Northeastern ALIGN Program Chatbot Manual

In this manual contains some of the basic instructions on how to develop and update the Chatbot. Currently the Chatbot uses a web application called Dialogflow which is powered by Google's powerful AI technology that can be used for the masses.

Terminology: The following terminology will be used in these instructions

Intent – A question-answer pair in which the bot attempts to recognize a question and then map it to the corresponding answer.
Context – The context is the domain in which an intent resides. Contexts help distinguish different meanings to a phrase so that it can properly map to a specific intent.
Entities – Itemized parameter values which helps recognize specific subjects or nouns to help broaden the mapping for an intent when it is applicable to it.
Parameters – Parameters are used within the follow up of a question. A parameter is invoked if the end-user is not specific enough when a question is recognized and mapped.
Webhook – The component that Dialogflow interacts with so that the bot can resolve dynamic data which comes from ALIGN analytics.

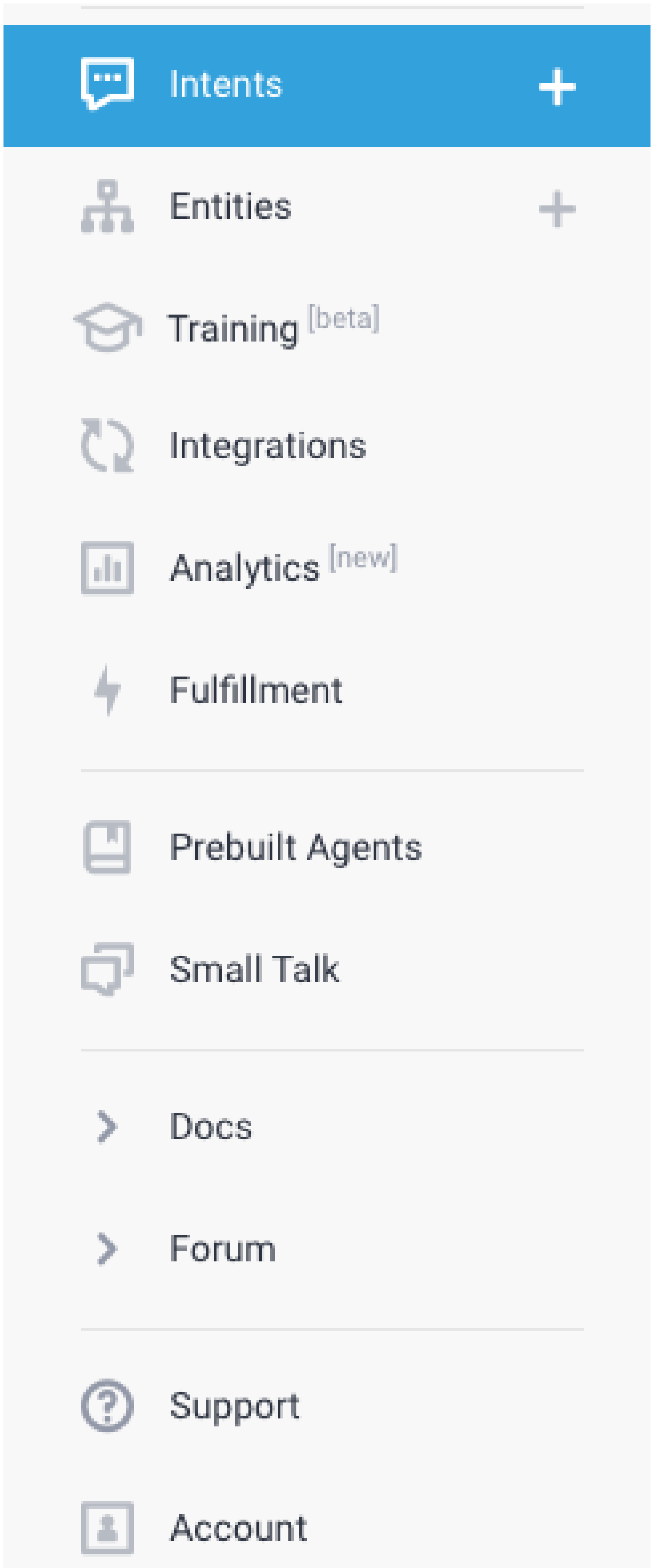
Logging into the console.

1. To log into the console, go to https://dialogflow.com
2. On the top right-hand corner there is a button called 'GO TO CONSOLE'. Click on that button
3. From the two options click sign in with Google. When signing into Google use your Northeastern credentials to log into and have G-Suite provide permission to access the bot.
4. Once logged in the Dialogflow console should be shown.

Console Overview

The console has plenty of other functionality especially ones which lie out of the scope of how the bot is supposed to function.

Chatbot Controls



Intents – Intents is the panel where all of the intents can be displayed/configured

Entities – Entities is the panel where all of the entities which exist in the bot can be displayed/configured

Training – This panel provides analysis for the bot and collects all of the questions that have been asked for the bot. It also will indicate questions that have resolved successfully and questions that have failed to answer

Integrations – Provides numerous options to integrate the Chatbot into numerous applications. Currently the one which resides on ALIGNs website is using the web demo integration

Analytics – Provide top-down details on what intents are invoked the most and the response rate by the bot

Fulfillment – Provides information about the webhook and the URL where the webhook is linked.

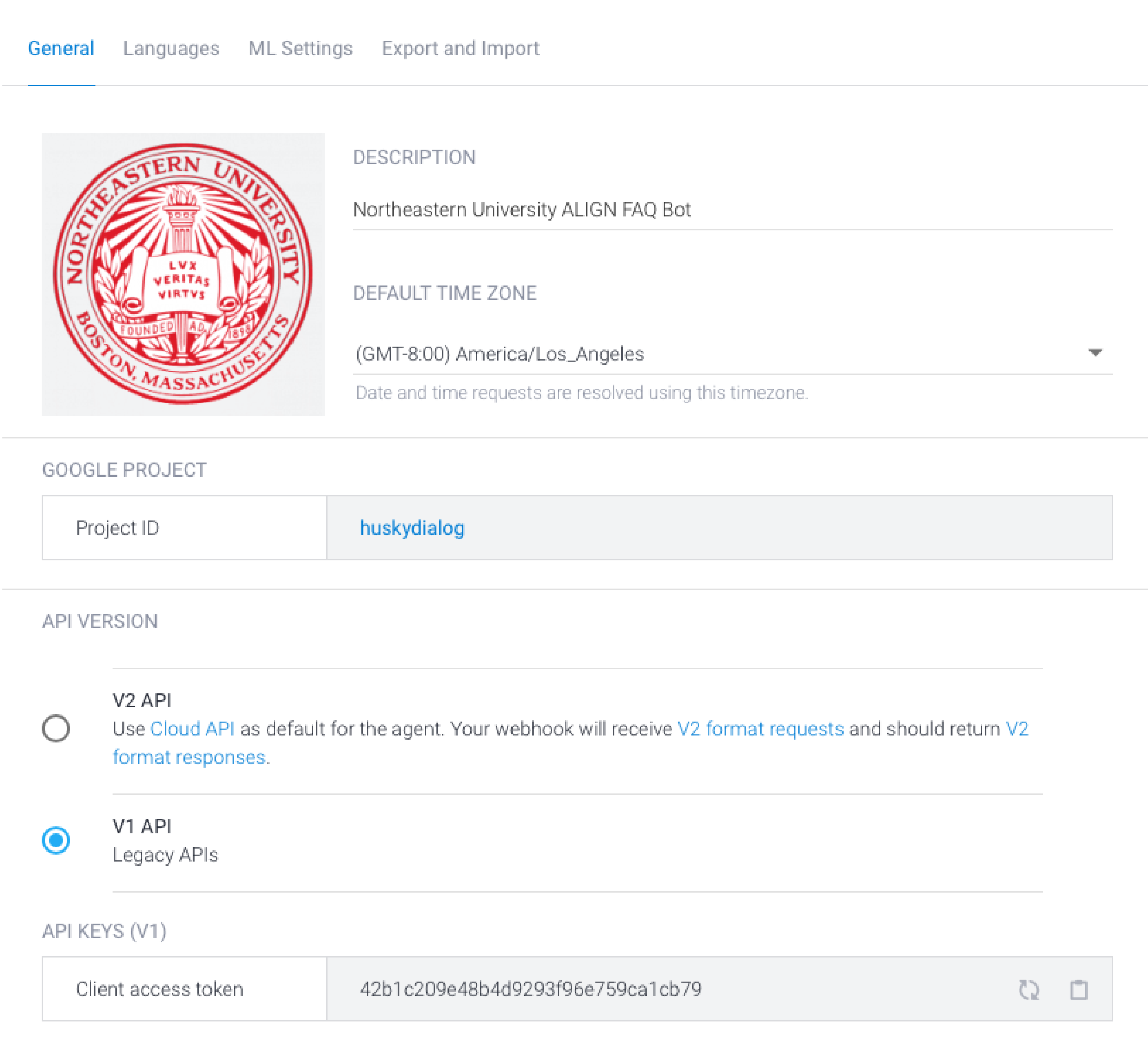
Prebuilt agents – Templates that can be used for the bot

Small talk – A series of small intents which can be mapped to provide basic conversation with the bot that are not related to the ALIGN program.

Docs – Additional documentation

Production bot and Staging Bot: The ALIGN Chatbot has two instances. One is the production Chatbot and the other is for staging. The Production bot is named "HuskyAlignBot" and the other is named "MockBot". It is recommended that MockBot is used for sandbox testing and development. To switch between both instances, go to the navigation bar and next to the gear icon click the option to switch between instances.

Configuring General bot settings: To configure general bot settings click on the gear button at the top next to the instance name. The next panel should show this screen below:



Below shows the client access token if needed to access any additional integrations. (Please refer to the Webhook manual on how the client access token is used.)

Import/Export Agent Data: The Chatbot has the ability to import/export all of the overall data that the Chatbot instance store.

1. From the user settings, to the tab where it says "Export and Import"
2. From that panel there should be 3 options 'Export as ZIP', 'Restore from Zip', and 'Import from Zip'
    a. Export as zip - creates a backup of the agent and stores it onto your local machine.
    b. Restore from zip - Restores and replaces all of the entities from a previous backed up version of the bot.
    c. Import from zip - Merges all of the intents and entities from another Chatbot instance that was exported. Note that the data for the intents when importing should be intact and in its proper formatting.

Migrating intents: When migrating intents, this is the process that is ideally used to transfer the entire state of the staging chat agent to the production chat agent. To perform this migration procedure

1. If there are intents which exist on the production agent already, please delete all of the intents by going to the intents page and then clicking the checkbox on one of the intents. Select all of the intents then press delete. You may also have to delete the entities associated with them by going to the entities tab and going through a similar process. If there are not intents/entities which exist to begin with, ignore this step.
2. Go to the staging agent (MockBot) and then click on the intents page for the agent. Click on the checkbox for one of the intents then select all of the intents by pressing the 'select all' link. When all the intents are selected press the 'copy' button.
3. A dialog will pop up which asks to specify an agent to migrate the intents to form the dropdown, select the production bot (HuskyAlignBot).
4. If the entities weren't deleted in the first step, then make sure that the Copy related entities are not checked. If it is checked when it is present the migration will not be successful. If the entities do not exist, then migrating the associated entities are required.
5. Press start, and another popup message will appear acknowledging that the migration was successful.

Intent Guidelines: The following convention must be used when naming intents in compliance to Dialogflow's guidelines:

Align.<Topic>.[Subtopic].[2-Subtopic]…[n-Subtopic]

Shown from this model, "Align" is a required prefix. The parameters shown in the angle braces are also required and the ones in the square braces are optional and depend on the context of the intent.

Topic – The Topic of the intent
Subtopic – (Optional) The subtopic of the intent if there are similar topic intents but have specifics.

Each recurring subtopic thereafter is optional and depends on how much elaboration is needed within the context of an intent.

Creating Intents: Creating intents that the bot recognizes is one of the most essential functionalities of this bot. Additional ways in which the particular question can be formulated can also be mapped to the same answer.

1. Go to the intents option on the side navigation
2. At the top right of the panel press the blue button that says 'CREATE INTENT'
3. At the top next to the save button, specify a name for the intent
4. Optionally, specify any contexts within the intent if it needs to carry any data from other contexts.
5. Specify the training phrases. Each time you specify a single phrase of a question the console will allow you to add any additional ones to map to the same answer
6. Provide any actions or parameters. These actions can map to an entity or a customized value in which is chosen. If a parameter is specified and the user asking the question doesn't specify the said parameter, then it will invoke a follow up question
7. In responses specify the answer to give back to the user. Each time a new answer is inserted a new one can also be made so other variations of the answer can also be sent to the user utilizing the Chatbot.
8. (Optional): If the intent requires fulfillment from the webhook. In which the answer requires dynamic data, then turn on the switch where is says "Enable webhook call for this intent". Make sure when displaying the dynamic answer that it is typed properly in this syntax: #variable_name#. See the webhook instructions for more details on how to map dynamic values to the Dialogflow console.

Editing Intents: To edit intents

1. Go to the Intents option on the navigation sidebar
2. In the panel will show the list of intents that the Chatbot agent currently has memory of.
3. Click on the intent to view the details of the intent. The fields to edit are similar to the ones when creating an intent. Please refer on how to create an intent for more explanation on what each field does when editing them.

Deleting Intents: To delete intents

1. Go to the intents option on the navigation sidebar
2. In the panel will show the list of intents that the Chatbot agent currently has memory of.
3. Hover over the intent of choice. On the right side of the entry will show a trash can icon. Click on the trash can icon to remove the entry.

Creating follow-ups to Intents: Creating follow-ups help when a question has a little more complexity and requires some specification. Much like with actions or parameters the user must input some substantial value to get to that specific follow up question. To create a follow up:

1. Go to the intents option on the navigation sidebar
2. In the panel will show the list of intents that the Chatbot agent currently has memory of.
3. Hover over the intent of choice. On the right side of the entry will a text which says, 'Add follow-up intent'. Click on the next and next should show an option panel which displays some preset follow up questions by the user or you can also create a specified one as well.
4. When an option is chosen the intent will have a nested intent within its entry. To edit this intent, click on the nested intent.
5. To edit the nested intent, refer to the editing intents instructions.

More information - Intents: For more information on intents see: https://dialogflow.com/docs/intents

Creating an Entity: Entities are used to map out a category of items to broaden the context of an intent. To create an entity

1. Go to the Entities option on the side navigation bar
2. Click on the blue button on the top right part of the panel which says 'CREATE ENTITY'
3. On the top next to the save button, specify the name of the entity. When adding it to intents it will be referred to as '@EntityName'
4. Below the save button are a series of empty key value pairs which can be entered.
5. Enter in the key for the entity then enter the synonyms associated for that entity name. Provided in the production bot are a few examples on how the entities are populated. Please bear in mind that entities should have items which remain in the same contextual category for consistency reasons.

Editing entities: To edit an entity

1. Go to the Entities option on the side navigation bar
2. In the panel should be the list of entities
3. When an entity is selected click on the entity to access the edit interface. Not the edit interface is similar to creating new entities. Please refer to how to create new entities for more explanation on each field

Remove entities: To remove an entity

1. Go to the Entities option on the side navigation bar
2. In the panel should be the list of entities
3. When the particular entity is selected hover over the entry. On the right of the entry should display a trash can icon. Press the icon to remove the designated entity.

More information - Entities: For more information on entities see:
https://dialogflow.com/docs/entities

Adding failed questions to intents: There are a wide variety of ways to phrase a question. Unfortunately, there are at time where the Chatbot cannot pick up some of these questions. To add failed questions to the bot

1. Go to the training tab on the side navigation bar
2. From the first panel (where it says training), Click on any dialogs
3. A modal will pop up will list a series of failed questions that can be added to intents. On the right side of the modal are controls for each question invoked. The options are
    a. Add the question to a recognized intent
    b. Blacklist the question as a fallback intent
    c. Discard the intent from the training list
4. Chose the following options to control matched and unmatched intents through Dialogflow's training module.

Adding failed questions to intents (alternate)

1. Go to the training tab on the side navigation bar
2. Go to the second panel (where it says History).
3. Click on any of the questions which have a warning symbol next to its entry. This indicates that it was a question that the bot was unable to recognize.
4. Hover over the question when expanding the failed intent. It should provide options where a new intent can be added, the intent can be an extension to an existing intent or the failed question can be ignored.

Additional information: To view additional information about the chat bot view the docs by pressing the docs option on the side navigation bar or go to: https://dialogflow.com/docs/getting-started/basics