GREENTEL
Simplifying Wireless M2M

GREENTEL M2M Industrial Cellular Router

User Manual

For R200 M2M Industrial Cellular Router

Announcements

Thank you for choosing our product. GREENTEL R200 series is Machine-to-machine (M2M) industrial cellular router with Din-rail mounting, which works on 2G/3G cellular networks, provides reliable and robust wireless connections.

GREENTEL R200 series is specified for industrial M2M usage. Designed to endure extreme conditions, such as temperatures ranging from -25°C to +70°C and low power consumption.

GREENTEL R200 series also supports the OpenVPN, PPTP, L2TP, GPE, IPSec VPN tunnel providing high-grade network security.

Please read this manual carefully before using the product.

Copyright Announcement

Information Edition: GL – A – R200 – 2.5

Important Safety Information

This product is not intended for use in the following circumstances

- Area(s) where radio transmission equipment (such as cell phone) are not permitted.
- Hospitals, health care facilities and area(s) where cell phones are restricted by law.
- Gas stations, fuel storage and places where chemical are stored.
- Chemical plants or places with potential explosion hazard.
- Any metal surface that may weaken the radio signal level.
- The appliance is intended to be installed in restricted access location. Only service person or authorized person is allowed to access.

RF safety distance

For GPRS router, the compliance boundary distance is r=0.26m for GSM 900MHz and r=0.13m for DCS 1800 MHz.
For HSUPA router, the compliance boundary distance is r=0.26m for GSM 900MHz and r=0.13m for DCS 1800 MHz, r=.0.094 for WCDMA 900MHz, r=0.063 for WCDMA 2100MHz.

Warning

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Agency approvals and standards compliance

For R211HHW-232 and R201HHW-232

Type	Approval / Compliance
3.1a Health	EN 50385: 2002
3.1a Safety	EN 60950-1:2006+A11
3.1b EMC	EN 301 489-1 V1.8.1 EN 301 489-7 V1.3.1 EN 301 489-24 V1.4.1 EN 300 386 V1.4.1
3.2 Radio	EN 301 511 V9.0.2 EN 301 908-1 V3.2.1 EN 301 908-2 V3.2.1

For R211GC55-232 and R201GC55-232

Type	Approval / Compliance
3.1a Health	EN 50385: 2002
3.1a Safety	EN 60950-1:2006+A11
3.1b EMC	EN 301 489-1 V1.8.1 EN 301 489-7 V1.3.1 EN 300 386 V1.4.1
3.2 Radio	EN 301 511 V9.0.2

WEEE Notice

The Directive on Waste Electrical and Electronic Equipment (WEEE), which entered into force as European law on 13th February 2003, resulted in a major change in the treatment of electrical equipment at end-of-life.
The purpose of this Directive is, as a first priority, the prevention of WEEE, and in addition, to promote the reuse, recycling and other forms of recovery of such wastes so as to reduce disposal.

The WEEE logo (shown at the left) on the product or on its box indicates that this product must not be disposed of or dumped with your other household waste. You are liable to dispose of all your electronic or electrical waste equipment by relocating over to the specified collection point for recycling of such hazardous waste. Isolated collection and proper recovery of your electronic and electrical waste equipment at the time of disposal will allow us to help conserving natural resources. Moreover, proper recycling of the electronic and electrical waste equipment will ensure safety of human health and environment. For more information about electronic and electrical waste equipment disposal, recovery, and collection points, please contact your local city centre, household waste disposal service, shop from where you purchased the equipment, or manufacturer of the equipment.

1. Router Introduction

GREENTEL R200 series is Machine-to-machine (M2M) industrial cellular router with Din-rail mounting, which works on 2G/3G cellular networks, provides reliable and robust wireless connections.

GREENTEL R200 series is specified for industrial M2M usage. Designed to endure extreme conditions, such as temperatures ranging from -25°C to +70°C and low power consumption.

GREENTEL R200 series also supports the OpenVPN, PPTP, L2TP, GPE, IPSec VPN tunnel providing high-grade network security.

1.1 Features:

Highly Reliable Network Performance

- High performance platform, 200 MIPS ARM9, 8 Mbytes NORFlash, 16 Mbytes SDRAM
- Software and hardware watchdog
- Always online: PPP LCP echo and ICMP keep alive for link inspection
- Dial on demand activated by Call/SMS/Local data flow
- High sensitivity: low signal strength required (CSQ>12)
- Remote and local firmware upgrade based on redundant firmware backup
- Large scale remote management via Greentel Device Manager

Ease to Use

- Embedded Linux system, TCP/IP and PPP stack, Plug and Play
- Configuration via WEB, TELNET, Hyper Terminal and SSH
- Backup and restore settings
- Reset button, software and hardware reset to factory default settings
- LED indicators for three level cellular network signal strength
- LED indicators for Power, Status, Warn, Error, Modem

Security

- VPN IPSec: DES, 3DES, AES, MD5 and SHA-1
- Authentication: Pre-shared key, digital certificate
- Support OpenVPN, PPTP, L2TP, GRE tunnels
- Firewall: Stateful Packet Inspection(SPI), filtering multicast, filtering PING packet, preventing DoS attack, different firewall strategies
- Access control: Access control of TCP, UDP, ICMP packet
- MAC and IP filter, MAC address bundling
- DMZ: support virtual servers
- VRRP: Hot backup, auto switch to slave router when master router failed

Robust design for Industrial Application

- Rugged casing with DIN-rail mounting and wall mounting
- Inside SIM card slot, provides SIM card anti-steal
- Industrial power terminal block, 12 to 48VDC wide range voltage power supply, anti-RCE (reverse connection error), over-current protection
- One Ethernet port (R2x1xx series) or four Ethernet port (R2x4xx series), one RS232 for debug console, one serial port for data transmission (RS232 or RS485 optional)
- Support DTU mode, data transparent transmission via serial port
- Support Modbus RTU to Modbus TCP via serial port
- Wide range operation temperature: -25°C to 70°C
- Operation humidity: 5% to 95%, non-condensing
- IP30 grade protection
- Optimized EMC design

1.2 Applications:

- Machine-to-machine (M2M)
- Telemetry
- SCADA
- Monitoring and Surveillance
- DSL/Cable Infrastructure Backup
- AVL
- Credit card verifications, POS and ATM

1.3 Product Kit:

- M2M Industrial Cellular Router
- AC/DC Adapter
- Rubber antenna and magnetic mount antenna optional
- DIN-rail optional
- RS232 to RS485 converter optional
- Ethernet Cable RJ45
- Debug console cable RJ45-RS232 optional
- CD

2. Hardware Introduction

2.1 R2x1HHW and R2x1GC55

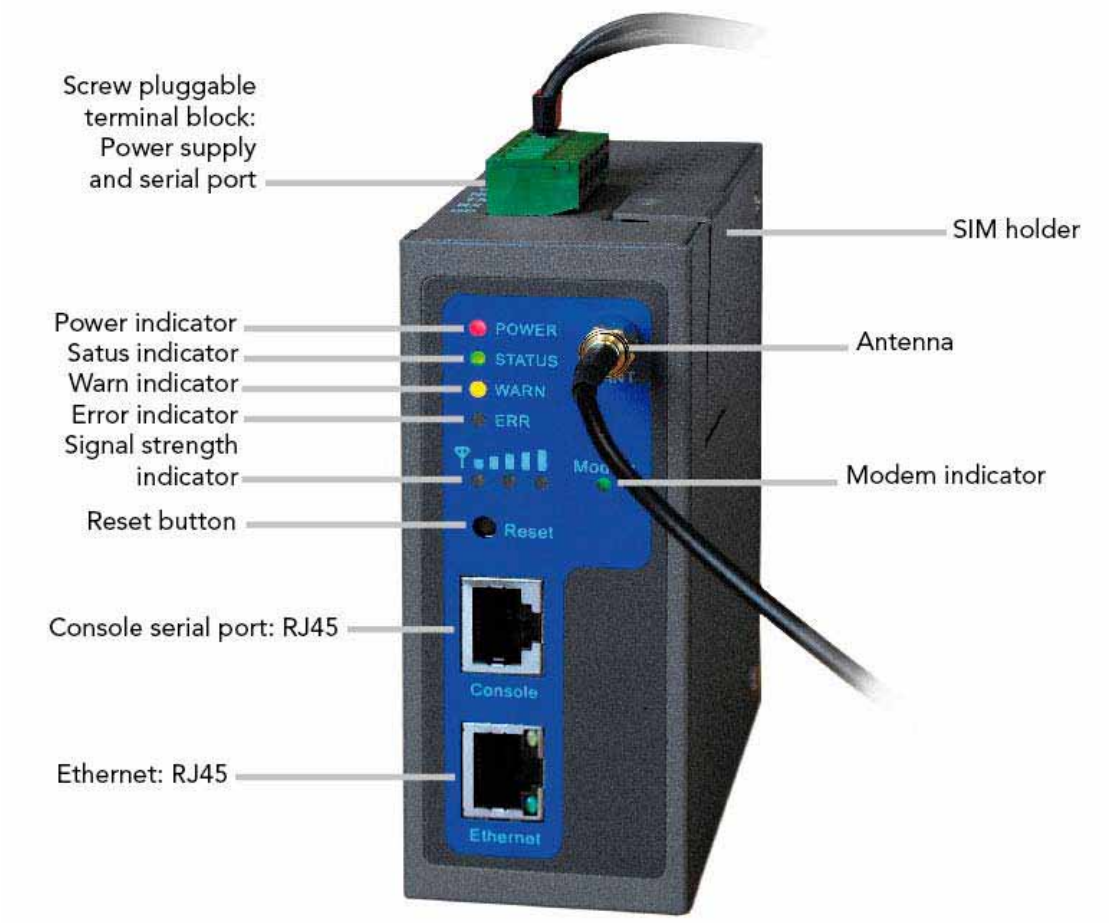


Figure 2.1 Front Panel

2.2 Interface (from up to down)

Name	Description
Screw pluggable terminal block	Including power supply connector and serial port interface (one RS232 or one RS485 optional)
SIM holder	Insert the SIM into socket
Antenna	Cellular antenna
Reset button	Power off router, press and hold 'reset button', power on at the same time (please do not release the reset button), when ERR LED starts blinking, please release the reset button, after few seconds, it will reset to factory defaults.
Console port	Debug console serial port
Ethernet port	LAN

2.3 LED indicator

System indicators

POWER	STATUS	WARN	ERROR	Description
Power supply indicator (Red)	Running status indicator (Green)	Alarm indicator (Yellow)	Error indicator (Red)	
On	On	On	Off	Powered on
On	Blinking	On	Off	Power-on is successful
On	Blinking	Blinking	Off	Dialing to cellular networks
On	Blinking	Off	Off	Dialing successful
On	Blinking	Blinking	Blinking	Upgrading firmware
On	Blinking	On	Blinking	Reset is successful

Signal Strength indicators

Signal strength indicator 1	Signal strength indicator 2	Signal strength indicator 3	Description
On	Off	Off	Signal Status 1-9: signal status is poor, please check if the antenna is correctly installed, and the router is located under good signal coverage.
On	On	Off	Signal Status 10-19: signal status is average and the equipment can work normally.
On	On	On	Signal Status 20-31: signal status is good.

Ethernet Interface indicators

Yellow indicator	Green indicator	Description
On	On	A normal 100M connection is through this port, no data packets are transmitting.
Blinking	On	A normal 100M connection is through this port, data packets are transmitting.
On	Off	A normal 10M connection is through this port, no data packets are transmitting.
Blinking	Off	A normal 10M connection is through this port, data packets are transmitting.

2.4 R2x1UU

Figure 2.2 Front Panel (USB host type – without built in cellular module)

2.5 R2x4HHW and R2x4GC55

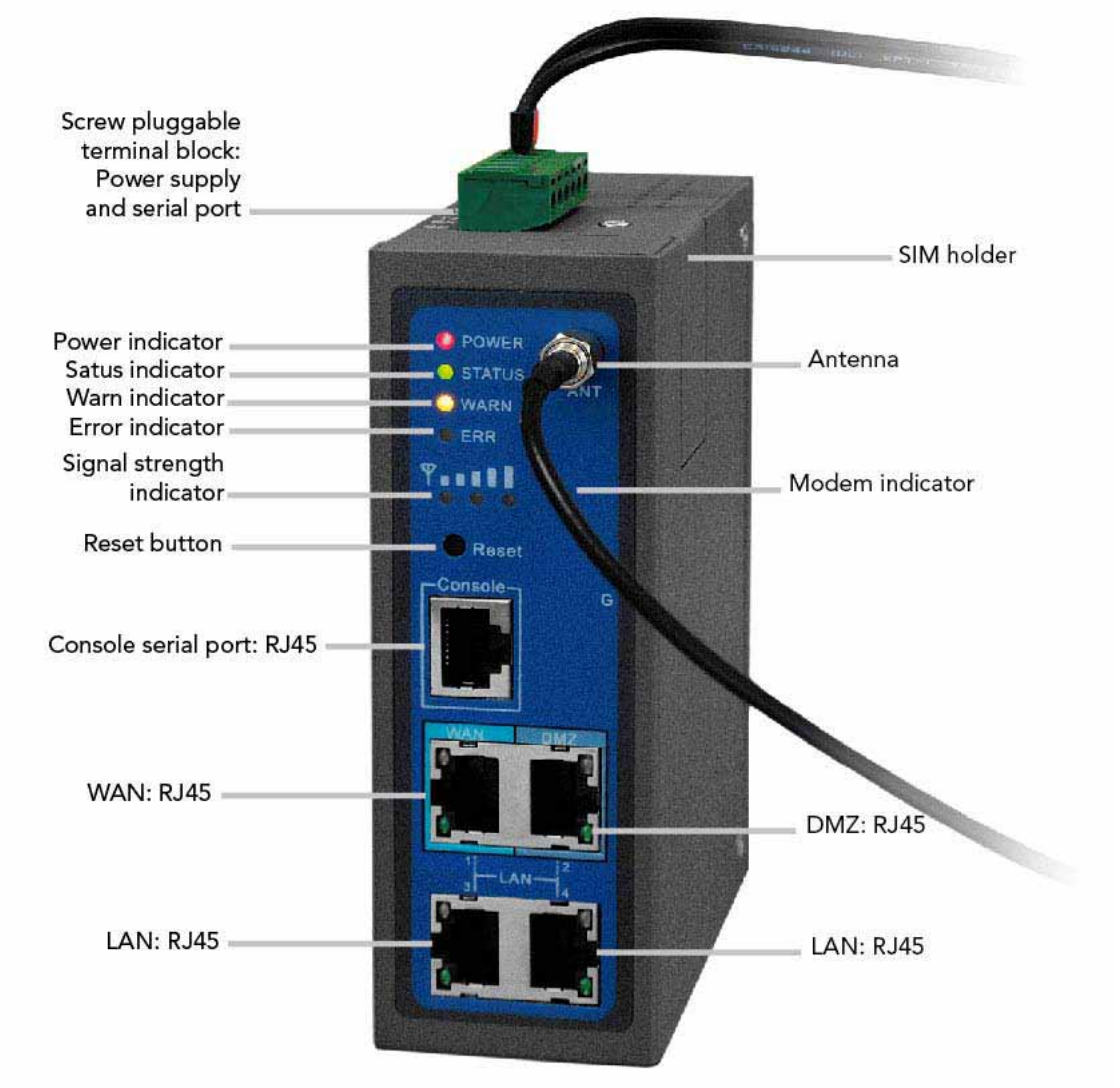


Figure 2.3 Front Panel

Name	Description
Screw pluggable terminal block	Including power supply connector and serial port interface (RS232 and RS485 optional)
SIM holder	Insert the SIM into socket
Antenna	Cellular antenna
Reset button	Power off router, press and hold 'reset button', power on at the same time (please do not release the reset button), when ERR LED starts blinking, please release the reset button, after few seconds, it will reset to factory defaults.
Console port	Debug console serial port
Ethernet port	WAN
Ethernet port	DMZ
Ethernet port	LAN
Ethernet port	LAN

2.6 R2x4UU


POWER
STATUS
WARN
ERR
USB Modem
Reset
Console
WAN
DMZ
LAN
1
2
3
4

2.7 Insert SIM/UIM

Figure 2.4: Insert SIM/UIM

Power off the router, remove the SIM card cover on the base of router and insert the card into the card slot; put back the SIM card cover.

Notice: Please insert SIM into USB Modem for R2xxUU model.

2.8. Screw pluggable terminal block

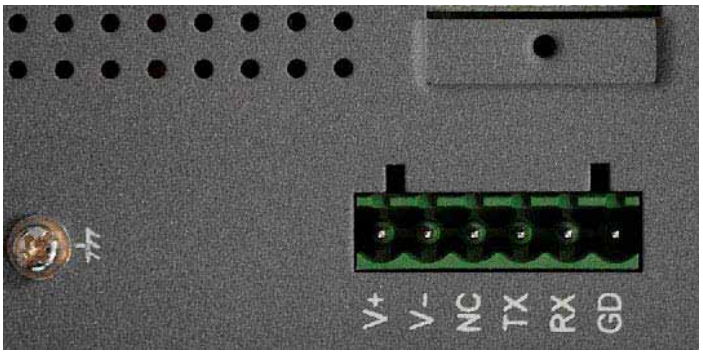


Figure 2.5: Screw pluggable terminal block

PIN Assignments

V+	12～48V DC power supply positive polarity
V-	12～48V DC power supply negative polarity
NC	None connect
TXD/485-	232 TX, 485-
RXD/485+	232 RX，485+
GND	Digital ground

2.9 Maintenance Notes

Fuse F1 Specification:

Object/Part No.	Manufacturer/Trademark	Type/Model	Technical Data	Standard	Mark(s) of conformity
Fuse (F1)	Brightking (Shenzhen) Co Ltd	BK60-110	Vmax=60V Ih=1.1A It=2.2 Imax=40	--	UL NO. E244500

Replacing the Fuse F1:

Replacement of the fuse is straightforward, but only fuses supplied by the manufacturer or with any other same fuses with the same specification can be used. Any other fuse will invalidate the certification.

3. Application Introduction

Use as Ordinary Router:

R200 series router can be used as ordinary router, through which users can easily access into the Internet.

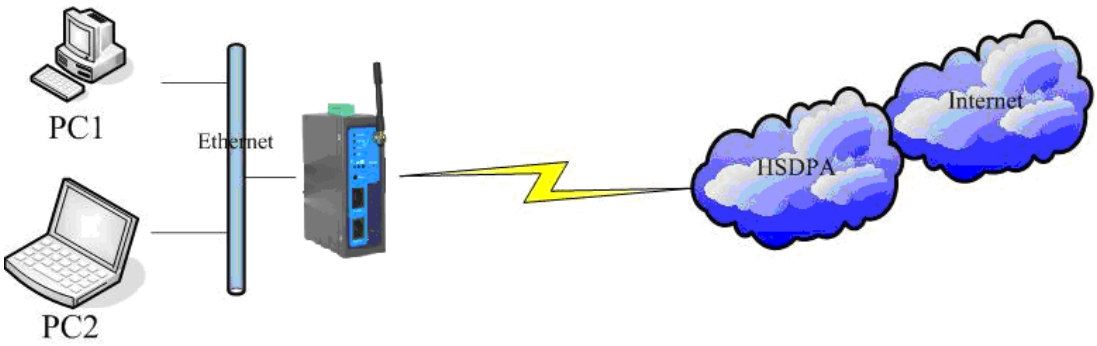


Figure 3.1: Use as Ordinary Router:

VPN Application:

R200 Series has the VPN (Virtual Private Network) function, supporting IPSec and other VPN protocols. Multiple different LANs can communicate with each other through VPN. Atypical network structure is as in the following illustration.

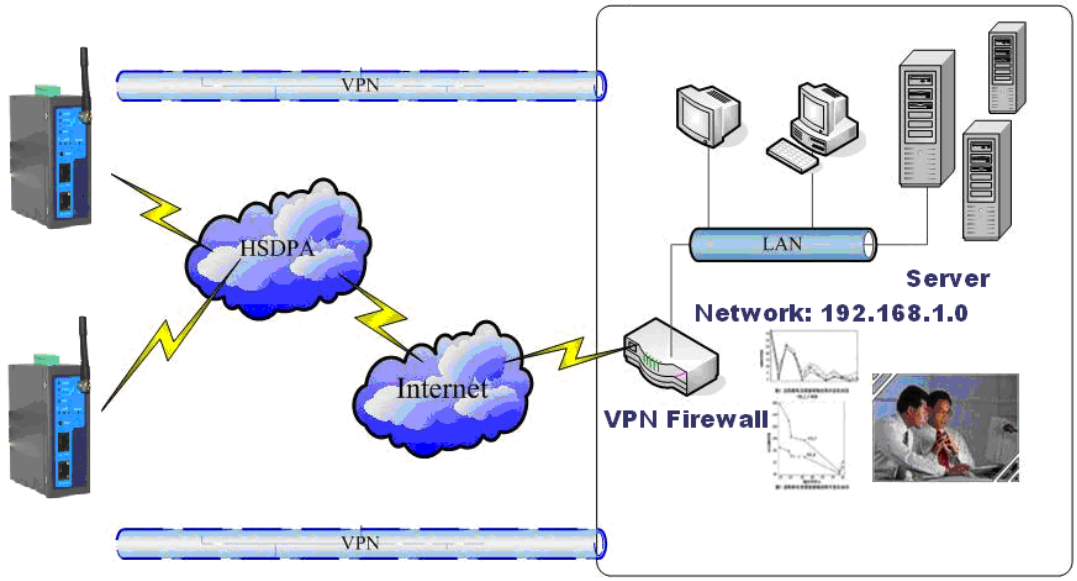


Figure 3.2: Use as VPN Router

4. Accessing the Router

4.1 PC configuration

R200 has been set as DHCP server as default. Please configure your Ethernet connection as follow, then Router will auto assign IP address 192.168.2.x to your PC:

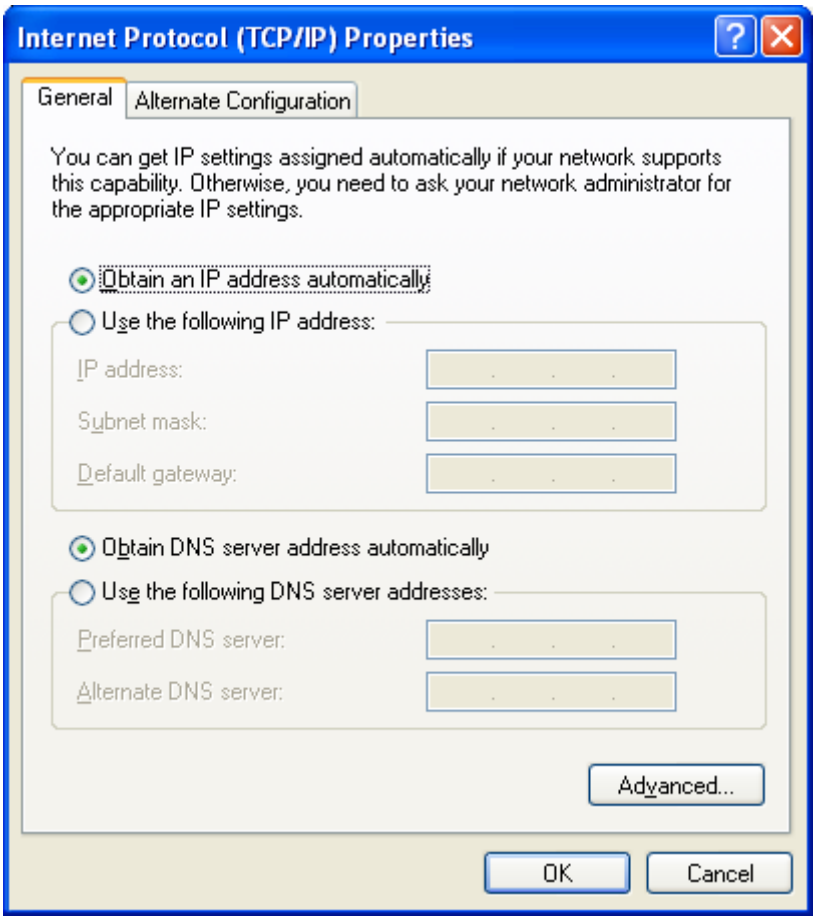
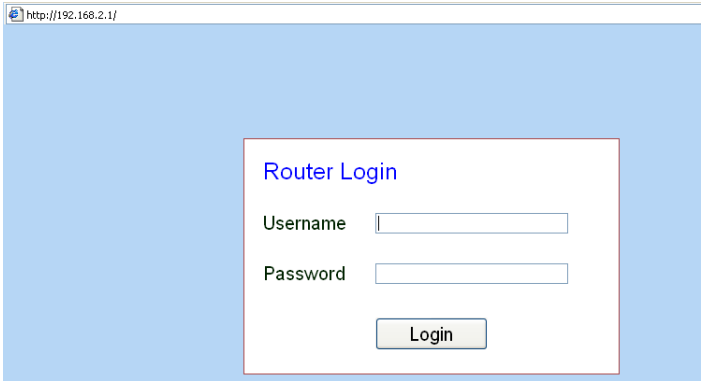


Figure 4.1 Network Connections->Properties->Internet Protocol (TCP/IP)

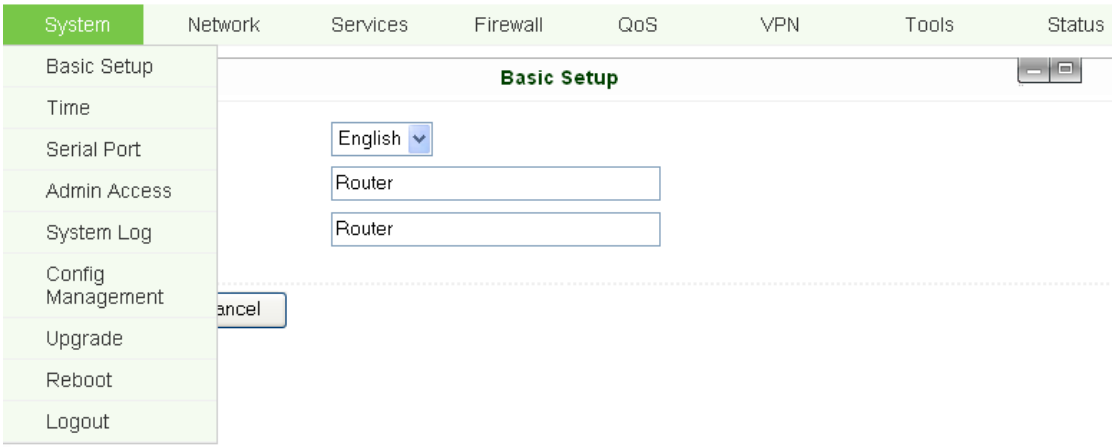
4.2 Login

Open Internet Explorer (or other web browsers), enter the IP address of router in the URL link field, e.g. **http://192.168.2.1** (- default IP of R200).



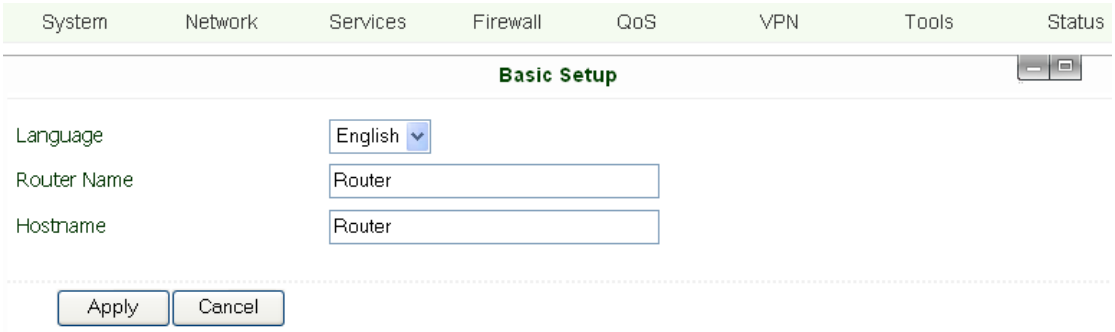
Login
User name: adm
Password: 123456

4.3 System Configuration



System includes 9 groups of system parameter settings: Basic Setup, Time, Serial Port, Admin Access, System Log, Config Management, Upgrade, Reboot, and Logout.

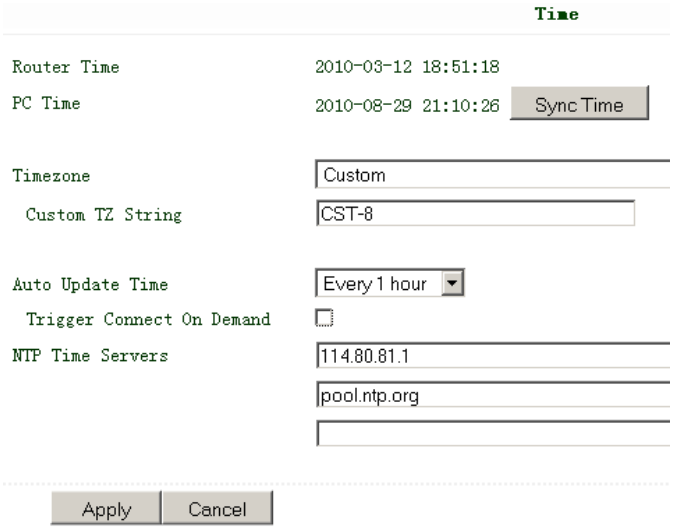
4.3.1 System -> Basic Setup



This page allows user to adjust basic settings of web configuration, e.g. configuration language.

Basic Setup		
Overall description: to select the language of the configuration interface and to set a personalized name for the router.		
Item	**Description**	**Default Value**
Language	Select the language for Web Configurations.	English
Router Name	Give a name to the router.	Router
Hostname	Give a name to the host connecting to the router.	Router

4.3.2 System -> Time



This page allows user to set time related parameters, including router time, timezone, and time server, etc.

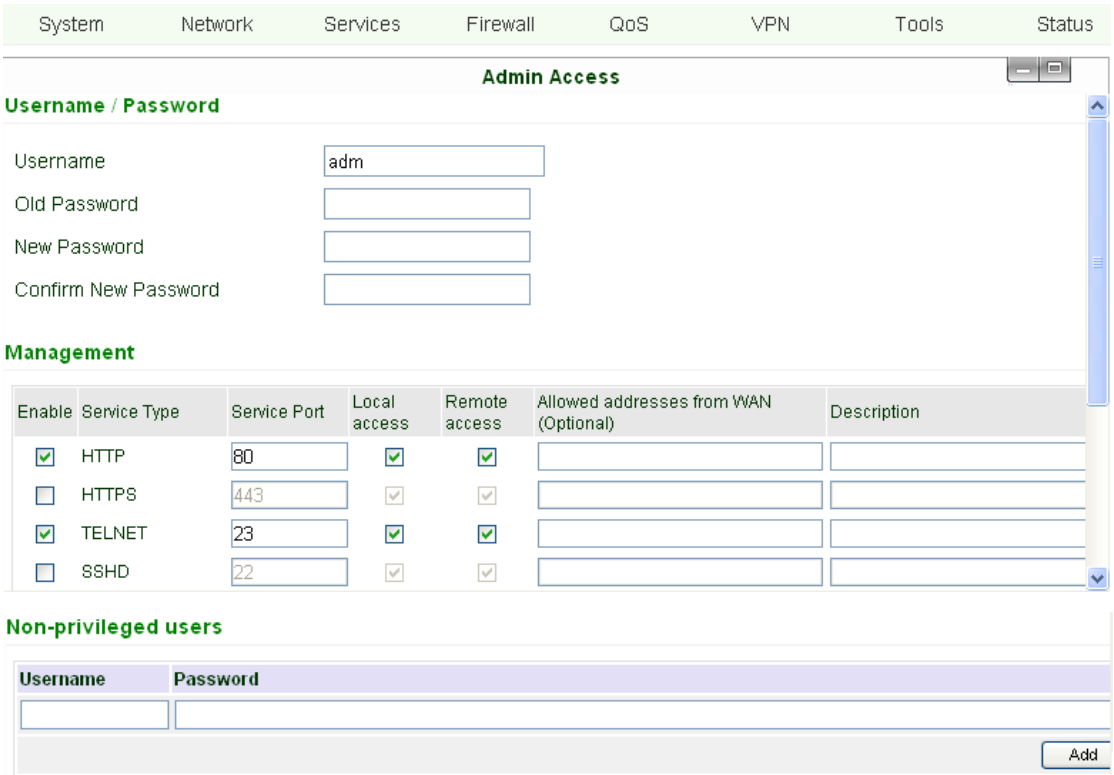
Time		
Overall description: to select local timezone and configure NTP to automatically update time.		
Item	**Description**	**Default Value**
Router Time	Shows current time on the router.	1970-01-01 8:00:00
PC Time	Shows current time on the PC.	
Timezone	Select the local timezone of the router's location.	Custom
Custom TZ String	Enter local timezone string manually.	CST-8
Auto Update Time	Select whether to automatically update router time through NTP time server, can select to auto update on startup or every 1/2/… hours.	Disabled
NTP Time Server (Appear when Auto Time Update is enabled)	Set up network time server address (maximum to 3).	pool.ntp.org

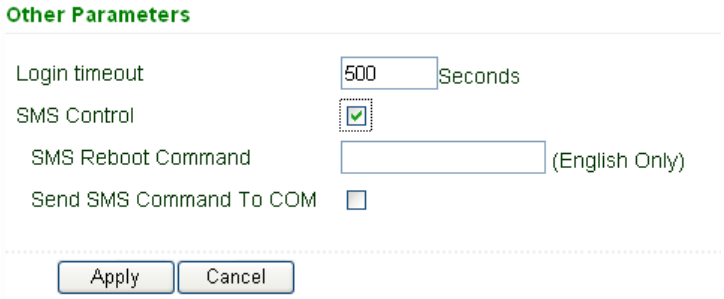
4.3.3 System -> Serial port

This page allows user to configure the transmission properties of the serial port of the router (can be used only under DTU mode).

Serial Port		
Overall description: configure the serial port parameters according to its applications.		
Item	**Description**	**Default Value**
Baudrate	Set the Baudrate of the serial port.	19200
Data Bits	Set the Data Bits of the serial Port.	8
Parity	Set the parity of data transmission of the serial port.	None
Stop Bit	Set the stop bit of data transmission of the serial port.	1
Hardware Flow Control	Select whether to enable hardware flow control, select to enable.	Disabled
Software Flow Control	Select whether to enable software flow control, select to enable.	Disabled

4.3.4 System -> Admin access



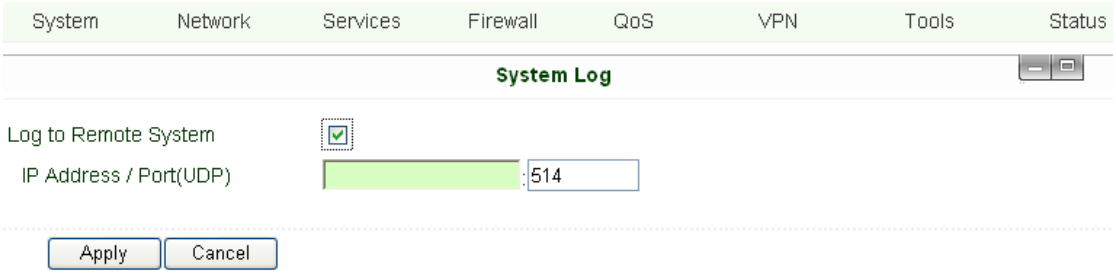


This page allows user to set administration access parameters, including username and password, HTTP/HTTPS/TELNET/SSHD/Console access management, etc.

Admin Access		
Overall descriptions: 1. Modify the username and/or password to access the router. 2. Configure management methods: HTTP, HTTPS, TELNET, SSHD, and Console. 3. Set the length of time for login timeout.		
Item	**Description**	**Default Value**
Username / Password		
Username	Set the Username for web configuration.	adm
Old Password	Enter the current password that is to be replaced.	123456
New Password	Enter the new password for web configuration.	
Confirm New Password	Enter the new password again to double-check the input.	
Management – HTTP/HTTPS/TELNET/SSHD/Console		
Enable	Select to enable a service type.	Enabled
Service port	Enter respective service ports of the service types: HTTP, HTTPS, TELNET, SSHD, and Console.	HTTP: 80 HTTPS: 443 TELNET: 23 SSHD: 22 Console: nil
Local access	Select to enable. Enable—to allow local LAN to access and manage the router through a service type, e.g. HTTP. Disabled—not to allow local LAN to access and manage the router through a service type, e.g. HTTP.	HTTP: Enabled HTTPS: Enabled TELNET: Enabled SSHD: Enabled Console: Enabled
Remote access	Select to enable. Enable-- to allow remote host to access and manage the router through a service type, e.g. HTTP. Disabled — not to allow remote host to access and manage the router through a service type, e.g. HTTP.	HTTP: Enabled HTTPS: Enabled TELNET: Enabled SSHD: Enabled Console:

		Enabled
Allowed addresses from WAN (Optional)	To set allowed address scope of remote host for remote access. (Only applied to HTTP, HTTPS, TELNET, and SSHD.)	
Description	For user to Write down descriptions of the management options and parameters for future reference, with no influence to the functioning of the router.	
Non-privileged users		
Username	Non-privileged users could only access to R200 via Telnet, could not access to R200 via website	
Password	Non-privileged user password	
Other Parameters		
Login Timeout	Set the length of a period of time over which when there is no operation on the pages, router will automatically logout.	500 seconds
SMS Control	Select to enable	disable
SMS Reboot Command	Enable: user could input any reboot command in English characters, after receiving the SMS command router will auto reboot. Remark: the command should identify uppercase and lowercase	
Send SMS Command To COM	Select to enable, after enable router will also output the SMS Reboot Command to COM port, for example when user set “Reboot” as reboot command, after receiving “Reboot” SMS command, router will reboot and output “Reboot” to COM during the same time	

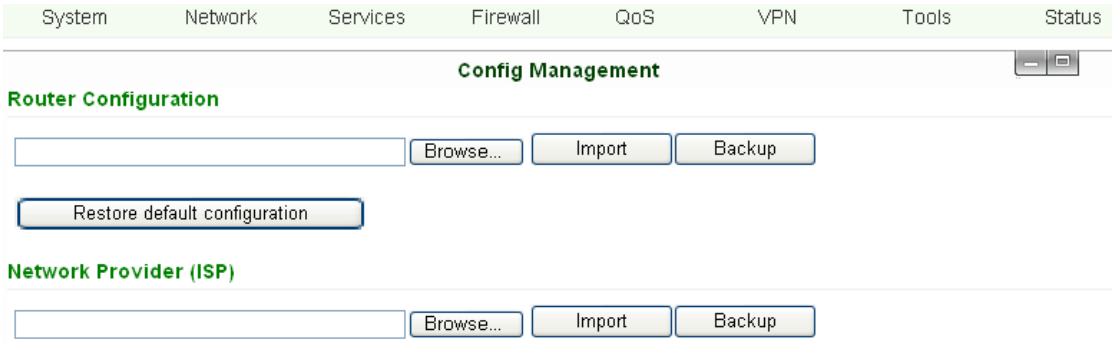
4.3.5 System -> System log



On this page, user can set the router to send system log to a remote log server.

System Log		
Overall descriptions: to set IP address and port of remote log server, the router logs will then be sent and recorded in the remote log server.		
Item	**Description**	**Default Value**
Log to Remote System	Select to enable sending system log to a remote log server.	Disabled
IP Address / Port (UDP)	To set the IP address and port of the remote log server.	Port: 514

4.3.6 System -> Config management



This page allows user to import or backup a router configuration file, a modem driver, or a Network Provider list, there is also the button to restore the router to factory default configuration.

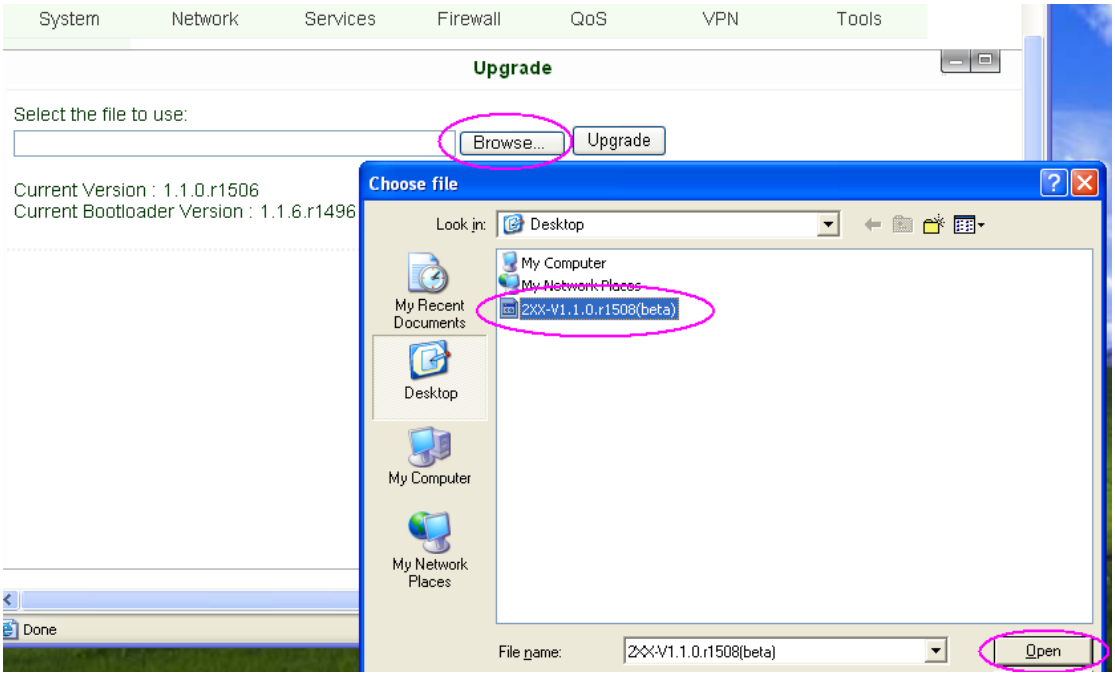
Config Management		
Overall description: 1. Import a set of user's pre-stored configuration, or backup current configuration to local PC. 2. Import the latest Modem driver, or to backup current driver to local PC (- applicable only to external Modems). 3. Import updated Network Provider list, or backup current list to local PC. Router manufacturers usually keep updating this list so users are able to choose from all available mobile networks.		
Item	**Description**	**Default Value**
Router Configuration	Import a configuration or backup current one.	
Restore default configuration	Press this button will restore the router to the factory default configuration. Note: It will require a system reboot to take effect.	
Modem Drivers (**R2xxU only**)	Import a driver of the external modem, or backup the current one.	
Network Provider (ISP)	To set in parameters of the global major Network Providers -- the APN, Username, Password, etc.	

4.3.7 System -> Upgrade

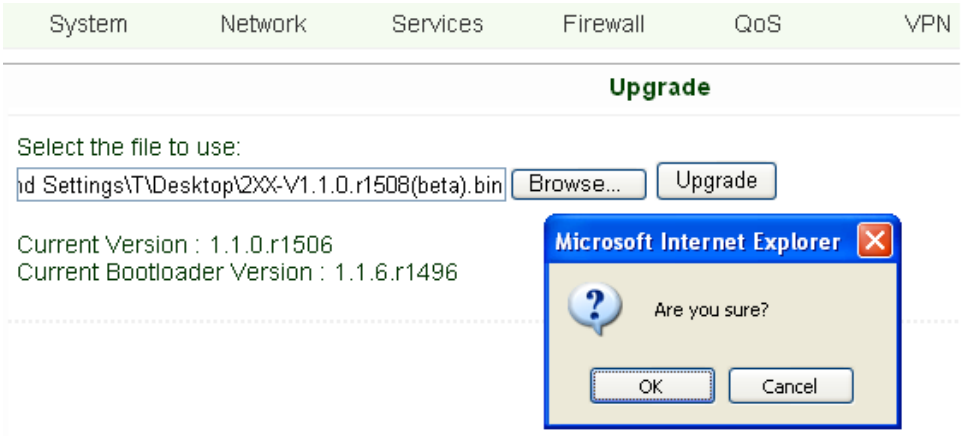
To upgrade the firmware of the router, go to "System" -> "Upgrade", click "Browse" to select a firmware file, and then click on "Upgrade".

Detail steps are:

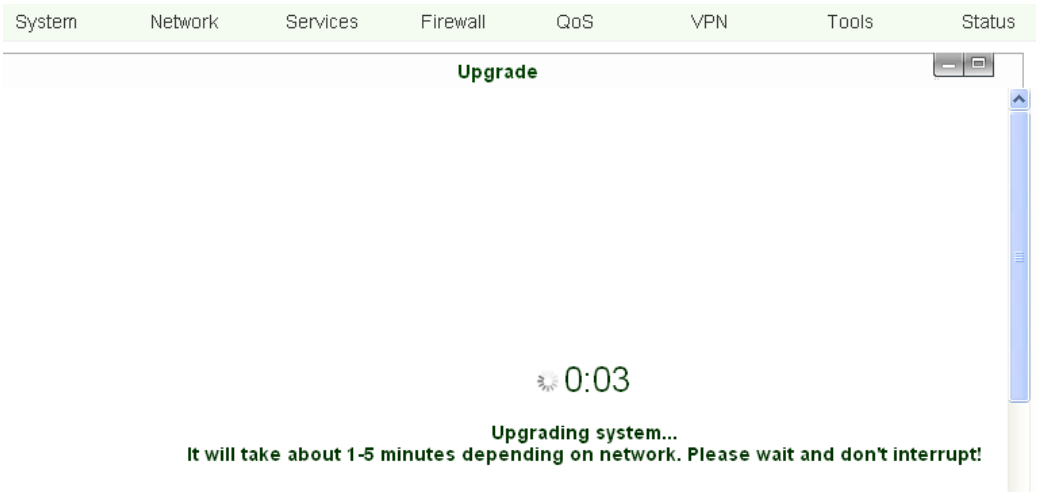
Step 1: Click "Browse", browse to select the firmware file to use then clicks "Open".



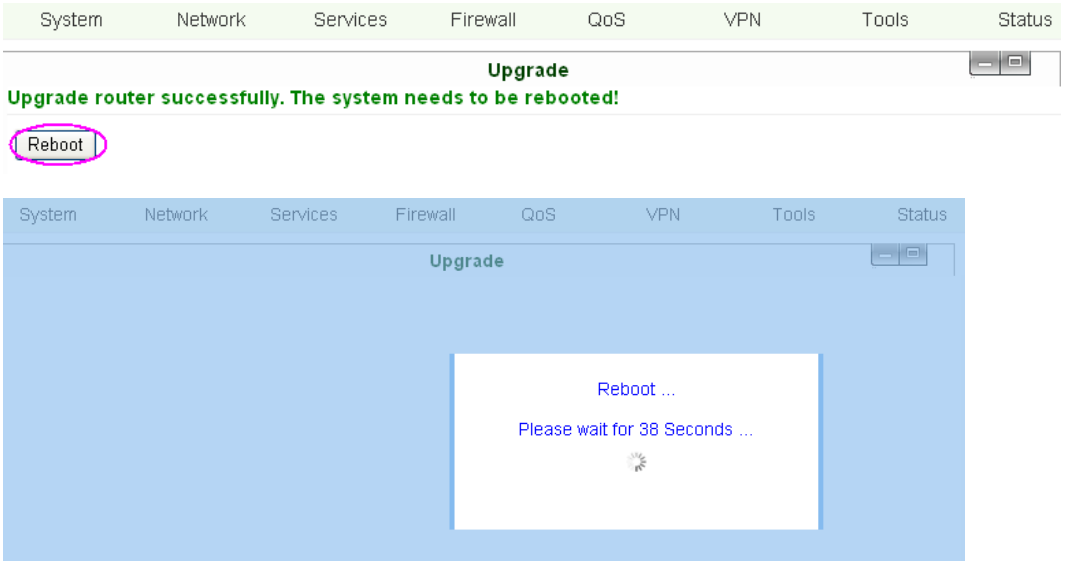
Step 2: Click “Upgrade”, then click “OK” on the pop-up dialog box.



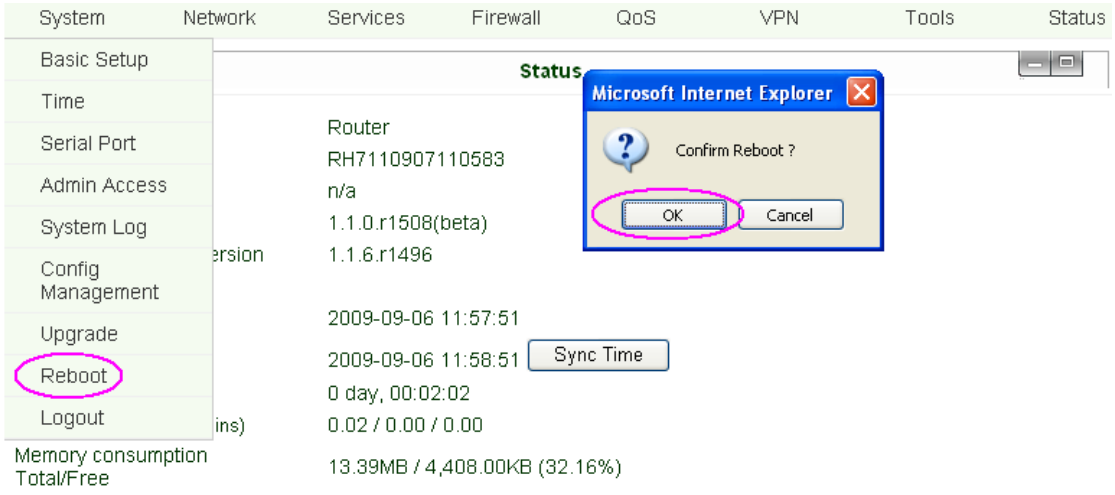
Step 3: The following page will be shown during upgrading:



Step 4: Upgraded successfully. Click “Reboot” to restart the router and have the new firmware come in effect.

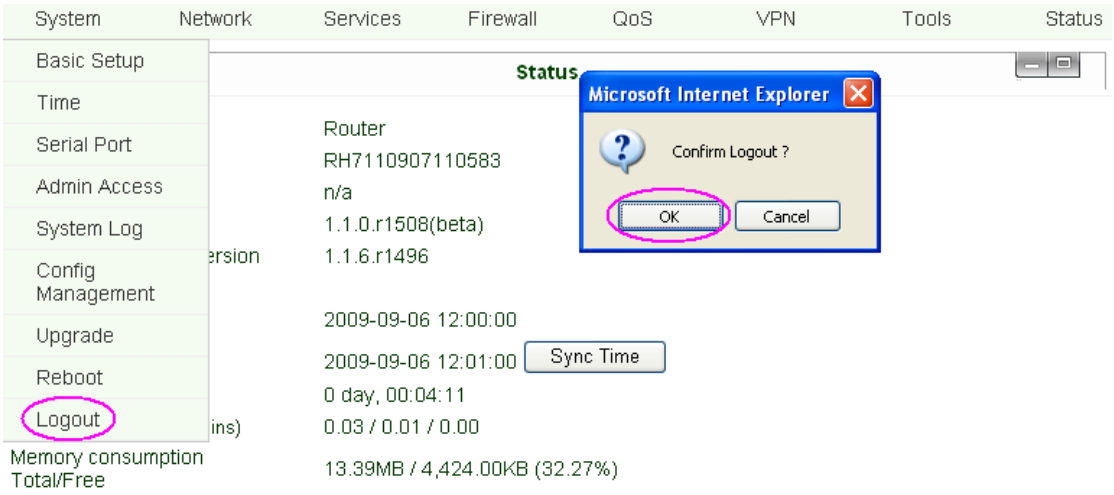


4.3.8 System -> Reboot



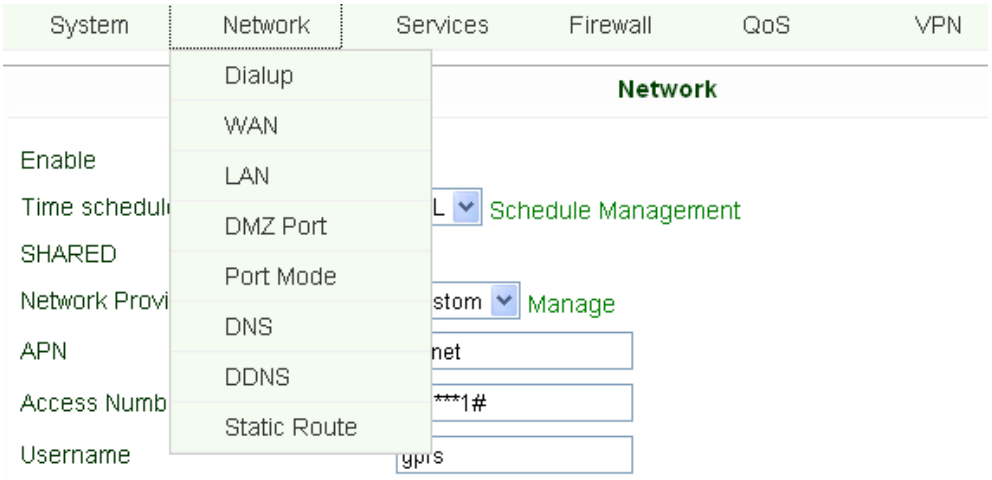
When user need to reboot the system, click “System” => “Reboot”.

4.3.9 System -> Logout



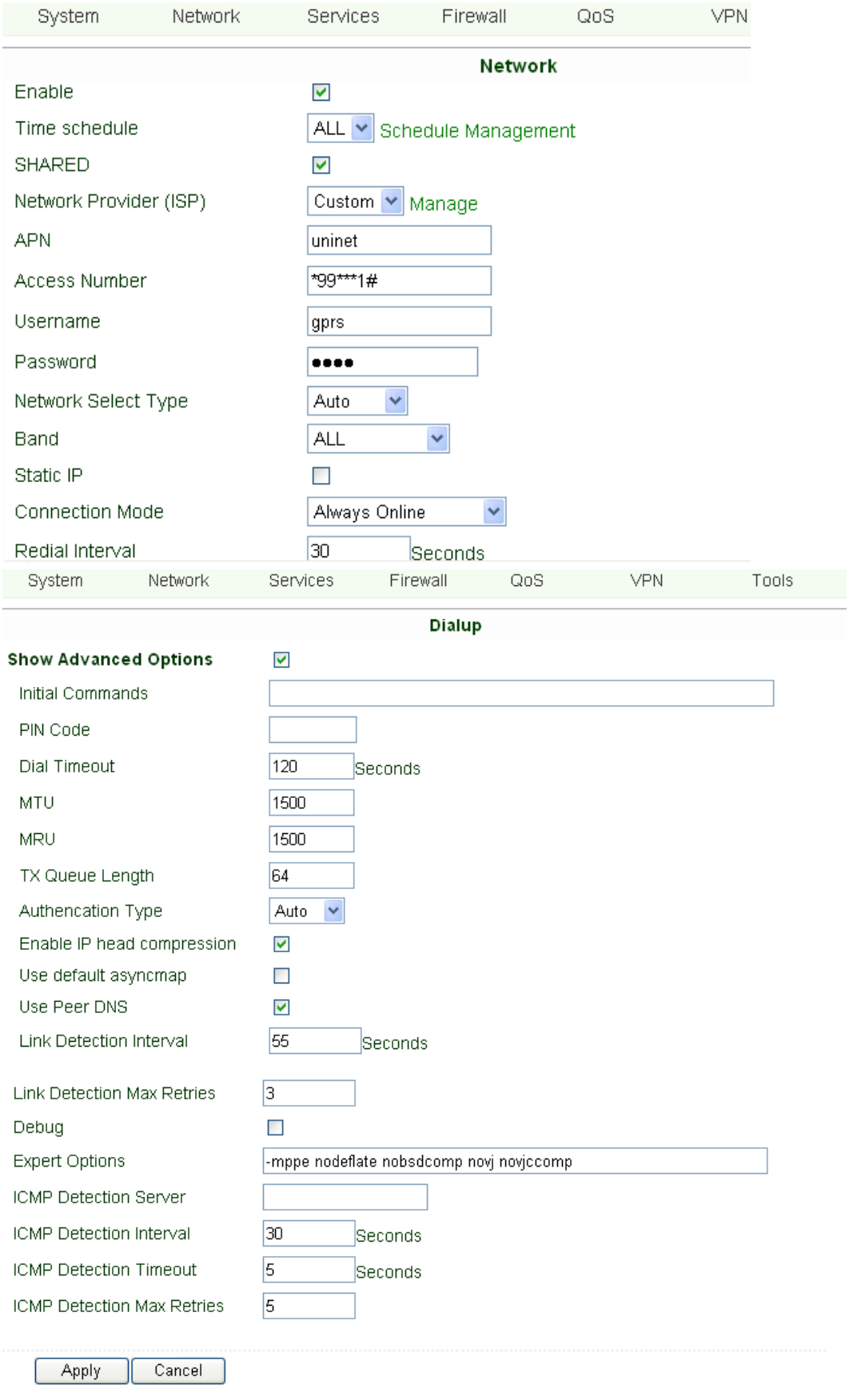
To logout, simply click “System” => “Logout”; the system will return to the login page.

4.4 Network



Under Network are 8 configuration items: Dialup, LAN, DNS, DDNS, and Static Route are items for R2x1 and R2x4, WAN, DMZ Port, Port Mode items are for R2x4 only.

4.4.1 Network -> Dialup

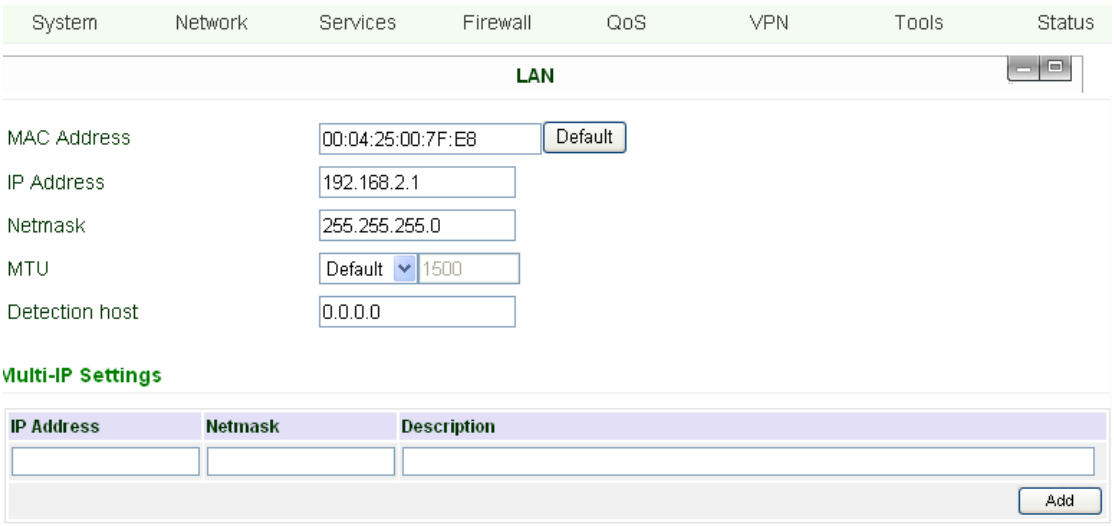


This page is to configure the Dialup port, including Network Provider, username and password, etc.

Dialup		
To setup the parameters for PPP dial-in. Users usually need to set only the basic parameters and do not need to make changes on the advanced options.		
Item	**Description**	**Default Value**
Enable	Select to enable PPP dial.	Enabled
Shared Connection	Select to enable. Enable—to allow local devices that linked to the Router to access Internet through it. Disable—not to allow local devices that linked to the Router to access Internet.	Enabled
Network Provider (ISP)	Select the local Network Provider to get service from.	Customization
APN (Not applicable to CDMA 2000 Series.)	Enter the APN parameter provided by the mobile network operator.	Please consult your Network Provider if needed.
Access Number	Enter the access number provided by the mobile network operator.	Please consult your Network Provider if needed.
User name	Enter the user name provided by the mobile network operator.	Please consult your Network Provider if needed.
Password	Enter the password provided by the mobile network operator.	Please consult your Network Provider if needed.
Network Select Type	Options include: Auto, 2G only, 3G only Remark: 2G includes GPRS and EDGE; 3G includes UMTS and HSPA	Auto
Band	Options include: All, GSM 850, GSM 900, GSM 1800, GSM 1900, WCDMA 850, WCDMA 900, WCDMA 1900, WCDMA 2100	All
Static IP	Select to enable static IP. (You need to first request the Network Provider to open this service for your account.)	Disabled
Connection Mode	Options include: Always Online, Connect On Demand, and Manual. Connect On Demand includes: Triggered by Data, Triggered by Call, Triggered by SMS	Always online
Redial Interval	To set a length of time over which the router will redial in case of login failure.	30 Seconds
Show Advanced Options	Select to show advanced options, as are the following options in this table.	Disabled (Below items are all advanced options)
Initial Commands	Initial commands are used for advanced network parameter settings, it is generally not needed to be filled in.	Blank
Dial Timeout	Set a length of time over which the dial in will be timeout. (System will reboot on dial timeout.)	120 Seconds

MTU	Set the Maximum transmission Unit.	1500
MRU	Set the Maximum receiving Unit.	1500
TX queue length	Set transmission Queue Length.	3
Enable IP head compression	Select to enable IP Head compression.	Disabled
Use default asyncmap	Select to enable asyncmap, an advanced PPP option.	Disabled
Use peer DNS	Select to use the DNS allocated by the mobile operator.	Enabled
Link Detection Interval	Set length time for the interval of link detection.	30 Seconds
Link Detection Max Retries	Set the maximum number of trials for link detection failure.	3
Debug	Select to enable Debug mode.	Enabled
Expert Options	To provide extra PPP parameters, which users generally do not need to set.	Blank
ICMP Detection Server	Set the ICMP detection server, leaving blank means not to enable ICMP detection.	Blank
ICMP Detection Interval	Set length time for the interval of ICMP detection.	30 Seconds
ICMP Detection Timeout	Set the length of time over which ICMP detection will get timeout. (System will reboot on detection timeout.)	5 Seconds
ICMP Detection Max Retries	Set maximum number of trials when ICMP detection fails.	5

4.4.2 Network -> LAN

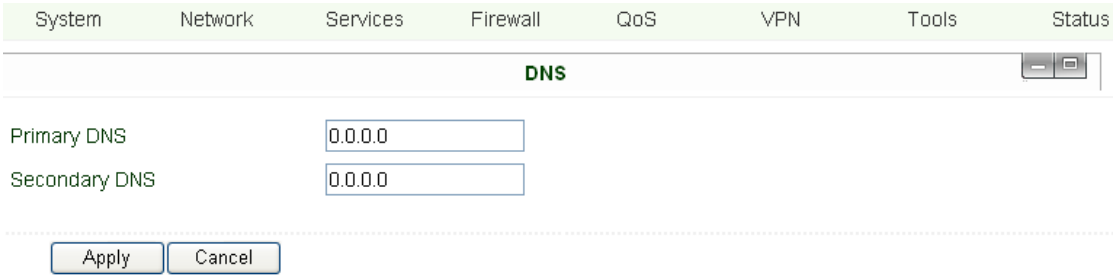


This page allows user to configure the LAN ports, setting the IP address, netmask, MTU, etc.

LAN		
Overall description: set the LAN port parameters.		
Item	**Description**	**Default Value**
MAC Address	Set the MAC address of the LAN port.	Globally unique MAC address.

IP Address	Set the IP address of the LAN port.	192.168.2.1 (After changing, please use the new IP address to login configuration.)
Netmask	Set the Netmask of the LAN port.	255.255.255.0
MTU	Maximum Transmission Unit, may choose to use the default value or to set manually.	Default (1500)
Multi-IP Settings (May set up to 8 extra IP addresses.)		
IP Address	Enter the extra IP address of LAN port.	Blank
Description	Write down the description of the multiple IP addresses.	Blank

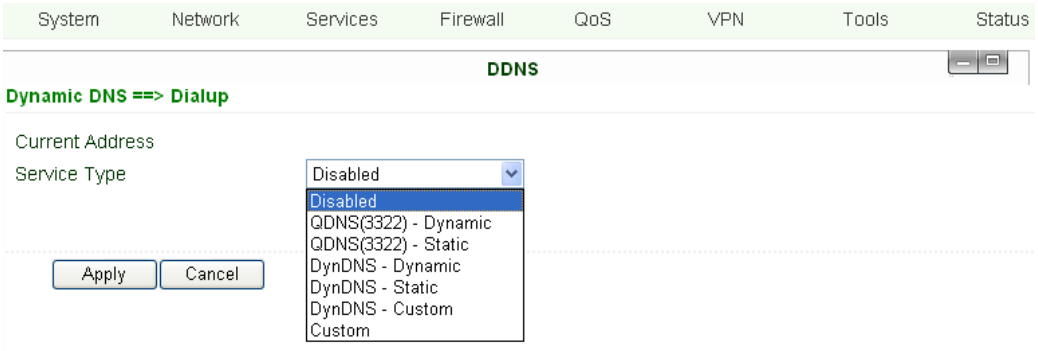
4.4.3 DNS

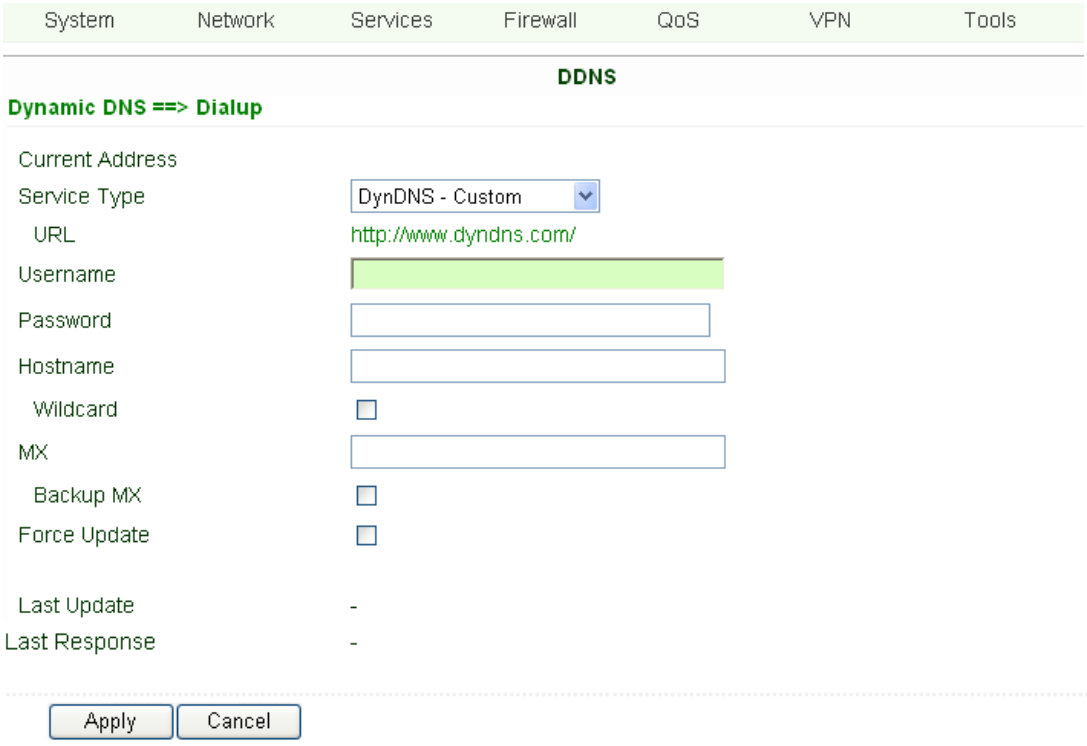


This page allows user to set up the DNS servers, including the primary DNS and secondary DNS.

DNS Settings		
Overall description: set up the DNS servers manually. Usually these are left blank and the DNS server that's acquired on dialup will be used; however you need to enter them manually when you are using static IP on WAN port.		
Item	**Description**	**Default Value**
Primary DNS	Enter the IP address of your network's Primary DNS Server.	Blank
Secondary DNS	Enter the IP address of your network's Secondary DNS Server.	Blank

4.4.4 DDNS

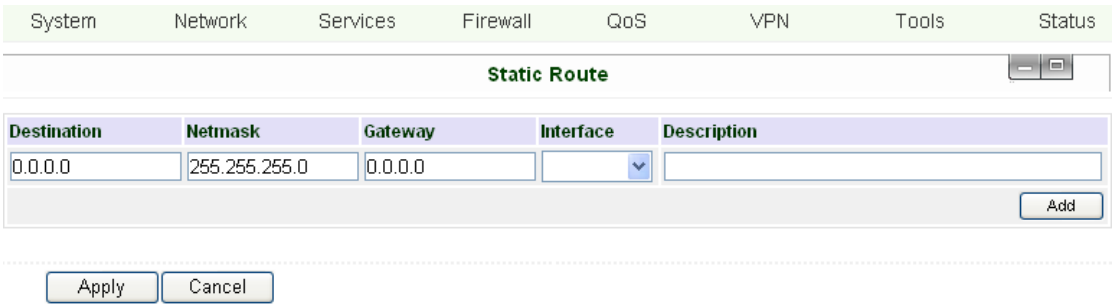




This page allows user to configure the DDNS.

DDNS		
Overall description: configure DDNS.		
Item	**Description**	**Default Value**
Current Address	Display current IP of Router	Blank
Service Type	Select ISP providing DDNS service.	Disabled

4.4.5 Static Route

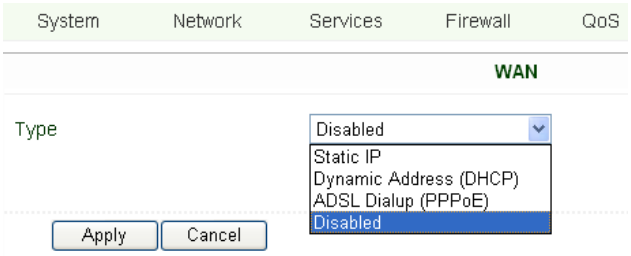


This page allows user to set up static routes by entering the destination, netmask, and gateway parameters.

Static Route		
Overall description: add or remove extra static routes for the router. Generally, users do not need to set this.		
Item	**Description**	**Default Value**
Destination	Enter the IP address of destination network.	Blank

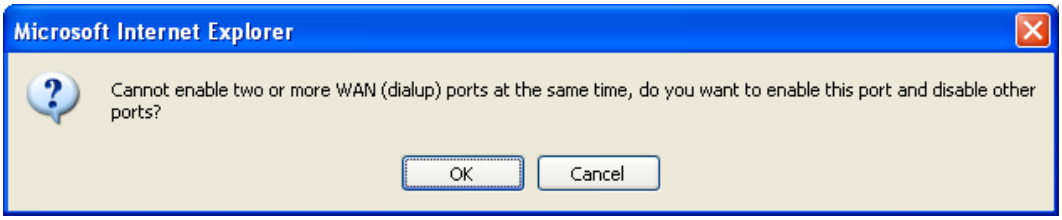
Netmask	Enter the Netmask of destination network.	255.255.255.0
Gateway	Enter the gateway of destination network.	Blank
Interface	Select to access destination network through LAN port or WAN port.	Blank
Description	Write down descriptions of the static routes for future reference.	Blank

4.4.6 WAN (R2x4 only)

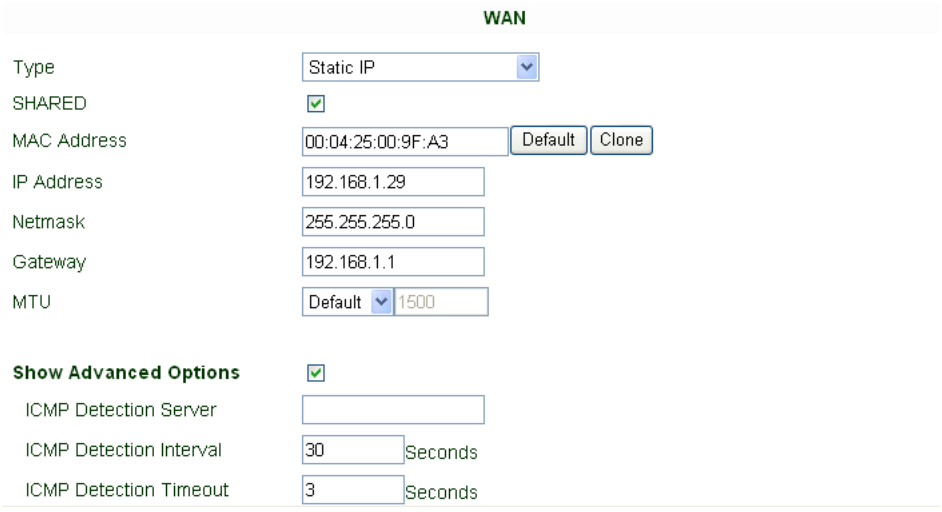


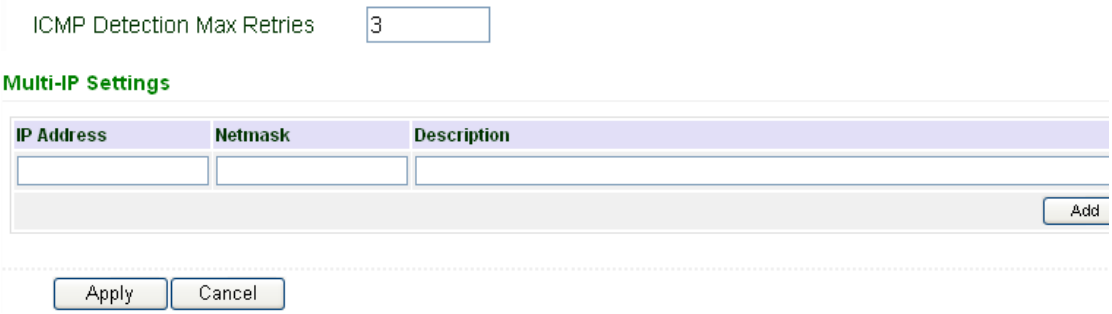
This page allows user to select WAN port type, includes Static IP, Dynamic Address (DHCP), ADSL Dialup (PPPoE), Disabled.
Default value is Disabled.

After selecting “Static IP”, or “Dynamic Address (DHCP)”, or “ADSL Dialup (PPPoE)”, system will disable cellular WAN port connection and popup follow warn windows.



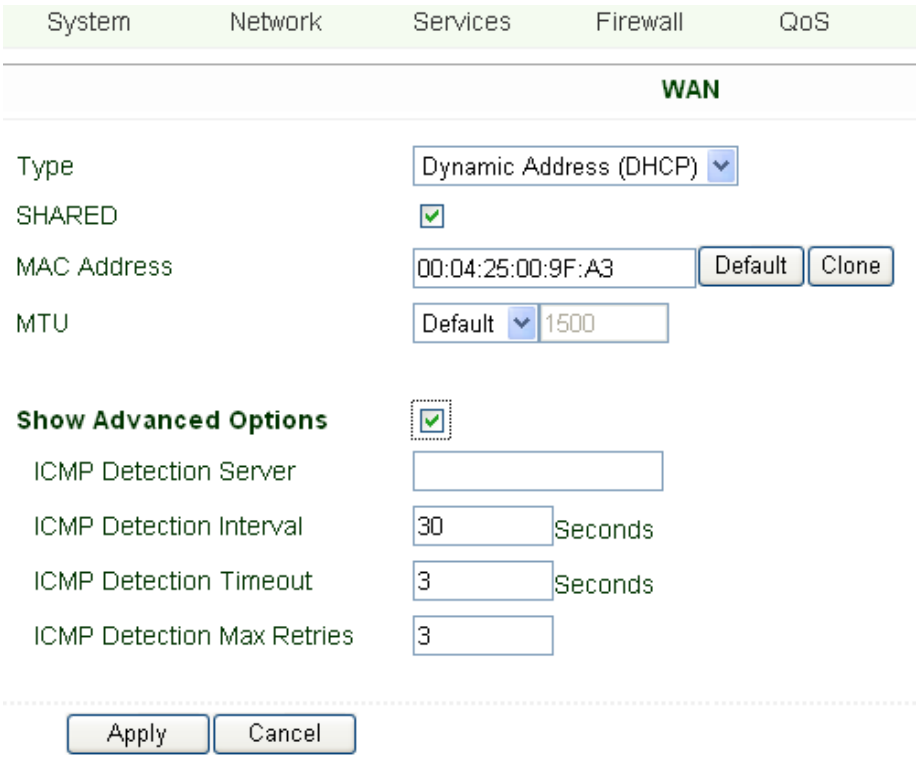
Static IP:



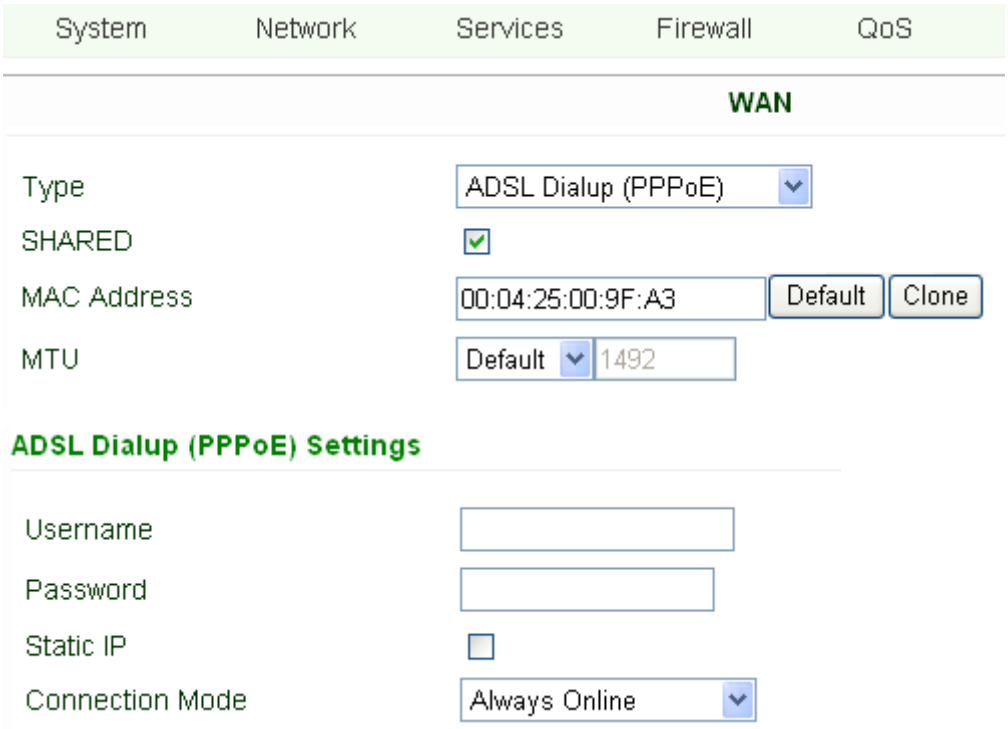


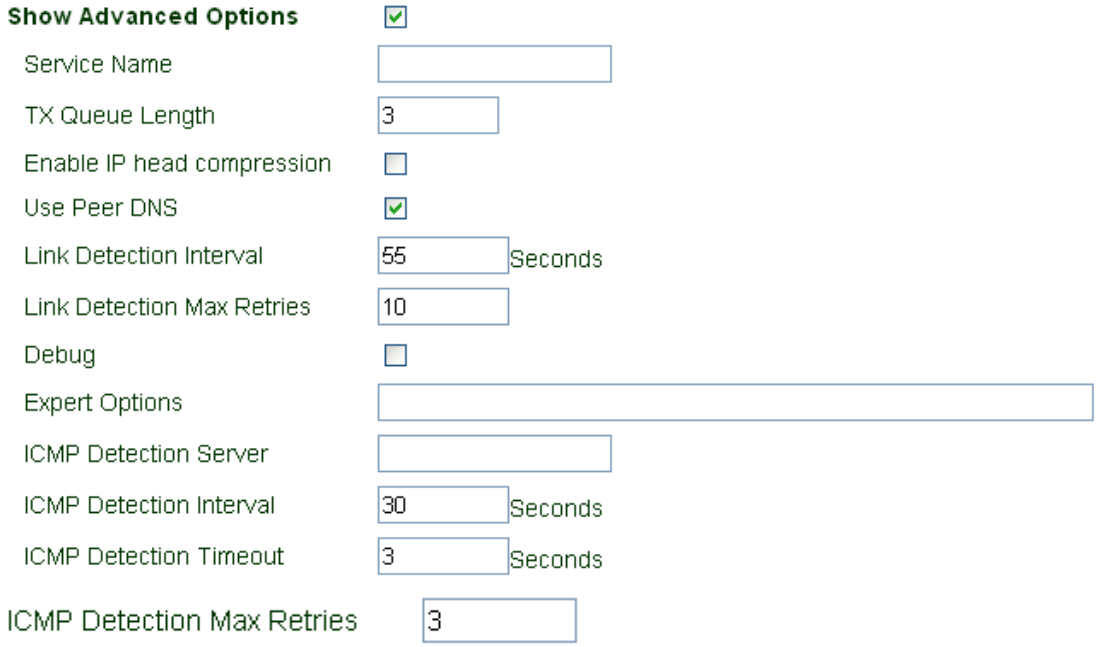
WAN		
Overall description: set the WAN port parameters.		
Item	**Description**	**Default Value**
Shared Connection	Select to enable. Enable—to allow local devices that linked to the Router to access Internet through it. Disable—not to allow local devices that linked to the Router to access Internet.	Enabled
MAC Address	Set the MAC address of the WAN port.	Globally unique MAC address.
IP Address	Set the IP address of the WAN port.	192.168.1.29 (After changing, please use the new IP address to login configuration.)
Netmask	Set the Netmask of the WAN port.	255.255.255.0
Gateway	Set the Gateway of the WAN port.	192.168.1.1
MTU	Maximum Transmission Unit, may choose to use the default value or to set manually.	Default (1500)
Show Advanced Options	Select to Enable	Disable
ICMP Detection Server	Enter the address of ICMP detection server.	Blank
ICMP Detection Interval	Set the interval length of ICMP detection.	30 Seconds
ICMP Detection Timeout	Set the timeout length of ICMP detection.	3 Seconds
ICMP Detection Retries	Set the maximum times of retries in case of ICMP detection failure.	3
Multi-IP Settings (May set up to 8 extra IP addresses.)		
IP Address	Enter the extra IP address of LAN port.	Blank
Description	Write down the description of the multiple IP addresses.	Blank

DHCP

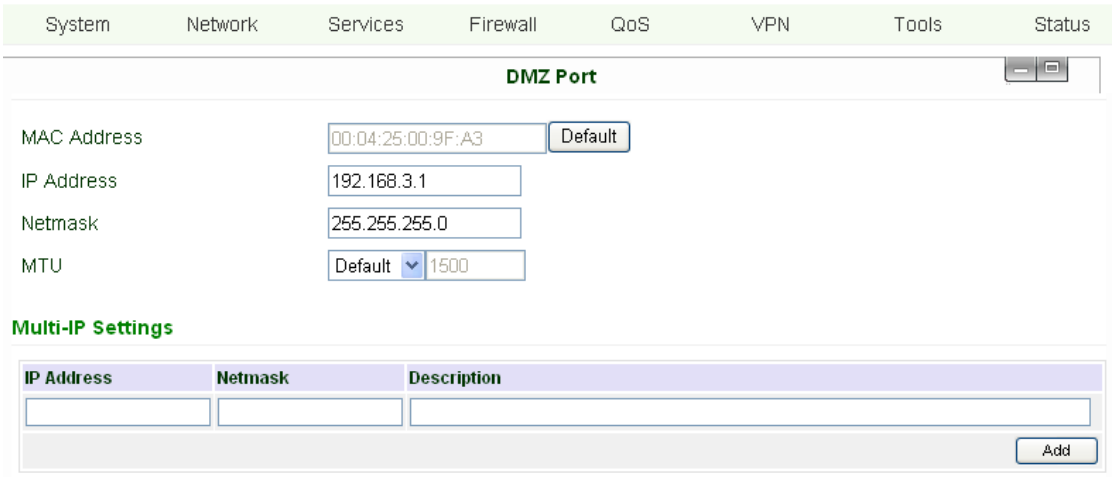

System
Network
Services
Firewall
QoS
WAN
Type
Dynamic Address (DHCP)
SHARED
MAC Address
00:04:25:00:9F:A3
Default
Clone
MTU
Default
1500
Show Advanced Options
ICMP Detection Server
ICMP Detection Interval
30
Seconds
ICMP Detection Timeout
3
Seconds
ICMP Detection Max Retries
3
Apply
Cancel

ADSL:


System
Network
Services
Firewall
QoS
WAN
Type
ADSL Dialup (PPPoE)
SHARED
MAC Address
00:04:25:00:9F:A3
Default
Clone
MTU
Default
1492
ADSL Dialup (PPPoE) Settings
Username
Password
Static IP
Connection Mode
Always Online

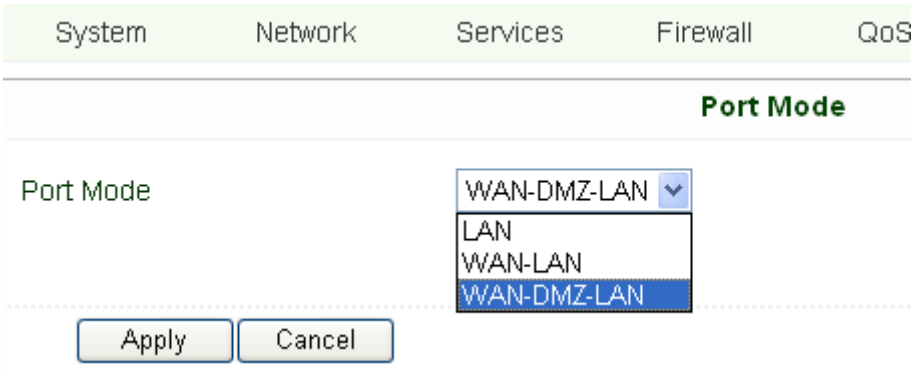


4.4.7 DMZ Port (R2x4 only)



This page allows user to set up dedicated DMZ Port.

4.4.8 Port Mode (R2x4 only)

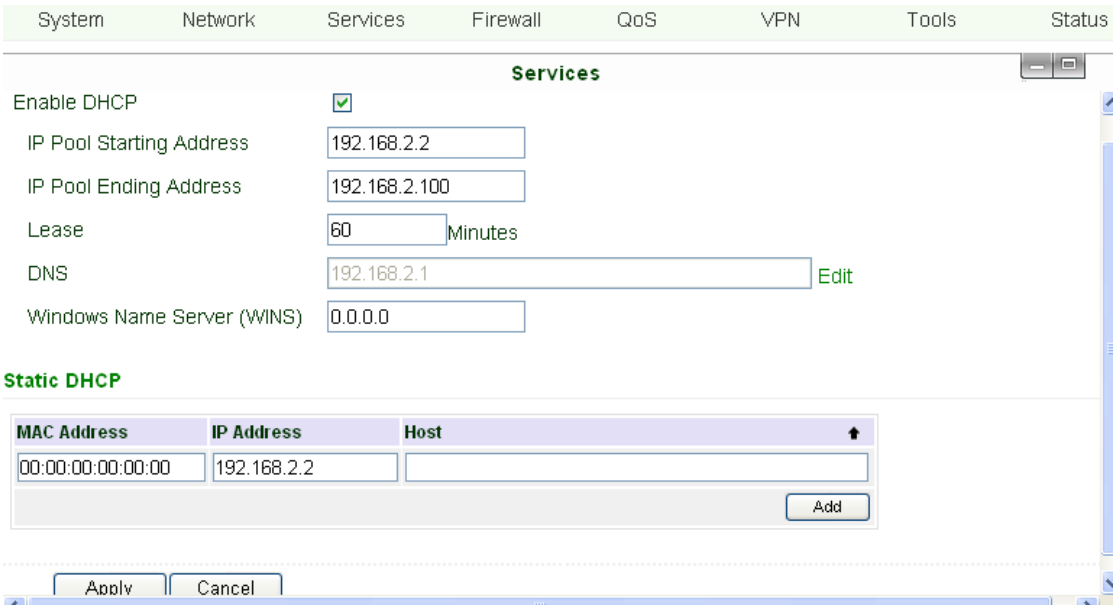


This page allows user to set port mode, user could set 4 Ethernet ports as 4 LAN ports, or 1 WAN port 3 LAN ports, or 1 WAN port, 1 DMZ port and 2 LAN ports.

4.5 Service

The Services tab includes 5 configuration items: DHCP Service, DNS Relay, VRRP, Device Manager, and DTU settings.

4.5.1 Services -> DHCP Service

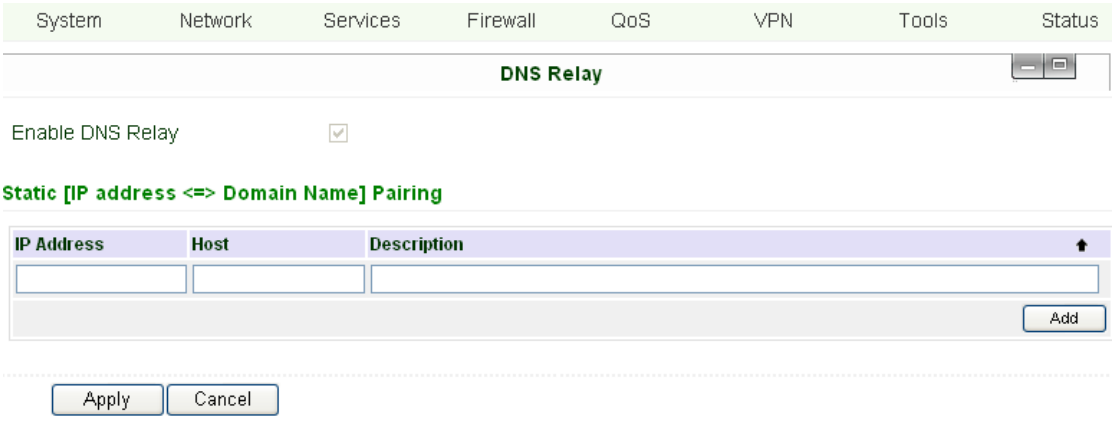


This page allows user to configure the DHCP service, including setting the starting and ending address of IP pool, setting static DHCP, etc.

DHCP Service		
Overall description: user need to enable DHCP when your hosts connected to the router use automatically acquired IP addresses. And with Static DHCP, a host can acquire a permanent IP addresses from the DHCP server.		
Item	**Description**	**Default Value**
Enable DHCP	Select to enable DHCP service to acquire IP addresses automatically allocated.	Enabled
IP Pool Starting Address	Enter the starting address of IP pool for dynamic allocation.	192.168.2.2
IP Pool Ending Address	Enter the ending address of IP pool for dynamic	192.168.2.100

	allocation.	
Lease	Enter the lease valid period of the dynamically allocated IP address.	60 Minutes
DNS	Edit the IP address of DNS server.	192.168.2.1
Windows Name Server (WINS)	Enter the IP address of Windows Name Server.	0.0.0.0
Static DHCP (May set up to 20 Static DHCP designations.)		
MAC Address	Enter the MAC address of a host for Static DHCP designation. (Note: MAC addresses should be unique, to avoid conflict with each other.)	Blank
IP Address	Enter the permanent IP address designated for the MAC address.	192.168.2.2
Host	Enter a name for the host.	Blank

4.5.2 Services -> DNS Relay



This page allows user to configure the DNS Relay service, designate IP address and domain name bundles, etc.

DNS Relay		
Overall description: user need to enable this service if your hosts connected to the router are using automatically acquired DNS server.		
Item	**Description**	**Default Value**
Enable DNS Relay	Select to enable DNS relay service.	Enabled. (DNS Relay is automatically enabled when DHCP service is enabled.)
Static [IP address <=>Domain name] Pairing (May set up to 20 IP address<=>Domain name pairs.)		
IP Address	Enter the IP address of the IP address <=>Domain name pair.	Blank
Host	Enter the domain name of the IP address <=>Domain name pair.	Blank

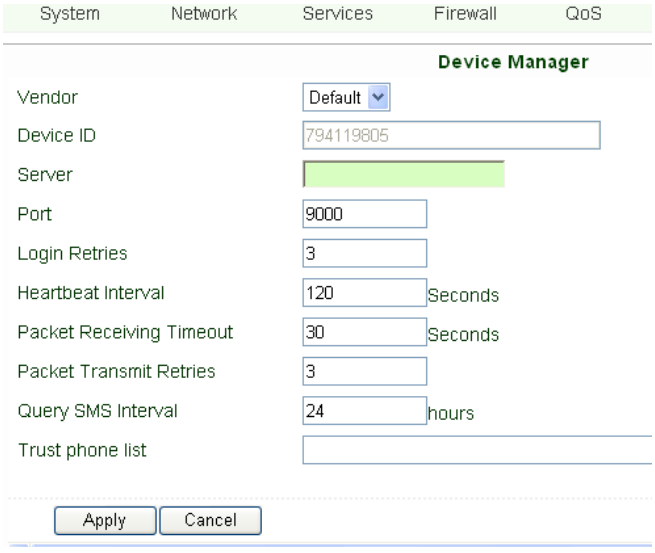
Description	Write down the description of the IP address <=>Domain name pair for future reference.	Blank

4.5.3 Services -> VRRP

This page is to configure VRRP function.

VRRP		
Overall description: to configure VRRP.		
Item	**Description**	**Default Value**
Enable	Select to enable VRRP	Disabled
Group ID	Select a Group ID 1-255 to label router group.	1
Priority	Set a priority level within 1-254.	10 (The larger number, the higher priority.)
Advertisement Interval	Set the advertisement interval.	60 seconds
Virtual IP	Set a virtual IP	Blank
Authentication Type	Select none to bypass or password authentication.	None (Enter the password if choose Password Authentication.)

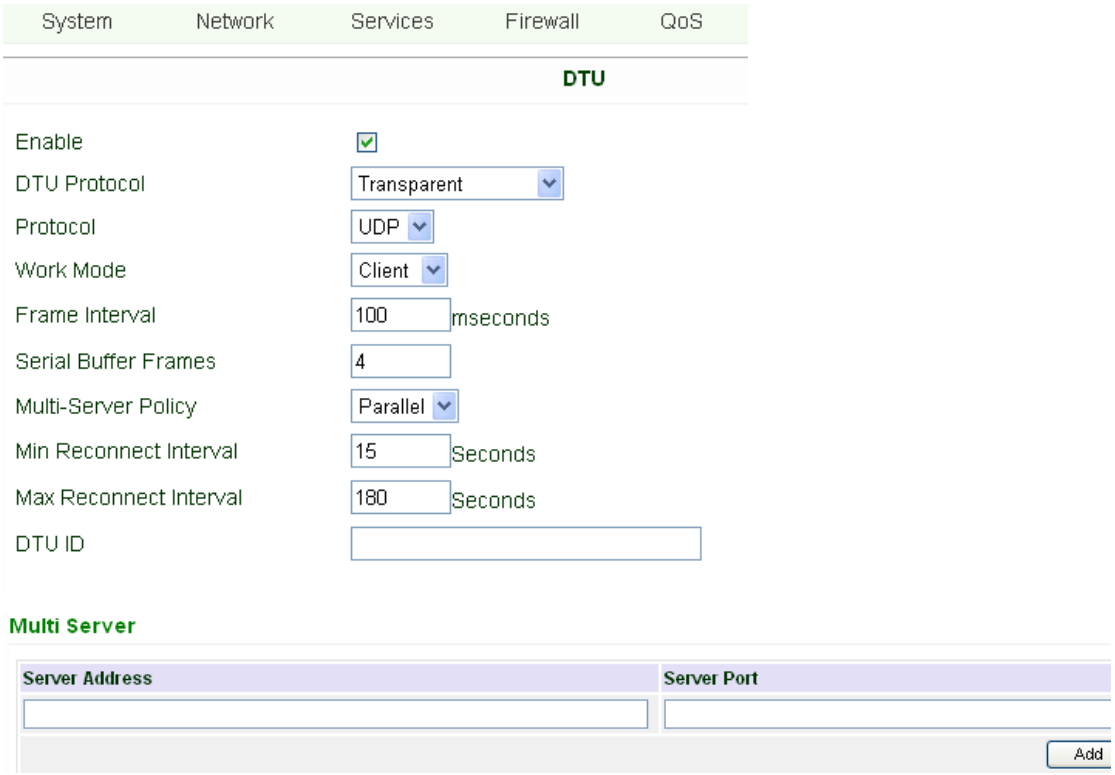
4.5.4 Services -> Device Manager



This page allows user to configure the Device Manager service, including setting the vendor, device ID, and Device Manager server address.

Device Manager		
Overall description: Device Manager client end connects to remote Device Manager server, for users to manage the router and devices connected to the router remotely.		
Item	**Description**	**Default Value**
Enable	Select to enable Device Manager service.	Disabled.
Vendor	Choose Vendor.	Default
Device ID	Enter the device ID to label the device.	Serial number of R200
Server	Enter the address of the Device Manager service.	Blank
Port	Enter the port of the Device Manager service.	9010
Login Retries	Set the number of times to retry for login failure.	3
Heartbeat Interval	Set time length for heartbeat interval.	120
Packet Receiving Timeout	Set time length for data packet receiving timeout.	Blank
Packet Transmit Retries	Set number of times to retry when data packet receiving fails.	Blank
Query SMS Interval	Query SMS interval	24
Trust Phone List	Trust mobile phone list	Blank

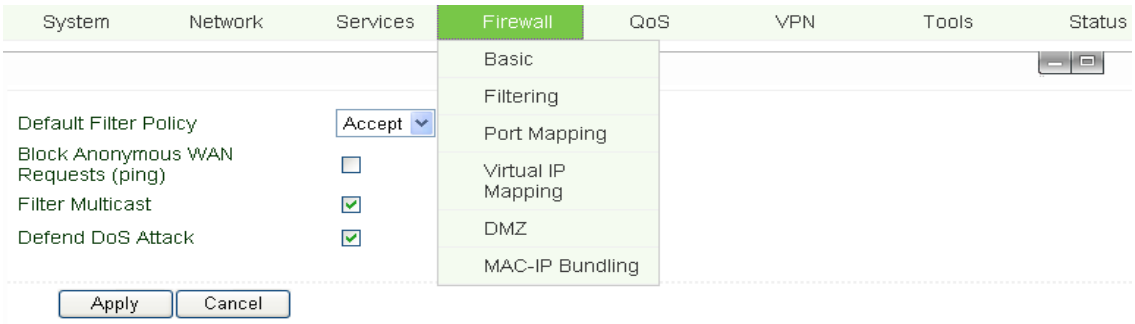
4.5.5 Services -> DTU



This page is to configure the DTU function, including selecting the protocol, work mode, and setting DTU server, etc.

DTU		
Overall description: to realize common DTU functions.		
Item	**Description**	**Default Value**
Enable	Select to enable DTU function.	Disabled.
DTU Protocol	Select Transparent, DC, Modbus-Net-Bridge or Virtual-Serial	Transparent
Protocol	Select UDP or TCP protocol.	UDP protocol
Work Mode	Select client end or server end.	Client
Frame Interval	Frames interval	100mseconds
Serial Buffer Frames	Serial port buffer frames	4 Kbytes
Multi-Server Policy	Select the multi-server policy from Parallel or Poll	Parallel
Min Reconnect Interval	Minimum reconnect interval	15
Max Reconnect Interval	Maximum reconnect interval	180
DTU ID	Enter the ID of DTU.	Blank

4.6 Firewall



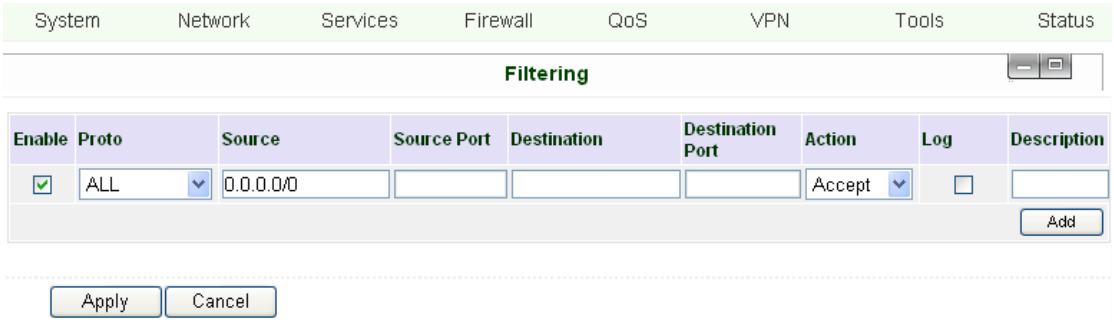
The Firewall configurations include Basic, Filtering, Port Mapping, Virtual IP Mapping, DMZ, and MAC-IP Bundling.

4.6.1 Firewall -> Basic

This page allows user to configure the basic settings of Firewall, including firewall policy, Ping filtering, and multicast filtering, etc.

Firewall – Basic		
Overall description: set the basic rules of firewall.		
Item	**Description**	**Default Value**
Default Filter Policy	Select Accept or Block.	Accept
Block Anonymous WAN Requests	Select to filter PING requests.	Not enabled
Filter Multicast	Select to enable the Filter Multicast function.	Enabled
Defend DoS Attack	Select to enable Defend DoS Attack.	Enabled

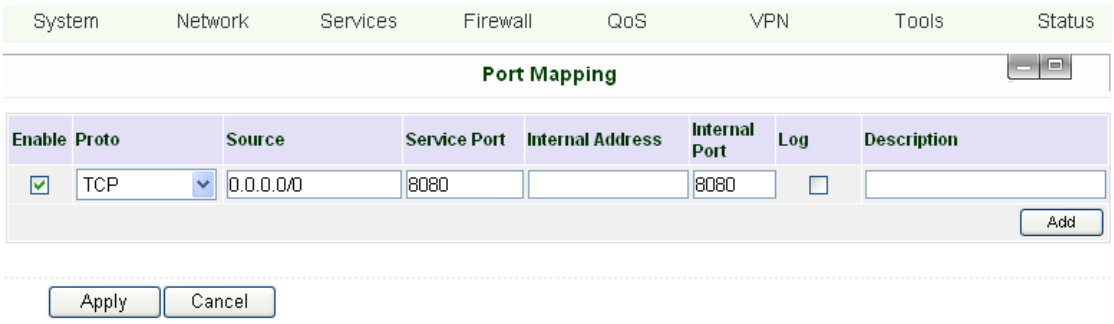
4.6.2 Firewall -> Filtering



This page is to configure access filters with parameters like protocol type, source address, etc.

Filtering (May set up to 50 filters.)		
Overall description: filter data packets passing through the router according to their protocol, source/destination addresses and ports, to provide a safe intranet environment.		
Item	**Description**	**Default Value**
Enable	Select to enable the filter.	Blank
Proto	Select TCP/UDP/ICMP/All.	All
Source	Enter source address for the filter.	Blank
Source Port	Enter source port for the filter.	Blank
Destination	Enter destination address for the filter.	Blank
Destination Port	Enter destination port for the filter.	Blank
Action	Select Accept or Block.	Accept
Log	Select to enable, so system will make the log of filtering.	Disabled
Description	Write down descriptions of the filtering parameters for future reference.	Blank

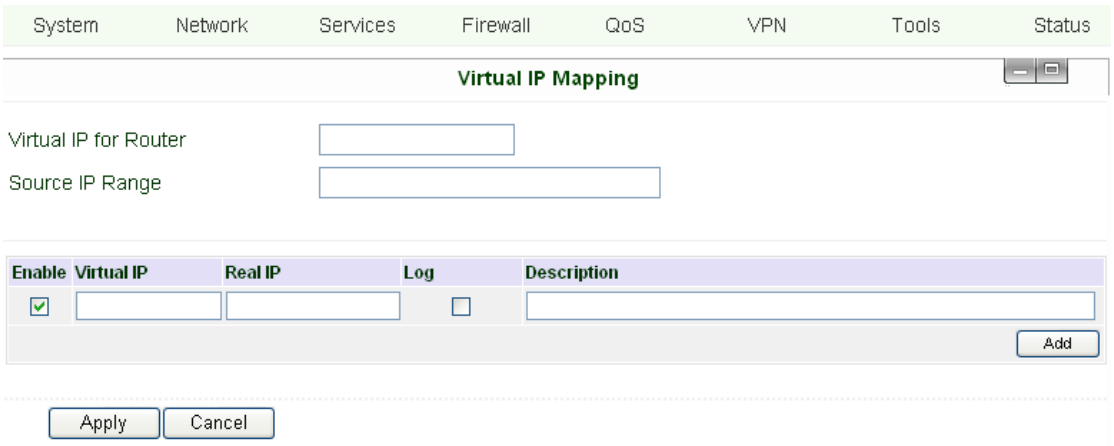
4.6.3 Firewall -> Port Mapping



This page allows user to set up portmaps, entering the source and internal address and port to map each other.

Port Mapping (May set up to 50 rules.)		
Overall description: also called Virtual Server. With portmaps set, an external host will be able to access a designated port on the internal host of designated IP.		
Item	**Description**	**Default Value**
Enable	Select to enable portmap.	Disabled.
Source	Enter the source IP address of the portmap.	0.0.0.0/0
Service Port	Enter the service port of the portmap.	8080
Internal Address	Enter the internal IP address of the portmap.	Blank
Internal Port	Enter the internal port of the portmap.	8080
Log	Select to enable system to log portmap activities.	Not enabled
Description	Write down descriptions of each portmap settings for future reference.	Blank

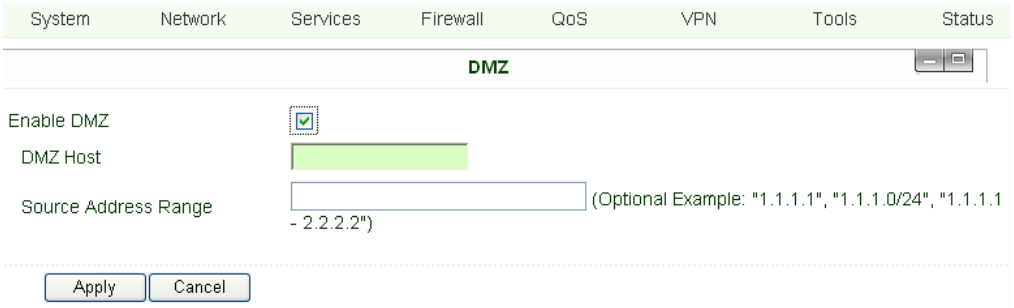
4.6.4 Firewall -> Virtual IP Mapping



This page allows user to set up virtual IP mapping, by entering the router's virtual IP, the range of source IP, etc.

Virtual IP Mapping (May set up to 50 virtual IP mappings.)		
Overall descripton: map the IP addresses of the router and internal hosts to their virtual IP addresses respectively. Without changing IP allocation of intranet, hosts from extranet can access internal hosts by their virtual IPs. This function is often used together with VPN.		
Item	**Description**	**Default Value**
Virtual IP for Router	Enter the virtual IP address for the router.	Blank
Source IP Range	Enter the range of source IP address.	Blank
Virtual IP	Enter the virtual IP.	Blank
Real IP	Enter the real IP corresponding to the virtual IP.	Blank
Log	Select to enable system to log virtual IP mapping activities.	Disabled
Description	Write down descriptions of each virtual IP mapping settings for future reference.	Blank

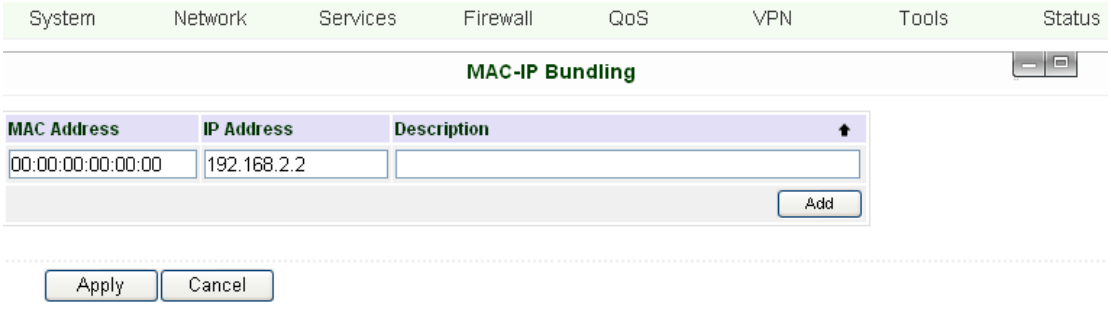
4.6.5 Firewall -> DMZ



This page allows user to set up a DMZ host and the source IP address restriction rules.

DMZ		
Overall description: setting a DMZ will provide more safety to your intranet.		
Item	**Description**	**Default Value**
Enable DMZ	Select to enable DMZ.	Disabled
DMZ Host	Enter the address of the DMZ host.	Blank
Source Address Restriction	Set restriction rules of source addresses. (Optional)	Blank

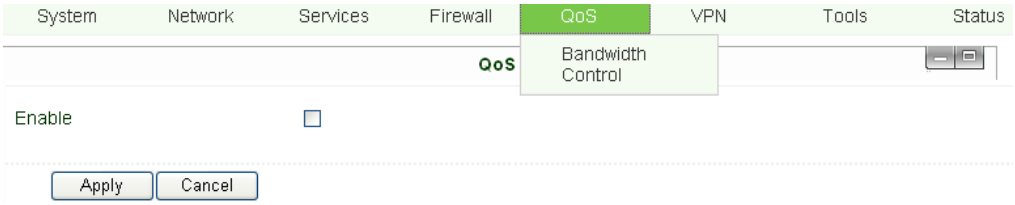
4.6.6 Firewall -> MAC-IP Bundling



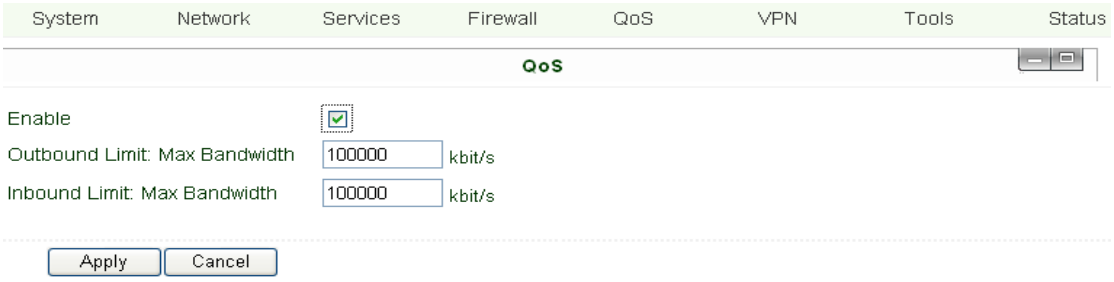
This page allows user to set up MAC-IP bundles.

MAC-IP Bundling (May set up to 20 MAC-IP bundles.)		
Overall description: when the firewall default policy in basic settings is set as 'Block', only devices set in MAC-IP Bundling list can access the Internet.		
Item	**Description**	**Default Value**
MAC Address	Enter the MAC address of the device.	Blank
IP Address	Enter the IP address to be bundled with the MAC address.	192.168.2.2
Description	Write down descriptions of each MAC-IP bundle settings for future reference.	Blank

4.7 QOS



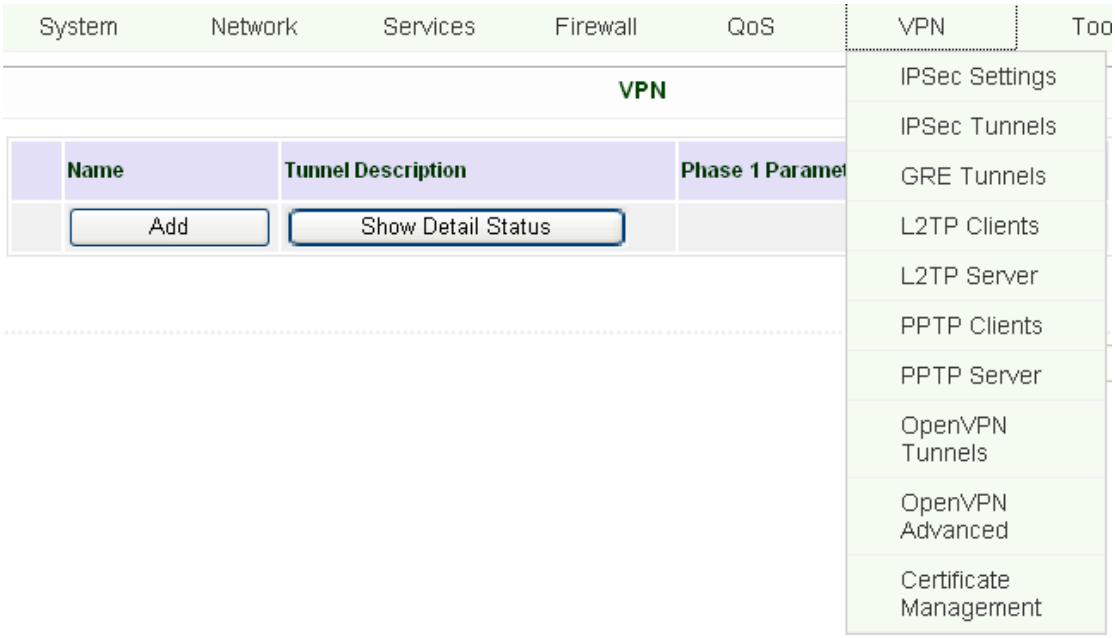
Under the QoS tab, there is simply the Basic Settings of QoS.



On this page, user can set the basic parameters for flow control, including the outbound and inbound bandwidth limits.

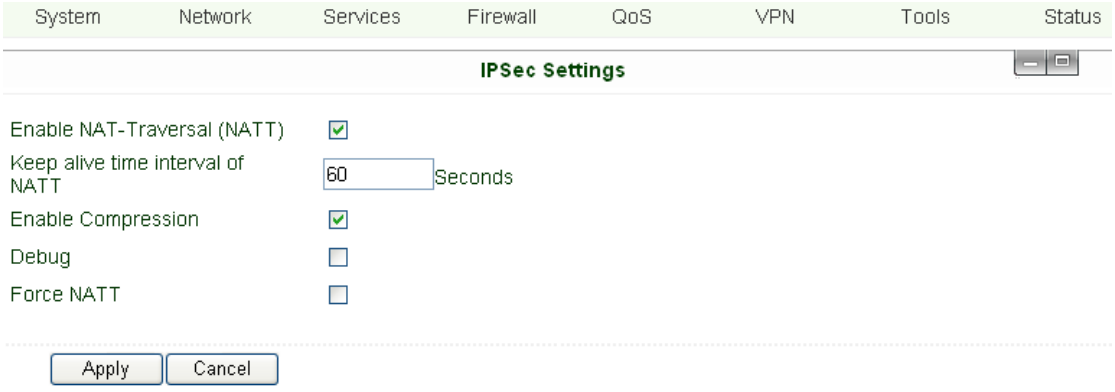
QoS		
Overall description: control flow amount by setting bandwidth limits of Internet access.		
Item	**Description**	**Default Value**
Enable	Select to enable flow control.	Disabled
Outbound Limit: Max Bandwidth	Set the maximum limit for outbound bandwidth.	100000kbit/s
Inbound Limit: Max Bandwidth	Set the maximum limit for inbound bandwidth.	100000kbit/s

4.8 VPN



We will introduce IPSEC client only in this part, for further PPTP, L2TP, GRE, OpenVPN and CA certificate technical support, please contact with us.

4.8.1 VPN -> IPSEC Basic Setting

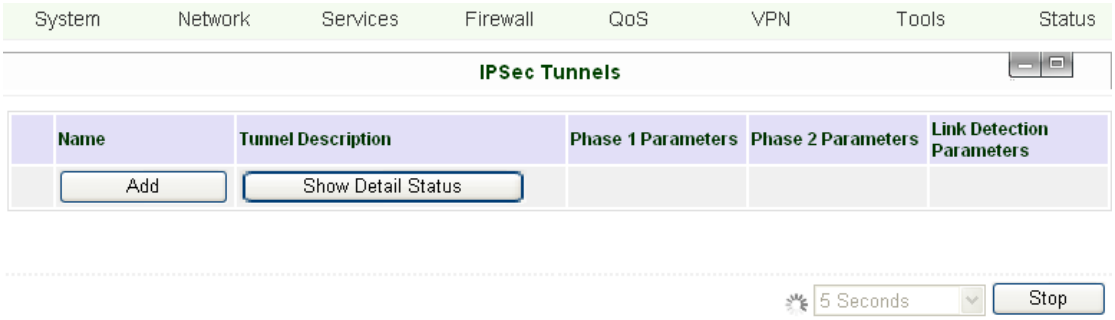


This page allows user to configure the basic parameters of IPSec VPN, including NAT Traversal, data Compression, Debug, etc.

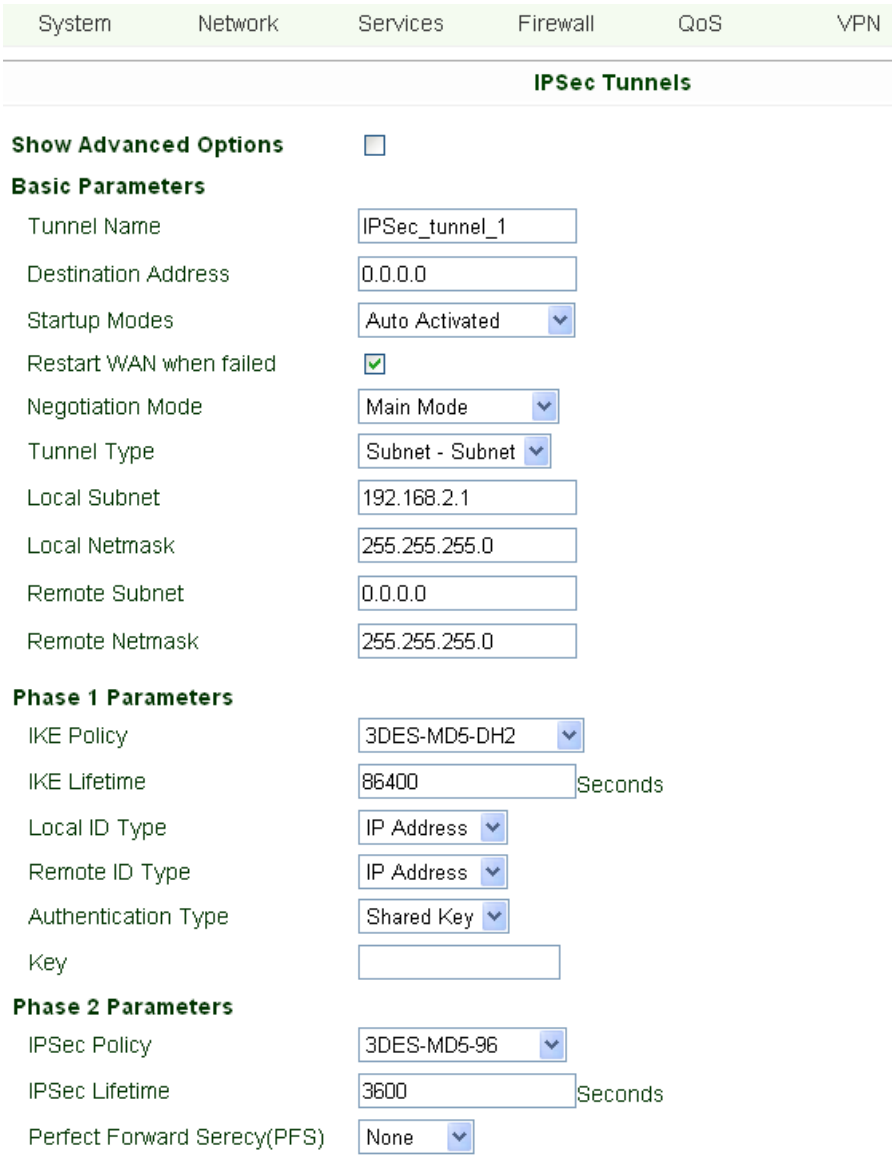
IPSec VPN Basic Settings		
Overall description: 1. Select whether to enable NATT, this is usually set as enabled unless it's confirmed there is no NAT router in the network. To maintain the connection of VPN tunnel, you also need to set an appropriate length of NATT interval. 2. Select whether to enable data compression and debug mode.		
Item	**Description**	**Default Value**
Enable NAT-Traversal (NATT)	Select to enable NAT-Traversal (NATT).	Enabled
Keep Alive Time Interval of NATT	Set the time length of interval to keep NAT-Traversal alive	60 Seconds

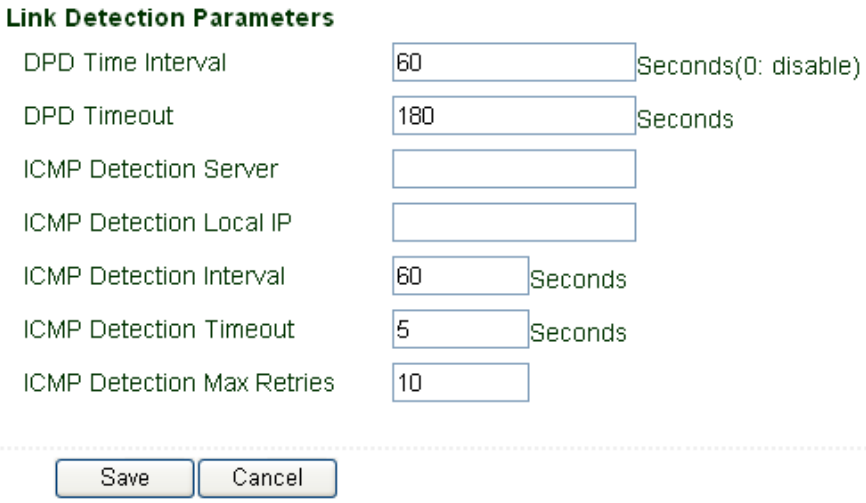
Enable Compression	Select to enable data compression.	Enabled
Debug	Select to enable debug mode.	Disabled

4.8.2 VPN -> IPSEC Tunnels



Click “Add” to go to the “Edit IPSec Tunnel” page.



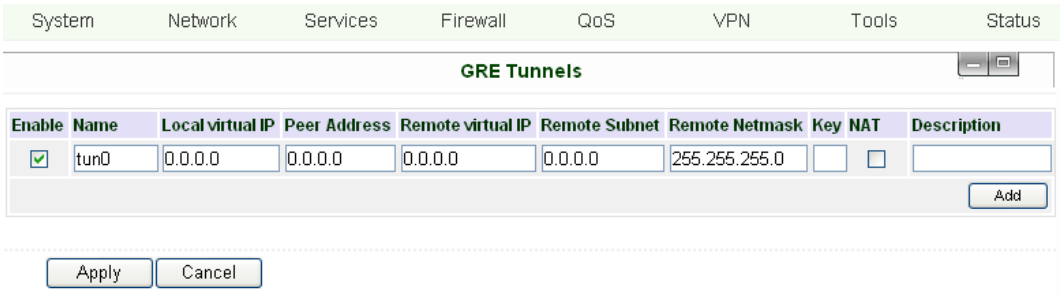


This page is to configure the IPSec tunnel parameters, including basic parameters, Phase I parameters, Phase II parameters, etc.

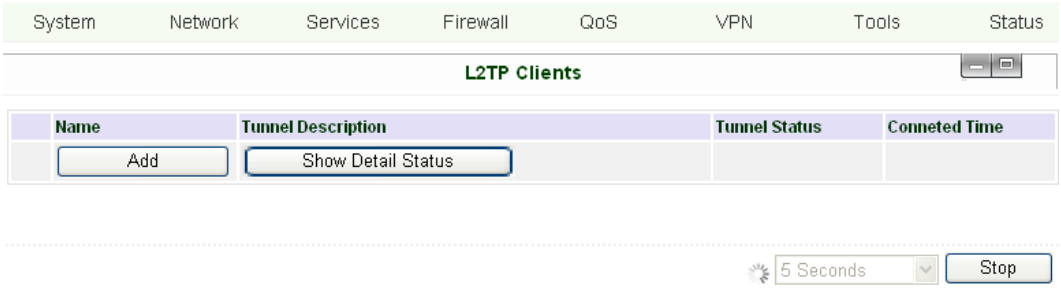
IPSec Tunnel		
Overall description: configure IPSec tunnel.		
Item	**Description**	**Default Value**
Show Advanced Options	Select the box to have advanced options shown.	Disabled
Basic Parameters		
Tunnel Name	Give a name for the tunnel.	IPSec_tunnel_1
Destination Address	Enter the IP/domain name of the opposite end of VPN.	Blank
Startup Modes	Select from: Auto Activation, Data Triggering, Passive, and Manual Activation	Auto Activation
Negotiation Mode	Select Main mode or Aggressive mode.	Main mode Remarks: Generally, you should select Main mode here.
IPSec Protocol (Advanced Option)	Select ESP or AH protocol.	ESP
IPSec Mode (Advanced Option)	Select Tunnel Mode or Transport Mode.	Tunnel Mode
Tunnel Type	Select from 4 types: Host-Host, Host-Subnet, Subnet-Host, Subnet-Subnet.	Subnet – Subnet
Local Subnet	Set the local IPSec protection subnet.	192.168.2.1
Local Netmask	Set the netmask of the local IPSec protection subnet.	255.255.255.0
Remote Subnet	Set the protection subnet on the opposite end of IPSec.	Blank
Remote Netmask	Set the netmask of the protection subnet on the	255.255.255.0

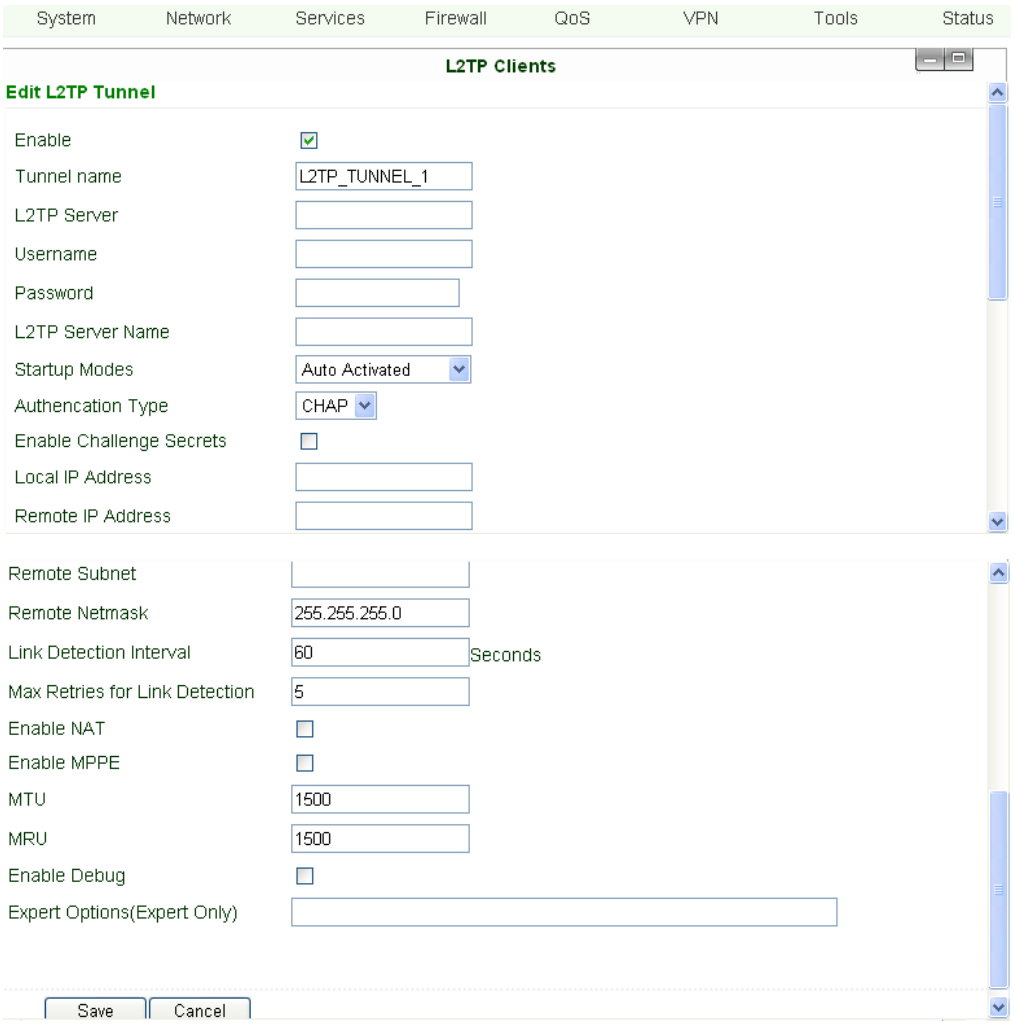
	opposite end of IPSec.	
Phase I Parameters		
IKE Policy	Select 3DES-MD5-96 or AES-MD5-96.	3DES-MD5-96
IKE Lifetime	Set the lifetime of IKE.	86400 Seconds
Local ID Type	Select from FQDN, USERFQDN, and IP Address.	IP Address
Local ID (Applicable only for FQDN and USERFQDN IDs)	Enter the ID according to selected ID type.	Blank
Remote ID Type	Select from FQDN, USERFQDN, and IP Address.	IP Address
Remote ID Applicable only for FQDN and USERFQDN IDs)	Enter the ID according to selected ID type.	Blank
Authentication Type	Select Share Key or Certificate.	Shared Key
Key (Displayed when Authentication Type is set as 'Shared Key'）	Set up the shared key of IPSec VPN.	Blank
Phase 2 Parameters		
IPSec Policy	Select 3DES-MD5-96 or AES-MD5-96.	3DES-MD5-96
IPSec Lifetime	Set the lifetime of IKE.	3600 Seconds
Perfect Forward Serecy (PFS) (Advanced Option)	Select from None, GROUP1, GROUP2, and GROUP5.	None (This setting should match with the server end.)
Link Detection Parameters (Advanced Options)		
DPD Time Interval	Set the interval length of DPD.	60 Seconds
DPD Timeout	Set the timeout length of DPD.	180 Seconds
ICMP Detection Server	Enter the address of ICMP detection server.	Blank
ICMP Detection Interval	Set the interval length of ICMP detection.	30 Seconds
ICMP Detection Timeout	Set the timeout length of ICMP detection.	5 Seconds
ICMP Detection Retries	Set the maximum times of retries in case of ICMP detection failure.	3

4.8.3 VPN -> GRE Tunnels

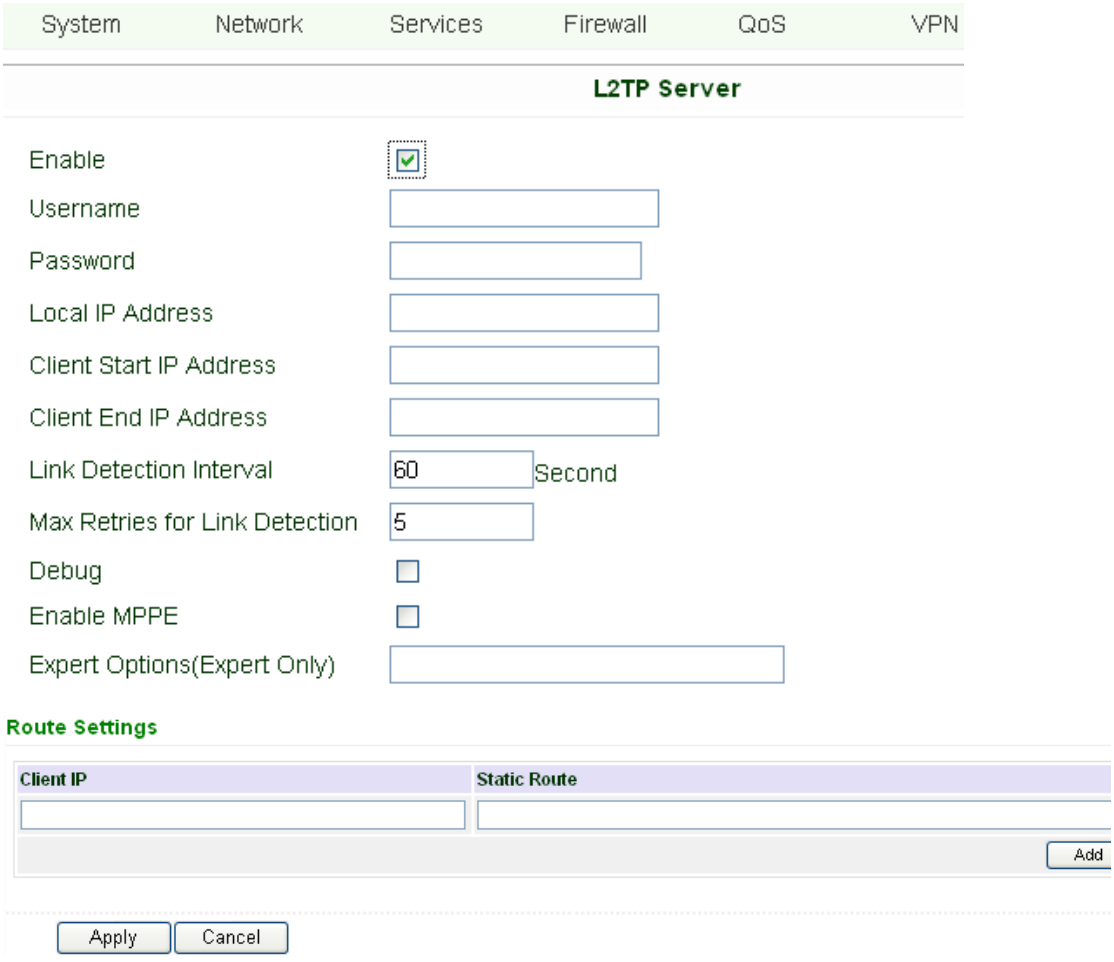


4.8.4 VPN -> L2TP Clients

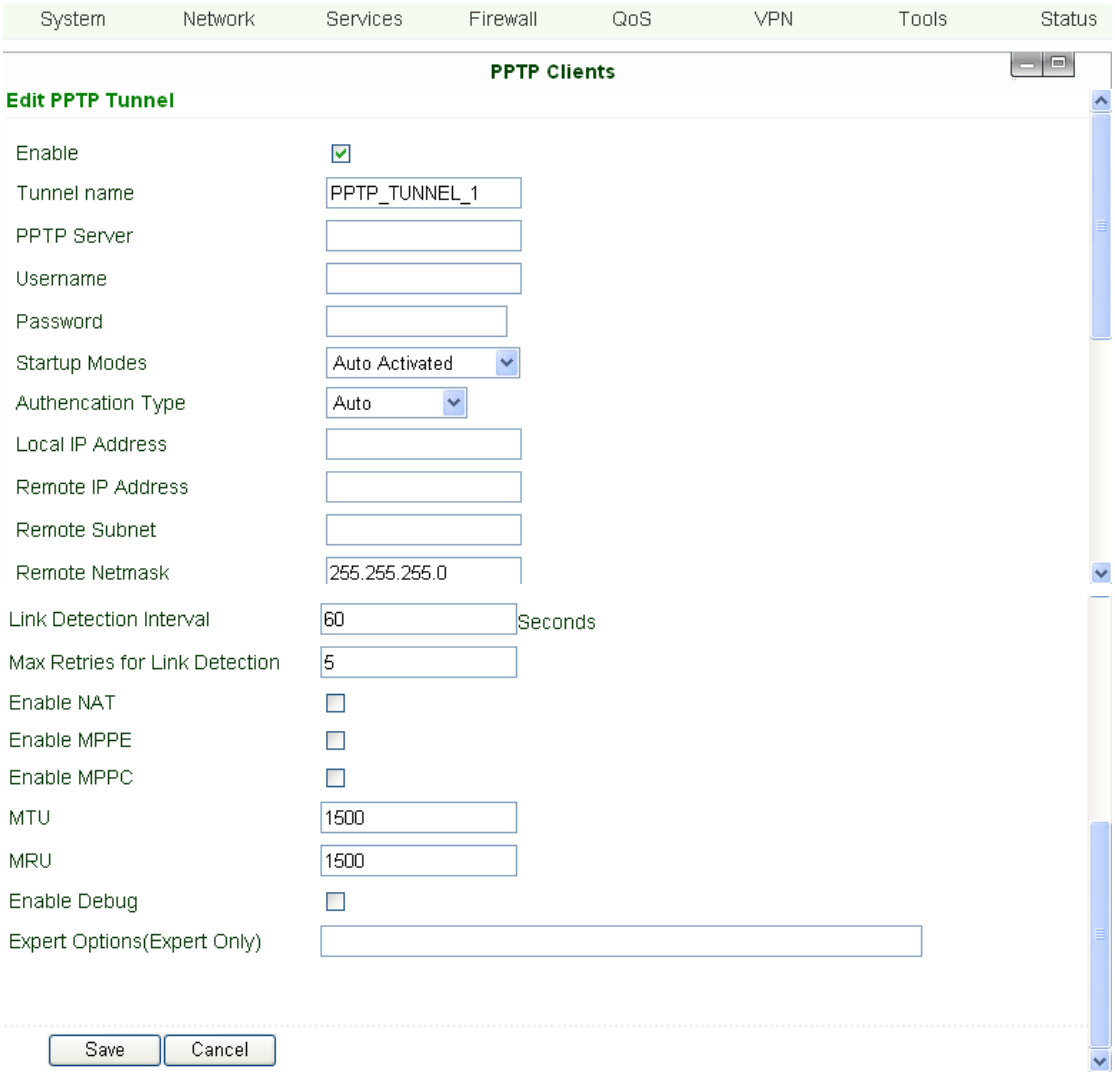




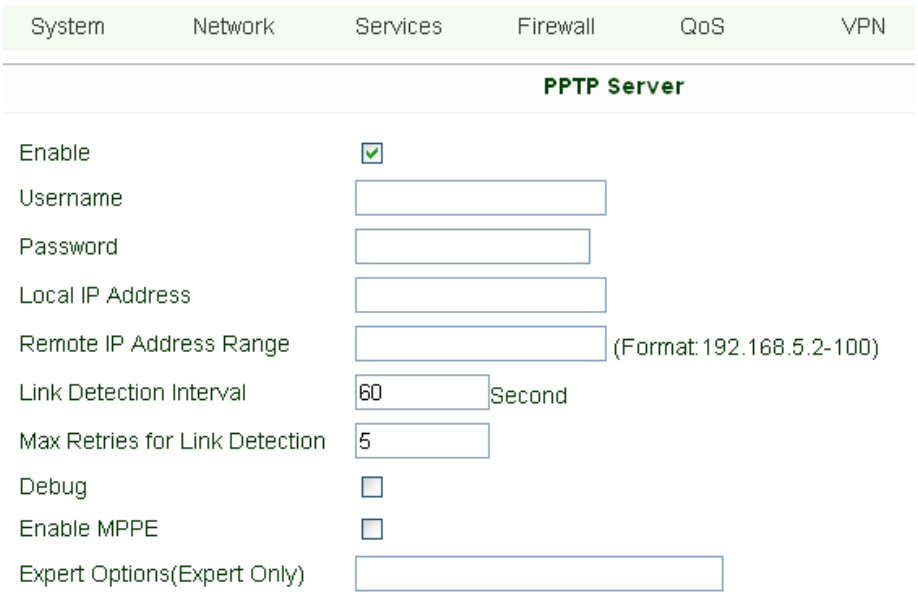
4.8.6 VPN -> L2TP Server

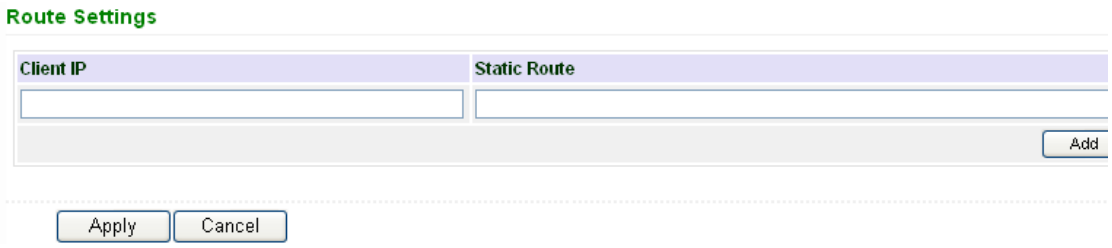


4.8.7 VPN -> PPTP Clients

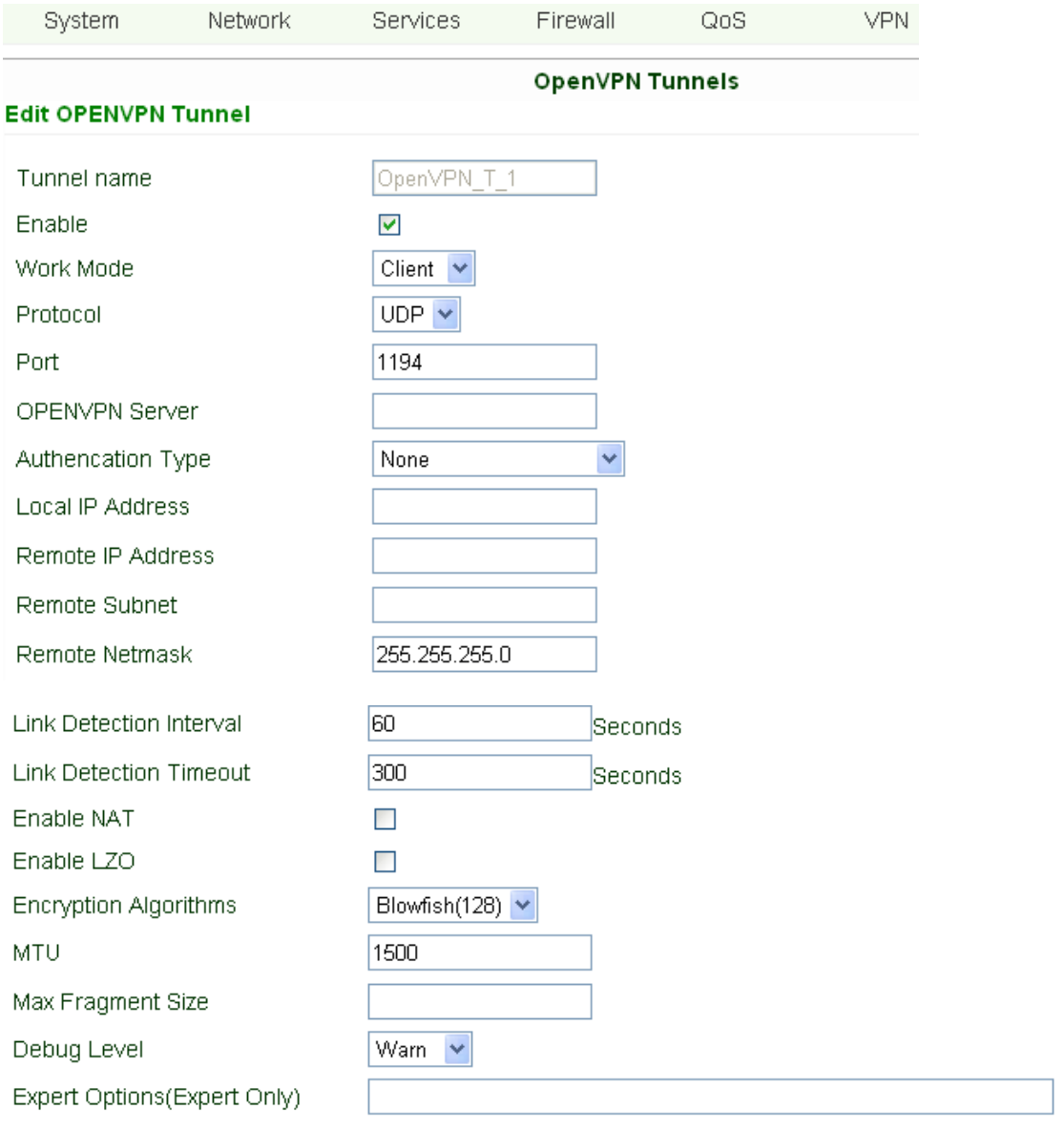


4.8.8 VPN -> PPTP Server

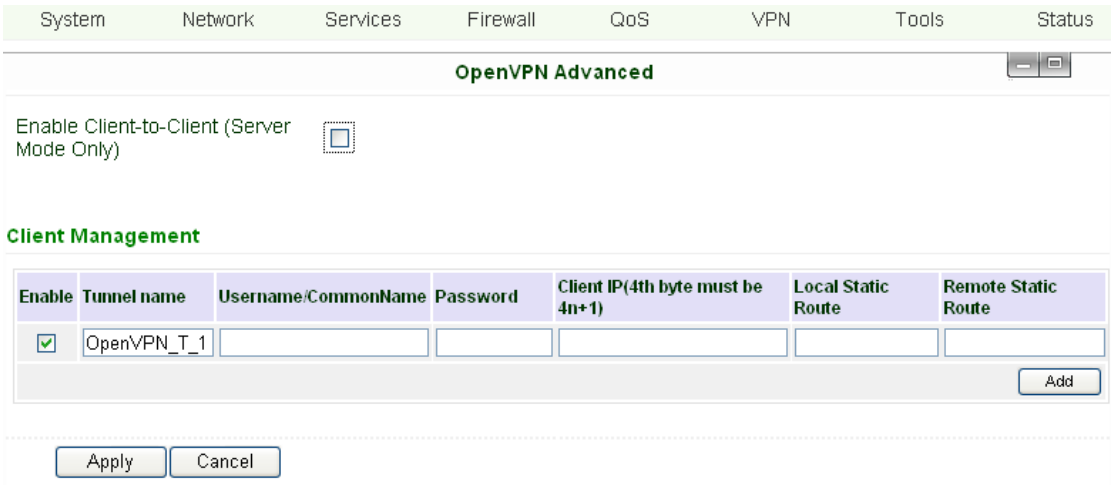




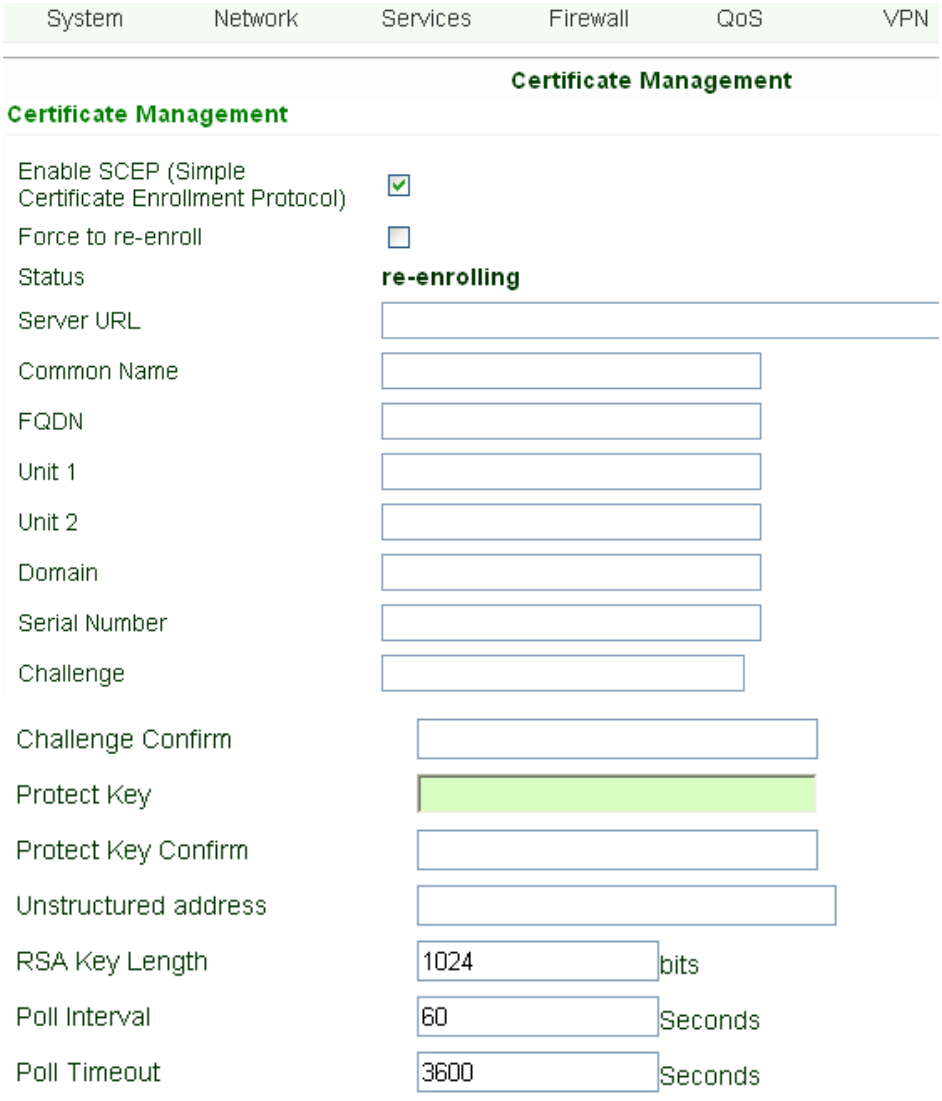
4.8.9 VPN -> OpenVPN Tunnels

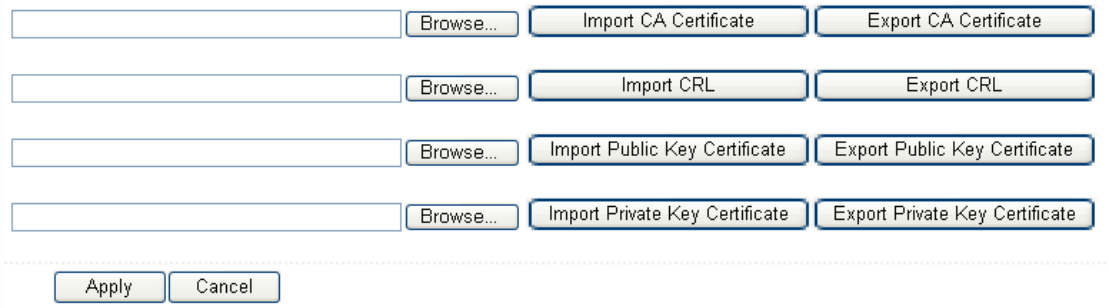


4.8.10 VPN -> OpenVPN Advanced

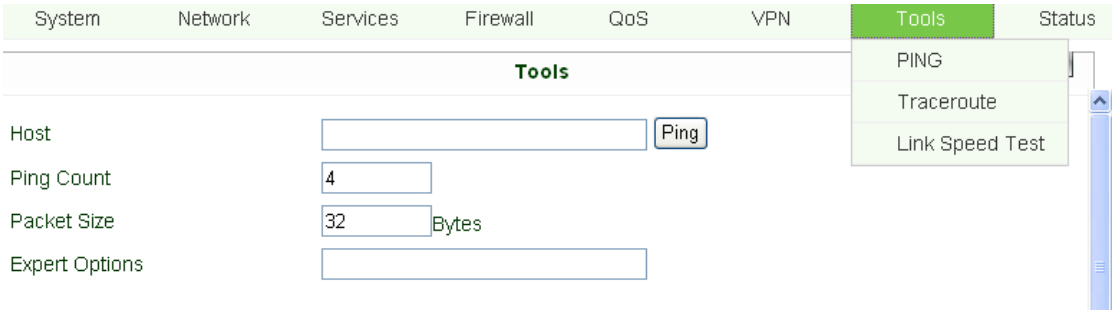


4.8.10 VPN -> Certificate Management



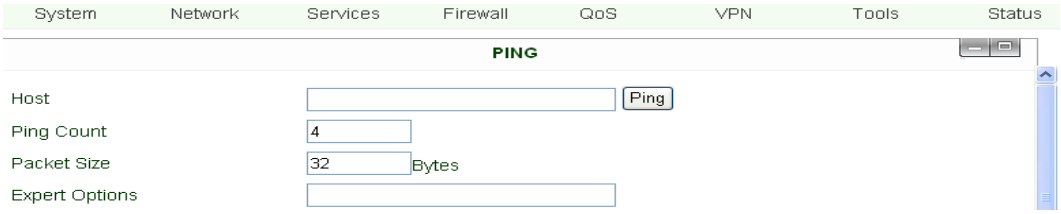


4.9 Tools



Tools tab include 3 groups of configurations: PING, Traceroute and Link Speed Test.

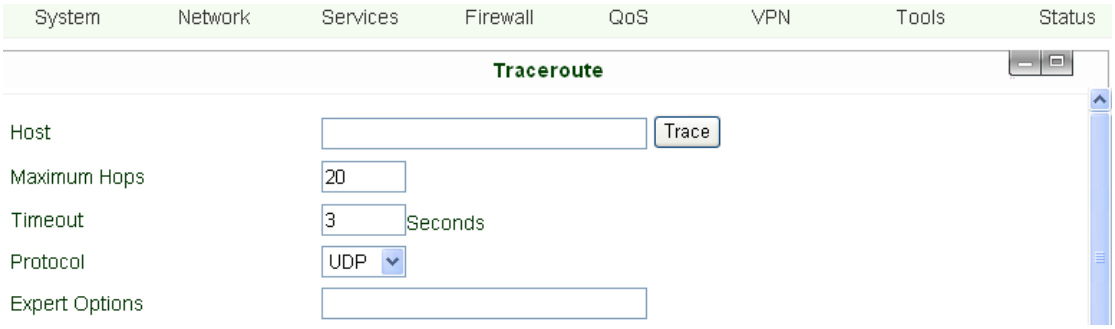
4.9.1 Tools -> PING



This page provides the Ping tool: enter host, count and packet size, Ping the host to test the connection.

PING		
Overall description: a tool to Ping from the router to extranet.		
Item	**Description**	**Default Value**
Host	Enter the address of the host to Ping.	Blank
Ping Count	Enter the count (i.e. times) to PING.	4
Packet Size	Set the packet size of PING.	32 Bytes
Expert Options	To enter advanced settings of Ping.	Blank

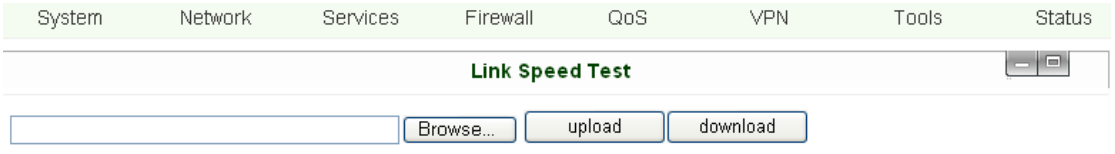
4.9.2 Tools -> Traceroute



On this page, user can enter a host address and related settings to check the route directing to this host.

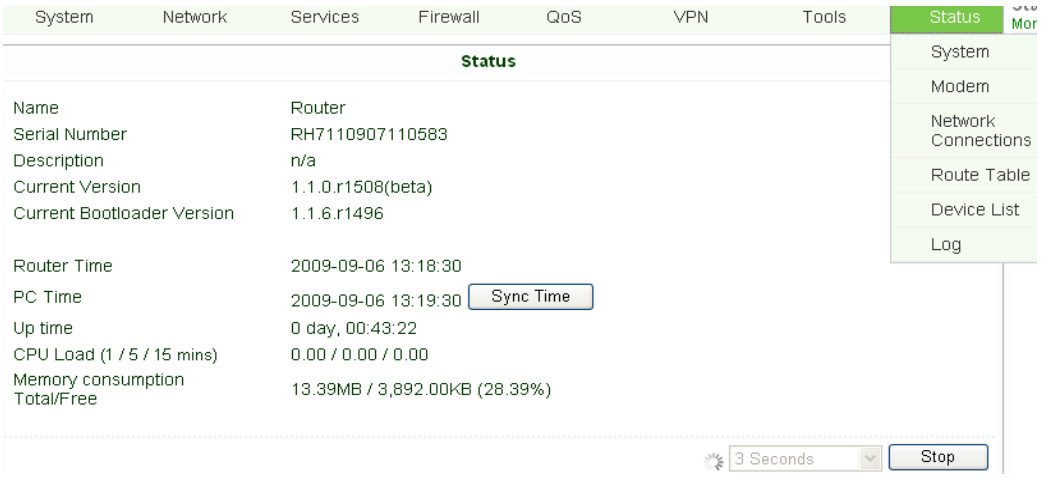
Traceroute		
Overall description: to trace routing problems in the network.		
Item	**Description**	**Default Value**
Host	Enter the destination host address for the tracing.	Blank
Maximum Hops	Set maximum hops for the tracing.	20
Timeout	Set the timeout length for the tracing.	3 Seconds
Protocol	Select ICMP or UDP.	UDP
Expert Options	To enter advanced settings for the tracing.	Blank

4.9.3 Tools -> Link Speed Test



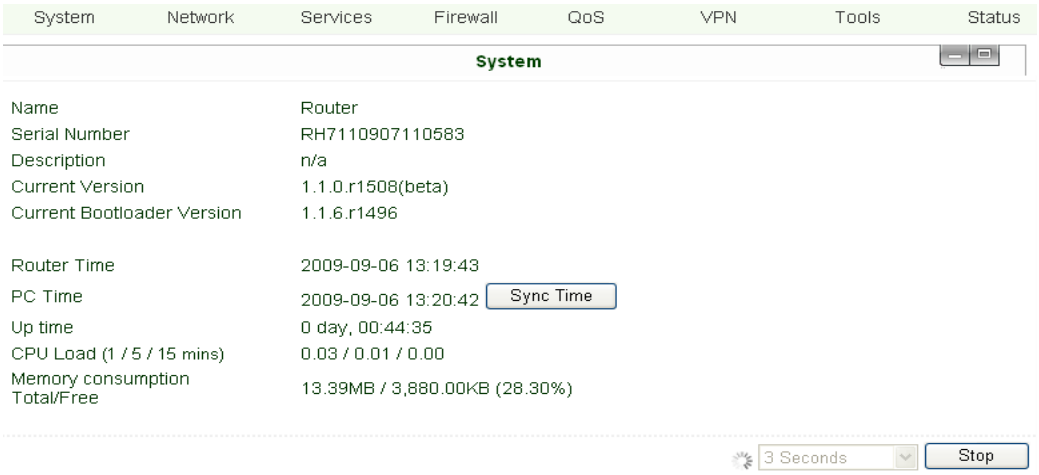
On this page, user can test upload and download link speed.

4.10 Status



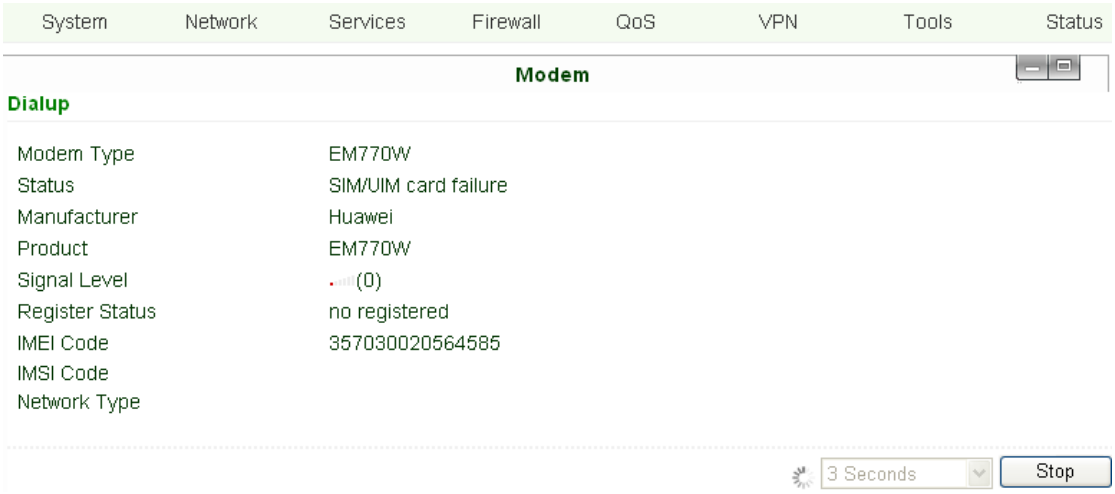
Under Status tab are 6 groups of configurations: System, Modem, Network Connections, Route Table, Device List, and Log.

4.10.1 Status -> System



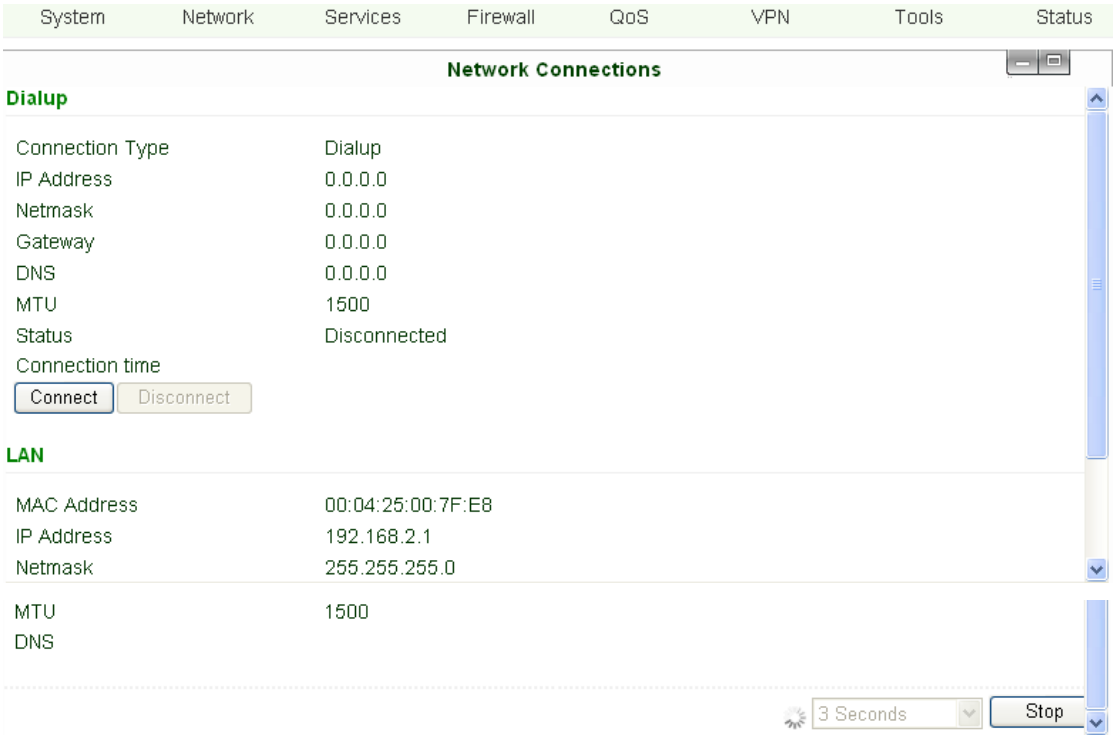
This page shows basic information of the system status: name, model, version, router time, PC time (- click “Sync Time” to have the router’s time sync with PC), up time, CPU load, and memory consumption status.

4.10.2 Status -> Modem



This page allows user to check real-time status of the built-in Cellular Module (**R2xxHHW or R2xxGC only**) or 3G USB modem (**R2xxUU only**).

4.10.3 Status -> Network Connections



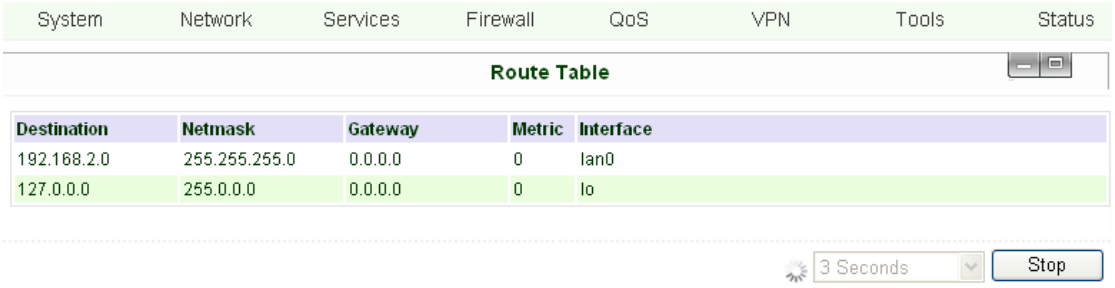
This page displays the connection status of WAN, Dialup, and LAN ports.

The WAN connection part displays the MAC address, connection type, IP address, netmask, gateway, DNS, MTU, status, and connection time. With DHCP dynamic allocation, you may apply to renew or release the lease.

The Dialup connection part displays the connection type, IP address, netmask, gateway, DNS, MTU, status, and connection time. And you may connect/disconnect the link by clicking the corresponding buttons.

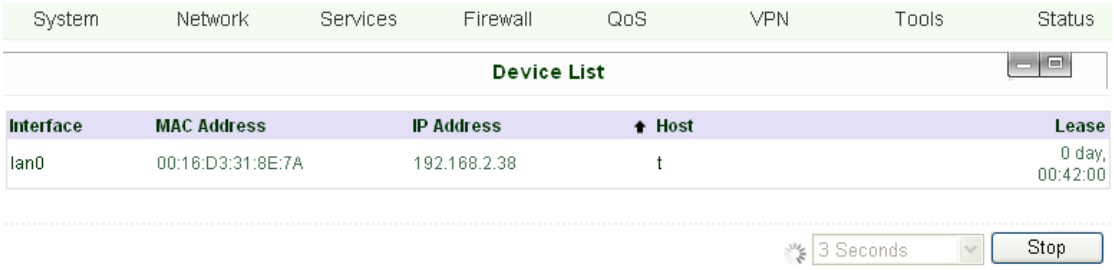
The LAN connection part displays the MAC address, IP address, netmask, MTU, and DNS.

4.10.4 Status -> Route Table



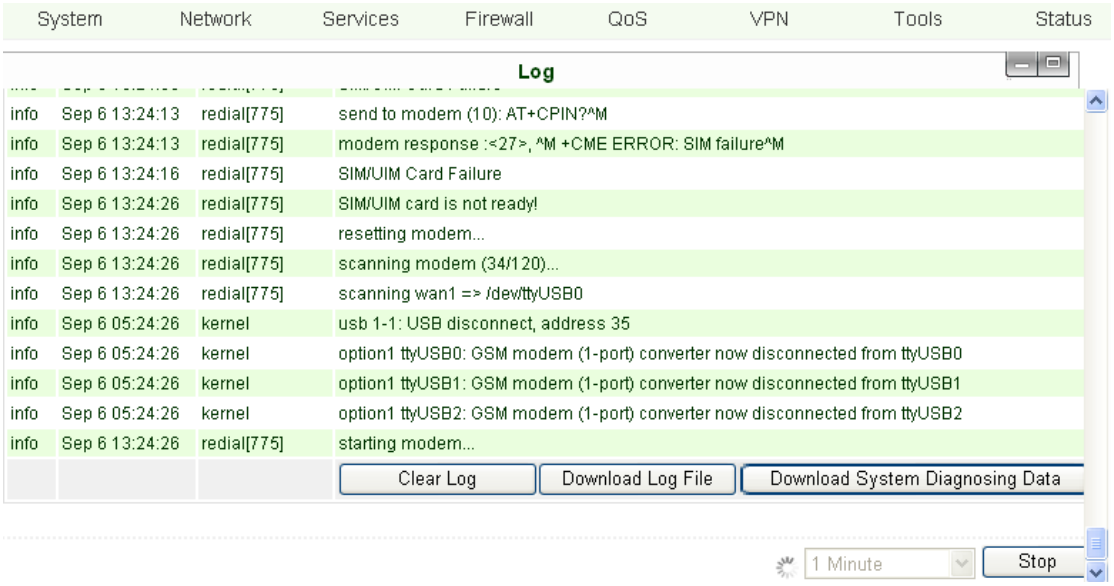
This page displays the current route table, including the destination, netmask, gateway, metric, and interface of the routes.

4.10.5 Status -> Device List



Device List is shown on this page, the device information include the interface, MAC address, IP address, host, and lease.

4.10.6 Status -> Log



This page lets user review the system logs. user may select to view 20/50/…/all recent lines of the log, or have the logs ranked by information Level (Info/Debug/Alert), Time, Module, or Content.

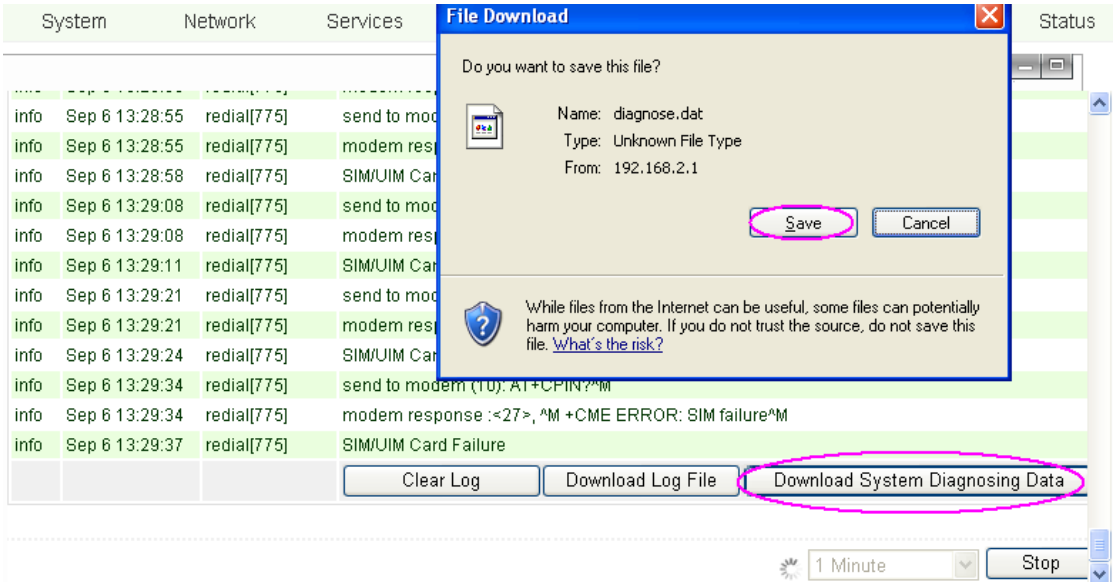
user may clear logs, download log file, or download System Diagnosing Data with the buttons on the page bottom. The default refreshing rate of this page is every 1 minute, which user may change by stopping the refreshing and select a desired rate from the pull-down list on the left.

5. How to upgrade new firmware

Please refer to **section 4.3.7 Upgrade** for upgrade new firmware operation.

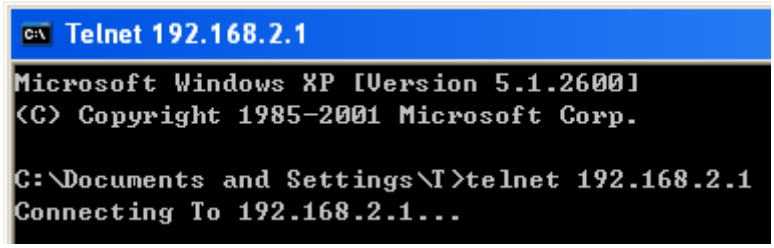
6. How to diagnose

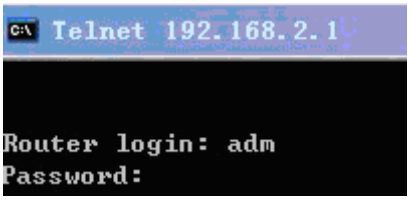
When user faced problem during testing, please power off the router, then power on and keep it running for 3 minutes, go to page "**Status -> Log**", download system diagnosing data and send to Greentel for analyzing.



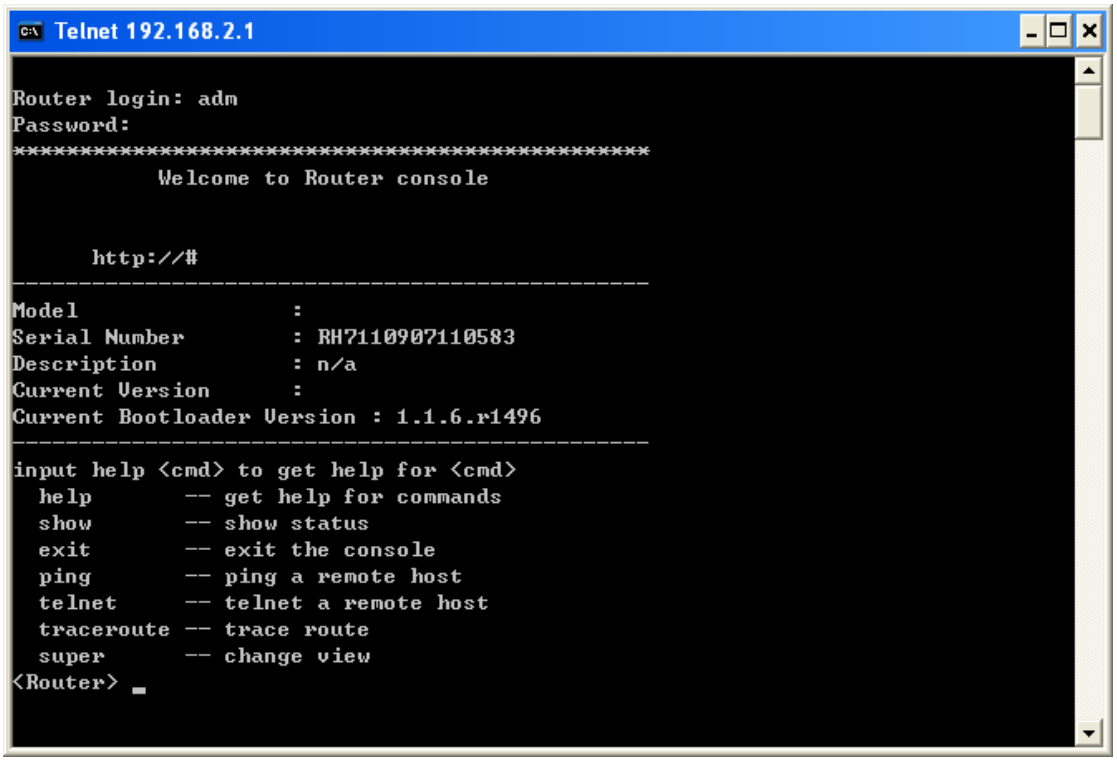
7. Configure via Telnet

Open command window. (Click “Start” => “Run”, enter “cmd” in the pop-up dialog box to have DOS window opened.) Enter “telnet 192.168.2.1” (i.e. to connect to R200 when its IP is 192.168.2.1).





User name: adm
Password: 123456

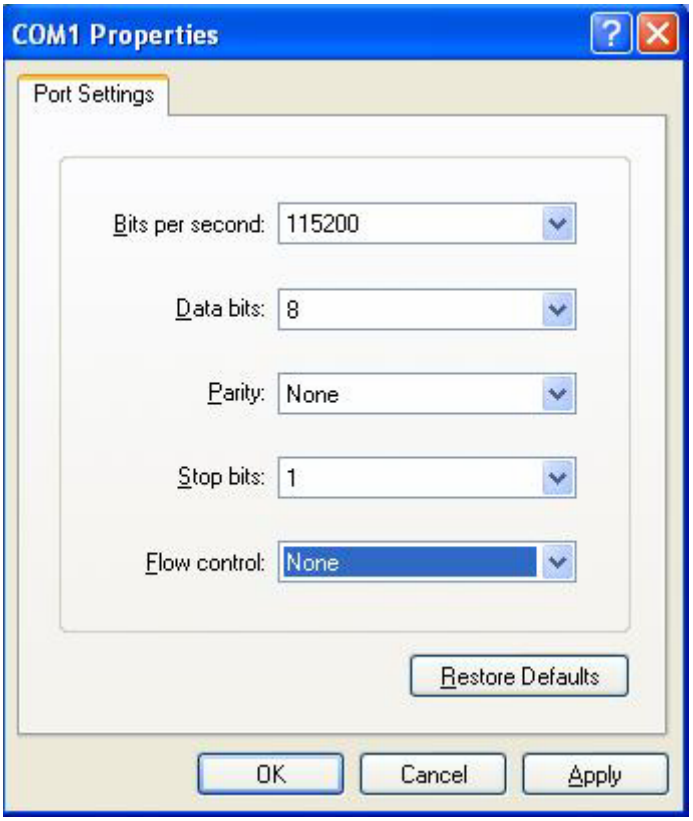


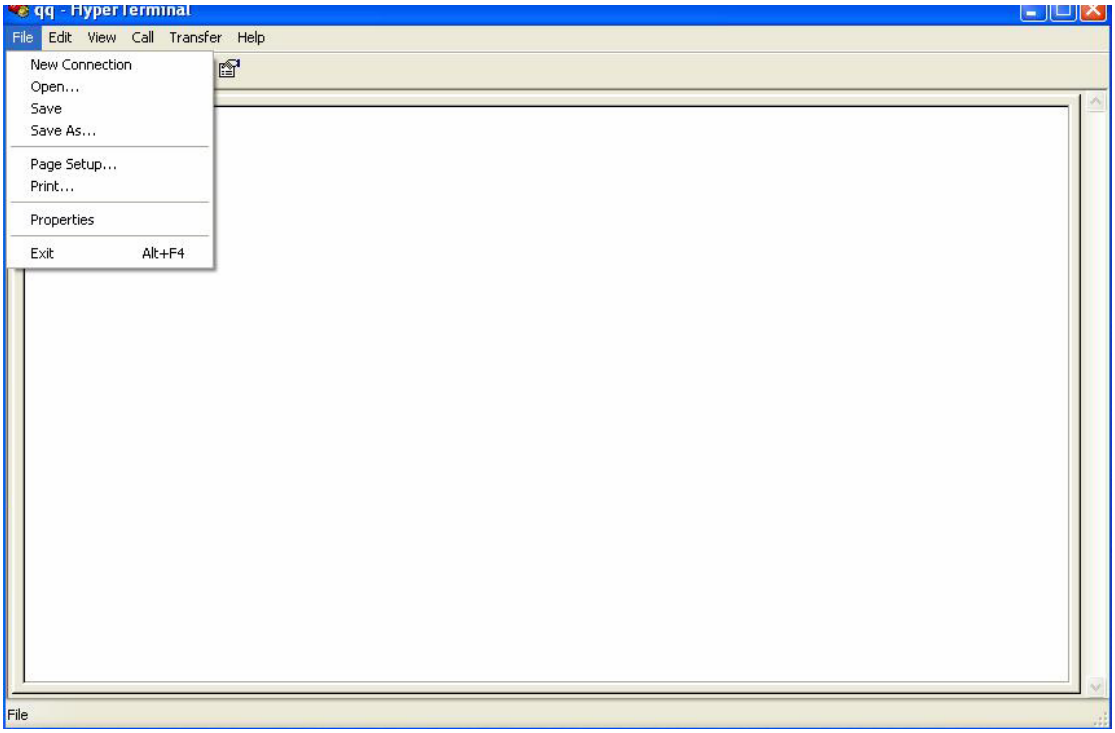
8. Configure via Serial Port

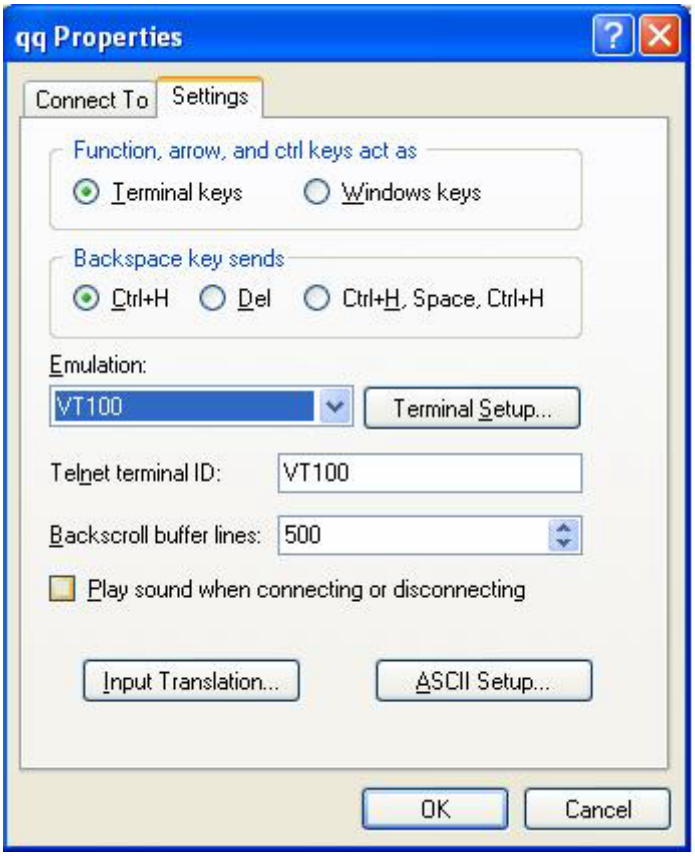
Connect the computer to the console RJ45 port of R200 with a serial cable, open the Windows tool – Hyper Terminal.


New Connection - HyperTerminal
Connection Description
New Connection
Enter a name and choose an icon for the connection
Name:
qq
Icon:
OK
Cancel
Auto detect
Auto detect


Connect To
qq
Enter details for the phone number that you want to dial:
Country/region:
United States (1)
Area code:
86
Phone number:
Connect using:
COM1
OK
Cancel


COM1 Properties
Port Settings
Bits per second: 115200
Data bits: 8
Parity: None
Stop bits: 1
Flow control: None
Restore Defaults
OK
Cancel
Apply


qq - HyperTerminal
File Edit View Call Transfer Help
New Connection
Open...
Save
Save As...
Page Setup...
Print...
Properties
Exit Alt+F4
File



User name: adm

Password: 123456

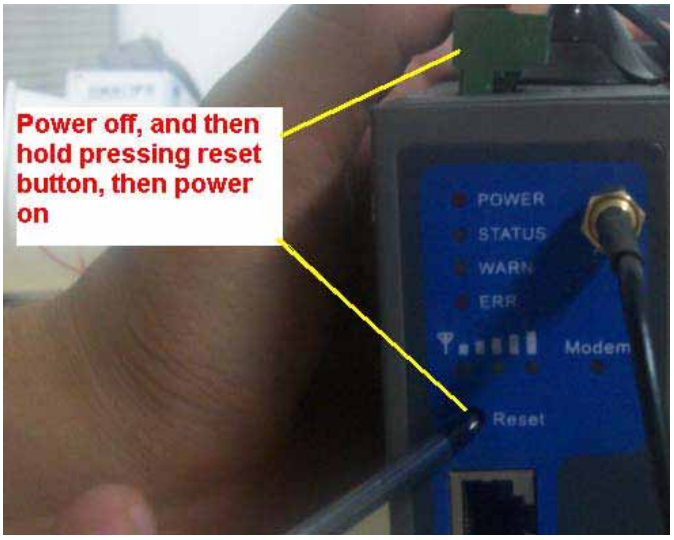
9. How to reset to factory defaults settings

9.1 Reset by Software

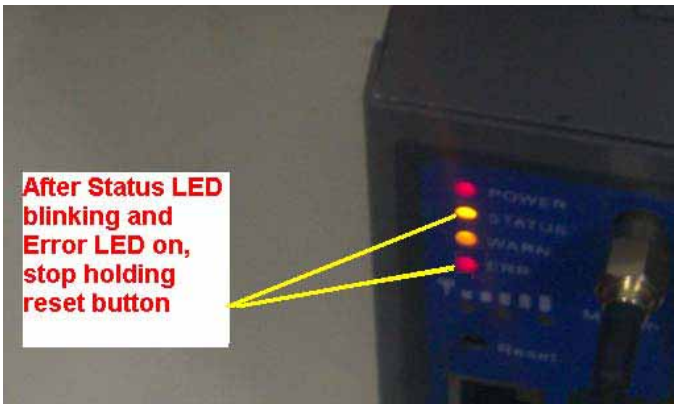
Press 'Restore default configuration' button will restore the router to the factory default configuration. Note: It will require a system reboot to take effect.

9.2 Reset by Hardware

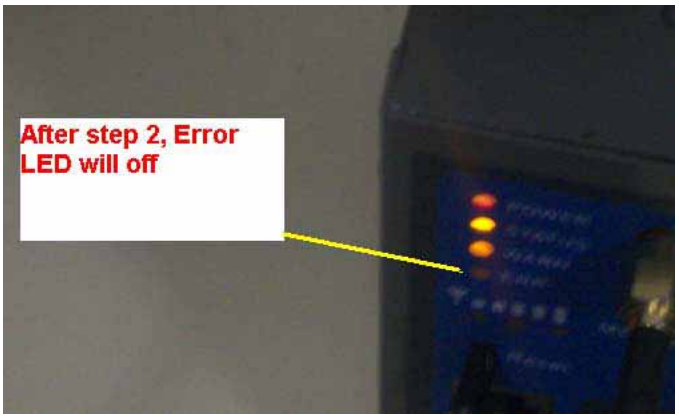
1. Power off, and then hold pressing reset button, then power on;



2. After Status LED blinking and Error LED on, stop holding reset button;



3. After step 2, Error LED will off;

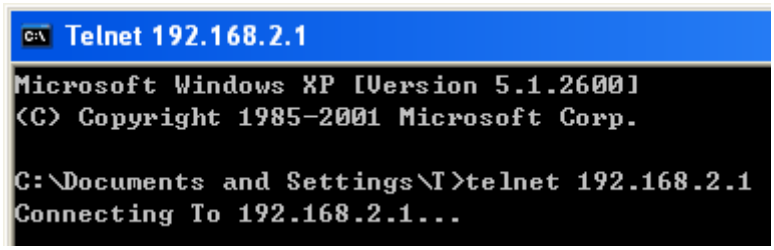


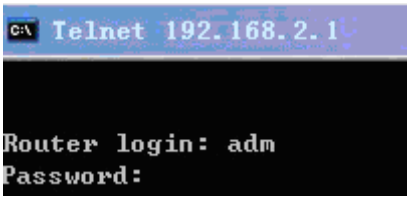
4. In 30 seconds, please hold pressing reset button until Status and Error LED blinking;

5. Stop hold pressing reset button, and router has restored to factory default.

9.3 Reset by Telnet

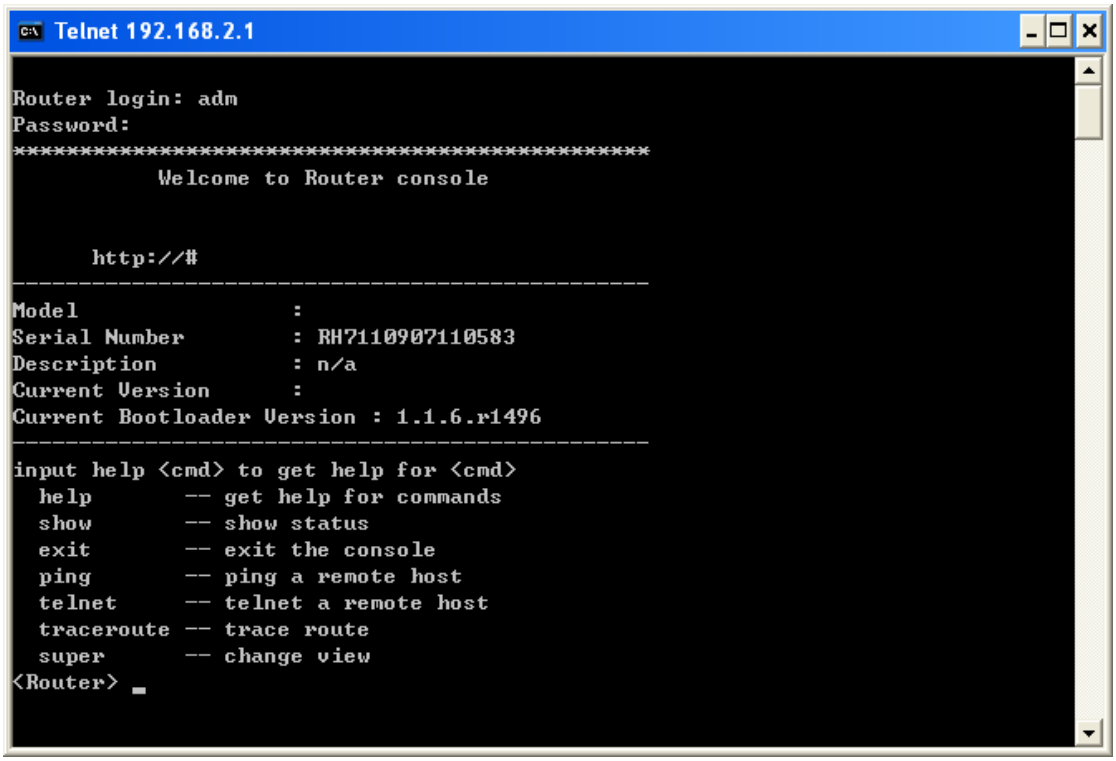
1. Login R200 via Telnet





User name: adm

Password: 123456



2. Input “en” and Enter, to login the enable mode.

```
Router> en
input password:
```

2. Input “restore” and Enter, then router will restore to factory default.

```
Router# help
get help for commands
------------------------------------------------
type '?' for detail help at any point
================================================
  help            -- get help for commands
  language        -- set language
  show            -- show system information
  exit            -- exit current mode/console
  reboot          -- reboot system
  ping            -- ping test
  telnet          -- telnet to a host
  traceroute      -- trace route to a host
  disable         -- turn off privileged commands
  configure       -- enter configuration mode
  upgrade         -- upgrade firmware
  restore         -- restore firmware
Router# restore
```

10. Support

In case you have problems with the installation and use, please address them to the Technical Assistance Department by e-mail support@greentel.cn.

GREENTEL LIMITED

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WEB: http://www.greentel.cn
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Annex: FCC RF Exposure requirements:

To maintain compliance with FCC RF exposure requirements, use handset that maintain a 20cm separation distance between the user's body and the host.
MPE limit for RF exposure at prediction frequency is 0.558mW/cm2 for 850MHz band and 1mW/cm2 for 1900MHz band. The maximum MPE for 850MHz band is 0.333 mW/cm2 and 0.415mW/cm2 for 1900MHz band. It satisfy RF exposure compliance.

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

NOTE: The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to operate the equipment.

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

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