

How to Develop a Fact Skill for Alexa: Step-by-Step



We want to introduce another way to help you build useful and meaningful skills for Alexa quickly. We have launched a new fact skill template that makes it easy for developers or non-developers to create a skill similar to “Fact of the Day”, “Joke of the Day”, “Flash Cards” etc. The template leverages [AWS Lambda](#) and the [Alexa Skills Kit](#), while providing the business logic, use cases, error handling and help functions for your skill. You just need to come up with a fact idea (like “Food Facts”), plug in your fact list and edit the sample provided (we walk you through how it’s done). It’s a valuable way to quickly learn the end-to-end process for building and publishing an Alexa skill.

This tutorial will walk first-time Alexa skills developers through all the required steps involved in creating a skill using this fact skill template, called ‘SpaceGeek’. This post assumes you have some familiarity with JavaScript/Node.js (or a similar programming language) and the Alexa Skills Kit. For more background information on using the Alexa Skills Kit please [watch this video](#). For guidance on designing a voice experience with Alexa you can also [watch this video](#).

Using the Alexa Skills Kit, you can build an application that can receive and respond to voice requests made on the Alexa platform. In this tutorial, you’ll build a web service to handle notifications from Alexa and map this service to a Skill in the Amazon Developer Portal, making it available on your device and to all Alexa users after certification.

After completing this tutorial, you'll know how to do the following:

- **Create a fact-based skill** - This tutorial will walk first-time Alexa skills developers through all the required steps involved in creating a fact based skill using a template called ‘SpaceGeek’.
- **Understand the basics of VUI design** - Creating this skill will help you understand the basics of creating a working Voice User Interface (VUI) while using a cut/paste approach to development. You will learn by doing, and end up with a published Alexa skill. This tutorial includes instructions on how to customize the skill and submit for certification. For guidance on designing a voice experience with Alexa you can also [watch this video](#).
- **Use JavaScript/Node.js and the Alexa Skills Kit to create a skill** - You will use the template as a guide but the customization is up to you. For more background information on using the Alexa Skills Kit please [watch this video](#).

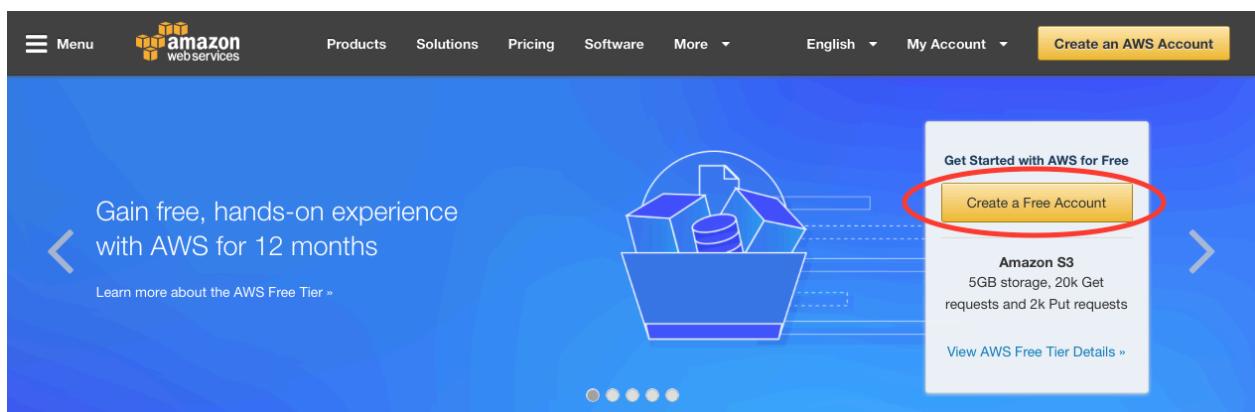
- **Get your skill published** - Once you have completed your skill, this tutorial will guide you through testing your skill and sending your skill through the certification process for making it available to be enabled by any Alexa user.

Let's Get Started

First, [download the code](#) and then follow the instructions **below**.

Step #1 – Create an AWS Account

1. Open aws.amazon.com and then choose ‘Create a Free Account’



- a. Follow the online instructions. Do not worry about the IAM role, we will do that later.
 - b. You will need a Valid Credit Card to set up your account (note the [AWS Free Tier](#) will suffice however. You can find out more about the [free tier here](#).)
 - c. Part of the sign-up procedure involves receiving a phone call and entering a PIN using the phone keypad.
2. Sign in to your Console



Sign In or Create an AWS Account

What is your e-mail or mobile number?

E-mail or mobile number:

I am a new user.

I am a returning user
and my password is:

Sign in using our secure server 

[Forgot your password?](#)



- a. It can sometimes take a couple minutes for your new AWS account to go live. You will receive an e-mail when your account is active.

Step #2 – Create a Lambda Function

AWS Lambda lets you run code without provisioning or managing servers. You pay only for the compute time you consume - there is no charge when your code is not running. With Lambda, you can run code for virtually any type of application or backend service - all with zero administration. Just upload your code and Lambda takes care of everything required to run and scale your code with high availability.

Note: If you are new to Lambda and would like more information, visit the [Lambda Getting Started](#) guide..

1. **IMPORTANT:** Select **US East (N. Virginia)** region (upper right). This is the only region that currently supports Alexa Skill development.

AWS Services

N. Virginia

Resource Groups Learn more

A resource group is a collection of resources that share one or more tags. Create a group for each project, application, or environment in your account.

Create a Group Tag Editor

Additional Resources

Getting Started Read our documentation or view our training to learn more about AWS.

Compute	Developer Tools	Internet of Things
EC2 Virtual Servers in the Cloud	CodeCommit Store Code in Private Git Repositories	AWS IoT Connect Devices to the Cloud
EC2 Container Service Run and Manage Docker Containers	CodeDeploy Automate Code Deployments	Game Development
Elastic Beanstalk Run and Manage Web Apps	CodePipeline Release Software using Continuous Delivery	GameLift Deploy and Scale Session-based Multiplayer Games
Lambda Run Code in Response to Events		
Storage & Content Delivery	Management Tools	Mobile Services
S3 Scalable Storage in the Cloud	CloudWatch Monitor Resources and Applications	Mobile Hub Build, Test, and Monitor Mobile Apps
CloudFront Global Content Delivery Network	CloudFormation Create and Manage Resources with Templates	Cognito User Identity and App Data Synchronization

- Select Lambda from Compute services (upper left)

AWS Services

Edit

Amazon Web Services

Compute	Developer Tools	Internet of Things
EC2 Virtual Servers in the Cloud	CodeCommit Store Code in Private Git Repositories	AWS IoT Connect Devices to the Cloud
EC2 Container Service Run and Manage Docker Containers	CodeDeploy Automate Code Deployments	Game Development
Elastic Beanstalk Run and Manage Web Apps	CodePipeline Release Software using Continuous Delivery	GameLift Deploy and Scale Session-based Multiplayer Games
Lambda Run Code in Response to Events		
Storage & Content Delivery	Management Tools	Mobile Services
S3 Scalable Storage in the Cloud	CloudWatch Monitor Resources and Applications	Mobile Hub Build, Test, and Monitor Mobile Apps
CloudFront Global Content Delivery Network	CloudFormation Create and Manage Resources with Templates	Cognito User Identity and App Data Synchronization
Elastic File System PREVIEW Fully Managed File System for EC2	CloudTrail Track User Activity and API Usage	Device Farm Test Android, FireOS, and iOS on Real Devices in the Cloud
Glacier Archive Storage in the Cloud	Config Track Resource Inventory and Changes	Mobile Analytics Collect, View and Export App Metrics
Import/Export Snowball Large Scale Data Transport	OpsWorks Automate Operations with Chef	SNS Push Notification Service
Storage Gateway Hybrid Storage Integration	Service Catalog Create and Use Standardized Products	
Database	Trusted Advisor Optimize Performance and Security	Application Services
		API Gateway Build, Deploy and Manage APIs

- Select “Create a Lambda Function” to begin the process of defining your Lambda function.

Create a Lambda function

Actions ▾

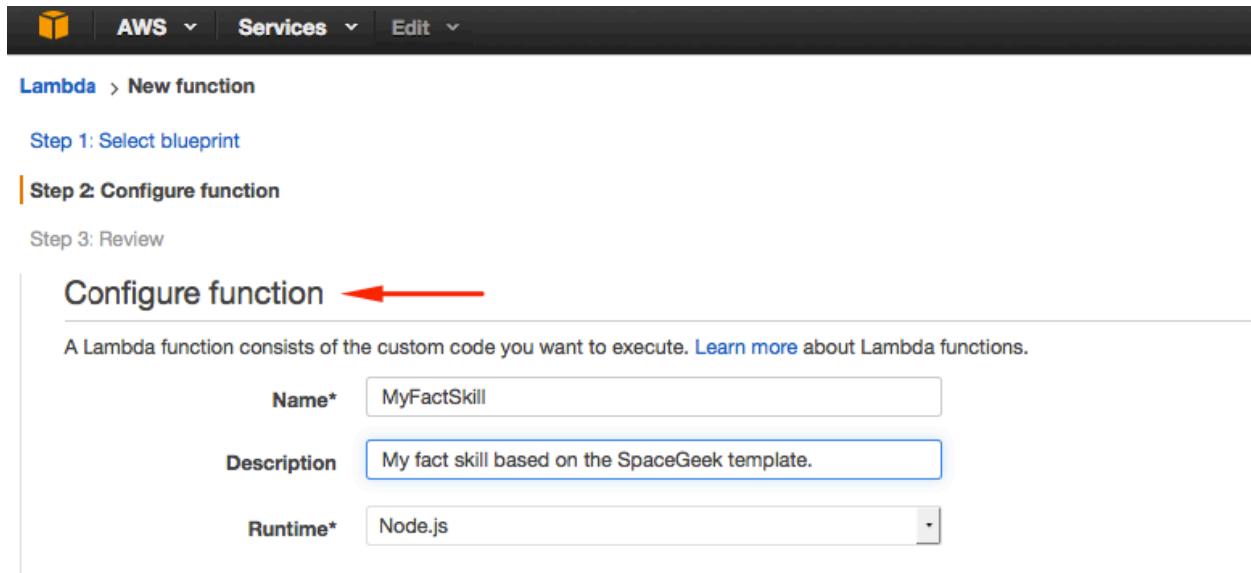
4. At the bottom of the ‘Select Blueprint’ page, select “Skip”

The screenshot shows the 'Select blueprint' step of creating a new Lambda function. The interface includes a top navigation bar with AWS services like IAM, S3, AWS IoT, CloudWatch, EC2, and Lambda. Below this, the path 'Lambda > New function' is shown. The main area is titled 'Step 1: Select blueprint' and contains a heading 'Select blueprint'. A descriptive text explains that blueprints are sample configurations of event sources and Lambda functions. A filter bar at the top allows filtering by language (All languages). A pagination indicator shows 'Viewing 1-9 of 40'. The blueprints listed are:

- s3-get-object-python: An Amazon S3 trigger that retrieves metadata for the object that has been updated. (python2.7 - s3)
- config-rule-change-triggered: An AWS Config rule that is triggered by configuration changes to EC2 instances. Checks instance types. (nodejs - config)
- dynamodb-process-stream: An Amazon DynamoDB trigger that logs the updates made to a table. (nodejs - dynamodb)
- microservice-http-endpoint: A simple backend (read/write to DynamoDB) with a RESTful API endpoint using Amazon API Gateway. (nodejs - api-gateway)
- node-exec: Demonstrates running an external process using the Node.js child_process module. (nodejs)
- slack-echo-command-python: A function that handles a Slack slash command and echoes the details back to the user. (python2.7 - api-gateway - slack)
- simple-mobile-backend: A simple mobile backend (read/write to DynamoDB). (nodejs - mobile)
- kinesis-process-record-python: An Amazon Kinesis stream processor that logs the data being published. (python2.7 - kinesis)
- splunk-kinesis-logging: Demonstrates logging events streamed from AWS Kinesis to Splunk's HTTP Event Collector. (nodejs - splunk - kinesis)

At the bottom right of the blueprint grid, there are 'Cancel' and 'Skip' buttons. The 'Skip' button is circled in red.

4. You should be in ‘Configure Function’



Lambda > New function

Step 1: Select blueprint

Step 2: Configure function

Step 3: Review

Configure function

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

Name*

Description

Runtime*

- a. Enter the Name, Description, and Runtime for your skill as in the example.
5. Select the ‘Code Entry Type’ as ‘Upload Zip File’ and upload the zip file containing the example. [Here’s the link again for reference](#). It should look like this:

Lambda > New function

Step 1: Select blueprint

Step 2: Configure function

Step 3: Review

Configure function

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

Name* MyFactSkill

Description My fact skill based on the SpaceGeek template.

Runtime* Node.js

Lambda function code

Provide the code for your function. Use the editor if your code does not require custom libraries (other than the aws-sdk). If you need libraries, you can upload your code and libraries as a .ZIP file. [Learn more](#) about deploying Lambda functions.

Code entry type Edit code inline Upload a .ZIP file Upload a .ZIP from Amazon S3

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

[Upload](#)

You have chosen to upload a .zip file but have not selected a file yet.

6. Set your handler and role as follows:

- a. Keep Handler as ‘index.handler’
- b. Add a new role called ‘lambda_basic_execution’ (Note: if you have already used Lambda you may already have a ‘lambda_basic_execution’ role created that you can use.)

Lambda function handler and role

Handler* index.handler

Role* lambda_basic_execution

Ensure that popups are enabled to create a new role. [Learn more](#) about Lambda execution roles.

7. You will be asked to set up your Identity and Access Management or “IAM” role if you have not done so. Follow the prompts to create a basic execution role for Lambda. AWS Identity and Access Management (IAM) enables you to securely control access to AWS services and resources for your users. Using IAM, you can create and manage AWS users and groups, and use permissions to allow and deny their access to AWS resources. We need to create a role that allows our skill to invoke this Lambda function.

The screenshot shows the AWS Lambda Role Summary page. At the top, there is a navigation bar with icons for Home, AWS, Services, and Edit. Below the navigation bar, a message reads "AWS Lambda requires access to your resources" followed by the sub-instruction "AWS Lambda uses an IAM role that grants your custom code permissions to access AWS resources it needs." A "Hide Details" button is present. The "Role Summary" section includes a "Role Description" field containing "Lambda execution role permissions", an "IAM Role" dropdown set to "Create a new IAM Role", and a "Role Name" input field containing "lambda_basic_execution". A link "▶ View Policy Document" is also visible.

8. Keep the Advanced settings as default

a. Select ‘Next’ and review. You should see something like below. Then select ‘Create Function’:

Review

Please review your Lambda function details. You can go back to edit changes for each section. When you are ready, click **Create function** to complete the setup process.

Lambda function

Edit

Name MyFactSkill

Description My fact skill based on the SpaceGeek template.

Runtime NodeJS

Handler index.handler

Role lambda_basic_execution

Memory (MB) 128

Timeout 3

Cancel

Previous

Create function

9. Next we need to create an Event source. *Event sources* publish events that cause the Lambda function to be invoked. Upon invocation, AWS Lambda executes your code by passing the event to the handler in your Lambda function code. You associate an event source with your Lambda function using an event source mapping. We will use the Alexa Skills Kit event source and map it to this function.

- In your Lambda function tabs, select ‘Event Sources’

The screenshot shows the AWS Lambda function configuration interface. At the top, there's a navigation bar with 'AWS Services' and a user profile. Below it, the path 'Lambda > Functions > MyFactSkill' is shown, along with the ARN 'arn:aws:lambda:us-east-1:013914284996:function:MyFactSkill'. On the left, there are tabs for 'Test' and 'Actions'. The main area has a success message: 'Congratulations! Your Lambda function "MyFactSkill" has been successfully created.' Below this, there are five tabs: 'Code', 'Configuration', 'Event sources' (which is circled in red), 'API endpoints', and 'Monitoring'. A note says 'You do not have any event sources for this function.' and a 'Add event source' button is available.

10. Select 'Add event source'

Congratulations! Your Lambda function "MyFactSkill" has been successfully created.

You do not have any event sources for this function.

Add event source

a. Select 'Alexa Skill Kit' from the dropdown:

Add event source

Configure your Lambda function to respond to events from the event sources listed below. You may also call your Lambda function directly using the AWS mobile SDK for [Android](#) and [iOS](#).

Event source type

- Alexa Connected Home
- Alexa Skills Kit**
- AWS IoT
- CloudWatch Events - Schedule
- CloudWatch Logs
- Cognito Sync Trigger
- DynamoDB
- Kinesis
- S3
- SNS

Cancel Submit

11. You should see the confirmation of creation of the free tier event source “Alexa Skills Kit”:

The screenshot shows the AWS Lambda Functions console. The top navigation bar includes 'AWS', 'Services', 'Edit', 'Noelle LaCharite', 'N. Virginia', and 'Support'. Below the navigation is a breadcrumb trail: 'Lambda > Functions > MyFactSkill'. The ARN is listed as 'arn:aws:lambda:us-east-1:013914284996:function:MyFactSkill'. A success message box states: 'Successfully added event source Alexa Skills Kit to function MyFactSkill. The function is now receiving events from the event source. To configure the Alexa service to work with your Lambda function, go to the Alexa Developer portal.' Below the message is a table with tabs: 'Code', 'Configuration', 'Event sources' (which is selected), 'API endpoints', and 'Monitoring'. The table has columns: 'Event source', 'ARN', 'State', and 'Details'. One row shows 'Alexa Skills Kit' under 'Event source', with the ARN 'arn:aws:lambda:us-east-1:013914284996:function:MyFactSkill' under 'ARN'. The 'Details' column contains the text: 'To configure the Alexa service to work with your Lambda function, go to the [Alexa Developer portal](#)'. A blue link 'Add event source' is located at the bottom left of the table area.

12. Keep this tab open as you will need to copy the ARN for your Lambda function for use in the developer portal. You can find your ARN at the top right corner of the function page:

This screenshot is identical to the one above, showing the AWS Lambda Functions console with the Alexa Skills Kit event source added. However, the ARN 'arn:aws:lambda:us-east-1:013914284996:function:MyFactSkill' is circled in red at the top right of the page. The rest of the interface is the same, including the success message and the table showing the event source configuration.

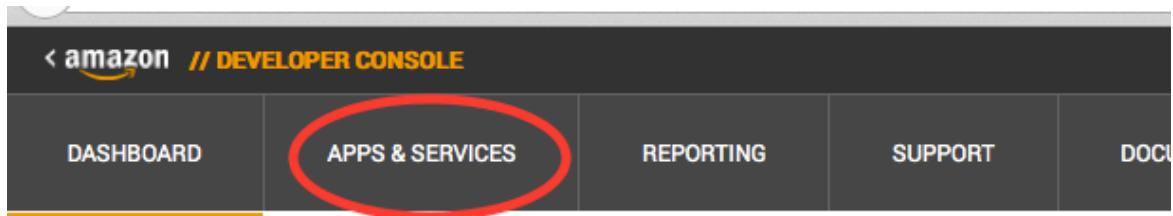
Step #3 – Set-up Your Alexa Skill in the Developer Portal

Skills are managed through the Amazon Developer Portal. You'll link the Lambda function you created above to a Skill defined in the Developer Portal.

1. Sign in or create a free account on the Amazon [Developer Portal](#) (upper right). You might see a different image if you have registered already or our page may have changed. If you see a similar menu and the ability to create an account or sign in, you are in the right place.



2. Once you've signed in, navigate to **Apps & Services**



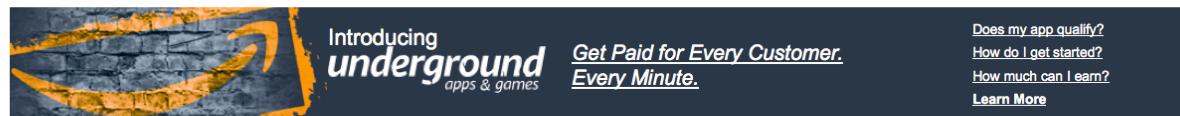
Developer Communications

Announcements		<u>Notifications</u>
Year-end Tax Forms Available for Download		Jan 31, 2016
Go Paperless for Year-end Tax Forms		Dec 11, 2015
Amazon Appstore Introduces New App Categories to Improve Disco...		Nov 3, 2015
Amazon replaces Free App of the Day with Amazon Underground		Aug 26, 2015
Manifest Filtering for Fire Devices		Aug 20, 2015
Amazon Announces New Developer Capabilities for Alexa		Jun 25, 2015

3. Then select **Alexa**. You can also bookmark this page for future reference

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

The screenshot shows the top navigation bar of the Amazon Developer Console. The 'SETTINGS' tab is selected, indicated by a yellow background. Below it, the 'Alexa' link is also highlighted with a red circle. Other visible links include 'My Apps', 'App Testing Service', 'Promotions', 'Security Profiles', 'Login with Amazon', 'Cloud Drive', 'GameCircle', 'A/B Testing', and 'Analytics'. The main content area below the navigation bar displays various service banners and links.



0 apps under this account

Nothing Found

Add a New App

4. Choose Alexa Skills Kit:

The screenshot shows the top navigation bar of the Amazon Developer Console. The 'APPS & SERVICES' tab is selected, indicated by a yellow background. Below it, the 'Alexa Skills Kit' link is visible. Other visible links include 'My Apps', 'App Testing Service', 'Promotions', 'Security Profiles', 'Login with Amazon', 'PC / Mac & Web Instant Access', 'Tester Management', and 'Mobile Ads'.

Get started with Alexa

Add new voice-enabled capabilities using the Alexa Skills Kit, or add voice-powered experiences to yo



Alexa Skills Kit

Easily add new skills to Alexa

[Get Started >](#)



Alexa Voice Service

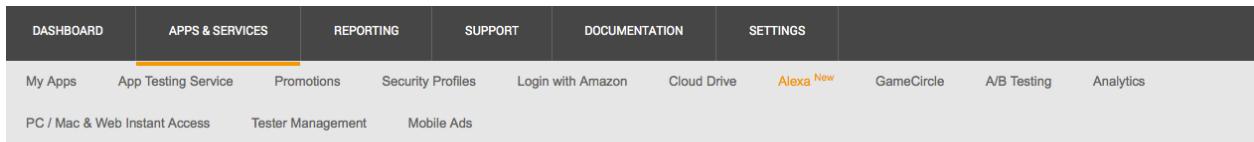
Bring voice capabilities to your connected device

[Get Started >](#)

[FAQs](#) [Contact Us](#) [App Distribution Agreement](#) [Trademark Guidelines](#) [Terms of Use](#)

5. Here is where you will define and manage your skill.

Select “Add 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.

6. Add the name of the skill. You can use “My Fact Skill” for this example. Remember, when you create a skill that you will publish, you will use a name that you define for your skill. That name will be the one that shows up in the Alexa App.
7. Add the invocation name. Since we are using the sample, type “space geek”
8. Add the version. Type “1.0”. This will be useful as you evolve your skill with new features.
9. Add the ARN from the Lambda function you created in the AWS Console earlier. Select the **Lambda ARN (Amazon Resource Name)** radio button. You should still have that browser tab open. Copy and paste the ARN into the endpoint field. Here’s an example:

Application Id <small>The ID for this skill</small>	amzn1.echo-sdk-ams.app.8b7e6904-f4f1-4715-b2df-a8c0a9583acd	
Name * <small>The name of this skill. This is the name displayed in the Alexa App.</small>		
<input type="text" value="My Fact Skill"/>		
Invocation Name * <small>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</small>		
<input type="text" value="space geek"/>		
Version <small>The serial number of the skill e.g. 1.0, 1.1</small>		
<input type="text" value="1.0"/>		
Endpoint <small>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</small>		
<input type="radio"/> HTTPS <input checked="" type="radio"/> Lambda ARN (Amazon Resource Name) ? <input type="text" value="arn:aws:lambda:us-east-1:013914284996:function:MyFactSkill"/>		
<input type="button" value="Save"/>	<input type="button" value="Submit for Certification"/>	<input type="button" value="Next"/>

10. Select Next.

11. Now we need to define our skill’s interaction model. Let’s begin with the intent schema. In the context of Alexa, an *intent* represents an action that fulfills a user’s spoken request. Intents can optionally have arguments called *slots*. We will not be using custom slots in this template, but they are very useful if you want to parameterize your intents.

- i. Review the Intent Schema below. This is written in JSON and provides the information needed to map the intents we want to handle programmatically. Copy this from the intent schema in the [Github repository here](#).

Skill Information

Interaction Model

Test

Description

Publishing Information

Intent Schema*
The schema of user intents in JSON format.
For more information, see [Defining the Voice Interface for an Alexa skill](#).

```

1  "intents": [
2    {
3      "intent": "GetNewFactIntent"
4    },
5    {
6      "intent": "AMAZON.HelpIntent"
7    },
8    {
9      "intent": "AMAZON.StopIntent"
10   },
11   {
12     "intent": "AMAZON.CancelIntent"
13   }
14 ],
15 ]
16 }
17 
```

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)

Add Slot Type

Below you will see the intents for getting a new fact, and then a collection of built-in intents to simplify handling common user tasks. Help intent will handle any time the user asks for help, stop and cancel are built-in intents to make it easier for you to handle when a user wants to exit the application. For more on the use of built-in intents, [go here](#).

```
{
  "intents": [
    {
      "intent": "GetNewFactIntent"
    },
    {
      "intent": "AMAZON.HelpIntent"
    },
    {
      "intent": "AMAZON.StopIntent"
    },
    {
      "intent": "AMAZON.CancelIntent"
    }
  ]
}
```

12. The next step is to build the utterance list.

Given the flexibility and variation of spoken language in the real world, there will often be many different ways to express the same request. Providing these different phrases in your sample utterances will help improve voice recognition for the abilities you add to Alexa. It is important to include as wide a range of representative samples as you can -- all the phrases that you can think of that are possible in use (though do not include samples that users will never speak). Alexa also attempts to generalize based on the samples you provide to interpret spoken phrases that differ in minor ways from the samples specified.

1. Now its time to add the Utterances. Copy/paste the sample utterances from [github](#). An example of utterances is listed below. Once they are copied, the screen should look similar to the following image:

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 [Defining the Voice Interface for an Alexa skill](#).

```
1 GetNewFactIntent a fact
2 GetNewFactIntent a space fact
3 GetNewFactIntent tell me a fact
4 GetNewFactIntent tell me a space fact
5 GetNewFactIntent give me a fact
6 GetNewFactIntent give me a space fact
7 GetNewFactIntent tell me trivia
8 GetNewFactIntent tell me a space trivia
9 GetNewFactIntent give me trivia
10 GetNewFactIntent give me a space trivia
11 GetNewFactIntent give me some information
12 GetNewFactIntent give me some space information
13 GetNewFactIntent tell me something
14 GetNewFactIntent give me something
```

13. Select **Save**. You should see the interaction model being built (this make a take a minute or 2). If you select next, your changes will be saved and you will go directly to the test screen.

- a. After selecting **Save**, it should now look like this:

[< Back to the list of skills](#)

My Fact Skill
DEVELOPMENT

Version 1.0 | 3/19/16

*Fields required for certification

Skill Information ✓

Interaction Model ✓

Test ✓

Description ✓

Publishing Information ✓

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": "GetNewFactIntent"  
5     },  
6     {  
7       "intent": "AMAZON.HelpIntent"  
8     },  
9     {  
10      "intent": "AMAZON.StopIntent"  
11    },  
12    {  
13      "intent": "AMAZON.CancelIntent"  
14    }  
15  }  
16 }
```

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)

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 [Defining the Voice Interface for an Alexa skill.](#)

```
1 GetNewFactIntent a fact  
2 GetNewFactIntent a space fact  
3 GetNewFactIntent tell me a fact  
4 GetNewFactIntent tell me a space fact  
5 GetNewFactIntent give me a fact  
6 GetNewFactIntent give me a space fact  
7 GetNewFactIntent tell me trivia  
8 GetNewFactIntent tell me a space trivia  
9 GetNewFactIntent give me trivia  
10 GetNewFactIntent give me a space trivia  
11 GetNewFactIntent give me some information  
12 GetNewFactIntent give me some space information  
13 GetNewFactIntent tell me something  
14 GetNewFactIntent give me something
```

Save Submit for Certification Next

- b. Select **Next**, and you will be taken to the test screen.
14. You have now completed the initial development of your skill. You should see a screen that looks like this.

[< Back to the list of skills](#)

My Fact Skill
DEVELOPMENT

Version 1.0 | 3/19/16

*Fields required for certification

Skill Information ✓
Interaction Model ✓
Test ✓
Description ✓
Publishing Information ✓

Intent Schema

The schema defines the interactions your skill supports. For more information, see [Defining the Voice Interface for an Alexa skill](#).

```
1  },
2  {
3    "intent": "AMAZON.StopIntent"
4  },
5  {
6    "intent": "AMAZON.CancelIntent"
7  }
8 }
```

Ensure all 3 checkmarks are green

[Getting started](#)

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)

[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 [Defining the Voice Interface for an Alexa skill](#).

```
1 GetNewFactIntent a fact
2 GetNewFactIntent a space fact
3 GetNewFactIntent tell me a fact
4 GetNewFactIntent tell me a space fact
5 GetNewFactIntent give me a fact
6 GetNewFactIntent give me a space fact
7 GetNewFactIntent tell me trivia
8 GetNewFactIntent tell me a space trivia
9 GetNewFactIntent give me trivia
10 GetNewFactIntent give me a space trivia
11 GetNewFactIntent give me some information
12 GetNewFactIntent give me some space information
13 GetNewFactIntent tell me something
14 GetNewFactIntent give me something
```

[Save](#)

[Submit for Certification](#)

[Next](#)

- a. We are now ready to test.
- b. In the Test area, we are going to enter a sample utterance in the service simulator section and see how Alexa will respond. To begin select “Test” in the left navigation.

< Back to the list of skills

My Fact Skill
DEVELOPMENT
Version 1.0 | 3/19/16

Skill Information ✓

Interaction Model ✓

Test ✓ ←

Description ○

Publishing Information ○

(i) Please complete the Interaction Model tab to make this skill ready for testing.

Enable This skill is enabled for testing on this 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 space geek

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>.

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 My Fact Skill **Reset**

In this example, we have called the skill ‘Space Geek’. This is the ‘Invocation Name’ we set up on the Skill Information line in the “Skill Information” section.

- i. In the Service Simulator, type ‘open Space Geek’ and select “Ask MyFactSkill-SpaceGeek template”.

Service Simulator

Use Service Simulator to test your lambda function.

Text Json

Enter Utterance *

Ask MyFactSkill-SpaceGeek template Ask MyFactSkill-SpaceGeek template **Reset**

- ii. You should see the formatted JSON request from the Alexa Service and the response coming back.

Service Simulator

Use Service Simulator to test your lambda function.

The screenshot shows the AWS Lambda Service Simulator interface. At the top, there are 'Text' and 'Json' tabs, with 'Text' selected. Below is an 'Enter Utterance' input field containing 'open Space Geek'. Underneath are two buttons: 'Ask MyFactSkill-SpaceGeek template' and 'Reset'. The main area is divided into 'Lambda Request' and 'Lambda Response' sections. The Lambda Request shows a JSON object with session, user, and intent details. The Lambda Response shows a JSON object with version, response, and sessionAttributes. A 'Listen' button and a play icon are at the bottom right.

```
1 {  
2   "session": {  
3     "sessionId": "SessionId.71cad531-fc21-4702-be  
4     "application": {  
5       "applicationId": "amzn1.echo-sdk-ams.app.8b  
6     },  
7     "user": {  
8       "userId": "amzn1.echo-sdk-account.AGCF2OKIU  
9     },  
10    "new": true  
11  },  
12  "request": {  
13    "type": "IntentRequest",  
14    "requestId": "EdwRequestId.a7497d0a-9324-467b  
15    "timestamp": "2016-03-05T18:04:10Z",  
16    "intent": {  
17      "name": "GetNewFactIntent",  
18      "slots": {}  
19    }  
20  }  
21 }
```

```
1 {  
2   "version": "1.0",  
3   "response": {  
4     "outputSpeech": {  
5       "type": "PlainText",  
6       "text": "Here's your space fact: Venus is  
7     },  
8     "card": {  
9       "type": "Simple",  
10      "content": "Here's your space fact: Venus is  
11      "title": "SpaceGeek"  
12    },  
13    "reprompt": null,  
14    "shouldEndSession": true  
15  },  
16  "sessionAttributes": {}  
17 }
```

- iii. Testing with your device. This is optional as you can do all the testing in the portal. Assuming your Echo device is on-line (and logged in with the same account as your developer account), you should now see your skill enabled in the Alexa app and ask Alexa to launch your skill. For more information on testing an Alexa skill and registering an Alexa-enabled device, [check here](#).

The screenshot shows the Alexa Skills page. In the search bar, 'myfac' is typed. Below the search bar, a card displays the skill information: 'MyFactSkill-SpaceGeek template' by 'GeekGirl Marketing and App Development'. It includes a 'Disable' button and a 'Customer Review' section. At the bottom, there is a 'Page 1 of 1' indicator.

Skills

myfac

MyFactSkill-SpaceGeek template
GeekGirl Marketing and App Development

Open spacegeek

Avg. Customer Review

Disable

Page 1 of 1

* Not working (getting an invalid response)?

- Do you have the right ARN copied from your Lambda function into your Developer Portal / Skill?
- Are you calling the right invocation name?
 - Are you saying launch, start or open?
 - Are you sure you have no other skills in your accounts with the same invocation name?
- For this template specifically, you should have a minimum of 20 facts for a good customer experience.

Step #4 – Make it Yours

1. In the Skill Information tab in the Developer Console, edit the Skill Information Tab to reflect your new Fact Skill:
 - a. Provide a skill name that represents the new skill you are creating.
 - b. Come up with a cool ***Invocation Name that users will use to invoke your skill***
 - c. Create a fun ***icon***. Be sure you have the rights to whatever icons you are uploading – you will need to provide both 108x108px and 512x512px images.
 - d. Everything else can stay as-is for now in the Developer Portal
5. Open the source file for your Lambda function, index.js, in an editor of your choice. The zip file was downloaded in an earlier step or you can find it [here](#). You will see on line 25 the definition of the facts used in the SpaceGeek example. These are the strings you will want to edit to customize this fact for your use.

```

25
26  /**
27   * Array containing space facts.
28  */
29  var SPACE_FACTS = [
30    "A year on Mercury is just 88 days long.",
31    "Despite being farther from the Sun, Venus experiences
32      higher temperatures than Mercury.",
33    "Venus rotates counter-clockwise, possibly because of a
34      collision in the past with an asteroid.",
35    "On Mars, the Sun appears about half the size as it does on
36      Earth.",
37    "Earth is the only planet not named after a god.",
38    "Jupiter has the shortest day of all the planets.",
39    "The Milky Way galaxy will collide with the Andromeda
40      Galaxy in about 5 billion years.",
41    "The Sun contains 99.86% of the mass in the Solar System.",
42    "The Sun is an almost perfect sphere.",
43    "A total solar eclipse can happen once every 1 to 2 years.
44      This makes them a rare event.",
45    "Saturn radiates two and a half times more energy into
46      space than it receives from the sun.",
47    "The temperature inside the Sun can reach 15 million
48      degrees Celsius.",
49    "The Moon is moving approximately 3.8 cm away from our
50      planet every year."
51  ];
52
53
54

```

6. Edit the strings to contain whatever facts or information you would like to make randomly available when a user invokes your skill. A few suggestions:
 - i. Only change the text between the double quotes. These are your facts.
 - ii. The skill uses a mathematical randomization on your list of facts. It is a good idea to have at least 20, but more like 100, facts in the skill to ensure that the facts do not repeat too quickly. Also remember that because it is random, it is possible that the same fact can be repeated twice.
 - iii. Optionally, if you would like to ensure that the facts don't repeat (for a "Daily Fact Skill" or example), you can use a datastore like DynamoDB to store an id that you can check and iterate through the facts. For more information on using DynamoDB with Lambda, [go here](#).
7. In order to control who accesses your web service, we should validate the application id in requests made to your web service. Let's go back to your Alexa skill in your Developer Portal for a moment. **Copy** in your Application ID from the 'Skill Information' tab in your developer portal / skill into your Lambda script.

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MyFactSkill-SpaceGeek template
DEVELOPMENT

Version 1.0 | 3/5/16

*Fields required for certification

Skill Information	<input checked="" type="checkbox"/>
Interaction Model	<input checked="" type="checkbox"/>
Test	<input checked="" type="checkbox"/>
Description	<input checked="" type="checkbox"/>
Publishing Information	<input checked="" type="checkbox"/>

Application Id
The ID for this skill
amzn1.echo-sdk-ams.app.8b7e6904-f4f1-4715-b2df-a8c0a9583acd

Name *
The name of this skill. This is the name displayed in the Alexa App.
MyFactSkill-SpaceGeek template

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](#).
spacegeek

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

8. In your AWS lambda function, in the `index.js` file, find the `applicationId` section and copy **YOUR Application ID** into the section indicated (*do not copy the ID below, which is just an example*). It looks something like this when you are done: (*be sure to SAVE*)

```
// Route the incoming request based on type (LaunchRequest,
IntentRequest,
// etc.) The JSON body of the request is provided in the event
parameter.

exports.handler = function (event, context) {

  try {

    console.log("event.session.application.applicationId="
+ event.session.application.applicationId);

    /**
     * Uncomment this if statement and populate with your
     skill's application ID to
     *
     * prevent someone else from configuring a skill that
     sends requests to this function.

    */

    if (event.session.application.applicationId !==
"amzn1.echo-sdk-ams.app.8b7e6904-f4f1-4715-b2df-a8c0a9583acd") {
```

```

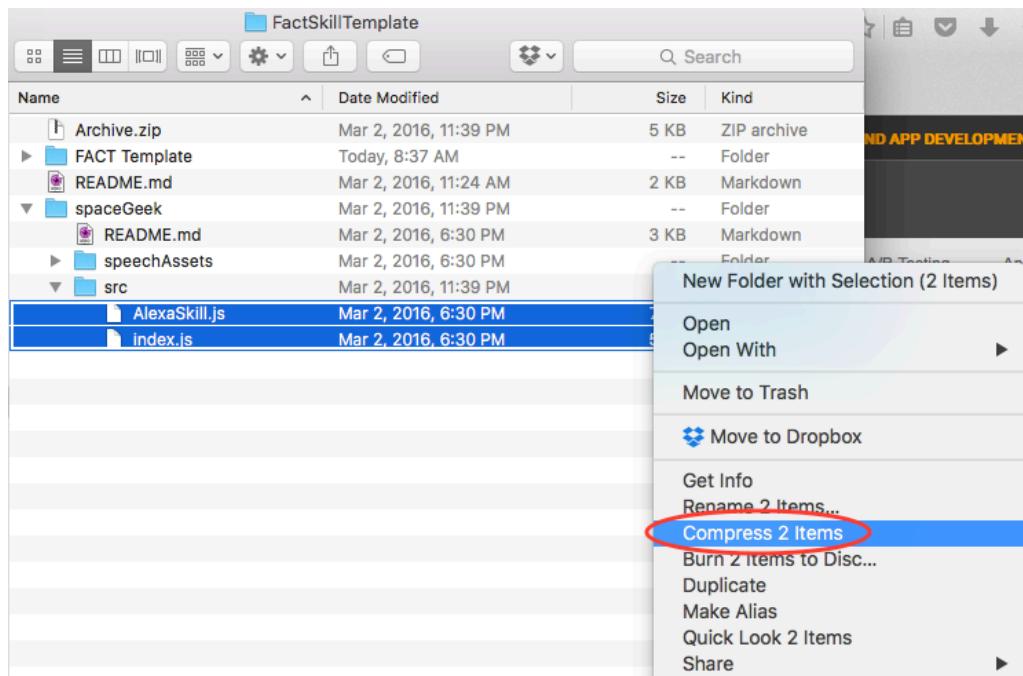
        context.fail("Invalid Application ID");

    }

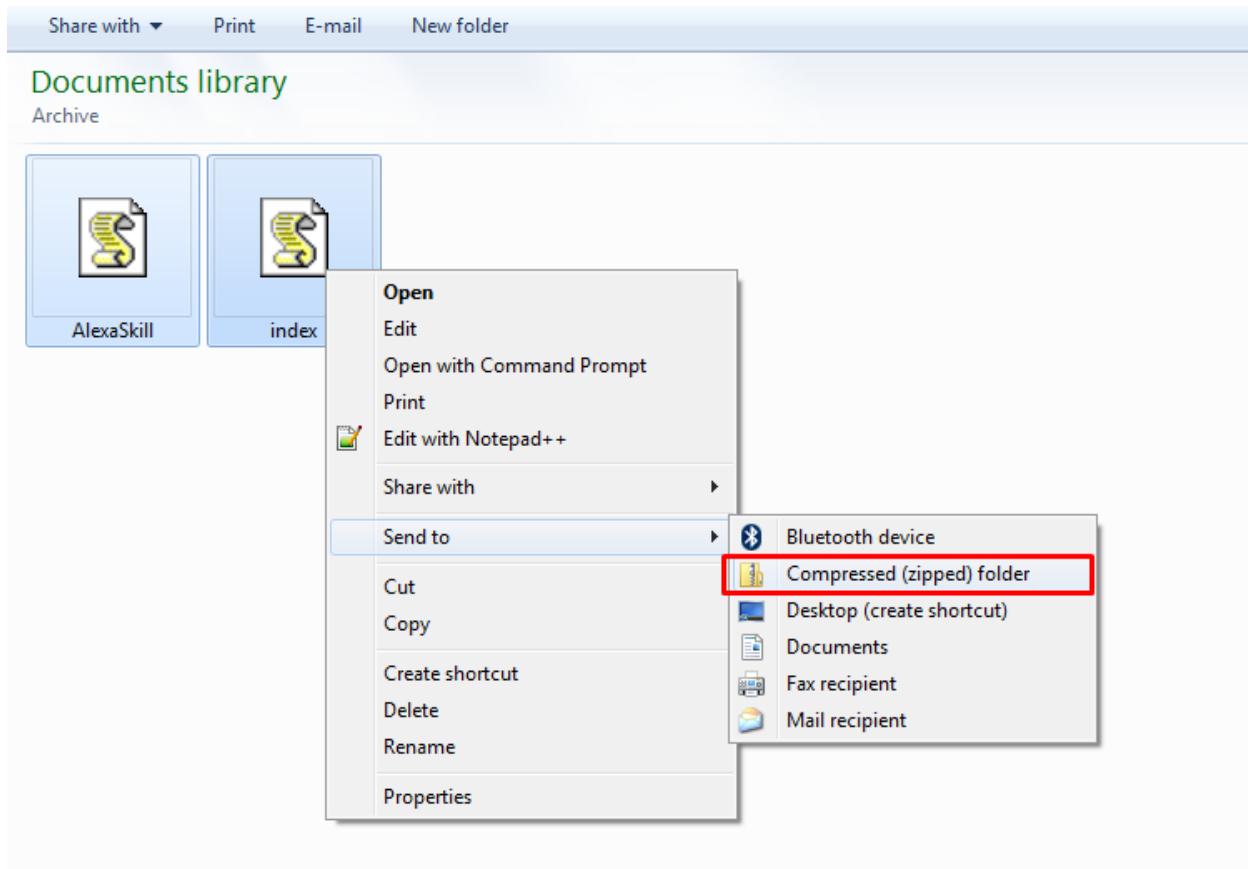
```

9. A minimum of 20 facts is needed to get started, about 100 is a good number to keep users engaged. The more the better.
10. ***Be sure to select SAVE when you are all done. Note: we test in the Developer Portal, not in our Lambda function (AWS).***
11. Log back into your AWS console and upload the changes you have just made. First you will need to zip up the files into a new archive. You can do this by selecting the 2 files that you need (AlexaSkill.js and your updated index.js) into a new archive. Be sure that those are the only 2 files in your archive file. Here is an example of what this looks like on a Mac, but the context menu on Windows also provides a similar option for creating a compressed file.

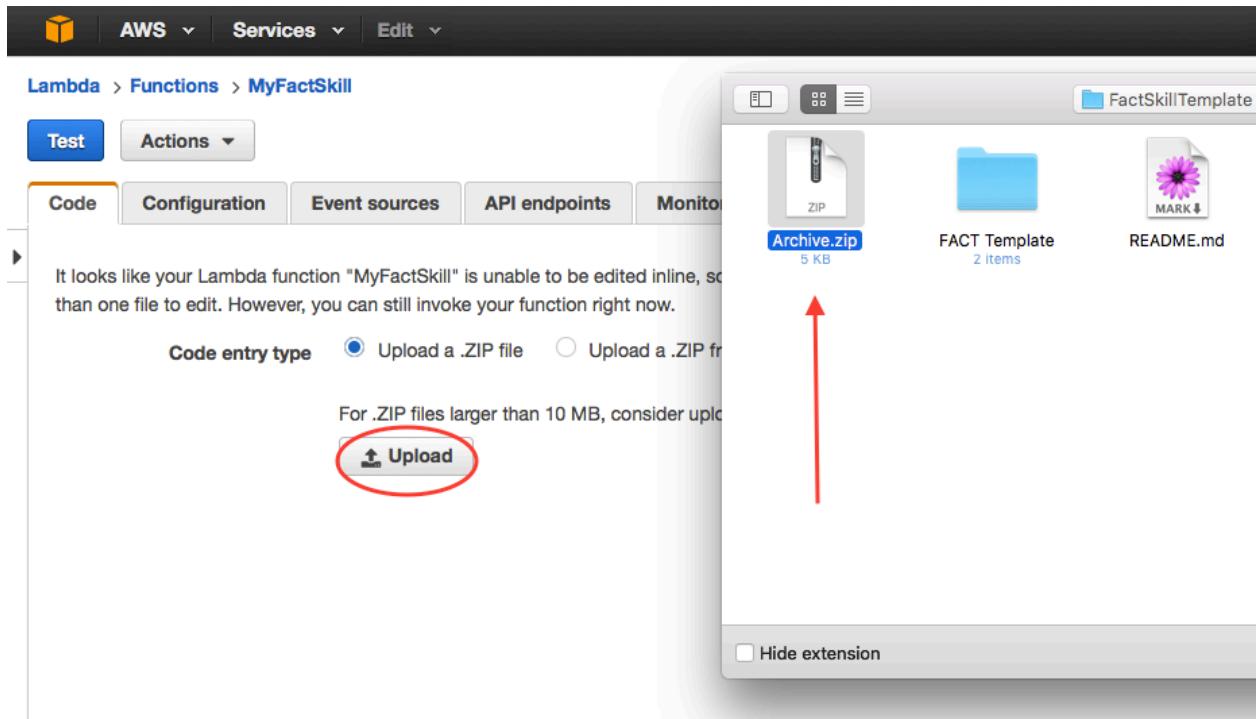
On a Mac:



On Windows:



12. Select your Lambda function and on the Code tab, select “Upload” to add the archive you just created.



13. Once you have successfully added the file you will see it on the screen, then select “Save”:



14. Repeat the tests you performed earlier to ensure your changes are functioning properly.
See step 12 for a review of how to performs functional tests.

Step #5 – Publish Your Skill

Now we need to go back to our Developer Portal to test and edit our skill and we will be ready for certification.

1. In your skills Test section, enter your Utterances into the Simulator to make sure everything is working with your new facts.
2. Optionally, you can test with your Alexa-enabled device to make sure everything is working correctly. You may find a few words that need to be changed for a better user experience.

Some things to think about:

* Does every fact sound correct? Do you need to change any words to make them sound correct? Because we are randomizing our facts, this could take a while. Instead, you can use the Voice Simulator in the Test section to simulate Alexa's responses. In the Voice Simulator, type in each fact that you are using to test how Alexa will say it. Use additional punctuation or possibly SSML if you need to better control how Alexa responds. You can find out more about [SSML here](#).

- * Have you added in YOUR ApplicationID as per the previous instruction?
3. Select the Description area of your skill next:

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 **My Fact Skill**
DEVELOPMENT

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Skill Information 

Interaction Model 

Test 

Description  ←

Publishing Information 

Note: You can preview your skill's detail ↗

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 |
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 at this step so please read carefully. Provide three phrases from your Sample Utterances, with all slots filled in with a valid value. These are displayed on the detail card in the Alexa App and should help users how to interact with the skill. Include the

- i. Spend some time coming up with an enticing, succinct description. This is the only place you have to attract new users. These descriptions show up on the list of [skills available](#) in the Alexa app.
- ii. In your example phrases, be sure that the examples you use match the utterances that you created in the Interaction Model section. Remember, there are built-in intents such as help and cancel. You can learn more about [built-in intents here](#). You can also find a list of [supported phrases to begin a conversation here](#).
- iii. Be sure you have the rights to whatever icons you are uploading – you will need to provide both 108x108px and 512x512px images. If there is any question the Amazon certification team will fail your Alexa skill submission.

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 **My Fact Skill DEVELOPMENT** [Getting started](#)

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*Fields required for certification

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

This test will appear when a user locates your skill in the Alexa app. They will see this text without having to expand for more details.

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.

This is more detailed text. This is where you can help educate the user on how to use your skill, what it can do and how they can do it. You should also include information that will allow them to contact the developer or company that created the skill.

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.

Alexa, Open Space Geek
Alexa, Open Space Geek and ask for Help
Alexa, Start Space Geek

Category *
The general area of functionality of this skill.

Education

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

facts, template, help

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 is used when displaying the skill in the Alexa App on larger screens.

[Save](#) [Submit for Certification](#) [Next](#)

4. Submitting for Certification
- On your Publishing section select ‘No’ for Account linking, spend money and personal information. Privacy and Terms URL’s are optional.

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 **My Fact Skill**
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Skill Information	<input checked="" type="checkbox"/>
Interaction Model	<input checked="" type="checkbox"/>
Test	<input checked="" type="checkbox"/>
Description	<input checked="" type="checkbox"/>
Publishing Information	<input checked="" type="checkbox"/>

Account Linking or Creation
Do you allow users to create an account or link to an existing account with you? [Learn more](#) Yes No

Usage & Privacy
Does this skill allow users to make purchases or spend real money? Yes No

Does this Alexa skill collect users' personal information? *
This includes anything that can identify the user: name, email, password, phone number, date of birth, etc. Yes No

Privacy Policy URL
Link to the Privacy Policy for this skill. [Input field]

Terms of Use URL
Link to the Terms of Use for this skill. [Input field]

Compliance & Testing
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.

Testing Instructions *
Please detail any special instructions to test your skill. Include any account or hardware requirements. This information is used by the certification team and is not displayed to customers.

This skill uses the Fact Skill template

Save **Submit for Certification**

- Add a note in your testing instructions that you are using the Fact Skill Template.
- Select “Save”.

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My Fact Skill DEVELOPMENT

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*Fields required for certification

Skill Information	<input checked="" type="checkbox"/>
Interaction Model	<input checked="" type="checkbox"/>
Test	<input checked="" type="checkbox"/>
Description	<input checked="" type="checkbox"/>
Publishing Information	<input checked="" type="checkbox"/>

Account Linking or Creation

Do you allow users to create an account or link to an existing account with you? [Learn more](#) Yes No

Usage & Privacy

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

Does this Alexa skill collect users' personal information? *

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

Yes No

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 & Testing

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.

Testing Instructions *

Please detail any special instructions to test your skill. Include any account or hardware requirements. This information is used by the certification team and is not displayed to customers.

This skill uses the Fact Skill template

 Save

Submit for Certification

d. Select “Submit for Certification”

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All Checkmarks Are Green

Skill Information	<input checked="" type="checkbox"/>
Interaction Model	<input checked="" type="checkbox"/>
Test	<input checked="" type="checkbox"/>
Description	<input checked="" type="checkbox"/>
Publishing Information	<input checked="" type="checkbox"/>

Usage & Privacy

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

Does this Alexa skill collect users' personal information? *
This includes anything that can identify the user: name, email, password, phone number, date of birth, etc. Yes No

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 & Testing

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.

Update Successful

Successfully updated the publishing information.

This skill uses the Fact Skill template

- e. Finally, confirm your submission.

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**My Fact Skill
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*Fields required for certification

Skill Information	<input checked="" type="checkbox"/>
Interaction Model	<input checked="" type="checkbox"/>
Test	<input checked="" type="checkbox"/>
Description	<input checked="" type="checkbox"/>
Publishing Information	<input checked="" type="checkbox"/>

Account Linking or Creation

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

Yes No

Usage & Privacy

Does this skill allow users to make purchases or spend real money? *

Yes No

Does this Alexa skill collect users' personal information? *

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

Yes No

Privacy Policy URL
Link to the Privacy Policy for this skill.

Terms of Use URL
Link to the Terms of Use for this skill.

Submit for certification

Are you sure you want to submit this skill for certification? You cannot edit the skill while it is under review.

Compliance & Testing

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.

Testing Instructions *

Please detail any special instructions to test your skill. Include any account or hardware requirements. This information is used by the certification team and is not displayed to customers.

This skill uses the Fact Skill template

Successfully updated the publishing information.

Congratulations! You have published a new skill. You will receive progress e-mails and possibly other suggestions from the team on how you can make your skill even better. You can update your skills at any time.

Get Started Today

Check out these additional Alexa developer resources:

- [Intro to Alexa Skills On Demand](#)
- [Voice Design 101 On Demand](#)
- [Alexa Skills Kit \(ASK\)](#)
- [Alexa Developer Forums](#)