Quick Start Guide

Aprisa LTE Cellular Router

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1. Check the box contents

The box contains:

- One Aprisa LTE Router.
- One Aprisa LTE 1 metre power cable fitted with 4 pin Molex Micro-Fit 3.0 female connector and wire ended.
- One power connector locking plate and screw (secures the power connector to the Aprisa LTE).

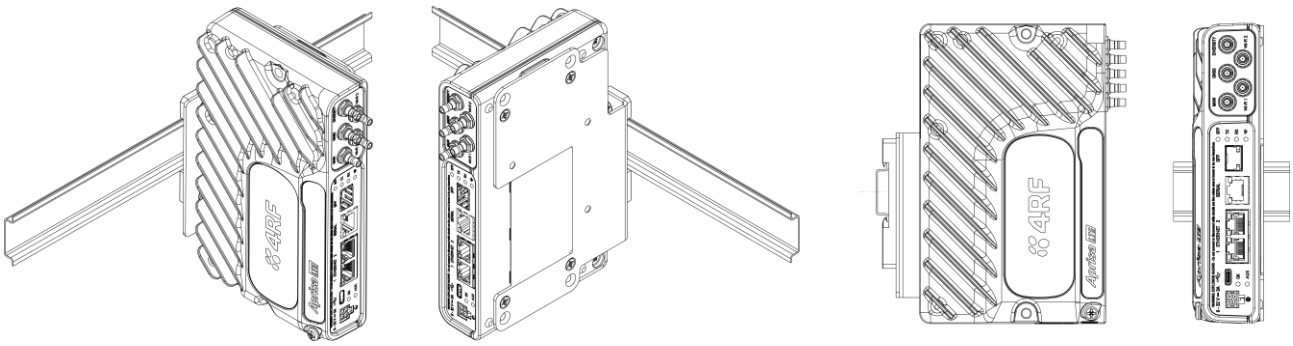
2. Install the Aprisa LTE and connect the protection earth

The Aprisa LTE has four threaded holes (M4) in the base and two holes (for M5 screws) through the enclosure for mounting.

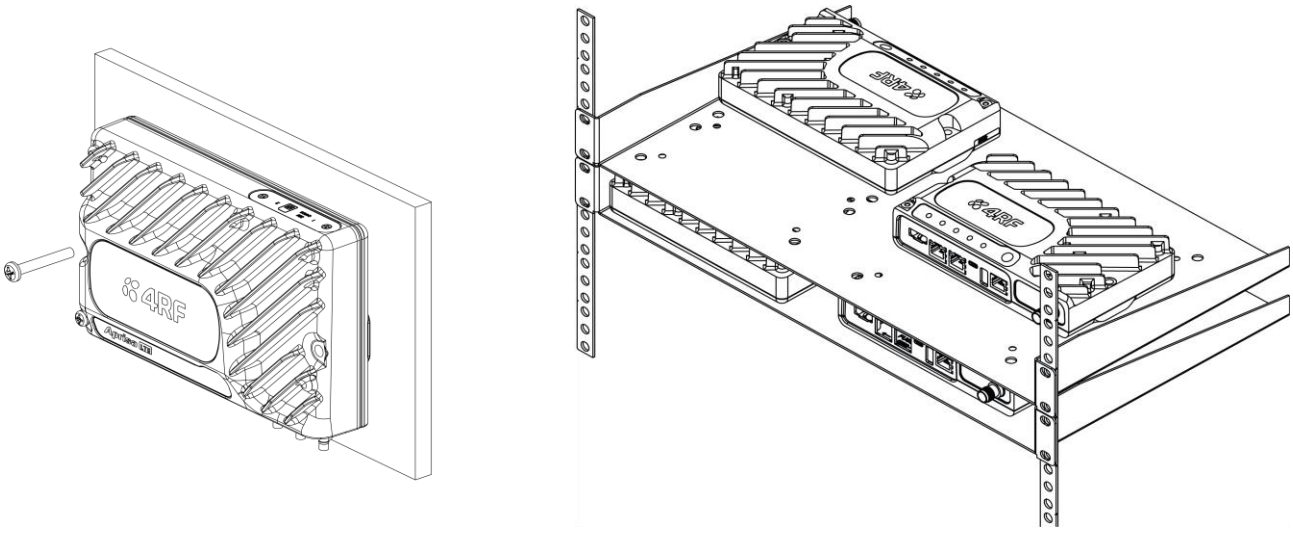
Mounting options include:

- DIN rail mounting with the Aprisa DIN rail mounting bracket (optional accessory part number 'APGA-MBRK-DIN').
- Rack shelf mounting (optional accessory part number 'APGA-MR19-X1U').
- Wall Mounting.
- Outdoor enclosures.

The Aprisa LTE DIN rail mounting:



Aprisa LTE Wall and Rack Shelf mounting:

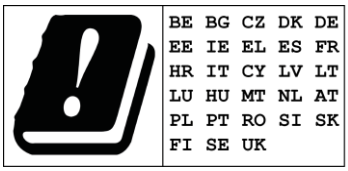


The Aprisa LTE has an earth connection point on the top left of the enclosure. Use the supplied M4 screw to earth the enclosure to a protection earth.

Warning: If the Aprisa LTE is operated in an environment where the ambient temperature exceeds 50°C, the Aprisa LTE must be installed within a restricted access location to prevent human contact with the enclosure heatsink.

Hereby, 4RF Limited declares that the Aprisa LTE router is in compliance with Directive 2014/53/EU.

The full text of the EU declaration of conformity is available at the internet address https://www.4rf.com/library/en.

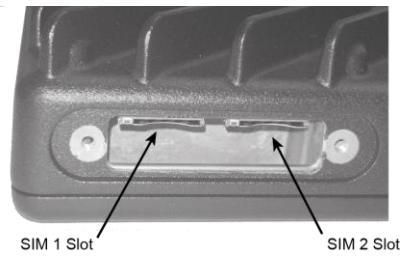


3. Set up and apply power to the Aprisa LTE

A valid SIM provided by your local wireless carrier e.g. Verizon, AT&T, EE, and Vodafone is required for connectivity.

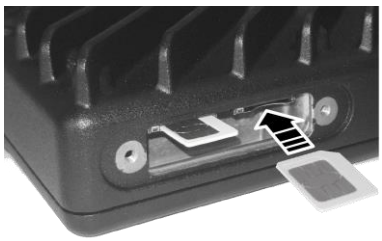
The LTE can accommodate two standard Micro SIMs (12 x 15mm) which fit into the product rear under the SIM cards cover plate.

Contact your carrier for details about selecting a data plan and about the process for activating your SIM.



Install an activated SIM in the Aprisa LTE:

1. Ensure the power to the Aprisa LTE is turned off.
2. Unscrew the two screws on the SIM cards cover plate.
3. Fit the SIM to 'SIM 1 Slot' slot notch-end first with metal contacts facing up. Use care when inserting the SIM.
4. Refit the SIM card cover plate and fasten the two screws.

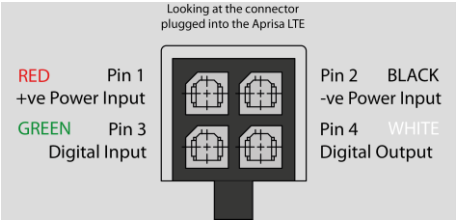


Attach either separate antennas for LTE, GNSS and Wi-Fi or a single combination antenna to the appropriate QMA connectors on the Aprisa LTE.

The Aprisa LTE is operated from a DC source of voltage between +9 VDC and +32 VDC (negative earth) and consumes up to 15 watts. External power supplies are available from 4RF as accessories (see the Aprisa LTE User Manual).

The Aprisa LTE power connector is a Molex Micro-Fit 3.0 4 pin male connector. The power supply input connects to pin 1 +ve and pin 2 -ve.

A 1 metre power cable fitted with 4 pin Molex Micro-Fit 3.0 female connector and wire ended is supplied in the box with each Aprisa LTE.



The Molex Micro-Fit 3.0 4 pin connector clips into the Aprisa LTE socket. It also has a locking plate and screw (supplied with the Aprisa LTE) that enables the connector to be secured to the Aprisa LTE with a screw.

Note: The Aprisa LTE internal fuses will blow if the connected power supply is over voltage, or the polarity is reversed. If this happens, the fuse(s) will need to be replaced. Spare fuses can be ordered from 4RF (see the 'Spare Fuses' section of the Aprisa LTE User Manual).

Turn your power source on. The Aprisa LTE OK and AUX LEDs will flash orange while the router is booting up.

The Aprisa LTE OK LED will light green when the router is ready to operate.

For vehicle installation, the Aprisa LTE power connector pin 3 is used as an ignition sense line and should be connected to a source of +12 or +24 volts that comes on when the vehicle is running. No connection is required for stationary applications.

4. Connect to the Aprisa LTE

Standard Security Settings

If the Aprisa LTE was purchased from 4RF with standard security settings, use the following login procedure.

The Aprisa LTE has a factory default IP address of 192.168.4.1 with a subnet mask of 255.255.255.0.

- If your PC is set for DHCP (obtains an IP address automatically) you do not need to manually set an IP address. Alternatively, if your PC requires a static IP address, setup a compatible IP address e.g. 192.168.4.100 with a subnet mask of 255.255.255.0.
- Connect your PC network port to one of the Aprisa LTE Ethernet ports.
- Open a browser and enter 192.168.4.1.

  Note: The default Aprisa LTE application protocol is HTTP.
- Login to the Aprisa LTE with the default login of Username ‘admin’.

  If a password is shown on the Serial Number label on the left side of the case, this is your LTE password. If there is no password shown on the Serial Number label, your password will be ‘admin’.

Enhanced Security Settings

If the Aprisa LTE was purchased from 4RF with enhanced security settings, use the following login procedure.

The Aprisa LTE has a factory default IP address of 192.168.4.1 with a subnet mask of 255.255.255.0.

- If your PC is set for DHCP (obtains an IP address automatically) you do not need to manually set an IP address. Alternatively, if your PC requires a static IP address, setup a compatible IP address e.g. 192.168.4.100 with a subnet mask of 255.255.255.0.
- Connect your PC network port to one of the Aprisa LTE Ethernet ports.
- Open a browser and enter 192.168.4.1.

  Note: The default Aprisa LTE application protocol is HTTPS.
- Login to the Aprisa LTE with the default login of Username ‘admin’.

  You will find your LTE password on the Serial Number label on the left side of the case.

Serial Number Label

- The LTE Security Level will be set to Level 4 which requires the login to use Two Factor Authentication.

  If a cell phone number is not configured, admin users have 5 login attempts to login without Two Factor Authentication. After the 5 attempts, Two Factor Authentication will be enforced, and the user will be prompted for a cell phone number if one is still not configured.

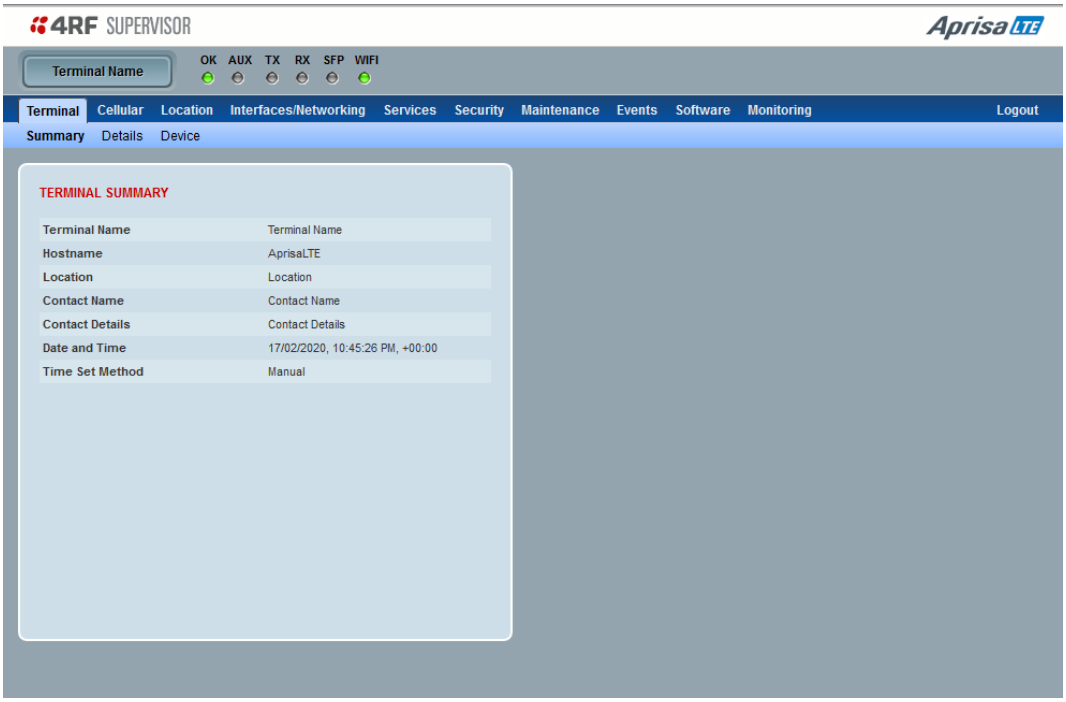
When a cell phone number is configured, Two Factor Authentication will be active, but a user will not be able to login if there is no cellular network connectivity (because the SMS verification code will not be able to be sent).

The following is required for Two Factor Authentication:

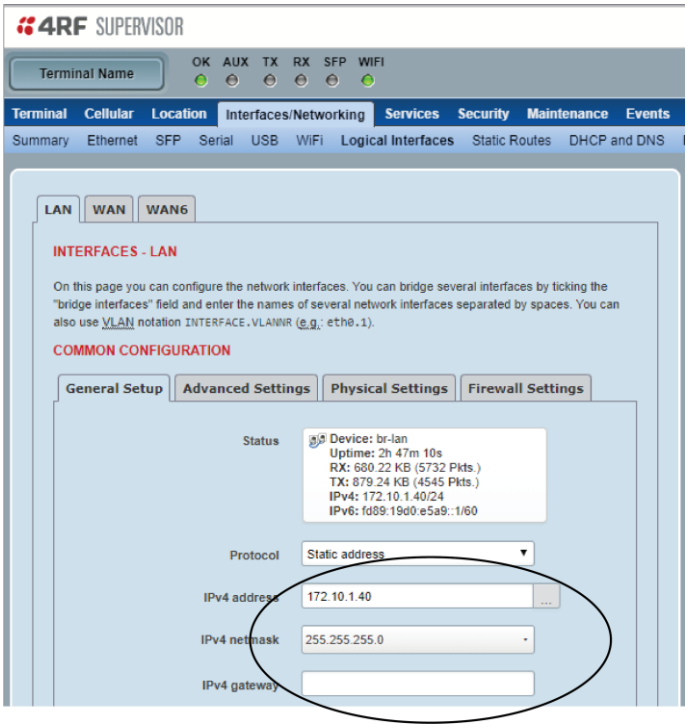
- a pre-programmed SIM card
- be within a cellular network coverage

When the Two Factor Authentication requirements are met, a SMS verification code will be sent to your cell phone, and a popup will request entry of the verification code.

If the login is successful, the opening SuperVisor > Terminal > Summary page will be displayed.



Change the IPv4 address, IPv4 netmask and IPv4 gateway as required for settings compatible with your network.



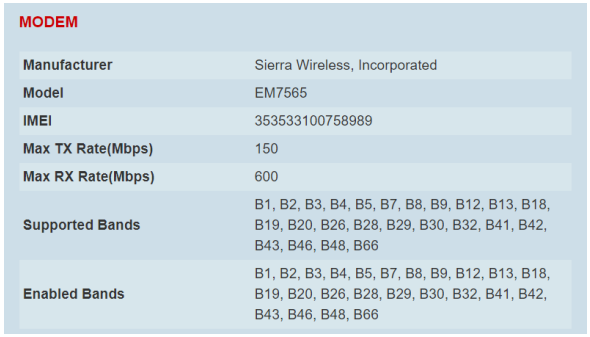
5. Configure the Aprisa LTE

1. Go to Supervisor > Services > Date & Time and set the time zone offset, and format.

2. Verify that the Aprisa LTE active software and LTE module are correct for the provider.

   Go to SuperVisor > Cellular > Summary to view the currently supported bands.

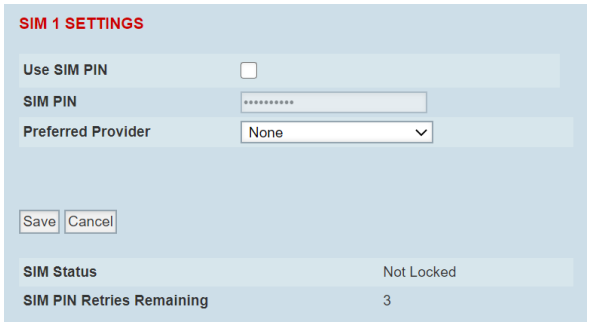
   Go to SuperVisor > Cellular > General and select the specific band in use or leave the default 'Select All' option.



3. Go to SuperVisor > Cellular > General to view the SIM status.

   - Set the SIM PIN.

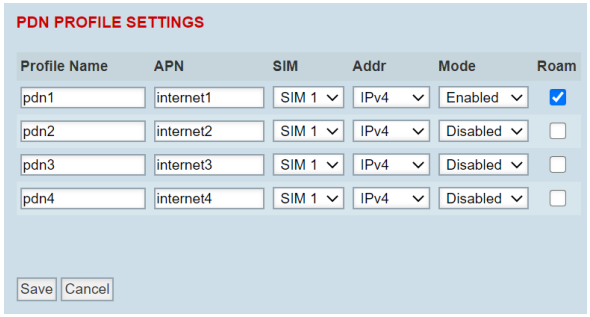
     Note: not all cellular operators use a pin to enable the SIM card so the SIM pin may not be required.
   - Set the Preferred Provider to match that of the SIM card.



4. Go to SuperVisor > Cellular > General (optional)

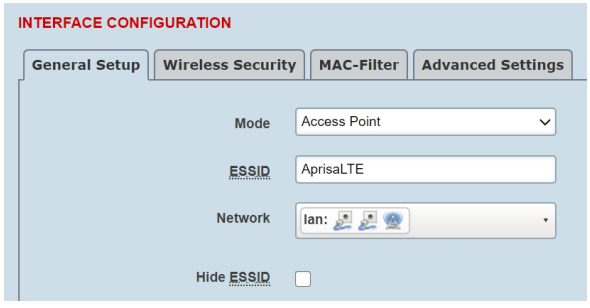
   - Set the Packet Data Network (PDN) Profile Name (if required).
   - Set the active / backup Access Point Names (APNs) per your installed SIM(s).
   - Set the SIM slot.
   - The Aprisa LTE features an auto APN feature, so only change the Packet Data Network details if required.

     Note that a corporate network requires both a private APN name and the Mode set to Enable.
   - Tick Roam to switch from the home network (i.e. the SIM network) to the roaming network when the Aprisa LTE is outside the range of its home network and connects to another available cellular network. When on the roaming network, charges may be applied per customer contract.



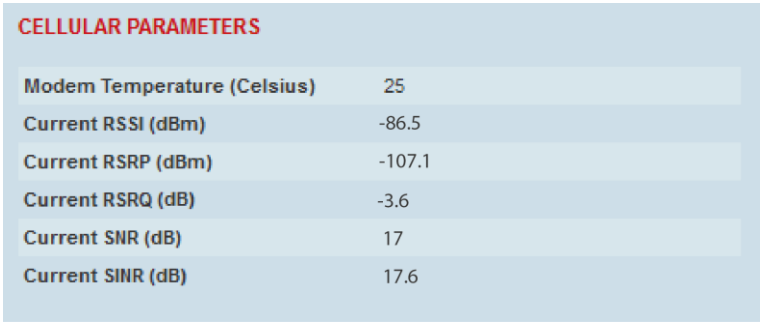
5. If the Wi-Fi network module is installed on your LTE, and you want to enable this feature, go to SuperVisor > Interfaces / Networking > WiFi and click Edit.

   - Under the General Setup tab click Enable. If required, you can change the Wi-Fi WLAN Operating Parameters (mode and channel). Note that the mode 802.11b/g/n will provide the widest Wi-Fi compatibility while 802.11n/ac will provide the fastest Wi-Fi speeds.
   - On the same page, use the Interface Configuration tabs set the Wi-Fi password ESSID and required security settings.



6. Test the Aprisa LTE operation

- Check the Aprisa LTE is operating by checking the SuperVisor > Monitoring > Cellular page.



Typical values are:

RF Conditions	RSSI (dBm)	RSRP (dbm)	RSRQ (db)	SNR (db)	SINR (db)
Excellent	>= -65	>= -80	>= -10	>= 20	>= 20
Good	-65 to -75	-80 to -90	-10 to -15	13 to 20	13 to 20
Fair	-75 to -85	-90 to -100	-15 to -20	0 to 13	0 to 13
Poor	-85 to -95	<= -100	< -20	<= 0	<= 0

- On a PC that is connected to either Wi-Fi or wired Ethernet port, do a ping to well know internet address.
- Test IPv4 connectivity by pinging a well known IPv4 address e.g. 8.8.8.8 (google DNS server).
- Test IPv6 connectivity by pinging a well known IPv6 address e.g. 2001:4860:4860::8888 (google DNS server).
- Test DNS connectivity by pinging a well-known DNS address e.g. 4rf.com.
- Try browsing the internet from the configuration PC.

For more information, please refer to the 'Aprisa LTE User Manual' available from the 4RF website www.4rf.com/secure/ (login required).

For access contact your distributor, 4RF sales representative, or contact 4RF directly at www.4rf.com/contact/sales.