Asiczen Technologies India Pvt. Ltd.

Asiczen Technologies India Pvt.Ltd

Suit 812, DLF Cyber City
Bhubaneswar-751024

Prack User Manual V1.3

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This document details the step-by-step instructions about how to set up the Prack and configure it in AWS IoT Core Device Location.

Pre-requisites:

The requirements to move forward with the setup process are detailed below, you will need:

1- Tracker Device: Prack device with 2 AAA batteries and magnet.

2- LoraCloud: A valid loracloud account.

3- LoRaWAN gateway: A gateway that can run LoRa Basic Station. We suggest using an AWS-qualified gateway listed in Find IoT hardware that works with AWS | Search by industry, application, features, and more (amazonaws.com).

4- Access to an AWS account with a region that supports AWS IoT Core for LoRaWAN (screenshots included in this document relate to the eu-west-1 region). While not strictly required, to simplify creating and configuring the required AWS resources, it is recommended to use a user (IAM user or federated identity) with administrative privileges on the AWS account.

1- Onboard your gateway to AWS IoT Core for LoRaWAN:

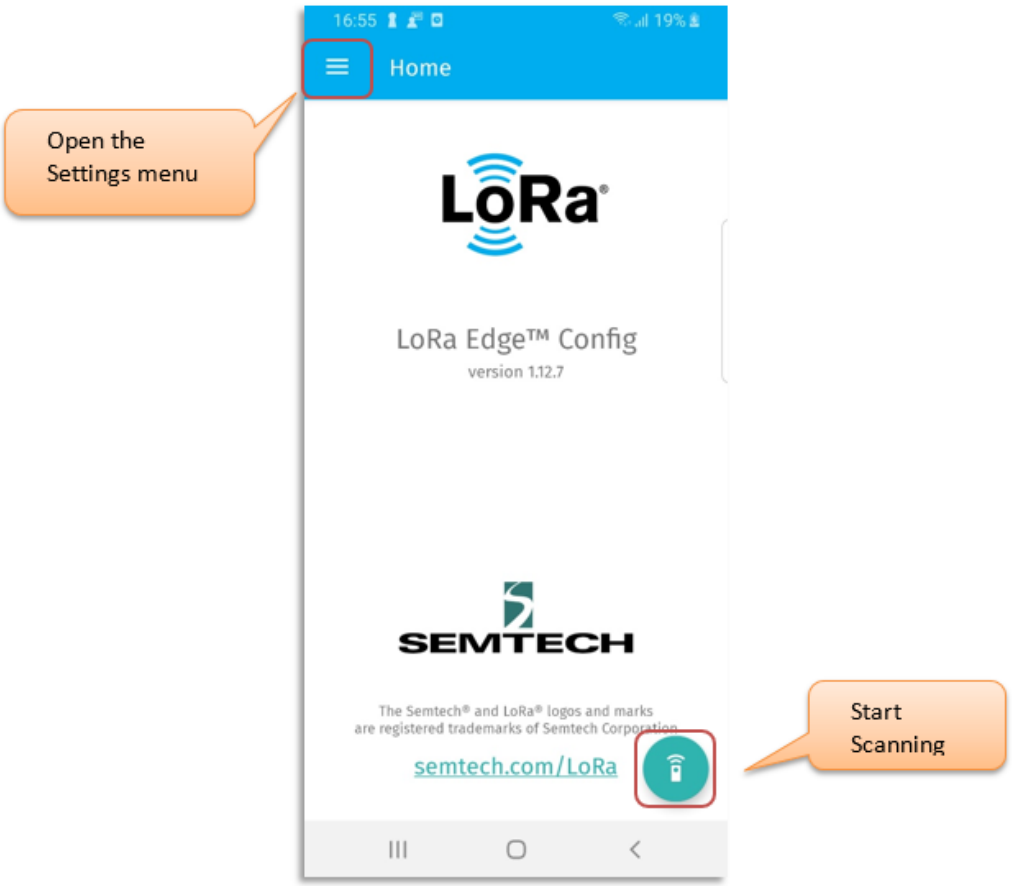
Once you have a qualified gateway, you need to onboard it to AWS IoT Core for LoRaWAN. Follow the online instructions to do this.

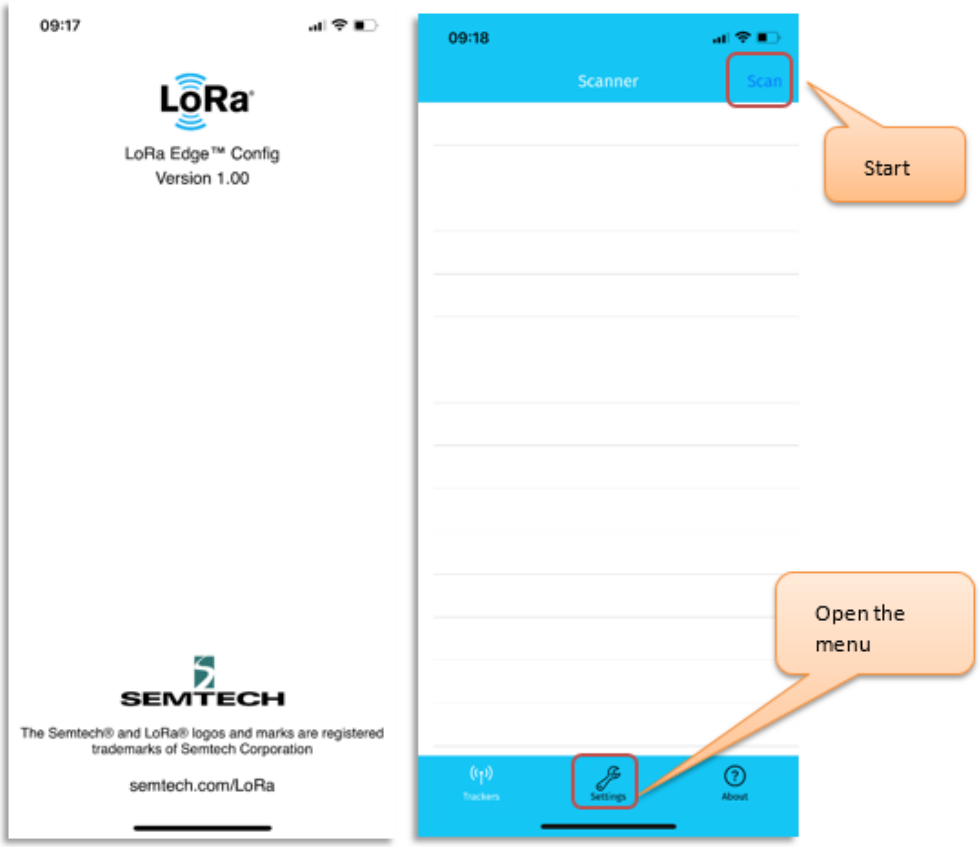
2- Configuring your tracker:

This section describes all the steps required to get your tracker configured and to properly connect and operate with AWS IoT Core for LoRaWAN and AWS IoT Core Device Location.

1. Install the LoRa Edge Config mobile app from Google Play (for Android devices) or App Store (for iOS devices) on your phone and accept the Terms and Conditions.

2. Go to Settings in the mobile app (see figures below for instructions on how to do this on each mobile platform) and select Inspector mode. Once there, enable Advance mode (this will give you access to additional settings for the tracker's configuration).

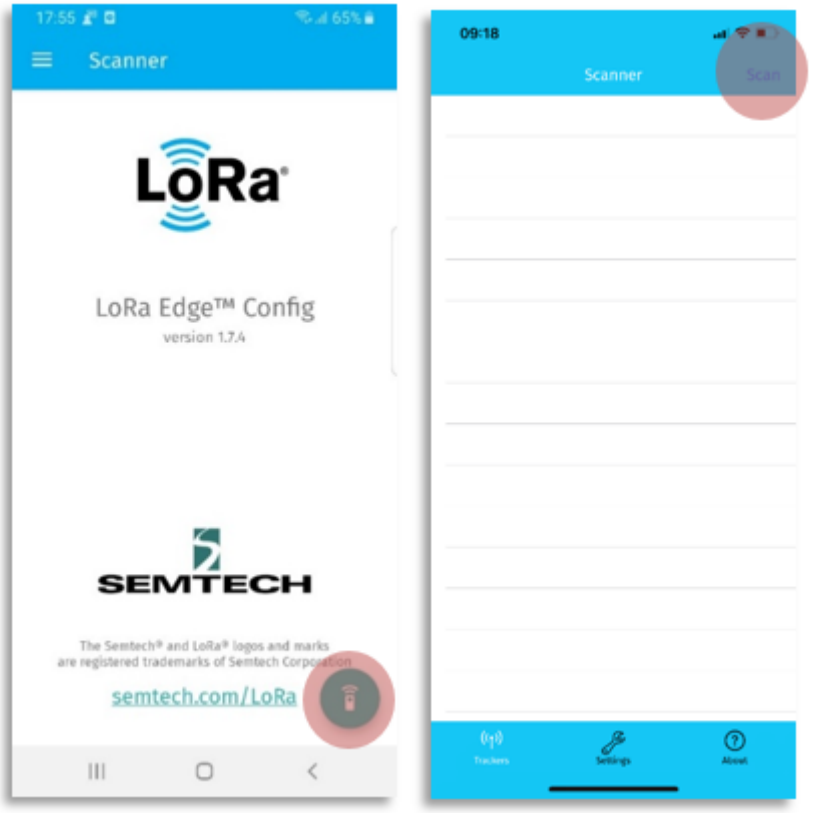




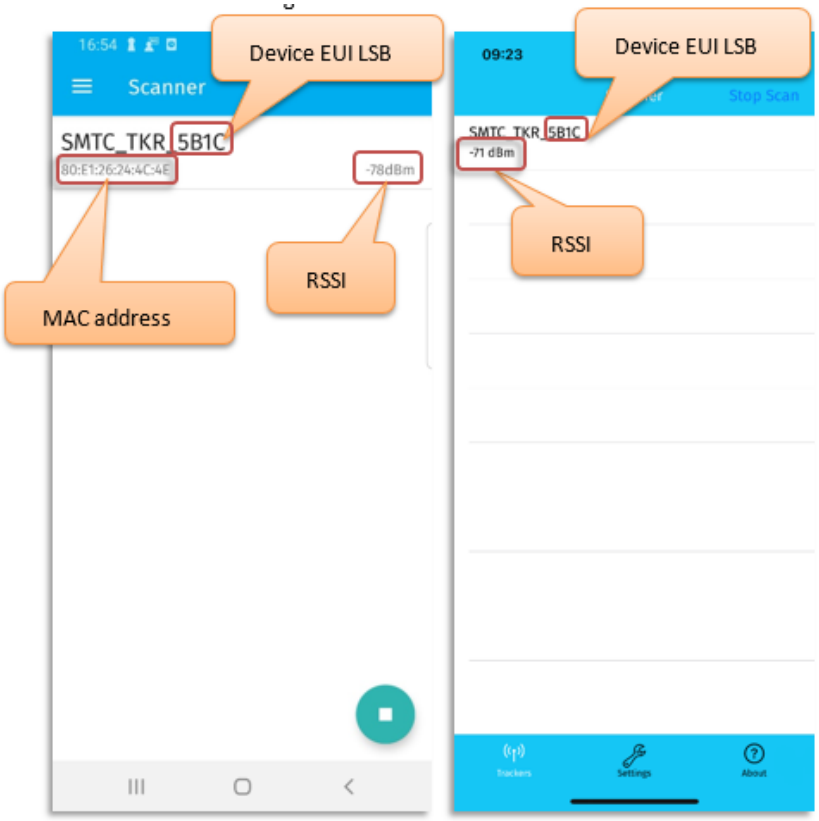
3. Unbox your tracker

4. Shake the tracker to pull it from sleep mode. Next, put the tracker in BLE pairing mode by aligning the provided magnet, with the notch side down, against the oval hole on the device (note: shake the tracker before using the magnet, otherwise the tracker stays in sleep mode). Then place the flat side of the magnet directly against the device, as illustrated in the figure and supporting video below. The red light will flash on the tracker when it has successfully been put into pairing mode:

5. Activate scanning for trackers in the mobile app by clicking on Start scan (Android) or Scan (iOS) as illustrated in the figure below:

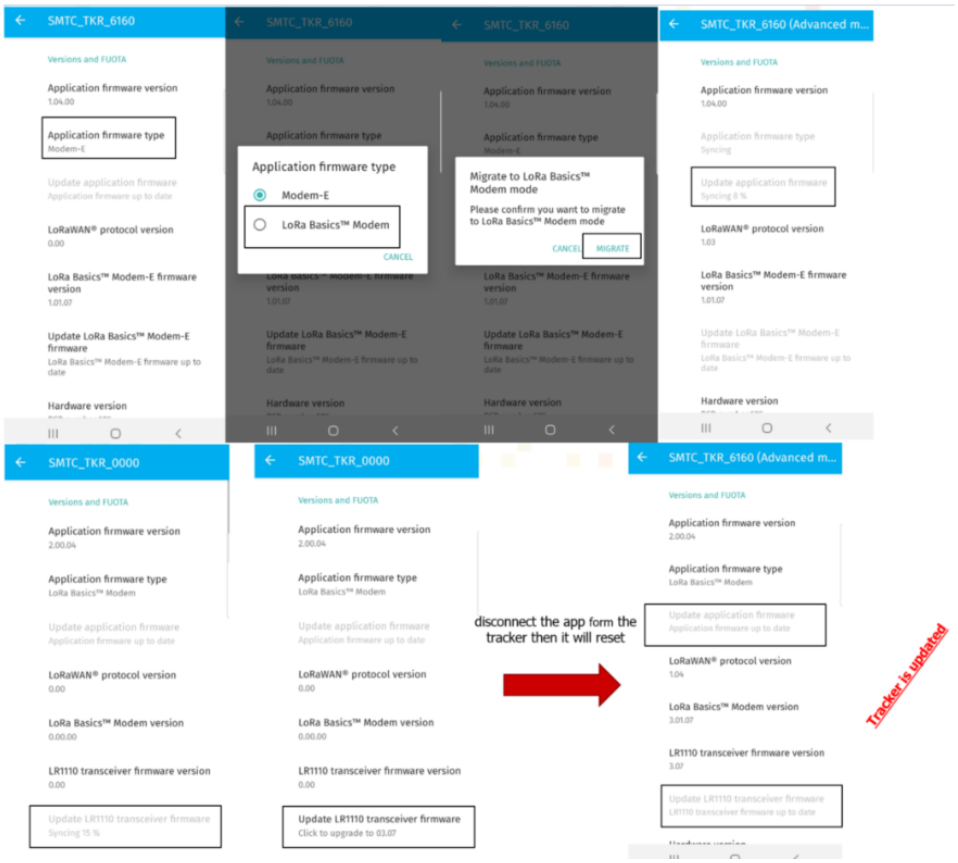


6. The tracker should appear on the Trackers section of the mobile app. Select the tracker in the mobile app by tapping on its name as shown in the figure below:



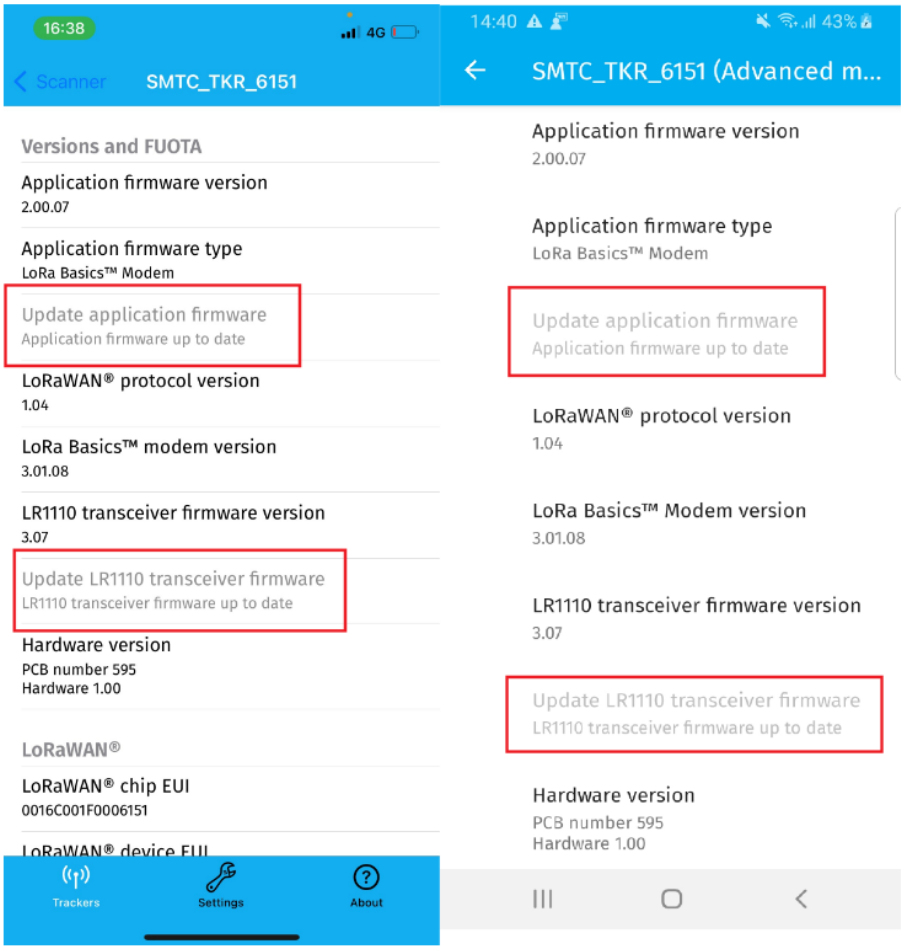
7. If the device is using LoRa Basics Modem-E, migrate your tracker from LoRa Basics™ Modem-E to LoRa Basics™ Modem.

    a. Click *Application firmware type> LoRa Basics Modem> Migrate* as indicated in the figure below. The tracker will be updated to LoRa Basics Modem and the LR1110 will be updated in transceiver mode.
    b. Once the LR1110 is updated, disconnect the app from the tracker.
    c. The tracker will reset.



8. Wait until firmware (application and modem) as well as almanac are updated.

    a. If the application firmware and modem updates are not started automatically, click on *Update application firmware* and then on *Update LR1110 transceiver firmware* as indicated in the figure below:



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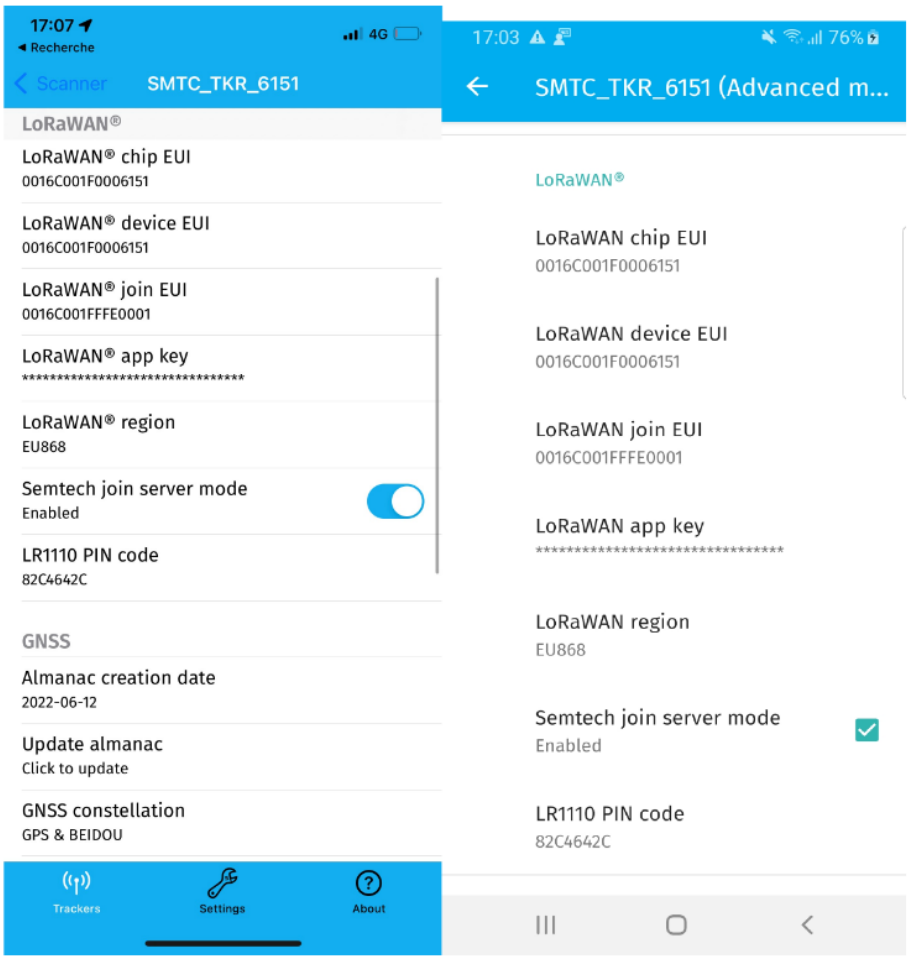
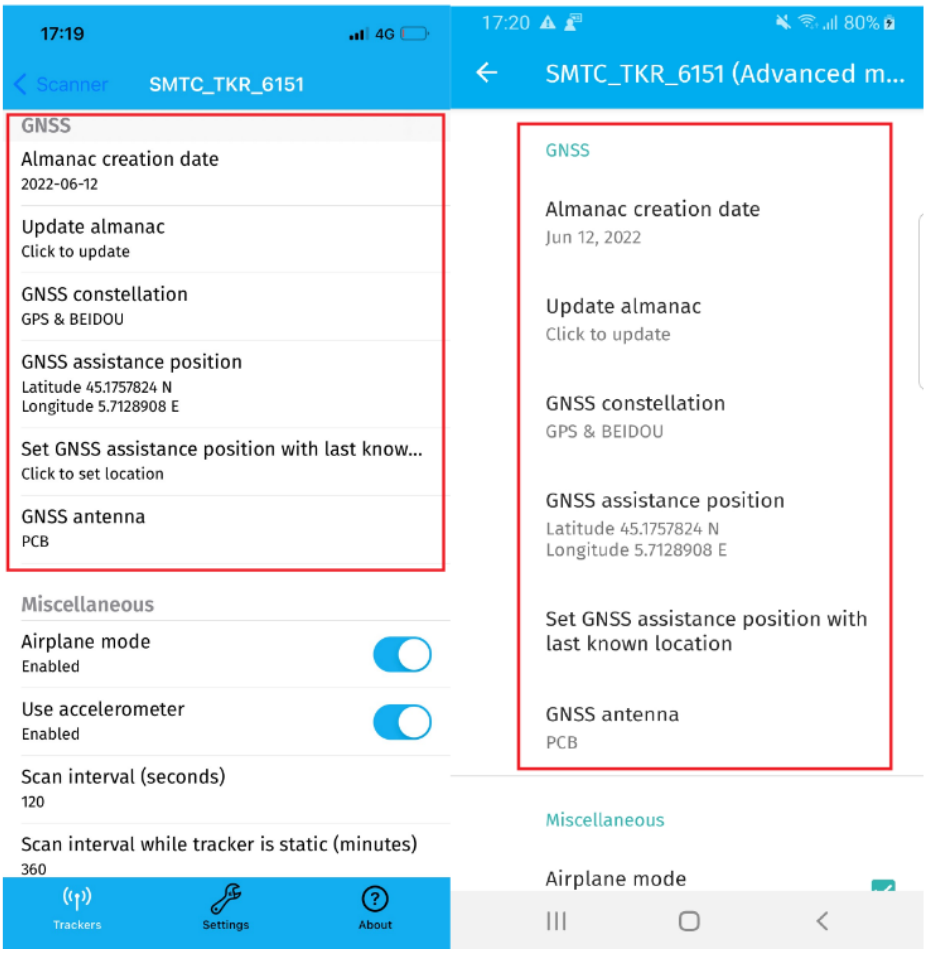
    b. If the almanac update is not started automatically, click on *Update almanac.*

    c. You can confirm your firmware is up to date by checking the values for the *Update application firmware* and *Update LR1110 transceiver firmware* are greyed out.

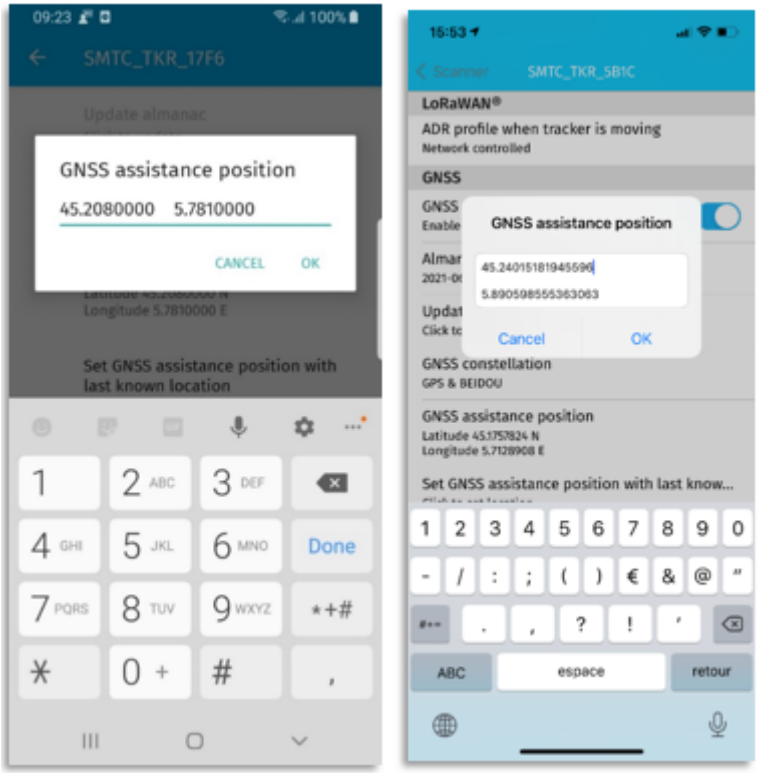
9. Retrieve and copy the *LoRaWAN device EUI*, *LoRaWAN Join EUI* and *LR1110 PIN code* attributes from your tracker (you will use these in the next step). You will find these under the *LoRaWAN* section as displayed in the image below.



10. Perform the following configuration changes in the *GNSS* section.



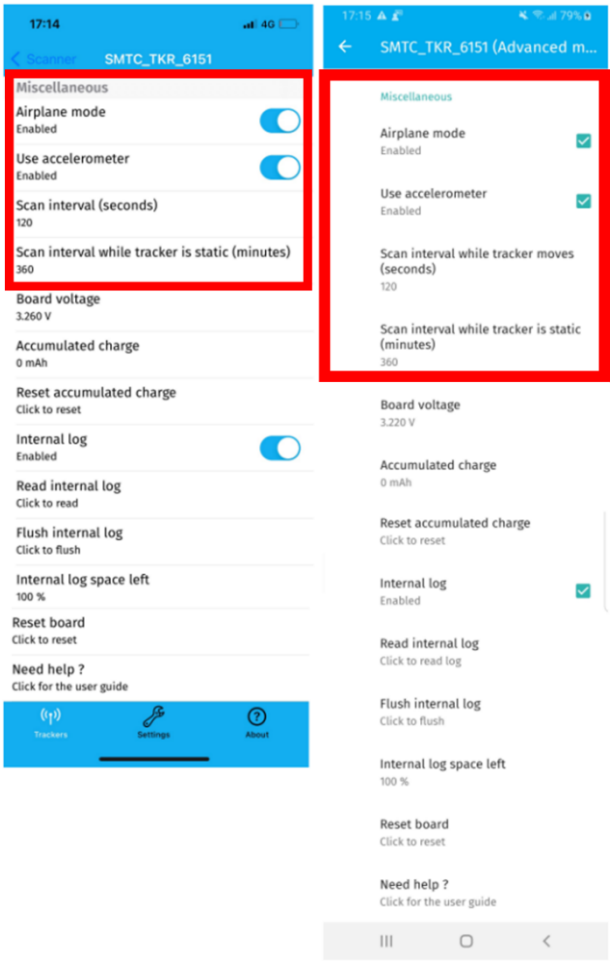
a. Click on *Set GNSS assistance position* (will use mobile phone's location to initialize tracker's position but you can manually modify these values if required) as indicated in the figure below:



11. Perform the following configuration changes in the *Miscellaneous* section (as indicated in the figure below).

    a. Enable the *Use accelerometer* selector.

    b. Disable the *Airplane mode* selector (tracker is shipped with airplane mode enabled).



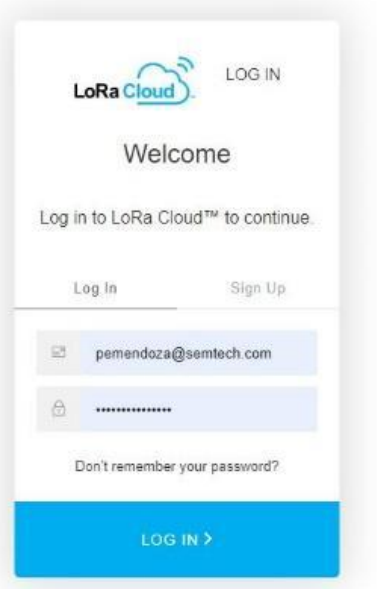
12. Exit scanning mode by clicking on the left-arrow icon: ← (Android), < Scanner (iOS). Tracker's LED will stop flashing (if it takes more than 2 minutes to complete the above configuration changes, tracker will leave pairing mode and LED will stop flashing. Please pair again and finish the configuration).

13. Please refer to LED indicators for details on how to understand LED colour and blinking patterns for different events in the tracker's application lifecycle.

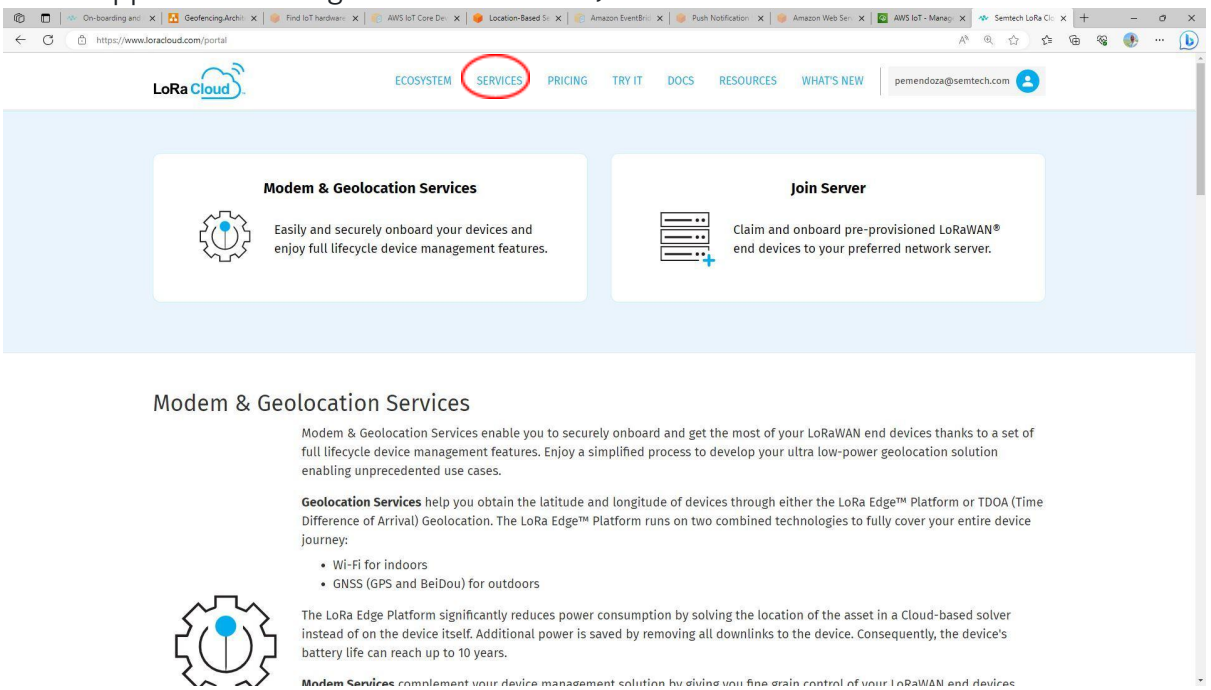
3- Claiming your tracker:

This section describes the steps required to claim your tracker on Semtech´s Join Server and how to export the AppKey needed to onboard it on AWS IoT Core for LoRaWAN.

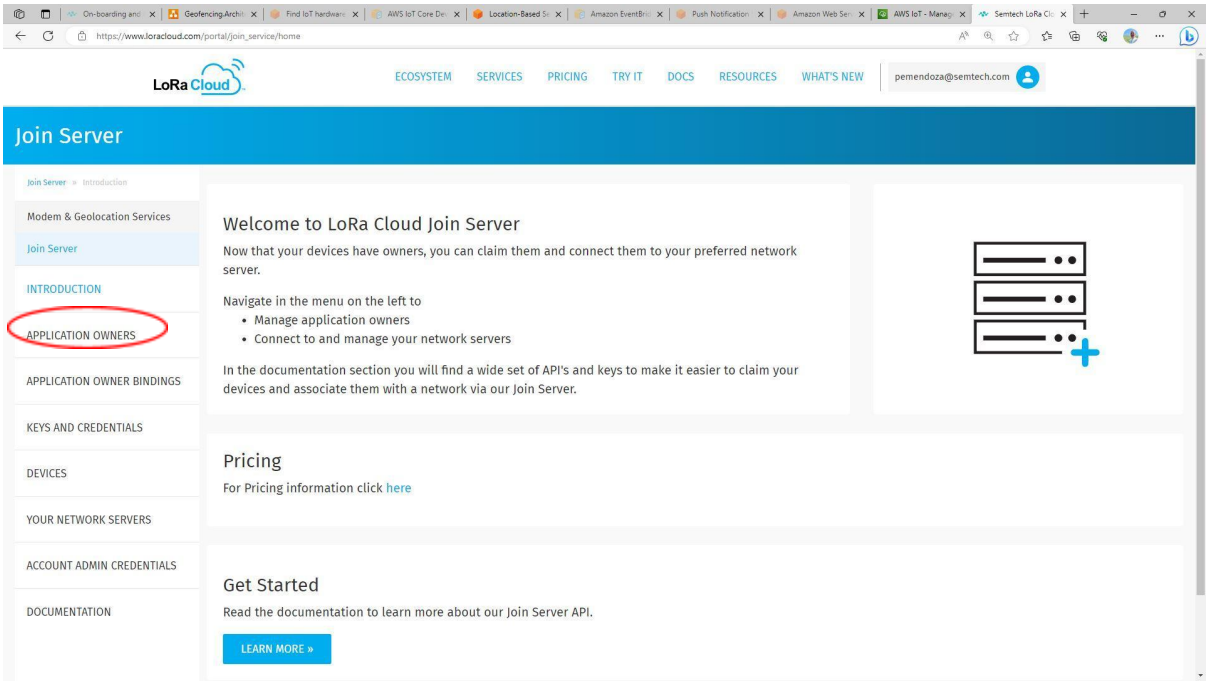
1- Navigate to Semtech LoRa Cloud and sign up (or login if you already have an account)



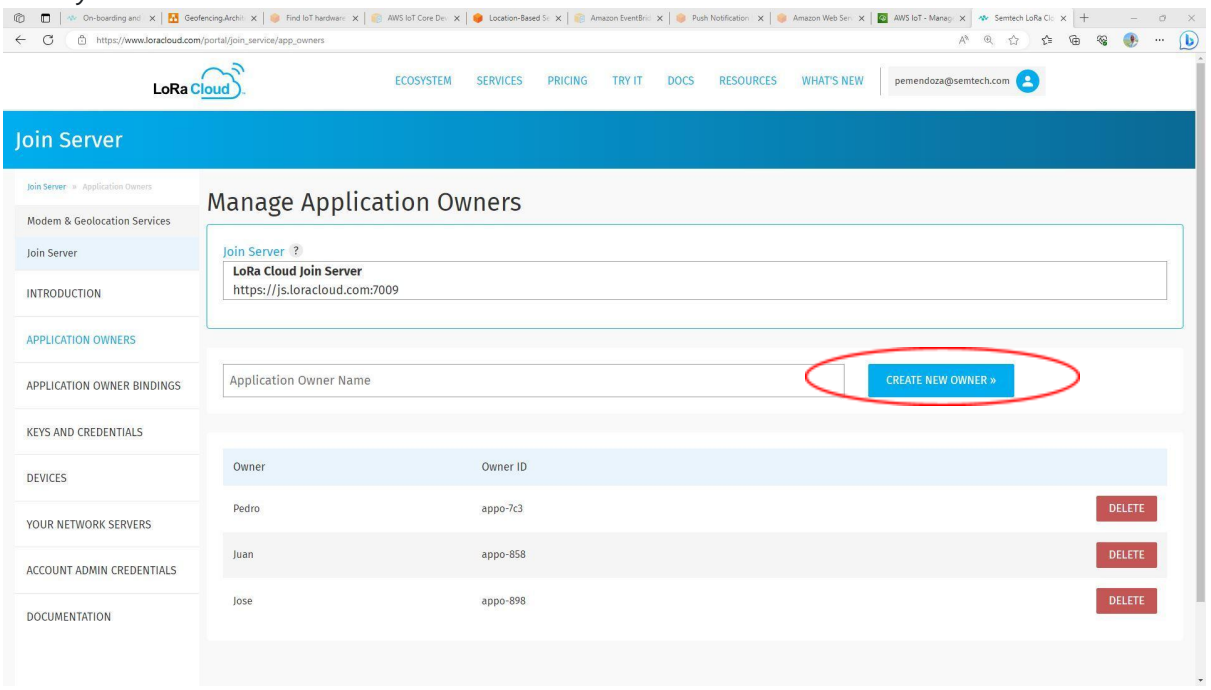
2- On the upper menu, navigate to *SERVICES -> Join Server*



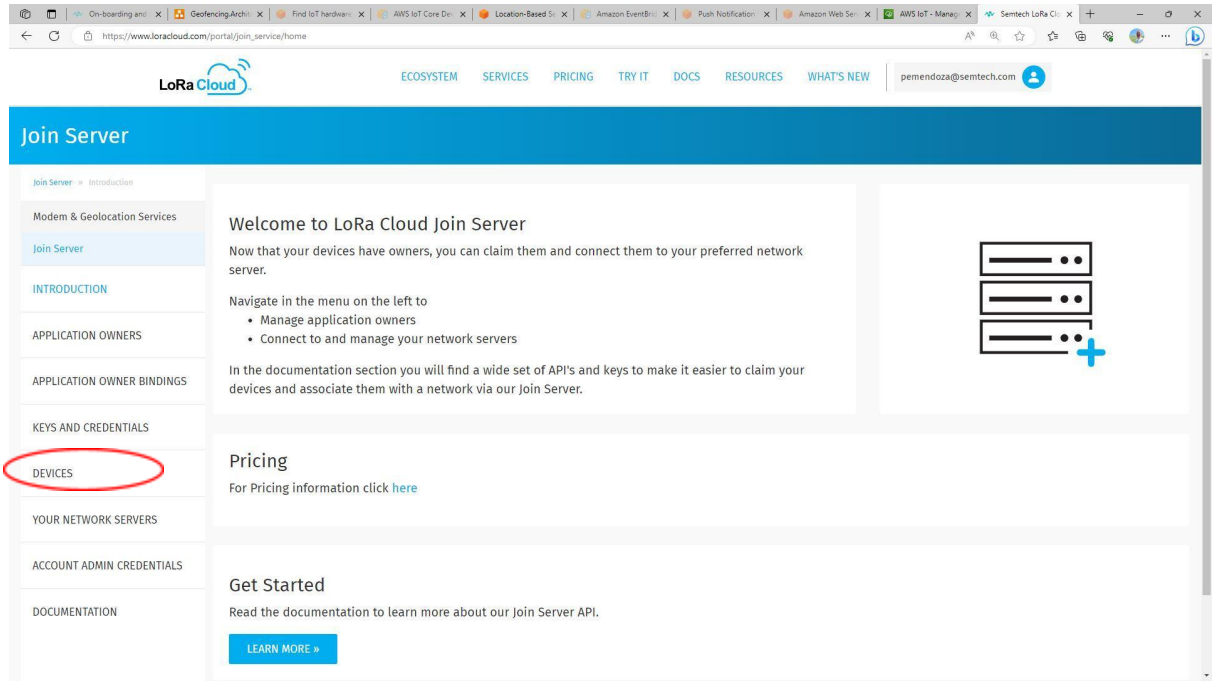
3- If it is your first time configuring a LoRa Edge device, on the left-side menu, navigate to *APPLICATION OWNERS*



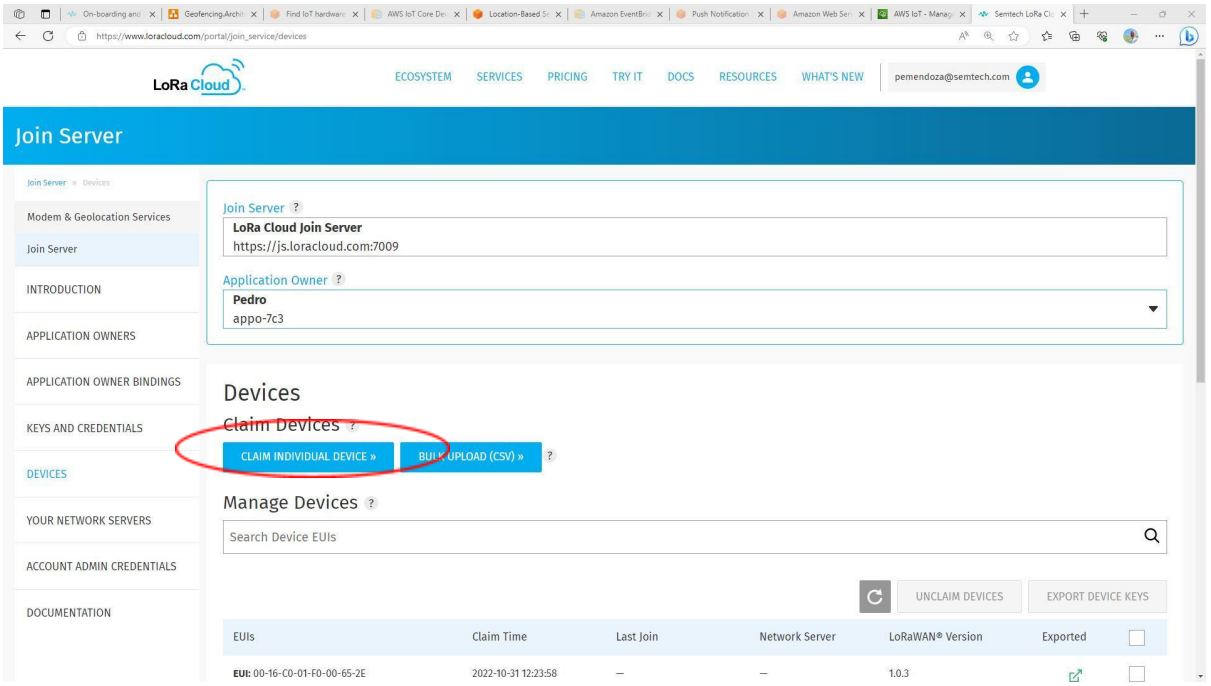
4- Enter your name and click on *CREATE NEW OWNER >>*



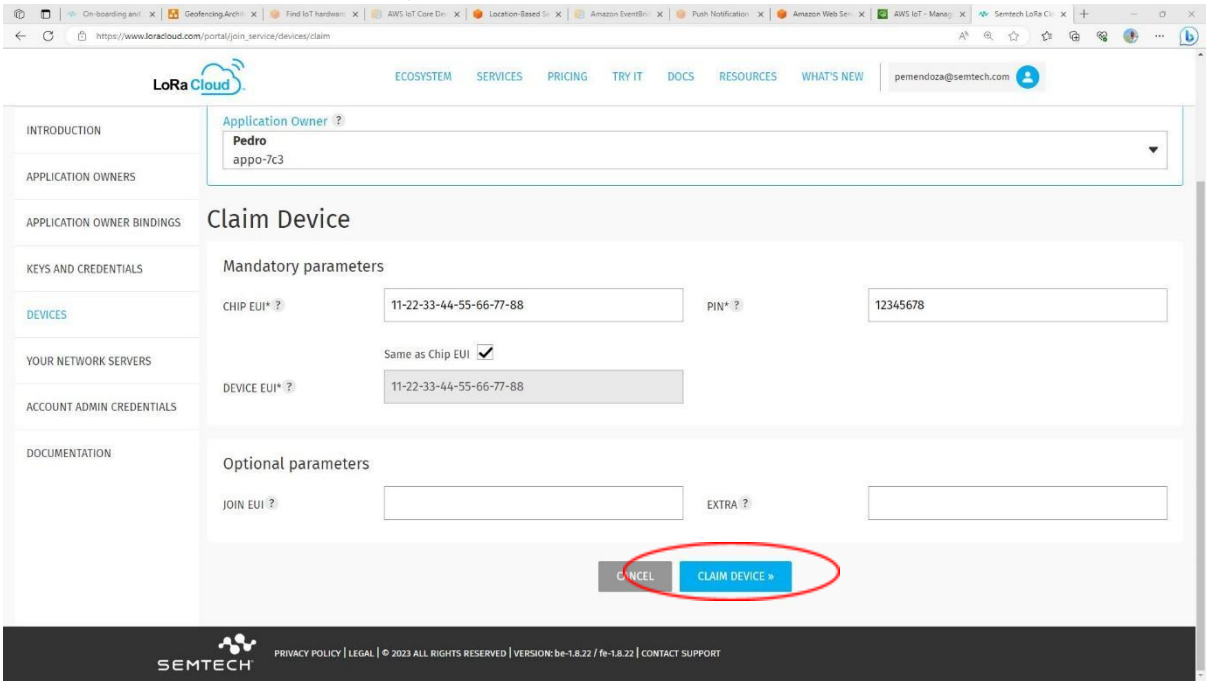
5- On the left-side menu, navigate to *DEVICES*



6- Click on *CLAIM INDIVIDUAL DEVICE >>*

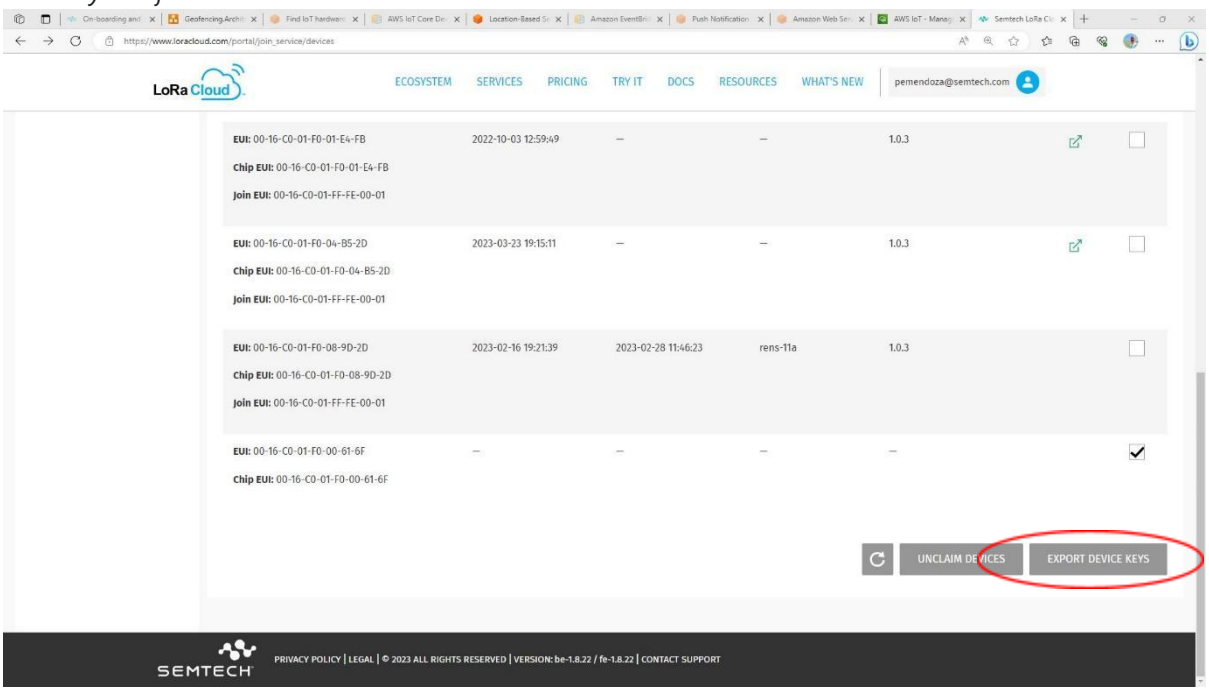


7- Enter the *CHIP EUI* and *PIN* for your tracker and click on *CLAIM DEVICE >>*



8- You should get a page confirming your device was successfully claimed, click on *BACK TO DEVICES*

9- Select your just claimed device and click on *EXPORT DEVICE KEYS*

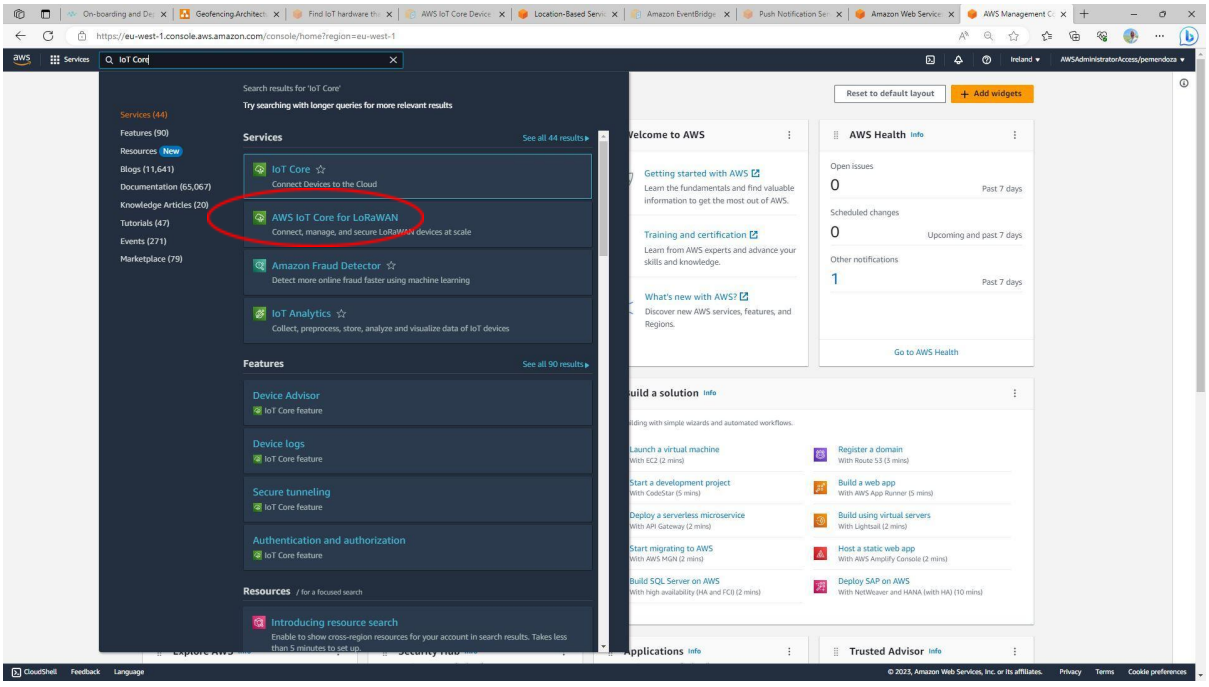


10- You should get a file downloaded, locate it in your Downloads folder, open it and copy your AppKey (you will need it to provision your device on the LNS later). Please keep in mind that the AppKey is sensitive information, so you want to keep it secure.

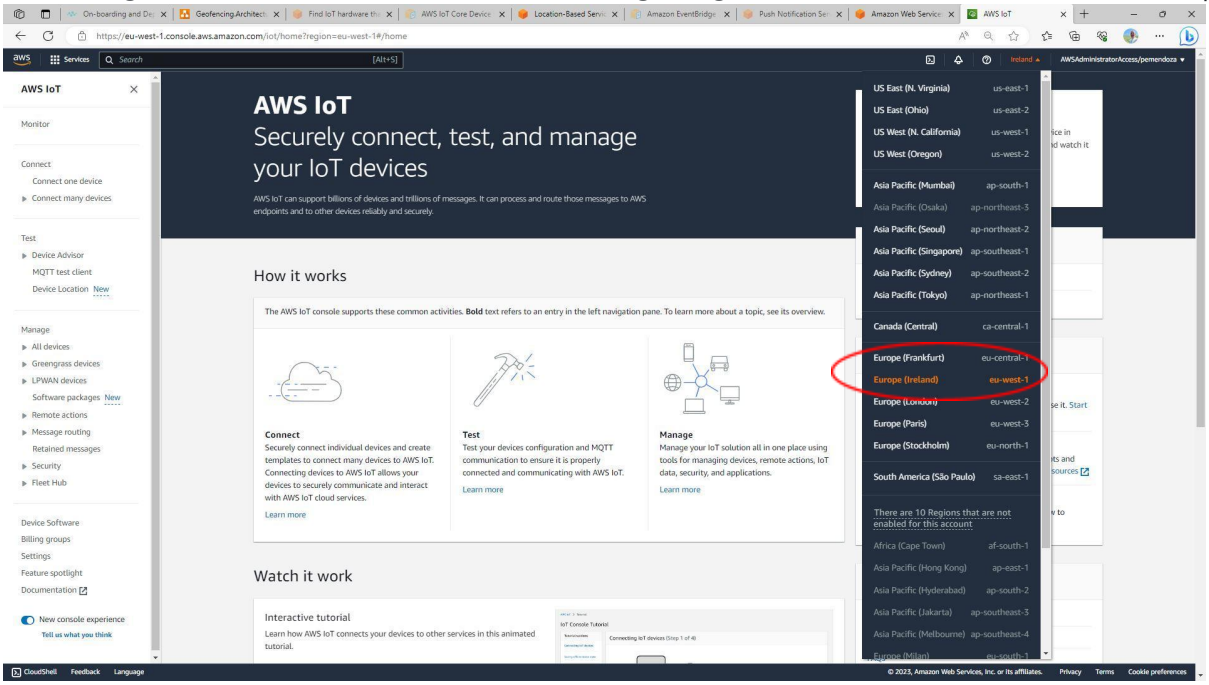
4- Provisioning your tracker:

This section shows the steps required to onboard your tracker on AWS IoT Core for LoRaWAN including the creation of device and service profiles.

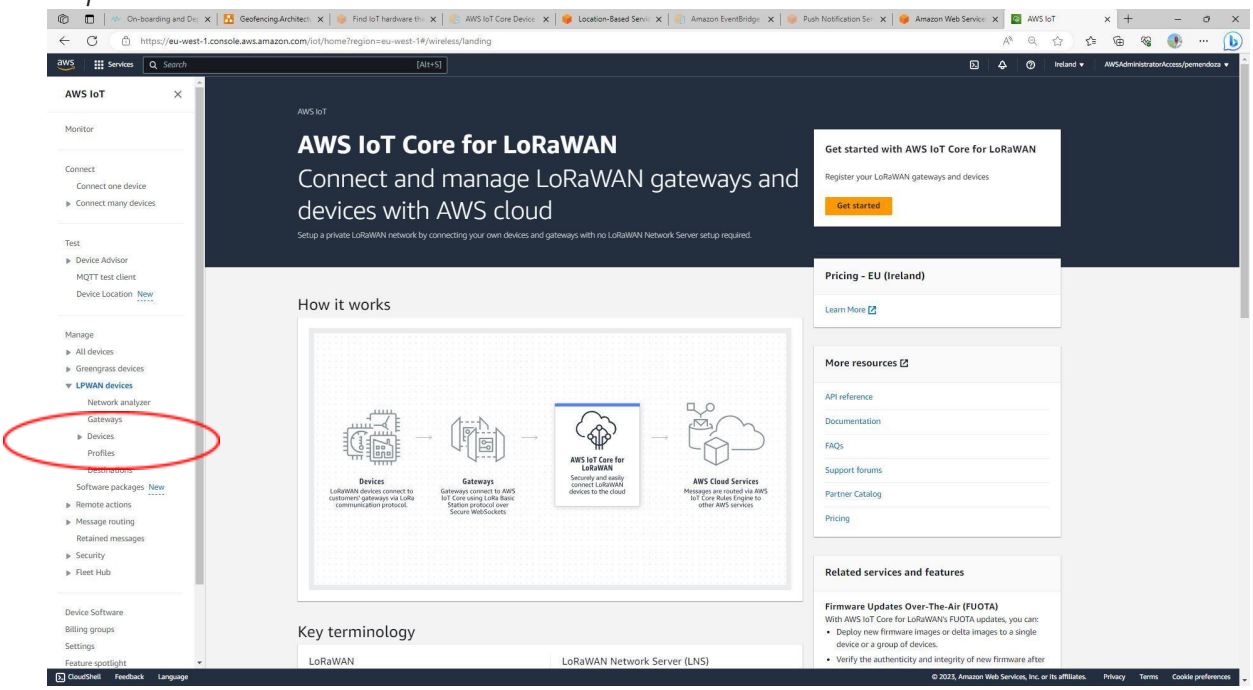
1- On the AWS Console, go to the *Search* box and enter *IoT Core*, then select it in the search results



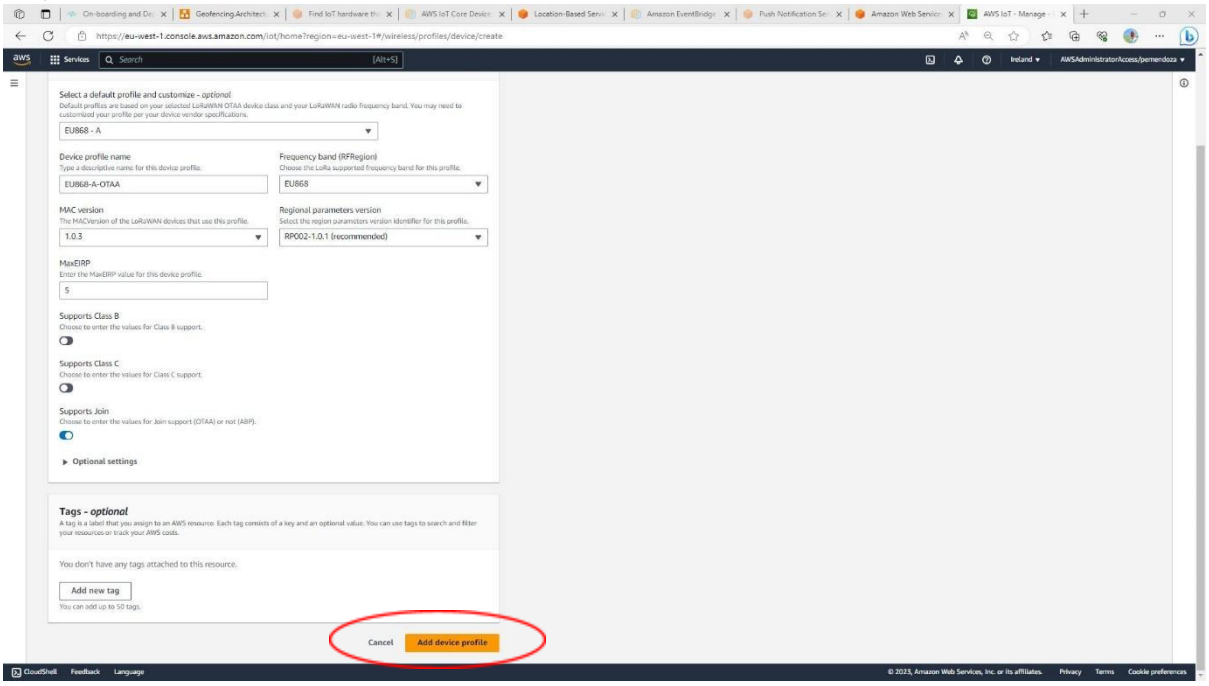
2- On the region selector, make sure to select the right region [*Ireland (eu-west-1)* in our example]



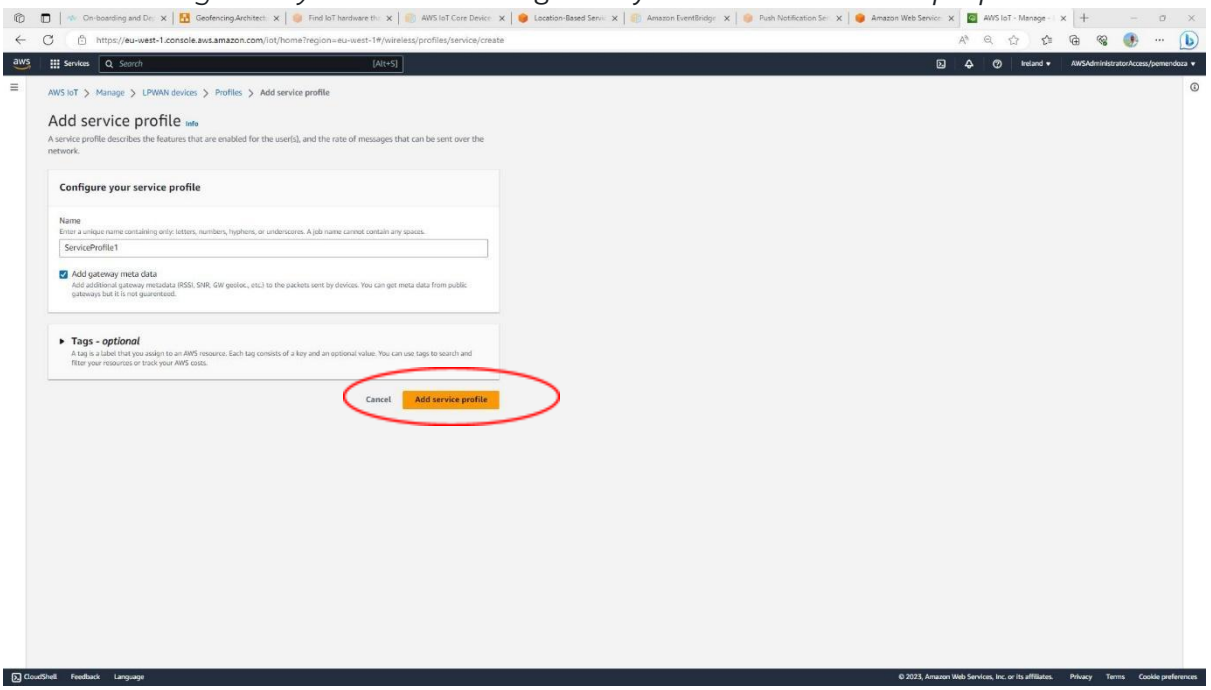
3- Now, you are ready to create the profiles. On the left-side menu, select *LPWAN devices* and then *Profiles*



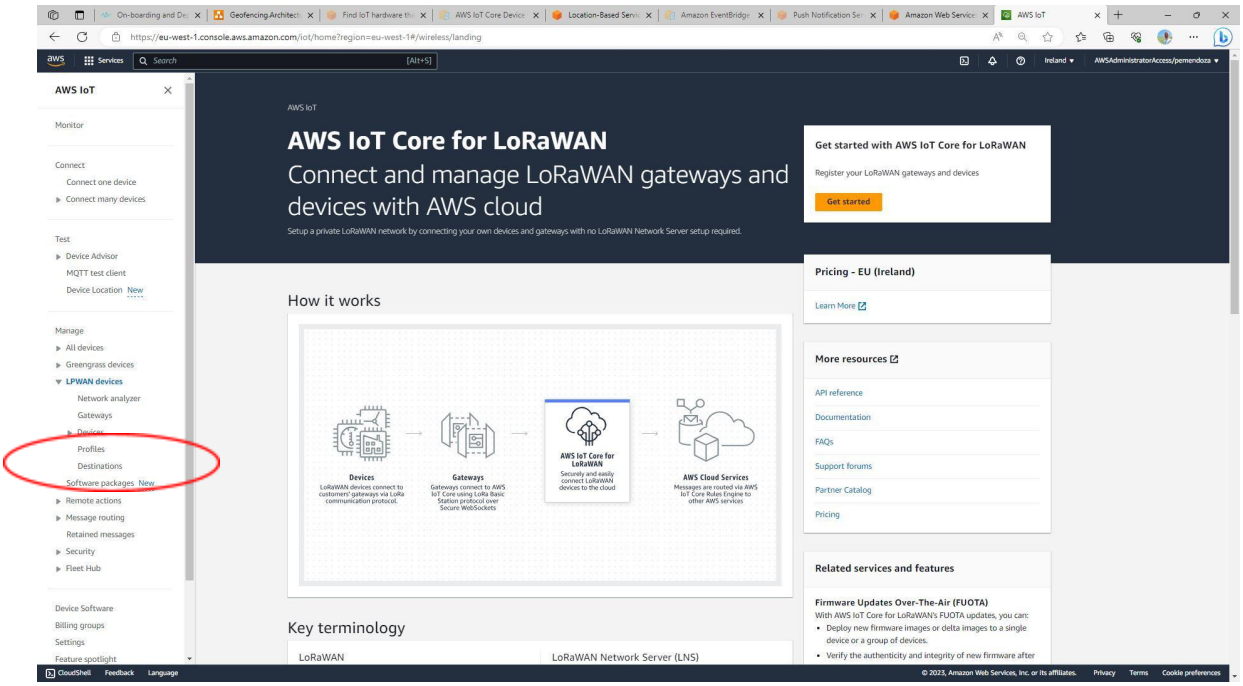
4- Click on *Add device profile* and then enter your device profile attributes and click on *Add device profile*



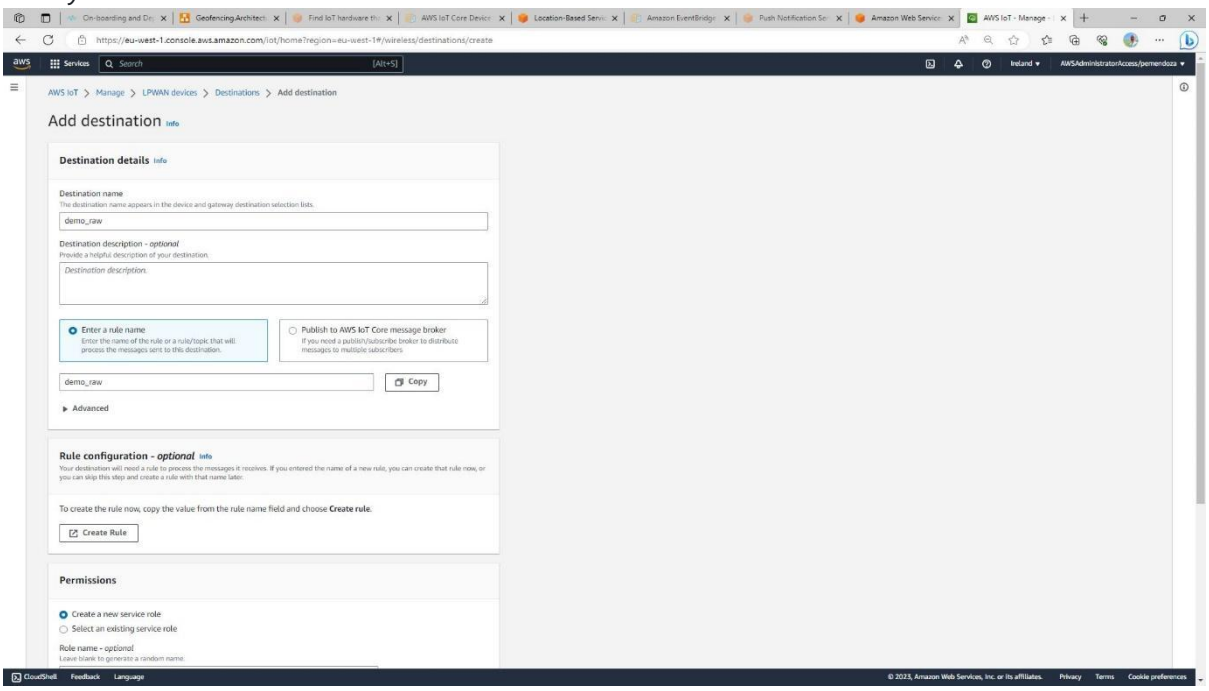
5- Next, click on *Add service profile* and then enter a friendly name for your profile and (optionally) check the *Add gateway metadata* setting. Finally, click on *Add service profile*



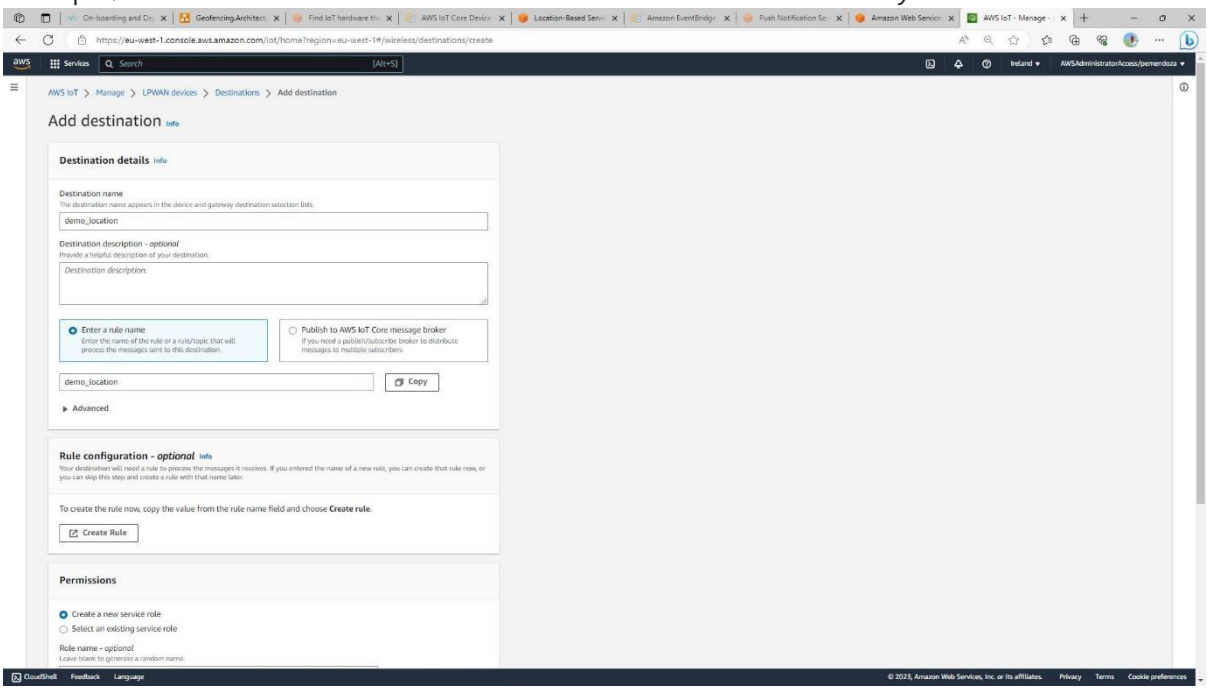
6- Next, lets create a couple of Destinations for the tracker to route data to. On the left-side menu, select LPWAN devices and then Destinations



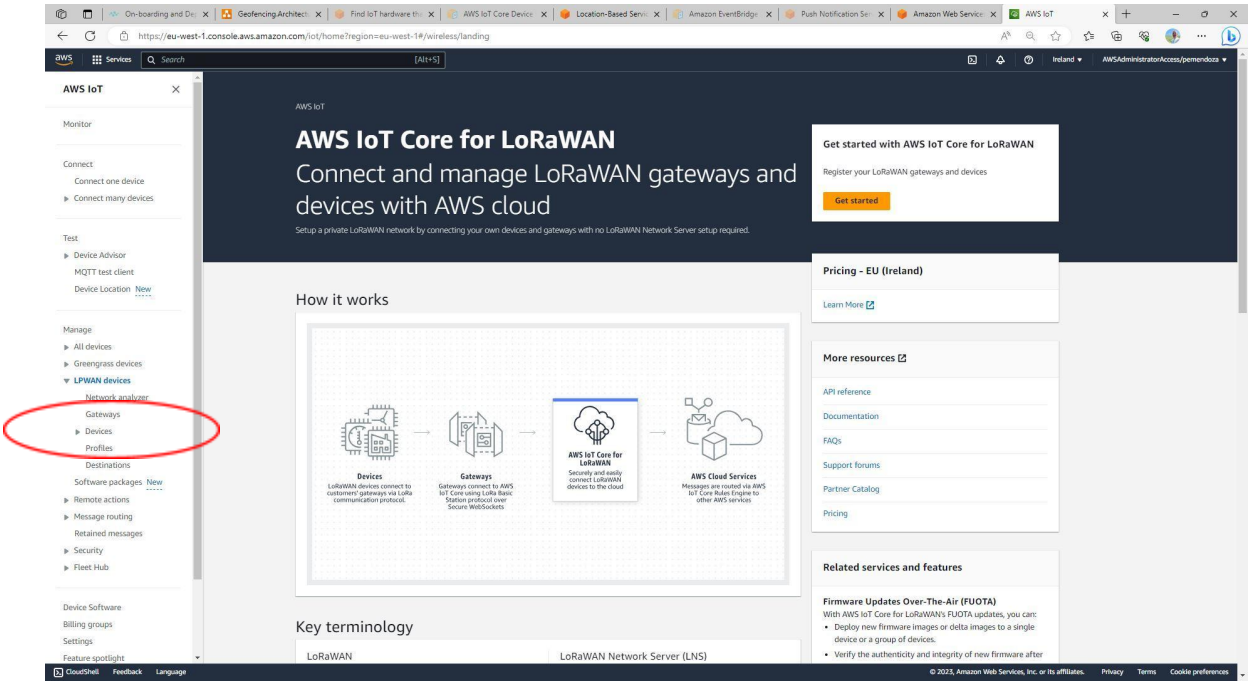
7- Click on *Add destination* and then enter a friendly name for your destination (*demo_raw* in the example). Make sure the *Enter a rule name* option is selected and enter a friendly name for your rule name (*demo_raw* in the example). Make sure the *Create a new service role* is selected. Finally, click on *Add destination*.



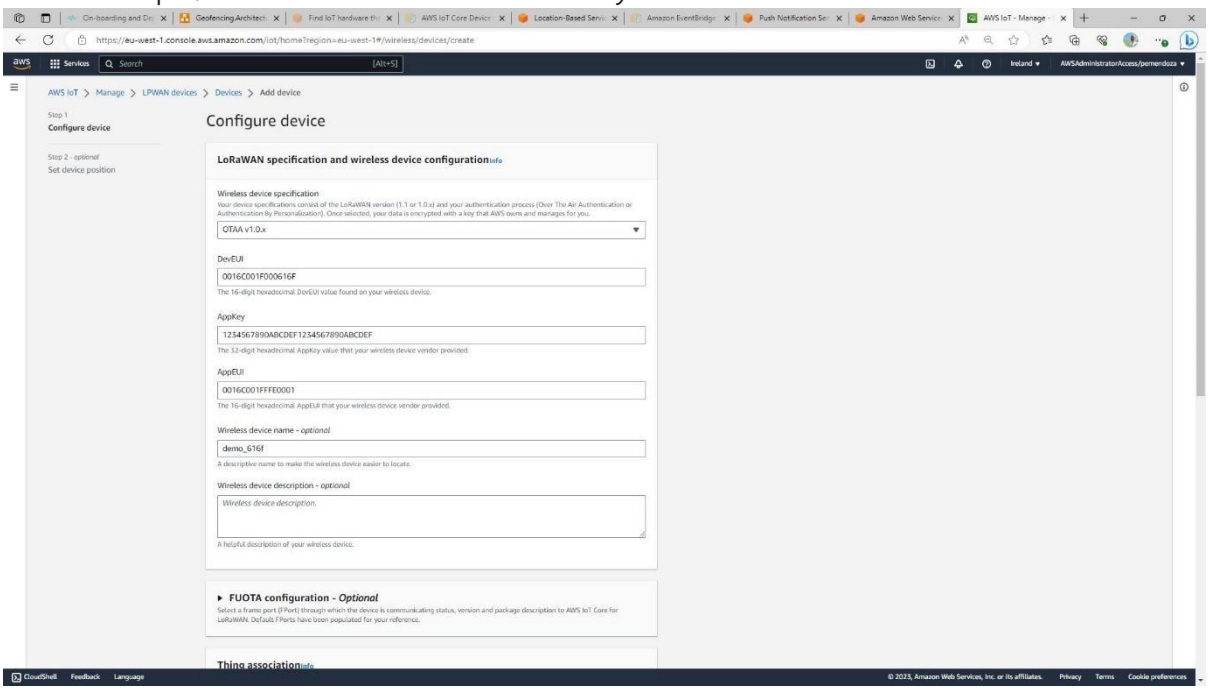
8- Now, let's repeat previous step for the location destination. Click on *Add destination* and then enter a friendly name for your destination (*demo_location* in the example). Make sure the *Enter a rule name* option is selected and enter a friendly name for your rule name (*demo_location* in the example). Make sure the *Create a new service role* is selected. Finally, click on *Add destination*.



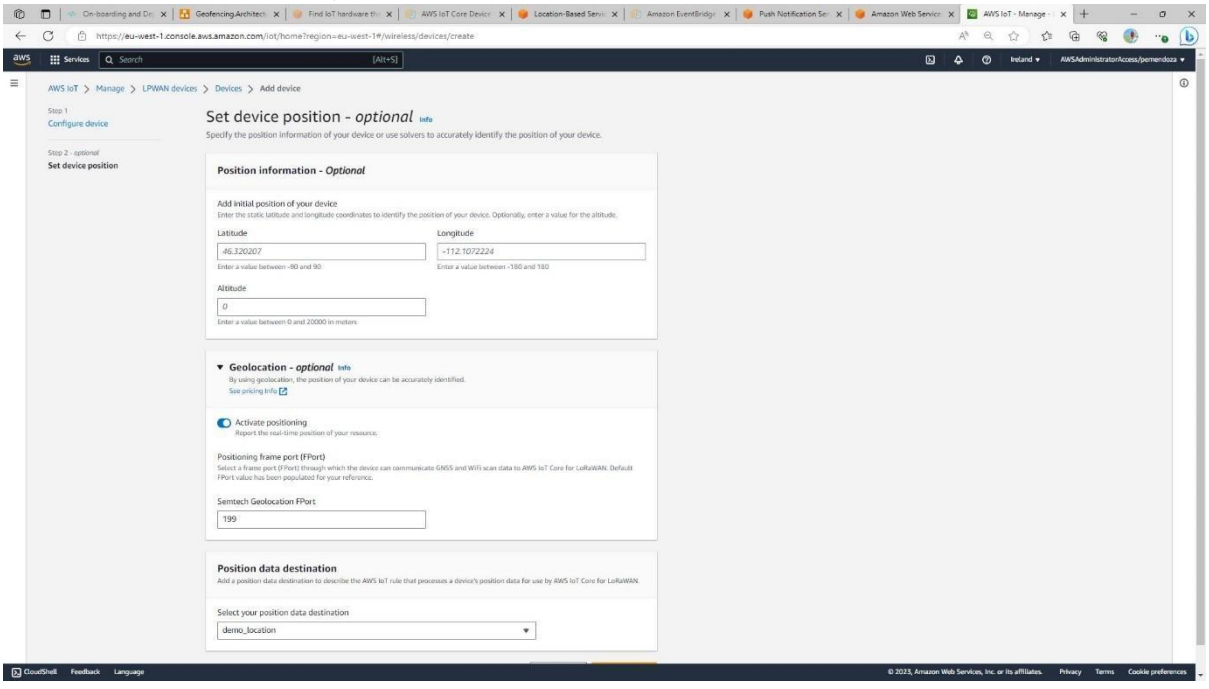
9- Finally, we are ready to provision our tracker device. Let's start by selecting *LPWAN devices* and then *Devices* on the left-side menu



10- Click on *Add wireless device* and enter the required parameters for your tracker. Specifically, you need to ensure you are using the right DevEUI, the AppKey you exported from LoRa Cloud before and the profiles you created above. Finally, make sure to select the "raw" destination (*demo_raw* in our example) that was created above. Once you are done, click *Next*



11- On the next page, configure your device as "location-aware" by turning on the *Activate positioning* toggle and selecting the "location" destination (*demo_location* in our example) that was created above. Finally, click *Add device*

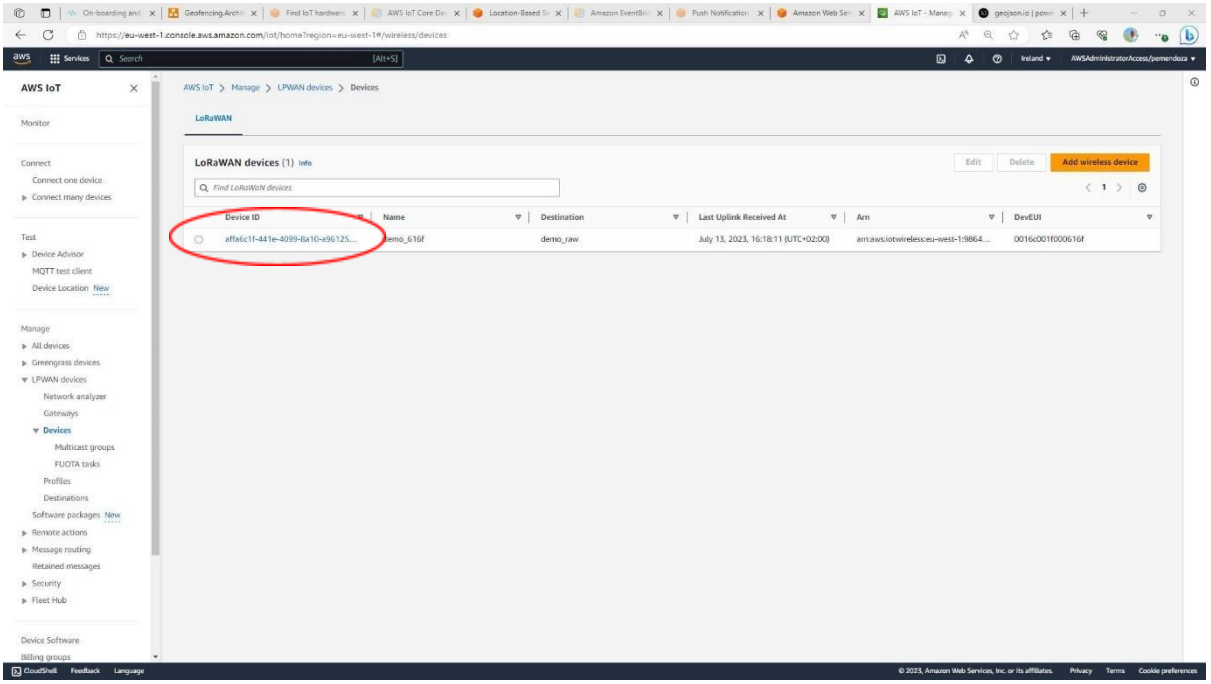


12- Now you are ready to turn your tracker on.

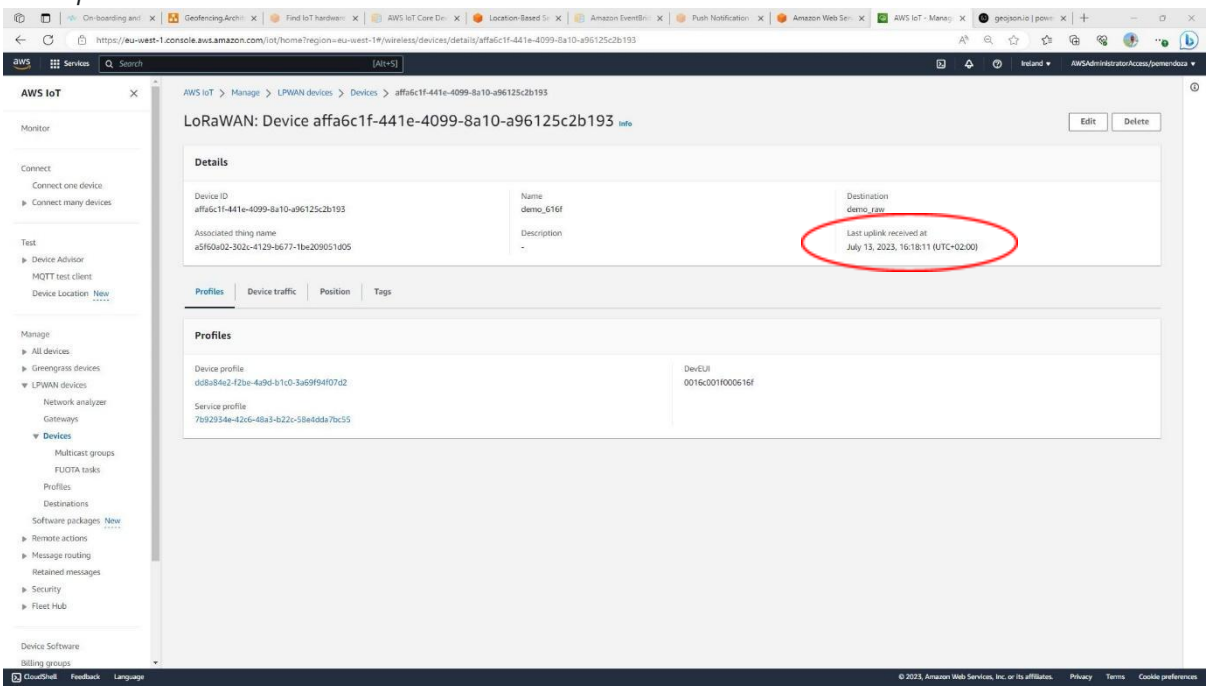
a. Using LoRa Edge Config mobile app, pair your mobile phone with your tracker (see details above) to perform the following configuration changes in the Miscellaneous section.

i. Disable the Airplane mode selector (tracker is shipped with airplane mode enabled).

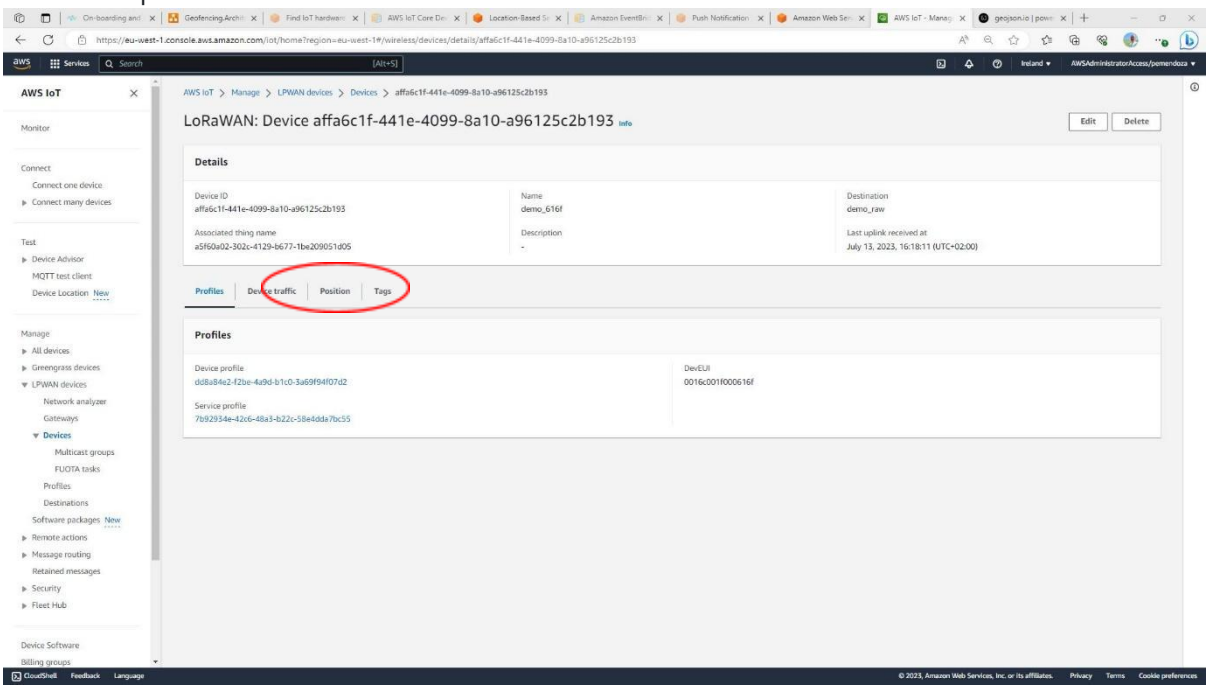
13- After a few minutes, on the list of devices, click on your device ID.



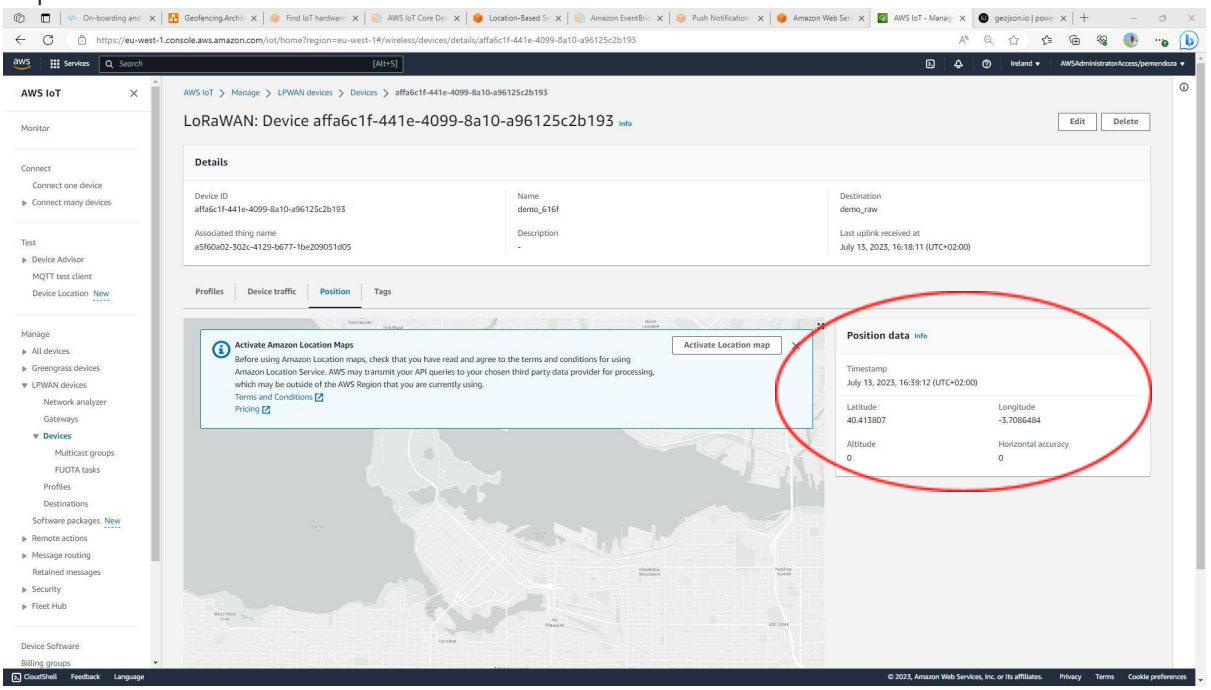
14- You should be able to see that the device has properly joined and is sending data by inspecting the *Last uplink received at* field



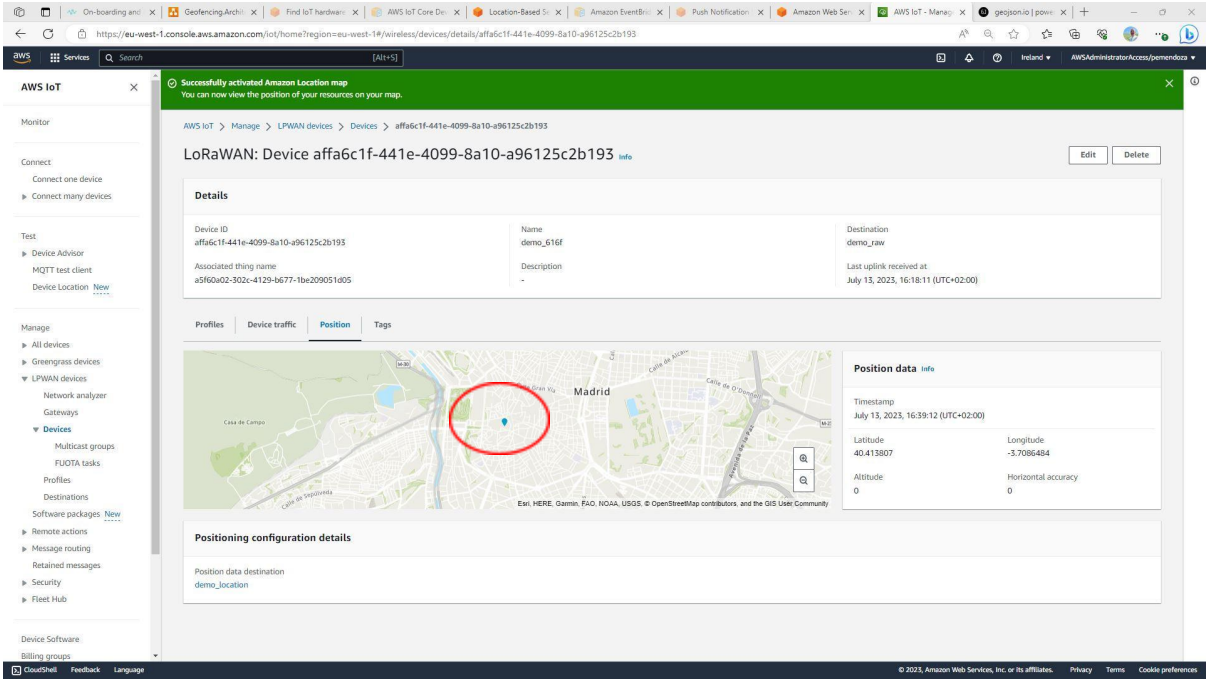
15- To see the position of the tracker, select the *Position* tab



16- Assuming your tracker has managed to successfully scan (either GNSS or Wi-Fi), you should see its position.



17- Additionally, you can click on *Activate Location Map* to have that position rendered on a map



You are now done with your tracker onboarding in AWS IoT Core Device Location. For any further questions, please contact us at Contact.