Genesys Dialog Engine User Guide

Slots and Slot Types

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Contents

A **Slot** is a specific piece of information that can be derived from an utterance and is used to fulfill the user's intent. Each slot is mapped to a **Slot Type**. The slot type defines the type of information that the bot should look for as the slot within an utterance.

What are slots?

Dialog Engine identifies discrete pieces of information (called **slots**) from an utterance to understand the user's intent. Consider the utterance: *I want to book two rooms*. This utterance allows the bot to identify a single piece of information or slot: **rooms required**.

Once a slot has been identified, it is mapped to a slot type. A **slot type** defines how the bot will process the information available in the identified slot. Each slot must be mapped to a slot type. Slot type help the bot define the information that the bot should look for when trying to find a slot in the utterance.

In the previous utterance, the slot was identified as **rooms required** and the slot is mapped to a *number* slot type.

There are two types of slot types supported in Dialog Engine:

- built-in slot types
- custom slot type
    - A list custom slot type
    - A regular expression (regex) custom slot type

An utterance could also include multiple such slots or none (in some cases). Consider, *I want to book two executive rooms for three nights starting tomorrow*. The bot identifies slots mentioned in the utterance: *two rooms*, *three nights*, and *tomorrow* and maps them accordingly to the corresponding entities. While number of rooms required, number of nights, and date can be mapped to built-in slot types, the type of room requested (*executive*) can be mapped to a custom slot type.

Add a slot

You can add slots to an utterance in two ways: from the **Slots** tab or from the **Utterance** tab.

- From the **Slots** tab, click **Add Slot**.
- Enter a name to identify the slot.
- Select a slot type. You can choose from a built-in slot type or any custom slot type.
- Check **Slot Required** if you want this slot to be mandatory in the utterance.
- Enter the prompt to be displayed to the user. Add more prompts, if needed.

- Click **Save**.

To add slots from the **Utterance** tab, select and click a word or phrase that will be extracted as a slot value and select **Add New Slot**.

Using built-in slot types

Dialog Engine includes the following built-in slot types by default:

- `builtin:datetime` : maps any date and time values.
- `builtin:date` : maps any date values. Use when you want to map dates only. Ensure the dates are in extended ISO-8601 format. For example, *2021-02-16*.
- `builtin:time` : maps any time values. Use when you want to map time only.
- `builtin:amountOfMoney` : maps any amount values.
- `builtin:duration` : maps any duration type values.
- `builtin:number` : maps any numeric values. Currently only integers are supported. Ordinal numbers like 'first' or 'second' are not supported.

These slot types are available to define slots when creating a slot under the **Slot Type** option.

Using custom slot types

A custom slot type allows you to define slot types and use them to map slots. For example, you may require a *location* slot to denote cities for your travel bot. You can define a custom slot type and use that location slot to mark up locations in your utterances.

Dialog Engine supports two types of custom slot types:

- a list type
- a regular expression (regex) type.

If your bot has to identify a complex content in the utterance, say a flight number or flight code, a regex pattern is more useful in defining the slot type.

Using a list slot type

If your custom slot type data is a set of predefined words in the utterance, say like location names, use the list slot type.

- Click **Add Slot Type** from the **Slot Types** page. or click **Add Slot Type** in the left pane.
- Enter a name for the custom slot type and click **Save**.
- Select **List** as the custom slot type.

- Type a value for the custom slot and press **Enter**.

- Add more entity values as needed.

You can also add synonyms for a slot type so that Dialog Engine can recognize multiple words and phrases for the same slot. For example, an entity value of *New York* can have the synonyms: *Big Apple* or *NYC*. This allows the bot to understand that when the user says *NYC*, it is mapped to *New York*.

To add synonyms

- Select the **Allow Synonyms** checkbox to enable adding synonyms.

- Click the **Enter synonym** field next to the slot type value and type an alternate name and press **Enter**.

- Add more synonyms, if needed.

To delete any synonyms, hover over the synonym and click the X that appears.

Using a regular expression (regex) slot type

You can use regular expressions (regex or regexp) to map values to slot types. For example, if you want to match flight codes for your travel bot, you might want to know the flight number for handling any cancellations, the regex pattern, *^[A-Z]{2}\d{3,4}$* will match any phrases in the utterance that match this pattern as a flight number.

- Click **Add Slot Type** from the **Slot Types** page or click **Add Slot Type** in the left pane.

- Enter a name for the custom slot type and click **Save**.

- Choose **Regular Expression** as the custom slot type.

- Type a regular expression and press **Enter**.

Map slots in utterances

Once you've created slots with the associated slot types, you must map specific words and phrases in the utterances to the correct slots.

- In the **Utterances** tab, double-click or select a specific word/phrase in an utterance.

- Choose a slot name from the **Select Slot** menu. The selected word/phrase is now indicated as a slot value by a colored underline for the phrase.

- Click **Save** to save the changes to your bot.

Modify a slot's information

You can modify any of the slot information by selecting a slot from the **Slots** tab and clicking the **Edit** button.

Delete a slot

You can delete a slot by selecting a slot from the **Slots** tab and clicking the **Delete** button.