

LORIoT APP for R3000 LG Series LoRa Gateways

Configuration Guide

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www.robustel.com

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Background

The LORIOT application for Robustel R3000 LG Series gateways provides a quick and easy integration giving customers an off the shelf solution for building LoRaWAN® networks at a price/performance ratio that has not previously been available.

LORIOT are one of the world-leading LNS (LoRaWAN Network Server) providers with an impressive catalogue of successful deployments globally.

As a very high-volume manufacturer of 3G/4G routers and gateways, Robustel have commercial advantages unobtainable by many of their peers in the LoRa® Gateway market and are consequently able to offer both Indoor & Outdoor Industrial grade, high reliability Gateways at very competitive pricing.

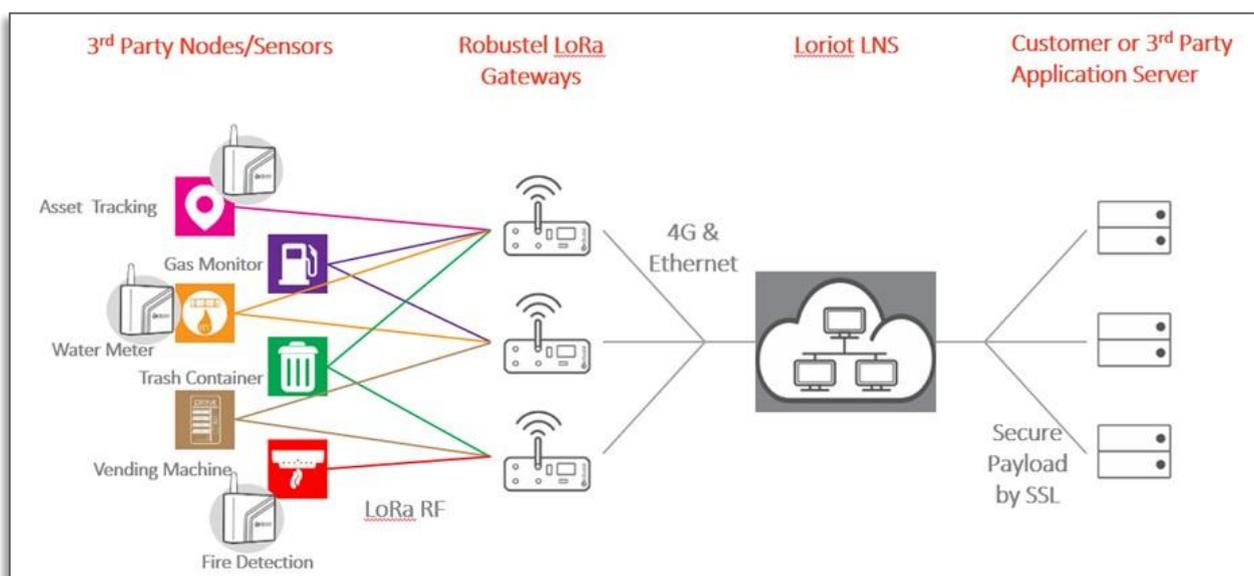


Figure 1.1 – LoRaWAN stack enabled quickly & easily with the “LORIOT APP”

Using a tried and tested LoRa Gateway + LNS combination helps to significantly re-risk the building of new LoRa networks and provides piece of mind that the companies involved have significant prior knowledge of each other’s products making effective and detailed technical support easier to come by.

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Chapter 1 Requirements

1. Go to www.robustel.com
2. Select “contact us” and request the latest LORIENT APP.
3. Alternatively, request the APP from your Robustel sales contact

Chapter 2 Connecting the R3000 LG to LORIOT Platform

1. Install LORIOT APP in the APP center of RobustOS and enter the URL of your LORIOT server and select enable.

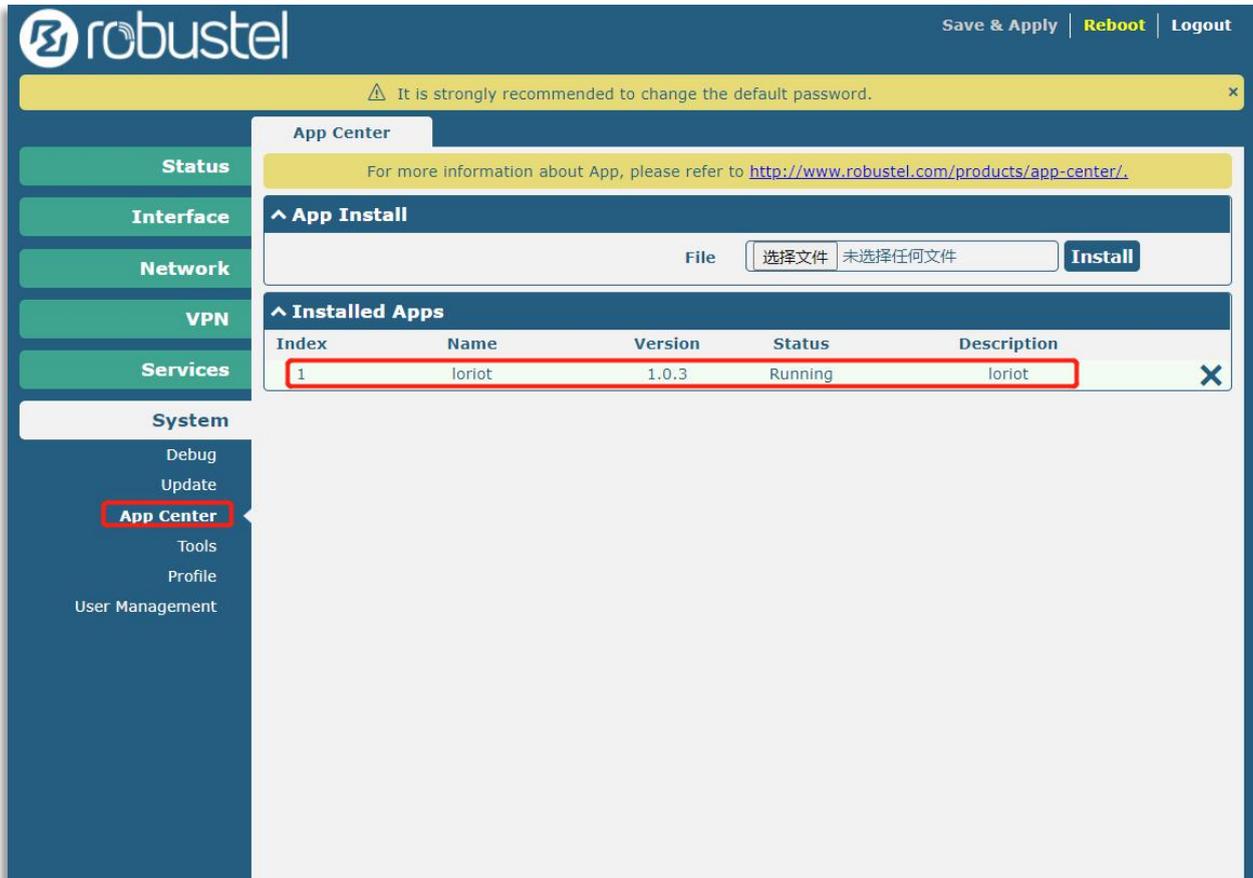


Figure 2.1 – App Center installation of LORIOT App

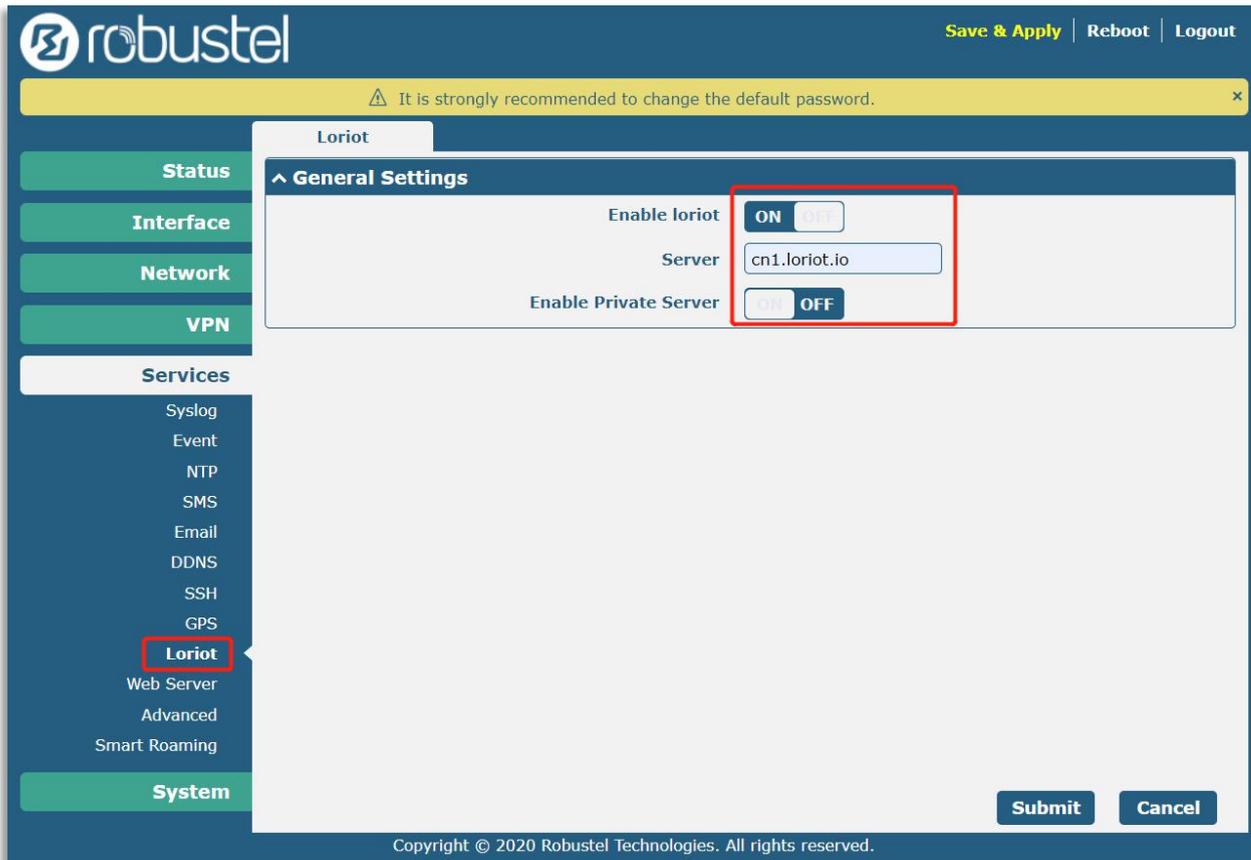


Figure 2.2 – Location of LORIOT APP and server settings once APP is installed

Common LORIOT hosted Server URLs:

Africa

AF1 - Cape Town, South Africa

Americas

SA1 - São Paulo, Brasil

US1 - California, USA

US2 - New York, USA

Asia

AP1 - Singapore

AP2 - Tokyo, Japan

AP3 - Mumbai, India

CN1 - Shenzhen, China

Europe

EU1 - Frankfurt, Germany

EU2 - Amsterdam, Netherlands

EU3 - Madrid, Spain

UK1 - London, United Kingdom

Pacific

AU1 - Sydney, Australia

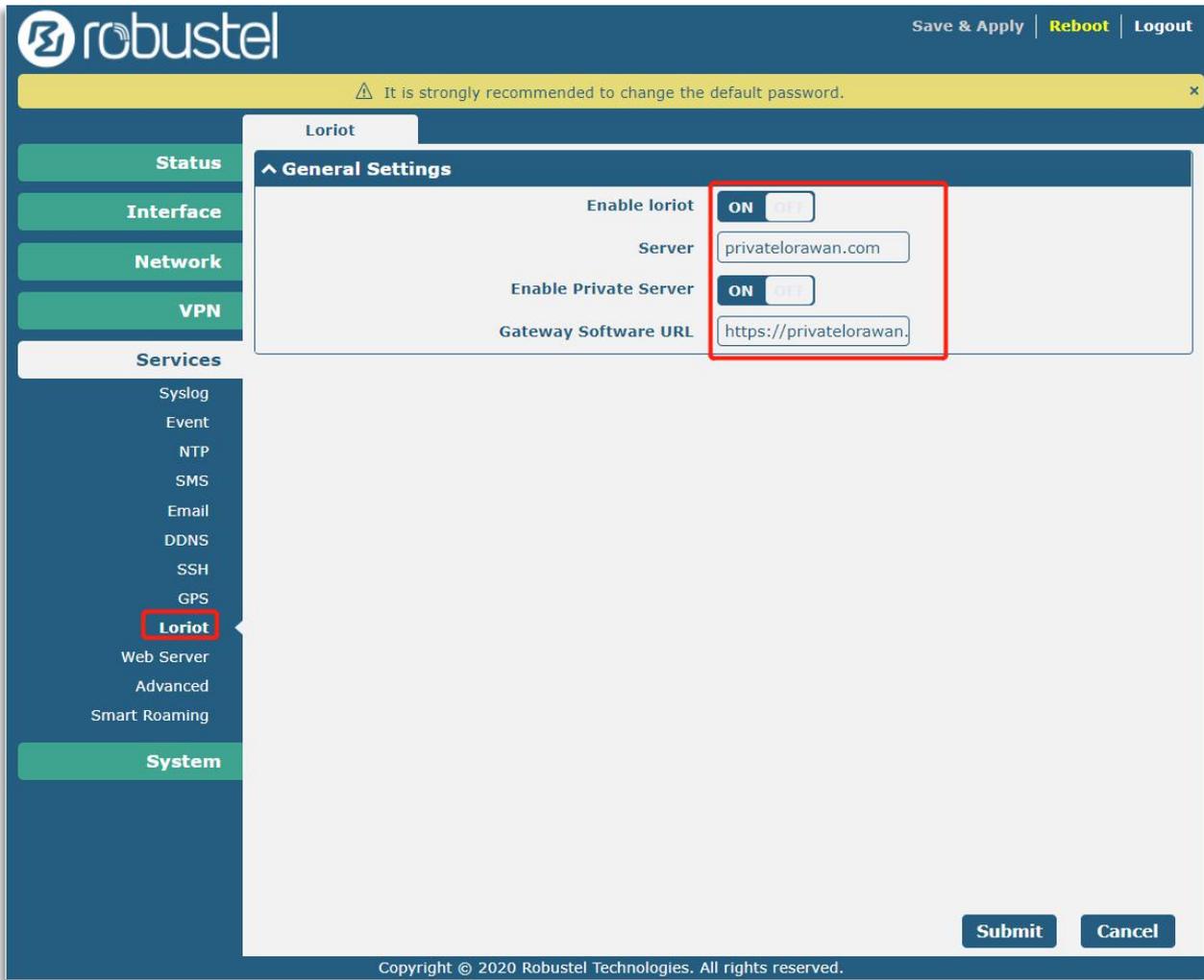


Figure 2.3 – If you are using a private server address, then turn on the Private Server button and enter the Gateway software URL

About Gateway software URL: It can be requested from the Loriot platform.

2. Ascertain the default gateway ID in R3000 LG by viewing “Interface->LoRa”

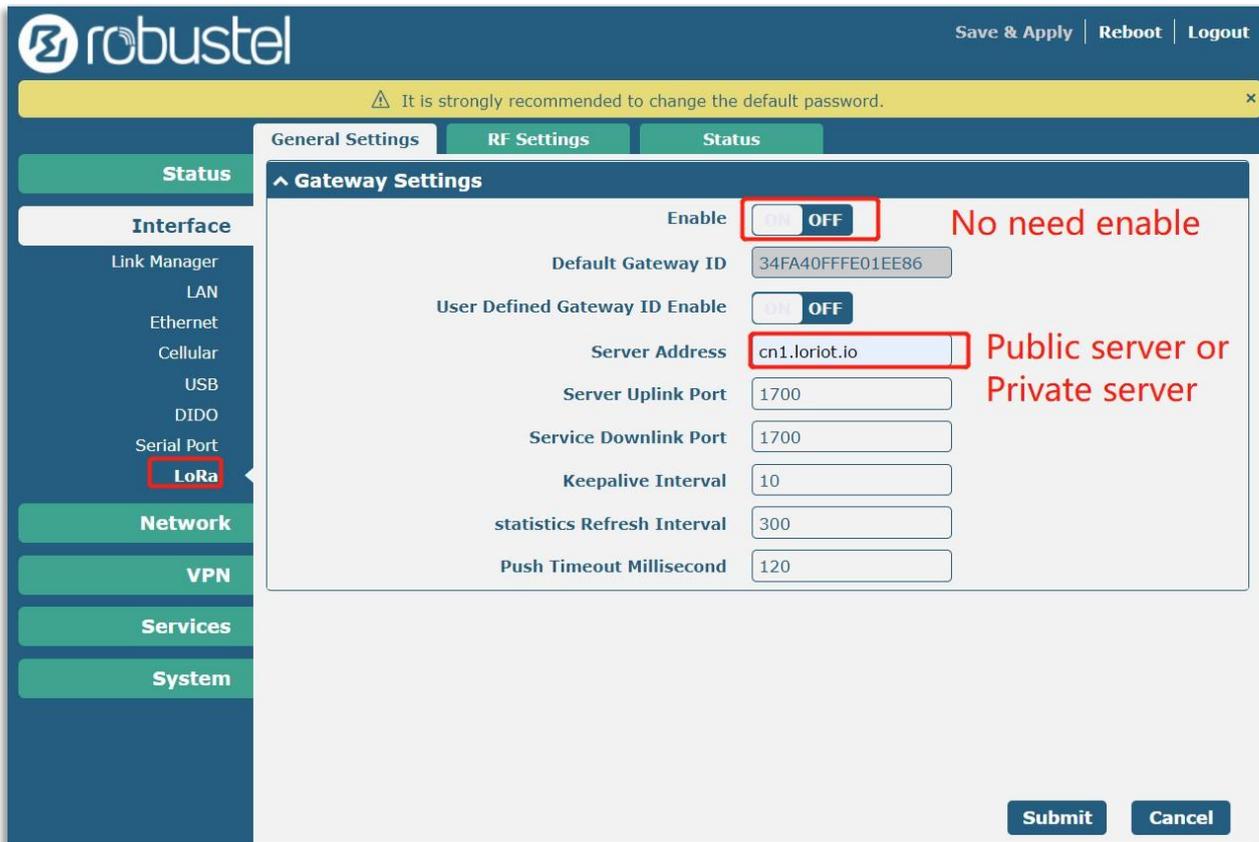


Figure 2.4 – Retrieving identifier required for LORIENT platform from GUI

Note: If you cannot connect to the LORIENT platform using the default Gateway ID, please check the MAC address that the APP is using via the syslog as follows.

The screenshot shows the Robustel web interface with the Syslog configuration page. The Syslog Details panel is active, showing a list of log entries. A red arrow points to the following log entry:

```
Jul 13 16:38:32 router user.notice loriot_robustel_spi[3787]: Using lan0 for GW EUI 34FA40FFFF13FDDBE
```

The interface also shows a sidebar with navigation options: Status, Interface, Network, VPN, Services, and System. The System menu is expanded, showing options like Debug, Update, App Center, Tools, Profile, and User Management. The top right of the interface has buttons for 'Save & Apply', 'Reboot', and 'Logout'.

Figure 2.4 – Debug log confirming correct MAC / identifier for use in LORIoT platfor

3. Go to the LORIOT server and add R3000 LG gateway having created a new Network or using an existing network. The R3000 LG must be a member of a “Network”.



Figure 2.5 – Select the R3000 LG from LORIOT Gateway menu scree

Note: There is no need for you to enable the native LoRa interface and set the server information because the LORIOT APP will reference the internal LoRa configuration.

Figure 2.6 – Standard LoRa interface of R3000 LG, LORIOT APP runs independently

4. Input MAC address of gateway interface for LORIoT platform registration.

MAC address of eth0 interface

The MAC Address of the Ethernet port can be queried by running

```
ifconfig eth0 | grep HWaddr
```

command from your device's console. A sample output will be similar to

```
eth0 Link encap:Ethernet HWaddr AB:CD:EF:12:34:56
```

Copy and past the highlighted part (six octets separated by colons) from the output of your device console to the input field below.

eth0 MAC address: → Delete the FF:FE in the middle of Default Gateway ID and put it as MAC address here

Upon successful registration, we will provide you with a setup guide for your gateway and a gateway binary with cryptographic keys tied to this MAC address.

The keys are tied to the MAC address of the device, and cannot be moved to another device.

Please note that FFFE or FFFF is inserted after the first 6 characters of the MAC to make it a 64bit LoRaWAN gateway EUI.

For example, if 34:FA:40:13:FD:BE is the interface MAC, then 34FA40FFFE13FDBE should be the gateway EUI on the LORIoT platform.

5. If everything goes well, you will see R3000 LG online with LORIoT proprietary packet forwarder version info on the platform per below.

The screenshot displays the LORIoT platform interface for a gateway. The breadcrumb trail is: Networks > Sample Network > 34-FA-40-FF-FF-13-FD-BE. The gateway ID is 34-FA-40-FF-FF-13-FD-BE. The gateway is shown as connected with a green dot and a version of 2.8.1341-JKS-AP1-23. The interface includes a 'Status' section with a donut chart for uptime/downtime, and a 'Details' section with the following information:

Field	Value
MAC Address	34:FA:40:13:FD:BE
EUI	34-FA-40-FF-FF-13-FD-BE
Base	Robustel
Connected from IP	61.140.163.61
Machine	armv5tej
Model	R3000
Concentrator	robustel
Connected Over	SPI
Name	router
Version	#2 PREEMPT Mon Feb 24 18:12:24 HKT 2020

Additional status information includes: Latency (No Data), Last Connect (13 Jul 2020 16:40:34), Last Keep Alive (13 Jul 2020 16:40:40), and Last Data (Never).

Figure 2.7 –R3000 LG correctly configured on LORIoT platform

Chapter 3 Connecting LoRaWAN Node/Sensor to the LORIoT Platform

1. Set up the LoRaWAN gateway frequency channel list correctly. The example below is AS923 AS2.

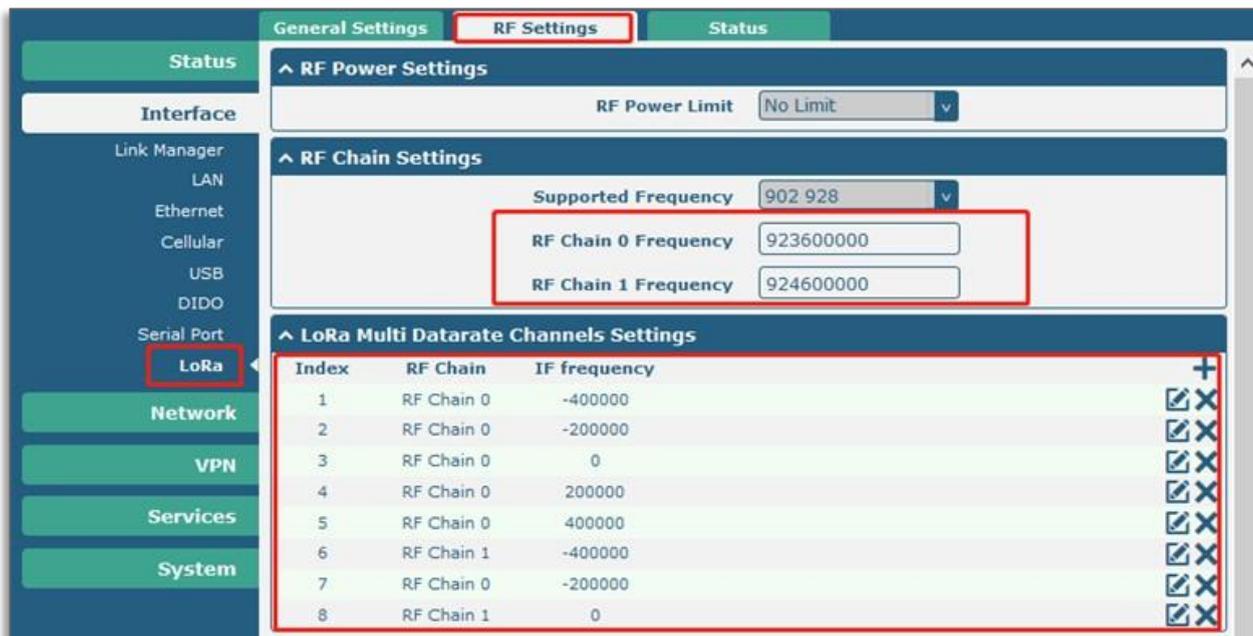


Figure 3.1 – RF Frequency section of R3000 LG settings

2. In the LORIoT platform, create a new application and click the "Enroll Device" tab.

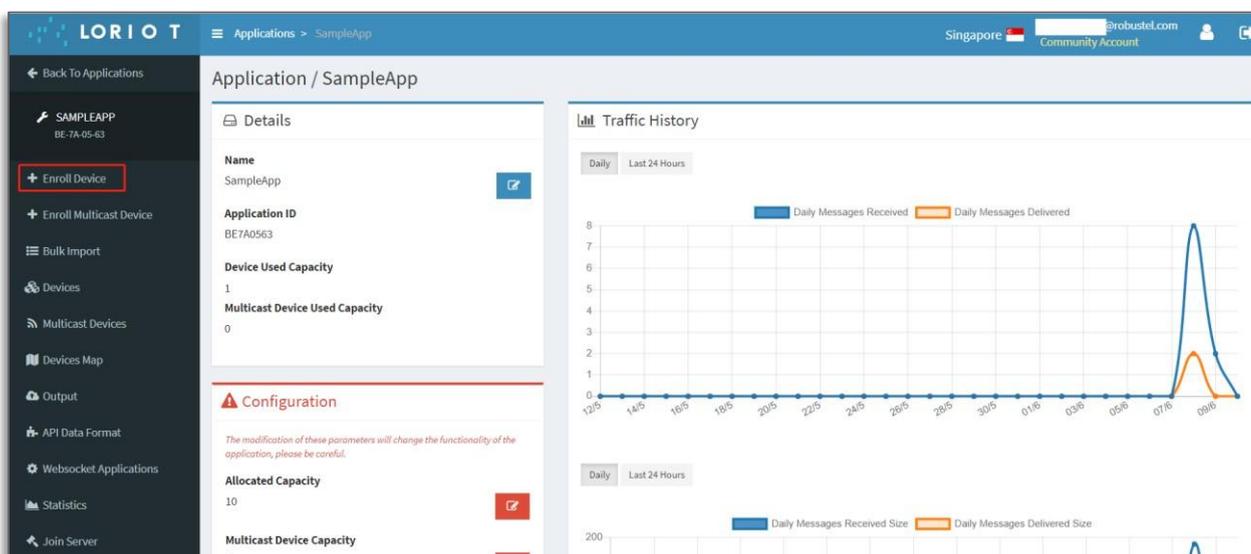


Figure 3.2 – Enroll device / add sensor process in LORIoT platform

3. Enter Title name, and get the "DevEUI", "AppEUI" and "AppKey" from Toolbox.

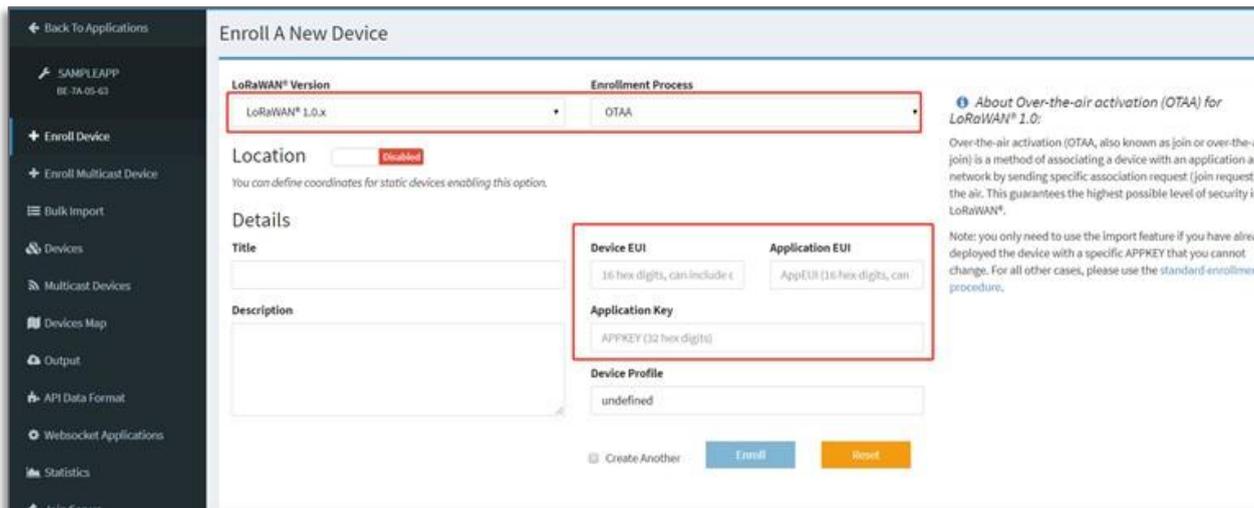


Figure 3.3 – Location of key parameters – DevEUI/AppEUI & AppKey – in LORIoT platform

4. Choose Device and you will see more details of the status and the configuration of the LoRaWAN node.

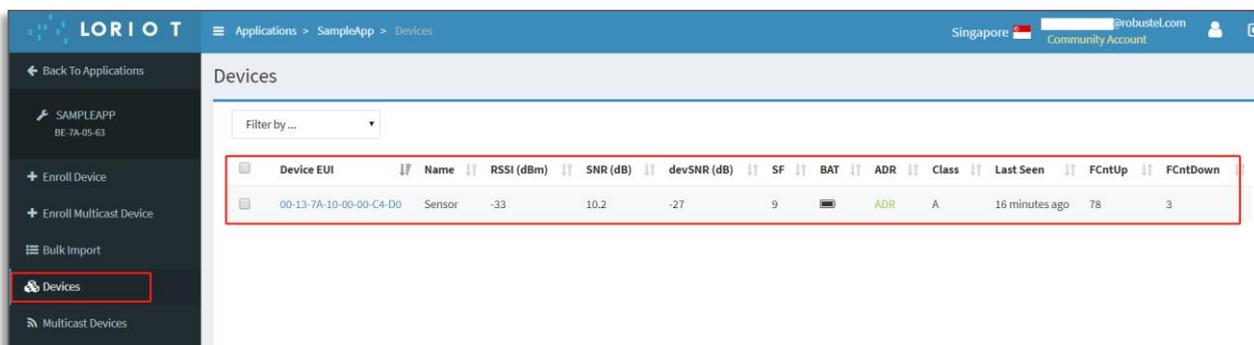


Figure 3.4 – LoRa sensor / node view

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