

TEKTELIC Communications Inc. 7657 10th Street NE Calgary, Alberta Canada, T2E 8X2

GETTING STARTED GUIDE

INTEGRATING TEKTELIC STORK DEVICE WITH AWS IOT CORE DEVICE LOCATION SERVICE

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Table of Contents

1	Ir	ntroduction	4
2	Ρ	re-Requisites	5
3	A	bout AWS Device Location	6
4	0	Overview	7
5	Н	lardware Details	3
	5.1	Datasheet	3
	5.2	Standard Kit Contents	3
	5.3	User Provided Items	3
6	S	etup AWS	Э
7	0	Onboard the LoRaWAN gateway to AWS IoT Core for LoRaWAN	C
8	Р	rovision the Device on AWS IoT Core1	1

1 Introduction

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

2 Pre-Requisites

- >> TEKTELIC STORK 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 <u>AWS IoT Core Device Location</u> and how it works.

4 Overview

The TEKTELIC STORK is ideal for tracking vehicles, equipment, and other assets in any indoor or outdoor environment, and while the asset is in transit. Versatile mounting options allow STORK to be attached to pallets and equipment to easily. STORK provides location positioning via Low Power GNSS, BLE and Wi-Fi Scanning while utilizing LoRaWAN[®] for long-range connectivity, low power consumption, and extended battery life.

STORK is an ideal device for Equipment yards, warehouses and storage facilities, manufacturing facilities and for assets in-transit such as shipped pallets, containers and other mobile equipment.

5 Hardware Details

5.1 Datasheet

The STORK datasheet can be on TEKTELIC's website accessed <u>here</u>.

5.2 Standard Kit Contents

The STORK is shipped with the following contents

STORK Sensor

C-Cell Battery

Mounting Bracket

5.3 User Provided Items

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

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 <u>here</u>. The relevant sections are <u>Sign up for an AWS account</u> and <u>Create an administrative user</u>.

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: <u>Onboard your gateways to AWS IoT</u> <u>Core for LoRaWAN - AWS IoT Core (amazon.com)</u>

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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).

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Settings	Device software Billing groups	IoT allows your devices to securely communicate and interact with AWS IoT cloud services. Learn more	with AWS IoT. Learn more	applications. Learn more	AWS IoT Developer Guide In our Developer Guide, see several examples of how to connect a device to AWS IoT. View guide [2]
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3. Navigate to the drop-down menu on the left, expand LPWAN devices, and finally select Profiles.

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

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A tag is a label that you assign to an AWS resource. Each tag consists of a key and an or	ional value. You can use tags to search and filter		
your resources or track your wers cours.			
You don't have any tags attached to this resource.			
Add new tag			
You can add up to 50 tags.			
	Canel Add device profile		
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5. Choose "Add service profile" and name your profile (**myServieProfile** in this document). Once finished, click on "Add service profile".

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Configure your service profile	
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myServiceProfile	
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Enable public network Dat Genymetr public network to convect and authenticate devices to ARS iniT Core without deploying private gateways, or backup your service network is you will still have command if your network goes down.	
▶ Tags - optional	

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

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Gateways		
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Remote actions		
Message routing		
Retained messages		
▶ Security +		

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.

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		Enter a rule name Enter the name of the rule or a rule/topic that will process the messages sent to this destination.	 Publish to AWS IoT Core message broker If you need a publish/subscribe broker to distribute messages to multiple subscribers. 	
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		can add up to 50 tags.		

- 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.

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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".

Step 1 Configure device	Configure device	
Step 2 - aptional Set device position	LoRaWAN specification and wireless device configuration Mo	
	Wireless device specification Your device specifications consist of the LoRAWAN version (1.1 or 10.4) and your authentication process (Dver The Air Authentication or Authentication by Presonalization). Once selected, your data is encrypted with a key that AIXS owns and manages for you.	
	OTAA v1.0.x	
	DevEUI	
	647ddaaabbcceedd	
	The 16-digit hexadecimal DevEUI value found on your wireless device.	
	АррКеу	
	000000000000000000000000000000000000000	
	The 32-digit hexadecimal AppKey value that your wireless device vendor provided.	
	AppEUI	
	000000000000000	
	The 16-digit hexadecimal AppEUI that your wireless device vendor provided.	
	Wireless device name - optional	
	STORK - aabbccdd	
	A descriptive name to make the wireless device easier to locate.	
	Wireless device description - optional	
	Wireless device description.	
	A helpful description of your wireless device.	

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.

aws	Q Search		[Alt+S]	D & @ @ 0regor +	
Ξ	AWS INT > Manage > LPWAN devi	ices > Devices > Add device			0
	Step 1 Confloure device	Set device position - opt	tional two		
	Step 2 - optional Set device position	Position information - Optional			
		Add initial position of your device Enter the static latitude and longitude coordinates t	to identify the position of your device. Optionally, enter a value for the altitude.		
		Latitude	Longitude		
		46.320207	-112.1072224		
		Enter a value between -90 and 90	Enter a value between -180 and 180		
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		Enter a value between 0 and 20000 in meters			
		Activate politioning Root the rud sime polition of your resource Politicationing frame goal ("Part) Sales a fineme (PfW) of through which the doot /Pour value has been populated for your reference. Sentech Geolocation Piort 199	e can communicate d'Alts and NAT ison date to Altif Sill Conv for Lafstellik, Dafada		
		Position data destination Add a position data destination to describe the AMS	S foT rule that processes a device's position data for use by AWS foT Core for LaBaNAM.		
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D Cloud	Shell Feedback			© 2023, Amazon Web Services, Inc. or its affiliates. Privacy Terms. Cookie preferen	205

13. Double check if gateway is online.

14. Activate the STORK Tracker

Place the magnet close to the magnet sign on the device. The magnet must be held in place 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 STORK's device ID, the Last uplink received at time should be a recent time.

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lest Device Advisor	Associated thing name -	Description -	Laus optimit received at October 06, 2023, 13:42:14 (UTC-06:00)	>
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Network analyzer Coverage New	Service profile deb7dc41-e26b-4aec-8315-39a530473c63			
▼ Devices				
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Remote actions				
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16. Go to the position tab, the device geolocation should be displayed, assuming STORK has performed a GNSS and/or Wi-Fi scan successfully.

