

IBM WATSON ASSISTANT

TUTORIAL

Team Spadina
MMAI 844

Contents

Tutorial	2
Prerequisites	2
Task 1: Create the Assistant service.....	3
Task 2: Create your first Assistant.....	5
Task 3: Create Dialog.....	6
Task 4: Website to host Chatbot.....	12
Chatbot Web Site	17
Questions	18
Part 1 – Booking an appointment	18
Part 2 – Intents.....	19
Appendix	20
Intents	20
Entities	21
Dialog	22

Tutorial

A chatbot is a computer program that uses AI and natural language processing (NLP) to automate responses to user queries, simulating human conversation. Chatbots can help make it easy for users to find the information they need. Using natural language, chatbot technology responds to users' questions and requests—through text input, audio input or both—without the need for human intervention. Users can ask questions in a conversational way, and the chatbots can help refine their searches through their responses and follow-up questions. The terms chatbot, AI chatbot, virtual assistant and conversational agent are sometimes used interchangeably.

In this tutorial, you will implement a simple Virtual Bank Agent conversation chatbot. The chatbot streamlines Banking queries by automating the conversation flow.

By completing these tasks you will:

- Gain a basic understanding of IBM Cloud and Watson Assistant.
- Create an instance of Watson Assistant.
- Define intent and entities to help natural language processing – a JSON configuration file is provided as a starting point.
- Build a simple dialog flow.
- Setup a public site to access the chatbot.

This tutorial is structured in layers. If you are a beginner, focus on developing Watson Assistant artifacts and test within the Watson Assistant service. If you are more advanced, you can also study and tune the work flow to support more advanced features.

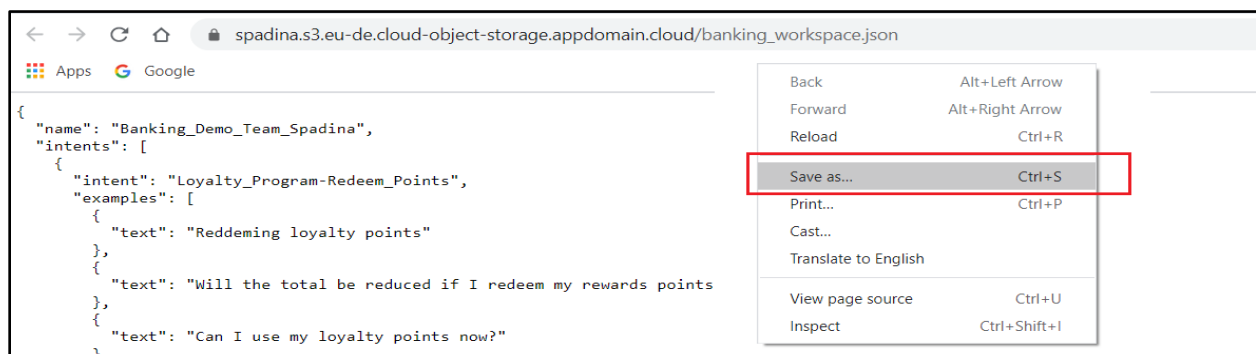
Prerequisites

You must have an IBM Cloud account. The account is free and provides access to everything you need to develop, track, plan, and deploy apps.

The account requires an IBMid. If you don't have an IBMid, you can create one when you register.

[Sign up for a trial.](#) <- click on link

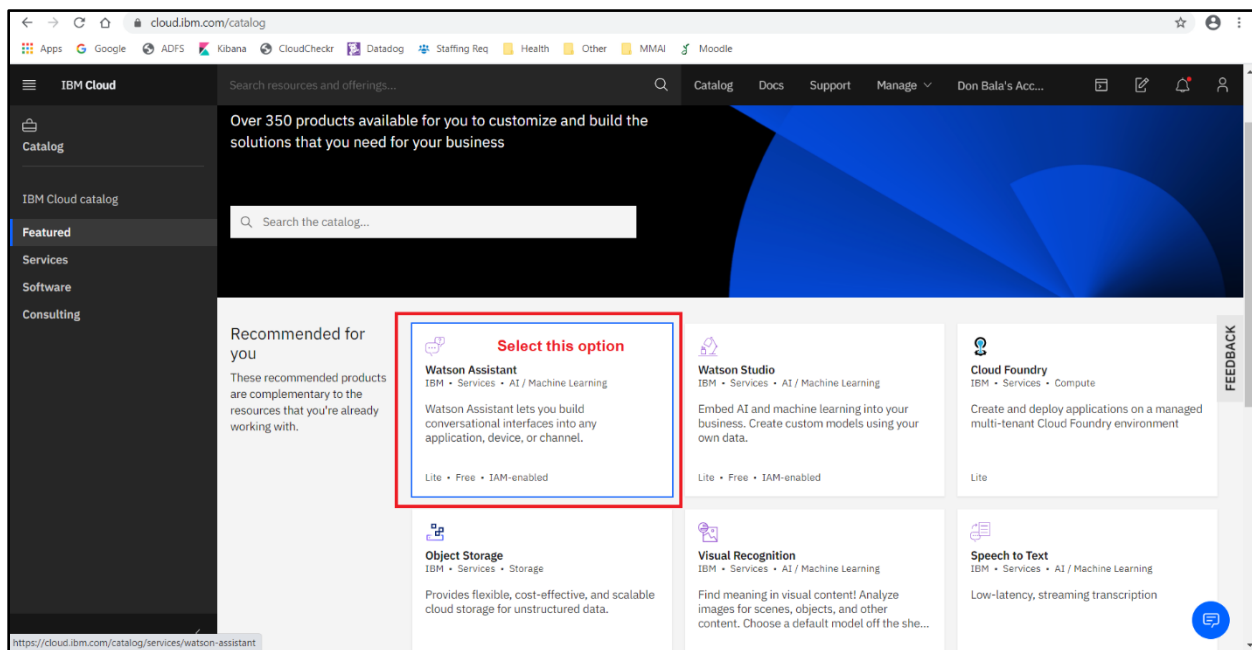
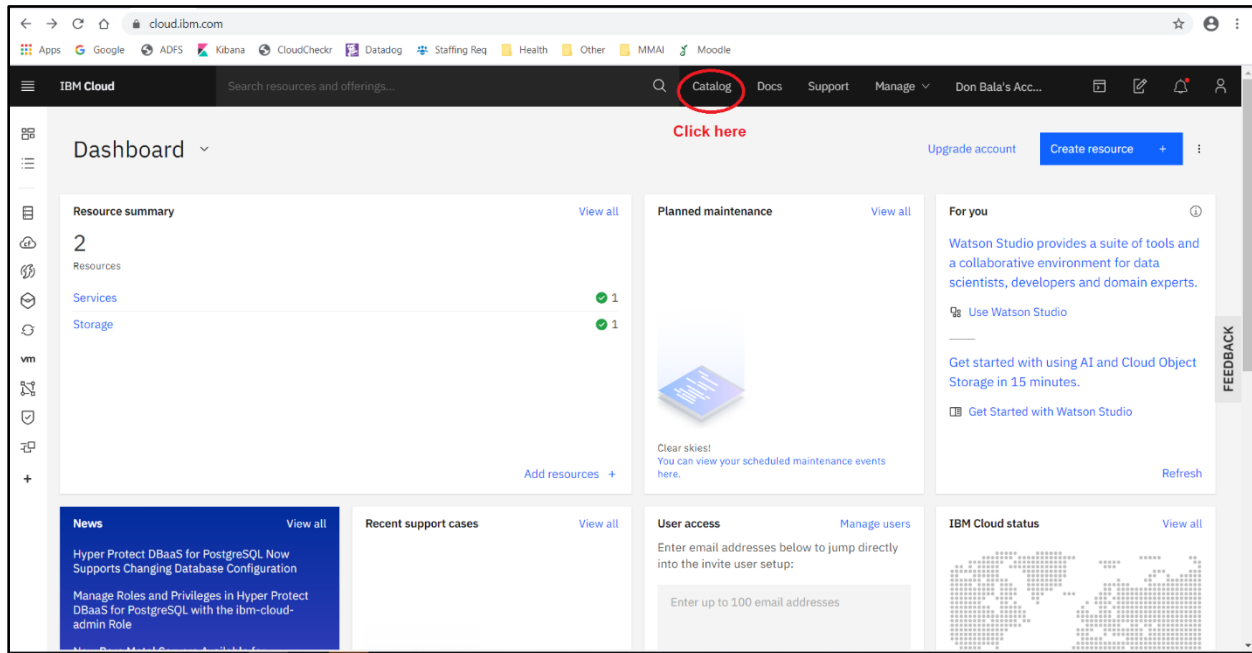
[Download the JSON configuration file from here.](#) <- click on link



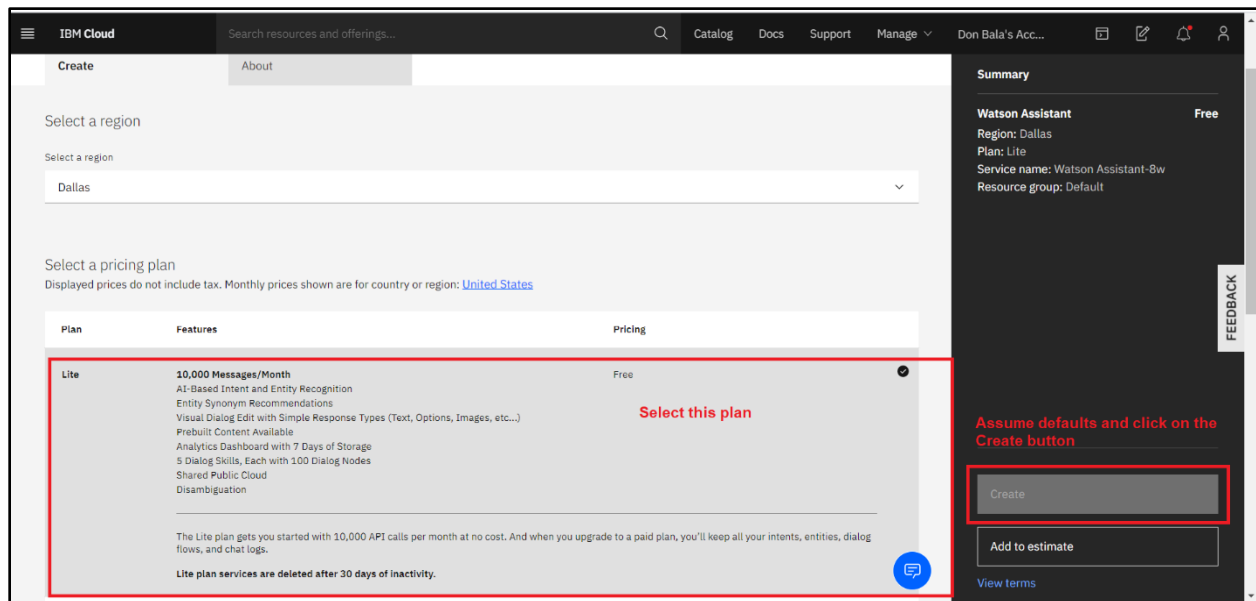
Task 1: Create the Assistant service

The first task is to create an instance of Watson Assistant on IBM Cloud.

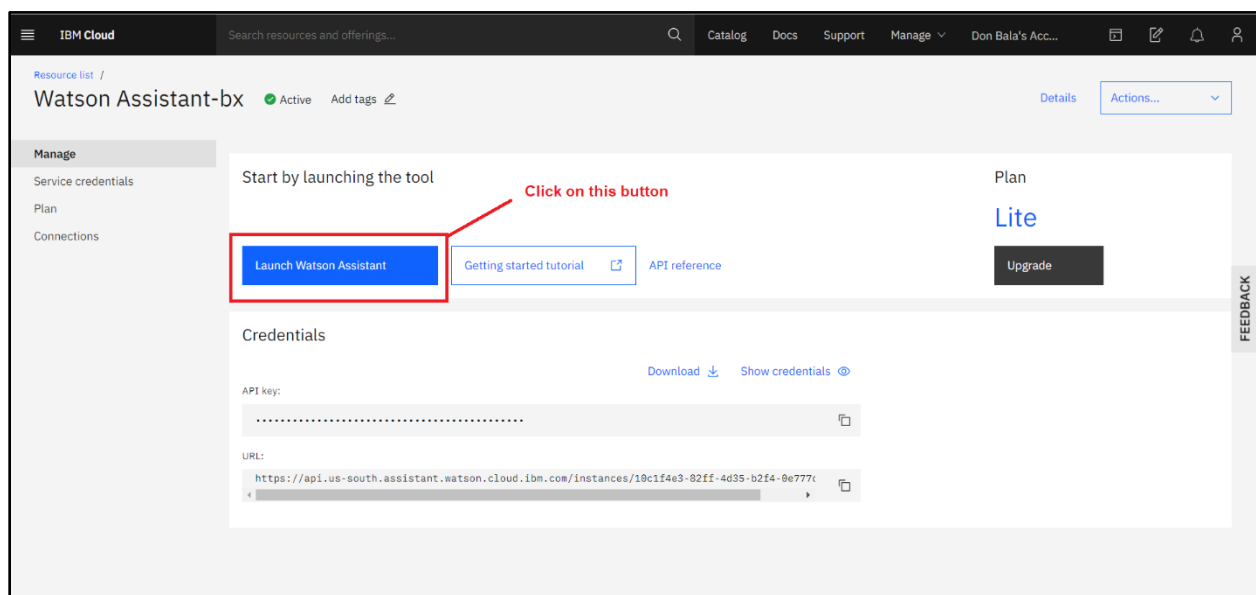
1. Make sure that you are logged in to your IBM Cloud account. Click **Catalog** and then click **Services > Watson > Assistant**.



2. Select the **Lite** option. For the service name, accept defaults. Click **Create**.



3. Launch Watson Assistant Tool. An additional tab may open on your browser with a button to **Create intent**. Simply close this tab and select **Launch Watson Assistant** as per the image below:

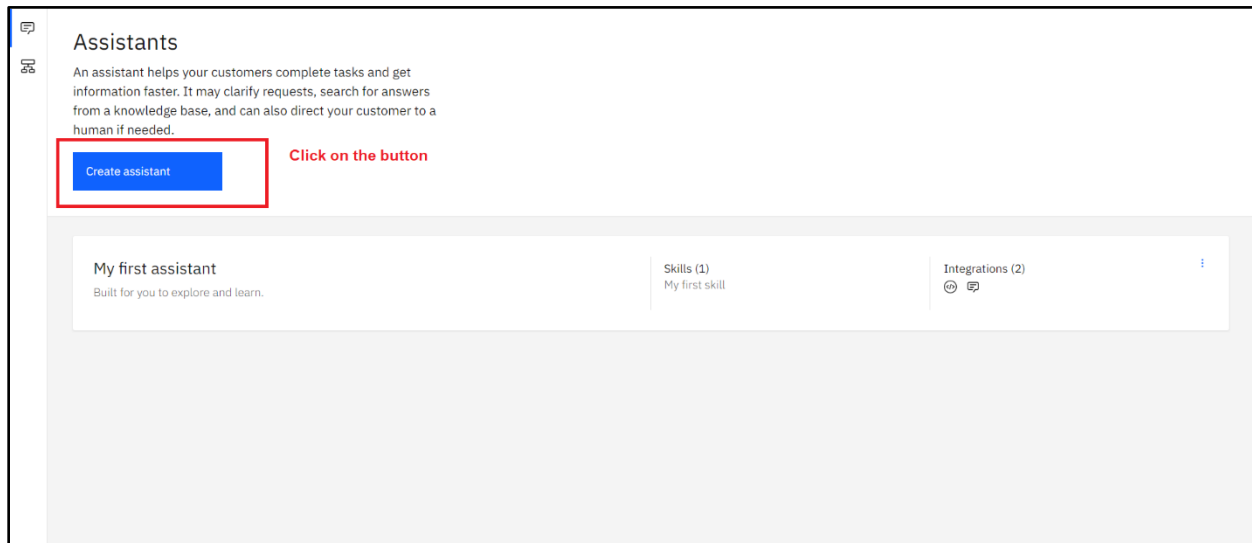


Task 2: Create your first Assistant

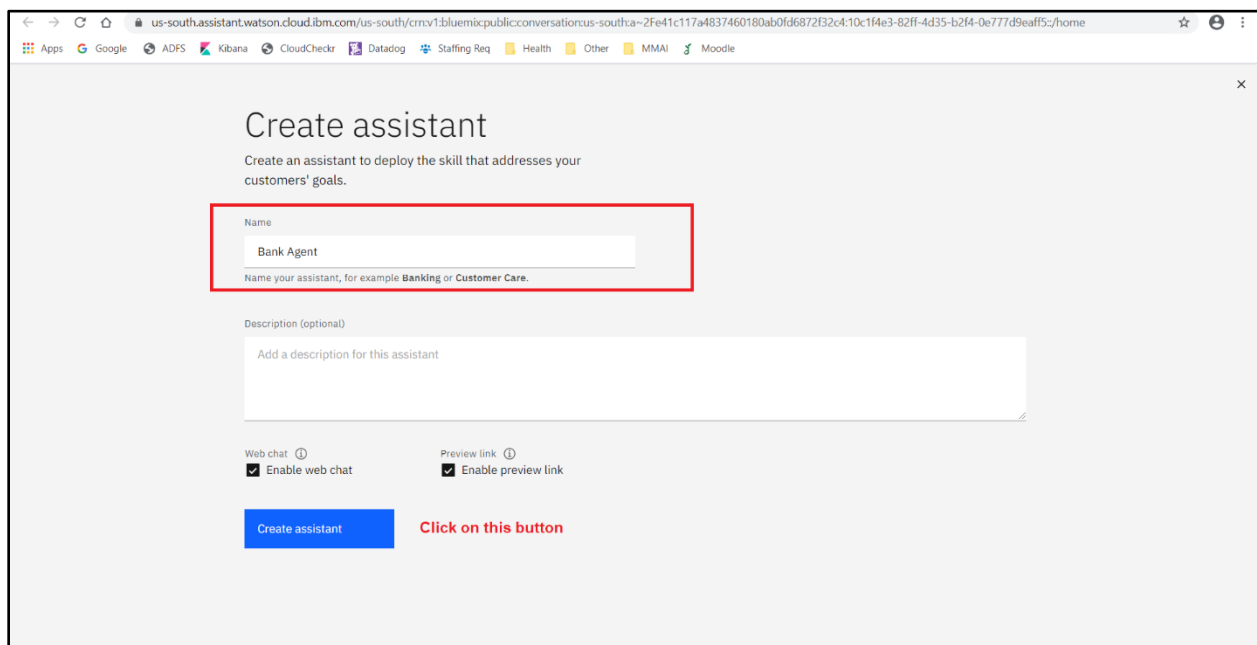
You must use workspaces to maintain separate intents, user examples, entities, and dialog flows for each application. Watson Assistant uses a step-by-step approach to guide you to create workspace, intents, and so forth. However, for this exercise a pre-configured JSON file is provided to simplify the process.

1. Creating the Assistant.

In the Assistance section, click **Create assistant**.

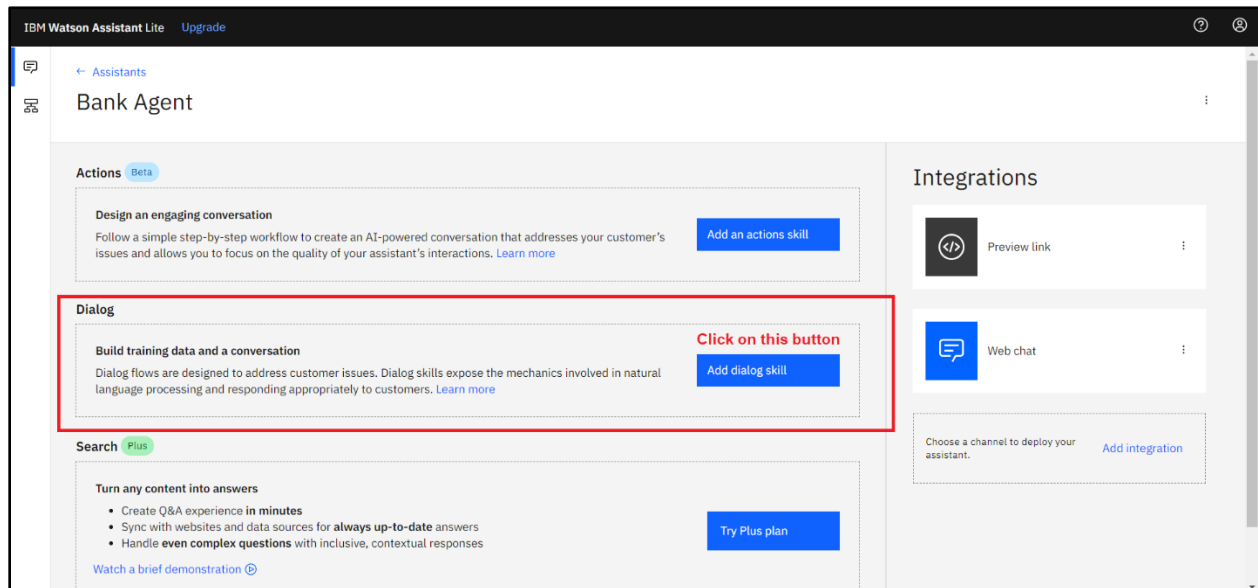


2. Type a name for the assistant. In the examples throughout this tutorial, the assistant name is *Bank Agent*.

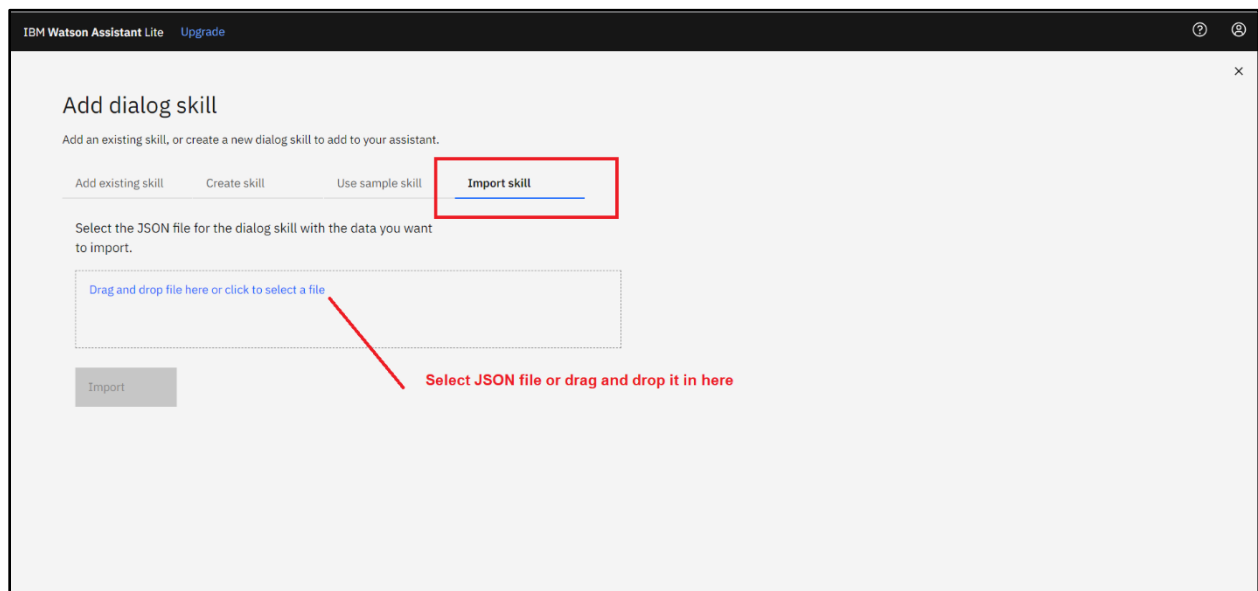


Task 3: Create Dialog

1. Build the conversation model. An *intent* is a group of examples of things that a user might say to communicate a specific goal or idea. For each intent, think of the various ways that a user might express his or her desire—those are the examples. Examples can be developed by using a crowdsourcing approach.



2. Import the JSON document as a frequently asked question for bank customer service agent. The JSON file is a starting framework to setup the ML training. Refer to [appendix](#) for details on how to build the NLP skills sets for the chatbot.



3. Import the JSON file.

Add dialog skill

Add an existing skill, or create a new dialog skill to add to your assistant.

Add existing skill Create skill Use sample skill **Import skill**

Select the JSON file for the dialog skill with the data you want to import.

Drag and drop file here or click to select a file

banking_workspace.json

Import

Click on this button to complete file import

4. Successful file import

IBM Watson Assistant Lite Upgrade

Assistants

Bank Agent

Actions Beta

Design an engaging conversation

Follow a simple step-by-step workflow to create an AI-powered conversation that addresses your customer's issues and allows you to focus on the quality of your assistant's interactions. [Learn more](#)

Add an actions skill

Dialog

Banking_Demo_Team_Spadina

Credit Card Banking Support Agent to assist with Sales And Service

LANGUAGE:

English (US)

TRAINED DATA:

99 Intents | 24 Entities | 388 Dialog nodes

VERSION:

DESCRIPTION:

VERSION CREATED:

LINKED ASSISTANTS (1): Bank Agent

Search Plus

Turn any content into answers

- Create Q&A experience in minutes
- Sync with websites and data sources for always up-to-date answers

Try Plus plan

Integrations

Preview link

Web chat

Choose a channel to deploy your assistant. [Add integration](#)

5. Webchat Integration. Follow the **Add Integration** link

The screenshot shows the IBM Watson Assistant Lite interface for a 'Bank Agent'. The main panel displays sections for 'Actions' (Beta), 'Dialog' (showing 'Banking_Demo_Team_Spadina' with details like Language: English (US), Trained Data: 99 Intents | 24 Entities | 388 Dialog nodes, and Version: ---), and 'Search' (Plus). The 'Integrations' sidebar on the right lists 'Preview link' and 'Web chat'. A red arrow points to the 'Add integration' link under the 'Web chat' section, with the text 'Click on this link' below it.

6. Select the **Web chat** integration

The screenshot shows the 'Add integration' dialog box. It instructs the user to 'Select a deployment method that is managed for you and can be configured within the tool or learn about other ways to deploy the assistant.' Under 'Stand-alone integrations', the 'Web chat' option is highlighted with a red box. It describes embedding the web chat into a company website and lists 'Supported service desks' (Z and Blue). Other options include 'Preview link' and 'Phone' (Beta and Plus). A red arrow points to the 'Web chat' option with the text 'Select Web Chat integration'. A 'Try Plus plan' button is visible at the bottom right.

7. Setup the **Web chat** integration

Web chat

Integration name

Web chat

Give it a name

Style Home Screen Live agent Suggestions Security Embed

Customize your chat UI

Update the style to match your brand and your website. A developer can also add more advanced styling changes with code. [Learn more](#)

Assistant's name as known by customers

Watson Assistant

Primary color

Chat header

#FFFFFF

Secondary color

User message bubble

#3D3D3D

Accent color

Restart conversation

Watson Assistant

Hello, I am the Team Spadina Virtual Agent.

I can help you with a number of banking tasks:

- Making a credit card payment
- Booking an appointment with a banker
- Choosing a credit card

8. Copy HTML code

Web chat

Style Home Screen Live agent Suggestions Security Embed

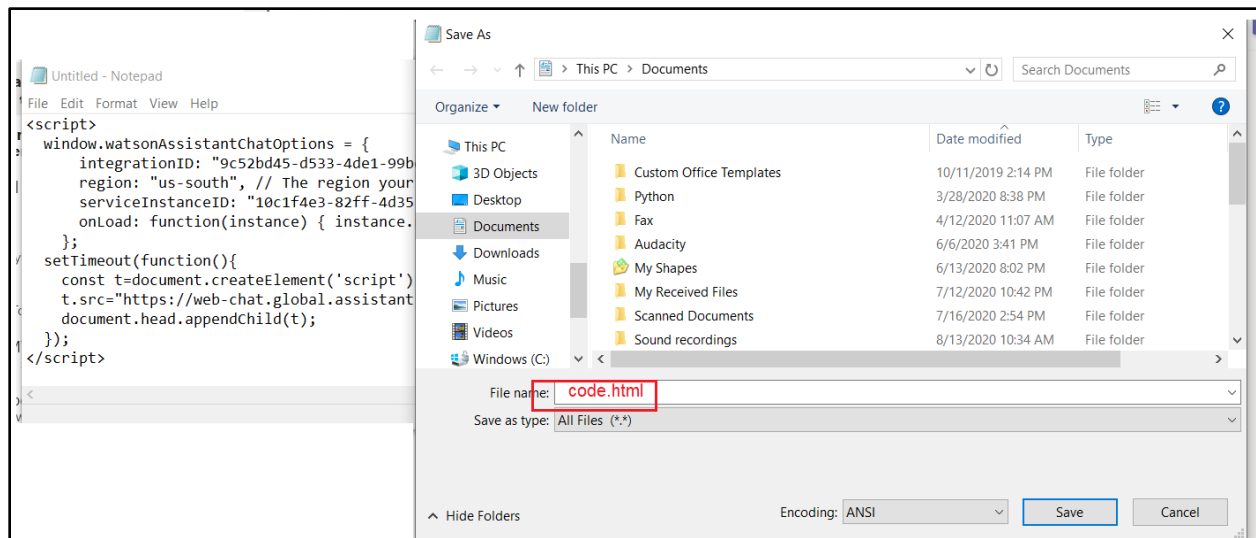
</> Embed on your website

Ready to launch? It's as easy as copy and paste. [Learn more](#)

```
<script>
window.watsonAssistantChatOptions = {
  integrationID: "9c52bd45-d533-4de1-99bd-3de26f16db89", // The ID of this integration.
  region: "us-south", // The region your integration is hosted in.
  serviceInstanceID: "10c1f4e3-82ff-4d35-b2f4-0e777d9eaff5", // The ID of your service instance.
  onLoad: function(instance) { instance.render(); }
};
setTimeout(function(){
  const t=document.createElement('script');
  t.src="https://web-chat.global.assistant.watson.appdomain.cloud/loadWatsonAssistantChat.js";
  document.head.appendChild(t);
});
</script>
```

Copy the text

9. Save code to HTML to **code.html**. Please use editor of your choice.



10. Copy the following text into a new file (**do not save the file**) and please use editor of your choice.

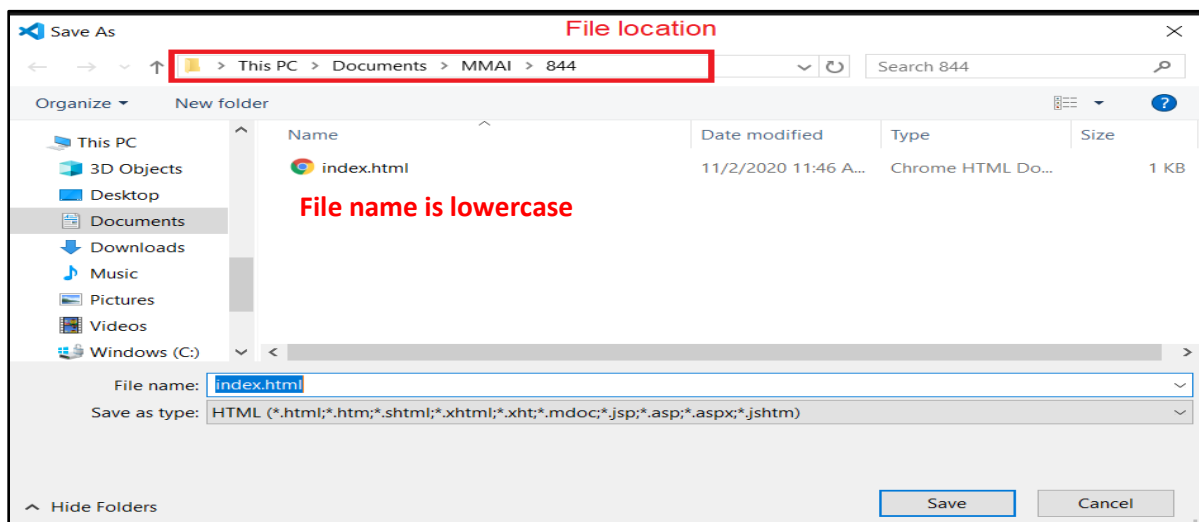
```
<html>
<head></head>
<body>
  <title>Team Spadina Demo</title>
  <h1>Spadina Virtual Agent</h1>
  <h2>Click on the chatbot</h2>
  <script>
    //copy the code from code.html inside this block
  </script>
</body>
</html>
```

11. Copy code block from step 9 to the **new file**. Look for the `<script></script>` block and replace with copy/paste. Please use editor of your choice.

Here is an example:

```
<html>
<head></head>
<body>
  <title>Team Spadina Demo</title>
  <h1>Spadina Virtual Agent</h1>
  <h2>Click on the chatbot</h2>
  <script>
    window.watsonAssistantChatOptions = {
      integrationID: "c6dfda98-2bda-4783-a553-
967ca048069f", // The ID of this integration.
      region: "us-south", // The region your integration is hosted in.
      serviceInstanceID: "229fc7b4-fc2f-442f-9553-
09045904b6a0", // The ID of your service instance.
      onLoad: function(instance) { instance.render(); }
    };
    setTimeout(function(){
      const t=document.createElement('script');
      t.src="https://web-
chat.global.assistant.watson.appdomain.cloud/loadWatsonAssistantChat.js";
      document.head.appendChild(t);
    });
  </script>
</body>
</html>
```

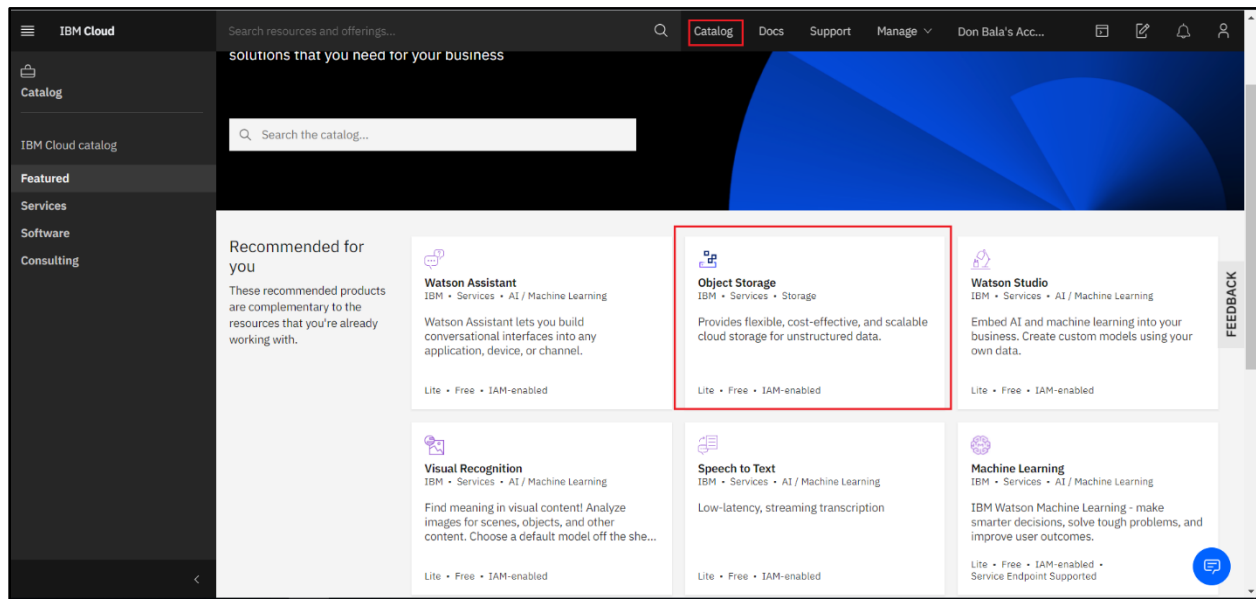
12. Once code has been merged, be sure to save the **index.html** file. Note the location of the file.



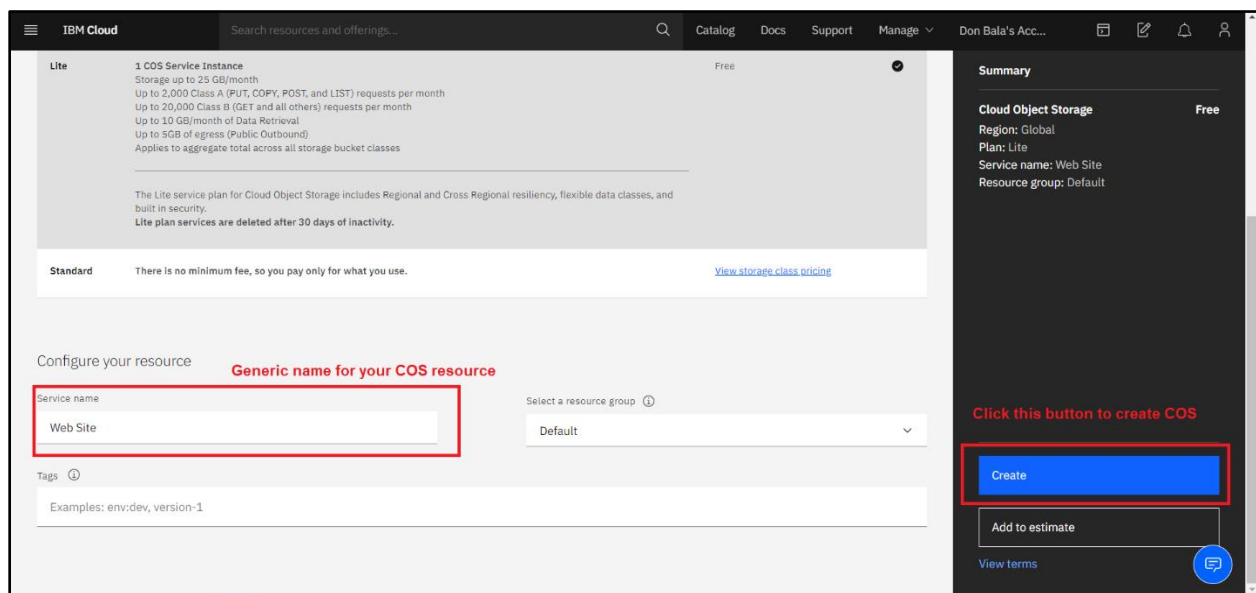
Task 4: Website to host Chatbot

IBM Cloud Object Storage (COS) is a scalable storage solution for cloud applications. Files are managed and stored in user defined collections called “buckets”. Bucket files are accessed directly from your browser.

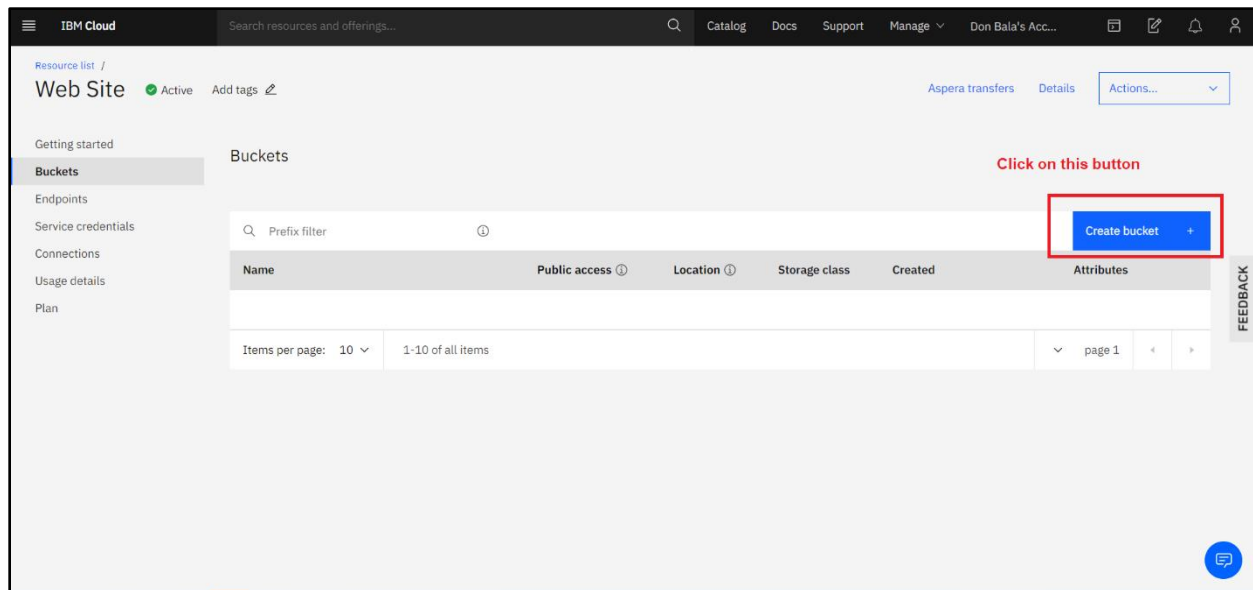
1. Set up a new instance of IBM Cloud Object Storage. Click on **Catalog**



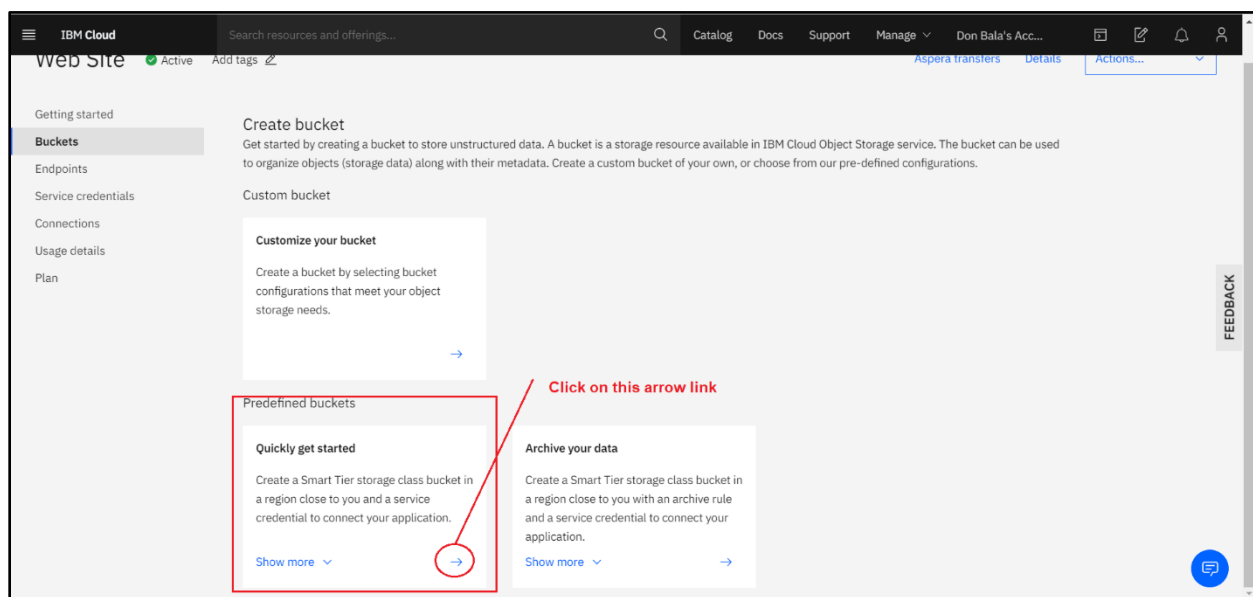
2. Provide a generic name for your COS resource. Suggestion is *Web Site*



3. Create IBM Cloud Object Storage Bucket by selecting the **Create Bucket** link.



4. Create a new COS bucket to host the static site files. Select the **Quickly get started** box



5. Name your new bucket. Suggestion is to your first/last name and has to be unique and is **case sensitive**. Please **remember or copy the name of the bucket** that you created as you will need it later to access the Chatbot site.

Resource list / Web Site Active Add tags

☒ Create bucket with credentials ☐ Upload files (objects) ☐ Test your bucket

Create bucket with credentials [View bucket details](#)

Create a Smart Tier storage class bucket in a region close to you and a service credential to connect your application

Unique bucket name [View naming rules](#)

gopi

Cancel Next

Bucket details

Quick start bucket presets

Bucket name
gopi

Resiliency
Regional

Location
eu-de

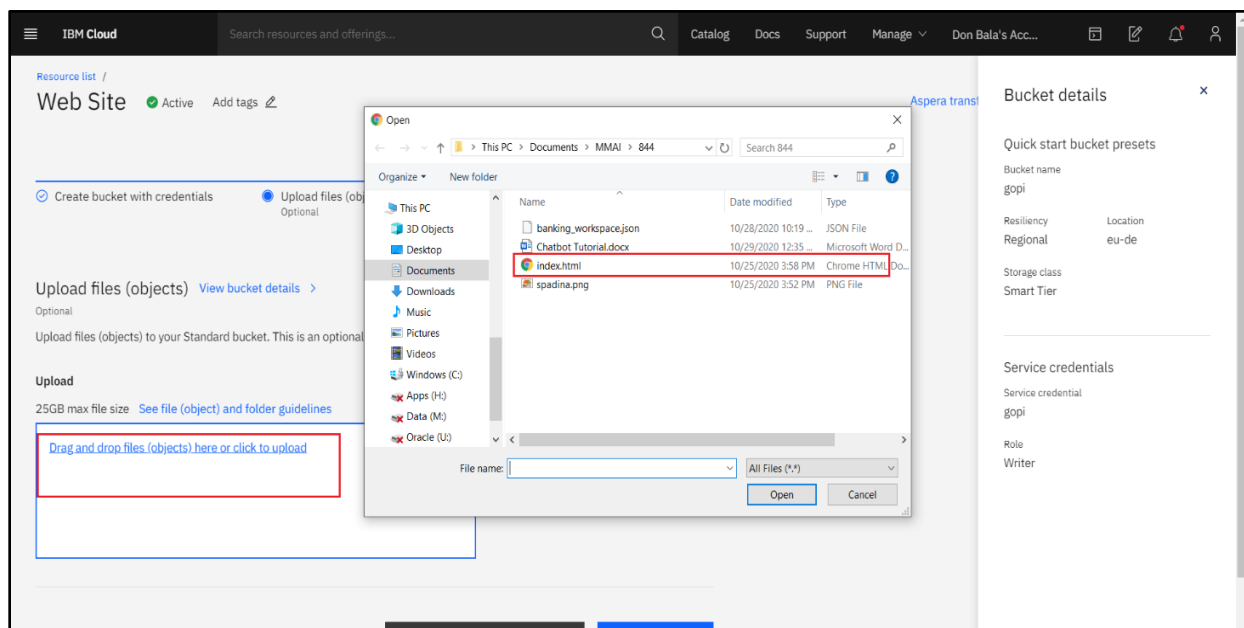
Storage class
Smart Tier

Service credentials

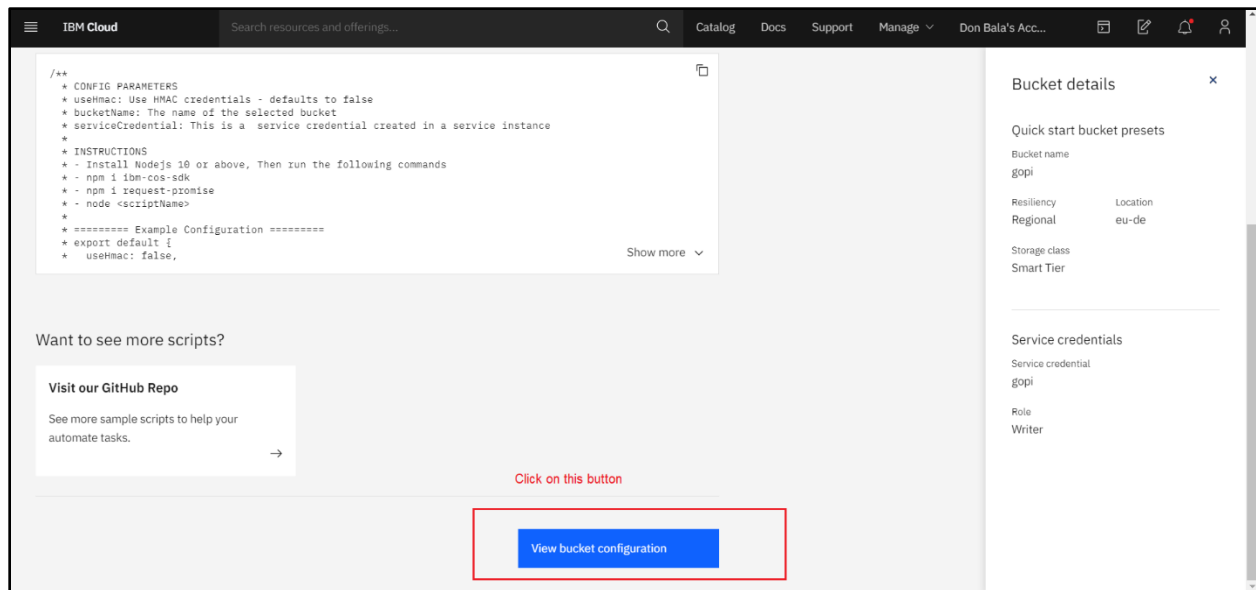
Service credential
gopi

Role
Writer

6. Upload your previously created **index.html** file to the new bucket.

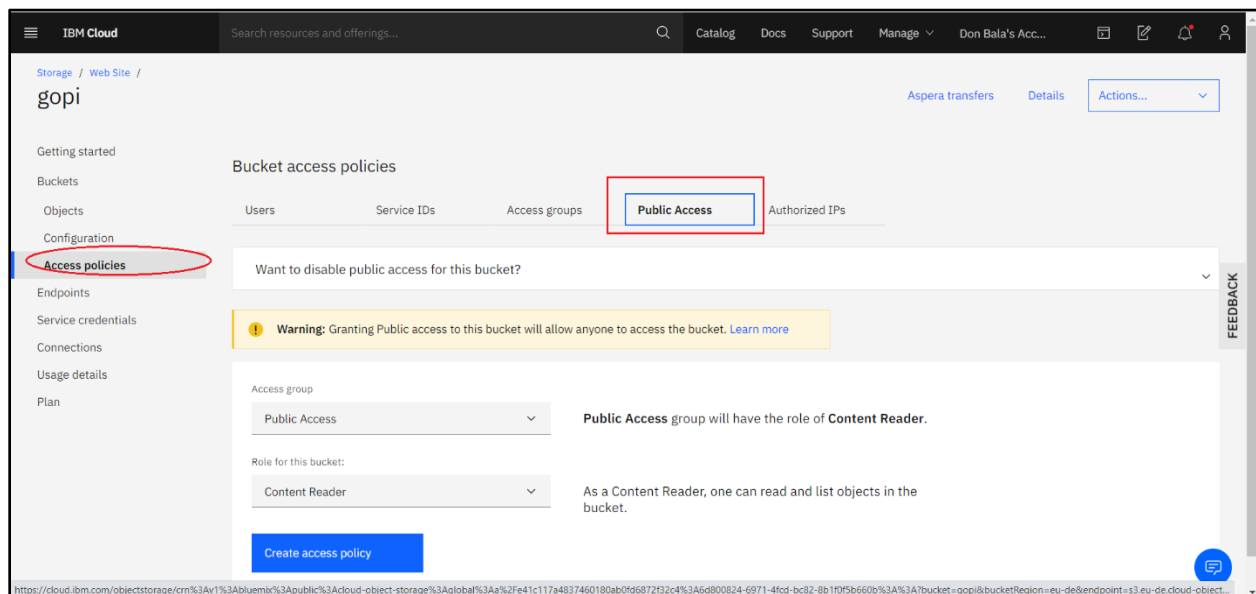


7. View Configuration

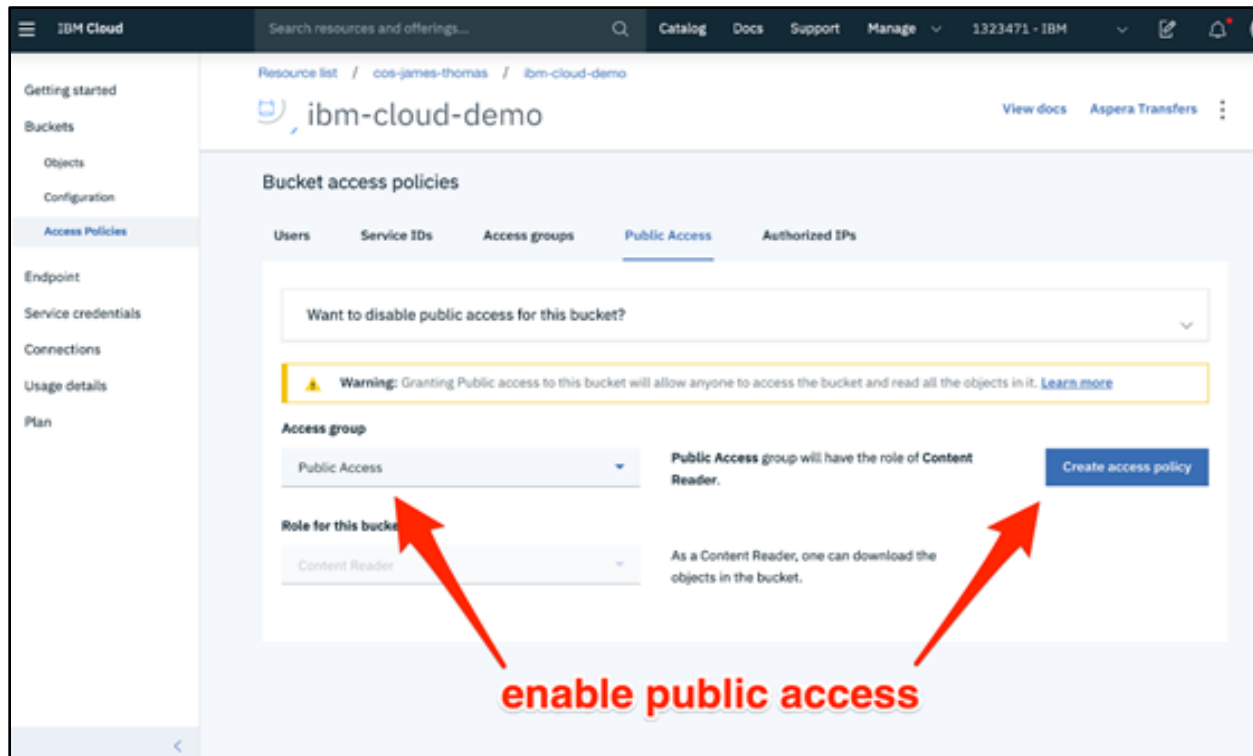


8. From the *Configuration* section, select **Access policies** > **Public Access**

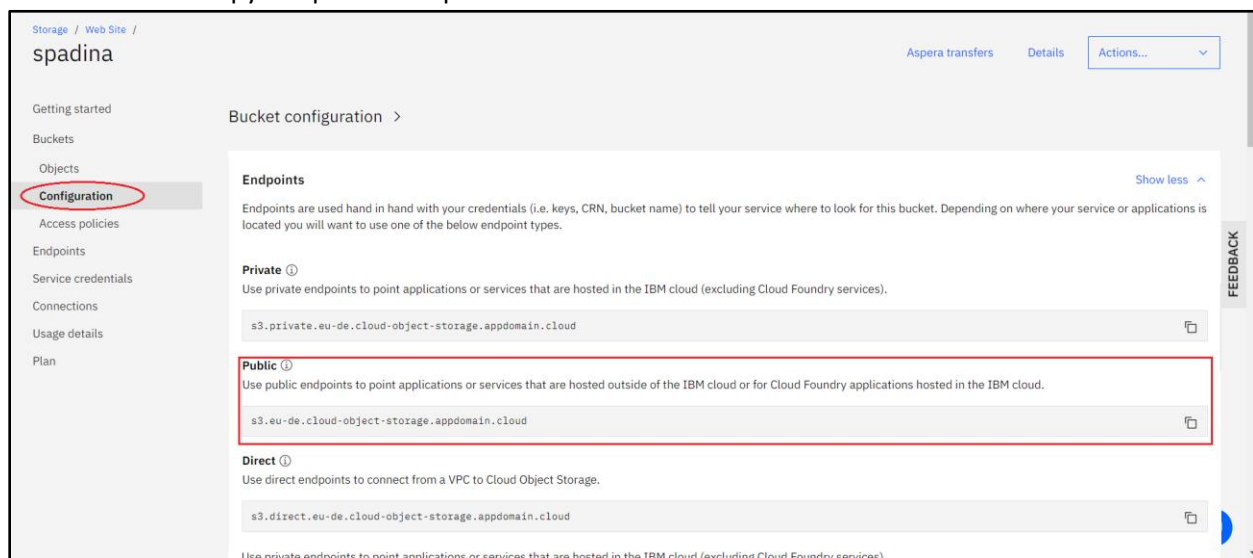
- Click the “Access Policies” menu item from the bucket level menu.
- Click the “Public Access” tab from the bucket access policy page.



9. Enable Public Access to bucket files.
 - a. Check the Access Group drop-down has “Public Access” option selected.
 - b. Click the “Create access policy” and then “Enable” on the pop menu.



10. Check bucket files are accessible. Bucket files should now be accessible using the service endpoint URL, bucket id and file names. COS supports providing the bucket name in the URL path or a sub-domain on the service endpoint.
 - a. Open the “Configuration” panel on the bucket page.
 - b. Copy the public end point from the **Public** section box as shown below



Chatbot Web Site

Bucket files (like the *index.html*) file previously created is now accessible via a web browser. COS supports both HTTP and HTTPS traffic. Bucket files are available using a URL developed by the following the instructions below.

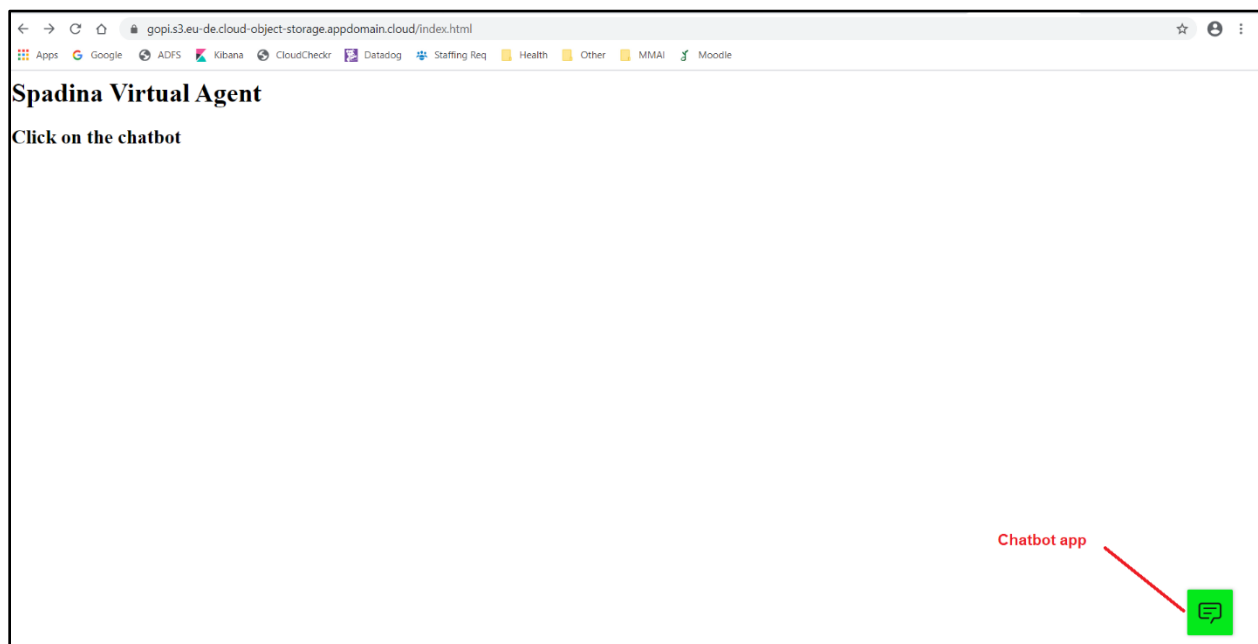
To access your chatbot you need to create your own individual URL. It consists of 3 parts:

- 1) Your bucket name from Task 4, step 5 on page 14 (in the example shown in the illustration this was *gopi*)
- 2) The public endpoint configuration from Task 4, step 10, page 16
- 3) The name of the file you uploaded in Task 4, step 6 on page 14. In the example this was *index.html*

Using the above example, the URL would be:

<http://gopi.s3.eu-de.cloud-object-storage.appdomain.cloud/index.html>

Please note that parts 1 and 3 above are case sensitive, so you must exactly match the names you used in previous steps.



Questions

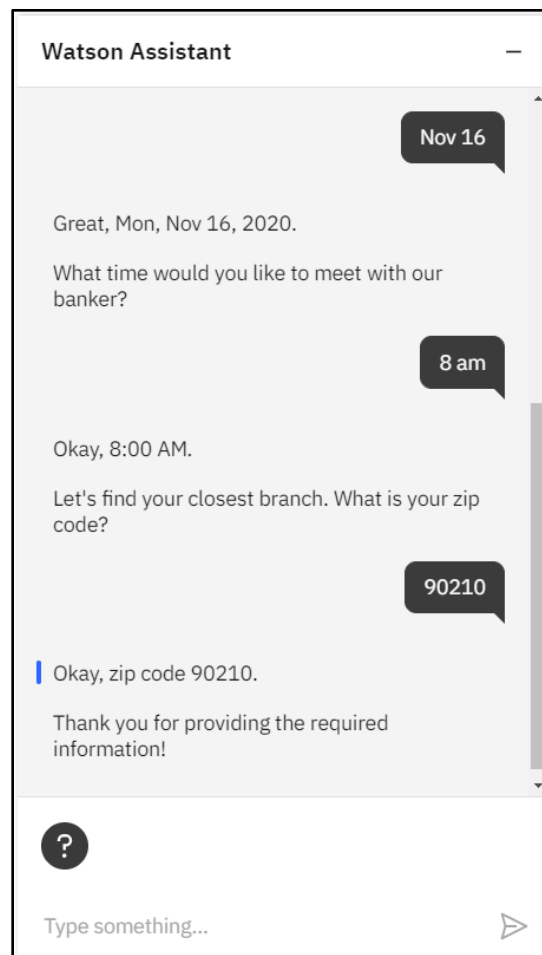
Here are some quick exercises to test your knowledge about the IBM chatbot that you have just created.

Part 1 – Booking an appointment

Refresh and reload the webpage hosting the chatbot. From the main screen, there are three available options: making a credit card payment, booking an appointment with a banker, and choosing a credit card. Using the second option, book an appointment with a banker for 8:00 am on Monday, November 16, 2020. When you are scheduling the appointment, use 90210 as the area code.

Once the appointment has been successfully created, attach a screenshot of your appointment.

Answer: Here is our result.



Part 2 – Intents

An *intent* is a group of examples of things that a user might say to communicate a specific goal or idea. For the purposes of this tutorial, the JSON file that you imported into the cloud contained all the intents of the Banking Agent chatbot. How many intents does the Bank Agent assistant have?

Hint: Look at the Dialog section of the Bank Agent Watson Assistant overview page on the IBM cloud website. Do not look through the JSON file and count all the intents.

Answer: Open your IBM Resource List (menu option available from IBM Cloud Dashboard Page). Open the Watson-Assistant service under the dropdown for Services in the Resource List. Launch the Watson Assistant and open the bank agent. In the dialog section you will see an overview of the assistant configuration. As seen in the figure below. The Bank Agent assistant has 99 intents.

Banking_Demo_Team_Spadina ⋮				
Credit Card Banking Support Agent to assist with Sales And Service				
LANGUAGE: English (US)	TRAINED DATA: 99 Intents 24 Entities 387 Dialog nodes	VERSION:	DESCRIPTION: ---	VERSION CREATED:
LINKED ASSISTANTS (1): Bank Agent				

Appendix

Intents

An *intent* is the goal of the purpose of the user's input. Adding examples to intents helps your virtual assistants understand different ways in which people would say them.

Start with “#”

The screenshot shows the IBM Watson Assistant interface. The top bar includes the 'IBM Watson Assistant' logo and 'Cookie Preferences'. The main header shows the breadcrumb 'Skills / Conversation / Build'. Below this, the 'Conversation' section is active, with tabs for 'Intents', 'Entities', 'Dialog', and 'Content Catalog'. The 'Intents' tab is selected, showing a table of intents. The table has columns for 'Intent (5)', 'Modified', 'In Conflict', and 'Examples'. Five intents are listed: #delivery_info, #flow_suggestions, #goodbyes, #greetings, and #thank_you, all modified 5 days ago. A sidebar on the left contains navigation icons, and a top bar shows 'IBM Watson Assistant' and 'Cookie Preferences'.

<input type="checkbox"/> Intent (5) ▼	Modified ▼	In Conflict	Examples
<input type="checkbox"/> #delivery_info	5 days ago		17
<input type="checkbox"/> #flow_suggestions	5 days ago		29
<input type="checkbox"/> #goodbyes	5 days ago		17
<input type="checkbox"/> #greetings	5 days ago		13
<input type="checkbox"/> #thank_you	5 days ago		8

Entities

An *entity* is a portion of user's input you can use to provide a different response to a particular intent. Adding values and synonyms to entities helps your virtual assistants learn and understand important details that your users mention.

Start with "@"

The screenshot shows the IBM Watson Assistant interface. The top navigation bar includes the IBM Watson Assistant logo, a Cookie Preferences link, and user icons. The main content area is titled 'Conversation' and has tabs for Intents, Entities (selected), Dialog, and Content Catalog. Under the Entities tab, there are sub-tabs for 'My entities' and 'System entities'. An 'Add entity' button is visible. Below it is a table listing entities.

<input type="checkbox"/>	Entity (5) ▼	Values	Modified ▼
<input type="checkbox"/>	@gender	non binary, female, male	5 days ago
<input type="checkbox"/>	@occasion	birthday, anniversary, Christmas, wedding	4 days ago
<input type="checkbox"/>	@relationship	wife, friend, husband, boyfriend, father, re	5 days ago
<input type="checkbox"/>	@relationship_wife		5 days ago
<input type="checkbox"/>	@response_types	negative, positive, uncertain	5 days ago

Dialog

Creating a dialog defines how your bot will respond to what the user is asking. Dialogues in Watson are defined through nodes. Each node has a name, a condition and one or more responses.

