

How to use RAK cloud ChirpStack for testing

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39 PAGES

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1. What's the RAK cloud ChirpStack?

Sometimes, some customers will meet some problems about how to setup a ChirpStack or how to use a ChirpStack for testing.

RAK have supply some solutions for it, for example, every RAK LoRa gateway has a built-in ChirpStack. But we think it is not enough for our customer, especially when they want to use a ChirpStack directly without setting up a new one.

That's why we supply another way for customers to use ChirpStack.

Actually, RAK has deployed 3 ChirpStack on cloud server to support our customers to test their RAK LoRa gateway or RAK LoRa node.

We always believe that our excellent service will help our customers, and we will do our best!

2. Where are them?

We have deployed ChirpStack on 3 cloud servers, and each of them can support only one frequency:

Frequency	IP Address
CN470	106.15.233.112
EU868	209.250.251.9
US915	106.15.239.64

You can choose one of them for testing.

3. How can i use them?

You can use one of them through its web page. All of them have the same web page port: 8080.

For example, if you want to use EU868 frequency ChirpStack, you can open the following link: <http://209.250.251.9:8080>

If you want to use US915 frequency ChirpStack, you can open the following link:

<http://106.15.239.64:8080>

Similarly, if you want to use CN470 frequency ChirpStack, you can open the following link:

<http://106.15.233.112:8080>

Then you can see the web page of ChirpStack as follow:



Login

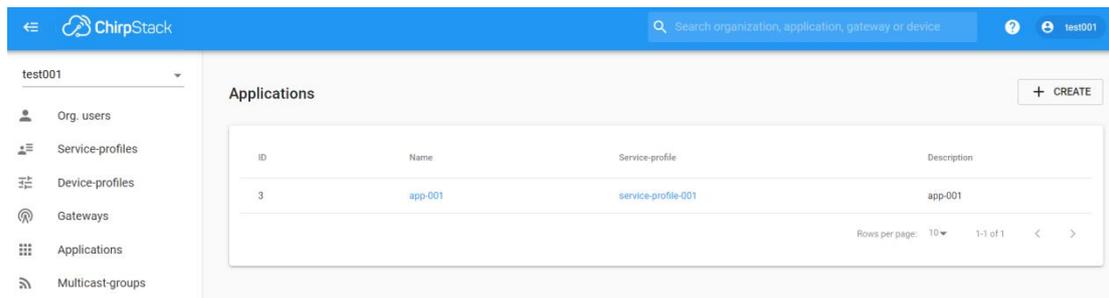
Username *

Password *

LOGIN

Note: You can go to RAK forum <https://forum.rakwireless.com/t/rak-free-cloud-ChirpStack-for-testing/344> to post an application in that topic, then RAK will send you an username and password of ChirpStack you want to use.

After login, you can see the following page:



Now, you can register your LoRa gateway or LoRa node to this ChirpStack freely.

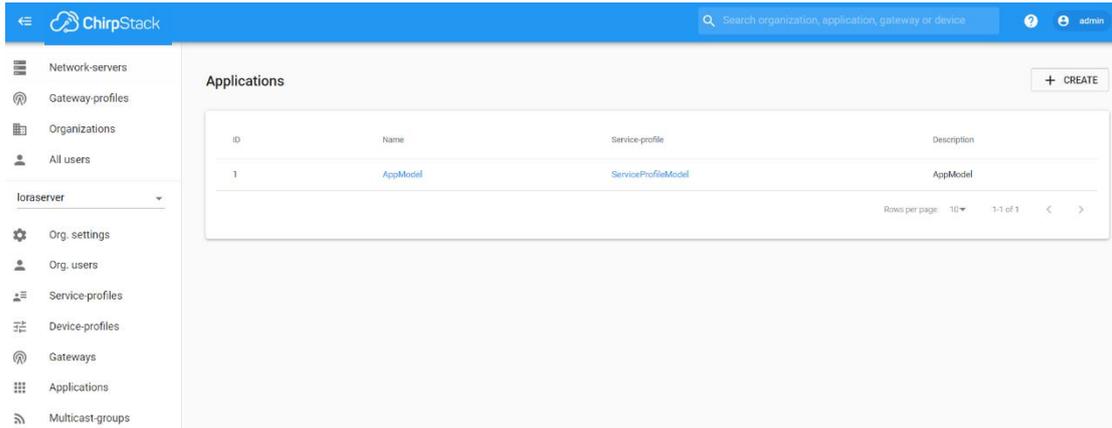
4. How to register my LoRa gateway?

Please have a look at the section 8 of the following document:

http://docs.rakwireless.com/en/LoRa/RAK2245-Pi-HAT/Application-Notes/Get_Start_with_RAK2245&RAK831_RPi_LoRa_Gateway.pdf

5. How to register my LoRa node?

Open the web page of the ChirpStack which you want to use.

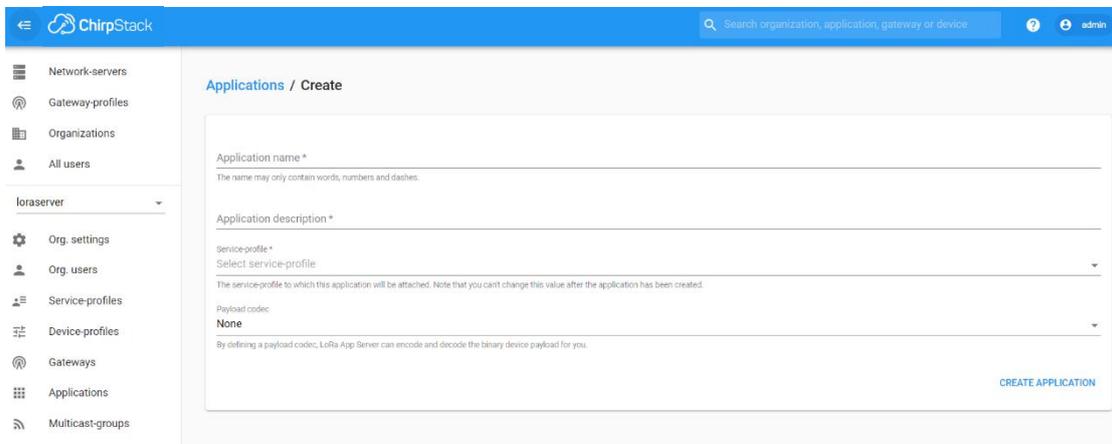


The screenshot shows the ChirpStack web interface. The top navigation bar includes the ChirpStack logo, a search bar, and a user profile for 'admin'. A left sidebar contains a menu with items: Network-servers, Gateway-profiles, Organizations, All users, loraserver (selected), Org. settings, Org. users, Service-profiles, Device-profiles, Gateways, Applications, and Multicast-groups. The main content area is titled 'Applications' and features a '+ CREATE' button in the top right. Below the button is a table with the following data:

ID	Name	Service-profile	Description
1	AppModel	ServiceProfileModel	AppModel

At the bottom right of the table, there is a pagination control showing 'Rows per page: 10' and '1-1 of 1'.

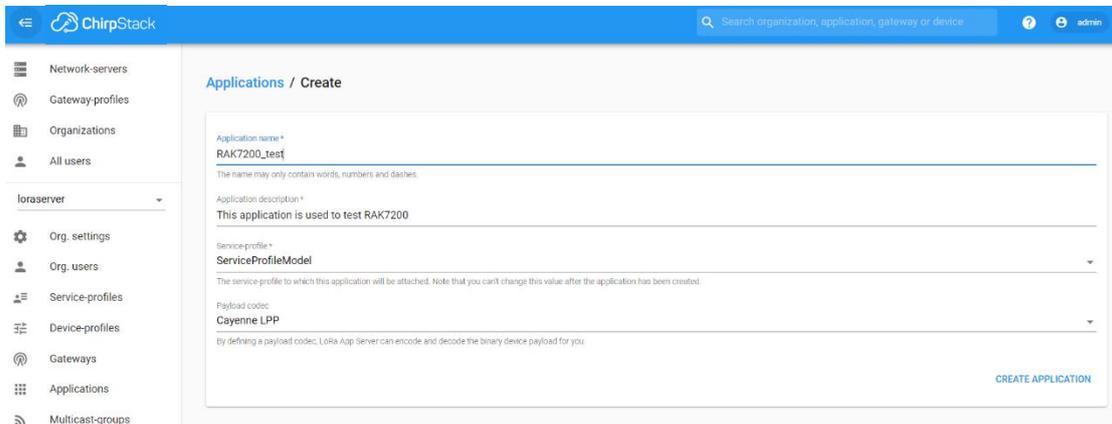
By default, there is already one or more items in this page, you can use it or create a new item. Now, let's create a new item by click the "CREATE" button, and fill in them.



The screenshot shows the 'Applications / Create' form in ChirpStack. The sidebar is identical to the previous screenshot. The form fields are:

- Application name ***: A text input field with a note: "The name may only contain words, numbers and dashes."
- Application description ***: A text input field.
- Service-profile ***: A dropdown menu with the selected value 'ServiceProfileModel' and a note: "The service-profile to which this application will be attached. Note that you can't change this value after the application has been created."
- Payload codec**: A dropdown menu with the selected value 'None' and a note: "By defining a payload codec, LoRa App Server can encode and decode the binary device payload for you."

A 'CREATE APPLICATION' button is located at the bottom right of the form.

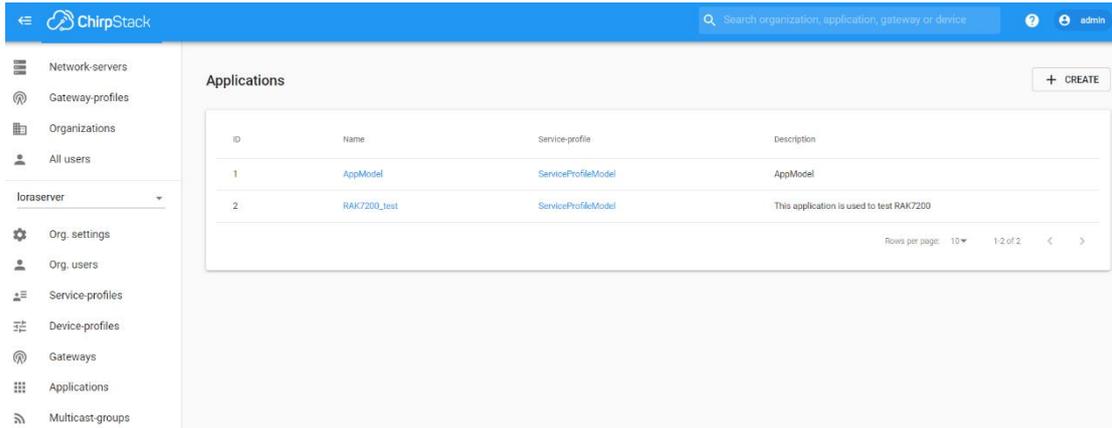


This screenshot shows the 'Applications / Create' form with the following data entered:

- Application name ***: RAK7200_test
- Application description ***: This application is used to test RAK7200
- Service-profile ***: ServiceProfileModel
- Payload codec**: Cayenne LPP

The 'CREATE APPLICATION' button remains at the bottom right.

"CREATE APPLICATION".

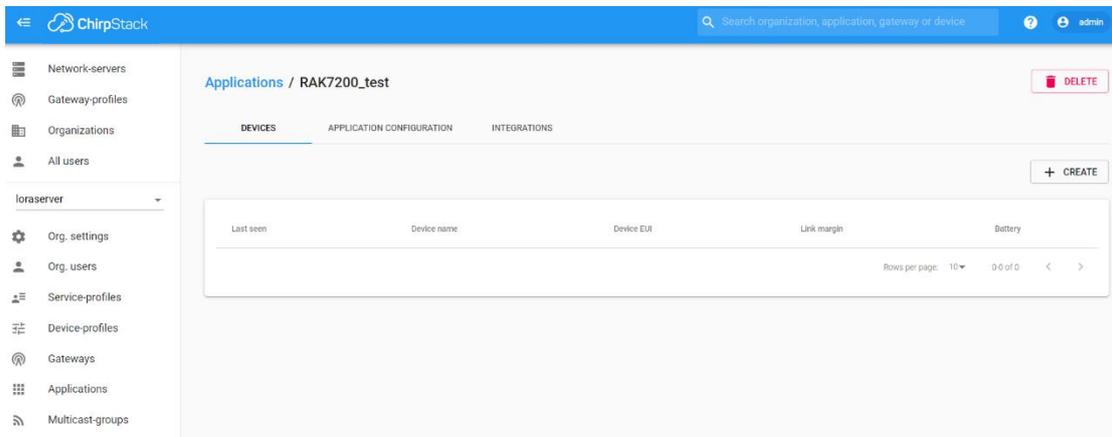


The screenshot shows the ChirpStack web interface. The left sidebar contains a navigation menu with items like Network-servers, Gateway-profiles, Organizations, All users, loraserver, Org. settings, Org. users, Service-profiles, Device-profiles, Gateways, Applications, and Multicast-groups. The main content area is titled "Applications" and features a table with the following data:

ID	Name	Service-profile	Description
1	AppModel	ServiceProfileModel	AppModel
2	RAK7200_test	ServiceProfileModel	This application is used to test RAK7200

At the top right of the main content area, there is a "+ CREATE" button.

Click the new item name "RAK7200_test":

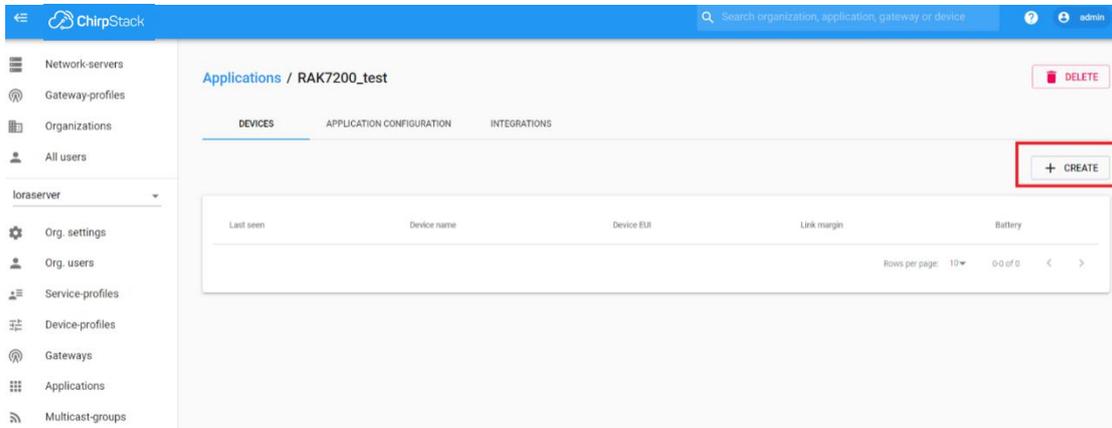


The screenshot shows the ChirpStack web interface for the "Applications / RAK7200_test" page. The left sidebar is the same as in the previous screenshot. The main content area has a breadcrumb "Applications / RAK7200_test" and a "DELETE" button. Below this, there are three tabs: "DEVICES", "APPLICATION CONFIGURATION", and "INTEGRATIONS". The "DEVICES" tab is active and shows a table with the following data:

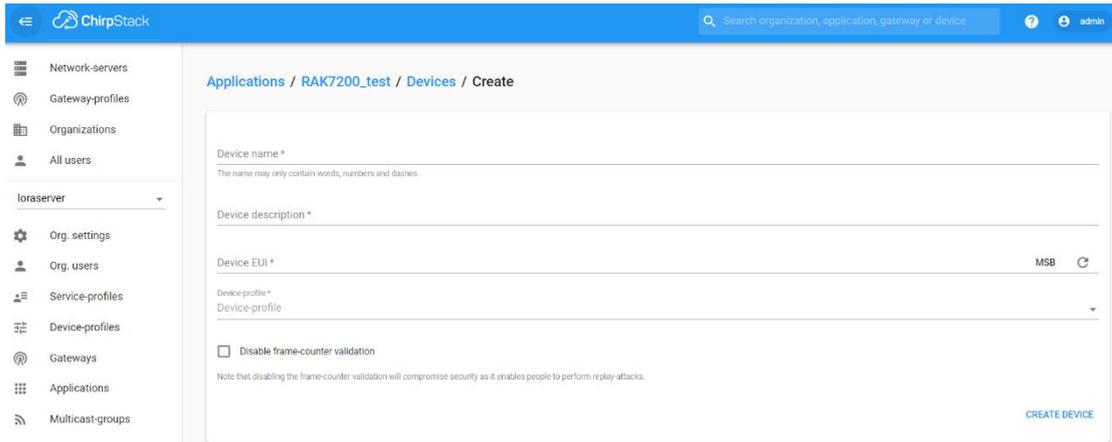
Last seen	Device name	Device EUI	Link margin	Battery
-----------	-------------	------------	-------------	---------

At the top right of the main content area, there is a "+ CREATE" button.

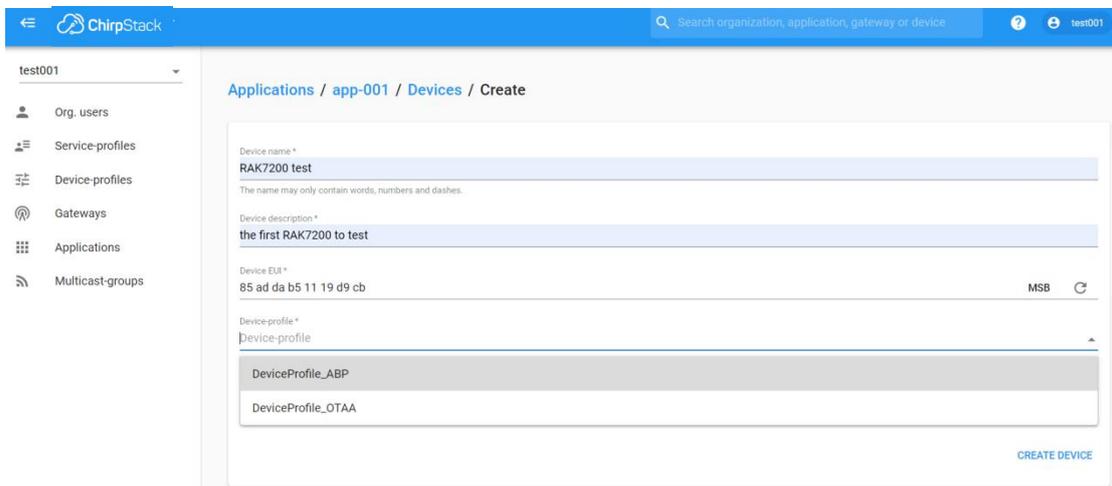
Add a LoRa node device into ChirpStack by clicking the "CREATE" button:



This screenshot is identical to the previous one, showing the "Applications / RAK7200_test" page. The "+ CREATE" button in the top right corner of the main content area is highlighted with a red rectangular box.



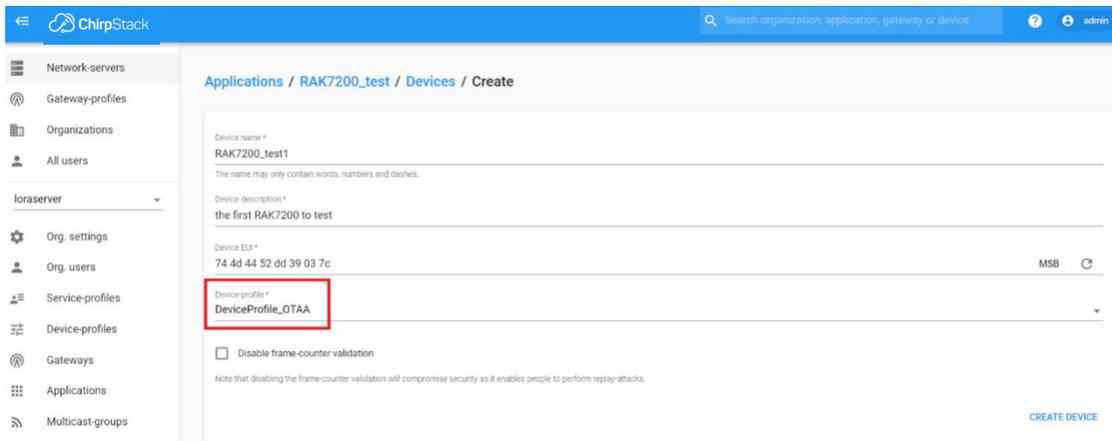
Fill in them. You can generate a Device EUI automatically by click the following icon, or you can write a correct Device EUI in the edit box.



Note: If you want to join in OTAA mode, you should select “**DeviceProfile_OTAA**” in the “Device-profile” item. If you want to join in ABP mode and other frequencies except AS923 and CN470, you should select “**DeviceProfile_ABP**” in the “Device-profile” item. What about AS923 in ABP mode? Sorry! ChirpStack can not support it now.

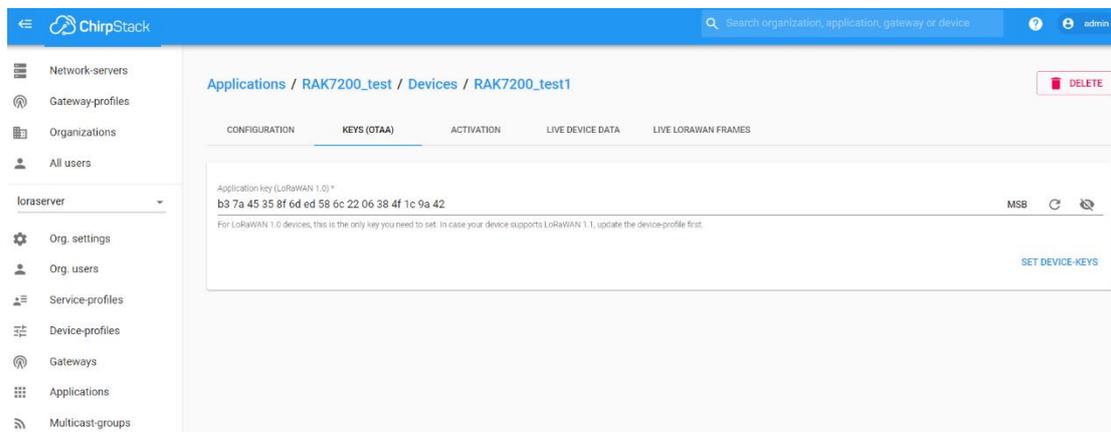
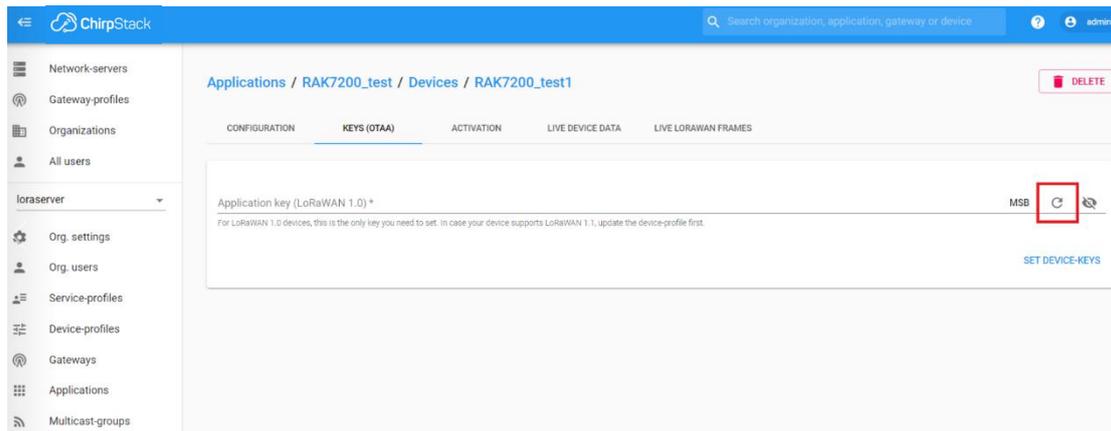
5.1 Register a LoRa node in OTAA mode

If you select “DeviceProfile_OTAA”, it means you want to join ChirpStack in OTAA mode.

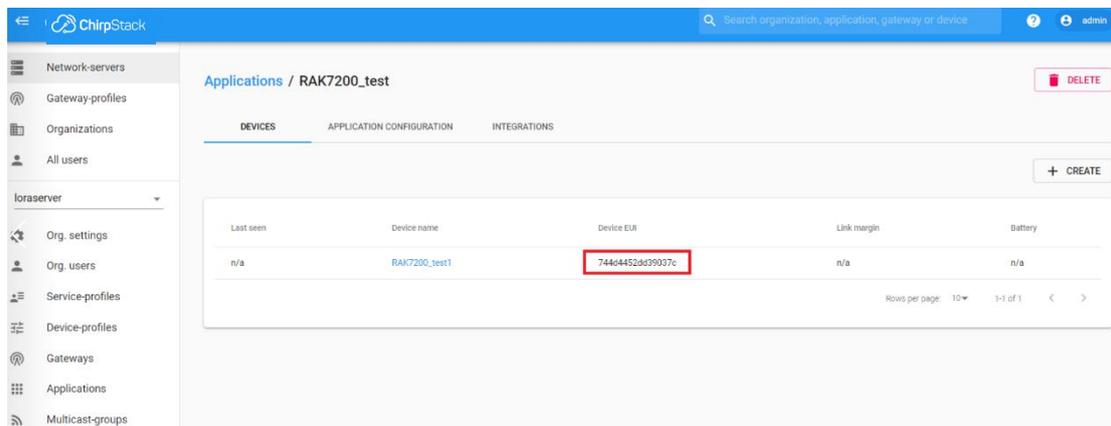


“CREATE DEVICE”. Then generate the application key in this page. You can write it by

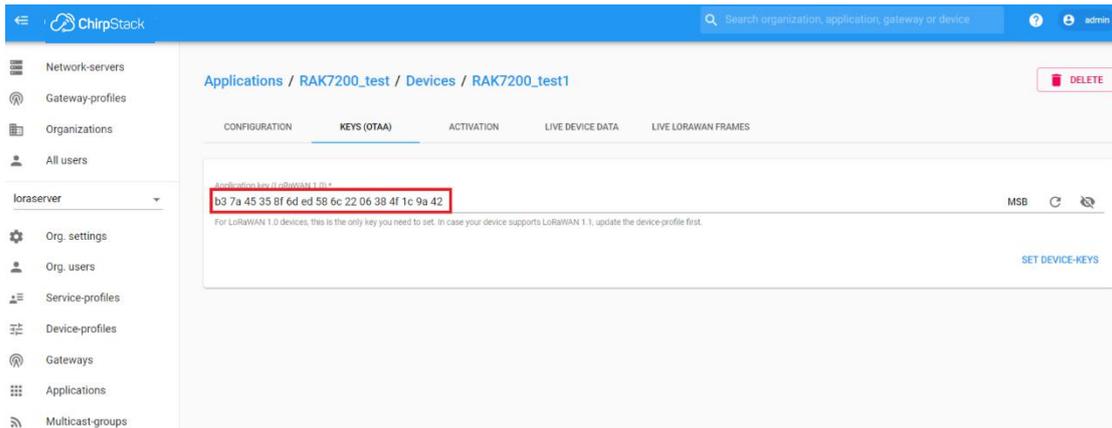
yourself or generate it automatically by clicking the following icon:



“SET DEVICE-KEYS”. That’s OK! You’ve complete the configuration on ChirpStack. As you see, the Device EUI which will be set into your LoRa node as “dev_eui” is this one:



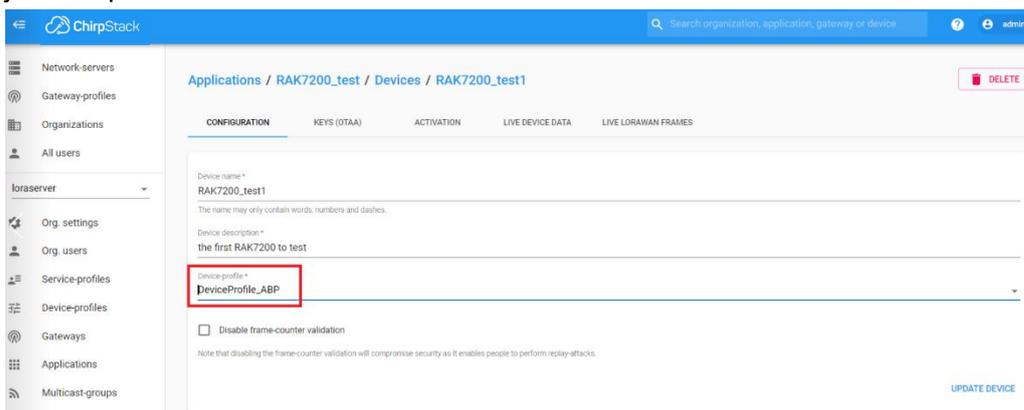
The Application Key which will be set into your LoRa node as “app_key” is this one:



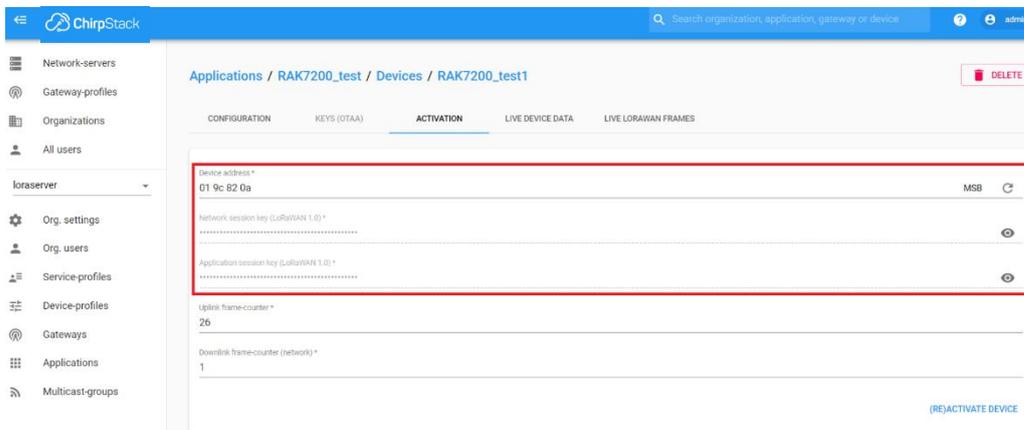
The Application EUI which will be set into your LoRa node as “app_eui” is useless for ChirpStack, and you can set it to any value with a correct format, for example: 7083D57ED001C1CF.

5.2 Register a LoRa node in ABP mode

If you select “DeviceProfile_ABP” or “DeviceProfile_ABP_CN470”, it means you want to join ChirpStack in OTAA mode.



Then you can see that there are some parameters for ABP in the “ACTIVATION” item:



Next, let's use these parameters to set your LoRa node by using AT command.

6. Revision History

Revision	Description	Date
1.0	Initial version	2019-06-12

7. Document Summary

Prepared by	Checked by	Approved by
Fomi	Penn&Fomi	



About RAKwireless:

RAKwireless is the pioneer in providing innovative and diverse cellular and LoRa connectivity solutions for IoT edge devices. It's easy and modular design can be used in different IoT applications and accelerate time-to-market.

For more information, please visit RAKwireless website at www.rakwireless.com.