

Alexa & API.ai Integration

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Questions? Feedback? Let me know! bfisher@ebfour.com

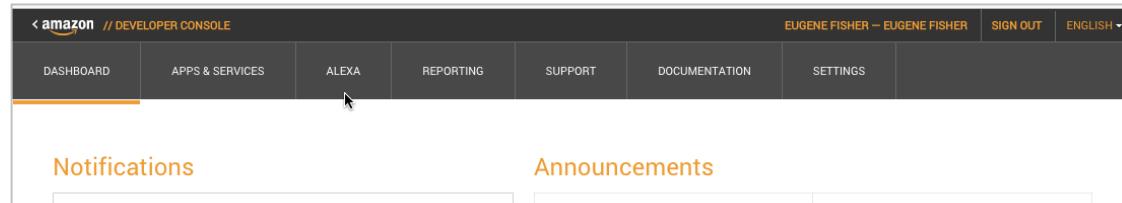
CREATE AN AGENT ON API.AI

1. If you haven't already, create an Agent with API.ai following [their instructions here](#)

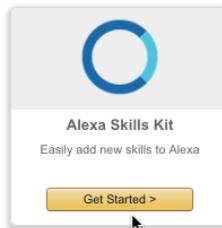
CREATE AN ALEXA SKILL

1. Sign in to <https://developer.amazon.com>

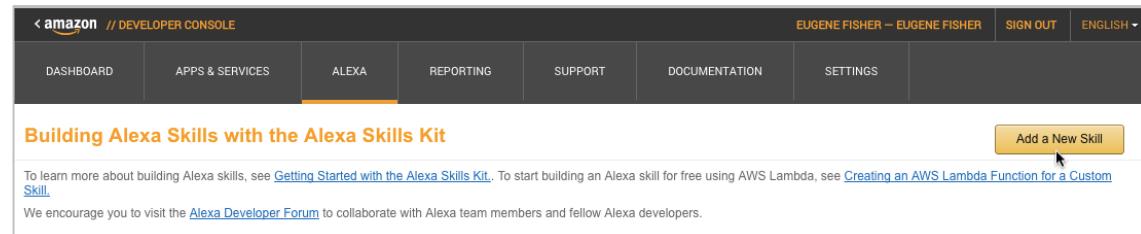
2. Click Alexa from main navigation



3. Click Alexa Skills Kit



4. Click Add a New Skill



5. Enter Skill Information

- Select Skill Type: Custom Interaction Model
- Select Language
- Enter Skill Name (must be between 2-50 characters, numbers and special characters allowed)
- Enter Invocation Name ([guidelines here](#))
- Select Audio Player use ([information here](#))
- Click Next

English (U.S.) Add New Language

Skill Information	<input checked="" type="checkbox"/>
Interaction Model	<input checked="" type="checkbox"/>
Configuration	<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](#)

Language
Language of your skill English (U.S.)

Application Id
The ID for this skill amzn1.ask.skill.a4da702a-930c-4df4-b0ad-761490eb6f33

Name
Name of the skill that is displayed to customers in the Alexa app. Must be between 2-50 characters. Test Skill 1

Invocation Name
The name customers use to activate the skill. For example, "Alexa ask Tide Pooler...". [Invocation Name Guidelines](#)

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](#)

Save Submit for Certification **Next**

6. Enter Interaction Model

- Enter the following JSON Intent into Intent Schema:

```
{"intents": [
  {
    "intent": "ApIntent",
    "slots": [
      {
        "name": "Text",
        "type": "LITERAL"
      }
    ],
    {
      "intent": "AMAZON.StopIntent"
    }
  }
]}
```

English (U.S.) Add New Language

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

```

1 {"intents":
2   [
3     {
4       "intent": "ApIntent",
5       "slots": [
6         {
7           "name": "Text",
8           "type": "LITERAL"
9         }
10      ],
11      {
12        "intent": "AMAZON.StopIntent"
13      }
14    }
15  ]
}

```

7. Enter Custom Slot Type
- Enter Type: list_bot
 - Enter Values: bot

Custom Slot Types (Optional)
Custom slot types to be referenced by the Intent Schema and Sample Utterances. For general information about custom slots, see [Custom Slot Types](#).

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

Add Slot Type

Custom Slot Types (Optional)
Custom slot types to be referenced by the Intent Schema and Sample Utterances. For general information about custom slots, see [Custom Slot Types](#).

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

Adding slot type

Enter Type
list_bot

Enter Values
Values must be line-separated

1	bot
---	-----

Delete Cancel Save

8. Enter Sample Utterances:
- ApIntent {bot|Text}
ApIntent {hello bot|Text}
AMAZON.StopIntent stop
AMAZON.StopIntent alexa stop
9. Click Next

Sample Utterances
These are what people say to interact with your skill. Type or paste in all the ways that people can invoke the intents. [Learn more](#)

Up to 3 of these will be used as Example Phrases, which are hints to users.

1	ApIntent {bot Text}
2	ApIntent {hello bot Text}
3	AMAZON.StopIntent stop
4	AMAZON.StopIntent alexa stop

Save Submit for Certification

Next

Leave window open and move on to instructions to Update JAR File followed by Create a Lambda Function, then return to this step when directed

10. Endpoint Information

- a. Service Endpoint Type: AWS Lambda ARN
- b. Location: Select same country as ARN location
- c. Paste ARN from Lambda Function in endpoint field
- d. For chat only skills, no need to allow users to create or link accounts
- e. Click Next

English (U.S.) Add New Language

Global Fields

These fields apply to all languages supported by the skill.

Endpoint

Service Endpoint Type:

AWS Lambda ARN (Amazon Resource Name) Recommended
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

HTTPS

Pick a geographical region that is closest to your target customers: ?

North America Europe

Europe
arn:aws:lambda:eu-west-1:710767312776:function:1

Account Linking

Do you allow users to create an account or link to an existing account with you? Yes No

[Learn more](#)

Save Submit for Certification **Next**

11. Complete Publishing Information and Privacy & Compliance when ready to publish

a. Complete Publishing Information

- i. Specify Category, Testing Instructions and Country Availability
- ii. Specify Skill Description, Example Phrases, Keywords, Upload Icons
- iii. Click next

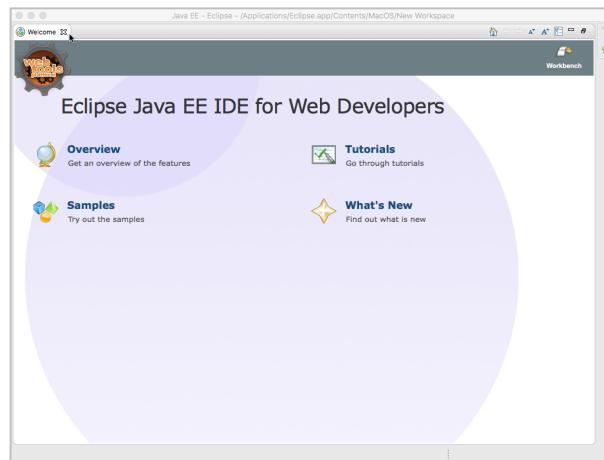
b. Complete Privacy & Compliance

- i. Specify Privacy & Compliance Settings
- ii. Free Privacy Policy Generator: www.iubenda.com
- iii. Free Terms of Use Generator: www.termsfeed.com
- iv. Click Submit for Certification; **note skills can take up to 21 days for review**

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

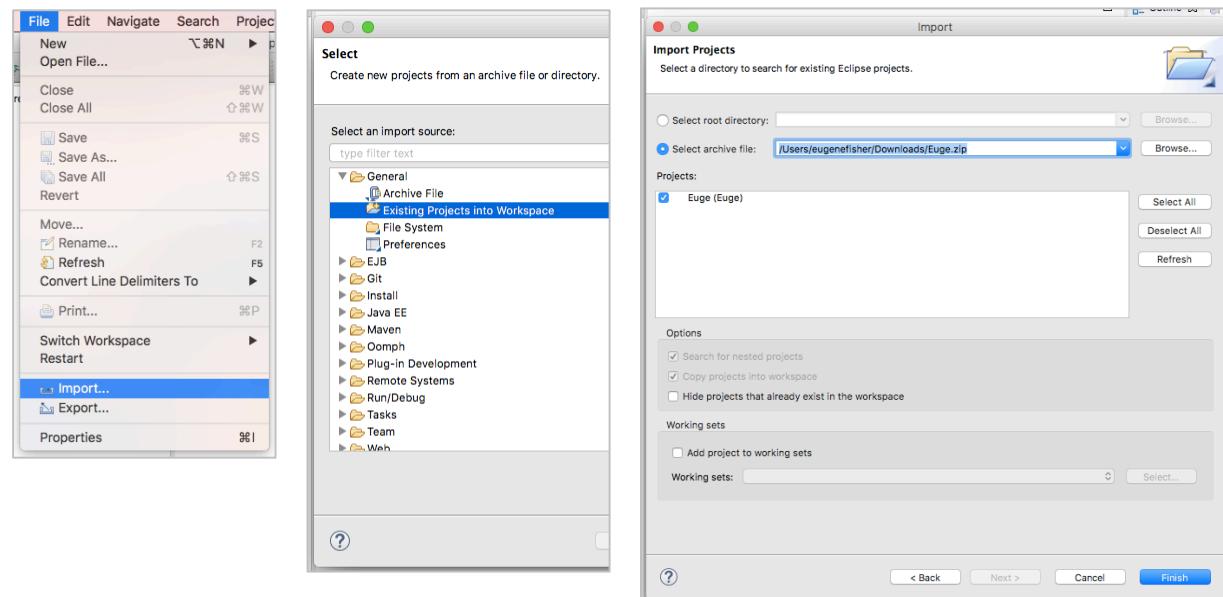
UPDATE JAR FILE

1. Download [Java Development Kit 8 \(JDK\)](#)
2. Download an IDE ([I used Eclipse Mars 2](#))
3. Start IDE, if Eclipse close the Welcome window.



4. Import Workspace

- a. Click File > Import
- b. Click General > Existing projects into Workspace
- c. Browse and choose Euge.zip file
- d. Select Euge in Projects window
- e. Click Finish



5. Update API.ai Token ID

- In your API.ai account, navigate to Settings by clicking the gear icon next to your Agent Name
- Copy the Client Access Token

The screenshot shows the 'EugeBot' agent settings in the API.ai interface. The 'General' tab is selected. A 'Client access token' field contains the value '36ecd03aefea4a768d9577bded6e9ae7'. There is also a 'Developer access token' field with the value '963c29da5b794a8992c5cd626108b763'.

- In Eclipse, navigate to Euge > src/main/java > util package > TextClientApplication.java
- Paste Client Access Token over INSERT TOKEN ID FROM API.AI HERE

The screenshot shows the Eclipse IDE interface with the 'TextClientApplication.java' file open. The code contains a placeholder 'INSERT TOKEN ID FROM API.AI HERE' which has been replaced by the copied API token from the previous step.

```
1 package util;
2
3 import ai.api.AIConfiguration;
4
5 * Text client reads requests line by line
6 /**
7  * 
8  */
9
10 public class TextClientApplication {
11     public static final String token = "INSERT TOKEN ID FROM API.AI HERE";
12
13     /**
14      * @param line
15      * @return
16     */
17     public String getResponse(String line) {
18         try {
19             AIConfiguration configuration = new AIConfiguration(token);
20
21             AIDataService dataService = new AIDataService(configuration);
22
23             AIRequest request = new AIRequest(line);
24
25             AIResponse response = dataService.request(request);
26
27             if (response.getStatus().getCode() == 200) {
28                 System.out.println(response.getResults().getFulfillment().getSpeech());
29             }
30         } catch (Exception e) {
31             e.printStackTrace();
32         }
33     }
34 }
```

6. Update Alexa Skill ID

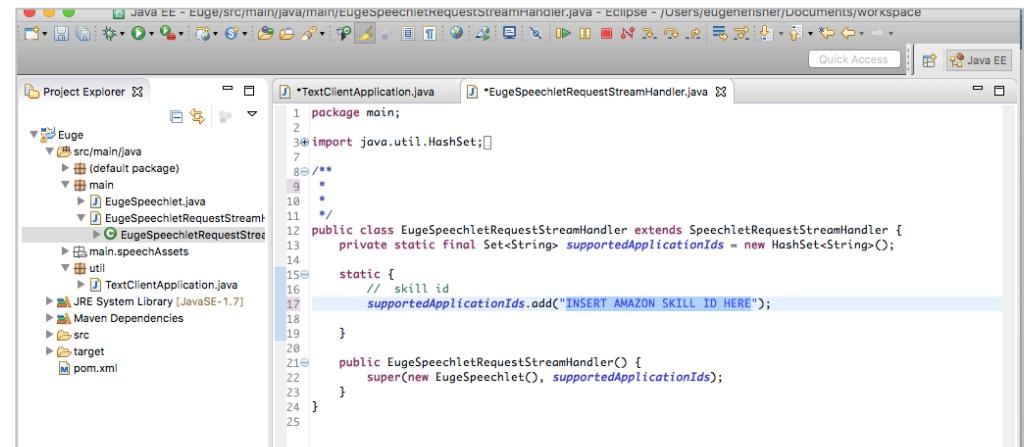
- In your Amazon Developer Account navigate to Skill Information tab
- Copy Application ID

The screenshot shows the 'Skill Information' section of the Alexa Skills Kit developer console. The 'Skill Type' dropdown is set to 'Custom'. The 'Language' is listed as 'English (U.S.)'. The 'Application Id' is 'amzn1.ask.skill.98cb839c-bd93-4e6d-bb81-61e2841c64b4'. The 'Name' field contains 'testearfd'.

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

6. Continued

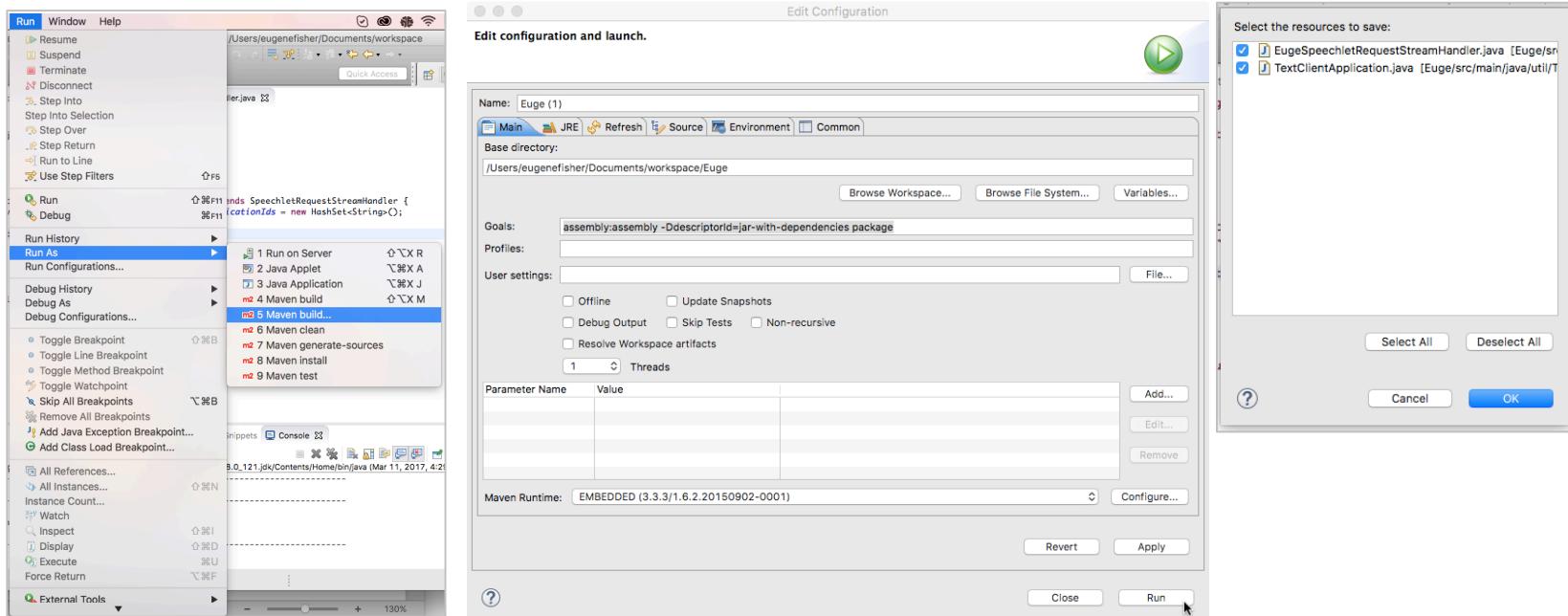
- c. In Eclipse navigate to Euge > Main > EugeSpeechletRequestStreamHandler.java
- d. Paste Alexa Skill ID over INSERT AMAZON SKILL ID HERE



```
1 package main;
2
3 import java.util.HashSet;
4
5 /**
6 * 
7 */
8
9
10 /**
11 */
12
13 public class EugeSpeechletRequestStreamHandler extends SpeechletRequestStreamHandler {
14     private static final Set<String> supportedApplicationIds = new HashSet<String>();
15
16     static {
17         // skill id
18         supportedApplicationIds.add("INSERT AMAZON SKILL ID HERE");
19     }
20
21     public EugeSpeechletRequestStreamHandler() {
22         super(new EugeSpeechlet(), supportedApplicationIds);
23     }
24 }
```

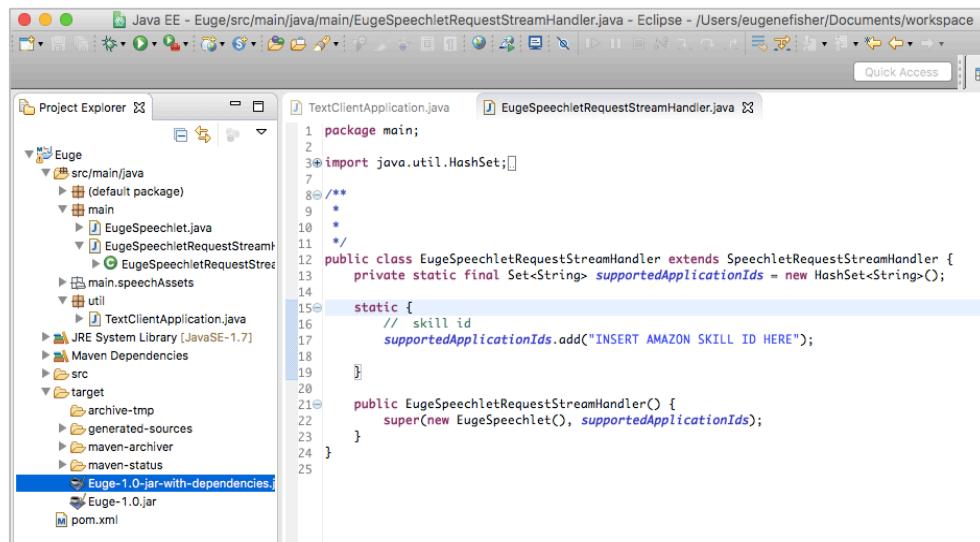
7. Build Application

- a. Click Run > Run As > Maven build...
- b. In new window, enter "assembly:assembly -DdescriptorId=jar-with-dependencies package" in the Goals field (without quotes) and click Run
- c. In new window, select both resources and click OK



8. Remove JAR file
 - a. Navigate to Euge > target > maven-status > Euge-1.0-jar-with-dependencies.jar
 - b. Copy JAR file and place in desired system directory folder

9. Close Eclipse



```

Java EE - Euge/src/main/java/main/EugeSpeechletRequestStreamHandler.java - Eclipse - /Users/eugenefisher/Documents/workspace

Project Explorer
Euge
src/main/java
  main
    EugeSpeechlet.java
    EugeSpeechletRequestStreamHandler.java
    main.speechAssets
    util
      TextClientApplication.java
    JRE System Library [JavaSE-1.7]
    Maven Dependencies
    src
    target
      archive-tmp
      generated-sources
      maven-archiver
      maven-status
      Euge-1.0-jar-with-dependencies.jar
      Euge-1.0.jar
    pom.xml

TextClientApplication.java
EugeSpeechletRequestStreamHandler.java

1 package main;
2
3 import java.util.HashSet;
4
5 /**
6 *
7 */
8
9 public class EugeSpeechletRequestStreamHandler extends SpeechletRequestStreamHandler {
10     private static final Set<String> supportedApplicationIds = new HashSet<String>();
11
12     static {
13         // skill id
14         supportedApplicationIds.add("INSERT AMAZON SKILL ID HERE");
15     }
16
17     public EugeSpeechletRequestStreamHandler() {
18         super(new EugeSpeechlet(), supportedApplicationIds);
19     }
20
21 }
22
23
24
25

```

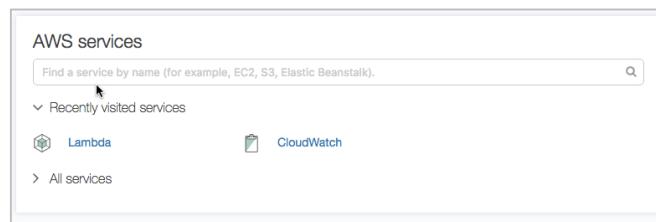
CREATE A LAMBDA FUNCTION

1. Sign in to <https://aws.amazon.com/>

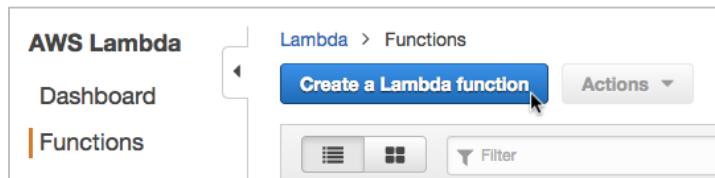
2. Select Region (must be either N. Virginia or Ireland for Alexa functions)



3. Search and select Lambda Service



4. Select Create a Lambda Function



5. Select Blank Function Blueprint

Select blueprint

Blueprints are sample configurations of event sources and Lambda functions. Choose a blueprint that best aligns with your desired scenario and customize as needed, or skip this step if you want to author a Lambda function and configure an event source separately. Except where otherwise noted, blueprints are licensed under [CC0](#).

Select runtime ▾ Filter Viewing 1-9 of 78

Blank Function Configure your function from scratch. Define the trigger and deploy your code by stepping through our wizard. custom	kinesis-firehose-syslog-to-json An Amazon Kinesis Firehose stream processor that converts input records from RFC3164 Syslog format to JSON. nodejs · kinesis-firehose	alexa-skill-kit-sdk-factskill Demonstrate a basic fact skill built with the ASK NodeJS SDK nodejs · alexa
---	---	---

6. Click grey dashed box to Configure Triggers

- Select Alexa Skills Kit
- Click Next

Configure triggers

You can choose to add a trigger that will invoke your function.

Remove

Cancel Previous Next

Filter integrations

- API Gateway
- AWS IoT
- Alexa Skills Kit**
- Alexa Smart Home
- CloudFront
- CloudWatch Events - Schedule
- CloudWatch Logs
- CodeCommit

Configure triggers

You can choose to add a trigger that will invoke your function.

Alexa Skills Kit → Lambda Remove

Choosing **Submit** will create a resource policy that allows the Amazon Alexa service to call your Lambda function. To configure the Alexa service to work with your Lambda function, go to the [Alexa Developer portal](#). [Learn more](#) about the Lambda permission model.

Cancel Previous Next

7. Configure Function

- Enter Function Name
- Enter Function Description
- Select Runtime: Java 8

Configure function

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

Name*

Description

Runtime* 



8. Upload Function Code

- Select Upload a .ZIP or JAR file
- Click Upload and select file
- Leave Enable Encryption Helpers unchecked
- Leave Environment Variables blank

Lambda function code

Provide the code for your function. [Learn more](#) about deploying Lambda functions.

Code entry type 

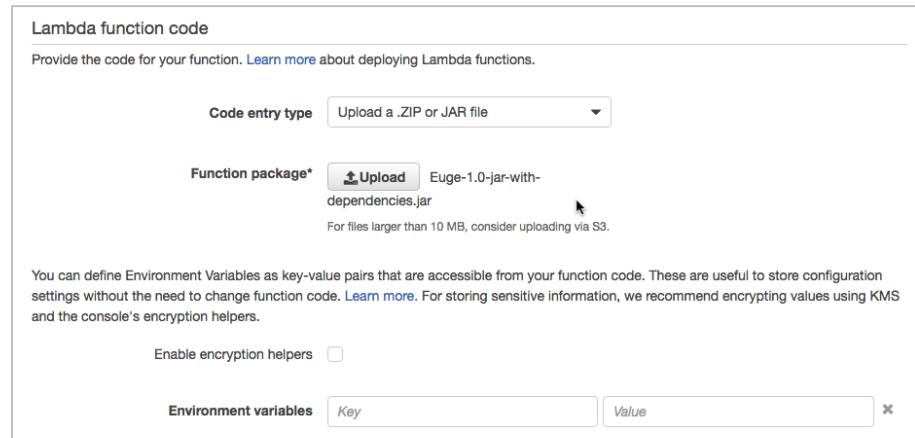
Function package*  

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

You can define Environment Variables as key-value pairs that are accessible from your function code. These are useful to store configuration settings without the need to change function code. [Learn more](#). For storing sensitive information, we recommend encrypting values using KMS and the console's encryption helpers.

Enable encryption helpers

Environment variables 



9. Specify Function Handler and Role

- Paste this in Handler field:
EugeSpeechletRequestStreamHandler.java
- Role: Choose an existing role
- Existing Role: lambda_basic_execution
- Ignore Advanced Settings
- Click Next

Lambda function handler and role

Handler* 

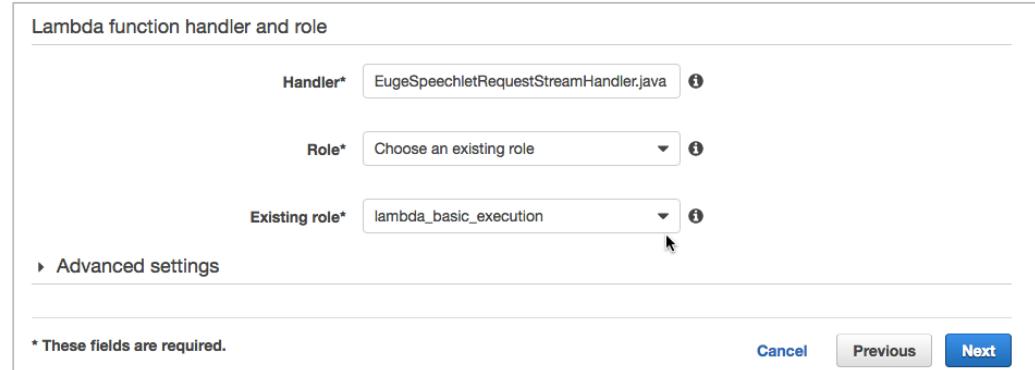
Role*  

Existing role*  

 Advanced settings

* These fields are required.

[Cancel](#) [Previous](#) [Next](#)



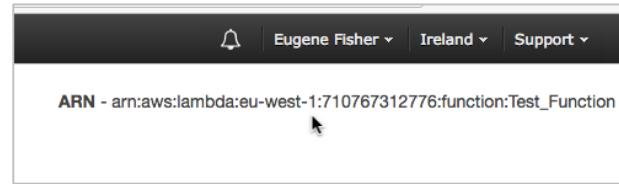
10. Review Function Details

- a. Click Create Function



11. Copy function ARN to clipboard and
return to Step 10 of Create Alexa Skill (page 4)

12. Close Lambda



*** CONGRATULATIONS ***

You've successfully built an Alexa skill with API.ai and Lambda!

Thanks for checking out this tutorial. Be sure to share with others!

Questions? Feedback?

Have you built a skill with this tutorial?

Let me know: bfisher@ebfour.com