Setup

Alexa Skill Setup

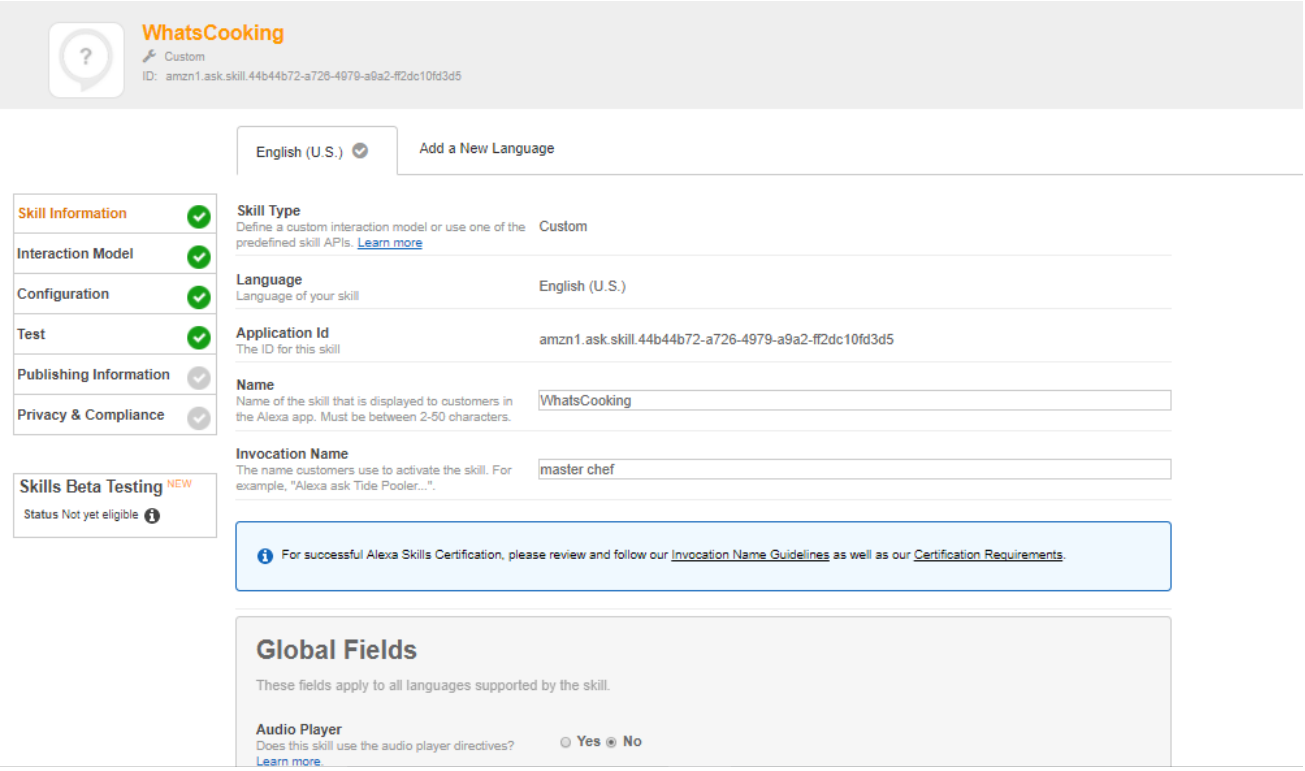
Alexa skill is comprised of two parts: -

1) Voice User Interface – Here we handle voice input of user
2) Actual Code Logic – It responds to the user input

There are two parts to an Alexa skill. The first part is the Voice User Interface (VUI). This is where we define how we will handle a user's voice input, and which code should be executed when specific commands are uttered.

Step 1: Sign in to Amazon developer console and select “Add a New Skill” under “Alexa Skills Kit”

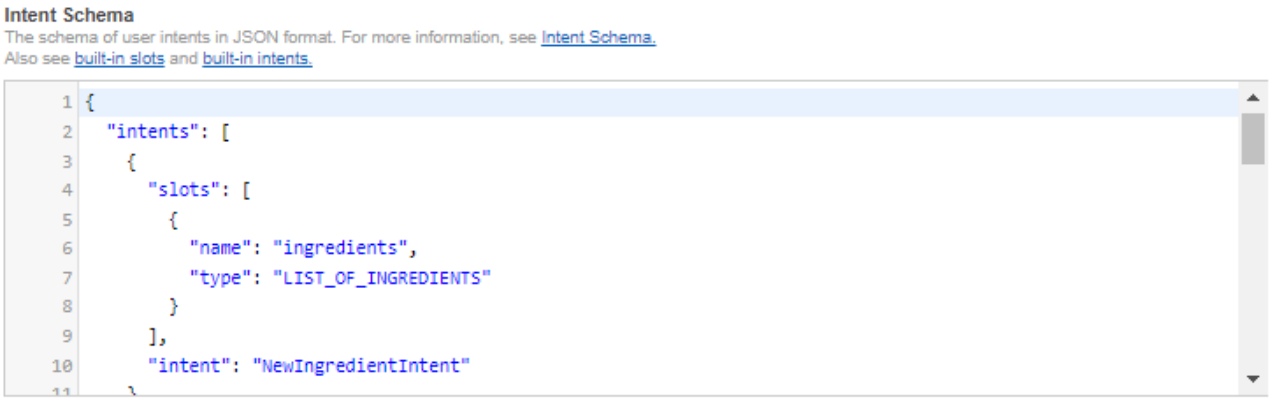
Step 2: Fill out all the skill information which includes name of the skill, Invocation name which triggers your Alexa skill.



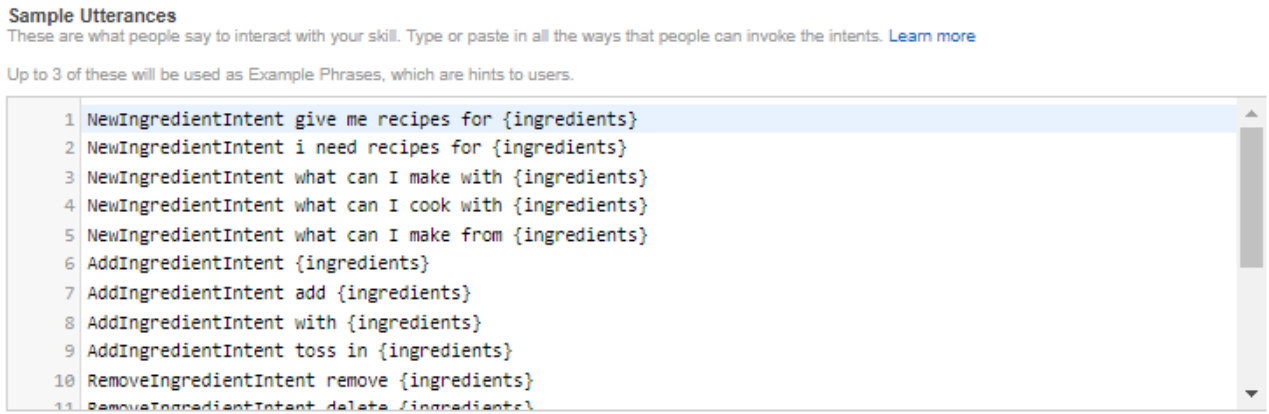
Step 3: To process user voice commands and invoke appropriate intent to generate an accurate respond to the user query are specified in the

interaction model section of skill configuration. In short, the voice interface of your skill is defined under interaction model. They are as follows:

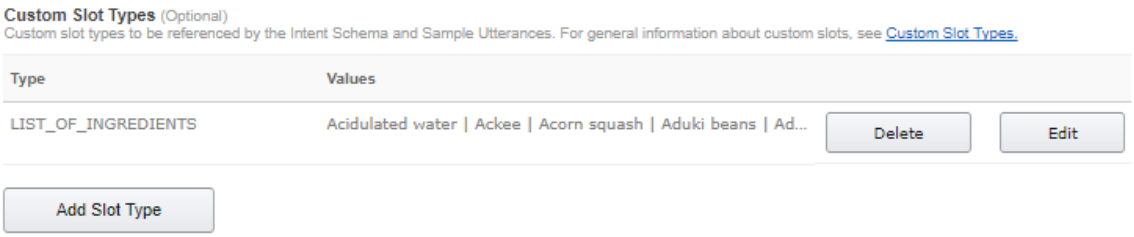
1) **Intents:** An intent represents an action that fulfills a user's spoken request. Intents can optionally have arguments called *slots*.



2) **Sample utterances:** A set of likely spoken phrases mapped to the intents. This should include as many representative phrases as possible.



3) **Custom slot types**: A representative list of possible values for a slot. Custom slot types are used for lists of items that are not covered by one of Amazon's built-in slot types.



4) **Dialog model** (optional): A structure that identifies the steps for a multi-turn conversation between your skill and the user to collect all the information needed to fulfill each intent. This simplifies the code you need to write to ask the user for information [7].

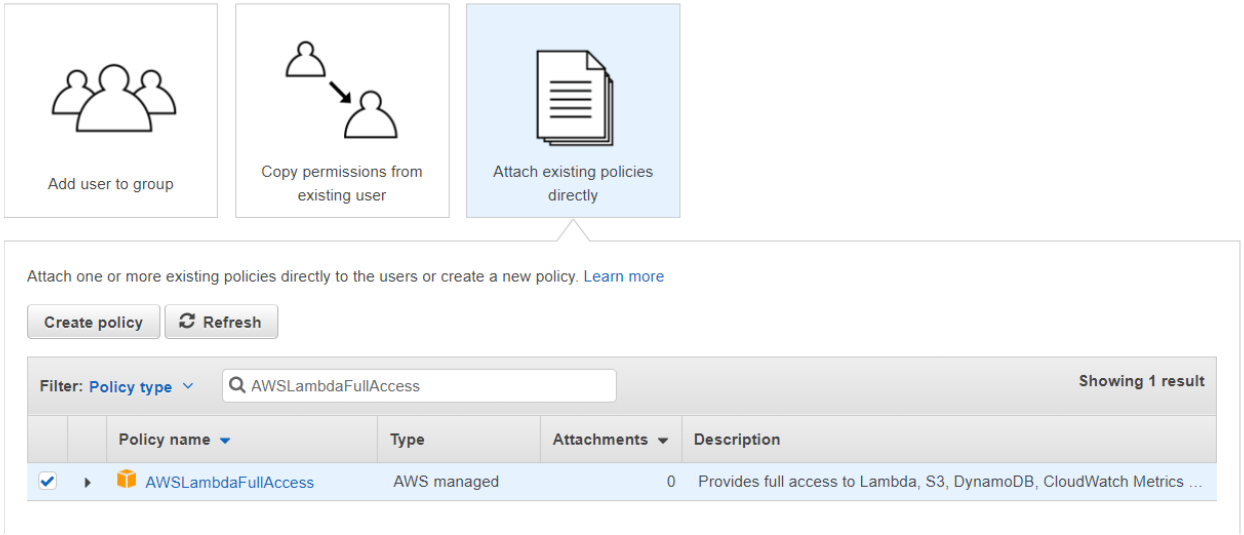
Step 4:

- **AWS Lambda Function**

  Here we will create the actual code logic for the Alexa skill using AWS lambda function. Create the Lambda function in one of the two regions: US East (N. Virginia) and EU (Ireland) as Alexa skill works only for these regions. Create the lambda function and upload your code logic

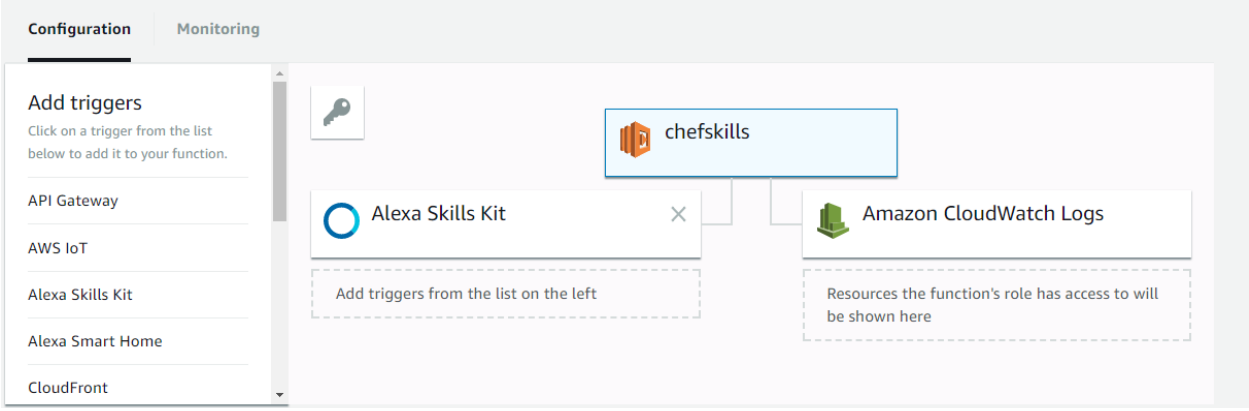
- **AWS IAM role**

  While creating Lambda function you will need to setup the IAM role to give the function access to other AWS resources.

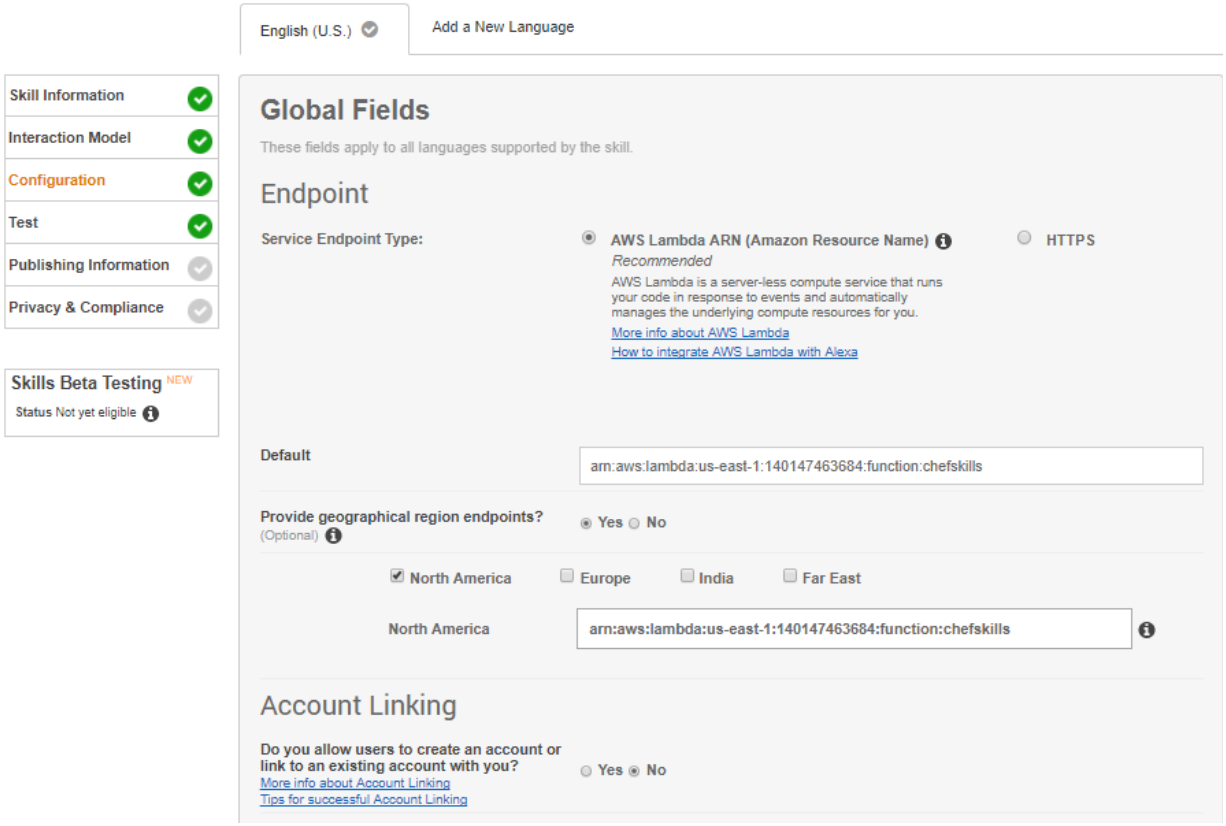


- **Configuring trigger**

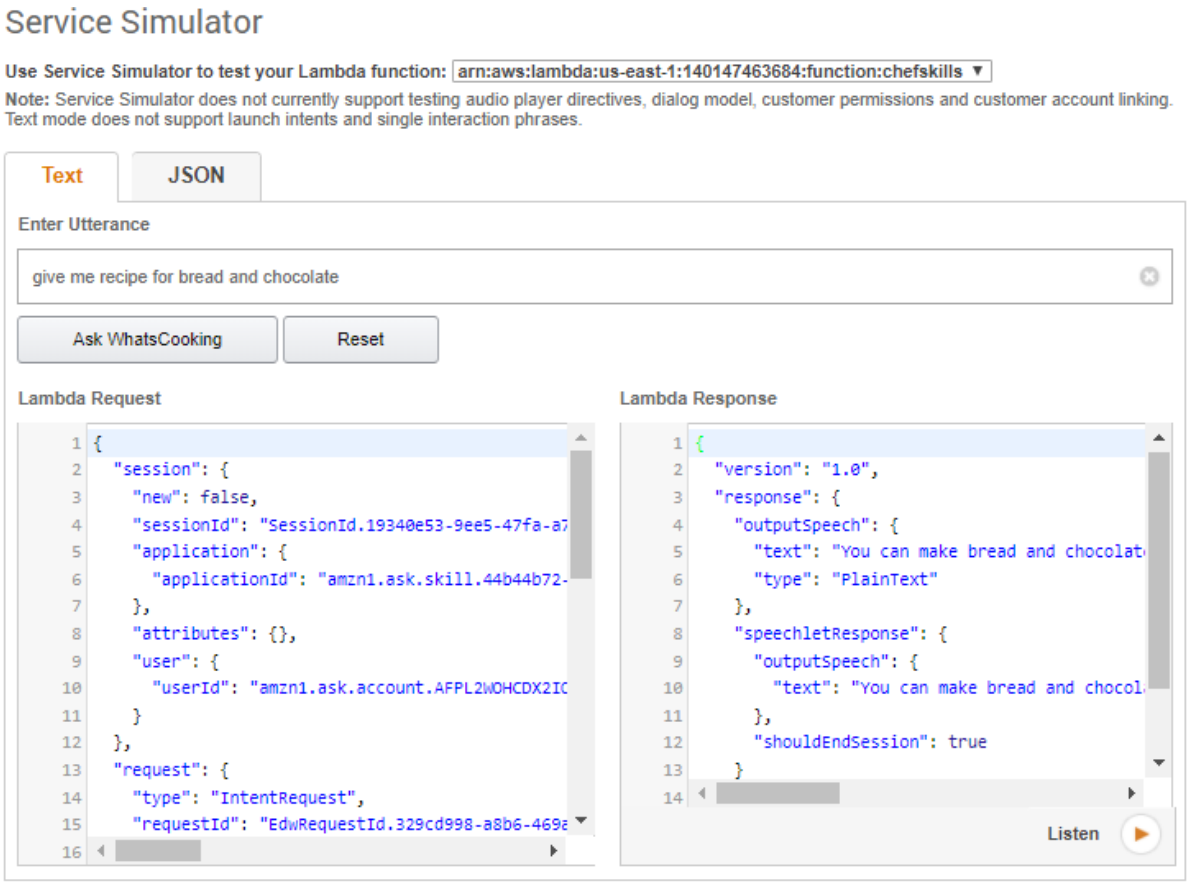
  After creating Lambda function select Alexa Skills Kit as a trigger for the Lambda function. After the creation of the function, a unique ARN will be generated which is to be used in further step.



Step 5: Connecting the voice user interface to the Lambda function in the configuration section. Select the AWS Lambda ARN option and paste the ARN of the lambda function in the appropriate geographical region



Step 6: Your skill is ready and in this section, you can test your skill using the service emulator provided. You can verify the request and response of the Lambda function.



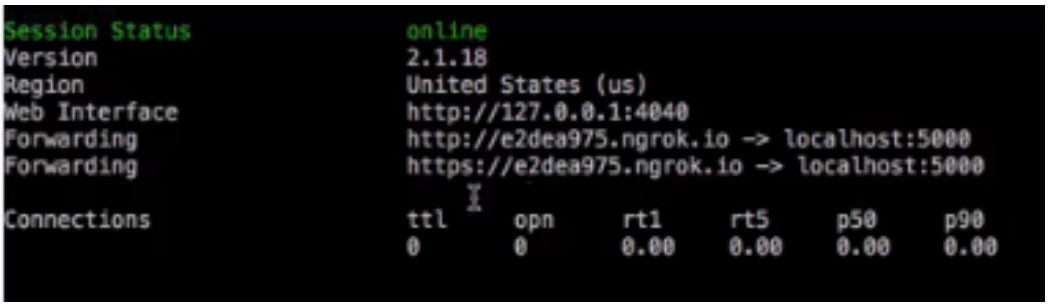
ngrok setup

Step 1: Download ngrok from https://ngrok.com/

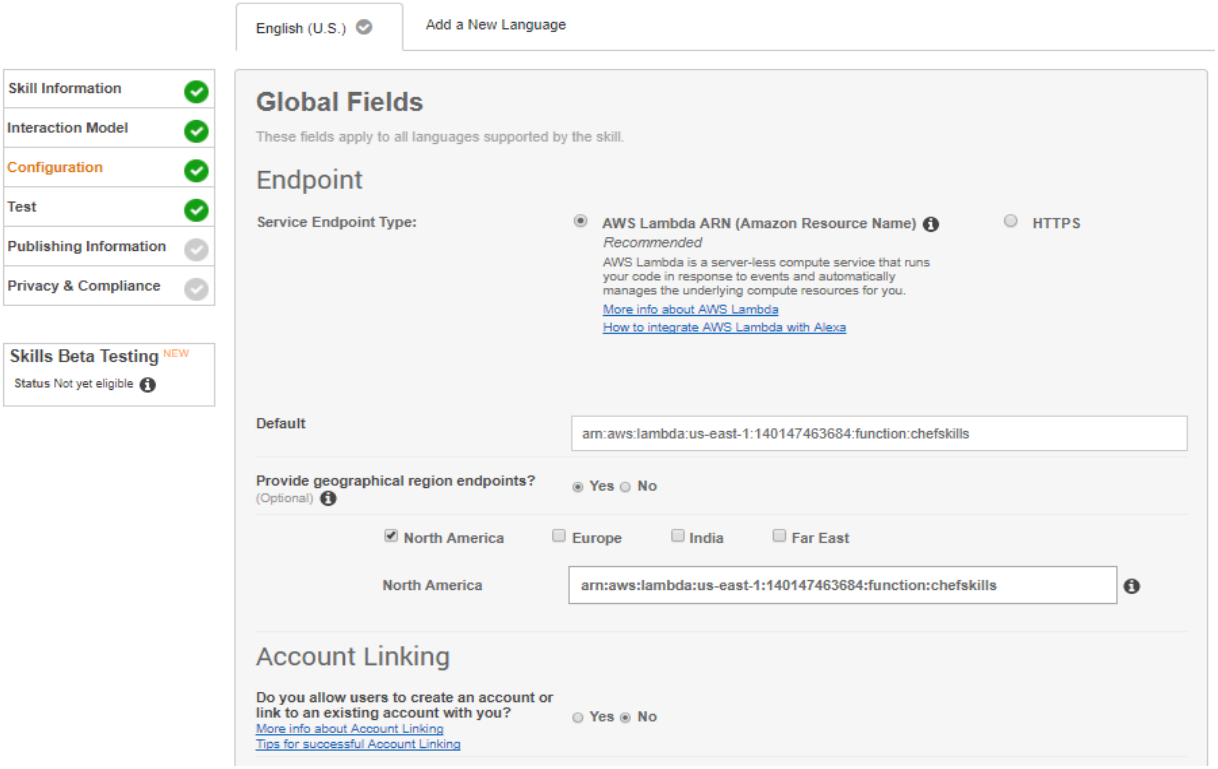
Step 2: Unzip the folder and copy the ngrok file and paste it in the project folder

Step 3: Start ngrok by using the following command:

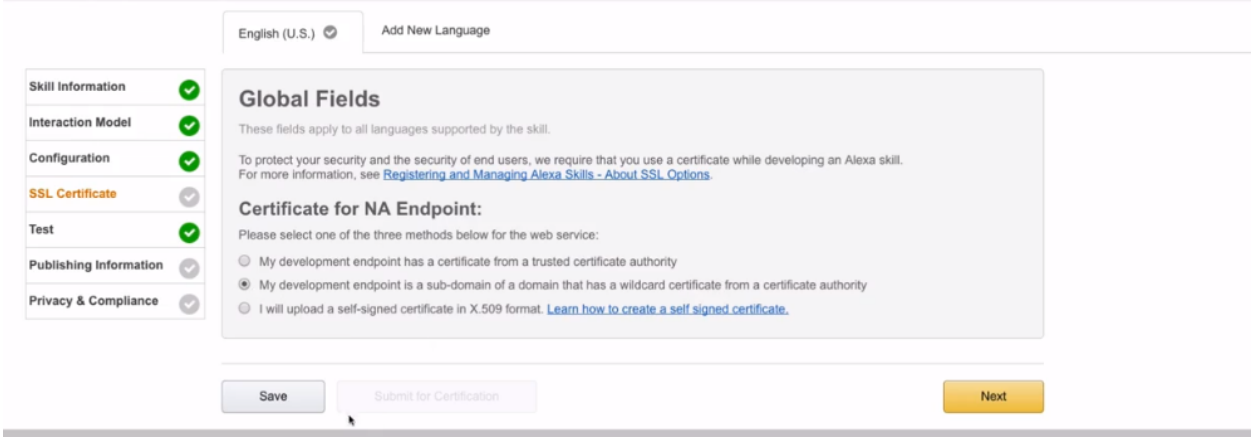
. /ngrok http port_number



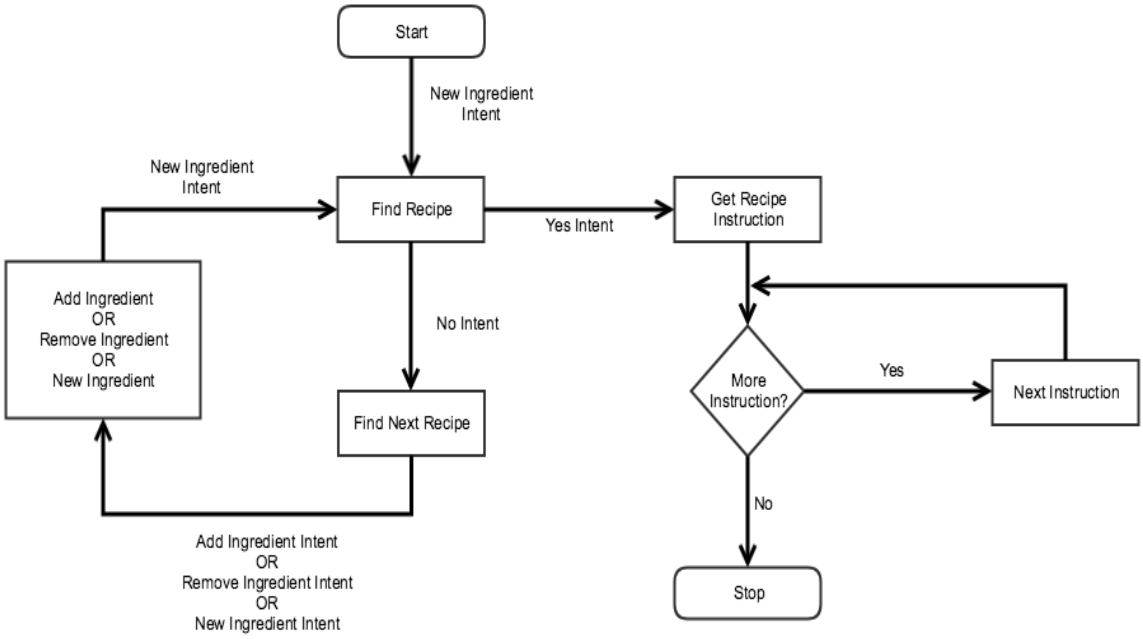
Step 4: Copy the http link to the Alexa End in the configuration section as shown in the figure



Step 5: Configure the SSL Certificate by selecting the second option



Working: Flow Diagram with description



The diagram above illustrates the flow of the system and how various voice commands are controlled and executed to invoke the type of service requested by the user. The description of various Intent are as follows:

Each intent can be called with different phrases i.e. sample utterances

NewIngredientIntent give me recipes for {ingredients}
NewIngredientIntent I need recipes for {ingredients}
NewIngredientIntent what can I make with {ingredients}
NewIngredientIntent what can I cook with {ingredients}
NewIngredientIntent what can I make from {ingredients}
AddIngredientIntent {ingredients}
AddIngredientIntent add {ingredients}
AddIngredientIntent with {ingredients}
AddIngredientIntent toss in {ingredients}
RemoveIngredientIntent remove {ingredients}
RemoveIngredientIntent delete {ingredients}
RemoveIngredientIntent scratch {ingredients}
RemoveIngredientIntent never mind the {ingredients}
RemoveIngredientIntent forget the {ingredients}
RemoveIngredientIntent minus the {ingredients}
RemoveIngredientIntent without the {ingredients}
NextInstructionIntent say next
NextInstructionIntent Next Step
NextInstructionIntent afterwards
NextInstructionIntent after that

NextInstructionIntent ok next
NextInstructionIntent ok after that
InstructionSetIntent give me Instructions
InstructionSetIntent yes
NextRecipe say give me another recipe
NextRecipe no

Launch Intent

Whenever the Alexa Skill “What’s Cooking” is invoked, the first request that we receive is the launch request. This request greets the user and provide the necessary information or the commands that user can use to play with the skill around.

New Ingredient Intent

When the user specifies new list of ingredient or add or remove ingredient from the list an API call is made to retrieve the new recipes.

Add Ingredient Intent

When user wants to change the list of ingredients he provided add or remove ingredient is invoked depending on user request. In the add ingredient intent, a new list of ingredients is created and the call is passed to New Ingredient Intent to retrieve the new recipes based on the updated list. Also, if the users specify same ingredients multiple times then care is taken that the ingredient is added only once. i.e. the list doesn’t contain duplicate ingredients.

Remove Ingredient Intent

In this intent, if the item is present then its removed from the existing list of ingredients and same as add ingredient intent a new call is made to New Ingredient Intent to retrieve new recipe list.

Yes Intent

When the user finds the dish that he/she is looking for then upon saying “Yes”, another API call is made to retrieve the step by step instructions to prepare the dish.

No Intent

When the user says “No” after retrieving list of recipes from the New Ingredient Intent, then the user doesn’t need to make another API call to retrieve a new Dish. The new dish is retrieved from the list one by one until user finds something interesting.

Next Step Intent

Once the user has started to prepare the dish and after Alexa has provided the first step, upon request Alexa responds to the user with next step and waits for the user until he/she has completed the ongoing step.

Stop Intent

It is a built – in intent where Alexa greets the user “Good – Bye” and successfully exits the running skill. You can also modify the greeting message by overriding it.