AP NOTE 009 Ver.2

#### iGS01/iGS01S/iGS02E Connect to AWS IoT

#### Overview

This document is the steps for configuring iGS01/iGS01S/iGS02E to connect to Amazon AWS IoT service. Below is an example by using iGS01.

#### Procedure

- 1. AWS-IoT Configuration
  - 1.1. Login AWS IoT console

Search the service **IoT Core**.

	iot			Group A		
ne	IoT 1-Click Trigger AWS Lambda functions from simple devices					
	Collect, preprocess, store,	analyze and visualize data of IoT devic	es	r Computing		
	IoT Core Connect Devices to the Clo	ud		ces m 2.0		
	IoT Device Defender Connect Devices to the Clo IoT Device Managemer	ud				
	Securely Manage Fleets as IoT Events Monitor device fleets for ch	Small as One Device, or as Broad as M nanges and trigger alerts to respond	lillions of Devices	Of Things FreeRTOS		
	IoT Greengrass Deploy and run code on yo	ur devices		:K tics		
	IoT SiteWise			e Management		
	E Database	AWS Organizations CloudWatch AWS Auto Scaling	Inspector Amazon Macie 🖸 AWS Single Sign-On	IoT Events IoT Greengrass IoT SiteWise		

#### 1.2. Create certificate

We need to create a certificate for iGS01 device to publish message to AWS-IoT.



#### Choose Secure -> Certificate, click Create a certificate.

Use One-click certificate creation.



Download the certificate and private key for later use (setup iGS01 application). You can ignore the request of download root CA, iGS01 already built-in the AWS-IoT root CA for you.

Download these files and after you close this page.	save them in a safe place. Certificat	es can be retrieved at any	y time, but the priv	ate and public key	vs cannot be retrieved
n order to connect a dev	rice, you need to download the foll	owing:			
A certificate for this thing	f877784fc5.cert.pem	Download	Ċ		
A public key	f877784fc5.public.key	Download			
A private key	f877784fc5.private.key	Download	5		
<b>fou also need to downlo</b> A root CA for AWS IoT <b>Dov</b> <b>Deactivate</b>	ad a root CA for AWS IoT: wnload				

Remember to Activate the certificate.

Than, we need to create & attach a policy for this certificate, it tells the AWS what can we do using this certificate. Click **Attach a policy**.

1.3. Create policy

Assume we don't have any policy in AWS system, you will see an empty policy list after click **Attach a policy**. Let's create a new one.

← Add authorization to certificate	
You are attaching a policy to the following certificate:	
620c0244a9336d84d9e1a48ee7bc0373705c3cdaa5350ef9817f7475593c87f4 Select a policy to attach to this certificate:	
Q Search policies	
No match found There are no policies in your account.	
Create new policy	
0 policies selected	Done

Here is a simple policy example.

Action: iot:\*, ARN: \*, Effect: Allow.

Name MylotPolicy		Ģ ⑦
Add statements Policy statements define the types of actions that can be performed by a resource.	Advanced mode	Ð
Action iot.*		
Resource ARN		
Effect 🖸 Allow 🗌 Deny	Remove	
Add statement		
	Create	

#### 1.4. Attach policy to certificate

Choose **Secure** -> **Certificate**, click on the certificate we just created. Click **Actions** on top-right corner, and select **Attach policy** on the popup menu.

Details       Certificate ARN       Deactivate         Policies       A certificate Amazon Resource Name (ARN) uniquely identifies this certificate. Learn more       Revoke         Non-compliance       arn: aws:iot:ap-northeast-1:784786804561:cert/f877784fc538ede3b846a3a9       Revoke transfer         Non-compliance       betails       Revoke transfer         Details       Statt transfer         UD=Amazon Web Services O\=Amazon.com Inc. L\=Seattle ST\=Washington C\=US       Download         Delete       Download         Delete       Ot:3, 2019 3:25:12 PM +0800         Effective date       Oct 3, 2019 3:23:12 PM +0800			Activate
Details       Certificate ARN       Details       Revoke         Policies       A certificate Amazon Resource Name (ARN) uniquely identifies this certificate. Learn more       Revoke         Non-compliance       arn: aws:iot:ap-northeast-1:784786804561:cert/f877784fc538ede3b846a3a9       Revoke transfer         Von-compliance       betails       Revoke transfer         User       Details       Attach policy         Details       Download       Delete         Subject       CN=AW3 IoT Certificate       Create date         Oct 3, 2019 3:23:12 PM +0800       Effective date       Oct 3, 2019 3:23:12 PM +0800			Deartivate
Policies A certificate Amazon Resource Name (ARN) uniquely identifies this certificate. Learn more A ccept transfer Reject transfer Revoke transfer Start transfer Attach policy Attach thing Download Delete OU=Amazon Web Services O\=Amazon.com Inc. L\=Seattle ST\=Washington C\=US Subject CN=AWS IoT Certificate Create date Oct 3, 2019 3:23:12 PM +0800 Effective date Oct 3, 2019 3:23:12 PM +0800	Details	Certificate ARN	Revoke
A certificate Amazon Resource Name (ARN) uniquely identifies this certificate. Learn more Things Non-compliance arn: aws:iot:ap-northeast-1:784786804561:cert/f877784fc538ede3b846a3a9 Details Issuer OU=Amazon Web Services O\=Amazon.com Inc. L\=Seattle ST\=Washington C\=US Subject CN=AWS IoT Certificate Create date Oct 3, 2019 3:25:12 PM +0800 Effective date Oct 3, 2019 3:25:12 PM +0800	Policies		Accent transfer
Inings       arn:aws:iot:ap-northeast-1:784786804561:cert/f877784fc538ede3b846a3a9       Revoke transfer         Non-compliance       Details       Start transfer         Issuer       OU=Amazon Web Services O\=Amazon.com Inc. L\=Seattle ST\=Washington C\=US       Detail         Subject       CN=AWS IoT Certificate       Detail         Create date       Oct 3, 2019 3:25:12 PM +0800       Effective date         Oct 3, 2019 3:23:12 PM +0800       Effective date       Oct 3, 2019 3:23:12 PM +0800		A certificate Amazon Resource Name (ARN) uniquely identifies this certificate. Learn more	Reject transfer
Non-compliance       arn: aws:iot:ap-northeast-1:784786804561:cert/f877784fc538ede3b846a3a9       Start transfer         Details       Attach policy         Usage       OU=Amazon Web Services O\=Amazon.com Inc. L\=Seattle ST\=Washington C\=US       Download         Details       Delete         Subject       CN=AWS IoT Certificate         Create date       Oct 3, 2019 3:25:12 PM +0800         Effective date       Oct 3, 2019 3:23:12 PM +0800	Things		Revoke transfer
Details  Details  Lessuer OU=Amazon Web Services O\=Amazon.com Inc. L\=Seattle ST\=Washington C\=US Subject CN=AWS IoT Certificate Create date Oct 3, 2019 3:25:12 PM +0800 Effective date Oct 3, 2019 3:23:12 PM +0800	Non-compliance	arn:aws:iot:ap-northeast-1:784786804561:cert/f877784fc538ede3b846a3a	9 Start transfor
Details  Subject CN=AWS IoT Certificate Create date Oct 3, 2019 3:25:12 PM +0800 Effective date Oct 3, 2019 3:23:12 PM +0800			Attach policy
Issuer     Delete       OU=Amazon Web Services O\=Amazon.com Inc. L\=Seattle ST\=Washington C\=US       Subject       CN=AWS IoT Certificate       Create date       Oct 3, 2019 3:25:12 PM +0800       Effective date       Oct 3, 2019 3:23:12 PM +0800		Details	Attach thing
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Subject CN=AWS IoT Certificate Create date Oct 3, 2019 3:25:12 PM +0800 Effective date Oct 3, 2019 3:23:12 PM +0800		OU=Amazon Web Services O\=Amazon.com Inc. L\=Seattle ST\=Washington C\=US	Delete
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Oct 3, 2019 3:25:12 PM +0800 Effective date Oct 3, 2019 3:23:12 PM +0800		Create date	
Effective date Oct 3, 2019 3:23:12 PM +0800		Oct 3, 2019 3:25:12 PM +0800	
Oct 3, 2019 3:23:12 PM +0800		Effective date	
		Oct 3, 2019 3:23:12 PM +0800	

Attach the policy we created in previous step. Done.

aws Service	ces 🗸 Resource Groups 🖌 🦎	🗘 timchaoingics 🕶	Tokyo 🕶 Support 🗸	ě.
← tificates > f877	Attach policies to certificate(s)			Ģ
certificate f877784 active	Policies will be attached to the following certificate(s): f877784fc538ede3b846a3a96422f0671c69542a2130aec58ebd Choose one or more policies	c96e627c58a7	, Actions <del>-</del>	© (\$
Details Policies Things	Q Search policies	View		
Non-compliance	1 policy selected	Cancel Attach	1c69542a2:	

1.5. Get the MQTT endpoint of your account Choose **Settings** in navigation pane.

🖗 AWS IOT	Settings
onitor	Custom endpoint
board	This is your custom endpoint that allows you to connect to AWS IoT. Each of your Things has a REST API available at this e This is also an important property to insert when using an MQTT client or the AWS IoT Device SDK.
nage	Your endpoint is provisioned and ready to use. You can now start to publish and subscribe to topics.
eengrass	Endosint
cure	
fend	alevstx4u2pava-ats.lot.ap-nortneast-l.amazonaws.com
t	Logs
	2093
	You can enable AWS IoT to log helpful information to CloudWatch Logs. As messages from your devices pass through the broker and the rules engine, AWS IoT logs process events which can be helpful in troubleshooting.
	Role
	iot-logger
ftware	
ttings	
	warning

Copy the endpoint string, we will use it the set up iGS01 later.

#### 2. Setting AWS IoT on iGS01

2.1. Settings on Applications Page

BLE-WIFI Wi	-Fi	Network	Applications	Advan	ced System	n Reboot	
Application							
Applicati	ion	MQTT Clie	ent 🔻				
Host	/IP	a1e0stx4u2	2pa0a-ats.iot.ap-		MQTT er	dpoint	
P	ort	8883			AWS lot	use port	8883
Publish Top	pic	testlab/igs0	)1				
Client	ID	BLE-WIFI_	65_52				
Usernar	me	username					
Passwo	ord	password					
MQT	TS	Enable	\$				
Root (	CA	AWS-loT			Select bu	ilt-in AW	/S-lot Root CA
Use Certifica	ate	Enable	/				
Request Inten (in sec	val cs)	0					
Drop reports wh	nile	-					

2.2. Upload Private Key & Certificate downloaded from AWS IoT in step 1.2

Config Panel		Axel _
	38.0.101/index.html#/advanced	☆ M 📕 て
F Filter		
RSSI	-100 dBm	
Payload Pattern		
Payload Mask		
	Save Cancel	
evice Key/Certificate U	odate	
Existing Brief	BEGIN CERTIFICATE MIIDWTCCAkGgAwlBAgIUU+JnkNp4ahkRBeg/W/fGebPQtO EwDQYJKoZIhvcNAQEL BQAwTTFLMEkGA1UECwxCQW1hem9uIFdIYi	
	選擇檔案 未選擇任何檔案	
Certificate	Upload Certificate Clear Certificate	
Evistina Drief	BEGIN RSA PRIVATE KEY	
Existing Brief	MILES A ID A ALCO A OF A IVO AN E 1 E-IET DILLOV WOETIGID DI SV/DIC	
Existing Brief	DZ9KJqDWXMNHNaQeN qSLEh6DIZu/M+wLZshiw7QyzL4OrtQ	

- 2.3. Reboot and done
- 3. Check messages with MQTT Client
  - 3.1. Choose Test
  - 3.2. Enter the topic we set in step 2.2

aws	Services 🗸	Resource Groups 👻 🛠	🗘 timchaoingics 🗸 Tokyo 🖌 Support 🗸
AWS IOT		Subscriptions	Д
m		Subscribe to a topic	Subscribe         Image: Organization of the second se
Monitor		Publish to a topic	Devices publish MQTT messages on topics. You can use this client to
Onboard			Subscription tonic
Manage			testlab/igs01
Greengrass			
Secure			Max message capture 🕐
Defend			100
Act			Quality of Service (?)
Test			0 - This client will not acknowledge to the Device Gateway that
			messages are received
			<ul> <li>1 - This client will acknowledge to the Device Gateway that messages are received</li> </ul>
			MQTT payload display
Software			Display payloads as strings (more accurate)
Settings			Display raw payloads (in hexadecimal)

3.3. Click **Subscribe**, you should see the messages published from iGS01 device.,

AWS IOT	× +	-
← → C ap-northeas	t-1.console.aws.amazon.com/iot/home?reg	jion=ap-northeast-1#/test?topic=\$aws~2Fthings~2Figs 🛧 🖤 🏮 😈 🚦
AWS IOT	Kesource Groups      X      Subscribe to a topic      Publish to a topic      testlab/igs01      X	Limchaoingics × Tokyo × Support ×         Publish         Specify a topic and a message to publish with a QoS of 0.
Monitor Onboard Manage Greengrass		1 ( 2 "message": "Hello from AWS IoT console" 3 }
Secure Defend Act Test		testlab/igs01         Oct 3, 2019 4:23:30 PM +0800         Export         Hide           \$GPRP, F0F8F2CAD554, C3674946C293, -66,02010612FF0D0083BC29010         0AAAAFFFF000016020000         ••••••••••••••••••••••••••••••••••••
		testlab/igs01         Oct 3, 2019 4:23:30 PM +0800         Export         Hide           \$GPRP, 1804ED7D9C60, C3674946C293, -65, 02010612FF0D0083BC37010         08A09B709000017030000         08A09B7090000170300000         08A09B7090000170300000         08A0
Software Settings	$\vee$	testlab/igs01         Oct 3, 2019 4:23:29 PM +0800         Export         Hide           \$GPRP, 1804ED56240D, C3674946C293, -85, 02010612FF0D0083BC31010
Learn <b>R</b> Feedback <b>C</b> English (	(US) © 200	09C09B709000017030000 

#### **Revision History**

DATE	REVISION	CHANGES
Feb 11, 2019	1	Initial release
Oct 4, 2019	2	New AWS-IoT console