

# Alexa Skills for the Amazon Echo

A brief overview  
Written at night  
With beer

# What is Amazon Echo?

Wireless Internet-connected speaker

Always-on microphone array with Amazon cloud-based voice recognition software.

'Alexa' voice interface.

Out of the box services:

Music, podcasts, news, Audible books, calendar, alarms and timers, IFTTT triggers, home automation, and answers to some general queries.



# Echo Apps

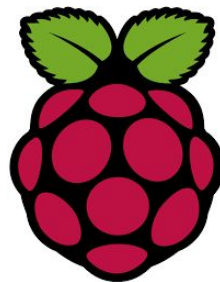
Echo apps are called Alexa Skills.

Alexa Skills are AWS Lambda functions.

Amazon provides Alexa Skills Kit SDK, end-to-end tutorials, live webinars.

Skills may be published for others to use.

Alexa Voice Service (AVS) allows sound-enabled devices to access Skills, you don't have to have an Echo to use voice interaction.



Interactions start with a phrase:

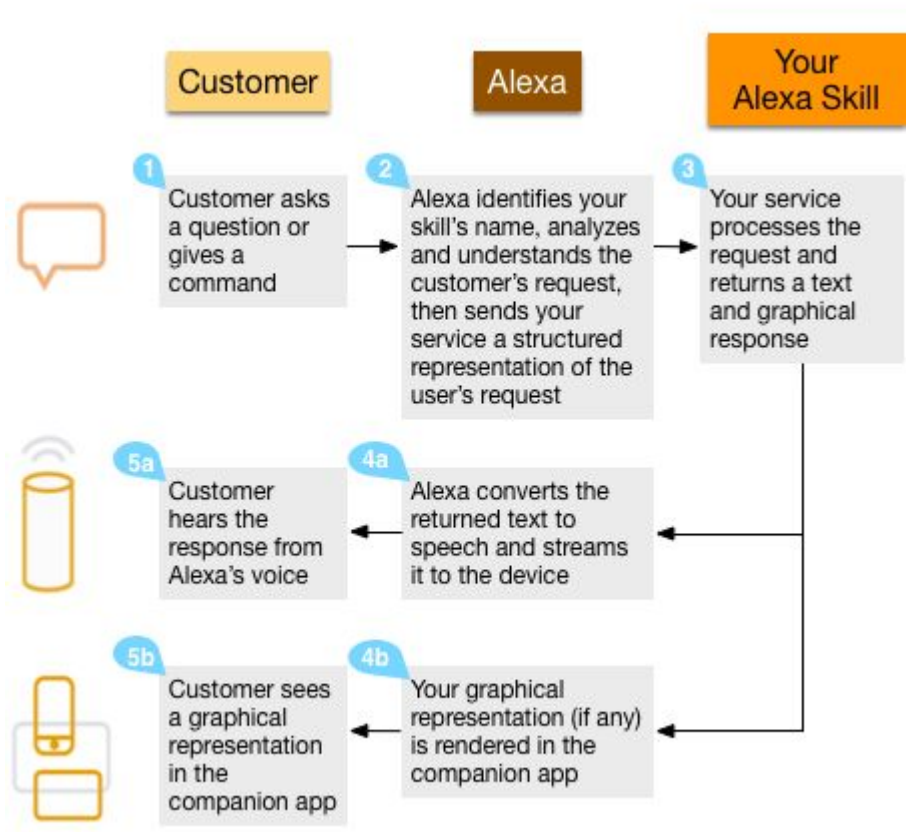
**Tell** <name> **to/that** <command>

**Tell** <name>

**Ask** <name> **to/about/for/if** <command>

Also **Play, Talk to, Open, Launch, Start, Use, Resume, Run, Load, Begin.**

Skill may return text-to-speech to the voice interface, or graphical content to the companion app.

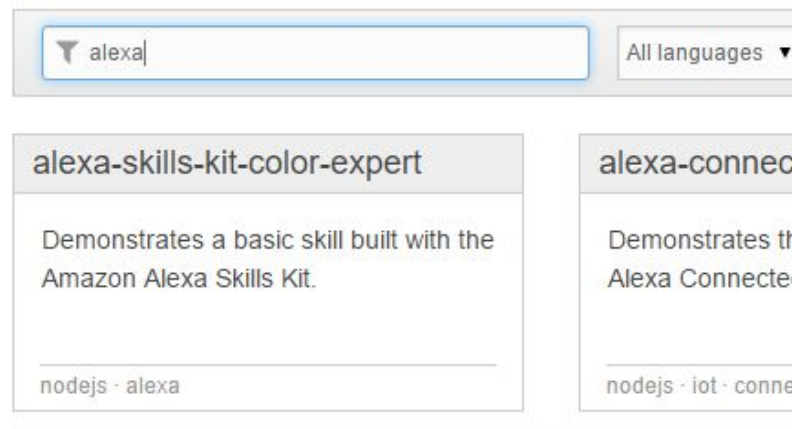


# The core, Amazon Lambda

In the AWS Console create a new Lambda function and pick an Alexa blueprint.

The blueprint code demonstrates how to interact with the Alexa Skills Kit interface.

Alexa Skills Kit can also connect to a web API instead of a Lambda function.



Configure the basic settings and create the function.

Editing of skill code is done here, configuration of skill activation phrases is done elsewhere, in the Alexa Skills Kit.

## Configure function

A Lambda function consists of the custom code you want to execute. [Learn more](#)

Name\*

alexaRepeat

Description

Demonstrates a basic skill built with th

Runtime\*

Node.js

## Lambda function code

Provide the code for your function. Use the editor if your code does not re libraries, you can upload your code and libraries as a .ZIP file. [Learn more](#)

Code entry type



Edit code inline



Upload a .Z

```
1  /**
2   * This sample demonstrates a simple skill built with
3   * The Intent Schema, Custom Slots, and Sample Uttera
4   * testing instructions are located at http://amzn.to
5   *
6   * For additional samples, visit the Alexa Skills Kit
7   * http://amzn.to/1LGWsLG
```

Wi not trei a holiday in Sweeden this yer ?

## Get the **ARN**

The ARN links the skill definition in the Alexa Skills Kit to the Lambda function.

AWS Services Edit David Knaack N. Virginia Support

Lambda > Functions > alexaRepeat

Test Actions

Congratulations! Your Lambda function "alexaRepeat" has been successfully created and configured with Alexa Skills Kit as an event source.

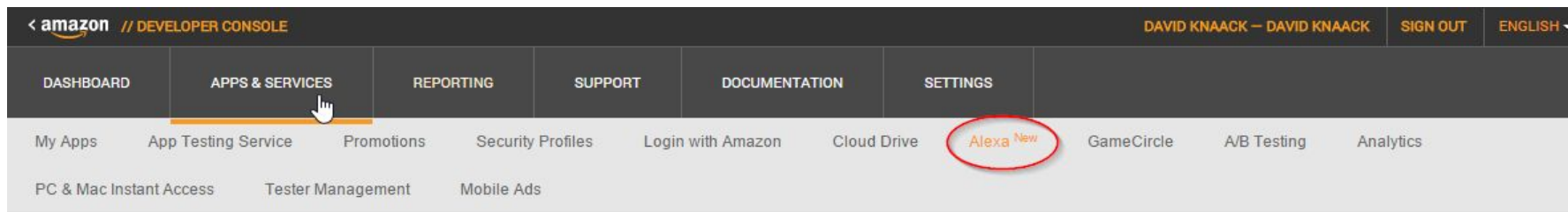
Code Configuration Event sources API endpoints Monitoring

Event source	ARN	State	Details
Alexa Skills Kit	arn:aws:lambda:us-east-1:268514822598:function:alexaRepeat		To configure the Alexa service to work with your Lambda function, go to the <a href="#">Alexa Developer</a> portal.

See the lovely lakes

# Create the Skill that will use the Lambda function

In the **Amazon Developer Console**, add a new skill



## Building Alexa Skills with the Alexa Skills Kit

Add a New Skill

To learn more about building Alexa skills, see [Getting Started with the Alexa Skills Kit](#). To start building an Alexa skill for free using AWS Lambda, see [Developing an Alexa Skill as a Lambda Function](#).

We encourage you to visit the [Alexa Developer Forum](#) to collaborate with Alexa team members and fellow Alexa developers.

This can be hard to find, it's not in the AWS Console

<https://developer.amazon.com/edw/home.html#/skills/list>

The wonderful telephone system



Follow the instructions.

Set the name of the skill and the Invocation Name.

Enter the Lambda ARN to connect the skill to the Lambda function

✓ **Name \***  
The name of this skill. This is the name displayed in the Alexa App.

**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](#)

**Version**  
The serial number of the skill e.g. 1.0, 1.1

**Endpoint \***  
The URL for the service endpoint, e.g. <https://myskill.ishere.com/somepath>, or the Lambda ARN, [More info about AWS Lambda](#) [How to integrate AWS Lambda with Alexa](#)

☐ HTTPS ☒ **Lambda ARN (Amazon Resource Name) ?**

Repeat

repeat

0.1

arn:aws:lambda:us-east-1:268514822598:function:alexaRepeat

Save

Next

# Intents, Slots, and Sample Utterances

An Intent is one of the functions of your Skill

A Slot is an argument for an Intent

Slots have names and types

Types may be predefined or custom

Sample Utterances define patterns and mappings that let the skills kit match an utterance to an intent and populate slots.

AMAZON.LITERAL is special and uses sample slot values with the slot name

Including the majestic moose

## Intent Schema\*

The schema of user intents in JSON format.

For more information, see [Defining the Voice Interface for an Alexa skill](#). ?

```
1 {  
2   "intents": [  
3     {  
4       "intent": "SAY",  
5       "slots": [  
6         {  
7           "name": "Phrase", "type": "AMAZON.LITERAL"  
8         }  
9       ]  
10    }  
11  ]  
12 }
```

## Custom Slot Types

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

For more information, see [Defining the Voice Interface for an Alexa skill](#).

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

## Sample Utterances\*

Phrases end users say to interact with this skill. For better results, provide as many samples as you can.

For more information, see [Defining the Voice Interface for an Alexa skill](#).

```
1 SAY say {something|Phrase}  
2 SAY say {what is the thing|Phrase}  
3 SAY say {how does walrus clam cat shell|Phrase}  
4 SAY say {are there apple ball when that all mine|Phrase}
```

## A more concrete example.

GetHoroscope what is the horoscope for {Sign}  
GetHoroscope what will the horoscope for {Sign} be on {Date}  
GetHoroscope get me my horoscope  
GetHoroscope {Sign}  
...  
GetLuckyNumbers what are my lucky numbers  
GetLuckyNumbers tell me my lucky numbers

```
{
  "intents": [
    {
      "intent": "GetHoroscope",
      "slots": [
        {
          "name": "Sign",
          "type": "LIST_OF_SIGNS"
        },
        {
          "name": "Date",
          "type": "AMAZON.DATE"
        }
      ]
    },
    {
      "intent": "GetLuckyNumbers"
    }
  ]
}
```

Aries  
Taurus  
Gemini  
Cancer  
Leo  
Pisces  
Virgo  
Libra  
Scorpio  
Sagittarius  
Capricorn  
Aquarius

"today": 2015-11-24  
"tomorrow": 2015-11-25  
"november twenty-fifth": 2015-11-25  
"next monday": 2015-11-30  
"this week": 2015-W48  
"next week": 2015-W49  
"this weekend": 2015-W48-WE  
"this month": 2015-11  
"next year": 2016  
"this decade": 201X

IntentName this is a sample utterance with no slots  
IntentName this is a sample utterance containing a {SlotName}  
IntentName this is a sample utterance containing a {SlotName} and {AnotherSlotName}

Custom slot values are converted to a standard form by the spoken language understanding system, not to the form you specify in the custom slot definition.

For example:

Slot Value	Spoken	Standard Form
four inch	four inch	4"
4 inch	four inch	4"
four star	four star	4 star
4-star	four star	4 star

Input to a custom slot type is weighted towards the values in the list, but it is **not** constrained to just the items on the list.

# Testing

The Alexa Skills Kit includes a test interface for submitting test utterances.

This one is failing.

Enter Utterance \*

say cat dog hog

Reset

Lambda Request

```
1 {
2   "session": {
3     "sessionId": "SessionId.1f382150-2c5e-4fe1-a073",
4     "application": {
5       "applicationId": "amzn1.echo-sdk-ams.app.a00a",
6     },
7     "user": {
8       "userId": "amzn1.echo-sdk-account.AH2FDV724XA",
9     },
10    "new": true
11  },
12  "request": {
13    "type": "IntentRequest",
14    "requestId": "EdwRequestId.8f742e18-bef1-4dc5-b",
15    "timestamp": "2016-01-15T06:55:59Z",
16    "intent": {
17      "name": "SAY",
18      "slots": {
19        "Phrase": {
20          "name": "Phrase",
21          "value": "cat dog hog"
22        }
23      }
24    }
25  }
```

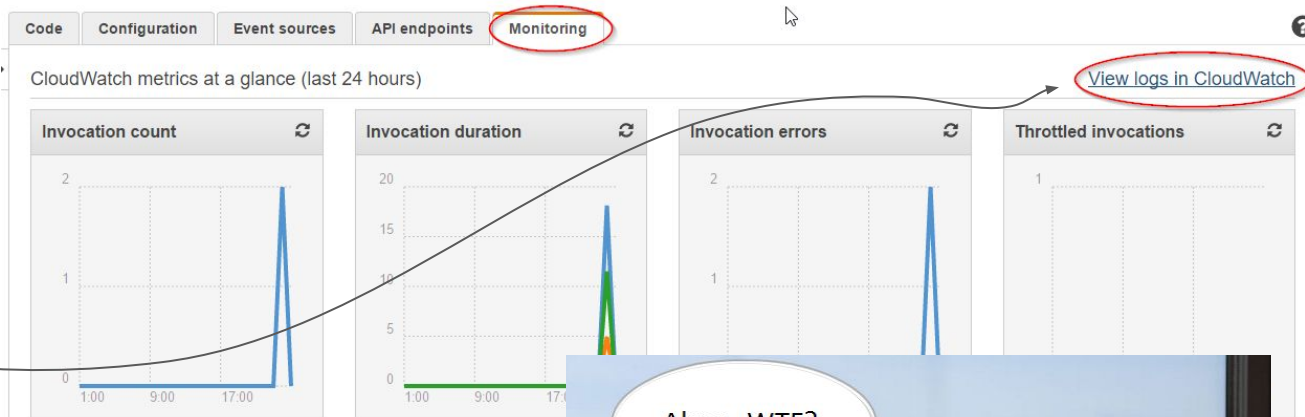
Lambda Response

```
1 The remote endpoint could not be ca
```

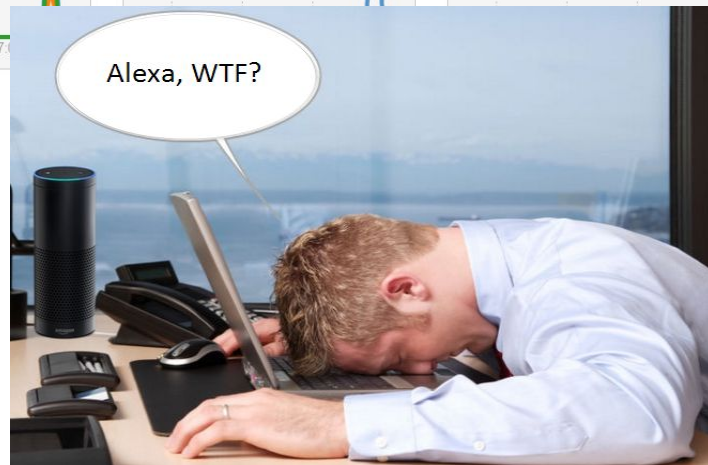
Listen

# Troubleshooting

AWS Console, Monitoring,  
CloudWatch.



```
▼ 2016-01-15T06:55:59.343Z 086cf200-bb55-11e5-ac46-f9f8c609b1a1
{
  "errorMessage": "Exception: Invalid intent"
}
▼ END RequestId: 086cf200-bb55-11e5-ac46-f9f8c609b1a1
▼ REPORT RequestId: 086cf200-bb55-11e5-ac46-f9f8c609b1a1 Duration:
27 MB
```



# Update the example code

The intent defined in the ASK does not match what the sample Lambda function is expecting.

```
{
  "intents": [
    {
      "intent": "SAY",
      "slots": [
        {
          "name": "Phrase",
        }
      ]
    }
  ]
}
```

```
70 ▾ /**
71   * Called when the user specifies an intent for this skill.
72   */
73 ▾ function onIntent(intentRequest, session, callback) {
74     console.log("onIntent requestId=" + intentRequest.requestId +
75         ", sessionId=" + session.sessionId);
76
77     var intent = intentRequest.intent,
78         intentName = intentRequest.intent.name;
79
80     // Dispatch to your skill's intent handlers
81     if ("MyColorIsIntent" === intentName) {
82         setColorInSession(intent, session, callback);
83     } else if ("WhatsMyColorIntent" === intentName) {
84         getColorFromSession(intent, session, callback);
85     } else if ("AMAZON.HelpIntent" === intentName) {
86         getWelcomeResponse(callback);
87     } else {
88         throw "Invalid intent";
89     }
90 }
```

Mynd you, moose bites Kan be pretti nasti...



So rewrite the sample code.

```
/**
 * Called when the user specifies an intent for this skill.
 */
function onIntent(intentRequest, session, callback) {
  console.log("onIntent requestId=" + intentRequest.requestId
    + ", sessionId=" + session.sessionId);

  var intent = intentRequest.intent,
      intentName = intentRequest.intent.name;

  // Dispatch to your skill's intent handlers
  if ("SAY" === intentName) {
    getSay(intent, session, callback);
  } else if ("HelpIntent" === intentName) {
    getWelcomeResponse(callback);
  } else {
    throw "Invalid intent";
  }
}
```



Enter Utterance \*

say cat dog hog



Ask Pete

Reset

### Lambda Request

```
1 {  
2   "session": {  
3     "sessionId": "SessionId.9b2a79d1-73d6-4ec9-a64t",  
4     "application": {  
5       "applicationId": "amzn1.echo-sdk-ams.app.d1a9",  
6     },  
7     "user": {  
8       "userId": "amzn1.account.AFL247WMSLMQHW3P6IAH",  
9     },  
10    "new": true  
11  },  
12  "request": {  
13    "type": "IntentRequest",  
14    "requestId": "EdwRequestId.a369ded9-c536-4787-b",  
15    "timestamp": "2016-01-15T06:56:30Z",  
16    "intent": {  
17      "name": "SAY",  
18      "slots": {  
19        "Phrase": {  
20          "name": "Phrase",  
21          "value": "cat dog hog"  
22        }  
23      }  
24    }  
25  }
```

### Lambda Response

```
2 "version": "1.0",  
3 "response": {  
4   "outputSpeech": {  
5     "type": "PlainText",  
6     "text": "cat dog hog"  
7   },  
8   "card": {  
9     "type": "Simple",  
10    "content": "SessionSpeechlet - cat dog hog",  
11    "title": "SessionSpeechlet - SAY"  
12  },  
13  "reprompt": {  
14    "outputSpeech": {  
15      "type": "PlainText",  
16      "text": null  
17    }  
18  },  
19  "shouldEndSession": true  
20 },  
21 "sessionAttributes": {}  
22 }
```

Listen



<https://github.com/davidknaack/AlexaRepeatII>

Moose Trained by Yutte Hermsgervordenbroti

Special Moose Effects Olaf Prot

Moose Costumes Siggie Churchill