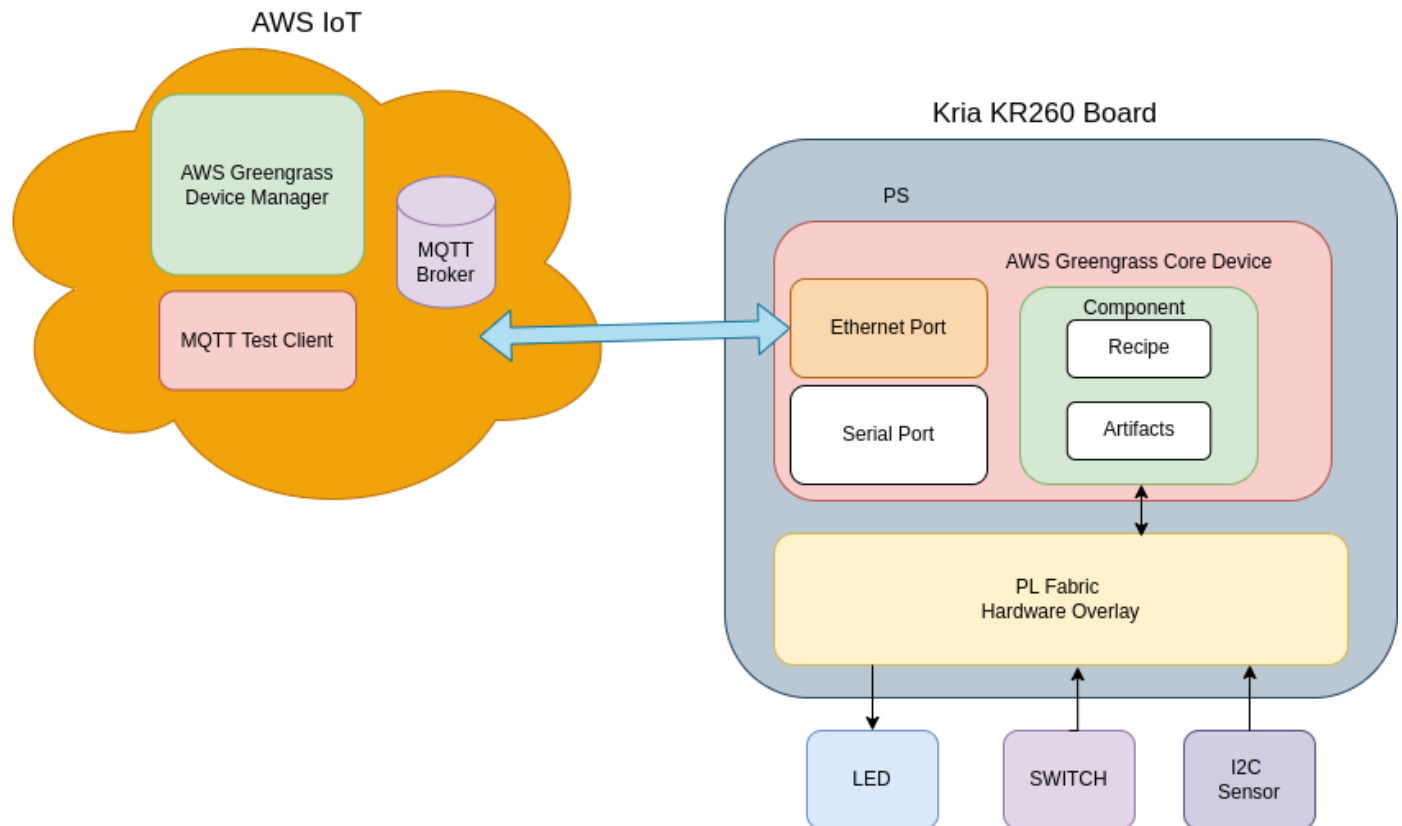


## KR260 to AWS IoT Greengrass Architecture



This diagram shows the software and hardware architecture used in this tutorial. Kria KR260 board consists of PL Fabric(FPGA) hardware overlay for interfacing LED, switch and I2C sensor. Further it runs AWS Greengrass Core Device Application which publish and subscribe message topics for actuating LED and monitoring sensors and switches. From AWS IoT MQTT Test Client KR260 LED will be controlled through subscribed topic and also publish Switch pressed event to AWS IoT cloud.

## Preparing Ubuntu 22.04 OS for KRIA KR260 board

Download the Ubuntu 22.04 image from the [download link](#)

**Ubuntu Desktop 22.04 LTS**

The version of Ubuntu with up to 10 years of long term support, until April 2032.

Works on:

✓ KR260 Robotics Starter Kit

✓ KV260 Vision AI Starter Kit

① Please check the [AMD Kria™ Wiki](#) for the platform's latest boot firmware, technical documentation, and the [Ubuntu for AMD-Xilinx Devices Wiki](#) for known issues and limitations.

[Download 22.04 LTS](#)

[Kria™ KR260 Getting Started Guide for Ubuntu 22.04](#)

[Kria™ KV260 Getting Started Guide for Ubuntu 22.04](#)

Next, prepare the SD card with the above downloaded Ubuntu image using burning tools like Balena Etcher.

Now boot the KR260 with the SD card with Ethernet and USB to Serial cable connected to board. We will be using Serial console for initial access and debugging and Ethernet network for accessing through SSH and KR260 connected to the internet.

For initial login here are the Login Details:

Username : ubuntu

Password: ubuntu

This will ask to change the password. So update the password and login the system.

After successful login, one can access the KR260 device console.

## Installing hardware overlay

Get the KR260 firmware folder. It contains:

- kr260\_i2c.bit.bin
- kr260\_i2c.dtbo
- shell.json

Copy these file to the KR260 board. For firmware to be loaded using xmutil (FPGA manager), one has to copy these file at "/lib/firmware/xilinx".

For this create the folder at "kr260-i2c" at "/lib/firmware/xilinx" and copy the files in "kr260-i2c" folder.

```
cd /lib/firmware/xilinx
sudo mkdir kr260-i2c
sudo cp <kr260-firmware directory>/krc260_i2c* ./
sudo cp <kr260-firmware directory>/shell.json ./
```

Next, check the available fpga firmware using `xmutil listapps` command. `kr260-i2c` will be available in the list.

```
ubuntu@kria:~$ sudo xmutil listapps
[sudo] password for ubuntu:

```

Accelerator	Accel_type	Base	Base_type	#slots(PL+AIE)	Active_slot
kr260-i2c	XRT_FLAT	kr260-i2c	XRT_FLAT	(0+0)	-1
k26-starter-kits	XRT_FLAT	k26-starter-kits	XRT_FLAT	(0+0)	0,

```
ubuntu@kria:~$
```

Next load the `kr260-i2c` firmware, which contains necessary hardwares(gpio) and interfaces. In our Greengrass Demo we will be using these gpio to trigger the publishing data to AWS Greengrass IoT cloud server and also actuate GPIO on the message received from AWS cloud.

```
sudo xmutil unloadapp
sudo xmutil loadapp kr260-i2c
```

```
ubuntu@kria:~$ sudo xmutil unloadapp
remove from slot 0 returns: 0 (Ok)
ubuntu@kria:~$ sudo xmutil loadapp kr260-i2c
[ 1035.828900] OF: overlay: WARNING: memory leak will occur if overlay removed, property: /fpga-full/firmware-name
[ 1035.839040] OF: overlay: WARNING: memory leak will occur if overlay removed, property: /fpga-full/pid
[ 1035.848277] OF: overlay: WARNING: memory leak will occur if overlay removed, property: /fpga-full/resets
[ 1035.857771] OF: overlay: WARNING: memory leak will occur if overlay removed, property: /fpga-full/uid
[ 1035.867399] OF: overlay: WARNING: memory leak will occur if overlay removed, property: /__symbols__/overlay0
[ 1035.877241] OF: overlay: WARNING: memory leak will occur if overlay removed, property: /__symbols__/overlay1
[ 1035.887085] OF: overlay: WARNING: memory leak will occur if overlay removed, property: /__symbols__/afi0
[ 1035.896579] OF: overlay: WARNING: memory leak will occur if overlay removed, property: /__symbols__/clocking0
[ 1035.906509] OF: overlay: WARNING: memory leak will occur if overlay removed, property: /__symbols__/clocking1
[ 1035.916438] OF: overlay: WARNING: memory leak will occur if overlay removed, property: /__symbols__/overlay2
[ 1035.926280] OF: overlay: WARNING: memory leak will occur if overlay removed, property: /__symbols__/axi_gpio_0
[ 1035.936329] OF: overlay: WARNING: memory leak will occur if overlay removed, property: /__symbols__/misc_clk_0
[ 1035.946346] OF: overlay: WARNING: memory leak will occur if overlay removed, property: /__symbols__/axi_iic_0
[ 1035.956281] OF: overlay: WARNING: memory leak will occur if overlay removed, property: /__symbols__/misc_clk_1
[ 1035.966299] OF: overlay: WARNING: memory leak will occur if overlay removed, property: /__symbols__/axi_iic_1
[ 1035.976227] OF: overlay: WARNING: memory leak will occur if overlay removed, property: /__symbols__/axi_intc_0
[ 1035.986243] OF: overlay: WARNING: memory leak will occur if overlay removed, property: /__symbols__/axi_intc_1
[ 1036.067970] xiic-i2c 80020000.i2c: IRQ index 0 not found
kr260-i2c: loaded to slot 0
ubuntu@kria:~$ [ 1036.203709] zocl-drm axi:zyxclmm_drm: IRQ index 32 not found
```

Now to access GPIO in user application, we will be using `gpiod` library.

## Installing gpio packages

GPIO packages are required to access the GPIO channels. It also provides python binding for accessing GPIO in python programming. Install the package using apt-get:

```
sudo apt-get install gpio python3-libgpio
```

Now we can check the available gpio using gpio applications:

Using `gpiodetect` to get available gpio:

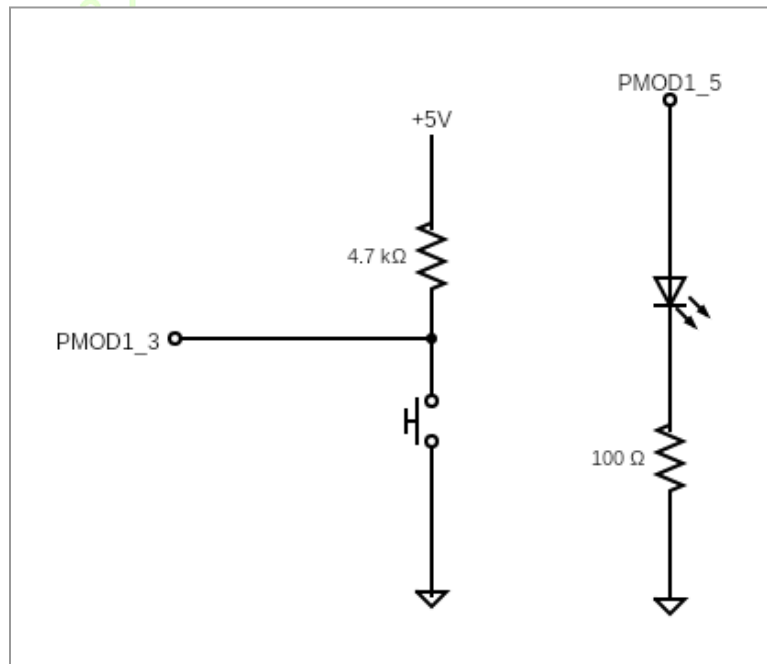
```
ubuntu@kria:~$ sudo gpiodetect
gpiochip0 [firmware:zynqmp-firmware:gpio] (4 lines)
gpiochip1 [zynqmp_gpio] (174 lines)
gpiochip2 [slg7xl45106] (8 lines)
gpiochip3 [80010000.gpio] (6 lines)
ubuntu@kria:~$
```

Here `gpiochip3` is the device corresponding to gpio in FPGA and it consists of 6 lines. Further these gpio lines are connected to PMOD 1 such that:

PMOD1-> 1 - gpiochip3 line 0

PMOD1-> 3 - gpiochip3 line 1

PMOD1-> 5 - gpiochip3 line 2



Schematic for LED and Switch Connection

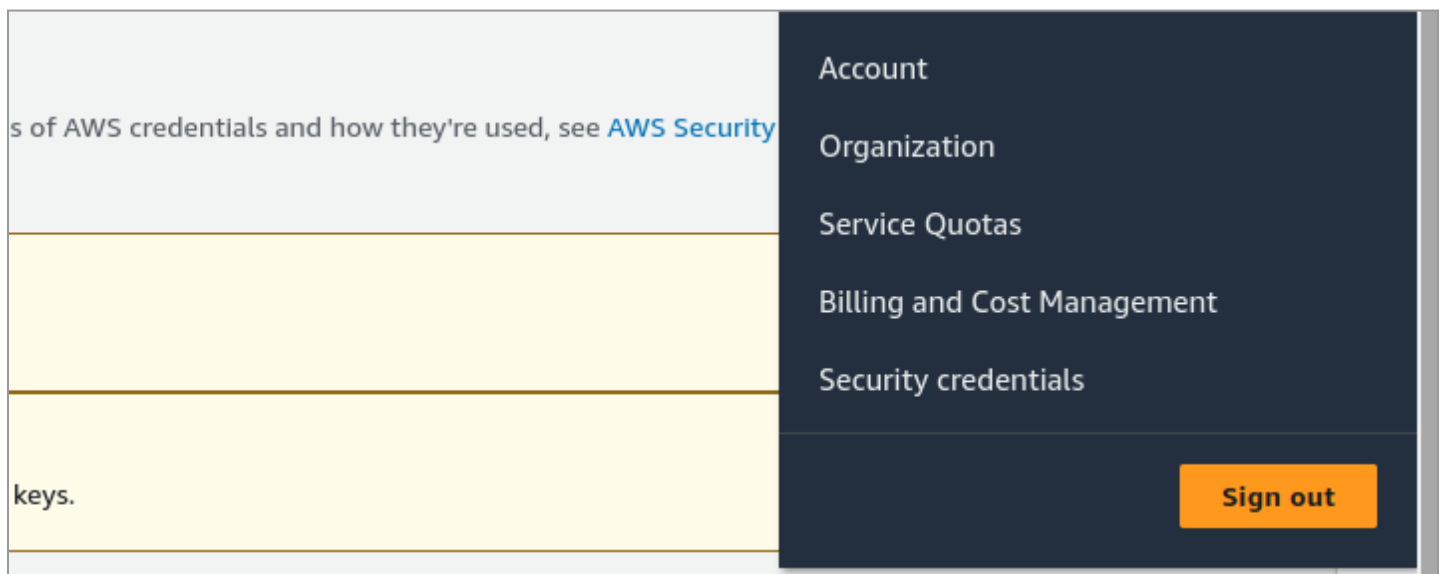
11	9	7	5	3	1	PMOD UPPER
12	10	8	6	4	2	PMOD LOWER
Vcc	GND	I/O	I/O	I/O	I/O	

PMOD port numbering

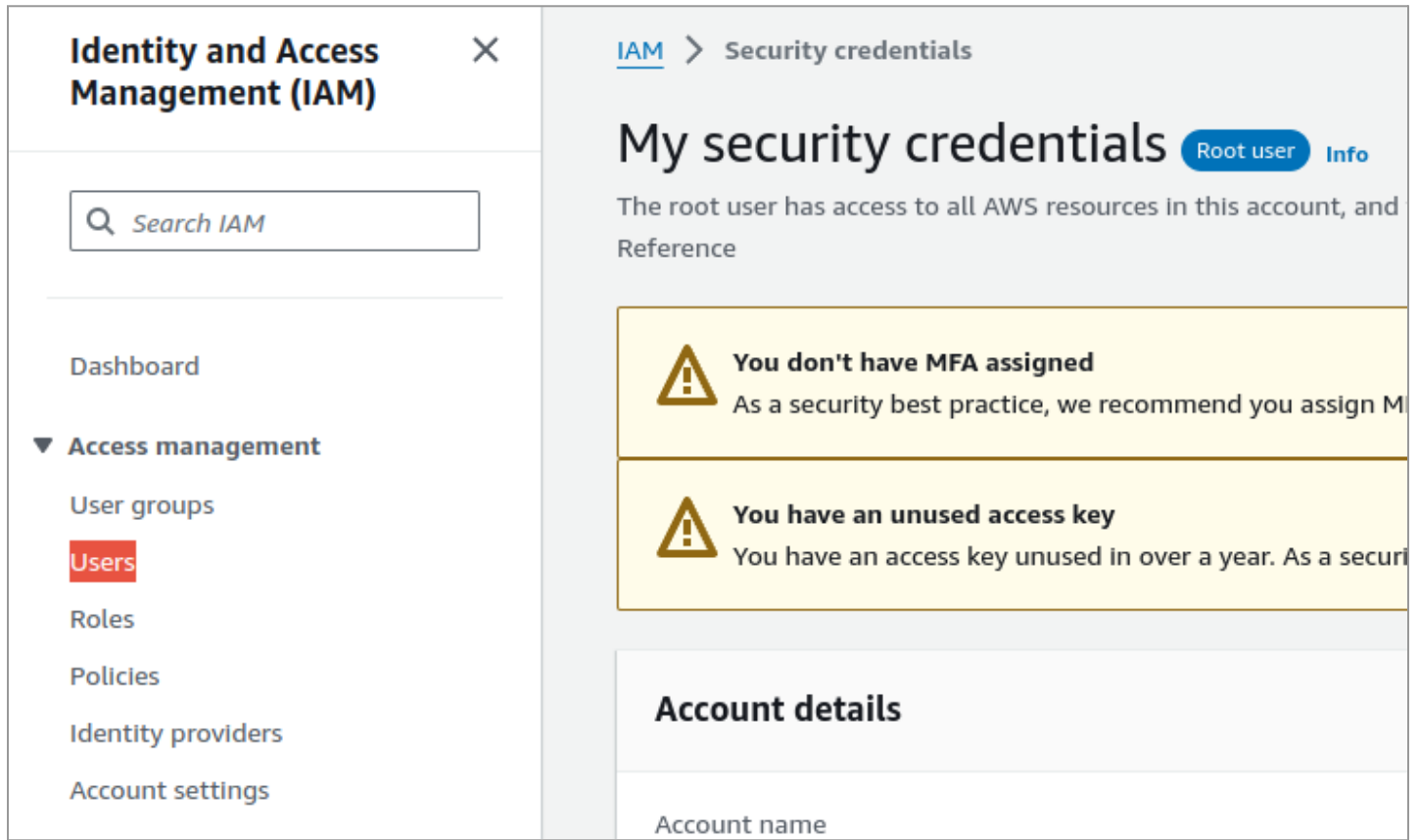
## AWS IoT user creation

For and non human access to AWS services one has to create a user with required permissions.

- Login to AWS console
- Next go to `Security credentials` link available at root user drop down at top right corner of the AWS console



- Next Go to User management page by clicking at the User link at IAM sidebar. This will list the available users.



**Identity and Access Management (IAM)**

Search IAM

Dashboard

▼ Access management

User groups

**Users**

Roles

Policies

Identity providers

Account settings

**My security credentials** Root user Info

The root user has access to all AWS resources in this account, and Reference

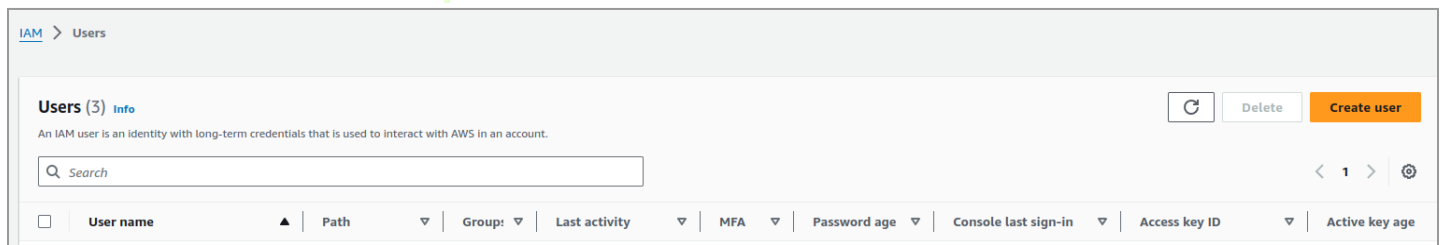
**You don't have MFA assigned**  
As a security best practice, we recommend you assign MFA to the root user.

**You have an unused access key**  
You have an access key unused in over a year. As a security best practice, we recommend you delete unused access keys.

**Account details**

Account name

- Now create a new user for KR260 device by clicking the "Create User" button.



**Users (3)** Info

An IAM user is an identity with long-term credentials that is used to interact with AWS in an account.

Search

Refresh Delete Create user

<input type="checkbox"/>	User name	Path	Group	Last activity	MFA	Password age	Console last sign-in	Access key ID	Active key age
--------------------------	-----------	------	-------	---------------	-----	--------------	----------------------	---------------	----------------

This will lead to step wise User creation forms. So fill the User details,

This will lead to step wise User creation forms.

So fill the User details, leave the console access unchecked as user does not have to access the AWS console through web.

[IAM](#) > [Users](#) > Create user

Step 1  
**Specify user details**

Step 2  
Set permissions

Step 3  
Review and create

## Specify user details

### User details

User name

The user name can have up to 64 characters. Valid characters: A-Z, a-z, 0-9, and + = , . @ \_ - (hyphen)

☐ Provide user access to the AWS Management Console - *optional*  
If you're providing console access to a person, it's a [best practice](#) to manage their access in IAM Identity Center.

[?](#) If you are creating programmatic access through access keys or service-specific credentials for AWS CodeCommit or Amazon Keyspaces, you can generate them after y

Next, update the Permissions options by attaching following policies:

- AWSGreengrassFullAccess
- IAMFullAccess
- AWSIoTFullAccess
- AmazonS3FullAccess

## Set permissions

Add user to an existing group or create a new one. Using groups is a best-practice way to manage user's permissions by job functions. [Learn more](#)

### Permissions options

☐ Add user to group  
Add user to an existing group, or create a new group. We recommend using groups to manage user permissions by job function.

☐ Copy permissions  
Copy all group memberships, attached managed policies, and inline policies from an existing user.

☒ Attach policies directly  
Attach a managed policy directly to a user. As a best practice, we recommend attaching policies to a group instead. Then, add the user to the appropriate group.

### Permissions policies (3/1167)

Choose one or more policies to attach to your new user.

Filter by Type

   1 match < 1 > [?](#)

<input checked="" type="checkbox"/>	Policy name <a href="#">?</a>	Type	Attached entities
<input checked="" type="checkbox"/>	AWSIoTFullAccess	AWS managed	1

► Set permissions boundary - *optional*

Cancel Previous **Next**

After finishing the above steps click "Create User" to finish the user creation.

[IAM](#) > [Users](#)

## Users (4) [Info](#)

An IAM user is an identity with long-term credentials that is used to interact with AWS in an account.

<input type="checkbox"/>	User name	Path	Group	Last activity	MFA	Password age	Console last sign-in
<input type="checkbox"/>	<a href="#">dev-user</a>	/	0	✓ 2 days ago	-	-	-
<input type="checkbox"/>	<a href="#">kr260_dev</a>	/	0	-	-	-	-

---

[Permissions](#) | [Groups](#) | [Tags \(1\)](#) | [Security credentials](#) | [Access Advisor](#)

## Permissions policies (4)

Permissions are defined by policies attached to the user directly or through groups.

Filter by Type: All types

<input type="checkbox"/>	Policy name	Type
<input type="checkbox"/>	<a href="#">AmazonS3FullAccess</a>	AWS managed
<input type="checkbox"/>	<a href="#">AWSGreengrassFullAccess</a>	AWS managed
<input type="checkbox"/>	<a href="#">AWSIoTFullAccess</a>	AWS managed
<input type="checkbox"/>	<a href="#">IAMFullAccess</a>	AWS managed

Next get the access token and access key for the user. For this open the user details by clicking on the user link in the above table.

And go to "Security credentials" for creating the Access Key for the user.

[Permissions](#) | [Groups](#) | [Tags](#) | [Security credentials](#) | [Access Advisor](#)

## Console sign-in

Select access key for command line based access control for user.



Use case

☒ **Command Line Interface (CLI)**  
You plan to use this access key to enable the AWS CLI to access your AWS account.


☐ **Local code**  
You plan to use this access key to enable application code in a local development environment to access your AWS account.

☐ **Application running on an AWS compute service**  
You plan to use this access key to enable application code running on an AWS compute service like Amazon EC2, Amazon ECS, or AWS Lambda to access your AWS account.

☐ **Third-party service**  
You plan to use this access key to enable access for a third-party application or service that monitors or manages your AWS resources.

☐ **Application running outside AWS**  
You plan to use this access key to authenticate workloads running in your data center or other infrastructure outside of AWS that needs to access your AWS resources.

☐ **Other**  
Your use case is not listed here.


**Alternatives recommended**

- Use [AWS CloudShell](#), a browser-based CLI, to run commands. [Learn more](#)
- Use the [AWS CLI V2](#) and enable authentication through a user in IAM Identity Center. [Learn more](#)

Confirmation

☐ I understand the above recommendation and want to proceed to create an access key.

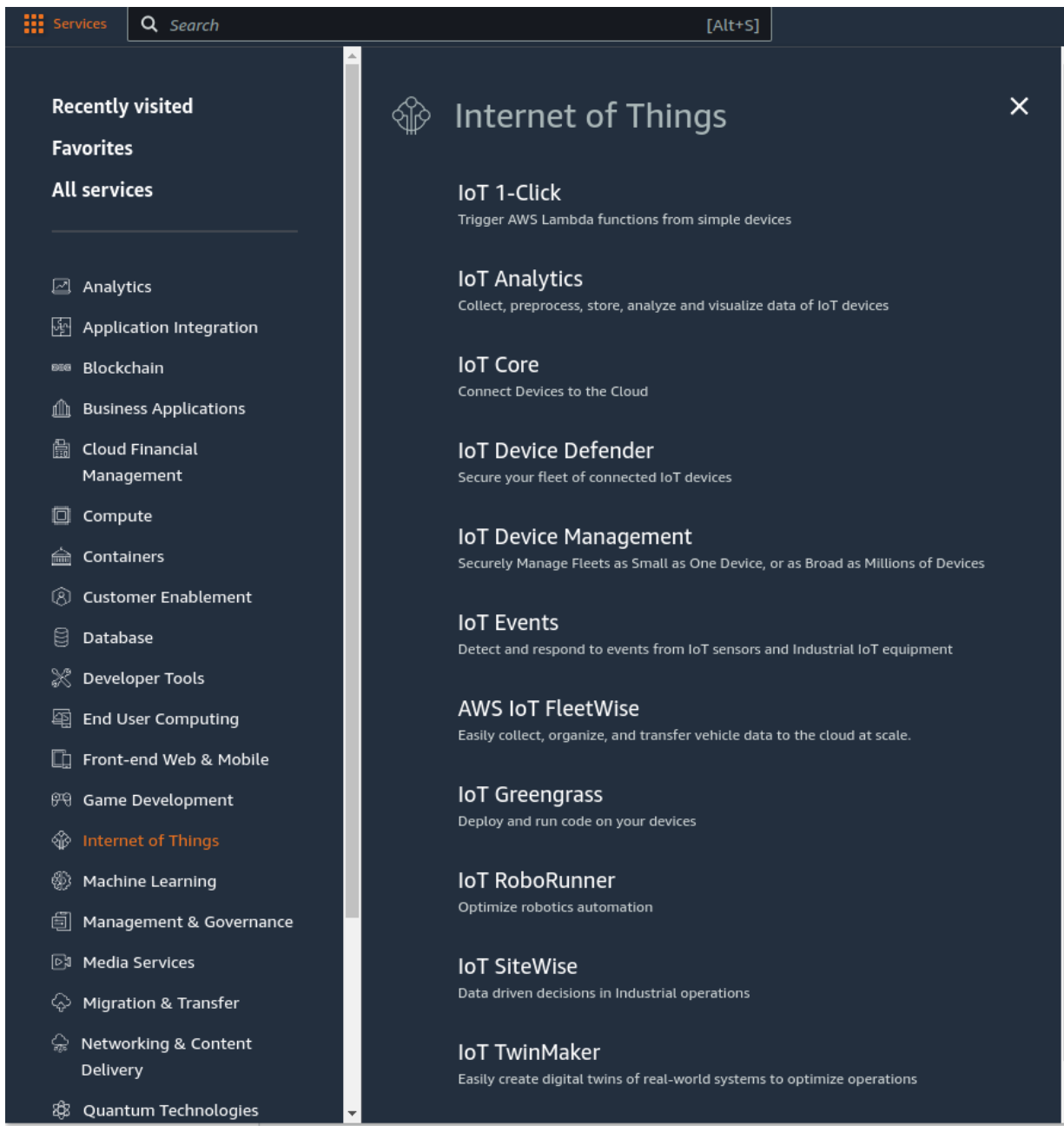
Cancel

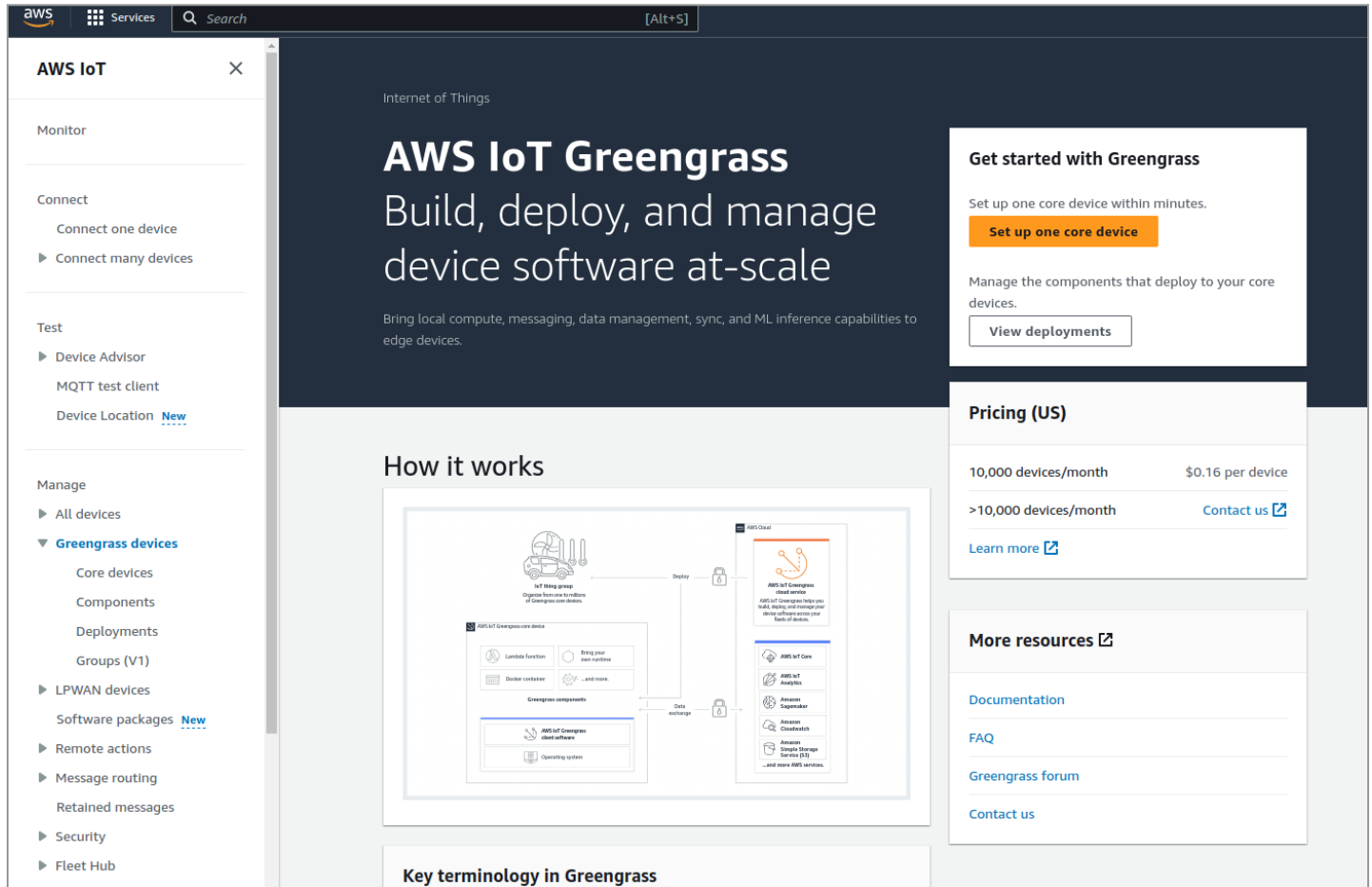
Next

Next save the "Access Key" and "Secret Access Key" . We will need this later while using greengrass CLI in KR260 console or downloading the csv file.

## Installing Greengrass CLI on KR260

Steps and scripts for installing greengrass device is provided by AWS Greengrass dashboard in AWS web console. So first access the AWS Greengrass IoT page, go to AWS Services -> Internet of Things -> IoT Greengrass link





The screenshot shows the AWS IoT Greengrass console interface. On the left is a navigation sidebar with sections: Monitor, Connect (with sub-items 'Connect one device' and 'Connect many devices'), Test (with sub-items 'Device Advisor', 'MQTT test client', and 'Device Location'), and Manage (with sub-items 'All devices', 'Greengrass devices' (expanded to show 'Core devices', 'Components', 'Deployments', 'Groups (V1)'), 'LPWAN devices', 'Software packages', 'Remote actions', 'Message routing', 'Retained messages', 'Security', and 'Fleet Hub'). The main content area has a dark header with 'Internet of Things' and 'AWS IoT Greengrass' title, followed by the subtitle 'Build, deploy, and manage device software at-scale'. Below this is a 'How it works' diagram showing an 'IoT thing group' connecting to an 'AWS IoT Greengrass core device' via 'Deploy', which then connects to 'AWS IoT Greengrass cloud service' via 'Data exchange'. The 'AWS IoT Greengrass core device' box lists components like 'Lambda function', 'Docker container', and 'Operating system'. The 'AWS IoT Greengrass cloud service' box lists services like 'AWS IoT Core', 'AWS IoT Analytics', 'Amazon SageMaker', and 'Amazon CloudWatch'. On the right side of the console, there are three panels: 'Get started with Greengrass' with a 'Set up one core device' button, 'Pricing (US)' showing '\$0.16 per device' for 10,000 devices/month and a 'Contact us' link for more, and 'More resources' with links to 'Documentation', 'FAQ', 'Greengrass forum', and 'Contact us'.

Now click on “Set up one core device” button  
 This will open the Greengrass core device setup page:  
 Here you change the Core device name like `kr260-dev`”

[AWS IoT](#) > [Greengrass](#) > [Core devices](#) > Set up one Greengrass core device

## Set up one Greengrass core device

### Step 1: Register a Greengrass core device

Greengrass core devices are AWS IoT things. Enter a thing name to be used to create a Greengrass core device.

Core device name

The name of the AWS IoT thing to create. We generated the following name for you.

kr260-dev

The name can be up to 128 characters. Valid characters: a-z, A-Z, 0-9, underscore (\_), and hyphen (-).

### Step 2: Add to a thing group to apply a continuous deployment

Add your Greengrass core device to an AWS IoT thing group. If the thing group has an active Greengrass deployment, your new core device receives and applies the deployment when you finish the setup process. To deploy to only the core device, select No group.

Thing group

☐ Enter a new group name

☒ Select an existing group

☐ No group

Thing group name

GreengrassQuickStartGroup ▼

### Step 3: Install the Greengrass Core software

Operating System

☒ Linux

☐ Windows

#### Step 3.1: Install Java on the device

Now in KR260 terminal console run following commands and scripts:

```
export AWS_ACCESS_KEY_ID=<AWS_ACCESS_KEY_ID>
export AWS_SECRET_ACCESS_KEY=<AWS_SECRET_ACCESS_KEY>
```

Greengrass CLI depends on Java. So to install the dependency run the following:

```
sudo apt install default-jre
sudo apt install default-jdk
```

Download and install Greengrass core software.

```
curl -s https://d2s8p88vqu9w66.cloudfront.net/releases/greengrass-nucleus-latest.zip >
greengrass-nucleus-latest.zip && unzip greengrass-nucleus-latest.zip -d
GreengrassInstaller
```

Next install the Greengrass core device:

```
sudo -E java -Droot="/greengrass/v2" -Dlog.store=FILE -jar
./GreengrassInstaller/lib/Greengrass.jar --aws-region us-east-1 --thing-name kr260-dev
--thing-group-name GreengrassQuickStartGroup --component-default-user ggc_user:ggc_group
--provision true --setup-system-service true --deploy-dev-tools true
```

Here is the console log after running above command:

```
Provisioning AWS IoT resources for the device with IoT Thing Name: [kr260-dev]...
Found IoT policy "GreengrassV2IoTThingPolicy", reusing it
Creating keys and certificate...
Attaching policy to certificate...
Creating IoT Thing "kr260-dev"...
Attaching certificate to IoT thing...
Successfully provisioned AWS IoT resources for the device with IoT Thing Name: [kr260-dev]!
Adding IoT Thing [kr260-dev] into Thing Group: [GreengrassQuickStartGroup]...
IoT Thing Group "GreengrassQuickStartGroup" already existed, reusing it
Successfully added Thing into Thing Group: [GreengrassQuickStartGroup]
Setting up resources for aws.greengrass.TokenExchangeService ...
Attaching TES role policy to IoT thing...
No managed IAM policy found, looking for user defined policy...
IAM policy named "GreengrassV2TokenExchangeRoleAccess" already exists. Please attach it to the IAM role if not already
Configuring Nucleus with provisioned resource details...
Root CA file found at "/greengrass/v2/rootCA.pem". Contents will be preserved.
Downloading Root CA from "https://www.amazontrust.com/repository/AmazonRootCA1.pem"
Created device configuration
Successfully configured Nucleus with provisioned resource details!
Thing group exists, it could have existing deployment and devices, hence NOT creating deployment for Greengrass first party dev tools, please manually create a deployment if you wish to
Successfully set up Nucleus as a system service
ubuntu@kria:~$
```

Now in Greengrass set up page, one can view the Greengrass core devices and find above `kr260-dev` in the list.

**AWS IoT**

When the installer completes, your core device **kr260-dev** appears on this page. If your core device doesn't appear within a few minutes, you might need to troubleshoot issues and run the installer again. [Learn more](#)

[AWS IoT](#) > [Greengrass](#) > Core devices

## Greengrass core devices Info

Greengrass core devices (2)

< 1 >

⚙

Name	Status	Status reported
<a href="#">kr260-dev</a>	Healthy	2 minutes ago
<a href="#">GreengrassQuickStartCore-18c10b0c382</a>	Healthy	1 day ago

Monitor

---

Connect

Connect one device

▶ Connect many devices

---

Test

▶ Device Advisor

MQTT test client

Device Location New

---

Manage

▶ All devices

▼ Greengrass devices

**Core devices**

Components

Deployments

In KR260 terminal one can get the device components by using `greengrass-cli`:

```

sudo /greengrass/v2/bin/greengrass-cli component list

ubuntu@kria:~$ sudo /greengrass/v2/bin/greengrass-cli component list
Components currently running in Greengrass:
Component Name: aws.greengrass.Nucleus
  Version: 2.12.0
  State: FINISHED
  Configuration: {"awsRegion":"us-east-1","componentStoreMaxSizeBytes":"10000000000","deploymentPollingFrequencySeconds":"15","envStage":"prod","fipsMode":"false","fleetStatus":{"periodicSt
atusPublishIntervalSeconds":86400.0},"greengrassDataPlaneEndpoint":"","greengrassDataPlanePort":"8443","httpClient":{"iotCredEndpoint":"cluwvavs4wpvxg.credentials.iot.us-east-1.amazonaws.co
m","iotDataEndpoint":"a9jc3obcutf8v-ats.iot.us-east-1.amazonaws.com"},"iotRoleAlias":"GreengrassV2TokenExchangeRoleAlias","jvmOptions":"-Dlog.store=FILE","logging":{"mqtt":{"spooler":{}},"ne
tworkProxy":{"proxy":{"platformOverride":{"runWithDefault":{"posixShell":"sh","posixUser":"ggc_user:ggc_group"},"s3EndpointType":"GLOBAL","telemetry":{"}}}}}}
Component Name: FleetStatusService
  Version: 0.0.0
  State: RUNNING
  Configuration: null
Component Name: UpdateSystemPolicyService
  Version: 0.0.0
  State: RUNNING
  Configuration: null
Component Name: aws.greengrass.Cli
  Version: 2.12.0
  State: RUNNING
  Configuration: {"AuthorizedPosixGroups":null,"AuthorizedWindowsGroups":null}
Component Name: TelemetryAgent
  Version: 0.0.0
  State: RUNNING
  Configuration: null
Component Name: DeploymentService
  Version: 0.0.0
  State: RUNNING
  Configuration: null

```

We will be adding component to publish and subscribe the topic to the AWS cloud Broker.

Created by [www.LogicTronix.com](http://www.LogicTronix.com) | [info@logictronix.com](mailto:info@logictronix.com)

Sanam Shakya | 14

## Installing the component

Get the `components` folder and copy in the KR260 home directory.

It contains:

artifacts

- com.example.mqtt
- 1.0.0
- mqtt.py (This python code published the data on button press and actuates gpio on receiving the data in subscribed topic)

recipe

- com.example.mqtt-1.0.0.json

To install the above component run the following in the KR260 terminal:

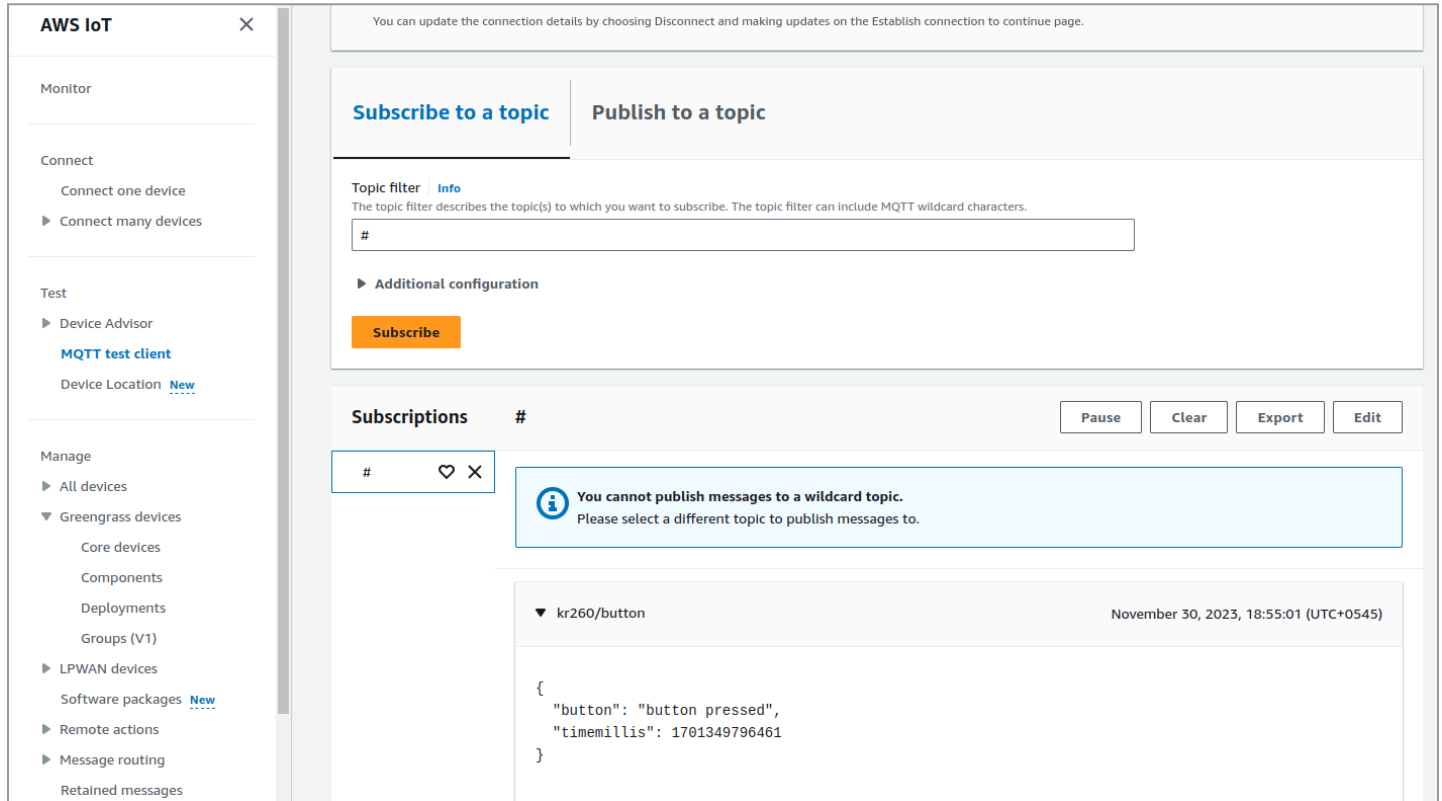
```
sudo /greengrass/v2/bin/greengrass-cli deployment create \
--recipeDir ~/components/recipe \
--artifactDir ~/components/artifacts \
--merge "com.example.mqtt=1.0.0"
```

```
ubuntu@kria:~$ sudo /greengrass/v2/bin/greengrass-cli deployment create \
--recipeDir ~/components/recipe \
--artifactDir ~/components/artifacts \
--merge "com.example.mqtt=1.0.0"
Local deployment submitted! Deployment Id: 9e8f1be6-63b2-4189-aecc-607197755d22
ubuntu@kria:~$
```

Now check the installed component is in “running state”

```
ubuntu@kria:~$ sudo /greengrass/v2/bin/greengrass-cli component list
Components currently running in Greengrass:
Component Name: aws.greengrass.Nucleus
Version: 2.12.0
State: FINISHED
Configuration: {"awsRegion": "us-east-1", "componentStoreMaxSizeBytes": "10000000000", "deploymentPollingFrequencySeconds": "15", "envStage": "prod", "flipsMode": "false", "fleetStatus": {"periodicStatusPublishIntervalSeconds": 86400}, "greengrassDataPlaneEndpoint": "", "greengrassDataPlanePort": "8443", "httpClient": {}, "lotCredEndpoint": "c1uwyavs4wpvg.credentials.lot.us-east-1.amazonaws.com", "lotDataEndpoint": "a9jc3obcutfv-ats.lot.us-east-1.amazonaws.com", "lotRoleAlias": "GreengrassV2TokenExchangeRoleAlias", "jvmOptions": "-Dlog.store=FILE", "logging": {}, "mqtt": {"spooler": {}}, "networkProxy": {"proxy": {}}, "platformOverride": {}, "runWithDefault": {"posixShell": "sh", "posixUser": "ggc-user:ggc-group"}, "s3EndpointType": "GLOBAL", "telemetry": {}}
Component Name: com.example.mqtt
Version: 1.0.0
State: RUNNING
Configuration: {"accessControl": {"aws.greengrass.tpc.mqttproxy": {"com.example.mqtt.mqttproxy": {"operations": ["aws.greengrass#PublishToIoTCore", "aws.greengrass#SubscribeToIoTCore"], "policyDescription": "Allow access to pub/sub to mypi/mqtt."}, "resources": ["kr260/mqtt", "kr260/button"]}}, "message": "hello"}
Component Name: TelemetryAgent
Version: 0.0.0
State: RUNNING
Configuration: null
Component Name: DeploymentService
Version: 0.0.0
State: RUNNING
Configuration: null
Component Name: UpdateSystemPolicyService
Version: 0.0.0
State: RUNNING
Configuration: null
Component Name: FleetStatusService
Version: 0.0.0
State: RUNNING
Configuration: null
Component Name: aws.greengrass.Cli
Version: 2.12.0
State: RUNNING
Configuration: {"AuthorizedPosixGroups": null, "AuthorizedWindowsGroups": null}
Component Name: aws.greengrass.LocalDebugConsole
Version: 2.4.1
State: RUNNING
Configuration: {"bindHostname": "localhost", "httpsEnabled": "true", "port": "1441", "websocketPort": "1442"}
```

Now in aws IoT console, open “MQTT test client” and subscribe to “#”



The screenshot shows the AWS IoT console interface. On the left is a navigation menu with sections: Monitor, Connect (with options 'Connect one device' and 'Connect many devices'), Test (with 'Device Advisor' and 'MQTT test client'), and Manage (with various device and package management options). The main area is titled 'AWS IoT' and contains a 'Subscribe to a topic' section. This section has a 'Topic filter' input field with a '#' character, an 'Additional configuration' link, and a 'Subscribe' button. Below this is a 'Subscriptions' table with a single entry for the topic '#'. To the right of the table is a message box stating: 'You cannot publish messages to a wildcard topic. Please select a different topic to publish messages to.' Below the message box, a message is shown for the topic 'kr260/button' received on November 30, 2023, at 18:55:01 (UTC+0545). The message payload is a JSON object: { "button": "button pressed", "timemillis": 1701349796461 }.

You can see the “button pressed” message once the button is pressed.

Now to control the LED, publish the message to “kr260/mqtt” topic. Here is the screenshot of the message which switch on the LED.



AWS IoT

Monitor

Connect

Connect one device

Connect many devices

Test

Device Advisor

MQTT test client

Device Location [New](#)

Manage

All devices

Greengrass devices

Core devices

Components

Deployments

Groups (V1)

LPWAN devices

Software packages [New](#)

Remote actions

Message routing

You can update the connection details by choosing Disconnect and making updates on the Establish connection to continue page.

Subscribe to a topic

Publish to a topic

Topic name

The topic name identifies the message. The message payload will be published to this topic with a Quality of Service (QoS) of 0.

kr260/mqtt

Message payload

{  
  "ledon": true  
}

Additional configuration

Publish

Subscriptions

#

Pause Clear Export Edit

#

✖

You cannot publish messages to a wildcard topic.  
Please select a different topic to publish messages to.

kr260/mqtt

November 30, 2023, 18:57:32 (UTC+0545)

Now to switch off the LED send "false" message in the "kr260/mqtt" topic.

AWS IoT

Monitor

Connect

Connect one device

Connect many devices

Test

Device Advisor

MQTT test client

Device Location [New](#)

Manage

All devices

Greengrass devices

Core devices

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Remote actions

Message routing

You can update the connection details by choosing Disconnect and making updates on the Establish connection to continue page.

Subscribe to a topic

Publish to a topic

Topic name

The topic name identifies the message. The message payload will be published to this topic with a Quality of Service (QoS) of 0.

kr260/mqtt

Message payload

{  
  "ledon": false  
}

Additional configuration

Publish

Subscriptions

#

Pause Clear Export Edit

#

✖

You cannot publish messages to a wildcard topic.  
Please select a different topic to publish messages to.

kr260/mqtt

November 30, 2023, 18:59:36 (UTC+0545)