



# Installation and Configuration

## Quick Guide

### R3000 Lite - Dual SIM Industrial Cellular VPN Router

#### Packing List

Before installing the R3000 Lite router, please verify the kit contents as following:

- 1 x Robustel R3000 Lite Industrial Dual SIM Cellular VPN Router
- 1 x Terminal block for power
- 1 x *Quick Start Guide* with download link of other documents or tools

#### Optional Accessories

- AC/DC power supply adapter
- Rubber/magnet SMA cellular antenna for HSPA+/LTE
- Serial cable (DB9 female connector switches to DB9 male connector)
- 35 mm DIN rail mounting kit or wall mounting kit

\*If any of the above items is missing or damaged, please contact your Robustel Sales Representative.

#### Environmental Requirements

Power input: 6 to 26 VDC

Power consumption: 100 mA@12 V in idle state, 400 mA (peak) @12 V in communication state

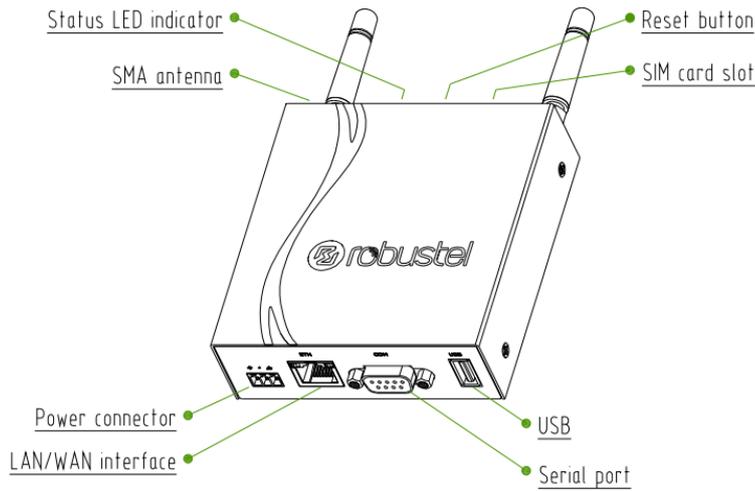
Operating temperature: -40 °C to 85 °C (R3000-L3E supports -20 °C to 75 °C)

Relative humidity: 5% to 95% RH

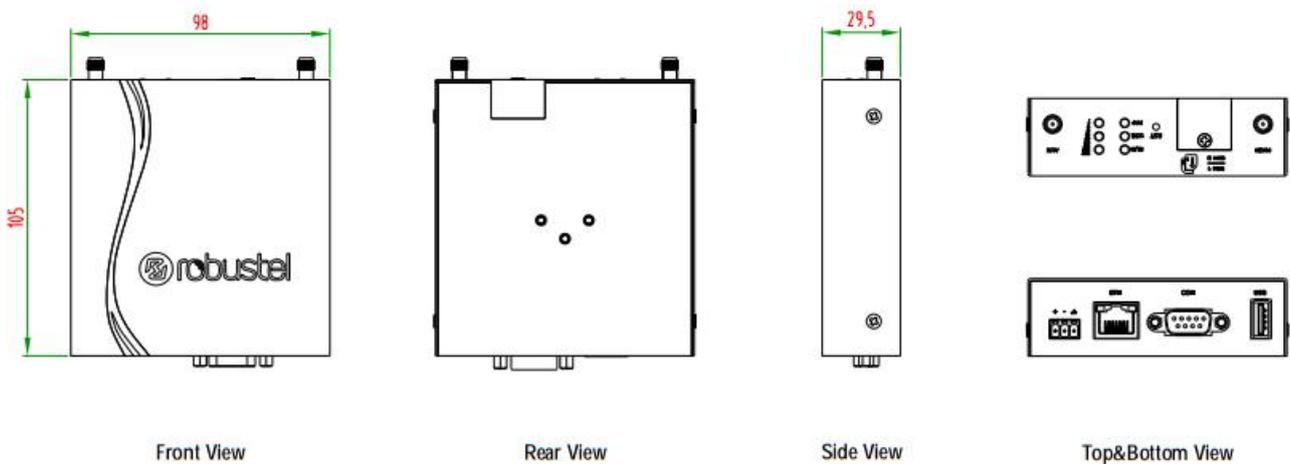
# Chapter 1 Hardware Introduction

## 1.1 Overview

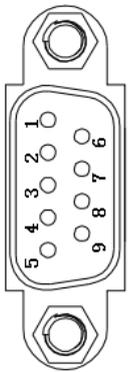
As shown in the following figure, the R3000 Lite router has an Ethernet port (LAN interface), a DB9 serial port (supports for RS232 and RS485), two cellular SIM card slots and two cellular antenna interfaces.



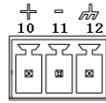
## 1.2 Dimensions



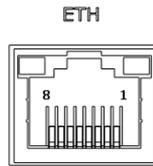
### 1.3 Pinouts



PIN	Debug	RS232	RS485 (2-wire)
1	CR		Data+ (A)
2	CT	RXD	
3		TXD	
4	DRXD		
5	GND	GND	
6			Data- (B)
7		RTS	
8		CTS	
9	DTXD		



PIN	Polarity
10	Positive polarity
11	Negative polarity
12	GND



PIN	Function
1	TX+
2	TX-
3	RX+
6	RX-

### 1.4 LEDs

LED Name	Color	State	Description
RUN	Green	On, solid	Router is booting
		On, blinking	Router is ready
		Off	Router is powered off
USR	Green	On, solid/blinking	VPN tunnel/PPPoE/DynDNS is on
		Off	VPN tunnel/PPPoE/DynDNS is off
PPP	Green	On, solid	PPP connection is enabled
		On, blinking	There is dataflow
		Off	PPP connection is disabled

RSSI LED	Description
None	No signal or no SIM card inserted correctly
1 bar (only the first LED is on)	Signal level: 1-10 (Abnormal signal level)
2 bar (the first and the second LED are on)	Signal level: 11-20 (Average signal level)
3 bar (all the RSSI LEDs are on)	Signal level: 21-31 (Optimum signal level)

## 1.5 Reset Button

Function	Operation
Reboot	Press the button for at least 5 seconds in operating status
Restore to factory default settings	After powering up the router, press the RST button by a small non-conductive stick with a blunt end in about 60 seconds until all three LEDs (RUN, PPP, USR) on the left side blinking 5 times simultaneously. Then the router will be restored to factory default settings

## 1.6 Ethernet Port

The Ethernet port has two LED indicators. The yellow one is Link Indicator and the green one is Speed Indicator. Each indicator has three status, for details see the table below:

Indicator	State	Description
Link Indicator	On	Connection is enabled
	On, blinking	Data is being transmitted
	Off	Connection is disabled
Speed Indicator	On	100 Mbps mode
	Off	10 Mbps mode

## Chapter 2 Hardware Installation

### 2.1 Installation for the SIM Card

- **Remove slot cover**

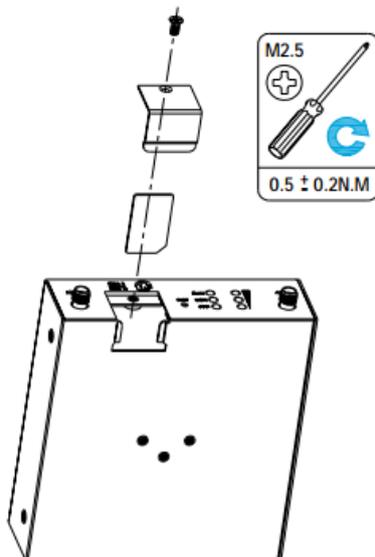
1. Make sure router is powered off.
2. To remove cover, loosen the screws associated with the cover by using a screwdriver and then find the SIM card slot.

- **Insert SIM card**

3. To insert SIM card, press the card with fingers until snap on and then tighten the screws associated with the cover by using a screwdriver.

- **Remove SIM card**

4. Make sure router is powered off.
5. To remove SIM card, press the card with fingers until pop out and then take out the SIM card.



**Note:**

1. Use the specific M2M SIM card when the device is working in extreme temperature, because the regular SIM card for long-time working in harsh environment will be disconnected frequently.
2. Do not forget to twist the cover tightly to avoid being stolen.
3. Do not touch the metal of the SIM card surface in case information in the card will lost or be destroyed.
4. Do not bend or scratch the SIM card.
5. Keep the SIM card away from electricity and magnetism.
6. Make sure router is powered off before inserting or removing the SIM card.

## 2.2 Connection for the External Antenna (SMA Type)

Connect the SMA external antenna connector to the router’s antenna interface and twist tightly. Make sure the antenna is within the correct frequency range provided by the operator and with 50 Ohm impedance.

**Note:** Recommended torque for mounting is 0.35 N.m.

## 2.3 Grounding the Router

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

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

## 2.4 Connect the Router to PC

Connect the router’s Ethernet port to a PC through a standard crossed network cable.

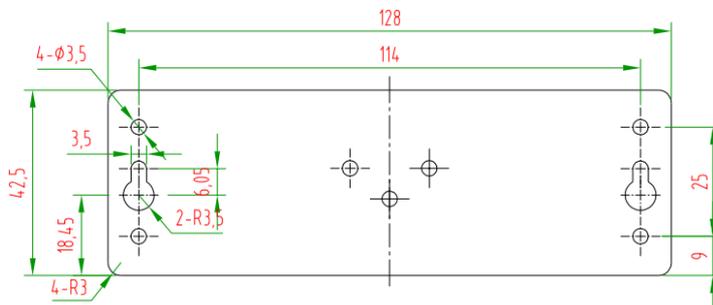
## 2.5 Mounting the Router

R3000 Lite router supports for horizontal surface placement, DIN rail mounting and wall mounting.

### Two methods for mounting the router

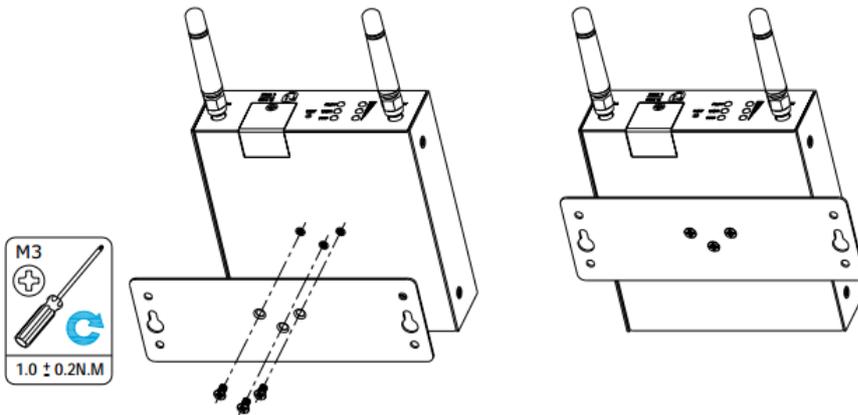
- **Wall mounting**

Wall mounting kit size (unit: mm):



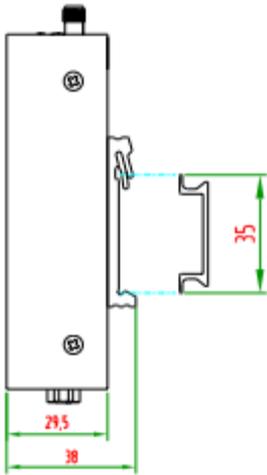
Use 3 pcs of M3\*4 countersunk phillips screws to fix the router on the wall mounting kit, and then use 2 pcs of M3 drywall screws to mount the router associated with the wall mounting kit on the wall.

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



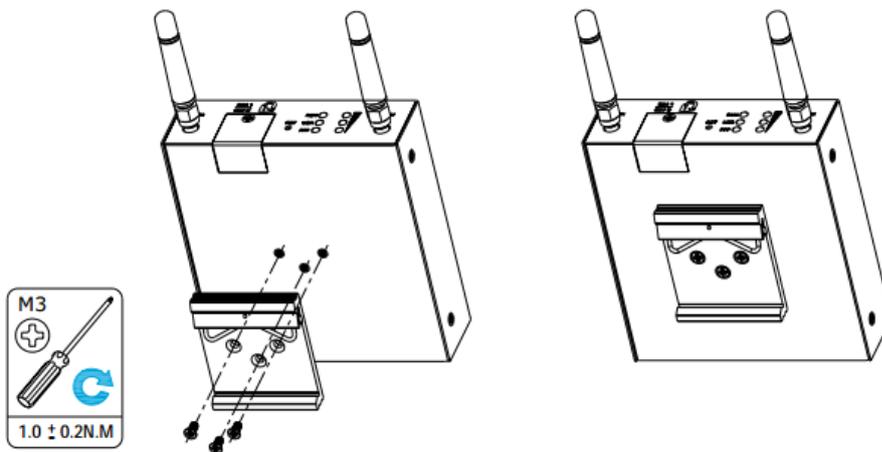
- **DIN rail mounting**

DIN rail size (unit: mm):



Use 3 pcs of M3\*4 countersunk phillips screws to fix the router on the DIN rail, and then hang the DIN rail on the bracket. It is necessary to choose the standard bracket.

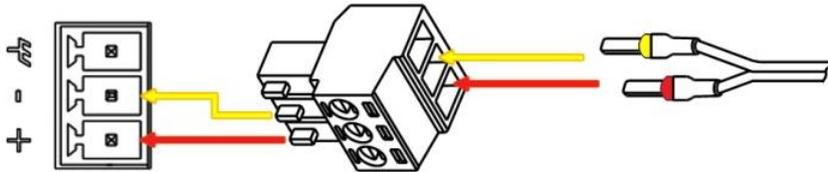
**Note:** Recommended torque for mounting is 1.0 N.m, and the maximum allowed is 1.2 N.m.



## 2.6 Power Supply

### CONNECTING THE POWER CABLE

COLOR	POLARITY
RED	+
YELLOW	-



R3000 Lite 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 6 to 26 VDC.

## Chapter 3 Webpage Configuration

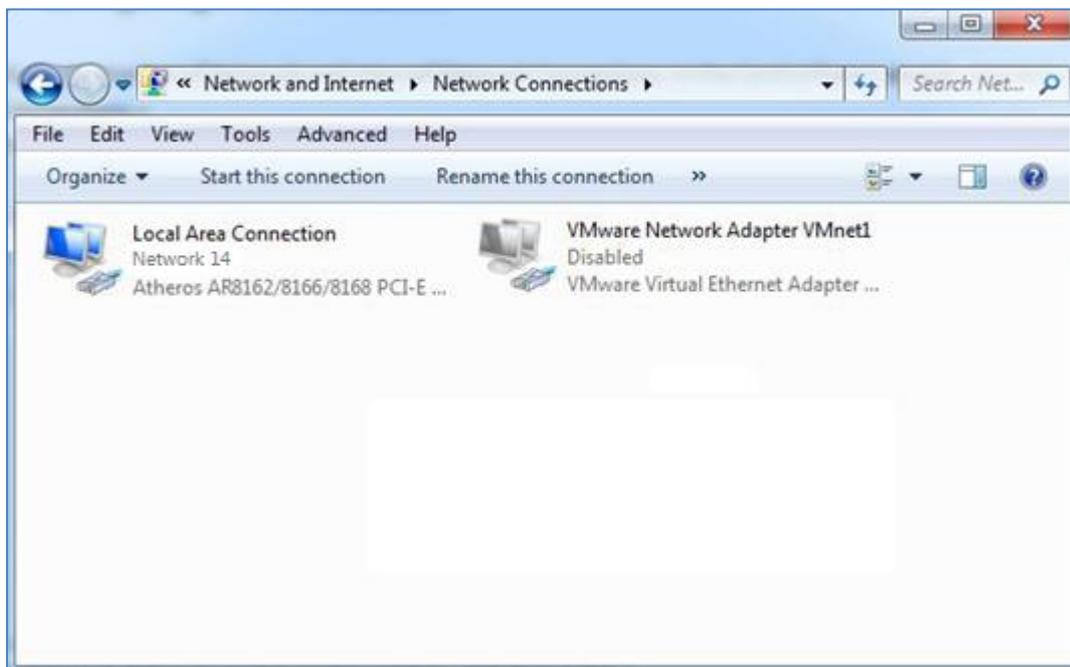
The router can be configured through web browser including IE 8.0 or above, Chrome and Firefox, etc. And the supported operating systems are: Linux, Mac OS, Windows 98/NT/2000/XP/Me/Vista/7/8, etc. There are various ways to connect to the router, either through an external repeater/hub or to PC directly. When the router connects to the PC's Ethernet port directly, and if the router works as the DHCP server, then the PC can obtain IP from router directly; or the PC can be configured with a static IP address in the same network segment with the router, and then the PC and the router will form a small local area network. After the connection has been established successfully, enter the device's default login address in the browser and access the router's web login interface.

### 3.1 Configuration for the PC

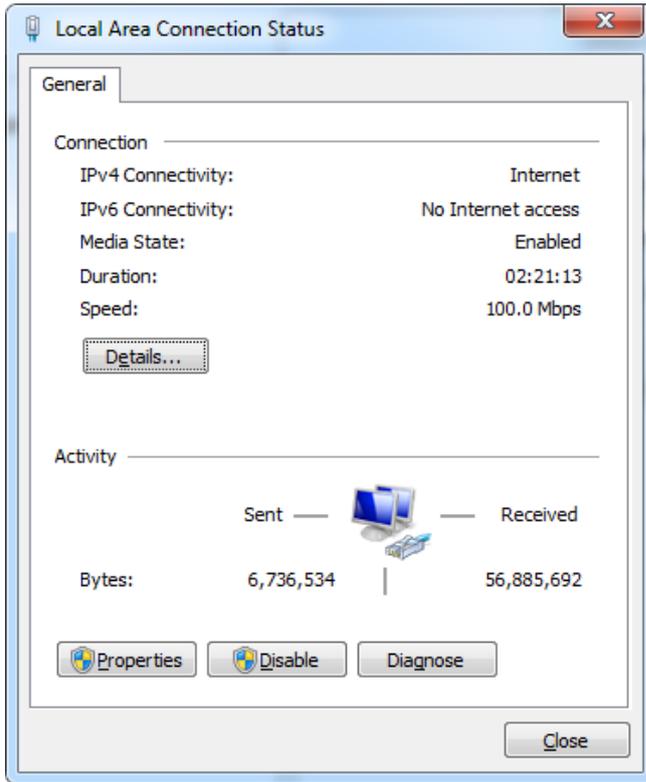
There are two methods to configure the IP address on PC, one is to obtain an IP address automatically from Local Area Connection, and another is to configure a static IP address manually within the same subnet of R3000 Lite router. Please refer to the steps below:

#### **Window 7 System** (the configuration for Windows system is similar)

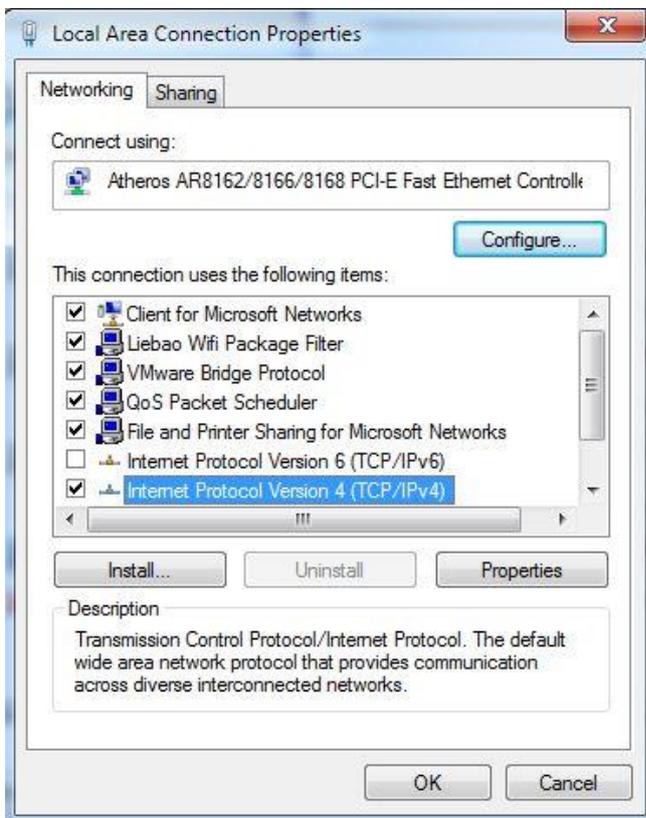
1. Click **Start > Control panel** (in classic view), double-click **Network and Sharing Center**, and then double-click **Local Area Connection**.



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

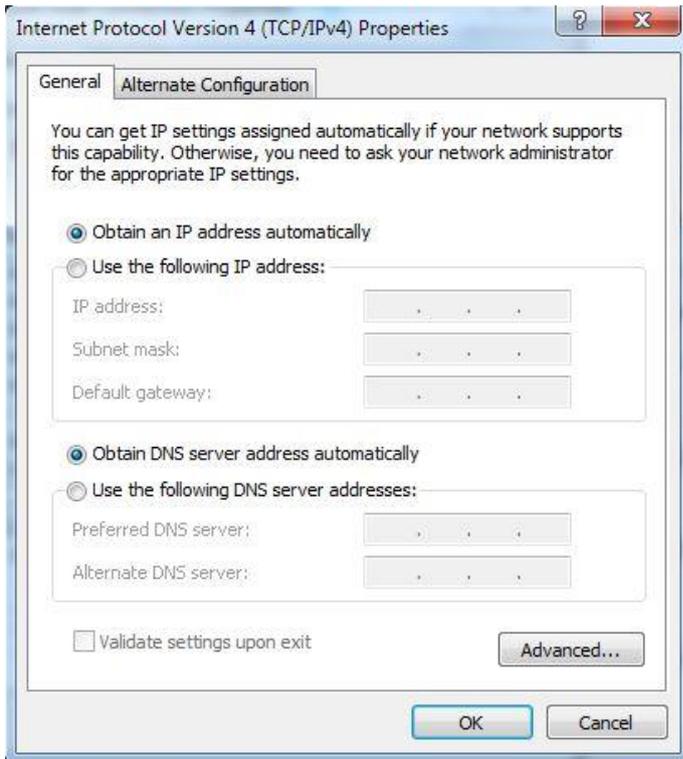


3. Choose **Internet Protocol Version 4 (TCP/IPv4)** and click **Properties**.

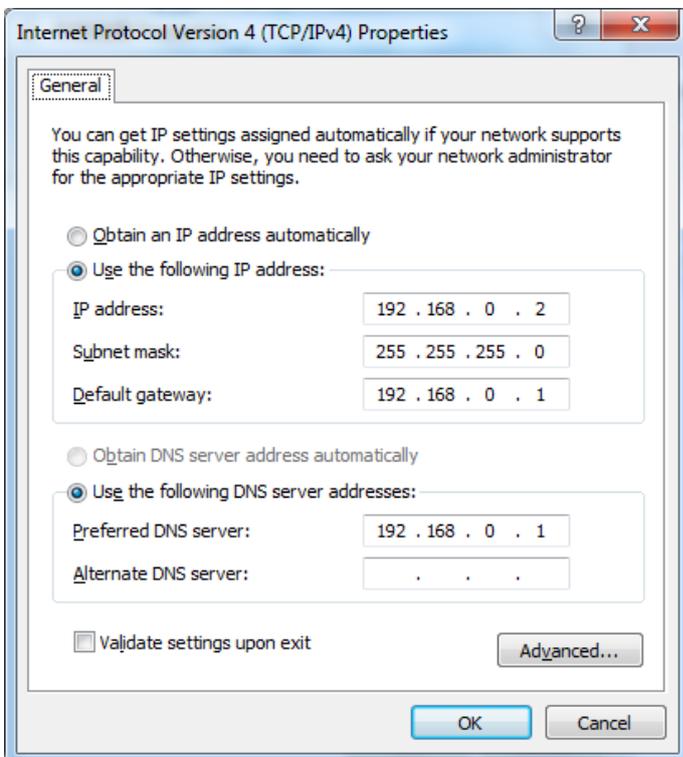


4. Two ways for configuring the IP address of PC

**Obtain an IP address automatically:**



**Use the following IP address** (configured a static IP address manually within the same subnet of R3000 Lite router):



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

### 3.2 Logging in the Router

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

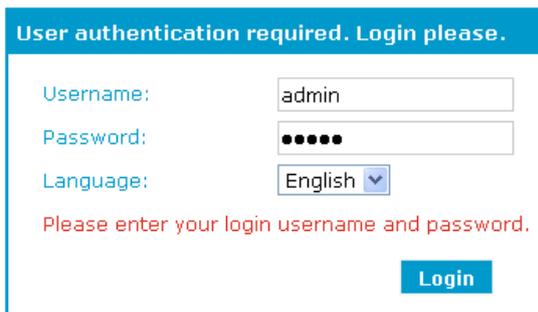
Item	Description
Username	admin
Password	admin
Ethernet	192.168.0.1/255.255.255.0, LAN mode
DHCP Server	Enabled

#### Access the router’s web interface

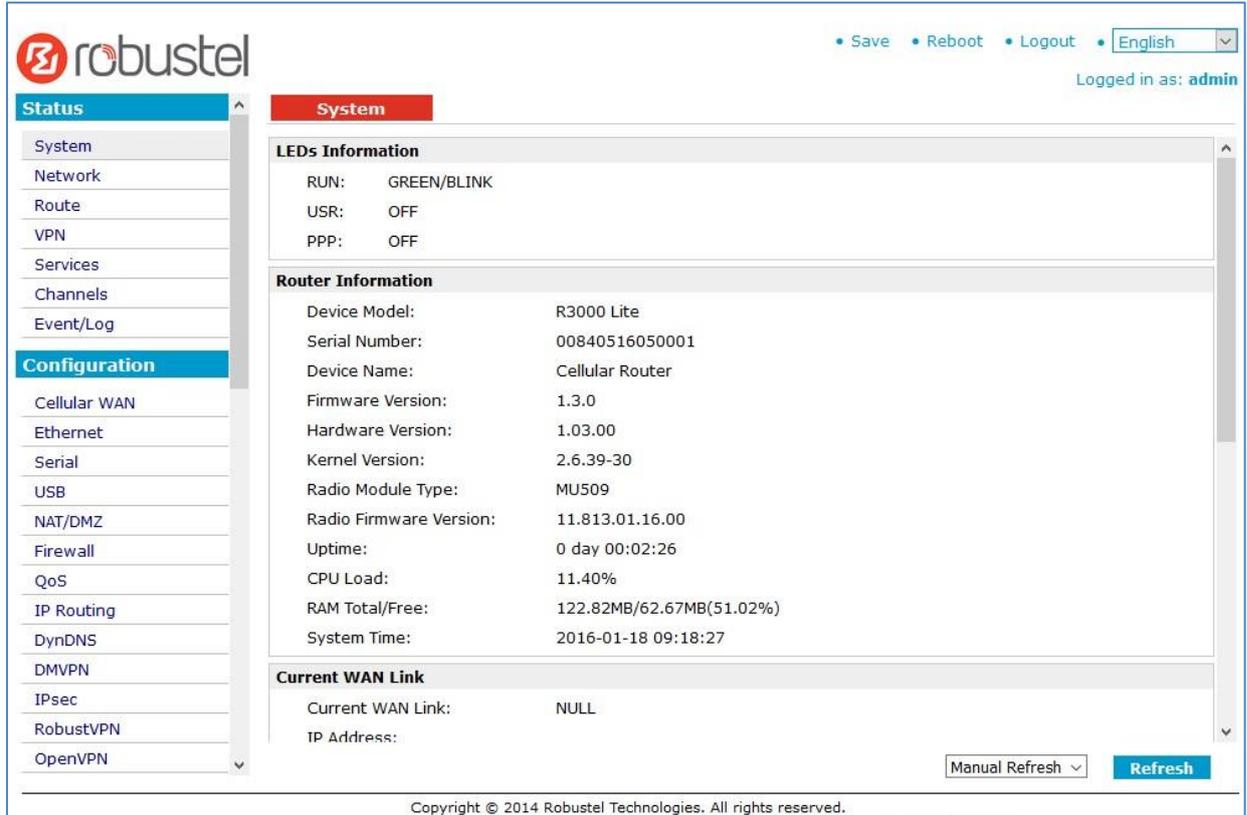
1. On the PC, open a web browser such as Internet Explorer, Google and Firefox etc.
2. From your web browser, enter the IP address of the router. The default IP address of R3000 Lite is 192.168.0.1, though the actual address may vary.  
**Note:** If a public SIM card is inserted in the R3000 Lite router, you can enter the corresponding public IP address of the SIM card in the browser’s address bar, so that to access the R3000 Lite router wirelessly by this public IP.



3. In the login page, enter the username and password of R3000 Lite router, choose language and then click **Login**.



4. The home page of the R3000 Lite router’s web interface is displayed. For example:

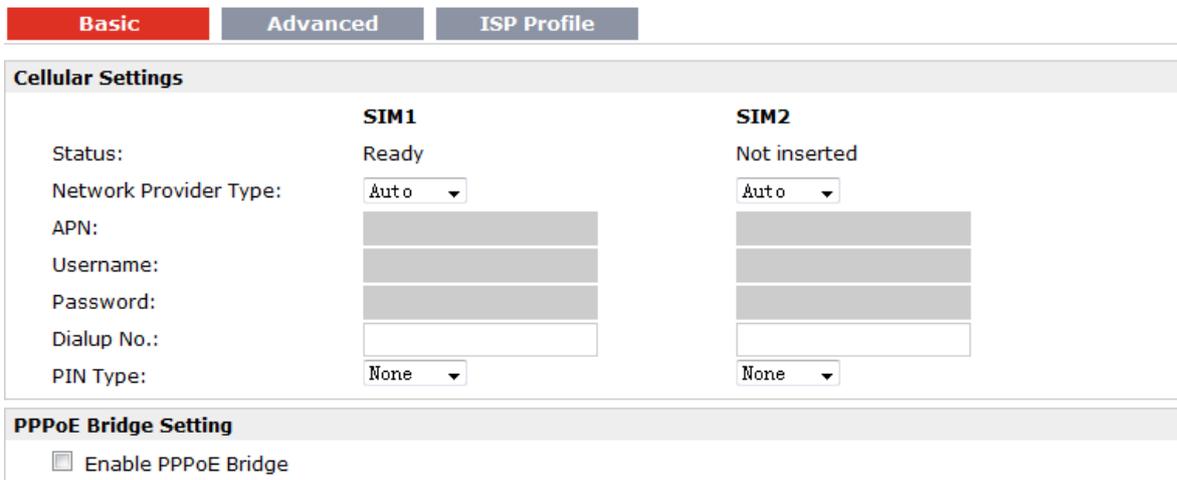


**Note:** To configure parameters should follow this order **modify parameter 1 > Apply > modify parameter 2 > Apply > Save > Reboot.**

### 3.3 Configuration for the Connection Parameters

#### Configuration > Cellular WAN > Basic > Cellular Settings

Select **Network Provider Type** as **Auto** or **Custom** (The default is **Auto** and doesn’t need to configure. The special network type or special application can choose the **Custom**). When using the private network SIM card or specific SIM card, it needs to choose the **Custom** and enter the parameters such as access point, username, password and outgoing call etc.



### 3.4 Check the Cellular Connection Status

**Status > System > Current WAN Link**

Check the cellular connection information and confirm whether the Router has obtained the IP address. If the router has obtained the IP address, it means it is connected to the cellular network.

Current WAN Link	
Current WAN Link:	Cellular
IP Address:	10.137.24.100
Gateway:	192.168.254.254
NetMask:	255.255.255.255
DNS Server:	210.21.4.130, 221.5.88.88
Keepalive PING IP Address:	8.8.8.8, 8.8.4.4
Keepalive PING Interval:	30

### 3.5 Configuration for the IP of LAN

The default Ethernet IP address of R3000 Lite router is 192.168.0.1. There are two methods for configuring the IP addresses of the router, webpage configuration and CLI command configuration. Here mainly introduces the webpage configuration method.

**Configure LAN**

**Configuration > Ethernet > Eth 0 > LAN Interface**

Enter the parameters such as IP address, the subnet mask etc. And click **Apply > Save > Reboot** to make the configuration take effect.

Eth0
VLAN
DHCP Relay

**LAN Interface**

IP Address:	<input style="width: 90%;" type="text" value="172.16.99.9"/>
NetMask:	<input style="width: 90%;" type="text" value="255.255.0.0"/>
MTU:	<input style="width: 90%;" type="text" value="1500"/>
Media Type:	<input style="width: 90%;" type="text" value="Auto-negotiation"/>

**Multiple IP Address**

<input style="width: 95%;" type="text" value="IP Address"/>	<input style="width: 95%;" type="text" value="NetMask"/>
<input style="width: 50px;" type="button" value="Add"/>	

## Chapter 4 FAQ

### 1. The Eth LED indicator is off when connected the PC to the R3000 Lite router via Ethernet cable.

- 1) Check whether the device is powered on;
- 2) Check the cable connection;
- 3) Change another Ethernet cable for testing;
- 4) Change another PC for testing to confirm whether the NIC has problems;
- 5) If possible, change another R3000 Lite for testing to confirm whether the current R3000 Lite works.

### 2. Connected to the R3000 Lite router successfully and obtained the IP address automatically, but failed to login the webpage.

- 1) Check whether the LED green light of the current connected port is on. If not it means the cable connection has problems.
- 2) Check whether another DHCP server or host occupies the IP address within the same LAN and causes IP conflict. If yes, connect the R3000 Lite router to the PC directly to modify the IP address pool of DHCP.
- 3) Please confirm whether the DHCP function has been closed factitiously if this is not the first use of this R3000 Lite router. If yes, configure the IP address of the PC's LAN interface manually to make the R3000 Lite router and the PC can access each other in the same LAN; or restore to the factory default settings of the R3000 Lite router via the Reset button.
- 4) Check the firewall of the R3000 Lite router to confirm whether the access is restricted or the HTTP protocol is closed. Please restart the firewall.

### 3. What to do if I forgot the IP address of the R3000 Lite router?

- 1) Connect the R3000 Lite router's serial port to the PC; open the CLI command interface on PC, and then use the "show" command to check the IP address of the Ethernet port.
- 2) Press and hold down the RST button in about 1 minute to restore to the factory default settings of R3000 Lite, and then enter "192.168.0.1" in the webpage.