Remote Sensor Monitor Solution Kit With Actility V1.0

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1. Overview

This document describes how to connect to the LoRaWAN server Actility using UFI picocell gateways with numerous Netvox sensors.

Including the following：

How to register Actility account ?

How to register UFI picocell gateway in Actility ?

How to Add Netvox Sensor Device to Actility Application Server ?

How to register myDevices account ?

How to import sensor data into Cayenne ?

How to view sensor data on phone via Cayenne APP ?

So let's get started！

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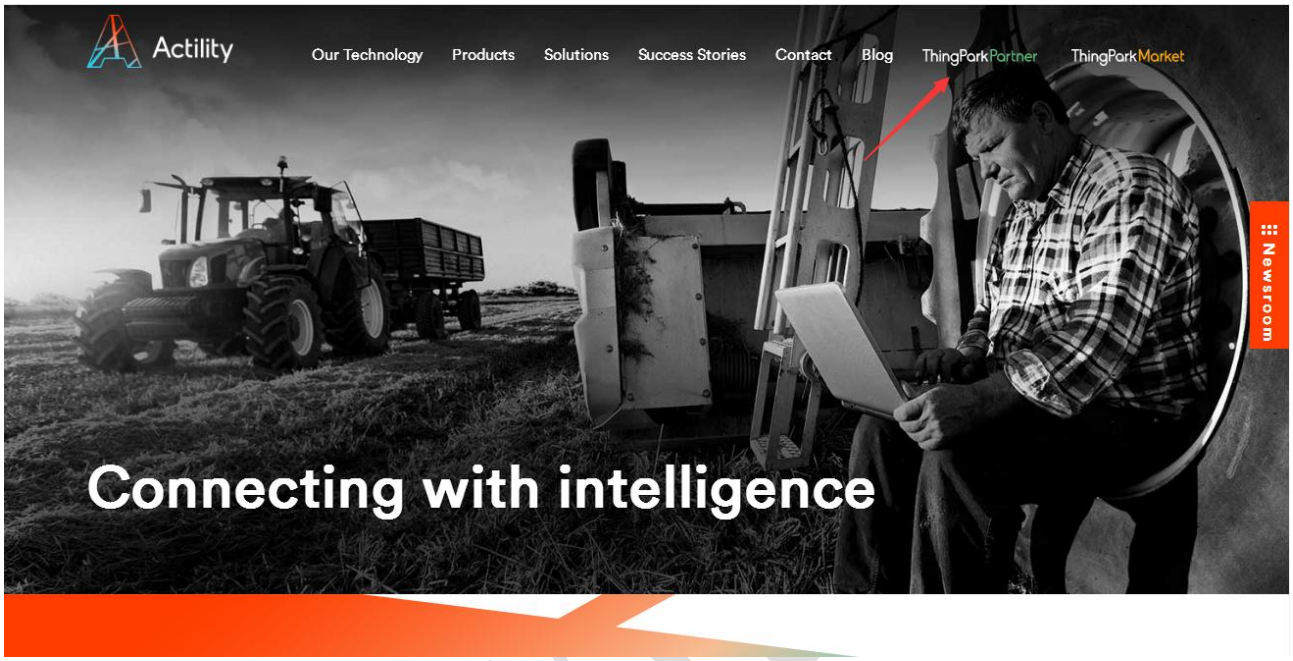
2. Start Using

2.1 Register Actility

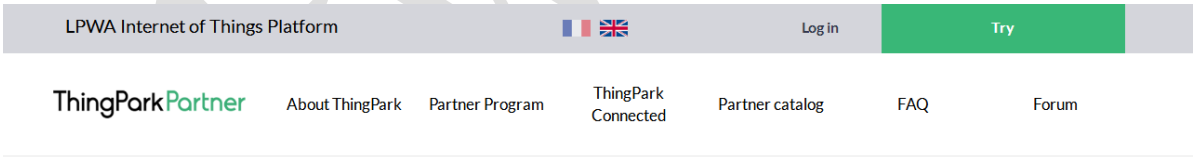
Actility is the leader in LoRaWAN network solutions. Actility's ThingPark is an advanced IoT enabler platform for the deployment, management and monetisation of LPWA networks.

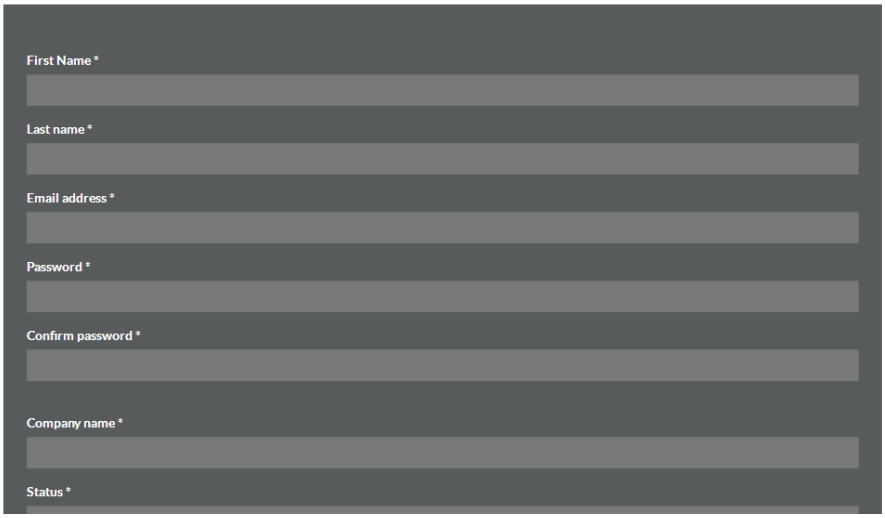
First let's open Actility's home page: https://www.actility.com/

Then click the place pointed by the arrow. Enter ThingParkPartner.



After entering the ThingParkPartner, click Try in the upper right to enter the registration interface. After filling out the information you can use Actility.





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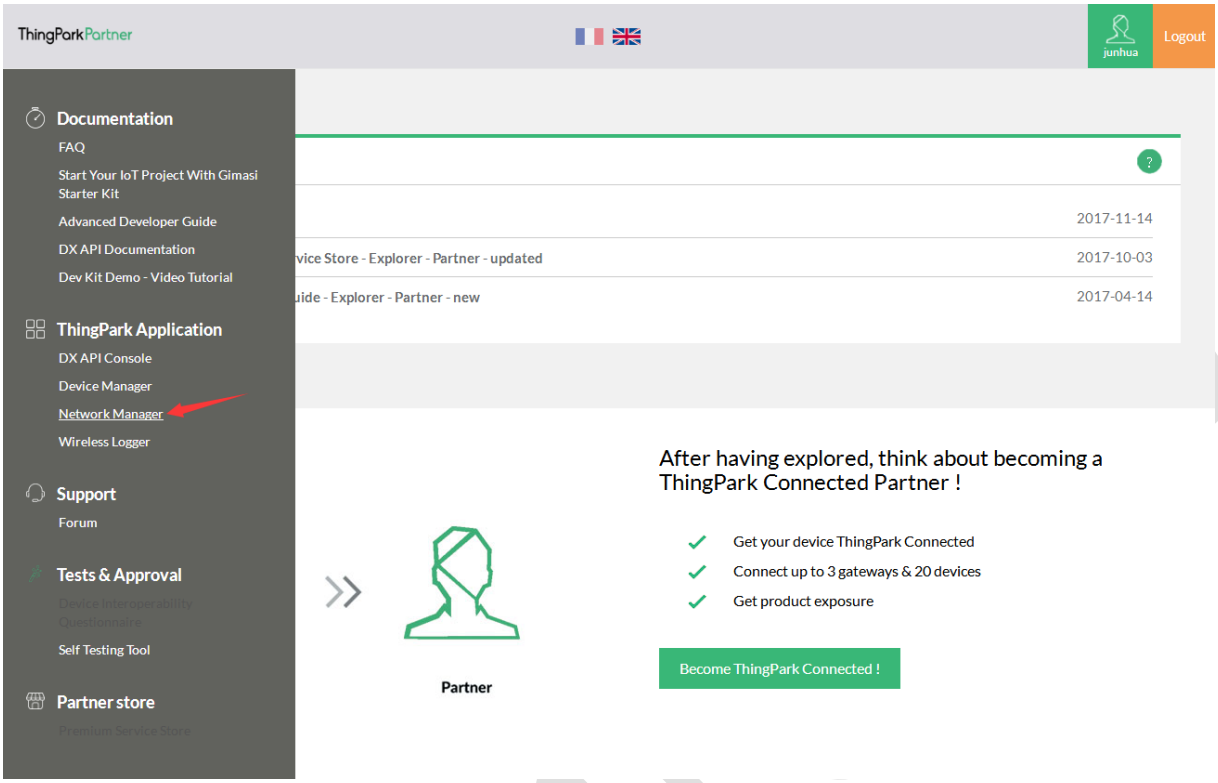
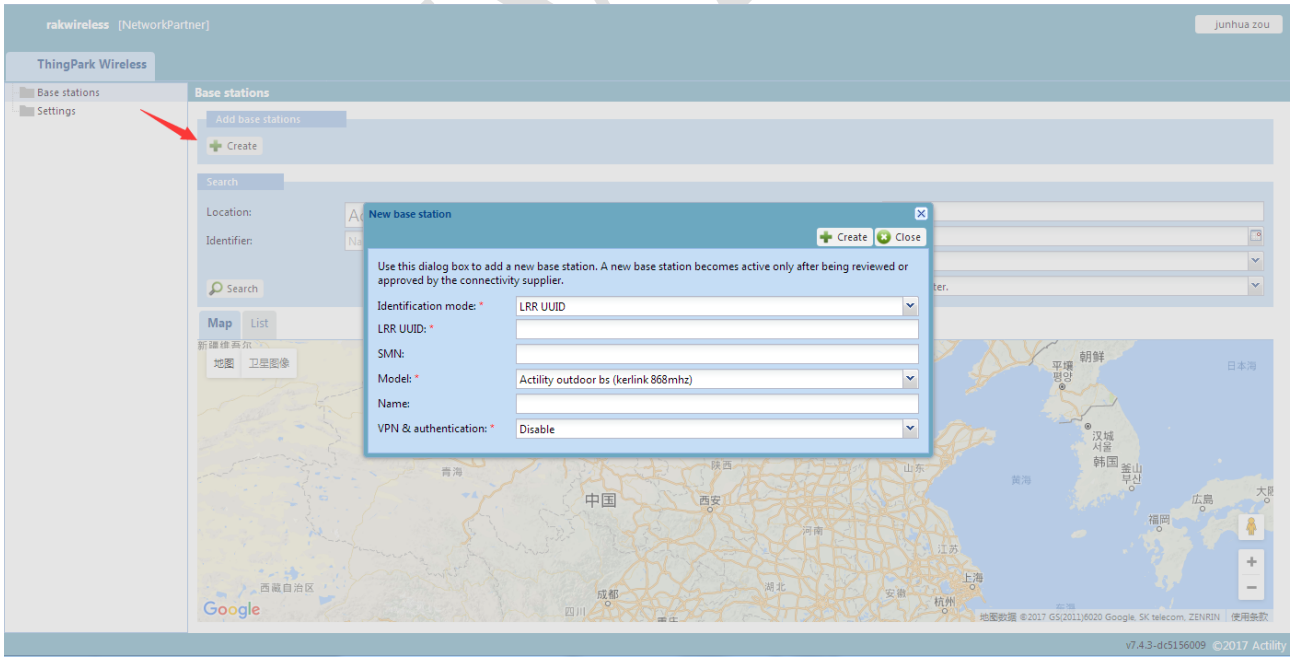
2.2 Register Gateway to Actility

After registering your Actility account, you will be logged in to your dashboard. Click the Network Manager button on the left to enter Actility's Management Gateway interface.



In Actility's Management Gateway interface, you can see that there is a Create button, click to add a gateway device.



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Select the LRR ID in the Identification mode field. You will see that you need to type in four messages: LRR ID, SMN, Model, Name. they mean is as follows:

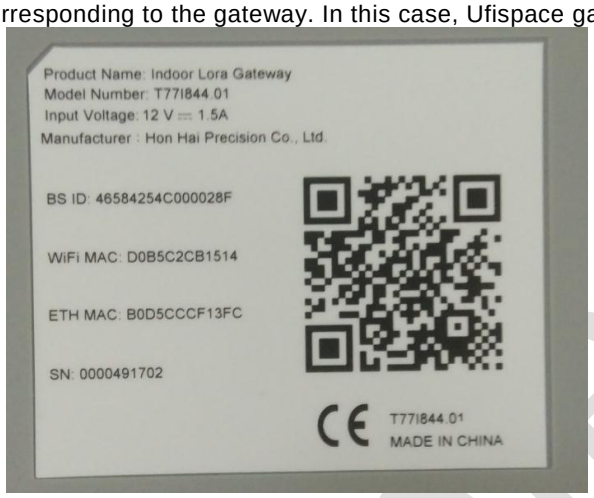
LRR ID: Identification of the base station -> Enter the last BS ID 8 hexadecimal digits (Must)

Model : Gateway model -> Select the proper one (Must)

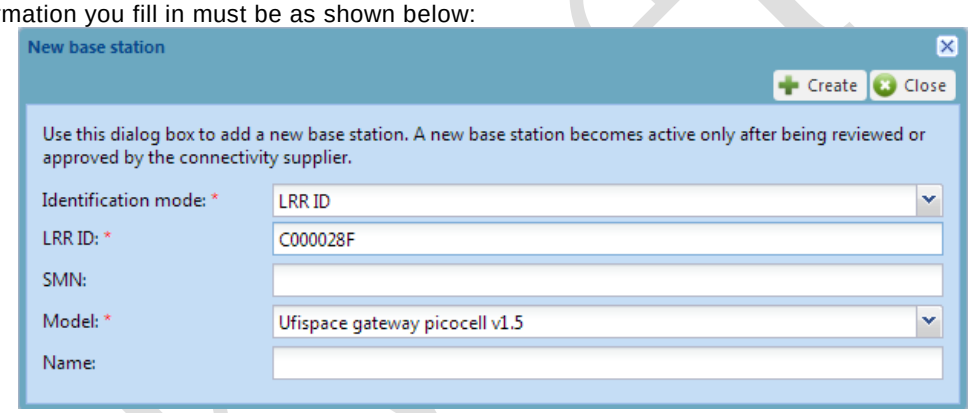
SMN: Serial Number -> Enter 0000-XX-0000-0000 as SMN (do not copy and paste from here, please enter it manually) (Optional)

Name : name of your Basestation -> Enter a name (Optional)

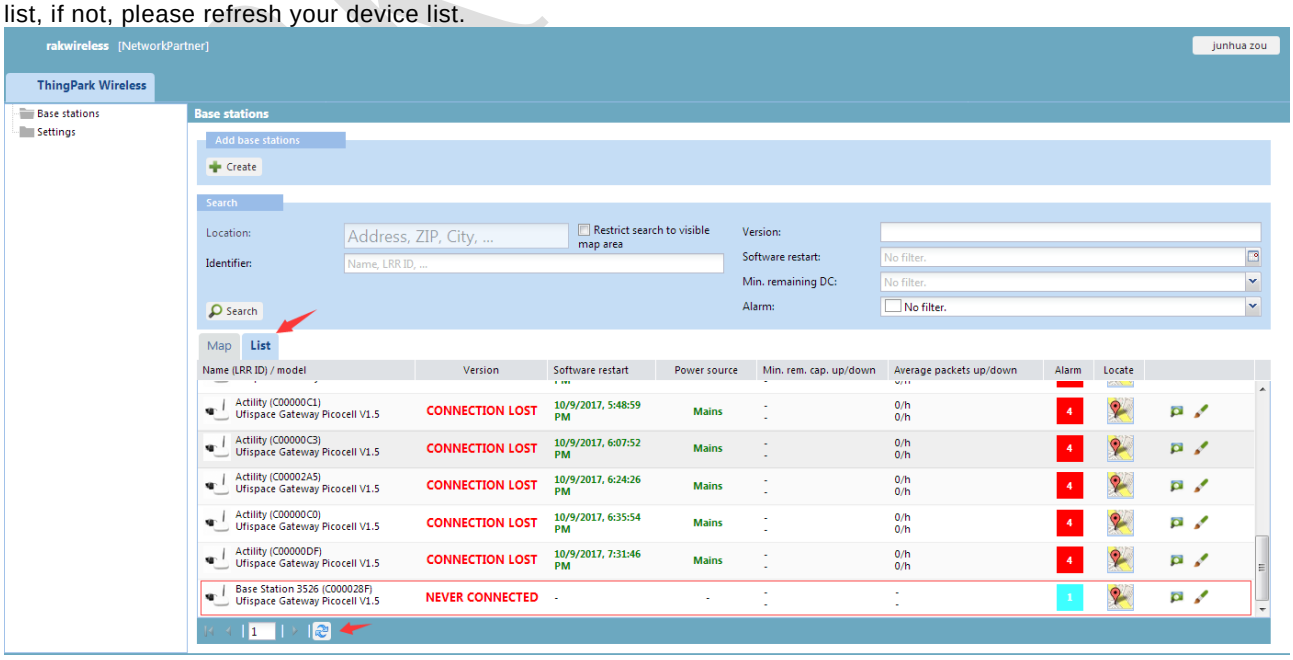
The information you need can be found at the bottom of your gateway device. The BS ID here stands for LRR ID. Model is the device type corresponding to the gateway. In this case, Ufispace gateway picocell v1.5



The information you fill in must be as shown below:



Finally, click the Create button to create the device, after the success you can see your device in your device list, if not, please refresh your device list.



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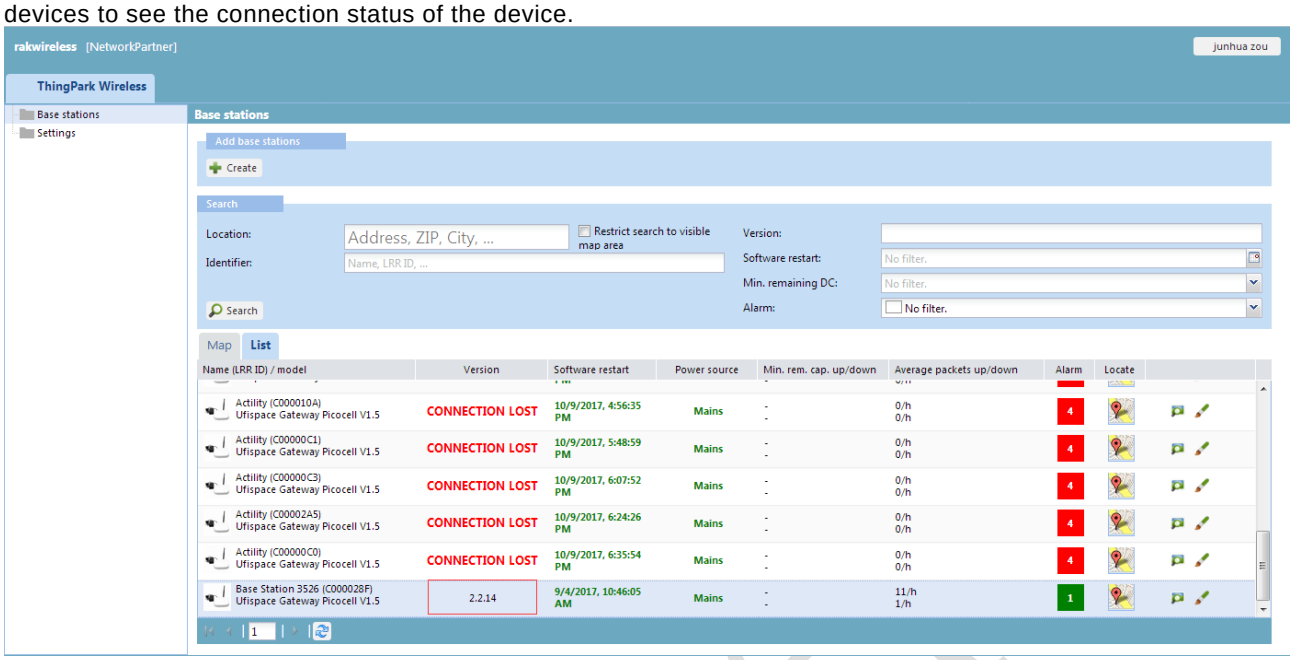
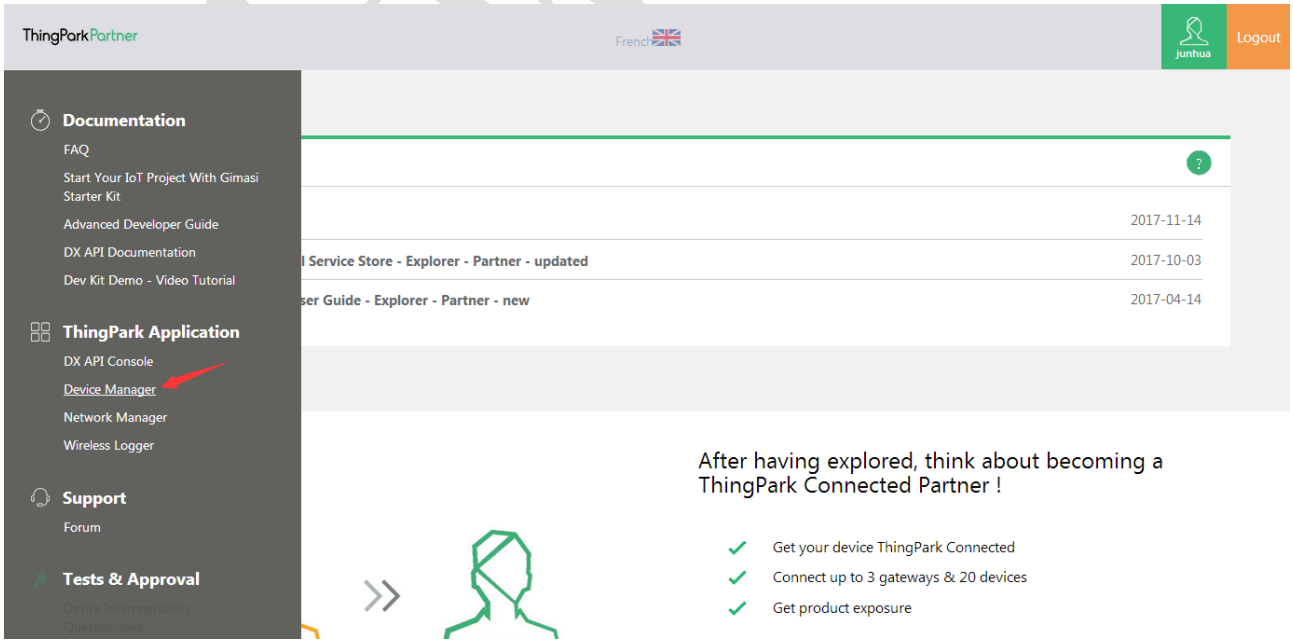
Power up your gateway device at this time. Be sure to connect your gateway device to a networked environment(connected to the WLAN port). For how to configure the gateway device, please refer to the gateway device manual: Picocell_User Manual_GPE810-20170524_V0.1.

After power-up, your device automatically connects to the Actility network. You only need to refresh your list of devices to see the connection status of the device.



2.3 Register your device to Actility

Return to the dashboard interface of your Acceleration account, Click the Device Manager button to enter the device management interface.



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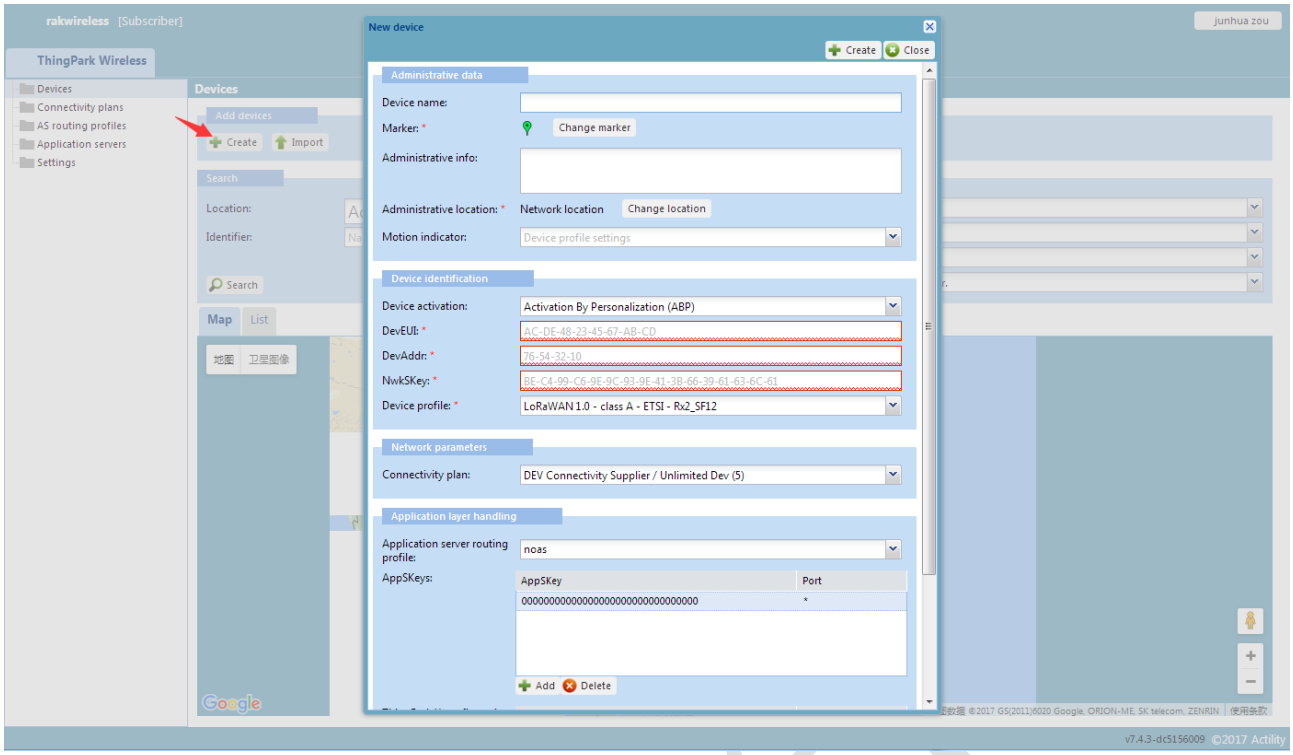
After entering the device management interface, click the Create button to create the device.



The parameters of these devices, you can see the following introduction:

Device name: This is the device name ,you can set any name. Recommended setting: Device model_The last three EUIs. Eg: R311A_00003E.

Marker: Default setting.

Administrative info: Do not set.

Administrative location: Default setting.

Motion indicator: Do not set.

Device activation: Set to ABP mode. Activation By Personalization.

DecEUI: The DevEUI is a unique device 64-bits identifier. This parameter is indicated in the package.

DevAddr: The DevAddr is the device address on the LoRaWAN network, the DevAddr contains the NetworkID identifiying the operator where the device is connected. This parameter is indicated in the package.

NwkSKey: The NwkSKey encrypts the frames between the device and the Core Network as an authentication with the DevAddr. This parameter is indicated in the package.

Device profile: Select LoRaWAN 1.0 - class A - ETSI - Rx2_SF12 Settings.

Connectivity plan: Select DEV Connectivity Supplier / Unlimited Dev (?) Settings.

Application server routing profile: Can not be set first, there will be settings later.

AppSKey: The AppSKey encrypts the payload between the device and the Application Server, if the Core Network knows the AppSKey then the packet is decrypted inside the Core Network and forwarded to the application decrypted. This parameter is indicated in the package.

ThingPark X configuration: Do not set.

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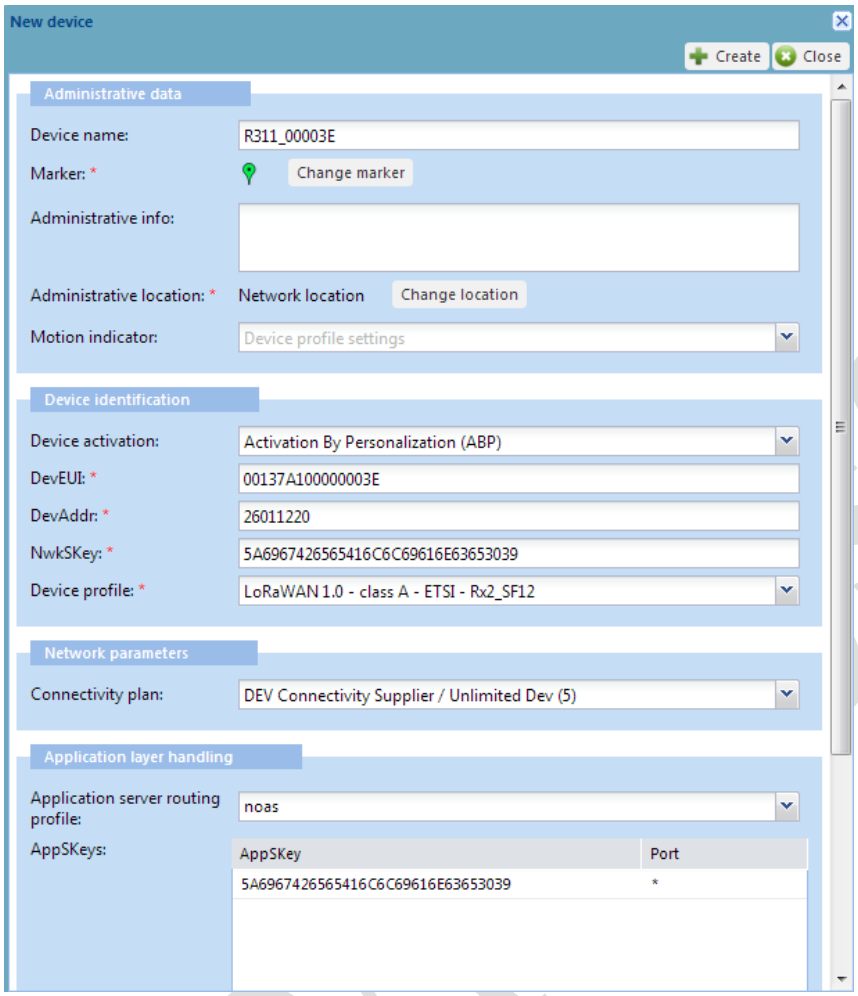
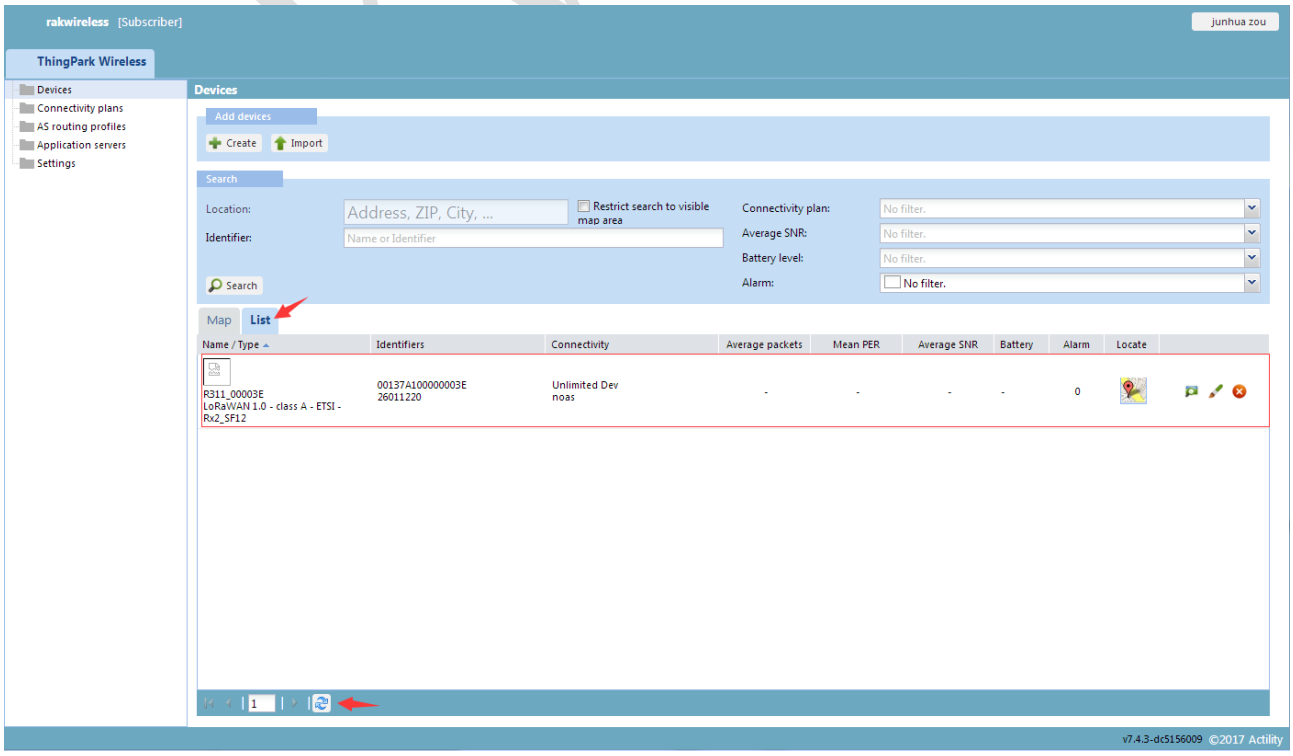
Finally, the information you set must be as shown below:



After setting the parameters, click the Create button on the top right to create the device, After the creation is successful, you will see the device you created in your device list, if not, please refresh your list.



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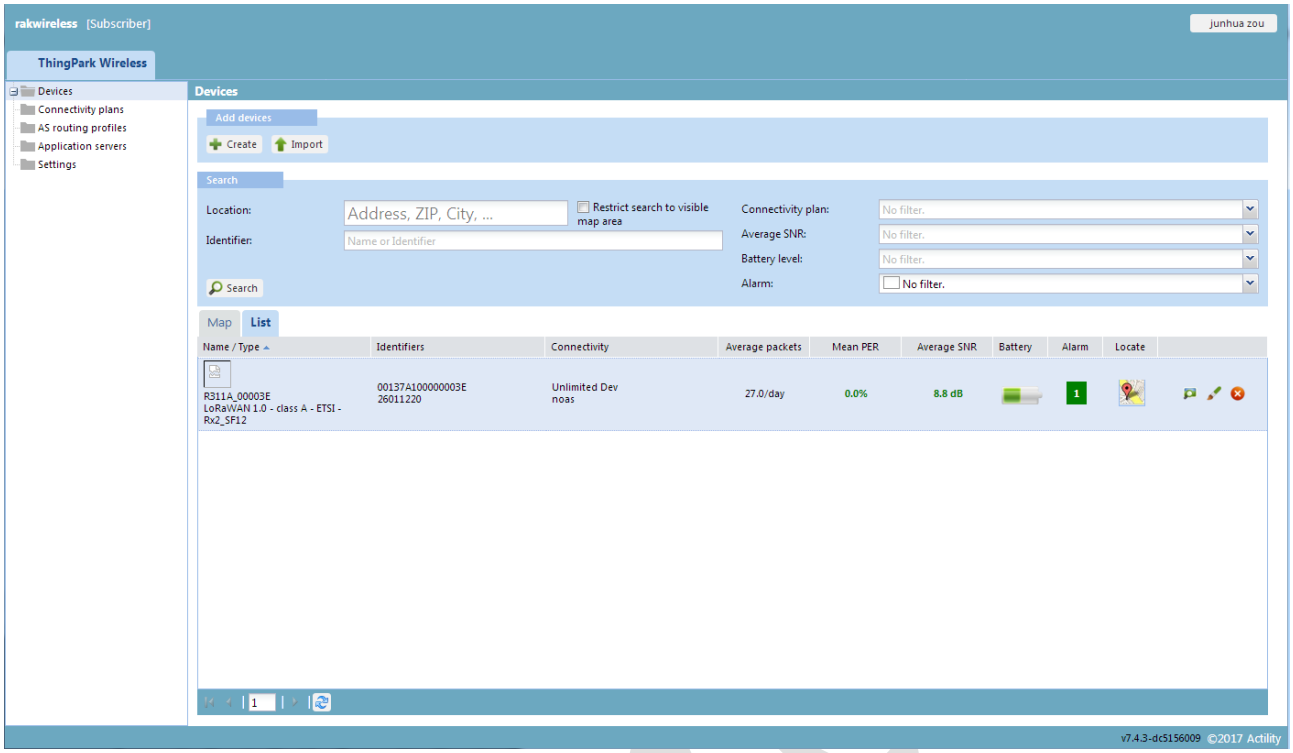
After the device is added successfully, if your gateway device is still online. Then you can reset your device or let the device send the data, the device will send data to the Actility server through the gateway. At this point you can see the data message sent by your device is parsed and displayed.(Refresh your device list)

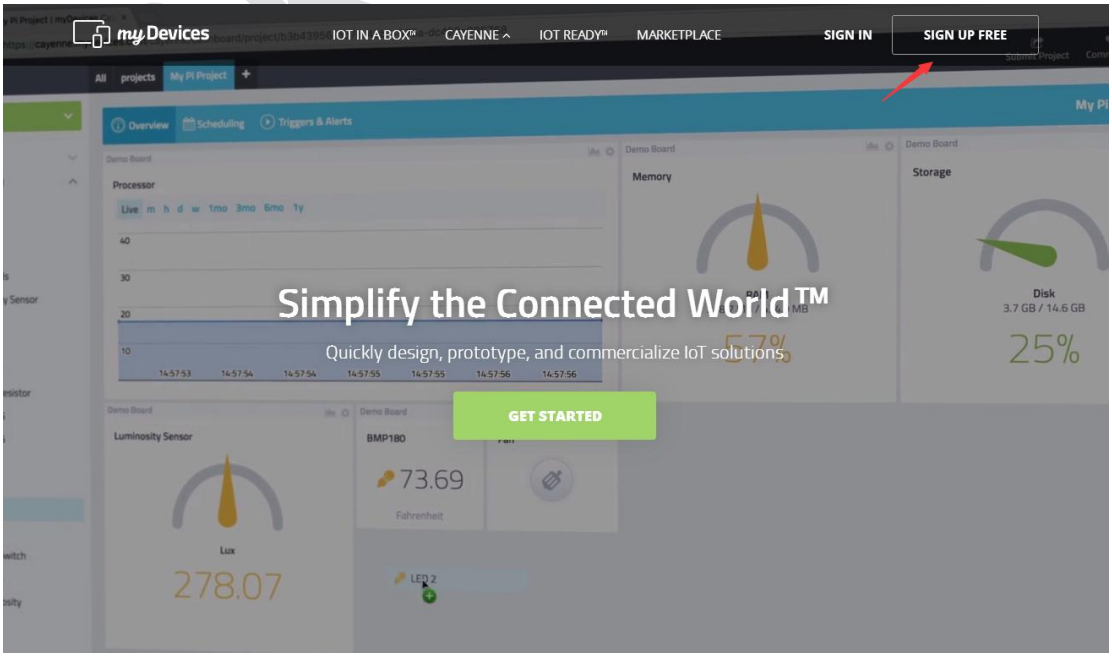


2.4 Register myDevices

myDevices is an Internet of Things solutions company. They created Cayenne – the world's first drag-and drop IoT project builder. Cayenne enables engineers, makers, network operators and system integrators to quickly and easily develop and deploy IoT solutions across a wide variety of verticals.

First let's open myDevices home page: https://mydevices.com/

Then click the SIGN UP FREE button at the top right to start registering.



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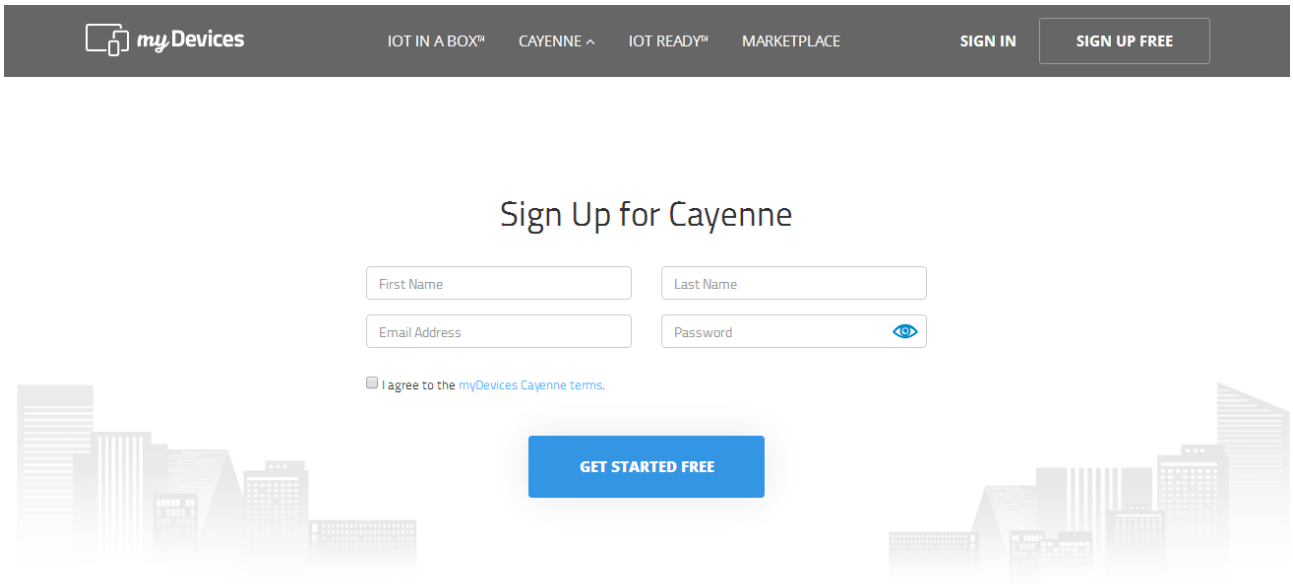
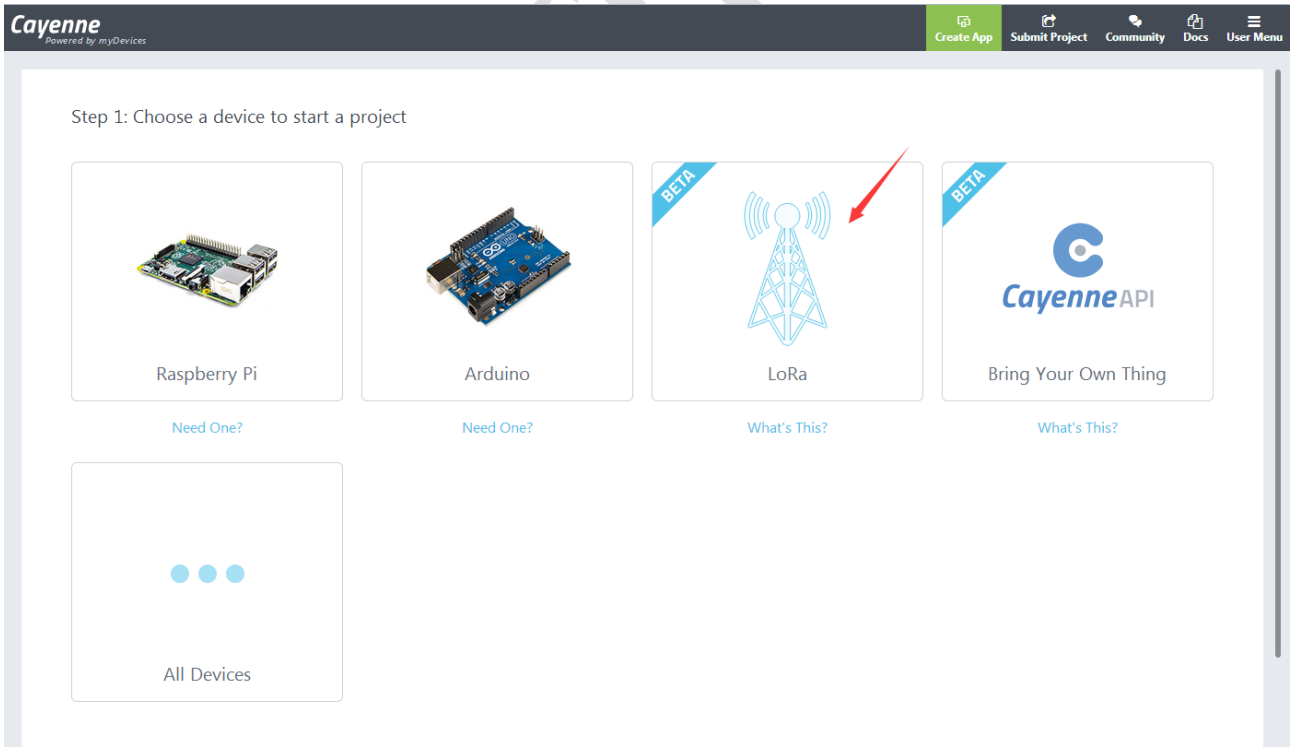
In accordance with the requirements, fill in the information, you can create a myDevices account.



2.5 Export the data to Cayenne

After registering myDevices account, log in to your account and you will see your Cayeenne Dashboard. Since the device we want to add is a LoRa device, select the LoRa icon Click.



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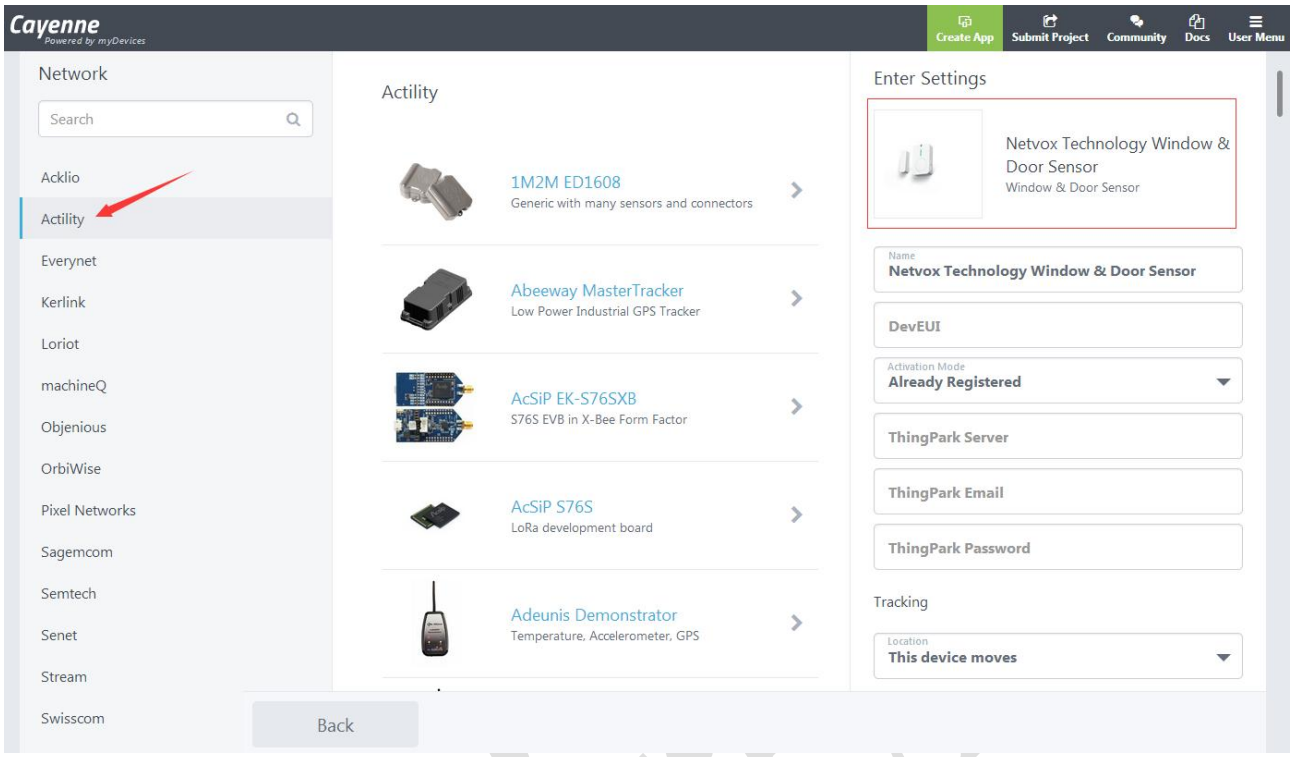
After entering, first select the left LoRaWAN network provider, here select Actility. Next, select the sensor device, here to Netvox Technology Window & Door Sensor R311A as an example.



You can see the need to fill in some of the parameters of the device, described in detail below：

DevEUI: The DevEUI is a unique device 64-bits identifier. This parameter is indicated in the package.

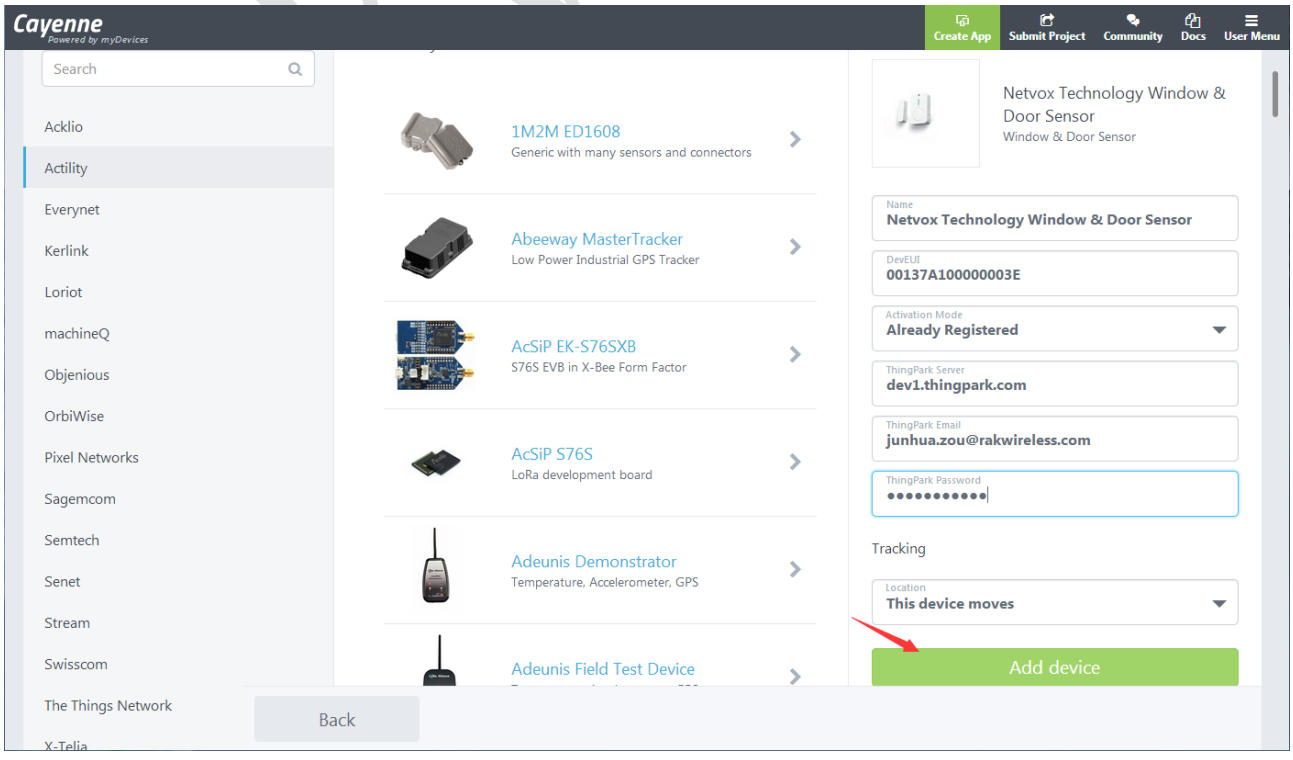
Activation Mode: The Default setting Already Registered.

ThingPark Sever: Set to dev1.thingpark.com.

ThingPark Email: Your Actility account.

ThingPark Password: Your Actility Password.

Location: Set according to your equipment.



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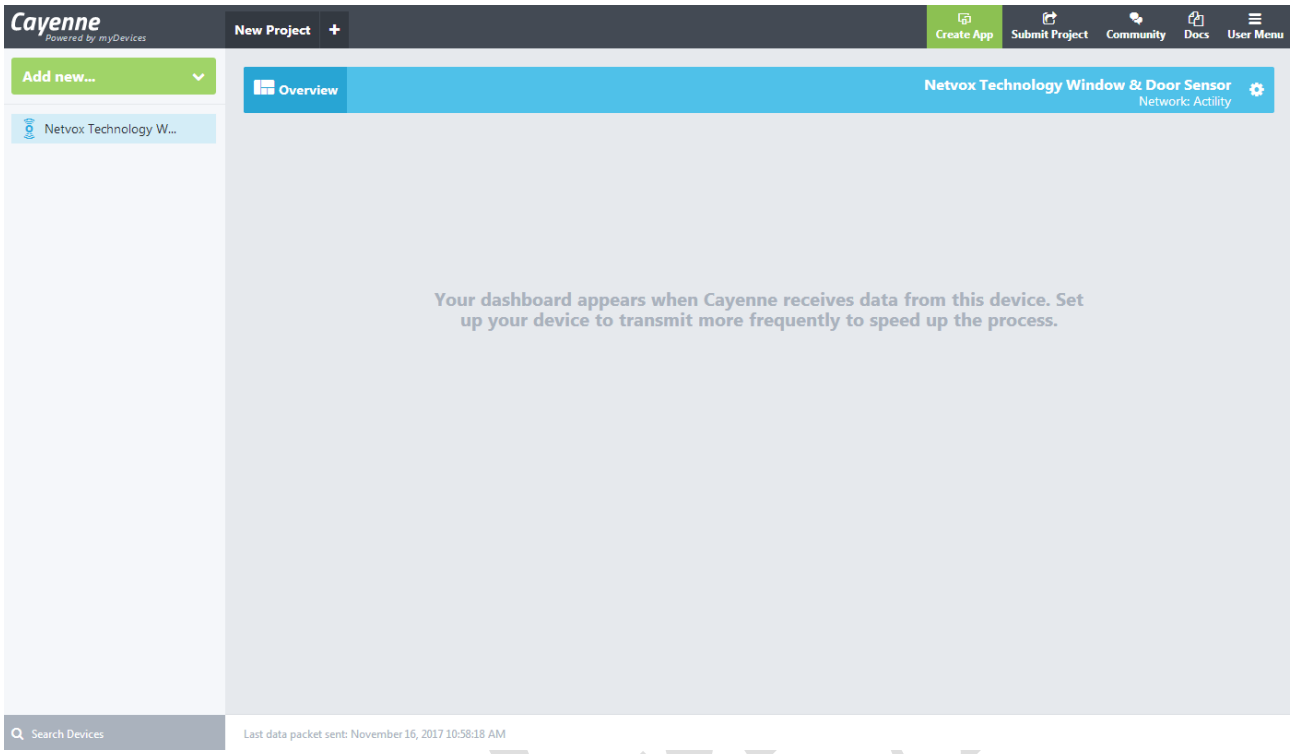
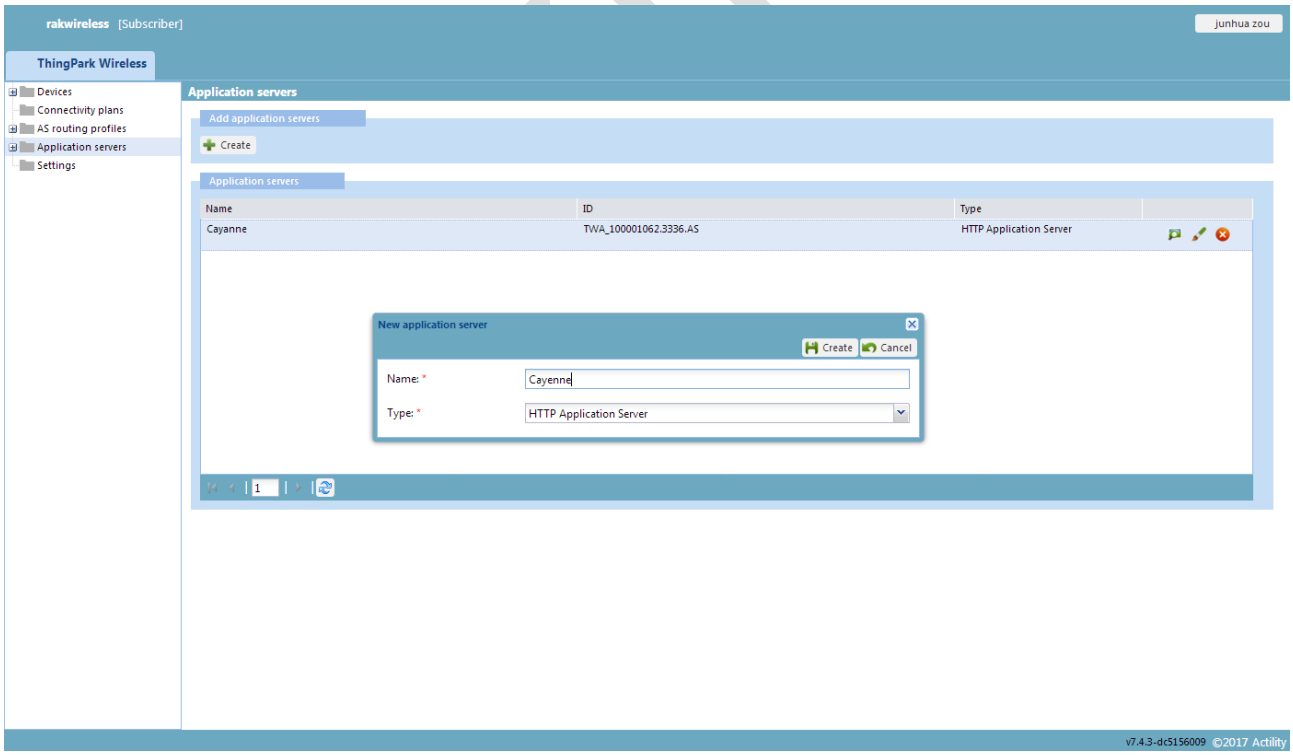
After setting the parameters, click Add Device. At this point the parameters of Cayenne set up. Next you need to set Actility's device parameters.



Open your Actility device management interface,Click the Application servers button ,then Create. In the settings interface, The Name can be filled Cayenne, Type select set to HTTP Application Server. Finally click Create.



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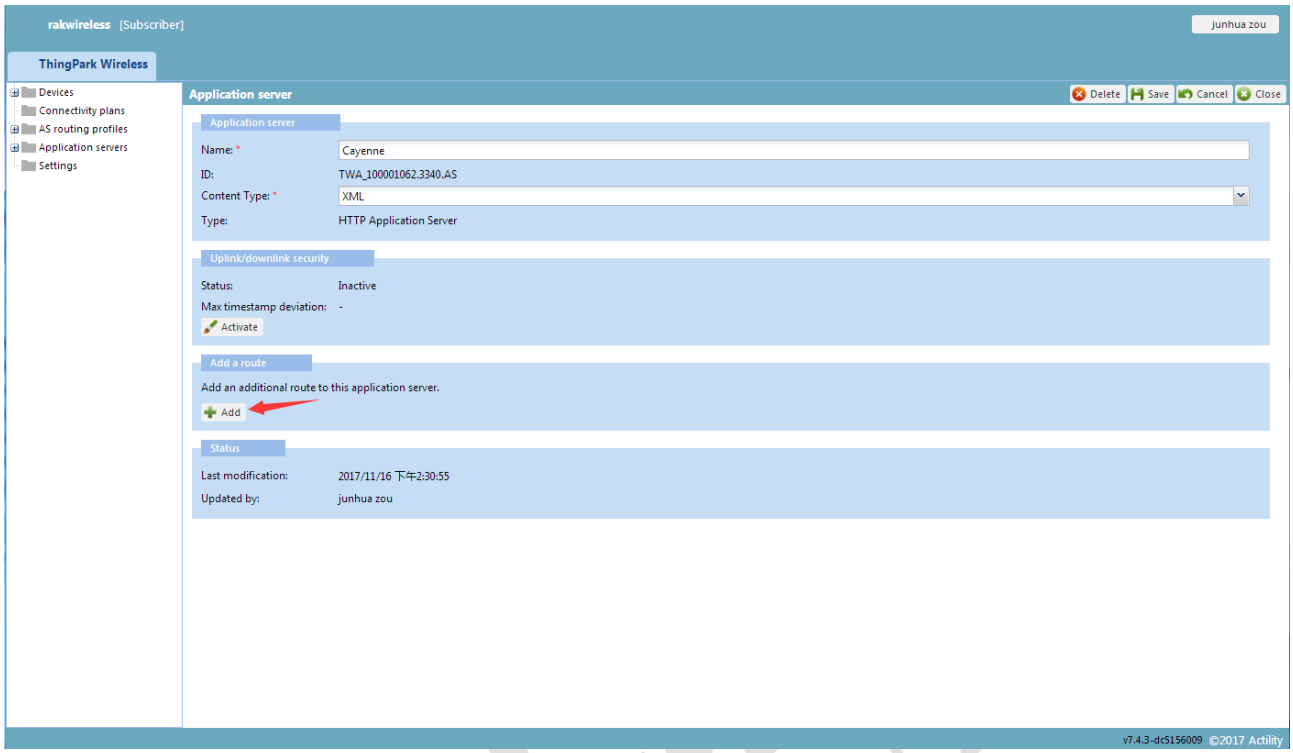
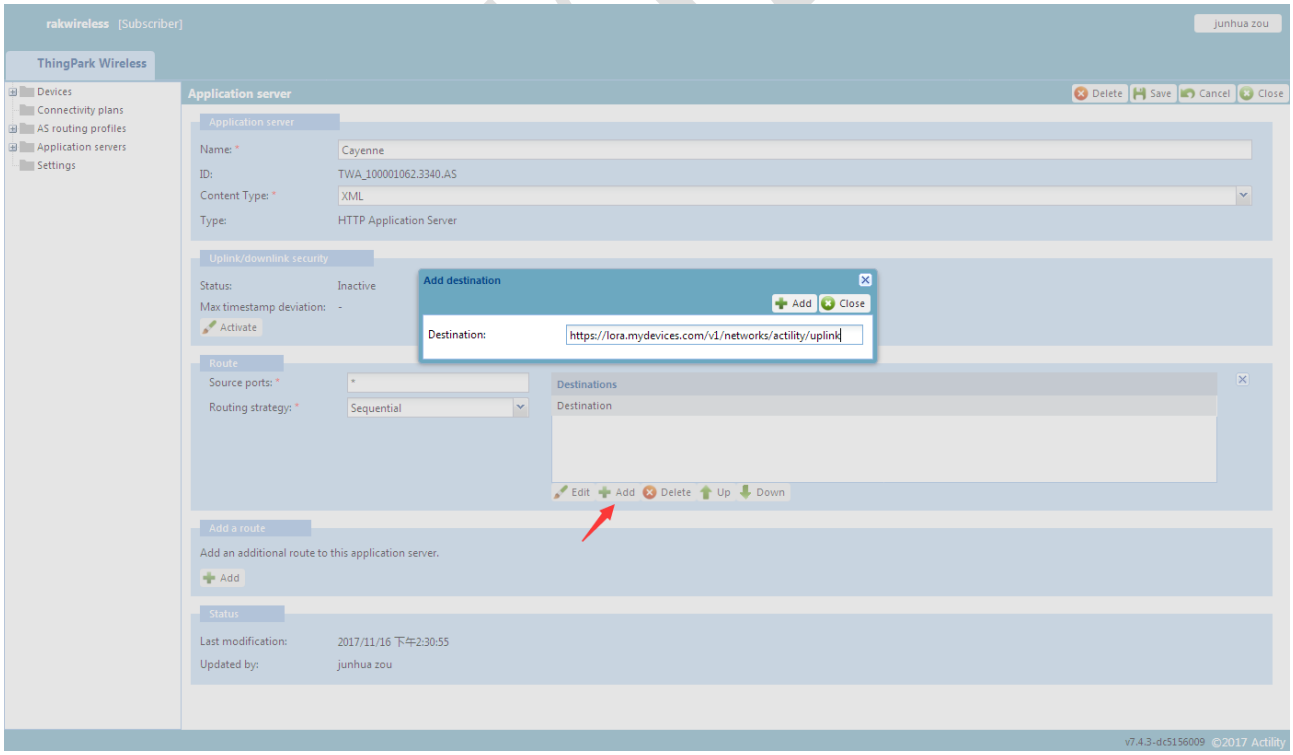
Click to create, the interface will jump link settings interface, click Add a route Add button. add the Cayenne server link address



Add Cayenne server address: https://lora.mydevices.com/v1/networks/actility/uplink. For details, see the Cayenne documentation: https://mydevices.com/cayenne/docs/lora/



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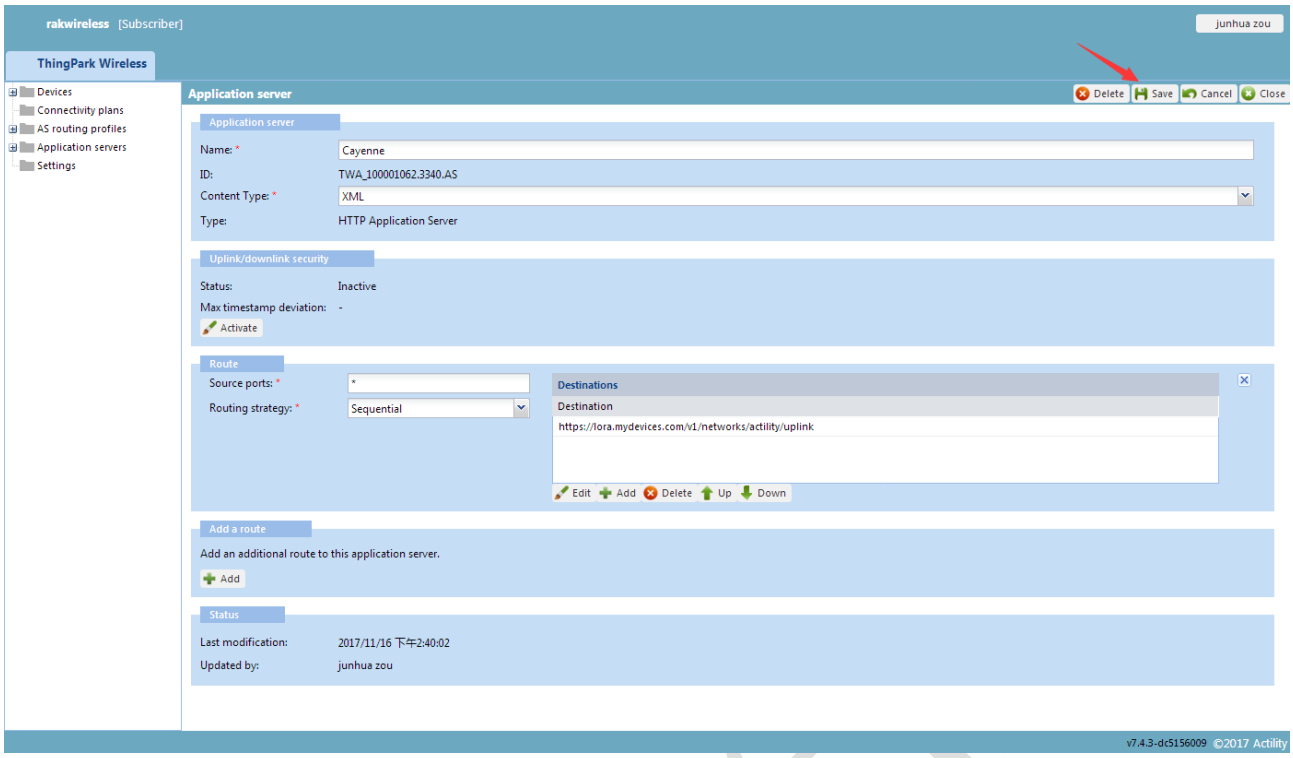
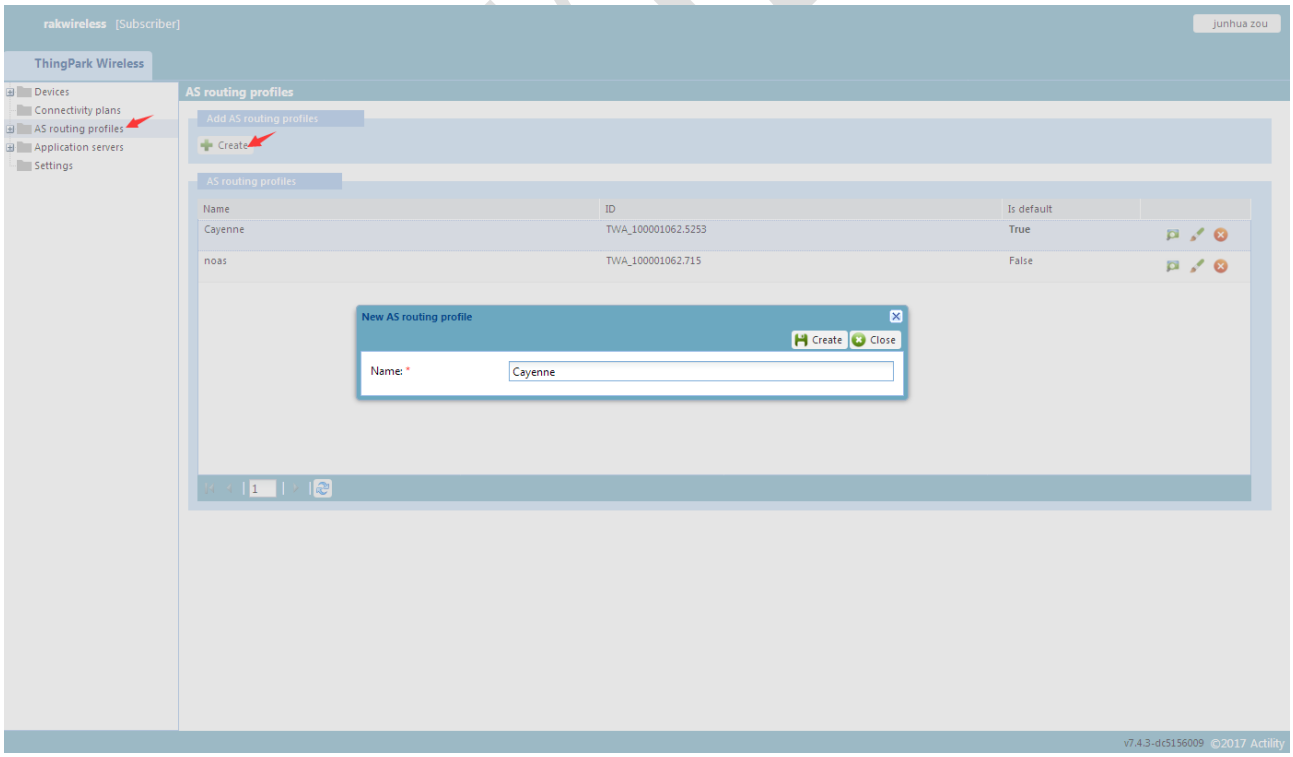
After adding, click save.



After setting the application server address, also need to set the AS routing profiles. Click AS routing profiles button, click Create to add. The name can also be set to Cayenne.



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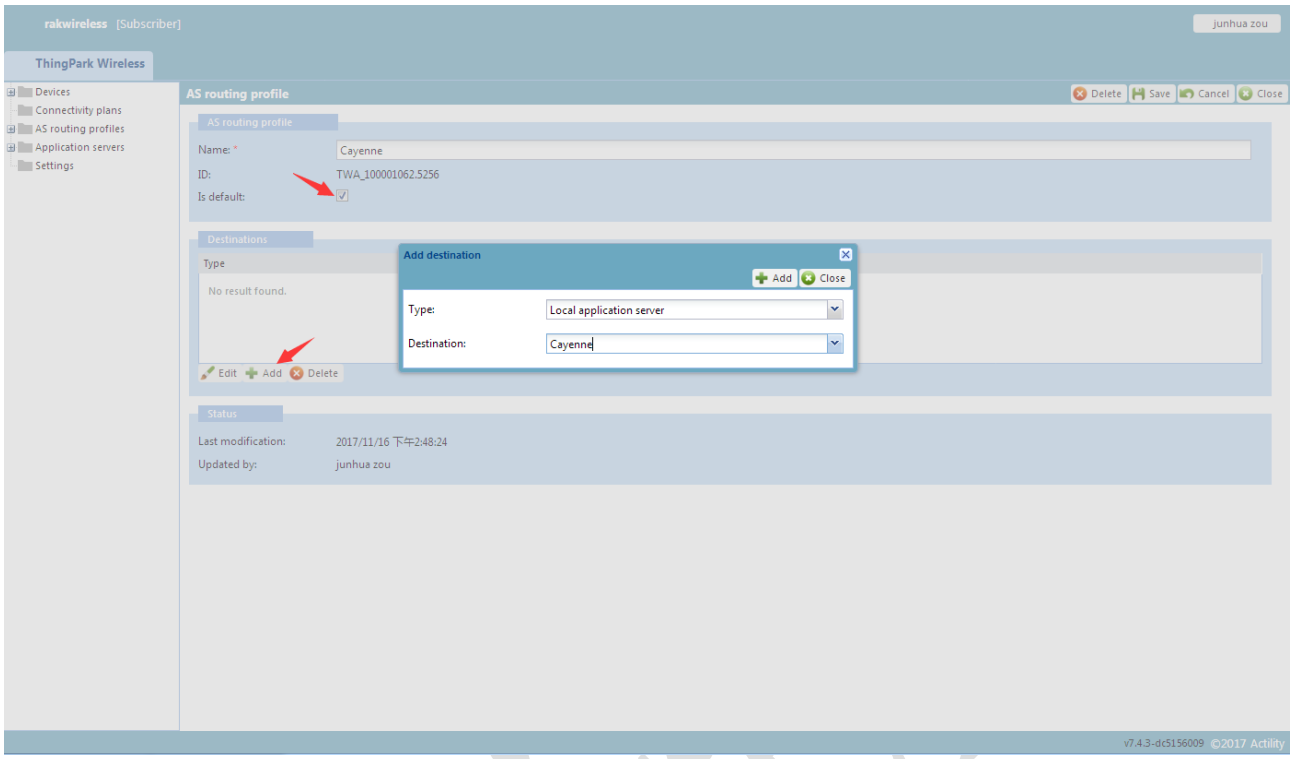
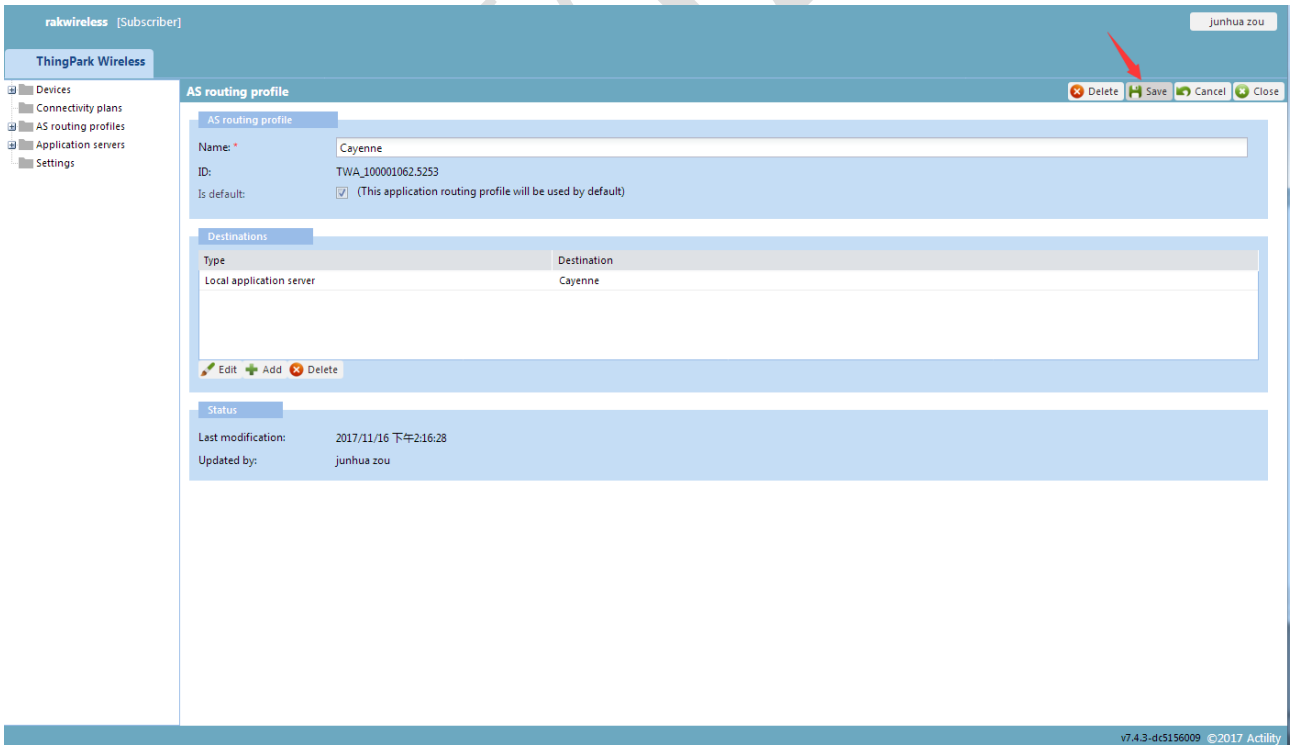
In the click to create, the next interface need to check Is default option, and then click the Add button, Type select Local application server, Destination select just created Cayenne.



After adding, click save.



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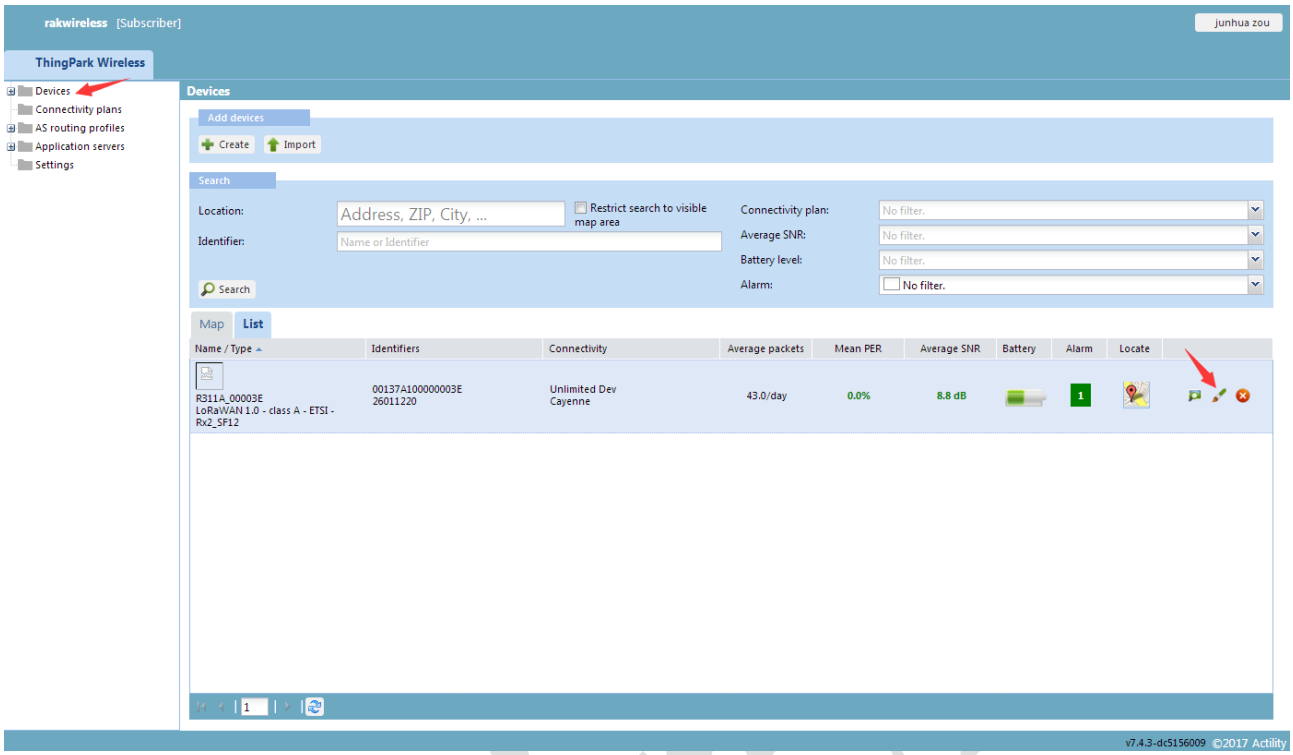
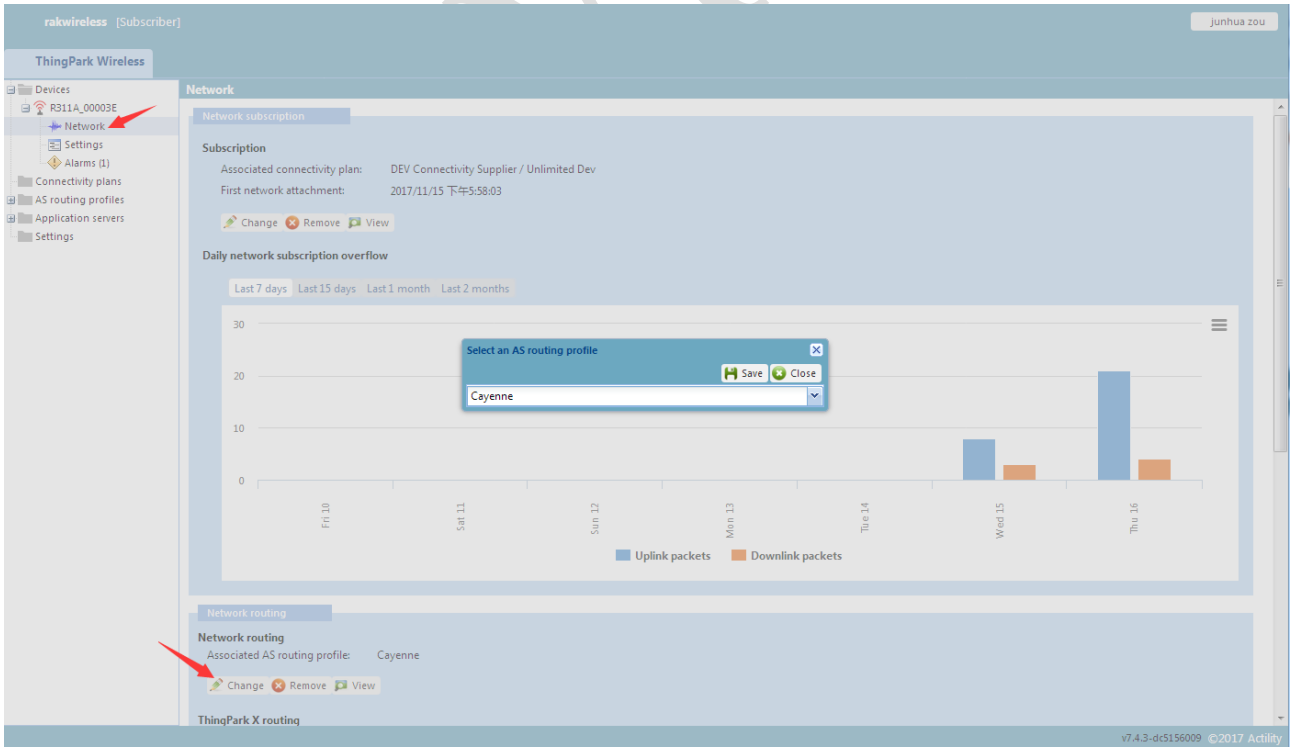
Finally, modify the device Application server routing profile parameters, this parameter is set to default when creating the device, here you need to modify the Cayenne just created. So click the device button and click the Edit button.



To the device settings interface, click on the left open the device settings card. select the Network button to click. select the Network button click, and then click the Change button, select Cayenne, save. This completes all settings of Actility.



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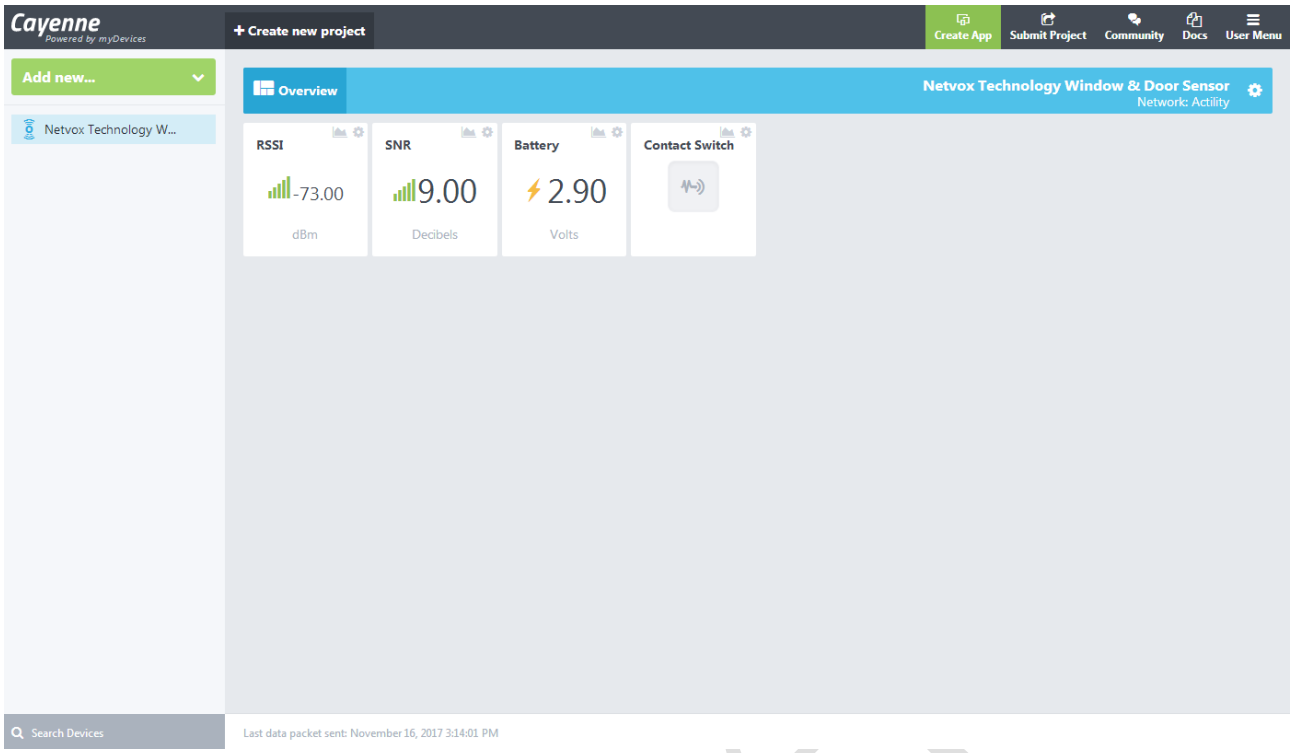
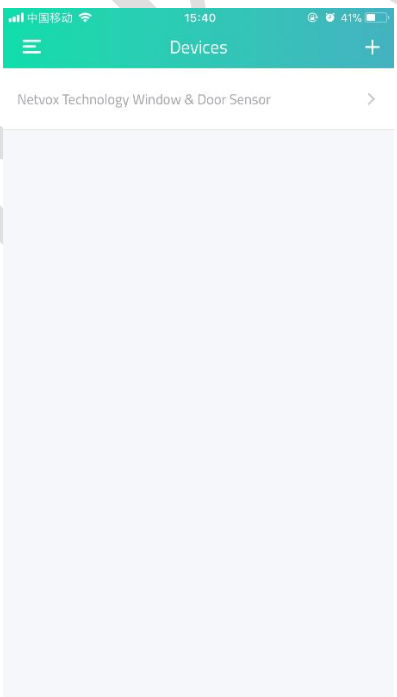
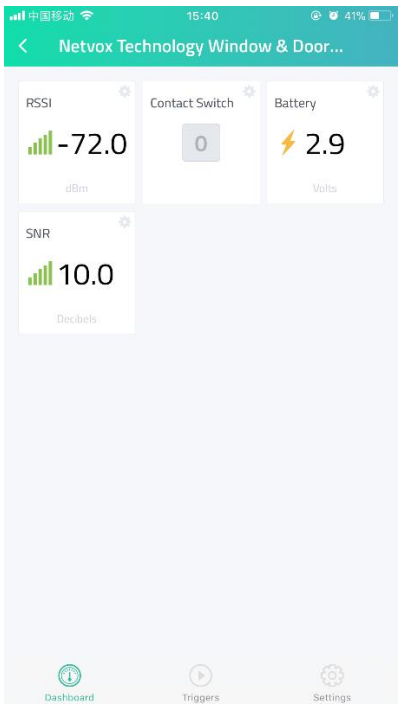
After the module sends the data, the graphical display of the data can be seen on the Cayenne interface.



2.6 Watch the data on the phone

After the data has been successfully imported into the Cayenne, you can view the sensor data on your phone just by downloading the Cayenne mobile app. Mobile APP supports IOS and Android platform. If you are an Apple phone, go to the Apple Store and search for Cayenne. If you are an Android phone, go to Google Store and search for Cayenne.(If you are a Chinese user, may not be able to access these, then you may need to VPN proxy). The usage method of mobile phone APP is similar to the webpage, and will not be described in detail.





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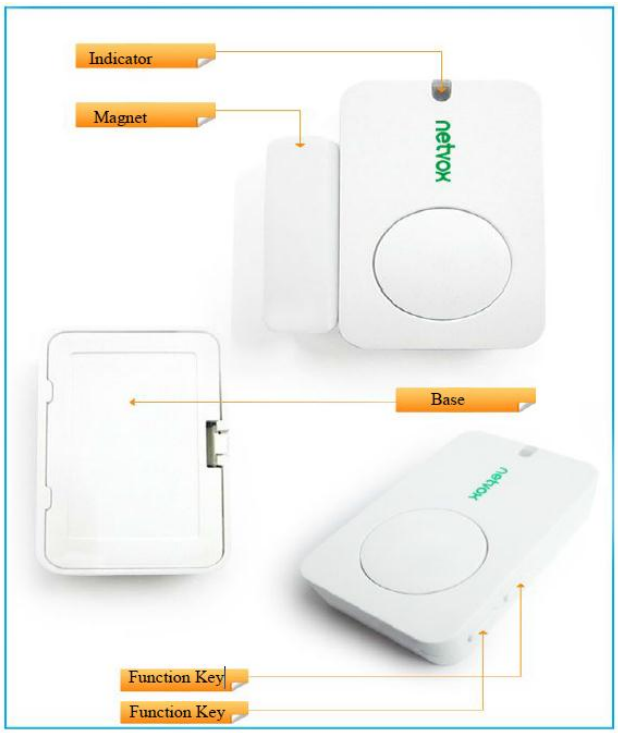
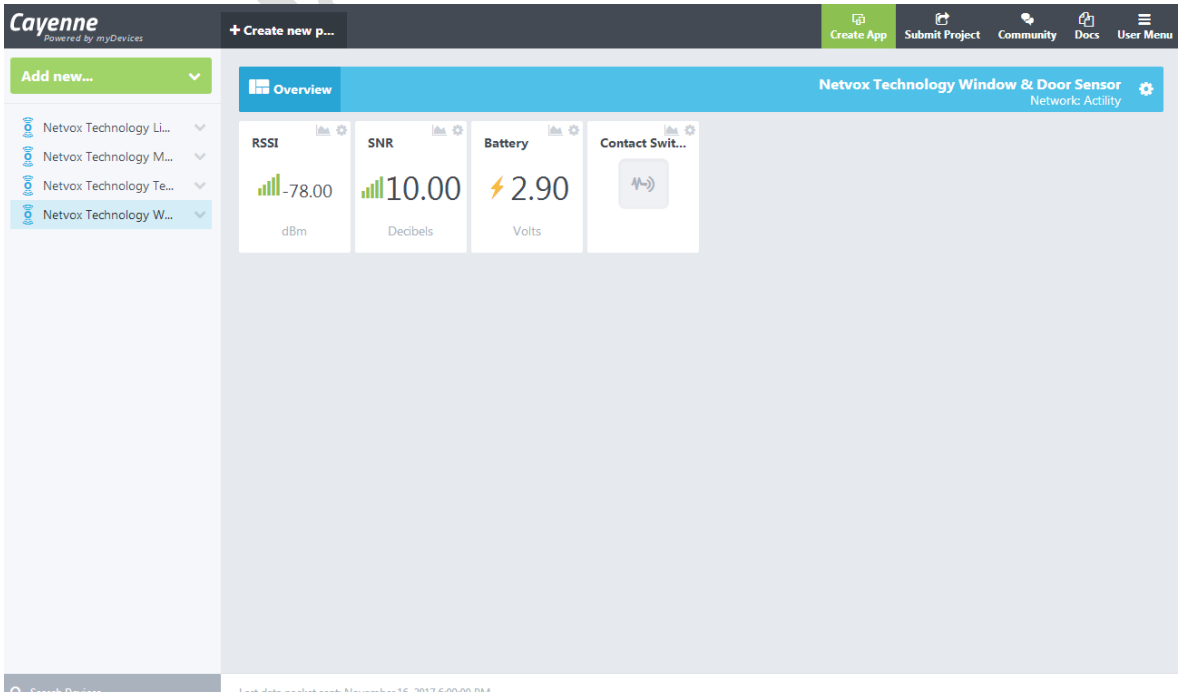
3. Support Sensor List

3.1 R311A: Wireless Window Door Sensor

R311A is a long-distance window/door sensor based on the LoRaWAN open protocol (Class A). When the device is turned on, it will immediately send a version package.The transmission frequency of sending version package is once every 24 hours. Data will be reported once per hour by default setting. Press and hold function key for 5 seconds to reset to factory setting. After restoring to factory setting successfully, the green indicator will flashes quickly 20 times. Press function key to turn on the device and it will send a data report. Introduction picture see below. If you want to know the device usage details, please refer to: R311A User Manual



If your device is added to the Cayenne, you will see the data on the Cayenne as shown below:



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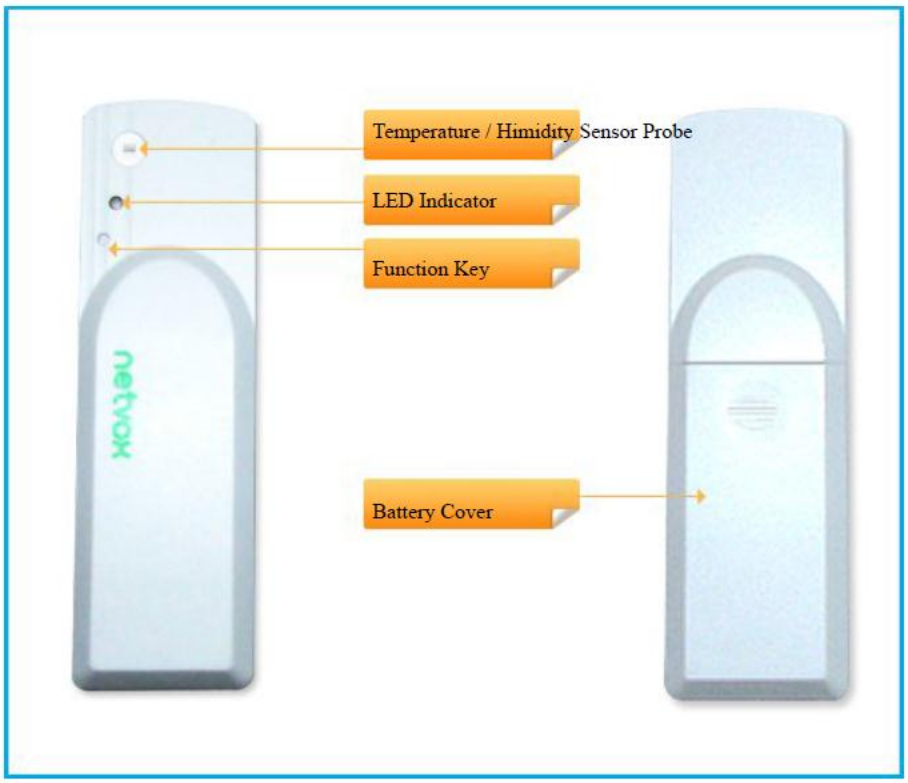
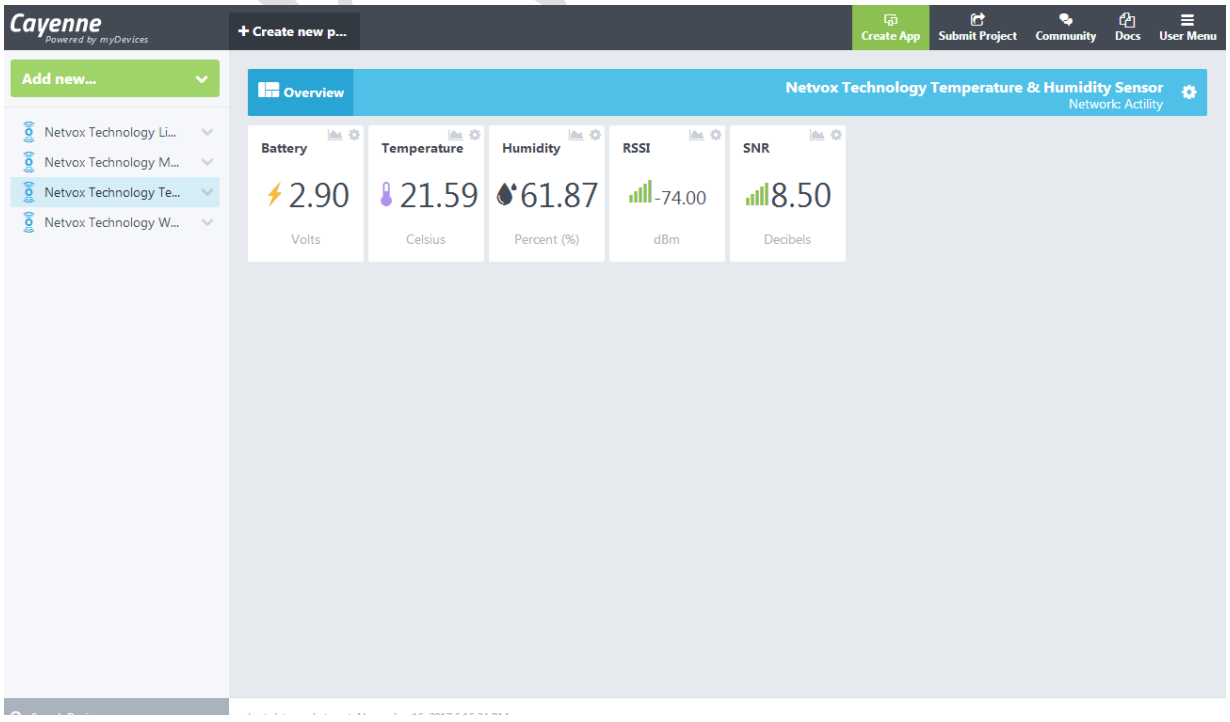
3.2 R711: Wireless Temperature And Humidity Sensor

R711 is a long distance wireless temperature and humidity sensor based on LoRaWAN open protocol (Class A). Its use is very simple, When the device is turned on, it will immediately send a version package and a data report of temperature/humidity/voltage. The transmission frequency of data report is once every three minutes. If you manually press the Function Key, the device will immediately send a packet of data to the gateway. Introduction picture see below. If you want to know the device usage details, please refer to: R711 User Manual



If your device is added to the Cayenne, you will see the data on the Cayenne as shown below:



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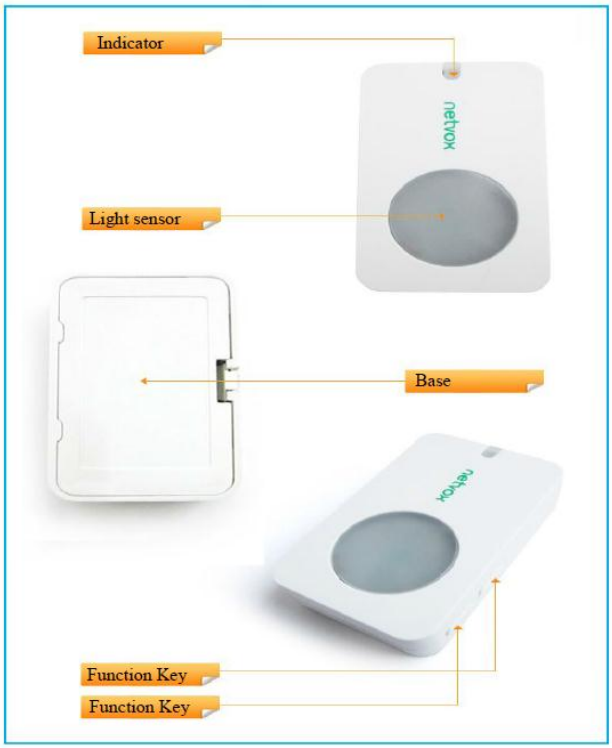
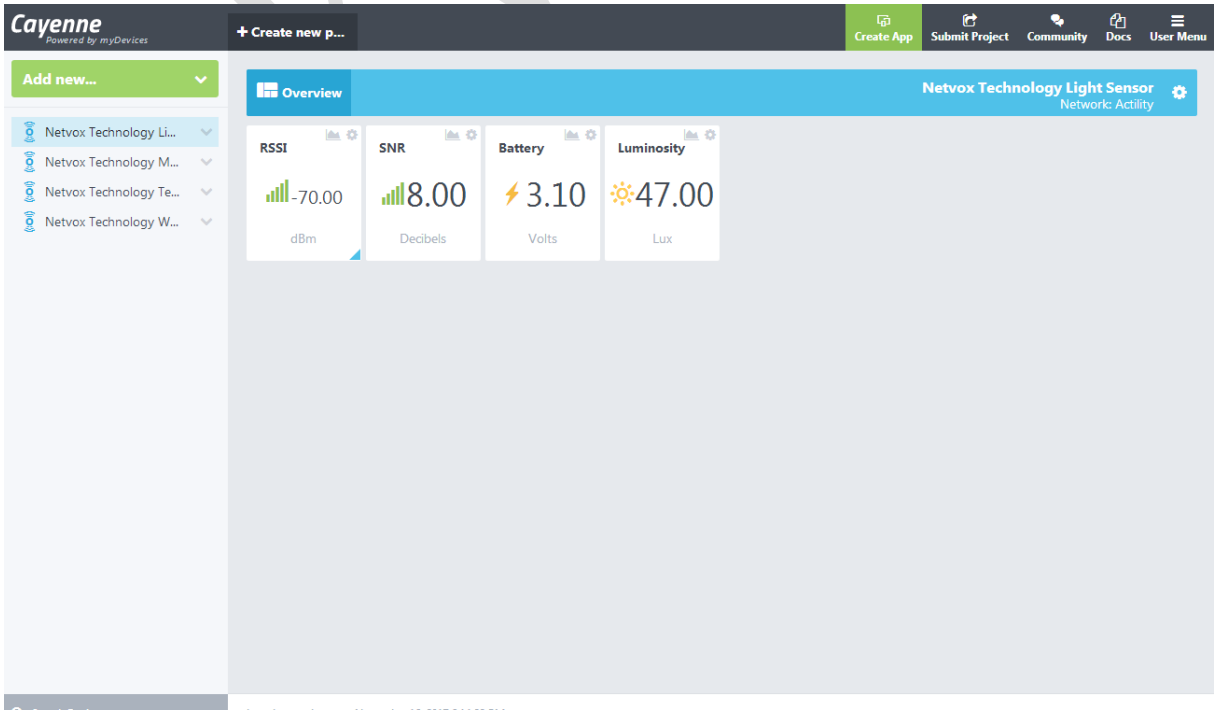
3.3 R311G: Wireless Light Sensor

R311G is a long-distance light sensor based on the LoRaWAN open protocol (Class A). When the device is powered on and activated, it will immediately send a version package. The transmission frequency of sending version package is once every 24 hours. Data will be reported once per hour by default setting. Press any function key to turn on the device and it will send a data report. Press and hold both function keys for 5 seconds to reset to factory setting. After restoring to factory setting successfully, the green indicator will flashes quickly 20 times. Introduction picture see below. If you want to know the device usage details, please refer to: R311G User Manual



If your device is added to the Cayenne, you will see the data on the Cayenne as shown below:



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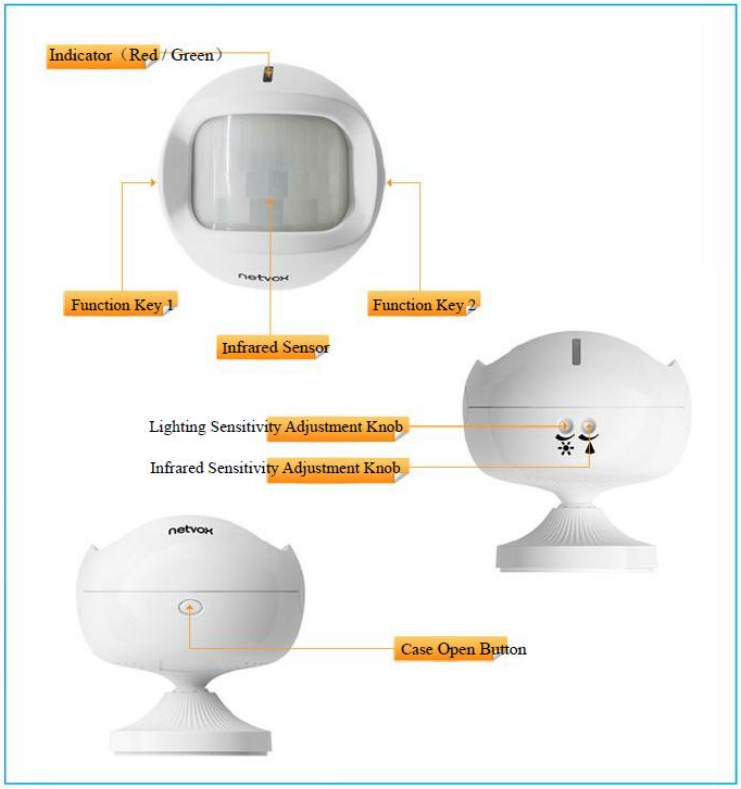
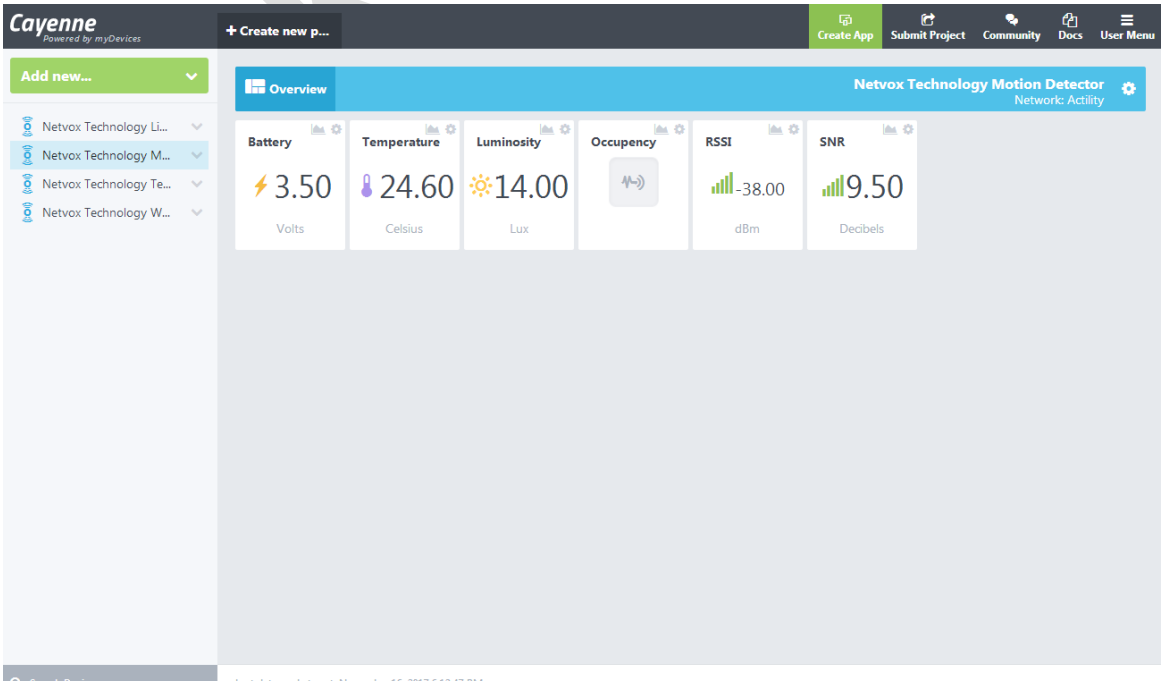
3.4 RB11E: Wireless Occupancy & Temperature & Light Sensor

RB11E is a long distance wireless infrared device based on the LoRaWAN protocol (Class A). When the device is powered up, it will immediately send a version package and a data report package of temperature, illumination, infrared status and voltage. The transmission frequency of version package sending is once every 24 hours. Data will be reported once per hour by default setting. Press and hold function key for 5 seconds to reset to factory setting. After restoring to factory setting successfully, the green indicator will flashes quickly 20 times. Press function key to turn on the device and it will send a data report. Introduction picture see below. If you want to know the device usage details, please refer to: RB11E User Manual



If your device is added to the Cayenne, you will see the data on the Cayenne as shown below:



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5. Change Note

Version	Date	Change	Author
V1.0	2017-11-15	First release	Chace

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