __ : __ : __

Result

Available settings are explained as follows:

Item	Description
Wake by	Two types provide for you to wake up the binded IP. If you choose Wake by MAC Address, you have to type the correct MAC address of the host in MAC Address boxes. If you choose Wake by IP Address, you have to choose the correct IP address.  Wake by: MAC Address
IP Address	The IP addresses that have been configured in **Firewall>>Bind IP to MAC** will be shown in this drop down list. Choose the IP address from the drop down list that you want to wake up.
MAC Address	Type any one of the MAC address of the bound PCs.
Wake Up	Click this button to wake up the selected IP. See the following figure. The result will be shown on the box.



Application >> Wake on LAN

Wake on LAN

Note: Wake on LAN cooperate with **Bind IP to MAC** function, only binded PCs can wake up through IP.

Wake by: MAC Address

IP Address: ---

MAC Address: __ : __ : __ : __ : __ : __

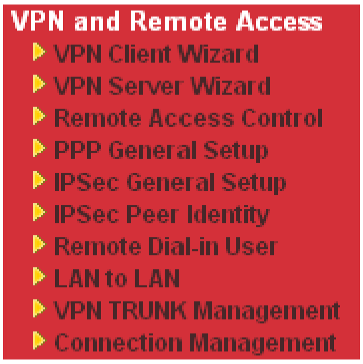
Result

```
Send command to client done.
```

4.10 VPN and Remote Access

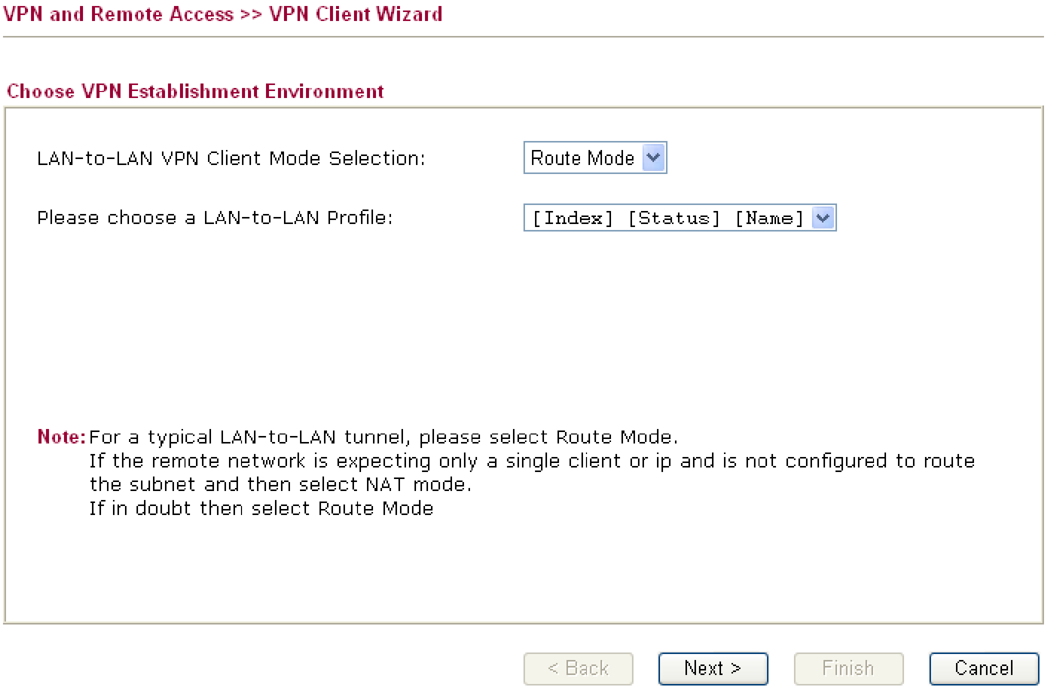
A Virtual Private Network (VPN) is the extension of a private network that encompasses links across shared or public networks like the Internet. In short, by VPN technology, you can send data between two computers across a shared or public network in a manner that emulates the properties of a point-to-point private link.

Below shows the menu items for VPN and Remote Access.



4.10.1 VPN Client Wizard

Such wizard is used to configure VPN settings for VPN client. Such wizard will guide to set the LAN-to-LAN profile for VPN dial out connection (from server to client) step by step.



VPN and Remote Access >> VPN Client Wizard

Choose VPN Establishment Environment

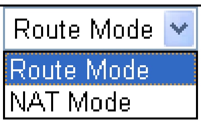
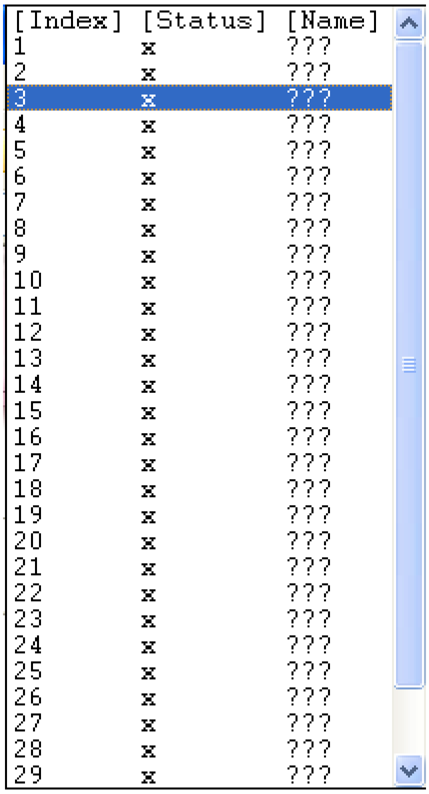
LAN-to-LAN VPN Client Mode Selection: Route Mode

Please choose a LAN-to-LAN Profile: [Index] [Status] [Name]

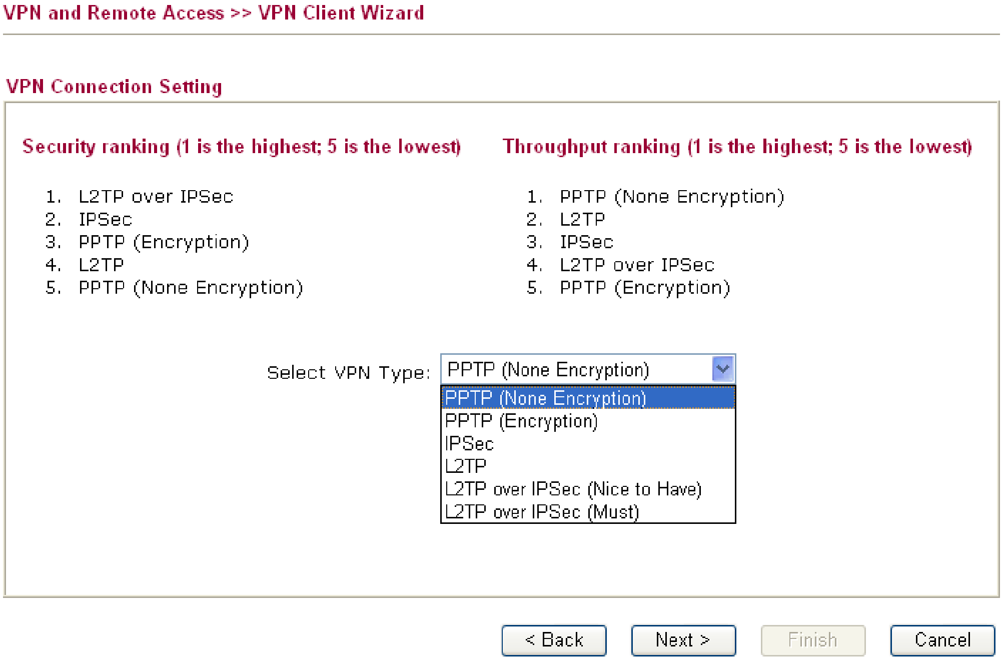
Note: For a typical LAN-to-LAN tunnel, please select Route Mode.
If the remote network is expecting only a single client or ip and is not configured to route the subnet and then select NAT mode.
If in doubt then select Route Mode

Available settings are explained as follows:

Item	Description
LAN-to-LAN Client Mode Selection	Choose the client mode. **Route Mode/NAT Mode** – If the remote network only allows you to dial in with single IP, please choose this mode, otherwise please choose Route Mode.

Item	Description
	 Route Mode Route Mode NAT Mode
Please choose a LAN-to-LAN Profile	There are 32 VPN profiles for users to set.  [Index] [Status] [Name] 1 x ??? 2 x ??? 3 x ??? 4 x ??? 5 x ??? 6 x ??? 7 x ??? 8 x ??? 9 x ??? 10 x ??? 11 x ??? 12 x ??? 13 x ??? 14 x ??? 15 x ??? 16 x ??? 17 x ??? 18 x ??? 19 x ??? 20 x ??? 21 x ??? 22 x ??? 23 x ??? 24 x ??? 25 x ??? 26 x ??? 27 x ??? 28 x ??? 29 x ???

When you finish the mode and profile selection, please click **Next** to open the following page.



VPN and Remote Access >> VPN Client Wizard

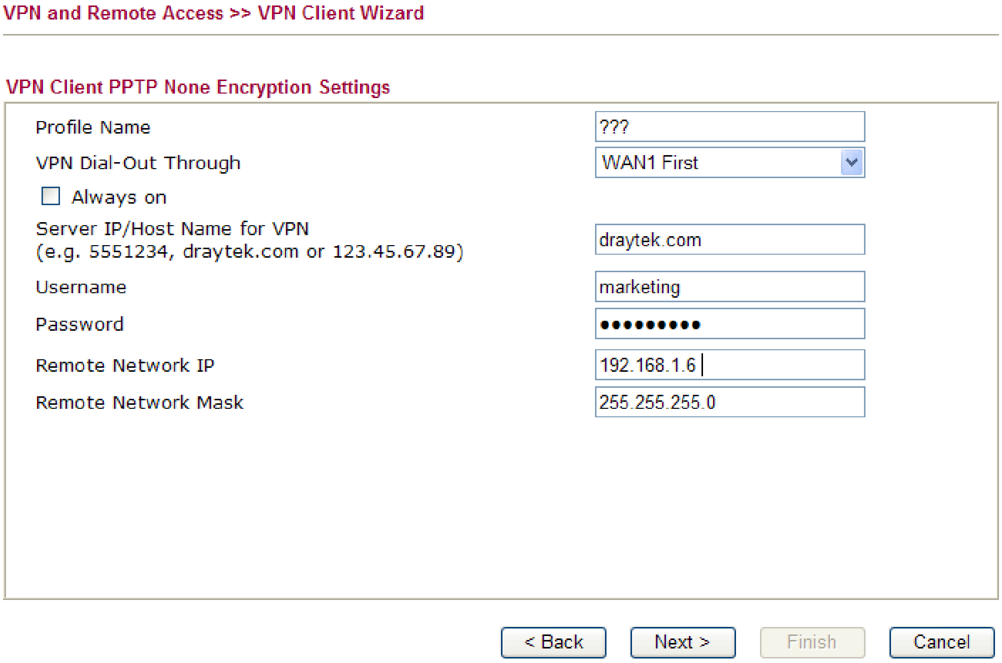
VPN Connection Setting

Security ranking (1 is the highest; 5 is the lowest)	Throughput ranking (1 is the highest; 5 is the lowest)
1. L2TP over IPSec	1. PPTP (None Encryption)
2. IPSec	2. L2TP
3. PPTP (Encryption)	3. IPSec
4. L2TP	4. L2TP over IPSec
5. PPTP (None Encryption)	5. PPTP (Encryption)

Select VPN Type: PPTP (None Encryption)

In this page, you have to select suitable VPN type for the VPN client profile. There are six types provided here. Different type will lead to different configuration page. After making the choices for the client profile, please click **Next**. You will see different configurations based on the selection(s) you made.

- When you choose **PPTP (None Encryption)** or **PPTP (Encryption)**, you will see the following graphic:

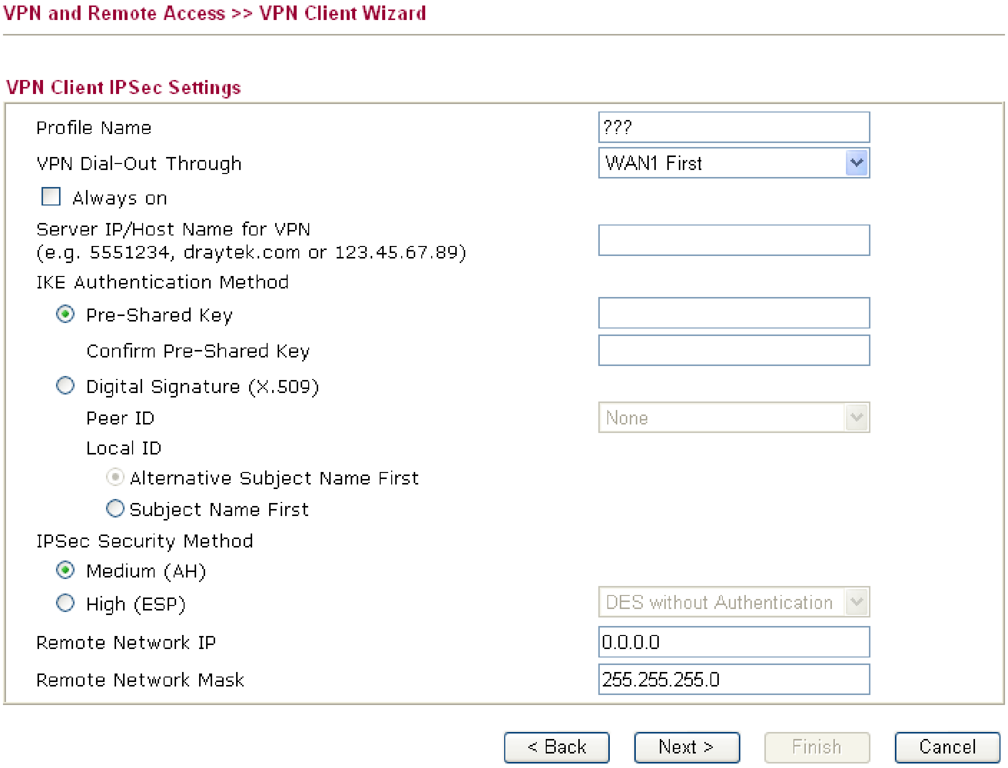


VPN and Remote Access >> VPN Client Wizard

VPN Client PPTP None Encryption Settings

Profile Name	???
VPN Dial-Out Through	WAN1 First
□ Always on	
Server IP/Host Name for VPN (e.g. 5551234, draytek.com or 123.45.67.89)	draytek.com
Username	marketing
Password	●●●●●●●●●
Remote Network IP	192.168.1.6
Remote Network Mask	255.255.255.0

- When you choose **IPSec**, you will see the following graphic:

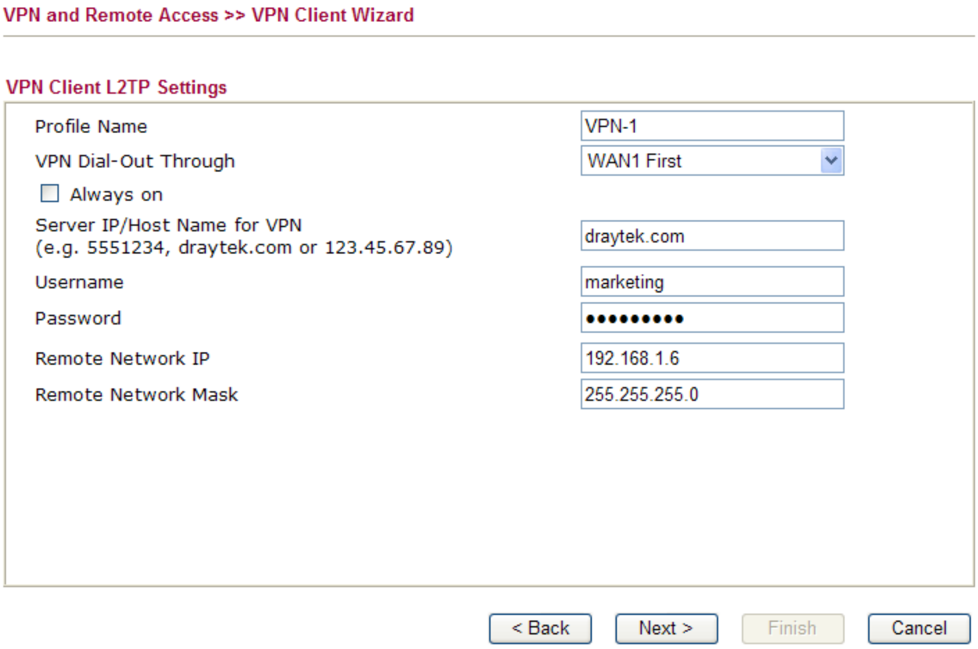


VPN and Remote Access >> VPN Client Wizard

VPN Client IPSec Settings

Profile Name	???
VPN Dial-Out Through	WAN1 First
□ Always on	
Server IP/Host Name for VPN (e.g. 5551234, draytek.com or 123.45.67.89)	
IKE Authentication Method	
● Pre-Shared Key	
Confirm Pre-Shared Key	
○ Digital Signature (X.509)	
Peer ID	None
Local ID	
● Alternative Subject Name First	
○ Subject Name First	
IPSec Security Method	
● Medium (AH)	
○ High (ESP)	DES without Authentication
Remote Network IP	0.0.0.0
Remote Network Mask	255.255.255.0

- When you choose **L2TP**, you will see the following graphic:

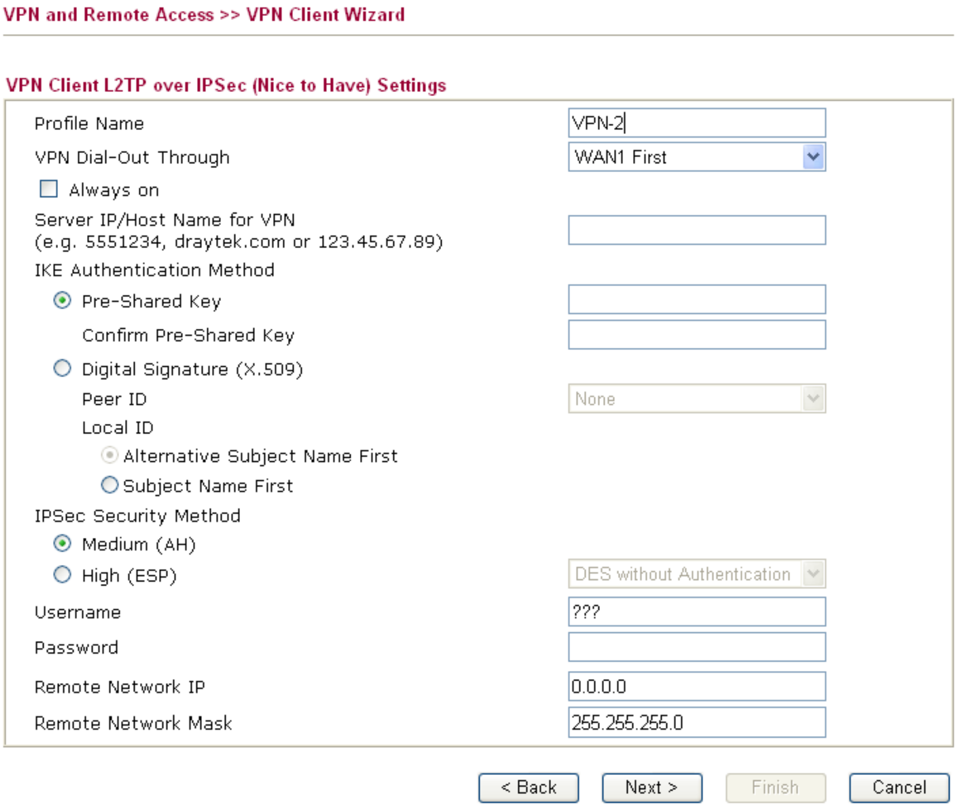


VPN and Remote Access >> VPN Client Wizard

VPN Client L2TP Settings

Profile Name	VPN-1
VPN Dial-Out Through	WAN1 First
□ Always on	
Server IP/Host Name for VPN (e.g. 5551234, draytek.com or 123.45.67.89)	draytek.com
Username	marketing
Password	●●●●●●●●●
Remote Network IP	192.168.1.6
Remote Network Mask	255.255.255.0

- When you choose **L2TP over IPSec (Nice to Have)** or **L2TP over IPSec (Must),** you will see the following graphic:



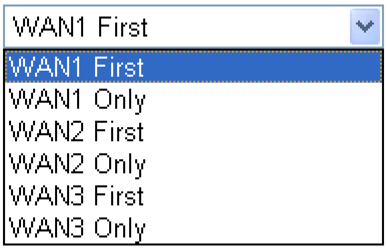
VPN and Remote Access >> VPN Client Wizard

VPN Client L2TP over IPSec (Nice to Have) Settings

Profile Name	VPN-2
VPN Dial-Out Through	WAN1 First
□ Always on	
Server IP/Host Name for VPN (e.g. 5551234, draytek.com or 123.45.67.89)	
IKE Authentication Method	
● Pre-Shared Key	
Confirm Pre-Shared Key	
○ Digital Signature (X.509)	
Peer ID	None
Local ID	
● Alternative Subject Name First	
○ Subject Name First	
IPSec Security Method	
● Medium (AH)	
○ High (ESP)	DES without Authentication
Username	???
Password	
Remote Network IP	0.0.0.0
Remote Network Mask	255.255.255.0

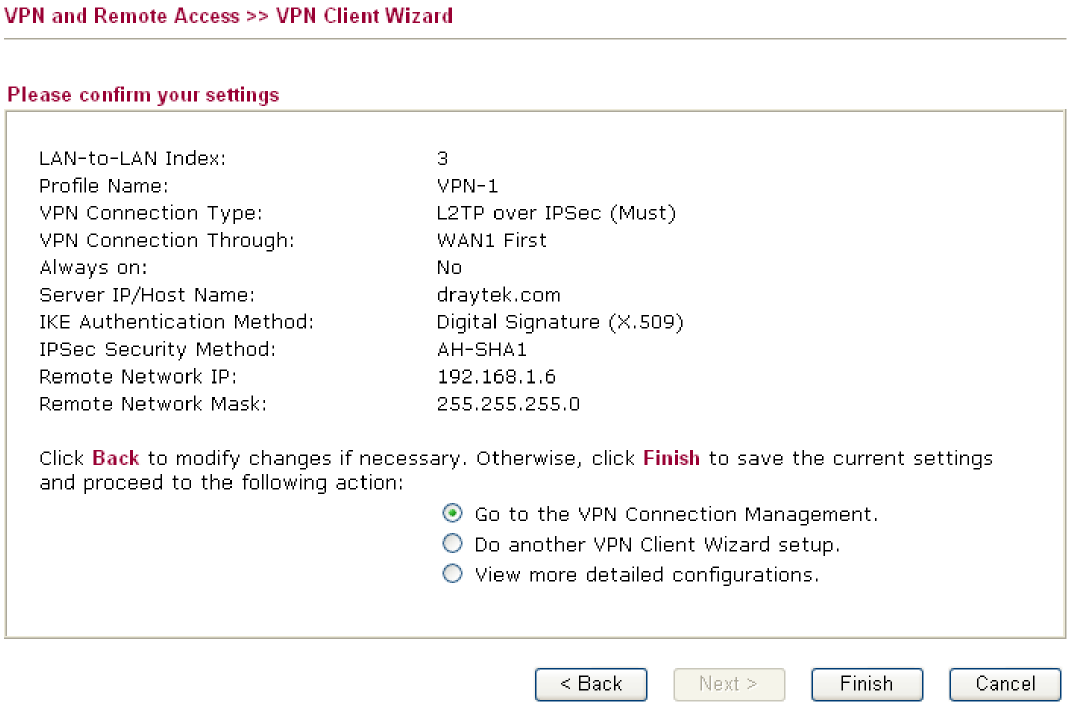
Available settings are explained as follows:

Item	Description
Profile Name	Type a name for such profile. The length of the file is limited to 10 characters.

Item	Description
VPN Dial-Out Through	Use the drop down menu to choose a proper WAN interface for this profile. This setting is useful for dial-out only.  WAN1 First WAN1 First WAN1 Only WAN2 First WAN2 Only WAN3 First WAN3 Only **WAN1 First -** While connecting, the router will use WAN1 as the first channel for VPN connection. If WAN1 fails, the router will use another WAN interface instead. **WAN1 Only -** While connecting, the router will use WAN1 as the only channel for VPN connection. **WAN2 First -** While connecting, the router will use WAN2 as the first channel for VPN connection. If WAN2 fails, the router will use another WAN interface instead. **WAN2 Only -** While connecting, the router will use WAN2 as the only channel for VPN connection. **WAN3 First -** While connecting, the router will use WAN3 as the first channel for VPN connection. If WAN3 fails, the router will use another WAN interface instead. **WAN3 Only -** While connecting, the router will use WAN3 as the only channel for VPN connection.
Always On	Check to enable router always keep VPN connection.
Pre-Shared Key	**IKE Authentication Method** usually applies to those are remote dial-in user or node (LAN to LAN) which uses dynamic IP address and IPSec-related VPN connections such as L2TP over IPSec and IPSec tunnel. **Pre-Shared Key-** Specify a key for IKE authentication. **Confirm Pre-Shared Key-**Confirm the pre-shared key.
Digital Signature (X.509)	Click **Digital Signature** to invoke this function. Use the drop down list to choose one of the certificates for using. You have to configure one certificate at least previously in **Certificate Management** >> **Local Certificate.** Otherwise, the setting you choose here will not be effective. **Peer ID** – Choose the peer ID selection from the drop down list. **Local ID** – Choose **Alternative Subject Name First** or **Subject Name First**.
IPSec Security Method	**Medium** - Authentication Header (AH) means data will be authenticated, but not be encrypted. By default, this option is active. **High** - Encapsulating Security Payload (ESP) means payload (data) will be encrypted and authenticated. You may select encryption algorithm from Data Encryption Standard (DES), Triple DES (3DES), and AES.
User Name	This field is used to authenticate for connection when you

Item	Description
	select PPTP or L2TP with or without IPSec policy above.
Password	This field is used to authenticate for connection when you select PPTP or L2TP with or without IPSec policy above.
Remote Network IP	Please type one LAN IP address (according to the real location of the remote host) for building VPN connection.
Remote Network Mask	Please type the network mask (according to the real location of the remote host) for building VPN connection.

After finishing the configuration, please click **Next.** The confirmation page will be shown as follows. If there is no problem, you can click one of the radio buttons listed on the page and click **Finish** to execute the next action.



VPN and Remote Access >> VPN Client Wizard

Please confirm your settings

LAN-to-LAN Index:	3
Profile Name:	VPN-1
VPN Connection Type:	L2TP over IPSec (Must)
VPN Connection Through:	WAN1 First
Always on:	No
Server IP/Host Name:	draytek.com
IKE Authentication Method:	Digital Signature (X.509)
IPSec Security Method:	AH-SHA1
Remote Network IP:	192.168.1.6
Remote Network Mask:	255.255.255.0

Click Back to modify changes if necessary. Otherwise, click Finish to save the current settings and proceed to the following action:

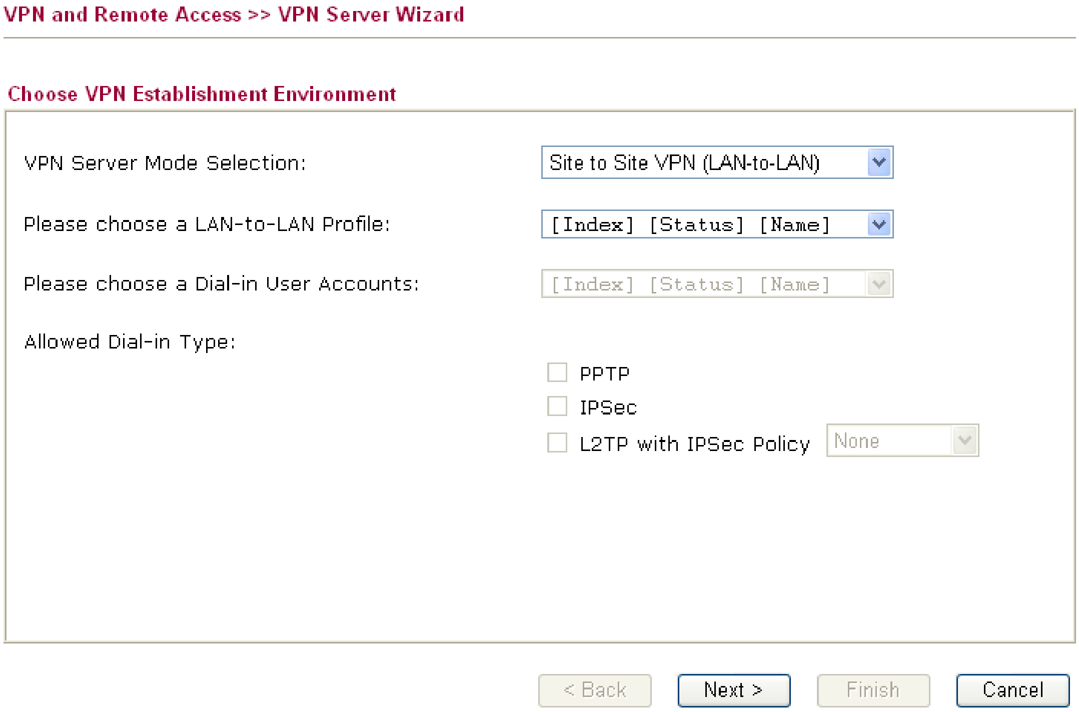
● Go to the VPN Connection Management.
○ Do another VPN Client Wizard setup.
○ View more detailed configurations.

Available settings are explained as follows:

Item	Description
Go to the VPN Connection Management	Click this radio button to access **VPN and Remote Access>>Connection Management** for viewing VPN Connection status.
Do another VPN Server Wizard Setup	Click this radio button to set another profile of VPN Server through VPN Server Wizard.
View more detailed configuration	Click this radio button to access **VPN and Remote Access>>LAN to LAN** for viewing detailed configuration.

4.10.2 VPN Server Wizard

Such wizard is used to configure VPN settings for VPN server. Such wizard will guide to set the LAN-to-LAN profile for VPN dial in connection (from client to server) step by step.



VPN and Remote Access >> VPN Server Wizard

Choose VPN Establishment Environment

VPN Server Mode Selection: Site to Site VPN (LAN-to-LAN)

Please choose a LAN-to-LAN Profile: [Index] [Status] [Name]

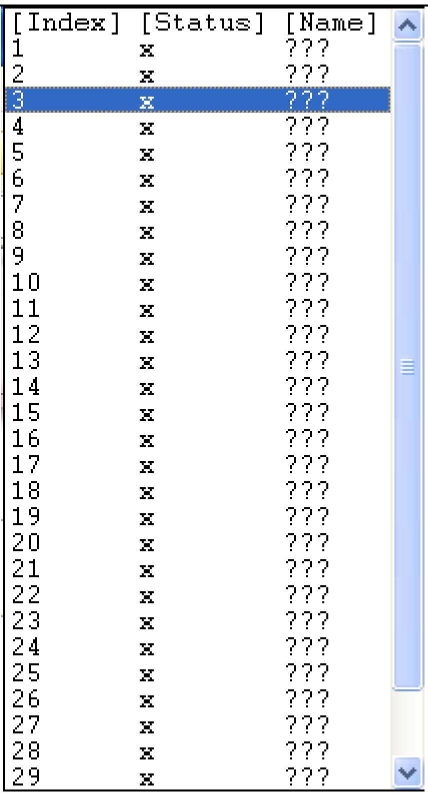
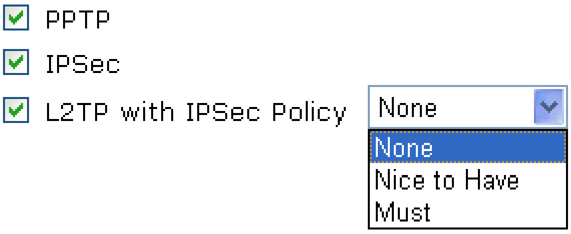
Please choose a Dial-in User Accounts: [Index] [Status] [Name]

Allowed Dial-in Type:

□ PPTP
□ IPSec
□ L2TP with IPSec Policy None

Available settings are explained as follows:

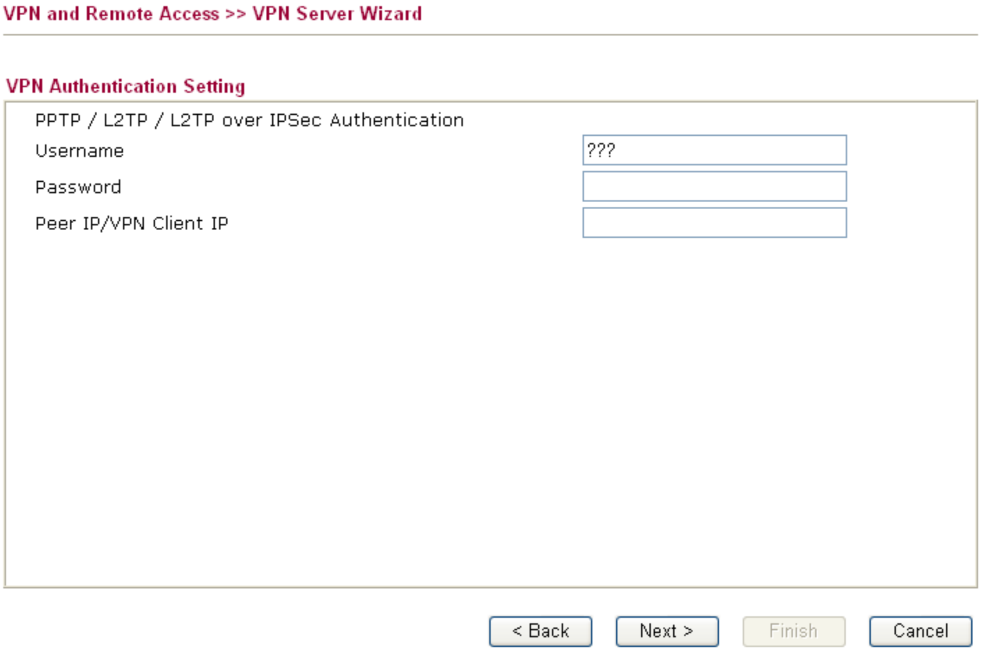
Item	Description
VPN Server Mode Selection	Choose the direction for the VPN server. **Site to Site VPN** – To set a LAN-to-LAN profile automatically, please choose Site to Site VPN. **Remote Dial-in User** –You can manage remote access by maintaining a table of remote user profile, so that users can be authenticated to dial-in via VPN connection. Site to Site VPN (LAN-to-LAN) Site to Site VPN (LAN-to-LAN) Remote Dial-in User (Teleworker)
Please choose a LAN-to-LAN Profile	This item is available when you choose **Site to Site VPN** (LAN-to-LAN) as VPN server mode. There are 32 VPN profiles for users to set.

Item	Description
	 [Index] [Status] [Name] 1 x ??? 2 x ??? 3 x ??? 4 x ??? 5 x ??? 6 x ??? 7 x ??? 8 x ??? 9 x ??? 10 x ??? 11 x ??? 12 x ??? 13 x ??? 14 x ??? 15 x ??? 16 x ??? 17 x ??? 18 x ??? 19 x ??? 20 x ??? 21 x ??? 22 x ??? 23 x ??? 24 x ??? 25 x ??? 26 x ??? 27 x ??? 28 x ??? 29 x ???
Please choose a Dial-in User Accounts	This item is available when you choose Remote Dial-in User (Teleworker) as VPN server mode. There are 32 VPN tunnels for users to set.
Allowed Dial-in Type	This item is available after you choose any one of dial-in user account profiles. Next, you have to select suitable dial-in type for the VPN server profile. There are several types provided here (similar to VPN Client Wizard).  ☑ PPTP ☑ IPSec ☑ L2TP with IPSec Policy None None Nice to Have Must Different Dial-in Type will lead to different configuration page.

After making the choices for the server profile, please click **Next**. You will see different configurations based on the selection you made.

Here we take the examples of choosing **Remote-Dial-in User** as the **VPN Server Mode**.

- When you check **PPTP**, you will see the following graphic:



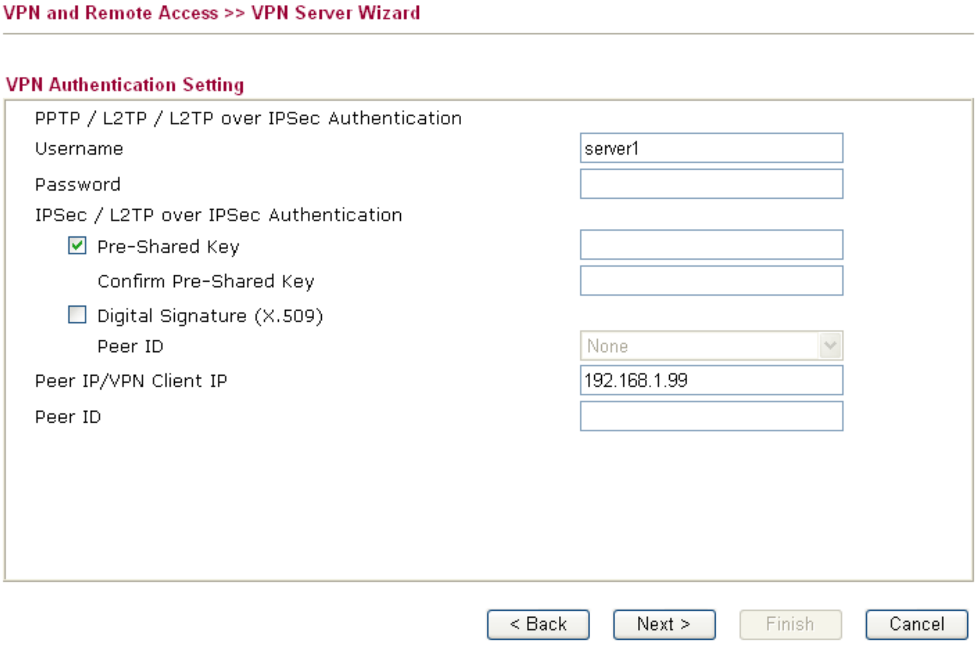
VPN and Remote Access >> VPN Server Wizard

VPN Authentication Setting

PPTP / L2TP / L2TP over IPSec Authentication

Username	???
Password	
Peer IP/VPN Client IP	

- When you check **PPTP/IPSec/L2TP** (three types) or **PPTP/IPSec** (two types) or **L2TP with Policy (Nice to Have/Must)**, you will see the following graphic:



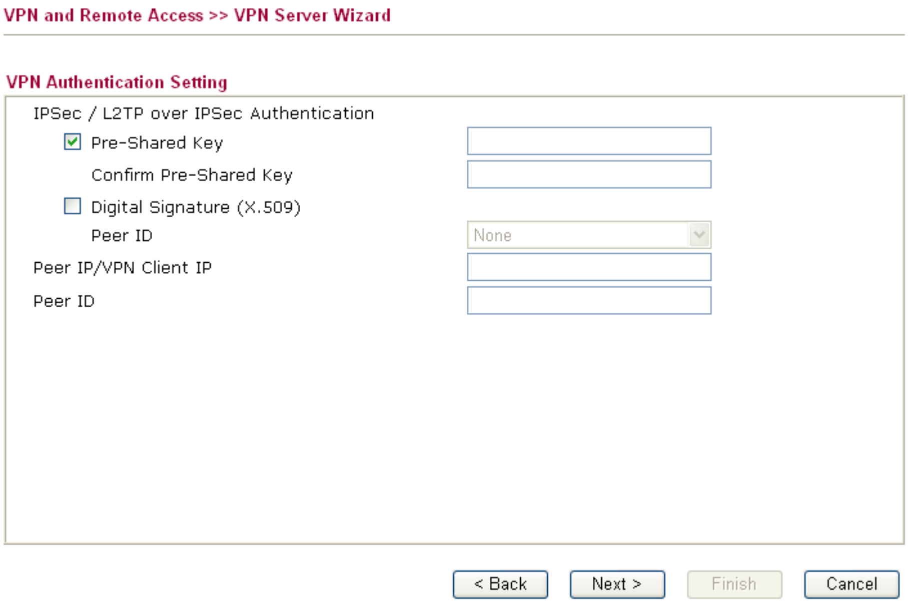
VPN and Remote Access >> VPN Server Wizard

VPN Authentication Setting

PPTP / L2TP / L2TP over IPSec Authentication

Username	server1
Password	
IPSec / L2TP over IPSec Authentication	
☑ Pre-Shared Key	
Confirm Pre-Shared Key	
□ Digital Signature (X.509)	
Peer ID	None
Peer IP/VPN Client IP	192.168.1.99
Peer ID	

- When you check **IPSec**, you will see the following graphic:



VPN and Remote Access >> VPN Server Wizard

VPN Authentication Setting

IPSec / L2TP over IPSec Authentication

☑ Pre-Shared Key

Confirm Pre-Shared Key

□ Digital Signature (X.509)

Peer ID: None

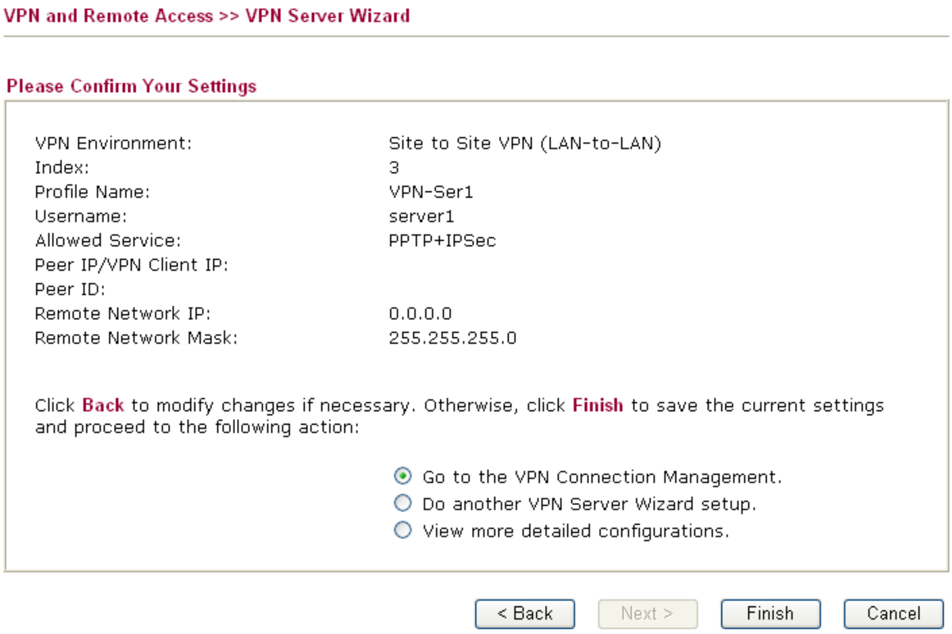
Peer IP/VPN Client IP

Peer ID

Available settings are explained as follows:

Item	**Description**
Profile Name	Type a name for such profile. The length of the file is limited to 10 characters.
User Name	This field is used to authenticate for connection when you select PPTP or L2TP with or without IPSec policy above.
Password	This field is used to authenticate for connection when you select PPTP or L2TP with or without IPSec policy above.
Pre-Shared Key	For IPSec/L2TP IPSec authentication, you have to type a pre-shared key.
Confirm Pre-Shared Key	Type the pre-shared key again for confirmation.
Digital Signature (X.509)	Check the box of Digital Signature to invoke this function. Use the drop down list to choose one of the certificates for using. You have to configure one certificate at least previously in Certificate Management >> Local Certificate. Otherwise, the setting you choose here will not be effective.
Peer IP/VPN Client IP	Type the WAN IP address or VPN client IP address for the remote client.
Peer ID	Type the ID name for the remote client.
Remote Network IP	Please type one LAN IP address (according to the real location of the remote host) for building VPN connection.
Remote Network Mask	Please type the network mask (according to the real location of the remote host) for building VPN connection.

After finishing the configuration, please click **Next.** The confirmation page will be shown as follows. If there is no problem, you can click one of the radio buttons listed on the page and click **Finish** to execute the next action.



VPN and Remote Access >> VPN Server Wizard

Please Confirm Your Settings

```
VPN Environment:              Site to Site VPN (LAN-to-LAN)
Index:                        3
Profile Name:                 VPN-Ser1
Username:                     server1
Allowed Service:              PPTP+IPSec
Peer IP/VPN Client IP:
Peer ID:
Remote Network IP:            0.0.0.0
Remote Network Mask:          255.255.255.0
```

Click Back to modify changes if necessary. Otherwise, click Finish to save the current settings and proceed to the following action:

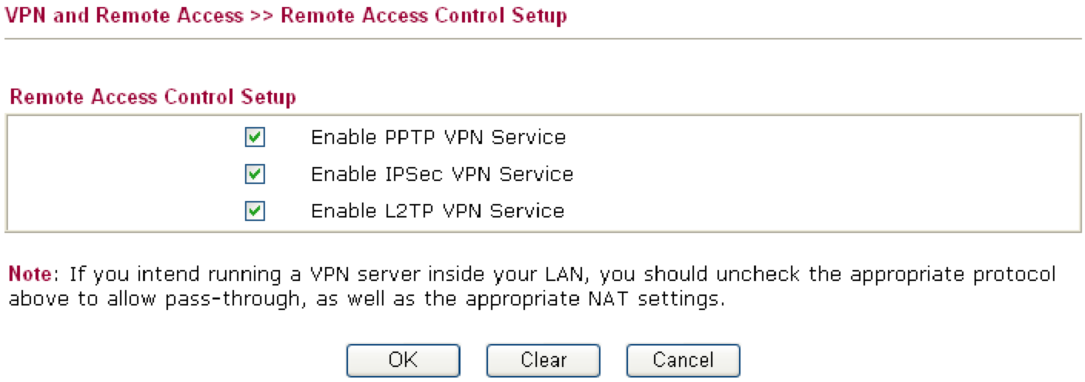
● Go to the VPN Connection Management.
○ Do another VPN Server Wizard setup.
○ View more detailed configurations.

Available settings are explained as follows:

Item	Description
Go to the VPN Connection Management	Click this radio button to access **VPN and Remote Access>>Connection Management** for viewing VPN Connection status.
Do another VPN Server Wizard Setup	Click this radio button to set another profile of VPN Server through VPN Server Wizard.
View more detailed configuration	Click this radio button to access **VPN and Remote Access>>LAN to LAN** for viewing detailed configuration.

4.10.3 Remote Access Control

Enable the necessary VPN service as you need. If you intend to run a VPN server inside your LAN, you should disable the VPN service of Vigor Router to allow VPN tunnel pass through, as well as the appropriate NAT settings, such as DMZ or open port.



VPN and Remote Access >> Remote Access Control Setup

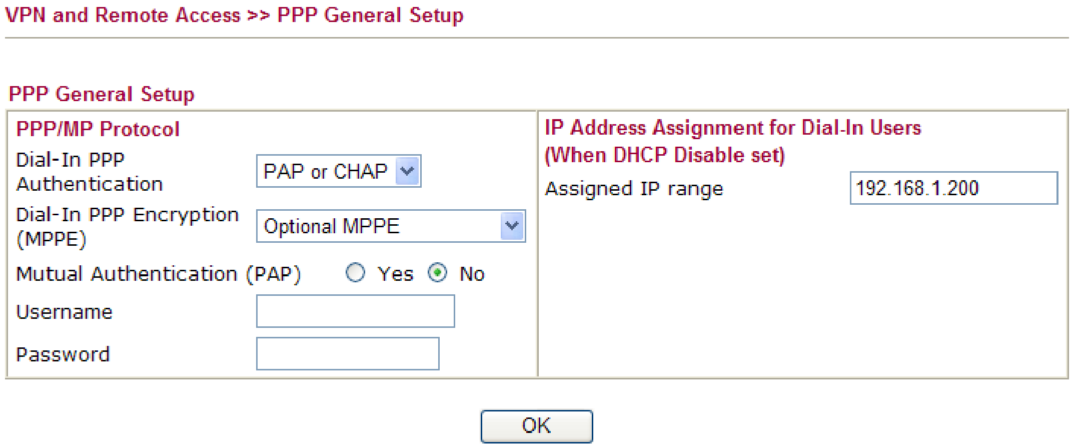
Remote Access Control Setup

☑ Enable PPTP VPN Service
☑ Enable IPSec VPN Service
☑ Enable L2TP VPN Service

Note: If you intend running a VPN server inside your LAN, you should uncheck the appropriate protocol above to allow pass-through, as well as the appropriate NAT settings.

4.10.4 PPP General Setup

This submenu only applies to PPP-related VPN connections, such as PPTP, L2TP, L2TP over IPSec.

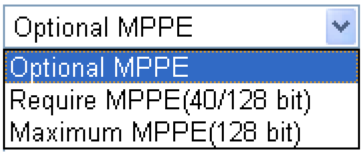


VPN and Remote Access >> PPP General Setup

PPP General Setup

PPP/MP Protocol	
Dial-In PPP Authentication	PAP or CHAP
Dial-In PPP Encryption (MPPE)	Optional MPPE
Mutual Authentication (PAP)	○ Yes ● No
Username	
Password	
IP Address Assignment for Dial-In Users (When DHCP Disable set)	
Assigned IP range	192.168.1.200

Available settings are explained as follows:

Item	Description
Dial-In PPP Authentication PAP Only	Select this option to force the router to authenticate dial-in users with the PAP protocol.
PAP or CHAP	Selecting this option means the router will attempt to authenticate dial-in users with the CHAP protocol first. If the dial-in user does not support this protocol, it will fall back to use the PAP protocol for authentication.
Dial-In PPP Encryption (MPPE Optional MPPE	This option represents that the MPPE encryption method will be optionally employed in the router for the remote dial-in user. If the remote dial-in user does not support the MPPE encryption algorithm, the router will transmit “no MPPE encrypted packets”. Otherwise, the MPPE encryption scheme will be used to encrypt the data.  Optional MPPE Optional MPPE Require MPPE(40/128 bit) Maximum MPPE(128 bit) **Require MPPE (40/128bits)** - Selecting this option will force the router to encrypt packets by using the MPPE encryption algorithm. In addition, the remote dial-in user will use 40-bit to perform encryption prior to using 128-bit for encryption. In other words, if 128-bit MPPE encryption method is not available, then 40-bit encryption scheme will be applied to encrypt the data. **Maximum MPPE** - This option indicates that the router will use the MPPE encryption scheme with maximum bits (128-bit) to encrypt the data.
Mutual Authentication (PAP)	The Mutual Authentication function is mainly used to communicate with other routers or clients who need bi-directional authentication in order to provide stronger

Item	Description
	security, for example, Cisco routers. So you should enable this function when your peer router requires mutual authentication. You should further specify the **User Name** and **Password** of the mutual authentication peer.
Assigned IP Range	Enter a start IP address for the dial-in PPP connection. You should choose an IP address from the local private network. For example, if the local private network is 192.168.1.0/255.255.255.0, you could choose 192.168.1.200 as the Start IP Address.

4.10.5 IPSec General Setup

In **IPSec General Setup,** there are two major parts of configuration.

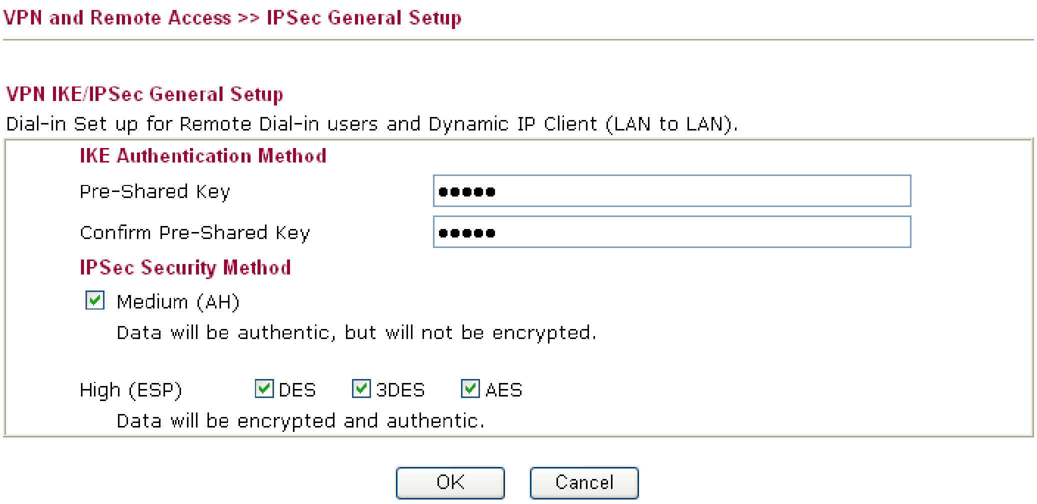
There are two phases of IPSec.

- Phase 1: negotiation of IKE parameters including encryption, hash, Diffie-Hellman parameter values, and lifetime to protect the following IKE exchange, authentication of both peers using either a Pre-Shared Key or Digital Signature (x.509). The peer that starts the negotiation proposes all its policies to the remote peer and then remote peer tries to find a highest-priority match with its policies. Eventually to set up a secure tunnel for IKE Phase 2.
- Phase 2: negotiation IPSec security methods including Authentication Header (AH) or Encapsulating Security Payload (ESP) for the following IKE exchange and mutual examination of the secure tunnel establishment.

There are two encapsulation methods used in IPSec, **Transport** and **Tunnel**. The **Transport** mode will add the AH/ESP payload and use original IP header to encapsulate the data payload only. It can just apply to local packet, e.g., L2TP over IPSec. The **Tunnel** mode will not only add the AH/ESP payload but also use a new IP header (Tunneled IP header) to encapsulate the whole original IP packet.

Authentication Header (AH) provides data authentication and integrity for IP packets passed between VPN peers. This is achieved by a keyed one-way hash function to the packet to create a message digest. This digest will be put in the AH and transmitted along with packets. On the receiving side, the peer will perform the same one-way hash on the packet and compare the value with the one in the AH it receives.

Encapsulating Security Payload (ESP) is a security protocol that provides data confidentiality and protection with optional authentication and replay detection service.



VPN and Remote Access >> IPSec General Setup

VPN IKE/IPSec General Setup

Dial-in Set up for Remote Dial-in users and Dynamic IP Client (LAN to LAN).

IKE Authentication Method

Pre-Shared Key: ●●●●●

Confirm Pre-Shared Key: ●●●●●

IPSec Security Method

☑ Medium (AH)

Data will be authentic, but will not be encrypted.

High (ESP) ☑ DES ☑ 3DES ☑ AES

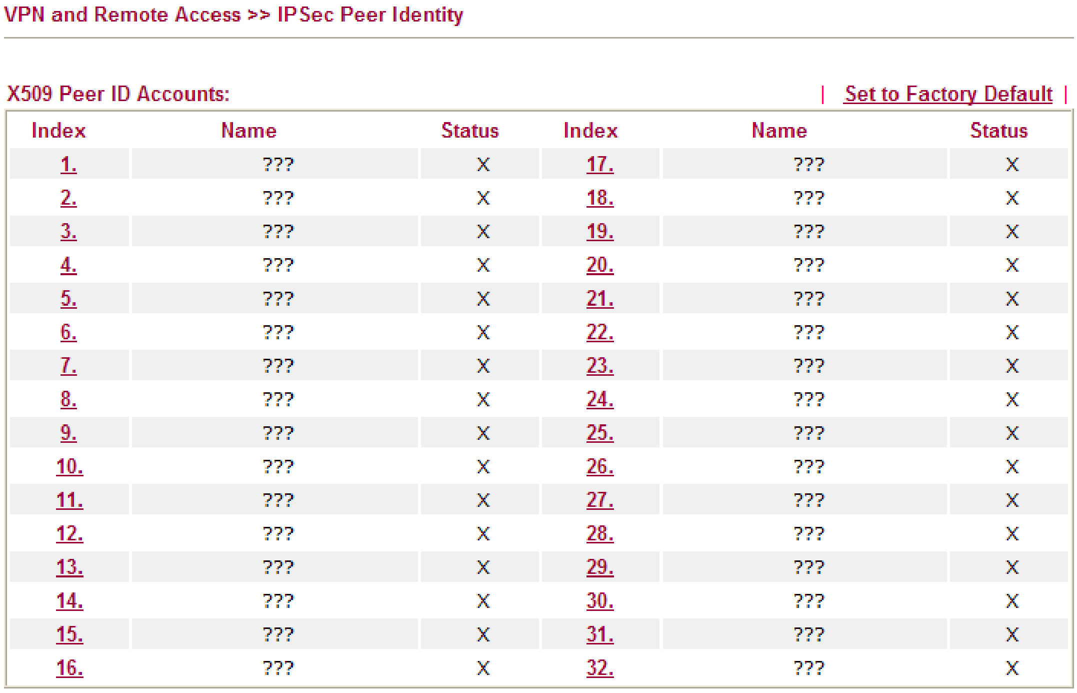
Data will be encrypted and authentic.

Available settings are explained as follows:

Item	Description
IKE Authentication Method	This usually applies to those are remote dial-in user or node (LAN-to-LAN) which uses dynamic IP address and IPSec-related VPN connections such as L2TP over IPSec and IPSec tunnel. **Pre-Shared Key** -Currently only support Pre-Shared Key authentication. **Pre-Shared Key**- Specify a key for IKE authentication **Confirm Pre-Shared Key**- Retype the characters to confirm the pre-shared key.
IPSec Security Method	**Medium** - Authentication Header (AH) means data will be authenticated, but not be encrypted. By default, this option is active. **High** - Encapsulating Security Payload (ESP) means payload (data) will be encrypted and authenticated. You may select encryption algorithm from Data Encryption Standard (DES), Triple DES (3DES), and AES.

4.10.6 IPSec Peer Identity

To use digital certificate for peer authentication in either LAN-to-LAN connection or Remote User Dial-In connection, here you may edit a table of peer certificate for selection. As shown below, the router provides **32** entries of digital certificates for peer dial-in users.



VPN and Remote Access >> IPSec Peer Identity

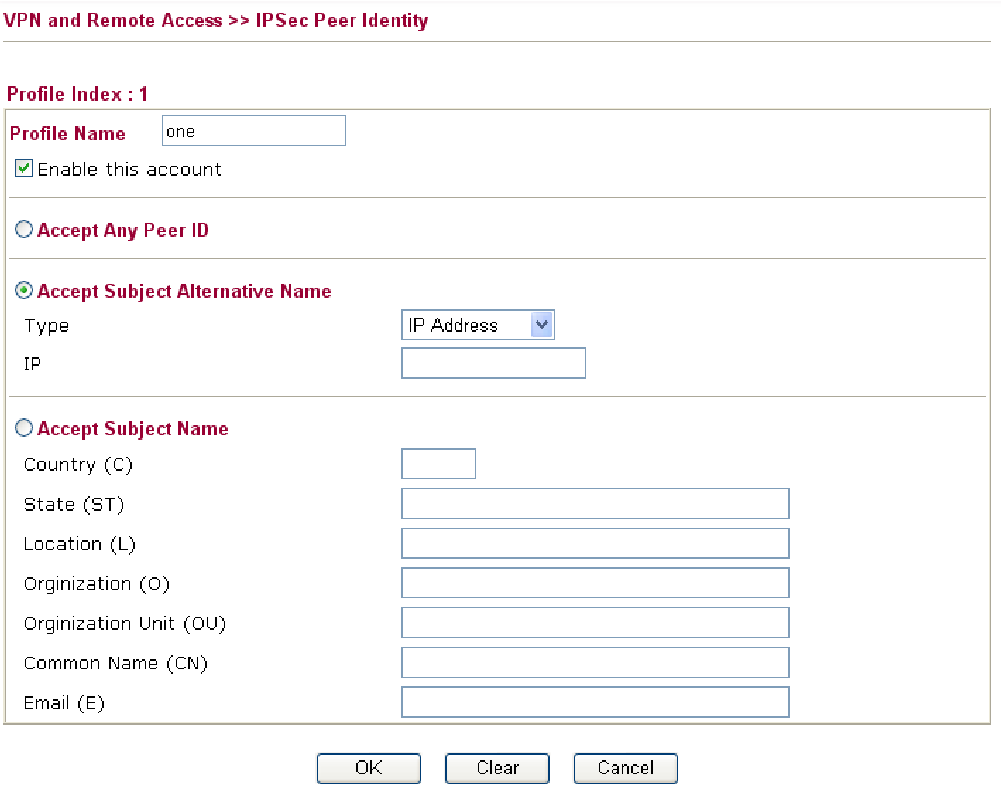
X509 Peer ID Accounts: | Set to Factory Default |

Index	Name	Status	Index	Name	Status
1.	???	X	17.	???	X
2.	???	X	18.	???	X
3.	???	X	19.	???	X
4.	???	X	20.	???	X
5.	???	X	21.	???	X
6.	???	X	22.	???	X
7.	???	X	23.	???	X
8.	???	X	24.	???	X
9.	???	X	25.	???	X
10.	???	X	26.	???	X
11.	???	X	27.	???	X
12.	???	X	28.	???	X
13.	???	X	29.	???	X
14.	???	X	30.	???	X
15.	???	X	31.	???	X
16.	???	X	32.	???	X

Each item will be explained as follows:

Item	Description
Set to Factory Default	Click it to clear all indexes.
Index	Click the number below Index to access into the setting page of IPSec Peer Identity.
Name	Display the profile name of that index.

Click each index to edit one peer digital certificate. There are three security levels of digital signature authentication: Fill each necessary field to authenticate the remote peer. The following explanation will guide you to fill all the necessary fields.



VPN and Remote Access >> IPSec Peer Identity

Profile Index : 1

Profile Name: one

☑ Enable this account

○ Accept Any Peer ID

● Accept Subject Alternative Name

Type: IP Address

IP:

○ Accept Subject Name

Country (C):

State (ST):

Location (L):

Orginization (O):

Orginization Unit (OU):

Common Name (CN):

Email (E):

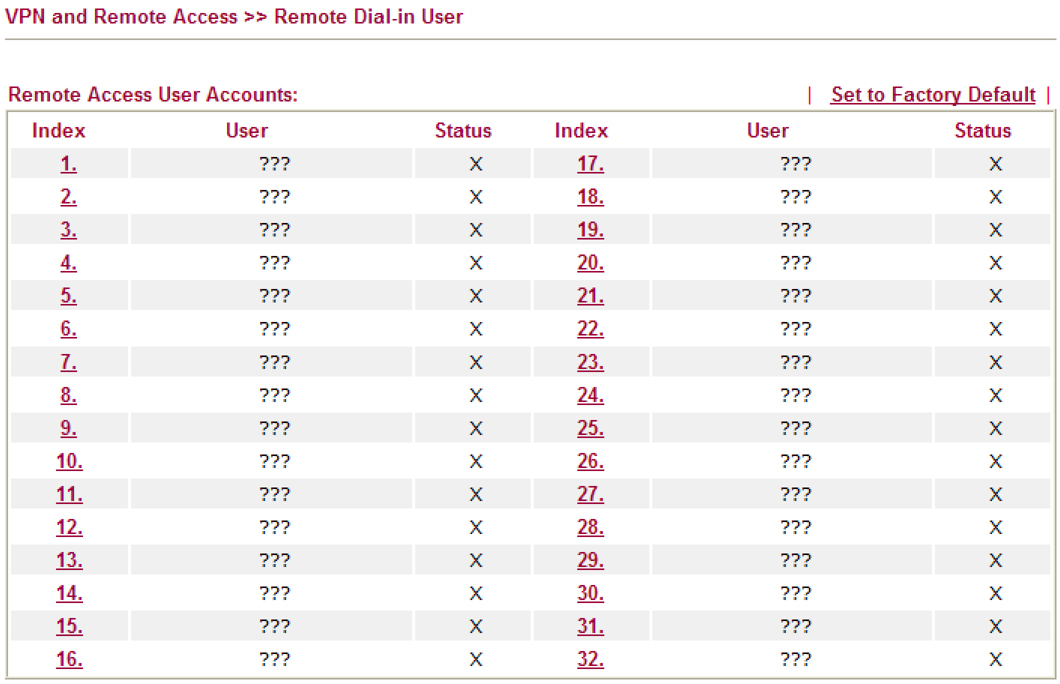
Available settings are explained as follows:

Item	Description
Profile Name	Type the name of the profile.
Accept Any Peer ID	Click to accept any peer regardless of its identity.
Accept Subject Alternative Name	Click to check one specific field of digital signature to accept the peer with matching value. The field can be **IP Address, Domain,** or **E-mail Address**. The box under the Type will appear according to the type you select and ask you to fill in corresponding setting.
Accept Subject Name	Click to check the specific fields of digital signature to accept the peer with matching value. The field includes **Country (C), State (ST), Location (L), Organization (O), Organization Unit (OU), Common Name (CN),** and **Email (E)**.

4.10.7 Remote Dial-in User

You can manage remote access by maintaining a table of remote user profile, so that users can be authenticated to dial-in via VPN connection. You may set parameters including specified connection peer ID, connection type (VPN connection - including PPTP, IPSec Tunnel, and L2TP by itself or over IPSec) and corresponding security methods, etc.

The router provides **32** access accounts for dial-in users. Besides, you can extend the user accounts to the RADIUS server through the built-in RADIUS client function. The following figure shows the summary table.



VPN and Remote Access >> Remote Dial-in User

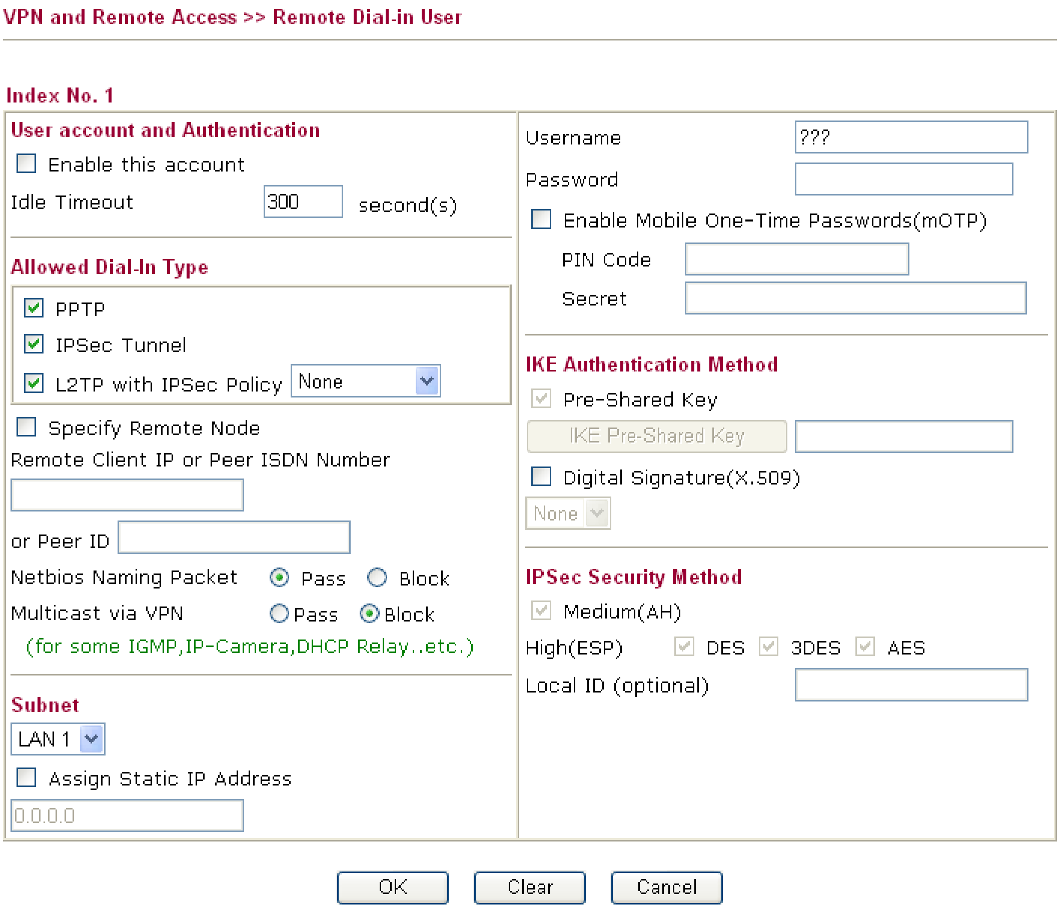
Remote Access User Accounts: | Set to Factory Default |

Index	User	Status	Index	User	Status
1.	???	X	17.	???	X
2.	???	X	18.	???	X
3.	???	X	19.	???	X
4.	???	X	20.	???	X
5.	???	X	21.	???	X
6.	???	X	22.	???	X
7.	???	X	23.	???	X
8.	???	X	24.	???	X
9.	???	X	25.	???	X
10.	???	X	26.	???	X
11.	???	X	27.	???	X
12.	???	X	28.	???	X
13.	???	X	29.	???	X
14.	???	X	30.	???	X
15.	???	X	31.	???	X
16.	???	X	32.	???	X

Each item will be explained as follows:

Item	Description
Set to Factory Default	Click to clear all indexes.
Index	Click the number below Index to access into the setting page of Remote Dial-in User.
User	Display the username for the specific dial-in user of the LAN-to-LAN profile. The symbol **???** represents that the profile is empty.
Status	Display the access state of the specific dial-in user. The symbol V and X represent the specific dial-in user to be active and inactive, respectively.

Click each index to edit one remote user profile. **Each Dial-In Type requires you to fill the different corresponding fields on the right.** If the fields gray out, it means you may leave it untouched. The following explanation will guide you to fill all the necessary fields.


VPN and Remote Access >> Remote Dial-in User

Index No. 1

User account and Authentication

□ Enable this account

Idle Timeout 300 second(s)

Allowed Dial-In Type

☑ PPTP

☑ IPSec Tunnel

☑ L2TP with IPSec Policy None

□ Specify Remote Node

Remote Client IP or Peer ISDN Number

or Peer ID

Netbios Naming Packet ● Pass ○ Block

Multicast via VPN ○ Pass ● Block

(for some IGMP,IP-Camera,DHCP Relay..etc.)

Subnet

LAN 1

□ Assign Static IP Address

0.0.0.0

Username ???

Password

□ Enable Mobile One-Time Passwords(mOTP)

PIN Code

Secret

IKE Authentication Method

☑ Pre-Shared Key

IKE Pre-Shared Key

□ Digital Signature(X.509)

None

IPSec Security Method

☑ Medium(AH)

High(ESP) ☑ DES ☑ 3DES ☑ AES

Local ID (optional)

Available settings are explained as follows:

Item	Description
User account and Authentication	**Enable this account** - Check the box to enable this function. **Idle Timeout**- If the dial-in user is idle over the limitation of the timer, the router will drop this connection. By default, the Idle Timeout is set to 300 seconds.
Allowed Dial-In Type	**PPTP** - Allow the remote dial-in user to make a PPTP VPN connection through the Internet. You should set the User Name and Password of remote dial-in user below. **IPSec Tunnel** - Allow the remote dial-in user to make an IPSec VPN connection through Internet. **L2TP with IPSec Policy** - Allow the remote dial-in user to make a L2TP VPN connection through the Internet. You can select to use L2TP alone or with IPSec. Select from below: ● **None** - Do not apply the IPSec policy. Accordingly, the VPN connection employed the L2TP without IPSec policy can be viewed as one pure L2TP connection. ● **Nice to Have** - Apply the IPSec policy first, if it is applicable during negotiation. Otherwise, the dial-in VPN connection becomes one pure L2TP connection. ● **Must** -Specify the IPSec policy to be definitely applied on the L2TP connection.

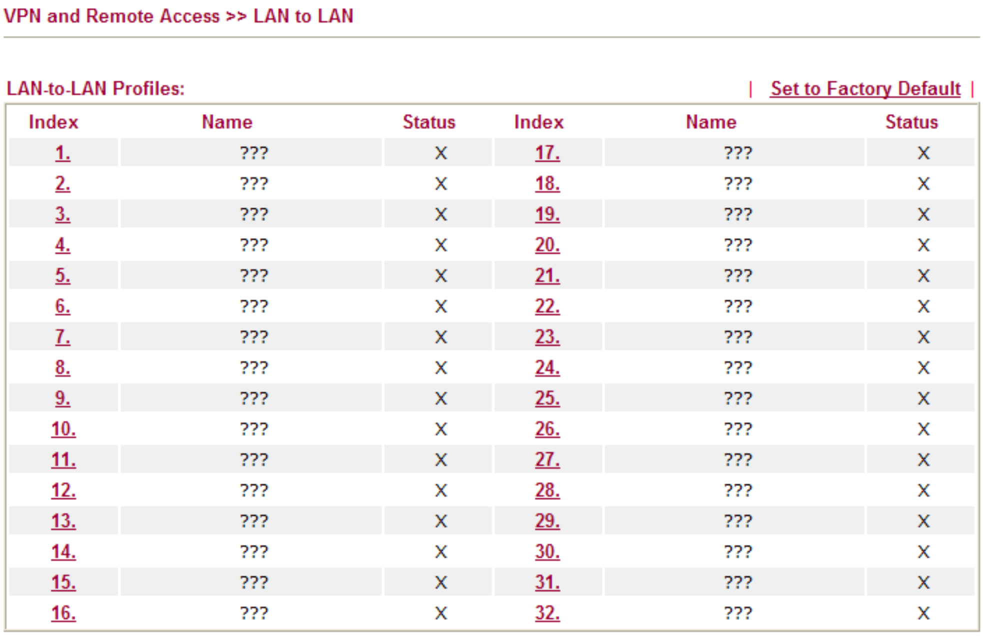
Item	Description
	Specify Remote Node - Check the checkbox to specify the IP address of the remote dial-in user, ISDN number or peer ID (used in IKE aggressive mode). If you uncheck the checkbox, the connection type you select above will apply the authentication methods and security methods in the **general settings**. **Netbios Naming Packet** ● **Pass** – Click it to have an inquiry for data transmission between the hosts located on both sides of VPN Tunnel while connecting. ● **Block** – When there is conflict occurred between the hosts on both sides of VPN Tunnel in connecting, such function can block data transmission of Netbios Naming Packet inside the tunnel. **Multicast via VPN -** Some programs might send multicast packets via VPN connection. ● **Pass** – Click this button to let multicast packets pass through the router. ● **Block** – This is default setting. Click this button to let multicast packets be blocked by the router.
Subnet	Vigor2920 offers multiple subnets (in default, LAN1 to LAN4) for different purposes. Simply use the drop down list to specify which subnet will be applied by this profile. **Assign Static IP Address –** If you want to specify an IP address as the subnet for this profile. Check this box to enable it and type an IP address in this field.
User Name	This field is applicable when you select PPTP or L2TP with or without IPSec policy above.
Password	This field is applicable when you select PPTP or L2TP with or without IPSec policy above.
Enable Mobile One-Time Passwords (mOTP)	Check this box to make the authentication with mOTP function. **PIN Code** – Type the code for authentication (e.g, 1234). **Secret** – Use the 32 digit-secret number generated by mOTP in the mobile phone (e.g., e759bb6f0e94c7ab4fe6).
IKE Authentication Method	This group of fields is applicable for IPSec Tunnels and L2TP with IPSec Policy when you specify the IP address of the remote node. The only exception is Digital Signature (X.509) can be set when you select IPSec tunnel either with or without specify the IP address of the remote node.

Item	Description
	Pre-Shared Key - Check the box of Pre-Shared Key to invoke this function and type in the required characters (1-63) as the pre-shared key. **Digital Signature (X.509) –** Check the box of Digital Signature to invoke this function and Select one predefined Profiles set in the **VPN and Remote Access >>IPSec Peer Identity.**
IPSec Security Method	This group of fields is a must for IPSec Tunnels and L2TP with IPSec Policy when you specify the remote node. Check the Medium, DES, 3DES or AES box as the security method. **Medium-Authentication Header (AH)** means data will be authenticated, but not be encrypted. By default, this option is invoked. You can uncheck it to disable it. **High-Encapsulating Security Payload (ESP)** means payload (data) will be encrypted and authenticated. You may select encryption algorithm from Data Encryption Standard (DES), Triple DES (3DES), and AES. **Local ID** - Specify a local ID to be used for Dial-in setting in the LAN-to-LAN Profile setup. This item is optional and can be used only in IKE aggressive mode.

4.10.8 LAN to LAN

Here you can manage LAN-to-LAN connections by maintaining a table of connection profiles. You may set parameters including specified connection direction (dial-in or dial-out), connection peer ID, connection type (VPN connection - including PPTP, IPSec Tunnel, and L2TP by itself or over IPSec) and corresponding security methods, etc.

The router supports up to 32 VPN tunnels simultaneously. The following figure shows the summary table.



VPN and Remote Access >> LAN to LAN

LAN-to-LAN Profiles: | Set to Factory Default |

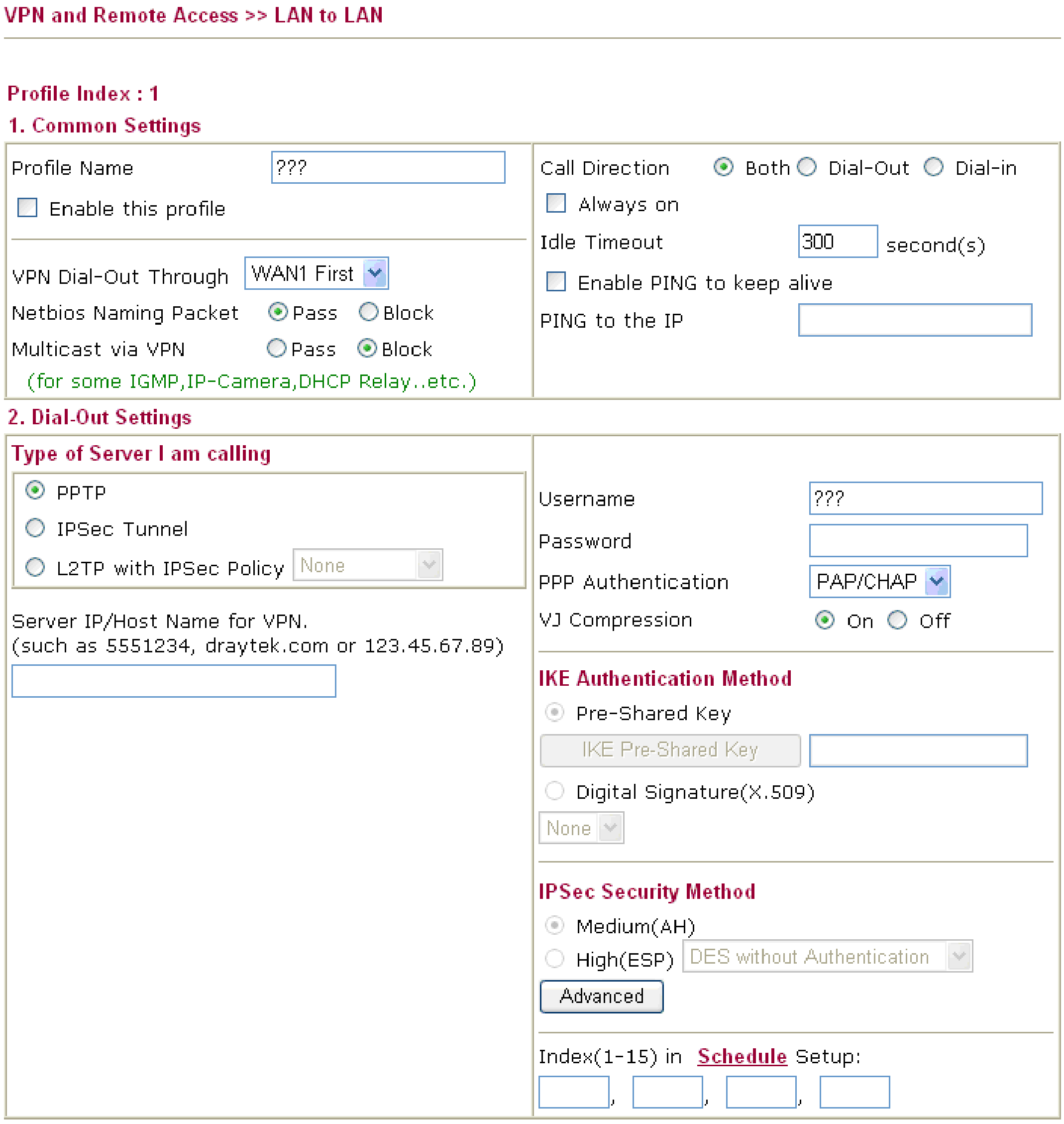
Index	Name	Status	Index	Name	Status
1.	???	X	17.	???	X
2.	???	X	18.	???	X
3.	???	X	19.	???	X
4.	???	X	20.	???	X
5.	???	X	21.	???	X
6.	???	X	22.	???	X
7.	???	X	23.	???	X
8.	???	X	24.	???	X
9.	???	X	25.	???	X
10.	???	X	26.	???	X
11.	???	X	27.	???	X
12.	???	X	28.	???	X
13.	???	X	29.	???	X
14.	???	X	30.	???	X
15.	???	X	31.	???	X
16.	???	X	32.	???	X

Each item will be explained as follows:

Item	Description
Set to Factory Default	Click to clear all indexes.
Name	Indicate the name of the LAN-to-LAN profile. The symbol **???** represents that the profile is empty.
Status	Indicate the status of individual profiles. The symbol V and X represent the profile to be active and inactive, respectively.

Click each index to edit each profile and you will get the following page. Each LAN-to-LAN profile includes 4 subgroups. If the fields gray out, it means you may leave it untouched. The following explanations will guide you to fill all the necessary fields.

For the web page is too long, we divide the page into several sections for explanation.



VPN and Remote Access >> LAN to LAN

Profile Index : 1

1. Common Settings

Profile Name: ???

□ Enable this profile

VPN Dial-Out Through: WAN1 First

Netbios Naming Packet: ● Pass ○ Block

Multicast via VPN: ○ Pass ● Block

(for some IGMP,IP-Camera,DHCP Relay..etc.)

Call Direction: ● Both ○ Dial-Out ○ Dial-in

□ Always on

Idle Timeout: 300 second(s)

□ Enable PING to keep alive

PING to the IP:

2. Dial-Out Settings

Type of Server I am calling

● PPTP

○ IPSec Tunnel

○ L2TP with IPSec Policy: None

Server IP/Host Name for VPN.
(such as 5551234, draytek.com or 123.45.67.89)

Username: ???

Password:

PPP Authentication: PAP/CHAP

VJ Compression: ● On ○ Off

IKE Authentication Method

● Pre-Shared Key

IKE Pre-Shared Key

○ Digital Signature(X.509)

None

IPSec Security Method

● Medium(AH)

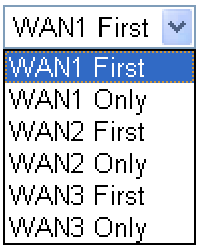
○ High(ESP): DES without Authentication

Advanced

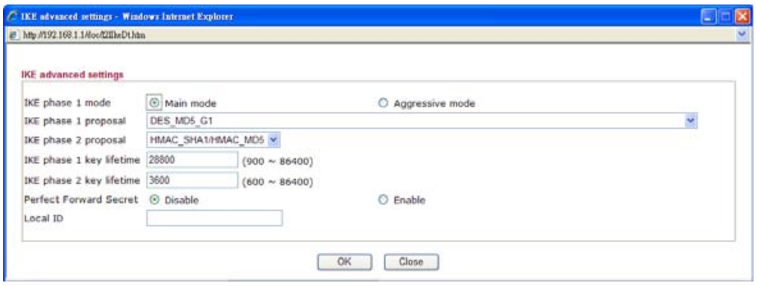
Index(1-15) in Schedule Setup: , , ,

Available settings are explained as follows:

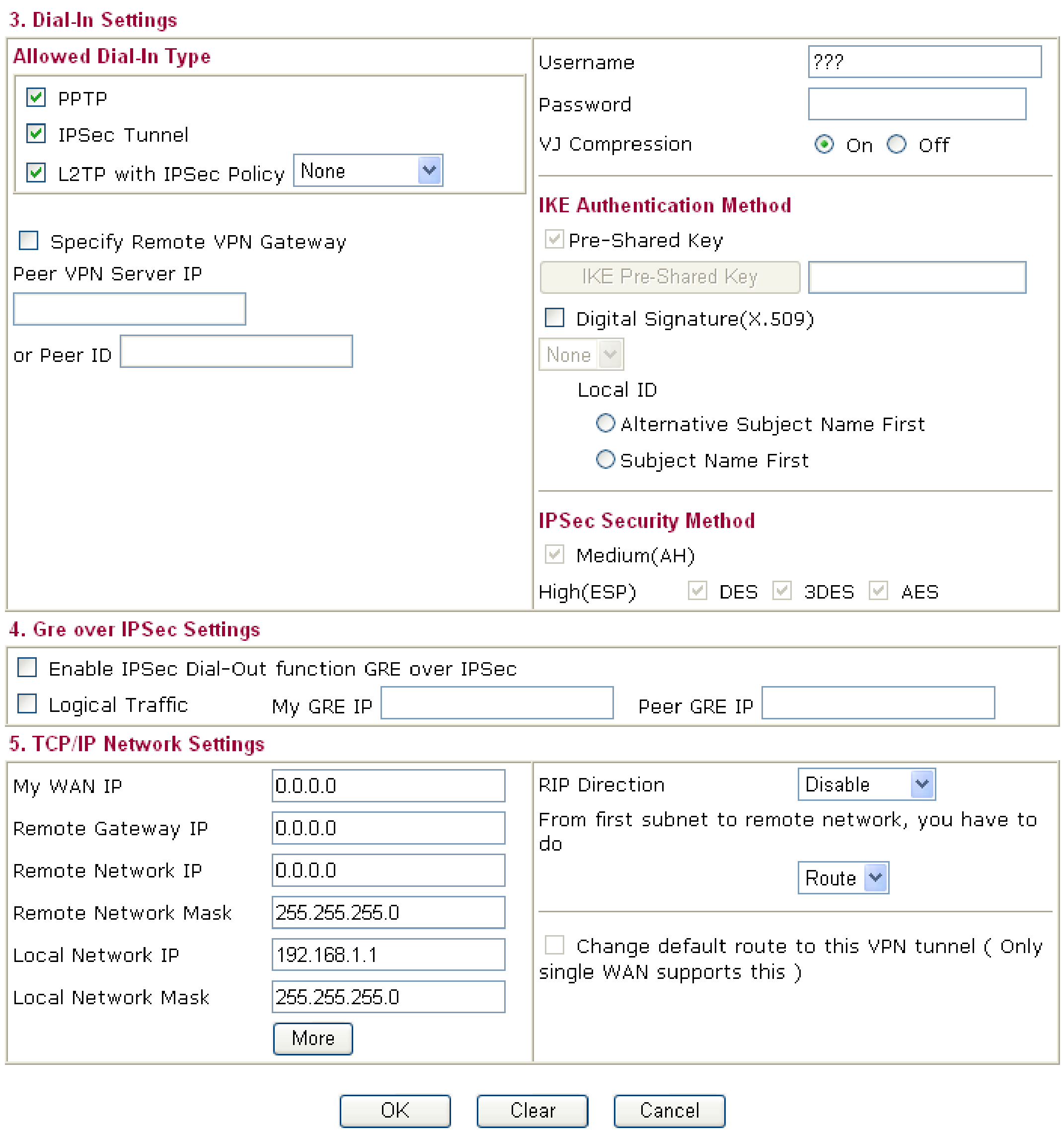
Item	Description
Profile Name	Specify a name for the profile of the LAN-to-LAN connection.
Enable this profile	Check here to activate this profile.

Item	Description
VPN Dial-Out Through	Use the drop down menu to choose a proper WAN interface for this profile. This setting is useful for dial-out only.  WAN1 First WAN1 First WAN1 Only WAN2 First WAN2 Only WAN3 First WAN3 Only **WAN1 /WAN2 /WAN3 First -** While connecting, the router will use WAN1 /WAN2 /WAN3 as the first channel for VPN connection. If WAN1 fails, the router will use another WAN interface instead. **WAN1 /WAN2 /WAN3 Only -** While connecting, the router will use WAN1 /WAN2 /WAN3 as the only channel for VPN connection. **WAN1 /WAN2 /WAN3 First -** While connecting, the router will use WAN1 /WAN2 /WAN3 as the first channel for VPN connection. If WAN1 fails, the router will use another WAN interface instead. **WAN1 /WAN2 /WAN3 Only -** While connecting, the router will use WAN1 /WAN2 /WAN3 as the only channel for VPN connection.
Netbios Naming Packet	**Pass** – click it to have an inquiry for data transmission between the hosts located on both sides of VPN Tunnel while connecting. **Block** – When there is conflict occurred between the hosts on both sides of VPN Tunnel in connecting, such function can block data transmission of Netbios Naming Packet inside the tunnel.
Multicast via VPN	Some programs might send multicast packets via VPN connection. **Pass** – Click this button to let multicast packets pass through the router. **Block** – This is default setting. Click this button to let multicast packets be blocked by the router.
Call Direction	Specify the allowed call direction of this LAN-to-LAN profile. **Both**:-initiator/responder **Dial-Out**- initiator only **Dial-In**- responder only.
Always On or Idle Timeout	**Always On**-Check to enable router always keep VPN connection. **Idle Timeout:** The default value is 300 seconds. If the connection has been idled over the value, the router will drop the connection.
Enable PING to keep alive	This function is to help the router to determine the status of IPSec VPN connection, especially useful in the case of

Item	Description
	abnormal VPN IPSec tunnel disruption. For details, please refer to the note below. Check to enable the transmission of PING packets to a specified IP address. **Enable PING to keep alive** is used to handle abnormal IPSec VPN connection disruption. It will help to provide the state of a VPN connection for router's judgment of redial. Normally, if any one of VPN peers wants to disconnect the connection, it should follow a serial of packet exchange procedure to inform each other. However, if the remote peer disconnect without notice, Vigor router will by no where to know this situation. To resolve this dilemma, by continuously sending PING packets to the remote host, the Vigor router can know the true existence of this VPN connection and react accordingly. This is independent of DPD (dead peer detection).
PING to the IP	Enter the IP address of the remote host that located at the other-end of the VPN tunnel.
Type of Server I am calling	**PPTP** - Build a PPTP VPN connection to the server through the Internet. You should set the identity like User Name and Password below for the authentication of remote server. **IPSec Tunnel** - Build an IPSec VPN connection to the server through Internet. **L2TP with IPSec Policy** - Build a L2TP VPN connection through the Internet. You can select to use L2TP alone or with IPSec. Select from below: **None:** Do not apply the IPSec policy. Accordingly, the VPN connection employed the L2TP without IPSec policy can be viewed as one pure L2TP connection. **Nice to Have:** Apply the IPSec policy first, if it is applicable during negotiation. Otherwise, the dial-out VPN connection becomes one pure L2TP connection. **Must:** Specify the IPSec policy to be definitely applied on the L2TP connection.
User Name	This field is applicable when you select, PPTP or L2TP with or without IPSec policy above.
Password	This field is applicable when you select PPTP or L2TP with or without IPSec policy above.
PPP Authentication	This field is applicable when you select, PPTP or L2TP with or without IPSec policy above. PAP/CHAP is the most common selection due to wild compatibility.
VJ compression	This field is applicable when you select PPTP or L2TP with or without IPSec policy above. VJ Compression is used for TCP/IP protocol header compression. Normally set to **Yes** to improve bandwidth utilization.
IKE Authentication Method	This group of fields is applicable for IPSec Tunnels and L2TP with IPSec Policy. **Pre-Shared Key** - Input 1-63 characters as pre-shared key. **Digital Signature (X.509)** - Select one predefined Profiles set

Item	Description
	in the **VPN and Remote Access >>IPSec Peer Identity**.
IPSec Security Method	This group of fields is a must for IPSec Tunnels and L2TP with IPSec Policy. **Medium AH (Authentication Header)** means data will be authenticated, but not be encrypted. By default, this option is active. **High (ESP-Encapsulating Security Payload)-** means payload (data) will be encrypted and authenticated. Select from below: **DES without Authentication** -Use DES encryption algorithm and not apply any authentication scheme. **DES with Authentication**-Use DES encryption algorithm and apply MD5 or SHA-1 authentication algorithm. **3DES without Authentication**-Use triple DES encryption algorithm and not apply any authentication scheme. **3DES with Authentication**-Use triple DES encryption algorithm and apply MD5 or SHA-1 authentication algorithm. **AES without Authentication**-Use AES encryption algorithm and not apply any authentication scheme. **AES with Authentication**-Use AES encryption algorithm and apply MD5 or SHA-1 authentication algorithm.
Advanced	Specify mode, proposal and key life of each IKE phase, Gateway, etc. The window of advance setup is shown as below:  IKE advanced settings - Windows Internet Explorer http://192.168.1.1/doc/l2IIkeDt.htm IKE advanced settings IKE phase 1 mode: ● Main mode ○ Aggressive mode IKE phase 1 proposal: DES_MD5_G1 IKE phase 2 proposal: HMAC_SHA1/HMAC_MD5 IKE phase 1 key lifetime: 28800 (900 ~ 86400) IKE phase 2 key lifetime: 3600 (600 ~ 86400) Perfect Forward Secret: ● Disable ○ Enable Local ID: OK Close **IKE phase 1 mode** -Select from **Main** mode and **Aggressive** mode. The ultimate outcome is to exchange security proposals to create a protected secure channel. **Main** mode is more secure than **Aggressive** mode since more exchanges are done in a secure channel to set up the IPSec session. However, the **Aggressive** mode is faster. The default value in Vigor router is Main mode. **IKE phase 1 proposal**-To propose the local available authentication schemes and encryption algorithms to the VPN peers, and get its feedback to find a match. Two combinations are available for Aggressive mode and nine for **Main** mode. We suggest you select the combination that covers the most schemes. **IKE phase 2 proposal**-To propose the local available algorithms to the VPN peers, and get its feedback to find a match. Three combinations are available for both modes. We suggest you select the combination that covers the most

Item	Description
	algorithms. **IKE phase 1 key lifetime-**For security reason, the lifetime of key should be defined. The default value is 28800 seconds. You may specify a value in between 900 and 86400 seconds. **IKE phase 2 key lifetime-**For security reason, the lifetime of key should be defined. The default value is 3600 seconds. You may specify a value in between 600 and 86400 seconds. **Perfect Forward Secret (PFS)-**The IKE Phase 1 key will be reused to avoid the computation complexity in phase 2. The default value is inactive this function. **Local ID-**In **Aggressive** mode, Local ID is on behalf of the IP address while identity authenticating with remote VPN server. The length of the ID is limited to 47 characters.



3. Dial-In Settings

Allowed Dial-In Type

☑ PPTP

☑ IPSec Tunnel

☑ L2TP with IPSec Policy: None

□ Specify Remote VPN Gateway

Peer VPN Server IP:

or Peer ID:

Username: ???

Password:

VJ Compression: ● On ○ Off

IKE Authentication Method

☑ Pre-Shared Key

IKE Pre-Shared Key:

□ Digital Signature(X.509)

None

Local ID

○ Alternative Subject Name First

○ Subject Name First

IPSec Security Method

☑ Medium(AH)

High(ESP): ☑ DES ☑ 3DES ☑ AES

4. Gre over IPSec Settings

□ Enable IPSec Dial-Out function GRE over IPSec

□ Logical Traffic   My GRE IP: Peer GRE IP:

5. TCP/IP Network Settings

My WAN IP: 0.0.0.0

Remote Gateway IP: 0.0.0.0

Remote Network IP: 0.0.0.0

Remote Network Mask: 255.255.255.0

Local Network IP: 192.168.1.1

Local Network Mask: 255.255.255.0

RIP Direction: Disable

From first subnet to remote network, you have to do: Route

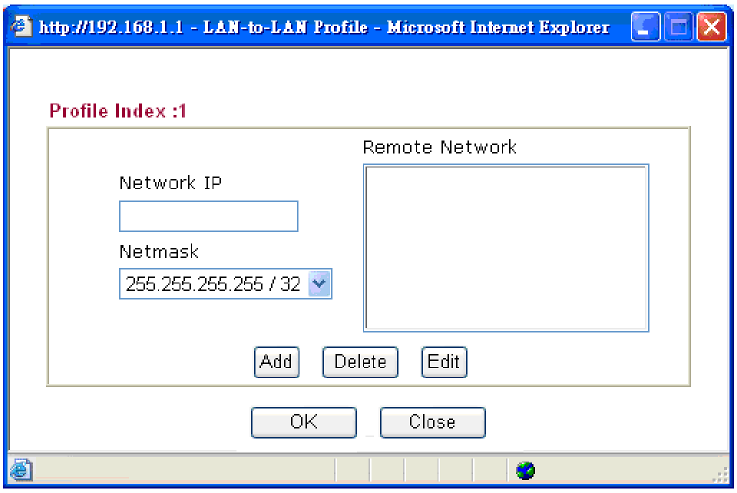
□ Change default route to this VPN tunnel (Only single WAN supports this)

Available settings are explained as follows:

Item	Description

Item	Description
Allowed Dial-In Type	Determine the dial-in connection with different types. **PPTP -** Allow the remote dial-in user to make a PPTP VPN connection through the Internet. You should set the User Name and Password of remote dial-in user below. **IPSec Tunnel-** Allow the remote dial-in user to trigger an IPSec VPN connection through Internet. **L2TP with IPSec Policy -** Allow the remote dial-in user to make a L2TP VPN connection through the Internet. You can select to use L2TP alone or with IPSec. Select from below: ● **None -** Do not apply the IPSec policy. Accordingly, the VPN connection employed the L2TP without IPSec policy can be viewed as one pure L2TP connection. ● **Nice to Have -** Apply the IPSec policy first, if it is applicable during negotiation. Otherwise, the dial-in VPN connection becomes one pure L2TP connection. ● **Must -** Specify the IPSec policy to be definitely applied on the L2TP connection. **Specify Remote VPN Gateway -** You can specify the IP address of the remote dial-in user or peer ID (should be the same with the ID setting in dial-in type) by checking the box. Also, you should further specify the corresponding security methods on the right side. If you uncheck the checkbox**,** the connection type you select above will apply the authentication methods and security methods in the general settings. **User Name -** This field is applicable when you select PPTP or L2TP with or without IPSec policy above. **Password -** This field is applicable when you select PPTP or L2TP with or without IPSec policy above. **VJ Compression -** VJ Compression is used for TCP/IP protocol header compression. This field is applicable when you select PPTP or L2TP with or without IPSec policy above.
IKE Authentication Method	This group of fields is applicable for IPSec Tunnels and L2TP with IPSec Policy when you specify the IP address of the remote node. The only exception is Digital Signature (X.509) can be set when you select IPSec tunnel either with or without specify the IP address of the remote node. **Pre-Shared Key -** Check the box of Pre-Shared Key to invoke this function and type in the required characters (1-63) as the pre-shared key. **Digital Signature (X.509) –**Check the box of Digital Signature to invoke this function and select one predefined Profiles set in the **VPN and Remote Access >>IPSec Peer Identity**. **Local ID** – Specify which one will be inspected first. ● **Alternative Subject Name First** – The alternative subject name (configured in **Certificate Management>>Local Certificate**) will be inspected

Item	Description
	first. ● **Subject Name First** – The subject name (configured in **Certificate Management>>Local Certificate**) will be inspected first.
IPSec Security Method	This group of fields is a must for IPSec Tunnels and L2TP with IPSec Policy when you specify the remote node. **Medium-** Authentication Header (AH) means data will be authenticated, but not be encrypted. By default, this option is active. **High-** Encapsulating Security Payload (ESP) means payload (data) will be encrypted and authenticated. You may select encryption algorithm from Data Encryption Standard (DES), Triple DES (3DES), and AES.
GRE over IPSec Settings	**Enable IPSec Dial-Out function GRE over IPSec**: Check this box to verify data and transmit data in encryption with GRE over IPSec packet after configuring IPSec Dial-Out setting. Both ends must match for each other by setting same virtual IP address for communication. **Logical Traffic**: Such technique comes from RFC2890. Define logical traffic for data transmission between both sides of VPN tunnel by using the characteristic of GRE. Even hacker can decipher IPSec encryption, he/she still cannot ask LAN site to do data transmission with any information. Such function can ensure the data transmitted on VPN tunnel is really sent out from both sides. This is an optional function. However, if one side wants to use it, the peer must enable it, too. **My GRE IP**: Type the virtual IP for router itself for verified by peer. **Peer GRE IP**: Type the virtual IP of peer host for verified by router.
TCP/IP Network Settings	**My WAN IP** - This field is only applicable when you select PPTP or L2TP with or without IPSec policy above. The default value is 0.0.0.0, which means the Vigor router will get a PPP IP address from the remote router during the IPCP negotiation phase. If the PPP IP address is fixed by remote side, specify the fixed IP address here. Do not change the default value if you do not select PPTP or L2TP. **Remote Gateway IP** - This field is only applicable when you select PPTP or L2TP with or without IPSec policy above. The default value is 0.0.0.0, which means the Vigor router will get a remote Gateway PPP IP address from the remote router during the IPCP negotiation phase. If the PPP IP address is fixed by remote side, specify the fixed IP address here. Do not change the default value if you do not select PPTP or L2TP. **Remote Network IP/ Remote Network Mask** - Add a static route to direct all traffic destined to this Remote Network IP Address/Remote Network Mask through the VPN connection.

Item	Description
	For IPSec, this is the destination clients IDs of phase 2 quick mode. **Local Network IP / Local Network Mask -** Add a static route to direct all traffic destined to Local Network IP Address/Local Network Mask through the VPN connection. **More -** Add a static route to direct all traffic destined to more Remote Network IP Addresses/ Remote Network Mask through the VPN connection. This is usually used when you find there are several subnets behind the remote VPN router.  http://192.168.1.1 - LAN-to-LAN Profile - Microsoft Internet Explorer Profile Index :1 Network IP: Netmask: 255.255.255.255 / 32 Remote Network Add Delete Edit OK Close **RIP Direction -** The option specifies the direction of RIP (Routing Information Protocol) packets. You can enable/disable one of direction here. Herein, we provide four options: TX/RX Both, TX Only, RX Only, and Disable. **From first subnet to remote network, you have to do -** If the remote network only allows you to dial in with single IP, please choose **NAT**, otherwise choose **Route**. **Change default route to this VPN tunnel -** Check this box to change the default route with this VPN tunnel. Note that this setting is available only for one WAN interface is enabled. It is not available when both WAN interfaces are enabled.

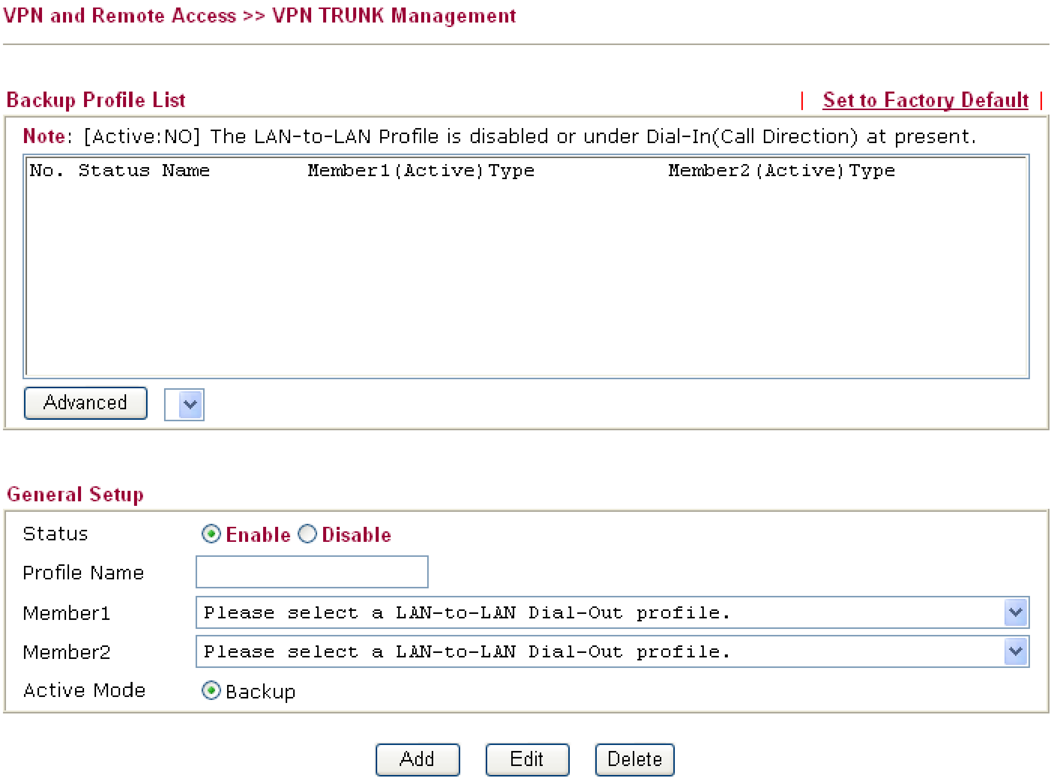
4.10.9 VPN TRUNK Management

VPN Backup Management is a backup mechanism to set multiple VPN tunnels for using as backup tunnel. It can assure the network connection would not be cut off due to network environment blocked by any reason.

Features of VPN TRUNK – VPN Backup Mechanism

- VPN TRUNK-VPN Backup mechanism can judge abnormal situation for the environment of VPN server and correct it to complete the backup of VPN Tunnel in real-time.
- VPN TRUNK-VPN Backup mechanism is compliant with all WAN modes (single/multi)
- Dial-out connection types contain IPSec, PPTP, L2TP, L2TP over IPSec and ISDN (depends on hardware specification)
- The web page is simple to understand and easy to configure
- Filly compliant with VPN Server LAN Sit Single/Multi Network
- Mail Alert support, please refer to **System Maintenance** >> **SysLog / Mail Alert** for detailed configuration
- Syslog support, please refer to **System Maintenance** >> **SysLog / Mail Alert** for detailed configuration
- Specific ERD (Environment Recovery Detection) mechanism which can be operated by using Telnet command

VPN Backup profile will be activated when initial connection of single VPN tunnel is off-line. Before setting VPN TRUNK backup profile, please configure at least two sets of LAN to LAN profiles (with fully configured dial-out settings) first, otherwise you will not have selections for grouping Member1 and Member2.



VPN and Remote Access >> VPN TRUNK Management

Backup Profile List | Set to Factory Default |

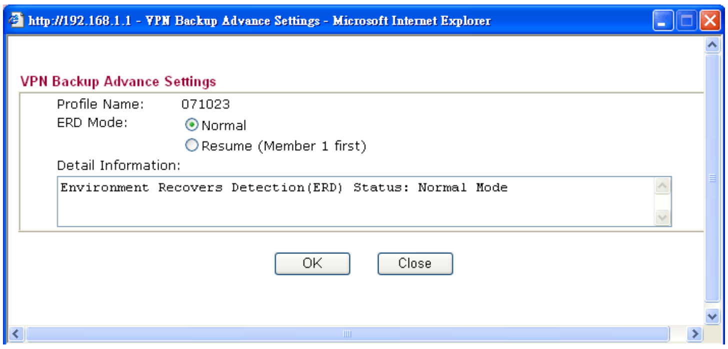
Note: [Active:NO] The LAN-to-LAN Profile is disabled or under Dial-In(Call Direction) at present.

```
No. Status Name         Member1(Active)Type           Member2(Active)Type
```

General Setup

Status	● Enable ○ Disable
Profile Name	
Member1	Please select a LAN-to-LAN Dial-Out profile.
Member2	Please select a LAN-to-LAN Dial-Out profile.
Active Mode	● Backup

Available settings are explained as follows:

Item	Description
Backup Profile List	**Set to Factory Default -** Click to clear all VPN TRUNK-VPN Backup mechanism profile. **No –** The order of VPN TRUNK-VPN Backup mechanism profile. **Status** - "v" means such profile is enabled; "x" means such profile is disabled. **Name** - Display the name of VPN TRUNK-VPN Backup mechanism profile. **Member1** - Display the dial-out profile selected from the Member1 drop down list below. **Member2** - Display the dial-out profile selected from the Member2 drop down list below. **Active** - "Yes" means normal condition. "No" means the state might be disabled or that profile currently is set with Dial-in mode (for call direction) in LAN-to-LAN. **Type** - Display the connection type for that profile, such as IPSec, PPTP, L2TP, L2TP over IPSec (NICE), L2TP over IPSec(MUST) and so on. **Advanced** – This button is only available when there is one profile (or more) created in this page.  http://192.168.1.1 - VPN Backup Advance Settings - Microsoft Internet Explorer VPN Backup Advance Settings Profile Name: 071023 ERD Mode: ● Normal ○ Resume (Member 1 first) Detail Information: Environment Recovers Detection(ERD) Status: Normal Mode OK Close Detailed information for this dialog, see later section - **Advanced Backup**.
General Setup	**Status-** After choosing one of the profile listed above, please click **Enable** to activate this profile. If you click **Disable**, the selected or current used VPN TRUNK-Backup/Load Balance mechanism profile will not have any effect for VPN tunnel. **Profile Name-** Type a name for VPN TRUNK profile. Each profile can group two VPN connections set in LAN-to-LAN. The saved VPN profiles in LAN-to-LAN will be shown on Member1 and Member2 fields. **Member 1/Member2** - Display the selection for LAN-to-LAN dial-out profiles (configured in **VPN and Remote Access** >> **LAN-to-LAN**) for you to choose for grouping under certain VPN TRUNK-VPN Backup/Load Balance mechanism profile. ● ***No*** - Index number of LAN-to-LAN dial-out profile. ● ***Name*** - Profile name of LAN-to-LAN dial-out profile. ● ***Connection Type*** - Connection type of LAN-to-LAN dial-out profile.

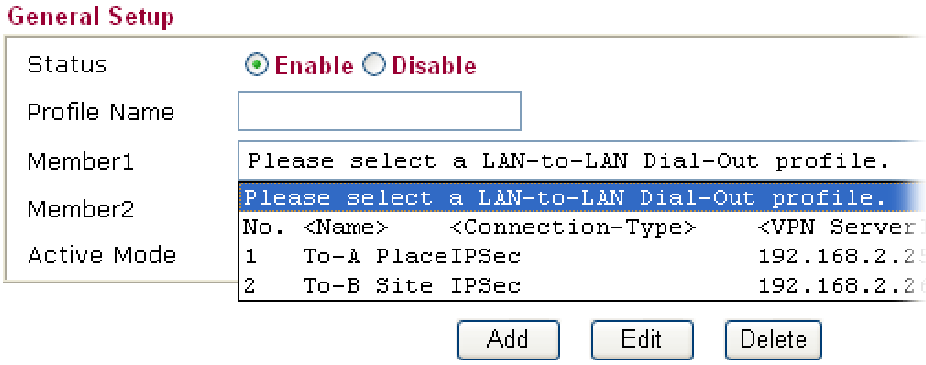
Item	Description
	● ***VPN ServerIP (Private Network)*** - VPN Server IP of LAN-to-LAN dial-out profiles. **Active Mode** - Display available mode for you to choose. Choose **Backup** for your router.
Add	Add and save new profile to the backup profile list. The corresponding members (LAN-to-LAN profiles) grouped in such new VPN TRUNK – VPN Backup mechanism profile will be locked. The profiles in LAN-to-LAN will be displayed in red. VPN TRUNK – VPN Load Balance mechanism profile will be locked. The profiles in LAN-to-LAN will be displayed in blue.
Edit	Click this button to save the changes to the **Status** (Enable or Disable), profile name, member1 or member2.
Delete	Click this button to delete the selected VPN TRUNK profile. The corresponding members (LAN-to-LAN profiles) grouped in the deleted VPN TRUNK profile will be released and that profiles in LAN-to-LAN will be displayed in black.

Time for activating VPN TRUNK – VPN Backup mechanism profile

VPN TRUNK – VPN Backup mechanism will be activated automatically after the initial connection of single VPN Tunnel off-line. The content in Member1/2 within VPN TRUNK – VPN Backup mechanism backup profile is similar to dial-out profile configured in LAN-to-LAN web page. VPN TRUNK – VPN Backup mechanism backup profile will process and handle everything unless it is off-line once it is activated.

How can you set a VPN TRUNK-VPN Backup mechanism profile?

1. First of all, go to **VPN and Remote Access>>LAN-to-LAN**. Set two or more LAN-to-LAN profiles first that will be used for Member1 and Member2. If you do not set enough LAN-to-LAN profiles, you cannot operate VPN TRUNK – VPN Backup mechanism profile management well.
2. Access into **VPN and Remote Access>>VPN TRUNK Management**.
3. Set one group of VPN TRUNK – VPN Backup mechanism backup profile by choosing **Enable** radio button; type a name for such profile (e.g., 071023); choose one of the LAN-to-LAN profiles from Member1 drop down list; choose one of the LAN-to-LAN profiles from Member2 drop down list; and click **Add** at last.


General Setup

Status ◉ Enable ○ Disable

Profile Name

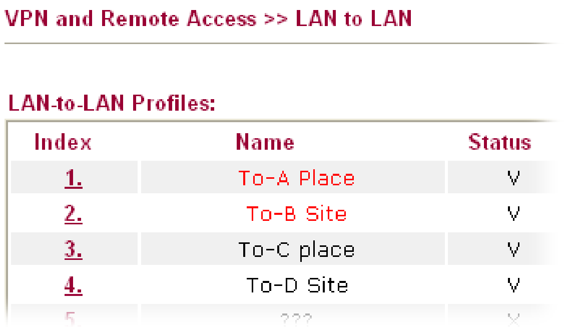
Member1 Please select a LAN-to-LAN Dial-Out profile.

Member2

Active Mode

```
Please select a LAN-to-LAN Dial-Out profile.
No. <Name>     <Connection-Type>    <VPN Server
1   To-A PlaceIPSec                 192.168.2.2
2   To-B Site IPSec                 192.168.2.2
```

4. Take a look for LAN-to-LAN profiles. Index 1 is chosen as Member1; index 2 is chosen as Member2. For such reason, LAN-to-LAN profiles of 1 and 2 will be expressed in red to indicate that they are fixed. If you delete the VPN TRUNK – VPN Backup mechanism profile, the selected LAN-to-LAN profiles will be released and expressed in black.



VPN and Remote Access >> LAN to LAN

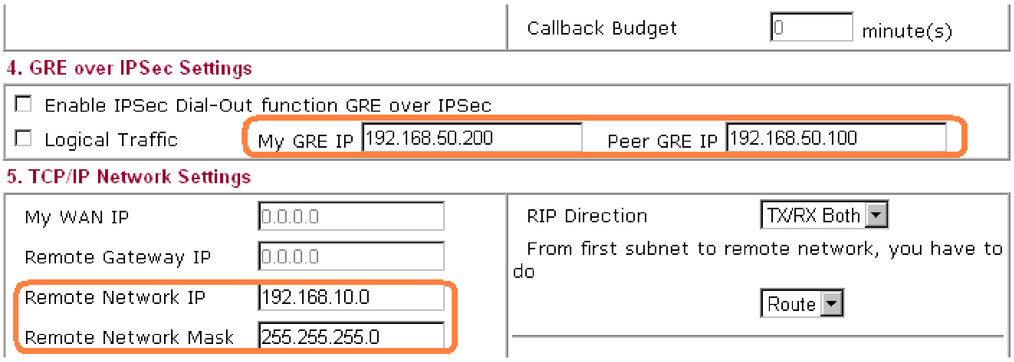
LAN-to-LAN Profiles:

Index	Name	Status
1.	To-A Place	V
2.	To-B Site	V
3.	To-C place	V
4.	To-D Site	V
5.	???	V

How can you set a GRE over IPSec profile?

1. Please go to LAN to LAN to set a profile with IPSec.

2. If the router will be used as the VPN Server (i.e., with virtual address 192.168.50.200). Please type 192.168.50.200 in the field of My GRE IP. Type IP address (192.168.50.100) of the client in the field of Peer GRE IP. See the following graphic for an example.



Callback Budget 0 minute(s)

4. GRE over IPSec Settings

☐ Enable IPSec Dial-Out function GRE over IPSec

☐ Logical Traffic My GRE IP 192.168.50.200 Peer GRE IP 192.168.50.100

5. TCP/IP Network Settings

My WAN IP 0.0.0.0

Remote Gateway IP 0.0.0.0

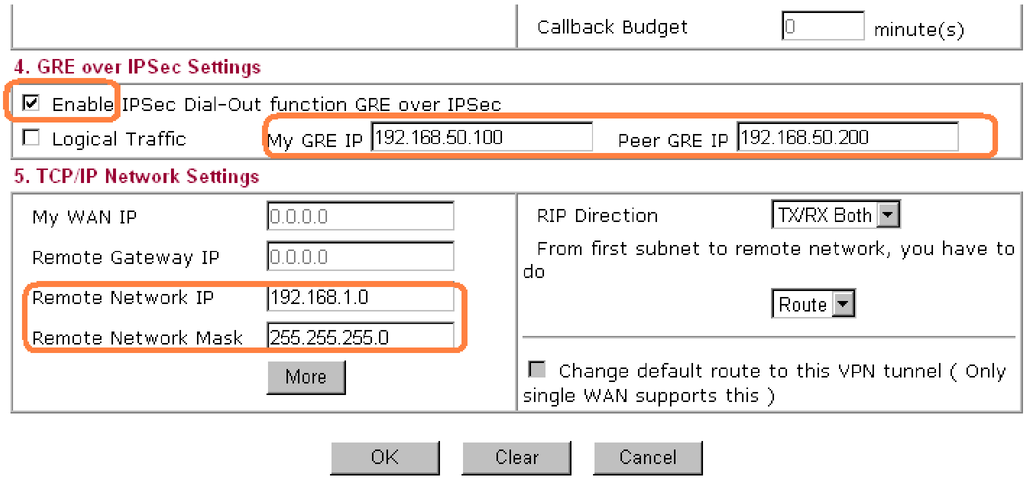
Remote Network IP 192.168.10.0

Remote Network Mask 255.255.255.0

RIP Direction TX/RX Both

From first subnet to remote network, you have to do Route

3. Later, on peer side (as VPN Client): please type 192.168.50.100 in the field of My GRE IP and type IP address of the server (192.168.50.200) in the field of Peer GRE IP.



Callback Budget 0 minute(s)

4. GRE over IPSec Settings

☑ Enable IPSec Dial-Out function GRE over IPSec

☐ Logical Traffic My GRE IP 192.168.50.100 Peer GRE IP 192.168.50.200

5. TCP/IP Network Settings

My WAN IP 0.0.0.0

Remote Gateway IP 0.0.0.0

Remote Network IP 192.168.1.0

Remote Network Mask 255.255.255.0

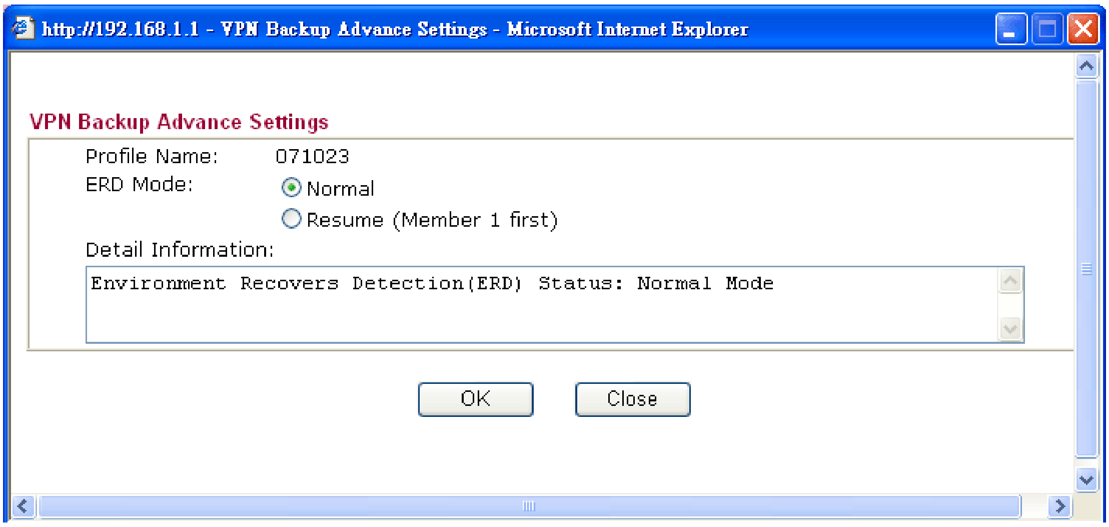
RIP Direction TX/RX Both

From first subnet to remote network, you have to do Route

☐ Change default route to this VPN tunnel (Only single WAN supports this)

Advanced Backup

After setting profiles for load balance, you can choose any one of them and click **Advanced** for more detailed configuration. The windows for advanced load balance and backup are different. Refer to the following explanation:



http://192.168.1.1 - VPN Backup Advance Settings - Microsoft Internet Explorer

VPN Backup Advance Settings

Profile Name: 071023

ERD Mode: ● Normal

○ Resume (Member 1 first)

Detail Information:

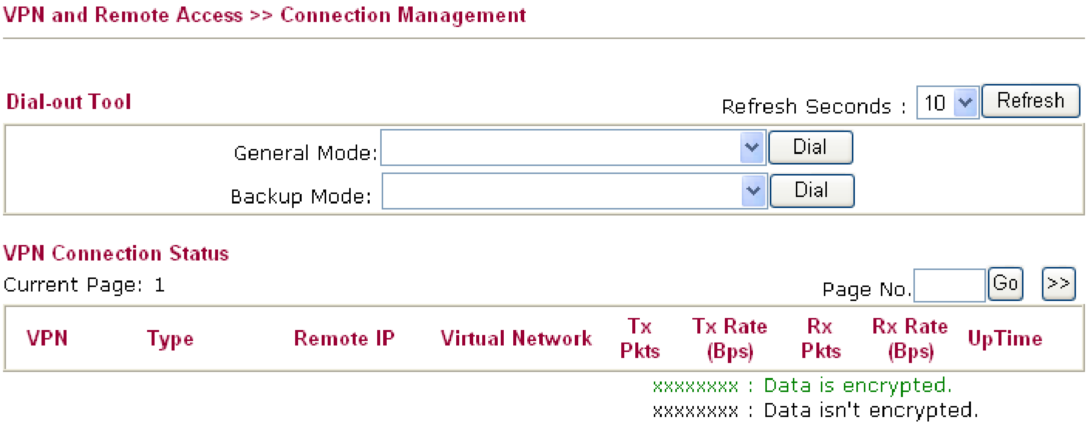
```
Environment Recovers Detection(ERD) Status: Normal Mode
```

Available settings are explained as follows:

Item	Description
Profile Name	List the backup profile name.
ERD Mode	ERD means “Environment Recovers Detection”. **Normal** – choose this mode to make all dial-out VPN TRUNK backup profiles being activated alternatively. **Resume** – when VPN connection breaks down or disconnects, Member 1 will be the top priority for the system to do VPN connection.
Detail Information	This field will display detailed information for Environment Recovers Detection.

4.10.10 Connection Management

You can find the summary table of all VPN connections. You may disconnect any VPN connection by clicking **Drop** button. You may also aggressively Dial-out by using Dial-out Tool and clicking **Dial** button.



VPN and Remote Access >> Connection Management

Dial-out Tool

Refresh Seconds : 10 Refresh

General Mode: Dial

Backup Mode: Dial

VPN Connection Status

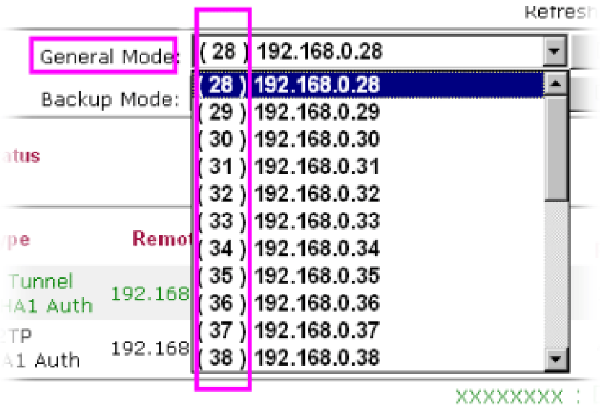
Current Page: 1

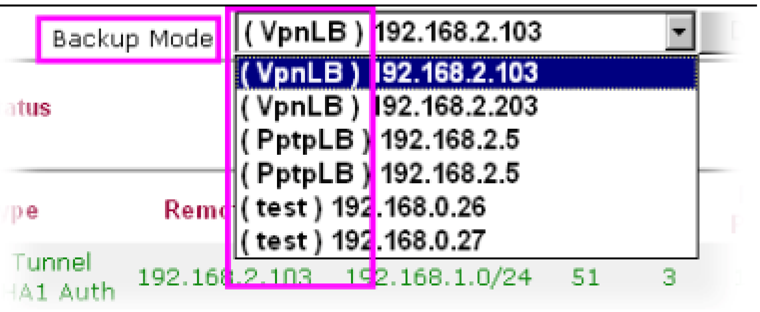
Page No. Go >>

VPN	Type	Remote IP	Virtual Network	Tx Pkts	Tx Rate (Bps)	Rx Pkts	Rx Rate (Bps)	UpTime

xxxxxxxx : Data is encrypted.
xxxxxxxx : Data isn't encrypted.

Available settings are explained as follows:

Item	Description
Dial-out Tool	**General Mode -** This filed displays the profile configured in LAN to LAN (with Index number and VPN Server IP address). The VPN connection built by General Mode does not support VPN backup function.  General Mode: (28) 192.168.0.28 Backup Mode: (28) 192.168.0.28 (29) 192.168.0.29 (30) 192.168.0.30 (31) 192.168.0.31 (32) 192.168.0.32 (33) 192.168.0.33 (34) 192.168.0.34 (35) 192.168.0.35 (36) 192.168.0.36 (37) 192.168.0.37 (38) 192.168.0.38 **Backup Mode -** This filed displays the profile name saved in VPN TRUNK Management (with Index number and VPN Server IP address). The VPN connection built by Backup Mode supports VPN backup function.

Item	Description
	 Backup Mode (VpnLB) 192.168.2.103 (VpnLB) 192.168.2.103 (VpnLB) 192.168.2.203 (PptpLB) 192.168.2.5 (PptpLB) 192.168.2.5 (test) 192.168.0.26 (test) 192.168.0.27 **Dial -** Click this button to execute dial out function.
Refresh Seconds	Choose the time for refresh the dial information among 5, 10, and 30.
Refresh	Click this button to refresh the whole connection status.
VPN Connection Status	Display current connected VPN status. **VPN** – Display the name of the VPN profile. **Type** – Display the VPN connection mode such as PPTP or IPSec. **Remote IP** – Display the IP address of remote peer. **Virtual Network** – Display the remote network IP address with subnet address. **Tx Pkts** – Display the transmission packets passing through such VPN channel. **Tx Rate** – Display the transmission rate for data through such VPN tunnel. **Rx Pkts** – Display the receiving packets passing through such VPN channel. **Rx Rate** – Display the receiving rate for data through such VPN tunnel.

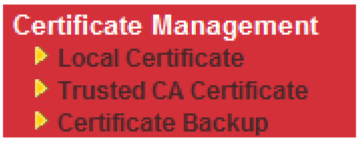
4.11 Certificate Management

A digital certificate works as an electronic ID, which is issued by a certification authority (CA). It contains information such as your name, a serial number, expiration dates etc., and the digital signature of the certificate-issuing authority so that a recipient can verify that the certificate is real. Here Vigor router support digital certificates conforming to standard X.509.

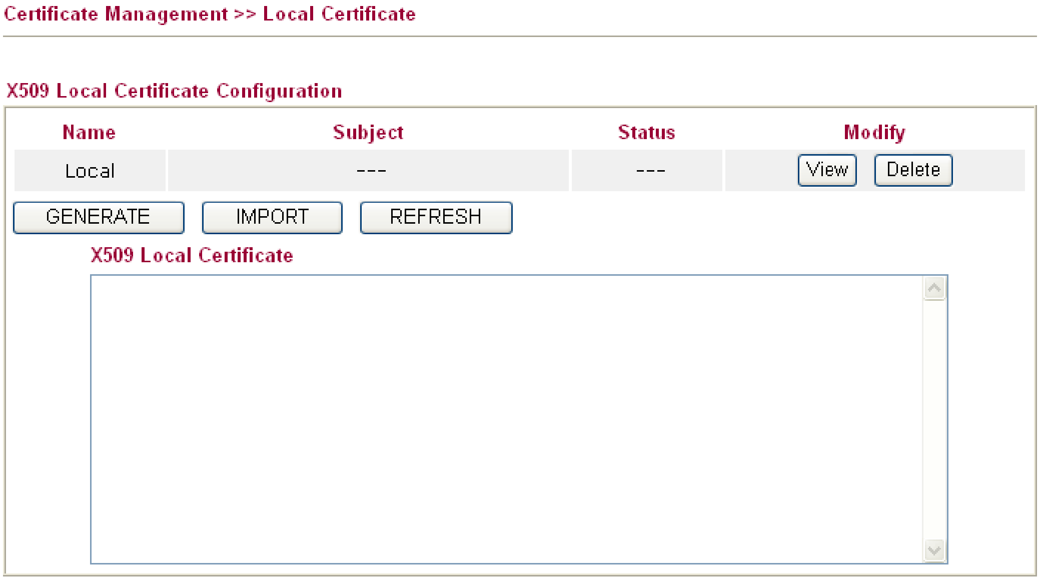
Any entity wants to utilize digital certificates should first request a certificate issued by a CA server. It should also retrieve certificates of other trusted CA servers so it can authenticate the peer with certificates issued by those trusted CA servers.

Here you can manage generate and manage the local digital certificates, and set trusted CA certificates. Remember to adjust the time of Vigor router before using the certificate so that you can get the correct valid period of certificate.

Below shows the menu items for Certificate Management.



4.11.1 Local Certificate

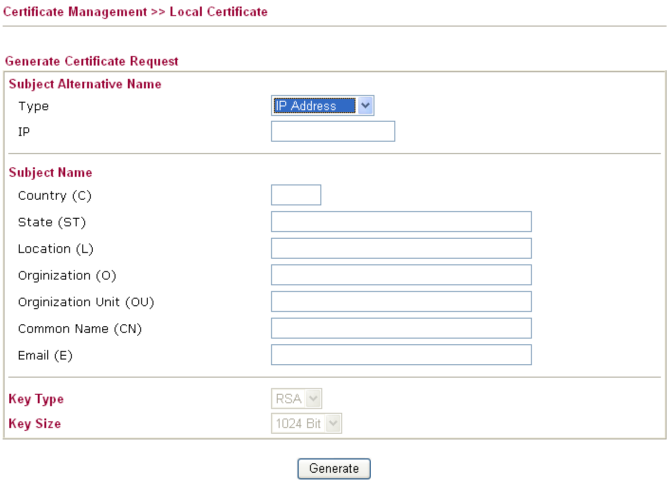

Certificate Management >> Local Certificate

X509 Local Certificate Configuration

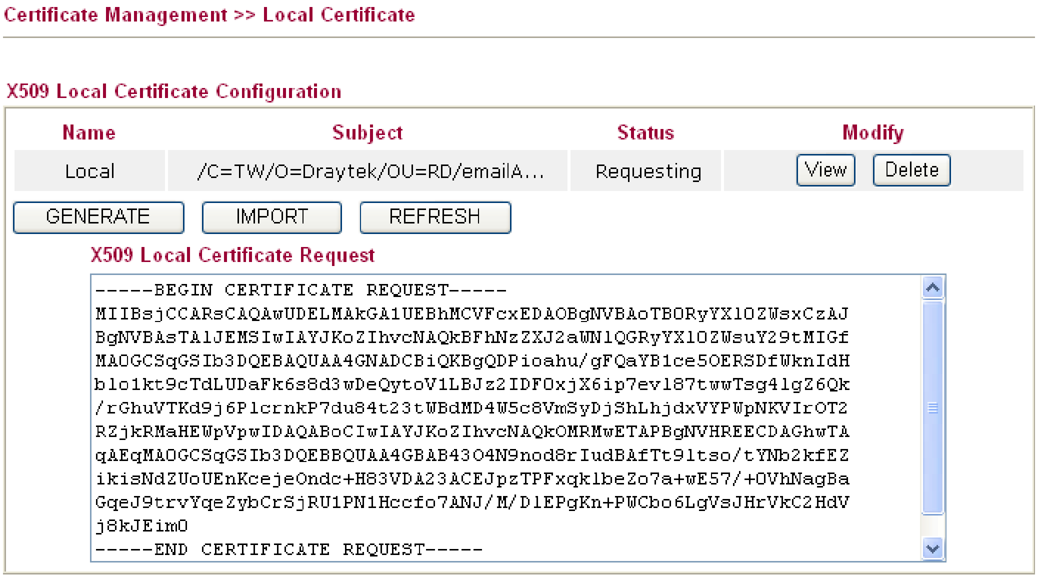
Name	Subject	Status	Modify
Local	---	---	View Delete

Available settings are explained as follows:

Item	Description
Generate	Click this button to open **Generate Certificate Request** window.

Item	Description
	 Certificate Management >> Local Certificate Generate Certificate Request Subject Alternative Name Type: IP Address IP Subject Name Country (C) State (ST) Location (L) Orginization (O) Orginization Unit (OU) Common Name (CN) Email (E) Key Type: RSA Key Size: 1024 Bit Generate Type in all the information that the window requests. Then click **Generate** again.
Import	Click this button to import a saved file as the certification information.
Refresh	Click this button to refresh the information listed below.
View	Click this button to view the detailed settings for certificate request.

After clicking **Generate**, the generated information will be displayed on the window below:



Certificate Management >> Local Certificate

X509 Local Certificate Configuration

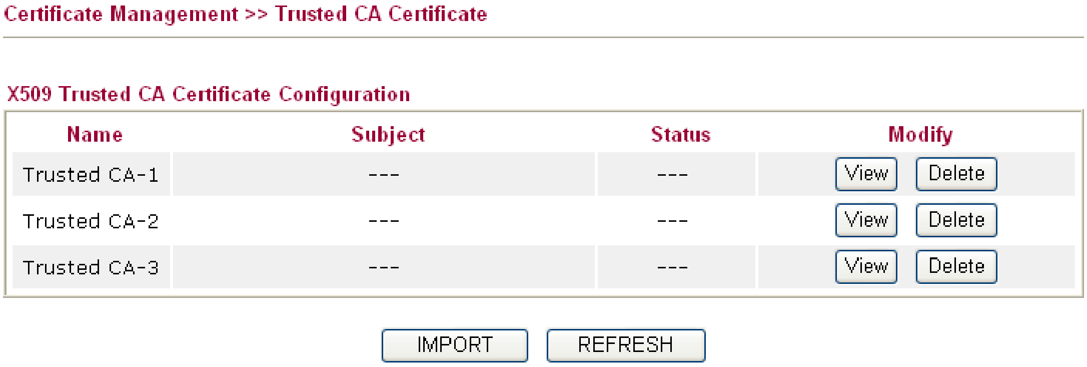
Name	Subject	Status	Modify
Local	/C=TW/O=Draytek/OU=RD/emailA...	Requesting	View Delete

X509 Local Certificate Request

```
-----BEGIN CERTIFICATE REQUEST-----
MIIBsjCCARsCAQAwUDELMAkGA1UEBhMCVFcxEDAOBgNVBAoTB0RyYXl0ZWsxCzAJ
BgNVBAsTAlJEMSIwIAYJKoZIhvcNAQkBFhNzZXJ2aWNlQGRyYXl0ZWsuY29tMIGf
MA0GCSqGSIb3DQEBAQUAA4GNADCBiQKBgQDPioahu/gFQaYB1ce5OERSDfWknIdH
blo1kt9cTdLUDaFk6s8d3wDeQytoV1LBJz2IDF0xjX6ip7evl87twwTsg4lgZ6Qk
/rGhuVTKd9j6PlcrnkP7du84t23tWBdMD4W5c8VmSyDjShLhjdxVYPWpNKVIrOT2
RZjkRMaHEWpVpwIDAQABoCIwIAYJKoZIhvcNAQkOMRMwETAPBgNVHREECDAGhwTA
qAEqMA0GCSqGSIb3DQEBBQUAA4GBAB4304N9nod8rIudBAfTt9ltso/tYNb2kfEZ
ikisNdZUoUEnKcejeOndc+H83VDA23ACEJpzTPFxqklbeZo7a+wE57/+OVhNagBa
GqeJ9trvYqeZybCrSjRU1PN1Hccfo7ANJ/M/DlEPgKn+PWCbo6LgVsJHrVkC2HdV
j8kJEim0
-----END CERTIFICATE REQUEST-----
```

4.11.2 Trusted CA Certificate

Trusted CA certificate lists three sets of trusted CA certificate.

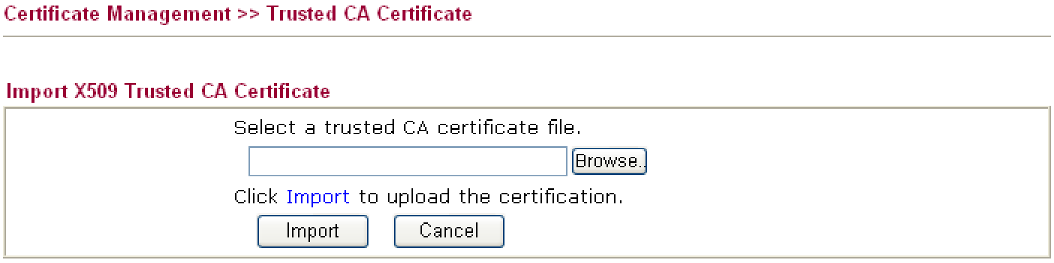


Certificate Management >> Trusted CA Certificate

X509 Trusted CA Certificate Configuration

Name	Subject	Status	Modify
Trusted CA-1	---	---	View Delete
Trusted CA-2	---	---	View Delete
Trusted CA-3	---	---	View Delete

To import a pre-saved trusted CA certificate, please click **IMPORT** to open the following window. Use **Browse…** to find out the saved text file. Then click **Import**. The one you imported will be listed on the Trusted CA Certificate window. Then click **Import** to use the pre-saved file.



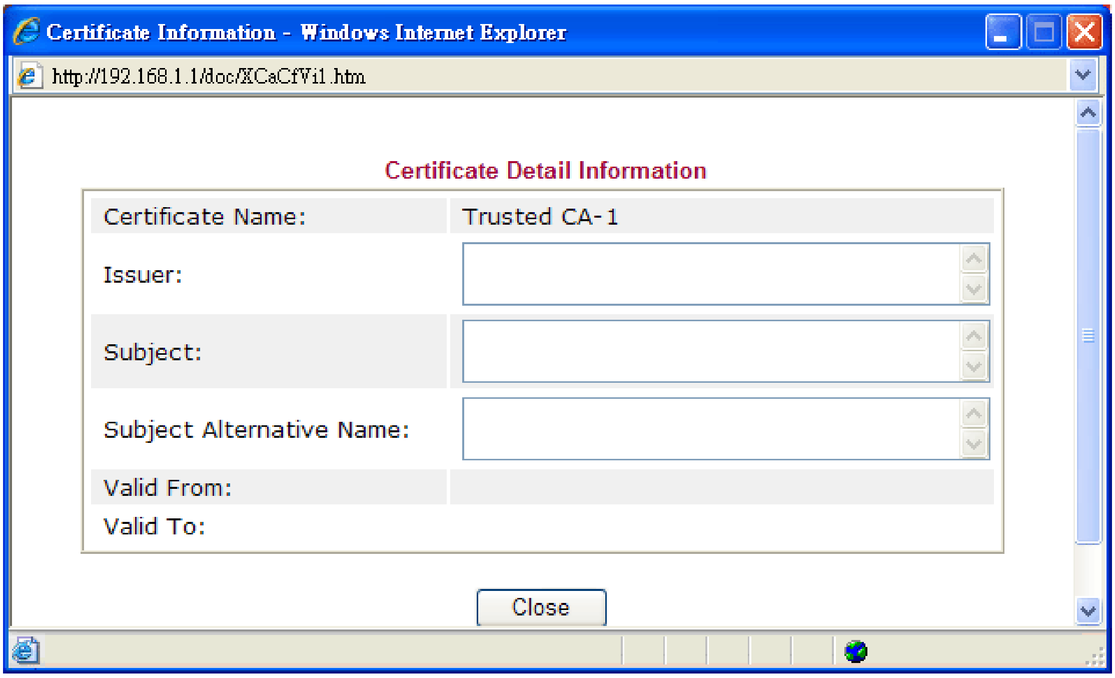
Certificate Management >> Trusted CA Certificate

Import X509 Trusted CA Certificate

Select a trusted CA certificate file.

Click Import to upload the certification.

For viewing each trusted CA certificate, click **View** to open the certificate detail information window. If you want to delete a CA certificate, choose the one and click **Delete** to remove all the certificate information.



Certificate Information - Windows Internet Explorer

http://192.168.1.1/doc/XCaCfVi1.htm

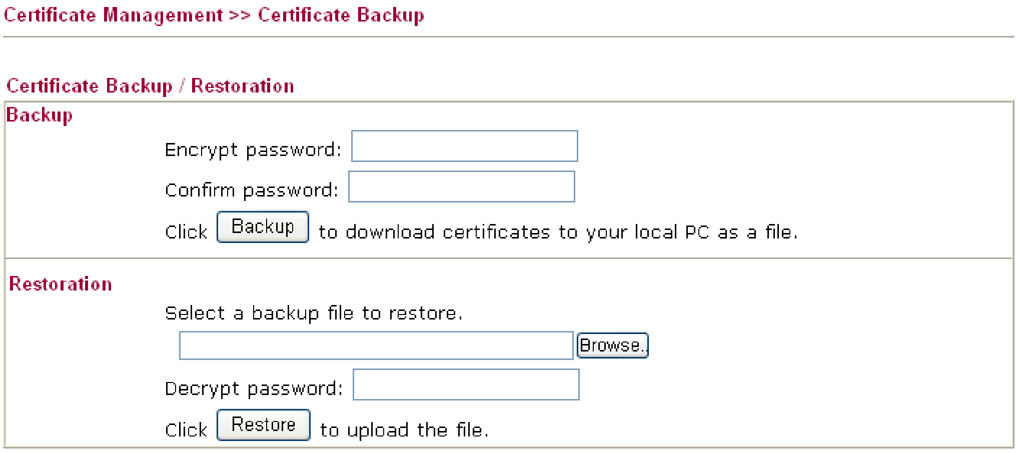
Certificate Detail Information

Certificate Name:	Trusted CA-1
Issuer:	
Subject:	
Subject Alternative Name:	
Valid From:	
Valid To:	

4.11.3 Certificate Backup

Local certificate and Trusted CA certificate for this router can be saved within one file. Please click **Backup** on the following screen to save them. If you want to set encryption password for these certificates, please type characters in both fields of **Encrypt password** and **Confirm password**.

Also, you can use **Restore** to retrieve these two settings to the router whenever you want.


Certificate Management >> Certificate Backup
Certificate Backup / Restoration
Backup
Backup
Restoration
Browse...
Restore

Encrypt password:

Confirm password:

Click Backup to download certificates to your local PC as a file.

Select a backup file to restore.

Decrypt password:

Click Restore to upload the file.

4.12 VoIP

Note: This function is used for "V" models.

Voice over IP network (VoIP) enables you to use your broadband Internet connection to make toll quality voice calls over the Internet.

There are many different call signaling protocols, methods by which VoIP devices can talk to each other. The most popular protocols are SIP, MGCP, Megaco and H.323. These protocols are not all compatible with each other (except via a soft-switch server).

The Vigor V models support the SIP protocol as this is an ideal and convenient deployment for the ITSP (Internet Telephony Service Provider) and softphone and is widely supported. SIP is an end-to-end, signaling protocol that establishes user presence and mobility in VoIP structure. Every one who wants to talk using his/her SIP Uniform Resource Identifier, "SIP Address". The standard format of SIP URI is

sip: user:password @ host: port

Some fields may be optional in different use. In general, "host" refers to a domain. The "userinfo" includes the user field, the password field and the @ sign following them. This is very similar to a URL so some may call it "SIP URL". SIP supports peer-to-peer direct calling and also calling via a SIP proxy server (a role similar to the gatekeeper in H.323 networks), while the MGCP protocol uses client-server architecture, the calling scenario being very similar to the current PSTN/ISDN network.

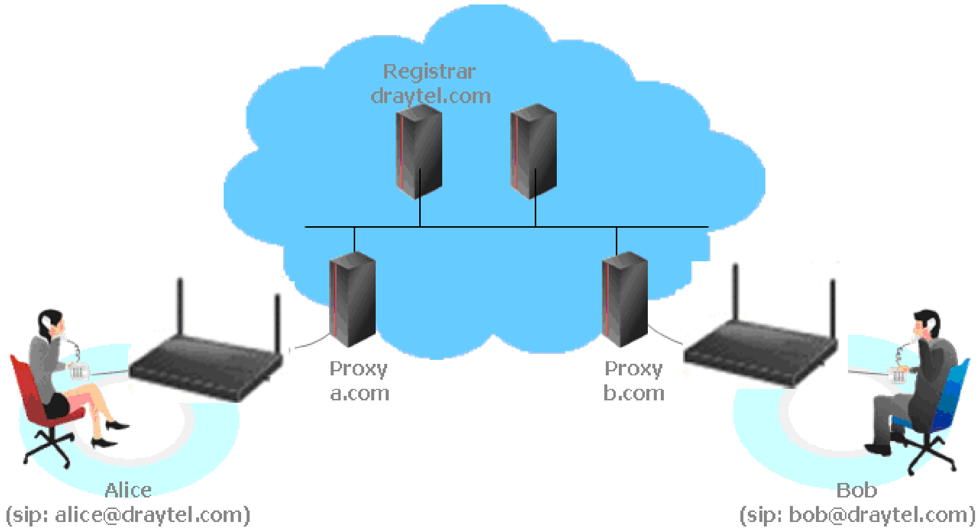
After a call is setup, the voice streams transmit via RTP (Real-Time Transport Protocol). Different codecs (methods to compress and encode the voice) can be embedded into RTP packets. Vigor V models provide various codecs, including G.711 A/μ-law, G.723, G.726 and G.729 A & B. Each codec uses a different bandwidth and hence provides different levels of voice quality. The more bandwidth a codec uses the better the voice quality, however the codec used must be appropriate for your Internet bandwidth.

Usually there will be two types of calling scenario, as illustrated below:

- **Calling via SIP Servers**

First, the Vigor V models of yours will have to register to a SIP Registrar by sending registration messages to validate. Then, both parties' SIP proxies will forward the sequence of messages to caller to establish the session.

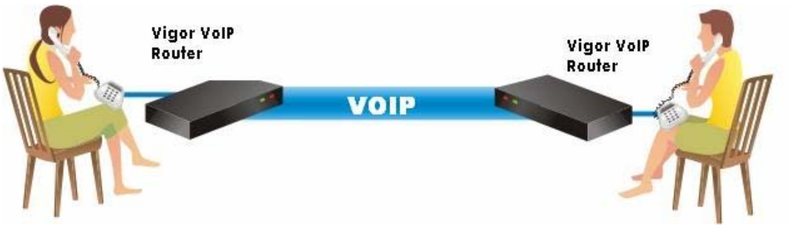
If you both register to the same SIP Registrar, then it will be illustrated as below:



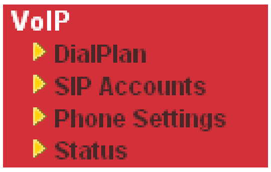
The major benefit of this mode is that you don't have to memorize your friend's IP address, which might change very frequently if it's dynamic. Instead of that, you will only have to using **dial plan** or directly dial your friend's **account name** if you are with the same SIP Registrar.

- **Peer-to-Peer**

Before calling, you have to know your friend's IP Address. The Vigor VoIP Routers will build connection between each other.

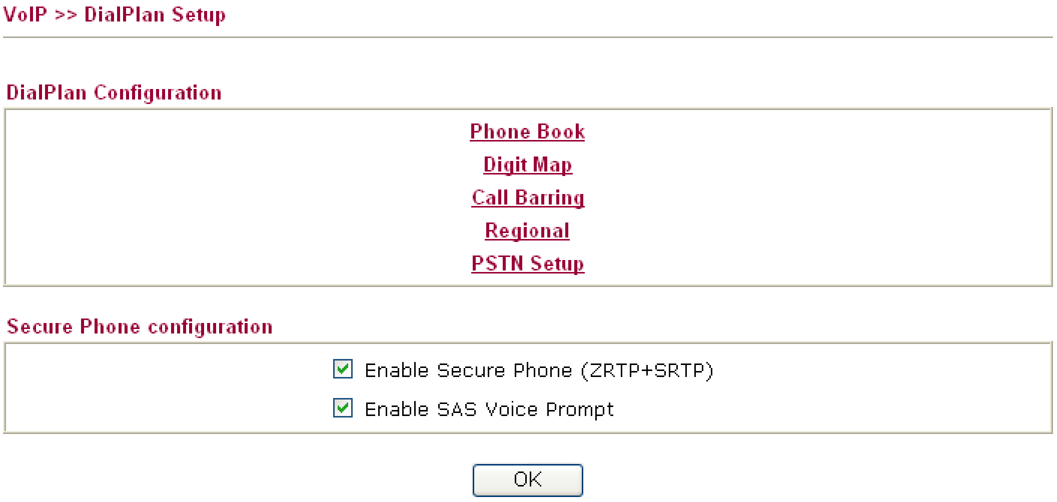


Our Vigor V models firstly apply efficient codecs designed to make the best use of available bandwidth, but Vigor V models also equip with automatic QoS assurance. QoS Assurance assists to assign high priority to voice traffic via Internet. You will always have the required inbound and outbound bandwidth that is prioritized exclusively for Voice traffic over Internet but you just get your data a little slower and it is tolerable for data traffic.



4.12.1 DialPlan

This page allows you to set phone book and digit map for the VoIP function. Click the **Phone Book** and **Digit Map** links on the page to access into next pages for dialplan settings.



VoIP >> DialPlan Setup

DialPlan Configuration

Phone Book
Digit Map
Call Barring
Regional
PSTN Setup

Secure Phone configuration

☑ Enable Secure Phone (ZRTP+SRTP)

☑ Enable SAS Voice Prompt

Available settings are explained as follows:

Item	Description
Enable Secure Phone	It allows users to have encrypted RTP stream with the peer side using the same protocol (ZRTP+SRTP). Check this box to have secure call.
Enable SAS Voice Prompt	If it is enabled, SAS prompt will be heard every time. If it is disabled, no SAS prompt will be heard any more.

Application for Secure Phone

Enable SAS Voice Prompt, for ex: if vigor router A calls vigor router B with checking **Enable Secure Phone** and **Enable SAS Voice Prompt**, then:

1. After the connection established, vigor router A will send SAS voice prompt to A and vigor router B will send the SAS voice prompt to B.
2. Then the RTP traffic is secured until the call ends.
3. If vigor router A wants to call vigor router B again next time, both A and B will not hear any voice prompt again even checking **Enable SAS Voice Prompt** on web UI. It means only the first call between them will have voice prompt.

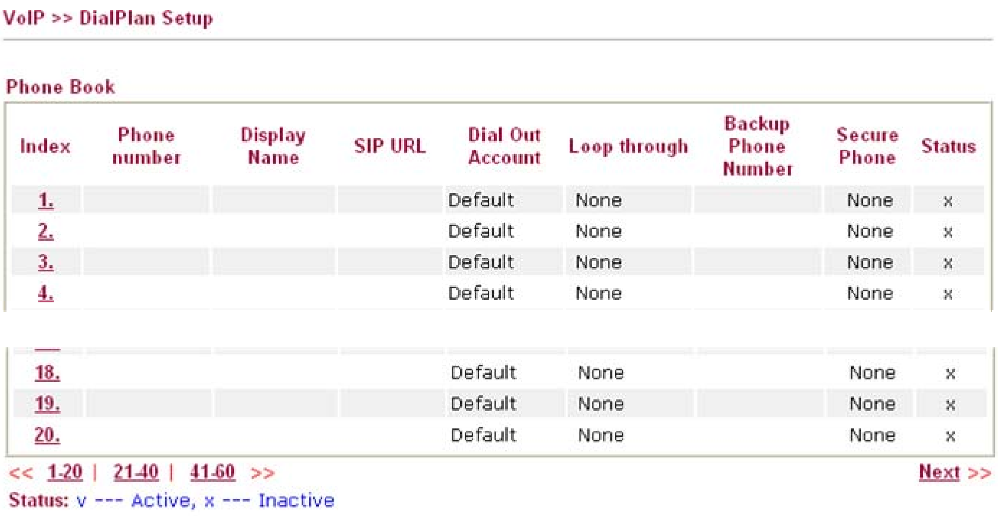
Enable SAS Voice Prompt, for ex: if vigor router A calls vigor router B with checking **Enable Secure Phone** but not **Enable SAS Voice Prompt**, then:

1. After the connection established, vigor router A will **NOT** send SAS voice prompt to vigor router A and vigor router B will NOT send the SAS voice prompt to vigor router B.
2. Even no voice prompt, but the RTP traffic is still secured until the call ends.

Note: If the incoming or outgoing calls do not match any entry on the phonebook, the router will try to make the call "being protected". But, if the call ends up "unprotected"(e.g. peer side does not support ZRTP+SRTP), the router will not play out a warning message.

Phone Book

In this section, you can set your VoIP contacts in the "phonebook". It can help you to make calls quickly and easily by using "speed-dial" **Phone Number**. There are total 60 index entries in the phonebook for you to store all your friends and family members' SIP addresses. **Loop through** and **Backup Phone Number** will be displayed if you are using Vigor 2920V for setting the phone book.



VoIP >> DialPlan Setup

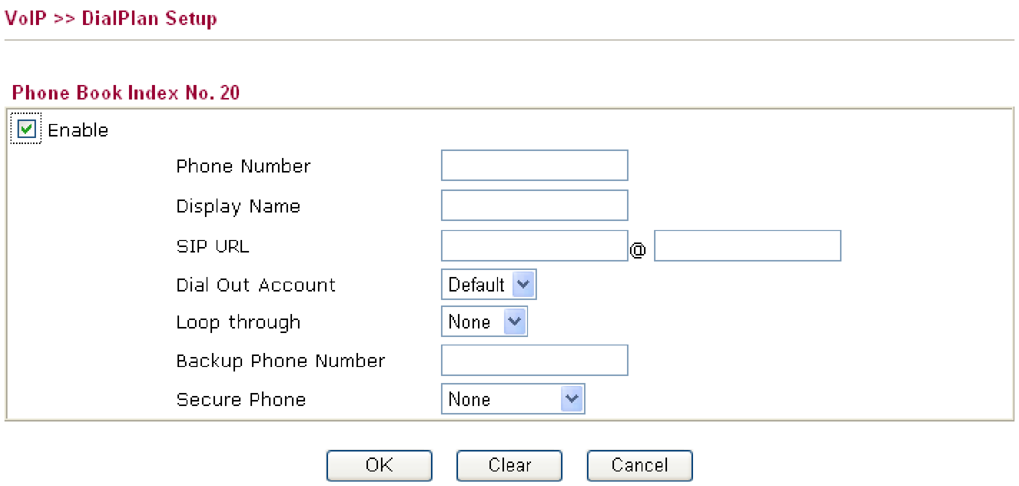
Phone Book

Index	Phone number	Display Name	SIP URL	Dial Out Account	Loop through	Backup Phone Number	Secure Phone	Status
1.				Default	None		None	x
2.				Default	None		None	x
3.				Default	None		None	x
4.				Default	None		None	x
18.				Default	None		None	x
19.				Default	None		None	x
20.				Default	None		None	x

<< 1-20 | 21-40 | 41-60 >> Next >>

Status: v --- Active, x --- Inactive

Click any index number to display the dial plan setup page.



VoIP >> DialPlan Setup

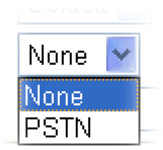
Phone Book Index No. 20

☑ Enable

Phone Number	
Display Name	
SIP URL	@
Dial Out Account	Default
Loop through	None
Backup Phone Number	
Secure Phone	None

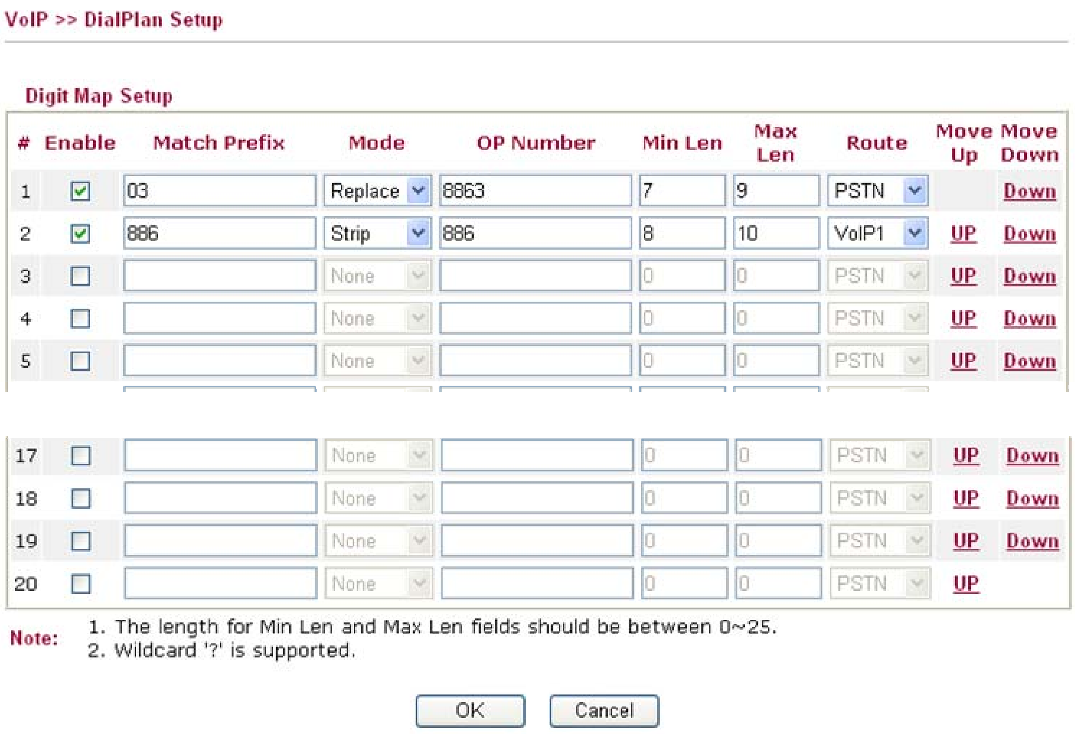
Available settings are explained as follows:

Item	Description
Enable	Check it to enable this entry.
Phone Number	The speed-dial number of this index. This can be any number you choose, using digits **0-9** and ***** .
Display Name	The name entered here is to remind the user whose number it is.
SIP URL	Enter your friend's SIP Address.

Dial Out Account	Choose one of the SIP accounts for this profile to dial out. It is useful for both sides (caller and callee) that registered to different SIP Registrar servers. If caller and callee do not use the same SIP server, sometimes, the VoIP phone call connection may not succeed. By using the specified dial out account, the successful connection can be assured.
Loop through	Choose PSTN to enable loop through function. 
Backup Phone Number	When the VoIP phone is obstructs or the Internet breaks down for some reasons, the backup phone will be dialed out to replace the VoIP phone number. At this time, the phone call will be changed from VoIP phone into PSTN call according to the loop through direction chosen. Note that, during the phone switch, the blare of phone will appear for a short time. And when the VoIP phone is switched into the PSTN phone, the telecom co. might charge you for the connection fee. Please type in backup phone number (PSTN number/ISDN number) for this VoIP phone setting.
Secure Phone	**ZRTP+SRTP**: A call made to the number specified in the phonebook will be "compulsorily" encrypted. If the encryption is not successful (e.g. peer side does not support ZRTP/SRTP), a warning voice should be played. **Note:** If the incoming or outgoing calls do not match any entry on the phonebook, the router will try to make the call "being protected". But, if the call ends up "unprotected"(e.g. peer side does not support ZRTP+SRTP), the router will not play out a warning message.

Digit Map

For the convenience of user, this page allows users to edit prefix number for the SIP account with adding number, stripping number or replacing number. It is used to help user having a quick and easy way to dial out through VoIP interface.



VoIP >> DialPlan Setup

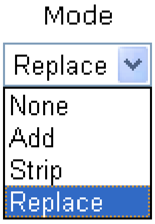
Digit Map Setup

#	Enable	Match Prefix	Mode	OP Number	Min Len	Max Len	Route	Move Up	Move Down
1	☑	03	Replace	8863	7	9	PSTN		Down
2	☑	886	Strip	886	8	10	VoIP1	UP	Down
3	□		None		0	0	PSTN	UP	Down
4	□		None		0	0	PSTN	UP	Down
5	□		None		0	0	PSTN	UP	Down
17	□		None		0	0	PSTN	UP	Down
18	□		None		0	0	PSTN	UP	Down
19	□		None		0	0	PSTN	UP	Down
20	□		None		0	0	PSTN	UP	

Note: 1. The length for Min Len and Max Len fields should be between 0~25.
2. Wildcard '?' is supported.

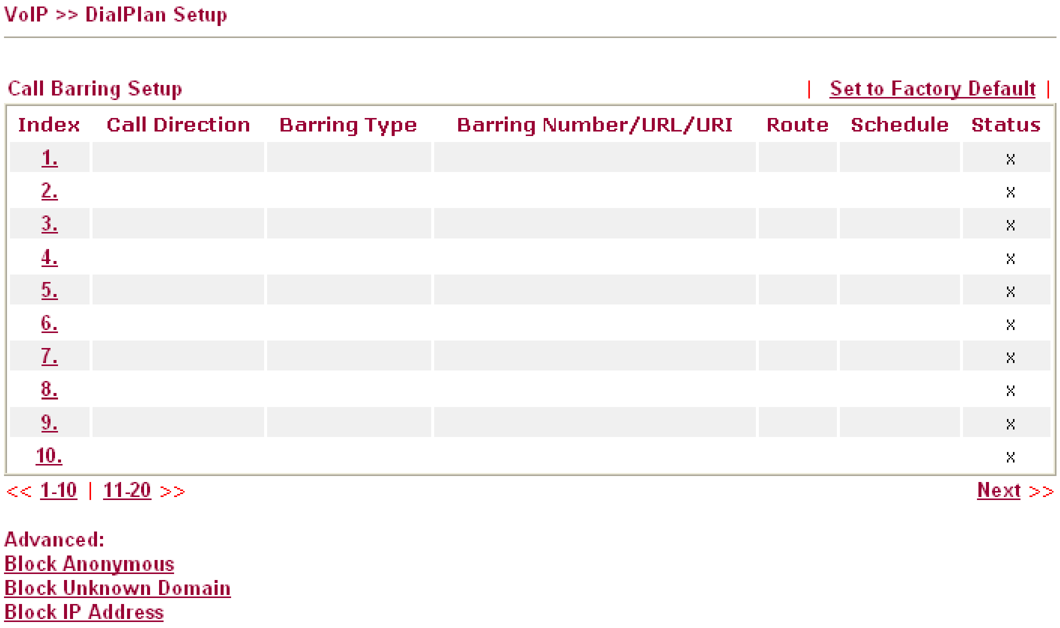
Available settings are explained as follows:

Item	Description
Enable	Check it to enable this entry.
Match Prefix	The phone number set here is used to add, strip, or replace the OP number.
Mode	**None** - No action. **Add** - When you choose this mode, the OP number will be added with the prefix number for calling out through the specific VoIP interface. **Strip** - When you choose this mode, the OP number will be deleted by the prefix number for calling out through the specific VoIP interface. Take the above picture (Prefix Table Setup web page) as an example, the OP number of *886* will be deleted completely for the prefix number is set with *886*. **Replace** - When you choose this mode, the OP number will be replaced by the prefix number for calling out through the specific VoIP interface. Take the above picture (Prefix Table Setup web page) as an example, the prefix number of 03 will be replaced by 8863. For example: dial number of "031111111" will be changed to "88631111111" and sent to SIP server.

Item	Description
	 Mode Replace None Add Strip Replace
OP Number	The front number you type here is the first part of the account number that you want to execute special function (according to the chosen mode) by using the prefix number.
Min Len	Set the minimal length of the dial number for applying the prefix number settings. Take the above picture (Prefix Table Setup web page) as an example, if the dial number is between 7 and 9, that number can apply the prefix number settings here.
Max Len	Set the maximum length of the dial number for applying the prefix number settings.
Route	Choose the one that you want to enable the prefix number settings from the saved SIP accounts. Please set up one SIP account first to make this interface available. This item will be changed according to the port settings configured in **VoIP>> Phone Settings**.
Move UP /Move Down	Click the link to move the selected entry up or down.

Call Barring

Call barring is used to block phone calls coming from the one that is not welcomed.



VoIP >> DialPlan Setup

Call Barring Setup | Set to Factory Default |

Index	Call Direction	Barring Type	Barring Number/URL/URI	Route	Schedule	Status
1.						×
2.						×
3.						×
4.						×
5.						×
6.						×
7.						×
8.						×
9.						×
10.						×

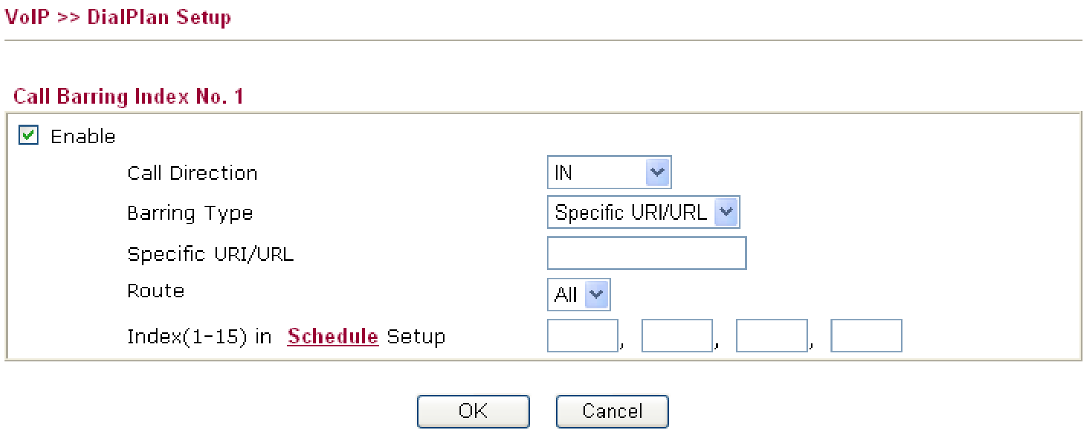
<< 1-10 | 11-20 >> Next >>

Advanced:
Block Anonymous
Block Unknown Domain
Block IP Address

Each item is explained as follows:

Item	Description
Index	Display the number link that you can click for configuration.
Call Direction	Display the direction (IN, OUT, or IN & OUT) for the phone call
Barring Type	Display the type of the VoIP phone call.
Barring Number/URL/URI	Display the number, URL or URI of this entry.
Route	Display if all the phone calls will be blocked with such mechanism.
Schedule	Display the schedule profiles applied to this entry.
Status	Display such entry is enabled or not.
Block Anonymous	Block the incoming calls without caller ID on the interface.
Block Unknown Domain	Block incoming calls (through Phone port) from unrecognized domain that is not specified in SIP accounts.
Block IP Address	Block incoming calls (through Phone port) coming from IP address.

Simply click any index number to display the dial plan setup page.



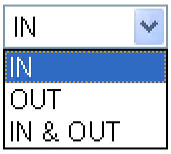
VoIP >> DialPlan Setup

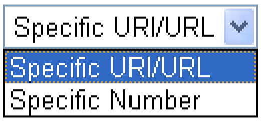
Call Barring Index No. 1

☑ Enable

Call Direction	IN
Barring Type	Specific URI/URL
Specific URI/URL	
Route	All
Index(1-15) in Schedule Setup	, , ,

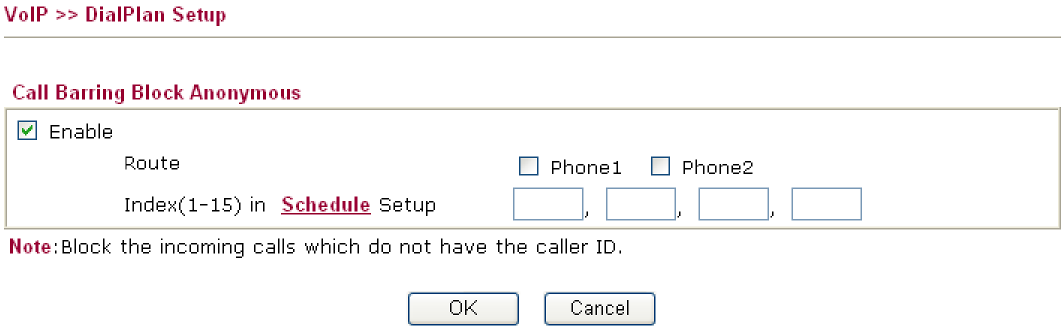
Available settings are explained as follows:

Item	Description
Enable	Check it to enable this entry.
Call Direction	Determine the direction for the phone call, IN – incoming call, OUT-outgoing call, IN & OUT – both incoming and outgoing calls. 
Barring Type	Determine the type of the VoIP phone call, URI/URL or number.

Item	Description
	
Specific URI/URL or Specific Number	This field will be changed based on the type you selected for barring Type.
Route	**All** means all the phone calls will be blocked with such mechanism.
Index (1-15) in Schedule	Enter the index of schedule profiles to control the call barring according to the preconfigured schedules. Refer to section **Applications>>Schedule** for detailed configuration.

Additionally, you can set advanced settings for call barring such as **Block Anonymous**, **Block Unknown Domain** or **Block IP Address**. Simply click the relational links to open the web page.

For **Block Anonymous –** this function can block the incoming calls without caller ID on the interface (Phone port) specified in the following window. Such control also can be done based on preconfigured schedules.



VoIP >> DialPlan Setup

Call Barring Block Anonymous

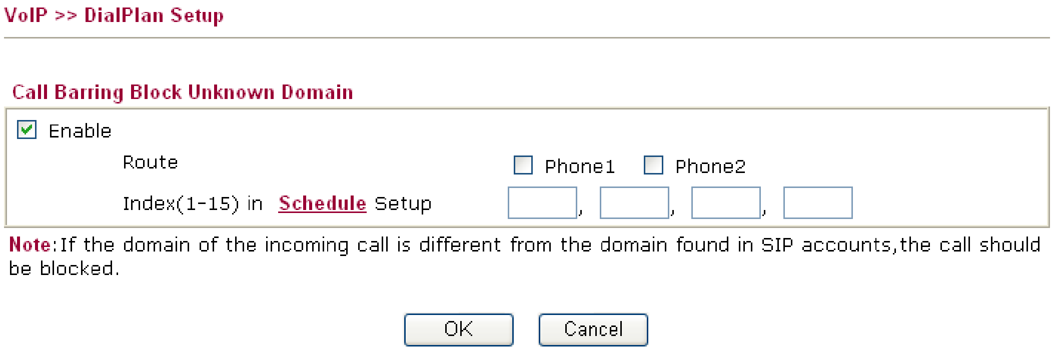
☑ Enable

Route ☐ Phone1 ☐ Phone2

Index(1-15) in Schedule Setup ____, ____, ____, ____

Note:Block the incoming calls which do not have the caller ID.

For **Block Unknown Domain –** this function can block incoming calls (through Phone port) from unrecognized domain that is not specified in SIP accounts. Such control also can be done based on preconfigured schedules.



VoIP >> DialPlan Setup

Call Barring Block Unknown Domain

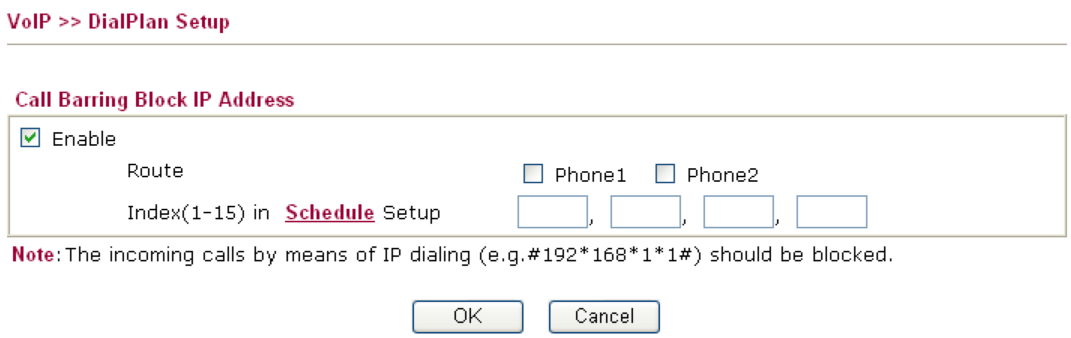
☑ Enable

Route ☐ Phone1 ☐ Phone2

Index(1-15) in Schedule Setup ____, ____, ____, ____

Note:If the domain of the incoming call is different from the domain found in SIP accounts,the call should be blocked.

For **Block IP Address –** this function can block incoming calls (through Phone port) coming from IP address. Such control also can be done based on preconfigured schedules.



VoIP >> DialPlan Setup

Call Barring Block IP Address

☑ Enable

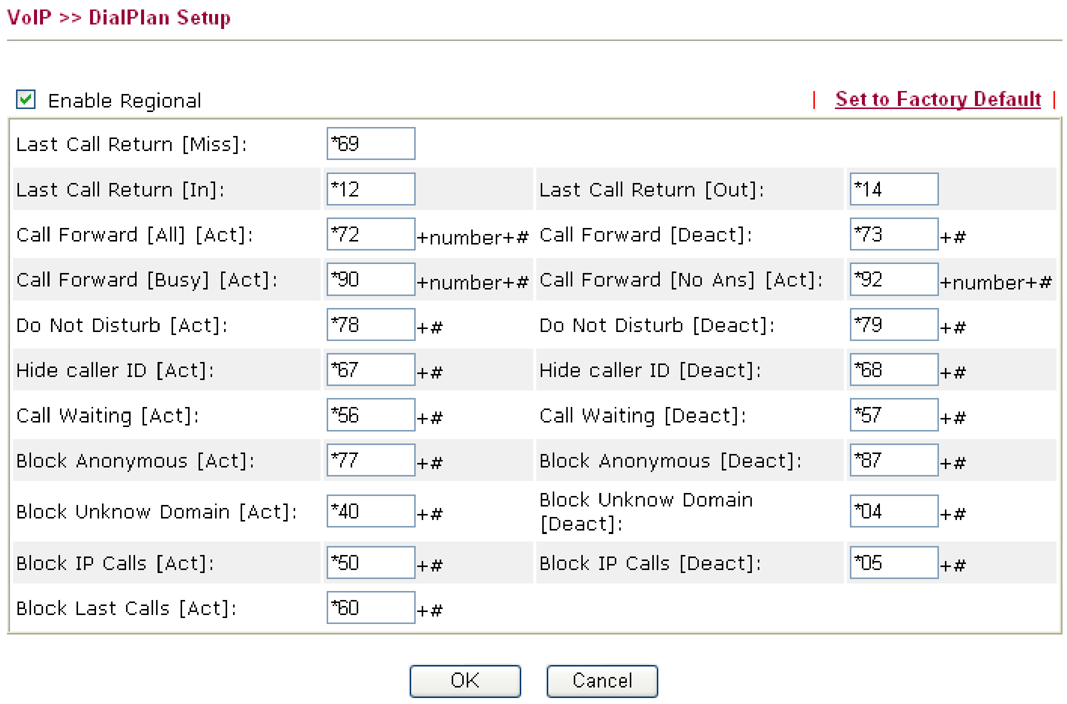
Route ☐ Phone1 ☐ Phone2

Index(1-15) in Schedule Setup [ ], [ ], [ ], [ ]

Note: The incoming calls by means of IP dialing (e.g.#192*168*1*1#) should be blocked.

Regional

This page allows you to process incoming or outgoing phone calls by regional. Default values (common used in most areas) will be shown on this web page. You ***can change*** the number based on the region that the router is placed.



VoIP >> DialPlan Setup

☑ Enable Regional | Set to Factory Default |

Last Call Return [Miss]:	*69		
Last Call Return [In]:	*12	Last Call Return [Out]:	*14
Call Forward [All] [Act]:	*72 +number+#	Call Forward [Deact]:	*73 +#
Call Forward [Busy] [Act]:	*90 +number+#	Call Forward [No Ans] [Act]:	*92 +number+#
Do Not Disturb [Act]:	*78 +#	Do Not Disturb [Deact]:	*79 +#
Hide caller ID [Act]:	*67 +#	Hide caller ID [Deact]:	*68 +#
Call Waiting [Act]:	*56 +#	Call Waiting [Deact]:	*57 +#
Block Anonymous [Act]:	*77 +#	Block Anonymous [Deact]:	*87 +#
Block Unknow Domain [Act]:	*40 +#	Block Unknow Domain [Deact]:	*04 +#
Block IP Calls [Act]:	*50 +#	Block IP Calls [Deact]:	*05 +#
Block Last Calls [Act]:	*60 +#		

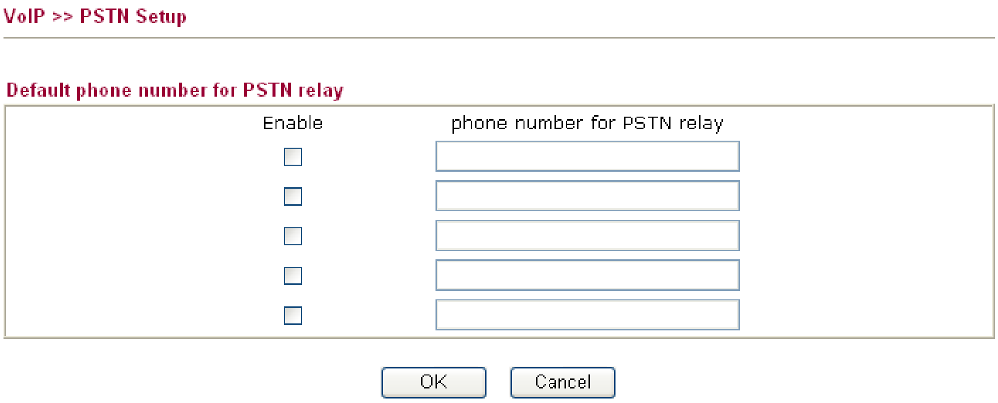
Available settings are explained as follows:

Item	Description
Enable Regional	Check this box to enable this function.
Last Call Return [Miss]	Sometimes, people might miss some phone calls. Please dial number typed in this field to know where the last phone call comes from and call back to that one.
Last Call Return [In]	You have finished an incoming phone call, however you want to call back again for some reason. Please dial number typed in this field to call back to that one.
Last Call Return [Out]	Dial the number typed in this field to call the previous outgoing phone call again.

Item	Description
Call Forward [All][Act]	Dial the number typed in this field to forward all the incoming calls to the specified place.
Call Forward [Deact]	Dial the number typed in this field to release the call forward function.
Call Forward [Busy][Act]	Dial the number typed in this field to forward all the incoming calls to the specified place while the phone is busy.
Call Forward [No Ans][Act]	Dial the number typed in this field to forward all the incoming calls to the specified place while there is no answer of the connected phone.
Do Not Disturb [Act]	Dial the number typed in this field to invoke the function of DND.
Do Not Distrub [Deact]	Dial the number typed in this field to release the DND function.
Hide caller ID [Act]	Dial the number typed in this field to make your phone number (ID) not displayed on the display panel of remote end.
Hide caller ID [Deact]	Dial the number typed in this field to release this function.
Call Waiting [Act]	Dial the number typed in this field to make all the incoming calls waiting for your answer.
Call Waiting [Deact]	Dial the number typed in this field to release this function.
Block Anonymous[Act]	Dial the number typed in this field to block all the incoming calls with unknown ID.
Block Anonymous[Deact]	Dial the number typed in this field to release this function.
Block Unknown Domain [Act]	Dial the number typed in this field to block all the incoming calls from unknown domain.
Block Unknown Domain [Deact]	Dial the number typed in this field to release this function.
Block IP Calls [Act]	Dial the number typed in this filed to block all the incoming calls from IP address.
Block IP Calls [Deact]	Dial the number typed in this field to release this function.
Block Last Calls [Act]	Dial the number typed in this field to block the last incoming phone call.

PSTN Setup

Some emergency phone (e.g., 911) or special phone cannot be dialed out by using VoIP and can be called out through PSTN line only. To solve this problem, this page allows you to set five sets of PSTN number for dialing without passing through Internet. Please type the number in the field of **phone number for PSTN relay**.



VoIP >> PSTN Setup

Default phone number for PSTN relay

Enable	phone number for PSTN relay
□	
□	
□	
□	
□	

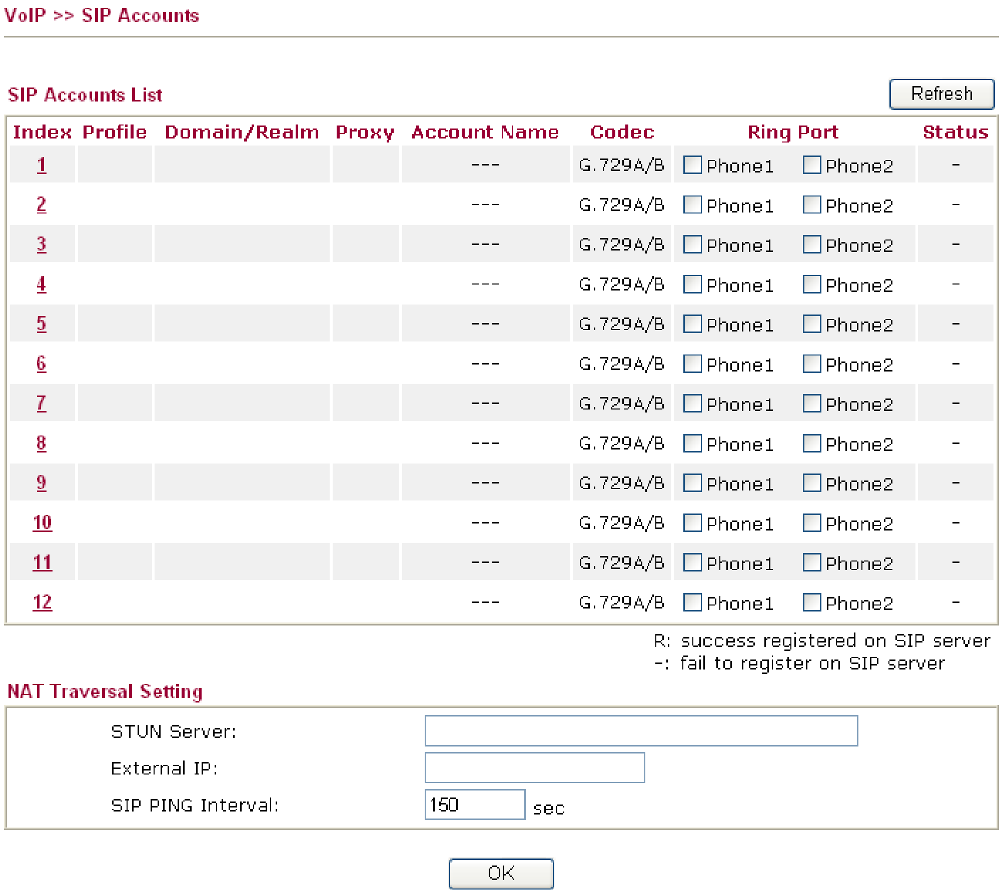
Then, check the **Enable** box to make the PSTN number available for dial whenever you need.

4.12.2 SIP Accounts

In this section, you set up your own SIP settings. When you apply for an account, your SIP service provider will give you an **Account Name** or user name, **SIP Registrar, Proxy,** and **Domain name**. (The last three might be the same in some case). Then you can tell your folks your SIP Address as in **Account Name@ Domain name**

As Vigor VoIP Router is turned on, it will first register with Registrar using AuthorizationUser@Domain/Realm. After that, your call will be bypassed by SIP Proxy to the destination using AccountName@Domain/Realm as identity.

Note: Selection items for **Ring Port** will differ according to the router you have.



VoIP >> SIP Accounts

SIP Accounts List

Index	Profile	Domain/Realm	Proxy	Account Name	Codec	Ring Port	Status
1				---	G.729A/B	□ Phone1 □ Phone2	-
2				---	G.729A/B	□ Phone1 □ Phone2	-
3				---	G.729A/B	□ Phone1 □ Phone2	-
4				---	G.729A/B	□ Phone1 □ Phone2	-
5				---	G.729A/B	□ Phone1 □ Phone2	-
6				---	G.729A/B	□ Phone1 □ Phone2	-
7				---	G.729A/B	□ Phone1 □ Phone2	-
8				---	G.729A/B	□ Phone1 □ Phone2	-
9				---	G.729A/B	□ Phone1 □ Phone2	-
10				---	G.729A/B	□ Phone1 □ Phone2	-
11				---	G.729A/B	□ Phone1 □ Phone2	-
12				---	G.729A/B	□ Phone1 □ Phone2	-

R: success registered on SIP server
-: fail to register on SIP server

NAT Traversal Setting

STUN Server:

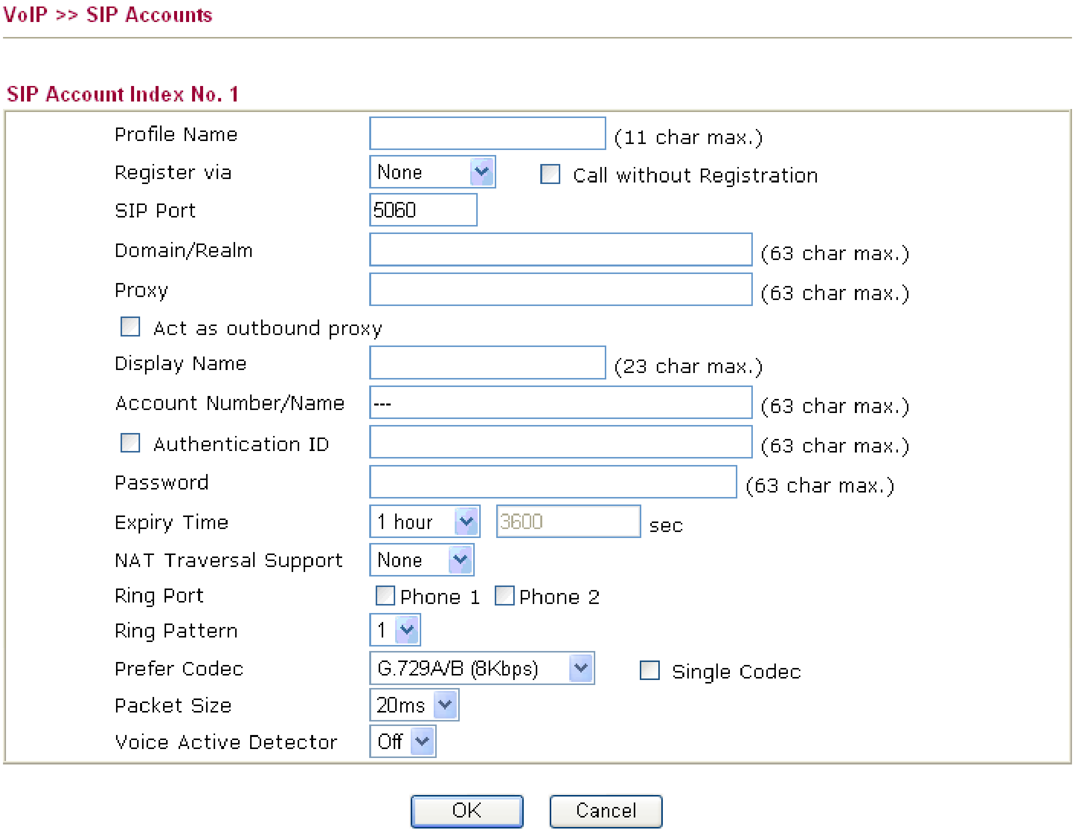
External IP:

SIP PING Interval: 150 sec

Available settings are explained as follows:

Item	Description
Index	Click this link to access into next page for setting SIP account.
Profile	Display the profile name of the account.
Domain/Realm	Display the domain name or IP address of the SIP registrar server.
Proxy	Display the domain name or IP address of the SIP proxy server.
Account Name	Display the account name of SIP address before @.
Codec	Display the codec type for the account.
Ring Port	Specify which port will ring when receiving a phone call. Set Phone, ISDN1-S0 or ISDN-TE as the default ring port for the SIP account. If you choose Phone or ISDN1-S0, the ISDN2-TE selection will be dimmed, vice versa. There are ten internal lines with numbers (30 – 39) offered for **ISDN-S0**. You can specify any one of them as ring port for specified SIP account. By the way, ISDN-S0 can be used by mapping with MSN numbers.
Status	Show the status for the corresponding SIP account. **R** means such account is registered on SIP server successfully. **–** means the account is failed to register on SIP server.

Item	Description
STUN Server	Type in the IP address or domain of the STUN server.
External IP	Type in the gateway IP address.
SIP PING interval	The default value is 150 (sec). It is useful for a Nortel server NAT Traversal Support.



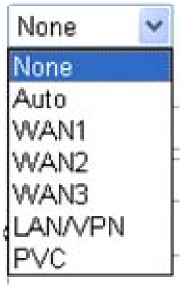
VoIP >> SIP Accounts

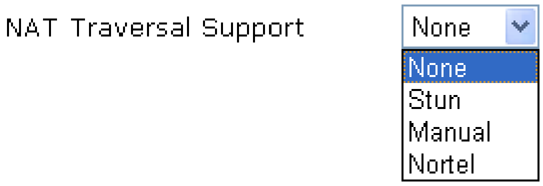
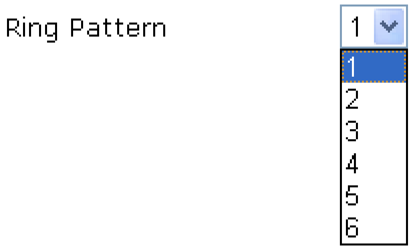
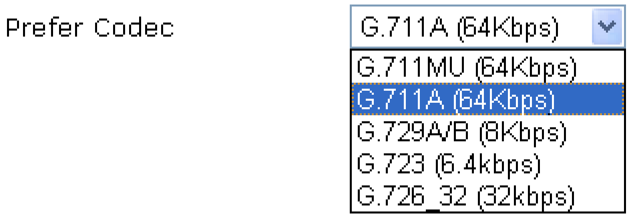
SIP Account Index No. 1

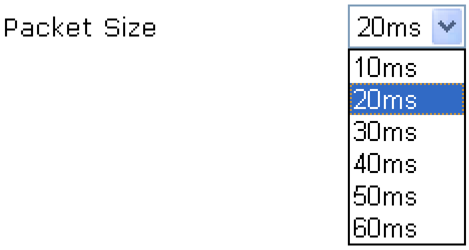
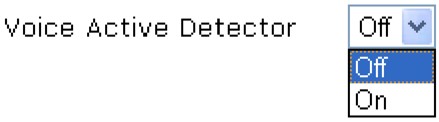
Profile Name		(11 char max.)
Register via	None	□ Call without Registration
SIP Port	5060	
Domain/Realm		(63 char max.)
Proxy		(63 char max.)
□ Act as outbound proxy		
Display Name		(23 char max.)
Account Number/Name	---	(63 char max.)
□ Authentication ID		(63 char max.)
Password		(63 char max.)
Expiry Time	1 hour	3600 sec
NAT Traversal Support	None	
Ring Port	□ Phone 1 □ Phone 2	
Ring Pattern	1	
Prefer Codec	G.729A/B (8Kbps)	□ Single Codec
Packet Size	20ms	
Voice Active Detector	Off	

Available settings are explained as follows:

Item	Description
Profile Name	Assign a name for this profile for identifying. You can type similar name with the domain. For example, if the domain name is *draytel.org*, then you might set *draytel-1* in this field.

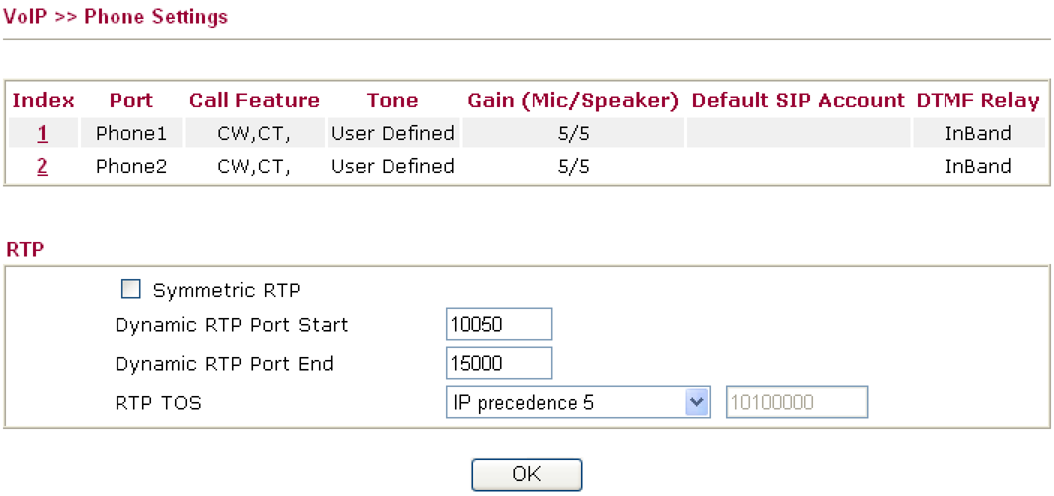
Register via	If you want to make VoIP call without register personal information, please choose **None** and check the box to achieve the goal. Some SIP server allows user to use VoIP function without registering. For such server, please check the box of **Call without Registration**. Choosing **Auto** is recommended. The system will select a proper way for your VoIP call.  None None Auto WAN1 WAN2 WAN3 LAN/VPN PVC
SIP Port	Set the port number for sending/receiving SIP message for building a session. The default value is **5060.** Your peer must set the same value in his/her Registrar.
Domain/Realm	Set the domain name or IP address of the SIP Registrar server.
Proxy	Set domain name or IP address of SIP proxy server. By the time you can type **:port number** after the domain name to specify that port as the destination of data transmission (e.g., **nat.draytel.org:5065**)
Act as Outbound Proxy	Check this box to make the proxy acting as outbound proxy.
Display Name	The caller-ID that you want to be displayed on your friend's screen.
Account Number/Name	Enter your account name of SIP Address, e.g. every text before @.
Authentication ID	Check the box to invoke this function and enter the name or number used for SIP Authorization with SIP Registrar. If this setting value is the same as Account Name, it is not necessary for you to check the box and set any value in this field.
Password	The password provided to you when you registered with a SIP service.
Expiry Time	The time duration that your SIP Registrar server keeps your registration record. Before the time expires, the router will send another register request to SIP Registrar again.

NAT Traversal Support	If the router (e.g., broadband router) you use connects to internet by other device, you have to set this function for your necessity.  NAT Traversal Support None **None –** Disable this function. **Stun** – Choose this option if there is Stun server provided for your router. **Manual** – Choose this option if you want to specify an external IP address as the NAT transversal support. **Nortel** – If the soft-switch that you use supports Nortel solution, you can choose this option.
Ring Port	Set Phone 1 and/or Phone 2 as the default ring port(s) for this SIP account.
Ring Pattern	Choose a ring tone type for the VoIP phone call.  Ring Pattern 1
Prefer Codec	Select one of five codecs as the default for your VoIP calls. The codec used for each call will be negotiated with the peer party before each session, and so may not be your default choice. The default codec is G.729A/B; it occupies little bandwidth while maintaining good voice quality. If your upstream speed is only 64Kbps, do not use G.711 codec. It is better for you to have at least 256Kbps upstream if you would like to use G.711.  Prefer Codec G.711A (64Kbps) G.711MU (64Kbps) G.711A (64Kbps) G.729A/B (8Kbps) G.723 (6.4kbps) G.726_32 (32kbps) **Single Codec** – If the box is checked, only the selected Codec will be applied.

Packet Size	The amount of data contained in a single packet. The default value is 20 ms, which means the data packet will contain 20 ms voice information.  Packet Size 20ms 10ms 20ms 30ms 40ms 50ms 60ms
Voice Active Detector	This function can detect if the voice on both sides is active or not. If not, the router will do something to save the bandwidth for other using. Click On to invoke this function; click off to close the function.  Voice Active Detector Off Off On

4.12.3 Phone Settings

This page allows user to set phone settings for Phone 1 and Phone 2 respectively. However, it changes slightly according to different model you have.



VoIP >> Phone Settings

Index	Port	Call Feature	Tone	Gain (Mic/Speaker)	Default SIP Account	DTMF Relay
1	Phone1	CW,CT,	User Defined	5/5		InBand
2	Phone2	CW,CT,	User Defined	5/5		InBand

RTP

☐ Symmetric RTP

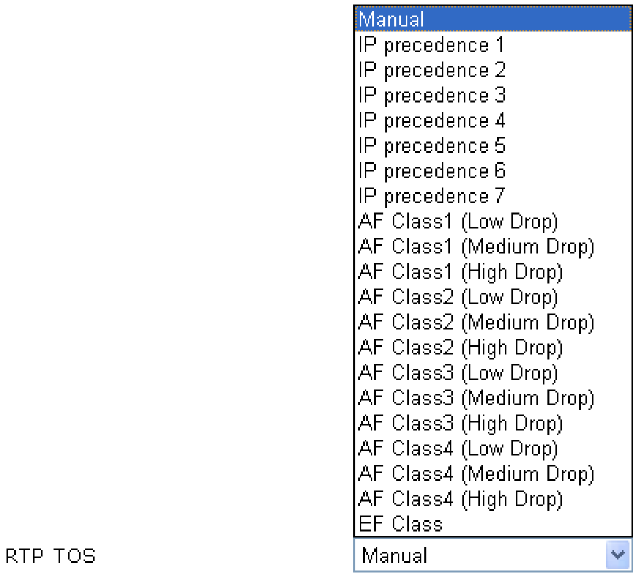
Dynamic RTP Port Start 10050

Dynamic RTP Port End 15000

RTP TOS IP precedence 5 10100000

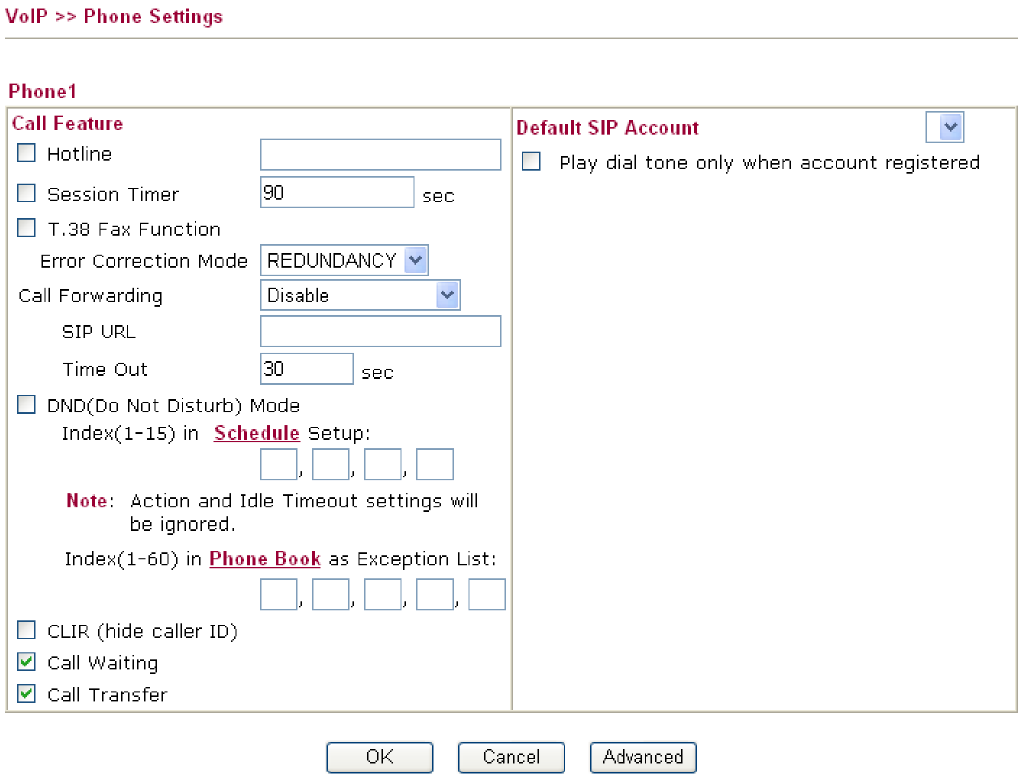
Available settings are explained as follows:

Item	Description
Phone List	**Port –** there are two phone ports provided here for you to configure. **Phone1/Phone2** allows you to set general settings for PSTN phones. **Call Feature** – A brief description for call feature will be shown in this field for your reference. **Tone** - Display the tone settings that configured in the advanced settings page of Phone Index. **Gain** - Display the volume gain settings for Mic/Speaker that configured in the advanced settings page of Phone Index.

Item	Description
	Default SIP Account – "draytel_1" is the default SIP account. You can click the number below the Index field to change SIP account for each phone port. **DTMF Relay** – Display DTMF mode that configured in the advanced settings page of Phone Index.
RTP	**Symmetric RTP** – Check this box to invoke the function. To make the data transmission going through on both ends of local router and remote router not misleading due to IP lost (for example, sending data from the public IP of remote router to the private IP of local router), you can check this box to solve this problem. **Dynamic RTP Port Start -** Specifies the start port for RTP stream. The default value is 10050. **Dynamic RTP Port End -** Specifies the end port for RTP stream. The default value is 15000. **RTP TOS** – It decides the level of VoIP package. Use the drop down list to choose any one of them.  Manual IP precedence 1 IP precedence 2 IP precedence 3 IP precedence 4 IP precedence 5 IP precedence 6 IP precedence 7 AF Class1 (Low Drop) AF Class1 (Medium Drop) AF Class1 (High Drop) AF Class2 (Low Drop) AF Class2 (Medium Drop) AF Class2 (High Drop) AF Class3 (Low Drop) AF Class3 (Medium Drop) AF Class3 (High Drop) AF Class4 (Low Drop) AF Class4 (Medium Drop) AF Class4 (High Drop) EF Class RTP TOS Manual

Detailed Settings for Phone Port

Click the number link for Phone port, you can access into the following page for configuring Phone settings.



VoIP >> Phone Settings

Phone1

Call Feature

□ Hotline

□ Session Timer 90 sec

□ T.38 Fax Function

Error Correction Mode REDUNDANCY

Call Forwarding Disable

SIP URL

Time Out 30 sec

□ DND(Do Not Disturb) Mode

Index(1-15) in Schedule Setup:

Note: Action and Idle Timeout settings will be ignored.

Index(1-60) in Phone Book as Exception List:

□ CLIR (hide caller ID)

☑ Call Waiting

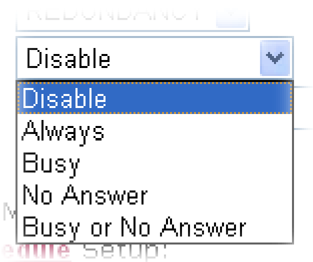
☑ Call Transfer

Default SIP Account

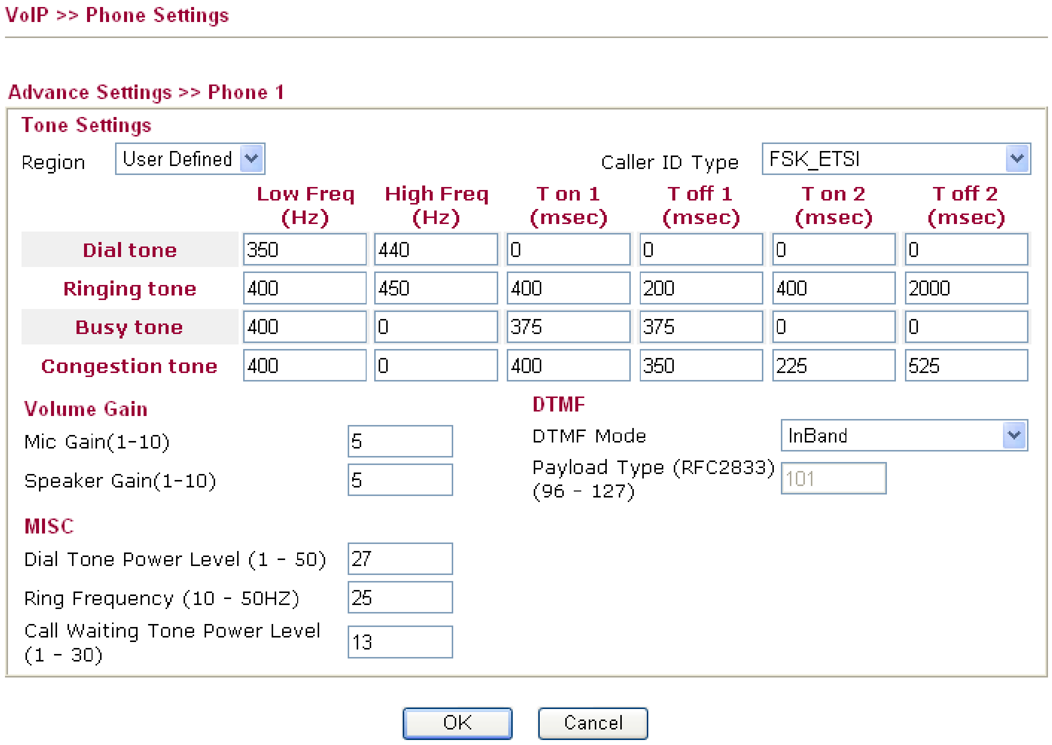
□ Play dial tone only when account registered

Available settings are explained as follows:

Item	Description
Hotline	Check the box to enable it. Type in the SIP URL in the field for dialing automatically when you pick up the phone set.
Session Timer	Check the box to enable the function. In the limited time that you set in this field, if there is no response, the connecting call will be closed automatically.
T.38 Fax Function	Check the box to enable T.38 fax function. **Error Correction Mode –** choose a mode for error correction.

Call Forwarding	There are four options for you to choose. **Disable** is to close call forwarding function. **Always** means all the incoming calls will be forwarded into SIP URL without any reason. **Busy** means the incoming calls will be forwarded into SIP URL only when the local system is busy. **No Answer** means if the incoming calls do not receive any response, they will be forwarded to the SIP URL by the time out.  Disable Disable Always Busy No Answer Busy or No Answer **SIP URL** – Type in the SIP URL (e.g., aaa@draytel.org or abc@iptel.org) as the site for call forwarded. **Time Out** – Set the time out for the call forwarding. The default setting is 30 sec.
DND (Do Not Disturb) mode	Set a period of peace time without disturbing by VoIP phone call. During the period, the one who dial in will listen busy tone, yet the local user will not listen any ring tone. **Index (1-15) in Schedule -** Enter the index of schedule profiles to control when the phone will ring and when will not according to the preconfigured schedules. Refer to section **Application** >>**Schedule** for detailed configuration. **Index (1-60) in Phone Book -** Enter the index of phone book profiles. Refer to section **DialPlan – Phone Book** for detailed configuration.
CLIR (hide caller ID)	Check this box to hide the caller ID on the display panel of the phone set.
Call Waiting	Check this box to invoke this function. A notice sound will appear to tell the user new phone call is waiting for your response. Click hook flash to pick up the waiting phone call.
Call Transfer	Check this box to invoke this function. Click hook flash to initiate another phone call. When the phone call connection succeeds, hang up the phone. The other two sides can communicate, then.
Default SIP Account	You can set SIP accounts (up to six groups) on SIP Account page. Use the drop down list to choose one of the profile names for the accounts as the default one for this phone setting. **Play dial tone only when account registered -** Check this box to invoke the function.

In addition, you can press the **Advanced** button to configure tone settings, volume gain, MISC and DTMF mode. **Advanced** setting is provided for fitting the telecommunication custom for the local area of the router installed. Wrong tone settings might cause inconvenience for users. To set the sound pattern of the phone set, simply choose a proper region to let the system find out the preset tone settings and caller ID type automatically. Or you can adjust tone settings manually if you choose User Defined. TOn1, TOff1, TOn2 and TOff2 mean the cadence of the tone pattern. TOn1 and TOn2 represent sound-on; TOff1 and TOff2 represent the sound-off.



VoIP >> Phone Settings

Advance Settings >> Phone 1

Tone Settings

Region: User Defined

Caller ID Type: FSK_ETSI

	Low Freq (Hz)	High Freq (Hz)	T on 1 (msec)	T off 1 (msec)	T on 2 (msec)	T off 2 (msec)
Dial tone	350	440	0	0	0	0
Ringing tone	400	450	400	200	400	2000
Busy tone	400	0	375	375	0	0
Congestion tone	400	0	400	350	225	525

Volume Gain

Mic Gain(1-10): 5

Speaker Gain(1-10): 5

DTMF

DTMF Mode: InBand

Payload Type (RFC2833) (96 - 127): 101

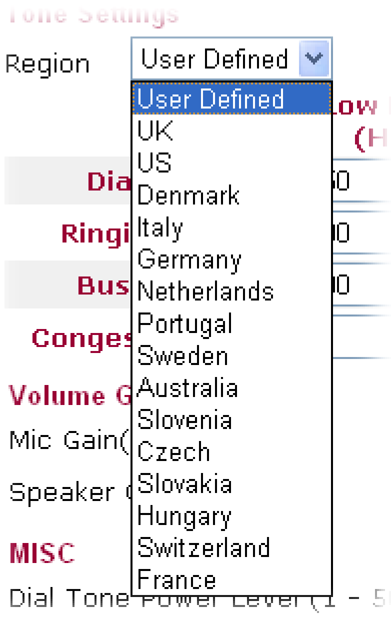
MISC

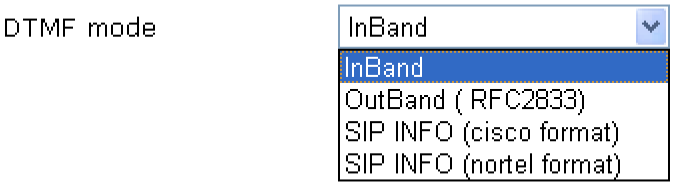
Dial Tone Power Level (1 - 50): 27

Ring Frequency (10 - 50HZ): 25

Call Waiting Tone Power Level (1 - 30): 13

Available settings are explained as follows:

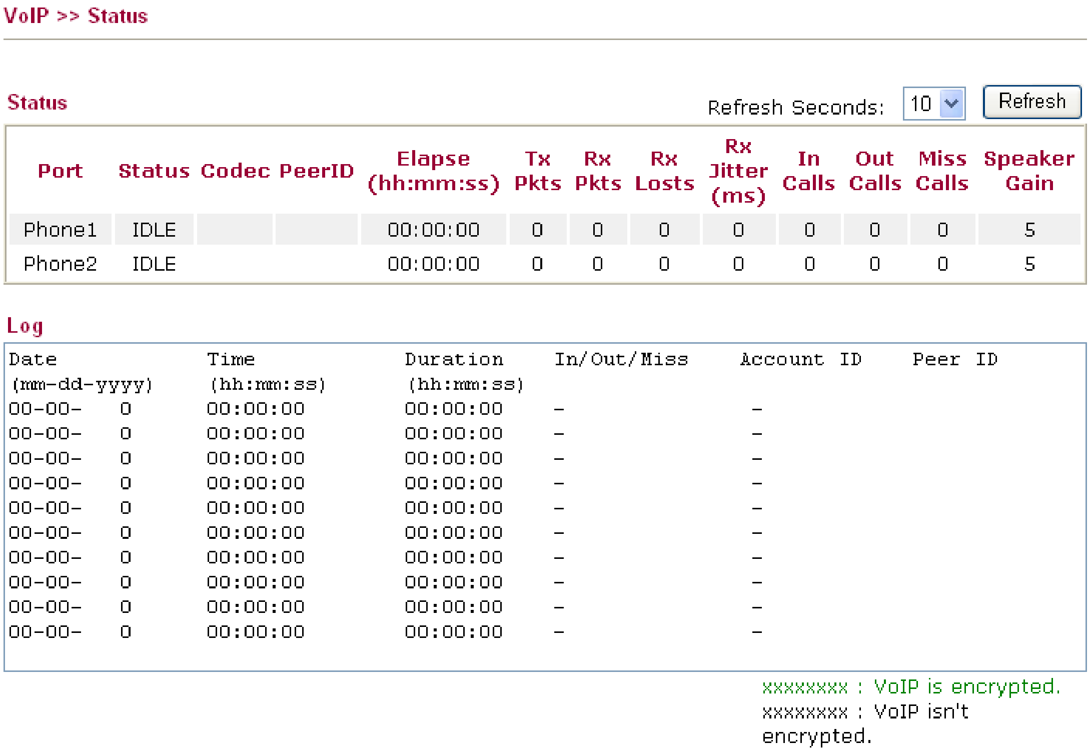
Item	**Description**
Region	Select the proper region which you are located. The common settings of **Caller ID Type**, **Dial tone**, **Ringing tone**, **Busy tone** and **Congestion tone** will be shown automatically on the page. If you cannot find out a suitable one, please choose **User Defined** and fill out the corresponding values for dial tone, ringing tone, busy tone, congestion tone by yourself for VoIP phone.  Tone Settings Region User Defined User Defined UK US Denmark Italy Germany Netherlands Portugal Sweden Australia Slovenia Czech Slovakia Hungary Switzerland France Dial tone Ringing tone Busy tone Congestion tone Volume Gain Mic Gain Speaker MISC Dial Tone Power Level (1 - 5

Item	**Description**
	Also, you can specify each field for your necessity. It is recommended for you to use the default settings for VoIP communication.
Volume Gain	**Mic Gain (1-10)/Speaker Gain (1-10)** - Adjust the volume of microphone and speaker by entering number from 1- 10. The larger of the number, the louder the volume is.
MISC	**Dial Tone Power Level** - This setting is used to adjust the loudness of the dial tone. The smaller the number is, the louder the dial tone is. It is recommended for you to use the default setting. **Ring Frequency** - This setting is used to drive the frequency of the ring tone. It is recommended for you to use the default setting. **Call Waiting Tone Power Level** - This setting is used to adjust the loudness of the call waiting tone. The smaller the number is, the louder the tone is. It is recommended for you to use the default setting.
DTMF	**DTMF Mode –** There are four DTMF modes for you to choose. DTMF mode: InBand InBand OutBand (RFC2833) SIP INFO (cisco format) SIP INFO (nortel format) ● ***InBand*** - Choose this one then the Vigor will send the DTMF tone as audio directly when you press the keypad on the phone. ● ***OutBand*** - Choose this one then the Vigor will capture the keypad number you pressed and transform it to digital form then send to the other side; the receiver will generate the tone according to the digital form it receive. This function is very useful when the network traffic congestion occurs and it still can remain the accuracy of DTMF tone. ● ***SIP INFO***- Choose this one then the Vigor will capture the DTMF tone and transfer it into SIP form. Then it will be sent to the remote end with SIP message. **Payload Type (rfc2833) -** Choose a number from 96 to 127, the default value was 101. This setting is available for the OutBand (RFC2833) mode.

]

4.12.4 Status

From this page, you can find codec, connection and other important call status for each port.



VoIP >> Status

Status   Refresh Seconds: 10   Refresh

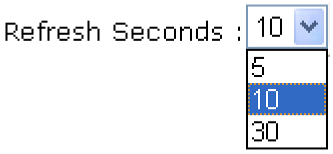
Port	Status	Codec	PeerID	Elapse (hh:mm:ss)	Tx Pkts	Rx Pkts	Rx Losts	Rx Jitter (ms)	In Calls	Out Calls	Miss Calls	Speaker Gain
Phone1	IDLE			00:00:00	0	0	0	0	0	0	0	5
Phone2	IDLE			00:00:00	0	0	0	0	0	0	0	5

Log

```
Date            Time          Duration     In/Out/Miss    Account ID    Peer ID
(mm-dd-yyyy)    (hh:mm:ss)    (hh:mm:ss)
00-00-    0     00:00:00      00:00:00     -              -
00-00-    0     00:00:00      00:00:00     -              -
00-00-    0     00:00:00      00:00:00     -              -
00-00-    0     00:00:00      00:00:00     -              -
00-00-    0     00:00:00      00:00:00     -              -
00-00-    0     00:00:00      00:00:00     -              -
00-00-    0     00:00:00      00:00:00     -              -
00-00-    0     00:00:00      00:00:00     -              -
00-00-    0     00:00:00      00:00:00     -              -
00-00-    0     00:00:00      00:00:00     -              -
```

xxxxxxxx : VoIP is encrypted.
xxxxxxxx : VoIP isn't encrypted.

Each item is explained as follows:

Item	Description
Refresh Seconds	Specify the interval of refresh time to obtain the latest VoIP calling information. The information will update immediately when the Refresh button is clicked.  Refresh Seconds : 10 5 10 30
Port	It shows current connection status for Phone(s) and ISDN ports.
Status	It shows the VoIP connection status. **IDLE -** Indicates that the VoIP function is idle. **HANG_UP -** Indicates that the connection is not established (busy tone). **CONNECTING -** Indicates that the user is calling out. **WAIT_ANS -** Indicates that a connection is launched and waiting for remote user's answer. **ALERTING -** Indicates that a call is coming. **ACTIVE**-Indicates that the VoIP connection is launched.
Codec	Indicates the voice codec employed by present channel.

PeerID	The present in-call or out-call peer ID (the format may be IP or Domain).
Elapse	The format is represented as hours:minutes:seconds.
Tx Pkts	Total number of transmitted voice packets during this connection session.
Rx Pkts	Total number of received voice packets during this connection session.
Rx Losts	Total number of lost packets during this connection session.
Rx Jitter	The jitter of received voice packets.
In Calls	Accumulation for the times of in call.
Out Calls	Accumulation for the times of out call.
Miss Calls	Accumulation for the times of missing call.
Speaker Gain	The volume of present call.
Log	Display logs of VoIP calls.

4.13 Wireless LAN

This function is used for "n" models only.

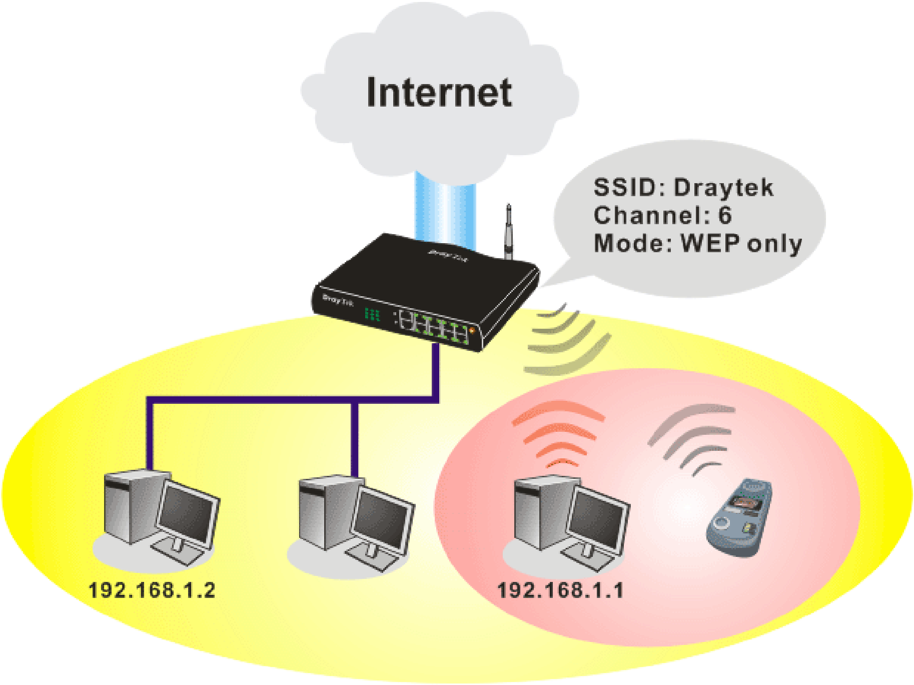
4.13.1 Basic Concepts

Over recent years, the market for wireless communications has enjoyed tremendous growth. Wireless technology now reaches or is capable of reaching virtually every location on the surface of the earth. Hundreds of millions of people exchange information every day via wireless communication products. The Vigor "n" model, a.k.a. Vigor wireless router, is designed for maximum flexibility and efficiency of a small office/home. Any authorized staff can bring a built-in WLAN client PDA or notebook into a meeting room for conference without laying a clot of LAN cable or drilling holes everywhere. Wireless LAN enables high mobility so WLAN users can simultaneously access all LAN facilities just like on a wired LAN as well as Internet access.

The Vigor wireless routers are equipped with a wireless LAN interface compliant with the standard IEEE 802.11n draft 2 protocol. To boost its performance further, the Vigor Router is also loaded with advanced wireless technology to lift up data rate up to 300 Mbps*. Hence, you can finally smoothly enjoy stream music and video.

> **Note**: * The actual data throughput will vary according to the network conditions and environmental factors, including volume of network traffic, network overhead and building materials.

In an Infrastructure Mode of wireless network, Vigor wireless router plays a role as an Access Point (AP) connecting to lots of wireless clients or Stations (STA). All the STAs will share the same Internet connection via Vigor wireless router. The **General Settings** will set up the information of this wireless network, including its SSID as identification, located channel etc.



Multiple SSIDs

Vigor router supports four SSID settings for wireless connections. Each SSID can be defined with different name and download/upload rate for selecting by stations connected to the router wirelessly.

Security Overview

Real-time Hardware Encryption: Vigor Router is equipped with a hardware AES encryption engine so it can apply the highest protection to your data without influencing user experience.

Complete Security Standard Selection: To ensure the security and privacy of your wireless communication, we provide several prevailing standards on market.

WEP (Wired Equivalent Privacy) is a legacy method to encrypt each frame transmitted via radio using either a 64-bit or 128-bit key. Usually access point will preset a set of four keys and it will communicate with each station using only one out of the four keys.

WPA (Wi-Fi Protected Access), the most dominating security mechanism in industry, is separated into two categories: WPA-personal or called WPA Pre-Share Key (WPA/PSK), and WPA-Enterprise or called WPA/802.1x.

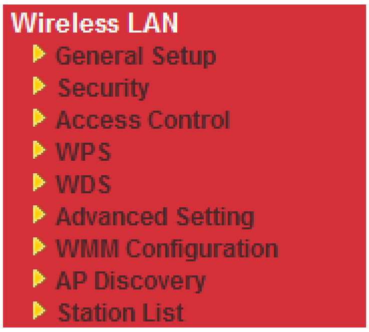
In WPA-Personal, a pre-defined key is used for encryption during data transmission. WPA applies Temporal Key Integrity Protocol (TKIP) for data encryption while WPA2 applies AES. The WPA-Enterprise combines not only encryption but also authentication.

Since WEP has been proved vulnerable, you may consider using WPA for the most secure connection. You should select the appropriate security mechanism according to your needs. No matter which security suite you select, they all will enhance the over-the-air data protection and /or privacy on your wireless network. The Vigor wireless router is very flexible and can support multiple secure connections with both WEP and WPA at the same time.

Separate the Wireless and the Wired LAN- WLAN Isolation enables you to isolate your wireless LAN from wired LAN for either quarantine or limit access reasons. To isolate means neither of the parties can access each other. To elaborate an example for business use, you may set up a wireless LAN for visitors only so they can connect to Internet without hassle of the confidential information leakage. For a more flexible deployment, you may add filters of MAC addresses to isolate users' access from wired LAN.

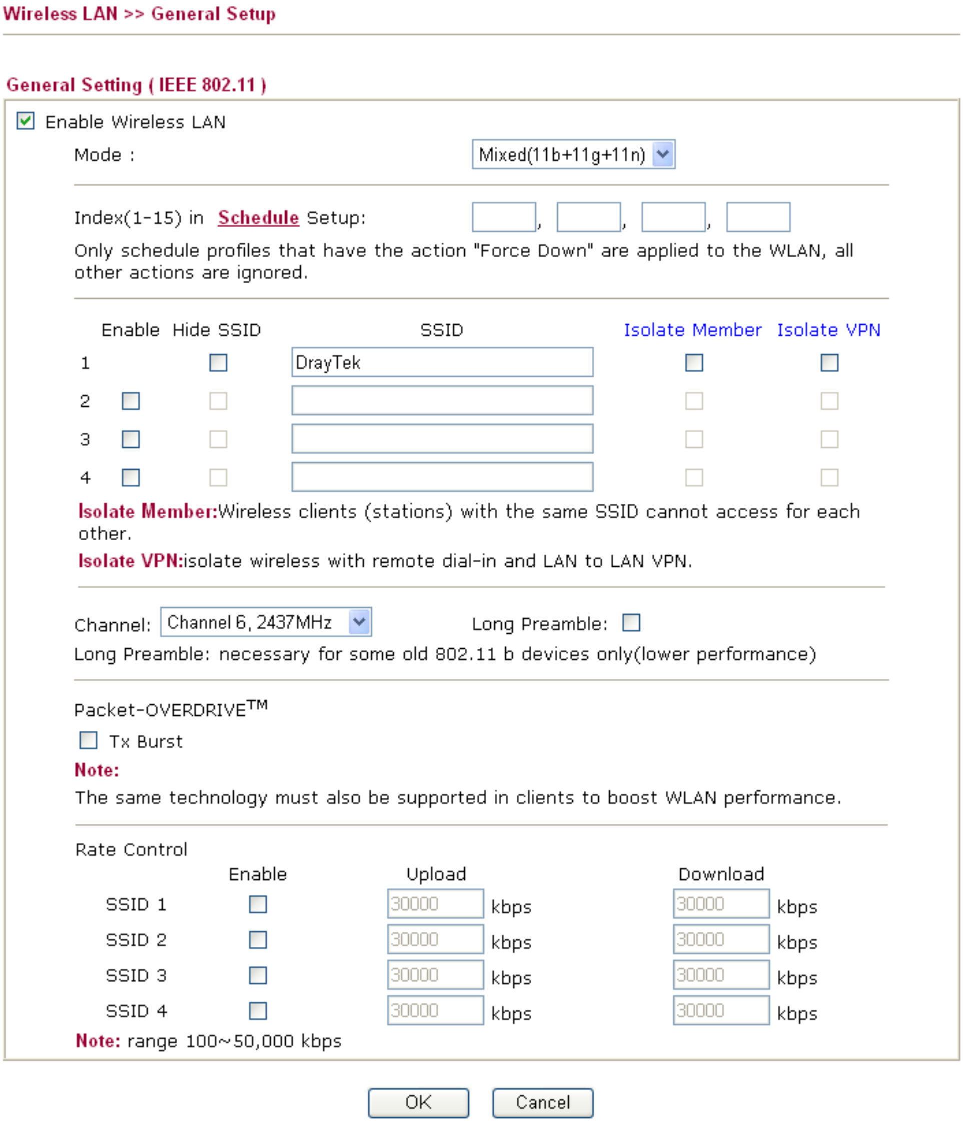
Manage Wireless Stations - Station List will display all the station in your wireless network and the status of their connection.

Below shows the menu items for Wireless LAN.



4.13.2 General Setup

By clicking the **General Settings**, a new web page will appear so that you could configure the SSID and the wireless channel. Please refer to the following figure for more information.



Wireless LAN >> General Setup

General Setting (IEEE 802.11)

☑ Enable Wireless LAN

Mode : Mixed(11b+11g+11n)

Index(1-15) in Schedule Setup: ___, ___, ___, ___

Only schedule profiles that have the action "Force Down" are applied to the WLAN, all other actions are ignored.

	Enable	Hide SSID	SSID	Isolate Member	Isolate VPN
1		□	DrayTek	□	□
2	□	□		□	□
3	□	□		□	□
4	□	□		□	□

Isolate Member: Wireless clients (stations) with the same SSID cannot access for each other.

Isolate VPN:isolate wireless with remote dial-in and LAN to LAN VPN.

Channel: Channel 6, 2437MHz   Long Preamble: □

Long Preamble: necessary for some old 802.11 b devices only(lower performance)

Packet-OVERDRIVE™

□ Tx Burst

Note:

The same technology must also be supported in clients to boost WLAN performance.

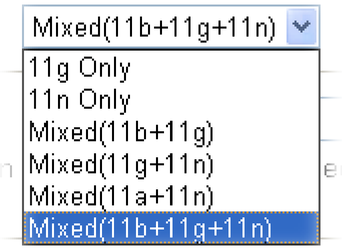
Rate Control

	Enable	Upload		Download	
SSID 1	□	30000	kbps	30000	kbps
SSID 2	□	30000	kbps	30000	kbps
SSID 3	□	30000	kbps	30000	kbps
SSID 4	□	30000	kbps	30000	kbps

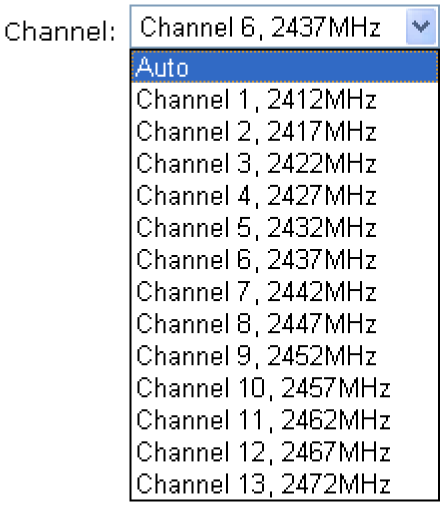
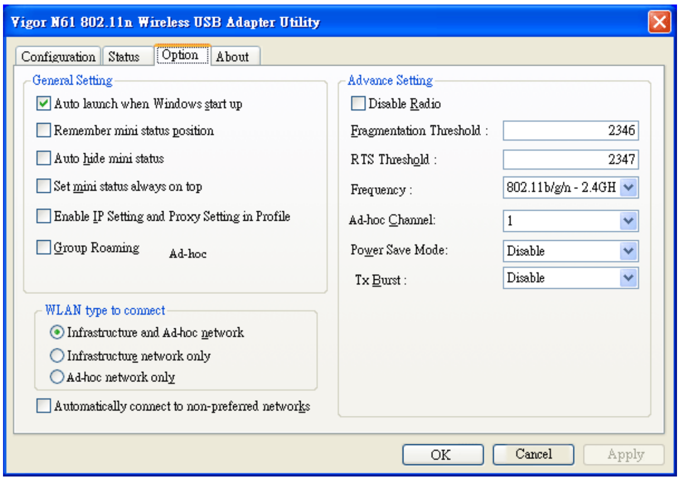
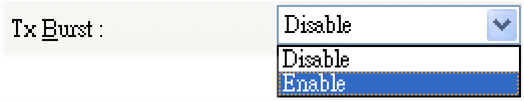
Note: range 100~50,000 kbps

Available settings are explained as follows:

Item	Description
Enable Wireless LAN	Check the box to enable wireless function.

Mode	At present, the router can connect to 11n Only, 11g Only, Mixed (11b+11g), Mixed (11a+11n), Mixed (11g+11n), and Mixed (11b+11g+11n) stations simultaneously. Simply choose Mix (11b+11g+11n) mode.
	
	Mixed(11b+11g+11n)
	11g Only
	11n Only
	Mixed(11b+11g)
	Mixed(11g+11n)
	Mixed(11a+11n)
	Mixed(11b+11g+11n)
	In which, 802.11b/g operates on 2.4G band, 802.11a operates on 5G band, and 802.11n operates on either 2.4G or 5G band.

Index(1-15)	Set the wireless LAN to work at certain time interval only. You may choose up to 4 schedules out of the 15 schedules pre-defined in **Applications** >> **Schedule** setup. The default setting of this field is blank and the function will always work.
Hide SSID	Check it to prevent from wireless sniffing and make it harder for unauthorized clients or STAs to join your wireless LAN. Depending on the wireless utility, the user may only see the information except SSID or just cannot see any thing about Vigor wireless router while site surveying. The system allows you to set four sets of SSID for different usage. In default, the first set of SSID will be enabled. You can hide it for your necessity.
SSID	Means the identification of the wireless LAN. SSID can be any text numbers or various special characters. The default SSID is "DrayTek”. We suggest you to change it.
Isolate	**VPN** – Check this box to make the wireless clients (stations) with different VPN not accessing for each other. **Member** –Check this box to make the wireless clients (stations) with the same SSID not accessing for each other.
Channel	Means the channel of frequency of the wireless LAN. The default channel is 6. You may switch channel if the selected channel is under serious interference. If you have no idea of choosing the frequency, please select Auto to let system determine for you.

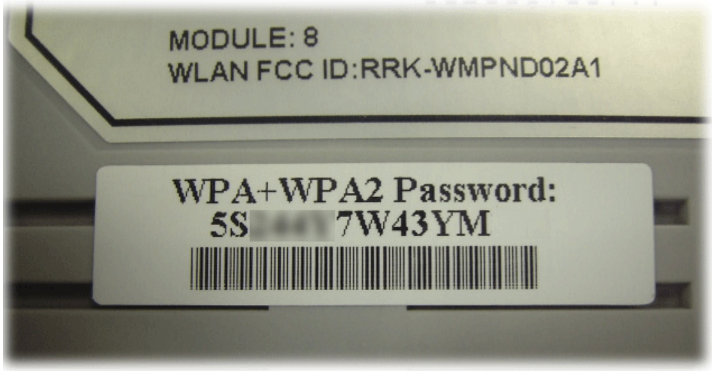
Item	Description
	 Channel: Channel 6, 2437MHz Auto Channel 1, 2412MHz Channel 2, 2417MHz Channel 3, 2422MHz Channel 4, 2427MHz Channel 5, 2432MHz Channel 6, 2437MHz Channel 7, 2442MHz Channel 8, 2447MHz Channel 9, 2452MHz Channel 10, 2457MHz Channel 11, 2462MHz Channel 12, 2467MHz Channel 13, 2472MHz
Long Preamble	This option is to define the length of the sync field in an 802.11 packet. Most modern wireless network uses short preamble with 56 bit sync field instead of long preamble with 128 bit sync field. However, some original 11b wireless network devices only support long preamble. Check it to use **Long Preamble** if needed to communicate with this kind of devices.
Packet-OVERDRIVE	This feature can enhance the performance in data transmission about 40%* more (by checking **Tx Burst**). It is active only when both sides of Access Point and Station (in wireless client) invoke this function at the same time. That is, the wireless client must support this feature and invoke the function, too. **Note:** Vigor N61 wireless adapter supports this function. Therefore, you can use and install it into your PC for matching with Packet-OVERDRIVE (refer to the following picture of Vigor N61 wireless utility window, choose **Enable** for **TxBURST** on the tab of **Option**).  Vigor N61 802.11n Wireless USB Adapter Utility Configuration | Status | Option | About General Setting ☑ Auto launch when Windows start up □ Remember mini status position □ Auto hide mini status □ Set mini status always on top □ Enable IP Setting and Proxy Setting in Profile □ Group Roaming Ad-hoc WLAN type to connect ● Infrastructure and Ad-hoc network ○ Infrastructure network only ○ Ad-hoc network only □ Automatically connect to non-preferred networks Advance Setting □ Disable Radio Fragmentation Threshold : 2346 RTS Threshold : 2347 Frequency : 802.11b/g/n - 2.4GH Ad-hoc Channel: 1 Power Save Mode: Disable Tx Burst : Disable OK Cancel Apply  Tx Burst : Disable Disable Enable **Note:** * means the real transmission rate depends on the

Item	Description
	environment of the network.
Rate Control	It controls the data transmission rate through wireless connection. **Upload** – Check Enable and type the transmitting rate for data upload. Default value is 30,000 kbps. **Download** – Type the transmitting rate for data download. Default value is 30,000 kbps.

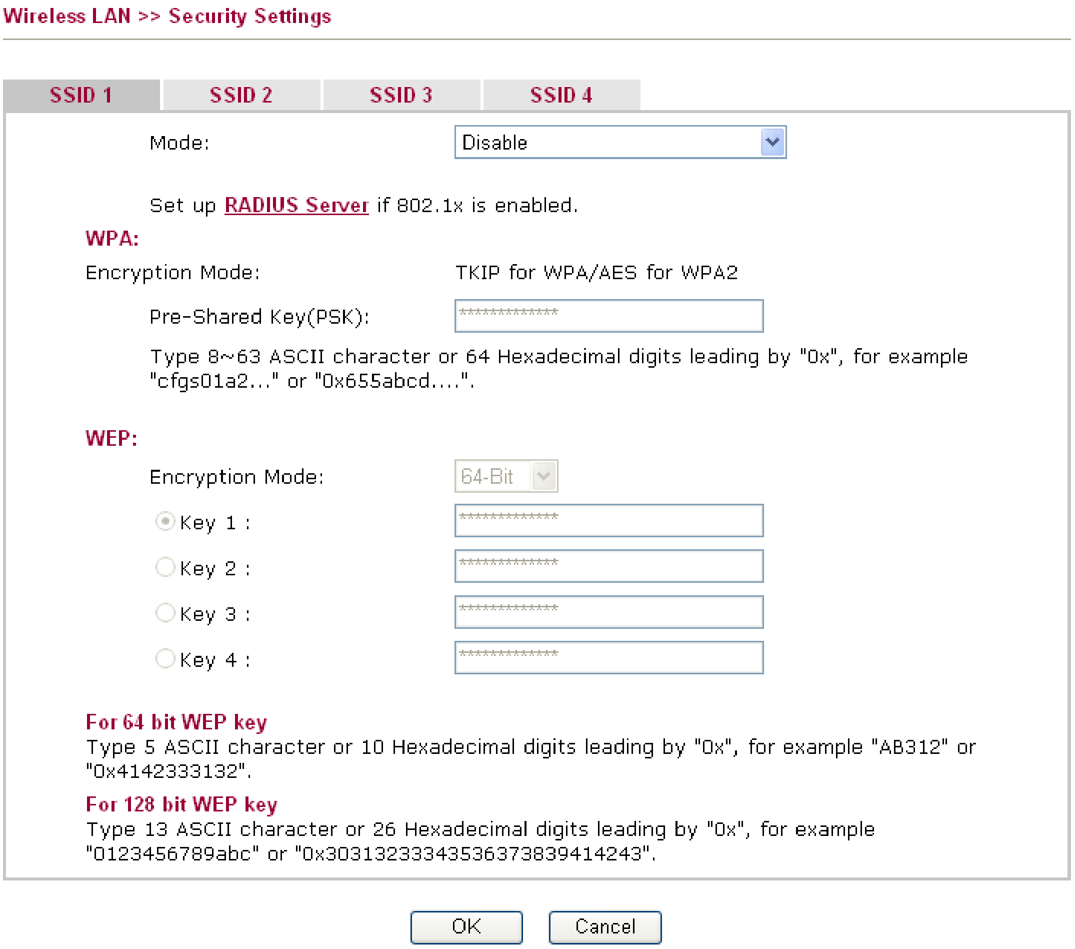
4.13.3 Security

This page allows you to set security with different modes for SSID 1, 2, 3 and 4 respectively. After configuring the correct settings, please click **OK** to save and invoke it.

The default security mode is **Mixed (WPA+WPA2)/PSK.** Default Pre-Shared Key (PSK) is provided and stated on the label pasted on the bottom of the router. For the wireless client who wants to access into Internet through such router, please input the default PSK value for connection.



By clicking the **Security Settings**, a new web page will appear so that you could configure the settings of WEP and WPA.



Wireless LAN >> Security Settings

SSID 1 | SSID 2 | SSID 3 | SSID 4

Mode: Disable

Set up RADIUS Server if 802.1x is enabled.

WPA:

Encryption Mode: TKIP for WPA/AES for WPA2

Pre-Shared Key(PSK): **************

Type 8~63 ASCII character or 64 Hexadecimal digits leading by "0x", for example "cfgs01a2..." or "0x655abcd....".

WEP:

Encryption Mode: 64-Bit

● Key 1 : **************

○ Key 2 : **************

○ Key 3 : **************

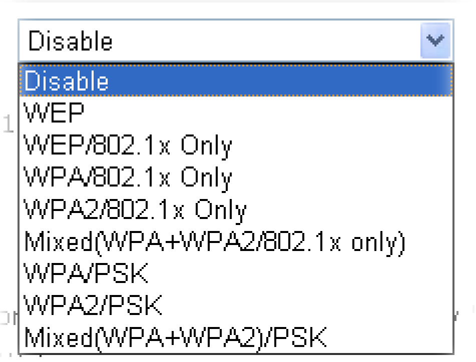
○ Key 4 : **************

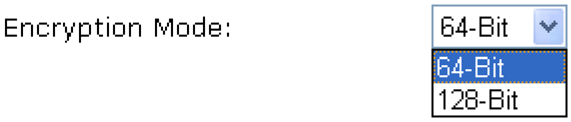
For 64 bit WEP key
Type 5 ASCII character or 10 Hexadecimal digits leading by "0x", for example "AB312" or "0x4142333132".

For 128 bit WEP key
Type 13 ASCII character or 26 Hexadecimal digits leading by "0x", for example "0123456789abc" or "0x30313233343536373839414243".

Available settings are explained as follows:

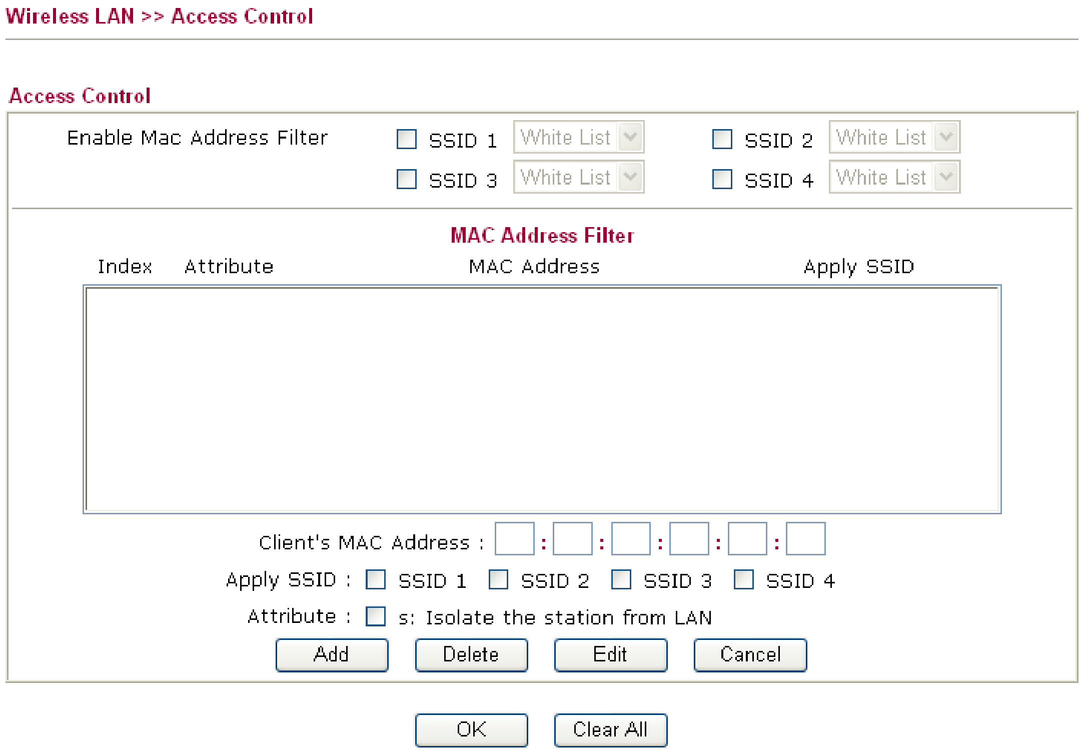
Item	Description

Item	Description
Mode	There are several modes provided for you to choose.  Disable Disable WEP WEP/802.1x Only WPA/802.1x Only WPA2/802.1x Only Mixed(WPA+WPA2/802.1x only) WPA/PSK WPA2/PSK Mixed(WPA+WPA2)/PSK **Note:** You should also set **RADIUS Server** simultaneously if 802.1x mode is selected. **Disable** - Turn off the encryption mechanism. **WEP**-Accepts only WEP clients and the encryption key should be entered in WEP Key. **WEP/802.1x Only** - Accepts only WEP clients and the encryption key is obtained dynamically from RADIUS server with 802.1X protocol. **WPA/802.1x Only**- Accepts only WPA clients and the encryption key is obtained dynamically from RADIUS server with 802.1X protocol. **WPA2/802.1x Only**- Accepts only WPA2 clients and the encryption key is obtained dynamically from RADIUS server with 802.1X protocol. **Mixed (WPA+WPA2/802.1x only)** - Accepts WPA and WPA2 clients simultaneously and the encryption key is obtained dynamically from RADIUS server with 802.1X protocol. **WPA/PSK**-Accepts only WPA clients and the encryption key should be entered in PSK. **WPA2/PSK**-Accepts only WPA2 clients and the encryption key should be entered in PSK. **Mixed (WPA+ WPA2)/PSK** - Accepts WPA and WPA2 clients simultaneously and the encryption key should be entered in PSK.
WPA	The WPA encrypts each frame transmitted from the radio using the key, which either PSK (Pre-Shared Key) entered manually in this field below or automatically negotiated via 802.1x authentication. Either **8~63** ASCII characters, such as 012345678(or 64 Hexadecimal digits leading by 0x, such as "0x321253abcde..."). **Type** - Select from Mixed (WPA+WPA2) or WPA2 only. **Pre-Shared Key (PSK)** - Either **8~63** ASCII characters, such as 012345678..(or 64 Hexadecimal digits leading by 0x, such as "0x321253abcde...").

Item	Description
WEP	**64-Bit -** For 64 bits WEP key, either **5** ASCII characters, such as 12345 (or 10 hexadecimal digitals leading by 0x, such as 0x4142434445.) **128-Bit -** For 128 bits WEP key, either **13** ASCII characters, such as ABCDEFGHIJKLM (or 26 hexadecimal digits leading by 0x, such as 0x4142434445464748494A4B4C4D).  Encryption Mode: 64-Bit 64-Bit 128-Bit All wireless devices must support the same WEP encryption bit size and have the same key. **Four keys** can be entered here, but only one key can be selected at a time. The keys can be entered in ASCII or Hexadecimal. Check the key you wish to use.

4.13.4 Access Control

For additional security of wireless access, the **Access Control** facility allows you to restrict the network access right by controlling the wireless LAN MAC address of client. Only the valid MAC address that has been configured can access the wireless LAN interface. By clicking the **Access Control**, a new web page will appear, as depicted below, so that you could edit the clients' MAC addresses to control their access rights.



Wireless LAN >> Access Control

Access Control

Enable Mac Address Filter □ SSID 1 White List □ SSID 2 White List
□ SSID 3 White List □ SSID 4 White List

MAC Address Filter

Index Attribute MAC Address Apply SSID

Client's MAC Address : __ : __ : __ : __ : __ : __

Apply SSID : □ SSID 1 □ SSID 2 □ SSID 3 □ SSID 4

Attribute : □ s: Isolate the station from LAN

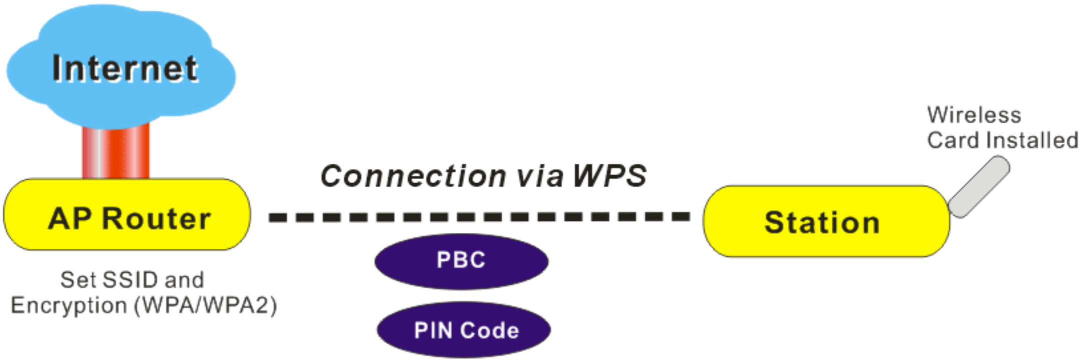
Available settings are explained as follows:

Item	Description
Enable Mac Address Filter	Select to enable the MAC Address filter for wireless LAN identified with SSID 1 to 4 respectively. All the clients (expressed by MAC addresses) listed in the box can be

Item	Description
	grouped under different wireless LAN. For example, they can be grouped under SSID 1 and SSID 2 at the same time if you check SSID 1 and SSID 2.
MAC Address Filter	Display all MAC addresses that are edited before.
Client's MAC Address	Manually enter the MAC address of wireless client.
Apply SSID	After entering the client's MAC address, check the box of the SSIDs desired to insert this MAC address into their access control list.
Attribute	**s: Isolate the station from LAN -** select to isolate the wireless connection of the wireless client of the MAC address from LAN.
Add	Add a new MAC address into the list.
Delete	Delete the selected MAC address in the list.
Edit	Edit the selected MAC address in the list.
Cancel	Give up the access control set up.
OK	Click it to save the access control list.
Clear All	Clean all entries in the MAC address list.

4.13.5 WPS

WPS (Wi-Fi Protected Setup) provides easy procedure to make network connection between wireless station and wireless access point (vigor router) with the encryption of WPA and WPA2.

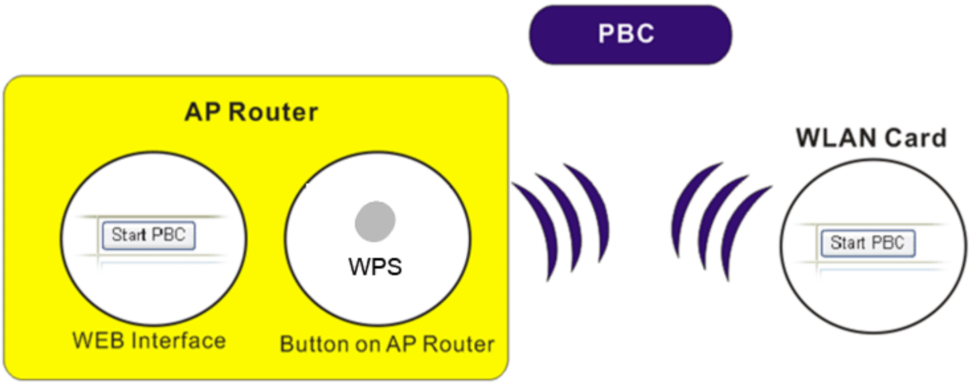


Note: Such function is available for the wireless station with WPS supported.

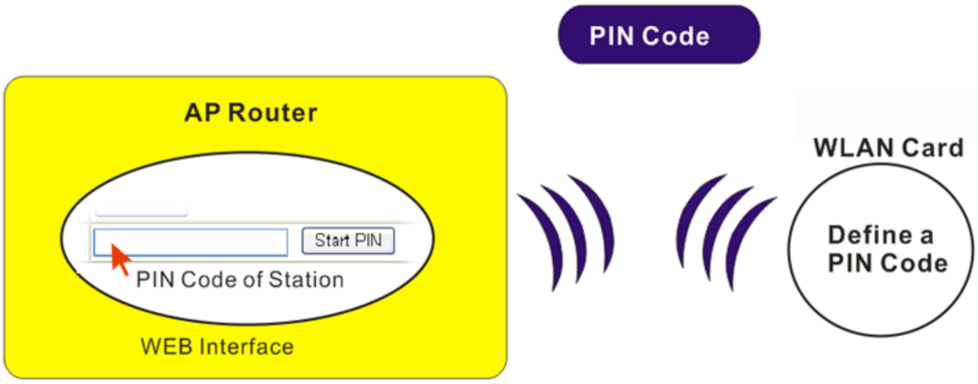
It is the simplest way to build connection between wireless network clients and vigor router. Users do not need to select any encryption mode and type any long encryption passphrase to setup a wireless client every time. He/she only needs to press a button on wireless client, and WPS will connect for client and router automatically.

There are two methods to do network connection through WPS between AP and Stations: pressing the ***Start PBC*** button or using ***PIN Code***.

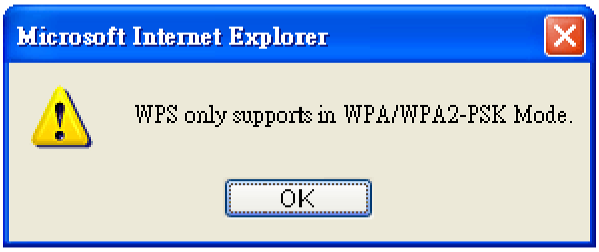
- On the side of Vigor 2920 series which served as an AP, press **WPS** button once on the front panel of the router or click **Start PBC** on web configuration interface. On the side of a station with network card installed, press **Start PBC** button of network card.



- If you want to use PIN code, you have to know the PIN code specified in wireless client. Then provide the PIN code of the wireless client you wish to connect to the vigor router.



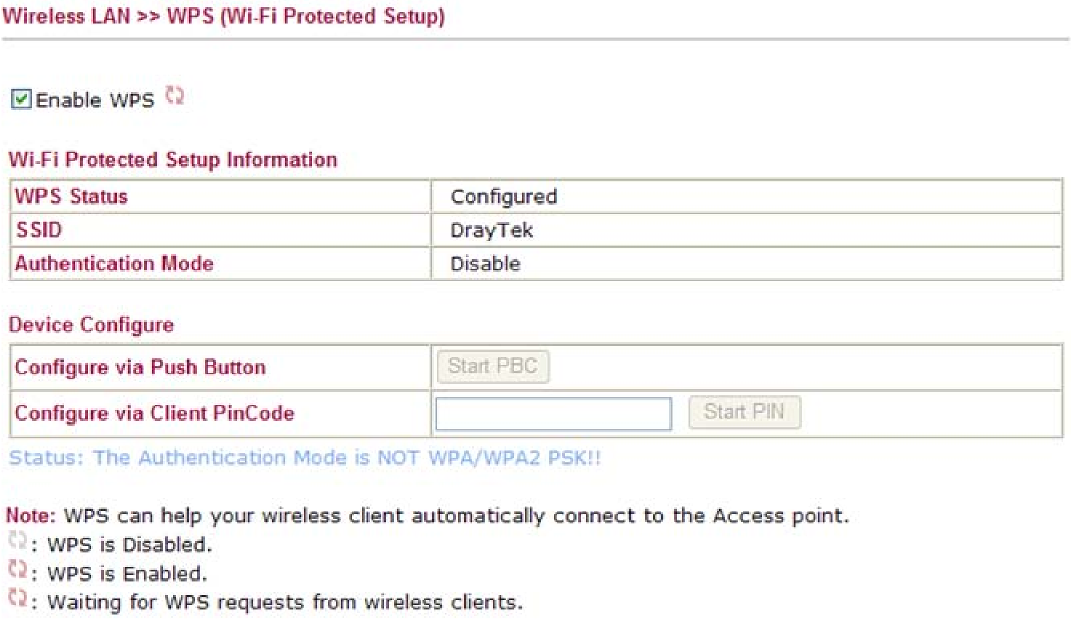
For WPS is supported in WPA-PSK or WPA2-PSK mode, if you do not choose such mode in **Wireless LAN>>Security**, you will see the following message box.



WPS only supports in WPA/WPA2-PSK Mode.

Please click **OK** and go back **Wireless LAN>>Security** to choose WPA-PSK or WPA2-PSK mode and access WPS again.

Below shows **Wireless LAN>>WPS** web page.



Wireless LAN >> WPS (Wi-Fi Protected Setup)

☑ Enable WPS

Wi-Fi Protected Setup Information

WPS Status	Configured
SSID	DrayTek
Authentication Mode	Disable

Device Configure

Configure via Push Button	Start PBC
Configure via Client PinCode	Start PIN

Status: The Authentication Mode is NOT WPA/WPA2 PSK!!

Note: WPS can help your wireless client automatically connect to the Access point.
: WPS is Disabled.
: WPS is Enabled.
: Waiting for WPS requests from wireless clients.

Available settings are explained as follows:

Item	Description
Enable WPS	Check this box to enable WPS setting.

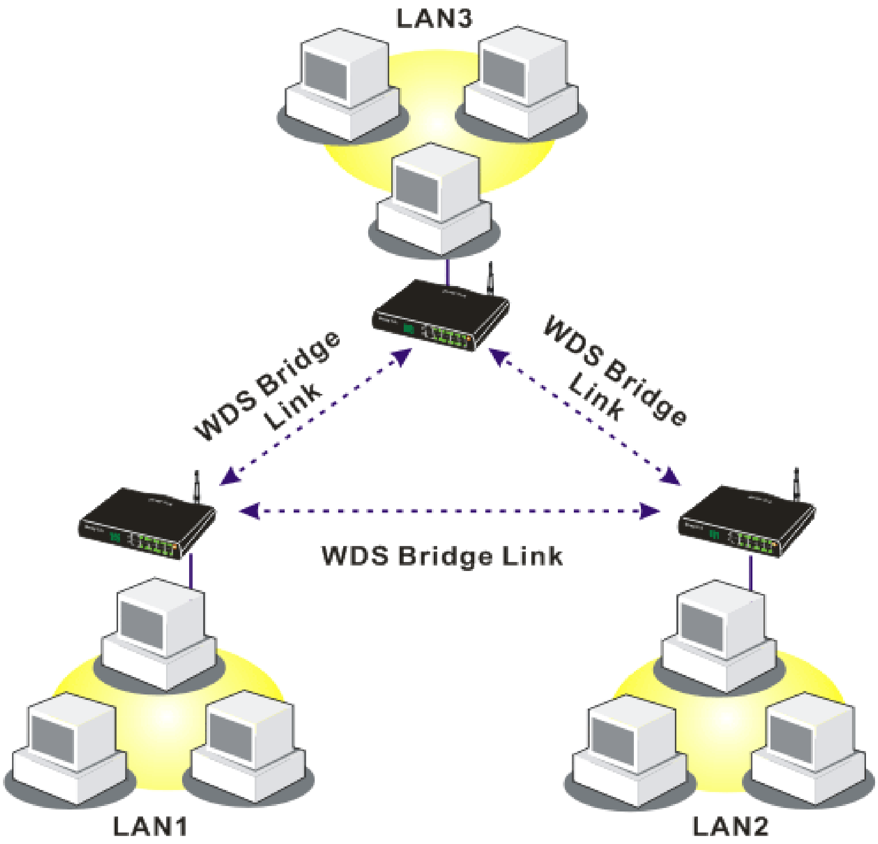
Item	Description
WPS Status	Display related system information for WPS. If the wireless security (encryption) function of the router is properly configured, you can see 'Configured' message here.
SSID	Display the SSID1 of the router. WPS is supported by SSID1 only.
Authentication Mode	Display current authentication mode of the router. Only WPA2/PSK and WPA/PSK support WPS.
Configure via Push Button	Click **Start PBC** to invoke Push-Button style WPS setup procedure. The router will wait for WPS requests from wireless clients about two minutes. The WPS LED on the router will blink fast when WPS is in progress. It will return to normal condition after two minutes. (You need to setup WPS within two minutes)
Configure via Client PinCode	Please input the PIN code specified in wireless client you wish to connect, and click **Start PIN** button. The WPS LED on the router will blink fast when WPS is in progress. It will return to normal condition after two minutes. (You need to setup WPS within two minutes)

4.13.6 WDS

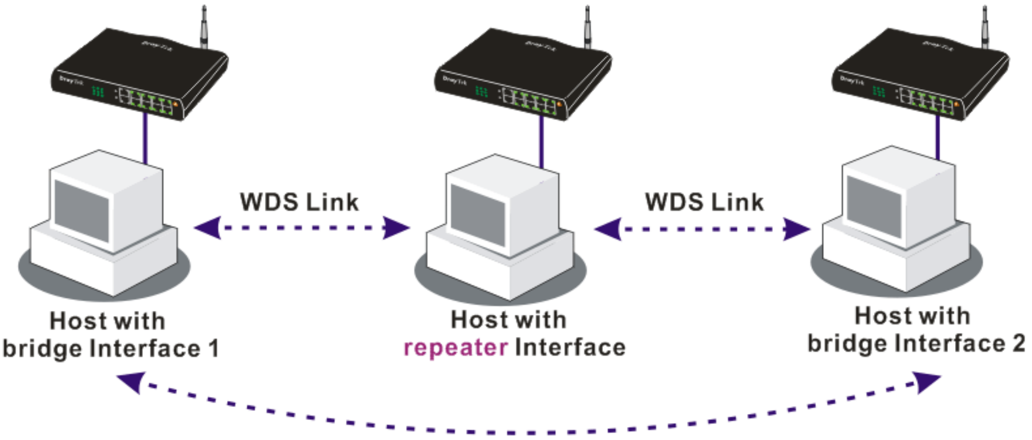
WDS means Wireless Distribution System. It is a protocol for connecting two access points (AP) wirelessly. Usually, it can be used for the following application:

- Provide bridge traffic between two LANs through the air.
- Extend the coverage range of a WLAN.

To meet the above requirement, two WDS modes are implemented in Vigor router. One is **Bridge**, the other is **Repeater**. Below shows the function of WDS-bridge interface:

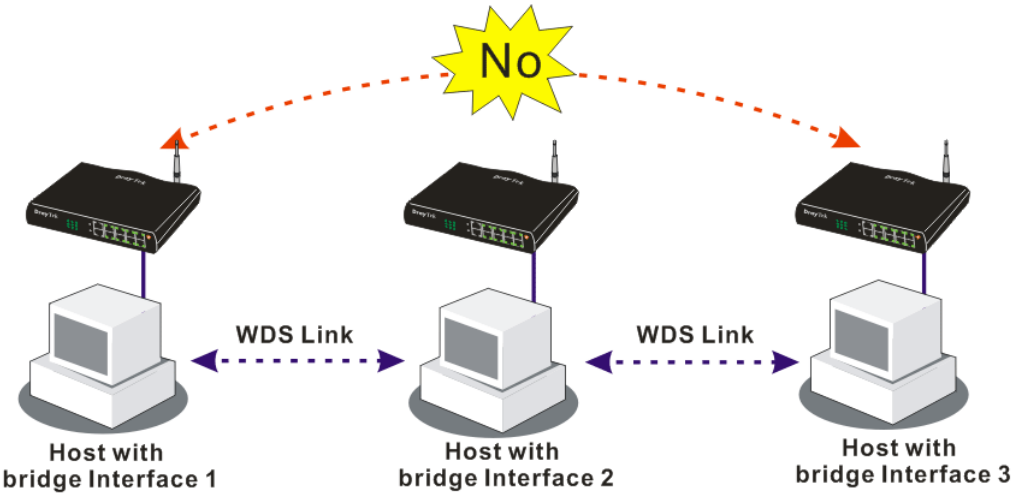


The application for the WDS-Repeater mode is depicted as below:

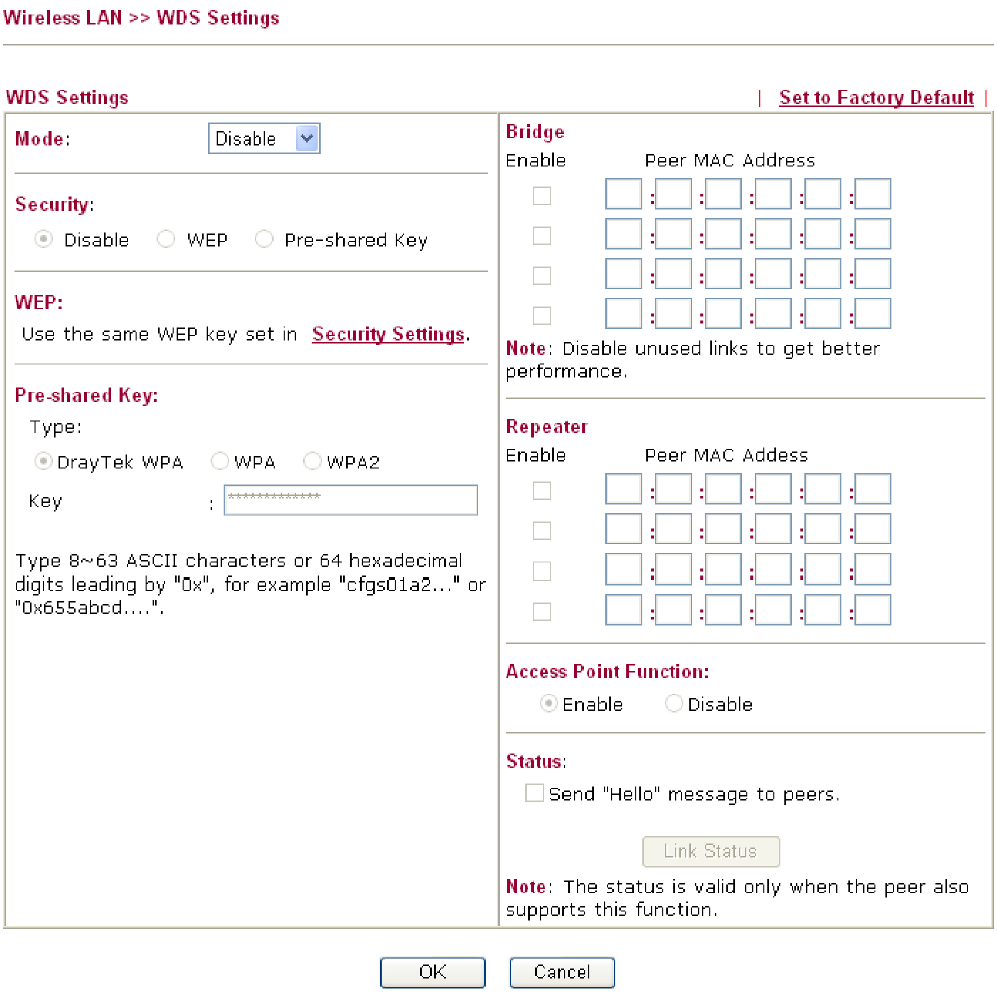


The major difference between these two modes is that: while in **Repeater** mode, the packets received from one peer AP can be repeated to another peer AP through WDS links. Yet in **Bridge** mode, packets received from a WDS link will only be forwarded to local wired or wireless hosts. In other words, only Repeater mode can do WDS-to-WDS packet forwarding.

In the following examples, hosts connected to Bridge 1 or 3 can communicate with hosts connected to Bridge 2 through WDS links. However, hosts connected to Bridge 1 CANNOT communicate with hosts connected to Bridge 3 through Bridge 2.



Click **WDS** from **Wireless LAN** menu. The following page will be shown.



Wireless LAN >> WDS Settings

WDS Settings | Set to Factory Default |

Mode: Disable

Security:
● Disable ○ WEP ○ Pre-shared Key

WEP:
Use the same WEP key set in Security Settings.

Pre-shared Key:
Type:
● DrayTek WPA ○ WPA ○ WPA2
Key : **************

Type 8~63 ASCII characters or 64 hexadecimal digits leading by "0x", for example "cfgs01a2..." or "0x655abcd....".

Bridge
Enable Peer MAC Address
□ __:__:__:__:__:__
□ __:__:__:__:__:__
□ __:__:__:__:__:__
□ __:__:__:__:__:__
Note: Disable unused links to get better performance.

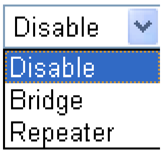
Repeater
Enable Peer MAC Addess
□ __:__:__:__:__:__
□ __:__:__:__:__:__
□ __:__:__:__:__:__
□ __:__:__:__:__:__

Access Point Function:
● Enable ○ Disable

Status:
□ Send "Hello" message to peers.

Note: The status is valid only when the peer also supports this function.

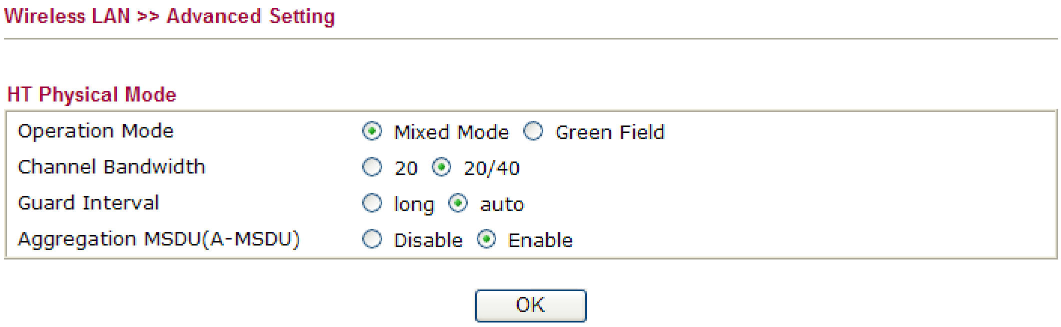
Available settings are explained as follows:

Item	Description
Mode	Choose the mode for WDS setting. **Disable** mode will not invoke any WDS setting. **Bridge** mode is designed to fulfill the first type of application. **Repeater** mode is for the second one. 
Security	There are three types for security, **Disable**, **WEP** and **Pre-shared key**. The setting you choose here will make the following WEP or Pre-shared key field valid or not. Choose one of the types for the router.
WEP	Check this box to use the same key set in **Security Settings** page. If you did not set any key in **Security Settings** page, this check box will be dimmed.
Pre-shared Key	**Type –** There are some types for you to choose. **WPA** and **WPA2** are used for WDS devices (e.g.2920n wireless router, you can set the encryption mode as WPA or WPA2 to establish your WDS system between AP and the router.

Item	Description
	Key - Type 8 ~ 63 ASCII characters or 64 hexadecimal digits leading by “0x”.
Bridge	If you choose Bridge as the connecting mode, please type in the peer MAC address in these fields. Four peer MAC addresses are allowed to be entered in this page at one time. Yet please disable the unused link to get better performance. If you want to invoke the peer MAC address, remember to check **Enable** box in the front of the MAC address after typing.
Repeater	If you choose Repeater as the connecting mode, please type in the peer MAC address in these fields. Four peer MAC addresses are allowed to be entered in this page at one time. Similarly, if you want to invoke the peer MAC address, remember to check **Enable** box in the front of the MAC address after typing.
Access Point Function	Click **Enable** to make this router serving as an access point; click **Disable** to cancel this function.
Status	It allows user to send “hello” message to peers. Yet, it is valid only when the peer also supports this function.

4.13.7 Advanced Setting

This page allows users to set advanced settings such as operation mode, channel bandwidth, guard interval, and aggregation MSDU for wireless data transmission.



Wireless LAN >> Advanced Setting

HT Physical Mode

Operation Mode	● Mixed Mode ○ Green Field
Channel Bandwidth	○ 20 ● 20/40
Guard Interval	○ long ● auto
Aggregation MSDU(A-MSDU)	○ Disable ● Enable

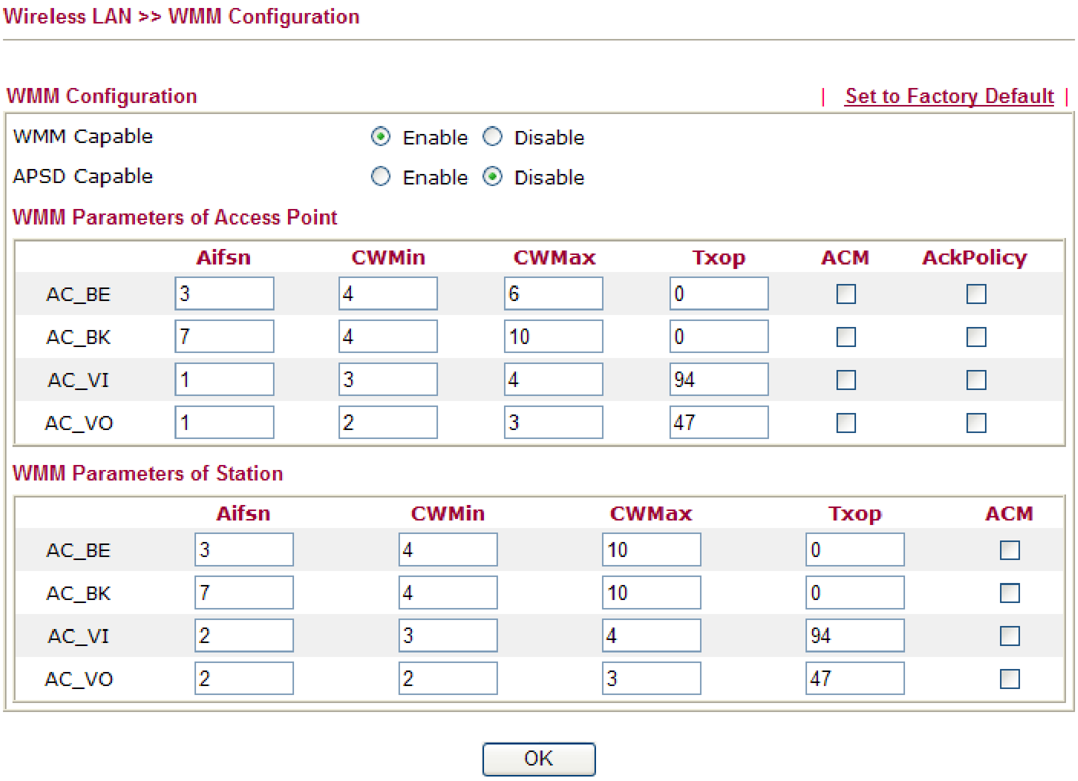
Available settings are explained as follows:

Item	Description
Operation Mode	**Mixed Mode** – the router can transmit data with the ways supported in both 802.11a/b/g and 802.11n standards. However, the entire wireless transmission will be slowed down if 802.11g or 802.11b wireless client is connected. **Green Field** – to get the highest throughput, please choose such mode. Such mode can make the data transmission happening between 11n systems only. In addition, it does not have protection mechanism to avoid the conflict with neighboring devices of 802.11a/b/g.
Channel Bandwidth	**20-** the router will use 20Mhz for data transmission and receiving between the AP and the stations. **20/40 –** the router will use 20Mhz or 40Mhz for data transmission and receiving according to the station capability. Such channel can increase the performance for data transit.
Guard Interval	It is to assure the safety of propagation delays and reflections for the sensitive digital data. If you choose **auto** as guard interval, the AP router will choose short guard interval (increasing the wireless performance) or long guard interval for data transmit based on the station capability.
Aggregation MSDU	Aggregation MSDU can combine frames with different sizes. It is used for improving MAC layer's performance for some brand's clients. The default setting is **Enable.**

4.13.8 WMM Configuration

WMM is an abbreviation of Wi-Fi Multimedia. It defines the priority levels for four access categories derived from 802.1d (prioritization tabs). The categories are designed with specific types of traffic, voice, video, best effort and low priority data. There are four accessing categories - AC_BE , AC_BK, AC_VI and AC_VO for WMM.

APSD (automatic power-save delivery) is an enhancement over the power-save mechanisms supported by Wi-Fi networks. It allows devices to take more time in sleeping state and consume less power to improve the performance by minimizing transmission latency.



Wireless LAN >> WMM Configuration

WMM Configuration | Set to Factory Default |

WMM Capable	● Enable ○ Disable
APSD Capable	○ Enable ● Disable

WMM Parameters of Access Point

	Aifsn	CWMin	CWMax	Txop	ACM	AckPolicy
AC_BE	3	4	6	0	□	□
AC_BK	7	4	10	0	□	□
AC_VI	1	3	4	94	□	□
AC_VO	1	2	3	47	□	□

WMM Parameters of Station

	Aifsn	CWMin	CWMax	Txop	ACM
AC_BE	3	4	10	0	□
AC_BK	7	4	10	0	□
AC_VI	2	3	4	94	□
AC_VO	2	2	3	47	□

Available settings are explained as follows:

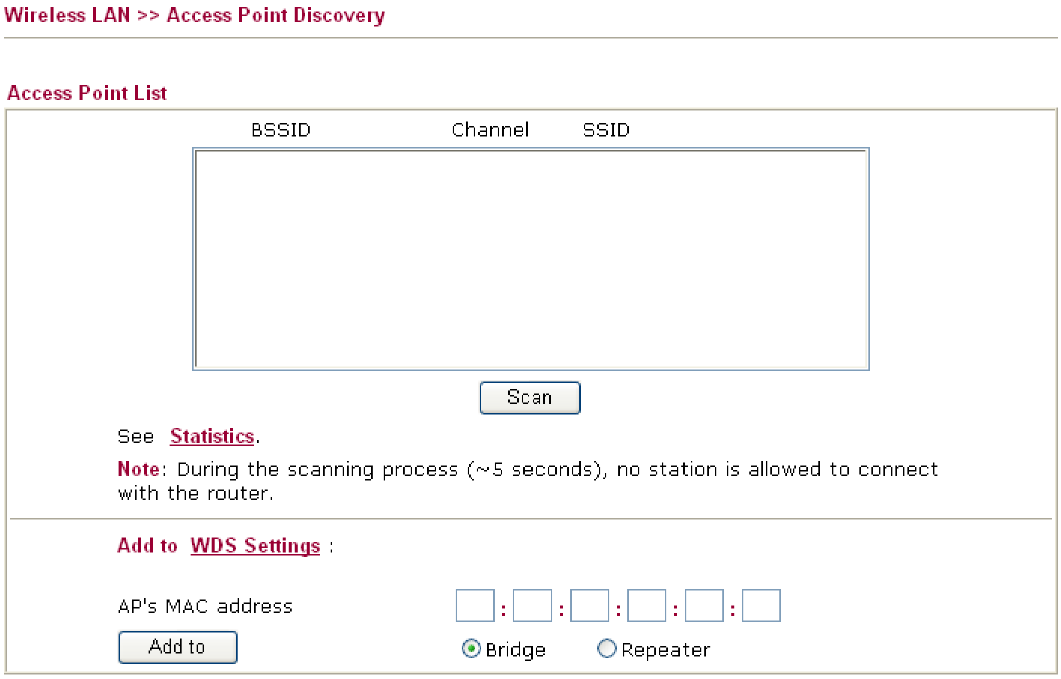
Item	Description
WMM Capable	To apply WMM parameters for wireless data transmission, please click the **Enable** radio button.
APSD Capable	The default setting is **Disable**.
Aifsn	It controls how long the client waits for each data transmission. Please specify the value ranging from 1 to 15. Such parameter will influence the time delay for WMM accessing categories. For the service of voice or video image, please set small value for AC_VI and AC_VO categories For the service of e-mail or web browsing, please set large value for AC_BE and AC_BK categories.
CWMin/CWMax	**CWMin** means contention Window-Min and **CWMax** means contention Window-Max. Please specify the value ranging from 1 to 15. Be aware that CWMax value must be greater than CWMin or equals to CWMin value. Both values will influence the time delay for WMM accessing categories. The difference between AC_VI and AC_VO categories must be

Item	Description
	smaller; however, the difference between AC_BE and AC_BK categories must be greater.
Txop	It means transmission opportunity. For WMM categories of AC_VI and AC_VO that need higher priorities in data transmission, please set greater value for them to get highest transmission opportunity. Specify the value ranging from 0 to 65535.
ACM	It is an abbreviation of Admission control Mandatory. It can restrict stations from using specific category class if it is checked. **Note:** Vigor2920 provides standard WMM configuration in the web page. If you want to modify the parameters, please refer to the Wi-Fi WMM standard specification.
AckPolicy	"Uncheck" (default value) the box means the AP router will answer the response request while transmitting WMM packets through wireless connection. It can assure that the peer must receive the WMM packets. "Check" the box means the AP router will not answer any response request for the transmitting packets. It will have better performance with lower reliability.

4.13.9 AP Discovery

Vigor router can scan all regulatory channels and find working APs in the neighborhood. Based on the scanning result, users will know which channel is clean for usage. Also, it can be used to facilitate finding an AP for a WDS link. Notice that during the scanning process (about 5 seconds), no client is allowed to connect to Vigor.

This page is used to scan the existence of the APs on the wireless LAN. Yet, only the AP which is in the same channel of this router can be found. Please click **Scan** to discover all the connected APs.


Wireless LAN >> Access Point Discovery

Access Point List

BSSID Channel SSID

See Statistics.

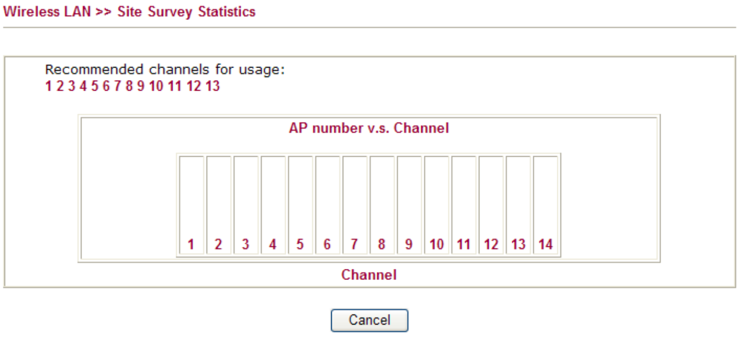
Note: During the scanning process (~5 seconds), no station is allowed to connect with the router.

Add to WDS Settings :

AP's MAC address □ : □ : □ : □ : □ : □

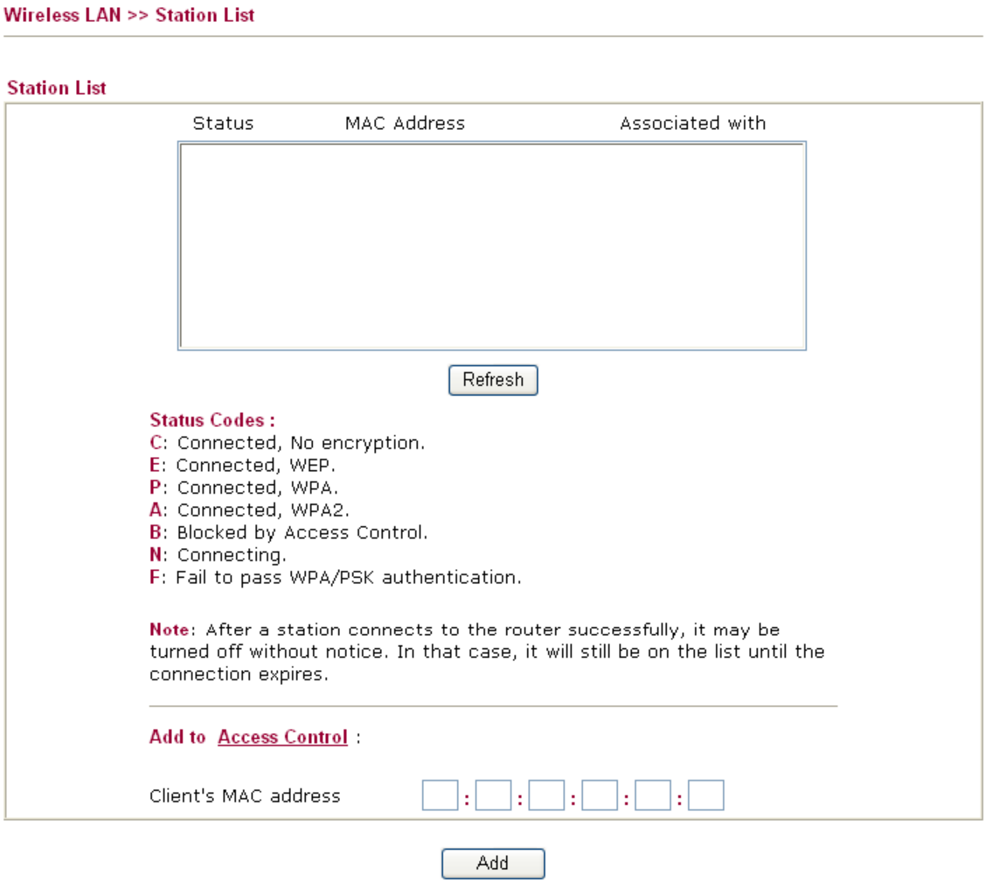
● Bridge ○ Repeater

Available settings are explained as follows:

Item	Description
Scan	It is used to discover all the connected AP. The results will be shown on the box above this button.
Statistics	It displays the statistics for the channels used by APs.  Wireless LAN >> Site Survey Statistics Recommended channels for usage: 1 2 3 4 5 6 7 8 9 10 11 12 13 AP number v.s. Channel 1 2 3 4 5 6 7 8 9 10 11 12 13 14 Channel Cancel
Add to	If you want the found AP applying the WDS settings, please type in the AP's MAC address on the bottom of the page and click Bridge or Repeater. Next, click **Add to**. Later, the MAC address of the AP will be added to Bridge or Repeater field of WDS settings page.

4.13.10 Station List

Station List provides the knowledge of connecting wireless clients now along with its status code. There is a code summary below for explanation. For convenient **Access Control**, you can select a WLAN station and click **Add to Access Control** below.



Wireless LAN >> Station List

Station List

Status Codes :
C: Connected, No encryption.
E: Connected, WEP.
P: Connected, WPA.
A: Connected, WPA2.
B: Blocked by Access Control.
N: Connecting.
F: Fail to pass WPA/PSK authentication.

Note: After a station connects to the router successfully, it may be turned off without notice. In that case, it will still be on the list until the connection expires.

Add to Access Control :

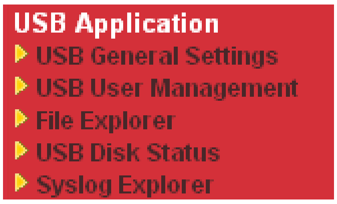
Client's MAC address □ : □ : □ : □ : □ : □

Available settings are explained as follows:

Item	Description
Refresh	Click this button to refresh the status of station list.
Add	Click this button to add current typed MAC address into **Access Control.**

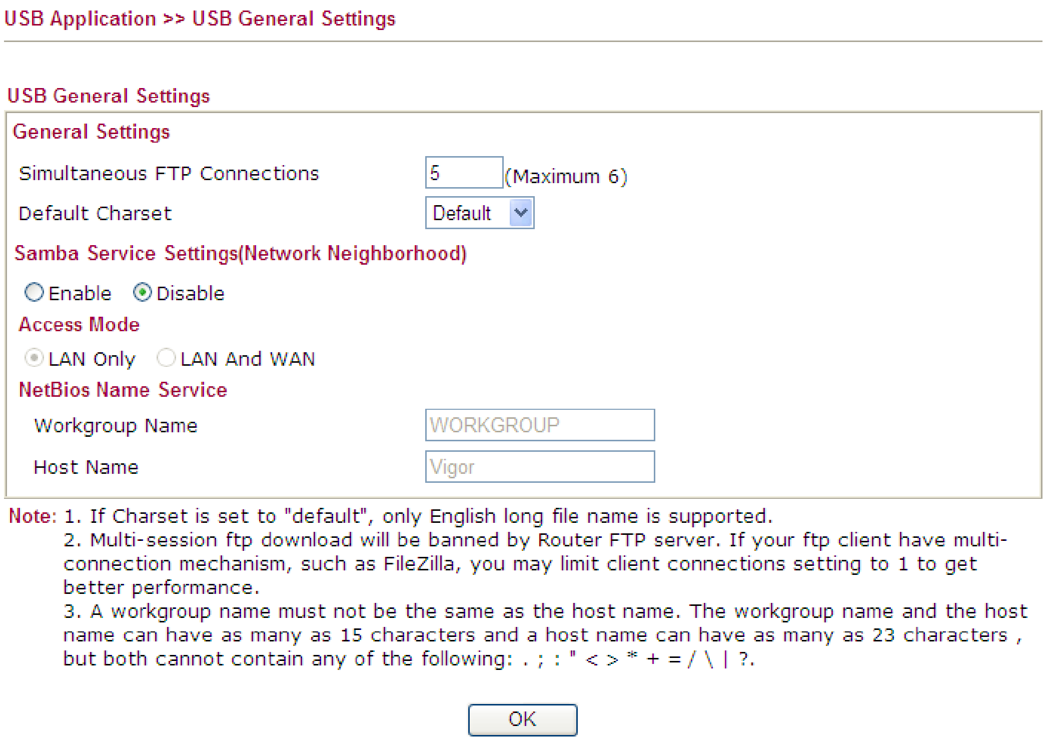
4.14 USB Application

USB storage disk connected on Vigor router can be regarded as a server. By way of Vigor router, clients on LAN can access, write and read data stored in USB storage disk with different applications. After setting the configuration in **USB Application**, you can type the IP address of the Vigor router and username/password created in **USB Application>>USB User Management** on the client software. Then, the client can use the FTP site (USB storage disk) or share the Samba service through Vigor router.



4.14.1 USB General Settings

This page will determine the number of concurrent FTP connection, default charset for FTP server and enable Samba service. At present, the Vigor router can support USB storage disk with formats of FAT16 and FAT32 only. Therefore, before connecting the USB storage disk into the Vigor router, please make sure the memory format for the USB storage disk is FAT16 or FAT32. It is recommended for you to use FAT32 for viewing the filename completely (FAT16 cannot support long filename).



USB Application >> USB General Settings

USB General Settings

General Settings

Simultaneous FTP Connections: 5 (Maximum 6)

Default Charset: Default

Samba Service Settings(Network Neighborhood)

○ Enable ● Disable

Access Mode

● LAN Only ○ LAN And WAN

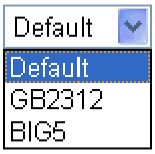
NetBios Name Service

Workgroup Name: WORKGROUP

Host Name: Vigor

Note: 1. If Charset is set to "default", only English long file name is supported.
2. Multi-session ftp download will be banned by Router FTP server. If your ftp client have multi-connection mechanism, such as FileZilla, you may limit client connections setting to 1 to get better performance.
3. A workgroup name must not be the same as the host name. The workgroup name and the host name can have as many as 15 characters and a host name can have as many as 23 characters , but both cannot contain any of the following: . ; : " < > * + = / \ | ?.

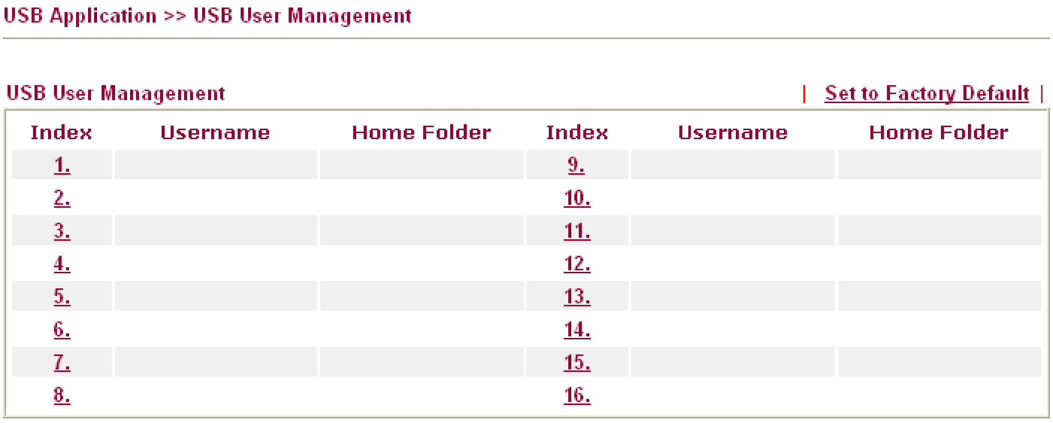
Available settings are explained as follows:

Item	Description
General Settings	**Simultaneous FTP Connections -** This field is used to specify the quantity of the FTP sessions. The router allows up to 6 FTP sessions connecting to USB storage disk at one time. **Default Charset -** At present, Vigor router supports three types of character sets: default, GB2312 and BIG5.  Default Charset is for English based file name. For Simplified Chinese file/directory names, please choose GB2312; for Traditional Chinese file/directory names, choose BIG5.
Samba Service Settings	Click **Enable** to invoke samba service via the router.
Access Mode	**LAN Only** – Users coming from internet cannot connect to the samba server of the router. **LAN And WAN -** Both LAN and WAN users can access samba server of the router.

Item	Description
NetBios Name Service	For the NetBios service of USB storage disk, you have to specify a workgroup name and a host name. A workgroup name must not be the same as the host name. The workgroup name can have as many as 15 characters and the host name can have as many as 23 characters. Both them cannot contain any of the following--- ; : " < > * + = \ | ?. **Workgroup Name –** Type a name for the workgroup. **Host Name –** Type the host name for the router.

4.14.2 USB User Management

This page allows you to set profiles for FTP/Samba users. Any user who wants to access into the USB storage disk must type the same username and password configured in this page. Before adding or modifying settings in this page, please insert a USB storage disk first. Otherwise, an error message will appear to warn you.



USB Application >> USB User Management

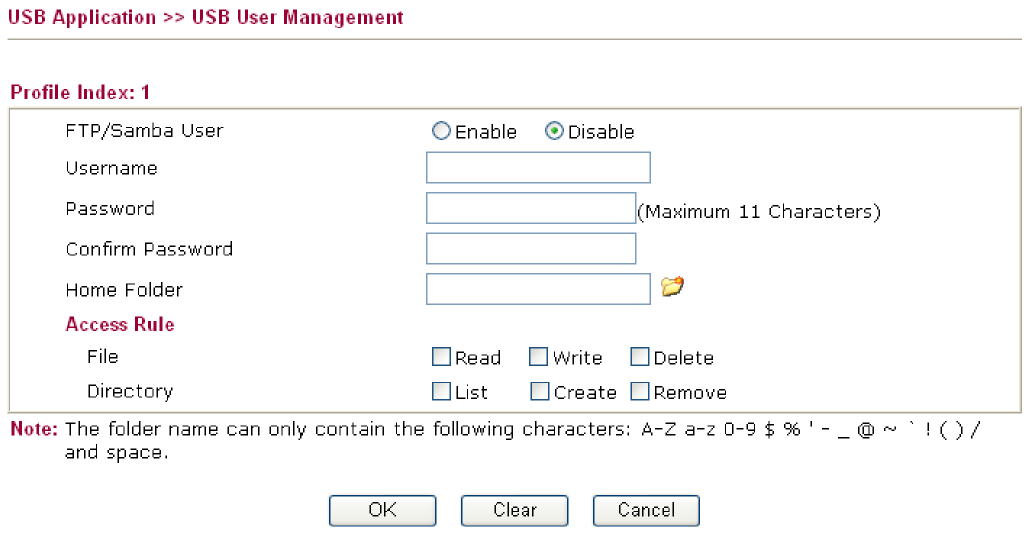
USB User Management | Set to Factory Default |

Index	Username	Home Folder	Index	Username	Home Folder
1.			9.		
2.			10.		
3.			11.		
4.			12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

Each item is explained as follows:

Item	Description
Index	Display the number link of the profile.
Username	Display the name that FTP/Samba users will use for accessing into FTP/Samba server.
Home Folder	Display the home folder of this entry.
Set to Factory Default	Click it to clear all profiles settings.

Click any index number to access into the configuration page.



USB Application >> USB User Management

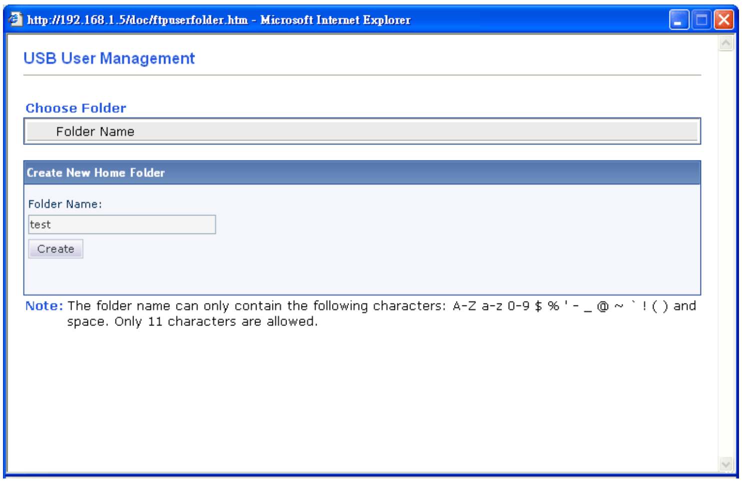
Profile Index: 1

FTP/Samba User	○ Enable ● Disable
Username	
Password	(Maximum 11 Characters)
Confirm Password	
Home Folder	
Access Rule	
File	□ Read □ Write □ Delete
Directory	□ List □ Create □ Remove

Note: The folder name can only contain the following characters: A-Z a-z 0-9 $ % ' - _ @ ~ ` ! ( ) / and space.

Available settings are explained as follows:

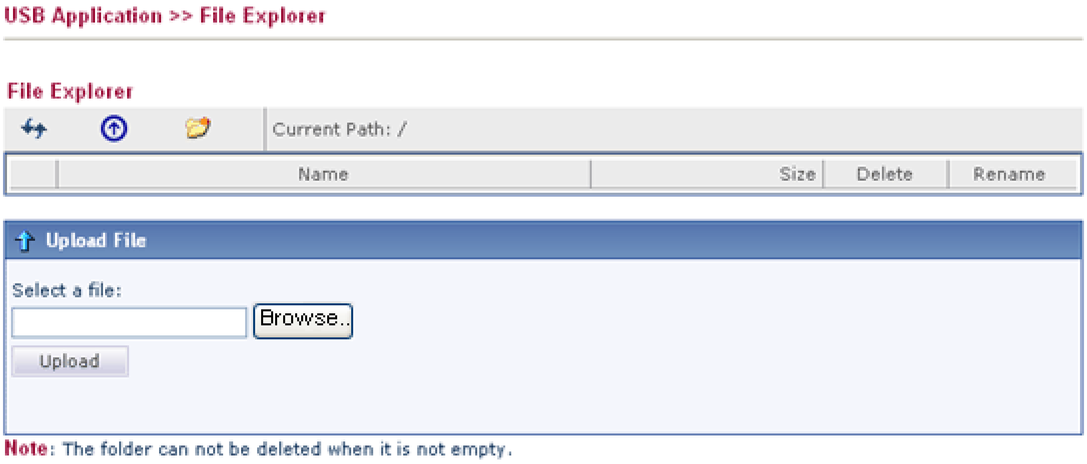
Item	Description
FTP/Samba User	**Enable** – Click this button to activate this profile (account) for FTP service or Samba User service. Later, the user can use the username specified in this page to login into FTP server. **Disable** – Click this button to disable such profile.
Username	Type the username for FTP/Samba users for accessing into FTP server (USB storage disk). Be aware that users cannot access into USB storage disk in anonymity. Later, you can open FTP client software and type the username specified here for accessing into USB storage disk. **Note:** "Admin" could not be typed here as username, for the word is specified for accessing into web pages of Vigor router only. Also, it is reserved for FTP firmware upgrade usage. **Note:** FTP Passive mode is not supported by Vigor Router. Please disable the mode on the FTP client.
Password	Type the password for FTP/Samba users for accessing FTP server. Later, you can open FTP client software and type the password specified here for accessing into USB storage disk.
Confirm Password	Type the password again to make confirmation.
Home Folder	It determines the folder for the client to access into. The user can enter a directory name in this field. Then, after clicking **OK**, the router will create the specific/new folder in the USB storage disk. In addition, if the user types "/" here, he/she can access into all of the disk folders and files in USB storage disk. **Note:** When write protect status for the USB storage disk is **ON**, you cannot type any new folder name in this field. Only "/" can be used in such case.

Item	Description
	You can click 📂 to open the following dialog to add any new folder which can be specified as the Home Folder.  http://192.168.1.5/doc/ftpuserfolder.htm - Microsoft Internet Explorer USB User Management Choose Folder Folder Name Create New Home Folder Folder Name: test Create Note: The folder name can only contain the following characters: A-Z a-z 0-9 $ % ' - _ @ ~ ` ! ( ) and space. Only 11 characters are allowed.
Access Rule	It determines the authority for such profile. Any user, who uses such profile for accessing into USB storage disk, must follow the rule specified here. **File** – Check the items (Read, Write and Delete) for such profile. **Directory** –Check the items (List, Create and Remove) for such profile.

Before you click **OK**, you have to insert a USB storage disk into the USB interface of the Vigor router. Otherwise, you cannot save the configuration.

4.14.3 File Explorer

File Explorer offers an easy way for users to view and manage the content of USB storage disk connected on Vigor router.



Note: The folder can not be deleted when it is not empty.

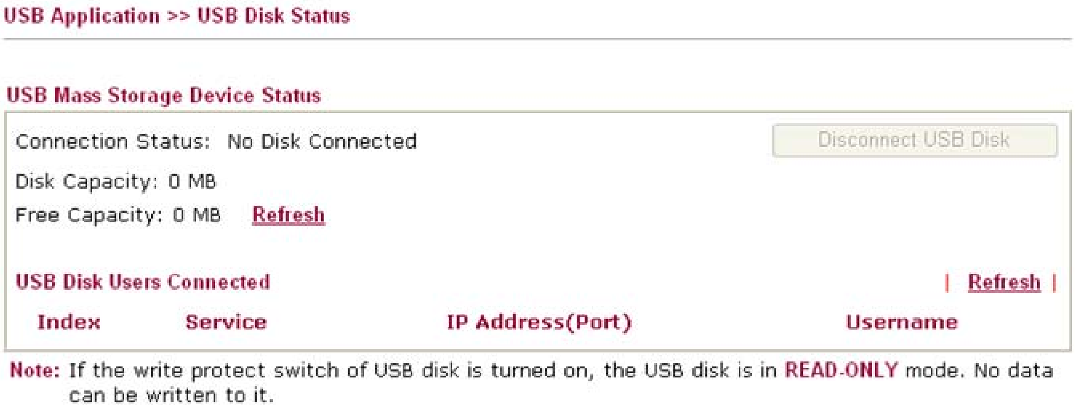
Available settings are explained as follows:

Item	Description
Refresh	Click this icon to refresh files list.

Item	Description
Back	Click this icon to return to the upper directory.
Create	Click this icon to add a new folder.
Current Path	Display current folder.
Upload	Click this button to upload the selected file to the USB storage disk. The uploaded file in the USB storage disk can be shared for other user through FTP.

4.14.4 USB Disk Status

This page is to monitor the status for the users who accessing into FTP or Samba server (USB storage disk) via the Vigor router. If you want to remove the storage disk from USB port in router, please click **Disconnect USB Disk** first. And then, remove the USB storage disk later.



USB Application >> USB Disk Status

USB Mass Storage Device Status

Connection Status: No Disk Connected

Disk Capacity: 0 MB

Free Capacity: 0 MB Refresh

USB Disk Users Connected | Refresh |

Index	Service	IP Address(Port)	Username

Note: If the write protect switch of USB disk is turned on, the USB disk is in READ-ONLY mode. No data can be written to it.

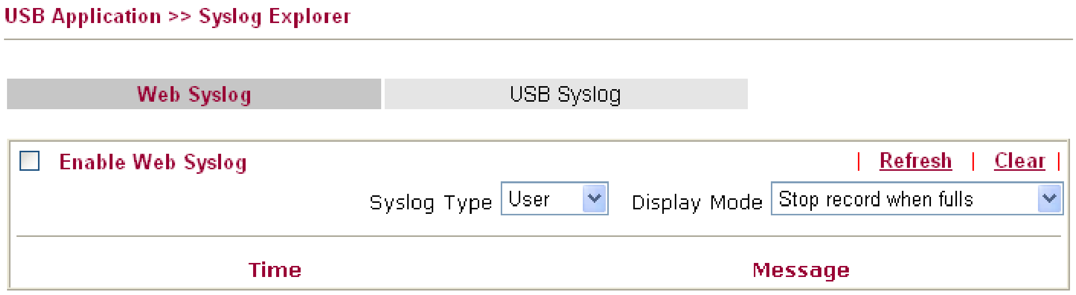
Each item is explained as follows:

Item	Description
Connection Status	If there is no USB storage disk connected to Vigor router, "**No Disk Connected**" will be shown here.
Disk Capacity	Display the total capacity of the USB storage disk.
Free Capacity	Display the free space of the USB storage disk. Click **Refresh** at any time to get new status for free capacity.
Index	Display the number of the client which connecting to FTP server.
IP Address	Display the IP address of the user's host which connecting to the FTP server.
Username	Display the username that user uses to login to the FTP server.

When you insert USB storage disk into the Vigor router, the system will start to find out such device within several seconds.

4.14.5 Syslog Explorer

Such page provides real-time syslog and displays the information on the screen.



USB Application >> Syslog Explorer

□ Enable Web Syslog | Refresh | Clear |

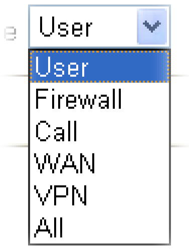
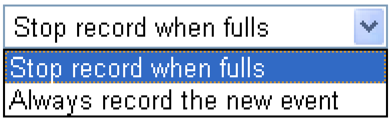
Syslog Type: User

Display Mode: Stop record when fulls

Time	Message

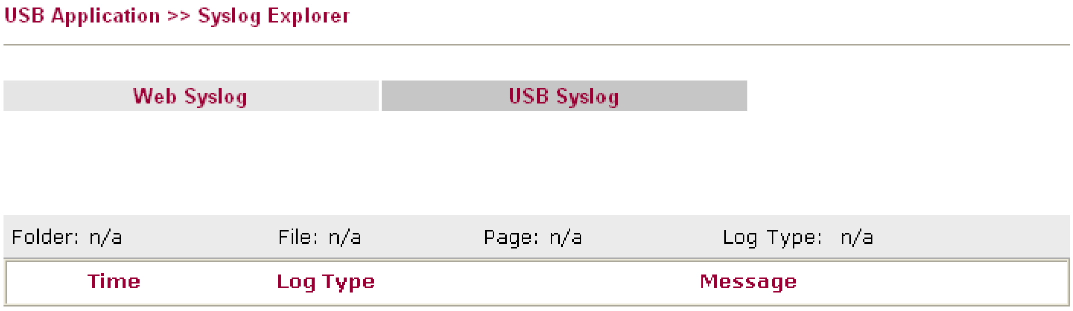
For Web Syslog

Available parameters are explained as follows:

Item	Description
Enable Web Syslog	Check this box to enable the function of Web Syslog.
Syslog Type	Use the drop down list to specify a type of Syslog to be displayed. 
Display Mode	There are two modes for you to choose.  Stop record when fulls Stop record when fulls Always record the new event **Stop record when fulls –** when the capacity of syslog is full, the system will stop recording. **Always record the new event –** only the newest events will be recorded by the system.
Time	Display the time of the event occurred.
Message	Display the information for each event.

For USB Syslog

This page displays the syslog recorded on the USB storage disk.



Folder: n/a File: n/a Page: n/a Log Type: n/a

Time	Log Type	Message

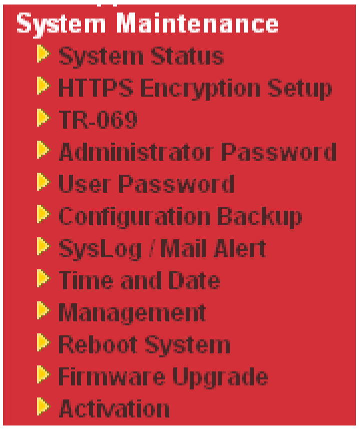
Each item is explained as follows:

Item	Description
Time	Display the time of the event occurred.
Log Type	Display the type of the record.
Message	Display the information for each event.

4.15 System Maintenance

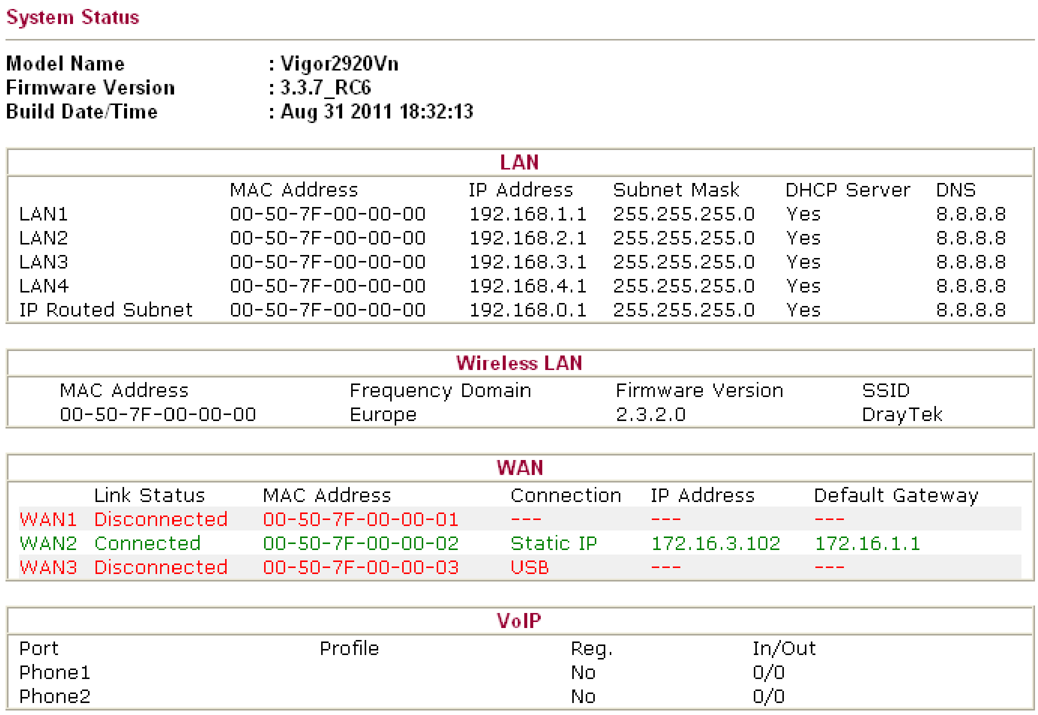
For the system setup, there are several items that you have to know the way of configuration: Status, Administrator Password, Configuration Backup, Syslog, Time setup, Reboot System, Firmware Upgrade.

Below shows the menu items for System Maintenance.



4.15.1 System Status

The **System Status** provides basic network settings of Vigor router. It includes LAN and WAN interface information. Also, you could get the current running firmware version or firmware related information from this presentation.



System Status

Model Name : Vigor2920Vn
Firmware Version : 3.3.7_RC6
Build Date/Time : Aug 31 2011 18:32:13

LAN

	MAC Address	IP Address	Subnet Mask	DHCP Server	DNS
LAN1	00-50-7F-00-00-00	192.168.1.1	255.255.255.0	Yes	8.8.8.8
LAN2	00-50-7F-00-00-00	192.168.2.1	255.255.255.0	Yes	8.8.8.8
LAN3	00-50-7F-00-00-00	192.168.3.1	255.255.255.0	Yes	8.8.8.8
LAN4	00-50-7F-00-00-00	192.168.4.1	255.255.255.0	Yes	8.8.8.8
IP Routed Subnet	00-50-7F-00-00-00	192.168.0.1	255.255.255.0	Yes	8.8.8.8

Wireless LAN

MAC Address	Frequency Domain	Firmware Version	SSID
00-50-7F-00-00-00	Europe	2.3.2.0	DrayTek

WAN

	Link Status	MAC Address	Connection	IP Address	Default Gateway
WAN1	Disconnected	00-50-7F-00-00-01	---	---	---
WAN2	Connected	00-50-7F-00-00-02	Static IP	172.16.3.102	172.16.1.1
WAN3	Disconnected	00-50-7F-00-00-03	USB	---	---

VoIP

Port	Profile	Reg.	In/Out
Phone1		No	0/0
Phone2		No	0/0

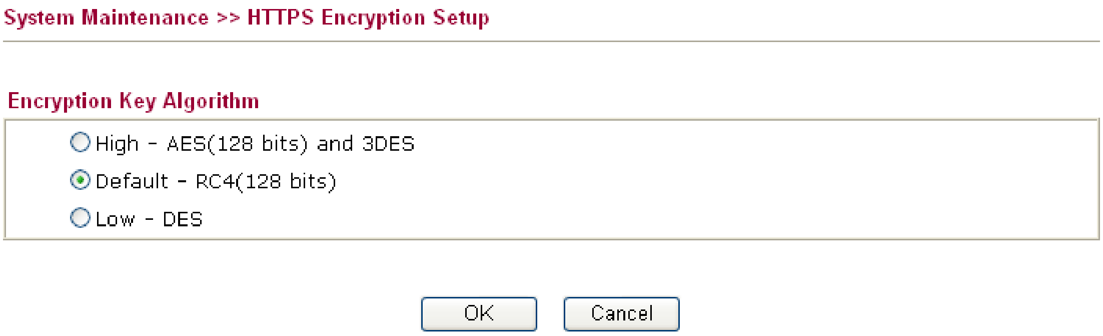
Each item is explained as follows:

Item	Description
Model Name	Display the model name of the router.
Firmware Version	Display the firmware version of the router.

Item	Description
Build Date/Time	Display the date and time of the current firmware build.
LAN	**MAC Address** - Display the MAC address of the LAN Interface. **IP Address** - Display the IP address of the LAN interface. **Subnet Mask** - Display the subnet mask address of the LAN interface. **DHCP Server** - Display the current status of DHCP server of the LAN interface **DNS** - Display the assigned IP address of the primary DNS.
Wireless LAN	**MAC Address** - Display the MAC address of the wireless LAN. **Frequency Domain** - It can be Europe (13 usable channels), USA (11 usable channels) etc. The available channels supported by the wireless products in different countries are various. **Firmware Version** - It indicates information about equipped WLAN miniPCi card. This also helps to provide availability of some features that are bound with some WLAN miniPCi. **SSID -** Display the SSID of the router.
WAN	**Link Status** - Display current connection status. **MAC Address** - Display the MAC address of the WAN Interface. **Connection** - Display the connection type. **IP Address** - Display the IP address of the WAN interface. **Default Gateway** - Display the assigned IP address of the default gateway.
VoIP	**Profile** - Display the VoIP profile for the phone port. **In/Out** - Display the number of incoming /outgoing phone call.

4.15.2 HTTPS Encryption Setup

The encryption methods configured in this page would influence the access of HTTP web site and the encryption algorithm used by SSL Tunnel.



System Maintenance >> HTTPS Encryption Setup

Encryption Key Algorithm

○ High - AES(128 bits) and 3DES

● Default - RC4(128 bits)

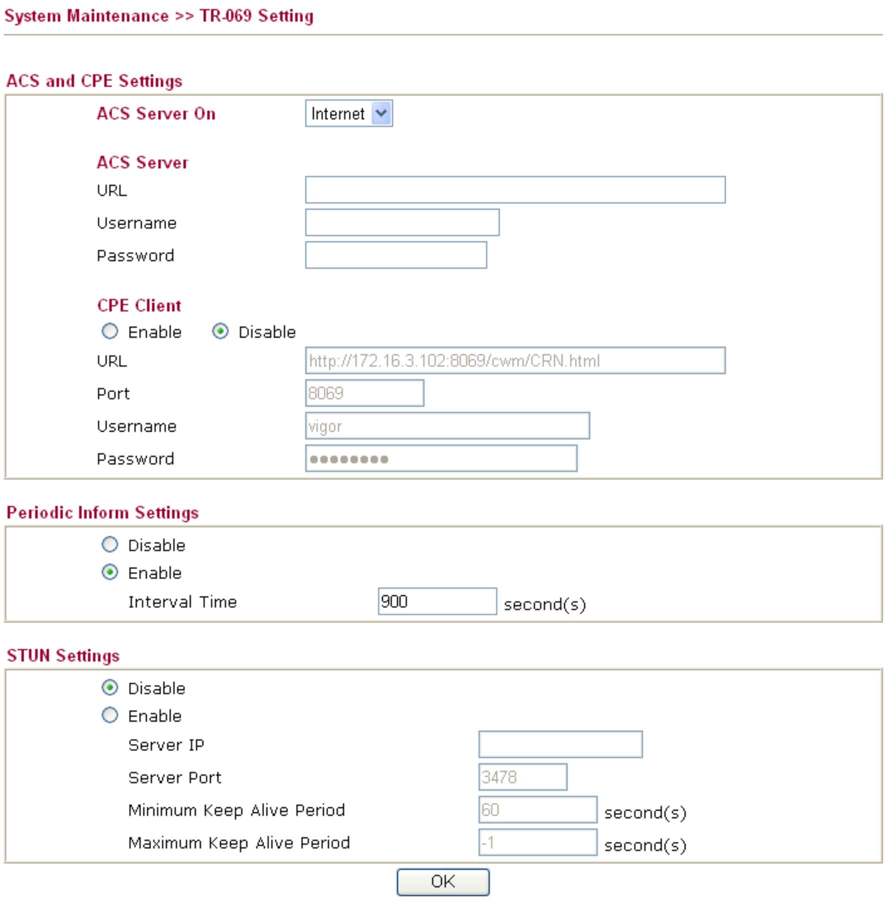
○ Low - DES

Available parameters are explained as follows:

Item	Description
High	Choose this option to have high security.
Default	If you have no idea of this setting, simply use the default setting as HTTPS encryption mode.
Low	Choose this option to have high performance.

4.15.3 TR-069

This device supports TR-069 standard. It is very convenient for an administrator to manage a TR-069 device through an Auto Configuration Server, e.g., VigorACS.



System Maintenance >> TR-069 Setting

ACS and CPE Settings

ACS Server On: Internet

ACS Server
URL:
Username:
Password:

CPE Client
○ Enable ● Disable
URL: http://172.16.3.102:8069/cwm/CRN.html
Port: 8069
Username: vigor
Password: ••••••••

Periodic Inform Settings
○ Disable
● Enable
Interval Time: 900 second(s)

STUN Settings
● Disable
○ Enable
Server IP:
Server Port: 3478
Minimum Keep Alive Period: 60 second(s)
Maximum Keep Alive Period: -1 second(s)

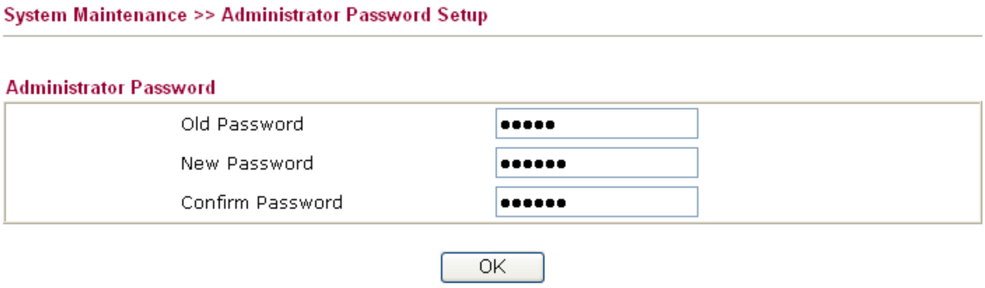
Available parameters are explained as follows:

Item	Description
ACS Server On	Choose the interface for the router connecting to ACS server.
ACS Server	**URL/Username/Password –** Such data must be typed according to the ACS (Auto Configuration Server) you want to link. Please refer to Auto Configuration Server user's manual for detailed information.
CPE Client	Such information is useful for Auto Configuration Server. **Enable/Disable** – Allow/Deny the CPE Client to connect with Auto Configuration Server. **Port** – Sometimes, port conflict might be occurred. To solve such problem, you might change port number for CPE.
Periodic Inform Settings	The default setting is **Enable**. Please set interval time or schedule time for the router to send notification to CPE. Or click **Disable** to close the mechanism of notification.
STUN Settings	The default is **Disable**. If you click **Enable**, please type the relational settings listed below: **Server IP –** Type the IP address of the STUN server.

Item	Description
	Server Port – Type the port number of the STUN server. **Minimum Keep Alive Period –** If STUN is enabled, the CPE must send binding request to the server for the purpose of maintaining the binding in the Gateway. Please type a number as the minimum period. The default setting is “60 seconds”. **Maximum Keep Alive Period –** If STUN is enabled, the CPE must send binding request to the server for the purpose of maintaining the binding in the Gateway. Please type a number as the maximum period. A value of “-1” indicates that no maximum period is specified.

4.15.4 Administrator Password

This page allows you to set new password.



System Maintenance >> Administrator Password Setup

Administrator Password

Old Password	●●●●●
New Password	●●●●●●
Confirm Password	●●●●●●

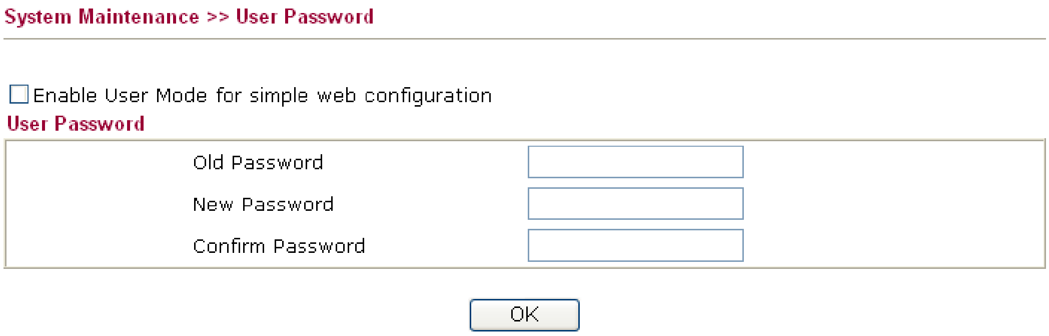
Available parameters are explained as follows:

Item	Description
Old Password	Type in the old password. The factory default setting for password is **“admin”**.
New Password	Type in new password in this field.
Confirm Password	Type in the new password again.

When you click **OK**, the login window will appear. Please use the new password to access into the web configurator again.

4.15.5 User Password

Sometimes, you may want to access into User Mode to configure the web settings for some reason. Vigor router allows you to set new user password to login into the WUI to fit your request. Simply open **System Maintenance>>User Password**.



System Maintenance >> User Password

□ Enable User Mode for simple web configuration

User Password

Old Password	
New Password	
Confirm Password	

Available parameters are explained as follows:

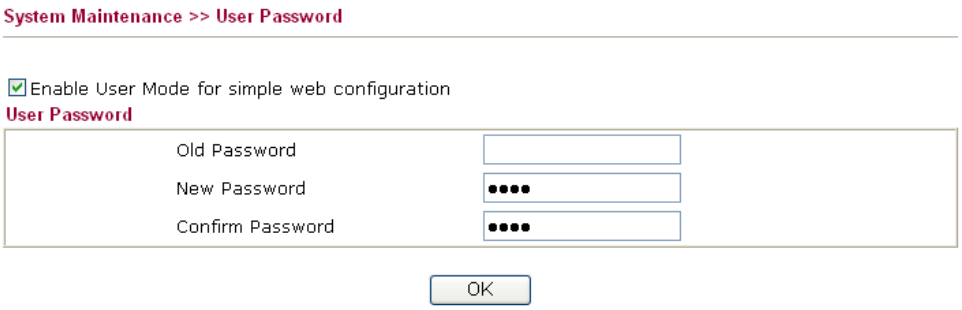
Item	Description
Enable User Mode for simple web configuration	Check this box to enable user mode operation. If you do not check this box, you cannot access into the user mode operation even if you enter user password in login page.
Old Password	Type in the old password. The factory default setting for password is blank.
New Password	Type in new password in this field.
Confirm Password	Type in the new password again.

When you click **OK**, the login window will appear. Please use the new password to access into the web configurator again.

Below shows an example for accessing into User Operation with User Password.

1. Open **System Maintenance>>User Password**.

2. Check the box of **Enable User Mode for simple web configuration** to enable user mode operation. Type a new password in the field of New Password and click **OK**.



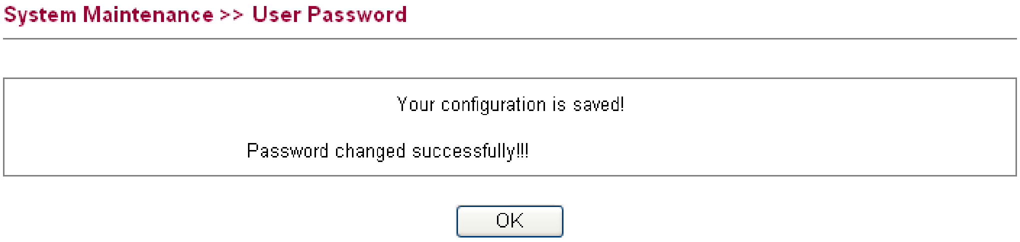
System Maintenance >> User Password

☑ Enable User Mode for simple web configuration

User Password

Old Password	
New Password	••••
Confirm Password	••••

3. The following screen will appear. Simply click **OK**.

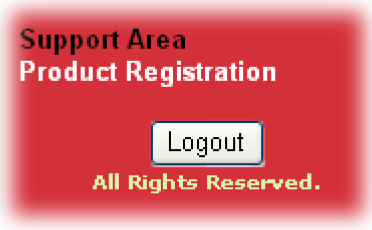


System Maintenance >> User Password

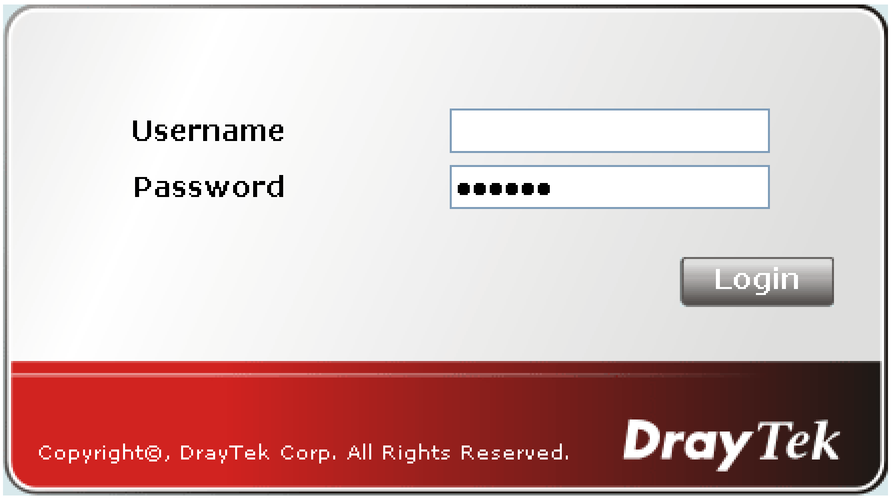
Your configuration is saved!

Password changed successfully!!!

4. Log out Vigor router Web Configurator.



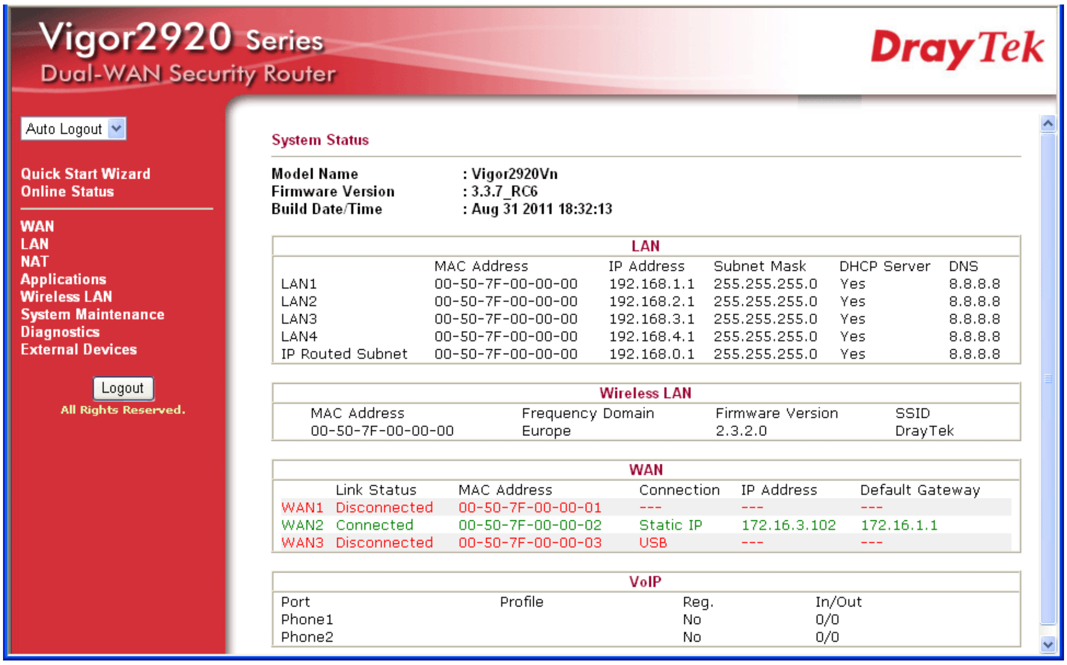
5. The following window will be open to ask for username and password. Type the new user password in the filed of **Password** and click **Login**.



Username

Password ●●●●●●

6. The main screen with User Mode will be shown as follows.



System Status

Model Name : Vigor2920Vn
Firmware Version : 3.3.7_RC6
Build Date/Time : Aug 31 2011 18:32:13

LAN

	MAC Address	IP Address	Subnet Mask	DHCP Server	DNS
LAN1	00-50-7F-00-00-00	192.168.1.1	255.255.255.0	Yes	8.8.8.8
LAN2	00-50-7F-00-00-00	192.168.2.1	255.255.255.0	Yes	8.8.8.8
LAN3	00-50-7F-00-00-00	192.168.3.1	255.255.255.0	Yes	8.8.8.8
LAN4	00-50-7F-00-00-00	192.168.4.1	255.255.255.0	Yes	8.8.8.8
IP Routed Subnet	00-50-7F-00-00-00	192.168.0.1	255.255.255.0	Yes	8.8.8.8

Wireless LAN

MAC Address	Frequency Domain	Firmware Version	SSID
00-50-7F-00-00-00	Europe	2.3.2.0	DrayTek

WAN

	Link Status	MAC Address	Connection	IP Address	Default Gateway
WAN1	Disconnected	00-50-7F-00-00-01	---	---	---
WAN2	Connected	00-50-7F-00-00-02	Static IP	172.16.3.102	172.16.1.1
WAN3	Disconnected	00-50-7F-00-00-03	USB	---	---

VoIP

Port	Profile	Reg.	In/Out
Phone1		No	0/0
Phone2		No	0/0

Settings to be configured in User Mode will be less than settings in Admin Mode. Only basic configuration settings will be available in User Mode.

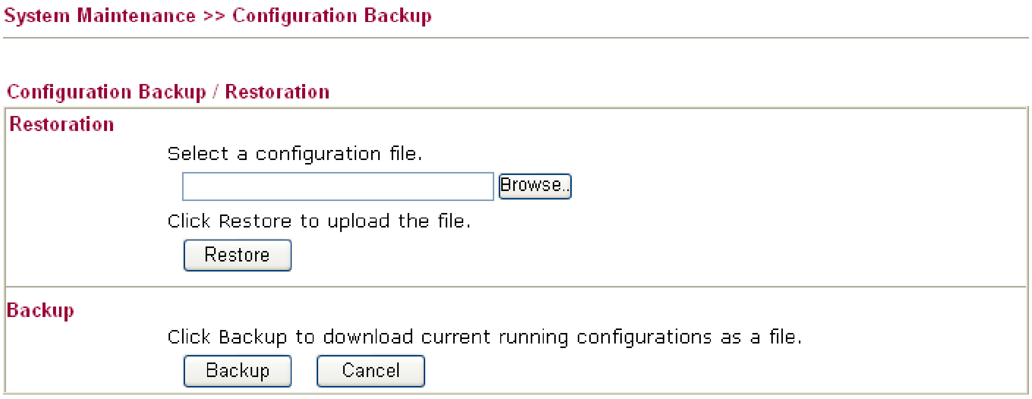
Setting in User Mode can be configured as same as in Admin Mode.

4.15.6 Configuration Backup

Backup the Configuration

Follow the steps below to backup your configuration.

1. Go to **System Maintenance** >> **Configuration Backup**. The following windows will be popped-up, as shown below.

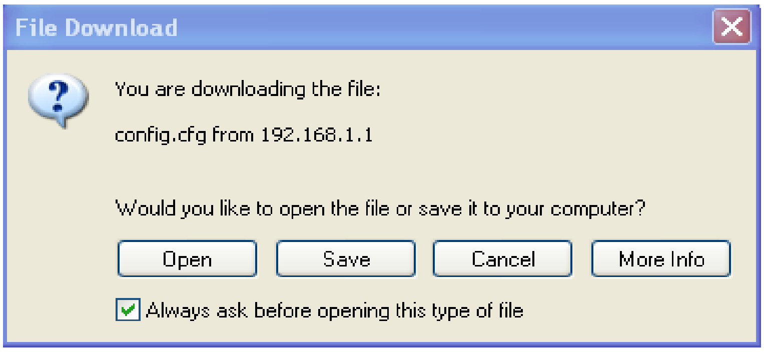

System Maintenance >> Configuration Backup
Configuration Backup / Restoration
Restoration
Browse..
Restore
Backup
Backup
Cancel

Select a configuration file.

Click Restore to upload the file.

Click Backup to download current running configurations as a file.

2. Click **Backup** button to get into the following dialog. Click **Save** button to open another dialog for saving configuration as a file.



File Download

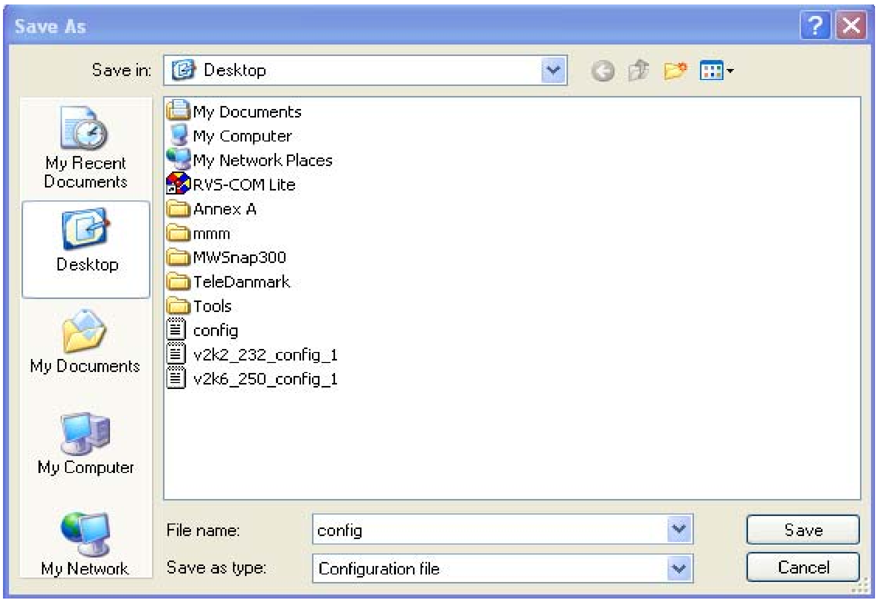
You are downloading the file:

config.cfg from 192.168.1.1

Would you like to open the file or save it to your computer?

☑ Always ask before opening this type of file

3. In **Save As** dialog, the default filename is **config.cfg**. You could give it another name by yourself.



Save As

Save in: Desktop

My Documents
My Computer
My Network Places
RVS-COM Lite
Annex A
mmm
MWSnap300
TeleDanmark
Tools
config
v2k2_232_config_1
v2k6_250_config_1

File name: config

Save as type: Configuration file

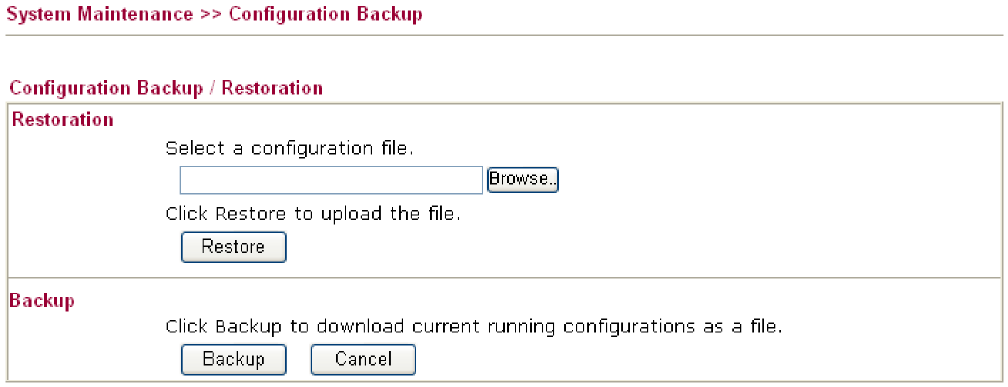
4. Click **Save** button, the configuration will download automatically to your computer as a file named **config.cfg**.

The above example is using **Windows** platform for demonstrating examples. The **Mac** or **Linux** platform will appear different windows, but the backup function is still available.

Note: Backup for Certification must be done independently. The Configuration Backup does not include information of Certificate.

Restore Configuration

1. Go to **System Maintenance** >> **Configuration Backup**. The following windows will be popped-up, as shown below.



System Maintenance >> Configuration Backup

Configuration Backup / Restoration

Restoration

Select a configuration file.

Browse..

Click Restore to upload the file.

Restore

Backup

Click Backup to download current running configurations as a file.

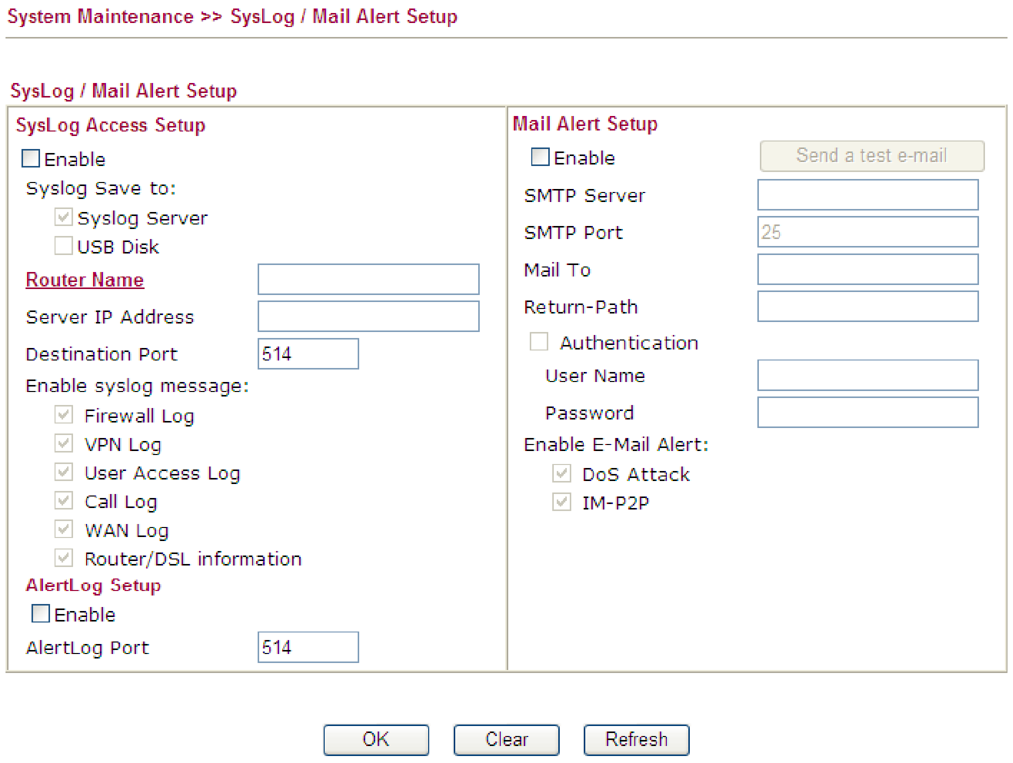
Backup Cancel

2. Click **Browse** button to choose the correct configuration file for uploading to the router.

3. Click **Restore** button and wait for few seconds, the following picture will tell you that the restoration procedure is successful.

4.15.7 Syslog/Mail Alert

SysLog function is provided for users to monitor router. There is no bother to directly get into the Web Configurator of the router or borrow debug equipments.



System Maintenance >> SysLog / Mail Alert Setup

SysLog / Mail Alert Setup

SysLog Access Setup

□ Enable

Syslog Save to:

☑ Syslog Server

□ USB Disk

Router Name

Server IP Address

Destination Port 514

Enable syslog message:

☑ Firewall Log

☑ VPN Log

☑ User Access Log

☑ Call Log

☑ WAN Log

☑ Router/DSL information

AlertLog Setup

□ Enable

AlertLog Port 514

Mail Alert Setup

□ Enable

Send a test e-mail

SMTP Server

SMTP Port 25

Mail To

Return-Path

□ Authentication

User Name

Password

Enable E-Mail Alert:

☑ DoS Attack

☑ IM-P2P

OK Clear Refresh

Available parameters are explained as follows:

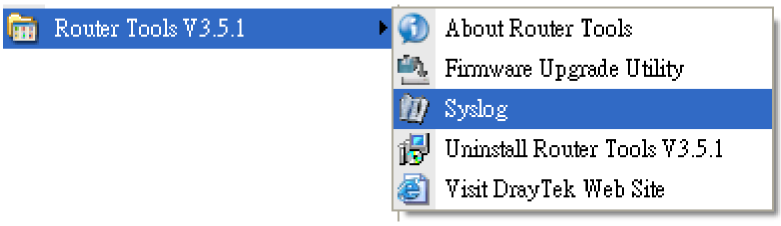
Item	Description
SysLog Access Setup	**Enable** - Check **Enable** to activate function of syslog. **Syslog Save to** – Check **Syslog Server** to save the log to

Item	Description
	Syslog server. Check **USB Disk** to save the log to the attached USB storage disk.
Router Name	Display the name for such router configured in **System Maintenance>>Management.** If there is no name here, simply lick the link to access into **System Maintenance>>Management** to set the router name.
Server IP Address	The IP address of the Syslog server.
Destination Port	Assign a port for the Syslog protocol.
Enable syslog message	Check the box listed on this web page to send the corresponding message of firewall, VPN, User Access, Call, WAN, Router/DSL information to Syslog.
AlertLog Setup	Check "**Enable**" to activate function of alert log. Type the port number for alert log. The default setting is 514.
Mail Alert Setup	Check "**Enable**" to activate function of mail alert.
Send a test e-mail	Make a simple test for the e-mail address specified in this page. Please assign the mail address first and click this button to execute a test for verify the mail address is available or not.
SMTP Server	The IP address of the SMTP server.
Mail To	Assign a mail address for sending mails out.
Return-Path	Assign a path for receiving the mail from outside.
Authentication	Check this box to activate this function while using e-mail application. **User Name -** Type the user name for authentication. **Password** - Type the password for authentication.
Enable E-mail Alert	Check the box to send alert message to the e-mail box while the router detecting the item(s) you specify here.

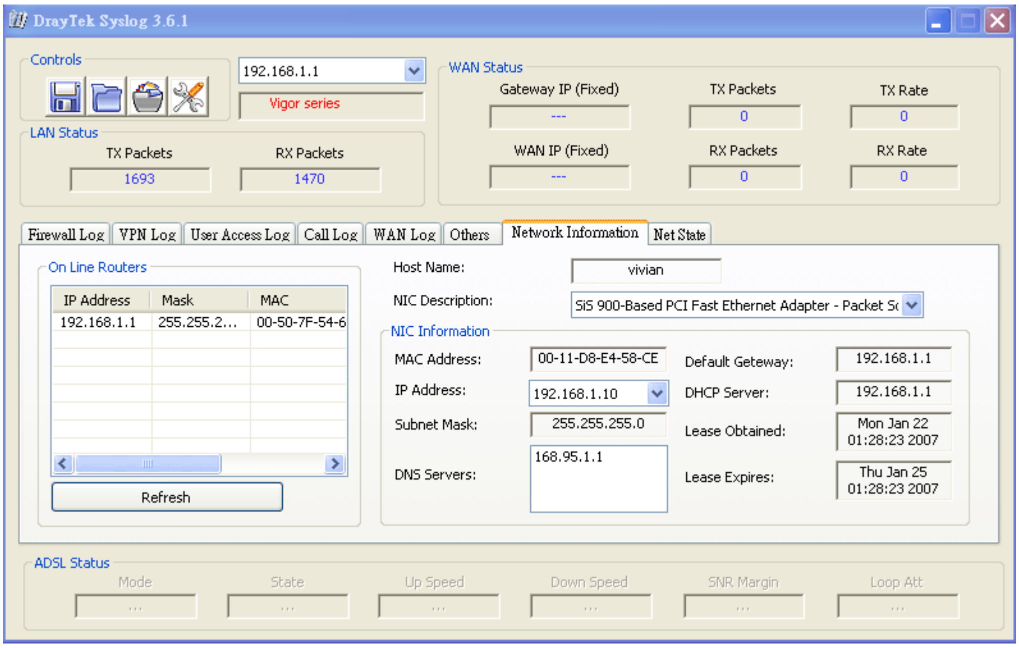
Click **OK** to save these settings.

For viewing the Syslog, please do the following:

1. Just set your monitor PC's IP address in the field of Server IP Address
2. Install the Router Tools in the **Utility** within provided CD. After installation, click on the **Router Tools>>Syslog** from program menu.



3. From the Syslog screen, select the router you want to monitor. Be reminded that in **Network Information**, select the network adapter used to connect to the router. Otherwise, you won't succeed in retrieving information from the router.



192.168.1.1 — Vigor series

LAN Status: TX Packets 1693, RX Packets 1470

WAN Status: Gateway IP (Fixed) ---, TX Packets 0, TX Rate 0; WAN IP (Fixed) ---, RX Packets 0, RX Rate 0

IP Address	Mask	MAC
192.168.1.1	255.255.2...	00-50-7F-54-6

Host Name: vivian

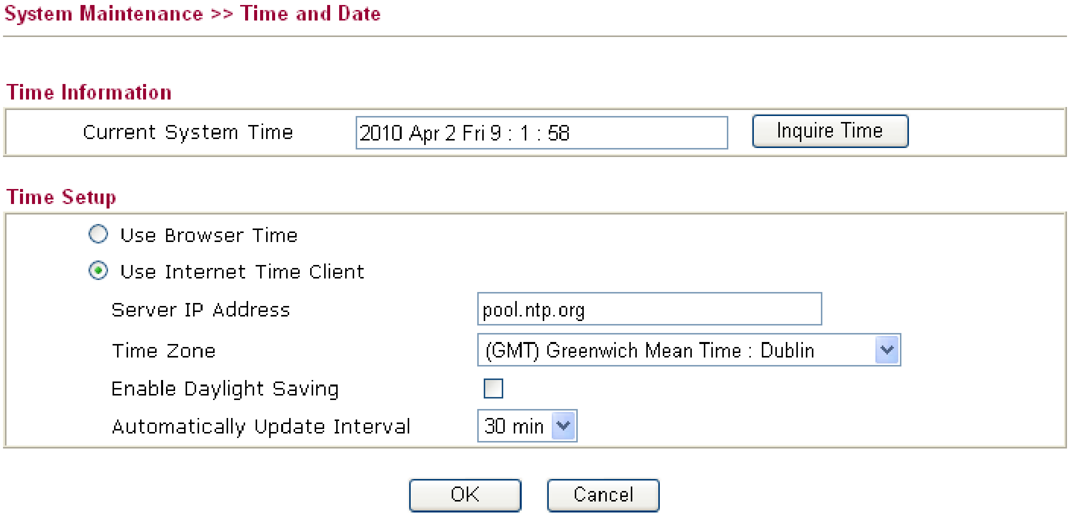
NIC Description: SiS 900-Based PCI Fast Ethernet Adapter - Packet Sc

MAC Address:	00-11-D8-E4-58-CE	Default Geteway:	192.168.1.1
IP Address:	192.168.1.10	DHCP Server:	192.168.1.1
Subnet Mask:	255.255.255.0	Lease Obtained:	Mon Jan 22 01:28:23 2007
DNS Servers:	168.95.1.1	Lease Expires:	Thu Jan 25 01:28:23 2007

ADSL Status: Mode ..., State ..., Up Speed ..., Down Speed ..., SNR Margin ..., Loop Att ...

4.15.8 Time and Date

It allows you to specify where the time of the router should be inquired from.


System Maintenance >> Time and Date

Time Information

Current System Time: 2010 Apr 2 Fri 9 : 1 : 58 [Inquire Time]

Time Setup

○ Use Browser Time

● Use Internet Time Client

Server IP Address: pool.ntp.org

Time Zone: (GMT) Greenwich Mean Time : Dublin

Enable Daylight Saving: □

Automatically Update Interval: 30 min

[OK] [Cancel]

Available parameters are explained as follows:

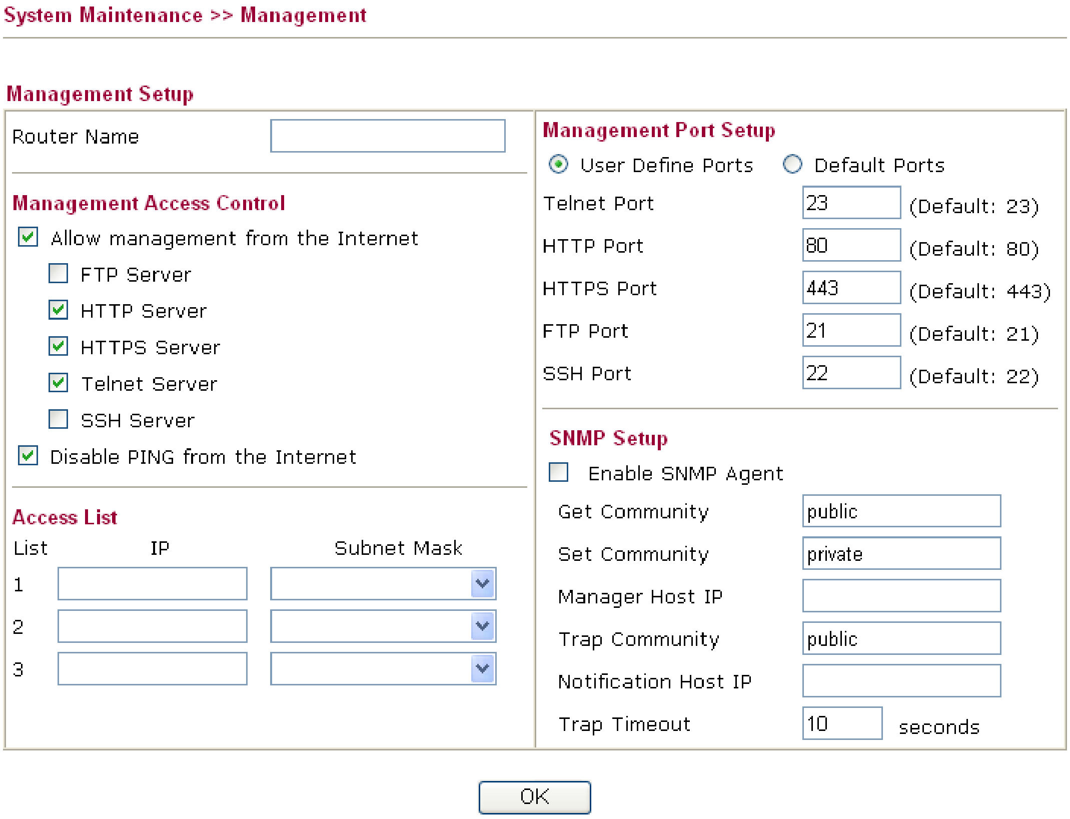
Item	Description
Current System Time	Click **Inquire Time** to get the current time.
Use Browser Time	Select this option to use the browser time from the remote administrator PC host as router's system time.
Use Internet Time	Select to inquire time information from Time Server on the Internet using assigned protocol.
Time Protocol	Select a time protocol.

Item	Description
Server IP Address	Type the IP address of the time server.
Time Zone	Select the time zone where the router is located.
Enable Daylight Saving	Check the box to enable the daylight saving. Such feature is available for certain area.
Automatically Update Interval	Select a time interval for updating from the NTP server.

Click **OK** to save these settings.

4.15.9 Management

This page allows you to manage the settings for access control, access list, port setup, and SMP setup. For example, as to management access control, the port number is used to send/receive SIP message for building a session.



System Maintenance >> Management

Management Setup

Router Name:

Management Access Control

☑ Allow management from the Internet
- □ FTP Server
- ☑ HTTP Server
- ☑ HTTPS Server
- ☑ Telnet Server
- □ SSH Server

☑ Disable PING from the Internet

Access List

List	IP	Subnet Mask
1		
2		
3		

Management Port Setup

● User Define Ports ○ Default Ports

Telnet Port	23	(Default: 23)
HTTP Port	80	(Default: 80)
HTTPS Port	443	(Default: 443)
FTP Port	21	(Default: 21)
SSH Port	22	(Default: 22)

SNMP Setup

□ Enable SNMP Agent

Get Community	public
Set Community	private
Manager Host IP	
Trap Community	public
Notification Host IP	
Trap Timeout	10 seconds

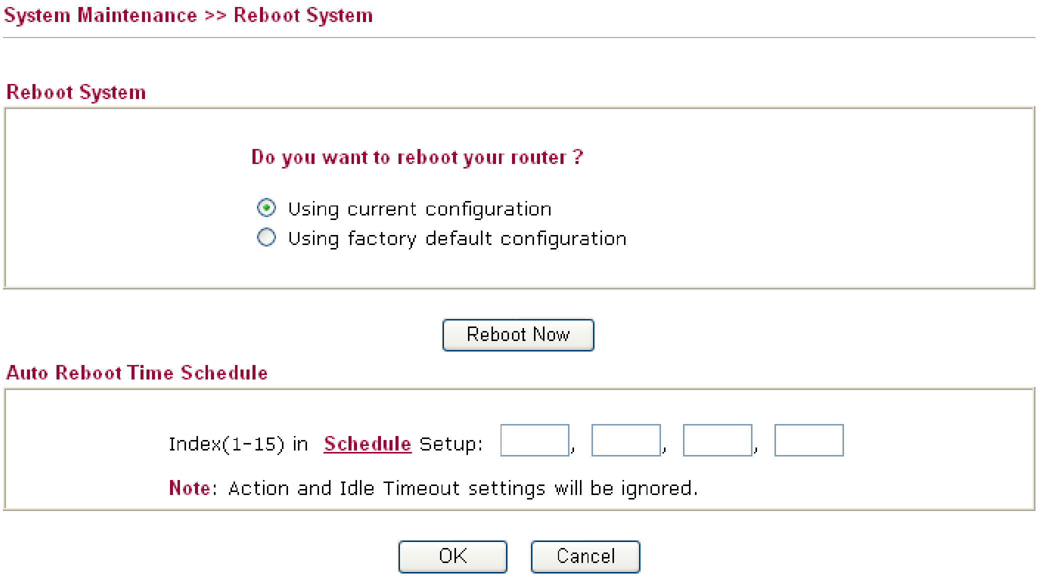
Available parameters are explained as follows:

Item	Description
Router Name	Type in the router name provided by ISP.
Allow management from the Internet	Enable the checkbox to allow system administrators to login from the Internet. There are several servers provided by the system to allow you managing the router from Internet. Check the box(es) to specify.
Disable PING from the Internet	Check the checkbox to reject all PING packets from the Internet. For security issue, this function is enabled by default.

Item	Description
Access List	You could specify that the system administrator can only login from a specific host or network defined in the list. A maximum of three IPs/subnet masks is allowed. **List IP -** Indicate an IP address allowed to login to the router. **Subnet Mask -** Represent a subnet mask allowed to login to the router.
Default Ports	Check to use standard port numbers for the Telnet and HTTP servers.
User Defined Ports	Check to specify user-defined port numbers for the Telnet, HTTP and FTP servers.
Enable SNMP Agent	Check it to enable this function.
Get Community	Set the name for getting community by typing a proper character. The default setting is **public.**
Set Community	Set community by typing a proper name. The default setting is **private.**
Manager Host IP	Set one host as the manager to execute SNMP function. Please type in IP address to specify certain host.
Trap Community	Set trap community by typing a proper name. The default setting is **public.**
Notification Host IP	Set the IP address of the host that will receive the trap community.
Trap Timeout	The default setting is 10 seconds.

4.15.10 Reboot System

The Web Configurator may be used to restart your router. Click **Reboot System** from **System Maintenance** to open the following page.



System Maintenance >> Reboot System

Reboot System

Do you want to reboot your router ?

● Using current configuration
○ Using factory default configuration

Auto Reboot Time Schedule

Index(1-15) in Schedule Setup: ______, ______, ______, ______

Note: Action and Idle Timeout settings will be ignored.

Index (1-15) in Schedule Setup - You can type in four sets of time schedule for performing system reboot. All the schedules can be set previously in **Applications** >> **Schedule** web page and you can use the number that you have set in that web page.

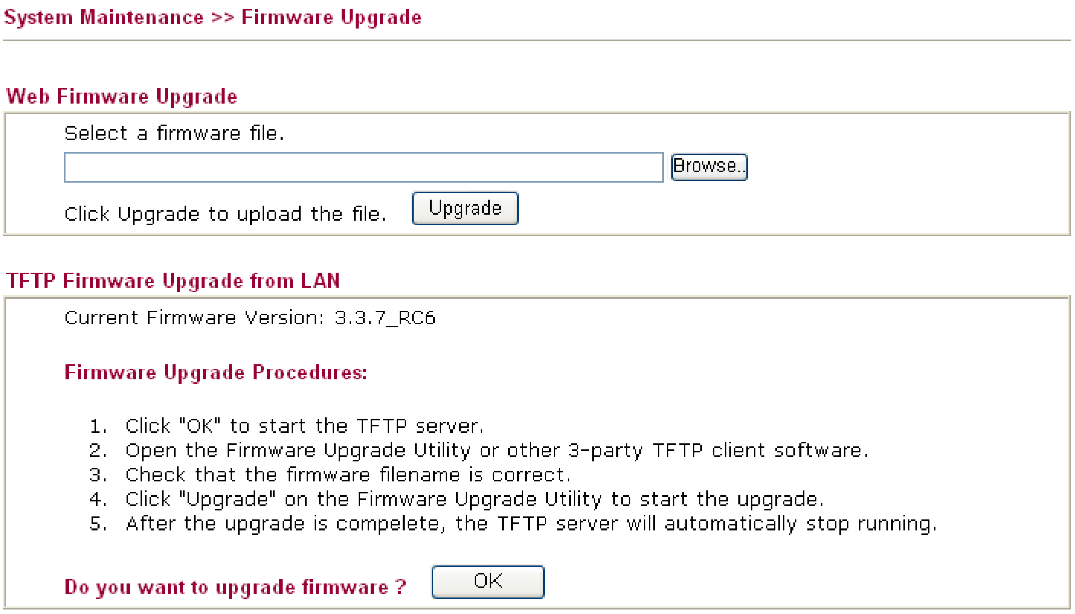
If you want to reboot the router using the current configuration, check **Using current configuration** and click **Reboot Now**. To reset the router settings to default values, check **Using factory default configuration** and click **Reboot Now**. The router will take several seconds to reboot the system.

Note: When the system pops up Reboot System web page after you configure web settings, please click **Reboot Now** to reboot your router for ensuring normal operation and preventing unexpected errors of the router in the future.

4.15.11 Firmware Upgrade

You have to visit DrayTek website periodically to check if there is any new released firmware offered for your Vigor router to have newest features. If yes, download the file into your computer first.

Next, access into web interface of this router and open **System Maintenance>> Firmware Upgrade**. In the following web page, click Browse.. to locate file downloaded from DrayTek web site. Then, click the Upgrade button to perform the firmware upgrade operation.



System Maintenance >> Firmware Upgrade

Web Firmware Upgrade

Select a firmware file.

Click Upgrade to upload the file.

TFTP Firmware Upgrade from LAN

Current Firmware Version: 3.3.7_RC6

Firmware Upgrade Procedures:

1. Click "OK" to start the TFTP server.
2. Open the Firmware Upgrade Utility or other 3-party TFTP client software.
3. Check that the firmware filename is correct.
4. Click "Upgrade" on the Firmware Upgrade Utility to start the upgrade.
5. After the upgrade is compelete, the TFTP server will automatically stop running.

Do you want to upgrade firmware ?

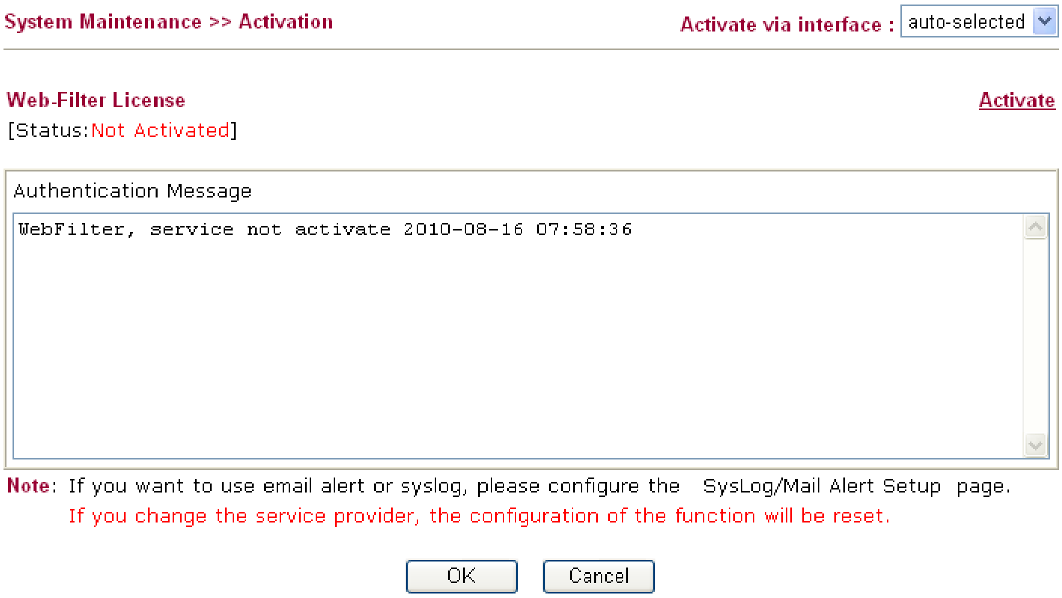
4.15.12 Activation

There are three ways to activate WCF on vigor router, using **Service Activation Wizard**, by means of **CSM>>Web Content Filter Profile** or via **System Maintenance>>Activation**.

After you have finished the setting profiles for WCF (refer to **Web Content Filter Profile**), it is the time to activate the mechanism for your computer.

Click **System Maintenance>>Activation** to open the following page for accessing http://myvigor.draytek.com.

Be aware that such service mechanism is powered by Commtouch.



System Maintenance >> Activation
Activate via interface : auto-selected
Web-Filter License
Activate
OK
Cancel

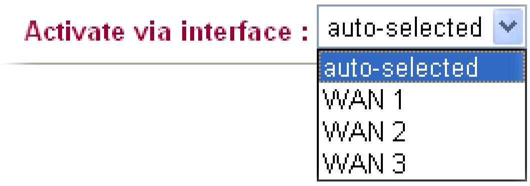
[Status:Not Activated]

Authentication Message

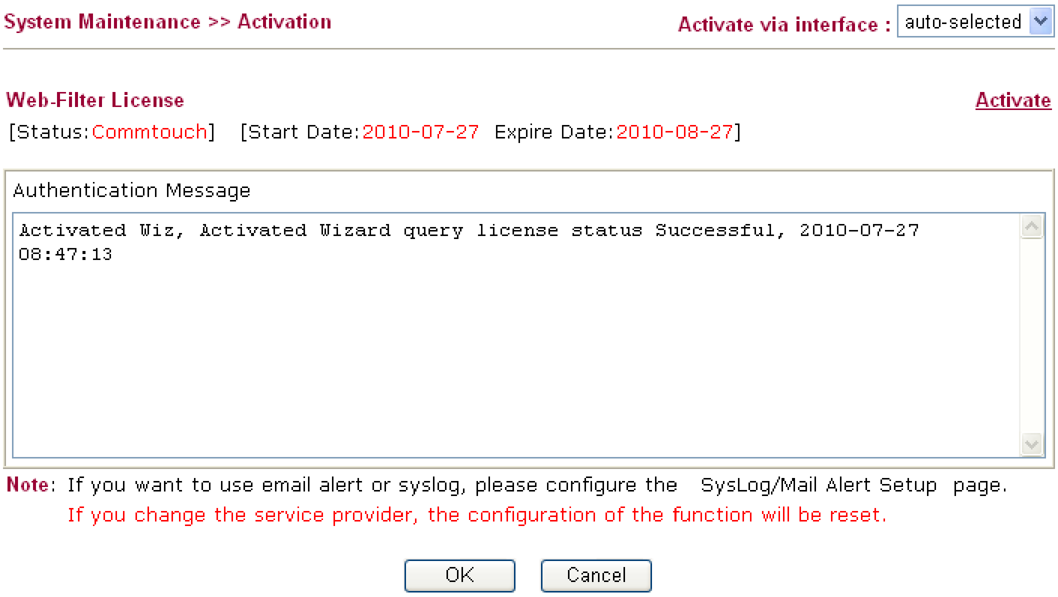
```
WebFilter, service not activate 2010-08-16 07:58:36
```

Note: If you want to use email alert or syslog, please configure the SysLog/Mail Alert Setup page.
If you change the service provider, the configuration of the function will be reset.

Available parameters are explained as follows:

Item	Description
Activate via Interface	Choose WAN interface used by such device for activating Web Content Filter.  Activate via interface : auto-selected auto-selected WAN 1 WAN 2 WAN 3
Activate	The **Activate** link brings you accessing into www.vigorpro.com to finish the activation of the account and the router.
Authentication Message	As for authentication information of **web filter**, the process of authenticating will be displayed on this field for your reference.

Below shows the successful activation of Web Content Filter:



System Maintenance >> Activation

Activate via interface : auto-selected

Web-Filter License

[Status:Commtouch] [Start Date:2010-07-27 Expire Date:2010-08-27]

Activate

Authentication Message

```
Activated Wiz, Activated Wizard query license status Successful, 2010-07-27
08:47:13
```

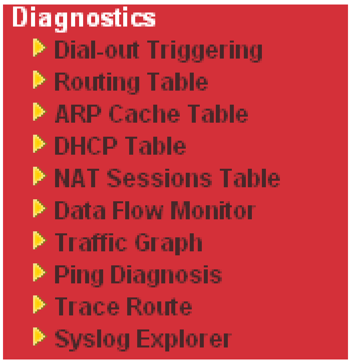
Note: If you want to use email alert or syslog, please configure the SysLog/Mail Alert Setup page.
If you change the service provider, the configuration of the function will be reset.

OK Cancel

4.16 Diagnostics

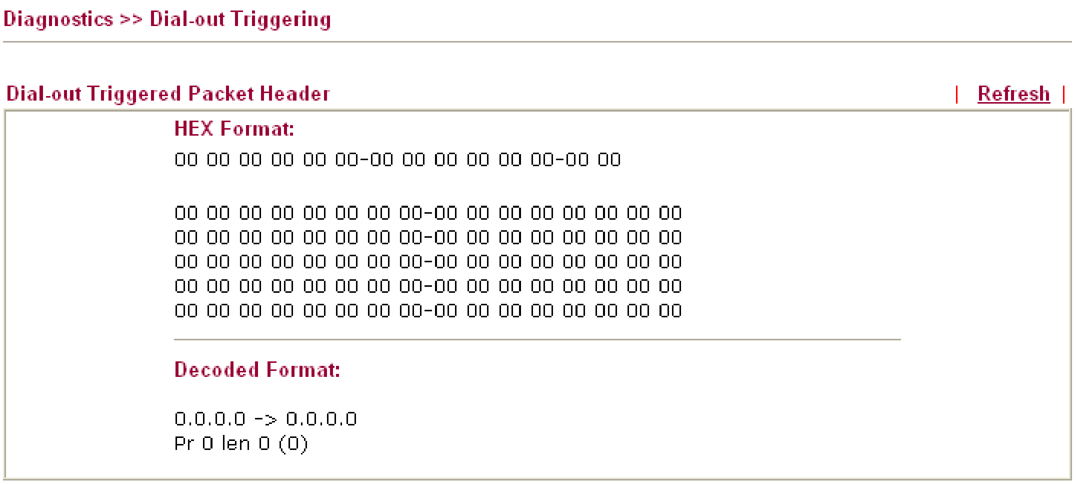
Diagnostic Tools provide a useful way to **view** or **diagnose** the status of your Vigor router.

Below shows the menu items for Diagnostics.



4.16.1 Dial-out Triggering

Click **Diagnostics** and click **Dial-out Triggering** to open the web page. The internet connection (e.g., PPPoE) is triggered by a package sending from the source IP address.



Diagnostics >> Dial-out Triggering

Dial-out Triggered Packet Header | Refresh |

HEX Format:

```
00 00 00 00 00 00-00 00 00 00 00 00-00 00

00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00
00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00
```

Decoded Format:

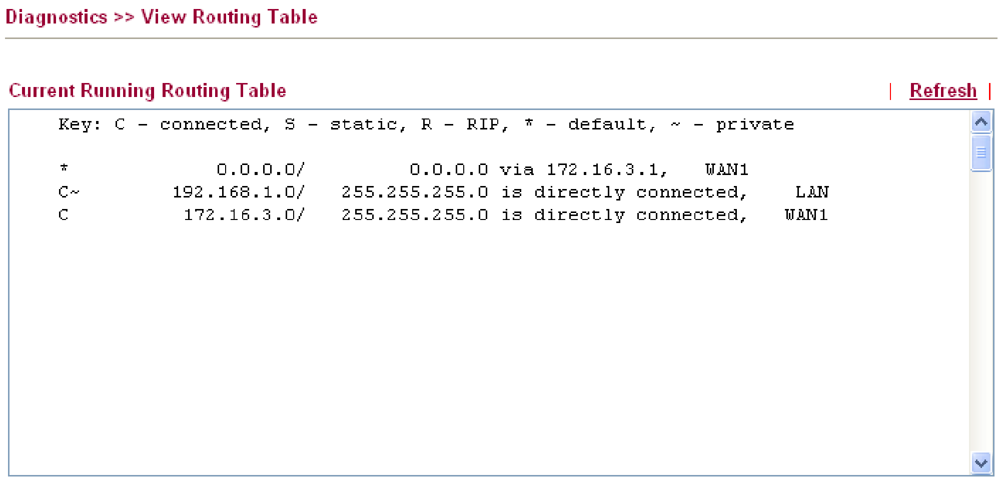
```
0.0.0.0 -> 0.0.0.0
Pr 0 len 0 (0)
```

Each item is explained as follows:

Item	Description
Decoded Format	It shows the source IP address (local), destination IP (remote) address, the protocol and length of the package.
Refresh	Click it to reload the page.

4.16.2 Routing Table

Click **Diagnostics** and click **Routing Table** to open the web page.



Diagnostics >> View Routing Table

Current Running Routing Table | Refresh |

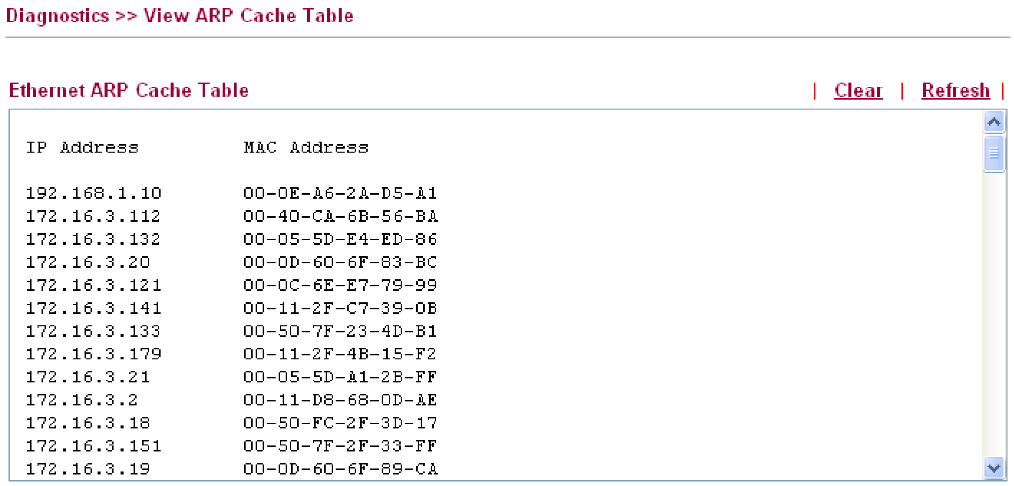
```
Key: C - connected, S - static, R - RIP, * - default, ~ - private

*            0.0.0.0/         0.0.0.0 via 172.16.3.1,    WAN1
C~         192.168.1.0/   255.255.255.0 is directly connected,    LAN
C           172.16.3.0/   255.255.255.0 is directly connected,   WAN1
```

Each item is explained as follows:

Item	Description
Refresh	Click it to reload the page.

4.16.3 ARP Cache Table

Click **Diagnostics** and click **ARP Cache Table** to view the content of the ARP (Address Resolution Protocol) cache held in the router. The table shows a mapping between an Ethernet hardware address (MAC Address) and an IP address.



Diagnostics >> View ARP Cache Table

Ethernet ARP Cache Table

```
IP Address         MAC Address

192.168.1.10       00-0E-A6-2A-D5-A1
172.16.3.112       00-40-CA-6B-56-BA
172.16.3.132       00-05-5D-E4-ED-86
172.16.3.20        00-0D-60-6F-83-BC
172.16.3.121       00-0C-6E-E7-79-99
172.16.3.141       00-11-2F-C7-39-0B
172.16.3.133       00-50-7F-23-4D-B1
172.16.3.179       00-11-2F-4B-15-F2
172.16.3.21        00-05-5D-A1-2B-FF
172.16.3.2         00-11-D8-68-0D-AE
172.16.3.18        00-50-FC-2F-3D-17
172.16.3.151       00-50-7F-2F-33-FF
172.16.3.19        00-0D-60-6F-89-CA
```

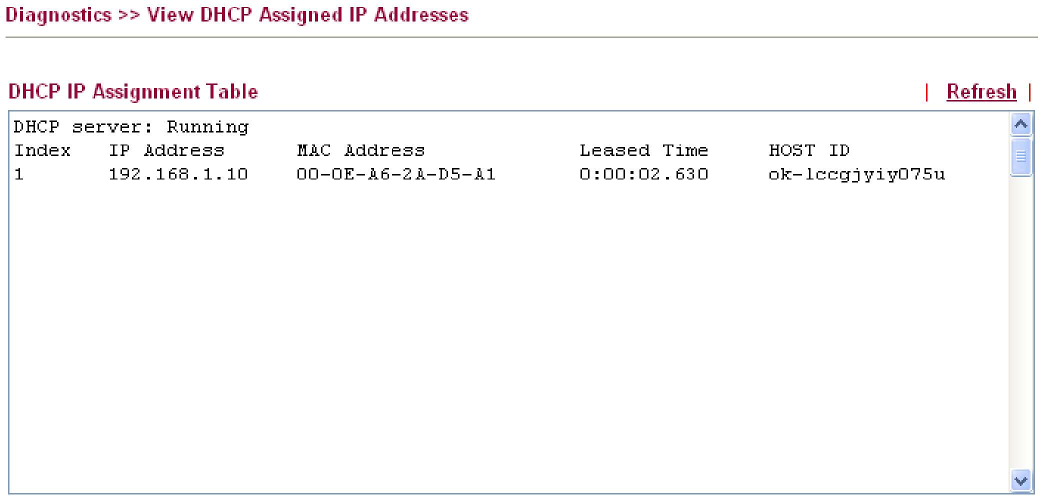
Each item is explained as follows:

Item	Description
Clear	Click it to clear the whole table.
Refresh	Click it to reload the page.

4.16.4 DHCP Table

The facility provides information on IP address assignments. This information is helpful in diagnosing network problems, such as IP address conflicts, etc.

Click **Diagnostics** and click **DHCP Table** to open the web page.



Diagnostics >> View DHCP Assigned IP Addresses

DHCP IP Assignment Table

```
DHCP server: Running
Index    IP Address      MAC Address           Leased Time     HOST ID
1        192.168.1.10    00-0E-A6-2A-D5-A1     0:00:02.630     ok-lccgjyiy075u
```

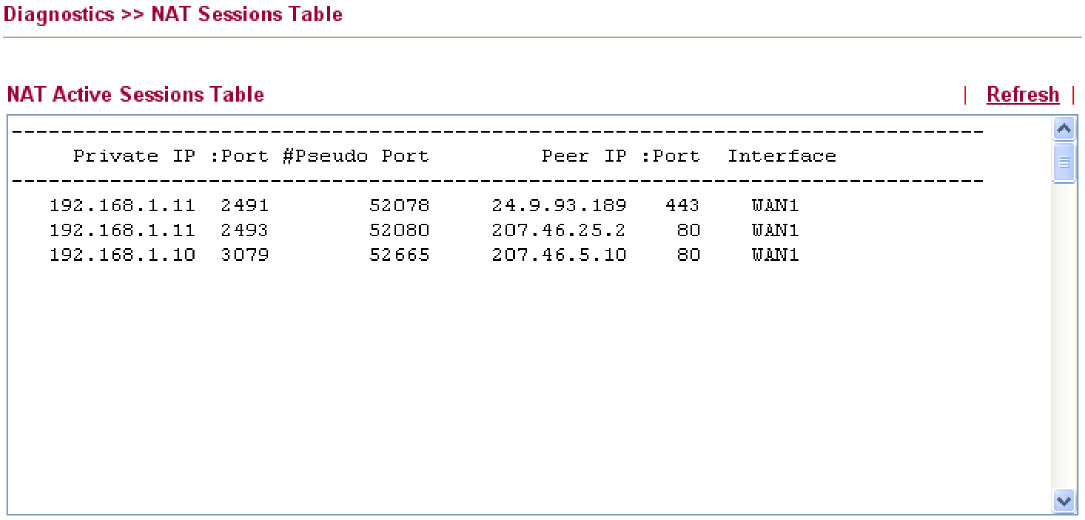
Each item is explained as follows:

Item	Description
Index	Display the connection item number.

Item	Description
IP Address	Display the IP address assigned by this router for specified PC.
MAC Address	Display the MAC address for the specified PC that DHCP assigned IP address for it.
Leased Time	Display the leased time of the specified PC.
HOST ID	Display the host ID name of the specified PC.
Refresh	Click it to reload the page.

4.16.5 NAT Sessions Table

Click **Diagnostics** and click **NAT Sessions Table** to open the list page.



Diagnostics >> NAT Sessions Table

NAT Active Sessions Table | Refresh |

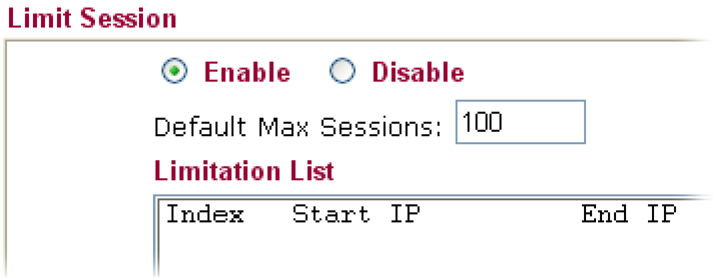
```
------------------------------------------------------------------------------
     Private IP :Port #Pseudo Port         Peer IP :Port  Interface
------------------------------------------------------------------------------
   192.168.1.11  2491        52078     24.9.93.189   443    WAN1
   192.168.1.11  2493        52080     207.46.25.2    80    WAN1
   192.168.1.10  3079        52665     207.46.5.10    80    WAN1
```

Each item is explained as follows:

Item	Description
Private IP:Port	It indicates the source IP address and port of local PC.
#Pseudo Port	It indicates the temporary port of the router used for NAT.
Peer IP:Port	It indicates the destination IP address and port of remote host.
Interface	It displays the representing number for different interface.
Refresh	Click it to reload the page.

4.16.6 Data Flow Monitor

This page displays the running procedure for the IP address monitored and refreshes the data in an interval of several seconds. The IP address listed here is configured in Bandwidth Management. You have to enable IP bandwidth limit and IP session limit before invoke Data Flow Monitor. If not, a notification dialog box will appear to remind you enabling it.



Limit Session

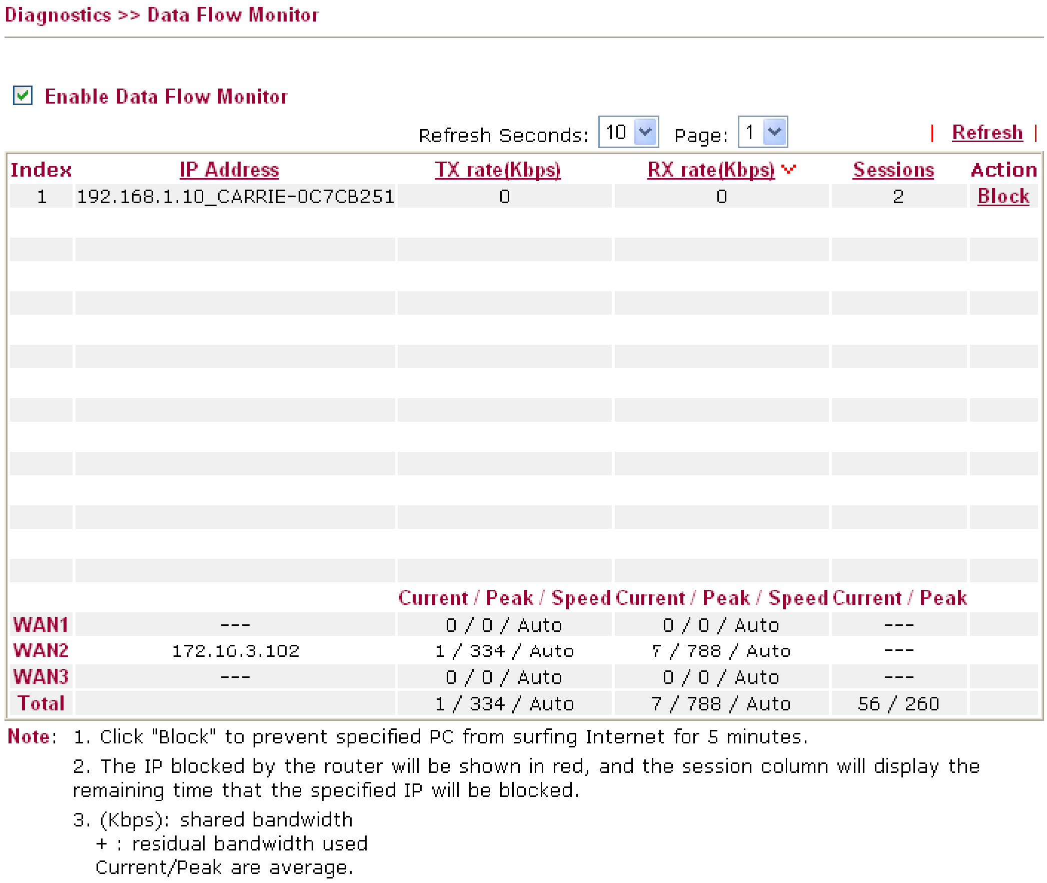
● Enable ○ Disable

Default Max Sessions: 100

Limitation List

```
Index   Start IP         End IP
```

Click **Diagnostics** and click **Data Flow Monitor** to open the web page. You can click **IP Address**, **TX rate**, **RX rate** or **Session** link for arranging the data display.



Diagnostics >> Data Flow Monitor

☑ Enable Data Flow Monitor

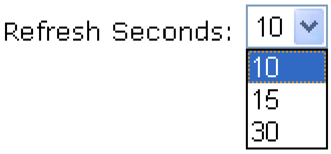
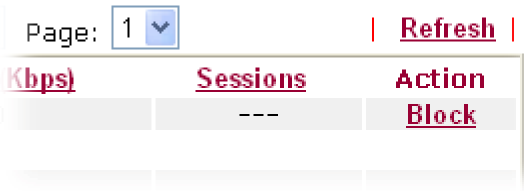
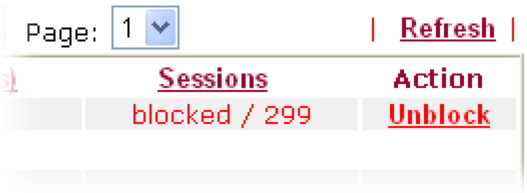
Refresh Seconds: 10 Page: 1 | Refresh |

Index	IP Address	TX rate(Kbps)	RX rate(Kbps)	Sessions	Action
1	192.168.1.10_CARRIE-0C7CB251	0	0	2	Block
		Current / Peak / Speed	Current / Peak / Speed	Current / Peak	
WAN1	---	0 / 0 / Auto	0 / 0 / Auto	---	
WAN2	172.16.3.102	1 / 334 / Auto	7 / 788 / Auto	---	
WAN3	---	0 / 0 / Auto	0 / 0 / Auto	---	
Total		1 / 334 / Auto	7 / 788 / Auto	56 / 260	

Note: 1. Click "Block" to prevent specified PC from surfing Internet for 5 minutes.
2. The IP blocked by the router will be shown in red, and the session column will display the remaining time that the specified IP will be blocked.
3. (Kbps): shared bandwidth
+ : residual bandwidth used
Current/Peak are average.

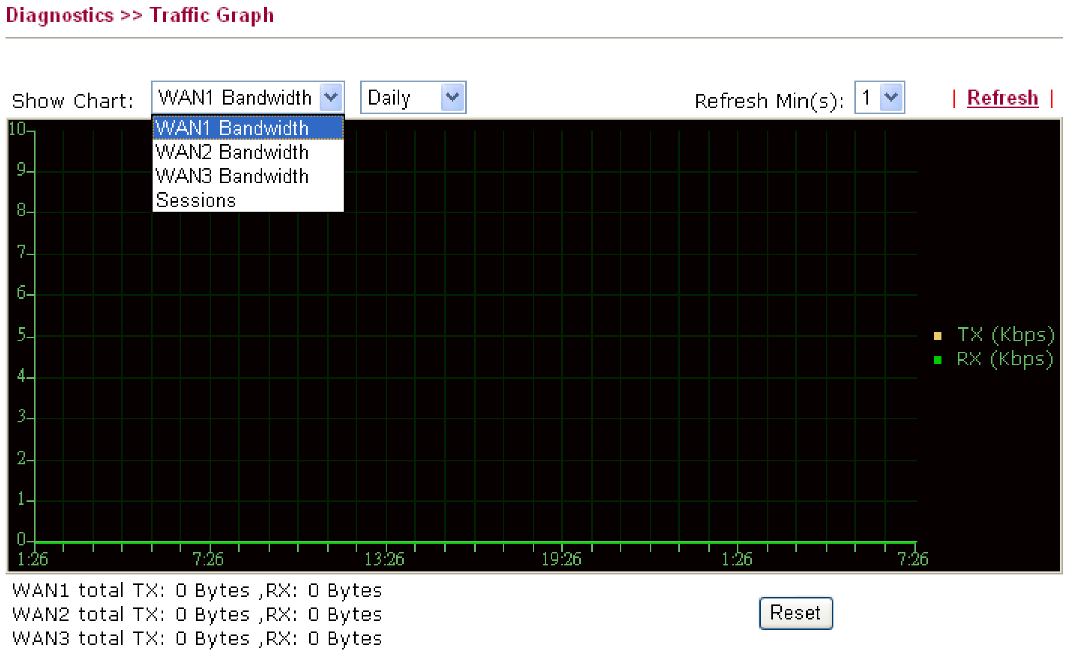
Each item is explained as follows:

Item	Description
Enable Data Flow Monitor	Check this box to enable this function.
Refresh Seconds	Use the drop down list to choose the time interval of refreshing data flow that will be done by the system automatically.

Item	Description
	 Refresh Seconds: 10 10 15 30
Refresh	Click this link to refresh this page manually.
Index	Display the number of the data flow.
IP Address	Display the IP address of the monitored device.
TX rate (kbps)	Display the transmission speed of the monitored device.
RX rate (kbps)	Display the receiving speed of the monitored device.
Sessions	Display the session number that you specified in Limit Session web page.
Action	**Block -** can prevent specified PC accessing into Internet within 5 minutes.  Page: 1 | Refresh | Kbps) Sessions Action --- Block **Unblock** – the device with the IP address will be blocked in five minutes. The remaining time will be shown on the session column.  Page: 1 | Refresh | Sessions Action blocked / 299 Unblock
Current /Peak/Speed	**Current** means current transmission rate and receiving rate for WAN interface. **Peak** means the highest peak value detected by the router in data transmission. **Speed** means line speed specified in **WAN>>General Setup**. If you do not specify any rate at that page, here will display **Auto** for instead.

4.16.7 Traffic Graph

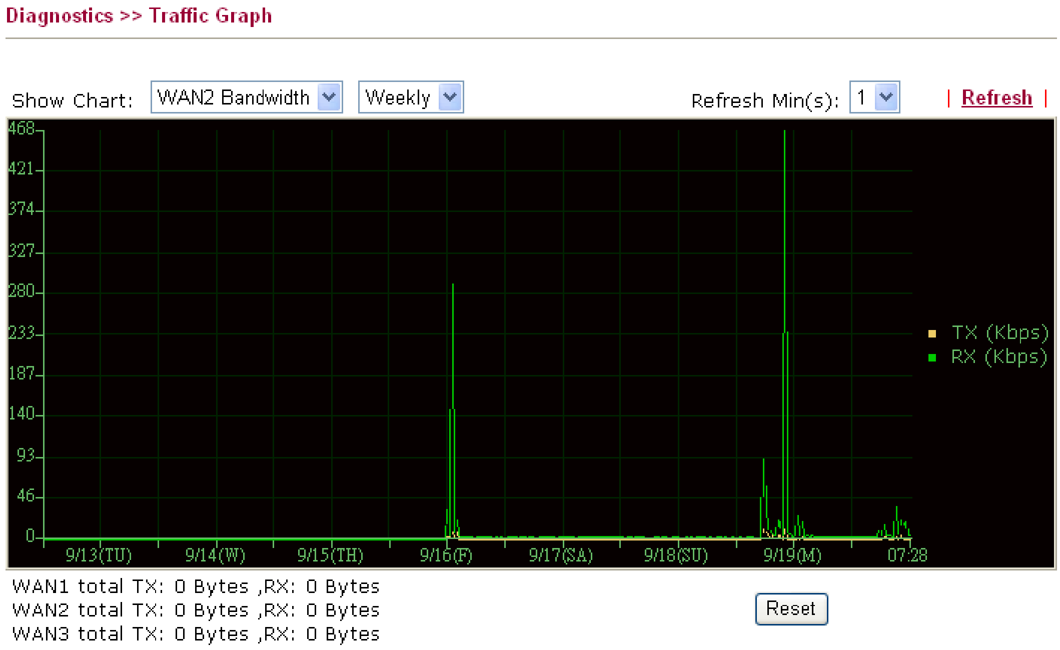
Click **Diagnostics** and click **Traffic Graph** to pen the web page. Choose WAN1/WAN2/WAN3 Bandwidth, Sessions, daily or weekly for viewing different traffic graph. Click **Refresh** to renew the graph at any time.



Diagnostics >> Traffic Graph

Show Chart: WAN1 Bandwidth | Daily | Refresh Min(s): 1

WAN1 total TX: 0 Bytes ,RX: 0 Bytes
WAN2 total TX: 0 Bytes ,RX: 0 Bytes
WAN3 total TX: 0 Bytes ,RX: 0 Bytes



Diagnostics >> Traffic Graph

Show Chart: WAN2 Bandwidth | Weekly | Refresh Min(s): 1

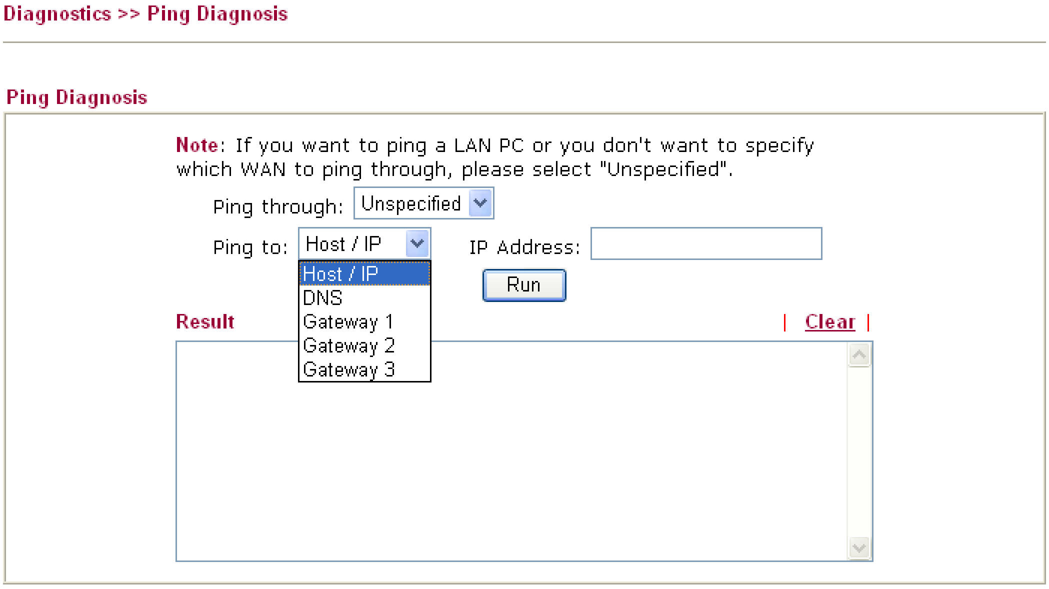
WAN1 total TX: 0 Bytes ,RX: 0 Bytes
WAN2 total TX: 0 Bytes ,RX: 0 Bytes
WAN3 total TX: 0 Bytes ,RX: 0 Bytes

The horizontal axis represents time. Yet the vertical axis has different meanings. For WAN1/WAN2/WAN3 Bandwidth chart, the numbers displayed on vertical axis represent the numbers of the transmitted and received packets in the past.

For Sessions chart, the numbers displayed on vertical axis represent the numbers of the NAT sessions during the past.

4.16.8 Ping Diagnosis

Click **Diagnostics** and click **Ping Diagnosis** to pen the web page.



Diagnostics >> Ping Diagnosis

Ping Diagnosis

Note: If you want to ping a LAN PC or you don't want to specify which WAN to ping through, please select "Unspecified".

Ping through: Unspecified

Ping to: Host / IP

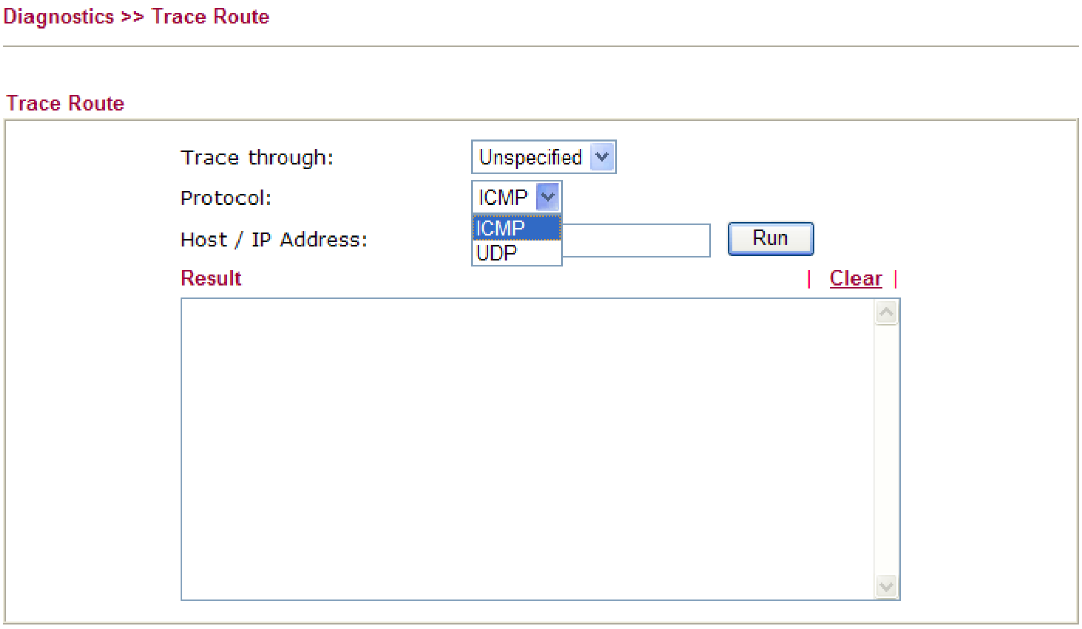
IP Address:

Each item is explained as follows:

Item	Description
Ping through	Use the drop down list to choose the WAN interface that you want to ping through or choose **Unspecified** to be determined by the router automatically.
Ping to	Use the drop down list to choose the destination that you want to ping.
IP Address	Type in the IP address of the Host/IP that you want to ping.
Run	Click this button to start the ping work. The result will be displayed on the screen.
Clear	Click this link to remove the result on the window.

4.16.9 Trace Route

Click **Diagnostics** and click **Trace Route** to open the web page. This page allows you to trace the routes from router to the host. Simply type the IP address of the host in the box and click **Run**. The result of route trace will be shown on the screen.



Diagnostics >> Trace Route

Trace Route

Trace through: Unspecified

Protocol: ICMP

Host / IP Address:

Each item is explained as follows:

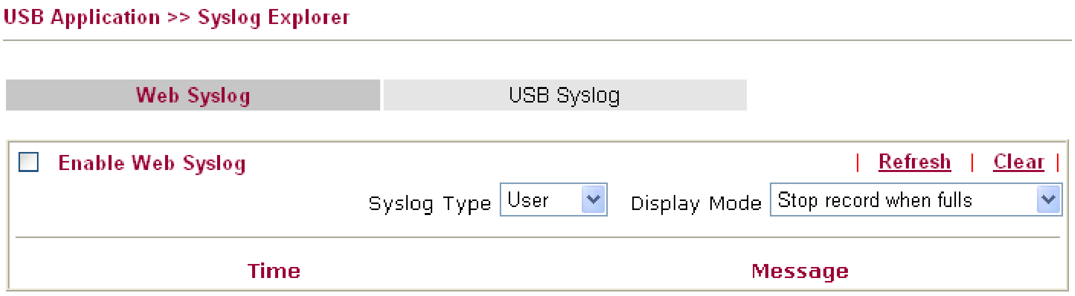
Item	Description
Trace through	Use the drop down list to choose the interface that you want to ping through.
Protocol	Use the drop down list to choose the protocol that you want to ping through.
Host/IP Address	It indicates the IP address of the host.
Run	Click this button to start route tracing work.
Clear	Click this link to remove the result on the window.

4.16.10 Syslog Explorer

Such page provides real-time syslog and displays the information on the screen.

For Web Syslog

This page displays the time and message for User/Firewall/call/WAN/VPN settings. You can check **Enable Web Syslog,** specify the type of Syslog and choose the display mode you want. Later, the event of Syslog with specified type will be shown for your reference.



USB Application >> Syslog Explorer

Web Syslog | USB Syslog

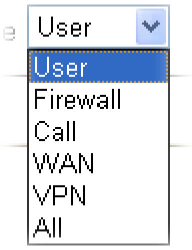
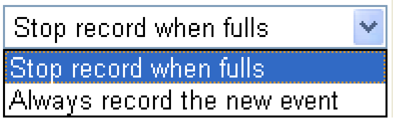
□ Enable Web Syslog | Refresh | Clear |

Syslog Type User

Display Mode Stop record when fulls

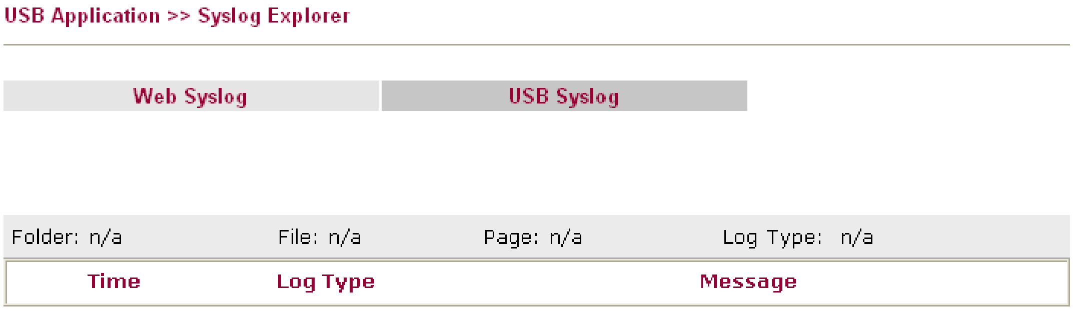
Time | Message

Available parameters are explained as follows:

Item	Description
Enable Web Syslog	Check this box to enable the function of Web Syslog.
Syslog Type	Use the drop down list to specify a type of Syslog to be displayed.  User User Firewall Call WAN VPN All
Display Mode	There are two modes for you to choose.  Stop record when fulls Stop record when fulls Always record the new event **Stop record when fulls –** when the capacity of syslog is full, the system will stop recording. **Always record the new event –** only the newest events will be recorded by the system.
Time	Display the time of the event occurred.
Message	Display the information for each event.

For USB Syslog

This page displays the syslog recorded on the USB storage disk.



USB Application >> Syslog Explorer

Web Syslog	USB Syslog

Folder: n/a File: n/a Page: n/a Log Type: n/a

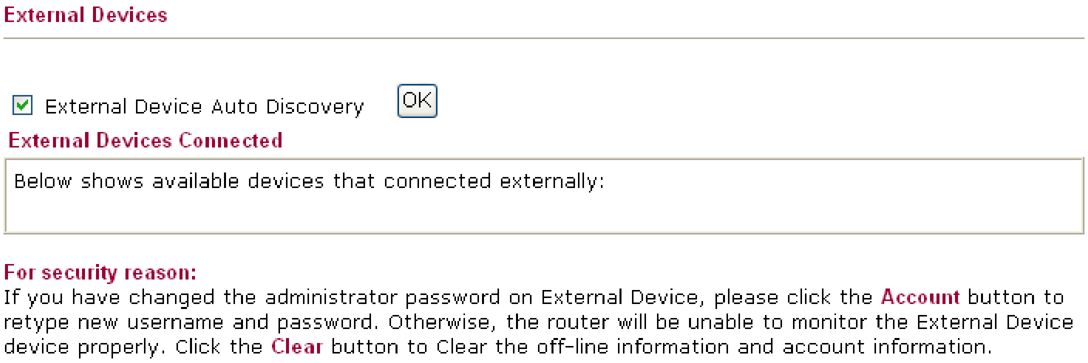
Time	Log Type	Message

Available parameters are explained as follows:

Item	Description
Time	Display the time of the event occurred.
Log Type	Display the type of the record.
Message	Display the information for each event.

4.17 External Devices

Vigor router can be used to connect with many types of external devices. In order to control or manage the external devices conveniently, open **External Devices** to make detailed configuration.



External Devices

☑ External Device Auto Discovery [OK]

External Devices Connected

Below shows available devices that connected externally:

For security reason:
If you have changed the administrator password on External Device, please click the Account button to retype new username and password. Otherwise, the router will be unable to monitor the External Device device properly. Click the Clear button to Clear the off-line information and account information.

From this web page, check the box of **External Device Auto Discovery**. Later, all the available devices will be displayed in this page with icons and corresponding information. You can change the device name if required or remove the information for off-line device whenever you want.

When you finished the configuration, click **OK** to save it.

Note: Only DrayTek products can be detected by this function.

This page is left blank.

5 Trouble Shooting

situations if you cannot access into the Internet after installing the router and finishing the web configuration. Please follow sections below to check your basic installation status stage by stage.

- Checking if the hardware status is OK or not.
- Checking if the network connection settings on your computer are OK or not.
- Pinging the router from your computer.
- Checking if the ISP settings are OK or not.
- Backing to factory default setting if necessary.

If all above stages are done and the router still cannot run normally, it is the time for you to contact your dealer for advanced help.

5.1 Checking If the Hardware Status Is OK or Not

Follow the steps below to verify the hardware status.

1. Check the power line and WLAN/LAN cable connections.
   Refer to "**1.3 Hardware Installation"** for details.
2. Turn on the router. Make sure the **ACT LED** blink once per second and the correspondent **LAN LED** is bright.

ACT
DrayT
Factory Reset
ACT
WCF
DoS
USB
WAN1
VPN
CSM
WAN2
QoS

3. If not, it means that there is something wrong with the hardware status. Simply back to **"1.3 Hardware Installation"** to execute the hardware installation again. And then, try again.

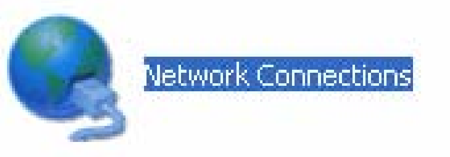
5.2 Checking If the Network Connection Settings on Your Computer Is OK or Not

Sometimes the link failure occurs due to the wrong network connection settings. After trying the above section, if the link is stilled failed, please do the steps listed below to make sure the network connection settings is OK.

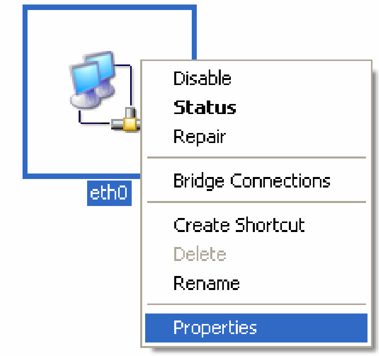
For Windows

> The example is based on Windows XP. As to the examples for other operation systems, please refer to the similar steps or find support notes in **www.DrayTek.com**.

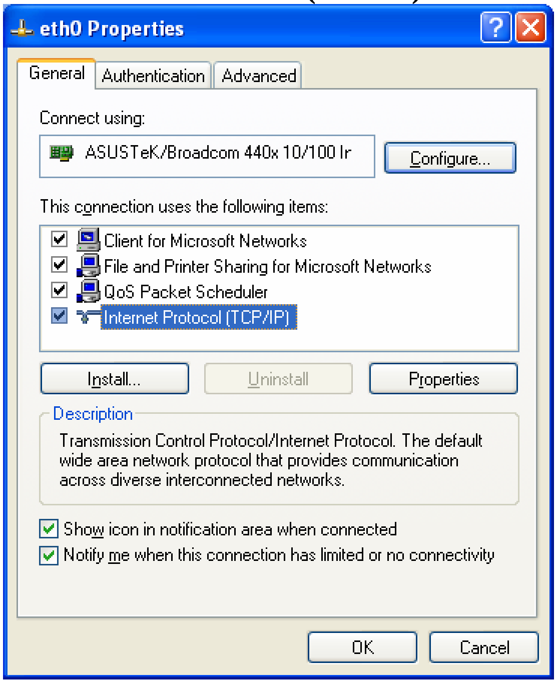
1. Go to **Control Panel** and then double-click on **Network Connections**.



2. Right-click on **Local Area Connection** and click on **Properties**.



3. Select **Internet Protocol (TCP/IP)** and then click **Properties**.



Connect using:
ASUSTeK/Broadcom 440x 10/100 Ir

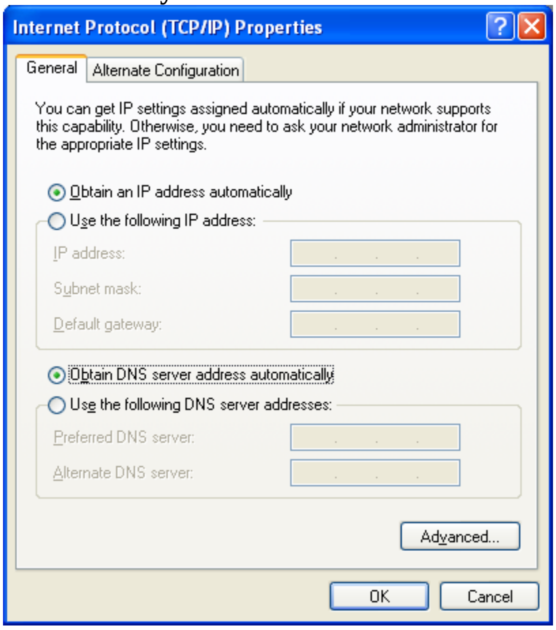
This connection uses the following items:

- ☑ Client for Microsoft Networks
- ☑ File and Printer Sharing for Microsoft Networks
- ☑ QoS Packet Scheduler
- ☑ Internet Protocol (TCP/IP)

Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.

☑ Show icon in notification area when connected
☑ Notify me when this connection has limited or no connectivity

4. Select **Obtain an IP address automatically** and **Obtain DNS server address automatically**.



Internet Protocol (TCP/IP) Properties

General | Alternate Configuration

You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

● Obtain an IP address automatically

○ Use the following IP address:

IP address: . . .

Subnet mask: . . .

Default gateway: . . .

● Obtain DNS server address automatically

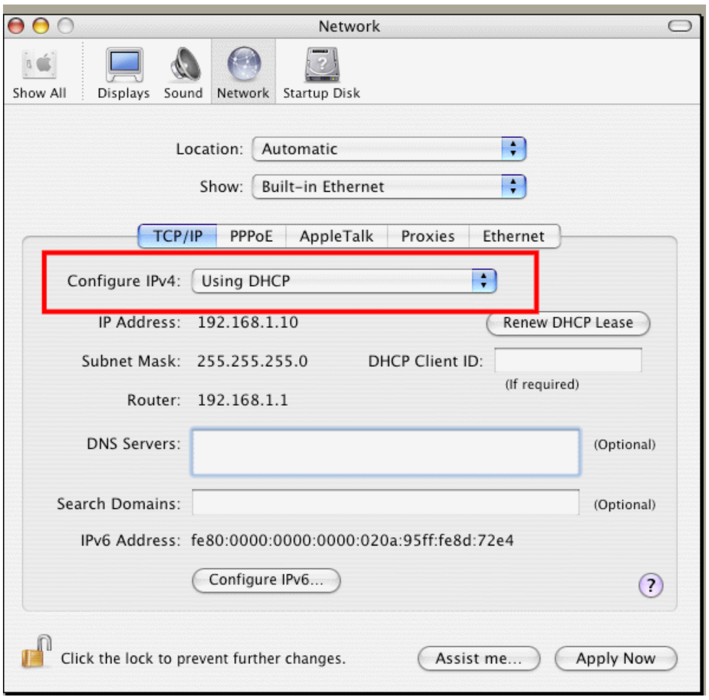
○ Use the following DNS server addresses:

Preferred DNS server: . . .

Alternate DNS server: . . .

For Mac OS

1. Double click on the current used Mac OS on the desktop.
2. Open the **Application** folder and get into **Network**.
3. On the **Network** screen, select **Using DHCP** from the drop down list of Configure IPv4.



Location: Automatic

Show: Built-in Ethernet

TCP/IP | PPPoE | AppleTalk | Proxies | Ethernet

Configure IPv4: Using DHCP

IP Address: 192.168.1.10

Subnet Mask: 255.255.255.0

Router: 192.168.1.1

DHCP Client ID: (If required)

DNS Servers: (Optional)

Search Domains: (Optional)

IPv6 Address: fe80:0000:0000:0000:020a:95ff:fe8d:72e4

Click the lock to prevent further changes.

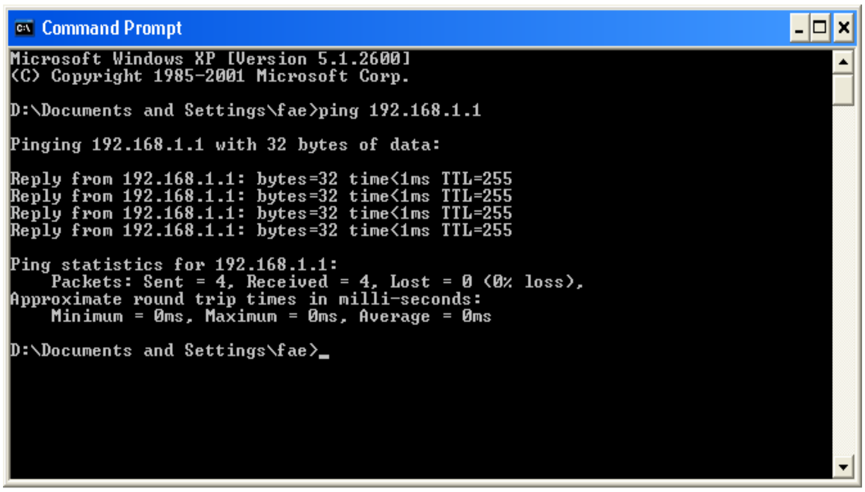
5.3 Pinging the Router from Your Computer

The default gateway IP address of the router is 192.168.1.1. For some reason, you might need to use “ping” command to check the link status of the router. **The most important thing is that the computer will receive a reply from 192.168.1.1.** If not, please check the IP address of your computer. We suggest you setting the network connection as **get IP automatically**. (Please refer to the section 5.2)

Please follow the steps below to ping the router correctly.

For Windows

1. Open the **Command** Prompt window (from **Start menu> Run**).
2. Type **command** (for Windows 95/98/ME) or **cmd** (for Windows NT/ 2000/XP/Vista). The DOS command dialog will appear.

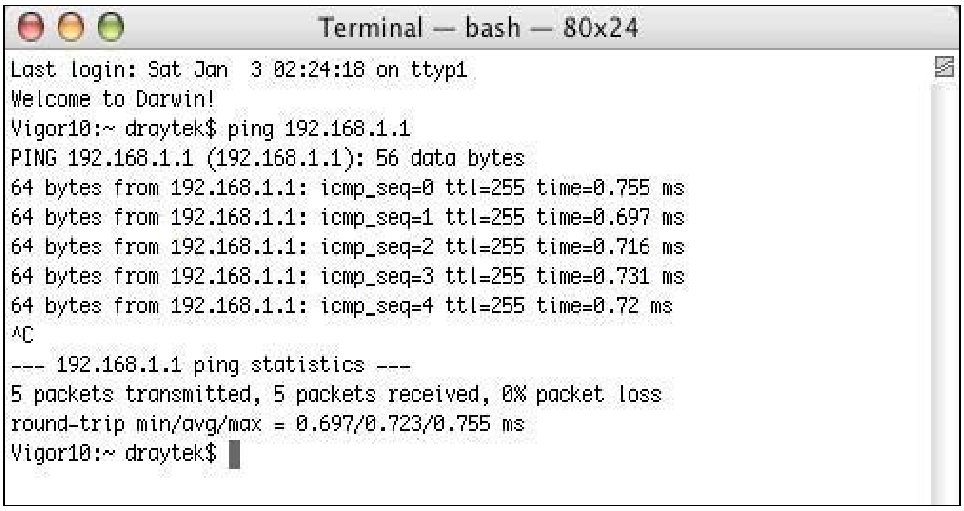


```
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

D:\Documents and Settings\fae>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:

Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

D:\Documents and Settings\fae>_
```

3. Type ping 192.168.1.1 and press [Enter]. If the link is OK, the line of **“Reply from 192.168.1.1:bytes=32 time<1ms TTL=255”** will appear.
4. If the line does not appear, please check the IP address setting of your computer.

For Mac OS (Terminal)

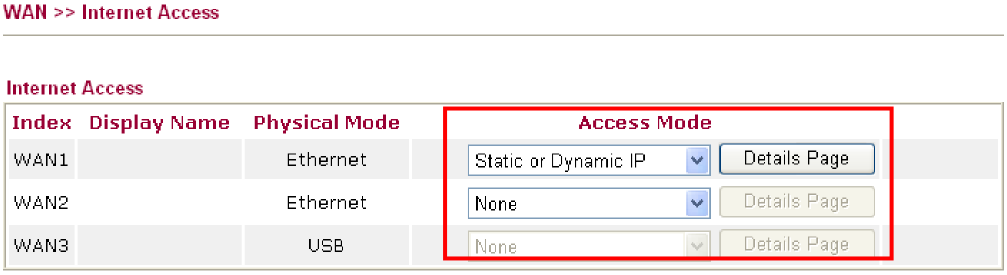
1. Double click on the current used Mac OS on the desktop.
2. Open the **Application** folder and get into **Utilities**.
3. Double click **Terminal**. The Terminal window will appear.
4. Type **ping 192.168.1.1** and press [Enter]. If the link is OK, the line of **“64 bytes from 192.168.1.1: icmp_seq=0 ttl=255 time=xxxx ms**” will appear.



```
Last login: Sat Jan  3 02:24:18 on ttyp1
Welcome to Darwin!
Vigor10:~ draytek$ ping 192.168.1.1
PING 192.168.1.1 (192.168.1.1): 56 data bytes
64 bytes from 192.168.1.1: icmp_seq=0 ttl=255 time=0.755 ms
64 bytes from 192.168.1.1: icmp_seq=1 ttl=255 time=0.697 ms
64 bytes from 192.168.1.1: icmp_seq=2 ttl=255 time=0.716 ms
64 bytes from 192.168.1.1: icmp_seq=3 ttl=255 time=0.731 ms
64 bytes from 192.168.1.1: icmp_seq=4 ttl=255 time=0.72 ms
^C
--- 192.168.1.1 ping statistics ---
5 packets transmitted, 5 packets received, 0% packet loss
round-trip min/avg/max = 0.697/0.723/0.755 ms
Vigor10:~ draytek$ 
```

5.4 Checking If the ISP Settings are OK or Not

Open **WAN** >> **Internet Access** page and then check whether the ISP settings are set correctly. Click **Details Page** of WAN1/WAN2 to review the settings that you configured previously.



WAN >> Internet Access

Internet Access

Index	Display Name	Physical Mode	Access Mode	
WAN1		Ethernet	Static or Dynamic IP	Details Page
WAN2		Ethernet	None	Details Page
WAN3		USB	None	Details Page

5.5 Problems for 3G Network Connection

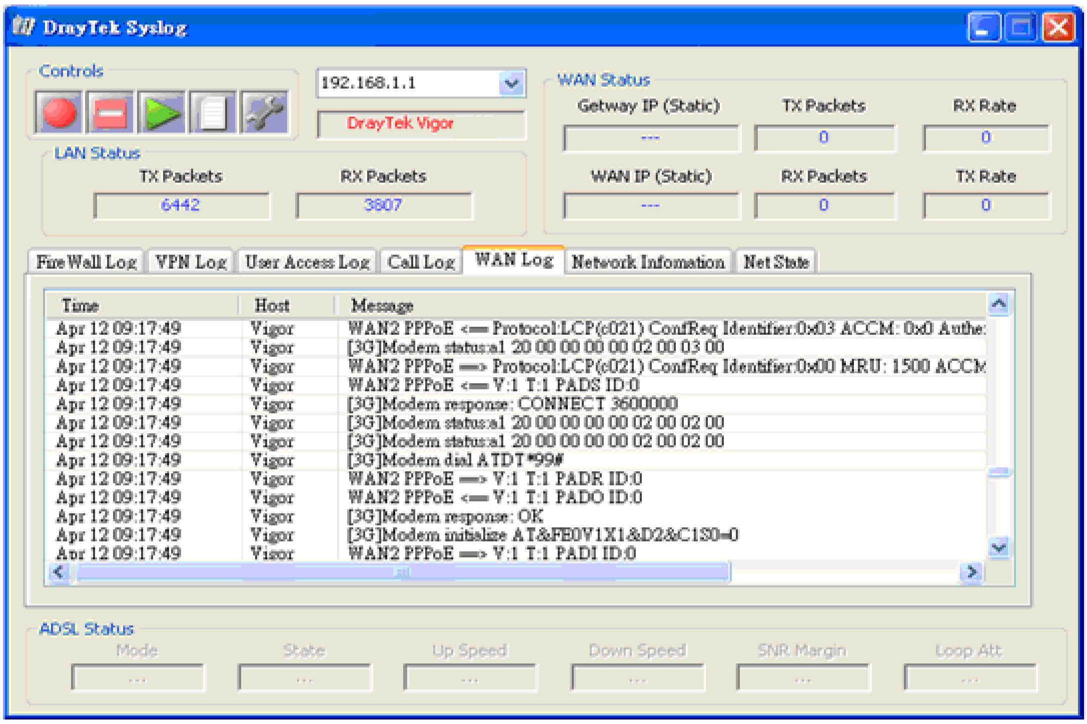
When you have trouble in using 3G network transmission, please check the following:

Check if USB LED lights on or off

You have to wait about 15 seconds after inserting 3G USB Modem into your Vigor2920. Later, the USB LED will light on which means the installation of USB Modem is successful. If the USB LED does not light on, please remove and reinsert the modem again. If it still fails, restart Vigor2920.

USB LED lights on but the network connection does not work

Check the PIN Code of SIM card is disabled or not. Please use the utility of 3G USB Modem to disable PIN code and try again. If it still fails, it might be the compliance problem of system. Please open DrayTek Syslog Tool to capture the connection information (WAN Log) and send the page (similar to the following graphic) to the service center of DrayTek.



192.168.1.1

LAN Status: TX Packets 6442, RX Packets 3807

WAN Status: Getway IP (Static) ---, TX Packets 0, RX Rate 0, WAN IP (Static) ---, RX Packets 0, TX Rate 0

ADSL Status: Mode ..., State ..., Up Speed ..., Down Speed ..., SNR Margin ..., Loop Att ...

```
Time             Host    Message
Apr 12 09:17:49  Vigor   WAN2 PPPoE <== Protocol:LCP(c021) ConfReq Identifier:0x03 ACCM: 0x0 Authe:
Apr 12 09:17:49  Vigor   [3G]Modem status:a1 20 00 00 00 00 02 00 03 00
Apr 12 09:17:49  Vigor   WAN2 PPPoE ==> Protocol:LCP(c021) ConfReq Identifier:0x00 MRU: 1500 ACCM
Apr 12 09:17:49  Vigor   WAN2 PPPoE <== V:1 T:1 PADS ID:0
Apr 12 09:17:49  Vigor   [3G]Modem response: CONNECT 3600000
Apr 12 09:17:49  Vigor   [3G]Modem status:a1 20 00 00 00 00 02 00 02 00
Apr 12 09:17:49  Vigor   [3G]Modem status:a1 20 00 00 00 00 02 00 02 00
Apr 12 09:17:49  Vigor   [3G]Modem dial ATDT*99#
Apr 12 09:17:49  Vigor   WAN2 PPPoE ==> V:1 T:1 PADR ID:0
Apr 12 09:17:49  Vigor   WAN2 PPPoE <== V:1 T:1 PADO ID:0
Apr 12 09:17:49  Vigor   [3G]Modem response: OK
Apr 12 09:17:49  Vigor   [3G]Modem initialize AT&FE0V1X1&D2&C1S0=0
Apr 12 09:17:49  Vigor   WAN2 PPPoE ==> V:1 T:1 PADI ID:0
```

Transmission Rate is not fast enough

Please connect your Notebook with 3G USB Modem to test the connection speed to verify if the problem is caused by Vigor2920. In addition, please refer to the manual of 3G USB Modem for LED Status to make sure if the modem connects to Internet via HSDPA mode. If you want to use the modem indoors, please put it on the place near the window to obtain better signal receiving.

5.6 Backing to Factory Default Setting If Necessary

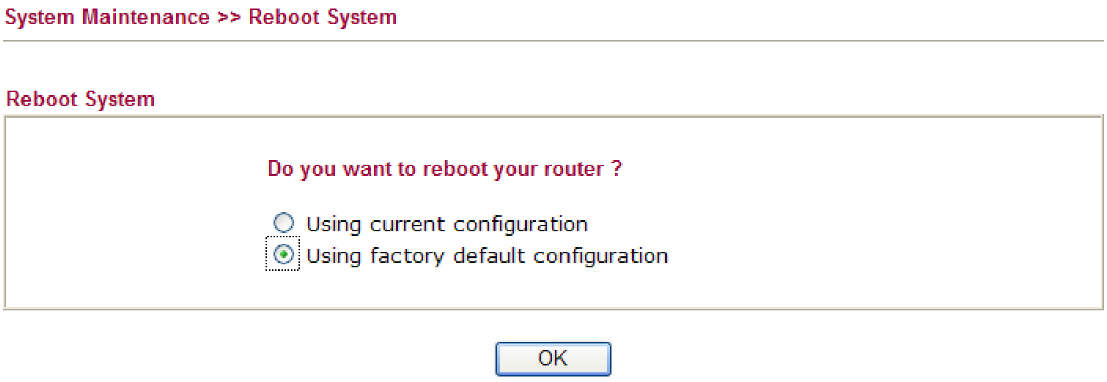
Sometimes, a wrong connection can be improved by returning to the default settings. Try to reset the router by software or hardware. Such function is available in **Admin Mode** only.

Warning: After pressing **factory default setting**, you will loose all settings you did before. Make sure you have recorded all useful settings before you pressing. The password of factory default is null.

Software Reset

You can reset the router to factory default via Web page. Such function is available in **Admin Mode** only.

Go to **System Maintenance** and choose **Reboot System** on the web page. The following screen will appear. Choose **Using factory default configuration** and click **OK**. After few seconds, the router will return all the settings to the factory settings.



System Maintenance >> Reboot System

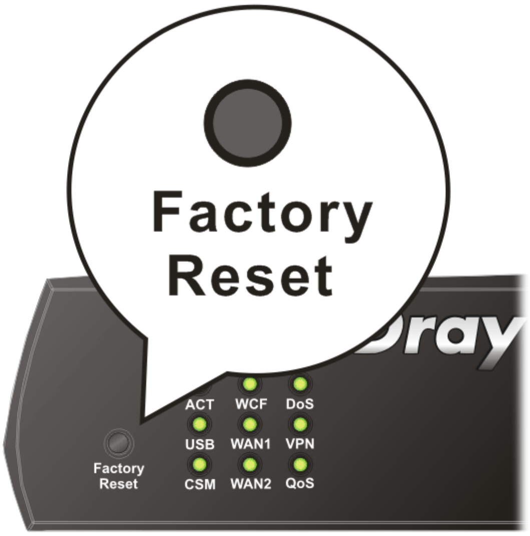
Reboot System

Do you want to reboot your router ?

○ Using current configuration
● Using factory default configuration

Hardware Reset

While the router is running (ACT LED blinking), press the **Factory Reset** button and hold for more than 5 seconds. When you see the **ACT** LED blinks rapidly, please release the button. Then, the router will restart with the default configuration.



After restore the factory default setting, you can configure the settings for the router again to fit your personal request.

5.7 Contacting Your Dealer

If the router still cannot work correctly after trying many efforts, please contact your dealer for further help right away. For any questions, please feel free to send e-mail to support@DrayTek.com.