Robustel GoRugged R3000
Dual SIM Industrial Cellular VPN Router
For GPRS/EDGE/UMTS/HSPA/LTE Networks

Frequently Asked Questions

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About This Document
This document describes Frequently Asked Question about the Robustel R3000 Dual SIM Industrial Cellular VPN Router.

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Author
Jiang Xin, Technical Support Engineer

Technical Support Contact Information
Tel: +86-020-23354618
Fax: +86-020-82321505
E-mail: support@robustel.com
Web: www.robustel.com
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1. Even connects to R3000’s LAN port directly, the web GUI of R3000 still inaccessible?

A:

1) Check if the power supply has been plugged in.
2) Check if the Ethernet cable connects tightly.
3) Check if the status of the LAN port’s link indicator (yellow) is normal: bright or blinking.
4) Try another Ethernet cable in case of the Ethernet cable broken.
5) Try another R3000 Ethernet port (Except R3000Lite).
6) Please enable DHCP client on the PC. Check if PC has been assigned an IP address from R3000. Then access to R3000 via the gateway IP. See below:

7) If this unit of R3000 is not used at the first time, the DHCP server function might be disabled. In this situation, please configure PC’s IP address manually in order to connect R3000. Or please restore the router back to factory default by press the RST button for 60s.
8) Access to the CLI interface of R3000 via console port in order to check the IP address. Below is the console cable wiring diagram.
9) Test the hardware interface status on web page in path “Administration-> Tools-> Test”. If display failure, please copy the detail message and send to Robustel Technical support team.
(In default situation, if nothing inserts to USB, SD, SIM1&2, it will display failure.)

Note: If the problem still not able to fix, please feel free to contact Robustel Technical support team.

2. How can I get the router’s IP address in case of lost?

A:

1) Please login R3000’s CLI management via the console port. Then enter the show interface to read the Ethernet interfaces’ information. Please refer to question 1.8).
2) Press the “RST” button for one minute to restore the router to factory default configuration, then login the IP: “192.168.0.1”.

3) If above advises still can’t solve your problems, Robustel technical support team will serve you wholeheartedly.

3. **What is the default settings of console port?**

A:

The default settings are 115200bps, 8, N, 1. Please refer to the below picture.

![Serial Port Configuration](image)

4. **How to restore the router back to factory default?**

A:

There are 3 ways to restore the router to factory default configuration:

1) Login router’s web management, turn to page Administration->Profile, then click “Restore to Factory Default Settings”.

2) Login router’s CLI management via Console/SSH/Telnet, and then enter `load default` to restore. See below.

![Console Command](image)

3) Pressing the “RST” button for 60 seconds once you power on the router until all the three LEDs at the left side (RUN, PPP, USR) blink at the same time for 5 times.
5. How to handle PPP connection always failure?

A:

1) Check if router can detect SIM card correctly. *(Path in Web: Administration -> Tools -> Test)*

<table>
<thead>
<tr>
<th>Ping</th>
<th>AT Debug</th>
<th>Traceroute</th>
<th>Sniffer</th>
<th>Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td>SD Test</td>
<td>USB Test</td>
<td>Flash Test</td>
<td>Memory Test</td>
<td>Ethernet Test</td>
</tr>
<tr>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>✔</td>
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<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>

2) Check if the SIM card’s data service has been activated, or deactivated because of arrear.

3) Check if the antenna has been installed properly. Normally the antenna should be installed on MAIN connector. (MAIN connector is using to receive and send data via cellular network. AUX connector is using to enhance the reception of Cellular data.)

4) Check if the RSSI is less than or equal to 15db (-87dbm). If yes, please exchange other high-gain antenna or attach one more antenna on AUX connector.

5) Try other ISP SIM card. If it can dialup successful, it means the previous SIM card may get some problem.

6) If this is a private APN SIM card, and only could be used in private network, in order to prevent PPP connection failures caused by the ICMP detection default settings, we should change the settings *(The path in web: Configuration -> Link-management)*

   a) Please set the primary & secondary DNS server with the IP which is accessible for this SIM.
b) Please disable the Reset the interface function. In order to keep the device running even though the ICMP detection fail. If the solution a has done, please keep the reset the Interface.

7) Check if this SIM card should dialup with APN setting. Also please confirm that the APN settings are correct or not. *(The Path In Web: Configuration-> Cellular WAN-> Basic-> Cellular Settings)*
8) Check if the connection mode is Always Online. If it is in Connect On Demand mode, R3000 will not dialup automatically until some conditions triggered.

*The Path In Web: Configuration-> Cellular WAN-> Basic-> Connection Mode*

9) Check if the router information is complete. If the serial number and module type are lost. Please feel free to contact technical support team to solve it.

*The Path In Web: Status-> system-> Router Information*

6. What kinds of WAN connection modes does R3000 support?
A:

R3000 supports 3 kinds of WAN connection modes: Ethernet0, Cellular and Wi-Fi. Each of them can be the backup connection of another.

7. Why my router always reboot automatically?

A:

1) Check if the router’s power input voltage is in the normal range. For R3000 series, it must be higher than 9 VDC. If lower, the router might reboot.

   Note:
   
   **R3000 Standard/Quad/Null input voltage is 9 to 60 VDC.**
   **R3000 Lite input voltage is 9 to 26VDC.**

2) Due to the R3000 will always reset if ICMP detection fail. So please check if you have enabled “Reset the interface” in the ICMP detection”. If yes, please make sure the WAN connection is available and the ICMP detection server is reachable. Or you can disable the “ICMP Detection” function (leave ICMP Detection Server null).

   *(The Path in Web: Configuration-> Link Management)*

   ![Link Management](image)

   **Link Management Settings**

<table>
<thead>
<tr>
<th>Settings</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Interface:</td>
<td>Eth0</td>
</tr>
<tr>
<td>Backup Interface:</td>
<td>None</td>
</tr>
<tr>
<td>ICMP Detection Primary Server:</td>
<td>8.8.8.8</td>
</tr>
<tr>
<td>ICMP Detection Secondary Server:</td>
<td>8.8.4.4</td>
</tr>
<tr>
<td>ICMP Detection Interval (s):</td>
<td>30</td>
</tr>
<tr>
<td>ICMP Detection Timeout (s):</td>
<td>3</td>
</tr>
<tr>
<td>ICMP Detection Retries:</td>
<td>3</td>
</tr>
<tr>
<td>Reset The Interface</td>
<td>✓</td>
</tr>
</tbody>
</table>

   *It is recommended to use an ICMP detection server to keep router always online.*
   *The ICMP detection increases the reliability and also cost data traffic.*
   *DNS example: Google DNS Server 8.8.8.8 and 8.8.4.4*

3) Check if the RST button has been pressed or not. Please open the R3000’s housing, then check again.

4) If above advises can’t solve your problems, Robustel technical support team will serve you wholeheartedly.
8. The installation location of R3000 has 3G/4G coverage, but why my router always register to 2G network?

A:

1) Check if the SIM’s 3G/4G data service have been activated.
2) If 3G/4G signal level is much lower than 2G, router will register to 2G network automatically.
3) Please confirm the antenna supports 3G/4G frequencies or change another high gain antenna.
4) Lock the router works under in certain network and even in specific band. 
   (The Path In Web: Configuration-> Cellular WAN-> Advanced-> Network Type)

Network Type:

<table>
<thead>
<tr>
<th>Cellular Advanced Settings</th>
<th>SIM1</th>
<th>SIM2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phone No.:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Network Type:</td>
<td>Auto</td>
<td>Auto</td>
</tr>
<tr>
<td>Band Mode:</td>
<td>Auto</td>
<td>ALL</td>
</tr>
<tr>
<td>Authentication:</td>
<td>2G GT</td>
<td>ALL</td>
</tr>
<tr>
<td>MTU:</td>
<td>1500</td>
<td>1500</td>
</tr>
<tr>
<td>MRU:</td>
<td>1500</td>
<td>1600</td>
</tr>
</tbody>
</table>

Band Mode:

<table>
<thead>
<tr>
<th>Cellular Advanced Settings</th>
<th>SIM1</th>
<th>SIM2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phone No.:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Network Type:</td>
<td>Auto</td>
<td>Auto</td>
</tr>
<tr>
<td>Band Mode:</td>
<td>ALL</td>
<td>ALL</td>
</tr>
<tr>
<td>Authentication:</td>
<td>UMTS 2100</td>
<td>UMTS 850/1900</td>
</tr>
<tr>
<td>MTU:</td>
<td>1600</td>
<td>1600</td>
</tr>
<tr>
<td>MRU:</td>
<td>1600</td>
<td>1600</td>
</tr>
<tr>
<td>Asyncmap Value:</td>
<td>ffffff</td>
<td>ffffff</td>
</tr>
</tbody>
</table>

9. Does R3000 support multiple IP address?

A: Yes, users can add multiple IP addresses for LAN port. The max count is 5.
10. **DynDNS service is enabled, but the domain name still unreachable?**

   A:
   
   1) Confirm the IP address router obtained is public IP and reachable.
   2) Login the relevant DDNS server, and check if the IP address has been updated.
   3) Sometimes DDNS service don’t available in some area, so please confirm that in your site.
   4) In some free DDNS, even it shows update successful, it still takes some time to register the IP.

11. **SMS/Call Reboot function has been enabled, but still cannot trigger router to reboot via SMS/Call?**

   A:
   
   1) Check if this R3000 router supports SMS/Call control. R3000-Wireline cannot support this function.
   2) Confirm if SIM card supports SMS/Call service.
   3) Check if the phone number in Phone Book is correct.
4) Check if the SMS content completely comply the SMS Reboot password preset.

5) Check if the trigger commands are correct or not.
   a) If the R3000 is in the Connect On Demand mode, please check if the SMS commands are correct and phone group has been set.
   Phone group: *(The Path In Web: Configuration-> Phone Group)*

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

*2. In some countries, only can send/receive SMS without International code for the number.*
b) Check if the SMS control is enabled. After enable the SMS control, then users can use the SMS code to control the R3000. The users have input the password, please input the SMS code with password.

For example, refer to above settings, the SMS command format should be 123:0001 (Password:Code).

6) Check if you have saved the configuration successfully and rebooted the device to take effect.

12. About R3000’s Firewall setting, what is the priorities for the rules of “Default Filter Policy”, “Filter List” and “MAC-Binding”?

A:

The order of priority of these 3 rules ---- Filter List > MAC-Binding > Default Filter Policy.
13. After enable the TCP protocol and confirm the status of TCP is connected, why the data transmission is still abnormal and would get the messy code?

A:

1) Check if the Band rate is correct. Our device band rate is 11500.
2) Confirm that the parameters of Serial port are consistent with the connecting serial devices.
3) Confirm whether the connection line you used is correct. The following wiring diagrams are shown for the RS232 and RS485.

![RS232 Diagram](image)
![RS485 Diagram](image)

14. What is the limitation of Digital Input and Digital Output?

A:

1) Confirm the input voltage is not higher than \( V_{\text{power in max}} + 5V \).
2) Confirm the external relay is not higher than current 300mA, the voltage is not higher than 30V.
3) The following connection diagram is shown for Digital Input and Digital Output.

![Digital Input](image)
![Digital Output](image)
15. After enable the GPS positioning, the position is not accurate.

A:
   1) Please put the GPS antenna to open ground, because buildings, trees will weaken the signal.
   2) GPS positioning error within 50m is in normal range.

16. Enable the NAT (port forwarding) in R3000, redirect to one host in LAN side. The external hosts could reach the WAN port of R3000, but could not access the host on LAN side with specified port.

A:
   1) Confirm the host in LAN side has static IP address.
   2) Confirm the R3000 is reachable from the host on LAN side. “Administration->Tools->Ping” the host IP address.
   3) Confirm the host behind R3000 has set the default gateway to R3000’s LAN IP.
   4) Check if the host behind R3000 firewalls are turn off in order to access.
   5) Check if it is port conflict caused by port occupation.
   6) Check if the configuration page of NAT is configured correctly.

17. How many kinds of VPN do R3000 support, and how many tunnels of each VPN.

A: R3000 support 5 kinds VPN, the max VPN tunnels supported as below

<table>
<thead>
<tr>
<th>Type</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPsec VPN</td>
<td>6</td>
</tr>
<tr>
<td>Open VPN</td>
<td>Client: 3 / Server: 5</td>
</tr>
<tr>
<td>GRE Tunnel</td>
<td>3</td>
</tr>
<tr>
<td>L2TP VPN</td>
<td>Client: 3 / Server: 5</td>
</tr>
<tr>
<td>PPTP VPN</td>
<td>Client: 3 / Server: 5</td>
</tr>
<tr>
<td>L2TP over IPsec</td>
<td>3</td>
</tr>
<tr>
<td>GRE over IPsec</td>
<td>3</td>
</tr>
<tr>
<td>DMVPN</td>
<td>1</td>
</tr>
</tbody>
</table>
18. After enable IPsec VPN, then save and reboot the Router, but still failed to establish VPN tunnel.

A:

1) Confirm the remote server address is reachable. Ping server address on R3000.

   *(The Path in Web: Administration-> Tools-> Ping)*

   ![Ping interface](image1)

2) If your R3000 works behind the router of a network area, please confirm you have already ticked the NAT-Traversal.

   ![NAT-Traversal](image2)

3) Ensure the VPN parameters between R3000 and remote server are matched.

4) Check if port UDP 4500 or UDP 500 were blocked by the network/firewall. These two ports are used for IKE Phase I negotiation.

5) Check if the R3000’s clock is synchronized with server
19. The status indicates IPsec VPN is established, but still unable to communicate with the hosts behind Router.

A:

1) IPsec VPN could solve the LAN to LAN communication. After established IPsec VPN, please confirm both ends matched VPN interested flow. (Remote Subnet)

![IPsec Tunnel](image)

2) Confirm the ends in LAN side have the default gateway to each Router’s LAN IP address.

Note:

Interested flow is that we define in Local Subnet and remote Subnet option. Only IP packets with matched Source IP address and destination IP address would go through VPN tunnel. E.g source IP address of 192.168.0.0/24 To 172.16.0.0/16 would forward to VPN tunnel.
20. Having enabled GRE tunnel, but still fail to communicate between two LAN side.

A:

1) Confirm the two Routers have the public IP address (or special VPN address). Because GRE need to use the public IP address to encapsulate the packet.

2) Confirm the virtual GRE IP address of R3000 is in the same subnet with remote Router’s.

![GRE Configuration](image)

3) Confirm that R3000 has a route to remote subnet. Check the routing table on “Status->Route”.

![Routing Table](image)
21. Having enabled PPTP server in R3000, but the client still fail to connect with R3000.

A:

1) Confirm the IP address of R3000 WAN port is reachable. By ping.
2) Check if you have ticked “Enable MPPE” option in PPTP server. If yes, please select MS-CHAP-1/2 in Authentication mode.

![PPTP Server Settings]

22. Why the R3000 fail to connect RobustLink?

A:

1) Check if the server-side program is running correctly.
2) Check if the RobustLink settings in R3000 are consistent with RobustLink server, including IP address, Port and Password.

*(The Path In Web: Configuration-> Portal)*

![Portal Settings]
23. Why fail to establish OpenVPN?

A:

1) Check the network connectivity between client and server via ping. (Administration-> Tools-> Ping)
2) Check if the OpenVPN settings are correct.
3) Check if the R3000’s clock is Synchronous. *(The Path In Web: Administration-> Clock)*

*Synchronize the time manually, or Set the local time zone and enable the NTP client in order to synchronize the clock automatically.*

4) Check if the certificates of X.509 had been imported to the respective correct positions.
   - For Server:
24. Why R3000 fail to connect with RobustVPN?

A:

1) Check the network connection between R3000 and RobustVPN by ping.
2) Check if the parameters are correct. *(The Path In Web: Configuration->RobustVPN)*

![RobustVPN Connection Settings](image)
3) Check if the R3000’s clock is synchronized with server..

- Real Time Clock Settings
  - Real Time Clock: 2016-07-08 17:16:39
  - PC Time: 2016-07-08 17:16:39
  - Synchronize

- Timezone Setting
  - Timezone: UTC+08:00 China, HK, Western Australia, Singapore, Taiwan, Russia

- NTP Settings
  - Enable NTP Client
  - Primary NTP Server: pool.ntp.org
  - Secondary NTP Server:
  - Update Interval (h): 1
  - Enable NTP Server

*Synchronize the time manually, or Set the local time zone and enable the NTP client in order to synchronize the clock automatically.

4) Check whether the firewall has been closed or not.

25. How to download diagnose file Which is necessary before ask Robustel support team for assistance?

A: Please refer to the below picture. *(The Path In Web: Status->Event/Log-> Download diagnosing system data)*
26. How do I upgrade/down upgrade the firmware?

A:

1) To update firmware via web page. Please refer to the screenshot below.  
   *(The Path In Web: Administration-> Update-> Update Firmware)*

![Firmware Update Screenshot]

2) Using USB flash disk to update firmware. Please refer to application note: *Upgrade firmware and configuration file via USB*

27. How to add user to configuration Web?

A:

Logging the web configuration page of R3000, then add user in the path: *(Administration—>User Management—>Common)*. Please refer to the screenshot below.

![User Management Screenshot]

28. How to export and import XML configuration file?

A:

Import: Please import XML configuration file via web page, USB flash or RobustLink

Export: Please export XML configuration file via web page.

Please refer to the below screenshots to import or export XML configuration file on web page.
Import:

Export:
29. What are the correct steps to upgrade the firmware version to latest?

A:

1) Please check the current firmware version via web page or console first.
2) If the firmware version is older than 1.01.18, please update firmware to version 1.01.18 first, and then update firmware from v1.01.18 to the latest version.
3) If the firmware version is newer than 1.01.18, please update firmware to the latest version directly.
4) Regarding the firmware, please ask for the download link from Robustel Technical support team.

Note:
If the firmware version is too old, such as Version 1.01.00-sub-20131016, please update the firmware to Version R3000-1.01.01 first, then to Version R3000-1.01.18, finally to the latest version.

30. How to check the network connectivity of R3000?

A:

Please refer to the below picture to check the network connectivity via the Ping tool.
31. How to confirm whether the device has been registered to the 4G network?

A: Please check the “Network Service Type” as the below picture.  
(Status->System->Cellular Information)

![Network Service Type](image)

32. PC is connected to the LAN port of R3000, and R3000 can ping the PC, but not vice versa. How to solve the problem?

A: 
1) Please check the firewall basic of R3000. (The Path In Web: Configuration->Firewall->Basic)
2) Please check if there is a firewall in between block the ping.

33. Which firmware version is compatible with RobustLink 2.0 and RobustVPN?

A: 
RobustLink2.0: V1.02.00 or above.  
RobustVPN: V1.2.2 or above
34. There is a certain function missed on the web GUI?

A:

It might be the Browser’s cache or the unsupported browser blocked the options. Please try below advices:
1) Clear your browser cache.
2) Change another browser (Firefox, Chrome are suggested.)

35. Why the signal level is still low after mounting an external antenna on R3000?

A:

This issue possible caused by the Cellular coverage and Antenna.
1) Check if the local Cellular signal strength is strong enough.
2) Check whether the qualified antennas are mounted to the MAIN and AUX Connectors correctly.

36. The timer on the web page keeps counting without a prompt to restart when upgrading the firmware.

A:

The Browsers’ cache may cause this issue. Please refer to below advices.
1) Please upgrade the firmware again.
2) Use another browser.
3) Clear the cache and cookies of your browsers (Firefox and Chrome are suggested.)

37. What is the usage of USB interface on R3000?

A:

1) To upgrade the firmware of R3000.
2) To import the configuration file (.xml) to R3000.

38. Why can R3000 be accessed using HTTP, but cannot be accessed using telnet?

A:

1) Please check the configuration of firewall. Whether the item that remote access using telnet is enabled. *(The Path In Web: Configuration-> Firewall-> Basic)*
2) Please check whether the port numbered 23 is available in the PC.
39. Does R3000 support SDK? What is the specification about the ROM for programming?

A:
Yes, only the latest ROS based R3000 products support SDK. The old operation system’s SDK is no longer in maintain.

40. What is the CPU, Flash, RAM of each R3000 model?

A:
Please see below table:

<table>
<thead>
<tr>
<th>Device Model</th>
<th>CPU</th>
<th>Flash</th>
<th>RAM</th>
</tr>
</thead>
<tbody>
<tr>
<td>R3000 Standard</td>
<td>ATMEL AT91SAM9X25-CU, ARM926: 400MHz</td>
<td>256MB(2Gbit)</td>
<td>128MB(1Gbit)</td>
</tr>
<tr>
<td>R3000 Quad</td>
<td>ATMEL AT91SAM9X25-CU, ARM926: 400MHz</td>
<td>256MB(2Gbit)</td>
<td>128MB(1Gbit)</td>
</tr>
<tr>
<td>R3000 Lite</td>
<td>ATMEL AT91SAM9X25-CU, ARM926: 400MHz</td>
<td>256MB(2Gbit)</td>
<td>128MB(1Gbit)</td>
</tr>
</tbody>
</table>

41. Does R3000’s SNTP could synchronize the time of LAN device?

A:
Yes, R3000 supports both NTP server and client.
*(The Path In Web: Administration-> Clock-> NTP Settings)*
1) NTP server should be enabled so that LAN device (NTP Client) could synchronize the time with R3000.
42. What is the power consumption of R3000? (Max and Min)

A:
Idle: 100mA@12V
Data Link: 400mA (peak)@12V

43. Which cloud platform does R3000 support?

A:
Currently, R3000 can support RobustLink, RobustVPN, Tingco(Info24), Cumulocity and Exosite.

44. Does R3000 support to upgrade firmware/import configuration remotely?

A:
Yes, the R3000 can support to upgrade firmware via CLI/Web/RobustLink.
1) Via CLI. (Access to R3000 CLI via SSH/Telnet/Console) Please refer to application notes: Import XML via CLI & Upgrade firmware via CLI
2) Web
Update Firmware: (The Path In Web: Administration-> Update Firmware-> Update)
45. What is the WIFI transmission rate on R3000? What is the max transmission distance?

A:  
DL/UL: 5Mbps/10Mbps  
Max transmission distance: 20m in open area

46. What is the max throughput of R3000 on LAN side.

A:  
35Mbps.

47. What would happen if power supply connectors’ + and – was exchanged by mistake?

A:  
R3000 still able be powered up due to it has protection from this kind of wrong operation.  
But do not suggest to do that. It will generate loss to the circuit board.