



Genesys Dialog Engine User Guide

5/25/2020

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Overview

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Genesys Dialog Engine helps you to create bots through a *natural language understanding* (NLU) engine that can understand and process information provided as input.

What is Dialog Engine?

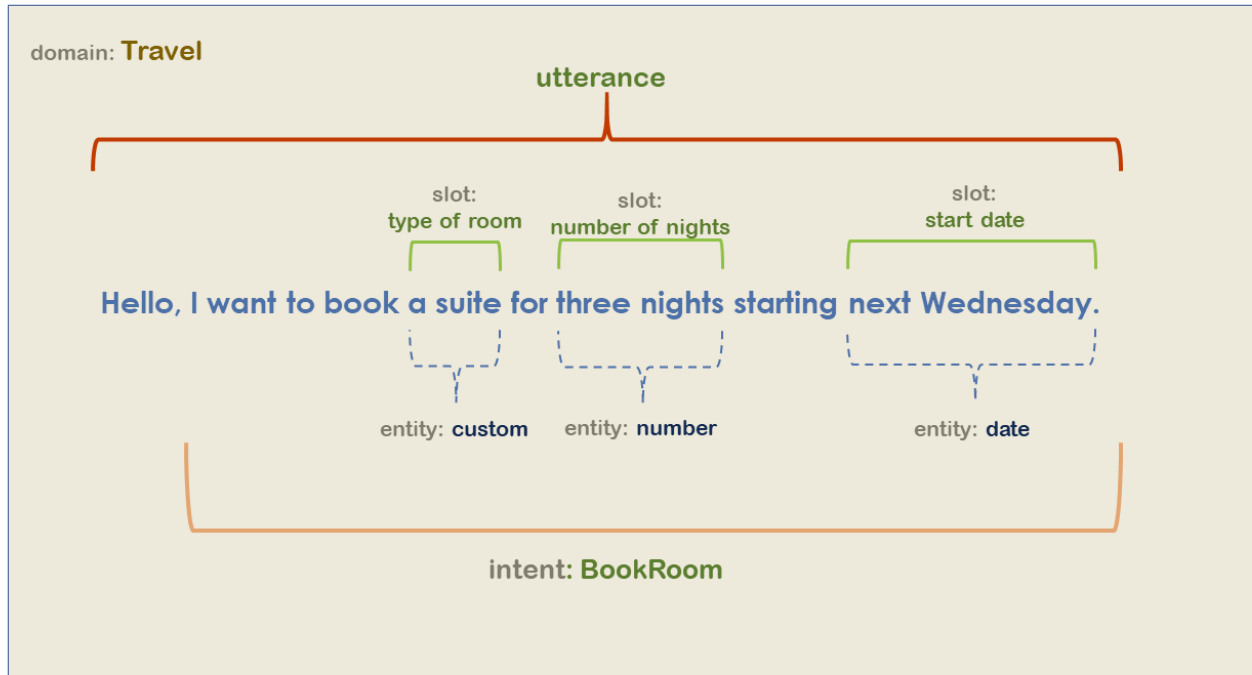
You can use Genesys Dialog Engine to create bots that will be able to understand and respond to information that customers provide. Dialog Engine uses *natural language understanding* (NLU) to process the meaning of text or speech input from a human and communicate information back to them.

Key Terms

Dialog Engine uses the following key terms in the software and throughout this document.

- **Intents:** The intention of the user. What is the user trying to do?
- **Utterances:** What would the user say to convey their intent? For example, book me a room for 4 nights.
- **Slots and Slot Types:** What values can the bot infer from the user's utterance. For example, the number of nights. What is the specific piece of information that the bot would map to an entity? For example, the phrase *four nights* could be mapped to "number of nights".
- **Confirmations:** A message sent by the bot to confirm that it understands the user's intent.

You can visualize the components as:



In this example, the utterance is *Hello, I want to book a suite for three nights starting next Wednesday*. The chat bot tries to identify the slots: **room type**, **number of nights**, and **starting date** from this utterance. Some of these slots can be mapped to a value like a number, a date, or a custom slot type value like room type. Based on this mapping, the bot identifies the intent and proceeds.

Tip

An intent cannot have two slots with the same name.

Accessing Dialog Engine

Dialog Engine uses your PureCloud credentials to provide access to Dialog Engine.

You can log into PureCloud to access Dialog Engine.

To log out of Dialog Engine, click **Logout** in the top-right corner of the screen.

Create your first chat bot

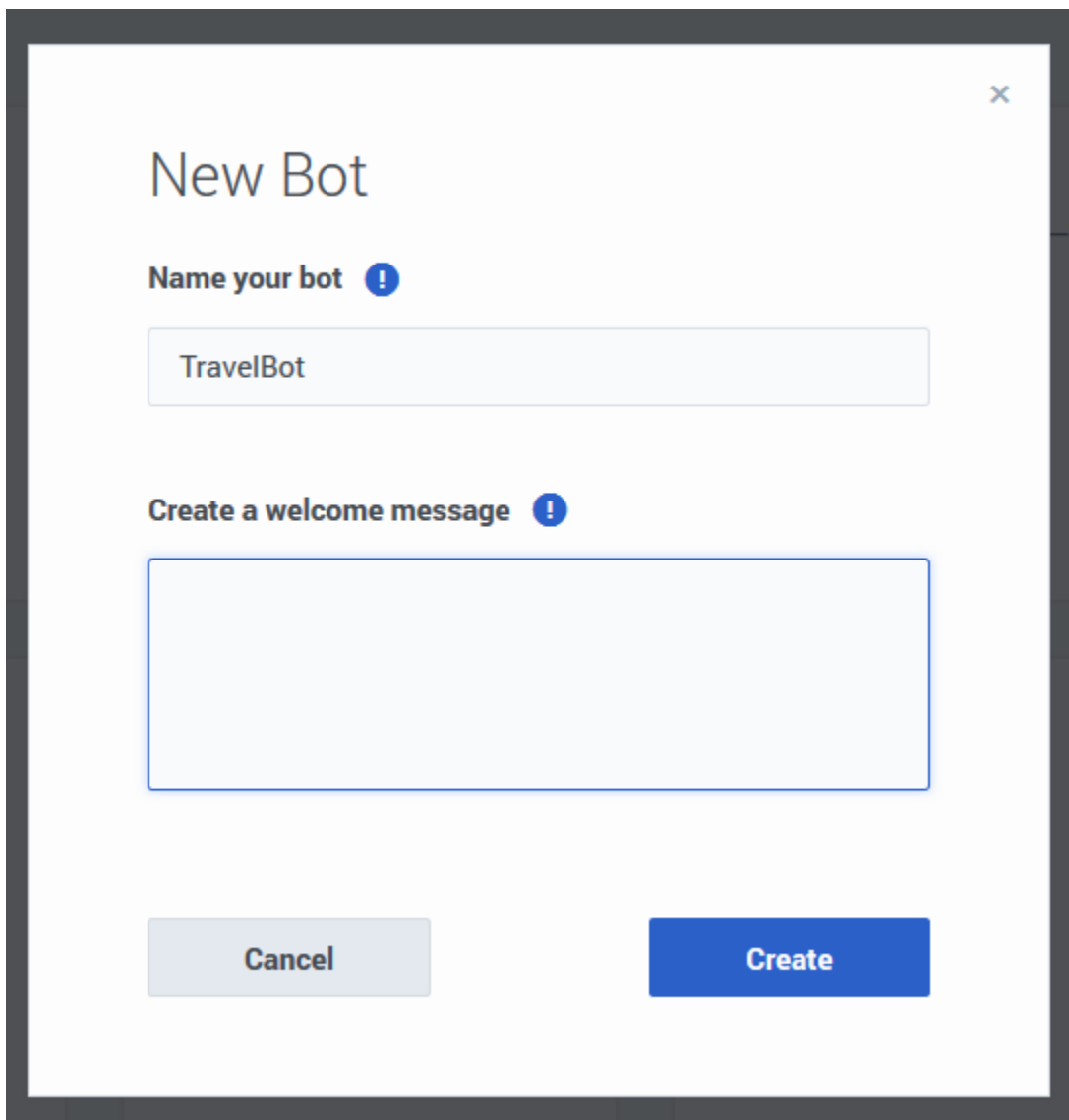
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This article will walk you through the process of creating and running your first chat bot.

Ensure that you are logged in to Dialog Engine. Contact your administrator if you do not have your user credentials.

Create a bot



New Bot

Name your bot !

TravelBot

Create a welcome message !

Cancel Create

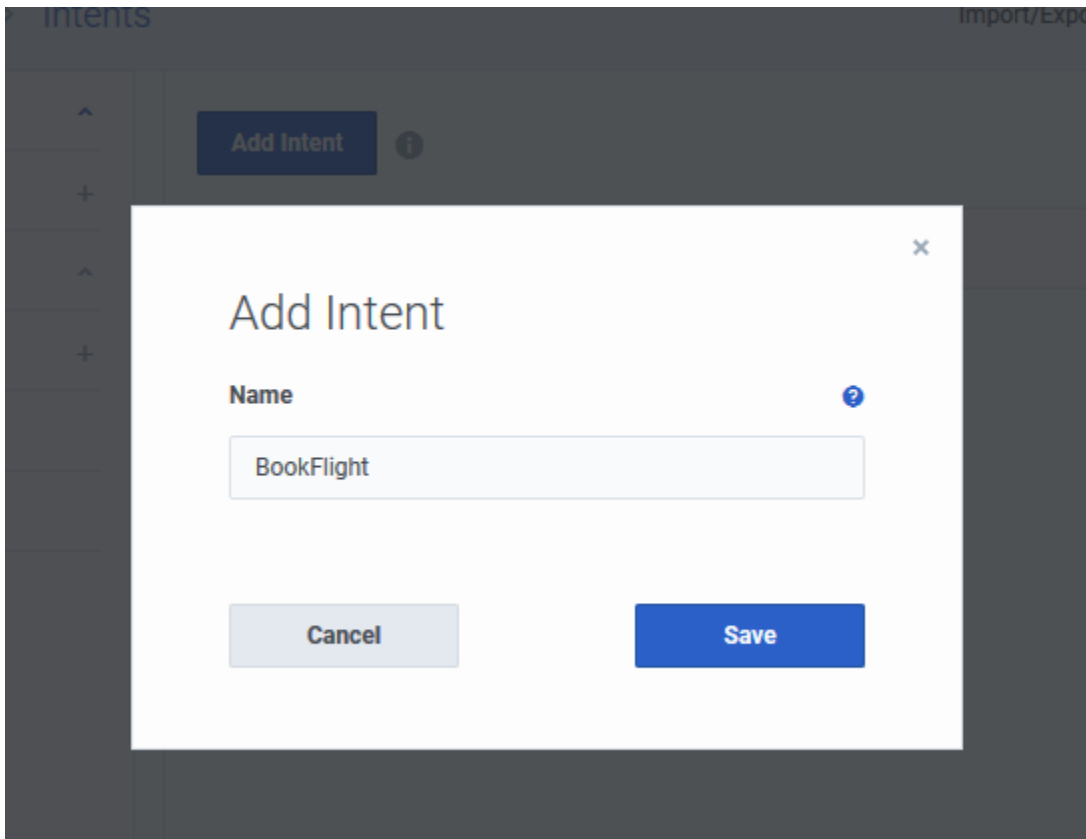
Create your first chat bot

Create a new bot and call it *TravelBot* and click **Save**.

We've created a bot that will interact with users. It is preferable to have a bot per scenario. For example, you might require a bot that can handle travel-related activities and hotel room booking.

Next, we'll teach our bot to identify what the user wants by creating an intent.

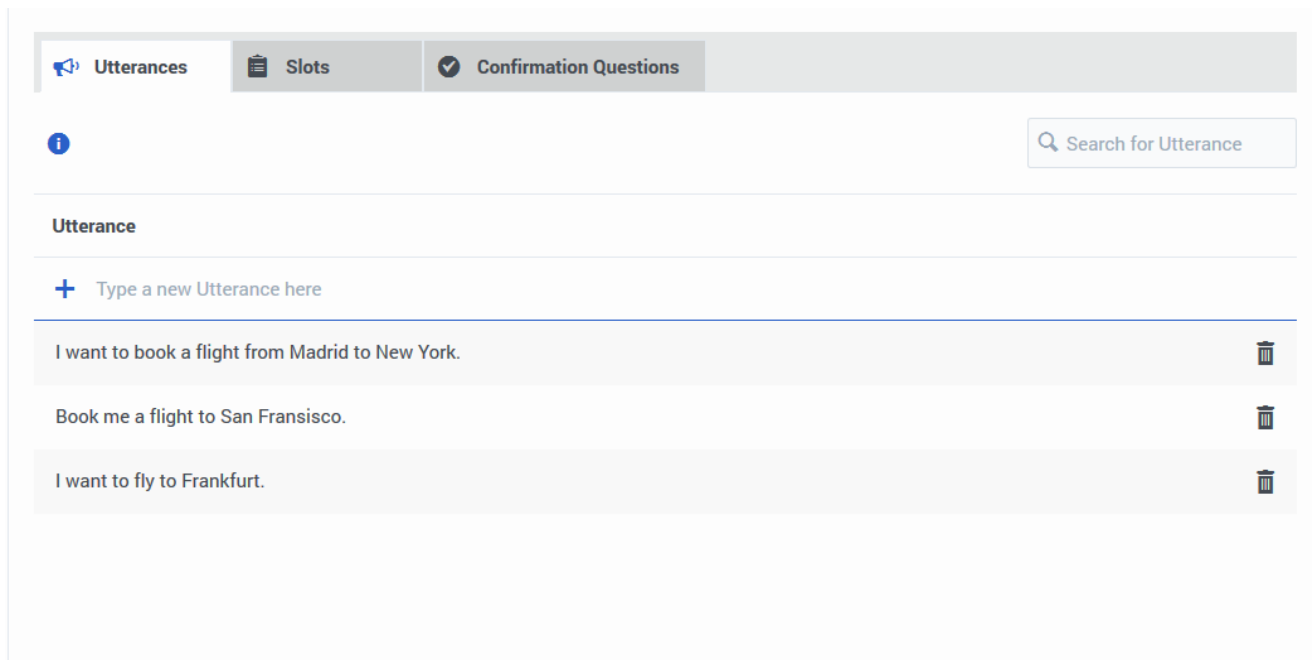
Create an intent



Let's add an intent by clicking **Add Intent** and call it *BookFlight*.

Next, we'll create a few phrases called **utterances** that a customer might use to describe what they want to do.

Create an utterance



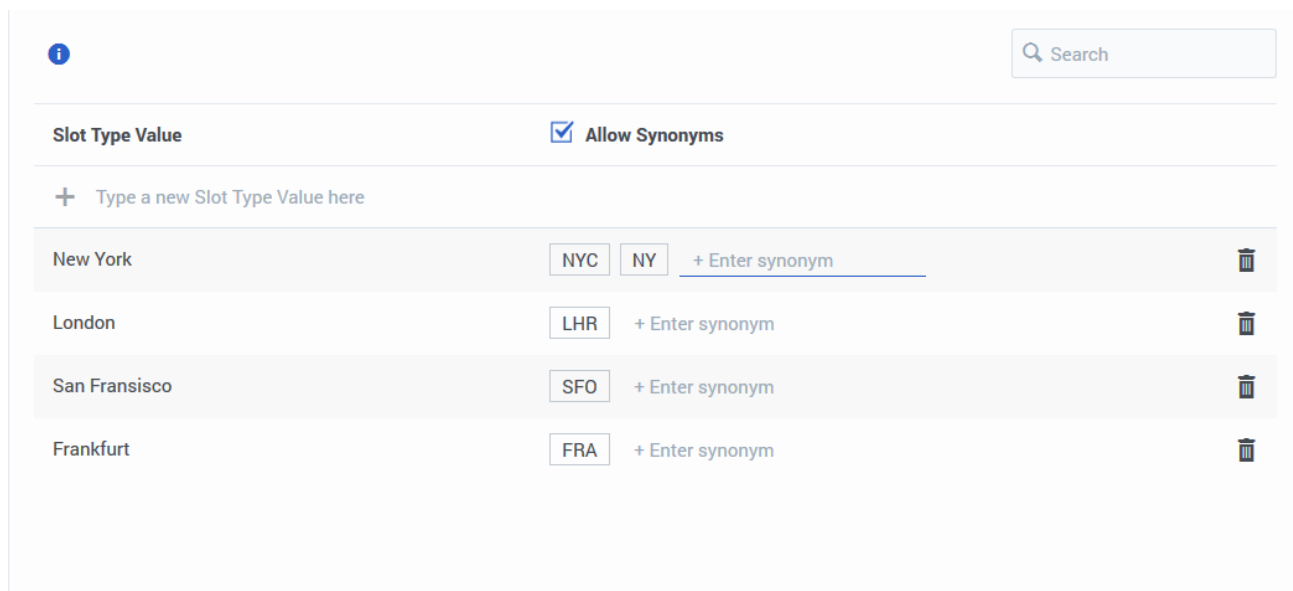
Let us add a few sample phrases that someone talking to our flight-booking bot might use and save them. For example:

- I want to book a flight from Madrid to New York.
- Book me a flight to San Fransisco.
- I want to fly to Frankfurt.

Since we're creating a travel bot, let's include an utterance that has airport codes.

- I would like a flight to LHR from SAN.

Create a custom slot type



We've added some sample utterances that use city names and airport codes, so we have to teach our bot that certain words or phrases are actionable items. These items are called *slots* and in this case, they will stand in for actual city names. Let's add a **City Name** slot.

1. Click **Slot Types** in the left panel and click **Add Slot Type**.
2. Enter *City Name* and click **Save**.

Now, we'll add some names of cities as slots. For each entity you can add synonyms for different ways a user might provide information. In this case, we'll add *NYC* and *NY* (abbreviations) as synonyms for New York area. We could also add *JFK* and *LGA* (airport codes) as synonyms for New York. You can add as many synonyms as you like.

1. Select the **Allow synonyms** option, add synonyms to each entity, and click **Save**.

Let's save our bot and then proceed to teach the bot how to identify slots in an utterance.

Map slots in an utterance

The screenshot shows the 'Utterances' tab in the Genesys Dialog Engine. At the top, there are three tabs: 'Utterances' (selected), 'Slots', and 'Confirmation Questions'. Below the tabs is a search bar labeled 'Search for Utterance' and an information icon. The main area is titled 'Utterance' and contains a list of three utterances, each with a trash icon to its right:

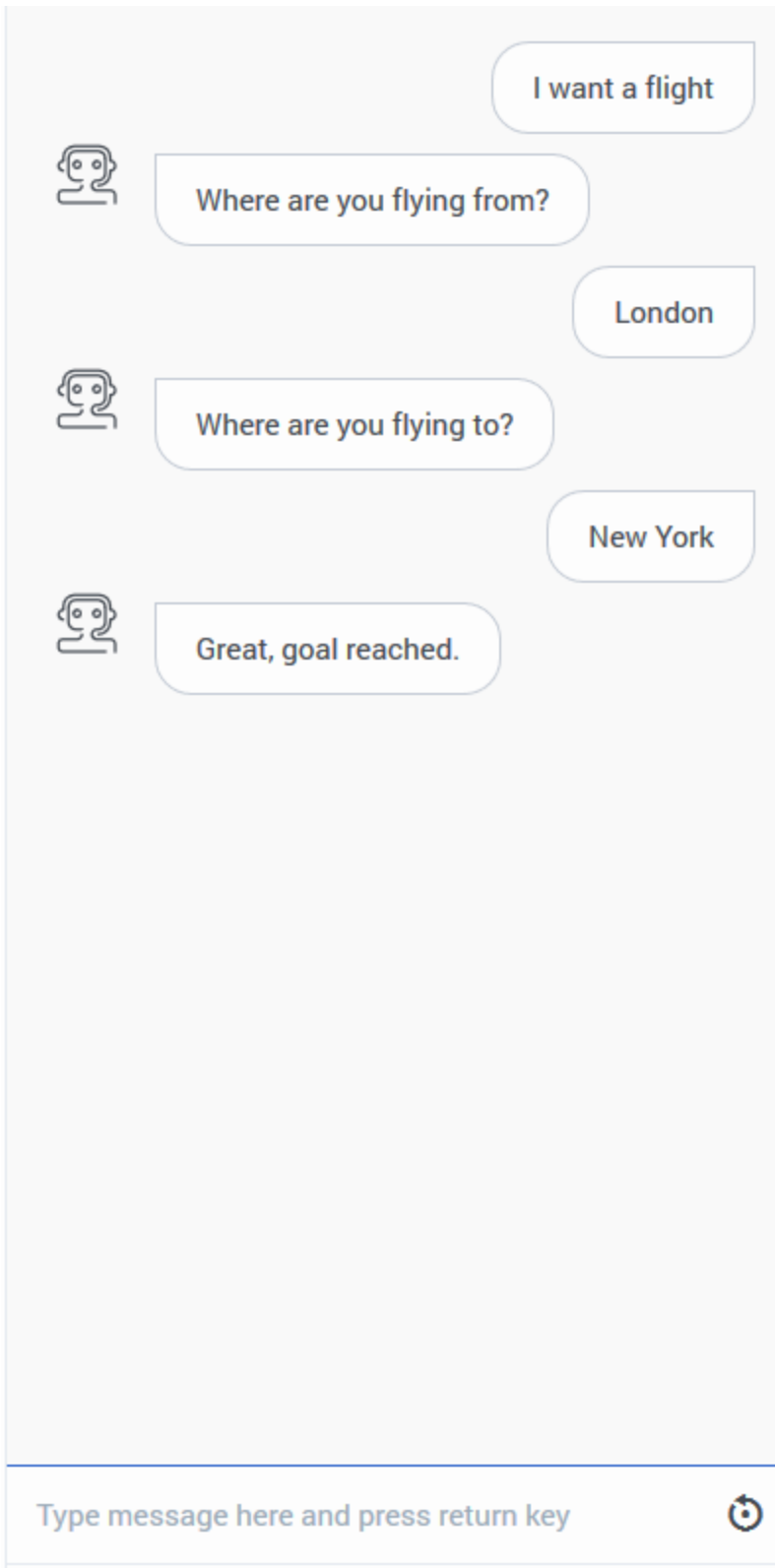
- I want to book a flight from Madrid to New York.
- Book me a flight to San Fransisco.
- I want to fly to Frankfurt.

1. Go to the **Utterances** tab of the *BookFlight* intent from the **Intents** option in the left panel.
2. Double-click the word **Madrid** in the utterance, *I want to book a flight from Madrid to New York*.
3. As we do not have any slots defined, let's add a new slot by clicking **Add new slot**.
4. In the **Add Slot** dialog, name it as *Origin* as we're trying to capture where the user is flying from.
5. Select *City Name* in the **Slot Type** option to tell the bot that this entity will use values from the **City Name** custom slot type we created earlier.
6. As the origin location is required for our bot to book tickets, select the **Slot required** option.
7. To let the users know that they have to enter something, let us add a message in the **Prompts** field asking to enter some information: *Where are you flying from?* Press **Enter** to save the prompt.
8. You can add more prompts which the bot will display to the user.
9. Save the new slot and select it from the **Select Slot** option.
10. Similarly, tag the starting locations in the other utterances also. You can also create a new slot for the destination city and tag the destinations with the same *City Name* custom slot type.

Now that we have some basic rules set up for our bot to identify travel information, let's see how well our bot understands the user input and identifies the slots.

Create your first chat bot

Test the bot



Create your first chat bot

Now that we have some basic rules set up for our bot to identify travel information. Let's see how well our bot understands the user input and identifies the slots.

1. Click **Test Bot** in the top-right corner.
2. Start a conversation with your bot by typing an utterance that mimics the sample utterances that you provided.

That's it!!! You have created your first bot. Go ahead and add more information and improve your bot.

Bots

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A bot is a virtual agent that can serve as a starting point for conversations before live agents join the conversation.

Overview

The **Bots** section on the home page displays a list of bots that are available for your organisation.

With a bot, you can do the following activities:

- Create intents, utterances, and slots.
- Add prompts to be displayed by the bot in a conversation.
- Add confirmation questions that will be sent by the bot to confirm that it has understood the user's intent.

Add a bot

1. Click **Create a new Bot** from the home page (the first page displayed after you log in).
2. Enter a name for the bot.
3. (Optional) Enter a greeting or welcome message that the bot will use to greet users.
4. Click **Create** to create the bot.

Delete a bot

- From the home page, click the **Delete** button that is displayed when you hover over a bot tile.

Warning

When a bot is deleted, all of its related components (intents, utterances, and slots) are deleted.

Import or export a bot

You can import an existing bot model (all intents, utterances, and slots) into a new bot. You can also export the current bot model for reuse. The data is saved as JSON files.

To import a bot,

1. Create a new bot.
2. Click **Import** under the **Import/Export** dropdown.
3. Select a bot model JSON file and click **Open**. The new bot is updated with the information from the imported bot model.

To export the current bot,

1. Click **Export** under the **Import/Export** dropdown.
2. Save the JSON file to your computer. The file will be saved as **BotName.json**.

Sample bot models

To make bots easy to build and improve speed to market, Genesys is building a repository of sample bot models for different verticals. The models will have intents, utterances, entities and prompts. You can import these bots models and customize them to suit your business needs.

The following bot model is currently available for download and customization:

- Prebuilt Banking Bot - This pre-built models a standard banking application with account information, loan application, and currency conversion features.

Intents

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An **Intent** describes a task that a user wants to do.

What are intents?

Intents describe a goal or task that a user wants to do, such as tracking their package or booking a cab. A user will interact with a bot to resolve their intent. The dialog model you build must identify a user's intent accurately based on their input.

A user might say: *"I need a room for tomorrow."* or *"I want to book a room for tomorrow."* The intent of the user is to book a room, though the phrases that they use to convey the intent are different.

When creating intents for your chat bot, try to create one intent per activity. Let's say your bot is in a gaming domain, and your bot can tell players about their points or book them a table at one of the casino's restaurants. It is a good practice to create one intent for points balance and one intent for booking a table.

Create an intent

- From the **Intents** page, click **Add Intent**.
- Enter an intent name for the intent.
- Click **Save**. The **Utterances** page will be displayed after the intent is saved.
- To add more intents, go to the **Intents** page and click **Add Intent**. You can also click the **Add Intent** option in the left pane.

Rename an intent

You can modify only the name of an intent.

- From the **Intents** page, click **Edit** next to an intent.
- Change the name of the intent and click **Save**.

Delete an intent

- From the **Intents** page, click **Delete** next to an intent.

- Click **Delete** in the confirmation dialog.

Warning

If an intent is deleted, all of its related components (utterances and entities) will be deleted.

What's next?

Next, we'll create a few phrases called **utterances** that a customer might use to describe what they want to do.

Utterances

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An **Utterance** is what the user communicates to describe their intent.

You should have at least one intent created.

What are utterances?

Utterances are phrases that a user would use to describe what they want to do. The bot tries to understand and identify the user's intent from these utterances.

A user might say: *I need a room for tomorrow.* or *I want to book a room for tomorrow.* Both of these utterances convey the same intention: book a room for tomorrow. Another utterance might be: *Book me a suite for three nights starting tomorrow.*

When creating sample utterances, try to create variations and also with a wide range of semantics for each intent. It's a good practice to create multiple variations of the same phrase. For example, create two utterances: *book a room* and *reserve a room*.

Add an utterance

1. In the **Utterances** tab, type an utterance in the **+** field, and press **Enter**.
2. Add more utterances to the intent, as needed.

Tip

You must have two utterances added to your intent before you can save the intent.

Edit an utterance

- Click an utterance and modify the information, as required.

Delete an utterance

- Select an utterance and click the **Delete** button.

Search utterances

Use the **Search** filter to locate all utterances that use a specific keyword. This feature is useful when you have a large number of utterances for your intent.

- In the **Search** field, type a word to locate all instances of that word in multiple utterances.

What's next?

Slots

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- [6 Delete a slot](#)

A **Slot** is a specific piece of information that can be derived from an utterance and mapped to an entity.

What are slots?

Dialog Engine is designed to parse an utterance provided by the user and identify their intent. Dialog Engine uses a process called *slot filling* to identify pieces of information and maps them to corresponding entities. Each mapping of an intent to a discrete piece of information is termed a **slot**. Based on the slots identified and mapped, the bot can continue the conversation with the user.

Suppose the input is: *I want to book two rooms*. This utterance allows the bot to identify a single entity: **number of rooms required**. And the bot might respond up with follow-up questions.

Slot filling allows collecting multiple pieces of information about the user's intent. Consider, *I want to book two rooms for three nights starting tomorrow*. The bot identifies slots mentioned in the conversation: *two rooms*, *three nights*, and *tomorrow* and maps them accordingly to the corresponding entities.

Dialog Engine supports two types of slots:

- A built-in predefined slot type available in Dialog Engine
- A custom slot type that you can create in the **Slot Types** screen.

Predefined Slot Types

There are four built-in slot types available by default in Dialog Engine:

- `de:datetime` : maps any date and time values.
- `de:amountOfMoney` : maps any amount values.
- `de:duration` : maps any duration type values.
- `de:number` : maps any numeric values.

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 an entity for the slot name. You can choose from a predefined 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**.

Add a custom slot type

A custom slot type allows you to define slot types and use them to identify intents. 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 and a regular expression (regex) based 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. 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.

Adding a set of custom values to a 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 an entity so that Dialog Engine can recognize the value when identifying the slots. 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*.

- Select the **Allow Synonyms** checkbox to enable adding synonyms.
- Click the **Enter synonym** field next to the entity value and type an alternate name or value this entity value can have 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 to map to a 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 a slot

After you define slots, you can map specific words to corresponding entities, and Dialog Engine will pick up those slot values.

- In the **Utterances** tab, double-click 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.

Confirmations

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- [1 What are confirmations?](#)

A **Confirmation** is the message sent by the bot to confirm that it has understood the user's intent.

What are confirmations?

Confirmations are used to respond to user inputs and help move the conversation forward. You can provide a set of messages that the bot will use to reply to user input. Typically, confirmation questions are used when the confidence score returned for an intent is below the **Intent Confirmation Threshold** defined in the **Bot Settings** section.

You can provide the initial confirmation message when creating an intent, something like *"Ok, I can help you book a hotel?"*

You can add multiple confirmation messages to an intent, modify existing messages, or remove them.

Testing your bot

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It is very important to test how your bot works. The **Test Bot** feature allows you simulate a conversation with your bot.

Test your bot

You can test your chat bot anytime by clicking the **Test your Bot** button. You can use this to see how your bot identifies slots and intents from any conversation.

Tip

Remember to save your bot always before testing.

Conversations with the bot will be used in the **Learning** section to improve the bot's understanding of intents and slots.

View diagnostic information

- Click ▲ to display the detailed information about the chat testing dialog.

The **Progress** option indicates the items identified in the conversation like intent and slots. As the user conversation progresses, the intents and slots that are inferred are displayed till the confirmation goal is reached.

The **Code** option displays the same information as a JSON structure.

- Click ▼ to close the detailed information dialog.

Improving your bot

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- [2 Delete unrelated utterances](#)
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Improve your bot by training it to recognize intents and slot accurately using the **Learning** page.

The **Learning** page helps you to train the domain model by improving the accuracy of matching intents to slots.

The **Learning** page lists utterances that were not matched to an intent. You can improve your model by assigning an utterance to an intent. You can also delete unrequired utterances.

Assign utterances to intents

You can add unrecognised utterance to intents.

- Select an utterance and click **Confirm** under the **Predicted Intent** column to add that utterance to the intent.

Alternatively, you can choose one or more utterances and select an intent that the utterance relates to in the **Assign to Intent** option.

The utterance will be mapped to the predicted intent.

The utterance is moved to the intent and can now be mapped to slots from the intent's **Utterances** tab.

Delete unrelated utterances

- Choose an utterance from the workspace and click **Delete**. The utterance is removed from the workspace.

Filter utterances

You can filter the list of utterances by status or by intent.

- Click the **Filter by Status** option and select a status filter:
 - *All* - displays all utterances.
 - *Incorrect* - displays utterances that were mapped to an intent but the match could be incorrect.
 - *Correct* - displays utterances where the intent was identified correctly.

- *Unknown* - displays utterances that the bot can't correctly map to the intent.
- Click the **Filter by Intent** drop-down and select an intent filter:
 - *All* - displays all utterances
 - *None* - displays utterances where the bot could not predict an intent.

You can also search the utterances for a specific keyword using the **Search** field.

Adding Knowledge to your bot

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Feature coming soon! Add predefined queries and answers to your bot allowing it to understand and respond to conversations.

What is Knowledge?

Knowledge is a set of predefined questions and answers that Dialog Engine will use to respond to queries and to identify intents. The knowledge is stored in a comma-separated file. Dialog Engine will parse this knowledge file on import and use the content to identify intents by matching the utterances to the questions.

Dialog Engine includes a sample knowledge file that can be used as a template to building a knowledge base. Once imported, Dialog Engine will use the information to respond to questions.

You can also create a bot that relies on this knowledge to answer queries. These bots are called **Knowledge Bots**. The Knowledge Bots do not require creating intents and utterances. You can update these bots by uploading a newer set of knowledge files.

Import Knowledge

1

- Click **New Knowledge**.
- Enter a name to identify the knowledge.
- Select the knowledge file to be imported.
- Click **Create** after the knowledge file is uploaded.

The information in the knowledge is updated and the Knowledge page displays the knowledge name and the number of questions and answers that were imported.

Update Knowledge

1

To update an existing knowledge file, click **Update** and import the latest knowledge file.

Download Knowledge

1

To download the current knowledge as a CSV file, click **Download**.

Delete Knowledge

1

- Click **Delete** in the right pane and click **Delete** in the confirmation dialog.

Configuring your bot

Modify your bot's settings.

The **Bot Settings** page allows you to configure:

- The welcome message that the bot will display when it starts.
- The maximum number of times the bot tries to identify an intent from an utterance.
- The threshold limit to be reached before an utterance is identified positively as an intent.