FC41D AWS IoT Platform Access Guide

Wi-Fi&Bluetooth Module Series

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About the Document

Revision History

Version	Date	Author	Description
-	2022-01-26	Brave LIU	Creation of the document
1.0.0	2022-01-26	Brave LIU	Preliminary

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1 Introduction

AWS IoT provides the cloud services that connect your IoT devices to other devices and AWS cloud services. It provides an easy way to help you manage IoT devices.

This document introduces how to access AWS IoT with Quectel FC41D module.

2 Configure AWS IoT Platform

2.1. Create AWS Account

Before accessing AWS cloud, it is necessary to make some configuration on AWS IoT platform for your devices, including device registration, certificate acquisition, policy creation and attachment, etc.

Before using AWS IoT services, you must set up an AWS account. If you already have an AWS account and an IAM user (see the link user for details) for yourself, you can use them to Open the AWS IoT console. Otherwise, open this link for a new account registration.

2.2. Get Certificates

The certificates are used to authenticate your devices to connect to AWS IoT. Follow the steps below to get certificates for your devices.

2.2.1. Create a Shortcut for IoT Core

Sign in to the AWS IoT platform. For more details on how to register the devices, refer to the AWS IoT Core Documentation center.

In the "AWS Management Console", a shortcut for "IoT Core" can be created simply by dragging it to the menu bar.

2.2.2. Register Device

Open your AWS IoT console, then
a) Click "**IoT Core**",
b) Choose "**Manage**" → "**Things**" in the left navigation bar.
c) Click "**Create**"
d) Clidk "**Create a single thing**".
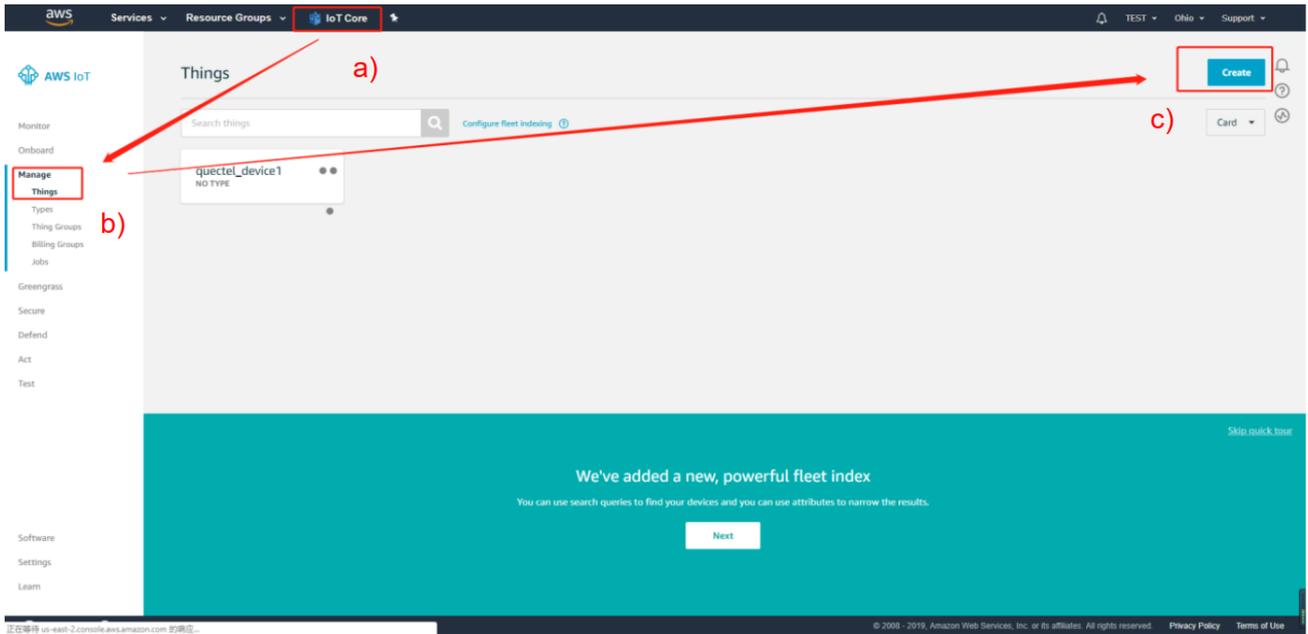
Figure 1: Register Device - A
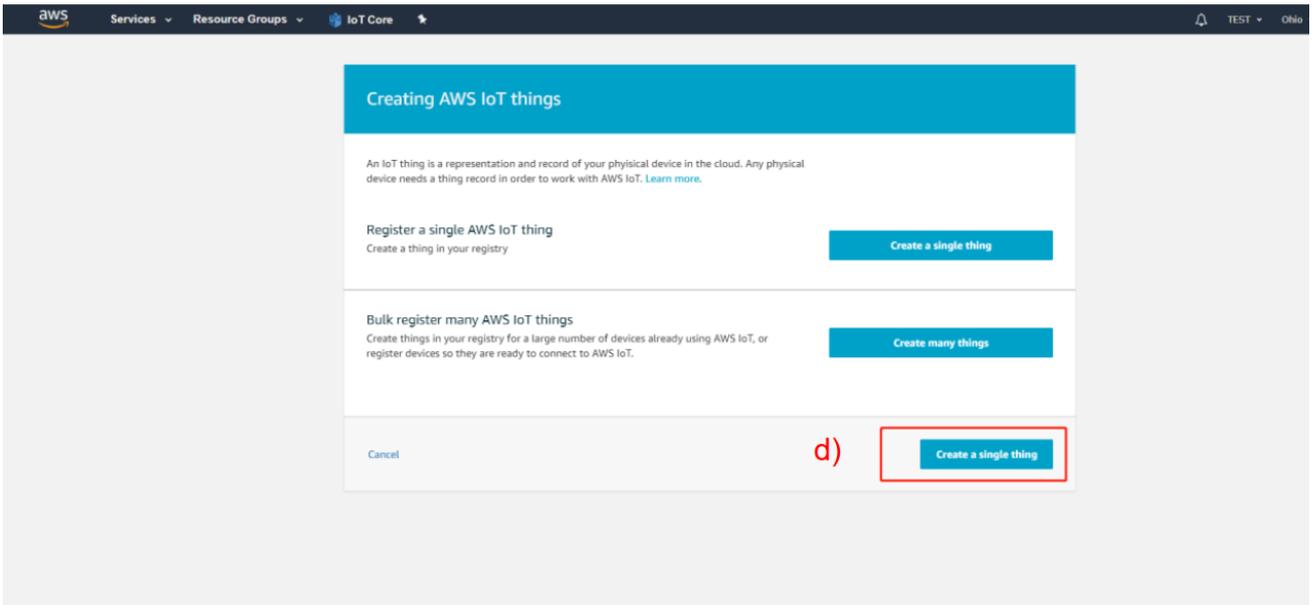
Figure 2: Register Device - B

Then add your device to the thing registry according to the provided steps. Take the device named as "mytestthing" as an example:

Figure 3: Register Device - C

2.2.3. Get Certificates

X.509 certificates protects the connection between a device and AWS IoT platform. The certificates have to be activated before using.
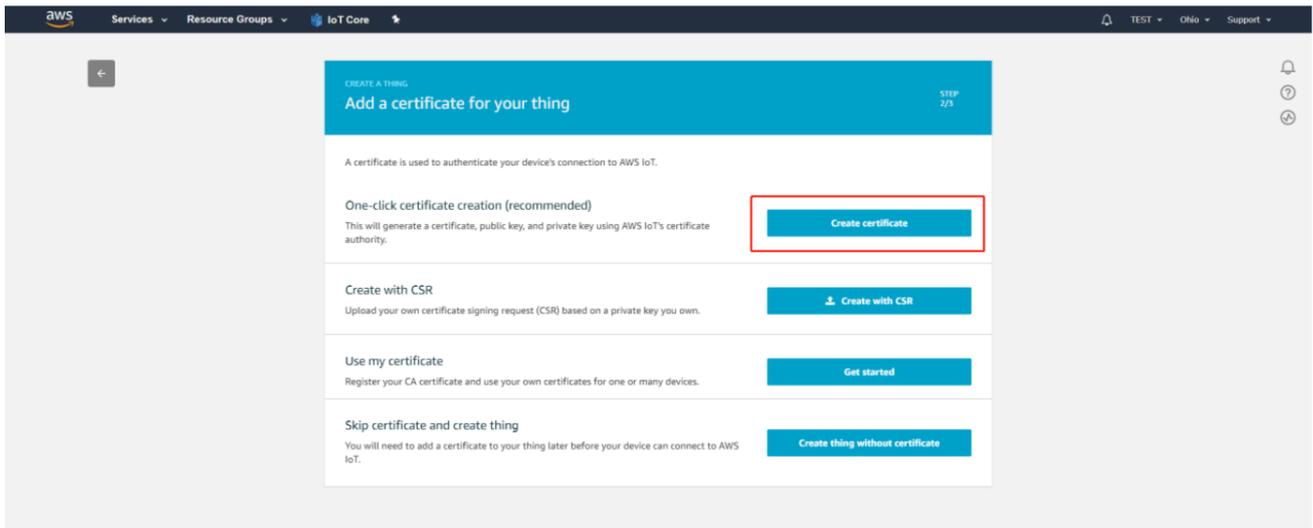
Figure 4: Get Certificates – Add a Certificate for Your Thing

Download certificates and root CA and save them in your PC. Select "**Starfield Root CA Certificate**" for the root CA.
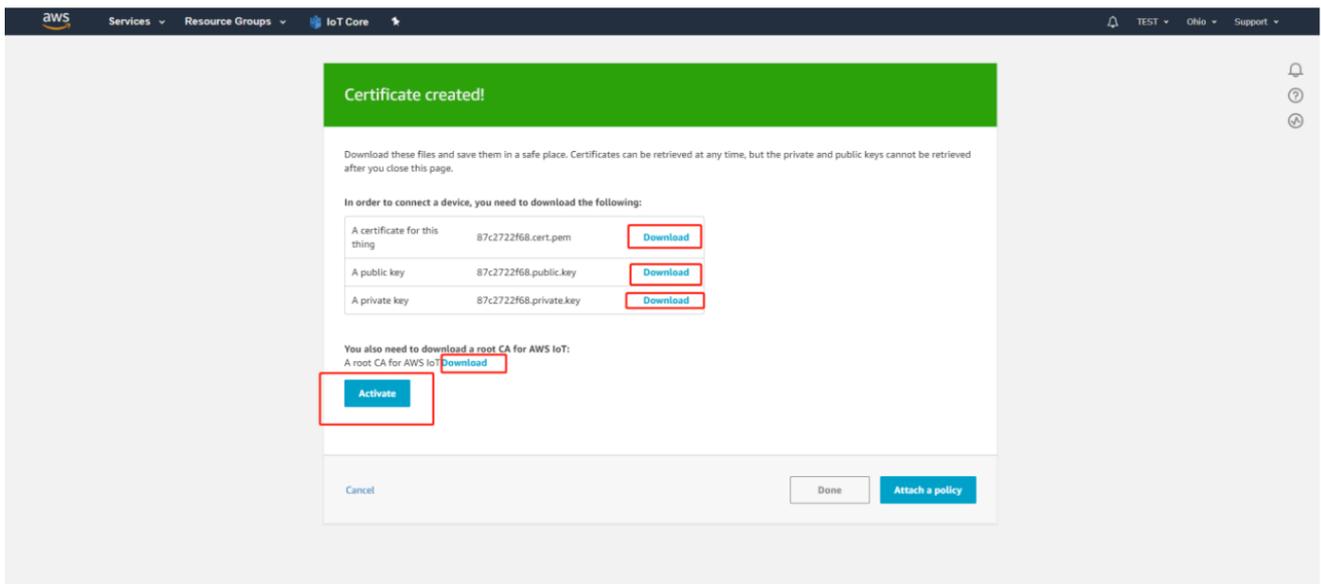
Figure 5: Get Certificates – Download Certificates

2.2.4. Create a Policy

Thing policy variables allow you to write AWS IoT Core policies that grant or deny permissions based on thing properties like thing names, thing types, and thing attribute values.

Open your AWS IoT console and from the left menu, then

a) Click "**IoT Core**" menu.

b) Click "**Secure**" → "**Policies**" in the left navigation bar.
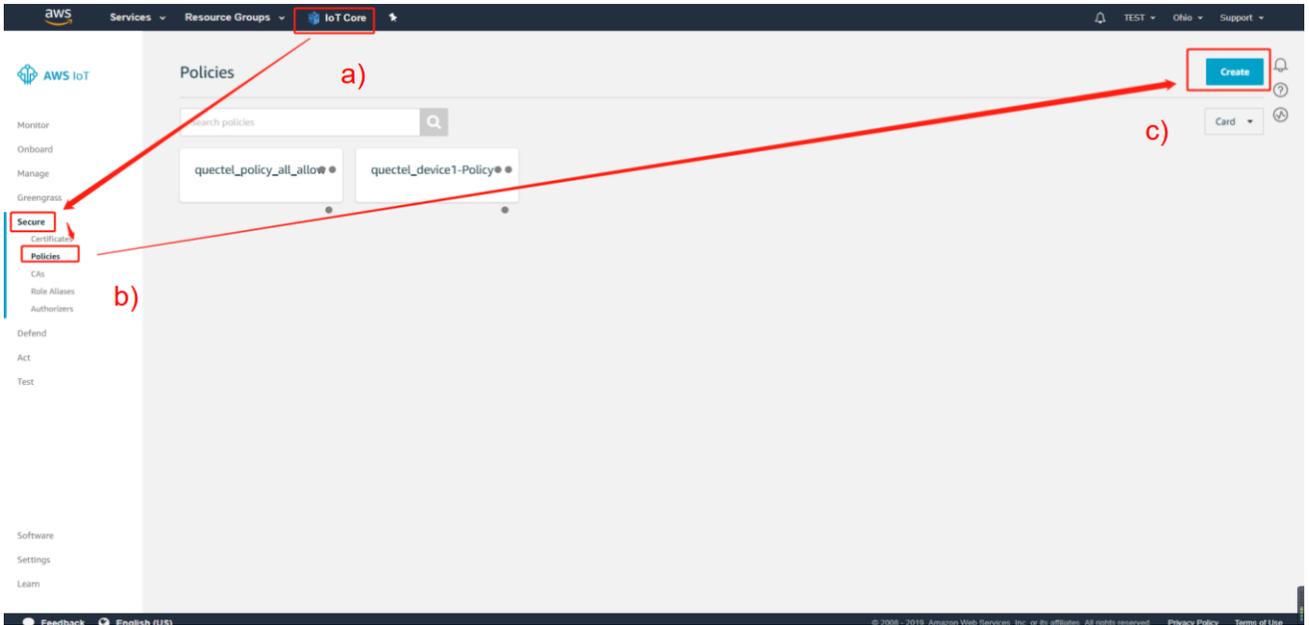
c) Click "**Create**".

Figure 6: Create a Policy – Choose "Create"
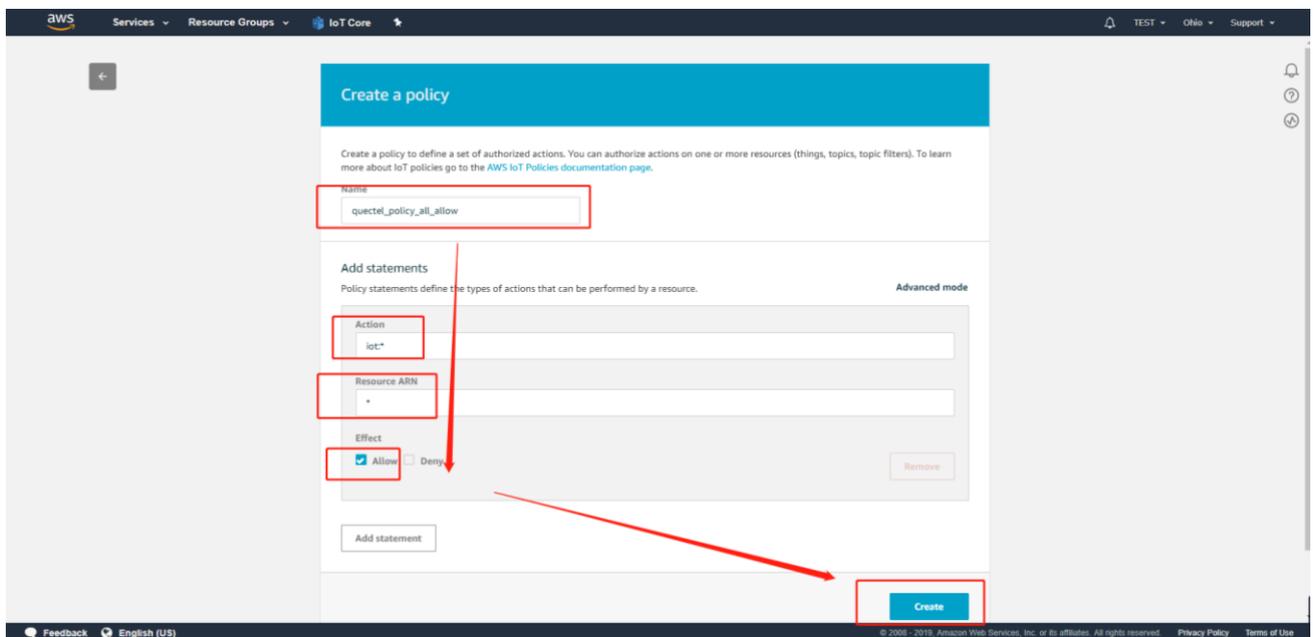
Figure 7: Create a Policy

2.2.5. Attach a Policy to Certificate(s)

In your AWS IoT console page and from the left menu,
a) Click "**IoT Core**" menu.
b) Click "**Secure**" → "**Certificates**" in the left navigation bar.
c) Click a certificate to show details.
d) Click "**Actions**" → "**Attach policy**".
e) Select a policy and click "**Attach**".
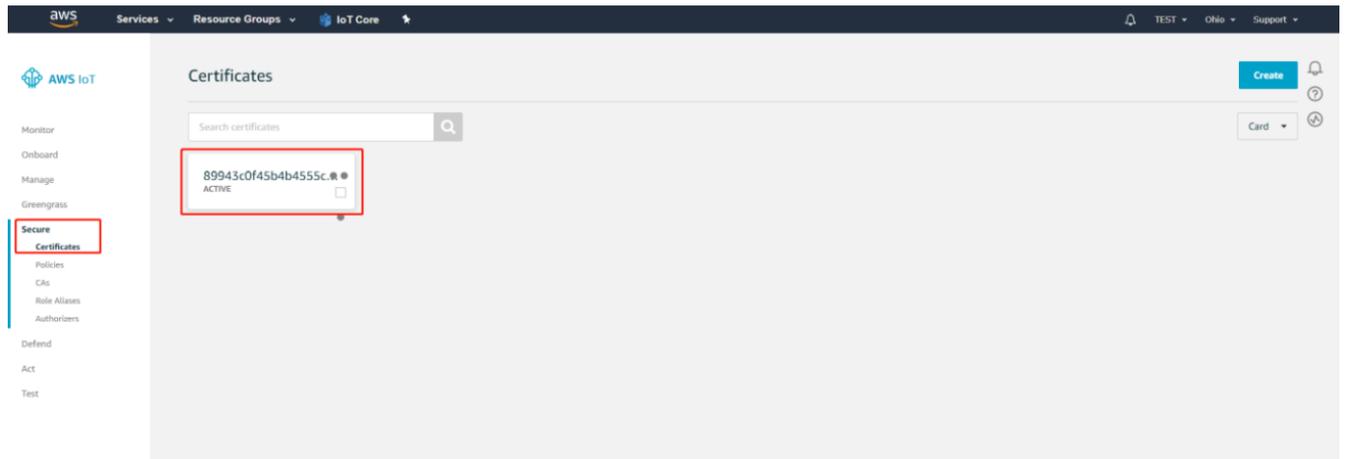
Figure 8: Attach Policy – A
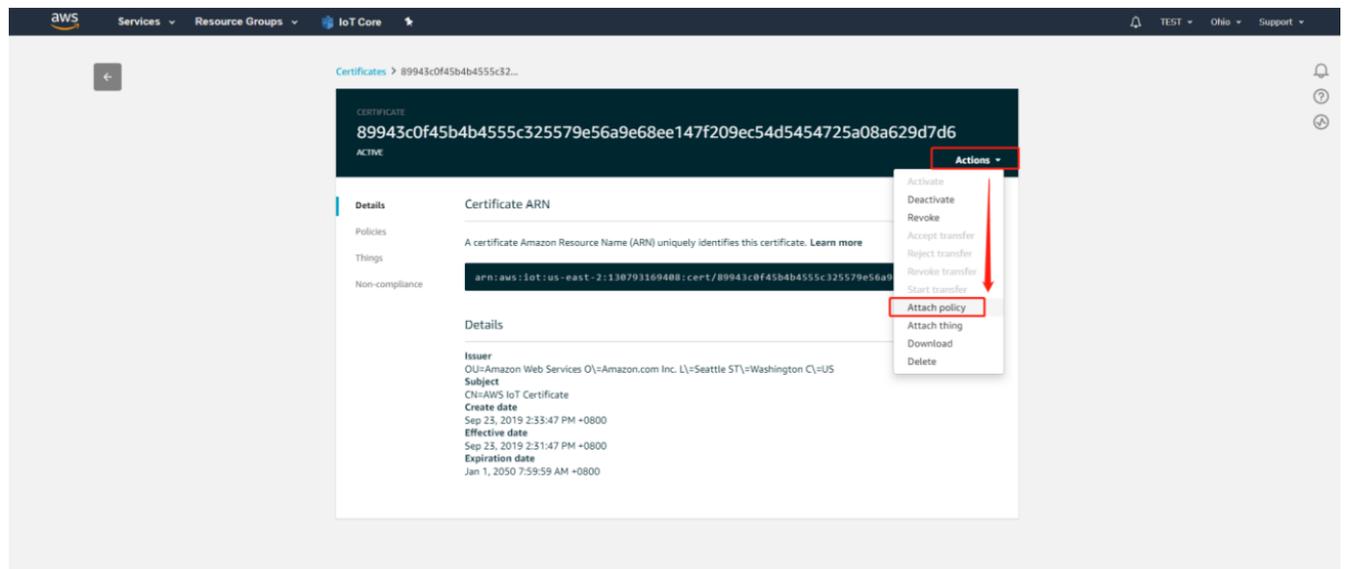
Figure 9: Attach Policy – B
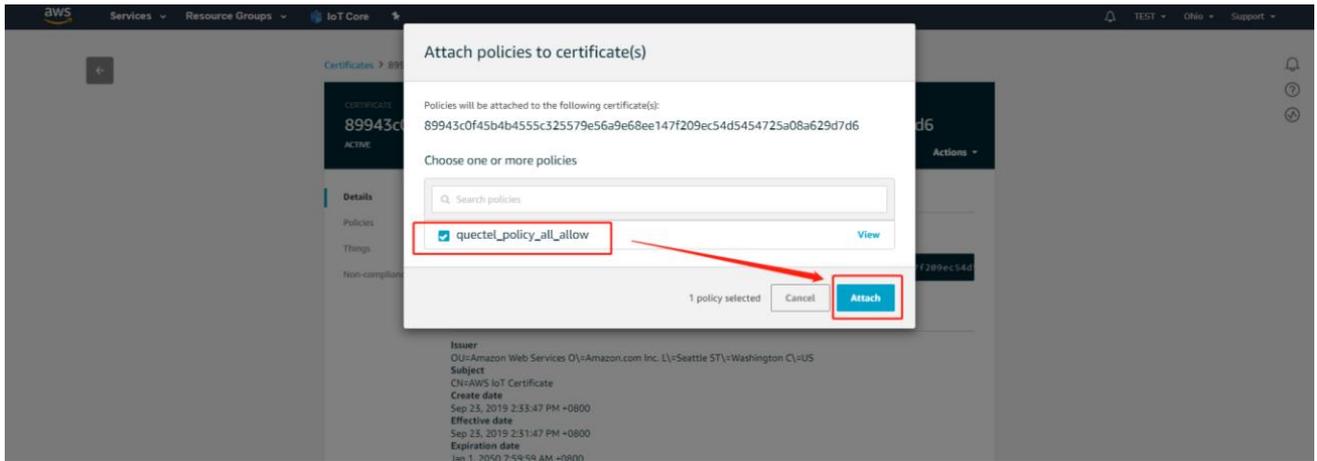
Figure 10: Attach Policy – C
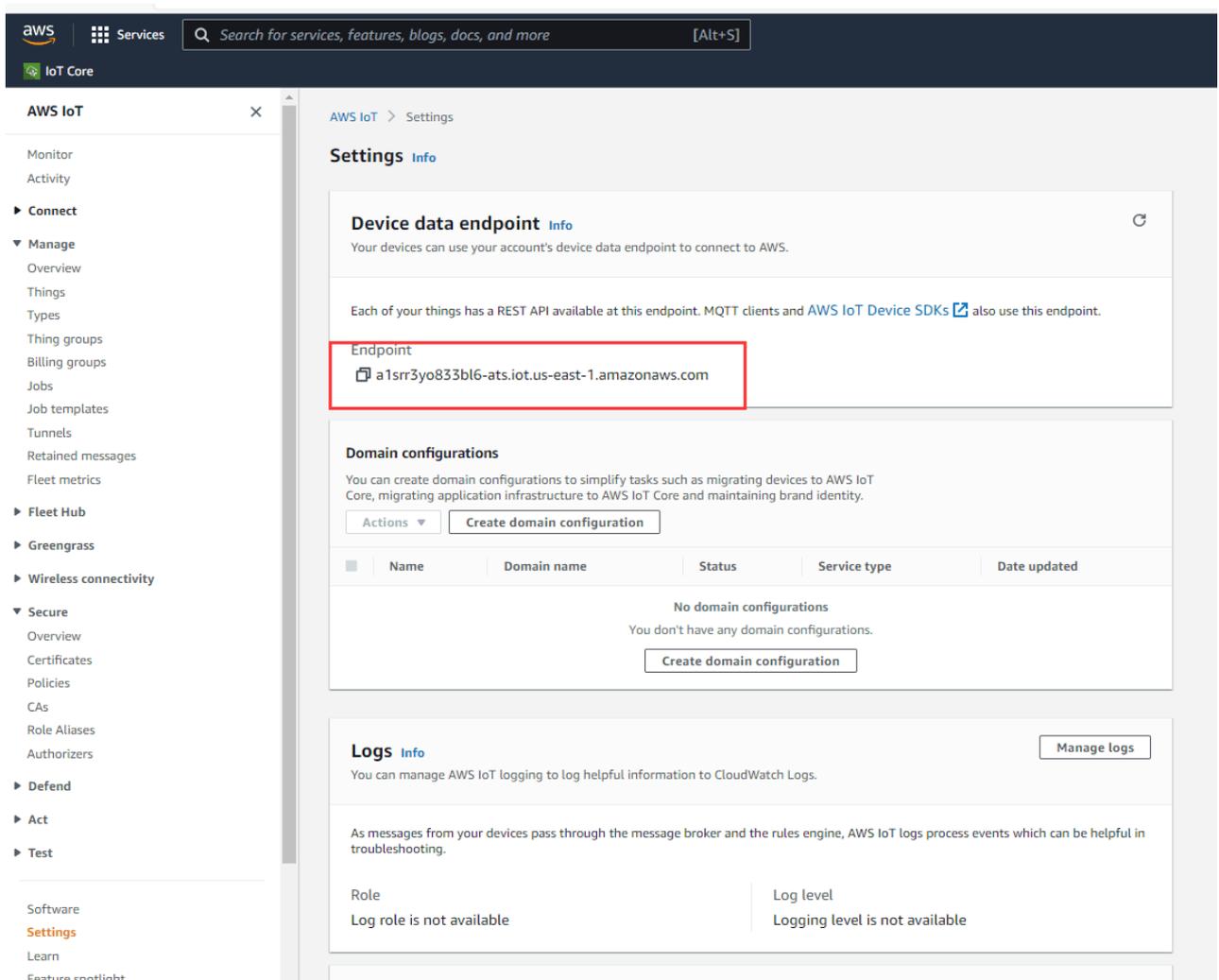
Figure 11: Attach Policy – D

2.2.6. Attach a Thing to Certificate(s)

Remember the certificate to which you attached the policy and attach the thing to the certificate.

In your AWS IoT console page and from the left menu,

f) Click "**IoT Core**" menu.
g) Click "**Secure**" → "**Certificates**" in the left navigation bar.
h) Click a certificate to show details.
i) Click "**Actions**" → "**Attach policy**".
j) Select a thing and click "**Attach**".
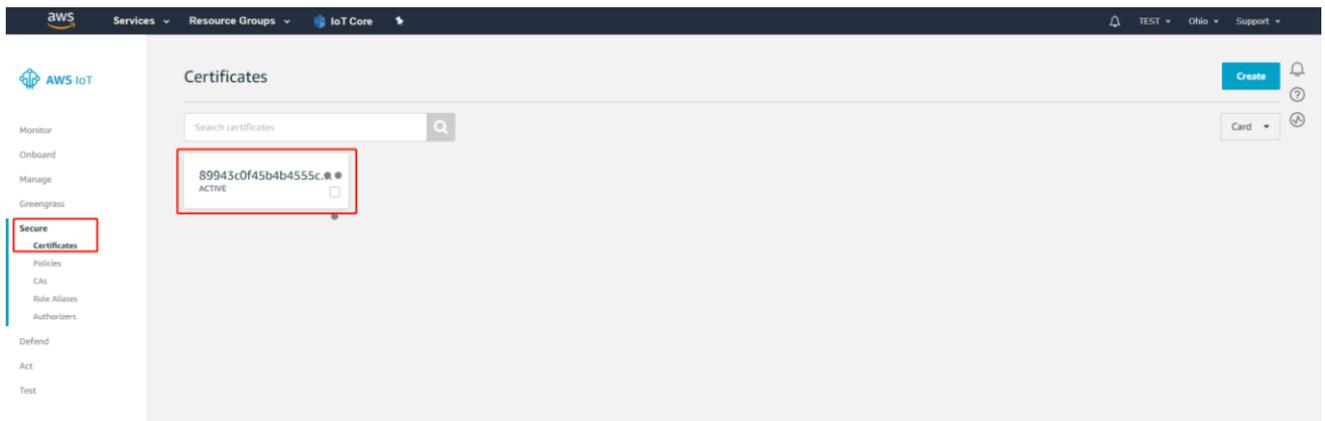
Figure 12: Attach Thing - A
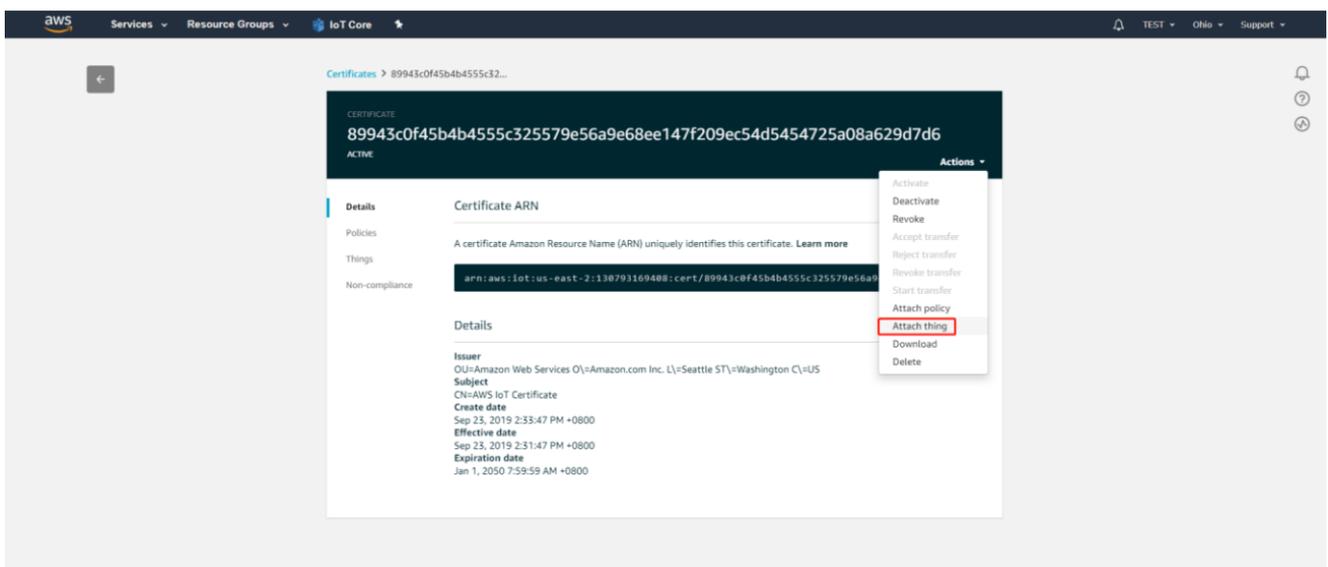
Figure 13: Attach Thing - B
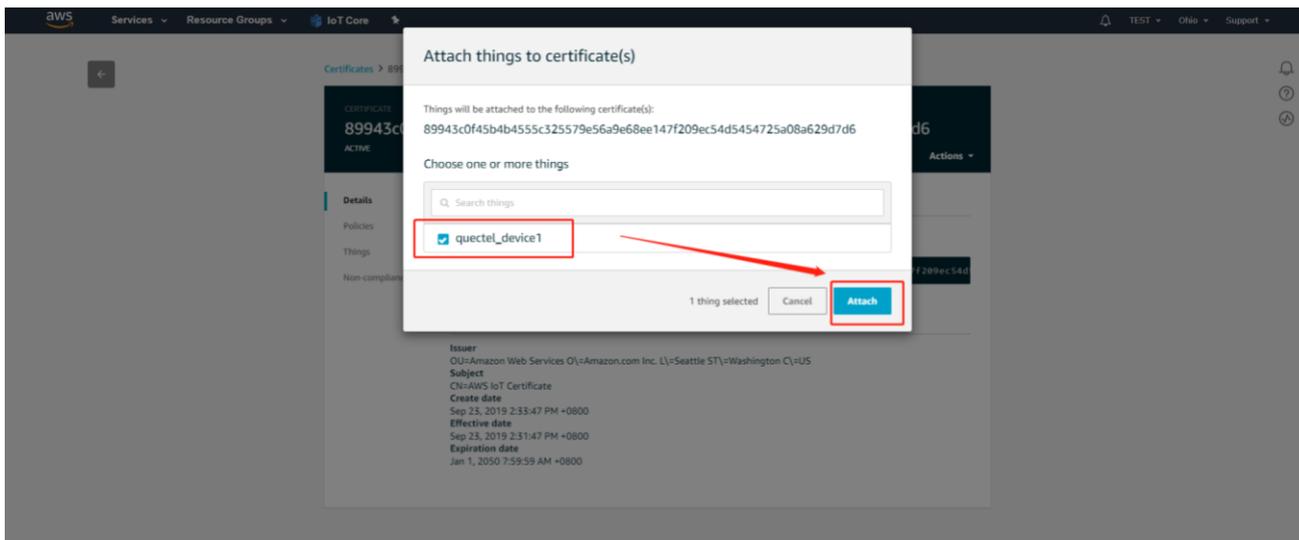
Figure 14: Attach Thing - C

2.3. Communicate with AWS IoT Core

The AWS IoT device endpoints support communication between your IoT devices and AWS IoT. The device endpoints are specific to your account. Refer to the following steps to find your endpoint.
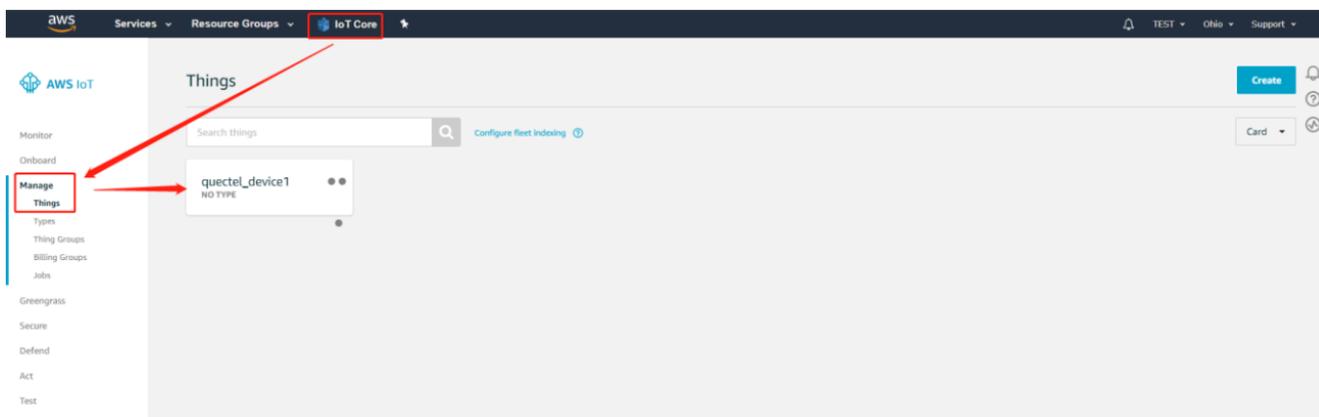
Figure 15: Communicate with AWS IoT Core - A
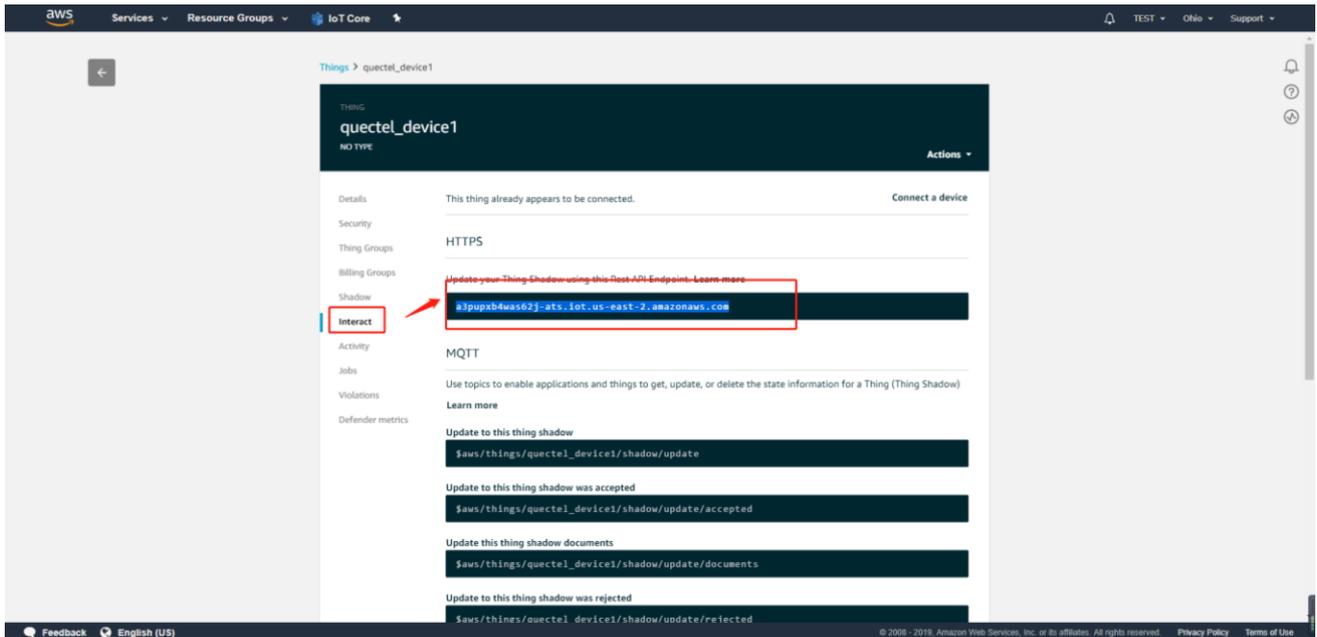
Figure 16: Communicate with AWS IoT Core - B

Figure 17: Certificates List

3 Data Communication

3.1. MQTT Protocol

AWS IoT Core supports devices and clients that use the MQTT and the MQTT over WebSocket Secure (WSS) protocols to publish and subscribe to messages.

After configuring AWS IoT platform, you can perform communication between the module and AWS IoT platform as the example shown below. For details of the AT commands, see

```
AT+QSSLCERT="CA",2,1187
OK
AT+QSSLCERT="User Cert",2,1220
OK
AT+QSSLCERT="User Key",2,1675
OK
AT+QSSLCFG="ciphersuite",1,0xFFFF
OK
AT+QMTCFG="session",1,1
OK
AT+QMTCFG="ssl",1,1,1
OK
AT+QSSLCF="sni",1,0
OK
AT+QSSLCFG="verify",1,2
OK
AT+QMTOPEN=1,"a1srr3yo833bl6-ats.iot.us-east-2.amazonaws.com",8883
OK

+QMTOPEN: 1,0
AT+QMTCONN=1,"my_quething"
OK

+QMTCONN: 1,0,0
AT+QMTSUB=1,1,"$aws/things/mytestthing/shadow/update/accepted",0

OK
```

```
+QMTSUB: 1,1,0,0
AT+QMTSUB=1,1,"$aws/things/mytestthing/shadow/update/rejected",0
OK

+QMTSUB: 1,1,0,0
AT+QMTPUB=1,1,1,0,"$aws/things/mytestthing/shadow/update"
>
{
  "state": {
    "reported": {
        "color": "red"
        }
    }
}

OK

+QMTPUB: 1,1,0

+QMTRECV: 1,0,"$aws/things/mytestthing/shadow/update/accepted","{"state":{"reported":{"color":"red"}},"metadata":{"reported":{"color":{"timestamp":1610616830}}},"version":3,"timestamp":1610616830}"
```

4 Appendix References

Table 1: Related Documents

Document Name
[1]   Quectel_FC41D_AT_Commands_Manual

Table 2: Terms and Abbreviations

Abbreviation	Description
AWS	Amazon Web Services
IoT	Internet of Things
MQTT	Message Queuing Telemetry Transport
WSS	WebSocket Secure