Router Series
EX-9632R-H/EX-9633R-H
User Manual

<Version 2.0>

Date: 6/30/2012

Revision History

Version	Date	Comments	Author
2.00	2012-06-30	Initial Release Version	Carter Lee

Important Notice

Due to the nature of wireless communications, transmission and reception of data can never be guaranteed. Data may be delayed, corrupted (i.e., have errors) or be totally lost. Although significant delays or losses of data are rare when wireless devices such as this device are used in a normal manner with well-constructed network, this device should not be used in situations where failure to transmit or receive data could result in damage of any kind to the user or any other party, including but not limited to personal injury, death, or loss of property. This device accepts no responsibility for damages of any kind resulting from delays or errors in data transmission, or for failure of this device to transmit or receive such data.

Safety and Hazards

Do not operate this device in areas where blasting is in progress, where explosive atmospheres may be present, near medical equipment, near life support equipment, or any equipment which may be susceptible to any form of radio interference. In such areas, this device MUST BE POWERED OFF. This device can transmit signals that could interfere with this equipment. Do not operate this device in any aircraft, whether the aircraft is on the ground or in flight and it MUST BE POWERED OFF when in an aircraft. When operating, this device can transmit signals that could interfere with various onboard systems.

Note: Some airlines may permit the use of cellular phones while the aircraft is on the ground and the door is opened.

The driver or operator of any vehicle should not operate this device while in control of a vehicle. Doing so will detract from the driver or operator's control and operation of that vehicle. In some states and provinces, operating such communications devices while in control of a vehicle is an offence.

Limitations of Liability

This manual is provided “as is”. We makes no warranties of any kind, either expressed or implied, including any implied warranties of merchantability, fitness for a particular purpose, or non-infringement. The recipient of the manual shall endorse all risks arising from its use.

The information in this manual is subject to change without notice and does not represent a commitment on the part of this device. WE SPECIFICALLY DISCLAIM LIABILITY FOR ANY AND ALL DIRECT, INDIRECT, SPECIAL, GENERAL, INCIDENTAL, CONSEQUENTIAL, PUNITIVE OR EXEMPLARY DAMAGES INCLUDING, BUT NOT LIMITED TO, LOSS OF PROFITS OR REVENUE OR ANTICIPATED PROFITS OR REVENUE ARISING OUT OF THE USE OR INABILITY TO USE ANY PRODUCT, EVEN IF WE HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES OR THEY ARE FORESEEABLE OR FOR CLAIMS BY ANY THIRD PARTY.

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Contents

Overview

This device is a 2G/3G router which compliance to GSM/GPRS/EDGE/WCDMA/HSPA or EVDO/TD-SCDMA network and shares the network to other devices. This capability means that remote and mobile devices can attach to Internet hosts using the public wireless networks.

Router series is easy to install, reducing the reliance on the end customer and enables direct access to your remote LAN devices for controlling and monitoring purposes.

It enables companies to access equipment of mobile remotely, remote networks and isolated sites

This router is seeking reliable, flexible and cost-effective data channel to build their information system. Many applications such as ATM, POS, SCADA and surveillance system will require data channels covered all over the country; this brings a bright future for mobile data networks applications.

Abbreviations

APN	Access Point Name
DAC	Digital Analog Converter
GGSN	Gateway GPRS Support Node
GPRS	General Packet Radio Service
IP	Internet Protocol
KB	Kilobyte
MCC	Mobile Country Code
MNC	Mobile Network Codes
MS	Mobile Station
PDU	Protocol Data Unit
PLMN	Public Land Mobile Network
RSSI	Received Signal Strength Indication
SMA	Small Adapter
SMS	Short Message Services
CDMA	Code Division Multiple Access
RIP	Routing Information Protocol

OSPF	Open Shortest Path First
QoS	Quality of Service
DNS	Domain Name System
DDNS	Dynamic Domain Name Server
DHCP	Dynamic Host Configuration Protocol
NAT	Network Address Translation
DMZ	Demilitarized Zone
PPP	Point to Point Protocol
PPTP	Point to Point Tunneling Protocol
UIM	User Identity Model
VPN	Virtual Private Network

Brief of Mobile Network

2G

2G (or 2-G) stands for second-generation wireless telephone technology. Second generation 2G cellular telecom networks were commercially launched on the GSM standard in Finland by Radiolinja (now part of Elisa Oyj) in 1991. Three primary benefits of 2G networks over their predecessors were that phone conversations were digitally encrypted; 2G systems were significantly more efficient on the spectrum allowing for far greater mobile phone penetration levels; and 2G introduced data services for mobile, starting with SMS text messages.

2.5G

2.5G ("second and a half generation") is used to describe 2G-systems that have implemented a packet-switched domain in addition to the circuit-switched domain. It does not necessarily provide faster services because bundling of timeslots is used for circuit-switched data services (HSCSD) as well.

The first major step in the evolution of GSM networks to 3G occurred with the introduction of General Packet Radio Service (GPRS). CDMA2000 networks similarly evolved through the introduction of 1xRTT. The combination of these capabilities came to be known as 2.5G.

3G

3G or 3rd generation mobile telecommunication is a generation of standards for mobile phones and mobile telecommunication services fulfilling the International Mobile Telecommunications-2000 (IMT-2000) specifications by the International Telecommunication Union. Application services include wide-area wireless voice telephone, mobile Internet access, video calls and mobile TV, all in a mobile environment. To meet the IMT-2000 standards, a system is required to provide peak data rates of at least 200 Kbit/s. In recent 3G releases, often

denoted 3.5G and 3.75G, also provide mobile broadband access of several Mbit/s to smartphones and mobile modems in laptop computers.

Features

- Industrial design for small dimension
- Robust industrial housing
- Secure remote access - Support for up to 4 simultaneous VPN tunnels 6 Mbps 3DES VPN throughput
- SPI/VPN Firewall
- NAT Router for Internet Access Sharing
- 1 10/100 LAN port
- 250Mhz CPU with hardware-based encryption accelerator
- DC5~25V wild rang, low power consumption
- Watch Dog

Specification

Product	Network		Work Temp	Humidity	Size	Weight
EX-9632R-H	GSM	850MHz	-10 ~ +65°C	5 ~ 90%	100x60x25mm	240g
		900MHz				
		1800MHz				
		1900MHz				
	WCDMA	850MHz				
		1900MHz				
		2100MHz				
EX-9633R-H	EV-DO Rev. A	800MHz	-10 ~ +55°C	5% 95%		

Application

- POS terminals and scanners

- Vending machines
- Security systems
- Remote telemetry and telematics systems
- Fleet management and tracking systems
- Traffic control and navigation systems
- Remote Data Monitor and Control
- AMR (automatic meter reading) for power, water, gas, oil meter
- Power station monitoring and control
- Traffic signals monitor and control
- Power distribution network supervision
- Central heating system supervision
- Weather station data transmission
- Hydrologic data acquisition
- Parking meter and Taxi Monitor
- Telecom equipment supervision (Mobile base station, microwave or optical relay station)

Interface

LED	Description	
Reserve	OFF	Reserved
PWR	ON	Device starting
	Blink	Device running
LAN	ON	RJ45 connected
	OFF	RJ45 absent
VPN	ON	VPN connected
	OFF	VPN absent
CELL	ON	Cell module running
	OFF	Cell module starting
Online	ON	Network registered
	OFF	Network registering

Interface	Description	
Antenna	50Ω/SMA/Female	
Reset Hole	Reset the device	
Jumper Upper Only	Modem mode	
Jumper Lower Only	Router mode	
USB jack	Connect to PC (modem mode)	
RJ45	Network cable interface	
Power	Φ5.5mm/2.5mm，5~25V（standard 12V）	
Serial Port	DB9 (for DTU mode)	
SIM	3.3V/1.8V	

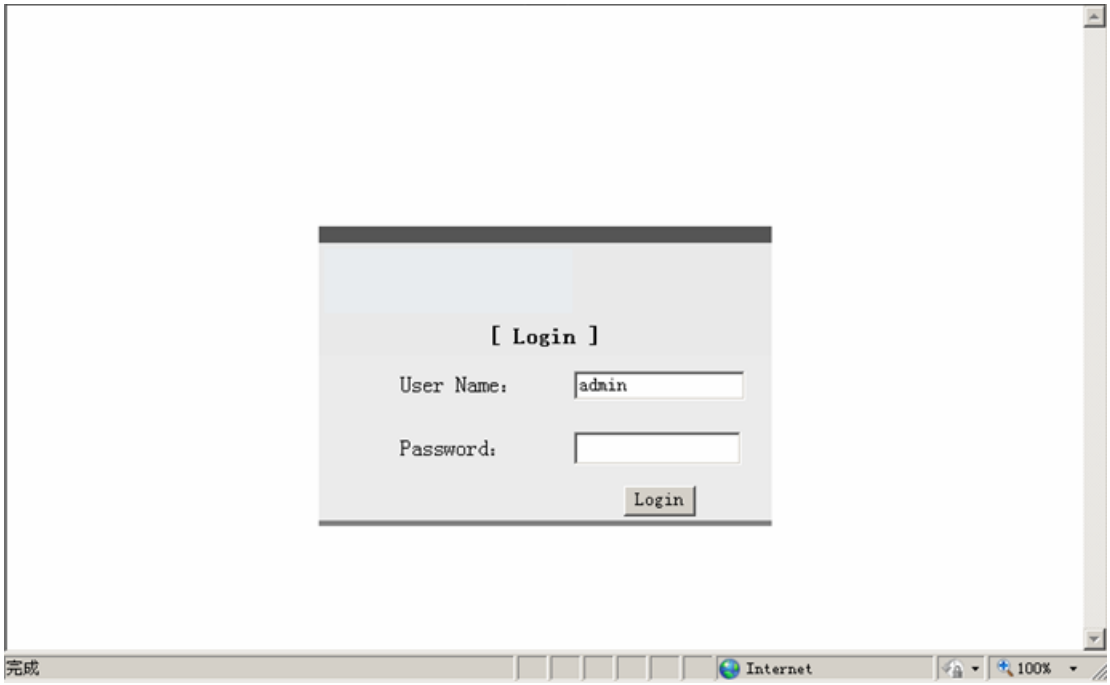
Web Interface

Login

Default login address: **http://192.168.0.254:10000**

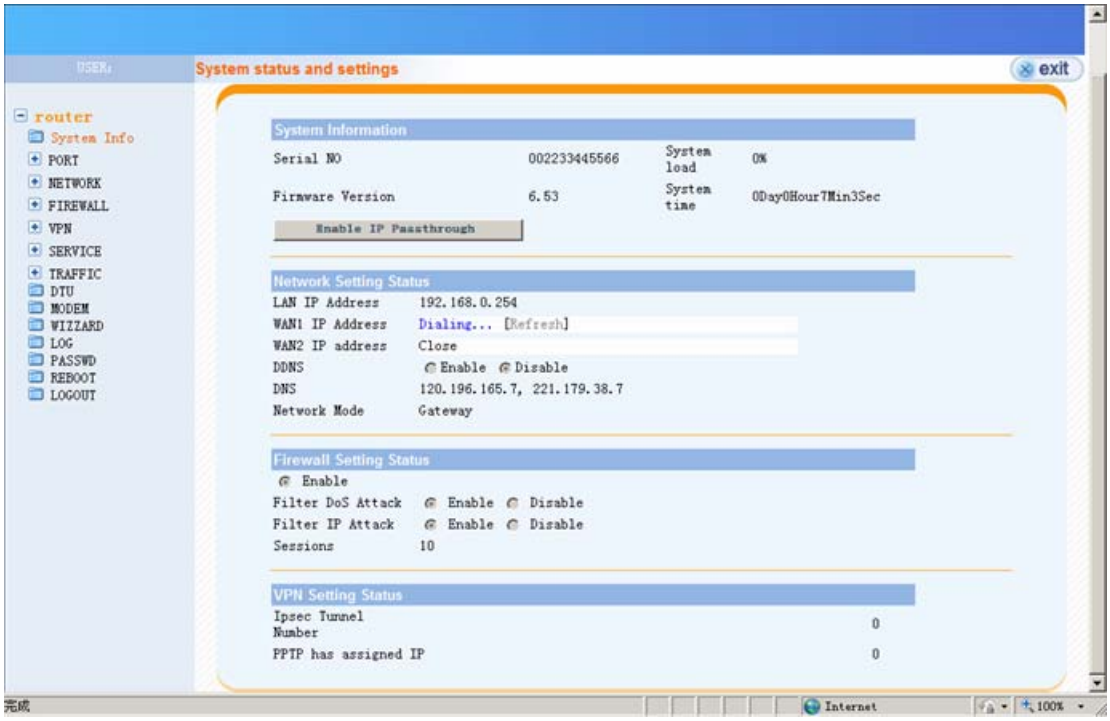
Default user name: **admin**

Default password: **888888**



System Info

Router system information includes network status, firewall status and VPN status.



System Information

Serial NO — *device serial number*

System load — *system CPU load*

Firmware Version — *device firmware version*

System active time — *system running time*

Network Setting Status

LAN IP Address — *device LAN IP address*

WAN1 IP Address — *device WAN IP address*

DDNS — *dynamic domain name service*

DNS — *domain name service*

Network Mode — *device work mode*

Firewall Setting Status

Enable	*enable the firewall*
Filter DoS Attack	*filter DoS attack*
Filter IP Attack	*filter IP attack*
Sessions	*currently connecting sessions*

VPN Setting Status

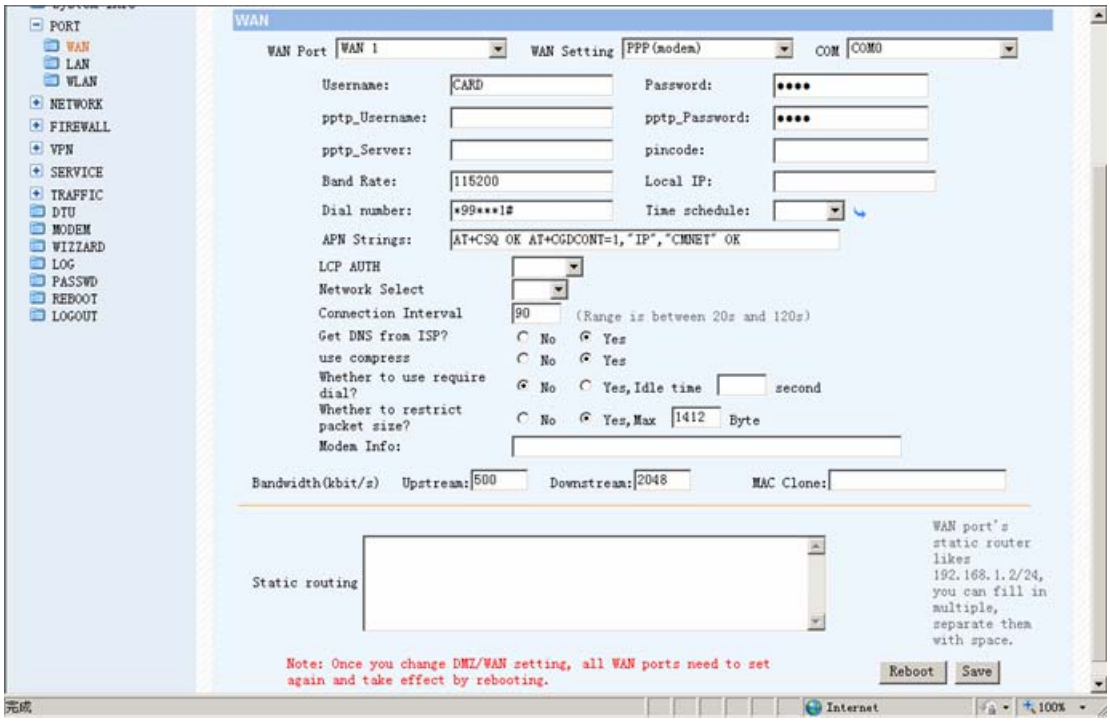
IPSec Tunnel Number	*number of IPSec tunnel*
PPTP has assigned IP	*assigned IP for PPTP*

Port

WAN

The device supports PPP for 3G network and Static IP, PPPoE, DHCP for Ethernet WAN. The schedule

The scheduling selection also on this page named “Time Schedule”. Use this function to configure the plan when this device will get online or offline.



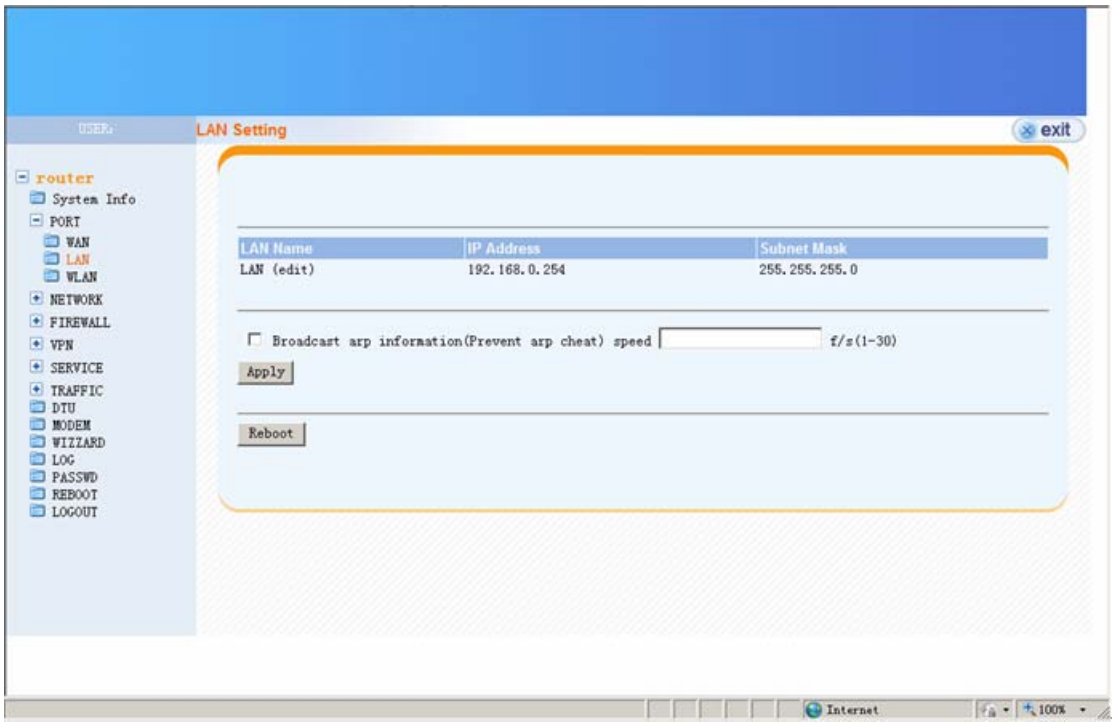
The setting for connecting 3G network is different from ISP to ISP. Consult to your ISP provider for following information: user name, password, dial number and APN string. Be sure of the correctness of these information or you won’t get this device connecting to 3G network. Following table is the required information if the ISP is Chunghwa Telecom Co.,Ltd.

User Name	
Password	
Band Rate	115200

Dial Number	*99***1#
AT String	AT+CSQ OK AT+CGDCONT=1,"IP","INTERNET" OK

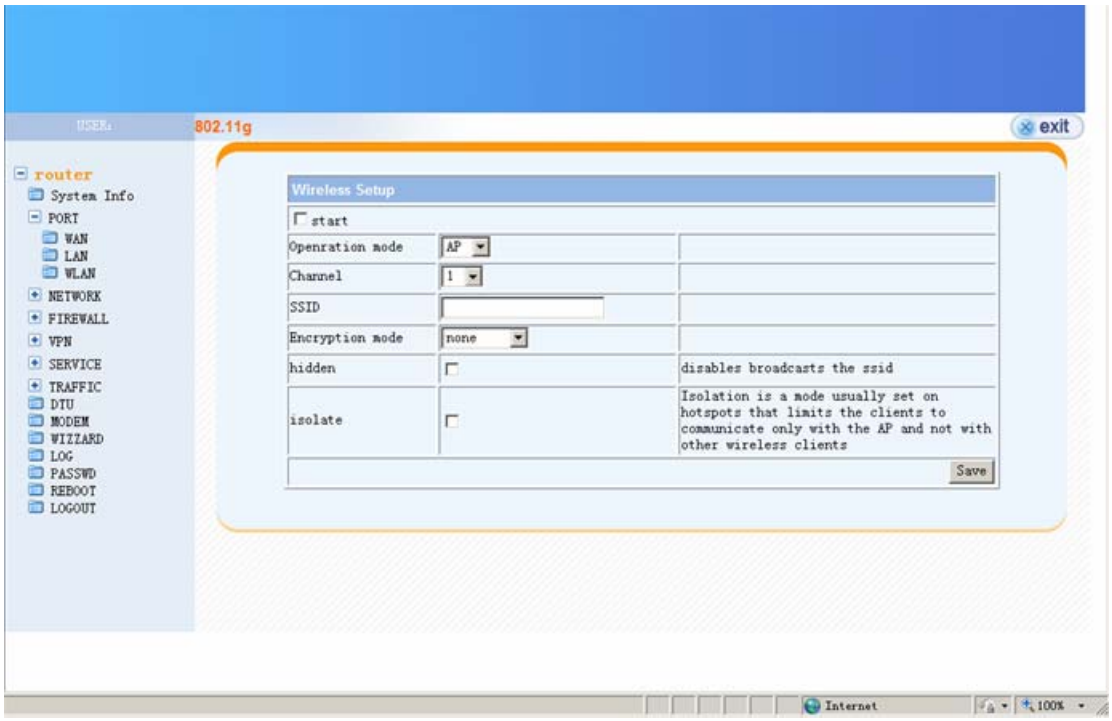
LAN

Click on the "LAN (edit)" of this page, you will able to configure LAN setting, including router LAN IP, LAN subnet and LAN mask.



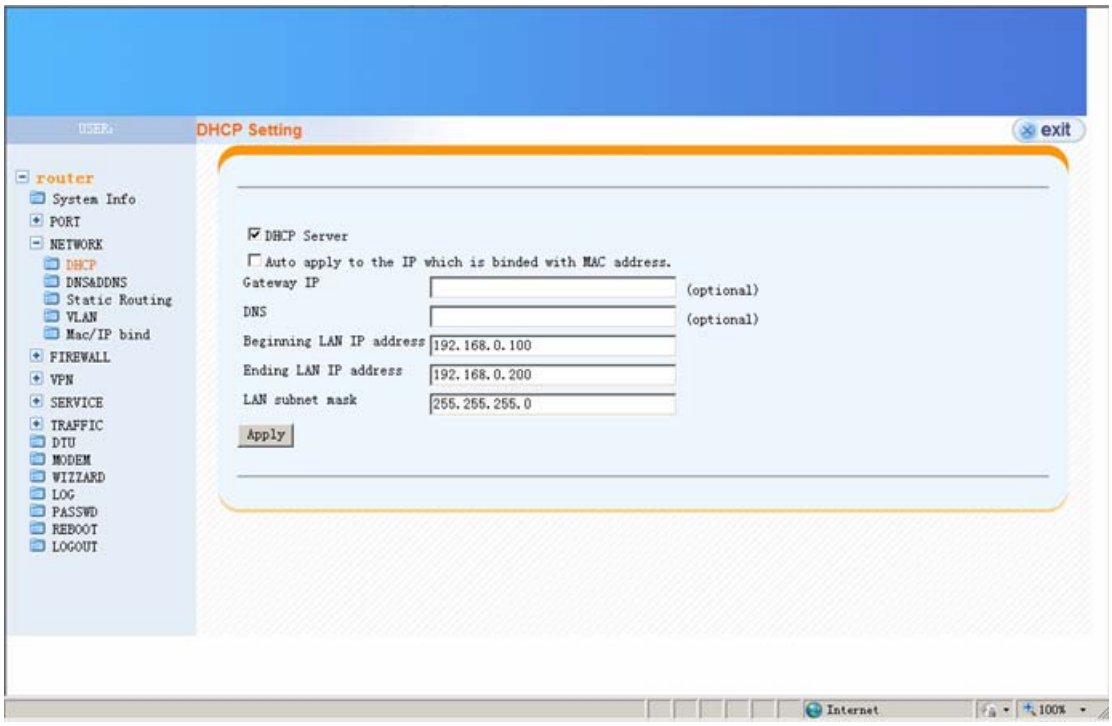
WLAN

The WIFI setting not support by EX-9632R-H/EX-9633R-H. Just ignore it.



Network

DHCP



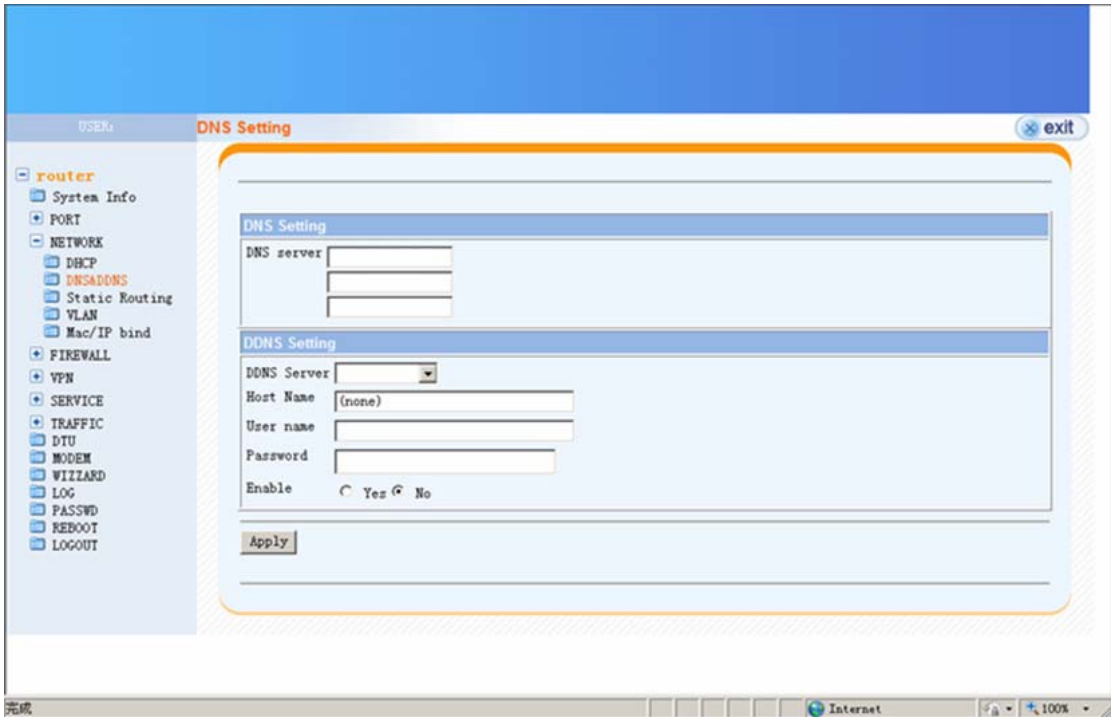
DHCP Setting

DHCP Server	*enable the DHCP server*
Auto apply to IP	*which is bound with MAC address use the rule of IP and MAC bind*
Gateway IP	*Gateway IP address (option)*
DNS	*DNS IP address (option)*
Beginning LAN IP address	*the begin of DHCP IP address pool*
Ending LAN IP address	*the end of DHCP IP address pool*
LAN Subnet Mask	*the LAN subnet mask*

LAN Subnet Mask *the LAN subnet mask*

DNS&DDNS

For DDNS, please reference Appendix A for an example.

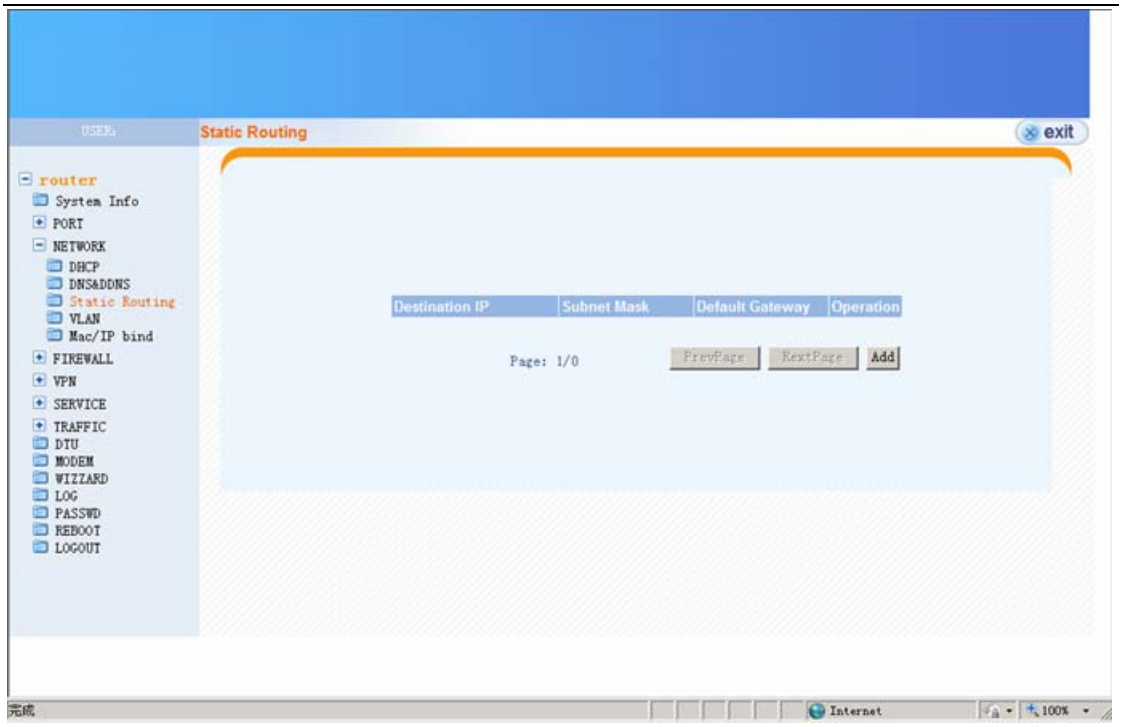


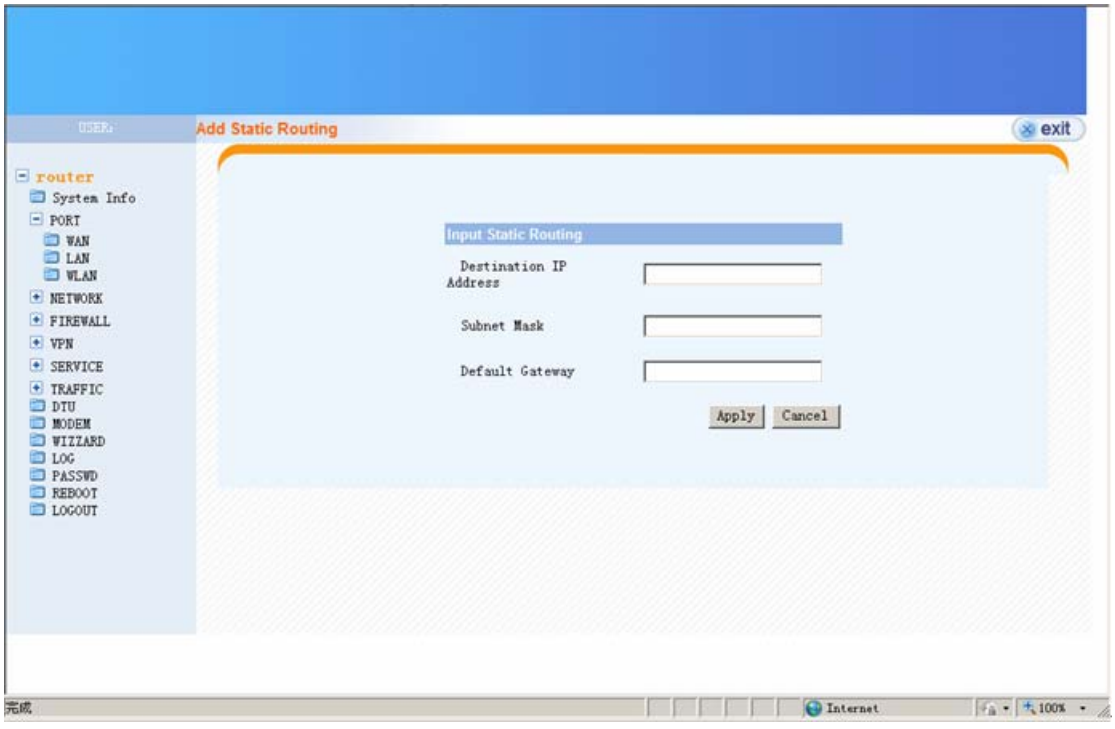
DNS and DDNS setting

DNS Server	*manual setting the IP address of DNS primary server and the secondary server*
DDNS Server	*the dynamic domain name server selection.*
Host Name	*the DDNS host name.*
User Name	*the DDNS username*
Password	*the DDNS password*
Enable	*enable or disable the DDNS function*

Static Routing

This page contains the list of static routing rules. Click on the **Add** button will allow you to add a new rule.

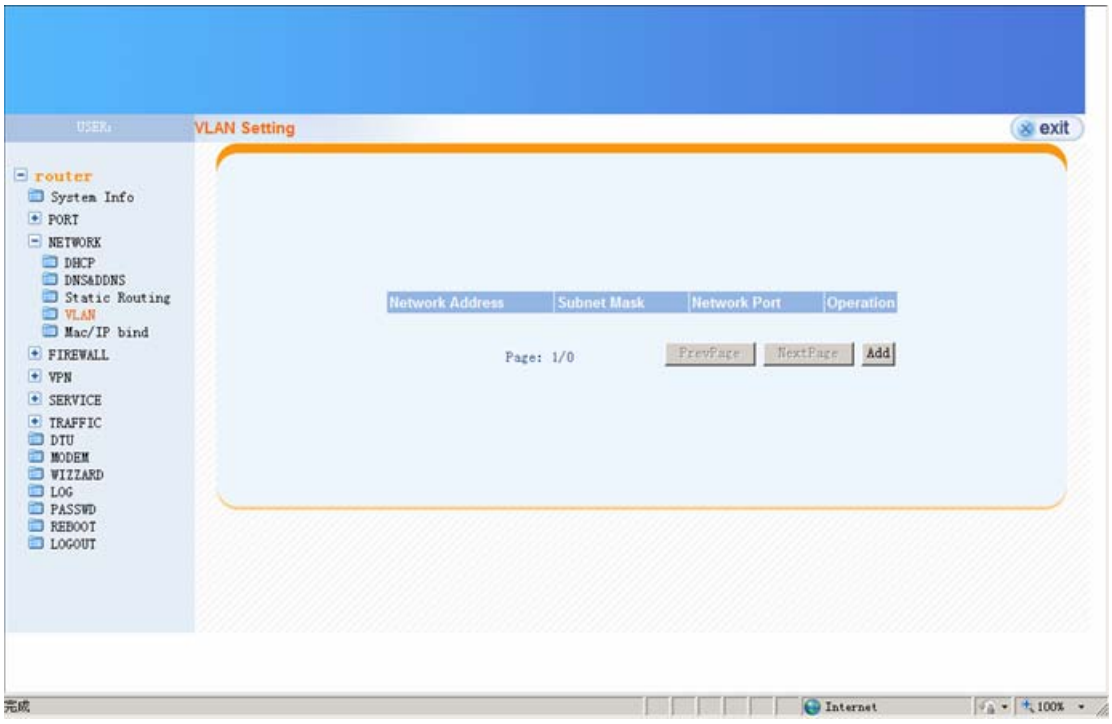


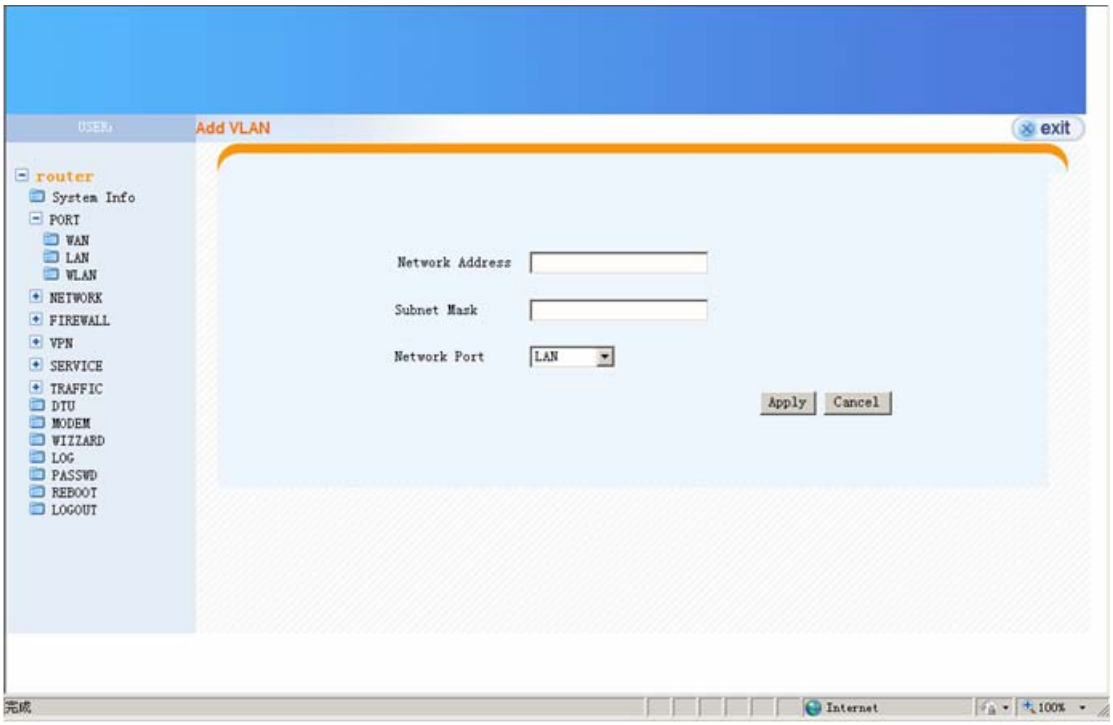


VLAN

This page contains the list of VLAN rules. Click on the **Add** button will allow you to add a

new rule.





Add VLAN

Network Address *the VLAN network address*

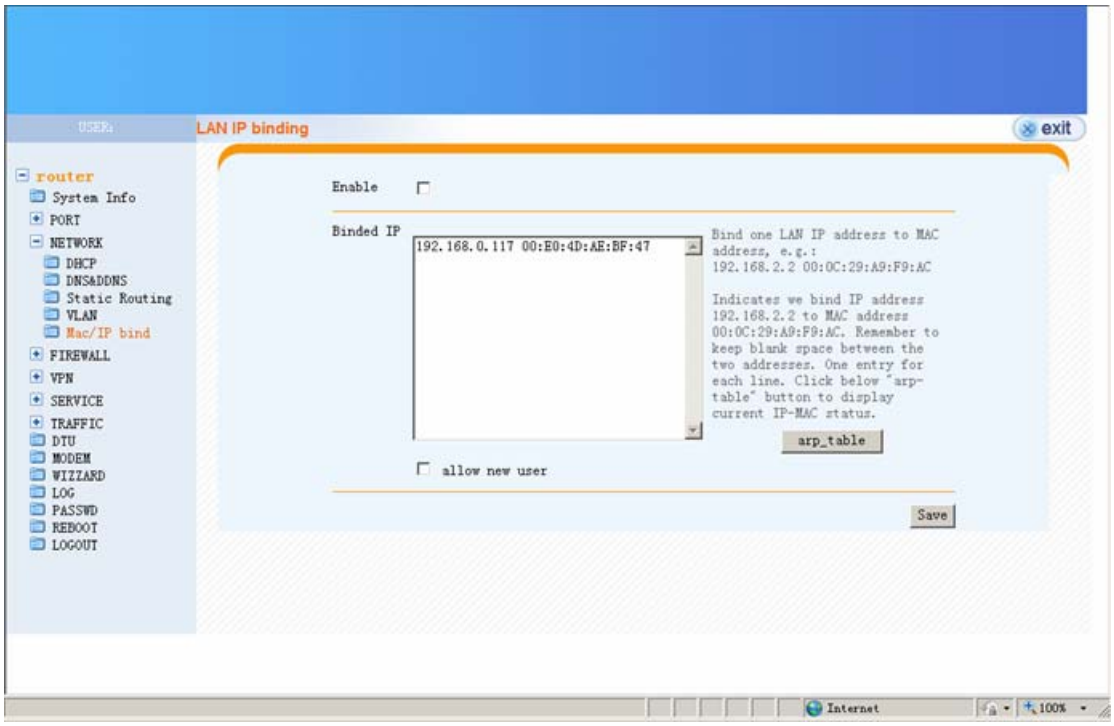
Subnet Mask *the VLAN subnet mask*

Network Port *the VLAN port, only the LAN*

MAC/IP Bind

Setting of MAC and IP address binding. Follow the hints to add a new MAC-IP address binding rule.

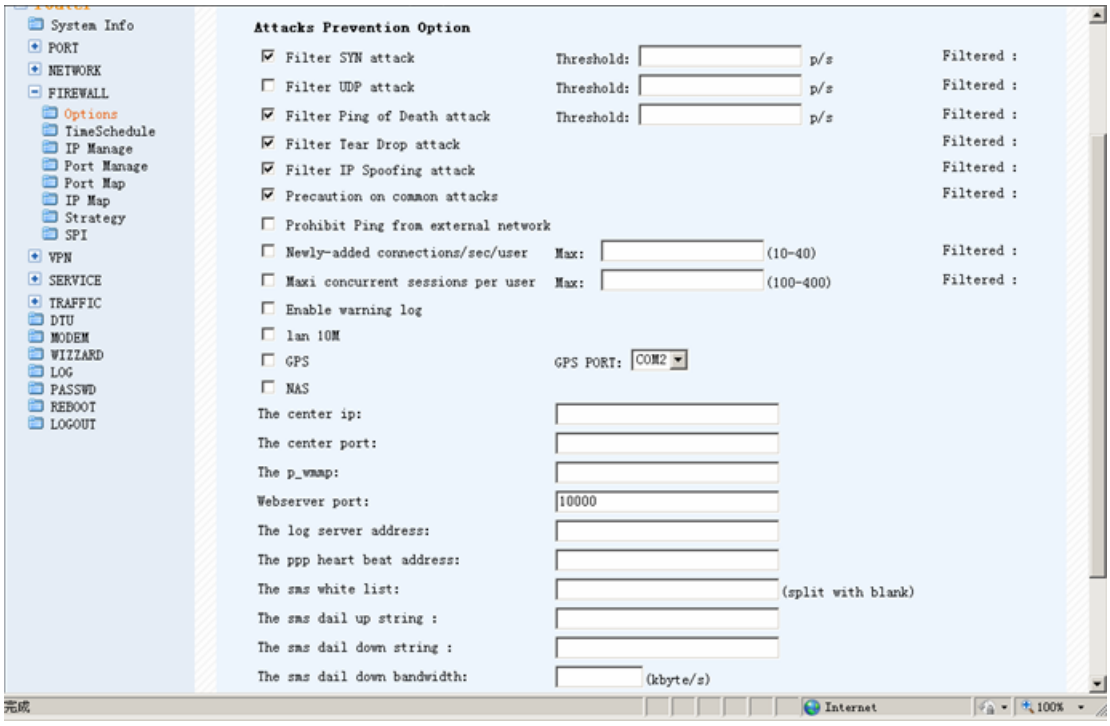
ARP table button is also in this page for showing the ARP list currently saved/used by this device.



Firewall

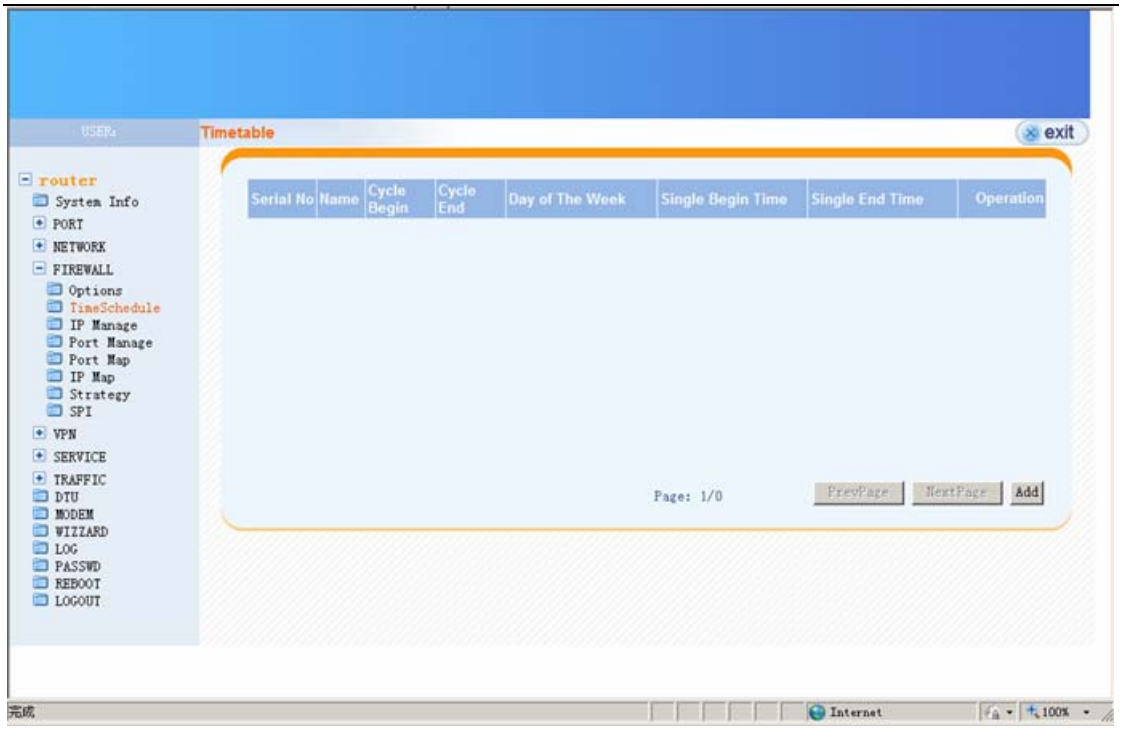
Options

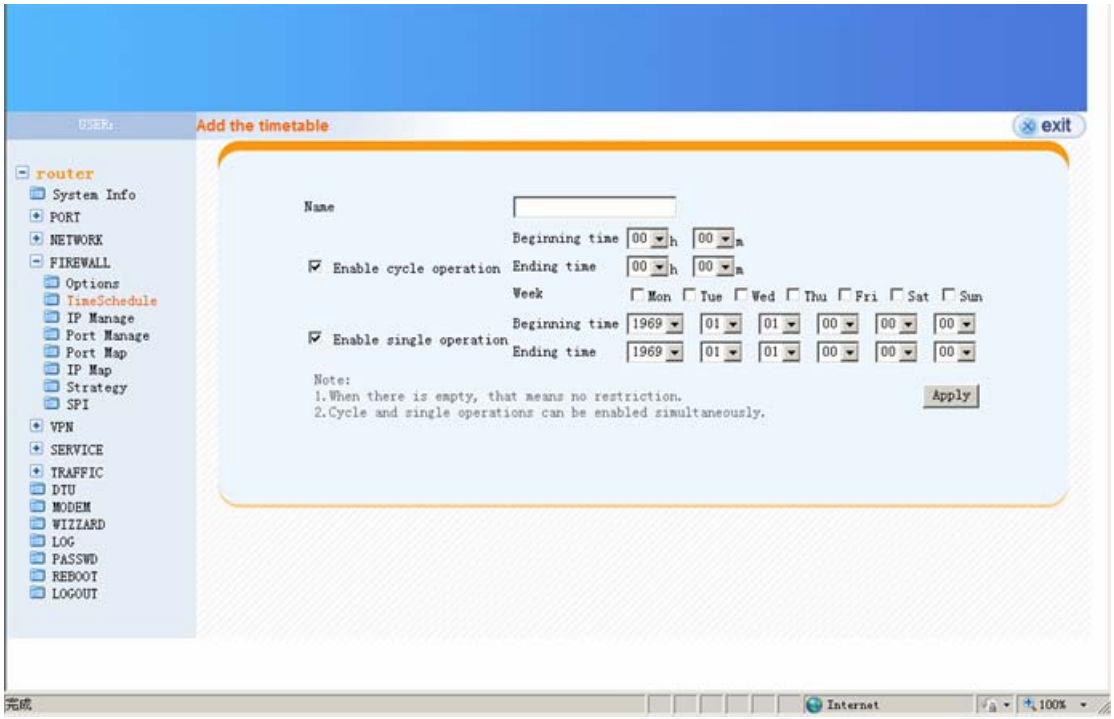
Settings of firewall rule.



Time Schedule

This page allows you to configure your plan about when this device will get online or offline. The plan or plans are configured here first and enable by the "System Info" and firewall "**Strategy**" page.





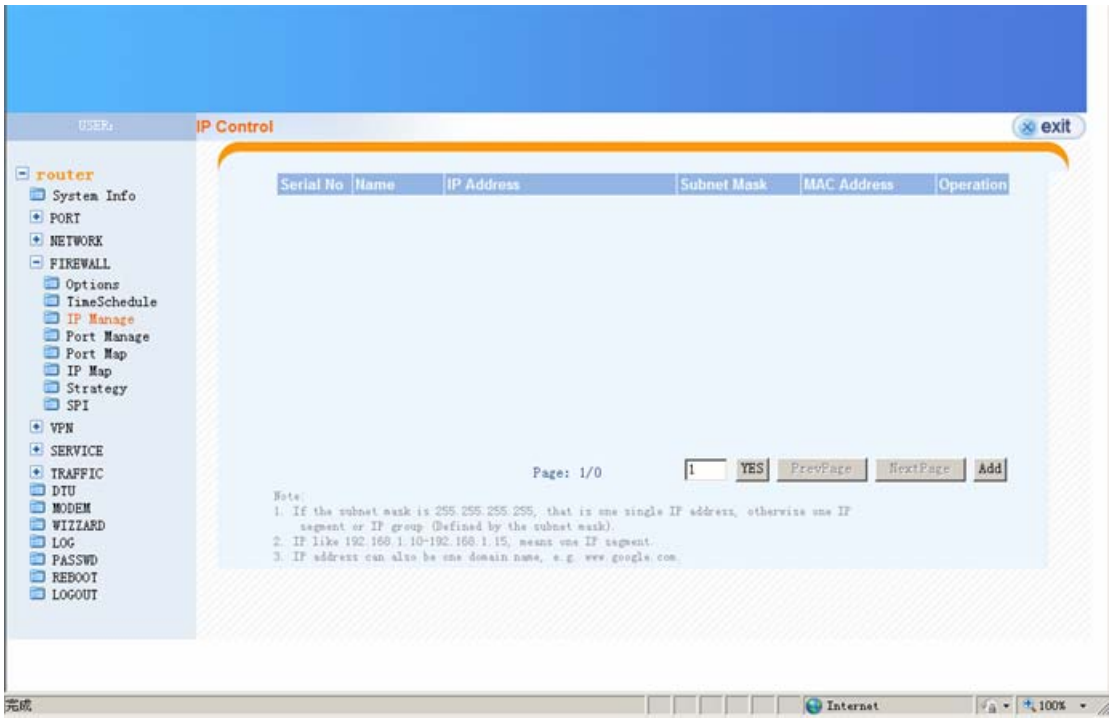
Add the time table

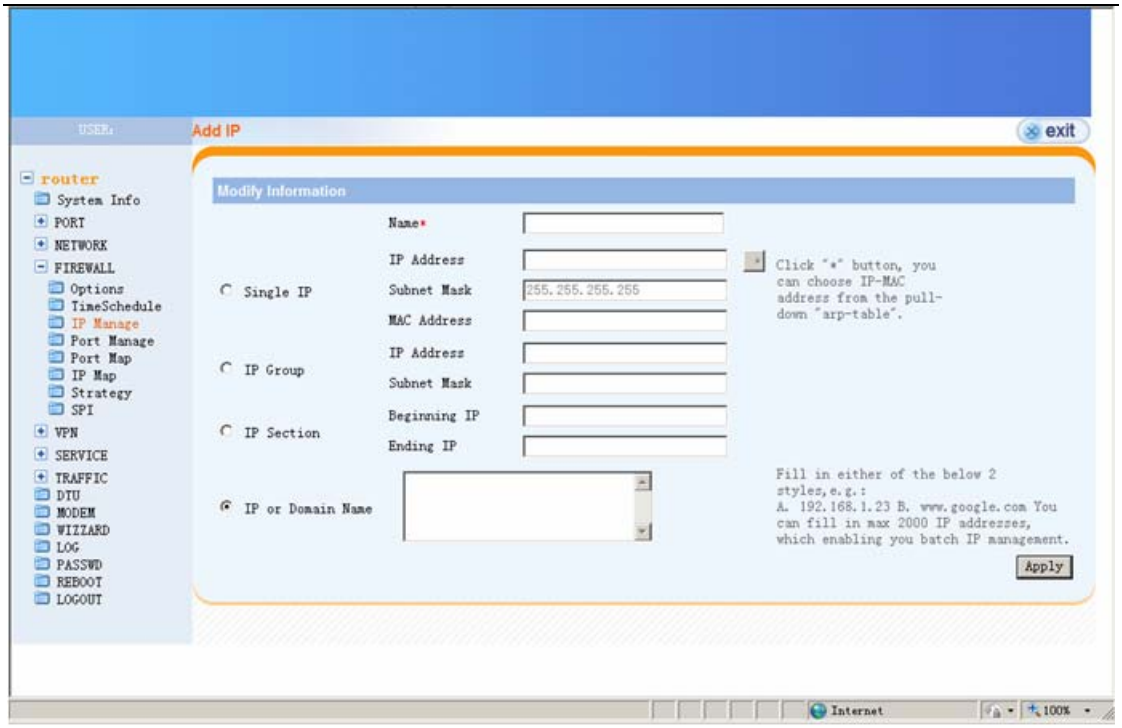
Enable cycle operation	*enable cycle operation*
Beginning time	*start time to get online*
Ending time	*end time to get offline*
Week	*week setting for schedule*

Enable single operation	*online once only*
Beginning time	*time for online*
Ending time	*time for offline*

IP Manage

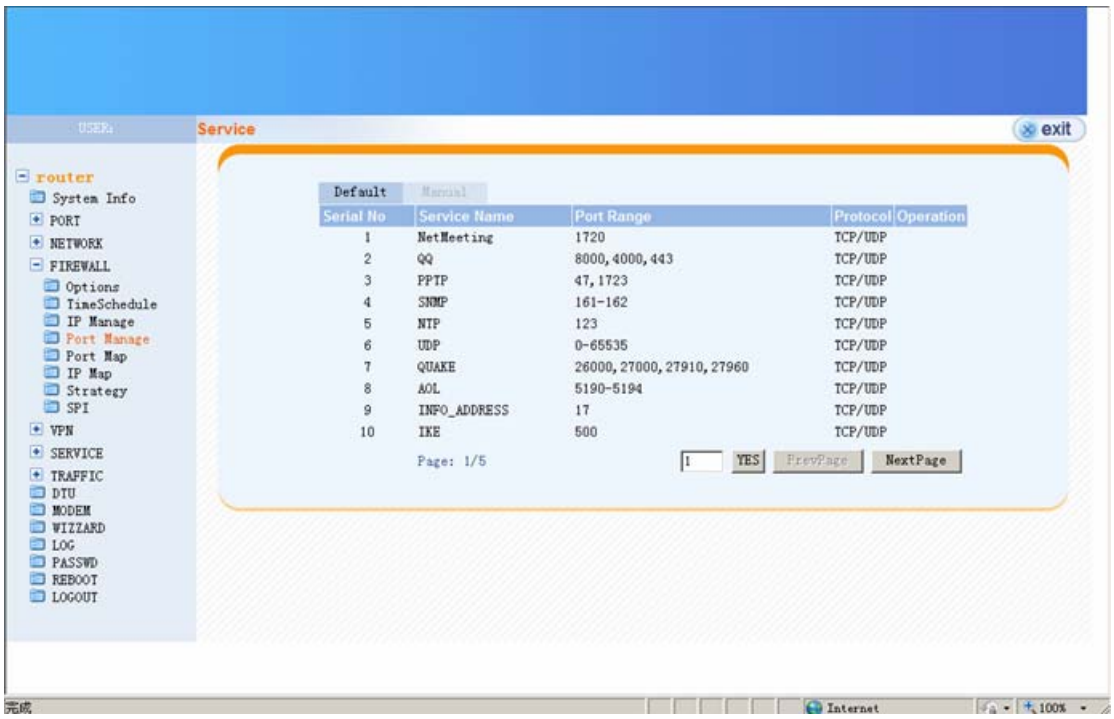
This page contains the list of all IP manage rules. Click on **Add** button will allow you to add a new rule used "**Strategy**" page.





Port Manage

This page contains the list of all Port manage rules configured automatically or manually. Select **Manual** tag and click on **Add** button will allow you to add a new rule used "**Strategy**" page.


Service
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router
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FIREWALL
Options
TimeSchedule
IP Manage
Port Manage
Port Map
IP Map
Strategy
SPI
VPN
SERVICE
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DTU
MODEM
WIZZARD
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PASSWD
REBOOT
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Default
Manual
Serial No
Service Name
Port Range
Protocol
Operation
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2 QQ 8000, 4000, 443 TCP/UDP
3 PPTP 47, 1723 TCP/UDP
4 SNMP 161-162 TCP/UDP
5 NTP 123 TCP/UDP
6 UDP 0-65535 TCP/UDP
7 QUAKE 26000, 27000, 27910, 27960 TCP/UDP
8 AOL 5190-5194 TCP/UDP
9 INFO_ADDRESS 17 TCP/UDP
10 IKE 500 TCP/UDP
Page: 1/5
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Internet
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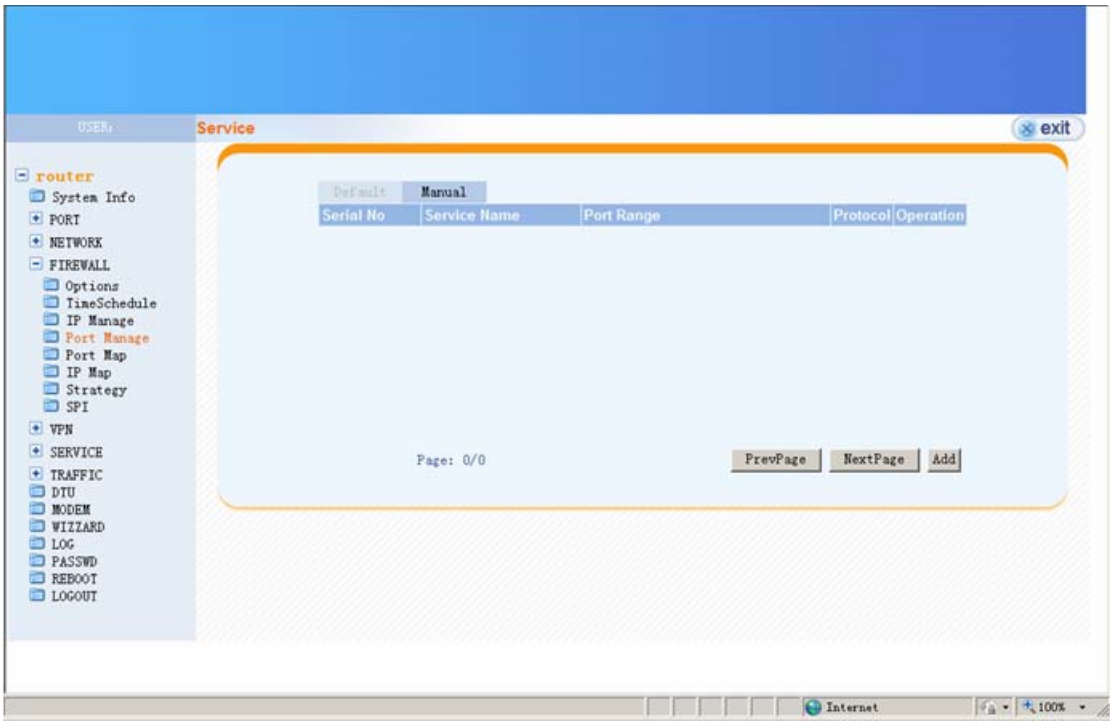
Service
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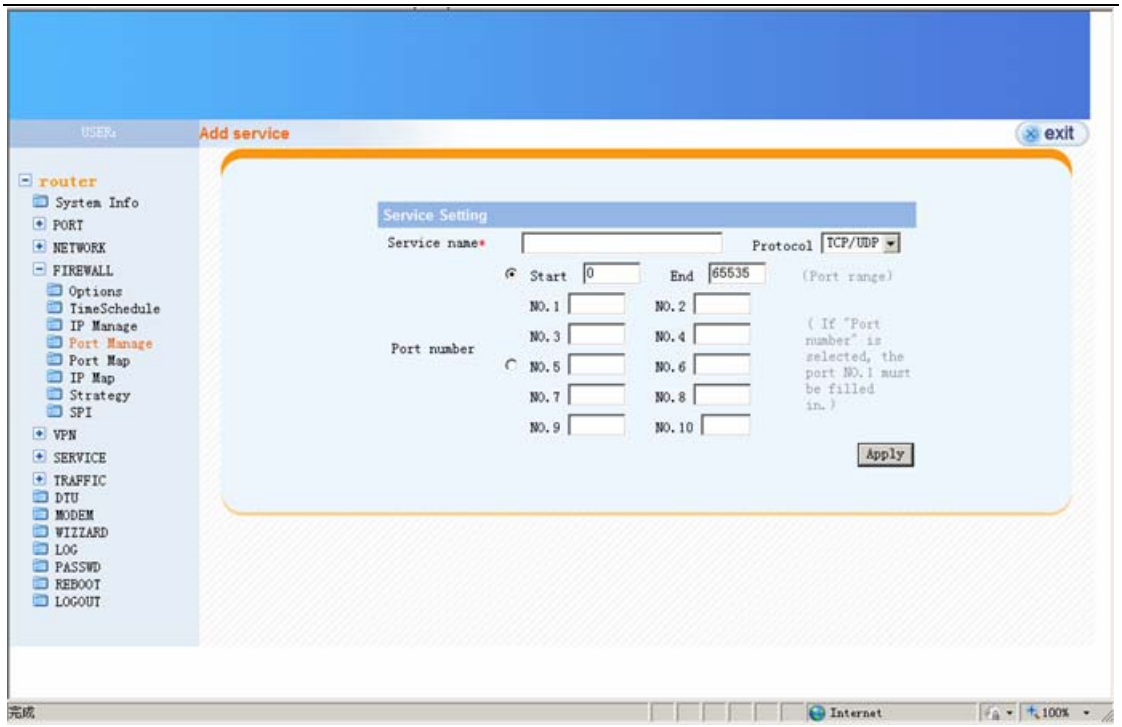
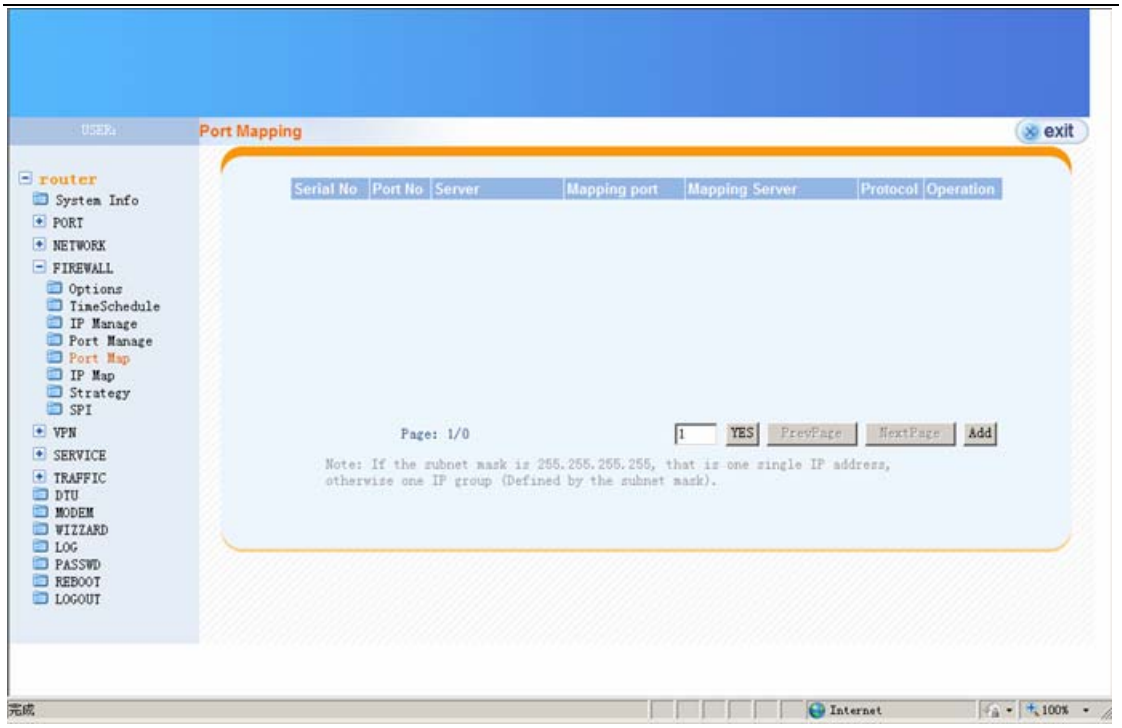
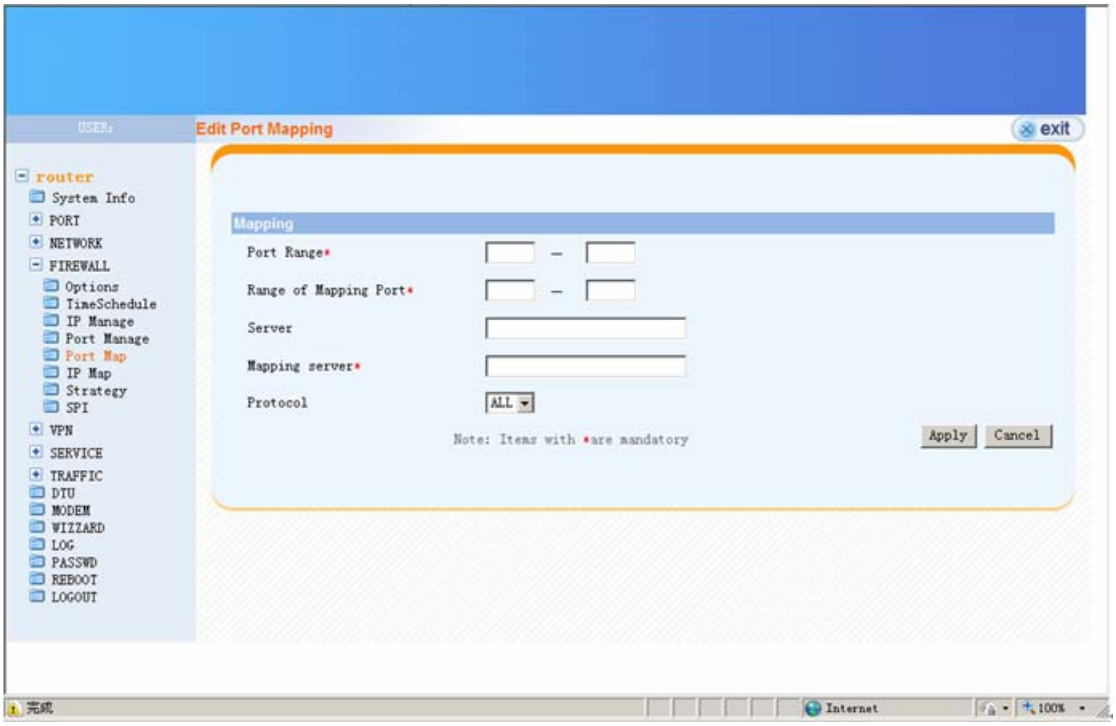


Port Map

This page contains the list of all Port mapping rules. Click on **Add** button will allow you to add a new rule used "**Strategy**" page.

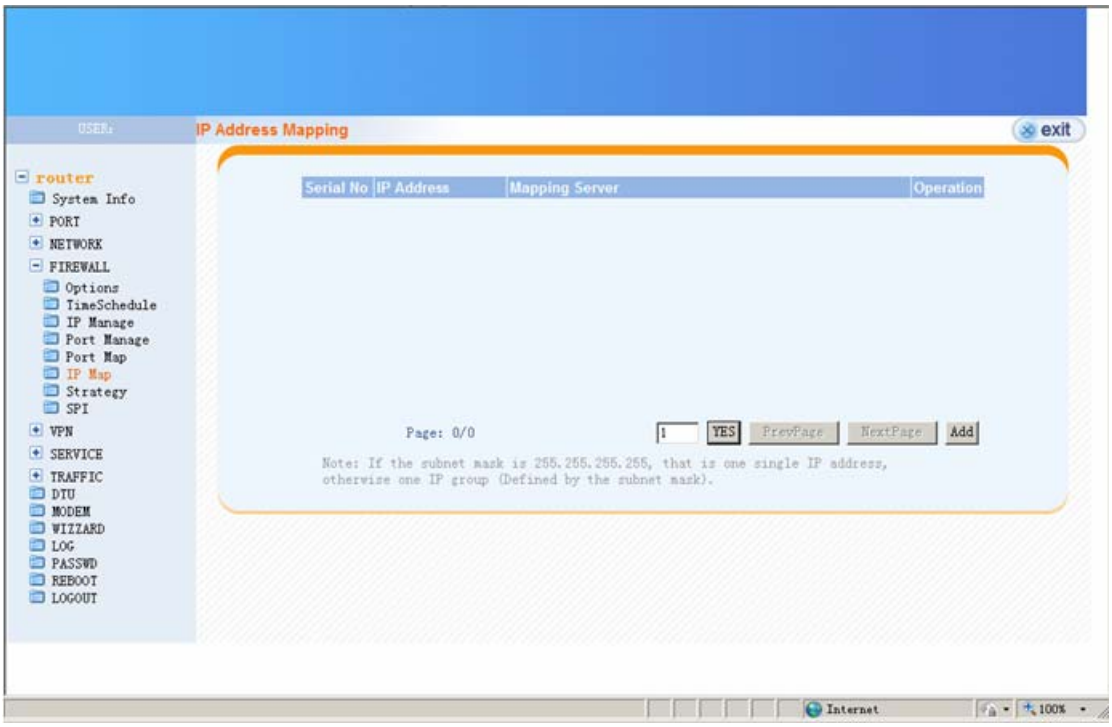


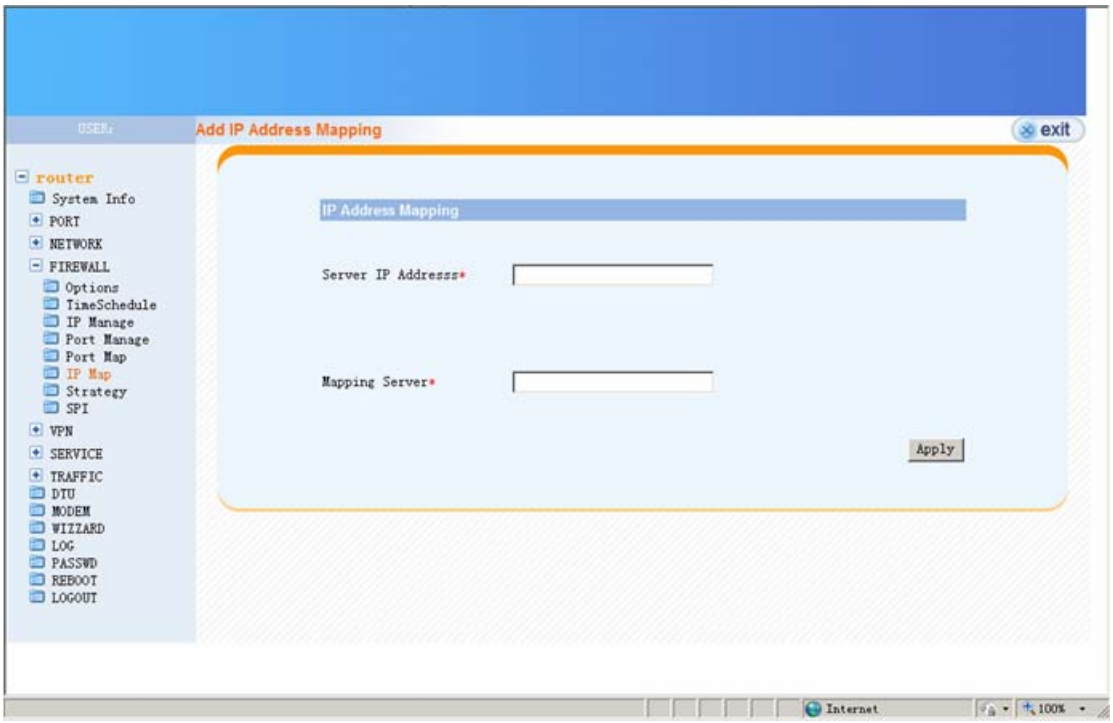


IP Map

This page contains the list of all IP mapping rules. Click on **Add** button will allow you to

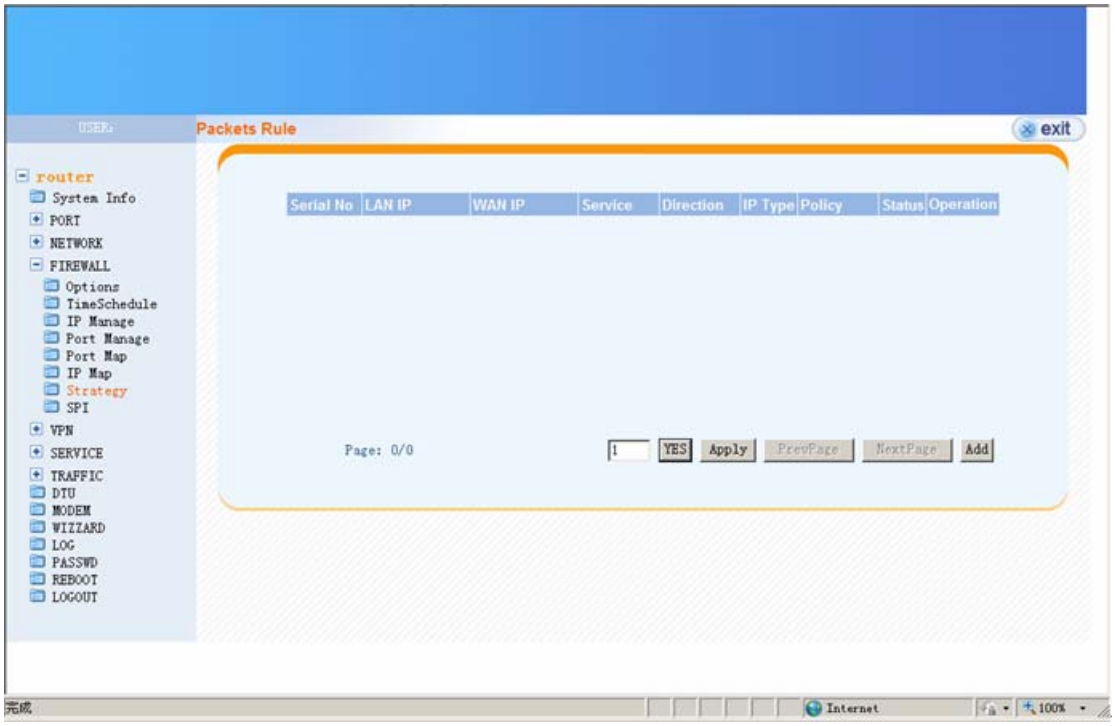
add a new rule used "**Strategy**" page.

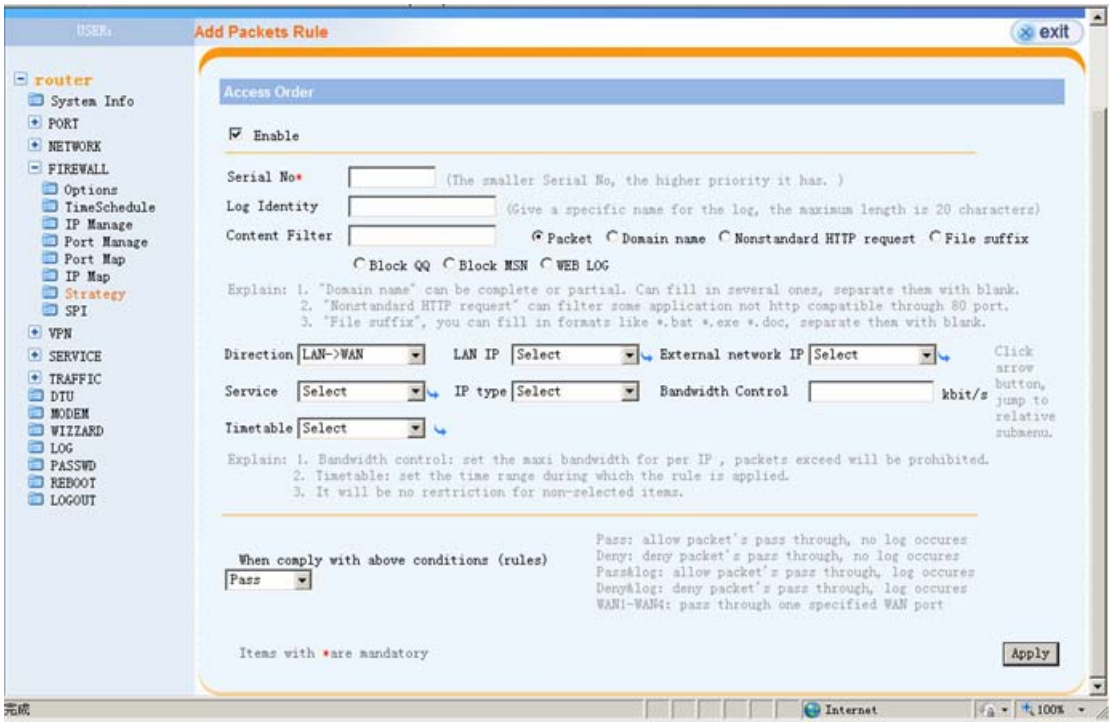




Strategy

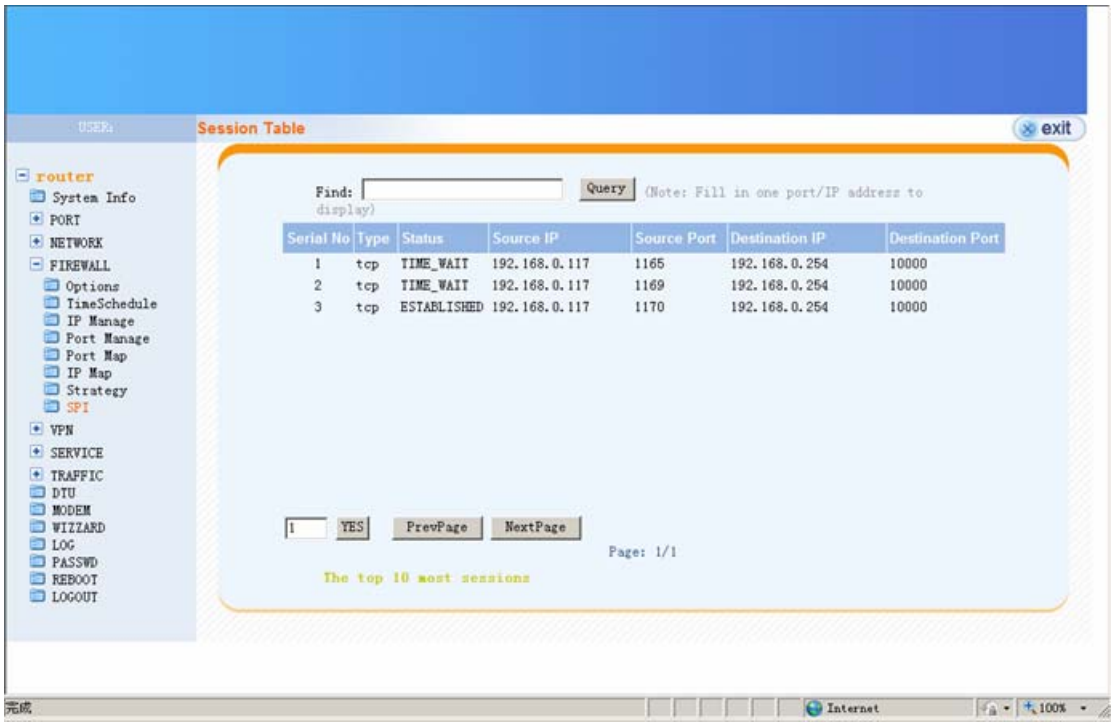
This page contains the list of all firewall strategy. Click on **Add** button will allow you to add a new rule.





SPI

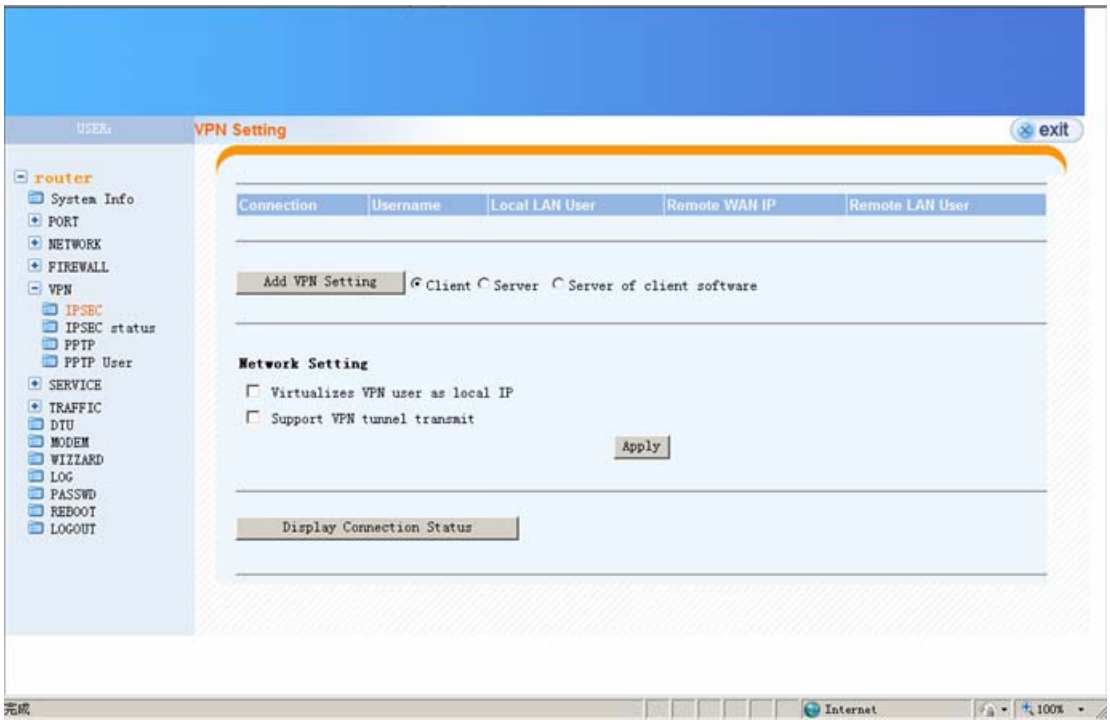
This page contains the list of all network sessions.

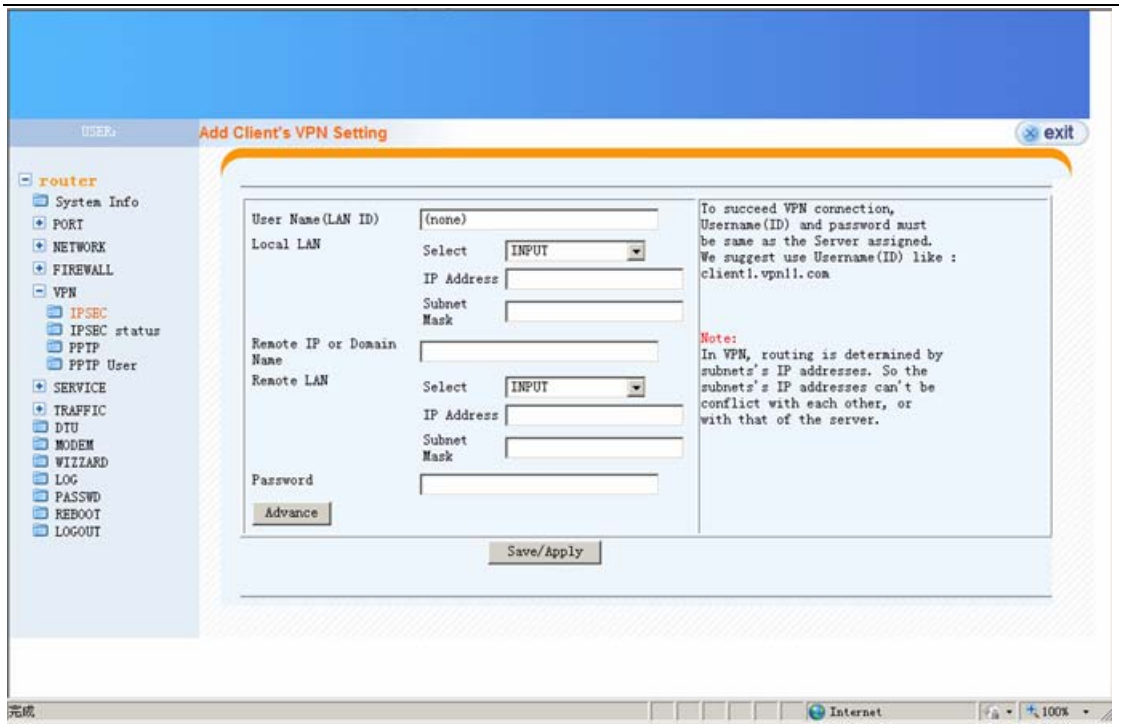


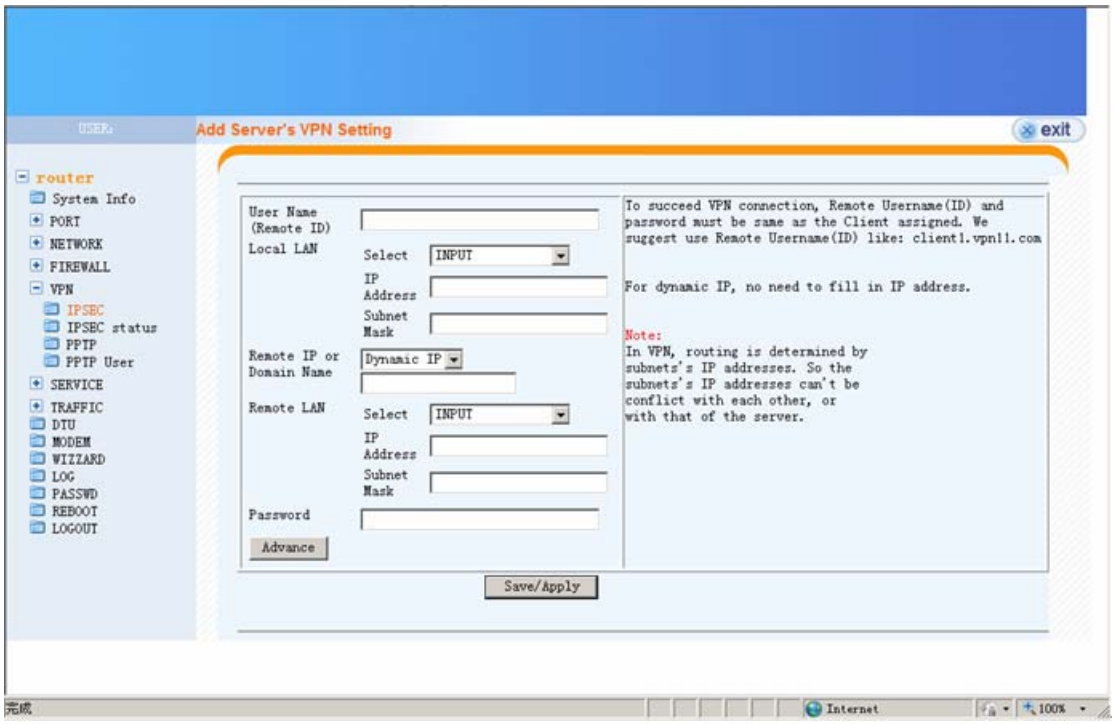
VPN

IPSec

This page allows you to configure IPSec network. Select the type of setting and click on **Add VPN Setting** to all a new rule.

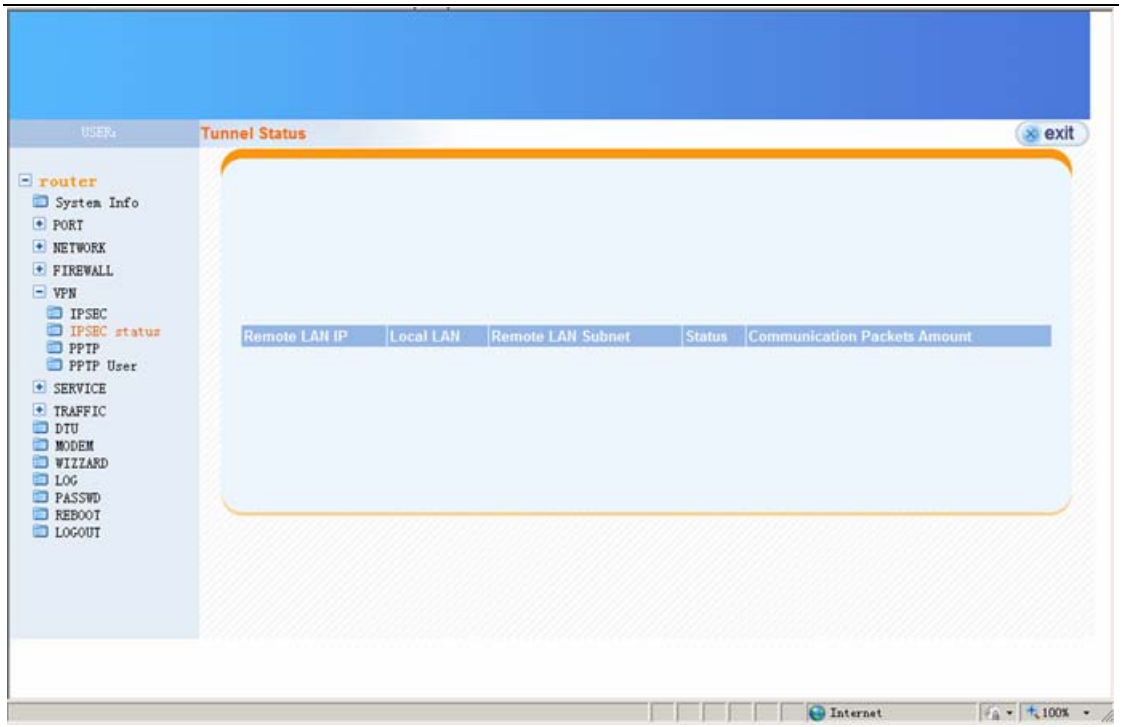






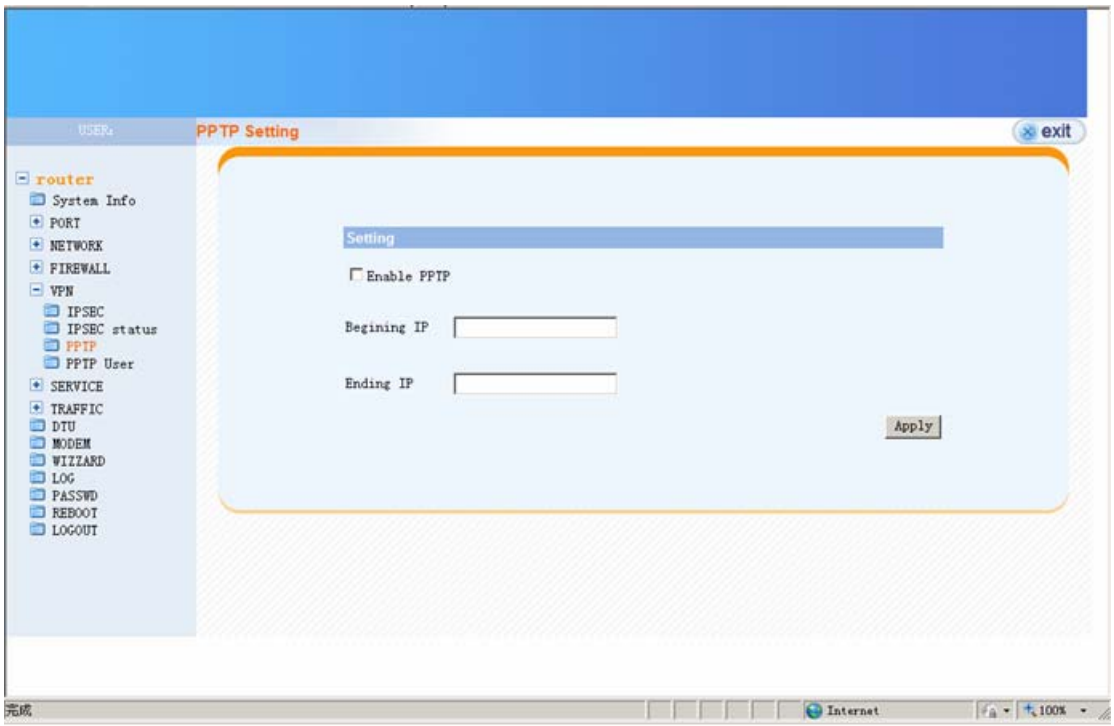
IPSec Status

This page contains the list and status of IPSec network.



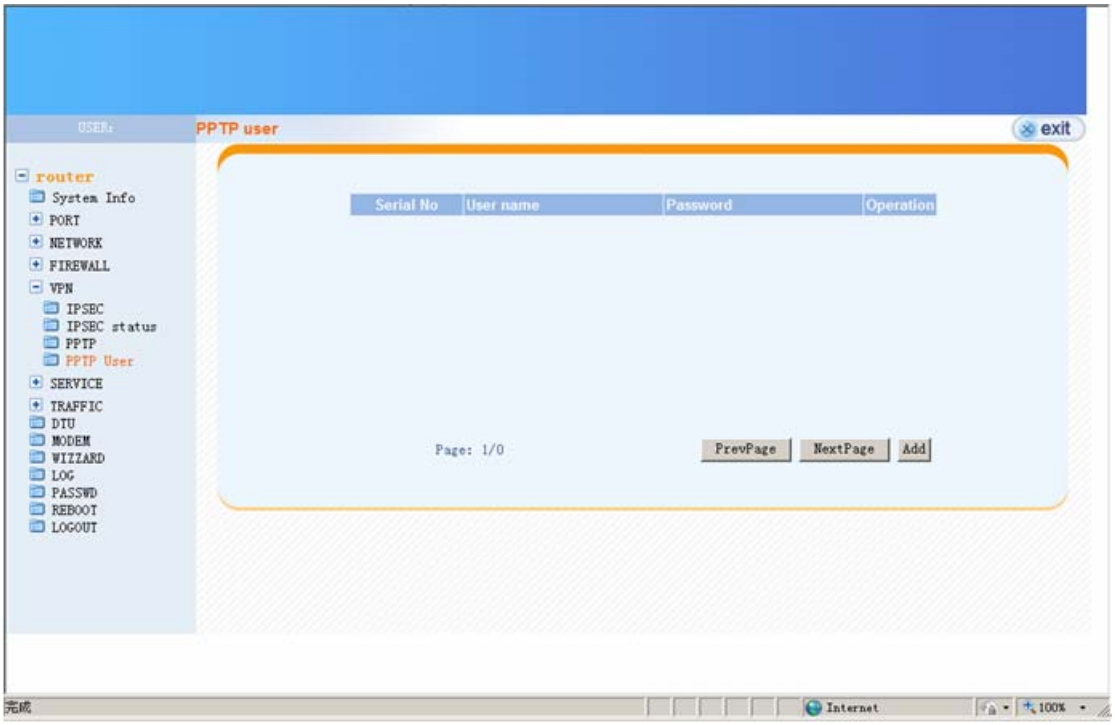
PPTP

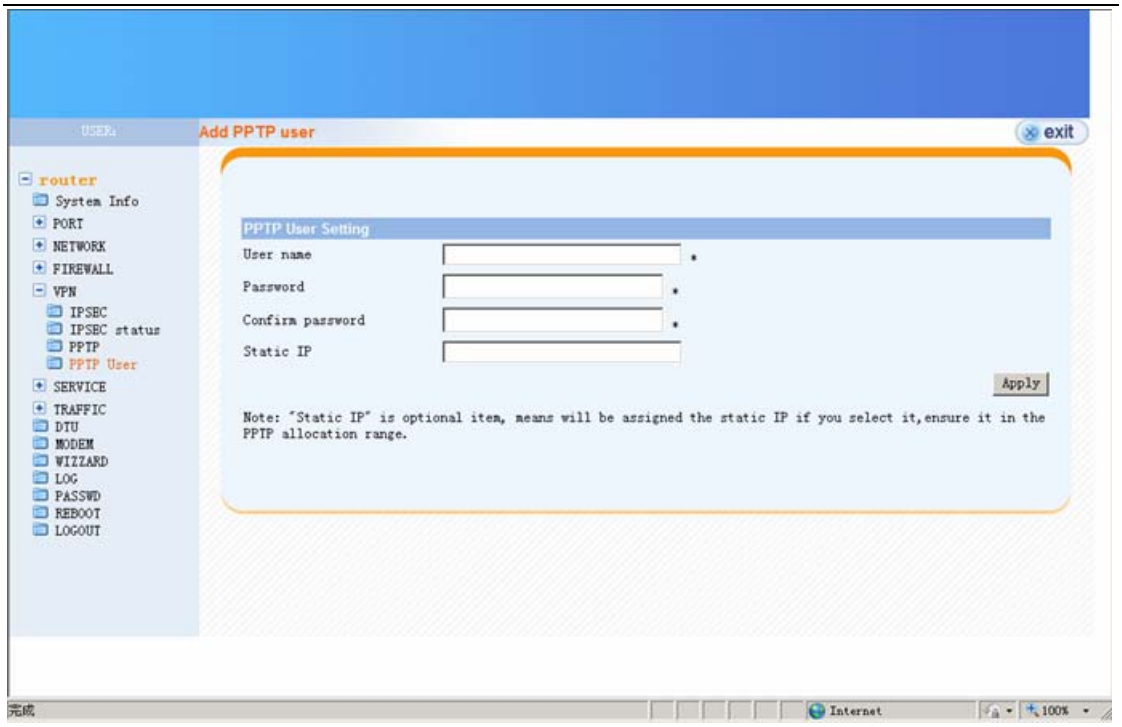
This page allows you to configure PPTP IP pool.



PPTP User

This page contains the list of PPTP user. Click on **Add** button will allow you to add a new PPTP user.

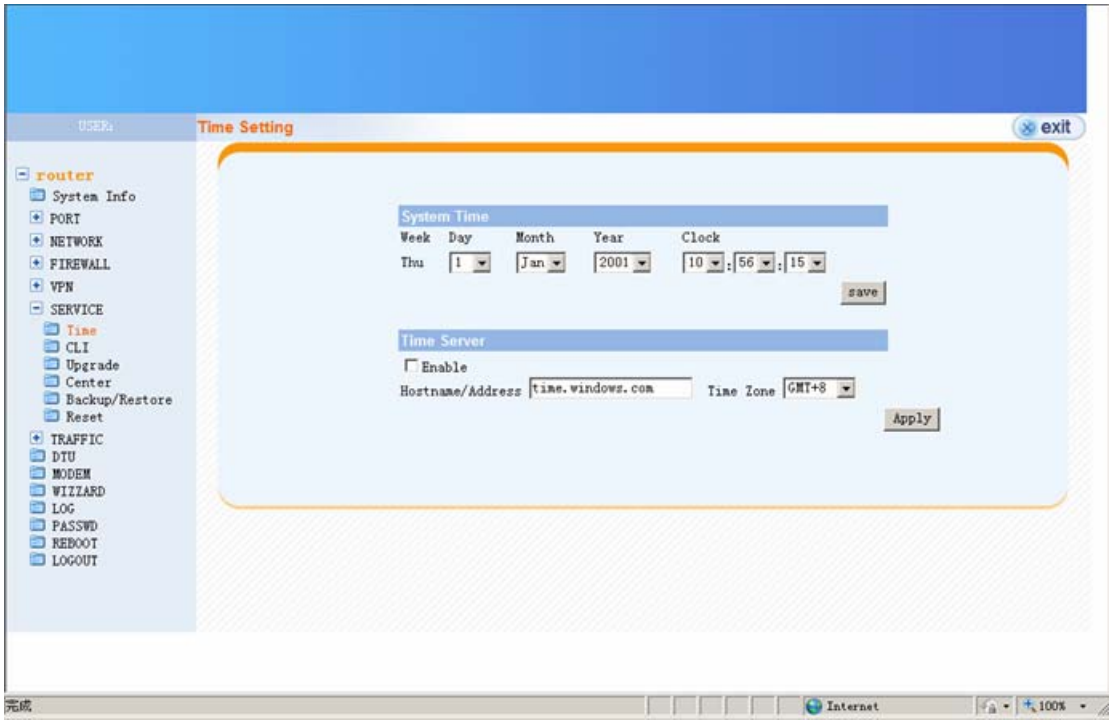



Add PPTP user
exit
router
System Info
PORT
NETWORK
FIREWALL
VPN
IPSEC
IPSEC status
PPTP
PPTP User
SERVICE
TRAFFIC
DTU
MODEM
WIZZARD
LOG
PASSWD
REBOOT
LOGOUT
PPTP User Setting
User name
Password
Confirm password
Static IP
Apply
Note: "Static IP" is optional item, means will be assigned the static IP if you select it,ensure it in the PPTP allocation range.
Internet
100%

Service

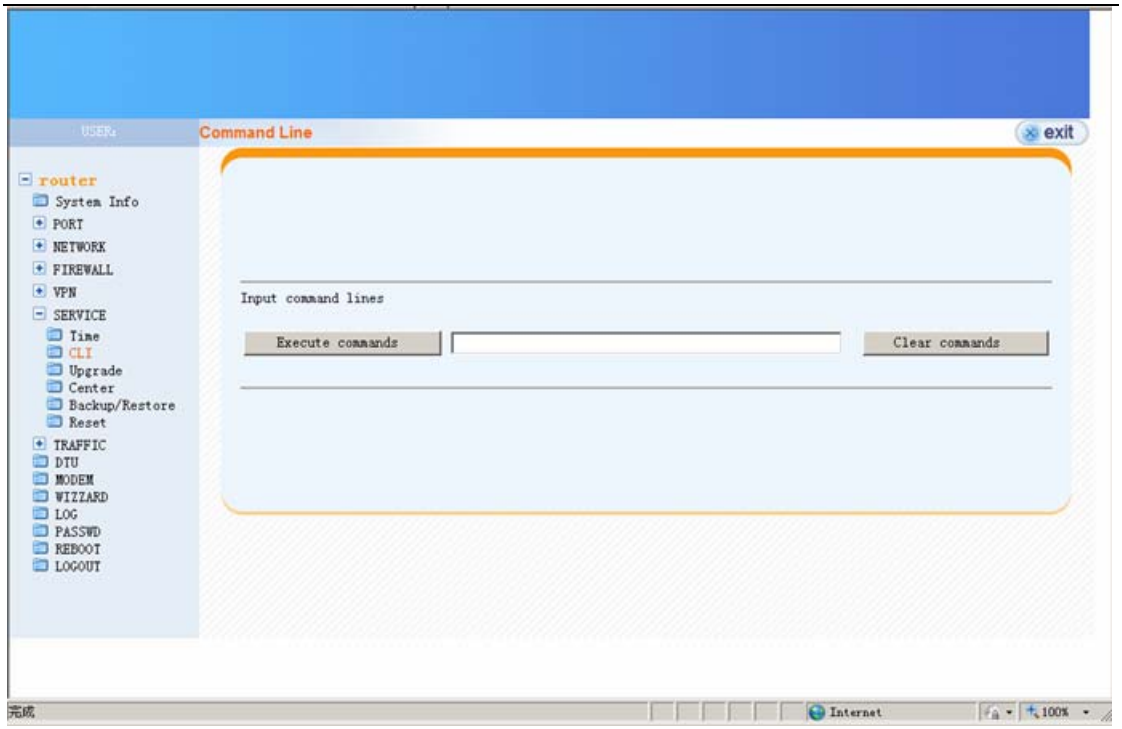
Time

Configure the system time of this device manually or ask this device to retrieve system time from NTP server.



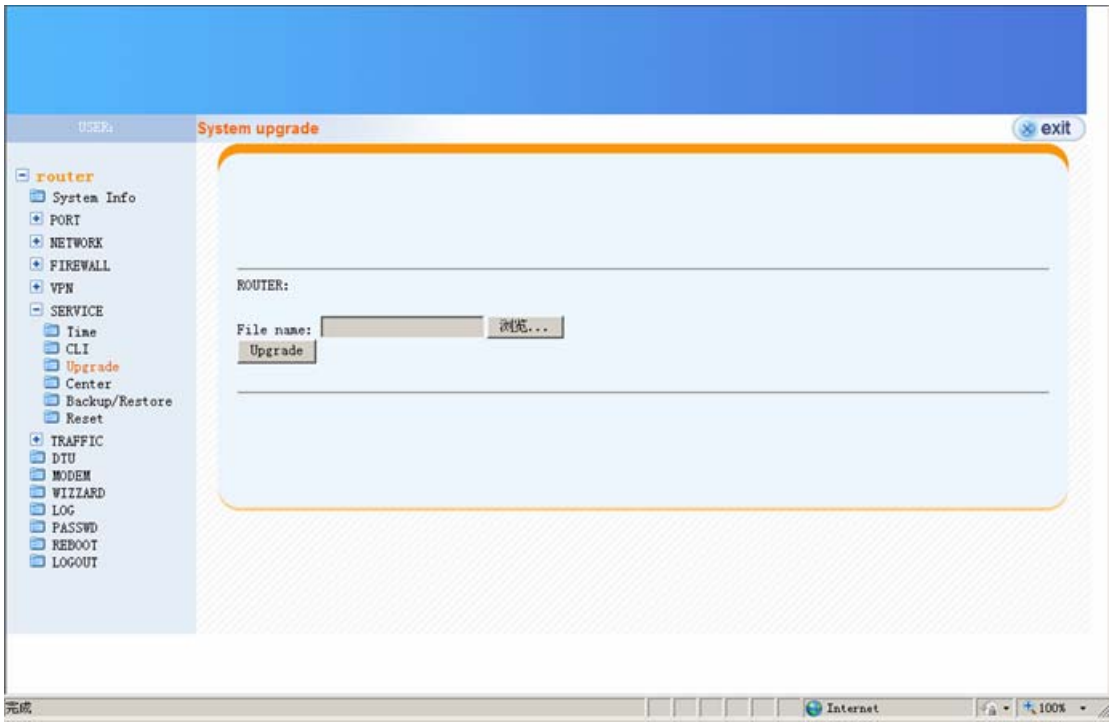
CLI

This page is an interface to execute some simple CLI commands.



Upgrade

Use this page to do firmware upgrade.



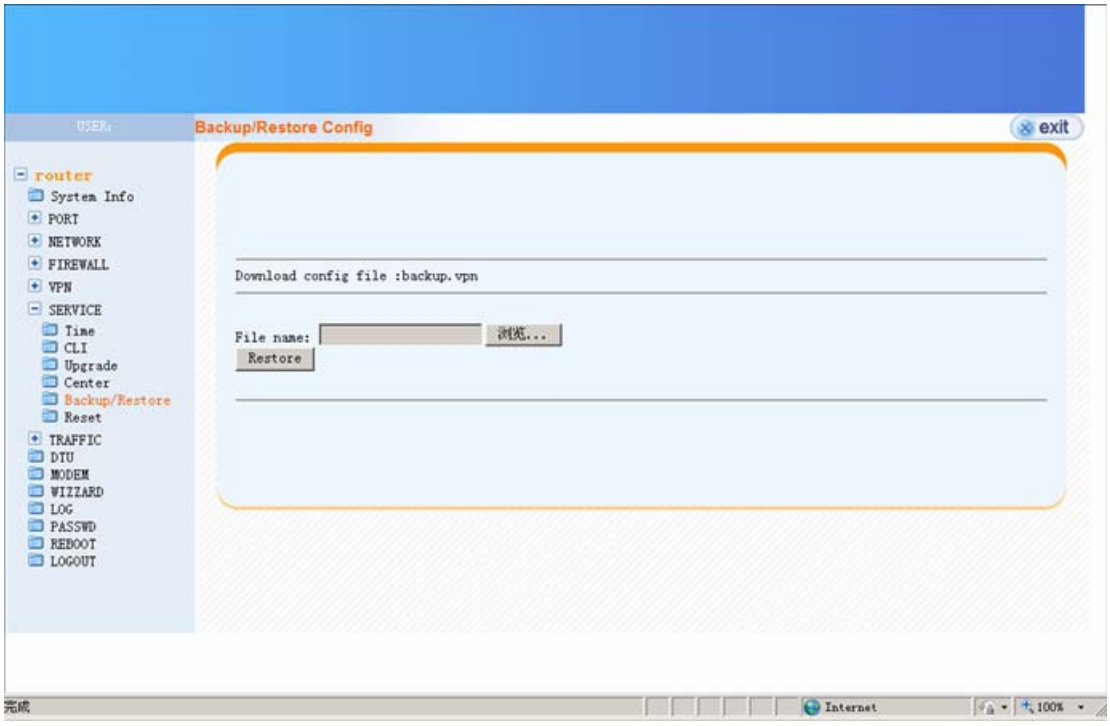
Upgrade the router as follow step:

1. *Menu→Port→WAN, change all WAN setting to CLOSE, save.*
2. *Menu→Service→Upgrade, choice the upgrade file, press Upgrade buttom.*
3. *Upgrade success information will display after 3 minutes, reboot the router.*
4. *Menu→Service→Reset, reset the router.*
5. *Configure the router for work again.*

Note: the upgrade will use 3 minutes, without any information before success. During the upgrade, do not touch the Ethernet cable, power, and do not refresh the web also.

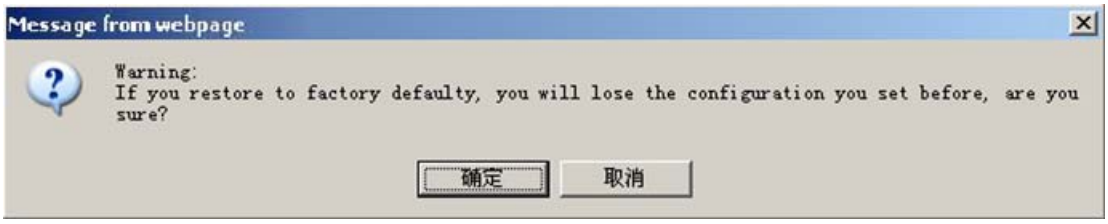
Backup/Restore

This page is used to save the settings of this device as file or restore the setting from the file saved previously.



Reset

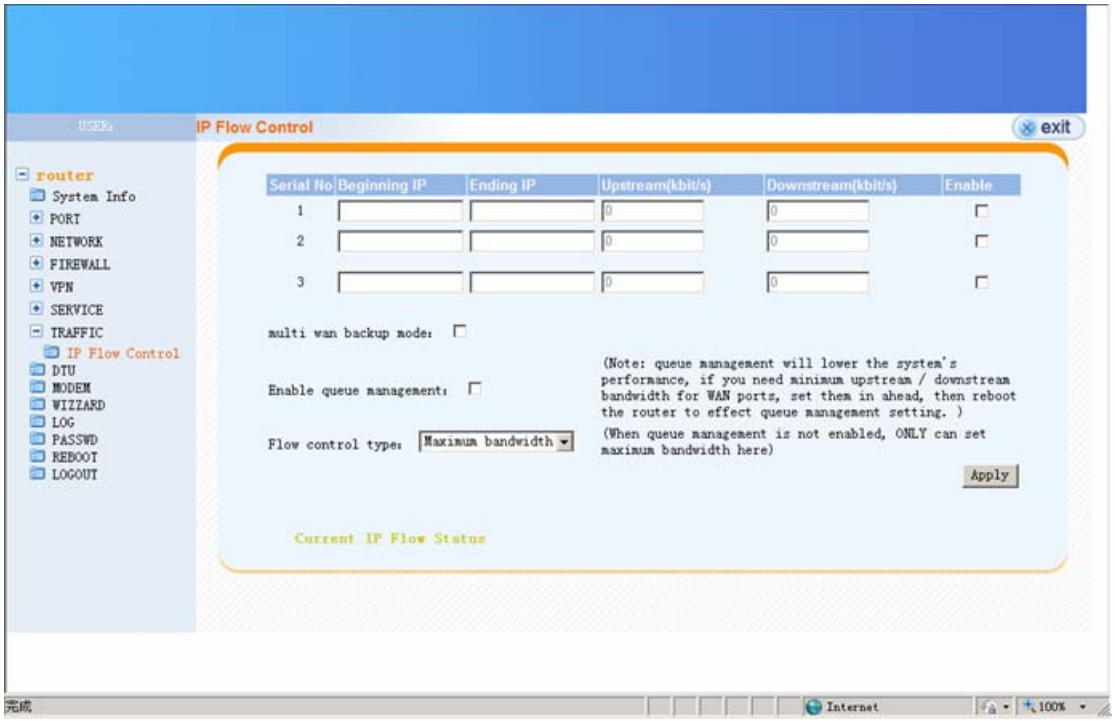
Reset all settings of this device to factory default by clicking this option.



Traffic

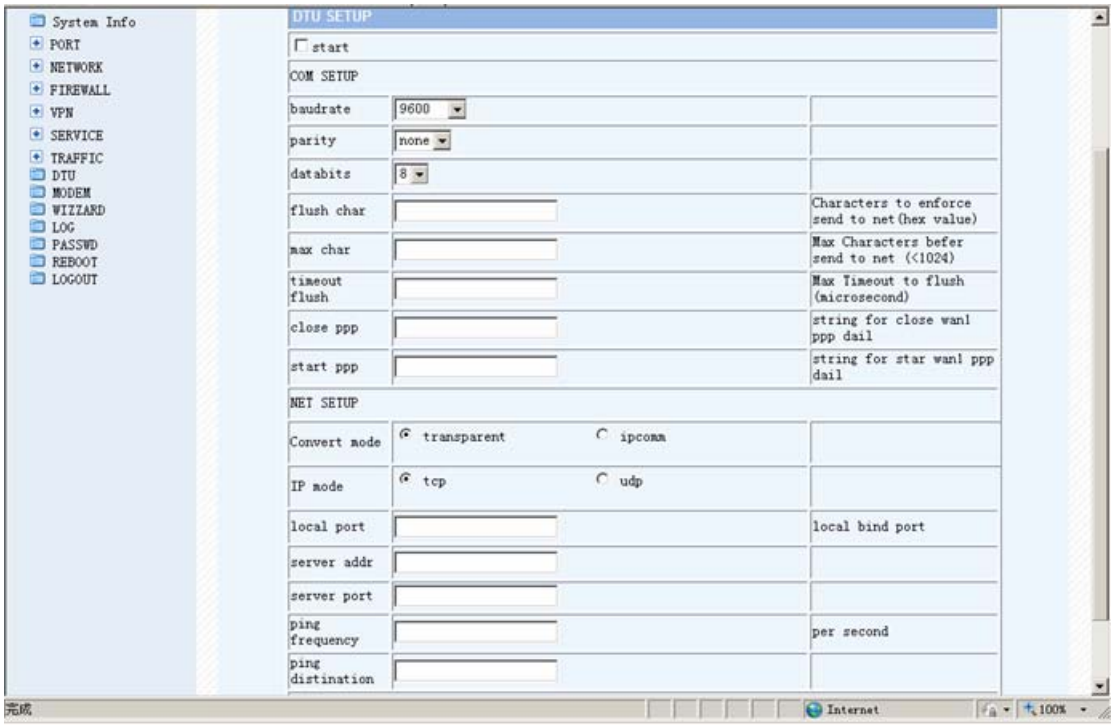
IP Flow Control

This page is used configure the packet flow control of LAN devices.



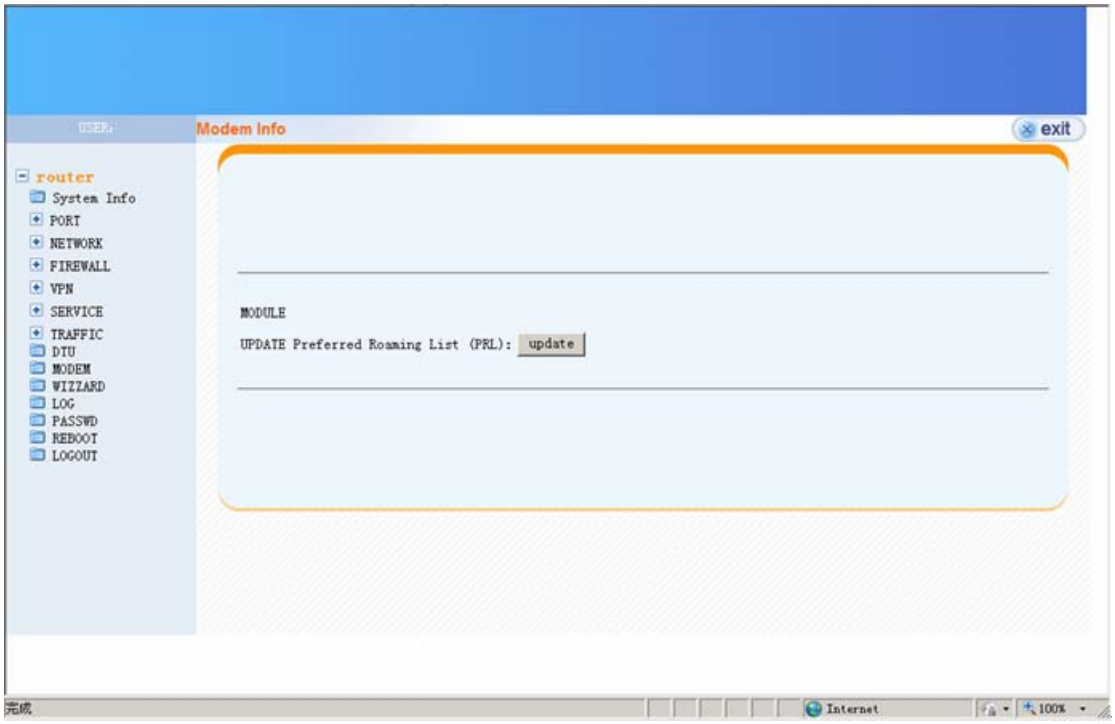
DTU

This device can be used as a DTU. The settings of serial port and server/client socket information are configured here.



Modem

This page is used to update PRL of modem.

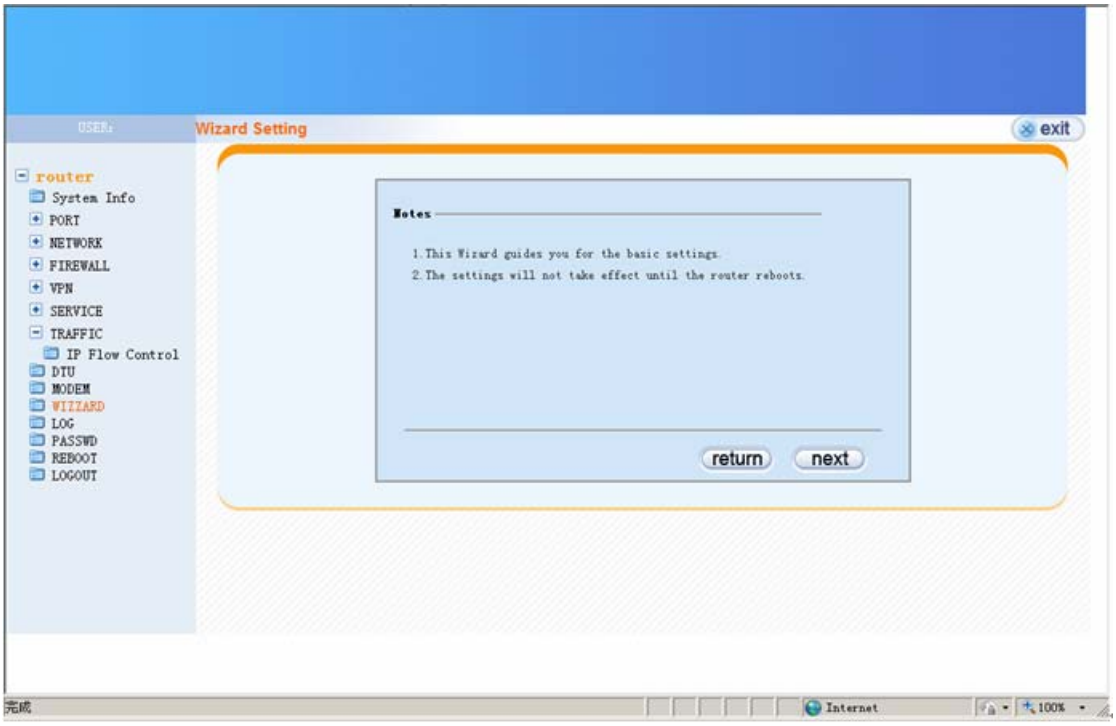


Wizard

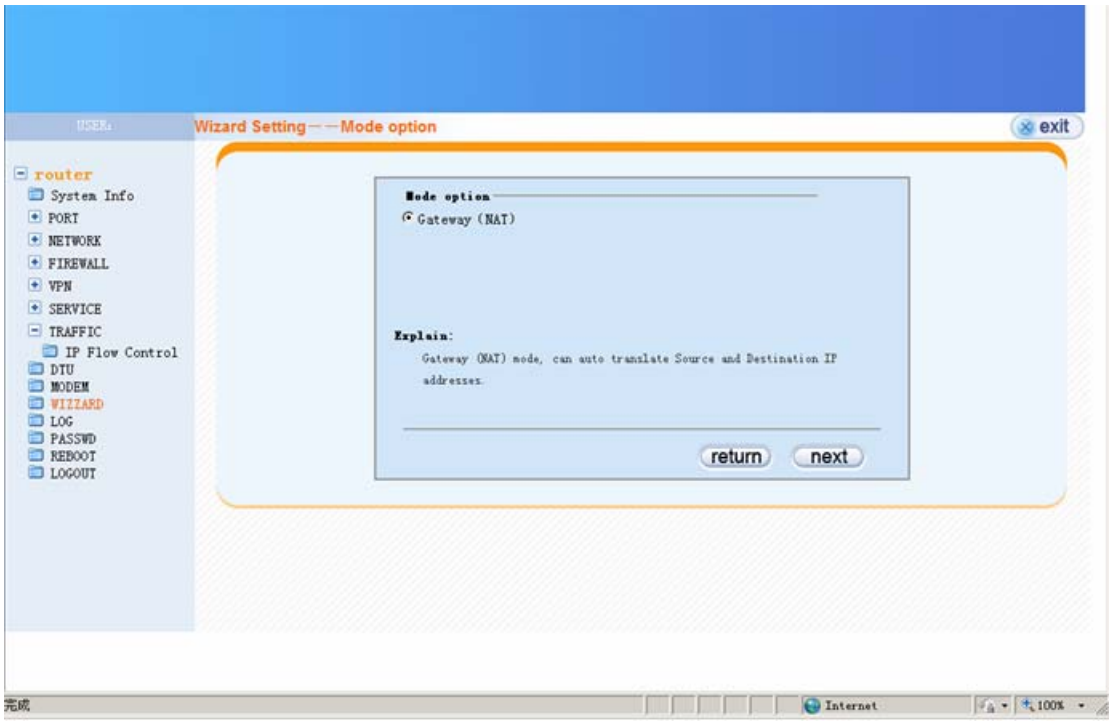
The RJ45 (Ethernet) port of this device can be used as WAN and this wizard is used to guide you how to configure the RJ45 step by step.

Following pictures act as example to demonstrate the steps to set RJ45 as PPPoE WAN.

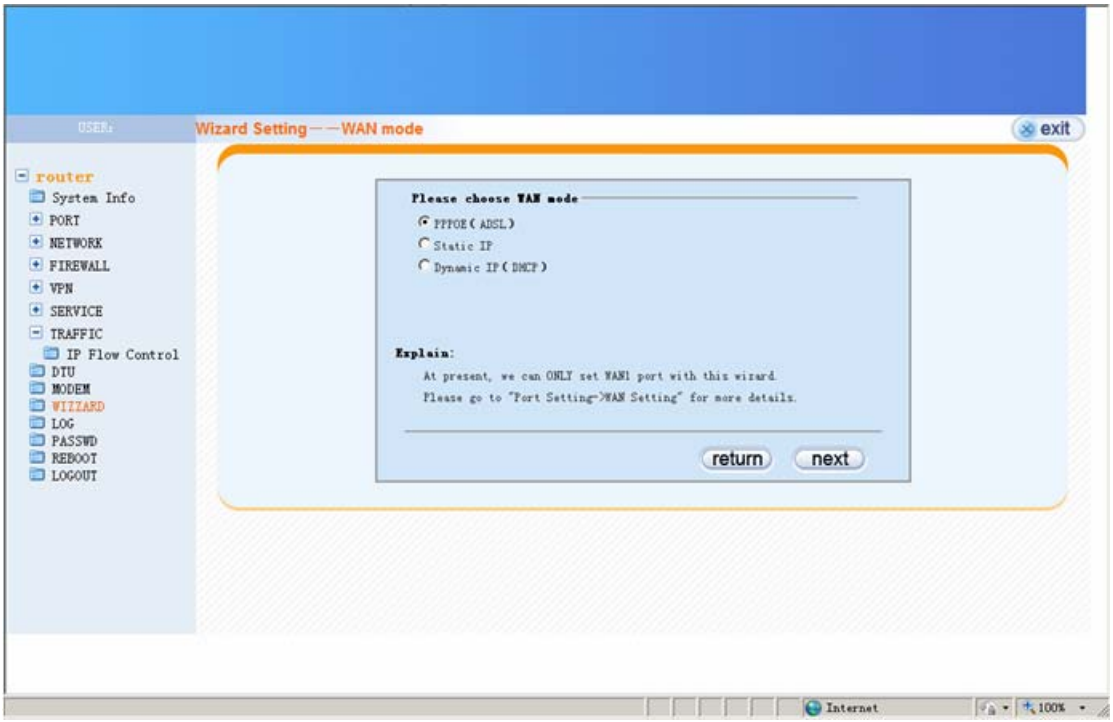
1. The wizard starting page.



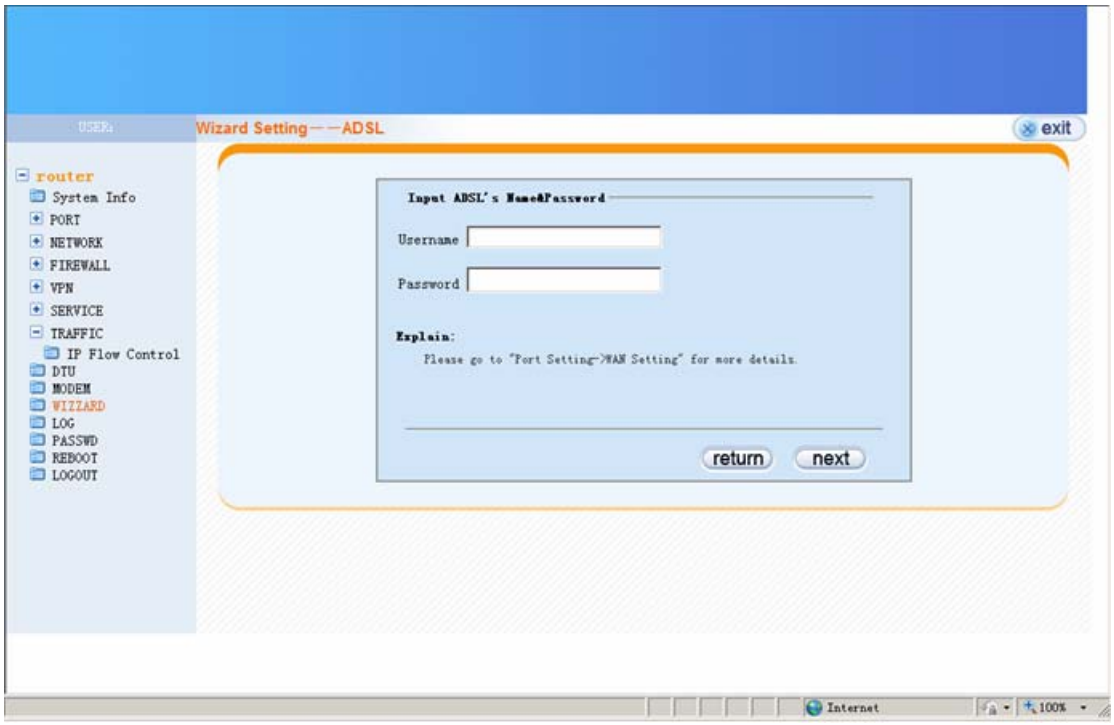
2. Setting the router working mode.



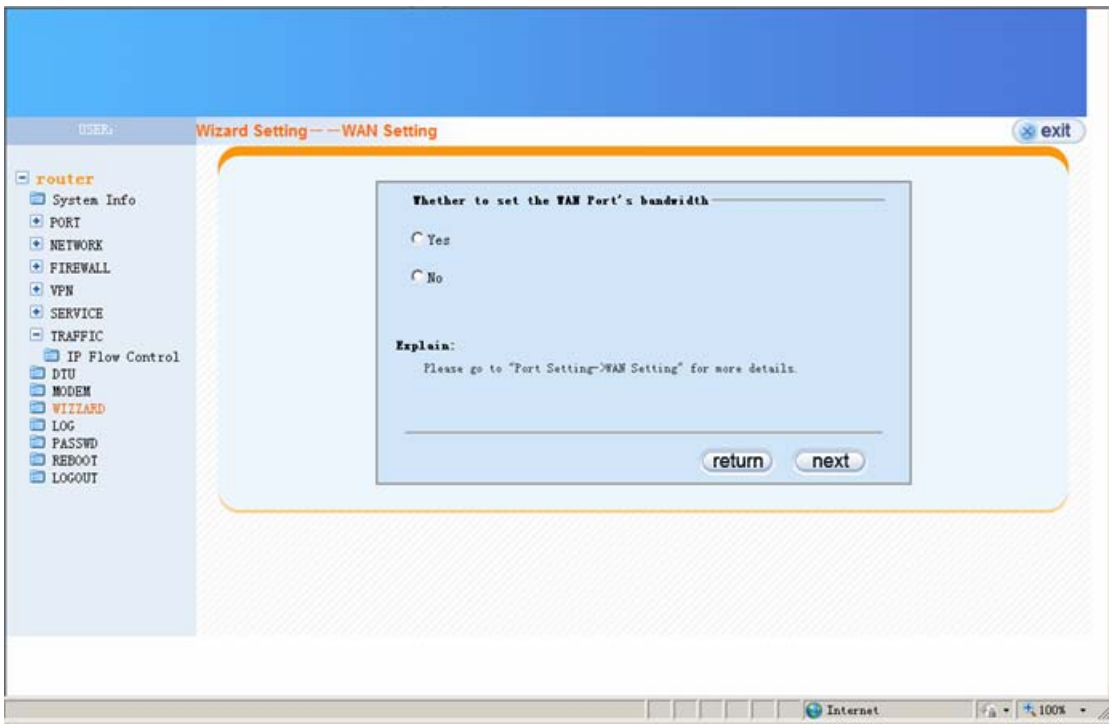
3. Setting the router WAN mode.



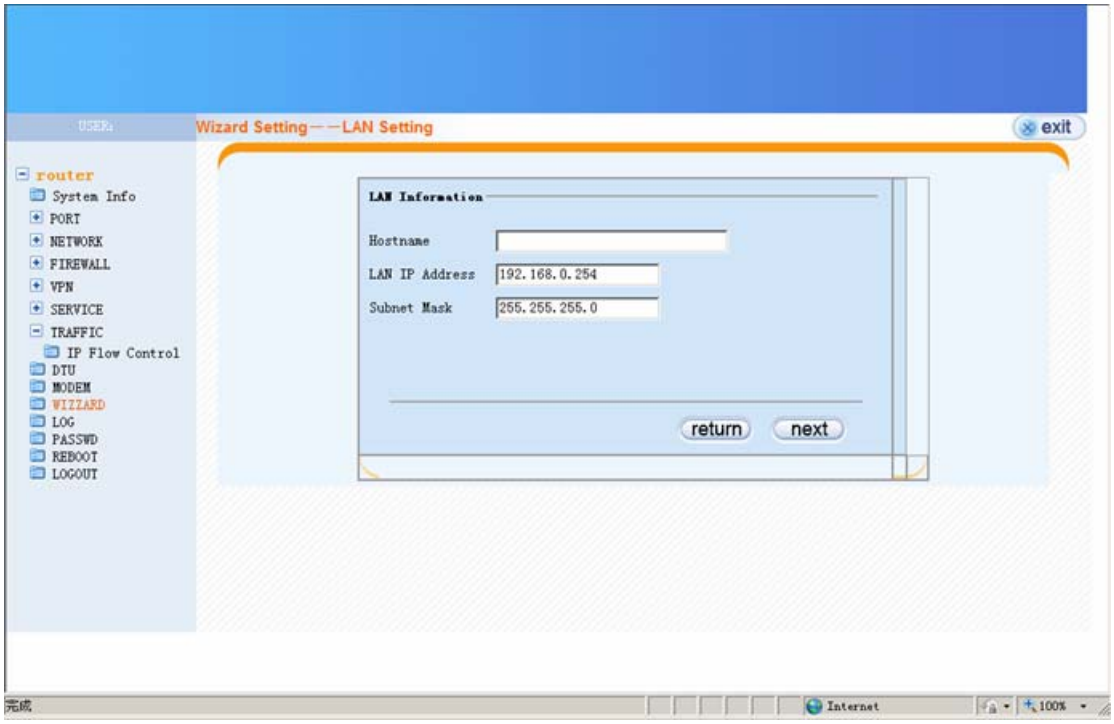
4. Setting the PPP user name and password.



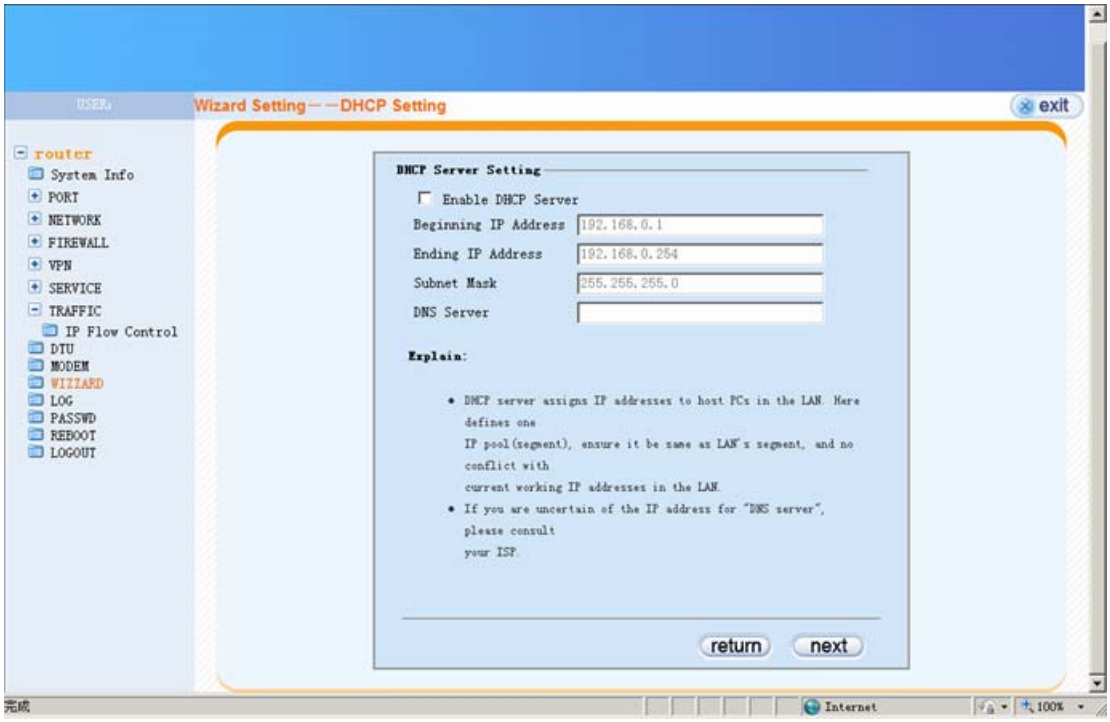
5. Setting the limit of WAN bandwidth.



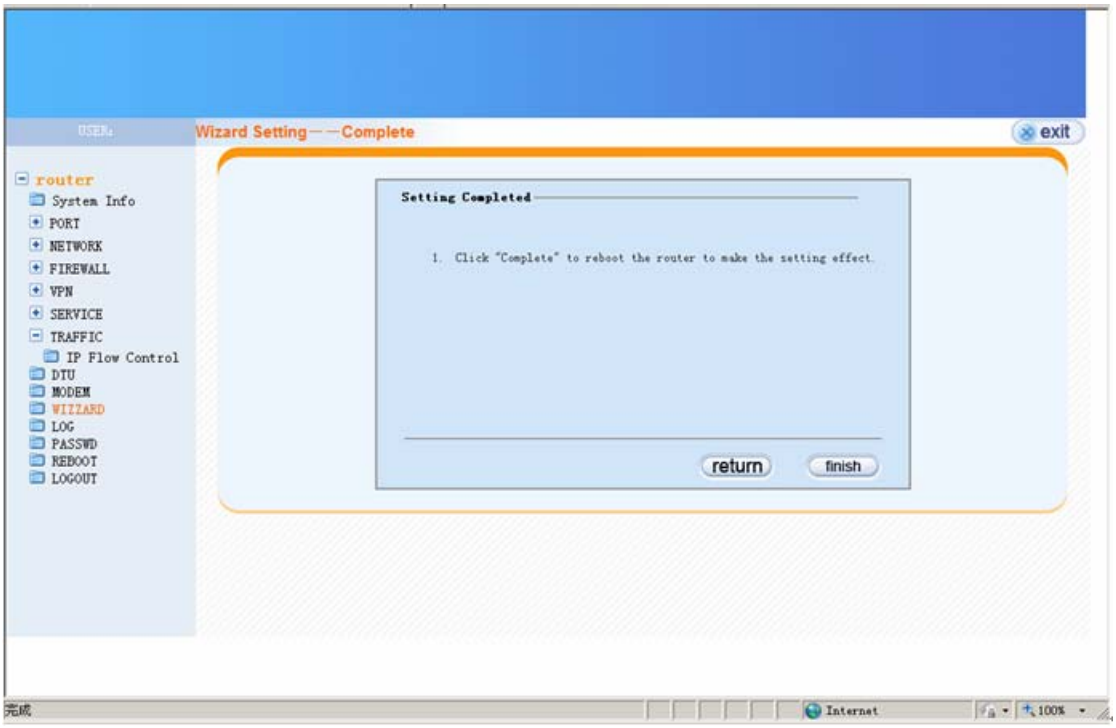
6. Setting the LAN parameters.



7. Setting the DHCP parameters.

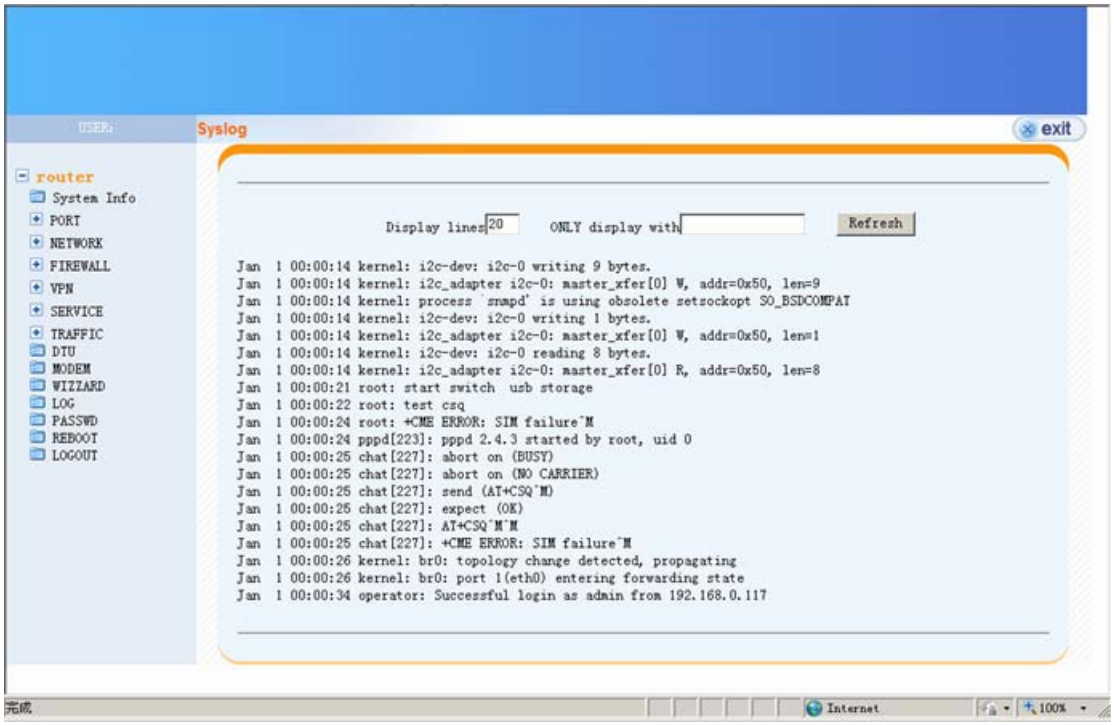


8. The wizard finished.



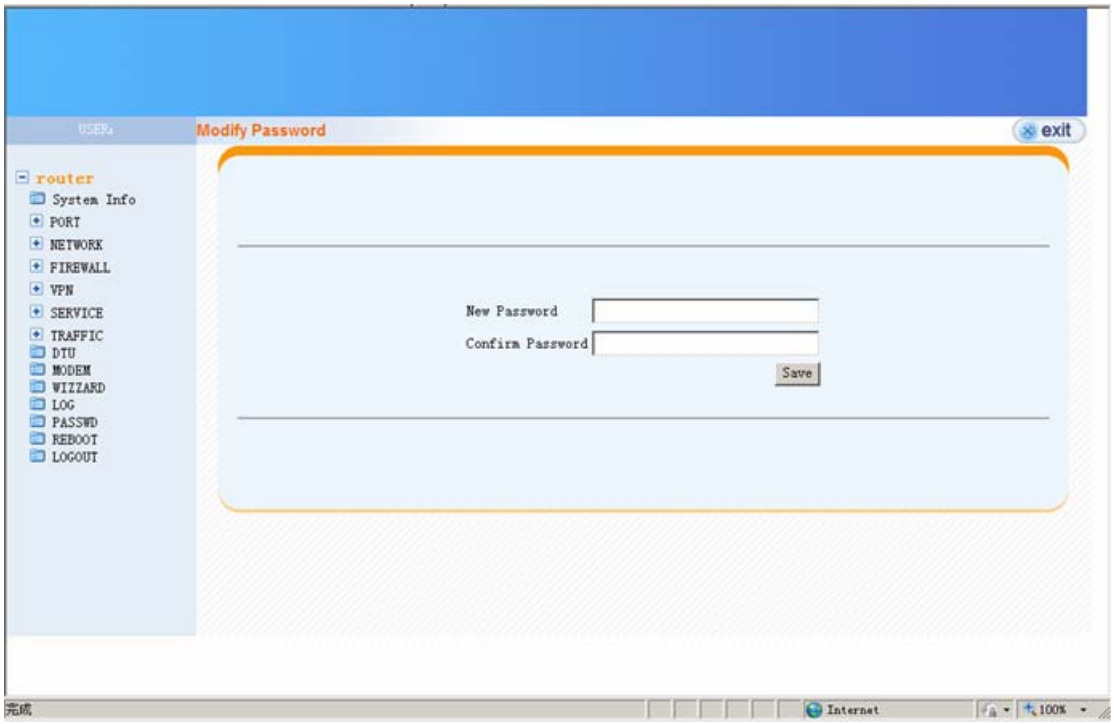
LOG

System log.



PASSWD

Login password can be changed via this page.



Reboot

Reboot confirm dialog after press the reboot from menu.

Logout

Logout confirm dialog after press the logout from menu.

Appendix A

DDNS

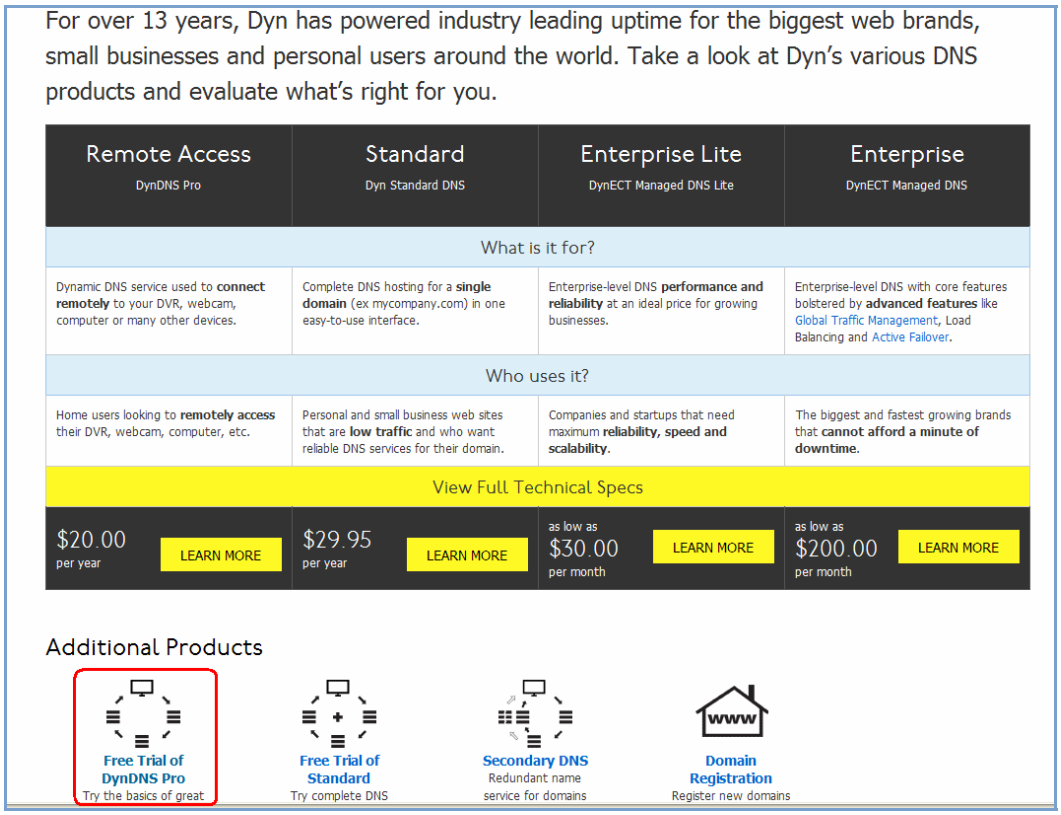
"Dynamic DNS or DDNS is a method of updating, in real time, a Domain Name System (DNS) to point to a changing IP address on the Internet. This is used to provide a persistent domain name for a resource that may change location on the network." -- wiki

3 components needed to make the DDNS mechanism functional.
(A) A DDNS server
(B) A device requires DDNS service
(C) A device which wants to connect (B)

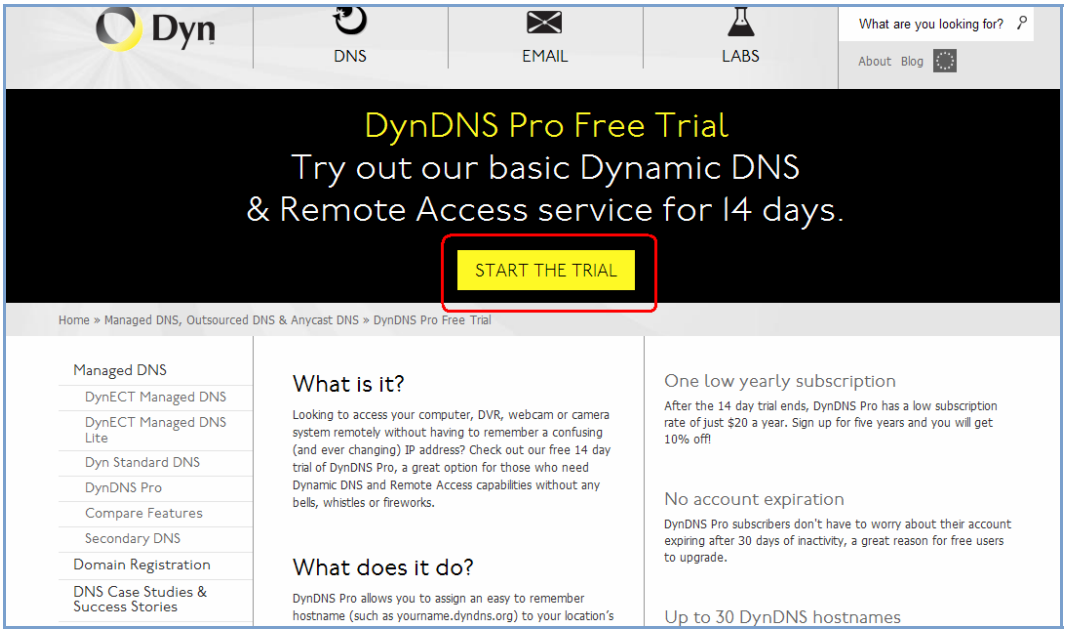
The reason why DDNS is needed is because (B) may change its IP address randomly or periodically, and/or actively or passively. When this happens, (C) is not possible to connect to (B) via IP address because it is not aware of the changes except that (B) tells (C) exceptively and which can't always possible. To solve this problem, (A) stands between (B) and (C). Firstly, (B) have to register itself to (A) with expected domain name (e.g. mr521.gotdns.com). Every time (B) changes its IP address, it has to tell (A) about new IP. Later on, if (C) wants to connect to (B), it has to use the domain name, except the IP address. The domain name resolving request (i.e. transfer domain name to IP address) from (C) will first sent to (A) and it will return with current (B)'s IP. Then, (C) can connect to (B) with no problem.

So, the 1st step to setup DDNS is to find public or private DDNS server. Here, we use 14-days trial version service provided by DynDNS as an example.

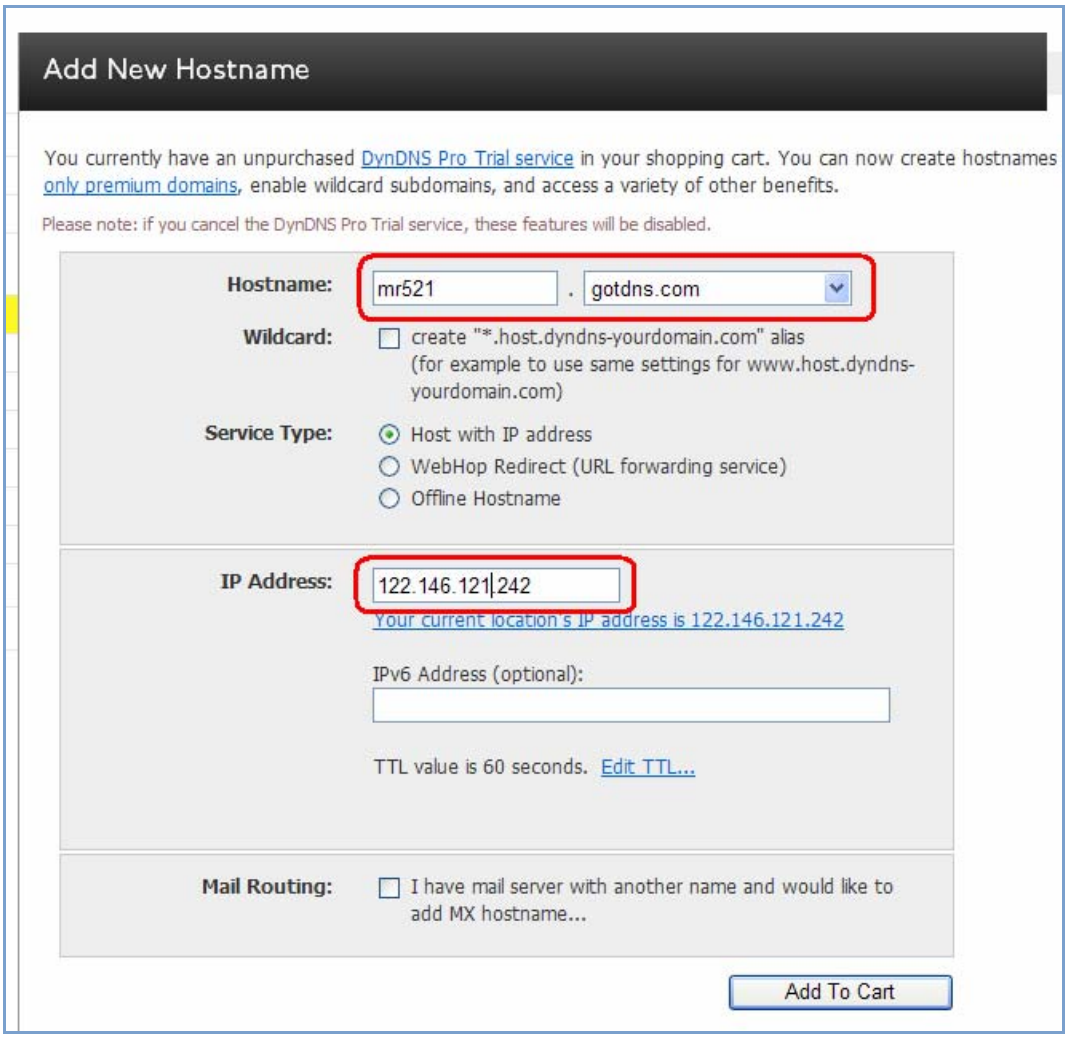
1. Connect to DynDNS home page, http://dyn.com/welcome-to-the-new-dyn-com/, and select "Free Trial of DynDNS Pro" on left bottom.



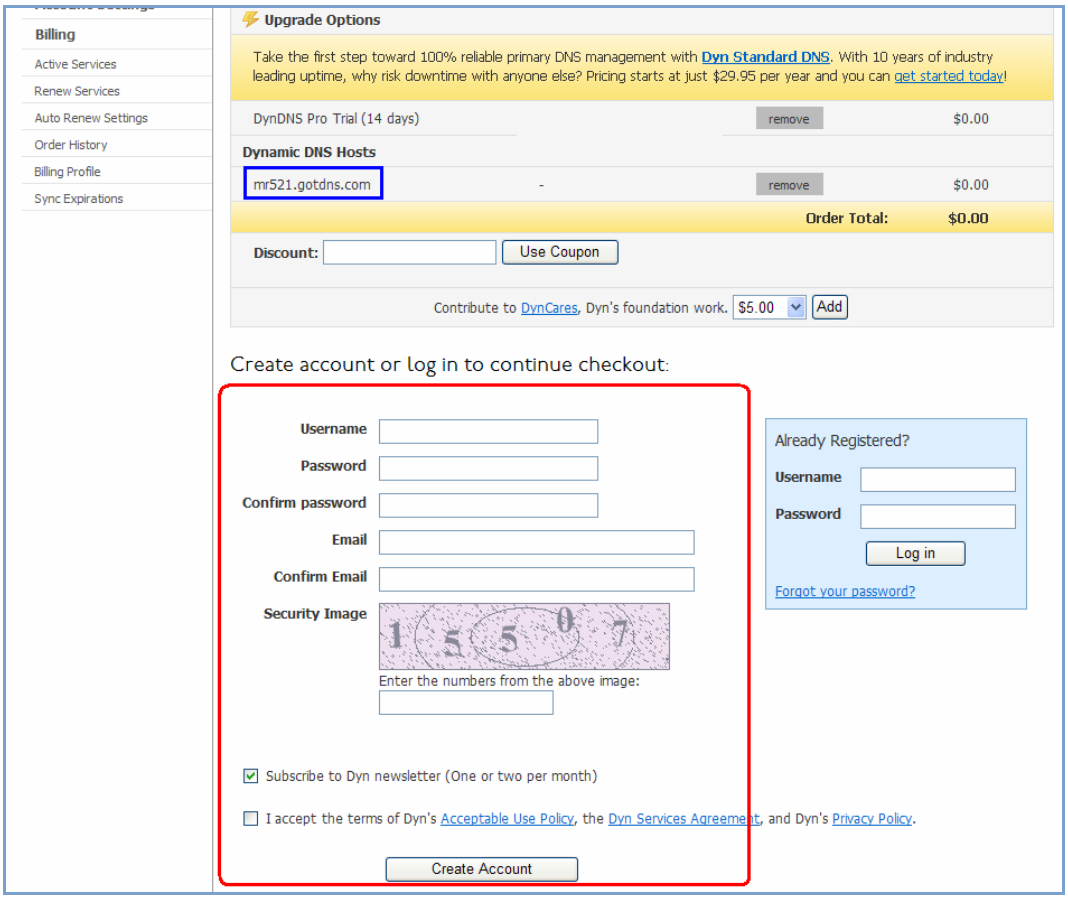
2. Click on "START THE TRIAL"



3. Type in desired name and select postfix domain name. And input the IP address of your device.



4. You will find your new DNS name on the top of this page. Input the information relevant to this domain name, including username, password, email address, numbers in Security Image. Then check "I accept …" checkbox and click "Create Account".



5. Reply the confirmation mail sent to the e-mail address you inputted in Step 4 by following the instruction in it.

6. Go to the DDNS page of this device and type in the information relating to your account in DynDNS.