Introductory Alexa Development Tutorial

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What will you create?

This tutorial will walk you through the process of creating a very basic Alexa skill and, eventually, submitting it to Amazon. I encourage you to build off of this intro to create a more complex skill, but this will help you to understand the components of Alexa development and how they fit together.

Why I am writing this?

I recently participated in MHacks X, where I jumped from idea to idea until I finally decided that I was going to teach myself Alexa skill development. It was something I had been wanting to learn and hadn't found the time to. Little did I know how many components there are to it! So, the majority of those 36 hours were spent trying to understand the process, using a variety of online resources to piece it all together, teaching myself some JSON and creating *something* to show for it. While there are many other tutorials for Alexa development in existence, every tutorial I came across missed some aspect of the development. I hope that this tutorial will be able to give a well-rounded and thorough introduction to Alexa development and make your life easier when it comes to navigating this environment.

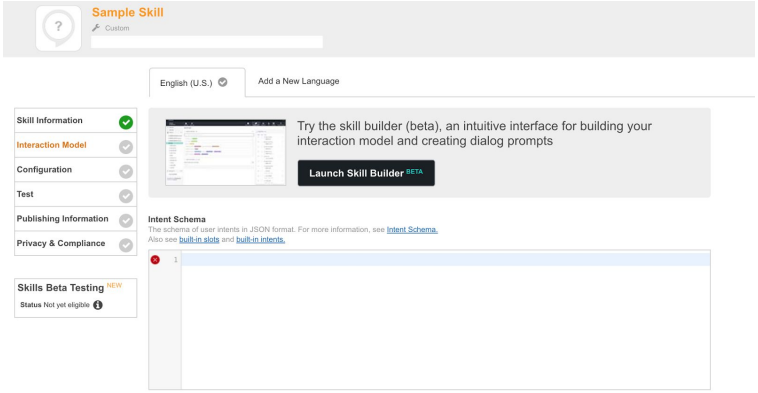
Let's get started!

Go to https://developer.amazon.com/alexa and create an Amazon developer account.

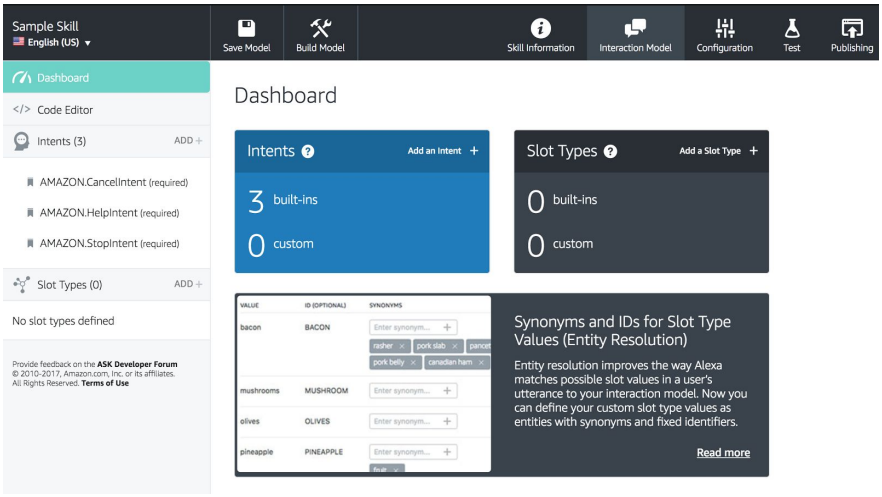
Click on the "Alexa Skills Kit" tab and then the blue "Start a Skill" button.

This will take you to the page where you will enter your skill's information.
(Keep the defaults for this tutorial, but be sure to check out the Invocation Name Guidelines and Certification Requirements for future projects you want to publish.)

When you have completed this step, proceed to the Interaction Model.

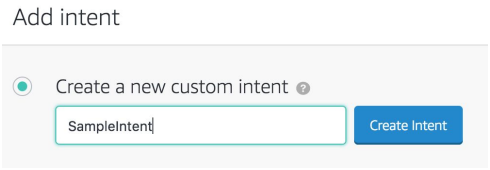


Open the BuilderBeta. It'll look like this:

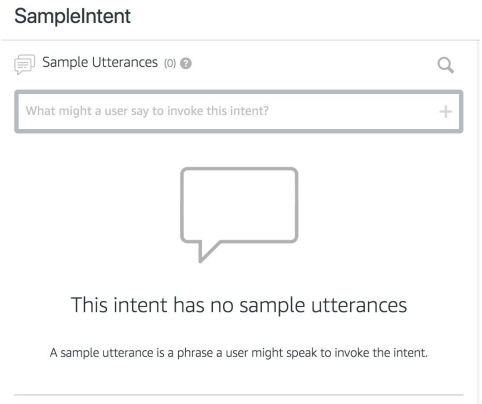


This is where you will define your intents. Intents are basically what will initiate certain interactions with Alexa. You can create custom intents, but you must implement the built-in intents for it to work properly and, ultimately, be published. For imformation regarding built-in intents, look here: https://developer.amazon.com/docs/custom-skills/implement-the-built-in-intents.html#overview-of-the-built-in-intents

For this tutorial, we will come back to the built-in intents. Click "Add+" next to the "Intents" tab on the side bar and enter the name of our intent as "SampleIntent."



After clicking "Create Intent," you will enter in the phrases ("utterances") users can say to invoke a certain response from Alexa.



In this case, we will have Alexa greet our user when our user says any of the phrases included in the image below. Copy these phrases into your intent.

SampleIntent

Sample Utterances (9)

What might a user say to invoke this intent?

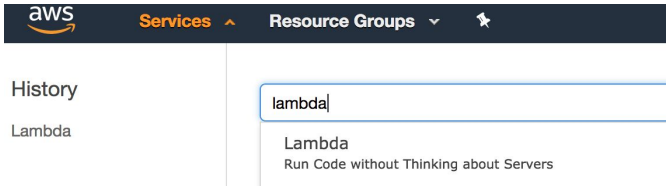
- "Top of the Morning"
- "Good Day"
- "Good Evening"
- "Good Afternoon"
- "Good Morning"
- "Howdy"
- "Hey"
- "Hello"
- "Hi"

Now...let's take a look at what this is doing for us. Look at the sidebar and click the "Code Editor" tab. This will show us the code behind our intents.

(Note: If you would prefer, you can add utterances with the Code Editor.)

At this point, we can click "Build Model" (this may take a couple of minutes) and return to the configuration settings by clicking "Configuration."

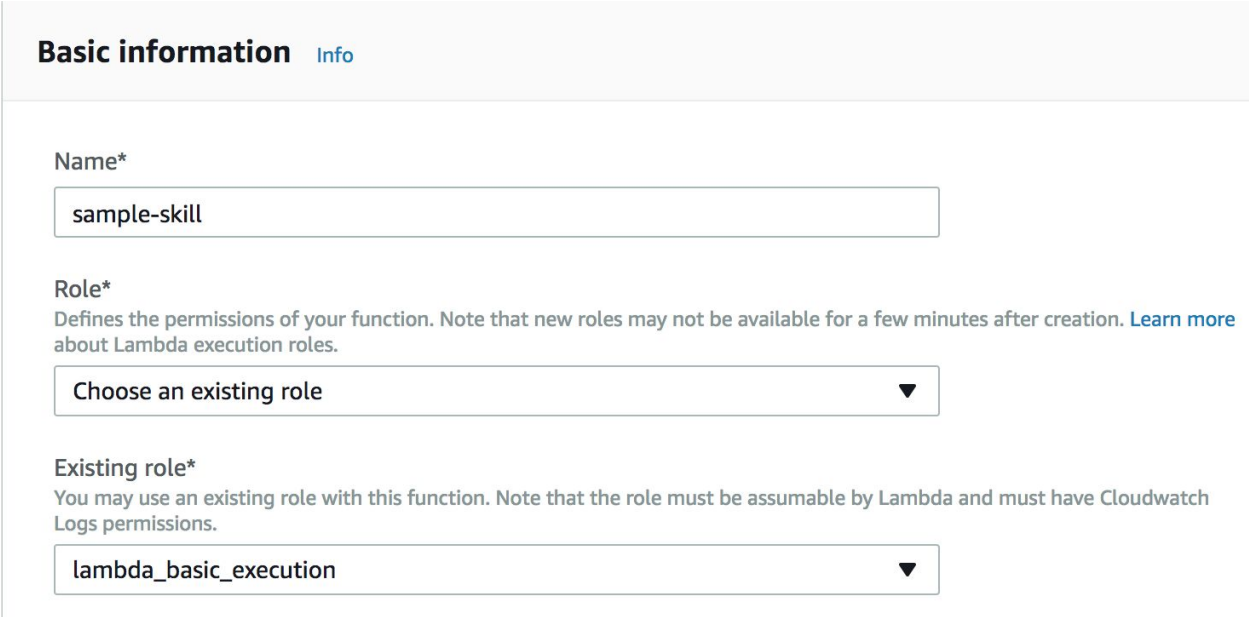
Now, open a new tab and go to https://console.aws.amazon.com. Create an Amazon Web Services (AWS) account. Click on Services and then type in "Lambda."



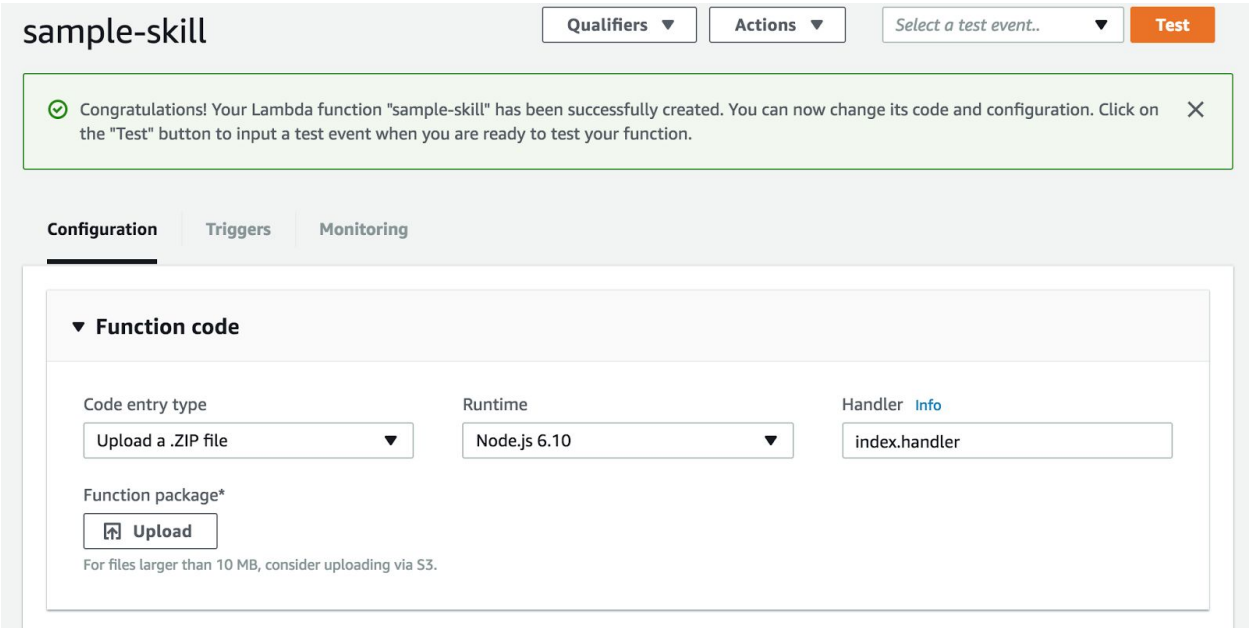
Click the first result. You will be taken to a new page, then click the "Create function" button.

On the next page, click “Author from scratch.” We don’t want a blueprint for this function.

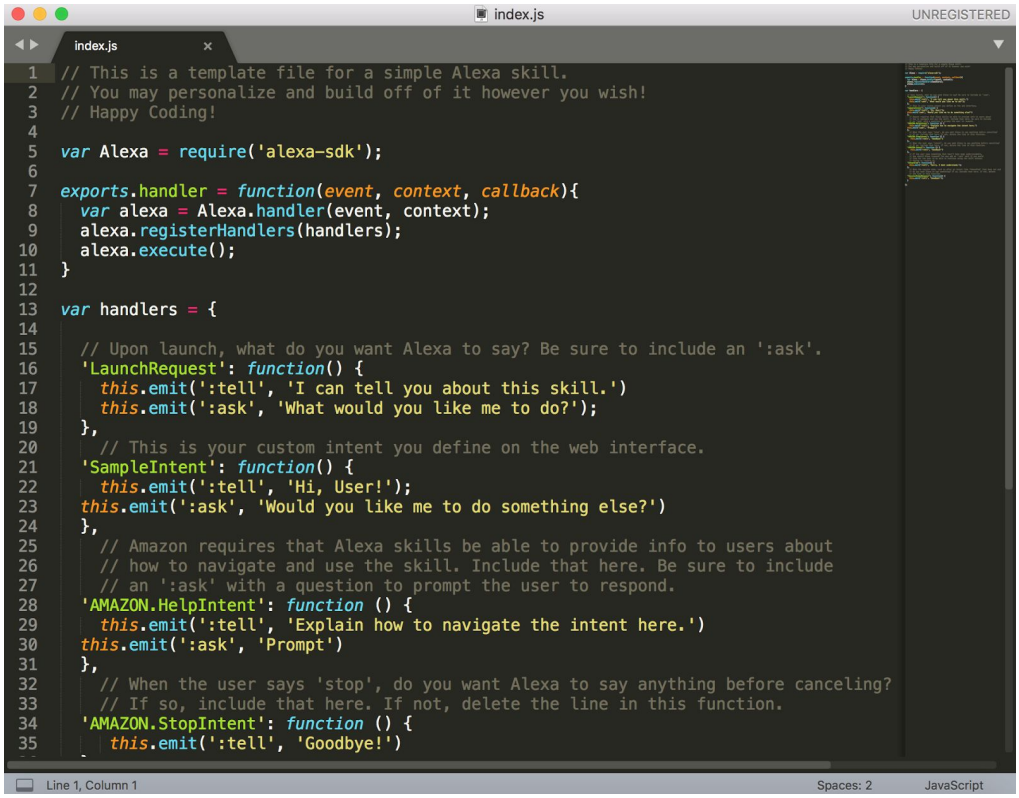
Then, fill out the information as you see it below and click “Create function.”



You will be navigated to the page where you will now upload your function. Notice that I said “upload” and not “write.” There is the option of editing the function code on the page. For this project, change the “Code entry type” to “Upload a .ZIP file.”



Now, let's look at our actual function code. Open up the index.js file you forked from the repository in a text editor, such as Sublime, Atom, or TextMate.
It should look something like this…



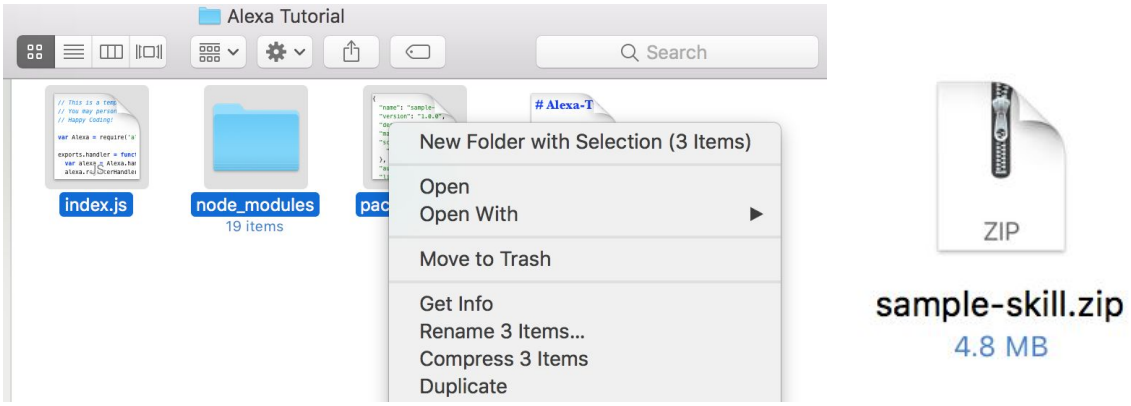
This code is mostly completed for you. Read it to understand what each part does. You will notice that we are defining our 'SampleIntent,' as well as the built-in intents that are required. Change the 'AMAZON.HelpIntent' to ':tell' the user something along the lines of 'Greet me to get a greeting in return. Say stop or cancel to quit.' and then ':ask' the user 'Why will you not say hi to me?'

```
    // Amazon requires that Alexa skills be able to provide info to users about
    // how to navigate and use the skill. Include that here. Be sure to include
    // an ':ask' with a question to prompt the user to respond.
  'AMAZON.HelpIntent': function () {
    this.emit(':tell', 'Greet me to get a greeting in return. Say stop or cancel to quit.')
    this.emit(':ask', 'Why will you not say hi to me?')
  },
```

You have now completed the function code!

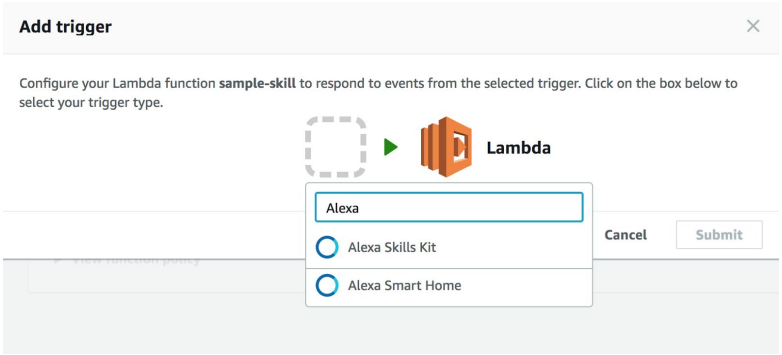
Note: For this tutorial, we used Node.js 6.10, as you may have seen when we created the function on the AWS website. Functions can also be created using Python and Java, but you will need to reference a different tutorial. From what I have seen, Node.js seems to be the most popular for Alexa development.

Make sure you have this saved. Now we need to zip our function files together so we can upload them. To do this, select your index.js and package.json files, and your node_modules folder. Zip these together (or “Compress” on Mac.) You will need to change the name of the zip file as “sample-skill,” otherwise, it will not work.

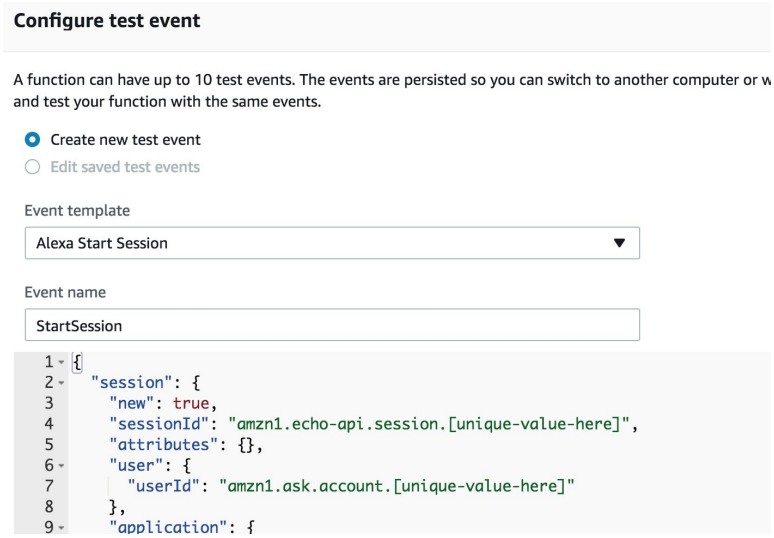


Return to the AWS website and click “Upload.” Navigate to the directory where your sample-skill.zip file is and select it for upload. Important Note: Whenever you make a change to the index.js file, you will need to re-zip and upload.

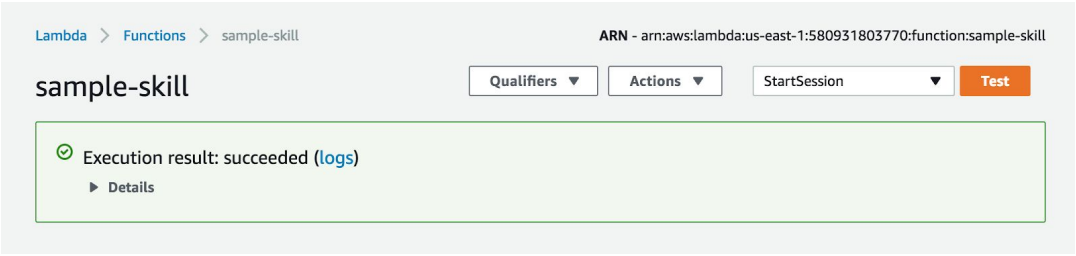
Next, click the “Triggers” tab and “Add Trigger.” We need to select the “Alexa Skills Kit” in order for our function to work with Alexa. When you have done this, click Submit and return to the “Configuration” tab.



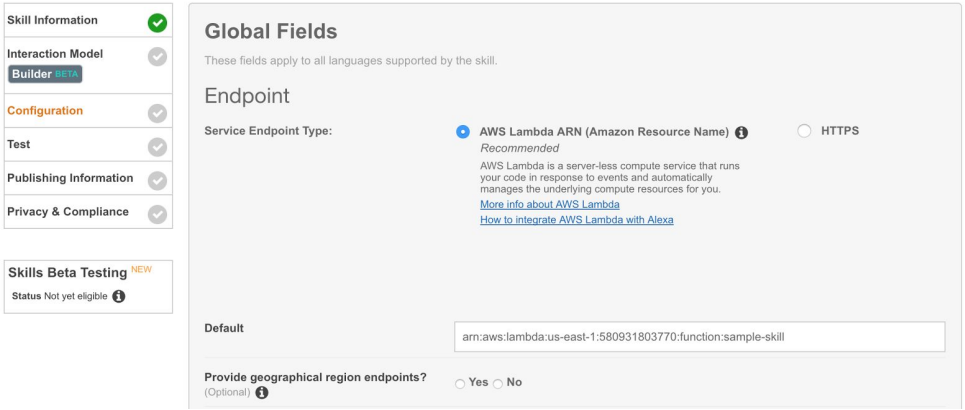
From here, click the orange “Save and test” button in the top right corner. It will then prompt you to create a test case for our skill. Under “Event template,” select “Alexa Start Session” and name the event “StartSession.”
(This is just a dip into testing using a default test case.)



Click “Create” and then “Test.” It should be successful, in which case, your screen will have this notification at the top of it.



We will pretend that we have thoroughly tested our file. Copy the “ARN” (Amazon Resource Name) in the top right corner of the screen and return to the Amazon Developer website. Under “Configuration,” you will see a spot labeled “Default” to put in the ARN.

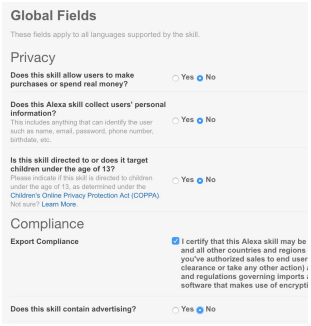


Skip the rest of the page and click “Next.”

Now we can hear Alexa! This is the testing page. You will need to click the switch at the top to enable testing. When you do this, the “Service Simulator” will pop up. Type in “Hi” as a sample utterance and then click “Ask Sample Skill.” Two blocks of code will appear. Click on the orange play button at the bottom of the right-hand block of code. This is let you listen to Alexa’s response! Exciting! Any of those utterances we included in our SampleIntent will provoke a “Hi, User!” response from Alexa. Mess around with this for a bit. (You may notice that it is not perfect and this is intentional! After this tutorial, you can mess around with and fix the cases that aren’t quite right.) Click “Next” when you are ready.

Now we have to enter publishing information, such as the category, name, and sample utterances. Think of it as a profile for your skill when it’s being presented to potential users in the Alexa app. Review the “Example Phrases 101” section underneath the Example Phrases section to get help with these. You can also include icons for your skill when users see it in the Alexa app. I trust you to fill this out. :)

One last thing...privacy and compliance. Here is a little sample of what this page looks like. Fill it out as necessary based on your project.



With that, you should now have a basic understanding of the process of developing an Alexa skill! Feel free to post an issue in the repository if I have explained something wrong. Amazon is currently revamping some of the ways Alexa skills are developed, so there may be some minor changes. I hoped this was helpful to you as you begin your journey as an Alexa developer! Happy Coding!

-Riley