

R3000

Industrial Dual SIM Cellular VPN Router

2 Eth + 1 RS-232 + 1 RS-485 + 1 USB Host



robustOS

About This Document

This document provides hardware and software information of the Robustel R3000 Router, including introduction, installation, configuration and operation.

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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.
- When used, the device needs a suitable environment.
 1. If indoors, it needs to be provided an indoor enclosure.
 2. If outdoors, it needs to be provided a rain proof enclosure.
- 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/EU	The European RoHS2.0 2011/65/EU Directive was issued by the European parliament and the European Council on 1 July 2011 on the restriction of the use of certain Hazardous substances in electrical and electronic equipment.	
2012/19/EU	The European WEEE 2012/19/EU Directive was issued by the European parliament and the European Council on 24 July 2012 on waste electrical and electronic equipment.	
2013/56/EU	The European 2013/56/EU Directive is a battery Directive which published in the EU official gazette on 10 December 2013. The button battery used in this product conforms to the standard of 2013/56/EU directive.	

Table 2: Standards of the electronic industry of the People’s Republic of China

SJ/T 11363-2006	The electronic industry standard of the People's Republic of China SJ/T 11363-2006 “Requirements for Concentration Limits for Certain Toxic and Hazardous Substances in Electronic Information Products” issued by the ministry of information industry of the People's Republic of China on November 6, 2006, stipulates the maximum allowable concentration of toxic and hazardous substances in electronic information products. 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.	
SJ/T 11364-2014	The electronic industry standard of the People's Republic of China SJ/T 11364-2014 “Labeling Requirements for Restricted Use of Hazardous Substances in Electronic and Electrical Products” issued by the ministry of Industry and information technology of the People's Republic of China on July 9, 2014, stipulates the Labeling requirements of hazardous substances in electronic and electrical products, environmental protection use time limit and whether it can be recycled. This standard is applicable to electronic and electrical products sold within the territory of the People's Republic of China, and can also be used for reference in the logistics process of electronic and electrical products. The orange logo below is used for Robustel products: Indicates its warning attribute, that is, some hazardous substances are contained in the product. The "10" in the middle of the legend refers to the environment-friendly Use Period (EFUP) * of electronic information product, which is 10 years. It can be used safely during the environment-friendly Use Period. After the environmental protection period of use, it should enter the recycling system. *The term of environmental protection use of electronic information products refers to the term during which the toxic and hazardous substances or elements contained in electronic information products will not be leaked or mutated and cause serious pollution to the environment or serious damage to people and property under normal conditions of use.	

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)	(DEHP)	(BBP)	(DBP)	(DIBP)
Metal parts	o	o	o	o	-	-	-	-	-	-
Circuit modules	o	o	o	o	o	o	o	o	o	o
Cables and cable assemblies	o	o	o	o	o	o	o	o	o	o
Plastic and polymeric parts	o	o	o	o	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 RoHS2.0.</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 RoHS2.0.</p> <p>:- Indicates that it does not contain the toxic or hazardous substance.</p>										

Document History

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

Date	Firmware Version	Document Version	Change Description
Mar. 27, 2017	3.0.0	v.4.0.0	Initial release
Jul. 17, 2017	3.0.0	v.4.0.1	<ul style="list-style-type: none"> Updated pictures in Chapter 2 Updated OpenVPN configuration in Chapter 4.3.2 Other minor editorial changes
Jul. 20, 2017	3.0.0	v.4.0.2	Updated the description of DI/DO interface
Aug. 11, 2017	3.0.0	v.4.0.4	Added the new model R3000-NU to the ordering information
Feb.26, 2018	3.0.5	v.4.0.8	Updated firmware
Jun. 29, 2018	3.0.5	v.4.0.9	Revised the company name
Jan. 29, 2019	3.0.5	v.4.0.15	<ul style="list-style-type: none"> Revised the certifications Revised the Frequency bands of Wifi
Jul. 22, 2019	3.0.5	v.4.1.0	<ul style="list-style-type: none"> Revised the description of enclosure Revised the Regulatory and Type Approval Information
Sep. 23, 2019	3.0.5	v.4.1.1	<ul style="list-style-type: none"> Revised the Approvals
Oct. 23, 2019	3.0.5	v.4.1.2	<ul style="list-style-type: none"> Added the DNP3 Transparent to Serial port Added the Storage Temperature
Nov. 26, 2019	3.0.5	v.4.1.3	<ul style="list-style-type: none"> Revised the description of Update firmware via tftp
Feb. 28, 2020	3.0.5	v.4.1.4	<ul style="list-style-type: none"> Revised the screenshot of ROS interface; Revised the parameter description; Added the related information of IPv6; Revised the Regulatory and Type Approval Information Delete the information in Key features Delete the information of Software in Specifications Delete the information of APP Center in Specifications Delete the information of Approvals in Specifications Delete the Ordering information Added the information of USB key Revised the information of IPsec VPN gateway address Revised the maximum count of filtering Revised the connector information of WiFi Interface
Aug. 6, 2020	3.0.5	v.4.1.5	<ul style="list-style-type: none"> Revised the Pin Assignment in chapter 2.1

			<ul style="list-style-type: none">• Revised the serial port configuration example in chapter 4.1.4• Revised the serial port configuration example in chapter 4.1.5• Added the serial port configuration example in chapter 4.1.6
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Chapter 1 Product Overview

1.1 Key Features

The Robustel Industrial Dual SIM Cellular VPN Router (R3000) is a rugged cellular router offering state-of-the-art mobile connectivity for machine to machine (M2M) applications.

R3000 is a powerful router developed from RobustOS, a Robustel self-developed and Linux-based operating system which is designed to be used in Robustel devices. The RobustOS includes basic networking features and protocols providing customers with a very good user experience. Meanwhile, Robustel offers a Software Development Kit (SDK) for partners and customers to allow additional customization by using C, Python or Java. It also provides rich Apps to meet fragmented IoT market demands.

1.2 Package Contents

Before installing your R3000 Router, verify the kit contents as following.

Note: The following pictures are for illustration purposes only, not based on their actual sizes.

- 1 x Robustel R3000 Industrial Dual SIM Cellular VPN Router (GPS/WiFi optional)



With WiFi and GPS



Only with GPS



Only with WiFi



Without WiFi and GPS

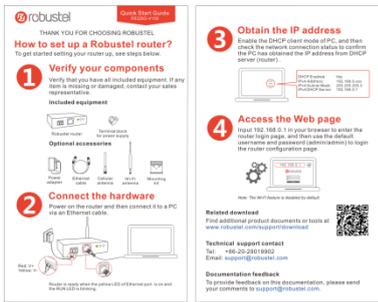
- 1 x 3-pin 5 mm male terminal block with lock for power supply



- 1 x 7-pin 3.5 mm male terminal block with lock for serial port, I/O and console port



- 1 x *Quick Start Guide* with download link of other documents or tools



Note: If any of the above items is missing or damaged, please contact your Robustel sales representative.

Optional Accessories (sold separately):

- 3G/4G SMA cellular antenna (stubby/magnet optional)

Stubby antenna



Magnet antenna



- RP-SMA WiFi antenna (stubby/magnet optional)

Stubby antenna



Magnet antenna



- Wall mounting kit



- 35 mm DIN rail mounting kit



- Ethernet cable



- AC/DC power adapter (12V DC, 1.5 A; EU/US/UK/AU plug optional)



1.3 Specifications

Cellular Interface

- Number of antennas: 2 (MAIN + AUX)
- Connector: SMA-K
- SIM: 2 (3.0 V & 1.8 V)
- Standards: GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/HSPA+/DC-HSPA+/TD-SCDMA/CDMA (CDMA 1X/EVDO)/FDD LTE/TDD LTE
GSM: max DL/UL = 9.6/2.7 Kbps
GPRS: max DL/UL = 86 Kbps

EDGE: max DL/UL = 236.8 Kbps
 WCDMA/TD-SCDMA: max DL/UL = 2.8 Mbps/384 Kbps
 EVDO: max DL/UL = 5.4 Mbps/14.7 Kbps
 HSPA+: max DL/UL = 21/5.76 Mbps, fallback to 2G
 DC-HSPA+: max DL/UL = 42/5.76 Mbps, fallback to 2G
 FDD LTE: max DL/UL = 100/50 Mbps, fallback to 2G/3G
 TDD LTE: max DL/UL = 100/50 Mbps, fallback to 2G/3G

Ethernet Interface

- Number of ports: 2 x 10/100 Mbps, 2 x LAN or 1 x LAN + 1 x WAN
- Magnet isolation protection: 1.5 KV

WiFi Interface (Optional)

- Number of antennas: 1
- Connector: RP-SMA-K
- Standards: 802.11a/b/g/n, supporting AP and Client modes
- Frequency bands: 2.4 GHz
5 GHz
- Security: Open ,WPA, WPA2, WEP
- Encryption: AES, TKIP, WEP64
- Data speed: Up to 150 Mbps
- Receiving sensitivity: 1 M -97 dBm (< 8% PER)
 (+/- 1 dBm) 54 Mbps -76.5 dBm (< 10% PER)
 MCS7 (20 MHz) -72 dBm (< 10% PER)
 MCS7 (40 MHz) -69 dBm (< 10% PER)

GPS/GLONASS Interface (Optional)

- Number of antennas: 1
- Connector: SMA female with 50 ohms impedance
- Tracking sensitivity: GPS: greater than -148 dBm
GLONASS: greater than -140 dBm
- Horizontal position accuracy: GPS: 2.5 m
GLONASS: 4.0 m
- Protocol: NMEA-0183 V2.3

Serial Interface

- Number of ports: 1 x RS-232 and 1 x RS-485, The hardware is configurable as 2 x RS-485 or 2 x RS-232
- Connector: 7-pin 3.5 mm female socket with lock
- ESD protection: ±15 KV
- Baud rate: 300 bps to 230400 bps
- Parameters: 8E1, 8O1, 8N1, 8N2, 7E2, 7O2, 7N2, 7E1
- RS-232: TxD, RxD, RTS, CTS, GND
- RS-485: Data+ (A), Data- (B)

DI/DO

- Type: 2 x DI (dry contact) + 2 x DO (wet contact), 4 x DI, 4 x DO, 3 x DI + 1 x DO or 3 x DO + 1 x DI
- Connector: 7-pin 3.5 mm female socket with lock
- Isolation: 3KVDC or 2KVrms
- Absolute maximum VDC: “V+” +5V DC (DI), 30V DC (DO)
- Absolute maximum ADC: 300 mA

Others

- 1 x RST button
- 1 x Micro SD interface
- 1 x USB 2.0 host up to 480 Mbps
- 1 x CLI interface
- LED indicators - 1 x RUN, 1 x PPP, 1 x USR, 1 x RSSI, 1 x NET, 1 x SIM

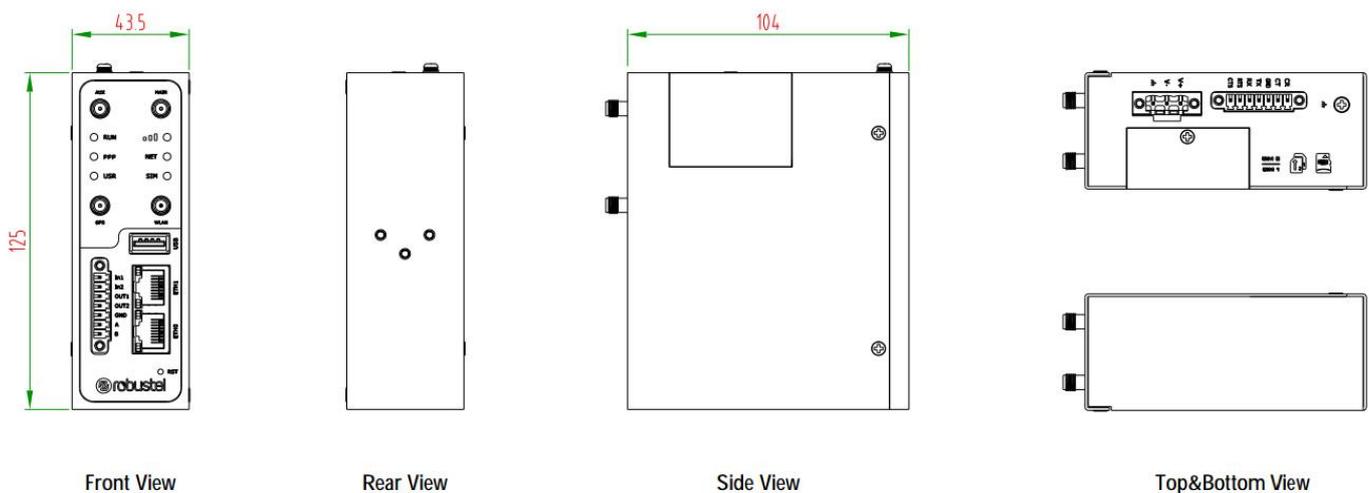
Power Supply and Consumption

- Connector: 3-pin 5 mm female socket with lock
- Input voltage: 9 to 60V DC
- Power consumption: Idle: 100 mA@12 V;Data link: 400 mA (peak) @12 V

Physical Characteristics

- Ingress protection: IP30
- Housing & Weight: Metal, 570 g
- Dimensions: 125 x 104 x 43.5 mm
- Installations: Desktop, wall mounting or 35 mm DIN rail mounting

1.4 Dimensions



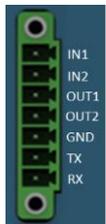
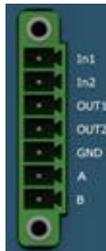
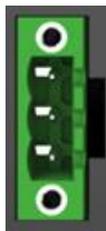
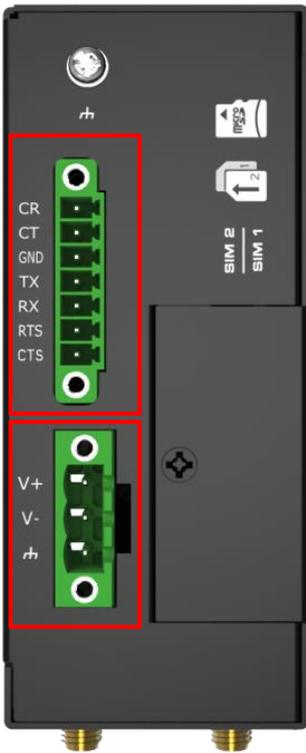
1.5 Warning

WARNING – EXPLOSION HAZARD. DO NOT REMOVE OR REPLACE WHILE CIRCUIT IS LIVE UNLESS THE AREA IS FREE OF IGNITIBLE CONCENTRATIONS.

AVERTISSEMENT — RISQUE D'EXPLOSION. NE PAS RETIRER OU REMPLACER LORSQUE LE CIRCUIT EST SOUS TENSION, À MOINS QUE LE MILIEU SOIT LIBRE DE SUBSTANCES INFLAMMABLES CONCENTRÉES.

Chapter 2 Hardware Installation

2.1 PIN Assignment



PIN	Debug	RS-232	Direction
1	CR	--	R3000 ← Device
2	CT	--	R3000 → Device
3	GND	GND	--
4	--	TXD	R3000 → Device
5	--	RXD	R3000 ← Device
6	--	RTS	R3000 → Device
7	--	CTS	R3000 ← Device

Note: When the device is configured as 2*RS-485, the pin is defined as follows:

PIN	Debug	RS-485	Direction
4	--	Data+(A)	R3000 → Device
5	--	Data- (B)	R3000 ← Device

PIN	Power
8	Positive
9	Negative
10	GND

PIN	DI/DO	RS-485	Direction
11	Input 1	--	R3000 ← Device
12	Input 2	--	R3000 ← Device
13	Output 1	--	R3000 → Device
14	Output 2	--	R3000 → Device
15	GND	--	--
16	--	Data+(A)	R3000 ↔ Device
17	--	Data- (B)	R3000 ↔ Device

PIN	DI/DO	RS-232	Direction
11	Input 1	--	R3000 ← Device
12	Input 2	--	R3000 ← Device
13	Output 1	--	R3000 → Device
14	Output 2	--	R3000 → Device
15	IO_GND	--	--
16	--	TXD	R3000 ↔ Device
17	--	RXD	R3000 ↔ Device
3	--	GND	--

Note: When PIN16/PIN17 is configured as RS-232, the GND of RS-232 should be connected to PIN3.

2.2 LED Indicators



Name	Color	Status	Description
RUN	Green	On, fast blinking (250 mSec blink time)	Router is powered on (System is initializing)
		On, blinking (500 mSec blink time)	Router starts operating
		Off	Router is powered off
PPP	Green	On, solid	Link connection is working
		Off	Link connection is not working
USR-OpenVPN	Green	On, solid	OpenVPN connection is established
		Off	OpenVPN connection is not established
USR-IPsec	Green	On, solid	IPsec connection is established
		Off	IPsec connection is not established
USR-WiFi	Green	On, solid	WiFi is enabled and working properly
		Off	WiFi is disabled or not working properly
	Green	On, solid	High Signal strength (21-31) is available
	Yellow	On, solid	Medium Signal strength (11-20) is available
	Red	On, solid	Low Signal strength (1-10) is available
	--	Off	No signal
NET	Green	On, solid	Connection to 4G network is established
	Yellow	On, solid	Connection to 3G network is established

	Red	On, solid	Connection to 2G network is established
	--	Off	Connection to network is not established or establishing
SIM	Green	On, blinking	Backup card is being used
		Off	Main card is being used

Note: You can choose the display type of USR LED. For more details, please refer to **3.29 Service > Advanced**.

2.3 USB Interface



Function	Operation
Firmware upgrade	USB interface is used for batch firmware upgrading, but cannot be used for sending or receiving data from slave devices which connected to it. You can insert a USB storage device into the router's USB interface, such as a U disk or a hard disk. If there have a supported configuration file or a router firmware in this USB storage device, the router will automatically update the configuration file or the firmware. For more details, see 3.11 Interface > USB .

2.4 Reset Button



Function	Operation
Reboot	Press and hold the RST button for at least 5 seconds under the operating status.
Restore to factory default settings	Wait for 5 seconds after powering up the router, press and hold the RST button until all six LEDs start blinking one by one, and release the button to return the router to factory defaults.

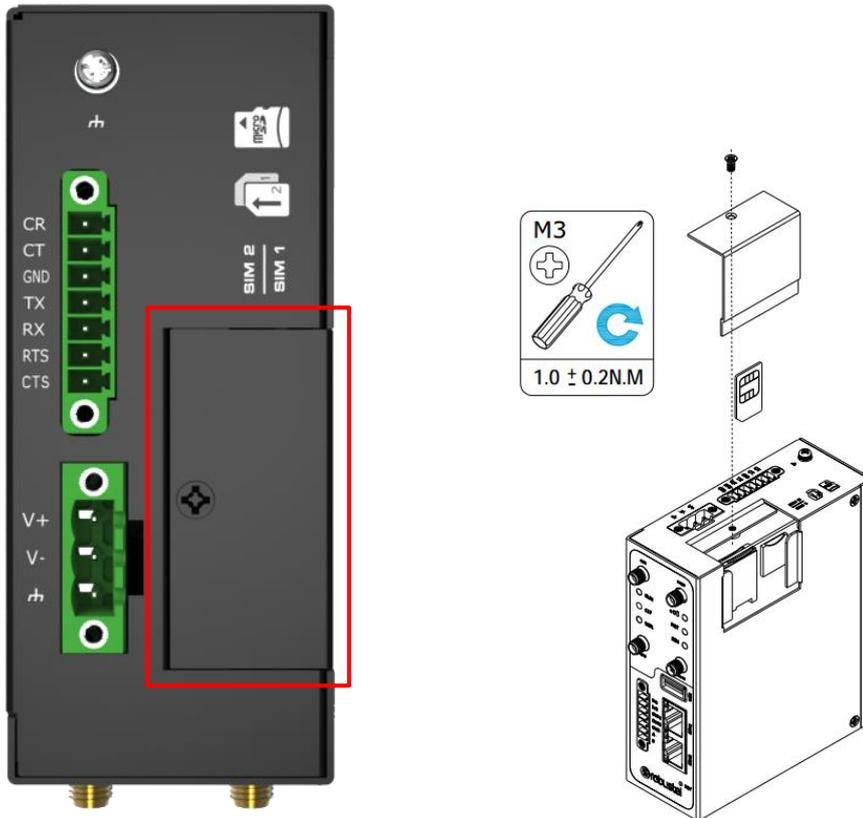
2.5 Ethernet Ports



There are two Ethernet ports on R3000 Router, including ETH0 and ETH1. Each Ethernet port has two LED indicators. The yellow one is a link indicator, while the green one is a speed indicator. For details about status, see the table below.

Indicator	Status	Description
Link indicator	On, solid	Connection is established
	On, blinking	Data is being transferred
	Off	Connection is not established
Speed indicator	On, solid	100 Mbps mode
	Off	10 Mbps mode

2.6 Insert or Remove SIM Card/Micro SD Card



Insert or remove the SIM/Micro SD card as shown in the following steps.

- **Insert SIM card/Micro SD card**

1. Make sure router is powered off.
2. To remove slot cover, loosen the screws associated with the cover by using a screwdriver and then find the SIM card slot/SD card slot.
3. To insert SIM card/Micro SD card, press the card with finger until you hear a click and then tighten the screws associated with the cover by using a screwdriver.
4. To put back the cover and tighten the screws associated with the cover by using a screwdriver.

- **Remove SIM card/Micro SD card**

1. Make sure router is powered off.
2. To remove slot cover, loosen the screws associated with the cover by using a screwdriver and then find the SIM card slot/SD card slot.
3. To remove SIM card/Micro SD card, press the card with finger until it pops out and then take out the card.
4. To put back the cover and tighten the screws associated with the cover by using a screwdriver.

Note:

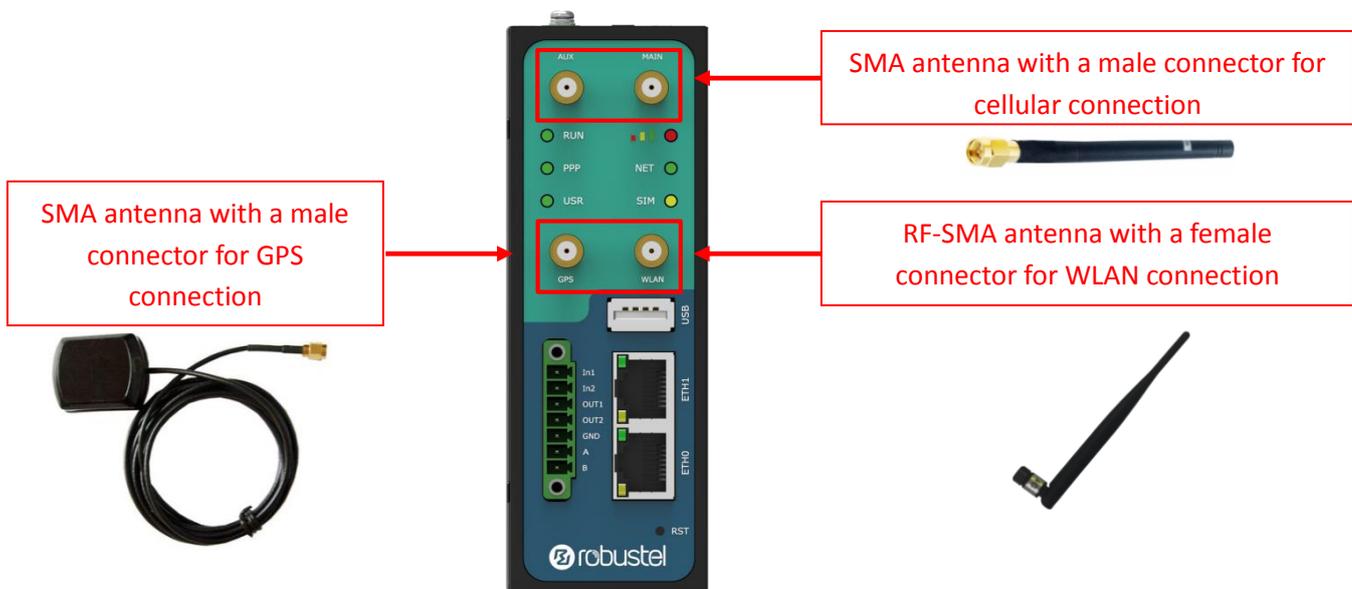
1. Recommended torque for inserting is 0.5 N.m, and the maximum allowed is 0.7 N.m.
2. Use the specific card when the device is working in extreme temperature (temperature exceeding 40 °C), because the regular card for long-time working in harsh environment will be disconnected frequently.
3. Do not forget to twist the cover tightly to avoid being stolen.
4. Do not touch the metal of the card surface in case information in the card will lose or be destroyed.

5. Do not bend or scratch the card.
6. Keep the card away from electricity and magnetism.
7. Make sure router is powered off before inserting or removing the card.

2.7 Attach External Antenna (SMA Type)

Attach an external SMA antenna to the router's antenna connector and twist tightly. Make sure the antenna is within the correct frequency range provided by the ISP and with 50 Ohm impedance.

Note: Recommended torque for tightening is 0.35 N.m.



2.8 Mount the Router

The router can be placed on a desktop or mounted to a wall or a 35 mm DIN rail.

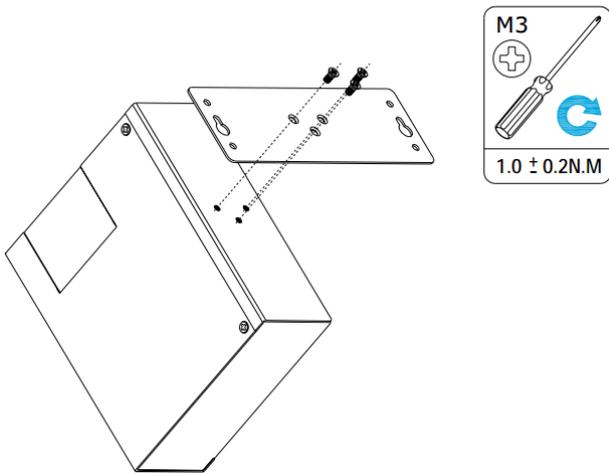
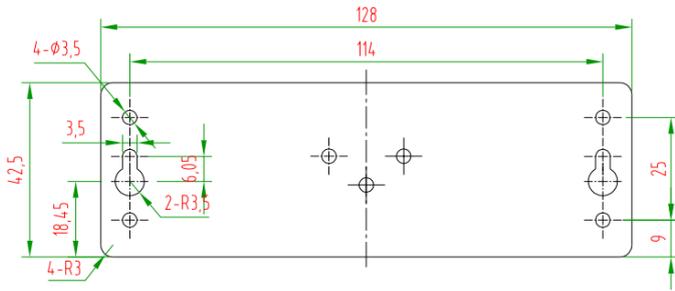
Note:

When used, the device needs a suitable environment.

1. If indoors, it needs to be provided an indoor enclosure.
2. If outdoors, it needs to be provided a rain proof enclosure.

Two methods for mounting the router

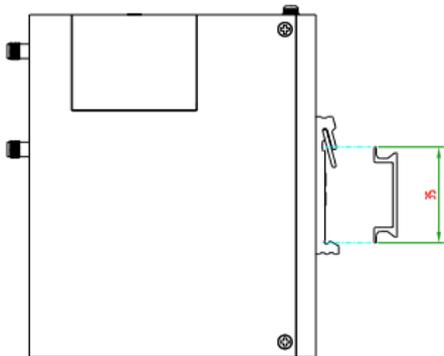
1. Wall mounting (measured in mm)

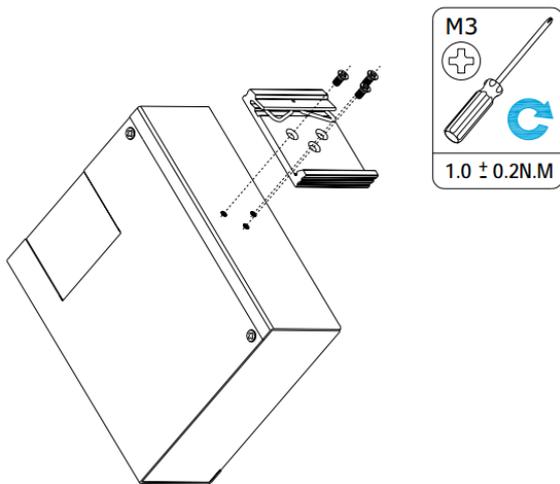


Use 3 pcs of M3*4 flat head Phillips screws to fix the wall mounting kit to the router, and then use 2 pcs of M3 drywall screws to mount the router associated with the wall mounting kit on the wall.

Note: Recommended torque for mounting is 1.0 N.m, and the maximum allowed is 1.2 N.m.

2. DIN rail mounting (measured in mm)





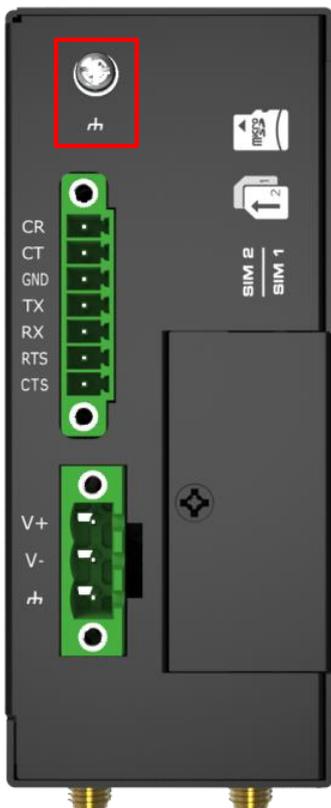
Use 3 pcs of M3*6 flat head Phillips screws to fix the DIN rail to the router, and then hang the DIN rail on the mounting bracket. It is necessary to choose a standard bracket.

Note: Recommended torque for mounting is 1.0 N.m, and the maximum allowed is 1.2 N.m.

2.9 Ground the Router

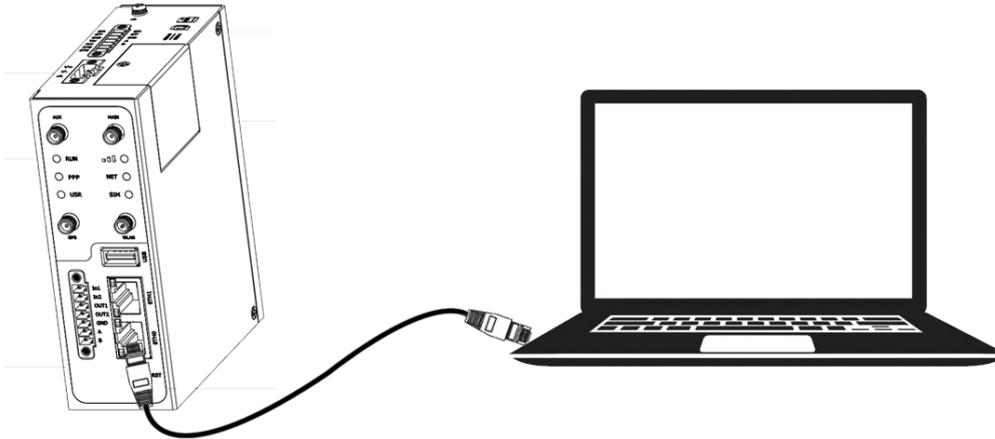
Router grounding helps prevent the noise effect due to electromagnetic interference (EMI). Connect the router to the site ground wire by the ground screw before powering on.

Note: This product is appropriate to be mounted on a sound grounded device surface, such as a metal panel.



2.10 Connect the Router to a Computer

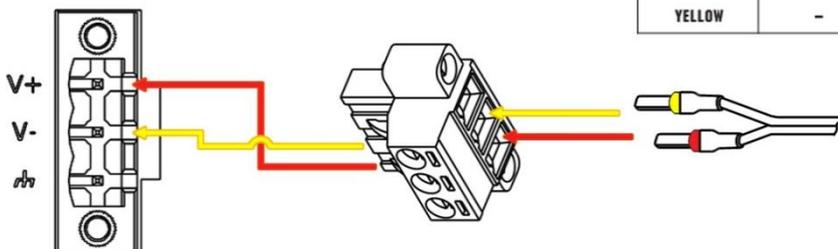
Connect an Ethernet cable to the port marked ETH0 or ETH1 at the front of the R3000 Router, and connect the other end of the cable to your computer.



2.11 Power Supply

CONNECTING THE POWER CABLE

COLOR	POLARITY
RED	+
YELLOW	-



R3000 Router supports reverse polarity protection, but always refers to the figure above to connect the power adapter correctly. There are two cables associated with the power adapter. Following to the color of the head, connect the cable marked red to the positive pole through a terminal block, and connect the yellow one to the negative in the same way. The last step is to plug the power adapter into your socket.

Note: The range of power voltage is 9 to 60V DC.

Chapter 3 Initial Configuration

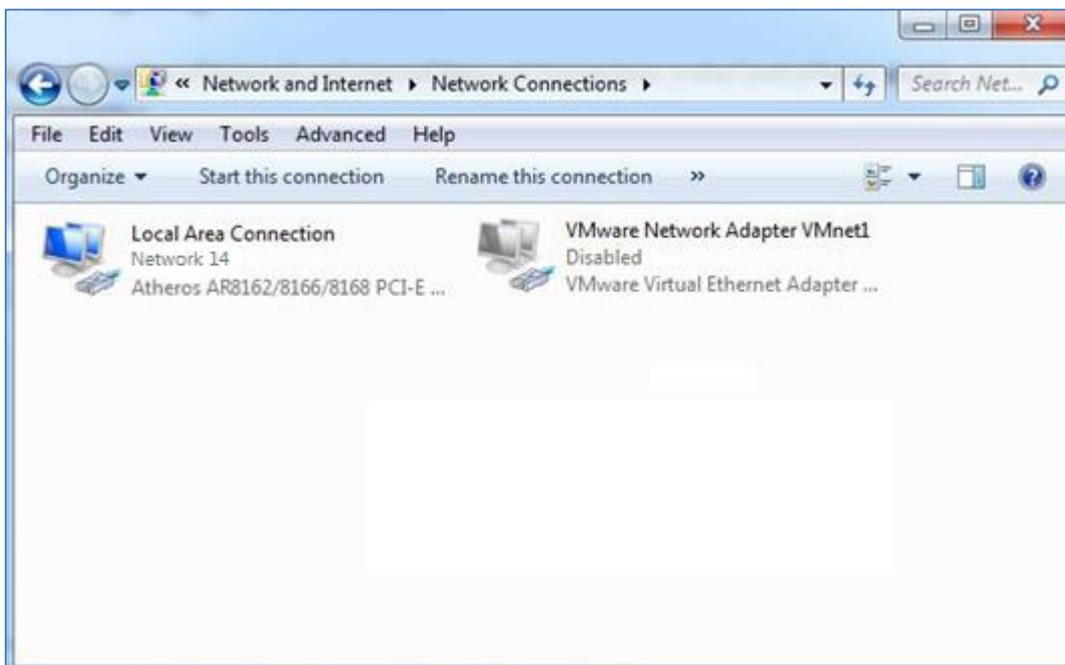
The router can be configured through your web browser that including IE 8.0 or above, Chrome and Firefox, etc. A web browser is included as a standard application in the following operating systems: Linux, Mac OS, Windows 98/NT/2000/XP/Me/Vista/7/8, etc. It provides an easy and user-friendly interface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

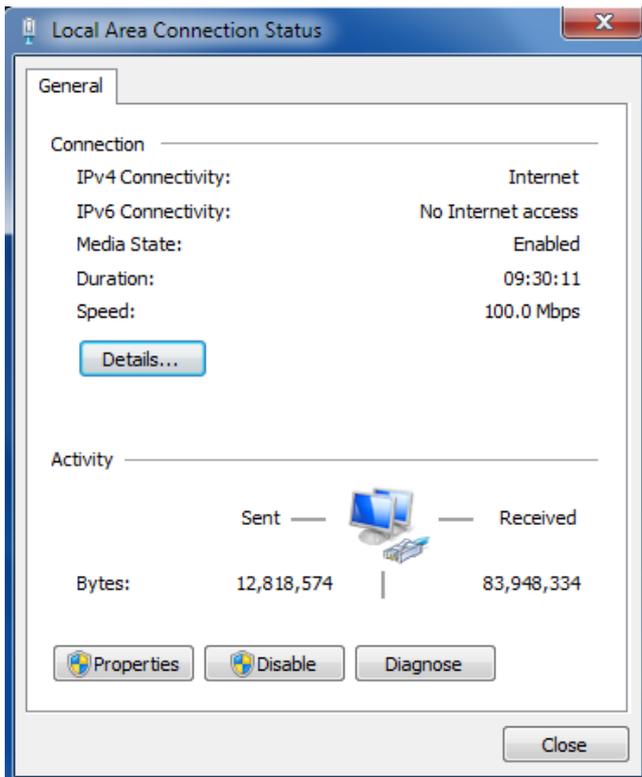
There are two methods to get IP address for the PC. One is to obtain an IP address automatically from “Local Area Connection”, and another is to configure a static IP address manually within the same subnet of the router. Please refer to the steps below.

Here take **Windows 7** as example, and the configuration for windows system is similar.

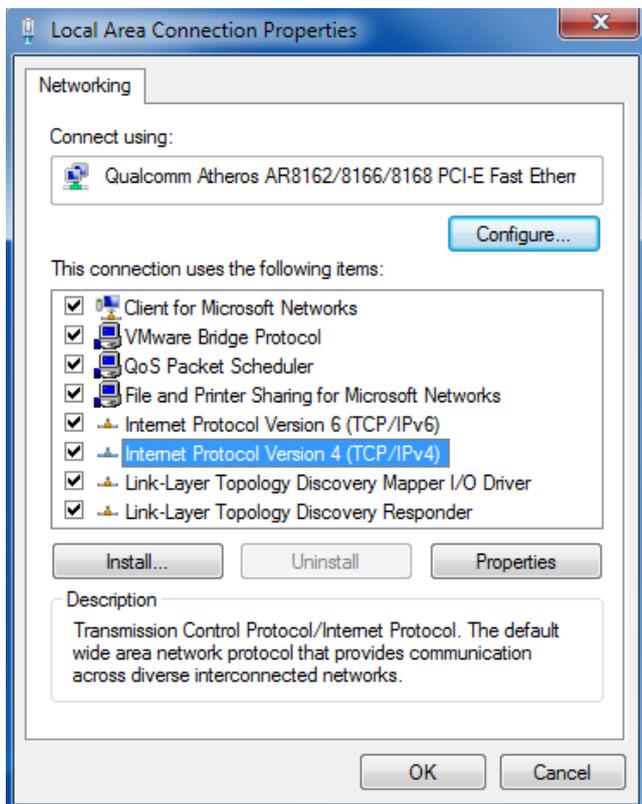
1. Click **Start > Control panel**, double-click **Network and Sharing Center**, and then double-click **Local Area Connection**.



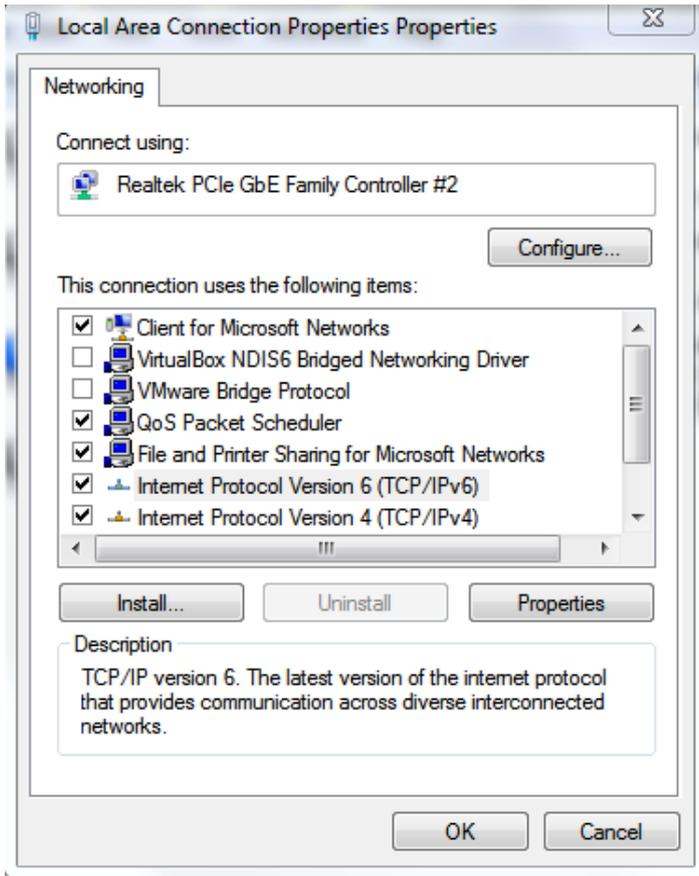
- Click **Properties** in the window of **Local Area Connection Status**.



- Choose **Internet Protocol Version 4 (TCP/IPv4)** and click **Properties**.

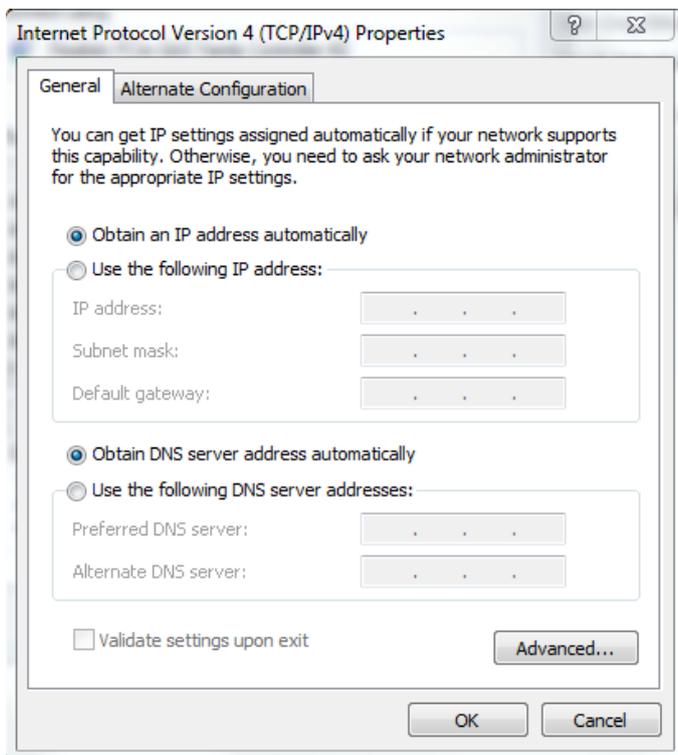


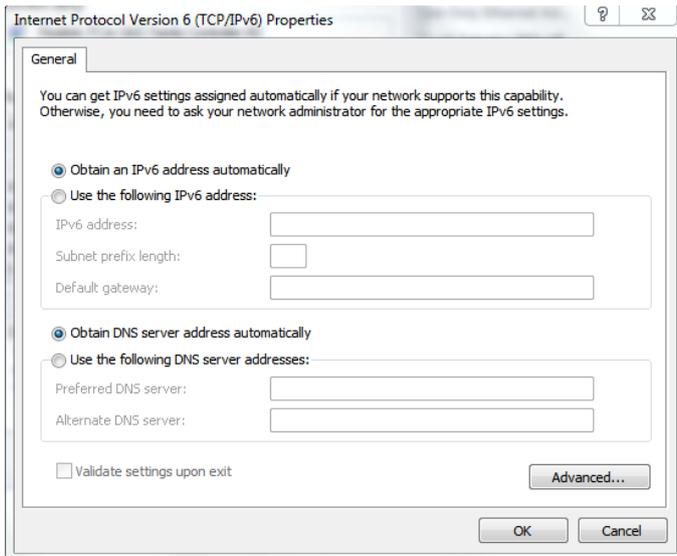
Select **Internet protocol version 6 (TCP/IPv6)**, and click **Properties**.



4. Two ways for configuring the IP address of PC

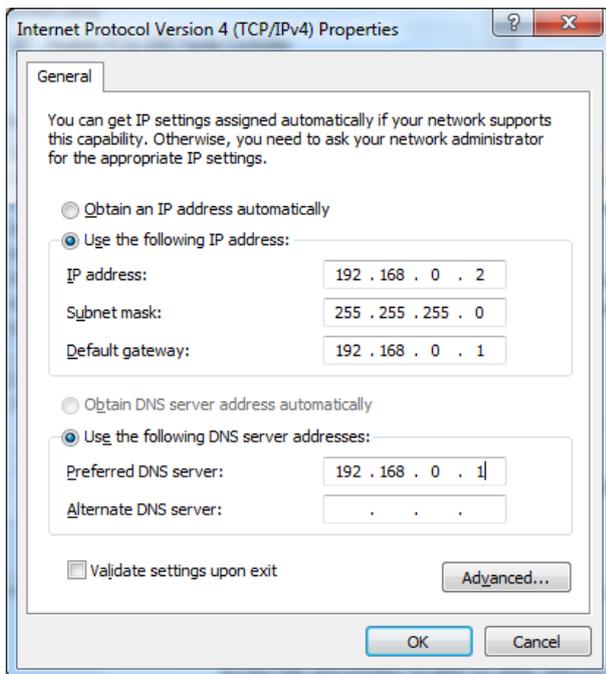
Obtain an IP address automatically:

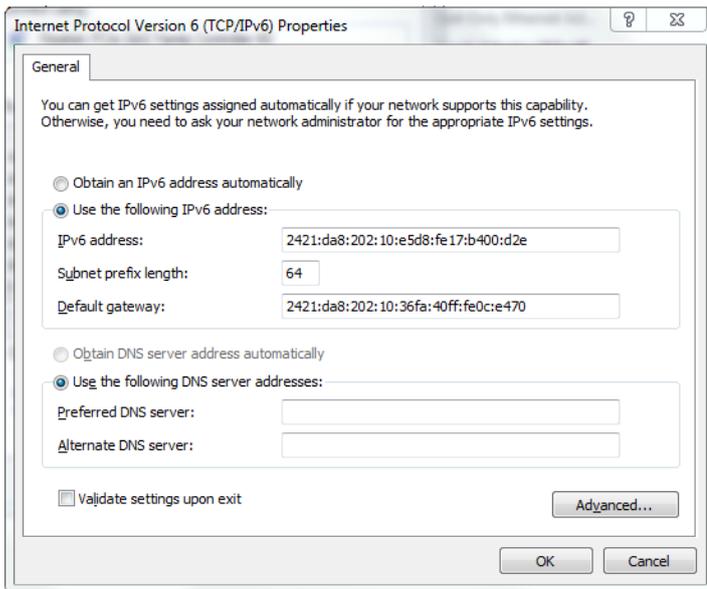




Use the following IP address:

(Configured a static IP address manually within the same subnet of the router)





5. Click **OK** to finish the configuration.

3.2 Factory Default Settings

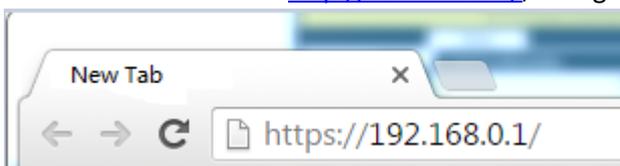
Before configuring your router, you need to know the following default settings.

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 Log in the Router

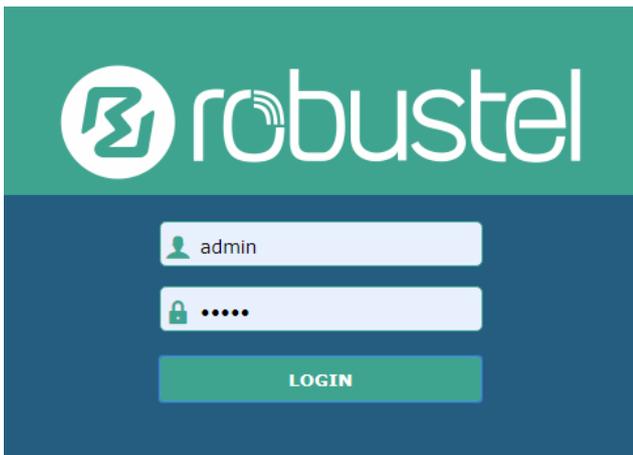
To log in to the management page and view the configuration status of your router, please follow the steps below.

1. On your PC, open a web browser such as Internet Explorer, Google and Firebox, etc.
2. From your web browser, type the IP address of the router into the address bar and press enter. The default IP address of the router is <http://192.168.0.1/>, though the actual address may vary.



3. In the login page, enter the username and password, choose language and then click **LOGIN**. The default username and password are "admin".

Note: If enter the wrong username or password over six times, the login web will be locked for 5 minutes.



3.4 Control Panel

After logging in, the home page of the R3000 Router’s web interface is displayed, for example.

The screenshot displays the Robustel web interface. At the top right, there are links for 'Save & Apply', 'Reboot', and 'Logout'. A yellow warning banner states: 'It is strongly recommended to change the default password.' On the left, a navigation menu includes 'Status', 'Interface', 'Network', 'VPN', 'Services', and 'System'. The main content area is titled 'Status' and contains two expandable sections:

- System Information:**
 - Device Model: R3000-4L
 - System Uptime: 0 days, 00:24:35
 - System Time: Thu Nov 28 10:24:21 2019
 - RAM Usage: 79M Free/128M Total
 - Firmware Version: 3.3.0_20191124 (Rev 2935)
 - Hardware Version: 1.2
 - Kernel Version: 4.1.0
 - Serial Number: 01870719090011
- Internet Status:**
 - Uptime: 0 days, 00:13:17
 - Active IPv4 Link: WWAN1
 - IPv4 Address: 10.244.109.195/255.255.255.248
 - IPv4 Gateway: 10.244.109.193
 - IPv4 DNS: 120.80.80.80 221.5.88.88
 - Active IPv6 Link: WWAN1
 - IPv6 Address: 2408:84f3:81d:daec:1e:10ff:fe1f:0/64
 - IPv6 Gateway: fe80::4e54:99ff:fe45:e5d5
 - IPv6 DNS: 2408:805d:8:: 2408:805c:4008::

At the bottom of the page, it says: 'Copyright © 2019 Robustel Technologies. All rights reserved.'

From the home page, users can perform operations such as saving configuration, restarting the router, and logging out.

Using the original password to log in the router, the page will pop up the following tab

 It is strongly recommended to change the default password. 

Click  to close the popup. It is strongly recommended for security purposes that you change the default username and/or password. To change your username and/or password, see **3.35 System > User Management**.

Control Panel		
Item	Description	Button
Save & Apply	Click to save the current configuration into router's flash and apply the modification on every configuration page, to make the modification taking effect.	
Reboot	Click to reboot the router. If the Reboot button is yellow, it means that some completed configurations will take effect only after reboot.	
Logout	Click to log the current user out safely. After logging out, it will switch to login page. Shut down web page directly without logout, the next one can login web on this browser without a password before timeout.	
Submit	Click to save the modification on current configuration page.	
Cancel	Click to cancel the modification on current configuration page.	

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 .

3.5 Status

This page allows you to view the System Information, Internet Status and LAN Status of your Router.

System Information

^ System Information	
Device Model	R3000-4L
System Uptime	0 days, 00:24:35
System Time	Thu Nov 28 10:24:21 2019
RAM Usage	79M Free/128M Total
Firmware Version	3.3.0_20191124 (Rev 2935)
Hardware Version	1.2
Kernel Version	4.1.0
Serial Number	01870719090011

System Information	
Item	Description
Device Model	Show the model name of your device.
System Uptime	Show the current amount of time the router has been connected.
System Time	Show the current system time.
RAM Usage	Show the free memory and the total memory.
Firmware Version	Show the firmware version running on the router.
Hardware Version	Show the current hardware version.
Kernel Version	Show the current kernel version.
Serial Number	Show the serial number of your device.

Internet Status

^ Internet Status	
Uptime	0 days, 00:13:17
Active IPv4 Link	WWAN1
IPv4 Address	10.244.109.195/255.255.255.248
IPv4 Gateway	10.244.109.193
IPv4 DNS	120.80.80.80 221.5.88.88
Active IPv6 Link	WWAN1
IPv6 Address	2408:84f3:81d:daec:1e:10ff:fe1f:0/64
IPv6 Gateway	fe80::4e54:99ff:fe45:e5d5
IPv6 DNS	2408:805d:8:: 2408:805c:4008::

Internet Status	
Item	Description
Uptime	Show the current amount of time the link has been connected.
IPv4 Link Description	Show the currently online link: WWAN1, WWAN2, WAN or WLAN.
IPIPV4 Address	Show the IPv4 address of current link.
IPv4 Gateway	Show the IPv4 gateway of the current link.
IPv4 DNS	Show the current IPv4 DNS server.
IPv6 Link Description	Show the currently online link: WWAN1, WWAN2, WAN or WLAN.
IPIPV6 Address	Show the IPv6 address of current link.
IPv6 Gateway	Show the IPv6 gateway of the current link.
IPv6 DNS	Show the current IPv6 DNS server.

LAN Status

^ LAN Status	
IP Address	192.168.0.1/255.255.255.0
Active IPv6 Address	2121:da8:202:10:36fa:40ff:fe18:68a8/64
Inactive IPv6 Address	
MAC Address	34:FA:40:18:68:A8

LAN Status	
Item	Description
IP Address	Show the IPv4 address and the Netmask of the router.
IPv6 Address	Shows the IPv6 address and prefix length obtained by the router along with the current backup link.
Inactive IPv6 Address	Shows the IPv6 address and prefix length obtained by the router along with the current online link.
MAC Address	Show the MAC address of the router.

3.6 Interface > Link Manager

This section allows you to setup the link connection.

Link Manager
Status

^ General Settings

Primary Link ?

Backup Link ?

Backup Mode ?

Revert Interval ?

Emergency Reboot ON OFF ?

General Settings @ Link Manager		
Item	Description	Default
Primary Link	Select from "WWAN1", "WWAN2", "WAN" or "WLAN". <ul style="list-style-type: none"> WWAN1: Select to make SIM1 as the primary wireless link WWAN2: Select to make SIM2 as the primary wireless link WAN: Select to make WAN Ethernet port as the primary wired link Note: WAN link is available only if enable eth0 as WAN port in Interface > Ethernet > Ports > Port Settings. WLAN: Select to make WLAN as the primary wireless link Note: WLAN link is available only if enable WiFi as Client mode, please refer to 3.10 Interface > WiFi. 	WWAN1
Backup Link	Select from "None", "WWAN1", "WWAN2", "WAN" or "WLAN". <ul style="list-style-type: none"> None: Do not select any backup link WWAN1: Select to make SIM1 as backup wireless link WWAN2: Select to make SIM2 as backup wireless link WAN: Select to make WAN Ethernet port as the backup wired link Note: WAN link is available only if enable eth0 as WAN interface in Interface > Ethernet > Ports > Port Settings. WLAN: Select to make WLAN as the backup wireless link Note: WLAN link is available only if enable WiFi as Client mode, please refer to 3.10 Interface > WiFi. 	WWAN2
Backup Mode	Select from "Cold Backup", "Warm Backup" or "Load Balancing". <ul style="list-style-type: none"> Cold Backup: The inactive link is offline on standby Warm Backup: The inactive link is online on standby Note: Warm backup mode is not available for dual SIM backup. Load Balancing: Use two links simultaneously 	Cold Backup
Revert Interval	Specify the number of minutes that elapses before the primary link is checked if a backup link is being used in cold backup mode. 0 means disable checking. Note: Revert interval is available only under the cold backup mode.	0
Emergency Reboot	Click the toggle button to enable/disable this option. Enable to reboot the whole system if no links available.	OFF

Note: Click for help.

Link Settings allows you to configure the parameters of link connection, including WWAN1/WWAN2, WAN and WLAN. It is recommended to enable Ping detection to keep the router always online. The Ping detection increases the reliability and also costs the data traffic.

^ Link Settings					
Index	Type	Description	IPv4 Connection Type	IPv6 Connection Type	
1	WWAN1	admin	DHCP	SLAAC	
2	WWAN2		DHCP	SLAAC	
3	WAN		DHCP	SLAAC	
4	WLAN		DHCP	SLAAC	

Click on the right-most of WWAN1/WWAN2 to enter the configuration window.

WWAN1/WWAN2

Link Manager

^ General Settings

Index:

Type: v

Description:

IPv6 Enable: ON OFF

The window is displayed as below when enabling the “Automatic APN Selection” option.

^ WWAN Settings

Automatic APN Selection: ON OFF

Dialup Number:

Authentication Type: v

Aggressive Reset: ON OFF

Switch SIM By Data Allowance: ON OFF

Data Allowance:

Billing Day:

The window is displayed as below when disabling the “Automatic APN Selection” option.

^ WWAN Settings

Automatic APN Selection ON OFF

APN

Username

Password

Dialup Number

Authentication Type v

PPP Preferred ON OFF ?

Switch SIM By Data Allowance ON OFF ?

Data Allowance ?

Billing Day ?

^ IPv6 LAN Settings

Connection Type v

IPv6 Prefix

IPv6 NAT Enable ON OFF

^ Ping Detection Settings
?

Enable ON OFF

IPv4 Primary Server

IPv4 Secondary Server

IPv6 Primary Server

IPv6 Secondary Server

Interval ?

Retry Interval ?

Timeout ?

Max Ping Tries ?

^ Advanced Settings

IPv4 NAT Enable ON OFF

Upload Bandwidth ?

Download Bandwidth

Overridden Primary DNS

Overridden Secondary DNS

Overridden IPv6 Primary DNS

Overridden IPv6 Secondary DNS

Debug Enable ON OFF

Verbose Debug Enable ON OFF

Link Settings (WWAN)		
Item	Description	Default
General Settings		
Index	Indicate the ordinal of the list.	--
Type	Show the type of the link.	WWAN1
Description	Enter a description for this link.	Null
IPv6	Click the toggle button to enable / disable IPv6.	OFF
WWAN Settings		
Automatic APN Selection	Click the toggle button to enable/disable the "Automatic APN Selection" option. After enabling, the device will recognize the access point name automatically. Alternatively, you can disable this option and manually add the access point name.	ON
APN	Enter the Access Point Name for cellular dial-up connection, provided by local ISP.	internet
Username	Enter the username for cellular dial-up connection, provided by local ISP.	Null
Password	Enter the password for cellular dial-up connection, provided by local ISP.	Null
Dialup Number	Enter the dialup number for cellular dial-up connection, provided by local ISP.	*99***1#
Authentication Type	Select from "Auto", "PAP" or "CHAP" as the local ISP required.	Auto
PPP Preferred	The PPP dial-up method is preferred.	OFF
Switch SIM By Data Allowance	Click the toggle button to enable/disable this option. After enabling, it will switch to another SIM when the data limit reached. Note: Only used for dual SIM backup.	OFF
Data Allowance	Set the monthly data traffic limitation. The system will record the data traffic statistics when data traffic limitation (MiB) is specified. The traffic record will be displayed in Interface > Link Manager > Status > WWAN Data Usage Statistics . 0 means disable data traffic record.	0
Billing Day	Specify the monthly billing day. The data traffic statistics will be recalculated from that day.	1
IPv6 LAN Settings		

Link Settings (WWAN)		
Item	Description	Default
Connection Type	Select the link to assign an IPv6 prefix to the local area network.	Delegated
IPv6 prefix	Set the static IPv6 prefix assigned by the link to the LAN.	null
Enable IPv6 NAT	Set the link to enable IPv6 NAT.	OFF
Ping Detection Settings		
Enable	Click the toggle button to enable/disable the ping detection mechanism, a keep-alive policy of the router.	ON
IPv4 Primary Server	Router will ping this primary address/domain name to check that if the current IPv4 connectivity is active.	8.8.8.8
IPv4 Secondary Server	Router will ping this secondary address/domain name to check that if the current IPv4 connectivity is active.	114.114.114.114
IPv6 Primary Server	Router will ping this primary address/domain name to check that if the current IPv6 connectivity is active.	2001:4860:4860::8888
IPv6 Secondary Server	Router will ping this secondary address/domain name to check that if the current IPv6 connectivity is active.	2400:da00:2::29
Interval	Set the ping interval.	300
Retry Interval	Set the ping retry interval. When ping failed, the router will ping again every retry interval.	5
Timeout	Set the ping timeout.	3
Max Ping Tries	Set the max ping tries. Switch to another link or take emergency action if the max continuous ping tries reached.	3
Advanced Settings		
NAT Enable	Click the toggle button to enable/disable the Network Address Translation option.	ON
Upload Bandwidth	Set the upload bandwidth used for QoS, measured in kbps.	10000
Download Bandwidth	Set the download bandwidth used for QoS, measured in kbps.	10000
Specify the Primary DNS server	Defines the primary IPv4 DNS server used by the link.	Null
Specify the Secondary DNS server	Defines the Secondary IPv4 DNS server used by the link.	Null
Specify the IPv6 Primary DNS server	Defines the primary IPv6 DNS server used by the link.	Null
Specify the IPv6 Secondary DNS server	Defines the Secondary IPv6 DNS server used by the link.	Null
Debug Enable	Click the toggle button to enable/disable this option. Enable for debugging information output.	ON
Verbose Debug Enable	Click the toggle button to enable/disable this option. Enable for verbose debugging information output.	OFF

WAN

Router will obtain IP automatically from DHCP server if choosing “DHCP” as **IPv4 connection type**. Router will obtain

IPv6 prefix automatically from DHCP server if choosing “SLAAC” as **IPv6 connection type**. The window is displayed as below.

Link Manager

^ **General Settings**

Index

Type v

Description

IPv6 Enable ON OFF

IPv4 Connection Type v

IPv6 Connection Type v

The window is displayed as below when choosing “Static” as the **IPv4 connection type** and **IPv6 connection type**.

^ **General Settings**

Index

Type v

Description

Connection Type v

^ **Static Address Settings**

IP Address ?

Gateway

Primary DNS

Secondary DNS

^ General Settings

Index	<input type="text" value="3"/>
Type	<input type="text" value="WAN"/> v
Description	<input type="text" value="admin"/>
IPv6 Enable	<input type="checkbox"/> ON <input checked="" type="checkbox"/> OFF
IPv4 Connection Type	<input type="text" value="Static"/> v
IPv6 Connection Type	<input type="text" value="Static"/> v

^ Static Address Settings

IP Address	<input type="text"/>	?
Gateway	<input type="text"/>	
Primary DNS	<input type="text"/>	
Secondary DNS	<input type="text"/>	

^ IPv6 Static Address Settings

IPv6 Address	<input type="text"/>
IPv6 Gateway	<input type="text"/>
IPv6 Primary DNS	<input type="text"/>
IPv6 Secondary DNS	<input type="text"/>

The window is displayed as below when choosing “PPPoE” as the IPv4 connection type and IPv6 connection type.

^ General Settings

Index

Type

Description

Connection Type

^ PPPoE Settings

Username

Password

Authentication Type

PPP Expert Options ?

^ General Settings

Index

Type

Description

IPv6 Enable ON OFF

IPv4 Connection Type

IPv6 Connection Type

Address Mode

^ PPPoE Settings

Username

Password

Authentication Type

PPP Expert Options ?

^ Ping Detection Settings ?

Enable ON OFF

IPv4 Primary Server

IPv4 Secondary Server

IPv6 Primary Server

IPv6 Secondary Server

Interval ?

Retry Interval ?

Timeout ?

Max Ping Tries ?

^ Advanced Settings

IPv4 NAT Enable ON OFF

MTU ?

Upload Bandwidth ?

Download Bandwidth

Overridden Primary DNS

Overridden Secondary DNS

Overridden IPv6 Primary DNS

Overridden IPv6 Secondary DNS

Debug Enable ON OFF

Verbose Debug Enable ON OFF

Link Settings (WAN)		
Item	Description	Default
General Settings		
Index	Indicate the ordinal of the list.	--
Type	Show the type of the link.	WAN
Description	Enter a description for this link.	Null
Enable IPv6	Click the toggle button to enable / disable IPv6.	OFF
IPv4 connection type	Select from "DHCP", "Static IP" or "PPPoE".	DHCP
IPv6 connection type	Select from "SLAAC", "DHCPv6", "Static IP" or "PPPoE".	SLAAC
Address type	Select from "SLAAC" or "DHCPv6".	SLAAC
IPv4 Static Address Settings		
IP Address	Set the IPv4 address with Netmask which can access the internet. IP address with Netmask, e.g. 192.168.1.1/24	Null
Gateway	Set the gateway of the IPv4 address in WAN port.	Null
Primary DNS	Set the primary DNS.	Null
Secondary DNS	Set the secondary DNS.	Null
IPv6 Static Address Settings		
IPv6 Address	Set the IPv6 address with Netmask which can access the internet. IP address with Netmask, e.g. 2521:da8:202:10::20/64	Null
Gateway	Set the gateway of the IPv6 address in WAN port.	Null
IPv6 Primary DNS	Set the primary IPv6 DNS server used by the link.	Null
IPv6 Secondary DNS	Set the secondary IPv6 DNS server used by the link.	Null
PPPoE Settings		
Username	Enter the username provided by your Internet Service Provider.	Null
Password	Enter the password provided by your Internet Service Provider.	Null
Authentication Type	Select from "Auto", "PAP" or "CHAP" as the local ISP required.	Auto
PPP Expert Options	Enter the PPP Expert options used for PPPoE dialup. You can	Null

	enter some other PPP dial strings in this field. Each string can be separated by a semicolon.	
IPv6 LAN Settings		
Connection type	Select the link to assign IPv6 prefixes to the LAN.	Delegated
IPv6 Prefix	Sets the static IPv6 prefix assigned by the link to the LAN.	Null
Enabled IPv6 NAT	Set up links to enable IPv6 NAT.	OFF
Ping Detection Settings		
Enable	Click the toggle button to enable/disable the ping detection mechanism, a keep-alive policy of the router.	ON
Primary Server	Router will ping this primary address/domain name to check that if the current IPv4 connectivity is active.	8.8.8.8
Secondary Server	Router will ping this secondary address/domain name to check that if the current IPv4 connectivity is active.	114.114.114.114
IPv6 Primary Server	Router will ping this primary address/domain name to check that if the current IPv6 connectivity is active.	2001:4860:4860::8888
IPv6 Secondary Server	Router will ping this secondary address/domain name to check that if the current IPv6 connectivity is active.	2400:da00:2::29
Interval	Set the ping interval.	300
Retry Interval	Set the ping retry interval. When ping failed, the router will ping again every retry interval.	5
Timeout	Set the ping timeout.	3
Max Ping Tries	Set the max ping tries. Switch to another link or take emergency action if the max continuous ping tries reached.	3
Advanced Settings		
NAT Enable	Click the toggle button to enable/disable the Network Address Translation option.	ON
MTU	Enter the Maximum Transmission Unit.	1500
Upload Bandwidth	Enter the upload bandwidth used for QoS, measured in kbps.	10000
Download Bandwidth	Enter the download bandwidth used for QoS, measured in kbps.	10000
Specify the Primary DNS server	Defines the primary IPv4 DNS server for the link.	Null
Specify the Secondary DNS server	Defines the secondary IPv4 DNS server for the link.	Null
Specify the IPv6 Primary DNS server	Defines the primary IPv6 DNS server for the link.	Null
Specify the IPv6 Secondary DNS server	Defines the secondary IPv6 DNS server for the link.	Null
Debug Enable	Click the toggle button to enable/disable this option. Enable for debugging information output.	ON
Verbose Debug Enable	Click the toggle button to enable/disable this option. Enable for verbose debugging information output.	OFF

WLAN

Router will obtain IP automatically from the WLAN AP if choosing “DHCP” as the connection type. The specific parameter configuration of SSID is shown as below.

Link Manager

^ **General Settings**

Index

Type v

Description

IPv6 Enable ON OFF

IPv4 Connection Type v

^ **WLAN Settings**

SSID

Connect to Hidden SSID ON OFF

Password

The window is displayed as below when choosing “Static” as the IPv4 connection type.

^ **General Settings**

Index

Type v

Description

IPv6 Enable ON OFF

IPv4 Connection Type v

v **WLAN Settings**

^ **Static Address Settings**

IP Address ?

Gateway

Primary DNS

Secondary DNS

R3000 Router does not support the **PPPoE** WLAN Connection Type.

^ **IPv6 LAN Settings**

Connection Type v

IPv6 Prefix

IPv6 NAT Enable ON OFF

^ Ping Detection Settings ?

Enable ON OFF

IPv4 Primary Server

IPv4 Secondary Server

IPv6 Primary Server

IPv6 Secondary Server

Interval ?

Retry Interval ?

Timeout ?

Max Ping Tries ?

^ Advanced Settings

IPv4 NAT Enable ON OFF

MTU ?

Upload Bandwidth ?

Download Bandwidth

Overrided Primary DNS

Overrided Secondary DNS

Overrided IPv6 Primary DNS

Overrided IPv6 Secondary DNS

Debug Enable ON OFF

Verbose Debug Enable ON OFF

Link Settings (WLAN)		
Item	Description	Default
General Settings		
Index	Indicate the ordinal of the list.	--
Type	Show the type of the link.	WLAN
Description	Enter a description for this link.	Null
Enable Ipv6	Click the toggle button to enable / disable IPv6.	OFF
IPv4 Connection Type	Select from "DHCP" or "Static".	DHCP
WLAN Settings		
SSID	Enter a 1-32 characters SSID which your router wants to connect. SSID (Service Set Identifier) is the name of your wireless network.	router
Connect to Hidden SSID	Click the toggle button to enable/disable this option. When router works as Client mode and needs to connect any access point which has hidden SSID, you need to enable this option.	OFF
Password	Enter an 8-63 characters password of the access point which your	Null

	router wants to connect.	
Static Address Settings		
IP Address	Enter the IP address with Netmask which can access the Internet, e.g. 192.168.1.1/24	Null
Gateway	Enter the IP address of WiFi AP.	Null
Primary DNS	Set the primary DNS.	Null
Secondary DNS	Set the secondary DNS.	Null
IPv6 LAN Settings		
Connection type	Select the link to assign IPv6 prefixes to the LAN.	Delegated
IPv6 Prefix	Sets the static IPv6 prefix assigned by the link to the LAN.	Null
Enabled IPv6 NAT	Set up links to enable IPv6 NAT.	OFF
Ping Detection Settings		
Enable	Click the toggle button to enable/disable the ping detection mechanism, a keepalive policy of the router.	ON
Primary Server	Router will ping this primary address/domain name to check that if the current connectivity is active.	8.8.8.8
Secondary Server	Router will ping this secondary address/domain name to check that if the current connectivity is active.	114.114.114.114
IPv6 Primary Server	Router will ping this primary address/domain name to check that if the current IPv6 connectivity is active.	2001:4860:4860::8888
IPv6 Secondary Server	Router will ping this secondary address/domain name to check that if the current IPv6 connectivity is active.	2400:da00:2::29
Interval	Set the ping interval.	300
Retry Interval	Set the ping retry interval. When ping failed, the router will ping again every retry interval.	5
Timeout	Set the ping timeout.	3
Max Ping Tries	Set the max ping tries. Switch to another link or take emergency action if the max continuous ping tries reached.	3
Advance Settings		
NAT Enable	Click the toggle button to enable/disable the Network Address Translation option.	ON
MTU	Enter the Maximum Transmission Unit.	1500
Upload Bandwidth	Enter the upload bandwidth used for QoS, measured in kbps.	10000
Download Bandwidth	Enter the download bandwidth used for QoS, measured in kbps.	10000
Specify the Primary DNS server	Defines the primary IPv4 DNS server for the link.	Null
Specify the Secondary DNS server	Defines the secondary IPv4 DNS server for the link.	Null
Specify the IPv6 Primary DNS server	Defines the primary IPv6 DNS server for the link.	Null
Specify the IPv6 Secondary DNS server	Defines the secondary IPv6 DNS server for the link.	Null
Debug Enable	Click the toggle button to enable/disable this option. Enable for debugging information output.	ON

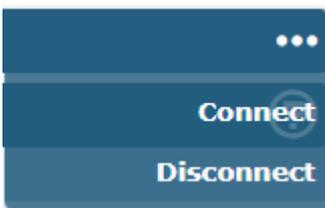
Verbose Debug Enable	Click the toggle button to enable/disable this option. Enable for verbose debugging information output.	OFF
----------------------	---	-----

Status

This page allows you to view the status of link connection and clear the monthly data usage statistics.

Link Manager		Status		
^ Link Status				
Index	IPv4 Link	IPv6 Link	Status	Uptime
1	WWAN1	WWAN1	Connected	0 days, 00:01:12
2	WWAN2	WWAN2	Disconnected	

Click the right-most button  to select the connection status of the current link.



Click the row of the link, and it will show the details information of the current link connection under the row.

^ Link Status				
Index	IPv4 Link	IPv6 Link	Status	Uptime
1	WWAN1	WWAN1	Connected	0 days, 06:54...
Index 1 IPv4 Link WWAN1 IPv6 Link WWAN1 Status Connected IPv4 Interface wwan IPv6 Interface wwan Uptime 0 days, 06:54:37 IPv4 Address 10.37.98.229/255.255.255.252 IPv4 Gateway 10.37.98.230 IPv4 DNS 120.80.80.80 221.5.88.88 IPv6 Address 2408:84f3:1034:96f9:1e:10ff:fe1f:0/64 IPv6 Gateway fe80::4e54:99ff:fe45:e5d5 IPv6 DNS 2408:805d:8:: 2408:805c:4008:: RX Packets 712 TX Packets 979 RX Bytes 47530 TX Bytes 80258				
2	WWAN2	NONE	Disconnect...	

^ WWAN Data Usage Statistics	
WWAN1 Monthly Stats	Clear
WWAN2 Monthly Stats	Clear

Click the **Clear** button to clear SIM1 or SIM2 monthly data traffic usage statistics. Data statistics will be displayed only if enable the Data Allowance function in **Interface > Link Manager > Link Settings > WWAN Settings > Data Allowance**.

3.7 Interface > LAN

This section allows you to set the related parameters for LAN port. There are two LAN ports on R3000 Router, including ETH0 and ETH1. The ETH0 and ETH1 can freely choose from lan0 and lan1, but at least one LAN port must be assigned as lan0. The default settings of ETH0 and ETH1 are lan0 and their default IP are 192.168.0.1/255.255.255.0.

LAN

By default, there is a LAN port (lan0) in the list. To begin adding a new LAN port (lan1), please configure ETH0 or ETH1 as lan1 first in **Ethernet > Ports > Port Settings**. Otherwise, the operation will be prompted as “List is full”.

LAN	Multiple IP	Status			
^ Network Settings ?					
Index	Interface	IPv4 Addr...	Netmask	VLAN ID	
1	lan0	192.168.0.1	255.255.255.0	0	+ ✕

Note: Lan0 cannot be deleted.

You may click **+** to add a new LAN port, or click **✕** to delete the current LAN port. Now, click **✎** to edit the configuration of the LAN port.

LAN	
^ General Settings	
Index	<input type="text" value="1"/>
Interface	<input type="text" value="lan0"/> ▼
IPv4 Address	<input type="text" value="192.168.2.1"/>
Netmask	<input type="text" value="255.255.255.0"/>
IPv6 Address Allocation Type	<input type="text" value="SLAAC"/> ▼
MTU	<input type="text" value="1500"/> ?

General Settings		
Item	Description	Default
Index	Indicate the ordinal of the list.	--
Interface	Show the editing port. Lan1 is available only if it was selected by one of ETH0~ETH1 in Ethernet > Ports > Port Settings .	--
IP Address	Set the IP address of the LAN port.	192.168.0.1
Netmask	Set the Netmask of the LAN port.	255.255.255.0
IPv6 Address Allocation Type	Set the method of assigning IPv6 addresses on the LAN side.	SLAAC
MTU	Enter the Maximum Transmission Unit.	1500

The window is displayed as below when choosing “Server” as the mode.

^ DHCP Settings

Enable ON OFF

Mode

IP Pool Start

IP Pool End

Subnet Mask

^ DHCP Advanced Settings

Gateway

Primary DNS

Secondary DNS

WINS Server

Lease Time ?

Static Lease ?

Expert Options ?

Debug Enable ON OFF

The window is displayed as below when choosing “Relay” as the mode.

^ DHCP Settings

Enable ON OFF

Mode

DHCP Server For Relay

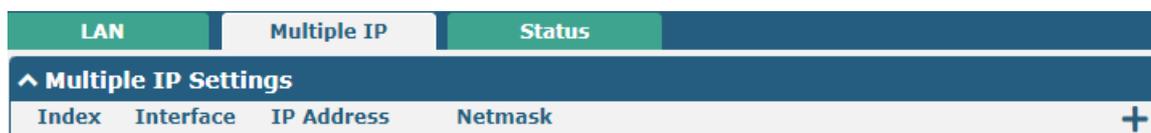
^ DHCP Advanced Settings

Debug Enable ON OFF

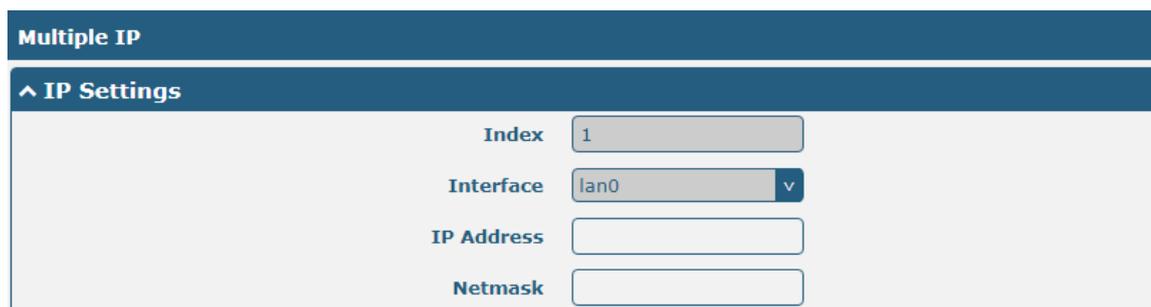
LAN		
Item	Description	Default
DHCP Settings		
Enable	Click the toggle button to enable/disable the DHCP function.	ON
Mode	Select from “Server” or “Relay”. <ul style="list-style-type: none"> Server: Lease IP address to DHCP clients which have been connected to LAN port Relay: Router can be DHCP Relay, which will provide a relay tunnel to solve problem that DHCP Client and DHCP Server is not in a same subnet 	Server

LAN		
Item	Description	Default
IP Pool Start	Define the beginning of the pool of IP addresses which will be leased to DHCP clients.	192.168.0.2
IP Pool End	Define the end of the pool of IP addresses which will be leased to DHCP clients.	192.168.0.100
Subnet Mask	Define the subnet mask of IP address obtained by DHCP clients from DHCP server.	255.255.255.0
DHCP Server for Relay	Enter the IP address of DHCP relay server.	Null
DHCP Advanced Settings		
Gateway	Define the gateway assigned by the DHCP server to the clients, which must be on the same network segment with DHCP address pool.	Null
Primary DNS	Define the primary DNS server assigned by the DHCP server to the clients.	Null
Secondary DNS	Define the secondary DNS server assigned by the DHCP server to the clients.	Null
WINS Server	Define the Windows Internet Naming Service obtained by DHCP clients from DHCP sever.	Null
Lease Time	Set the lease time which the client can use the IP address obtained from DHCP server, measured in seconds.	120
Static lease	Bind a lease to correspond an IP address via a MAC address. format: mac,ip;mac,ip;..., e.g. FF:ED:CB:A0:98:01,192.168.0.200	Null
Expert Options	Enter some other options of DHCP server in this field. format: config-desc;config-desc, e.g. log-dhcp;quiet-dhcp	Null
Debug Enable	Click the toggle button to enable/disable this option. Enable for DHCP information output.	OFF

Multiple IP



You may click **+** to add a multiple IP to the LAN port, or click **X** to delete the multiple IP of the LAN port. Now, click **✎** to edit the multiple IP of the LAN port.



IP Settings		
Item	Description	Default
Index	Indicate the ordinal of the list.	--
Interface	Show the editing port, read only.	--
IP Address	Set the multiple IP address of the LAN port.	Null
Netmask	Set the multiple Netmask of the LAN port.	Null

VLAN Trunk

LAN | Multiple IP | VLAN Trunk | Status

^ VLAN Settings

Index	Enable	Interface	VID	IP Address	Netmask	+
-------	--------	-----------	-----	------------	---------	---

Click **+** to add a VLAN. The maximum count is 8.

VLAN Trunk

^ VLAN Settings

Index

Enable ON OFF

Interface v

VID

IP Address

Netmask

VLAN Trunk		
Item	Description	Default
Index	Indicate the ordinal of the list.	--
Enable	Click the toggle button to enable/disable this VLAN. Enable to make router can encapsulate and de-encapsulate the VLAN tag.	ON
Interface	Choose the interface which wants to enable VLAN trunk function. Select from "lan0" or "lan1" depends on your ETH0 and ETH1's corresponding LAN port.	lan0
VID	Set the tag ID of VLAN and digits from 1 to 4094.	100
IP Address	Set the IP address of VLAN port.	Null
Netmask	Set the Netmask of VLAN port.	Null

Status

This section allows you to view the status of LAN connection.

LAN	Multiple IP	Status		
^ Interface Status				
Index	Interface	IP Address	Active IPv6 Address	
1	lan0	192.168.0.1/255.2...	2121:da8:202:10:36fa:...	
^ Connected Devices				
Index	IPv4/IPv6 Address	MAC Address	Interface	Inactive Time
1	192.168.0.59	D0:50:99:A9:2B:80	lan0	0s
^ DHCP Lease Table				
Index	IPv4/IPv6 Address	MAC Address or IAID	Interface	Expired Time

Click the row of status, the details status information will be display under the row. Please refer to the screenshot below.

^ Connected Devices				
Index	IPv4/IPv6 Address	MAC Address	Interface	Inactive Time
1	192.168.0.59	D0:50:99:A9:2B:80	lan0	0s
Index 1 IPv4/IPv6 Address 192.168.0.59 MAC Address D0:50:99:A9:2B:80 Interface lan0 Inactive Time 0s				

3.8 Interface > Ethernet

This section allows you to set the related parameters for Ethernet. There are two Ethernet ports on R3000 Router, including ETH0 and ETH1. The ETH0 on the router can be configured as either a WAN or a LAN port, while ETH1 can only be configured as a LAN port. By default, ETH0 and ETH1 are lan0, and their IP are 192.168.0.1/255.255.255.0. Since lan0 must be assigned to one port and WAN port must be assigned to the ETH0, there are four configurations. You can choose the appropriate configuration to fit your current needs. The specific port configurations are shown below.

Ports	Status	
^ Port Settings ?		
Index	Port	Port Assignment
1	eth0	lan0
2	eth1	lan0
^ Port Settings ?		
Index	Port	Port Assignment
1	eth0	lan0
2	eth1	lan1

^ Port Settings			?
Index	Port	Port Assignment	
1	eth0	lan1	
2	eth1	lan0	

^ Port Settings			?
Index	Port	Port Assignment	
1	eth0	wan	
2	eth1	lan0	

This section introduces you to set the parameters of the WAN port.

Ports	Status		
^ Port Settings			
?			
Index	Port	Port Assignment	
1	eth0	wan	
2	eth1	lan0	

Click button of eth0 to configure its parameters. The port assignment can be changed by selecting from the drop down list.

Ports	
^ Port Settings	
?	
Index	<input type="text" value="2"/>
Port	<input type="text" value="eth1"/> v
Port Assignment	<input type="text" value="lan0"/> v ?

Port Settings		
Item	Description	Default
Index	Indicate the ordinal of the list.	--
Port	Show the editing port, read only.	--
Port Assignment	Choose the Ethernet port's type, as a WAN port or a LAN port. When setting the port as a LAN port in Interface > LAN > LAN > Network Settings > General Settings , you can click the drop-down list to select from "lan0" or "lan1".	lan0

This column allows you to view the status of Ethernet port.

Ports		Status
^ Port Status		
Index	Port	Link
1	eth0	Down
2	eth1	Up

Click the row of status, the details status information will be display under the row. Please refer to the screenshot below.

Ports		Status
^ Port Status		
Index	Port	Link
1	eth0	Down
2	eth1	Up
<p style="text-align: right;"> Index 2 Port eth1 Link Up </p>		

3.9 Interface > Cellular

This section allows you to set the related parameters of Cellular. The R3000 Router has two SIM card slots, but do not support two SIM cards online simultaneously due to its single-module design. If insert single SIM card at the first time, SIM1 slot and SIM2 slots are available.

Cellular		Status	AT Debug		
^ Advanced Cellular Settings					
Index	SIM Card	Phone Number	Network Type	Band Select Type	
1	SIM1		Auto	All	
2	SIM2		Auto	All	

Click of SIM 1 to edit the parameters.

Cellular

^ General Settings

Index

SIM Card v

Phone Number

PIN Code ?

Extra AT Cmd ?

Telnet Port ?

The window is displayed as below when choosing "Auto" as the network type.

^ Cellular Network Settings

Network Type v ?

Band Select Type v ?

^ Advanced Settings

Debug Enable ON OFF

Verbose Debug Enable ON OFF

The window is displayed as below when choosing “Specify” as the band select type.

^ Cellular Network Settings

Network Type v ?

Band Select Type v ?

^ Band Settings

GSM 850	<input type="checkbox"/> ON <input type="checkbox"/> OFF
GSM 900	<input type="checkbox"/> ON <input type="checkbox"/> OFF
GSM 1800	<input type="checkbox"/> ON <input type="checkbox"/> OFF
GSM 1900	<input type="checkbox"/> ON <input type="checkbox"/> OFF
WCDMA 850	<input type="checkbox"/> ON <input type="checkbox"/> OFF
WCDMA 900	<input type="checkbox"/> ON <input type="checkbox"/> OFF
WCDMA 1900	<input type="checkbox"/> ON <input type="checkbox"/> OFF
WCDMA 2100	<input type="checkbox"/> ON <input type="checkbox"/> OFF
LTE Band 1	<input type="checkbox"/> ON <input type="checkbox"/> OFF
LTE Band 2	<input type="checkbox"/> ON <input type="checkbox"/> OFF
LTE Band 3	<input type="checkbox"/> ON <input type="checkbox"/> OFF
LTE Band 4	<input type="checkbox"/> ON <input type="checkbox"/> OFF
LTE Band 5	<input type="checkbox"/> ON <input type="checkbox"/> OFF
LTE Band 7	<input type="checkbox"/> ON <input type="checkbox"/> OFF
LTE Band 8	<input type="checkbox"/> ON <input type="checkbox"/> OFF
LTE Band 20	<input type="checkbox"/> ON <input type="checkbox"/> OFF

^ Advanced Settings

Debug Enable ON OFF

Verbose Debug Enable ON OFF

Cellular		
Item	Description	Default
General Settings		

Cellular		
Item	Description	Default
Index	Indicate the ordinal of the list.	--
SIM Card	Set the currently editing SIM card.	SIM1
Phone Number	Enter the phone number of the SIM card.	Null
PIN Code	Enter a 4-8 characters PIN code used for unlocking the SIM.	Null
Extra AT Cmd	Enter the AT commands used for cellular initialization.	Null
Telnet Port	Specify the Port listening of telnet service, used for AT over Telnet.	0
Cellular Network Settings		
Network Type	Select from "Auto", "2G Only", "2G First", "3G Only", "3G First", "4G Only", "4G First". <ul style="list-style-type: none"> Auto: Connect to the best signal network automatically 2G Only: Only the 2G network is connected 2G First: Connect to the 2G Network preferentially 3G Only: Only the 3G network is connected 3G First: Connect to the 3G Network preferentially 4G Only: Only the 4G network is connected 4G First: Connect to the 4G Network preferentially 	Auto
Band Select Type	Select from "All" or "Specify". You may choose certain bands if choosing "Specify".	All
Advanced Settings		
Debug Enable	Click the toggle button to enable/disable this option. Enable for debugging information output.	ON
Verbose Debug Enable	Click the toggle button to enable/disable this option. Enable for verbose debugging information output.	OFF

This section allows you to view the status of the cellular connection.

Cellular				
Status				
^ Status				
Index	Modem Status	Modem Model	IMSI	Registration
1	Ready	ME909s-120	460015006113059	Registered to home network

Click the row of status, the details status information will be displayed under the row.

Cellular
Status
AT Debug

^ Status

Index	Modem Status	Modem Model	IMSI	Registration
1	Ready	ME909s-120	460015006113059	Registered to home net...
Index 1				
Modem Status Ready				
Modem Model ME909s-120				
Current SIM SIM1				
Phone Number				
IMSI 460015006113059				
ICCID 89860118803669952555				
Registration Registered to home network				
Network Provider CHN-UNICOM				
Network Type LTE				
Band 1				
Signal Strength 25 (-63dBm)				
RSRP -90 dBm				
RSRQ -7.0 dBm				
Bit Error Rate 99				
PLMN ID 46001				
Local Area Code 2507				
Cell ID 06074716				
IMEI 867377024751079				
Firmware Version 11.617.01.00.00				

Status	
Item	Description
Index	Indicate the ordinal of the list.
Modem Status	Show the status of the radio module.
Modem Model	Show the model of the radio module.
Current SIM	Show the SIM card that your router is using.
Phone Number	Show the phone number of the current SIM. Note: This option will be displayed if enter manually in Cellular > Advanced Cellular Settings > SIM1/SIM2 > General Settings > Phone Number .
IMSI	Show the IMSI number of the current SIM.
ICCID	Show the ICCID number of the current SIM.
Registration	Show the current network status.
Network Provider	Show the name of Network Provider.

Status	
Item	Description
Network Type	Show the current network service type, e.g. GPRS.
Registered band	Show the current frequency band.
Signal Strength	Show the signal strength detected by the mobile.
RSRP	Show the reference signal received power.
RSRQ	Show the reference signal reception quality.
Bit Error Rate	Show the current bit error rate.
PLMN ID	Show the current PLMN ID.
Local Area Code	Show the current local area code used for identifying different area.
Cell ID	Show the current cell ID used for locating the router.
IMEI	Show the IMEI (International Mobile Equipment Identity) number of the radio module.
Firmware Version	Show the current firmware version of the radio module.

This page allows you to check the AT Debug.

AT Debug		
Item	Description	Default
Command	Enter the AT command that you want to send to cellular module in this text box.	Null
Result	Show the AT command responded by cellular module in this text box.	Null
Send	Click the button to send AT command.	--

3.10 Interface > WiFi

This section allows you to configure the parameters of two WiFi modes. Router supports either WiFi AP mode or Client mode, and default as AP mode.

Note: Need to reboot to make configuration take effect if switching the AP and Client mode.

WiFi AP

Configure Router as WiFi AP

Click **Interface > WiFi > WiFi**, select “AP” as the mode and click “Submit”.

The screenshot shows the WiFi configuration interface with tabs for WiFi, Access Point, ACL, and Status. Under the 'General Settings' section, the 'Mode' dropdown is set to 'AP' and the 'Region' dropdown is set to 'SE'. Both dropdowns have a help icon to their right.

Note: Please remember to click **Save & Apply > Reboot** after finish the configuration, so that the configuration can be took effect.

Click the **Access Point** column to configure the parameters of WiFi AP. By default, the security mode is set as “Disabled”.

The screenshot shows the WiFi configuration interface with tabs for WiFi, Access Point, Advanced, ACL, and Status. Under the 'General Settings' section, the 'Security Mode' dropdown is highlighted with a red box and is set to 'Disabled'. Other settings include: Enable (ON), Band (2.4G), Bandwidth (20MHz), Channel (Auto), SSID (router999), and Broadcast SSID (OFF).

The window is displayed as below when setting “WPA-Personal” as the security mode.

The screenshot shows the WiFi configuration interface with tabs for WiFi, Access Point, Advanced, ACL, and Status. Under the 'General Settings' section, the 'Security Mode' dropdown is highlighted with a red box and is set to 'WPA-Personal'. Other settings include: Enable (ON), Band (2.4G), Bandwidth (20MHz), Channel (Auto), SSID (router999), Broadcast SSID (OFF), WPA Version (Auto), Encryption (Auto), and PSK Password (empty).

The window is displayed as below when setting “WEP-Enterprise” as the security mode.

The screenshot shows the 'General Settings' page for the WiFi access point. The 'Advanced' tab is selected. The 'Security Mode' dropdown menu is highlighted with a red box and is set to 'WPA-Enterprise'. Other settings include: Enable (ON), Band (2.4G), Bandwidth (20MHz), Channel (Auto), SSID (router999), Broadcast SSID (OFF), WPA Version (Auto), Encryption (Auto), Radius Authentication Server Address (empty), Radius Authentication Server Port (1812), and Radius Server Share Secret (empty).

When "WEP" is selected as the security mode, the window is displayed as follows:

The screenshot shows the 'General Settings' page for the WiFi access point. The 'Advanced' tab is selected. The 'Security Mode' dropdown menu is highlighted with a red box and is set to 'WEP'. Other settings include: Enable (ON), Band (2.4G), Bandwidth (20MHz), Channel (Auto), SSID (router999), Broadcast SSID (OFF), WEP Key (empty), and the Radius Authentication Server Address, Port, and Share Secret fields are hidden.

General Settings @ Access Point		
Item	Description	Default
Enable	Click the toggle button to enable/disable the WiFi access point option.	OFF
Band	Choose from “2.4G” or “5G”.	2.4G
Bandwidth	Select from “20MHz”, “40MHz”. 40 MHz channel width provides twice the data rate available over a single 20 MHz channel.	20MHz

General Settings @ Access Point		
Item	Description	Default
Channel	<p>Select the frequency channel, including “Auto”, “1”, “2” “13”.</p> <ul style="list-style-type: none"> • Auto: Router will scan all frequency channels until the best one is found • 1~13: Router will be fixed to work with this channel <p>Following are the frequency of 1~13 channel.</p> <p>1: 2412 MHz 2: 2417 MHz 3: 2422 MHz 4: 2427 MHz 5: 2432 MHz 6: 2437 MHz 7: 2442 MHz 8: 2447 MHz 9: 2452 MHz 10: 2457 MHz 11: 2462 MHz 12: 2467 MHz 13: 2472 MHz</p>	Auto
SSID	Enter the Service Set Identifier, the name of your wireless network. 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. Enter 1 to 32 characters.	router
Broadcast SSID	Click the toggle button to enable/disable the SSID being broadcast. When enabled, the client can scan your SSID. When disabled, the client cannot scan your SSID. If you want to connect to the router AP, you need to manually enter the SSID of router AP at WiFi client side.	ON
Security Mode	<p>Select from “Disabled”, “WPA-Personal” or “WEP-Enterprise”.</p> <ul style="list-style-type: none"> • Disabled: User can access the WiFi without the password when disable security <p>Note: It is strongly recommended for security purposes that you do not choose this kind of mode.</p> <ul style="list-style-type: none"> • WPA-Personal: WiFi access protection, only one password can be provided for identity authentication. • WPA-Enterprise: Wi-Fi secure network protection with RADIUS service. • WEP: Wired Equivalent Privacy provides encryption for wireless device’s data transmission. 	Disabled
WPA Version	<p>Select from “Auto”, “WPA” or “WPA2”.</p> <ul style="list-style-type: none"> • Auto: Router will choose automatically the most suitable WPA version • WPA2 is a stronger security feature than WPA 	Auto

General Settings @ Access Point		
Item	Description	Default
Encryption	Select from "Auto", "TKIP" or "AES". <ul style="list-style-type: none"> Auto: Router will choose automatically the most suitable encryption TKIP: Temporal Key Integrity Protocol (TKIP) encryption uses a wireless connection. TKIP encryption can be used for WPA-PSK and WPA with 802.1x authentication. <p>Note: It's not recommended to use TKIP encryption in 802.11n mode.</p> AES: AES encryption uses a wireless connection. AES can be used for WPA-PSK and WPA with 802.1x authentication. AES is a stronger encryption algorithm than TKIP 	Auto
PSK Password	Enter the Pre share key password. Enter 8 to 63 characters.	Null
Radius Authentication server address	Address used by the RADIUS server.	Null
Radius Authentication server port	Port used by the RADIUS server.	1812
Radius Authentication server shared key	A trusted connection is established between the RADIUS client and the RADIUS server, and the exchange of authentication messages is guaranteed by the shared key.	Null

WiFi
Access Point
Advanced
ACL
Status

^ Advanced Settings

Max Associated Stations

Beacon Interval ?

DTIM Period ?

RTS Threshold ?

Fragmentation Threshold ?

Transmit Rate v

Enable WMM ON OFF

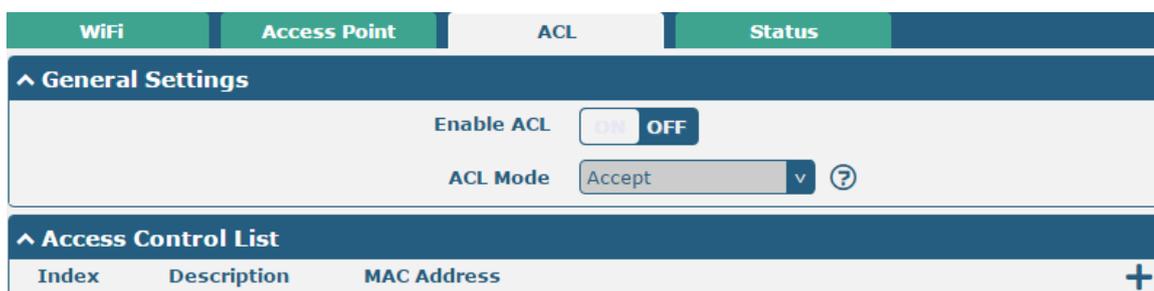
Enable Short GI ON OFF ?

Enable AP Isolation ON OFF ?

Debug Level v

Advanced Settings @Advanced		
Item	Description	Default
Maximum number of access points	Set the maximum number of clients allowed to access the device AP. (A value of 0 means no limit)	64

Advanced Settings @Advanced		
Item	Description	Default
Signal interval	Sets the signal interval for the device AP to broadcast Beacon messages, which is used to declare the existence of a wireless network.	100
DTIM cycle	Set the Delivery Traffic Indication Message period, that is, the period for delivering transmission instruction information. DTIM is used in the power saving mode. Device APs will multicast traffic based on this interval.	2
RTS / CTS threshold	Set the Request To Send threshold, that is, the request to send threshold. When the threshold is set to 2347, the device AP does not send detection signals before sending data; when the threshold is set to 0, the device AP must send detection signals before sending data.	2347
Fragmentation threshold	Set the packet threshold for WiFi AP packets. The recommended default is 2346.	2346
Transmission rate	Data transfer rates can be automated or specified by default. Select from "Auto", "1Mbps", "2Mbps", "5.5Mbps", "6Mbps", "11Mbps", "12Mbps", "18Mbps", "24Mbps", "36Mbps", "48Mbps", or "54Mbps".	Auto
Enable WMM	Click the toggle button to enable/disable the WMM option.	ON
Enable Short GI	Click the toggle button to enable/disable the Short Guard Interval. It is the blank period between two symbols and provides buffer time for signal delay. Using a short guard interval can increase the data rate by 11%, but can also lead to higher packet error rates.	ON
Enable AP isolation	Click the switch button to enable/disable the AP isolation option. When enabled, isolate all connected wireless devices, which cannot be accessed directly through the WLAN.	OFF
Commissioning level	Select debug level. Select from "verbose," "debug," "info," "notice," "warning," or "none."	none



Click **+** to add a MAC address to the Access Control List. The maximum count for MAC address is 64.

ACL

^ Access Control List

Index

Description

MAC Address

ACL		
Item	Description	Default
General Settings		
Enable ACL	Click the toggle button to enable ACL (Access Control List) option.	OFF
ACL Mode	Select from "Accept" or "Deny". <ul style="list-style-type: none"> Accept: 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: Router can only allow or deny devices which are included in "Access Control List" at one time.	Accept
Access Control List		
Index	Indicate the ordinal of the list.	--
Description	Enter a description for this access control list.	Null
MAC Address	Add a MAC address here.	Null

This section allows you to view the status of AP.

WiFi
Access Point
Advanced
ACL
Status

^ AP Status

Status COMPLETED

SSID router999

MAC Address 88:DA:1A:2A:65:9C

^ Associated Stations

Index	MAC Address	IPv4 Address	IPv6 Address	Name	Connected Time
-------	-------------	--------------	--------------	------	----------------

Note: The WiFi function is turned off by default on the router. If you need to use it, please turn on WiFi according to the following steps and configure the router as a WiFi client.

WiFi Client

Configure Router as WiFi client

Click **Interface > WiFi > WiFi**, select “Client” as the mode and click “Submit > Save & Apply”.



The screenshot shows the WiFi configuration interface. At the top, there is a 'WiFi' tab. Below it, the 'General Settings' section is expanded. The 'Mode' dropdown menu is set to 'Client', and the 'Region' dropdown menu is set to 'SE'. Both dropdowns have a question mark icon to the right.

And then a “WLAN” column will appear under the Interface list.



The screenshot shows the router's interface list. On the left, there is a sidebar with 'Status' and 'Interface' sections. Under 'Interface', there are links for 'Link Manager', 'LAN', 'Ethernet', 'Cellular', 'WiFi', and 'WLAN'. The 'WLAN' link is highlighted with a red box. On the right, the 'WiFi' configuration page is visible, showing the 'General Settings' section with 'Mode' set to 'Client' and 'Region' set to 'SE'.

Click **Interface > Link Manager > Link Settings**, and click the edit button of WLAN, then configure the related parameters of WLAN.



The screenshot shows the WLAN Settings page. The 'SSID' field is set to 'router'. The 'Connect to Hidden SSID' toggle is set to 'OFF'. The 'Password' field is empty.

Click **Interface > WLAN** to configure the parameters of WiFi Client after setting the mode as Client. Please remember to click **Save & Apply > Reboot** after finish the configuration, so that the configuration can be took effect.

Status
?

^ WLAN Status

IPv4 Status Connected

IPv6 Status Connected

Uptime 0 days, 02:01:19

IPv4 Address 192.168.0.87/255.255.255.0

IPv4 Gateway 192.168.0.1

IPv4 DNS 192.168.0.1

IPv6 Address 2821:da8:202:10:8ada:1aff:fe2a:659c/64

IPv6 Gateway fe80::36fa:40ff:fe18:68a8

IPv6 DNS fe80::36fa:40ff:fe18:68a8

MAC Address 88:da:1a:2a:65:9c

^ Link Status

Signal -9 dBm

TX Bitrate 65.0 MBit/s MCS 7

TX 15352 bytes (193 packets)

RX 40436 bytes (371 packets)

^ WPA Status

WPA State COMPLETED

Frequency 2472

BSSID 88:da:1a:2a:65:7c

SSID router888

Mode station

Key Management NONE

Pairwise Cipher NONE

Group Cipher NONE

^ Scan Results
... ?

Index	SSID	MAC Address	Frequency	Signal
1	router888	88:DA:1A:2A:65:7C	2472	-37 dBm

This window allows you to scan for all the available SSIDs in your area and click one of those shown on the “Scan Results” list.

^ Scan Results
... ?

Index	SSID	MAC Address	Frequency	Signal
-------	------	-------------	-----------	--------

^ Scan Results				
Index	SSID	MAC Address	Frequency	Signal
1	Robustel-312-1	04:92:26:C7:3F:A8	2412	-63 dBm
2	Robustel-311	34:FA:40:07:D5:A2	2437	-67 dBm
3	mt7603e	34:FA:40:04:83:CA	2412	-73 dBm
4	AndroidAP	10:D0:7A:C4:54:EB	2437	-70 dBm
5	ChinaNet-Qg7u	CC:90:E8:1B:34:23	2467	-78 dBm
6	\x00\x00\x00\x00\x00\x00...	\X00\X00\X00\X00...		\X00\X00 ...
7	ChinaNet-2.4G-F411	EC:8C:9A:B9:89:24	2462	-87 dBm
8	TP-LINK_041101	74:05:A5:51:29:A0	2437	-82 dBm
9	ChinaNet-TVYP	F0:92:B4:92:5C:69	2437	-78 dBm
10	ChinaNet-56o5	C8:50:E0:E3:65:AE	2462	-85 dBm
11	HP-Print-00-LaserJet Pro	94:53:30:5A:51:E5	2437	-80 dBm
12	ChinaNet-6dfh	5C:09:79:4F:9F:F8	2457	-86 dBm
13	huxin	A8:0C:63:17:0A:F4	2412	-88 dBm
14	xiaofan	D8:C7:71:17:19:5C	2437	-86 dBm
15	router2g1	34:FA:40:07:CB:9B	2472	-46 dBm

3.11 Interface > USB

This section allows you to set the USB parameters. The USB interface of the router can be used for firmware upgrade and configuration upgrade.

USB
Key

^ General Settings

Enable USB ON OFF

Enable Automatic Firmware Updating ON OFF

USB
Key

^ Key

USB Automatic Upgrade Key

General Settings @ USB		
Item	Description	Default
Enable USB	Click the toggle button to enable/disable the USB option.	ON
Enable Automatic Firmware Updating	Click the toggle button to enable/disable this option. Enable to automatically update the firmware of the router when inserting a USB storage device with a router firmware.	ON
Key		
USB Automatic Update Key	Click Generate to generate a key. It is used to verify the key file in the U disk. If it is consistent, it can be upgrade d.	--

3.12 Interface > DI/DO

This section allows you to set the DI/DO parameters. Digital Input and Digital Output are the specific interfaces for R3000. The DI interface can be used for triggering alarm, while the DO can be used for controlling the slave device so as to realize real-time monitoring.

DI

DI	DO	Status		
^ DI Settings				
Index	Enable	Mode	Inversion	
1	false	ON-OFF	false	
2	false	ON-OFF	false	

Click the right-most button of index 1 as below. The default mode is “ON-OFF”.

The window is displayed as below when choosing “Counter” as the mode.

General Settings @ DI		
Item	Description	Default
Index	Indicate the ordinal of the list.	--
Enable	Click the toggle button to enable/disable this DI.	OFF
Mode	Select from "ON-OFF" or "Counter". <ul style="list-style-type: none"> ON-OFF: DI interface support ON and OFF mode (high or low level electrical) trigger DI alarm. The mode default to ON, and OFF mode is available only when enabling the inversion feature <p>ON—Under this mode, DI alarm status will be triggered to ON when DI interface open from GND or input a high level electrical (logic 1), on the contrary DI alarm status will be triggered to OFF when DI interface connect to GND or input a low level electrical (logic 0)</p> <p>OFF—Under this mode, DI alarm status will be triggered to ON when DI interface connect to GND or input a low level electrical (logic 0), on the contrary DI alarm status will be triggered to OFF when DI interface open from GND or input a high level electrical (logic 1)</p> Counter: Event counter mode 	ON-OFF
Inversion	Click the toggle button to enable/disable this option. Enable to set DI mode as OFF mode.	OFF
Threshold Value	Set the threshold vale. It will trigger alarm when event counter reaches this figure. After triggering alarm, DI will keep counting but not trigger alarm again. Enter 0 to 65535 digits. (0=will not trigger alarm) Note: This option is only available when DI under the "Counter" mode.	Null
Alarm On Content	When the alarm is on, show its content.	Alarm On
Alarm Off Content	When the alarm is off, show its content.	Alarm Off

Note: It defaults as high alarm, while turns to low alarm after enabling the "Inversion" button.

DO

DI	DO	Status			
^ DO Settings					
Index	Enable	Alarm On Action	Alarm Off Action	Initial State	Alarm Source
1	false	High	Low	Last	DI1 Alarm
2	false	High	Low	Last	DI1 Alarm

Click to enter the DO configuration window.

DO

^ General Settings

Index	<input type="text" value="1"/>
Enable	<input type="checkbox"/> ON <input checked="" type="checkbox"/> OFF
Alarm On Action	<input type="text" value="High"/> v
Alarm Off Action	<input type="text" value="Low"/> v
Initial State	<input type="text" value="Last"/> v
Delay	<input type="text" value="0"/> ?
Hold Time	<input type="text" value="0"/> ?
Alarm Source	<input type="text" value="DI1 Alarm"/> v

The window is displayed as below when choosing “Pulse” as the alarm on action.

DO

^ General Settings

Index	<input type="text" value="1"/>
Enable	<input type="checkbox"/> ON <input checked="" type="checkbox"/> OFF
Alarm On Action	<input type="text" value="Pulse"/> v
Alarm Off Action	<input type="text" value="Low"/> v
Initial State	<input type="text" value="Last"/> v
Delay	<input type="text" value="0"/> ?
Hold Time	<input type="text" value="0"/> ?
Low-level Width	<input type="text" value="10"/> ?
High-level Width	<input type="text" value="10"/> ?
Alarm Source	<input type="text" value="DI1 Alarm"/> v

The window is displayed as below when choosing “Pulse” as the alarm off action.

DO

^ General Settings

Index

Enable ON OFF

Alarm On Action v

Alarm Off Action v

Initial State v

Delay ?

Hold Time ?

Low-level Width ?

High-level Width ?

Alarm Source v

DO		
Item	Description	Default
Index	Indicate the ordinal of the list.	--
Enable	Click the toggle button to enable/disable this DO.	OFF
Alarm On Action	Digital Output initiates when there is an alarm. Selected from “High”, “Low” or “Pulse”. <ul style="list-style-type: none"> High: a high electrical level output Low: a low electrical level output Pulse: Generates a square wave as specified in the pulse mode parameters when triggered 	High
Alarm Off Action	Digital Output initiates when alarm removed. Selected from “High”, “Low” or “Pulse”. <ul style="list-style-type: none"> High: a high electrical level output Low: a low electrical level output Pulse: Generates a square wave as specified in the pulse mode parameters when triggered 	Low
Initial State	Specify the Digital Output status when powered on. Selected from “Last”, “High” or “Low”. <ul style="list-style-type: none"> Last: DO’s status will consist with the status of last power off High: DO interface is in high electrical level Low: DO interface is in low electrical level 	Low
Delay	Set the delay time for DO alarm start-up. The first pulse will be generated after a “Delay”. Enter from 0 to 30000ms. (0=generate pulse without delay)	0
Hold Time	Set the hold time of DO status (Alarm On Action/Alarm Off Action). When the action time reach this specified time, DO will stop the action. Enter from 0 to 255 seconds. (0=keep on until the next action)	0
Low-level Width	Set the low-level width. It is available when enabling Pulse as “Alarm On Action/Alarm Off Action”. In Pulse Output mode, the selected digital output channel will generate a	10

DO		
Item	Description	Default
	square wave as specified in the pulse mode parameters. The low level widths are specified here. Enter from 1 to 30000 ms.	
High-level Width	Set the high-level width. It is available when enabling Pulse as “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. Enter from 1 to 30000 ms.	10
Alarm Source	Digital Output initiates according to different alarm source. Selected from “DI1 Alarm”, “DI2 Alarm”. DI1/DI2 Alarm: Digital Output triggers the related action when there is alarm from Digital Input.	DI1 Alarm

Status

This window allows you to view the status of DO and DI interface. It also can clear the counter alarm of DI in here. Click **Clear** button to clear DI1 or DI2 monthly usage statistics info for counter alarm.

DI
DO
Status

^ DI Status

Index	Level	Status	Count
1	High	Alarm off	
2	High	Alarm off	

^ Action Of Clear

Counter Alarm Of DI 1 **Clear**

Counter Alarm Of DI 2 **Clear**

^ DO Status

Index	Level	Low-level Width	High-level Width
1	Low		
2	Low		

^ DO Control

Level Of DO1 **Toggle**

Level Of DO2 **Toggle**

3.13 Interface > Serial Port

This section allows you to set the serial port parameters. R3000 Router supports one COM1 and one COM2, also can be configured as either two COM1 or two COM2.

Serial Port		Status		
Serial Port Settings				
Index	Port	Enable	Baud Rate	Application Mode
1	COM1	false	115200	Transparent
2	COM2	false	115200	Transparent

Click the button on the most right of COM1, the pop-up window is as follows:

Serial Port

Serial Port Application Settings

Index

Port

Enable ON OFF

Baud Rate

Data Bits

Stop Bits

Parity

Flow Control

Data Packing

Packing Timeout ?

Packing Length

Server Setting

Application Mode

Protocol

Server Address

Server Port

- The window is displayed as below when choosing “Transparent” as the application mode and “TCP Client” as the protocol.

Server Setting

Application Mode

Protocol

Server Address

Server Port

The window is displayed as below when choosing “Transparent” as the application mode and “TCP Server” as the protocol.

^ Server Setting

Application Mode	<input style="width: 90%;" type="text" value="Transparent"/> v
Protocol	<input style="width: 90%;" type="text" value="TCP Server"/> v
Local IP	<input style="width: 90%;" type="text"/>
Local Port	<input style="width: 90%;" type="text"/>

The window is displayed as below when choosing “Transparent” as the application mode and “UDP” as the protocol.

^ Server Setting

Application Mode	<input style="width: 90%;" type="text" value="Transparent"/> v
Protocol	<input style="width: 90%;" type="text" value="UDP"/> v
Local IP	<input style="width: 90%;" type="text"/>
Local Port	<input style="width: 90%;" type="text"/>
Server Address	<input style="width: 90%;" type="text"/>
Server Port	<input style="width: 90%;" type="text"/>

- The window is displayed as below when choosing “Modbus RTU Gateway” as the application mode and “TCP Client” as the protocol.

^ Server Setting

Application Mode	<input style="width: 90%;" type="text" value="Modbus RTU Gateway"/> v
Protocol	<input style="width: 90%;" type="text" value="TCP Client"/> v
Server Address	<input style="width: 90%;" type="text"/>
Server Port	<input style="width: 90%;" type="text"/>

The window is displayed as below when choosing “Modbus RTU Gateway” as the application mode and “TCP Server” as the protocol.

^ Server Setting

Application Mode	<input style="width: 90%;" type="text" value="Modbus RTU Gateway"/> v
Protocol	<input style="width: 90%;" type="text" value="TCP Server"/> v
Local IP	<input style="width: 90%;" type="text"/>
Local Port	<input style="width: 90%;" type="text"/>

The window is displayed as below when choosing “Modbus RTU Gateway” as the application mode and “UDP” as the protocol.

^ **Server Setting**

Application Mode

Protocol

Local IP

Local Port

Server Address

Server Port

Serial Port		
Item	Description	Default
Serial Port Application Settings		
Index	Indicate the ordinal of the list.	--
Port	Show the current serial's name, read only.	--
Enable	Click the toggle button to enable/disable this serial port. When the status is OFF, the serial port is not available.	OFF
Baud Rate	Select from "300", "600", "1200", "2400", "4800", "9600", "19200", "38400", "57600", "115200" or "230400".	115200
Data Bits	Select from "7" or "8".	8
Stop Bits	Select from "1" or "2".	1
Parity	Select from "None", "Odd" or "Even".	None
Flow control	Select from "None", "Software" or "Hardware".	None
Data Packing		
Packing Timeout	Set the packing timeout. 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 even when data is not reaching the interval timeout in the field.	50
Packing Length	Set the packet length. The Packet length setting refers to the maximum amount of data that is allowed to accumulate in the serial port buffer before sending. When a packet length between 1 and 3000 bytes is specified, data in the buffer will be sent as soon it reaches the specified length.	1200
Server Settings		
Application Mode	Select from "Transparent" or "Modbus RTU Gateway". <ul style="list-style-type: none"> Transparent: Router will transmit the serial data transparently Modbus RTU Gateway: Router will translate the Modbus RTU data to Modbus TCP data and sent out, and vice versa 	Transparent
Protocol	Select from "TCP Client", "TCP Server" and "UDP" . <ul style="list-style-type: none"> 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 Robustlink: Router will automatically upload the serial data to Robustlink 	TCP Client

Serial Port		
Item	Description	Default
Serial Port Application Settings		
Index	Indicate the ordinal of the list.	--
	platform under the Robustlink protocol. Robustlink is a management platform from Robustel. This function only available when Router is connects to Robustlink	
Server Address	Enter the address of server which will receive the data sent from router's serial port. IP address or domain name will be available.	Null
Server Port	Enter the specified port of server which is used for receiving the serial data.	Null
Local IP @ Transparent	Enter router's LAN IP which will forward to the internet port of router.	Null
Local Port @ Transparent	Enter the port of router's LAN IP.	Null
Local IP @ Modbus	Enter the local IP of under Modbus mode.	Null
Local Port @ Modbus	Enter the local port of under Modbus mode.	Null

Click the "Status" column to view the current serial port type.

Serial Port		Status
^ Serial Port Status list		
Index	Type	Connection Status
1	RS232	0B
2	RS485	0B

3.14 Network > Route

This section allows you to set the static route. Static route is a form of routing that occurs when a router uses a manually-configured routing entry, rather than information from a dynamic routing traffic. Route Information Protocol (RIP) is widely used in small network with stable use rate. Open Shortest Path First (OSPF) is made router within a single autonomous system and used in large network.

Static Route

Static Route		Status				
^ Static Route Table						
Index	Description	Destination	Netmask	Gateway	Interface	+

Click + to add static route. The maximum count is 20.

Static Route

^ **Static Route**

Index	<input type="text" value="1"/>
Description	<input type="text"/>
Destination	<input type="text"/>
Netmask	<input type="text"/>
Gateway	<input type="text"/>
Interface	<input type="text" value="wwan"/> v

Static Route		
Item	Description	Default
Index	Indicate the ordinal of the list.	--
Description	Enter a description for this route.	Null
Destination	Enter the IP address of destination host or destination network.	Null
Netmask/IPv6 address Prefix Length	Enter the Netmask of destination host or destination network.	Null
Gateway	Define the gateway of the destination.	Null
Interface	Choose the corresponding port of the link that you want to configure.	wwan1

Status

This window allows you to view the status of route.

Static Route		Status			
^ Route Table					
Index	Destination	Netmask/Prefix Length	Gateway	Interface	Metric
1	0.0.0.0	0.0.0.0	10.37.98.230	wwan	0
2	10.37.98.228	255.255.255.252	0.0.0.0	wwan	0
3	192.168.2.0	255.255.255.0	0.0.0.0	lan0	0
4	2408:84f3:1034:9...	64	::	wwan	256
5	2521:da8:202:10::	64	::	lan0	256
6	fe80::	64	::	lan0	256
7	fe80::	64	::	eth1	256
8	fe80::	64	::	wwan	256
9	::	0	fe80::4e54:99ff:fe...	wwan	1024
10	ff02::1	128	::	lan0	0
11	ff02::1:ff1f:0	128	::	wwan	0
12	ff00::	8	::	lan0	256
13	ff00::	8	::	eth1	256
14	ff00::	8	::	wwan	256

3.15 Network > Firewall

This section allows you to set the firewall and its related parameters, including Filtering, Port Mapping and DMZ.

Filtering

The filtering rules can be used to either accept or block certain users or ports from accessing your router.

Filtering
Port Mapping
Custom Rules
DMZ
Status

^ General Settings

Enable Filtering ON OFF

Default Filtering Policy v ?

^ Access Control Settings

Enable Remote SSH Access ON OFF

Enable Local SSH Access ON OFF

Enable Remote Telnet Access ON OFF

Enable Local Telnet Access ON OFF

Enable Remote HTTP Access ON OFF

Enable Local HTTP Access ON OFF

Enable Remote HTTPS Access ON OFF

Enable Remote Ping Respond ON OFF ?

Enable DOS Defending ON OFF

Enable Console ON OFF ?

Enable VPN NAT Traversal ON OFF ?

^ Whitelist Rules ?

Index	Description	Source Address	+

^ Filtering Rules

Index	Source Address	Source Port	Source MAC	Target Address	Target Port	Protocol	+

Click + to add whitelist:

Filtering

^ Whitelist Rules

Index

Description

Source Address ?

Click + to add filtering rule, the maximum count is 50. The window is displayed as below when defaulting "All" or choosing "ICMPv6" or "ICMPv6" as the protocol. Here take "All" as an example.

Filtering

^ Filtering Rules

Index	<input type="text" value="1"/>
Description	<input type="text"/>
Source Address	<input type="text"/> ?
Source MAC	<input type="text"/> ?
Target Address	<input type="text"/> ?
Protocol	<input type="text" value="All"/> v
Action	<input type="text" value="Drop"/> v

The window is displayed as below when choosing “TCP”, “UDP” or “TCP-UDP” as the protocol. Here take “TCP” as an example.

^ Filtering Rules

Index	<input type="text" value="1"/>
Description	<input type="text"/>
Source Address	<input type="text"/> ?
Source Port	<input type="text"/> ?
Source MAC	<input type="text"/> ?
Target Address	<input type="text"/> ?
Target Port	<input type="text"/> ?
Protocol	<input type="text" value="TCP"/> v
Action	<input type="text" value="Drop"/> v

Filtering		
Item	Description	Default
General Settings		
Enable Filtering	Click the toggle button to enable/disable the filtering option.	ON
Default Filtering Policy	Select from “Accept” or “Drop”. Cannot be changed when filtering rules table is not empty. <ul style="list-style-type: none"> Accept: Router will accept all the connecting requests except the hosts which fit the drop filter list Drop: Router will drop all the connecting requests except the hosts which fit the accept filter list 	Accept
Access Control Settings		
Enable Remote SSH Access	Click the toggle button to enable/disable this option. When enabled, the Internet user can access the router remotely via SSH.	OFF
Enable Local SSH Access	Click the toggle button to enable/disable this option. When enabled, the LAN user can access the router locally via SSH.	ON

Filtering		
Item	Description	Default
Enable Remote Telnet Access	Click the toggle button to enable/disable this option. When enabled, the Internet user can access the router remotely via Telnet.	OFF
Enable Local Telnet Access	Click the toggle button to enable/disable this option. When enabled, the LAN user can access the router locally via Telnet.	ON
Enable Remote HTTP Access	Click the toggle button to enable/disable this option. When enabled, the Internet user can access the router remotely via HTTP.	OFF
Enable Local HTTP Access	Click the toggle button to enable/disable this option. When enabled, the LAN user can access the router locally via HTTP.	ON
Enable Remote HTTPS Access	Click the toggle button to enable/disable this option. When enabled, the Internet user can access the router remotely via HTTPS.	ON
Enable Remote Ping Respond	Click the toggle button to enable/disable this option. When enabled, the router will reply to the Ping requests from other hosts on the Internet.	ON
Enable DOS Defending	Click the toggle button to enable/disable this option. When enabled, the router will defend the DOS. Dos attack is an attempt to make a machine or network resource unavailable to its intended users.	ON
Enable Console	Click the toggle button to enable/disable this option.	ON
Enable vpn nat traversal	Click the toggle button to enable / disable this option. When enabled, enable NAT traversal for GRE / L2TP / PPTP VPN packets.	OFF
whitelist		
Index	Indicate the ordinal of the list.	--
Description	Enter a description for this whitelist.	Null
Source Address	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
Filtering Rules		
Item	Description	Default
Index	Indicate the ordinal of the list.	--
Description	Enter a description for this filtering rule.	Null
Source Address	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	Specify an access originator and enter its source port.	Null
Source MAC	Enter the MAC address of the defined source IP address.	Null
Target Address	Defines if access is allowed to one or a range of IP addresses which are defined by Target IP Address, or every IP addresses.	Null
Target Port	Enter the target port which the access originator wants to access.	Null
Protocol	Select from "All", "TCP", "UDP", "ICMP" or "TCP-UDP". Note: It is recommended that you choose "All" if you don't know which protocol of your application to use.	All

Filtering		
Item	Description	Default
Action	Select from "Accept" or "Drop". <ul style="list-style-type: none"> Accept: When Default Filtering Policy is drop, router will drop all the connecting requests except the hosts which fit this accept filtering list Drop: When Default Filtering Policy is accept, router will accept all the connecting requests except the hosts which fit this drop filtering list 	Drop

Port Mapping

Filtering	Port Mapping	Custom Rules	DMZ	Status		
^ Port Mapping Rules						
Index	Description	Internet Port	Local IP	Local Port	Protocol	+

Click **+** to add port mapping rules. The maximum rule count is 40.

Port Mapping

^ Port Mapping Rules

Index:

Description:

Remote IP: ?

Internet Port: ?

Local IP:

Local Port: ?

Protocol: v

Port Mapping Rules		
Item	Description	Default
Index	Indicate the ordinal of the list.	--
Description	Enter a description for this port mapping.	Null
Remote IP	Specify the host or network which can access to the local IP address. Empty means unlimited. e.g. 10.10.10.10/255.255.255.255 or 192.168.1.0/24	Null
Internet Port	Set the internet port of router which can be accessed by other hosts from internet.	Null
Local IP	Enter router's LAN IP which will forward to the internet port of router.	Null
Local Port	Enter the port of router's LAN IP.	Null
Protocol	Select from "TCP", "UDP" or "TCP-UDP" as your application required.	TCP-UDP

Custom Rules

Custom rules, that is, rules that you define yourself. Click Network> Firewall> Custom Rule and is displayed as follows:

Click **+** to add an IPv4 or IPv6 custom rule, the window is displayed as follows (take "IPv4" as an example):

Custom Iptables Rule		
Item	Description	Default
Index	Indicate the ordinal of the list.	--
Description	Enter the description of the rule.	Null
Rule	Specify one Iptables rule.	Null

DMZ

DMZ Settings		
Item	Description	Default
Enable DMZ	Click the toggle button to enable/disable DMZ. DMZ host is a host on the internal network that has all ports exposed, except those ports otherwise forwarded.	OFF
Host IP Address	Enter the IP address of the DMZ host on your internal network.	Null
Source IP Address	Set the address which can talk to the DMZ host. 0.0.0.0 means for any addresses.	Null

Status

Filtering	Port Mapping	Custom Rules	DMZ	Status			
^ Chain Input							
Index	Packets	Target	Protocol	In	Out	Source	Destination
1	0	REJECT	tcp	*	*	0.0.0.0/0	0.0.0.0/0
2	52	ACCEPT	tcp	*	*	0.0.0.0/0	0.0.0.0/0
3	0	DROP	tcp	*	*	0.0.0.0/0	0.0.0.0/0
4	0	ACCEPT	tcp	*	*	0.0.0.0/0	0.0.0.0/0
5	0	DROP	tcp	*	*	0.0.0.0/0	0.0.0.0/0
6	0	ACCEPT	icmp	*	*	0.0.0.0/0	0.0.0.0/0
7	0	DROP	icmp	*	*	0.0.0.0/0	0.0.0.0/0
^ Chain Forward							
Index	Packets	Target	Protocol	In	Out	Source	Destination
1	0	TCPMSS	tcp	*	*	0.0.0.0/0	0.0.0.0/0
^ Chain Output							
Index	Packets	Target	Protocol	In	Out	Source	Destination

3.16 Network > IP Passthrough

Click **Network > IP Passthrough > IP Passthrough** to enable or disable the IP Pass-through option.

IP Passthrough

^ General Settings

Enable **OFF**

If router enables the IP Pass-through, the terminal device (such as PC) will enable the DHCP Client mode and connect to LAN port of the router; and after the router dial up successfully, the PC will automatically obtain the IP address and DNS server address which assigned by ISP.

3.17 VPN > IPsec

IPsec (Internet Protocol Security) is a protocol built on the Internet protocol layer that enables two hosts to communicate in a secure manner. IPsec is the direction of secure networking. It provides active protection from end-to-end security to prevent attacks from private networks and the Internet.

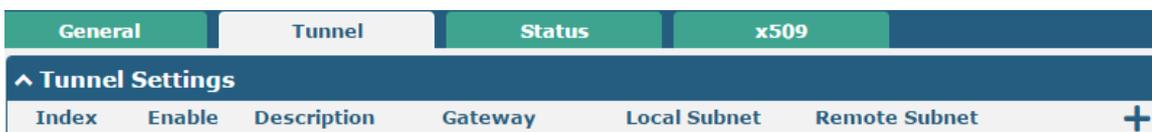
Click **Virtual Private Network> IPsec> General** to set IPsec parameters.



General

General Settings @ General		
Item	Description	Default
Survival time	Set the survival time in seconds. The router sends keep-alive packets to a NAT (Network Address Translation) server at regular intervals to prevent the records on the NAT table from disappearing.	20
Optimize DH index size	Click the toggle button to enable / disable this option. When enabled, when using dhgroup17 or dhgroup18, it helps to shorten the time to generate dh keys.	OFF
Debug Enable	Click the toggle button to enable/disable this option. Enable for IPsec VPN information output to the debug port.	OFF

Tunnel



Click **+** to add tunnel settings. The maximum count is 3.

Tunnel

^ **General Settings**

Index

Enable ON OFF

Description

Gateway ?

Mode v

Protocol v

Local Subnet ?

Remote Subnet ?

Link Binding v ?

General Settings @ Tunnel		
Item	Description	Default
Index	Indicate the ordinal of the list.	--
Enable	Click the toggle button to enable/disable this IPsec tunnel.	ON
Description	Enter a description for this IPsec tunnel.	Null
Gateway	Enter the address or domain name of remote side IPsec VPN server.0.0.0.0 represents for any address.	Null
Mode	Select from "Tunnel" and "Transport". <ul style="list-style-type: none"> • 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
Protocol	Select the security protocols from "ESP" and "AH". <ul style="list-style-type: none"> • ESP: Use the ESP protocol • AH: Use the AH protocol 	ESP
Local Subnet	Enter the local subnet's address with mask protected by IPsec, e.g. 192.168.1.0/24	Null
Remote Subnet	Enter the remote subnet's address with mask protected by IPsec, e.g. 10.8.0.0/24	Null
Link binding	Select from WWAN1, WWAN2, WAN, or WLAN.	Not bound

The window is displayed as below when choosing "PSK" as the authentication type.

^ IKE Settings

IKE Type	IKEv1	v
Negotiation Mode	Main	v
Encryption Algorithm	3DES	v
Authentication Algorithm	SHA1	v
IKE DH Group	DHgroup2	v
Authentication Type	PSK	v
PSK Secret		
Local ID Type	Default	v
Remote ID Type	Default	v
IKE Lifetime	86400	?

The window is displayed as below when choosing “CA” as the authentication type.

^ IKE Settings

IKE Type	IKEv1	v
Negotiation Mode	Main	v
Encryption Algorithm	3DES	v
Authentication Algorithm	SHA1	v
IKE DH Group	DHgroup2	v
Authentication Type	CA	v
Private Key Password		
IKE Lifetime	86400	?

The window is displayed as below when choosing “PKCS#12” as the authentication type.

^ IKE Settings

IKE Type	IKEv1	v
Negotiation Mode	Main	v
Encryption Algorithm	3DES	v
Authentication Algorithm	SHA1	v
IKE DH Group	DHgroup2	v
Authentication Type	PKCS#12	v
Private Key Password		
IKE Lifetime	86400	?

The window is displayed as below when choosing “xAuth PSK” as the authentication type.

^ IKE Settings

IKE Type	<input type="text" value="IKEv1"/>	▼
Negotiation Mode	<input type="text" value="Main"/>	▼
Encryption Algorithm	<input type="text" value="3DES"/>	▼
Authentication Algorithm	<input type="text" value="SHA1"/>	▼
IKE DH Group	<input type="text" value="DHgroup2"/>	▼
Authentication Type	<input type="text" value="xAuth PSK"/>	▼
PSK Secret	<input type="text"/>	
Local ID Type	<input type="text" value="Default"/>	▼
Remote ID Type	<input type="text" value="Default"/>	▼
Username	<input type="text"/>	?
Password	<input type="text"/>	?
IKE Lifetime	<input type="text" value="86400"/>	?

The window is displayed as below when choosing “xAuth CA” as the authentication type.

^ IKE Settings

IKE Type	<input type="text" value="IKEv1"/>	▼
Negotiation Mode	<input type="text" value="Main"/>	▼
Encryption Algorithm	<input type="text" value="3DES"/>	▼
Authentication Algorithm	<input type="text" value="SHA1"/>	▼
IKE DH Group	<input type="text" value="DHgroup2"/>	▼
Authentication Type	<input type="text" value="xAuth CA"/>	▼
Private Key Password	<input type="text"/>	
Username	<input type="text"/>	?
Password	<input type="text"/>	?
IKE Lifetime	<input type="text" value="86400"/>	?

IKE Settings		
Item	Description	Default
IKE Type	Select from IKE v1 and IKE v2.	IKE v1
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
Authentication Algorithm	Select from “MD5”, “SHA1”, “SHA2 256” or “SHA2 512” to be used in IKE negotiation.	SHA1
Encryption Algorithm	Select from “3DES”, “AES128”, “AES192” and “AES256” to be used in IKE	3DES

IKE Settings		
Item	Description	Default
	negotiation. <ul style="list-style-type: none"> • 3DES: Use 168-bit 3DES encryption algorithm in CBC mode • AES128: Use 128-bit AES encryption algorithm in CBC mode • AES256: Use 256-bit AES encryption algorithm in CBC mode 	
IKE DH Group	Select DH packets for IKE (Network Key Exchange) negotiation. Select from "DHgroup1", "DHgroup2", "DHgroup5", "DHgroup14", "DHgroup15", "DHgroup16", "DHgroup17" or "DHgroup18" to be used in key negotiation phase 1.	DHgroup2
Authentication Type	Select from "PSK", "CA", "PKCS#12", "xAuth PSK" and "xAuth CA" to be used in IKE negotiation. <ul style="list-style-type: none"> • PSK: Pre-shared Key • CA: Certification Authority • xAuth: Extended Authentication to AAA server 	PSK
PSK Secret	Enter the pre-shared key.	Null
Local ID Type	Select from "Default", "FQDN" and "User FQDN" for IKE negotiation. <ul style="list-style-type: none"> • Default: 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
Remote ID Type	Select from "Default", "FQDN" and "User FQDN" for IKE negotiation. <ul style="list-style-type: none"> • Default: 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
Private Key Password	Enter the private key under the "CA" and "xAuth CA" authentication types.	Null
Username	Enter the username used for the "xAuth PSK" and "xAuth CA" authentication types.	Null
Password	Enter the password used for the "xAuth PSK" and "xAuth CA" authentication types.	Null
IKE Lifetime	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

If click **VPN > IPsec > Tunnel > General Settings**, and choose **ESP** as protocol. The specific parameter configuration is shown as below.

^ SA Settings

Encrypt Algorithm	<input type="text" value="3DES"/>	v
Authentication Algorithm	<input type="text" value="MD5"/>	v
PFS Group	<input type="text" value="DHgroup2"/>	v
SA Lifetime	<input type="text" value="28800"/>	?
DPD Interval	<input type="text" value="60"/>	?
DPD Failures	<input type="text" value="180"/>	?

^ General Settings

Index	<input type="text" value="1"/>
Enable	<input checked="" type="checkbox"/> ON <input type="checkbox"/> OFF
Description	<input type="text"/>
Gateway	<input type="text"/> ?
Mode	<input type="text" value="Tunnel"/> v
Protocol	<input type="text" value="ESP"/> v
Local Subnet	<input type="text"/> ?
Remote Subnet	<input type="text"/> ?
Link Binding	<input type="text" value="Unspecified"/> v ?

^ IKE Settings

^ SA Settings

Encryption Algorithm	<input type="text" value="3DES"/>	v
Authentication Algorithm	<input type="text" value="SHA1"/>	v
PFS Group	<input type="text" value="DHgroup2"/>	v
SA Lifetime	<input type="text" value="28800"/>	?
DPD Interval	<input type="text" value="30"/>	?
DPD Failures	<input type="text" value="150"/>	?

If choose **AH** as protocol, the window of SA Settings is displayed as below.

^ **General Settings**

Index

Enable ON OFF

Description

Gateway ?

Mode v

Protocol v

Local Subnet ?

Remote Subnet ?

Link Binding v ?

v **IKE Settings**

^ **SA Settings**

Authentication Algorithm v

PFS Group v

SA Lifetime ?

DPD Interval ?

DPD Failures ?

^ **Advanced Settings**

Enable Compression ON OFF

Enable Forceencaps ON OFF ?

Expert Options ?

SA Settings		
Item	Description	Default
Encrypt Algorithm	Select from "3DES", "AES128" or "AES256" when you select "ESP" in "Protocol". 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
Authentication Algorithm	Select from "MD5", "SHA1", "SHA2 256" or "SHA2 512" to be used in SA negotiation.	MD5
PFS Group	Select from "PFS (N/A)", "DHgroup1", "DHgroup2", "DHgroup5", "DHgroup14", "DHgroup15", "DHgroup16", "DHgroup17" or "DHgroup18" to be used in SA negotiation.	DHgroup2
SA Lifetime	Set the IPsec SA lifetime. When negotiating to set up IPsec SAs, IKE uses the smaller one between the lifetime set locally and the lifetime proposed by the peer.	28800

SA Settings		
Item	Description	Default
DPD Interval	Set the interval after which DPD is triggered if no IPsec protected packets is received from the peer. DPD is a 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 Failures	Set the timeout of DPD (Dead Peer Detection) packets.	180
Advanced Settings		
Enable Compression	Click the toggle button to enable/disable this option. Enable to compress the inner headers of IP packets.	OFF
Enable Forced Encapsulation	Click the toggle button to enable / disable this option. After it is enabled, even if no NAT condition is detected, the UDP encapsulation of esp packets is forced. This may help overcome restrictive firewalls.	OFF
Expert Options	Add more PPP configuration options here, format: config-desc;config-desc, e.g. protostack=netkey;plutodebug=none	Null

Status

This section allows you to view the status of the IPsec tunnel.

General	Tunnel	Status	x509
^ IPsec Tunnel Status			
Index	Description	Status	Uptime

x509

User can upload the X509 certificates for the IPsec tunnel in this section.

General	Tunnel	Status	x509
^ X509 Settings			
Tunnel Name	Tunnel 1 v		
Local Certificate	Choose File	No file chosen	+
Remote Certificate	Choose File	No file chosen	+
Private Key	Choose File	No file chosen	+
CA Certificate	Choose File	No file chosen	+
PKCS#12 Certificate	Choose File	No file chosen	+
^ Certificate Files			
Index	File Name	File Size	Modification Time

x509		
Item	Description	Default
X509 Settings		
Tunnel Name	Choose a valid tunnel.	Tunnel 1
Local Certificate	Click on “Choose File” to upload a local certificate file from your computer, and then import this file into your router. The correct file format is displayed as follows: @ca.crt @remote.crt @local.crt @private.key @crl.pem	Null
Remote Certificate	Click on “Choose File” to upload a remote certificate file from your computer, and then import this file into your router.	Null
Private Key	Select the correct private key file to import into the router.	Null
Root certificate	Select the root certificate file to import into the router.	--
PKCS # 12 certificate	Select the PKCS # 12 certificate file to import into the router.	--
Certificate Files		
Index	Indicate the ordinal of the list.	--
File Name	Show the imported certificate’s name.	Null
File Size	Show the size of the certificate file.	Null
Modification Time	Show the timestamp of that the last time to modify the certificate file.	Null

3.18 VPN > OpenVPN

This section allows you to set the OpenVPN and the related parameters. OpenVPN is an open-source software application that implements virtual private network (VPN) techniques for creating secure point-to-point or site-to-site connections in routed or bridged configurations and remote access facilities. Router supports point-to-point and point-to-points connections.

OpenVPN

OpenVPN	Status	x509					
^ Tunnel Settings							
Index	Enable	Description	Mode	Protocol	Server Address	Interface Type	+

Click **+** to add tunnel settings. The maximum count is 3. The window is displayed as below when choosing “None” as the authentication type. By default, the mode is “P2P”.

OpenVPN

^ General Settings

Index

Enable ON OFF

Enable IPv6 ON OFF

Description

Mode

TLS Mode

Protocol

Peer Address

Peer Port

Listen IP Address

Listen Port

Interface Type

Authentication Type

Local IP

Remote IP

Encrypt Algorithm

Authentication Algorithm

Keepalive Interval

Keepalive Timeout

TUN MTU

Max Frame Size

Enable Compression ON OFF

Enable NAT ON OFF

Verbose Level

The window is displayed as below when choosing “Client” as the mode.

^ General Settings

Index	<input type="text" value="1"/>
Enable	<input checked="" type="checkbox"/> ON <input type="checkbox"/> OFF
Description	<input type="text"/>
Mode	<input type="text" value="Client"/> <input type="button" value="v"/> <input type="button" value="?"/>
Protocol	<input type="text" value="UDP"/> <input type="button" value="v"/>
Peer Address	<input type="text"/>
Peer Port	<input type="text" value="1194"/>
Interface Type	<input type="text" value="TUN"/> <input type="button" value="v"/>
Authentication Type	<input type="text" value="None"/> <input type="button" value="v"/> <input type="button" value="?"/>
Encrypt Algorithm	<input type="text" value="BF"/> <input type="button" value="v"/>
Authentication Algorithm	<input type="text" value="SHA1"/> <input type="button" value="v"/>
Renegotiation Interval	<input type="text" value="86400"/> <input type="button" value="?"/>
Keepalive Interval	<input type="text" value="20"/> <input type="button" value="?"/>
Keepalive Timeout	<input type="text" value="120"/> <input type="button" value="?"/>
TUN MTU	<input type="text" value="1500"/>
Max Frame Size	<input type="text"/>
Enable Compression	<input checked="" type="checkbox"/> ON <input type="checkbox"/> OFF
Enable NAT	<input type="checkbox"/> ON <input checked="" type="checkbox"/> OFF
Enable DNS overrid	<input type="checkbox"/> ON <input checked="" type="checkbox"/> OFF <input type="button" value="?"/>
Verbose Level	<input type="text" value="0"/> <input type="button" value="v"/> <input type="button" value="?"/>

The window is displayed as below when choosing “Server” as the mode.

^ General Settings

Index	<input type="text" value="1"/>
Enable	<input checked="" type="checkbox"/> ON <input type="checkbox"/> OFF
Enable IPv6	<input type="checkbox"/> ON <input checked="" type="checkbox"/> OFF
Description	<input type="text"/>
Mode	<input type="text" value="Server"/> <input type="button" value="v"/> <input type="button" value="?"/>
Protocol	<input type="text" value="UDP"/> <input type="button" value="v"/>
Listen IP Address	<input type="text"/>
Listen Port	<input type="text" value="1194"/>
Interface Type	<input type="text" value="TUN"/> <input type="button" value="v"/>
Authentication Type	<input type="text" value="None"/> <input type="button" value="v"/> <input type="button" value="?"/>
Enable IP Pool	<input type="checkbox"/> ON <input checked="" type="checkbox"/> OFF
Client Subnet	<input type="text" value="10.8.0.0"/>
Client Subnet Netmask	<input type="text" value="255.255.255.0"/>
Encrypt Algorithm	<input type="text" value="BF"/> <input type="button" value="v"/>
Authentication Algorithm	<input type="text" value="SHA1"/> <input type="button" value="v"/>
Renegotiation Interval	<input type="text" value="86400"/> <input type="button" value="?"/>
Max Clients	<input type="text" value="10"/>
Keepalive Interval	<input type="text" value="20"/> <input type="button" value="?"/>
Keepalive Timeout	<input type="text" value="120"/> <input type="button" value="?"/>
TUN MTU	<input type="text" value="1500"/>
Max Frame Size	<input type="text"/>
Enable Compression	<input checked="" type="checkbox"/> ON <input type="checkbox"/> OFF
Enable Default Gateway	<input type="checkbox"/> ON <input checked="" type="checkbox"/> OFF
Enable NAT	<input type="checkbox"/> ON <input checked="" type="checkbox"/> OFF
Verbose Level	<input type="text" value="0"/> <input type="button" value="v"/> <input type="button" value="?"/>

The window is displayed as below when choosing “None” as the authentication type.

OpenVPN

^ General Settings

Index	<input type="text" value="1"/>
Enable	<input checked="" type="checkbox"/> ON <input type="checkbox"/> OFF
Description	<input type="text"/>
Mode	<input type="text" value="Client"/> <input type="button" value="v"/> <input type="button" value="?"/>
Protocol	<input type="text" value="UDP"/> <input type="button" value="v"/>
Peer Address	<input type="text"/>
Peer Port	<input type="text" value="1194"/>
Interface Type	<input type="text" value="TUN"/> <input type="button" value="v"/>
Authentication Type	<input type="text" value="None"/> <input type="button" value="v"/> <input type="button" value="?"/>
Encrypt Algorithm	<input type="text" value="BF"/> <input type="button" value="v"/>
Authentication Algorithm	<input type="text" value="SHA1"/> <input type="button" value="v"/>
Renegotiation Interval	<input type="text" value="86400"/> <input type="button" value="?"/>
Keepalive Interval	<input type="text" value="20"/> <input type="button" value="?"/>
Keepalive Timeout	<input type="text" value="120"/> <input type="button" value="?"/>
TUN MTU	<input type="text" value="1500"/>
Max Frame Size	<input type="text"/>
Enable Compression	<input checked="" type="checkbox"/> ON <input type="checkbox"/> OFF
Enable NAT	<input type="checkbox"/> ON <input checked="" type="checkbox"/> OFF
Enable DNS overrid	<input type="checkbox"/> ON <input checked="" type="checkbox"/> OFF <input type="button" value="?"/>
Verbose Level	<input type="text" value="0"/> <input type="button" value="v"/> <input type="button" value="?"/>

The window is displayed as below when choosing “Preshared” as the authentication type.

OpenVPN

^ General Settings

Index	<input type="text" value="1"/>
Enable	<input checked="" type="checkbox"/> ON <input type="checkbox"/> OFF
Description	<input type="text"/>
Mode	<input type="text" value="Client"/> <input type="button" value="v"/> <input type="button" value="?"/>
Protocol	<input type="text" value="UDP"/> <input type="button" value="v"/>
Peer Address	<input type="text"/>
Peer Port	<input type="text" value="1194"/>
Interface Type	<input type="text" value="TUN"/> <input type="button" value="v"/>
Authentication Type	<input type="text" value="Preshared"/> <input type="button" value="v"/> <input type="button" value="?"/>
Encrypt Algorithm	<input type="text" value="BF"/> <input type="button" value="v"/>
Authentication Algorithm	<input type="text" value="SHA1"/> <input type="button" value="v"/>
Renegotiation Interval	<input type="text" value="86400"/> <input type="button" value="?"/>
Keepalive Interval	<input type="text" value="20"/> <input type="button" value="?"/>
Keepalive Timeout	<input type="text" value="120"/> <input type="button" value="?"/>
TUN MTU	<input type="text" value="1500"/>
Max Frame Size	<input type="text"/>
Enable Compression	<input checked="" type="checkbox"/> ON <input type="checkbox"/> OFF
Enable NAT	<input type="checkbox"/> ON <input checked="" type="checkbox"/> OFF
Enable DNS overrid	<input type="checkbox"/> ON <input checked="" type="checkbox"/> OFF <input type="button" value="?"/>
Verbose Level	<input type="text" value="0"/> <input type="button" value="v"/> <input type="button" value="?"/>

The window is displayed as below when choosing “Password” as the authentication type.

^ General Settings

Index	<input type="text" value="1"/>
Enable	<input checked="" type="checkbox"/> ON <input type="checkbox"/> OFF
Description	<input type="text"/>
Mode	<input type="text" value="Client"/> <input type="button" value="v"/> <input type="button" value="?"/>
Protocol	<input type="text" value="UDP"/> <input type="button" value="v"/>
Peer Address	<input type="text"/>
Peer Port	<input type="text" value="1194"/>
Interface Type	<input type="text" value="TUN"/> <input type="button" value="v"/>
Authentication Type	<input type="text" value="Password"/> <input type="button" value="v"/> <input type="button" value="?"/>
Username	<input type="text"/>
Password	<input type="text"/>
Encrypt Algorithm	<input type="text" value="BF"/> <input type="button" value="v"/>
Authentication Algorithm	<input type="text" value="SHA1"/> <input type="button" value="v"/>
Renegotiation Interval	<input type="text" value="86400"/> <input type="button" value="?"/>
Keepalive Interval	<input type="text" value="20"/> <input type="button" value="?"/>
Keepalive Timeout	<input type="text" value="120"/> <input type="button" value="?"/>
TUN MTU	<input type="text" value="1500"/>
Max Frame Size	<input type="text"/>
Enable Compression	<input checked="" type="checkbox"/> ON <input type="checkbox"/> OFF
Enable NAT	<input type="checkbox"/> ON <input checked="" type="checkbox"/> OFF
Enable DNS overrid	<input type="checkbox"/> ON <input checked="" type="checkbox"/> OFF <input type="button" value="?"/>
Verbose Level	<input type="text" value="0"/> <input type="button" value="v"/> <input type="button" value="?"/>

The window is displayed as below when choosing “X509CA” as the authentication type.

^ General Settings

Index	<input type="text" value="1"/>
Enable	<input checked="" type="checkbox"/> ON <input type="checkbox"/> OFF
Description	<input type="text"/>
Mode	<input type="text" value="Client"/> <input type="button" value="v"/> <input type="button" value="?"/>
Protocol	<input type="text" value="UDP"/> <input type="button" value="v"/>
Peer Address	<input type="text"/>
Peer Port	<input type="text" value="1194"/>
Interface Type	<input type="text" value="TUN"/> <input type="button" value="v"/>
Authentication Type	<input type="text" value="X509CA"/> <input type="button" value="v"/> <input type="button" value="?"/>
Encrypt Algorithm	<input type="text" value="BF"/> <input type="button" value="v"/>
Authentication Algorithm	<input type="text" value="SHA1"/> <input type="button" value="v"/>
Renegotiation Interval	<input type="text" value="86400"/> <input type="button" value="?"/>
Keepalive Interval	<input type="text" value="20"/> <input type="button" value="?"/>
Keepalive Timeout	<input type="text" value="120"/> <input type="button" value="?"/>
TUN MTU	<input type="text" value="1500"/>
Max Frame Size	<input type="text"/>
Private Key Password	<input type="text"/>
Enable Compression	<input checked="" type="checkbox"/> ON <input type="checkbox"/> OFF
Enable NAT	<input type="checkbox"/> ON <input checked="" type="checkbox"/> OFF
Enable DNS overrid	<input type="checkbox"/> ON <input checked="" type="checkbox"/> OFF <input type="button" value="?"/>
Verbose Level	<input type="text" value="0"/> <input type="button" value="v"/> <input type="button" value="?"/>

The window is displayed as below when choosing “X509CA Password” as the authentication type.

^ General Settings

Index	<input type="text" value="1"/>
Enable	<input checked="" type="checkbox"/> ON <input type="checkbox"/> OFF
Description	<input type="text"/>
Mode	<input type="text" value="Client"/> <input type="button" value="v"/> <input type="button" value="?"/>
Protocol	<input type="text" value="UDP"/> <input type="button" value="v"/>
Peer Address	<input type="text"/>
Peer Port	<input type="text" value="1194"/>
Interface Type	<input type="text" value="TUN"/> <input type="button" value="v"/>
Authentication Type	<input type="text" value="X509CA Password"/> <input type="button" value="v"/> <input type="button" value="?"/>
Username	<input type="text"/>
Password	<input type="text"/>
Encrypt Algorithm	<input type="text" value="BF"/> <input type="button" value="v"/>
Authentication Algorithm	<input type="text" value="SHA1"/> <input type="button" value="v"/>
Renegotiation Interval	<input type="text" value="86400"/> <input type="button" value="?"/>
Keepalive Interval	<input type="text" value="20"/> <input type="button" value="?"/>
Keepalive Timeout	<input type="text" value="120"/> <input type="button" value="?"/>
TUN MTU	<input type="text" value="1500"/>
Max Frame Size	<input type="text"/>
Private Key Password	<input type="text"/>
Enable Compression	<input checked="" type="checkbox"/> ON <input type="checkbox"/> OFF
Enable NAT	<input type="checkbox"/> ON <input checked="" type="checkbox"/> OFF
Enable DNS overrid	<input type="checkbox"/> ON <input checked="" type="checkbox"/> OFF <input type="button" value="?"/>
Verbose Level	<input type="text" value="0"/> <input type="button" value="v"/> <input type="button" value="?"/>

The window is displayed as below when choosing “Client” as the mode.

^ Advanced Settings

Enable HMAC Firewall	<input type="checkbox"/> ON <input checked="" type="checkbox"/> OFF
Enable PKCS#12	<input type="checkbox"/> ON <input checked="" type="checkbox"/> OFF
Enable nsCertType	<input type="checkbox"/> ON <input checked="" type="checkbox"/> OFF
Expert Options	<input type="text"/> <input type="button" value="?"/>

The window is displayed as below when choosing “Server” as the mode.

^ Advanced Settings

Enable HMAC Firewall ON OFF

Enable Cri ON OFF

Enable Client To Client ON OFF

Enable Dup Client ON OFF

Enable IP Persist ON OFF ?

Expert Options ?

The window of "Virtual Private Network> OpenVPN> OpenVPN" is displayed as below when choosing "Server" as the mode and choosing "X509CA Password" as the authentication type .

OpenVPN | **Status** | x509

^ Tunnel Settings

Index	Enable	Description	Mode	Protocol	Peer Address	Interface Type	+

^ Password Manage

Index	Username	+

^ Client Manage

Index	Enable	Common Name	Client IP Address	+

Click User Password Management + to add username and password, as shown below:

OpenVPN

^ General Settings

Index

Username

Password

Click Client Management + to add Client information, as shown below:

OpenVPN

^ General Settings

Index

Enable ON OFF

Common Name ?

Client IP Address

General Settings @ OpenVPN		
Item	Description	Default
Index	Indicate the ordinal of the list.	--

General Settings @ OpenVPN		
Item	Description	Default
Enable	Click the toggle button to enable/disable this OpenVPN tunnel.	ON
Enable IPv6	Click the toggle button to enable/disable this OpenVPN tunnel to use ipv6.	OFF
Description	Enter a description for this OpenVPN tunnel.	Null
Mode	Select from "P2P", "Client" or "Server".	Client
TLS Mode	Select from "None", "Client" or "Server".	None
Protocol	Select from "UDP", "TCP-Client" or "TCP-Server".	UDP
Server Address	Enter the end-to-end IP address or the domain of the remote OpenVPN server.	Null
Server Port	Enter the end-to-end listener port or the listener port of the OpenVPN server.	1194
Listening address	Local server address.	Null
Listening port	Local server port.	1194
Interface Type	Select from "TUN", "TAP" which are two different kinds of device interface for OpenVPN. The difference between TUN and TAP device is that a TUN device is a point-to-point virtual device on network while a TAP device is a virtual device on Ethernet.	TUN
Authentication Type	Select from "None", "Preshared", "Password", "X509CA" and "X509CA Password". Note: "None" and "Preshared" authentication type are only working with P2P mode.	None
Enable IP Address pool	Click the toggle button to enable / disable the IP address pool allocation function.	OFF
Starting Address	Defines the beginning of an IP address pool that assigns addresses to OpenVPN clients.	10.8.0.5
End Address	Defines the end of the IP address pool for assigning addresses to OpenVPN clients.	10.8.0.254
Client Network	Enter the client network IP.	10.8.0.0
Client Netmask	Enter the client netmask.	255.255.255.0
Username	Enter the username used for "Password" or "X509CA Password" authentication type.	Null
Password	Enter the password used for "Password" or "X509CA Password" authentication type.	Null
Local IP	Enter the local virtual IP.	10.8.0.1
Remote IP	Enter the remote virtual IP.	10.8.0.2

General Settings @ OpenVPN		
Item	Description	Default
Encrypt Algorithm	Select from “BF”, “DES”, “DES-EDE3”, “AES128”, “AES192” and “AES256”. <ul style="list-style-type: none"> BF: Use 128-bit BF encryption algorithm in CBC mode DES: Use 64-bit DES encryption algorithm in CBC mode DES-EDE3: Use 192-bit 3DES encryption algorithm in CBC mode AES128: Use 128-bit AES encryption algorithm in CBC mode AES192: Use 192-bit AES encryption algorithm in CBC mode AES256: Use 256-bit AES encryption algorithm in CBC mode 	BF
Renegotiation Interval	Set the renegotiation interval. If connection failed, OpenVPN will renegotiate when the renegotiation interval reached.	86400
Maximum number of clients	Set the maximum number of clients allowed to access the OpenVPN server.	10
Keepalive Interval	Set keepalive (ping) interval to check if the tunnel is active.	20
Keepalive Timeout	Set the keepalive timeout. Trigger OpenVPN restart after n seconds pass without reception of a ping or other packet from remote.	120
MTU	Set the maximum transmission unit.	1500
Data Sharding	Set the maximum frame length.	Null
Private Key Password	Enter the private key password under the “X509CA” and “X509CA Password” authentication type.	Null
Enable Compression	Click the toggle button to enable/disable this option. Enable to compress the data stream of the header.	ON
Enable Default Gateway	Standalone switch button to enable / disable the default gateway function. After enabling, push the local tunnel address as the default gateway of the peer device.	OFF
Enable NAT	Click the toggle button to enable/disable the NAT option. When enabled, the source IP address of host behind router will be disguised before accessing the remote OpenVPN client.	OFF
Receive DNS Push	Standalone switch button to enable / disable receiving DNS push function. After it is enabled, it is allowed to receive DNS information pushed by the peer.	OFF
Verbose Level	Select the level of the output log and values from 0 to 11. <ul style="list-style-type: none"> 0: No output except fatal errors 1~4: Normal usage range 5: Output R and W characters to the console for each packet read and write 6~11: Debug info range 	0
Advanced Settings @ OpenVPN		
Enable HMAC Firewall	Click the toggle button to enable/disable this option. Add an additional layer of HMAC authentication on top of the TLS control channel to protect against DoS attacks.	OFF

General Settings @ OpenVPN		
Item	Description	Default
Enable PKCS#12	Click the toggle button to enable/disable the PKCS#12 certificate. It is an exchange of digital certificate encryption standard, used to describe personal identity information.	OFF
Enable nsCertType	Click the toggle button to enable/disable nsCertType. Require that peer certificate was signed with an explicit nsCertType designation of "server".	OFF
Enable Crl	Click the toggle button to enable / disable the option. When enabled, client certificates can be revoked.	OFF
Enable client to client	Click the toggle button to enable / disable the option. When enabled, clients can communicate with each other.	OFF
Enable Dup Client	Click the toggle button to enable / disable the option. After being enabled, the tunnel IPs obtained by multiple clients are different, and the tunnel IP of the client and the tunnel IP of the server are interoperable.	OFF
Enable IP address hold	Click the toggle button to enable / disable the option. When enabled, the IP in the address pool is obtained automatically.	ON
Expert Options	Enter some other options of OpenVPN in this field. Each expression can be separated by a ','.	Null
Advanced Settings @ User Password Management		
Username	Custom tunnel connection username.	Null
Password	Custom tunnel connection password.	Null
Advanced Settings @ Client Management		
Enable	Click the toggle button to enable / disable this option. When enabled, the client IP address can be managed.	OFF
Common Name	Set the certificate name.	Null
Client IP Address	Set a fixed client virtual IP.	Null

Status

This section allows you to view the status of the OpenVPN tunnel.

OpenVPN	Status	x509				
^ OpenVPN Tunnel Status						
Index	Description	Status	Mode	Uptime	Local IP	Local IPv6
^ OpenVPN Client List						
Index	Common Name	Real IP	Port	Virtual IP	Virtual IPv6	

x509

User can upload the X509 certificates for the OpenVPN in this section.

OpenVPN | Status | x509

^ X509 Settings ?

Tunnel Name: v

Mode: v

Root CA: No file chosen

Certificate File: No file chosen

Private Key: No file chosen

TLS-Auth Key: No file chosen

PKCS#12 Certificate: No file chosen

^ Certificate Files

Index	File Name	File Size	Modification Time
-------	-----------	-----------	-------------------

x509		
Item	Description	Default
X509 Settings		
Tunnel Name	Choose a valid tunnel. Select from "Tunnel 1", "Tunnel 2", "Tunnel 3", "Tunnel 4", "Tunnel 5" or "Tunnel 6".	Tunnel 1
Tunnel Mode	Select from "P2P Mode", "Client Mode" or "Server Mode".	Client mode
Root certificate	Select the root certificate file to import into the router.	--
Certificate File	Click on "Choose File" to upload certificate file into the router.	--
Private Key	Click on "Choose File" to upload private key into the router.	--
TLS-Auth Key	Click on "Choose File" to upload TLS-Auth key into the router.	--
PKCS#12 Certificate	Click on "Choose File" to upload PKCS#12 Certificate into the router.	--
Certificate Files		
Index	Indicate the ordinal of the list.	--
Filename	Show the imported certificate's name.	Null
File Size	Show the size of the certificate file.	Null
Modification Time	Show the timestamp of that the last time to modify the certificate file.	Null

3.19 VPN > GRE

This section allows you to set the GRE and the related parameters. Generic Routing Encapsulation (GRE) is a tunneling protocol that can encapsulate a wide variety of network layer protocols inside virtual point-to-point links over an Internet Protocol network.

GRE

GRE | Status

^ Tunnel Settings

Index	Enable	Description	Remote IP Address
-------	--------	-------------	-------------------

Click **+** to add tunnel settings. The maximum count is 3.

GRE

^ **Tunnel Settings**

Index

Enable ON OFF

Description

Remote IP Address

Local Virtual IP Address

Local Virtual Netmask/Prefix Length

Remote Virtual IP Address

Enable Default Route ON OFF

Enable NAT ON OFF

Secrets

Link Binding v ?

Tunnel Settings @ GRE		
Item	Description	Default
Index	Indicate the ordinal of the list.	--
Enable	Click the toggle button to enable/disable this GRE tunnel.	ON
Description	Enter a description for this GRE tunnel.	Null
Remote IP Address	Set the remote real IP address of the GRE tunnel.	Null
Local Virtual IP Address	Set the local virtual IP address of the GRE tunnel.	Null
Local Virtual Netmask	Set the local virtual Netmask of the GRE tunnel.	Null
Remote Virtual IP Address/ IPv6 prefix length	Set the remote virtual IP Address of the GRE tunnel.	Null
Enable Default Route	Click the toggle button to enable/disable this option. When enabled, all the traffics of the router will go through the GRE VPN.	OFF
Enable NAT	Click the toggle button to enable/disable this option. This option must be enabled when router under NAT environment.	Disable
Secrets	Set the key of the GRE tunnel.	Null
Link Binding	Select from "WWAN1", "WWAN2", "WAN", or "WLAN".	Not bound

Status

This section allows you to view the status of GRE tunnel.

GRE
Status

^ **GRE tunnel status**

Index	Description	Status	Local IP Address	Remote IP Address	Uptime
-------	-------------	--------	------------------	-------------------	--------

3.20 Services > Syslog

This section allows you to set the syslog parameters. The system log of the router can be saved in the local, also supports to be sent to remote log server and specified application debugging. By default, the “Log to Remote” option is disabled.

The screenshot shows the 'Syslog Settings' window. The 'Enable' toggle is set to 'ON'. 'Syslog Level' is set to 'Debug'. 'Save Position' is set to 'RAM'. 'Log to Remote' is set to 'OFF'. There are help icons next to 'Save Position' and 'Log to Remote'.

The window is displayed as below when enabling the “Log to Remote” option.

The screenshot shows the 'Syslog Settings' window with 'Log to Remote' set to 'ON'. Additional fields are visible: 'Add Identifier' is set to 'OFF', 'Remote IP Address' is an empty text box, and 'Remote Port' is set to '514'. Help icons are present next to 'Log to Remote' and 'Add Identifier'.

Syslog Settings		
Item	Description	Default
Enable	Click the toggle button to enable/disable the Syslog settings option.	OFF
Syslog Level	Select from “Debug”, “Info”, “Notice”, “Warning” or “Error”, which from low to high. The lower level will output more syslog in detail.	Debug
Save Position	Select the save position from “RAM”, “NVM” or “Console”. Choose “RAM”, the data will be cleared after reboot. Note: It's not recommended that saving syslog to NVM (Non-Volatile Memory) for a long time.	RAM
Log to Remote	Click the toggle button to enable/disable this option. Enable to allow router sending syslog to the remote syslog server. You need to enter the IP and Port of the syslog server.	OFF
Add Identifier	Click the toggle button to enable/disable this option. When enabled, you can add serial number to syslog message which used for loading Syslog to RobustLink.	OFF
Remote IP Address	Enter the IP address of syslog server when enabling the “Log to Remote” option.	Null

Remote Port	Enter the port of syslog server when enabling the “Log to Remote” option.	514
-------------	---	-----

3.21 Services > Event

This section allows you to set the event parameters. Event feature provides an ability to send alerts by SMS or Email when certain system events occur.

Event
Notification
Query

^ General Settings

Signal Quality Threshold ?

General Settings @ Event		
Item	Description	Default
Signal Quality Threshold	Set the threshold for signal quality. Router will generate a log event when the actual threshold is less than the specified threshold. 0 means disable this option.	0

Event
Notification
Query

^ Event Notification Group Settings

Index
Description
Send SMS
Send Email
DO Control
Save to NVM
+

Click + button to add an Event parameters.

Notification

^ General Settings

Index

Description

Send SMS ON OFF

Send Email ON OFF

DO Control ON OFF

Save to NVM ON OFF ?

^ Event Selection
?

System Startup	<input type="checkbox"/> OFF
System Reboot	<input type="checkbox"/> OFF
System Time Update	<input type="checkbox"/> OFF
Configuration Change	<input type="checkbox"/> OFF
Cellular Network Type Change	<input type="checkbox"/> OFF
Cellular Data Stats Clear	<input type="checkbox"/> OFF
Cellular Data Traffic Overflow	<input type="checkbox"/> OFF
Poor Signal Quality	<input type="checkbox"/> OFF
Link Switching	<input type="checkbox"/> OFF
WAN Up	<input type="checkbox"/> OFF
WAN Down	<input type="checkbox"/> OFF
WLAN Up	<input type="checkbox"/> OFF
WLAN Down	<input type="checkbox"/> OFF
WWAN Up	<input type="checkbox"/> OFF
WWAN Down	<input type="checkbox"/> OFF
IPSec Connection Up	<input type="checkbox"/> OFF
IPSec Connection Down	<input type="checkbox"/> OFF
OpenVPN Connection Up	<input type="checkbox"/> OFF
OpenVPN Connection Down	<input type="checkbox"/> OFF
LAN Port Link Up	<input type="checkbox"/> OFF
LAN Port Link Down	<input type="checkbox"/> OFF
USB Device Connect	<input type="checkbox"/> OFF
USB Device Remove	<input type="checkbox"/> OFF
DDNS Update Success	<input type="checkbox"/> OFF
DDNS Update Fail	<input type="checkbox"/> OFF
Received SMS	<input type="checkbox"/> OFF
SMS Command Execute	<input type="checkbox"/> OFF
DI 1 ON	<input type="checkbox"/> OFF
DI 1 OFF	<input type="checkbox"/> OFF
DI 1 Counter Overflow	<input type="checkbox"/> OFF
DI 2 ON	<input type="checkbox"/> OFF
DI 2 OFF	<input type="checkbox"/> OFF
DI 2 Counter Overflow	<input type="checkbox"/> OFF

General Settings @ Notification		
Item	Description	Default
Index	Indicate the ordinal of the list.	--
Description	Enter a description for this group.	Null
Sent SMS	Click the toggle button to enable/disable this option. When enabled, the router will send notification to the specified phone numbers via SMS if event occurs. Set the related phone number in "3.24 Services > Email", and use ';' to separate each number.	OFF
Send Email	Click the toggle button to enable/disable this option. When enabled, the router will send notification to the specified email box via Email if event occurs. Set the related email address in "3.24 Services > Email".	OFF
DO Control	Click the toggle button to enable / disable this option. After it is turned on, the event router will send it to the corresponding DO in the form of Low / High level.	OFF
Save to NVM	Click the toggle button to enable/disable this option. Enable to save event to nonvolatile memory.	OFF

In the following window you can query various types of events record. Click **Refresh** to query filtered events while click **Clear** to clear the event records in the window.

Event
Notification
Query

^ Event Details

Save Position

RAM

v

Filtering

```

Sep 11 19:00:53, system startup
Sep 11 19:00:55, LAN port link down, eth0
Sep 11 19:00:55, LAN port link up, eth1
Sep 11 19:01:06, WWAN (cellular) up, WWAN1, ip=10.189.43.25
Sep 11 19:01:16, system time update
Sep 11 19:47:25, configuration change, link_manager restored to default after firmware updating
Sep 11 19:47:25, configuration change, link_manager restored to default after firmware updating
Sep 11 19:47:25, configuration change, link_manager restored to default after firmware updating
Sep 11 19:47:26, configuration change, via web manager
Sep 11 19:47:41, configuration change, link_manager restored to default after firmware updating
Sep 11 19:47:42, configuration change, via web manager
Sep 11 19:47:42, WWAN (cellular) down, WWAN1
Sep 11 19:47:44, WWAN (cellular) up, WWAN1, ip=10.189.43.25
Sep 11 19:48:50, configuration change, via web manager
Sep 11 19:48:51, WWAN (cellular) down, WWAN1
Sep 11 19:48:52, WWAN (cellular) up, WWAN1, ip=10.189.43.25
Sep 11 19:49:04, configuration change, via web manager
Sep 11 19:49:05, WWAN (cellular) down, WWAN1
Sep 11 19:49:10, WLAN up
Sep 11 19:59:33, configuration change, link_manager restored to default after firmware updating
Sep 11 19:59:34, configuration change, via web manager
Sep 11 19:59:36, WLAN down
Sep 11 19:59:36, WWAN (cellular) up, WWAN1, ip=10.189.43.25
Sep 11 20:29:00, LAN port link down, eth1
Sep 11 20:34:06, LAN port link up, eth1
                    
```

Clear

Refresh

Event Details		
Item	Description	Default
Save Position	Select the events' save position from "RAM" or "NVM". <ul style="list-style-type: none"> RAM: Random-access memory NVM: Non-Volatile Memory 	RAM
Filter Message	Event will be filtered according to the Filter Message that the user set. Click Refresh , the filtered event will be displayed in the follow box. Use "&" to separate more than one filter message, such as message1&message2.	Null

3.22 Services > NTP

This section allows you to set the related NTP (Network Time Protocol) parameters, including Time zone, NTP Client and NTP Server.

NTP
Status

^ Timezone Settings

Time Zone

v

Expert Setting

?

^ NTP Client Settings

Enable
 ON OFF

Primary NTP Server

Secondary NTP Server

NTP Update Interval

?

^ NTP Server Settings

Enable
 ON OFF

NTP		
Item	Description	Default
Timezone Settings		
Time Zone	Click the drop down list to select the time zone you are in.	UTC +08:00
Expert Setting	Specify the time zone with Daylight Saving Time in TZ environment variable format. The Time Zone option will be ignored in this case.	Null
NTP Client Settings		
Enable	Click the toggle button to enable/disable this option. Enable to synchronize time with the NTP server.	ON
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
NTP Update interval	Enter the interval (minutes) which NTP client synchronize the time from NTP server. Minutes wait for next update, and 0 means update only once.	0
NTP Server Settings		
Enable	Click the toggle button to enable the NTP server option.	OFF

This window allows you to view the current time of router and also synchronize the router time. Click **Sync** button to synchronize the router time with PC's.

NTP
Status

^ Time

System Time
2019-12-31 10:48:42

PC Time
2019-12-31 10:48:44
Sync

Last Update Time
2019-12-31 09:52:08

3.23 Services > SMS

This section allows you to set SMS parameters. Router supports SMS management, and user can control and configure their routers by sending SMS. For more details about SMS control, refer to **4.2.2 SMS Remote Control**.

SMS Management Settings		
Item	Description	Default
Enable	Click the toggle button to enable/disable the SMS Management option. Note: If this option is disabled, the SMS configuration is invalid.	ON
Authentication Type	Select Authentication Type from “Password”, “Phonenum” or “Both”. <ul style="list-style-type: none"> • Password: Use the same username and password as WEB manager for authentication. For example, the format of the SMS should be “username: password; cmd1; cmd2; ...” Note: Set the WEB manager password in System > User Management section. • Phonenum: Use the Phone number for authenticating, and user should set the Phone Number that is allowed for SMS management. The format of the SMS should be “cmd1; cmd2; ...” • Both: Use both the “Password” and “Phonenum” for authentication. User should set the Phone Number that is allowed for SMS management. The format of the SMS should be “username: password; cmd1; cmd2; ...” 	Password
Phone Number	Set the phone number used for SMS management, and use ‘;’ to separate each number. Note: It can be null when choose “Password” as the authentication type.	Null

User can test the current SMS service whether it is available in this section.

SMS Testing		
Item	Description	Default
Phone Number	Enter the specified phone number which can receive the SMS from router.	Null
Message	Enter the message that router will send it to the specified phone number.	Null
Result	The result of the SMS test will be displayed in the result box.	Null
Send	Click the button to send the test message.	--

3.24 Services > Email

Email function supports to send the event notifications to the specified recipient by ways of email.

Email
^ Email Settings

Enable ON OFF

Enable TLS/SSL ON OFF ?

Enable STARTTLS ON OFF

Outgoing Server

Server Port

Timeout ?

Auth Login ON OFF ?

Username

Password

From

Subject

Email Settings		
Item	Description	Default
Enable	Click the toggle button to enable/disable the Email option.	OFF
Enable TLS/SSL	Click the toggle button to enable/disable the TLS/SSL option.	OFF
Enable STARTTLS	Click the toggle button to enable / disable STARTTLS encryption.	OFF
Outgoing server	Enter the SMTP server IP Address or domain name.	Null
Server port	Enter the SMTP server port.	25
Timeout	Set the max time for sending email to SMTP server. When the server doesn't receive the email over this time, it will try to resend.	10
Auth Login	If the mail server supports AUTH login, you must enable this button and set a username and password.	OFF
Username	Enter the username which has been registered from SMTP server.	Null
Password	Enter the password of the username above.	Null

Email Settings		
Item	Description	Default
From	Enter the source address of the email.	Null
Subject	Enter the subject of this email.	Null

3.25 Services > DDNS

This section allows you to set the DDNS parameters. The Dynamic DNS function allows you to alias a dynamic IP address to a static domain name, allows you 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. The service provider defaults to “DynDNS”, as shown below.

The screenshot shows the 'DDNS Settings' window. At the top, there are tabs for 'DDNS' and 'Status'. Below the title bar, there is an 'Enable' toggle switch currently set to 'OFF'. A red box highlights the 'Service Provider' dropdown menu, which is set to 'DynDNS'. Below this, there are input fields for 'Hostname', 'Username', and 'Password', all of which are currently empty.

When “Custom” service provider chosen, the window is displayed as below.

The screenshot shows the 'DDNS Settings' window with the 'Service Provider' dropdown menu set to 'Custom'. A red box highlights this dropdown. Below the dropdown, there is an input field labeled 'URL' which is currently empty. The 'Enable' toggle switch remains 'OFF'.

DDNS Settings		
Item	Description	Default
Enable	Click the toggle button to enable/disable the DDNS option.	OFF
Service Provider	Select the DDNS service from “DynDNS”, “NO-IP” or “3322”. Note: the DDNS service only can be used after registered by Corresponding service provider.	DynDNS
Hostname	Enter the hostname provided by the DDNS server.	Null
Username	Enter the username provided by the DDNS server.	Null
Password	Enter the password provided by the DDNS server.	Null
URL	Enter the URL customized by user.	Null

Click “Status” bar to view the status of the DDNS.

DDNS Status

Status Disabled

Last Update Time

DDNS Status	
Item	Description
Status	Display the current status of the DDNS.
Last Update Time	Display the date and time for the DDNS was last updated successfully.

3.26 Services > SSH

Router supports SSH password access and secret-key access.

SSH Keys Management

SSH Settings

Enable ON OFF

Port

Disable Password Logins ON OFF

SSH Settings		
Item	Description	Default
Enable	Click the toggle button to enable/disable this option. When enabled, you can access the router via SSH.	OFF
Port	Set the port of the SSH access.	22
Disable Password Logins	Click the toggle button to enable/disable this option. When enabled, you cannot use username and password to access the router via SSH. In this case, only the key can be used for login.	OFF

SSH Keys Management

Import Authorized Keys

Authorized Keys No file chosen

Keys Management	
Item	Description
Authorized Keys	Click on "Choose File" to locate an authorized key from your computer, and then click "Import" to import this key into your router. Note: This option is valid when enabling the password logins option.

3.27 Services > GPS

This section allows you to set the GPS setting parameters.

GPS
Status
Map

^ General Settings

Enable GPS
 ON OFF

Sync GPS Time
 ON OFF

^ RS232 Report Settings

Report to RS232
 ON OFF

Report GGA Sentence
 ON OFF

Report VTG Sentence
 ON OFF

Report RMC Sentence
 ON OFF

Report GSV Sentence
 ON OFF

^ GPS Servers

Index	Enable	Protocol	Local Address	Local Port	Server Address	Server Port	
+							

General Settings @ GPS		
Item	Description	Default
Enable GPS	Click the toggle button to enable/disable the GPS option.	OFF
Sync GPS Time	Click the toggle button to synchronize GPS time.	OFF
RS232 Report Settings		
Report to RS232	Click the toggle button to report to RS232.	OFF
Report GGA Sentence	Click the toggle button to report GGA sentence.	OFF
Report VTG Sentence	Click the toggle button to report VTG sentence.	OFF
Report RMC Sentence	Click the toggle button to report RMC sentence.	OFF
Report GSV Sentence	Click the toggle button to report GSV sentence.	OFF

The window is displayed as below when choosing “TCP Client” as the protocol.

GPS

^ **Server Settings**

Index	<input type="text" value="1"/>
Enable	<input checked="" type="checkbox"/> ON <input type="checkbox"/> OFF
Protocol	<input type="text" value="TCP Client"/> v
Server Address	<input type="text"/>
Server Port	<input type="text"/>
Send GGA Sentence	<input type="checkbox"/> ON <input checked="" type="checkbox"/> OFF
Send VTG Sentence	<input type="checkbox"/> ON <input checked="" type="checkbox"/> OFF
Send RMC Sentence	<input type="checkbox"/> ON <input checked="" type="checkbox"/> OFF
Send GSV Sentence	<input type="checkbox"/> ON <input checked="" type="checkbox"/> OFF

The window is displayed as below when choosing “TCP Server” as the protocol.

GPS

^ **Server Settings**

Index	<input type="text" value="1"/>
Enable	<input checked="" type="checkbox"/> ON <input type="checkbox"/> OFF
Protocol	<input type="text" value="TCP Server"/> v
Local Address	<input type="text"/>
Local Port	<input type="text"/>
Send GGA Sentence	<input type="checkbox"/> ON <input checked="" type="checkbox"/> OFF
Send VTG Sentence	<input type="checkbox"/> ON <input checked="" type="checkbox"/> OFF
Send RMC Sentence	<input type="checkbox"/> ON <input checked="" type="checkbox"/> OFF
Send GSV Sentence	<input type="checkbox"/> ON <input checked="" type="checkbox"/> OFF

The window is displayed as below when choosing “UDP” as the protocol.

GPS

^ **Server Settings**

Index

Enable ON OFF

Protocol

Server Address

Server Port

Send GGA Sentence ON OFF

Send VTG Sentence ON OFF

Send RMC Sentence ON OFF

Send GSV Sentence ON OFF

Server Settings		
Item	Description	Default
Index	Indicate the ordinal of the list.	--
Enable	Click the toggle button to enable/disable the GPS server settings.	ON
Protocol	Select from "TCP Client", "TCP Server" or "UDP".	TCP Client
Server Address @TCP Client	Set the address of the TCP Client.	Null
Server Port @TCP Client	Set the port of the remote TCP Server.	Null
Local Address	Set the local address when the router set as a TCP Server.	Null
Local Port	Set the local port when the router set as a TCP Server.	Null
Server Address @ UDP	Set the address of the TCP Server.	Null
Server Port @ UDP	Set the port of the remote TCP Server.	Null
Send GGA Sentence	Send GGA information in NMEA format.	OFF
Send VTG Sentence	Send VTG information in NMEA format.	OFF
Send RMC Sentence	Send RMC information in NMEA format.	OFF
Send GSV Sentence	Send GSV information in NMEA format.	OFF

Click the “Status” column to view the status of the GPS.

GPS
Status
Map

^ GPS Status

Status

UTC Time

Last Fixed Time

Satellites In Use

Satellites In View

Latitude

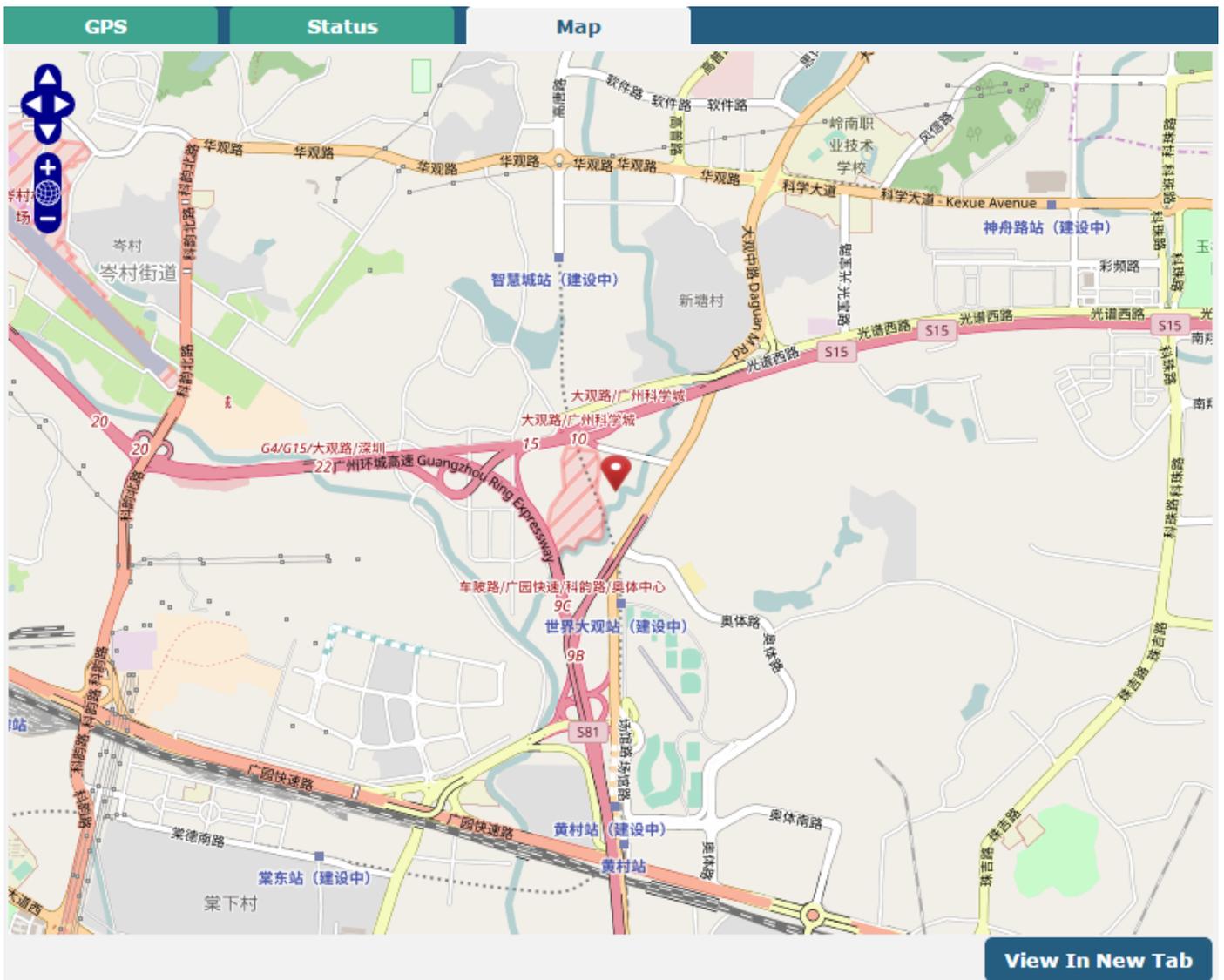
Longitude

Altitude

Speed

GPS Status	
Item	Description
Status	Show the GPS Status. GPS status includes: “NO Fix”, “2D Fix” and “3D Fix”.
UTC Time	Show the UTC of satellites, which is world unified time, not local time.
Last Fixed Time	Show the last positioning time.
Satellites In Use	Show the satellite quantity in use.
Satellite In View	Show the satellite quantity in view.
Latitude	Show the latitude status of router.
Longitude	Show the longitude status of router.
Altitude	Show the altitude status of router.
Speed	Show the horizontal speed of router.

Click the “Map” column to view the current location of the router.



3.28 Services > Web Server

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

Web Server		Certificate Management	
^ General Settings			
HTTP Port	<input type="text" value="80"/>	?	
HTTPS Port	<input type="text" value="443"/>	?	

Basic @ Web Server		
Item	Description	Default
HTTP Port	Enter the HTTP port number you want to change in router’s Web Server. On a Web server, port 80 is the port that the server "listens to" or expects to receive	80

	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 router’s Web Server.	
HTTPS Port	<p>Enter the HTTPS port number you want to change in router’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 router’s Web Server.</p> <p>Note: 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.</p>	443

This section allows you to import the certificate file into the route.

Certificate Management		
Item	Description	Default
Import Type	Select from “CA” and “Private Key”. <ul style="list-style-type: none"> • CA: a digital certificate issued by CA center • Private Key: a private key file 	CA
HTTPS Certificate	Click on “Choose File” to locate the certificate file from your computer, and then click “Import” to import this file into your router.	--

3.29 Services > Advanced

This section allows you to set the Advanced and parameters.

^ System Settings

Device Name ?

User LED Type v ?

- None
- OpenVPN
- IPSec
- WiFi

System Settings		
Item	Description	Default
Device Name	Set the device name to distinguish different devices you have installed; valid characters are a-z, A-Z, 0-9, @, ., -, #, \$, and *.	router
User LED Type	Specify the display type of your USR LED. Select from “None”, “OpenVPN”, “IPsec” or “WiFi”. <ul style="list-style-type: none"> None: Meaningless indication, and the LED is off OpenVPN: USR indicator showing the OpenVPN status IPsec: USR indicator showing the IPsec status WiFi: USR indicator showing the WiFi status Note: For more details about USR indicator, see “2.2 LED Indicators”.	None

System | **Reboot**

^ Periodic Reboot Settings

Periodic Reboot ?

Daily Reboot Time ?

Reboot		
Item	Description	Default
Periodic Reboot	Set the reboot period of the router. 0 means disable.	0
Daily Reboot Time	Set the daily reboot time of the router, you should follow the format as HH:MM, in 24h time frame, otherwise the data will be invalid. Leave it empty means disable.	Null

3.30 System > Debug

This section allows you to check and download the syslog details.

Syslog

^ Syslog Details

Log Level Debug v

Filtering ?

```

Sep 11 21:00:58 router user.debug rping[4655]: round-trip min/avg/max = 141.447/141.447/141.447 ms
Sep 11 21:00:58 router user.debug link_manager[3986]: rcv action ping_success from rping
Sep 11 21:00:58 router user.debug link_manager[3986]: target link WWAN1, state Connected
Sep 11 21:00:58 router user.info link_manager[3986]: WWAN1 ping test success
Sep 11 21:05:58 router user.debug link_manager[3986]: WWAN1 (wwan) start ping test
Sep 11 21:05:58 router user.debug rping[4718]: start ping 8.8.8.8 (wwan)
Sep 11 21:05:59 router user.debug rping[4718]: PING 8.8.8.8 (8.8.8.8) from 10.18.11.133: 16 data bytes
Sep 11 21:05:59 router user.debug rping[4718]: 24 bytes from 8.8.8.8: seq=0 ttl=51 time=139.263 ms
Sep 11 21:05:59 router user.debug rping[4718]:
Sep 11 21:05:59 router user.debug rping[4718]: --- 8.8.8.8 ping statistics ---
Sep 11 21:05:59 router user.debug rping[4718]: 1 packets transmitted, 1 packets received, 0% packet loss
Sep 11 21:05:59 router user.debug rping[4718]: round-trip min/avg/max = 139.263/139.263/139.263 ms
Sep 11 21:05:59 router user.debug link_manager[3986]: rcv action ping_success from rping
Sep 11 21:05:59 router user.debug link_manager[3986]: target link WWAN1, state Connected
Sep 11 21:05:59 router user.info link_manager[3986]: WWAN1 ping test success
                    
```

Manual Refresh v
Clear
Refresh

^ Syslog Files

Index	File Name	File Size	Modification Time
1	messages	77945	Wed Sep 11 21:05:59 2019

^ System Diagnostic Data

System Diagnostic Data
Generate

Syslog		
Item	Description	Default
Syslog Details		
Log Level	Select from "Debug", "Info", "Notice", "Warn", "Error" which from low to high. The lower level will output more syslog in detail.	Debug
Filtering	Enter the filtering message based on the keywords. Use "&" to separate more than one filter message, such as "keyword1&keyword2".	Null
Refresh	Select from "Manual Refresh", "5 Seconds", "10 Seconds", "20 Seconds" or "30 Seconds". You can select these intervals to refresh the log information displayed in the follow box. If selecting "manual refresh", you should click the refresh button to refresh the syslog.	Manual Refresh
Clear	Click the button to clear the syslog.	--
Refresh	Click the button to refresh the syslog.	--
Syslog Files		
Syslog Files List	It can show at most 5 syslog files in the list, the files' name range from message0 to message 4. And the newest syslog file will be placed on the top of the list.	/
System Diagnosing Data		

Generate	Click to generate the syslog diagnosing file.	/
Download	Click to download the generated system diagnostic data.	

3.31 System > Update

This section allows you to upgrade the firmware of your router. Click **System > Update > System Update**, and click on “Choose File” to locate the firmware file to be used for the upgrade. Once the latest firmware has been chosen, click **Update** to start the upgrade process. The upgrade process may take several minutes. Do not turn off your Router during the firmware upgrade process.

Note: To access the latest firmware file, please contact your technical support engineer.

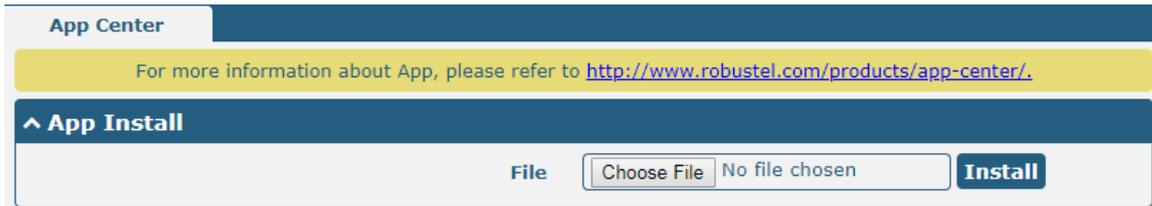


Update		
Item	Description	Default
System Update	Click Choose File button to select the correct firmware in your PC, and then click Update button to update. After updating successfully, you need to click “save and apply”, and then reboot the router to take effect.	Null

3.32 System > App Center

This section allows you to add some required or customized applications to the router. Import and install your applications to the App Center, and reboot the device according to the system prompts. Each installed application will be displayed under the “Services” menu, while other applications related to VPN will be displayed under the “VPN” menu.

Note: After importing the applications to the router, the page display may have a slight delay due to the browser cache. It is recommended that you clear the browser cache first and log in the router again.



The successfully installed app will be displayed in the following list. Click **X** to uninstall the app.

^ Installed Apps				
Index	Name	Version	Status	Description
1	language_chinese	3.1.0	Stopped	Chinese language X

App Center		
Item	Description	Default
App Install		
File	Click on “Choose File” to locate the App file from your computer, and then click Install to import this file into your router. Note: File format should be <i>xxx.rpk</i> , e.g. <i>R3000-robustlink-1.0.0.rpk</i> .	--
Installed Apps		
Index	Indicate the ordinal of the list.	--
Name	Show the name of the App.	Null
Version	Show the version of the App.	Null
Status	Show the status of the App.	Null
Description	Show the description for this App.	Null

3.33 System > Tools

This section provides users three tools: Ping, Traceroute and Sniffer.

Ping
Traceroute
Sniffer

^ Ping

IP Address

Number of Request

Timeout

Local IP

Start
Stop

Ping		
Item	Description	Default
IP address	Enter the ping's destination IP address or destination domain.	Null
Number of Requests	Specify the number of ping requests.	5
Timeout	Specify the 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
	Click this button to start ping request, and the log will be displayed in the follow box.	Null
	Click this button to stop ping request.	--

Ping
Traceroute
Sniffer

^ Traceroute

Trace Address

Trace Hops

Trace Timeout

Start
Stop

Traceroute		
Item	Description	Default
Trace Address	Enter the trace's destination IP address or destination domain.	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
Trace Timeout	Specify the timeout of Traceroute request.	1
Start	Click this button to start Traceroute request, and the log will be displayed in the follow box.	--
Stop	Click this button to stop Traceroute request.	--

Ping
Traceroute
Sniffer

^ Sniffer

Interface v

Host

Packets Request

Protocol v

Status ↻

Start
Stop

^ Capture Files

Index	File Name	File Size	Modification Time	
1	19-09-11_21-18-43.cap	52420	Wed Sep 11 21:18:54 2019	+ ✕

Sniffer		
Item	Description	Default
Interface	Choose the interface according to your Ethernet configuration.	All
Host	Filter the packet that contain the specify IP address.	Null
Packets Request	Set the packet number that the router can sniffer at a time.	1000
Protocol	Select from "All", "IP", "TCP", "UDP" and "ARP".	All
Port	Set the port number for TCP or UDP that is used in sniffer.	Null
Status	Show the current status of sniffer.	Null
	Click this button to start the sniffer.	--
	Click this button to stop the sniffer. Once you click this button, a new log file will be displayed in the following List.	--
Capture Files	Every times of sniffer log will be saved automatically as a new file. You can find the file from this Sniffer Traffic Data List and click to download the log, click to delete the log file. It can cache a maximum of 5 files.	Null

3.34 System > Profile

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

Profile

Rollback

Import Configuration File

Reset Other Settings to Default ON OFF

Ignore Invalid Settings ON OFF

XML Configuration File

Export Configuration File

Ignore Disabled Features ON OFF

Add Detailed Information ON OFF

Encrypt Secret Data ON OFF

XML Configuration File

Default Configuration

Save Running Configuration as Default

Restore to Default Configuration

Profile		
Item	Description	Default
Import Configuration File		
Reset Other Settings to Default	Click the toggle button as "ON" to return other parameters to default settings.	OFF
Ignore Invalid Settings	Click the toggle button as "OFF" to ignore invalid settings.	OFF

XML Configuration File	Click on Choose File to locate the XML configuration file from your computer, and then click Import to import this file into your router.	--
Export Configuration File		
Ignore Disabled Features	Click the toggle button as "OFF" to ignore the disabled features.	OFF
Add Detailed Information	Click the toggle button as "On" to add detailed information.	OFF
Encrypt Secret Data	Click the toggle button as "ON" to encrypt the secret data.	OFF
XML Configuration File	Click Generate button to generate the XML configuration file.	--
Default Configuration		
Save Running Configuration as Default	Click Save to save the current running parameters as default configuration.	--
Restore to Default Configuration	Click Restore to restore the factory defaults.	--

Profile
Rollback

^ Configuration Rollback

Save as a Rollbackable Archive
Save
?

^ Configuration Archive Files

Index	File Name	File Size	Modification Time

Rollback		
Item	Description	Default
Configuration Rollback		
Save as a Rollbackable Archive	Create a save point manually. Additionally, the system will create a save point every day automatically if configuration changes.	--
Configuration Archive Files		
Configuration Archive Files	View the related information about configuration archive files, including name, size and modification time.	--

3.35 System > User Management

One router has only one super user who has the highest authority to modify, add and manage other common users.

Super User Settings		
Item	Description	Default
New Username	Enter a new username you want to create; valid characters are a-z, A-Z, 0-9, @, ., -, #, \$, and *.	Null
Old Password	Enter the old password of your router. The default is "admin".	Null
New Password	Enter a new password you want to create; valid characters are a-z, A-Z, 0-9, @, ., -, #, \$, and *.	Null
Confirm Password	Enter the new password again to confirm.	Null

Click **+** button to add a new common user. The maximum rule count is 5.

Common User Settings		
Item	Description	Default
Index	Indicate the ordinal of the list.	--
Role	Select from "Visitor" and "Editor". <ul style="list-style-type: none"> Visitor: Users only can view the configuration of router under this level Editor: Users can view and set the configuration of router under this level 	Visitor
Username	Set the Username; valid characters are a-z, A-Z, 0-9, @, ., -, #, \$, and *.	Null

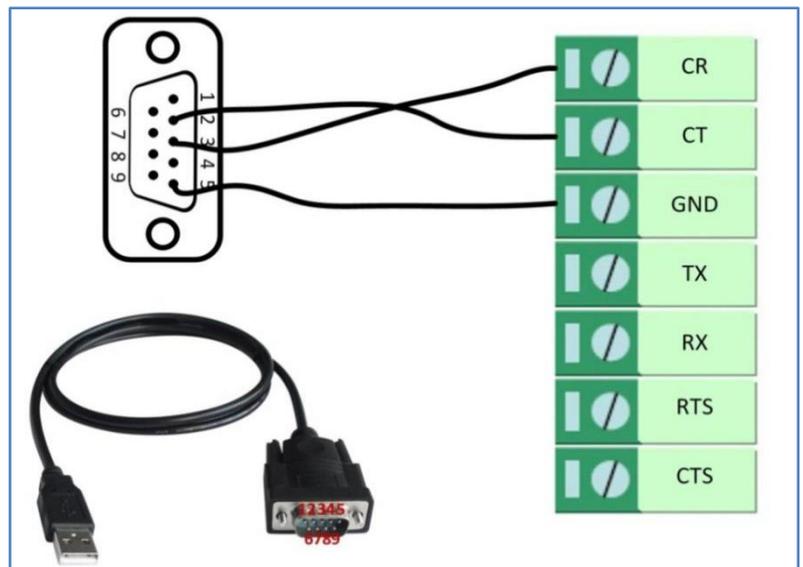
Password	Set the password which at least contains 5 characters; valid characters are a-z, A-Z, 0-9, @, ., -, #, \$, and *.	Null
----------	---	------

Chapter 4 Configuration Examples

4.1 Interface

4.1.1 Console Port

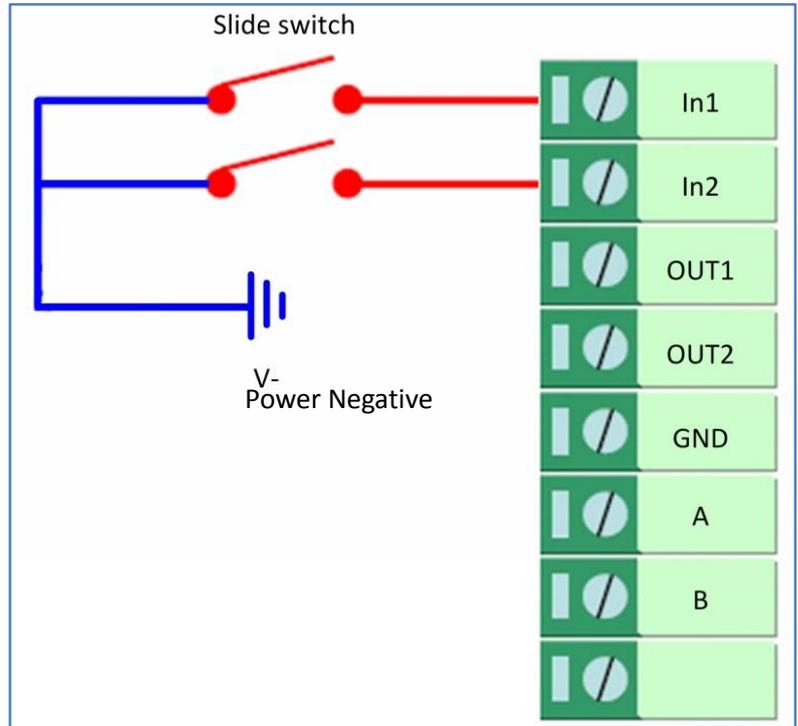
You can use the console port to manage the router via CLI commands, please refer to **Chapter 5 Introductions for CLI**.



4.1.2 Digital Input

R3000 supports digital input with dry contact. Please check the connector interface of the router, you can easily find a mark "V-" at one pin of the power connector.

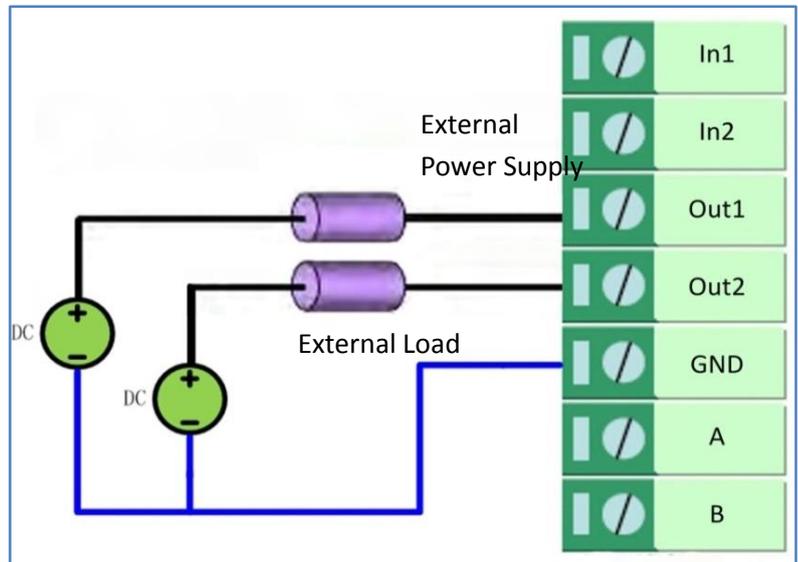
Note: Do not connect In1/In2 directly and do not slide the switch to the port marked "GND" on the terminal block. Otherwise, the DI cannot work properly.



4.1.3 Digital Output

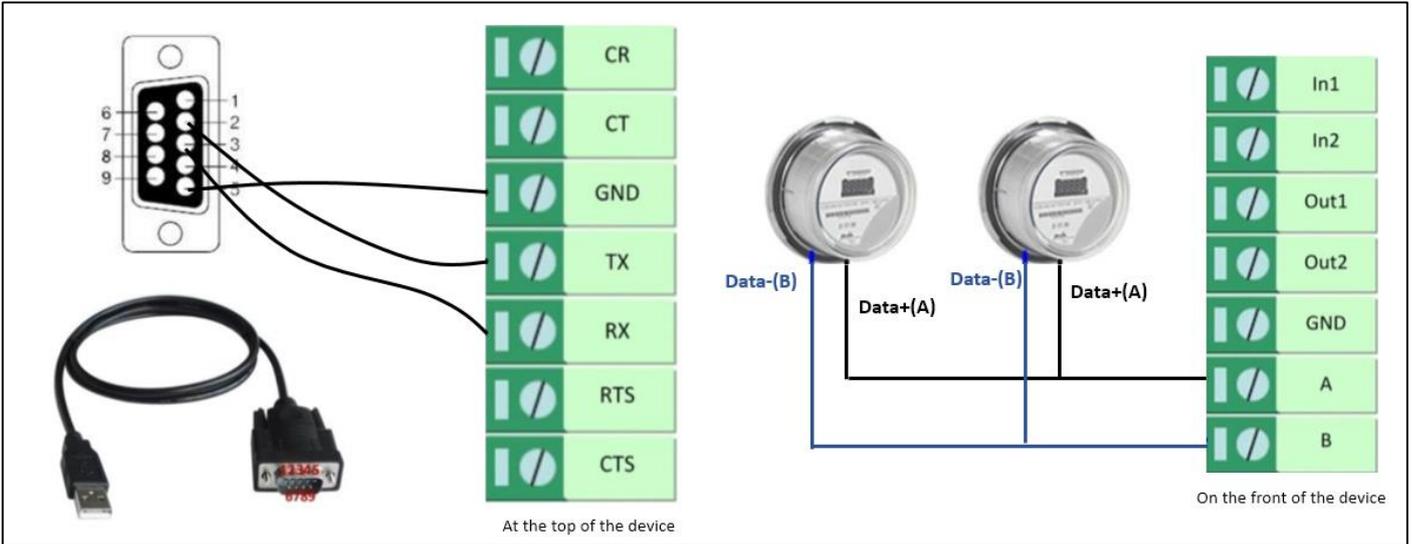
R3000 supports digital output with wet contact. Please refer to the right side figure to connect the negative pole of the power to the port marked "GND".

The maximum output voltage, output current and output power of DO is 30V DC, 0.3 A and 0.3 W respectively. It means that the voltage difference between Out1, Out2 and GND cannot exceed to 30V DC; and the current value through Out1 and Out2 cannot exceed to 300 mA; while the output power dissipated by Out1 and Out2 cannot exceed to 0.3W. Otherwise, the DO will be damaged.



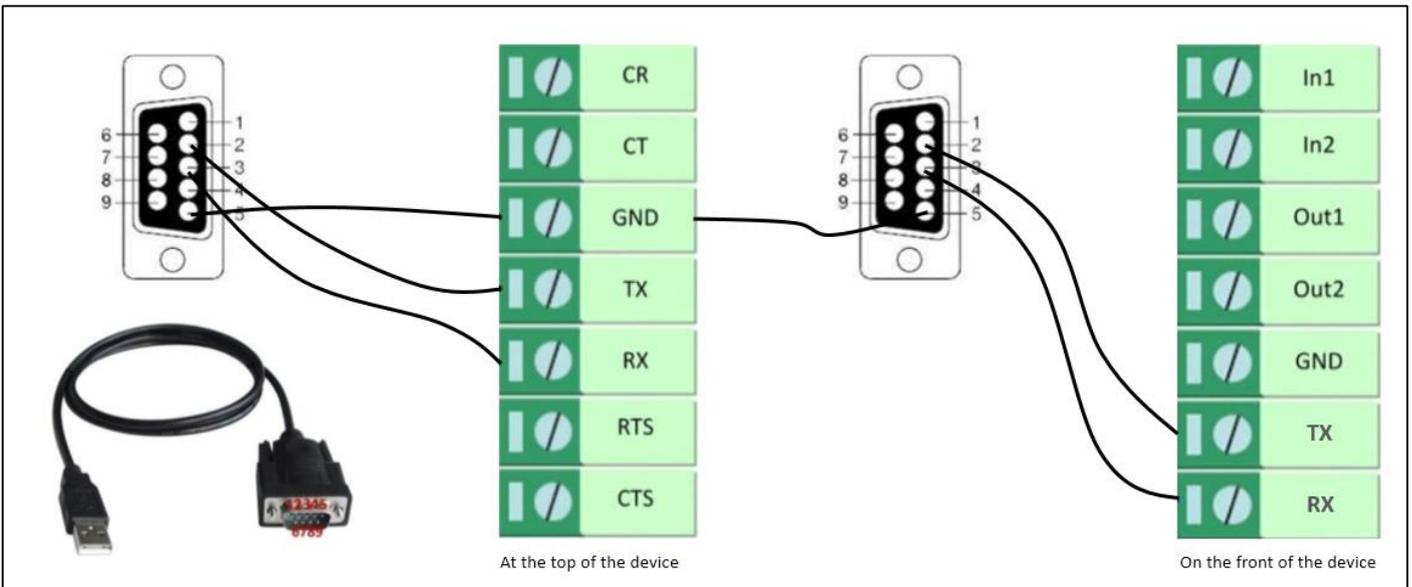
4.1.4 1*RS-232+1*RS-485

R3000 supports 1*RS-232+1*RS-485 for serial port data communication. Please refer to the connection diagram shown below.



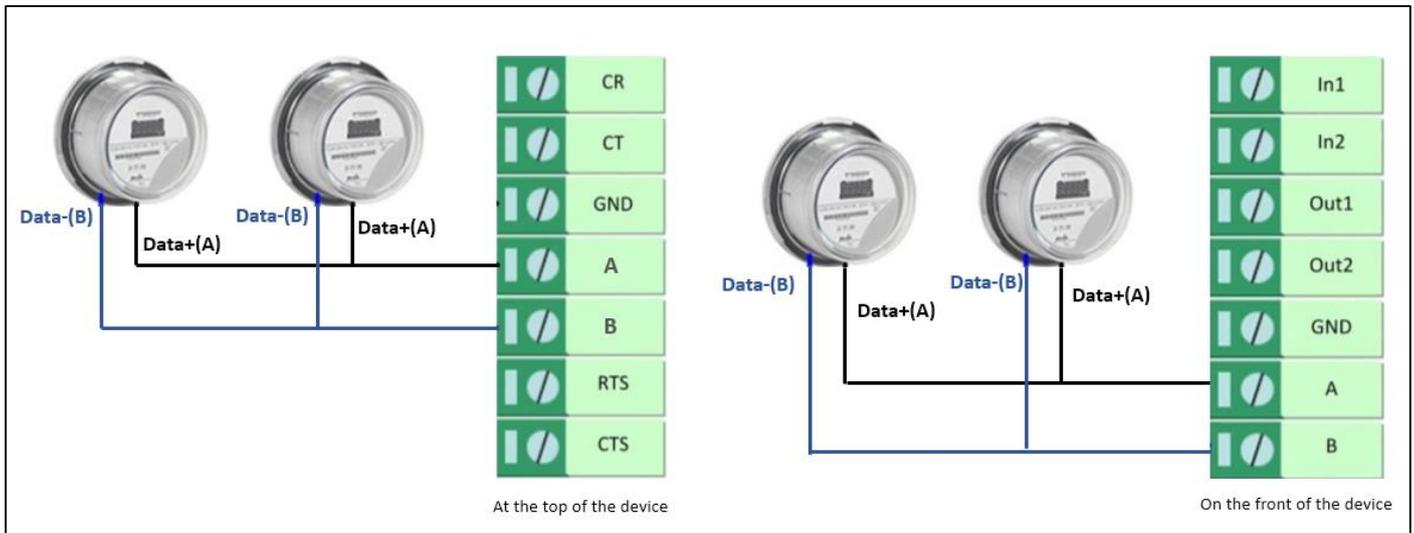
4.1.5 2*RS-232

R3000 supports 2*RS-232 for serial port data communication. Please refer to the connection diagram shown below.



4.1.6 2*RS-485

R3000 supports 2*RS-485 for serial port data communication. Please refer to the connection diagram shown below.



4.2 Cellular

4.2.1 Cellular Dial-Up

This section shows you how to configure the primary and backup SIM card for Cellular Dial-up. Connect the router correctly and insert two SIM, then open the configuration page. Under the homepage menu, click **Interface > Link Manager > Link Manager > General Settings**, choose “WWAN1” as the primary link and “WWAN2” as the backup link, and set “Cold Backup” as the backup mode, then click “Submit”.

Note: All data will be transferred via WWAN1 when choose WWAN1 as the primary link and set backup mode as cold backup. At the same time, WWAN2 is always offline as a backup link. All data transmission will be switched to WWAN2 when the WWAN1 is disconnected.

Link Manager
Status

^ General Settings

Primary Link ?

Backup Link

Backup Mode ?

Revert Interval ?

Emergency Reboot ON OFF ?

^ Link Settings

Index	Type	Description	IPv4 Connection Type	IPv6 Connection Type	
1	WWAN1	admin	DHCP	SLAAC	
2	WWAN2		DHCP	SLAAC	
3	WAN		DHCP	SLAAC	
4	WLAN		DHCP	SLAAC	

Click the of rightest of WWAN1 to set its parameters according to the current ISP.

Link Manager

^ General Settings

Index

Type

Description

IPv6 Enable ON OFF

^ WWAN Settings

Automatic APN Selection ON OFF

Dialup Number

Authentication Type v

PPP Preferred ON OFF ?

Switch SIM By Data Allowance ON OFF ?

Data Allowance ?

Billing Day ?

^ IPv6 LAN Settings

Connection Type v

IPv6 Prefix

IPv6 NAT Enable ON OFF

^ Ping Detection Settings ?

Enable ON OFF

IPv4 Primary Server

IPv4 Secondary Server

IPv6 Primary Server

IPv6 Secondary Server

Interval ?

Retry Interval ?

Timeout ?

Max Ping Tries ?

^ Advanced Settings

IPv4 NAT Enable ON OFF

Upload Bandwidth ?

Download Bandwidth

Overridden Primary DNS

Overridden Secondary DNS

Overridden IPv6 Primary DNS

Overridden IPv6 Secondary DNS

Debug Enable ON OFF

Verbose Debug Enable ON OFF

When finished, click **Submit > Save & Apply** for the configuration to take effect.

The window is displayed below by clicking **Interface > Cellular > Advanced Cellular Settings**.

Cellular	Status	AT Debug			
^ Advanced Cellular Settings					
Index	SIM Card	Phone Number	Network Type	Band Select Type	
1	SIM1		Auto	All	
2	SIM2		Auto	All	

Click the edit button of SIM1 to set its parameters according to your application request.

Cellular

^ General Settings

Index:

SIM Card:

Phone Number:

PIN Code: 

Extra AT Cmd: 

Telnet Port: 

^ Cellular Network Settings

Network Type: 

Band Select Type: 

^ Advanced Settings

Debug Enable: ON OFF

Verbose Debug Enable: ON OFF

When finished, click **Submit > Save & Apply** for the configuration to take effect.

4.2.2 SMS Remote Control

The router supports remote control via SMS. You can use following commands to get the status of the router, and set all the parameters. There are three authentication types for SMS control. You can select from “Password”, “Phonenum” or “Both”.

An SMS command has the following structure:

1. Password mode—**Username: Password;cmd1;cmd2;cmd3; ...cmdn** (available for every phone number).
2. Phonenum mode—**Password;cmd1; cmd2; cmd3; ... cmdn** (available when the SMS was sent from the phone number which had been added in R3000’s phone group).
3. Both mode-- **Username: Password;cmd1;cmd2;cmd3; ...cmdn** (available when the SMS was sent from the phone number which had been added in R3000’s phone group).

SMS command Explanation:

1. User name and Password: use the same username and password as WEB manager for authentication.
2. cmd1, cmd2, cmd3 to Cmdn, the command format is the same as the CLI command, more details about CLI cmd please refer to **Chapter 5 Introductions for CLI**.

Note: Download the configure XML file from the configured web browser. The format of SMS control command can refer to the data of the XML file.

Go to **System > Profile > Export Configuration File**, click **Generate** to generate the XML file and click **Export** to export the XML file.



XML command:

```
<lan>
<network max_entry_num="2">
<id>1</id>
<interface>lan0</interface>
<ip>172.16.24.24</ip>
<netmask>255.255.0.0</netmask>
<mtu>1500</mtu>
```

SMS cmd:

```
set lan network 1 interface lan0
set lan network 1 ip 172.16.24.24
set lan network 1 netmask 255.255.0.0
set lan network 1 mtu 1500
```

3. The semicolon character (;) is used to separate more than one command packed in a single SMS.
4. E.g.

admin:admin;status system

In this command, username is "admin", password is "admin", and the function of the command is to get the system status.

SMS received:

```
hardware_version = 1.2
firmware_version = "3.0.0"
kernel_version = 4.1.0
device_model = R3000
serial_number = 201612221052
uptime = "0 days, 00:40:21"
system_time = "Mon Feb 27 09:52:52 2017"
```

admin:admin;reboot

In this command, username is "admin", password is "admin", and the command is to reboot the Router.

SMS received:

```
OK
```

admin:admin;set firewall remote_ssh_access false;set firewall remote_telnet_access false

In this command, username is "admin", password is "admin", and the command is to disable the remote_ssh and remote_telnet access.

SMS received:

```
OK
```

```
OK
```

admin:admin; set lan network 1 interface lan0;set lan network 1 ip 172.16.24.24;set lan network 1 netmask 255.255.0.0;set lan network 1 mtu 1500

In this command, username is "admin", password is "admin", and the commands is to configure the LAN parameter.

SMS received:

```
OK
```

```
OK
```

```
OK
```

```
OK
```

4.3 Network

4.3.1 IPsec VPN



The configuration of server and client is as follows.

IPsec VPN_Server:

Cisco 2811:

```

Router>enable
Router#config
Configuring from terminal, memory, or network [terminal]?
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#crypto isakmp policy 10
Router(config-isakmp)#?
  authentication  Set authentication method for protection suite
  encryption      Set encryption algorithm for protection suite
  exit            Exit from ISAKMP protection suite configuration mode
  group          Set the Diffie-Hellman group
  hash           Set hash algorithm for protection suite
  lifetime        Set lifetime for ISAKMP security association
  no             Negate a command or set its defaults
Router(config-isakmp)#encryption 3des
Router(config-isakmp)#hash md5
Router(config-isakmp)#authentication pre-share
Router(config-isakmp)#group 2
Router(config-isakmp)#exit
Router(config)#crypto isakmp ?
  client  Set client configuration policy
  enable  Enable ISAKMP
  key     Set pre-shared key for remote peer
  policy  Set policy for an ISAKMP protection suite
Router(config)#crypto isakmp key cisco address 0.0.0.0 0.0.0.0

Router(config)#crypto ?
  dynamic-map  Specify a dynamic crypto map template
  ipsec        Configure IPSEC policy
  isakmp       Configure ISAKMP policy
  key          Long term key operations
  map          Enter a crypto map
Router(config)#crypto ipsec ?
  security-association  Security association parameters
  transform-set         Define transform and settings
Router(config)#crypto ipsec transform-set Trans ?
  ah-md5-hmac  AH-HMAC-MD5 transform
  ah-sha-hmac  AH-HMAC-SHA transform
  esp-3des     ESP transform using 3DES(EDE) cipher (168 bits)
  esp-aes     ESP transform using AES cipher
  esp-des     ESP transform using DES cipher (56 bits)
  esp-md5-hmac ESP transform using HMAC-MD5 auth
  esp-sha-hmac ESP transform using HMAC-SHA auth
Router(config)#crypto ipsec transform-set Trans esp-3des esp-md5-hmac

Router(config)#ip access-list extended vpn
Router(config-ext-nacl)#permit ip 10.0.0.0 0.0.0.255 192.168.1.0 0.0.0.255
Router(config-ext-nacl)#exit

Router(config)#crypto map cry-map 10 ipsec-isakmp
% NOTE: This new crypto map will remain disabled until a peer
and a valid access list have been configured.
Router(config-crypto-map)#match address vpn
Router(config-crypto-map)#set transform-set Trans
Router(config-crypto-map)#set peer 202.100.1.1
Router(config-crypto-map)#exit

Router(config)#interface fastEthernet 0/0
Router(config-if)#ip address 58.1.1.1 255.255.255.0
Router(config-if)#cr
Router(config-if)#crypto map cry-map
*Jan  3 07:16:26.785: %CRYPTO-6-ISAKMP_ON_OFF: ISAKMP is ON

```

IPsec VPN_Client:

The window is displayed as below by clicking **VPN > IPsec > Tunnel**.

General	Tunnel	Status	x509			
^ Tunnel Settings						
Index	Enable	Description	Gateway	Local Subnet	Remote Subnet	+

Click **+** button and set the parameters of IPsec Client as below.

Tunnel

^ General Settings

Index:

Enable: ON OFF

Description:

Gateway: ?

Mode: v

Protocol: v

Local Subnet: ?

Remote Subnet: ?

Link Binding: v ?

^ IKE Settings

IKE Type: v

Negotiation Mode: v

Encryption Algorithm: v

Authentication Algorithm: v

IKE DH Group: v

Authentication Type: v

PSK Secret:

Local ID Type: v

Remote ID Type: v

IKE Lifetime: ?

^ SA Settings

Encryption Algorithm: v

Authentication Algorithm: v

PFS Group: v

SA Lifetime: ?

DPD Interval: ?

DPD Failures: ?

^ Advanced Settings

Enable Compression ON OFF

Enable Forceencaps ON OFF ?

Expert Options ?

When finished, click **Submit > Save & Apply** for the configuration to take effect.

The comparison between server and client is as below.

```

Router#enable
Router#config
Configuring from terminal, memory, or network (terminal)?
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#crypto isakmp policy 10
Router(config-isakmp)#?
 authentication Set authentication method for protection suite
 encryption Set encryption algorithm for protection suite
 exit Exit from ISAKMP protection suite configuration mode
 group Set the Diffie-Hellman group
 hash Set hash algorithm for protection suite
 lifetime Set lifetime for ISAKMP security association
 no Negate a command or set its defaults
Router(config-isakmp)#encryption 3des
Router(config-isakmp)#hash md5
Router(config-isakmp)#authentication pre-share
Router(config-isakmp)#group 2
Router(config-isakmp)#exit
Router(config)#crypto isakmp ?
 client Set client configuration policy
 enable Enable ISAKMP
 key Set pre-shared key for remote peer
 policy Set policy for an ISAKMP protection suite
Router(config)#crypto isakmp key cisco address 0.0.0.0 0.0.0.0

Router(config)#crypto ?
 dynamic-map Specify a dynamic crypto map template
 ipsec Configure IPSEC policy
 isakmp Configure ISAKMP policy
 key Long term key operations
 map Enter a crypto map
Router(config)#crypto ipsec ?
 security-association Security association parameters
 transform-set Define transform and settings
Router(config)#crypto ipsec transform-set Trans ?
 ah-md5-hmac AH-HMAC-MD5 transform
 ah-sha-hmac AH-HMAC-SHA transform
 esp-3des ESP transform using 3DES(EDE) cipher (168 bits)
 esp-aes ESP transform using AES cipher
 esp-des ESP transform using DES cipher (56 bits)
 esp-md5-hmac ESP transform using HMAC-MD5 auth
 esp-null ESP transform using null auth
Router(config)#crypto ipsec transform-set Trans esp-3des esp-md5-hmac

Router(config)#ip access-list extended vpn
Router(config-ext-nacl)#permit ip 10.0.0.0 0.0.0.255 192.168.1.0 0.0.0.255
Router(config-ext-nacl)#exit

Router(config)#crypto map cry-map 10 ipsec-isakmp
* NOTE: This new crypto map will remain disabled until a peer
and a valid access list have been configured.
Router(config-crypto-map)#match address vpn
Router(config-crypto-map)#set transform-set Trans
Router(config-crypto-map)#set peer 202.100.1.1
Router(config-crypto-map)#exit

Router(config)#interface fastEthernet 0/0
Router(config-if)#ip address 58.1.1.1 255.255.255.0
Router(config-if)#cr
Router(config-if)#crypto map cry-map
*Jan 3 07:16:26.785: %CRYPTO-6-ISAKMP_ON_OFF: ISAKMP is ON
                    
```

^ General Settings

Index

Enable ON

Description

Gateway ?

Mode

Protocol

Local Subnet ?

Remote Subnet ?

Link Binding ?

^ IKE Settings

IKE Type

Negotiation Mode

Encryption Algorithm

Authentication Algorithm

IKE DH Group

Authentication Type

PSK Secret

Local ID Type

Remote ID Type

IKE Lifetime ?

^ SA Settings

Encryption Algorithm

Authentication Algorithm

PFS Group

SA Lifetime ?

DPD Interval ?

DPD Failures ?

^ Advanced Settings

Enable Compression ON OFF

Enable Forceencaps ON OFF ?

Expert Options ?

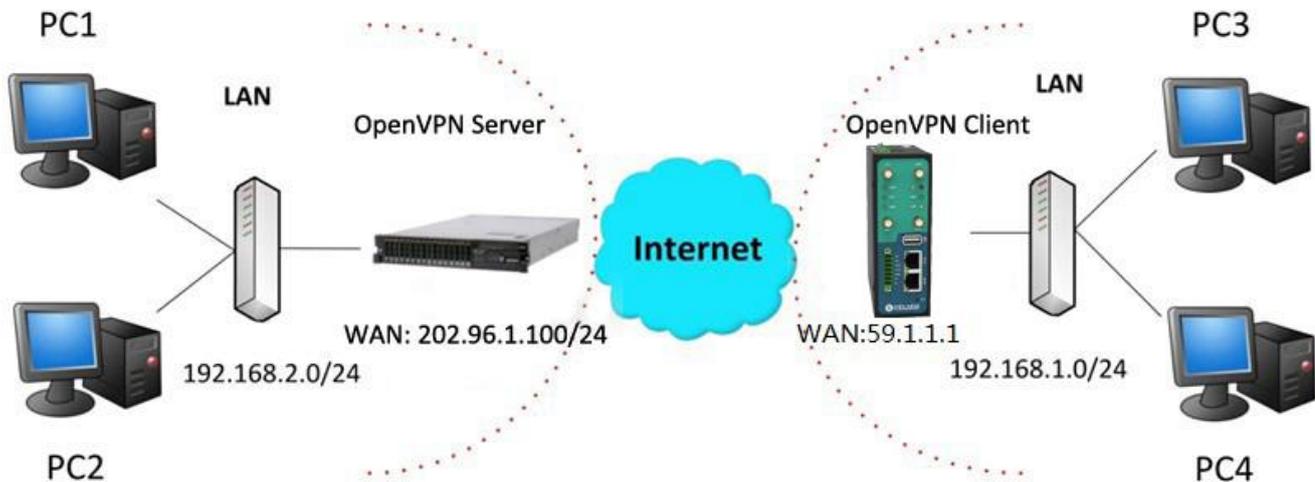
Server (Cisco 2811)

Router IKE Settings should be consistent with service fees.

Router SA Settings should be consistent with service fees.

4.3.2 OpenVPN

OpenVPN supports two modes, including Client and P2P. Here takes P2P as an example.



The configuration of two points is as follows.

OpenVPN_Server:

Generate relevant OpenVPN certificate on the server side firstly, and refer to the following commands to configuration the Server:

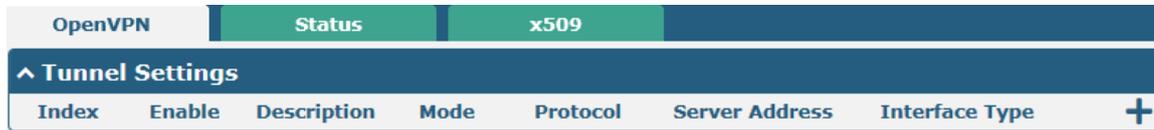
```
local 202.96.1.100
mode server
port 1194
proto udp
dev tun
tun-mtu 1500
fragment 1500
ca ca.crt
cert Server01.crt
key Server01.key
dh dh1024.pem
server 10.8.0.0 255.255.255.0
ifconfig-pool-persist ipp.txt
push "route 192.168.3.0 255.255.255.0"
client-config-dir ccd
route 192.168.1.0 255.255.255.0
keepalive 10 120
cipher BF-CBC
comp-lzo
max-clients 100
persist-key
persist-tun
status openvpn-status.log
```

verb 3

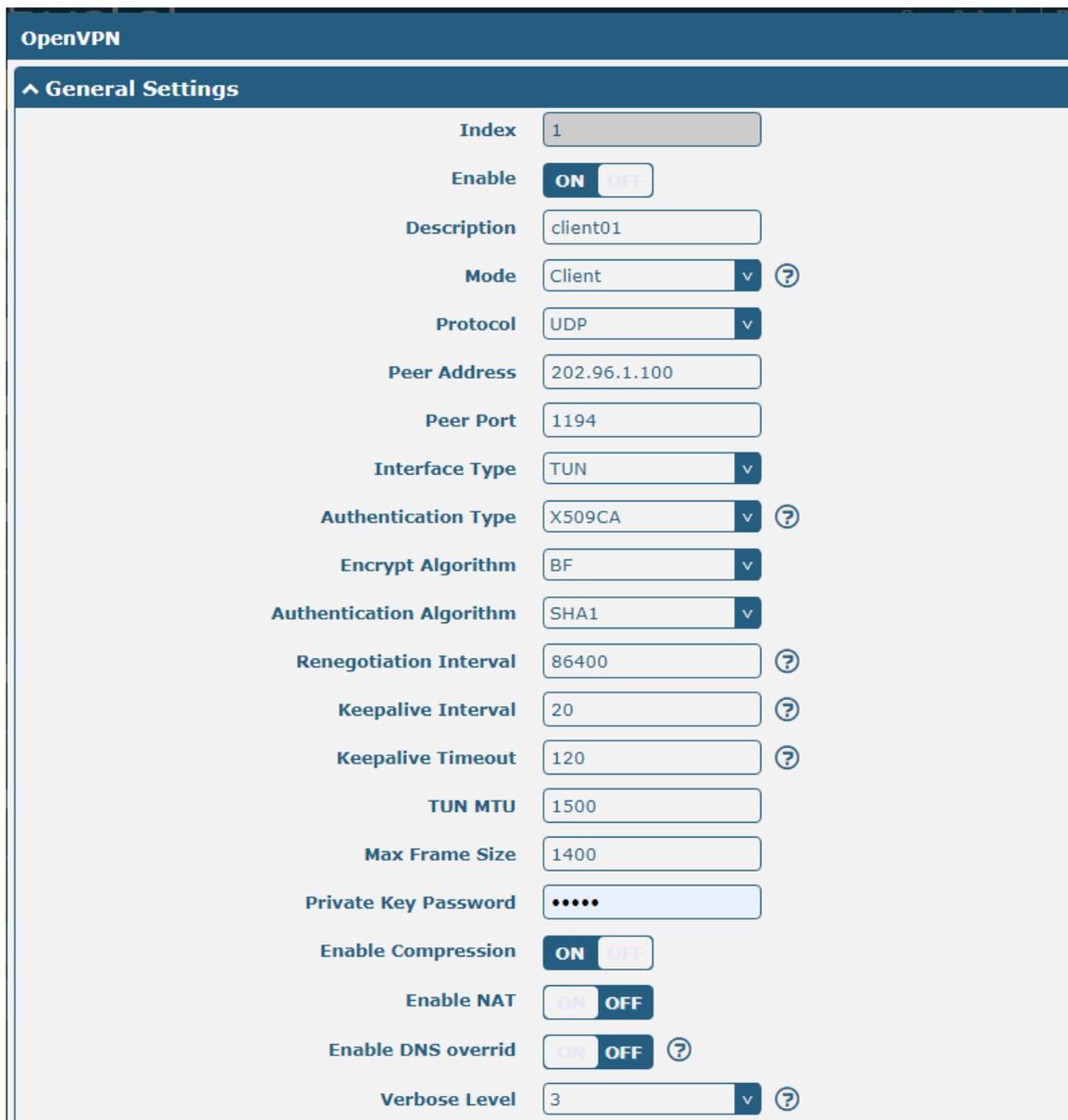
Note: For more configuration details, please contact your technical support engineer.

OpenVPN_Client:

Click **VPN > OpenVPN > OpenVPN** as below.



Click **+** to configure the Client01 as below.



^ Advanced Settings

Enable HMAC Firewall OFF

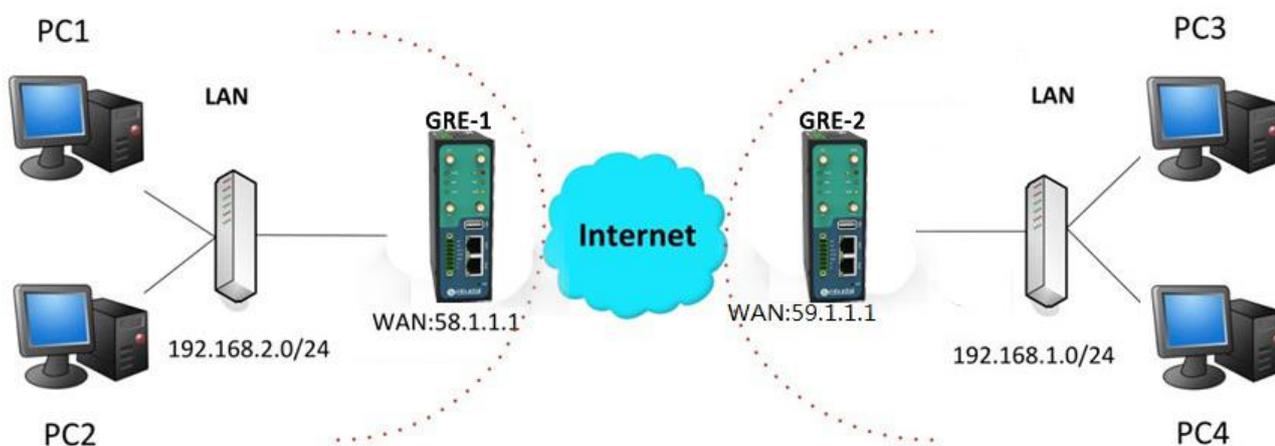
Enable PKCS#12 OFF

Enable nsCertType OFF

Expert Options ?

When finished, click **Submit** > **Save & Apply** for the configuration to take effect.

4.3.3 GRE VPN



The configuration of two points is as follows.

The window is displayed as below by clicking **VPN** > **GRE** > **GRE**.

GRE

Status

^ Tunnel Settings

Index	Enable	Description	Remote IP Address	+

GRE-1:

Click **+** button and set the parameters of GRE-1 as below.

^ Tunnel Settings

Index	<input type="text" value="1"/>
Enable	<input checked="" type="checkbox"/> ON <input type="checkbox"/> OFF
Description	<input type="text"/>
Remote IP Address	<input type="text" value="59.1.1.1"/>
Local Virtual IP Address	<input type="text" value="10.8.0.1"/>
Local Virtual Netmask/Prefix Length	<input type="text" value="255.255.255.0"/> ?
Remote Virtual IP Address	<input type="text" value="10.8.0.2"/>
Enable Default Route	<input type="checkbox"/> ON <input checked="" type="checkbox"/> OFF
Enable NAT	<input type="checkbox"/> ON <input checked="" type="checkbox"/> OFF
Secrets	<input type="password" value="....."/>
Link Binding	<input type="text" value="Unspecified"/> v ?

When finished, click **Submit > Save & Apply** for the configuration to take effect.

GRE

^ Tunnel Settings

Index	<input type="text" value="1"/>
Enable	<input checked="" type="checkbox"/> ON <input type="checkbox"/> OFF
Description	<input type="text" value="GRE-2"/>
Remote IP Address	<input type="text" value="58.1.1.1"/>
Local Virtual IP Address	<input type="text" value="10.8.0.2"/>
Local Virtual Netmask/Prefix Length	<input type="text" value="255.255.255.0"/> ?
Remote Virtual IP Address	<input type="text" value="10.8.0.1"/>
Enable Default Route	<input type="checkbox"/> ON <input checked="" type="checkbox"/> OFF
Enable NAT	<input type="checkbox"/> ON <input checked="" type="checkbox"/> OFF
Secrets	<input type="password" value="....."/>
Link Binding	<input type="text" value="Unspecified"/> v ?

GRE-2:

Click **+** button and set the parameters of GRE-1 as below.

When finished, click **Submit > Save & Apply** for the configuration to take effect.

The comparison between GRE-1 and GRE-2 is as below.

GRE Tunnel Settings (Left):

- Index: 1
- Enable: ON
- Description: GRE-1
- Remote IP Address: 58.1.1.1
- Local Virtual IP Address: 10.8.0.1
- Local Virtual Netmask/Prefix Length: 255.255.255.0
- Remote Virtual IP Address: 10.8.0.2
- Enable Default Route: OFF
- Enable NAT: OFF
- Secrets: *****
- Link Binding: Unspecified

GRE Tunnel Settings (Right):

- Index: 1
- Enable: ON
- Description: GRE-2
- Remote IP Address: 59.1.1.1
- Local Virtual IP Address: 10.8.0.2
- Local Virtual Netmask/Prefix Length: 255.255.255.0
- Remote Virtual IP Address: 10.8.0.1
- Enable Default Route: OFF
- Enable NAT: OFF
- Secrets: *****
- Link Binding: Unspecified

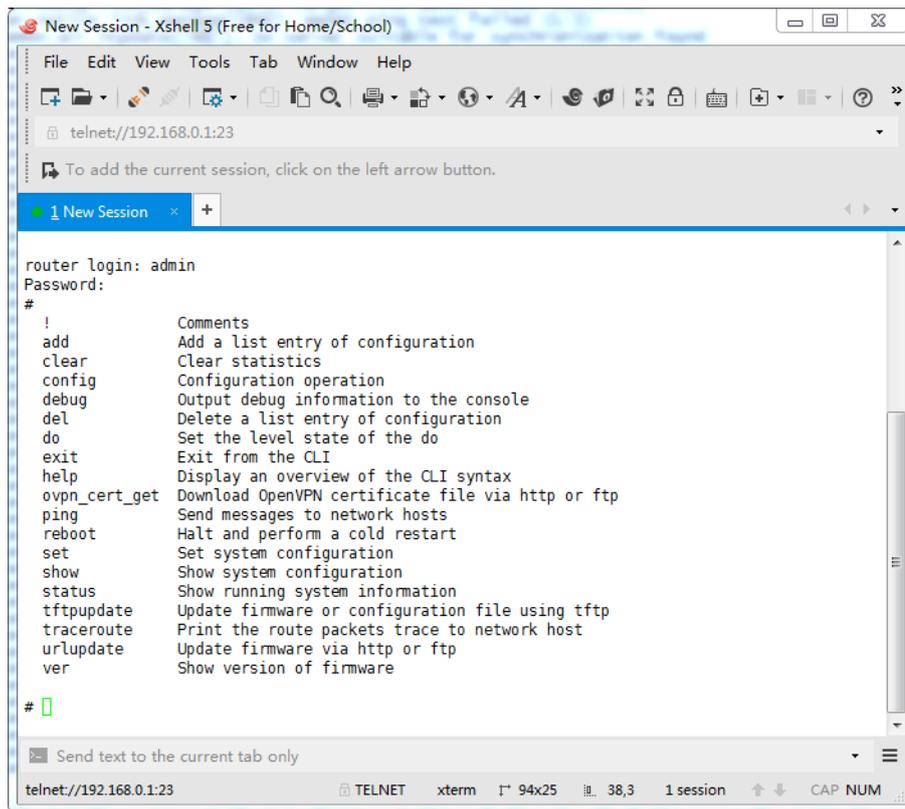
Annotations:

- GRE-1 real public network IP address (58.1.1.1)
- GRE-1 real tunnl IP address (10.8.0.1)
- GRE-2 real tunnl IP address (10.8.0.1)
- GRE-2 real public network IP address (59.1.1.1)
- GRE-2 real tunnl IP address (10.8.0.2)
- USE the same password for GRE-1 and GRE-2 (Secrets field)

Chapter 5 Introductions for CLI

5.1 What Is CLI

The R3000 command-line interface (CLI) is a software interface providing another way to set the parameters of equipment from the [SSH](#) or through a [telnet](#) network connection.



```

New Session - Xshell 5 (Free for Home/School)
File Edit View Tools Tab Window Help
telnet://192.168.0.1:23
To add the current session, click on the left arrow button.
New Session x +
router login: admin
Password:
#
!           Comments
add        Add a list entry of configuration
clear      Clear statistics
config     Configuration operation
debug      Output debug information to the console
del        Delete a list entry of configuration
do         Set the level state of the do
exit       Exit from the CLI
help       Display an overview of the CLI syntax
ovpn_cert_get Download OpenVPN certificate file via http or ftp
ping       Send messages to network hosts
reboot     Halt and perform a cold restart
set        Set system configuration
show       Show system configuration
status     Show running system information
tftpupdate Update firmware or configuration file using tftp
traceroute Print the route packets trace to network host
urlupdate  Update firmware via http or ftp
ver        Show version of firmware
#
Send text to the current tab only
telnet://192.168.0.1:23 TELNET xterm 94x25 38,3 1 session CAP NUM

```

Route login:

Router login: admin

Password: admin

#

CLI commands:

? (**Note:** the '?' won't display on the page.)

!	Comments
add	Add a list entry of configuration
clear	Clear statistics
config	Configuration operation
debug	Output debug information to the console
del	Delete a list entry of configuration
exit	Exit from the CLI
help	Display an overview of the CLI syntax

ovpn_cert_get	Download OpenVPN certificate file via http or ftp
ping	Send messages to network hosts
reboot	Halt and perform a cold restart
route	Static route modify dynamically, this setting will not be saved
set	Set system configuration
show	Show system configuration
status	Show running system information
tftpupdate	Update firmware using tftp
tracert	Print the route packets trace to network host
urlupdate	Update firmware using http or ftp
ver	Show version of firmware

5.2 How to Configure the CLI

Following is a table 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. eg. # config (Press ‘?’) config Configuration operation # config (Press spacebar +’?’) commit Save the configuration changes and take effect changed configuration save_and_apply Save the configuration changes and take effect changed configuration loaddefault Restore Factory Configuration
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.
Syntax error: The command is not completed	Command is not completed.
Tick space key+ Tab key	It can help you finish you command. Example: # config (tick Enter key) Syntax error: The command is not completed # config (tick space key+ Tab key) commit save_and_apply loaddefault
#config commit # config save_and_apply	When your setting finished, you should enter those commands to make your setting take effect on the device. Note: Commit and save_and_apply plays the same role.

5.3 Commands Reference

Commands	Syntax	Description
Debug	Debug <i>parameters</i>	Turn on or turn off debug function
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>	

Note: Download the config.XML file from the configured web browser. The command format can refer to the config.XML file format.

5.4 Quick Start with Configuration Examples

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

Example 1: Show current version

```
# status system
hardware_version = 1.2
firmware_version = "3.0.0"
kernel_version = 4.1.0
device_model = R3000
serial_number = 201612221052
uptime = "0 days, 00:40:21"
system_time = "Mon Feb 27 09:52:52 2017"
```

Example 2: Update firmware via tftp

```
# tftpupdate (space+?)
firmware New firmware
# tftpupdate firmware (space+?)
String Firmware name
# tftpupdate firmware filename R3000-firmware-sysupgrade-unknown.bin host 192.168.100.99 //enter a new
firmware name
Downloading
R3000-firmware-s 100% |*****| 5018k 0:00:00 ETA
Flashing
Checking 100%
Decrypting 100%
Flashing 100%
Verifying 100%
Verify Success
upgrade success //update success
# config save_and_apply
OK // save and apply current configuration, make you configuration effect
```

Example 3: Set link-manager

```
# set
# set
at_over_telnet AT Over Telnet
cellular Cellular
ddns Dynamic DNS
ethernet Ethernet
```

```

event                Event Management
firewall             Firewall
gre                 GRE
ipsec               IPsec
lan                 Local Area Network
link_manager        Link Manager
ntp                 NTP
openvpn             OpenVPN
reboot              Automatic Reboot
RobustLink          RobustLink
route               Route
sms                 SMS
snmp                SNMP agent
ssh                 SSH
syslog              Syslog
system              System
user_management     User Management
vrrp                VRRP
web_server          Web Server
# set link_manager
  primary_link       Primary Link
  backup_link        Backup Link
  backup_mode        Backup Mode
  emergency_reboot   Emergency Reboot
  link                Link Settings
# set link_manager primary_link (space+?)
Enum   Primary Link (wwan1/wwan2/wan)
# set link_manager primary_link wwan1           //select "wwan1" as primary_link
OK                                               //setting succeed
# set link_manager link 1
  type                Type
  desc                Description
  connection_type     Connection Type
  wwan                WWAN Settings
  static_addr         Static Address Settings
  pppoe               PPPoE Settings
  ping                Ping Settings
  mtu                 MTU
  dns1_overridden     Overridden Primary DNS
  dns2_overridden     Overridden Secondary DNS
# set link_manager link 1 type wwan1
OK
# set link_manager link 1 wwan
  auto_apn             Automatic APN Selection
  apn                  APN

```

```

username                Username
password                Password
dialup_number           Dialup Number
auth_type               Authentication Type
aggressive_reset        Aggressive Reset
switch_by_data_allowance  Switch SIM By Data Allowance
data_allowance          Data Allowance
billing_day              Billing Day
# set link_manager link 1 wwan switch_by_data_allowance true
OK
#
# set link_manager link 1 wwan data_allowance 100                //open cellular switch_by_data_traffic
OK                                                                //setting succeed
# set link_manager link 1 wwan billing_day 1                    //setting specifies the day of month for billing
OK                                                                //setting succeed
...
# config save_and_apply
OK                                                                // save and apply current configuration, make you configuration effect

```

Example 4: Set Ethernet

```

# set Ethernet port_setting 2 port_assignmEnt lan0                //Set Table 2 (eth1) to lan0
OK
# config save_and_apply                                          //setting succeed
OK

```

Example 5: Set LAN IP address

```

# show lan all
network {
    id = 1
    interface = lan0
    ip = 192.168.0.1
    netmask = 255.255.255.0
    mtu = 1500
    dhcp {
        enable = true
        mode = server
        relay_server = ""
        pool_start = 192.168.0.2
        pool_end = 192.168.0.100
        netmask = 255.255.255.0
        gateway = ""
    }
}

```

```

        primary_dns = ""
        secondary_dns = ""
        wins_server = ""
        lease_time = 120
        expert_options = ""
        debug_enable = false
    }
}
multi_ip {
    id = 1
    interface = lan0
    ip = 172.16.24.24
    netmask = 255.255.0.0
}
#
# set lan
network      Network Settings
multi_ip     Multiple IP Address Settings
vlan         VLAN
# set lan network 1(space+?)
interface    Interface
ip           IP Address
netmask     Netmask
mtu         MTU
dhcp        DHCP Settings
# set lan network 1 interface lan0
OK
# set lan network 1 ip 172.16.24.24           //set IP address for lan
OK                                           //setting succeed
# set lan network 1 netmask 255.255.0.0
OK
#
...
# config save_and_apply
OK                                           // save and apply current configuration, make you configuration effect

```

Example 6: CLI for setting Cellular

```

# show cellular all
sim {
    id = 1
    card = sim1
    phone_number = ""
    extra_at_cmd = ""
    network_type = auto

```

```
band_select_type = all
band_gsm_850 = false
band_gsm_900 = false
band_gsm_1800 = false
band_gsm_1900 = false
band_wcdma_850 = false
band_wcdma_900 = false
band_wcdma_1900 = false
band_wcdma_2100 = false
band_lte_800 = false
band_lte_850 = false
band_lte_900 = false
band_lte_1800 = false
band_lte_1900 = false
band_lte_2100 = false
band_lte_2600 = false
band_lte_1700 = false
band_lte_700 = false
band_tdd_lte_2600 = false
band_tdd_lte_1900 = false
band_tdd_lte_2300 = false
band_tdd_lte_2500 = false
}
sim {
  id = 2
  card = sim2
  phone_number = ""
  extra_at_cmd = ""
  network_type = auto
  band_select_type = all
  band_gsm_850 = false
  band_gsm_900 = false
  band_gsm_1800 = false
  band_gsm_1900 = false
  band_wcdma_850 = false
  band_wcdma_900 = false
  band_wcdma_1900 = false
  band_wcdma_2100 = false
  band_lte_800 = false
  band_lte_850 = false
  band_lte_900 = false
  band_lte_1800 = false
  band_lte_1900 = false
  band_lte_2100 = false
  band_lte_2600 = false
```

```

band_lte_1700 = false
band_lte_700 = false
band_tdd_lte_2600 = false
band_tdd_lte_1900 = false
band_tdd_lte_2300 = false
band_tdd_lte_2500 = false
}
# set(space+?)
at_over_telnet    cellular        ddns            dhcp            dns
event            firewall       ipsec           lan             link_manager
ntp              openvpn       reboot          route           serial_port
sms              snmp           syslog          system          user_management
vrrp

# set cellular(space+?)
  sim    SIM Settings
# set cellular sim(space+?)
  Integer  Index (1..2)

# set cellular sim 1(space+?)
  card                SIM Card
  phone_number        Phone Number
  extra_at_cmd        Extra AT Cmd
  network_type        Network Type
  band_select_type    Band Select Type
  band_gsm_850        GSM 850
  band_gsm_900        GSM 900
  band_gsm_1800       GSM 1800
  band_gsm_1900       GSM 1900
  band_wcdma_850      WCDMA 850
  band_wcdma_900      WCDMA 900
  band_wcdma_1900     WCDMA 1900
  band_wcdma_2100     WCDMA 2100
  band_lte_800        LTE 800 (band 20)
  band_lte_850        LTE 850 (band 5)
  band_lte_900        LTE 900 (band 8)
  band_lte_1800       LTE 1800 (band 3)
  band_lte_1900       LTE 1900 (band 2)
  band_lte_2100       LTE 2100 (band 1)
  band_lte_2600       LTE 2600 (band 7)
  band_lte_1700       LTE 1700 (band 4)
  band_lte_700        LTE 700 (band 17)
  band_tdd_lte_2600   TDD LTE 2600 (band 38)
  band_tdd_lte_1900   TDD LTE 1900 (band 39)
  band_tdd_lte_2300   TDD LTE 2300 (band 40)
  band_tdd_lte_2500   TDD LTE 2500 (band 41)

```

```
# set cellular sim 1 phone_number 18620435279
```

```
OK
```

```
...
```

```
# config save_and_apply
```

```
OK // save and apply current configuration, make you configuration effect
```

Glossary

Abbr.	Description
AC	Alternating Current
APN	Access Point Name
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 Identity
IP	Internet Protocol
IPsec	Internet Protocol Security
kbps	kbits per second

Abbr.	Description
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

Abbr.	Description
VPN	Virtual Private Network
VSWR	Voltage Stationary Wave Ratio
WAN	Wide Area Network

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