

Robustel GoRugged R3000

Dual SIM Industrial Cellular VPN Router

For GPRS/EDGE/UMTS/HSPA+/LTE Networks

User Guide

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Robustel

www.robustel.com

About This Document

This document describes hardware and software of Robustel R3000, Dual SIM Industrial 2G/3G/4G Router.

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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 the router is used in a normal manner with a well-constructed network, the router 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. Robustel accepts no responsibility for damages of any kind resulting from delays or errors in data transmitted or received using the router, or for failure of the router to transmit or receive such data.

Safety Precautions**General**

- The router generates radio frequency (RF) power. When using the router, care must be taken on safety issues related to RF interference as well as regulations of RF equipment.
- Do not use your router in aircraft, hospitals, petrol stations or in places where using cellular products is prohibited.
- Be sure that the router will not be interfering with nearby equipment. For example: pacemakers or medical equipment. The antenna of the router should be away from computers, office equipment, home appliance, etc.
- An external antenna must be connected to the router for proper operation. Only uses approved antenna with the router. Please contact authorized distributor on finding an approved antenna.
- Always keep the antenna with minimum safety distance of 20 cm or more from human body. Do not put the antenna inside metallic box, containers, etc.
- RF exposure statements
 1. For mobile devices without co-location (the transmitting antenna is installed or located more than 20cm away from the body of user and nearby person)
- FCC RF Radiation Exposure Statement
 1. This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
 2. This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and human body.

Note: *Some airlines may permit the use of cellular phones while the aircraft is on the ground and the door is open. Router may be used at this time.*

Using the router in vehicle

- Check for any regulation or law authorizing the use of cellular devices in vehicle in your country before installing the router.
- The driver or operator of any vehicle should not operate the router while driving.
- Install the router by qualified personnel. Consult your vehicle distributor for any possible interference of electronic parts by the router.
- The router should be connected to the vehicle's supply system by using a fuse-protected terminal in the vehicle's fuse box.
- Be careful when the router is powered by the vehicle's main battery. The battery may be drained after extended period.

Protecting your router

- To ensure error-free usage, please install and operate your router with care. Do remember the following:

- Do not expose the router to extreme conditions such as high humidity / rain, high temperature, direct sunlight, caustic / harsh chemicals, dust, or water.
- Do not try to disassemble or modify the router. There is no user serviceable part inside and the warranty would be void.
- Do not drop, hit or shake the router. Do not use the router under extreme vibrating conditions.
- Do not pull the antenna or power supply cable. Attach/detach by holding the connector.
- Connect the router only according to the instruction manual. Failure to do it will void the warranty.
- In case of problem, please contact authorized distributor.

Regulatory and Type Approval Information

Table 1: Directives



| | | |
|------------|---|---|
| 2011/65/EC | Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) |  |
| 2012/19/EU | Directive 2012/19/EU the European Parliament and of the Council of 4 July 2012 on waste electrical and electronic equipment (WEEE) |  |

Table 2: Standards of the Ministry of Information Industry of the People’s Republic of China


| | | |
|-----------------|--|---|
| SJ/T 11363-2006 | “Requirements for Concentration Limits for Certain Hazardous Substances in Electronic Information Products” (2006-06). | |
| SJ/T 11364-2006 | <p>“Marking for Control of Pollution Caused by Electronic Information Products” (2006-06).</p> <p>According to the “Chinese Administration on the Control of Pollution caused by Electronic Information Products” (ACPEIP) the EPUP, i.e., Environmental Protection Use Period, of this product is 20 years as per the symbol shown here, unless otherwise marked. The EPUP is valid only as long as the product is operated within the operating limits described in the Hardware Interface Description.</p> <p>Please see Table 3 for an overview of toxic or hazardous substances or elements that might be contained in product parts in concentrations above the limits defined by SJ/T 11363-2006.</p> |  |

Table 3: Toxic or hazardous substances or elements with defined concentration limits

| Name of the part | Hazardous substances | | | | | |
|---|----------------------|------|------|------------|-------|--------|
| | (Pb) | (Hg) | (Cd) | (Cr (VI)) | (PBB) | (PBDE) |
| Metal Parts | o | o | o | o | o | o |
| Circuit Modules | x | o | o | o | o | o |
| Cables and Cable Assemblies | o | o | o | o | o | o |
| Plastic and Polymeric parts | o | o | o | o | o | o |
| <p>o: Indicates that this toxic or hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in SJ/T11363-2006.</p> <p>x: Indicates that this toxic or hazardous substance contained in at least one of the homogeneous materials for this part <i>might exceed</i> the limit requirement in SJ/T11363-2006.</p> | | | | | | |

Revision History

Updates between document versions are cumulative. Therefore, the latest document version contains all updates made to previous versions.

| Release Date | Firmware Version | Doc Version | Details |
|--------------|------------------|-------------|---|
| 2013-01-24 | 1.00.00 | V1.0.0 | First Release |
| 2014-01-17 | 1.01.00 | V2.0.0 | Second Release |
| 2014-03-29 | 1.01.01 | V2.0.1 | Update WLAN, GPS antenna information for section 2.8 and DHCP, Device List information for section 3.5. |
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| 2014-08-01 | 1.01.18 | V2.0.3 | Update feature: Pppoe, SSH2, Do control via Web, QoS Port Based Control and RobustVPN; delete IP-Passthrough. |
| 2014-10-23 | 1.01.18 | V2.0.4 | Update label of R3000. |
| 2014-12-24 | 1.02.00 | V2.0.5 | Delete HSUPA. Update Section: Regulatory and Type Approvals, Install SIM Card and Micro SD Card, Power Supply Update Feature: WiFi-Basic, GPS-GPS Status, NAT/DMZ-Virtual IP Mapping, Firewall-Basic, Firewall-Filtering, QoS, OpenVPN-Encryption, L2TP Server, Portal, RobustVPN, Tools-Sniffer, Tools-Test, Clock-GPS Time Sync |
| 2015-05-13 | 1.2.0 | V2.0.6 | Modify Section: Firmware Version, Mount the Route, file format, Sentence Revision, Approval & Certification, Regulatory and Type Approval Information |
| 2015-05-28 | 1.2.8 | V2.1.0 | Increase section: Download MIB Moudles File, GpsGate portal Modify section: SDK Management, CLI command |

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Chapter 1 Product Concept

1.1 Overview

Robustel GoRugged R3000 is a rugged cellular router offering state-of-the-art mobile connectivity for machine to machine (M2M) applications.

- Dual SIM redundancy for continuous cellular connections, supports 2G/3G/4G.
- WAN link management: cellular WAN/Ethernet WAN/WLAN WAN backup.
- VPN tunnel: IPSec/OpenVPN/PPTP/L2TP/GRE.
- Supports Modbus gateway (Modbus RTU/ASCII to Modbus TCP).
- Supports GPS&GLONASS (optional), provides real time location and tracking.
- Supports 802.11 b/g/n Wi-Fi (optional), AP and client mode.
- Supports SDK, provides user programmatic interface.
- Supports 802.1Q VLAN Trunk.
- Supports PPPoE Bridge(IP Passthrough).
- Auto reboot via SMS/Caller ID/Timing.
- Supports RobustLink(Centralized M2M management platform, to remote monitor, configure and update firmware).
- Supports RobustVPN (Cloud VPN Portal, to provide easy and secure remote access for PLCs and machines).
- Flexible Management methods: Web/CLI/SNMP/RobustLink.
- Firmware upgrade via Web/CLI/USB/SMS/RobustLink.
- Various interfaces: RS232/RS485/Console/DI/DO/USB/Ethernet.
- Wide range input voltages from 9 to 60 VDC and extreme operating temperature.
- The metal enclosure can be mounted on a DIN-rail or on the wall, also with extra ground screw.

1.2 Packing List

Check your package to make sure it contains the following items:

- Robustel GoRugged R3000 router x 1



- 3-pin pluggable terminal block with lock for power connector x 1



- 7-pin pluggable terminal block with lock for serial port, I/O and console port x 1



- CD with user guide x 1

Note: Please notify your sales representative if any of the above items are missing or damaged.

Optional accessories (can be purchased separately):

- SMA antenna (Stubby antenna or Magnet antenna optional) x 1

Stubby antenna



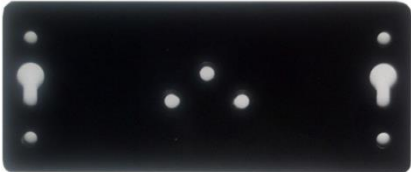
Magnet antenna



- Ethernet cable x 1



- Wall Mounting Kit



- 35mm Din-Rail mounting kit



- AC/DC Power Supply Adapter (12VDC, 1.5A) x 1 (EU, US, UK, AU plug optional)



1.3 Specifications

Cellular Interface

- Standards: GSM/GPRS/EDGE/UMTS/HSPA/EVDO/FDD LTE
- GPRS/EDGE: 850/900/1800/1900 MHz
- HSPA+: 850/900/1900/2100 MHz, DL/UL 21/5.76 Mbps, fallback to 2G
- FDD LTE: 800/900/1800/2100/2600 MHz, DL/UL 100/50 Mbps, fallback to 3G/2G
- EVDO: 450 or 800/1900 MHz, Rev A/B
- SIM: 2 x (3V & 1.8V)

- Antenna Interface: SMA Female

Ethernet Interface

- Number of Ports: 2 x 10/100 Mbps, 2 LANs or 1 LAN 1 WAN
- Magnet Isolation Protection: 1.5KV

WLAN Interface (Optional)

- Standards: 802.11b/g/n up to 65 Mbps, AP and Client mode
- Frequency Band: 2.400 - 2.500 GHz (2.4 GHz ISM band)
- Security: Open ,WPA, WPA2
- Encryption: AES, TKIP
- Antenna Interface: RP-SMA Female
- Transmission Power: 802.11b: 17dBm, 802.11g/n: 15dBm
- Reception Sensibility: 1M: -97dBm, 2M: -93dBm, 6M: -91dBm, 11M: -89dBm, 54M: -75dBm, 65M: -72dBm

Digital Input

- Type: 2 x DI, Dry Contact
- Dry Contact: On: open, Off: short to GND
- Isolation: 3K VDC or 2K Vrms
- Absolute Maximum VDC: 5V
- Digital Filtering Time Interval: Software selectable
- Interface: 3.5mm terminal block with lock

Digital Output

- Type: 2 x DO, Sink
- Isolation: 3K VDC or 2K Vrms
- Absolute Maximum VDC: 30V
- Absolute Maximum ADC: 300mA
- Interface: 3.5mm terminal block with lock

Serial Interface

- Number of Ports: 1 x RS-232, 1 x RS-485 or 2 x RS232 or 2 x RS485
- ESD Protection: $\pm 15\text{KV}$
- Parameters: 8E1, 8O1, 8N1, 8N2, 7E2, 7O2, 7N2, 7E1
- Baud Rate: 300bps to 230400bps
- RS-232: TxD, RxD, RTS, CTS, GND
- RS-485: Data+ (A), Data- (B)
- Interface: 3.5mm terminal block with lock

GPS & GLONASS Interface (Optional)

- Antenna Interface: SMA Female, 50 ohms impedance
- Tracking Sensitivity: GPS: better than -148 dBm
GLONASS: better than -140 dBm
- Horizontal position accuracy: GPS: 2.5 m
GLONASS: 4.0 m
- Time-To-First-Fix: GPS: 26 s
GLONASS: 30 s
- Protocol: NMEA-0183 V2.3

System

- LED Indicators: RUN, PPP/WLAN, USR, RSSI, NET, SIM
- Built-in RTC, Watchdog, Timer
- Expansion: 1 x USB 2.0 host up to 480 Mbps
- Storage: 1 x MicroSD

Software

- Network protocols: PPP, PPPoE, TCP, UDP, DHCP, ICMP, NAT, DMZ, RIP v1/v2, OSPF, DDNS, VRRP, HTTP, HTTPS, DNS, ARP, QoS, SNTP, Telnet, VLAN, SSH2, etc
- VPN tunnel: IPSec/OpenVPN/PPTP/L2TP/GRE

- Firewall: SPI, anti-DoS, Filter, Access Control
- Management: Web, CLI, SNMP v1/v2/v3, SMS, RobustLink
- Serial Port: TCP client/server, UDP, Modbus RTU/ASCII to Modbus TCP, Virtual COM (COM port redirector)
- RobustLink: Centralized M2M management platform
- RobustVPN: Cloud VPN Portal

Power Supply and Consumption

- Power Supply Interface: 5mm terminal block with lock
- Input Voltage: 9 to 60 VDC
- Power Consumption: Idle: 100 mA @ 12 V

Data Link: 400 mA (peak) @ 12 V

Physical Characteristics

- Housing & Weight: Metal, 500g
- Dimension: (L x W x H): 125 x 108 x 45 mm
- Installation: 35mm Din-Rail or wall mounting or desktop

Regulatory and Type Approvals

- Approval & Certification: CE, R&TTE,FCC, PTCRB, GCF, AT&T, IC,
Rogers, RCM, CB, E-Mark, NBTC, RoHS, WEEE
- EMI : EN 55022 (2006/A1: 2007) Class B
- EMC: EN 61000-4-2 (ESD) Level 4, EN 61000-4-3 (RS) Level 4
EN 61000-4-4 (EFT) Level 4, EN 61000-4-5 (Surge) Level 3
EN 61000-4-6 (CS) Level 4, EN 61000-4-8 Level 4

Environmental Limits

| Model No. | Description | Operating Environment |
|-----------|---------------------|-------------------------|
| R3000-2G | GPRS Router | -40 to 85°C/5 to 95% RH |
| R3000-3P | HSPA+ Router | -40 to 85°C/5 to 95% RH |
| R3000-3E | EVDO Rev A/B Router | -20 to 60°C/5 to 95% RH |
| R3000-4L | FDD LTE Router | -40 to 85°C/5 to 95% RH |


1.4 Selection and Ordering Data

Please refer to corresponding R3000 datasheet.

Chapter 2 Installation

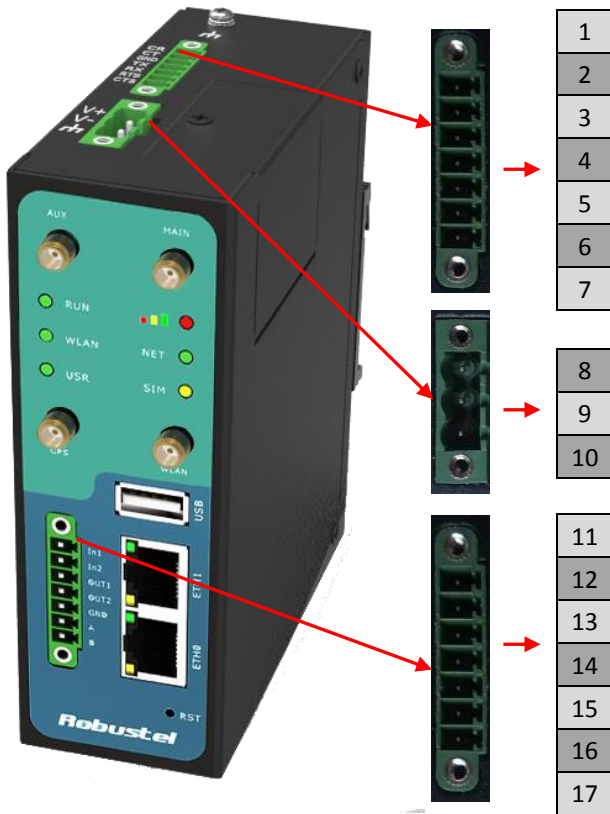
2.1 LED Indicators



| Name | Color | Status | Function |
|---|--------------|---------------------------------|--|
| RUN | Green | Blinking | Router is ready. |
| | | On | Router is starting. |
| | | Off | Router is power off. |
| WLAN/PPP | Green | Blinking | WLAN Indicator: Data is being transmitted. PPP Indicator: Null |
| | | On | WLAN Indicator: Wi-Fi AP/Client is enabled. PPP Indicator: PPP connection is up. |
| | | Off | WLAN Indicator: Wi-Fi AP/Client is disabled. PPP Indicator: PPP connection is down. |
| USR | Green | On/Blinking | VPN tunnel/PPPoE/DynDNS/GPS is up. |
| | | Off | VPN tunnel/PPPoE/DynDNS/GPS is down. |
|  | Green | On | Signal level: 21-31 (Perfect signal level). |
| | Yellow | On | Signal level: 11-20 (Average signal level). |
| | Red | On | Signal level: 1-10 (Exceptional signal level). |
| NET | Green | Blinking | 4G is connected but PPP connection is failed. |
| | | On | 4G is connected and PPP connection is established. |
| | Yellow | Blinking | 3G is connected but PPP connection is failed. |
| | | On | 3G is connected and PPP connection is established. |
| | Red | Blinking | 2G is connected but PPP connection is failed. |
| | | On | 2G is connected and PPP connection is established. |
| / | Off | Cannot register to any network. | |
| SIM | Green | Blinking | Only SIM 1 is detected, but PIN code is incorrect. |
| | | On | Working with SIM 1 normally. |
| | Yellow | Blinking | Only SIM 2 is detected, but PIN code is incorrect. |
| | | On | Working with SIM 2 normally. |
| | Green&Yellow | Blinking between two colors | Two SIMs are detected, but both of their PIN codes are incorrect. |
| | / | Off | No SIM inside. |

Note: User can select display status of USR LED. For details please refer to section 23.37.

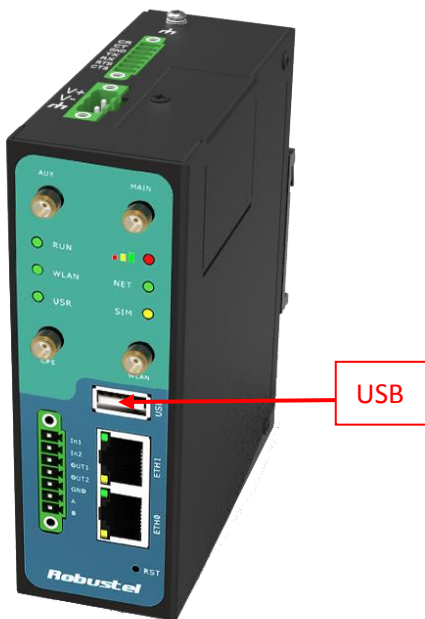
2.2 PIN Assignment



| PIN | Debug | RS232 | Direction |
|-----|-------|-------|----------------|
| 1 | RXD | | Device → R3000 |
| 2 | TXD | | R3000 → Device |
| 3 | GND | GND | |
| 4 | | TXD | R3000 → Device |
| 5 | | RXD | Device → R3000 |
| 6 | | RTS | R3000 → Device |
| 7 | | CTS | Device → R3000 |

| PIN | Power | Digital I/O | RS485 |
|-----|----------|-------------|----------|
| 8 | Positive | | |
| 9 | Negative | | |
| 10 | GND | | |
| 11 | | Input 1 | |
| 12 | | Input 2 | |
| 13 | | Output 1 | |
| 14 | | Output 2 | |
| 15 | | GND | |
| 16 | | | Data+(A) |
| 17 | | | Data-(B) |

2.3 USB Interface



USB interface is used for batch firmware upgrade, cannot used to send or receive data from slave devices which with USB interface.

Users can insert a USB storage device, such as U disk or hard disk, into the router's USB interface, if there is configuration file or firmware of R3000 inside the USB storage devices, R3000 will automatically update the configuration file or firmware. Details please refer to section 23.16.

2.4 Reset Button



| Function | Operation |
|------------------------------------|---|
| Reboot | Push the button for 5 seconds under working status. |
| Restore to factory default setting | Push the button for 60 seconds once you power on the router until all the three LEDs at the left side (RUN, PPP, USR) blink at the same time for 5 times. |

2.5 Ethernet Ports



Each Ethernet port has two LED indicators (please check the following picture). The yellow one is **Speed indicator** and the green one is **Link indicator**. There are three status of each indicator. For details please refer to the form below.

| Indicator | Status | Description |
|-----------------|--------|---------------------------|
| Speed Indicator | Off | 10 Mbps mode. |
| | On | 100 Mbps mode. |
| Link Indicator | Off | Connection is down. |
| | On | Connection is up. |
| | Blink | Data is being transmitted |

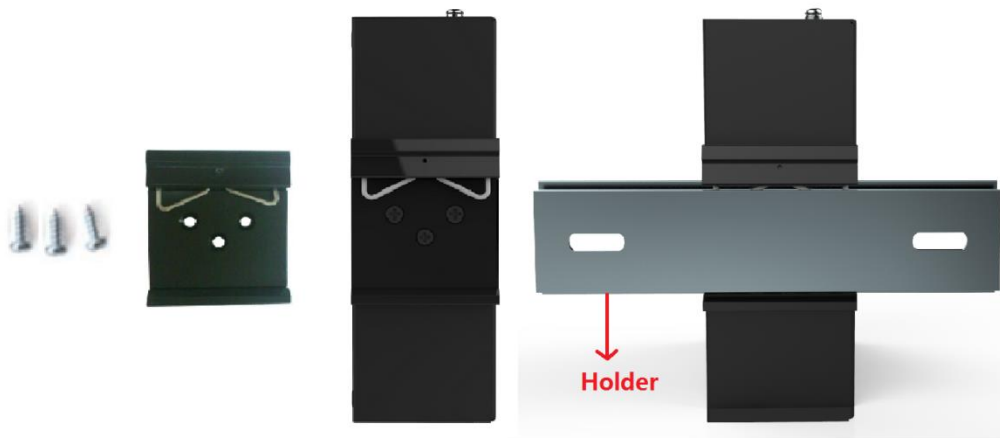
2.6 Mount the Router

- **Two ways of mounting the router**

1. Use 3 pcs of M3 screw to mount the router on the Wall mounting Kit.
And then use 2 pcs of M3 screw to mount the Wall mounting Kit on the wall.



2. Mount the router on a DIN rail with 3 pcs of M3 screws, and then hang the DIN-Rail on the holder.
You need to choose a standard holder.



2.7 Install SIM Card and Micro SD Card



- **Inserting SIM Card or Micro SD Card**

1. Make sure power supply is disconnected.
2. Use a screwdriver to unscrew the screw on the cover, and then remove the cover, you could find the SIM Card slots and the Micro SD slot.
3. Insert the SIM card or Micro SD card, and you need press the card with your fingers until you hear “a cracking sound”. Then use a screwdriver to screw the cover.

- **Removing SIM Card or Micro SD Card**

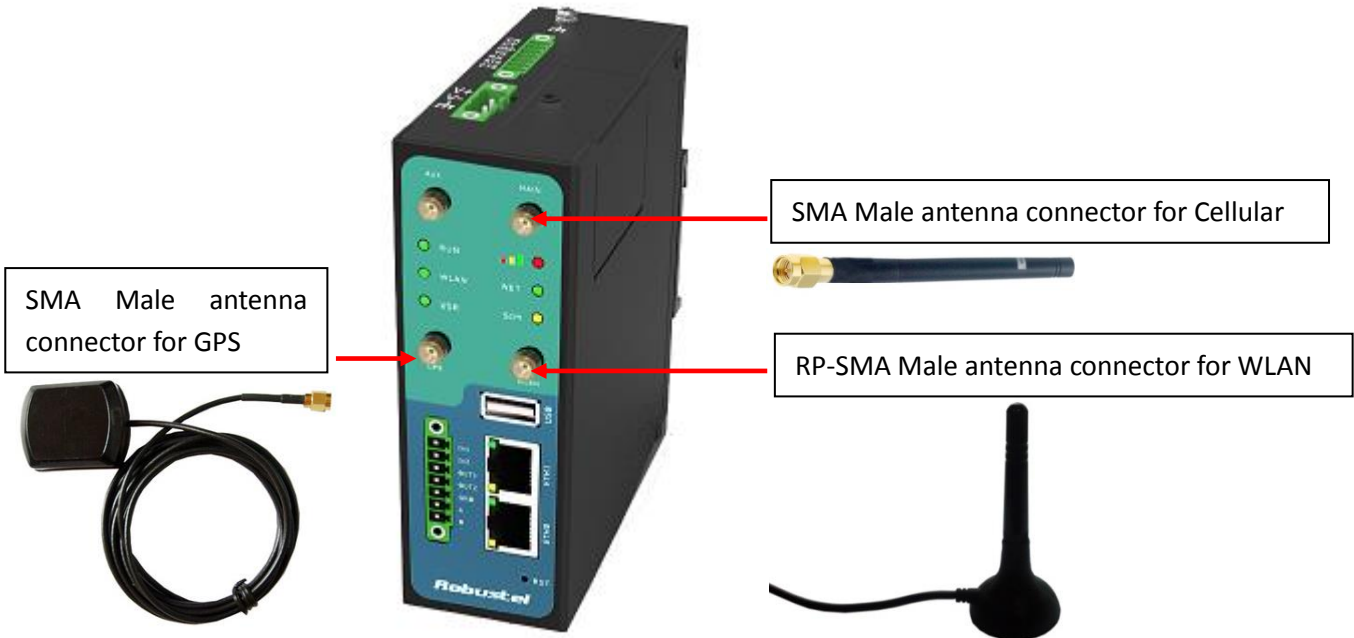
1. Make sure router is power off.
2. Press the card until you hear “a cracking sound”, when the card will pop up to be pulled out.

Note:

1. Please use the specific M2M SIM card when the device works in extreme temperature(temperature exceeding 0-40 °C), because the long-time working of regular SIM card in harsh environment(temperature exceeding 0-40 °C)may increase the possibility of SIM card failure.
2. Don't forget screw the cover for again-theft.
3. Don't touch the metal surface of the SIM card in case information in the card is lost or destroyed.
4. Don't bend or scratch your SIM card. Keep the card away from electricity and magnetism.
5. Make sure router is power off before inserting or removing your SIM card or Micro SD card.

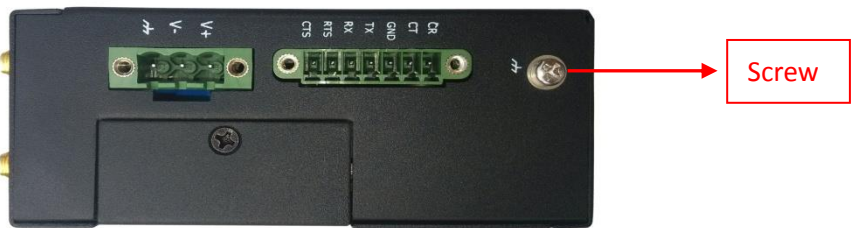
2.8 Connect the External Antenna

Connect router with an external antenna connector. Make sure the antenna is within correct frequency range and is screwed tightly.



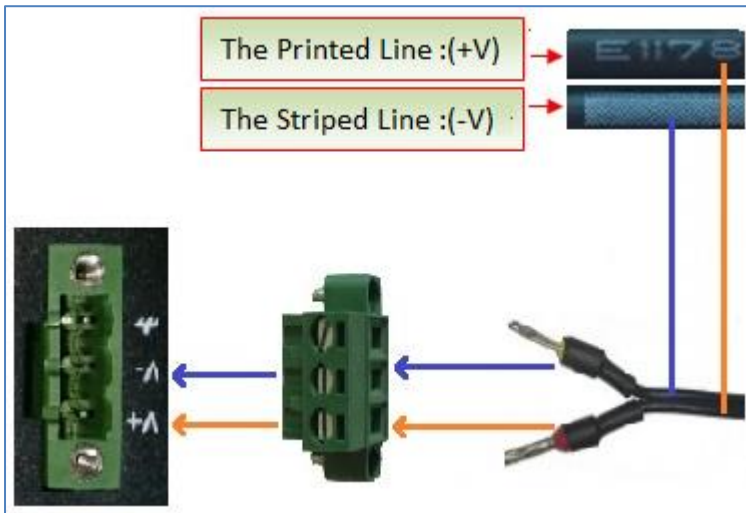
2.9 Ground the Router

Grounding and wire router helps limit the effects of noise due to electromagnetic interference (EMI). Run the ground connection from the ground by screwing to the grounding surface before connecting devices.



Note: This product is intended to be mounted to a well-grounded mounting surface, such as a metal panel.

2.10 Power Supply



The power supply range is 9 to 60 VDC.

Note: Please take care about the polarity, and do not make reverse connection. There are two lines connecting to the power supply adapter, as it illustrates on the power supply adapter label, the line printed with letters needs to be connected with the positive polarity, and the striped line needs to be connected with the negative polarity.

Chapter 3 Configuration Settings over Web Browser

The router can be configured through your web browser that include IE 8.0 or above, Chrome and Firefox. A web browser is included as a standard application in the following operating systems: Linux, Mac OS, Windows 98/NT/2000/XP/Me/Vista/7/8, etc. It provides an easy and user-friendly interface for configuration.

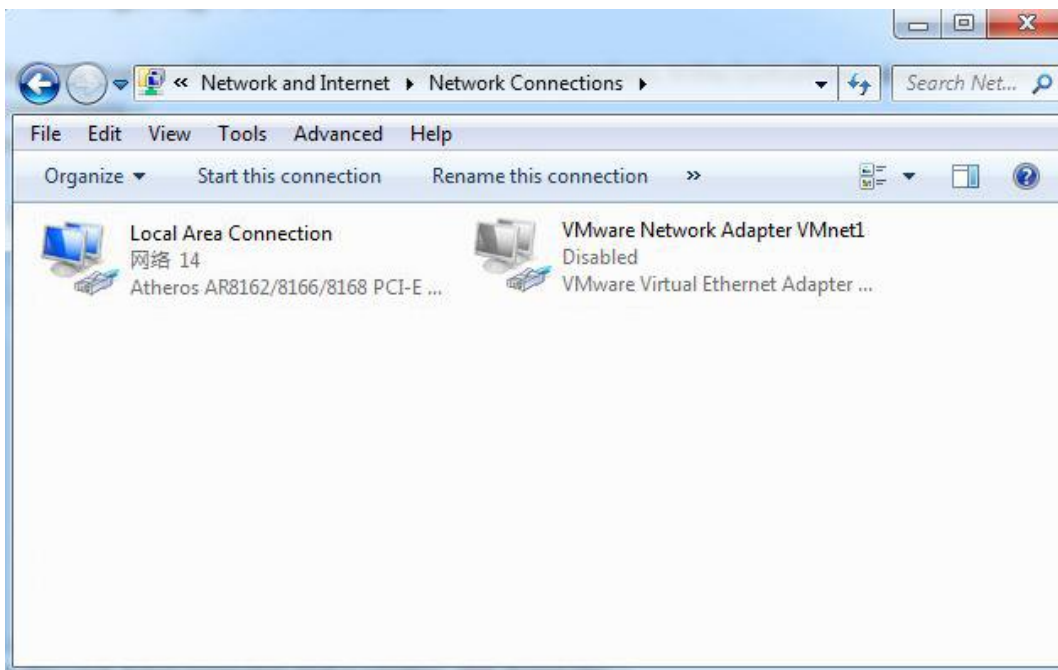
There are various ways to connect the router, either through an external repeater/hub or connect directly to your PC. However, make sure that your PC has an Ethernet interface properly installed prior to connecting the router.

You must configure your PC to obtain an IP address through a DHCP server or a fixed IP address that must be in the same subnet as the router. If you encounter any problems accessing the router web interface it is advisable to uninstall your firewall program on your PC, as this tends to cause problems accessing the IP address of the router.

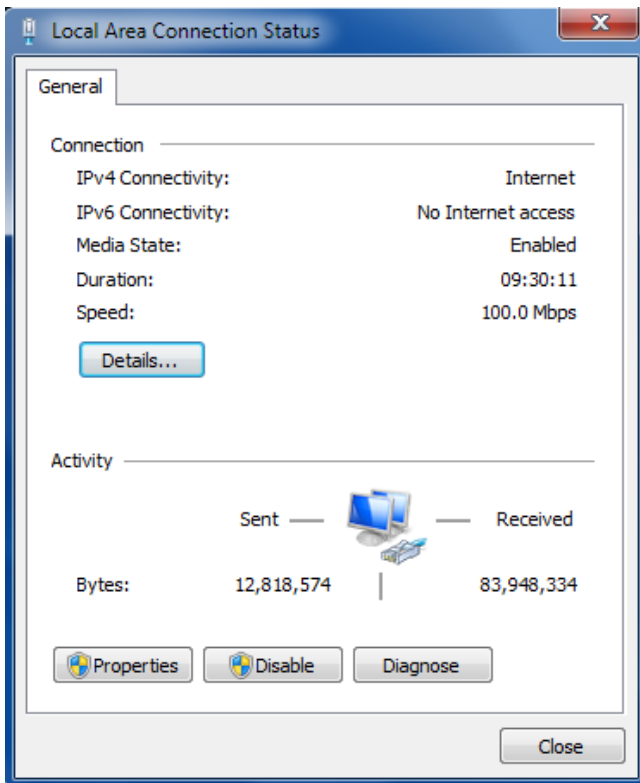
3.1 Configuring PC in Windows 7

The configuration for windows system is similar.

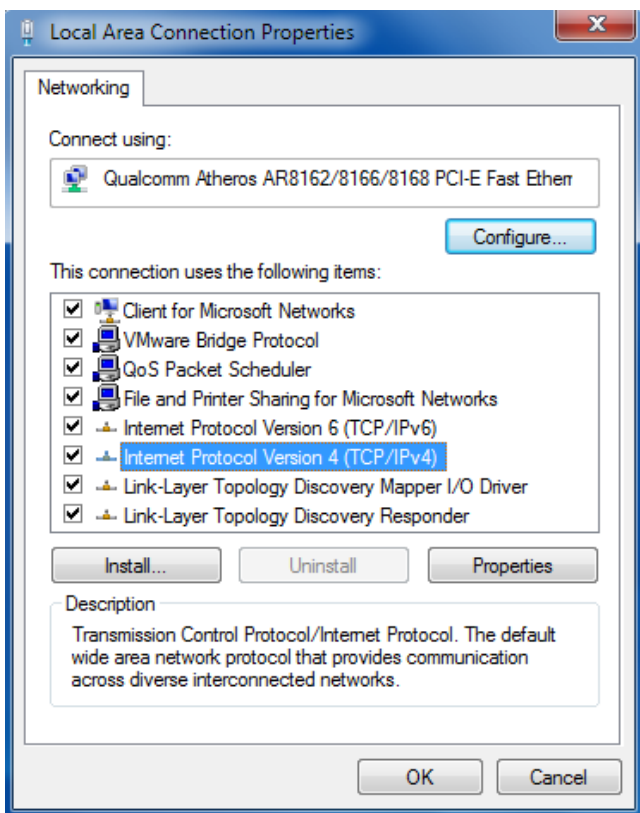
1. Go to *Start / Control Panel* (in Classic View). In the Control Panel, double-click *Network Connections*.
2. Double-click *Local Area Connection*.



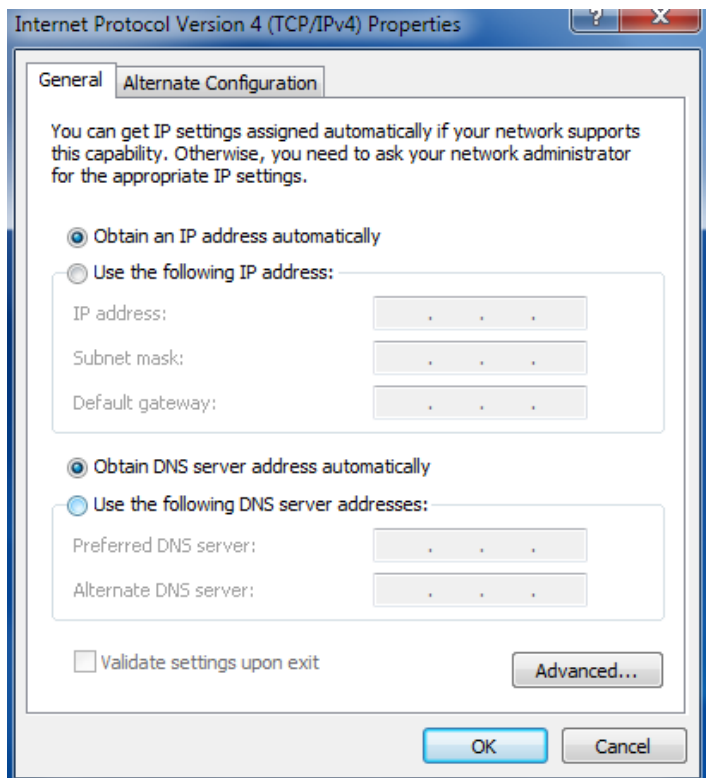
3. In the *Local Area Connection Status* window, click *Properties*.



4. Select *Internet Protocol (TCP/IP)* and click *Properties*.



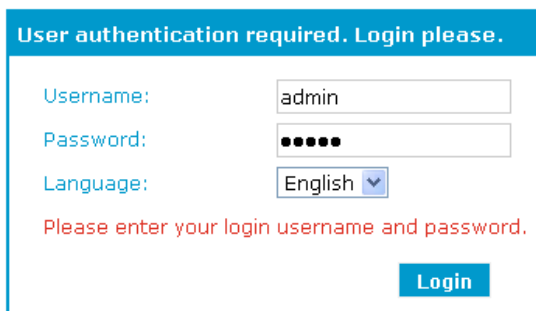
5. Select *Obtain an IP address automatically* and *Obtain DNS server address automatically* radio buttons.



6. Click *OK* to finish the configuration.

3.2 Factory Default Settings

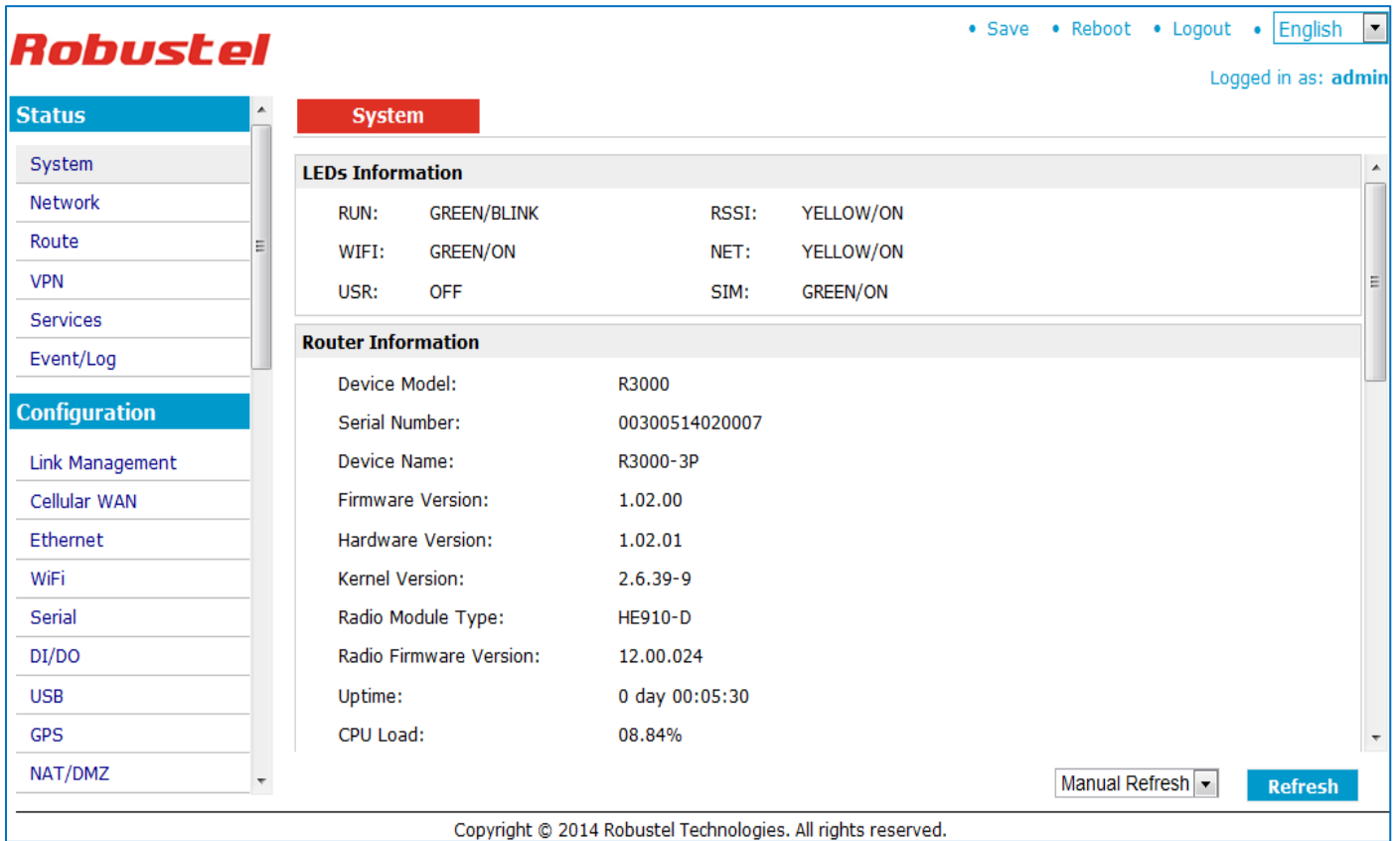
Before configuring your router, you need to know the following default settings.



| Item | Description |
|-------------|-------------------------------------|
| Username | admin |
| Password | admin |
| Eth0 | 192.168.0.1/255.255.255.0, LAN mode |
| Eth1 | 192.168.0.1/255.255.255.0, LAN mode |
| DHCP Server | Enabled. |



3.3 Control Panel

This section allows users to save configuration, reboot router, logout and select language.



| Control Panel | | |
|---------------|---|-------------|
| Item | Description | Button |
| Save | Click to save the current configuration into router’s flash. | • Save |
| Reboot | After save the current configuration, router needs to be rebooted to make the modification taking effect. | • Reboot |
| Logout | Click to return to the login page. | • Logout |
| Language | Select from Chinese, English, German, French and Spanish. | • English ▼ |
| Refresh | Click to refresh the status. | Refresh |
| Apply | Click to apply the modification on every configuration page. | Apply |
| Cancel | Click to cancel the modification on every configuration page. | Cancel |

Note: The steps of how to modify configuration are as bellow:

1. *Modify in one page;*
2. Click  under this page;
3. *Modify in another page;*
4. Click  under this page;
5. *Complete all modification;*
6. Click  ;
7. Click  .

3.4 Status -> System

This section displays the router’s system status, which shows you a number of helpful information such as the LEDs information, Router information, Current WAN Link and Cellular Information.

LEDs Information

For the detail description, please refer to 2.1LED Indicators.

System

| LEDs Information | | | |
|------------------|-------------|-------|-----------|
| RUN: | GREEN/BLINK | RSSI: | RED/ON |
| PPP: | GREEN/ON | NET: | YELLOW/ON |
| USR: | GREEN/ON | SIM: | GREEN/ON |


| Router Information | |
|-------------------------|--------------------------|
| Device Model: | R3000 |
| Serial Number: | 00300514020007 |
| Device Name: | R3000-3P |
| Firmware Version: | 1.2.0 |
| Hardware Version: | 1.02.01 |
| Kernel Version: | 2.6.39-9 |
| Radio Module Type: | HE910-D |
| Radio Firmware Version: | 12.00.024 |
| Uptime: | 0 day 00:05:30 |
| CPU Load: | 08.84% |
| RAM Total/Free: | 123.02MB/59.15MB(48.08%) |
| System Time: | 2014-12-25 14:59:32 |

| Router Information | |
|------------------------|---|
| Item | Description |
| Device Model | Show the model name of this device |
| Serial Number | Show the serial number of this device |
| Device Name | Show the device name to distinguish different devices you have installed. |
| Firmware Version | Show the current firmware version |
| Hardware Version | Show the current hardware version |
| Kernel Version | Show the current kernel version |
| Radio Module Type | Show the current radio module type |
| Radio Firmware Version | Show the current radio firmware version |
| Uptime | Show how long the router have been working since power on |
| CPU Load | Show the current CPU load |
| RAM Total/Free | Show the total capacity /Free capacity of RAM |
| System Time | Show the current system time |

Current WAN Link

| | |
|----------------------------|---------------------------|
| Current WAN Link: | Cellular |
| IP Address: | 10.188.180.135 |
| Gateway: | 192.168.254.254 |
| NetMask: | 255.255.255.255 |
| DNS Server: | 210.21.4.130, 221.5.88.88 |
| Keepalive PING IP Address: | 8.8.8.8, 8.8.4.4 |
| Keepalive PING Interval: | 30 |

| Current WAN Link | |
|-------------------------|---|
| Item | Description |
| Current WAN Link | Show the current WAN link: Cellular WAN or Ethernet WAN. |
| IP Address | Show the current WAN IP address |
| Gateway | Show the current gateway |
| NetMask | Show the current netmask |
| DNS Server | Show the current primary DNS server and Secondary server |
| Keeping PING IP Address | Show the current ICMP detection server which you can set in "Configuration->Link Management". |
| Keeping PING Interval | Show the ICMP Detection Interval (s) which you can set in "Configuration->Link Management". |

| Cellular Information | |
|-----------------------|--|
| Current SIM: | SIM1 |
| Phone No.: | |
| SMS Service Center: | 8613010200500 |
| Modem Status: | Ready |
| Network Status: | Registered to home network |
| Signal Level (RSSI): |  (20,-73DB) |
| PLMN: | China Unicom 3G (LAC: A50B / Cell ID: 148A98C) |
| Network Service Type: | 3G HSDPA |
| IMEI/ESN: | 351579052625397 |
| IMSI: | 460012054011892 |
| APN: | 3gnet |
| Username: | |
| Password: | |
| USB Status: | Ready |

| Cellular Information | |
|----------------------|---|
| Item | Description |
| Current SIM | Show the SIM card which the router work with currently: SIM1 or SIM2 |
| Phone No. | Show the phone number of the current SIM. |
| SMS Service Center | Show the SMS Service Center. |
| Modem Status | Show the status of modem. There are 8 different status: 1. Unknown. 2. Ready. 3. Checking AT. 4. Need PIN. 5. Need PUK. 6. Signal level is low. 7. No registered. 8. Initialize APN failed. |
| Network Status | Show the current network status. There are 6 different status: 1. Not registered, ME is currently not searching for new operator! 2. Registered to home network. 3. Not registered, but ME is currently searching for a new operator. 4. Registration denied. 5. Registered, roaming. 6. Unknown. |
| Signal Level (RSSI) | Show the current signal level. |
| PLMN | Show Mobile Country Code (MCC) +Mobile Network Code (MNC), e.g. 46001. Also it will show the Location Area Code (LAC) and Cell ID. |
| Network Service Type | Show the current network service type, e.g. GPRS. |
| IMEI/ESN | Show the IMEI/ESN number of the radio module. |

| | |
|------------|--|
| IMSI | Show the IMSI number of the current SIM. |
| USB Status | Show the current status of USB host. |

3.5 Status -> Network

This section displays the router's Network status, which include status of Cellular WAN, ETH0, ETH1, WLAN (AP mode)/WLAN (Client mode), DHCP and Device List.

| Cellular WAN | |
|-----------------------|-----------------|
| Connection Status: | Connected |
| Connect Time: | 0 day 00:38:17 |
| IP Address: | 10.188.180.135 |
| Gateway: | 192.168.254.254 |
| Primary DNS Server: | 210.21.4.130 |
| Secondary DNS Server: | 221.5.88.88 |

| LAN0 | |
|--------------|-------------------|
| IP Address: | 172.31.99.7 |
| MAC Address: | 00:ff:74:46:cd:e7 |
| MTU: | 1500 |
| NetMask: | 255.255.0.0 |

| LAN1 | |
|--------------|-------------------|
| IP Address: | 192.168.10.1 |
| MAC Address: | 00:ff:74:46:dc:e2 |
| MTU: | 1500 |
| NetMask: | 255.255.255.0 |

Note: "Cellular WAN" information will not be shown if you select "Eth0" in "Configuration"->"Link Management"->"Link Management Settings" ->"Primary Interface".

| WiFi | |
|--------------|-------------------|
| MAC Address: | 00:23:a7:40:12:58 |
| SSID: | R3000 |
| Mode: | AP |
| WPA State: | Completed |

Note: This information will be shown when R3000 enable WiFi feature and works as AP mode.

| WiFi WAN | |
|-----------------------|-------------------|
| Connection Mode: | DHCP Client |
| IP Address: | 192.168.253.6 |
| MAC Address: | 00:23:a7:40:12:58 |
| Gateway: | 192.168.253.1 |
| NetMask: | 255.255.255.0 |
| Primary DNS Server: | 192.168.253.1 |
| Secondary DNS Server: | 172.16.0.200 |

Note: This information will be shown when R3000 enable WiFi and works as Client mode.

| | | |
|---------|------|-------------|
| Network | DHCP | Device List |
|---------|------|-------------|

| DHCP Lease List | | | |
|------------------|-------------------|--------------|--------------|
| Dhcp Client Name | MAC Address | IP Address | Expired Time |
| Ben-PC | 00:03:12:0d:1b:3a | 192.168.10.2 | 15:07:55 |

| | | |
|---------|------|-------------|
| Network | DHCP | Device List |
|---------|------|-------------|

| Device List | | |
|-------------|-------------------|-------------|
| Interface | MAC Address | IP Address |
| lan0 | f8:a9:63:bc:dc:32 | 172.31.2.59 |

3.6 Status -> Route

This section displays the router’s route table.

| |
|-------|
| Route |
|-------|

| Route Table | | | | |
|-----------------|-----------------|-----------------|-----------|--------|
| Destination | NetMask | Gateway | Interface | Metric |
| 0.0.0.0 | 0.0.0.0 | 192.168.254.254 | ppp0 | 0 |
| 172.31.0.0 | 255.255.0.0 | 0.0.0.0 | lan0 | 0 |
| 192.168.1.0 | 255.255.255.0 | 0.0.0.0 | lan1 | 0 |
| 192.168.254.254 | 255.255.255.255 | 0.0.0.0 | ppp0 | 0 |

3.7 Status -> VPN

This section displays the router’s VPN status, which includes IPsec, L2TP, PPTP, OpenVPN and GRE.

IPsec
L2TP
PPTP
OpenVPN
GRE

IPsec Status

| No. | Tunnel name | Status | Connect Time |
|-----|-------------|--------|--------------|
| | | | |

IPsec Detail Status

[Show Detail Status](#)

IPsec
L2TP
PPTP
OpenVPN
GRE

L2TP Client

| No. | Tunnel name | Status | Local IP | Remote IP | Connect Time |
|-----|-------------|--------|----------|-----------|--------------|
| | | | | | |

L2TP Server

| No. | Tunnel name | Status | Local IP | Remote IP | Connect Time |
|-----|-------------|--------|----------|-----------|--------------|
| | | | | | |

IPsec
L2TP
PPTP
OpenVPN
GRE

PPTP Client

| No. | Tunnel name | Status | Local IP | Remote IP | Connect Time |
|-----|-------------|--------|----------|-----------|--------------|
| | | | | | |

PPTP Server

| No. | Tunnel name | Status | Local IP | Remote IP | Connect Time |
|-----|-------------|--------|----------|-----------|--------------|
| | | | | | |

IPsec
L2TP
PPTP
OpenVPN
GRE

VPN Status

| No. | Tunnel name | Status |
|-----|-------------|--------|
| | | |

IPsec
L2TP
PPTP
OpenVPN
GRE

GRE

| No. | Tunnel name | Status | Local IP | Remote IP | Connect Time |
|-----|-------------|--------|----------|-----------|--------------|
| | | | | | |

3.8 Status -> Services

This section displays the router's Services' status, including VRRP, DynDNS, Serial and DI/DO.

VRRP DynDNS Serial DI/DO

VRRP

VRRP is disabled!

VRRP DynDNS Serial DI/DO

DynDNS

DynDNS is disabled!

VRRP DynDNS Serial DI/DO

RS232: 115200, N, 8, 1

RS485: 115200, N, 8, 1

VRRP DynDNS Serial DI/DO

DI

| No. | Level | Status | Start Counter | Event Counter Value |
|-----|-------|--------|---------------|---------------------|
| | | | | |

DO

| No. | Level | Status |
|-----|-------|-----------|
| 1 | Low | Alarm off |
| 2 | Low | Alarm off |

DO Control

DO_1:

DO_2:

| DI/DO | |
|------------|---|
| Item | Description |
| DI | Show status of DI. |
| DO | Show status of DO. |
| DO Control | You can click button to change DO status of both DO_1 and DO_2 via web after you have enable DO in Configuration-> DI/DO-> DO-> DO Configuration -> Enable. |

3.9 Status -> Event/Log

This section displays the router’s event/log information. You need to enable router to output the log and select the log level first, then you can view the log information here. Also you can click *Download System Diagnosing Data* to download diagnose data.

Event/Log

Event/Log Messages

Download: --Please Select--

Log Level: DEBUG

```

13-08-30 17:15:17 <0> router: Firmware version: 1.01.00-sub-130829 Aug 29 2013 17:19:34
13-08-30 17:15:17 <0> router: start dhcpd
13-08-30 17:15:24 <0> router: open /dev/ttyUSB3 successful!
13-08-30 17:15:25 <0> router: sent:ATE0
13-08-30 17:15:25 <3> router: failed 1/5 to test AT command ATE0
13-08-30 17:15:26 <0> router: sent:ATE0
13-08-30 17:15:27 <0> router: rcvd:ATE0

OK
13-08-30 17:15:27 <0> router: sent:AT+CPIN?
13-08-30 17:15:27 <0> router: rcvd:
+CME ERROR: SIM busy
13-08-30 17:15:27 <3> router: failed 1/5 to check SIM card
13-08-30 17:15:32 <0> router: sent:AT+CPIN?
13-08-30 17:15:32 <0> router: rcvd:
+CPIN: READY

OK
13-08-30 17:15:33 <0> router: sent:AT+CFUN=1
13-08-30 17:15:33 <0> router: rcvd:
OK
13-08-30 17:15:33 <0> router: sent:ATIINTERCND="A710"
13-08-30 17:15:33 <0> router: rcvd:
                    
```

Download System Diagnosing Data

Download System Diagnosing Data

Manual Refresh
Refresh
Clear

| Event/Log | |
|---------------------------------|---|
| Item | Description |
| Download | Select the log messages you want to download. |
| Log Level | Select the Log level in the drop-down menu: DEBUG, INFO, NOTICE, WARNING, ERR, CRIT, ALERT, EMERG. |
| Download System Diagnosing Data | Click <i>Download System Diagnosing Data</i> to download diagnose file. |
| Manual Refresh | Select from “5 Seconds”, “10 Seconds”, “15 Seconds”, “30 Seconds” and “1 Minute”. User can select these intervals to refresh the log information. |

3.10 Configuration -> Link Management

This section allows users to set the WAN link and the related parameters.

Link Management

Link Management Settings

Primary Interface: Cellular ▾

Backup Interface: None ▾

ICMP Detection Primary Server: 8.8.8.8

ICMP Detection Secondary Server: 8.8.4.4

ICMP Detection Interval (s): 30

ICMP Detection Timeout (s): 3

ICMP Detection Retries: 3

Reset The Interface

**It is recommended to use an ICMP detection server to keep router always online.*

**The ICMP detection increases the reliability and also cost data traffic.*

**DNS example: Google DNS Server 8.8.8.8 and 8.8.4.4*

| Link Management | | |
|---------------------------------|---|----------|
| Item | Description | Default |
| Primary Interface | Selected from "Cellular", "Eth0", "WiFi". 1. Cellular: Select to make cellular as the primary WAN link. 2. Eth0: Select to make Eth0 as the primary WAN link. 3. WiFi: Select to make WiFi as the primary WAN link. | Cellular |
| Backup Interface | Selected from "None", "Eth0", "WiFi". 1. None: Do not select backup interface. 2. Cellular: Select Cellular as the backup WAN link. 3. Eth0: Select Eth0 as the backup WAN link. 4. WiFi: Select WiFi as the backup WAN link. | None |
| ICMP Detection Primary Server | Router will ping this primary address/domain name to check that if the current connectivity is active. | Null |
| ICMP Detection Secondary Server | Router will ping this secondary address/domain name to check that if the current connectivity is active. | Null |
| ICMP Detection Interval | Set the ping interval. | Null |
| ICMP Detection Timeout | Set the ping timeout. | 30 |
| ICMP Detection Retries | If Router ping the preset address/domain name time out continuously for Max Retries time, it will consider that the connection has been lost. | 3 |
| Reset The Interface | Enable to reset the cellular/ETH0 interface after the max ICMP detection retries. | 3 |

3.11 Configuration -> Cellular WAN

This section allows users to set the Cellular WAN and the related parameters.

Note: This section will not be displayed if you select "Eth0 Only" in "Configuration"->"Link Management"->"WAN Link".

Basic
Advanced
ISP Profile

Cellular Settings

| | SIM1 | SIM2 |
|------------------------|---|---|
| Status: | Ready | Not inserted |
| Network Provider Type: | Auto ▼ | Auto ▼ |
| APN: | <input style="width: 100%;" type="text"/> | <input style="width: 100%;" type="text"/> |
| Username: | <input style="width: 100%;" type="text"/> | <input style="width: 100%;" type="text"/> |
| Password: | <input style="width: 100%;" type="text"/> | <input style="width: 100%;" type="text"/> |
| Dialup No.: | <input style="width: 100%;" type="text"/> | <input style="width: 100%;" type="text"/> |
| PIN Type: | None ▼ | None ▼ |

Pppoe Bridge Setting

Enable Pppoe Bridge

Connection Mode

Connection Mode: Connect on demand ▼

Redial Interval (s):

Max Retries:

Inactivity Time (s):

Serial Output Content (Hex):

Triggered by Serial Data

Triggered by Tel

Triggered by SMS

SMS Connect command:

SMS disconnect command:

SMS connect reply:

SMS disconnect reply:

Phone Group: NULL ▼ Click to add PhoneGroup!

Triggered by IO (Note: use DI_1.)

Periodically connect

Time schedule: NULL ▼

Time Range

| Name | SUN | MON | TUE | WED | THU | FRI | SAT | Time Range1 | Time Range2 | Time Range3 |
|------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------|-------------|---|
| schedule_1 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 08:10-12:00 | 14:10-20:15 | <input style="width: 100%;" type="text"/> |

X
Add

Dual SIM Policy

Main SIM Card:

Switch To Backup SIM Card When Connection Fails

Switch To Backup SIM Card When ICMP Detection Fails

Total Ping (5~100)

Average Ping (100~5000ms)

Total Loss (0~100%)

Switch To Backup SIM Card When Roaming Is Detected

Preferred PLMN:

Switch To Backup SIM Card When IO Is Active (Note: use DI_2.)

Switch To Backup SIM Card When Data Limit Is Exceeded

When Both Data Limit Is Exceeded

Max Data Limitation (MB):

Date Of Month To Clean:

Already used (KB):

Switch Back Main SIM Card After Timeout

Initial Timeout (min):

| Basic @Cellular WAN | | |
|-----------------------|--|----------|
| Cellular Settings | | |
| Item | Description | Default |
| Network Provider Type | Select from "Auto", "Custom" or the ISP name you preset in "Configuration"->"Cellular WAN"->"ISP Profile". Auto: Router will get the ISP information from SIM card, and set the APN, username and password automatically. This option only works when the SIM card is from well-known ISP. Custom: Users need to set the APN, username and password manually. | Auto |
| APN | Access Point Name for cellular dial-up connection, provided by local ISP. | Null |
| Username | User Name for cellular dial-up connection, provided by local ISP. | Null |
| Password | Password for cellular dial-up connection, provided by local ISP. | Null |
| Dialup No. | Dialup number for cellular dial-up connection, provided by local ISP. | *99***1# |
| PIN Type | Select from "None", "Input", "Lock", "Unlock". None: Select when SIM card does not enable PIN lock or PUK lock. Input: Select when SIM card has enabled with PIN lock or PUK lock. Correct PIN/PUK code need to be entered. Lock: Select when user needs to lock the SIM card with PIN or PUK code. Unlock: Select when user needs to unlock the SIM card with PIN or PUK code. Note: Please ask your local GSM ISP to see whether your SIM card requiring PIN or not. <i>If you want to change with a new PIN code, you need to input new PIN</i> | None |

| | | |
|-----------------------------|--|-------------------|
| | code in item "New PIN Code" and "Confirm New PIN Code". You can go to tab "Status" -> "Event/Log" and find out "AT+CPIN?" to check what the status of the SIM card is. | |
| PPPoE Bridge Setting | | |
| Enable PPPoE Bridge | Click to enable PPPoE Bridge setting. | Disable |
| Connection Mode | | |
| Connection Mode | Select from "Always Online" and "Connect On Demand". Always Online: Auto activates PPP and keeps the link up after power on. Connect On Demand: After selection this option, user could configure Triggered by Serial Data, Triggered by Periodically Connect and Triggered by Time Schedule. Note: If you select several connect on demand polices, router only have to meet one of them to be triggered. | Connect On Demand |
| Redial Interval | Router will automatically re-dial with this interval when it fails communicating to peer via TCP or UDP. | 30 |
| Max Retries | The maximum retries times for automatically re-connect when router fails to dial up. After maximum retries, router will reboot the wireless module. If router still cannot dial up successfully, it will try to switch to the other SIM card. Then router will re-connect with the other SIM card with maximum retries. After successful connection, the Max Retries counter will be set to 0. | 3 |
| Inactivity Time | Configurable after "Connect On Demand" was selected. This field specifies the idle time setting for GPRS/3G auto-disconnection and trying to revert back to preferred SIM card. 0 means timeless. | 0 |
| Serial Output Content | The content which output to the serial device which connect to router and inform it that router is ready to receive serial data. | Null |
| Triggered by Serial Data | Tick this check box to allow router automatically connects to cellular network from idle mode when there is data comes out from serial port. | Enable |
| Triggered by Tel | Tick this check box to allow router automatically connects to cellular network from idle mode when make a voice call to router. | Disable |
| Triggered by SMS | Tick this check box to allow router automatically connects to cellular network from idle mode when send a specific SMS to router. | Disable |
| SMS Connect Command | Users shall send this specific SMS to trigger router to connect to cellular network. | Null |
| SMS Disconnect Command | Users shall send this specific SMS to trigger router to disconnect to cellular network. | Null |
| SMS Connect Reply | When router connects to cellular network, it will automatically send out this SMS to specific users (set in the Phone Group). | Null |
| SMS Disconnect Reply | When router disconnect from cellular network, it will automatically send out this SMS to specific users (set in the Phone Group). | Null |
| Phone Group | Click to add Phone Group to Set specific users' phone Book and which phone Group they are belonged to. | Null |

| | | |
|---|--|---------|
| Triggered by IO | Tick this check box to allow router automatically connects to cellular network from idle mode when there is a DI (DI_1) alarm input. | Disable |
| Periodically Connect | Tick this check box to allow router automatically connects to cellular network with preset interval which you preset in <i>Periodically Connect Interval</i> . | Enable |
| Periodically Connect Interval | Periodically Connect Interval for Periodically Connect. | 300 |
| Time Schedule | Select the Time Range to allow router automatically connects to cellular network during this time range. | NULL |
| Time Range | Adding the Time Range for Time Schedule. You can set the days of one week and at most three ranges of time of one day. | Null |
| Dual SIM Policy | | |
| Main SIM Card | Set the preferred SIM card from SIM 1, SIM 2 or Auto. | SIM1 |
| Switch to backup SIM card when connection fails | Router will switch to another SIM card if main SIM card fail to connect to network. | Disable |
| Switch To Backup SIM Card When ICMP Detection Fails | Router will switch to another SIM card if it cannot dialup or ping the preset address timeout continuously for Max Retries time. Preset address is set in Configuration-> Link Management-> ICMP Detection Primary Server and ICMP Detection Secondary Server. Important Note: You need to fill in tab Configuration-> Link Management-> ICMP Detection Primary Server and ICMP Detection Secondary Server, and then this strategy can be activated. | Disable |
| Total Ping (5~100) @ Switch To Backup SIM Card When ICMP Detection Fails | Preset Max Retries time that Router ping the preset address/domain name. | 10 |
| Average Ping (100~5000ms) @ Switch To Backup SIM Card When ICMP Detection Fails | Route will count the "Average Ping" timeout interval after router ping the preset address/domain name for "Total Ping" times. After router detects that average ping timeout interval reach to preset "Average Ping" it will switch backup SIM card. | 400 |
| Total Loss (0~100%) @ Switch To Backup SIM Card When ICMP Detection Fails | Route will count the "Total Loss" after router ping the preset address/domain name for "Total Ping" times. After router detects that total loss packet reach to preset "Total Loss" it will switch backup SIM card. | 30 |
| Switch to backup SIM card when roaming is detected | Router will switch to backup SIM card when preferred SIM card is roaming. | Disable |
| Preferred PLMN | The identifier for Router to check if it is in home location area or in roaming area, and decide if it needs to switch back to preferred SIM card. | Null |
| Switch to backup SIM card when IO is active | Router will switch to another SIM card if it detect there is DI (DI_2) alarm input. | Disable |

| | | |
|---|---|---------|
| Switch to backup SIM card when data limit is exceeded | If the SIM card that the router worked with currently has reached the data traffic limitation you preset, it will switch to the other SIM card. | Disable |
| When Both Data Limit Is Exceeded | Select from "Stay in Backup SIM Card", "Switch Back Main SIM Card" and "Disable Cellular Until Data Is Cleared". | Disable |
| Max Data limitation(MB) | Set the monthly data traffic limitation. | 100 |
| Date of Month to Clean | Set one day of month to restore the used data to 0. | 1 |
| Already used | This tab will show how many data traffic has been used. | 0 |
| Switch back Main SIM card after timeout(min) | Enable to Switch back Main SIM card after the Initial timeout. | Disable |
| Initial Timeout(min) | Set the initial timeout. | 60 |

Note: This section will not be displayed if you select "Eth0 Only" in "Configuration"->"Link Management"->"WAN Link".

- Basic
- Advanced
- ISP Profile

Cellular Advanced Settings

| | SIM1 | SIM2 |
|------------------------------|--|--|
| Phone No.: | <input type="text"/> | <input type="text"/> |
| Network Type: | <input type="text" value="Auto"/> ▼ | <input type="text" value="Auto"/> ▼ |
| Band Mode: | <input type="text" value="ALL"/> ▼ | <input type="text" value="ALL"/> ▼ |
| Authentication: | <input type="text" value="Auto"/> ▼ | <input type="text" value="Auto"/> ▼ |
| MTU: | <input type="text" value="1500"/> | <input type="text" value="1500"/> |
| MRU: | <input type="text" value="1500"/> | <input type="text" value="1500"/> |
| Asynmap Value: | <input type="text" value="ffffffff"/> | <input type="text" value="ffffffff"/> |
| Use Peer DNS: | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Primary DNS Server: | <input type="text"/> | <input type="text"/> |
| Secondary DNS Server: | <input type="text"/> | <input type="text"/> |
| Address/Control Compression: | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Protocol Field Compression: | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Expert Options: | <input type="text" value="noccp nobsdcomp"/> | <input type="text" value="noccp nobsdcomp"/> |

| Advanced @Cellular WAN | | |
|-----------------------------|---|------------------------|
| Item | Description | Default |
| Phone No. | Set the SIM card's phone number, and it will be showed in "Status"->"System"->"System"->"Cellular WAN Information"->"SIM Phone Number". In general, you don't need to set this number because router will read it from the SIM card automatically. | Null |
| Authentication | Select from "Auto", "PAP" and "CHAP" as the local ISP required. | Auto |
| MTU | Maximum Transmission Unit. It is the identifier of the maximum size of packet, which is possible to transfer in a given environment. | 1500 |
| MRU | Maximum Receiving Unit. It is the identifier of the maximum size of packet, which is possible to receive in a given environment. | 1500 |
| Asyncmap Value | One of the PPP initialization strings. In general, you don't need to modify this value. | 1 |
| Use Peer DNS | Enable to obtain the DNS server's address from the ISP. | Enable |
| Primary DNS Server | Set the primary DNS server's address. This item will be unavailable if you enable "Use Peer DNS". | Null |
| Secondary DNS Server | Set the secondary DNS server's address. This item will be unavailable if you enable "Use Peer DNS". | Null |
| Address/Control Compression | Used for PPP initialization. In general, you need to enable it as default. | Enable |
| Protocol Field Compression | Used for PPP initialization. In general, you need to enable it as default. | Enable |
| Expert Options | You can enter some other PPP initialization strings in this field. Each string can be separated by a space. | noccp nobsdcom p |

ISP Profile

This section allow users to preset some ISP profiles which will be shown in the selection list of "Configuration"->"Cellular WAN"->"Network Provider Type".

| Basic | Advanced | ISP Profile | | | | | | | | | | |
|---|----------|-------------|----------|------------|----------|----------|------------|--------------|-------|--|--|----------|
| <p>ISP Profile List</p> <table border="1"> <thead> <tr> <th>ISP</th> <th>APN</th> <th>Username</th> <th>Password</th> <th>Dialup No.</th> </tr> </thead> <tbody> <tr> <td>china-mobile</td> <td>3gnet</td> <td></td> <td></td> <td>*99***1#</td> </tr> </tbody> </table> <p style="text-align: right;"><input type="button" value="Add"/> ✘</p> | | | ISP | APN | Username | Password | Dialup No. | china-mobile | 3gnet | | | *99***1# |
| ISP | APN | Username | Password | Dialup No. | | | | | | | | |
| china-mobile | 3gnet | | | *99***1# | | | | | | | | |

| ISP Profile @Cellular WAN | | |
|------------------------------------|---|---------|
| Item | Description | Default |
| ISP | Input the ISP's name which will be shown in the selection list of "Configuration"->"Cellular WAN"->"Network Provider Type". | Null |
| APN,Username, Password, Dialup No. | All these parameters were provided by the ISP. | Null |

3.12 Configuration -> Ethernet

This section allows users to set the Ethernet WAN and LAN parameters of Eth0.

| | | | |
|-------------|-------------|-------------|-------------------|
| Eth0 | Eth1 | VLAN | Dhcp Relay |
|-------------|-------------|-------------|-------------------|

Ethernet Interface Type

LAN
 WAN

LAN Interface

Enable Bridge (As 2 Ports Switch)

IP Address:

NetMask:

MTU:

Media Type:

LAN Interface

Enable Bridge (As 2 Ports Switch)

IP Address:

NetMask:

MTU:

Multiple IP Address

| | |
|------------|------------------------------------|
| IP Address | NetMask |
| | <input type="button" value="Add"/> |

DHCP Server

Enable DHCP Server

IP Pool Start:

IP Pool End:

NetMask:

Lease Time (min):

Primary DNS Server:

Secondary DNS Server:

Windows Name Server:

Static Lease

| | |
|--------------------------------|------------------------------------|
| MAC Address | IP Address |
| <i>*MAC: ff:ff:ff:ff:ff:ff</i> | <input type="button" value="Add"/> |

| Eth0@Ethernet | | |
|---|--|---------|
| Item | Description | Default |
| Ethernet Interface Type | Eth0 can work under two different kinds of mode: LAN and WAN. | LAN |
| Enable Bridge @ LAN Interface | Enable to make Eth0 works under bridge mode with Eth1. Eth0 and Eth1 will have the same IP address under this mode. | Enable |
| IP Address, Netmask, MTU, Media Type@ LAN Interface | Set the IP address, Netmask, MTU and Media Type of Eth0. These parameters will be un-configurable if you enable Bridge. | Null |
| Multiple IP Address @ LAN Interface | Assign multiple IP addresses for Eth0. | Null |
| Enable DHCP Server @ DHCP Server | Enable to make router can lease IP address to DHCP clients which connect to Eth0. | Disable |
| IP Pool Start, IP Pool End @ DHCP Server | Define the beginning (IP Pool Start) and end (IP Pool End) of the pool of IP addresses which will lease to DHCP clients. | Null |
| Netmask @ DHCP Server | Define the Netmask which the DHCP clients will obtain from DHCP server. | Null |
| Lease Time @ DHCP Server(min) | Define the time which the client can use the IP address which obtained from DHCP server. | 60 |
| Primary/Secondary DNS Server @ DHCP Server | Define the primary/secondary DNS Server which the DHCP clients will obtain from DHCP server. | Null |
| Windows Name Server @ DHCP Server | Define the WINS Server which the DHCP clients will obtain from DHCP server. | Null |
| Static Lease @ DHCP Server | Define to lease static IP Addresses, which conform to MAC Address of the connected equipment. | Null |

This section allows users to set the Ethernet WAN and LAN parameters of Eth1.

Eth0
Eth1
VLAN
Dhcp Relay

LAN Interface

| | |
|-------------|---|
| IP Address: | <input style="width: 95%;" type="text" value="192.168.0.1"/> |
| NetMask: | <input style="width: 95%;" type="text" value="255.255.255.0"/> |
| MTU: | <input style="width: 95%;" type="text" value="1500"/> |
| Media Type: | <input style="width: 95%;" type="text" value="Auto-negotiation"/> |

Multiple IP Address

| | |
|---|--|
| <input style="width: 98%;" type="text" value="IP Address"/> | <input style="width: 98%;" type="text" value="NetMask"/> |
| <input style="width: 100px;" type="button" value="Add"/> | |

DHCP Server

Enable DHCP Server

IP Pool Start:

IP Pool End:

NetMask:

Lease Time (min):

Primary DNS Server:

Secondary DNS Server:

Windows Name Server:

Static Lease

| MAC Address | IP Address |
|--------------------------------|------------|
| <i>*MAC: ff:ff:ff:ff:ff:ff</i> | |

| Eth1@Ethernet | | |
|--|--|-------------------------------|
| Item | Description | Default |
| IP Address, Netmask, MTU, Media Type @ LAN Interface | Set the IP address, Netmask, MTU and Media Type of Eth1. These parameters will be un-configurable if you enable Bridge. | Null |
| Multiple IP Address @ LAN Interface | Assign multiple IP addresses for Eth1. | Null |
| Enable DHCP Server @ DHCP Server | Enable to make router can lease IP address to DHCP clients which connect to Eth1. | Enable |
| IP Pool Start, IP Pool End @ DHCP Server | Define the beginning (IP Pool Start) and end (IP Pool End) of the pool of IP addresses which will lease to DHCP clients. | 192.168.0.2/ 192.168.0.100 |
| Netmask @ DHCP Server | Define the Netmask which the DHCP clients will obtain from DHCP server. | 255.255.255.0 |
| Lease Time @ DHCP Server(min) | Define the time which the client can use the IP address which obtained from DHCP server. | 60 |
| Primary/Secondary DNS Server @ DHCP Server | Define the primary/secondary DNS Server which the DHCP clients will obtain from DHCP server. | 192.168.0.1/ 0.0.0.0 |
| Windows Name Server @ DHCP Server | Define the WINS Server which the DHCP clients will obtain from DHCP server. | 192.168.0.1 |
| Static Lease @ DHCP Server | Define to lease static IP Addresses, which conform to MAC Address of the connected equipment. | Null |

Router can be DHCP Relay, which will provide a relay tunnel to solve problem that DHCP Client and DHCP Server is not in a same subnet. This section allow user to configure DHCP Relay settings.

- Eth0
- Eth1
- VLAN
- Dhcp Relay

LAN0 VLAN Settings

LAN0 VLAN Enable

LAN1 VLAN Settings

LAN1 VLAN Enable

| VLAN @ Ethernet | | |
|---|--|--------------------------------|
| Item | Description | Default |
| LAN 0/1 VLAN Enable | Enable to make router can encapsulate and de-encapsulate the VLAN tag. | Disable |
| VLAN ID@LAN 0/1 VLAN Enable | Set the Tag ID of VLAN | Null |
| IP Address, NetMask @LAN0/1 VLAN Settings | Set the IP address, Netmask of VLAN interface | VLAN 0/1's IP address, Netmask |

Note: IP Address and NetMask will be hidden if user bridge two Ethernet ports.

Router can be DHCP Relay, which will provide a relay tunnel to solve problem that DHCP Client and DHCP Server is not in a same subnet. This section allow user to configure DHCP Relay settings.

- Eth0
- Eth1
- VLAN
- Dhcp Relay

DhcpRelay Configuration

Enable Dhcp Relay

| DHCP Relay@Ethernet | | |
|---------------------|---|---------|
| Item | Description | Default |
| DHCP Server | Enter DHCP Server's IP address. Note: Please disable DHCP Server and DHCP Client first to make sure DHCP relay can be enabled. | Null |

3.13 Configuration -> WiFi

This section allows users to set parameters of WiFi.

Basic
MAC Filter
Status

WiFi Basic Settings

Enable WiFi

Mode: AP

Channel: Auto

SSID: Router_AP

Hide SSID:

Security Mode: Open

WiFi Network Settings

**WiFi interface bridged with eth1, network settings please refer to this page.*

Note: when R3000 enable WiFi feature and works as AP mode

Basic
Status

WiFi Basic Settings

Enable WiFi

Mode: Client

Channel: Auto

SSID: Router_AP Scan

Hide SSID:

Security Mode: Open

WiFi Network Settings

IP Configuration: DHCP Client

Use Peer DNS

Override DHCP Server Values:

Netmask:

Gateway:

Note: when R3000 enable WiFi feature and works as Client mode

| Basic @ WiFi | | |
|--------------|--|-----------|
| Item | Description | Default |
| Enable WiFi | Click to enable WiFi feature. | Null |
| Mode | <p>This item will show "AP" and "Client", cannot be configured.</p> <p>AP: In a wireless local area network (WLAN), an access point is a station that transmits and receives data. When R3000 is wanted to work as "AP" mode, please go to tab "Configuration" -> "Link Management" -> "Primary Interface" to select "Cellular" or "Eth0" as WAN link.</p> <p>Client: When R3000 works as Client mode, it can be used as an Ethernet-to-wireless (or LAN-to-WLAN) network adaptor. For example, a notebook computer equipped with an Ethernet adaptor but no wireless card can be connected to the router with an Ethernet cable to provide wireless connectivity to another AP. When R3000 is wanted to work as "Client" mode, please go to tab "Configuration" -> "Link Management" -> "Primary Interface" to select "WiFi" as WAN link.</p> | Null |
| Channel | <p>Select the frequency channel, which includes "Auto", "1", "2" "13".</p> <p>Auto: R3000 will scan all frequencies until it finds one with an available access point or wireless network it can join.</p> <p>1~13: R3000 will be fixed to work with this channel.</p> | Auto |
| SSID | <p>SSID (service set identifier) is the network name of the WLAN. The SSID of a client and the SSID of the AP must be identical for the client and AP to be able to communicate with each other.</p> <p>When R3000 works as Client mode, enter SSID of the access point which R3000 want to connect.</p> <p>Input from 1 to 31 characters.</p> | Router_AP |
| Hide SSID | <p>When R3000 works as AP mode, after clicking this check box R3000 will not broadcast the SSID. Other wireless devices cannot discover this access point automatically. User need to enter the SSID manually to let their wireless devices join this access point.</p> <p>When R3000 works as Client mode and need to connect to any access point which has ensconced SSID, you need to enter this SSID manually in tab "SSID" and then click "Hide SSID".</p> | Disable |

| | | |
|-------------------------|--|------------|
| Security mode | <p>Select from “Open”, “WPA”, “WPA2” and “WEP”.</p> <p>Open: No authentication. For security reasons, you should NOT set security mode to Open System, since authentication and data encryption are NOT performed in Open System mode.</p> <p>WPA/WPA2: Personal versions of WPA/WPA2 (Wi-Fi Protected Access), also known as WPA/WPA-PSK (Pre-Shared Key), provide a simple way of encrypting a wireless connection for high confidentiality. WPA2 is a stronger security feature than WPA.</p> <p>WEP: Wired Equivalent Privacy, provide encryption for wireless device’s data transmission.</p> <p>Note: R3000 supports WPA/WPA2 Personal version, not enterprise version.</p> | Open |
| Encryption | <p>Select from “TKIP” and “CCMP (AES)”.</p> <p>TKIP: Temporal Key Integrity Protocol (TKIP) encryption is used over the wireless link. TKIP encryption can be used with WPA-PSK and WPA with 802.1x authentication.</p> <p>CCMP (AES): CCMP (AES) encryption is used over the wireless link. CCMP can be used WPA-PSK and WPA with 802.1x authentication.</p> <p>Note: CCMP (AES) is a stronger encryption algorithm than TKIP.</p> | CCMP (AES) |
| Passphrase | <p>When R3000 works as AP mode, enter Master key to generate keys for encryption. A Passphrase is used as a basis for encryption methods (or cipher types) in a WLAN connection. The passphrases should be complicated and as long as possible. For security reasons, this passphrase should only be disclosed to users who need it, and it should be changed regularly.</p> <p>When R3000 works as Client mode, enter access point’s passphrase which it wants to connect to.</p> <p>Input from 8 to 63 characters.</p> | Null |
| Key Renewal Interval(s) | <p>Enter the time period of group key renewal.</p> <p>Note: Only for AP mode.</p> | 3600 |
| WiFi Network Settings | <p>When R3000 works as AP mode, Click to link to page “Eth1” to check the network settings, WiFi interface bridged with eth1 this time.</p> <p>When R3000 works as Client mode, this item is used to do IP configuration of access point.</p> | Null |

Basic **MAC Filter** Status

MAC Filter Settings

Enable ACL:

Mode: Allow ▼

Access Control List

| Index | MAC Address |
|------------------------------------|-------------|
| <input type="button" value="Add"/> | |

Note: Available when R3000 enable WiFi feature and works as AP mode

| Mac Filter @ WiFi (Only for AP mode) | | |
|--------------------------------------|---|---------|
| Enable ACL | Click to enable ACL (Access Control List). | Disable |
| Mode | Select from "Allow" and "Deny". Allow: Only the packets fitting the entities of the "Access Control List" can be allowed. Deny: All the packets fitting the entities of the "Access Control List" will be denied. Note: R3000 can only allow or deny devices which are included in "Access Control List" at one time. | Allow |
| Access Control List | Click "Add" to add MAC address. | Null |

Basic MAC Filter **Status**

Status

BSSID: 00:23:a7:40:12:58
 SSID: TP-Link8888
 Mode: AP
 Key Management: WPA2-PSK
 Cipher Pairwise: CCMP
 Cipher Group: CCMP
 WPA State: Completed
 Address: 00:23:a7:40:12:58

Associated Clients

| Index | BSSID | IP Address |
|-------|-------|------------|
| | | |

| Status @ WiFi | | |
|-----------------|---|------|
| BSSID | Show MAC address of R3000's WiFi interface or the access point which R3000 connects to. | Null |
| SSID | Show SSID of R3000's WiFi interface or the access point which R3000 connects to. | Null |
| Mode | Show current mode of R3000: AP or Client. | Null |
| Key Management | Show current security mode of R3000 or the access point which R3000 connects to. | Null |
| Cipher Pairwise | Show current encryption algorithm of R3000 or the access point which R3000 connects to. | Null |
| Cipher Group | | |
| WPA State | Show current WPA status. Mainly there are 5 statuses: Disconnected, Scanning, Initializing, Associated, 4way_handshark, Completed. Disconnected: Not associated or connected with any access point, perhaps because the wireless device has not fully initialized, is out of range, or the wireless interface is disconnected because the Ethernet interface is enabled. | Null |

| | | |
|------------------------------|---|------|
| | <p>Scanning: Searching for a wireless network (access point) for connection.</p> <p>Initializing: R3000 is setting up initial wireless environment.</p> <p>Associated: This state is entered when the driver reports that association has been successfully completed with an AP, but still waiting for authentication.</p> <p>4way_handshake: This state is entered when WPA/WPA2 4-Way Handshake is started. When Passphrase do not match, it will show this status.</p> <p>Completed: The wireless connection of R3000 and other wireless devices are established.</p> | |
| Address | Show the MAC address of R3000's WiFi interface. | Null |
| Associated Clients @ AP mode | Show current associated wireless client devices' BSSID and IP address. | Null |
| Scan Results @ Client mode | Show current scan results of any wireless network (access point), such as SSID, Channel, Signal Level, Flags (the security mode and encryption algorithm flags of access point). | Null |

3.14 Configuration -> Serial

This section allows users to set the serial (RS232/RS485) parameters.

RS232
RS485

Serial Port Settings

Baudrate:

Data Bit:

Parity:

Stop Bit:

Flow Control:

Protocol Settings

Protocol:

- When Select Protocol "Transparent":

Protocol Settings

Protocol:

Mode:

Local Port:

Show Protocol Advanced

Interval Timeout (1*10ms):

Packet Length:

Enable Delimiter1

Delimiter1 (Hex):

Enable Delimiter2

Delimiter2 (Hex):

Delimiter Process:

- When Select Protocol “Modbus”:

Protocol Settings

Protocol:

Local Port:

Attached serial device type:

Modbus Slave

| Slave Address | Slave Port | ID |
|------------------------------------|------------|----|
| *ID: <1-247> or <1-247>-<1-247> | | |
| <input type="button" value="Add"/> | | |

- When Select Protocol “Transparent Over Rlink”:

Protocol Settings

Protocol:

Interval Timeout (1*10ms):

- When Select Protocol “Modbus Over Rlink”:

Protocol Settings

Protocol:

Attached serial device type:

- When Select Protocol “AT Over COM”:

Protocol Settings

Protocol:

Display all com (Note enable this function will disable cellular WAN.)

COM Name:

● When Select Protocol “GPS Report”:

| Protocol Settings | |
|-------------------|------------|
| Protocol: | GPS Report |

| RS232 @ Serial | | |
|------------------------------|--|------------|
| Item | Description | Default |
| Baud-rate | Select from “300”, “600”, “1200”, “2400”, “4800”, “9600”, “19200”, “38400”, “57600”, “115200” and “230400”. | 115200 |
| Data bit | Select from “7” and “8”. | 8 |
| Parity | Select from “None”, “Odd” and “Even”. | None |
| Stop bit | Select from “1” and “2”. | 1 |
| Flow control | Select from “None”, “Software” and “Hardware”. | None |
| Protocol | Select from “None”, “Transparent”, “Modbus”, “Transparent Over Rlink”, “Modbus Over Rlink” “AT Over COM” and “GPS Report”. <ol style="list-style-type: none"> None: Router will do nothing in RS232 serial port. Transparent: Router will transmit the serial data transparently without any protocols. Modbus: Router will translate the Modbus RTU data to Modbus TCP data and vice versa. Transparent Over Rlink: Router will send all data from RS232 serial port to Robustlink, then Robustlink will forward the data to another destination site. Modbus Over Rlink: Router will translate all data from RS232 serial port to Modbus TCP protocol data, and then send to Robustlink, after that Robustlink will forward the data to another destination site. AT Over COM: select to operate router via RS232 COM port. For example, enter AT commands to router via RS232 COM port. GPS Report: select to enable router to output GPS status data through RS232 port. | None |
| Mode @Transparent | Select from “TCP Server”, “TCP Client” and “UDP”. TCP Client: Router works as TCP client, initiate TCP connection to TCP server. Server address supports both IP and domain name. TCP Server: Router works as TCP server, listening for connection request from TCP client. UDP: Router works as UDP client. | TCP Client |
| Local Port @Transparent | Enter the Local port for TCP or UDP. | 0 |
| Multiple Server @Transparent | Click “Add” button to add multiple server. You need to enter the server’s IP and port, and enable or disable “Send data to serial”. If you disable “Send data to serial”, router will not transmit the data from this server to serial port. Note: This section will not be displayed if you select “TCP server” in “Mode”. | None |
| show Protocol | Tick to enable protocol advanced setting. | Disable |

| | | |
|-------------------------------------|---|------------------|
| Advanced @ Transparent | | |
| Local IP @ Transparent | This item will show up when you enable any VPN tunnel of R3000, it means serial data can be matched to this local IP address and be transmitted or received via VPN tunnel. Note: when you do not enable any VPN tunnel, this item will not show up. | Null |
| Interval Timeout @Transparent | The serial port will queue the data in the buffer and send the data to the Cellular WAN/Ethernet WAN when it reaches the Interval Timeout in the field. Note: Data will also be sent as specified by the packet length or delimiter settings even when data is not reaching the interval timeout in the field. | 10 |
| Packet Length @Transparent | The Packet length setting refers to the maximum amount of data that is allowed to accumulate in the serial port buffer before sending. 0 for packet length, no maximum amount is specified and data in the buffer will be sent as specified by the interval timeout or delimiter settings or when the buffer is full. When a packet length between 1 and 1024 bytes is specified, data in the buffer will be sent as soon it reaches the specified length. Note: Data will also be sent as specified by the interval timeout or delimiter settings even when data is not reaching the preset packet length. | 1360 |
| Enable Delimiter1/2 | When Delimiter 1 is enabled, the serial port will queue the data in the buffer and send the data to the Cellular WAN/Ethernet WAN when a specific character, entered in hex format, is received. A second delimiter character may be enabled and specified in the Delimiter 2 field, so that both characters act as the delimiter to control when data should be sent. | Disable |
| Delimiter1/2 (Hex) @Transparent | Enter the delimiter in Hex. | 0 |
| Delimiter Process @Transparent | The Delimiter process field determines how the data is handled when a delimiter is received. None: Data in the buffer will be transmitted when the delimiter is received; the data also includes the delimiter characters. Strip: Data in the buffer is first stripped of the delimiter before being transmitted. | Strip |
| Local IP @ Modbus | This item will show up When you enable any VPN tunnel of R3000, it means serial data can be matched to this local IP address and be transmitted or received via VPN tunnel. Note: when you do not enable any VPN tunnel, this item will not show up. | 0 |
| Local Port @ Modbus | Enter the Local port for Modbus. | 0 |
| Attached serial device type @Modbus | Select From “Modbus RTU slave”, “Modbus ASC II slave”, “Modbus RTU master” and “Modbus ASC II master”. Modbus RTU slave: router connects to Modbus slave device which works under Modbus RTU protocol. Modbus ASC II slave: router connects to Modbus slave device which works under Modbus ASC II protocol. | Modbus RTU slave |

| | | |
|---|---|--------------|
| | <p>Note: When select “Modbus RTU slave” and “Modbus ASC II slave” protocol, router is as TCP Server site, user need to enter a local port number in “Local Port @Modbus” and wait to be connected.</p> <p>Modbus RTU master: router connects to master device which works under Modbus RTU protocol.</p> <p>Modbus ASC II master: router connects to master device which works under Modbus ASC II protocol.</p> <p>Note: When select “Modbus RTU master” and “Modbus ASC II master” protocol, router is as TCP Client site, user need to enter slave address and slave port number in “Slave Address @ Modbus Slave ” and “Slave Port @ Modbus Slave”, and connect to Server site.</p> | |
| Modbus Slave @Modbus | Add the Modbus slaves which will be polled by Modbus master (router). This section only displayed when you select “Modbus RTU master” or “Modbus ASC II master” in “Attached serial device type”. | Null |
| Slave Address @ Modbus Slave | This connection is usually used to connect to the Modbus slave devices which as TCP server. Enter IP address of the TCP server. | Null |
| Slave Port @ Modbus Slave | Enter the port number of TCP server. | Null |
| ID @ Modbus Slave | Enter the ID number of TCP server. | Null |
| Interval Timeout @ Transparent Over Rlink | The serial port will queue the data in the buffer and send the data to the Cellular WAN/Ethernet WAN when it reaches the Interval Timeout in the field. | 10 |
| Attached serial device type @ Modbus Over Rlink | Select From “Modbus RTU slave”, “Modbus ASC II slave”. Modbus RTU slave: router connects to slave device which works under Modbus RTU protocol. Modbus ASC II slave: router connects to slave device which works under Modbus ASC II protocol. | Null |
| Display all com @ AT Over COM | Enable to display all virtual com of the module inside the router. Generally, router will occupy /dev/ttyUSB0 and /dev/ttyUSB2 for dialing up to GPRS. Note: Enable this function will disable Cellular WAN function. | Disable |
| COM Name | Show the virtual com name of the module inside. | /dev/ttyUSB1 |

RS232 **RS485**

Serial Port Settings

Baudrate: 115200 ▼

Data Bit: 8 ▼

Parity: None ▼

Stop Bit: 1 ▼

Protocol Settings

Protocol: None ▼

- When Select Protocol “Transparent”:

Protocol Settings

Protocol:

Mode:

Local Port:

Show Protocol Advanced

Interval Timeout (1*10ms):

Packet Length:

Enable Delimiter1

Delimiter1 (Hex):

Enable Delimiter2

Delimiter2 (Hex):

Delimiter Process:

- When Select Protocol “Modbus”:

Protocol Settings

Protocol:

Local Port:

Attached serial device type:

- When Select Protocol “Transparent Over Rlink”:

Protocol Settings

Protocol:

Interval Timeout (1*10ms):

- When Select Protocol “Modbus Over Rlink”:

Protocol Settings

Protocol:

Attached serial device type:

| RS485 @ Serial | | |
|----------------|---|-------------|
| Item | Description | Default |
| Baud-rate | Select from “300”, “600”, “1200”, “2400”, “4800”, “9600”, “19200”, “38400”, “57600”, “115200” and “230400”. | 115200 |
| Data bit | Select from “7” and “8”. | 8 |
| Parity | Select from “None”, “Odd” and “Even”. | None |
| Stop bit | Select from “1” and “2”. | 1 |
| Protocol | Select from “None”, “Transparent” and “Modbus”. | Transparent |

| | | |
|---------------------------------|---|------------|
| | Transparent: Router will transmit the serial data transparently without any protocols. Modbus: Router will transmit the serial data with Modbus protocol. | |
| Mode @Transparent | Select from "TCP Server", "TCP Client" and "UDP". | TCP Client |
| Local Port @Transparent | Enter the Local port for TCP or UDP. | 0 |
| Multiple Server @Transparent | Click "Add" button to add multiple server. You need to enter the server's IP and port, and enable or disable "Send data to serial". If you disable "Send data to serial", router will not transmit the data from this server to serial port. Note: This section will not be displayed if you select "TCP server" in "Mode". | Null |
| Enable Protocol @Transparent | Tick to enable protocol advanced setting. | Disable |
| Local IP @ Transparent | This item will show up When you enable any VPN tunnel of R3000, it means serial data can be matched to this local IP address and be transmitted or received via VPN tunnel. Note: when you do not enable any VPN tunnel, this item will not show up. | 0 |
| Interval Timeout @Transparent | The serial port will queue the data in the buffer and send the data to the Cellular WAN/Ethernet WAN when it reaches the Interval Timeout in the field. Note: Data will also be sent as specified by the packet length or delimiter settings even when data is not reaching the interval timeout in the field. | 10 |
| Packet Length @Transparent | The Packet length setting refers to the maximum amount of data that is allowed to accumulate in the serial port buffer before sending. 0 for packet length, no maximum amount is specified and data in the buffer will be sent as specified by the interval timeout or delimiter settings or when the buffer is full. When a packet length between 1 and 1024 bytes is specified, data in the buffer will be sent as soon it reaches the specified length. Note: Data will also be sent as specified by the interval timeout or delimiter settings even when data is not reaching the preset packet length. | 1360 |
| Enable Delimiter1 | When Delimiter 1 is enabled, the serial port will queue the data in the buffer and send the data to the Cellular WAN/Ethernet WAN when a specific character, entered in hex format, is received. A second delimiter character may be enabled and specified in the Delimiter 2 field, so that both characters act as the delimiter to control when data should be sent. | Disable |
| Delimiter1 (Hex) @ Transparent | Enter the delimiter in Hex. | 0 |
| Delimiter Process @ Transparent | The Delimiter process field determines how the data is handled when a delimiter is received. None: Data in the buffer will be transmitted when the delimiter is | Strip |

| | | |
|---|--|------------------|
| | received; the data also includes the delimiter characters. Strip: Data in the buffer is first stripped of the delimiter before being transmitted. | |
| Local IP @ Modbus | This item will show up When you enable any VPN tunnel of R3000, it means serial data can be matched to this local IP address and be transmitted or received via VPN tunnel. Note: when you do not enable any VPN tunnel, this item will not show up. | 0 |
| Local Port @ Modbus | Enter the Local port for Modbus. | 0 |
| Attached serial device type @ Modbus | Select From “Modbus RTU slave”, “Modbus ASC II slave”, “Modbus RTU master” and “Modbus ASC II master”. Modbus RTU slave: router connects to slave device which works under Modbus RTU protocol. Modbus ASC II slave: router connects to slave device which works under Modbus ASC II protocol. Modbus RTU master: router connects to master device which works under Modbus RTU protocol. Modbus ASC II master: router connects to master device which works under Modbus ASC II protocol. | Modbus RTU slave |
| Modbus Slave @ Modbus | Add the Modbus slaves which will be polled by Modbus master (router). This section only displayed when you select “Modbus RTU master” or “Modbus ASCII master” in “Attached serial device type”. | Null |
| Slave Address @ Modbus Slave | This connection is usually used to connect to the Modbus slave devices which as TCP server. Enter IP address of the TCP server. | Null |
| Slave Port @ Modbus Slave | Enter the port number of TCP server. | Null |
| ID @ Modbus Slave | Enter the ID number of TCP server. | Null |
| Interval Timeout @ Transparent Over Rlink | Serial port will queue the data in buffer and then send it to the Cellular WAN/Ethernet WAN when it reaches the Interval Timeout in this field. | 10 |
| Attached serial device type @ Modbus Over Rlink | Select From “Modbus RTU slave”, “Modbus ASC II slave”. Modbus RTU slave: router connects to slave device which works under Modbus RTU protocol. Modbus ASC II slave: router connects to slave device which works under Modbus ASC II protocol. | Modbus RTU slave |

3.15 Configuration -> DI/DO

This section allows users to set the DI/DO parameters.

DI
DO

DI_1 Configuration

Enable DI

Mode: OFF

Filtering (1*100ms): 1

SMS Alarm

Triggering Alarm
Recovering Alarm
Phone Group

Add

DI_2 Configuration

Enable DI

Mode: OFF

Filtering (1*100ms): 1

SMS Alarm

Triggering Alarm
Recovering Alarm
Phone Group

Add

| DI @ DI/DO | | |
|----------------|---|----------|
| Item | Description | Default |
| Enable DI | Click to Enable DI. | Disable |
| Mode | Select from "OFF", "ON", "EVENT_COUNTER". OFF: Connect to GND (logic 0). When pin DI connects to GND, R3000 will detect there is a DI alarm input. ON: Open from GND (logic 1). When pin DI does not connect to GND, R3000 will detect there is a DI alarm input. EVENT_COUNTER: under event counter mode. | OFF |
| Filtering | Software filtering is used to control switch bounces. Input from 0 to 10000ms. | 1 |
| Count Trigger | Available when DI under Event Counter mode. Input from 0 to 100. (0=will not trigger alarm) It will trigger alarm when counter reaches this figure. After triggering alarm, DI will keep counting but not trigger alarm again. | 0 |
| Counter Active | Available when DI under Event Counter mode. Select from "Hi to Lo", "Lo to Hi". In Event Counter mode, the channel accepts limit or proximity switches and counts events according to the ON/OFF status. When "Lo to Hi" is selected, | Lo to Hi |

| | | |
|-----------------------------|--|---------|
| | the counter value increases when the attached switch is pushed. When “Hi to Lo” is selected, the counter value increases when the switch is pushed and released. | |
| Counter Start When Power On | Available when DI under Event Counter mode. Start counting as soon as possible on the modem when enable this option. When R3000 need to work under Event Counter mode, user shall enable “Counter Start When Power On”. If “Counter Start When Power On” is disabled, it will also start counting when receiving SMS command. Refer to another document <i>SMS command of R3000</i> . | Disable |
| Triggering Alarm | The SMS to receive upon triggering alarm. (70 ASCII char max) | Null |
| Recovering Alarm | The SMS to receive upon recovering alarm. (70 ASCII char max) | Null |
| Phone Group | The alarm SMS will send to specified phone group. Each phone group include up to 10 phone numbers. | Null |

DI

DO

DO Configuration

| Item | Description |
|------|---------------|
| DO_1 | Enable:false; |
| DO_2 | Enable:false; |

DO Configuration

Enable

Alarm Source:

DI Alarm
 SMS Control
 Call Control

DO Action:

Alarm On Action:

Alarm Off Action:

Status When Power On:

Keep On (s):

| DO @ DI/DO | | |
|--------------|---|---------|
| Item | Description | Default |
| Enable | Click to enable DO. | Disable |
| Alarm Source | Digital Output initiates according to different alarm source. Selected from “DI Alarm”, “SMS Control”, “Call Control”, selections can be one or more. DI Alarm: Digital Output triggers the related action when there is alarm from Digital Input. SMS Control: Digital Output triggers the related action when receiving SMS from the number in the phone book. Call Control: Digital Output triggers the related action when receiving phone call | Null |

| | | |
|----------------------|---|------|
| | from the number in the phone book. | |
| Alarm On Action | Digital Output initiates when there is an alarm. Selected from "OFF", "ON", "Pulse". OFF: Open from GND when triggered. ON: Short contact with GND when triggered. Pulse: Generates a square wave as specified in the pulse mode parameters when triggered. | ON |
| Alarm Off Action | Digital Output initiates when alarm recovered. Selected from "OFF", "ON", "Pulse". OFF: Open from GND when triggered. ON: Short contact with GND when triggered. Pulse: Generates a square wave as specified in the pulse mode parameters when triggered. | ON |
| Status When Power On | Specify the Digital Output status when power on. Selected from "OFF", "ON". OFF: Open from GND. ON: Short contact with GND. | ON |
| Keep On (s) | Available when digital output Alarm On Action/Alarm Off Action status is ON, input the Digital Output keep on status time. Input from 0 to 255 seconds. (0=keep on until the next action) | 0 |
| Delay | Available when enable Pulse in Alarm On Action/Alarm Off Action. The first pulse will be generated after a "Delay". Input from 0 to 30000ms. (0=generate pulse without delay) | 0 |
| Low | Available when enable Pulse in Alarm On Action/Alarm Off Action. In Pulse Output mode, the selected digital output channel will generate a square wave as specified in the pulse mode parameters. The low level widths are specified here. Input from 1 to 30000 ms. | 10 |
| High | Available when enable Pulse in Alarm On Action/Alarm Off Action. In Pulse Output mode, the selected digital output channel will generate a square wave as specified in the pulse mode parameters. The high level widths are specified here. Input from 1 to 30000 ms. | 10 |
| Output | Available when enable Pulse in Alarm On Action/Alarm Off Action. The number of pulses, input from 0 to 30000. (0 for continuous pulse output) | 0 |
| SMS Content On | Available when enable SMS Control in Alarm Source. Input the SMS content to enable "Alarm On Action" by SMS (70 ASCII char max). | Null |
| SMS Content Off | Available when enable SMS Control in Alarm Source. Input the SMS content to enable "Alarm Off Action" by SMS. (70 ASCII char max) | Null |
| SMS Content On Reply | Input the SMS content, which will be sent after DO was triggered. (70 ASCII char max). | Null |

| | | |
|-----------------------|--|------|
| SMS Content Off Reply | Input the SMS content, which will be sent after DO was recovered. (70 ASCII char max). | Null |
| Phone Group | Click to add phone groups. | Null |

Note: R3000-4L does not support SMS/Call function, so Call and SMS section will not be displayed on the web page.

3.16 Configuration -> USB

This section allows users to set the USB parameters.

Note: Users can insert a USB storage device, such as U disk and hard disk, into the router's USB interface. If there is configuration file or firmware of R3000 inside the USB storage devices, R3000 will automatically update the configuration file or firmware. We will provide another file to show how to do USB automatic update.

USB

USB Configuration

Enable automatic update of configuration

Enable automatic update of firmware

| USB | | |
|--|--|---------|
| Item | Description | Default |
| Enable automatic update of configuration | Click Enable to automatically update the configuration file of R3000 when insert the USB storage devices which has R3000's configuration file. | Disable |
| Enable automatic update of firmware | Click Enable to automatically update the firmware of R3000 when insert the USB storage devices which has R3000's firmware. | Disable |

3.17 Configuration -> GPS

This section allows users to set the GPS setting parameters.

GPS Setting **GPS Status** **Map**

Enable GPS

Enable GPS

GPS Basic Setting

Report To RS232

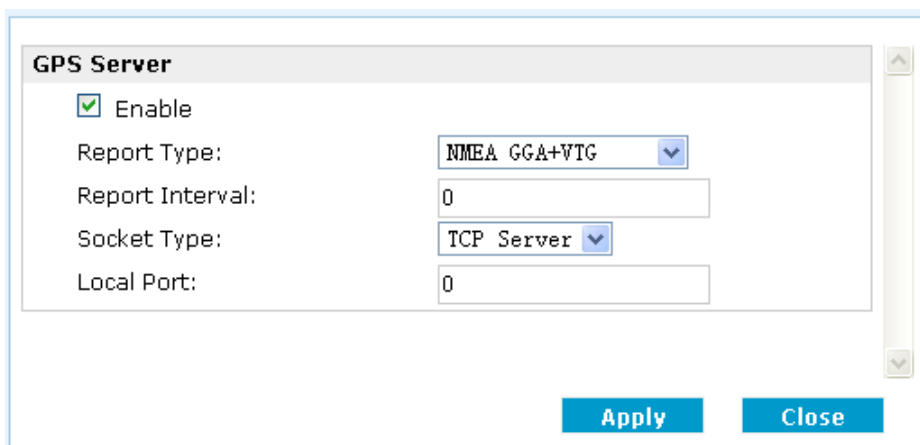
RS232 Report Type:

RS232 Report Interval(s):

GNSS Type:

GPS Server Setting

| | |
|------------------------------------|--|
| <input type="text" value="Index"/> | <input type="text" value="Server Name"/> |
| <input type="button" value="Add"/> | |



| GPS Setting @ GPS | | |
|----------------------------------|--|--------------|
| Item | Description | Default |
| Enable GPS | Click to enable GPS function. | Disable |
| Report To RS232 | Click to enable GPS report to RS232 serial port of router. | Disable |
| RS232 Report Type | Select from “NMEA GGA+VTG”, “NMEA GGA+VTG+RMC” and “NMEA RMC”. NMEA GGA+VTG: Global Positioning System Fix Data (GGA) + Track Made Good and Ground Speed (VTG) . NMEA GGA+VTG+RMC: Global Positioning System Fix Data (GGA) + Track Made Good and Ground Speed (VTG) + Recommended Minimum Specific GPS/TRANSIT Data (RMC) . NMEA RMC: Recommended Minimum Specific GPS/TRANSIT Data (RMC). | NMEA GGA+VTG |
| RS232 Report Interval | Set the interval to report GPS status to RS232 serial port of router. | 1 |
| GNSS Type | Global Navigation Satellite System Type: GPS: Global Position System. | GPS |
| Index @ GPS Server Setting | Show the index of GPS Server. | Null |
| Server Name @ GPS Server Setting | Show the type of GPS Server. | Null |
| Add | Click “Add” to add GPS Server. | |
| Report Type | Select from “NMEA GGA+VTG”, “NMEA GGA+VTG+RMC” and “NMEA RMC”. NMEA GGA+VTG: Global Positioning System Fix Data (GGA) + Track Made Good and Ground Speed (VTG) . NMEA GGA+VTG+RMC: Global Positioning System Fix Data (GGA) + Track Made Good and Ground Speed (VTG) + Recommended Minimum Specific GPS/TRANSIT Data (RMC) . NMEA RMC: Recommended Minimum Specific GPS/TRANSIT Data (RMC). | NMEA GGA+VTG |
| Report Interval | Set the interval to report GPS status to GPS Server. | 0 |
| Socket Type | Select from “TCP Server”, “TCP Client” and “UDP”. TCP Client: Router works as TCP client, initiate TCP connection to TCP | TCP Server |

| | | |
|-----------------------------|---|------|
| | server (GPS Server), the server address supports both IP and domain name. TCP Server: Router works as TCP server (GPS Server), listening for connection request from TCP client. UDP: Router works as UDP client. | |
| Local Port @ TCP Server | Set the local port number of TCP server. | 0 |
| Server Address @ TCP Client | Set the Server address of TCP server. | Null |
| Server Port @ TCP Client | Set the remote Port number of TCP server. Note: router supports up to 3 GPS servers, supports re-connect when the TCP connection is down. | 0 |

This section allows users to check the GPS status.

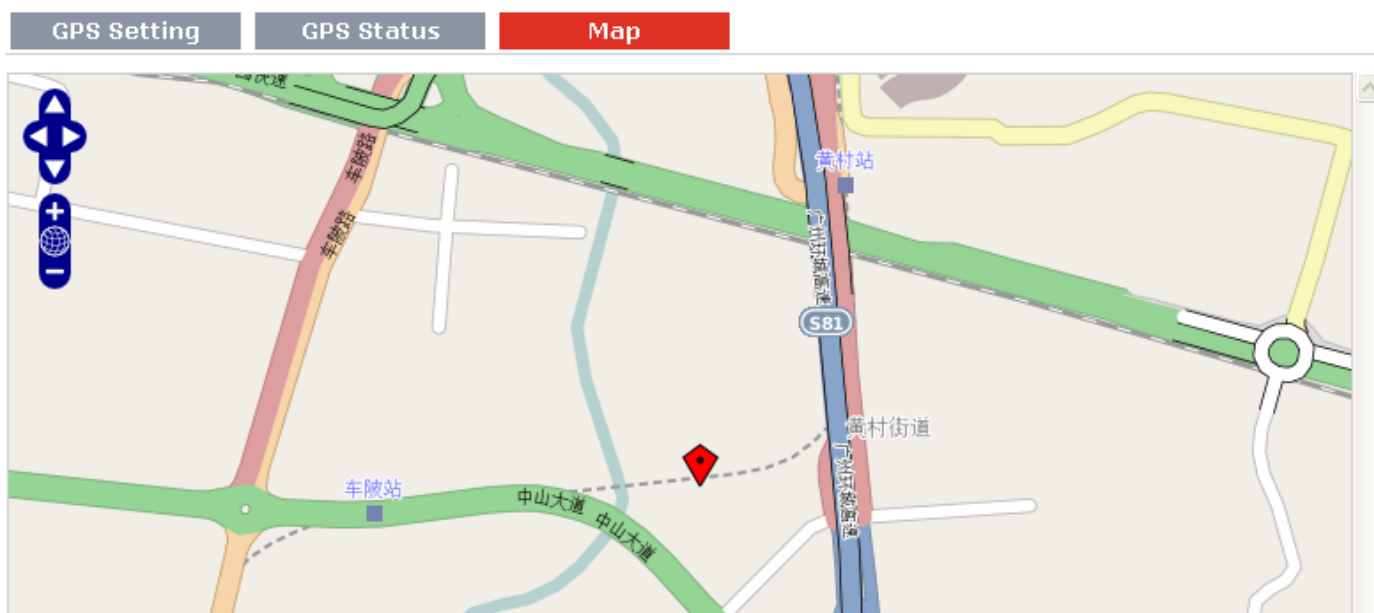
GPS Setting
GPS Status
Map

| GPS Status | |
|---------------------|---------------------|
| GPS Status: | No Fix/Invalid |
| Last Fixed Time: | |
| Last Failed Time: | |
| Satellites In Use: | 0 |
| Satellites In View: | 1 |
| UTC: | 2000-00-00 00:00:00 |
| Latitude: | 0.000000 |
| Longitude: | 0.000000 |
| Altitude: | 0.000000 |
| Speed: | 0.000000KMH |

| GPS Status @ GPS | | |
|------------------|---|---------------|
| Item | Description | Default |
| GPS Status | Show the GPS Status. GPS status includes: Not Installed, Disabled, No Fix/Invalid, Standalone GPS Fix, Differential GPS Fix. Not Installed: No GPS module inside. Disabled: GPS function is not enabled (not click "Enable GPS" in item "GPS Setting" yet). No Fix/Invalid: GPS function is enabled, but do not get GPS signal (User should put router outdoor to get stronger GPS signal). Standalone GPS Fix: Standalone GPS techniques is a mature, universal GPS positioning mode, only get position from satellite. Differential GPS Fix: Differential GPS techniques are used to enhance the quality of location data. It can be applied in real-time directly in the field or when post processing data in the office. | Not Installed |

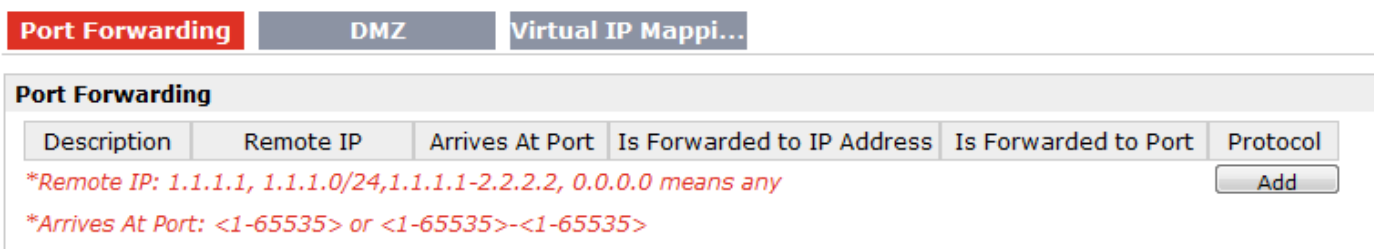
| | | |
|--------------------|--|--------|
| Last Fixed Time | Show the time that router located successfully at last time. | Null |
| Last Failed Time | Show the time that router located unsuccessfully at last time. | Null |
| Satellites In Use | Show how many satellites are in use. | 0 |
| Satellites In View | Show how many satellites are in view. | 0 |
| UTC | Show the UTC of satellites, which is world unified time, not local time. | Null |
| Latitude | Show the latitude status of router. | 0.0 |
| Longitude | Show the Longitude status of router. | 0.0 |
| Altitude | Show the Altitude status of router. | 0.0 |
| Speed | Show the movement speed of router. | 0.0KMH |

This section allows users to check the real time GPS status of router in the map.



3.18 Configuration -> NAT/DMZ

This section allows users to set the NAT/DMZ parameters.



| Port Forwarding @ NAT/DMZ | | |
|----------------------------|--|---------|
| Item | Description | Default |
| Port Forwarding | Manually defining a rule in the router to send all data received on some range of ports on the internet side to a port and IP address on the LAN side. | Null |
| Remote IP | Set the remote IP address. | Null |
| Arrives At Port | The port of the internet side which you want to forward to LAN side. | Null |
| Is Forwarded to IP Address | The device's IP on the LAN side which you want to forward the data to. | Null |
| Is Forwarded to Port | The device's port on the LAN side which you want to forward the data to. | Null |
| Protocol | Select from "TCP", "UDP" or "TCP&UDP" which depends on the application. | TCP |

Port Forwarding **DMZ** Virtual IP Mappi...

Enable DMZ

Enable DMZ

DMZ Settings

DMZ Host:

Source Address:

**1.1.1.1", "1.1.1.0/24", "1.1.1.1-2.2.2.2", "0.0.0.0" means any*

| DMZ @ NAT/DMZ | | |
|----------------|--|---------|
| Item | Description | Default |
| DMZ | DMZ host is a host on the internal network that has all ports exposed, except those ports otherwise forwarded. | Null |
| Enable DMZ | Select to enable the DMZ function. | Enable |
| DMZ Host | Enter the IP address of the DMZ host which on the internal network. | 0.0.0.0 |
| Source Address | Set the address which can talk to the DMZ host. Null means for any addresses. | 0.0.0.0 |

Port Forwarding **DMZ** Virtual IP Mappi...

Virtual IP Mapping Setting

Virtual IP for Router:

Internal PC's IP Mapping List

Description

Virtual IP

Real IP

Add

| Virtual IP Mapping@ NAT/DMZ | | |
|--|---|---------|
| Item | Description | Default |
| Virtual IP for Router | Set a Virtual IP for router. | Null |
| Virtual IP @ Internal PC's IP Mapping List | Set a Virtual IP for the Internal PC. | Null |
| Real IP @ Internal PC's IP Mapping List | The Internal PC's Real IP, which is mapping the PC's Virtual IP one-to-one. | Null |

3.19 Configuration -> Firewall

This section allows users to set the firewall parameters.

Basic
Filtering
MAC-Binding

Filter Basic Settings

- Remote Access Using HTTP
- Remote Access Using TELNET
- Remote Access Using SNMP
- Remote Access Using SSH2
- Remote Ping Request
- Enable DNS Masquerade
- Enable Console CLI
- Defend DoS Attack

If you disable one of tabs: “Remote Access Using HTTP”, “Remote Access Using TELNET”, “Remote Access Using SNMP”, “Remote Access Using SSH2” or “Remote Ping Request”, it will pop up “Add Allow Access List” to allow you to preset specific user to access to WAN interface of R3000. For example, if you disable “Remote Ping Request” and add “Remote IP” then only these specific users can ping to WAN interface of R3000.

Basic
Filtering
MAC-Binding

Filter Basic Settings

- Remote Access Using HTTP
- Remote Access Using TELNET
- Remote Access Using SNMP
- Remote Access Using SSH2
- Remote Ping Request
- Enable DNS Masquerade
- Enable Console CLI
- Defend DoS Attack

Add Allow Access List

| Description | Remote IP |
|--|-----------|
| <i>*IP: 1.1.1.1, 1.1.1.0/24, 1.1.1.1-2.2.2.2</i> | |
| <input type="button" value="Add"/> | |

| Basic @ Firewall | | |
|----------------------------|--|---------|
| Item | Description | Default |
| Remote Access Using HTTP | Enable to allow users to access the router remotely on the internet side via HTTP. | Enable |
| Remote Access Using TELNET | Enable to allow users to access the router remotely on the internet side via Telnet. | Enable |
| Remote Access Using SNMP | Enable to allow users to access the router remotely on the internet side via SNMP. | Enable |

| | | |
|--------------------------|--|--------|
| Remote Access Using SSH2 | Enable to allow users to access the router remotely on the internet side via SSH2. | Enable |
| Remote Ping Request | Enable to make router reply the Ping requests from the internet side. | Enable |
| Enable DNS Masquerade | Open the 53 port of the router, enable users to use the DNS function of the router. | Enable |
| Enable Console CLI | Enable to configurate router through Command Line Interface. | Enable |
| Defend Dos Attack | Enable to defend dos attack. Dos attack is an attempt to make a machine or network resource unavailable to its intended users. | Enable |

Basic **Filtering** **MAC-Binding**

Default Filter Policy

Accept Drop

Add Filter List

| Action | Description | Source IP | Source Port | Target IP Address | Target Port | Protocol |
|--|-------------|-----------|-------------|-------------------|-------------|------------------------------------|
| <i>*IP: 1.1.1.1, 1.1.1.0/24,1.1.1.1-2.2.2.2, 0.0.0.0 means any</i> | | | | | | |
| <i>*Port: <1-65535> or <1-65535>-<1-65535></i> | | | | | | |
| | | | | | | <input type="button" value="Add"/> |

Blocking By URL Address

| Description | URL |
|------------------------------------|-----|
| <input type="button" value="Add"/> | |

Blocking By Keyword

| Description | Keyword |
|------------------------------------|---------|
| <input type="button" value="Add"/> | |

| Filtering @ Firewall | | |
|------------------------------|---|---------|
| Item | Description | Default |
| Default Filter Policy | Select from "Accept" and "Drop". Accept: Router will accept all the connecting requests except the hosts which fit the filter list. Drop: Router will only reject the connecting requests from the hosts which fit the filter list. | Accept |
| Add Filter List | Click "Add" to add a filter list. | Null |
| Action @Add Filter List | Select from "Accept" and "Drop". Accept: Router will reject all the connecting requests except the hosts which fit this filter rule. Drop: Router will only accept the connecting requests from the hosts which fit this filter rule. | Accept |
| Source IP @ Add Filter List | Defines if access is allowed from one or a range of IP addresses which are defined by Source IP Address, or every IP addresses. | Null |
| Source Port@ Add Filter List | Defines if access is allowed from one or a range of port which is defined by Source Port. | Null |
| Target IP Address @ | Defines if access is allowed to one or a range of IP addresses which are defined | Null |

| | | |
|-------------------------------|---|------|
| Add Filter List | by Target IP Address, or every IP addresses. | |
| Target Port @ Add Filter List | Defines if access is allowed to one or a range of port which is defined by Target Port. | Null |
| Protocol @ Add Filter List | Select from "TCP", "UDP", "TCP&UDP", "ICMP" or "ALL". If you don't know what kinds of protocol of your application, we recommend you select "ALL". | TCP |
| Blocking By URL Address | Click "Add" to add a URL list. | Null |
| URL@ Blocking By URL Address | Block the access according to the URL address that filled in the blank. | Null |
| Blocking By Keywork | Click "Add" to add a Keywork list. | Null |
| Keywork@ Blocking By Keywork | Block the access according to the Keywork that filled in the blank. | Null |

Note: You can use "-" to define a range of IP addresses or ports, e.g. 1.1.1.1-2.2.2.2, 10000-12000. The priority of **Filter List** is higher than **Default Filter Policy**. Firewall policy would not take effect on the packet receive to R3000 itself, but only take effect on packet "pass through" the R3000.

Basic
Filtering
MAC-Binding

MAC-IP Binding List

| Description | MAC Address | IP Address |
|-------------------------|-------------|------------|
| *MAC: ff:ff:ff:ff:ff:ff | | |

| Mac-Binding @ Firewall | | |
|------------------------|---|---------|
| Item | Description | Default |
| Mac-IP Bounding | The defined host (MAC) on the LAN side only can use the defined IP address to communicate with router, or will be rejected. | Null |
| Mac Address | Enter the defined host's Mac Address. | Null |
| IP Address | Enter the defined host's IP Address. | Null |

3.20 Configuration -> QoS

This section allows users to set the QoS parameters.

QoS

Enable Quality Of Service(QoS)

Enable QoS

Quality of Service(QoS) Basic Setting

Downlink Speed (kbps):

Uplink Speed (kbps):

Optimize for TCP Flags: SYN ACK FIN RST

Optimize for ICMP:

Optimize for Serial Data Forwarding:

Priority Percent Definition:

Exempt:

Premium:

Express:

Normal:

Bulk:

Default Priority:

QoS Ethernet Port Based Control

Enable Port Based Priority

Eth0 Priority:

Eth1 Priority:

QoS Service Control List

| Service Name | Protocol | Port | Priority |
|------------------------------------|----------|------|----------|
| <input type="button" value="Add"/> | | | |

QoS MAC Control List

| MAC Address | Priority |
|-------------------------|------------------------------------|
| *MAC: ff:ff:ff:ff:ff:ff | <input type="button" value="Add"/> |

QoS IP Control List

| IP Address | Priority |
|------------------------------------|----------|
| <input type="button" value="Add"/> | |

| QoS | | |
|--|---|---------|
| Item | Description | Default |
| Enable QoS | Click to enable "QoS" function. | Disable |
| Downlink Speed (kbps) | Prescribe downlink speed of router. Note: Default setting "0" means that there is no limitation of downlink speed. | 0 |
| uplink Speed (kbps) | Prescribe uplink speed of router. Note: Default setting "0" means that there is no limitation of uplink speed. | 0 |
| Optimize for TCP Flags | User can choose to enable TCP flags: "SYN", "ACK", "FIN", "RST", which means data with above TCP Flags will get the highest priority to occupy bandwidth. After enabled, router will enhance respond timeout of TCP control, in case that data resend frequently. | Disable |
| Optimize for ICMP | Enable to optimize for ICMP, which means ICMP will get the highest priority to occupy bandwidth. After enabled respond interval of PING control will be shorter. Note: if user click to enable "Optimize for TCP Flags", "Optimize for Serial Data Forwarding", and "Optimize for ICMP" at the same time (these three services are in the same priority level), router will automatically start Stochastic Fairness Queueing (SFQ) strategy to make a fair bandwidth allocation, in case of one service occupy all the bandwidth. | Disable |
| Optimize for Serial Data Forwarding | Enable to optimize for serial data forwarding, which means serial data forwarding will get the highest priority to occupy bandwidth. When enable serial data forwarding it need to enable local port number for controlling. Therefore, it needs to set local port number of router even if router is as TCP Client. | Disable |
| Priority Percent Definition | Define priority percent of "Exempt", "Premium", "Express", "Normal" and "Bulk". "Exempt" is defaulted as 50; "Premium" is defaulted as 25; "Express" is defaulted as 15; "Normal" is defaulted as 10; "Bulk" is 1. | |
| Default Priority | Select from "Exempt", "Premium", "Express", "Normal" and "Bulk". Users (Services) with no other pre-priority set will use this default priority. Exempt: this is the highest priority which guarantees that the minimum global rate of router is 50% of "Downlink Speed", and the maximum rate can reach to 100% of "Downlink Speed". Premium: guarantees that the minimum global rate of router is 25% of "Downlink Speed", and the maximum rate can reach to 100% of "Downlink Speed". Express: guarantees that the minimum global rate of router is 15% of "Downlink Speed", and the maximum rate can reach to 100% of "Downlink Speed". Normal: guarantees that the minimum global rate of router is 10% of "Downlink Speed", and the maximum rate can reach to 100% of "Downlink Speed". Bulk: guarantees that the minimum global rate of router is 1% of "Downlink Speed", and the maximum rate can reach to 100% of "Downlink Speed". | Normal |
| Enable Port Based Priority @ Qos Port Base Control | Click to enable Ethernet port base priority control. | Disable |

| | | |
|---|--|--------|
| Eth0 Priority @ QoS Port Base Control | Define QoS of Eth0 interface. Different slave device that connect to R3000's Eth0 interface will be assigned specific QoS. | Exempt |
| Eth1 Priority @ QoS Port Base Control | Define QoS of Eth1 interface. Different slave device that connect to R3000's Eth1 interface will be assigned specific QoS. | Exempt |
| MAC Address @ QoS MAC Control List | Enter MAC address of the user (for example, PC) who you want to set it with QoS Control. Router supports up to 20 users set with QoS MAC Control. Priority of QoS MAC Control is higher than that of QoS IP control. | Null |
| Priority @ QoS MAC Control List | <p>Select from "Exempt", "Premium", "Express", "Normal" and "Bulk".</p> <p>Select the priority of the user (for example, PC) who you want to set it with QoS Control.</p> <p>Exempt: this is the highest priority which guarantees that the minimum global rate of router is 50% of "Downlink Speed", and the maximum rate can reach to 100% of "Downlink Speed".</p> <p>Premium: guarantees that the minimum global rate of router is 25% of "Downlink Speed", and the maximum rate can reach to 100% of "Downlink Speed".</p> <p>Express: guarantees that the minimum global rate of router is 15% of "Downlink Speed", and the maximum rate can reach to 100% of "Downlink Speed".</p> <p>Normal: guarantees that the minimum global rate of router is 10% of "Downlink Speed", and the maximum rate can reach to 100% of "Downlink Speed".</p> <p>Bulk: guarantees that the minimum global rate of router is 1% of "Downlink Speed", and the maximum rate can reach to 100% of "Downlink Speed".</p> | Exempt |
| IP Address @ QoS IP Control List | Enter IP address of the user (for example, PC) who you want to set it with QoS Control. Router supports up to 20 users set with QoS IP Control. If want to control one network segment, user can set "IP Address" as format "x.x.x.x/24" or "x.x.x.x/255.255.255.0". For example, if we to control network segment "172.16.x.x", we can set "172.16.0.0/16" or "172.16.0.0/255.255.0.0" in "IP Address". | Null |
| Priority @ QoS IP Control List | <p>Select from "Exempt", "Premium", "Express", "Normal" and "Bulk".</p> <p>Select the priority of the user (for example, PC) who you want to set it with QoS Control.</p> <p>Exempt: this is the highest priority which guarantees that the minimum global rate of router is 50% of "Downlink Speed", and the maximum rate can reach to 100% of "Downlink Speed".</p> <p>Premium: guarantees that the minimum global rate of router is 25% of "Downlink Speed", and the maximum rate can reach to 100% of "Downlink Speed".</p> <p>Express: guarantees that the minimum global rate of router is 15% of "Downlink Speed", and the maximum rate can reach to 100% of "Downlink Speed".</p> <p>Normal: guarantees that the minimum global rate of router is 10% of "Downlink Speed", and the maximum rate can reach to 100% of "Downlink Speed".</p> <p>Bulk: guarantees that the minimum global rate of router is 1% of "Downlink Speed", and the maximum rate can reach to 100% of "Downlink Speed".</p> | Exempt |
| Service Name @ QoS Service Control List | Set server name of the service that you want to set it with QoS Control. Router supports up to 20 users set with QoS Service Control. Priority of QoS Service Control is higher than that of both QoS IP control and QoS MAC control. | Null |

| | | |
|---|---|--------|
| Protocol @ QoS Service Control List | Select from "TCP", "UDP" and "TCP&UDP". | TCP |
| Port @ Service Control List | Enter the port number of the service that you want to set it with QoS Control. | Null |
| Priority @ QoS Service Control List | Select from "Exempt", "Premium", "Express", "Normal" and "Bulk". Select the priority of the service that you want to set it with QoS Control. Exempt: this is the highest priority which guarantees that the minimum global rate of router is 50% of "Downlink Speed", and the maximum rate can reach to 100% of "Downlink Speed". Premium: guarantees that the minimum global rate of router is 25% of "Downlink Speed", and the maximum rate can reach to 100% of "Downlink Speed". Express: guarantees that the minimum global rate of router is 15% of "Downlink Speed", and the maximum rate can reach to 100% of "Downlink Speed". Normal: guarantees that the minimum global rate of router is 10% of "Downlink Speed", and the maximum rate can reach to 100% of "Downlink Speed". Bulk: guarantees that the minimum global rate of router is 1% of "Downlink Speed", and the maximum rate can reach to 100% of "Downlink Speed". | Exempt |
| Note: If services are in the same priority level, router will automatically start Stochastic Fairness Queueing (SFQ) strategy to make a fair bandwidth allocation. | | |

3.21 Configuration -> IP Routing

This section allows users to set the IP routing parameters.

Static Route
RIP
OSPF

Static Route Table

| Interface | Destination | NetMask | Gateway |
|------------------------------------|-------------|---------|---------|
| <input type="button" value="Add"/> | | | |

| Static Route @ IP Routing | | |
|---------------------------|---|---------|
| Item | Description | Default |
| Static Route Table | Allow users to add, delete or modify static route rules manually. | Null |
| Interface | Select from "WAN", "LAN_0" or "LAN_1". | WAN |
| Destination | Enter the destination host's IP address or destination network. | Null |
| Netmask | Enter the Netmask of the destination or destination network. | Null |
| Gateway | Enter the gateway's IP address of this static route rule. Router will forward all the data which fit for the destination and Netmask to this gateway. | Null |

Static Route
RIP
OSPF

RIPIPv4 Enabled

Enable RIP Protocol Setting

RIP Protocol Version

RIPv1
 RIPv2

RIP Protocol common Settings

| | |
|-----------------|--|
| Neighbor IP: | <input style="width: 60%;" type="text"/> |
| Update time(s): | <input style="width: 60%; text-align: center;" type="text" value="30"/> |
| Timeout(s): | <input style="width: 60%; text-align: center;" type="text" value="180"/> |
| Garbage(s): | <input style="width: 60%; text-align: center;" type="text" value="120"/> |

RIP protocol Advance Setting

Enable Advance

Network List

| | | |
|------------------------------------|---------|--|
| Network Address | NetMask | |
| <input type="button" value="Add"/> | | |

| RIP @ IP Routing | | |
|-----------------------------|--|---------|
| Item | Description | Default |
| RIP | RIP (Routing Information Protocol) is a distance-vector routing protocol, which employs the hop count as a routing metric. RIP prevents routing loops by implementing a limit on the number of hops allowed in a path from the source to a destination. | Null |
| Enable RIP Protocol Setting | Tick to enable RIP function. | Disable |
| RIP Protocol Version | Select from "RIPv1" and "RIPv2". | RIPv1 |
| Neighbor IP | If you input this neighbor IP, router will only send RIP request message to this IP instead of broadcast. This item only needs to be set in some unicast network. | 0.0.0.0 |
| Update times | Defines the interval between routing updates. | 30 |
| Timeout | Defines the route aging time. If no update for a route is received after the aging time elapses, the metric of the route is set to 16 in the routing table. | 180 |
| Garbage | Defines the interval from when the metric of a route becomes 16 to when it is deleted from the routing table. During the Garbage-Collect timer length, RIP advertises the route with the routing metric set to 16. If no update is announced for that route after the Garbage-Collect timer expires, the route will be deleted from the routing table. | 120 |
| Enable Advance | Tick to enable RIP protocol Advance Setting. | Disable |
| Default Metric | This value is used for redistributed routes. | 1 |
| Distance | The first criterion that a router uses to determine which routing protocol to use if two protocols provide route information for the same destination. | 120 |

| | | |
|-----------------------------|---|---------|
| Passive | Select from "None", "Eth0", "Eth1" and "Default". This command sets the specified interface to passive mode. On passive mode interface, all receiving packets are processed as normal and Rip info does not send either multicast or unicast RIP packets except to RIP neighbors specified with neighbor command. The default is to be passive on all interfaces. | None |
| Enable Default Origination | Enable to make router send the default route to the other routers which in the same IGP AS. | Disable |
| Enable Redistribute Connect | Redistribute connected routes into the RIP tables. | Disable |
| Enable Redistribute Static | Redistributes routing information from static route entries into the RIP tables. | Disable |
| Enable Redistribute OSPF | Redistributes routing information from OSPF route entries into the RIP tables. | Disable |
| Network List | Router will only report the RIP information in this list to its neighbor. | Null |
| Network Address | Enter the Network address which Eth0 or Eth 1 connects directly. | Null |
| Netmask | Enter the Network's Netmask which Eth0 or Eth 1 connects directly. | Null |

- Static Route
- RIP
- OSPF

OSPF Protocol

Enable OSPFv2

| OSPF @ IP Routing | | |
|-------------------|--|---------|
| Item | Description | Default |
| OSPF | OSPF (Open Shortest Path First) is a link-state routing protocol for IP networks. It uses a link state routing algorithm and falls into the group of interior routing protocols, operating within a single autonomous system (AS). | Null |
| Enable OSPFv2 | Tick to enable OSPF function. | Disable |

3.22 Configuration -> DynDNS

This section allows users to set the DynDNS parameters.

DynDNS

DynDNS Settings

Enable DynDNS

Service Type: DynDNS-Dynamic ▾

Hostname:

Username:

Password:

DynDNS Status: *DynDNS is initializing.....*

| DynDNS | | |
|---------------|---|----------------|
| Item | Description | Default |
| DynDNS | The Dynamic DNS function allows you to alias a dynamic IP address to a static domain name, allowing users whose ISP does not assign them a static IP address to use a domain name. This is especially useful for hosting servers via your connection, so that anyone wishing to connect to you may use your domain name, rather than having to use your dynamic IP address, which changes from time to time. This dynamic IP address is the WAN IP address of the router, which is assigned to you by your ISP. | Null |
| Enable DynDNS | Tick to enable DynDNS function. | Disable |
| Service Type | Select the DDNS service from “DynDNS–Dynamic”, “QDNS (3322)”, “NOIP” which you have established an account with. “Custom” could be used for linking custom DDNS server. | DynDNS–Dynamic |
| hoastmen | Enter the Host name the DDNS server provided. | Null |
| Username | Enter the user name the DDNS server provided. | Null |
| Password | Enter the password the DDNS server provided. | Null |
| URL | Enter the connection address of custom DDNS server. | Null |
| Force Update | Click to the update and use the DynDNS settings. | Null |
| DynDNS Status | Show current status of DynDNS | Null |

3.23 Configuration -> IPsec

This section allows users to set the IPsec parameters.

- IPsec Basic
- IPsec Tunnel
- X.509

IPsec Basic

Enable NAT Traversal

Keepalive Interval(s):

IPsec Basic @ IPsec

| Item | Description | Default |
|----------------------|--|---------|
| Enable NAT Traversal | Tick to enable NAT Traversal for IPsec. This item must be enabled when router under NAT environment. | Enable |
| Keepalive Interval | The interval that router sends keepalive packets to NAT box so that to avoid it to remove the NAT mapping. | 30 |

- IPsec Basic
- IPsec Tunnel
- X.509

IPsec Tunnel

| Tunnel name | Description |
|-------------|-------------|
| | |

IPsec Common

IPsec Gateway Address:

IPsec Mode:

IPsec Protocol:

Local Subnet:

Local Subnet Mask:

Local ID Type:

Remote Subnet:

Remote Subnet Mask:

Remote ID Type:

IKE Parameter

Negotiation Mode:

Encryption Algorithm:

Authentication Algorithm:

DH Group:

Authentication:

Secrets:

Life Time(s):

SA Parameter

SA Algorithm:

PFS Group:

Life Time(s):

DPD Time Interval (s):

DPD Timeout (s):

IPsec Advanced

Enable Compress

Enable ICMP Detection

ICMP Detection Server:

ICMP Detection Local IP:

ICMP Detection Interval (s):

ICMP Detection Timeout (s):

ICMP Detection Retries:

| IPSec Tunnel @ IPSec | | |
|-----------------------|--|---------|
| Item | Description | Default |
| Add | Click Add to add new IPSec Tunnel | Null |
| Enable | Enable IPSec Tunnel, the max tunnel account is 3 | Null |
| IPSec Gateway Address | Enter the address of remote side IPSec VPN server. | Null |
| IPSec Mode | Select from "Tunnel" and "Transport". Tunnel: Commonly used between gateways, or at an end-station to a gateway, the gateway acting as a proxy for the hosts behind it. Transport: Used between end-stations or between an end-station and a gateway, if the gateway is being treated as a host—for example, an encrypted Telnet session from a workstation to a router, in which the router is the actual destination. | Tunnel |
| IPSec Protocol | Select the security protocols from "ESP" and "AH". ESP: Uses the ESP protocol. AH: Uses the AH protocol. | ESP |
| Local Subnet | Enter IPSec Local Protected subnet's address. | 0.0.0.0 |
| Local Subnet Mask | Enter IPSec Local Protected subnet's mask. | 0.0.0.0 |
| Local ID Type | Select from "IP Address", "FQDN" and "User FQDN" for IKE negotiation. "Default" stands for "IP Address". IP Address: Uses an IP address as the ID in IKE negotiation. FQDN: Uses an FQDN type as the ID in IKE negotiation. If this option is selected, type a name without any at sign (@) for the local security gateway, e.g., test.robustel.com. User FQDN: Uses a user FQDN type as the ID in IKE negotiation. If this | Default |

| | | |
|---------------------------|---|------------|
| | option is selected, type a name string with an sign "@" for the local security gateway, e.g., test@robustel.com. | |
| Remote Subnet | Enter IPSec Remote Protected subnet's address. | 0.0.0.0 |
| Remote Subnet Mask | Enter IPSec Remote Protected subnet's mask. | 0.0.0.0 |
| Remote ID Type | Select from "IP Address", "FQDN" and "User FQDN" for IKE negotiation. IP Address: Uses an IP address as the ID in IKE negotiation. FQDN: Uses an FQDN type as the ID in IKE negotiation. If this option is selected, type a name without any at sign (@) for the local security gateway, e.g., test.robustel.com. User FQDN: Uses a user FQDN type as the ID in IKE negotiation. If this option is selected, type a name string with a sign "@" for the local security gateway, e.g., test@robustel.com. | Default |
| Negotiation Mode | Select from "Main" and "aggressive" for the IKE negotiation mode in phase 1. If the IP address of one end of an IPSec tunnel is obtained dynamically, the IKE negotiation mode must be aggressive. In this case, SAs can be established as long as the username and password are correct. | Main |
| Encryption Algorithm | Select from "DES", "3DES", "AES128", "AES192" and "AES256" to be used in IKE negotiation. DES: Uses the DES algorithm in CBC mode and 56-bit key. 3DES: Uses the 3DES algorithm in CBC mode and 168-bit key. AES128: Uses the AES algorithm in CBC mode and 128-bit key. AES192: Uses the AES algorithm in CBC mode and 192-bit key. AES256: Uses the AES algorithm in CBC mode and 256-bit key. | 3DES |
| Authentication Algorithm | Select from "MD5" and "SHA1" to be used in IKE negotiation. MD5: Uses HMAC-SHA1. SHA1: Uses HMAC-MD5. | MD5 |
| DH Group | Select from "MODP768_1", "MODP1024_2" and "MODP1536_5" to be used in key negotiation phase 1. MODP768_1: Uses the 768-bit Diffie-Hellman group. MODP1024_2: Uses the 1024-bit Diffie-Hellman group. MODP1536_5: Uses the 1536-bit Diffie-Hellman group. | MODP1024_2 |
| Authentication | Select from "PSK", "CA", "XAUTH Init PSK" and "XAUTH Init CA" to be used in IKE negotiation. PSK: Pre-shared Key. CA: Certification Authority. XAUTH: Extended Authentication to AAA server. | PSK |
| Secrets | Enter the Pre-shared Key. | Null |
| Life Time @ IKE Parameter | Set the lifetime in IKE negotiation. Before an SA expires, IKE negotiates a new SA. As soon as the new SA is set up, it takes effect immediately and the old one will be cleared automatically when it expires. | 86400 |

| | | |
|--------------------------|--|-------------|
| SA Algorithm | Select from “DES_MD5_96”, “DES_SHA1_96”, “3DES_MD5_96”, “3DES_SHA1_96”, “AES128_MD5_96”, “AES128_SHA1_96”, “AES192_MD5_96”, “AES192_SHA1_96”, “AES256_MD5_96” and “AES256_SHA1_96” when you select “ESP” in “Protocol”; Select from “AH_MD5_96” and “AH_SHA1_96” when you select “AH” in “Protocol”; Note: Higher security means more complex implementation and lower speed. DES is enough to meet general requirements. Use 3DES when high confidentiality and security are required. | 3DES_MD5_96 |
| PFS Group | Select from “PFS_NULL”, “MODP768_1”, “MODP1024_2” and “MODP1536_5”. PFS_NULL: Disable PFS Group MODP768_1: Uses the 768-bit Diffie-Hellman group. MODP1024_2: Uses the 1024-bit Diffie-Hellman group. MODP1536_5: Uses the 1536-bit Diffie-Hellman group. | PFS_NULL |
| Life Time @ SA Parameter | Set the IPsec SA lifetime. Note: When negotiating to set up IPsec SAs, IKE uses the smaller one between the lifetime set locally and the lifetime proposed by the peer. | 3600 |
| DPD Time Interval | Set the interval after which DPD is triggered if no IPsec protected packets is received from the peer. DPD: Dead peer detection. DPD irregularly detects dead IKE peers. When the local end sends an IPsec packet, DPD checks the time the last IPsec packet was received from the peer. If the time exceeds the DPD interval, it sends a DPD hello to the peer. If the local end receives no DPD acknowledgment within the DPD packet retransmission interval, it retransmits the DPD hello. If the local end still receives no DPD acknowledgment after having made the maximum number of retransmission attempts, it considers the peer already dead, and clears the IKE SA and the IPsec SAs based on the IKE SA. | 60 |
| DPD Timeout | Set the timeout of DPD packets. | 180 |
| Enable Compress | Tick to enable compressing the inner headers of IP packets. | Disable |
| Enable ICMP Detection | Click to enable ICMP detection. | Disable |
| ICMP Detection Server | Enter the IP address or domain name or remote server. Router will ping this address/domain name to check that if the current connectivity is active. | Null |
| ICMP Detection Local IP | Set the local IP address. | Null |
| ICMP Detection Interval | Set the ping interval time. | 30 |
| ICMP Detection Timeout | Set the ping timeout. | 5 |
| ICMP Detection Retries | If Router ping the preset address/domain name time out continuously for Max Retries time, it will try to re-establish the VPN tunnel. | 3 |

IPsec Basic

IPsec Tunnel

X.509

Authentication Manage

Select Cert Type:

Authentication Status

| Cert Type | Ca.crt | Remote.crt | Local.crt | Private.key | Crl.pem |
|-----------|--------|------------|-----------|-------------|---------|
| Tunnel_1 | | | | | |
| Tunnel_2 | | | | | |
| Tunnel_3 | | | | | |

X.509 @ IPsec

| Item | Description | Default |
|-----------------------|---|---------|
| Select Cert Type | Select the IPsec tunnel which the certification used for. | Null |
| CA | Click "Browse" to select the correct CA file from your PC, and then click "Import" to import it to the router. Click "Export" you can export the CA file from router to your PC. | Null |
| Remote Public Key | Click "Browse" to select the correct Remote Public Key file from your PC, and then click "Import" to import it to the router. Click "Export" you can export the Remote Public Key file from router to your PC. | Null |
| Local Public Key | Click "Browse" to select the correct Local Public Key file from your PC, and then click "Import" to import it to the router. Click "Export" you can export the Local Public Key file from router to your PC. | Null |
| Local Private Key | Click "Browse" to select the correct Local Private Key file from your PC, and then click "Import" to import it to the router. Click "Export" you can export the Local Private Key file from router to your PC. | Null |
| CRL | Click "Browse" to select the correct CRL file from your PC, and then click "Import" to import it to the router. Click "Export" you can export the CRL file from router to your PC. | Null |
| Authentication Status | Show current status parameters of IPsec. | Null |

3.24 Configuration -> Open VPN

This section allows users to set the Open VPN parameters.

Client
Server
X.509

Client

| | |
|-------------|-------------|
| Tunnel name | Description |
|-------------|-------------|

Add

Enable OpenVPN Client

Enable

Protocol: UDP

Remote IP Address:

Port: 1194

Interface: tun

Authentication: None

Local IP: 10.8.0.2

Remote IP: 10.8.0.1

Enable NAT

Ping Interval: 20

Ping-Restart: 120

Compression: LZO

Encryption: BF-CBC

MTU: 1500

Max Frame Size: 1500

Verbose Level: ERR

Expert Options:

*--xx xx,parameter,eg:--config xx.config

Local Route

| | |
|--------|-------------|
| Subnet | Subnet Mask |
|--------|-------------|

Add

| Client @ Open VPN | | |
|-------------------|---|---------|
| Item | Description | Default |
| Enable | Enable OpenVPN Client, the max tunnel account is 3 | Null |
| Protocol | Select from "UDP" and "TCP Client" which depends on the application. | UDP |
| Remote IP Address | Enter the remote IP address or domain name of remote side OpenVPN server. | Null |
| Port | Enter the listening port of remote side OpenVPN server. | 1194 |

| | | |
|--------------------------------|--|----------|
| Interface | Select from “tun” and “tap” which are two different kinds of device interface for OpenVPN. The difference between tun and tap device is this: a tun device is a virtual IP point-to-point device and a tap device is a virtual Ethernet device. | tun |
| Authentication | Select from four different kinds of authentication ways: “Pre-shared”, “Username/Password”, “X.509 cert” and “X.509 cert+user”. | None |
| Local IP | Define the local IP address of OpenVPN tunnel. | 10.8.0.2 |
| Remote IP | Define the remote IP address of OpenVPN tunnel. | 10.8.0.1 |
| Enable NAT | Tick to enable SNAT for OpenVPN. The source IP address of host Behind R3000 will be disguised before accessing the remote OpenVPN server. | Disable |
| Ping Interval | Set ping interval to check if the tunnel is active. | 20 |
| Ping -Restart | Restart to establish the OpenVPN tunnel if ping always timeout during this time. | 120 |
| Compression | Select “LZO” to use the LZO compression library to compress the data stream. | LZO |
| Encryption | Select from “NONE”, “BF-CBC”, “DES-CBC”, “DES-EDE3-CBC”, “AES-128-CBC”, “AES-192-CBC” and “AES-256-CBC”. BF-CBC: Uses the BF algorithm in CBC mode and 128-bit key. DES-CBC: Uses the DES algorithm in CBC mode and 64-bit key. DES-EDE3-CBC: Uses the 3DES algorithm in CBC mode and 192-bit key. AES128-CBC: Uses the AES algorithm in CBC mode and 128-bit key. AES192-CBC: Uses the AES algorithm in CBC mode and 192-bit key. AES256-CBC: Uses the AES algorithm in CBC mode and 256-bit key. | NONE |
| MTU | Maximum Transmission Unit. It is the identifier of the maximum size of packet, which is possible to transfer in a given environment. | 1500 |
| Max Frame Size | Set the Max Frame Size for transmission. | 1500 |
| Verbose Level | Select the log output level which from low to high: “ERR”, “WARNING”, “NOTICE” and “DEBUG”. The higher level will output more log information. | ERR |
| Expert Options | You can enter some other PPP initialization strings in this field. Each string can be separated by a space. | Null |
| Subnet&Subnet Mask@Local Route | Set the subnet and subnet Mask of local route. | Null |

Client

Server

X.509

Enable OpenVPN Server
 Enable OpenVPN Server

Client **Server** X.509

Enable OpenVPN Server

Enable OpenVPN Server

VPN Server Tunnel

Tunnel name:

Listen IP:

Protocol:

Port:

Interface:

Authentication:

Local IP:

Remote IP:

Enable NAT

Ping Interval:

Ping-Restart:

Compression:

Encryption:

MTU:

Max Frame Size:

Verbose Level:

Expert Options:

**--xx xx.parameter, eg: --config xx.config*

Client Manage

| Use | Common Name | Password | Client IP | Local Static Route | Remote Static Route |
|--------------------------|-------------|----------|-----------|--------------------|---------------------|
| <input type="checkbox"/> | | | | | |

**Static Route: <1.1.1.0/24> or <1.1.1.0/24;2.2.2.2/16>*

| Server @ Open VPN | | |
|-----------------------|--|------------------|
| Item | Description | Default |
| Enable OpenVPN Server | Tick to enable OpenVPN server tunnel. | Disable |
| Tunnel name | Name the OpenVPN server tunnel. | Tunnel_OpenVPN_1 |
| Listen IP | You can enter the IP address of cellular WAN, Ethernet WAN or Ethernet LAN. Null or 0.0.0.0 stands for using the active WAN link currently-cellular WAN or Ethernet WAN. | 0.0.0.0 |
| Protocol | Select from "UDP" and "TCP Client" which depends on the application. | UDP |
| Port | Set the local listening port. | 1194 |

| | | |
|--|---|----------|
| Interface | Select from "tun" and "tap" which are two different kinds of device interface for OpenVPN. The difference between a tun and tap device is this: a tun device is a virtual IP point-to-point device and a tap device is a virtual Ethernet device. | tun |
| Authentication | Select from four different kinds of authentication ways: "Pre-shared", "Username/Password", "X.509 cert" and "X.509 cert+user". | None |
| Local IP | Define the local IP address of OpenVPN tunnel. | 10.8.0.1 |
| Remote IP | Define the remote IP address of OpenVPN tunnel. | 10.8.0.2 |
| Enable NAT | Tick to enable SNAT for OpenVPN. The source IP address of host Behind R3000 will be disguised before accessing the remote OpenVPN client. | Disable |
| Ping Interval | Set ping interval to check if the tunnel is active. | 20 |
| Ping -Restart | Restart to establish the OpenVPN tunnel if ping always timeout during this time. | 120 |
| Compression | Select from "None" and "LZO", Select "LZO" to use the LZO compression library to compress the data stream. | LZO |
| Encryption | Select from "NONE", "BF-CBC", "DES-CBC", "DES-EDE3-CBC", "AES128-CBC", "AES192-CBC" and "AES256-CBC". BF-CBC: Uses the BF algorithm in CBC mode and 128-bit key. DES-CBC: Uses the DES algorithm in CBC mode and 64-bit key. DES-EDE3-CBC: Uses the 3DES algorithm in CBC mode and 192-bit key. AES128-CBC: Uses the AES algorithm in CBC mode and 128-bit key. AES192-CBC: Uses the AES algorithm in CBC mode and 192-bit key. AES256-CBC: Uses the AES algorithm in CBC mode and 256-bit key. | NONE |
| MTU | Maximum Transmission Unit. It is the identifier of the maximum size of packet, which is possible to transfer in a given environment. | 1500 |
| Max Frame Size | Set the Max Frame Size for transmission. | 1500 |
| Verbose Level | Select the log output level which from low to high: "ERR", "WARNING", "NOTICE" and "DEBUG". The higher level will output more log information. | ERR |
| Expert Options | You can enter some other PPP initialization strings in this field. Each string can be separated by a space. | Null |
| Enable HMAC Firewall @ VPN Server Advanced | In order to prevent malicious attacks, such as DOS, UDP port flooding, we generate a "HMAC is firewall" | Disable |
| Enable Crl @ VPN Server Advanced | Generate a certificate revoked chain file, to prevent someone lost certificate in the future, users access VPN by illegal. You could find the certificate tab of R3000, there is one option for Crl. | Disable |
| Enable Client to Client @ VPN Server | Uncomment this directive to allow different clients to be able to "see" each other. | Disable |

| | | |
|---|---|------------|
| Advanced | By default, clients will only see the server. To force clients to only see the server, you will also need to appropriately firewall the server's TUN/TAP interface. | |
| Enable Dup Client @ VPN Server Advanced | While establish OpenVPN with keys, must open this option, otherwise only allows one VPN connection with the same certificate. | Disable |
| Enable IP Persist @ VPN Server Advanced | Maintain a record of client <-> virtual IP address associations in this file. If OpenVPN goes down or is restarted, reconnecting clients can be assigned the same virtual IP address from the pool that was previously assigned. | Enable |
| Enable IP pool @ VPN Server Advanced | Define the range of virtual IP address. | Disable |
| IP Pool Start | Define start virtual IP address | 10.8.0.5 |
| IP Pool End | Define end virtual IP address | 10.8.0.254 |
| Client Manage | Click "Add" to add a OpenVPN client info which include "Common Name", "Password", "Client IP", "Local Static Route" and "Remote Static Route". This field only can be configured when you select "Username/Password" in "Authentication". | Null |

Note: "VPN Server Advanced" will show up when you select "Authentication" type as "Username/Password", "X.509 cert" and "X.509 cert+user".

Client
Server
X.509

Authentication Manage

Select Cert Type: None ▼

Authentication Status

| Cert Type | CA | Public Key | Private K.. | DH | TA | CRL | PKCS12 | Pre-Share |
|-----------|----|------------|-------------|----|----|-----|--------|-----------|
| Server | | | | | | | | |
| Client_1 | | | | | | | | |
| Client_2 | | | | | | | | |
| Client_3 | | | | | | | | |

| X.509 @ Open VPN | | |
|------------------|---|---------|
| Item | Description | Default |
| Select Cert Type | Select the OpenVPN client or server which the certification used for. | Null |
| CA | Click "Browse" to select the correct CA file from your PC, and then click "Import" to import it to the router. Click "Export" you can export the CA file from router to your PC. | Null |
| Public Key | Click "Browse" to select the correct Public Key file from your PC, and then click "Import" to import it to the router. Click "Export" you can export the Public Key A file from router to your PC. | Null |
| Private Key | Click "Browse" to select the correct Private Key file from your PC, and then click | Null |

| | | |
|-----------|---|------|
| | <p>“Import” to import it to the router. Click “Export” you can export the Private Key file from router to your PC.</p> | |
| DH | <p>Click “Browse” to select the correct DH A file from your PC, and then click “Import” to import it to the router. Click “Export” you can export the DH file from router to your PC.</p> | Null |
| TA | <p>Click “Browse” to select the correct TA file from your PC, and then click “Import” to import it to the router. Click “Export” you can export the TA file from router to your PC.</p> | Null |
| CRL | <p>Click “Browse” to select the correct CRL file from your PC, and then click “Import” to import it to the router. Click “Export” you can export the CRL file from router to your PC.</p> | Null |
| PKCS12 | <p>Click “Browse” to select the correct PKCS12file from your PC, and then click “Import” to import it to the router. Click “Export” you can export the PKCS12file from router to your PC.</p> | Null |
| Pre-Share | <p>Click “Browse” to select the correct Pre-Share Static Key file from your PC, and then click “Import” to import it to the router. Click “Export” you can export the Pre-Share Static Key file from router to your PC.</p> | Null |

3.25 Configuration -> GRE

This section allows users to set the GRE parameters.

GRE

Enable

Remote IP Address:

Local Virtual IP:

Remote Virtual IP:

Remote Subnet List

| | | |
|---------------|--------------------|-----|
| Remote Subnet | Remote Subnet Mask | Add |
|---------------|--------------------|-----|

All traffic via this interface

Enable NAT

Secrets:

| GRE | | |
|--------|--|---------|
| Item | Description | Default |
| Add | Click “Add” to add a GRE tunnel. | |
| Enable | Click to enable GRE (Generic Routing Encapsulation). GRE is a protocol that encapsulates packets in order to route other protocols over IP networks. | Disable |

| | | |
|---|---|---------|
| Remote IP Address | Set remote IP Address of the virtual GRE tunnel. | Null |
| Local Virtual IP | Set local IP Address of the virtual GRE tunnel. | Null |
| Remote virtual IP | Set remote IP Address of the virtual GRE tunnel. | Null |
| Remote Subnet @ Remote Subnet List | Add a static route to the remote side's subnet so that the remote network is known to the local network. The max count is 10. | Null |
| Remote Subnet Mask @ Remote Subnet List | Set remote subnet net mask. The max count is 10. | Null |
| All traffic via this interface | After click to enable this feature, all data traffic will be sent via GRE tunnel. | Disable |
| Enable NAT | Tick to enable SNAT for GRE. The source IP address of host Behind R3000 will be disguised before accessing the remote GRE server. | Disable |
| Secrets | Set Tunnel Key of GRE. | Null |

3.26 Configuration -> L2TP

This section allows users to set the L2TP parameters.

L2TP Client
L2TP Server

L2TP Client

| | | |
|-------------|-------------|------------------------------------|
| Tunnel name | Description | |
| | | <input type="button" value="Add"/> |

L2TP Client

Enable

Remote IP Address:

Username:

Password:

Authentication:

Remote Subnet:

Remote Subnet Mask:

Enable NAT

All traffic via this interface

Enable Tunnel Authentication

Show Advanced

| | |
|---|---|
| Port: | <input type="text" value="1701"/> |
| Local IP: | <input type="text"/> |
| Remote IP: | <input type="text"/> |
| <input checked="" type="checkbox"/> Address/Control Compression | |
| <input checked="" type="checkbox"/> Protocol Field Compression | |
| Asyncmap Value: | <input type="text" value="ffffffff"/> |
| MRU: | <input type="text" value="1500"/> |
| MTU: | <input type="text" value="1436"/> |
| Link Detection Interval (s): | <input type="text" value="30"/> |
| Link Detection Max Retries: | <input type="text" value="5"/> |
| Expert Options: | <input type="text" value="nocc p nobsdcomp"/> |

| L2TP Client @ L2TP | | |
|--------------------------------|---|---------|
| Item | Description | Default |
| Add | Click "Add" to add a L2TP client. You can add at most 3 L2TP clients. | Null |
| Remote IP Address | Enter your L2TP server's public IP or domain name. | Null |
| Username | Enter the username which was provided by your L2TP server. | Null |
| Password | Enter the password which was provided by your L2TP server. | Null |
| Authentication | Select from "Auto", "PAP", "CHAP", "MS-CHAP v1" and "MS-CHAP v2". You need to select the corresponding authentication method based on the server's authentication method. When you select "Auto", router will auto select the correct method based on server. | Disable |
| Remote Subnet | Enter L2TP remote Protected subnet's address. | Null |
| Remote Subnet Mask | Enter L2TP remote Protected subnet's mask. | Null |
| Enable NAT | Click to enable NAT feature of L2TP. The source IP address of host Behind R3000 will be disguised before accessing the remote L2TP server. | Disable |
| All traffic via this interface | After click to enable this feature, all data traffic will be sent via L2TP tunnel. | Disable |
| Enable Tunnel Authentication | Tick to enable tunnel authentication and enter the tunnel secret which provided by L2TP server. | Disable |
| Tunnel Secret | Enter L2TP tunnel secret in this item. | Null |
| Show Advanced | Tick to enable the L2TP client advanced setting. | Disable |
| Port | Set the Port number of the L2TP client. | Null |
| Local IP | Set the IP address of the L2TP client. You can enter the IP which assigned by L2TP server. Null means L2TP client will obtain an IP address automatically from L2TP server's IP pool. | Null |
| Remote IP | Enter the remote peer's private IP address or remote subnet's gateways address. | Null |
| Address/Control | Used for PPP initialization. In general, you need to enable it as default. | Enable |

| | | |
|----------------------------|--|--------------------|
| Compression | | |
| Protocol Field Compression | Used for PPP initialization. In general, you need to enable it as default. | Enable |
| Asyncmap Value | One of the L2TP initialization strings. In general, you don't need to modify this value. | ffffff |
| MRU | Maximum Receiving Unit. It is the identifier of the maximum size of packet, which is possible to receive in a given environment. | 1500 |
| MTU | Maximum Transmission Unit. It is the identifier of the maximum size of packet, which is possible to transfer in a given environment. | 1436 |
| Link Detection Interval | Specify the interval between L2TP client and server. To check the connectivity of a tunnel, the client and server regularly send PPP Echo to each other. If the client or server receives no response from the peer within a specified period of time, it retransmits the PPP echo. If it receives no response from the peer after transmitting the PPP echo for max retries times, it considers that the L2TP tunnel is down and tries to re-establish a tunnel with the peer. | 30 |
| Link Detection Max Retries | Specify the max retries times for L2TP link detection. | 5 |
| Expert Options | You can enter some other PPP initialization strings in this field. Each string can be separated by a space. | noccp nobsdcomp |

L2TP Client **L2TP Server**

Enable L2TP Server

Enable L2TP Server

L2TP Common Settings

Username:

Password:

Authentication: ▼

Enable Tunnel Authentication

Local IP:

IP Pool Start:

IP Pool End:

L2TP Server Advanced

Show L2TP Server Advanced

Address/Control Compression

Protocol Field Compression

Port:

Asyncmap Value:

MRU:

MTU:

Link Detection Interval (s):

Link Detection Max Retries:

Expert Options:

Route Table List

| Client IP | Remote Subnet | Remote Subnet Mask |
|------------------------------------|---------------|--------------------|
| <i>*0.0.0.0" means any</i> | | |
| <input type="button" value="Add"/> | | |

| L2TP Server @ L2TP | | |
|------------------------------|--|------------|
| Item | Description | Default |
| Enable L2TP Server | Tick to enable L2TP server. | Disable |
| Username | Set the username which will assign to L2TP client. | Null |
| Password | Set the password which will assign to L2TP client. | Null |
| Authentication | Select from "PAP", "CHAP", "MS-CHAP v1" and "MS-CHAP v2". L2TP client need to select the same authentication method based on this server's authentication method. | CHAP |
| Enable Tunnel Authentication | Tick to enable tunnel authentication and enter the tunnel secret which will provide to L2TP client. | Disable |
| Local IP | Set the IP address of L2TP server. | 10.0.0.1 |
| IP Pool Start | Set the IP pool start IP address which will assign to the L2TP clients. | 10.0.0.2 |
| IP Pool End | Set the IP pool end IP address which will assign to the L2TP clients. | 10.0.0.100 |
| Show L2TP Server Advanced | Tick to show the L2TP server advanced setting. | Disable |
| Address/Control Compression | Used for PPP initialization. In general, you need to enable it as default. | Enable |
| Protocol Field Compression | Used for PPP initialization. In general, you need to enable it as default. | Enable |
| Port | Set the Port number of the L2TP server. | Null |
| Asyncmap Value | One of the L2TP initialization strings. In general, you don't need to modify this value. | ffffffff |
| MRU | Maximum Receiving Unit. It is the identifier of the maximum size of packet, which is possible to receive in a given environment. | 1500 |
| MTU | Maximum Transmission Unit. It is the identifier of the maximum size of packet, which is possible to transfer in a given environment. | 1436 |

| | | |
|----------------------------|--|--------------------|
| Link Detection Interval | Specify the interval between L2TP client and server. To check the connectivity of a tunnel, the client and server regularly send PPP Echo to each other. If the client or server receives no response from the peer within a specified period of time, it retransmits the PPP echo. If it receives no response from the peer after transmitting the PPP echo for max retries times, it considers that the L2TP tunnel is down and tries to re-establish a tunnel with the peer. | 30 |
| Link Detection Max Retries | Specify the max retries times for L2TP link detection. | 5 |
| Expert Options | You can enter some other PPP initialization strings in this field. Each string can be separated by a space. | noccp nobsdcomp |
| Route Table List | Click "Add" to add a route rule from L2TP server to L2TP client. | Null |

3.27 Configuration -> PPTP

This section allows users to set the PPTP parameters.

PPTP Client
PPTP Server

PPTP Client

| Tunnel name | Description |
|------------------------------------|-------------|
| <input type="button" value="Add"/> | |

PPTP Client

Enable

Remote IP Address:

Username:

Password:

Authentication: Auto ▼

Enable NAT

Enable MPPE

All traffic via this interface

Show Advanced

Local IP:

Remote IP:

Address/Control Compression

Protocol Field Compression

Asyncmap Value:

MRU:

MTU:

Link Detection Interval (s):

Link Detection Max Retries:

5

Expert Options:

noccp nobsdcomp

| PPTP Client @ PPTP | | |
|--------------------------------|---|---------|
| Item | Description | Default |
| Add | Click "Add" to add a PPTP client | |
| Enable | Enable PPTP Client. The max tunnel accounts are 3. | Null |
| Disable | Disable PPTP Client. | Null |
| Remote IP Address | Enter your PPTP server's public IP or domain name. | Null |
| Username | Enter the username which was provided by your PPTP server. | Null |
| Password | Enter the password which was provided by your PPTP server. | Null |
| Authentication | Select from "Auto", "PAP", "CHAP", "MS-CHAP v1" and "MS-CHAP v2". You need to select the corresponding authentication method based on the server's authentication method. When you select "Auto", router will auto select the correct method based on server's method. | Auto |
| Enable NAT | Click to enable NAT feature of PPTP. The source IP address of host Behind R3000 will be disguised before accessing the remote PPTP server. | Disable |
| Enable MPPE | Tick to enable MPPE (Microsoft Point-to-Point Encryption). It's a protocol for encrypting data across PPP and VPN links. | Disable |
| All traffic via this interface | After click to enable this feature, all data traffic will be sent via PPTP tunnel. | Disable |
| Show Advanced | Tick to enable the PPTP client advanced setting. | Disable |
| Local IP | Set the IP address of the PPTP client. You can enter the IP which assigned by PPTP server. Null means PPTP client will obtain an IP address automatically from PPTP server's IP pool. | Null |
| Remote IP | Enter the remote peer's private IP address or remote subnet's gateways address. | Null |
| Address/Control Compression | Used for PPP initialization. In general, you need to enable it as default. | Enable |
| Protocol Field Compression | Used for PPP initialization. In general, you need to enable it as default. | Enable |
| Asyncmap Value | One of the PPTP initialization strings. In general, you don't need to modify this value. | ffffff |
| MRU | Maximum Receiving Unit. It is the identifier of the maximum size of packet, which is possible to receive in a given environment. | 1500 |
| MTU | Maximum Transmission Unit. It is the identifier of the maximum size of packet, which is possible to transfer in a given environment. | 1436 |
| Link Detection Interval | Specify the interval between PPTP client and server. To check the connectivity of a tunnel, the client and server regularly send PPP Echo to each other. If the client or server receives no response from the peer within a specified period of time, it retransmits the PPP echo. If it receives no response from the peer after transmitting the PPP echo for max retries times, | 30 |

| | | |
|----------------------------|---|--------------------|
| | it considers that the PPTP tunnel is down and tries to re-establish a tunnel with the peer. | |
| Link Detection Max Retries | Specify the max retries times for PPTP link detection. | 5 |
| Expert Options | You can enter some other PPP initialization strings in this field. Each string can be separated by a space. | noccp nobsdcomp |

PPTP Client **PPTP Server**

Enable PPTP Server

Enable PPTP Server

PPTP Common Settings

Username:

Password:

Authentication:

Local IP:

IP Pool Start:

IP Pool End:

Enable MPPE

PPTP Server Advanced

Show PPTP Server Advanced

Address/Control Compression

Protocol Field Compression

Asynmap Value:

MRU:

MTU:

Link Detection Interval (s):

Link Detection Max Retries:

Expert Options:

Route Table List

| Client IP | Remote Subnet | Remote Subnet Mask |
|------------------------------------|---------------|--------------------|
| <i>*0.0.0.0" means any</i> | | |
| <input type="button" value="Add"/> | | |

| PPTP Server @ PPTP | | |
|--------------------|---|---------|
| Item | Description | Default |
| Enable PPTP Server | Tick to enable PPTP server. | Disable |
| Username | Set the username which will assign to PPTP client. | Null |
| Password | Set the password which will assign to PPTP client. | Null |
| Authentication | Select from "PAP", "CHAP", "MS-CHAP v1" and "MS-CHAP v2". | CHAP |

| | | |
|-----------------------------|--|------------------------|
| | PPTP client need to select the same authentication method based on this server's authentication method. | |
| Local IP | Set the IP address of PPTP server. | 10.0.0.1 |
| IP Pool Start | Set the IP pool start IP address which will assign to the PPTP clients. | 10.0.0.2 |
| IP Pool End | Set the IP pool end IP address which will assign to the PPTP clients. | 10.0.0.100 |
| Enable MPPE | Tick to enable MPPE (Microsoft Point-to-Point Encryption). It's a protocol for encrypting data across PPP and VPN links. | Disable |
| Show PPTP Server Advanced | Tick to show the PPTP server advanced setting. | Disable |
| Address/Control Compression | Used for PPP initialization. In general, you need to enable it as default. | Enable |
| Protocol Field Compression | Used for PPP initialization. In general, you need to enable it as default. | Enable |
| Asyncmap Value | One of the PPTP initialization strings. In general, you don't need to modify this value. | ffffff |
| MRU | Maximum Receiving Unit. It is the identifier of the maximum size of packet, which is possible to receive in a given environment. | 1500 |
| MTU | Maximum Transmission Unit. It is the identifier of the maximum size of packet, which is possible to transfer in a given environment. | 1436 |
| Link Detection Interval | Specify the interval between PPTP client and server. To check the connectivity of a tunnel, the client and server regularly send PPP Echo to each other. If the client or server receives no response from the peer within a specified period of time, it retransmits the PPP echo. If it receives no response from the peer after transmitting the PPP echo for max retries times, it considers that the PPTP tunnel is down and tries to re-establish a tunnel with the peer. | 30 |
| Link Detection Max Retries | Specify the max retries times for PPTP link detection. | 5 |
| Expert Options | You can enter some other PPP initialization strings in this field. Each string can be separated by a space. | noccp nobsdcom p |
| Route Table List | Click "Add" to add a route rule from PPTP server to PPTP client. | Null |

3.28 Configuration -> SNMP

This section allows users to set the SNMP parameters.

SNMP Basic Settings

Enable SNMP

Port:

Agent Mode:

Version:

Location Info:

Contact Info:

System Name:

| Basic @ SNMP | | |
|---------------|--|-------------------|
| Item | Description | Default |
| Port | UDP port for sending and receiving SNMP requests. | 161 |
| Agent Mode | Select the correct agent mode. | Master |
| Version | Select from "SNMPv1", "SNMPv2" and "SNMPv3". | SNMPv2 |
| Location Info | Enter the router's location info which will send to SNMP client. | China |
| Contact Info | Enter the router's contact info which will send to SNMP client. | info@robustel.com |
| System name | Enter the router's system name which will send to SNMP client. | router |

Mib View List

| View Name | View Filter | View OID |
|-----------|-------------|---------------|
| system | Included | 1.3.6.1.2.1.1 |
| all | Included | 1 |

**View OID: <1~65535>.<1~65535>...*

| View @ SNMP | | |
|-------------|--------------------------------------|---------|
| Item | Description | Default |
| View Name | Enter the View Name | Null |
| View Filter | Select from "Include" and "Exclude". | Include |
| View OID | Enter the Object Identifiers (OID) | Null |

SNMPv1&v2 User List

| Readwrite | Network | Community | MIBview |
|-----------|---------|-----------|---------|
| Readonly | 0.0.0.0 | public | system |
| ReadWrite | 0.0.0.0 | private | system |
| ReadWrite | 0.0.0.0 | admin | all |

**Network: 1.1.1.0/24, 0.0.0.0 means any*

| VACM @ SNMP | | |
|-------------|--|----------|
| Item | Description | Default |
| Readwrite | Select the access rights from "ReadOnly" and "ReadWrite". | ReadOnly |
| Network | Define the network from which is allowed to access. E.g. 172.16.0.0. | Null |
| Community | Enter the community name. | Null |
| MIBview | Select from "none", "system" and "all" | none |

Basic
View
VACM
Trap
Download MIB..

SNMP Trap Settings

Enable SNMP Trap

Version:

Server Address:

Port:

Name:

| Trap @ SNMP | | |
|------------------|--|---------|
| Item | Description | Default |
| Enable SNMP Trap | Click to enable SNMP Trap feature. | Disable |
| Version | Select from "SNMPv1", "SNMPv2" and "SNMPv3". | SNMPv2 |
| Server Address | Enter SNMP server's IP address. | Null |
| Port | Enter SNMP server's port number | 0 |
| Name | Enter SNMP server's name. | Null |

Basic
View
VACM
Trap
Download MIB..

Download MIB Moudles File

[Download MIB Moudles File](#)

| Download MIB Moudles File @ SNMP | | |
|----------------------------------|--|--|
| Item | Description | |
| Download MIB Moudles File | Click to download the MIB Moudles File | |

3.29 Configuration -> VRRP

This section allows users to set the VRRP parameters.

VRRP

VRRP Settings

Enable VRRP

Group ID:

Priority:

Interval (s):

Virtual IP:

| VRRP | | |
|-------------|---|-------------|
| Item | Description | Default |
| Enable VRRP | Tick to enable VRRP protocol. VRRP (Virtual Router Redundancy Protocol) is an Internet protocol that provides a way to have one or more backup routers when using a statically configured router on a local area network (LAN). Using VRRP, a virtual IP address can be specified manually. | Disable |
| Group ID | Specify which VRRP group of this router belong to. | 1 |
| Priority | Enter the priority value from 1 to 255. The larger value has higher priority. | 100 |
| Interval | The interval that master router sends keepalive packets to backup routers. | 10 |
| Virtual IP | A virtual IP address is shared among the routers, with one designated as the master router and the others as backups. In case the master fails, the virtual IP address is mapped to a backup router's IP address. (This backup becomes the master router.) | 192.168.0.1 |

3.30 Configuration -> AT over IP

This section allows users to set the AT over IP parameters.

AT over IP

AT Settings

Enable AT Settings

Protocol:

Local IP:

Local Port:

| AT over IP | | |
|--------------------|---|---------|
| Item | Description | Default |
| Enable AT Settings | Tick to enable AT over IP to control cellular module via AT command remotely. | Disable |
| Protocol | Select from "TCP server" or "UDP" | UDP |
| Local IP | You can enter the IP address of cellular WAN, Ethernet WAN or Ethernet LAN. Null stands for all these three IP addresses. | 0.0.0.0 |
| Local Port | Enter the local TCP or UDP listening port. | 8091 |

3.31 Configuration -> Phone Book

This section allows users to set the Phone Book parameters.

Phone Book
Phone Group

Phone Book Configuration

| Description | Phone No. |
|-------------|-----------|
| | |

X

Add

**1. Make sure you enter mobile destination number in the international format, for instance for SMS to US mobile phone: +12342342342 (+1 is the international code for US, use this and then your normal number without the first zero).*

**2. In some countries, only can send/receive SMS without international code for the number.*

| Phone Book | | |
|-------------|---|---------|
| Item | Description | Default |
| Description | Set the name to your relevant phone No. | Null |
| Phone No. | Enter your phone No. Note: <i>In some countries, the Phone NO. is required to be written in international format, starting with “+” followed by the country code.</i> | Null |

Phone Book
Phone Group

Phone Group Configuration

| Group Name | Phone List |
|------------|------------|
| | |

Add

Group No. And Description

Group Name:

Add or remove the phone no. to/from group

Not in this group
In this group

➔
 All
➔

| Phone Group | | |
|--|--|------|
| Group Name | Set the Group Name. | Null |
| Phone List | Show the phone list in the Group. | Null |
| Add or remove the phone no.to/from group | Click right arrow to add the phone no.to this group; Click left arrow to remove the phone no.from group. | Null |

Note: R3000-4L does not support SMS/Call function, so PhoneBook section will not be displayed on the web page.

3.32 Configuration -> SMS

This section allows users to set the SMS Notification and SMS Control parameters.

SMS

SMS Notification

Send SMS on power up
 Send SMS on PPP connect
 Send SMS on PPP disconnect
 Phone Group: NULL [Click to add PhoneGroup!](#)

SMS Control

Enable
 Password Content:
 Phone Group: NULL [Click to add PhoneGroup!](#)

| SMS | | |
|----------------------------|---|---------|
| Item | Description | Default |
| Send SMS on power up | Enable to send SMS to specific user after router was powered up. | Disable |
| Send SMS on PPP connect | Enable to send SMS to specific user when router PPP up. | Disable |
| Send SMS on PPP disconnect | Enable to send SMS to specific user when router PPP down. | Disable |
| Phone Group | Select the Phone Group you set in 3.2.27 Configuration -> Phone Book | Null |
| Enable @ SMS Control | Click to enable SMS remote control. | Disable |
| Password Content | Set the password content characters. Note: Only support text format. For example 123 or ABC123. | Null |
| Phone Group | Select the Phone Group you set in 3.2.27 Configuration -> Phone Book | Null |

Note: please refer to section 4.7 SMS Commands for Remote Control. R3000-4L does not support SMS/Call function, SMS section will not be displayed on the web page.

3.33 Configuration -> Reboot

This section allows users to set the Reboot policies.

Time
Call
SMS

Daily Reboot

Enable Time Reboot(hh:mm,24h)

| Reboot Time1 | Reboot Time2 | Reboot Time3 |
|--------------|--------------|--------------|
| 12:00 | | |

Time
Call
SMS

Call Reboot Configuration

Enable Call Reboot

Phone Group: NULL [Click to add PhoneGroup!](#)

SMS Reply Content:

SMS Reboot Configuration

Enable SMS Reboot

Phone Group: NULL [Click to add PhoneGroup!](#)

Password:

SMS Reply Content:

| Time @ Reboot | | |
|--------------------|---|---------|
| Item | Description | Default |
| Enable(ahh:mm,24h) | Enable daily reboot, you should follow ahh:mm,24h time frame, or the data will be invalid. | Disable |
| Reboot Time1 | Specify time1 when you need router reboot. | Null |
| Reboot Time2 | Specify time2 when you need router reboot. | Null |
| Reboot Time3 | Specify time3 when you need router reboot. | Null |
| Call @ Reboot | | |
| Enable Call Reboot | Click to enable call reboot function | Disable |
| Phone Group | Set the Phone Group which was allowed to reboot the router by call. | Null |
| SMS Reply Content | Send reply short message after auto Call reboot from specified Caller ID (e.g. Reboot ok!). Note: Only support text format SMS. | Null |
| SMS @ Reboot | | |
| Enable SMS Reboot | Click to enable SMS reboot function | Disable |
| Phone Group | Set the Phone Group which was allowed to reboot the router by SMS. | Null |
| Password | Password for triggering the Reboot mechanism. | Null |
| SMS Reply Content | Send reply short message after auto SMS reboot from specified Caller ID (e.g. Reboot ok!). Note: Only support text format SMS. | Null |

Note: R3000-4L does not support SMS/Call function, Call and SMS section will not be displayed on the web page.

3.34 Configuration -> Portal

This section allows users to configure parameters about RobustLink, Tingco Cumulosity and GpsGate, which are industrial-grade centralized management and administration system. It allows you to monitor, configure and manage large numbers of remote devices on a private network over the web.

Portal

Portal Settings

Enable Portal

Server Type: ▾

Server Address:

Port:

Password:

Portal

Portal Settings

Enable Portal

Server Type: ▾

Server Address:

Port:

UnitID:

CLID:

KeepAlive:

Portal

Portal Settings

Enable Portal

Server Type: ▾

URL:

Username:

Password:

Device Name:

Device ID(s):

KeepAlive:

Portal

Portal Settings

Enable Portal

Server Type: ▾

**Please configure the GPS Setting parameters at first*

| Robustlink @ Portal | | |
|---------------------|----------------------------------|---------|
| Item | Description | Default |
| Server address | Enter IP address of RobustLink. | Null |
| Port | Enter port number of RobustLink. | 1883 |

| | | |
|--|---|------|
| Password | Enter the password preset in RobustLink. <i>Note: The passwords set in R3000 and RobustLink need to be the same.</i> | Null |
| Tingco@ Portal | | |
| Server Address, Port, UnitID, CLID, KeepAlive | Fill in the Server Address, Port, UnitID, CLID, KeepAlive. After settings are activated, R3000 will update information to Tingco automatically. | |
| Cumulosity@Portal | | |
| URL, Username, Password, Device Name, Device ID (S), KeepAlive | Fill in the URL, Username, Password, Device Name, Device ID (S), KeepAlive of Cumulosity. Default settings will be ok. After settings are activated, R3000 will update information to Cumulosity automatically. | |
| GpsGate@Portal | | |
| GpsGate | Connect to GpsGate portal. You should configure the GpsGPS Setting at first. | |

3.35 Configuration -> Syslog

This section allows users to set the syslog parameters.

Syslog

Syslog Settings

Save Position: RAM

Log Level: DEBUG

Keep Days: 14

Log to Remote System

Remote IP:

Remote UDP Port: 514

| Syslog | | |
|----------------------|---|---------|
| Item | Description | Default |
| Save Position | Select the save position from “None”, “Flash” and “SD”. “None” means syslog is only saved in RAM, and will be cleared after reboot. | NONE |
| Log Level | Select form “DEBUG”, “INFO”, “NOTICE”, “WARNING”, “ERR”, “CRIT”, “ALERT” and “EMERG” which from low to high. The lower level will output more syslog in detail. | DEBUG |
| Keep Days | Specify the syslog keep days for router to clear the old syslog. | 14 |
| Log to Remote System | Enable to allow router sending syslog to the remote syslog server. You need to enter the IP and Port of the syslog server. | Disable |

3.36 Configuration -> Event

This section allows users to set the Event parameters.

Event

Event Settings

Enable Event

| Index | Event Code | SNMP-TRAP | RobustLink |
|-------|------------|--------------------------|--------------------------|
| 1 | BOOT-UP | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 | 3G-UP | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 | 3G-DOWN | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 | GPRS-UP | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 | GPRS-DOWN | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 | OVPN1-UP | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 | OVPN2-UP | <input type="checkbox"/> | <input type="checkbox"/> |
| 8 | OVPN3-UP | <input type="checkbox"/> | <input type="checkbox"/> |
| 9 | OVPN1-DOWN | <input type="checkbox"/> | <input type="checkbox"/> |
| 10 | OVPN2-DOWN | <input type="checkbox"/> | <input type="checkbox"/> |
| 11 | OVPN3-DOWN | <input type="checkbox"/> | <input type="checkbox"/> |
| 12 | INT1-UP | <input type="checkbox"/> | <input type="checkbox"/> |
| 13 | INT2-UP | <input type="checkbox"/> | <input type="checkbox"/> |

| Event | | |
|--------------|---|---------|
| Item | Description | Default |
| Enable Event | Click to enable Event feature. This feature is used to report R3000's main running event to SNMP-TRAP or RobustLink. There are numbers of Event code you can select, such as "BOOT-UP", "3G-UP", "3G-DOWN", etc. For example if you click "3G-UP" and select "RobustLink" as the server, when R3000 dial up to connect to 3G network, it will send event code "3G-UP" as well as relevant information to RobustLink. | Disable |

3.37 Configuration -> USR LED

This section allows users to change the display status of USR LED.

Note: Please refer to "Status" -> "System" -> "LEDs Information" -> "USR".

USR LED

USR LED

USR LED Type:

Indication:

| USR LED | | |
|--------------|--|---------|
| Item | Description | Default |
| USR LED Type | Select from "VPN", "PPPoE", "DynDNS" and "GPS". | VPN |
| Indication | Select from "ON", "Blink". For example, if "USR LED Type" is set as "VPN" and "Indication" is set as "Blink", when any VPN tunnel is up USR LED will blink. | ON |

3.38 Configuration -> RobustVPN

This section allows users to configure the settings of RobustVPN, which is based on a hosted web service designed to connect customer to their machines through Internet. The hosted acts as data transit platform and offer communication originated by the customers to their machines. It is intended to be used in the industrial M2M communication sector.

RobustVPN

RobustVPN Connection Settings

Enable RobustVPN

Server Address:

HTTPS Port:

Username:

Password:

RobustVPN Status

Status: Disconnected

Local IP:

Remote IP:

Connect Time:

| RobustVPN | | |
|------------------|--|---------|
| Item | Description | Default |
| Enable RobustVPN | Click to enable RobustVPN. | Disable |
| Server Address | Enter the IP address or Domain Name of RobustVPN server. | Null |
| HTTPS Port | Enter the HTTPS Port of RobustVPN server. | 443 |
| Username | Enter the Username of RobustVPN server. | admin |
| Password | Enter the Password of RobustVPN server. | admin |
| RobustVPN Status | Show status of RobustVPN, including connection status, Local IP, Remote IP and Connect Time. | |

3.39 Administration -> Profile

This section allows users to import or export the configuration file, and restore the router to factory default setting.

Profile

Change Profile

Profile: Standard ▼

Copy settings from current profile to selected profile

Change

All Parameters XML Configuration

XML File: Browse... Import Export

IPsec XML Configuration

IPsec XML File: Browse... Import Export

OpenVPN XML Configuration

OpenVPN XML File: Browse... Import Export

Restore to Factory Default Settings

Restore to Factory Default Settings

| Profile | | |
|-------------------------------------|---|----------|
| Item | Description | Default |
| Profile | This item allow users store different configuration profiles into different positions; or save one configuration profile into different positions just for configuration data backup. Selected from "Standard", "Alternative 1", "Alternative 2", "Alternative 3". | Standard |
| All Parameters XML Configuration | Import: Click "Browse" to select the XML file in your computer, then click "Import" to import this file into your router. Export: Click "Export" and the configuration will be showed in the new popup browser window, then you can save it as a XML file. | / |
| IPsec XML Configuration | Only import or export the IPsec XML configuration. | / |
| OpenVPN XML Configuration | Only import or export the OpenVPN XML configuration. | / |
| Restore to Factory Default Settings | Click the button of "Restore to Factory Default Settings" to restore the router to factory default setting. | / |

3.40 Administration -> Tools

This section provides users four tools: Ping, AT Debug, Traceroute and Test.

Ping
AT Debug
Traceroute
Sniffer
Test

Ping

Ping IP address:

Number of requests:

Timeout (s):

Local IP:

| Ping @ Tools | | |
|--------------------|--|---------|
| Item | Description | Default |
| Ping IP address | Enter the ping destination IP address or domain name. | Null |
| Number of requests | Specify the number of ping requests. | 5 |
| Timeout | Specify timeout of ping request. | 1 |
| Local IP | Specify the local IP from cellular WAN, Ethernet WAN or Ethernet LAN. Null stands for selecting local IP address from these three automatically. | Null |
| Start | Click this button to start ping request, and the log will be displayed in the follow box. | Null |

Ping
AT Debug
Traceroute
Sniffer
Test

Send AT Commands

Receive AT Commands

| AT Debug @ Tools | | |
|---------------------|---|---------|
| Item | Description | Default |
| Send AT Commands | Enter the AT commands which you need to send to cellular module in this box. | Null |
| Send | Click this button to send the AT commands. | Null |
| Receive AT Commands | Router will display the AT commands which respond from the cellular module in this box. | Null |

Ping
AT Debug
Traceroute
Sniffer
Test

Traceroute

Trace Address:

Trace Hops:

Timeout (s):

| Traceroute @ Tools | | |
|--------------------|---|---------|
| Item | Description | Default |
| Trace Address | Enter the trace destination IP address or domain name. | Null |
| Trace Hops | Specify the max trace hops. Router will stop tracing if the trace hops has met max value no matter the destination has been reached or not. | 30 |
| Timeout | Specify timeout of Traceroute request. | 1 |
| Send | Click this button to start Traceroute request, and the log will be displayed in the follow box. | Null |

Ping
AT Debug
Traceroute
Sniffer
Test

Sniffer

Interface:

Host:

Protocol:

Count:

| Sniffer @ Tools | | |
|-----------------|--|---------|
| Item | Description | Default |
| Interface | Select form "all", "lo", "imq0", "imq1", "eth0", "gre0", and "ppp0": all: contain all the interface; lo: Local Loopback interface; imq0/1: virtual interface for QoS, which used to limit the download and upload speed; eth0: Ethernet interface; gre0: GRE tunnel interface; ppp0: Cellular PPP interface; | All |
| Host | Filter the packet that contain the specify IP address. | Null |
| Protocol | Select from "all", "ip", "arp", "tcp" and "udp". | All |
| Count | Set the packet number that can be sniffed at a time. | 100 |
| Start | Click this button to start the sniffer, and the log will be displayed in the follow box. | Null |

- Ping
- AT Debug
- Traceroute
- Sniffer
- Test

| Test | | |
|-------------------------------------|---------------|--------|
| Enable | Description | Result |
| <input checked="" type="checkbox"/> | SD Test | |
| <input checked="" type="checkbox"/> | USB Test | |
| <input checked="" type="checkbox"/> | Flash Test | |
| <input checked="" type="checkbox"/> | Memory Test | |
| <input checked="" type="checkbox"/> | Ethernet Test | |
| <input checked="" type="checkbox"/> | SIM1 Test | |
| <input checked="" type="checkbox"/> | SIM2 Test | |
| <input checked="" type="checkbox"/> | Module Test | |

Detail

| Test @ Tools | | |
|--|---|---------|
| Item | Description | Default |
| Enable | Click "Enable" to select the hardware component whose status you want to check. | Enable |
| Description | Select from "SD Test", "USB Test", "Flash Test", "Memory Test", "SIM1 Test", "SIM2 Test" and "Module Test". | N/A |
| Result | Show the current status of the selected hardware component. There are 3 status "Testing", "Success" and "Failure". Testing: Router is testing the selected hardware component. Success: Correspond hardware component is properly inserted and detected. Failure: Correspond hardware component is not inserted into the router or the router fails to detect. | Null |
| Show Detail | Show the current test details of the hardware component. | Null |
| Clear | Clear the current test details of the hardware component. | Null |
| Note: click "Apply" to start testing. | | |

3.41 Administration -> Clock

This section allows users to set clock of router and NTP server.

Clock

Real Time Clock Settings

Real Time Clock:

PC Time:

Timezone Setting

Timezone:

GPS Time Synchronization

Sync Time From GPS

NTP Settings

Enable NTP Client

Primary NTP Server:

Secondary NTP Server:

Update Interval (h):

Enable NTP Server

| Clock | | |
|---|---|--------------|
| Item | Description | Default |
| Real Time Clock | Router's RTC can be showed and modified in this field. | Null |
| PC Time | You PC's time can be showed here. | Null |
| Synchronize | Synchronize router's RTC with PC. | Null |
| Enable NTP Client | Enable to synchronize the time from NTP server. | Disable |
| Timezone @ Client | Select your local time zone. | UTC +08:00 |
| Sync Time From GPS @ GPS Time Synchronization | Synchronize router's RTC from GPS. | Disable |
| Primary NTP Server | Enter primary NTP Server's IP address or domain name. | pool.ntp.org |
| Secondary NTP Server | Enter secondary NTP Server's IP address or domain name. | Null |
| Update interval (h) | Enter the interval which NTP client synchronize the time from NTP server. | 1 |
| Enable NTP Server | Click to enable the NTP server function of router. | Disable |
| Timezone @ Server | Select your local time zone. | UTC +08:00 |

3.42 Administration -> Web Server

This section allows users to modify the parameters of Web Server.

Basic
X.509

Port Settings

| | |
|-------------|-----|
| HTTP Port: | 80 |
| HTTPS Port: | 443 |

Login Parameters

| | |
|--------------------|------|
| Login Timeout (s): | 1800 |
|--------------------|------|

Basic
X.509

HTTPS Certificate

| | | | | |
|--------------|--|-----------|--------|--------|
| Public Key: | | Browse... | Import | Export |
| Private Key: | | Browse... | Import | Export |

| | |
|------------|-------------|
| Public Key | Private Key |
| | |

| Basic @ Web Server | | |
|--------------------|--|---------|
| Item | Description | Default |
| HTTP Port | Enter the HTTP port number you want to change in R3000's Web Server. On a Web server, port 80 is the port that the server "listens to" or expects to receive from a Web client. If you configure the router with other HTTP Port number except 80, only adding that port number then you can login R3000's Web Server. | 80 |
| HTTPS Port | Enter the HTTPS port number you want to change in R3000's Web Server. On a Web server, port 443 is the port that the server "listens to" or expects to receive from a Web client. If you configure the router with other HTTPS Port number except 443, only adding that port number then you can login R3000's Web Server. Note: <i>HTTPS is more secure than HTTP. In many cases, clients may be exchanging confidential information with a server, which needs to be secured in order to prevent unauthorized access. For this reason, HTTP was developed by Netscape corporation to allow authorization and secured transactions.</i> | 443 |
| Login Timeout (s) | Enter the Login timeout you want to change in R3000's Web Server. After "Login Timeout", R3000 will force to log out the Web GUI and then you need to re-login again to Web GUI. | 1800 |
| X.509 @ Web Server | | |
| HTTPS Certificate | In this tab, user can import, export or delete "Public Key" and "Private Key" for HTTPS certification. | Null |

3.43 Administration -> User Management

This section allows users to modify or add management user accounts.

Super
Common

User Management

Username:

Old Password:

New Password:

Confirm Password:

| Super @ User Management | | |
|-------------------------|---|---------|
| Item | Description | Default |
| Super | One router has only one super user account. Under this account, user has the highest authority include modify and add management user accounts. | Admin |
| User Management | Set Username and Password. <i>Note: R3000 support SSH2 for management. Details you can check Application Note of R3000.</i> | Null |

Super
Common

User Management

Access Level
Username
Password

| Common @ User Management | | |
|--------------------------|--|---------|
| Item | Description | Default |
| Common | One router has at most 9 common user accounts. There are two access level of common user account: "ReadWrite" and "ReadOnly". | Null |
| Access Level | Select from "ReadWrite" and "ReadOnly". ReadWrite: Users can view and set the configuration of router under this level; ReadOnly: Users only can view the configuration of router under this level | Null |
| Username/ Password | Set Username and Password. | Null |
| Add | Click this button to add a new account. | Null |

3.44 Administration -> SDK Management

This section allows users to set SDK Management parameters of router.

APP
Files

Import Applications

Custom Application List

Disable SDK service if not WAN devices dete...

| Enabled | APP Name | Options | Memory(KB) | Running |
|--------------------------|----------|---------|------------|---|
| <input type="checkbox"/> | 1.xml | | 0 | N x |

| APP @ SDK Management | | |
|---|--|---------|
| Item | Description | Default |
| Import Applications | Click to import APP files in this item. | Null |
| Custom Application List | This list shows which APP files you have imported to the router, which APP file you want to start up, as well as the running information. Enable: Click to enable the APP file. APP Name: Shows the name of the APP files. Options: It is an optional items, user can choose to configure startup parameters here. Memory (KB): Shows the memory resources occupied by the APP files. Running: Shows whether the APP files are running. | Null |
| Disable SDK service if not WAN device dete... | Click to run the SDK APP only after WAN interface is up. If you don't click this option, the SDK APP will run before the WAN interface is up. | Disable |

APP
Files

Import Files

Custom File List

| Index | File Name |
|-------|-----------|
| | |

| Files @ SDK Management | | |
|------------------------|--|---------|
| Item | Description | Default |
| Import Files | Click to import configuration files in this item. | Null |
| Custom File List | This list shows which Configuration files you have imported to the router. | Null |

3.45 Administration -> Update Firmware

This section allows users to update the firmware of router.

Update

Firmware Version

Firmware Version:

Firmware old Version

Firmware old Version

Fall back to old version

Update Firmware

Warning: Do not turn off or operate the Router while updating.

New Firmware:

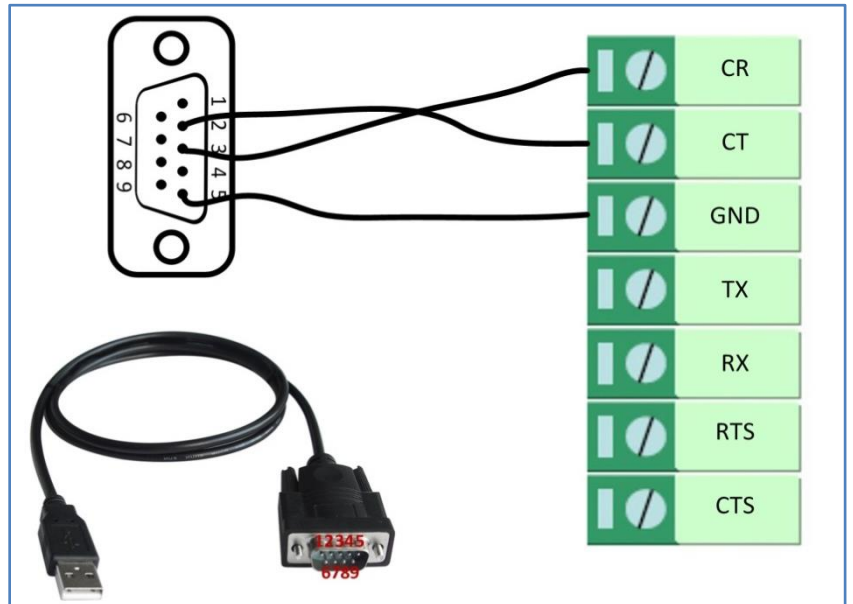
| Update | | |
|----------------------|---|---------|
| Item | Description | Default |
| Firmware Version | Show the current firmware version. | |
| Firmware Old Version | Show the old firmware version of the router. Click "Apply" button to fall back to the old version, after updating successfully, you need to reboot router to take effect. | |
| Update firmware | Click "Select File" button to select the correct firmware in your PC, and then click "Update" button" to update. After updating successfully, you need to reboot router to take effect. | Null |

Chapter 4 Configuration Examples

4.1 Interface

4.1.1 Console Port

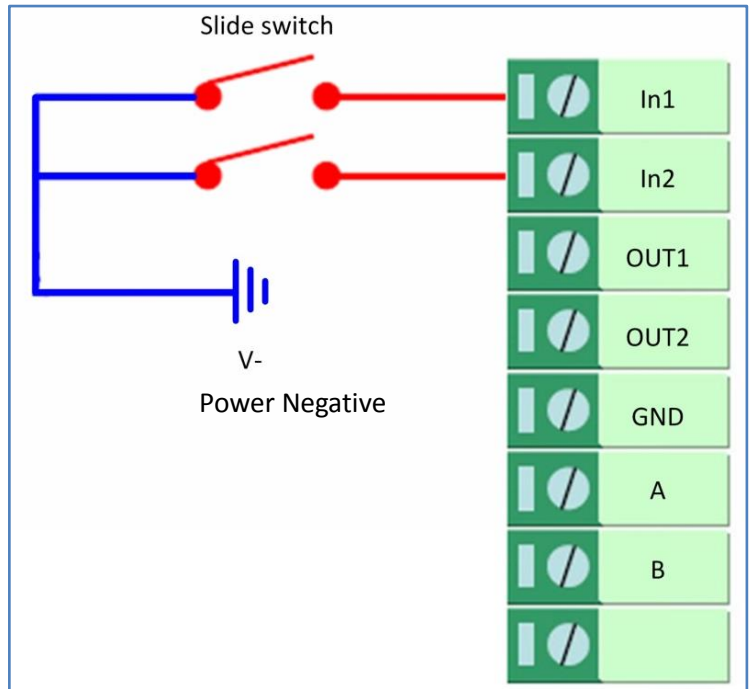
User can use the console port to manage the router via CLI commands, please check section Introductions for CLI.



4.1.2 Digital Input

There are two digital inputs of R3000, it support dry contact (do not supports wet contact). Please check the connector interface of R3000, you can find out “V-” easily at one of the pin of power input connector.

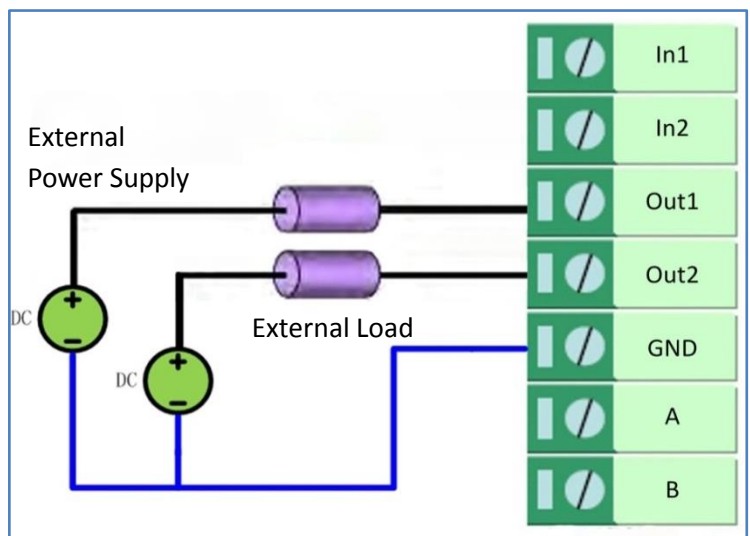
Import note: do not connect In1/In2 and Slide switch directly to “GND” of the terminal block, or DI will not work.



4.1.3 Digital Output

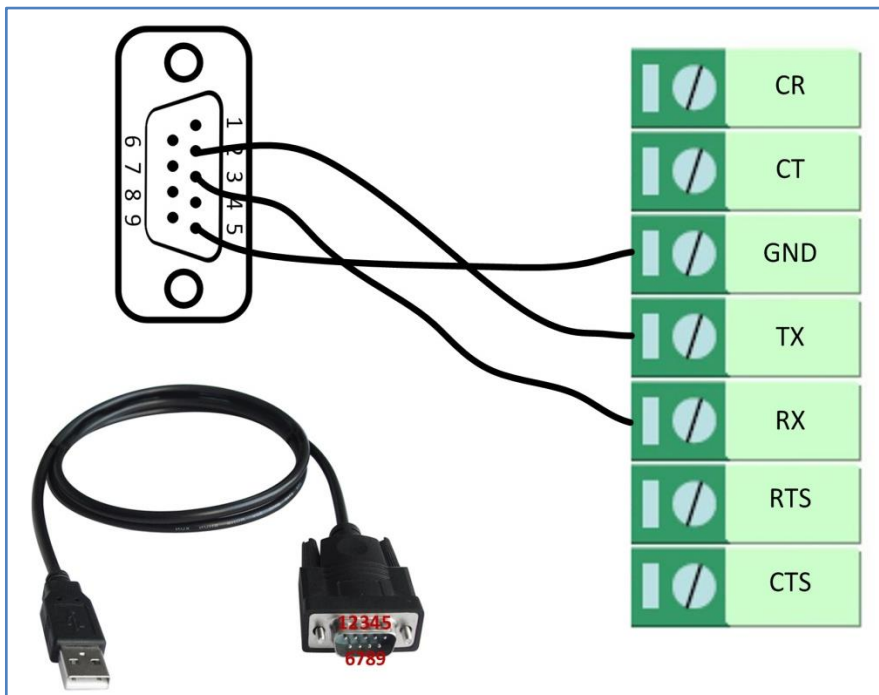
There are two digital outputs of R3000. Power negative of DC should connect to “GND” Please refer to connection diagram at the right site.

Maximum voltage/current/output power of DO is 30VDC/0.3A/0.3W. It means voltage difference between Out1/Out2 and GND cannot exceed to 30VDC; the current value through Out1/Out2 cannot exceed to 300mA. And the output power dissipated by Out1/Out2 cannot exceed to 0.3W. Otherwise DO will be damaged.



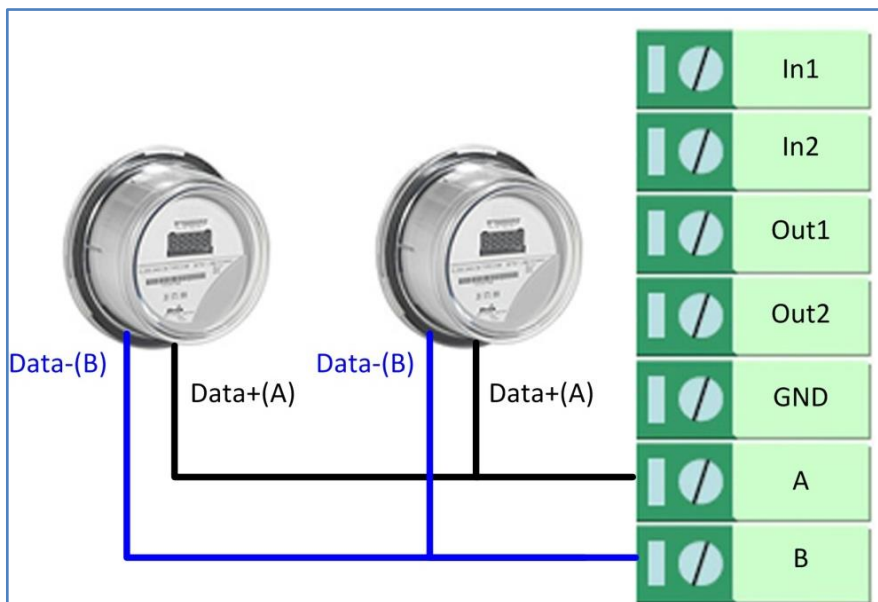
4.1.4 RS232

R3000 supports one RS232 for serial data communication. Please refer to the connection diagram at the right site.



4.1.5 RS485

R3000 supports one RS485 for serial data communication. Please refer to the connection diagram at the right site.



4.2 Cellular

4.2.1 Cellular Dial-Up

This section shows users how to configure the parameters of Cellular Dial-up within two configuration methods: “Always Online” and “Connect on Demand”.

Note: This section will be hidden if user selects “Eth0 Only” in “Configuration ->Link Management”.

1. Always Online

Configuration-->Link Management-->Cellular

Link Management Settings

Primary Interface: Cellular ▾

Backup Interface: None ▾

ICMP Detection Primary Server:

ICMP Detection Secondary Server:

ICMP Detection Interval (s):

ICMP Detection Timeout (s):

ICMP Detection Retries:

Reset The Interface

**It is recommended to use an ICMP detection server to keep router always online.*

**The ICMP detection increases the reliability and also cost data traffic.*

**DNS example: Google DNS Server 8.8.8.8 and 8.8.4.4*

The modifications will take effect after click “Apply” button.

Configuration-->Cellular WAN -->Basic

Cellular Settings

| | Primary SIM Card | Secondary SIM Card |
|------------------------|---|---|
| Network Provider Type: | Auto ▾ | Auto ▾ |
| APN: | <input type="text"/> | <input type="text"/> |
| Username: | <input type="text"/> | <input type="text"/> |
| Password: | <input type="text"/> | <input type="text"/> |
| Dialup No.: | <input type="text" value="*99***1#"/> | <input type="text" value="*99***1#"/> |
| PIN code request: | <input type="button" value="Set PIN Code"/> | <input type="button" value="Set PIN Code"/> |

Connection Mode

Connection Mode: Always online ▾

Redial Interval (s):

Max Retries:

Dual SIM Policy

Main SIM Card:

When connection fails

When roaming is detected

When IO is active

Monthly data traffic limitation

The modifications will take effect after click “Apply” button.

If a customized SIM card is using, please select “Custom” instead of “Auto” in “Network Provider Type”, and some relative settings should be filled in manually.

2. Connect on Demand

Configuration-->Link Management-->Cellular

Link Management Settings

Primary Interface:

Backup Interface:

ICMP Detection Primary Server:

ICMP Detection Secondary Server:

ICMP Detection Interval (s):

ICMP Detection Timeout (s):

ICMP Detection Retries:

Reset The Interface

**It is recommended to use an ICMP detection server to keep router always online.*

**The ICMP detection increases the reliability and also cost data traffic.*

**DNS example: Google DNS Server 8.8.8.8 and 8.8.4.4*

The modifications will take effect after click “Apply” button.

Note: This section will be hidden if user selects “Cellular as primary and if fail use Eth0” in “Configuration ->Link Management”.

Configuration-->Cellular WAN -->Basic

Cellular Settings

| | SIM1 | SIM2 |
|------------------------|---|---|
| Status: | Ready | Not Ready |
| Network Provider Type: | Auto <input type="button" value="v"/> | Auto <input type="button" value="v"/> |
| APN: | <input type="text"/> | <input type="text"/> |
| Username: | <input type="text"/> | <input type="text"/> |
| Password: | <input type="text"/> | <input type="text"/> |
| Dialup No.: | *99***1# | *99***1# |
| PIN code request: | <input type="button" value="Set PIN Code"/> | <input type="button" value="Set PIN Code"/> |

Connection Mode

Connection Mode:

Redial Interval (s):

Max Retries:

Inactivity Time (s):

Serial Output Content:

Triggered by Serial Data

Periodically connect

Periodically connect interval (s):

Time schedule:

Time Range

| Name | SUN | MON | TUE | WED | THU | FRI | SAT | Time Range1 | Time Range2 | Time Range3 |
|------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------|-------------|----------------------|
| schedule_1 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | 08:10-12:00 | 14:10-20:15 | <input type="text"/> |

Select the trigger policy you need.

Note: If you select multiple trigger policies, the router will be triggered under anyone of them.

4.2.2 SMS Remote Status Reading

R3000 supports remote control via SMS. Users can use following commands to get the status of R3000, cannot set new parameters of R3000 at present.

An SMS command has following structure:

Password:cmd1,a,b,c;cmd2,d,e,f;cmd3,g,h,i;...;cmdn,j,k,n

SMS command Explanation:

1. Password: SMS control password is configured at **Basic->SMS Control->Password**, which is an optional parameter.
 - a) When there is no password, SMS command has following structure: **cmd1;cmd2;cmd3;...;cmdn**
 - b) When there is a password, SMS command has following structure: **Password:cmd1;cmd2;cmd3;...;cmdn**
2. cmd1, cmd2, cmd3 to Cmdn, which are command identification number 0001 – 0010.
3. a, b, c to n, which are command parameters.

4. The semicolon character (;) is used to separate more than one commands packed in a single SMS.
5. E.g., 1234:0001

In this command, password is 1234, 0001 is the command to reset R3000.

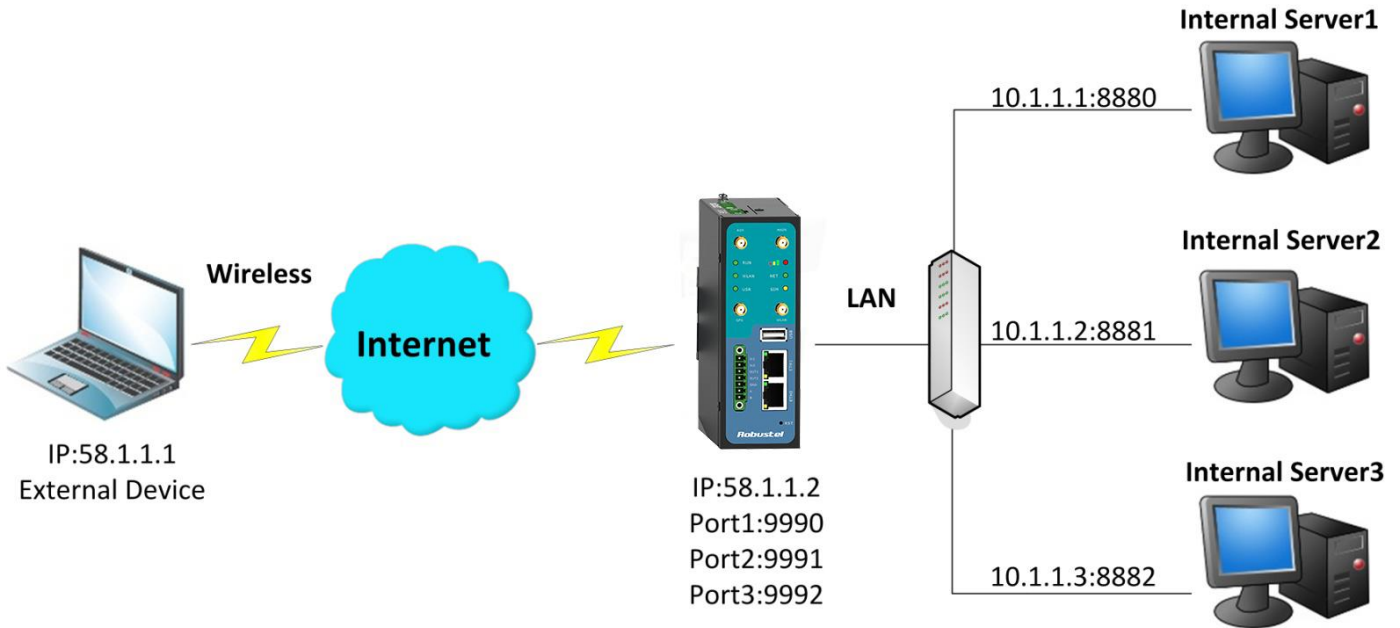
| Cmd | Description | Syntax | Comments |
|-------------------------|----------------------------------|------------------|--|
| Control Commands | | | |
| 0001 | Reset Device | cmd | if no password, please use command "cmd", or use command" password: cmd" cmd1 + cmd2: cmd1;cmd2 * - means can be null |
| 0002 | Save Parameters | cmd | |
| 0003 | Save Parameters and Reset Device | cmd | |
| 0004 | Start PPP Dialup | cmd | |
| 0005 | Stop PPP | cmd | |
| 0006 | Switch Sim Card | cmd | |
| 0007 | Enable/Disable Event Counter | cmd,channel,flag | channel: 1 - DI_1 2 - DI_2 flag: 0 - disable 1 - enable |
| 0008 | Get Event Count Value | cmd,channel | channel: 1 - DI_1 2 - DI_2 |
| 0009 | Clear Event Count | cmd,channel | channel: 1 - DI_1 2 - DI_2 |
| 0010 | Clear SIM Card's Data Limitation | cmd,simNumber | simNumber: 1 - SIM_1 2 - SIM_2 |

4.3 Network

4.3.1 NAT

This section shows users how to set the NAT configuration of router.

Parameter Remote IP defines if access is allowed to route to the Forwarded IP and Port via WAN IP and “Arrives At Port”.



Configuration--->NAT/DMZ--->Port Forwarding

| Port Forwarding | | | | | |
|-----------------|-----------------|----------------------------|----------------------|----------|---|
| Remote IP | Arrives At Port | Is Forwarded to IP Address | Is Forwarded to Port | Protocol | |
| 58.1.1.1 | 9990 | 10.1.1.1 | 8880 | TCP | X |
| 58.1.1.1 | 9991 | 10.1.1.2 | 8881 | UDP | X |
| 58.1.1.1 | 9992 | 10.1.1.3 | 8882 | TCP&UDP | X |

**Remote IP: 1.1.1.1, 1.1.1.0/24, 1.1.1.1-2.2.2.2, 0.0.0.0 means any*

**Arrives At Port: <1-65536> or <1-65536>-<1-65536>*

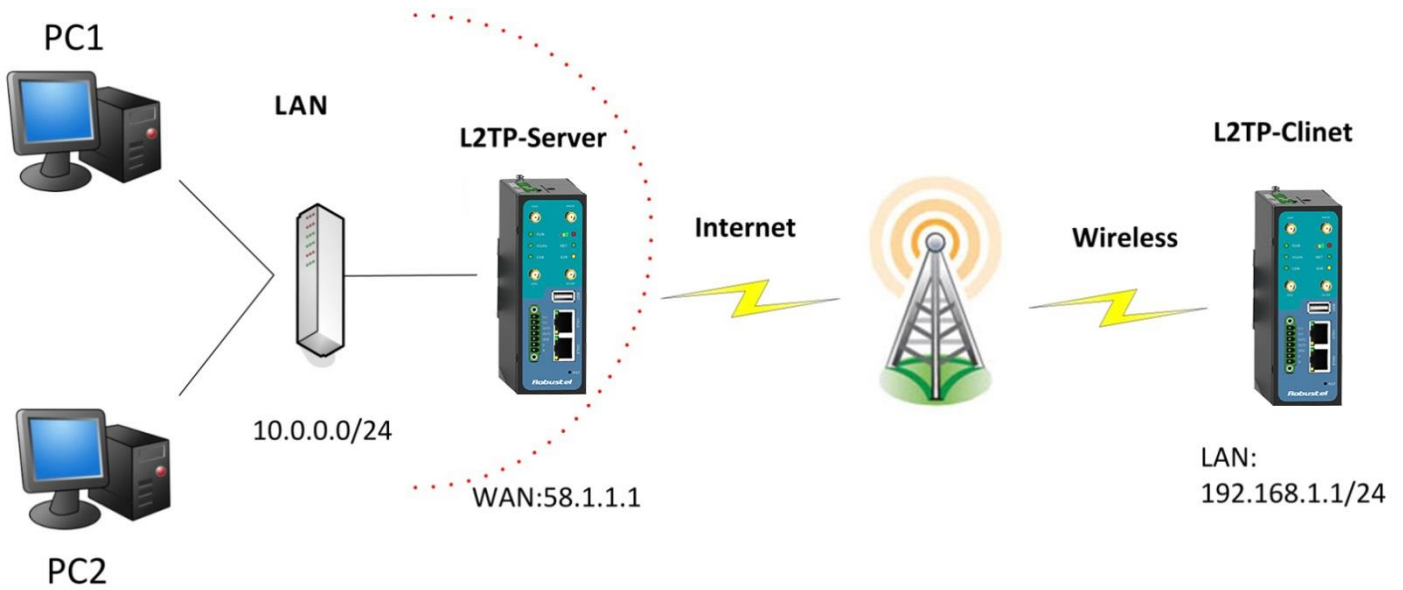
Note: This section will be hidden if user selects “Cellular as primary and if fail use Eth0” in “Configuration ->Link Management”.

Explanations for above diagram:

If there are two IP addresses 58.1.1.1 and 59.1.1.1 for the External Devices, that the result will be different from the test when the NAT is working at R3000.

- 58.1.1.1-----access to----->58.1.1.2:9990-----be forwarded to----->10.1.1.1:8000 TCP
- 58.1.1.1-----access to----->58.1.1.2:9991-----be forwarded to----->10.1.1.2:8001 UDP
- 58.1.1.1-----access to----->58.1.1.2:9992-----be forwarded to----->10.1.1.3:8002 TCP&UDP

4.3.2 L2TP



L2TP_SERVER:

Configuration--->L2TP--->L2TP Server

Enable L2TP Server

Enable L2TP Server

Tick "Enable L2TP Server", and fill in the blank textbox

L2TP Common Settings

Username: 1

Password: 2

Authentication: 3

Enable Tunnel Authentication

Local IP:

IP Pool Start:

IP Pool End:

L2TP Server Advanced

Show L2TP Server Advanced

Route Table List

| Client IP | Remote Subnet | Remote Subnet Mask | |
|-----------|---------------|--------------------|---|
| 0.0.0.0 | 192.168.1.0 | 255.255.255.0 | X |

**0.0.0.0" means any*

The modification will take effect after "Apply-->Save-->Reboot".

Note: The following diagrams with red color numbers mean these are the matches between server and client, and with the blue color number means it must be set locally for the tunnel.

L2TP_CLIENT:

Configuration--->L2TP--->L2TP Client

Please add L2TP Client

Add

Click "Add" button, and fill in the blank textbox

L2TP Client X

Enable Disable

Server Name: 58.1.1.1

Username: l2tp **1**

Password: ●●●● **2**

Authentication: PAP **3**

Enable Tunnel Authentication

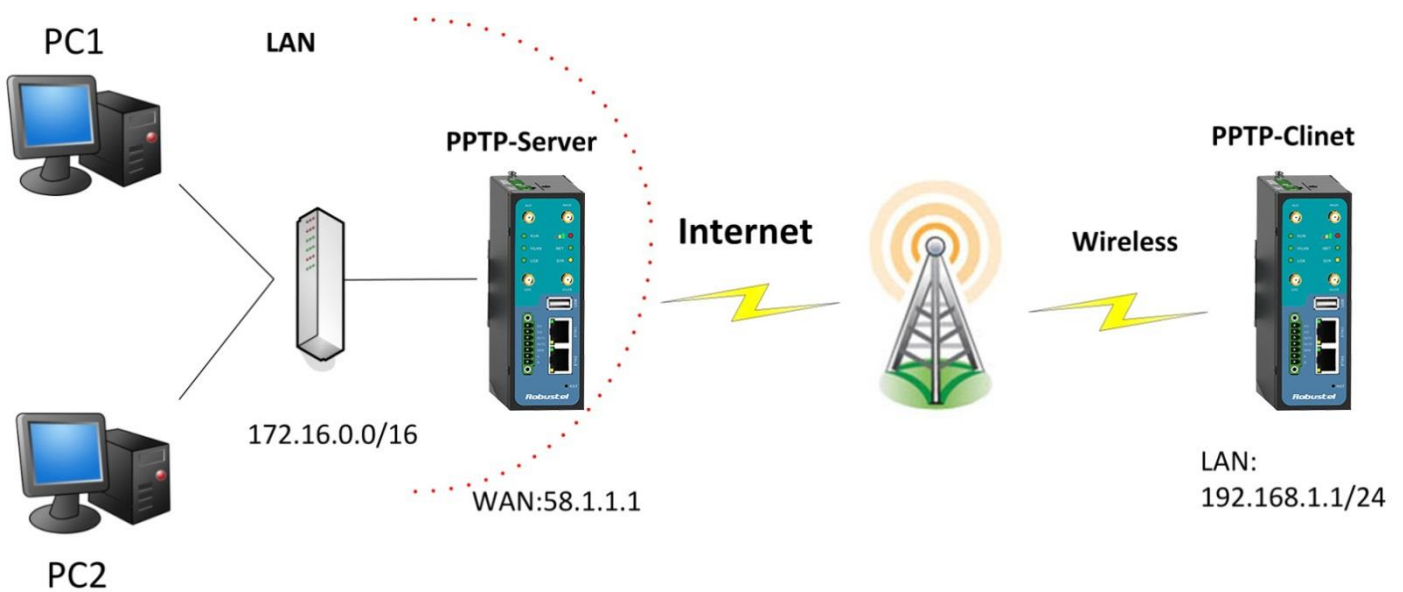
Remote Subnet: 10.0.0.0

Remote Subnet Mask: 255.255.255.0

Show L2TP Client Advanced

The modification will take effect after "Apply-->Save-->Reboot".

4.3.3 PPTP



Note: The following diagrams with red color numbers mean these are the matches between server and client, and with the blue color number means it must be set locally for the tunnel.

PPTP_SERVER:

Configuration--->PPTP--->PPTP Server

Enable PPTP Server

Enable PPTP Server

Tick "Enable PPTP Server", and fill in the blank textbox

PPTP Common Settings

Username: **1**

Password: **2**

Authentication: **3**

Local IP:

IP Pool Start:

IP Pool End:

Enable MPPE

PPTP Server Advanced

Show PPTP Server Advanced

Route Table List

| Client IP | Remote Subnet | Remote Subnet Mask |
|-----------|---------------|--------------------|
| 0.0.0.0 | 192.168.1.0 | 255.255.255.0 |

**0.0.0.0" means any*

The modification will take effect after "Apply-->Save-->Reboot".

PPTP_CLIENT:

Configuration--->PPTP--->PPTP Client

Please add PPTP Client

Click "Add" button, and fill in the blank textbox

PPTP Client X

Enable Disable

Server Name:

Username: **1**

Password: **2**

Authentication: **3**

Remote Subnet:

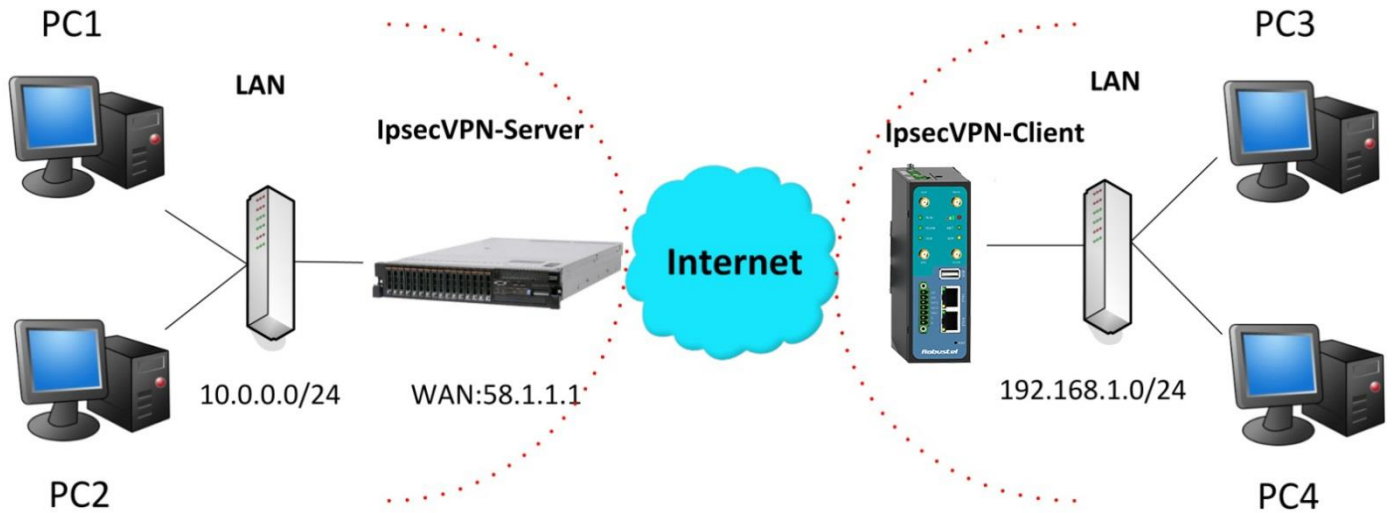
Remote Subnet Mask:

Enable MPPE

Show PPTP Client Advanced

The modification will take effect after “Apply-->Save-->Reboot”.

4.3.4 IPSEC VPN



Note: The following diagrams with red color numbers mean these are the matches between server and client, and with the blue color number means it must be set locally for the tunnel.

IPsecVPN_SERVER:**Cisco 2811:**

```

crypto isakmp policy 10
  encr aes 256      8
  hash md5         9
  authentication pre-share 11
  group 2          10
crypto isakmp key cisco address 0.0.0.0 0.0.0.0 12
!
crypto ipsec transform-set trans esp-3des esp-md5-hmac 2, 13
!
crypto dynamic-map dyn 10
  set transform-set trans
  match address 101
!
crypto map map1 10 ipsec-isakmp dynamic dyn
!
interface FastEthernet0/0
  crypto map map1
!
access-list 101 permit ip 10.0.0.0 0.0.0.255 any 3, 5
!

```

Note: Policies 1,4,6,7 are default for Cisco router and do not display at the CMD.

IPsecVPN_CLIENT:**Configuration--->IPSec--->IPSec Basic**

| IPsec Basic | |
|-------------------------------------|---------------------------------|
| <input checked="" type="checkbox"/> | Enable NAT Traversal |
| Keepalive Interval(s): | <input type="text" value="30"/> |

Then click "Apply".

Configuration--->IPSec--->IPSec Tunnel

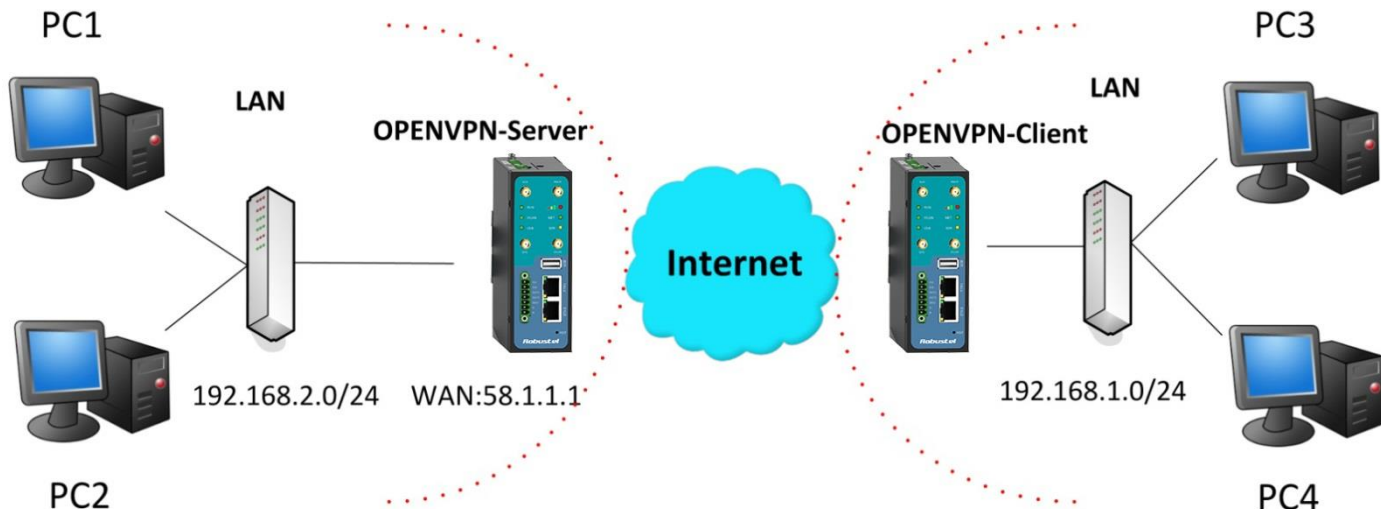
| IPsec Tunnel X | |
|----------------------------------|---------|
| <input checked="" type="radio"/> | Enable |
| <input type="radio"/> | Disable |

Tick "Enable IPsec Tunnel1"

| IPsec Common | | |
|--|----------------|-----------|
| Tunnel name: | IPSEC_TUNNEL_1 | |
| IPsec Gateway Address: | 58.1.1.1 | |
| IPsec Mode: | Tunnel | 1 |
| IPsec Protocol: | ESP | 2 |
| Local Subnet: | 192.168.1.0 | 3 |
| Local Subnet Mask: | 255.255.255.0 | |
| Local ID Type: | IP Address | 4 |
| Remote Subnet: | 10.0.0.0 | 5 |
| Remote Subnet Mask: | 255.255.255.0 | |
| Remote ID Type: | IP Address | 6 |
| IKE Parameter | | |
| Negotiation Mode: | Main | 7 |
| Encryption Algorithm: | AES256 | 8 |
| Authentication Algorithm: | MD5 | 9 |
| DH Group: | MODP1024_2 | 10 |
| Authentication: | PSK | 11 |
| Secrets: | ••••• | 12 |
| Life Time (s): | 86400 | |
| SA Parameter | | |
| SA Algorithm: | 3DES_MD5_96 | 13 |
| PFS Group: | PFS_NULL | |
| Life Time(s): | 28800 | |
| DPD Time Interval (s): | 180 | |
| DPD Timeout (s): | 60 | |
| IPsec Advanced | | |
| VPN Over IPsec Type: | NONE | |
| <input type="checkbox"/> Enable Compress | | |

The modification will take effect after “Apply-->Save-->Reboot”.

4.3.5 OPENVPN



Note: The following diagrams with red color numbers mean these are the matches between server and client, and with the blue color number means it must be set locally for the tunnel.

OPENVPN_SERVER:

Configuration--->OpenVPN--->Server

| Enable OpenVPN Server |
|--|
| <input type="checkbox"/> Enable OpenVPN Server |

Tick "Enable OpenVPN Server".

VPN Server Tunnel

Tunnel name:

Listen IP:

Protocol: **1**

Port: **2**

Interface: **3**

Authentication: **4**

Local IP: **5**

Remote IP: **6**

Enable NAT **7**

Ping Interval:

Ping-Restart:

Compression: **8**

Encryption: **9**

MTU: **10**

Max Frame Size: **11**

Verbose Level:

Expert Options:

**--xx xx.parameter, eg: --config xx.config*

Client Manage

| Use | Common Name | Password | Client IP | Local Static Route | Remote Static Route |
|-----|-------------|----------|-----------|--------------------|---------------------|
| | | | | | |

**Static Route: <1.1.1.0/24> or <1.1.1.0/24;2.2.2.2/16>*

The modifications will take effect after click “Apply-->Save-->Reboot”.

OPENVPN_CLIENT:

Configuration--->OpenVPN--->Client

Enable OpenVPN Client1

Enable OpenVPN Client1

Tick “Enable OpenVPN Client1”, and fill in the blank textbox

Enable OpenVPN Client X

Enable
 Disable

Tunnel name:

Protocol: 1

Server Address:

Port: 2

Interface: 3

Authentication: 4

Local IP: 6

Remote IP: 5

Enable NAT 7

Ping Interval:

Ping-Restart:

Compression: 8

Encryption: 9

MTU: 10

Max Frame Size: 11

Verbose Level:

Expert Options:

*--xx xx.parameter, eg: --config xx.config

The modification will take effect after “Apply-->Save-->Reboot”.

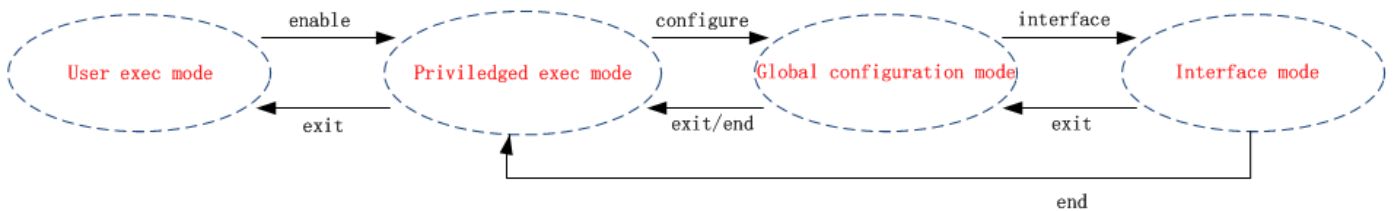
Chapter 5 Introductions for CLI

5.1 What’s CLI and Hierarchy Level Mode

The R3000 command-line interface (CLI) is a software interface providing another way to set the parameters of equipment from the console or through a telnet network connection. There are four different CLI hierarchy level modes which have different access rights:

- User exec mode—The command prompt “>” shows you are in the user mode , in this mode user can only use some simple commands to see the current configuration and the status of the device, or enter the “ping” command to troubleshoot the network connectivity.
- Privileged exec mode—When you enter Privileged mode ,the prompt will change to “#” which user can do not only what is allowed in the user exec mode but also the new additions like importing and exporting for files , system log , debug and so on .
- Global configuration mode—The global configuration mode with prompt “<config>#” allows user to add, set,modify and delete current configuration .
- Interface mode—Prompt “<config-xx>” means in this mode we can set both IP address and mtu for this interface.

Following is the relationship diagram about how to access or quit among the different modes:



USER EXEC MODE:

R3000 Configure Environment

Username: admin

Password: *****

| | |
|----------|--|
| R3000> ? | //check what commands can be used in user exec mode |
| enable | Turn on privileged commands |
| exit | Exit from current mode |
| ping | Ping test |
| reload | Halt and perform a cold restart |
| tracert | Tracert test |
| show | Show running system information |

PRIVILEGED EXEC MODE:

R3000> enable

Password: *****

R3000# ? //check what commands can be used in **Privileged exec mode**

| | |
|-----------|---------------------------------|
| debug | Debug configure information |
| enable | Turn on privileged commands |
| exit | Exit from current mode |
| export | Export file using tftp |
| syslog | Export system log |
| import | Import file using tftp |
| load | Load configure information |
| ping | Ping test |
| reload | Halt and perform a cold restart |
| tracert | Tracert test |
| write | Write running configuration |
| tftp | Copy from tftp: file system |
| show | Show running system information |
| configure | Enter configuration mode |
| end | Exit to Normal mode |

GLOBAL CONFIGURATION MODE:

R3000# configure

R3000(config)# ? //check what commands can be used in **global configuration mode**

| | |
|-----------|-------------------------------|
| exit | Exit from current mode |
| end | Exit to Normal mode |
| interface | Configure an interface |
| set | Set system parameters |
| add | Add system parameters list |
| modify | Modify system parameters list |
| delete | Delete system parameters list |

INTERFACE MODE:

R3000(config)# interface Ethernet 0

R3000(config-e0)# ? //check what commands can be used in **interface mode**

| | |
|------|------------------------------------|
| exit | Exit from current mode |
| end | Exit to Normal mode |
| ip | Set the IP address of an interface |
| mtu | Set the IP address of an interface |

5.2 How to Configure the CLI

Following is a list about the description of help and the error should be encountered in the configuring program.

| Commands /tips | Description |
|--|--|
| ? | Typing a question mark “?” will show you the help information. |
| Ctrl+c | Press these two keys at the same time, except its “copy” function but also can be used for “break” out of the setting program. |
| Invalid command “xxx” | Parameters “xxx” are not supported by the system, in this case, enter a mark “?” instead of “xxx” will help to find out the correct parameters about this issue. |
| Incomplete command | Command is not incomplete. |
| % Invalid input detected at '^' marker | '^' marker indicates the location where the error is. |

Note: Most of the parameters setting are in the **Global configuration mode**. Commands **set** ,**add** are very important for this mode. If some parameters can't be found in the Global configuration mode, please move back to **Privileged exec mode** or move up to **Interface mode**.

Note: Knowing the **CLI hierarchy level modes** is necessary before configuring the CLI. If not, please go back and read it quickly in chapter 5.

5.2.1 QuickStart with Configuration Examples

The best and quickest way to master CLI is firstly to view all features from the webpage and then reading all CLI commands at a time , finally learn to configure it with some reference examples .

Example 1: Show current version

```
R3000> show version
software version : 1.01.00
kernel version   : v2.6.39
hardware version : 1.01.00
```

Example 2: Update firmware via tftp

```
R3000> enable
Password: *****
R3000#
R3000# tftp 172.16.3.3 get rootfs R3k.1.01.00.02_130325

Tftp transferring
tftp succeeded!downloaded
R3000# write                               //save current configuration
```

Building configuration...

OK

R3000#reload

!Reboot the system?'yes'or 'no':yes //reload to take effect

Example 3: Set link-management

R3000> enable

Password: *****

R3000#

R3000# configure

R3000(config)# set link-management

Primary Interface:

1.Cellular

2.Eth0

3.WiFi

->please select mode(1-3)[1]:2

Secondary Interface:

1.None

2.Cellular

3.WiFi

->please select mode(1-3)[1]:1

//select "Eth0 Only" as wan-link

->ICMP detection primary server[:8.8.8.8

->ICMP detection second server[:8.8.8.4

->ICMP detection interval(3-1800)[30]:

->ICMP detection timeout(1-10)[3]:

->ICMP detection retries(1-20)[3]:

->reset the interface?'yes'or'no'[no]:

this parameter will be take effect when reboot!

really want to modify[yes]:

R3000# write

//save current configuration

Building configuration...

OK

R3000# reload

!Reboot the system ?'yes'or 'no':yes //reload to take effect

Example 4: Set IP address, Gateway and DNS for Eth0

R3000> enable

Password: *****

R3000#

R3000# show link-management

//show current link-management

```
*****
Primary Interface      : Eth0                //now "Eth0" as primary wan-link
Secondary Interface   : None
ICMP primary server   : 8.8.8.8
ICMP second server    : 8.8.4.4
ICMP detection interval : 30 seconds
ICMP detection timeout : 3 seconds
ICMP detection retries : 3
reset the interface   : no
*****
```

```
R3000 # configure
R3000 (config) # set eth0
ethernet interface type: WAN
type select:
  1. Static IP
  2. DHCP
  3. PPPoE
->please select mode (1-3) [1]:
->IP address [192.168.0.1]:58.1.1.1           //set IP address for eth0
->Netmask [255.255.255.0]:255.0.0.0
->gateway [192.168.0.254]:58.1.1.254        //set gateway for eth0
->mtu value (1024-1500)[1500]:
->input primary DNS [192.168.0.254]:58.1.1.254 //set dns for eth0
->input secondary DNS [0.0.0.0]:

this parameter will be take effect when reboot!
really want to modify[yes]:
R3000 (config) # end
R3000# write                                //save current configuration
Building configuration...
OK
R3000 # reload
! Reboot the system? 'yes' or 'no': yes      //reload to take effect
```

Example 5: CLI for Cellular dialup

```
R3000> enable
Password: *****
R3000#
R3000# show link-management
```

```
*****
```


Primary Interface : Cellular //now "Cellular " as wan-link
Secondary Interface : None
ICMP primary server : 8.8.8.8
ICMP second server : 8.8.8.4
ICMP detection interval : 30 seconds
ICMP detection timeout : 3 seconds
ICMP detection retries : 3
reset the interface : no

R3000 (config) # set cellular

- 1. set SIM_1 parameters
- 2. set SIM_2 parameters

->please select mode (1-2)[1]:

SIM 1 parameters:

network provider

- 1. Auto
- 2. Custom
- 3. china-mobile

->please select mode(1-3)[1]:

->dial out using numbers[*99***1#]:

->pin code[]:

connection Mode:

- 1. Always online
- 2. Connect on demand

->please select mode(1-2)[1]:

->redial interval(1-120)[30]:

->max connect try(1-60)[3]:

R3000(config)# end

R3000# write

//save current configuration

Building configuration...

OK

R3000# show cellular

Cellular enable : yes

- 1. show SIM_1 parameters
- 2. show SIM_2 parameters

->please select mode(1-2)[1]:

SIM 1 parameters:

```

network provider      : Auto
dial numbers         : *99***1#
pin code             : NULL
connection Mode      : Always online
redial interval      : 30 seconds
max connect try      : 3
main SIM select      : SIM_1
when connect fail    : yes
when roaming is detected : no
month date limitation : no
SIM phone number     :
network select Type  : Auto
authentication type  : AUTO
mtu value            : 1500
mru value            : 1500
asynmap value        : 0xffffffff
use peer DNS         : yes
primary DNS          : 0.0.0.0
secondary DNS        : 0.0.0.0
address/control compression: yes
protocol field compression: yes
expert options       : noccp nobsdcomp
    
```

R3000# reload

!Reboot the system ?'yes'or 'no':yes //reload to take effect

5.3 Commands Reference

| commands | syntax | description |
|----------|--|---|
| Debug | Debug <i>parameters</i> | Turn on or turn off debug function |
| Export | Export <i>parameters</i> | Export vpn ca certificates |
| Import | Import <i>parameters</i> | Import vpn ca certificates |
| Syslog | syslog | Export log information to tftp server |
| Load | Load default | Restores default values |
| Write | Write | Save current configuration parameters |
| tftp | Tftp <i>IP-address</i> get { <i>cfg rootfs</i> } <i>file-name</i> | Import configuration file or update firmware via tftp |
| Show | Show <i>parameters</i> | Show current configuration of each function , if we need to see all please using “show running ” |
| Set | Set <i>parameters</i> | All the function parameters are set by commands set and add, the difference is that set is for the single parameter and add is for the list parameter |
| Add | Add <i>parameters</i> | |

Glossary

| Abbreviations | Description |
|---------------|--|
| AC | Alternating Current |
| APN | Access Point Name of GPRS Service Provider Network |
| ASCII | American Standard Code for Information Interchange |
| CE | Conformité Européene (European Conformity) |
| CHAP | Challenge Handshake Authentication Protocol |
| CLI | Command Line Interface for batch scripting |
| CSD | Circuit Switched Data |
| CTS | Clear to Send |
| dB | Decibel |
| dBi | Decibel Relative to an Isotropic radiator |
| DC | Direct Current |
| DCD | Data Carrier Detect |
| DCE | Data Communication Equipment (typically modems) |
| DCS 1800 | Digital Cellular System, also referred to as PCN |
| DI | Digital Input |
| DO | Digital Output |
| DSR | Data Set Ready |
| DTE | Data Terminal Equipment |
| DTMF | Dual Tone Multi-frequency |
| DTR | Data Terminal Ready |
| EDGE | Enhanced Data rates for Global Evolution of GSM and IS-136 |
| EMC | Electromagnetic Compatibility |
| EMI | Electro-Magnetic Interference |
| ESD | Electrostatic Discharges |
| ETSI | European Telecommunications Standards Institute |
| EVDO | Evolution-Data Optimized |
| FDD LTE | Frequency Division Duplexing Long Term Evolution |
| GND | Ground |
| GPRS | General Packet Radio Service |
| GRE | generic route encapsulation |
| GSM | Global System for Mobile Communications |
| HSPA | High Speed Packet Access |
| ID | identification data |
| IMEI | International Mobile Equipment Identification |
| IP | Internet Protocol |

| | |
|-------------|---|
| IPSec | Internet Protocol Security |
| kbps | kbits per second |
| L2TP | Layer 2 Tunneling Protocol |
| LAN | local area network |
| LED | Light Emitting Diode |
| M2M | Machine to Machine |
| MAX | Maximum |
| Min | Minimum |
| MO | Mobile Originated |
| MS | Mobile Station |
| MT | Mobile Terminated |
| OpenVPN | Open Virtual Private Network |
| PAP | Password Authentication Protocol |
| PC | Personal Computer |
| PCN | Personal Communications Network, also referred to as DCS 1800 |
| PCS | Personal Communication System, also referred to as GSM 1900 |
| PDU | Protocol Data Unit |
| PIN | Personal Identity Number |
| PLCs | Program Logic Control System |
| PPP | Point-to-point Protocol |
| PPTP | Point to Point Tunneling Protocol |
| PSU | Power Supply Unit |
| PUK | Personal Unblocking Key |
| R&TTE | Radio and Telecommunication Terminal Equipment |
| RF | Radio Frequency |
| RTC | Real Time Clock |
| RTS | Request to Send |
| RTU | Remote Terminal Unit |
| Rx | Receive Direction |
| SDK | Software Development Kit |
| SIM | subscriber identification module |
| SMA antenna | Stubby antenna or Magnet antenna |
| SMS | Short Message Service |
| SNMP | Simple Network Management Protocol |
| TCP/IP | Transmission Control Protocol / Internet Protocol |
| TE | Terminal Equipment, also referred to as DTE |
| Tx | Transmit Direction |
| UART | Universal Asynchronous Receiver-transmitter |
| UMTS | Universal Mobile Telecommunications System |

| | |
|------|---|
| USB | Universal Serial Bus |
| USSD | Unstructured Supplementary Service Data |
| VDC | Volts Direct current |
| VLAN | Virtual Local Area Network |
| VPN | Virtual Private Network |
| VSWR | Voltage Stationary Wave Ratio |
| WAN | Wide Area Network |