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Amazon Echo and Lambda

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Amazon Echo

- Wifi connected voice interaction device
- Is always listening for its name (“wake word”) and starts a session when heard
- Numerous built-in functions
 - Weather : “what is the weather?”
 - Traffic : “what is my commute”
 - Sports : “when do the Washington Nationals play?”
 - General queries : “how old is Cher?”
 - Numerous integrations available

Amazon Echo

- Skills store available to select skills
- Custom skills can be written
 - Alexa Skills Kit
 - AWS Lambda
 - NodeJS
 - Java
 - Python
- Skill can be hosted outside AWS (“any https endpoint”)

Amazon Echo

- Custom skill
 - Voice interaction model
 - Recognized words phases
 - “Slots” for “variables” supported

Amazon Echo

- Voice model
 - How might someone use your skill without being forced to exactly one expected phrase?
 - Intent schema
 - Sample utterances

Amazon Echo – Custom Skill

- Can be written and tested without an Echo
- Code required
 - Extend the AlexaSkill SDK
 - Codeindex.js
 - Event handlers
 - onSessionStarted
 - onLaunch
 - onSessionEnded
 - intentHandlers

Amazon Echo

- Code required
 - Textual response is converted to synthesized to voice

```
var speechOutput = {  
    speech: "say something",  
    type: AlexaSkill.speechOutputType.PLAIN_TEXT  
};  
response.tell(speechOutput);
```


Amazon Echo

- Output goes to CloudWatch log

Amazon Echo

- Demo
 - Simplest possible skill which when invoked just says something
 - “TheGreatLeaderSays”
 - Pick a random entry from a set of existing North Korean motivational phrases and speak it

Echo Skills Developer Screenshots

 // DEVELOPER CONSOLE

DOUG TOPPIN – DOUG TOPPIN

SIGN OUT

ENGLISH

DASHBOARD

APPS & SERVICES

REPORTING

SUPPORT

DOCUMENTATION

SETTINGS

My Apps

App Testing Service

Promotions

Security Profiles

Login with Amazon

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Alexa ^{New}

GameCircle

A/B Testing

Analytics

PC / Mac & Web Instant Access

Tester Management

Mobile Ads

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The Great Leader Says

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*Fields required for certification

[Getting started](#)

Skill Information



Interaction Model



Configuration



Test



Publishing Information



Privacy & Compliance



Application Id

The ID for this skill

amzn1.echo-sdk-ams.app

Skill Type *

You can choose a Skill API or define the interaction model. [Learn more](#)

- ☒ Custom Interaction Model
- ☐ Smart Home Skill API

Name *

The name of this skill. This is the name displayed in the Alexa App.

The Great Leader Says

Invocation Name *

The name users will say to interact with this skill. This does not have to be the same as the skill name. The invocation name must comply with the [Invocation Name Guidelines](#)

great leader says

Save

Submit for Certification

Next

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Skill Information	✓
Interaction Model	✓
Configuration	✓
Test	✓
Publishing Information	⌵
Privacy & Compliance	⌵

*Fields required for certification

Intent Schema*

The schema of user intents in JSON format. For more information, see [Intent Schema](#). Also see [built-in slots](#) and [built-in intents](#).

```
1 {  
2   "intents": [  
3     {  
4       "intent": "TheGreatLeaderSaysIntent"  
5     },  
6     {  
7       "intent": "AMAZON.HelpIntent"  
8     }  
9   ]  
10 }  
11  
12
```

Custom Slot Types

Custom slot types to be referenced by the Intent Schema and Sample Utterances

For general information about custom slots, see [Custom Slot Types](#).

Example: TOPPINGS - cheese | onions | ham (note: newlines displayed as | for brevity)

Add Slot Type

Sample Utterances*

Phrases end users say to interact with the skill. For better results, provide as many samples as you can. Note that you must select three of these to use as your Example Phrases on the Description tab.

For more information, see [Sample Utterances](#).

```
1 TheGreatLeaderSaysIntent tell me something  
2 TheGreatLeaderSaysIntent motivate me  
3 TheGreatLeaderSaysIntent get my motivation
```

Save

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Skill Information	✓
Interaction Model	✓
Configuration	✓
Test	✓
Publishing Information	⏸
Privacy & Compliance	⏸

*Fields required for certification

Endpoint *

Lambda ARN url for Smart Home Adapter.

[More info about AWS Lambda](#)

[How to integrate AWS Lambda with Alexa](#)

☐ HTTPS ☒ Lambda ARN (Amazon Resource Name) ?

arn:aws:lambda: TheGreatLeaderSay:

Account Linking

Do you allow users to create an account or link to an existing account with you? [Learn more](#) *

☐ Yes ☒ No

Save

Submit for Certification

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Skill Information	✓
Interaction Model	✓
Configuration	✓
Test	✓
Publishing Information	⌵
Privacy & Compliance	⌵

Start testing this skill

Enable ☐ This skill is enabled for testing on your account. 

Once you have completed testing on your device, please complete the Description and Publishing Information tab, then submit the skill for certification.

If it passes Amazon's testing and certification process, it will become available to Alexa end users.

Try this on your Echo: Alexa ask great leader says

Voice Simulator

Hear how Alexa will speak a response entered in plain text or SSML. [Learn more about supported SSML tags.](#)

For example: Here is a word spelled out: `<say-as interpret-as="spell-out">hello</say-as>`.



Listen



Service Simulator

Use Service Simulator to test your lambda function.

Text

Json

Enter Utterance *



Ask The Great Leader Says

Reset

Lambda Request

```
1 {
2   "session": {
3     "sessionId": "SessionId.c98f9d77-e9e3-4d26-bc
4     "application": {
5       "applicationId": "amzn1.echo-sdk-ams.app.b4
6     },
7     "user": {
8       "userId": "amzn1.ask.account.AFP3ZWPOS2BGJR
9     },
10    "new": true
11  },
12  "request": {
13    "type": "IntentRequest",
14    "requestId": "Ed78e6a4-Id_c2ef303b_c6f10_456"
```

Lambda Response

```
1 {
2   "version": "1.0",
3   "response": {
4     "outputSpeech": {
5       "type": "PlainText",
6       "text": "Let us tend the precious seeds sow
7     },
8     "shouldEndSession": true
9   },
10  "sessionAttributes": {}
11 }
```



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*Fields required for certification

Skill Information	✓
Interaction Model	✓
Configuration	✓
Test	✓
Publishing Information	⌵
Privacy & Compliance	⌵

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Note: You can preview your skill's detail page in the Alexa App during development. In the Alexa App, click Skills, then find your skill in the list.

Short Skill Description *

A quick introductory description, which will be shown in the Alexa App in the main list of skills, along with the first example phrase you enter below. Maximum characters: 160

Full Skill Description *

Explanation of the skill's benefits, what it does, how it works, how the user gets started, and any prerequisites, such as an account with your company or particular hardware. Use a conversational tone and correct grammar and punctuation. This description is shown to users in the Alexa App, on the skill's detail card.

Example Phrases *

Important: Many developers fail certification due to this step so please read carefully. Provide three phrases from your Sample Utterances, with any slots filled in with a valid value. These are displayed on the detail card in the Alexa App and should teach users how to interact with the skill. Include the wake word and your invocation name in the first phrase.

Category *

The general area of functionality of this skill.

Keywords

Search terms used to increase the discoverability of your skill. Use a comma or white space to separate your terms.

Images

Small Icon *

108 x 108px PNG(with transparency) or JPG. This is displayed in the Alexa App.



Large Icon *

512 x 512px PNG (with transparency) or JPG. This



Echo Skills Developer Screenshots

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*Fields required for certification

Skill Information	✓
Interaction Model	✓
Configuration	✓
Test	✓
Publishing Information	⊙
Privacy & Compliance	⊙

Privacy

Does this skill allow users to make purchases or spend real money? * ☐ Yes ☐ No

Does this Alexa skill collect users' personal information? * ☐ Yes ☐ No

This includes anything that can identify the user: name, email, password, phone number, date of birth, etc.

Privacy Policy URL

Link to the Privacy Policy for this skill.

Terms of Use URL

Link to the Terms of Use for this skill.

Compliance

Export Compliance *

☐ I certify that this Alexa skill may be imported to and exported from the United States and all other countries and regions in which we operate our program or in which you've authorized sales to end users (without the need for us to obtain any license or clearance or take any other action) and is in full compliance with all applicable laws and regulations governing imports and exports, including those applicable to software that makes use of encryption technology.

Save

Submit for Certification

Lambda Console Screenshots

Lambda > Functions > TheGreatLeaderSays

ARN - arn:aws:lambda:us-east-1:123456789012:function:TheGreatLeaderSays

Test Actions

Code Configuration Event sources API endpoints Monitoring

It looks like your Lambda function "TheGreatLeaderSays" is unable to be edited inline, so you need to re-upload any changes. This may be because your file is too large or your zip file contains more than one file to edit. However, you can still invoke your function right now.

Code entry type ☒ Upload a .ZIP file ☐ Upload a file from [Amazon S3](#)

Function package

For files larger than 10 MB, consider uploading via S3.

Lambda Console Screenshots

[Lambda](#) > [Functions](#) > TheGreatLeaderSays

Test

Actions ▾

Code

Configuration

Event sources

API endpoints

Monitoring

Runtime

Node.js 4.3 ▾

Handler

index.handler

Role

lambda_basic_execution ▾

i

Description

Get a motivational phrase from the Great Le

▸ Advanced settings

Lambda Console Screenshots

Lambda > Functions > TheGreatLeaderSays ARN - arn:aws:l

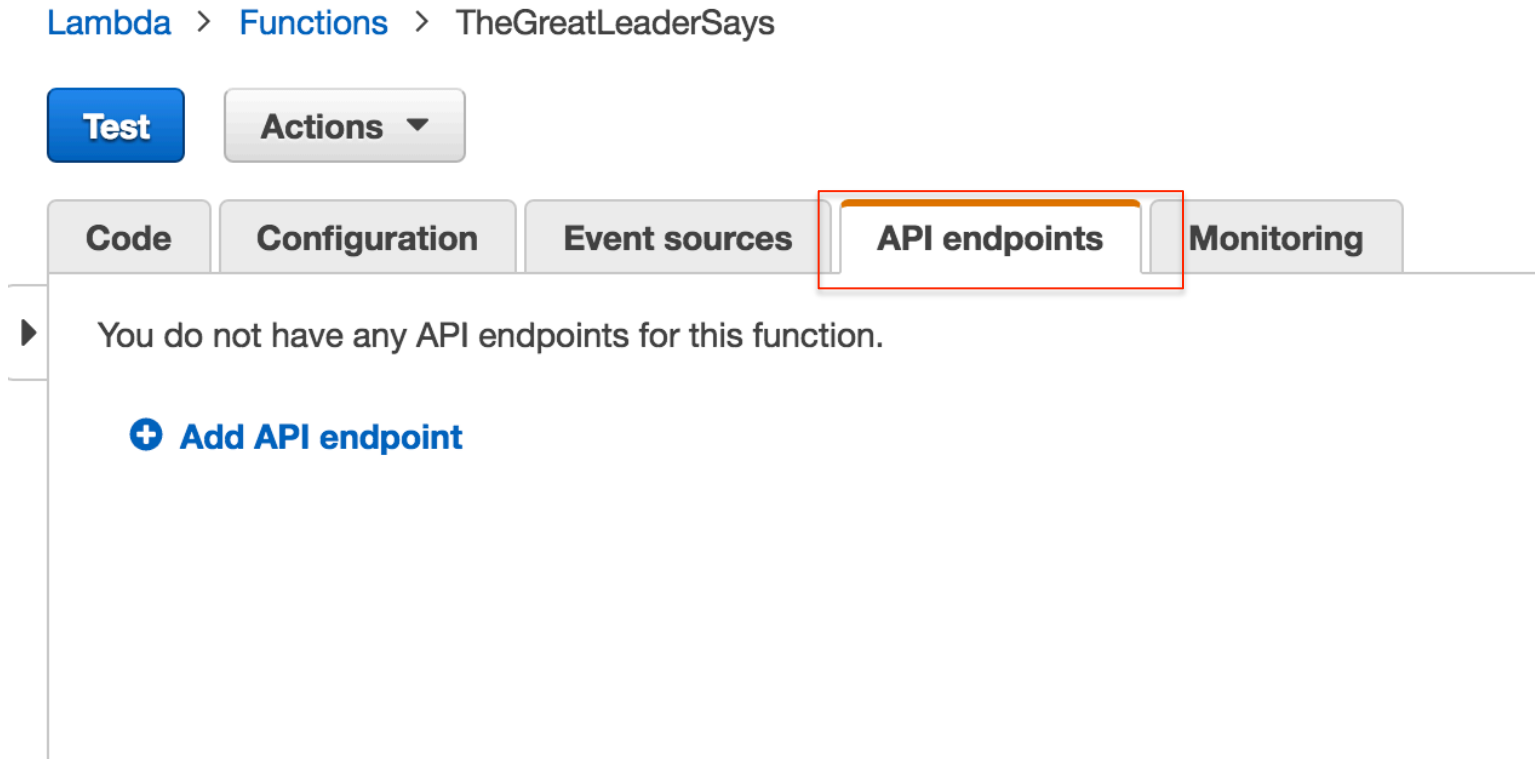
Test **Actions** ▼

Code **Configuration** **Event sources** **API endpoints** **Monitoring**

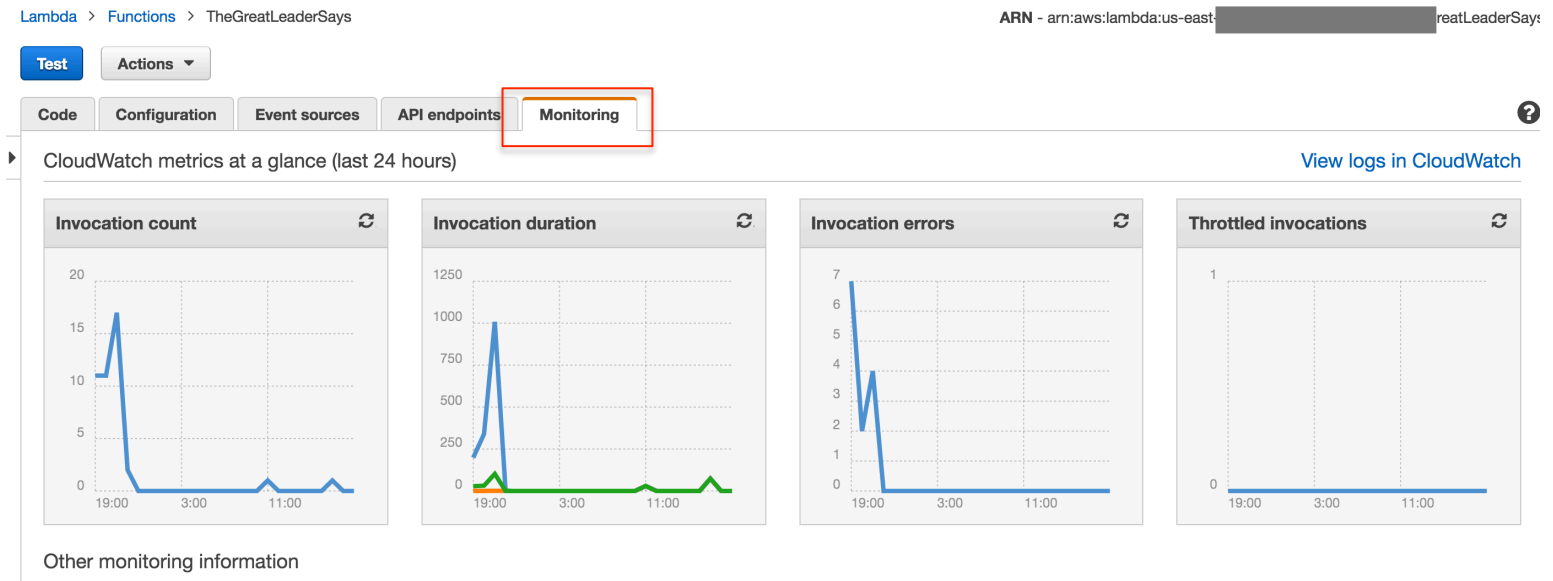
Event source	ARN	State	Details
Alexa Skills Kit			To configure the Alexa service to work with your Lambda function, go to the Alexa Developer portal.

[+ Add event source](#)

Lambda Console Screenshots



CloudWatch Screenshots



CloudWatch Screenshots

CloudWatch

Dashboards NEW

Alarms

ALARM

INSUFFICIENT

OK

Billing

Events NEW

Rules

Logs

Metrics

Selected Metrics

Billing

DynamoDB

Lambda

Logs

0

0

4

1

CloudWatch > Log Groups > Streams for /aws/lambda/TheGreatLeaderSays

Search Events

Create Log Stream

Delete Log Stream

Filter: Log Stream Name Prefix x

<input type="checkbox"/> Log Streams	Last Event Time
<input type="checkbox"/> 2016/04/18/[LATEST]75d55211359b429b919524a0959fe37a	2016-04-18 17:44 UTC-4
<input type="checkbox"/> 2016/04/18/[LATEST]eb4cfbce5a949d59c1ff54c302e1ce6	2016-04-18 11:40 UTC-4
<input type="checkbox"/> 2016/04/18/[LATEST]7e04fea01d434e9bbd2b8b6386cdc1c9	2016-04-17 22:13 UTC-4
<input type="checkbox"/> 2016/04/18/[LATEST]7cb69f568d1449298953bcbdf7da8aa	2016-04-17 21:39 UTC-4
<input type="checkbox"/> 2016/04/18/[LATEST]1cca2f7a4e90454f93295e84b86ca314	2016-04-17 21:34 UTC-4
<input type="checkbox"/> 2016/04/18/[LATEST]279ae28c618e4184b14dc95e405cc4a9	2016-04-17 21:28 UTC-4
<input type="checkbox"/> 2016/04/18/[LATEST]bb5e8373217f4ed59632f04e1c51e962	2016-04-17 21:27 UTC-4
<input type="checkbox"/> 2016/04/18/[LATEST]f105c6ba5a264abb977b088c5310fd79	2016-04-17 21:21 UTC-4
<input type="checkbox"/> 2016/04/18/[LATEST]6c16124ff7044645a8f697cd0431ac2a	2016-04-17 21:20 UTC-4
<input type="checkbox"/> 2016/04/18/[LATEST]42d196de8f184101a2a5f3a553f730ad	2016-04-17 21:12 UTC-4

CloudWatch Screenshots

CloudWatch > Log Groups > **Streams for /aws/lambda/TheGreatLeaderSays** > Events for 2016/04/18/[LATEST]75d5521...

Filter: Search for events x Date/Time: 2016/04/18 17:44:51 Local (GMT-04:00) [Navigation icons]

Event Data

- ▼ START RequestId: c6f2d4b6-05ae-11e6-8428-c7d0d60b53e6 Version: \$LATEST
- ▼ 2016-04-18T21:44:51.442Z c6f2d4b6-05ae-11e6-8428-c7d0d60b53e6 session applicationId: amzn1.echo-sdk-ams.app.b47f9996-f541-422b-8925-8adc50d427ba
- ▼ 2016-04-18T21:44:51.443Z c6f2d4b6-05ae-11e6-8428-c7d0d60b53e6 TheGreatLeaderSays onSessionStarted requestId: EdwRequestId.e3af392b-cf40-456b-9a11-74215dc79b33, sessionId: SessionId.c98f9d77-e9e3-4d26-bc2a-966042a04f2c
- ▼ 2016-04-18T21:44:51.444Z c6f2d4b6-05ae-11e6-8428-c7d0d60b53e6 dispatch intent - TheGreatLeaderSaysIntent**
- ▼ 2016-04-18T21:44:51.444Z c6f2d4b6-05ae-11e6-8428-c7d0d60b53e6 the message was:Let us tend the precious seeds sown by the great Comrade Kim Jong Ilfor the building of an economic giant and the improvement of the peoples living standards, in order to make them bear fruit in reality!
- ▼ END RequestId: c6f2d4b6-05ae-11e6-8428-c7d0d60b53e6
- ▼ REPORT RequestId: c6f2d4b6-05ae-11e6-8428-c7d0d60b53e6 Duration: 73.42 ms Billed Duration: 100 ms Memory Size: 128 MB Max Memory Used: 45 MB

References

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- <http://tobuildsomething.com/2015/08/14/Amazon-Echo-Alexa-Tutorial-The-Definitive-Guide-to-Coding-an-Alexa-Skill/>