Brobustel User Guide

R1510

Industrial Cellular VPN Router 2 Ethernet + 1 DI + 1 DO





Guangzhou Robustel LTD www.robustel.com



About This Document

This document provides hardware and software information of the Robustel Industrial Cellular VPN Router R1510, including introduction, installation, configuration and operation.

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Technical Support Tel: +86-20-29019902 Fax: +86-20-82321505 Email: <u>support@robustel.com</u> Web: <u>www.robustel.com</u>

Important Notice

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

Safety Precautions

General

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

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

Using the Router in Vehicle

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



Protecting Your Router

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

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



Regulatory and Type Approval Information

Table 1: Directives

2011/65/EU	The European RoHS2.0 2011/65/EU Directive was issued by the European parliament and the European Council on 1 July 2011 on the restriction of the use of certain Hazardous substances in electrical and electronic equipment.	ROH5 compliant
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.	X
2013/56/EU	The European 2013/56/EU Directive is a battery Directive which published in the EU offici on 10 December 2013. The button battery used in this product conforms to the sta 2013/56/EU directive.	•

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

	γ γ γ
SJ/T	The electronic industry standard of the People's Republic of China SJ/T 11363-2006 "Requirements
11363-2006	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	The electronic industry standard of the People's Republic of China SJ/T 11364-2014 "Labeling
11364-2014	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	Hazardous Substances									
Part	(Pb)	(Hg)	(Cd)	(Cr(VI))	(PBB)	(PBDE)	(DEHP)	(BBP)	(DBP)	(DIBP)
Metal parts	0	0	0	0	-	-	-	_	_	_
Circuit modules	0	0	0	0	0	0	0	0	0	0
Cables and cable assemblies	0	o	o	o	o	0	0	0	0	0
Plastic and polymeric parts	0	o	0	o	0	0	0	0	0	0
0:		1	1	l	I	I	1	1	1	I

0:

Indicates that this toxic or hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in RoHS2.0.

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 RoHS2.0.

-:

Indicates that it does not contain the toxic or hazardous substance.



Document History

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

Date	Firmware Version	Document Version	Change Description
Dec. 18, 2019	3.1.1	v.1.0.0	Initial release
Dec. 31, 2019	3.1.1	v.1.0.1	Delete the "traffic limit switch card" button;
			Revised the SMS Remote Control;
			Remove extra spaces;
			Revised the WIFI AP section;
			Revised the description of Ethernet



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Chapter 1 Product Overview

1.1 Introduction

Robustel's R1510 router is a Dual Ethernet port (LAN + WAN) 3G/4G router with advanced software functions at a very competitive price point.

The R1510 has many unique software innovations including, but not limited to:

RobustVPN – innovative use of Open VPN tunneling to provide a fixed IP address on ANY SIM Card.

RCMS – Robustel's Cloud management platform – essential for managing an estate of routers – Basic version FREE.

Data Guard – critical 'failsafe' that stops unexpected data overusage within seconds of a threshold being breached.

Smart Reboot – essential backup solution for when your roaming SIM card doesn't roam!

1.2 Package Contents

Before installing your R1510 Router, verify the kit contents as following. **Note**: The following pictures are for illustration purposes only, not based on their actual sizes.

• 1 x Robustel R1510 Industrial Cellular VPN Router



• 1 x 2-pin 3.5 mm male terminal block for power supply



• 1 x 3*5-pin 3.5 mm male terminal block for DIDO



• 3G/4G SMA-J cellular antenna (Two as standard)



Stubby antenna



RP- SMA-J WIFI antenna
 Stubby antenna



• AC/DC power adapter (12V DC, 1 A; EU/US/UK/AU plug optional)



• 1 x SIM Card Sticker



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

Optional Accessories (sold separately)

Wall mounting kit



• 35 mm DIN rail mounting kit





• Ethernet cable



1.3 Specifications

Cellular Interface

- Number of antennas: 2 external antenna(MAIN + AUX)
- Connector: SMA-K
- SIM: 1 (3 V & 1.8 V) Standard SIM, eSIM optional

Ethernet Interface

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

WiFi Interface

- Number of antennas: 1 external antenna
- Connector: RP-SMA-K (external antenna)
- Standards: 802.11b/g/n, supports AP and Client modes
- Frequency bands: 2.4 GHz
- Security: WEP, WPA, WPA2
- Encryption: 64/128 AES, TKIP
- Data speed: 2*2 MIMO, 300 Mbps

DI/DO

- Type: 1 x DI (wet contact) + 1 x DO (wet contact)
- Connector: 3-pin 3.5 mm female socket
- Absolute maximum VDC:30V DC (DI/DO)
- Absolute maximum ADC: 20mA

Others

- 1 x Reset button (RST button)
- LED indicators 1 x RUN, 1 x MDM, 1 x USR, 1 x RSSI, 1 x WiFi
- Built-in: Watchdog, Timer

Power Supply and Consumption

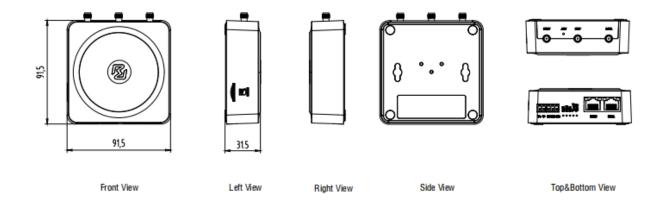
- Connector: 2-pin 3.5 mm female socket
- Input voltage: 9 to 26V DC
- Power consumption: Idle: 100 mA@12 V; Data link: 500 mA (peak) @12 V



Physical Characteristics

- Ingress protection: IP30
- Housing & Weight: Plastic, 150 g
- Dimensions: 91.5 x 91.5 x 31.5mm
- Installations: Desktop, wall mounting or DIN rail mounting (Wall mounting and Din rail mounting installation requires additional installation accessories)
- Operating Temperature: -25 to +70 °C
- Storage Temperature: -40 to +85 °C
- Relative Humidity: 5 to 95% RH

1.4 Dimensions





Chapter 2 Hardware Installation

2.1 Pin Description



PIN	Power	DI/DO	Direction
1	V+		Router \leftarrow Device
2	V-		Router \rightarrow Device
3		DI	Router \leftarrow Device
4		GND	Router \rightarrow Device
5		DO	Router \rightarrow Device

2.2 LED Indicators



Name		Color	Status	Description	
RUN		Green	On, solid	Router is powered on (System is initializing)	
			On, blinking	Router starts operating	
			Off	Router is powered off	
MDM		Green	On, solid	Link connection is working	
			On, blinking	Data is sent and received.	
		Off		Link connection is not working	
USR	USR-Open	Green	On, solid	OpenVPN connection is established	



	VPN		Off	OpenVPN connection is not established	
	USR-IPsec		On, solid	IPsec connection is established	
			Off	IPsec connection is not established	
RSSI (Repre	esented by	Green	On, solid	Signal level:	
five bars sigr	five bars signal.)			Wireless module : 21-31 dB (High Signal strength)	
		Green	On, blinking	Signal level:	
				Wireless module : 11-20 dB (Medium Signal strength)	
		Green	Off	Signal level:	
				Wireless module : 1-10 dB (Low Signal strength)	
WiFi		Green	On, solid	WiFi is enabled and working properly	
		Green	Off	WiFi is disabled or not working properly	

Note: click Services > Advanced > system > System Settings > Custom LED light type to set the display type of USR LED.

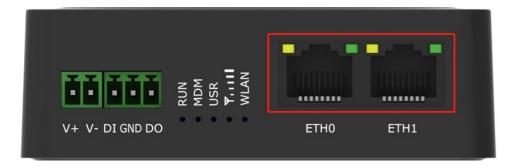


2.3 Reset Button



Function	Operation	
Reboot	Press and hold the RST button for 2 to 7 seconds under the operating status.	
Restore to factory	Wait for 0~20 seconds after powering up the router, press and hold the RST button until all	
default settings	five LEDs start blinking one by one, and release the button to return the router to factory	
	defaults.	

2.4 Ethernet Ports

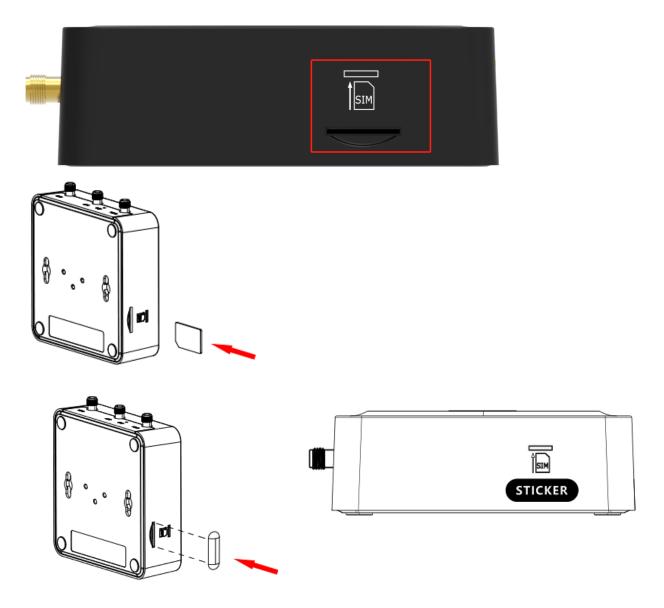


There are two Ethernet ports on R1510, including ETH0 (WAN/LAN), and ETH1. Each has two LED indicators. The yellow one is a link indicator but the green one doesn't mean anything. For details about status, see the table below.

Indicator	Status	Description
Link indicator	On, solid	Connection is established
(Yellow)	On, blinking	Data is being transferred
	Off	Connection is not established



2.5 Insert or Remove SIM Card



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

• Insert SIM card

- 1. Make sure router is powered off.
- 2. To insert SIM card, press the card with finger until you hear a click.
- 3. After the SIM card is inserted, attach the SIM card sticker to the card slot.

Remove SIM card

- 1. Make sure router is powered off.
- 2. Tear the SIM card sticker from the slot.
- 3. To remove SIM card, press the card with finger until it pops out and then take out the card.

Note:

- 1. Use the specific M2M SIM card when the device is working in extreme temperature, because the regular card for long-time working in harsh environment will be disconnected frequently.
- 2. Do not touch the metal of the card surface in case information in the card will lose or be destroyed.

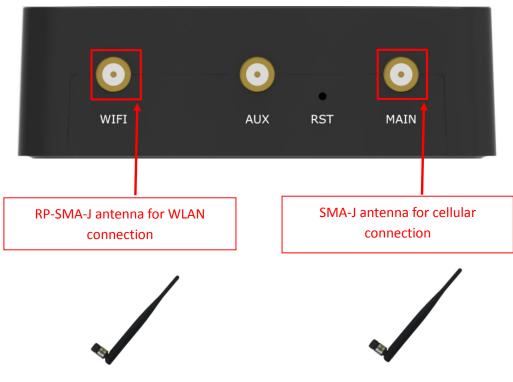


- 3. Do not bend or scratch the card.
- 4. Keep the card away from electricity and magnetism.
- 5. Make sure router is powered off before inserting or removing the card.

2.6 Attach External Antenna (SMA Type)

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

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



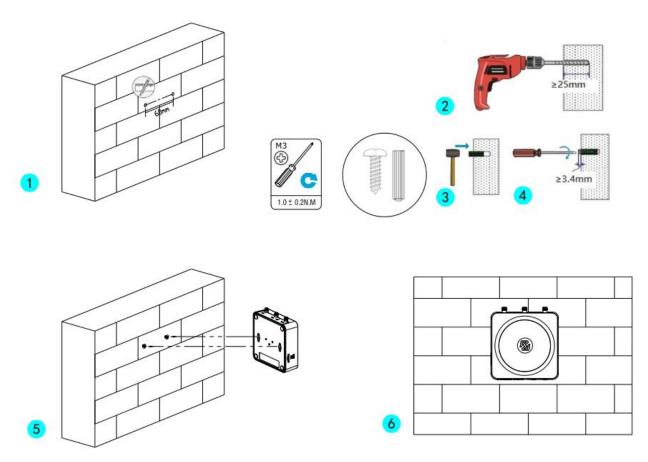
2.7 Mount the Router

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

Two methods for mounting the router

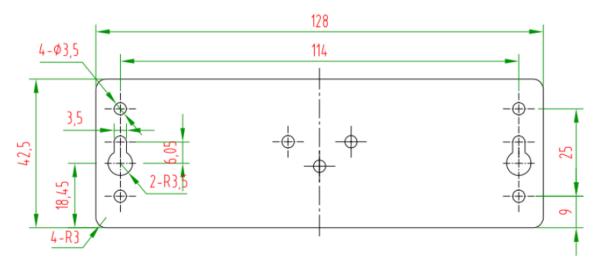
- 1. Wall mounting (measured in mm)
 - Option 1





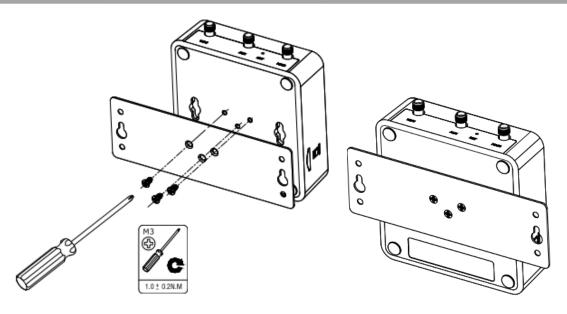
First, drill holes on the wall, the distance between the two holes is 60mm, then knock the expansion pipe into the wall with a rubber hammer, align the screw with the expansion pipe, insert the screw and reserve the corresponding length, and finally fix the product on the wall.

Option 2
 Size of Wall mounted kit:

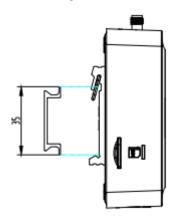


Use 3 pcs of M3 screws to mount the router on the wall mounting kit, and then use 2 pcs of M3 screws to mount the wall mounting kit on the wall.

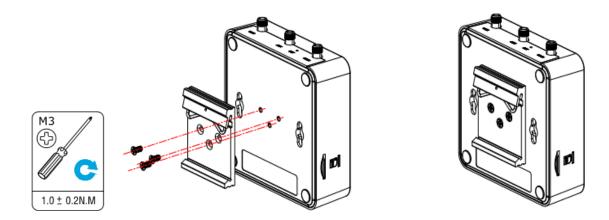




2. DIN rail mounting (measured in mm)

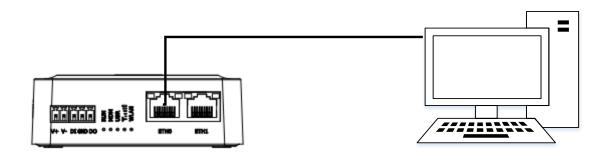


Use 3 pcs of M3 screws to mount the router on the DIN rail, and then hang the DIN rail on the holder. You need to choose a standard holder.



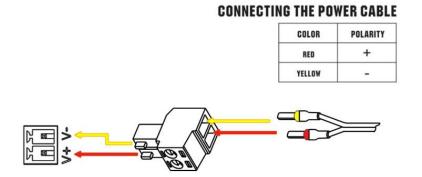


2.8 Connect the Router to a Computer



Connect an standard Ethernet cable to the port marked ETH0~ETH1 at the front of the R1510 Router, and connect the other end of the cable to your computer.

2.9 Power Supply



R1510 Router supports reverse polarity protection, but always refers to the figure above to connect the power adapter correctly. There are two cables associated with the power adapter. Following to the color of the head, connect the cable marked red to the positive pole through a terminal block, and connect the yellow one to the negative in the same way.

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



Chapter 3 Initial Configuration

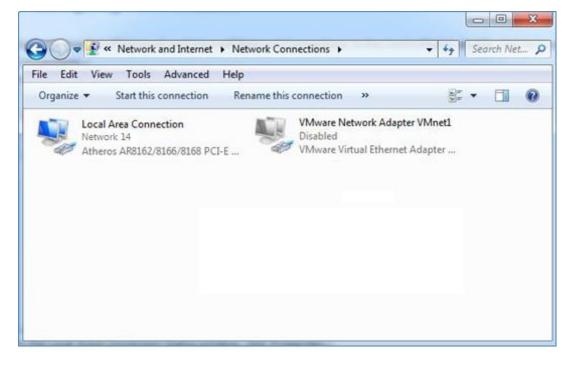
The router can be configured through your web browser that including IE 8.0 or above, Chrome and Firefox, etc. A web browser is included as a standard application in the following operating systems: Linux, Mac OS, Windows 98/NT/2000/XP/Me/Vista/7/8, etc. It provides an easy and user-friendly interface for configuration. There are various ways to connect the router, either through an external repeater/hub or connect directly to your PC. However, make sure that your PC has an Ethernet interface properly installed prior to connecting the router. You must configure your PC to obtain an IP address through a DHCP server or a fixed IP address that must be in the same subnet as the router. If you encounter any problems accessing the router web interface, it is advisable to uninstall your firewall program on your PC, as this tends to cause problems accessing the IP address of the router.

3.1 Configure the PC

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

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

1. Click Start > Control Panel, double-click Network and Internet, and then double-click Network Connections.





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

🎍 Local Area Con	nection Status	X
General		
Connection		
IPv4 Connecti	vity:	Internet
IPv6 Connecti	vity:	No Internet access
Media State:		Enabled
Duration:		09:30:11
Speed:		100.0 Mbps
Details]	
Activity		
	Sent — 📕	Received
Bytes:	12,818,574	83,948,334
Properties	Oisable	Diagnose
		Close

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

Networking Connect using:
Connect using:
Qualcomm Atheros AR8162/8166/8168 PCI-E Fast Ether
Configure
This connection uses the following items:
 ✓ Client for Microsoft Networks ✓ Wware Bridge Protocol ✓ QoS Packet Scheduler ✓ File and Printer Sharing for Microsoft Networks ✓ Internet Protocol Version 6 (TCP/IPv6) ✓ Internet Protocol Version 4 (TCP/IPv4) ✓ Link-Layer Topology Discovery Mapper I/O Driver ✓ Link-Layer Topology Discovery Responder
Install Uninstall Properties Description Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks. OK Cancel



4. Two ways for configuring the IP address of PC

Obtain an IP address from the DHCP server automatically; Click "Obtain an IP address automatically ";

Internet Protocol Version 4 (TCP/IPv4)	Propertie	s	C	? X
General Alternate Configuration				
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.				
Obtain an IP address automatical	у			
O Use the following IP address:				
IP address:		1.1		
Subnet mask:		1.	1.0	
Default gateway:				
Obtain DNS server address autor	natically			
OUse the following DNS server add	resses:			
Preferred DNS server:		1.1		
Alternate DNS server:				
Validate settings upon exit			Advar	nced
		ОК		Cancel

Use the following IP address:

(Configured a static IP address manually within the same subnet of the router, click and configure "Use the following IP address"

Internet Protocol Version 4 (TCP/IPv4)	Properties ? X
General	
You can get IP settings assigned auton this capability. Otherwise, you need to for the appropriate IP settings.	
Obtain an IP address automatical	y
• Use the following IP address:	
IP address:	192.168.0.2
Subnet mask:	255 . 255 . 255 . 0
Default gateway:	192.168.0.1
Obtain DNS server address autom	natically
• Use the following DNS server add	resses:
Preferred DNS server:	192 . 168 . 0 . 1
<u>A</u> lternate DNS server:	· · ·
Validate settings upon exit	Ad <u>v</u> anced
	OK Cancel

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



3.2 Factory Default Settings

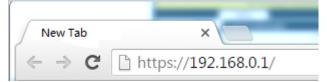
Item	Description
Username	admin
Password	admin
ETH0	WAN mode or
	192.168.0.1/255.255.255.0, LAN mode
ETH1	192.168.0.1/255.255.255.0, LAN mode
DHCP Server	Enabled

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

3.3 Log in the Router

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

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



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

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



3.4 Control Panel

1 robusto	el		Save & Appl	y Reboot Logout
	▲ It is strong	ly recommended to change the	default password.	×
	Status			
Status	∧ System Informatio	on		
Interface		Device Model	R1510S	
Network		System Uptime	0 days, 00:03:51	
VPN		System Time	Wed Dec 18 15:05:06 2019	
		RAM Usage	79M Free/128M Total	
Services		Firmware Version	3.1.1 (Rev 2923)	
System		Hardware Version	1.0.1	
		Kernel Version	4.9.152	
		Serial Number	19012180040501	
	∧ Internet Status			
		Active Link	WWAN1	
		Uptime	0 days, 00:03:12	
				· ·
	Copyright @) 2019 Robustel Technologies. A	All rights reserved.	

After logging in, the home page of the R1510 Router's web interface is displayed, for example.

In the home page, the user can save the configuration, restart the router, log out, and so on. Using the original username and password to log in the router, the page will pop up the following tab.

It is strongly recommended for security purposes that you change the default username and/or password. Click the

x to close the popup. To change your username and/or password, see **4.6.6 User Management**.

 $\underline{\mathbb{A}}$. It is strongly recommended to change the default password.

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



Chapter 4 Router Configuration

4.1 Status

4.1.1 System Information

This section allows you to view the System Information of your Router.

∧ System Information	
Device Model	R1510S
System Uptime	0 days, 00:03:51
System Time	Wed Dec 18 15:05:06 2019
RAM Usage	79M Free/128M Total
Firmware Version	3.1.1 (Rev 2923)
Hardware Version	1.0.1
Kernel Version	4.9.152
Serial Number	19012180040501

System Information		
Item	Description	
Device Model	Show the model name of your device.	
System Uptime	Show the current amount of time the router has been connected.	
System Time	Show the current system time.	
RAM Usage	Show the free memory and the total memory.	
Firmware Version	Show the firmware version running on the router.	
Hardware Version	Show the current hardware version.	
Kernel Version	Show the current kernel version.	
Serial Number	Show the serial number of your device, from which you can get information such as the	
	router's time of delivery.	



4.1.2 Internet Status

∧ Internet Status	
Active Link	WWAN1
Uptime	0 days, 01:49:15
IP Address	10.153.192.56/255.255.255.240
Gateway	10.153.192.57
DNS	120.80.80.80 221.5.88.88

This section shows the Internet status information of your Router.

Internet Status		
Item	Description	
Active Link	Show the current active link. WWAN1 or WAN $_\circ$	
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.	

4.1.3 LAN Status

This section shows the router's LAN status information.

∧ LAN Status	
IP Address	192.168.0.1/255.255.255.0
MAC Address	34:FA:40:04:D1:B3

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



4.2 Interface

4.2.1 Link Manager

This section allows you to setup the connection of Link Manager. Link manager is a network link backup function that provides mobile network and Ethernet link backups.

Link Manager	Status	
∧ General Settir	ıgs	
	Primary Link	WWAN1 🤍 😨
	Backup Link	WAN
	Backup Mode	Cold Backup 🤍 🍞
	Revert Interva	0 7
	Emergency Reboot	ON OFF 😨

General Settings @ Link Manager		
Item	Description	Default
Primary Link	Select from "WWAN1", "WAN" or "WLAN".	WWAN1
	WWAN1: Select to make SIM1 as the primary wireless link	
	WAN: Select to make WAN as the primary wired link	
	WLAN: Select to make WLAN as the primary wireless link	
	Note: WLAN link is available only if enable WiFi as Client mode, please	
	refer to 4.2.5 WiFi (Optional) .	
Backup Link	Select from "WWAN1", "WAN", "WLAN" or "None".	None
	WWAN1: Select to make SIM1 as backup wireless link	
	WAN: Select to make WAN as the backup wired link	
	WLAN: Select to make WLAN as the backup wireless link	
	Note: WLAN link is available only if enable WiFi as Client mode, please	
	refer to 4.2.5 WiFi (Optional) .	
	None: Do not select any backup link	
Backup Mode	Select from "Cold Backup", "Warm Backup" or "Load Balancing".	Cold
	Cold Backup: The inactive link is offline on standby	Backup
	Warm Backup: The inactive link is online on standby	
	Note: Warm backup mode is not available for dual SIM backup.	
	Load Balancing: Use two links simultaneously	
Revert Interval	Specify the number of minutes that elapses before the primary link is	0
	checked if a backup link is being used in cold backup mode. 0 means disable	
	checking.	
	Note: Revert interval is available only under the cold backup mode.	
Emergency Reboot	Click the toggle button to enable/disable this option. Enable to reboot the	OFF
	whole system if no links available.	

Note: Click ? for help.



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

∧ Link S	ettings			
Index	Туре	Description	Connection Type	
1	WWAN1		DHCP	
2	WAN		DHCP	
3	WLAN		DHCP	

Click 🗹 on the right-most of WWAN1/WAN/WLAN to enter the configuration window.

WWAN1

Link Manager	
∧ General Settings	
Index	1
Туре	WWAN1 V
Description	

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

>WWAN Settings			
	Automatic APN Selection	ON OFF	
	Dialup Number	*99***1#]
	Authentication Type	Auto	
	Data Allowance	0] 🦻
	Billing Day	1] 🧿

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

>WWAN Settings		
	Automatic APN Selection	OMOFF
	APN	internet
	Username	
	Password	•••••
	Dialup Number	*99***1#
	Authentication Type	Auto
	Data Allowance	0 7
	Billing Day	



▲ Ping Detection Settings	0
Enable	ON OFF
Primary Server	8.8.8.8
Secondary Server	114.114.114.114
Interval	300 🦻
Retry Interval	5 🧿
Timeout	3
Max Ping Tries	3

▲ Advanced Settings	
NAT Enable	ON OFF
Upload Bandwidth	10000
Download Bandwidth	10000
Overrided Primary DNS	
Overrided Secondary DNS	
Debug Enable	ON OFF
Verbose Debug Enable	ON OFF

Link Settings (WWAN)		
Item	Description	Default
	General Settings	
Index	Indicate the ordinal of the list.	
Туре	Show the type of the link.	WWAN1
Description	Enter a description for this link. It can be null.	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 *99***1# ISP.	
Authentication Type	Select from "Auto", "PAP" or "CHAP" as the local ISP required.	Auto
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



Link Settings (WWAN)			
Item	Description	Default	
Billing Day	Specify the monthly billing day. The data traffic statistics will be	1	
	recalculated from that day.		
	Ping Detection Settings		
Enable	Click the toggle button to enable/disable the ping detection mechanism, a	ON	
	keep-alive policy of the router.		
Primary Server	Router will ping this primary address/domain name to check that if the	8.8.8.8	
	current connectivity is active.		
Secondary Server	Router will ping this secondary address/domain name to check that if the	114.114.11	
	current connectivity is active.	4.114	
Interval	Set the ping interval.	300	
Retry Interval	Set the ping retry interval. When ping failed, the router will ping again	5	
	every retry interval.		
Timeout	Set the ping timeout.	3	
Max Ping Tries	Set the max ping tries. Switch to another link or take emergency action if	3	
	the max continuous ping tries reached.		
	Advanced Settings		
NAT Enable	Click the toggle button to enable/disable the Network Address Translation	ON	
	option.		
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	Override primary DNS will override the automatically obtained DNS.	Null	
DNS			
Overrided Secondary	Override secondary DNS will override the automatically obtained DNS.	Null	
DNS			
Debug Enable	Click the toggle button to enable/disable this option. Enable for debugging	ON	
	information output.		
Verbose Debug Enable	Click the toggle button to enable/disable this option. Enable for verbose	OFF	
	debugging information output.		

WAN

Router will obtain IP automatically from DHCP server if choosing "DHCP" as connection type. The window is displayed as below.

Link Manager		
∧ General Settings		
	Index	2
	Туре	WAN
D	escription	
Connec	tion Type	DHCP

The window is displayed as below when choosing "Static" as the connection type.

∧ General Settings	
Index	2
Туре	WAN
Description	
Connection Type	Static
∧ Static Address Settings	
∧ Static Address Settings IP Address	
	?
IP Address	

The window is displayed as below when choosing "PPPoE" as the connection type.

∧ General Settings			
	Index	2	
	Туре	WAN	
	Description		
	Connection Type	PPPoE v	
▲ PPPoE Settings			
	Username		
	Password		
Au	uthentication Type	Auto v	
_			
Р	PP Expert Options		0
Ping Detection Settings	PP Expert Options		0
	PP Expert Options	ON OFF	,
		ON OFF 8.8.8.8	,
	Enable		,
	Enable Primary Server	8.8.8.8	,
	Enable Primary Server Secondary Server	8.8.8.8	2
	Enable Primary Server Secondary Server Interval	8.8.8.8 114.114.114 300	?



Advanced Settings	
NAT Enable	ON OFF
МТО	1500
Upload Bandwidth	10000 🕜
Download Bandwidth	10000
Overrided Primary DNS	
Overrided Secondary DNS	
Debug Enable	ON OFF
Verbose Debug Enable	ON OFF

Link Settings (WAN)		
Item	Description	Default
	General Settings	
Index	Indicate the ordinal of the list.	
Туре	Show the type of the link.	WAN
Description	Enter a description for this link. It can be null.	Null
Connection Type	Select from "DHCP", "Static" or "PPPoE".	DHCP
	Static Address Settings	
IP Address	Set the IP address with Netmask which can access the internet.	Null
	IP address with Netmask, e.g. 192.168.1.1/24	
Gateway	Set the gateway of the IP address in WAN port.	Null
Primary DNS	Set the primary DNS.	Null
Secondary DNS	Set the secondary DNS.	Null
	PPPoE Settings	
Username	Enter the username provided by your Internet Service Provider.	Null
Password	Enter the password provided by your Internet Service Provider.	Null
Authentication Type	Select from "Auto", "PAP" or "CHAP" as the local ISP required.	Auto
PPP Expert Options	Enter the PPP Expert options used for PPPoE dialup. You can enter some	Null
	other PPP dial strings in this field. Each string can be separated by a	
	semicolon.	
	Ping Detection Settings	
Enable	Click the toggle button to enable/disable the ping detection mechanism, a	ON
	keep-alive policy of the router.	
Primary Server	Router will ping this primary address/domain name to check that if the	8.8.8.8
	current connectivity is active.	
Secondary Server	Router will ping this secondary address/domain name to check that if the	114.114.1
	current connectivity is active.	14.114
Interval	Set the ping interval.	300
Retry Interval	Set the ping retry interval. When ping failed, the router will ping again	5
	every retry interval.	
Timeout	Set the ping timeout.	3
Max Ping Tries	Set the max ping tries. Switch to another link or take emergency action if	3



the max continuous ping tries reached.		
Advanced Settings		
NAT Enable	Click the toggle button to enable/disable the Network Address Translation	ON
	option.	
MTU	Enter the Maximum Transmission Unit.	1500
Upload Bandwidth	Enter the upload bandwidth used for QoS, measured in kbps.	10000
Download Bandwidth	Enter the download bandwidth used for QoS, measured in kbps.	10000
Overrided Primary DNS	Override primary DNS will override the automatically obtained DNS.	Null
Overrided Secondary	Override secondary DNS will override the automatically obtained DNS.	Null
DNS		
Debug Enable	Click the toggle button to enable/disable this option. Enable for debugging	ON
	information output.	
Verbose Debug Enable	Click the toggle button to enable/disable this option. Enable for verbose	OFF
	debugging information output.	

WLAN

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

Link Manager			
∧ General Settings			
	Index	3	
	Туре	WLAN	
	Description		
	Connection Type	DHCP	
∧ WLAN Settings			
	SSID	router	
Conn	ect to Hidden SSID	ON OFF	
	Password		

The window is displayed as below when choosing "Static" as the connection type.

∧ General Settings	
Index	3
Туре	WLAN
Description	
Connection Type	Static



∧ Static Address Settings	
IP Address	0
Gateway	
Primary DNS	
Secondary DNS	

When "Connection Type" selects "PPPOE", enter the relevant parameters in the window below the static address settings:

∧ General Settings			
	Index	3	
	Туре	WLAN	
	Description		
	Connection Type	PPPoE v	
∧ PPPoE Settings			
	Username		
	Password		
A	uthentication Type	Auto	
	PPP Expert Options		0
Ping Detection Settings			2
	Enable	ON OFF	
	Primary Server	8.8.8.8	
	Secondary Server	114.114.114	
	Interval	300	0
	Retry Interval	5	0
	Timeout	3	0
	Max Ping Tries	3	0



∧ Advanced Settings	
NAT Enable	ON OFF
мти	1500 🥱
Upload Bandwidth	10000 🥱
Download Bandwidth	10000
Overrided Primary DNS	
Overrided Secondary DNS	
Debug Enable	ON OFF
Verbose Debug Enable	ON OFF

Link Settings (WLAN)				
Item	Description	Default		
	General Settings			
Index	Indicate the ordinal of the list.			
Туре	Show the type of the link.	WLAN		
Description	Enter a description for this link. It can be null.	Null		
Connection Type	Select from "DHCP" or "Static".	DHCP		
	WLAN Settings			
SSID	Enter a 1-32 characters SSID which your router wants to connect. SSID (Service Set Identifier) is the name of your wireless network.	router		
Connect to Hidden SSID	Click the toggle button to enable/disable this option. When router works as Client mode and needs to connect any access point which has hidden SSID, you need to enable this option.	OFF		
Password	Enter an 8-63 characters password of the access point which your router wants to connect.	Null		
Static Address Settings				
IP Address	Enter the IP address with Netmask which can access the Internet, e.g. 192.168.1.1/24	Null		
Gateway	Enter the IP address of WiFi AP.	Null		
Primary DNS	Set the primary DNS.	Null		
Secondary DNS	Set the secondary DNS.	Null		
	Ping Detection Settings			
Enable	Click the toggle button to enable/disable the ping detection mechanism, a keepalive policy of the router.	ON		
Primary Server	Router will ping this primary address/domain name to check that if the current connectivity is active.	8.8.8.8		
Secondary Server	Router will ping this secondary address/domain name to check that if the	114.114.1		
	current connectivity is active.	14.114		
Interval	Set the ping interval.	300		
Retry Interval	Set the ping retry interval. When ping failed, the router will ping again every retry interval.	5		
Timeout	Set the ping timeout.	3		
Max Ping Tries	Set the max ping tries. Switch to another link or take emergency action if	3		



	the max continuous ping tries reached.				
	Advance Settings				
NAT Enable	Click the toggle button to enable/disable the Network Address Translation	ON			
	option.				
MTU	Enter the Maximum Transmission Unit.	1500			
Upload Bandwidth	Enter the upload bandwidth used for QoS, measured in kbps.	10000			
Download Bandwidth	Enter the download bandwidth used for QoS, measured in kbps.	10000			
Overrided Primary DNS	Override primary DNS will override the automatically obtained DNS.	Null			
Overrided Secondary	Override secondary DNS will override the automatically obtained DNS.	Null			
DNS					
Debug Enable	Click the toggle button to enable/disable this option. Enable for debugging	ON			
	information output.				
Verbose Debug Enable	Click the toggle button to enable/disable this option. Enable for verbose	OFF			
	debugging information output.				

Status

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

Link Man	ager	Status			
∧ Link S	tatus				•••
Index	Link	Status	Uptime	IP Address	
1	WWAN1	Connected	0 days, 00:09:11	10.189.43.25/255.255.255.252	

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.



Index	Link	Status	Uptin	ne	IP Address				
1	WWAN1	Connected			0.189.43.25/255.255.255.252				
			Index	1					
			Link	WWAN1					
			Status	Connected					
			Interface	wwan					
			Uptime	0 days, 00:	09:11				
			IP Address	10.189.43.	25/255.255.255.252				
			Gateway	10.189.43.	26				
			DNS	120.80.80.8	80 221.5.88.88				
			RX Packets	18					
			TX Packets	22					
			RX Bytes	1856					
			TX Bytes	2076					
WWAN	l Data Usa	ge Statistics	;		∧ WWAN Data Usage Statistics ⑦				

Click the **Clear** button to clear SIM1 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**.

4.2.2 LAN

This section allows you to set the related parameters for LAN port. There are two LAN ports on R1510 Router, including ETH0, and ETH1. Wan is assigned as ETH0. The ETH0 and ETH1 can freely choose from lan0 and lan1, but at least one LAN port must be assigned as lan0. The default settings of ETH0 and ETH1 are lan0 and their default IP are 192.168.0.1/255.255.255.0.

LAN

By default, there is a LAN port (lan0) in the list. To begin adding a new LAN port (lan1), please configure ETH1, ETH2 or ETH3 as lan1 first in **Ethernet > Ports > Port Settings**. Otherwise, the operation will be prompted as "List is full".

LAN	ı –	Multiple IF	> s	tatus	
^ Netwo	ork Setting	s			0
Index	Interface	IP Address	Netmask	VLAN ID	+
1	lan0	192.168.0.1	255.255.255.0	0	

Note: Lan0 cannot be deleted.



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

LAN	
∧ General Settings	
Index	1
Interface	lan0 v
IP Address	192.168.0.1
Netmask	255.255.255.0
МТ	1500

General Settings @ LAN			
Item	Description	Default	
Index	Indicate the ordinal of the list.		
Interface	Show the editing port.		
	Note: Lan1 is available only if it was selected by one of ETH0 \sim ETH1 in		
	Ethernet > Ports > Port Settings.		
IP Address	Set the IP address of the LAN port.	192.168.0.1	
Netmask	Set the Netmask of the LAN port.	255.255.255.0	
MTU	Enter the Maximum Transmission Unit.	1500	

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

∧ DHCP Settings	
Enable	ON OFF
Mode	Server
IP Pool Start	192.168.0.2
IP Pool End	192.168.0.100
Subnet Mask	255.255.255.0

A DHCP Advanced Settings	
Gateway	
Primary DNS	
Secondary DNS	
WINS Server	
Lease Time	120 🦻
Static Lease	0
Expert Options	
Debug Enable	ON OFF

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

∧ DHCP Settings				
Enable	ON OFF			
Mode	Relay			
DHCP Server For Relay				
A DHCP Advanced Settings				
Debug Enable	ON OFF			

	LAN		
Item	Description	Default	
	DHCP Settings		
Enable	ble Click the toggle button to enable/disable the DHCP function.		
Mode	Select the mode of DHCP from "Server" or "Relay".	Server	
	Server: Lease IP address to DHCP clients which have been		
	connected to LAN port		
	Relay: Router can be DHCP Relay, which will provide a relay		
	tunnel to solve problem that DHCP Client and DHCP Server is not		
	in a same subnet		
IP Pool Start	Define the beginning of the pool of IP addresses which will be leased	192.168.0.2	
	to DHCP clients.		
IP Pool End	Define the end of the pool of IP addresses which will be leased to	192.168.0.100	
	DHCP clients.		
Subnet Mask	Define the subnet mask of IP address obtained by DHCP clients from	255.255.255.0	
	DHCP server.		
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	Null	
	must be on the same network segment with DHCP address pool.		
Primary DNS	Define the primary DNS server assigned by the DHCP server to the	Null	
	clients.		
Secondary DNS	Define the secondary DNS server assigned by the DHCP server to the	Null	
	clients.		
WINS Server	Define the Windows Internet Naming Service obtained by DHCP	Null	
	clients from DHCP sever.		
Lease Time	Set the lease time which the client can use the IP address obtained	120	
	from DHCP server, measured in seconds.		
Static lease	Bind a lease to correspond an IP address via a MAC address.	Null	
	format: mac,ip;mac,ip;, e.g. FF:ED:CB:A0:98:01,192.168.0.200		
Expert Options	Enter some other options of DHCP server in this field.	Null	
	format: config-desc;config-desc, e.g. log-dhcp;quiet-dhcp		
Debug Enable	Click the toggle button to enable/disable this option. Enable for DHCP	OFF	
	information output.		



Multiple IP

LAN		Multiple IP	Status	
∧ Multip	le IP Settir	ngs		
Index	Interface	IP Address	Netmask	+

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

Multiple IP	
∧ IP Settings	
Index	1
Interface	lan0 v
IP Address	
Netmask	

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.

LAN		Multiple IP	Stat	tus		
∧ Interfa	ce Status	1				
Index	Interface	IP Address	MAC	Address		
1	lan0	192.168.0.1/255.2	2 34:FA:4	0:04:D1:B3		
∧ Connec	ted Devic	es				
Index	IP Add	ress MAC Add	lress Ir	nterface	Inactive Time	
1	192.168	.0.59 D0:50:99:A	9:2B:80	lan0	0s	
∧ DHCP L	ease Tab	le				
Index	IP Add	ress MAC Add	lress Ir	nterface	Expired Time	

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



Interfa	ice Status		
Index	Interface	IP Address M	AC Address
1	lan0	192.168.0.1/255.2 34:F/	A:40:04:D1:B3
		Index	1
		Interface	lan0
		IP Address	192.168.0.1/255.255.255.0
		MAC Address	34:FA:40:04:D1:B3
		RX Packets	503
		TX Packets	595
		RX Bytes	147573
		TX Bytes	387546

4.2.3 Ethernet

This section allows you to set the related parameters for Ethernet. There are two Ethernet ports on R1510 Router, including ETH0 and ETH1. ETH0 can be configured as the WAN port for the router to access the outer network or the LAN port for the lower end devices to connect with the router. ETH1 can only be configured as a LAN port for the lower device to connect to the router. By default, ETH0 and ETH1 are lan0, and their IP are

192.168.0.1/255.255.255.0.

Ports		Status	
∧ Port Se	ettings		0
Index	Port	Port Assignment	
1	eth0	lan0	
2	eth1	lan0	

Ports	
∧ Port Settings	
Index	2
Port	eth1 v
Port Assignment	lan0 v 🧭

Click the 🗹 button on the right-most of eth1 to change the port parameters in the port window that pops up.

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



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

Ports		Status
∧ Port Sta	atus	
Index	Port	Link
1	eth0	Down
2	eth1	Up

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

∧ Port Sta	∧ Port Status					
Index	Port	Link				
1	eth0	Down				
2	eth1	Up				
			Index	2		
			Port	eth1		
			Link	Up		

4.2.4 Cellular

This section allows you to set the related parameters of Cellular. The R1510 Router has one SIM card slot.

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

Click the right most button *S* of SIM 1 to edit the parameters.

Cellular	
∧ General Settings	
Index	1
SIM Card	SIM1 V
Phone Number	
PIN Code	
Extra AT Cmd	0
Telnet Port	0 🤇



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

∧ Cellular Network Settings						
	Network Type	Auto 🗸 🧭				
Band Select Type		All v 🖓				
Advanced Settings						
	Debug Enable	ON OFF				
Verbo	se Debug Enable	ON OFF				

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

∧ Cellular Netwo	rk Settings		
	Network Type	Auto V 🖓	
	Band Select Type	Specify v	
∧ Band Settings			
	GSM 900	ON OFF	
	GSM 1800	ON OFF	
	WCDMA 900	ON OFF	
	WCDMA 2100	ON OFF	
	LTE Band 1	ON OFF	
	LTE Band 3	ON OFF	
	LTE Band 7	ON OFF	
	LTE Band 8	ON OFF	
	LTE Band 20	ON OFF	
	LTE Band 28	ON OFF	
Advanced Setti	nac		
WAdvanced Setti	Debug Enable	ON OFF	
	Verbose Debug Enable	ON OFF	
		Cellular	
Item	Description		Default
		General Settings	
Index	Indicate the ordinal of th	e list.	
SIM Card	Set the currently editing	SIM card.	SIM1
Phone Number	Enter the phone number	of the SIM card.	Null
PIN Code	Enter a 4-8 characters PI	N 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	



	Cellular			
Item	Description	Default		
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			
Band Select Type	Select from "All" or "Specify". You may choose certain bands if choosing	All		
	"Specify".			
	Advanced Settings			
Debug Enable	Click the toggle button to enable/disable this option. Enable for debugging	ON		
	information output.			
Verbose Debug	Click the toggle button to enable/disable this option. Enable for verbose	OFF		
Enable	debugging information output.			

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

Cellular	r Stat	us AT	Debug		
∧ Status					
Index	Modem Status	Modem Model	IMSI	Registration	
1	Ready	EC25-EC	460015096113468	Registered to home network	



Status						
Index	Modem Status	Modem Model	IMSI	Registration		
1	Ready	EC25-EC	460015096113468	Registered to home network		
		Index	1			
		Modem Status	Ready			
		Modem Model	EC25-EC			
		Current SIM	SIM1			
		Phone Number				
		IMSI	460015096113468			
		ICCID	89860118803669954130			
		Registration	Registered to home network			
	N	etwork Provider	CHN-UNICOM			
		Network Type	LTE			
		Signal Strength	21 (-71dBm)			
		Bit Error Rate	99			
		PLMN ID	46001			
		Local Area Code	2507			
		Cell ID	6074716			
		IMEI	860425041355320			

Firmware Version EC25ECGAR06A04M1G

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 router is using.		
Phone Number	Show the phone number of the current SIM.		
	Note: This option will be displayed if enter manually in Cellular > Advanced Cellular		
	Settings > SIM1 > General Settings > Phone Number.		
IMSI	Show the IMSI number of the current SIM.		
ICCID	Show the ICCID number of the current SIM.		
Registration	Show the current network status.		
Network Provider	Show the name of Network Provider.		
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.		
Community ID	Show the current Community ID used for locating the router.		



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.		

Click the "AT Debug" to detect the AT command.

Cellular	Status	AT Debug	
∧ AT Debug			
Command			
Result			
L			
			Send

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.			

4.2.5 WiFi

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

WiFi AP

Configure Router as WiFi AP

Click Interface > WiFi > WiFi, select "AP" as the mode and click "Submit".

WiFi	Access Point	Advanced		ACL		Status	
∧ General Setti	ngs						
		Mode 🛛	ΔP	v	?		
		Region	SE		?		

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

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

WiFi	Access Point	Advanced	ACL	Status	
∧ General Settin	gs				
		Enable 💿 OI	FF		
	Wire	less Mode 11bgn M	ixed V		
		Channel Auto	v 🦻		
SSID		SSID router			
Broadcast SSID		cast SSID ON O			
	Secu	Irity Mode Disabled	v 🦻		



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

WiFi	Access Point	Advanced	ACL	Status
A General Set	tings			
		Enable OFF		
	Wirele	ss Mode 11bgn Mix	ed 🗸	
		Channel Auto	v 😨	
		SSID router		
	Broadc	ast SSID ON		
	Secur	ity Mode WPA-Perso	onal 🗸 🤋	
	WPA	Version Auto	×.	
	En	cryption Auto	v 😨	
	PSK P	assword	0	
	Group Key Update	Interval 3600		

The window is displayed as below when setting "WPA- Enterprise" as the security mode.

WiFi	Access Point	Advar	nced	ACL	Status	
∧ General Settin	∧ General Settings					
		Enable	ON OFF			
	Wire	less Mode	11bgn Mix	ed v		
		Channel	Auto	v ?		
		SSID	router			
	Broad	cast SSID	ON OFF			
	Security Mode		WPA-Enter	rprise 🗸 🧿		
	WPA Version		Auto	V		
Encryption		Auto	v 🦻			
Radius Authentication Server Address						
Radius Authentication Server Port		1812				
Radius Server Share Secret						
	Group Key Updat	e Interval	3600			

The window is displayed as below when setting "WEP" as the security mode.



WiFi	Access Point	Advan	iced	ACL		Status	
∧ General Settin	gs						
		Enable	ON OF	Ŧ			
	Wire	less Mode	(11bgn M	ixed V			
	Channel		Auto	v	?		
		SSID	router				
	Broad	lcast SSID	ON O				
	Sect	urity Mode	WEP	v)	?		
		WEP Key			?		

General Settings @ Access Point					
Item	Description	Default			
Enable	Click the toggle button to enable/disable the WiFi	OFF			
	access point option.				
Wireless Mode	Select from "11bgn Mixed mode", "11b only", "11g	11bgn Mixed			
	only" and "11n only".	mode			
	 11bgn Mixed mode: mix three protocols for 				
	backward compatibility				
	• 11b only: IEEE 802.11b, 11 Mbps~2.4GHz				
	 11g only: IEEE 802.11g, 54 Mbps~2.4GHz 				
	• 11n only: IEEE 802.11n, 300 Mbps				
	The channel that different bandwidth can choose is as				
	follows.				
	Auto: Router will scan all frequency channels until				
	the best one is found				
	 1~13 channel will be fixed to work with this 				
	channel				
	Following are the frequency of 1~13 channel:				
	1–2412 MHz				
	2–2417 MHz				
Channel	3–2422 MHz	Auto			
	4–2427 MHz				
	5–2432 MHz				
	6–2437 MHz				
	7–2442 MHz				
	8–2447 MHz				
	9–2452 MHz				
	10–2457 MHz				
	11–2462 MHz				
	12–2467 MHz				
	13–2472 MHz	<u> </u>			



	General Settings @ Access Point					
Item	Description	Default				
SSID	Enter the Service Set Identifier, the name of yourrouterwireless network. The SSID of a client and the SSID ofthe AP must be identical for the client and AP to be ableto communicate with each other. Enter 1 to 32characters.					
Broadcast SSID	 Click the toggle button to enable/disable the SSID being broadcast. When enabled, the client can scan your SSID. When disabled, the client cannot scan your SSID. If you want to connect to the router AP, you need to manually enter the SSID of router AP at WiFi client side. 	broadcast. When enabled, the client can scan your SSID. When disabled, the client cannot scan your SSID. If you want to connect to the router AP, you need to				
Security Mode	 Select from "Disabled", "WPA-Personal", "WPA-Enterprise", or "WEP". Disabled: User can access the WiFi without password Note: It is strongly recommended for security purposes that you do not choose this kind of mode. WPA-personal: WiFi access protection, only one password is provided for identity authentication WPA- enterprise: Using RADIUS service for Wi Fi security network protection WEP: Wired Equivalent Privacy provides encryption for wireless device's data transmission 	Disabled				
WPA Version	 Select from "Auto", "WPA" or "WPA2". Auto: Router will choose automatically the most suitable WPA version WPA2 is a stronger security feature than WPA 	Auto				
Encryption	 Select from "TKIP" or "AES". TKIP: Temporal Key Integrity Protocol (TKIP) encryption uses a wireless connection. TKIP encryption can be used for WPA-PSK and WPA 802.1x authentication AES: AES encryption uses a wireless connection. AES can be used for CCMP WPA-PSK and WPA 802.1x authentication. AES is a stronger encryption algorithm than TKIP Note: The security mode will affect wireless communication rate. Different wireless modes support different encryption modes. For example, 802.11n supports neither WEP security mode nor TKIP algorithm. If they are used, the wireless communication rate will reduce to 54Mbps (802.11g mode). It is recommended to select AES in 802.11n mode. 	Auto				



General Settings @ Access Point					
Item	Description	Default			
PSK Password	Enter the Pre share key password. Enter 8 to 63	Null			
	characters.				
Group Key Update Interval	Enter the time period of group key renewal.	3600			
Radius Authentication	Address used by RADIUS Server	Null			
Server Address	Address used by RADIOS Server				
Radius Authentication	Port used by RADIUS Server	1812			
Server port		1012			
Radius Authentication	A trust connection is established between RADIUS client				
Server Share Key	and RADIUS server, and the interaction of	Null			
Server Share Key	authentication message is ensured by shared key				
WEP Key	Enter the WEP key. The key length should be 10 or 26	Null			
	hexadecimal digits depending on which WEP key is				
	used, 64 digits or 128 digits.				

WiFi	Access Point	Advanced		ACL		Status	
∧ Advanced Sett	ings						
	Max Associated	Stations	64				
	Beacon	Interval	100		?		
	DTI	M Period	2		?		
	RTS T	hreshold	2347		?		
	Fragmentation T	hreshold	2346		?		
	Trans	smit Rate	Auto	v			
	11N Trans	smit Rate	Auto	v			
	Transm	nit Power	Max	v			
	Chanr	nel Width	Auto	v	?		
	Ena	ble WMM	ON 0	FF			
	Enable	Short GI	ON 0				
	Enable AP	Isolation	ONO	FF			
	Deb	oug Level	none	v			

Advanced Settings @ Access Point					
Item	Description	Default			
Max Associated Stations	Set the max number of clients allowed to access the router's AP.	64			
Beacon Interval	Set the interval of time in which the router AP broadcasts a beacon	100			
	which is used for wireless network authentication.				
DTIM Period	Set the delivery traffic indication message period and the router AP	2			
	will multicast the data according to this period.				
RTS/CTS Threshold	Set the threshold of "request to send", which is the request to send a	2347			
	threshold. When the threshold set as 2347, the router AP will not				
	send detection signal before sending data. And when the threshold				
	set as 0, the router AP will send detection signal before sending data.				
Fragmentation Threshold	gmentation Threshold Set the fragmentation threshold of a WiFi AP. It is recommended that				
	you use the default value 2346.				
Transmit Rate	Specify the data transfer rate or default to automatic.	Auto			
11N Transmit Rate	Specifiy the data transfer rate in IEEE 802.11n WiFi mode or default	Auto			
	to automatic.	Auto			
Transmit Power	Select the transmit power level. Select from "Max", "High",	Max			
	"Medium" or "Low".				
	Optional channel width is "Auto", "20MHz" or "40MHz".				
Channel width	Note: The 40MHz channel bandwidth provides an available data	Auto			
	transfer rate that is more than twice that of a single 20MHz channel.				
Enable WMM	Click the toggle button to enable/disable the WMM option.	ON			
Enable Short GI	Click the toggle button to enable/disable the Short Guard Interval	ON			
	option. Short GI is a blank time between two symbols, providing a				
	long buffer time for signal delay. Using the Short GI would increase				





Advanced Settings @ Access Point				
Item	Description			
	11% in data rates, but also result in higher packet error rates.			
Enable AP Isolation	Click the toggle button to enable/disable the AP isolation option. OFF			
	When enabled, the router will isolate all connected wireless devices.			
	The wireless device cannot access the router directly via WLAN.			
Debug Level	Select from "verbose", "debug", "info", "notice", "warning" or	none		
	"none".			

WiFi	Acces	s Point	Advanced		ACL	Status	
∧ General Se	ettings						
Enable ACL ON OFF							
ACL Mode Accept 🗸							
Access Cor	ntrol List						
Index D	Index Description MAC Address				+		

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

ACL	
∧ Access Control List	
Index	1
Description	
MAC Address	

ACL Settings @ Access Point				
Item	Item Description			
Enable ACL	Click the toggle button to enable/disable this option. OFF			
ACL Mode	Select ACL mode. Select from "Accept" or "Deny". Accept • Accept: Only the packets fitting the entities of the "Access Control List" can be allowed Here and the packets fitting the entities of the "Access Control List" will be denied			
Note: Router can only allow or deny devices which are included in "Access Control List" at one time. Access Control List @ Access Point				
Index	Indicate the ordinal of the list.			
Description	Enter a description for this access control list.	Null		
MAC Address	Add a MAC address here. Null			

This section allows you to view the status of AP.



WiFi	Access	; Point	Advai	nced	ACL		Status	
AP Statu	IS							
			Status	FAILED				
Channel								
Channel Width								
		MAC	Address					
Associat	ted Stations							
Index	MAC Address	IP Addre	55	Name	Connect	ed Time	Signal	

Note: WiFi is off by default. Follow the steps below to enable it and configure the router as WiFi client.

WiFi Client

Configure Router as WiFi Client

Click Interface > WiFi > WiFi, select "Client" as the mode and regarding the AP type to choose the related Client Band then click "Submit".

WiFi		
∧ General Setti	ings	
	Mode	Client 🤍 🦻
	Region	SE 🦻

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

	WiFi			
Status	∧ General Setti	ngs		
Interface		Mode	Client 🤍 🦻	
Link Manager		Region	SE 🥘	
LAN	L			
Ethernet				
Cellular				
WiFi <				
WLAN				
DIDO				

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

∧ WLAN Settings	
SSID	router
Connect to Hidden SSID	ON OFF
Password	

Click Interface > WLAN to configure the parameters of WiFi Client after setting the mode as Client.



Status		
NULAN Status	5	
	Status	Connected
	Uptime	0 days, 00:00:06
	IP Address	192.168.50.72/255.255.255.0
	Gateway	192.168.50.1
	DNS	192.168.50.1
	MAC Address	34:fa:40:09:09:cc

∧ Link Status	
Signal	-67 dBm
Noise	9999 dBm
Width	20 MHz
TX Bitrate	57.8 MBit/s MCS 11 short GI
тх	1442 bytes (11 packets)
RX	39177 bytes (214 packets)

∧ WPA Status	
WPA State	COMPLETED
Frequency	2412
BSSID	04:92:26:c7:3f:a8
SSID	Robustel-312-1
Mode	station
Key Management	WPA2-PSK
Pairwise Cipher	ССМР
Group Cipher	ССМР

This window allows you to scan for all available SSIDs in your area. Please click •••• and "Scan Results" list to refresh the surrounding SSID.

∧ Scan Results				•••	?
Index	SSID	MAC Address	Frequency	Signal	

Scan			_		
Index	SSID	MAC Address	Frequency	Signal	
1	Robustel-312-1	04:92:26:C7:3F:A8	2412	-63 dBm	
2	Robustel-311	34:FA:40:07:D5:A2	2437	-67 dBm	
3	mt7603e	34:FA:40:04:83:CA	2412	-73 dBm	
4	AndroidAP	10:D0:7A:C4:54:EB	2437	-70 dBm	
5	ChinaNet-Qg7u	CC:90:E8:1B:34:23	2467	-78 dBm	
6	\x00\x00\x00\x00\x00\x	.\X00\X00\X00\.		\X00\X00	
7	ChinaNet-2.4G-F411	EC:8C:9A:B9:89:24	2462	-87 dBm	
8	TP-LINK_041101	74:05:A5:51:29:A0	2437	-82 dBm	
9	ChinaNet-TVYP	F0:92:B4:92:5C:69	2437	-78 dBm	
10	ChinaNet-56o5	C8:50:E9:E3:65:AE	2462	-85 dBm	
11	HP-Print-00-LaserJet Pro	94:53:30:5A:51:E5	2437	-80 dBm	
12	ChinaNet-6dfh	5C:09:79:4F:9F:F8	2457	-86 dBm	
13	huxin	A8:0C:63:17:0A:F4	2412	-88 dBm	
14	xiaofan	D8:C7:71:17:19:5C	2437	-86 dBm	
15	router2g1	34:FA:40:07:CB:9B	2472	-46 dBm	

4.2.6 DI/DO

This section allows you to set the DI/DO parameters. Digital Input and Digital Output are the specific interfaces for R1510. The DI interface can be used for triggering alarm, while the DO can be used for controlling the slave device so as to realize real-time monitoring.

DI

DI		DO		Status
∧ DI Set	tings			
Index	Enable	Mode	Inversion	
1	false	ON-OFF	false	

Click the right-most S button of DI index 1 as below. The window is displayed as below when the default mode is "ON-OFF".

DI	
∧ General Settings	
Index	1
Enable	ON OFF
Mode	ON-OFF V
Inversion	ON OFF
Alarm On Content	Alarm On
Alarm Off Content	Alarm Off

10 robustel



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

∧ General Settings	
Index	1
Enable	ON OFF
Mode	Counter
Inversion	ON OFF
Threshold Value	0
Alarm On Content	Alarm On
Alarm Off Content	Alarm Off

General Settings @ DI						
Item	Description	Default				
Index	Indicate the ordinal of the list.					
Enable	Click the toggle button to "ON" to turn on the digital input function.	OFF				
Mode	Select from "ON-OFF" or "Counter".	ON-OFF				
	• ON-OFF: Alarm mode can be triggered at the DI access ON-OFF.					
	Counter: Event counter mode					
Inversion	The count is divided into a rising edge count of the level or a falling edge	OFF				
	unt. If the current rising edge count, the reverse edge is the falling edge					
	count.					
Threshold Value	The threshold value is a unique parameter when the mode is count. Set the	0				
	threshold value to trigger the DI alarm when the count value reaches the					
	threshold value.					
Alarm On Content	Show the content when alarm on.	Alarm On				
Alarm Off Content	Show the content when alarm off.	Alarm Off				

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

DO

DI		DO	Status			
A DO Set	ttings					
Index	Enable	Alarm On Action	Alarm Off Action	Initial Stat	e Alarm Sour	
1	false	High	Low	Last	DI1 Alarm	

Click 🗹 to enter the DO index 1, the configuration window is shown as below.



DO	
∧ General Settings	
Index	1
Enable	ON OFF
Alarm On Action	High
Alarm Off Action	Low
Initial State	Last
Delay	0 7
Hold Time	0 7
Alarm Source	DI1 Alarm v

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

DO	
∧ General Settings	
Index	1
Enable	ON OFF
Alarm On Action	Pulse
Alarm Off Action	Low
Initial State	Last
Delay	0 7
Hold Time	0 ?
Low-level Width	1000
High-level Width	1000
Alarm Source	DI1 Alarm V



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

DO	
∧ General Settings	
Index	1
Enable	ON OFF
Alarm On Action	High
Alarm Off Action	Pulse
Initial State	Last
Delay	0 7
Hold Time	0 7
Low-level Width	1000 🤇
High-level Width	1000
Alarm Source	DI1 Alarm V

	General Settings @ DO	
Item	Description	Default
Index	Indicate the ordinal of the list.	
Enable	Click the toggle button to enable/disable this DO.	OFF
Alarm On Action	Digital Output initiates when there is an alarm. Selected from "High", "Low" or "Pulse".	High
	 High: a high electrical level output Low: a low electrical level output 	
	 Pulse: Generates a square wave as specified in the pulse mode parameters when triggered 	
Alarm Off Action	 Digital Output initiates when alarm removed. Selected from "High", "Low" or "Pulse". High: a high electrical level output Low: a low electrical level output Pulse: Generates a square wave as specified in the pulse mode parameters when 	Low
Initial State	triggered Specify the Digital Output status when powered on. Selected from "Last", "High" or "Low". Last: DO's status will consist with the status of last power off High: DO interface is in high electrical level Low: DO interface is in low electrical level	Last
Delay (unit: 100ms)	Set the delay time for DO alarm start-up. The first pulse will be generated after a "Delay". Enter from 0 to 300000ms. (0=generate pulse without delay)	0
Hold Time (unit: s)	Set the hold time of DO status (Alarm On Action/Alarm Off Action). When the action time reach this specified time, DO will stop the action. Enter from 0 to 3000 seconds. (0=keep on until the next action)	0
Low-level Width (unit: ms)	Set the low-level width. It is available when enabling Pulse as "Alarm On Action/Alarm Off Action". In Pulse Output mode, the selected digital output channel will generate a	1000



General Settings @ DO				
Item	Description	Default		
	square wave as specified in the pulse mode parameters. The low level widths are			
	specified here. Enter from 1 to 3000 ms.			
High-level	Set the high-level width. It is available when enabling Pulse as "Alarm On	1000		
Width	Action/Alarm Off Action". In Pulse Output mode, the selected digital output channel			
(unit: ms)	will generate a square wave as specified in the pulse mode parameters. The high level			
	widths are specified here. Enter from 1 to 3000 ms.			
Alarm Source	Digital Output initiates according to different alarm source. Selected only "DI1 Alarm".			
	DI1 Alarm: Digital Output triggers the related action when there is alarm from Digital			
	Input.			

Status

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

DI		DO	Statu	5	
∧ DI Sta	tus				
Index	Level	Status C	Count		
1	High	Alarm off			
Action	Of Clear				
		Counter	Alarm Of DI 1	Clear	3
∧ DO Sta	tus				
Index	Level	Low-level Wi	dth High-level	Width	
1	Low				
A DO Cor	ntrol				
			Level Of DO1	Toggl	le

4.3 Network

4.3.1 Route

This section allows you to set the static route. Up to 20 static routes can be added to the router. Static route is a form of routing that occurs when a router uses a manually-configured routing entry, rather than information from a dynamic routing traffic. Route Information Protocol (RIP) is widely used in small network with stable use rate. Open Shortest Path First (OSPF) is made router within a single autonomous system and used in large network. Click network > route > static route to enter the static route table, which allows users to manually add, remove, or modify static route rules.



Static Route

Static Re	oute	Status				
∧ Static	Route Table					
Index	Description	Destination	Netmask	Gateway	Interface	+

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

Static Route	
∧ Static Route	
Index	1
Description	
Destination	
Netmask	
Gateway	
Interface	wwan

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

Static Ro	ute Sta	atus				
∧ Route 1	Fable					
Index	Destination	Netmask	Gateway	Interface	Metric	
1	0.0.00	0.0.00	10.189.43.26	wwan	0	
2	10.189.43.24	255.255.255.252	0.0.0	wwan	0	
3	192.168.0.0	255.255.255.0	0.0.0.0	lan0	0	



4.3.2 Firewall

This section allows you to set the firewall and its related parameters, including Filtering, Port Mapping, Custom Rules, DMZ and Status. Filtering rules allow users to custom accept or discard a specified access source, filtering its IP address or MAC address.

Click "> firewall > filter" to display as follows:

Filtering

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

Filtering	Port Mapping Custom	Rules	DMZ	Status	
∧ General Settir	ngs				
	Enable Filtering	ON OFF			
	Default Filtering Policy	Accept	v 🦻		
Access Contro	ol Settings				
	Enable Remote SSH Access	ON OFF			
	Enable Local SSH Access	ON OFF			
	Enable Remote Telnet Access	ON OFF			
	Enable Local Telnet Access	ON OFF			
	Enable Remote HTTP Access	ON OFF			
	Enable Local HTTP Access	ON OFF			
	Enable Remote HTTPS Access	ON OFF			
	Enable Remote Ping Respond	ON OFF ?			
	Enable DOS Defending	ON OFF			
	Enable Console	ON OFF 7			
	Enable VPN NAT Traversal	ON OFF ?			

∧ Whitelist Rules							7
Index	Descript	ion So	ource Address				+
∧ Filte	ering Rules						
Index	Source Address	Source Port	Source MAC	Target Address	Target Port	Protocol	+

Click + to add whitelist rules. The maximum count is 5.



Filtering	
∧ Whitelist Rules	
Index	1
Description	
Source Address	0

Click + to add filtering rules. The maximum count is 20. The window is displayed as below when defaulting "All" or choosing "ICMP" as the protocol. Here take "All" as an example.

Filtering	
∧ Filtering Rules	
Index	1
Description	
Source Address	0
Source MAC	0
Target Address	0
Protocol	All
Action	Drop

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

∧ Filtering Rules	
Index	1
Description	
Source Address	0
Source Port	0
Source MAC	0
Target Address	0
Target Port	0
Protocol	ТСР
Action	Drop

Filtering					
Item Description Default					
General Settings					
Enable Filtering	Click the toggle button to enable/disable the filtering option.	ON			



Filtering					
Item	Description	Default			
Default Filtering Policy	Select from "Accept" or "Drop". Cannot be changed when filtering	Accept			
	rules table is not empty.				
	• Accept: Router will accept all the connecting requests except the				
	hosts which fit the drop filter list				
	• Drop: Router will drop all the connecting requests except the				
	hosts which fit the accept filter list				
	Access Control Settings				
Enable Remote SSH Access	Click the toggle button to enable/disable this option. When enabled,	OFF			
	the Internet user can access the router remotely via SSH.				
Enable Local SSH Access	Click the toggle button to enable/disable this option. When enabled,	ON			
	the LAN user can access the router locally via SSH.				
Enable Remote Telnet Access	Click the toggle button to enable/disable this option. When enabled,	OFF			
	the Internet user can access the router remotely via Telnet.				
Enable Local Telnet Access	Click the toggle button to enable/disable this option. When enabled,	ON			
	the LAN user can access the router locally via Telnet.				
Enable Remote HTTP Access	Click the toggle button to enable/disable this option. When enabled,	OFF			
	the Internet user can access the router remotely via HTTP.				
Enable Local HTTP Access	Click the toggle button to enable/disable this option. When enabled,	ON			
	the LAN user can access the router locally via HTTP.				
Enable Remote HTTPS Access	Click the toggle button to enable/disable this option. When enabled,	ON			
	the Internet user can access the router remotely via HTTPS.				
Enable Remote Ping Respond	Click the toggle button to enable/disable this option. When enabled,	ON			
	the router will reply to the Ping requests from other hosts on the				
	Internet.				
Enable DOS Defending	Click the toggle button to enable/disable this option. When enabled,	ON			
	the router will defend the DOS. Dos attack is an attempt to make a				
	machine or network resource unavailable to its intended users.				
Enable IP forwarding of WAN	Click the toggle button to enable/disable this option. When enabled,	<u></u>			
side	the Internet date can forward via router.	ON			
Enable debug	Click the toggle button to enable/disable this option.	ON			
	Click the toggle button to enable/disable this option. When enabled,				
Enable VPN NAT traversal	enable NAT traversal for the GRE/L2TP/PPTP VPN package.	OFF			
	White list				
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	Null			
	are defined by Source IP Address, or every IP addresses.				
	Filtering rule				
Index	Indicate the ordinal of the list.				
Description	Enter a description for this filtering rule.	Null			
Source Port	Specify an access originator and enter its source port.	Null			
Source MAC	Enter the MAC address of the defined source IP address.	Null			



Filtering						
Item	Description	Default				
Target Address	Defines if access is allowed to one or a range of IP addresses which are N					
	defined by Target IP Address, or every IP addresses.					
Target Port	Enter the target port which the access originator wants to access.	Null				
Protocol	Select from "All", "TCP", "UDP", "ICMP" or "TCP-UDP".	All				
	Note: It is recommended that you choose "All" if you don't know					
	which protocol of your application to use.					
Action	Select from "Accept" or "Drop".	Drop				
	Accept: When Default Filtering Policy is drop, router will drop all					
	the connecting requests except the hosts which fit this accept					
	filtering list					
	• Drop: When Default Filtering Policy is accept, router will accept all					
	the connecting requests except the hosts which fit this drop					
	filtering list					

Port Mapping

Port mapping is defined manually in the router, and the data received from some ports in the public network are all forwarded to a port of an IP in the internal network. Click "network > firewall > port map" to display as follows:

Filtering		Port Mapping	Custom Rule	5	DMZ	Status	
A Port Ma	pping Rul	es					
Index [Description	Internet Port	Local IP	Local Port	Protoco	ol	+

Click 🕂 to add	port mapping rules.	The maximum	rule count is 40.
	portinappingraico	The maximum	raie countris ioi

Port Mapping	
∧ Port Mapping Rules	
Index	1
Description	
Remote IP	0
Internet Port	0
Local IP	
Local Port	0
Protocol	TCP-UDP V

Port Mapping Rules				
Item	Description	Default		
Index	Indicate the ordinal of the list.			
Description	Enter a description for this port mapping.	Null		



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

Custom Rules

"Custom Rules" meets customer's demand for personal filtering of IP package, filter data usage of a website for example. Users can add any iptables rules which meet the iptables rule format standard in this list.

Filtering Port Mapping		Custom Rules	DMZ	Status	
∧ Custom Ipta	bles Rules				
Index Descri	iption Rule			-	+

Click 🕂 to add custom rules.

Custom Rules	
∧ Custom Iptables Rule	
Index	1
Description	
Rule	

Custom firewall Rules			
Item	tem Description		
Index	Indicate the ordinal of the list.		
Description	Enter a description for this custom rule.	Null	
Rule	Specify one custom rule.	Null	

DMZ

The DMZ, also known as the Demilitarized Zone, is being transformed into a large swath of land. It is to solve the problem that the access user of the external network cannot access the internal network server after installing the firewall, and set up a buffer between the non-secure system and the secure system. A DMZ host is an Intranet host that has open access to all ports except the occupied and forwarded ports to the specified address. Click "> firewall > DMZ" to display the following:



Filtering	Port Mapping	Custom Rules	DMZ	Status
A DMZ Settings				
	Ena	able DMZ		
	Host IP	Address		
	Source IP	Address	?	

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

Status

This window allows you to view the status of chain input, chain forward and chain output.

Filteri	ng	Port Map	ping	Custom Rules		DMZ	Status	
∧ Chain	∧ Chain Input							
Index	Packets	Target	Protocol	In	Out	Source	Destination	
1	0	DROP	tcp	wwan	*	0.0.0/0	0.0.0/0	
2	0	DROP	tcp	wwan	*	0.0.0/0	0.0.0/0	
3	0	DROP	tcp	wwan	*	0.0.0/0	0.0.0/0	
4	0	REJECT	tcp	*	*	0.0.0/0	0.0.0/0	
5	10	ACCEPT	tcp	*	*	0.0.0/0	0.0.0/0	
6	0	DROP	tcp	*	*	0.0.0/0	0.0.0/0	
7	8	ACCEPT	tcp	*	*	0.0.0/0	0.0.0/0	
8	0	DROP	tcp	*	*	0.0.0/0	0.0.0/0	
9	0	ACCEPT	icmp	*	*	0.0.0/0	0.0.0/0	
10	0	DROP	icmp	*	*	0.0.0/0	0.0.0/0	
∧ Chain	Forward							
Index	Packets	Target	Protocol	In	Out	Source	Destination	
1	0	TCPMSS	tcp	*	*	0.0.0/0	0.0.0/0	
∧ Chain	Output							
Index	Packets	Target	Protocol	In	Out	Source	Destination	



4.3.3 IP Passthrough

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

IP Passthrough	
∧ General Setti	ngs
	Enable ON OFF 🤋

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

4.4 VPN

4.4.1 IPsec

This section allows you to set the IPsec and the related parameters. Internet Protocol Security (IPsec) is a protocol suite for secure Internet Protocol (IP) communications that works by authenticating and encrypting each IP packet of a communication session.

Click VPN > IPsec > general to set IPsec parameters.

General

General	Tunnel	Stat	us	x509	
∧ General Setti	ngs				
		Keepalive	20	0	
	Optimize DH Expo	onent Size		F	
	Deb	ug Enable	ON OF	Ŧ	

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



information output to the debug port.

Tunnel

General		Tunnel	Statu	s	x50)9	
∧ Tunnel	Settings	5					
Index	Enable	Description	Gateway	Loca	l Subnet	Remote Subnet	+

Click + to add tunnel settings. The maximum count is 6.

Tunnel	
∧ General Settings	
Index	1
Enable	ON OFF
Description	
Gateway	
Mode	Tunnel
Protocol	ESP
Local Subnet	0
Remote Subnet	
Link Binding	Unspecified 🤍 🍞

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 means for any	Null
	address.	
Mode	Select from "Tunnel" and "Transport".	Tunnel
	• Tunnel: Commonly used between routers, or at an end-station to a router,	
	the router acting as a proxy for the hosts behind it	
	• Transport: Used between end-stations or between an end-station and a	
	router, if the router 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	
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.	Null



	192.168.1.0/24	
Remote Subnet	Enter the remote subnet's address with mask protected by IPsec, e.g. 10.8.0.0/24	Null
Link Binding	Select from"WWAN1", "WAN", or "WLAN".	Not
		bound

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

▲ IKE Settings	
ІКЕ Туре	IKEv1 V
Negotiation Mode	Main
Encryption Algorithm	3DES V
Authentication Algorithm	SHA1 V
IKE DH Group	DHgroup2
Authentication Type	PSK
PSK Secret	
Local ID Type	Default
Remote ID Type	Default
IKE Lifetime	86400

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

∧ IKE Settings	
ІКЕ Туре	[IKEv1 V
Negotiation Mode	(Main v
Encryption Algorithm	3DES V
Authentication Algorithm	SHA1 Y
IKE DH Group	DHgroup2
Authentication Type	CA
Private Key Password	
IKE Lifetime	86400

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



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

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

∧ IKE Settings	
ІКЕ Туре	IKEv1 V
Negotiation Mode	Main
Encryption Algorithm	3DES V
Authentication Algorithm	SHA1 V
IKE DH Group	DHgroup2
Authentication Type	xAuth PSK v
PSK Secret	
Local ID Type	Default
Remote ID Type	Default
Username	0
Password	0
IKE Lifetime	86400

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



∧ IKE Settings	
ІКЕ Туре	IKEv1 V
Negotiation Mode	Main
Encryption Algorithm	3DES V
Authentication Algorithm	SHA1 V
IKE DH Group	DHgroup2
Authentication Type	xAuth CA v
Private Key Password	
Username	
Password	
IKE Lifetime	86400 🦻

	IKE Settings		
Item	Description	Default	
ІКЕ Туре	Select from "IKEv1" and "IKEv2".	IKEv1	
Negotiation Mode	Select from "Main" and "Aggressive" for the IKE negotiation mode in phase 1.	Main	
	If the IP address of one end of an IPsec tunnel is obtained dynamically, the IKE	Mode	
	negotiation mode must be aggressive. In this case, SAs can be established as		
	long as the username and password are correct.		
Encryption Algorithm	Select from "3DES", "AES128", "AES192" and "AES256" to be used in IKE	3DES	
	negotiation.		
	3DES: Use 168-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		
Authentication	Select from "MD5", "SHA1", "SHA2 256" or "SHA2 512" to be used in IKE	SHA1	
Algorithm	negotiation.		
IKE DH Group	Select from "DHgroup1", "DHgroup2", "DHgroup5", "DHgroup14",	DHgroup2	
	"DHgroup15", "DHgroup16", "DHgroup17" or "DHgroup18" to be used in key		
	negotiation phase 1.		
Authentication Type	Select from "PSK", "CA", "PKCS#12", "xAuth PSK" and "xAuth CA" to be used	PSK	
	in IKE negotiation.		
	PSK: Pre-shared Key		
	CA: x509 Certification Authority		
	xAuth: Extended Authentication to AAA server		
	PKCS#12: Exchange digital certificate authentication		
PSK Secret	Enter the pre-shared key.	Null	
Local ID Type	Select from "Default", "FQDN" and "User FQDN" for IKE negotiation.	Default	
	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		



IKE Settings		
Item	Description	
	router, 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 router, e.g., test@robustel.com	
Remote ID Type	Select from "Default", "FQDN" and "User FQDN" for IKE negotiation.	Default
	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	
	router, 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 router, e.g., test@robustel.com	
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.	
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	Null
	types.	
Password	Enter the password used for the "xAuth PSK" and "xAuth CA" authentication	Null
	types.	

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



∧ General Settings	
Index	1
Enable	ON OFF
Description	
Gateway	
Mode	Tunnel
Protocol	ESP v
Local Subnet	
Remote Subnet	
Link Binding	Unspecified V 🖓
▼ IKE Settings	
∧ SA Settings	
Encryption Algorithm	3DES V
Authentication Algorithm	SHA1 V
PFS Group	DHgroup2 v
SA Lifetime	28800 🦻
DPD Interval	30 🦻
DPD Failures	150 🦻

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

∧ General Settings	
Index	1
Enable	ON OFF
Description	
Gateway	
Mode	Tunnel
Protocol	AH
Local Subnet	0
Remote Subnet	
Link Binding	Unspecified 💙 😨



∧ SA Settings	
Authentication Algorithm	SHA1 V
PFS Group	DHgroup2
SA Lifetime	28800 🤇
DPD Interval	30 🤇
DPD Failures	150 🧿
Advanced Settings	
Enable Compression	ON OFF
Enable Forceencaps	ON OFF 7
Expert Options	

	SA Settings		
Item	Description	Default	
Encrypt Algorithm	Select from "3DES", "AES128", "AES192" or "AES256" when you select "ESP"	3DES	
	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.		
Authentication	Select from "MD5", "SHA1", "SHA2 256" or "SHA2 512" to be used in SA	SHA1	
Algorithm	negotiation.		
PFS Group	Select from "PFS (N/A)", "DHgroup1", "DHgroup2", "DHgroup5",	DHgroup2	
	"DHgroup14", "DHgroup15", "DHgroup16", "DHgroup17" or "DHgroup18"		
	to be used in SA negotiation.		
SA Lifetime	Set the IPsec SA lifetime. When negotiating to set up IPsec SAs, IKE uses the	28800	
	smaller one between the lifetime set locally and the lifetime proposed by		
	the peer.		
DPD Interval	Set the interval after which DPD is triggered if no IPsec protected packets is	30	
	received from the peer. DPD is a Dead peer detection. DPD irregularly		
	detects dead IKE peers. When the local end sends an IPsec packet, DPD		
	checks the time the last IPsec packet was received from the peer. If the time		
	exceeds the DPD interval, it sends a DPD hello to the peer. If the local end		
	receives no DPD acknowledgment within the DPD packet retransmission		
	interval, it retransmits the DPD hello. If the local end still receives no DPD		
	acknowledgment after having made the maximum number of		
	retransmission attempts, it considers the peer already dead, and clears the		
	IKE SA and the IPsec SAs based on the IKE SA.		
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	OFF	
	the inner headers of IP packets.		
Enable Forced	Click the switch button to enable/disable this option. When enabled, UDP	OFF	
Encapsulation	encapsulation of esp packets is enforced even if NAT conditions are not		



SA Settings			
Item	Description	Default	
	detected. This may help overcome restrictive firewalls.		
Expert Options	Add more PPP configuration options here, format: config-desc;config-desc, null		
	e.g. protostack=netkey;plutodebug=none		

Status

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

Gener	General Tunnel		Status	x509	
∧ IPSec	Tunnel Statu	s			
Index	Description	Status	Uptime		

x509

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

General	Tunnel	Status	x509	
∧ X509 Settings	5			7
	Tu	nnel Name Tunne	1 v	
	Local	Certificate Choo	ose File No file chosen	
	Remote	Certificate Choo	ose File No file chosen	
	Р	rivate Key Choo	ose File No file chosen	
	CA	Certificate Choo	ose File No file chosen	
	PKCS#12	Certificate Choo	ose File No file chosen	
∧ Certificate Fil	es			
Index Fi	le Name	File Size	Modification Ti	me

x509			
Item	Description Default		
	X509 Settings		
Tunnel Name	Choose a valid tunnel. Choose from tunnel 1, tunnel 2, tunnel 3, tunnel 4,	Tunnel 1	
	tunnel 5, and tunnel 6.		
Local Certificate	Click on "Choose File" to locate the certificate file from local computer, and		
	then import this file into your router.		
Remote Certificate	Click on "Choose File" to locate the certificate file from remote computer,		
	and then import this file into your router.		
Private Key	Click on "Choose File" to locate the private key file.		
CA certificate	Select the root certificate file to import into the router.		
PKCS # 12	Select the PKCS#12 certificate file to import into the router.		



x509				
Item Description				
	X509 Settings			
certificate				
	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		

4.4.2 OpenVPN

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

Click "VPN > OpenVPN > OpenVPN" to display as follows:

OpenVPN

OpenVP	N	Status		x509			
∧ Tunnel	Settings	;					
Index	Enable	Description	Mode	Protocol	Peer Address	Interface Type	+

Click + to add tunnel settings. The maximum count is 6. By default, the mode is "P2P". The window is displayed as below when choosing "P2P" as the mode.



∧ General Settings	
Index	1
Enable	ON OFF
Description	
Mode	P2P V
TLS Mode	None v
Protocol	UDP
Peer Address	
Peer Port	1194
Listen IP Address	
Listen Port	1194
Interface Type	TUN
Authentication Type	None 🤍 🍞
Local IP	10.8.0.1
Remote IP	10.8.0.2
Encrypt Algorithm	BF
Keepalive Interval	20
Keepalive Timeout	120
мти	1500
Max Frame Size	
Enable Compression	ON OFF
Enable NAT	ON OFF
Verbose Level	



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

∧ General Settings	
Index	1
Enable	ON OFF
Description	
Mode	Client 🤍 🧿
Protocol	UDP
Peer Address	
Peer Port	1194
Interface Type	TUN
Authentication Type	None 🤍 🧿
Encrypt Algorithm	BF
Renegotiation Interval	86400 🤇
Keepalive Interval	20 🤇
Keepalive Timeout	120 🦻
мти	1500
Max Frame Size	
Enable Compression	ON OFF
Enable NAT	OM OFF
Enable DNS overrid	OFF 😨
Verbose Level	0 7



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

∧ General Settings	
Index	1
Enable	ON OFF
Description	
Mode	Server V 😨
Protocol	UDP
Listen IP Address	
Listen Port	1194
Interface Type	TUN
Authentication Type	None 🤍 🍞
Enable IP Pool	ON OFF
Client Subnet	10.8.0.0
Client Subnet Netmask	255.255.255.0
Encrypt Algorithm	BF
Renegotiation Interval	86400
Max Clients	10
Keepalive Interval	20 🦻
Keepalive Timeout	120
мти	1500
Max Frame Size	
Enable Compression	ON OFF
Enable Default Gateway	ON OFF
Enable NAT	ON OFF
Verbose Level	



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

∧ General Settings			
	Index	1	
	Enable	ON OFF	
	Description		
	Mode	P2P v	0
	TLS Mode	None v	0
	Protocol	UDP	
	Peer Address		
	Peer Port	1194	
	Listen IP Address		
	Listen Port	1194	
	Interface Type	TUN	
	Authentication Type	None v	0
	Local IP	10.8.0.1	
	Remote IP	10.8.0.2	
	Encrypt Algorithm	BF	
	Keepalive Interval	20	0
	Keepalive Timeout	120	0
	MTU	1500	
	Max Frame Size		
	Enable Compression	ON OFF	
	Enable NAT	ON OFF	
	Verbose Level	0	3



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

∧ General Settings			
	Index	1)
	Enable	ON OFF	
	Description)
	Mode	P2P v	0
	TLS Mode	None v	?
	Protocol	UDP	
	Peer Address)
	Peer Port	1194)
	Listen IP Address)
	Listen Port	1194)
	Interface Type	TUN V	
	Authentication Type	Preshared v	0
	Local IP	10.8.0.1)
	Remote IP	10.8.0.2)
	Encrypt Algorithm	BF	
	Keepalive Interval	20	0
	Keepalive Timeout	120	0
	МТИ	1500]
	Max Frame Size)
	Enable Compression	ON OFF	
	Enable NAT	ION OFF	
	Verbose Level	0 ~	0
	Cabobe Level	<u> </u>	. U



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

∧ General Settings	
Index	1
Enable	ON OFF
Description	
Mode	P2P 7
TLS Mode	None 🤍 😨
Protocol	UDP
Peer Address	
Peer Port	1194
Listen IP Address	
Listen Port	1194
Interface Type	TUN
Authentication Type	Password 🥑 🥱
Local IP	10.8.0.1
Remote IP	10.8.0.2
Encrypt Algorithm	BF
Keepalive Interval	20
Keepalive Timeout	120 🧿
мти	1500
Max Frame Size	
Enable Compression	ON OFF
Enable NAT	ON OFF
Verbose Level	0 7



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

∧ General Settings			
	Index	1	
	Enable	ON OFF	
	Description		
	Mode	P2P v	0
	TLS Mode	None v	0
	Protocol	UDP	
	Peer Address		
	Peer Port	1194	
	Listen IP Address		
	Listen Port	1194	
	Interface Type	TUN V	
	Authentication Type	X509CA V	7
	Authentication Type Local IP	X509CA v 10.8.0.1	1
	Local IP	10.8.0.1	
	Local IP Remote IP	10.8.0.1 10.8.0.2	0
	Local IP Remote IP Encrypt Algorithm	10.8.0.1 10.8.0.2 BF	
	Local IP Remote IP Encrypt Algorithm Keepalive Interval	10.8.0.1 10.8.0.2 BF V 20	7
	Local IP Remote IP Encrypt Algorithm Keepalive Interval Keepalive Timeout	10.8.0.1 10.8.0.2 BF V 20 120	7
	Local IP Remote IP Encrypt Algorithm Keepalive Interval Keepalive Timeout MTU	10.8.0.1 10.8.0.2 BF V 20 120	7
	Local IP Remote IP Encrypt Algorithm Keepalive Interval Keepalive Timeout MTU Max Frame Size	10.8.0.1 10.8.0.2 BF V 20 120	7
	Local IP Remote IP Encrypt Algorithm Keepalive Interval Keepalive Timeout MTU Max Frame Size Private Key Password	10.8.0.1 10.8.0.2 BF V 20 120 1500	7



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

∧ General Settings			
	Index	1	
	Enable	ON OFF	
	Description)
	Mode	P2P v	7
	TLS Mode	None v	?
	Protocol	UDP	
	Peer Address)
	Peer Port	1194)
	Listen IP Address)
	Listen Port	1194)
	Interface Type	TUN V	
	Authentication Type	X509CA Password V	1
	Authentication Type Local IP	X509CA Password v 10.8.0.1	
	Local IP	10.8.0.1	
	Local IP Remote IP	10.8.0.1 10.8.0.2	7 7 7
	Local IP Remote IP Encrypt Algorithm	10.8.0.1 10.8.0.2 BF V	
	Local IP Remote IP Encrypt Algorithm Keepalive Interval	10.8.0.1 10.8.0.2 BF 20	0
	Local IP Remote IP Encrypt Algorithm Keepalive Interval Keepalive Timeout	10.8.0.1 10.8.0.2 BF 20 120	0
	Local IP Remote IP Encrypt Algorithm Keepalive Interval Keepalive Timeout MTU	10.8.0.1 10.8.0.2 BF 20 120	0
	Local IP Remote IP Encrypt Algorithm Keepalive Interval Keepalive Timeout MTU Max Frame Size	10.8.0.1 10.8.0.2 BF 20 120	0
	Local IP Remote IP Encrypt Algorithm Keepalive Interval Keepalive Timeout MTU Max Frame Size Private Key Password	10.8.0.1 10.8.0.2 BF ▼ 20 120 1500	0

When "mode" selects "Client", the window displays as follows:

▲ Advanced Settings	
Enable HMAC Firewall	ON OFF
Enable PKCS#12	ON OFF
Enable nsCertType	ON OFF
Expert Options	



When "mode" is selected "Server", the window displays as follows:

▲ Advanced Settings	
Enable HMAC Firewall	ON OFF
Enable Crl	ON OFF
Enable Client To Client	ON OFF
Enable Dup Client	ON OFF
Enable IP Persist	ON OFF
Expert Options	

When "mode" selects "Server" and "authentication mode" selects "X509 certificate and password", the window of "VPN > OpenVPN > OpenVPN"

OpenV	penVPN Status x509		x509					
∧ Tunnel	▲ Tunnel Settings							
Index	Enable	Description	Mode	Protocol	Peer Address	Interface Type	+	
1	true		Server	UDP		TUN	⊠×⊇	
^ Passw	ord Mana	ge						
Index	Usern	ame					+	
∧ Client Manage								
Index	Enable	Common Na	me Clie	nt IP Address			+	

Click user password management + to add a user name and password, as shown below.

∧ General Settings	
Index	1
Username	
Password	

Click client administration + to client information, as shown below.

∧ General Settings	
Index	1
Enable	ON OFF
Common Name	0
Client IP Address	
Route	0
Push Route	



	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".	P2P
TLS Mode	Select from "None", "Client" or "server".	None
Protocol	Select from "UDP", "TCP-Client" or "TCP-Server".	UDP
Peer Address	Enter the end-to-end IP address or the domain of the remote OpenVPN	Null
	server.	4404
Peer Port	Enter the end-to-end listener port or the listener port of the OpenVPN	1194
	server.	
Listen Address	Enter the Listen address	Null
Listen Port	Enter the Listen port	1194
Interface Type	Select from "TUN", "TAP" which are two different kinds of device	TUN
	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.	
Authentication Type	Select from "None", "Preshared", "Password", "X509CA" and "X509CA	None
	Password".	
	Note : "None" and "Preshared" authentication type are only working	
	with P2P mode.	
Enable IP address	Click the toggle button to enable/disable the IP address pool allocation	OFF
pool	function.	011
Initial address	Define the IP address pool start to assign addresses to OpenVPN clients.	10.8.0.5
End address	Defines the end of the IP address pool that assigns addresses to OpenVPN clients.	10.8.0.254
Client network	Enter the IP of Client network.	10.8.0.0
Client network mask	Enter the Client network mask.	255.255.255.0
Local IP	Enter the local virtual IP.	10.8.0.1
Remote IP	Enter the remote virtual IP.	10.8.0.2
Username	Enter the username used for "Password" or "X509CA Password"	Null
	authentication type.	
Password	Enter the password used for "Password" or "X509CA Password"	Null
	authentication type.	-
Encrypt Algorithm	Select from "BF", "DES", "DES-EDE3", "AES128", "AES192" and	BF
	"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 	
Demogratistics	AES256: Use 256-bit AES encryption algorithm in CBC mode	96400
Renegotiation	Set the renegotiation interval. If connection failed, OpenVPN will	86400
Interval	renegotiate when the renegotiation interval reached.	



General Settings @ OpenVPN						
Item	Description	Default				
Max number of clients	Set the maximum number of clients allowed to access the OpenVPN server.	10				
Keepalive Interval	Set keepalive (ping) interval to check if the tunnel is active.	20				
Keepalive Timeout	Keepalive TimeoutSet the keepalive timeout. Trigger OpenVPN restart after n seconds pass without reception of a ping or other packet from remote.					
MTU	Set the maximum transmission unit.	1500				
Data fragmentation	Set the maximum frame length.	Null				
Private Key Password	Enter the private key password under the "X509CA" and "X509CA Password" authentication type.	Null				
Enable Compression	Click the toggle button to enable/disable this option. Enable to compress the data stream of the header.	ON				
Enable default gateway	Click the toggle button to enable/disable the default gateway function. After being enabled, the local tunnel address is pushed as the default gateway of the peer device.	OFF				
Enable NAT	Click the toggle button to enable/disable the NAT option. When enabled, the source IP address of host behind router will be disguised before accessing the remote OpenVPN client.	OFF				
Receive DNS push	Click the toggle button to enable/disable receiving DNS push. After being enabled, it is allowed to receive DNS information pushed by the peer.	OFF				
Verbose Level	 Select the level of the output log and values from 0 to 11. 0: No output except fatal errors 1~4: Normal usage range 5: Output R and W characters to the console for each packet read and write 6~11: Debug info range 	0				
	Advanced Settings @ OpenVPN					
Enable HMAC Firewall	Click the toggle button to enable/disable this option. Add an additional layer of HMAC authentication on top of the TLS control channel to protect against DoS attacks.	OFF				
Enable PKCS#12						
Enable nsCertType	Click the toggle button to enable/disable nsCertType. Require that peer certificate was signed with an explicit nsCertType designation of "server".	OFF				
Enable Crl	Click the toggle button to enable/disable the Crl. Once enabled, the client certificate can be revoked.	OFF				
Enable client to client	Click the toggle button to enable/disable this option. When enabled, clients can communicate with each other.	OFF				



General Settings @ OpenVPN					
Item	Description	Default			
	Click the toggle button to enable/disable the Dup Client. After being				
Enable Dup Client	enabled, the tunnel IPs obtained by multiple clients are different, and	OFF			
Enable Dup Client	the tunnel IP of the client is interconnected with the tunnel IP of the	OFF			
	server.				
Enable IP address	Click the toggle button to enable/disable this option. When enabled, the	ON			
retention	IP in the address pool is automatically obtained.				
Expert Options	Enter some other options of OpenVPN in this field. Each expression can	Null			
	be separated by a ';'.				
	Advanced Settings @User password management				
Username	Enter the username for Custom tunnel connection username.	Null			
Password	Enter the password for Custom tunnel connection password.	Null			
	General Settings @ Client management				
Enable	Click the toggle button to enable/disable this option. After being	OFF			
Endble	enabled, the Client IP address can be managed.	OFF			
Common Name	Click the toggle button to set the certificate name.	Null			
Client IP address	Click the toggle button to set a fixed allocation client virtual IP.	Null			
Router	Set the Client terminal network.	Null			
Push the router	Set the Sever terminal network.	Null			

Status

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

OpenV	PN	Status		x509			
∧ OpenV	/PN Tunnel S	tatus					
Index	Description	Status	Mode	Uptim	e L	ocal IP	
∧ OpenV	∧ OpenVPN Client List						
Index	Co	ommon Name		Virtua	I IP Re	al IP	Port

This section is used to import certificates such as CA.



OpenVPN	Status	x50	9			
∧ X509 Settings	;					7
	Tu	nnel Name	Tunnel :	1 v		
		Mode	Client	v		
		Root CA	Choos	e File No file chos	sen 🛛 🖪	1
	Certi	ficate File	Choos	e File No file chos	sen 🛛 🖬	1
	р	rivate Key	Choos	e File No file chos	sen 🛛 🖬	1
	TLS	-Auth Key	Choos	e File No file chos	sen 🛛 🖬	1
	PKCS#12	Certificate	Choos	e File No file chos	sen 🛛 🖬	1
∧ Certificate File	2 5					
Index Fil	e Name	File Siz	e	Modificati	on Time	

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



4.4.3 GRE

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

GRE

GRE	Status		
∧ Tunnel Setti	ıgs		
Index Enab	le Description	Remote IP Addr	+

Click + to add tunnel settings. The maximum count is 6.

GRE	
∧ Tunnel Settings	
Index	1
Enable	ON OFF
Description	
Remote IP Address	
Local Virtual IP Address	
Local Virtual Netmask	
Remote Virtual IP Address	
Enable Default Route	ON OFF
Enable NAT	ON OFF
Secrets	
Link Binding	Unspecified

Tunnel Settings @ GRE				
Item Description				
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,	OFF		
	all the traffics of the router will go through the GRE VPN.			



Enable NAT	Click the toggle button to enable/disable this option. This option must	OFF
	be enabled when router under NAT environment.	
Secrets	Set the key of the GRE tunnel.	Null
Link binding	Select from "WWAN1", "WAN", or "WLAN".	Not bound

Status

This section allows you to view the GRE tunnel status.

GRE		Status		
∧ GRE ti	unnel sta	tus		
Index	Descript	ion Status	Local IP Address Remote IP Addr	Uptime

4.5 Services

4.5.1 Syslog

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

Syslog		
∧ Syslog Settin	gs	
	Enable	ON OFF
	Syslog Level	Debug
	Save Position	RAM V 🤊
	Log to Remote	

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



Syslog		
∧ Syslog Settin	gs	
	Enable	ON OFF
	Syslog Level	Debug
	Save Position	RAM 🗸 🤊
	Log to Remote	ON OFF 0
	Add Identifier	ON OFF 0
	Remote IP Address	
	Remote Port	514

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



4.5.2 Event

This section allows you to set the event parameters. Event feature provides an ability to send alerts by SNMP and RobustLink when certain system events occur.

Event	Notification	Query	
∧ General Setti	ngs		
	Signal Quality	Threshold 0	

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

Event		Notification	Qu	ery		
∧ Event N	otification	Group Set	tings			
Index	Description	Send SMS	Send Email	DO Cont	trol Save to NVM	+

Click + button to add an Event parameters.

Notification	
∧ General Settings	
Index	1
Description	
Send SMS	ON OFF
Send Email	ON OFF
DO Control	ON OFF
Save to NVM	ON OFF 0

A Event Selection	0
System Startup	ON OFF
System Reboot	ON OFF
System Time Update	ON OFF
Configuration Change	ON OFF
Cellular Network Type Change	ON OFF
Cellular Data Stats Clear	ON OFF
Cellular Data Traffic Overflow	ON OFF
Poor Signal Quality	ON OFF
Link Switching	ON OFF
WAN Up	ON OFF
WAN Down	ON OFF
WLAN Up	ON OFF
WLAN Down	ON OFF
WWAN Up	ON OFF
WWAN Down	ON OFF
IPSec Connection Up	ON OFF
IPSec Connection Down	ON OFF
OpenVPN Connection Up	ON OFF
OpenVPN Connection Down	ON OFF
LAN Port Link Up	ON OFF
LAN Port Link Down	ON OFF
DDNS Update Success	ON OFF
DDNS Update Fail	ON OFF
Received SMS	ON OFF
SMS Command Execute	ON OFF
DI 1 ON	ON OFF
DI 1 OFF	ON OFF
DI 1 Counter Overflow	ON OFF

General Settings @ Notification		
Item	Description	Default
Index	Indicate the ordinal of the list.	
Description	Enter a description for this group.	Null
Sent SMS	Click the toggle button to enable/disable this option. When enabled, the router will	OFF
	send notification to the specified phone numbers via SMS if event occurs.	





Send Email	Click the toggle button to enable/disable this option. When enabled, the router will OFF		
	send notification to the specified email box via Email if event occurs.		
Email Addresses	S Enter the email addresses used for receiving event notification. Use a space to OFF		
	separate each address.		
DO Control	Click the toggle button to enable/disable this option. When enabled, the event	OFF	
	generation router will send to the corresponding DO as a Low/High level.		
Save to NVM	Click the toggle button to enable/disable this option. Enable to save event to	OFF	
	nonvolatile memory.		

In the following window you can query various types of events record. Click Refresh to query filtered events while

click **Clear** to clear the event records in the window.

Event	Notification	Query		
∧ Event Details				
	Save	Position RAM	V	
	, in the second s	Filtering		
Sep 11 19:00:55, LA Sep 11 19:01:06, WW Sep 11 19:01:06, WW Sep 11 19:01:16, sy Sep 11 19:47:25, co Sep 11 19:47:25, co Sep 11 19:47:26, co Sep 11 19:47:26, co Sep 11 19:47:26, co Sep 11 19:47:42, wW Sep 11 19:47:42, wW Sep 11 19:47:42, wW Sep 11 19:48:50, co Sep 11 19:48:50, co Sep 11 19:48:51, WW Sep 11 19:48:52, WW Sep 11 19:49:04, co Sep 11 19:49:05, WW Sep 11 19:59:33, co Sep 11 19:59:36, WI Sep 11 19:59:36, WW Sep 11 19:59:36, WW Sep 11 19:59:36, WW	<pre>vstem startup NN port link down, eth0 NN port link up, eth1 VAN (cellular) up, WWAN1, : vstem time update onfiguration change, link_r onfiguration change, link_r onfiguration change, link_r onfiguration change, via w VAN (cellular) down, WWAN1, : onfiguration change, via w VAN (cellular) down, WWAN1</pre>	ip=10. 189. 43. 25 manager restored to d manager restored to d eb manager manager restored to d eb manager ip=10. 189. 43. 25 eb manager ip=10. 189. 43. 25 eb manager manager restored to d eb manager	lefault after firmware updating lefault after firmware updating lefault after firmware updating lefault after firmware updating	
			Clear	Refresh

Event Details		
Item	Description	Default
Save Position	Select the events' save position from "RAM" or "NVM".	RAM
	RAM: Random-access memory	
	NVM: Non-Volatile Memory	
Filter Message	Event will be filtered according to the Filter Message that the user set. Click the	Null
	"Refresh" button, the filtered event will be displayed in the follow box. Use "&" to	



separate more than one filter message, such as message1&message2.

4.5.3 NTP

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

NTP	Status	
∧ Timezone Set	tings	
	Time Zone	UTC+08:00 V
	Expert Setting	
∧ NTP Client Se	ttings	
	Enable	ON OFF
	Primary NTP Server	pool.ntp.org
	Secondary NTP Server	
	NTP Update Interval	0 ⑦
∧ NTP Server S	ettings	
	Enable	ON OFF

NTP			
Item	Description		
	Timezone Settings		
Time Zone	Click the drop down list to select the time zone you are in. e.g., China:	UTC +08:00	
	UTC+08:00.		
Expert Setting	Specify the time zone with Daylight Saving Time in TZ environment	Null	
	variable format. The Time Zone option will be ignored in this case.		
	NTP Client Settings		
Enable	Click the toggle button to enable/disable this option. Enable to	ON	
	synchronize time with the NTP server.		
Primary NTP Server	Enter primary NTP Server's IP address or domain name.	pool.ntp.org	
Secondary NTP Server	Enter secondary NTP Server's IP address or domain name.	Null	
NTP Update interval	Enter the interval (minutes) which NTP client synchronize the time from	0	
	NTP server. Minutes wait for next update, and 0 means update only		
	once.		
NTP Server Settings			
Enable	Click the toggle button to enable the NTP server option. When enabled,	OFF	
	the NTP client can synchronize with the router in time.		

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



NTP	Status	
∧ Time		
	System Time	2019-09-11 21:06:43
	PC Time	2019-09-11 21:06:47 Sync
	Last Update Time	2019-09-11 19:01:16

4.5.4 SMS

This section allows you to set SMS parameters. Router supports SMS management, and user can control and configure their routers by sending SMS. For more details about SMS control, refer to **5.2.2 SMS Remote Control**.

SMS	SMS Testing	
∧ SMS Management Settings ?		
	Enable	ON OFF
	Authentication Type	Password 🗸 🧿
	Phone Number	

SMS Management Settings		
Item	Description	
Enable	Click the toggle button to enable/disable the SMS Management option.	ON
	Note: If this option is disabled, the SMS configuration is invalid.	
Authentication Type	Select Authentication Type from "Password", "Phone num" or "Both".	Password
	• Password: Use the same username and password as WEB manager for	
	authentication. For example, the format of the SMS should be "username:	
	password; cmd1; cmd2;"	
	Note: Set the WEB manager password in System > User Management	
	section.	
	• Phonenum: Use the Phone number for authenticating, and user should set	
	the Phone Number that is allowed for SMS management. The format of	
	the SMS should be "cmd1; cmd2;"	
	• Both: Use both the "Password" and "Phonenum" for authentication. User	
	should set the Phone Number that is allowed for SMS management. The	
	format of the SMS should be "username: password; cmd1; cmd2;"	
Phone Number	Set the phone number used for SMS management, and use '; 'to separate each Nul	
	number.	
	Note: It can be null when choose "Password" as the authentication type.	



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

SMS	SMS Testing	
∧ SMS Testing		
Phone Number		
Message		
[
Result		
		Send

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

4.5.5 Email

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

Email		
Email Setting	s	
	Enable	ON OFF
	Enable TLS/SSL	ON OFF ?
	Enable STARTTLS	ON OFF
	Outgoing Server	
	Server Port	25
	Timeout	10 🦻
	Auth Login	ON OFF 7
	Username	
	Password	
	From	
	Subject	



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

4.5.6 DDNS

This section allows you to set the DDNS parameters. The Dynamic DNS function allows you to alias a dynamic IP address to a static domain name, allows you whose ISP does not assign them a static IP address to use a domain name. This is especially useful for hosting servers via your connection, so that anyone wishing to connect to you may use your domain name, rather than having to use your dynamic IP address, which changes from time to time. This dynamic IP address is the WAN IP address of the router, which is assigned to you by your ISP. The service provider defaults to "DynDNS", as shown below.

Click **Service > DDNS** to set the parameters related to DDNS. The service provider defaults to DynDNS.

DDNS	Status	
A DDNS Setting	s	
	Enable	ON OFF
	Service Provider	DynDNS
	Hostname	
	Username	
	Password	

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

DDNS	Status	
A DDNS Settings	5	
	Enable	ON OFF
	Service Provider	Custom
	URL	



	DDNS Settings	
Item	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", "3322" or "Custom". Note: the DDNS service only can be used after registered by Corresponding service provider.	DynDNS
Hostname	Enter the hostname provided by the DDNS server.	Null
Username	Enter the username provided by the DDNS server.	Null
Password	Enter the password provided by the DDNS server.	Null
URL	Enter the URL customized by user.	Null

Click "Status" bar to view the status of the DDNS.

DDNS	Status	
∧ DDNS Status		
	Status	Disabled
	Last Update Time	

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

4.5.7 SSH

Router supports SSH password access and secret-key access.

SSH	Keys Management	
∧ SSH Settings		
	Enable	ON OFF
	Port	22
	Disable Password Logins	ON OFF

SSH Settings		
Item	Description	Default
Enable	Click the toggle button to enable/disable this option. When enabled, you can access the router via SSH.	ON
Port	Set the port of the SSH access.	22
Disable Password Logins	Click the toggle button to enable/disable this option. When enabled, you	OFF

	cannot use username and password to access the router via SSH. In this	
	case, only the key can be used for login.	

SSH	Keys Management		
∧ Import Authorized Keys			
	Authorized Keys	Choose File No file chosen	Import

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 router.			

4.5.8 Web Server

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

Web Server	Certificate Management		
∧ General Setti	ngs		
	HTTP Port	80	0
	HTTPS Port	443	7

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

Brobustel



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

Web Server	Certificate Management	
∧ Import Certifi	cate	
	Import Type	CA
	HTTPS Certificate	Choose File No file chosen Import

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

4.5.9 Advanced

This section allows you to set the Advanced and parameters.

System	Reboot			
∧ System Setting	js			
		Device Name	router	0
		User LED Type	None v	7
System	Reboot			
∧ System Setting	js			
		Device Name	router	0
		User LED Type	None v	?
			None SIM NET OpenVPN IPSec WiFi	

System Settings				
Item	Description	Default		
Device Name	Set the device name to distinguish different devices you have installed; valid	router		
	characters are a-z, A-Z, 0-9, @, ., -, #, \$, and *.			
User LED Type	Specify the display type of your USR LED. Select from "None", "OpenVPN" or			
	"IPsec".			
	None: Meaningless indication, and the LED is off			
	SIM:show the sim status.			



OpenVPN: USR indicator showing the OpenVPN status	
IPsec: USR indicator showing the IPsec status	
Note: For more details about USR indicator, see "2.2 LED Indicators".	

System	Reboot	
∧ Periodic Rebo	ot Settings	
	Periodic Reboot	0 ?
	Daily Reboot Time	

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

4.6 System

4.6.1 Debug

This section allows you to check and download the syslog details. Click Service > System Log > System Log Settings to open the system log.

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



^ Syslog	∧ Syslog Files					
Index	File Name	File Size	Modification Time			
1	messages	77945	Wed Sep 11 21:05:59 2019	•		
∧ System	∧ System Diagnostic Data					
System Diagnostic Data Generate						

Syslog				
Item	Description			
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.			
Filtering	Enter the filtering message based on the keywords. Use "&" to separate more than one filter			
	message, such as "keyword1&keyword2".			
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.			
Clear	Click the button to clear the syslog.			
Refresh	Click the button to refresh the syslog.			
Syslog Files				
Syslog Files List	It can show at most 5 syslog files in the list, the files' name range from message0 to message			
	4. And the newest syslog file will be placed on the top of the list.			
System Diagnosing Data				
Generate	Click to generate the syslog diagnosing file.			

4.6.2 Update

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

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

Update					
∧ System Update					
	File	Choose File No file chosen	Update		

4.6.3 App Center

This section allows you to add some required or customized applications to the router. Import and install your applications to the App Center, and reboot the device according to the system prompts. Each installed application will

be displayed under the "Services" menu, while other applications related to VPN will be displayed under the "VPN" menu.

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

App Center	
For m	nore information about App, please refer to http://www.robustel.com/products/app-center/
∧ App Install	
	File Choose File No file chosen Install

Successfully installed apps will be displayed in the following list, click \times to uninstall the app.

∧ Installed Apps					
Index	Name	Version	Status	Description	
1	language_chinese	3.1.0	Stopped	Chinese language	×

App Center				
Item	Description			
	App Install			
File	Click on "Choose File" to locate the App file from your computer, and then click			
	Install to import this file into your router.			
	Note: File format should be xxx.rpk, e.g. R1510-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		



4.6.4 Tools

This section provides users three tools: Ping, Traceroute and Sniffer. The Ping tool is used to detect the network connectivity of the router.

Ping	Traceroute	Sniffer
∧ Ping		
	IP Ac	dress
	Number of Re	quest 5
	Ті	neout 1
	Lo	
		Start Stop

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



Ping	Traceroute Sniff	er
∧ Traceroute		
	Trace Address	
	Trace Hops	30
	Trace Timeout	1
		Start Stop

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

Pin	g Traceroute	Sniffer	r i i
∧ Sniffe	er		
	Pack	Host (tets Request (Protocol ()	all v 1000 All v
∧ Captu Index	ire Files File Name	Status File Size	Start Stop
1	19-09-11_21-18-43.cap	52420	Wed Sep 11 21:18:54 2019



Sniffer				
Item	Description	Default		
Interface	Choose the interface according to your Ethernet configuration.	All		
Host	Filter the packet that contain the specify IP address.	Null		
Packets Request	Set the packet number that the router can sniffer at a time.	1000		
Protocol	Select from "All", "IP", "TCP", "UDP" and "ARP".			
Status	Show the current status of sniffer.			
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			
stop	will be displayed in the following List.			
Capture Files	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			
	Xto delete the log file. It can cache a maximum of 5 files.			

4.6.5 Profile

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

Profile	Rollback	
∧ Import Confi	guration File	
	Reset Other Settings to Default	ON OFF 7
	Ignore Invalid Settings	ON OFF ?
	XML Configuration File	Choose File No file chosen Import
∧ Export Confi	juration File	
	Ignore Disabled Features	ON OFF 7
	Add Detailed Information	ON OFF 😨
	Encrypt Secret Data	ON OFF ?
	XML Configuration File	Generate
∧ Default Configuration		
Save	Running Configuration as Default	Save 🖓
	Restore to Default Configuration	Restore

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



XML Configuration File	Configuration File Click on Choose File to locate the XML configuration file from your				
	computer, and then click Import to import this file into your router.				
	Export Configuration File				
Ignore Disabled Features	Click the toggle button as "ON" 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.	ON			
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	Click this button to save the current running parameters as default				
Configuration as Default	configuration.				
Restore to Default	Click this button to restore the factory defaults.				
Configuration					

Profile	Rollback				
∧ Configuration Rollback					
	Save as a Roll	backable Archive Save	3		
∧ Configuration Archive Files					
Index	File Name	File Size	Modification Time		

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



4.6.6 User Management

This section allows you to change your username and password, and create or manage user accounts. One router 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	Common User	
∧ Super User Se	ttings	0
	New Username	
	Old Password	
	New Password	
	Confirm Password	

Super User Settings		
Item	Description	Default
New Username	Enter a new username you want to create, If you do not want to change	Null
	username, leave it blank. 5-32 characters, valid characters: a-z, A-Z, 0-9, @, #,	
	\$, ., *, !, -	
Old Password	Enter the old password of your router. The default is "admin", 5-32 characters,	Null
	valid characters: a-z, A-Z, 0-9, @, #, \$, ., *, !, -	
New Password	Enter a new password you want to create, 5-32 characters, valid characters:	Null
	a-z, A-Z, 0-9, @, #, \$, ., *, !, -	
Confirm Password	Enter the new password again to confirm.	Null

Super User		Common User	
A Common Us	er Se	ettings	
Index R	ole	Username	+

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

Common User	
∧ Common Users Settings	
Index	1
Role	Visitor
Username	
Password	0



Common User Settings			
Item	Description	Default	
Index	Indicate the ordinal of the list.		
Role	Select from "Visitor" and "Editor". Visitor		
	Visitor: Users only can view the configuration of router under this level		
	Editor: Users can view and set the configuration of router under this level		
Username	Set the Username, 5-32 characters, valid characters: a-z, A-Z, 0-9, @, #, \$, ., *, !, -	Null	
Password	Set the password, 5-32 characters, valid characters: a-z, A-Z, 0-9, @, #, \$, ., *, !, -	Null	



Chapter 5 Configuration Examples

5.1 Cellular

5.1.1 Cellular Dial-Up

This section shows you how to configure the primary and backup SIM card for Cellular Dial-up. Connect the router correctly and insert two SIM, then open the configuration page. Under the homepage menu, click **Interface > Link Manager > Link Manager > General Settings**, choose "WWAN1" as the primary link and "None" as the backup link, then click "Submit".

Link Mar	nager	Status				
∧ Gener	∧ General Settings					
			Primary Link	WWAN1 V 🖓		
			Backup Link	None v		
		Eme	rgency Reboot	ON OFF ?		
^ Link S	∧ Link Settings					
Index	Туре	Description	Connection Ty	ире		
1	WWAN1		DHCP			
2	WAN		DHCP			
3	WLAN		DHCP			

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

∧ General Settings	
Index	1
Туре	WWAN1 Y
Description	
<u>.</u>	
∧ WWAN Settings	
Automatic APN Selection	ON OFF
Dialup Number	*99***1#

Authentication Type	Auto
Switch SIM By Data Allowance	ON OFF 7
Data Allowance	0 🧿
Billing Day	1



Ping Detection Settings		0
Enable	ON OFF	
Primary Server	8.8.8.8]
Secondary Server	114.114.114]
Interval	300	0
Retry Interval	5	0
Timeout	3	0
Max Ping Tries	3	0
 Advanced Settings 		
NAT Enable	ON OFF	
Upload Bandwidth	10000	0
Download Bandwidth	10000	

Download Bandwidth	10000
Overrided Primary DNS	
Overrided Secondary DNS	
Debug Enable	ON OFF
Verbose Debug Enable	ON OFF

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

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

Cellul	ar	Status	AT Debug		
^ Advan	ced Cellula	ar Settings			
Index	SIM Card	Phone Number	Network Type	Band Select Type	
1	SIM1		Auto	All	

Click the right most of edit button *S* of SIM1 to set its parameters according to your application request.



∧ General Settings	
Index	1
SIM Card	SIM1 V
Phone Number	
PIN Code	
Extra AT Cmd	
Telnet Port	0 🧿
∧ Cellular Network Settings	
Network Type	Auto 🗸 🧭
Band Select Type	All v 🥐
 Advanced Settings 	
Debug Enable	ON OFF
Verbose Debug Enable	ON OFF

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

5.1.2 SMS Remote Control

The router supports remote control via SMS. You can use following commands to get the status of the router, and set all the parameters.

There are three authentication types for SMS control. You can select from "Password", "Phonenum" or "Both".

An SMS command has the following structure:

- 1. Password mode—Username:Password;cmd1;cmd2;cmd3;...cmdn (available for every phone number).
- 2. Phonenum mode-- **Password;cmd1;cmd2;cmd3;... cmdn** (available when the SMS was sent from the phone number which had been added in R1510's phone group).
- 3. Both mode-- **Username:Password;cmd1;cmd2;cmd3;...cmdn** (available when the SMS was sent from the phone number).

Note: All command symbols must be entered in the English input half angle mode.

SMS command Explanation:

- 1. Password: The SMS control password defaults to the login password of the super user or the login password of the ordinary user who has read and write permissions.
- 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 6 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**, Select export type as "complete", click Generate to generate the XML file and click Export to export the XML file.



Profile	Rollback					
∧ Import Config	∧ Import Configuration File					
	Reset Other Settings	to Default	ON OFF 7			
	Ignore Inval	id Settings	ON OFF ?			
	XML Configu	ration File	Choose File No file chosen Import			
A Export Config	uration File					
	Ignore Disable	d Features	ON OFF 7			
	Add Detailed In	nformation	ON OFF 7			
	Encrypt S	ecret Data	ON OFF ?			
	XML Configu	ration File	Generate			
∧ Default Configuration						
Save F	Running Configuration	as Default	Save			
	Restore to Default Cor	nfiguration	Restore			

XML command:

<lan>

<network max_entry_num="2"> <id>1</id> <interface>lan0</interface>

<ip>172.16.24.24</ip>

<netmask>255.255.0.0</netmask>

<mtu>1500</mtu>

SMS cmd:

set lan network 1 interface lan0

set lan network 1 ip 172.16.24.24

set lan network 1 netmask 255.255.0.0

set lan network 1 mtu 1500

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

Password mode—admin:admin;status system

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

SMS received:

firmware_version = 3.1.0

firmware_version_full = "3.1.0 (Rev 2781)"

hardware_version = 1.0.2

kernel_version = 4.9.152

device_model = R1510-4L

serial_number = 04870119080031

uptime = "0 days, 00:25:13"

system_time = "Wed Sep 11 13:48:40 2019"



ram_usage = "76M Free/128M Total"

admin:admin;reboot

In this command, username is "admin", password is "admin", and the command is to reboot the R1510 Router. **SMS received:**

ОК

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:

ОК

ОК

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

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

SMS received:

ОК

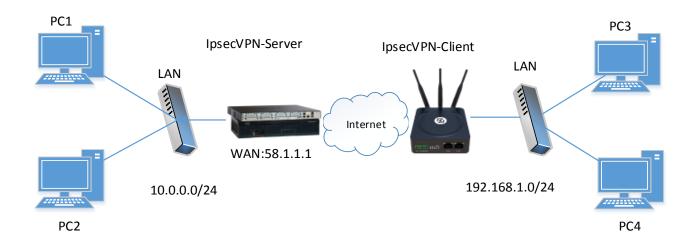
ок ок

ОК

5.2 VPN Configuration Example

5.2.1 IPsec VPN

IPSec VPN sample topology (configuration of Ike and SA parameters of server and client must be consistent):





IPsec VPN_Server:

Cisco 2811:

```
Router>enable
Router#config
Configuring from terminal, memory, or network [terminal]?
Enter configuration commands, one per line. End with CNTL/Z.
Router(config) #crypto isakmp policy 10
Router(config-isakmp)#?
  authentication Set authentication method for protection suite
  encryption
                  Set encryption algorithm for protection suite
                 Exit from ISAKMP protection suite configuration mode
  exit
                  Set the Diffie-Hellman group
  group
  hash
                  Set hash algorithm for protection suite
  lifetime
                  Set lifetime for ISAKMP security association
                  Negate a command or set its defaults
  no
Router(config-isakmp) #encryption 3des
Router(config-isakmp) #hash md5
Router(config-isakmp) #authentication pre-share
Router(config-isakmp)#group 2
Router(config-isakmp)#exit
Router(config) #crypto isakmp ?
  client Set client configuration policy
  enable Enable ISAKMP
  kev
          Set pre-shared key for remote peer
  policy Set policy for an ISAKMP protection suite
Router(config)#crypto isakmp key cisco address 0.0.0.0 0.0.0.0
Router(config) #crypto ?
  dynamic-map Specify a dynamic crypto map template
              Configure IPSEC policy
  ipsec
  isakmp
              Configure ISAKMP policy
              Long term key operations
  kev
              Enter a crypto map
  map
Router(config) #crypto ipsec ?
  security-association Security association parameters
                        Define transform and settings
  transform-set
Router(config)#crypto ipsec transform-set Trans ?
  ah-md5-hmac AH-HMAC-MD5 transform
  ah-sha-hmac AH-HMAC-SHA transform
                ESP transform using 3DES(EDE) cipher (168 bits)
  esp-3des
  esp-aes
                ESP transform using AES cipher
               ESP transform using DES cipher (56 bits)
  esp-des
  esp-md5-hmac ESP transform using HMAC-MD5 auth
  esp-sha-hmac ESP transform using HMAC-SHA auth
Router(config)#crypto ipsec transform-set Trans esp-3des esp-md5-hmac
Router(config) #ip access-list extended vpn
Router(config-ext-nacl) #permit ip 10.0.0.0.0.0.255 192.168.1.0 0.0.0.255
Router(config-ext-nacl) #exit
Router(config)#crypto map cry-map 10 ipsec-isakmp
% NOTE: This new crypto map will remain disabled until a peer
        and a valid access list have been configured.
Router(config-crypto-map)#match address vpn
Router(config-crypto-map) #set transform-set Trans
Router(config-crypto-map) #set peer 202.100.1.1
Router(config-crypto-map) #exit
Router(config) #interface fastEthernet 0/0
Router(config-if) #ip address 58.1.1.1 255.255.255.0
Router(config-if)#cr
Router(config-if)#crypto map cry-map
```

*Jan 3 07:16:26.785: %CRYPTO-6-ISAKMP_ON_OFF: ISAKMP is ON



IPsec VPN_Client:

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

Genera	al	Tunnel	Status	; x 50)9	
∧ Tunnel	Settings					
Index	Enable	Description	Gateway	Local Subnet	Remote Subnet	+

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

∧ General Settings		
Index	1)
Enable	ON OFF	
Description)
Gateway	58.1.1.1) 🤊
Mode	Tunnel v	
Protocol	ESP v	
Local Subnet	192.168.1.0/24) 🤊
Remote Subnet	0.0.0/24) 🤊
Link Binding	Unspecified v	0
∧ IKE Settings		
ІКЕ Туре	IKEv1 v	
Negotiation Mode	Main v	
Encryption Algorithm	3DES V	
Authentication Algorithm	MD5 v	
IKE DH Group	DHgroup2 v	
Authentication Type	PSK v	
PSK Secret	••••]
Local ID Type	Default v	
Remote ID Type	Default v	
IKE Lifetime	86400] 🔊
∧ SA Settings		
Encryption Algorithm	3DES V	
Authentication Algorithm	MD5 V	
PFS Group	DHgroup2 v	
SA Lifetime	28800] 🤊
DPD Interval	30] 🧿
DPD Failures	150	0





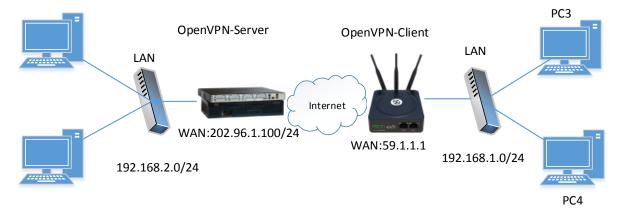
When finished, click **Submit > Save & Apply** for the configuration to take effect.

The comparison between IPec Server and Client is as below.

Router>enable Router#config Server (Cisco 2811)	A General Settings	
Configuring from terminal, memory, or network [terminal]7 Enter configuration commands, one per line. End with CNTL/Z.	Index	1
Router(config)#crypto isakmp policy 10 Router(config-isakmp)#?	Enable	ON ME
authentication Set authentication method for protection suite encryption Set encryption algorithm for protection suite	Description	
exit Exit from ISANOP protection suite configuration mode group Set the Diffie-Sellman group		
hash Set hash algorithm for protection suite lifetime Set lifetime for ISAKNP security association	Gateway	58.1.1.1
no Negate a command or set its defaults	Mode	Tunnel
Router(config-isakmy)#encryption 3des Router(config-isakmp)#hash md5	Protocol	ESP
Router(config-isakmp)#authentication pre-share Router(config-isakmp)#group 2	Local Subnet	192.168.1.0/24 🕜
Router(config=isskmp)fexit Router(config)fcrypto isskmp 7	Remote Subnet	0.0.0/24
client Set client configuration policy enable Enable ISANMP	Link Binding	Unspecified 🛛 😨
key Set pre-shared key for remote peer policy Set policy for an ISANNE protection suite	∧ IKE Settings	
Router(config)#crypto isakmp key cisco address 0.0.0.0 0.0.0.0	IKE Type	IKEV1
Router (config) #crypto ? Router IKE S	ettings should Negotiation Mode	Main
ipsec Configure IPSEC policy	t with service Encryption Algorithm	JDES V
here form here here or an and the second	Authentication Algorithm	MD5
nap Enter a crypto map fees.	IKE DH Group	DHaroup2
security association Security association parameters transform-set Define transform and settings	Authentication Type	PSK
Router(config)#crypto ipsec transform-set Trans ? ah-md5-hmac AN-MGAC-MD5 transform	PSK Secret	
ah-sha-hmac AH-HBAC-SHA transform esp-Sdes ESP transform using SDES(EDE) cipher (168 bits)	Local ID Type	Default
esp-aes ESP transform using AES cipher esp-des ESP transform using DES cipher (56 bits)		Default
esp-md5-hmac ESP transform using HMAC-MD5 auth	Remote ID Type	
Router(config)‡crypto ipsec transform-set Trans esp-3des esp-md5-hmac	IKE Lifetime	86400
Router(config)fip access=list extended vpn	∧ SA Settings	
Router(config-ext-macl)fpermit ip 10.^.0.0 0.0.0.255 192.168.1.0 0.0.0.255 Router(config-ext-macl)fexit	Encryption Algorithm	JDES Y
Router S	A Settings Authentication Algorithm	MD5
second for the set of and a sheet second	e consistent with	DHgroup2
Router(config-orypto-map)fmatch address vpn	SA Lifetime	28800
Router(config-crypto-map)fset transform-set Trans Router(config-crypto-map)fset peer 202.100.1.1 Service f	es. DPD Interval	30 🍞
Router(config-crypto-map)#exit	DPD Failures	150 😨
Router(config)@interface fastSthernet 0/0	Advanced Settings	
Router(config=if)#ip address 50.1.1.1 255.255.255.0 Bouter(config=if)#ip	Enable Compression	ON OFF
Router(config-if)@crypto map cry-map *Jan 3 07:16:26.705: %CRYPTO-6-ISANGE ON OFF: ISANNE is ON	Enable Forceencaps	
	Expert Options	
_		



5.2.2 OpenVPN



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

The configuration of two points is as follows.

OpenVPN_Server:

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

local 202.96.1.100 mode server port 1194 proto udp dev tun tun-mtu 1500 fragment 1500 ca ca.crt cert Server01.crt key Server01.key dh dh1024.pem server 10.8.0.0 255.255.255.0 ifconfig-pool-persist ipp.txt push "route 192.168.3.0 255.255.255.0" client-config-dir ccd route 192.168.1.0 255.255.255.0 keepalive 10 120 cipher BF-CBC comp-lzo max-clients 100 persist-key persist-tun status openvpn-status.log verb 3 Note: For more configuration details, please contact your technical support engineer.



OpenVPN_Client:

Click VPN > OpenVPN > OpenVPN as below.

OpenVPN Status		Status		x509			
∧ Tunnel	Settings						
Index	Enable	Description	Mode	Protocol	Peer Address	Interface Type	+

Click + to configure the Client01 as below.

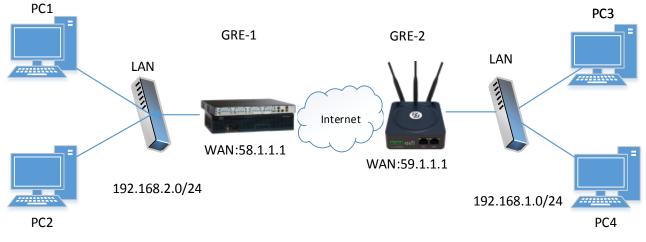
∧ General Settings	
Index	1
Enable	ON OFF
Description	client01
Mode	Client 🤍 🍞
Protocol	UDP
Peer Address	202.96.1.100
Peer Port	1194
Interface Type	TUN
Authentication Type	X509CA 7
Encrypt Algorithm	BF
Renegotiation Interval	86400
Keepalive Interval	20
Keepalive Timeout	120
мти	1500
Max Frame Size	1400
Private Key Password	••••
Enable Compression	ON OFF
Enable NAT	ON OFF
Enable DNS overrid	ON OFF ?
Verbose Level	3 V 🖓
Advanced Settings	
Enable HMAC Firewall	ON OFF
Enable PKCS#12	ON OFF
Enable nsCertType	ON OFF
Expert Options	fragment 1500

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



5.2.3 GRE VPN

GRE VPN example topology:



The configuration of two points is as follows.

GRE-1:

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

GRE		Status	
∧ Tunnel	Settings		
Index	Enable	Description Rer	note IP Address +

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

∧ Tunnel Settings	
Index	1
Enable	ON OFF
Description	GRE-1
Remote IP Address	59.1.1.1
Local Virtual IP Address	10.8.0.1
Local Virtual Netmask	255.255.255.0
Remote Virtual IP Address	10.8.0.2
Enable Default Route	ON OFF
Enable NAT	ON OFF
Secrets	•••••
Link Binding	Unspecified v

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



GRE-2:

Click + button and set the parameters of GRE-2 as below.

∧ Tunnel Settings	
Index	1
Enable	ON OFF
Description	GRE-2
Remote IP Address	58.1.1.1
Local Virtual IP Address	10.8.0.2
Local Virtual Netmask	255.255.255.0
Remote Virtual IP Address	10.8.0.1
Enable Default Route	ON OFF
Enable NAT	ON OFF
Secrets	•••••
Link Binding	Unspecified v

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

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

Tunnel Settings GRE-1		∧ Tunnel Settings	GRE-2
Index	1	Index	
Enable		RE-1 real public network Enable	GRE-2 real public network IP address
Description	GRE-1	address Description	GRE-2
Remote IP Address	59.1.1.1	Remote IP Address	GRE-2 real tunnrl
Local Virtual IP Address	10.8.0.1	GRE-1 real tunnrl _{Local Virtual IP Address} IP address	10.8.0.2 IP address
Local Virtual Netmask	255.255.255.0	Local Virtual Netmask	255.255.255.0
Remote Virtual IP Address	10.8.0.2	SRE-2 real tunnrl Remote Virtual IP Address	GRE-1 real tunnrl
Enable Default Route	ON OFF	IP address Enable Default Route	ON OFF
Enable NAT	OFF	Enable NAT	USE the same
Secrets		USE the same password Secrets	password
Link Binding	Unspecified v	for GRE-1 and GER-2 Link Binding	Unspecified v for GRE-1 and GER-2



Chapter 6 Introductions for CLI

6.1 What Is CLI

The Command Line Interface (CLI) is a set of software interfaces that provide another way to configure device parameters. Users can connect to the router through SSH or telnet to configure CLI commands. After establishing a Telnet or SSH connection with the router, enter the login account and password (default admin/admin) to enter the router's configuration mode, as shown below.

```
router login: admin
Password:
                   Comments
  add
                   Add a list entry of configuration
  clear
                   Clear statistics
                  Configuration operation
  config
  debug
                   Output debug information to the console
                  Delete a list entry of configuration
  de1
  exit
                  Exit from the CLI
                  Display an overview of the CLI syntax
Download OpenVPN certificate file via http or ftp
  help
  ovpn_cert_get
  ping
                   Send messages to network hosts
  reboot
                   Halt and perform a cold restart
                   Set system configuration
  set
                   Show system configuration
  show
                   Show running system information
  status
                   Update firmware or configuration file using tftp
  tftpupdate
  traceroute
                   Print the route packets trace to network host
                  Trigger action
Update firmware via http or ftp
  trigger
  ur lüpdate
                   show version of firmware
  ver
```

#

Router login:

Router login: admin

Password: admin

#

CLI commands:

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

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



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



6.2 How to Configure the CLI

Following is a table about the description of help and the error should be encountered in the con	figuring program.
---	-------------------

Commands /tips	Description	
?	Typing a question mark "?" will show you the help information.	
	Example:	
	# config (Tick '?')	
	config Configuration operation	
	# config (Tick the space key+'?')	
	commit Save the configuration changes and take effect	
	changed configuration	
	save_and_apply Save the configuration changes and take effect	
	changed configuration	
	loaddefault Restore Factory Configuration	
Ctrl+c	Tick 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	Command is not completed.	
completed		
Tick space key+ Tab key	It can help you finish your currently incomplete commands.	
	Example:	
	# config (tick Enter key)	
	Syntax error: The command is not completed	
	# config (tick space key+ Tab key)	
	commit save_and_apply loaddefault	
<pre># config save_and_apply /</pre>	When your setting finished, you should enter those commands to make	
#config commit	your setting take effect on the device.	
	Note: Commit and save_and_apply plays the same role.	

6.3 Commands Reference

Commands	Syntax Description	
Debug	Debug parameters	enable on or disenable the debug function
Show	Show parameters	Show current configuration of each function
Set	Set parameters	All the function parameters are set by commands set and add, the
Add	Add parameters	difference is that set is for the single parameter and add is for the list
		parameter

Note: More detail about CLI command, please refer to "Command Line Interface Guide".



6.4 Quick Start with Configuration ExampleS

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

Example 1: Show current version

```
# status system
firmware_version = 3.1.0
firmware_version_full = "3.1.0 (Rev 2781)"
hardware_version = 1.0.1
kernel_version = 4.9.152
device_model = R1510S
serial_number = 04870119080026
uptime = "0 days, 00:45:43"
system_time = "Sun Jan 1 00:45:21 2017 (NTP not updated)"
ram_usage = "78M Free/128M Total
```

Example 2: Update firmware via tftp

tftpupdate (space+?) firmware New firmware New configuration file config # tftpupdate firmware (space+?) filename New file # tftpupdate firmware filename R1510-firmware-sysupgrade-unknown.ruf host 192.168.100.99 // enter a new firmware name Downloading Download success. Upgrading //update success Upgrade success. # reboot //make you configuration effect after reboot Rebooting... OK

Example 3: Set link-manager

# set	
# set (space+?)	
cellular	Cellular
ddns	DDNS
dido	DIDO
email	Email



ethernet	Ethernet	
event	Event Management	
firewall	Firewall	
gre	GRE	
ip_passthrough	IP Passthrough	
ipsec	IPSec	
lan	Local Area Network	
link_manager	Link Manager	
ntp	NTP	
openvpn	OpenVPN	
reboot	Automatic Reboot	
route	Route	
sms	SMS	
ssh	SSH	
syslog	Syslog	
system	System	
user_management	User Management	
web_server	Web Server	
wifi	WiFi AP	
<pre># set link_manager (s</pre>	space+?)	
primary_link	Primary Link	
backup_link	Backup Link	
backup_mode	BackSup Mode	
revert_interval	Revert Interval	
emergency_reboot	Emergency Reboot	
link	Link Settings	
<pre># set link_manager pri</pre>		
•	(wwan1/wan/wlan)	
<pre># set link_manager pri</pre>	mary_link wwan1	<pre>//select "wwan1" as primary link</pre>
ОК		//setting succeed
<pre>#set link_manager link</pre>		
type	Туре	
desc	Description	
connection_type	Connection Type	
wwan	WWAN Settings	
static_addr	Static Address Settings	
pppoe	PPPoE Settings	
ping	Ping Settings	
nat_enable	NAT Enable	
mtu	MTU	
weight	Weight	
upload_bandwidth	Upload Bandwidth	
download_bandwid		
dns1_overrided	Overrided Primary DNS	
dns2_overrided	Overrided Secondary DNS	



debug_enable	Debug Enable	
verbose_debug_enable	Verbose Debug Enable	
# set link_manager link 1 typ	e wwan1	
ОК		
# set link_manager link 1 ww	van (space+?)	
auto_apn	Automatic APN Selection	
apn	APN	
username	Username	
password	Password	
dialup_number	Dialup Number	
auth_type	Authentication Type	
data_allowance	Data Allowance	
billing_day	Billing Day	
# set link_manager link 1 ww	an data_allowance 100	//open cellular switch_by_data_traffic
ОК		//setting succeed
# set link_manager link 1 ww	an billing_day 1	<pre>//setting specifies the day of month for billing</pre>
ОК		//setting succeed
<pre># config save_and_apply</pre>		
ОК	//save and apply cu	rrent configuration, make you configuration effect

Example 4: Set Ethernet

# set Ethernet port_setting 2 port_assigned	nment lan0	//Set Table 2 (eth1) to lan0
ОК		
<pre># config save_and_apply</pre>	//save and apply current cor	nfiguration, make you configuration effect
ОК		

Example 5: Set LAN IP address

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



```
netmask = 255.255.255.0
         gateway = ""
         primary_dns = ""
         secondary_dns = ""
         wins_server = ""
         lease_time = 120
         static_lease = ""
         expert_options = ""
         debug_enable = false
    }
    vlan_id = 0
}
#
# set lan
  network
                  Network Settings
  multi_ip
             Multiple IP Address Settings
  vlan
                  VLAN
# set lan network 1(space+?)
  interface Interface
              IP Address
  ip
  netmask
              Netmask
              MTU
  mtu
  dhcp
              DHCP Settings
  Vlan id
              VLAN ID
# set lan network 1 interface lan0
ОК
# set lan network 1 ip 172.16.24.24
                                                  // set IP address for lan
ОК
                                                 // setting succeed
# set lan network 1 netmask 255.255.0.0
OK
#
...
# config save_and_apply
ОК
                                          // save and apply current configuration, make you configuration effect
```

Example 6: CLI for setting Cellular

```
# show cellular all
sim {
    id = 1
    card = sim1
    phone_number = ""
    pin_code = ""
    extra_at_cmd = ""
    telnet_port = 0
```



network_type = auto band_select_type = all band_settings { gsm_850 = false gsm_900 = false gsm_1800 = false gsm_1900 = false wcdma_800 = false wcdma_850 = false wcdma_900 = false wcdma_1900 = false wcdma_2100 = false wcdma_1700 = false wcdma_band19 = false lte_band1 = false lte_band2 = false Ite_band3 = false lte_band4 = false lte_band5 = false lte_band7 = false Ite_band8 = false Ite band13 = false Ite_band17 = false lte_band18 = false lte_band19 = false lte_band20 = false lte_band21 = false lte_band25 = false Ite_band28 = false lte_band31 = false Ite_band38 = false Ite_band39 = false Ite band40 = false lte_band41 = false } telit_band_settings { gsm_band = 900_and_1800 wcdma band = 1900 } debug_enable = true verbose_debug_enable = false } # set(space+space) cellular ddns dido firewall event gre lan l2tp link_manager

```
email ethernet
ip_passthrough ipsec
ntp openvpn
```

RT_UG_R1510_v.1.0.1



configuration eff

••••	ngs (space+?)	route user_manage	ement	sms web_server	ssh wifi
# set cellular sim	1(space+?)				
card	9	SIM Card			
phone_numbe	er l	Phone Number			
pin_code	F	PIN Code			
extra_at_cmd	E	Extra AT Cmd			
telnet_port	Т	Telnet Port			
network_type	1	Network Type			
band_select_t	ype E	Band Select Type			
band_settings	E	Band Settings			
telit_band_set	tings I	Band Settings			
debug_enable		Debug Enable			
verbose_debu		Verbose Debug Ena			
# set cellular sim	1 phone_nu	mber 18620435279			
ОК					
<pre># config save_an</pre>	d_apply				
ОК			//save	and apply current	configuration, make you



Glossary

Abbr.	Description
AC	Alternating Current
APN	Access Point Name of GPRS Service Provider Network
ASCII	American Standard Code for Information Interchange
CE	Conformité Européene (European Conformity)
СНАР	Challenge Handshake Authentication Protocol
CLI	Command Line Interface for batch scripting
CSD	Circuit Switched Data
CTS	Clear to Send
dB	Decibel
dBi	Decibel Relative to an Isotropic radiator
DC	Direct Current
DCD	Data Carrier Detect
DCE	Data Communication Equipment (typically modems)
DCS 1800	Digital Cellular System, also referred to as PCN
DI	Digital Input
DO	Digital Output
DSR	Data Set Ready
DTE	Data Terminal Equipment
DTMF	Dual Tone Multi-frequency
DTR	Data Terminal Ready
EDGE	Enhanced Data rates for Global Evolution of GSM and IS-136
EMC	Electromagnetic Compatibility
EMI	Electro-Magnetic Interference
ESD	Electrostatic Discharges
ETSI	European Telecommunications Standards Institute
EDGE	Enhanced Data rates for Global Evolution of GSM and IS-136
FDD LTE	Frequency Division Duplexing Long Term Evolution
GND	Ground
GPRS	General Packet Radio Service
GRE	generic route encapsulation
GSM	Global System for Mobile Communications
HSPA	High Speed Packet Access
ID	identification data
IMEI	International Mobile Equipment Identification
IP	Internet Protocol
IPSec	Internet Protocol Security
kbps	kbits per second
L2TP	Layer 2 Tunneling Protocol



Abbr.	Description
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
РРР	Point-to-point Protocol
РРТР	Point to Point Tunneling Protocol
PSU	Power Supply Unit
PUK	Personal Unblocking Key
R&TTE	Radio and Telecommunication Terminal Equipment
RF	Radio Frequency
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
Тх	Transmit Direction
UART	Universal Asynchronous Receiver-transmitter
UMTS	Universal Mobile Telecommunications System
USB	Universal Serial Bus
USSD	Unstructured Supplementary Service Data
VDC	Volts Direct Current
VLAN	Virtual Local Area Network
VPN	Virtual Private Network
VSWR	Voltage Stationary Wave Ratio



Abbr.	Description
WAN	Wide Area Network

Guangzhou Robustel LTD

Address:	3rd Floor, Building F, Kehui Park, No.95 Daguan Road,
	Guangzhou, China 510660
Tel:	86-20-29019902
Email:	info@robustel.com