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TALK TO ME !

ColdFusion and Amazon Alexa

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Amazon Alexa

Alexa, the voice service that powers Amazon Echo, provides capabilities that enable customers to interact with devices in a more intuitive way using voice.



Alexa Voice Services is also becoming quite literally the voice of thousands of devices - from thermostats, cars to appliances and more.



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Contents

This guide will show you, step-by-step, how to setup an Alexa skill to a ColdFusion backend using Amazon Lambda service.

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AMAZON ALEXA

Create the Amazon Alexa Skill, create your custom slots (variables) and utterances (suggested voice interactions).

2

AMAZON LAMBDA

Setup the Lambda function to respond to the Amazon Alexa Skill.

3

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Configure your Amazon Alexa Skill to trigger the Lambda function

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TESTING

Covers the different ways to test your new Amazon Alexa Skill.

5

WHERE TO FROM HERE ?

Resources for extending Amazon Alexa Skills



Step #1

Set up Your Alexa Skill in the Amazon Developer Portal

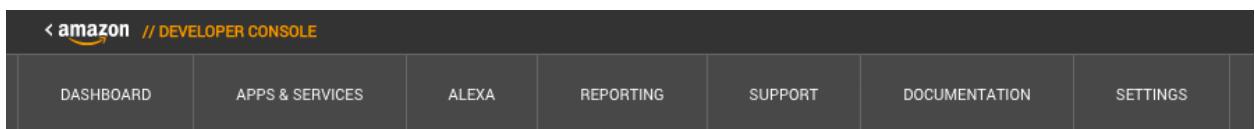
1. Go to the Amazon Developer Portal (developer.amazon.com).

In the top-right corner of the screen, click the "Sign In" button.

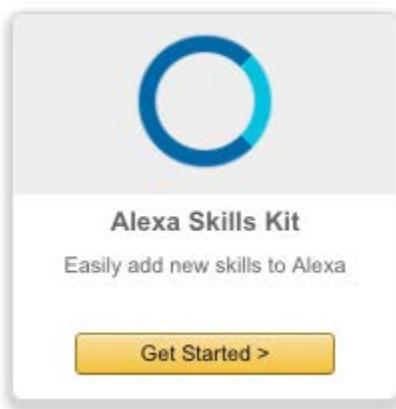
**If you don't already have an account, you will be able to create a new one for free*



2. Once signed in, go to the 'Developer Console'. Click the Alexa button at the top menu of the screen.



3. Once on the Alexa page, click the "Get Started" button for the Alexa Skills Kit.



4. Select "Add A New Skill" near the top right corner of the page.





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5. “Skill Information” *Follow instructions set out below.

Skill Information

Interaction Model	<input checked="" type="checkbox"/>
Configuration	<input checked="" type="checkbox"/>
SSL Certificate	<input checked="" type="checkbox"/>
Test	<input checked="" type="checkbox"/>
Publishing Information	<input checked="" type="checkbox"/>
Privacy & Compliance	<input checked="" type="checkbox"/>

Skill Type
Define a custom interaction model or use one of the predefined skill APIs. [Learn more](#)

Custom Interaction Model
 Smart Home Skill API
 Flash Briefing Skill API
 Video Skill API

Language
Language of your skill

Name
Name of the skill that is displayed to customers in the Alexa app. Must be between 2-50 characters.

Invocation Name
The name customers use to activate the skill. For example, “Alexa ask Tide Pooler...”.

Global Fields

These fields apply to all languages supported by the skill.

Audio Player
Does this skill use the audio player directives? Yes No
[Learn more](#)

Video App
Does this skill use the video app directives? Yes No
[Learn more](#)

Render Template
Does this skill use the Render Template directives? Yes No
[Learn more](#)

Save

- a. **Skill Type** Select the “Custom Interaction Model”. This is the default choice.
- b. **Language** Select English. (You can add additional languages in the future).
- c. **Name** This is the name that will be shown in the Alexa Skills Store.
- d. **Invocation Name** This is the name that your users will need to say to launch your skill.
- e. **Global Fields** We won’t be using Audio, Video, or Templates, so leave these options selected as ‘No’.

6. Click **Save** and **Next**



7. “Interaction Model”

Click on the “Launch Skill Builder” button . This will launch the Skill Builder Dashboard.

The screenshot shows the 'Skill Information' section of the Alexa Skills Kit interface. It includes tabs for 'Skill Information', 'Interaction Model' (which is selected and highlighted in orange), 'Configuration', 'Test', 'Publishing Information', and 'Privacy & Compliance'. A callout box points to the 'Launch Skill Builder BETA' button, which is located next to a preview image of the Skill Builder interface. The preview shows a complex flowchart-like diagram with various nodes and connections. Below the preview, there is a section titled 'Intent Schema' with a link to the schema documentation.

a. **Intents** *Think of “Intents” as functions

You will see 3 intents already there. These are Amazons default intents and are required.

- AMAZON.CancelIntent
- AMAZON.HelpIntent
- AMAZON.StopIntent

a. Click on the "Add+" button near **Intents** on the top left corner of the dashboard, or the "Add an Intent" button in the dashboard's Intents ist

The screenshot shows the 'Dashboard' view of the Skill Builder Beta interface. At the top, there is a navigation bar with tabs for 'Skill Information', 'Interaction Model', 'Configuration', 'Test', 'Publishing', and 'Privacy & Compliance'. Below the navigation bar, there is a sidebar with a 'Code Editor' tab and a 'Dashboard' tab, which is currently selected. The main area is divided into two sections: 'Intents' and 'Slot Types'. The 'Intents' section shows '3 built-ins' and '0 custom'. To the right of this section is a button labeled 'Add an Intent +'. The 'Slot Types' section shows '0 built-ins' and '0 custom'.



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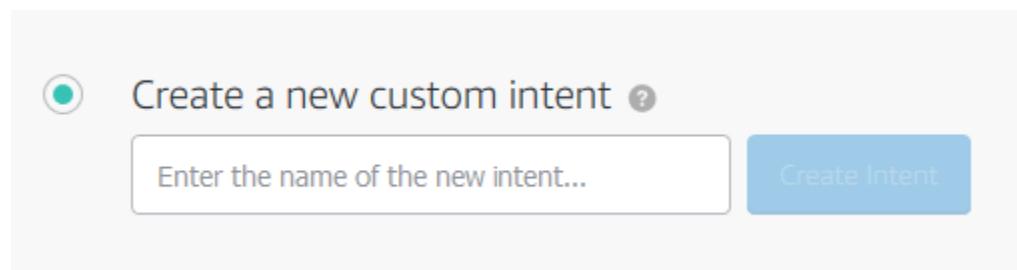
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- b. In the textbox, enter the new intent name: GetOccupancyIntent., and click the "Create Intent" button.



c. **Utterances**

Add 4 or 5 sample utterances for your intent. These are the things a user would say to trigger this intent. Here are a few examples:

- "Get me occupancy for {selectedProperty} for {weekEnding}"
- "Whats the occupancy for {selectedProperty} for {weekEnding}"
- "What was the occupancy for {selectedProperty} for {weekEnding}"

**Slots are denoted within curly braces*

Sample Utterances (0) ?

Get me occupancy for {selectedProperty} for {weekEnding}

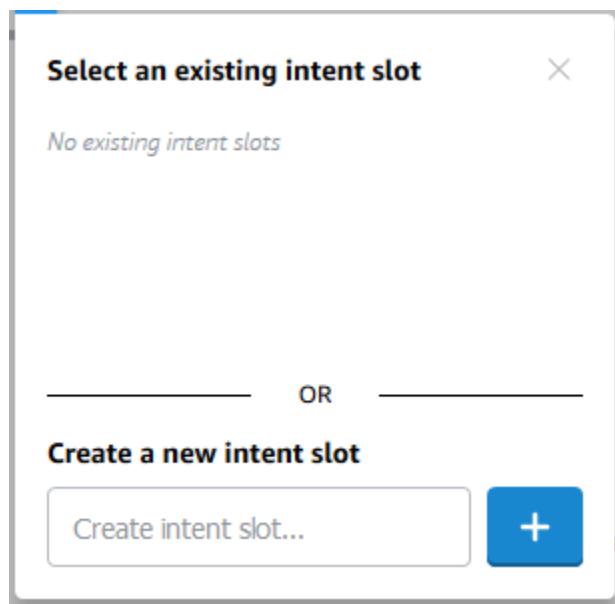
+

Click the "+" to add each utterance.

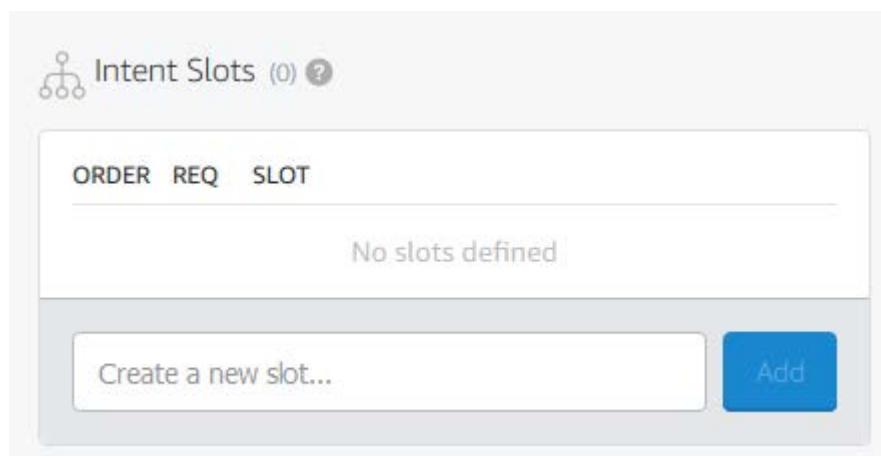


- d. **Slots** **Think of "Slots" as variables to be passed in to Intents (functions)*

As you type curly braces, you will have the option to select any existing slots, or create a new one.



You can also add slots by entering the name and clicking “Add” in the “Intent Slots” section on the right of the page.





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- e. Create a new slot named "weekEnding"

Once added, select AMAZON.DATE as the slot type.

The screenshot shows the 'Intent Slots' section of a configuration tool. A modal window titled 'Select an option' is open, displaying a list of slot types. The slot 'weekEnding' is currently selected in the main list, and its slot type, 'AMAZON.DATE', is highlighted in the dropdown menu. The modal also includes a search bar and a button to create a new slot type.

Slot Type
AMAZON.DATE
AMAZON.Actor
AMAZON.AdministrativeArea
AMAZON.AggregateRating
AMAZON.Airline
AMAZON.Airport
AMAZON.Animal
AMAZON.Artist
AMAZON.AT_CITY



- f. Create a new slot named "selectedProperty"
Once added, in the textbox saying "Create a new slot type...."
type "propertyList" as the slot name, and click the "+" sign.

Intent Slots (2) ?

ORDER	REQ	SLOT
■ -	<input type="checkbox"/>	weekEnding
■ -	<input type="checkbox"/>	selectedProperty

Choose a slot type... ▾

Choose a slot type... ▾

Select an option

Search slot types...

- AMAZON.DATE
- AMAZON.Actor
- AMAZON.AdministrativeArea
- AMAZON.AggregateRating
- AMAZON.Airline
- AMAZON.Airport
- AMAZON.Animal
- AMAZON.Artist
- AMAZON.AT_CITY

propertyList



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- g. Click on the newly created slot on the left side menu, under "Slot Types"

The screenshot shows the Kinetic InterActive interface's left sidebar. At the top, there are three icons: a monitor, an envelope, and a phone. Below them are the website URL (www.kinetic-interactive.com), email (info@kinetic-interactive.com), and phone number (+ 866 586 0999). To the right of these is the company name 'Kinetic InterActive'. Further right is a rocket ship icon above the page number '11'. The main area is a sidebar titled 'Slot Types (2)'. It lists two items: 'weekEnding' and 'selectedProperty', each with a delete icon. Below this is a section for 'AMAZON.DATE' with its own delete icon. The 'propertyList' item is highlighted with a teal background and has its own delete icon. An 'ADD +' button is located at the top right of the sidebar.

- weekEnding
- selectedProperty

Slot Types (2) ADD +

AMAZON.DATE

propertyList

- h. In the textbox enter "Autumn Ridge" and click the "+" sign.

propertyList

Enter a new value for this slot type...



i. Synonyms (Entity Resolution)

Once added, you can also enter an ID value and add speech values that will map to the original list value. Add the ID and synonyms as shown below.

propertyList

Slot Values (5)



Enter a new value for this slot type...



VALUE

ID (OPTIONAL)

SYNONYMS

Autumn Ridge

3001

Enter synonym...



Autumn Ridge

Autumn Ridge Apartments





j. Repeat the process to add more list values as follows;

- Value: *Regency Park*
ID: 3002
Synonym: *Regency Park Apartments*
- Value: *Riverbend*
ID: 3003
Synonym: *Riverbend Apartments*
- Value: *Lincoln Square*
ID: 3004
Synonym: *Lincoln Square Apartments*
- Value: *Parkview*
ID: 3005
Synonym: *Parkview Apartments*

* To create the full skill interaction with all intents and slots and synonyms, cut and paste the following file into the 'code editor' -

https://github.com/kevindwright/cf-alexa-http-web-service/blob/master/Alexa/alexa_skill.json

Step #2

Set up Your Lambda function in the AWS Portal

1. Go to the Amazon Web Services Portal (aws.amazon.com).

In the top-right corner of the screen, click the "Sign In to the Console" button.

*If you don't already have an account, you will be able to create a new one for free

Sign In to the Console



2. Select "Lambda" from the list of services, or just start typing "Lambda" to filter the list.

The screenshot shows the AWS Services console. At the top, there is a search bar with the placeholder text "Find a service by name or feature (for example, EC2, S3 or VM, storage)." Below the search bar, there are two main sections: "Recently visited services" and "All services". The "Compute" section contains EC2, EC2 Container Service, Lightsail, Elastic Beanstalk, Lambda, and Batch. The "Developer Tools" section contains CodeStar, CodeCommit, CodeBuild, CodeDeploy, CodePipeline, and X-Ray. The "Internet of Things" section contains AWS IoT and AWS Greengrass. The "Contact Center" section contains Amazon Connect. The "Storage" section contains S3. The "Management Tools" section contains CloudWatch. The "Game Development" section contains Amazon GameLift. A red arrow points from the text "Select 'Lambda' from the list of services" to the Lambda link in the Compute section. Another red arrow points from the text "Just start typing 'Lambda'" to the search bar.

3. **Check your AWS region.** AWS Lambda only works with the Alexa Skills Kit in two regions: US East (N. Virginia) and EU (Ireland).

The screenshot shows the AWS Lambda service settings. In the top right corner, there is a dropdown menu labeled "N. Virginia". A red arrow points from the text "Just start typing 'Lambda'" to this dropdown menu. A second red arrow points from the text "Select the correct region" to the "N. Virginia" label. A third red arrow points from the text "Check your AWS region" to the "N. Virginia" label. A fourth red arrow points from the text "AWS Lambda only works with the Alexa Skills Kit in two regions: US East (N. Virginia) and EU (Ireland)." to the "N. Virginia" label. The dropdown menu lists various AWS regions: US East (N. Virginia), US East (Ohio), US West (N. California), US West (Oregon), Canada (Central), EU (Ireland), EU (Frankfurt), EU (London), Asia Pacific (Singapore), Asia Pacific (Sydney), Asia Pacific (Seoul), Asia Pacific (Tokyo), Asia Pacific (Mumbai), and South America (São Paulo). The "US East (N. Virginia)" option is highlighted with a yellow background.



- Click the "Create function" button. It should be near the top right of your screen. (If you don't see this button, it is because you haven't created a Lambda function before. Click the blue "Get Started" button near the center of your screen.)

Create function

- Here you can select some boilerplate examples to get started. Skip these and click the "Author from scratch" button.

Author from scratch

- Give your function a name, select the "role" values as shown below and click "Create function"

Basic information [Info](#)

Name*

Role*
Defines the permissions of your function. Note that new roles may not be available for a few minutes after creation. [Learn more](#) about Lambda execution roles.

Existing role*
You may use an existing role with this function. Note that the role must be assumable by Lambda and must have Cloudwatch Logs permissions.

* These fields are required.



- If it isn't already selected, select "Edit code inline", Node.js 6.10 as the runtime and set index.handler as the Handler.

▼ Function code

Code entry type	Runtime	Handler Info
Edit code inline	Node.js 6.10	index.handler

```
index.js
1 exports.handler = (event, context, callback) => {
2     // TODO implement
3     callback(null, 'Hello from Lambda');
4 };
```

Cut and paste the contents of the following file, replacing all existing code.

<https://github.com/kevindwright/cf-alexa-http-web-service/blob/master/Lambda/lambda.js>

8. Configure Tests

Select "Configure test events" in the drop-down near the "test" button

Select a test event.. ▾ Test

Configure test events

- Create 3 test events by cutting and pasting contents of the associated files, replacing the existing code.

Configure test event X

A function can have up to 10 test events. The events are persisted so you can switch to another computer or web browser and test your function with the same events.

Create new test event
 Edit saved test events

Event template

Hello World

Event name

MyEventName

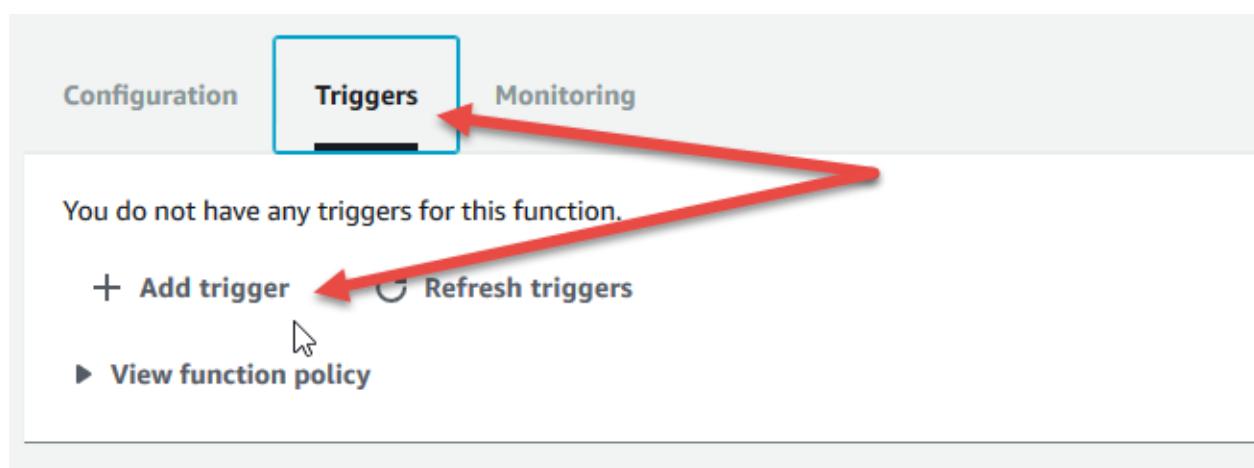
```
1 [{}]
2   "key3": "value3",
3   "key2": "value2",
4   "key1": "value1"
5 }
```



- Event name: **GetLocationTest**
<https://github.com/kevindwright/cf-alexa-http-web-service/blob/master/Lambda/getLocationTest.json>
- Event name: **getOccupancyTest**
<https://github.com/kevindwright/cf-alexa-http-web-service/blob/master/Lambda/getOccupancyTest.json>
- Event name: **getSummaryTest**
<https://github.com/kevindwright/cf-alexa-http-web-service/blob/master/Lambda/getSummaryTest.json>

10. Configure Trigger

Click on "Triggers" and click "+ Add trigger"





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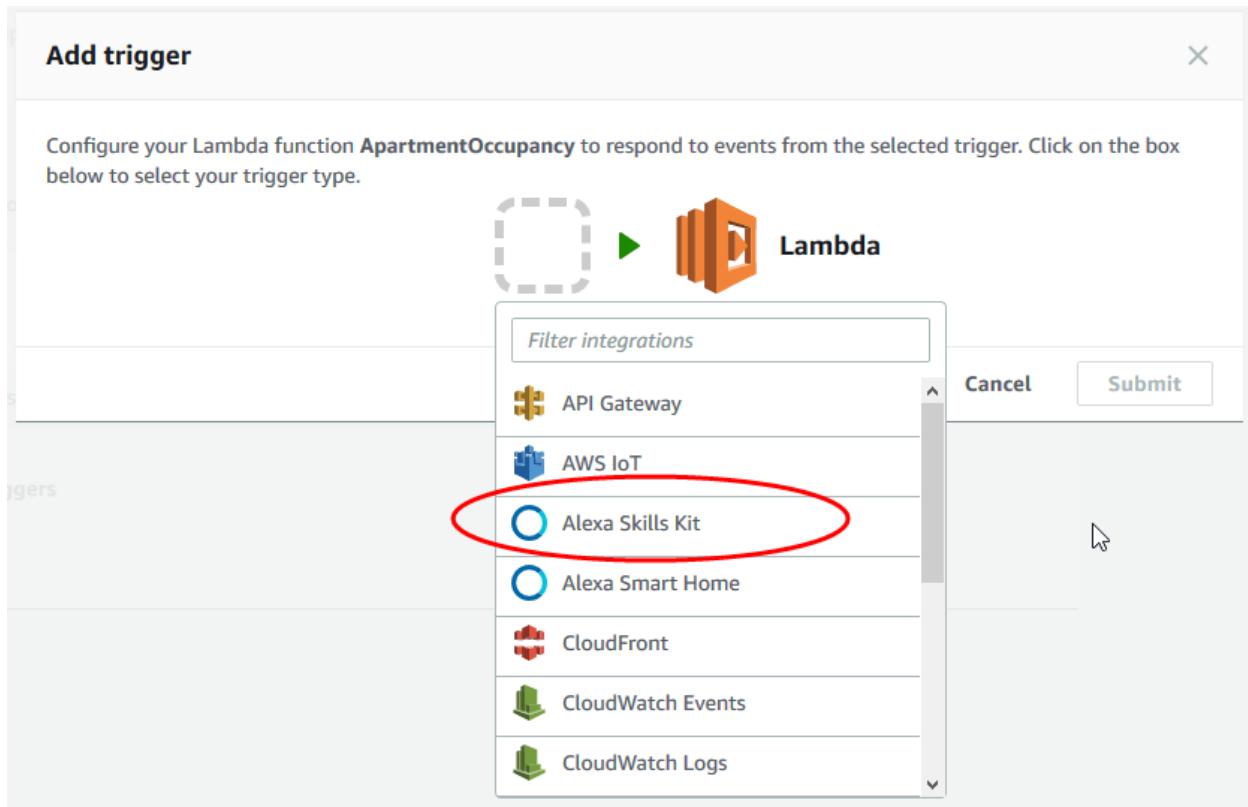
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11. Click in the dashed box, and select Alexa Skills Kit from the list.



Click "Submit"

Submit



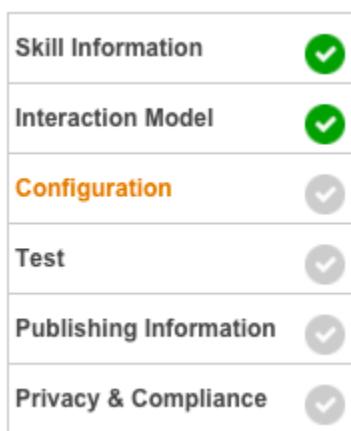
Step #3

Connect your Alexa skill to your Lambda function.

1. After you have created your Lambda function, an ARN value appears in the top right corner. Copy this value for use in the next steps.

The screenshot shows the AWS Lambda Functions interface. The path 'Lambda > Functions > ApartmentOccupancy' is visible at the top. Below it, the function name 'ApartmentOccupancy' is displayed. To the right are several buttons: 'Qualifiers ▾', 'Actions ▾', a dropdown menu set to 'getLocationTest ▾', and an orange 'Test' button. A red box highlights the ARN value 'ARN - arn:aws:lambda:us-east-1:707521359062:function:ApartmentOccupancy' located above the 'Actions' button.

2. Go back to the Amazon Developer Portal and select your skill from the list. You may still have a browser tab open if you started at the beginning of this tutorial.
3. Open the "Configuration" tab on the left side.





4. Configuration

- a. Select the "AWS Lambda ARN" option for your endpoint.
You have the ability to host your code anywhere that you would like using "https", but that is beyond the scope of this tutorial.
- b. Select "North America" as your geographical region.
IMPORTANT: Make sure you select the same region that you created your Lambda function in.
- c. Paste your Lambda's ARN (Amazon Resource Name) into the textbox provided. It should look similar to the screenshot on the next page.
- d. Leave "Account Linking" set to "No". For this skill, we won't be using Account Linking, but you can learn more about [Linking an Alexa User with a User in Your System](#).
- e. Leave all permissions options unchecked.

Global Fields

These fields apply to all languages supported by the skill.

Endpoint

Service Endpoint Type:

AWS Lambda ARN (Amazon Resource Name) i Recommended HTTPS

AWS Lambda is a server-less compute service that runs your code in response to events and automatically manages the underlying compute resources for you.

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

Default

Provide geographical region endpoints? (Optional) Yes No

Account Linking

Do you allow users to create an account or link to an existing account with you?

Yes No

[More info about Account Linking](#) [Tips for successful Account Linking](#)

Permissions

Request users to access resources and capabilities

Please request permissions to resources and capabilities that are absolutely core to the customer experience delivered by the skill.

[Learn More](#)

Device Address
 Full Address i
 Country & Postal Code Only i

Lists Read i
 Lists Write i



Step #4

Testing your Alexa Skill

1. Alexa Service Simulator

You can type an utterance within the 'service simulator' textbox on your skills "test" page. It will show you the JSON request and JSON response.

2. Echoism.io (<https://echosim.io>)

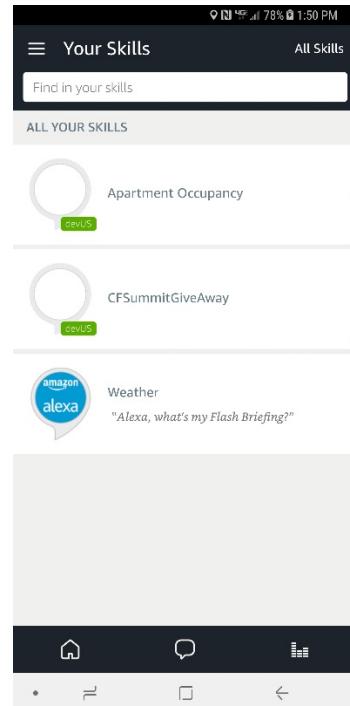
The Amazon Echo Simulator (Echosim.io) is a browser-based interface to Alexa. Echosim.io is intended to allow developers who are working with the Alexa Skills Kit (ASK) to test skills in development. While Echosim.io allows you to interact with Alexa, it is not a substitute for Alexa-enabled devices, like the Amazon Echo. For example, Echosim.io does not stream music or support far-field voice recognition.

3. Alexa-enabled Device

The best way to test your skill is with an Alexa-enabled device. On the Alexa App on your mobile device, go to "Your Skills". There you will see your skills listed.

*IMPORTANT -

You must sign-in to the Alexa App with the same email as you signed in with the developer.amazon.com console !!





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Step #5

Where to go from here

1. Alexa Skills Kit

Documentation, and code samples that makes it fast and easy for you to add skills to Alexa.

<https://developer.amazon.com/alexa-skills-kit>

2. Alexa Cookbook

A collection of tutorials and examples fro Rob McCauley,

<https://github.com/alexa/alexa-cookbook>

3. Hosting your own CF Code on HTTP

Steve Drucker from Fig Leaf Software's tutorial

https://experts.adobeconnect.com/_a204547676/p8zcgm583fx/



Our solutions are one part technology,
one part creativity,
and all business.