Amazon Lex

Amazon Lex is a fully managed artificial intelligence service that supports conversions through voice and text chat interfaces.

Amazon Lex

Amazon Lex is a completely managed service.

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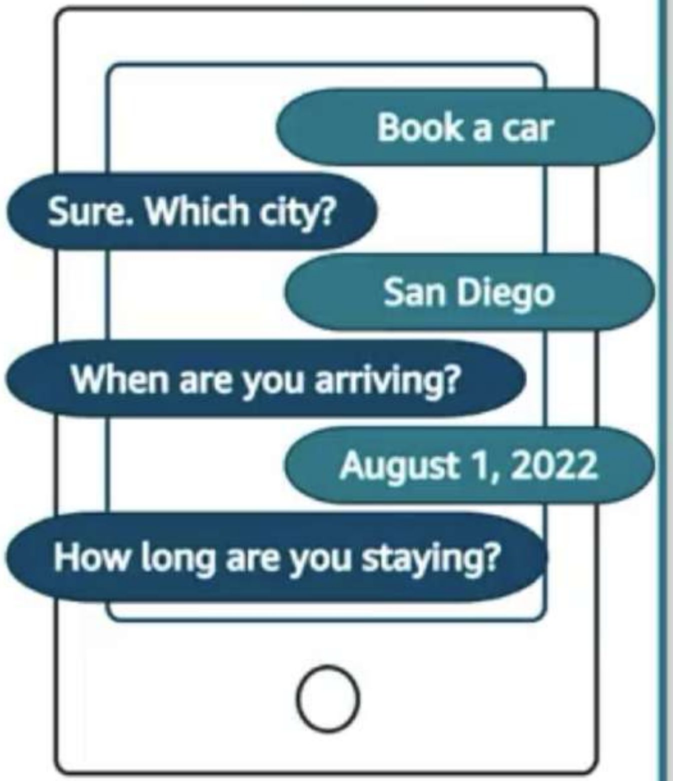
Bots, slots, and intents: Concepts

BookCar



Book a car

Sure. Which city?

San Diego

When are you arriving?

August 1, 2022

How long are you staying?

- A *bot* is a computer program that simulates a human activity.
- An *intent* is a task—with one or more utterances—that launches an intent conversation.
- Intents contain multiple *slots*. Each slot has one or more prompts to elicit the response.

On this slide, we have an example conversation

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Bots, slots, and intents: Examples

Bot	Book Travel

Intent
- BookCar

sampleUtterances
- Book a car
- Reserve a car
- Make a car reservation

slots
- Location: Sure. Which city?
- CheckIn: When are you arriving?

Intent
- BookHotel

sampleUtterances
- Book a hotel
- Make a reservation
- Reserve a hotel

slots
- Location: Sure. Which city?
- CheckIn: When are you arriving?

we set up one or more intents.

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Bots, slots, and intents: Dive deep

Intent: BookCar

sampleUtterances

- Book a car
- Reserve a car
- Make a car reservation

promptSpecification: Okay, I located a car for a {Nights} night stay in {Location} starting {CheckInDate}. Shall I book the reservation?

declinationResponse: Okay, I have cancelled your reservation in progress.

dialogCodeHook λ

fulfillmentCodeHook λ

An intent also has a promptSpecification.

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Bots, slots, and intents: Slot types

Slot: RoomType

SlotType: RoomTypeValues

SlotConstraint: Required

Prompt: What type of room would you like, queen, king or deluxe?

Slot Type: RoomTypeValues

Slot Resolution: Restrict to Slot Values

EnumerationValues:
- Queen
- King
- Deluxe

We specify a slot type and the prompt used

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Built-in intents

Amazon Lex provides multiple built-in intents, such as the following:

- `AMAZON.HelpIntent`
- `AMAZON.PauseIntent`
- `AMAZON.RepeatIntent`
- `AMAZON.CancelIntent`

For example, you can add an AMAZON.HelpIntent to your bot

Built-in slot types

Built-in slot types help Amazon Lex recognize and handle slot data.

`AMAZON.Date`

February first

2022-02-01

Next Tuesday

2022-09-12

This weekend

2022-W36-WE

A built-in slot type gives Amazon Lex additional context

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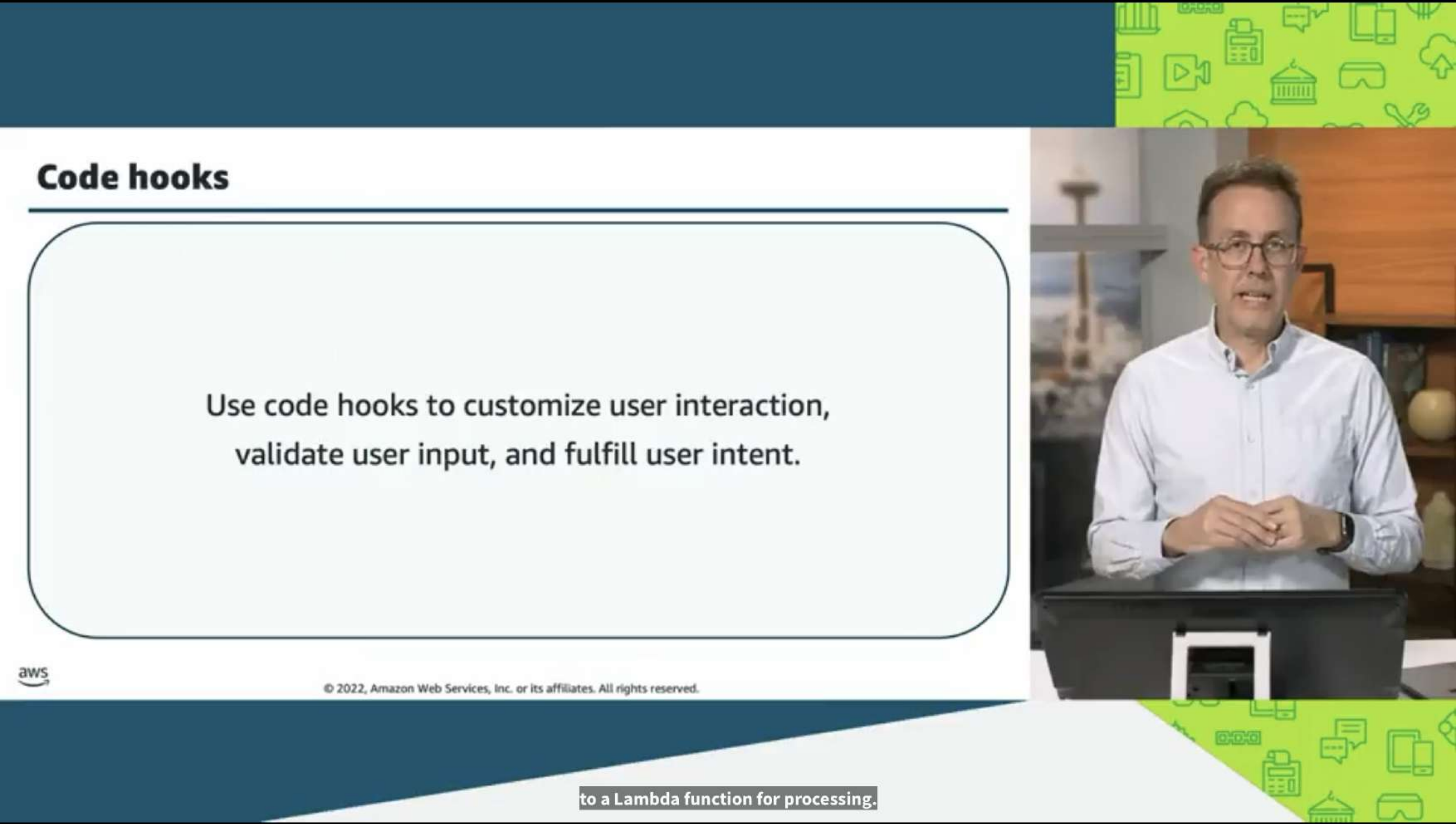

Code hooks

Use code hooks to customize user interaction, validate user input, and fulfill user intent.

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to a Lambda function for processing.

Fulfillment code hook event

- **bot:** `aliasName, aliasId, name, version, localeId`
- **sessionState.intent:** `name, slots, slotDetails`
- **invocationSource**
- **transcriptions**

Lambda function

and the current state of the slots.

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Fulfillment code hook response

- `sessionState.sessionAttributes`
- `sessionState.dialogAction`
    - `type`

`Close`	No further response
`ConfirmIntent`	*Yes* or *no* to confirm
`Delegate`	Let Amazon Lex decide
`ElicitIntent`	*Go to* an intent
`ElicitSlot`	*Go to* a slot

- `slots.state`

we can see multiple different options.

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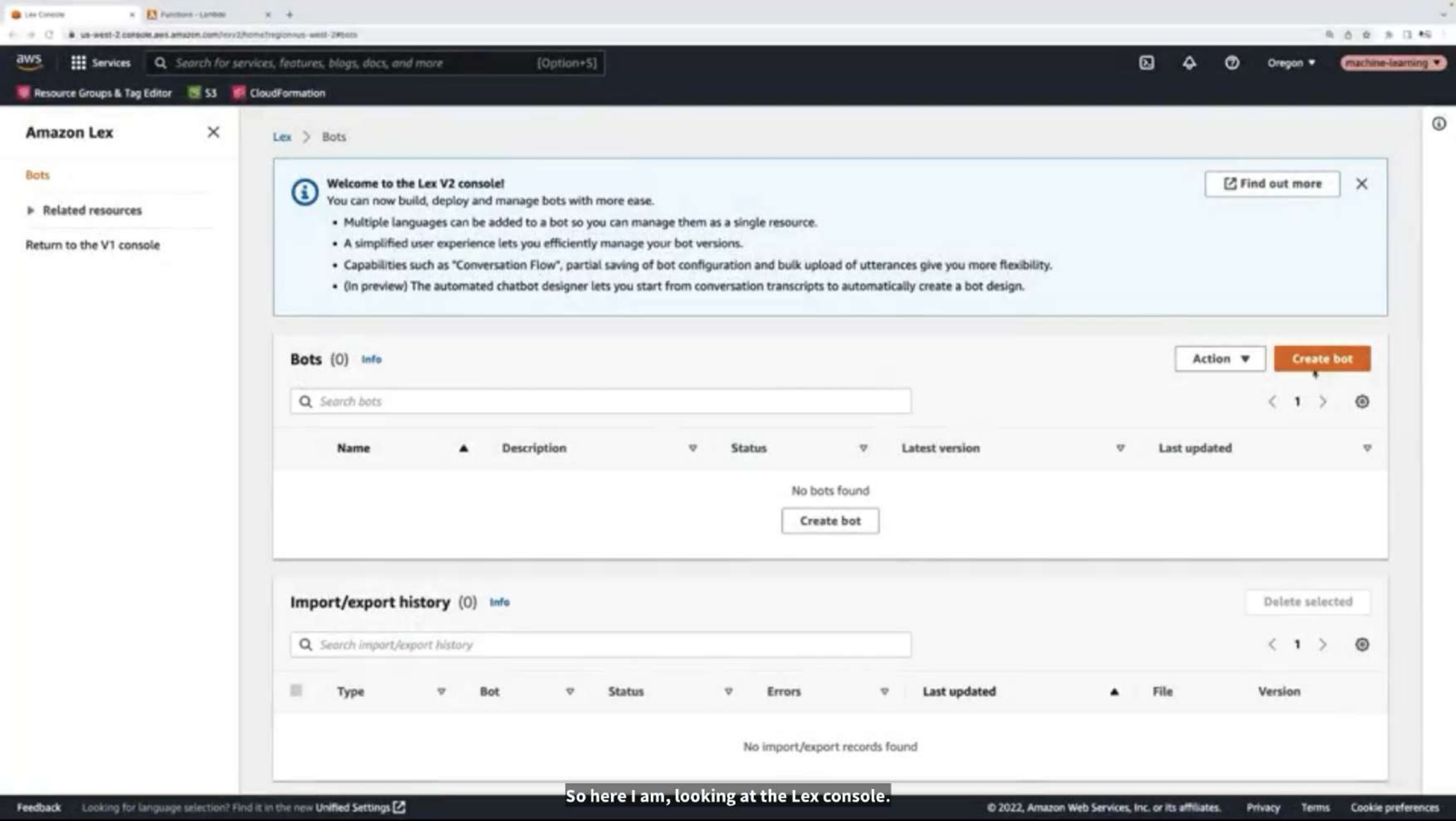
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Find out more
Bots (0)
Info
Action
Create bot
Search bots
Name
Description
Status
Latest version
Last updated
Create bot
Import/export history (0)
Info
Delete selected
Search import/export history
Type
Bot
Status
Errors
Last updated
File
Version
Feedback
Looking for language selection? Find it in the new Unified Settings
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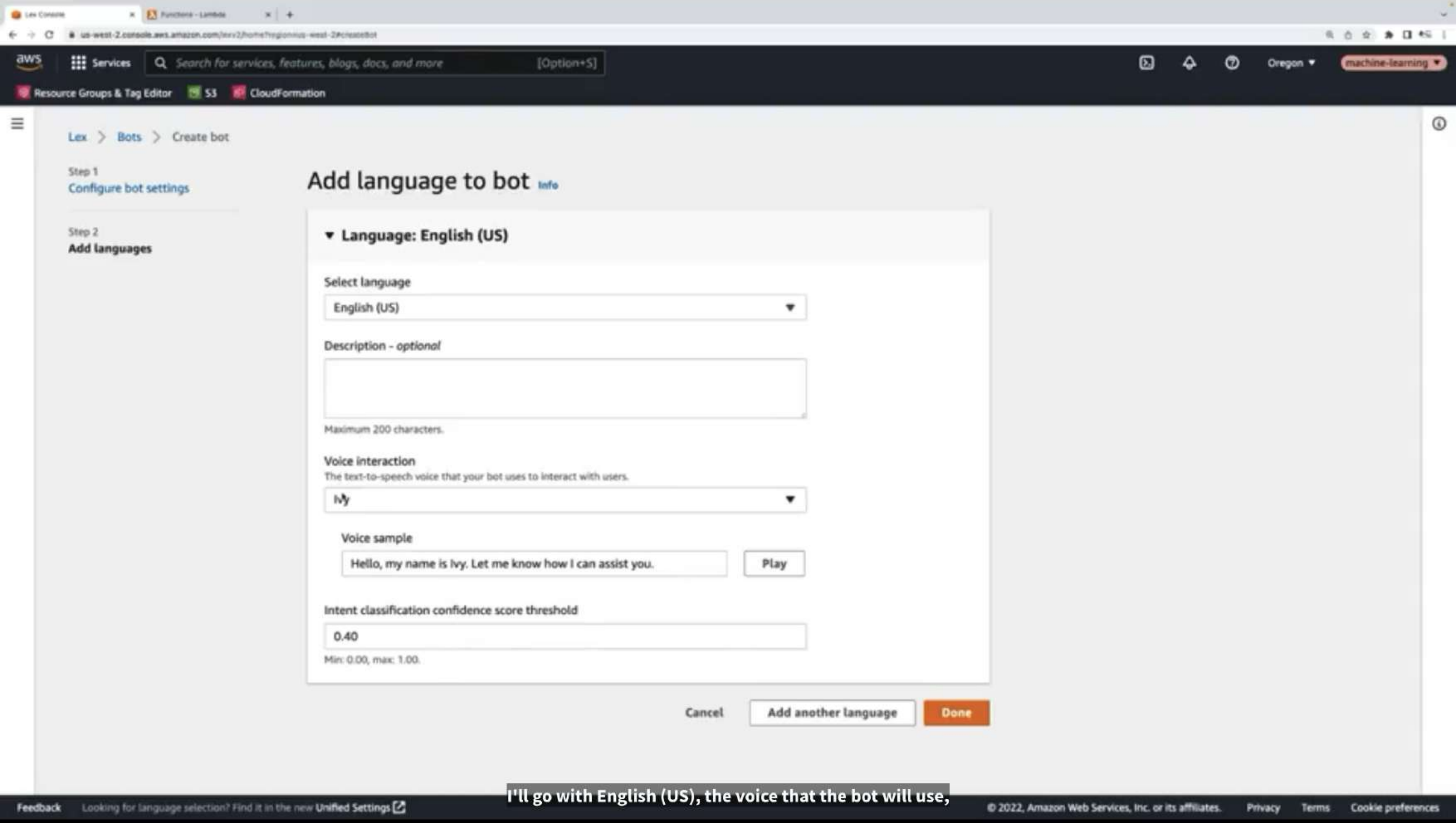
Welcome to the Lex V2 console!
You can now build, deploy and manage bots with more ease.

- Multiple languages can be added to a bot so you can manage them as a single resource.
- A simplified user experience lets you efficiently manage your bot versions.
- Capabilities such as "Conversation Flow", partial saving of bot configuration and bulk upload of utterances give you more flexibility.
- (In preview) The automated chatbot designer lets you start from conversation transcripts to automatically create a bot design.

No bots found

No import/export records found

So here I am, looking at the Lex console.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Lex > Bots > Create bot

Step 1
Configure bot settings

Step 2
Add languages

Add language to bot Info

Language: English (US)

Select language: English (US)

Description - *optional*

Maximum 200 characters.

Voice interaction
The text-to-speech voice that your bot uses to interact with users.
Ivy

Voice sample: Hello, my name is Ivy. Let me know how I can assist you.

Intent classification confidence score threshold: 0.40
Min: 0.00, max: 1.00.

Play
Cancel
Add another language
Done
Feedback
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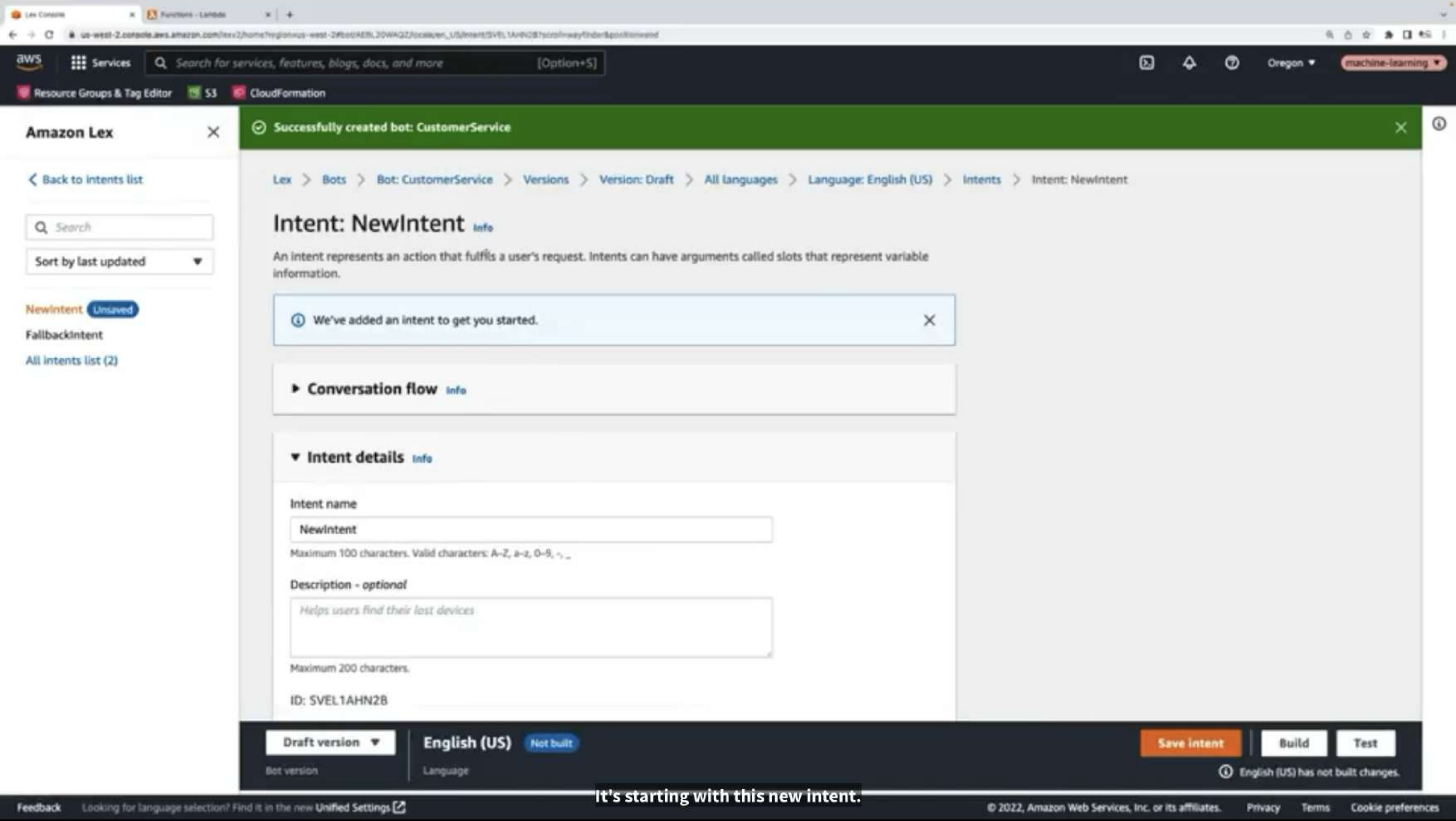
I'll go with English (US), the voice that the bot will use,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Back to intents list
Search
Sort by last updated ▾
NewIntent Unsaved
FallbackIntent
All intents list (2)

Successfully created bot: CustomerService

Lex > Bots > Bot: CustomerService > Versions > Version: Draft > All languages > Language: English (US) > Intents > Intent: NewIntent

Intent: NewIntent Info

An intent represents an action that fulfils a user's request. Intents can have arguments called slots that represent variable information.

ⓘ We've added an intent to get you started.

▸ **Conversation flow** Info

▾ **Intent details** Info

Intent name: NewIntent

Maximum 100 characters. Valid characters: A-Z, a-z, 0-9, -, _

Description - *optional*: *Helps users find their lost devices*

Maximum 200 characters.

ID: SVEL1AHN2B

Draft version ▾
Bot version
English (US) Not built
Language
Save intent
Build
Test

ⓘ English (US) has not built changes.

Feedback
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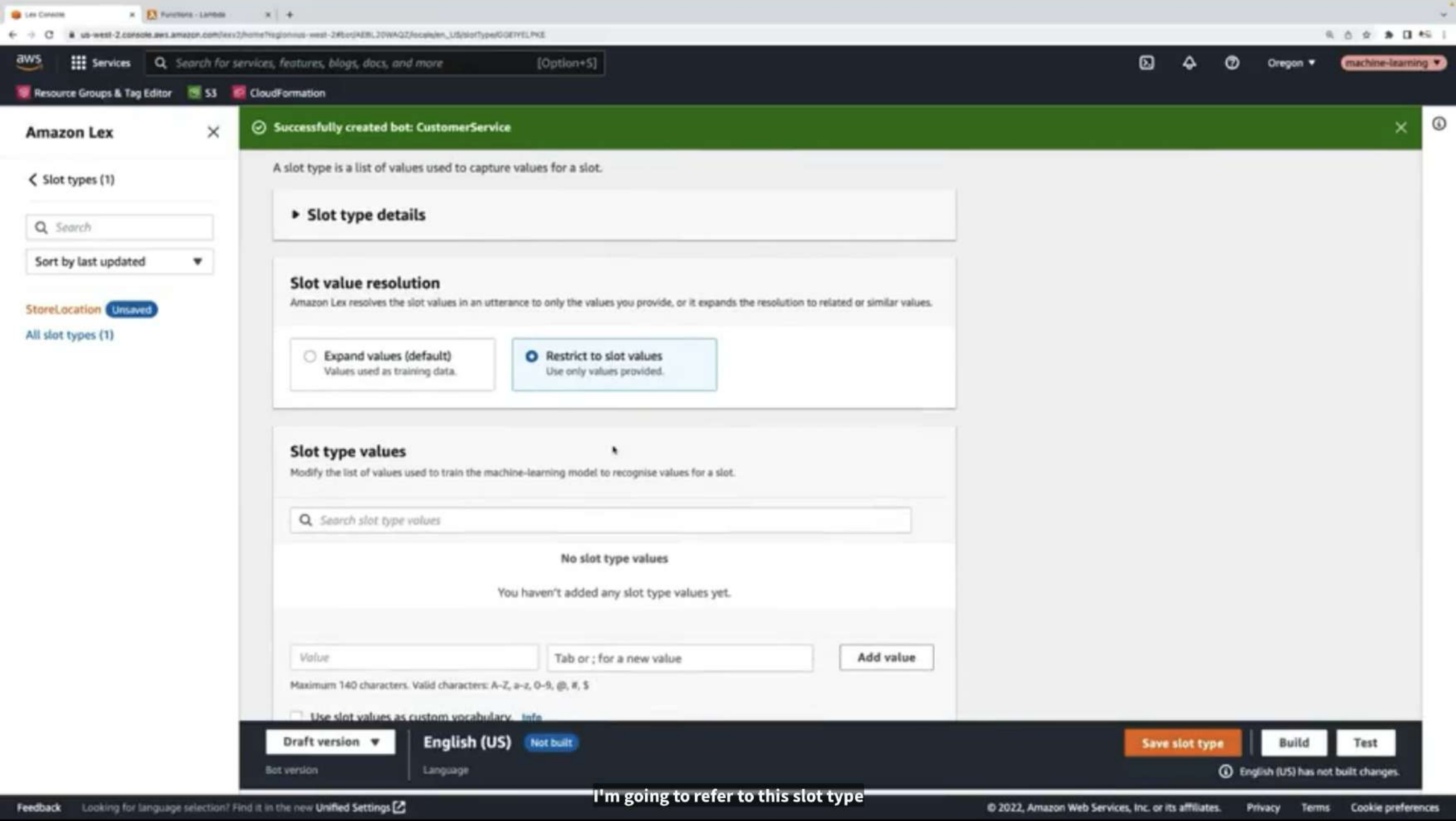
It's starting with this new intent.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Slot types (1)
Search
Sort by last updated ▾
StoreLocation Unsaved
All slot types (1)
Add value
Draft version ▾
Bot version
Language
Not built
Save slot type
Build
Test
Feedback
Privacy
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Successfully created bot: CustomerService

A slot type is a list of values used to capture values for a slot.

▸ Slot type details

Slot value resolution

Amazon Lex resolves the slot values in an utterance to only the values you provide, or it expands the resolution to related or similar values.

○ Expand values (default)
Values used as training data.

● Restrict to slot values
Use only values provided.

Slot type values

Modify the list of values used to train the machine-learning model to recognise values for a slot.

Search slot type values

No slot type values

You haven't added any slot type values yet.

Value | Tab or ; for a new value

Maximum 140 characters. Valid characters: A-Z, a-z, 0-9, @, #, $

☐ Use slot values as custom vocabulary. Info

English (US)

English (US) has not built changes.

Looking for language selection? Find it in the new Unified Settings

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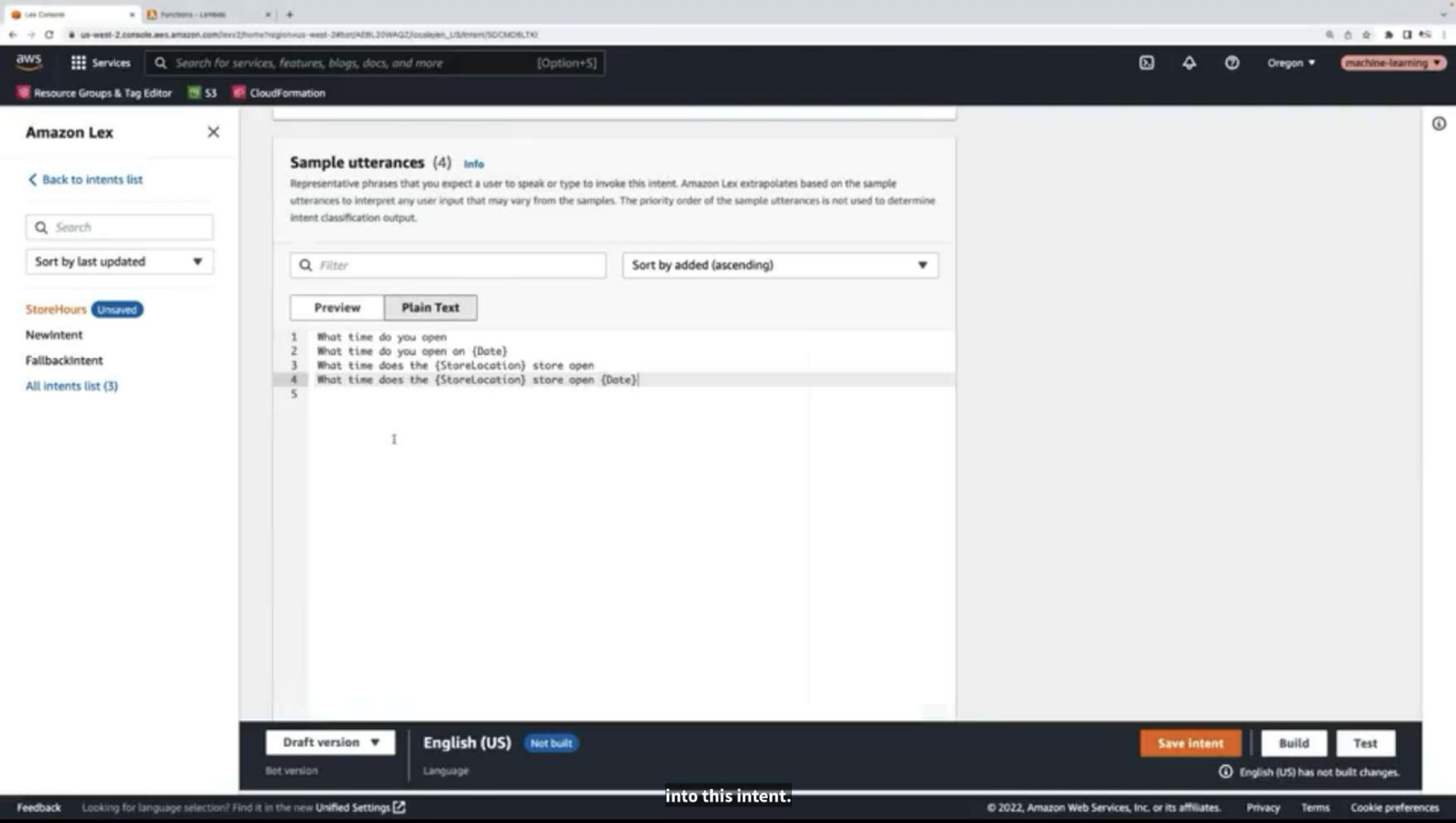
I'm going to refer to this slot type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StoreHours
Unsaved
NewIntent
FallbackIntent
All intents list (3)
Info
Filter
Sort by added (ascending)
Preview
Plain Text
Draft version
Bot version
Not built
Language
Save intent
Build
Test
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Sample utterances (4)

Representative phrases that you expect a user to speak or type to invoke this intent. Amazon Lex extrapolates based on the sample utterances to interpret any user input that may vary from the samples. The priority order of the sample utterances is not used to determine intent classification output.

```
What time do you open
What time do you open on {Date}
What time does the {StoreLocation} store open
What time does the {StoreLocation} store open {Date}
```

English (US)

English (US) has not built changes.

Looking for language selection? Find it in the new **Unified Settings**

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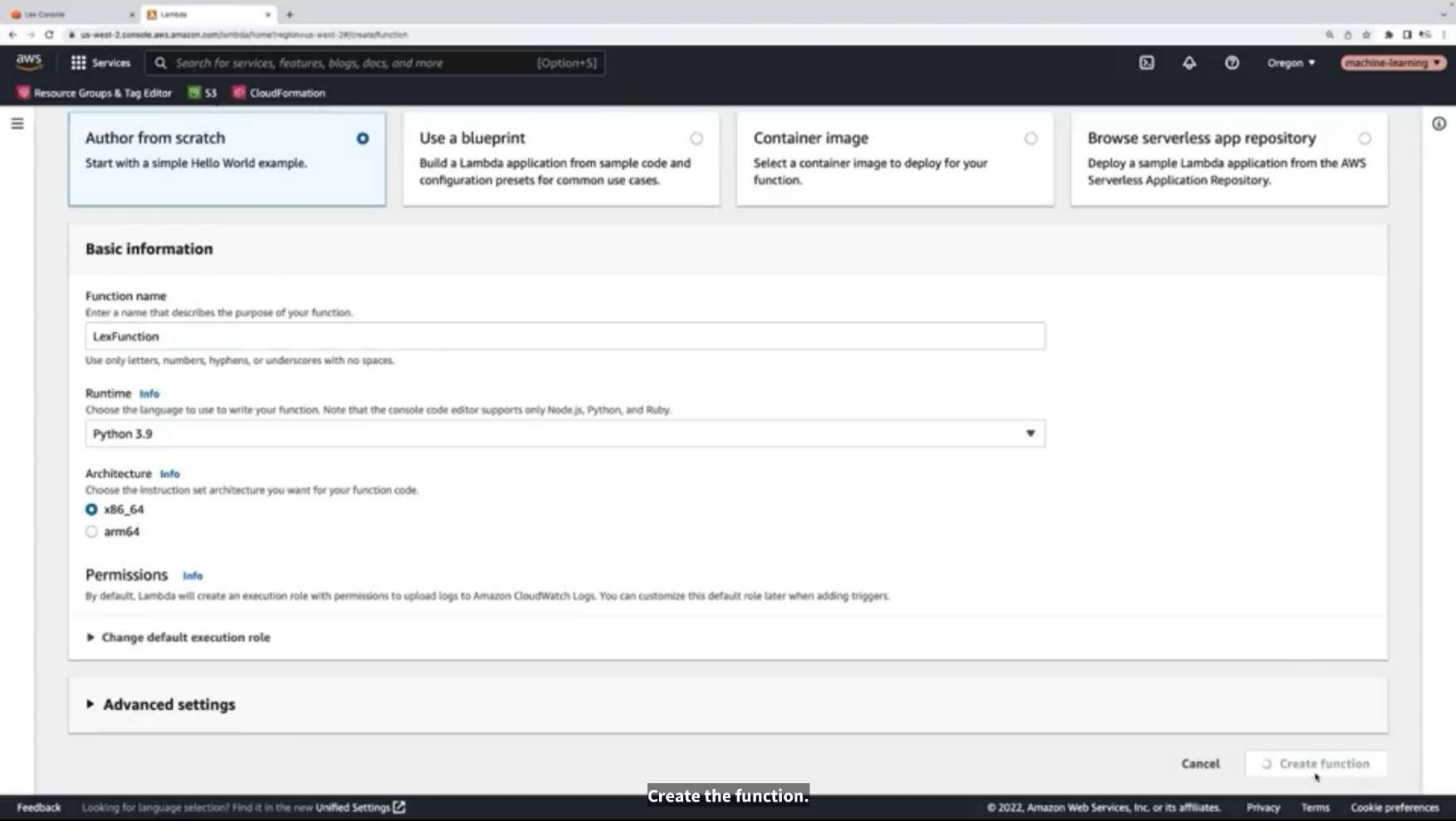
into this intent.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Cancel
Create function

● Author from scratch
Start with a simple Hello World example.

○ Use a blueprint
Build a Lambda application from sample code and configuration presets for common use cases.

○ Container image
Select a container image to deploy for your function.

○ Browse serverless app repository
Deploy a sample Lambda application from the AWS Serverless Application Repository.

Basic information

Function name
Enter a name that describes the purpose of your function.
LexFunction
Use only letters, numbers, hyphens, or underscores with no spaces.

Runtime Info
Choose the language to use to write your function. Note that the console code editor supports only Node.js, Python, and Ruby.
Python 3.9 ▼

Architecture Info
Choose the instruction set architecture you want for your function code.
● x86_64
○ arm64

Permissions Info
By default, Lambda will create an execution role with permissions to upload logs to Amazon CloudWatch Logs. You can customize this default role later when adding triggers.

▶ Change default execution role

▶ **Advanced settings**

Create the function.

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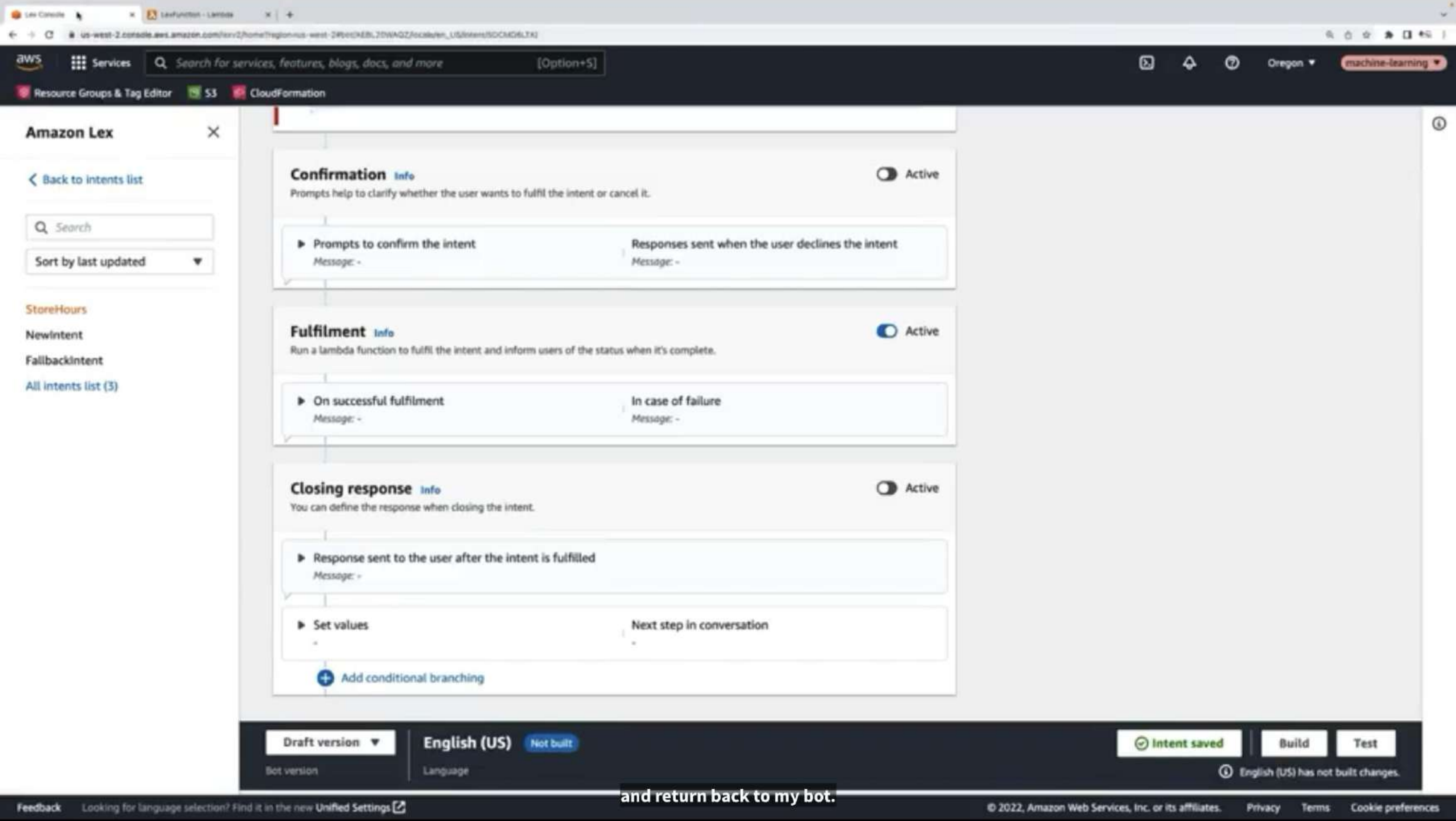
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LexFunction - Lambda
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StoreHours
NewIntent
FallbackIntent
All intents list (3)

Confirmation Info

Active: ○ (off)

Prompts help to clarify whether the user wants to fulfil the intent or cancel it.

- Prompts to confirm the intent — Message: -
- Responses sent when the user declines the intent — Message: -

Fulfilment Info

Active: ● (on)

Run a lambda function to fulfil the intent and inform users of the status when it's complete.

- On successful fulfilment — Message: -
- In case of failure — Message: -

Closing response Info

Active: ○ (off)

You can define the response when closing the intent.

- Response sent to the user after the intent is fulfilled — Message: -
- Set values: -
- Next step in conversation: -

Add conditional branching
Draft version
Bot version

English (US) — Not built

Language

Intent saved
Build
Test

English (US) has not built changes.

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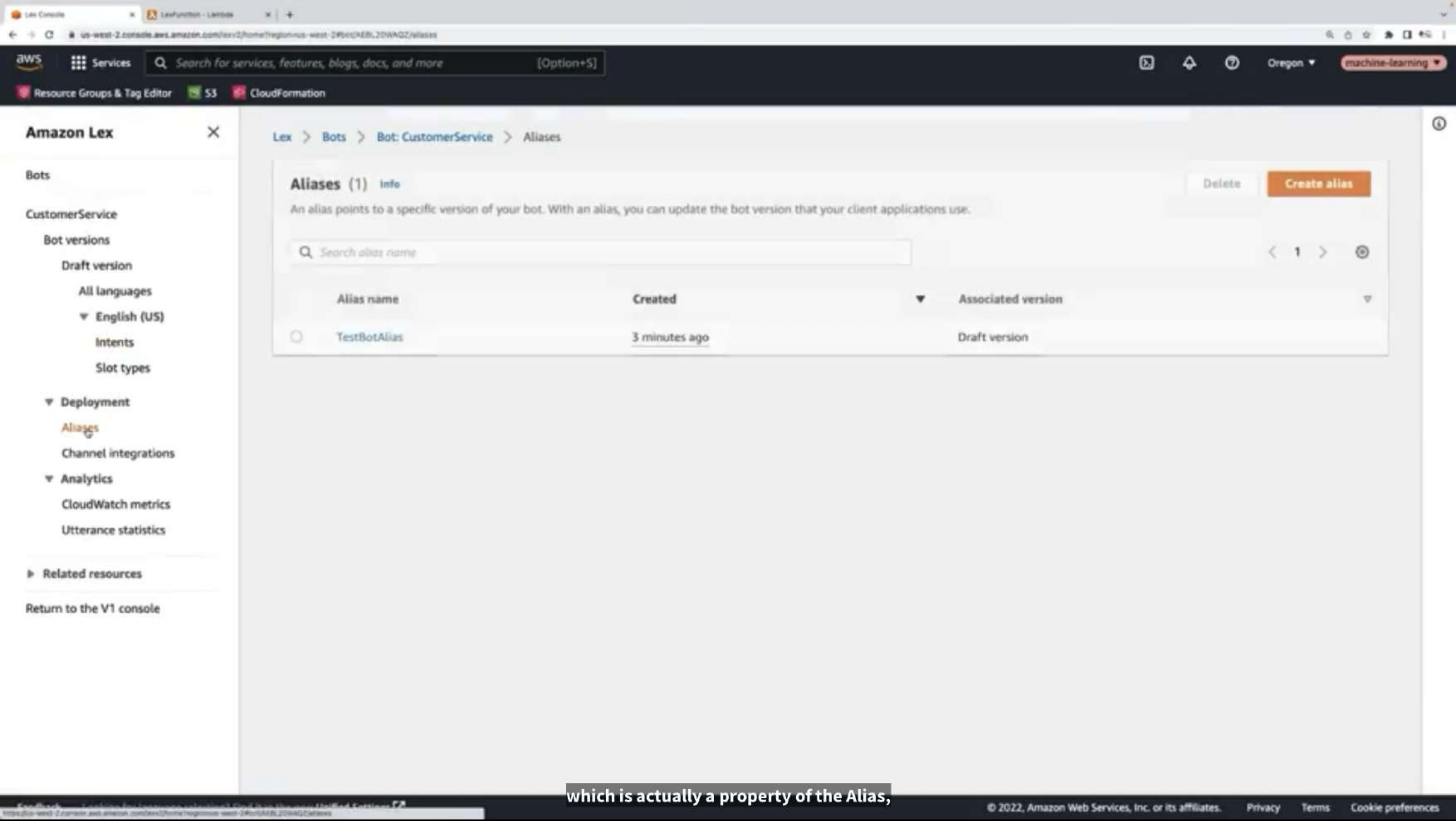
and return back to my bot.



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Bot versions
Draft version
All languages
English (US)
Intents
Slot types
Deployment
Aliases
Channel integrations
Analytics
CloudWatch metrics
Utterance statistics
Related resources
Return to the V1 console
Lex > Bots > Bot: CustomerService > Aliases
Delete
Create alias
Search alias name
1
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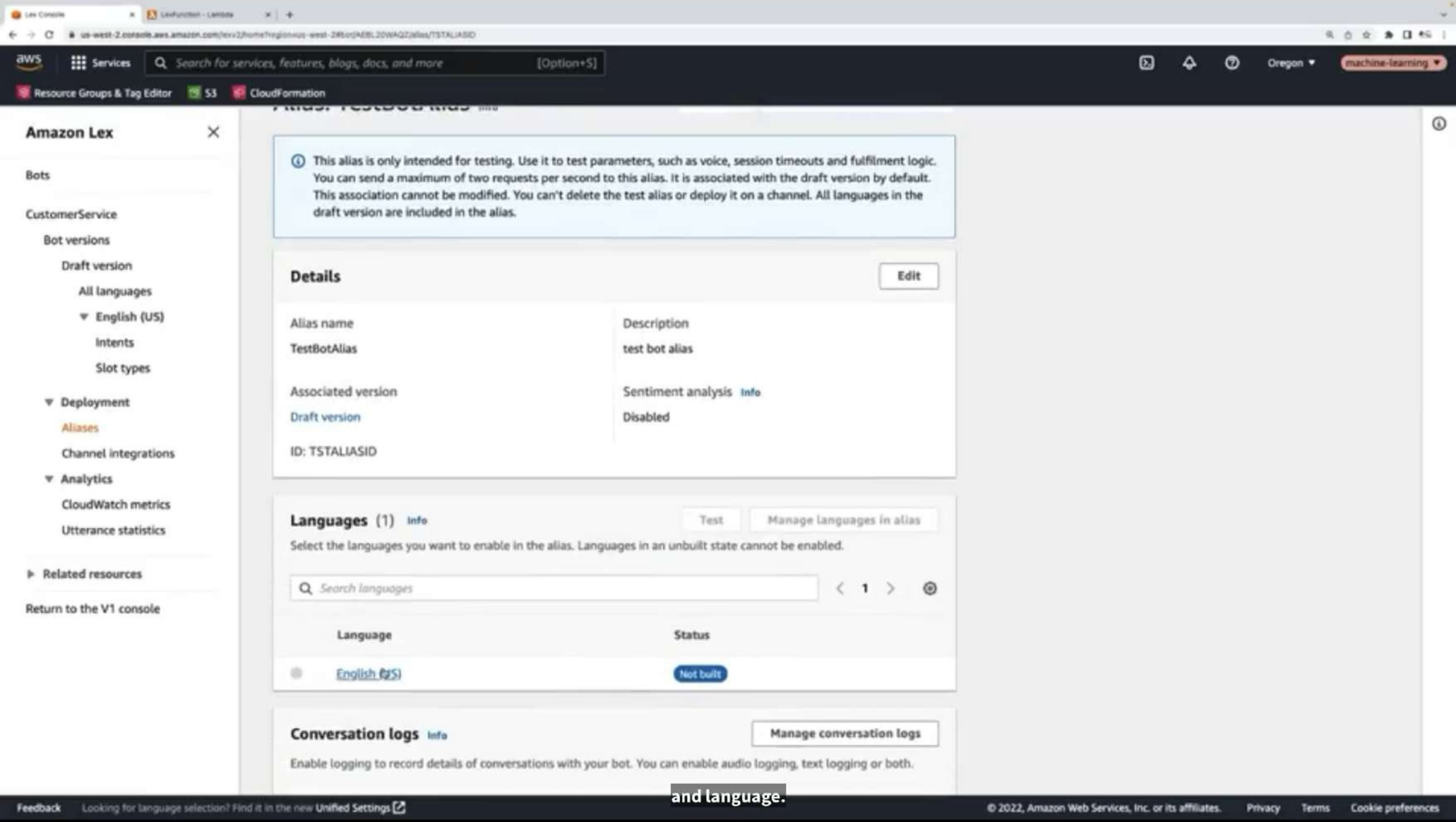
Aliases (1) Info

An alias points to a specific version of your bot. With an alias, you can update the bot version that your client applications use.

	Alias name	Created	Associated version
○	TestBotAlias	3 minutes ago	Draft version

which is actually a property of the Alias,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All languages
English (US)
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Aliases
Channel integrations
Analytics
CloudWatch metrics
Utterance statistics
Related resources
Return to the V1 console

This alias is only intended for testing. Use it to test parameters, such as voice, session timeouts and fulfillment logic. You can send a maximum of two requests per second to this alias. It is associated with the draft version by default. This association cannot be modified. You can't delete the test alias or deploy it on a channel. All languages in the draft version are included in the alias.

Details

Alias name
TestBotAlias

Description
test bot alias

Associated version
Draft version

Sentiment analysis Info
Disabled

ID: TSTALIASID

Languages (1) Info

Test
Manage languages in alias

Select the languages you want to enable in the alias. Languages in an unbuilt state cannot be enabled.

Search languages
1

	Language	Status
○	English (US)	Not built

Conversation logs Info

Manage conversation logs

Enable logging to record details of conversations with your bot. You can enable audio logging, text logging or both.

and language.

Feedback
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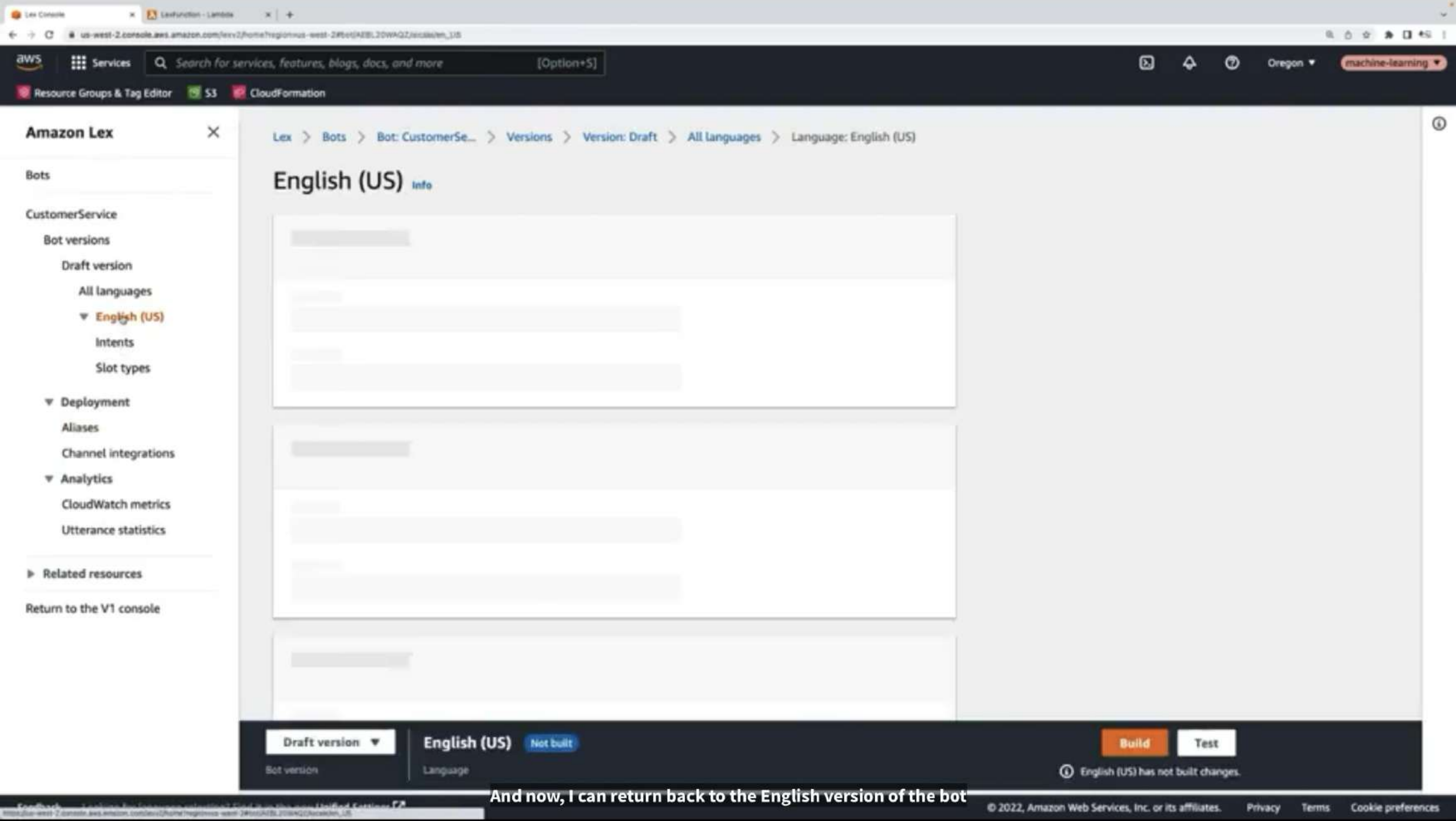
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Draft version
All languages
▼ English (US)
Intents
Slot types
▼ Deployment
Aliases
Channel integrations
▼ Analytics
CloudWatch metrics
Utterance statistics
▶ Related resources
Return to the V1 console
Lex > Bots > Bot: CustomerSe... > Versions > Version: Draft > All languages > Language: English (US)
English (US) Info
Draft version ▼
Bot version
English (US) Not built
Language
Build
Test
English (US) has not built changes.
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And now, I can return back to the English version of the bot