

Lab 1: Build an Agent with wx.ai Agent Lab

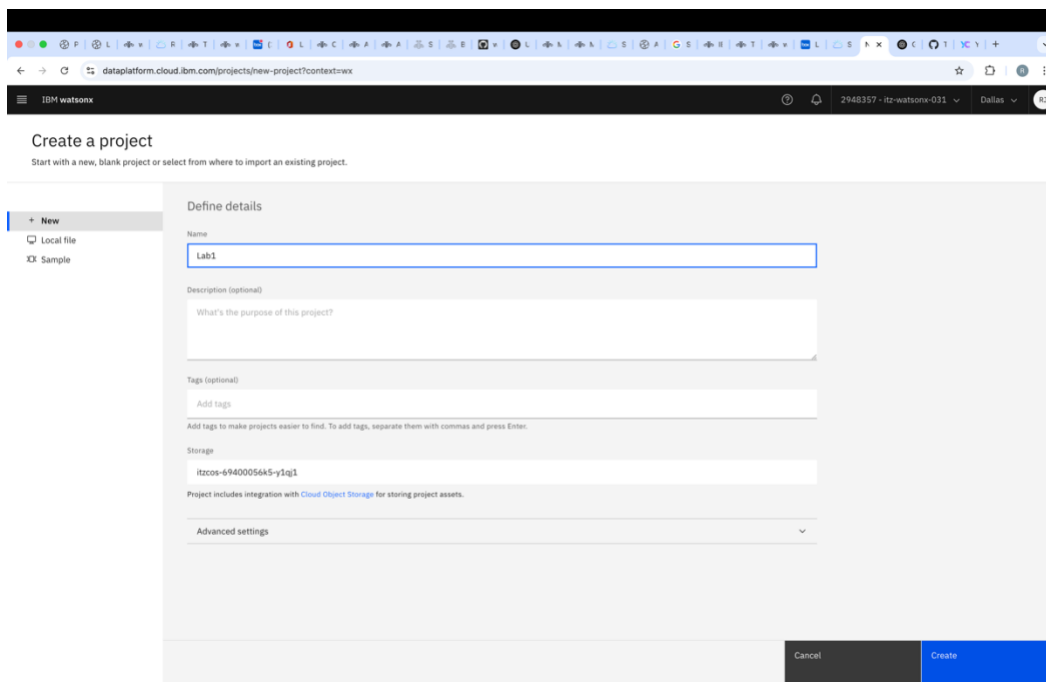
In this lab, you will build a **Supplier Researcher Agent** using **Watsonx.ai Agent Lab**. This agent will allow you to research the suppliers for procuring Xtralife based on past supplier performance, procurement rules and customer reviews.

Files used in lab can be downloaded from box folder “Lab 1”.

Steps to Create the Agent

Step 1: Create a Project

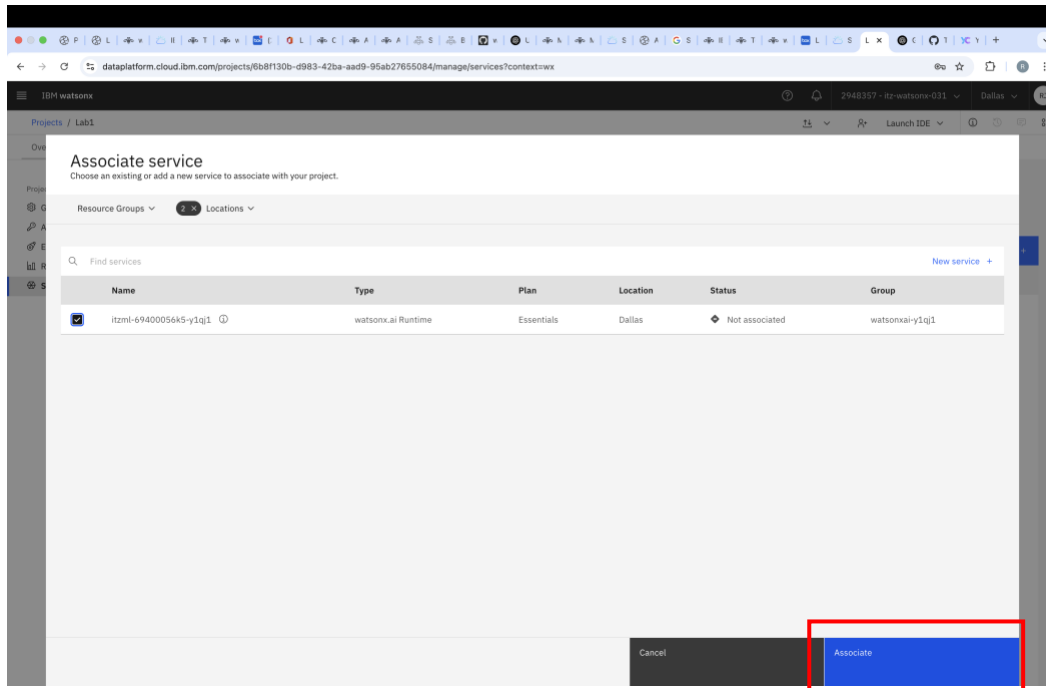
- If this is your first time using this account, you must create a project before using Agent Lab.



The screenshot shows the 'Create a project' interface in the IBM Watsonx portal. The browser address bar displays 'datapatform.cloud.ibm.com/projects/new-project?context=wx'. The page title is 'Create a project' with a subtitle 'Start with a new, blank project or select from where to import an existing project.' On the left, a sidebar contains a '+ New' button and two options: 'Local file' and 'Sample'. The main area is titled 'Define details' and contains several input fields: 'Name' (with 'Lab1' entered), 'Description (optional)' (with the placeholder 'What's the purpose of this project?'), 'Tags (optional)' (with an 'Add tags' button and a note to separate tags with commas), 'Storage' (with the value 'itzc0s-69400056A5-y1q1' and a note about Cloud Object Storage integration), and an 'Advanced settings' dropdown. At the bottom right, there are 'Cancel' and 'Create' buttons.

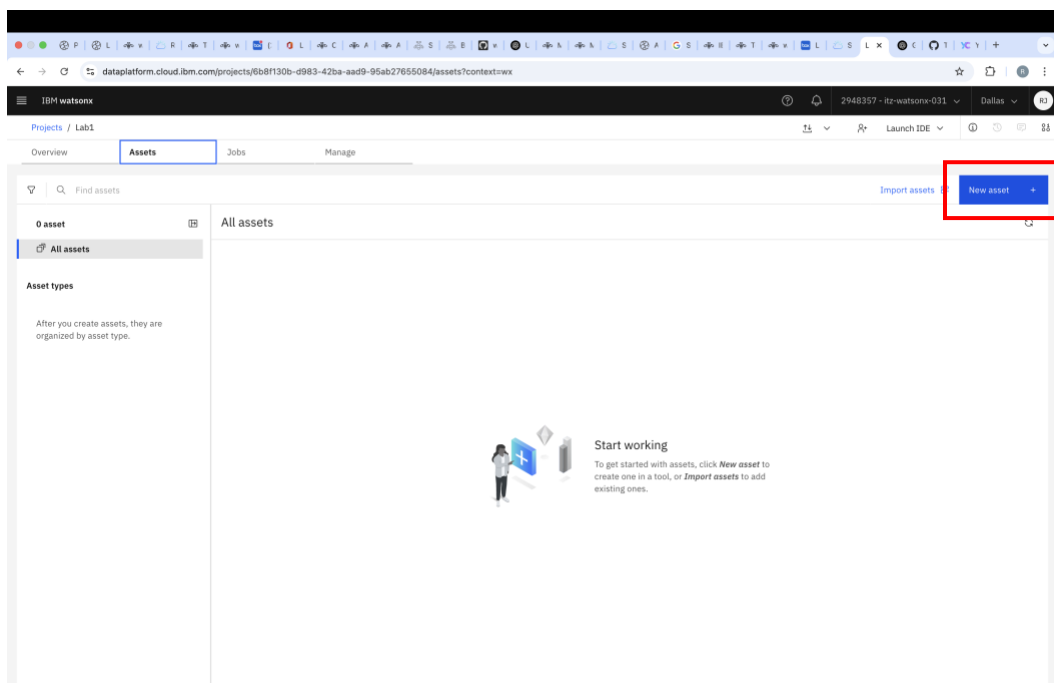
Step 2: Associate the Watsonx.ai Service

- After creating the project, navigate to **Manage** → **Services & Integrations** → **Associate Service**.
- Select **Watsonx.ai** and associate it with your project.



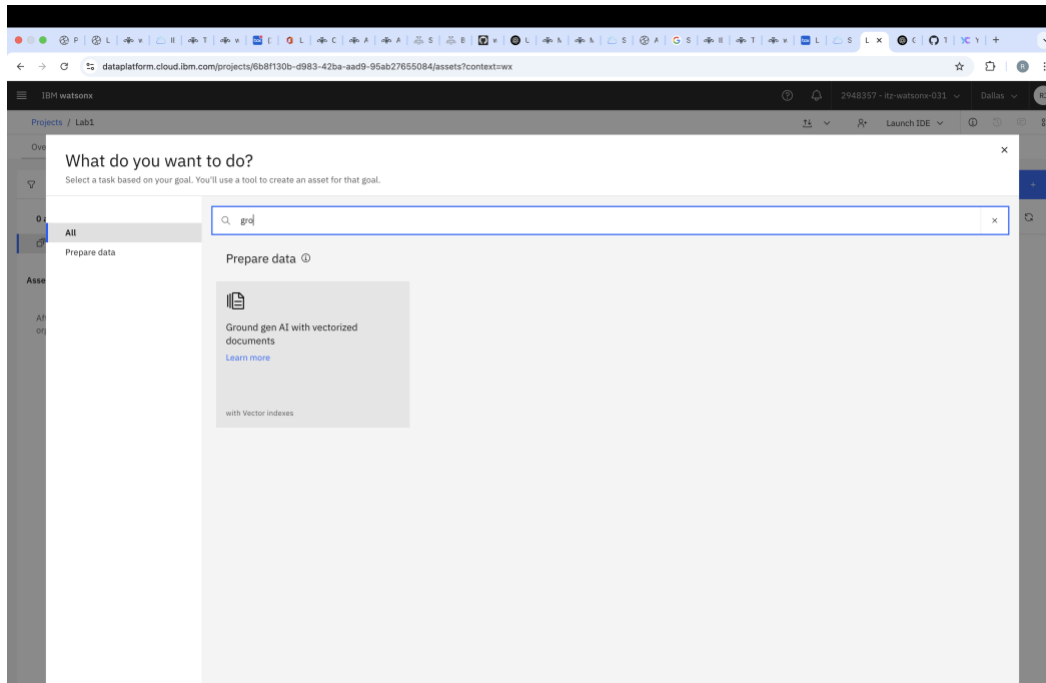
Step 3: Add a New Asset

- Go to the **Assets** tab and click **New Asset**.



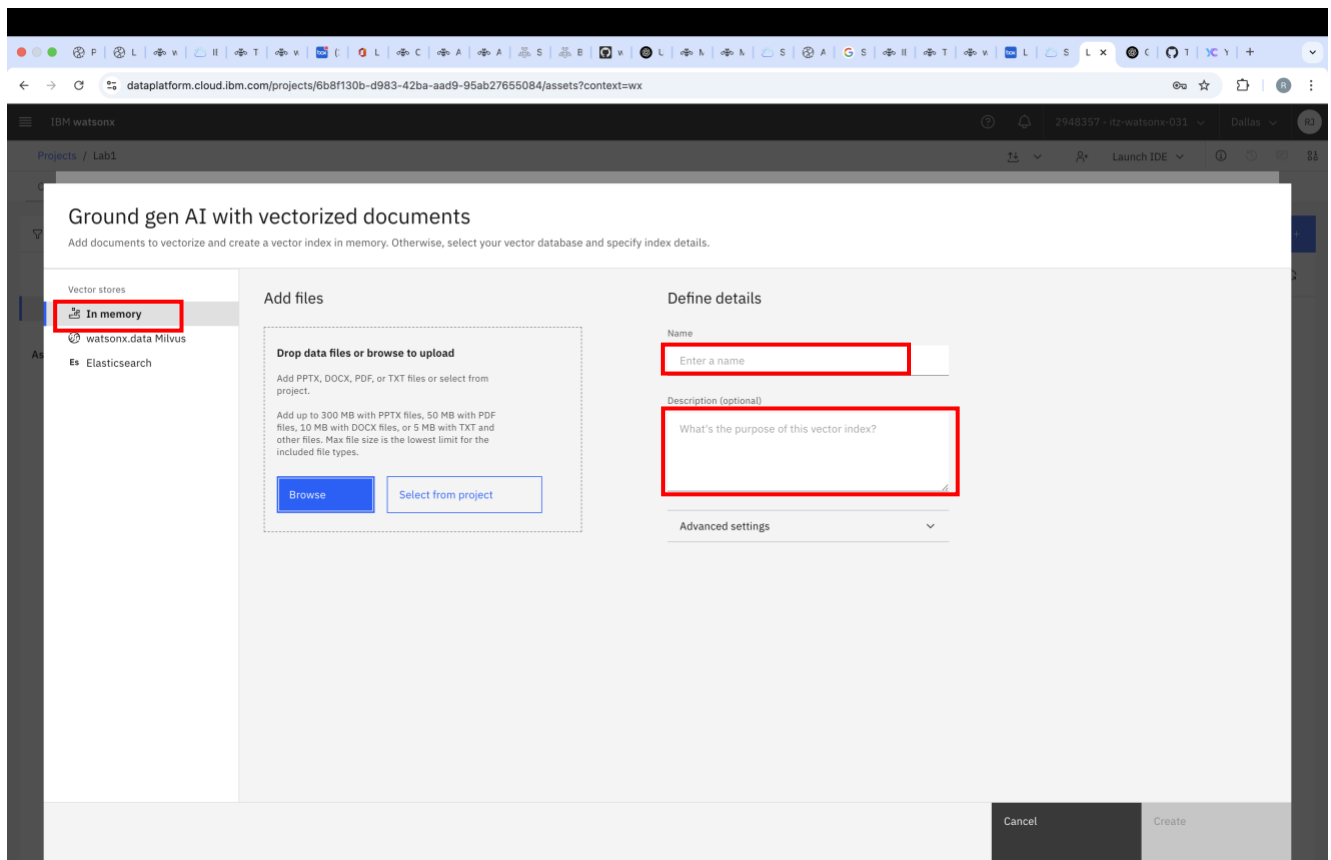
Step 4: Create an In-Memory Vector Store

- Search for "**Ground Gen AI with Vectorized Documents**" and click to create an **In-Memory Vector Store**.



Step 5: Choose the Vector Index Type

- Click on **Ground Gen AI with Vectorized Documents**.
- You will see three options to create a vector index:
 - **In-Memory**
 - **Watsonx.data (Milvus)**
 - **Elasticsearch (ES)**
- For this lab, select **In-Memory**.



Step 6: Upload Documents and Configure Indexing

- Upload input documents for vector index creation using the **Browse** option.
 - Procurement Requisition Rules.docx
 - Supplier Sales Report for Procurement.docx
- Assign a name to your vector index.
- Click on **Advanced Settings** to configure the following:
 - **Embeddings Model**: Choose “all-MiniLM-L6-v2” embedding model. There may be some variations in the embedding model names. (By default: granite-embeddings-107m-multilingual)
 - **Indexing Parameters** such as **Text Chunk Size** and **Text Chunk Overlap**, select the default values at this moment.
- Click **Create** to generate the vector index.

Add files

Drop data files or browse to upload

Add PPTX, DOCX, PDF, or TXT files or select from project.

Add up to 300 MB with PPTX files, 50 MB of PDF files, 50 MB of DOCX files, or 5 MB with TXT and other files.

Browse

Select from project

Supplier Sales Report for Procurement.docx

17.6KB

Procurement Requisition Rules.docx

17.7KB

Define details

Name

Procurement Rules

Description (optional)

What's the purpose of this vector index?

Advanced settings

Embeddings model

all-minilm-l6-v2

Select a model to compute vectors from text

Text chunk size

5005000

2000

Text chunk overlap

0250

200

Step 7: View Vector Index Details

- Once the index is created, a summary screen will display all configured details.

IBM watsonx

Projects / Lab2 / input_data

Details

Sample questions

Test

Vector index details

Vector store	In memory
Embeddings model	Xenova/all-MiniLM-L6-v2
Settings	Text chunk size: 2000 Text chunk overlap: 200 Split PDF: On

Data included in vector index

Search data

Name	Size
Procurement Requisition Rules.docx	17.7KB
Supplier Sales Report for Procurement.docx	17.6KB

About this asset

Name

input_data

Vector index

Description

What's the purpose of this asset?

Asset details

Vector store

In memory

Data

2 files

Last modified

Now by Ridha Juneja

Created on

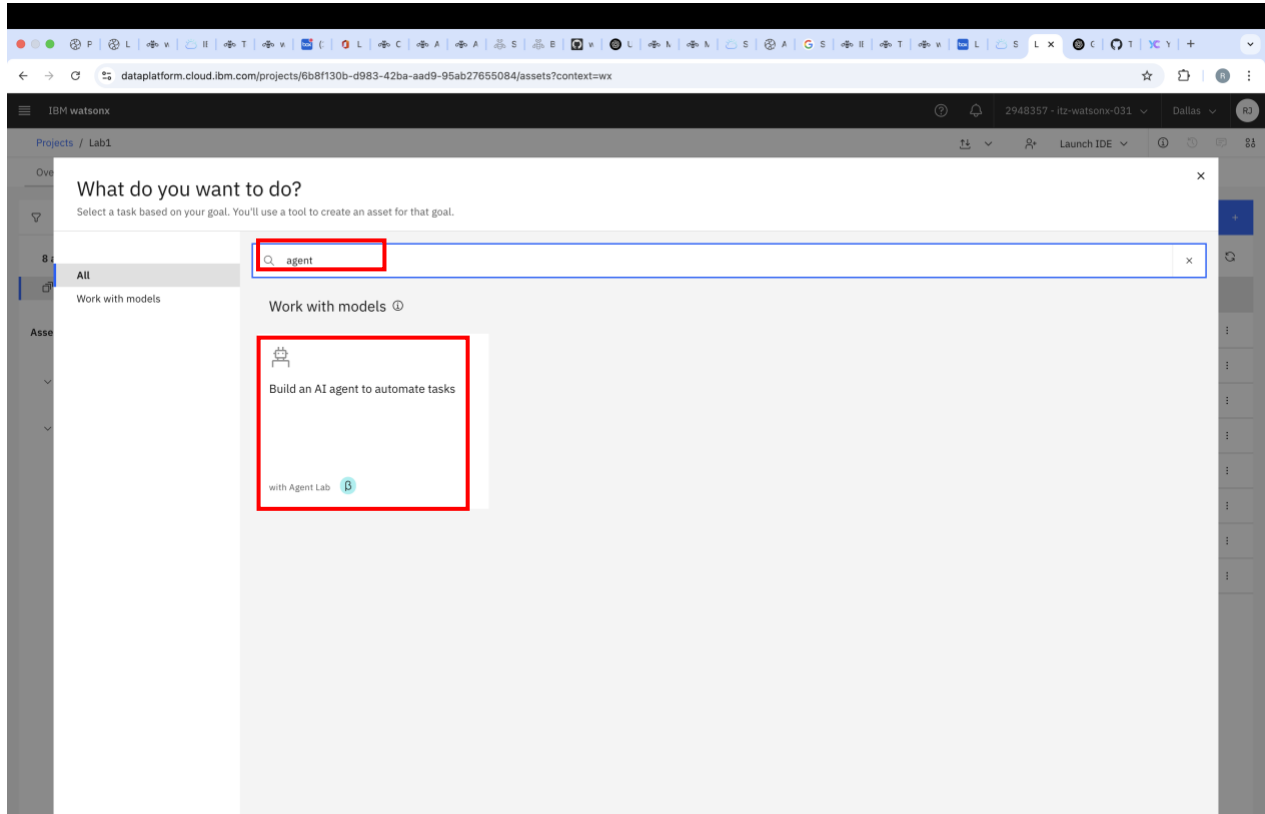
Now by Ridha Juneja

Open in Prompt Lab

Now, go back to your “Project/Assets” to proceed further to the next step.

Step 8: Create an AI Agent

- Click on **New Asset at the left** and search for "**Build an AI Agent to Automate Tasks**". Click on the "Build an AI agent to automate tasks".



Step 9: Name Your AI Agent

- Click **Build an AI Agent to Automate Tasks** and assign a name to your agent.

The screenshot displays the IBM watsonx Agent Lab interface. The left sidebar shows the 'Build' tab selected. The main content area is divided into two sections: 'Build' and 'Agent preview'.

Build Section:

- Model:** llama-3-3-70b-instr (highlighted with a red box)
- Framework:** langGraph (highlighted with a red box)
- Architecture:** ReAct (highlighted with a red box)
- Instructions:** You are a helpful assistant that uses tools to answer questions in detail. When greeted, say "Hi, I am watsonx.ai agent. How can I help you?" (highlighted with a red box)
- Tools:** A button 'Add a tool' and a text input 'Create custom tool' are visible. Below, under 'Added tools (1)', there is a 'Google search' tool with the description 'Retrieve information from the internet with the Google search engine.'

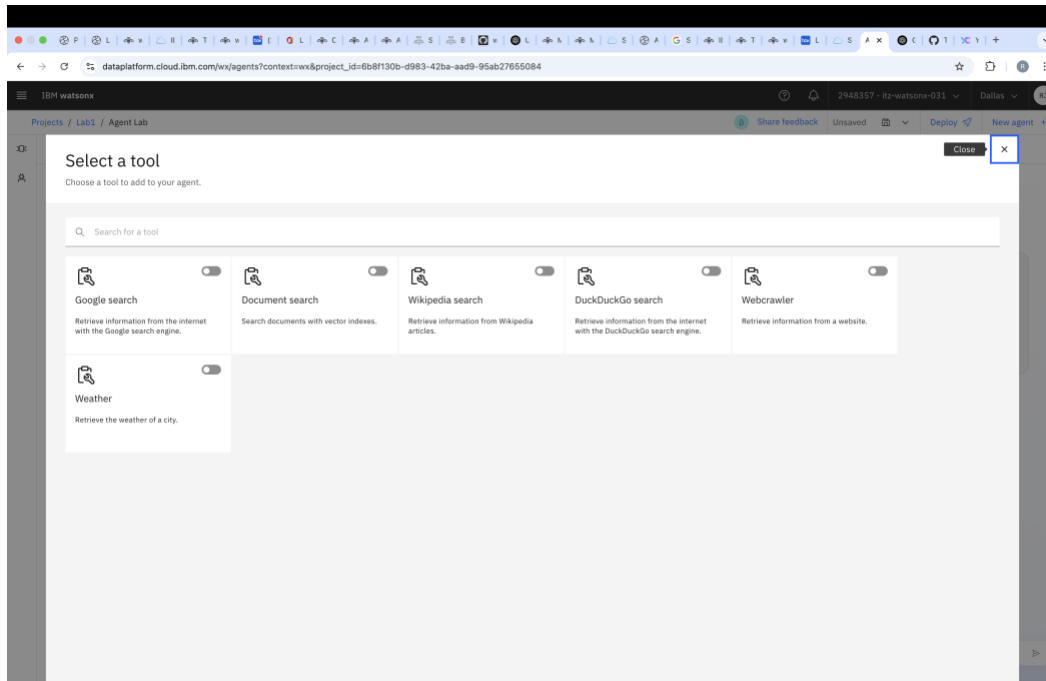
Agent preview Section:

- watsonx Agent 06:22 PM**
- Welcome to watsonx Agent**
- Change this description to reflect your particular agent**
- A diagram showing a flowchart with a green circle and a blue magnifying glass icon.
- A text input field at the bottom with the placeholder 'Type something...'

You can see the information about the LLM, Framework, Architecture etc for your own understanding.

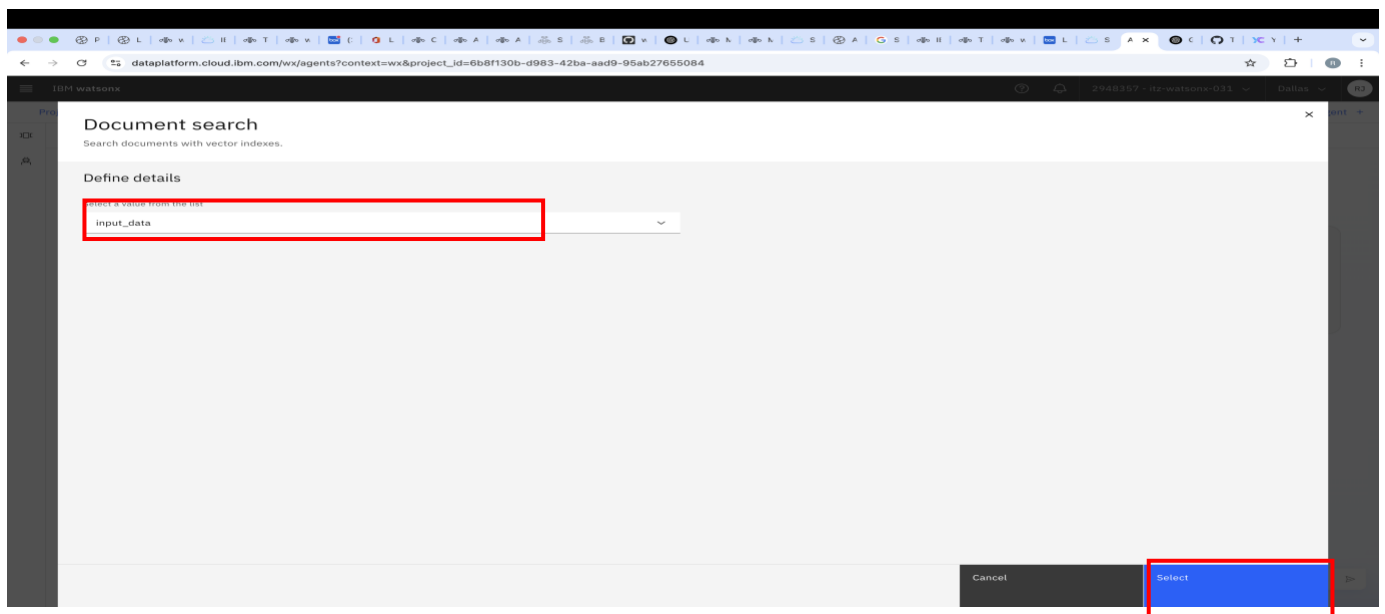
Step 10: Add Tools to the Agent

- Click on **Add Tool** to open a selection panel.



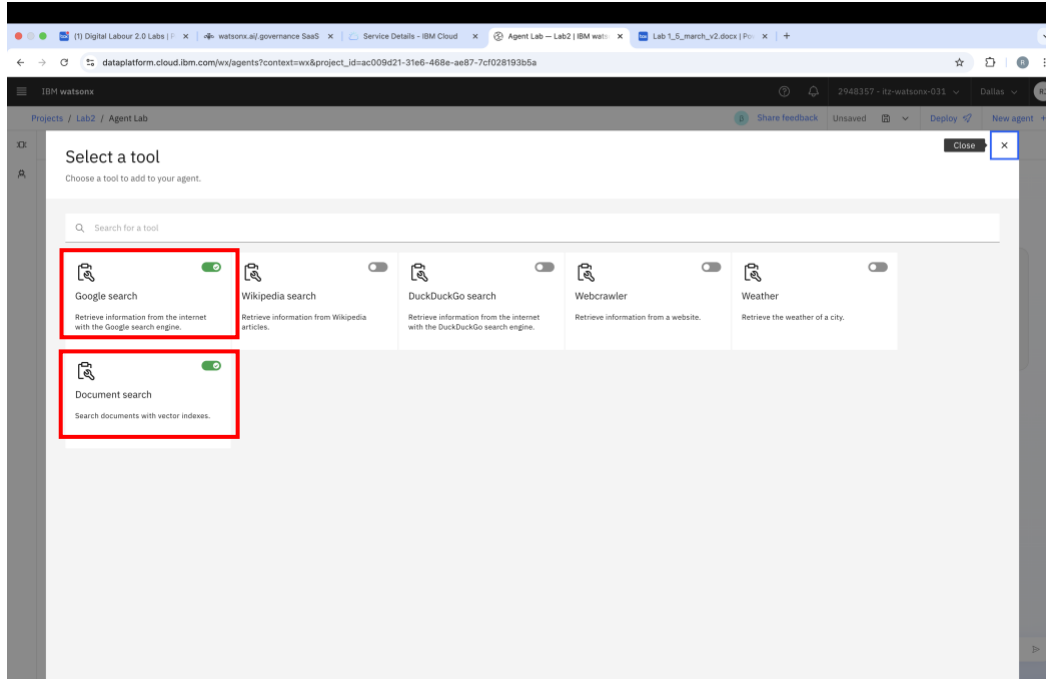
Step 11: Link the Vector Index

- Toggle **Document Search** to enable it.
- In the dropdown menu, select the **vector index** you created earlier.
- Click **Select** to confirm.



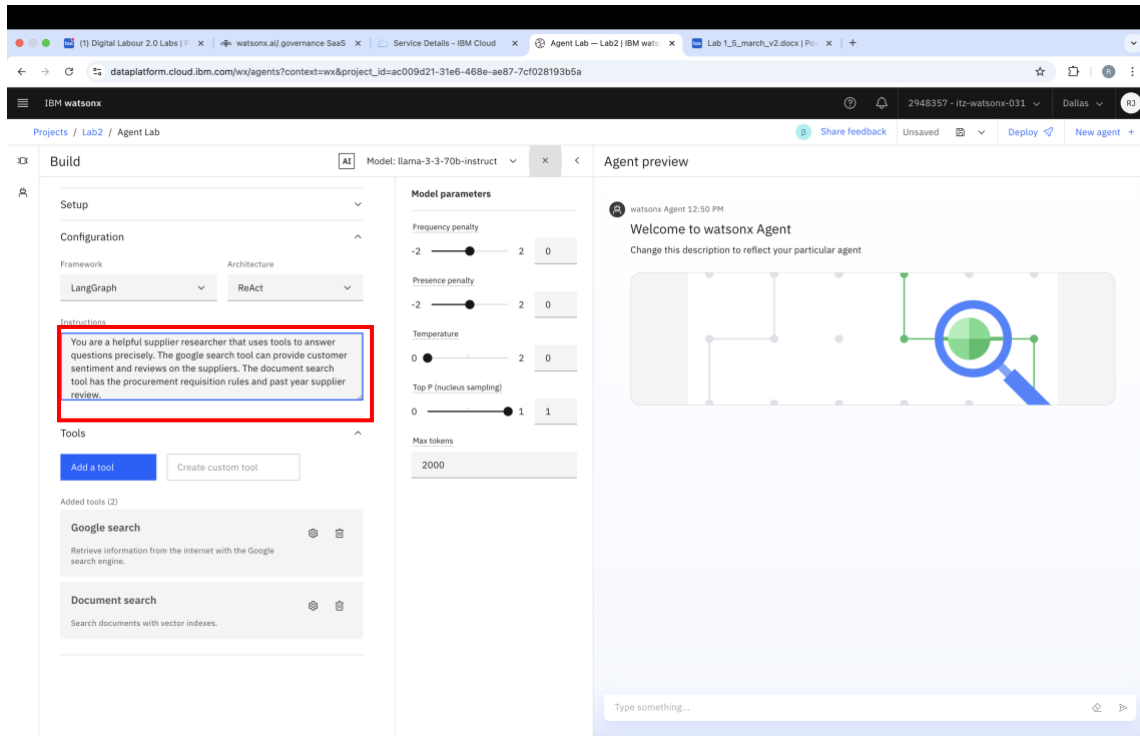
Step 12: Add Additional Tools

- Enable the **Google Search Tool** as an additional tool for your agent.
- The tool panel will now display both **Document Search** and **Google Search Tool**.
- Close the window to proceed further.



Step 13: Configure the Agent Model and Parameters

- Adjust the foundational model, prompt and other configuration parameters as needed.
- Prompt: You are a helpful supplier researcher that uses tools to answer questions precisely after doing thorough research on google and document search. The google search tool can provide customer sentiment on the suppliers. The document search tool has the procurement requisition rules and past year supplier review.



Step 14: Test Your AI Agent

- Start querying your agent with example questions, such as:
 - *"Which supplier out of Excelentia Supplies and Global Office Supplies is viable to buy product Xtralife from. Give a list of pros and cons of each supplier"*
 - *"Which supplier should i choose? i want an urgent delivery."*

The screenshot shows the IBM Watsonx Agent Lab interface. On the left, the 'Build' tab is active, displaying the 'Setup' section with 'LangGraph' as the framework and 'ReAct' as the architecture. The 'Instructions' section contains a prompt: 'You are a helpful supplier researcher that uses tools to answer questions precisely. The google search tool can provide customer sentiment and reviews on the suppliers. The document search tool has the procurement requisition rules and past year supplier review.' The 'Tools' section lists 'Google search' and 'Document search'. On the right, the 'Agent preview' section shows a welcome message and a diagram of the agent's workflow. A red box highlights the input prompt: 'Which supplier out of Excelentia Supplies and Global Office Supplies is viable to buy product Xtralife from. Give a list of pros and cons of each supplier'.

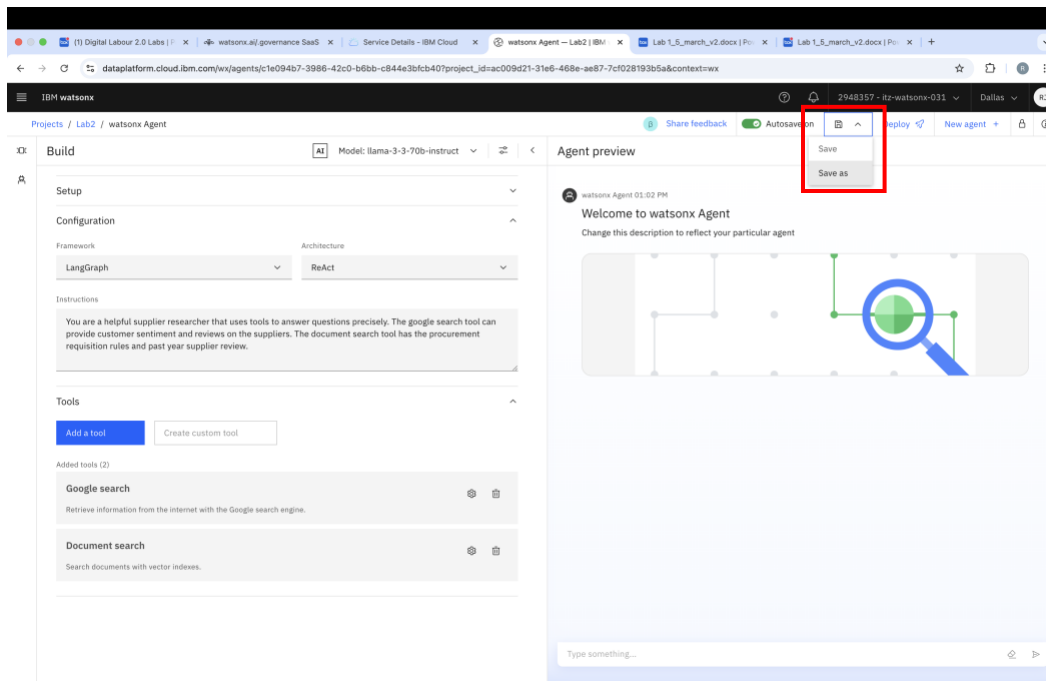
Step 15: View the Agent's Response

- The AI agent will generate a response based on the indexed data.

The screenshot shows the IBM Watsonx Agent Lab interface. On the left, the 'Build' tab is active, displaying the 'Setup' section with 'LangGraph' as the framework and 'ReAct' as the architecture. The 'Instructions' section contains a prompt: 'You are a helpful supplier researcher that uses tools to answer questions precisely. The google search tool can provide customer sentiment and reviews on the suppliers. The document search tool has the procurement requisition rules and past year supplier review.' The 'Tools' section lists 'Google search' and 'Document search'. On the right, the 'Agent preview' section shows the agent's response to the input prompt. A red box highlights the response text, which includes a summary of the search results and a list of pros and cons for each supplier.

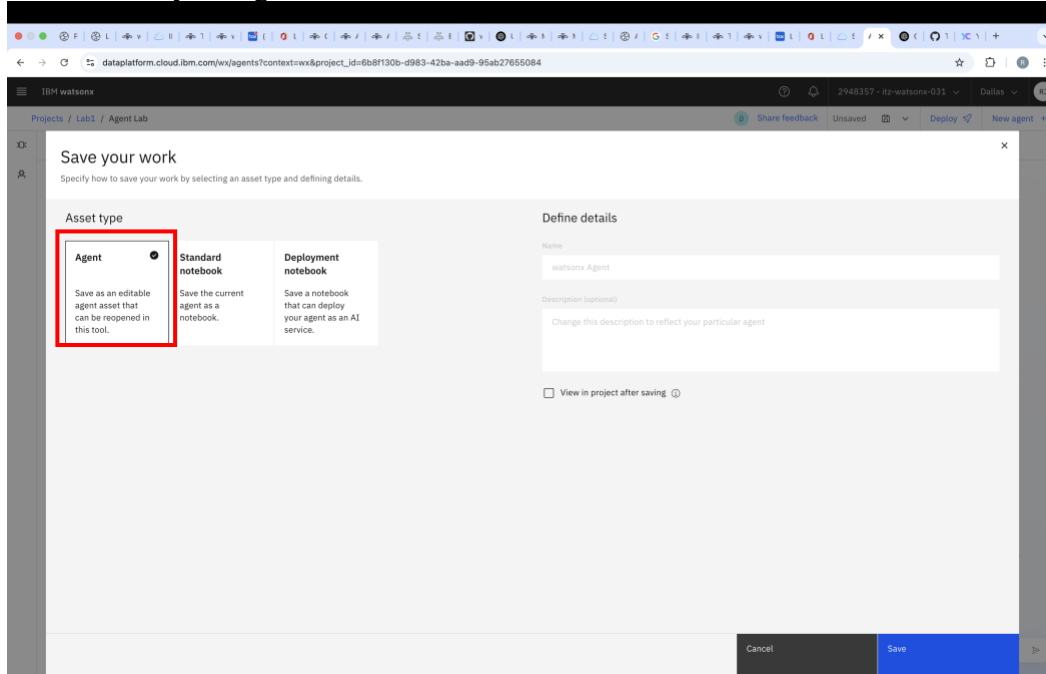
Step 16: Save Your Agent

- Click **Save As** to store your agent configuration.



Step 17: Export the Agent

- Save your agent as a **notebook** or an **editable** file for future modifications.

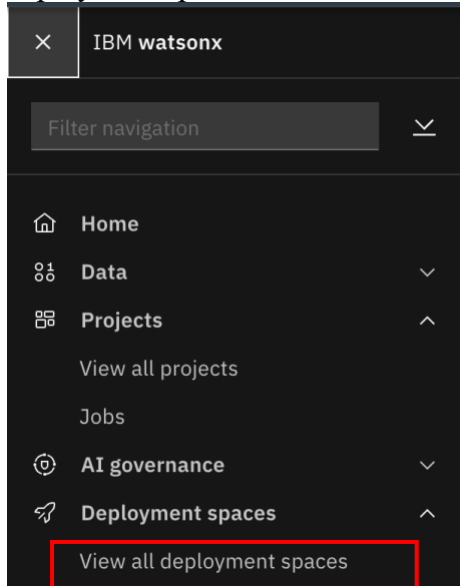


=====READ ONLY SECTION=====

Continue if time permits during workshop

Step 18 :Deploy the Agent

- From the left-hand hamburger menu, look for Deployment spaces >> View all deployment spaces and click “View all deployment spaces”



- On the top right corner, click on “New Deployment Space +”
- Fill in the relevant details as shown in the image below

Define details

Name

SY deployment space

Description (Optional) 0/100

What's the purpose of this space?

Deployment stage ⓘ

Development

Tags (optional)

Find or create tags

Add tags to make assets easier to find

Storage

cos-itz-wxo-683d0c3fc37d1f363a705e

Space will include integration with [Cloud Object Storage](#) for storing space assets.

Watson Machine learning (optional)

wml-itz-wxo-683d0c3fc37d1f363a705e

- Click “Create” and the system will create your deployment space in a few minutes.

0/100

The space is being prepared...

The space "SY deployment space" is being created.

Step 1 of 1. Creating deployment space.

View new space

- You can click on “View New Space”

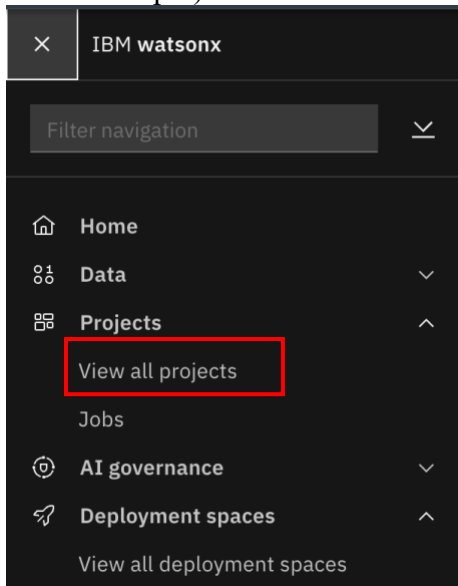
The space is ready

Click **View new space** to view the space and associated assets.

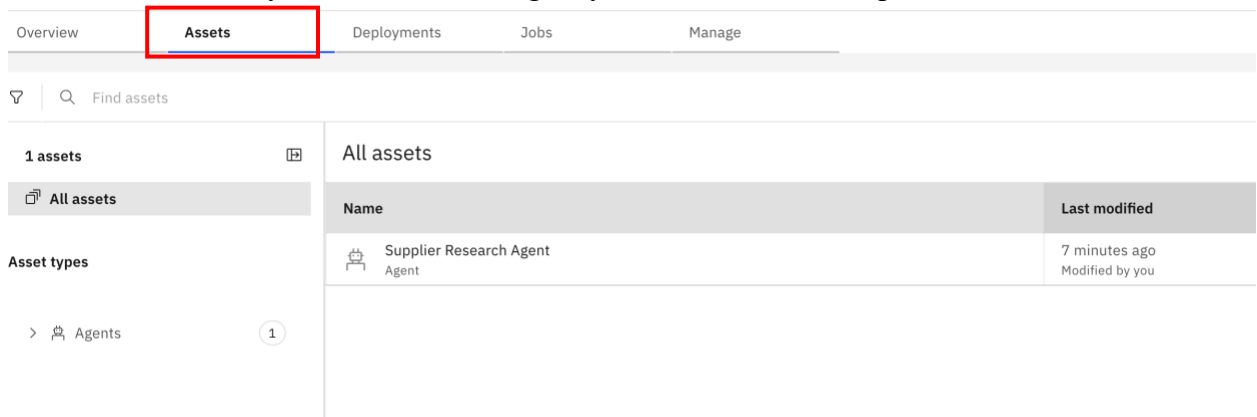
Step 1 of 1. Creating deployment space.

View new space

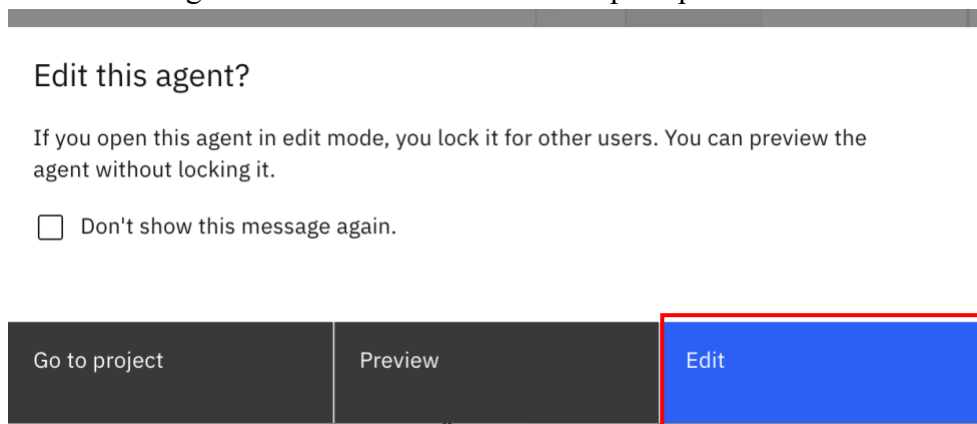
- From the hamburger menu, click on “View all projects” and Select your project (the name in step 1).



- Select “Assets” and you should see the agent you’ve saved from Step 16.



- Click on the agent asset and click “Edit” when prompted



- Now on the top right, click on Deploy

- Click on the “Create” to create an API Key

Deploy as an AI service

Create an online deployment. If you want to edit code in notebook format before deploying, save as a deployment notebook. [Learn more.](#)

You must create a user API key. Click Create to open the API key page in a new tab.

Create

Define details

Deployment name

Supplier Research Agent

Target deployment space

Target deployment space

Why don't I see all of my spaces? ⓘ

Description (optional)

Research for suppliers

☒ View in space after deploying ⓘ

Cancel

Deploy

- Another tab will open with the below page. Click on “Create a key”

Profile


Git integrations

User API key

User API key

A user API key is required to authenticate runtime operations in IBM watsonx. Rotate keys as needed to create a new key and phase out the current key. [Learn more](#)

Create a key +

Name	Creation date	Status
<div><div></div><div><div>Start by adding a user API key.</div><div>Click Create a Key to add a user API Key.</div></div></div>		

- You will see the page changed to the below.

✓ **User API key is successfully created.** Your new key is stored in IBM watsonx and IBM Cloud. ✕

ser API key

user API key is required to authenticate runtime operations in IBM watsonx.
 State keys as needed to create a new key and phase out the current key. [Learn more](#)

Name	Creation date	Status
cpd-apikey-IBMid-69200052KQ-2025-06-09T06:05:08Z	June 9, 2025 at 2:05:08 PM	Active

Rotate

- Return to the previous tab and choose the deployment space you've created, and click "Deploy"

Define details

Deployment name

Supplier Research Agent

Target deployment space

Target deployment space

SY deployment space

- The deployment process will take a few minutes. Once the deployment has started, you will see the below message. Click on "View Status".

β Share feedback Unsaved Deploy New agent +

Deployment has started

Your AI service deployment has started.

[View status](#)

Your AI service deployment has started. View status

gent

t your particular agent

- You will now be in the deployment page.

SY deployment space

Overview

Assets

Deployments

Jobs

Manage

Search



Name	Type	Status	Asset	Asset type	Tags	Last modified
<div><div></div><div>watsonx Agent</div></div>	Online	<div><div></div>Initializing</div>	watsonx Agent	Ai service	<div>wx-agent</div> <div></div>	44 seconds ago Suk Yee Gong (You)

- Wait a few minutes for the status to be “Deployed”

SY deployment space

OverviewAssetsDeploymentsJobsManage

Search

Name	Type	Status	Asset
 watsonx Agent	Online	 Deployed	watsonx Agent

- Click on the Agent

<div> Search </div>
<div> <div>Name</div> <div> watsonx Agent </div> </div>

- You will now see the details of deployed agent.
Keep the Public endpoint handy (copy and paste it somewhere you can access it)

watsonx Agent ✓ Deployed Online

API reference Test Preview

Endpoints for inferencing ⓘ

Private endpoint

Bearer token IAM

`https://us-south.ml.cloud.ibm.com/ml/v4/deployments/a861dac9-de90-4669-b89a-cf4f3632b2d8/ai_service?version=2021-05-01`

`https://us-south.ml.cloud.ibm.com/ml/v4/deployments/a861dac9-de90-4669-b89a-cf4f3632b2d8/ai_service_stream?version=2021-05-01`

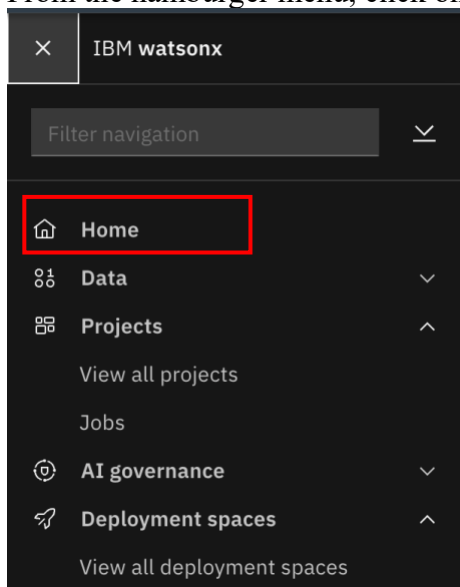
Public endpoint

`https://us-south.ml.cloud.ibm.com/ml/v4/deployments/a861dac9-de90-4669-b89a-cf4f3632b2d8/ai_service?version=2021-05-01`

`https://us-south.ml.cloud.ibm.com/ml/v4/deployments/a861dac9-de90-4669-b89a-cf4f3632b2d8/ai_service_stream?version=2021-05-01`

Copy and paste this somewhere

- We will also need to create an IBM Cloud API Key.
- From the hamburger menu, click on “Home”



- Scroll down the page until you see the Developer access. Click on Create API Key.

Developer access ⓘ

Project or space: Auto AI ▼ Project ID: dbcf1327-2b8b-444d-81e3-3194e0c4c20e ⓘ

watsonx.ai URL: https://us-south.ml.cloud.ibm.com ⓘ

Used to call watsonx.ai APIs such as LLM inferencing, embedding, training, and chatting.

Create API key + [Manage IBM Cloud API keys](#) →

- Enter a name and click on “Create”

Create API key ✕

You need an IBM Cloud API key to create the IAM bearer token for authenticating your API requests. [Learn more](#)

Name: sy-api-key ⓘ

Description (optional): Enter name

Choose what to do if this key is leaked:

☒ Disable the leaked key
☐ Delete the leaked key
☐ Nothing

Cancel **Create**


- Copy and the value and keep it handy for our next lab.

API key successfully created ✕

Copy the API key or click download to save it. You won't be able to see this API key again, so you can't retrieve it later. The API key is no longer displayed after (293) seconds.

API key: ⓘ

Copy ⓘ [Download](#) ⬇

 **Congratulations! You have successfully created an AI-powered Supplier Research Agent. Happy Coding!** 