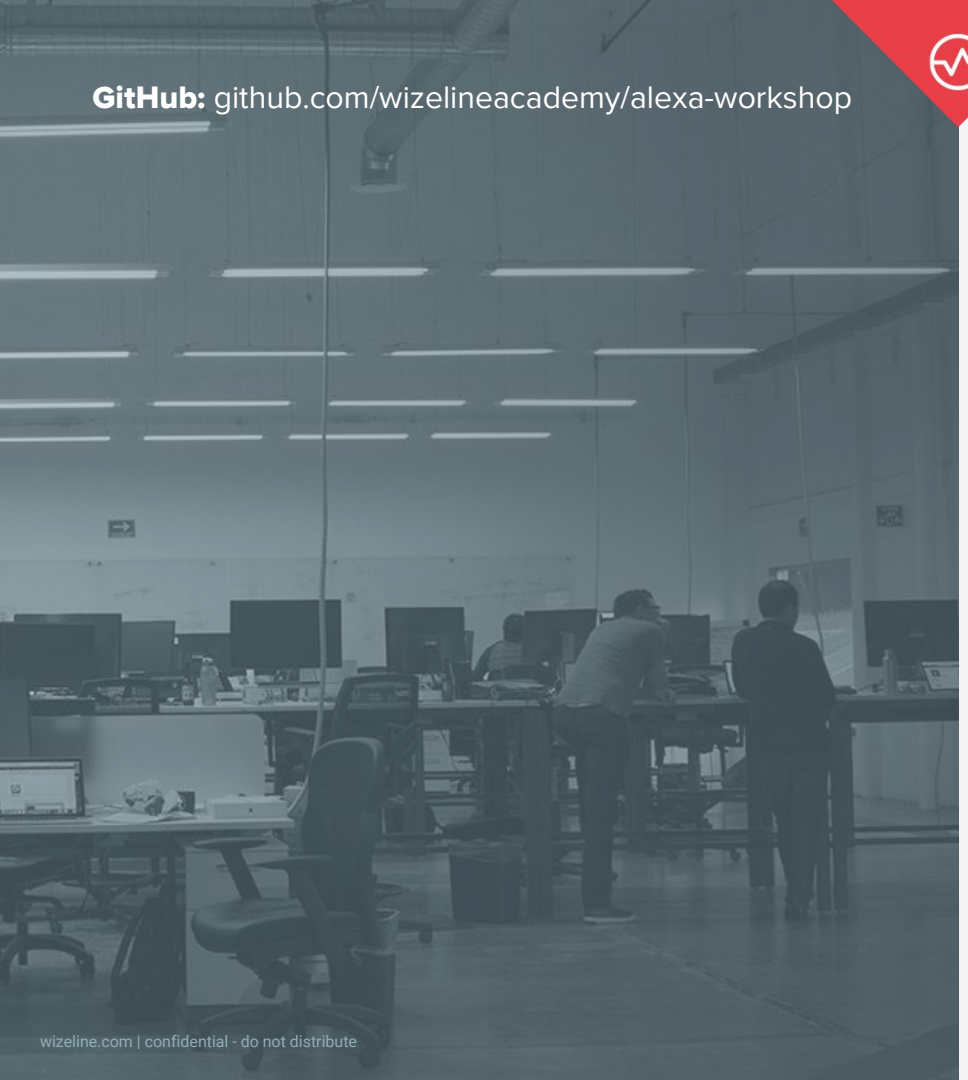


GitHub: github.com/wizelineacademy/alexa-workshop

WIZELINE

Alexa Skill Workshop

From idea to production in a day

By Gustavo Córdova

March 22nd, 2018

Our Mentors

- Israel Gomez
- Sergio Baez
- Oswaldo Herrera
- Juan Jose Flores
- Abraham González

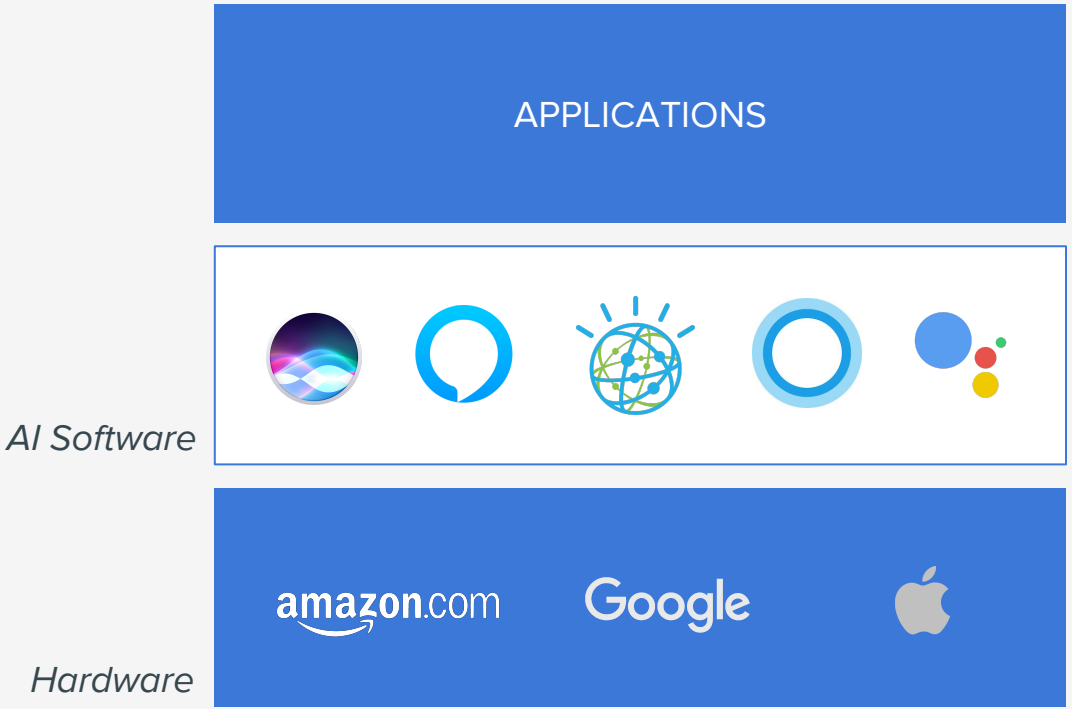
Why Speech?

AGENDA

- Voice Ecosystem
- Use Cases
- Getting Started with Lambda and ASK
- ***15 min break***
- Coding an Alexa Skill
- Publishing & Challenges
- Closing

Are we there yet?

The current voice ecosystem



Use Cases

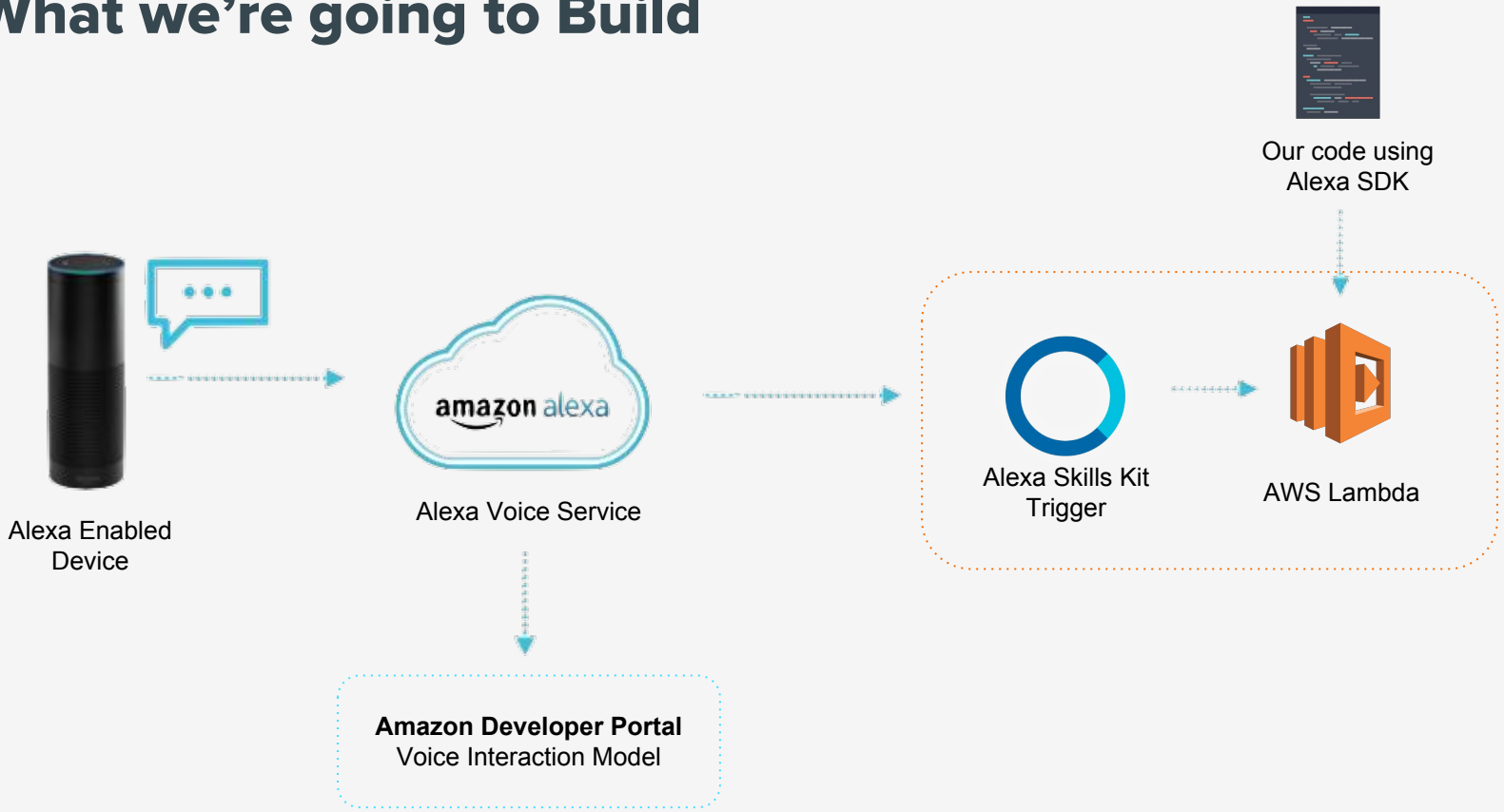
The current voice ecosystem

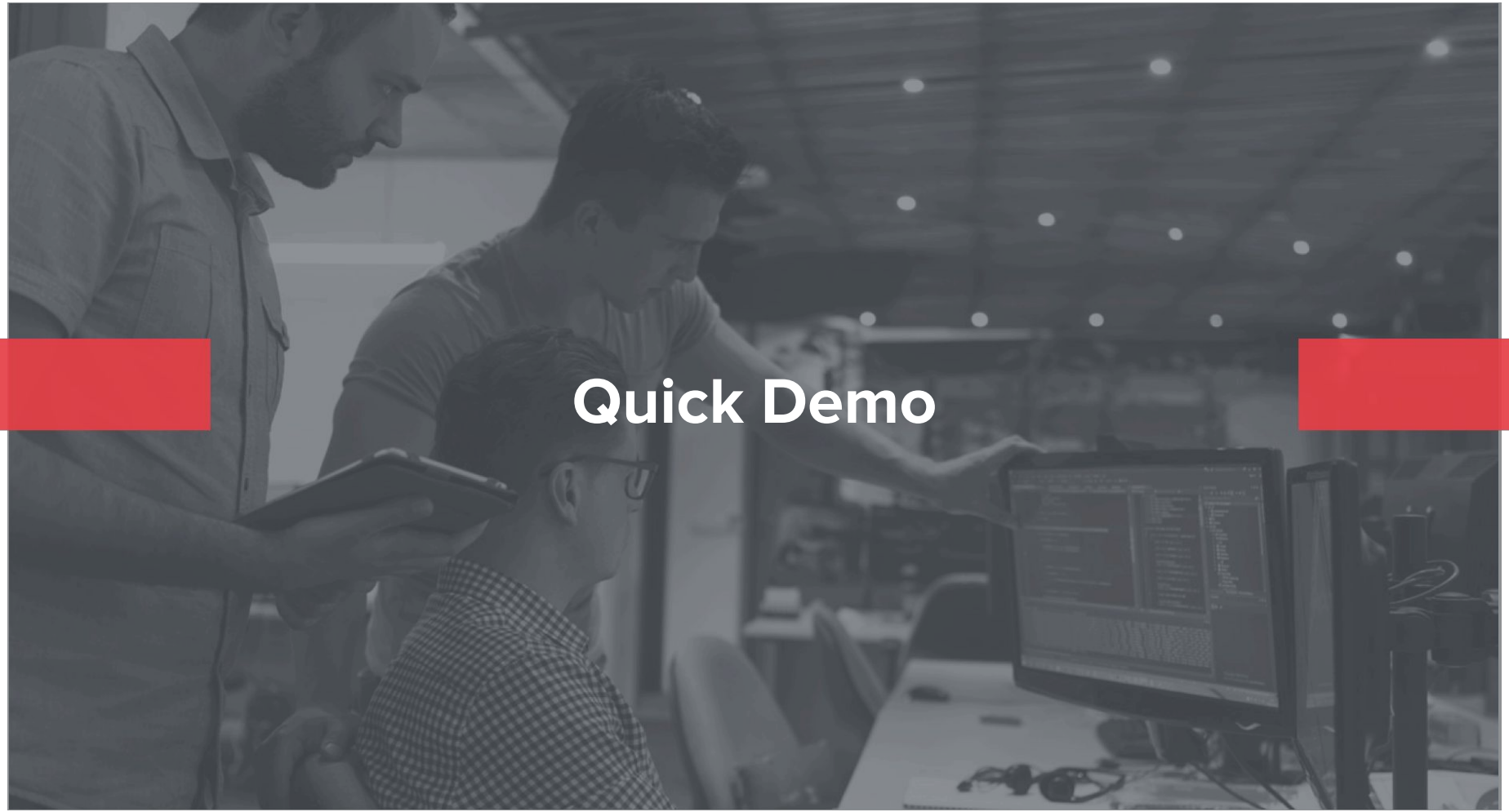
Alexa Skill Types

- Custom Skills
- Smart Home Skills
- Flash Briefing Skills
- Video Skills
- List Skills

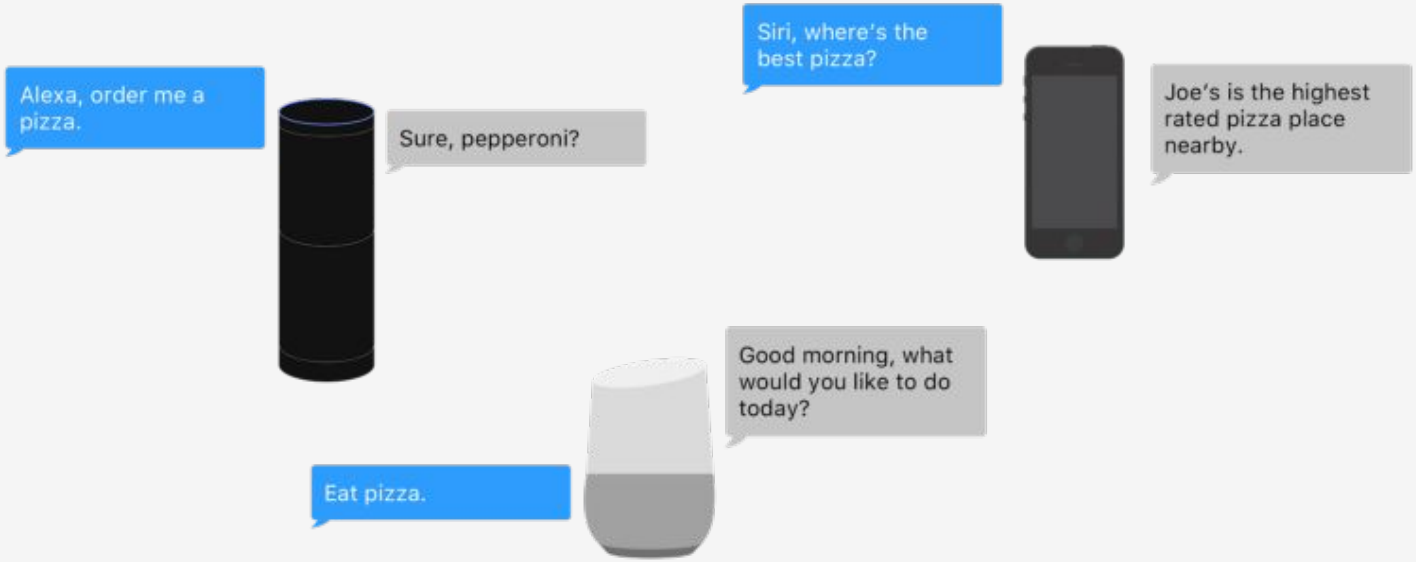
Alexa Voice Service*

What we're going to Build




Quick Demo

Design for Voice

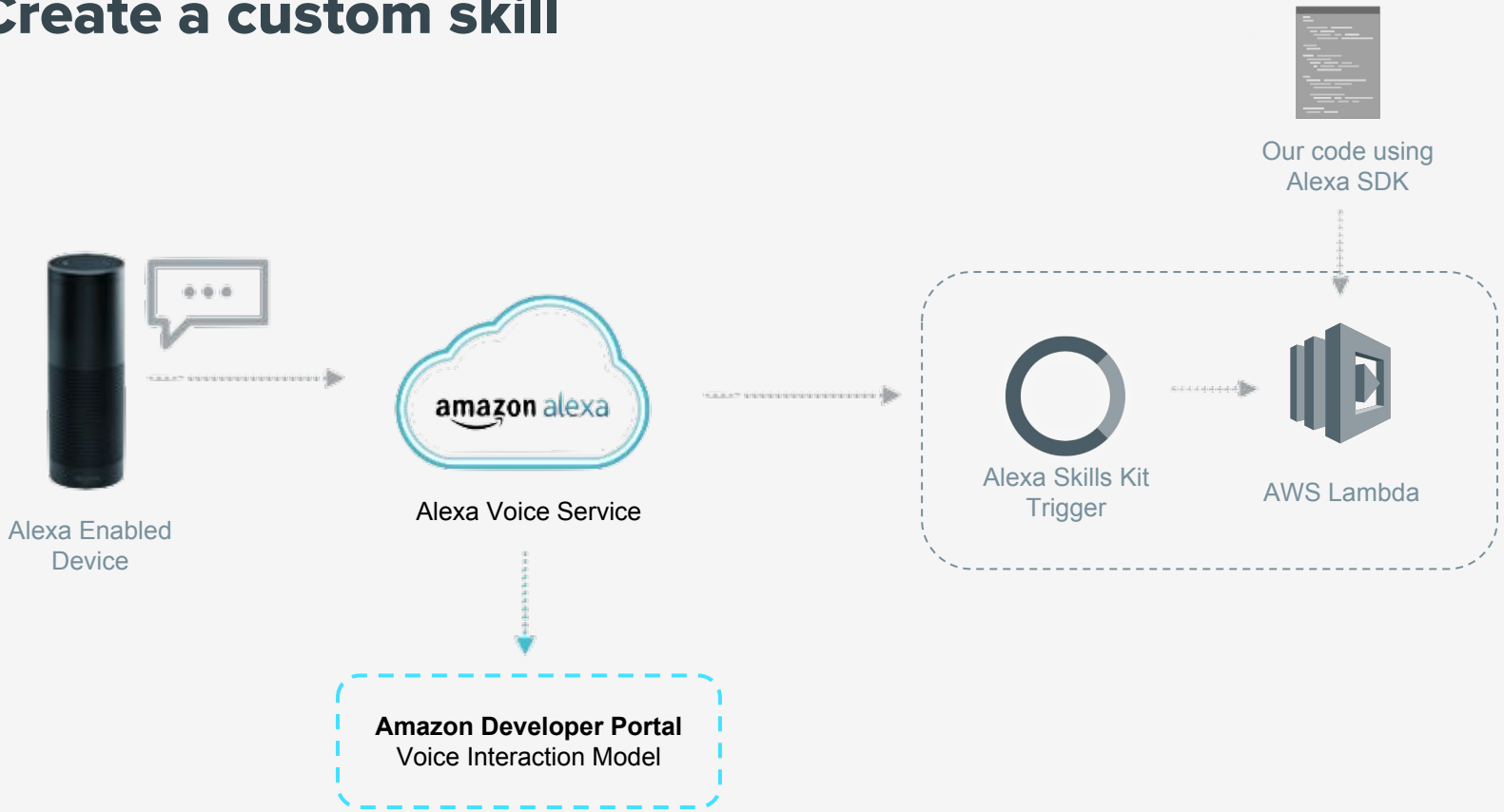



Design Break Out
10min

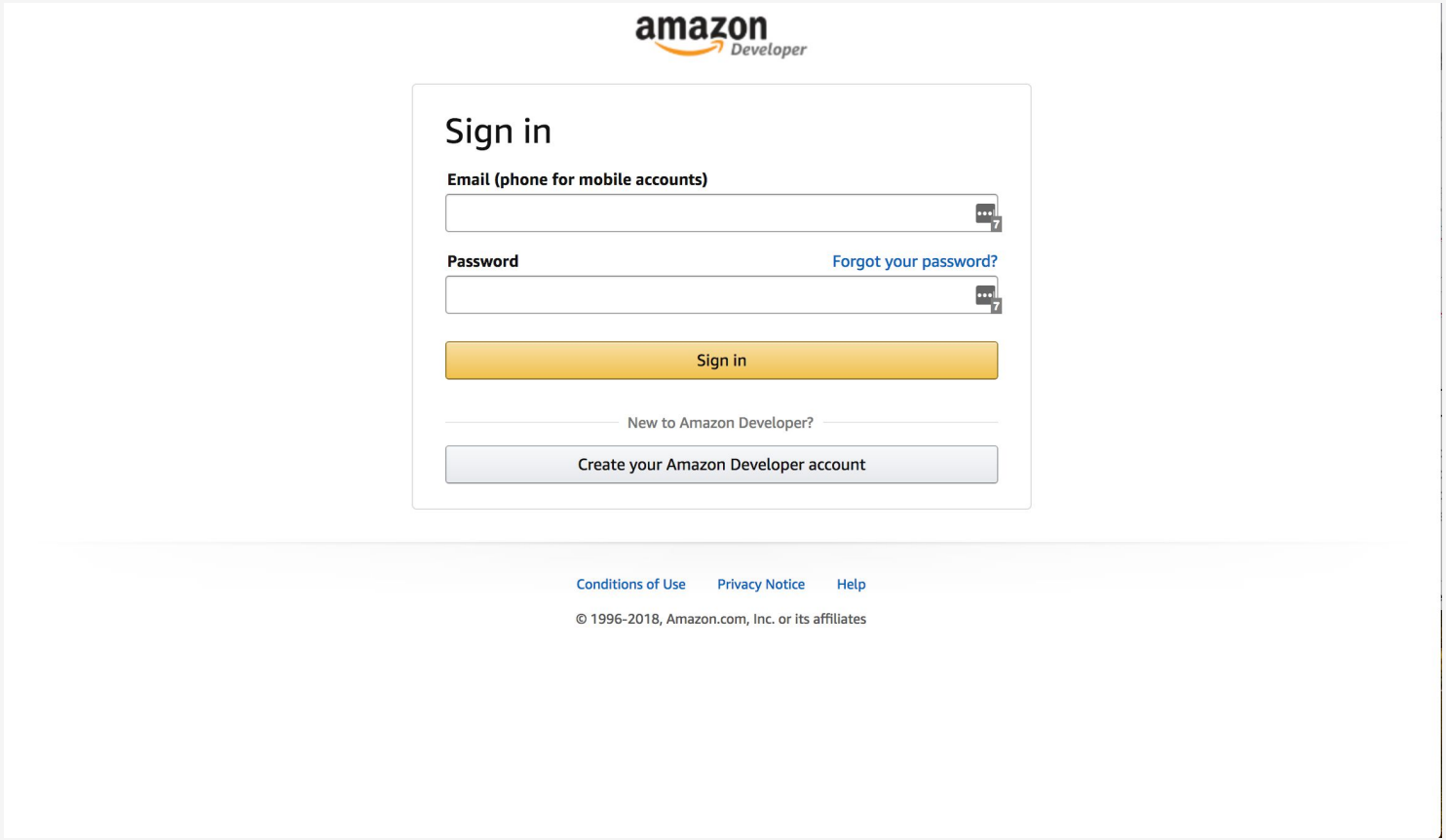
Glossary

- **Skill:** A capability or ability of Alexa (an app).
- **Invocation Name:** Skill name, used to launch the application.
- **Intent:** A request or command associated with a user interaction that the service can handle.
- **Utterance:** A word that the user says to trigger an intent.
- **Slot:** An argument to an intent.

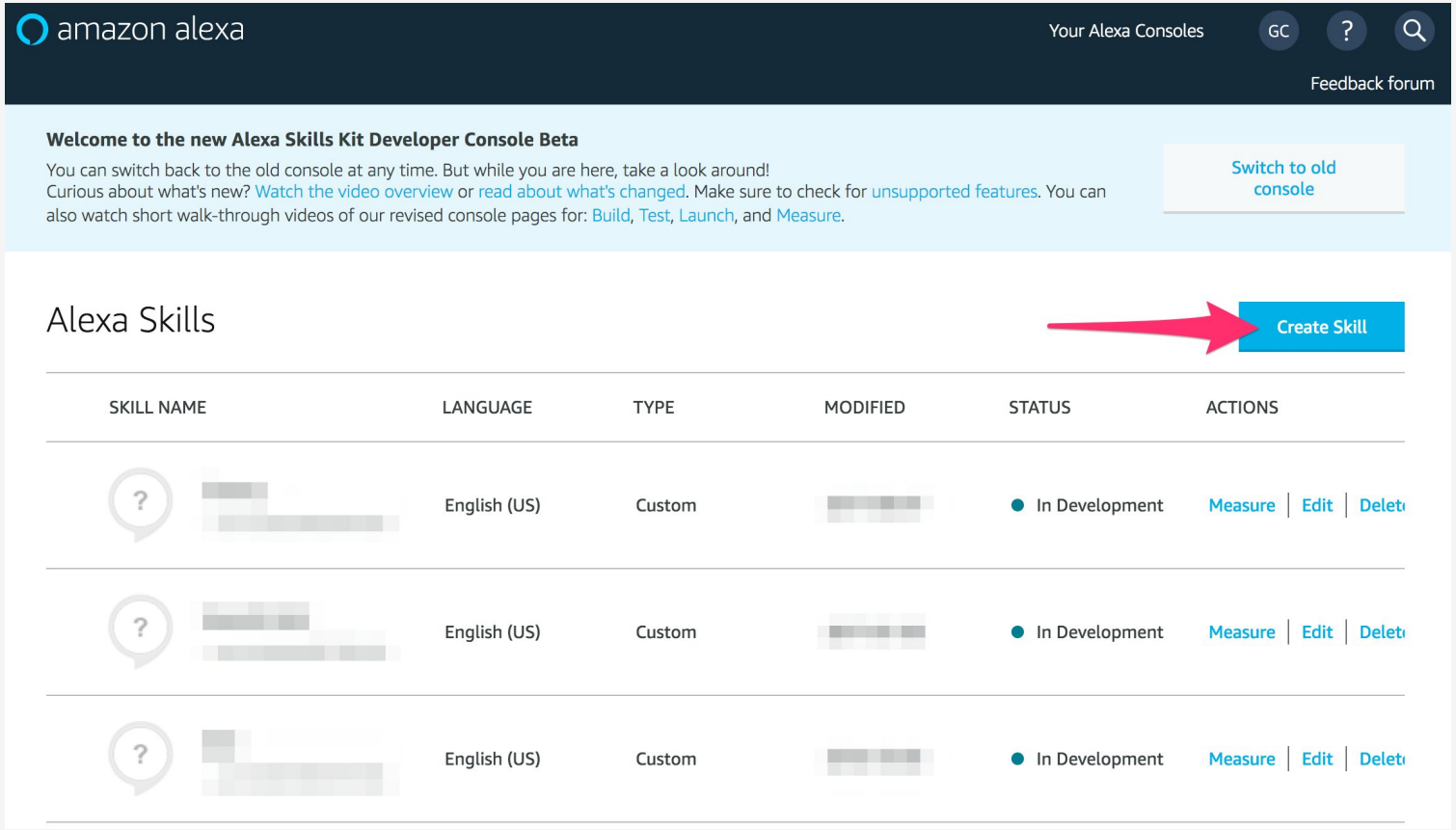
Create a custom skill

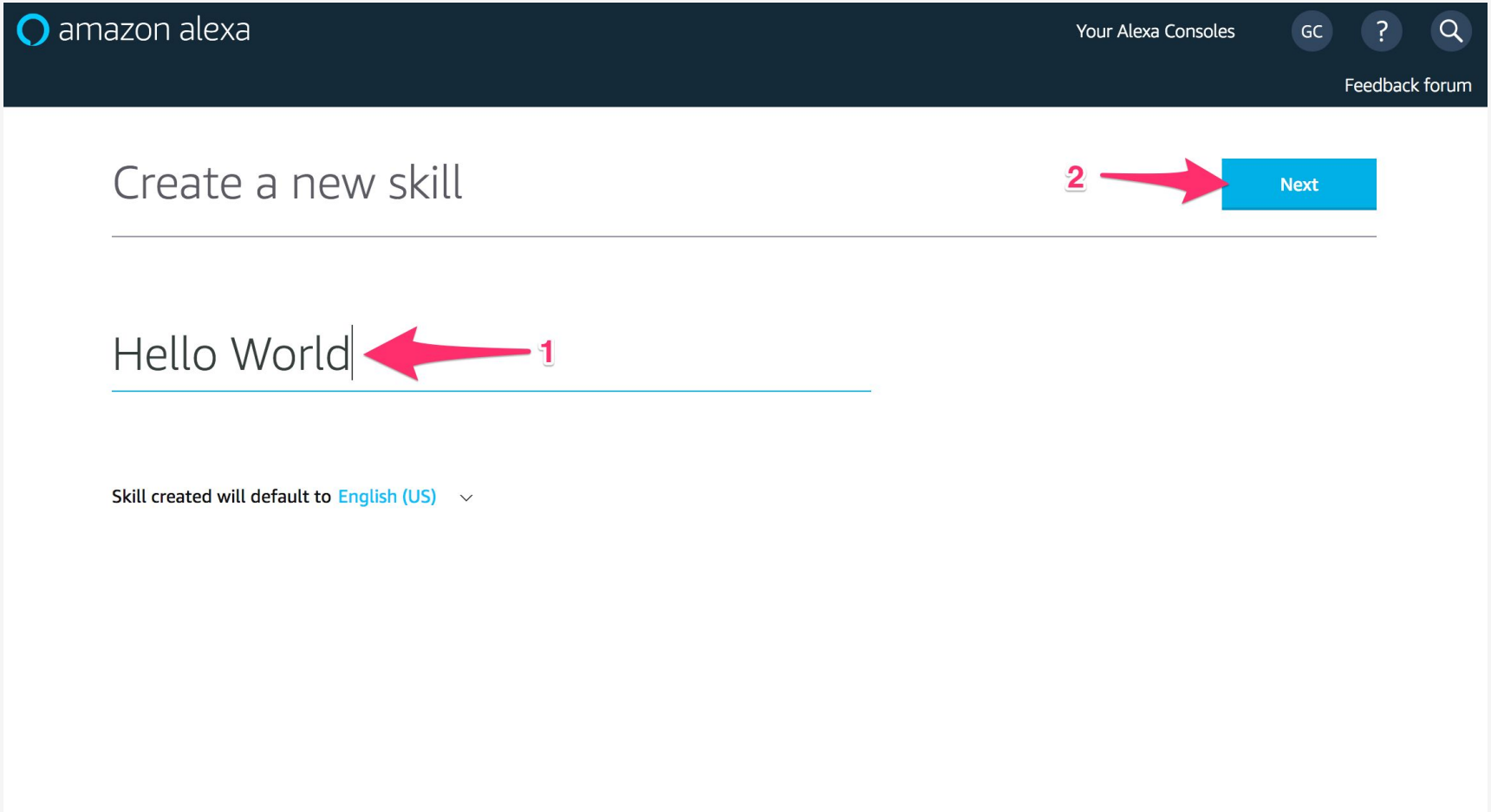


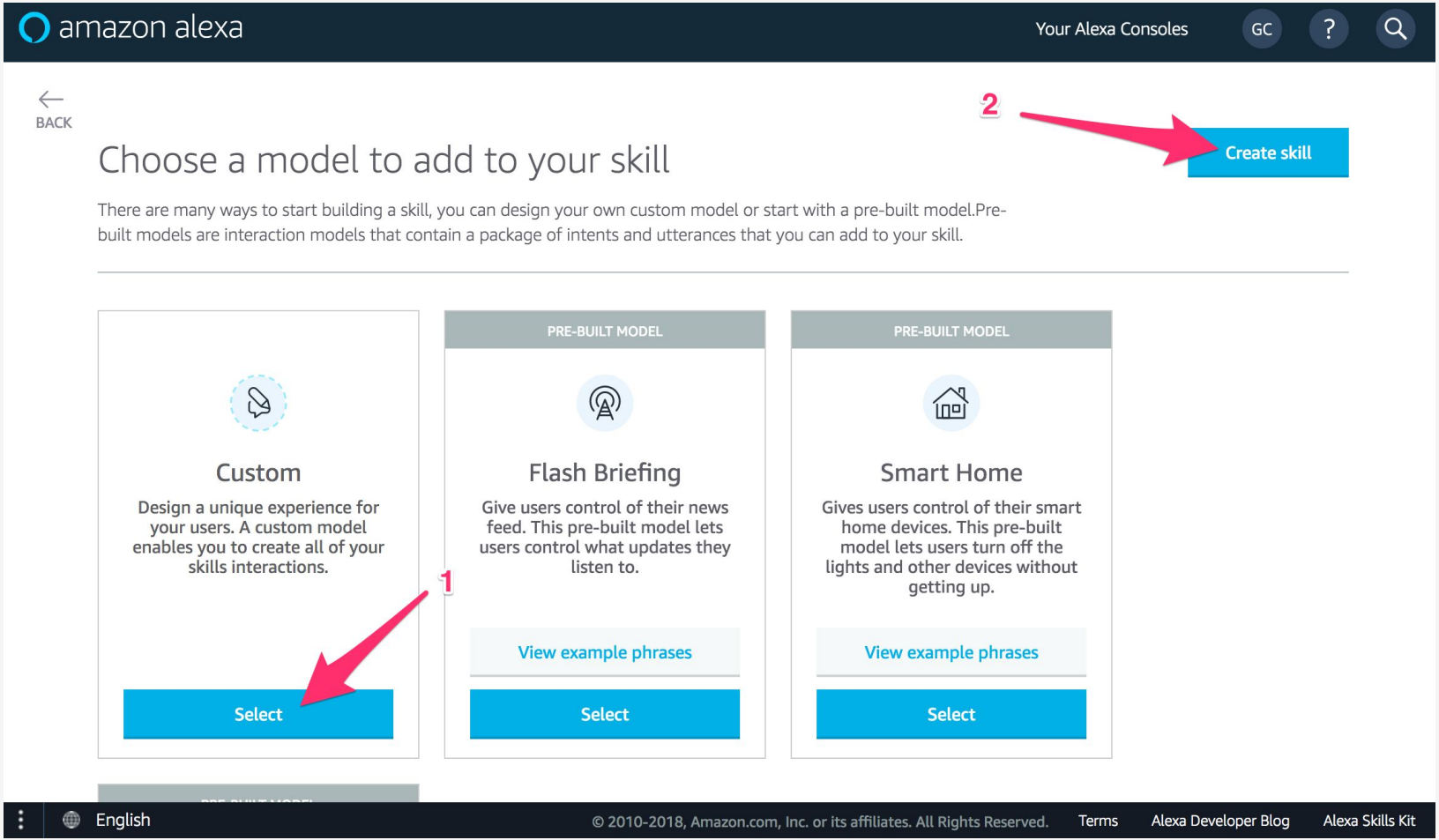
Visit: https://developer.amazon.com/alexa/console/ask



Go to: https://developer.amazon.com/alexa/console/ask




amazon alexa
Your Alexa Consoles
GC
Feedback forum
Create a new skill
2
Next
Hello World
1
Skill created will default to English (US)


amazon alexa
Your Alexa Consoles
GC
BACK
2
Create skill
Choose a model to add to your skill
There are many ways to start building a skill, you can design your own custom model or start with a pre-built model.Pre-built models are interaction models that contain a package of intents and utterances that you can add to your skill.
PRE-BUILT MODEL
Custom
Design a unique experience for your users. A custom model enables you to create all of your skills interactions.
1
Select
PRE-BUILT MODEL
Flash Briefing
Give users control of their news feed. This pre-built model lets users control what updates they listen to.
View example phrases
Select
PRE-BUILT MODEL
Smart Home
Gives users control of their smart home devices. This pre-built model lets users turn off the lights and other devices without getting up.
View example phrases
Select
English
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Terms
Alexa Developer Blog
Alexa Skills Kit

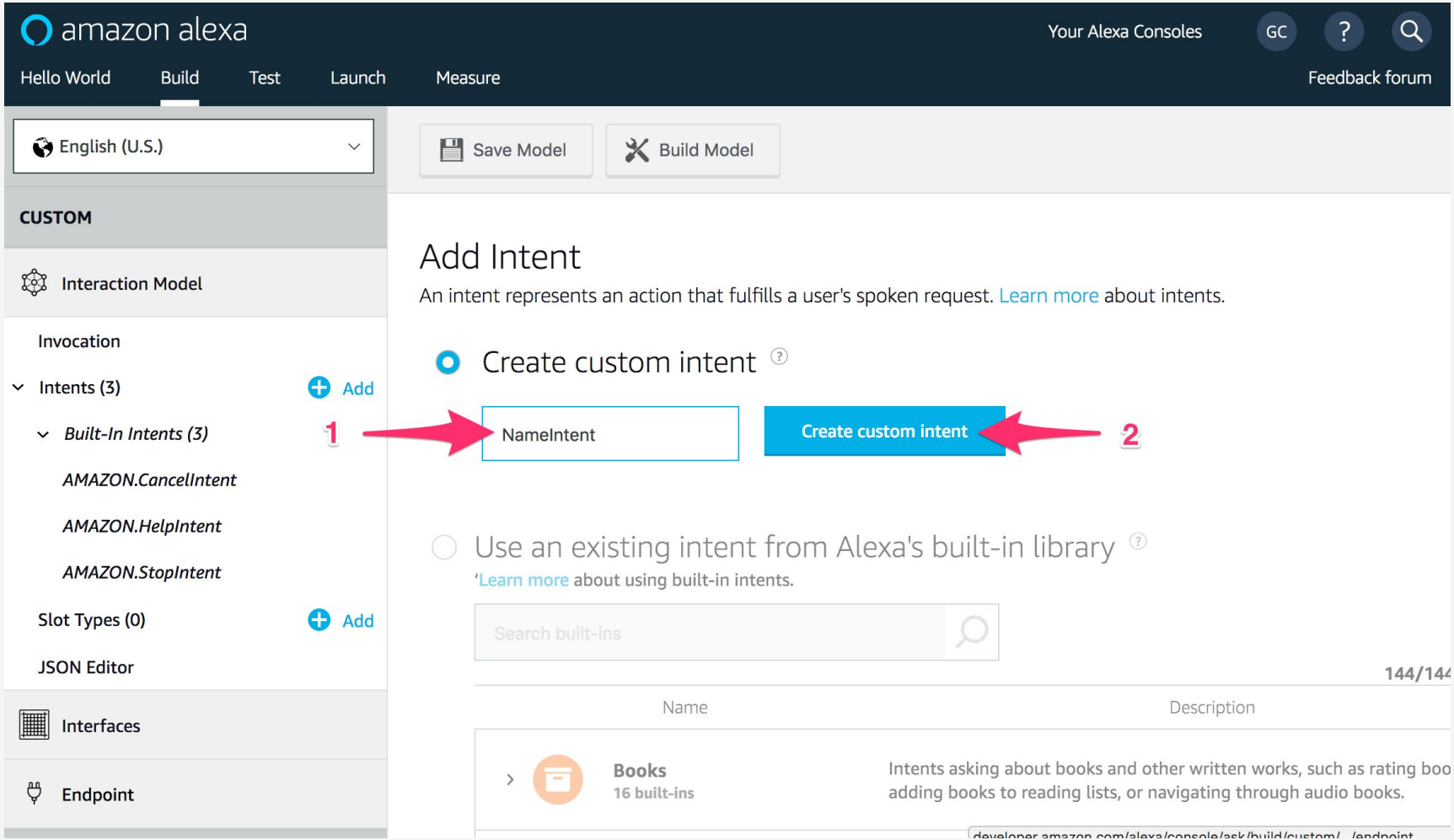
Interaction Model

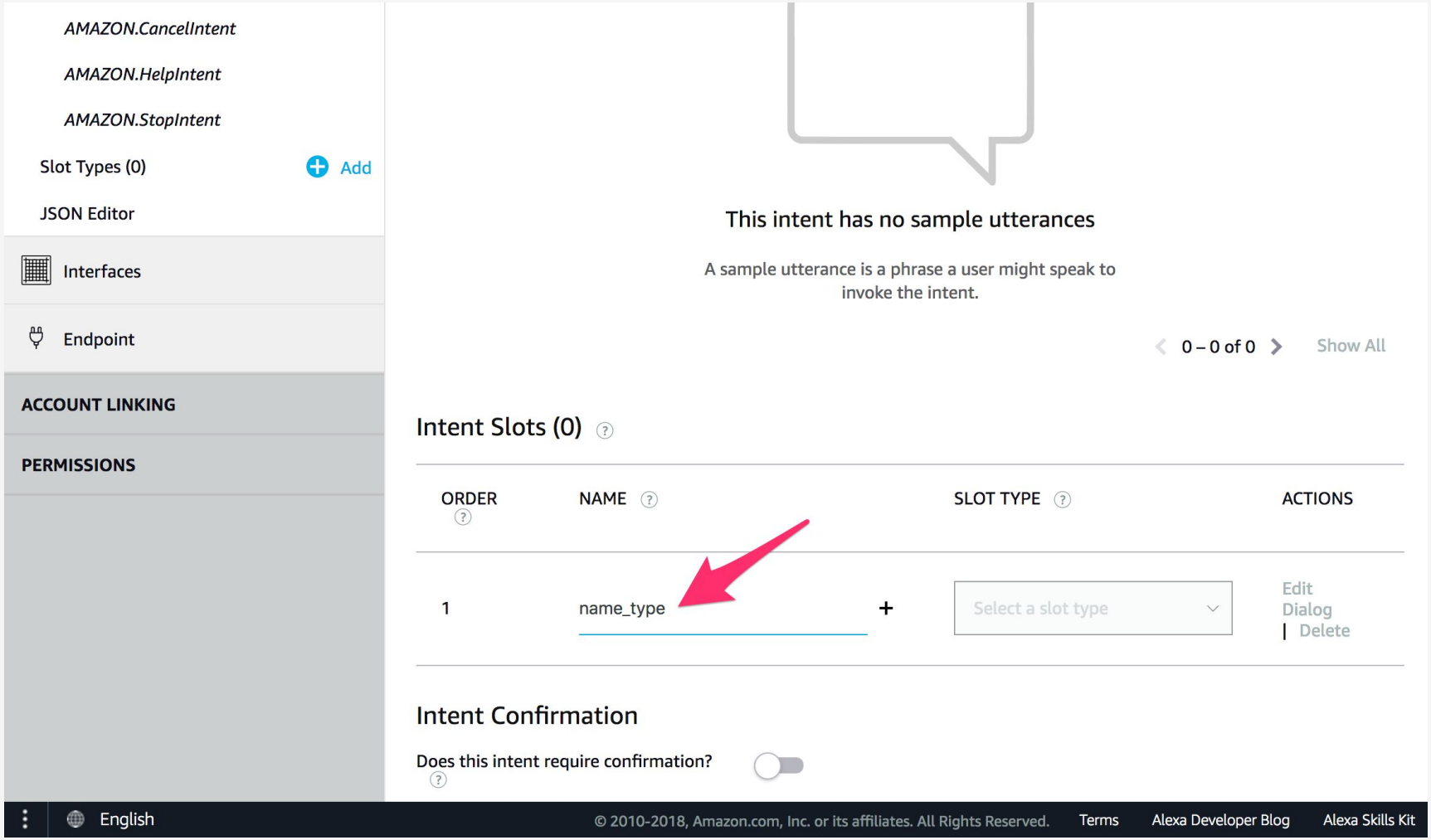
The configuration for an Alexa skill must include the following components to define the voice interface:

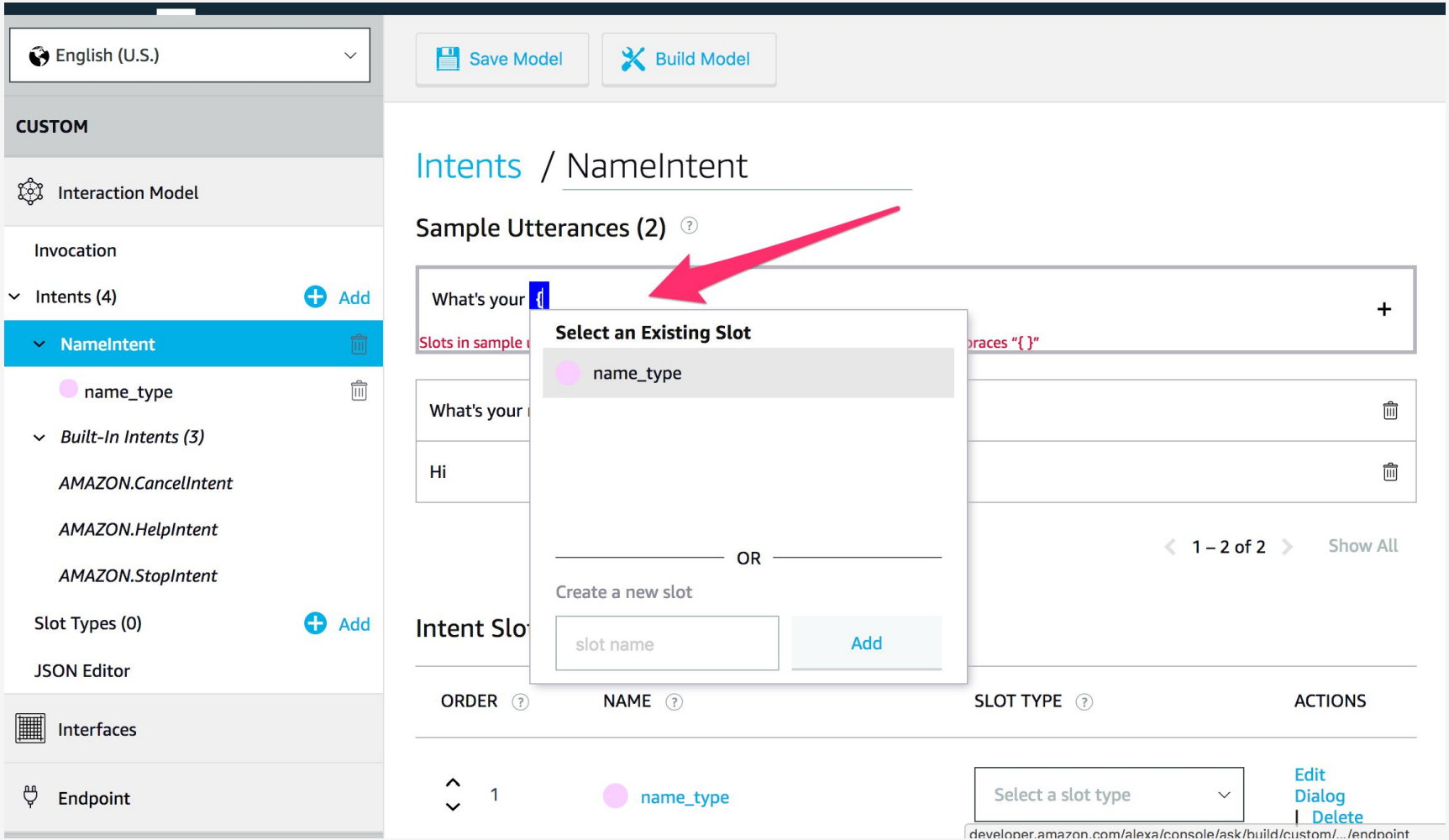
1. An **Intent Schema**: The intents your service can accept and process.
2. The **Spoken Input Data:**
    - **Sample Utterances**: Representative spoken phrases.
    - **Custom Slots**: Values for specific items referenced in the intents.

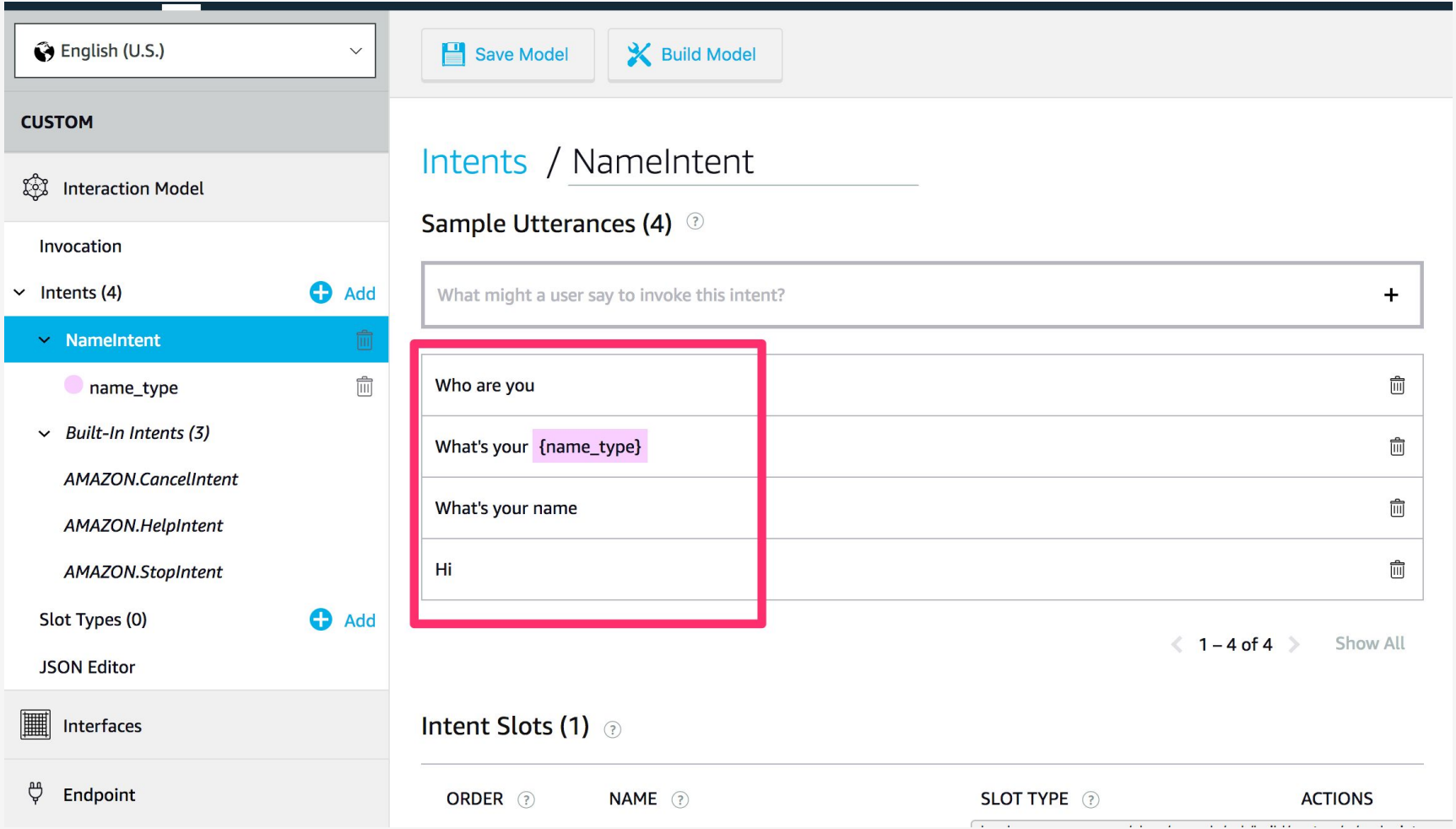
Interaction Model

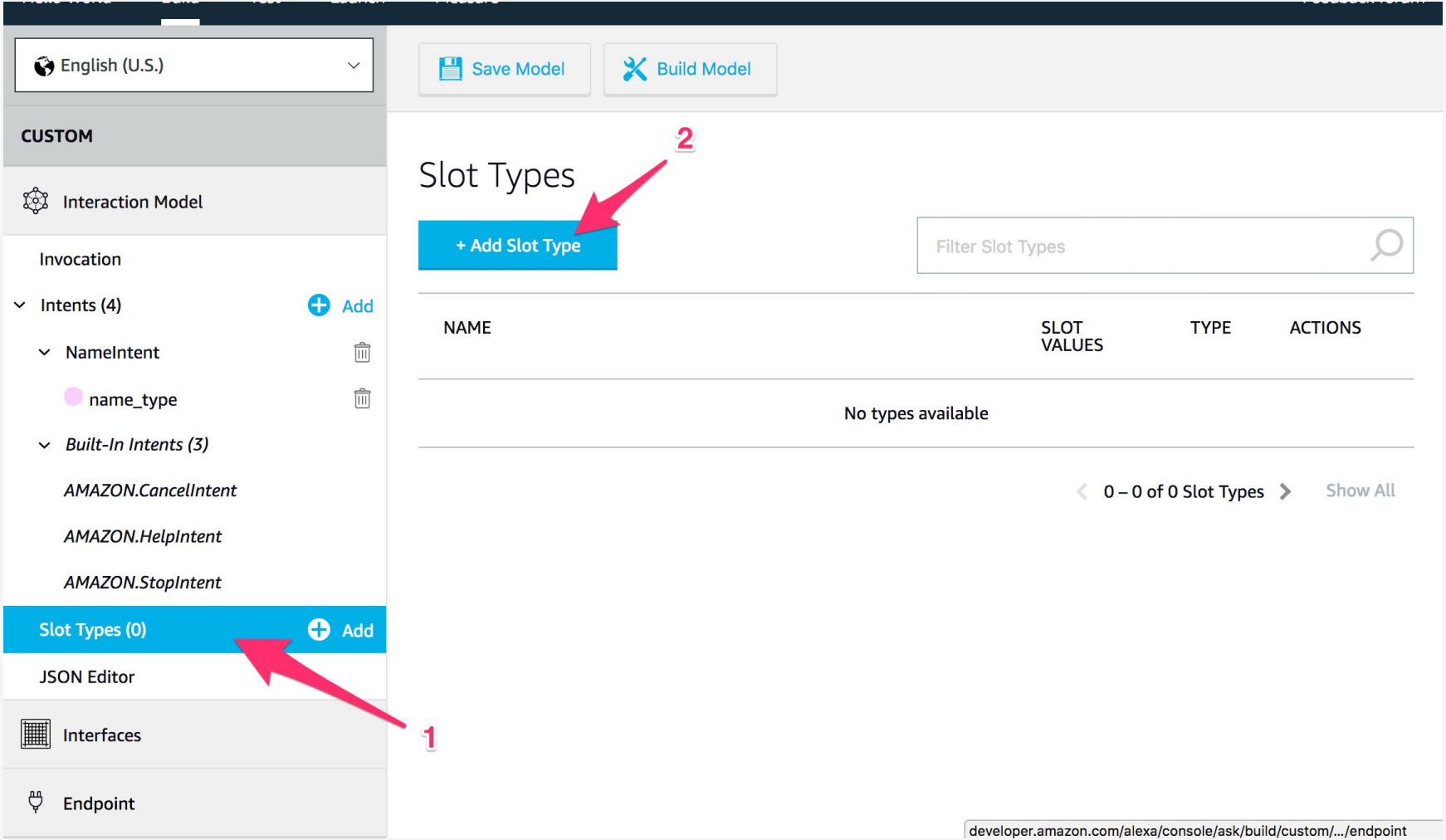
Intent	Utterances	Slots
MovieRecommendation	*Recommend me a {slot} movie*	*Horror*
	What's a good {slot} movie	*Drama*
	Tell me a {slot} movie	*Comedy*

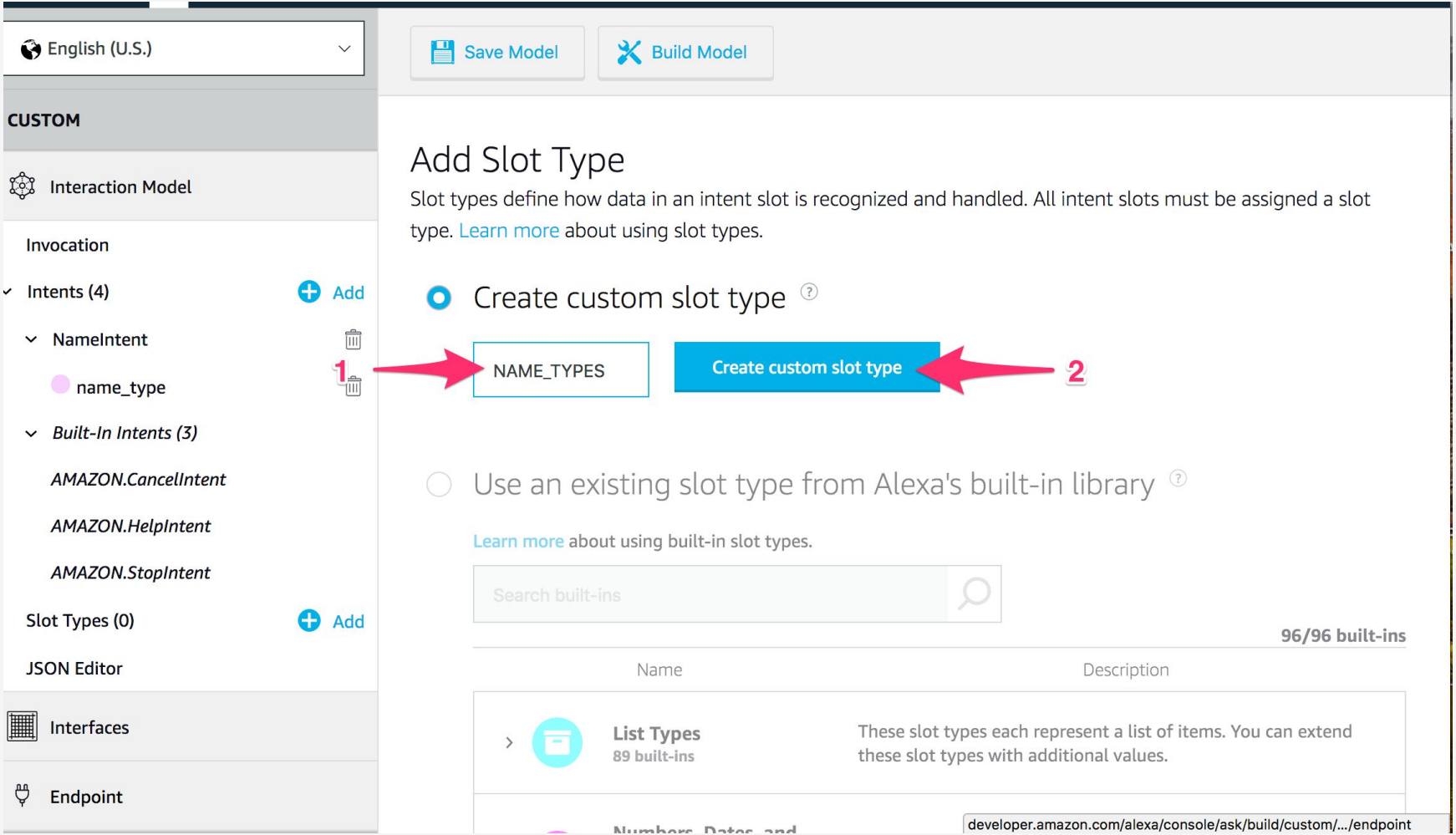

amazon alexa
Your Alexa Consoles
GC
Hello World
Build
Test
Launch
Measure
Feedback forum
English (U.S.)
Save Model
Build Model
CUSTOM
Interaction Model
Invocation
Intents (3)
Add
Built-In Intents (3)
1
AMAZON.CancelIntent
AMAZON.HelpIntent
AMAZON.StopIntent
Slot Types (0)
Add
JSON Editor
Interfaces
Endpoint
Add Intent
An intent represents an action that fulfills a user's spoken request. Learn more about intents.
Create custom intent
NameIntent
Create custom intent
2
Use an existing intent from Alexa's built-in library
Learn more about using built-in intents.
Search built-ins
144/144
Name
Description
Books
16 built-ins
Intents asking about books and other written works, such as rating boo
adding books to reading lists, or navigating through audio books.

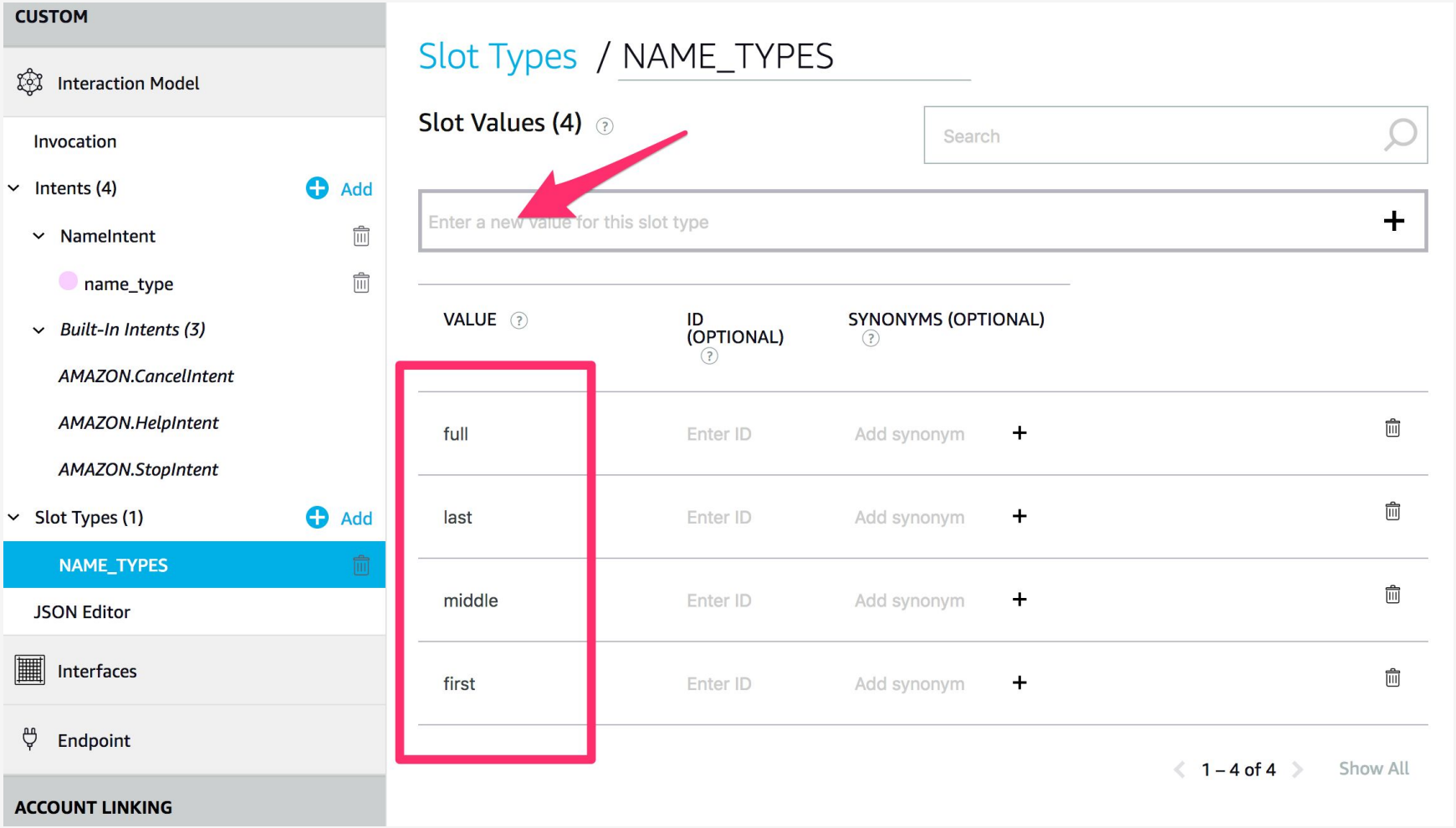


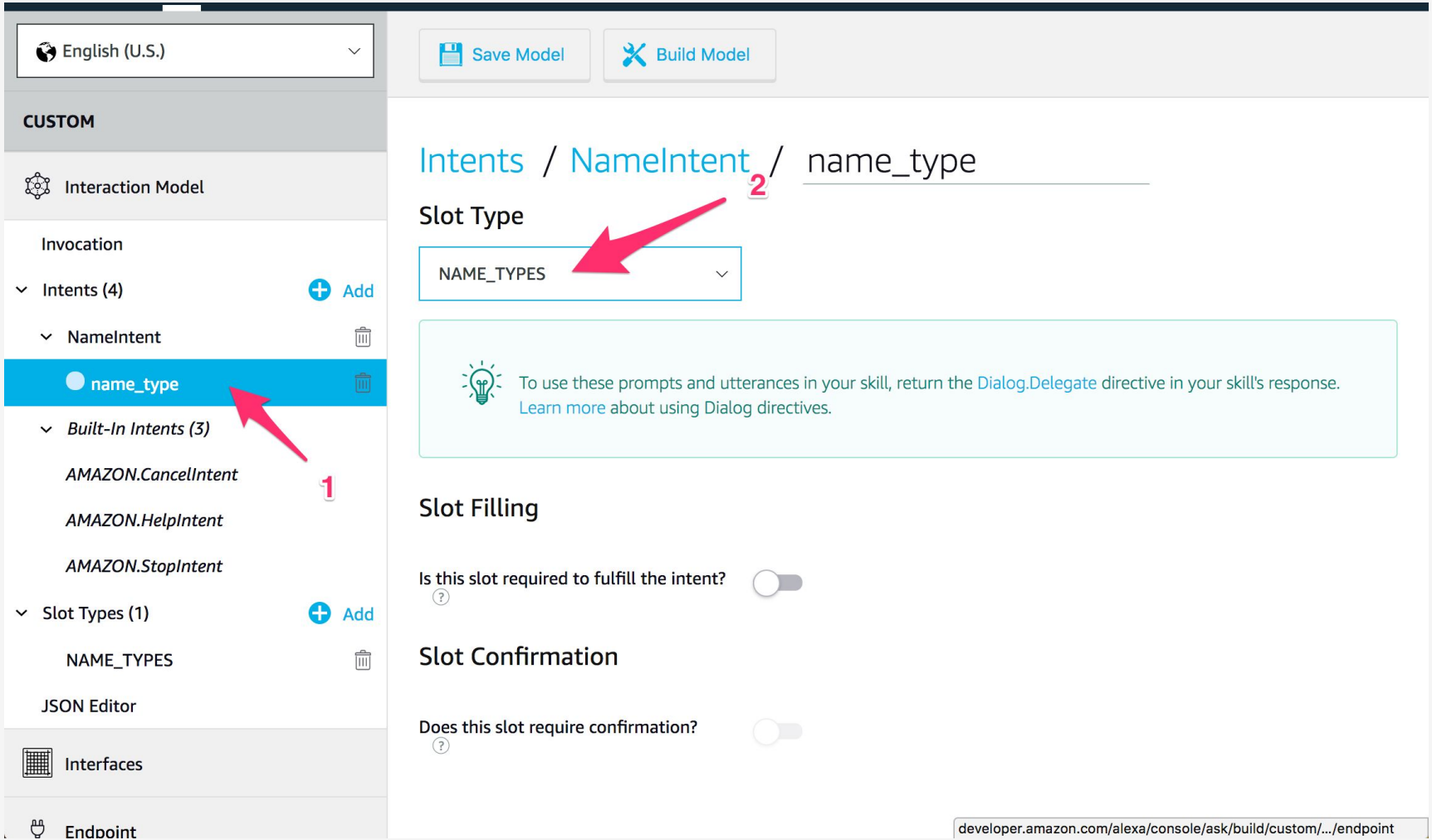

English (U.S.)
Save Model
Build Model
CUSTOM
Interaction Model
Invocation
Intents (4)
Add
NameIntent
name_type
Built-In Intents (3)
AMAZON.CancelIntent
AMAZON.HelpIntent
AMAZON.StopIntent
Slot Types (0)
Add
JSON Editor
Interfaces
Endpoint
Intents / NameIntent
Sample Utterances (2)
What's your {
Select an Existing Slot
name_type
OR
Create a new slot
slot name
Add
What's your
Hi
1 – 2 of 2
Show All
Intent Slo
ORDER
NAME
SLOT TYPE
ACTIONS
1
name_type
Select a slot type
Edit
Dialog
Delete


English (U.S.)
Save Model
Build Model
CUSTOM
Interaction Model
Invocation
Intents (4)
Add
NameIntent
name_type
Built-In Intents (3)
AMAZON.CancelIntent
AMAZON.HelpIntent
AMAZON.StopIntent
Slot Types (0)
Add
JSON Editor
Interfaces
Endpoint
Intents / NameIntent
Sample Utterances (4)
What might a user say to invoke this intent?
Who are you
What's your {name_type}
What's your name
Hi
1 – 4 of 4
Show All
Intent Slots (1)
ORDER
NAME
SLOT TYPE
ACTIONS


English (U.S.)
Save Model
Build Model
CUSTOM
Interaction Model
Invocation
Intents (4)
Add
NameIntent
name_type
Built-In Intents (3)
AMAZON.CancelIntent
AMAZON.HelpIntent
AMAZON.StopIntent
Slot Types (0)
Add
JSON Editor
Interfaces
Endpoint
Slot Types
+ Add Slot Type
Filter Slot Types
NAME
SLOT VALUES
TYPE
ACTIONS
No types available
0 – 0 of 0 Slot Types
Show All
1
2
developer.amazon.com/alexa/console/ask/build/custom/.../endpoint


English (U.S.)
Save Model
Build Model
CUSTOM
Interaction Model
Invocation
Intents (4)
Add
NameIntent
name_type
Built-In Intents (3)
AMAZON.CancelIntent
AMAZON.HelpIntent
AMAZON.StopIntent
Slot Types (0)
Add
JSON Editor
Interfaces
Endpoint
Add Slot Type
Slot types define how data in an intent slot is recognized and handled. All intent slots must be assigned a slot type. Learn more about using slot types.
Create custom slot type
NAME_TYPES
Create custom slot type
1
2
Use an existing slot type from Alexa's built-in library
Learn more about using built-in slot types.
Search built-ins
96/96 built-ins
Name
Description
List Types
89 built-ins
These slot types each represent a list of items. You can extend these slot types with additional values.
developer.amazon.com/alexa/console/ask/build/custom/.../endpoint


CUSTOM
Interaction Model
Invocation
Intents (4)
Add
NameIntent
name_type
Built-In Intents (3)
AMAZON.CancelIntent
AMAZON.HelpIntent
AMAZON.StopIntent
Slot Types (1)
Add
NAME_TYPES
JSON Editor
Interfaces
Endpoint
ACCOUNT LINKING
Slot Types / NAME_TYPES
Slot Values (4)
Search
Enter a new value for this slot type
VALUE
ID (OPTIONAL)
SYNONYMS (OPTIONAL)
full
Enter ID
Add synonym
last
Enter ID
Add synonym
middle
Enter ID
Add synonym
first
Enter ID
Add synonym
1 – 4 of 4
Show All


English (U.S.)
Save Model
Build Model
CUSTOM
Interaction Model
Invocation
Intents (4)
Add
NameIntent
name_type
Built-In Intents (3)
AMAZON.CancelIntent
AMAZON.HelpIntent
AMAZON.StopIntent
Slot Types (1)
Add
NAME_TYPES
JSON Editor
Interfaces
Endpoint
1
Intents / NameIntent / name_type
2
Slot Type
NAME_TYPES
To use these prompts and utterances in your skill, return the Dialog.Delegate directive in your skill's response.
Learn more about using Dialog directives.
Slot Filling
Is this slot required to fulfill the intent?
Slot Confirmation
Does this slot require confirmation?
developer.amazon.com/alexa/console/ask/build/custom/.../endpoint

Invocation Types

- **Full Intent:** Spoken request in which the user expresses everything required to complete their request (or intent) in a single utterance.

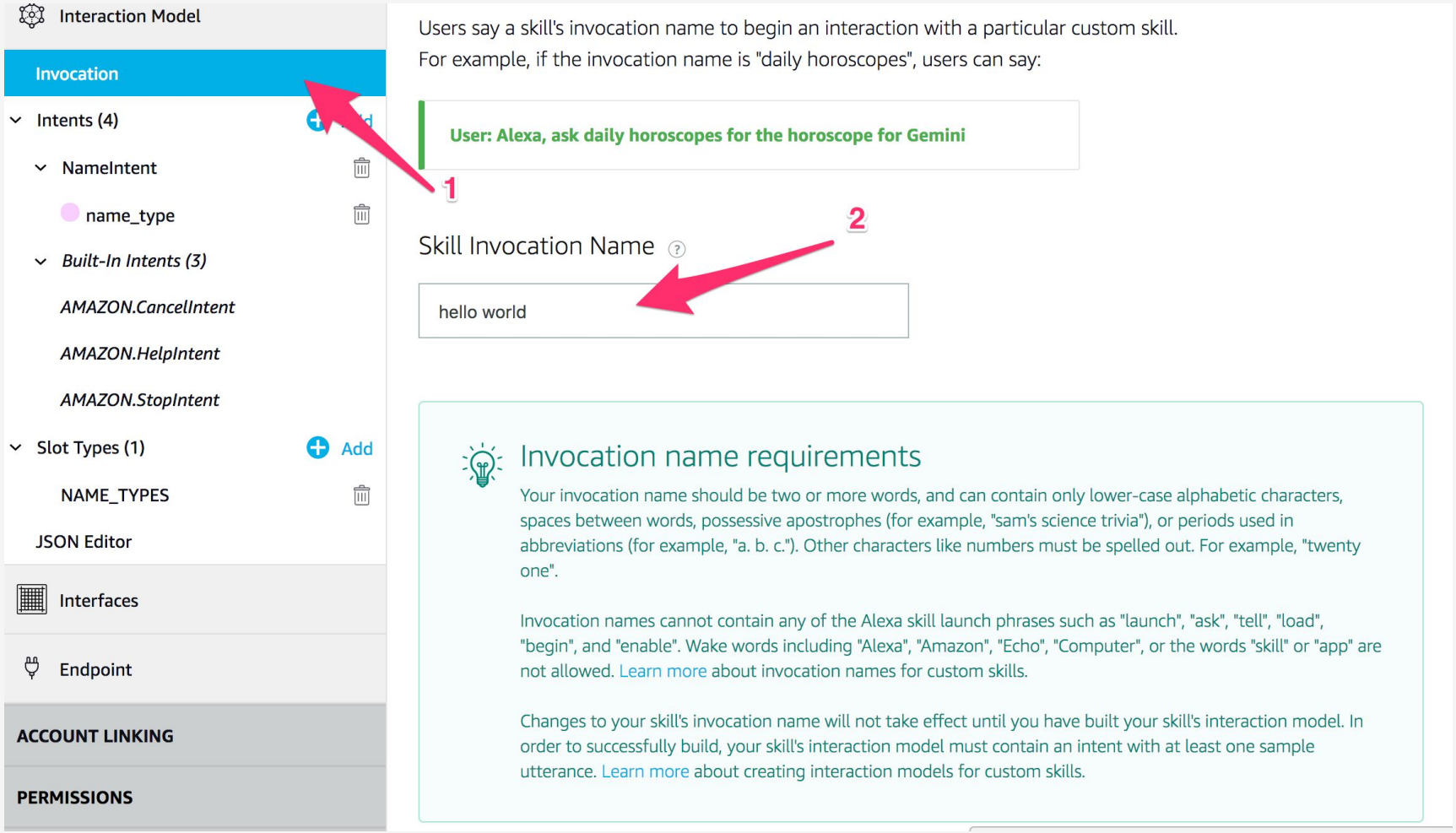
  *Alexa, ask **Movie Facts** which is the best movie of 2016.*

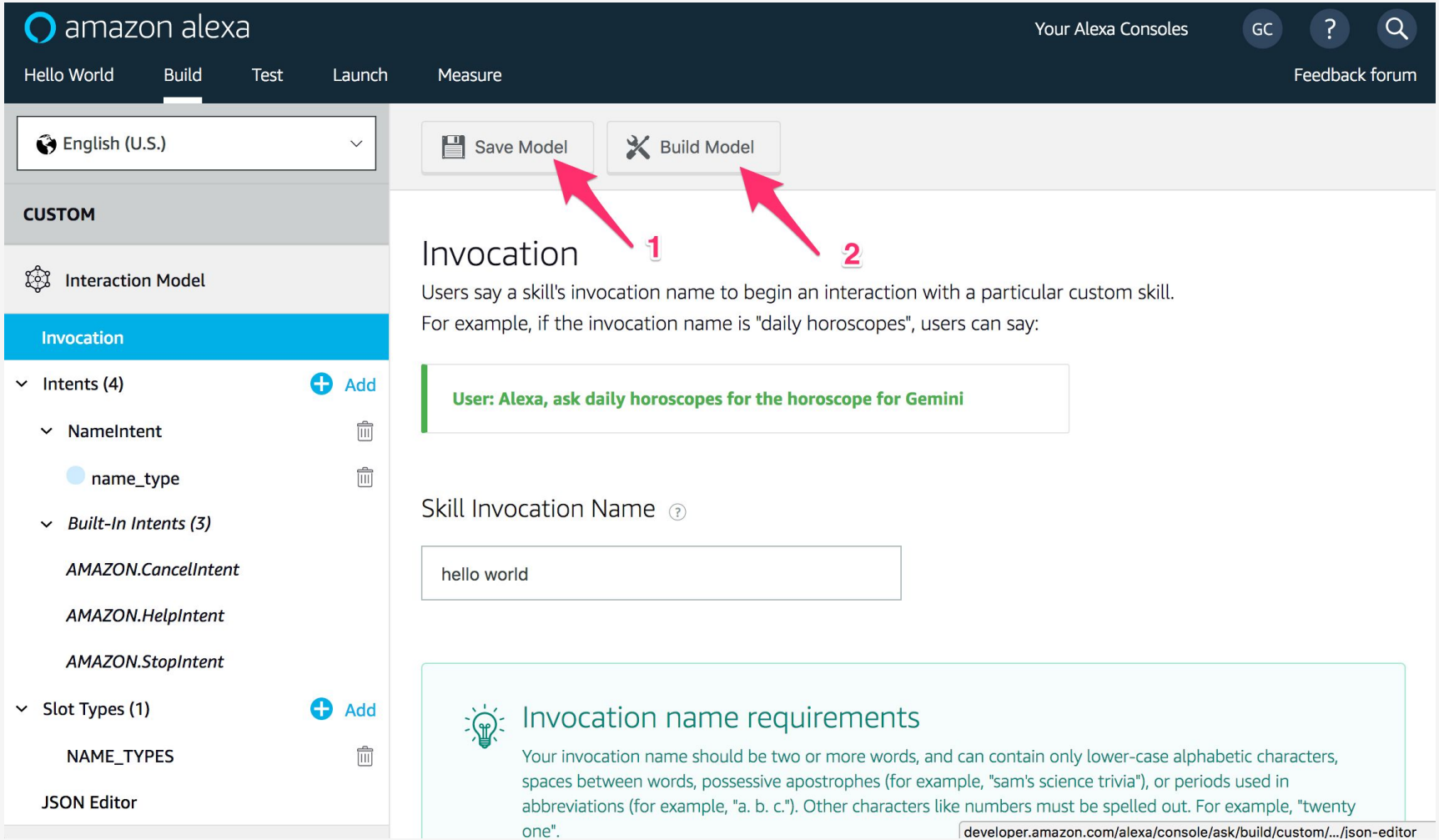
- **Partial Intent:** Spoken request that contains only a subset of what's required to take action on the request.

  *Alexa, ask **Movie Facts** which is the best movie.*

- **No Intent:** Spoken request that contains none or minimal information about the user request.

  *Alexa, open the **Movie Facts**.*


Interaction Model
Invocation
Intents (4)
NameIntent
name_type
Built-In Intents (3)
AMAZON.CancelIntent
AMAZON.HelpIntent
AMAZON.StopIntent
Slot Types (1)
Add
NAME_TYPES
JSON Editor
Interfaces
Endpoint
ACCOUNT LINKING
PERMISSIONS
Users say a skill's invocation name to begin an interaction with a particular custom skill.
For example, if the invocation name is "daily horoscopes", users can say:
User: Alexa, ask daily horoscopes for the horoscope for Gemini
1
2
Skill Invocation Name
hello world
Invocation name requirements
Your invocation name should be two or more words, and can contain only lower-case alphabetic characters, spaces between words, possessive apostrophes (for example, "sam's science trivia"), or periods used in abbreviations (for example, "a. b. c."). Other characters like numbers must be spelled out. For example, "twenty one".
Invocation names cannot contain any of the Alexa skill launch phrases such as "launch", "ask", "tell", "load", "begin", and "enable". Wake words including "Alexa", "Amazon", "Echo", "Computer", or the words "skill" or "app" are not allowed. Learn more about invocation names for custom skills.
Changes to your skill's invocation name will not take effect until you have built your skill's interaction model. In order to successfully build, your skill's interaction model must contain an intent with at least one sample utterance. Learn more about creating interaction models for custom skills.


amazon alexa
Your Alexa Consoles
GC
Hello World
Build
Test
Launch
Measure
Feedback forum
English (U.S.)
CUSTOM
Interaction Model
Invocation
Intents (4)
Add
NameIntent
name_type
Built-In Intents (3)
AMAZON.CancelIntent
AMAZON.HelpIntent
AMAZON.StopIntent
Slot Types (1)
Add
NAME_TYPES
JSON Editor
Save Model
Build Model
1
2
Invocation
Users say a skill's invocation name to begin an interaction with a particular custom skill.
For example, if the invocation name is "daily horoscopes", users can say:
User: Alexa, ask daily horoscopes for the horoscope for Gemini
Skill Invocation Name
hello world
Invocation name requirements
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developer.amazon.com/alexa/console/ask/build/custom/.../json-editor

Prompt Types

- **Question:** Invites the user to continue the interaction.

  User: *Alexa, ask **Movie Facts** to recommend me a movie.*

  Alexa: *Which one is your favorite genre?*

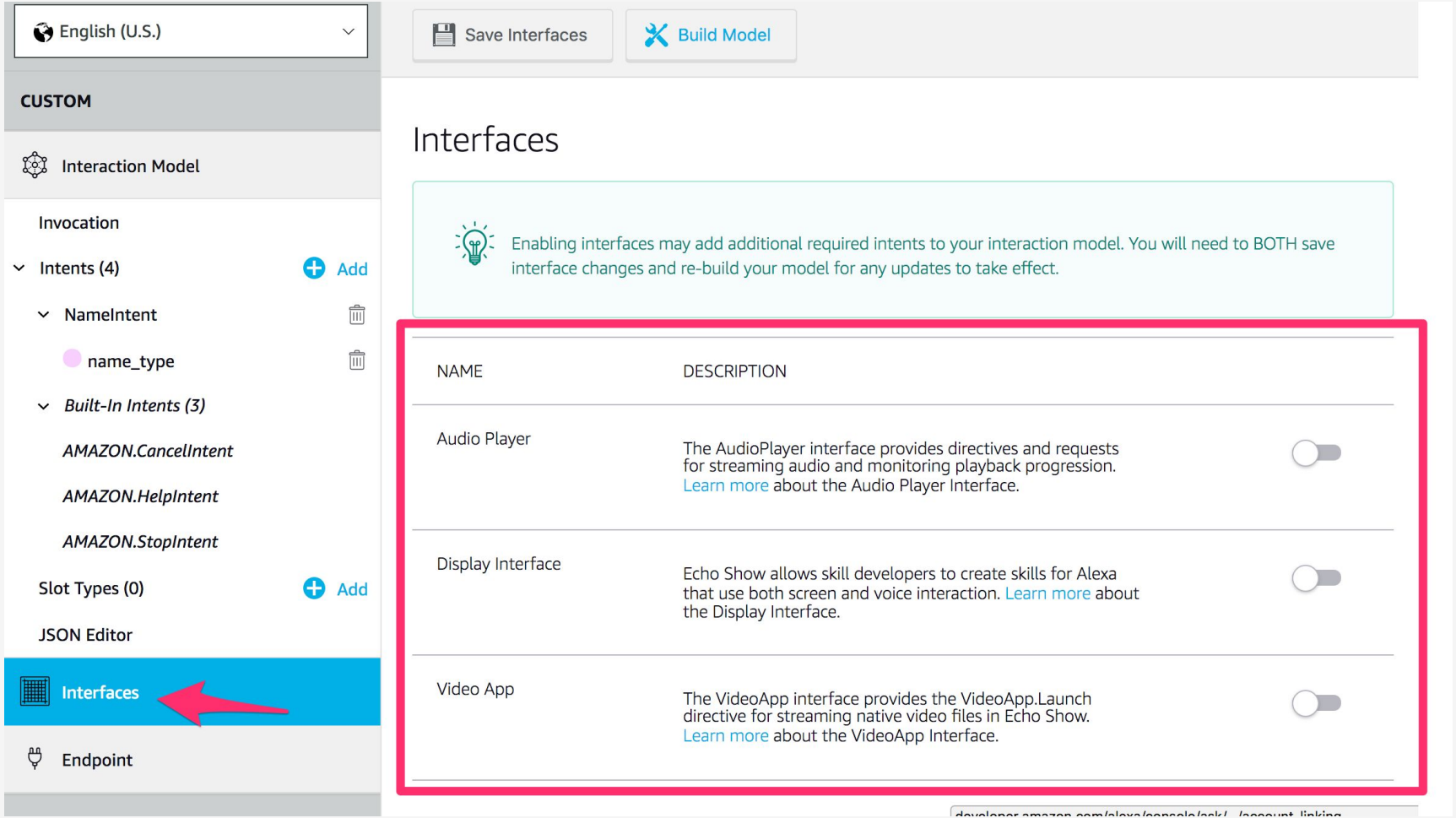
- **Statement:** Finishes the interaction at the end of the request.

  User: *Alexa, tell me the latest from the **Movie Facts.***

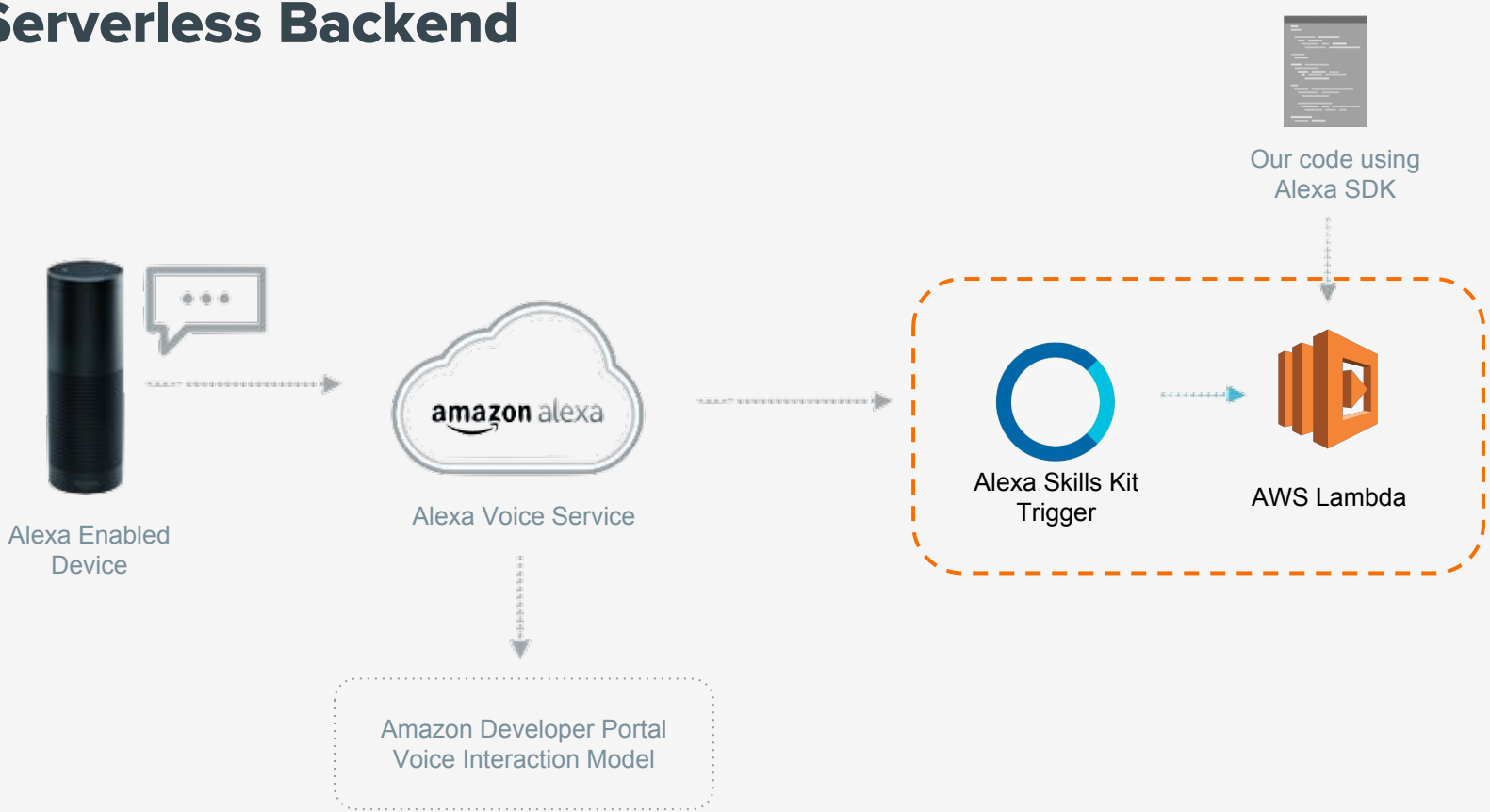
  Alexa: These is the latest movie fact, ...

Response Messages

- Playback Response
  - Alexa response
  - Audio file Responses
  - Video file Responses
- Visual Aid
  - Companion App Card
  - TV Card
  - Echo Show Template


English (U.S.)
Save Interfaces
Build Model
CUSTOM
Interaction Model
Invocation
Intents (4)
Add
NameIntent
name_type
Built-In Intents (3)
AMAZON.CancelIntent
AMAZON.HelpIntent
AMAZON.StopIntent
Slot Types (0)
Add
JSON Editor
Interfaces
Endpoint
Interfaces
Enabling interfaces may add additional required intents to your interaction model. You will need to BOTH save interface changes and re-build your model for any updates to take effect.
NAME
DESCRIPTION
Audio Player
The AudioPlayer interface provides directives and requests for streaming audio and monitoring playback progression. Learn more about the Audio Player Interface.
Display Interface
Echo Show allows skill developers to create skills for Alexa that use both screen and voice interaction. Learn more about the Display Interface.
Video App
The VideoApp interface provides the VideoApp.Launch directive for streaming native video files in Echo Show. Learn more about the VideoApp Interface.

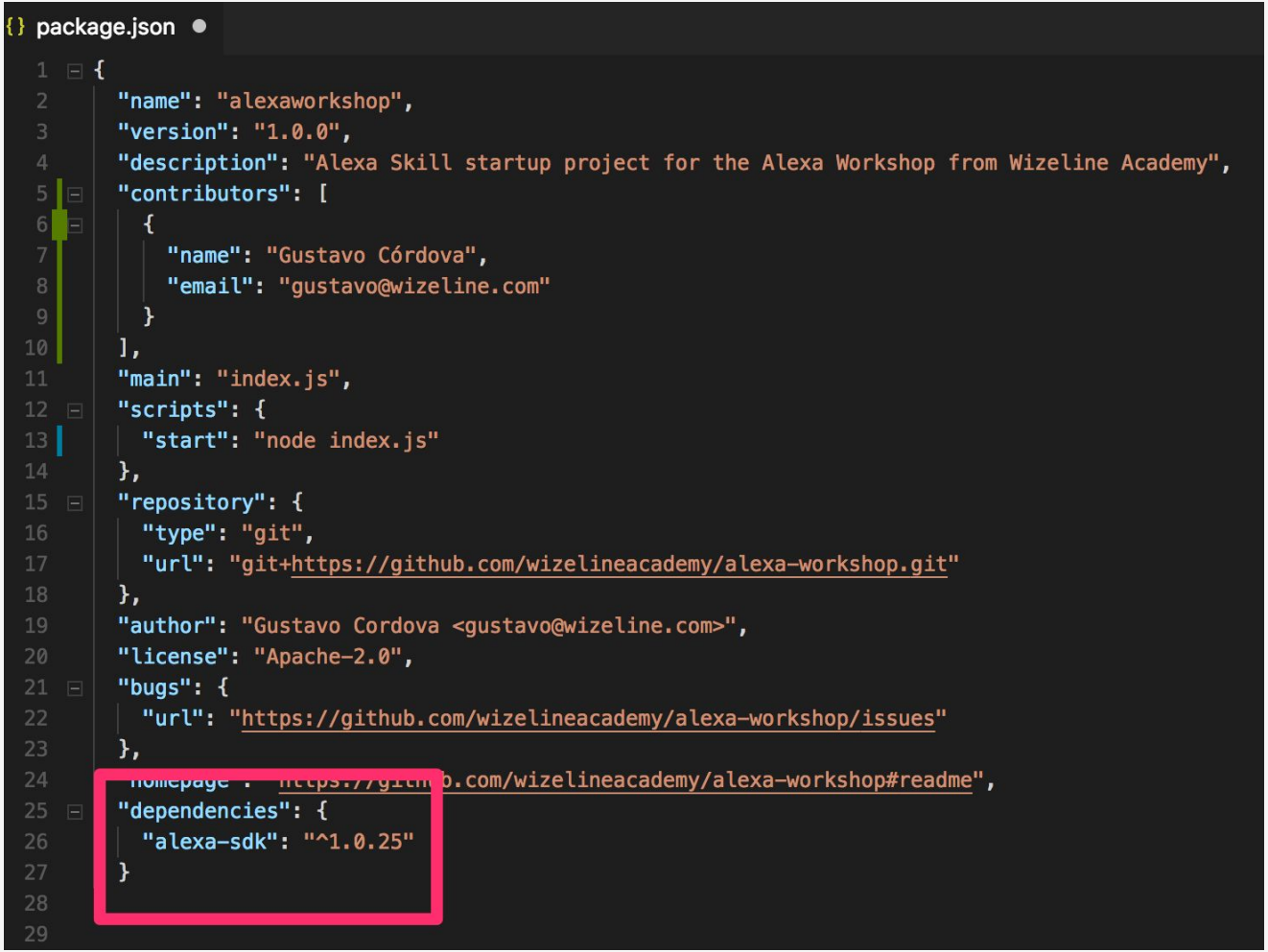
Serverless Backend



Alexa Skills Kit (ASK)

- The Alexa Skills kit is a collection of self-service APIs, tools, documentation, and code samples that allow the rapid aggregation of skills to Alexa.
- The kit includes an Alexa SDK for Node.js.

For more information, see the Alexa Skills Kit's documentation.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"version": "1.0.0",
"description": "Alexa Skill startup project for the Alexa Workshop from Wizeline Academy",
"contributors": [
{
"name": "Gustavo Córdova",
"email": "gustavo@wizeline.com"
}
],
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"scripts": {
"start": "node index.js"
},
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"type": "git",
"url": "git+https://github.com/wizelineacademy/alexa-workshop.git"
},
"author": "Gustavo Cordova <gustavo@wizeline.com>",
"license": "Apache-2.0",
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"url": "https://github.com/wizelineacademy/alexa-workshop/issues"
},
"homepage": "https://github.com/wizelineacademy/alexa-workshop#readme",
"dependencies": {
"alexa-sdk": "^1.0.25"
}

Response vs. Response Builder

Tell

```
// Sample Tell Output

// Using Response
this.emit(':tell', 'Hello World!');

// Using Response Builder
this.response.speak('Hello World!');
this.emit(':responseReady');
```

Ask

```
// Sample Ask Output

// Using Response
this.emit(':ask', 'What would you like to do?', 'Please say that again?');

// Using Response Builder
this.response.speak('What would you like to do?')
            .listen('Please say that again?');
this.emit(':responseReady');
```

AWS Lambda

- **Handler** – Handler is the function AWS Lambda calls to start execution of your Lambda function. Your handler should process the incoming event data and may invoke any other functions/methods in your code.
- **Execute** – Execute is the function in the Alexa Object that will run your skill's logic.

Note: Lambda functions for Alexa skills can be hosted in either the **US East (N. Virginia)** or **EU (Ireland)**region. These are the only regions the Alexa Skills Kit supports.

JS sample-handler.js

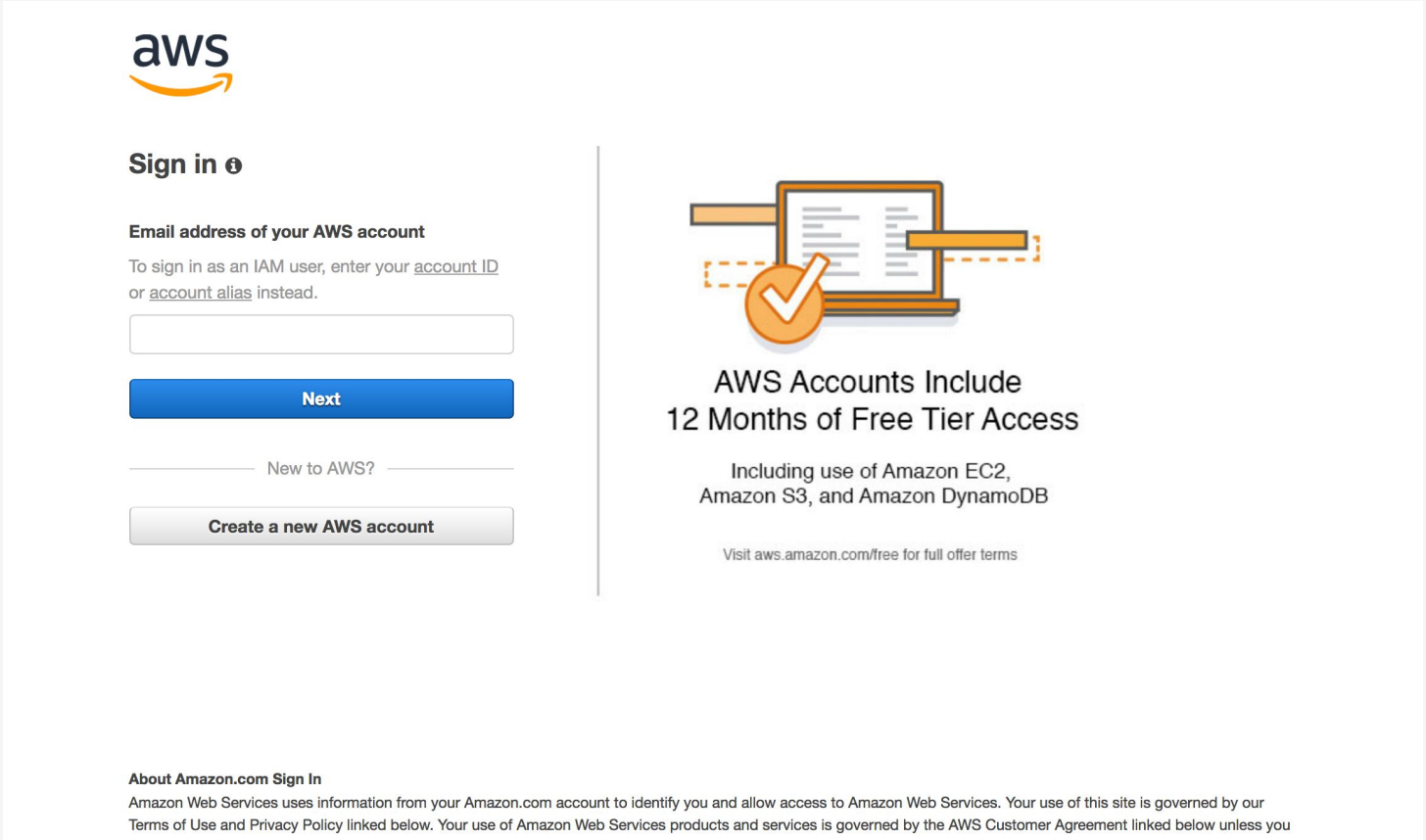
```
var handlers = {
  'LaunchRequest': function () {
    this.emit(':tell', 'Hello World!');
  }
};

exports.handler = function (event, context, callback) {
  var alexa = Alexa.handler(event, context, callback);
  alexa.registerHandlers(handlers);
  alexa.execute();
};

```

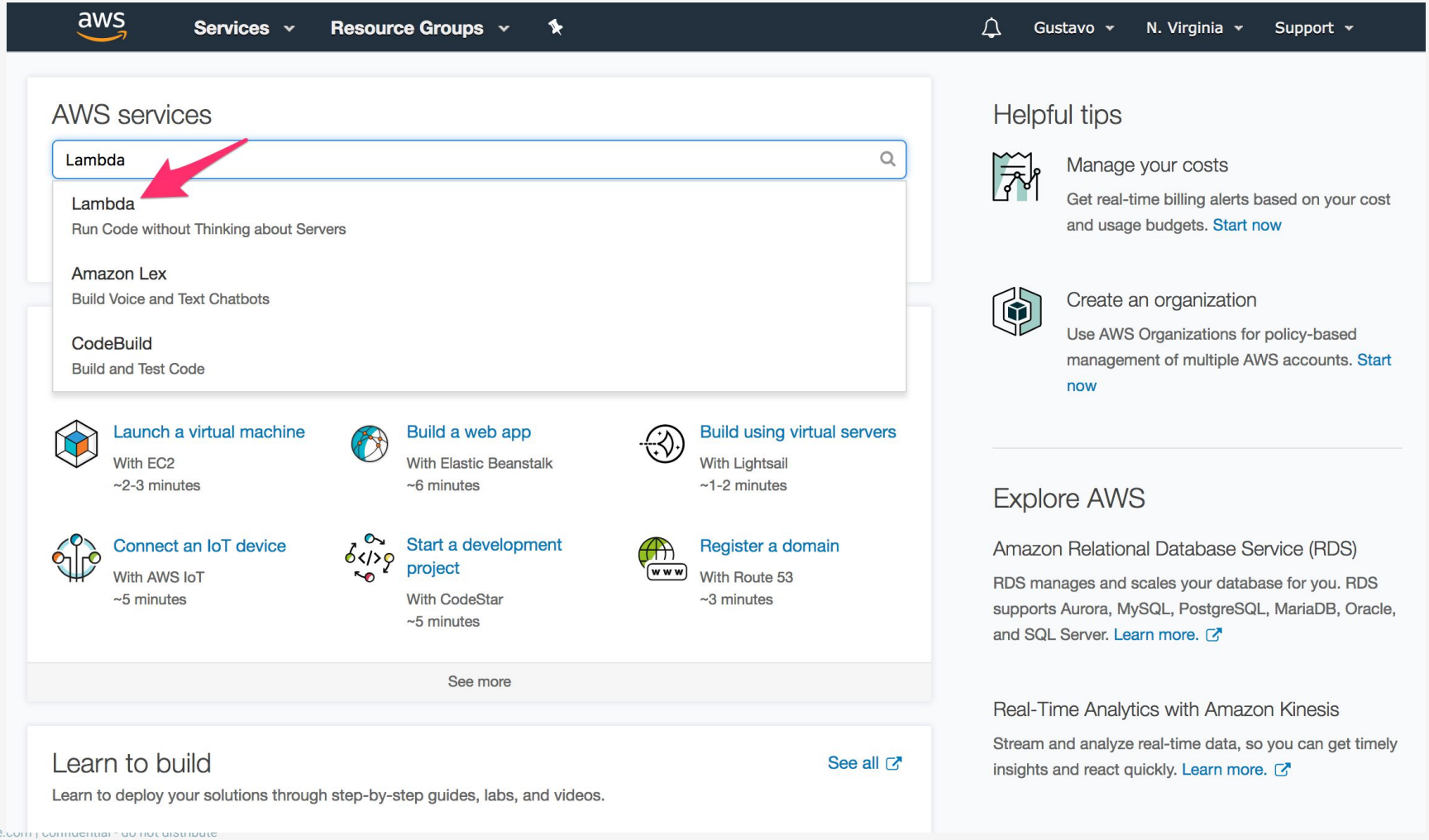
Clone Repository

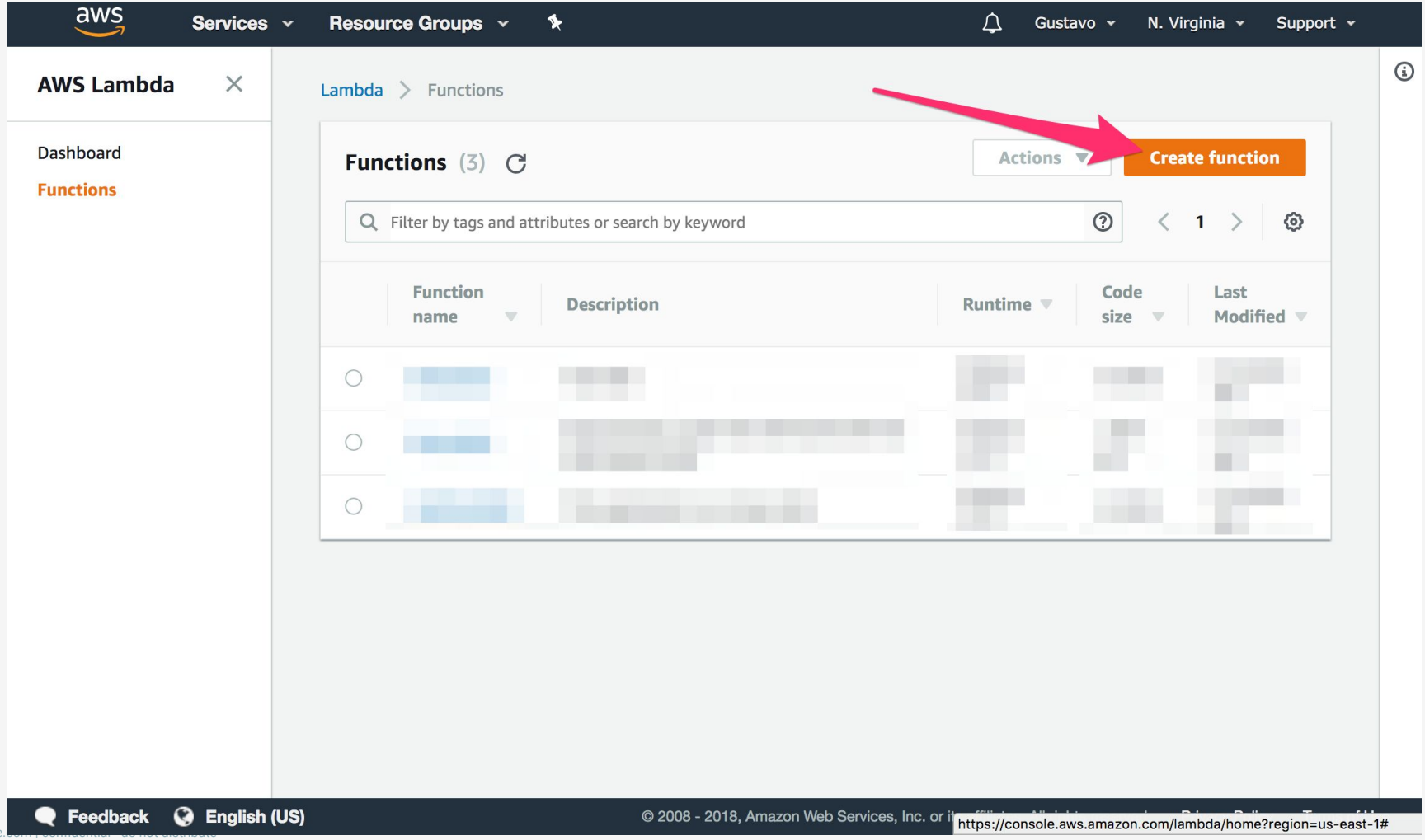
```
~ git clone git@github.com:wizelineacademy/alexa-workshop.git
```

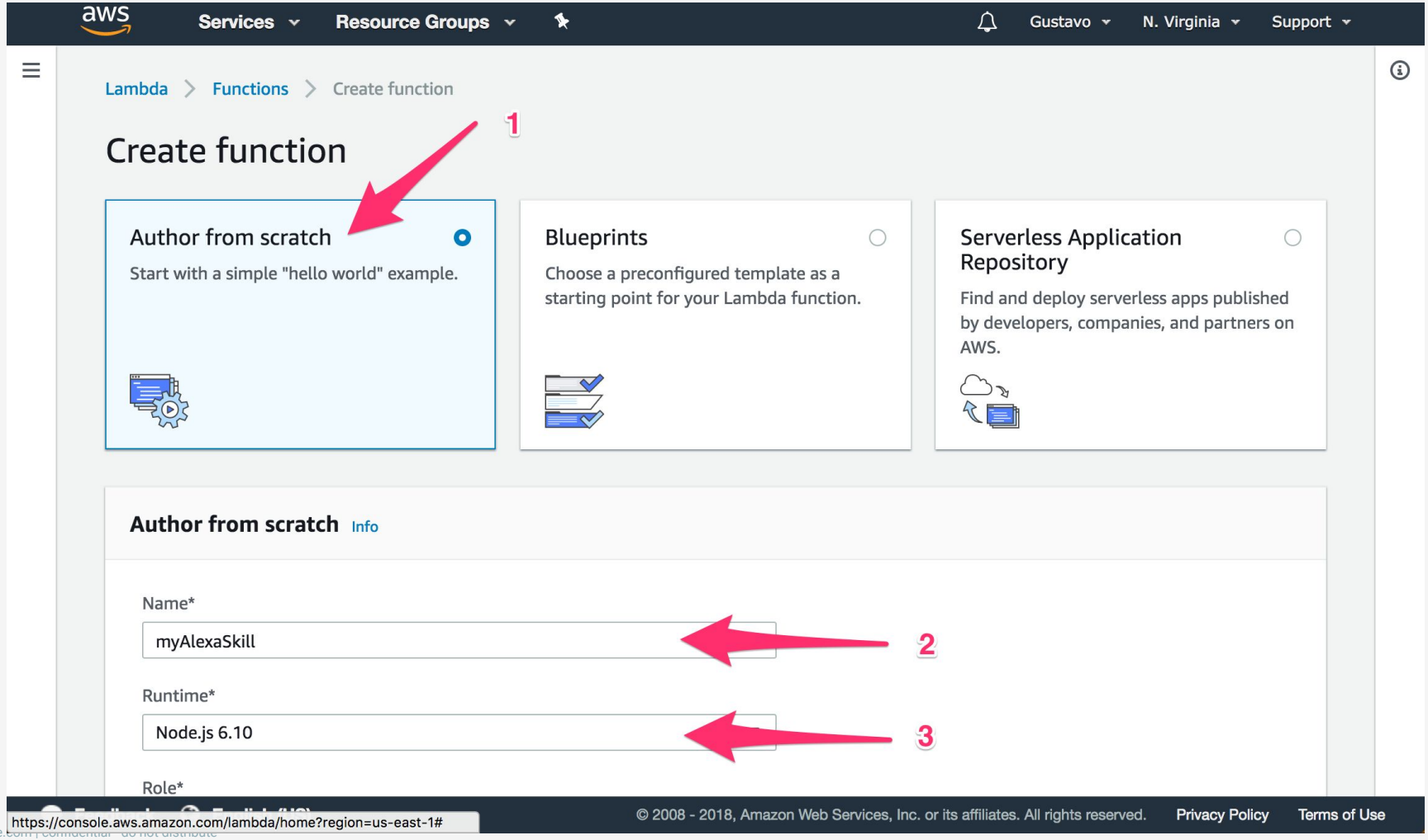
or download from:
https://github.com/wizelineacademy/alexa-workshop

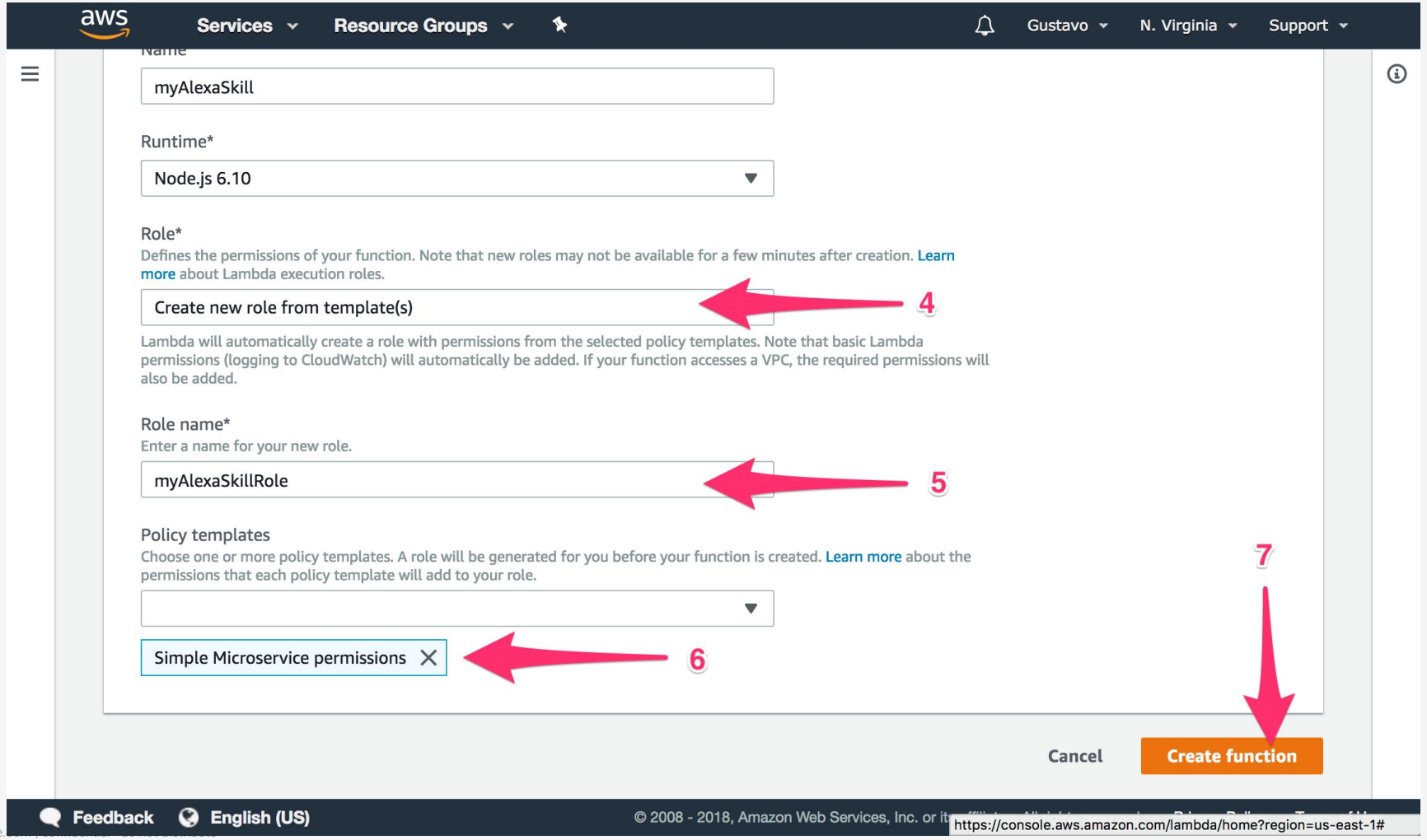
Visit: https://console.aws.amazon.com/

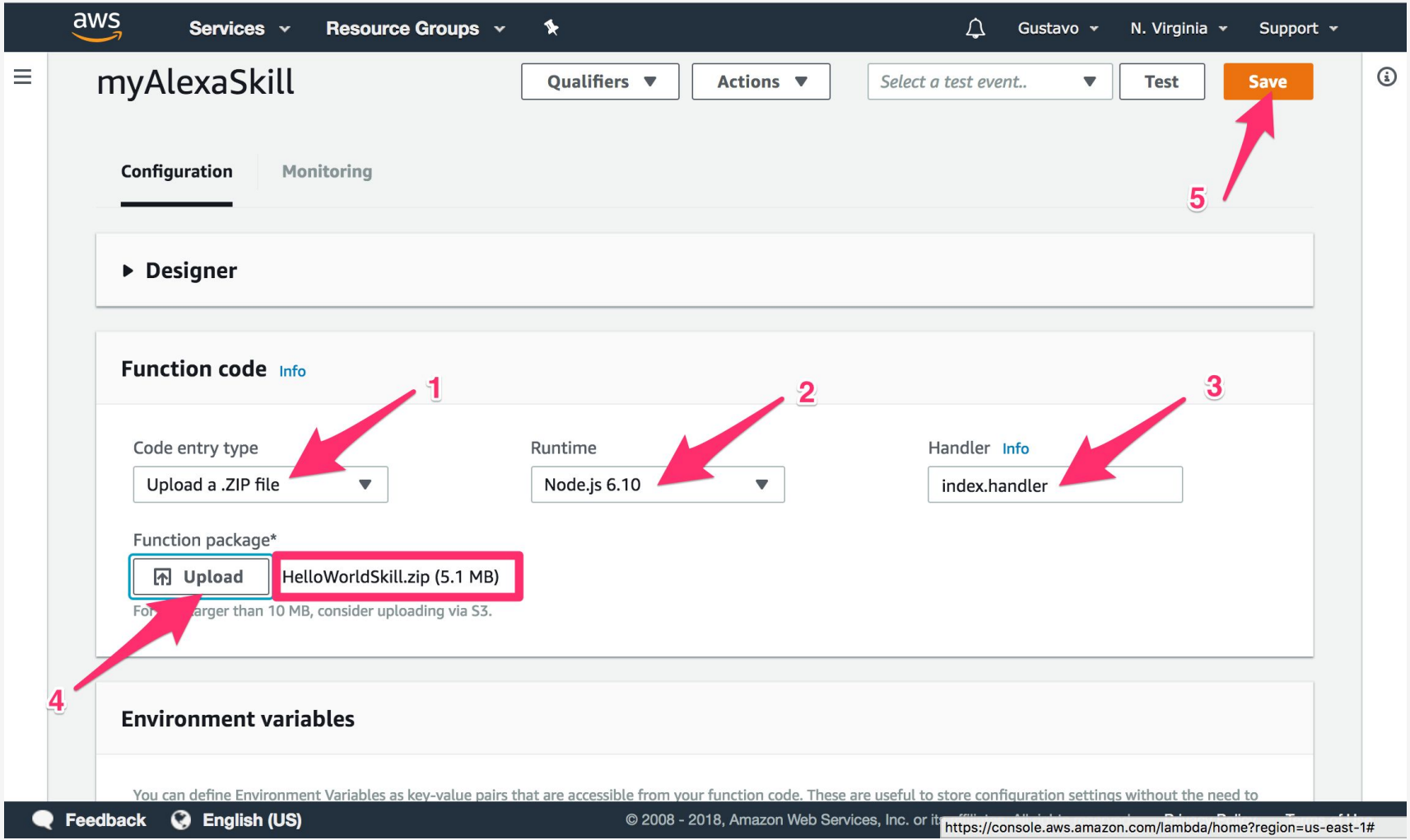


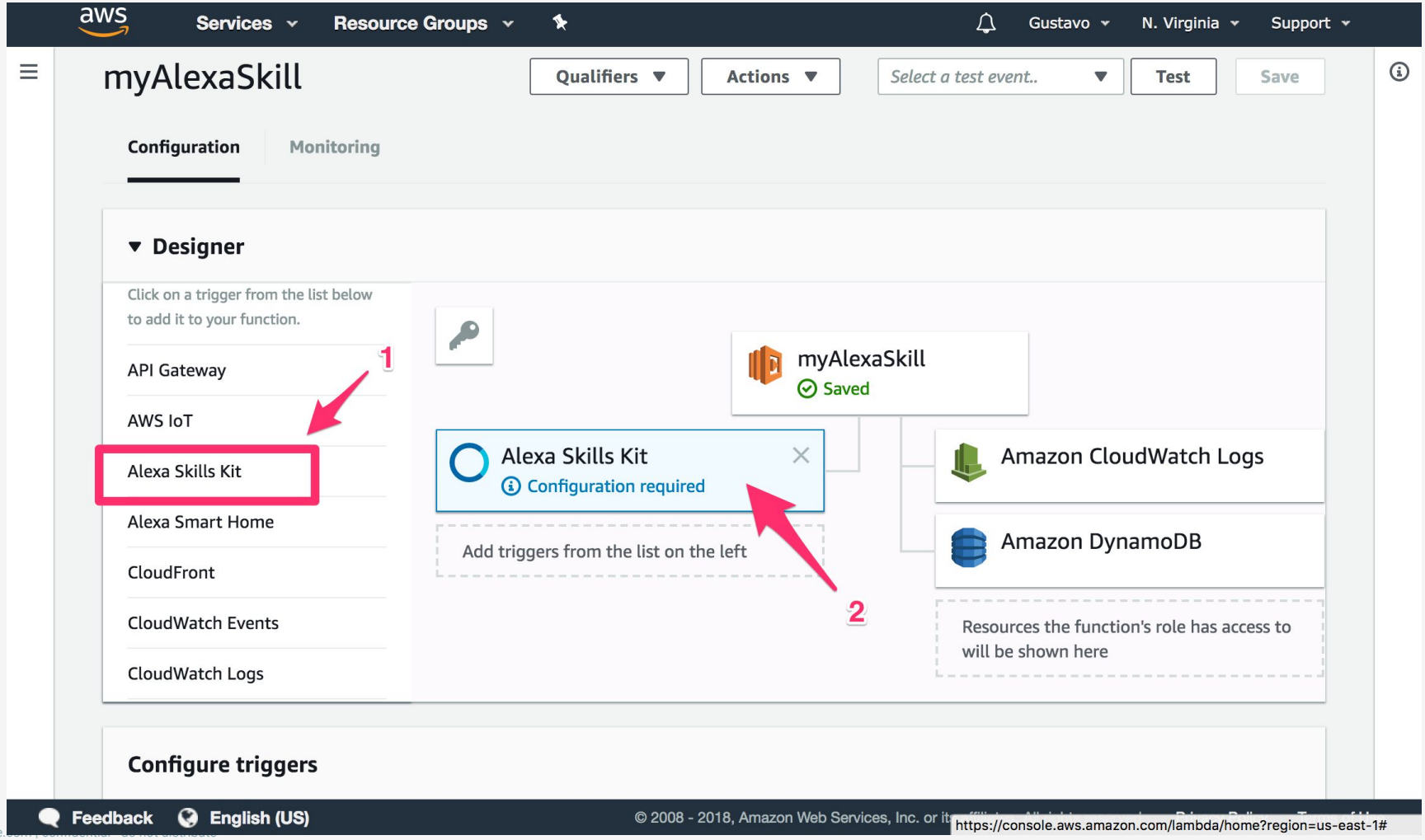







aws
Services
Resource Groups
Gustavo
N. Virginia
Support
myAlexaSkill
Runtime*
Node.js 6.10
Role*
Defines the permissions of your function. Note that new roles may not be available for a few minutes after creation. Learn more about Lambda execution roles.
Create new role from template(s)
4
Lambda will automatically create a role with permissions from the selected policy templates. Note that basic Lambda permissions (logging to CloudWatch) will automatically be added. If your function accesses a VPC, the required permissions will also be added.
Role name*
Enter a name for your new role.
myAlexaSkillRole
5
Policy templates
Choose one or more policy templates. A role will be generated for you before your function is created. Learn more about the permissions that each policy template will add to your role.
Simple Microservice permissions
6
7
Cancel
Create function
Feedback
English (US)
© 2008 - 2018, Amazon Web Services, Inc. or its
https://console.aws.amazon.com/lambda/home?region=us-east-1#


aws
Services
Resource Groups
Gustavo
N. Virginia
Support
myAlexaSkill
Qualifiers
Actions
Select a test event..
Test
Save
Configuration
Monitoring
5
Designer
Function code
Info
1
2
3
Code entry type
Upload a .ZIP file
Runtime
Node.js 6.10
Handler
Info
index.handler
Function package*
Upload
HelloWorldSkill.zip (5.1 MB)
4
Environment variables
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
Feedback
English (US)
© 2008 - 2018, Amazon Web Services, Inc.
https://console.aws.amazon.com/lambda/home?region=us-east-1#


aws
Services
Resource Groups
Gustavo
N. Virginia
Support
myAlexaSkill
Qualifiers
Actions
Select a test event..
Test
Save
Configuration
Monitoring
Designer
Click on a trigger from the list below to add it to your function.
API Gateway
AWS IoT
Alexa Skills Kit
Alexa Smart Home
CloudFront
CloudWatch Events
CloudWatch Logs
1
myAlexaSkill
Saved
Alexa Skills Kit
Configuration required
Add triggers from the list on the left
2
Amazon CloudWatch Logs
Amazon DynamoDB
Resources the function's role has access to will be shown here
Configure triggers
Feedback
English (US)
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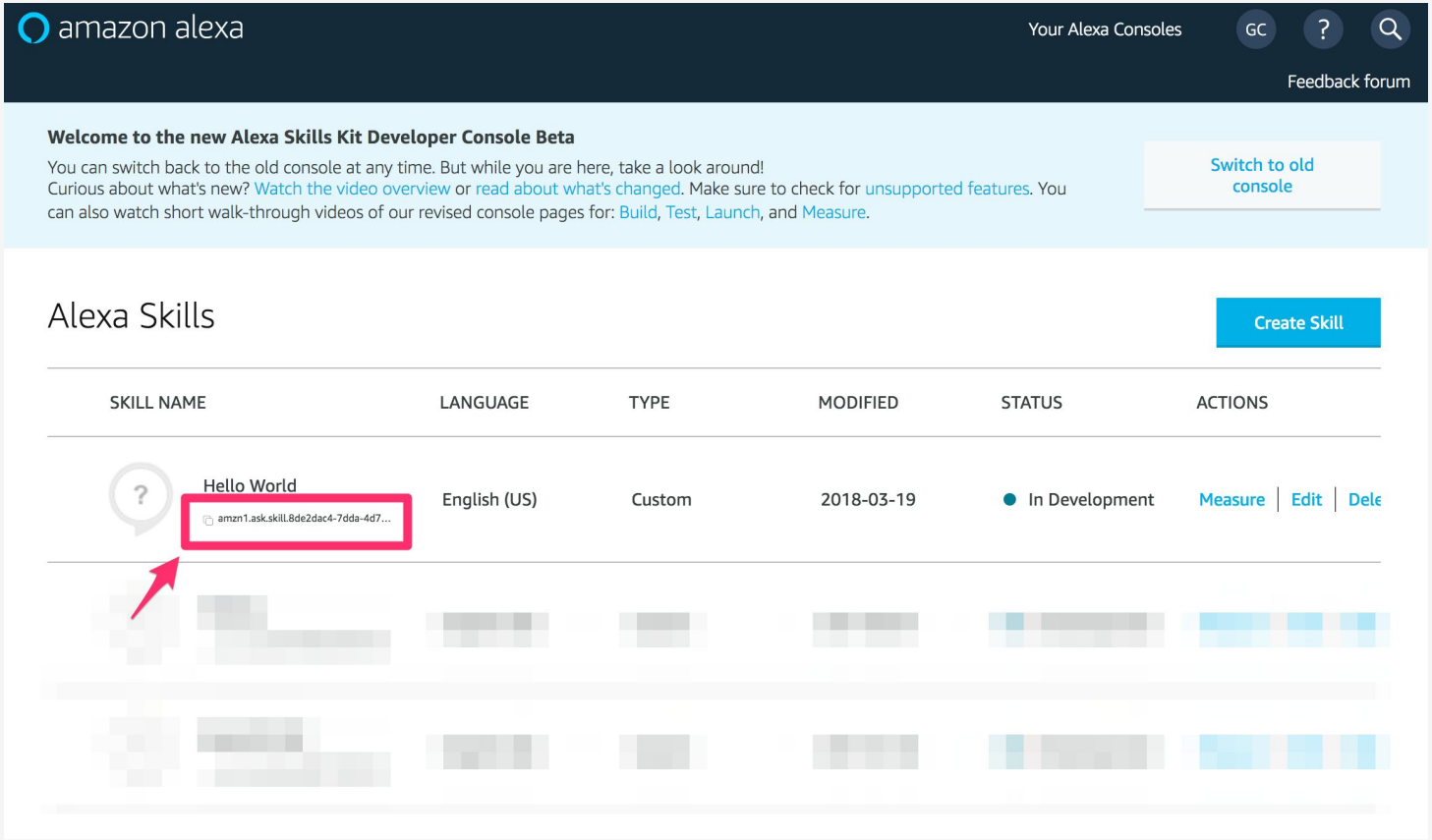
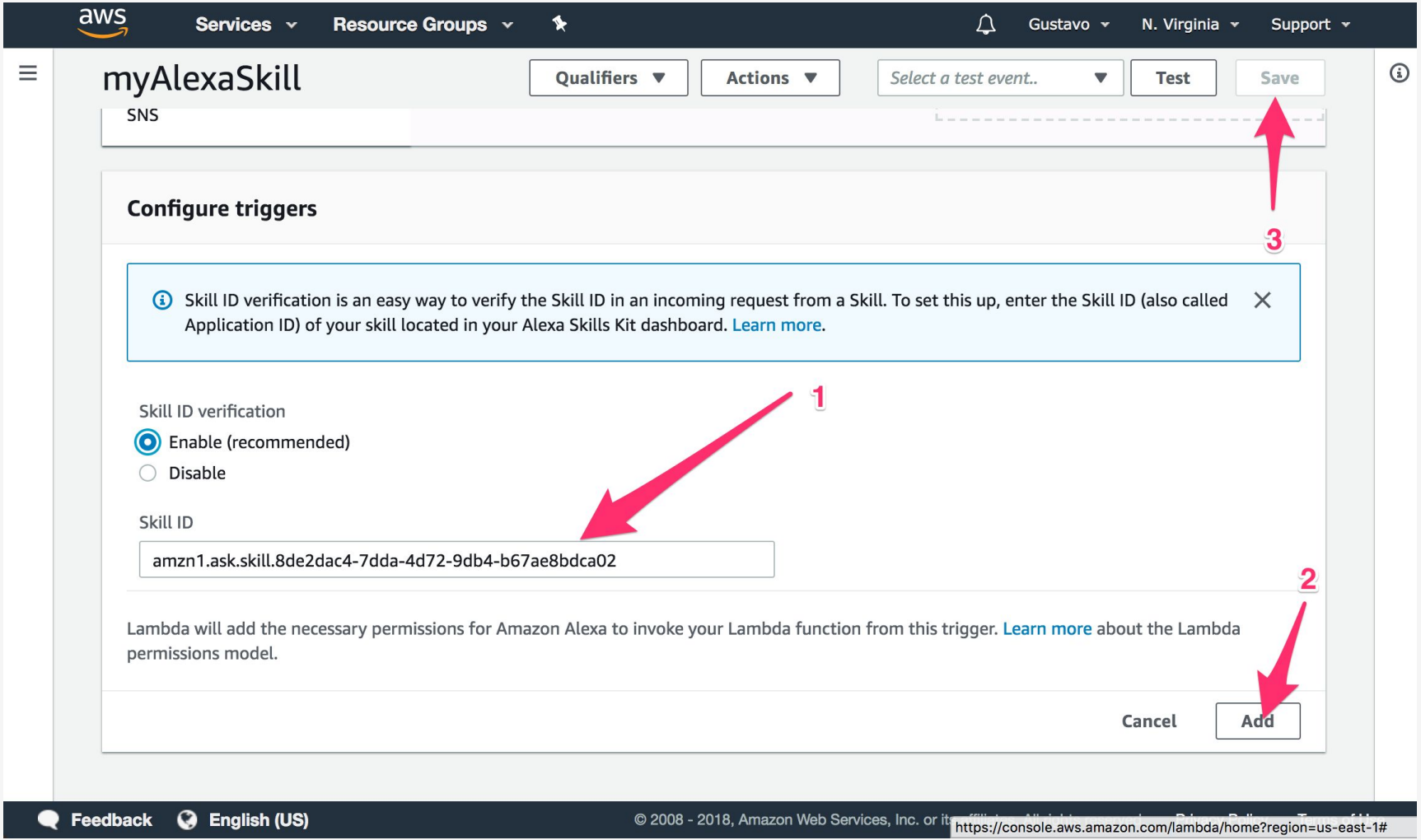
https://console.aws.amazon.com/lambda/home?region=us-east-1#

Go to: https://developer.amazon.com/alexa/console/ask




aws
Services
Resource Groups
Gustavo
N. Virginia
Support
myAlexaSkill
Qualifiers
Actions
Select a test event..
Test
Save
SNS
Configure triggers
3
Skill ID verification is an easy way to verify the Skill ID in an incoming request from a Skill. To set this up, enter the Skill ID (also called Application ID) of your skill located in your Alexa Skills Kit dashboard. Learn more.
1
Skill ID verification
Enable (recommended)
Disable
Skill ID
amzn1.ask.skill.8de2dac4-7dda-4d72-9db4-b67ae8bdca02
2
Lambda will add the necessary permissions for Amazon Alexa to invoke your Lambda function from this trigger. Learn more about the Lambda permissions model.
Cancel
Add
Feedback
English (US)
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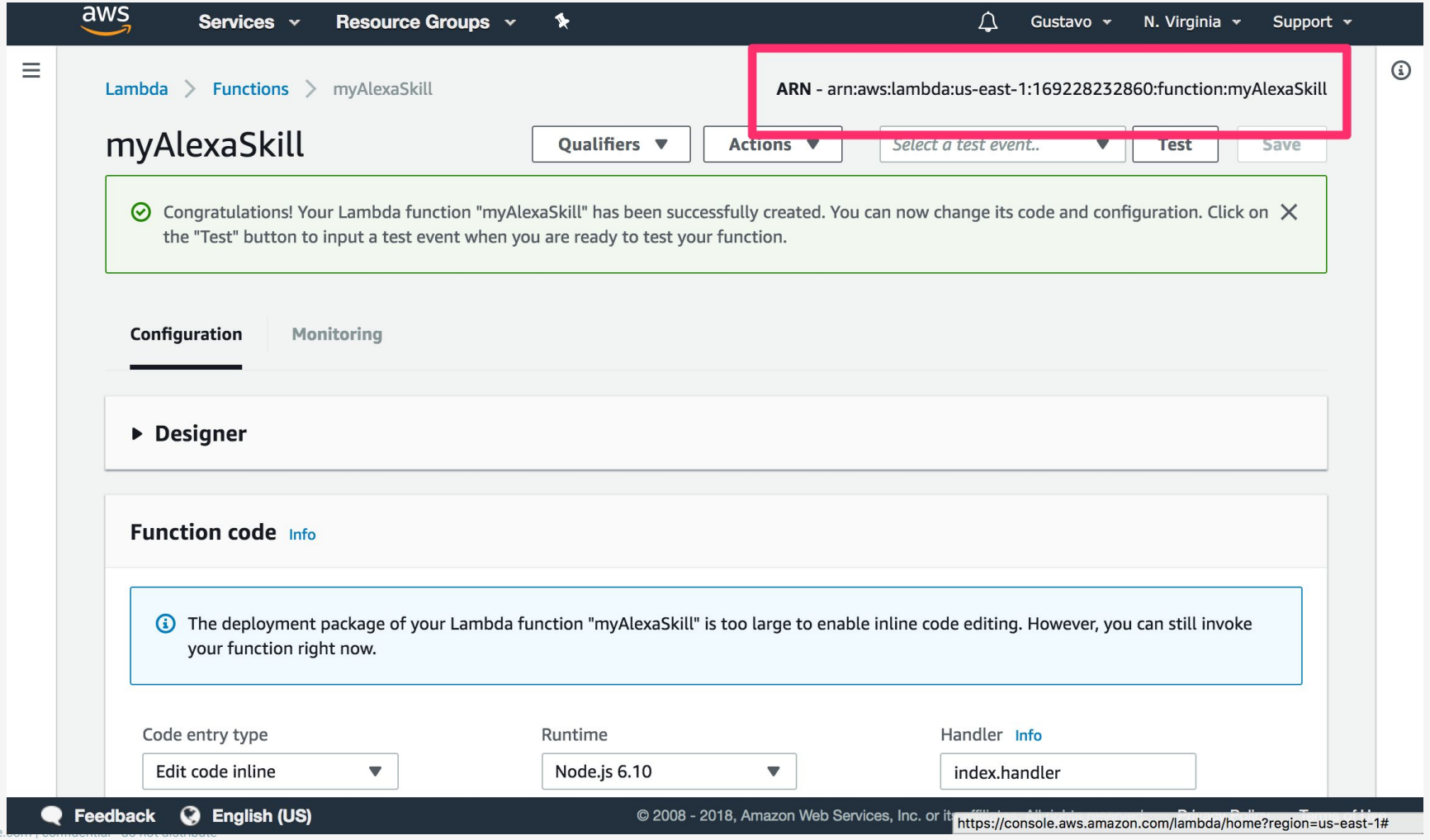
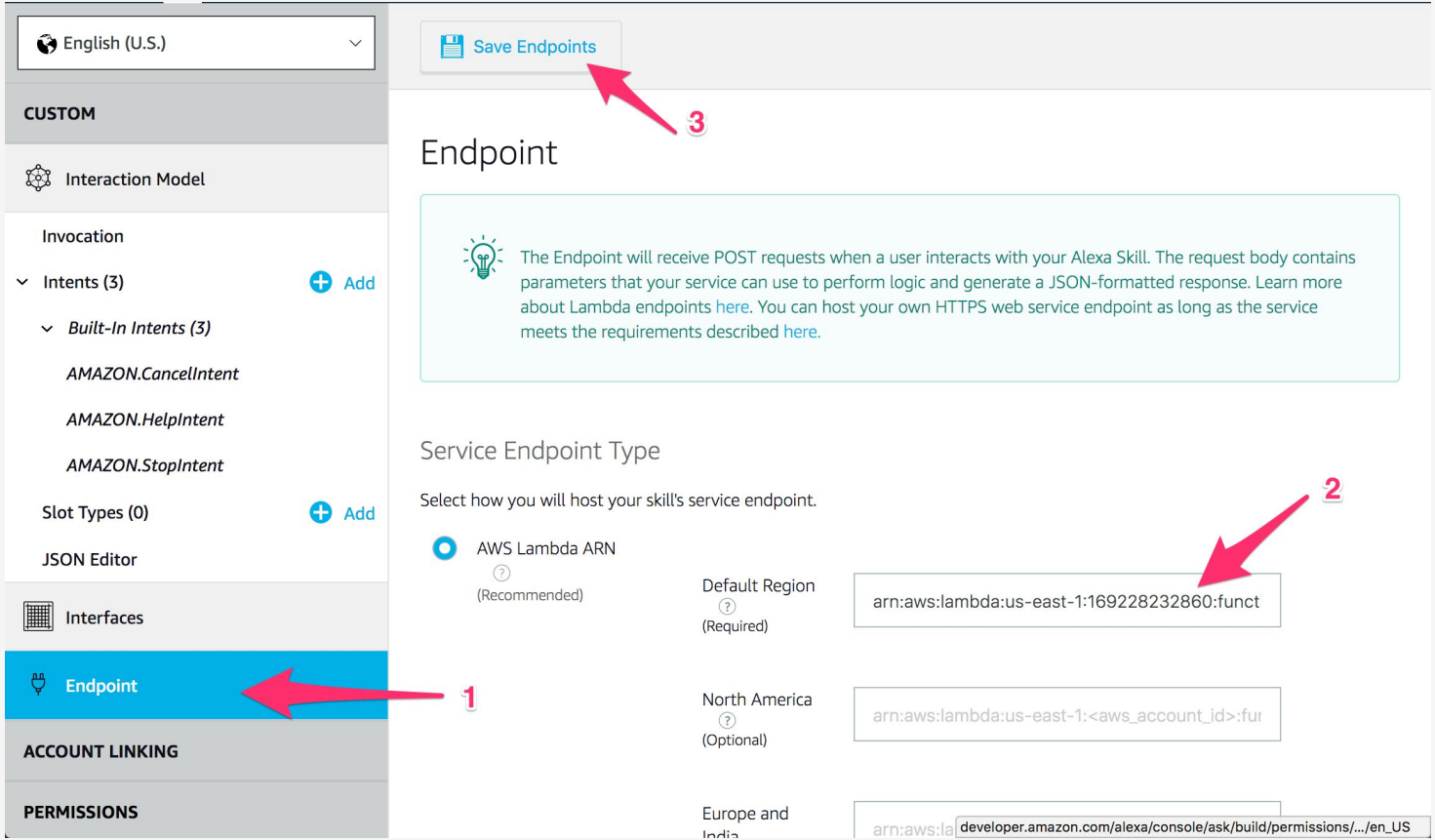
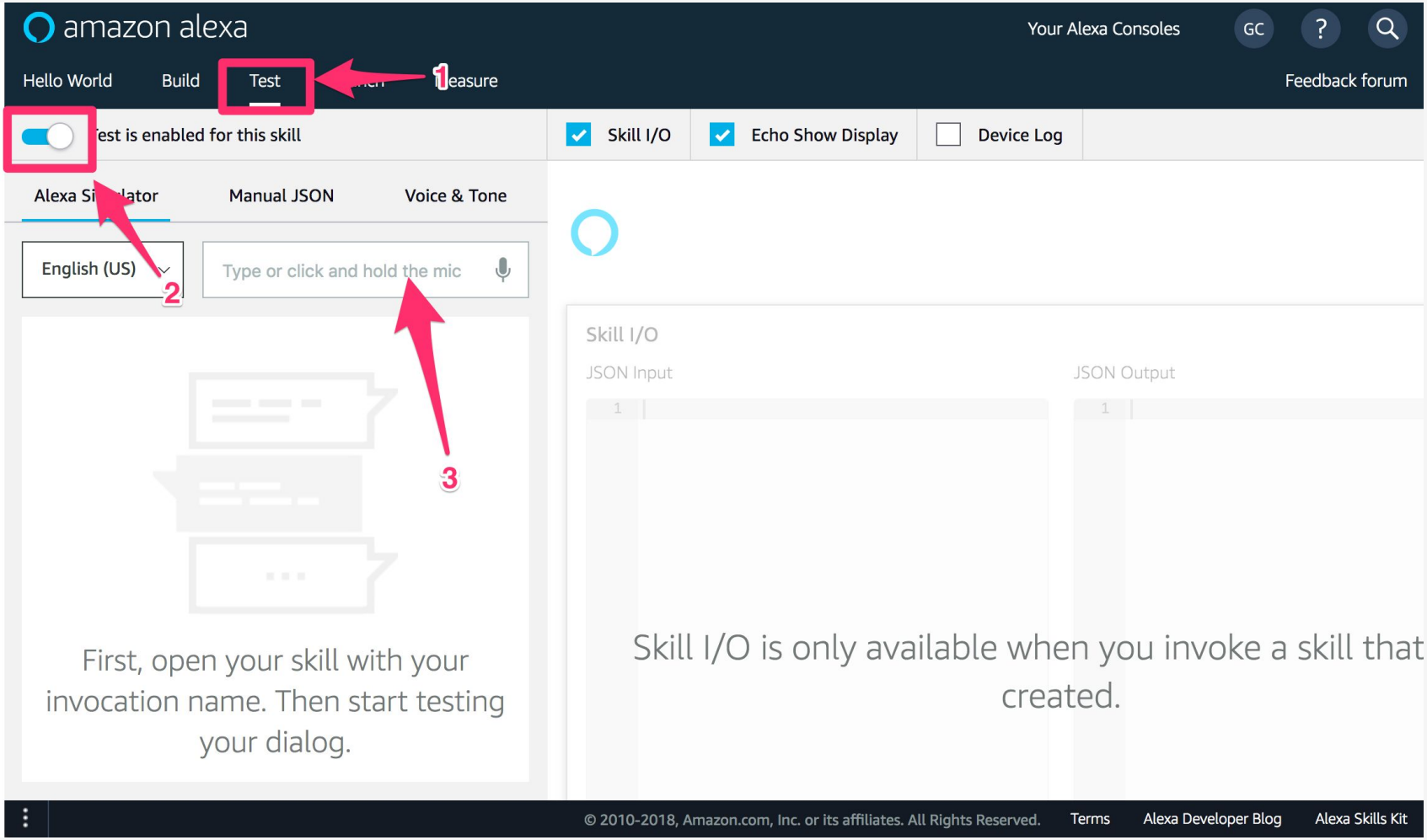
https://console.aws.amazon.com/lambda/home?region=us-east-1#



Go to: https://developer.amazon.com/alexa/console/ask




amazon alexa
Your Alexa Consoles
GC
Hello World
Build
Test
1
easure
Feedback forum
est is enabled for this skill
Skill I/O
Echo Show Display
Device Log
Alexa Si lator
Manual JSON
Voice & Tone
English (US)
Type or click and hold the mic
2
3
First, open your skill with your invocation name. Then start testing your dialog.
Skill I/O
JSON Input
JSON Output
1
1
Skill I/O is only available when you invoke a skill that created.
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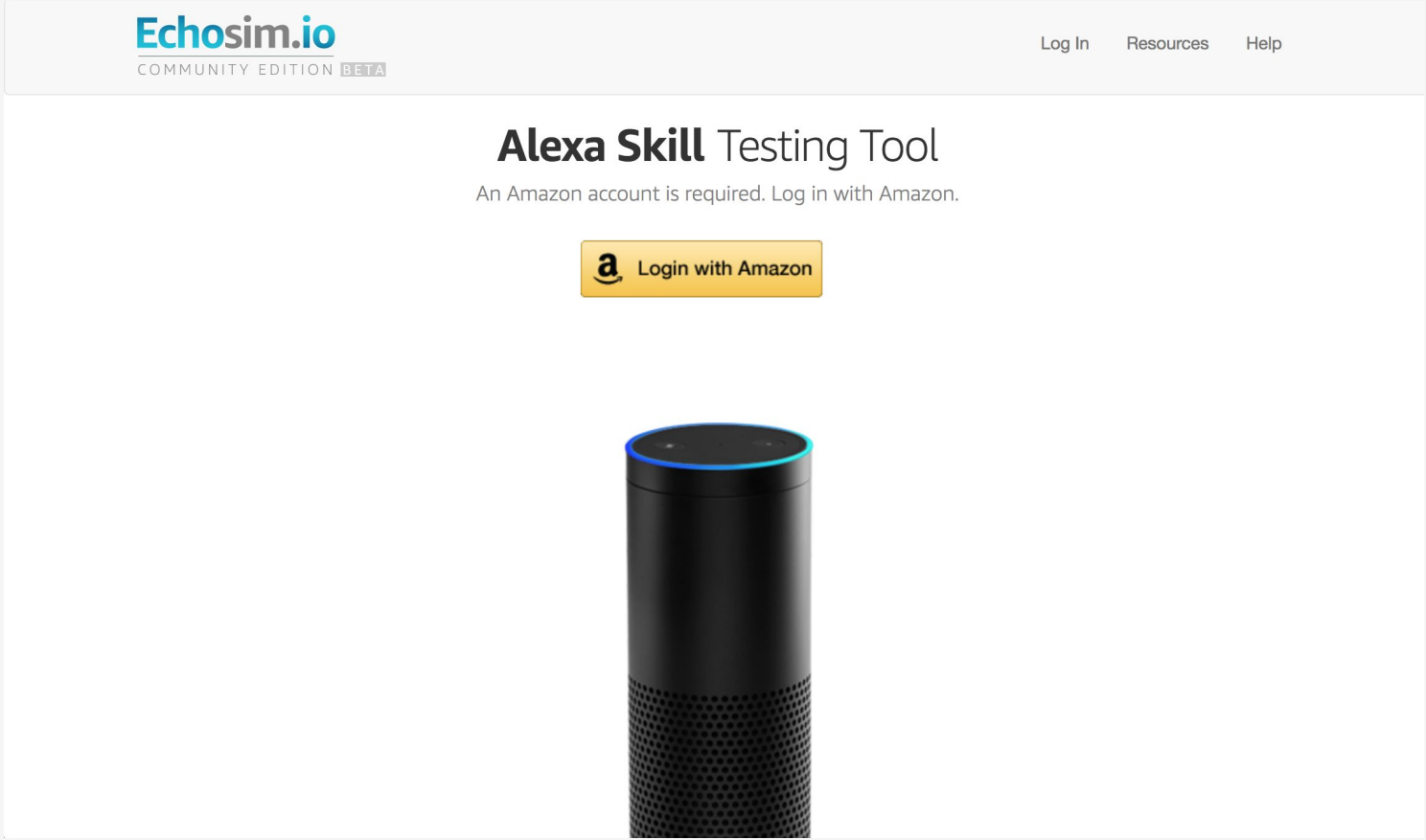
Terms
Alexa Developer Blog
Alexa Skills Kit

Go to: https://echosim.io



Session

All requests include the version, context, and request objects at the top level.

The session object is included for all standard requests, but it is not included for AudioPlayer, VideoApp, or PlaybackController requests.

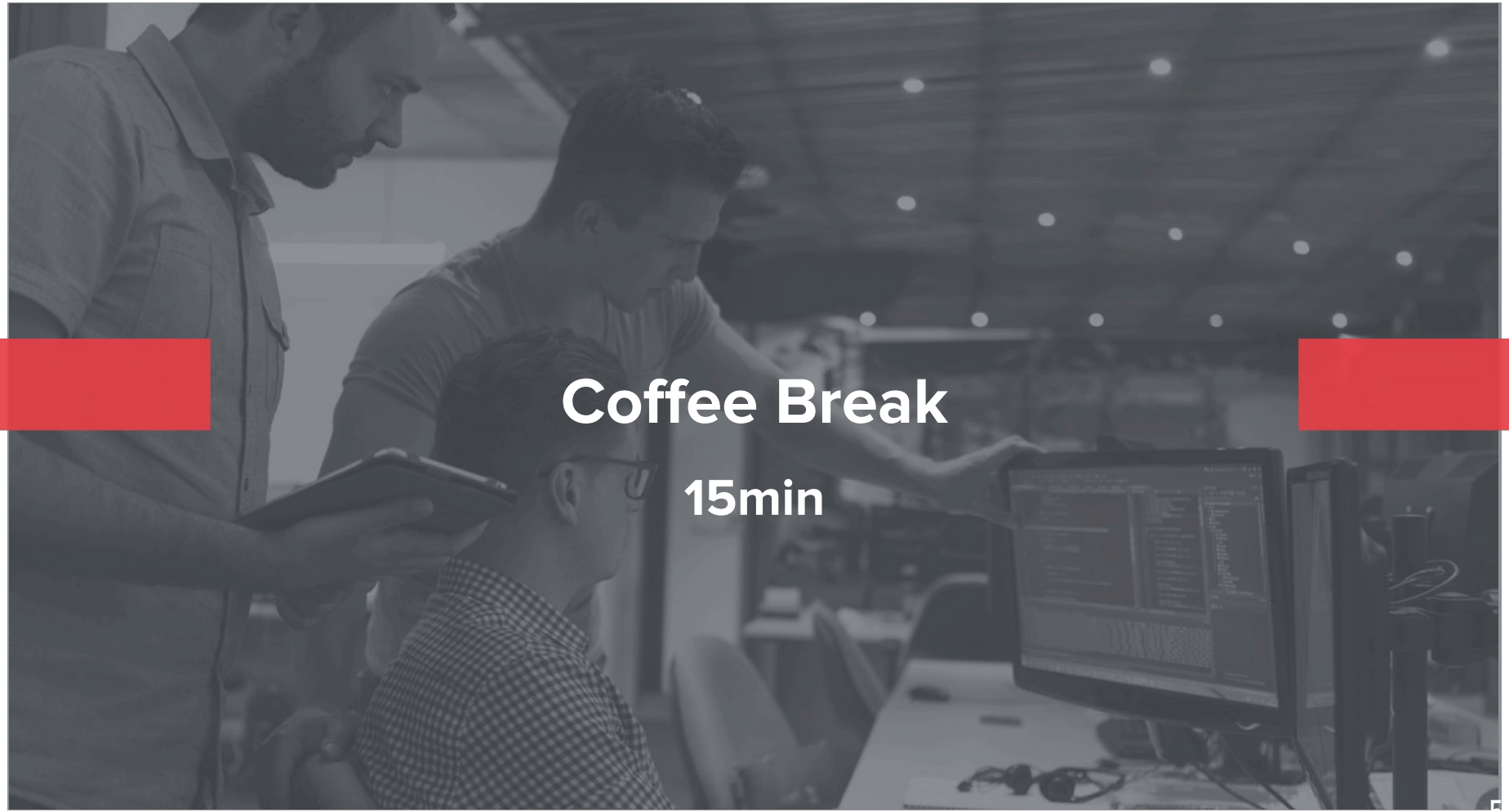
The context object provides your skill with information about the current state of the service, this information is available in the session object.

The session timeout is 8s, before jumping to a reprompt or closing the skill.

SSML

SSML is a markup language that provides a standard way to mark up text for the generation of synthetic speech. The Alexa Skills Kit supports a *subset* of the tags defined in the SSML specification. The specific tags supported are listed in Supported SSML Tags.

```
<speak>
    The word <say-as interpret-as="characters">read</say-as> may be interpreted
    as either the present simple form <w role="ivona:VB">read</w>,
    or the past participle form <w role="ivona:VBD">read</w>.
</speak>
```


Coffee Break
15min


Coding Session

Steps to Publishing

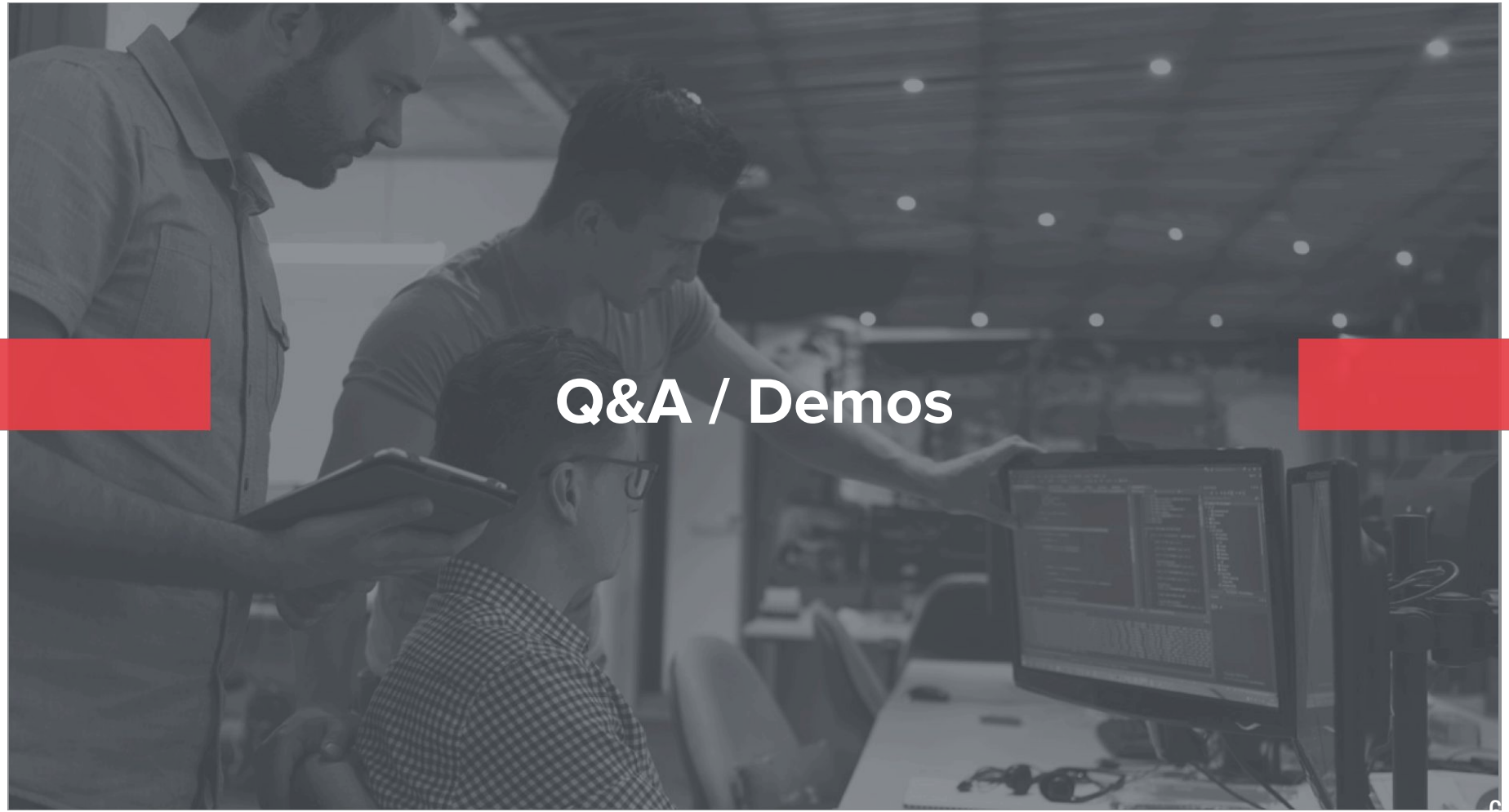
- Publish Information
- Privacy & Compliance
- Testing
- Submit to Amazon
- Launch and earn some credits!

Challenges

New vs Returning Users

3rd Party Limitations

Ecosystem constant evolution


Q&A / Demos

THANK YOU

WIZELINE®

gustavo@wizeline.com