robustel | User Guide

R3010

Industrial Cellular IoT Gateway

2xEth + 1xVoice + 1xRS-232 + 1xRS-485 +1xCAN + 1xConsole + 1xUSB

robustOS

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About This Document

This document provides hardware and software information of the Robustel R3010 Gateway, including introduction, installation, configuration and operation.

Trademarks and Permissions

Disclaimer

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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 gateway is used in a normal manner with a well-constructed network, the gateway 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 gateway, or for failure of the gateway to transmit or receive such data.

Safety Precautions

General

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

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

Using the Gateway in Vehicle

- Check for any regulation or law authorizing the use of cellular devices in vehicle in your country before installing the gateway.
- The driver or operator of any vehicle should not operate the gateway while driving.
- Install the gateway by qualified personnel. Consult your vehicle distributor for any possible interference of electronic parts by the gateway.
- The gateway 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 gateway is powered by the vehicle's main battery. The battery may be drained after extended period.

Protecting Your Gateway

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

- Do not expose the gateway 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 gateway. There is no user serviceable part inside and the warranty would be void.
- Do not drop, hit or shake the gateway. Do not use the gateway under extreme vibrating conditions.
- Do not pull the antenna or power supply cable. Attach/detach by holding the connector.
- Connect the gateway only according to the instruction manual. Failure to do it will void the warranty.
- In case of problem, please contact authorized distributor.

Federal Communication Commission Interference Statement

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

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

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

FCC Caution:

- Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.
- This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Industry Canada statement

❶ This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

1) this device may not cause interference, and
2) this device must accept any interference, including interference that may cause undesired operation of the device.

❶ Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

1) l'appareil ne doit pas produire de brouillage, et
2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

❷ This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter, except tested built-in radios.

❷ Cet appareil et son antenne ne doivent pas être situés ou fonctionner en conjonction avec une autre antenne ou un autre émetteur, exception faites des radios intégrées qui ont été testées.

❸ The County Code Selection feature is disabled for products marketed in the US/ Canada.

❸ La fonction de sélection de l'indicatif du pays est désactivée pour les produits commercialisés aux États-Unis et au Canada.

Radiation Exposure Statement:

This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

Déclaration d'exposition aux radiations:

Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 20 cm de distance entre la source de rayonnement et votre corps.

Regulatory and Type Approval Information

Table 1: Directives

2011/65/EU	The European RoHS 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)
Metal parts	o	o	o	o	o	o
Circuit modules	o	o	o	o	o	o
Cables and cable assemblies	o	o	o	o	o	o
Plastic and polymeric parts	o	o	o	o	o	o

o:
Indicates that this toxic or hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in 2011/65/EU and SJ/T11363-2006.

x:
Indicates that this toxic or hazardous substance contained in at least one of the homogeneous materials for this part *might exceed* the limit requirement in 2011/65/EU and SJ/T11363-2006.

Document History

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

Date	Firmware Version	Doc Version	Change Description
9 July, 2018	1.0.0	v.1.0.0	Initial release
24 July, 2018	1.0.0	v.1.0.1	• Changed the input power to 9-26 V DC • Added some description of accessories • Revised the description of CAN • Changed the terminal block to connector
8 Aug, 2018	1.0.0	v.1.0.2	• Added FCC and IC statements • Revised the description of LED indicators • Add CE certificate information
7 Sept, 2018	1.0.0	v.1.0.3	Added the description of USB interface
19 Sept, 2018	1.0.0	v.1.0.4	Added the received certification
29 Jan, 2019	1.0.0	v.1.0.5	Revised the approvals
27 Feb, 2019	1.0.0	v.1.0.6	• Revised the description of storage temperature • Revised the English grammar
26 Mar, 2019	1.0.0	v.1.0.7	• Revised the description of Supporting GSM and VoLTE (optional) for voice traffic • Revised the Regulatory and Type Approval Information

Contents

Chapter 1 Product Concept

1.1 Key Features

Robustel R3010 is an industrial gateway designed for elevator monitoring and provides fast, reliable and stable Internet connectivity.

R3010 is a powerful gateway developed from RobustOS, a Robustel self-developed and Linux-based operating system which is designed to be used in Robustel hardware routers. 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.

- Supports 2G/3G/4G cellular network
- Supports always online and connect according to needs
- Various interfaces: RS232/CAN/RS485/Console/USB/Ethernet/FXS
- RS485 serial port supports BACnet protocol
- Supports GSM and VoLTE(optional) for voice traffic
- Supports IPSec, OpenVPN, PPTP, L2TP, GRE, DMVPN
- Supports Modbus RTU/ASCII converts to TCP
- Built-in real time clock, software watchdog
- Supports message, telephone and reboot at regular time
- Supports e-mail and message event alert
- RobustOS + SDK + App
- Equipped with third party management platform, to realize real-time processing and analysis, fault real-time warning
- Management via SMS/Web/CLI/SNMP/RobustLink Cloud
- Robust industrial design (9 to 26V DC, desktop,wall or DIN rail mounting)

1.2 Package Contents

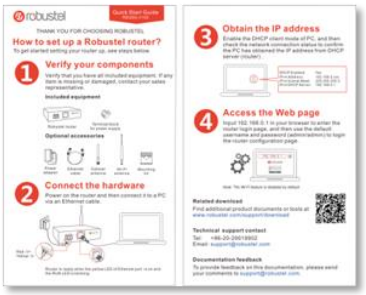
Before installing your R3010 Gateway, verify the kit contents as following.
Note: The following pictures are for illustration purposes only, not based on their actual sizes.

- 1 x Robustel R3010 Gateway

- 1 x 2-pin 3.81mm pluggable connector for power

- 4 x 3-pin 3.81mm connector

- 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):

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

- Wall mounting kit

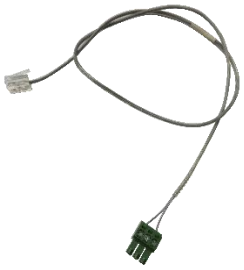
- 35 mm DIN rail mounting kit

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

- Power cable

- Serial cable

- Audio cable



1.3 Specifications

Cellular Interface	
Number of Antenna	2 (MAIN + AUX)
Type of Ports	SMA male
SIM slot Number	1 (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
Device Management	
Management	Web, CLI, SNMP v1/v2/v3, SMS RobustLink device management cloud platform RobustVPN VPN cloud platform
LED Indicators	
LED Indicators	RUN, MODEM, USR, RSSI(1-3), PWR Network port indicator
Voice Interface	
Physical Connector	3-pin 3.81mm connector
Interface type	FXS
Interface Standard	ITU Q.512 (SLIC), ITU K.20 (overcurrent and overvoltage protection)
Subscriber line interface circuit (SLIC)	
Ring voltage	40~90 Vpk configurable
Ring frequency	20~25 Hz
Ring waveform	sinusoidal
Maximum ringer load	5 ringer equivalence numbers (RENs)
On-hook voltage (tip/ring)	-46~56 V
Off-hook current	18~20 mA
Terminating impedance	configurable
Other	
Number of Ports	1x RS-232, 1 x CAN, 1 x RS-485 serial port, 1 x Console, 1 x SIM port

RS-232	Tx, Rx, GND
CAN	H, L, GND
RS-485	A (Data+), B (Data-), GND
Console	Tx, Rx, GND
Interface	3-pin 3.81mm connector
Type of Ports	2 x SMA female antenna port (MAIN +AUX)
Ethernet Port	2 x 10/100 Mbps (ETH0 + ETH1)
Expansion	1 x USB 2.0 host up to 480 Mbps

Software(Basic features of RobustOS)

Network protocols	PPP、PPPoE、TCP、UDP、DHCP、ICMP、NAT、HTTP、HTTPs、DNS、ARP、RIP、OSPF、NTP、SMTP、Telnet、VLAN、SSH2、IP Pass-through, etc.
VPN tunnel	IPsec, OpenVPN, GRE
Firewall	DMZ, anti-DoS, Filtering (IP/Domain name/MAC address), Port Mapping, Access Control
Management	Web, CLI, SMS
Serial port	Transparent, TCP Client/Server, UDP, Modbus RTU Gateway
Apps of RobustOS	
App center	L2TP, PPTP, DMVPN, RobustVPN, DDNS, VRRP, QoS, Captive Portal, WLAN Multi AP, SNMP, Language, RobustLink

**Request on demand, for more APPs please visit www.robustel.com.*

Power Supply and Consumption

Power supply interface	2-pin 3.81mm connector
Input voltage	9 to 26 VDC
Power consumption	900 mA (MAX) @ 9 V, 600 mA (MAX) @ 12 V, 400 mA (MAX) @ 26 V

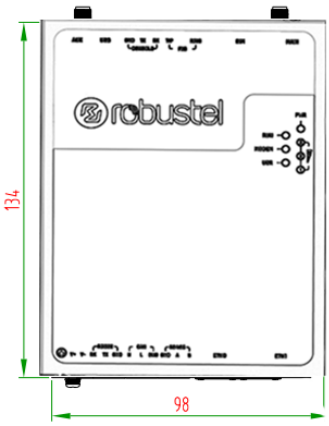
Physical Characteristics

Industry Protection Level	IP30
Housing & weight	Metal, 300g
Dimension	134mm x 98mm x 32mm
Installation	Desktop, wall and DIN rail mounting
Operation Temperature	-40~75°C
Storage temperature	-40~85°C
Humidity	5~95%RH

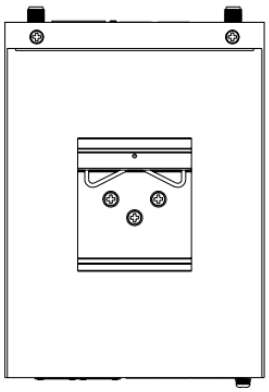
Approvals

Regulatory	CE. FCC. IC. PTCRB
Carrier	AT&T
Environmental	RoHS, WEEE

1.4 Dimensions

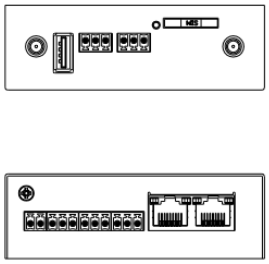


Front View



Rear View

Side View



Top&Bottom View

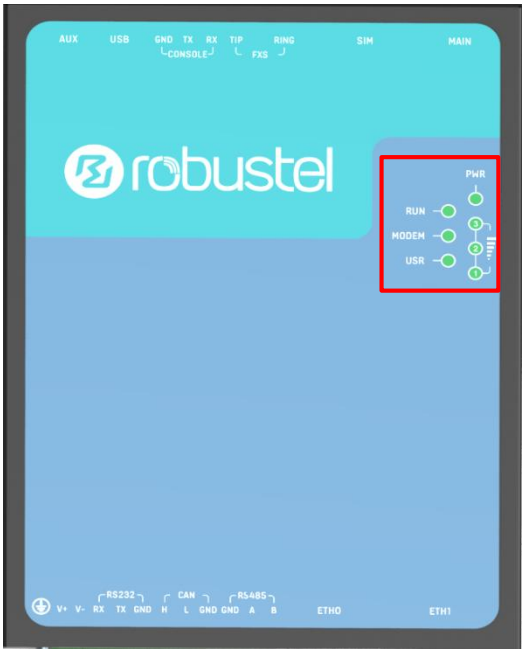
1.5 Ordering Information

Model	R3010-4L
Antenna Number	2
Air Interface	GSM/GPRS/EDGE/ HSDPA/HSUPA/HSPA+/FDD LTE
Frequency Bands 4G	EU: B1/B2/B3/B4/B5/B7/B8/B20 US: B2/B4/B5/B13/B17
3G	HSDPA/HSUPA/HSPA+/: B1/B2/B5/B8
2G	GSM/GPRS/EDGE: 850/900/1800/1900 MHz
Operating Environment	-40 to 75°C/5 to 95% RH
Storing Temperature	-40 to 85°C

**For more information about 4G frequency bands in different countries, please contact your Robustel sales representative.*

Chapter 2 Hardware Installation

2.1 LED Indicators



Name	Color	Status	Description
PWR	Green	On	Gateway is running
RUN	Green	Blinking every 250ms	Gateway is preparing
		Blinking every 500ms	Gateway starts working
		Off	Gateway is powered off
MODEM	Green	Solid	Connected to link successfully
		Blinking	Connected to link successfully and received or transmitted data
		Off	Disconnected to link
USR-NET	Green	Solid	Sign up successfully and work on the best network
		Blinking	Sign up to the low grade network
		Off	Sign up unsuccessfully or is signing up
USR-IPsec	Green	Solid	Connected to IPsec successfully
		Off	Disconnected to IPsec
USR-OpenVPN	Green	Solid	Connected to OpenVPN successfully
		Off	Disconnected to OpenVPN
USR-GRE	Green	Solid	Connected to GRE successfully
		Off	Disconnected to GRE

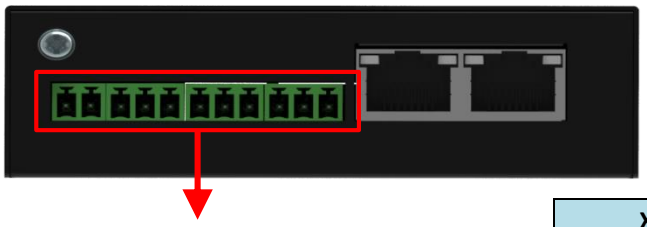
RSSI	Green	Three lights on	High signal (21~31)
		Two lights on	Medium signal (11~20)
		One light on	Low signal (1~10)
		Off	No signal

2.2 PIN Assignment

There are connector PIN relationship tables on the front view of the R3010, as the following figure showed.

Top View

Front View



Bottom View

XRS4 (Debug)		
PIN	**Function**	**Direction**
1	RX	Device→R3010
2	TX	R3010→Device
3	GND	--

XIT (FXS)		
PIN	**Function**	**Direction**
1	RING	Device→R3010
2	--	
3	TIP	R3010→Device

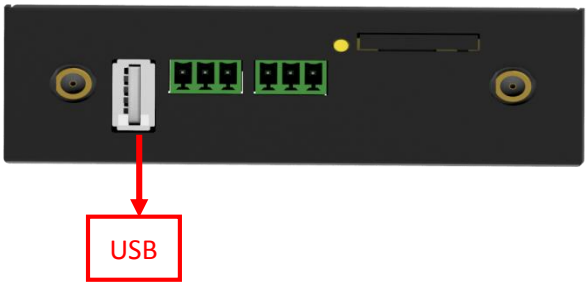
XPW (Power supply interface)		
PIN	**Function**	**Direction**
1	V+	Adapter→ R3010
2	V-	R3010→Adapter

XRS2 (CAN serial port)		
PIN	**Function**	**Direction**
1	CANH	Bidirectional
2	CANL	Bidirectional
3	GND	--

XRS1 (RS232 serial port)		
PIN	**Function**	**Direction**
1	RX	Device→ R3010
2	TX	R3010→Device
3	GND	--

XRS3 (RS485 serial port)		
PIN	**Function**	**Direction**
1	GND	--
2	A	Bidirectional
3	B	Bidirectional

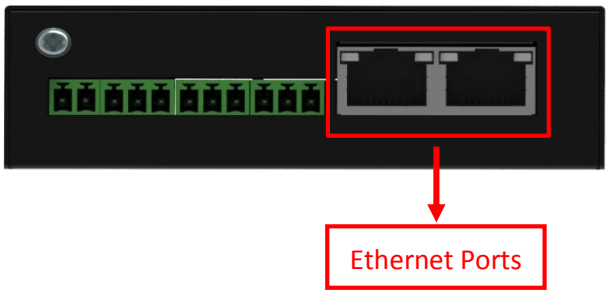
2.3 USB Interface



Top View

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 R3010 firmware in this USB storage device, the R3010 router will automatically update the configuration file or the firmware.

2.4 Ethernet Ports



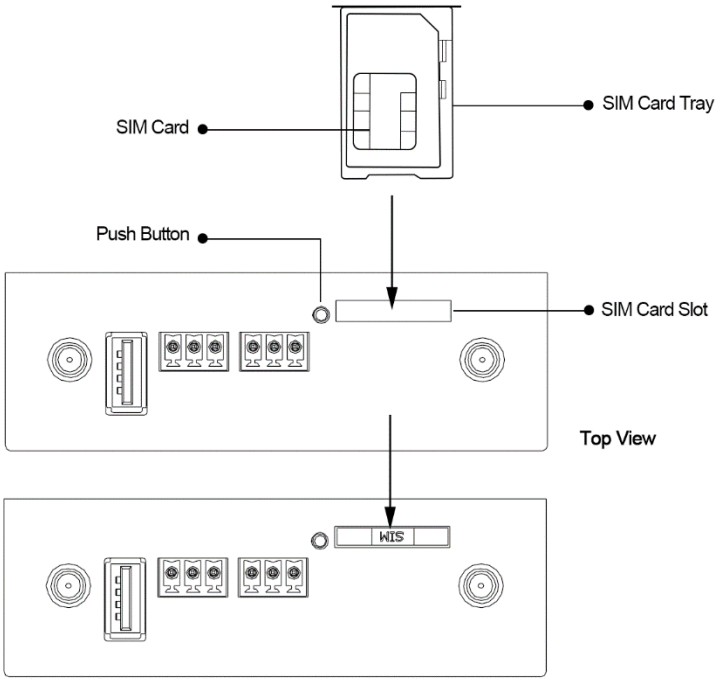
Bottom View

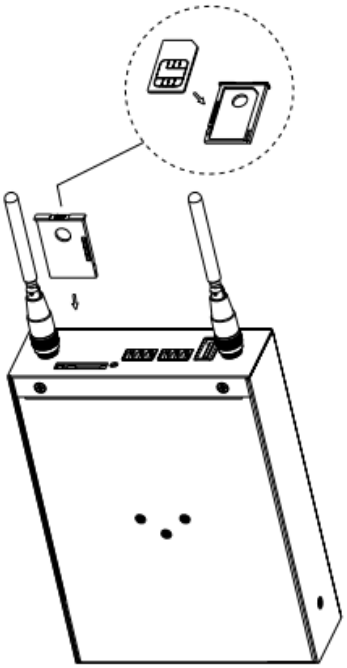
Each Ethernet port has two LED indicators (please check the picture above). The yellow one is Speed indicator and the green one is Link indicator. There are three status of each indicator. For details please refer to the form below.

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

2.5 Insert or Remove SIM Card

Be sure to insert a SIM card before you use the gateway.





Insert or remove the SIM as shown in the following steps.

- **Inserting SIM Card**

1. Power off the gateway.
2. Use a pointed stick to press the Push Button, and then take out the SIM Card Tray.
3. Place the SIM card on the tray, and insert them to the slot until you hear “a cracking sound”.

- **Removing SIM card**

1. Power off the gateway.
2. Press the Push Button, and the tray with SIM card will pop up to be pulled out.

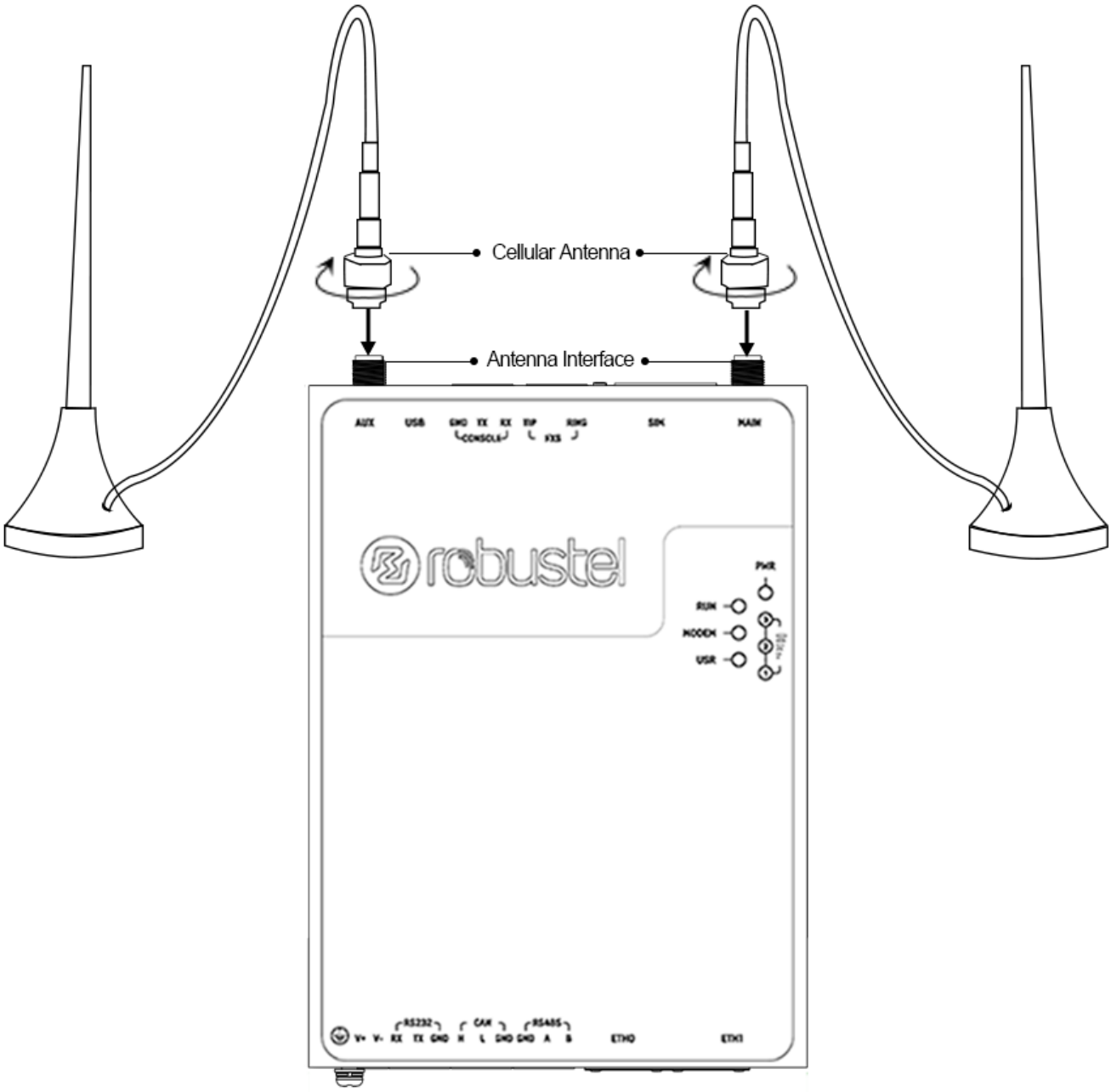
Note:

1. *Don’t touch the metal surface of the SIM card in case information in the card is lost or destroyed.*
2. *Don’t bend or scratch your SIM card. Keep the card away from electricity and magnetism.*
3. *Make sure to disconnect the power source from your gateway before inserting and removing your SIM card.*

2.6 Attach External Antenna (SMA Type)

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

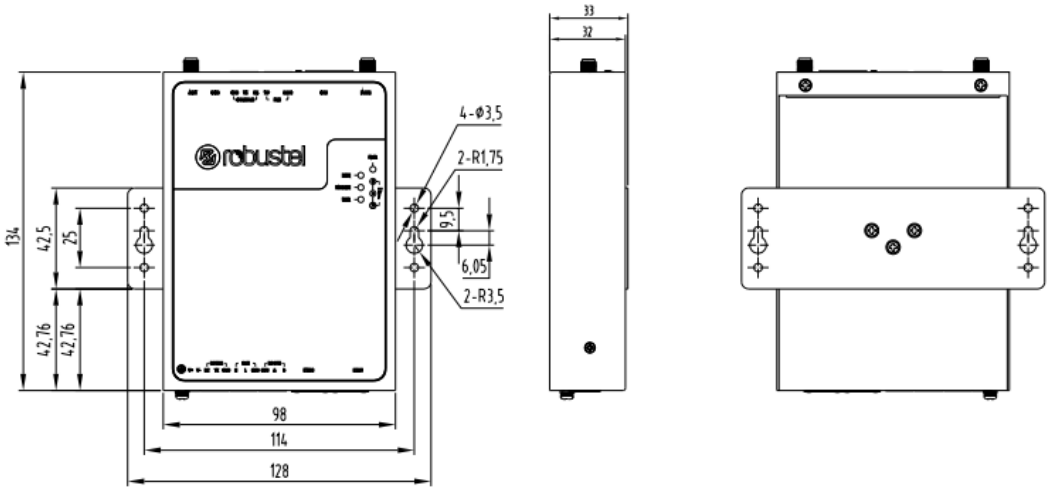
Note: Recommended torque for tightening is 0.35 N.m.



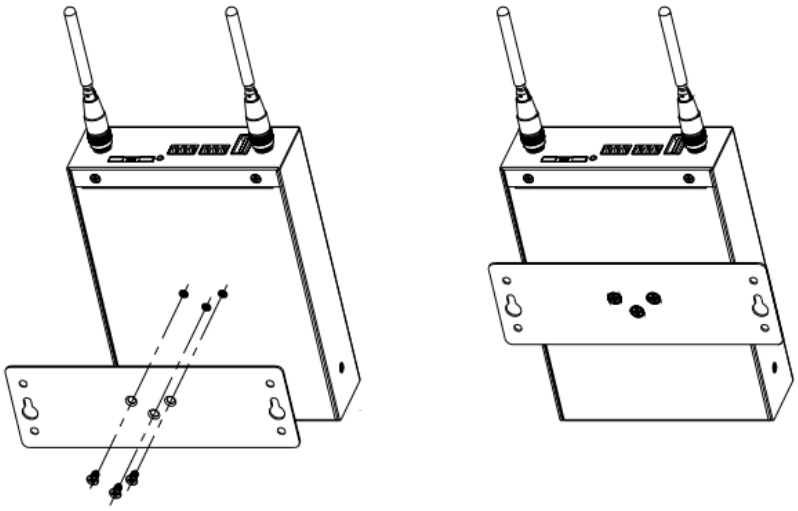
2.7 Mount the Gateway

The gateway supports desktop, wall and DIN rail mounting.

Wall mounting (measured in mm)



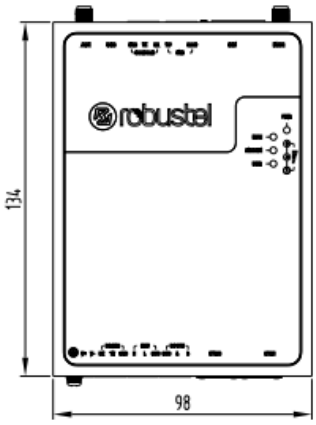
Front View Side View Back View



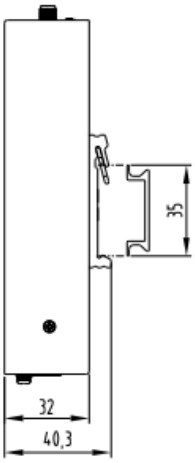
Use 3 pcs of M3*4 flat head Phillips screws to fix the wall mounting kit to the router, and then use 2 pcs of M3 drywall screws to mount the router associated with the wall mounting kit on the wall.

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

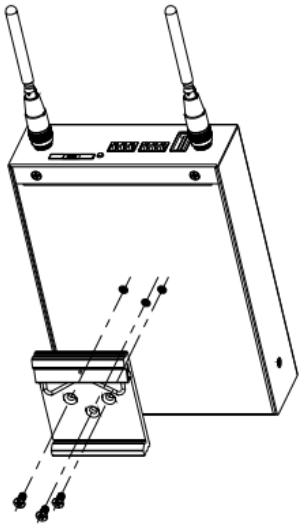
DIN rail size (measured in mm)

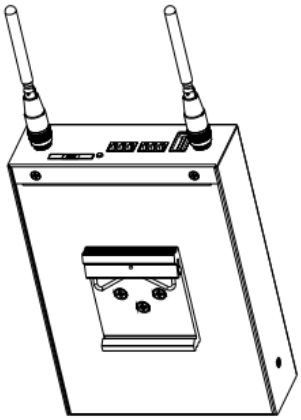


Front View



Side View





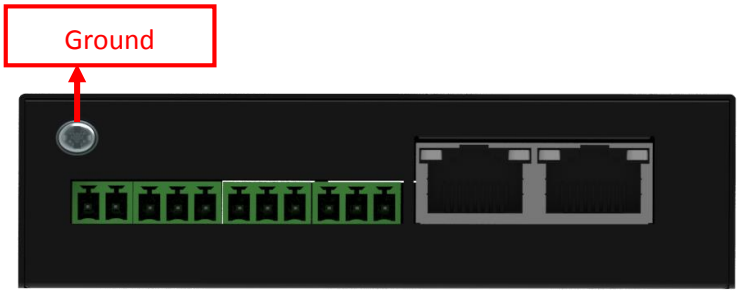
Use 3 pcs of M3*6 flat head Phillips screws to fix the DIN rail to the gateway, and then hang the DIN rail on the mounting bracket. It is necessary to choose a standard bracket.

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

2.8 Ground the Gateway

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

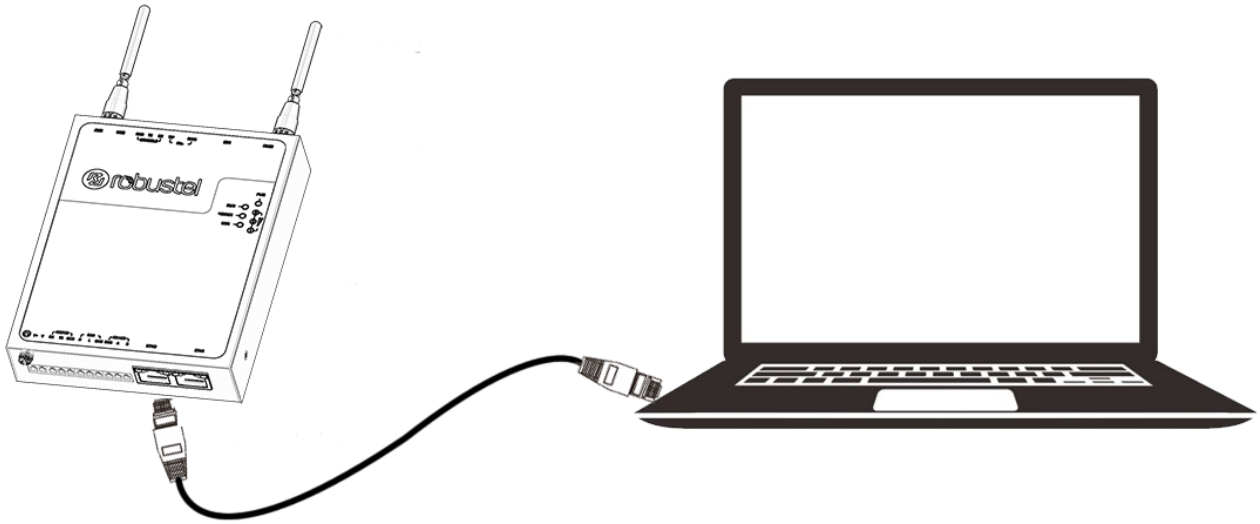
Note: This product is appropriate to be mounted on a sound grounded device surface, such as a metal panel.



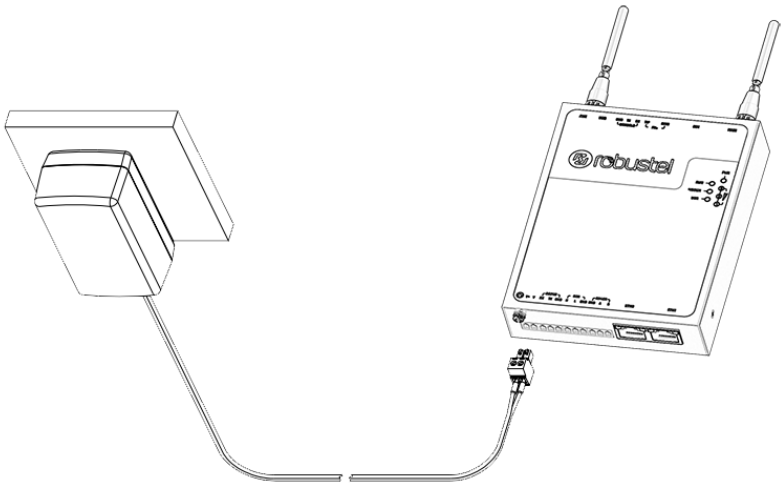
Bottom View

2.9Connect the Gateway to a Computer

Connect an Ethernet cable to ETH0 or ETH1 at the bottom of the R3010, and connect the other end of the cable to your computer.



2.10 Power Supply



R3010 Gateway supports reverse polarity protection, but always refers to the figure above to connect the power adapter correctly.

Note: The range of power voltage is 9 to 26V DC.

Chapter 3 Initial Configuration

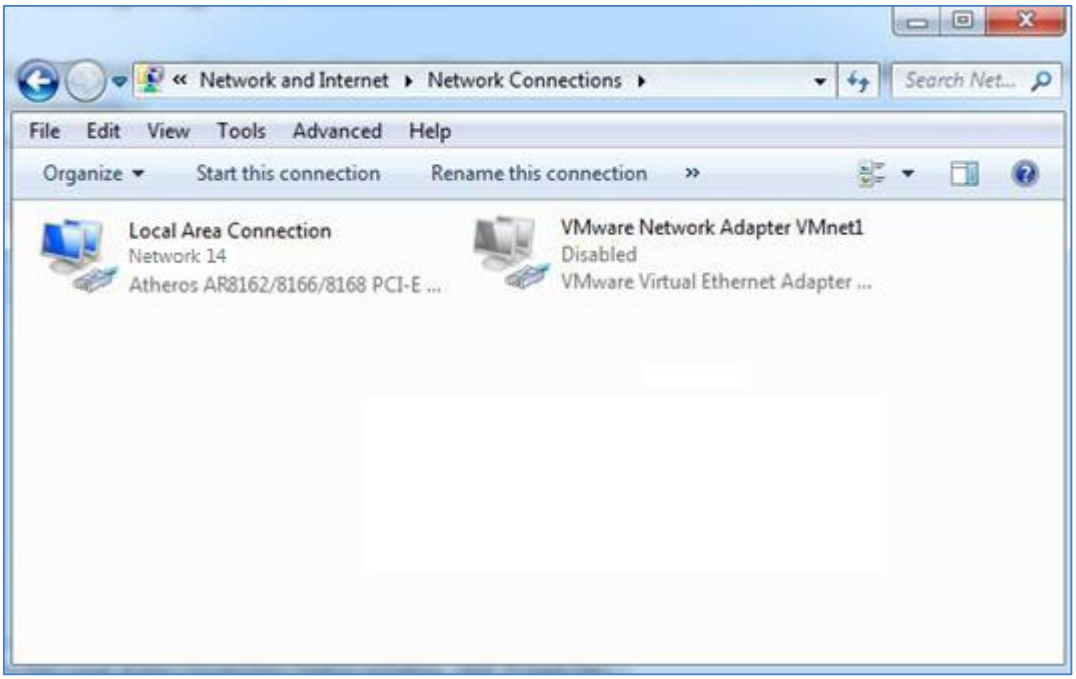
The gateway can be configured through your web browser that including IE 8.0 or above, Chrome and Firefox, etc. A web browser is included as a standard application in the following operating systems: Linux, Mac OS, Windows 98/NT/2000/XP/Me/Vista/7/8, etc. It provides an easy and user-friendly interface for configuration. There are various ways to connect the gateway, 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 gateway. 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 gateway. If you encounter any problems accessing the gateway 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 gateway.

3.1 Configure the PC

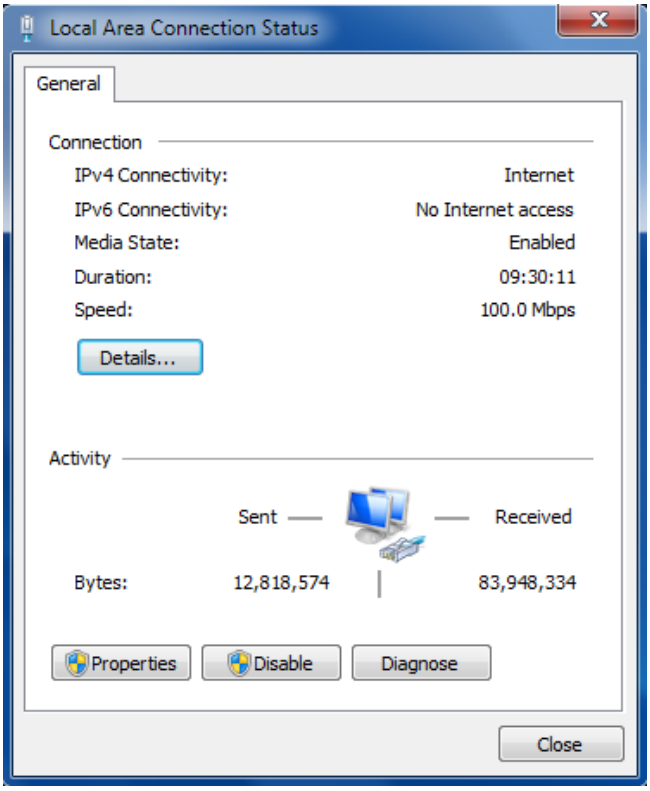
There are two methods to get IP address for the PC, one is to obtain an IP address automatically from "Local Area Connection", and another is to configure a static IP address manually within the same subnet of the gateway. Please refer to the steps below.

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

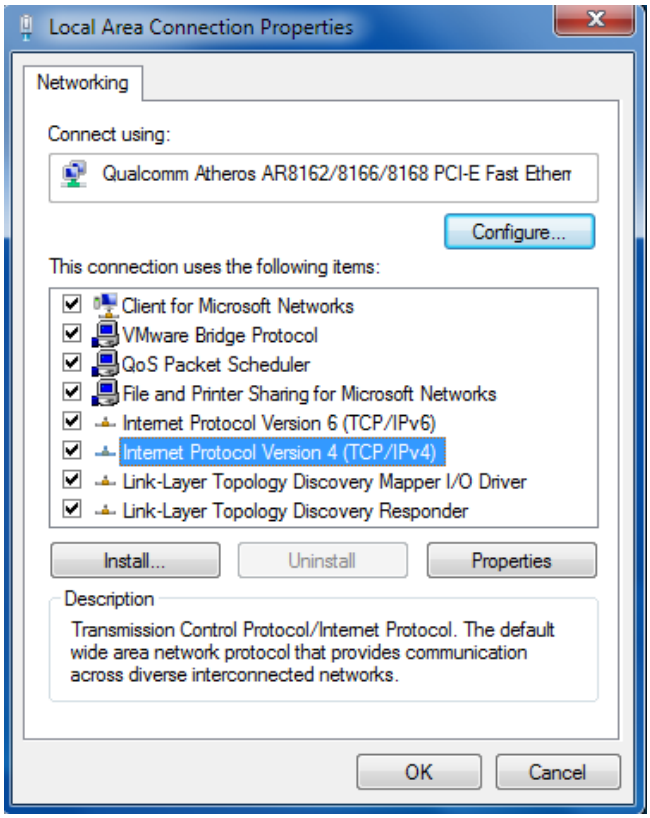
1. Click **Start > Control panel**, double-click **Network and Sharing Center**, and then double-click **Local Area Connection**.



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

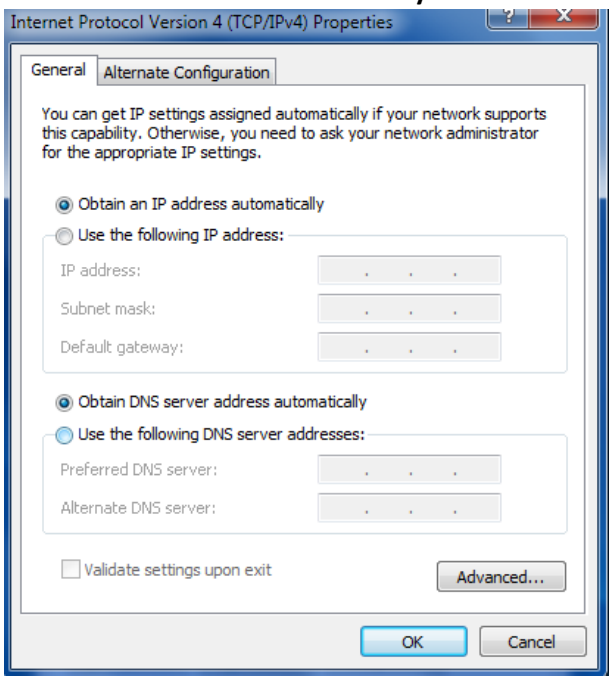


3. Choose **Internet Protocol Version 4 (TCP/IPv4)** and click **Properties**.



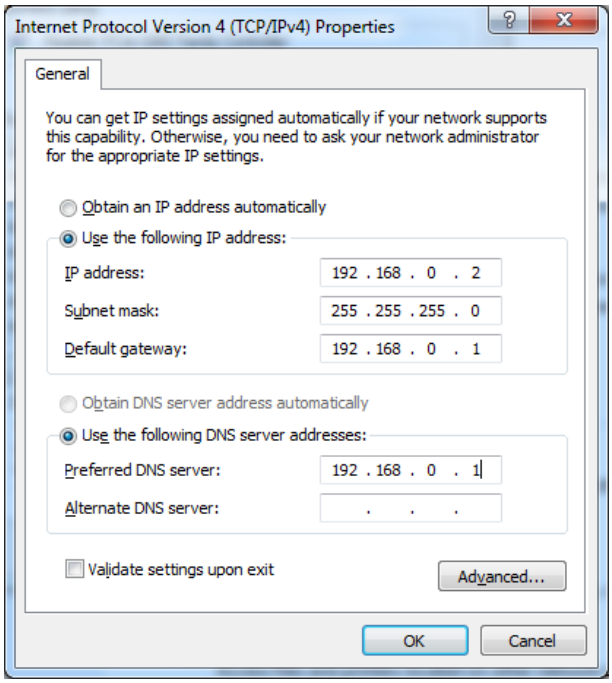
4. Two ways for configuring the IP address of PC

Obtain an IP address automatically:



Use the following IP address:

(Configured a static IP address manually within the same subnet of R3010 Gateway)



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

3.2 Factory Default Settings

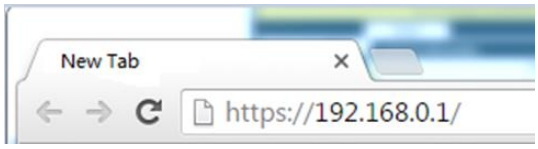
Before configuring your gateway, you need to know the following default settings.

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 Gateway

To log in to the management page and view the configuration status of your gateway, 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 gateway into the address bar and press enter. The default IP address of R3010 Gateway is 192.168. 0.1, though the actual address may vary.

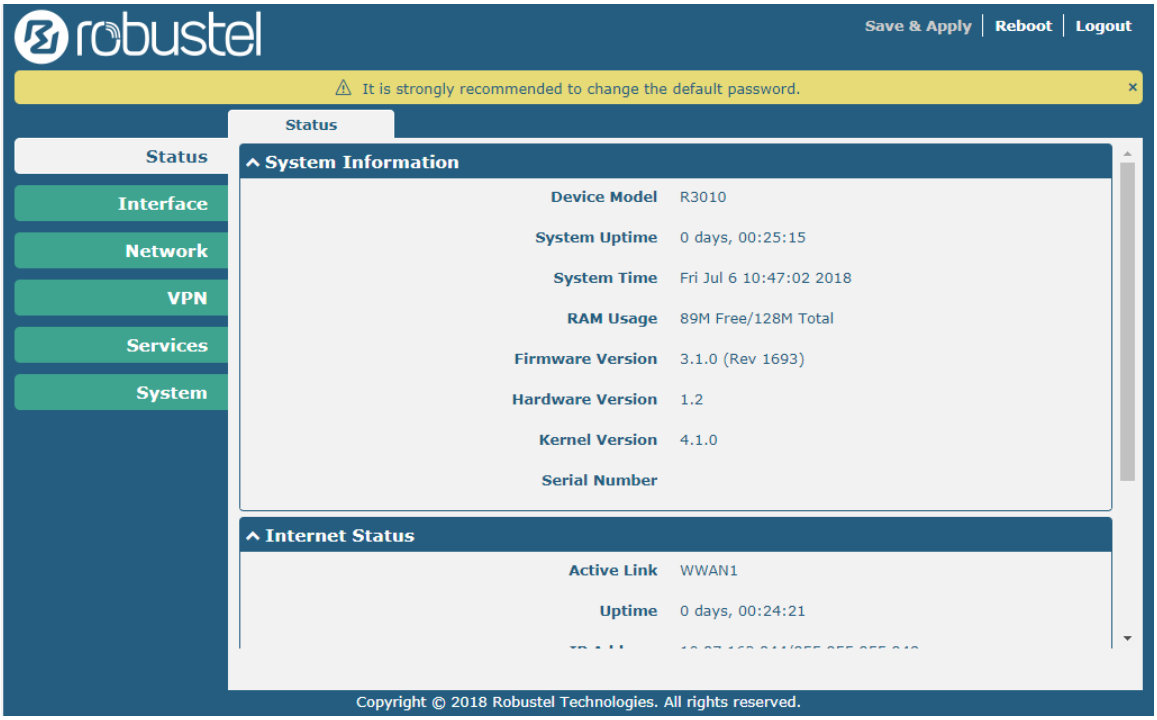


3. In the login page, enter the username and password, choose language and then click **LOGIN**. The default username and password is “admin”.

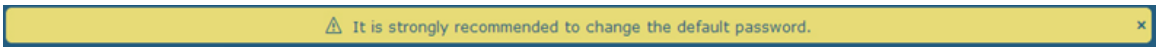
   Note: If enter the wrong username or password over six times, the login web will be locked for 5 minutes.

3.4 Control Panel

After logging in, the home page of the R3010 Gateway's web interface is displayed, for example.



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



It is strongly recommended for security purposes that you change the default username and/or password. To change your username and/or password, see **3.33 System > User Management**.

Control Panel		
Item	**Description**	**Button**
Save & Apply	Click to save the current configuration into gateway's flash and apply the modification on every configuration page, to make the modification taking effect.	Save & Apply
Reboot	Click to reboot the gateway. If the Reboot button is yellow, it means that some completed configurations will take effect only after reboot.	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.	Logout
Submit	Click to save the modification on current configuration page.	Submit
Cancel	Click to cancel the modification on current configuration page.	Cancel

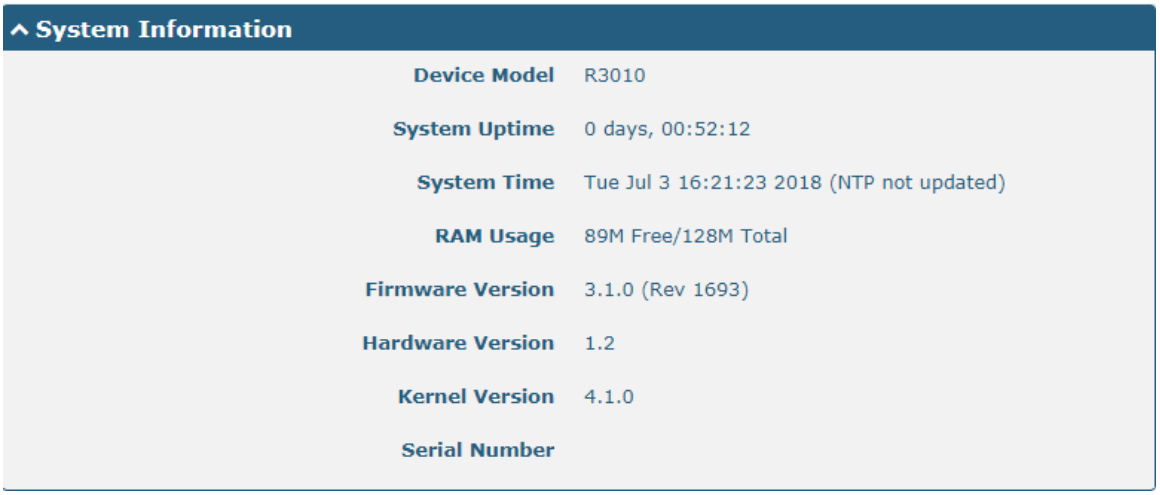
Note: The steps of how to modify configuration are as bellow:

1. Modify in one page;
2. Click Submit under this page;
3. Modify in another page;
4. Click Submit under this page;
5. Complete all modification;
6. Click Save & Apply.

3.5 Status

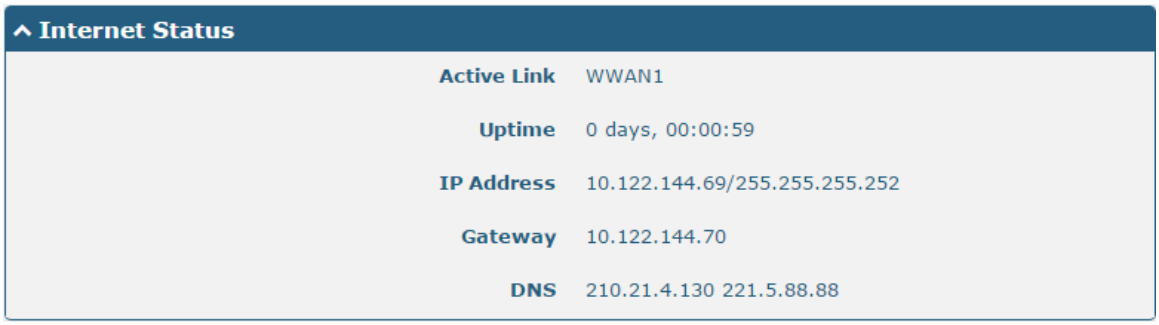
This page allows you to view the System Information, Internet Status and LAN Status of your Gateway.

System Information



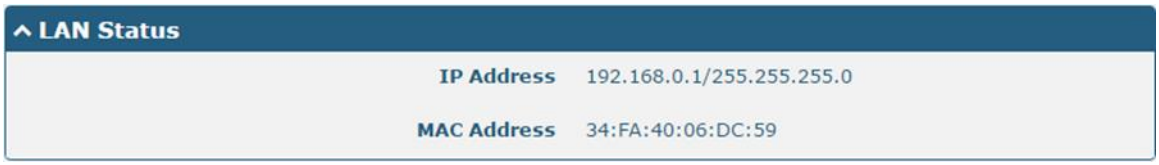
System Information	
Item	**Description**
Device Model	Show the model name of your device.
System Uptime	Show the current amount of time the gateway has been connected.
System Time	Show the current system time.
RAM Usage	Show the free memory and the total memory.
Firmware Version	Show the firmware version running on the gateway.
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



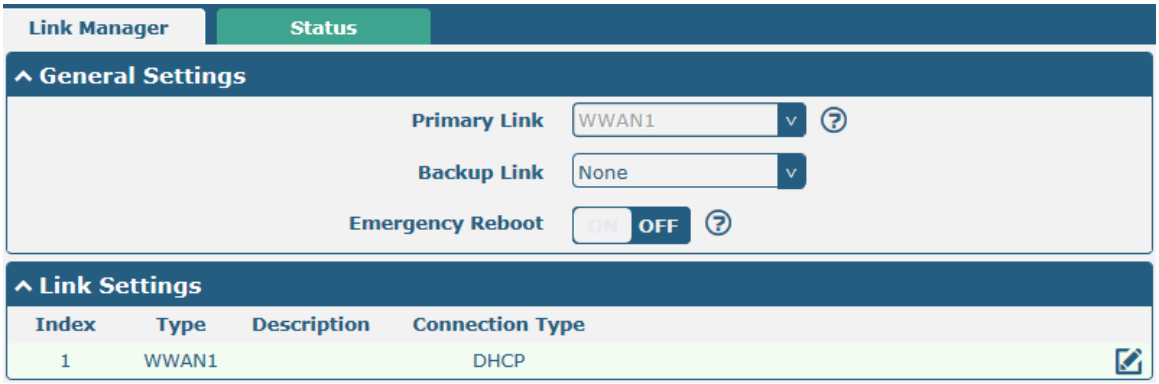
Internet Status	
Item	**Description**
Active Link	Show the current active link.
Uptime	Show the current amount of time the link has been connected.
IP Address	Show the IP address of current link.
Gateway	Show the gateway address of the current link.
DNS	Show the current primary DNS server and secondary server.

LAN Status



LAN Status	
Item	**Description**
IP Address	Show the IP address and the Netmask of the gateway.
MAC Address	Show the MAC address of the gateway.

3.6 Interface > Link Manager



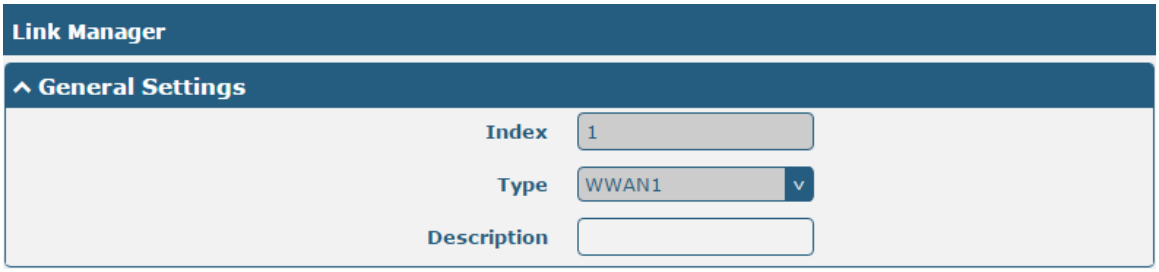
General Settings @ Link Manager		
Item	**Description**	**Default**
Link	It's no need to configure link manually in this part, we recommend to remain the default setting of system.	WWAN1
Emergency Reboot	Enable to reboot the whole system if no links available.	OFF

Note: Click ? for help.

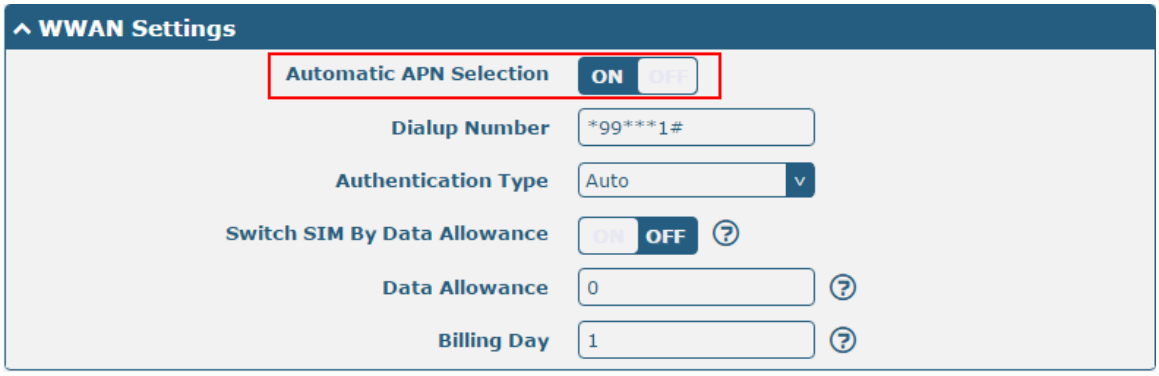
Link Settings allows you to configure the parameters of Cellular link connection. It is recommended to enable Ping detection to keep the gateway always online. The Ping detection increases the reliability and also costs the data traffic.

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

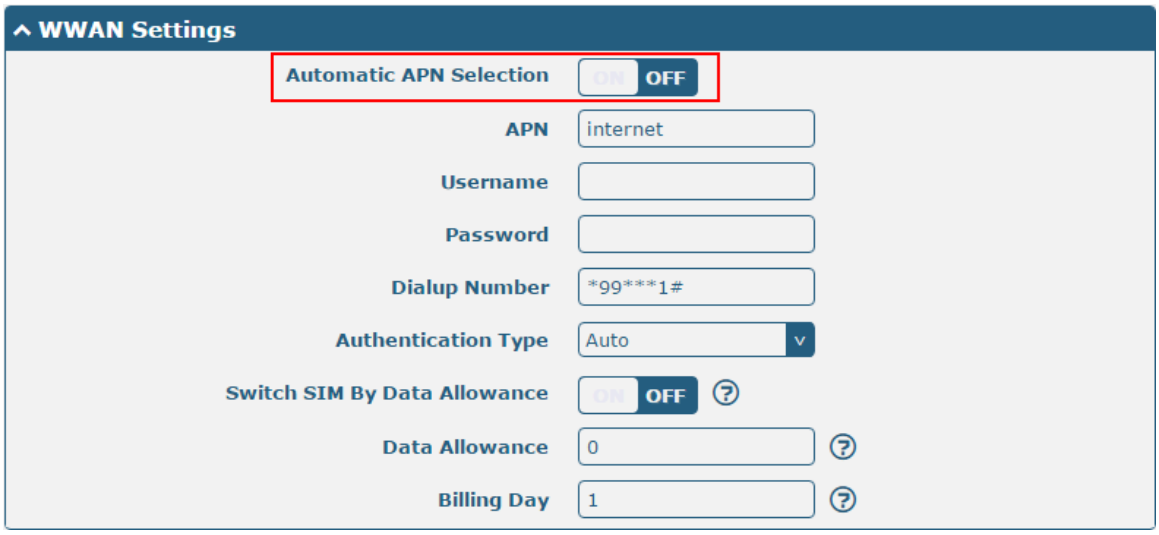
WWAN1

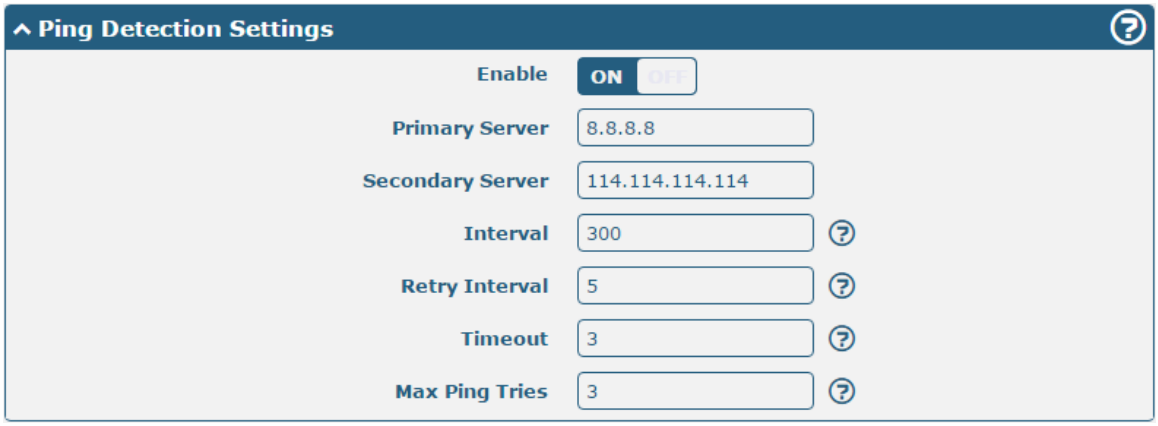


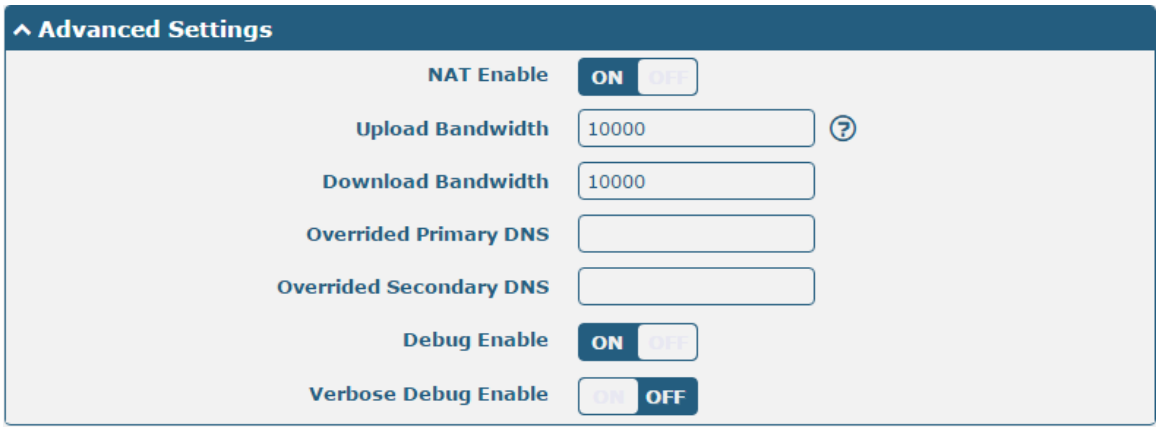
The window is displayed as below when enabling the "Automatic APN Selection" option.



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





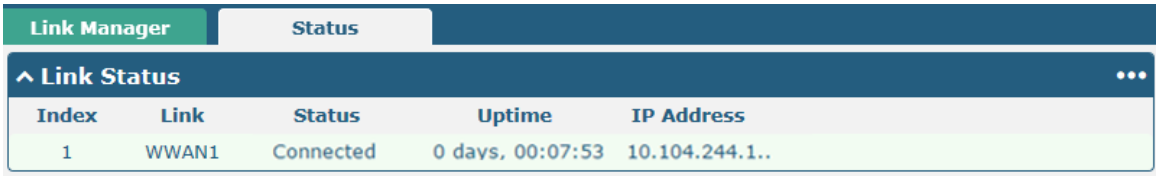


Link Settings (WWAN)		
Item	**Description**	**Default**
General Settings		
Index	Indicate the ordinal of the list.	--
Type	Show the type of the link.	WWAN1
Description	Enter a description for this link.	Null
WWAN Settings		
Automatic APN Selection	Click the toggle button to enable/disable the "Automatic 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
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
Ping Detection Settings		
Enable	Click the toggle button to enable/disable the ping detection mechanism, a keepalive policy of R3010 Gateway.	ON
Primary Server	Gateway will ping this primary address/domain name to check that if the current connectivity is active.	8.8.8.8

Link Settings (WWAN)		
Item	**Description**	**Default**
Secondary Server	Gateway will ping this secondary address/domain name to check that if the current connectivity is active.	114.114.114.114
Interval	Set the ping interval.	300
Retry Interval	Set the ping retry interval. When ping failed, the gateway 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
Overrided Primary DNS	Override primary DNS will override the automatically obtained DNS.	Null
Overrided Secondary DNS	Override secondary DNS will override the automatically obtained DNS.	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.



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.

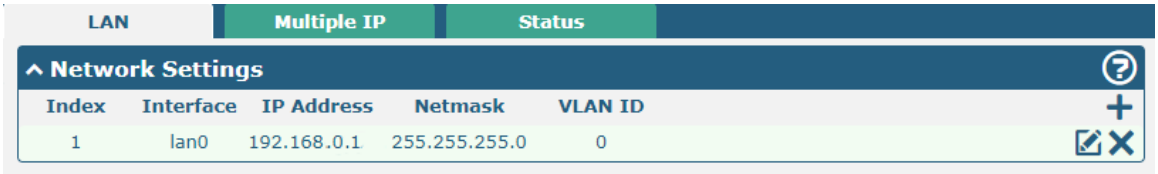
Click the **Clear** button to clear SIM monthly data traffic usage statistics. Data statistics will be displayed only if enable the Data Allowance function in **Interface > Link Manager > Link Settings > WWAN Settings > Data Allowance**.

3.7 Interface > LAN

This section allows you to set the related parameters for LAN port. There are two LAN ports on R3010 Gateway, including ETH11 and ETH2. ETH1 and ETH2 can freely choose from lan0~lan1, but at least one ETH port must be assigned as lan0. The default settings of ETH1 are lan0, and their default IP are 192.168. 0.1/255.255.255.0. For more details, see **3.8 Interface > Ethernet**.

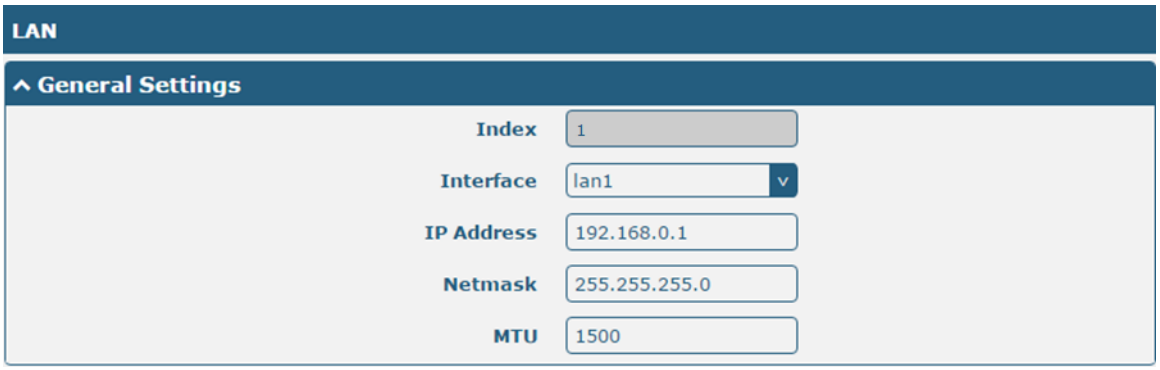
LAN

By default, there is a lan0 in the list. To begin adding lan1, please configure one of ETH0 and ETH1 as lan1 first in **Ethernet > Ports > Port Settings**. Otherwise, the operation will be prompted as "List is full".



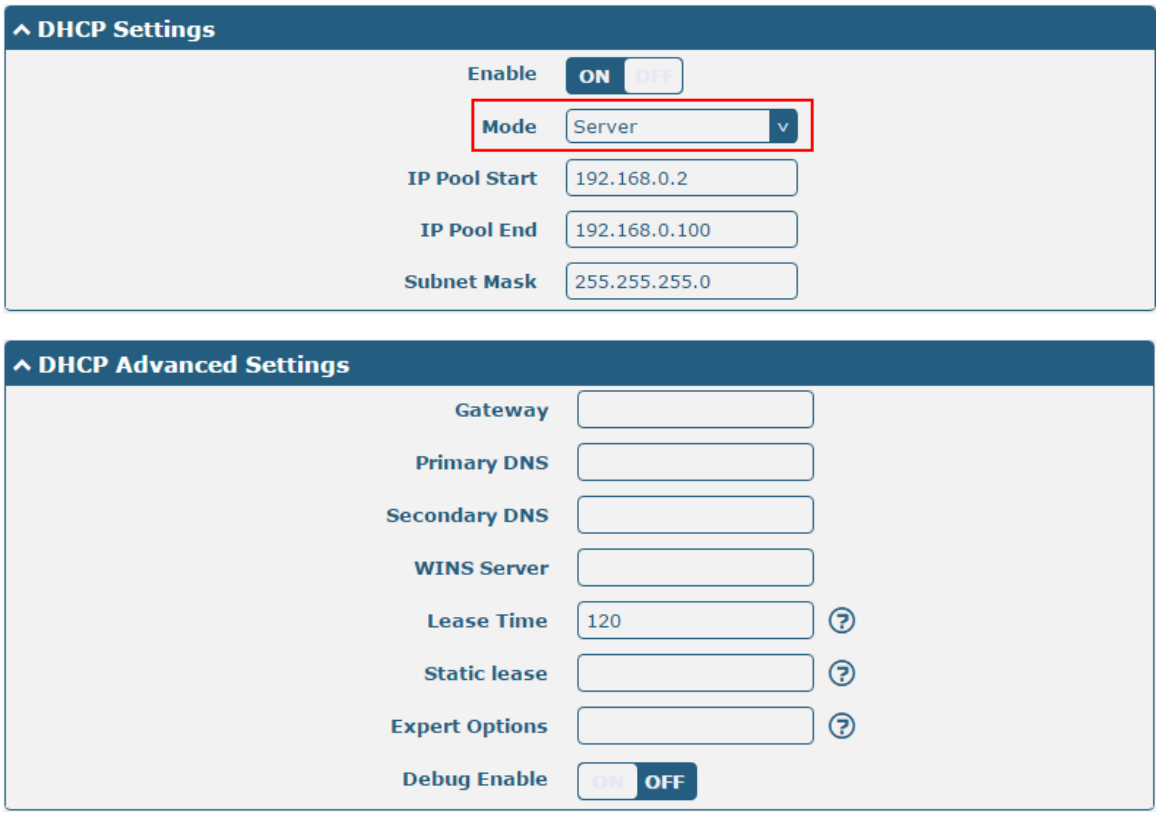
Note: Lan0 cannot be deleted.

You may click to edit the configuration of the LAN port, or click to delete the current LAN port. Now, click to add a new LAN port. The maximum count is 2.

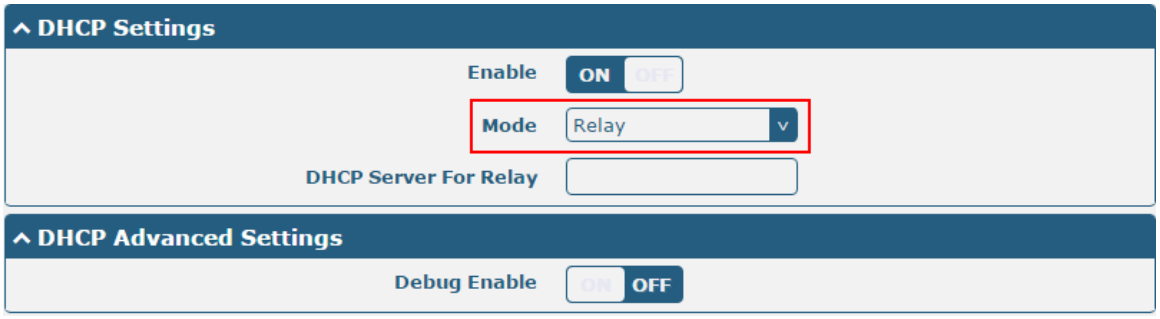


General Settings @ LAN		
Item	**Description**	**Default**
Index	Indicate the ordinal of the list.	--
Interface	Lan1 is available only if it was selected by one of ETH0 and ETH1 in **Ethernet > Ports > Port Settings**, and so on.	--
IP Address	Set the IP address of the LAN port.	192.168. 0.1
Netmask	Set the Netmask of the LAN port.	255.255.255.0
MTU	Enter the Maximum Transmission Unit.	1500

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



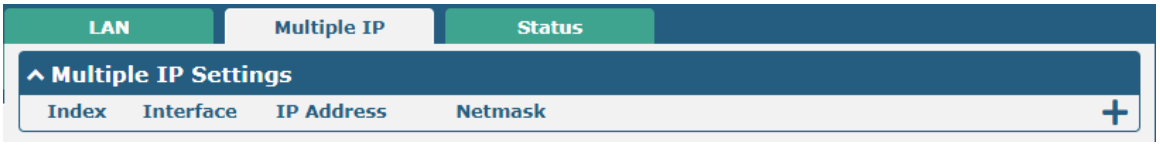
The window is displayed as below when choosing “Relay” as the mode.



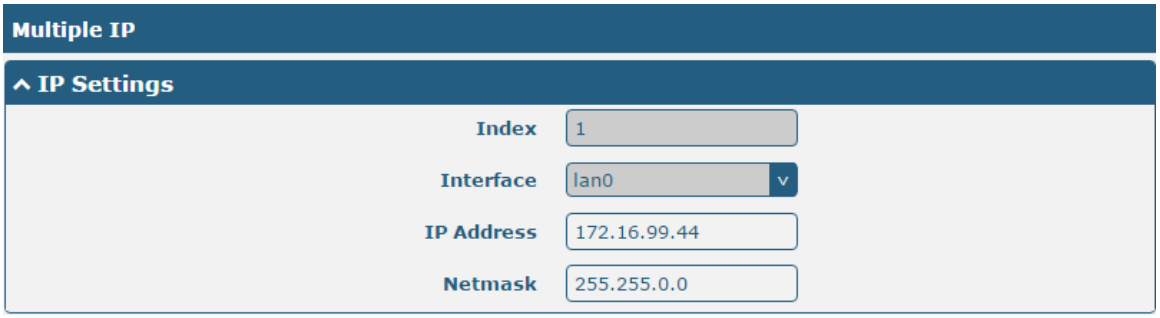
LAN		
Item	**Description**	**Default**
DHCP Settings		
Enable	Click the toggle button to enable/disable the DHCP function.	ON
Mode	Select from “Server” or “Relay”. • Server: Lease IP address to DHCP clients which have been connected to LAN port • Relay: Gateway can be a DHCP Relay, which will provide a relay tunnel to solve the problem that DHCP Client and DHCP Server are not in a same subnet	Server
IP Pool Start	Define the beginning of the pool of IP addresses which will be leased to DHCP clients.	192.168.0.2

LAN		
Item	**Description**	**Default**
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



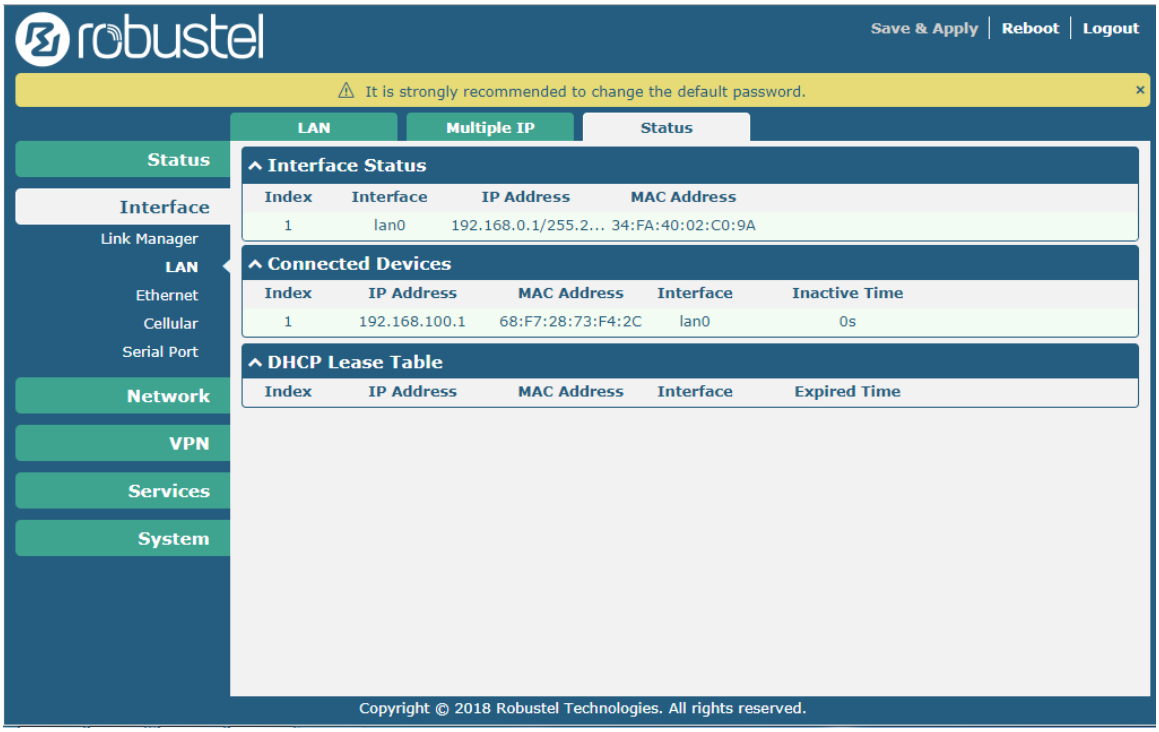
You may click ➕ to add a multiple IP to the LAN port, or click ✖ to delete the multiple IP of the LAN port. Now, click 📝 to edit the multiple IP of the LAN port.



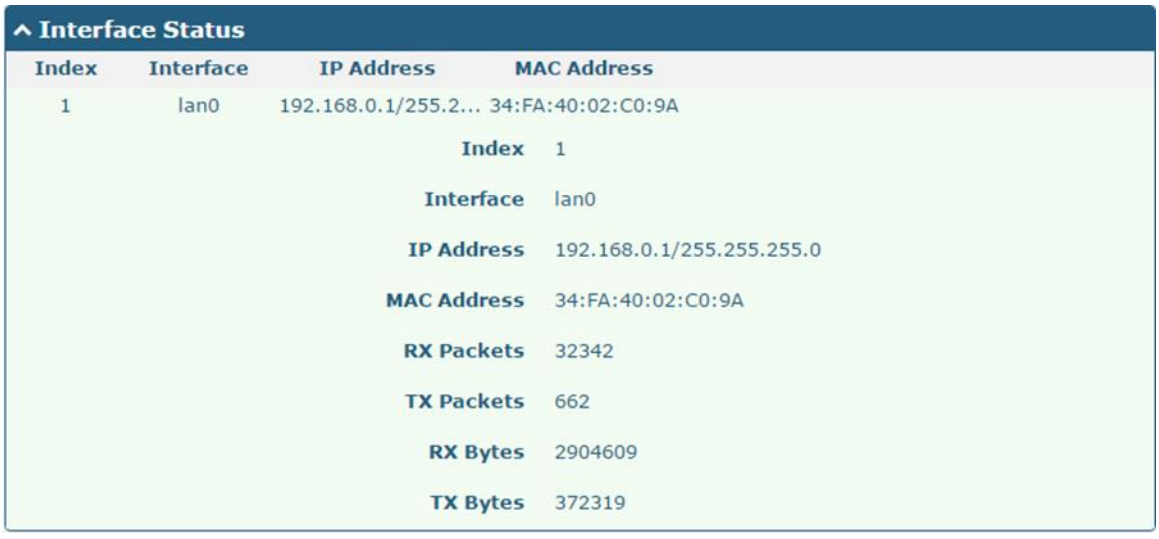
IP Settings		
Item	**Description**	**Default**
Index	Indicate the ordinal of the list.	--
Interface	Show the editing port, read only.	--
IP Address	Set the multiple IP address of the LAN port.	Null
Netmask	Set the multiple Netmask of the LAN port.	Null

Status

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

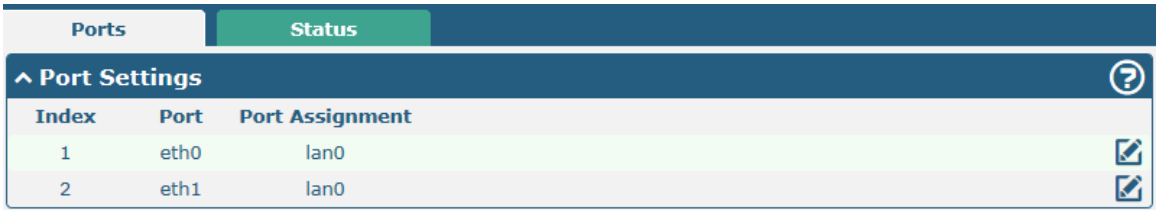


Click the row of status, the details status information will be display under the row. Please refer to the screenshot below.

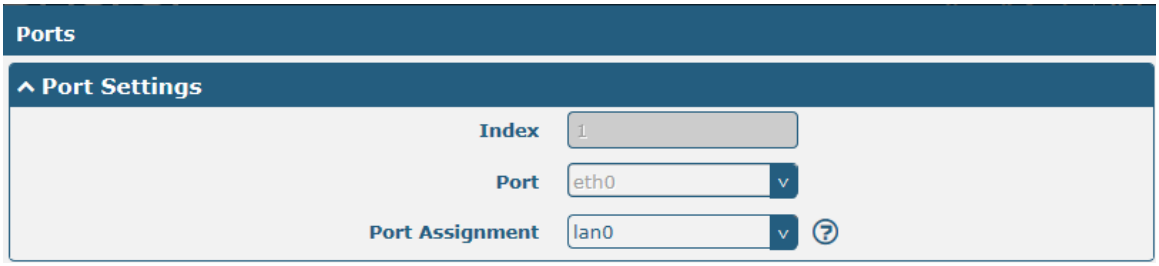


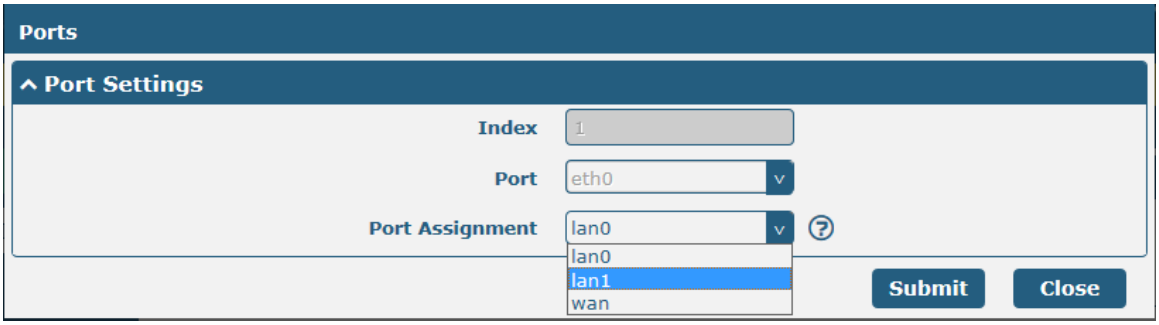
3.8 Interface > Ethernet

This section allows you to set the related parameters for Ethernet. There are two Ethernet ports on R3010 Gateway, including ETH0 and ETH1. The ETH0 and ETH1 can freely choose from lan0~lan1, but at least one LAN port must be assigned as lan0. In another word, ETH0+ETH1 can be configured as lan0+lan0, lan0+lan1, or lan1+lan0. Both of ETH0 and ETH1 default to lan0, and their default IP are 192.168.0.1/255.255.255.0.



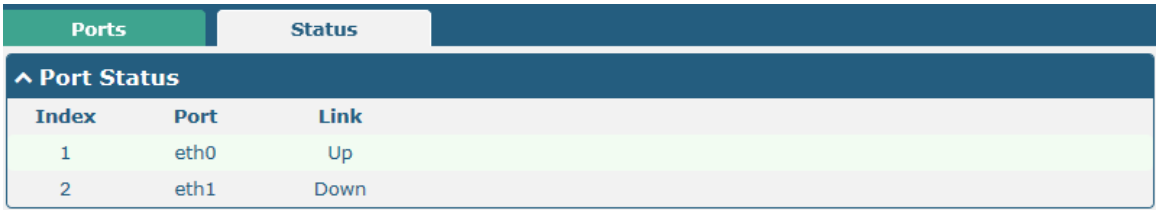
Click button of eth0 to configure its parameters. The port assignment can be changed by selecting from the drop down list.



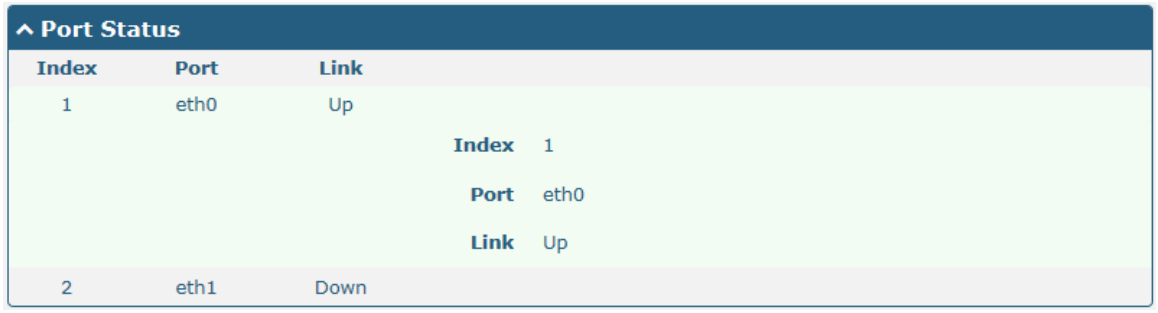


Port Settings		
Item	**Description**	**Default**
Index	Indicate the ordinal of the list.	--
Port	Show the editing port, read only.	--
Port Assignment	Choose the Ethernet port's type to lan0 or lan1.	lan0

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

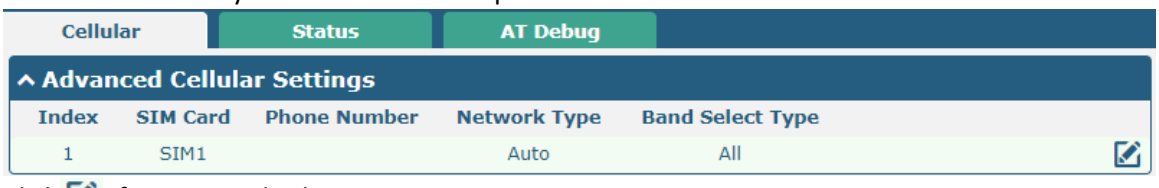


Click the row of status, the details status information will be display under the row. Please refer to the screenshot below.

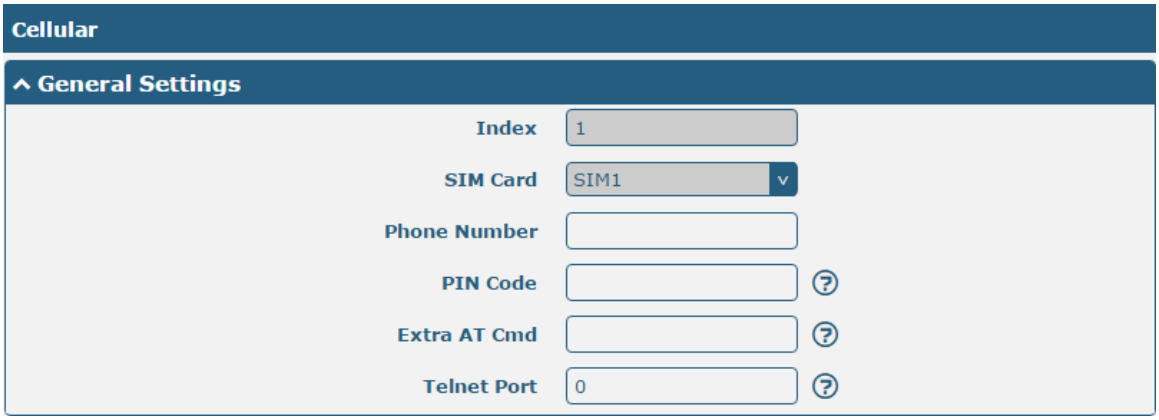


3.9 Interface > Cellular

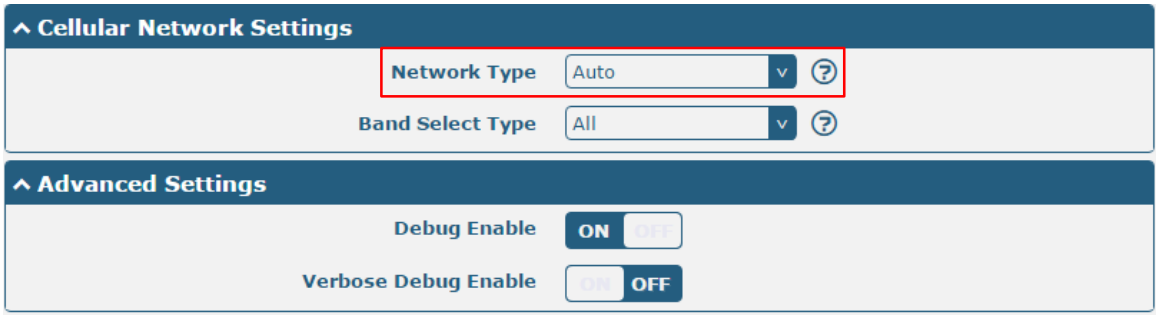
This section allows you to set the related parameters of Cellular.



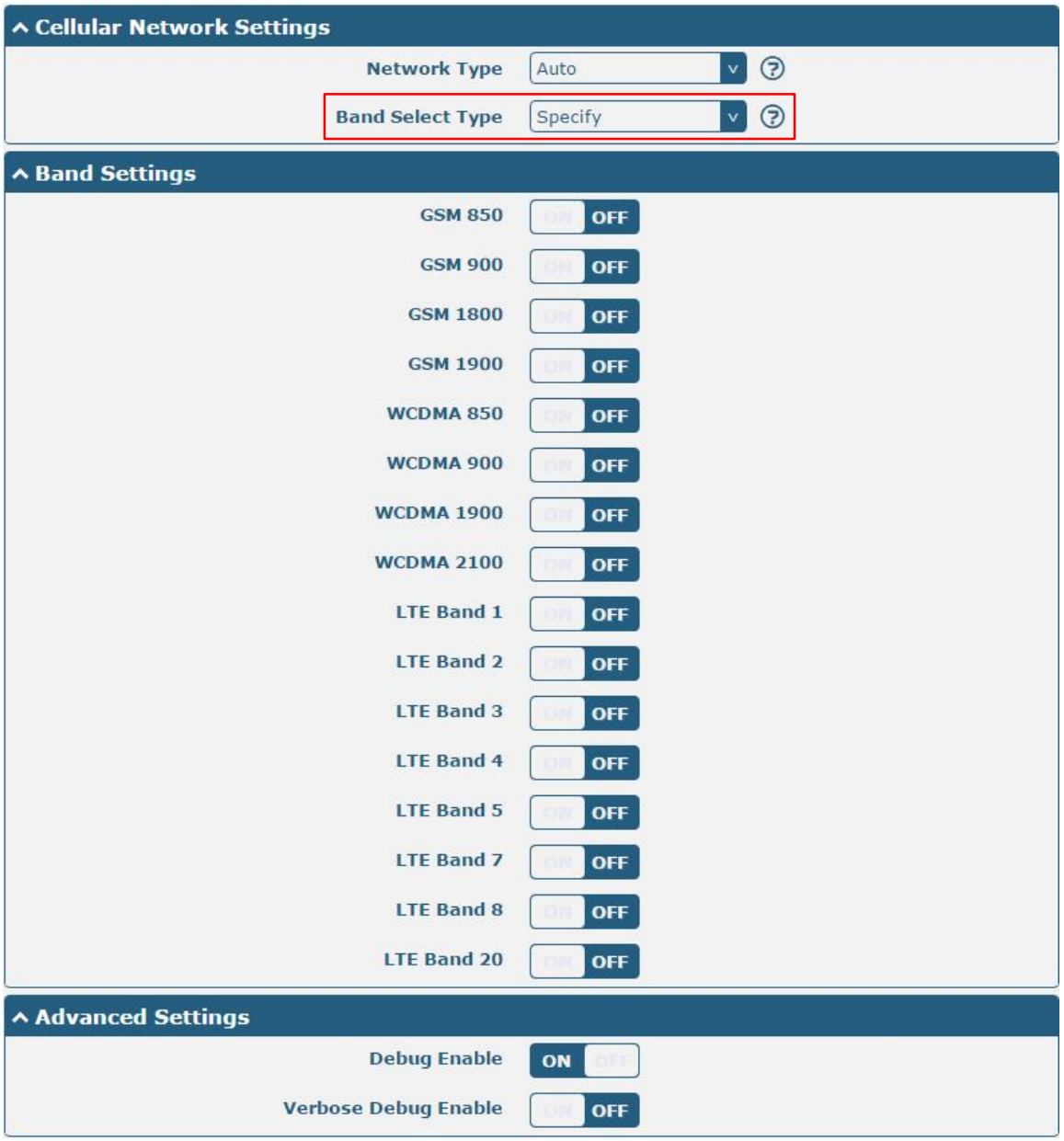
Click of SIM 1 to edit the parameters.



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



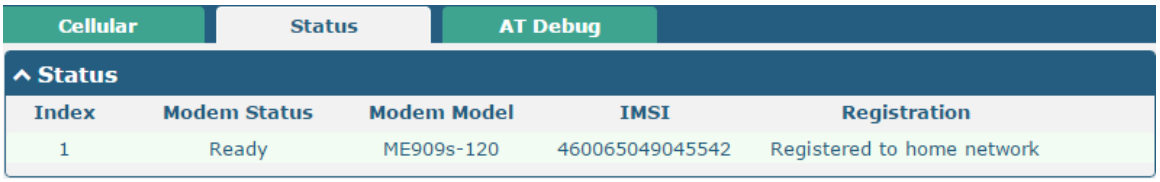
The window is displayed as below when choosing "Specify" as the band select type.



Cellular		
Item	**Description**	**Default**
General Settings		
Index	Indicate the ordinal of the list.	--

Cellular		
Item	**Description**	**Default**
SIM Card	Show 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". • 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.

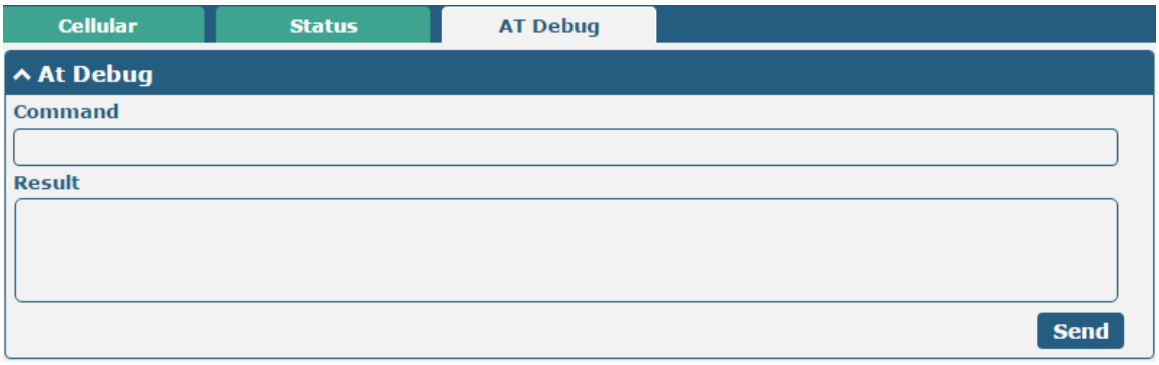


Click the row of status, the details status information will be displayed under the row.

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 gateway is using.
IMSI	Show the IMSI number of the current SIM.
Registration	Show the current network status.
Network Provider	Show the name of Network Provider.
Network Type	Show the current network service type, e.g. GPRS.
Signal Strength	Show the signal strength detected by the mobile.
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 gateway.

Status	
Item	**Description**
IMEI	Show the IMEI (International Mobile Equipment Identity) number of the radio module.
Firmware Version	Show the current firmware version of the radio module.

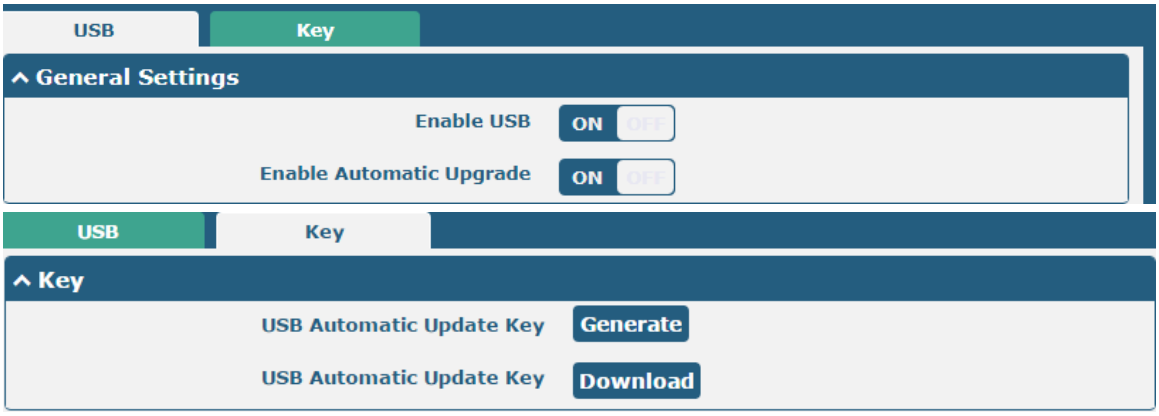
This page allows you to check the AT Debug.



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 > USB

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



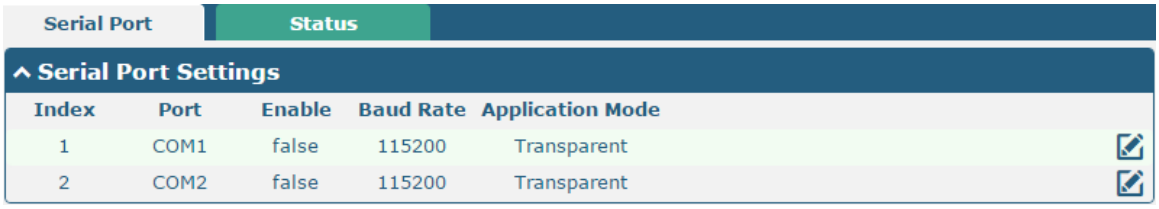
USB		
Item	**Description**	**Default**
Enable USB	Click the toggle button to enable/disable the USB option.	ON

Enable Automatic Upgrade	Click the toggle button to enable/disable this option. Enable to automatically update the firmware of the gateway when inserting a USB storage device with a gateway firmware.	ON
Key		
USB Automatic Update Key	Click **Generate** to generate a key, and click **Download** to download the key.	--

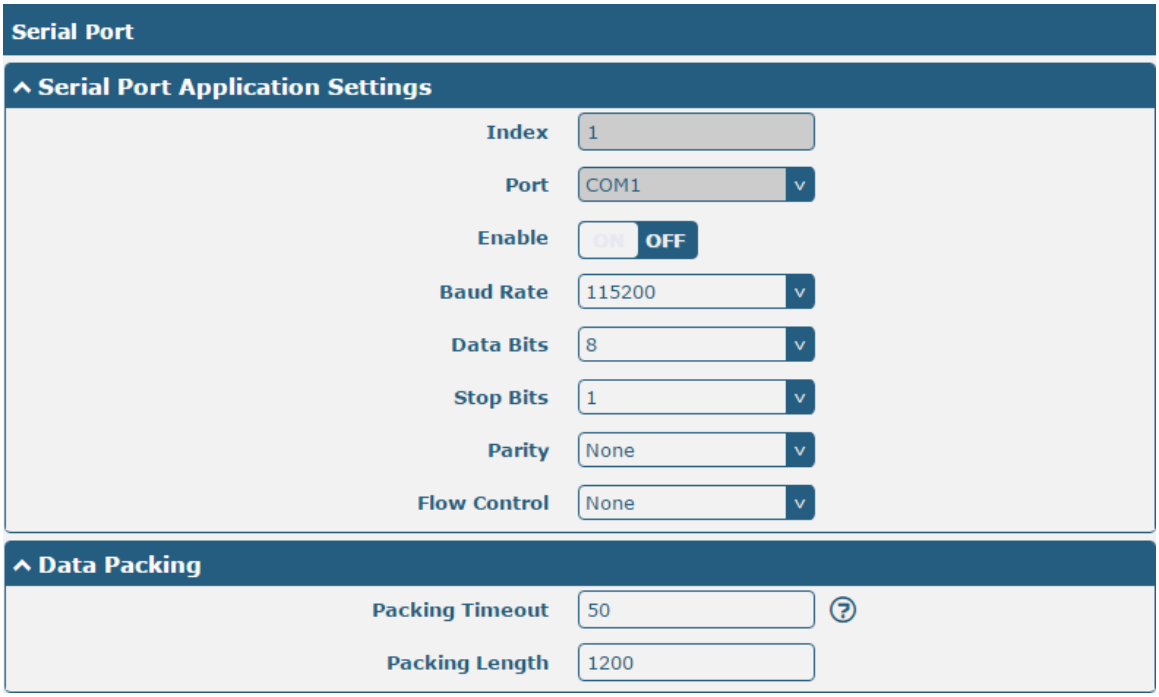
3.11 Interface > Serial Port

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.

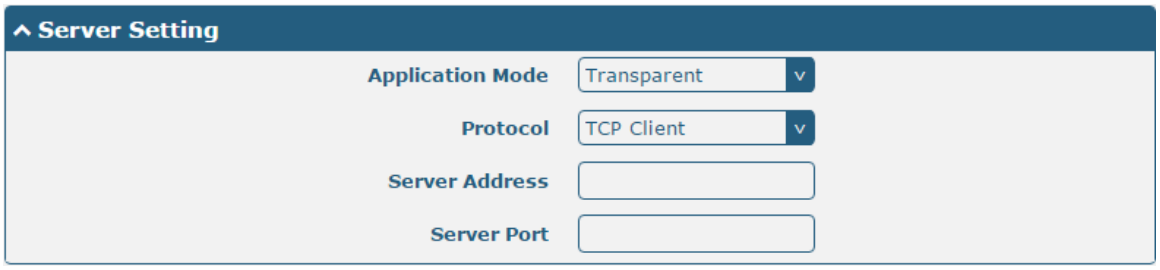
Serial Port



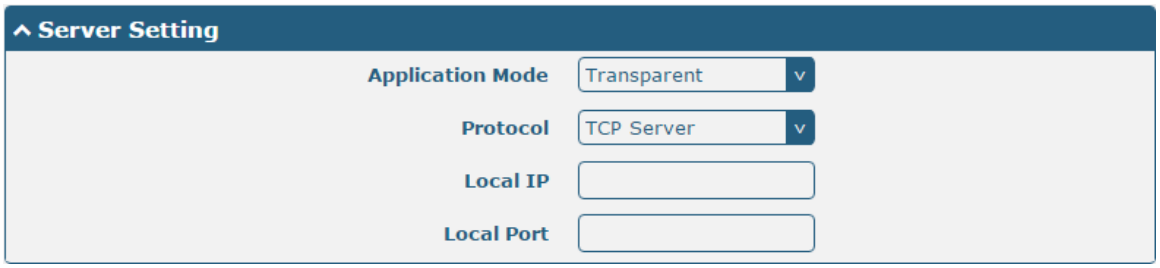
Click the edit button of COM1.



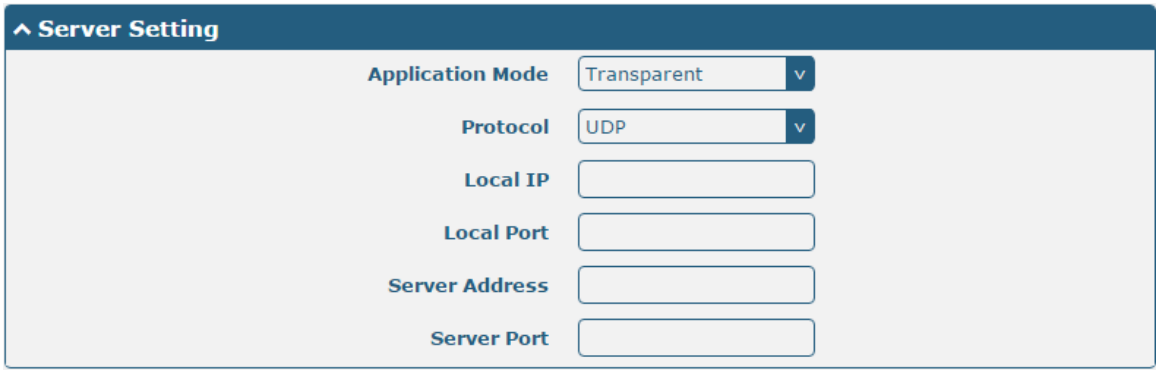
- The window is displayed as below when choosing “Transparent” as the application mode and “TCP Client” as the protocol.



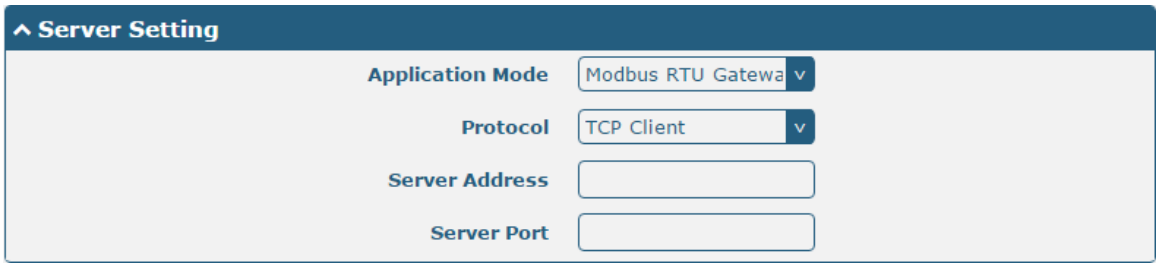
The window is displayed as below when choosing “Transparent” as the application mode and “TCP Server” as the protocol.



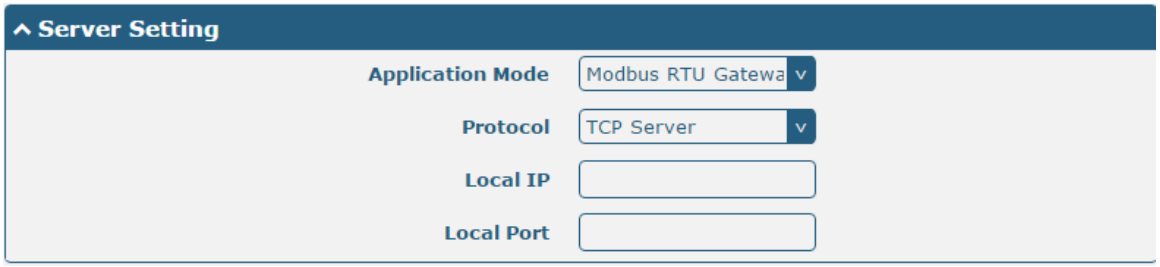
The window is displayed as below when choosing “Transparent” as the application mode and “UDP” as the protocol.



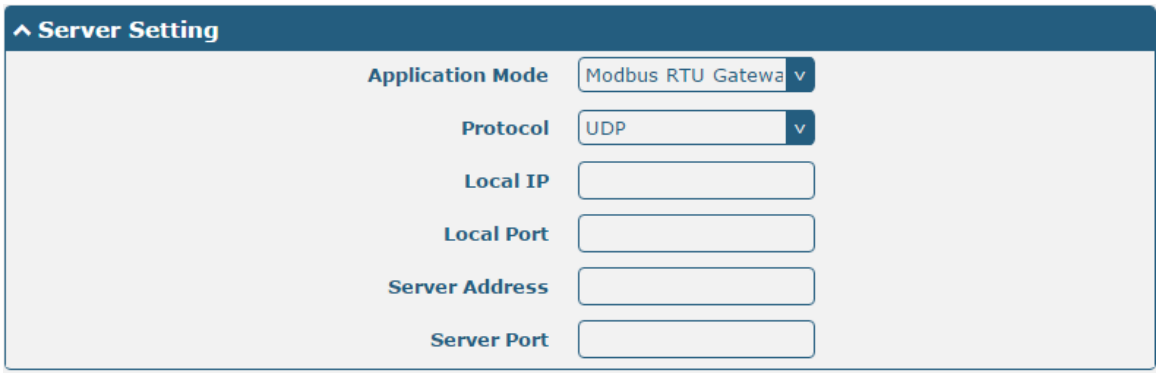
- The window is displayed as below when choosing “Modbus RTU Gateway” as the application mode and “TCP Client” as the protocol.



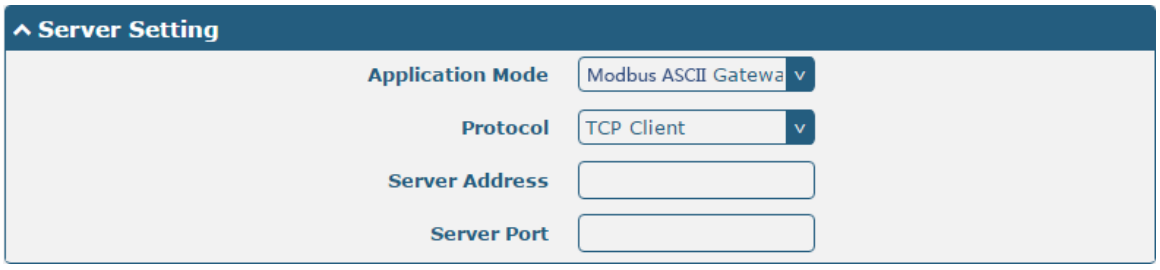
The window is displayed as below when choosing “Modbus RTU Gateway” as the application mode and “TCP Server” as the protocol.



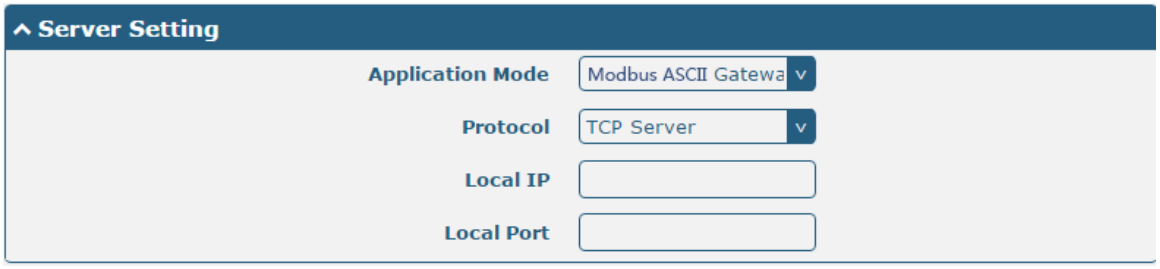
The window is displayed as below when choosing “Modbus RTU Gateway” as the application mode and “UDP” as the protocol.



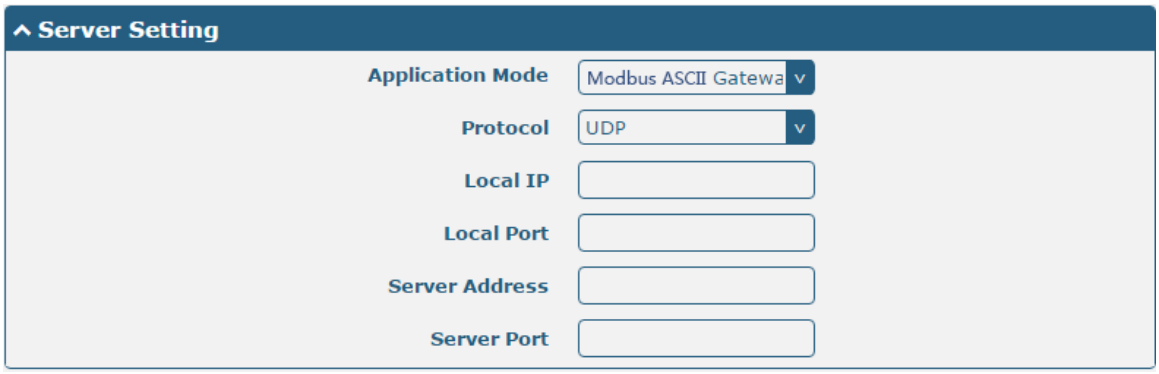
- The window is displayed as below when choosing “Modbus ASCII Gateway” as the application mode and “TCP Client” as the protocol.



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



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

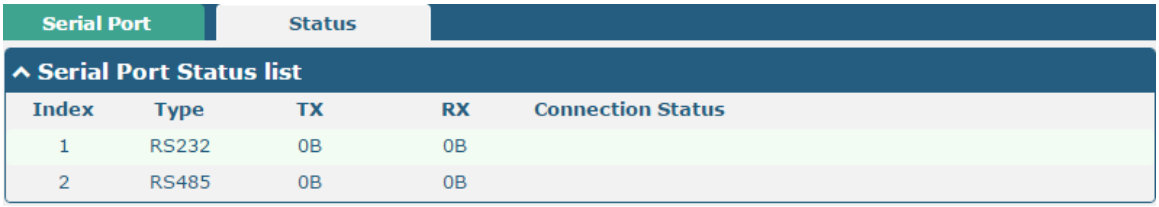


Serial Port		
Item	**Description**	**Default**
Serial Port Application Settings		
Index	Indicate the ordinal of the list.	--
Port	Show the current serial’s name, read only.	COM1
Enable	Click the toggle button to enable/disable this serial port. When the status is OFF, the serial port is not available.	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”. • 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”, “UDP” • TCP Client: Router works as TCP client, initiate TCP connection to TCP server. Server address supports both IP and domain name • TCP Server: Router works as TCP server, listening for connection request	TCP Client

Serial Port		
Item	**Description**	**Default**
Serial Port Application Settings		
Index	Indicate the ordinal of the list.	--
	from TCP client • UDP: Router works as UDP client	
Serial Port		
Server Address	Enter the address of peer server	Null
Server Port	Enter the port of peer server	Null

Status

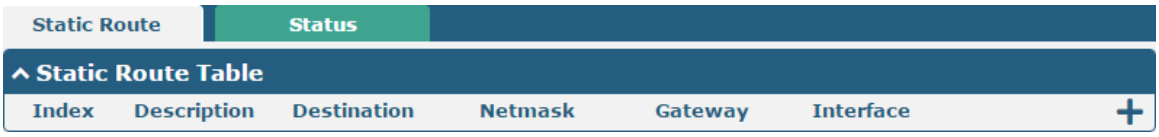
Click the "Status" column to view the current serial port type.



3.12 Network > Route

This section allows you to set the static route. Static route is a form of routing that occurs when a gateway 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 gateway within a single autonomous system and used in large network.

Static Route

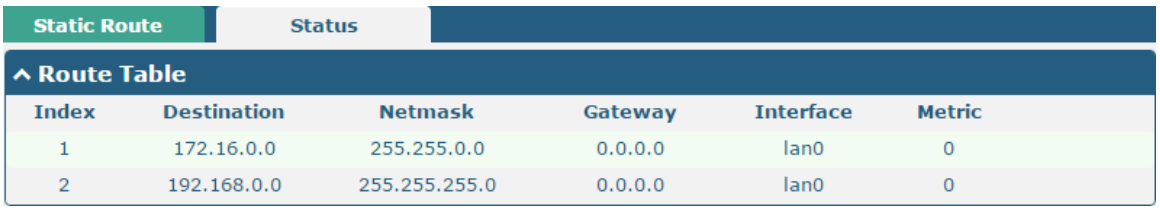


Click + to add static routes. The maximum count is 20.

Static Route		
Item	**Description**	**Default**
Index	Indicate the ordinal of the list.	--
Description	Enter a description for this static route.	Null
Destination	Enter the IP address of destination host or destination network.	Null
Netmask	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.	wwan

Status

This window allows you to view the status of route.



3.13 Network > Firewall

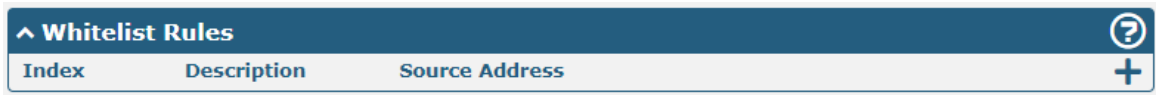
This section allows you to set the firewall and its related parameters, including Filtering, Port Mapping and DMZ.

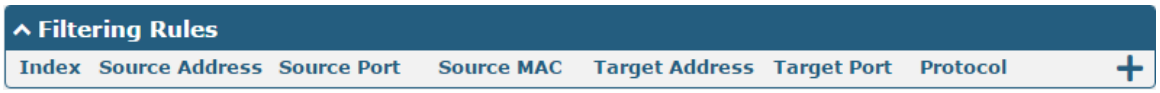
Filtering

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

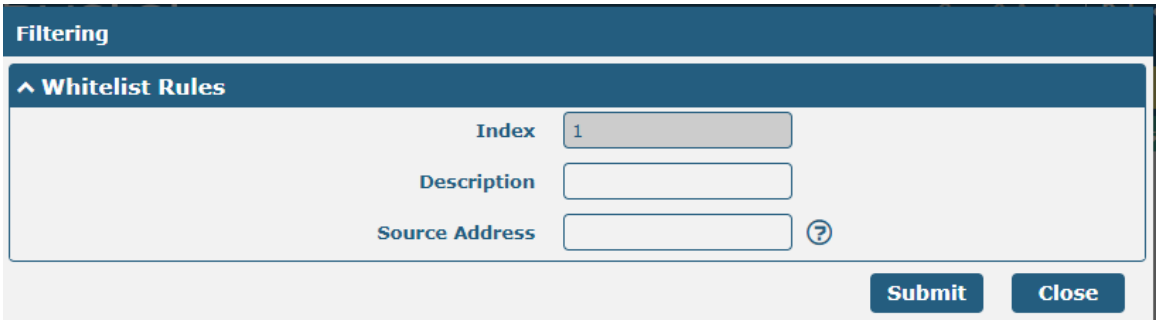
Filtering		
Item	**Description**	**Default**
General Settings		
Enable Filtering	Click the toggle button to enable/disable the filtering option.	ON
Default Filtering Policy	Select from “Accept” or “Drop”. Cannot be changed when filtering rules table is not empty. • Accept: Gateway will accept all the connecting requests except the hosts which fit the drop filter list • Drop: Gateway 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 gateway remotely via SSH.	OFF

Filtering		
Item	**Description**	**Default**
Enable Local SSH Access	Click the toggle button to enable/disable this option. When enabled, the LAN user can access the gateway locally via SSH.	ON
Enable Remote Telnet Access	Click the toggle button to enable/disable this option. When enabled, the Internet user can access the gateway 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 gateway 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 gateway 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 gateway 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 gateway remotely via HTTPS.	ON
Enable Remote Ping Respond	Click the toggle button to enable/disable this option. When enabled, the gateway 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 gateway will defend the DOS. Dos attack is an attempt to make a machine or network resource unavailable to its intended users.	ON
Enable Remote IP Forwarding	Whether allow to forward remote IP	ON
Enable Console	Whether allow to use console login device	ON

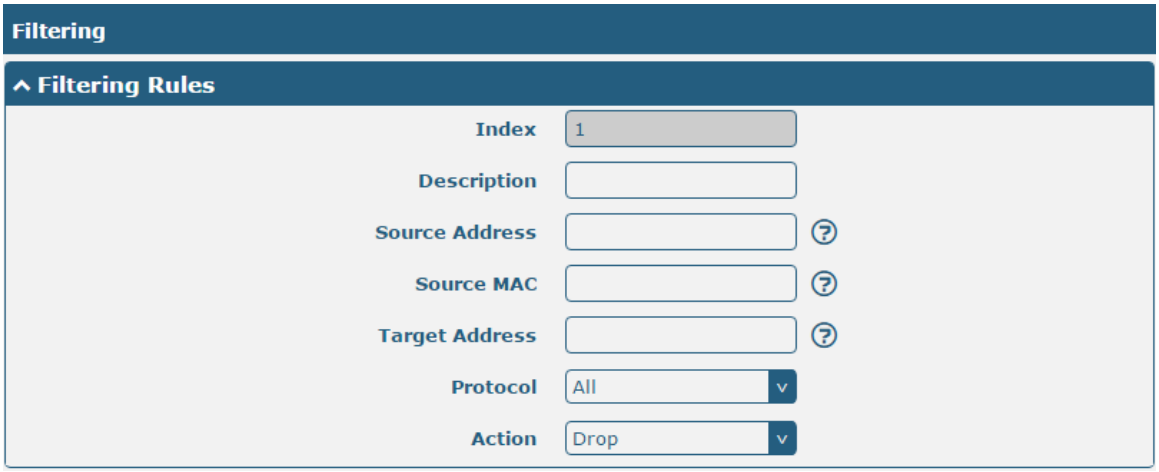




Click + to add whitelist:



Click + to add a filtering rule. The maximum count is 20.



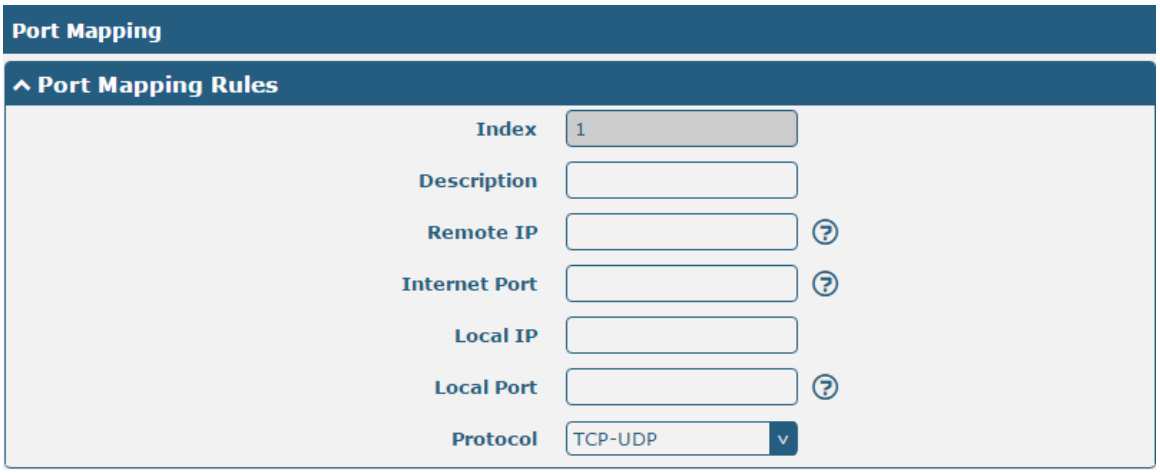
When select “TCP”, “UDP” or “TCP-UDP” as protocol, as shown below (take “TCP” protocol as an example):

Whitelist		
Item	**Description**	**Default**
Index	Indicate the serial number of the list.	--
Description	Enter a description of 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		
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 MAC	Enter the MAC address of the defined source IP address.	Null

Whitelist		
Item	**Description**	**Default**
Index	Indicate the serial number of the list.	--
Description	Enter a description of 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		
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
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
Action	Select from "Accept" or "Drop". • Accept: When Default Filtering Policy is drop, gateway will drop all the connecting requests except the hosts which fit this accept filtering list • Drop: When Default Filtering Policy is accept, gateway will accept all the connecting requests except the hosts which fit this drop filtering list	Drop

Port Mapping

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



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 the local IP address. Empty means unlimited, e.g. 10.10.10.10/255.255.255.255 or 192.168.1.0/24	Null

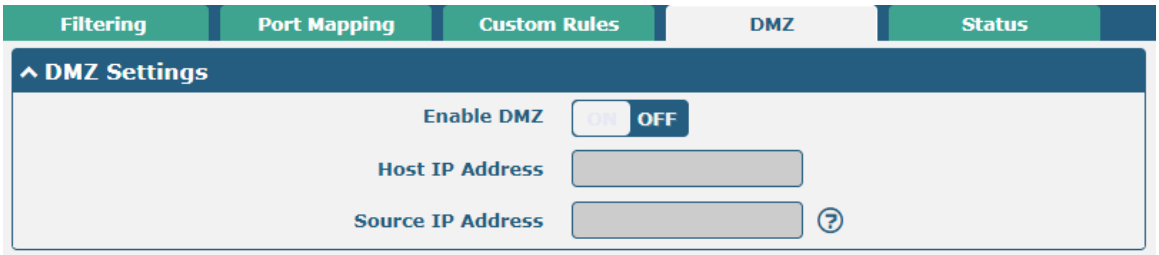
Port Mapping Rules		
Item	**Description**	**Default**
Internet Port	Enter the internet port of gateway which can be accessed by other hosts from internet.	Null
Local IP	Enter gateway's LAN IP which will forward to the internet port of gateway.	Null
Local Port	Enter the port of gateway's LAN IP.	Null
Protocol	Select from "TCP", "UDP" or "TCP-UDP" as your application required.	TCP-UDP

Custom Rules

Click + to add custom rules.

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

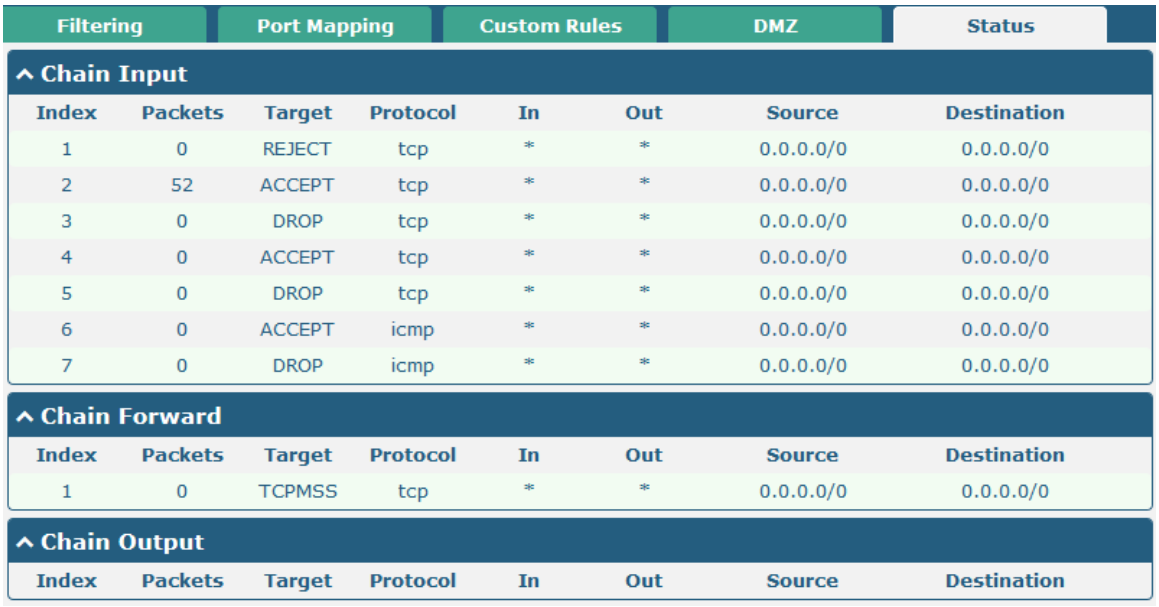
DMZ



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

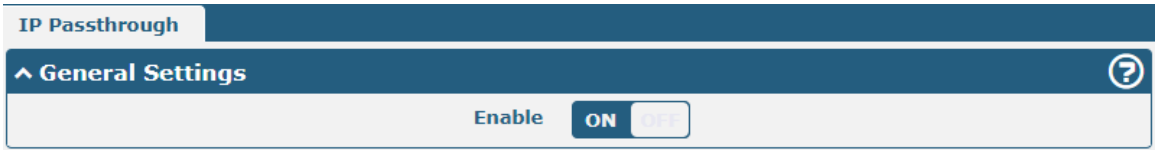
Source IP Address	Set the address which can talk to the DMZ host. Null means for any addresses.	Null

Status



3.14 IP Passthrough

Click Network-> IP Passthrough -> IP Passthrough, and click the switch button to enable or disenable IP Passthrough function.



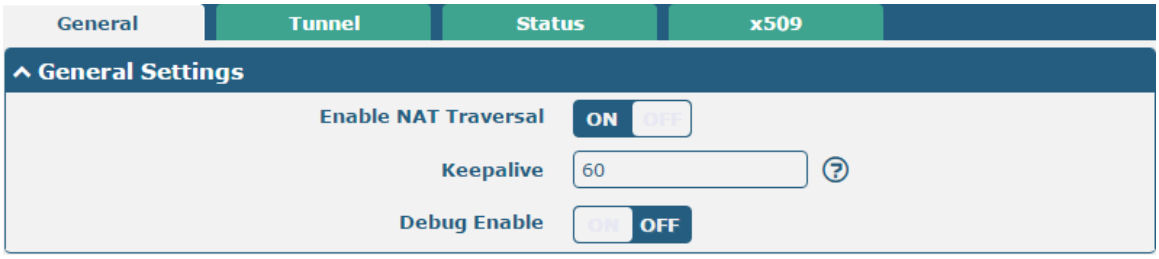
When gateway open IP Passthrough function, the end device (e.g.: PC) will open DHCP Client mode and connect to LAN port. After gateway dial successfully, PC will automatic obtain IP address and DNS server address assigned by the carrier.

3.15 VPN > IPsec

IPsec (Internet Protocol Security) is a protocol established on the Internet protocol, enabling two host machines to communicate in a safe way. IPsec is the direction of secure network, providing active protection by end-to-end to prevent the attack from dedicated network and internet.

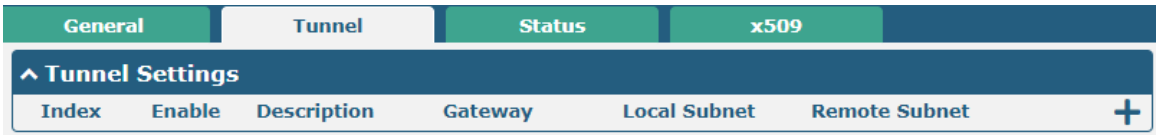
General

Click “VPN - > IPsec - > General” to set IPsec parameters.

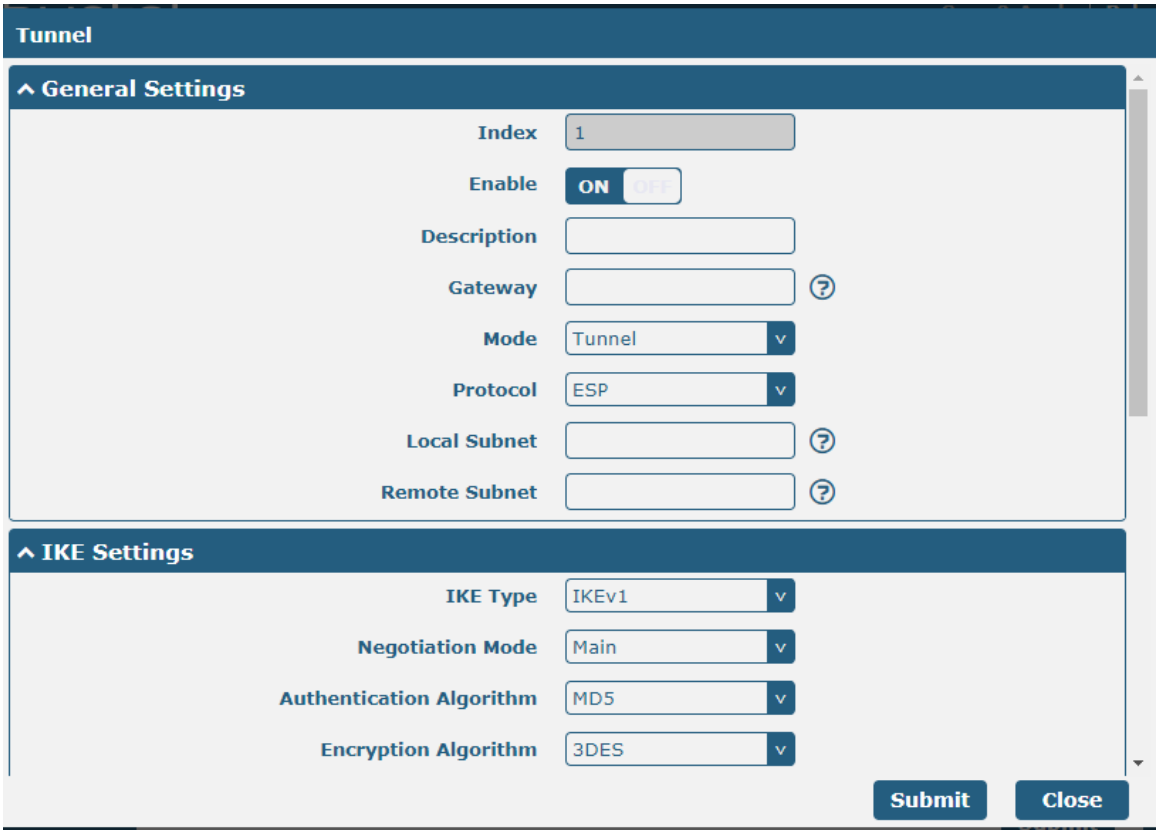


General Settings @ General		
Item	**Description**	**Default**
Enable NAT Traversal	Click the toggle button to enable/disable the NAT Traversal function. This option must be enabled when router under NAT environment.	ON
Keepalive	Set the keepalive time, measured in seconds. The router will send packets to NAT server every keepalive time to avoid record remove from the NAT list.	60
Debug Enable	Click the toggle button to enable/disable this option. Enable for IPsec VPN information output to the debug port.	OFF

Tunnel



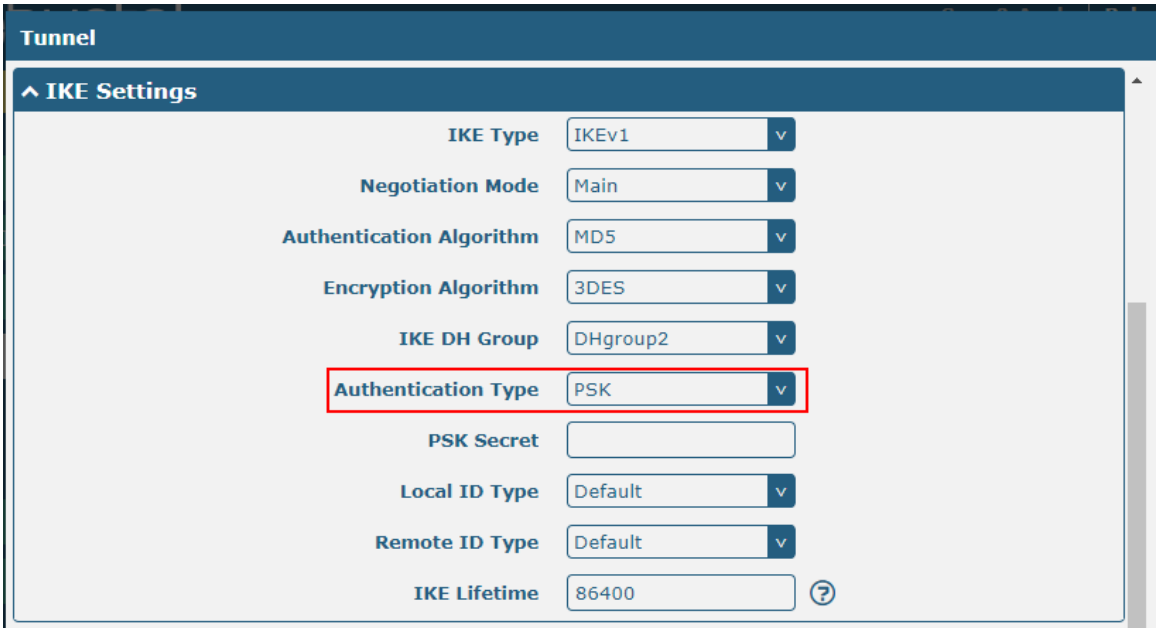
Click + to add IPsec tunnel. The maximum count is 3.



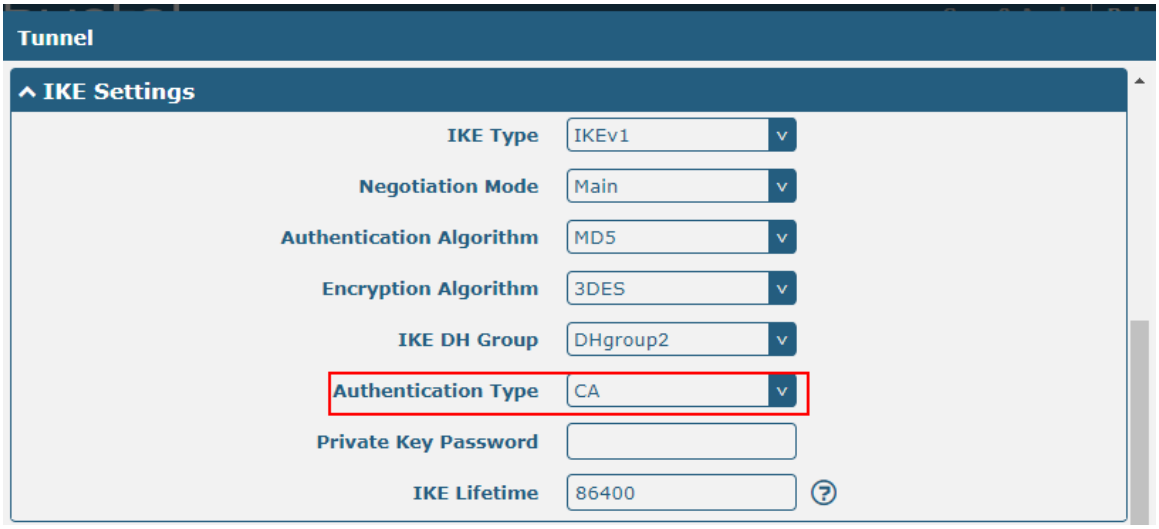
General Settings @ Tunnel		
Item	**Description**	**Default**
Index	Indicate the ordinal of the list.	--
Enable	Click the toggle button to enable/disable this IPsec tunnel.	ON
Description	Enter a description for this IPsec tunnel.	Null
Gateway	Enter the address of remote side IPsec VPN server. 0.0.0.0 represents for any address.	Null
Mode	Select from “Tunnel” and “Transport”. • Tunnel: Commonly used between gateways, or at an end-station to a gateway, the gateway acting as a proxy for the hosts behind it • Transport: Used between end-stations or between an end-station and a gateway, if the gateway is being treated as a host-for example, an encrypted Telnet session from a workstation to a router, in which the router is the actual destination	Tunnel
Protocol	Select the security protocols from “ESP” and “AH”.	ESP

	• ESP: Use the ESP protocol • AH: Use the AH protocol	
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

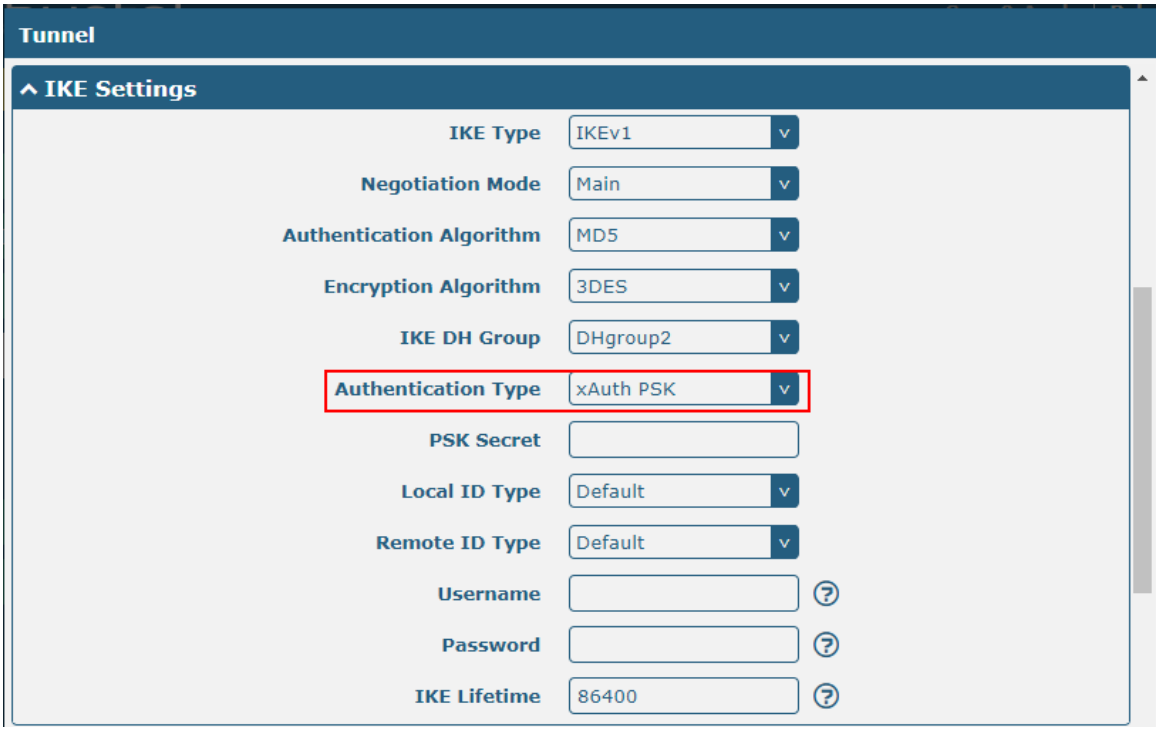
The window is displayed as below when choosing "PSK" as the authentication type.



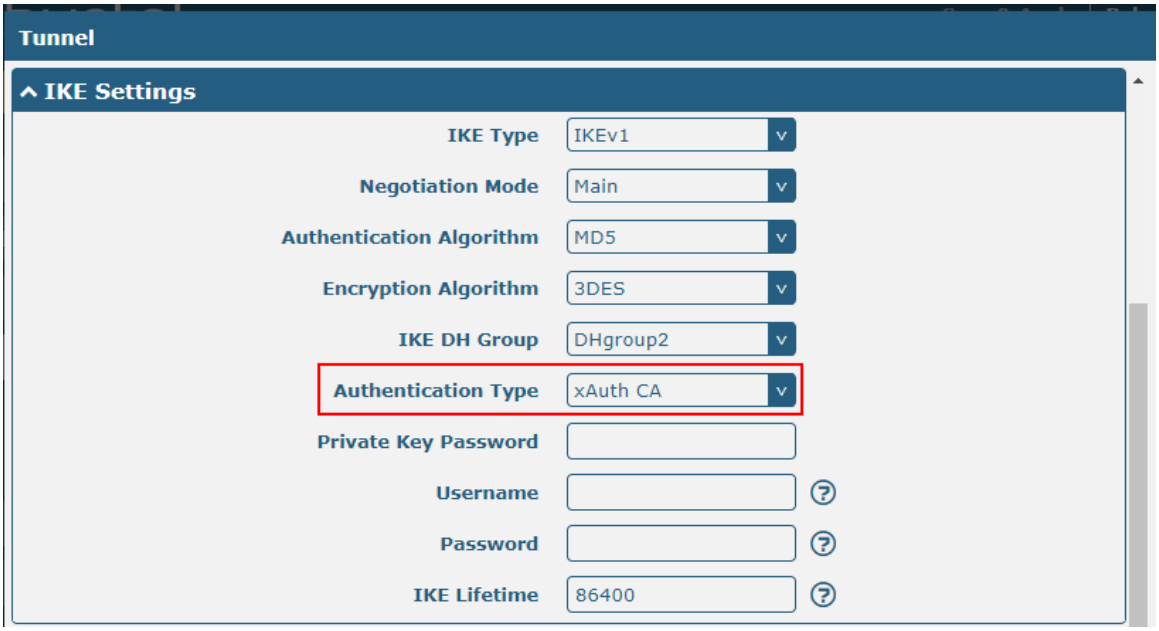
The window is displayed as below when choosing "CA" as the authentication type.



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



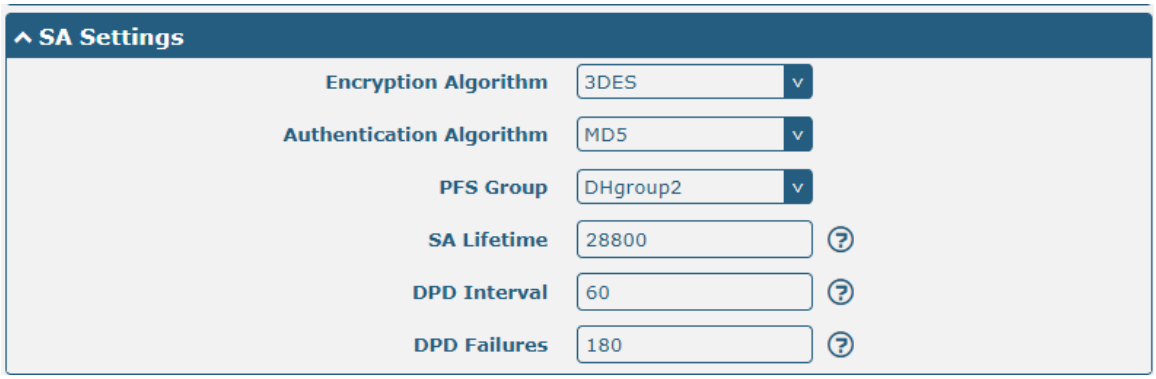
The window is displayed as below when choosing “xAuth CA” as the authentication type.



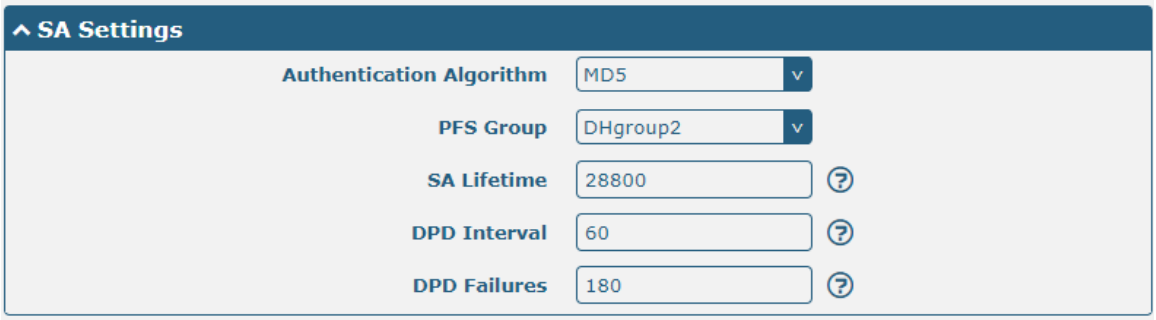
IKE Settings		
Item	**Description**	**Default**
IKE Type	Select from IKE v1 and IKE v2.	IKE v1
Negotiation Mode	Select from “Main” and “Aggressive” for the IKE negotiation mode in phase 1. If the IP address of one end of an IPsec tunnel is obtained dynamically, the IKE negotiation mode must be aggressive. In this case, SAs can be established as long as the username and password are correct.	Main

IKE Settings		
Item	**Description**	**Default**
Authentication Algorithm	Select from “MD5”, “SHA1”, “SHA2 256” or “SHA2 512” to be used in IKE negotiation.	MD5
Encryption Algorithm	Select from “3DES”, “AES128” and “AES256”to be used in IKE negotiation. • 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	3DES
IKE DH Group	Select from “DHgroup2”, “DHgroup5”, “DHgroup14”, “DHgroup15”, “DHgroup16”, “DHgroup17” or “DHgroup18” to be used in key negotiation phase 1.	DHgroup2
Authentication Type	Select from “PSK”, “CA”, “xAuth PSK” and “xAuth CA” to be used in IKE negotiation. • 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. • 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. • 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.



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

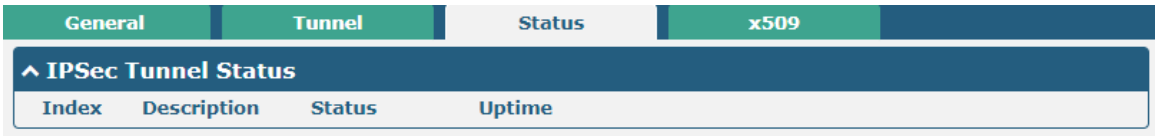


SA Settings		
Item	**Description**	**Default**
Encrypt Algorithm	Select from “3DES”, “AES128” or “AES256” when you select “ESP” in “Protocol”. Higher security means more complex implementation and lower speed. DES is enough to meet general requirements. Use 3DES when high confidentiality and security 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 “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
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	60

SA Settings		
Item	**Description**	**Default**
	IKE SA and the IPsec SAs based on the IKE SA.	
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
Expert Options	Add more PPP configuration options here, format: config-desc;config-desc, e.g. protostack=netkey;plutodebug=none	Null

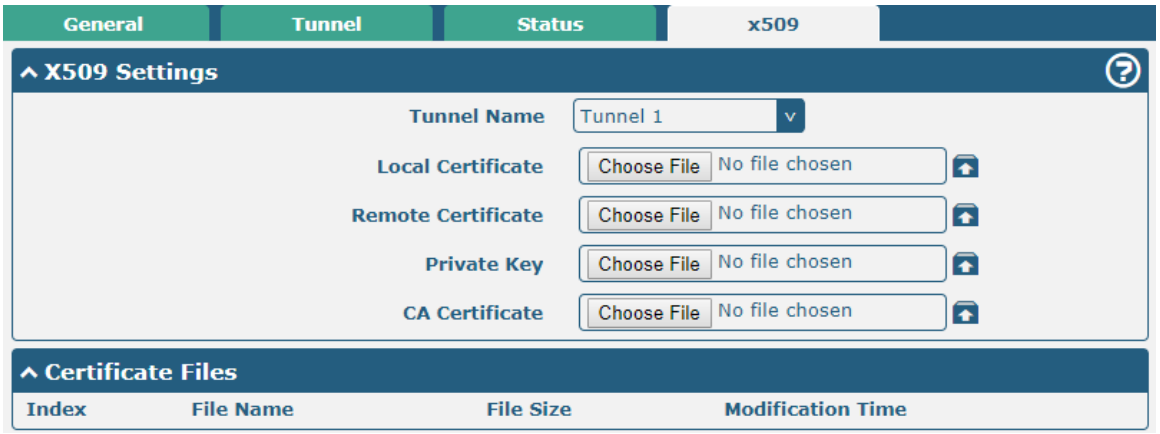
Status

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



X509

User can upload the CA and other certificates for the IPsec tunnel in this section.



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	--

x509		
Item	**Description**	**Default**
X509 Settings		
	@private.key @crl.pem	
Remote Certificate	Click on “Choose File” to upload a remote certificate file from your computer, and then import this file into your router.	--
Private Key	Click on “Choose File” to upload a private key from your computer	--
CA Certificate	Select the right CA certificate to import to gateway	--
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

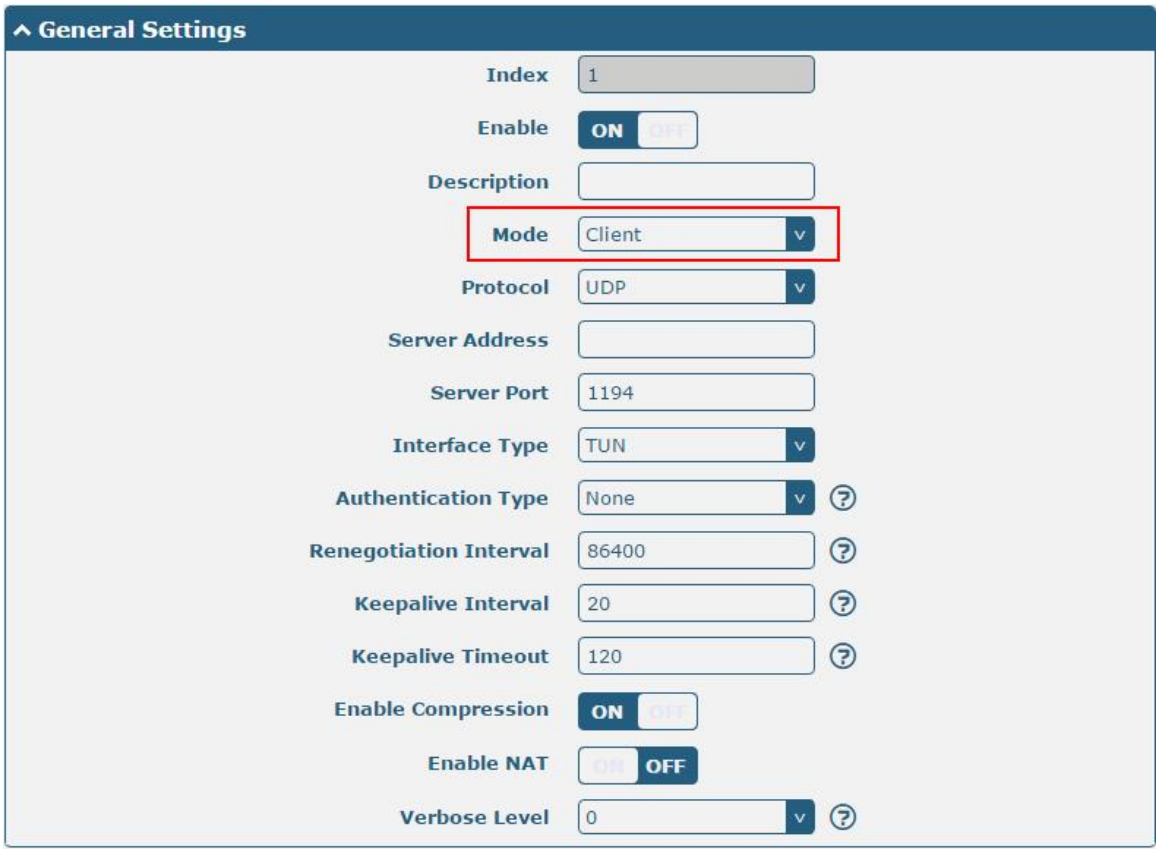
3.16 VPN > OpenVPN

This section allows you to set the OpenVPN and the related parameters. OpenVPN is an open source VPN system on the basis of SSL. Gateway supports point–to-point and point–to-points VPN tunnel.

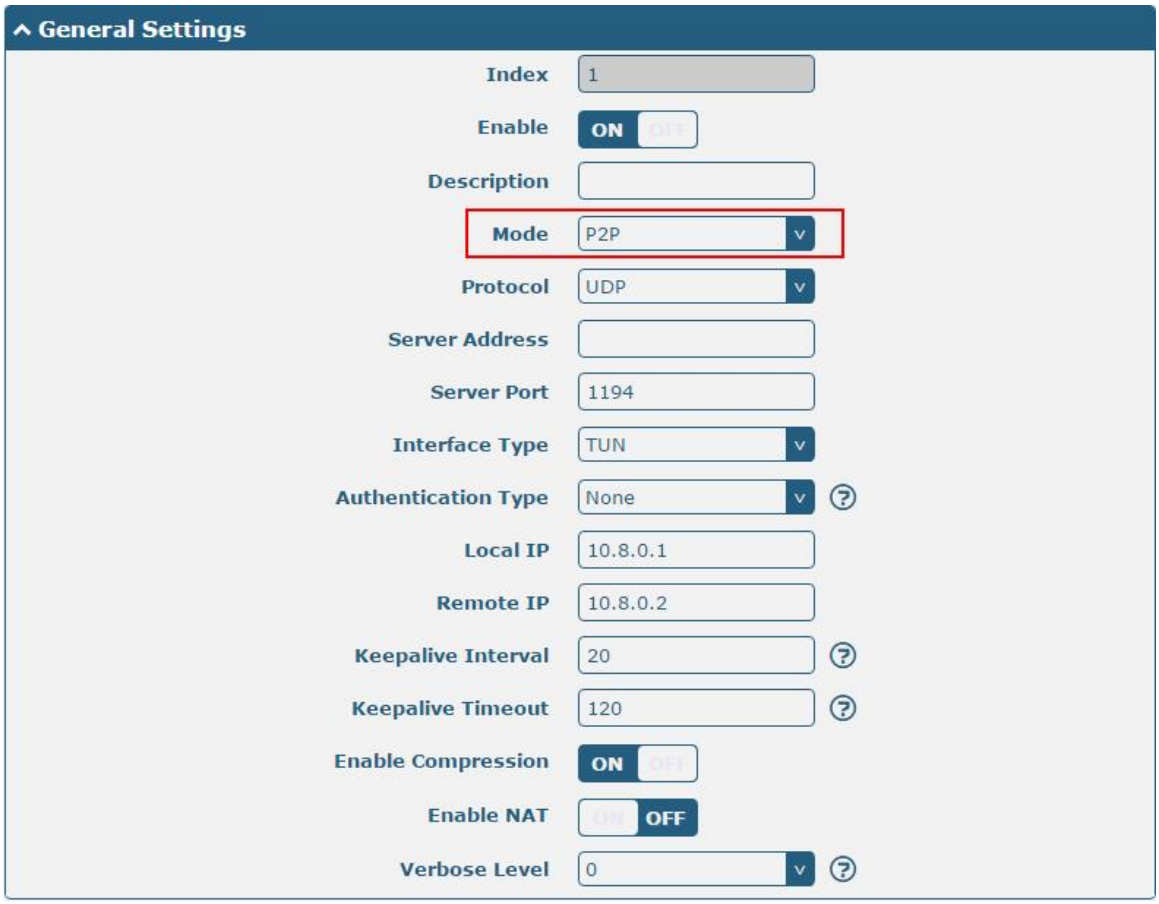
OpenVPN

Click “VPN -> OpenVPN -> OpenVPN” as shown below:

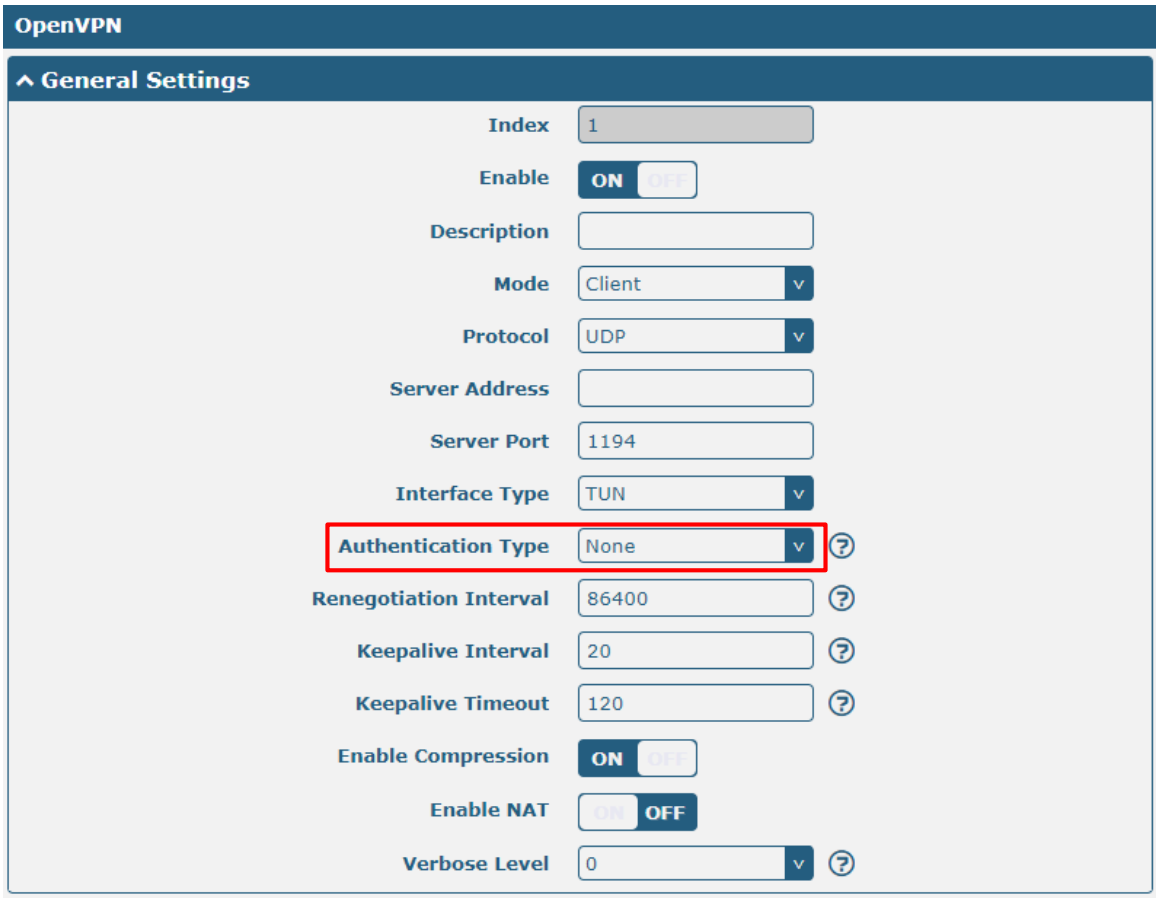
Click + to add tunnel settings. The maximum count is 3. The window is displayed as below when choosing “None” as the authentication type. By default, the mode is “Client”.



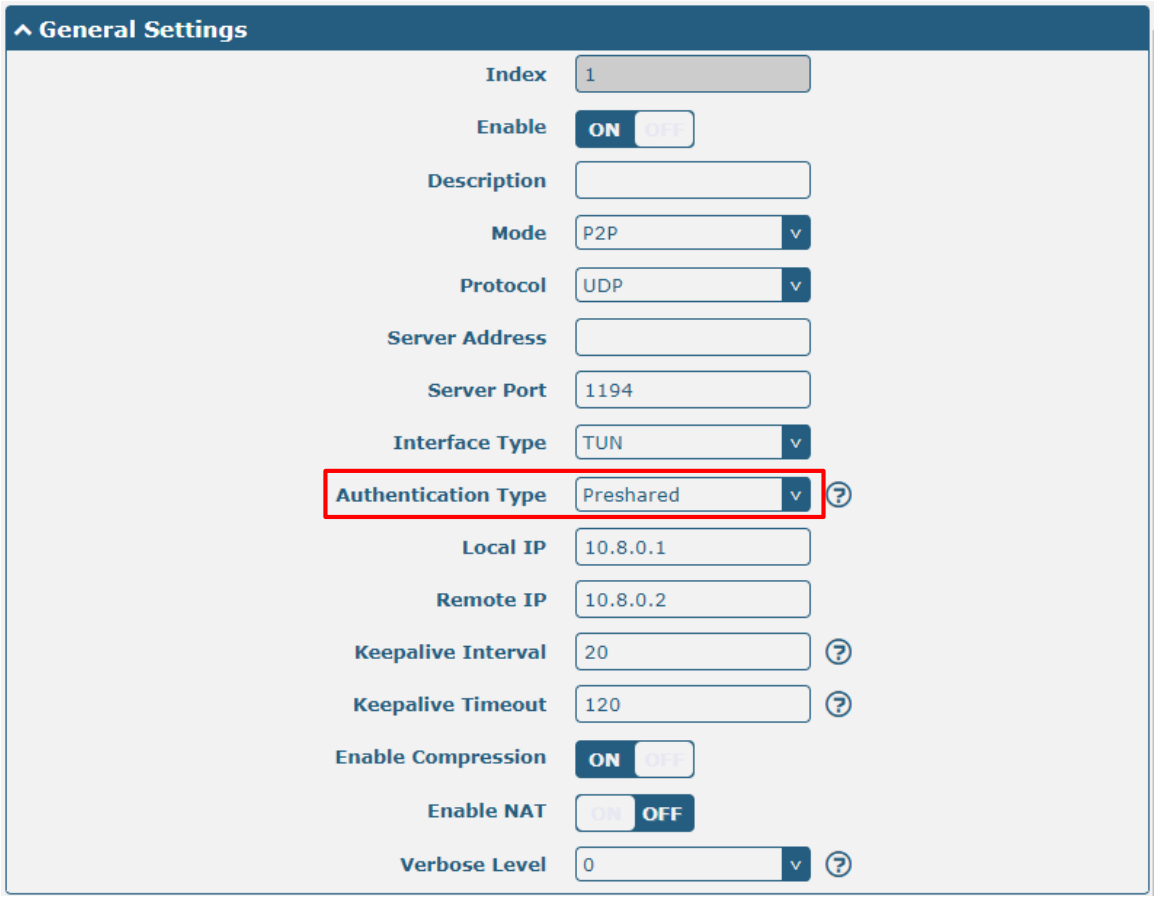
The window is displayed as below when choosing “P2P” as the mode.



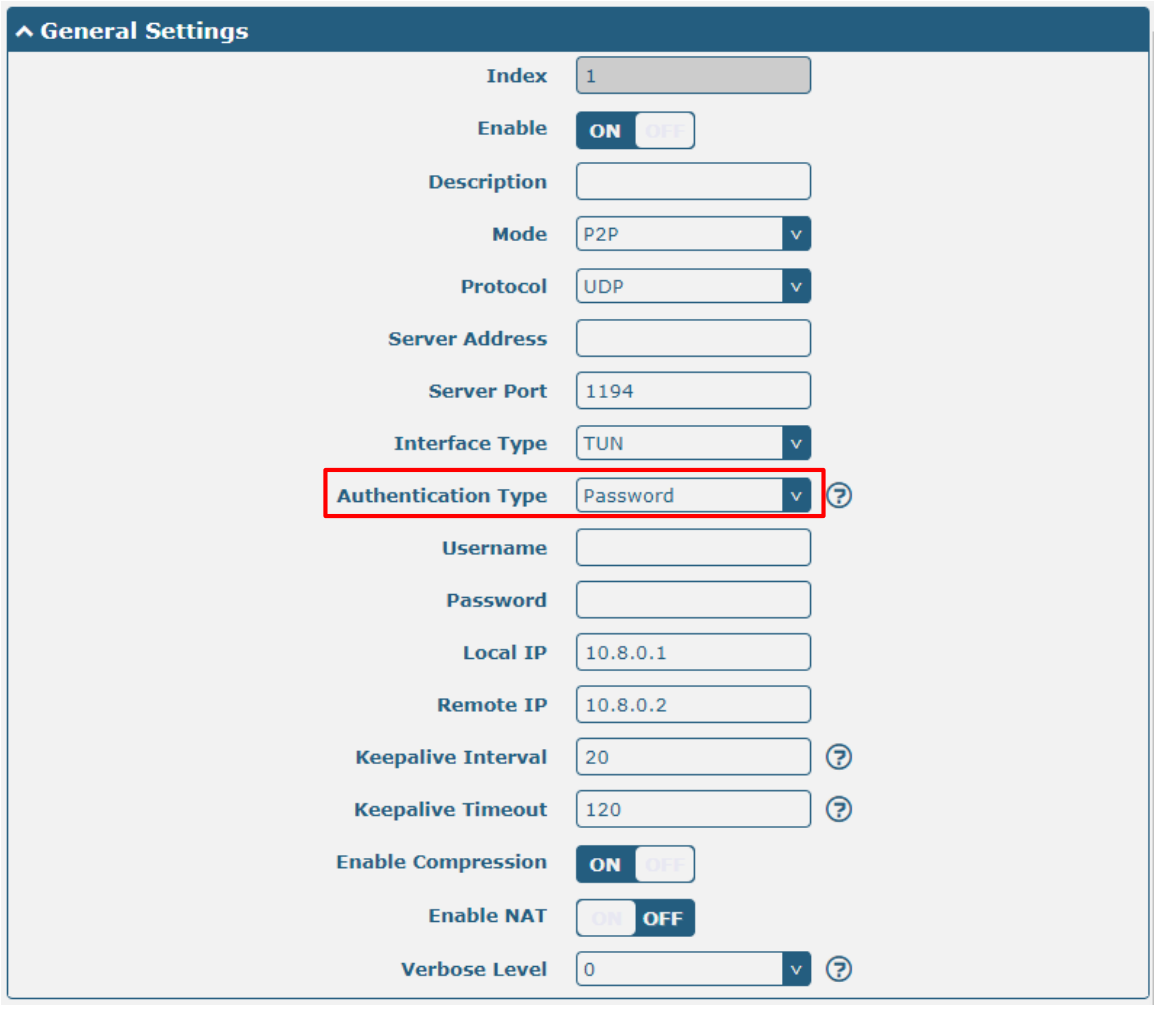
The window is displayed as below when choosing “None” as the authentication type.


OpenVPN
General Settings
Index
1
Enable
ON
OFF
Description
Mode
Client
Protocol
UDP
Server Address
Server Port
1194
Interface Type
TUN
Authentication Type
None
Renegotiation Interval
86400
Keepalive Interval
20
Keepalive Timeout
120
Enable Compression
ON
OFF
Enable NAT
ON
OFF
Verbose Level
0

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



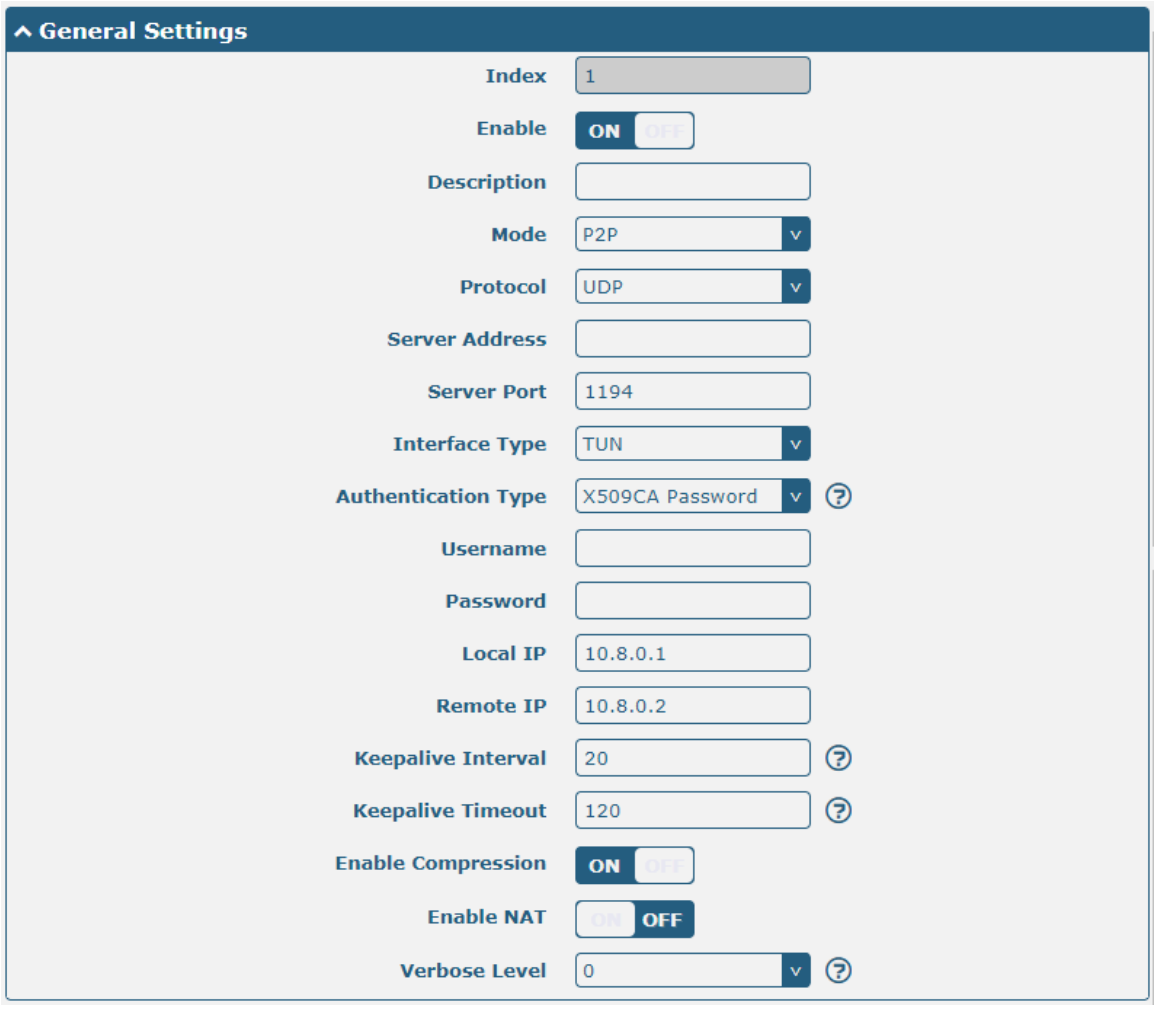
The window is displayed as below when choosing “Password” as the authentication type.

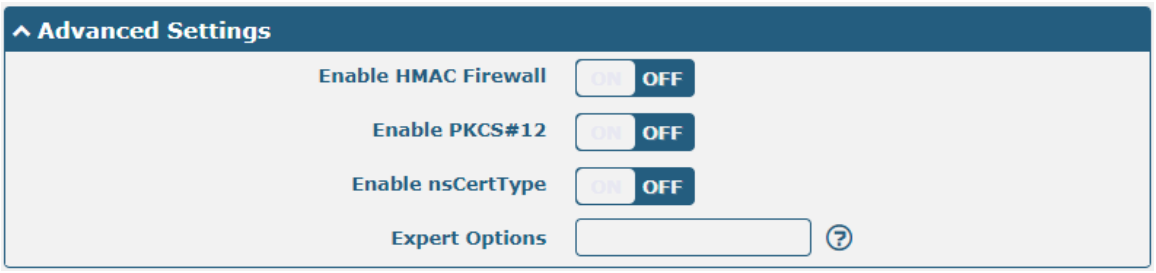


The window is displayed as below when choosing “X509CA” as the authentication type.


General Settings
Index
1
Enable
ON
OFF
Description
Mode
P2P
Protocol
UDP
Server Address
Server Port
1194
Interface Type
TUN
Authentication Type
X509CA
Local IP
10.8.0.1
Remote IP
10.8.0.2
Keepalive Interval
20
Keepalive Timeout
120
Enable Compression
ON
OFF
Enable NAT
ON
OFF
Verbose Level
0

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





General Settings @ OpenVPN		
Item	**Description**	**Default**
Index	Indicate the ordinal of the list.	--
Enable	Click the toggle button to enable/disable this OpenVPN tunnel.	ON
Description	Enter a description for this OpenVPN tunnel.	Null
Mode	Select from “P2P” or “Client”.	Client
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

General Settings @ OpenVPN		
Item	**Description**	**Default**
Server Port	Enter the end-to-end listener port or the listener port of the OpenVPN server.	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
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
Encrypt Algorithm	Select from “BF”, “DES”, “DES-EDE3”, “AES128”, “AES192” and “AES256”. • 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
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
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 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
Verbose Level	Select the level of the output log and values from 0 to 11. • 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

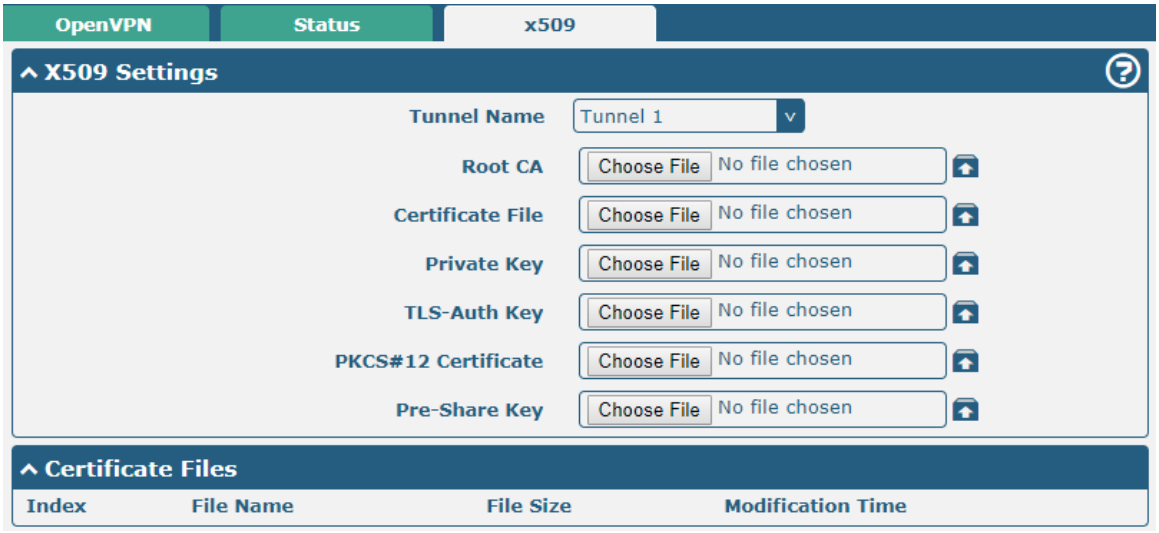
Advanced Settings @ OpenVPN		
Item	**Description**	**Default**
Enable HMAC Firewall	Click the toggle button to enable/disable this option. Add an additional layer of HMAC authentication on top of the TLS control channel to protect against DoS attacks.	OFF
Enable PKCS#12	Click the toggle button to enable/disable 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
Expert Options	Enter some other options of OpenVPN in this field. Each expression can be separated by a ';'.	Null

Status

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

X509

This part is used for importing the CA and other certificates.

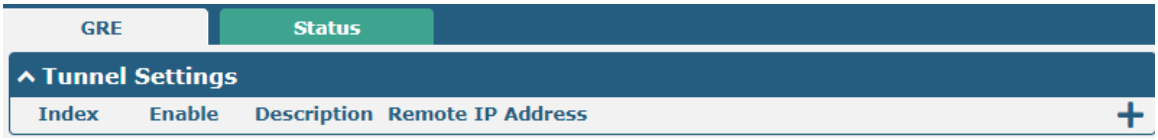


x509		
Item	**Description**	**Default**
X509 Settings		
Tunnel Name	Choose a valid tunnel.	Tunnel 1
Root CA	Click on "Choose File" to upload root CA.	Null

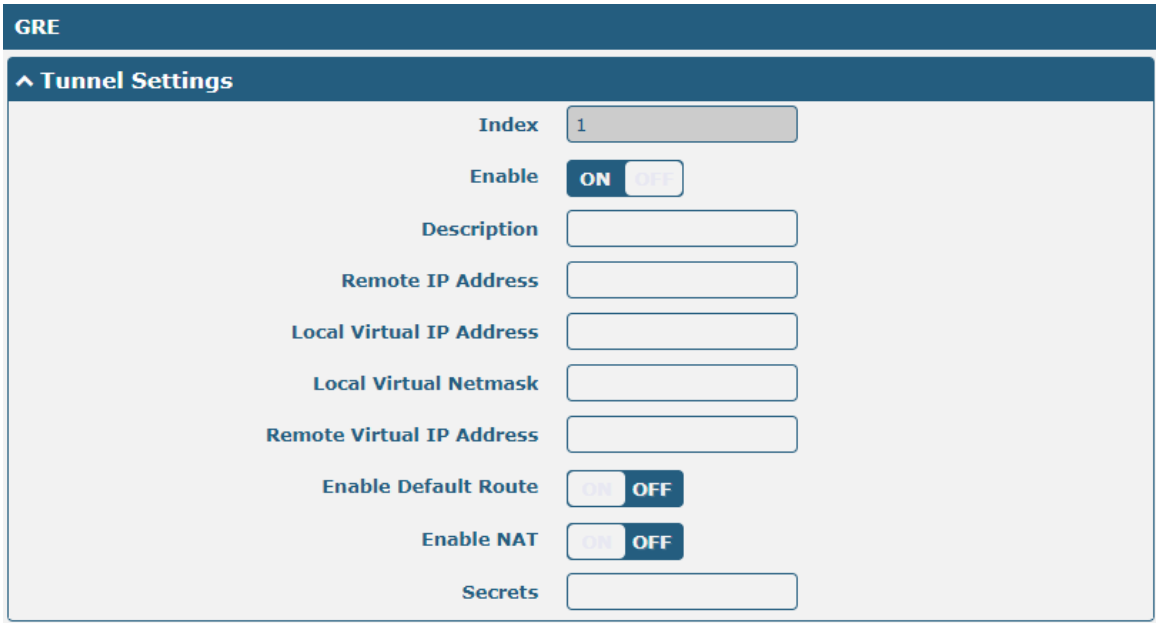
Certificate File	Click on “Choose File” to upload certificate file.	Null
Private Key	Click on “Choose File” to upload private key.	Null
TLS-Auth Key	Click on “Choose File” to upload TLS-AutH key.	Null
PKCS#12 Certificate	Click on “Choose File” to upload PKCS#12 Certificate.	Null
Pre-share Key	Click on “Choose File” to upload Pre-share Key.	Null
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

3.17 VPN > GRE

GRE



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

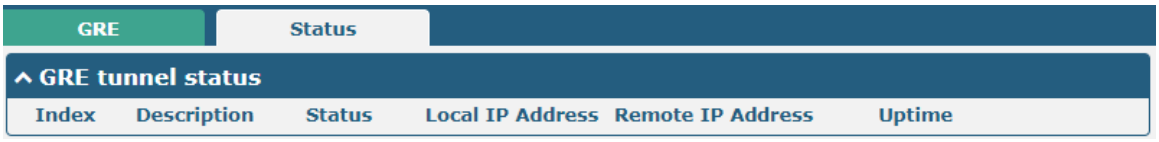


Tunnel Settings @ GRE		
Item	**Description**	**Default**
Index	Indicate the ordinal of the list.	--
Enable	Click the toggle button to enable/disable this GRE tunnel.	ON

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	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

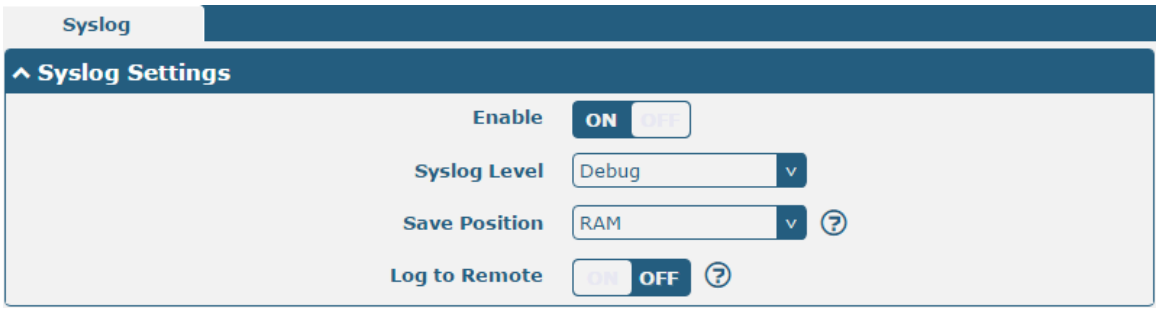
Status

Click “Status” to view the connection status of GRE VPN.

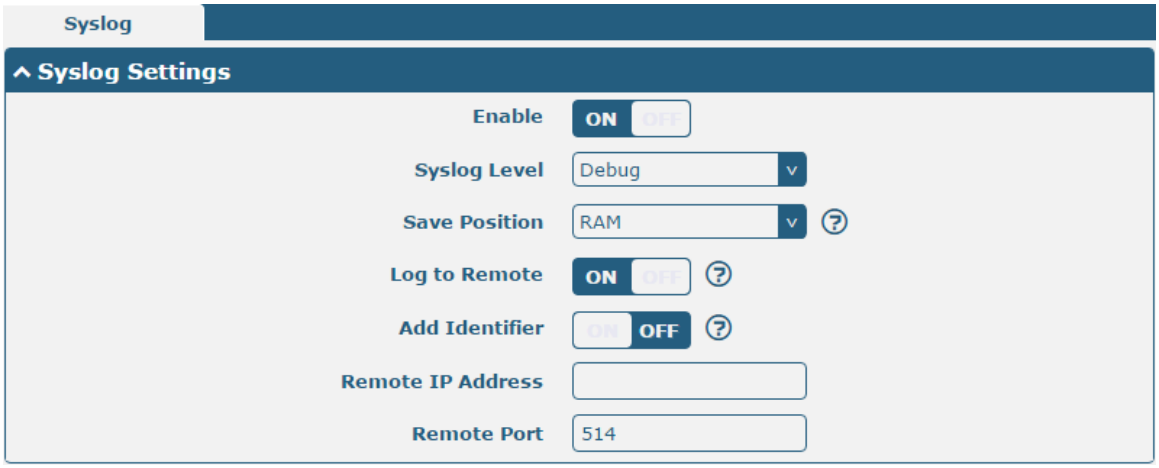


3.18 Services > Syslog

This section allows you to set the syslog parameters. The system log of R3010 Gateway 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.



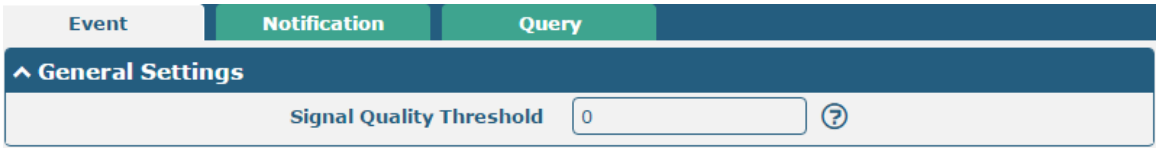
The window is displayed as below when enabling the “Log to Remote” option.



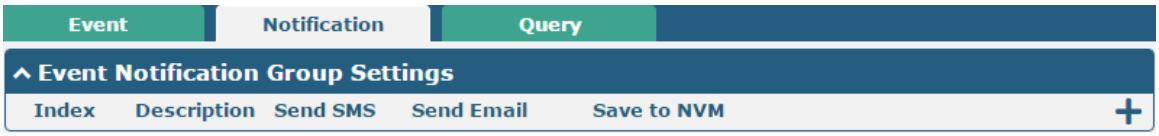
Syslog Settings		
Item	**Description**	**Default**
Enable	Click the toggle button to enable/disable the Syslog settings option.	OFF
Syslog Level	Select from “Debug”, “Info”, “Notice”, “Warning” or “Error”, which from low to high. The lower level will output more syslog in details.	Notice
Save Position	Select the save position from “RAM”, “NVM” or “Console”. Choose “RAM”. The data will be cleared after reboot. **Note**: It's not recommended that you save 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 gateway 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

3.19 Services > Event

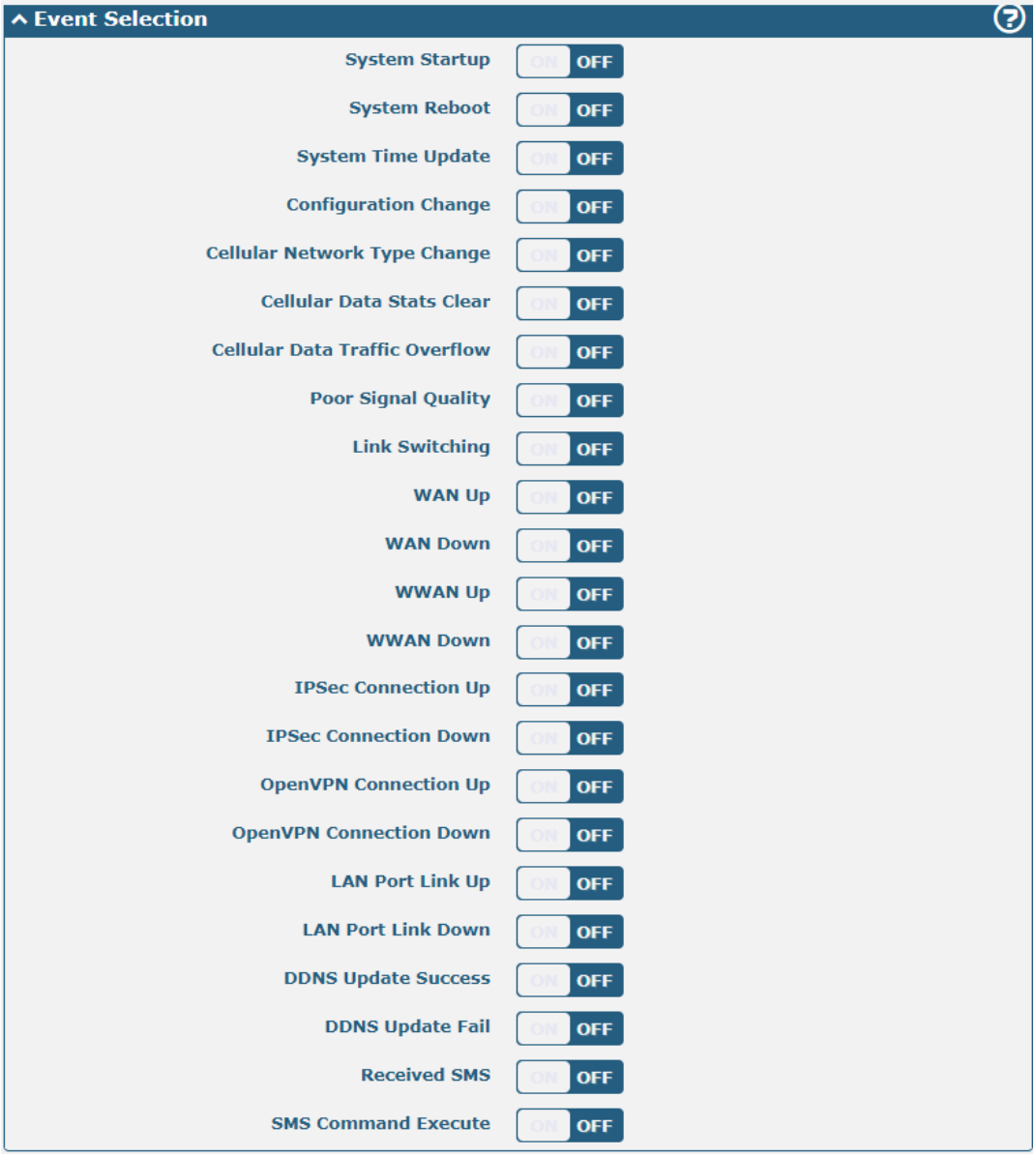
This section allows you to set the event parameters. Event feature provides an ability to send alerts by SMS or Email when certain system events occur.



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



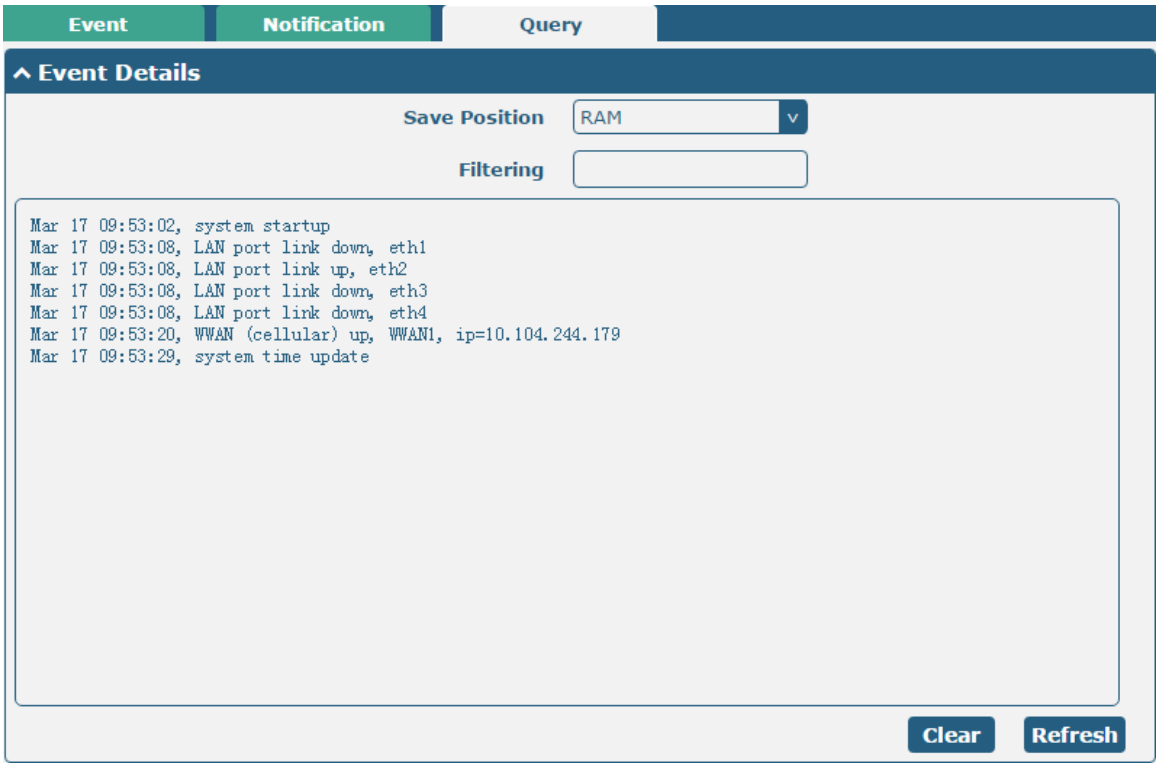
Click + button to add an Event parameters.



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 gateway 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
Phone Number	Enter the phone numbers used for receiving event notification. Use a semicolon (;) to separate each number.	Null
Send Email	Click the toggle button to enable/disable this option. When enabled, the gateway will send notification to the specified email box via Email if event occurs. Set the related email address in “3.24 Services > Email”.	OFF
Email Address	Enter the email addresses used for receiving event notification. Use a space to	Null

	separate each address.	
Save to NVM	Click the toggle button to enable/disable this option. Enable to save event to nonvolatile memory.	OFF

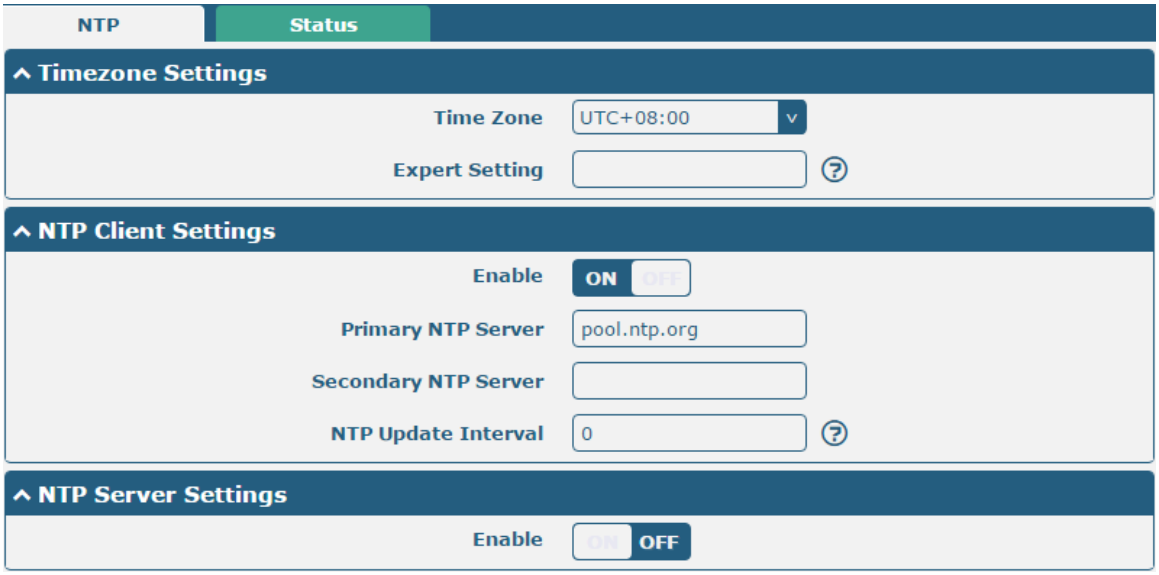
In the following window you can query various types of events record. Click **Refresh** to query filtered events while click **Clear** to clear the event records in the window.



Event Details		
Item	**Description**	**Default**
Save Position	Select the events' save position from "RAM" or "NVM". • RAM: Random-access memory • NVM: Non-Volatile Memory	RAM
Filter Message	Enter the filtering message based on the keywords set by users. Click the "Refresh" button, the filtered event will be displayed in the follow box. Use "&" to separate more than one filter message, such as message1&message2.	Null

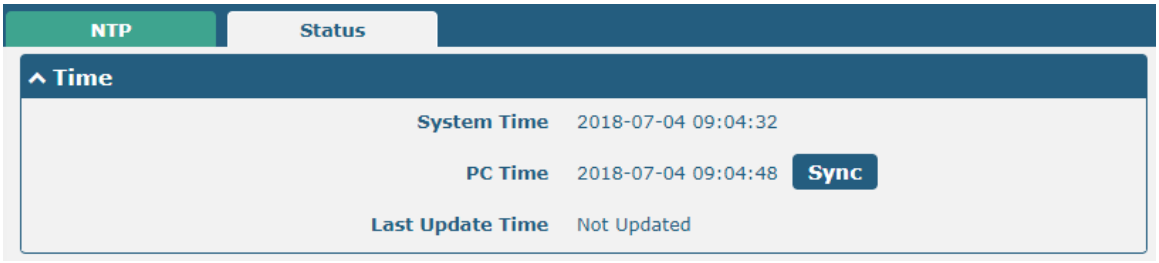
3.20 Services > NTP

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



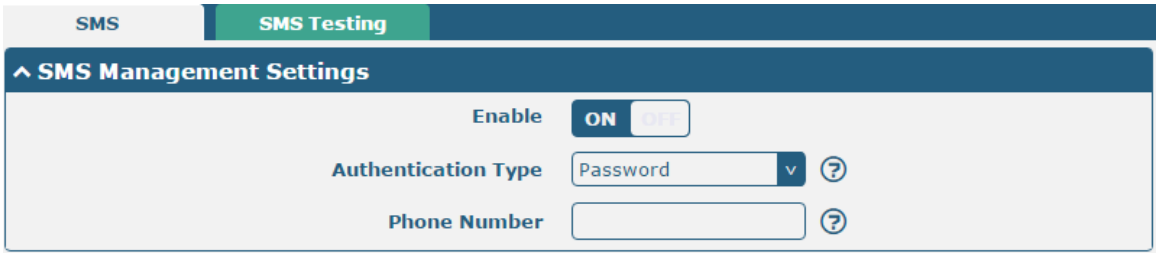
NTP		
Item	**Description**	**Default**
Timezone Settings		
Time Zone	Click the drop down list to select the time zone you are in.	UTC +08:00
Expert Setting	Specify the time zone with Daylight Saving Time in TZ environment variable format. The Time Zone option will be ignored in this case.	Null
NTP Client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

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



3.21 Services > SMS

This section allows you to set SMS parameters. R3010 Gateway supports SMS management. User can control and configure their gateways by sending SMS. For more details about SMS control, refer to **4.1.2 SMS Remote Control**.



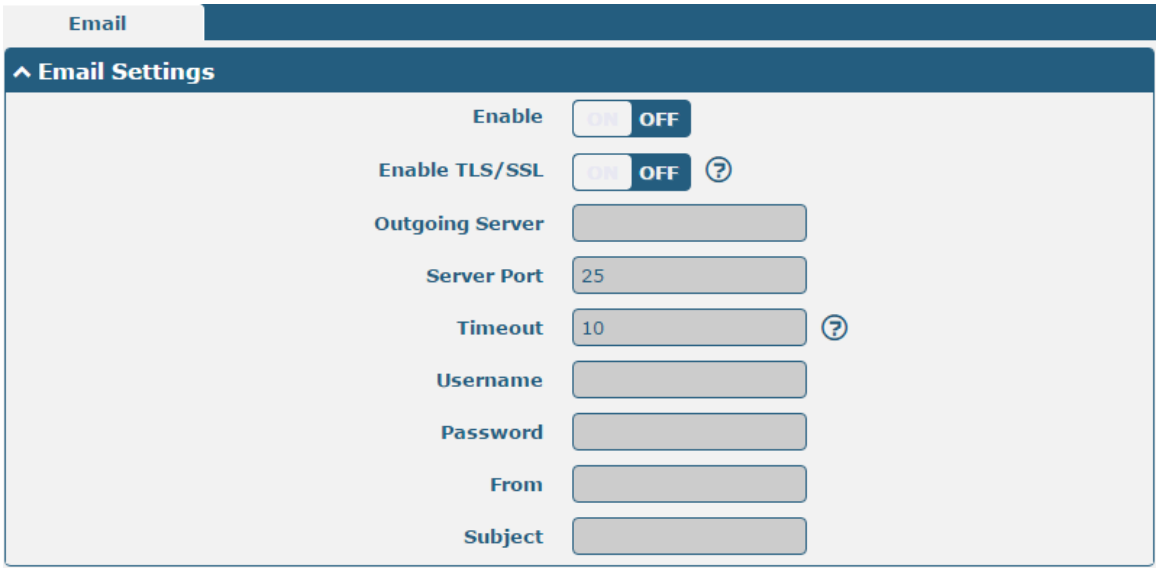
SMS Management Settings		
Item	**Description**	**Default**
Enable	Click the toggle button to enable/disable the SMS Management option. **Note**: If this option is disabled, the SMS configuration is invalid.	ON
Authentication Type	Select Authentication Type from “Password”, “Phonenum” or “Both”. • Password: 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 authentication, 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.	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 gateway.	Null
Message	Enter the message that gateway 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.	--

3.22 Services > Email

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

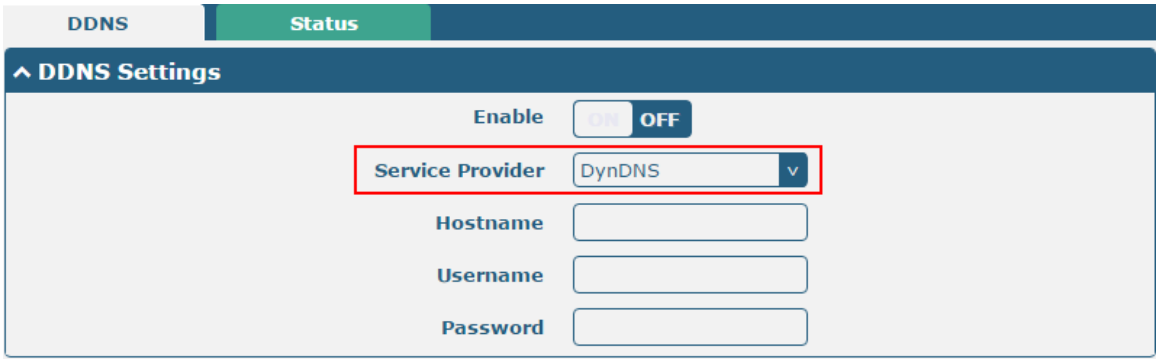


Email Settings		
Item	**Description**	**Default**
Enable	Click the toggle button to enable/disable the Email option.	OFF

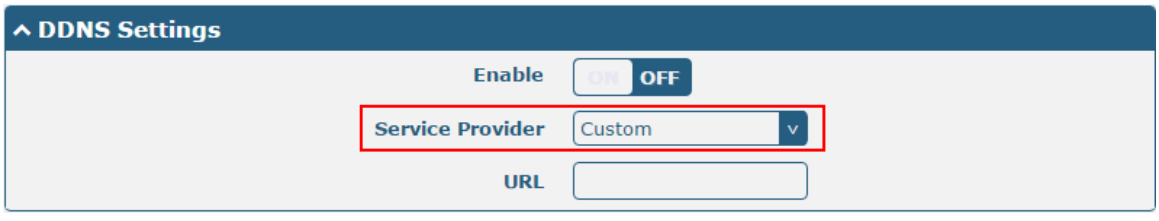
Email Settings		
Item	**Description**	**Default**
Enable TLS/SSL	Click the toggle button to enable/disable the TLS/SSL option.	OFF
Outgoing server	Enter the SMTP server IP Address or domain name.	Null
Server port	Enter the SMTP server port.	25
Timeout	Set the max time for sending email to SMTP server. When the server doesn't receive the email over this time, it will try to resend.	10
Username	Enter the username which has been registered from SMTP server.	Null
Password	Enter the password of the username above.	Null
From	Enter the source address of the email.	Null
Subject	Enter the subject of this email.	Null

3.23 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 gateway, which is assigned to you by your ISP. The service provider defaults to "DynDNS", as shown below.



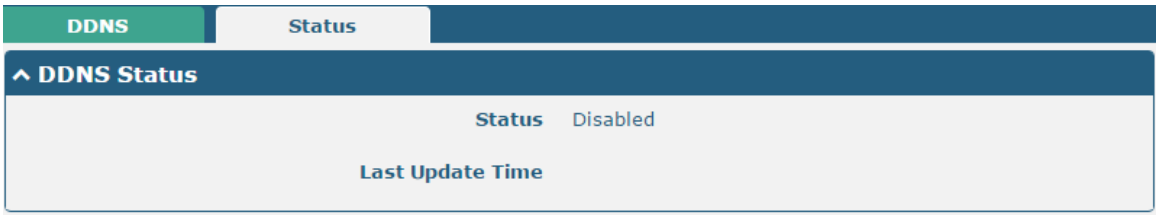
When "Custom" service provider chosen, the window is displayed as below.



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".	DynDNS

	Note: the DDNS service only can be used after registered by Corresponding service provider.	
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

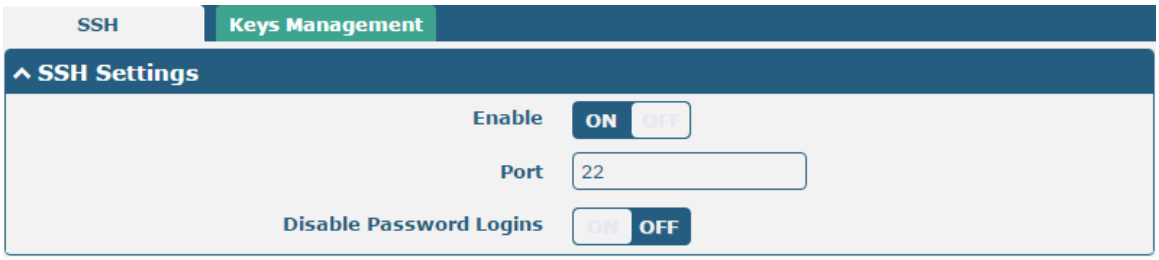
Click “Status” bar to view the status of the DDNS.



DDNS Status	
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.

3.24 Services > SSH

R3010 Gateway supports SSH password access and secret-key access.



SSH Settings		
Item	**Description**	**Default**
Enable	Click the toggle button to enable/disable this option. When enabled, you can access R3010 Gateway 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 gateway via SSH. In this case, only the key can be used for login.	OFF

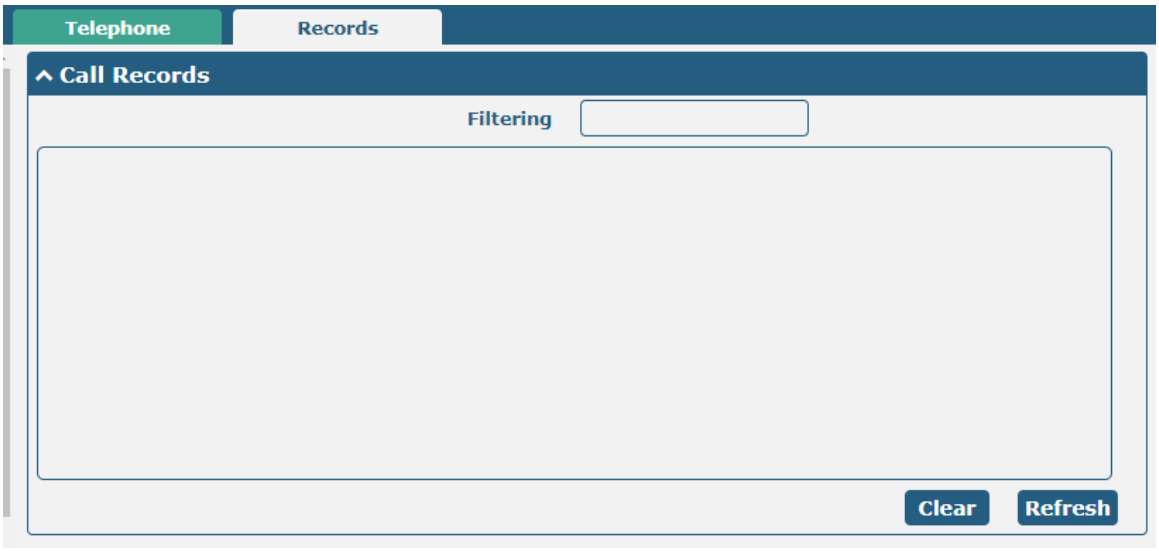
Import Authorized Keys	
Item	**Description**
Authorized Keys	Click on "Choose File" to locate an authorized key from your computer, and then click "Import" to import this key into your gateway. **Note**: This option is valid when enabling the password logins option.

3.25 Services > Telephone

This section allows you to set the related parameters of voice function.

Note: Whether or not voice call and data transmission can be used simultaneously is dependent upon your ISP network.

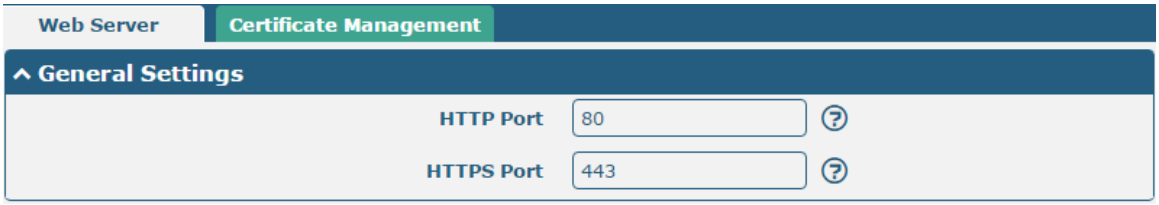
General Settings @ Telephone		
Item	**Description**	**Default**
Wait Number Timeout	Set the wait number timeout for dial plan, measured in second.	5
Digitmap	Enter the digitmap used for matching the telephone number when making voice calls. When matched, the system will call this number immediately, and you don't need to wait for the dial-up timeout. This option is used for speed dialing.	Null



Call Records		
Item	**Description**	**Default**
Filtering	Set the wait number timeout for dial plan, measured in second.	--
Clear	Click this button to clear the call record.	--
Refresh	Click this button to refresh the call record.	--

3.26 Services > Web Server

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



General Settings @ Web Server		
Item	**Description**	**Default**
HTTP Port	Enter the HTTP port number you want to change in gateway's Web Server. On a Web server, port 80 is the port that the server "listens to" or expects to receive from a Web client. If you configure the gateway with other HTTP Port number except 80, only adding that port number then you can login gateway's Web Server.	80
HTTPS Port	Enter the HTTPS port number you want to change in gateway'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 gateway with other HTTPS Port number except 443, only adding that port number then you can login gateway's Web Server.	443

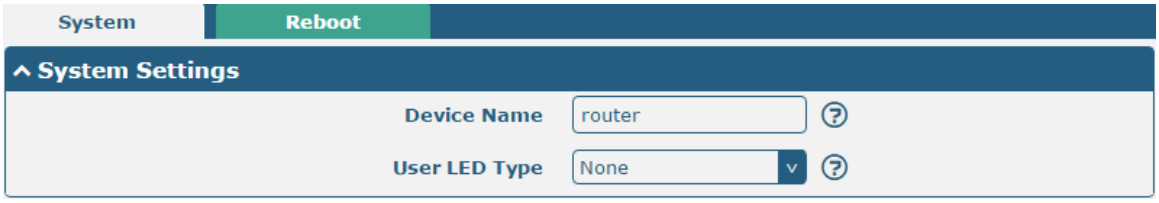
	Note: HTTPS is more secure than HTTP. In many cases, clients may be exchanging confidential information with a server, which needs to be secured in order to prevent unauthorized access. For this reason, HTTP was developed by Netscape corporation to allow authorization and secured transactions.	

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

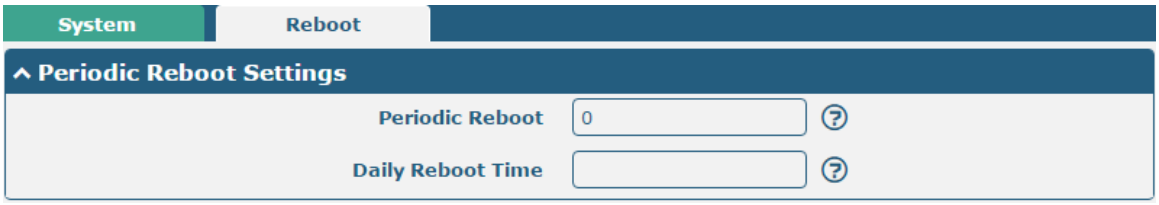
Import Certificate		
Item	**Description**	**Default**
Import Type	Select from "CA" and "Private Key". • CA: a digital certificate issued by CA center • Private Key: a private key file	CA
HTTPS Certificate	Click on "Choose File" to locate the certificate file from your computer, and then click "Import" to import this file into your gateway.	--

3.27 Services > Advanced

This section allows you to set the Advanced and parameters.



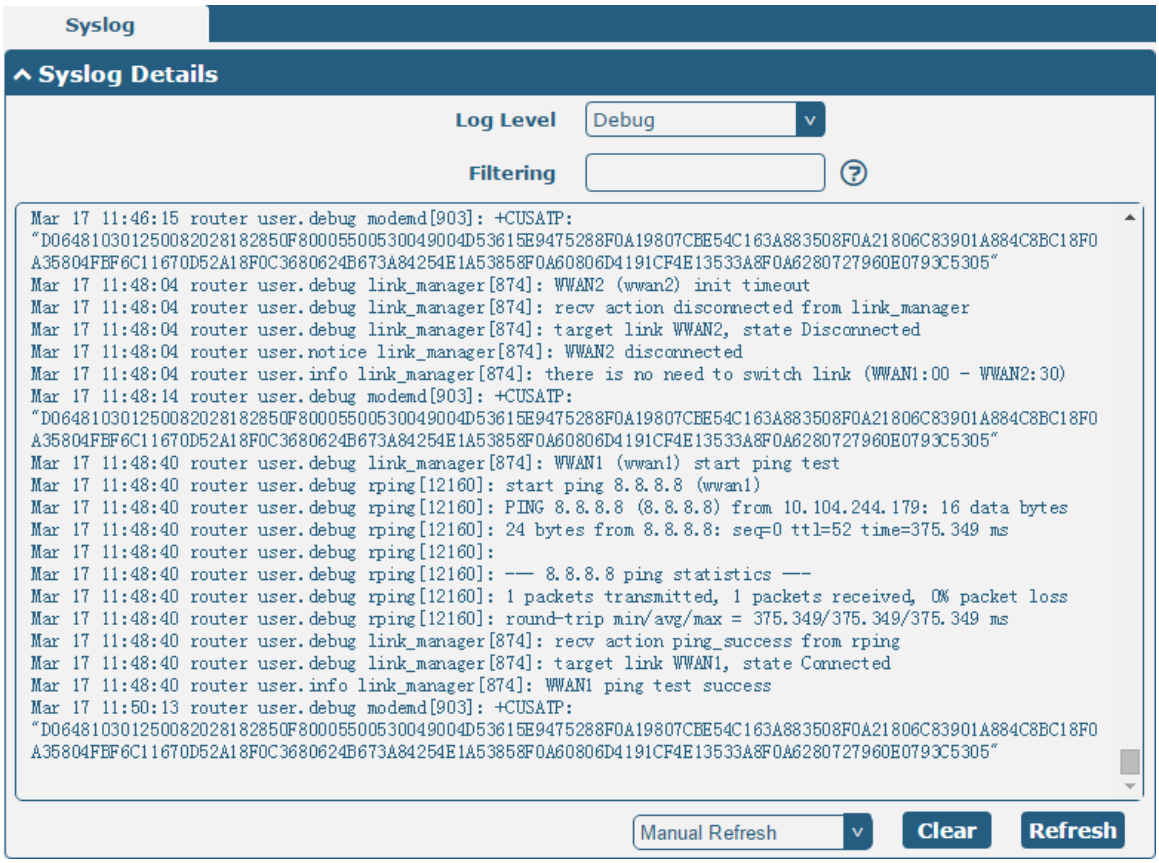
System Settings		
Item	**Description**	**Default**
Device Name	Set the device name to distinguish different devices you have installed; valid characters are a-z, A-Z, 0-9, @, ., -, #, $, and *.	Router
User LED Type	Specify the display type of your USR LED. Select from "None", "NET", "OpenVPN", "IPsec" or "GRE". • None: Meaningless indication, and the LED is off • NET: USR indicator showing the network status • OpenVPN: USR indicator showing the OpenVPN status • IPsec: USR indicator showing the IPsec status • GRE: USR indicator showing the GRE status **Note**: For more details about USR indicator, see "2.1 LED Indicators".	None

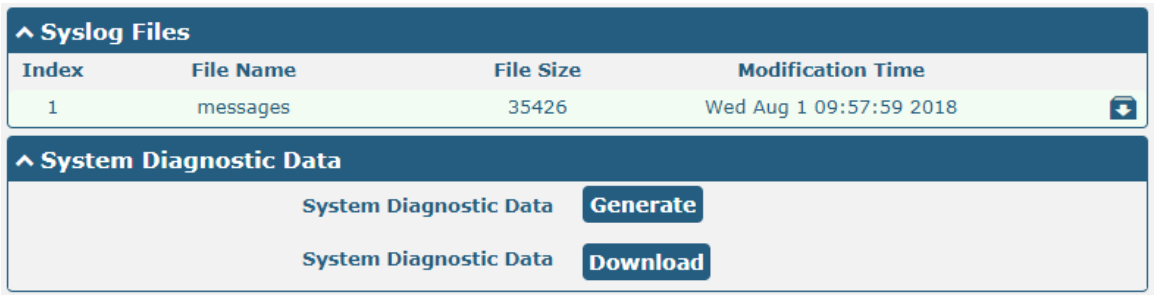


Periodic Reboot Settings		
Item	**Description**	**Default**
Periodic Reboot	Set the reboot period of the gateway. 0 means disable.	0
Daily Reboot Time	Set the daily reboot time of the gateway. You should follow the format as HH: MM, in 24h time frame, otherwise the data will be invalid. Leave it empty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

3.28 System > Debug

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





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 system diagnosis data.	--
Download	Click to download the generated system diagnosis data.	--

3.29 System > Update

This section allows you to upgrade the firmware of your R3010. 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 Gateway during the firmware upgrade process.

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

System 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 gateway to take effect.	Null

3.30 System > APP Center

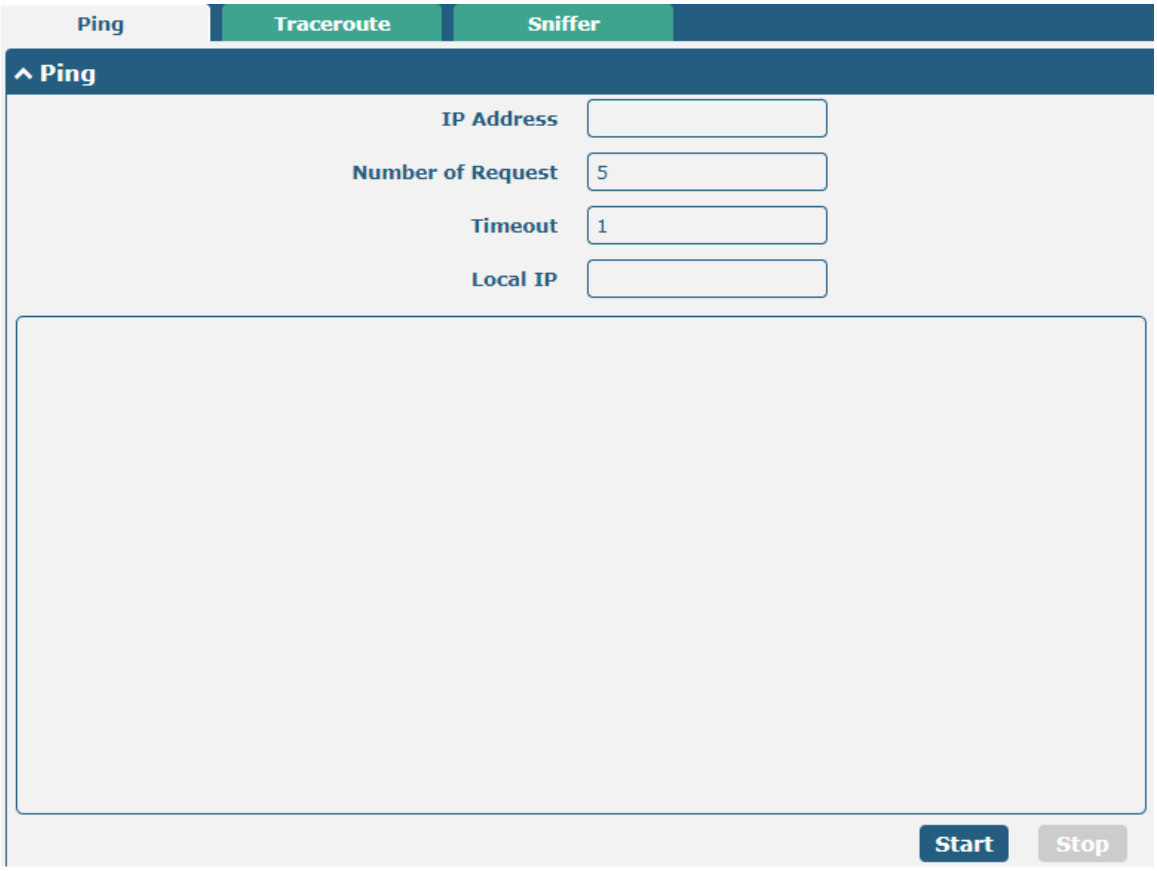
This section allows you to add some required or customized applications to the gateway. Import and install your applications to the APP Center, and reboot the device according to the system prompts. Each installed application will be displayed under the "Services" menu, while other applications related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

Note: After importing the applications to the gateway, 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 gateway again.

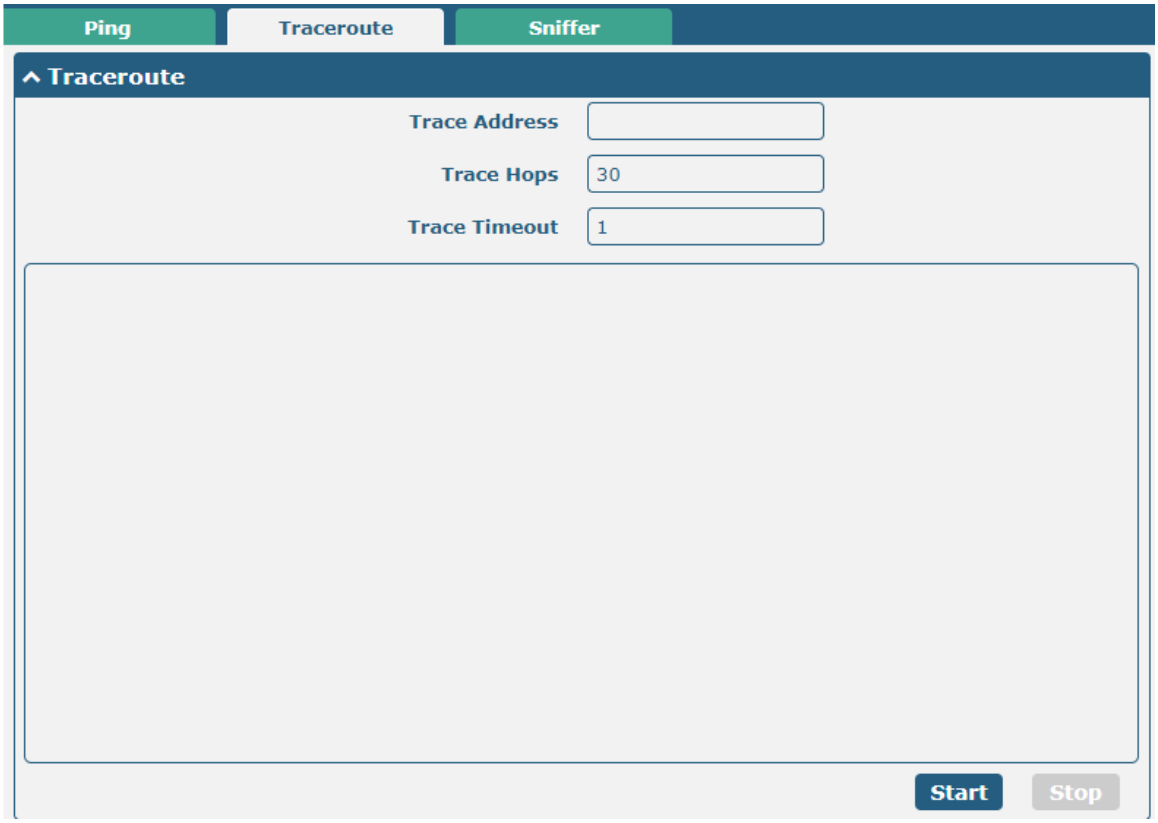
App Center		
Item	**Description**	**Default**
App Install		
File	Click on "Choose File" to locate the App file from your computer, and then click Install to import this file into your gateway. **Note**: File format should be *xxx.rpk*, e.g. *R3010-robustlink-1.0.0.rpk*.	--
Installed Apps		
Index	Indicate 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

3.31 System > Tools

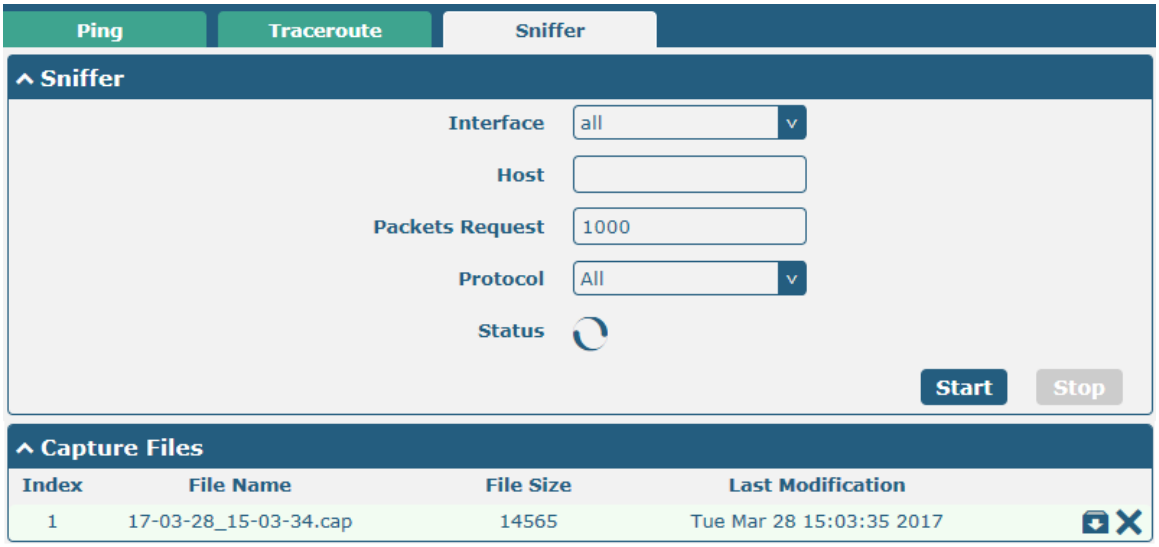
This section provides users three tools: Ping, At Debug, Traceroute and Sniffer.



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 requests.	1
Local IP	Specify the local IP from cellular WAN, Ethernet WAN or Ethernet LAN. Null stands for selecting local IP address from these three automatically.	Null
Start	Click this button to start ping request, and the log will be displayed in the follow box.	Null
Stop	Click this button to stop ping request.	--



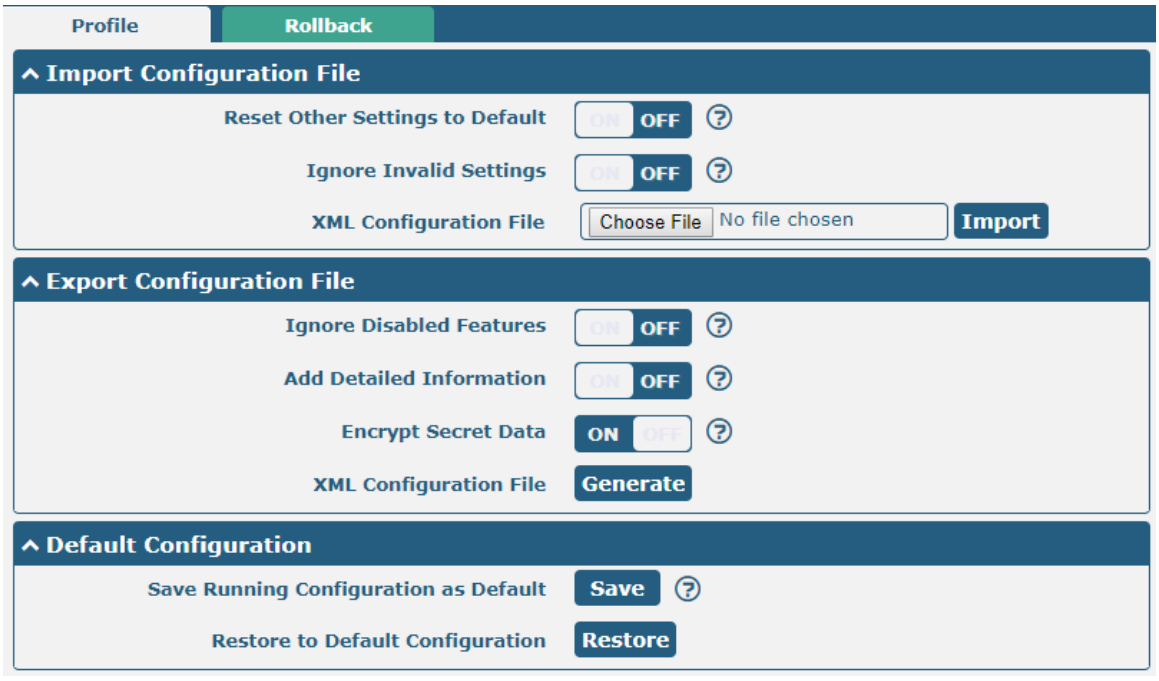
Traceroute		
Item	**Description**	**Default**
Trace Address	Enter the trace's destination IP address or destination domain.	Null
Trace Hops	Specify the max trace hops. Gateway will stop tracing if the trace hops has met max value no matter the destination has been reached or not.	30
Trace Timeout	Specify 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.	--



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 gateway can sniffer at a time.	1000
Protocol	Select from “All”, “IP”, “TCP”, “UDP” and “ARP”.	All
Status	Show the current status of sniffer.	Null
Start	Click this button to start the sniffer.	--
Stop	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

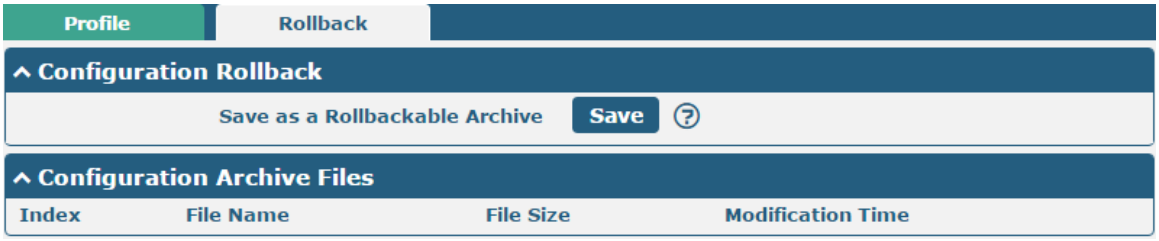
3.32 System > Profile

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



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 gateway.	--
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, and click Export to export the XML configuration file.	--
Default Configuration		
Save Running Configuration as Default	Click this button to save the current running parameters as default configuration.	--
Restore to Default Configuration	Click this button to restore the factory defaults.	--

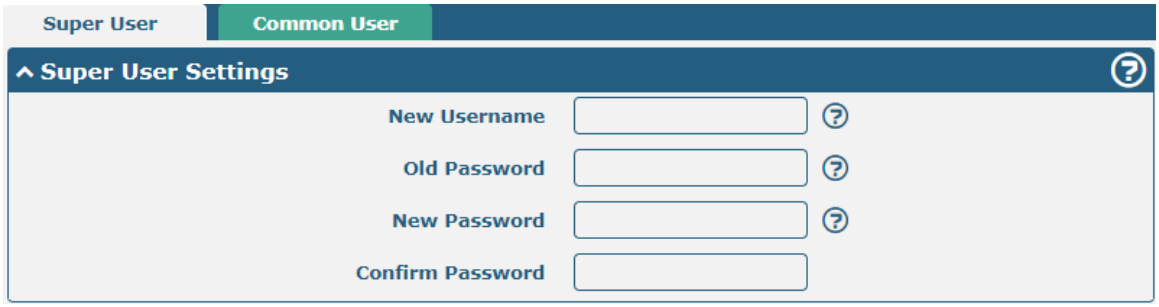


Rollback		
Item	**Description**	**Default**
Configuration Rollback		
Save as a Rollbackable Archive	Create a save point manually. Additionally, the system will create a save point every day automatically if configuration changes.	--
Configuration Archive Files		
Configuration Archive Files	View the related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

3.33 System > User Management

This section allows you to change your username and password, and create or manage user accounts. One gateway has only one super user who has the highest authority to modify, add and manage other common users.

Note: Your new password must be more than 5 character and less than 32 characters and may contain numbers, upper and lowercase letters, and standard symbols.



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 a new password you want to create; valid characters are a-z, A-Z, 0-9, @, ., -, #, $, and *.	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.

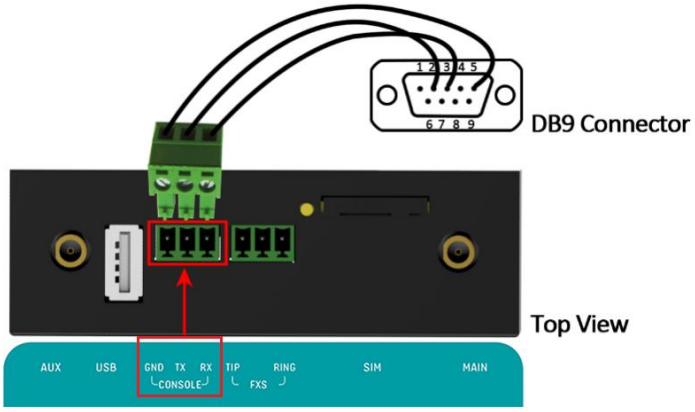
Common User Settings		
Item	**Description**	**Default**
Index	Indicate the ordinal of the list.	--
Role	Select from “Visitor” and “Editor”. • Visitor: Users only can view the configuration of gateway under this level • Editor: Users can view and set the configuration of gateway under this level	Visitor
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 Connector Connection

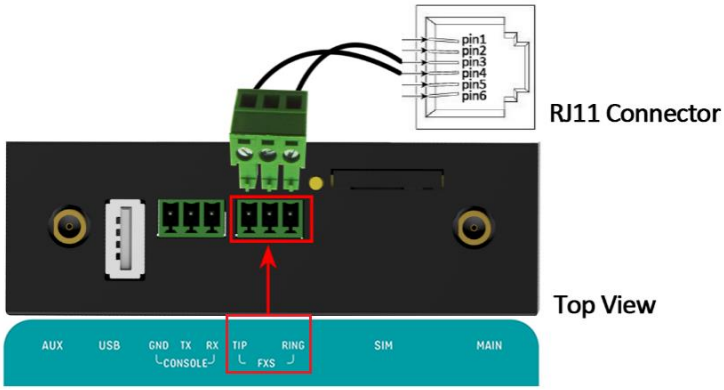
4.1.1 Console Port

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



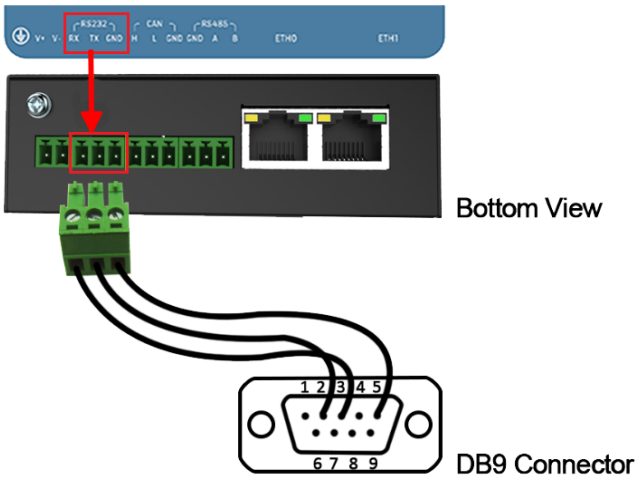
4.1.2 Voice Port

R3010 supports one FXS port for voice conversation.
Please refer to the connection diagram at the right site.



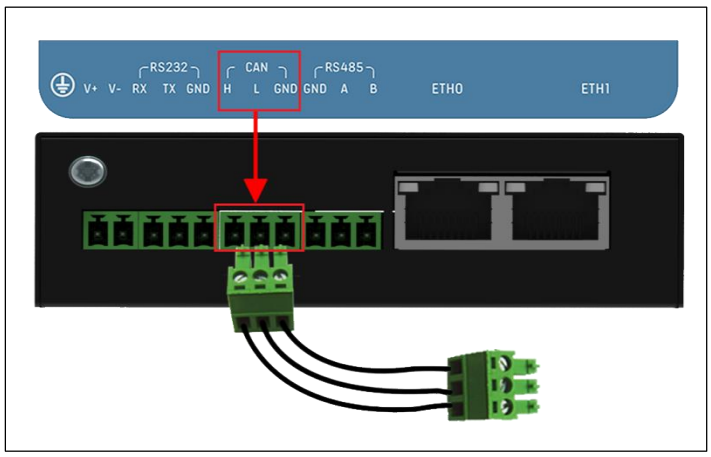
4.1.3 RS232

R3010 supports two RS232 for serial data communication. Please refer to the connection diagram at the right site.



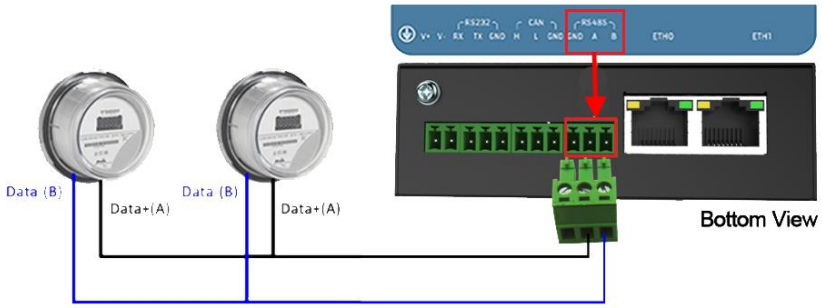
4.1.4 CAN

R3010 supports one CAN for serial data communication.
Please refer to the connection diagram at the right site.



4.1.5 RS485

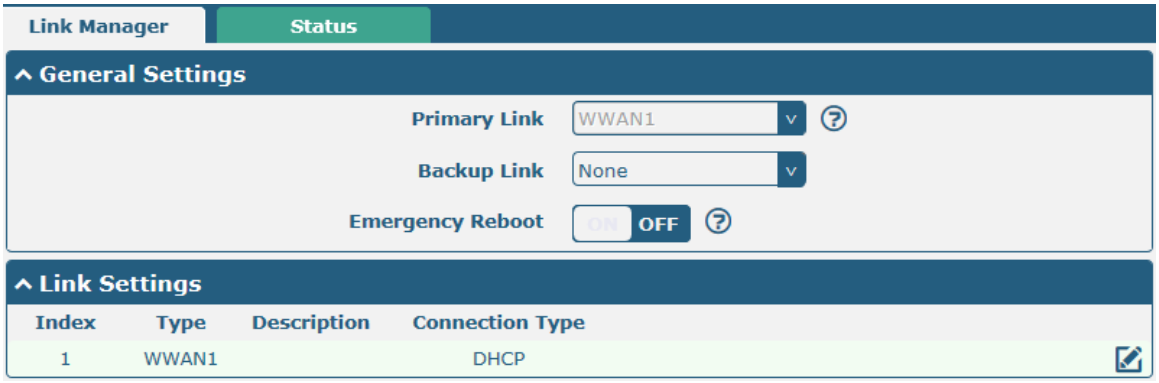
R3010 supports one RS485 for serial data communication.
Please refer to the connection diagram at the right site.



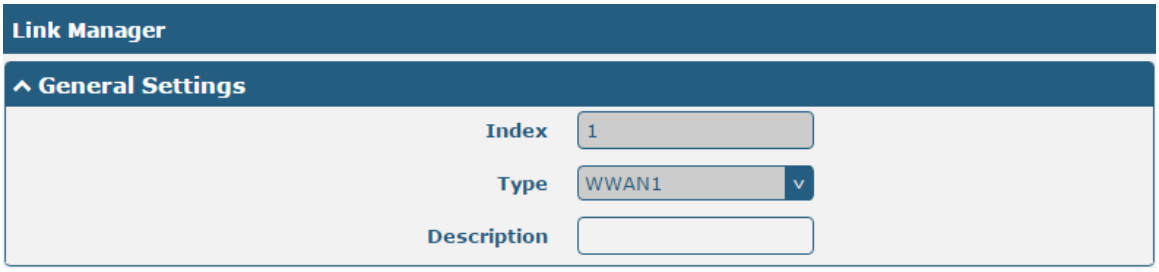
4.2 Cellular Connection

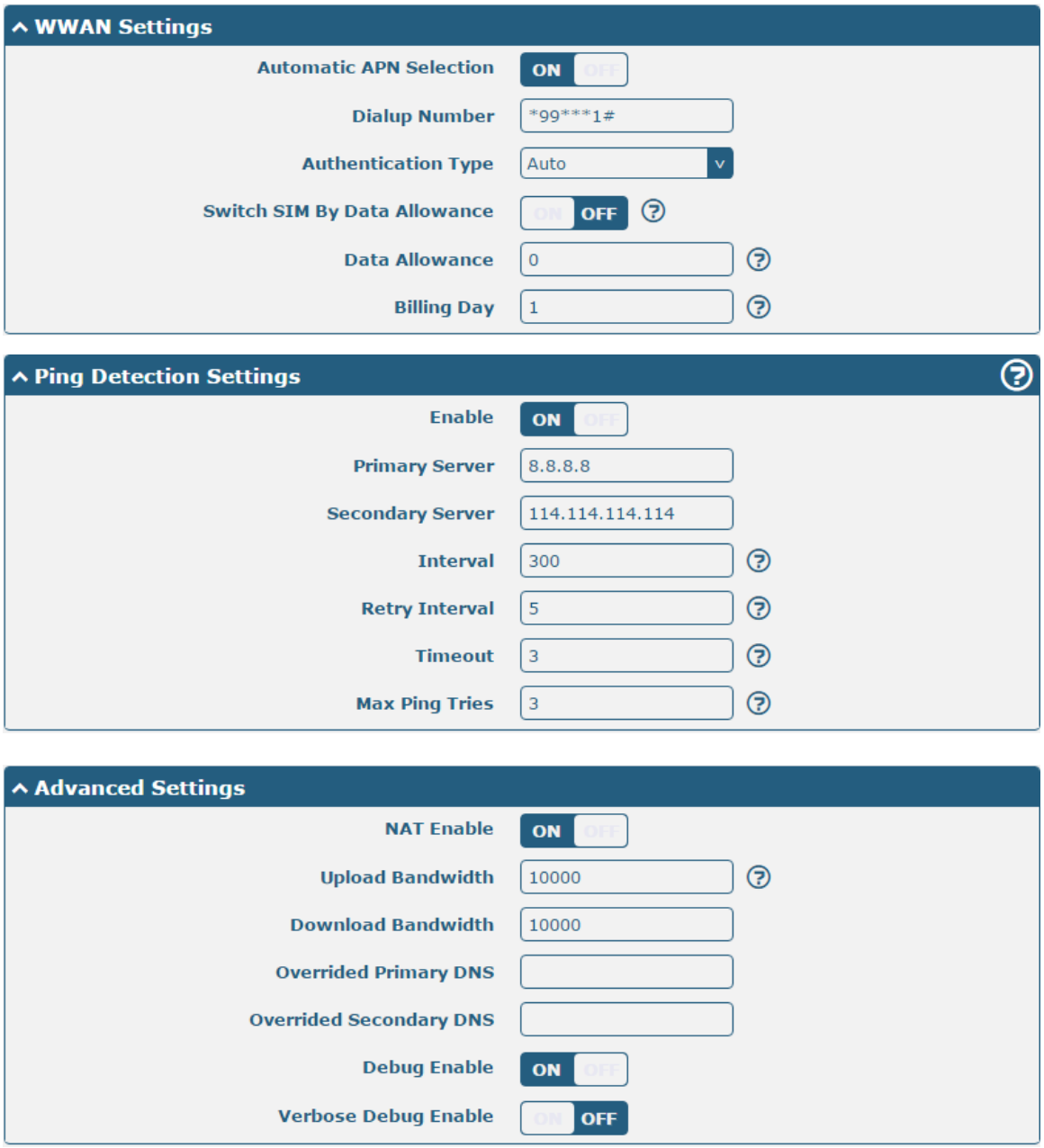
4.2.1 Cellular Dial-Up

This section shows you how to configure SIM card for Cellular Dial-up. Connect the gateway correctly and insert SIM, then open the configuration page. Under the homepage menu, click **Interface > Link Manager > General Settings**.



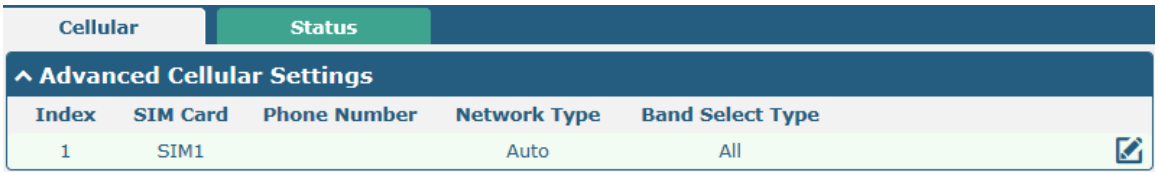
Click the edit button of WWAN1 to set its parameters according to the current ISP.



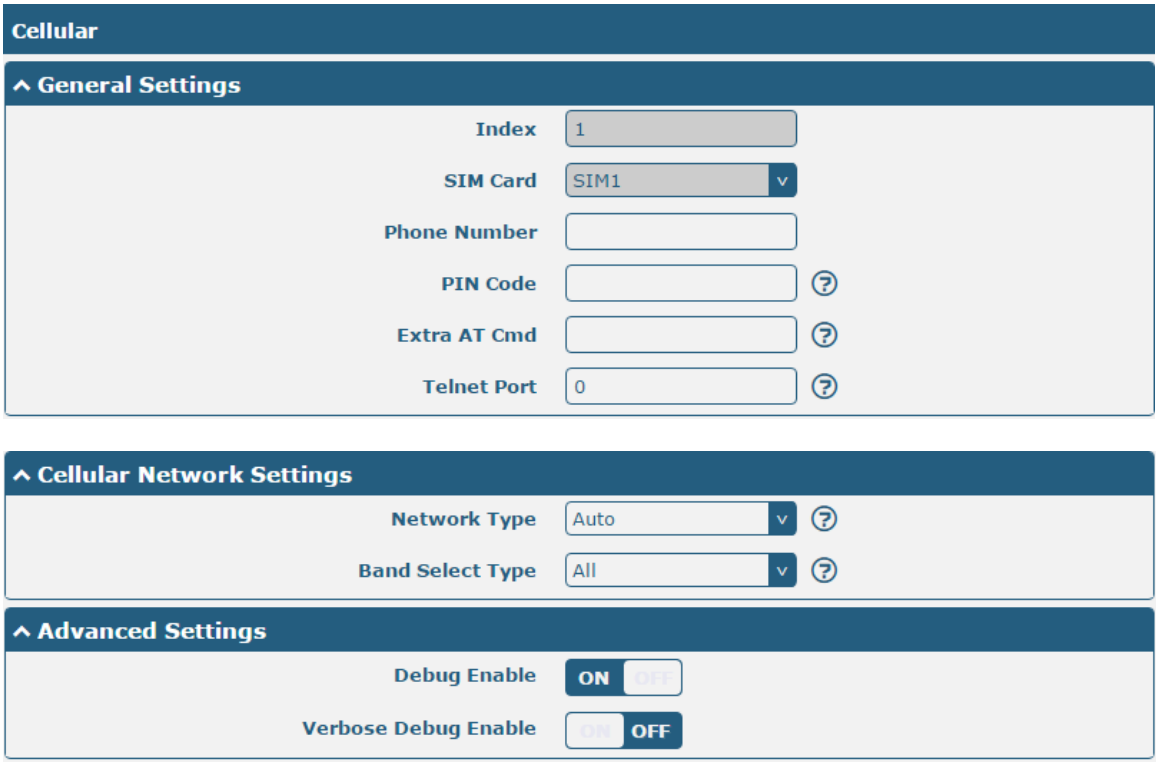


When finished, click **Submit > Save & Apply** for the configuration to take effect.

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



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



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

4.2.2 SMS Remote Control

R3010 supports remote control via SMS. You can use following commands to get the status of R3010, and set all the parameters of R3010. There are three authentication types for SMS control. You can select from "Password", "Phonenum" or "Both".

An SMS command has the following structure:

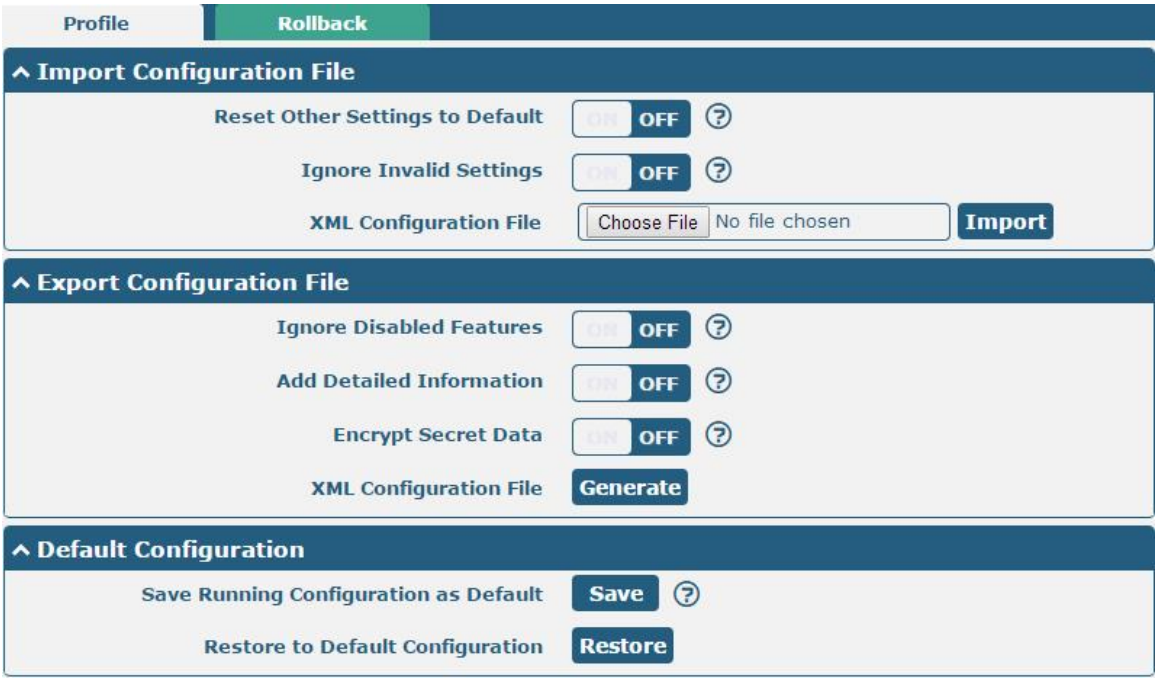
1. Password mode—Username: Password;cmd1;cmd2;cmd3; …cmdn (available for every phone number).
2. Phonenum mode--cmd1; cmd2; cmd3; … cmdn (available when the SMS was sent from the phone number which had been added in gateway's phone group).
3. Both mode-- Username: Password;cmd1;cmd2;cmd3; …cmdn (available when the SMS was sent from the phone number which had been added in gateway'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 commands 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 = R3010
serial_number = 201612221052
uptime = "0 days, 00:39:31"
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 Gateway.

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 172.16.99.11;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

Chapter 5 Introductions for CLI

5.1 What Is CLI

The R3010 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.

Route login:

Gateway 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
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
traceroute	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.
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 save_and_apply / #config commit	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.

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 = 1.0
firmware_version = "3.0.0"
kernel_version = 4.1.0
device_model = R3010
serial_number = 201612221052
uptime = "0 days, 00:39:31"
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 R3010-firmware-sysupgrade-unknown.bin host 192.168.100.99 //enter a new firmware name
Downloading
R3010-firmware-s 100% |*******************************|    5018k    0:00:00 ETA
```

```
Flashing
Checking 100%
Decrypting 100%
Flashing 100%
Verifying 100%
Verfify Success
upgrade success                          //update success
# config save_and_apply
OK                                       // save and apply current configuration, make you configuration effect
```

Example 3: 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 172.16.99.22                    //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 4: 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
```

5.3 Commands Reference

Commands	Syntax	Description
Debug	Debug *parameters*	Turn on or turn off debug function
Show	Show *parameters*	Show current configuration of each function , if we need to see all please using “show running ”
Set	Set *parameters*	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 *parameters*	

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

Chapter 6 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 gateways)
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
IBM	International Business Machines
ID	identification data
IMEI	International Mobile Equipment Identity
IoT	Internet of Things
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
VPN	Virtual Private Network

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

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