

DrayTek

Vigor3300 Series

Multi-WAN Security Router



Your reliable networking solutions partner

User's Guide

V3.0

Vigor 3300 Series

Multi-WAN Security Router

User's Guide

Version: 3.0

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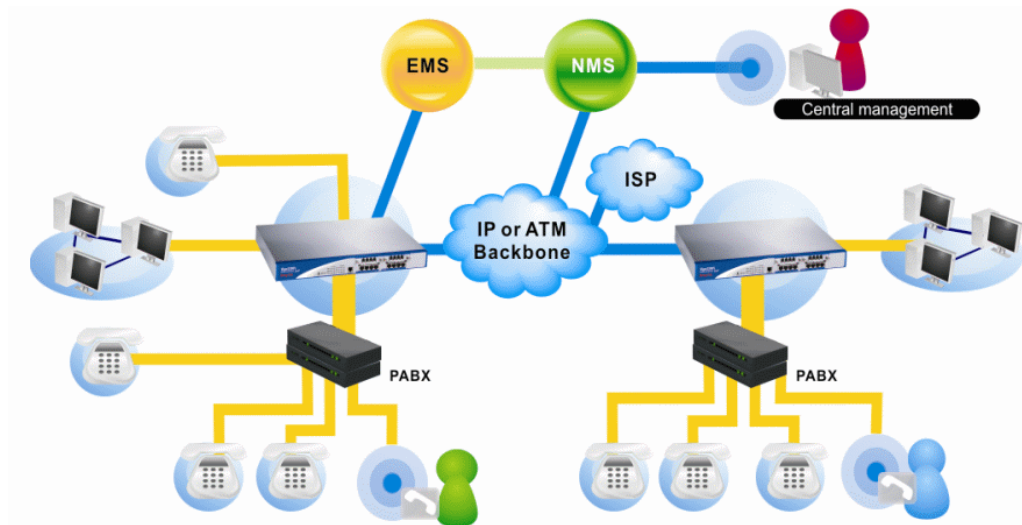
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1

Preface

The Vigor3300 Series integrates a rich suite of functions, including NAT, firewall, VPN, load balance, bandwidth management, and VoIP capability. These products are very suitable for providing multi-integrated solutions to SME markets. An application scenario for the Vigor3300 Series is depicted in the following figure, which illustrates interconnections among branch offices through the Internet via the Vigor3300 Series routers. By combining with an existing PABX, an Internet phone from a remote branch can also access any extension number on a local PABX or a traditional phone via PSTN. In addition, by combining load balancing, data security, and Internet phone features, the company can benefit from reducing operation fees.



A Virtual Private Network (VPN) is an extension of a private network that encompasses links across shared or public networks like an Intranet. A VPN enables you to send data between two computers across a shared public Internet network in a manner that emulates the properties of a point-to-point private link. The DrayTek Vigor3300 Series VPN router supports Internet-industry standards technology to provide customers with open, interoperable VPN solutions such as X.509, DHCP over Internet Protocol Security (IPSec) up to 200 tunnels, and Point-to-Point Tunneling Protocol (PPTP).

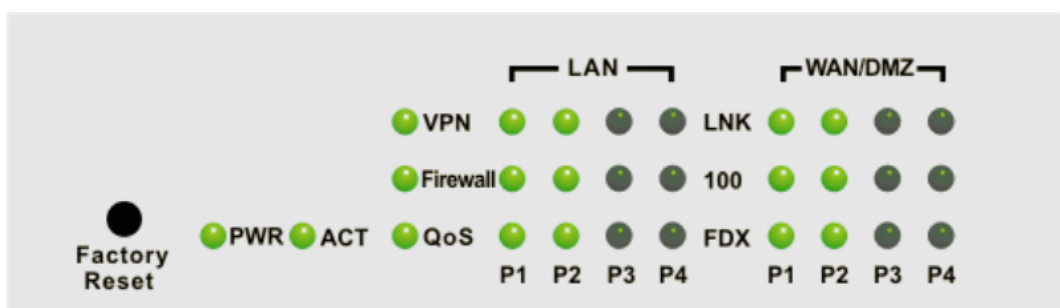
Internet Telephony, also known as Voice over Internet Protocol (VoIP), is a technology that allows you to make telephone calls using a broadband Internet connection instead of a regular (analog) phone line. Combining a PABX with a V3300V allows you to call anyone who has an Internet phone or a traditional telephone number – including local, long distance, mobile, and international numbers. Internet Telephony offers features and services that are unavailable with a traditional phone at no additional cost. Because Internet Telephony requires strictly minimal packet delay and jitter (since voice quality is intolerant of packet loss), the Vigor3300V integrates VoIP feature with QoS and packet loss concealment mechanisms to

effectively transport high priority voice traffic over IP with low latency. Another feature is T.38 fax relay. By enabling and configuring fax rate on a dial peer, the originating and the terminating V3300V can enter fax relay transfer mode. By using the T.38 function, customers can also save on fax expenses. Lastly, by enabling the load balance feature on multiple WAN ports, lease lines can be replaced to provide a cost-effective method for network infrastructure.

1.1 LED Indicators and Connection

The Vigor3300V has 4 WAN interfaces and Vigor3300/3300B+ has 3 WAN interfaces that support load balancing. This allows the system to reach peak performance and reduces the cost of maintaining a single high-speed trunk by sharing the load amongst the multiple WAN interfaces. Each interface can be connected to an individual Internet Service Provider. The Vigor3300 Series also supports a backup function for WAN interfaces— a user can select one WAN interface to be a backup interface. If the master interface fails, the backup interface will take the place of the master interface immediately. Lastly, the Vigor3300V has a DMZ function can be applied to any LAN or WAN interface.

1.1.1 LED Indicators and Connectors for Vigor3300V

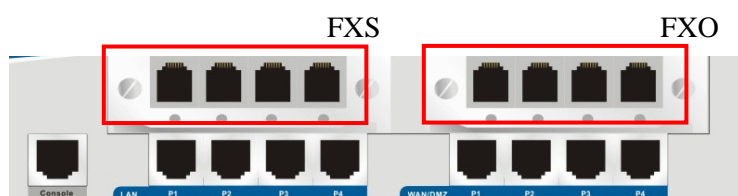


Factory Reset:

Used to restore the default settings. Turn on the router (**ACT** LED is blinking). Press the hole and hold 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.

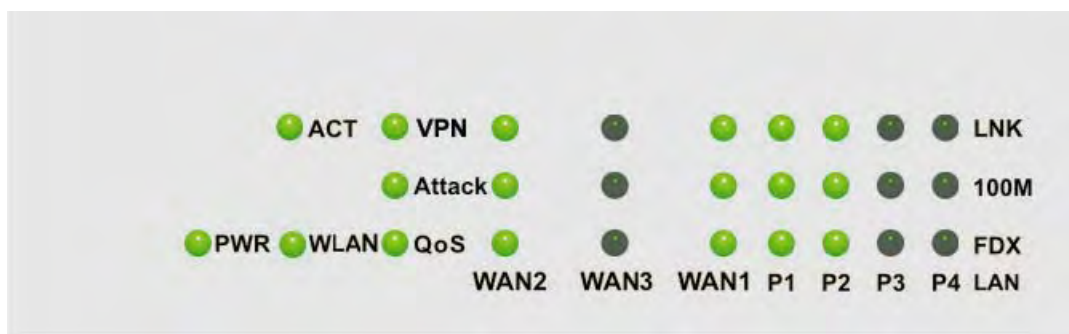
LED	Status	Explanation
PWR	On	The router is powered on.
	Off	The router is powered off.
ACT	On/Blinking	The system is active.
	Off	The system is hanged.
VPN	On	The VPN tunnel is launched.
	Off	The VPN tunnel is closed.
Firewall	On	The Firewall function is active.
	Off	The Firewall function is inactive.
QoS	On	The QoS function is active.
	Off	The QoS function is inactive.

LED		Status	Explanation
LAN (1, 2, 3, 4)	LNK	On	The Ethernet link is established on corresponding port.
		Off	No Ethernet link is established.
	100	On	It means that a normal 100 Mbps connection is through its corresponding port.
		Off	It means that a normal 10 Mbps connection is through its corresponding port.
	FDX	On	It means a full duplex connection on corresponding port.
		Off	It means a half duplex connection on corresponding port.
WAN/DMZ (1, 2, 3, 4)	LNK	On	The Ethernet link is established.
		Blinking	The data transmission is done through the corresponding port.
		Off	No Ethernet link is established.
	100	On	It means that a normal 100Mbps connection is through its corresponding port.
		Off	It means that a normal 10Mbps connection is through its corresponding port.
	FDX	On	It means a full duplex connection on corresponding port.
		Off	It means a half duplex connection on corresponding port.



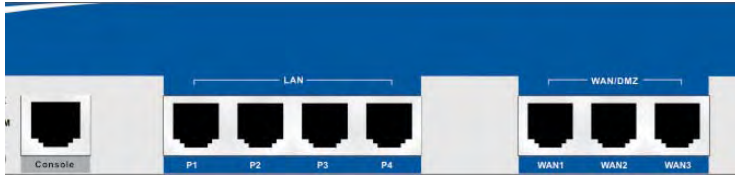
Interface	Description
Console	Provided for technician use.
LAN (P1 ~ P4)	Connector for local networked devices.
WAN/DMZ (P1 ~ P4)	Connector for remote networked devices.
FXS	Connector for telephone set.
FXO	Connector for FXS interface of PABX.

1.1.2 LED Indicators and Connectors for Vigor3300



LED	Status	Explanation	
PWR	On	The router is powered on.	
	Off	The router is powered off.	
ACT	On/Blinking	The system is active.	
	Off	The system is hanged.	
WLAN	No	Reserved for future use.	
VPN	On	The VPN tunnel is launched.	
	Off	The VPN tunnel is closed.	
Attack	On	The Attack function is active.	
	Off	The Attack function is inactive.	
QoS	On	The QoS function is active.	
	Off	The QoS function is inactive.	
WAN (2, 3, 1)	LNK	On	The Ethernet link is established on corresponding port.
		Off	No Ethernet link is established.
	100M	On	It means that a normal 100 Mbps connection is through its corresponding port.
		Off	It means that a normal 10 Mbps connection is through its corresponding port.
	FDX	On	It means a full duplex connection on corresponding port.
		Off	It means a half duplex connection on corresponding port.
LAN (1, 2, 3, 4)	LNK	On	The Ethernet link is established.
		Blinking	The data transmission is done through the corresponding port.
		Off	No Ethernet link is established.
	100M	On	It means that a normal 100Mbps connection is through its corresponding port.

LED	Status	Explanation
	Off	It means that a normal 10Mbps connection is through its corresponding port.
FDX	On	It means a full duplex connection on corresponding port.
	Off	It means a half duplex connection on corresponding port.



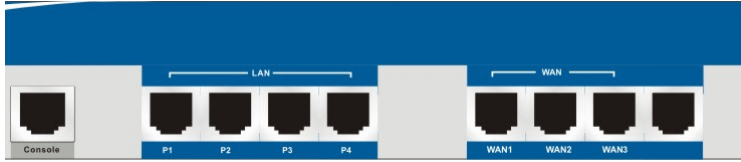
Interface	Description
Console	Provided for technician use.
LAN (P1 ~ P4)	Connector for local networked devices.
WAN/DMZ (WAN1 ~ WAN3)	Connector for remote networked devices.

1.1.3 LED Indicators and Connectors for Vigor3300B+



LED	Status	Explanation	
PWR	On	The router is powered on.	
	Off	The router is powered off.	
ACT	On/Blinking	The system is active.	
	Off	The system is hanged.	
Attack	On	The Attack function is active.	
	Off	The Attack function is inactive.	
QoS	On	The QoS function is active.	
	Off	The QoS function is inactive.	
WAN (2, 3, 1)	LNK	On	The Ethernet link is established on corresponding port.
		Off	No Ethernet link is established.
	100M	On	It means that a normal 100 Mbps connection is through its corresponding port.
		Off	It means that a normal 10 Mbps connection is through its corresponding port.
	FDX	On	It means a full duplex connection on corresponding port.
		Off	It means a half duplex connection on corresponding port.
LAN (1, 2, 3, 4)	LNK	On	The Ethernet link is established.
		Blinking	The data transmission is done through the corresponding port.
		Off	No Ethernet link is established.
	100M	On	It means that a normal 100Mbps connection is through its corresponding port.
		Off	It means that a normal 10Mbps connection is through its corresponding port.
	FDX	On	It means a full duplex connection on corresponding port.

LED	Status	Explanation
	Off	It means a half duplex connection on corresponding port.



Interface	Description
Console	Provided for technician use.
LAN (P1 ~ P4)	Connector for local networked devices.
WAN1 ~ WAN3	Connector for remote networked devices.

Connector Specification

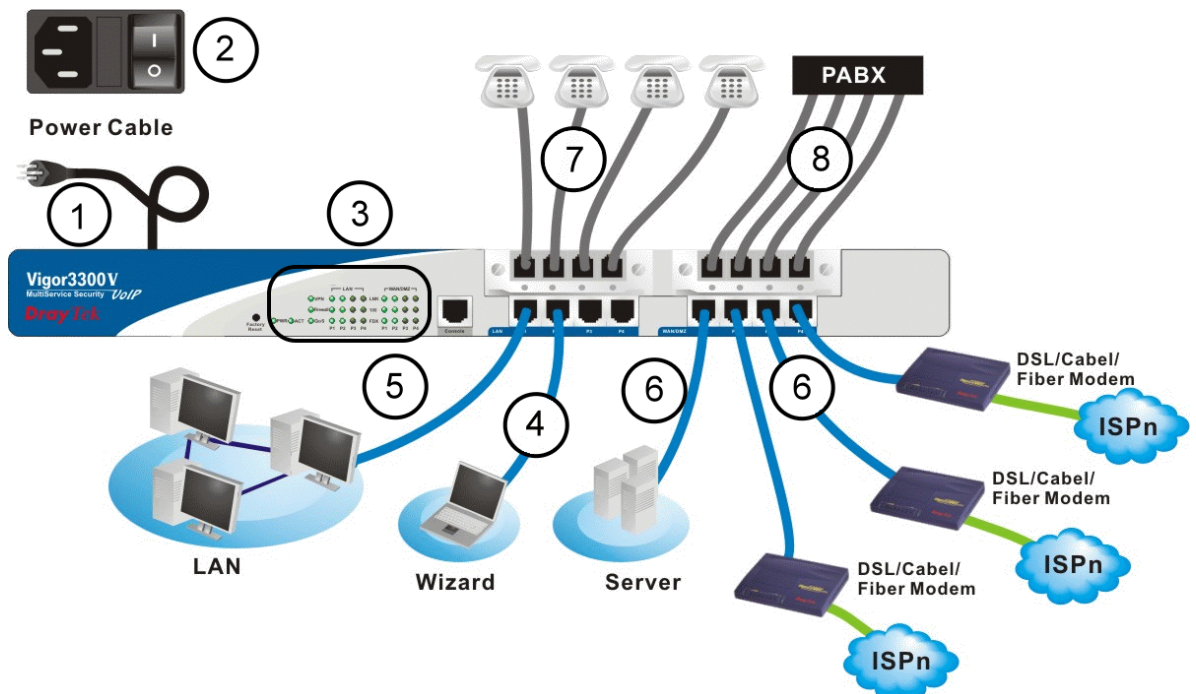
Auxiliary Cables	Type, Color	Connected to	Remarks
Power Cord	Black	AC Outlet	90-264VAC
Serial (Console)	RS232, Grey	PC RS232 port	--
Ethernet (LAN)	RJ-45, Blue	Ethernet switch or hub	--
Ethernet (DMZ)	RJ-45, Blue	Server	
Ethernet (WAN1)	RJ-45, Blue	DSL/Cable/Fiber Modem	--
Ethernet (WAN2)	RJ-45, Blue	DSL/Cable/Fiber Modem	
Ethernet (WAN3)	RJ-45, Blue	DSL/Cable/Fiber Modem	
Ethernet (WAN4)	RJ-45, Blue	DSL/Cable/Fiber Modem	

1.2 Hardware Installation

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

1. Connect the power cord to the power port of Vigor3300 router on the rear panel, and the other side into a wall outlet.
2. Power on the device by pressing the power switch on the rear panel. The **PWR** LED should be **ON**.
3. The system starts to initiate. After completing the system test, the **ACT** LED will light up and start blinking.
4. Connect one end of an Ethernet cable (RJ-45) to one of the **LAN** ports of Vigor3300.
5. Connect the other end of the cable (RJ-45) to the Ethernet port on your computer (that device also can connect to other computers to form a small area network). The **LAN** LED for that port on the front panel will light up.
6. Connect a server/modem/router (depends on your requirement) to any available WAN port of the device with Ethernet cable (RJ-45). The **WAN** LED will light up.
7. Connect telephone sets to the **FXS** ports of Vigor3300V with telephone lines (RJ-11 to RJ-11). For the users of Vigor3300 and Vigor3300B+, please skip this step.
8. Connect the **FXO** ports to PABX with telephone lines (RJ-11 to RJ-11). For the users of Vigor3300 and Vigor3300B+, please skip this step.

Below shows an outline of the hardware installation for your reference (take Vigor3300V as an example).



1.2.1 Detailed Explanation for the Connector

Here provides you detailed explanation for some specific connectors that you have to be familiar.

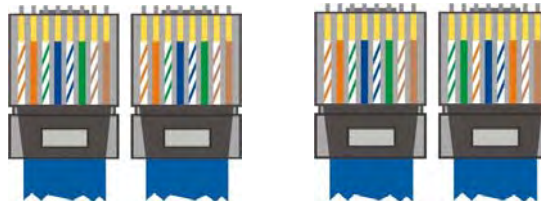
The RS232 Connector

The RJ45 connection jet is used for CLI commands for system configuration and control functions in the Vigor3300 Series. The jet is used for initialization of the Vigor3300 Series during preliminary installation. The “management cable”, as shown in Figure 1-5, converts the RJ45 to the RS232 interface. The RJ45 jet connects to a console interface in the Vigor3300 Series, while the RS232 DB9 connects to a console port on the computer. The default setting of the console port is “**baud rate 57600, no parity, and 8 bit with 1 stop bit.**”



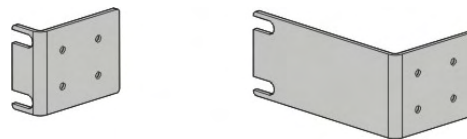
Standard 10/100 Base-T Ethernet Interface Connector

RJ45 jets provide 10/100 Base-T Ethernet interfaces. The interface supports MDI/MDIX auto-detection of either straight or crossover RJ45 cables. These cables are used on WAN, LAN, and DMZ interfaces.



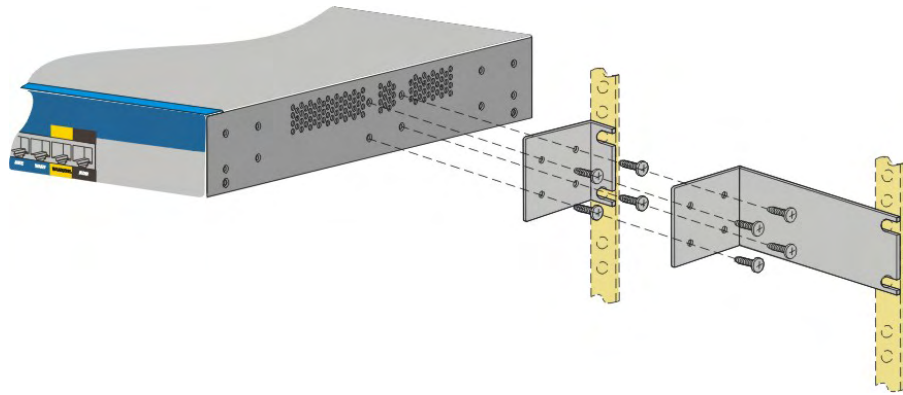
Chassis Connections

The Vigor3300 Series can be mounted on a rack by using standard brackets in a 19-inch rack or optional larger brackets on 23-inch rack (not included). The bracket for 19- and 23-inch racks are shown below.

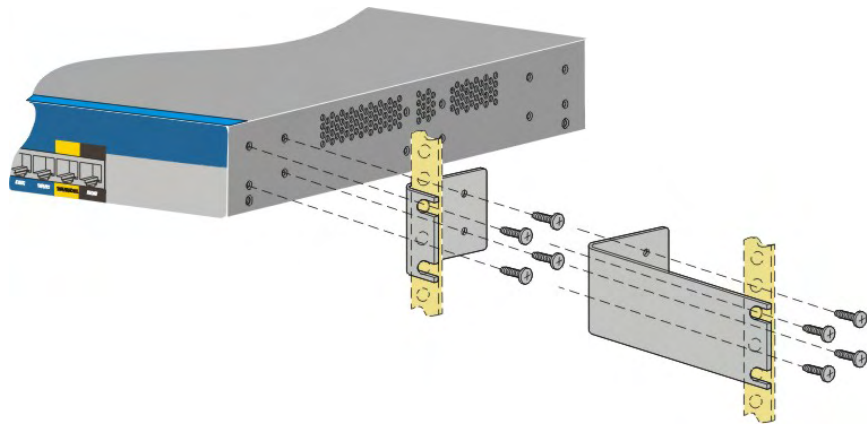


Attach the brackets to the chassis of a 19- or a 23-inch rack (as shown in the Figures 1-8 and 1-9). Repeat the above procedure for the second bracket, which attaches the other side of the chassis.

1



2



After the bracket installation, the Vigor3300 Series chassis can be installed in a rack by using four screws for each side of the rack.

Desktop Type Installation

Rubber pads are included with the Vigor3300 Series. These rubber pads improve the air circulation and decrease unnecessary rubbing on the desktop.

2

Configuring Basic Settings

For use 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 an administrator and how to adjust basic settings for accessing Internet successfully.

2.1 Changing Password

To change the password for this device, you have to access into the web browser with default password first.

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

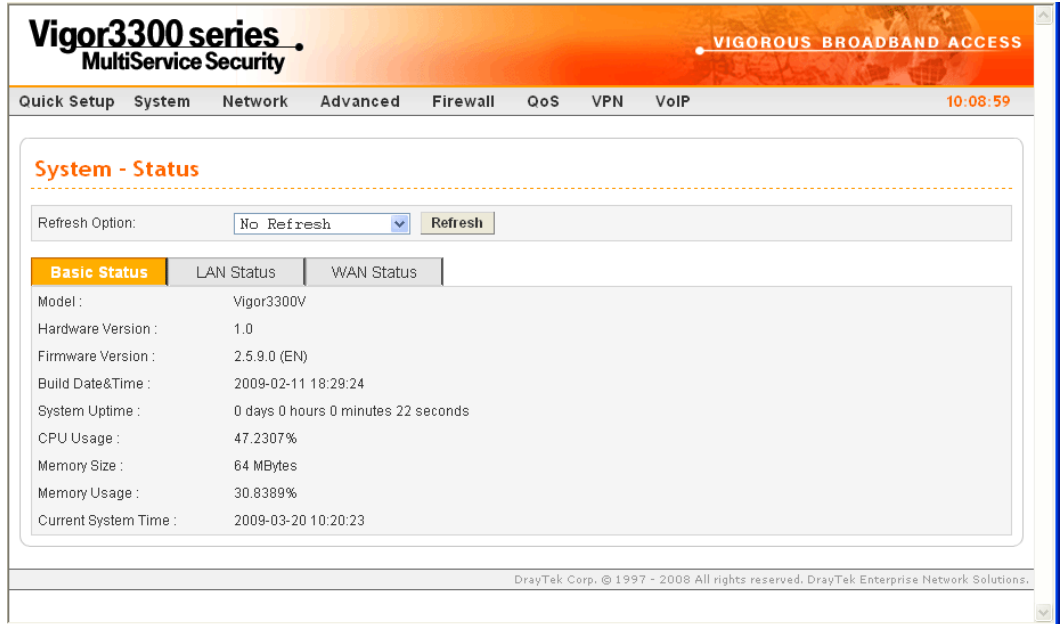


Notice: You may either simply set up your computer to get IP dynamically from the router or set up the IP address of the computer to be the same subnet as **the default IP address of Vigor router 192.168.1.1**. For the detailed information, please refer to the later section - Trouble Shooting of this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

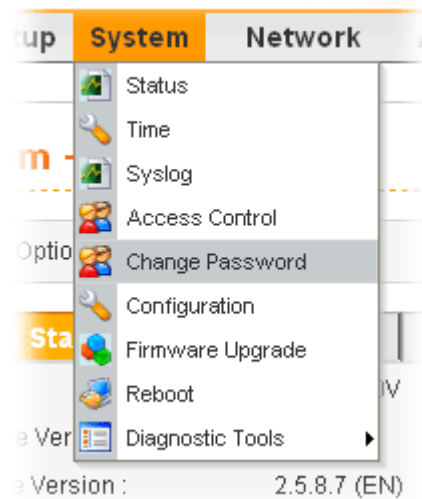
2. Open a web browser on your PC and type **http://192.168.1.1**. A pop-up window will open to ask for username and password. Please type default values on the window for the first time accessing. The default value for user name is **draytek** and the password is **1234**. Next, click **OK**.



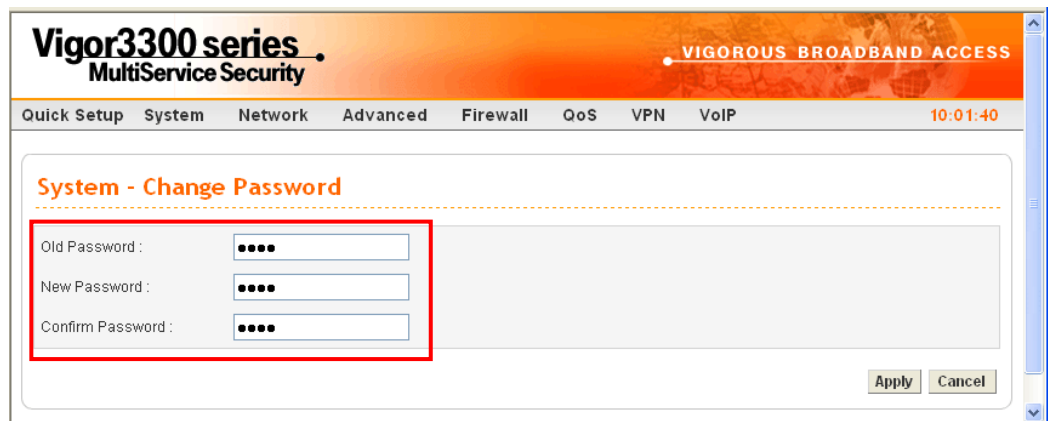
3. Now, the **Main Screen** will pop up.



4. Go to **System** page and choose **Change Password**.



5. The following screen will appear.



6. Enter the login password (1234) on the field of Old Password. Type a new one in the field of New Password and retype it on the field of Confirm Password. Then click **Apply** to continue.
7. Now, the password has been changed. Next time, use the new password to access the Web Configurator for this router.
8. Next, you will see the login screen after clicking **Apply**. Please use new password to re-enter the system configuration.



2.2 Quick Setup

Quick Setup is designed for configuring your broadband router accessing Internet with simply steps. There are two phases of quick setup, one is WAN configuration and the other is LAN configuration.

In the **Quick Setup** group, you can configure the router to access the Internet with different modes such as Static, DHCP, PPPoE, or PPTP modes. For most users, Internet access is the primary application. The router supports the Ethernet WAN interface for Internet access. The following sections will explain in more detail the various broadband access configurations. All the settings in this section will be used in the first WAN1 interface.

Quick Setup - WAN

MAC Address : Default MAC User Defined MAC

Downstream Rate : (kbps)

Upstream Rate : (kbps)

Type :

Physical Mode :

IP Mode : Static DHCP PPPoE PPTP

Static/DHCP Configuration | PPPoE/PPTP Configuration

IP Address : Host Name :

Subnet Mask : Domain Name :

Default Gateway : (Host Name and Domain Name are required for some ISPs.)

Primary DNS :

Secondary DNS :

IP Alias List

1.	<input type="text"/>	2.	<input type="text"/>
3.	<input type="text"/>	4.	<input type="text"/>
5.	<input type="text"/>	6.	<input type="text"/>
7.	<input type="text"/>	8.	<input type="text"/>

Now, you have to select an appropriate WAN connection type for connecting to the Internet through this router according to the settings that your ISP provided.

MAC Address

Default MAC-

Use the default Mac address stored originally in router.

User Defined MAC-

Use a MAC address defined by the user.

Downstream Rate

Assign the downstream rate for this WAN interface. The default value is 102400 kbps (100 Megabit). This setting is very important for Vigor3300 Series incoming buffer adjustment. If you use a DSL subscriber service with a 2Mbps downstream, please set the downstream rate setting with 2Mbps.

Upstream Rate

Assign the transmission rate for this WAN interface. The default value is 102400 kbps (100 Megabit). This setting is very important for Vigor3300 Series outgoing buffer adjustment. If you use a DSL subscriber service with a 256Kbps downstream, please set the downstream rate setting with 256Kbps.

Type

Select a connection type for this WAN interface. Currently, there is only one setting offered for you to choose - Fast Ethernet.

Physical Mode

Select connection speed mode for this WAN interface. There are **auto negotiation**, **full duplex**, and **half duplex** of either 10M or 100M speed options for the WAN Interface.

IP Mode

Select an IP mode for this WAN interface. There are four available modes for Internet access, **Static**, **DHCP**, **PPPoE**, and **PPTP**. On this page you may configure the WAN interface to use **Static** (fixed IP), **DHCP** (dynamic IP address), **PPPoE** or **PPTP**. Most of the cable users will use the **DHCP** mode to get a globally reachable IP address from the cable host system.

2.2.1 Static Mode

You can manually assign a static IP address to the WAN interface and complete the configuration by applying the settings and rebooting your router. Choosing **Static** as the IP mode, you will see the following page:

The screenshot shows the 'Static Mode' configuration page. At the top, there are four radio buttons: **Static** (selected and circled in red), **DHCP**, **PPPoE**, and **PPTP**. Below this, there are two tabs: **Static/DHCP Configuration** (active) and **PPPoE/PPTP Configuration**. The configuration fields include:

- IP Address: 172.16.3.229
- Subnet Mask: 255.255.255.0
- Default Gateway: 172.16.3.1
- Primary DNS: 168.95.1.1
- Secondary DNS: 168.95.192.1
- Host Name: (empty)
- Domain Name: (empty)

Below these fields is an 'IP Alias List' table with 8 rows:

IP Alias List	
1.	10.1.1.100
2.	10.1.1.101
3.	10.1.1.102
4.	
5.	
6.	
7.	
8.	

A 'Next >>' button is located at the bottom right of the form.

All the settings here are set by privately. Your ISP will not provide these settings.

IP Address

Assign a private IP address to the WAN interface.

Subnet Mask

Assign a subnet mask value to the WAN interface.

Default Gateway

Assign a private IP address to the gateway.

Primary DNS

Assign a private IP address to the primary DNS.

Secondary DNS

Assign a private IP address to the secondary DNS.

IP Alias List

Assign other IP addresses to be bound to this interface. This setting is optional. If you have typed addresses here, you can see and choose it in later web page settings (e.g., **Advanced >> NAT>>Port Redirection/DMZ Host**). Thirty-two IP addresses settings are allowed at one time.

After setting up the **WAN** interface, the user can click **Next** to setup the LAN interface continuously.

Quick Setup - LAN

LAN IP/DHCP | DHCP Relay Agent | IP Routing

IP Configuration

IP Address :

Subnet Mask :

DHCP Server

Status : Enable Disable Relay Agent

Start IP :

End IP :

Primary DNS :

Secondary DNS :

Lease Time (Min) :

Gateway IP(Optional) :

<<Previous **Finish**

IP Address

Assign an IP address for the LAN interface.

Subnet Mask

Assign the subnet mask for the LAN interface.

Status

Click **Enable** to use DHCP server; click **Disable** to close DHCP server; click **Relay Agent** to activate relay agent function.

Start IP

Assign the start IP address of the IP pool that DHCP server can use for clients in LAN.

End IP

Assign the end IP address of the IP pool that DHCP sever can use for clients in LAN.

Primary DNS

Type the IP address for primary DNS.

Secondary DNS

Assign a private IP address to the secondary DNS.

Lease Time (Min)

Set a lease time for the DHCP server. The time unit is minute.

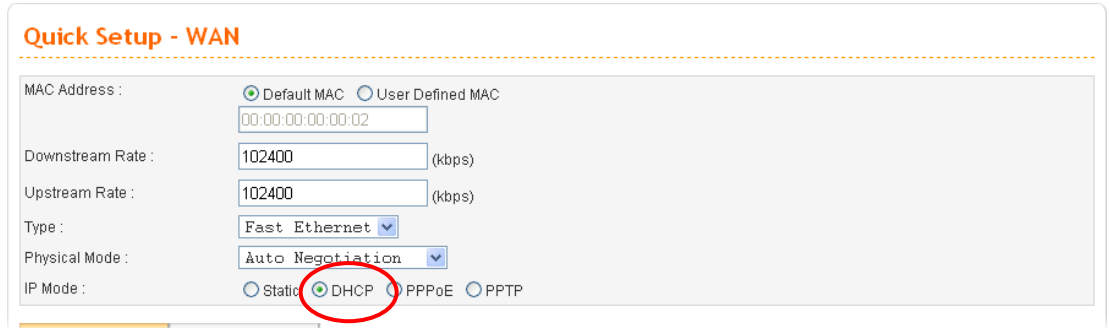
Gateway IP (Optional)

Set a gateway IP address for the DHCP server.

When you finished the above required settings, please click **Finish**. A system reboot page will appear. Click **Apply** to activate the static mode configuration.

2.2.2 DHCP Mode

DHCP allows a user to obtain an IP address automatically from a DHCP server on the Internet. If you choose **DHCP** mode, the DHCP server of your ISP will assign a dynamic IP address for Vigor3300 automatically. It is not necessary for you to assign any setting. (Host Name and Domain Name are required for some ISPs).



Quick Setup - WAN

MAC Address : Default MAC User Defined MAC

Downstream Rate : (kbps)

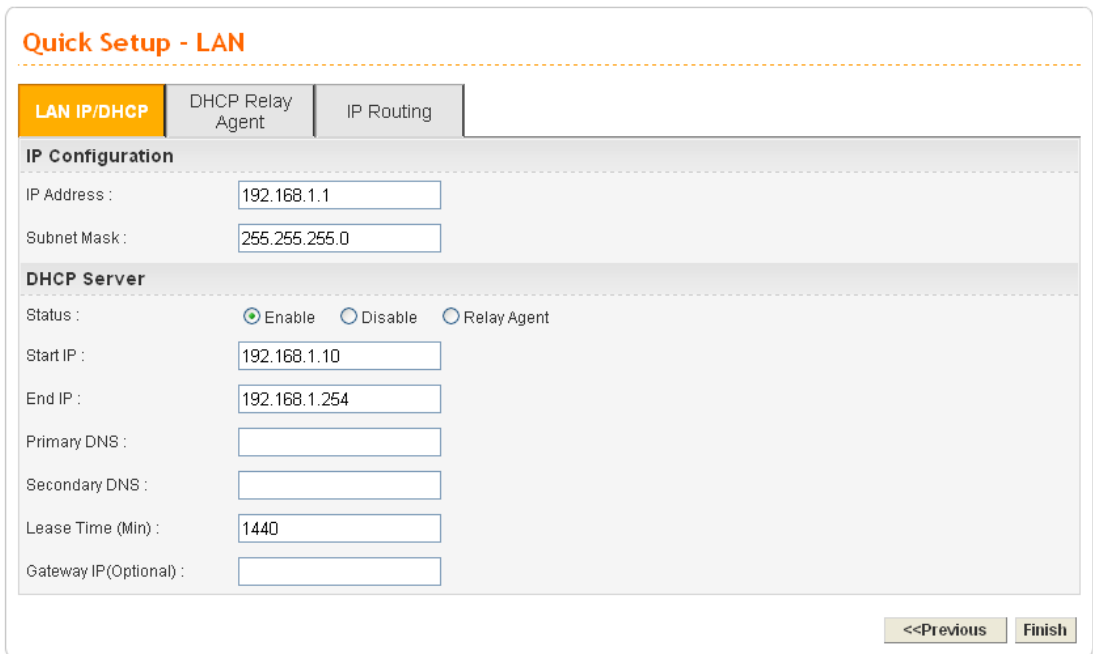
Upstream Rate : (kbps)

Type :

Physical Mode :

IP Mode : Static DHCP PPPoE PPTP

Simply click **Next** to setup LAN interface.



Quick Setup - LAN

LAN IP/DHCP | DHCP Relay Agent | IP Routing

IP Configuration

IP Address :

Subnet Mask :

DHCP Server

Status : Enable Disable Relay Agent

Start IP :

End IP :

Primary DNS :

Secondary DNS :

Lease Time (Min) :

Gateway IP(Optional) :

<<Previous | Finish

- IP Address** Assign an IP address for the LAN interface.
- Subnet Mask** Assign the subnet mask for the LAN interface.
- Status** Click **Enable** to use DHCP server; click **Disable** to close DHCP server; click **Relay Agent** to activate relay agent function.
- Start IP** Assign the start IP address of the IP pool that DHCP server can use for clients in LAN.
- End IP** Assign the end IP address of the IP pool that DHCP sever can use for clients in LAN.
- Primary DNS** Type the IP address for primary DNS.

Secondary DNS Assign a private IP address to the secondary DNS.

Lease Time (Min) Set a lease time for the DHCP server. The time unit is minute.

Gateway IP (Optional) Set a gateway IP address for the DHCP server.

Next, click **DHCP Relay Agent** tab to set DHCP server if required.

The screenshot shows the 'Quick Setup - LAN' configuration page with the 'DHCP Relay Agent' tab selected. The 'Relay Agent' section includes a 'WAN Interface' dropdown menu set to 'WAN1' and a 'DHCP Server IP Address' text input field. At the bottom right, there are '<<Previous' and 'Finish' buttons.

WAN Interface Choose the WAN interface for such connection.

DHCP Server IP Address Assign an IP address for the DHCP server.

Next, click **IP Routing** tab to set routing path for each WAN interface if required.

The screenshot shows the 'Quick Setup - LAN' configuration page with the 'IP Routing' tab selected. It displays four WAN interface sections (WAN1, WAN2, WAN3, and WAN4). Each section has a 'Status' field with radio buttons for 'Enable' and 'Disable', and 'IP Address' and 'Subnet Mask' text input fields. The 'Finish' button at the bottom right is circled in red.

When you finished the above settings, please click **Finish**. A system reboot page will appear. Click **Apply** to activate the DHCP mode configuration.

2.2.3 PPPoE

This mode is used for most of DSL modem users. All local users can share one PPPoE connection to access the Internet. Your service provider will give you the user name, password, and authentication mode for PPPoE settings.

Quick Setup - WAN

MAC Address : Default MAC User Defined MAC

Downstream Rate : (kbps)

Upstream Rate : (kbps)

Type :

Physical Mode :

IP Mode : Static DHCP PPPoE PPTP

If your ISP provides you the **PPPoE** (Point-to-Point Protocol over Ethernet) connection, please select **PPPoE** for this router to get the following page. Enter the **username** and **password** provided by your ISP on the web page.

Static/DHCP Configuration | **PPPoE/PPTP Configuration**

User Name : PPTP Local Address :

Password : PPTP Subnet Mask :

Authentication : PPTP Server Address :

Service Name (Optional):

Next >>

User Name Assign a specific valid user name provided by the ISP.

Password Assign a valid password provided by the ISP.

Authentication Select **PAP**, **CHAP**, **MS-CHAP** or **MS-CHAP-V2** protocol for PPP authentication. The default value is **PAP**.

PAP
PAP
CHAP
MS-CHAP
MS-CHAP-V2

Service Name Assign a service name required from ISP service.

After setting up the **PPPoE**, click **Next** to setup the LAN interface continuously.

Quick Setup - LAN

LAN IP/DHCP | DHCP Relay Agent | IP Routing

IP Configuration

IP Address : 192.168.1.1

Subnet Mask : 255.255.255.0

DHCP Server

Status : Enable Disable Relay Agent

Start IP : 192.168.1.10

End IP : 192.168.1.254

Primary DNS :

Secondary DNS :

Lease Time (Min) : 1440

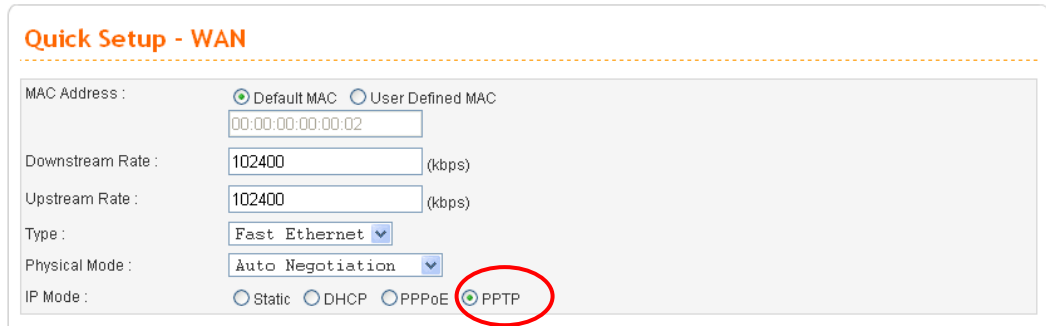
Gateway IP(Optional) :

<<Previous **Finish**

- IP Address** Assign an IP address for the LAN interface.
- Subnet Mask** Assign the subnet mask for the LAN interface.
- Status** Click **Enable** to use DHCP server; click **Disable** to close DHCP server; click **Relay Agent** to activate relay agent function.
- Start IP** Assign the start IP address of the IP pool that DHCP server can use for clients in LAN.
- End IP** Assign the end IP address of the IP pool that DHCP sever can use for clients in LAN.
- Primary DNS** Type the IP address for primary DNS.
- Secondary DNS** Assign a private IP address to the secondary DNS.
- Lease Time (Min)** Set a lease time for the DHCP server. The time unit is minute.
- Gateway IP (Optional)** Set a gateway IP address for the DHCP server.
- When you finished the above settings, please click **Finish**. A system reboot page will appear. Click **Apply** to activate the PPPoE mode configuration.

2.2.4 PPTP

This mode lets user get the IP group information by a DSL modem with PPTP service from ISP. Your service provider will give you user name, password, and authentication mode for a PPTP setting.



Quick Setup - WAN

MAC Address : Default MAC User Defined MAC

Downstream Rate : (kbps)

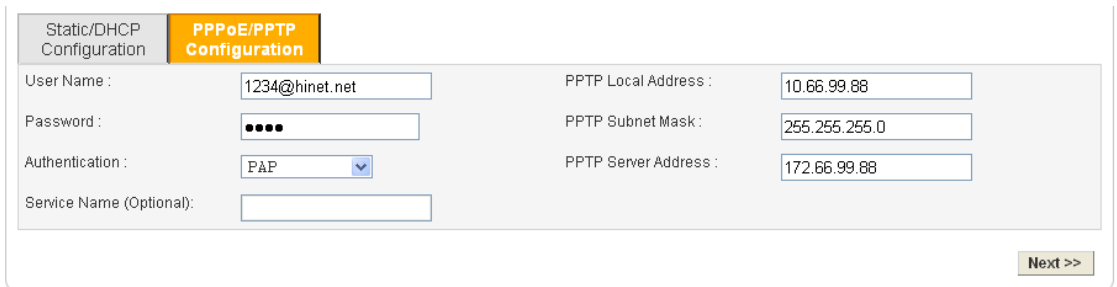
Upstream Rate : (kbps)

Type :

Physical Mode :

IP Mode : Static DHCP PPPoE PPTP

If your ISP offers you **PPTP** (Point-to-Point Tunneling Protocol) mode, please select **PPTP** for this router. Next, enter the **PPTP Subnet Mask** (e.g., **255.255.255.0**), **PPTP Local Address** (e.g., **10.66.99.88**) and **PPTP Server Address** (e.g., **172.66.99.88**) provided by your ISP on the web page.



Static/DHCP Configuration | **PPPoE/PPTP Configuration**

User Name : PPTP Local Address :

Password : PPTP Subnet Mask :

Authentication : PPTP Server Address :

Service Name (Optional):

PPTP Local Address Assign a local IP address of PPTP.

PPTP Subnet Mask Assign a net mask value for IP address of PPTP.

PPTP Server Address Assign a remote IP address of PPTP server.

After setting up the **PPTP**, click **Next** to setup the LAN interface continuously.

Quick Setup - LAN

LAN IP/DHCP | DHCP Relay Agent | IP Routing

IP Configuration

IP Address :

Subnet Mask :

DHCP Server

Status : Enable Disable Relay Agent

Start IP :

End IP :

Primary DNS :

Secondary DNS :

Lease Time (Min) :

Gateway IP(Optional) :

<<Previous **Finish**

- IP Address** Assign an IP address for the LAN interface.
- Subnet Mask** Assign the subnet mask for the LAN interface.
- Status** Click **Enable** to use DHCP server; click **Disable** to close DHCP server; click Relay Agent to activate relay agent function.
- Start IP** Assign the start IP address of the IP pool that DHCP server can use for clients in LAN.
- End IP** Assign the end IP address of the IP pool that DHCP sever can use for clients in LAN.
- Primary DNS** Type the IP address for primary DNS.
- Secondary DNS** Assign a private IP address to the secondary DNS.
- Lease Time (Min)** Set a lease time for the DHCP server. The time unit is minute.
- Gateway IP (Optional)** Set a gateway IP address for the DHCP server.

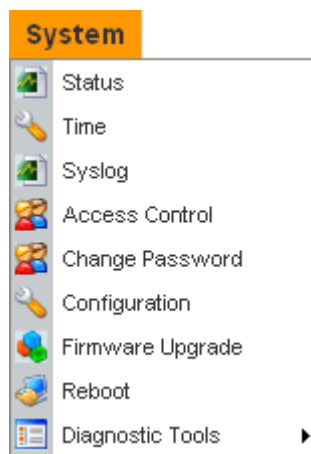
When you finished the above settings, please click **Finish**. A system reboot page will appear.

3 Advanced Configuration

After finished basic configuration of the router, you can access Internet with ease. For the user who wants to adjust more setting for suiting his/her request, please refer to this chapter for getting detailed information about the advanced configuration of this router.

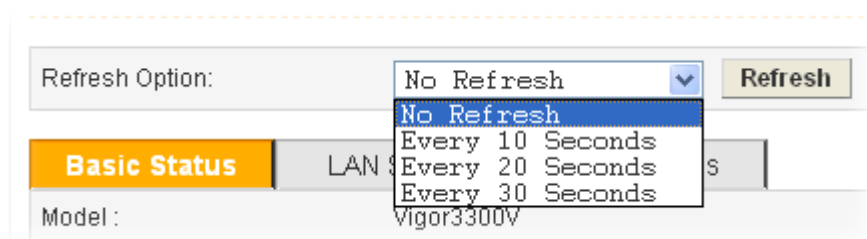
3.1 System setup

For the system setup, there are several items provided for you to configure ---- Status, Time Setup, Syslog Setup, Access Control Setup, Reboot and Firmware Upgrade Setup, Diagnostic Tools and Configuration Setup.



3.1.1 Status

The online **Status** function provides some useful system information on the current status of the Vigor3300 Series. A user can observe the system status on this Web page and determine which setting needed to be changed in corresponding web pages. In the **System** group, click the **Status** option. The online **Status** Web page contains three parts: **Basic Status**, **LAN Status**, and **WAN Status**.



Refresh Option You can choose to refresh the Web page information automatically. There are four options given as shown below.

No Refresh: Static information page.

Every 10 Seconds: Refreshes the page every 10 seconds.

Every 20 Seconds: Refreshes the page every 20 seconds.

Every 30 Seconds: Refreshes the page every 30 seconds.

Basic Status

General status of this router will be displayed in this page.

System - Status

Refresh Option:

Basic Status	LAN Status	WAN Status
Model :	Vigor3300V	
Hardware Version :	1.0	
Firmware Version :	2.5.9.0 (EN)	
Build Date&Time :	2009-02-11 18:29:24	
System Uptime :	0 days 0 hours 0 minutes 22 seconds	
CPU Usage :	47.2307%	
Memory Size :	64 MBytes	
Memory Usage :	30.8389%	
Current System Time :	2009-03-20 10:20:23	

Model	Display the model name of the router.
Hardware Version	Display the hardware version of the router.
Firmware Version	Display the firmware version of the router.
Build Date&Time	Display the date and time of the current firmware build.
System Uptime	Display the amount of time that the router has been online.
CPU Usage	Display the average percentage of the CPU used.
Memory Size	Display the size of the memory of this router.
Memory Usage	Display the percentage of memory used.
Current System Time	Display the current local system time.

LAN Status

The status of LAN connection will be displayed in this page. Simply click **LAN Status** tag to get the detailed.

System - Status

Refresh Option:

Basic Status	LAN Status	WAN Status
--------------	-------------------	------------

LAN1 :

IP Address :	192.168.1.3
MAC Address :	00:00:00:00:00:01
High Availability Status :	
RX Packets :	9902
TX Packets :	1072

IP Address

Display the IP address of the LAN interface.

MAC Address

Display the MAC address of the LAN Interface.

High Availability Status

The High Availability Status is shown when it is enabled in **Network>> High Availability**. When there are two Vigor3300 devices in the same LAN, one can be set as Master device and the other can be set as Slave device.

Master - It means that Vigor3300 plays the Master role in high availability feature.

Slave - It means that Vigor3300 plays the Slave role in high availability feature.

If there is only one Vigor3300 used in LAN, this line will be blank.

RX Packets

Display the total number of received packets at the LAN interface.

TX Packets

Display the total transmitted packets at the LAN interface.

WAN Status

The status of WAN interface (Static, DHCP, PPPoE, PPTP or DMZ) is shown in this page. Simply click **WAN Status** tag to get the detailed. There are four sets of WAN status can be shown in this page at one time. The sample below just lists one set of WAN status for only WAN1 interface is used.

System - Status

Refresh Option:

Basic Status	LAN Status	WAN Status
--------------	------------	-------------------

WAN1 :		WAN2 :	
IP Address :	192.168.1.19	IP Address :	
MAC Address :	00:00:00:00:00:02	MAC Address :	00:00:00:00:00:03
Primary DNS :	192.168.1.1	Primary DNS :	
Secondary DNS :		Secondary DNS :	
Gateway :	192.168.1.1	Gateway :	
RX Packets :	8794	RX Packets :	
TX Packets :	3302	TX Packets :	
Connection Status :	disconnected	Connection Status :	
Up Time :		Up Time :	
	<input type="button" value="Connect"/>		

WAN3 :		WAN4 :	
IP Address :		IP Address :	
MAC Address :	00:00:00:00:00:04	MAC Address :	00:00:00:00:00:05
Primary DNS :		Primary DNS :	
Secondary DNS :		Secondary DNS :	
Gateway :		Gateway :	
RX Packets :		RX Packets :	
TX Packets :		TX Packets :	
Connection Status :		Connection Status :	
Up Time :		Up Time :	

IP Address

Display the IP address of the WAN interface.

MAC Address

Display the MAC address of the WAN Interface.

Primary DNS

Display the IP address of the primary DNS.

Secondary DNS

Display the IP address of the secondary DNS.

Gateway

Display the IP address of the default gateway.

RX Packets

Display the total received packets for each WAN interface.

TX Packets

Display the total transmitted packets for each WAN interface.

Connection Status

Display the connection status of the WAN interface.

Up Time

Display the total system uptime of the interface.

Connect

Click this button to make a connection manually.

3.1.2 Time

As an NTP (Network Time Protocol) client, the router gets standard time from the time server. Some time-based functions, such as **Call Schedule** and **URL Content filtering**, cannot work properly until the system time functions run successfully. Typically, NTP achieves high accuracy and reliability with multiple redundant servers and diverse network paths.

The Vigor3300 Series supports synchronization with a specific NTP server or the remote PC host of the administrator. In the **System** group, click the **Time** option. The Time page is shown below:

System - Time

Use Browser Time
 Use NTP Time

NTP Server :

Time Zone : (GMT+00:00) Greenwich Mean Time : Dublin ▾

Daylight Saving Time : Not Use Use

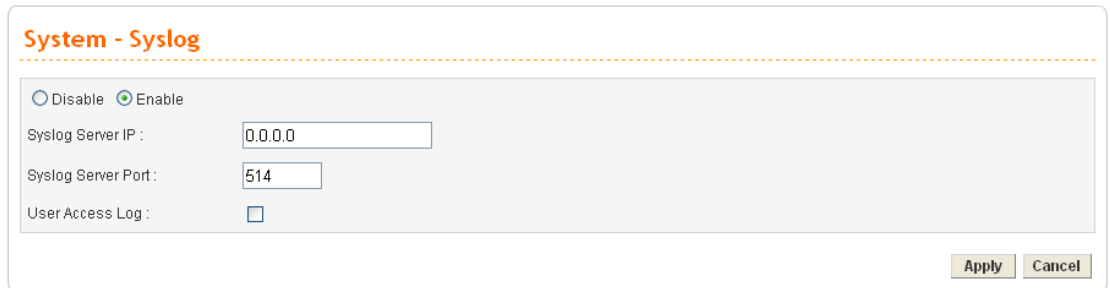
Update Interval : 30 seconds ▾

Apply Cancel

- Use Browser Time** Click this option to use the browser time from the remote administrator PC host as router's system time.
- Use NTP Time** Click this option to use the time from an NTP server as router's system time.
- NTP Server** Assign a public IP address or domain name of the NTP server.
- Time Zone** Select the time zone where the Vigor3300 is located.
- Daylight Savings Time** Select **Use** to activate this function. This function is useful for some areas.
- Update Interval** Select a time interval for updating from the NTP server.
- Apply** Click **Apply** to save these settings.

3.1.3 Syslog

The Vigor3300 Series supports a Syslog function to keep a record of abnormal conditions. The router will send Syslog packets to a Syslog server on the remote site. The administrator can observe any abnormal events from Vigor3300. In the **System** group, click the **Syslog** option. The Syslog web page is shown below:



System - Syslog

Disable Enable

Syslog Server IP :

Syslog Server Port :

User Access Log :

Disable/Enable

Click **Enable** to activate this function. The router will send system log message for your reference. If you click **Disable**, the router will not send out any message about system log.

Syslog Server IP

The IP address of the Syslog server. If a user assigns an IP address of “0.0.0.0”, the Syslog function will be disabled. Then, Vigor3300 will not send Syslog packets to the Syslog server.

Syslog Server Port

Assign a port for the Syslog protocol.

User Access Log

Check this box to record the user access log. Such information will be seen in syslog server.

Apply

Click **Apply** to save these settings.

3.1.4 Access Control

This page allows you to determine which services (HTTP/Telnet/SSH) is used for the user to access Vigor3300 Series. In addition, you can also limit some hosts to access Vigor3300 Series with specified IP address.

In the **System** group, click the **Access Control** option. You will get the following page:

System - Access Control

Management Method

Allow Management Method:

HTTP Telnet SSH

Management Access Control

Allow Management from the WAN

Disable Enable All Enable User Defined WAN IP

Allowed IP1:

Allowed IP2:

Allowed IP3:

Management Port

Default Ports (HTTP Port:80 Telnet Port:23) User Defined Ports

HTTP Port:

Telnet Port:

SSH Port:

PING Restriction

Disable PING from the LAN

Disable PING from the WAN

Apply Cancel

Management Method

There are three management methods provided here for you to choose for your router. Check HTTP/Telnet/SSH for the router.

Allow Management from the WAN

Disable - Disable the management from the WAN interface.

Enable All - Enable all management (through HTTP/Telnet/SSH) from the WAN interface.

Enable User Defined WAN IP - System can be managed by these three IP addresses via WAN.

Allowed IP1(to 3) - Type in IP address (up to three) for managing the system.

Management Port

Default Ports - Use the default ports for HTTP and Telnet if you choose HTTP and Telnet as management methods.

User Defined Ports - Or you can assign new port numbers for HTTP, Telnet and SSH respectively.

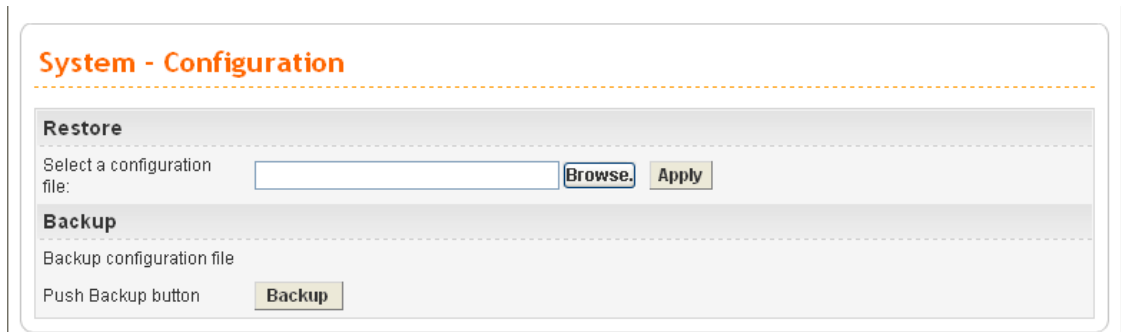
PING Restriction

Disable PING from the LAN - Choose this function to reject all ICMP packets from LAN side.

Disable PING from the WAN - Choose this function to reject all ICMP packets from WAN side.

3.1.5 Configuration Setup

Most of the settings can be saved locally as a configuration file, and can be applied to another router. The Vigor3300 Series supports the restore and upload functions of the **configuration files**. In the **System** group, click the **Configuration Setup** option. And you can see the following page.



The screenshot shows a web interface titled "System - Configuration". It is divided into two main sections: "Restore" and "Backup".

- Restore:** This section contains a text input field labeled "Select a configuration file:". To the right of the input field are two buttons: "Browse..." and "Apply".
- Backup:** This section contains a text input field labeled "Backup configuration file:". Below this field is a button labeled "Backup".

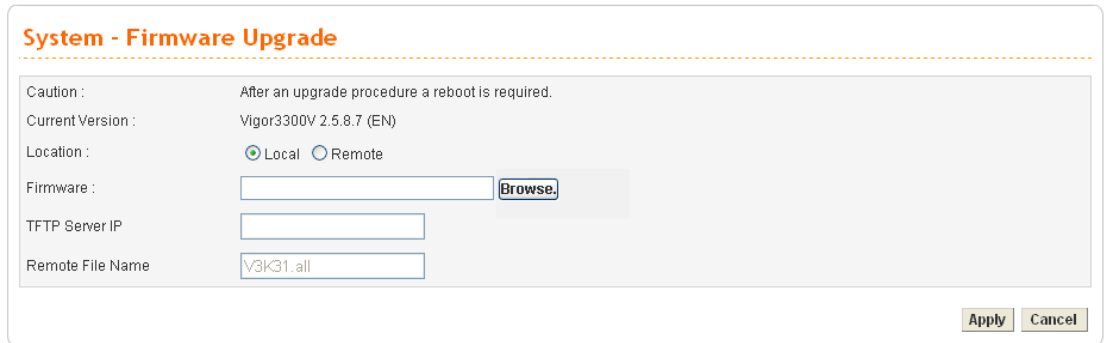
Select a Configuration File Please click the **Browse...** button to find out the location of the configuration file to be uploaded to the router and click **Apply**.

Backup Configuration File Download the configuration file to a local host. The default file name is "v3300.cfg".

Push Backup Button

3.1.6 Firmware Upgrade Setup

Vigor3300 Series allows users to upgrade firmware through a Web interface. In the **System** group, click the **Firmware Upgrade** option. You can see the following page then. Before you execute the firmware upgrade, please download the **newest firmware** from Draytek's website (www.draytek.com) or FTP site ([ftp.draytek.com](ftp://ftp.draytek.com)) on the computer first.

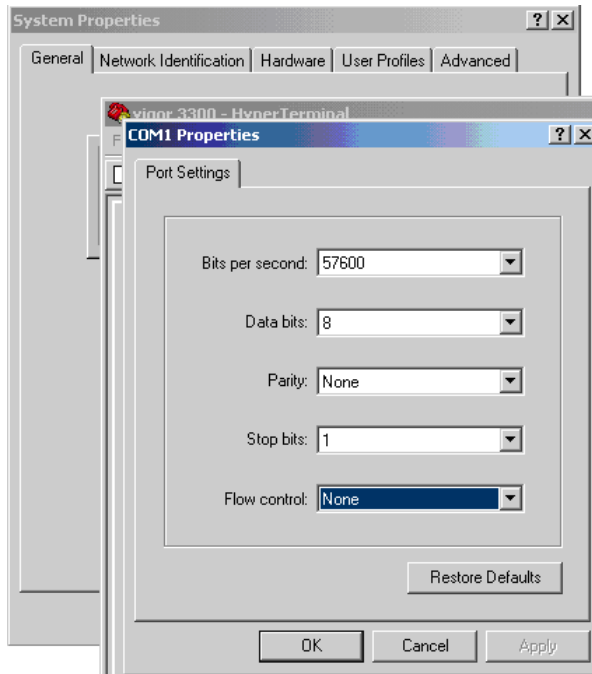


Caution	Display a caution for your reference.
Current Version	Display current firmware version that you are using.
Location	<i>Local</i> means upgrade firmware from browser. <i>Remote</i> means upgrade firmware from a remote TFTP server.
Firmware	Specify the location of the firmware file if you want to upgrade the firmware locally
TFTP Server IP	If you want to upgrade the firmware of this router from remote side, please type the IP address of the TFTP server.
Remote File Name	The default filename will be shown here. If you have use another name to save the firmware file, please type the new name in this field.
Apply	After finished your selection, please click Apply to execute the firmware upgrade.

Firmware Upgrade from a Console Port

Firmware upgrade can be done from a console port, too. The following example was run on a Windows environment.

1. Download the newest firmware from the DrayTek Website (www.draytek.com.tw) or FTP site ([ftp.draytek.com](ftp://ftp.draytek.com)) on your computer first.
2. Connect the RJ45 connector of console cable to the console port on Vigor3300 and the DB9 connector of the console cable to the RS232 port on the PC.



The default setting of the console port is “baud rate 57600, no parity, and 8 bit with 1 stop bit.”

3. Power on Vigor3300, then press **ENTER** before the system reboots completely.
4. Open Hyper Terminal on the PC. Now, Vigor3300 can accept a TFTP download and will display the following message:

*** DrayTek V3300 Bootloader ***

Press [ENTER] key within 5 sec. to download image...2

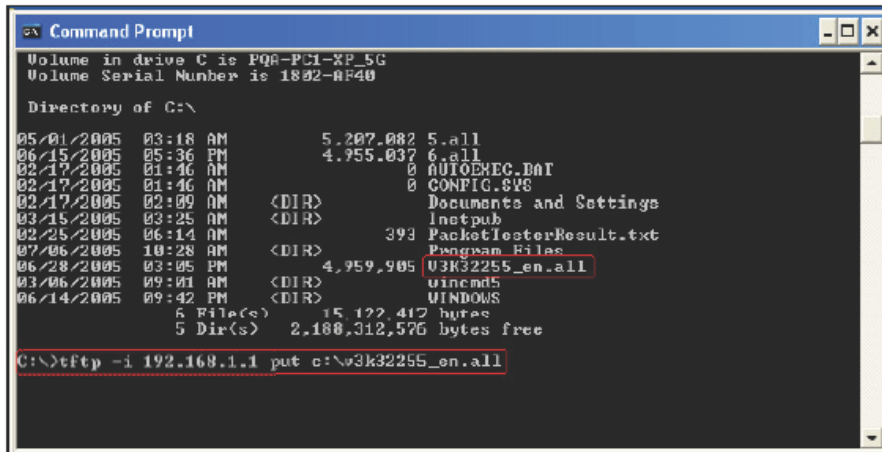
Current LAN IP is 192.168.1.1

New IP:

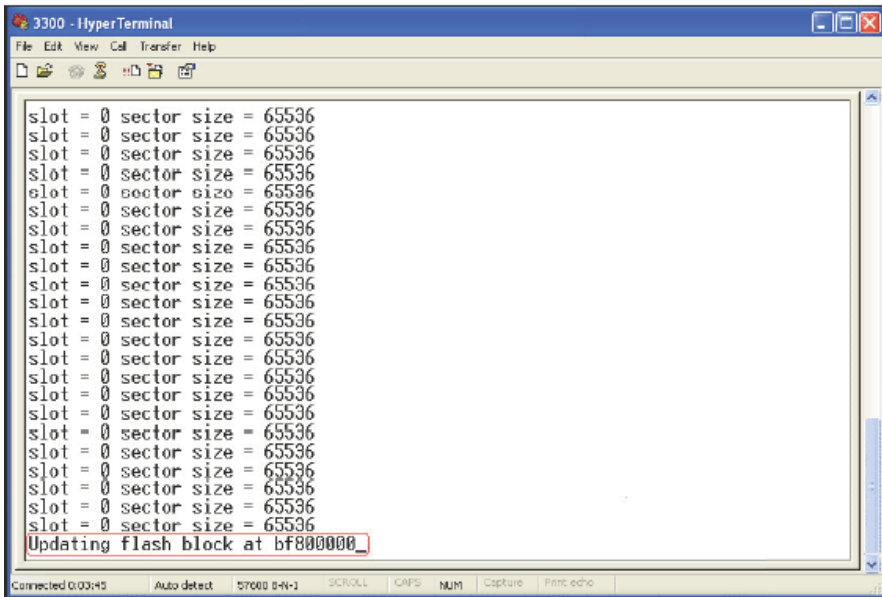
Prepare downloading.

5. Type the path name of the firmware image and activate the **TFTP Client** from the PC to download the image. The corresponding message is shown as follows:

TFTP -i 192.168.1.1 PUT [Vigor3300 image file name]



6. Now in the Console you will find the following information. When **Updating flash block** at **bfXXXXXX** appears, it means the firmware is under downloading.



7. When **set flash0_0 "780000:800000:general"** appears, it means the firmware downloading has been completed. The router will reboot itself and you will see the **Firmware version: V2.X.X**. Please wait about **20** seconds to relogin the router. The procedure is finished now.

```

3300 - HyperTerminal
File Edit View Call Transfer Help
slot = 0 sector size = 65536
slot = 0 sector size = 65536
slot = 0 sector size = 65536
slot = 0 sector size = 65536
slot = 0 sector size = 65536
Updating flash block at bfd30000
set ethaddr0 00:50:7f:28:80:e3
set ethaddr1 00:50:7f:28:80:e4
set ethaddr2 00:50:7f:28:80:e4
set #default_nif_wan1_mac 00:50:7f:28:80:e4
set #default_nif_wan2_mac 00:50:7f:28:80:e5
set #default_nif_wan3_mac 00:50:7f:28:80:e6
set #default_nif_wan4_mac 00:50:7f:28:80:e7
set flash0_0 "780000:80000:general"

DrayTek Corporation Vigor 3300
Firmware version: V2.5.7
Hardware version: 0
V3 board, for V3 GPIO config
have voip card

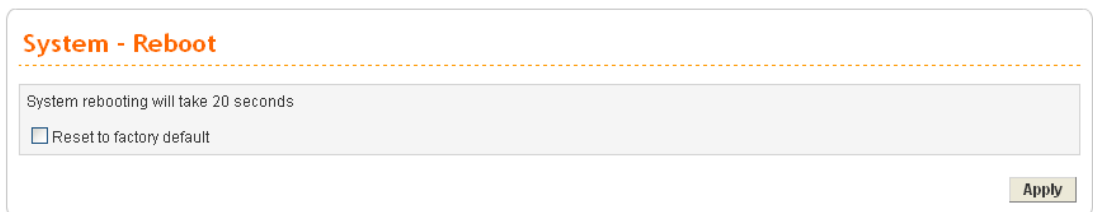
Draytek login: 3300 series

```

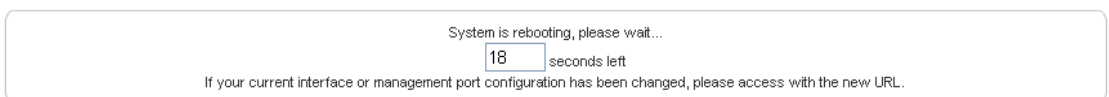
3.1.7 Reboot

The Vigor3300 Series system can be restarted from a Web browser. **Reboot** screen can appear after you finish the changing of WAN and LAN settings. You have to reboot the router to invoke the configured settings that you made before. Besides, you can select **Reset to factory default** to reboot the device and retrieve the default settings.

In the **System** group, choose the **Reboot** option. In the web page of **Reboot**, a user must either keep the current configuration settings or use the default configuration after the Vigor3300 Series system has been rebooted.



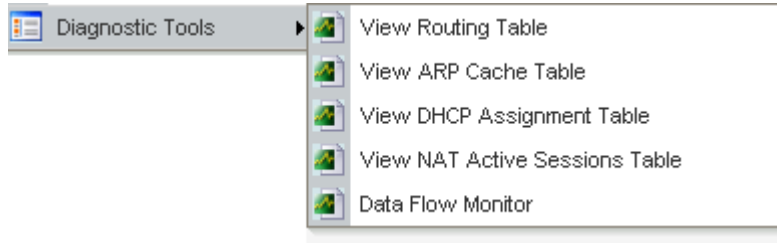
Click **Apply** to reboot the whole system. The rebooting procedure usually takes 20 or more seconds.



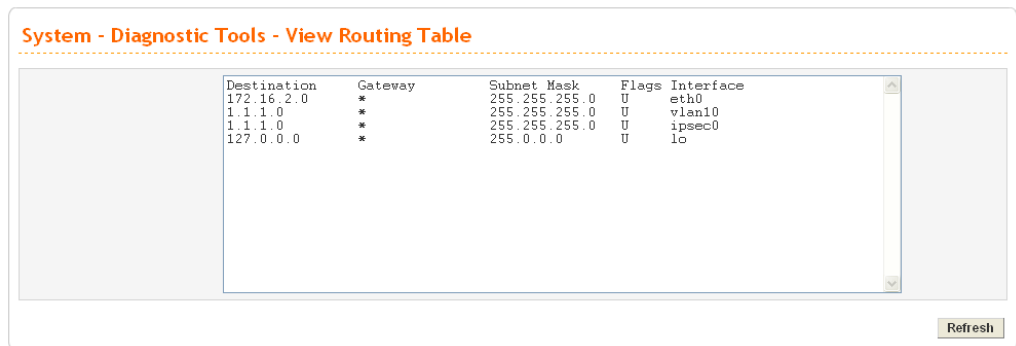
3.1.8 Diagnostic Tools

In some cases, a user may need to know some information about the router, such as static or dynamic databases, or other routing information. The Vigor3300 Series supports four functions, **Routing Table**, **ARP Cache Table**, **DHCP Assignment Table**, and **NAT Active Sessions Table** for the user to review such information.

In the **System** group, click the **Diagnostic Tools** option



- Select **View Routing Table** to get the following page:



- Destination** Display the destination IP address for various routings.
- Gateway** Display the default gateway.
- Subnet Mask** Display the subnet mask for various routings.
- Flags** Display the status of the routing entries.
- Interface** Denoted by **eth0** if it is a LAN interface and **eth1** if it is a WAN interface.
- Refresh** Click **Refresh** to re-display this web page for getting newest routing information.

- Select **View ARP Cache Table** to get the following page:

System - Diagnostic Tools - View ARP Cache Table

Index	IP Address	MAC Address	Interface
1	192.168.1.1	00:50:7F:00:00:00	eth0
2	192.168.1.10	00:0E:A6:2A:D5:A1	eth0

- IP Address** Display the IP address for different ARP cache.
- MAC Address** Display the MAC address for different ARP cache.
- Interface** Denoted by **eth0** if it is a LAN interface and **eth1** if it is a WAN interface.
- Refresh** Click **Refresh** to re-display this web page for getting newest ARP information.

- Select **View DHCP Assignment Table** to get the following page:

System - Diagnostic Tools - View DHCP Assignment Table

Index	Assigned IP	MAC Address	Time Left
1	192.168.1.10	00:00:00:00:00:00	expired
2	192.168.1.11	00:0E:A6:2A:D5:A1	expired

- Assigned IP** Display the IP address of the static DHCP server.
- MAC Address** Display the MAC address of the static DHCP server.
- Time Left** Display the remaining time for this IP address assigned by DHCP server. When the time expired, such IP address would not be kept for this client and might be assigned to other client.
- Refresh** Click **Refresh** to re-display this web page for getting newest routing information.

- Select **View NAT Active Sessions Table** to get the following page. This table can display about 30000 sessions with 20 pages.

System - Diagnostic Tools - View NAT Active Sessions Table

Type	Expire in	in State	Source IP	Dest IP	sPort	dPort	Rep Source IP	Rep Dest IP	sPort	dPort
tcp	591	ESTABLISHED	192.168.1.222	207.46.6.24	3435	1863	207.46.6.24	172.16.2.225	1863	34682
tcp	598	ESTABLISHED	192.168.1.222	207.46.6.153	3476	1863	207.46.6.153	172.16.2.225	1863	34723

Page Index: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

Type	Display the protocol used for the active session.
Expire in	Display the remaining time (second) of this session.
State	Display the condition of this session.
Source IP	Display the source IP address of the packet transmitted.
Dest IP	Display the destination IP address of the packet transmitted.
sPort	Display the source port of the packet transmitted.
dPort	Display the destination port of the packet transmitted.
Rep Source IP	Display the source IP address of the packet replied.
Rep Dest IP	Display the destination IP address of the packet replied.
sPort	Display the source port of the packet replied.
dPort	Display the destination port of the packet replied.

- Select **Data Flow Monitor** to get the following page. This page displays the running procedure for the IP address monitored and refreshes the data in an interval of several seconds.

System - Diagnostic Tools - Data Flow Monitor

Disable
 Enable
 Refresh Seconds: 10

Index	IP Address	Tx rate(Kbps)	Rx rate(Kbps)	NAT sessions	Action
Page Index: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20					

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 Action column will display the expire time left.

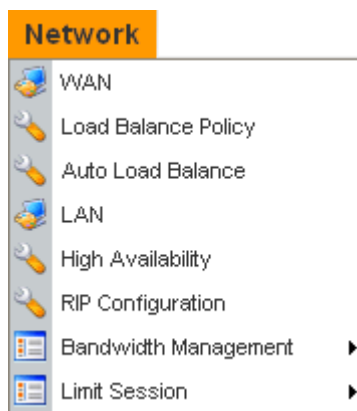
Refresh

Disable/Enable	Click Enable to invoke this function.
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. Unblock – the device with the IP address will be blocked in five minutes. The remaining time will be shown on the session column.
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	Click Refresh to re-display this web page for getting newest routing information.

3.2 Network Setup

For Internet access, it is necessary for you to set **WAN** and **LAN** interfaces for the router.



3.2.1 WAN and Internet Access Setup





The Vigor3300 Series supports four WAN interfaces (Static, DHCP, PPPoE and PPTP), which share the same setting page. In the **Network** group, please click the **WAN** option. The following page will be shown.

Note: Vigor3300/3300V supports four WAN interfaces, yet Vigor3300B+ supports three WAN interfaces. That is, #WAN4 will be disabled for Vigor3300B+.

Network - WAN

Load Balance : Disable Enable (Auto Weight)

Backup : Disable Enable

#	Edit	IP Mode	Active	Default Route	Load Balance	Weight	Backup-Master	Backup-Slave	VoIP
WAN1		Static	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	50%	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="radio"/>
WAN2		Static	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	30%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>
WAN3		PPPoE	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	20%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>
WAN4		PPTP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10%	<input type="checkbox"/>	<input type="checkbox"/>	<input type="radio"/>

Load Balance Enables or disables the WAN load balance function. The **Auto Weight** option becomes available if **Enable** mode is selected. Load Balance allows the router distributing data in and out of the Internet by using different WAN interfaces at the same time.

Backup Enables or disables backup function for WAN interfaces. If you enable this function, the backup-master/backup-slave will execute the job of master/slave device when the master/slave device fails to work.

Edit Open the configuration page of this WAN interface.

IP Mode Display current mode of this WAN interface. There are five options: Static, DHCP, PPPoE, PPTP and DHCP.

Active Activates/closes this WAN interface.

Default Route Set this WAN interface as default route interface.

Load Balance Adds this WAN interface to the load balance group.

Weight Set the weight load (10-90%) for this WAN interface for load balance. This selection is available only when Auto Weight is unchecked.

Backup-Master Set this WAN interface as a master interface. WAN1 must be assigned as Master interface if Backup function is enabled.

Backup-Slave Set this WAN interface as a slave interface.

VoIP Set this WAN interface as VoIP default interface.

Most users will use their routers primarily for Internet access. The Vigor3300 Series supports broadband Internet access and provides multiple WAN interfaces. The following sections will give a detailed illustration to broadband access methods.

Click the “**Edit**” icon to bring up the WAN configuration page for the corresponding interface.

Network - WAN - WAN1 - Fast Ethernet

MAC Address :	<input checked="" type="radio"/> Default MAC <input type="radio"/> User Defined MAC
	<input type="text" value="00:00:00:00:00:02"/>
Downstream Rate :	<input type="text" value="102400"/> (kbps)
Upstream Rate :	<input type="text" value="102400"/> (kbps)
Type :	<input type="text" value="Fast Ethernet"/>
Physical Mode :	<input type="text" value="Auto Negotiation"/>
IP Mode :	<input checked="" type="radio"/> Static <input type="radio"/> DHCP <input type="radio"/> PPPoE <input type="radio"/> PPTP <input type="radio"/> DMZ

- Default MAC** Uses the default Mac address.
- User Defined MAC** Uses a MAC address defined by users. If you select this item, you have to type the MAC address in the box below.
- Downstream Rate** Set downstream rate for this WAN interface. The default value is 102400 kbps (100 Megabit).
- Upstream Rate** Set transmission rate for this WAN interface. The default value is 102400 kbps (100 Megabit).
- Type** Set connection type for this WAN interface.
- Physical Mode** Set connection speed mode. There are five options including **Auto negotiation, full duplex, half duplex, 10M** and **100M**.
- IP Mode** Set an IP Mode with **Static (fixed IP), DHCP (dynamic IP address), PPPoE, PPTP** or **DMZ** and creates the IP group information. Most cable modem users will use DHCP to get a globally reachable IP address from the cable head-end system. Different mode will lead different configuration and will be explained in later section.

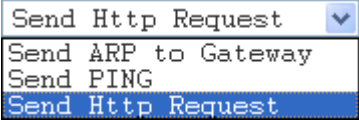
Before you connect a broadband access device e.g. a DSL/Cable modem to Vigor3300 Series, you need to know what kind of Internet access your ISP provides. The following sections introduce four widely used broadband access services: **Static, PPPoE, PPTP** for DSL, **DHCP** for Cable modem and **DMZ**. In most cases, you will get a DSL or cable modem from the broadband access service provider. Vigor3300 Series is connected behind the broadband device i.e. DSL/cable modem and works as a NAT or IP router for broadband connections.

Next, we will introduce each WAN mode in detailed.

Static IP Setup

It means that the IP group information for WAN interface is manually assigned by the user.

Static/DHCP Configuration	PPPoE/PPTP Configuration	DMZ Configuration
IP Address :	<input type="text" value="172.16.3.229"/>	Host Name : <input type="text"/>
Subnet Mask :	<input type="text" value="255.255.255.0"/>	Domain Name : <input type="text"/>
Default Gateway :	<input type="text" value="172.16.3.1"/>	(Host Name and Domain Name are required for some ISPs.)
Primary DNS :	<input type="text" value="168.95.1.1"/>	
Secondary DNS :	<input type="text" value="168.95.192.1"/>	
MTU :	<input type="text" value="1500"/>	
Connection Detection		
Detect Type :	<input type="text" value="Send ARP to Gateway"/>	
Detect Interval(sec) :	<input type="text" value="10"/>	
No-Reply Count :	<input type="text" value="2"/>	
Detect Destination Host : (IP or Domain Name)	<input type="text"/>	
IP Alias List		
1.	<input type="text" value="10.1.1.100"/>	2. <input type="text" value="10.1.1.101"/>
3.	<input type="text" value="10.1.1.102"/>	4. <input type="text"/>
5.	<input type="text"/>	6. <input type="text"/>
7.	<input type="text"/>	8. <input type="text"/>
9-32		
<input type="button" value="Apply"/> <input type="button" value="Reset"/> <input type="button" value="Cancel"/>		

- IP Address** Set the private IP address of WAN interface.
- Subnet Mask** Set the subnet mask value of WAN interface.
- Default Gateway** Set the private IP address of gateway.
- Primary DNS** Set the private IP address of primary DNS.
- Secondary DNS** Set the private IP address of secondary DNS.
- MTU** Mean maximum transmission unit of one packet. The default value is 1500.
- Host Name** Some ISP may ask you to type your host name. Please type in if necessary.
- Domain Name** Some ISP may ask you to type your domain name. Please type in if necessary.
- Detect Type** Select a detecting type for this WAN interface. There are three ways **Send ARP to Gateway**, **Send PING** and **Send HTTP Request** supported in 3300.
- 
- Detect Interval (sec)** Assign an interval period of time for each detecting. The minimum value is 3 and no limit for maximum value.

No-Reply Count	Assign detecting times to ensure the connection of the WAN. After passing the times you set in this field and no reply received by the router, the connection of WAN interface will be regarded as breaking down.
Detect Destination Host (IP or Domain Name)	Assign an IP address or Domain name as a destination to be detected whether the host is active (sending reply to the router) or not. If not, the connection of WAN interface will be regarded as breaking down. This function is available when Detect Type is set with Send PING or Send Http Request .
IP Alias List	Set other IP addresses binding in this interface. You can set up to 32 sets of IP alias settings. If you have typed addresses here, you can see and choose it in later web page settings (e.g., Advanced >> NAT>>Port Redirection/DMZ Host).
Apply	Click Apply to go back to the WAN Interface Configuration page. To apply all settings, click Apply on the WAN Interface Configuration page and reboot your router.
Reset	Click this button to clear all the configurations for this page.

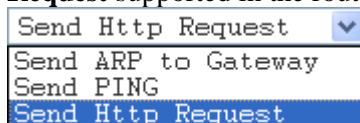
DHCP Client Setup

If the WAN interface is set as a DHCP client, the Vigor3300 Series will ask for IP network settings from the DHCP server or DSL modem automatically. It is not necessary for users to manually configure the router.

Static/DHCP Configuration	PPPoE/PPTP Configuration	DMZ Configuration
IP Address :	<input type="text" value="172.16.3.229"/>	Host Name : <input type="text"/>
Subnet Mask :	<input type="text" value="255.255.255.0"/>	Domain Name : <input type="text"/>
Default Gateway :	<input type="text" value="172.16.3.1"/>	(Host Name and Domain Name are required for some ISPs.)
Primary DNS :	<input type="text" value="168.95.1.1"/>	
Secondary DNS :	<input type="text" value="168.95.192.1"/>	
MTU :	<input type="text" value="1500"/>	
Connection Detection		
Detect Type :	<input type="text" value="Send ARP to Gateway"/>	
Detect Interval(sec) :	<input type="text" value="10"/>	
No-Reply Count:	<input type="text" value="2"/>	
Detect Destination Host : (IP or Domain Name)	<input type="text"/>	
<input type="button" value="Apply"/> <input type="button" value="Reset"/> <input type="button" value="Cancel"/>		

Detect Type

Select a detecting type for this WAN interface. There are three ways **Send ARP to Gateway**, **Send PING** and **Send HTTP Request** supported in the router.



Detect Interval (sec)

Assign an interval period of time for each detecting. The minimum value is 3 and no limit for maximum value.

No-Reply Count

Assign detecting times to ensure the connection of the WAN. After passing the times you set in this field and no reply received by the router, the connection of WAN interface will be regarded as breaking down.

Detect Destination Host (IP or Domain Name)

Assign an IP address or Domain name as a destination to be detected whether the host is active (sending reply to the router) or not. If not, the connection of WAN interface will be regarded as breaking down. This function is available when **Detect Type** is set with **Send PING** or **Send Http Request**.

Apply

Click **Apply** to go back to the WAN Interface Configuration page. To apply all settings, click **Apply** on the WAN Interface Configuration page and reboot your router.

Reset

Click this button to clear all the configurations for this page.

PPPoE with a DSL Modem Setup

Most DSL modem users will use this mode. All the local users can share one PPPoE connection to access the Internet.

Static/DHCP Configuration	PPPoE/PPTP Configuration	DMZ Configuration
User Name :	<input type="text" value="1234@hinet.net"/>	PPTP Local Address : <input type="text" value="10.66.99.88"/>
Password :	<input type="password" value="••••"/>	PPTP Subnet Mask : <input type="text" value="255.255.255.0"/>
Authentication :	<input type="text" value="PAP"/>	PPTP Server Address : <input type="text" value="172.66.99.88"/>
Service Name :	<input type="text"/>	
PPPoE IP Alias :	<input checked="" type="checkbox"/> Enable	
MTU :	<input type="text" value="1442"/>	
IP Address Assignment Method (IPCP)		
Fixed IP :	<input checked="" type="radio"/> No (Dynamic IP) <input type="radio"/> Yes	
Fixed IP Address :	<input type="text"/>	
Connection Detection		
Detect Interval :	<input type="text" value="10"/>	
No-Reply Count :	<input type="text" value="2"/>	
IP Alias List		
1.	<input type="text" value="10.1.1.100"/>	2. <input type="text" value="10.1.1.101"/>
3.	<input type="text" value="10.1.1.102"/>	4. <input type="text"/>
5.	<input type="text"/>	6. <input type="text"/>
7.	<input type="text"/>	8. <input type="text"/>
9-32		
<input type="button" value="Apply"/> <input type="button" value="Reset"/> <input type="button" value="Cancel"/>		

User Name

Assign a specific valid user name provided by local ISP.

Password

Assign a valid password provided by local ISP.

Authentication

Select **PAP**, **CHAP**, **MS-CHAP** or **MS-CHAP-V2** protocol for PPP authentication according to the feature that your ISP provided for widest compatibility. The default value is **PAP**. The password will be encrypted in CHAP but not in PAP.

PAP	▼
PAP	
CHAP	
MS-CHAP	
MS-CHAP-V2	

Service Name

Assign a service name required for some ISP services.

PPPoE IP Alias

Set other IP addresses binding in this interface. You can set up to 32 sets of IP alias settings. If you have typed addresses here, you can see and choose it in later web page settings (e.g., **Advanced >> NAT>>Port Redirection/DMZ Host**).

Detect Interval

Assign an interval time for detecting if the WAN connection is on or off.

No-Reply Count

Assign detecting times to ensure the connection of the WAN. After passing the times you set in this field and no reply received by the router, the connection of WAN interface will be regarded as breaking down.

Apply

Click **Apply** to go back to the WAN Interface Configuration page. To apply all settings, click **Apply** on the WAN Interface Configuration page and reboot your router.

Reset

Click this button to clear all the configurations for this page.

PPTP with a DSL Modem Setup

The service provider must provide the exact settings for this mode.

Static/DHCP Configuration	PPPoE/PPTP Configuration	DMZ Configuration
User Name :	<input type="text" value="1234@hinet.net"/>	PPTP Local Address : <input type="text" value="10.66.99.88"/>
Password :	<input type="password" value="••••"/>	PPTP Subnet Mask : <input type="text" value="255.255.255.0"/>
Authentication :	<input type="text" value="PAP"/> ▼	PPTP Server Address : <input type="text" value="172.66.99.88"/>
Service Name :	<input type="text"/>	
PPPoE IP Alias :	<input checked="" type="checkbox"/> Enable	
MTU :	<input type="text" value="1442"/>	
IP Address Assignment Method (IPCP)		
Fixed IP :	<input checked="" type="radio"/> No (Dynamic IP) <input type="radio"/> Yes	
Fixed IP Address :	<input type="text"/>	
Connection Detection		
Detect Interval :	<input type="text" value="10"/>	
No-Reply Count :	<input type="text" value="2"/>	
<input type="button" value="Apply"/> <input type="button" value="Reset"/> <input type="button" value="Cancel"/>		

User Name

Assign a specific valid user name provided by local ISP.

Password

Assign a valid password provided by local ISP.

Authentication

Select **PAP**, **CHAP**, **MS-CHAP** or **MS-CHAP-V2** protocol for PPP authentication according to the feature that your ISP provided for widest compatibility. The default value is **PAP**. The password will be encrypted in CHAP but not in PAP.

PAP ▼
PAP
CHAP
MS-CHAP
MS-CHAP-V2

Service Name

Assign a service name required for some ISP services.

PPTP Local Address

Assign a local IP address.

PPTP Subnet Mask

Assign a subnet mask value of IP address.

PPTP Remote Address

Assign a remote IP address of PPTP server.

Detect Interval Assign an interval time for detecting if the WAN connection is on or off.

No-Reply Count Assign detecting times to ensure the connection of the WAN. After passing the times you set in this field and no reply received by the router, the connection of WAN interface will be regarded as breaking down.

Apply Click **Apply** to go back to the WAN Interface Configuration page. To apply all settings, click **Apply** on the WAN Interface Configuration page and reboot your router.

Reset Click this button to clear all the configurations for this page.

DMZ Configuration

In computer networks, a DMZ (De-Militarized Zone) is a computer host or small network inserted as a neutral zone between a company's private network and the outside public network. It prevents outside users from getting direct access to company network. A DMZ is an optional and more secure approach to a firewall and effectively acts as a proxy server as well. In a typical DMZ configuration for a small company, a separate computer (or host in network terms) receives requests from users within the private network for access to Web sites or other companies accessible on the public network. The DMZ host then initializes sessions for these requests on the public networks. However, the DMZ host is not able to initiate a session back into the private network. It can only forward packets that have already been requested. Users of the public network outside the company can access only the DMZ host. **The DMZ may typically also have the company's Web pages so these could be served to the outside world.** If an outside user penetrated the DMZ host's security, only the Web pages will be corrupted but other company information would not be exposed.

The service provider must provide the exact settings for this mode.

Static/DHCP Configuration	PPPoE/PPTP Configuration	DMZ Configuration	
IP Address :	<input type="text"/>		
Subnet Mask :	<input type="text"/>		
DMZ Host Type :	NAT Mode		
Outgoing Interface :	WAN2		
DMZ Host IP List(Only Routing Mode)			
1.	<input type="text"/>	2.	<input type="text"/>
3.	<input type="text"/>	4.	<input type="text"/>
5.	<input type="text"/>	6.	<input type="text"/>
7.	<input type="text"/>	8.	<input type="text"/>
<input type="button" value="Apply"/> <input type="button" value="Reset"/> <input type="button" value="Cancel"/>			

IP Address Set the private IP address of WAN interface.

Subnet Mask Set the subnet mask value of WAN interface.

- DMZ Host Type** Choose **NAT Mode** or **Routing Mode** as the DMZ host type.
- Outgoing Interface** This setting is available when Routing Mode selected as DMZ host type.
- DMZ Host IP List** When DMZ Host type is set as **Routing Mode**, please type the IP address here to be chosen in IP Alias in **Advanced>>NAT>>DMZ Host**.

3.2.2 Load Balance Policy

Vigor3300 Series supports a load balancing function. 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. User can assign traffic category and force it to go to dedicate network interface based on the following web page setup. VoIP and VPN traffic can also be assigned to specific WAN ports.

In the **Network** group, click the **Load Balance Policy** option. You will get the following page.

#	Protocol	Source IP	Subnet Mask	Dest IP	Subnet Mask	Dest Port Start	Dest Port End	Network Interface	Strict Bind
1	<input checked="" type="radio"/>								<input checked="" type="checkbox"/>
2	<input type="radio"/>								<input type="checkbox"/>
3	<input type="radio"/>								<input type="checkbox"/>
4	<input type="radio"/>								<input type="checkbox"/>
5	<input type="radio"/>								<input type="checkbox"/>
6	<input type="radio"/>								<input type="checkbox"/>
7	<input type="radio"/>								<input type="checkbox"/>
8	<input type="radio"/>								<input type="checkbox"/>
9	<input type="radio"/>								<input type="checkbox"/>
10	<input type="radio"/>								<input type="checkbox"/>

1

- Protocol** Display the protocol used for this entry.
- Source IP** Display the source IP address specified for this entry.
- Subnet Mask** Display the subnet mask address specified for the source IP of this entry.
- Dest IP** Display the destination IP address specified for this entry.
- Subnet Mask** Display the subnet mask address specified for the destination IP of this entry.
- Dest Port Start** Display the start point specified in the **Dest Port Range** for this entry.
- Dest Port End** Display the end point specified in the **Dest Port Range** for this entry.

Network Interface	Display the interface specified for this entry.
Strict Bind	Display the status of Strict Bind.
Edit	Click this button to open the edit page for adjusting the settings.
Delete/Delete All	Click this button to delete the selected setting or all settings. A confirmation dialog box will appear. Click OK to delete this entry from the Load Balance Policy table. In addition, click Delete All in the Load Balance Policy page to delete all of 10 entries on this page.

To edit an entry, select it by clicking the radio button (from 1 to 10). Then click the **Edit** button on the bottom to bring up the following Web page.

The screenshot shows a web page titled "Network - Load Balance Policy - Edit". The page contains a form for editing a policy entry. The form has the following fields:

- Protocol: A dropdown menu with "ALL" selected.
- Source IP / Subnet Mask: Two text input fields separated by a slash.
- Dest IP / Subnet Mask: Two text input fields separated by a slash.
- Dest Port Range: Two text input fields separated by a dash.
- Network Interface: A dropdown menu with "WAN1" selected.
- Strict Bind: A checkbox that is currently unchecked.

At the bottom right of the form, there are two buttons: "Apply" and "Cancel".

Protocol Select the desired protocol for the selected entry.

The screenshot shows a dropdown menu for the Protocol field. The menu is open, displaying a list of protocols. The "ALL" option is currently selected and highlighted in blue. The other options in the list are:

- TCP/UDP
- TCP
- UDP
- ICMP
- FTP
- TFTP
- HTTP
- SMTP
- POP3

Source IP/Subnet Mask Assign a source IP address and subnet of certain host in LAN for applying load balance policy.

Dest IP/Subnet Mask Assign a destination IP address and subnet of certain host in LAN for applying load balance policy.

Dest Port Range Assign a destination port number range. The port range is from 1 to 65535. If you choose **All** as the protocol, you don't need to type any number here.

Network Interface Select an interface (WAN1 to WAN4) to be forwarded to.

Strict Bind Packets fitting the above settings can be routed through the selected interface only. Check this box to invoke this function.

3.2.3 Auto Load Balance

Because the network between China Telecom and China CNC are disconnected, such function is designed to do auto load balance and separate the packets among China Telecom, China CNC and other regions via different WAN interfaces. For example, if you check WAN1 and WAN4 for China Telecom, packets belong to China Telecom will pass through the specified WAN interfaces only; and load balance will be done between WAN1 and WAN4.

	WAN1	WAN2	WAN3	WAN4
Auto Load Balance :	<input checked="" type="radio"/> Disable <input type="radio"/> Enable			
China Telecom :	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
China CNC :	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other Traffic :	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Auto Load Balance

Choose **Enable** to invoke the auto load balance function for your devices.

China Telecom

A telecom company.

China CNC

A telecom company.

Other Traffic

Regions that are not belonged to China Telecom and China CNC.

3.2.4 LAN

In the **Network** group, select **LAN** option. The following page for LAN IP/DHCP will be shown.

Network - LAN

LAN IP/DHCP | DHCP Relay Agent | IP Routing

IP Configuration

IP Address :

Subnet Mask :

DHCP Server

Status : Enable Disable Relay Agent

Start IP :

End IP :

Primary DNS :

Secondary DNS :

Lease Time (Min) :

Gateway IP(Optional) :

For LAN IP/DHCP

In the Vigor3300 Series router, there are some IP address settings for the LAN interface. The IP address/subnet mask is for private users or NAT users. The IP address of the default gateway on other local PCs should be set as the Vigor3300 Series' server IP address. When the DSL connection between the DSL and the ISP has been established, each local PC can directly route to the Internet. The IP address/subnet mask can also be used to connect to other private users (PCs). On this page you will see the private IP address defined in RFC-1918. Usually we use the 192.168.1.0/24 subnet for the route.

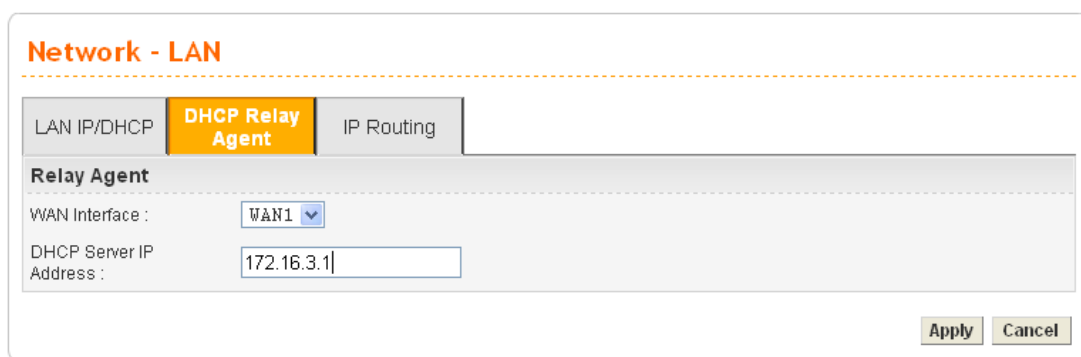
IP Address	Type the IP address for LAN/DHCP.
Subnet Mask	Type the subnet mask for the LAN IP/DHCP.
Status	Click Enable the DHCP server; click Disable to close DHCP server; click Relay Agent to close DHCP sever and do the job of DHCP server. Corresponding settings for Relay Agent can be configured in the page of DHCP Relay Agent .
Start IP	Set the starting IP address of the IP address pool for DHCP server.
End IP	Set the ending IP address of the IP address pool for DHCP server.
Primary DNS	Set the private IP address of the primary DNS.
Secondary DNS	Set the private IP address of the secondary DNS.
Lease Time (Min)	Set a lease time for the DHCP server. The time unit is minute.
Gateway IP (Optional)	Set a gateway IP address for the DHCP server.

Click **Apply** to reboot the system and apply the settings.

Note: If both the Primary and Secondary DNS 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.

For DHCP Relay Agent

This page allows users to specify which subnet that DHCP server is located the relay agent should redirect the DHCP request to.



The screenshot shows a web interface for configuring the DHCP Relay Agent. At the top, there is a header "Network - LAN" with a dashed orange line below it. Below the header are three tabs: "LAN IP/DHCP", "DHCP Relay Agent" (which is highlighted in orange), and "IP Routing". Under the "DHCP Relay Agent" tab, there is a section titled "Relay Agent". This section contains two fields: "WAN Interface" with a dropdown menu showing "WAN1" and "DHCP Server IP Address" with a text input field containing "172.16.3.1". At the bottom right of the form, there are two buttons: "Apply" and "Cancel".

WAN Interface Choose the WAN interface for applying relay agent.

DHCP Server IP Address Type the IP address for the DHCP server.

For IP Routing

This page allows users to type in secondary IP address for connecting to a subnet. You can set IP routing for each WAN interface respectively.

Network - LAN

LAN IP/DHCP	DHCP Relay Agent	IP Routing
WAN1		
Status:	<input checked="" type="radio"/> Enable <input type="radio"/> Disable	
IP Address:	<input type="text" value="10.1.1.3"/>	
Subnet Mask:	<input type="text" value="255.255.255.0"/>	
WAN2		
Status:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable	
IP Address:	<input type="text"/>	
Subnet Mask:	<input type="text"/>	
WAN3		
Status:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable	
IP Address:	<input type="text"/>	
Subnet Mask:	<input type="text"/>	
WAN4		
Status:	<input type="radio"/> Enable <input checked="" type="radio"/> Disable	
IP Address:	<input type="text"/>	
Subnet Mask:	<input type="text"/>	

Status Click **Enable** or **Disable** to activate or close the IP routing of specific WAN interface.

IP Address Type an IP address for the WAN interface (WAN1/WAN2/WAN3/WAN4).

Subnet Mask Type the subnet mask for the WAN interface (WAN1/WAN2/WAN3/WAN4).

LAN Interface Select a proper LAN interface for WAN interface (WAN1/WAN2/WAN3/WAN4).

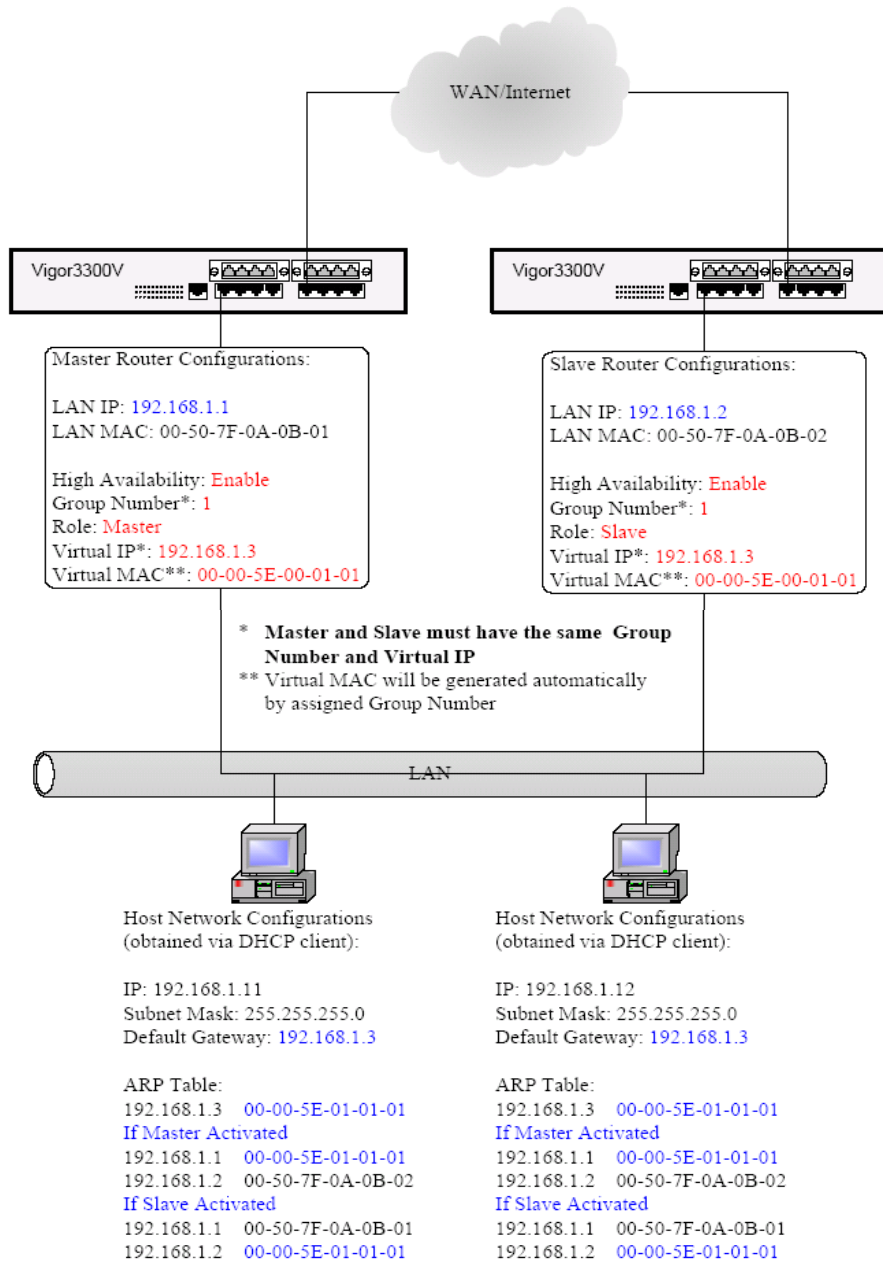
Note: Vigor3300V supports four WAN interfaces, yet Vigor3300/Vigor3300B+ support three WAN interfaces. That is, #WAN4 will be disabled for Vigor3300/Vigor3300B+.

3.2.4 High Availability

The High Availability (HA) feature refers to the awareness of component failure and the availability of backup resources. The complexity of HA is determined by the availability needs and the tolerance of system interruptions. Systems, that provides nearly full-time availability, typically have redundant hardware and software that makes the system available despite failures.

The high availability of the V3300 Series is designed to avoid single points-of-failure. When failures occur, the failover process moves processing performed by the failed component (the “Master”) to the backup component (the “Slave”). This process remains system-wide resources, recovers partial of failed transactions, and restores the system to normal within a matter of microseconds.

Take the following picture as an example. The left V3300 Series is regarded as Master device, the right V3300 Series is regarded as Slave device. When Master V3300 Series is broken down, the Slave device could replace the Master role to take over all jobs as soon as possible. However, once the original Master is working again, the Slave would be changed to original role to stand by.



In the **Network** group, click the **High availability** option.

High Availability

Network - LAN - High Availability

Basic Status | 802.1Q Status

High Availability: Disable Enable

Group Number: (Range: 1~255)

Role:

Virtual IP:

Apply Cancel

High Availability

Disables or enables this function. When the master device fails down, the slave device will take its work over.

Group Number

Assign a group number. The range is from 1 to 255. PCs on the same group (in LAN) can support for each other.

Role

Select a role for this device as Master or Slave.

Virtual IP

Assign an IP address as a virtual IP.

Click **Apply** to reboot the system and apply the settings.

802.1Q Status

This page allows you to set High Availability for LAN ports (1 ~ 4) respectively.

The screenshot displays the 'Network - LAN - High Availability' configuration interface. It features a tabbed interface with 'Basic Status' and '802.1Q Status' tabs. The '802.1Q Status' tab is active, showing settings for four LAN ports: LAN1, LAN2, LAN3, and LAN4. Each port configuration includes a 'High Availability' section with 'Disable' (selected) and 'Enable' radio buttons. Below this are fields for 'Group Number' (range 1-255), 'Role' (dropdown menu set to 'Master'), and 'Virtual IP'. At the bottom right, there are 'Apply' and 'Cancel' buttons.

High Availability

Disables or enables this function. When the master device fails down, the slave device will take its work over.

Group Number

Assign a group number. The range is from 1 to 255. PCs on the same group (in LAN) can support for each other.

Role

Select a role for this device as Master or Slave.

Virtual IP

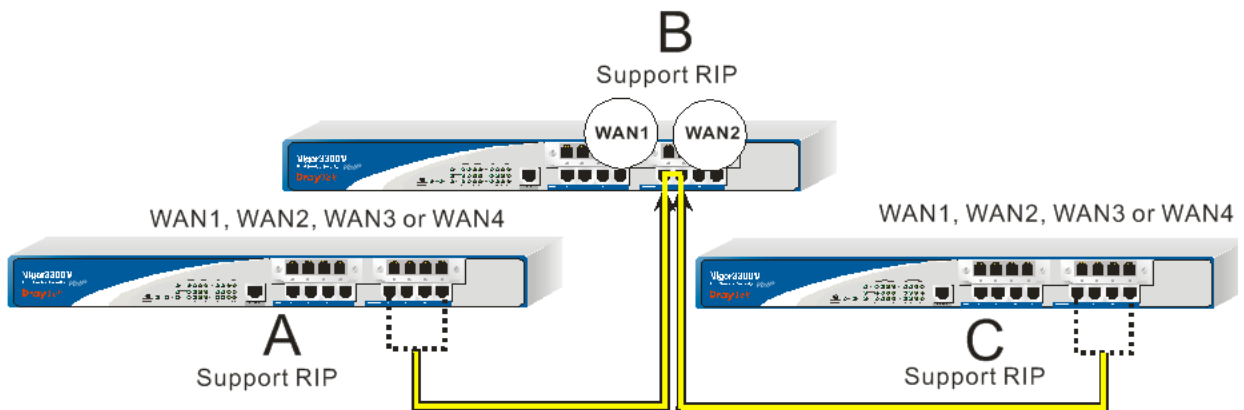
Assign an IP address as a virtual IP.

Click **Apply** to reboot the system and apply the settings.

3.2.5 RIP Configuration

The Routing Information Protocol (RIP) is a dynamic routing protocol used in local and wide area networks. The routing information packet will be sent out by web server or router periodically, and can be used to communicate with other routers. It will calculate the number of network nodes on the route to ensure there is no obstruction on the network routine. In addition, it will choose a correct route based on the method of Distance Vector Routing and use the Bellman-Ford algorithm to calculate the routing table.

RIP can update the routing table automatically and find a route to send packet. See the following figure as an example:



Suppose Vigor3300 A supports RIP on WAN1/WAN2/WAN3/WAN4, Vigor3300 B supports RIP on WAN1 and WAN2, and Vigor3300 C supports RIP on WAN1/WAN2/WAN3/WAN4.

Vigor3300 B will tell 3300 A "if you want to send packets to Vigor3300 C, please send it to me first", then Vigor3300 A will create a routing rule to forward packet that destination is Vigor3300 C to Vigor3300 B.

In another direction, Vigor3300 C will do the same thing.

Network - RIP Configuration

Disable
 Enable

Enabled Interface(s) :

- WAN 1
- WAN 2
- WAN 3
- WAN 4

Enable/Disable

Disables or enables this function.

Enabled Interface

Check the interface to apply the RIP configuration.

Apply

After finishing the configuration, please click this button to invoke these settings.

3.2.6 Bandwidth Management

This function is used to limit user bandwidth.



General Setup

This function allows users to configure general settings for bandwidth management. In the **Network** group, choose **Bandwidth Management** and then **General Setup**. You will get the following page.

Network - Bandwidth Management - General Setup

Limit Bandwidth : Disable Enable

Default TX limit : Kbps

Default RX limit : Kbps

Enable/Disable

Disables or enables this function.

Default TX Limit

Define the default speed of the upstream for each computer in LAN. The default value is 1024.

Default RX limit

Define the default speed of the downstream for each computer in LAN. The default value is 1024.

Apply

After finishing the configuration, please click this button to invoke these settings.

Limitation Table

This function allows users to set limitation for bandwidth management. In the **Network** group, choose **Bandwidth Management** and then **Limitation Table**. You will get the following page.

Network - Bandwidth Management - Limitation Table

#	Start IP	End IP	TX Limit	RX Limit
1	<input checked="" type="radio"/>			
2	<input type="radio"/>			
3	<input type="radio"/>			
4	<input type="radio"/>			
5	<input type="radio"/>			
6	<input type="radio"/>			
7	<input type="radio"/>			
8	<input type="radio"/>			
9	<input type="radio"/>			
10	<input type="radio"/>			

Start IP

Display the start IP address of bandwidth.

End IP

Display the End IP address of bandwidth.

TX Limit	Display the size limit for the transmitted packets.
RX Limit	Display the size limit for the received packets.
Edit	Click this button to open the edit page for adjusting the settings.
Delete/Delete All	Click this button to delete the selected setting or all settings. A confirmation dialog box will appear. Click OK to delete this entry from the Load Balance Policy table. In addition, click Delete All in the Load Balance Policy page to delete all of 10 entries on this page.

To edit an entry, select it by clicking the radio button (from 1 to 10). Then click the **Edit** button on the bottom to bring up the following Web page.

The screenshot shows a web interface titled "Network - Bandwidth Management - Limitation Table - Edit". It contains a table with one row for index "1". The row has four input fields: "Start IP:", "End IP:", "TX Limit:" (with "Kbps" next to it), and "RX Limit:" (with "Kbps" next to it). At the bottom right of the form area, there are two buttons: "Apply" and "Cancel".

Start IP/End IP	Assign the IP range for the bandwidth management.
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.
Apply	After finishing the configuration, please click this button to invoke these settings.

3.2.7 Limit Session

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 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.



General Setup

This function allows users to configure general settings for limit session. In the **Network** group, choose **Limit Session** and then **General Setup**. You will get the following page.

Network - Limit Session - General Setup

Limit Session : Disable Enable

Default Session Limit :

Enable/Disable

Disables or enables this function.

Default Session Limit

Defines the default session number used for each computer in LAN.

Apply

After finishing the configuration, please click this button to invoke these settings.

Limitation Table

This function allows users to set limitation for limit session. In the **Network** group, choose **Limit Session** and then **Limitation Table**. You will get the following page.

Network - Limit Session - Limitation Table

#	Start IP	End IP	Session Number
1	<input checked="" type="radio"/>		
2	<input type="radio"/>		
3	<input type="radio"/>		
4	<input type="radio"/>		
5	<input type="radio"/>		
6	<input type="radio"/>		
7	<input type="radio"/>		
8	<input type="radio"/>		
9	<input type="radio"/>		
10	<input type="radio"/>		
			1

Start IP

Display the start IP address.

End IP

Display the end IP address.

Session Number

Display the session number.

Edit

Click this button to open the edit page for adjusting the settings.

Delete/Delete All

Click this button to delete the selected setting or all settings. A confirmation dialog box will appear. Click **OK** to delete this

entry from the Load Balance Policy table. In addition, click **Delete All** in the Load Balance Policy page to delete all of 10 entries on this page.

To edit an entry, select it by clicking the radio button (from 1 to 10). Then click the **Edit** button on the bottom to bring up the following Web page.

Network - Limit Session - Limitation Table - Edit

1	
Start IP :	<input type="text" value="192.168.1.86"/>
End IP :	<input type="text" value="192.168.1.150"/>
Session Number :	<input type="text" value="36"/>

Start IP Assign the start IP address for limit session.

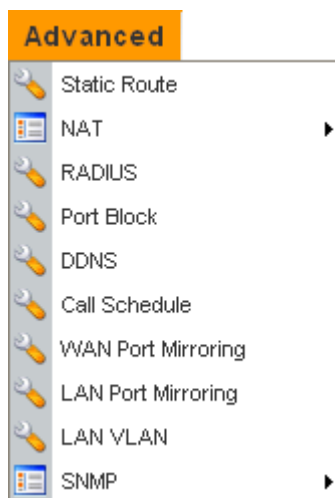
End IP Assign the end IP address for limit session.

Session Number Assign 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.

Apply After finishing the configuration, please click this button to invoke these settings.

3.3 Advanced Setup

In the **Advanced** menu, there are several items offered here for you to adjust for the router.



3.3.1 Static Route Setup

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 methods. You may simply set rules to forward data from one specified subnet to another specified subnet without the presence of RIP.

This function allows users to assign static routing information. In the **Advanced** group, choose **Static Route**. You will get the following page.

#	Network Interface	Destination IP	Gateway IP	Mask
1	<input checked="" type="radio"/>			
2	<input type="radio"/>			
3	<input type="radio"/>			
4	<input type="radio"/>			
5	<input type="radio"/>			
6	<input type="radio"/>			
7	<input type="radio"/>			
8	<input type="radio"/>			
9	<input type="radio"/>			
10	<input type="radio"/>			

1

Network Interface Display the network interface (LAN, WAN1, 2, 3 or 4).

Destination IP Display the destination IP of the static route.

Gateway IP Display the gateway address of the static route.

Mask Display the subnet mask of this route.

Edit Allow users to edit the selected static route settings.

Delete/Delete All Removes one or all the selected static route settings.

The system allows users to set up to 10 static routes for the router.

Edit the Static Route

To edit static route for certain item, select the radio button of the item and click **Edit** on the bottom of the page. The following web page will be displayed:

1

Network Interface :

Gateway IP :

Destination IP :

Subnet Mask :

Network Interface Select a network interface as a destination to be sent. It includes LAN, and WAN1~WAN4.

Gateway IP Assign an IP address of the gateway for the interface selected above.

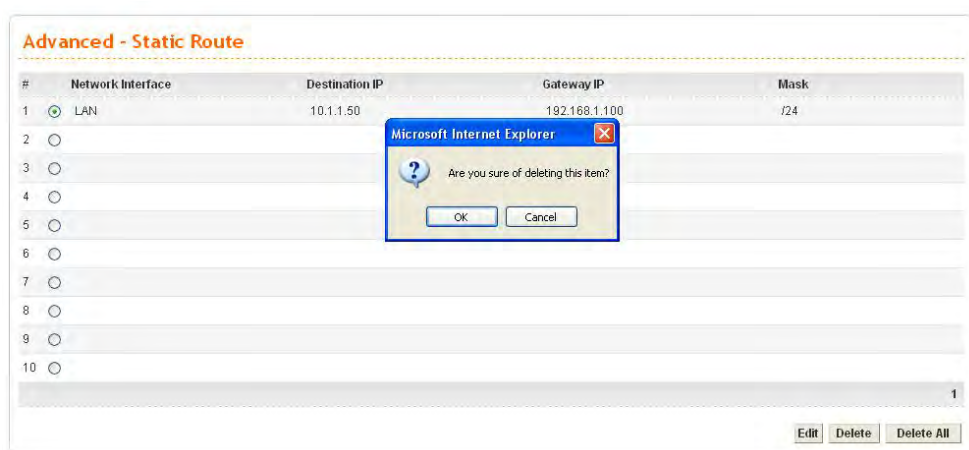
Destination IP Assign the IP address of the destination that data will be transferred to. Packets ready to destination will be sent out through the network interface chosen in this page.

Subnet Mask Assign a value of subnet mask for destination IP address.

Click **Apply** to reboot the system and apply the settings.

Delete the Static Route

Select the radio button of the item that you want to delete and click **Delete** on the bottom of the page. The following web page will be displayed:



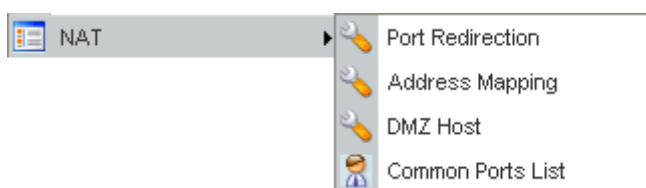
Click **OK** to delete the entry in static route table.

Users can click **Delete All** to remove all entries in static route table.

3.3.2 NAT Setup

NAT (Network Address Translation) is a method of mapping one or more IP addresses and/or service ports into different specified services. It allows the internal IP addresses of many computers on a LAN to be translated to one public address to save costs and resources of multiple public IP addresses. It also plays a security role by obscuring the true IP addresses of important machines from potential hackers on the Internet. The Vigor 3300 Series is NAT-enabled by default and gets one globally routable IP addresses from the ISP by Static, PPPoE, or DHCP mechanism. The Vigor3300 Series assigns private network IP addresses according to RFC-1918 protocol and translates the private network addresses to a globally routable IP address so that local hosts can communicate with the router and access the Internet.

In the **Advanced** group, click the **NAT** option.



There are four functions that NAT provides – **Port Redirection**, **Address Mapping**, **DMZ Host** and **Common Ports List**.

Port Redirection

Port Redirection means port forwarding. It may be used to expose internal servers to the public domain or open a specific port to internal hosts. Internet hosts can use the WAN IP address to access internal network services, such as FTP, WWW and etc. The internal FTP server is running on the local host addressed as 192.168.1.2. When other users send this type of request to your network through the Internet, the router will direct these requests to an appropriate host inside. A user can also translate the port to another port by configuration. For example, port number with 1024 can be transferred into IP address of 192.168.1.100 of LAN. The packet is forwarded to a specific local host if the port number matches that defined in the table. In the **Advanced** group, move to **NAT** option and choose **Port Redirection** to get the corresponding page.

Advanced - NAT - Port Redirection

#	Profile Status	Comment	Protocol	Public Port Start	Public Port End	Private IP	Private Port Start	Private Port End	Use IP Alias	WAN Interface	IP Alias
1	<input checked="" type="radio"/> Enable	Test	UDP	88	150	192.168.1.153	88	150	Disable	WAN1	
2	<input type="radio"/>										
3	<input type="radio"/>										
4	<input type="radio"/>										
5	<input type="radio"/>										
6	<input type="radio"/>										
7	<input type="radio"/>										
8	<input type="radio"/>										
9	<input type="radio"/>										
10	<input type="radio"/>										

1

Profile Status	Display the status (enabled or disabled) of this profile.
Comment	Display the name of the entry.
Protocol	Display the protocol used for the entry.
Public Port Start	Display the start point in the range of public port.
Public Port End	Display the end point in the range of public port.
Private IP	Display the private IP used for this entry.
Private Port Start	Display the start point in the range of private port.

Private Port End	Display the end point in the range of private port.
Use IP Alias	Display the using status for WAN IP alias.
WAN Interface	Display the WAN interface of this profile.
IP Alias	Display the selected WAN IP address.
Edit	Allow users to edit the selected port redirection settings.
Delete/Delete All	Removes one/all the selected port redirection settings.

To edit an item, click the radio button of the item that you want to modify. Then click **Edit** on the bottom of the page to add a new rule entry or modify an existed rule entry.

Profile Status	Enable or disable this function.
Comment	Assign a name for this entry. The maximum is 20 characters.
Protocol	Assign the transport layer protocol with TCP or UDP .
Public Port Range	Assign a port range from starting to end public port number. The port range is from 1 to 65535.
Private IP	Assign a local IP address to be transferred into.
Private Port Range	Assign a port range from starting to end private port number.
Use IP Alias	“ Disable ” option uses IP address of WAN interface, “ Enable ” option uses IP alias addresses.
WAN Interface	It is a pull-down window; user can select one specific WAN interface.
IP Alias	It is a pull-down window; user can select one specific IP address assigned in IP Alias group of WAN interfaces.

Click **Apply** to reboot the system and apply the settings.

Note: The port forwarding function could redirect the Internet traffic, which has the destination port within the public port range and has the same IP address as WAN Interface or

IP Alias that you set. Please redirect only the ports that you have to forward rather than forward all ports. Otherwise, the intrinsic firewall type security of NAT facility will be affected.

By the way, user can click **Delete** to remove one current existed NAT entry in the **Advanced – NAT – Port Redirection** page and click **Delete All** to remove all entries.

Address Mapping

If you have a group of static IP addresses, then you can use the address-mapping feature to multiple open ports hosts in the Vigor3300 Series of broadband security routers. The following session will show you how to setup address-mapping feature.

In the **Advanced** group, move to **NAT** option and choose **Address Mapping** to get the corresponding page.

#	Protocol	Public IP	Private IP	Mask
1	<input checked="" type="radio"/>			
2	<input type="radio"/>			
3	<input type="radio"/>			
4	<input type="radio"/>			
5	<input type="radio"/>			
6	<input type="radio"/>			
7	<input type="radio"/>			
8	<input type="radio"/>			
9	<input type="radio"/>			
10	<input type="radio"/>			

1

- Protocol** Display the protocol used for this address mapping.
- Public IP** Display the public IP address selected for this entry.
- Private IP** Display the private IP set for this address mapping.
- Mask** Display the subnet mask selected fro this address mapping.
- Edit** Allow users to edit the selected address mapping settings.
- Delete/Delete All** Remove one/all the selected address mapping settings.

To edit an item, click the radio button of the item that you want to modify. Then click **Edit** on the bottom of the page to add a new rule entry or modify an existed rule entry.

1

Protocol :

Public IP :

Private IP :

Subnet Mask :

Protocol	Select the transport layer protocol. It could be TCP , UDP , or All for selection.
Public 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 on 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 Apply , a message will appear to inform you.
Private IP	Assign an IP address or a subnet to be compared with the source IP address for incoming packets.
Subnet Mask	Select a value of subnet mask for private IP address.

Click **Apply** to reboot the system and apply the settings.

By the way, user can click **Delete** to remove one current existed NAT entry in the **Advanced – NAT – Address Mapping** page and click **Delete All** to remove all entries.

DMZ Host

In computer networks, a DMZ (De-Militarized Zone) is a computer host or small network inserted as a neutral zone between a company's private network and the outside public network. It prevents outside users from getting direct access to company network. A DMZ is an optional and more secure approach to a firewall and effectively acts as a proxy server as well. In a typical DMZ configuration for a small company, a separate computer (or host in network terms) receives requests from users within the private network for access to Web sites or other companies accessible on the public network. The DMZ host then initializes sessions for these requests on the public networks. However, the DMZ host is not able to initiate a session back into the private network. It can only forward packets that have already been requested. Users of the public network outside the company can access only the DMZ host. **The DMZ may typically also have the company's Web pages so these could be served to the outside world.** If an outside user penetrated the DMZ host's security, only the Web pages will be corrupted but other company information would not be exposed.

In the **Advanced** group, move to **NAT** option and choose **DMZ Host** to get the corresponding page.

Advanced - NAT - DMZ Host

#	WAN Interface	Private IP	Use IP Alias	IP Alias
1	<input checked="" type="radio"/> WAN1	192.168.1.10	Disable	
2	<input type="radio"/>			
3	<input type="radio"/>			
4	<input type="radio"/>			
5	<input type="radio"/>			
6	<input type="radio"/>			
7	<input type="radio"/>			
8	<input type="radio"/>			
9	<input type="radio"/>			
10	<input type="radio"/>			

1

WAN Interface

Display the WAN interface chosen for this entry.

Private IP

Display the private IP address of this entry.

Use IP Alias

Display the activation status (enable or disable) of this DMZ host.

IP Alias

Display the WAN IP address.

Edit

Allow users to edit the selected DMZ host settings.

Delete/Delete All

Remove one/all the selected DMZ host settings.

To edit an item, click the radio button of the item that you want to modify. Then click **Edit** on the bottom of the page to add a new rule entry or modify an existed rule entry.

Advanced - NAT - DMZ Host - Edit

1

WAN Interface :

Private IP :

Use IP Alias : Disable Enable

IP Alias :

WAN Interface

Select a WAN interface as the channel for DMZ host.

Private IP

Assign an IP address of DMZ server to be permitted for access from outside.

Use IP Alias

Disable option uses WAN interface, **Enable** option uses IP Alias addresses.

IP Alias

Select an IP address which are set within the list of IP Alias configured in **Network >>WAN** interface.

Apply

Click **Apply** to reboot the system and apply the settings.

Common Ports List

This page lists common ports used in Internet. The information includes service/application, protocol for that service and port number of that service.

Advanced - NAT - Common Ports List		
Service / Application	Protocol	Port Number
File Transfer Protocol (FTP)	TCP	21
SSH Remote Login Protocol (ex. pcAnyWhere)	UDP	22
Telnet	TCP	23
Simple Mail Transfer Protocol (SMTP)	TCP	25
Domain Name Server (DNS)	UDP	53
WWW Server (HTTP)	TCP	80
Post Office Protocol ver.3 (POP3)	TCP	110
Network News Transfer Protocol (NNTP)	TCP	119
Point-to-Point Tunneling Protocol (PPTP)	TCP	1723
pcANYWHEREdata	TCP	5631
pcANYWHEREstat	UDP	5632
WinVNC	TCP	5900

3.3.3 RADIUS Setup

A RADIUS (Remote Authentication Dial-In User Service) is a security authentication client/server protocol widely used by Internet service providers on other remote access service. A RADIUS is the most common means of authenticating and authorizing dial-up and tunneled network users. The built-in RADIUS client function allows you to extend the remote dial-in user accounts to the RADIUS server. **Your user accounts will not be limited by built-in accounts** (in VPN>>PPTP>>User Profile). It also lets you centralize remote access authentication for network management.

Radius is a server for remote user authentication and accounting. Its primary use is for Internet Service Providers, though it may as well be used on any network that needs a centralized authentication and/or accounting service. A Radius supports a wide variety of authentication schemes. A user supplies his authentication data to the server either directly by answering the terminal server's login/password prompts, or using **PAP** or **CHAP** protocols.

The Vigor 3300 Series support Radius client function. A user can configure some authentication information to do an authentication with Radius server. **In Vigor3300 Series, it is only applied by VPN->PPTP function.**

In the **Advanced** group, click the **Radius** option. You will get the following page.

Advanced - RADIUS

Disable
 Enable

Server IP Address :

Destination Port :

Shared Secret :

Confirm Shared Secret :

WAN Interface :

Enable/Disable

Click **Disable** to disable this function. Click **Enable** to activate this function.

Server IP Address

Assign an IP address of a Radius server.

Destination Port

Assign a destination port number used for Radius function.

Shared Secret

Assign a code for authentication to server. The RADIUS server and client share a secret which is used to authenticate the messages sent between them. Both sides must be configured to use the same shared secret.

Confirm Shared Secret

Confirm the code assigned in Shared Secret field.

WAN Interface

Select one specific WAN interface to be used.

Click **Apply** to reboot the system and apply the settings.

3.3.4 Port Block

The **Port Block** function provides a user to set lots of proprietary port numbers. Packets will be dropped if destination ports (both TCP and UCP) of packets with these assigned port numbers are on WAN and LAN. The advantage of this feature is to filter some unnecessary packets or attacking packets on Internet environment or LAN network. Vigor3300 Series supports ten port numbers to be blocked.

In the **Advanced** group, click **Port Block** option. You will get the following page.

Index	Status	Port Number
1.	<input checked="" type="radio"/> Disable <input type="radio"/> Enable	<input type="text"/>
2.	<input checked="" type="radio"/> Disable <input type="radio"/> Enable	<input type="text"/>
3.	<input checked="" type="radio"/> Disable <input type="radio"/> Enable	<input type="text"/>
4.	<input checked="" type="radio"/> Disable <input type="radio"/> Enable	<input type="text"/>
5.	<input checked="" type="radio"/> Disable <input type="radio"/> Enable	<input type="text"/>
6.	<input checked="" type="radio"/> Disable <input type="radio"/> Enable	<input type="text"/>
7.	<input checked="" type="radio"/> Disable <input type="radio"/> Enable	<input type="text"/>
8.	<input checked="" type="radio"/> Disable <input type="radio"/> Enable	<input type="text"/>
9.	<input checked="" type="radio"/> Disable <input type="radio"/> Enable	<input type="text"/>
10.	<input checked="" type="radio"/> Disable <input type="radio"/> Enable	<input type="text"/>

Index The number of each entry.

Status User can **Disable** or **Enable** this port to be blocked.

Port Number Assign a port number to be blocked in system.

Click **Apply** to finish this setting. The default port setting for V3300B and 3300B+ is 135.

3.3.5 DDNS Setup

The Dynamic DNS function allows the router to update its online WAN IP address, which assigned by ISP or other DHCP server to 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. DDNS is more popular on dynamic IP users, who typically receive dynamic, frequently-changing IP addresses from their service provider.

Before you set up the Dynamic DNS function, you have to subscribe free domain names from the Dynamic DNS service providers. The router provides up to ten accounts for the function and supports the following providers: **www.dynsns.org**, **www.no-ip.com**, **www.dtdns.com**, **www.changeip.com**, **www.ddns.cn**. You should visit their websites for registering your own domain name on the router.

In the **Advanced** group, click **DDNS** option. You will get the following page.

Advanced - DDNS

#	Domain Name	Server Provider	Server Type	Active	Status
1		dyndns.org	dynamic	Disable	Not Connected
2		dyndns.org	dynamic	Disable	Not Connected
3		dyndns.org	dynamic	Disable	Not Connected
4		dyndns.org	dynamic	Disable	Not Connected
5		dyndns.org	dynamic	Disable	Not Connected
6		dyndns.org	dynamic	Disable	Not Connected
7		dyndns.org	dynamic	Disable	Not Connected
8		dyndns.org	dynamic	Disable	Not Connected
9		dyndns.org	dynamic	Disable	Not Connected
10		dyndns.org	dynamic	Disable	Not Connected

Refresh

- Domain Name** Display the domain name set for the entry.
- Service Provider** Display the service provider that supports DDNS.
- Service Type** Display the service type for the entry.
- Active** Display the activation status (disable or enable) for this entry.
- Status** Display the connection status of this entry.

Click **Refresh** to re-display the whole page information.

To modify DDNS setting, click an entry number to get into edit mode.

Advanced - DDNS Setting

Status : Disable Enable

Interface :

Server Provider :

Server Type :

Domain Name :

Login Name :

Login Password :

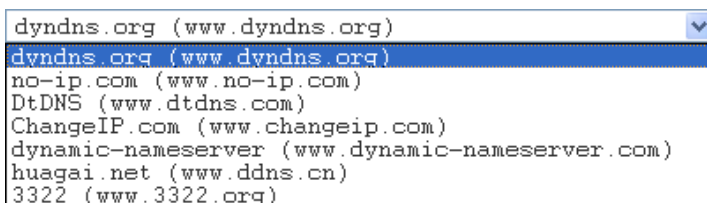
Wild Card : Disable Enable

Backup MX : Disable Enable

Mail Extender :

Apply **Cancel**

- Status** Click **Disable** to disable this function. Click **Enable** to activate this function.
- Interface** Select a specific interface for registering on DDNS server. The Interface should be any WAN port on V3300 series.
- Server Provider** Assign a provider name to support DDNS server. The Vigor3300 supports 7 domain server providers as default.



Server Type	Select Static , Dynamic or Custom type for this entry of DDNS settings.
Domain Name	Assign a private domain name to be accessed.
Login Name	Assign a name to login into DDNS server.
Login Password	Assign a password to login into DDNS server.
Wild Card	If you want anything-here.yourhost.dyndns.org to work (EX. To make things like www.yourhost.dyndns.org work), click “Enable” to active this function.
Backup MX	MX stands for Mail Exchanger. Mail Exchangers are used for directing mail to specific servers other than the one a hostname points at.
Mail Extender	Assign an email address.

Click **Apply** to finish these settings and return to previous page.

Note:

1. The Wildcard and Backup MX features are not supported for all Dynamic DNS providers. You could get more detailed information from their websites.
 2. Backup MX provides a secondary mail server to hold your e-mail if your main email server go offline for any reason. Once you go back online, your email will be delivered to you.
-

3.3.6 Call Schedule Setup

These call schedule profiles will control the up or down time of the router’s dialer or connection manager. In order to do the proper call schedule function, a user must have to setup time function and arrange schedules for specified Internet access profile or LAN-to-LAN profile. Vigor3300 Series support lots of profiles for call schedule usage. In the **Advanced** group, click the **Call Schedule** option. You will get the following page.

Advanced - Call Schedule

#	Status	Date & Time	Action	How often	Week Option	WAN
1	<input checked="" type="radio"/> Enable	2006-4-18, 00:00	Force On	Once		WAN1
2	<input type="radio"/>					
3	<input type="radio"/>					
4	<input type="radio"/>					
5	<input type="radio"/>					
6	<input type="radio"/>					
7	<input type="radio"/>					
8	<input type="radio"/>					
9	<input type="radio"/>					
10	<input type="radio"/>					

1

- Status** Display the activation status (enable or disable) for this entry.
- Date & Time** Display the start date and time for this schedule.
- Action** Display the action that this schedule adopts.
- How often** Display the using frequency (once or specific day in a week) of this schedule.
- Week Option** Display the specific day in a week if you choose **Weekdays** as the **How often** setting.
- WAN** Display the WAN interface used for this entry.
- Edit** Allow users to edit the selected call schedule settings.
- Delete/Delete All** Remove one/all the selected call schedule settings.

Edit Call Schedule

To edit an item, click the radio button of the item that you want to modify. Then click **Edit** on the bottom of the page to add a new rule entry or modify an existed rule entry.

Advance - Call Schedule - Edit

Disable Enable

Start Date : - - (Year - Month - Date)

Start Time : : (Hour : Minute)

Action : force down force on

How often : Once Weekdays

Monday Tuesday Wednesday Thursday Friday Saturday Sunday

Network Interface :

Enable/Disable Click **Disable** to disable this function. Click **Enable** to activate this function.

Start Date Assign a date for starting this profile.

Start Time Assign a time for starting this profile.

Action **Force down** means to inactivate the Network Interface. **Force up** means to activate the Network Interface.

How often **Once** means only for one time. **Weekdays** means that user can select some weekdays to apply.

Network Interface Select one specific WAN interface to be applied.

Click **Apply** to finish this setting.

Delete Call Schedule

To delete an item, click the radio button of the item that you want to delete. Then click **Delete** on the bottom of the page to remove the entry.

Advanced - Call Schedule

#	Status	Date & Time	Action	How often	Week Option	WAN
1	<input checked="" type="radio"/> Enable	2000-1-26, 00:00	Force On	Once		WAN1
2	<input type="radio"/>					
3	<input type="radio"/>					
4	<input type="radio"/>					
5	<input type="radio"/>					
6	<input type="radio"/>					
7	<input type="radio"/>					
8	<input type="radio"/>					
9	<input type="radio"/>					
10	<input type="radio"/>					

Also, users can click **Delete All** to remove all entries in the table.

3.3.7 WAN Port Mirroring Setup

Vigor 3300 Series supports port mirroring function in WAN interfaces. 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. Firstly, it is more economical without other detecting equipments to be set up. Secondly, it may be able to view traffic on one or more ports within a VLAN at the same time. Thirdly, 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.

In the **Advanced** group, click the **WAN Port Mirroring** option. You will see the following page.

Advanced - WAN Port Mirroring

Disable Enable

Mirroring Port:

Mirrored Port(s):

- Port 1
- Port 2
- Port 3
- Port 4

Enable/Disable

Click **Disable** to disable this function. Click **Enable** to activate this function.

Mirroring Port

Select a port to view traffic sent from mirrored ports.

Mirrored Port(s)

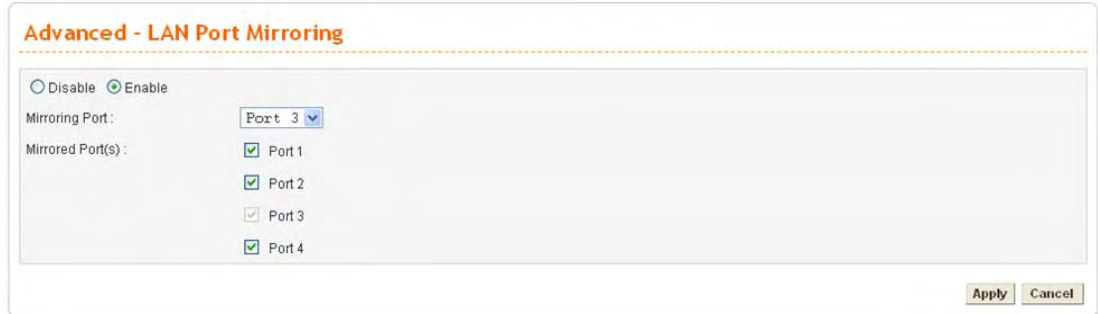
Click which ports are necessary to be mirrored.

After finishing the settings, please click **Apply**.

3.3.8 LAN Port Mirroring Setup

Port mirror can be applied for the users in LAN. It has the same mechanism like WAN port mirroring.

In the **Advanced** group, click the **LAN Port Mirroring** option.



Enable/Disable Click **Disable** to disable this function. Click **Enable** to activate this function.

Mirroring Port Select a port to view traffic sent from mirrored ports.

Mirrored Port(s) Click which ports are necessary to be mirrored.

After finishing the settings, please click **Apply**.

3.3.9 LAN VLAN Setup

Virtual LANs (VLANs) are logical, independent workgroups within a network. These workgroups communicate as if they had a physical connection to the network. However, VLANs are not limited by the hardware constraints that physically connect traditional LAN segments to a network. As a result, VLANs allow the network manager to segment the network with a logical, hierarchical structure. VLANs can define a network by application or department. For instance, in the enterprise, a company might create one VLAN for multimedia users and another for e-mail users; or a company might have one VLAN for its Engineering Department, another for its Marketing Department, and another for its guest who can only use Internet not Intranet. VLANs can also be set up according to the organization structure within a company. For example, the company president might have his own VLAN, his executive staff might have a different VLAN, and the remaining employees might have yet a different VLAN. VLANs can also set up according to different company in the same building to save the money and reduce the device establishment.

This router supports Virtual LAN only in LAN site. User can select some ports to add into a VLAN group. In one VLAN group, the port number can be single one or more.

The purpose of VLAN is to isolate traffic between different users and it can provide better security application.

For Port Base VLAN

In the **Advanced** group, click the **LAN VLAN** option. There are two VLAN settings offered here for you to configure. If you click **Disable**, no configuration can be completed. Please choose **Port Base VLAN** to open the following page.

Advanced - LAN VLAN Setting

Disable Port Base VLAN 802.1Q VLAN

Port Base VLAN	802.1Q VLAN	P1	P2	P3	P4
VLAN0		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
VLAN1		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
VLAN2		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
VLAN3		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

P1 – P4

Check the box to make the computer connecting to the port being grouped in the specified VLAN. Be aware that each port can be grouped in different VLAN at the same time only if you check the box. For example, if you check the boxes of VLAN0-P1 and VLAN1-P1, you can make P1 to be grouped under VLAN0 and VLAN1 simultaneously.

VLAN 0- 3

This router allows you to set 4 groups of virtual LAN.

Apply

After finishing the settings, please click **Apply**.

Reset

In addition, you can click **Reset** to reset the VLAN setting as default. A dialog will be prompted for you to ask confirmation. Click **OK**.

For 802.1Q VLAN

Another way to set VLAN is based on 802.1Q. Please choose **802.1Q VLAN** to open the following page. This page is available only for the PCs with certain network cards which support 802.1Q VLAN feature. It is useless for general network cards.

Advanced - LAN VLAN Setting

Disable
 Port Base VLAN
 802.1Q VLAN

Port Base VLAN 802.1Q VLAN

Group				Member				Frame Tag Operation			
Index	Active	Name	VLAN ID	P1	P2	P3	P4	P1	P2	P3	P4
1	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Untagged	Tagged	Tagged	Tagged
2	<input checked="" type="checkbox"/>			<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Tagged	Untagged	Tagged	Tagged
3	<input checked="" type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Tagged	Tagged	Untagged	Tagged
4	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Tagged	Tagged	Tagged	Untagged

Enable management port for P4

Port Setting

	P1	P2	P3	P4
Port VLAN ID	5	6	7	8

Active

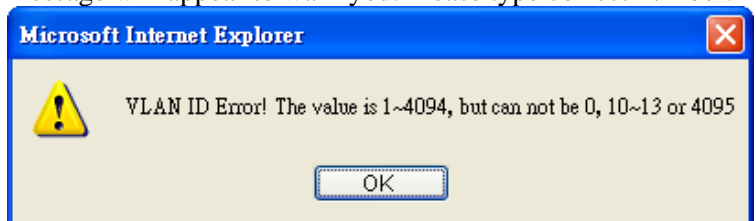
Check this box to activate the settings of this entry. If you check the **Management Port** box below, Index 4 will be unchangeable and locked. And, you have to set Port VLAN ID for P4 previously before you check **Management Port**.

Name

Specify the name for the four groups of VLAN.

VLAN ID

Type a number used for identification on VLAN for your computer. Later, you have to type the same ID number for each PC which wants to be grouped within the same VLAN group. In addition, if you type wrong ID number, the following message will appear to warn you. Please type correct number.



By the way, if you don't know how to configure a VLAN setting on your computer, please refer to **How to Check/Edit VLAN ID on Your PC** below for more detailed information.

Member

To make the hosts (with the same VLAN ID) of different ports communicating with each other, please check the port box (P1 to P4) according to your necessity.

Frame Tag Operation

Basically, the default settings for tagged or untagged VLAN will be shown automatically when you type VLAN ID/Name and check the Active box. By the way, you can modify the tag

operation for each VLAN in this page for obtaining proper control. Use the drop down list to choose a tag operation for each port.

Tagged – All the computers behind that port must support VLAN and are tagged with certain VLAN groups with specified ID numbers.

Untagged - All the computers behind that port do not support VLAN feature.

Note: It is recommended to group computers that do not support VLAN feature or support VLAN feature but their Untagged VLAN settings are checked in one port with untagged. This device will tag proper port VLAN ID for untagged PC respectively for making them communicating with the router.

Enable Management Port for P4

It can help users to communicate with router still even though configuring the wrong setting in the 802.1Q VLAN tag. The management port will lock index 4. We recommend that users enable the management port to fix the fourth VLAN settings unless users want to use the fourth VLAN and ensure the settings are correct. You have to set Port VLAN ID for P4 previously before you check this box.

Port VALN ID

Type the ID for each port used for identification on VLAN. When the tag operation for each port (representing for different computers connected to this router) is marked by untagged, to avoid conflict occurred, the system will apply the ID listed in these boxes automatically for each port (P1 to P4) to ensure proper and correct network operation.

3.3.10 SNMP

The Simple Network Management Protocol (SNMP) is an application layer protocol that facilitates the exchange of management information between network devices. There is a set of protocols for managing complex networks. SNMP works by sending messages, called protocol data units (PDUs), to different parts of a network. SNMP enables network administrators to manage network performance, find and solve network problems, and plan for network growth.

A SNMP-managed network consists of three key components, **managed devices, agents, and network-management systems (NMSs)**.

A managed device is a network node that contains an SNMP agent and that resides in a managed network. Managed devices collect and store management information and make this information available to NMSs by using SNMP. Managed devices, sometimes called network elements, can be routers and access servers, switches and bridges, computers hosts, or printers.

This function is to define a community string name. An agent is a network-management software module that resides in a managed device. An agent has local knowledge of management information and translates that information into a form compatible with SNMP.

An NMS executes applications that monitor and control managed devices. NMSs provide the bulk of the processing and memory resources required for network management. One or more NMSs must exist on any managed network.

In the **Advanced** group, click the **SNMP** option. There are two items for SNMP – **SNMP Community** and **SNMP Traps**.

SNMP Community

In general, NMSs in the community exist within the same administrative domain.

#	Community	Host/mask	Max Access
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

1

- Community** Display the community string used for the specified entry.
- Host/mask** Display the mask address for the host.
- Max Access** Display the authority (read only or read/write)for this entry.
- Edit** Allow users to edit the selected SNMP community settings.
- Delete/Delete All** Remove one/all the selected SNMP community settings. A dialog will be prompted for you to ask confirmation. Click **OK**.

To edit an item, click the radio button of the item that you want to modify. Then click **Edit** on the bottom of the page to add a new rule entry or modify an existed rule entry.

Advanced - SNMP - SNMP Community - Edit

1

Community :

Host/mask :

Max Access : Read only Read/Write

- Community** Type the community string (e.g., public) for SNMP.
- Host/mask** Assign a value of subnet mask for host IP address.
- Max Access** Select the authority as **Read only** or **Read/Write**.
Read only means user only can monitor managed devices.
Read/Write means user can control managed devices including change the values of variable stored within managed devices.
- Apply** Click **Apply** to save this setting and return the previous page.

To delete an item, click the radio button of the item that you want to delete. Then click **Delete** on the bottom of the page to remove the entry. A dialog will be prompted for you to ask confirmation. Click **OK**.

SNMP Traps

In managed network by SNMP protocol, agent will send a specific packet as an attention for administrator, called **Trap**. Trap is the only **PDU(Protocol data unit)** sent by an agent on its own initiative. It is used to notify the management station of an unusual event that may demand further attention (like a link down).

Choose **SNMP Traps** option to see the following page.

#	Trap Server	Trap Community	Trap server port
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

1

Edit Delete Delete All

- Trap Server** Display the IP address of the trap server.
- Trap Community** Display the community string of the trap server.
- Trap server port** Display the port number used for the trap server.
- Edit** Allow users to edit the selected SNMP traps settings.
- Delete/Delete All** Remove one/all the selected SNMP traps settings. A dialog will be prompted for you to ask confirmation. Click **OK**.

To edit an item, click the radio button of the item that you want to modify. Then click **Edit** on the bottom of the page to add a new rule entry or modify an existed rule entry.

EMS - SNMP Traps - Edit

1

Trap server:

Trap community:

Trap server port:

Trap server

Assign an IP address of trap server.

Trap community

Assign a community string for Trap packet using.

Trap server port

Assign a port number for Trap server using.

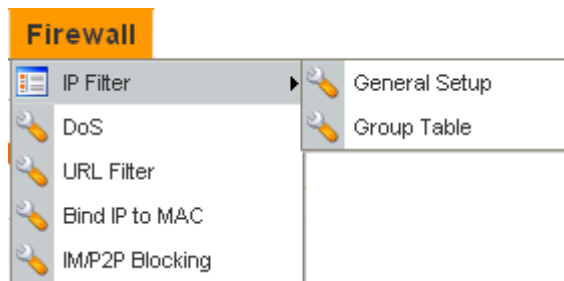
Apply

Click **Apply** to save this setting and return the previous page.

3.4 Firewall Setup

The firewall controls the allowance and denial of packets through the router. The **Firewall Setup** in the Vigor 3300 Series mainly consists of packet filtering, Denial of Service (DoS) and URL (Universal Resource Locator) content filtering facilities. These firewall filters help to protect your local network against attack from outsiders. A firewall also provides a way of restricting users on the local network from accessing inappropriate Internet content and can filter out specific packets, which may trigger unexpected outgoing connection such as a Trojan.

The following sections will explain how to configure the **Firewall**. Users can select **General Setup**, **IP Filter**, **DoS** and **URL Filter** options from Firewall menu. The **DoS** facility can detect and mitigate the DoS attacks. The **URL Filter** can block inappropriate websites for SME.

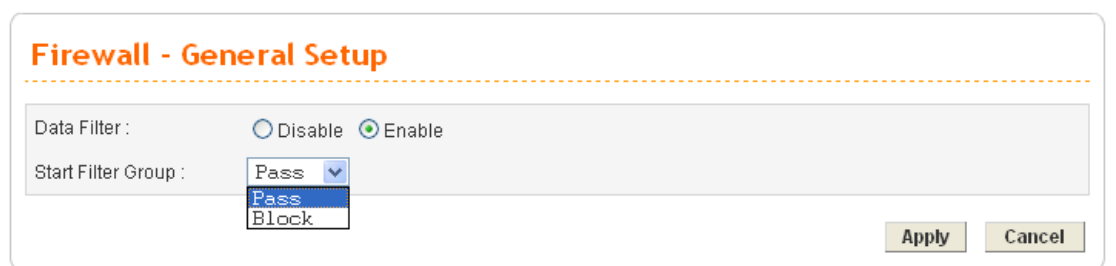


3.4.1 IP Filter

First, you should create at least one Group in the **IP Filter >> Group Table**. Then you can enable the **Data Filter** and select a **Start Filter Group** in **General Setup**. The following sections explain **IP Filter** functions with details.

General Setup

The page allows you to set general settings such as enabling the data filter function and choosing proper filter group.



Data Filter

Disable or **Enable** the firewall function. This firewall can only be enabled if at least one filter group exists. The default is **Disable**.

Start Filter Group

Default group names provided here are Pass and Block. Select the first filter group to begin filtering mechanism. The group in

this list must exist and had been pre-configured. The system provides three types of filter for you to choose in default. The available settings provided here can be added or edited in **Firewall>>IP Filter>>Group Table**.

Group Table

Group Table allows you to set definitions for different groups of the filters that will be applied for the function of IP filter.

Firewall - IP Filter - Group Table				
IP Filter Group Table				
	Index	Group Name	Next Group	Comment
<input checked="" type="radio"/>	1	Pass	Block	Group for pass rules
<input type="radio"/>	2	Block	none	Group for block rules

- Index** Allow you to change current IP filter table or add new rule for current group. Click the number link to get into the IP filter table page for editing.
- Group Name** Display the group name.
- Next Group** Display next group name.
- Comment** Display the notice for current group.
- Add** Allow you to add a new IP filter table.
- Edit** Allow you to edit selected IP filter table.
- Delete** Allow you to delete selected IP filter table configuration. If this entry is assigned as the started filter group already, it cannot be deleted.

To add a new group, please click **Add** on the **Group Table** page to access into the following page. In this page, you can type in new group name and decide the next group name. Also, you can type in your comment for such group. After you click **Apply**, the new group will be added and you will see it from the drop down menu of **Start Filter Group**.

Firewall - IP Filter Table	
Group Name :	<input type="text"/>
Next Group Name :	<input type="text" value="none"/> ▼
Comment :	<input type="text"/>

Group Name Type in the name of the group.

Next Group Name Select next group to filter packets.

Comment Type in your comment or description for the group.

To edit a select group, please click the number link to open the following page. You can change the next group name and modify the comment for your necessity. When you finish the modification, simply click **Apply**.

The screenshot shows a web interface titled "Firewall - IP Filter Table". It contains three input fields: "Group Name" with the value "Pass", "Next Group Name" with a dropdown menu showing "Block", and "Comment" with the value "Group for pass rules". At the bottom right, there are three buttons: "Add Rule", "Apply", and "Cancel".

Besides, you can add new filter rule for the group. On the edit page of **IP Filter Table**, click the **Add Rule** button. The following page will be shown.

The screenshot shows a web interface titled "Firewall - IP Filter - Add Filter Rule". It is divided into two sections: "Filter Condition" and "Action".

Filter Condition:

- Active
- Source : IP : 192.168.1.77, Subnet Mask : 255.255.255.0, Port : between 100 - 200
- Destination : IP : 10.1.1.77, Subnet Mask : 255.255.255.0, Port : between 100 - 200
- Group Name : Pass
- Protocol : any protocol
- Direction : WAN to LAN
- Fragment : do not care

Action:

- Block or Pass : Block immediately
- Next Group Name : none

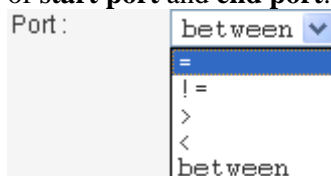
At the bottom right, there are two buttons: "Apply" and "Cancel".

Source IP It means the source IP address. Placing the symbol “!” before a particular IP address will prevent this rule from being applied to that IP address. It is equal to the logical **NOT** operator.

Subnet Mask It means the subnet mask for the source IP.

Source Port

It means the port for the source IP. Type the values in the boxes of **start port** and **end port**. As for the operators



If the **Start Port** column is empty, the **Start Port** and the **End Port** column will be ignored. The filter rule will filter out any port number.

(=) - If the **End Port** column is empty, the filter rule will set the port number to be the value of the **Start Port** column.

Otherwise, the port number ranges from the **Start Port** to the **End Port** including the **Start Port** and the **End Port**.

(!=) - If the **End Port** column is empty, the port number is not equal to the value of the **Start Port** column. Otherwise, this port number is not between the **Start Port** and the **End Port** including the **Start Port** and **End Port**.

(>) - Specifies the port number is larger than or equal to the **Start Port**.

(<) - Specifies the port number is less than or equal to the **Start Port**.

Between - Specifies the port number is between the **Start Port** and **End Port**.

Destination IP

It means the destination IP address for this filter rule. Placing the symbol “!” before a particular IP address will prevent this rule from being applied to that IP address. It is equal to the logical NOT operator.

Destination Mask

It means the subnet mask for the destination IP.

Destination Port

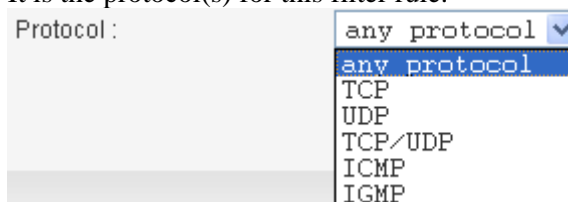
It means the port for the destination IP.

Group Name

It means the filter group for the current rule.

Protocol

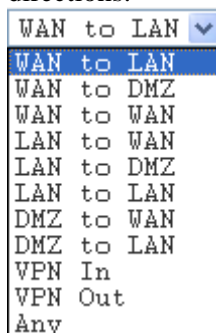
It is the protocol(s) for this filter rule.



Direction

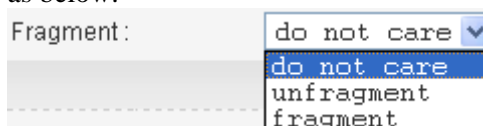
The direction of packet flow **VPN In** is for incoming packets. **VPN Out** is for outgoing packets, and **Any** is for both

directions.



Fragments

It is the response to fragmented packets. There are three options as below.



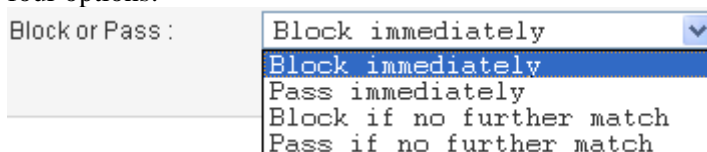
Do not care - Specifies no fragment options.

Unfragment - Applies the rule to unfragment packets.

Fragmented - Applies the rule to fragmented packets.

Block or Pass

The action to be taken when packets match the rule. There are four options:



Block immediately - Block the packet immediately.

Pass immediately - Pass the packet immediately.

Block if no further match - means to locks the packet if no further rules are matched.

Pass if no further match - means to passes the packet if no further rules are matched.

Note: It is recommended placing pass rules in “pass” group and block ones be in “block” group.

Next Group Name

It indicates the next filter group. If the option **Block if no further match** or **Pass if no further match** of **Block or Pass** parameter is selected, the unmatched packets will be compared with rules in **Next Group**. The option **None** must be chosen while **Block or Pass** is selected as **Block** or **Pass**.

Apply

Click this button to return to IP Filter Table setting page. The new added rule information will be displayed on this page too. Refer to the following graphic.

Firewall - IP Filter Table

Group Name :

Next Group Name :

Comment :

IP Filter Table											
Index	Source IP	Subnet Mask	Port	Destination IP	Subnet Mask	Port	Protocol	Direction	Block	Active	
1	192.168.3.1	255.255.255.0	130	192.168.3.58	255.255.255.0	130	TCP	LAN to LAN	Block immediately	<input checked="" type="checkbox"/>	

3.4.2 DoS

The DoS function helps to detect and mitigates DoS attacks. These include flooding-type attacks and vulnerability attacks. Flooding-type attacks attempt to use up all your system's resources while vulnerability attacks try to paralyze the system by offending the vulnerabilities of the protocol or operation system.

In the **Firewall** group, click the **DOS** option. You will see the following page. The DoS Defense Engine inspects each incoming packet against the attack signature database. Any packet that may paralyze the host in the security zone is blocked. The DoS Defense Engine also monitors traffic behavior. Any anomalous situation violating the DoS configuration is reported and the attack is mitigated.

Firewall - DoS

DoS Defense : Disable Enable

<input type="checkbox"/> Enable SYN flood defense :	Threshold: <input type="text" value="300"/> Packets/sec	Timeout: <input type="text" value="10"/> sec
<input type="checkbox"/> Enable UDP flood defense :	Threshold: <input type="text" value="300"/> Packets/sec	Timeout: <input type="text" value="10"/> sec
<input type="checkbox"/> Enable ICMP flood defense :	Threshold: <input type="text" value="300"/> Packets/sec	Timeout: <input type="text" value="10"/> sec
<input type="checkbox"/> Enable Port Scan detection :	Threshold: <input type="text" value="300"/> Packets/sec	
<input type="checkbox"/> Block IP options	<input type="checkbox"/> Block TCP flag scan	
<input type="checkbox"/> Block Land	<input type="checkbox"/> Block Tear Drop	
<input type="checkbox"/> Block Smurf	<input type="checkbox"/> Block Ping of Death	
<input type="checkbox"/> Block trace route	<input type="checkbox"/> Block ICMP fragment	
<input type="checkbox"/> Block SYN fragment	<input type="checkbox"/> Block Unknown Protocol	
<input type="checkbox"/> Block Fraggle Attack		

DoS Defense Enables or disables the DoS Defense function. The default value is **Disable**.

Enable SYN Flood Defense Activates the SYN flood defense function. If the amount of TCP SYN packets from the Internet exceeds the user-defined threshold value, the router will be forced to randomly discard

the subsequent TCP SYN packets within the user-defined timeout period. The default setting for threshold and timeout are **300** packets per second and **10** seconds, respectively.

- Enable UDP Flood Defense** Activates the UDP flood defense function. If the amount of UDP packets from the Internet exceeds the user-defined threshold value, the router will be forced to randomly discard the subsequent UDP packets within the user-defined timeout period. The default setting for threshold and timeout are **300** packets per second and **10** seconds, respectively.
- Enable ICMP Flood Defense** Activates the ICMP flood defense function. If the amount of ICMP echo requests from the Internet exceeds the user-defined threshold value, the router will discard the subsequent echo requests within the user-defined timeout period. The default setting for threshold and timeout are **300** packets per second and **10** seconds, respectively.
- Enable Port Scan Detection** Activates the Port Scan detection function. Port scan sends packets with different port numbers to find available services, which respond. The router will identify it and report a warning message if the port scanning rate in packets per second exceeds the user-defined threshold value. The default threshold is **300** pps (packets per second).
- Enable Block IP Options** Activates the Block IP options function. The router will ignore any IP packets with IP option field appearing in the datagram header.
- Enable Block Land** Activates the Block Land function. A Land attack occurs when an attacker sends spoofed SYN packets with identical source address, destination addresses and port number as those of the victim.
- Enable Block Smurf** Activates the Block Smurf function. The router will reject any ICMP echo request destined for the broadcast address.
- Enable Block Trace Route** Activates the Block trace route function. The router will not forward any trace route packets.
- Enable Block SYN Fragment** Activates the Block SYN fragment function. Any packets having the SYN flag and fragmented bit sets will be dropped.
- Enable Block Fraggle Attack** Activates the Block fraggle Attack function. Any broadcast UDP packets received from the Internet are blocked.
- Enable TCP Flag Scan** Activates the Block TCP flag scan function. Any TCP packet with an anomalous flag setting is dropped. These scanning

activities include **no flag scan**, **FIN without ACK scan**, **SYN FIN scan**, **Xmas scan** and **full Xmas scan**.

Enable Tear Drop	Activates the Block Tear Drop function. This attack involves the perpetrator sending overlapping packets to the target hosts so that target host will hang once they re-construct the packets. The routers will block any packets resembling this attacking activity.
Enable Ping of Death	Activates the Block Ping of Death function. Many machines may crash when receiving an ICMP datagram that exceeds the maximum length. The router will block any fragmented ICMP packets with a length greater than 1024 octets.
Enable Block ICMP Fragment	Activates the Block ICMP fragment function. Any ICMP packets with fragmented bit sets are dropped.
Enable Block Unknown Protocol	Activates the Block Unknown Protocol function. The router will block any packets with unknown protocol types.

Click **Apply** to apply the settings when you finish the configuration.

3.4.3 URL Filter

The Internet contains a wide range of offenses or illegal materials. Unlike traditional media, the Internet does not have any obvious tools to segregate materials based on URL strings or content. URL content filtering systems are seen as tools that would provide the cyberspace equivalent of the physical separations that are used to limit access to particular materials. By rating a site as objectionable, and refusing to display it on user's browser, URL content filter can prevent employee on SME from accessing inappropriate Internet resources.

Instead of traditional firewall inspects packets based on the fields of TCP/IP headers, the URL content filter checks the URL strings or the payload of TCP/IP packets.



The URL content filter in the series of broadband security routers inspects every URL string in the HTTP request. If the entire or part of the URL string (for instance, <http://www.draytek.com>, as shown above) matches any activated rule, the first and the following associate HTTP request will be blocked. The system will discard any request, which tries to retrieve the malicious code.

Notice that you must clear your browser cache first so that the URL content filter operates properly on a Web page that you visited before.

The URL content filter consists of the following functions: **URL Access Control**, **Content Filter**, **Restrict Web Feature** and **Filter Schedule**.

URL Access Control

The **URL Access Control** controls Web site access by inspecting the URL string against user-defined keywords. In the **Firewall** group, click the **URL Filter** option. You will see the following page.

Enable/Disable

Disable or **Enable** URL Filter function.

Keyword

The keyword(s) used to filter URLs. Keywords can be partial words or complete URLs. The router will reject any Website which whole or partial URL matches any keywords.

Keyword List

The list of keywords.

Block Direct IP Web Access

Deny any Web surfing activity that directly uses an IP address.

Enable Exception List

Click it to allow specified IP addresses or subnets to be passed through.

IP Address

The allowed IP address.

Subnet Mask

The allowed subnet mask of IP address.

Exception List

The list of IP addresses where content filter rules are not applied.

Content Filter

Content Filter can help to avoid your employees accessing into improper websites and affecting the work efficiency; protect your children from viewing inappropriate websites and accessing chat rooms; and monitor and control web access from all computers connected to your router.

Firewall - URL Filter

Disable Enable

URL Access Control | **Content Filter** | Restrict Web Feature | Filter Schedule

Access Control by Category

Content Filter: Disable Enable

Select a Server: asia site

Permitted Categories List: others

Forbidden Categories List:

URL: Option: Add Edit Delete

Exception URL List:

Apply Cancel

Examples of URL:
"www.abc.org" all items under this host and the host itself will be considered.
"www.abc.org/direct/" all items under this host's particular directory, excluding the directory itself, will be considered.
"www.abc.org/page.htm" only this particular item (page or file) will be considered.

Server

Enable or **Disable** Content Filter.

Select a Server

The domain name is used to as a server. The name should be filled when enable Server, otherwise it will impact performance.

Permitted Categories List

The permitted categories are obtained from the selected a server.

Forbidden Categories List

The forbidden categories are obtained from the selected a server.

URL

The URL domain name.

Option

Allow or **Deny** the selected URL.

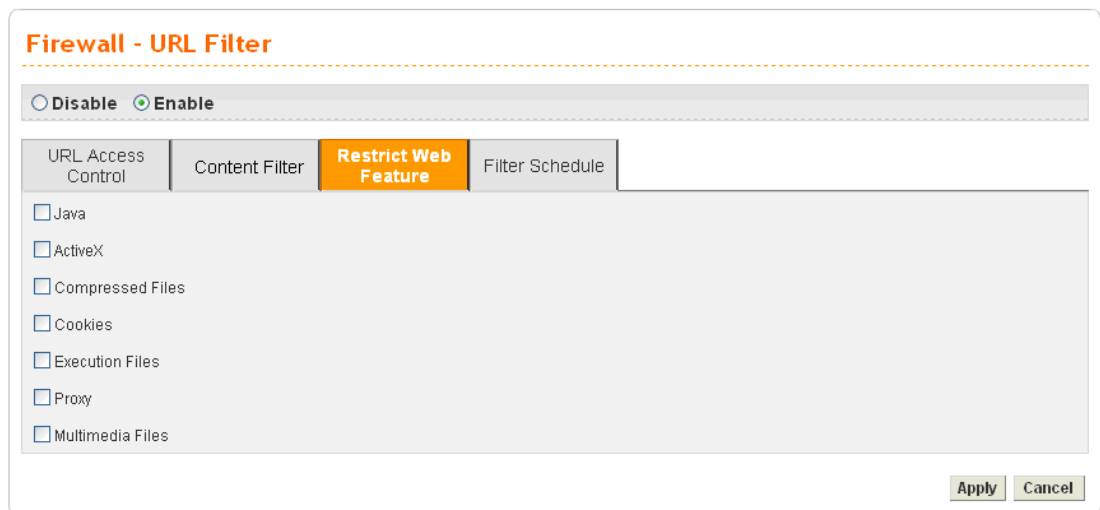
Exception URL List

The list of filtered URLs.

Restrict Web Feature

This feature blocks malicious codes hidden in Web pages, such as Java Applet, Active X, Cookies, Proxy, compressed files, and executable files. It is also able to block all downloads of multimedia files from Web pages in order to control the bandwidth usage.

Malicious code may be embedded in some executable objects, such as ActiveX, Java Applet, compressed files, executable files, Proxy, and Multimedia. For example, an ActiveX object with malicious code may gain unlimited access to the system.



Java

Activates the Block Java object function. The router will discard Java objects from the Internet.

ActiveX

Activates the Block ActiveX object function. The router will discard ActiveX object from the Internet.

Compressed Files

Activates the Block Compressed file function to prevent from downloading of any compressed file. These following types of compressed files are blocked by the router.

.zip / .rar / .arj / .ace / .cab / .sit

Execution Files

Activates the Block Executable file function to prevent from downloading of any executable file. The following types of executable files are blocked by the router.

.exe / .com / .scr / .pif / .bas / .bat / .inf / .reg

Cookie

Activates the Block Cookie function. Cookies are used by many websites to create “stateful” sessions for tracking Internet users, which would violate the users’ privacy. The router will filter out all cookies-related transmissions.

Proxy

Activates the Block Proxy function. The router will filter out all proxy-related transmissions.

Multimedia Files

Activates the Block Multimedia function. The router will filter out multimedia from any website.

Filter Schedule

Filter Schedule function controls what times the URL content filter should be active. It can specify what times the URL content filtering facility should be active.

The screenshot shows the 'Firewall - URL Filter' configuration window with the 'Filter Schedule' tab selected. At the top, there are radio buttons for 'Disable' and 'Enable', with 'Enable' selected. Below this is a tabbed interface with four tabs: 'URL Access Control', 'Content Filter', 'Restrict Web Feature', and 'Filter Schedule' (which is highlighted in orange). Under the 'Filter Schedule' tab, there are two radio buttons: 'Always Block' and 'Block only at', with 'Block only at' selected. Below these are two time input fields: '8 : 00' and '18 : 00', separated by 'To'. Underneath the time fields is a 'Day of Week' section with checkboxes for 'All Days', 'Sun', 'Mon', 'Tue', 'Wed', 'Thu', 'Fri', and 'Sat'. The 'Mon', 'Tue', 'Wed', 'Thu', and 'Fri' checkboxes are checked. At the bottom right of the window are 'Apply' and 'Cancel' buttons.

Always Block

The URL content filtering facility is always active.

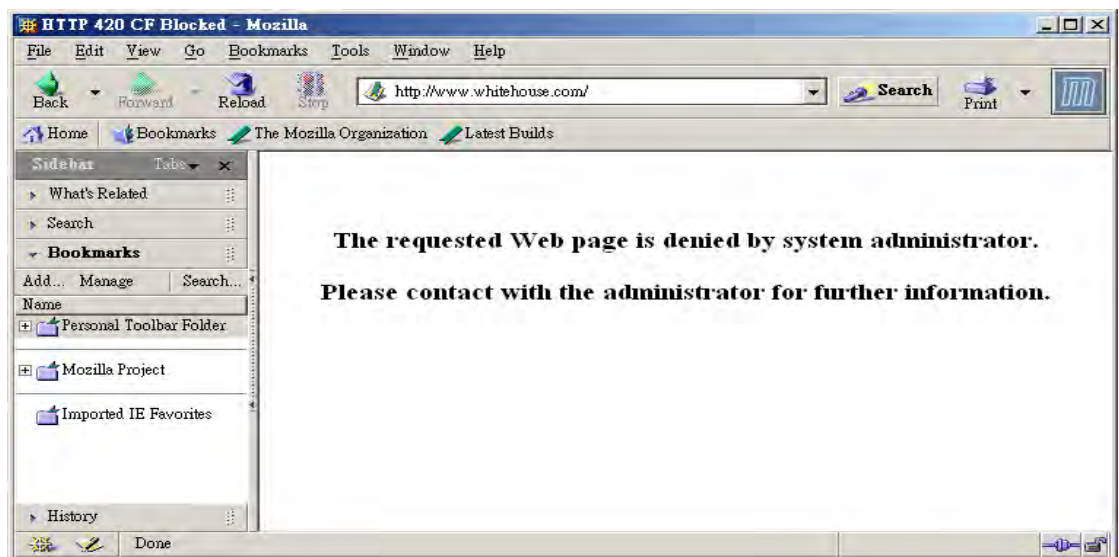
Block only at

The URL content filtering facility is active during the specified times from H1:M1 to H2:M2 in one day, where H1 and H2 indicate the hours and M1 and M2 represent the minutes.

Days of Week - The URL content filtering facility is active during the specified days of the week. The default value is 8:00 to 18:00 from Monday to Friday.

Warning Page

After the configuration of URL Filter is configured properly, an alert page will appear in the browser when an HTTP request is denied. Refer to the following graphic.



3.4.4 Bind IP to MAC

This function is used to bind the IP and MAC address in LAN to have a strengthened 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.

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.

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.

Refresh It is used to refresh the ARP table. When there is one new PC added to the LAN, you can click this link to obtain the newly ARP table information.

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.
Remove	You can remove any item listed in IP Bind List . Simply click and select the one, and click Remove . The selected item will be removed from the IP Bind List .

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.

3.4.5 IM/P2P Blocking

IM Blocking means instant messenger blocking. P2P is the short name of peer to peer. You will see a list of common P2P applications. You can define blocking rules (such as specified an IP address for passing through or blocking) for IM (Instant Messenger)/P2P (Peer to Peer) application.

Firewall - IM/P2P Blocking

#	Source IP	Subnet Mask	Action	Option
1	<input checked="" type="radio"/>			
2	<input type="radio"/>			
3	<input type="radio"/>			
4	<input type="radio"/>			
5	<input type="radio"/>			
6	<input type="radio"/>			
7	<input type="radio"/>			
8	<input type="radio"/>			
9	<input type="radio"/>			
10	<input type="radio"/>			

Edit Delete Delete All

To edit IM/P2P blocking rule, please choose one of the radio buttons under “#” and click **Edit**. The following page will be shown automatically.

Firewall - IM/P2P Blocking - Edit

1

Source IP :

Subnet Mask :

Action : Allow Disallow

IM

MSN Yahoo Messenger ICQ

AIM QQ iChat

Google Talk Web IM (http://www.e-messenger.net/) Web MSN (http://webmessenger.msn.com/)

VoIP

jajah Skype

P2P

Protocol	Applications
<input type="checkbox"/> SoulSeek	SoulSeek
<input type="checkbox"/> eDonkey	eDonkey, eMule, Shareaza
<input type="checkbox"/> FastTrack	KazaA, iMesh
<input type="checkbox"/> Gnutella	BearShare, Limewire, Shareaza
<input type="checkbox"/> BitTorrent	BitTorrent

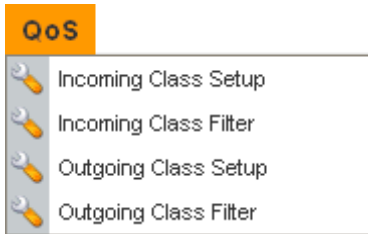
- Source IP** Specify an IP address for Vigor router to perform IM/P2P blocking.
- Subnet Mask** Type the subnet mask for the IP address specified.
- Action** Choose **Allow** to make the packet passing through.
Choose **Disallow** to block the packet in or out.
- IM/VoIP/P2P** Check the boxes for different applications filtering by this rule.

3.5 Quality of Service Setup

The QoS (Quality of Service) guaranteed technology in the Vigor 3300 Series allows the network administrator to monitor, analyze, and allocate bandwidth for various types of network traffic in real-time and/or for business-critical traffic. Thus, timing-sensitive applications will not be impacted by web surfing traffic or other non-critical applications, such as file transfer. Without QoS-guaranteed control, there would be virtually no way to prioritize users/services or guarantee allocation of finite bandwidth resources to network or servers for supporting timing-sensitive and mission-critical network applications, such as VoIP (Voice over IP) and online gaming applications.

Differentiated quality of service is therefore one of the most important issues over the Internet infrastructure. In the Vigor 3300 Series, DSCP (Differentiated Service Code Point) support is also taken into consideration in the design of the QoS-guaranteed control module.

The QoS function handles incoming and outgoing classes independently. Users can configure incoming or outgoing separately without any impact on the other.



For the web pages for incoming class setup and outgoing class setup (incoming class filter and outgoing class filter) are similar, they will be explained in the same sections.

3.5.1 Incoming/Outgoing Class Setup

Incoming/Outgoing Class Setup allows you to configure bandwidth percentage for data and voice signals transmission. Click the **QoS** option and choose **Incoming Class Setup/Outgoing Class Setup**. There are eight queues that can be configured. The total sum of bandwidth has to be 100 percent for all configured queues. Any leftover bandwidth is assigned to eight queues to meet 100 percent totally.

QoS - Incoming Class Setup

Disable Enable

Index	Class Name	Bandwidth
1.	<input type="text"/>	<input type="text"/> %
2.	<input type="text"/>	<input type="text"/> %
3.	<input type="text"/>	<input type="text"/> %
4.	<input type="text"/>	<input type="text"/> %
5.	<input type="text"/>	<input type="text"/> %
6.	<input type="text"/>	<input type="text"/> %
7.	<input type="text"/>	<input type="text"/> %
8.	others	<input type="text"/> %

Disable/Enable

Click **Disable** to close this setting. Click **Enable** to activate this setting.

Index

It represents the number for each queue.

Class Name

Please type the name for each queue.

Bandwidth

Please type the usage percentage for each queue.

Apply

Click this button to apply all the settings set in this page.

3.5.2 Incoming/Outgoing Class Filter

Click the **QoS** option and choose **Incoming Class Filter/Outgoing Class Filter**.

QoS - Incoming Class Filter

Priority	Source IP	Destination IP	Service Type Status	DiffServ CodePoint Status	Class
1			<input checked="" type="radio"/>		
2			<input type="radio"/>		
3			<input type="radio"/>		
4			<input type="radio"/>		
5			<input type="radio"/>		
6			<input type="radio"/>		
7			<input type="radio"/>		
8			<input type="radio"/>		
9			<input type="radio"/>		
10			<input type="radio"/>		

Priority You are allowed to set ten filters. The priority for the filter of number 1 is the highest; and the priority for number 10 is the lowest.

Source IP Display the source IP address for the filter.

Destination IP Display the destination IP address for the filter.

Service Type Status Display the service type that you choose for the filter.

DiffServ CodePoint Status Display the setting for DiffServ CodePoint.

Class Display the class name that you specified for the incoming/outgoing class filter.

Edit Click this button to open the edit page for adjusting the settings.

Delete/Delete All Click this button to delete the selected setting or all settings.

To edit an incoming class filter, please choose one of the radio buttons under Priority and click Edit. The following page will be shown automatically.

QoS - Incoming Class Filter - Edit

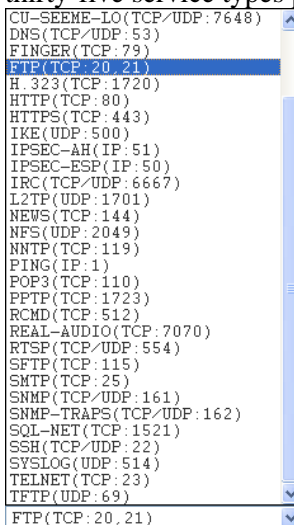
Source IP:	<input type="text" value="10.1.1.1"/>	<input type="text" value="/24"/>
Destination IP:	<input type="text" value="10.1.2.1"/>	<input type="text" value="/24"/>
Service Type Status:	<input type="radio"/> Basic <input checked="" type="radio"/> Advanced <input type="radio"/> None	
Service Type:	<input type="text" value="AUTH(TCP:113)"/>	
Protocol:	<input type="text" value="TCP"/>	
Source Port:	<input type="text" value="80"/>	<input type="text" value="150"/>
Destination Port:	<input type="text" value="80"/>	<input type="text" value="160"/>
DiffServ CodePoint Status:	<input checked="" type="radio"/> Basic <input type="radio"/> Advanced <input type="radio"/> None	
DiffServ CodePoint Type:	<input type="text" value="BE"/>	
DiffServ CodePoint:	<input type="text" value="0x"/> (Hex)	
Class:	<input type="text" value="undefined"/>	

Source IP Type the source IP address with subnet mask value to be applied for this filter.

Destination IP Type the destination IP address with subnet mask value to be applied for this filter.

Service Type Status There are three options for you to choose:
Basic – Only the **Service Type** field is allowed to be configured.
Advanced – The **Protocol** and **Port** fields are allowed to be configured.
None – No field is allowed to be configured.

Service Type Select the service type that you want to use. There are thirty-five service types provided.

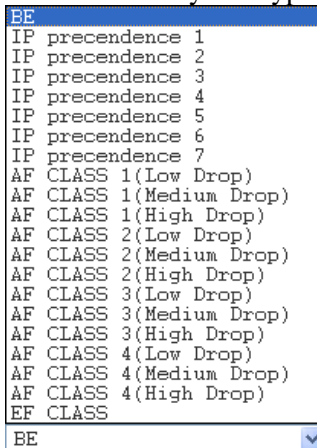


Protocol There are three options: **TCP**, **UDP**, and **TCP/UDP**. Choose the one you need.

Source/Destination Port Type the port range number for this filter.

DiffServ CodePoint Status There are three options:
Basic – Only the **DiffServ CodePoint Type** field can be configured.
Advanced – Only the **DiffServ CodePoint** field can be configured.
None –No field allowed to be configured.

DiffServ CodePoint Type There are twenty-one types supported.

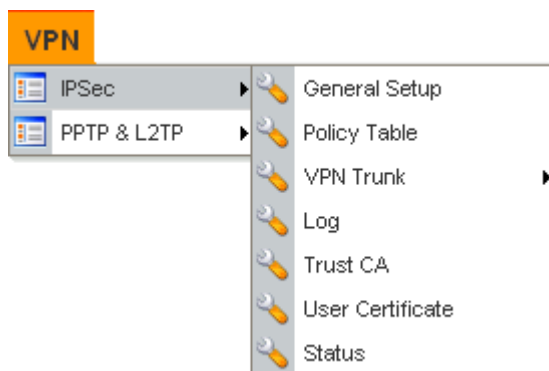


DiffServ CodePoint The number (by hex mode) to be applied.

Class Choose a filtering condition to be applied. All the class names set in **Incoming/Outgoing Class Setup** page will be displayed in this field.

3.6 VPN and Remote Access Setup

This page allows you to setup the configuration of VPN and Remote Access to create a virtual private network for security in the Internet.



A Virtual Private Network (VPN) is an extension of a private network that encompasses links across shared or public networks like the Intranet. A VPN enables you to send data between two hosts across a shared or public network in a manner that emulates the properties of a point-to-point private link.

There are two types of VPN connections: remote dial-in access and LAN-to-LAN connection. The “Remote dial-In Access” facility allows a remote access node, a NAT router or a single computer to dial into a VPN router through the Internet to access the network resources of the remote network. The “LAN-to-LAN Access” facility connects two independent LANs for mutual sharing of network resources. For example, the head office network can access the branch office network, and vice versa.

The VPN technology implemented in the Vigor3300 Series of broadband security routers supports Internet-industry standards to provide customers with interoperable VPN solutions,

such as X.509 and DHCP over Internet Protocol Security (IPSec). This VPN feature is only supported for Vigor 3300, Vigor3300V routers. IPSec is the security architecture for IP networks. IPSec provides security services at the IP layer by enabling a system to select required security protocols. It determines the algorithms to use for the services, and puts in place any cryptographic keys required to provide the requested services. IPSec can be used to protect one or more "paths" between a pair of hosts, between a pair of security gateways, or between a security gateway and a host.

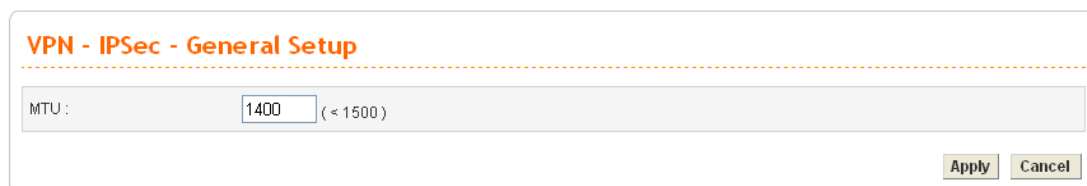
The Vigor3300 Series supports ESP Tunnel mode with IKE for key management. Internet Key Exchange (IKE) Protocol, a key protocol in the IPSec architecture, is a hybrid protocol using part of Oakley and part of SKEME in conjunction with ISAKMP to obtain authenticated keying material for use with ISAKMP, and for other security associations such as AH and ESP for the IPsec DOI.

3.6.1 IPSec

The IPSec services can provide access control, connectionless integrity, data origin authentication, rejection of replayed packets that is a form of partial sequence integrity, and confidentiality by encryption. These objectives are met through the use of two traffic security protocols, the Authentication Header (AH) and the Encapsulating Security Payload (ESP), and through the use of cryptographic key management procedures and protocols.

General Setup

General Setup allows you to set MTU value for VPN. The default number is 1400.



The screenshot shows a configuration window titled "VPN - IPSec - General Setup". Inside the window, there is a field for "MTU:" with a text input box containing the value "1400" and a label "(< 1500)". At the bottom right of the window, there are two buttons: "Apply" and "Cancel".

Policy Table

To create a VPN IPSec policy, click the **Policy Table** option under the **IPSec** menu.

VPN - IPSec - Policy Table

#	Connection Name	Local Subnet	Remote Gateway	Remote Subnet	Interface	Profile Status	Operational Status	Action
1	<input checked="" type="radio"/> Research	172.16.3.228/32	172.16.2.1	172.16.2.15/32	WAN1	enable	down	Initiate
2	<input type="radio"/>							
3	<input type="radio"/>							
4	<input type="radio"/>							
5	<input type="radio"/>							
6	<input type="radio"/>							
7	<input type="radio"/>							
8	<input type="radio"/>							
9	<input type="radio"/>							
10	<input type="radio"/>							

1

Refresh

Refresh the page information.

Edit

Configure an entry. Clicking this button can guide you accessing into editing page for that IPSec tunnel. For detailed information, refer to the following section of **For Default Configuration**.

Delete

Delete a designated entry.

Delete All

Delete all entries in the table.

To edit or add a policy table, please click one of the radio buttons and click **Edit**.

- **For Default Configuration**

Click **Default** tab. The following page of default configuration will be shown:

Profile Status

Set the initialization of IPsec Tunnel with this profile settings.

Enable – Choose this one to invoke this profile manually. In addition to select Enable, you have to click Initiate under the page of VPN-IPsec Tunnel-Policy Table.

Always-On – Choose this one to invoke this profile automatically by the system for every 30 seconds.

Disable – Choose this one to inactivate this profile.

Name

The name for VPN connection (ex. “VPN1”). The maximum length of name is 20 characters including spaces.


Authentication

The authentication to be used by PreShared Key or RSA Signature.

PreShared Key

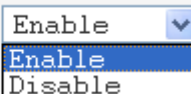
The shared key for peer identification. The maximum length is 40 characters, including spaces.

Security Protocol **AH** - Specify the IPSec protocol for the Authentication Header protocol. The data will be authenticated but not be encrypted.
ESP - Specify the IPSec protocol for the Encapsulating Security Payload protocol. The data will be encrypted and authenticated.

Security Protocol : 

NAT Traversal Click **Enable** to let multi IPSec tunnels passing through this router.

Click **Disable** to close this function.

NAT Traversal : 

WAN Interface The WAN interface to be used.

WAN Interface : 

Local Certificate The local certificate is active for authentication if the **RSA Signature** option is selected in the **Authentication** field. These options come from the user certificate file.

Security Gateway The IP address of the local gateway's public-network interface. The keyword "default" can be used to represent the IP Address of the selected "WAN Interface".

Network IP / Subnet Mask The subnet behind the local gateway.

Next Hop The IP address of the next hop. The keyword **default** can be used to represent the gateway IP address of the selected **WAN Interface**.

Remote ID The identification number for the remote gateway.

DHCP-over-IPSEC Turns this function **ON** or **OFF**.

Security Gateway The IP address of the remote client/gateway. This field is mandatory. The setting for 0.0.0.0 is used for the road-warrior with a dynamic IP address.

Network IP / Subnet Mask The subnet behind the remote gateway. If the remote gateway IP address is 0.0.0.0, this field can be omitted, but you can specify it as 0.0.0.0/32 for clarity.

- **For Advanced Configuration**

Click **Advanced** tab. The following page of default configuration will be shown:

VPN - IPsec Tunnel

Default **Advanced**

IKE Phase1(main mode)

Key lifetime : 480 minutes

Proposal : des-md5-modp768 des-sha-modp768 3des-md5-modp768 3des-md5-modp1024

IKE Phase2(quick mode)

Key lifetime : 60 minutes

Proposal : des-md5 3des-md5 des 3des

PFS (Perfect Forward Secrecy)

Accepted Proposal : Accept all supported proposal

Dead Peer Detection

Status : Disable Enable

Delay : 30 seconds

Timeout : 120 seconds

Apply Cancel

Key Lifetime (main) The rekey-renegotiated period of the IKE Phase1 keying channel of a connection. The acceptable range is from 5 to 480 minutes (8 hours).

Proposal (main) The proposed encryption and/or authentication algorithms for IKE Phase1 negotiation. There are several proposals offered in this page with combination of three types of algorithms:

Encryption algorithms - DES/3DES/AES

Authentication algorithms - MD5/SHA1

DH (Diffie-Hellman) Group -

MODP768/MODP1024/MODP1536.

Proposal : des-md5-modp768

- des-md5-modp768
- des-md5-modp1024
- des-md5-modp1536
- des-sha-modp768
- des-sha-modp1024
- des-sha-modp1536
- 3des-md5-modp768
- 3des-md5-modp1024
- 3des-md5-modp1536
- 3des-sha-modp768
- 3des-sha-modp1024
- 3des-sha-modp1536
- aes128-md5-modp768
- aes128-md5-modp1024
- aes128-md5-modp1536
- aes128-sha-modp768
- aes128-sha-modp1024
- aes128-sha-modp1536

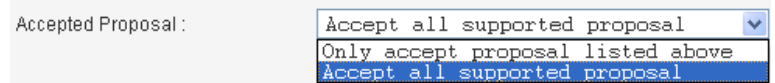
Key Lifetime (quick) The rekey-renegotiated period of the IKE Phase2 keying channel. The acceptable range is from 5 to 1440 minutes (24 hours).

Proposal (quick) The proposed encryption and/or authentication algorithms for IKE Phase2 negotiations. There are 2 options.

Encryption algorithms –NULL/DES/3DES/AES.

Authentication algorithms - MD5/SHA1

Accepted Proposal If you choose **Only accept proposal listed above**, only the selected proposal will be accepted and applied by this device. If you choose **Accept all supported proposal**, all the proposals supported by this device will be accepted and applied.



PFS Enables the PFS (Perfect Forward Secrecy) function. A new Diffie-Hellman Key Exchange is included every time an encryption and/or authentication key are computed on PFS.

Status **Enables** or **Disables** the dead peer detection function.

Delay The keep-alive timer. A Hello message will be emitted periodically when a tunnel is idle. Use the value 0 to disable this function. The recommended value is 30 seconds if enabled.

Timeout The timeout timer. The peer will be declared dead once no acknowledge message is received after timeout value. Use the value 0 to disable this function. The recommended value is 120 seconds if enabled.

After finish the configuration, click **Apply** to apply the IPSec policy setting into the policy table.



#	Connection Name	Local Subnet	Remote Gateway	Remote Subnet	Interface	Admin Status	Operational Status	Action
1	Research	172.16.3.228/32	172.16.2.1	172.16.2.15/32	WAN1	enable	down	Initiate
2								
3								
4								
5								
6								
7								
8								
9								
10								

Significant fields will be summarized in the IPSec Table. **Operational Status** reflects the current status of the tunnel. **UP** means the IPSec tunnel has been established. **DOWN** means no tunnel existing, or termination status of the tunnel.

If user expects the local gateway to act as the IKE initiator, i.e., emit the first IKE main mode message, user can click the hyperlink **Initiate** to start the IKE negotiation or set

admin status to be always on to automatically restart IKE negotiation. During the negotiation, you can press **Refresh** to show the latest status of all policies.

VPN Trunk - Policy Table

VPN trunk includes two features - VPN Backup and VPN load balance.

Features of VPN TRUNK – VPN Backup Mechanism

VPN TRUNK Management is a backup mechanism which can set multiple VPN tunnels as backup tunnel. It can assure the network connection not to be cut off due to network environment blocked by any reason.

- 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)
- The web page is simple to understand and easy to configure
- Fully compliant with VPN Server LAN Sit Single/Multi Network
- Syslog support, please refer to **System >> SysLog** for detailed configuration

Features of VPN TRUNK – VPN Load Balance Mechanism

VPN Load Balance Mechanism can set multiple VPN tunnels for using as traffic load balance tunnel. It can assist users to do effective load sharing for multiple VPN tunnels according to real line bandwidth.

The TCP Session transmitted by using VPN TRUNK-VPN Load Balance mechanism will not be lost due to one of VPN Tunnels disconnected. Users do not need to reconnect with setting TCP/UDP Service Port again. The VPN Load Balance function can keep the transmission for internal data on tunnel stably.

To create a VPN IPsec policy for VPN Trunk, click the **Policy Table** option under the **IPSec >>VPN Trunk** menu.

VPN - IPSec - VPN Trunk - Policy Table

#	Connection Name	Local GRE IP	Remote Gateway	Remote GRE IP	Interface	Profile Status	Operational Status
1							<input checked="" type="radio"/>
2							<input type="radio"/>
3							<input type="radio"/>
4							<input type="radio"/>
5							<input type="radio"/>
6							<input type="radio"/>
7							<input type="radio"/>
8							<input type="radio"/>
9							<input type="radio"/>
10							<input type="radio"/>

1

Refresh

Refresh the page information.

Edit

Configure an entry. Clicking this button can guide you accessing into editing page for that IPSec tunnel. For detailed information, refer to the following section of **For Default Configuration**.

Delete

Delete a designated entry.

Delete All

Delete all entries in the table.

- **For Default Configuration**

To edit or add a policy, please click one of the radio buttons and click **Edit**. The following page of default configuration will be shown:

Profile Status

Set the initialization of IPSec Tunnel with this profile.

Enable – Choose this one to activate this profile.

Disable – Choose this one to inactivate this profile.

Profile Status :

Name

The name for VPN connection (ex. “VPN1”). The maximum length of name is 20 characters including spaces.

Authentication

The authentication to be used by PreShared Key or RSA Signature.

Authentication :

PreShared Key

The shared key for peer identification. The maximum length is 40 characters, including spaces.

Security Protocol

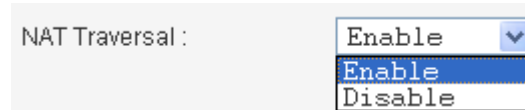
AH - Specify the IPSec protocol for the Authentication Header protocol. The data will be authenticated but not be encrypted.

ESP - Specify the IPSec protocol for the Encapsulating Security Payload protocol. The data will be encrypted and authenticated.

Security Protocol :

NAT Traversal

Click **Enable** to let this IPsec tunnel pass through next router.
Click **Disable** to close this function.

A screenshot of a web interface showing a dropdown menu for 'NAT Traversal'. The menu is currently set to 'Enable' and is open, showing 'Enable' and 'Disable' as options.**WAN Interface**

The WAN interface to be used.

A screenshot of a web interface showing a dropdown menu for 'WAN Interface'. The menu is currently set to 'WAN1' and is open, showing 'WAN1', 'WAN2', 'WAN3', and 'WAN4' as options.**Local Certificate**

The local certificate is active for authentication if the **RSA Signature** option is selected in the **Authentication** field. These options come from the user certificate file.

Security Gateway

The IP address of the local gateway's public-network interface. The keyword "default" can be used to represent the IP Address of the selected "WAN Interface".

Local GRE IP

The virtual IP address of the router, specified for this tunnel.

Next Hop

The IP address of the next hop. The keyword **default** can be used to represent the gateway IP address of the selected **WAN Interface**.

Remote ID

The identification number for the remote gateway.

Security Gateway

The IP address of the remote client/gateway. This field is mandatory. The setting for 0.0.0.0 is used for the road-warrior with a dynamic IP address.

Remote GRE IP

The virtual IP address of the remote client, specified for this tunnel.

- **For Advanced Configuration**

Click **Advanced** tab. This page allows you to set advanced configuration for the specified policy. The following page of default configuration will be shown:

VPN - IPsec - VPN Trunk - Policy Table - Edit

Default | **Advanced**

IKE Phase1 (main mode)

Key Lifetime : 480 minutes

Proposal : des-md5-modp768 | des-sha-modp768 | 3des-md5-modp768 | 3des-md5-modp1024

IKE Phase2 (quick mode)

Key Lifetime : 60 minutes

Proposal : des-md5 | 3des-md5 | des | 3des

PFS (Perfect Forward Secrecy)

Accepted Proposal : Accept all supported proposal

Dead Peer Detection

Delay : 2 seconds

Timeout : 4 seconds

GRE Header Key

Auto GRE Key

GRE Key In : 0x

GRE Key Out : 0x

Apply Cancel

Key Lifetime (main) The renegotiated period of the IKE Phase1 keying channel of a connection. The acceptable range is from 5 to 480 minutes (8 hours).

Proposal (main) The proposed encryption and/or authentication algorithms for IKE Phase1 negotiation. There are several proposals offered in this page with combination of three types of algorithms:

Encryption algorithms - DES/3DES/AES

Authentication algorithms - MD5/SHA1

DH (Diffie-Hellman) Group -

MODP768/MODP1024/MODP1536.

Proposal : des-md5-modp768

- des-md5-modp768
- des-md5-modp1024
- des-md5-modp1536
- des-sha-modp768
- des-sha-modp1024
- des-sha-modp1536
- 3des-md5-modp768
- 3des-md5-modp1024
- 3des-md5-modp1536
- 3des-sha-modp768
- 3des-sha-modp1024
- 3des-sha-modp1536
- aes128-md5-modp768
- aes128-md5-modp1024
- aes128-md5-modp1536
- aes128-sha-modp768
- aes128-sha-modp1024
- aes128-sha-modp1536

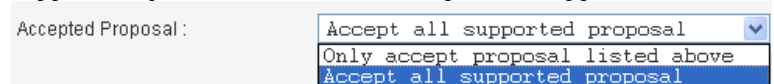
Key Lifetime (quick) The renegotiated period of the IKE Phase2 keying channel. The acceptable range is from 5 to 1440 minutes (24 hours).

Proposal (quick) The proposed encryption and/or authentication algorithms for IKE Phase2 negotiations. There are 2 options.

Encryption algorithms –NULL/DES/3DES/AES.

Authentication algorithms - MD5/SHA1

Accepted Proposal If you choose **Only accept proposal listed above**, only the selected proposal will be accepted and applied by this device. If you choose **Accept all supported proposal**, all the proposals supported by this device will be accepted and applied.



Accepted Proposal :

Accept all supported proposal	▼
Only accept proposal listed above	
Accept all supported proposal	

Delay The keep-alive timer. A Hello message will be emitted periodically when a tunnel is idle. Use the value 0 to disable this function. The recommended value is 2 seconds if enabled.

Timeout The timeout timer. The peer will be declared dead once no acknowledge message is received after timeout value. Use the value 0 to disable this function. The recommended value is 4 seconds if enabled.

Auto GRE Key Check this box to automatically generate GRE key. Or, type the GRE key on the fields below manually

GRE Key In This value is used for the router to authenticate the source of the packet. The length is 4 bytes.

GRE Key Out This value is used for the remote client to authenticate the source of the packet. The length is 4 bytes.

After finish the configuration, click **Apply** to apply the IPSec policy setting into the policy table.

Significant fields will be summarized in the IPSec Table. **Operational Status** reflects the current status of the tunnel. **UP** means the IPSec tunnel has been established. **DOWN** means no tunnel existing, or termination status of the tunnel.

If user expects the local gateway to act as the IKE initiator, i.e., emit the first IKE main mode message, user can click the hyperlink **Initiate** to start the IKE negotiation or set admin status to be always on to automatically restart IKE negotiation. During the negotiation, you can press **Refresh** to show the latest status of all policies.

VPN Trunk - Group Table

Vigor3300 series allows users to configure policies. In addition, it also allows users to combine several policies into one group for VPN usage. Each group can combine four policies for fitting different requirement of VPN application.

Simply click **VPN>>VPN Trunk>>Group Table** to access into the following page. There are ten groups offered for users to configure.

VPN - VPN Trunk - Group Table				
#	Profile Status	Name	Local Subnet	Remote Subnet
1	<input checked="" type="radio"/>			
2	<input type="radio"/>			
3	<input type="radio"/>			
4	<input type="radio"/>			
5	<input type="radio"/>			
6	<input type="radio"/>			
7	<input type="radio"/>			
8	<input type="radio"/>			
9	<input type="radio"/>			
10	<input type="radio"/>			

1

Edit

Configure an entry. Clicking this button can guide you accessing into editing page for that group. For detailed information, refer to the following section of **For Default Configuration**.

Delete

Delete a designated entry.

Delete All

Delete all entries in the table.

To edit or add a group table, please click one of the radio buttons and click **Edit**. The default configuration will be shown as below:

VPN - VPN Trunk - Group Table - Edit

1

Profile Status : Disable Enable

Name :

Local Subnet : /

Remote Subnet : /

Tunnel 1 : Weight :

Tunnel 2 : Weight :

Tunnel 3 : Weight :

Tunnel 4 : Weight :

Backup

Active	Master	Slave
<input type="checkbox"/>	<input type="button" value="v"/>	<input type="button" value="v"/>
<input type="checkbox"/>	<input type="button" value="v"/>	<input type="button" value="v"/>

Profile Status

Set the initialization of IPsec Tunnel with this profile.

Enable – Choose this one to activate this profile.

Disable – Choose this one to inactivate this profile.

Name

Type a name for this group.

Local Subnet

LAN subnet of this device.

Remote Subnet

LAN subnet of remote client.

Tunnel 1~ Tunnel 4

Specify which tunnel will be included in this trunk. You can choose up to four tunnels at one time.

Weight

Determine how many flow rates can pass through on this tunnel. For example, type 1 for tunnel 1 and type 4 for tunnel 2. If such device has 5 packets needing to send to the remote subnet, it will send 4 packets through tunnel 2 and 1 packet through tunnel 1.

Active

Check this box to enable VPN tunnel backup.

Master/Slave

Choose the master and slave roles for this backup configuration.

After finish the configuration, click **Apply** to apply the group table setting.

Log

At any time, you can click **VPN >>IPSec>> Log** to monitor the VPN tunnel status. The log is helpful for solving some setting >> problems. The system will keep the 100 most recent messages. Click **Clear** to clear the log.

VPN - IPsec - Log

Refresh Clear

#	Date/Time	Description
1	04:37:06 12/08	connection {1_Research} is deleted
2	04:36:47 12/08	connection {1_Research} is added

Refresh Clear

- Date/Time** It displays the date and time for the operation of IPsec.
- Description** It displays the results of the IPsec operation.
- Refresh** It allows you to refresh the whole table.
- Clear** It allows you to clear all the table information.

Trust CA

This page allows you to set up the CA configuration. Click the **VPN>>IPsec >>Trust CA** option. It can make users loading double key certificate issued by trusted CA server.

VPN - IPsec - Trust CA

#	Name	Issuer
1	<input checked="" type="radio"/>	
2	<input type="radio"/>	
3	<input type="radio"/>	
4	<input type="radio"/>	
5	<input type="radio"/>	
6	<input type="radio"/>	
7	<input type="radio"/>	
8	<input type="radio"/>	
9	<input type="radio"/>	
10	<input type="radio"/>	

1

Upload Delete View

To upload a new Trust CA, please select any one of the entry and click the **Upload** button. The following page will appear.

VPN - IPsec - Trust CA # 1 - Upload

Upload CA Certificate

Upload File

User Certificate

This page allows you to set up the CA configuration to generate user's certificate. Click the **VPN>>IPSec >>User Certificate** option.

VPN - IPSec - User Certificate			
#	Status	Name	Issuer
1	<input checked="" type="radio"/> Import OK	3300CA_0804	/C=TW/ST=Hsin-Chu/L=Houko/O=Draytek/OU=RD3/CN=presto/emailAddress=pcho@draytek.com.tw
2	<input type="radio"/> Import OK	3300CA_RD3	/C=TW/ST=Hsin-Chu/L=Houko/O=Draytek/OU=RD3/CN=presto/emailAddress=pcho@draytek.com.tw
3	<input type="radio"/> Import OK	3300CA_attel	/C=TW/ST=Hsin-Chu/L=Houko/O=Draytek/OU=RD3/CN=presto/emailAddress=pcho@draytek.com.tw
4	<input type="radio"/> Empty		
5	<input type="radio"/> Empty		
6	<input type="radio"/> Empty		
7	<input type="radio"/> Empty		
8	<input type="radio"/> Empty		
9	<input type="radio"/> Empty		
10	<input type="radio"/> Empty		

1

Generate

Generate a new entry for user certification.

Download

Download a certification file generated from router to be stored in local host.

Import

Import a certificated file from the local host.

Delete

Delete an assigned entry.

View

Show configuration of the assigned entry.

- **To generate a user certificate**, please click one radio button to select the entry and click the **Generate** button.

VPN - IPSec - User Certificate # 2 - Generate	
Generate Certificate Signing Request	
Certification Name	<input type="text" value="3300CA_0804"/>
ID Type	<input type="text" value="Domain Name"/>
ID Value	<input type="text"/>
User Certificate Information	
Organization Unit	<input type="text" value="RD3"/>
Organization	<input type="text" value="Draytek"/>
Locality(City)	<input type="text" value="Houko"/>
State/Province	<input type="text" value="Hsin-Chu"/>
Common Name	<input type="text" value="abc"/>
Country	<input type="text" value="Taiwan"/>
e-mail	<input type="text" value="abc@draytek.com.tw"/>
Key Size	<input type="text" value="1024"/> Bits
<input type="button" value="Apply"/> <input type="button" value="Cancel"/>	

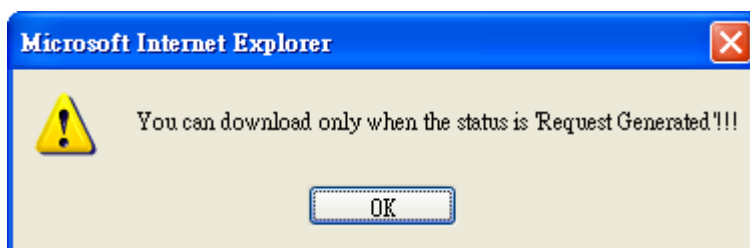
Certification Name

The name of the certification entry.

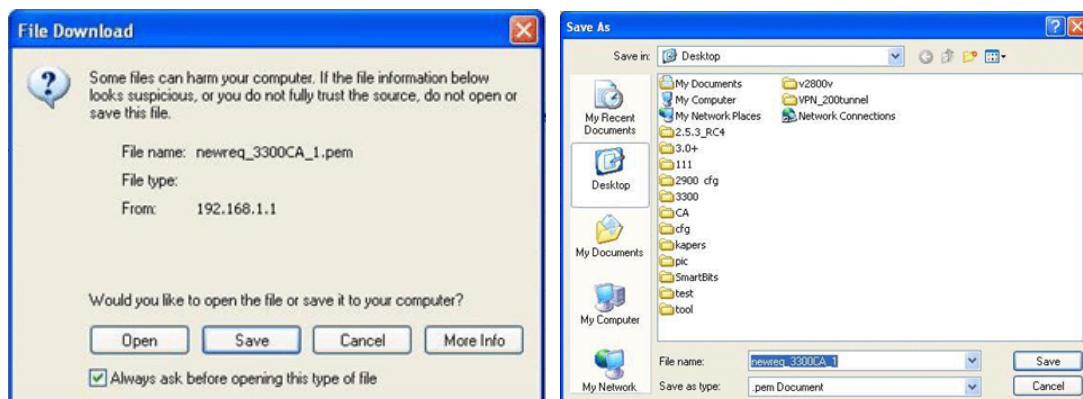
ID Type	The ID type for this entry. There are three types: Domain Name: Certificated by domain name. IP: Certificated by IP address. Email: Certificated by email address.
ID Value	The ID value for this entry.
Organization Unit	The unit value of this organization.
Organization	The value of this organization.
Locality (City)	The local city name of this entry.
State/Province	The state name of this entry.
Common Name	The common name for this entry.
Country	The country name of this entry.
E-mail	The email address of this entry.
Key Size	The key size for this entry. There are 3 options: 1024 Bits , 1536 Bits and 2048 Bits .

When you finish the configuration, please click **Apply** to invoke it.

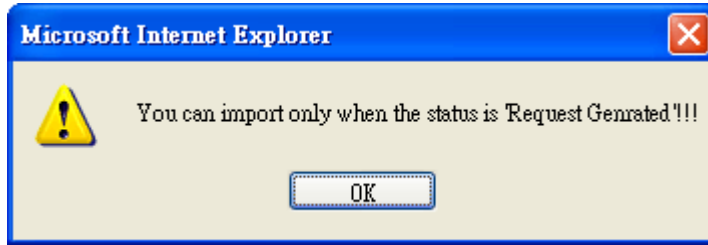
- **To download a user certificate**, please click index number one (with the status of Request Generated) and click the **Download** button. If not, you might see the following dialog to warn you.



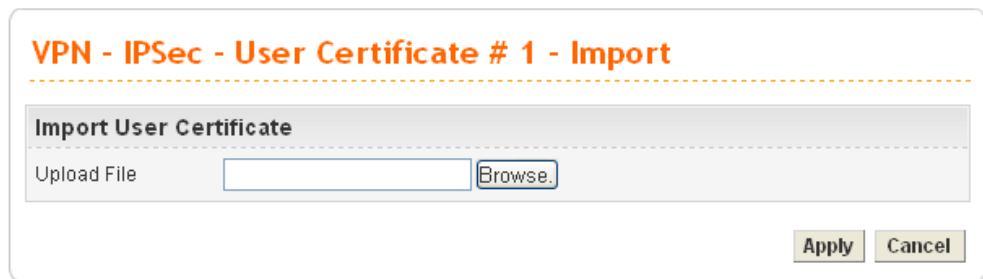
After you click the **Download** button, the system will guide you to save the downloaded file (newreq_RD-computer_1.pem) to a place that you assign.



- **To import a user certificate** that you saved previously, please click index number one (with the status of Request Generated) and click the **Import** button. If not, you might see the following dialog to warn you.



After you click the **Import** button, the system will guide you to import a saved file to a place that you want.



- **To delete a user certificate**, please click the index number that you want to delete and click the **delete** button. A dialog box will appear to ask your confirmation. Click **OK** to delete it or click **Cancel** to leave the dialog without deletion.



- **To view a user certificate**, please click the index number that you want to view the detailed information of the certificate and click the **View** button. The following page will be shown for your reference.



Status

This page will show the VPN connection status.

VPN - IPSec - Status

#	Name	Status	Algorithm	Remote IP	Remote Subnet	Packet In	Byte In	Packet Out	Byte Out	Uptime
1	2900V	up	DES_0-HMAC_SHA1-NO_PFS	61.230.211.232	192.168.29.0/24	13	716	12	624	29

Name	Display the name of the IPSec tunnel.
Status	Display the status of the tunnel (up or down).
Algorithm	Display the algorithm used by this IPSec.
Remote IP	Display remote IP address of the tunnel.
Remote Subnet	Display remote subnet mask of the tunnel.
Packet In	Display the packets count received by this tunnel.
Byte In	Display the bytes count received by this tunnel.
Packet Out	Display the packets count sent out by this tunnel.
Byte Out	Display the bytes count sent out by this tunnel.
Uptime	Display the time duration since the tunnel is established.
Refresh	Allow you to refresh current VPN status.
Disconnect	Allow you to disconnect the select VPN connection.

3.6.2 PPTP & L2TP

PPTP General Setup

To configure the general setup, please click **VPN>> PPTP & L2TP>>General Setup>>PPTP General Setup**.

VPN - PPTP - General Setup

Status : Active Inactive

PPTP Authentication :

PPTP Encryption :

User Authentication : Local RADIUS Server

Mutual Authentication

Enable Disable

User Name :

Password :

DNS Server

Get DNS Server from LAN Setting Get DNS Server by Manual Setting

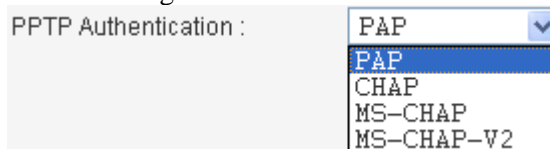
primary DNS :


Secondary DNS :

Status	Set the function to Active or Inactive .
---------------	--

PPTP Authentication

Allow you to choose an authentication mode to be used. The default setting is **CHAP**.

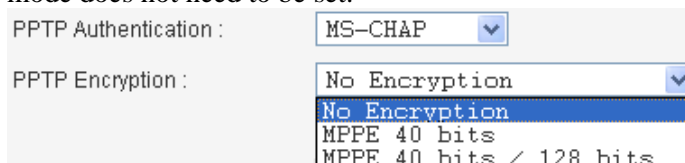



PPTP Authentication : 


- PAP
- CHAP
- MS-CHAP
- MS-CHAP-V2

PPTP Encryption

Allow you to choose an encryption mode to be used. If PPTP authentication mode is set to **CHAP** or **PAP**, PPTP Encryption mode does not need to be set.



PPTP Authentication : 

PPTP Encryption : 

- No Encryption
- MPPE 40 bits
- MPPE 40 bits / 128 bits

User Authentication

Set user authentication to **Local** server or **RADIUS** server.

Enable/Disable

Enables or disables the **Mutual Authentication** function.

User Name

Type the user name that the other side provides for carrying out mutual authentication whenever you want.

Password

Type the password that the other side provides for carrying out mutual authentication whenever you want.

Get DNS Server from LAN Setting Use DNS setting of LAN configuration.

Get DNS Server by Manual Setting

If you click this radio button, please type the primary DNS and secondary DNS IP address manually in the following fields.

Primary DNS

Type the IP address for primary DNS.

Secondary DNS

Type the IP address for secondary DNS.

When you finish the configuration, please click **Apply** to invoke it.

L2TP General Setup

To configure the general setup, please click **VPN>> PPTP & L2TP>>General Setup>>L2TP General Setup**.

VPN - L2TP - General Setup

Status : Active Inactive

L2TP Authentication :

User Authentication : Local RADIUS Server

Mutual Authentication

Enable Disable

User Name :

Password :

DNS Server

Get DNS Server from LAN Setting Get DNS Server by Manual Setting

primary DNS :

Secondary DNS :

Status Set the function to **Active** or **Inactive**.

L2TP Authentication Allow you to choose an authentication mode to be used. The default setting is **CHAP**.

A dropdown menu with a blue arrow on the right. The current selection is 'PAP'. The menu is open, showing the following options: PAP (highlighted in blue), CHAP, MS-CHAP, and MS-CHAP-V2.

User Authentication Set user authentication to **Local** server or **RADIUS** server.

Enable/Disable Enable or disable the **Mutual Authentication** function.

User Name Type the user name that the other side provides for carrying out mutual authentication whenever you want.

Password Type the password that the other side provides for carrying out mutual authentication whenever you want.

Get DNS Server from LAN Setting Use DNS setting of LAN configuration.

Get DNS Server by Manual Setting If you click this radio button, please type the primary DNS and secondary DNS IP address manually in the following fields.

Primary DNS Type the IP address for primary DNS.

Secondary DNS Type the IP address for secondary DNS.

Group Table

To create a VPN PPTP/L2TP group table, click **VPN>>PPTP & L2TP>> Group Table**.

VPN - PPTP - Group Table

Group	Start IP	Subnet Mask	Accessed IP	Subnet Mask
A	<input type="text" value="192.168.1.224"/>	<input type="text" value="/28"/>	<input type="text"/>	<input type="text" value="/24"/>
B	<input type="text"/>	<input type="text" value="/24"/>	<input type="text"/>	<input type="text" value="/24"/>
C	<input type="text"/>	<input type="text" value="/24"/>	<input type="text"/>	<input type="text" value="/24"/>
D	<input type="text"/>	<input type="text" value="/24"/>	<input type="text"/>	<input type="text" value="/24"/>

Start IP Type the starting IP address. The default group value is 192.168.1.224/28.

Subnet Mask Select the value of subnet mask for the Start IP.

Accessed IP Type the accessed IP address.

Subnet Mask Select the value of subnet mask for the Accessed IP.

User Profile

This page allows you to set up to 30 sets of accounts.

VPN - User Profile

#	Profile Status	User Name	Group
1	<input checked="" type="radio"/>		
2	<input type="radio"/>		
3	<input type="radio"/>		
4	<input type="radio"/>		
5	<input type="radio"/>		
6	<input type="radio"/>		
7	<input type="radio"/>		
8	<input type="radio"/>		
9	<input type="radio"/>		
10	<input type="radio"/>		

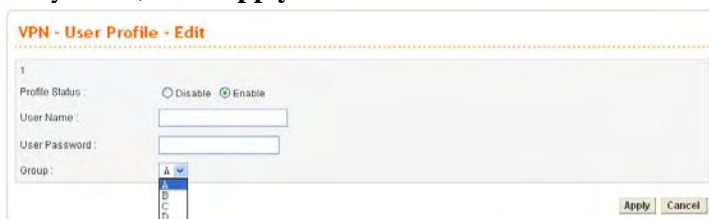
Profile Status Display status (disable or enable) for this entry.

User Name The user name for this entry.

Group The group for this entry.

Edit Allow you to edit the selected group. Type in user name and password, then choose a proper group (A, B, C or D that configured in **VPN>>PPTP & L2TP>>Group Table**) for this

entry. Next, click **Apply**.




Delete Allow you to remove the selected group.

Delete All Allow you to remove all of the groups.

When you finish the configuration, please click **Apply** to invoke it.

Status

This page displays some relevant information about PPTP connection. It will refresh automatically every 10 seconds.



#	Index	Remote IP	Assigned IP	User	Byte In	Byte Out	Up Time
1	1	61.31.162.252	192.168.1.224	3300	1280	74	11

Index Display the index number of the tunnel.

Remote IP Display remote IP address of the tunnel.

Assigned IP Display IP address assigned by Vigor3300.

User Display user account of this tunnel.

Byte In Display the bytes count received by this tunnel.

Byte Out Display the bytes count sent out by this tunnel.

Uptime Display the time duration since the tunnel is established.

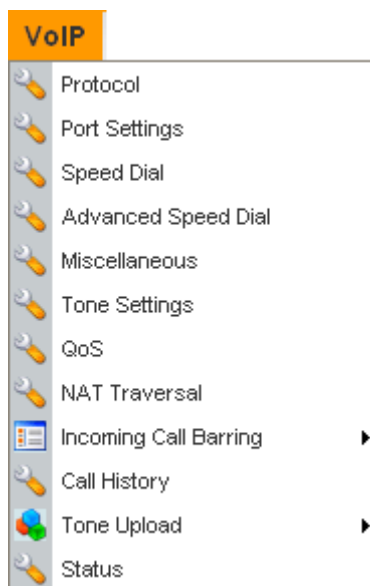
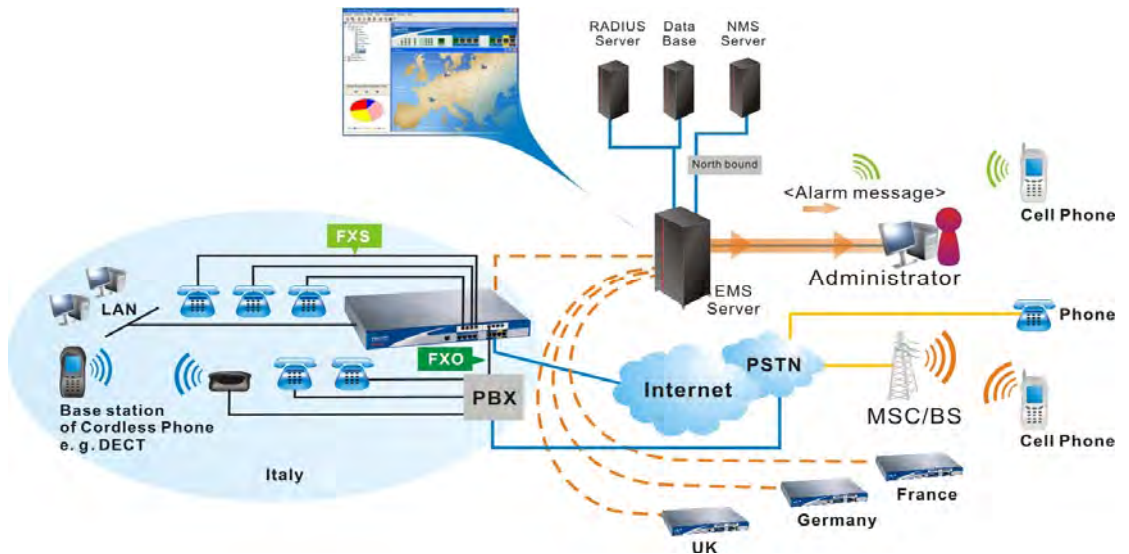
Refresh Allow you to refresh current VPN status.

Disconnect Allow you to disconnect the select VPN connection.

3.7 VoIP Setup

Voice over Internet Protocol (VoIP) is a technology that allows you to make telephone calls using a broadband Internet connection instead of a regular (or analog) phone line.

The Vigor3300/Vigor3300V provides cost effective voice solution for SME customers which can be explained with the following diagram.



3.7.1 Protocol

There are two protocols can be used for VoIP - SIP and MGCP. You should click either one of buttons to set corresponding settings for VoIP phones. Be aware that both sides (local end and remote end) should use same protocol for VoIP phones.

VoIP - Protocol

Select Protocol : SIP MGCP

SIP Configuration | MGCP Configuration

SIP Local Port :

#	Active	Outbound Proxy	Proxy Name	Proxy Address	Proxy Port	Registrar Addr	Registrar Port	Expires (sec)	Domain
1.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text" value="0"/>	<input type="text" value="5060"/>	<input type="text" value="0"/>	<input type="text" value="5060"/>	<input type="text" value="300"/>	<input type="text" value="0"/>
2.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text" value="0"/>	<input type="text" value="5060"/>	<input type="text" value="0"/>	<input type="text" value="5060"/>	<input type="text" value="300"/>	<input type="text" value="0"/>
3.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	<input type="text" value="0"/>	<input type="text" value="5060"/>	<input type="text" value="0"/>	<input type="text" value="5060"/>	<input type="text" value="300"/>	<input type="text" value="0"/>
Example			iptel	iptel.org		iptel.org			iptel.org

Proxy **User-Agent Name**

1.	<input type="text" value="DrayTek V3300V-1.0.0"/>
2.	<input type="text" value="DrayTek V3300V-1.0.0"/>
3.	<input type="text" value="DrayTek V3300V-1.0.0"/>

For SIP Configuration

SIP Local Port

Type the port number for SIP protocol. The default value is 5060.

Active

Click this box to activate this SIP proxy server setting.

Outbound Proxy

Check this box to enable this function for sending SIP protocol packets to an SIP proxy server.

Proxy Name

Type the name of the SIP proxy server.

Proxy Address

Type the IP address of the SIP proxy server.

Proxy Port

Type the port number of the SIP proxy server.

Registrar Address

Type the IP address or domain name of the SIP registrar server.

Registrar Port

Type the port number of the SIP registrar server.

Expires

Type the timeout value for SIP protocols. The default value is 300.

Domain

Type the IP address or domain name of the SIP Domain/Realm.

User Agent Name

You can set up to 3 sets of SIP configurations in this page.

For MGCP Configuration

VoIP - Protocol

Select Protocol : SIP MGCP

SIP Configuration **MGCP Configuration**

MGCP Local Port :

MGCP Call Agent Address :

MGCP Call Agent Port :

EndPoint Name Style : aaln/#@[ip_addr] mac_addr/#@[ip_addr] aaln/#@mac_addr

aaln/#@

Logic ID Starting Number :

Wild-carded RSIP : Each endpoint sends its own RSIP Send only one wild RSIP

MGCP Local Port The UDP port number in MGCP local terminal.

MGCP Call Agent Address The IP address of the Call Agent server in MGCP.

MGCP Call Agent Port The UDP port number for the Call Agent server.

EndPoint Name Style Choose a proper name style for the VoIP settings. There are three options for you to choose.

aaln/#@[ip_addr] - ex: aaln/1@[1.1.1.1]

mac_addr/#@[ip_addr]- ex: 000504030201/1@[1.1.1.1]

aaln/#@mac_addr- ex: aaln/1@000504030201

aaln/#@ - ex: aaln/1@v3300.draytek.com

Logic ID Starting Number Determine the starting number for the endpoint name. There are eight ports in Vigor3300 series. The default name for endpoint will be “aaln”. If you type “1” in this field, the endpoint name will be “aaln/1, aaln/2...,aaln/8”. If you type “11” in this field, the endpoint name will be “aaln/11, aaln/12....aaln/18”, etc. Simply keep the default value (1).

Wild-carded RSIP For VoIP phone call with MGCP configuration, each port will send RSIP to call agent for notifying that port is initiated or restarted.









Each endpoint sends its own RSIP – Each port must send one RSIP message (e.g., aaln/1@[172.16.3.5]) to call agent respectively.

Send only one wild RSIP – Only one RSIP message (e.g., aaln/*@[172.16.3.5]) will be sent to call agent to indicate all ports are initiated/restarted.

3.7.2 Port Settings

Port Settings page allows users to set phone number and phone groups for different call receivers.

For Phone Number

VoIP - Port Settings							
Phone Number		Group					
#	Edit	Type	Active	Group	Username	Proxy	Codec
1		FXS	V	1	1001		G.729A-8kbps
2		FXS	V	2	1002		G.729A-8kbps
3		FXS	V	3	1003		G.729A-8kbps
4		FXS	V	4	1004		G.729A-8kbps
5		FXS	V	5	1005		G.729A-8kbps
6		FXS	V	6	1006		G.729A-8kbps
7		FXS	V	7	1007		G.729A-8kbps
8		FXS	V	8	1008		G.729A-8kbps

- Edit** Click this button to access into the Edit page for each phone number.
- Type** Display the type of the VoIP connection.
- Active** Display the status (active or not) for the VoIP connection.
- Group** Display the group number of the VoIP connection.,
- Username** Display the username that you typed for the VoIP connection.
- Proxy** Display the proxy information that you set on **VoIP >> Protocol** page for the VoIP connection.
- Codec** Display the codec settings for the VoIP connection.

When you click **Edit**, the following page will appear for you to configure.

VoIP - Port Settings - Port1 - Edit

Port 1 (FXS)

Disable Enable

Username:

Password:

Display Name:

Authentication ID:

Proxy Server:

Call without Registration: Disable Enable

Play dial tone only when port registered:

VoIP IP Address:

Hotline

Hotline Number to Internet:

Hotline Number to PBX / PSTN: ('p'.delay 1.8sec)

FXO

Manual Disconnection:

Codec

Preferred Codec :

Single Codec :

Codec Rate : (ms)

Codec VAD: Disable Enable

CAS

Microphone Gain: (Range: -32 ~ 31)

Speaker Gain: (Range: -32 ~ 31)

FAX

FAX Mode:

FAX Bypass Codec:

FAX Bypass Codec Rate : (ms)

DTMF

DTMF Mode: InBand OutBand(RFC2833) SIP INFO

DTMF Volume: (Range: 0 ~ 31)

Call Forwarding

Disable

Call forwarding all calls

Call forwarding busy

Call forwarding no answer after rings (Range:1~10)

SIP URL (Example: 8001@iptel.org)

Call Waiting

Disable Enable

CLIP Display

Disable Enable

Port 1 (FXS)

Click **Enable** to activate this port or **Disable** to close this port.

User Name – Type the user name (a number) for each phone line.

Password - Type the user password for each phone line.

Display Name - Type the user name to be displayed on another phone terminal.

Authentication ID - Type the characters for authenticate this

port.

Proxy Server - Type the SIP proxy server to be applied on this port.

Call without Registration – If the registration for this port is not successful, click **Enable** to call via this port.

Play dial tone only when port registered – If the registration for this port is not successful, no dial tone appears when picking up the phone.

VoIP IP Address - The interface is used to apply VoIP traffics. There are two options: **WAN** and **LAN/VPN**. If LAN/VPN is selected, VoIP can be applied through a VPN tunnel to create a high security voice phone.

Hotline

Hotline Number to Internet - Pre-set a phone number to make the port dialing out to Internet automatically.

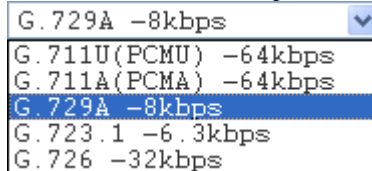
Hotline Number to PBX / PSTN- Pre-set a phone number to make the port dialing out to PBX/PSTN automatically.

FXO

Manual Disconnection - Click **Disconnect** to disconnect this phone line manually.

Codec

Preferred Codec - It can be applied on this port. Vigor3300 supports five Codecs. The default setting is G.729A. You can choose another one as preferred Codec for outgoing calls.



Single Codec - If you checked this box, only preferred codec will be used for outgoing and incoming calls. And if the remote end does not support such Codec, the VoIP communication will be failed.

Codec Rate - Type the rate value to be applied on this port.

Codec VAD- Enable or Disable VAD (Voice Activity Detection). It can detect whether the voice activity is progressing or not. If not, RTP packets transmission will be stopped for saving more bandwidth.

CAS

Microphone Gain- The gain value while transmitting voice. The default value is 0. The range is from -32 to 31.

Speaker Gain- The gain value while receiving voice. The default value is 0. The range is from -32 to 31.

FAX

FAX Mode -The FAX function mode. There are **several** options:

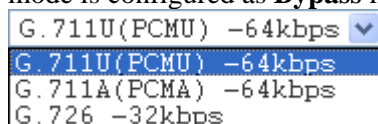
Transparent: FAX will be transmitted via voice channel; no fax relay and no Codec change will be involved.

T.38 Relay: Using T.38 Fax Relay. This is the default value.

Bypass: Once FAX is detected, the Codec will automatically switch to a high bit rate type (G.711a/u or G.726) to make sure FAX can transmit successfully.

If this option is selected, the Vigor3300 will apply these two following settings (FAX Bypass Codec and FAX Bypass Codec Rate).

FAX Bypass Codec - Select one option to be applied if FAX mode is configured as **Bypass** mode.



FAX Bypass Codec Rate - Select one option (20 or 40) to be applied if FAX mode is configured as **Bypass** mode. The stability for the faxing result of documents with codec rate 20ms is higher than 40ms. Yet, the bandwidth request for 40ms is less than 20ms.

DTMF

DTMF Mode -

InBand: Choose this one then the Vigor will send the DTMF tone as audio directly when you press the keypad on the phone.

OutBand (RFC2833): 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.

DTMF Volume – Determine the volume of DTMF voice signal. The more the number is set, the greater the sound is.

Call Forwarding

Disable - Disable forwarding function.

Call forwarding all calls - Forward all incoming calls to the specified SIP URL site.

Call forwarding busy - Forward incoming calls to the specified SIP URL site when this line is busy.

Call forwarding no answer after (Range: 1~10) rings- Forward incoming calls to the specified SIP URL site after

ringing the times that you set here.

SIP URL - Assign a SIP URL site to receive forwarded calls.

Call Waiting

Click **Enable** 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.

CLIP Display

Click **Enable** to display the call number.

Apply

When you finish all the configurations, please click this button to activate them.

For Group

It is very important to provide a Group function for voice service within a company. Customers can simultaneously call the same phone number. When the Vigor3300 gets a phone call, which is configured in the first port of a group from Internet, it will ring all available ports belonging to this group to provide voice service at the same time. It is easier for the customer to remember just one phone number corresponding to the company. By enabling this function, the 4- or 8-port VoIP will use the first enabled port phone setting on the table as their phone number.

Up to 8 groups can be configured and assigned a specific phone line. Each phone line must be unique and cannot be overlapped as shown below.

VoIP - Port Settings

Phone Number **Group**

Group : Disable Enable

Group	Port							
	1	2	3	4	5	6	7	8
1	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
7	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
8	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

Incomming Call Rings

Rings all ports in the group Rings the first available port Rings by round robin

Default Group Apply Cancel

Rings all ports in the group Click this radio button to make all ports in the same group ringing while receiving incoming calls.

Rings the first available port Click this radio button to make the first available port in the same group ringing while receiving incoming calls.

Rings by round robin Click this radio button to make the phone port ringing in sequence within the same group.

Default Group

Click this button to return to the factory group settings.

3.7.3 Speed Dial

This page allows you to set a simple way to dial a specific number. Up to 150 numbers can be stored in Vigor3300V.

#	Speed Dial Phone Number	Speed Dial Destination	Memo
1	1001	1001@iptel.org	dial 1
2			
3			
4			
5			

Example 101 101@iptel.org

1 2 3 4 5 6 7 8 9 10 >

Apply Cancel Clear This Page

Speed Dial Phone Number Type the phone number to be used as quick dial.

Speed Dial Destination Type the destination address of the dial.

Memo Type a description for the specified number.

Apply Click this button to activate the page settings.

Clear This Page Click this button to remove all the settings in this page.

3.7.4 Advanced Speed Dial

Speed dial allows users to call out with simple buttons instead of dialing long numbers. To set a speed dial with specified settings, please open the following page.

#	Prefix	Strip Length	Append	Destination	Memo
1	<input checked="" type="radio"/>				
2	<input type="radio"/>				
3	<input type="radio"/>				
4	<input type="radio"/>				
5	<input type="radio"/>				
6	<input type="radio"/>				
7	<input type="radio"/>				
8	<input type="radio"/>				
9	<input type="radio"/>				
10	<input type="radio"/>				

1

Edit Delete Delete All

Prefix Display the prefix number of the entry.

Strip Length Display the strip length of the entry.

Append	Display the appended number of the entry.
Destination	Display the IP address of the destination of the entry.
Memo	Display the brief description stated in memo field of the entry.
Edit	Click this button to access into the editing page of the speed dial.
Delete/Delete All	Click this button to delete the selected setting or all settings.

To configure one entry, please click **Edit** to open the following page.

Prefix	Assign a prefix for checking the phone number that users dial out. If the prefix of the outgoing call matches to the number set in this field, that outgoing call can apply the speed dial. For example, suppose that there are two outgoing calls with phone numbers of 03654321 and 04556890. In which, 03654321 is suitable for this speed dial rule.
Strip Length	Assign the length of digit to be removed from the original phone number. For example, suppose the original phone number is 03654321 and the strip length is 2. The first two numbers (03) will be removed and the final phone number becomes 654321.
Append	Assign a new number to be added before the phone number (after removing length of digit). For example, suppose the original phone number is 03654321. The strip length is 2 and the append number is 886. Then, the final phone number will be 886654321.
Destination	Assign an IP address for the destination which the SIP message would be sent to.
Memo	A description for this entry.

3.7.5 Miscellaneous

This page includes **RTP** and **T.38 Starting Port, T.38 Redundancy Number, VoIP ToS, and FAX Ringing** settings.

VoIP - Miscellaneous

RTP Starting Port:

T.38 Starting Port:

T.38 Redundancy number: (Range: 0~4)

Dialing Completion Timeout: sec (Range: 1~60)

VoIP ToS:

Line Polarity Reversal: as Callee on-hook as Callee Answer

FXO auto disconnection if no packet is received in seconds. (Range: 5~3600, 0: no auto disconnection)

FXS On-hook Tip/Ring Voltage:

FXS Ringing

Ringing Frequency: (HZ)

Ringing Cadence - On: (msec)

Ringing Cadence - Off: (msec)

- RTP Starting Port** The starting port number for RTP protocol packet. The default setting is 13456.
- T.38 Starting Port** The starting port number for T.38 protocol packet. The default setting is 49170.
- T.38 Redundancy Number** The redundancy number (how many payloads attaching to the tail of the packet) for T.38 protocol. The default value is 1.
- Dialing Completion Timeout** Users might dial with incomplete phone number and wait for several seconds but not finish the complete dialing. The system will force to dial the incomplete number after the time you set in this field to finish that call. For example, the phone number is 03654321 and the dialing completion timeout is set to 4 (secs). The user dials with 036 and stops to dial. After passing through 4 seconds, the router will send out that phone call automatically.
- VoIP ToS** The ToS value in VoIP protocol packet. The default setting is 0xa0.
- Line Polarity Reversal**
as Callee Answer - Check this box to generate line polarity reversal while the remote user picks up the phone call.
as Callee on-hook - Check this box to generate line polarity reversal while the remote user hangs up the phone call.
- FXO auto disconnection if no packet is received in X minutes** Determine the time length for the FXO disconnecting automatically when there is no packet received.
- FXS On-hook Tip/Ring Voltage** Determine the voltage of FXS port (on hook). Choose **Low** to save the power.

- Ringing Frequency** Please select a proper setting as the ringing frequency.
- Ringing Cadence - On** Determine the length of the ringing time for incoming calls.
- Ringing Cadence - Off** Determine the length for the incoming calls to stop ringing.

3.7.6 Tone Settings

This 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 - Tone Settings

Region: Caller ID Type:

Tone Classification	Low Frequency(Hz)	High Frequency(Hz)	TOn1 (10msec)	TOff1 (10msec)	TOn2 (10msec)	TOff2 (10msec)
Dial tone	<input type="text" value="350"/>	<input type="text" value="440"/>	<input type="text" value="500"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
Ringing tone	<input type="text" value="440"/>	<input type="text" value="480"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="200"/>	<input type="text" value="400"/>
Busy tone	<input type="text" value="480"/>	<input type="text" value="620"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="50"/>	<input type="text" value="50"/>
Congestion tone	<input type="text" value="480"/>	<input type="text" value="620"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="25"/>	<input type="text" value="25"/>

Tone Timer

Dial Tone :	<input type="text" value="16"/>	Busy Tone :	<input type="text" value="30"/>	Howler Tone :	<input type="text" value="60"/>	Ringing Tone :	<input type="text" value="180"/>
Special Dial Tone :	<input type="text" value="16"/>	Call Waiting Tone :	<input type="text" value="30"/>	Congestion Tone :	<input type="text" value="30"/>	Reorder Tone :	<input type="text" value="30"/>

- Region** Choose the country area that the Vigor3300 located for using VoIP feature. Or, select **User Defined** for proprietary settings.

- User Defined
- Australia
- Canada, US
- China
- Denmark
- Finland
- France
- Germany
- Hong Kong
- Japan
- Netherlands
- Norway
- Singapore
- Taiwan
- UK

- Caller ID Type** If **User Defined** is selected in the **Region** field, users can select one of the supported values. If a country is selected, this field

will display ID type value automatically.



Dial tone	A tone means the phone line is ready to make a call.
Ringing tone	A tone means the call is ringing.
Busy tone	A tone means the phone line is busy.
Congestion tone	A tone means the network is busy.
Low Frequency (Hz)	Type the low frequency number in Hertz.
High Frequency (Hz)	Type the high frequency number in Hertz.
TOn1 (10msec)	Type the duration of the first ring.
TOff1 (10msec)	Type the silence duration after the first ring.
TOn2 (10msec)	Type the duration of the next continuous ring.
TOff2 (10msec)	Type the silence duration after the next continuous ring.
Tone Timer	Determine the timeout for the tone invoked.

3.7.7 QoS

This Quality of Service (QoS) function is only for the VoIP feature. When this function is enabled, the Vigor 3300 Series will set rate limitation for incoming and outgoing transmissions to ensure the best quality of service in VoIP.

VoIP - QoS

Disable (non-guaranteed voice quality, higher data throughput)

Enable (guaranteed voice quality, normal data throughput)

Advanced QoS

Link Fragmentation and Interleaving: (For uplink bandwidth < 768 kbps)

Apply Cancel

Disable

Click this button to disable QoS function. The voice quality cannot be guaranteed and the data throughput will be higher.

Enable

Click this button to invoke QoS function. The voice quality can be good and the data throughput will be lower.

Link Fragmentation and Interleaving

Each packet size is determined by the bandwidth of WAN interface. The smaller the bandwidth is, the smaller the packet will be. Such activity can reduce the time delay of packet transmitting. Meanwhile, the VoIP packets will be inserted in the front of queue of signal for transmitting quickly and obtaining best audio quality. Please check this box to invoke this function (shrinking the packet for fast sending).

3.7.8 NAT Traversal

NAT traversal is a challenge that all Service Providers looking to deliver public IP-based voice and multimedia services must solve. The goal of this function is to provide secure connection to subscribers behind NAT (Network Address Translation) devices and Firewalls. Overcoming this traversal problem will lead to widespread deployment of profitable voice and multimedia over IP services to any subscriber with broadband connection.

VoIP - NAT Traversal

NAT Traversal

Disable

Manually Input NAT IP Address

Auto Discover NAT IP Address

NAT IP Address :

Semi-auto, need to config NAT

Full-auto, no need to config NAT (only for SIP)

STUN Local Port :

STUN Server Address :

STUN Server Port :

Symmetric Media

Disable symmetric RTP and T.38

Enable symmetric RTP and T.38

NAT Status

NAT Type: N/A, Local IP Address: 172.16.3.229, WAN IP Address: 172.16.3.229

Disable

Disables this function. The feature is used if Vigor3300 has a public WAN IP address and not behind a NAT router.

Manually Input NAT IP Address

NAT IP Address - Type the IP address to be used as the NAT IP address. The feature is used when Vigor 3300V is behind a NAT router, and the NAT router uses a static WAN IP address. This value is the same as the WAN IP of the front NAT router.

Auto Discovery NAT IP Address

It is used when Vigor3300 is behind a NAT router, and the NAT router uses a dynamic WAN IP address such as a DHCP or PPPoE client. The Vigor3300 requires a STUN server for this option.

The “STUN” (Simple Traversal of UDP through NATs) server is an implementation of the STUN protocol that enables STUN functionality in SIP-based systems. It is an application-layer protocol that can determine the public IP and nature of a NAT device sitting between the STUN client and STUN server.

Semi-auto, need to config NAT – If you click this function; the user needs to configure NAT information.

Full-auto, no need to config NAT (only for SIP)- If you

click this function; the user does not configure NAT information.

STUN Local Port - Type the port number of the STUN server.

STUN Server Address - Type the IP address of the STUN server.

STUN Server Port - Type the port number of the STUN server.

Symmetric Media

Disable symmetric RTP and T.38 – Click this button to make RTP and T.38 being not symmetrical.

Enable symmetric RTP and T.38 - Click this button to make RTP and T.38 being symmetrical. When Vigor3300 detects the IP address of the receiving packets differing with the address informed by remote end, Vigor3300 will change the IP address automatically according to the real IP address of the packets to ensure the remote receiver can get the packets.

3.7.9 Incoming Call Barring

This feature is used to bar incoming VoIP calls from the Internet. Barring classes can be specified to allow or deny incoming calls. There are five barring classes on the device. The default setting is **Allow all incoming calls**.

Set

This page allows you to choose a barring class, match method and set a range for speed dial entries for the incoming call barring.

VoIP - Incoming Call Barring - Set

Barring Class
Deny only calls from deny list

Match Method

Name : Disable Enable
Remind:

IP/Domain : Disable Enable
Remind:

Speed Dial Entries
From: 1 To: 150

Apply Cancel

Barring Class

There are five options for incoming calls from remote ends. Choose either one of them to set the barring class.

Deny only calls from deny list

Allow all incoming calls

Allow only calls from allow list

Allow only calls from speed dial entries

Deny only calls from deny list

Deny all incoming calls

Allow all incoming calls – All incoming calls from remote

ends are accepted by this router.

Allow only calls from allow list – Only the calls listed in the Allow List page will be accepted by this router.

Allow only calls from speed dial entries – Only the calls listed in the speed dial entries will be accepted by this router.

Deny only calls from deny list – The calls listed on Deny List page will not be accepted by this router. And others calls are accepted.

Deny all incoming calls – All incoming calls from remote ends are not accepted by this router.

Match Method

Name - Enable or Disable this function to take value of **Speed Dial Phone Number** to be checked.

IP/Domain - Enable or Disable this function to take the value of **Speed Dial Destination** to be checked.

Speed Dial Entries

Type the range to be checked. The default value is from 1 to 150.

Allow List

The Vigor3300 Series supports up to **30** entries in the Allow List table. When you choose **Allow only calls from allow list** as the Barring Class, only the people listed in this list can call this router.

#	Name	IP/Domain
1	Tom	192.168.1.6
2	John	iptel.org
3		
4		
5		
Example	John	192.168.1.1 or iptel.org

Name

The name or number in the allow list.

IP/Domain

The IP address or domain name to be allowed. If the peer is registered in SIP proxy server, use the domain name of the SIP proxy server. Otherwise, use the static IP address or DDNS domain name.

Deny List

The Vigor3300 Series supports up to **30** entries in the Deny List table. When you choose **Deny only calls from deny list** as the Barring Class, people listed in this list **cannot** call this router.

VoIP - Incoming Call Barring - Deny List

#	Name	IP/Domain
1	<input type="text" value="James"/>	<input type="text" value="172.16.3.221"/>
2	<input type="text" value="Steven"/>	<input type="text" value="arctel.com"/>
3	<input type="text"/>	<input type="text"/>
4	<input type="text"/>	<input type="text"/>
5	<input type="text"/>	<input type="text"/>
Example	John	192.168.1.1 or iptel.org

1 2 3 4 5 6

Name

The name or number in the deny list.

IP/Domain

The IP address or domain name to be denied. If the peer is registered in SIP proxy server, use the domain name of the SIP proxy server. Otherwise, use the static IP address or DDNS domain name.

3.7.10 Call History

This page lists the call history through Vigor3300. You can click **Refresh** to get the latest history information for these VoIP phones. Besides, this page refreshes automatically every 10 seconds.

VoIP - Call History

Refresh Option:

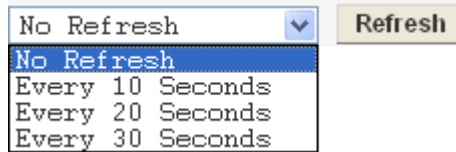
#	Port Number	Call Type	Caller Number	Callee Number	Start Time	End Time	Duration	Release Reason	Remote RTP Address	Remote RTP Port	RTP Statistic	Codec Type	Packet Period	VAD	DTMF Relay
* PS: Packets Sent, OS: Octets Sent, PR: Packets Received, OR: Octets Received, PL: Packets Lost, JI: Interarrival Jitter Estimate (ms), LA: Avg TX Delay(ms)															

#	Port Number	Call Type	Caller Number	Callee Number	Start Time	End Time	Duration	Release Reason	Remote RTP Address	Remote RTP Port	RTP Statistic	Codec Type	Packet Period	VAD	DTMF Relay
1	5	Incoming	888846	888845	Fri Sep 23 17:01:51 2005	Fri Sep 23 17:02:00 2005	0 days, 00h:00m:09s	Normal Drop	61.230.213.114	13466	PS=275, OS=5500, PR=143, OR=2860, PL=0, JI=0, LA=0	G.729A 8kbps	20ms	Off	RFC2833
2	6	Outgoing	888846	888845	Fri Sep 23 17:01:47 2005	Fri Sep 23 17:02:00 2005	0 days, 00h:00m:13s	Normal Drop	61.230.213.114	13464	PS=143, OS=2860, PR=144, OR=2880, PL=0, JI=0, LA=0	G.729A 8kbps	20ms	Off	RFC2833
* PS: Packets Sent, OS: Octets Sent, PR: Packets Received, OR: Octets Received, PL: Packets Lost, JI: Interarrival Jitter Estimate(ms), LA: Avg TX Delay(ms)															

Refresh Option

You can click **Refresh** to get the latest status information for these VoIP phones. In addition, you can set the time interval of refreshing. Use the drop down list of **Refresh Option** to choose an automatic refreshing setting. If you choose **No Refresh**, the

system will not refresh this page until you click **Refresh** button.



Port Number	The port number of VoIP.
Call Type	The dialing direction for this call (Incoming/Outgoing).
Caller Number	The phone number of the caller.
Callee Number	The phone number of the receiver.
Start Time	The starting time of the call.
End Time	The ending time of the call.
Duration	The duration of the call.
Release Reason	The reason for the call termination.
Remote RTP Address	The IP address of remote voice site.
Remote RTP Port	The used port number of remote voice site.
RTP Statistic	The statistic of RTP with abbreviation will be shown in this field (e.g., PS: Packets Sent; OS: Octets Sent; PR: Packets Received; OR: Octets Received; PL: Packets Lost; JI: Interarrival Jitter Estimate (ms); LA: Average TX Delay(ms)).
Codec Type	The Codec mode used for this phone calling.
Packet Period	The period of time for sampling on voice signal.
VAD	The status of VAD.
DTMF Relay	The status of DTMF.

3.7.11 Tone Upload

This page allows you to upload tone settings such as G.711a Ping Prompt, G.711a Pin Error, G.729 Pin Prompt and G.729 Pin Error to Vigor3300 series. Click **Browse..** to choose the file and click **Apply** to upload it.

VoIP - G.711 Tone Upload

G.711a Pin Prompt

VoIP - G.711 Tone Upload

G.711a Pin Error

VoIP - G.729 Tone Upload

G.729 Pin Prompt

VoIP - G.729 Tone Upload

G.729 Pin Error

When a user wants to dial out via FXO port, a sound would be played to ask the user typing PIN code first. If the PIN code is correct, the user can dial out. If not, prompt sound of PIN Error would be played.

3.7.12 Status

This page displays the connection status for VoIP phone calls.

VoIP - Status

Refresh Option:

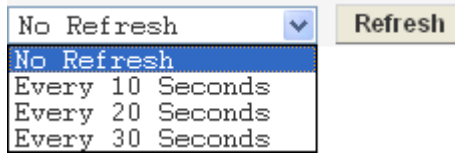
#	Register Status	Call Status	Call Type	Caller Number	Callee Number	Start Time	Remote RTP Address	Remote RTP Port	RTP Statistic	Codec Type	Packet Period	VAD	DTMF Relay
1		Idle											
2		Idle											
3		Idle											
4		Idle											
5		Idle											
6		Idle											
7		Idle											
8		Idle											

* PS: Packets Sent, OS: Octets Sent, PR: Packets Received, OR: Octets Received, PL: Packets Lost, JI: Interarrival Jitter Estimate(ms), LA: Avg TX Delay(ms)

Refresh Option

You can click **Refresh** to get the latest status information for these VoIP phones. In addition, you can set the time interval of refreshing. Use the drop down list of **Refresh Option** to choose

an automatic refreshing setting. If you choose **No Refresh**, the system will not refresh this page until you click **Refresh** button.



The image shows a screenshot of a web interface. On the left, there is a dropdown menu with a blue border and a small downward arrow on the right. The menu is open, showing four options: "No Refresh" (highlighted in blue), "Every 10 Seconds", "Every 20 Seconds", and "Every 30 Seconds". To the right of the dropdown menu is a rectangular button with a light gray background and the word "Refresh" in black text.

Register Status	The status of registering in proxy server.
Call Status	The calling status.
Call Type	The dialing direction for this call (Incoming/Outgoing).
Caller Number	The phone number of the caller.
Callee Number	The phone number of the receiver.
Start Time	The starting time of the call.
Remote RTP Address	The IP address of the remote voice site.
Remote RTP Port	The used port number of the remote voice site.
Codec Type	The Codec mode used for this phone call.
Packet Period	The period of time for sampling on voice signal.
VAD	The status of VAD.
DTMF Relay	The status of DTMF.

This page is left blank.

4

Trouble Shooting

This section will guide you to solve abnormal situations if you cannot access into the Internet after installing the router and finishing the web configuration. Please follow below sections to check your basic installation stage by stage.

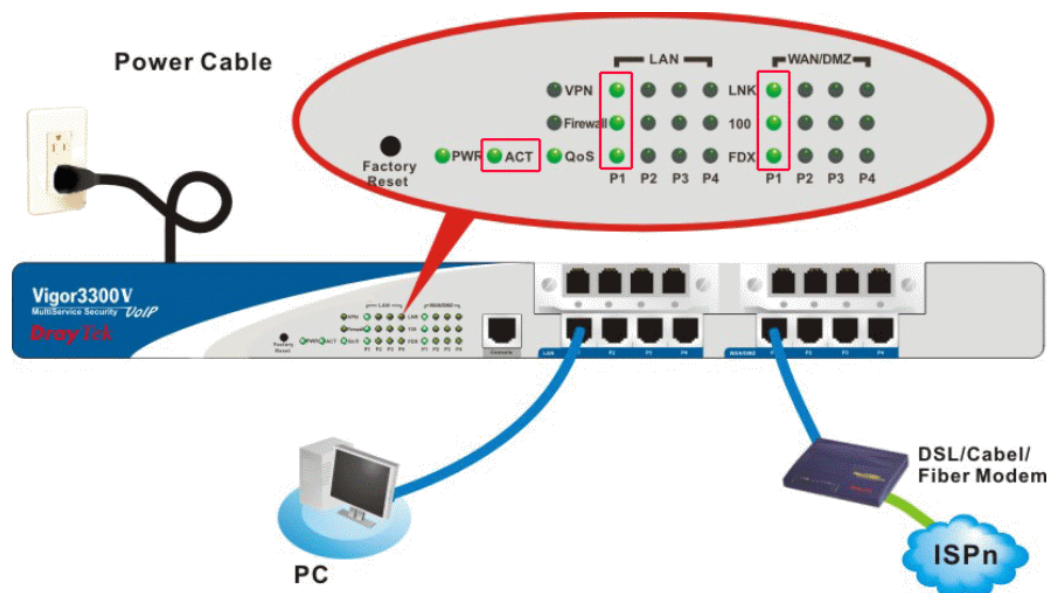
- Checking if the hardware status is OK or not.
- Checking if the Network Connection Settings on your computer is OK or not.
- Pinging the Router from your computer.
- Checking if the ISP Settings are OK or not.
- Backing to factory default setting if necessary.

If all above stages are done, and the router still cannot run normally, it is the time for you to contact with your dealer for advanced help.

4.1 Checking If the Hardware Status Is OK or Not

Follow the steps below to verify the hardware status.

1. Check if the power line and WLAN/LAN cable connections is OK.
If not, refer to “**2.1 Hardware Installation**” for reconnection.
2. Turn on the router. Make sure the **ACT LED** blinks once per second and the correspondent **WAN/LAN LED** is bright.



3. If not, there must be something wrong with the hardware connection. Simply back to “**2.1 Hardware Installation**” to execute the hardware installation. And then, try again.

4.2 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 still failed, please do the steps listed below to make sure the network connection settings is OK.

For Windows

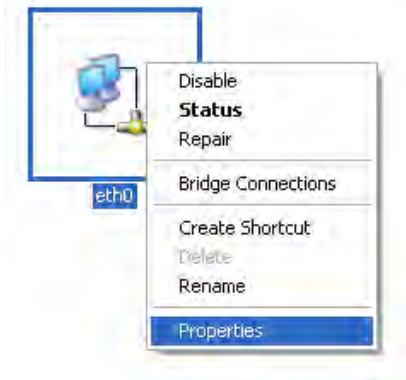


The example is based on Windows XP. As to the examples for other operation systems, please refer to the similar steps or find support notes in www.draytek.com.

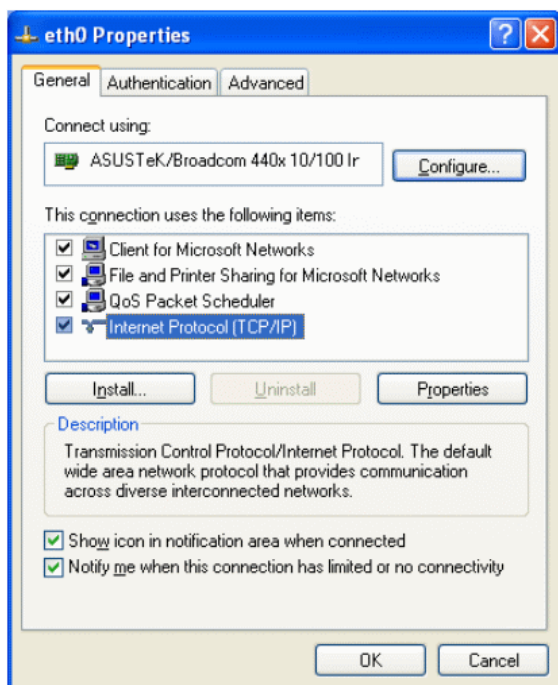
1. Go to Control Panel and then double-click on Network Connections.



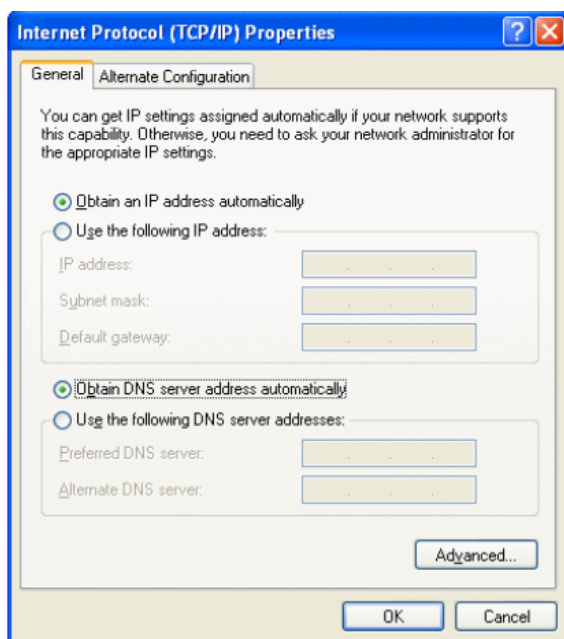
2. Right-click on Local Area Connection and click on Properties.



3. Select **Internet Protocol (TCP/IP)** and then click **Properties**.

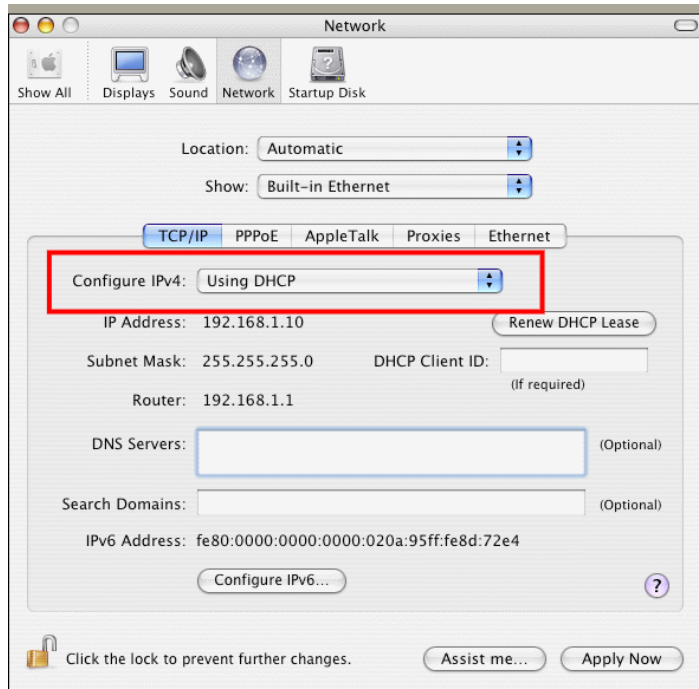


4. Select **Obtain an IP address automatically** and **Obtain DNS server address automatically**.



For MacOs

1. Double click on the current used MacOs 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.



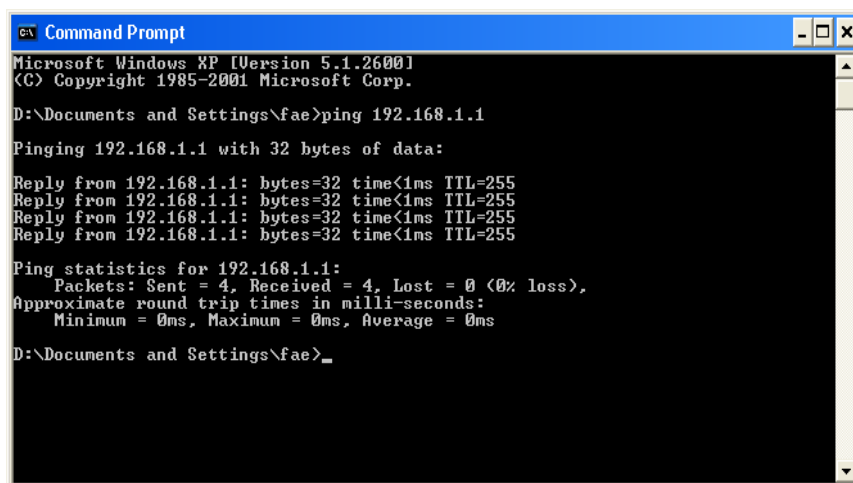
4.3 Pinging the Router from Your Computer

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 for this command is that the computer will receive a reply from 192.168.1.1 for correct link.** 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 3.2)

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). 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 MacOs (Terminal)

1. Double click on the current used MacOs 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.

```





Terminal — bash — 80x24
Last login: Sat Jan 3 02:24:18 on ttty1
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$

```

4.4 Checking If the ISP Settings Are OK or Not

1. Go to the web configuration GUI (<http://192.168.1.1>), click **Network >> WAN** to check your ISP settings for IP modes.
2. Make sure the **Active** check box has been selected.

Network - WAN

Load Balance :		<input checked="" type="radio"/> Disable	<input type="radio"/> Enable	<input type="checkbox"/> Auto Weight
Backup :		<input checked="" type="radio"/> Disable	<input type="radio"/> Enable	
#	Edit	IP Mode	Active	Defat
WAN1		PPPoE	<input checked="" type="checkbox"/>	<input checked="" type="radio"/>
WAN2		Not Set	<input type="checkbox"/>	<input type="radio"/>
WAN3		Not Set	<input type="checkbox"/>	<input type="radio"/>
WAN4		Not Set	<input type="checkbox"/>	<input type="radio"/>

For PPPoE Mode

1. Check if **Username** and **Password** are entered with correct values that you **got from** your **ISP**.
2. Check if the setting of **Authentication** is correct or not. You may need to try both **PAP** and **CHAP**.

3. Check if **Service Name** (optional) is correct or not. It is required by some ISPs.

Static/DHCP Configuration	PPPoE/PPTP Configuration	DMZ Configuration	
User Name : <input type="text" value="1234@hinet.net"/> Password : <input type="password" value="••••"/> Authentication : <input type="text" value="PAP"/> <input type="button" value="v"/> Service Name : <input type="text"/> PPPoE IP Alias : <input checked="" type="checkbox"/> Enable		PPTP Local Address : <input type="text" value="10.66.99.88"/> PPTP Subnet Mask : <input type="text" value="255.255.255.0"/> PPTP Server Address : <input type="text" value="172.66.99.88"/>	
MTU : <input type="text" value="1442"/>			
IP Address Assignment Method (IPCP)			
Fixed IP : <input checked="" type="radio"/> No (Dynamic IP) <input type="radio"/> Yes			
Fixed IP Address : <input type="text"/>			
Connection Detection			
Detect Interval : <input type="text" value="10"/>			
No-Reply Count : <input type="text" value="2"/>			
IP Alias List			
1.	<input type="text" value="10.1.1.100"/>	2.	<input type="text" value="10.1.1.101"/>
3.	<input type="text" value="10.1.1.102"/>	4.	<input type="text"/>
5.	<input type="text"/>	6.	<input type="text"/>
7.	<input type="text"/>	8.	<input type="text"/>
9-32			
<input type="button" value="Apply"/> <input type="button" value="Reset"/> <input type="button" value="Cancel"/>			

After finishing the settings, go to **System - Status** page and click **WAN Status**. You will get a correct web page of WAN settings.

Basic Status	LAN Status	WAN Status
WAN1 :		
IP Address :	218.168.228.27	
MAC Address :	00:50:7f:28:80:e6	
Primary DNS :	168.95.1.1	
Secondary DNS :		
Gateway :	61.230.192.254	
RX Packets :	95	
TX Packets :	40	
Connection Status :	connected	
Up Time :	0 days 0 hours 4 minutes 45 seconds	
<input type="button" value="Disconnect"/>		

For Static Mode

1. Check if the values of **IP Address**, **Subnet Mask**, **Gateway IP Address** and **Primary DNS** that you got from ISP are set properly or not. If you forget, please contact with ISP for getting new ones.

Static/DHCP Configuration	PPPoE/PPTP Configuration	DMZ Configuration
IP Address :	<input type="text" value="172.16.3.229"/>	Host Name : <input type="text"/>
Subnet Mask :	<input type="text" value="255.255.255.0"/>	Domain Name : <input type="text"/>
Default Gateway :	<input type="text" value="172.16.3.1"/>	(Host Name and Domain Name are required for some ISPs.)
Primary DNS :	<input type="text" value="168.95.1.1"/>	
Secondary DNS :	<input type="text" value="168.95.192.1"/>	

2. If anything wrong, please retype correct values and try the network connection again.
3. After finishing the settings, go to **System - Status** page and click **WAN Status**. You will get a correct web page of WAN settings.

Basic Status	LAN Status	WAN Status
WAN1 :		
IP Address :	220.130.52.221	
MAC Address :	00:50:7f:28:80:e4	
Primary DNS :	168.95.1.1	
Secondary DNS :		
Gateway :	220.130.52.209	
RX Packets :	708	
TX Packets :	384	
Connection Status :	connected	
Up Time :	0 days 0 hours 5 minutes 7 seconds	

For DHCP Mode

1. Check if **Host Name** (optional) and **Domain Name** (optional) are correct or not. Both them are required for some ISPs.

Static/DHCP Configuration	PPPoE/PPTP Configuration	DMZ Configuration
IP Address :	<input type="text" value="172.16.3.229"/>	Host Name : <input type="text"/>
Subnet Mask :	<input type="text" value="255.255.255.0"/>	Domain Name : <input type="text"/>
Default Gateway :	<input type="text" value="172.16.3.1"/>	(Host Name and Domain Name are required for some ISPs.)
Primary DNS :	<input type="text"/>	
Secondary DNS :	<input type="text"/>	

2. If anything wrong, please check and retype correct values. Then try the network connection again.
3. After finishing the settings, go to **System >> Status** page and click **WAN Status**. You will get a correct web page of WAN settings.

Basic Status	LAN Status	WAN Status
WAN1 :		
IP Address :	172.16.100.10	
MAC Address :	00:50:7f:28:80:e5	
Primary DNS :	172.16.100.1	
Secondary DNS :		
Gateway :	172.16.100.1	
RX Packets :	96	
TX Packets :	100	
Connection Status :	connected	
Up Time :	0 days 0 hours 4 minutes 51 seconds	

For PPTP Mode

1. Check if the settings of **Username** and **Password** are correct or not.
2. Check if the setting of **Authentication** is correct or not. You may need to try both **PAP** and **CHAP**.
3. Check if the value of **PPTP Local Address**, **PPTP Subnet Mask**, and **PPTP Remote Address** are correct or not.

Static/DHCP Configuration	PPPoE/PPTP Configuration	DMZ Configuration
User Name :	<input type="text" value="draytek"/>	PPTP Local Address : <input type="text" value="10.0.0.150"/>
Password :	<input type="password" value="•••••"/>	PPTP Subnet Mask : <input type="text" value="255.255.255.0"/>
Authentication :	<input type="text" value="PAP"/>	PPTP Server Address : <input type="text" value="10.0.0.137"/>
Service Name :	<input type="text"/>	

4. After finishing the settings, go to **System - Status** page and click **WAN Status**. You will get a correct web page of WAN settings.

Basic Status	LAN Status	WAN Status
WAN1 :		
IP Address :	61.230.208.202	
MAC Address :	00:50:7f:28:80:e7	
Primary DNS :	194.109.6.66	
Secondary DNS :	194.98.0.1	
Gateway :	61.230.208.245	
RX Packets :	341	
TX Packets :	86	
Connection Status :	connected	
Up Time :	0 days 0 hours 4 minutes 39 seconds	
<input type="button" value="Disconnect"/>		

4.5 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.



Warning: After pressing **factory default setting**, you will lose all settings you did before. Make sure you have recorded all useful settings before you pressing. The password of the factory default is null.

Software Reset

You can reset router to factory default via Web page.

Go to **System >> Reboot** on the web page. The following screen will appear. Choose **Reset to factory default** and click **Apply**. After few seconds, the router will return all the settings to the factory settings.

System - Reboot

System rebooting will take 20 seconds

Reset to factory default

Apply

Hardware Reset

While the router is running (ACT LED blinking), press the **RST** 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.

4.6 Contacting Your Dealer

If the router settings are correct at all, and the router still does not connect to internet, please contact your ISP technical support representative to help you for configuration.

Also, if the router still cannot work correctly, please contact your dealer for help. For any further questions, please send e-mail to support@draytek.com.

5

Application Notes

5.1 Application for 802.1 VLAN

5.1.1 Block LAN-to-LAN Communication

To control the communication of PCs among different network segments effectively, please adjust firewall setting to **deny** LAN to LAN communication from **Firewall >IP Filter Group Table**. Thus, PCs that belong to various LANs will not connect with each other through the router. To a company with several departments, such feature is useful for it to determine data sharing among different departments.

1. Open **Firewall>IP Filter>Group Table** to access into the following page. Click Index #2 radio button.

The screenshot shows the 'Firewall - IP Filter - Group Table' configuration page. It features a table with the following columns: Index, Group Name, Next Group, and Comment. There are two rows: Index 1 with Group Name 'Pass', Next Group 'Block', and Comment 'Group for pass rules'; and Index 2 with Group Name 'Block', Next Group 'none', and Comment 'Group for block rules'. The Index 2 radio button is selected. At the bottom right, there are 'Add', 'Edit', and 'Delete' buttons.

Index	Group Name	Next Group	Comment
<input checked="" type="radio"/> 1	Pass	Block	Group for pass rules
<input type="radio"/> 2	Block	none	Group for block rules

2. In this page, click **Add Rule**. Choose **Block** as Next Group Name.

The screenshot shows the 'Firewall - IP Filter Table' configuration page. It has three input fields: 'Group Name' with the value 'Block', 'Next Group Name' with a dropdown menu set to 'none', and 'Comment' with the value 'Group for block rules'. At the bottom right, there are 'Add Rule', 'Apply', and 'Cancel' buttons.

3. In the following page, please set **Block immediately** as the action and click **Apply**.

Firewall - IP Filter - Add Filter Rule

Filter Condition

Active

Source : IP :
 Subnet Mask :
 Port : = -

Destination : IP :
 Subnet Mask :
 Port : = -

Group Name :

Protocol :

Direction :

Fragment :

Action

Block or Pass :

Next Group Name :

4. Now you will get the following page.

Firewall - IP Filter Table

Group Name :
 Next Group Name :
 Comment :

IP Filter Table										
Index	Source IP	Subnet Mask	Port	Destination IP	Subnet Mask	Port	Protocol	Direction	Block	Active
1	any	255.255.255.0		any			any protocol	LAN to LAN	Block immediately	<input checked="" type="checkbox"/>

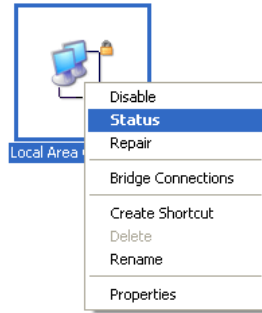
5.1.2 How to Check/Edit VLAN ID on Your PC?

Not all the network cards support VLAN features. If you cannot sure if the network card of your computer supports tagged VLAN or not, please do the following steps to check (or edit) VLAN ID on your PC.

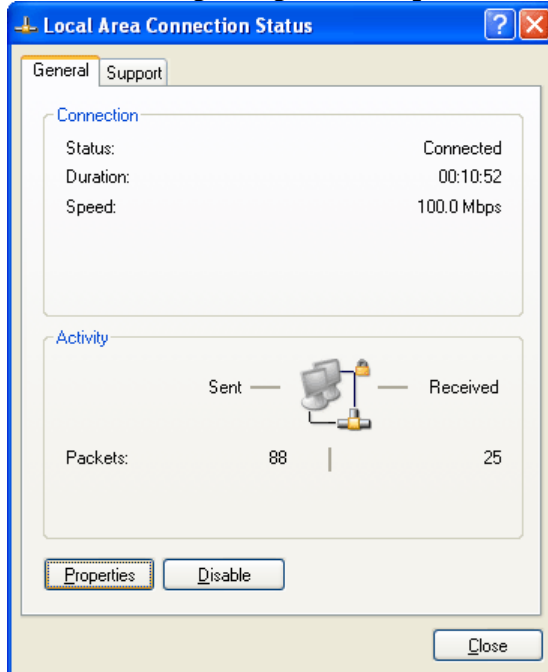
1. Go to **Control Panel** and then double-click on **Network Connections**.



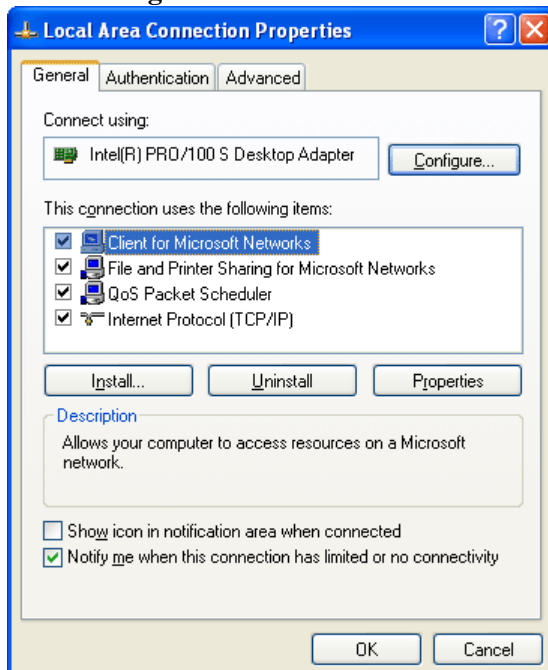
2. Right-click on **Local Area Connection** and click on **Status**.



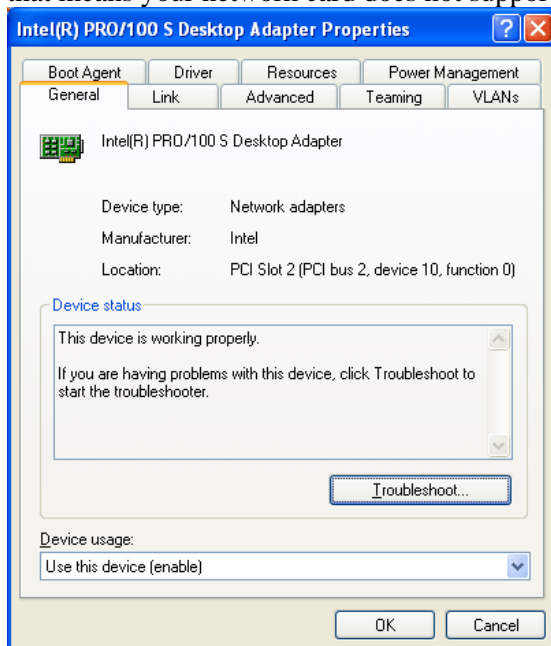
3. On the following dialog, click **Properties**.



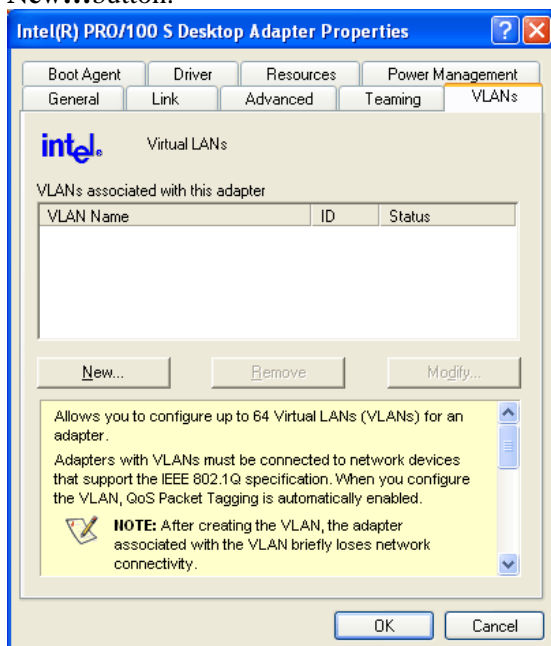
4. Click **Configure** to access into next screen.



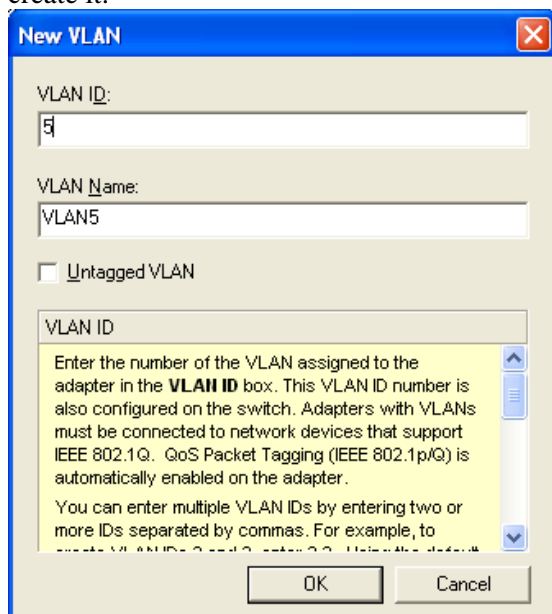
5. On this dialog box, locate **VLANs** tag and click on it. If you cannot find out VLANs tag, that means your network card does not support VLAN feature.



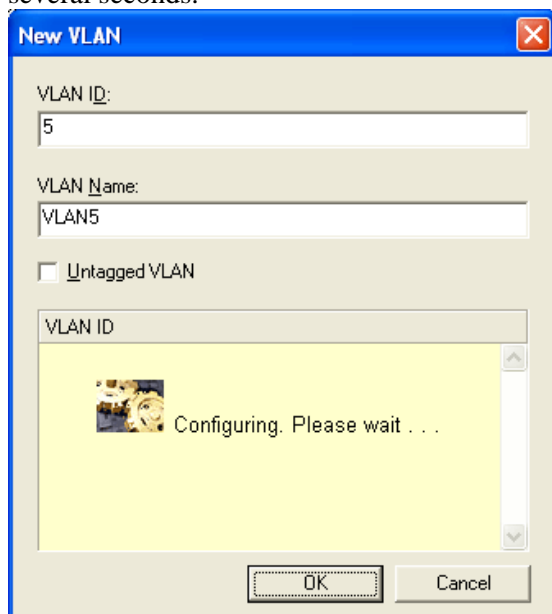
6. In this screen, there is no VALN existed. You can create a new one. Please click the **New...** button.



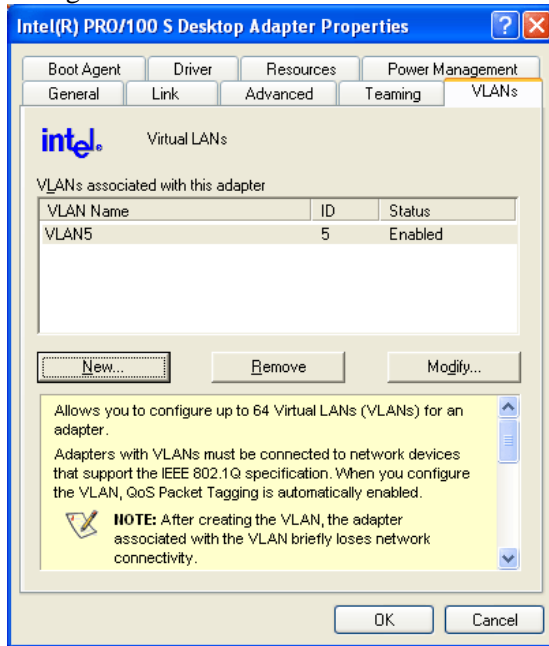
7. In **New VLAN** dialog, please type a number in the box of VLAN ID. Here, “5” is entered. The corresponding VLAN Name will appear automatically. Next, click **OK** to create it.



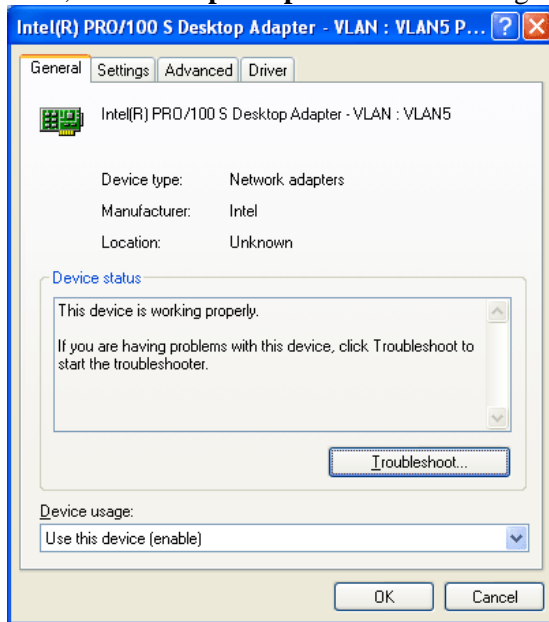
8. After you click **OK**, the system will configure for the VLAN settings. Please wait for several seconds.



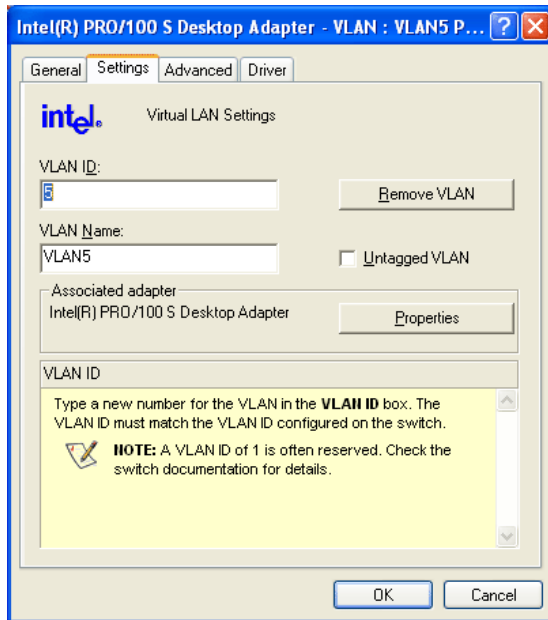
9. When the configuration is finished, the new VLAN settings with ID number and name will appear on previous dialog, **Desktop Adapter Properties**. Click **OK** to exit this dialog.



10. Now, the **Desktop Adapter – VLAN** dialog will appear as follows. Please click **OK**.

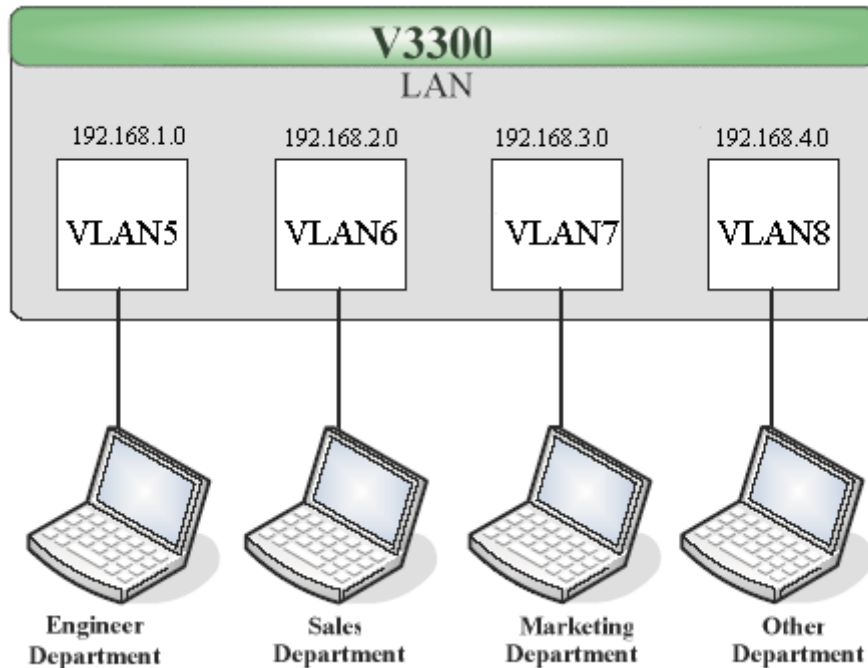


11. Next time, if you want to check VLAN setting again, please open **Settings** tag to modify it.



5.1.3 Four VLANs for Different Departments in A Company

A company wants to separate the Engineer Department, Sales Department, Marketing Department and Other Department to limit their communication with each other to ensure the security. In this case, we can define four VLANs that are VLAN5, VLAN6, VLAN7 and VLAN8. The subnet of VLAN5 is 192.168.1.0; the subnet of VLAN6 is 192.168.2.0; the subnet of VLAN7 is 192.168.3.0, and the subnet of VLAN8 is 192.168.4.0. However, each PC in the company does not support 802.1Q.



Procedure:

1. Refer to A.1 to block LAN-to-LAN communication.
2. Create VLAN5, VLAN6, VLAN7 and VLAN8 Groups.
3. In the VLAN5, input “5” to VLAN ID. In the Member field, choose p1. Then choose the “Untagged” for Frame Tag Operation in p1. Configure the PVID to “5” for the device does not support 802.1Q VLAN.
4. In the VLAN6, input “6” to VLAN ID. In the Member field, choose p2. Then choose the “Untagged” for Frame Tag Operation in p2. Configure the PVID to “6” for the device does not support 802.1Q VLAN.
5. In the VLAN7, input “7” to VLAN ID. In the Member field, choose p3. Then choose the “Untagged” for Frame Tag Operation in p3. Configure the PVID to “7” for the device does not support 802.1Q VLAN.
6. In the VLAN8, input “8” to VLAN ID. In the Member field, choose p4. Then choose the “Untagged” for Frame Tag Operation in p4. Configure the PVID to “8” for the device does not support 802.1Q VLAN.

Advanced - LAN VLAN Setting

Disable
 Port Base VLAN
 802.1Q VLAN

Port Base VLAN: 802.1Q VLAN

Group

Index	Active	Name	VLAN ID	Member				Frame Tag Operation			
				P1	P2	P3	P4	P1	P2	P3	P4
1	<input checked="" type="checkbox"/>	VLAN5	5	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Untagged	Tagged	Tagged	Tagged
2	<input checked="" type="checkbox"/>	VLAN6	6	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Tagged	Untagged	Tagged	Tagged
3	<input checked="" type="checkbox"/>	VLAN7	7	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Tagged	Tagged	Untagged	Tagged
4	<input checked="" type="checkbox"/>	VLAN8	8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Tagged	Tagged	Tagged	Untagged

Enable management port for P4

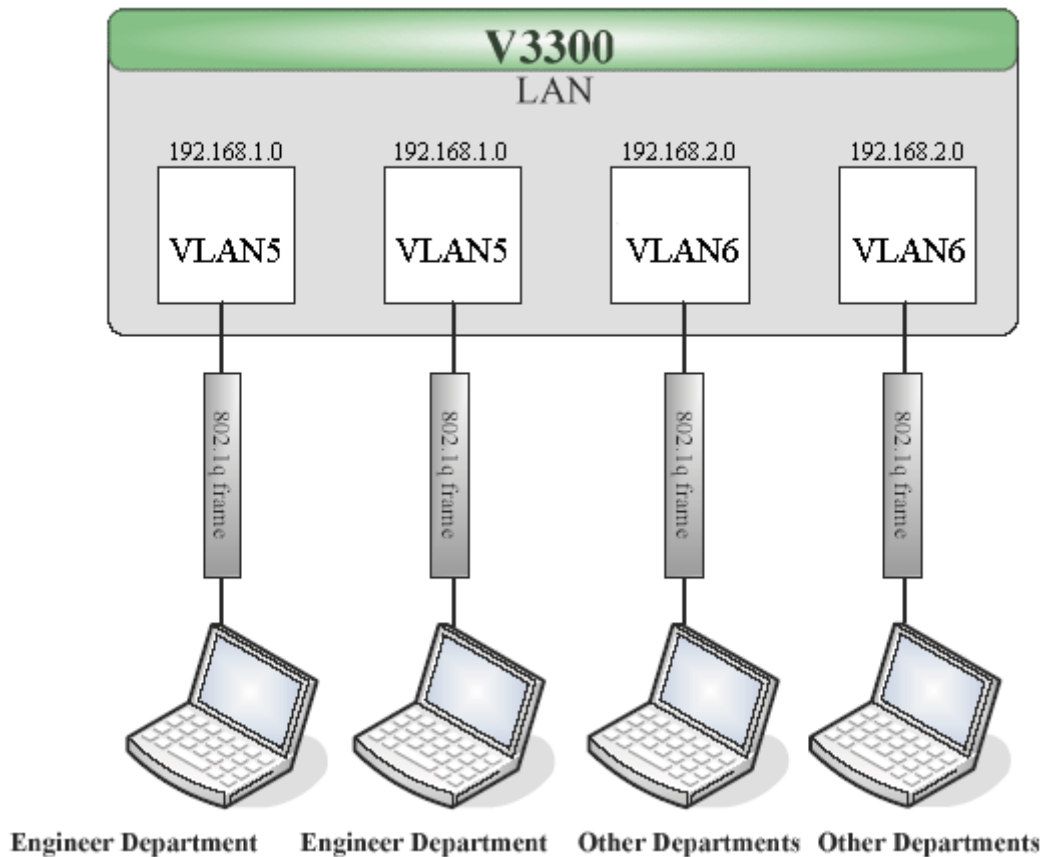
Port Setting

	P1	P2	P3	P4
Port VLAN ID	5	6	7	8

7. After applying the settings, the web page will be redirected to “reboot” web page. You can ignore it and continue to configure the Network setting. After finishing Network setting, you can execute the reboot procedure.
8. After rebooting, the tagged ports will communicate with 802.1Q tagged devices only.
9. In the Network setting, type the subnet 192.168.1.0 to LAN. For example, the VLAN5 LAN IP is 192.168.1.1 and the Subnet Mask is 255.255.255.0. Then, users in the Engineer Department can set IP address from 192.168.1.2 to 192.168.1.254.
10. In the Network setting, type the subnet 192.168.2.0 to LAN2. For example, the VLAN6 LAN IP is 192.168.2.1 and the Subnet Mask is 255.255.255.0. Then, users in the Engineer Department can set IP address from 192.168.2.2 to 192.168.2.254.
11. In the Network setting, type the subnet 192.168.3.0 to LAN3. For example, the VLAN7 LAN IP is 192.168.3.1 and the Subnet Mask is 255.255.255.0. Then, users in the Engineer Department can set IP address from 192.168.3.2 to 192.168.3.254.
12. In the Network setting, type the subnet 192.168.4.0 to LAN4. For example, the VLAN8 LAN IP is 192.168.4.1 and the Subnet Mask is 255.255.255.0. Then, users in the Engineer Department can set IP address from 192.168.4.2 to 192.168.4.254.

5.1.4 Two VLANs for Different Departments in A Company

A company wants to separate the Engineer Department and Other Departments to limit their communication to protect the engineering data. In this case, we can define two VLANs that are VLAN5 and VLAN6. The subnet of VLAN5 is 192.168.1.0, and the subnet of VLAN6 is 192.168.2.0.



Procedure:

1. Refer to A.1 to block LAN-to-LAN communication.
2. Create VLAN5 and VLAN6 Groups.
3. In the VLAN5, type “5” to VLAN ID. In the Member field, choose p1 and p2. Then choose “Tagged” for Frame Tag Operation in p1 and p2. We can ignore the PVID (Port VLAN) because 802.1q tag will be inserted to the frame from the PC of Engineer Department.
4. In the VLAN6, type “6” to VLAN ID. In the Member field, choose p3 and p4. Then choose “Tagged” for Frame Tag Operation in p3 and p4. We can ignore the PVID (Port VLAN) because 802.1q tag will be inserted to the frame from other departments.

Advanced - LAN VLAN Setting

Disable
 Port Base VLAN
 802.1Q VLAN

Port Base VLAN: **802.1Q VLAN**

Group

Index	Active	Name	VLAN ID	Member				Frame Tag Operation			
				P1	P2	P3	P4	P1	P2	P3	P4
1	<input checked="" type="checkbox"/>	VLAN5	5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Tagged	Tagged	Tagged	Tagged
2	<input checked="" type="checkbox"/>	VLAN6	6	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Tagged	Tagged	Tagged	Tagged
3	<input checked="" type="checkbox"/>	VLAN7	7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Tagged	Tagged	Untagged	Tagged
4	<input checked="" type="checkbox"/>	VLAN8	8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Tagged	Tagged	Tagged	Untagged

Enable management port for P4

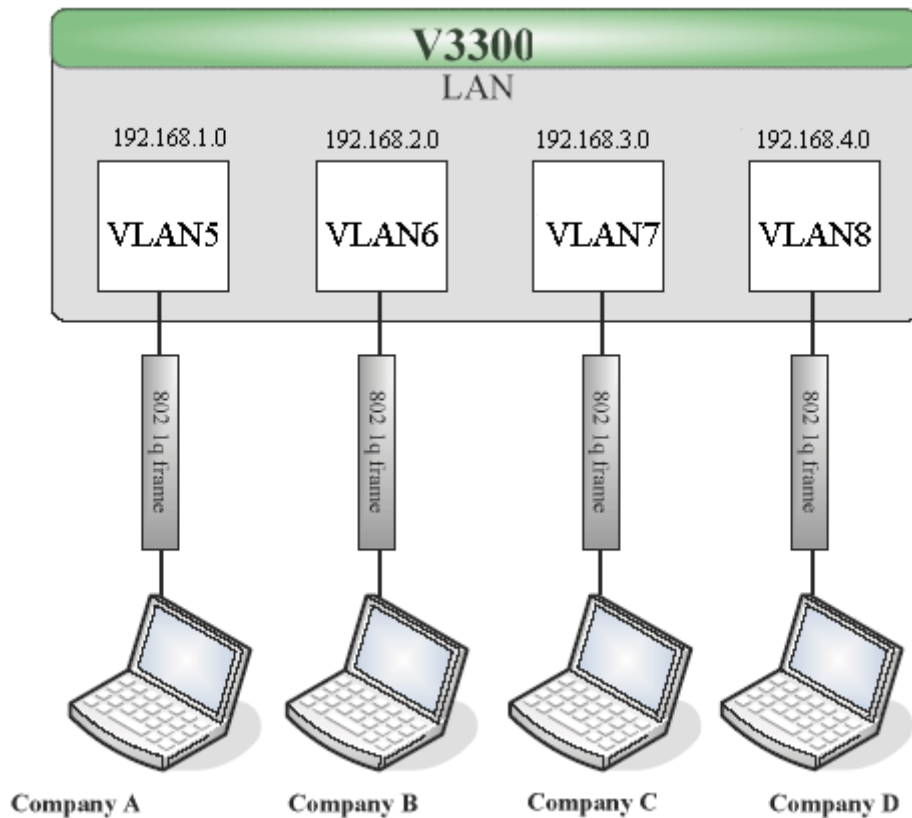
Port Setting

	P1	P2	P3	P4
Port VLAN ID	5	6	7	8

5. After applying the settings, the web page will be redirected to “reboot” web page. User can it and continue to configure the Network setting. After finishing Network setting, you can execute the reboot procedure.
6. After rebooting, the tagged ports will communicate with 802.1Q tagged devices only.
7. In the Network setting, type the subnet 192.168.1.0 to LAN. For example, the VLAN5 LAN IP is 192.168.1.1 and the Subnet Mask is 255.255.255.0. Then, users in the Engineer Department can set IP address from 192.168.1.2 to 192.168.1.254.
8. In the Network setting, type the subnet 192.168.2.0 to LAN2. For example, the VLAN6 LAN IP is 192.168.2.1 and the Subnet Mask is 255.255.255.0. Then, users in the other departments can set IP address from 192.168.2.2 to 192.168.2.254.

5.1.5 Example for the Companies in the Same Building

There are four companies in the same building. They share the broadband network and use the Vigor3300V router to achieve the load balance, security, and VoIP features. In this case, we can define four VLANs including VLAN5, VLAN6, VLAN7 and VLAN8. The subnet of VLAN5 is 192.168.1.0; the subnet of VLAN6 is 192.168.2.0; the subnet of VLAN7 is 192.168.3.0; and the subnet of VLAN8 is 192.168.4.0.



Procedure:

1. Refer to A.1 to block LAN-to-LAN communication.
2. Create VLAN5, VLAN6, VLAN7 and VLAN8 Groups.
3. In the VLAN5, type “5” to VLAN ID. In the Member field, choose p1. Then choose the “Tagged” for Frame Tag Operation in p1. We can ignore the PVID (Port VLAN ID), because 802.1q tag will be inserted to the frame from the PC of company A.
4. In the VLAN6, type “6” to VLAN ID. In the Member field, choose p2. Then choose the “Tagged” for Frame Tag Operation in p2. We can ignore the PVID (Port VLAN ID), because 802.1q tag will be inserted to the frame from company B.
5. In the VLAN7, type “7” to VLAN ID. In the Member field, choose p3. Then choose the “Tagged” for Frame Tag Operation in p3. We can ignore the PVID (Port VLAN ID), because 802.1q tag will be inserted to the frame from the PC of company C.

- In the VLAN8, type “8” to VLAN ID. In the Member field, choose p4. Then choose the “Tagged” for Frame Tag Operation in p4. We can ignore the PVID (Port VLAN ID), because 802.1q tag will be inserted to the frame from company D.

Advanced - LAN VLAN Setting

Disable
 Port Base VLAN
 802.1Q VLAN

Port Base VLAN: **802.1Q VLAN**

Group

Index	Active	Name	VLAN ID	Member				Frame Tag Operation			
				P1	P2	P3	P4	P1	P2	P3	P4
1	<input checked="" type="checkbox"/>	VLAN5	5	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Tagged	Tagged	Tagged	Tagged
2	<input checked="" type="checkbox"/>	VLAN6	6	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Tagged	Tagged	Tagged	Tagged
3	<input checked="" type="checkbox"/>	VLAN7	7	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Tagged	Tagged	Tagged	Tagged
4	<input checked="" type="checkbox"/>	VLAN8	8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Tagged	Tagged	Tagged	Tagged

Enable management port for P4

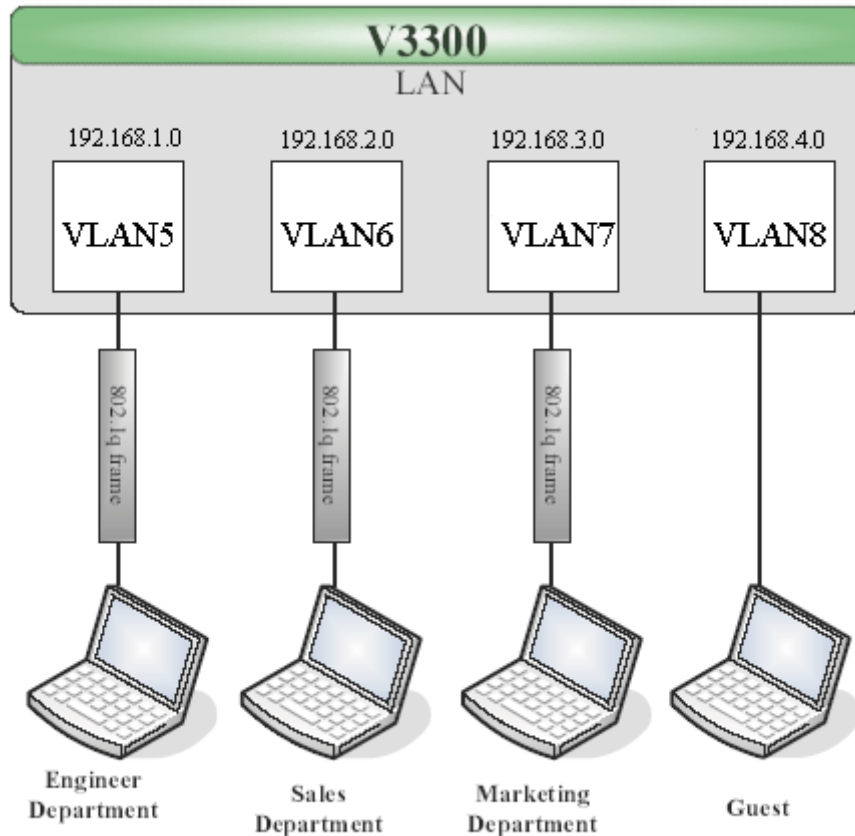
Port Setting

	P1	P2	P3	P4
Port VLAN ID	5	6	7	8

- After applying the settings, the web page will be redirect to “reboot” web page. User can ignore it and continue to configure the Network setting. After finishing Network setting, you can execute the reboot procedure.
- After rebooting, the tagged ports will communicate with 802.1Q tagged devices only.
- The network configuration is the same with A.2.1. Please refer to A.2.1.

5.1.6 Example for A Company and Guest

A company wants to separate the Engineer Department, Sales Department, Marketing Department and guest to limit their communication with any department to ensure the security. In this case, we can define four VLANs that are VLAN5, VLAN6, VLAN7 and VLAN8. The subnet of VLAN5 is 192.168.1.0; the subnet of VLAN6 is 192.168.2.0; the subnet of VLAN7 is 192.168.3.0; and the subnet of VLAN8 is 192.168.4.0. However, the notebook of guest does not support 802.1Q.



Procedure:

1. Refer to A.1 to block LAN-to-LAN communication.
2. Create VLAN5, VLAN6, VLAN7 and VLAN8 Groups.
3. In the VLAN5, type “5” to VLAN ID. In the Member field, choose p1. Then choose the “Tagged” for Frame Tag Operation in p1. We can ignore the PVID (Port VLAN ID), because 802.1q tag will be inserted to the frame from the PC of Engineer Department.
4. In the VLAN6, type “6” to VLAN ID. In the Member field, choose p2. Then choose the “Tagged” for Frame Tag Operation in p2. We can ignore the PVID (Port VLAN ID), because 802.1q tag will be inserted to the frame from Engineer Department.
5. In the VLAN7, type “7” to VLAN ID. In the Member field, choose p3. Then choose the “Tagged” for Frame Tag Operation in p3. We can ignore the PVID (Port VLAN ID), because 802.1q tag will be inserted to the frame from the PC of Engineer Department.

- In the VLAN8, type “8” to VLAN ID. In the Member field, choose p4. Then choose the “Untagged” for Frame Tag Operation in p4. We should configure the PVID to “8”, because the device does not support 802.1Q VLAN.

Advanced - LAN VLAN Setting

Disable
 Port Base VLAN
 802.1Q VLAN

Port Base VLAN: 802.1Q VLAN

Group

Index	Active	Name	VLAN ID	Member				Frame Tag Operation			
				P1	P2	P3	P4	P1	P2	P3	P4
1	<input checked="" type="checkbox"/>	VLAN5	5	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Tagged	Tagged	Tagged	Tagged
2	<input checked="" type="checkbox"/>	VLAN6	6	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Tagged	Tagged	Tagged	Tagged
3	<input checked="" type="checkbox"/>	VLAN7	7	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Tagged	Tagged	Tagged	Tagged
4	<input checked="" type="checkbox"/>	VLAN8	8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Tagged	Tagged	Tagged	Untagged

Enable management port for P4

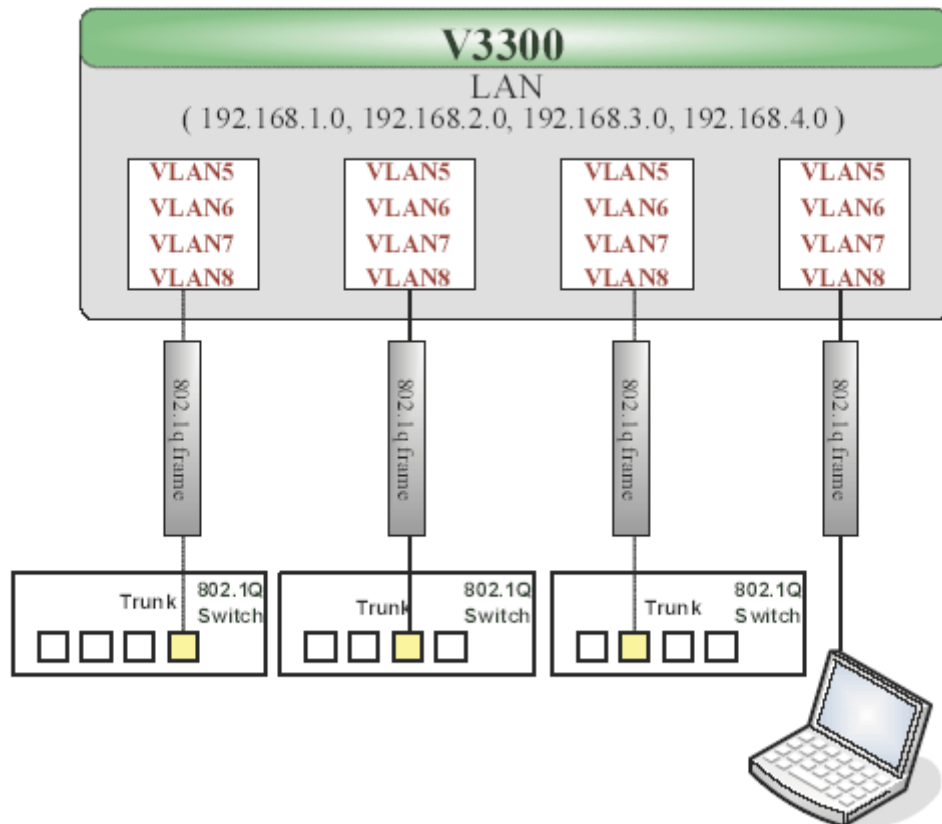
Port Setting

	P1	P2	P3	P4
Port VLAN ID	5	6	7	8

- After applying the settings, the web page will be redirected to “reboot” web page. User can ignore it and continue to configure the Network setting. After finishing Network setting, you can execute the reboot procedure.
- After rebooting, the tagged ports will communicate with 802.1Q tagged devices only.
- The network configuration is the same with A.2.1. Please refer to A.2.1 part.

5.1.7 Example for Trunk Usage

A company wants to separate the Engineer Department, Sales Department, Marketing Department and other departments to limit their communication with each other to ensure the security. Many employees of the company use some switches supported 802.1Q VLAN to expand the network. In this case, we can define four VLANs that are VLAN5, VLAN6, VLAN7 and VLAN8. Each LAN port is Trunk port which supports multiple VLAN. The subnet of VLAN5 is 192.168.1.0; the subnet of VLAN6 is 192.168.2.0; the subnet of VLAN7 is 192.168.3.0 and the subnet of VLAN8 is 192.168.4.0.



Procedure:

1. Refer to A.1 to block LAN-to-LAN communication.
2. Create VLAN5, VLAN6, VLAN7 and VLAN8 Groups.
3. In the VLAN5, input “5” to VLAN ID. In the Member field, choose p1, p2, p3 and p4. Then choose the “Tagged” for Frame Tag Operation in p1, p2, p3 and p4. We can ignore the PVID (Port VLAN ID), because 802.1q tag will be inserted to the frame from the switch.
4. In the VLAN6, type “6” to VLAN ID. In the Member field, choose p1, p2, p3 and p4. Then choose the “Tagged” for Frame Tag Operation in p1, p2, p3 and p4. We can ignore the PVID (Port VLAN ID), because 802.1q tag will be inserted to the frame from switch.
5. In the VLAN7, type “7” to VLAN ID. In the Member field, choose p1, p2, p3 and p4. Then choose the “Tagged” for Frame Tag Operation in p1, p2, p3 and p4. We can ignore

the PVID (Port VLAN ID), because 802.1q tag will be inserted to the frame from the switch.

- In the VLAN8, type “8” to VLAN ID. In the Member field, choose p1, p2, p3 and p4. Then choose the “Tagged” for Frame Tag Operation in p1, p2, p3 and p4. We can ignore the PVID (Port VLAN ID), because 802.1q tag will be inserted to the frame from some users.

Advanced - LAN VLAN Setting

Disable
 Port Base VLAN
 802.1Q VLAN

Port Base VLAN: **802.1Q VLAN**

Group

Index	Active	Name	VLAN ID	Member				Frame Tag Operation			
				P1	P2	P3	P4	P1	P2	P3	P4
1	<input checked="" type="checkbox"/>	VLAN5	5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Tagged	Tagged	Tagged	Tagged
2	<input checked="" type="checkbox"/>	VLAN6	6	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Tagged	Tagged	Tagged	Tagged
3	<input checked="" type="checkbox"/>	VLAN7	7	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Tagged	Tagged	Tagged	Tagged
4	<input checked="" type="checkbox"/>	VLAN8	8	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Tagged	Tagged	Tagged	Tagged

Enable management port for P4

Port Setting

	P1	P2	P3	P4
Port VLAN ID	5	6	7	8

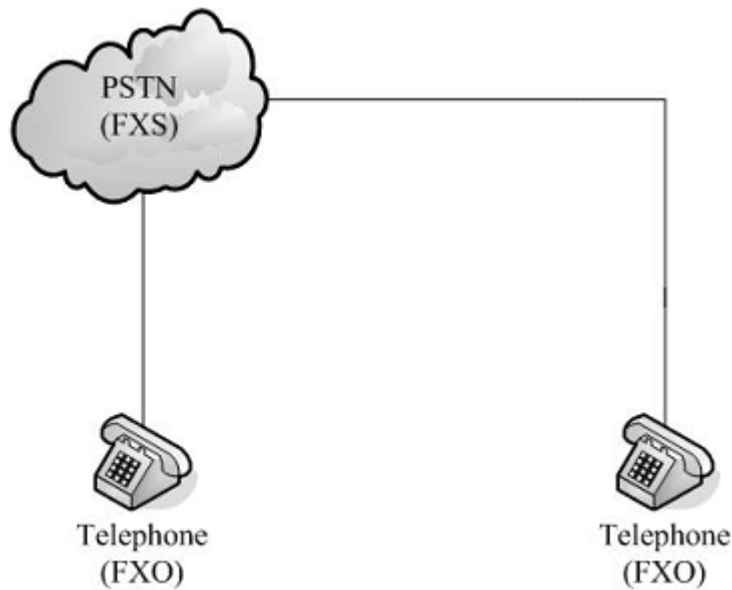
- After applying the settings, the web page will be redirected to “reboot” web page. User can ignore it and continue to configure the Network setting. After finishing Network setting, you can execute the reboot procedure.
- After rebooting, the tagged ports will communicate with 802.1Q tagged devices only.
- The network configuration is the same with A.2.1. Please refer to A.2.1 part.

5.2 Application for VoIP

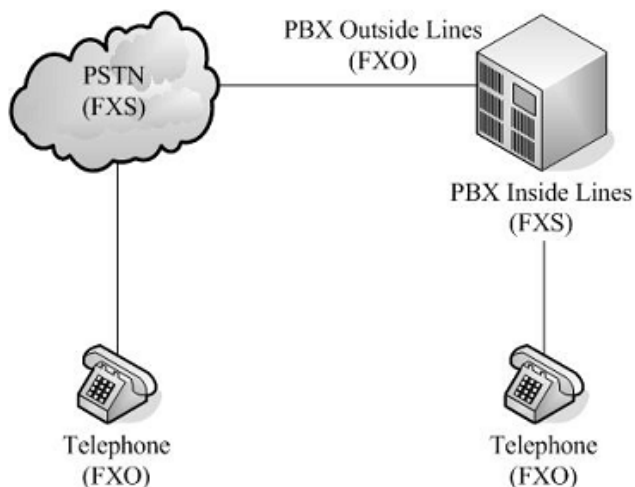
3300V has two expansion slots; each slot can be plugged into one 4-port VoIP card. The VoIP card involves two kinds of interface: FXS and FXO. You can deploy different VoIP applications according to the requirements.

5.2.1 FXS and FXO

FXS (Foreign eXchange Station) and FXO (Foreign eXchange Office) are assembled with a pair. A telecommunications line from an FXO device must be connected to an FXS device. Similarly, an FXS device must be connected to an FXO device. For example, PSTN is FXS equipment, and a telephone is FXO equipment.



As for the Private Branch Exchange (PBX), it is more special because it has both FXS and FXO devices at the same time. Outside lines of the PBX are usually connected to the phone line, at this case, the PBX acts as FXO equipment; inside lines of the PBX are usually connected to telephones, so the PBX acts as FXS equipment.



FXS equipment

PSTN or inside lines of PBX

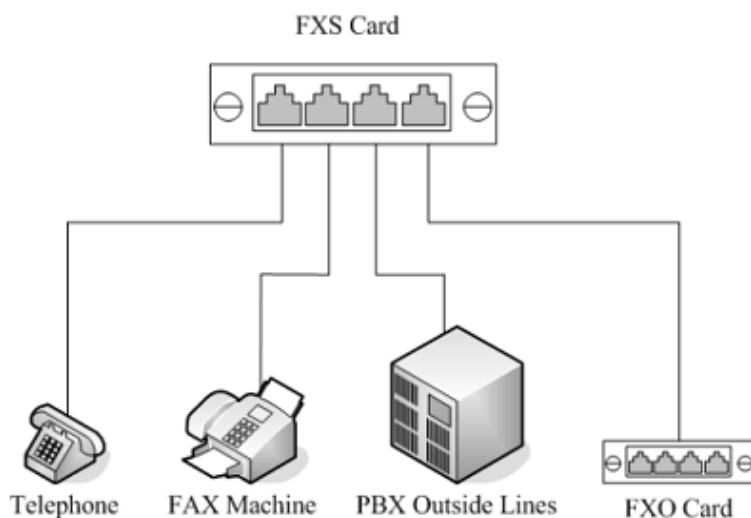
FXO equipment

Telephones, FAX machines and outside lines of PBX

Based on the characteristics described above that the FXS equipment and the FXO equipment must connect with each other, please pay special attention when you use FXS card and FXO card.

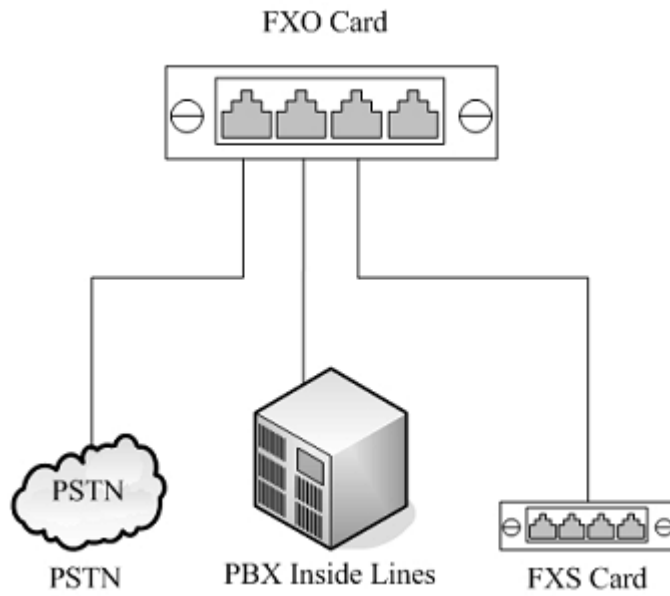
FXS card

This card can connect to the telephone, FAX machine, outside lines of PBX and FXO port on FXO card.



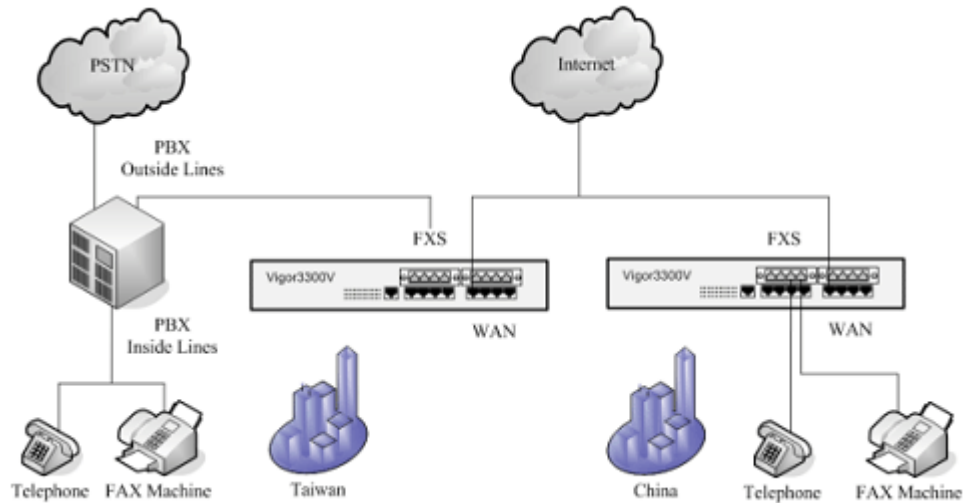
FXO card

This card can connect to PSTN, inside lines of PBX and FXS port on FXS cards.



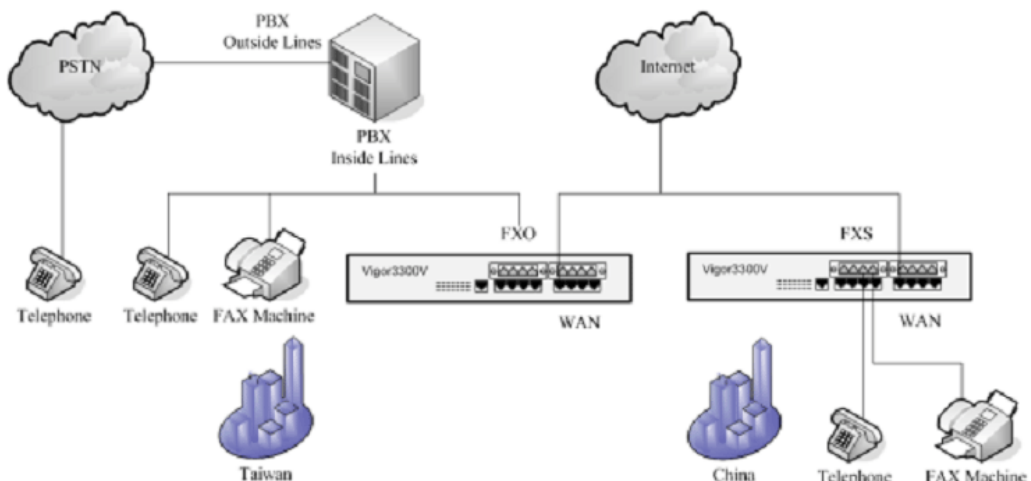
5.2.2 Practical Application of FXS card with PBX

By combining the FXS with headquarters' PBX, it allows the internal telephones in headquarters to communicate with branch's telephones through the Internet. (For detailed configuration, please refer to the part of Practical Application of FXS.)



5.2.3 Practical Application of FXO card with PBX

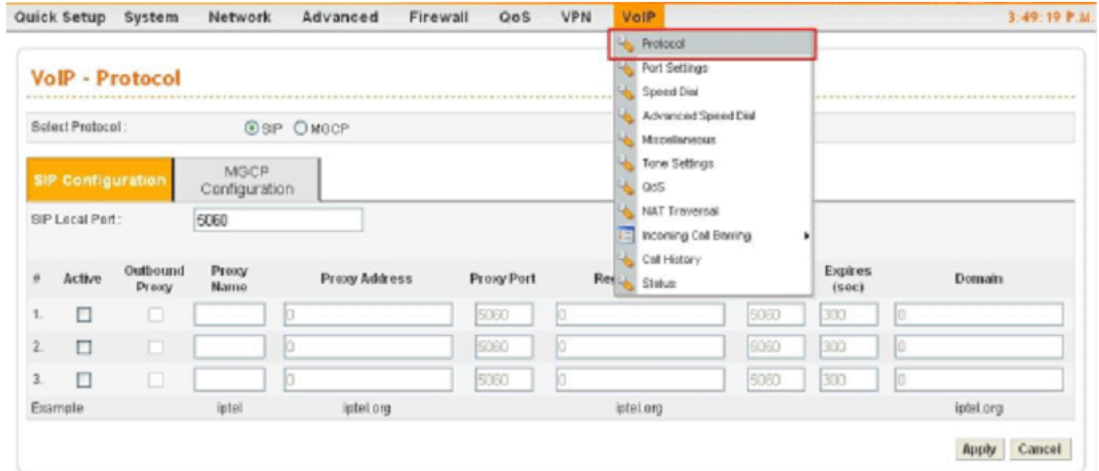
By combining the FXO with headquarters' PBX, it allows the branch's telephones to connect to Headquarters' PBX via the Internet, and communicate with the customers via the PBX. Another application is that you can call back to the Headquarters from outside, and communicate with the branch via the Internet. (For detailed configuration, please refer to Practical Application of FXO)



5.2.4 VoIP Basic

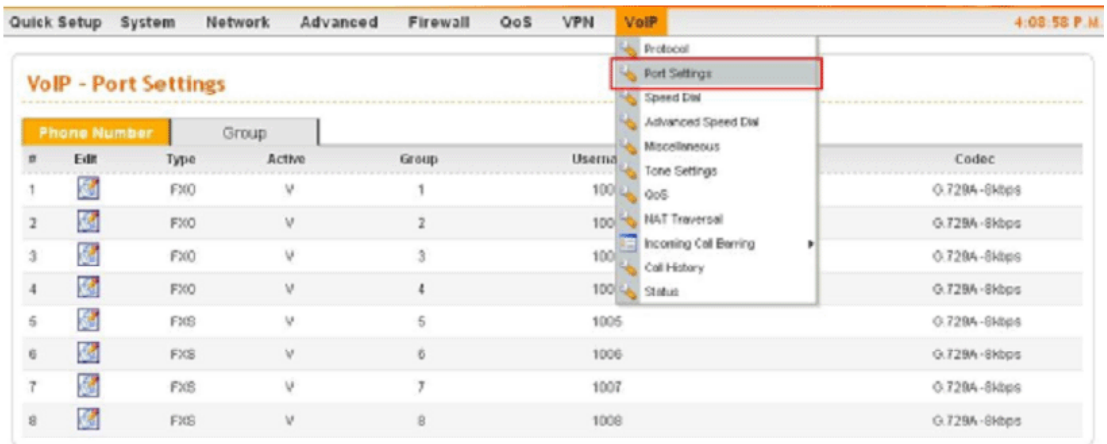
Protocol

Select the communication protocol (SIP or MGCP) and the IP Address (WAN or LAN/VPN) used by VoIP. You need to configure relative settings at first. Please refer to the figure below as an example of Vigor 3300V.



Port Settings

This page displays the basic settings for each port. Click the **Edit** icon in the **Phone Number** page to enter the **Edit** page. Then you can configure this port.



Port Settings - Port – Edit

Configure related VoIP settings for each port respectively.

VoIP - Port Settings - Port1 - Edit

Port 1 (FXO)

Disable Enable

Username:

Password:

Display Name:

Proxy Server:

VoIP IP Address:

Hotline

Hotline Number to Internet:

Hotline Number to P0X (PSTN):

FXO

Manual Disconnection:

Codec

Preferred Codec:

Codec Rate:

Codec VAD: Disable Enable

CAS

RX Gain: (Range: -32 ~ 31)

TX Gain: (Range: -32 ~ 31)

FAX

FAX Mode:

FAX Bypass Codec:

FAX Bypass Codec Rate:

DTMF

DTMF Relay: Disable RFC2833 SIP INFO

Call Forwarding

Disable

Call forwarding all calls

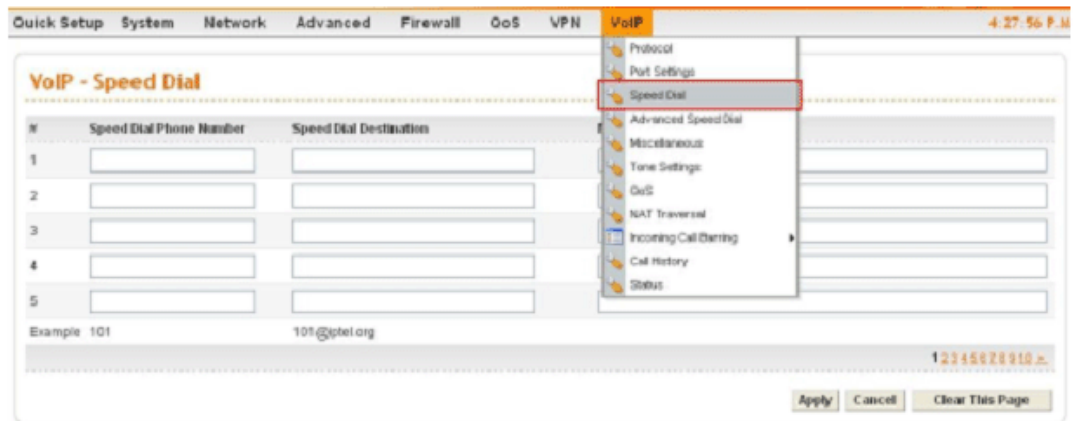
Call forwarding busy

Call forwarding no answer after rings (Range: 1-10)

SIP URL: (Example: 8001@ptel.org)

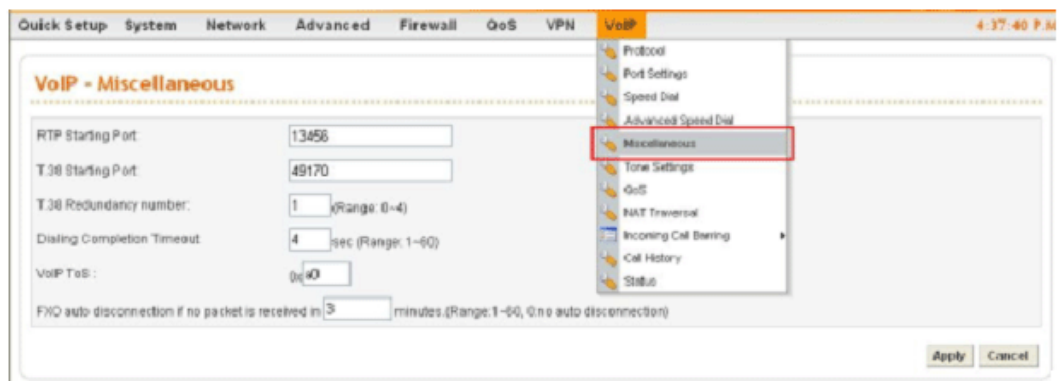
Speed Dial

Setup the Speed Dial Phone numbers, this function is more convenient to dial extension number or IP address. There are 150 entries available at most.



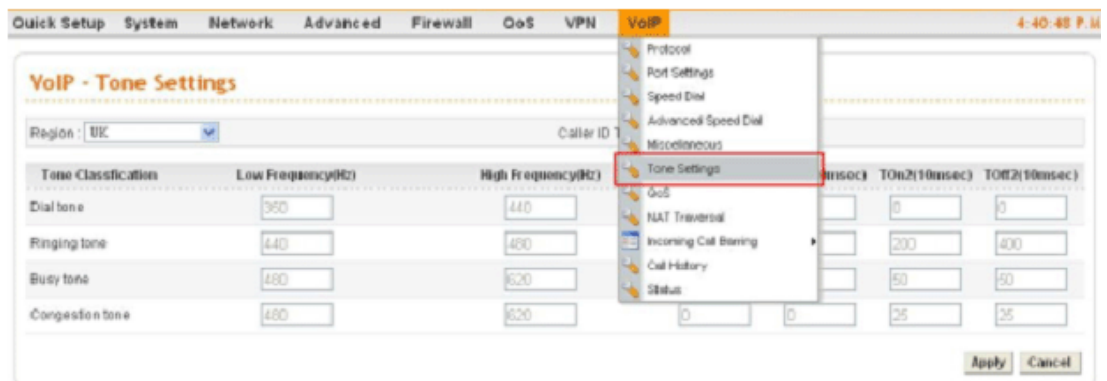
Miscellaneous

Other related VoIP settings.



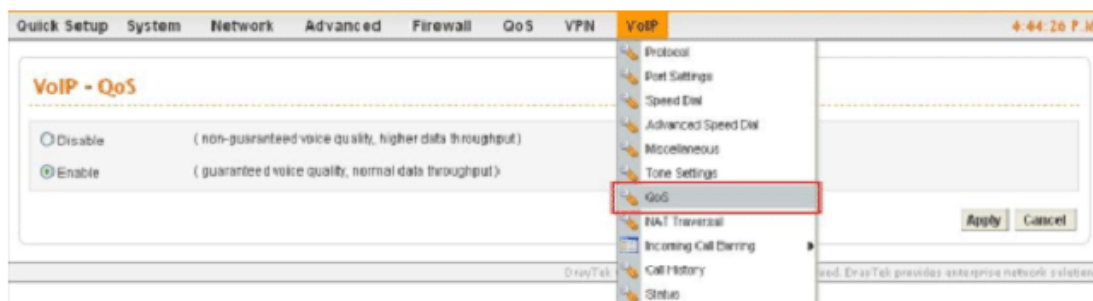
Tone Settings

There are optional built-in 14 groups of tone for different regions, and a group of tone (User Defined) can be configured by users.



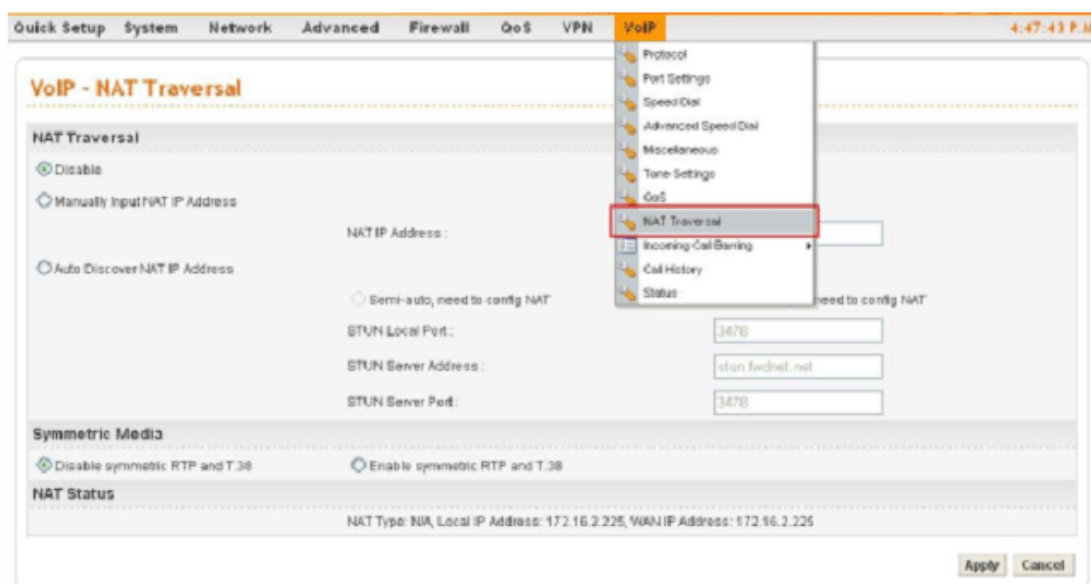
QoS

Enable this function to ensure the quality of VoIP conversation. The default value is **Enable**.



NAT Traversal

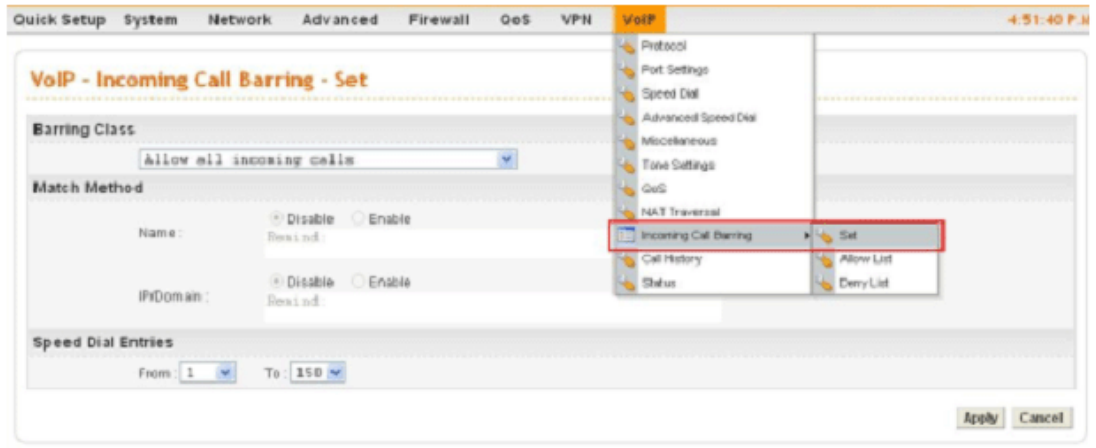
When the WAN interface of 3300 is a private IP address, the VoIP traffics must pass through the upper-layer NAT router. User can enable STUN function in order to make VoIP function can work smoothly.



Note: The upper-layer router must forward the UDP packets which port number are 5060, 13456~13470 and 49170~49184 to the WAN IP address of 3300V.

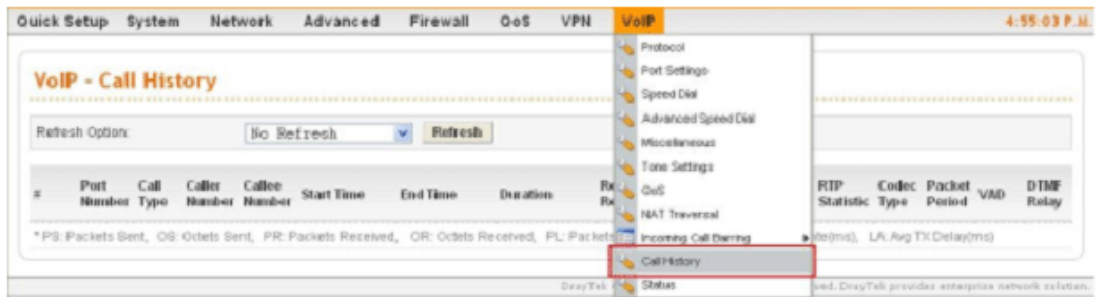
Incoming Call Barring – Set

This function can receive or reject the specific VoIP calling via Internet. The rules are based on the speed dial number or IP/Domain.



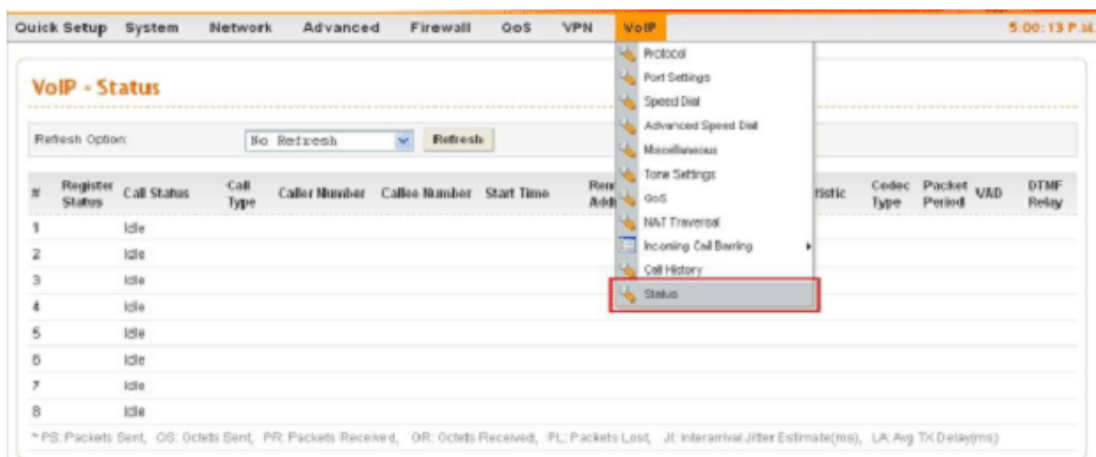
Call History

It can display 50 groups of calling information.



Status

Display current VoIP registering status and calling status.



5.2.5 VoIP Examples

There are many different kinds of applications about VoIP function. Most of VoIP callings must be via a VoIP Server by registering, except we can dial VoIP number by the IP address directly. We will set up a basic configuration and registration as an example 1. The other examples might be revised based on this example.

The VoIP function mainly depends on the requirement and application. All the examples are based on example 1 to revise configuration in accordance with the usage requirement and application.

Example 1 : Basic Configuration and Registration

Example 2: Basic Calling Method

Example 3: VoIP over VPN

Example 4: Practical Application of FXS

Example 5: Practical Application of FXO

5.2.6 Example 1 - Basic Configuration and Registration

In this case, 3300V uses a FXS card and a FXO card with four groups of “iptel” numbers and “fwd” numbers respectively. The Codec is G.729A. WAN IP address is 220.135.240.207. 2900V has two VoIP Ports with an iptel number and the fwd number respectively. The Codec is G.729A/B. WAN IP is 61.1.1.1.

Basic settings in Vigor 3300V and 2900V

	WAN IP	Port Number	Phone Number	Proxy	Codec
3300V	220.135.240.207	Port1(FXS)	888833	iptel	G.729A
		Port2(FXS)	888834	iptel	G.729A
		Port3(FXS)	660533	fwd	G.729A
		Port4(FXS)	660534	fwd	G.729A
		Port5(FXO)	888835	iptel	G.729A
		Port6(FXO)	888836	iptel	G.729A
		Port7(FXO)	660525	fwd	G.729A
		Port8(FXO)	660526	fwd	G.729A
2900V	61.31.167.135	Port1(FXS)	888829	iptel	G.729A
		Port2(FXS)	660529	fwd	G.729A

	Proxy	Domain	Port
iptel	iptel.org	iptel.org	5060
fwd	fwd.pulver.com	fwd.pulver.com	5060

Configuration Example for Vigor3300V

1. Enter **VoIP - Protocol** page and configure related settings on SIP Configuration.

#	Active	Outbound Proxy	Proxy Name	Proxy Address	Proxy Port	Registrar Addr	Registrar Port	Expires (sec)	Domain
1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	iptel	iptel.org	5060	iptel.org	5060	300	iptel.org
2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	fwd	fwd.pulver.com	5060	fwd.pulver.com	5060	300	fwd.pulver.com
3	<input type="checkbox"/>	<input type="checkbox"/>			5060		5060	300	
Example			iptel	iptel.org		iptel.org			iptel.org

2. Enter **VoIP - Port Settings** page, click the **Edit** icon of port 1.

#	Edit	Type	Active	Group	Username	Proxy	Codec
1		FXS	V	1	1001		G.729A-8kops
2		FXS	V	2	1002		G.729A-8kops
3		FXS	V	3	1003		G.729A-8kops
4		FXS	V	4	1004		G.729A-8kops
5		FXS	V	5	1005		G.729A-8kops
6		FXS	V	6	1006		G.729A-8kops
7		FXS	V	7	1007		G.729A-8kops
8		FXS	V	8	1008		G.729A-8kops

3. Enter the **Port 1** page. This page falls into six sections.
Port1 (FXS) Display the port type, **enable** or **disable** the port, setup the account, etc.

Disable or Enable: By default is **Enable**.

Username & Password: Type the registrar's account **888833** and password.

Display Name: Display incoming call's information. To facilitate ease differentiation please type **3300V_Port1_iptel**.

Proxy Server: Select the SIP Server used for registration from the pull-down menu. There are **None** and three SIP Servers available, which are set in the **VoIP- Protocol** page. Please select **iptel**.

FXO: Dedicated settings for FXO card.

Incoming Pre-Set Number: The transfer number auto dialed after the FXO receives a call from the Internet.

VoIP - Port Settings - Port1 - Edit

Port 1 (FXS)

Disable Enable

Username:

Password:

Display Name:

Proxy Server:

VoIP IP Address:

Codec: Setup the voice compression mode and transfer rate, etc.

Preferred Codec: Preferred voice compression mode. It will affect the voice quality and the transferred data size. By default is G.729A – 8kbps.

Codec Rate: Transfer rate of the voice packets. By default is **20ms**.

Codec VAD: This feature can reduce the number of transmitted bits and packets during silence periods. But it may slightly affect the voice quality. By default is **Disable**.

CAS: Adjust the volume of the conversation.

RX Gain: The default value is **0**.

TX Gain: The default value is **0**.

FAX: Relevant settings used for FAX over VoIP.

FAX Mode: Compression mode used for transferring FAX. By default is **T.38 Relay**.

FAX Bypass Codec: Select the compression mode when FAX Mode selects Bypass.

FAX Bypass Codec Rate: Select the transfer rate of voice packets when FAX Mode selects Bypass.

DTMF: DTMF are the audible sounds you hear when you press keys on your phone.

DTMF Relay: By default is **RFC2833**.

After configuration, click Apply to save the settings. Router will auto jump to the **VoIP - Port Settings** page.

VoIP - Port Settings page.

- Set Port 2 ~ Port 8 one by one in turn.

Type: Port 1 ~Port 4 are **FXS**, Port 5 ~Port 8 are **FXO**.

Active: Port 1 ~Port 8 are all **active** (v=Enable).

Group: Port 1 ~Port 8 are **Group 1~ Group 8** independently.

Username: Phone Number of Port 1 ~ Port 8.

Proxy: Port 1, 2, 5, and 6 are registered to **iptel** Proxy, and Port 3, 4, 7, 8 are registered to **fwd** Proxy.

Codec: Port 1 ~Port 8 all prior use **G.729A - 8kbps**.

VoIP - Port Settings

#	Phone Number	Group	Type	Active	Group	Username	Proxy	Codec
1	888833	1	FXS	V	1	888833	iptel	G.729A-8kbps
2	888834	2	FXS	V	2	888834	iptel	G.729A-8kbps
3	888533	3	FXS	V	3	888533	fwd	G.729A-8kbps
4	888534	4	FXS	V	4	888534	fwd	G.729A-8kbps
5	888835	5	FXO	V	5	888835	iptel	G.729A-8kbps
6	888836	6	FXO	V	6	888836	iptel	G.729A-8kbps
7	888525	7	FXO	V	7	888525	fwd	G.729A-8kbps
8	888526	8	FXO	V	8	888526	fwd	G.729A-8kbps

- Enter the **VoIP - Status** page, wait one or two minutes (The time depends on SIP Server's response speed and the network condition).

Register Status: Display the register information from Port 1 ~ Port 8. **OK** means this port is registered successfully.

Call Status: Display calling information from Port 1 ~ Port 8. **Idle** means there is no conversations on Port 1 ~ Port 8.

VoIP - Status

Refresh Option:

#	Register Status	Call Status	Call Type	Caller Number	Called Number	Start Time	Remote RTP Address	Remote RTP Port	RTP Statistic	Codec Type	Packet Period	VAD	DTMF Relay
1	OK	Idle											
2	OK	Idle											
3	OK	Idle											
4	OK	Idle											
5	OK	Idle											
6	OK	Idle											
7	OK	Idle											
8	OK	Idle											

* PD: Packets Sent, OS: Octets Sent, PR: Packets Received, OR: Octets Received, PL: Packets Lost, J: Interarrival Jitter Estimate(ms), LA: Avg TX Delay(ms)

Note: This page will automatically refresh every 6 second, so as to display the latest status. You may click Refresh button to renew immediately.

Configuration Example for Vigor2900V

1. Open the Web of 2900V and click **VoIP Setup**.

DrayTek Firmware Version : v2.5.6
Build Date/Time : Wed May 25 9:54:24.55 2005
LAN MAC Address : 00-50-7F-26-72-13

Vigor2900V Series Broadband Security VoIP Router

Basic Setup

- Quick Start Wizard
- Administrator Password Setup
- LAN TCP/IP and DHCP Setup
- ISDN Setup

Advanced Setup

- Dynamic DNS Setup
- Call Control and PPP/MP Setup
- Call Schedule Setup
- NAT Setup
- RADIUS Setup
- Static Route Setup
- IP Filter/Firewall Setup
- VPN and Remote Access Setup
- UPNP Service Setup
- VoIP Setup**
- VLAN/Rate Control
- QoS Control Setup

Quick Setup

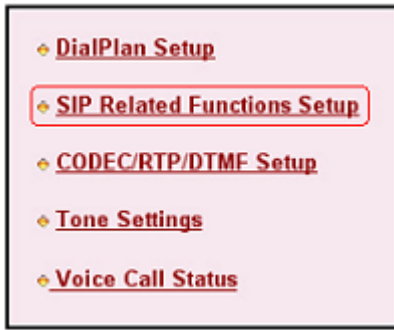
- Internet Access Setup
- Virtual TA (Remote CAP) Setup

System Management

- Online Status
- VPN Connection Management
- Configuration Backup / Restoration
- SysLog / Mail Alert Setup
- Time Setup
- Management Setup
- Diagnostic Tools
- Reboot System
- Firmware Upgrade (TFTP Server)

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Click SIP Related Functions Setup.



Setup Port1 and Port2. This page falls into two sections,

SIP: Setup relevant SIP Servers used for registration respectively.

Ports: Type account and password.

A screenshot of the SIP configuration page, divided into two main sections: SIP and Ports Setting. The SIP section contains two columns for Port 1 and Port 2. Port 1 fields include SIP Port (5060), Domain (iptel.org), Proxy (iptel.org), and Outbound Proxy. Port 2 fields include SIP Port (5060), Domain (lwd.pulver.com), Proxy (lwd.pulver.com), and Outbound Proxy. The Ports Setting section also has two columns for Port 1 and Port 2. Port 1 fields include Register via (WAN), Display Name (2900V_Port1_ig), Account Name (888829), Authentication ID (888829), Password (masked with dots), and Expiry Time (1 hour, 3600 sec). Port 2 fields include Register via (WAN), Display Name (2900V_Port2_tv), Account Name (660529), Authentication ID (660529), Password (masked with dots), and Expiry Time (1 hour, 3600 sec). At the bottom, there is a checkbox for Stun Server and two buttons: OK and Cancel.

After configuration, please click **OK** to save the settings. 2900V will go to VoIP – Setup page automatically.

2. Click Voice Call Status.



3. Wait one or two minutes (The time depends on SIP Server's response speed and the network condition).

Channel: **R** means Port 1 and Port 2 register successfully.

Status: **IDLE** means there is no conversations on Port 1~ Port 8.

VOIP Connection Status											
Channel	Status	Codec	PeerID	Connect Time	Tx Pkts	Rx Pkts	Rx Losses	Rx Jitter (ms)	In Calls	Out Calls	Volume Gain
1 (R)	IDLE			0	0	0	0	0	0	0	5
2 (R)	IDLE			0	0	0	0	0	0	0	5

(R) : Means you have registered your SIP server

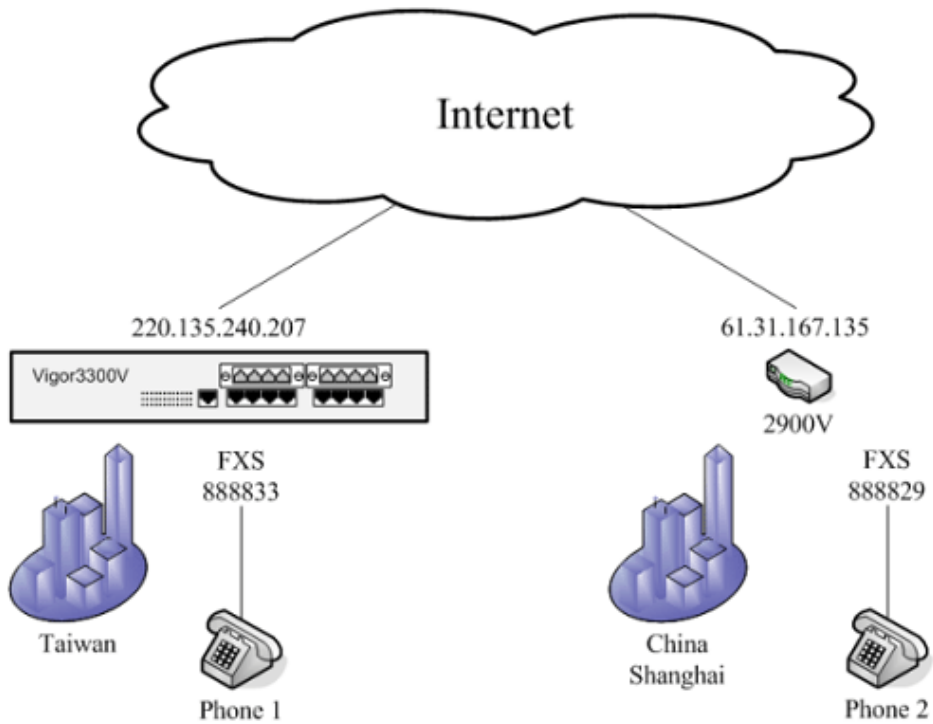
Now the configuration is completed.

5.2.7 Example 2- Basic Calling Method

We will introduce three basic VoIP calling methods, involving Direct IP Call, Intercommunication with one SIP Proxy Server and Intercommunication with different SIP Proxy Servers. All the settings are based on the VoIP Example 1(Basic Configuration and Registration).

Direct IP Call (Call with each other without registration)

Connect a telephone into 3300V's Port 1 and 2900V's Port 1 respectively. They can call with each other directly with IP addresses if only 3300V and 2900V both have public IP addresses and have set up the Phone Numbers. Below shows a scenario architecture graph:



Configuration table

	WAN IP	Port Number	Phone Number	Proxy	Codec
3300V	220.135.240.207	Port1(FXS)	888833	iptel	G.729A
2900V	61.31.167.135	Port1(FXS)	888829	iptel	G.729A

Furthermore, do **NOT** enable the **Outbound Proxy** feature when you set up 3300V and 2900V to use Direct IP Call. (It is not **active** in the Example 1; please see Figure 30-2 shown below) Otherwise, even if you dial the IP address, the call will be sent to the SIP Proxy Server still. Besides, if the SIP Proxy Server doesn't forward the call to remote VoIP user's WAN IP, you can't do this action.

The image shows two screenshots of the VoIP configuration interface. The left screenshot is titled 'VoIP - Protocol' and shows the 'SIP Configuration' tab selected. It includes a 'Select Protocol' section with 'SIP' selected and 'MGCP' unselected. Below this is a 'SIP Local Port' field set to 5060. A table lists three SIP configurations:

#	Active	Outbound Proxy	Proxy Name	Proxy Address
1.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	iptel	iptel.org
2.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	fwd	fwd.pulver.com
3.	<input type="checkbox"/>	<input type="checkbox"/>		

An 'Example' row shows 'iptel' for Proxy Name and 'iptel.org' for Proxy Address. The right screenshot shows the 'SIP' settings for Port 1 and Port 2. For Port 1, the SIP Port is 5060, Domain is iptel.org, Proxy is iptel.org, and Outbound Proxy is empty. For Port 2, the SIP Port is empty, Domain is empty, Proxy is empty, and Outbound Proxy is empty. Below this is the 'Ports Setting' section for Port 1, where 'Register via' is set to 'WAN', 'Display Name' is '2900V_Port1_IP', 'Account Name' is '888829', and 'Authentication ID' is '888829'. Port 2 settings are also visible but partially obscured.

Configuration Example for Vigor3300V

Enter VoIP - Speed Dial page, configure relevant settings for 2900V's Port1.

Speed Dial Phone Number: type 2901.

Speed Dial Destination: Cal lee's **Number@IP**, type 888829@61.31.167.135.

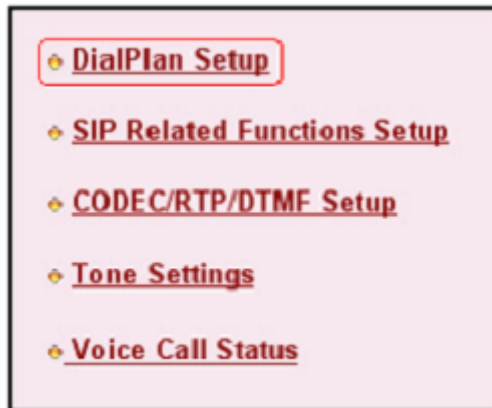
Memo: To facilitate ease differentiation please type 2900V_Port1_IP.

Click **Apply** to save the settings and finish the configuration.

The screenshot shows the 'VoIP - Speed Dial' configuration page. It features a table with the following columns: #, Speed Dial Phone Number, Speed Dial Destination, and Memo. The first row is populated with the values 1, 2901, 888829@61.31.167.135, and 2900V_Port1_IP. Below the table, there is an 'Example' row with 101 and 101@iptel.org. At the bottom right, there are three buttons: 'Apply', 'Cancel', and 'Clear This Page'.

Configuration Example for Vigor2900V

1. Click DialPlan Setup in the VoIP Setup page.



2. Click Index 1.



The screenshot shows the 'DialPlan Configuration' table with the following data:

Index	Phone number	Display Name	SIP URL	Status
<u>1.</u>				X
<u>2.</u>				X
<u>3.</u>				X
<u>4.</u>				X
<u>5.</u>				X

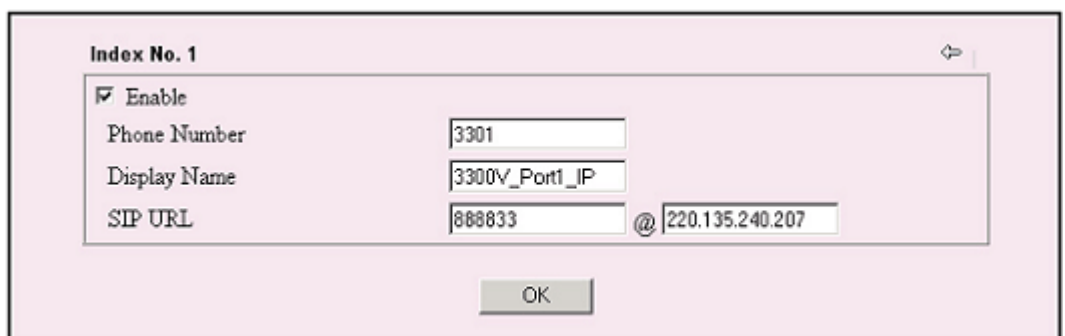
3. Enter relevant settings for 3300V's Port 1. Click **OK** to save the settings.

Enable: click (✓) to activate the entry.

Phone Number: type **3301**.

Display Name: To facilitate ease differentiation please type **3300V_Port1_IP**.

SIP URL: Cal lee's Number@IP, please type **888833@220.135.240.207**.

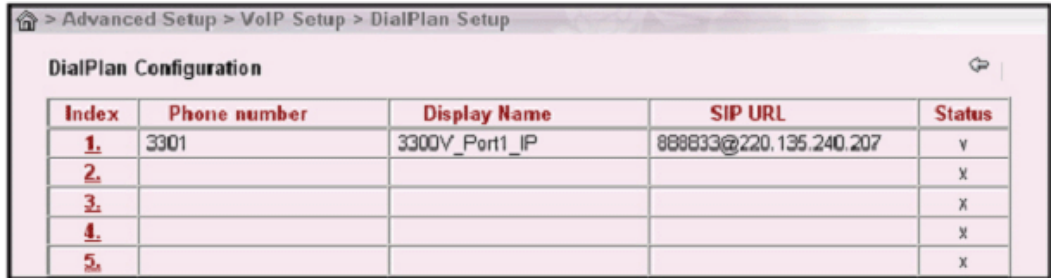


The screenshot shows the 'Index No. 1' configuration form with the following fields and values:

- Enable
- Phone Number:
- Display Name:
- SIP URL: @

An **OK** button is located at the bottom of the form.

4. Confirm the settings are correct, and then finish the configuration.



The screenshot shows a web interface for configuring a DialPlan. The breadcrumb path is "Advanced Setup > VoIP Setup > DialPlan Setup". The main heading is "DialPlan Configuration". Below it is a table with five columns: Index, Phone number, Display Name, SIP URL, and Status. The first row is populated with the following data: Index 1, Phone number 3301, Display Name 3300V_Port1_IP, SIP URL 888833@220.135.240.207, and Status v. The remaining four rows (Index 2-5) are empty, with their Status columns containing an 'x'.

Index	Phone number	Display Name	SIP URL	Status
1.	3301	3300V_Port1_IP	888833@220.135.240.207	v
2.				x
3.				x
4.				x
5.				x

Start to dial by using telephones.

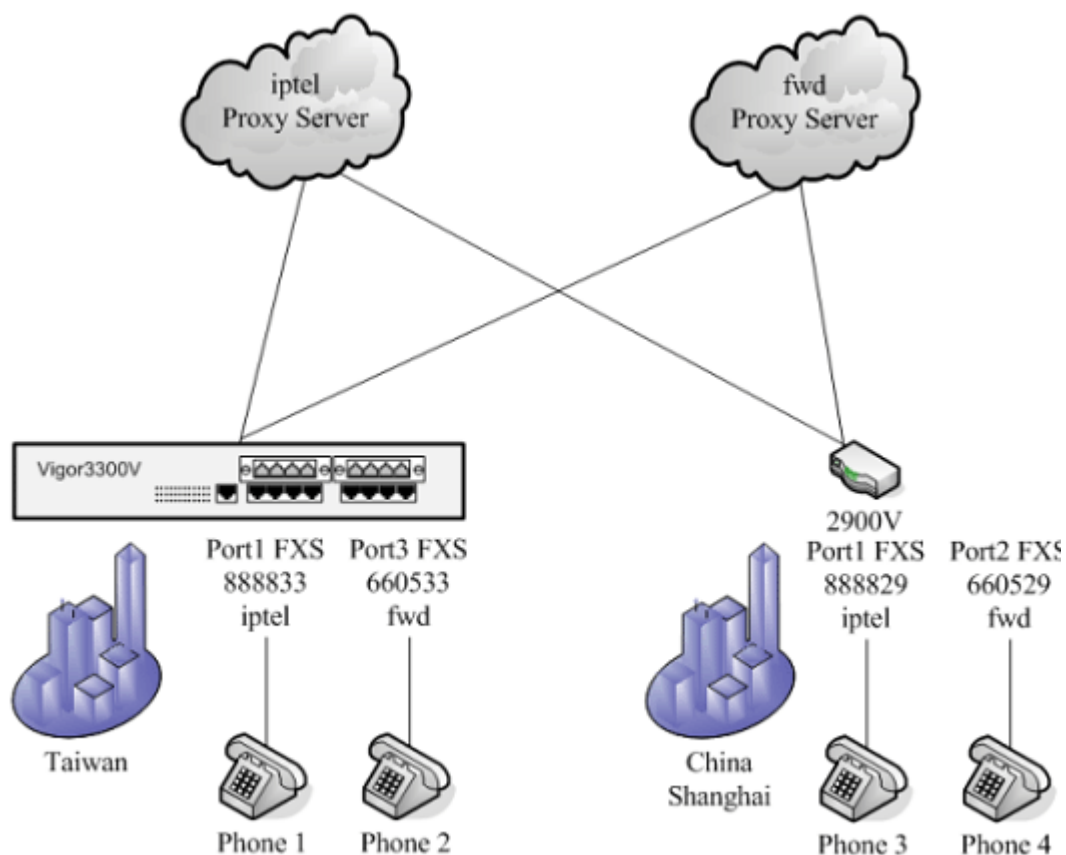
Phone 1 calls Phone 2 --->Press 2901# or 888829*61*31*167*135#.

Phone 2 calls Phone 1--->Press **3301#**.

Note: # indicates termination of the phone number. After pressing #, VoIP is immediately called out. Or you may wait 3 seconds if you do not press #. With 2900V you can't only dial alphanumeric addresses or @ symbols. To dial an IP address, start and end it with a # (hash) replace the dots with * (star). In this example you have to press #220*135*240*207#. But 3300V can only receive the format of Number@IP. So it is required to setup 3300V's number (**888833@220.135.240.207**) in the DialPlan entry.

Intercommunication with one SIP Proxy Server (registration)

Connect telephones into 3300V's Port 1 & Port 3 and 2900V's Port 1 & Port 2 respectively. Each port needs to register in the SIP Server. Below shows a scenario architecture graph:



Configurations between Vigor 3300V and 2900V

	WAN IP	Port Number	Phone Number	Proxy	Codec
3300V	220.135.240.207	Port1(FXS)	888833	iptel	G.729A
		Port3(FXS)	660533	fwd	G.729A
2900V	61.31.167.135	Port1(FXS)	888829	iptel	G.729A
		Port2(FXS)	660529	fwd	G.729A

You can also add Speed Dial numbers in **Speed Dial** to speed up the dialing, or to accommodate the setup of company's extension numbers.

Configuration Example for Vigor3300V

Enter the **VoIP - Speed Dial** page and add the second and third group of Speed Dial number. Then click **Apply** to save the settings and finish the configuration.

#	Speed Dial Phone Number	Speed Dial Destination	Memo
1	2901	888829@51.31.167.135	2900V_Port1_IP
2	291	888829	2900V_Port1
3	292	660529	2900V_Port2
4			
5			

Example: 101 101@1001.org

Apply Cancel Clear This Page

Start to dial by using telephones.

Phone 1 call Phone 3---> Press **888829#** or **291#**.

Phone 2 call Phone 4--->Press 660529# or 292#.

Phone 3 call Phone 1--->Press 888833#.

Phone 4 call Phone 2--->Press 660533#.

Note: # indicates termination of the phone number. After pressing #, VoIP is immediately called out. Or you may wait 3 seconds if you do not press #.

Intercommunication with different SIP Proxy Servers

Connect telephones into 3300V's Port 1 & Port 3 and 2900V's Port 1 & Port 2 respectively. Each phone registers to the SIP Server. The settings and scenario are the same as the above example. But they must be set up in conjunction with the Speed Dial.

Configuration Example for Vigor3300V

Enter the **VoIP - Speed Dial** page and add the 4th and 5th group of Speed Dial number. Then press Apply to save the settings and finish the configuration.

#	Speed Dial Phone Number	Speed Dial Destination	Memo
1	2901	888829@61.31.167.135	2900V_Port1_IP
2	291	888829	2900V_Port1
3	292	660529	2900V_Port2
4	2911	888829@iptel.org	2900V_Port1_iptel
5	2912	660529@fwd.pulver.com	2900V_Port2_fwd
Example	101	101@iptel.org	

Configuration Example for Vigor2900V

Click **DialPlan Setup** in the **VoIP Setup** page. Then add the second and third group of Speed Dial number.

Index	Phone number	Display Name	SIP URL	Status
1.	3301	3300V_Port1_IP	888833@220.135.240.207	v
2.	3311	3300V_Port1_iptel	888833@iptel.org	v
3.	3312	3300V_Port2_fwd	660533@fwd.pulver.com	v
4.				x
5.				x

Start to dial by using telephone.

Phone 1 call Phone 4--->Press **2912#**.

Phone 2 call Phone 3--->Press **2911#**.

Phone 3 call Phone 1--->Press **3312#**.

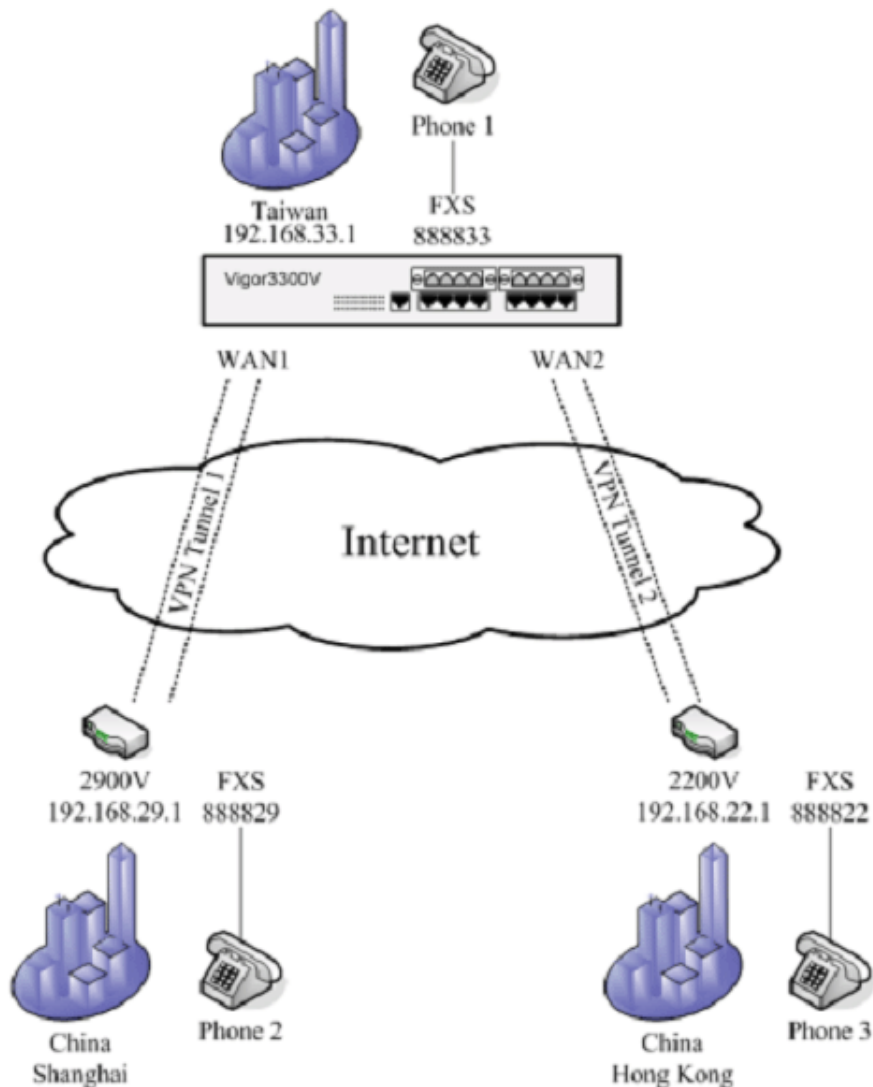
Phone 4 call Phone 2--->Press **3311#**.

Note: # indicates termination of the phone number. After pressing #, VoIP is immediately called out. Or you may wait 3 seconds if you do not press #.

5.2.8 Example 3 - VoIP over VPN

Based on the **VoIP Example 1(Basic Configuration and Registration)**, we will introduce how to dial the VoIP call through an encrypted VPN tunnel.

In this example 3300V acts as a bridge accepting incoming VPN connections from the other two routers (2900V and 2200V). The VPN traffic between 2900V and 2200V are all passed through 3300V. These three sites internal networks must be within the same subnet (192.168.X.X). Either site can ping the other two routers. Then you can make a VoIP call through the encrypted VPN tunnel by directly dialing remote router's LAN IP. Below shows the architecture graph:



Configuration table

	3300V Headquarters	2900V Branch Offices	2200V Teleworker
WAN IP	220.135.240.207 PPPoE, fixed IP	61.31.167.135 PPPoE, dynamic IP	
	219.81.160.206 PPPoE, fixed IP		61.230.207.146 PPPoE, dynamic IP
LAN IP	192.168.33.1	192.168.29.1	192.168.22.1
Internal network	192.168.33.X	192.168.29.X	192.168.22.X
Encryption method	DES-SHA1		
Preshared Key	3300		
	1234		1234

	WAN IP	Port Number	Phone Number	Proxy	Codec
3300V	220.135.240.207	Port1(FXS)	888833		G.729A
2900V	61.31.167.135	Port1(FXS)	888829		G.729A
2200V	61.230.207.146	Port1(FXS)	888822		G.729A

About the VPN configurations please refer to **VPN Example 3(three part communication)**.
About VoIP basic configuration please refer to **VoIP Example 1(Basic Configuration and Registration)**.

The following examples are modified which based on these two examples.

Configuration Example for Vigor3300V

1. Enter the **VoIP – Protocol** page; Disable all the **Active** entries by removing the (√) box. After configuration, please click **Apply** to save the settings.

VoIP - Protocol

Select Protocol: SIP MGCP

SIP Configuration | MGCP Configuration

SIP Local Port: 5060

#	Active	Outbound Proxy	Proxy Name	Proxy Address	Proxy Port	Registrar Addr	Registrar Port	Expires (sec)	Domain
1.	<input type="checkbox"/>	<input type="checkbox"/>	iptel	iptel.org	5060	iptel.org	5060	300	iptel.org
2.	<input type="checkbox"/>	<input type="checkbox"/>	fwd	fwd.pulver.com	5060	fwd.pulver.com	5060	300	fwd.pulver.com
3.	<input type="checkbox"/>	<input type="checkbox"/>		0	5060	0	5060	300	0
Example			iptel	iptel.org		iptel.org			iptel.org

Apply Cancel

VoIP - Port Settings - Port1 - Edit

Port 1 (FXS)

Disable Enable

Username:

Password:

Display Name:

Proxy Server:

VoIP IP Address:

Note: In 3300V firmware v2.5.5, you can only choose WAN or LAN/VPN. The call can be received or dialed just in one direction (WAN or LAN/VPN).

Or, select **none** as Proxy Server for each Port.

VoIP - Port Settings - Port1 - Edit

Port 1 (FXS)

Disable Enable

Username:

Password:

Display Name:

Proxy Server:

VoIP IP Address:

Hotline

none
ipTel
fwd
undefined proxy 3

2. Enter the **VoIP - Port Settings** page, now the Proxy entries all display Disable. (If you select **none** as Proxy Server for each Port, the Proxy entries are blank.)

VoIP - Port Settings

#	Edit	Type	Active	Group	Username	Proxy	Codec
1		FXS	V	1	888833	ipTel (Disable)	0.729A-Gkops
2		FXS	V	2	888834	ipTel (Disable)	0.729A-Gkops
3		FXS	V	3	660533	fwd (Disable)	0.729A-Gkops
4		FXS	V	4	660534	fwd (Disable)	0.729A-Gkops
5		FXO	V	5	888835	ipTel (Disable)	0.729A-Gkops
6		FXO	V	6	888836	ipTel (Disable)	0.729A-Gkops
7		FXO	V	7	660525	fwd (Disable)	0.729A-Gkops
8		FXO	V	8	660526	fwd (Disable)	0.729A-Gkops

3. Enter the **VoIP - Speed Dial** page and input the first and second group of Speed Dial Phone Number. Click **Apply** to save the settings.

VoIP - Speed Dial

#	Speed Dial Phone Number	Speed Dial Destination	Memo
1	2901	888829@192.168.29.1	2900V_Port1_VPN
2	2201	888822@192.168.22.1	2200V_Port1_VPN
3			
4			
5			

Example 101 101@iptel.org

1 2 3 4 5

Apply Cancel Clear This Page

Configuration Example for Vigor2900V

1. Enter **VoIP Setup - SIP Related Functions Setup** page and change **Register via** from WAN to LAN/VPN for Port1 and Port2. Press OK to save the settings.

SIP

Port 1	Port 2
SIP Port: 5060	SIP Port: 5060
Domain: iptel.org	Domain: fwd.pulver.com
Proxy: iptel.org	Proxy: fwd.pulver.com
Outbound Proxy:	Outbound Proxy:

Ports Setting

Port 1	Port 2
Register via: LAN/VPN	Register via: LAN/VPN
Display Name: 2900V_Port1_ip	Display Name: 2900V_Port2_iv
Account Name: 888829	Account Name: 660529
Authentication ID: 888829	Authentication ID: 660529
Password: ●●●●	Password: ●●●●
Expiry Time: 1 hour 3600 sec	Expiry Time: 1 hour 3600 sec

Stun Server

OK Cancel

Note: Do not set up the Outbound Proxy and Stun Server when calling through VPN.

2. Click **DialPlan Setup** in the **VoIP Setup** page and add the first and second group of Speed Dial Phone Number.

Advanced Setup > VoIP Setup > DialPlan Setup

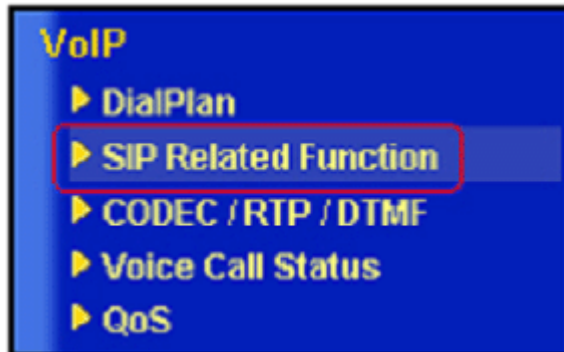
DialPlan Configuration

Index	Phone number	Display Name	SIP URL	Status
1.	3301		888833@192.168.33.1	v
2.	2201		888822@192.168.22.1	v
3.				x
4.				x
5.				x

Note: Do not set up the Display Name when calling through the VPN with 2900V firmware v2.5.6. Otherwise you can't get ring back and communicate with remote user after getting through.

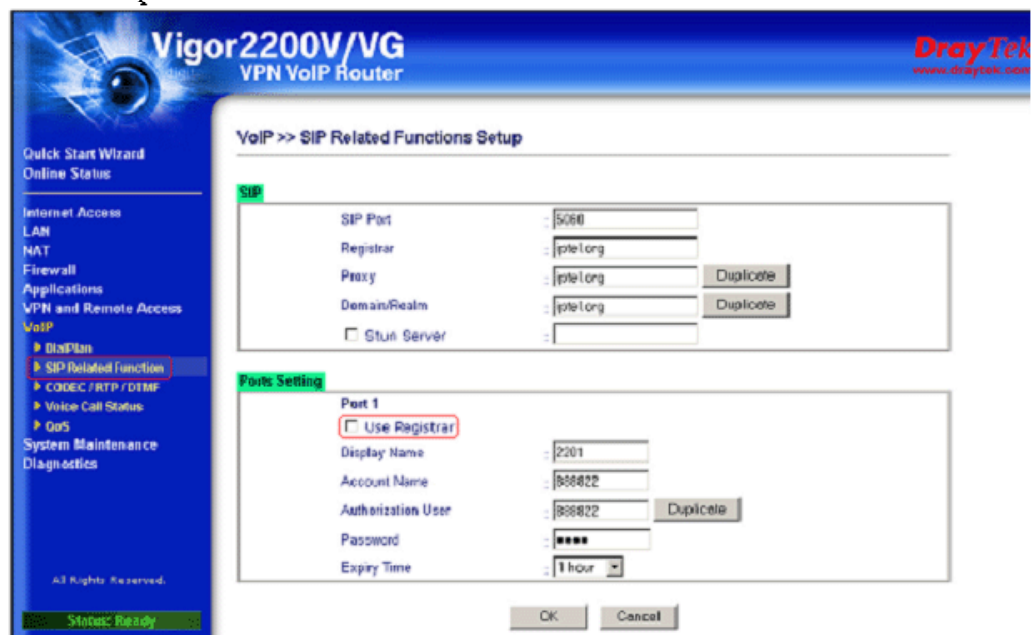
Configuration Example for Vigor2200V

1. Enter 2200V's Web and click **VoIP - SIP Related Function** page.



SIP related function of 2200V

2. Setup Port 1. This page falls into two sections, SIP: Set up the SIP Server used for registration. Ports: Set up the account details.

A screenshot of the Vigor2200V/VG VPN VoIP Router web interface. The page title is 'Vigor2200V/VG VPN VoIP Router'. The left sidebar shows a navigation menu with 'VoIP' expanded and 'SIP Related Function' selected. The main content area is titled 'VoIP >> SIP Related Functions Setup'. It is divided into two sections: 'SIP' and 'Port Setting'. The 'SIP' section has fields for SIP Port (5060), Registrar (jpte1.org), Proxy (jpte1.org), Demand/Realm (jpte1.org), and a checkbox for Stun Server. The 'Port Setting' section has a 'Port 1' header, a checked 'Use Registrar' checkbox (highlighted with a red box), and fields for Display Name (2201), Account Name (888822), Authorization User (888822), Password (****), and Expiry Time (1 hour). There are 'OK' and 'Cancel' buttons at the bottom.

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

Note: Do not set up the Proxy and Stun Server when calling through VPN. While in 2200V firmware v2.5.5.4, the Proxy will be active if Use Registrar is enabled. So make sure not click Use Registrar.

3. Enter **VoIP - DialPlan** page and the first and second group of Speed Dial Phone Number.



After configuration, please confirm that the VPNs are established and they can communicate with each other. (Please refer to VPN - IPSec - LAN to LAN Usage Example 2).

Start to dial by using telephones.

Phone 1 call Phone 2---->Press 2901# or 888829*192*168*29*1#.

Phone 1 call Phone 3---->Press 2201# or 888822*192*168*22*1#.

Phone 2 call Phone 1---->Press **3301#**.

Phone 2 call Phone 3---->Press 2201# or #192*168*22*1#.

Phone 3 call Phone 1---->Press **3301#**.

Phone 3 call Phone 2---->Press 2901# or #192*168*29*1#.

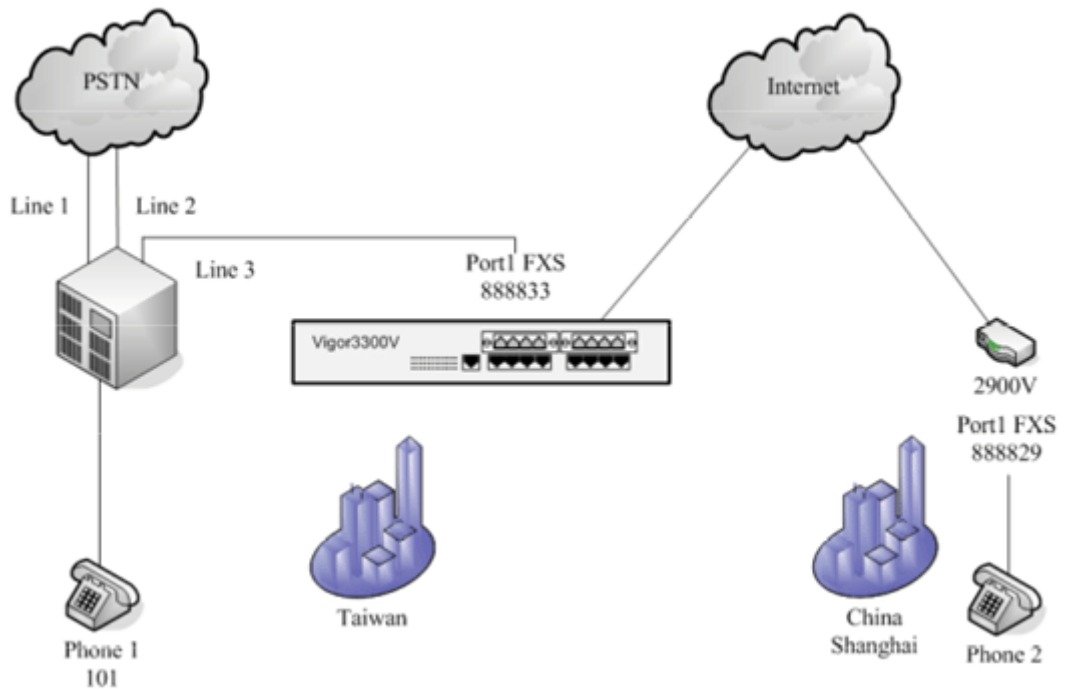
Note: # indicates termination of the phone number. After pressing #, VoIP is immediately called out. Or you may wait 3 seconds if you do not press #.

5.2.9 Example 4 - Practical Application of FXS

Based on the **VoIP Example 1(Basic Configuration and Registration)**, we will introduce the practical application of FXS.

Generally, the practical application of FXS falls into the following two sections.

- Connect the telephones (Please refer to VoIP Example 1). Two VoIP equipments call with each other.
- Connect PBX's Outside Lines. The usage is the same as that of PSTN line. Different PBX has its own settings and required configuration by you. Below shows a scenario architecture graph:



Configuration table between 3300V and 2900V

	WAN IP	Port Number	Phone Number	Proxy	Codec
3300V	220.135.240.207	Port1(FXS)	888833	iptel	G.729A
2900V	61.31.167.135	Port1(FXS)	888829	iptel	G.729A

Suppose there are two PSTN lines connected to PBX's Outside Lines. The third Outside Line is connected to 3300V's FXS Port1. The Inside Line is connected to a telephone with the extension 101. If the extension wants to dial VoIP using Line 3, you must firstly press 3, and then dial the phone number.

Example of lines connections

	PBX	Phone Number
Line3(3)	Outside Lines	888833
Phone1	Inside Lines	101

Start to dial by using telephones.

Phone 1 calls Phone 2---->Press **3**, after hearing the dial tone press VoIP number **888829#**.

Phone 2 calls Phone 1---->Press **888833#**, after getting through you will hear the auto reply from the PBX. Then press the extension **101**.

Note: # indicates termination of the phone number. After pressing #, VoIP is immediately called out. Or you may wait 3 seconds if you do not press #.

This example is the intercommunication with one SIP Proxy Server. For the applications of Direct IP Call and Intercommunication with different SIP Proxy Servers please refer to **VoIP Example 2(Basic Calling Method)**. The VoIP call can also work with VPN, please refer to **VoIP Example 3(VoIP over VPN)**.

Also you can set up the Speed Dial entry. To accommodate the extension please set up 888829 to **291**, 888833 to **331**. You may refer to the figures shown below and **VoIP Example 2(Basic Calling Method)**.

#	Speed Dial Phone Number	Speed Dial Destination	Memo
1	291	888829	3300V_Port1
2			
3			
4			
5			

Example 101 101@iptel.org

1 2 3 4 5

Apply Cancel Clear This Page

Index No. 1

Enable

Phone Number: 331

Display Name: 3300V_Port1

SIP URL: 888833 @ iptel.org

OK

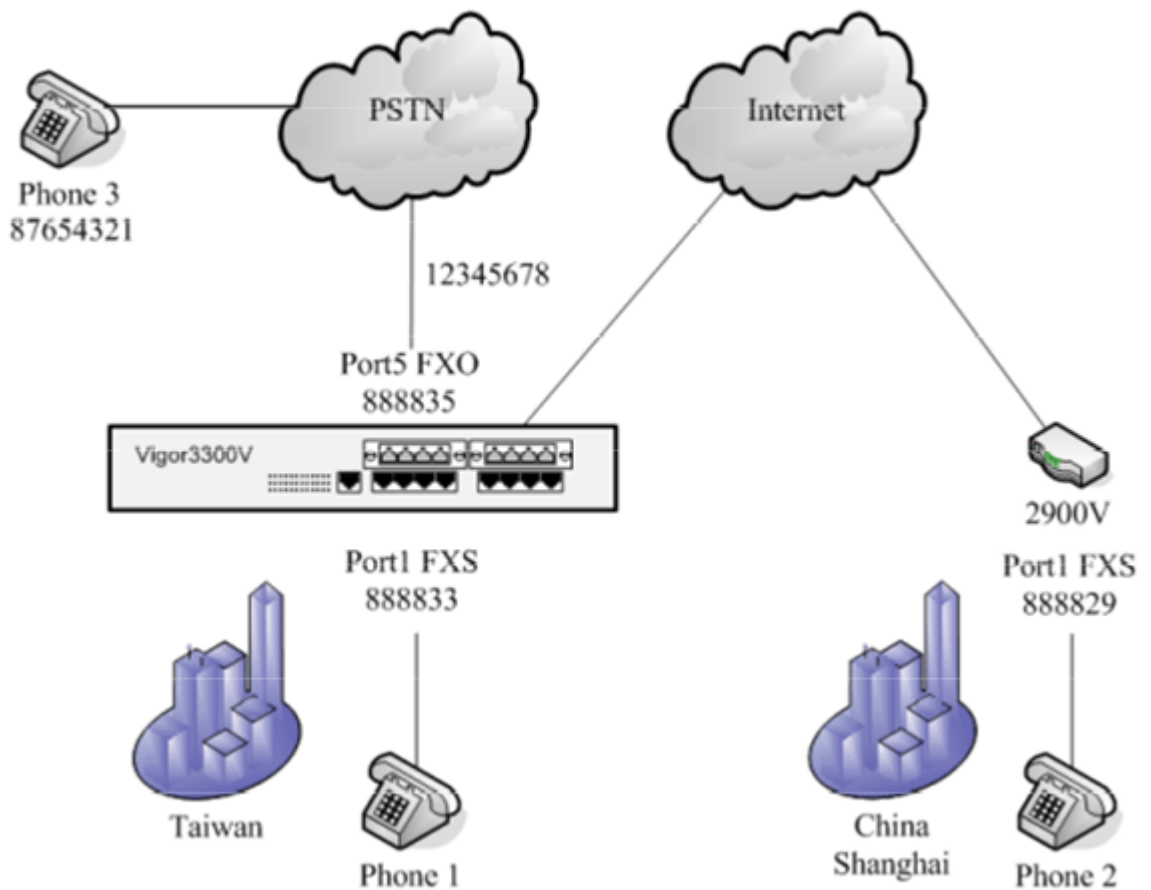
5.2.10 Example 5 - Practical Application of FXO

Based on the **VoIP Example 1(Basic Configuration and Registration)**, we will introduce the practical application of FXO.

Generally the practical application of FXO falls into the following two sections:

- Connect to PSTN line

By connecting 3300V's FXO Port 5 to a PSTN line, VoIP is seamlessly integrated to PSTN line and allows you to call not only the remote VoIP user, but also the remote PSTN user. Also the PSTN user can call the VoIP user. Below shows a scenario architecture graph:



Configuration table between 3300V and 2900V

	WAN IP	Port Number	Phone Number	Proxy	Codec
3300V	220.135.240.207	Port1(FXS)	888833	iptel	G.729A
		Port5(FXO)	888835	iptel	G.729A
2900V	61.31.167.135	Port1(FXS)	888829	iptel	G.729A

The number of the PSTN line connected into the FXO Port 5 on the 3300V is 12345678. The number of another PSTN line is 87654321.

About VoIP basic settings please refer to VoIP Example 1(Basic configuration and registration)

Start to dial by using telephones.

Phone 1 calls Phone 3---->Press **888835#**. After getting through you will hear the dial tone, then press the PSTN number **87654321#**.

Phone 2 calls Phone 3---->Press **888835#**. After getting through you will hear the Dial tone, then press the PSTN number **87654321#**.

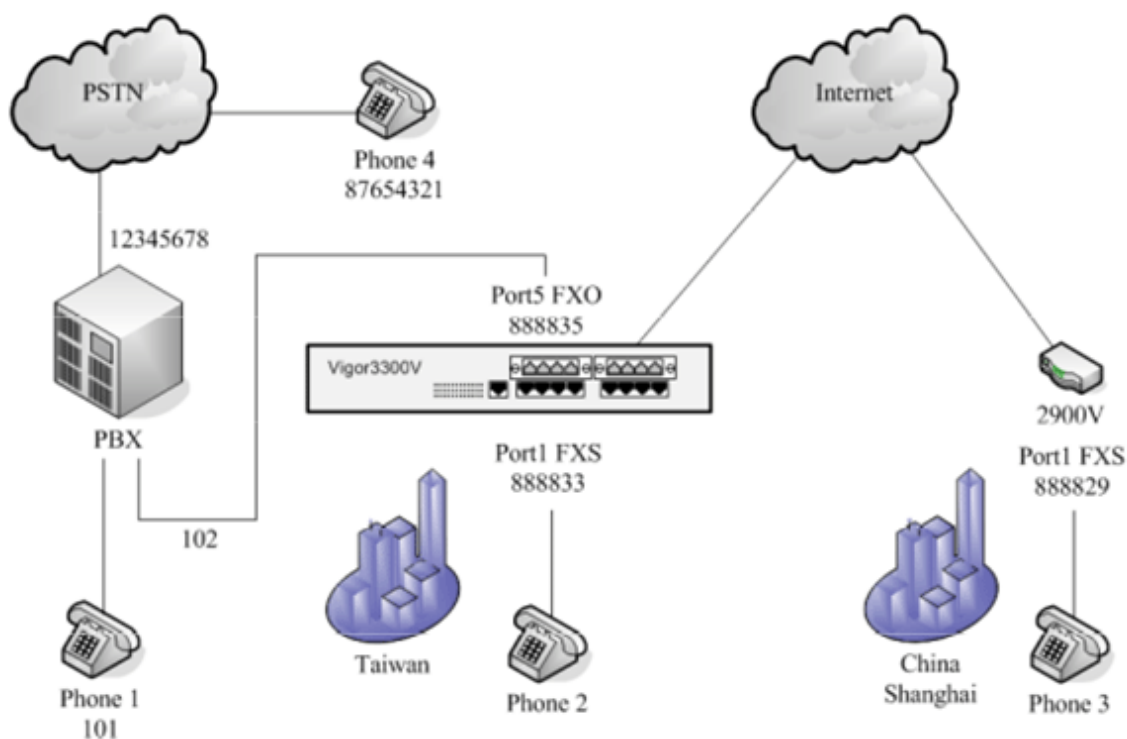
Phone 3 calls Phone 2---->Press **12345678**. After getting through you will hear the Dial tone, then press the VoIP number **888829#**.

Phone 3 calls Phone 1---->Press **12345678**. After getting through you will hear the Dial tone, then press the VoIP number **888833#**.

Note: # indicates termination of the phone number. After pressing #, VoIP is immediately called out. Or, you may wait 3 seconds if you do not press #.

- Connect PBX's Inside Lines. The usage is the same as that of common extension. Different PBX has its own settings and required configuration by you.

By connecting 3300V's FXO Port5 to PBX's Inside Line, VoIP is seamlessly integrated to PBX's inside lines and allows you to call not only the VoIP, but also the PSTN line and PBX's extension. Also the remote user can call you from the PSTN line and PBX's extension.



Configuration table between 3300V and 2900V

	WAN IP	Port Number	Phone Number	Proxy	Codec
3300V	220.135.240.207	Port1(FXS)	888833	iptel	G.729A
		Port5(FXO)	888835	iptel	G.729A
2900V	61.31.167.135	Port1(FXS)	888829	iptel	G.729A

Suppose the number of PBX's Outside Line is 12345678. One Inside Line is connected to a telephone with the extension 101. If you want to use PSTN from the extension, you must firstly press 0, and then dial the phone number.

The FXO Port5 on the 3300V is connected to PBX's Inside Line with the number 102. The number of another PSTN line is 87654321.

About VoIP basic settings please refer to VoIP Example 1. (Basic configuration and registration)

Start to dial by using telephones.

Phone 1 calls Phone 2---->Press extension **102**. After getting through you will hear the dial tone, then press the VoIP number **888833#**.

Phone 1 calls Phone 3---->Press extension **102**. After getting through you will hear the Dial tone, then press the VoIP number **888829#**.

Phone 2 calls Phone 1---->Press **888835#**. After getting through you will hear the Dial tone, then press the extension **101**.

Phone 2 calls Phone 4---->Press **888835#**. After getting through you will hear the Dial tone. Press outside line **0**, then press **87654321**.

Phone 3 calls Phone 1---->Press **888835#**. After getting through you will hear the Dial tone, then press the extension **101**.

Phone 3 call Phone 4---->Press **888835#**. After getting through you will hear the Dial tone. Press outside line **0**, then press **87654321**.

Phone 4 calls Phone 2---->Press **12345678**. After getting through you will hear the auto reply from the PBX, then press the extension **102**. After getting through you will hear the Dial tone, then press the VoIP number **888833#**.

Phone 4 calls Phone 3---->Press **12345678**. After getting through you will hear the auto reply from the PBX, then press the extension **102**. After getting through you will hear the Dial tone, then press the VoIP number **888829#**.

Note: # indicates termination of the phone number. After pressing #, VoIP is called out immediately. Or, you may wait 3 seconds if you do not press #. This example is intercommunication with one SIP Proxy Server. For the applications of Direct IP Call and Intercommunication with different SIP Proxy Servers please refer to **VoIP Example 2(Basic Calling Method)**. The VoIP call can also wok with VPN, please refer to **VoIP Example 3(VoIP over VPN)**.
