

# **Solution Center Americas**

### **Quick Start Guide**

Product name: Ewon Flexy AWS IoT Core Connector

Version 1.0



## Version history

Version	History	Author	Date D-M-Y
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# **1** Introduction

The HMS Networks MU Americas Solution Center has produced a connector application for linking the Ewon Flexy to AWS IoT Core. This quick start guide details the minimal steps required to setup an Ewon Flexy to connect to AWS IoT Core.

# **2** Configuration

### 2.1 Configure AWS IoT Core

IoT Core needs to be configured before an Ewon Flexy can be connected. The process consists of creating a policy, creating a device, downloading the device certificates, and attaching the created policy to the device.

### 2.1.1 Create a policy

A policy defines a device's access permissions to IoT Core. To create a policy, navigate to **Secure** -> **Policies** in the left-hand navigation menu. Then click **Create** in the top right of the page.

aws	Services 🗸	Resource Groups 🗸 🏠		Support 👻
AWS IOT	•	Policies		Create
Monitor	- 1	Search policies	Q	Card 👻 🐼
Onboard				
Manage				
Greengrass	- 1			
Secure				
Certificates				
Policies				
CAs				
Role Aliases				
Authorizers				
Defend				
Act				
Test				
Software				
Settings				
Learn	- 1			
	-			
🗨 Feedback (	🚱 English (US)	© 2008 - 2020, Amazon Web Services, Inc.	or its affiliates. All rights reserved. P	rivacy Policy Terms of Use



#### A new policy must be given a name and policy statements. For more about IoT Core policies see:

https://docs.aws.amazon.com/iot/latest/developerguide/iot-policies.html.

aws	Services 🗸 Resource Groups 🗸	*	4		Support 👻
					Â
÷					<b>Ç</b>
	Create a policy				(?)
	Create a policy to define a set of authorized a more about IoT policies go to the AWS IoT Po	ctions. You can authorize actions on one or m licies documentation page.	ore resources (things, topics, topic filters	). To learn	
	Name				
		1			
	Add statements Policy statements define the types of actions	that can be performed by a resource.	Ad	vanced mode	
	Action Please use commas to seperate actions.	e.g. iot:Publish. iot:Subscribe			
	Resource ARN Specific resources could include client II	) ARN, topic ARN, or topic filter ARN.			
	Effect				
	Add statement				
					•
<b>Feedback</b>	G English (US)	© 2008 - 2020, Amazon \	Web Services, Inc. or its affiliates. All rights reser	ved. Privacy Policy	Terms of Use



### Sample Policy

For getting started this sample policy document will provide an Ewon Flexy with the ability to connect to IoT Core as well as publish, receive, and subscribe to all topics. The resource will have to be modified to match the unique Amazon Resource Name (ARN) of the device.

*Note: This policy should be used for testing only. A policy used in production should only allow topics required by the application.* 

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Effect": "Allow",
      "Action": [
        "iot:Publish",
        "iot:Receive",
        "iot:Subscribe"
      ],
      "Resource": [
       "*"
      ]
    },
    {
      "Effect": "Allow",
      "Action": [
        "iot:Connect"
      ],
      "Resource": [
        "arn:aws:iot:XXXXXXX:YYYYYYYYY:client/*"
      ]
    }
 ]
}
```



### 2.1.2 Create a New Device

To create a new device, navigate to **Manage** -> **Things** in the left-hand navigation menu. Then click **Create** in the top right of the page.

aws	Services 🗸	Resource Groups 🗸	*	¢				Support 👻
AWS IOT	Î	Things						Create
Monitor	- 1	Search things			Q	Fleet Indexing	0	Card 🗸 🐼
Onboard								
Manage Things Types Thing groups Billing Groups Jobs Tunnels Greengrass Secure								
Defend								
Act								
lest	-							
Feedback	🔮 English (US)	© 2008 - 2	2020, Amazon We	eb Services, Inc.	or its affiliate	s. All rights reserved.	Privacy Poli	cy Terms of Use

Then click Create a single thing.

AWS Services - Resource Group	os 🗸 🔭	$\bigtriangleup$		Support 👻
Creating AWS IoT things				Д Ф
Creating Aws for timigs				
An IoT thing is a representation and record of your ph	yisical device in	the cloud. Any phys	ical	
device needs a thing record in order to work with AWS	IoT. Learn more	2.		
Register a single AWS IoT thing				
Create a thing in your registry			Cre	eate a single thing
Bulk register many AWS IoT things Create things in your registry for a large number of de	vices already us	ing AW\$ IoT, or	Cr	eate many things
register devices so they are ready to connect to AWS I	oT.			
Cancer				Create a single thing
🛛 Feedback 🔇 English (US)	© 2008 - 2020, Ama	azon Web Services, Inc	. or its affiliates. All rights rese	erved. Privacy Policy Terms of Use



Then, name the new device. This example uses the name **newDevice**. Once named, click **Next** at the bottom right-hand section of the page.

CREATE A THING		<b>CTP</b>
Add your device to the thing re	gistry	1/3
This step creates an entry in the thing registry and a	thing shadow for your device.	
Name		
newDevice		
Apply a type to this thing		
Using a thing type simplifies device management by common set of attributes, which describe the identity	providing consistent registry data for things that share a type. Types pro y and capabilities of your device, and a description.	vide things with a
Thing Type		
No type selected 🗸	Create a type	
Add this thing to a group Adding your thing to a group allows you to manage of	devices remotely using jobs.	
Add this thing to a group Adding your thing to a group allows you to manage of Thing Group	devices remotely using jobs.	
Add this thing to a group Adding your thing to a group allows you to manage of Thing Group Groups /	devices remotely using jobs. Create	e group Change
Add this thing to a group Adding your thing to a group allows you to manage of Thing Group Groups /	devices remotely using jobs. Create	e group Change
Add this thing to a group Adding your thing to a group allows you to manage of Thing Group Groups / Set searchable thing attributes (optional) Enter a value for one or more of these attributes so t	devices remotely using jobs. Create	e group Change
Add this thing to a group Adding your thing to a group allows you to manage of Thing Group Groups / Set searchable thing attributes (optional) Enter a value for one or more of these attributes so to Attribute key	devices remotely using jobs. Create that you can search for your things in the registry. Value	e group Change
Add this thing to a group Adding your thing to a group allows you to manage of Thing Group Groups / Set searchable thing attributes (optional) Enter a value for one or more of these attributes so to Attribute key Provide an attribute key, e.g. Manufacturer	devices remotely using jobs. Create that you can search for your things in the registry. Value Provide an attribute value, e.g. Acme-Corporation	e group Change
Add this thing to a group Adding your thing to a group allows you to manage of Thing Groups Groups / Set searchable thing attributes (optional) Enter a value for one or more of these attributes so to Attribute key Provide an attribute key, e.g. Manufacturer	devices remotely using jobs. Create that you can search for your things in the registry. Value Provide an attribute value, e.g. Acme-Corporation	e group Change
Add this thing to a group Adding your thing to a group allows you to manage of Thing Group Groups / Set searchable thing attributes (optional) Enter a value for one or more of these attributes so to Attribute key Provide an attribute key, e.g. Manufacturer Add another	devices remotely using jobs. Create that you can search for your things in the registry. Value Provide an attribute value, e.g. Acme-Corporation	e group Change
Add this thing to a group Adding your thing to a group allows you to manage of Thing Groups Groups / Set searchable thing attributes (optional) Enter a value for one or more of these attributes so to Attribute key Provide an attribute key, e.g. Manufacturer Add another Show thing shadow ×	devices remotely using jobs. Create that you can search for your things in the registry. Value Provide an attribute value, e.g. Acme-Corporation	e group Change
Add this thing to a group Adding your thing to a group allows you to manage of Thing Group Groups / Set searchable thing attributes (optional) Enter a value for one or more of these attributes so t Attribute key Provide an attribute key, e.g. Manufacturer Add another Show thing shadow •	devices remotely using jobs. Create that you can search for your things in the registry. Value Provide an attribute value, e.g. Acme-Corporation	e group Change



Create a unique certificate for the device by clicking **Create certificate**.

aws	Services 🗸 Resource Groups 🗸 🏌	↓ HMS Solution Center Americas ▼ Oregon ▼ Su	oport 👻
÷	CREATE A THING Add a certificate for your thing	STEP 2/3	↓ ⑦ �
	A certificate is used to authenticate your device's connection to AWS IoT.		
	One-click certificate creation (recommended) This will generate a certificate, public key, and private key using AWS IoT's certificate authority.	Create certificate	
	Create with CSR Upload your own certificate signing request (CSR) based on a private key you own.	Create with CSR	
	Use my certificate Register your CA certificate and use your own certificates for one or many devices.	Get started	
	Skip certificate and create thing You will need to add a certificate to your thing later before your device can connect to A IoT.	WS Create thing without certificate	
<b>Q</b> Feedback	English (US) © 2008 - 2020, Amazon W	eb Services, Inc. or its affiliates. All rights reserved. Privacy Policy	Terms of Use

Download the certificate, public key, and private key for the device by clicking **Download** next to each item (Box 1). Next, download the root CA for AWS IoT by clicking to the **Download** link in Box 2 then clicking the link for **RSA 2048 bit key: Amazon Root CA 1**. Once all the certificate and keys have been downloaded, click **Activate** (Box 3). Finally, click **Done** (Box 4).

Could be and the			
Certificate create	:O!		Successfully generated certificate. Please download certifica files.
Download these files and sav after you close this page.	ve them in a safe place. Certificate	s can be retrieved at	any time, but the private and public keys cannot be retrieved
In order to connect a device	, you need to download the follo	owing:	
A certificate for this thing	15155524c6.cert.pem	Download	0
A public key	15155524c6.public.key	Download	-
A private key	15155524c6.private.key	Download	
You also need to download A root CA for AWS IoT Downl Activate	a root CA for AWS IoT: load		Done Attach a policy



aws	<b>Q</b> Search in this guide			English 🔻
AWS >	Documentation > AWS IoT > Developer Guide		Feedback 🛱 🛛 P	references 🧿
=	CA certificates for server	•	On this page	×
	authentication		Endpoint types	
	Depending on which type of data endpoint you are using and which cipher suite you have negotiated, AWS IoT Core server		CA certificates for ser authentication	ver
	authentication certificates are signed by one of the following root CA certificates:		Server authentication	guidelines
	VeriSign Endpoints (legacy)			
	<ul> <li>RSA 2048 bit key: VeriSign Class 3 Public Primary G5 root CA certificate </li> </ul>			
	Amazon Trust Services Endpoints (preferred)			
	• RSA 2048 bit key: Amazon Root CA 1 🖸.			
	• RSA 4096 bit key: Amazon Root CA 2. Reserved for future			
	use.			
	ECC 250 bit key: Amazon Root CA 4 Reserved for future			
	USE.	-		

The device has now been created and activated.



### 2.1.3 Attach Policy to New Device

The last step to configuring the device is attaching a policy. To attach a policy to a new device, navigate to **Manage** -> **Things** in the left-hand navigation menu. Then click on the device that was just created.

aws	Services 🗸	Resource Groups 🐱	*	φ		s	upport 👻
AWS IOT	^	Things				c	reate
Monitor	- 1	Search things		Q	Fleet Indexing	⑦ Ca	rd 🗸 🐼
Onboard	- E	(					
Manage		newDevice					
Things		NO TYPE					
Types							
Thing groups							
Billing Groups							
Jobs							
Tunnels							
Greengrass							
Secure	-						
🗨 Feedback (	🔵 English (US)	6	2008 - 2020, Amazon	Web Services, Inc. or it	s affiliates. All rights reserv	ed. Privacy Policy	Terms of Use

On the left-hand navigation menu click **Security**, then click the certificate created in the previous steps.

aws	Services 🗸	Resource Groups 🐱 🛠	۵	S	upport 👻
← Th	ings > newDevice THING NEWDEVICE NO TYPE			Actions -	⊕ ⊘
	Details Security Thing groups Billing Groups Shadow Interact Activity Jobs Violations Defender metrics	Certificates	• •		
<b>Feedback</b>	English (US)		© 2008 - 2020, Amazon Web Services, Inc. or its affiliates	. All rights reserved. <b>Privacy Policy</b>	Terms of Use



On the certificate page click on **Policies** in the left-hand navigation menu. Next, click the **Actions** drop down on the right of the page. In the **Actions** drop down menu click **Attach Policy**.

aws	Services 🗸	Resource Groups 🗸 🔸	,	Ą		Support 👻
<del>ار</del> ب	nings > newDevice > 1	15155524c6905fa69399				۔ 10 20
		5905ta£35954e1e	(776-404596-2650)	ab4799dGd5551de	1844143796a	Ð
	Details	Policies			Actions - Activate Deactivate Revoke	
	Policies Things Non-compliance	There are no policies att	ached to this certificate.		Accept transfer Reject transfer Revoke transfer Start transfer	
					Attach policy Attach thing Download Delete	
- Faadhaak			@ 2009 - 20	20 America Web Services Inc. or its of	Silator All dable reconcid Driver Dal	iov Tormo of Lico
Reedback	🔇 English (US)		© 2008 - 20	20, Amazon Web Services, Inc. or its af	filiates. All rights reserved. Privacy Pol	icy Terms of Use

Select the policy created in section 2.1.1, then click Attach.

aws	Services 🗸	Resource Groups 🗸 🏠	:	Support 👻
÷	`hings ≻ newDevic	Attach policies to certificate(s)		, C
		Policies will be attached to the following certificate(s):	e Actions <del>-</del>	(?) (•)
	Details Policies Things	Q Search policies       Image: EwonFlexyPolicy       View		
	Non-compliance	0 policies selected Cancel Attach		
				-
Feedback	🕻 🥝 English (US)	© 2008 - 2020, Amazon Web Services, Inc. or its affiliates. All rights reserve	d. Privacy Policy	Terms of Use





## 2.2 Configure Ewon Flexy

### 2.2.1 Configure Tags on the Ewon Flexy

Each tag that should be sent to AWS IoT Core must have historical logging enabled. The historical logging interval configured for a tag sets the interval it will be posted to IoT Core. For information on the Ewon's historical logging functionality, and how to set it up, please visit <u>https://www.ewon.biz/technical-support/pages/data-services/data-logging</u>.

In addition to historical logging being enabled, the Ewon AWS IoT Core Connector application uses tag groups to determine which tags are to be sent to IoT Core. There are four tag groups, A, B, C, and D. Any tag assigned to one of the four tag groups will be sent to IoT Core, but tags that have not been assigned a tag group will be ignored.

To create a new tag click the **+ / + Add** button above the tag list on the **Values** page of the Ewon Flexy webserver.





Create the tag following standard Ewon Flexy documentation. Make sure that **Historical Logging** is enabled and configured to the desired settings.

Flexy 205 🔿 🔿	Tags 🗲 🏷 Values		Logged in as 🛔 adm 🛛 🗈 🎽 Wizards
Q Filter tree	Values	Create a new Tag	
Home	MODE SETUP	Q, Filter C   C   C   C   C   C   C   C   C   C	A Default
Tags Values Alarms ● ⇒ Io Servers ↓ Diagnostic ூ Logs ● ♥ Status ● ★ Files Transfer Setup ●	PAGES  All  Default  System  TAG GROUPS  Group A Group C  Group B Group D	Image: Second	Page: Default
		Historical Logging     Logging Deadband: -1 (put a     Logging Interval: 10 Secon     only)     Autorefresh — Rate: 1 \$ sec. Displaying 3 tags	Historical Logging Enabled i negative value to disable deadband logging) ids (set to 0, it will enable Deadband logging Add Tag
Ewon			Status 🤔 💧

Add the tag to a **Tag group** then click **Add Tag** at the bottom right-hand side of the page.

Flexy 205  🖶 🛪 🗸 т	ags 🔉 🏷 Values		Logged in as 🛓 adm 🛛 🕑 🥐 Wizards
Q Filter tree	Values		
Home	MODE SETUP	Q. Filter 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Logging Interval: 10 Seconds (set to 0, it will enable Deadband logging only)
Tags         Natures         Alarms         IO Servers         Diagnostic         Logs         Status         Files Transfer         Setup	PAGES  All  Default System  TAG GROUPS  Group A Group C  Group B Group D	Image: Solution of the state of the stat	Real Time Logging       Real Time Logging Enabled         Tag Visibility       Global settings         Published value:       Ewon value * 1 + 0         REMARK: Published value is unsigned 16 bits for ModbusTCP and signed 32 bits for SNMP         Modbus TCP       Enabled         Register:       1       Use 32-bit format (not available for booleans)         SMMP       Enabled         OID:       1       Value published: .13.6.1.4.1.8284.2.1.3.1.11.1.4.0ID (Max value 32767)         Key Performance Indicators (KP)       Enabled
Ewon*		∢ ☐ Autorefresh — Rate: 1	Group A Group B Group C Group D



#### 2.2.2 Configure and Load the Connector Application

#### 2.2.2.1 Modify AwsConnectorConfig.json

Replace the values for **IoTCoreURL** and **DeviceID** in the AwsConnectorConfig.json file to match the values being used.

IoTCoreURL – URL for IoT Core instance.

**DeviceID** – Must match name given to device during IoT Core device registration.

```
{
   "Connector": {
    "LogLevel": 1
    },
    "Aws": {
        "DeviceMode": 1,
        "IoTCoreURL": "xxxxxxxx.iot.yyyyyyy.amazonaws.com",
        "DeviceID": "newDevice"
    }
}
```

#### 2.2.2.2 Transfer Application Files

Using an FTP client transfer the following files to the /usr directory of the Ewon Flexy.

- AwsConnectoConfig.json
- flexy-aws-connector.jar
- jvmrun

#### 2.2.2.3 Transfer Certificates

- 1. Using an FTP client create a directory named "AwsCertificates" in the /usr directory of the Ewon Flexy.
- 2. Rename the root CA certificate to "rootCA.crt" and transfer it to the "AwsCertificates" directory on the Ewon Flexy.
- 3. Rename the device certificate to "device.cert.pem" and transfer it to the "AwsCertificates" directory on the Ewon Flexy.
- 4. Rename the private key to "device.private.key" and transfer it to the "AwsCertificates" directory on the Ewon Flexy.



# **3 Testing**

Once the Ewon Flexy has been rebooted the application will automatically start and begin publishing data to IoT Core. Data publishing verified by subscribing to the "ewonTelemetry" topic using the Test page.

aws	Services 🗸	Resource Groups 👻 🔦	۵	Support 👻
AWS IOT		MQTT client 💿	Connected as iotconsole	^@
Monitor		Subscriptions	ewonTelemetry Export Clear Pr	ause
Onboard Manage Greengrass Secure Defend Act <b>Test</b>		Subscribe to a topic Publish to a topic ewonTelemetry	Publish Specify a topic and a message to publish with a QoS of 0. ewonTelemetry Publish to topi  ("message": "Hello from AWS IoT console" )	c
Software Settings Learn	0		<pre>ewonTelemetry May 27, 2020 3:53:25 PM -0400 Export {     "deviceID": "newDevice",     "datapoints": [         {             "name": "ExampleTag1",             "value": 0,             "time": "1590609183"         },         {             "name": "ExampleTag3",             "value": 0,             "time": "1590609183"         }         //             "time": "1590609183"         //         //         //</pre>	Hide
Feedback	🔮 English (US	)	© 2008 - 2020, Amazon Web Services, Inc. or its affiliates. All rights reserved. Privacy Po	licy Terms of Use