IBM Watson

Creating an AI
Virtual Assistant

Lab 3 Guide

IBM

Lab 3: Creating an AI Virtual Assistant

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Section 1.   Preface

Industry Use-case: Build a Chatbot for a Restaurant

While chatbots offer many benefits, the most significant of them are listed below:

- Book tables and orders, even before the customer has reached the restaurant.
- Customers can track the status of their orders.
- Serve any number of customers 24/7
- Personalized marketing
- Customer analytics
- Does the job of many employees and avoids employees training cost?
- Integrate chatbot to social media and make use of vast social media user base
- Increases brand engagement
- Businesses can stay in direct contact with the customers, which will enable to stop unnecessary revenue share with services delivery mediums, such as Postmates.

Chatbots help in dealing with the challenges faced by the restaurant industry with analytics, as well. Chatbots can help management gather and organize sales data, then strategize their marketing efforts based on location and customer interests. This helps management to deliver personalized marketing plans, push notifications (about loyalty programs or new items) and personalized dining experiences to the customers. This instills a feeling of community with the customers, which ultimately helps the management retain customers as well as increase their satisfaction.

Let's disrupt the traditional way of ordering food with Watson Assistant.

https://businessfirstfamily.com/pick-restaurant-online-ordering-software/

Overview

Chatbots make software accessible to everyone who understands human language. A customer can avoid the frustration that comes with having to memorize and navigate complex menus and button layouts that are always changing with software updates. Instead, computers can be operated with simple human language that people can understand. Customers can now simply ask a bot to take them where they want to go, or to enable a feature without having to hunt it down. Good bot services encourage users to engage more deeply with software features that might otherwise go unnoticed, because they provide a richer, more natural experience. For example, imagine an image editing suite that can respond to a command like: "Make the background of my photo darker."

In addition to enhancing the customer experience, chatbots free up agents to respond to the more complex problems that are better solved by a customer service agent. When people are able to delegate a portion of their workload onto a conversational bot, they are now able to participate in higher value decision making for the company and expand their skills, which benefits the company and enriches the agents.

The Royal Bank of Scotland used Watson to build their bot framework, which consists of two bots called "Cora" and "Marge." Cora handles simpler, "first-time" problem resolution, and Marge assists the agents themselves when they need more information to respond to a customer's query.

Click the link below and scroll to the bottom of the page. There is an imbedded chatbot with various skills that you can play with. Try it:

https://www.ibm.com/watson/how-to-build-a-chatbot

Approximate time to complete: 1 hour

Objectives

Here's how you will implement your assistant:

- **Create a dialog skill**. Use the intuitive graphical tool to define the training data and dialog for the conversation between your assistant and your customers.

The training data consists of the following artifacts:

  o **Intents**: Goals that you anticipate your users will have when they interact with the service. Define one intent for each goal that can be identified in a user's input. For example, you might define an intent named *store_hours* that answers questions about store hours. For each intent, you add sample utterances that reflect the input customers might use to ask for the information they need, such as, what time do you open?

Or use prebuilt content catalogs provided by IBM to get started with data that addresses common customer goals.

  o **Entities**: An entity represents a term or object that provides context for an intent. For example, an entity might be a city name that helps your dialog to distinguish which store the user wants to know store hours for.

As you add training data, a natural language classifier is automatically added to the skill and is trained to understand the types of requests that you have indicated the service should listen for and respond to.

  o **Dialog**: Use the dialog tool to build a dialog flow that incorporates your intents and entities. The dialog flow is represented graphically in the tool as a tree. You can add a branch to process each of the intents that you want the service to handle. You can then add branch nodes that handle the many possible permutations of a request based on other factors, such as the entities found in the user input or information that is passed to the service from an external service.

- **Create an assistant**.
- **Add the dialog skill to your assistant**.
- **Integrate your assistant**. Create a channel integration to deploy the configured assistant directly to a social media or messaging channel.

Flow

This diagram shows the overall architecture:
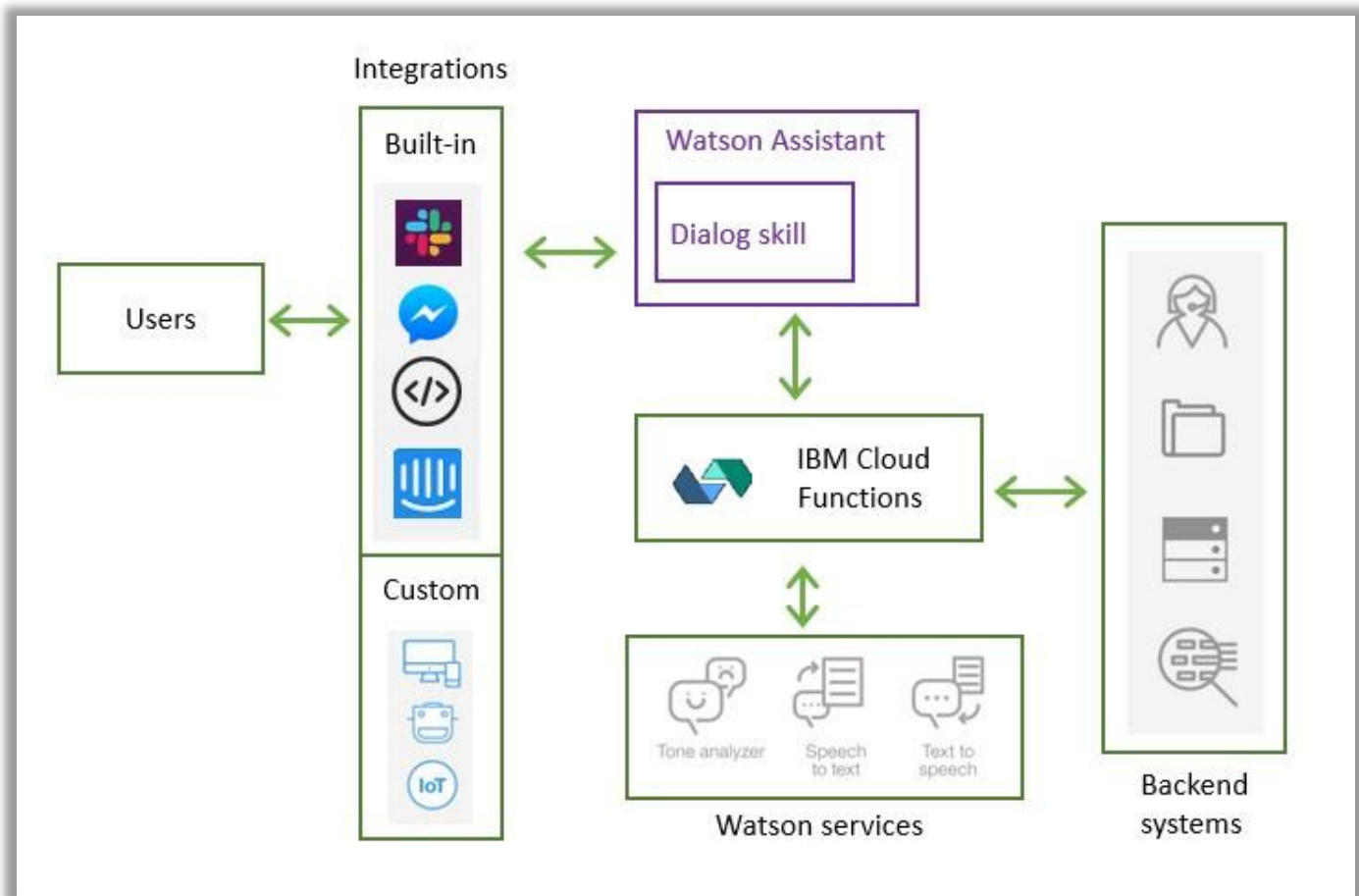
- Users interact with the assistant through one or more of these **integration** points:
  - A chat bot that you publish directly to an existing social media messaging platform, such as Slack or Facebook Messenger.
  - A simple chat bot user interface that is hosted by IBM Cloud.
  - Custom application that you develop, such as a mobile app or a robot with a voice interface.
- The **assistant** receives user input and routes it to the dialog skill.
- The dialog **skill** interprets the user input further, then directs the flow of the conversation and gathers any information that it needs to respond or perform a transaction on the user's behalf.

Tools

Watson Assistant

Prerequisites

This lab requires that you have an IBM Cloud Account, if you have not yet created your IBM Cloud Account please refer to Lab 1 – Setting up your Cloud Account.

Section 2.   Create Watson Assistant Service

This guide is an instructional approach to working with the IBM Watson™ Assistant service where you can create virtual agents and bots that combine machine learning, natural language understanding, and integrated dialog tools to provide automated customer engagements. Creating your first conversation using the IBM Watson™ Assistant service entails the following steps:

- Train Watson to understand your users' input with example utterances: Intents and Examples
- Identify the terms that may vary in your users' input: Entities
- Create the responses to your user's questions: Dialog Builder

Open the Tool

Complete the following steps:

1. Login into IBM Cloud: https://cloud.ibm.com
2. Click the **Catalog** tab.
3. Search for the **Watson Assistant** service and click that tile under the AI heading.
4. Fill out the necessary information and click **Create**.

After you create a Watson Assistant service instance, you land on the **Manage** page of the Watson Assistant dashboard.

5. Click **Launch Watson Assistant**. If you're prompted to log in, provide your IBM Cloud credentials.

A new browser tab or window opens and the Assistants page of Watson Assistant is displayed.

- An assistant named **My first assistant** is created for you automatically. An *assistant* is a cognitive bot to which you add skills that enable it to interact with your customers in useful ways.

- A dialog skill named **My first skill** is added to the assistant for you automatically. A *dialog skill* is a container for the artifacts that define the flow of a conversation that your assistant can have with your customers.
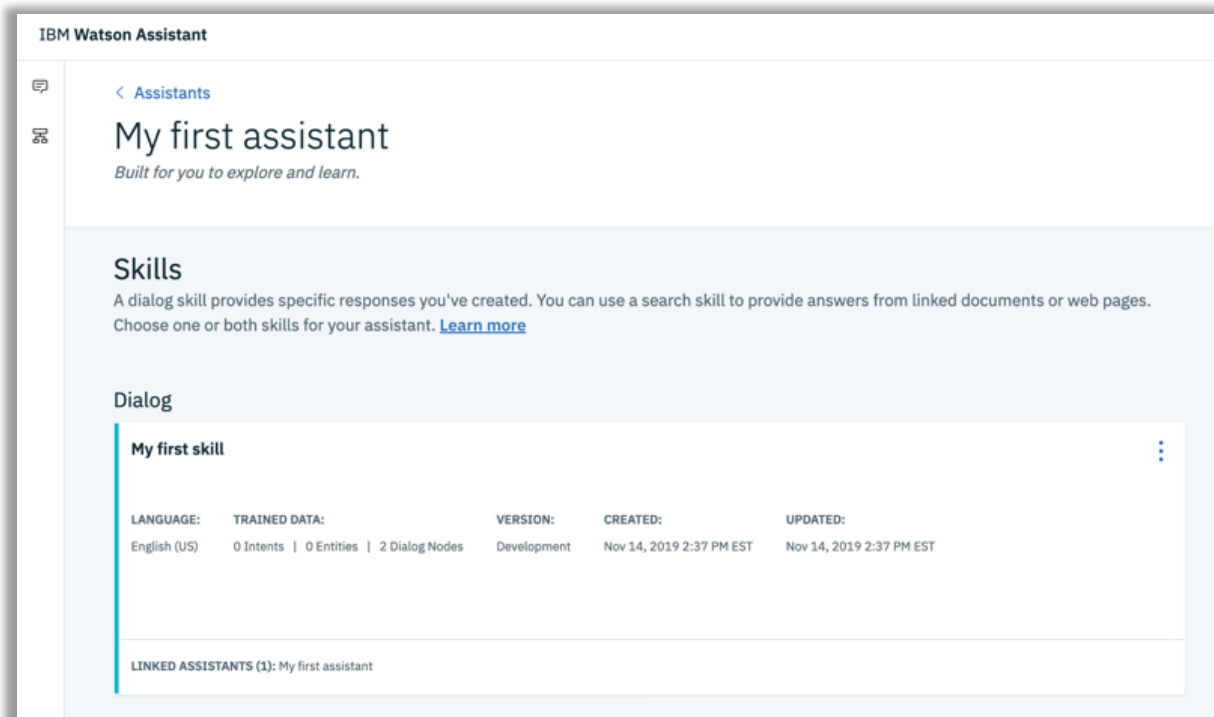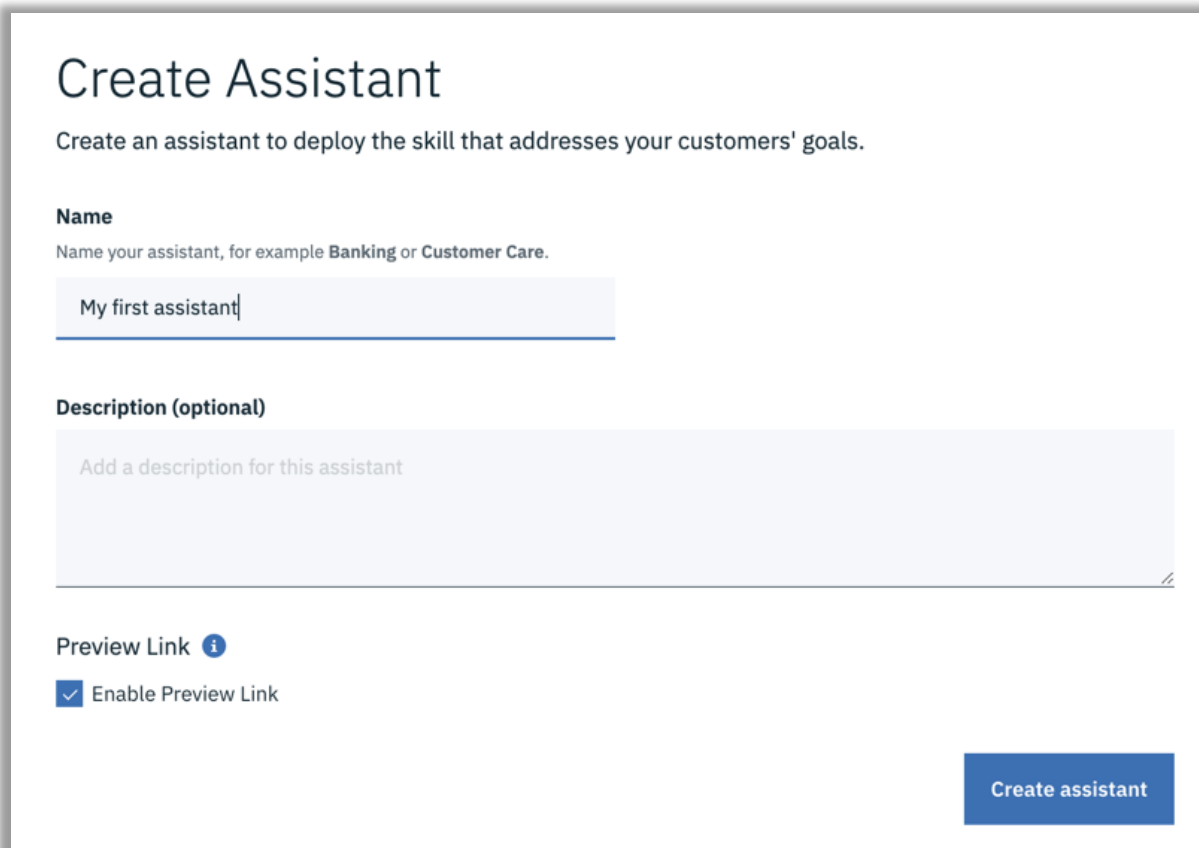
Create an assistant

An *assistant* is a cognitive bot to which you add skills that enable it to interact with your customers in useful ways.

1. Click the **Assistants** icon 💬 , and then click **Create assistant**.
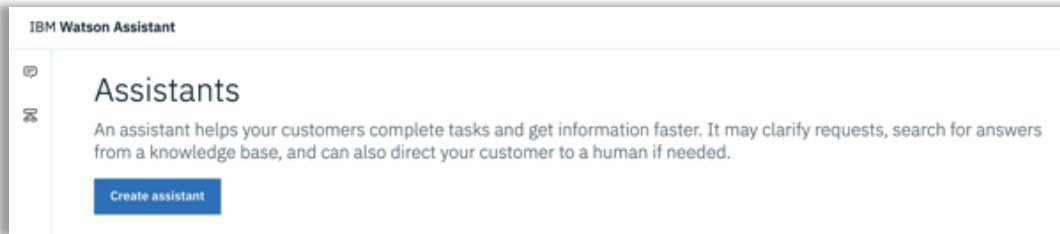
2. Name the assistant My first assistant.

3. Click **Create assistant**.

Create a dialog skill

A *dialog skill* is a container for the artifacts that define the flow of a conversation that your assistant can have with your customers.

1. Click the *My first assistant* tile to open the assistant.
2. Click **Add dialog skill**.
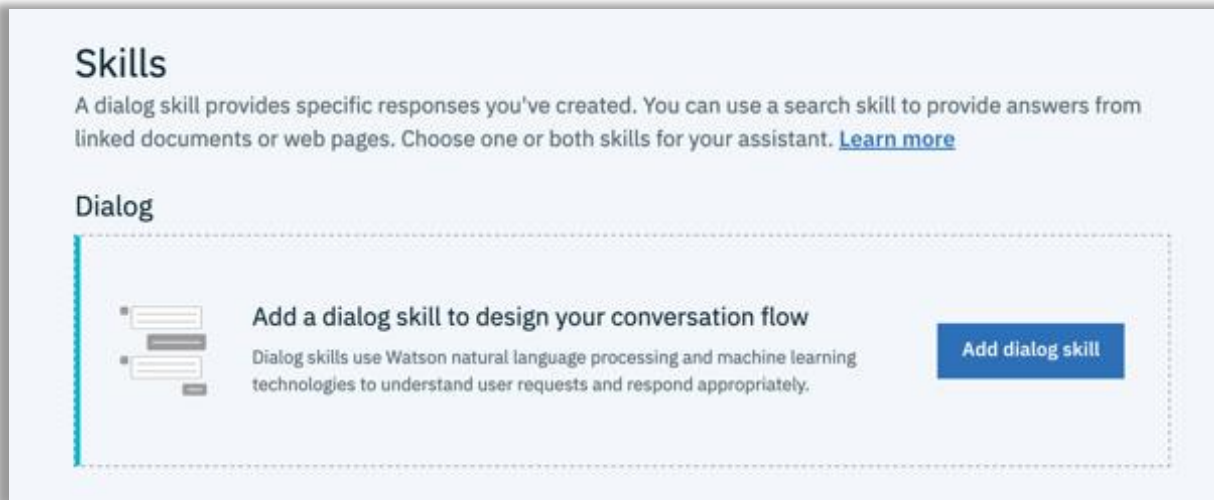
3. Give your skill the name My first skill.

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4. **Optional**. If the dialog you plan to build will use a language other than English, then choose the appropriate language from the list.

5. Click **Create dialog skill**.

The skill is created, and you return to the assistant page.
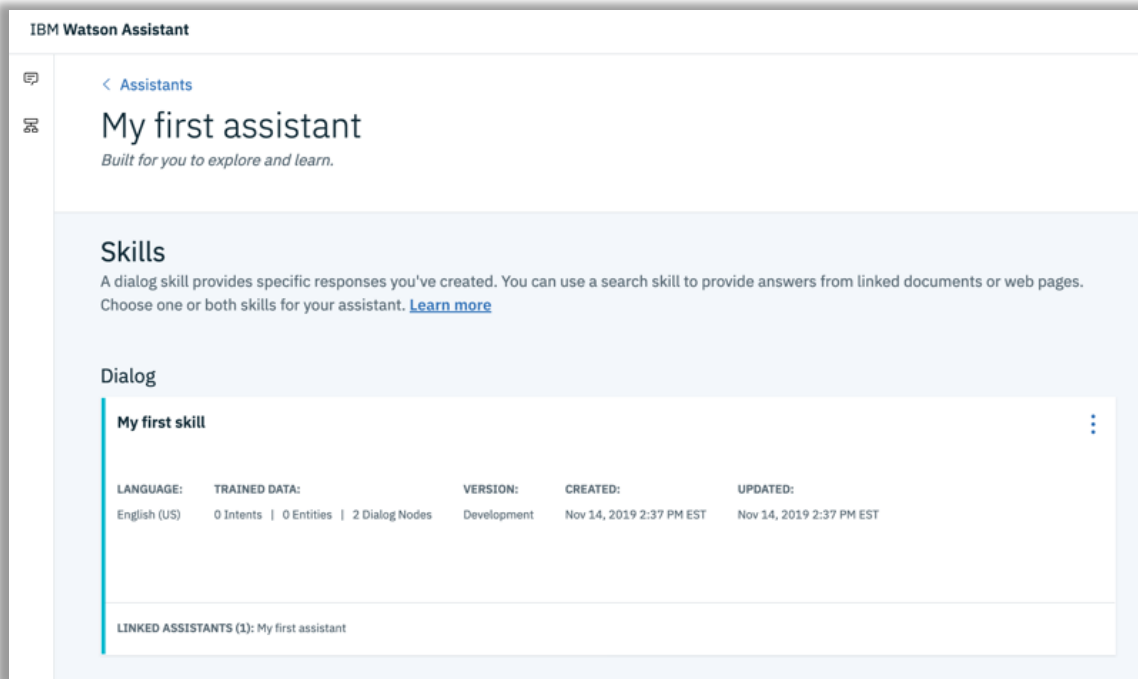
6. Click to open the skill you just created.

Add intents from a content catalog

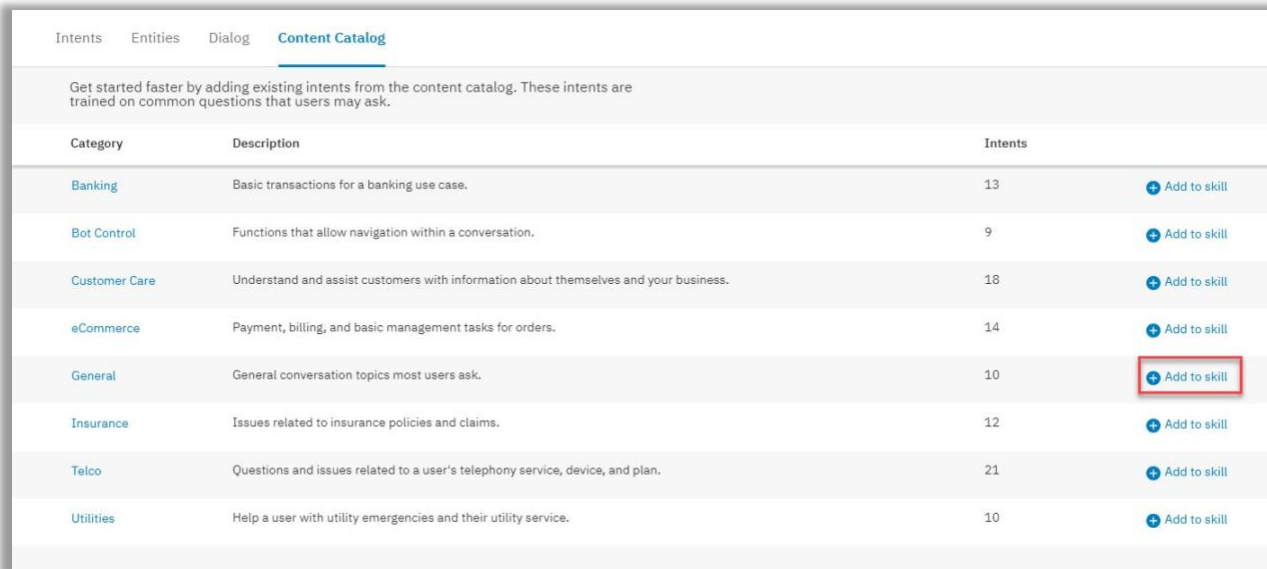When you open the *My first skill*, you land on the *Intents* page.
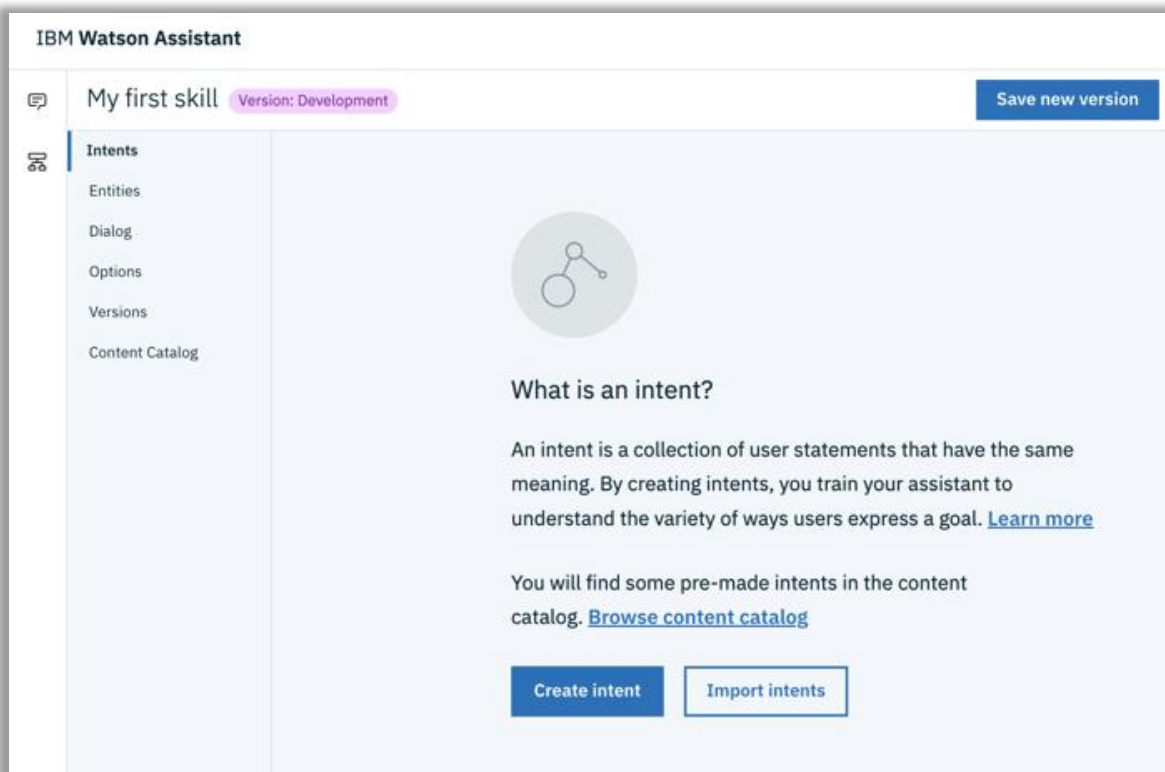
If you land on a page named *Actions* instead, then you are using the preview experience. For information about what to do next, see Creating actions.

If available in your location, a tour begins that you can step through to learn about the product. Follow the tour; it provides a great overview of the product.

Add training data that was built by IBM to your skill by adding intents from a content catalog. In particular, you will give your assistant access to the **General** content catalog so your dialog can greet users, and end conversations with them.
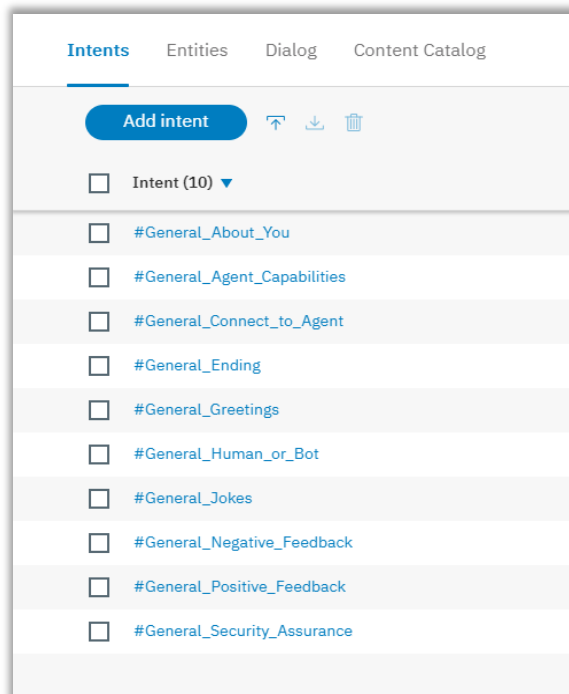
Add training data that was built by IBM to your workspace by adding intents from a content catalog. In particular, you will give your assistant access to the **General** content catalog so your dialog can greet users, and end conversations with them.

1. In the Watson Assistant tool, click the **Content Catalog** tab.

2. Find **General** in the list, and then click **Add to skill.**

Category	Description	Intents	
Banking	Basic transactions for a banking use case.	13	⊕ Add to skill
Bot Control	Functions that allow navigation within a conversation.	9	⊕ Add to skill
Customer Care	Understand and assist customers with information about themselves and your business.	18	⊕ Add to skill
eCommerce	Payment, billing, and basic management tasks for orders.	14	⊕ Add to skill
General	General conversation topics most users ask.	10	⊕ Add to skill
Insurance	Issues related to insurance policies and claims.	12	⊕ Add to skill
Telco	Questions and issues related to a user's telephony service, device, and plan.	21	⊕ Add to skill
Utilities	Help a user with utility emergencies and their utility service.	10	⊕ Add to skill

3. Open the **Intents** tab to review the intents and associated example utterances that were added to your training data. You can recognize them because each intent name begins with the prefix #General_. You will add the #General_Greetings and #General_Ending intents to your dialog in the next step.

Intents Entities Dialog Content Catalog

Add intent ⬆ ⬇ 🗑

☐ Intent (10) ▼

☐ #General_About_You

☐ #General_Agent_Capabilities

☐ #General_Connect_to_Agent

☐ #General_Ending

☐ #General_Greetings

☐ #General_Human_or_Bot

☐ #General_Jokes

☐ #General_Negative_Feedback

☐ #General_Positive_Feedback

☐ #General_Security_Assurance

You successfully started to build your training data by adding prebuilt content from IBM.

Build a Dialog

A dialog defines the flow of your conversation in the form of a logic tree. It matches intents (what users say) to responses (what the bot says back). Each node of the tree has a condition that triggers it, based on user input.

We'll create a simple dialog that handles greeting and ending intents, each with a single node.

A. Adding a start node

1. In the Watson Assistant tool, click the **Dialog** tab.

2. Click **Create**. You see two nodes:

    o **Welcome**: Contains a greeting that is displayed to your users when they first engage with the assistant.

    o **Anything else**: Contains phrases that are used to reply to users when their input is not recognized.
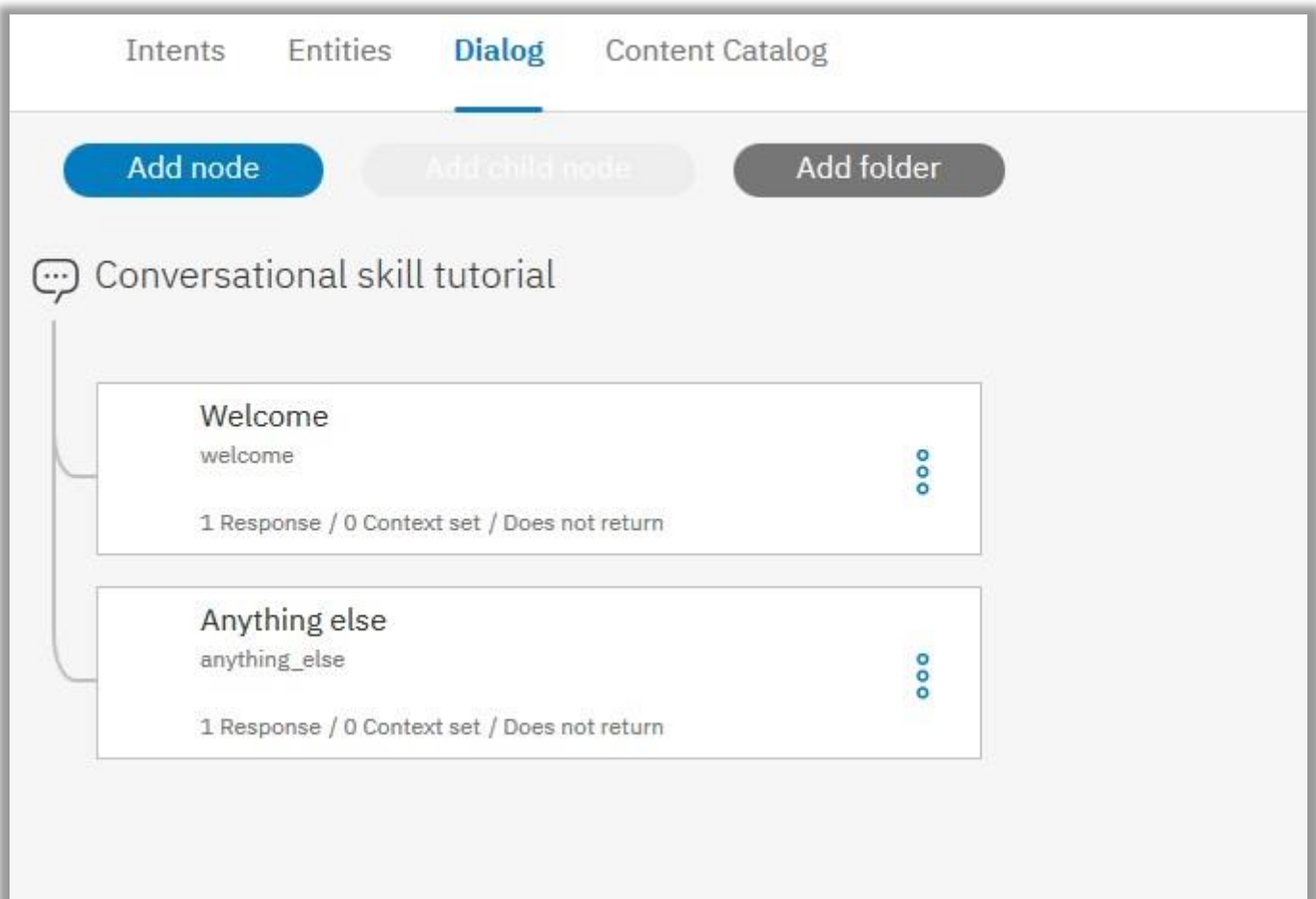
3. Click the **Welcome** node to open it in the edit view.

4. Replace the default response with the text, Welcome to the Watson Assistant tutorial!
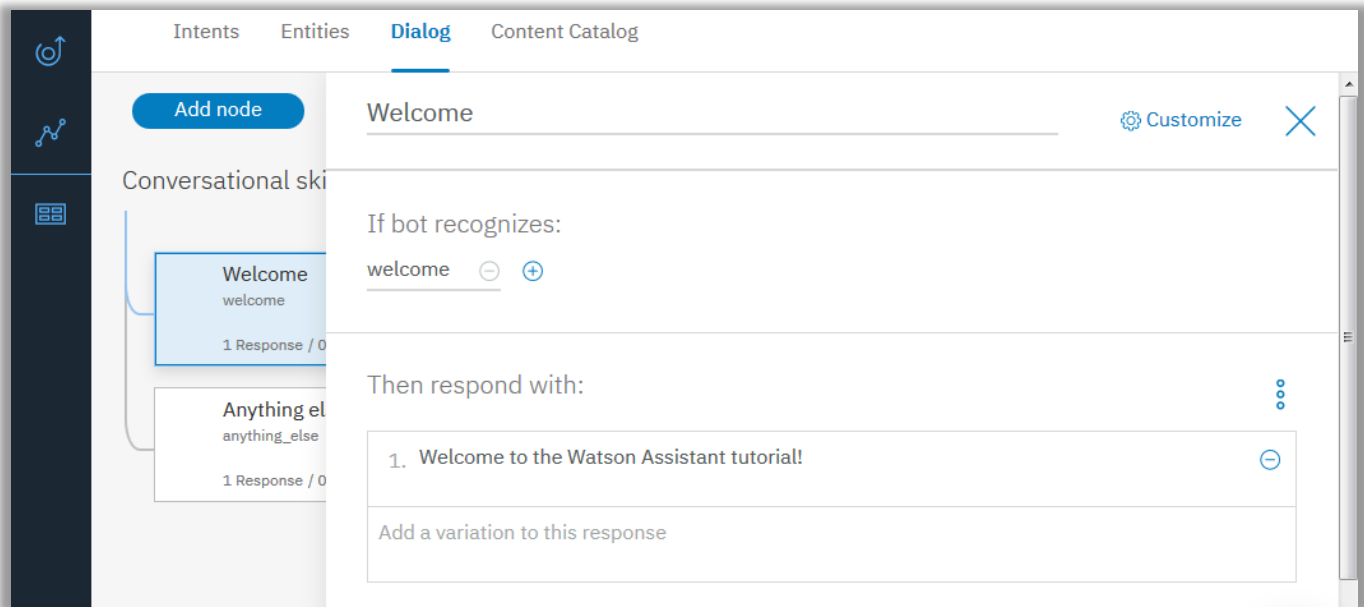
5. Click ✕ to close the edit view.

You created a dialog node that is triggered by the welcome condition (welcome is a special condition that functions like an Intent but does not begin with a #); it is triggered when a new conversation starts. Your node specifies that when a new conversation starts, the system should respond with the welcome message that you add to the response section of this first node.

B. Testing the start node

You can test your dialog at any time to verify the dialog. Let's test it now.

• Click the ⌨ Try it icon to open the "Try it out" pane. You should see your welcome message.

C. Adding nodes to handle intents

Now let's add nodes to handle our intents between the Welcome node and the Anything else node.

6. Click the More icon ⋮ on the **Welcome** node, and then select **Add node below**.

7. Type #General_Greetings in the **Enter a condition** field of this node. Then, select the
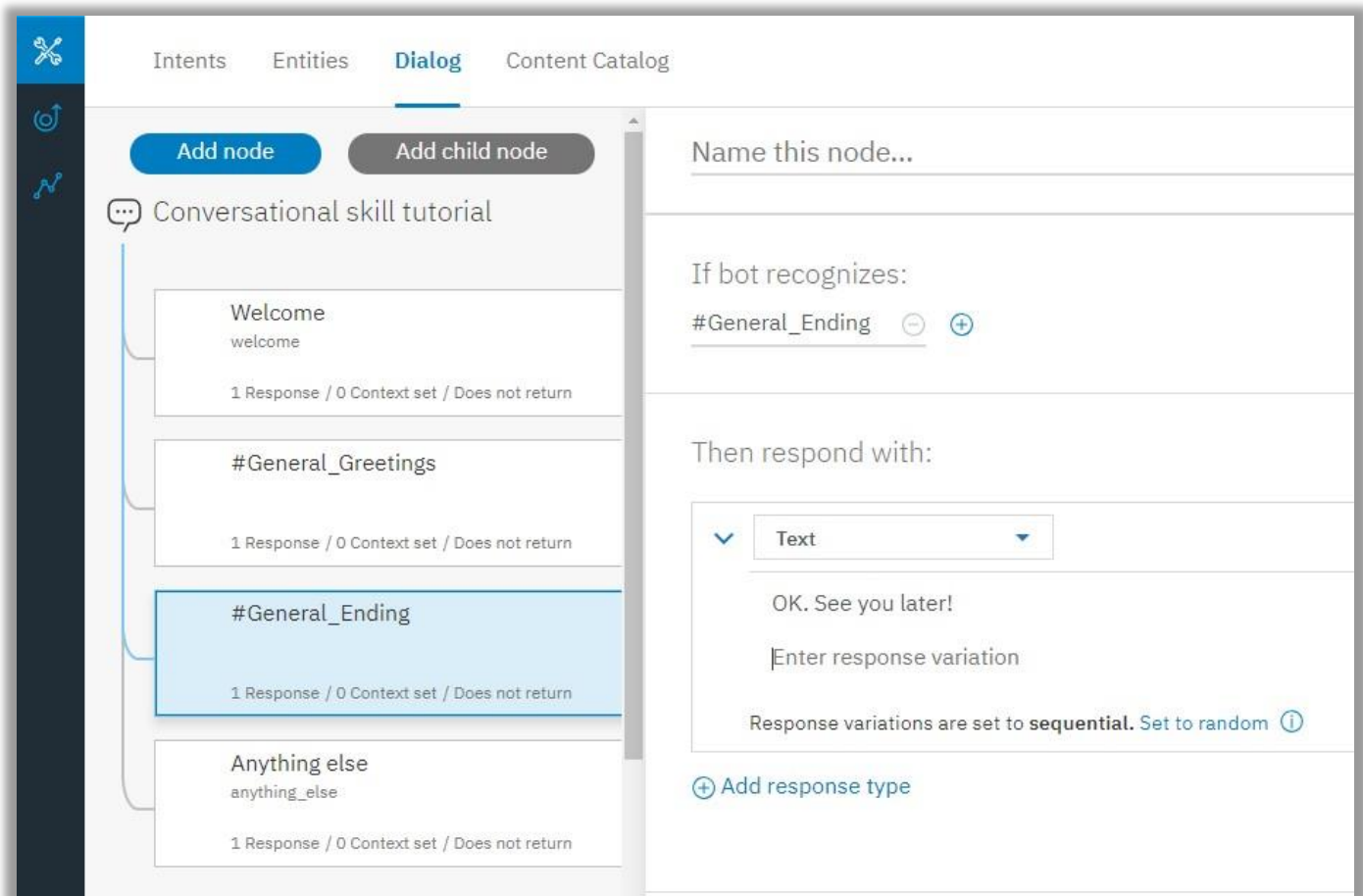
#General_Greetings option.

8. Add the response, Good day to you!

9. Click ✕ to close the edit view.
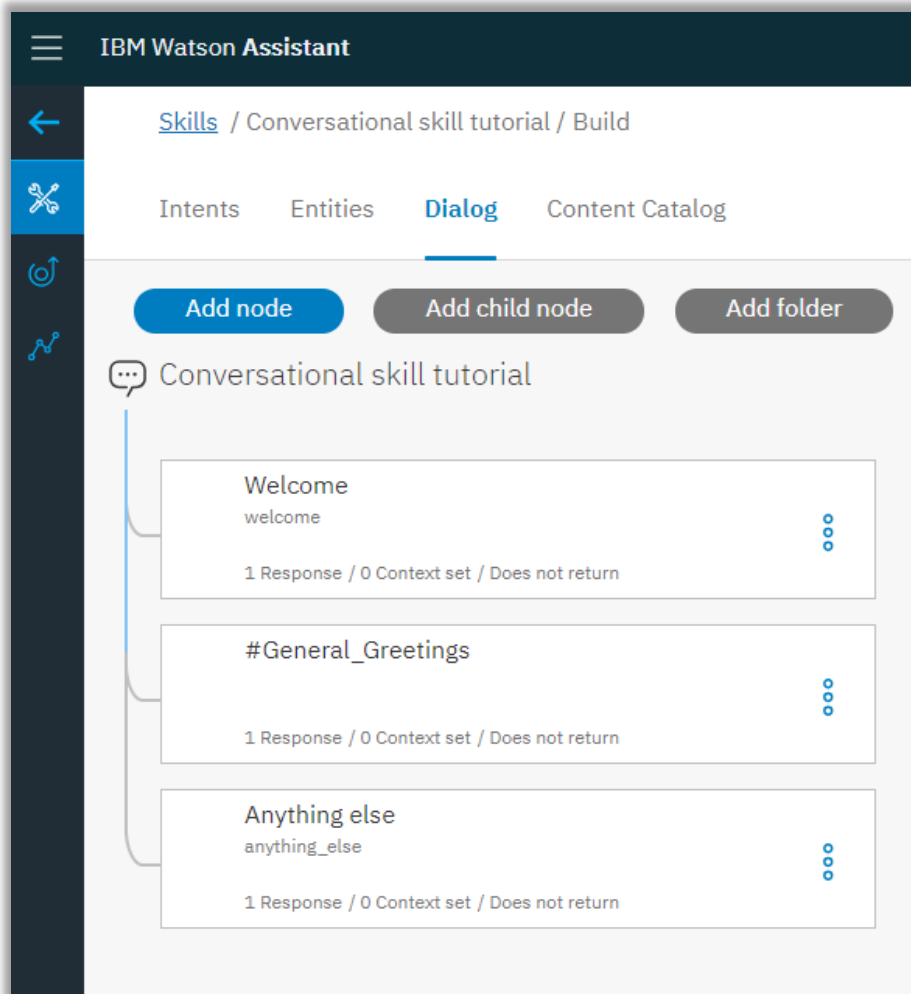
10. Click the More icon ⋮ on this node, and then select **Add node below** to create a peer node. In the peer node, specify #General_Ending as the condition, and OK. See you later. as the response.

11. Click ✕ to close the edit view.

D. Testing intent recognition

You built a simple dialog to recognize and respond to both greeting and ending inputs. Let's see how well it works.

12. Click the 💬 Try it icon to open the "Try it out" pane. There's that reassuring welcome message.
13. At the bottom of the pane, type Hello and press Enter. The output indicates that the #hello intent was recognized, and the appropriate response (Good day to you.) appears.

14. Try the following input:

   o bye

   o howdy

   o see ya

   o good morning

   o sayonara

Watson can recognize your intents even when your input doesn't exactly match the examples that you included. The dialog uses intents to identify the purpose of the user's input regardless of the precise wording used, and then responds in the way you specify.
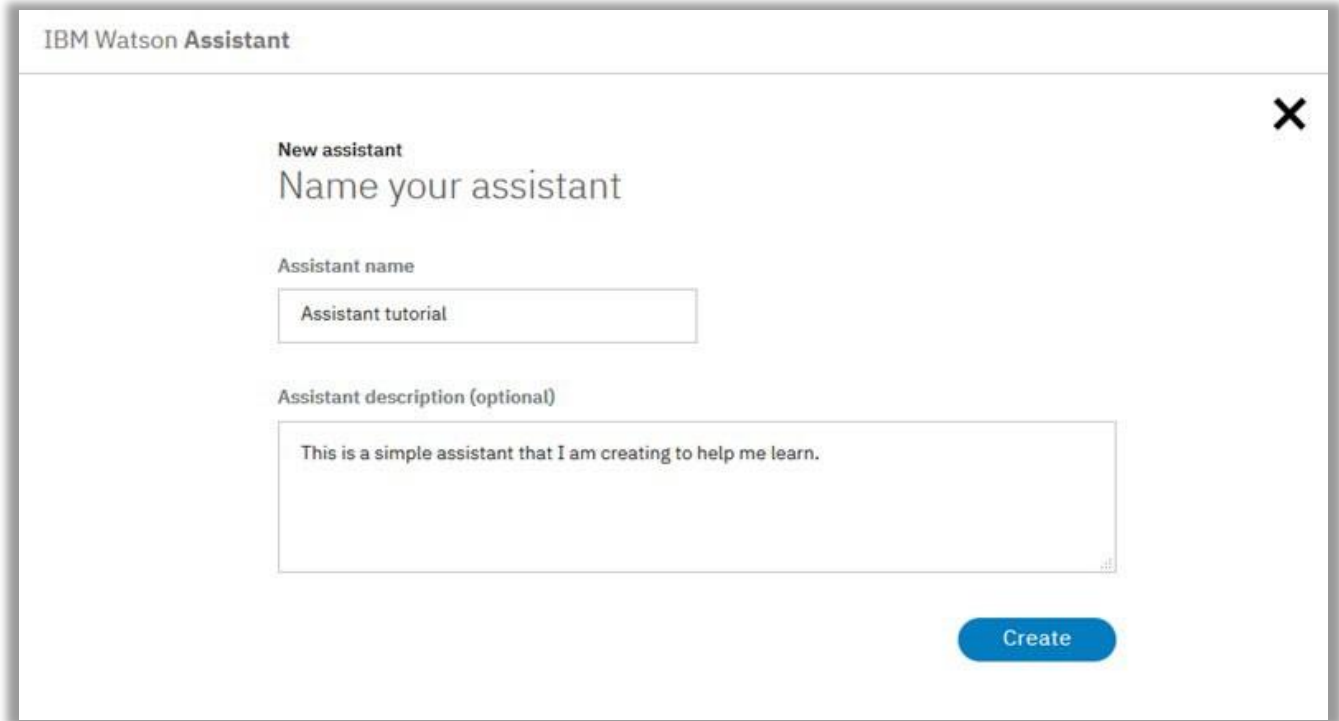

Create an Assistant

An assistant is a cognitive bot to which you add a skill that enables it to interact with your customers in useful ways.

1. Click the **Assistants** tab.
2. Click **Create new**.
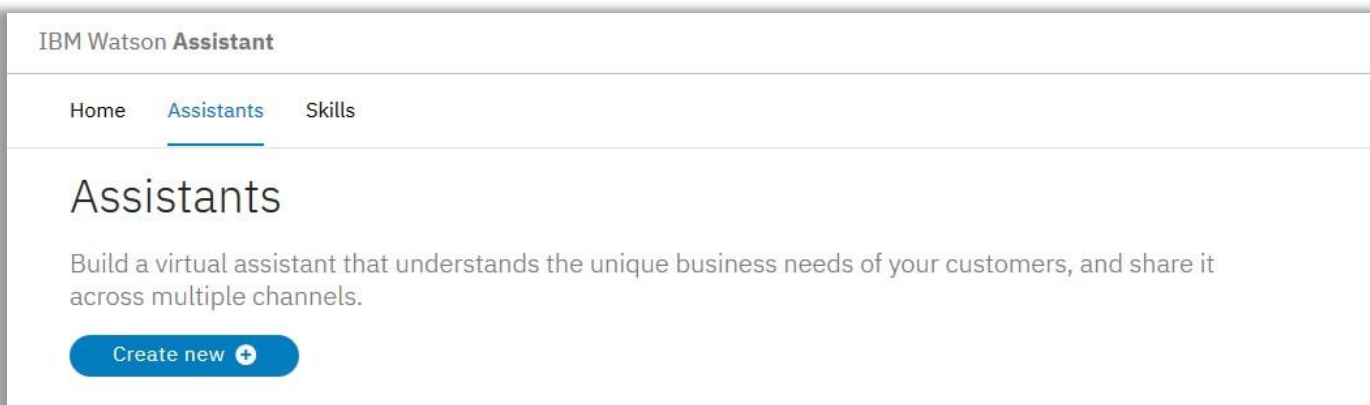
3. Name the assistant Watson Assistant tutorial.
4. In the Description field, enter This is a sample assistant that I am creating to help me learn.
5. Click **Create**.

IBM Watson **Assistant**

✕

New assistant
Name your assistant

Assistant name

Assistant tutorial

Assistant description (optional)

This is a simple assistant that I am creating to help me learn.

Create

Add Your Skill to Your Assistant

Add the dialog skill that you build to the assistant you created.

1. From the new assistant page, click **Add skill**.

If you created or were given developer role access to any workspaces that were built with the generally available version of the Watson Assistant service, you will see them listed on the Skills page as conversational skills.
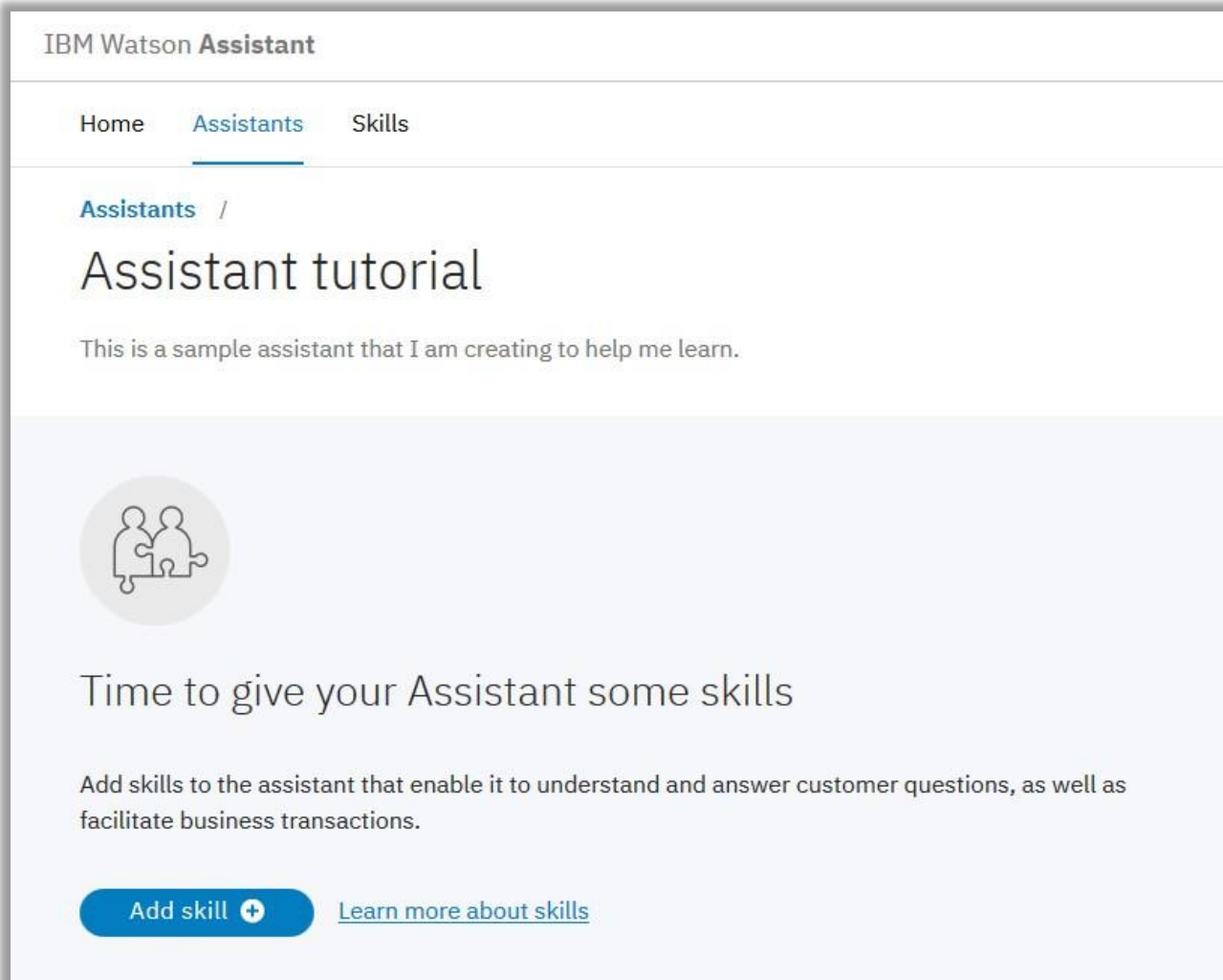
2. Choose to add the skill that you created earlier to the assistant.

Integrate the Assistant

Now that you have an assistant that can participate in a simple conversational exchange, publish it to a public web page where you can test it out. The service provides a built-in integration that is called a Preview Link. When you create this type of integration, it builds your assistant into a chat widget that is hosted by an IBM-branded web page. You can open the web page and chat with your assistant to test it out.

1. Click the **Assistants** tab, find the **Watson Assistant tutorial** assistant that you created, and open it.

2. From the *Integrations* area, click **Add integration**.

3. Find **Preview Link** and click **Select integration**.

4. Click the URL that is displayed on the page. The page opens in a new tab.

5. Say **hello** to your assistant, and watch it respond. You can share the URL with others who might want to try out your assistant.

Next Steps (Optional)

This tutorial is built around a simple example. For a real application, you need to define some more interesting intents, some entities, and a more complex dialog that uses them both. When you have a polished version of the assistant, you can integrate it with channels that your customers use, such as Slack. As traffic increases between the assistant and your customers, you can use the tools that are provided in the **Improve** tab to analyze real conversations and identify areas for improvement.

Check out more sample apps to get ideas.