How to connect a LabVIEW device to AWS IoT cloud using WireQueue MQTT Toolkit

This guide assumes you already have created an account at Amazon AWS that has the policy *Administrator Access* attached to it.

We start by creating a *Thing* using AWS's web interface and download the necessary certificates and keys. Then we will fill in the appropriate URLs and point to the downloaded files in the LabVIEW example to be able to connect to the AWS IoT cloud.

1. Log in to AWS

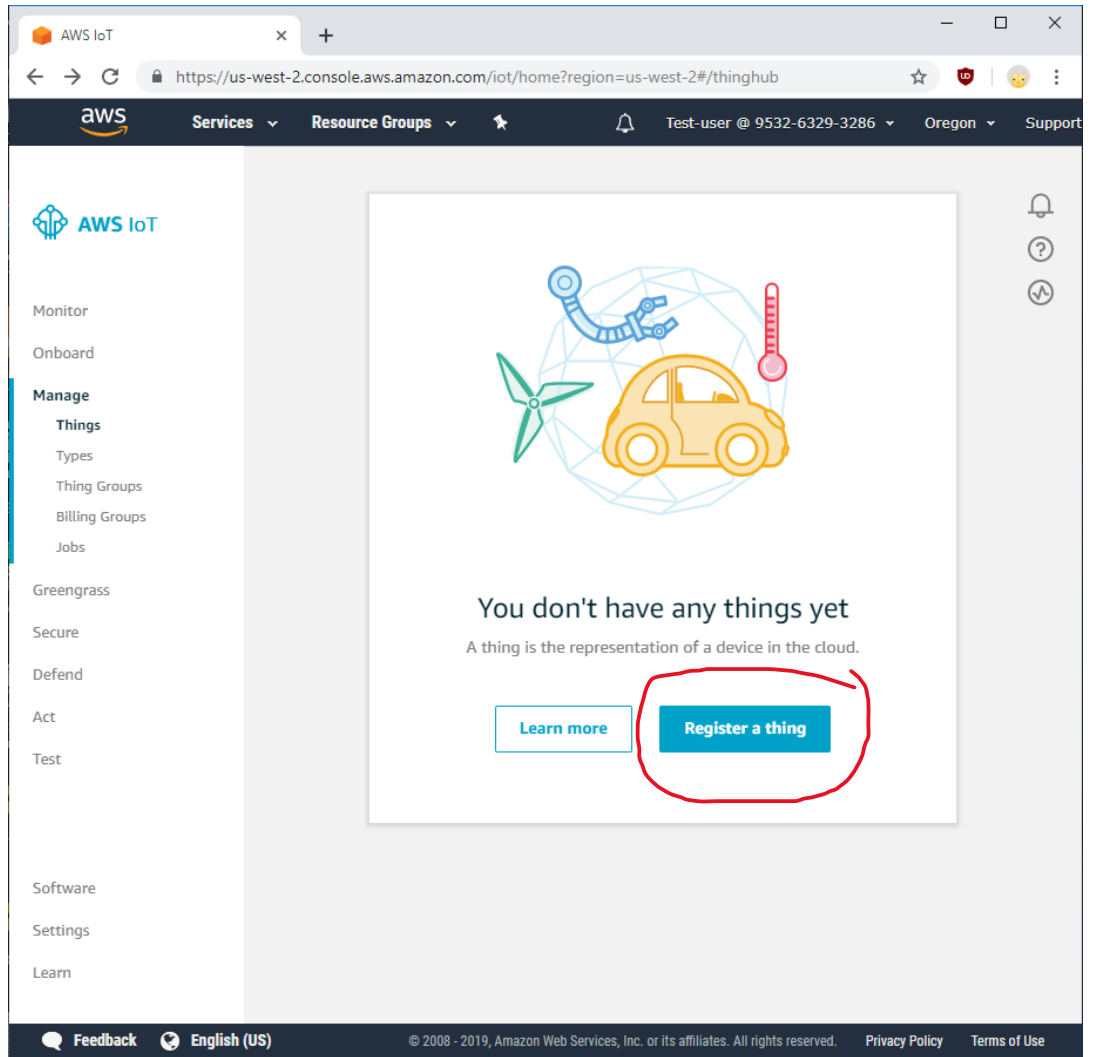**WireFlow AB**

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2. Go to AWS *IoT Core*

3. Now we must create a "Thing"; Navigate to *Manage → Things* and click on *Register a thing* or *Create* if you already have registered Things previously
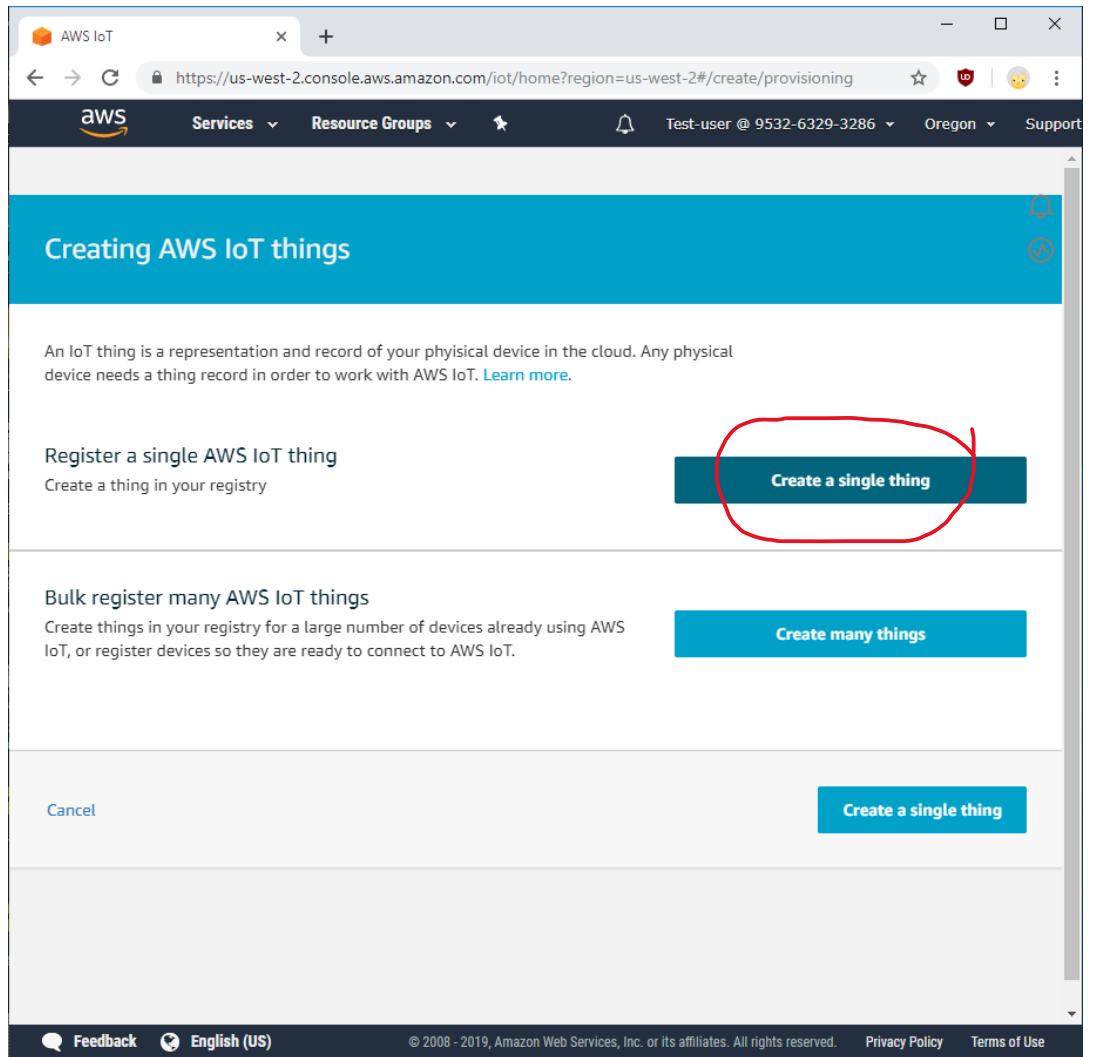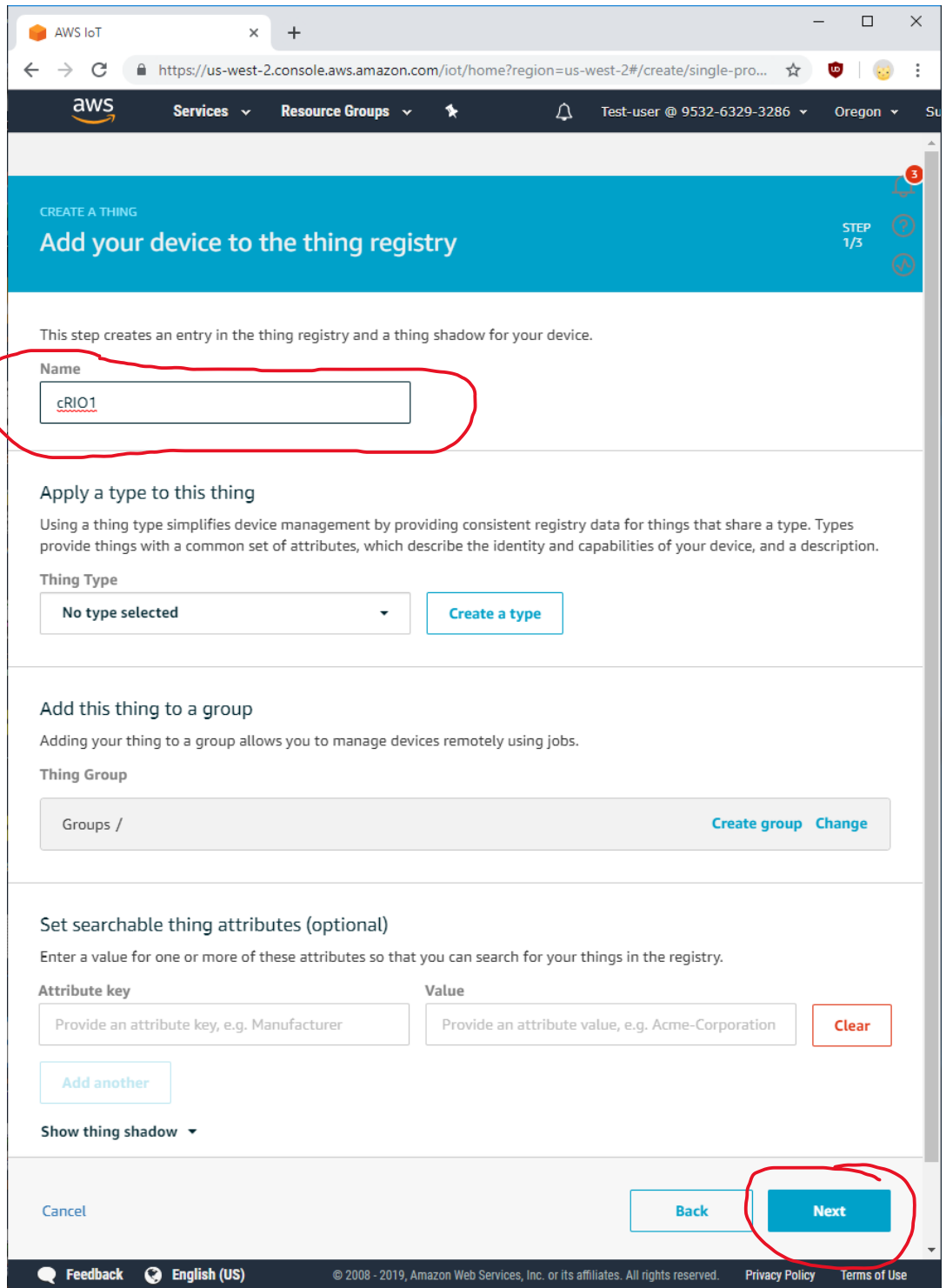
4. Click *Create a single thing*

a. Give the thing a name (e.g. "cRIO1") and click *Next*

5. Create a certificate and keys using One-click certificate creation

6. Download Certificate files and key files (4 in total). The root CA cert for AWS IoT file is called AmazonRootCA1.pem on disk
7. Click Activate to activate the certificate
8. Click *Attach a policy*

9. We don't have any policies to attach just yet, so click *Register Thing* at this point.
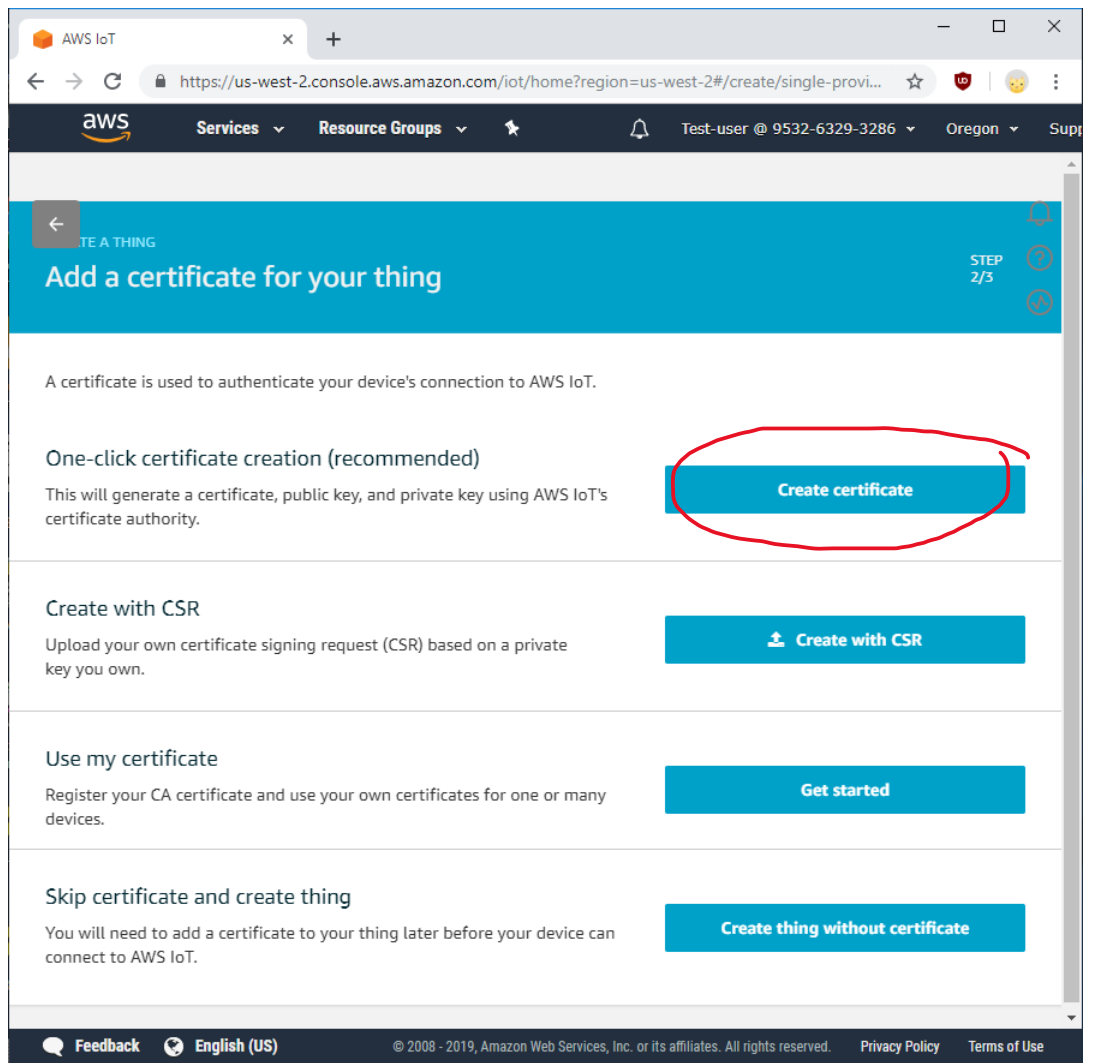
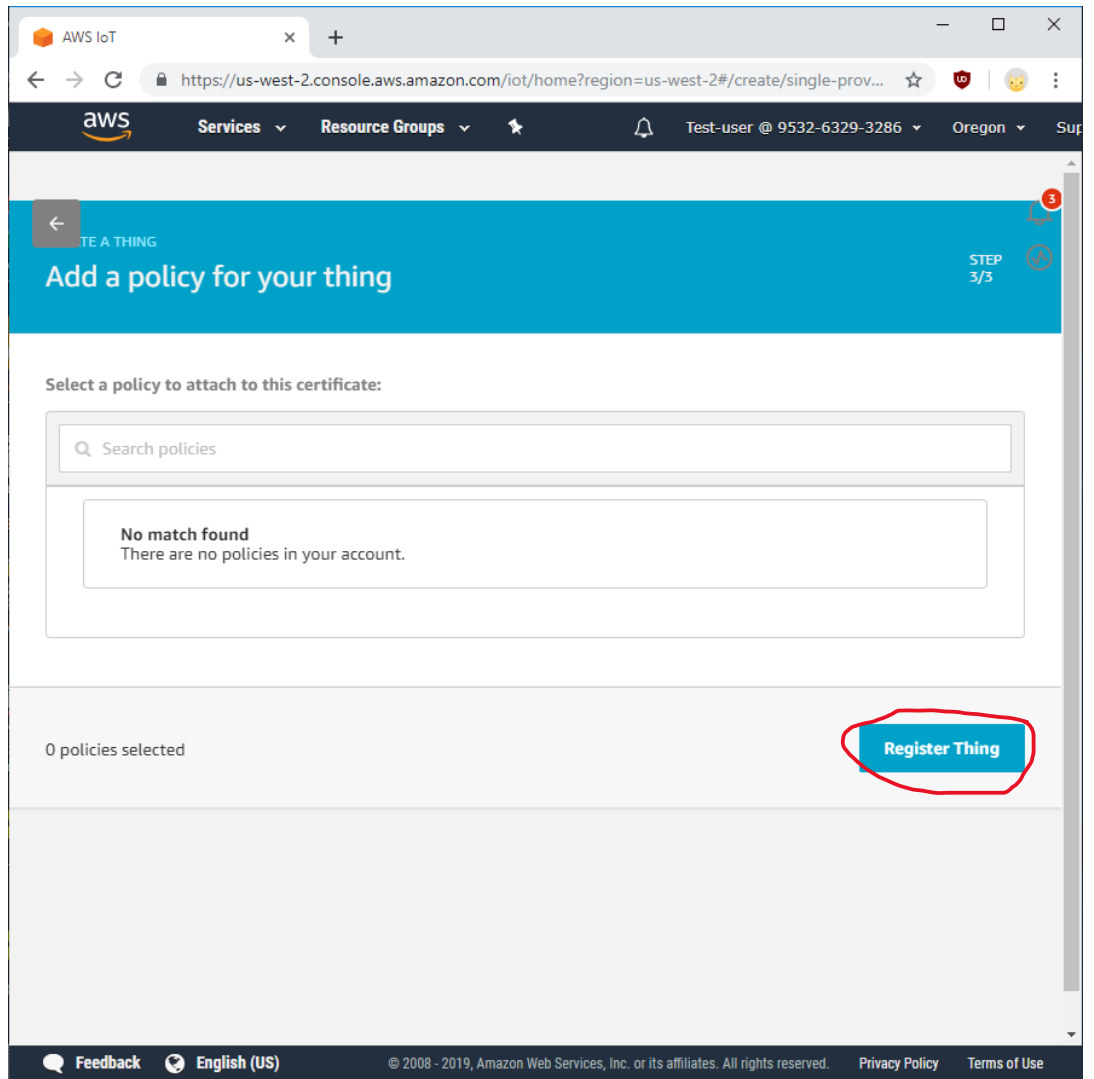10. Navigate to *Secure* → *Policies* and then click *Create a policy*

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11. Fill in the form (name below is just an example):
- *Name* = "AllowAll"
- *Action* = "iot:*"
- *Resource ARN* = "*"

12. Check *Allow* and click *Create*

13. Navigate to *Secure* → *Certificates* and click on the certificate you just created

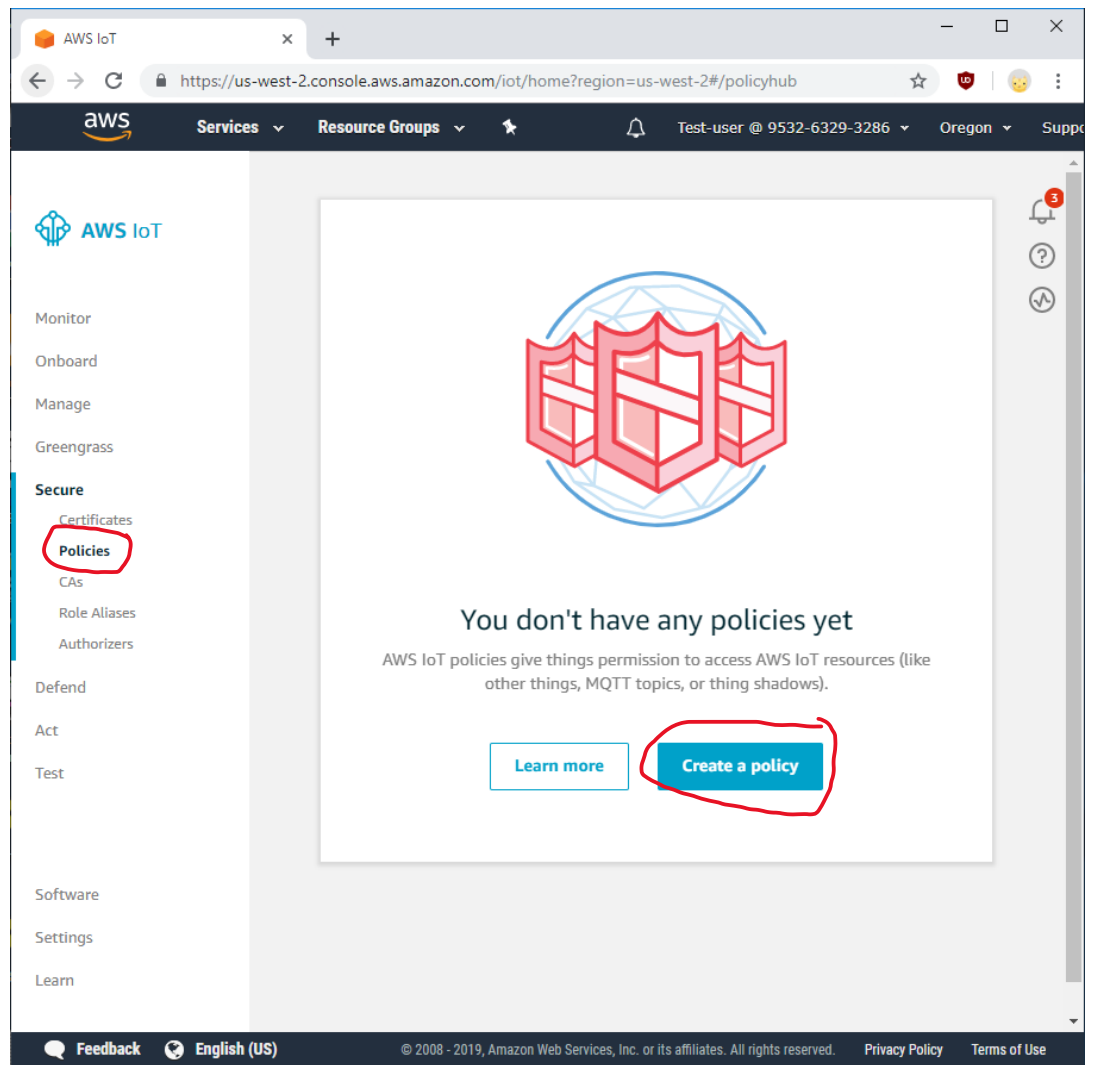14. Navigate to *Policies* and in the drop-down menu called *Action* on the right, choose *Attach policy*
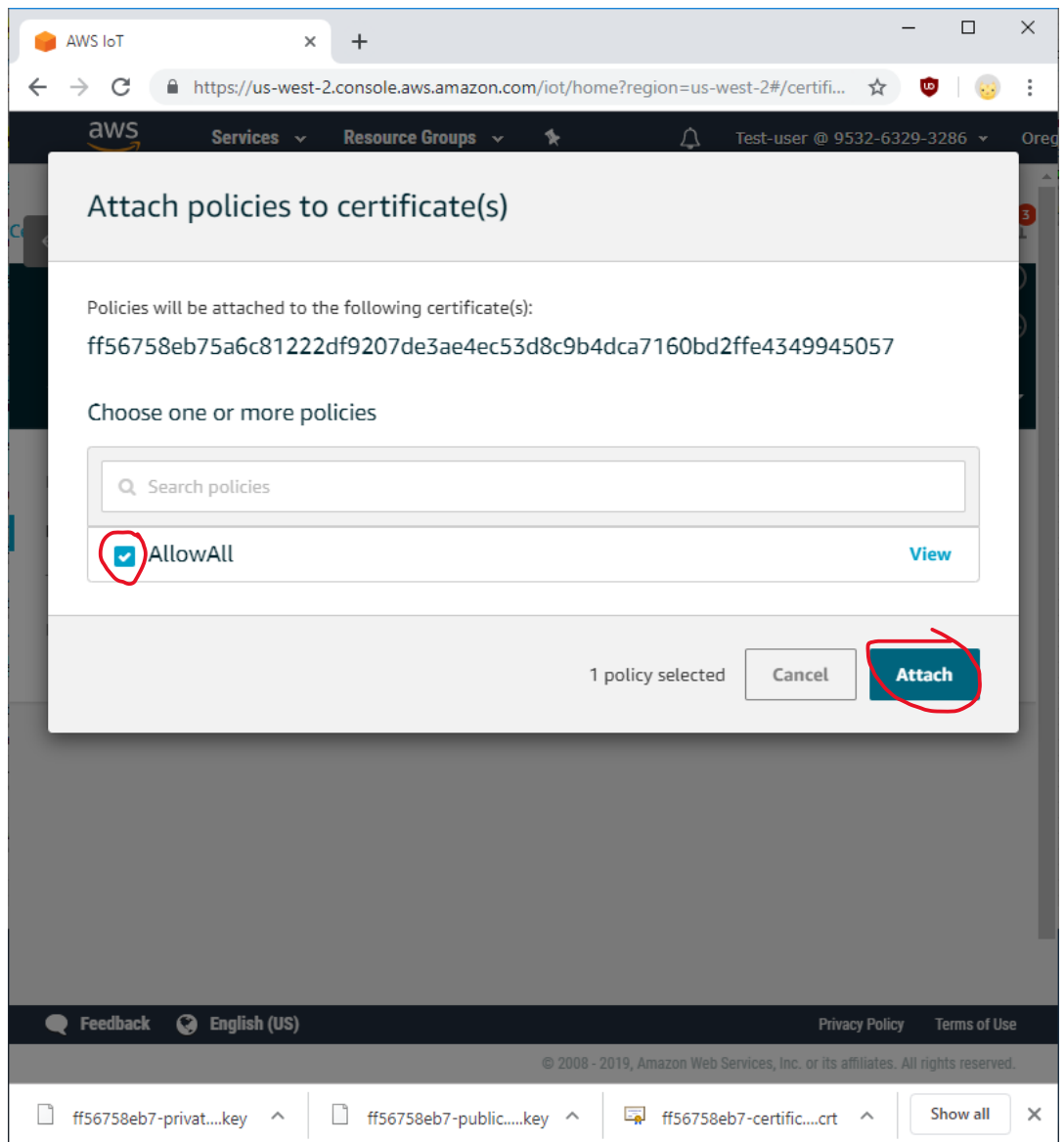

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15. Check the newly created policy *AllowAll* and click *Attach*

16. Navigate to *Manage* → *Things* and click on the Thing you just created

17. Navigate to *Details* and take note of its Amazon Resource Name (ARN)

18. Navigate to *Interact and t*ake note of its Rest API Endpoint that is to be used as Server Name

Now we have performed all actions and gathered all information we need to connect to the AWS IoT. Verify functionality by running the MQTT_BasicExample.vi installed with the WF WireQueue-MQTT vipm-packet. Fill in the following parameters in the front panel:

- Configuration = *Manual Configuration*
- Server IP = *<Rest API Endpoint name>*
  (e.g. agchprjh9ak9t-ats.iot.us-west-2.amazonaws.com)
- Port = *8883*
- Communication type = *TCP/IP (TLS)*
- CA-bundle.crt = *<Amazon root CA>* (e.g. AmazonRootCA1.pem)
- Client.crt = *<client certificate>* (e.g. ff56758eb7-certificate.pem.crt)
- Client.key = *<client private key>* (e.g. ff56758eb7-private.pem.key)
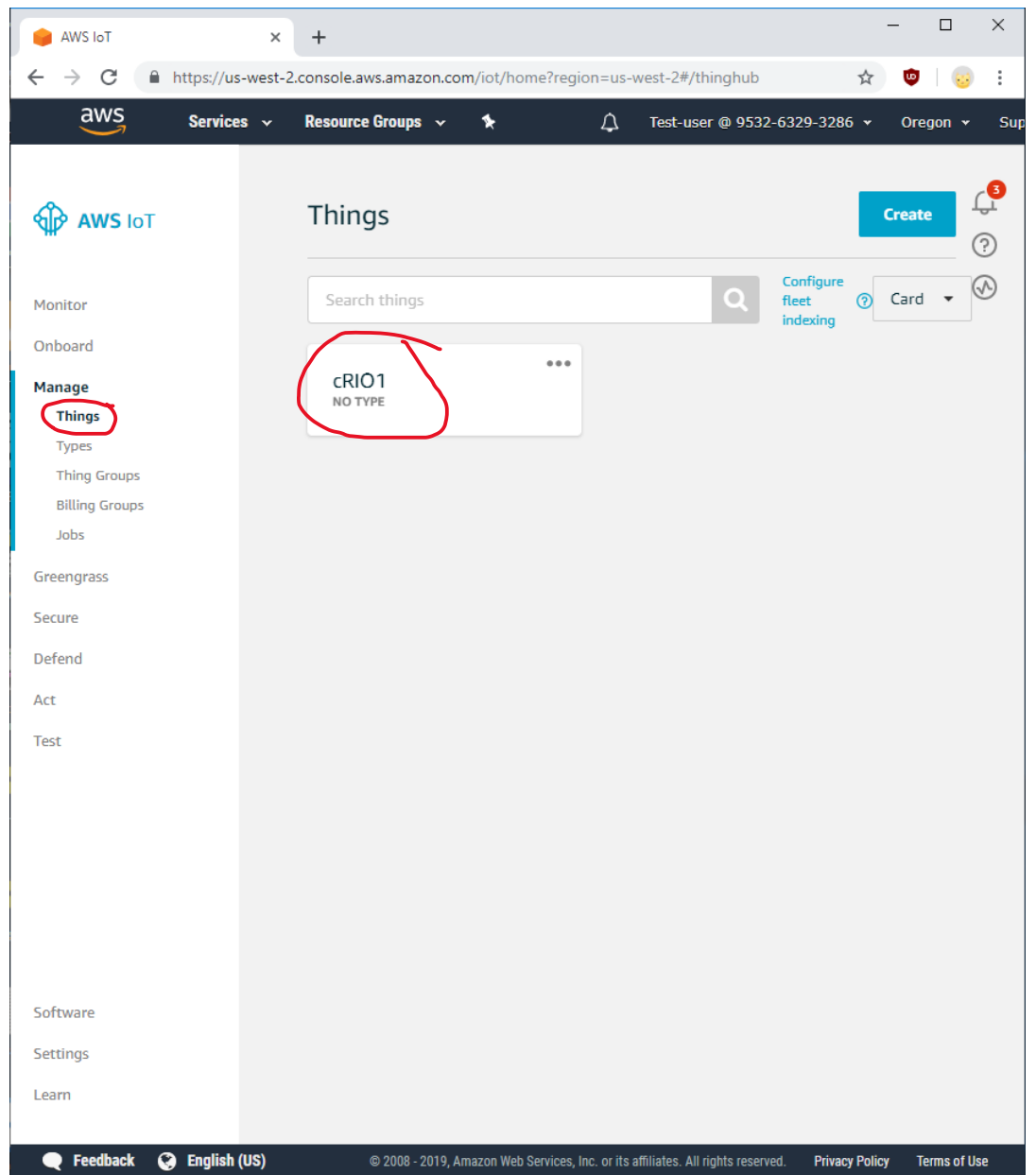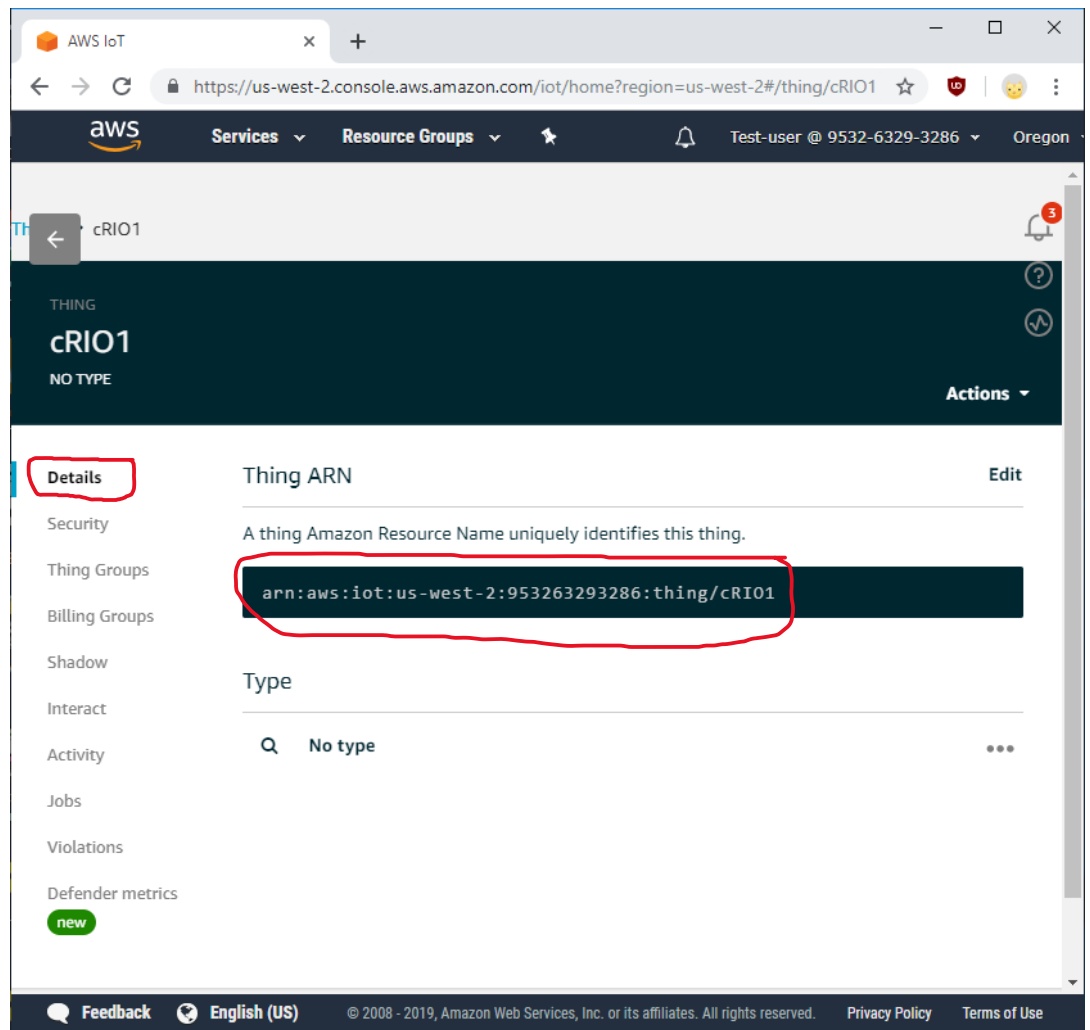- Client ID = *<Amazon ARN>* (e.g. arn:aws:iot:us-west-2:953263293286:thing/cRIO1)

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That's all! Now you are connected to the AWS IoT cloud from your LabVIEW client!