12 - Internet of Things (4)

Serverless Computing for IoT

Vittorio Scarano

Università di Salerno

Computer Science Master Degree
Curriculum: Internet of Things

Lesson Plan

Demo Introduction

1 - Registering a device

2 - Device Certificate

3 - IoT Policy

4 - Attach Policy to Certificate

5 - Attach Certificate to Thing

6 - Testing from within

Conclusions


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How it works (or it does not)

- The steps of the tutorial are followed . . .
- . . . but only up to a certain point
- In fact, some limitations to the educational account apply, so that some of the operations will be only checked on the tutorial

The structure of the example

Structured in steps

1. Registering a device
2. Create and Activate a Device Certificate
3. Create an IoT Policy
4. Attach an IoT Policy to a Device Certificate
5. Attach a Certificate to a Thing
6. Testing


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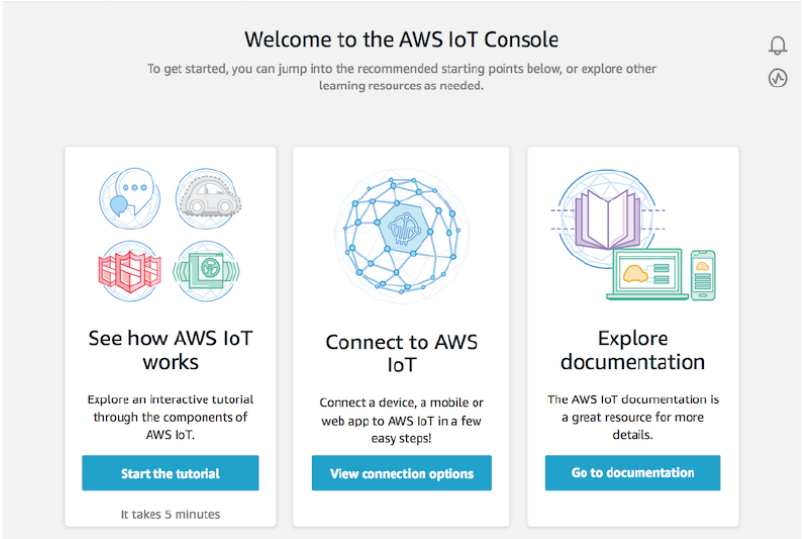
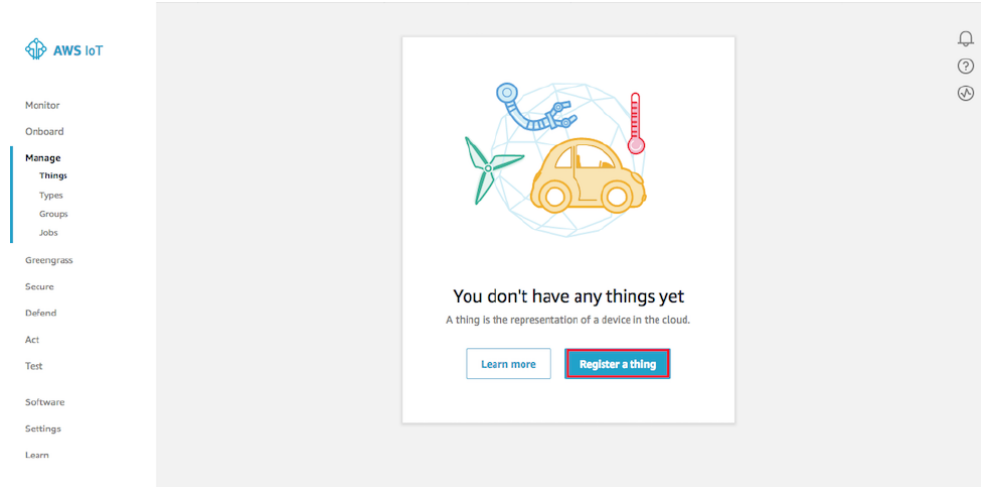
1 - Registering a device in the registry

- Devices connected to AWS IoT are represented by things in the registry.
- The registry allows you to keep a record of all of the devices that are connected to your AWS IoT account.
- We are defining a new Thing, . . .
- . . . register it, attach a device certificate to it and . . .
- . . . and then test it

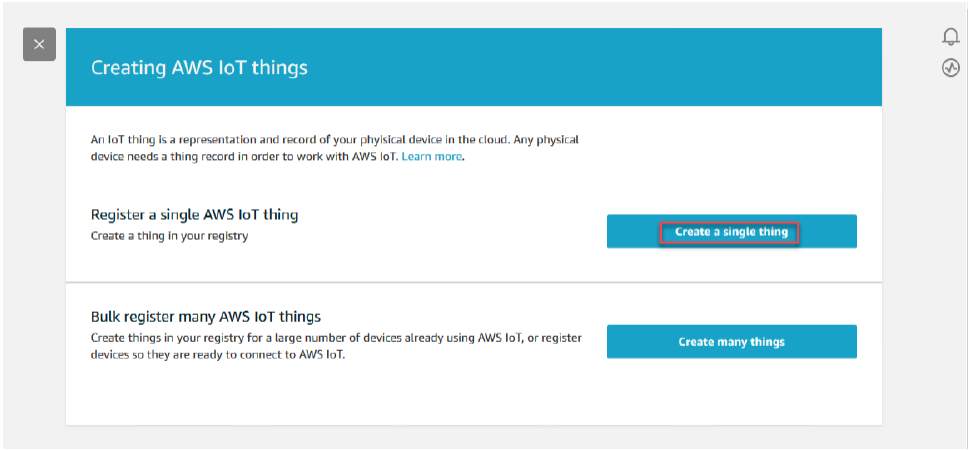
1.1 - THE BEGINNING: GO TO "MANAGE"



1.2 - “Manage”. then “Things”, “Register”

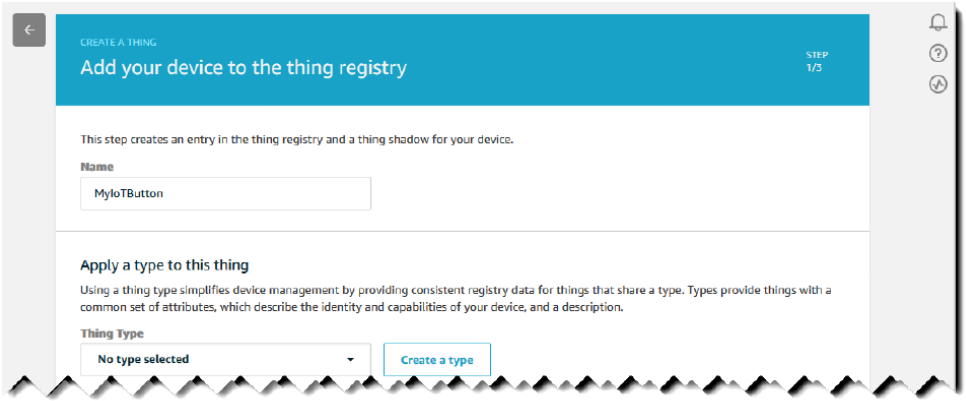


1.3 - "Create a single Thing"



1.4 - "Create" and "Next"

On the **Create a thing** page, in the **Name** field, type a name for your device, such as `MyIoTButton`. Choose **Next** to add your device to the registry.

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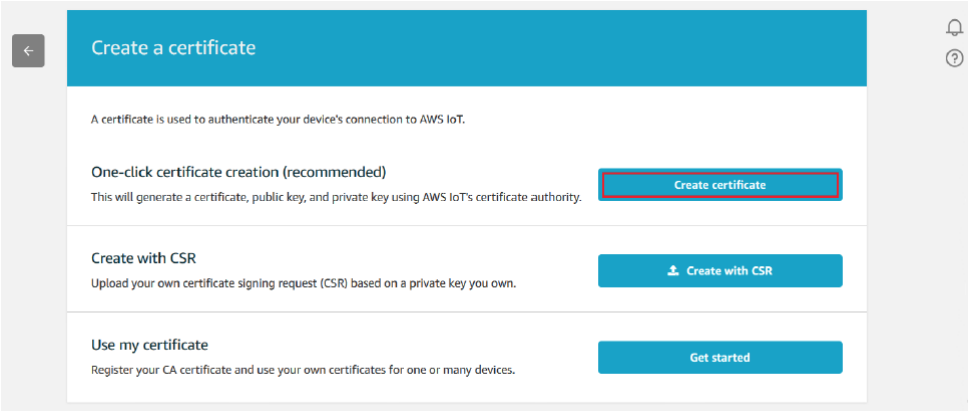
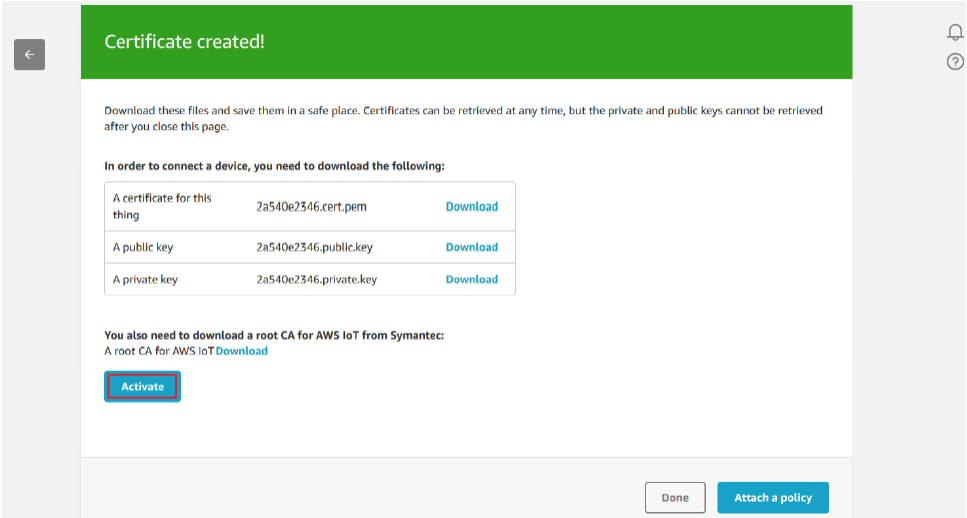
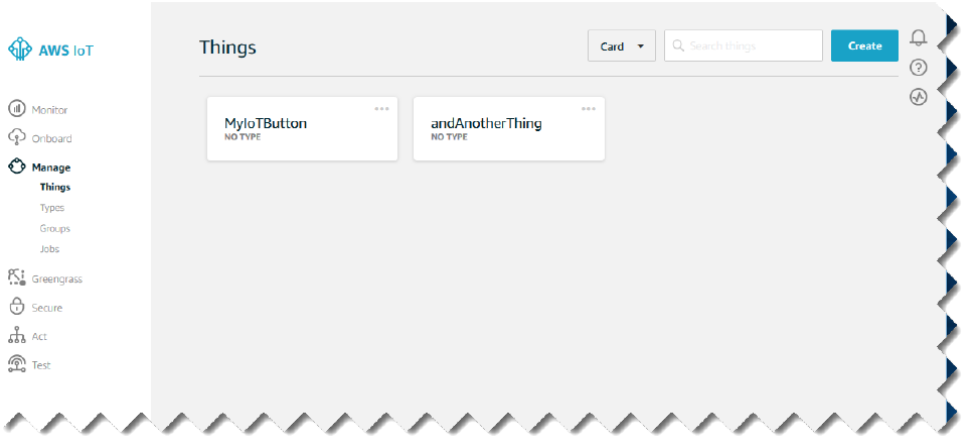
2.1 - Create certificate



2.2 - Download and activate



2.3 - In the console

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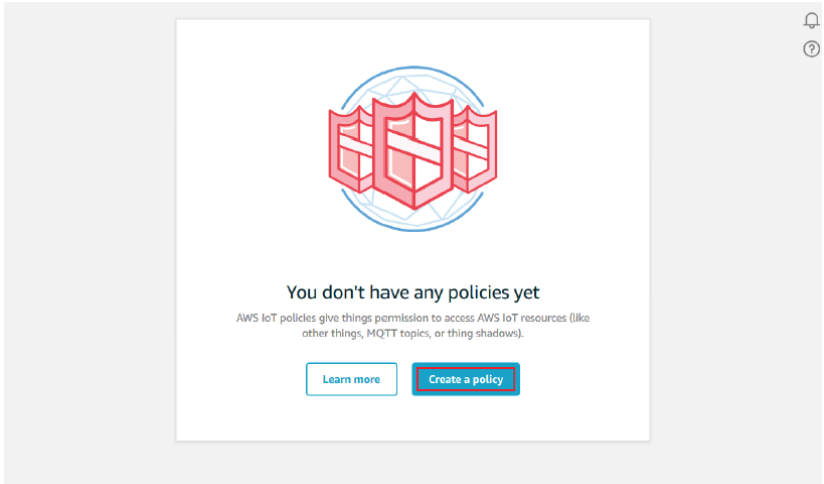
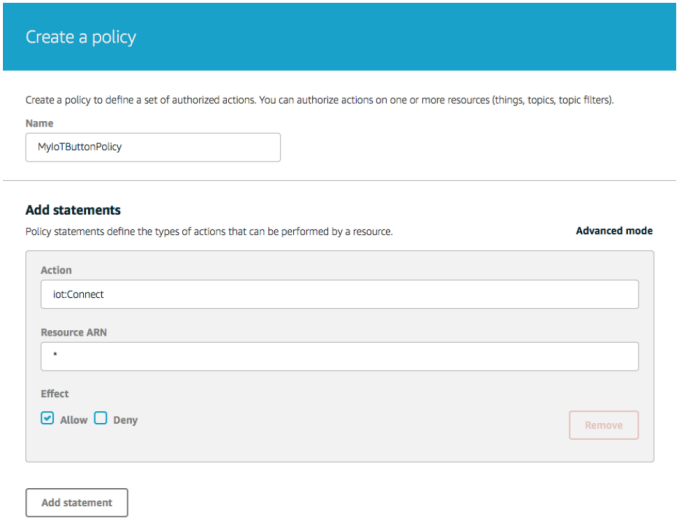
The Policy

- X.509 certificates are used to authenticate your device with AWS IoT: "*Who are you?*"
- Then, you need to specify what a Thing can do: "*Who can* **you** *do?*")
- AWS IoT policies are used to authorize your device to perform AWS IoT operations, such as subscribing or publishing to MQTT topics.
- Your device presents its certificate when sending messages to AWS IoT.
- Then, in order to allow your device to perform AWS IoT operations, ...
- we must create an AWS IoT policy ...
- ... and attach it to your device certificate

3.1 - “Secure” and “Create policy”



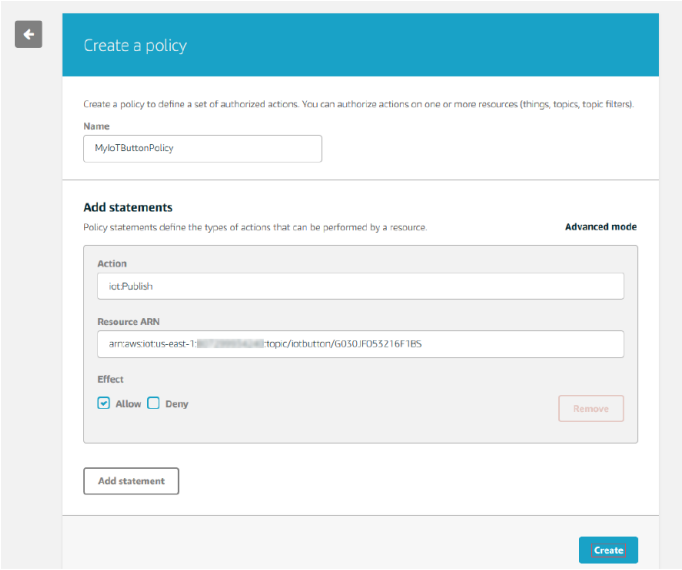
3.2 - We allow connection from all clients



Restrictions from zones

- We can restrict which clients (devices) are able to connect by specifying a client ARN as the resource.
- The client ARNs follow this format:
  `arn:aws:iot:your-region:your-aws-account:client/<my-client-id>`

3.3 - Finish and create

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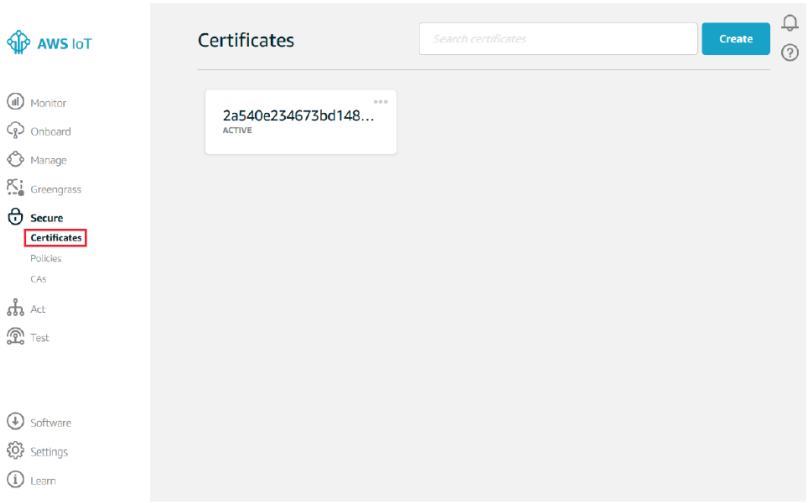
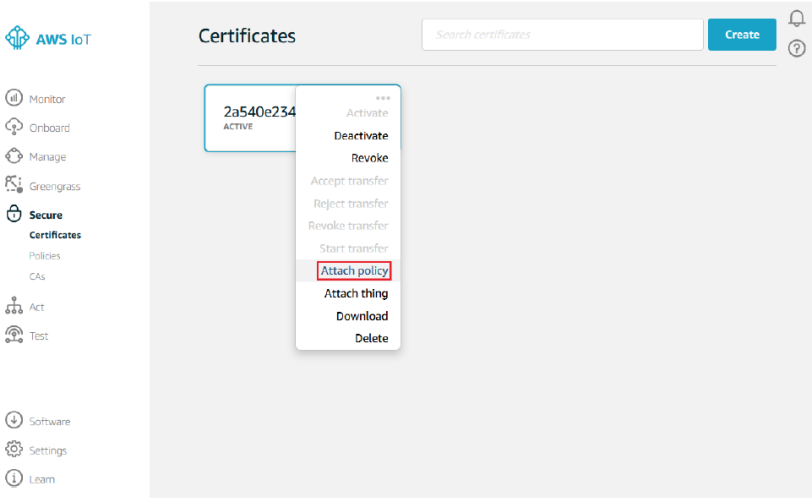
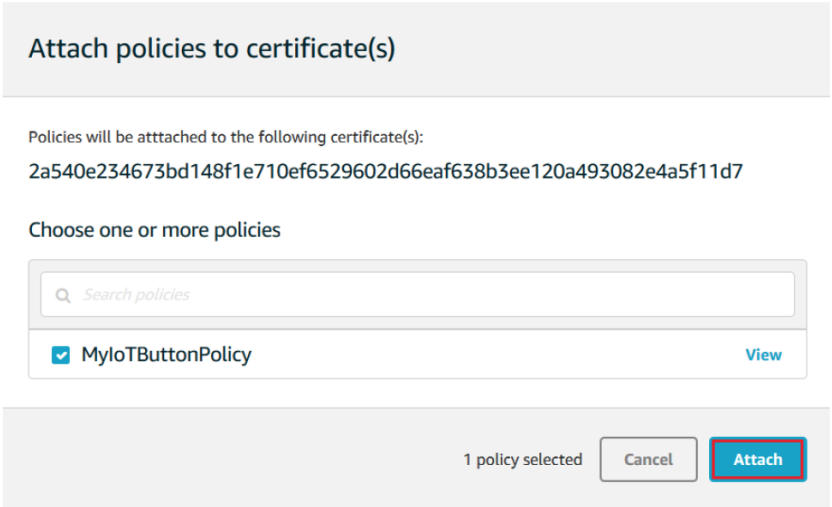
4.1 - Choose certificate



4.2 - Right click



4.3 - Choose the policy

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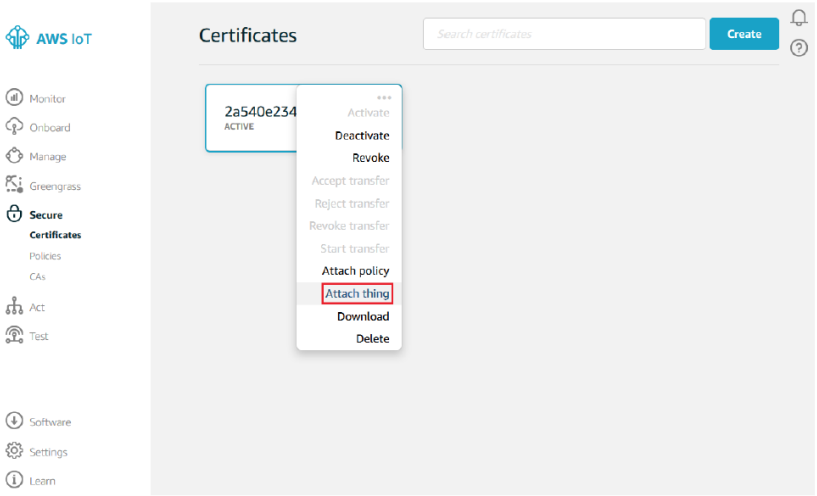
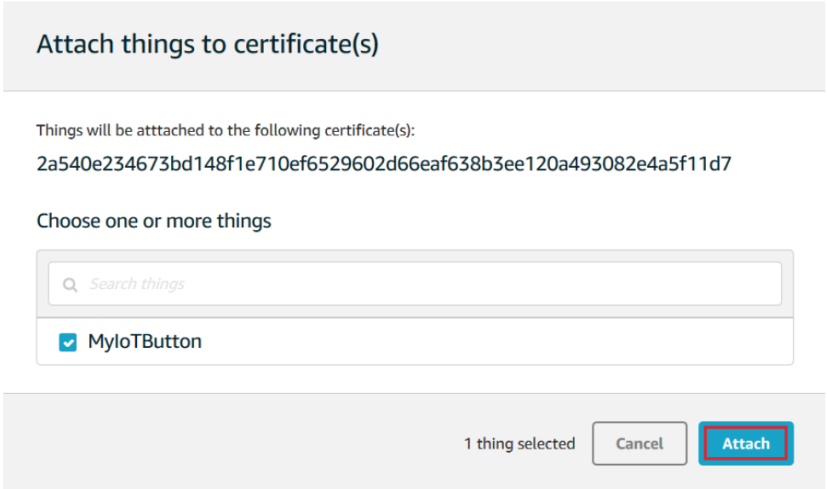
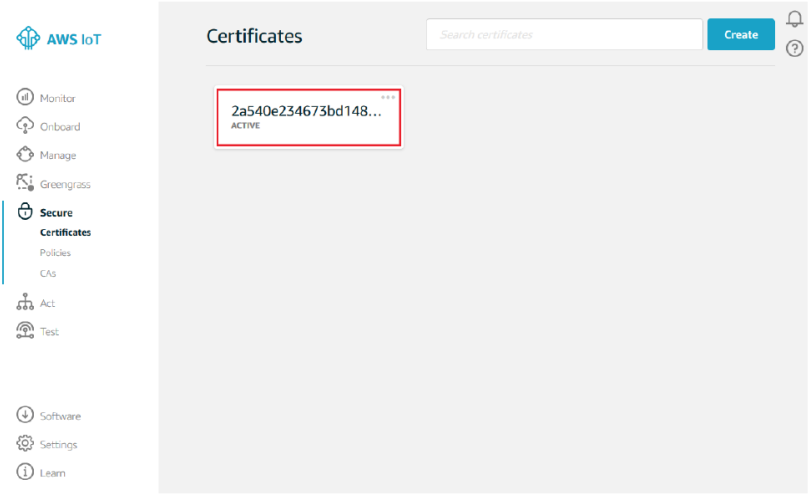
5.1 - From Certificate, right click and “Attach thing”



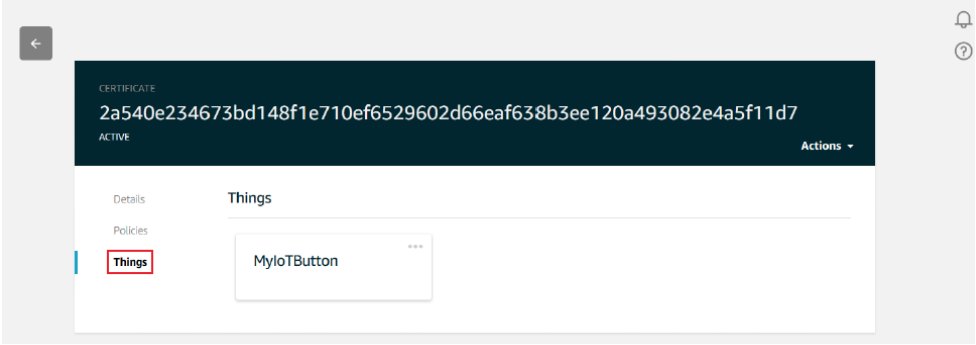
5.2 - PICK IT



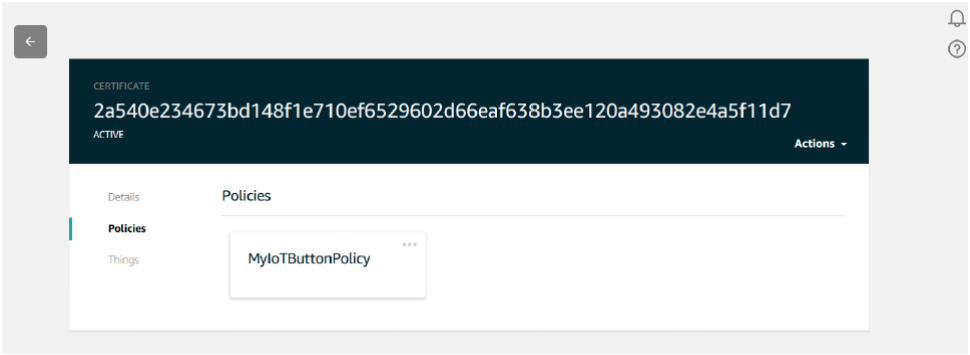
5.3 - Certificate ready



5.4 - . . . WITH THING ATTACHED



5.5 - . . . AND WITH A POLICY

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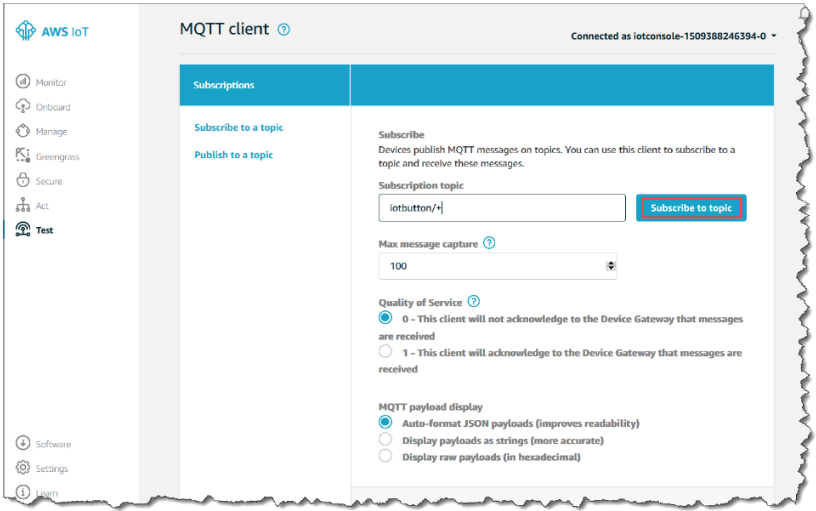
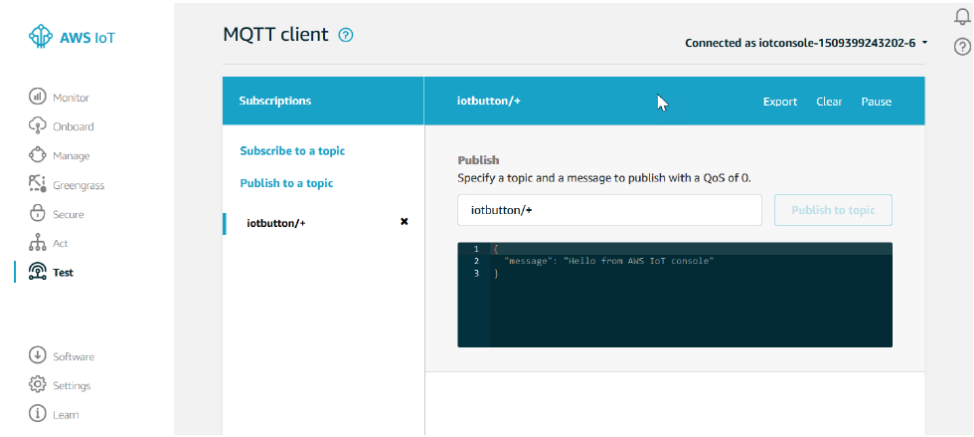
6.1 - TESTING

6.2 - Subscribe to a topic



6.3 - You can see the messages published



6.4 - Publish messages

What we have covered in this class

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That's all Folks!