POLYGLOTBOT

Develop in one language
deliver to many

Christopher Crane
Morgan Langlais

Introduction and Overview

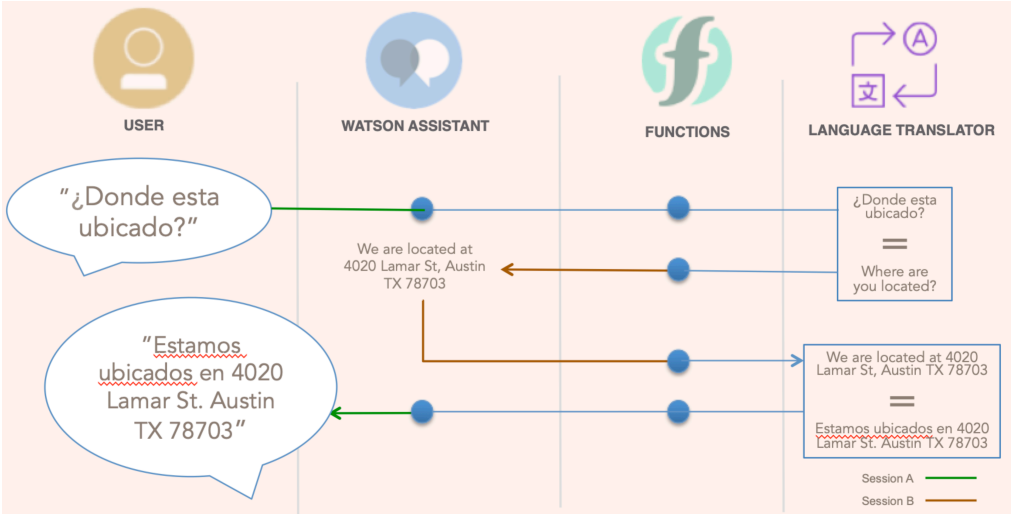
Polyglot Bot (Poly) enables skills to be seamlessly consumed in a wide variety of languages by sending user utterances and responses to the Watson Language Translator service through a Cloud Function. This runbook will walk through:

1. Gathering Requirements
2. Create Cloud Function
3. Create a New Watson Assistant Skill
4. Get the Cloud Functions endpoint
5. Add the webhook to your skill
6. Entity Configuration
7. Dialog Configuration
8. Welcome Configuration

The example below shows a user asking for and receiving an address to an establishment in Spanish despite the fact that the Assistant was configured and trained only in English.

"User asks 'Where are you located" and receives the address in Spanish from an English trained Assistant

This flow is made possible by linking Watson Assistant to code that sits in Cloud Functions. The Cloud Function is invoked by a webhook from Watson Assistant. Once invoked, the Cloud Function leverages both Language Translator and Assistant to correctly respond to the user.



The user experience is enabled with the above component flow:

1. Gathering Requirements

In your IBM Cloud account you should have the following

- Watson Assistant instance.
- Language Translator instance.
- Cloud Functions instance

On your local computer you should have the following

- IBM Cloud CLI
- Download the files in the repository here which includes the following:
    - polyglot.zip (Cloud Function code and dependencies)
    - skill-polyglot-bot.json (the Watson assistant skill)

2. Create Cloud Function

Cloud Functions is a serverless programming platform for developing code that scalably executes on demand. We will be leveraging this tool because it integrates with Watson Assistant via a Webhook and carries low costs.

2.1. Create a Cloud Function and note the name

2.2. Login to your IBM Cloud from the CLI using the following command:

- ***ibmcloud login –sso***

- Choose the target space:
    - ***ibmcloud* target --cf**
- Place your polyglot.zip file in its own folder on your computer where you can find it.
- Using IBM Cloud CLI Locate the folder containing your zip file (polyglot.zip).
- From within the folder, create your cloud function with the following command:
    - ***ibmcloud* fn action create [your cloud function name here] polyglot.zip --kind nodejs:10**
- You can always update this file later with the following command:
    - ***ibmcloud* fn action update [your cloud function name here] polyglot.zip --kind nodejs:10**

Action	CLI Command
Login to IBM Cloud via CLI	ibmcloud login –sso
Choose the target space	ibmcloud target --cf
Create CF Action	ibmcloud fn action create [your cloud function name here] polyglot.zip --kind nodejs:10
Update CF Action	ibmcloud fn action update [your cloud function name here] polyglot.zip --kind nodejs:10

CLI command summary

3. Create a new Watson Assistant skill

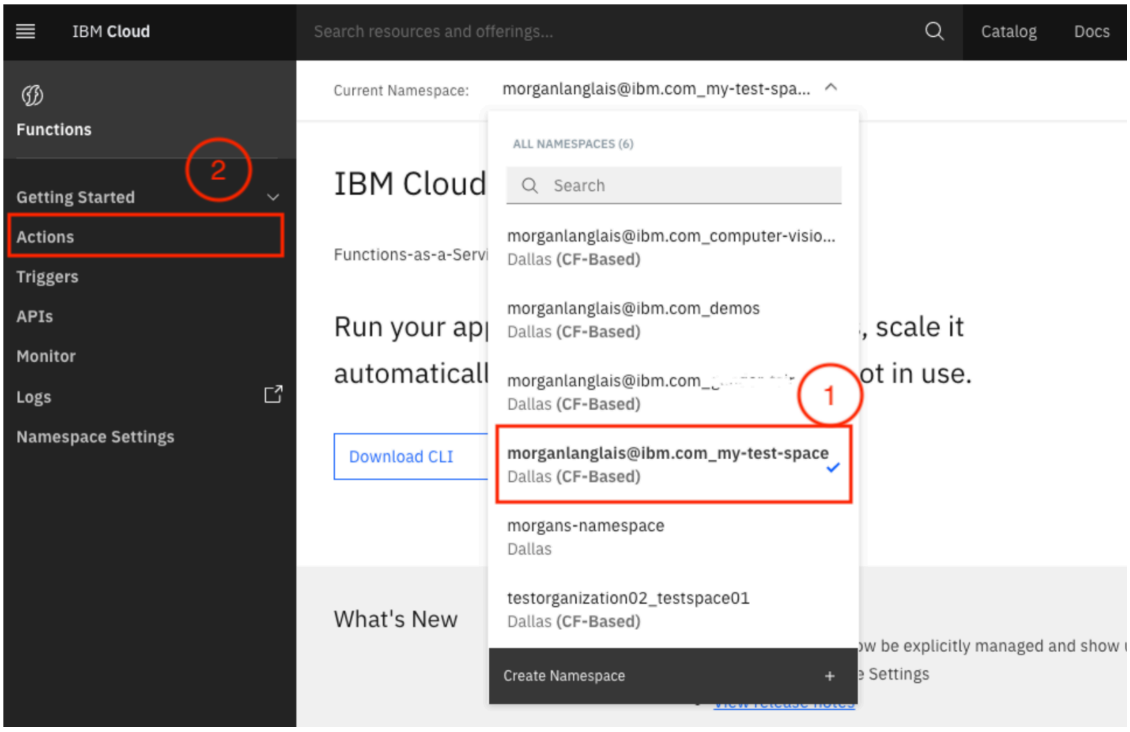
This Watson assistant skill will be responsible for serving initial language and or target skill choices to the user as well as setting and passing pertinent variables to the cloud function.

- Create a Watson Assistant instance if you do not have one
- If you haven't, download the dialog skill "polyglot-bot.json " from here.
- Launch your Watson Assistant Instance
- Navigate to the Skills page (vertical menu on left, bottom icon) & Click "Create Skill"

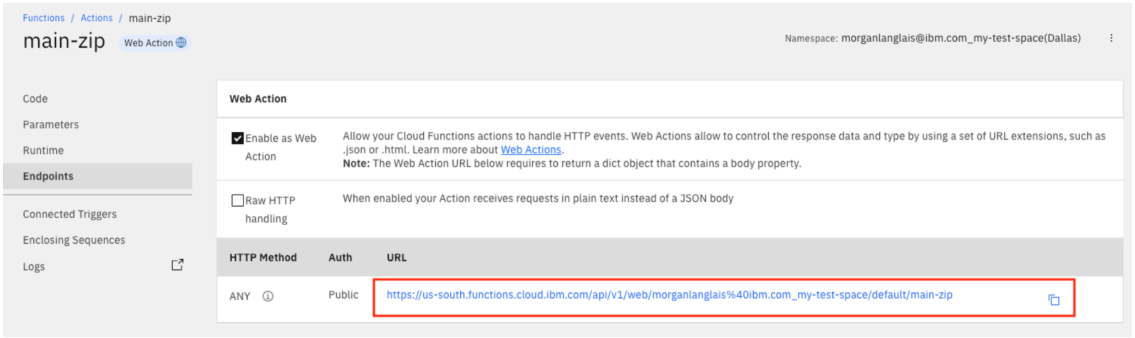
- Select skill type, "Dialog Skill" and Click "Next"
- Choose "Import Skill" and select: "Choose JSON File"
- Navigate to the “polyglot-bot.json file that you downloaded and click "Import"
- Attach the skill to an Assistant. To create an assistant go to the Assistants page (Vertical menu on left, top icon). Once created, link it to the skill.

4. Get the Cloud Functions endpoint for your webhook

4.1. Open your Cloud Functions dashboard here: https://cloud.ibm.com/functions/
4.2. Select the namespace you wish to deploy the function in from the drop-down, then click "Actions" on the left nav bar

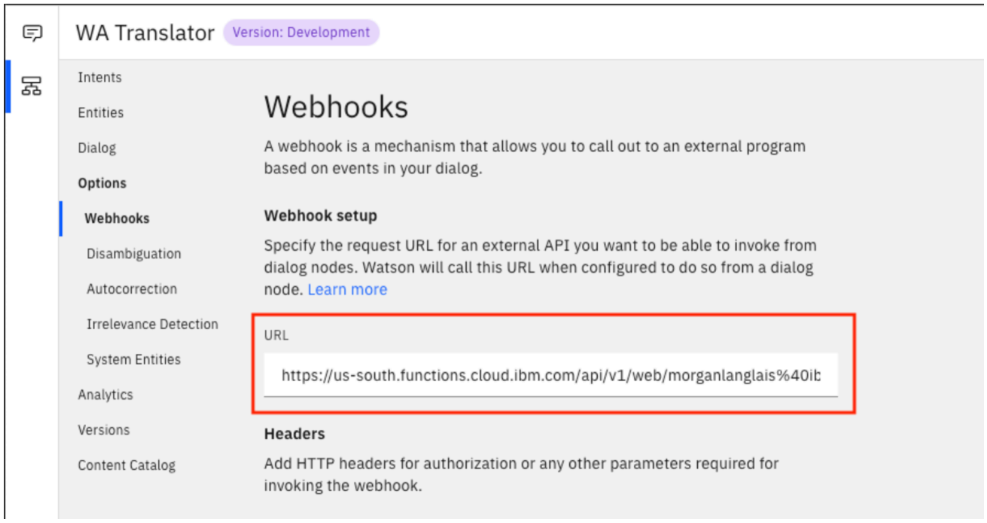


4.3. Click my-action or the name that you previously gave your action in step 2j
4.4. Select Endpoints then check "Enable as web action" and click "Save"
4.5. Copy the URL in the "Web Action" section and save for later



5. Add the webhook to your skill

5.1. Open the skill you imported in Watson Assistant earlier
5.2. Navigate to **Options -> Webhooks**

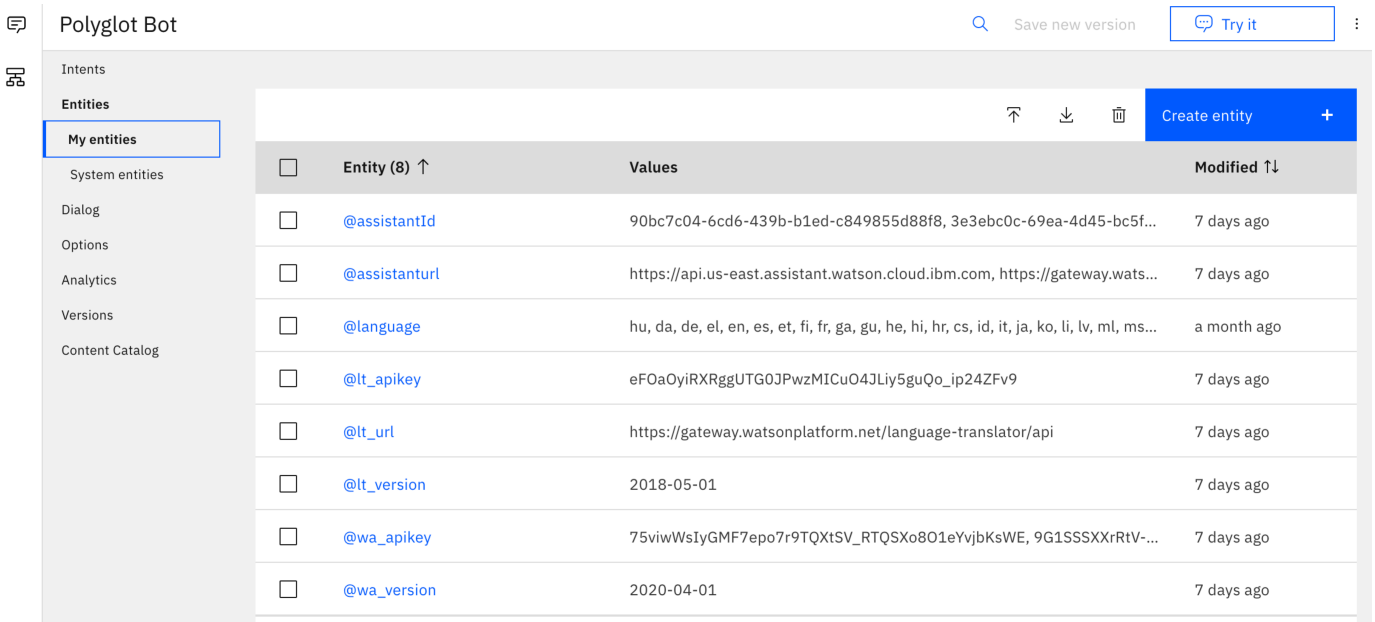


5.3. Replace this URL with your webhook URL that you copied previously
Important: Make sure you append ".json" to the end of this URL in order for Watson Assistant to process the data correctly.

Done! You are now ready to configure your enteties and dialog nodes.

6. Entity configuration

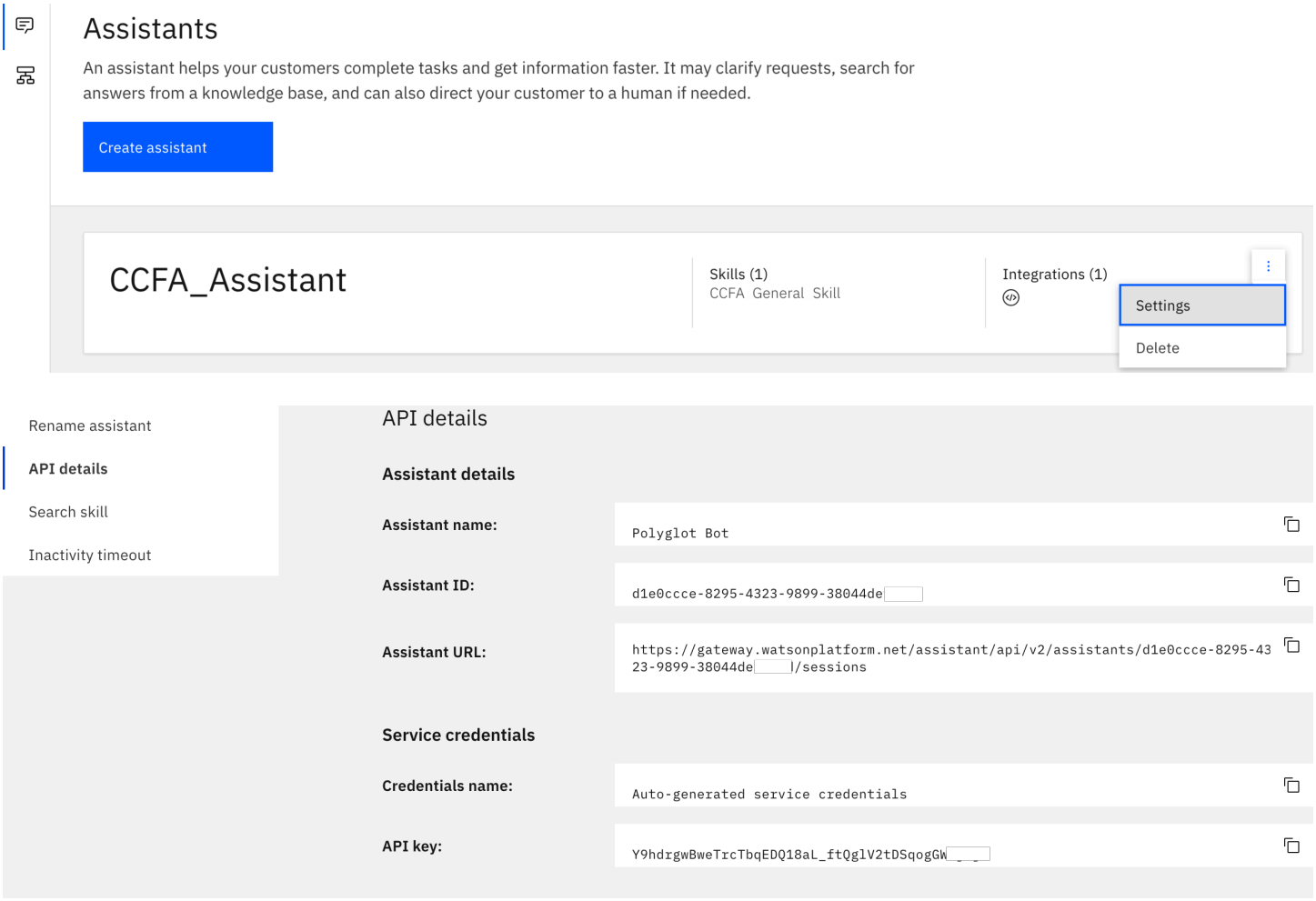
All the configuration values are loaded as entities enabling flexibility and ease of implementation.



Configuration is done in Assistant via entities

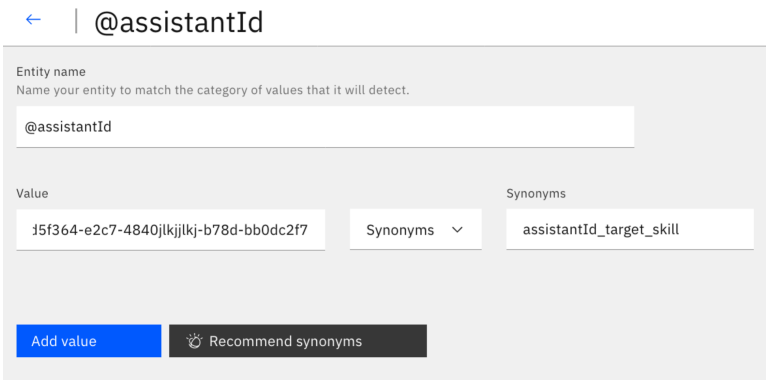
Assistant Id

6.1. The assistant Id is the id(s) associated with the target Assistant that the Polyglot Bot will be translating. Find it here in the settings for your Assistant. Also note the Assistant Url and API Key



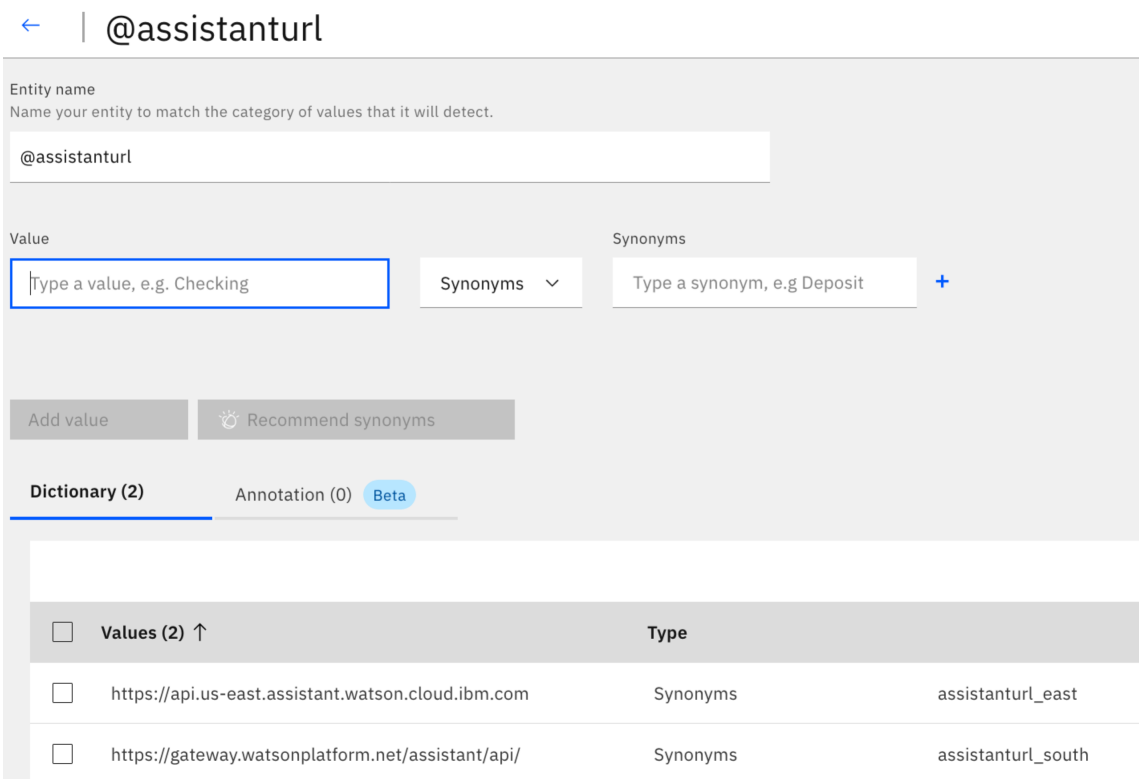
6.2. Copy the Assistant ID and then open the associated entity within the Polyglot Bot skill. From within the @assistantId entity add your Assistant ID in the Value field as shown below. Give the target assistant a name in the "Synonyms" field. Make the name something that uniquely identifies the Assistant such as "assistantId_covidbot" or "assistantId_departmentoftransportation" etc.

6.3. If you will be routing to multiple assistants then be sure to uniquely identify each target skill. Use the same naming convention for the API Key



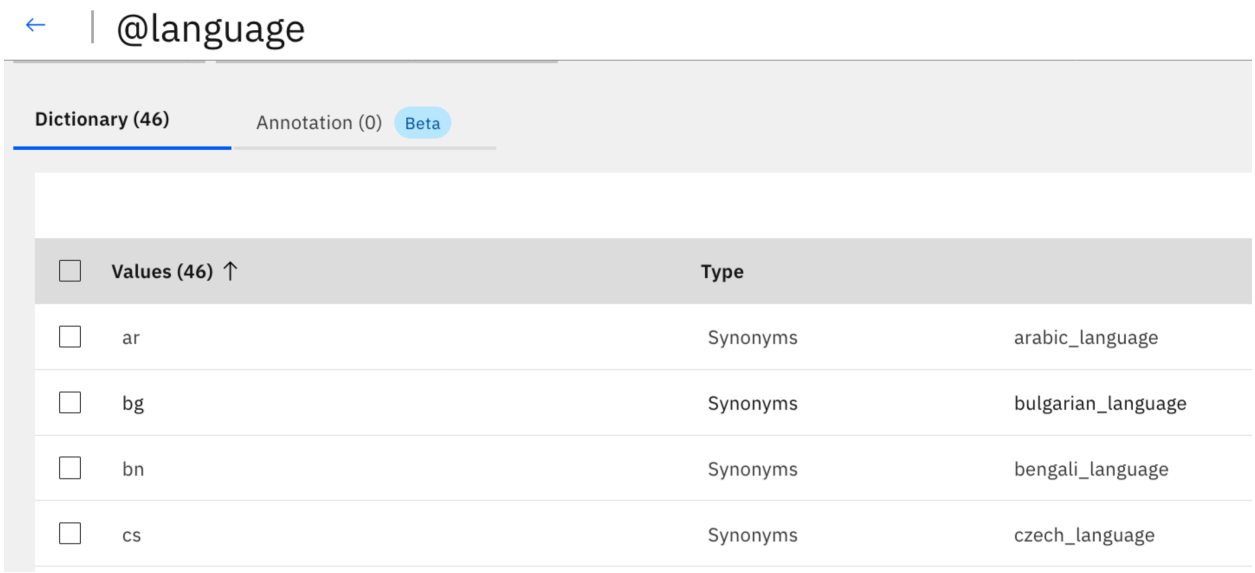
Assistant URL

6.4. Similarly, find the url also in the settings for your target assistant(s) and paste it in the associated entity if it does not already exist. Note that you only need the core domain including everything up to but ending with .com or .net. Similar to what is shown here. Be sure to name it with a uniquely identifying name in the “Synonym” field.



Languages

6.5. All the languages as of 2020 are already loaded, there is nothing to do here but it is important to open the language entity up to understand the naming convention as you will reference it later. The format is [language] + ”_language” as shown in the right column below. To see a full listing of available languages: https://cloud.ibm.com/docs/language-translator?topic=language-translator-translation-models.



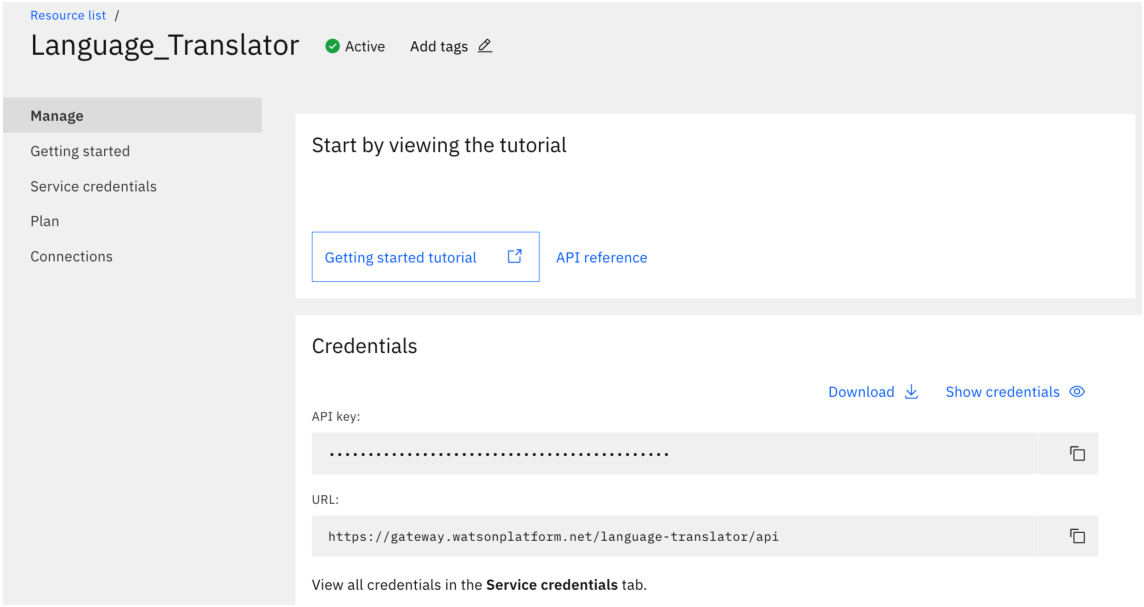
Language Translator

Go to your language translator instance to find the following values, see image below. Place them into the corresponding entity values.

6.6. **lt_apikey** entity is where you will load the apikey obtained from your language translator instance. Go to the instance and find the info on the intro page.

6.7. lt_url: Also load the lt_url entity with the url info below (as with Assistant only use the base domain, http to .net)

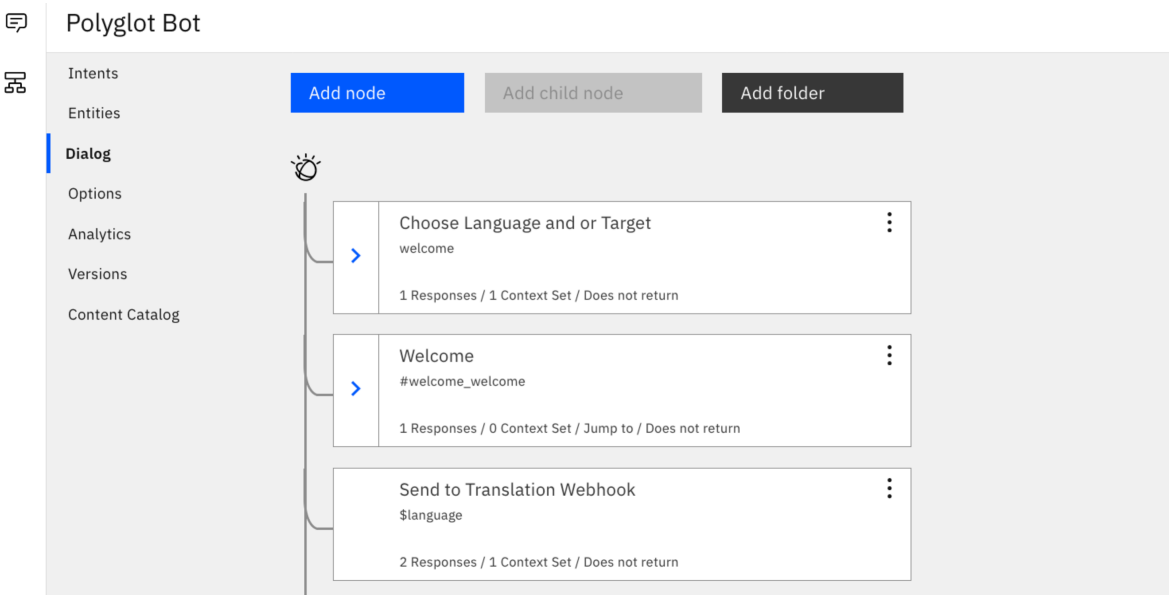
6.8. **lt_version:** As of this writing the most recent version is 2018-05-01, you can check here if it has been updated: https://cloud.ibm.com/apidocs/language-translator#versioning. If it hasn't just leave it alone.



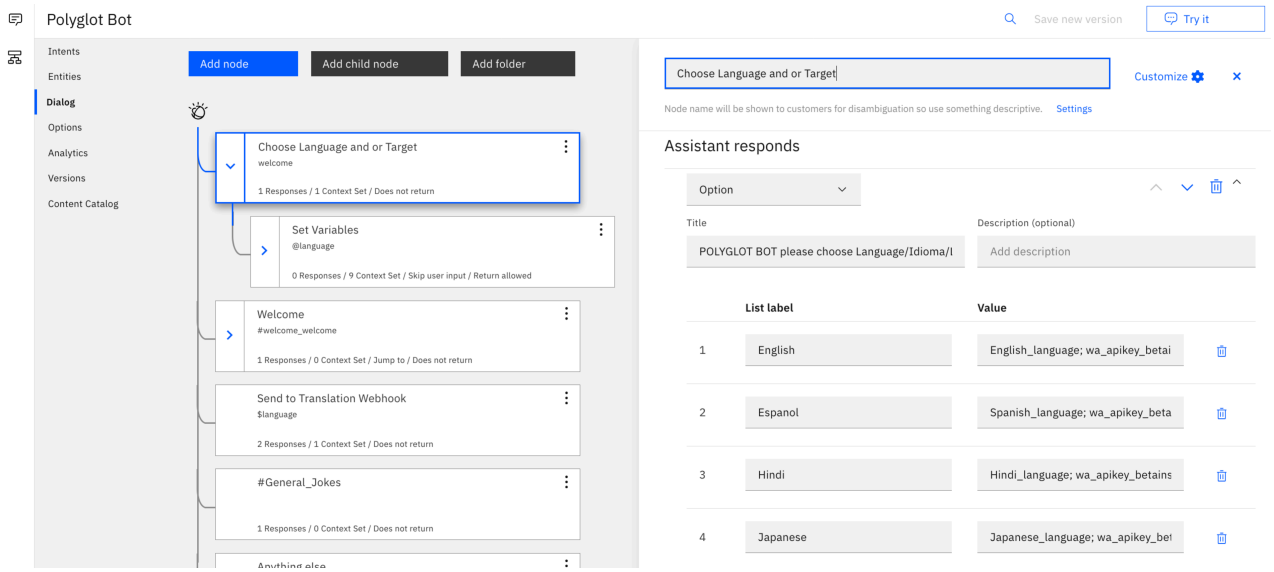
7. Dialog configuration

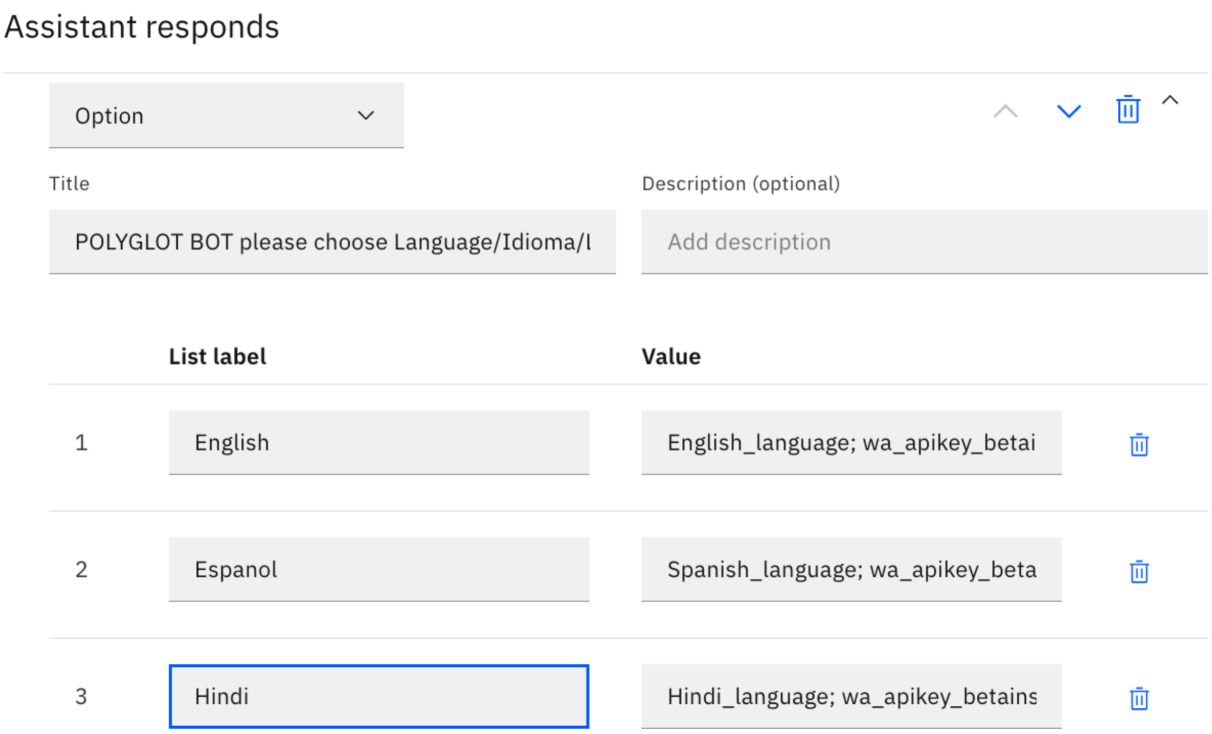
Now that the entity values are loaded it's time to set up the dialog node.

7.1. Navigate to the dialog page and open the "Choose Language and or Target" node



7.2. Scroll down to the Options list. Here is where your user will get a list of available languages for selection. The node is pre-loaded with a number of sample languages. You can delete/add the ones needed as follows…





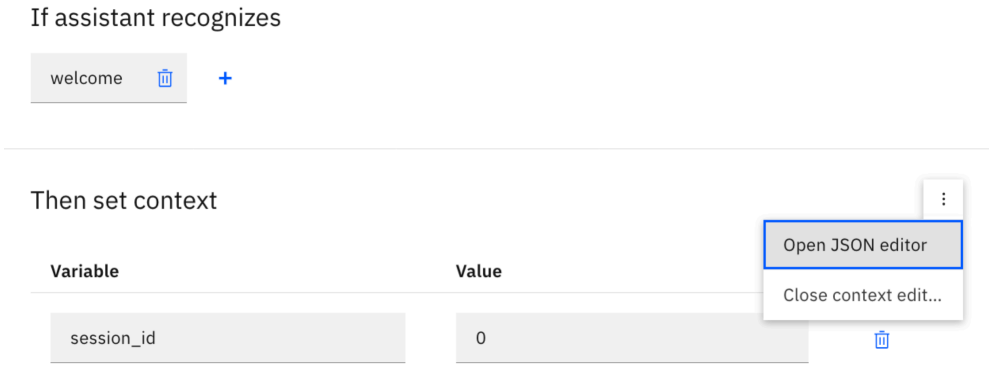
7.3. Click in the “List label” box with the label you would like to change. What you enter here is exactly what the user will see. If, for example you wanted the user to be able to choose Hindi as their language choice you would enter that here. Next move to the “Value” field. Here is what gets returned when the user selects that list item. The corresponding Value field is what gets sent to Watson Assistant to trigger the configurations set in the entities. As example, here is a detailed list of each semicolon separated value:

- Hindi_language; wa_apikey_betainstance; assistantId_multiskill; assistanturl_south; wa_ver_202004; lt_version; lt_url, lt_apikey

- These trigger values must match **exactly** what you used as values in your entity synonyms. None of them can be omitted or the cloud function will not work. In this example above, when the user presses “Hindi” it triggers the following:

Value	Significance
Hindi_language	Selects the Hindi value in the @language entity
wa_apikey_betainstance	Triggers the correct api key for the target Assistant
assistantId_multiskill	Triggers the correct Assistant ID for the @assistantId entity
assistanturl_south	Triggers the url associated with the target Assistant
wa_ver_202004	Triggers the version for the target Assistant
lt_version	Triggers the version for the language translation instance
lt_url	Triggers the version for the language translation instance
lt_apikey	Triggers the api key for the @lt_apikey intent.

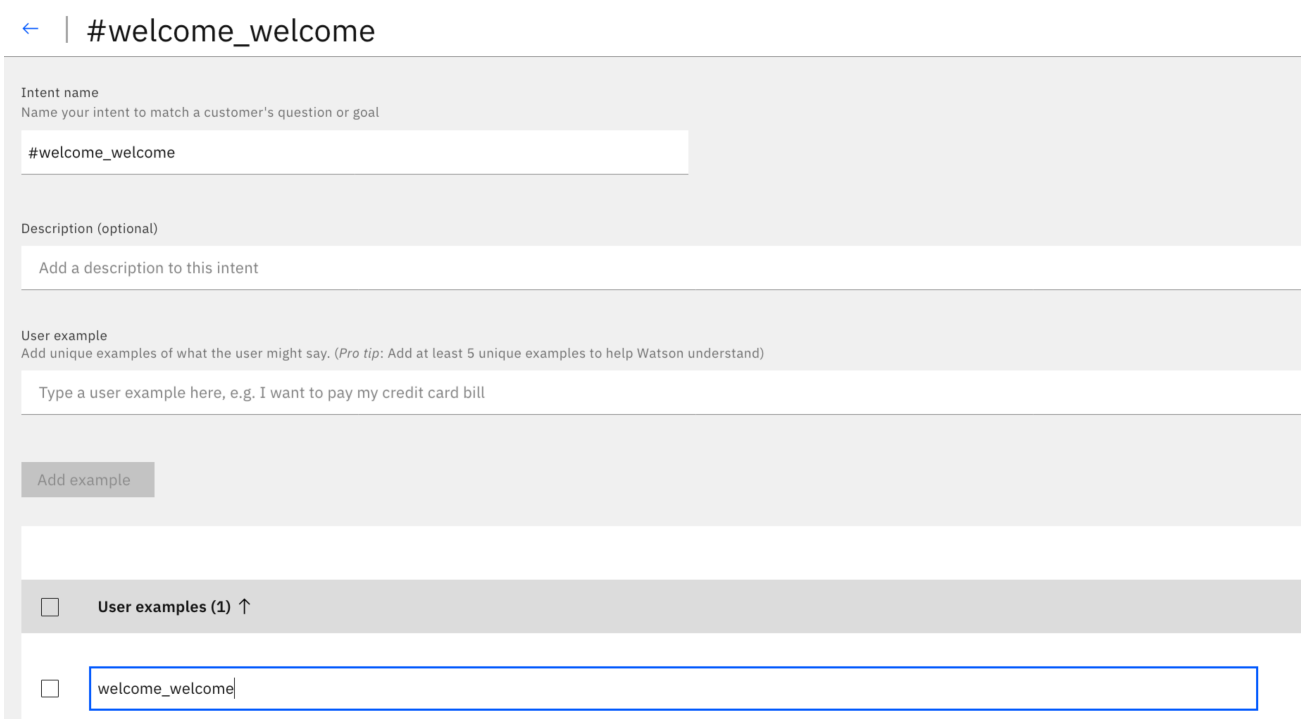
- In this example, this item in the drop down list allows the user to select Hindi, it then configures the webhook request to target an Assistant called “assistantId_multiskill” that was deployed in Dallas (assistanturl_south) and serve that Assistant to the user in the Hindi language.
- You will want to review each value. If all you are doing is offering the same target instance in multiple languages, you can copy and paste all the subsequent fields just change the language values for each option and delete all the options that aren’t necessary.
- You will not be able to see all the values in the window so you can either work in the constrained box, build the configuration in a separate document and paste them in or if you feel comfortable you can open the json editor and work with them directly there.



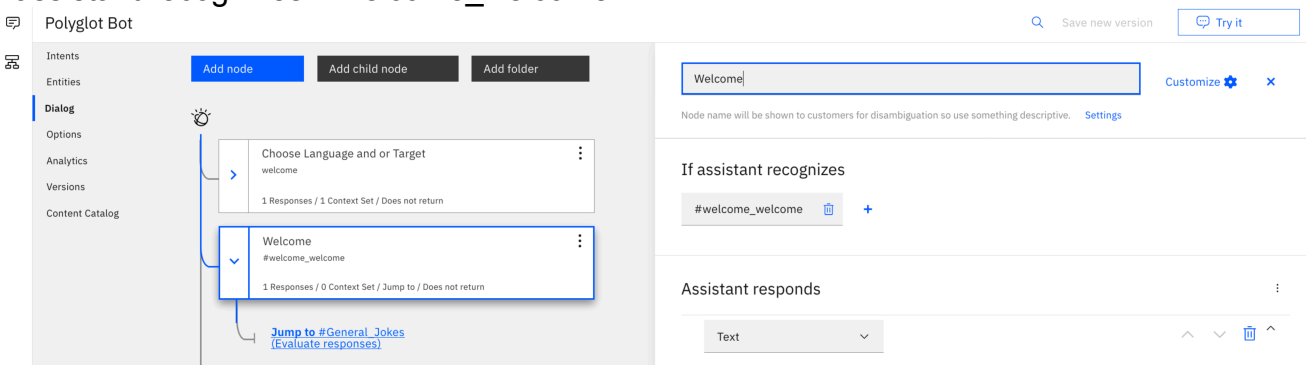
8. Welcome

If you are targeting another Assistant (not the one connected the Polyglot Bot skill) there will need to be some minor additions to that target skill.

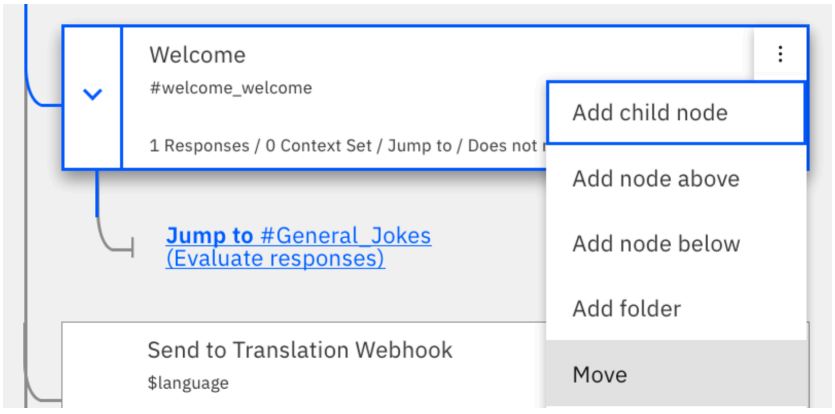
8.1. Add a #welcome_welcome intent by going to the intents tab and pressing “Create Intent”. Set it up exactly as below:



8.2. Then add a corresponding welcome_welcome dialog node that triggers off of the intent. Navigate to the Dialog page and click “Add node” and configure the trigger as below with “If assistant recognizes: #welcome_welcome



8.3. This node will need to replace the current welcome node so alternatively you can just change the existing welcome node to also trigger off of #welcome_welcome by clicking the “+” next to the current trigger and adding the condition. If you add a new #welcome_welcome node be sure to move it so that it is above the current welcome node. To do this use the “Move” option as shown below.



Congratulations, you are done!