# TC mGuard 4G Internet Setup Guide

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# Introduction

### Objectives This guide will show how to configure basic Internet connection for the TC mGuard RS2000 and TC mGuard RS4000.

Requirements <u>TC mGuard RS2000 4G LTE</u> or <u>TC mGuard RS4000 4G LTE</u>, <u>4G</u> <u>LTE Antenna</u>, Cellular Data Plan



### **Disclaimer: Data plans**

Phoenix Contact does not provide data plans. Please contact your local cellular provider to acquire a data plan and SIM card. The SIM card size is standard, or 2FF.

### **Disclaimer: Verizon users**

The Verizon mGuards (PNs 1010461 and 1010462) are registered and certified as "M2M" devices with Verizon. For optimal experience, Verizon highly recommends using an M2M SIM card with these devices. M2M SIM cards and data plans can be purchased at <u>https://thingspace.verizon.com/</u>

# Mobile network and SIM setup for TC mGuard RS2000 and RS4000 4G

- 1. Navigate to Network >> Mobile Network
- 2. Click the mobile technology standard drop down menu and select GSM / UMTS / LTE

8.8.1.default Saturday, January 1 2000 23:08:	25		♦ 00/29/5	0
Management	Network » Mobile Network			
Network Interfaces	General			_
Mobile Network Serial Line	Radio Settings		0	
Ethernet	Mol	bile technology standard	No mobile network connection	
NAT			No mobile network connection	Ľ
DNS			GSM / UMTS / LTE	
Proxy Settings				
Dynamic Routing				
GRE Tunnel				
Authentication				
Network Security				

3. Navigate to the SIM Settings tab and check the activation Box

9 9 1 default		
Saturday, January 1 2000 20:20:	56	5 00:29:45
	-	
Management	Network > Mobile Network	
Network	General SIM Settings Connection Supervision Mobile Network Notifications	
Mobile Network	Primary SIM (SIM 1)	0
Ethernet	Activation	
NAT		
DNS		
DHCP		
Proxy Settings		
Dynamic Routing		
GRE Tunnel		
Authentication		

- 4. If you know the APN, you can check "Manual APN selection" and enter the APN in the box below.
  - a. Note: The TC mGuard should find the common APNs of broadband (AT&T) and vzwinternet (Verizon) automatically. Custom APNs may need to be entered manually.
- 5. Click save in the top right-hand corner

	WARNING: THE ROOT AND AL Logged in as admin with role add	MIN PASSWORDS ARE NOT CONFIGURED! in from 192.168.1.230. Authenticated by login.	<b>日</b>
8.8.1.default Saturday, January 1 2000 23:12:	4		ð 00:29:53
Management	Network » Mobile Network		
Network	General SIM Settings Connection Supervision Mobile Netwo	ork Notifications	
Mobile Network	Primary SIM (SIM 1)		0
Ethernet	Activation	×	
DNS	State of the primary SIM	SIM authorized	
DHCP Proxy Settings	PIN of the SIM card	۲	
Dynamic Routing GRE Tunnel	Provider selection	All	•
Authentication	Manual APN selection	×	
Network Security IPsec VPN	Access Point Name (APN) of the Provider	broadband	
OpenVPN Client QoS	APM	broadband	
Logging Support	PPP authentication	0	

TC mGuard RS2000 4G Users:

• This completes the cellular configuration for the TCmGuard RS2000 4G. Proceed to the <u>Verify</u> Internet Connection section to verify the device connects to the network

TC mGuard RS4000 4G Users:

• Proceed to the primary and secondary interface section to continue setup

# Primary and secondary interface setup for TC mGuard RS4000 4G

#### Disclaimer: Internet Connection Setup

The TC mGuard RS4000 4G can use cellular as the primary connection to the Internet or connect the WAN port to an upstream router for primary Internet connection with cellular as backup. Please choose the appropriate subsection depending on your network requirements.

Configuring cellular as the primary Internet connection

- 6. Navigate to Network >> Interfaces
- 7. Choose "Built-in mobile network modem" from the Router mode drop down menu
- 8. Click save in the upper right-hand corner and proceed to the last section: <u>Verify Internet</u> <u>Connection</u>

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Management	Network » Interfaces	
Network Interfaces	General Internal DMZ Secondary External	
Mobile Network Serial Line	Network Status	0
Ethernet	External IP address	192.168.0.103
NAT DNS	Current default route	10.218.26.7
DHCP Proxy Settings	Used DNS servers	172.26.38.1
Dynamic Routing GRE Tunnel	Modem network connection state	Online
Authentication	Network Mode	
Network Security IPsec VPN	Network mode	Router -
OpenVPN Client	Router mode	Built-in mobile network modem

Configuring the WAN port as primary Internet connection and cellular as secondary

- 9. Navigate to Network >> Interfaces
- 10. Under the general tab configure the WAN port as either static or DHCP under router mode.
  - a. Choosing DHCP will configure the WAN port to receive an IP address and default gateway automatically
  - b. Choosing static requires the user to configure the IP address settings of the WAN port manually. These settings can be found under the "External" tab on the Network >> Interfaces menu.

8.8.1.default Saturday, January 1 2000 20:51	:58	
Management	Network » Interfaces	
Network Interfaces	General Internal DMZ Secondary External	
Mobile Network Serial Line	Network Status	0
Ethernet	External IP address	192.168.0.103
DNS NAT	Secondary external IP address	10.218.26.7
DHCP Proxy Settings	Current default route	10.218.26.7
Dynamic Routing GRE Tunnel	Used DNS servers	172.26.38.1
Authentication	Modem network connection state	Online
IPsec VPN	Network Mode	
OpenVPN Client	Network mode	Router
Logging	Router mode	DHCP
Support		

11. Navigate to the Secondary External menu and choose "Built-in mobile network modem" under the network mode drop down menu.

8.8.1.default Saturday, January 1 2000 20:3	39:56	© 00.29:52
Management	Network » Interfaces	
Network Interfaces	General External Internal DMZ Secondary External	
Mobile Network Serial Line	Secondary External Interface	٥
Ethernet	Network mode	off
NAT		Notem
DHCP		Built-in mobile network modern
Proxy Settings		Cff
Dynamic Routing		
GRE Tunnel		
Authentication		
Network Security		
OpenVON Client		
OoS		
Logging		
Support		

- 12. Set the operation mode to temporary so that the cellular interface is only active if the Internet connection via the WAN port fails
  - a. Note: Operation mode permanent will disable the connection via the WAN port and use the cellular interface as the primary connection.
- 13. Configure secondary external interface probes. These probes are pings sent to a defined address through the WAN port to check the internet connection. If a defined number of probes fail, the TC mGuard RS4000 4G will turn on the cellular interface until the probes succeed again.
  - a. For more information on the types of probes, click the question mark help icon in the upper right-hand corner.
- 14. Click save in the upper right-hand corner

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Saturday, January 1 2000 23:34:56				
Management Network » Interfac	es			
Network General E	xternal Internal DMZ Secondary External			
Mobile Network Secondary Exte	rnal Interface			0
Ethernet	Network mode	Built-in mobile network modem		•
NAT DNS Secondary Exte	rnal Routes			
DHCP Provy Settings	Operation mode	Temporary		•
Dynamic Routing Seq. (+)	Network		Gateway	
Authentication 1 🕂 🗐	0.0.0.0/0		%gateway	
IPsec VPN Secondary Exte	rnal Interface Probes			
OpenVPN Client	Temporary state of the secondary external interface	Temporarily up		
Logging Seq. (+)	Туре	Destination	Comment	
1 (+) 🗊	ICMP Ping 👻	3.217.247.9		
	Probe interval	20		seconds
Number of tim	es all probes need to fail during subsequent runs before the secondary external interface is activated	2		
Secondary Exte	ernal Interface DNS			
	DNS mode	Provider defined		•

15. Proceed to the last section: Verify Internet Connection

# Verify Internet connection

- 16. If cellular is used as the primary Internet connection, navigate to the general tab under the Network >> Mobile Network menu to verify the connection.
- 17. The connection is successful when the State of the mobile network interface and the Modem network connection state both say "Online".

	WARNING: THE ROOT AND AC Logged in as admin with role adm	NIN PASSWORDS ARE NOT CONFICURED! in from 192.166.1.230. Authenticated by login.	Û
8.8.1.default Saturday, January 1 2000 23:37:	21	0 00	0:29:52
Management	Network » Mobile Network		1
Network	General SIM Settings Connection Supervision Mobile Netwo	rk Notifications	
Mobile Network	Mobile Broadband Modern State		0
Ethernet	State of the mobile network interface	Online	
DNS	Power state of the mobile network engine	Engline is powered up	
DHCP Proxy Settings	Signal level	-63 dbm / 80%	
Dynamic Routing GRE Tunnel	Currently selected SIM slot	Using primary SIM slot (SIM 1)	
Authentication	State of the primary SIM	SIM authorized	
1Psec VPN	Mobile Network State		
OpenVPN Client QoS	Modem network connection state	Online	
Logging	Currently used mobile network operator	AT&T	
Support	Roaming state of the mobile network engine	Registered to home network	
	Mobile Network Radio Access Technology	LTE	
	Public Land Mobile Network (PLMN) of the base station	310410	
	Location Area Code (LAC) of the base station	2996	
	Cell ID (CID) of the base station	6224904	
	Radio Settings		
	Mobile technology standard	GSM / UMTS / LTE	•
	3G (UMTS / EVDO)	8	
	4G (LTE)	8	

### **Disclaimer: Signal Strength**

A strong signal around -65 dBm is highly recommend for optimal connection. Issues may arise if the signal is < -85 dBm. Improve the signal by connecting two antennas and moving the antennas outside or near a window.

### **Disclaimer: Cellular connection time**

An authentication process occurs the first time the mGuard connects to the cellular network to verify the device is certified, and the SIM card has a valid data plan. You will see verbiage such as "provider OTA registration" on the Mobile Network information screen during this process.

The authentication process can take up to 15 minutes depending on location and connection strength. To optimize the authentication process, connect two antennas to the device and place the antennas outside or near a window.

### Conclusion

This concludes the TC mGuard 4G LTE Internet Setup guide

Version History: 2/6/2020

• V00: Original publication