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# GETTING STARTED GUIDE

## INTEGRATING TEKTELIC CHICKADEE DEVICES WITH AWS IOT CORE DEVICE LOCATION SERVICE

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## Document Revision

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1.0	October 12, 2023	Released	L. Bu	Initial Document Release
2.0	October 25, 2023	Released	J. Stuart	Added sections 4-6 as suggested by AWS

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## 1 Introduction

The purpose of this document is to present a Getting Started Guide for integrating the TEKTELIC CHICKADEE devices with AWS IoT Core Device location service.

## 2 Pre-Requisites

- » TEKTELIC CHICKADEE Device
- » LoRaWAN gateway: A gateway that can run LoRa Basic Station.
- » Access to an AWS account with a region that supports AWS IoT Core for LoRaWAN (Screenshots included in this document are using the us-west-2 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.

### 3 About AWS Device Location

Refer to the AWS online documentation for information about [AWS IoT Core Device Location](#) and how it works.

## 4 Overview

The TEKTELIC Chickadee Wearable Badge Tracker is a reliable, practical solution for tracking and monitoring personnel. This versatile device is designed to meet various tracking and safety needs. CHICKADEE is a lightweight, wearable badge that can be effortlessly worn on a lanyard or clipped to a belt or clothing. It is ideal for tracking personnel in healthcare, hospitality, manufacturing, and other industries where tracking and safety are paramount.

CHICKADEE is equipped with GPS and Low-Power GNSS for outdoor location tracking, and it supports both Wi-Fi and Bluetooth connectivity for reliable indoor positioning. A push button can trigger emergency alerts, enhancing safety and ensuring rapid response in critical situations. Its long-lasting rechargeable battery can operate for 6 months.

## 5 Hardware Details

### 5.1 Datasheet

The CHICKADEE datasheet can be on TEKTELIC's website accessed [here](#).

### 5.2 Standard Kit Contents

The CHICKADEE is shipped with the following contents

- CHICKADEE Sensor

### 5.3 User Provided Items

- LoRaWAN Gateway (see section 7 for instructions on connecting LoRaWAN Gateway to AWS IoT Core for LoRaWAN)

- USB-C Charging Cable

- Established Wi-Fi and/or Bluetooth Network



## 6 Setup AWS

If you don't have an AWS account, refer to the instructions in the guide [here](#). The relevant sections are [Sign up for an AWS account](#) and [Create an administrative user](#).

If you have an AWS account and administrative user already set up, proceed with the steps below

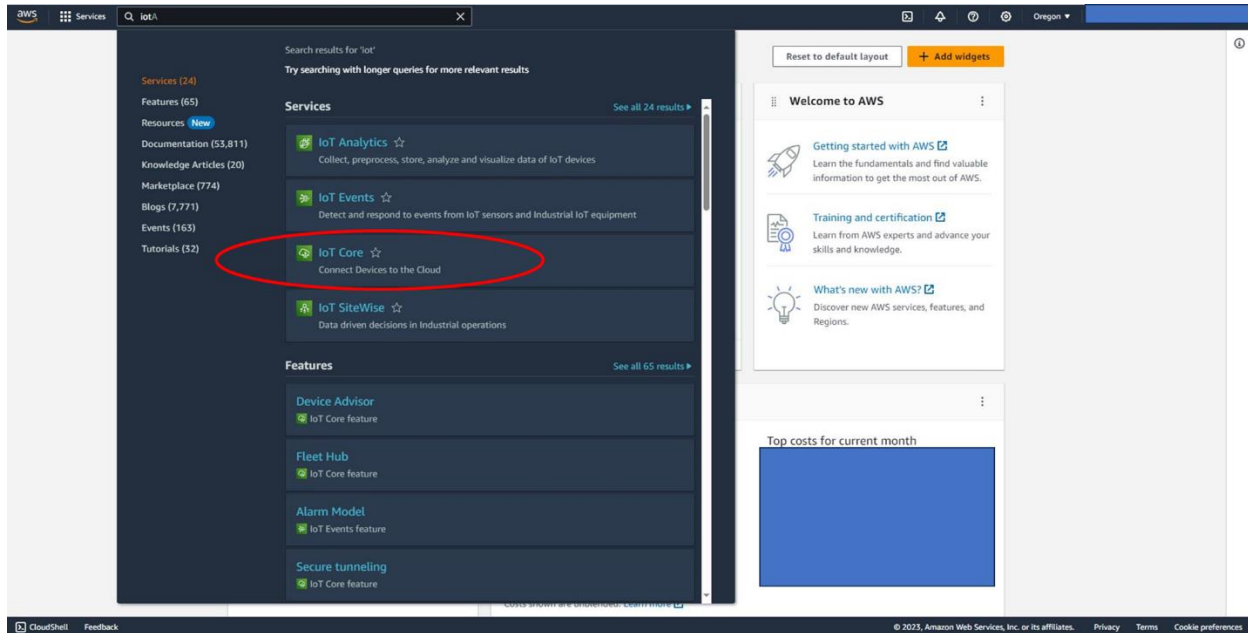
## 7 Onboard the LoRaWAN gateway to AWS IoT Core for LoRaWAN

The gateway commissioning process can be found here: [Onboard your gateways to AWS IoT Core for LoRaWAN - AWS IoT Core \(amazon.com\)](#)

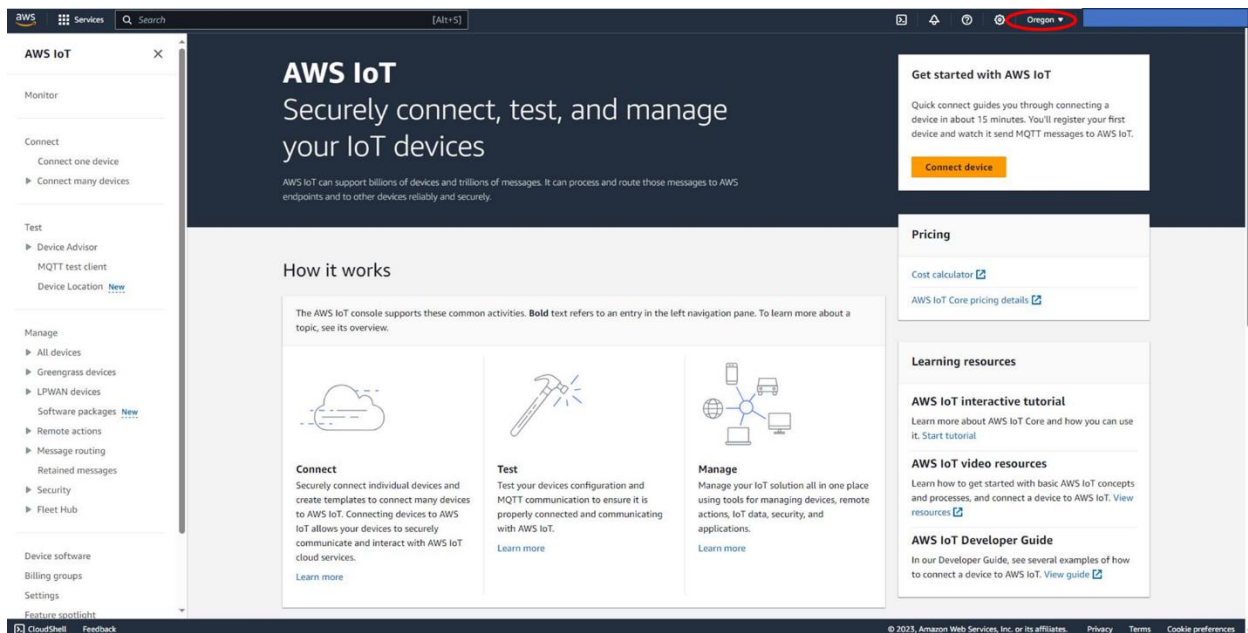
## 8 Provision the Device on AWS IoT Core

This section documents the steps required to onboard the tracker on AWS IoT Core for LoRaWAN, including creating service profile, device profile, device, and destination.

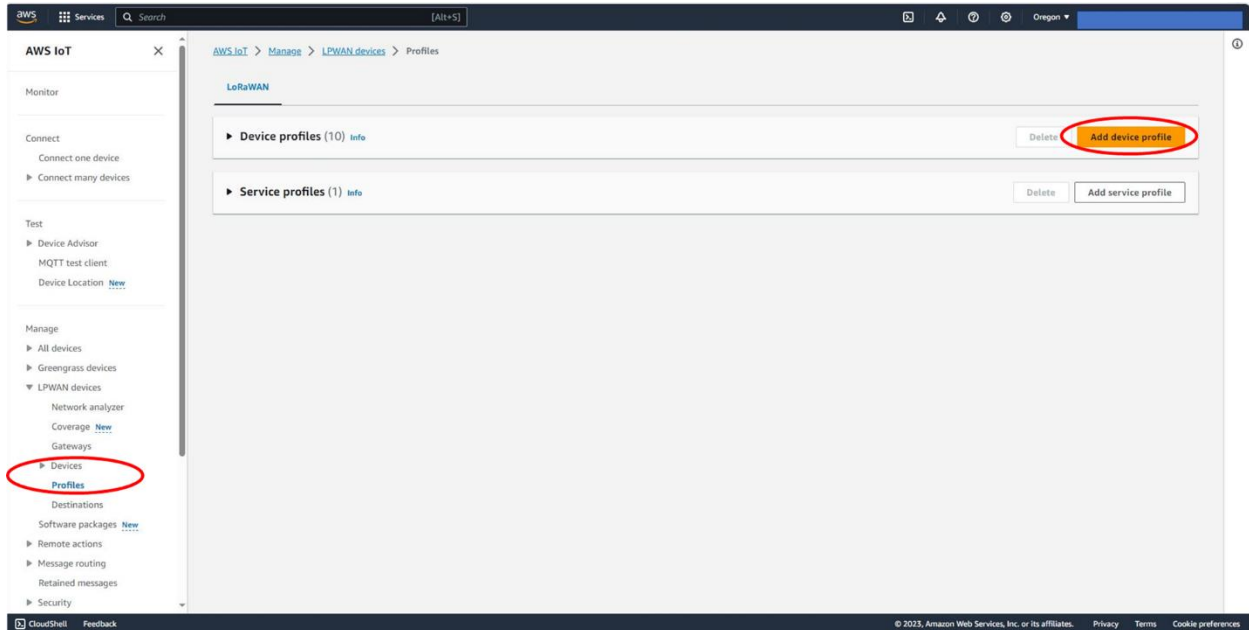
1. On the AWS Console, navigate to the search box and search for IoT core.



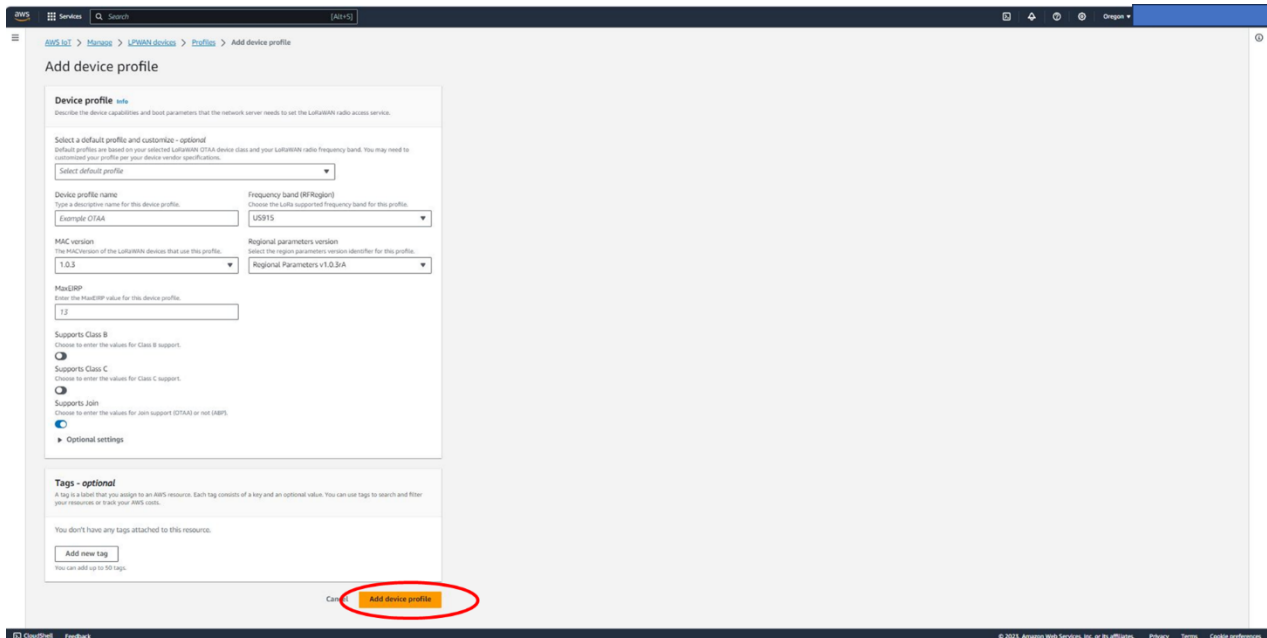
2. Please also confirm that AWS IoT core is available upon your selection of region, this guide used Oregon (us-west-2).



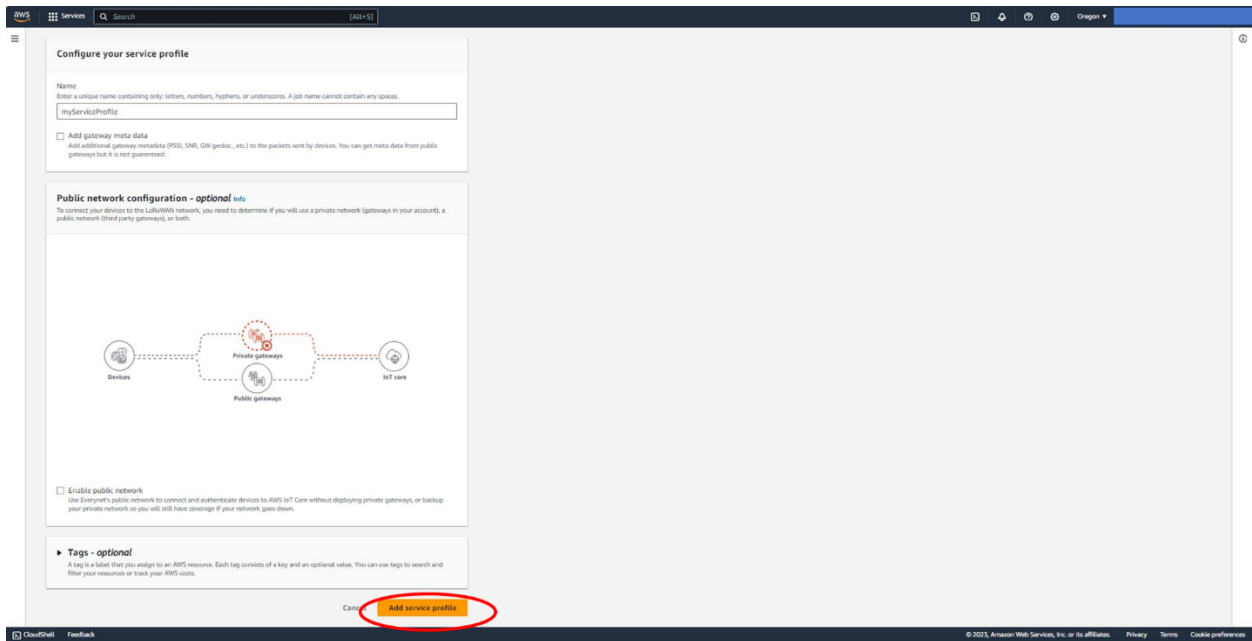
3. Navigate to the drop-down menu on the left, expand LPWAN devices, and finally select Profiles.



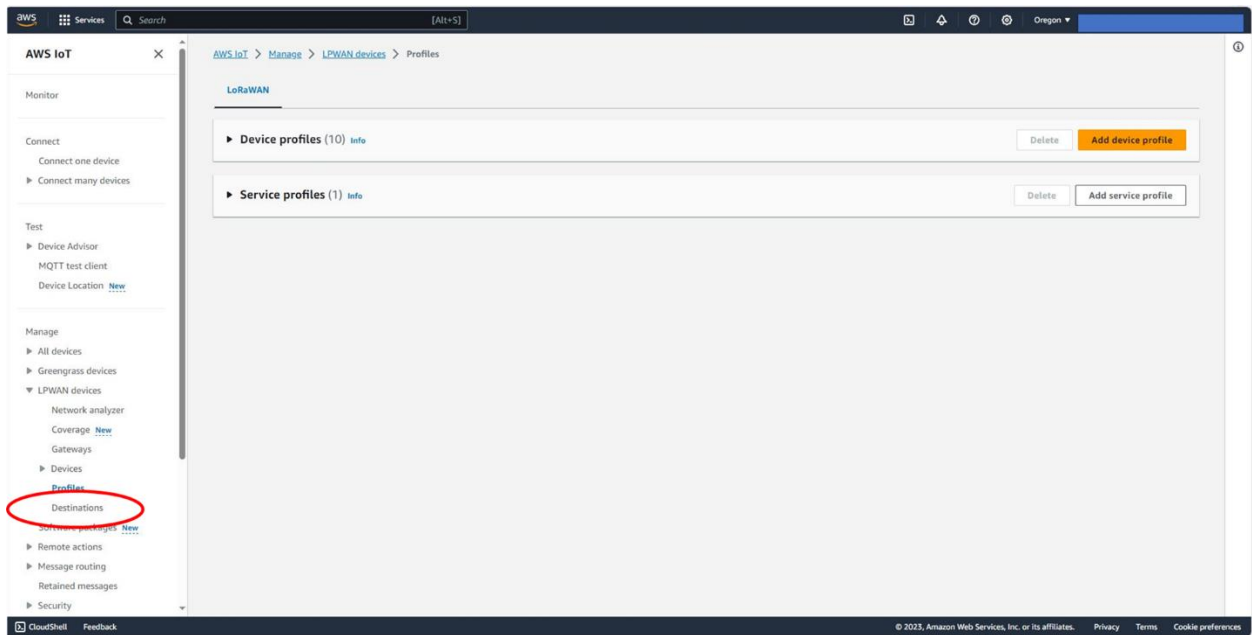
4. Choose “Add device profile” and input your device profile accordingly. Currently CHICKADEE uses LoRaWAN version 1.0.3 and regional parameter v1.0.3rA. Once finished, click on “Add device profile”.



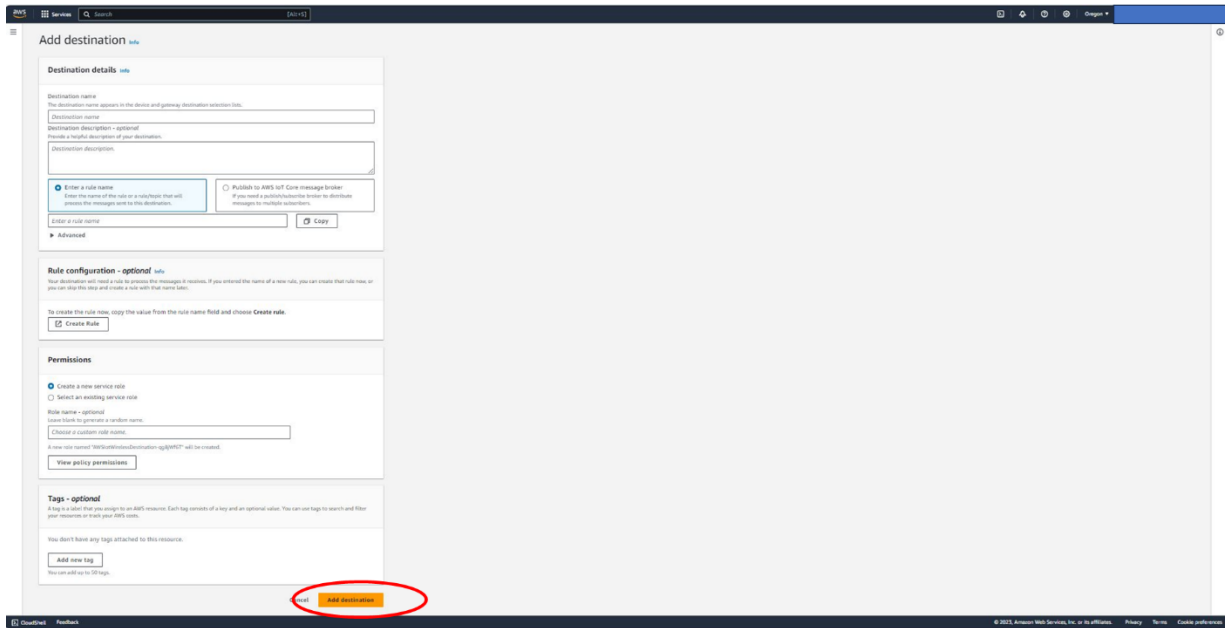
5. Choose “Add service profile” and name your profile (**myServieProfile** in this document). Once finished, click on “Add service profile”.



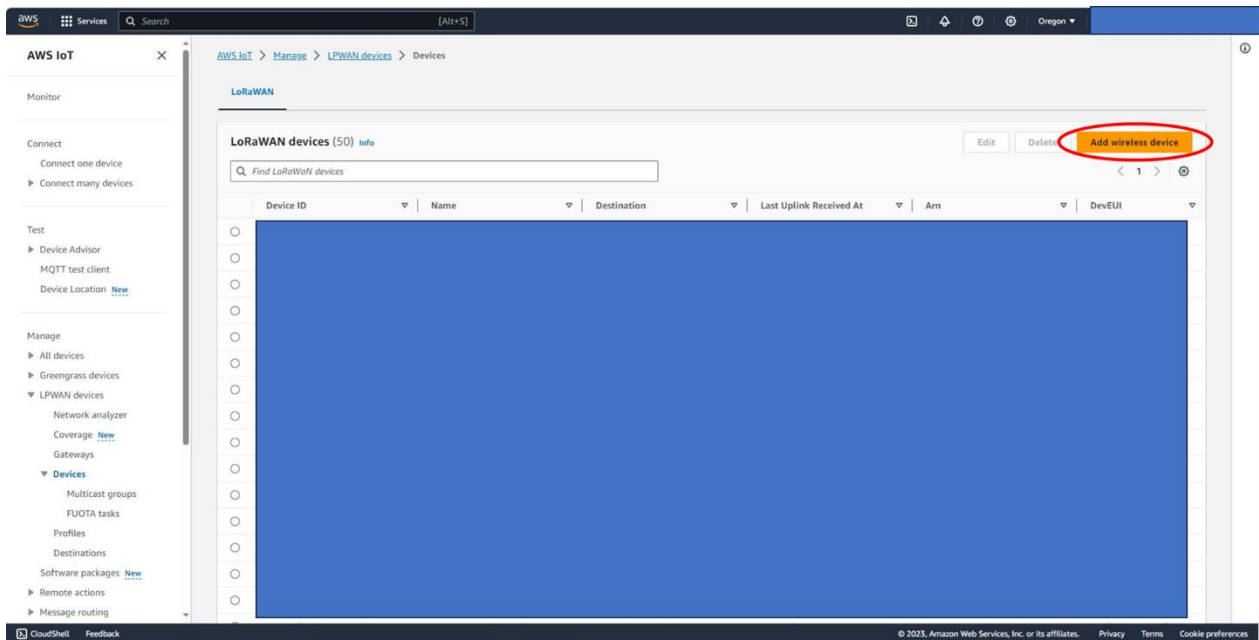
6. Navigate to the drop-down menu on the left, expand LPWAN devices, and finally select “Destinations”.



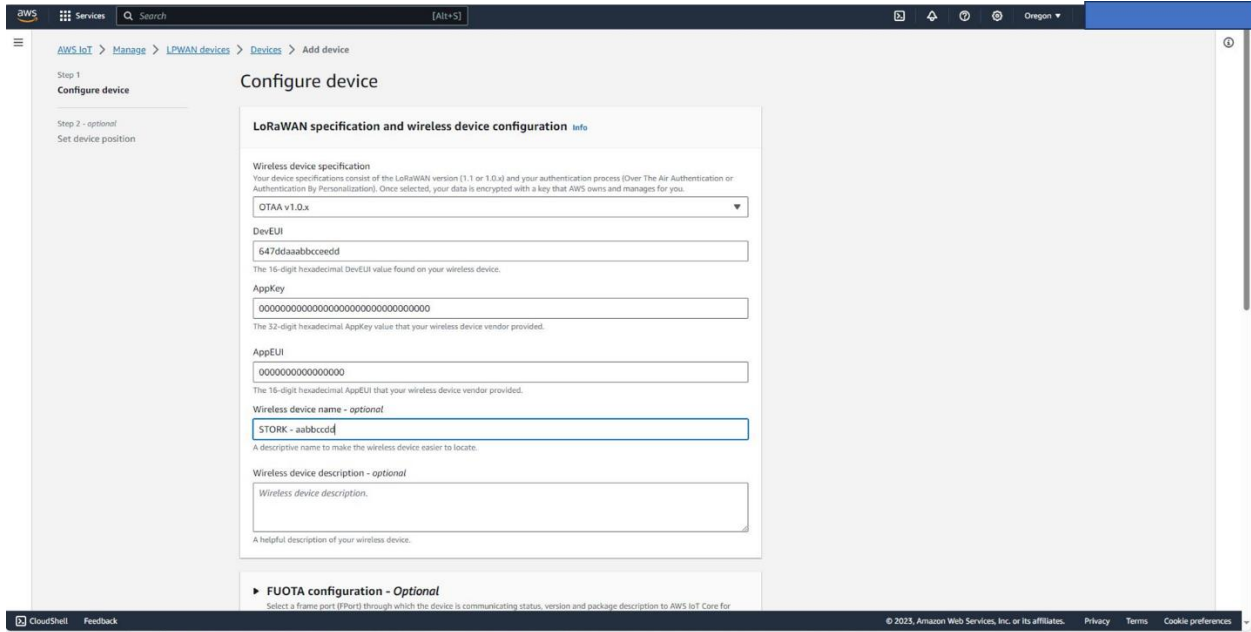
7. Choose “Add destination” and name your destination (**rawData** in this document). Please make sure that the “Enter a rule name” option is selected and give it a rule name. Also please make sure the “Create a new service role” is checked. Once finished, click on Add destination.



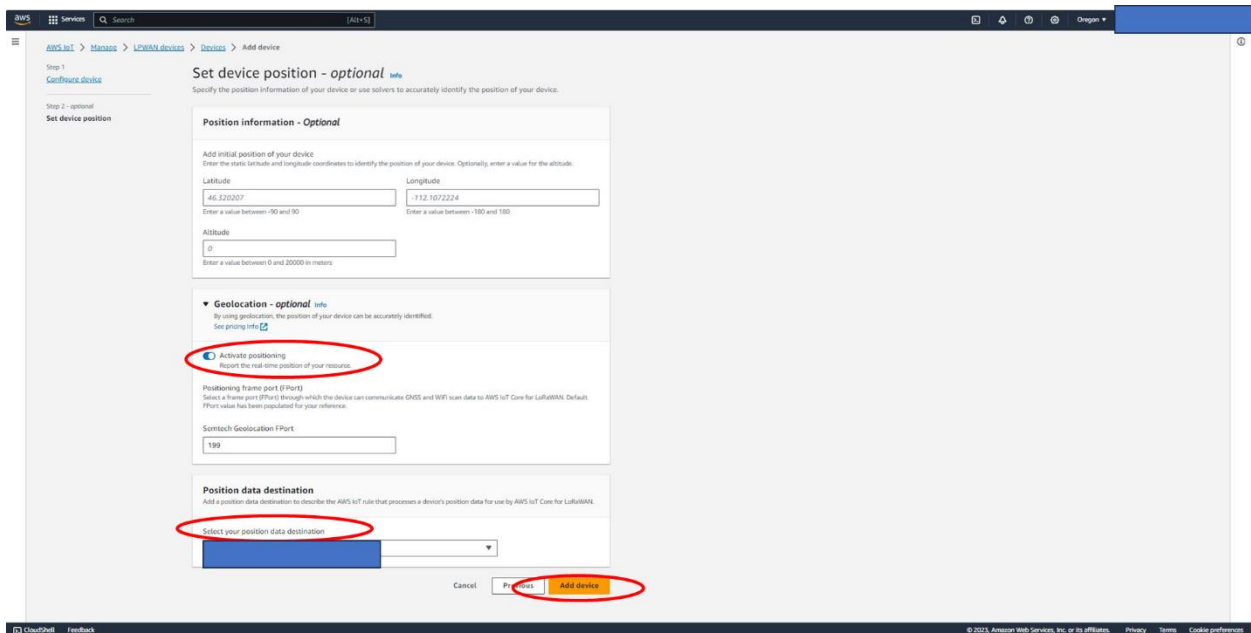
8. Please repeat step 7 to create a location data destination: Choose “Add destination” and name your destination for device location data (**locationData** in this document). Please make sure that the “Enter a rule name” option is selected and give it a rule name. Also please make sure the “Create a new service role” is checked. Once finished, click on Add destination.
9. Navigate to the drop-down menu on the left, expand LPWAN devices, select Devices, and click on Add wireless device.



10. In Add wireless device, enter the sensor name, description, DEVEUI, APPEUI, and APPKEY. It is noteworthy that DEVEUI, APPEUI, and APPKEY will be provided by the device vendor (TEKTELIC). Afterward, please select the rawData for destination, which was created in step 7. Finally, please click on “Next”.



12. Check the activate positioning option, on the drop-down menu, leave Semtech Geolocation FPort as default, and select the Position data destination to locationData, which was created in step 8. Finally, please click Add device.



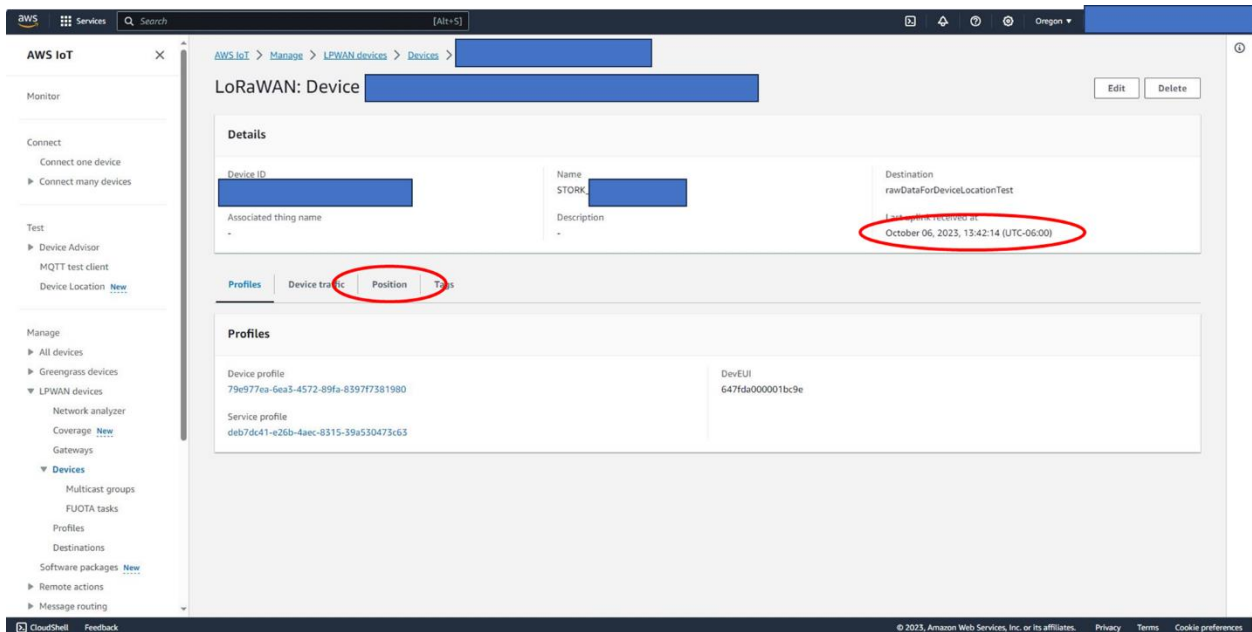
13. Double check if gateway is online.

#### 14. Activate the CHICKADEE Tracker

Press the button located on the side of the device. the button must be held pushed for > 3 seconds and < 10 seconds. After a successful activation, LEDs should blink (after about an 8 second pause) frequently until the device is able to join the network and then the blinking will be reduced to reflect its operation (LEDs blink when ULs are sent)



15. From Devices tab, click on the CHICKADEE's device ID, the Last uplink received at time should be a recent time.





16. Go to the position tab, the device geolocation should be displayed, assuming CHICKADEE has performed a GNSS and/or Wi-Fi scan successfully.

The screenshot displays the AWS IoT console interface for a LoRaWAN device. The breadcrumb navigation shows the path: AWS IoT > Manage > LPWAN devices > Devices > [Device ID]. The main content area is titled "LoRaWAN: Device [Device ID]" and includes "Edit" and "Delete" buttons. Below this is a "Details" section with a table of device information:

Field	Value
Device ID	[Redacted]
Name	STORK [Redacted]
Destination	rawDataForDeviceLocationTest
Associated thing name	-
Description	-
Last position received	October 06, 2023, 13:42:14 (UTC-06:00)

The "Last position received" value is circled in red. Below the details is a "Position" tab, which is active. It features a map of the device's location in Calgary, Alberta, Canada, near the airport. To the right of the map is a "Position data" section with the following information:

Field	Value
Timestamp	October 06, 2023, 13:42:20 (UTC-06:00)
Latitude	51.1194
Longitude	-114.04092
Altitude	1063.33
Horizontal accuracy	31.5

At the bottom of the console, there is a "Positioning configuration details" section with a "Position data destination" field set to [Redacted]. The footer of the console shows "© 2023, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences".