

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

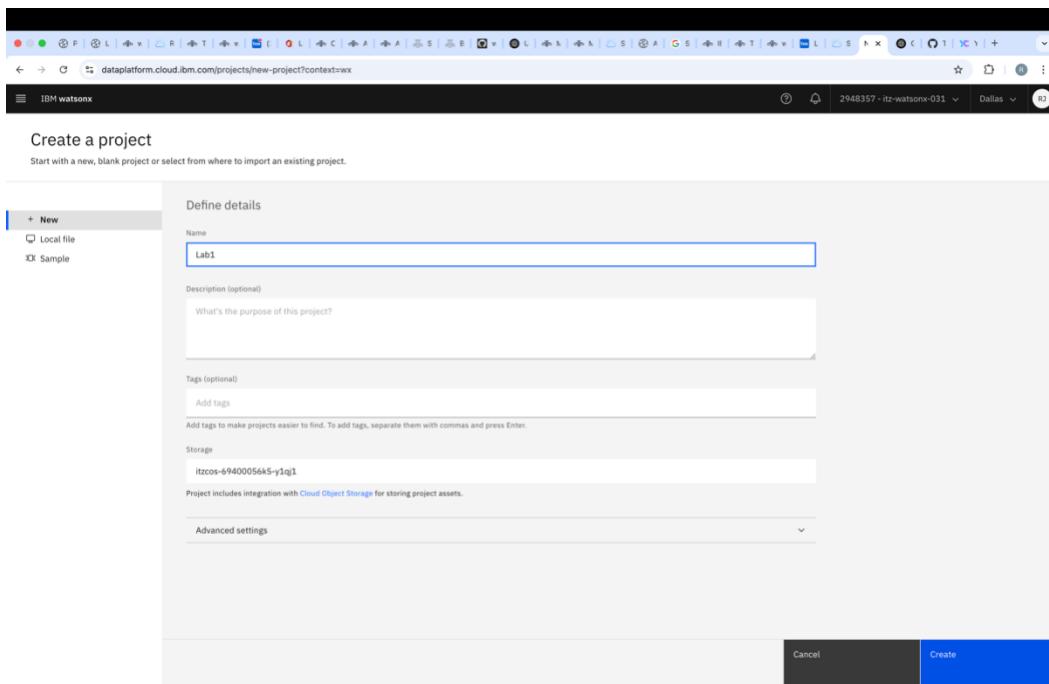
In this lab, you will build a **Supplier Researcher Agent** using **Watsonx.ai Agent Lab**. This agent will allow you to research the suppliers for procuring Xtralife based on past supplier performance, procurement rules and customer reviews.

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.



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.

The screenshot shows the 'Associate service' dialog box. It lists a single service entry: 'itxml-69400056k5-y1qj1' of type 'watsonx.ai Runtime'. The status is 'Not associated'. A red box highlights the 'Associate' button at the bottom right of the dialog.

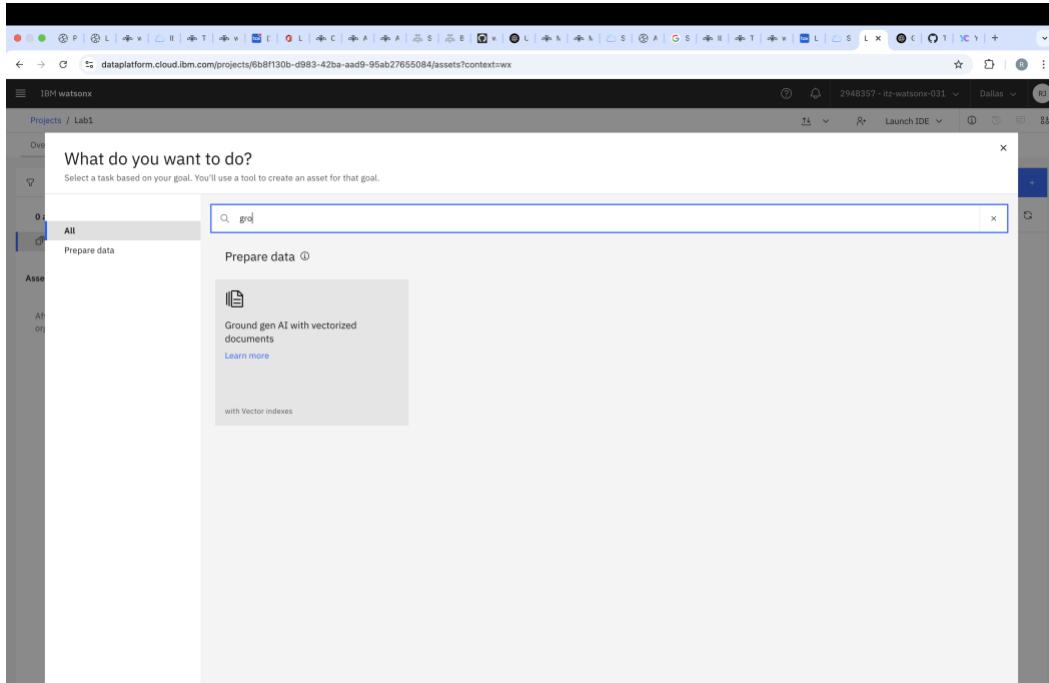
Step 3: Add a New Asset

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

The screenshot shows the 'Assets' tab selected in the navigation bar. A red box highlights the 'New asset' button located in the top right corner of the main content area. Below the button, there is a 'Start working' section with instructions and icons.

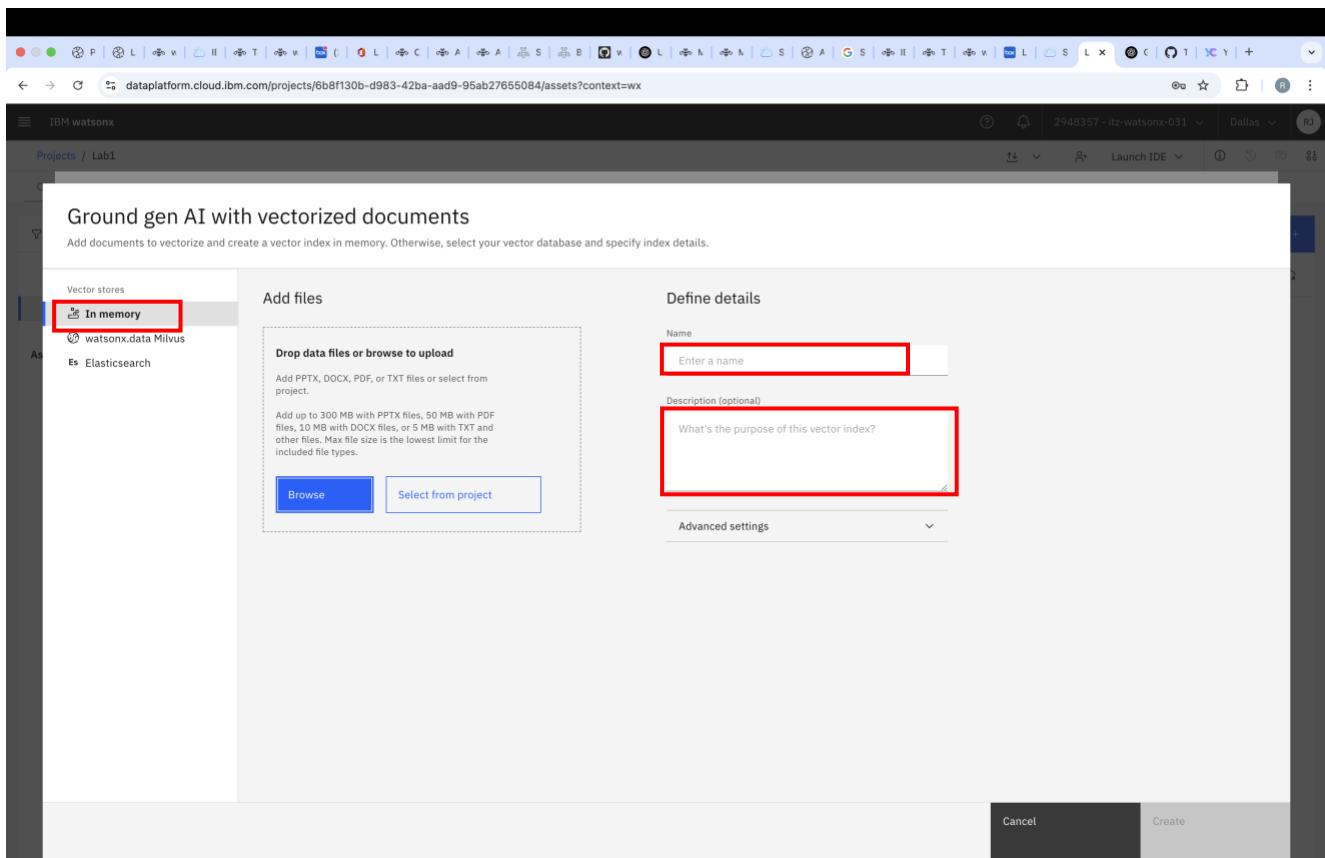
Step 4: Create an In-Memory Vector Store

- 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

500 — [Slider] — 5000 2000

Text chunk overlap

0 — [Slider] — 250 200

Step 7: View Vector Index Details

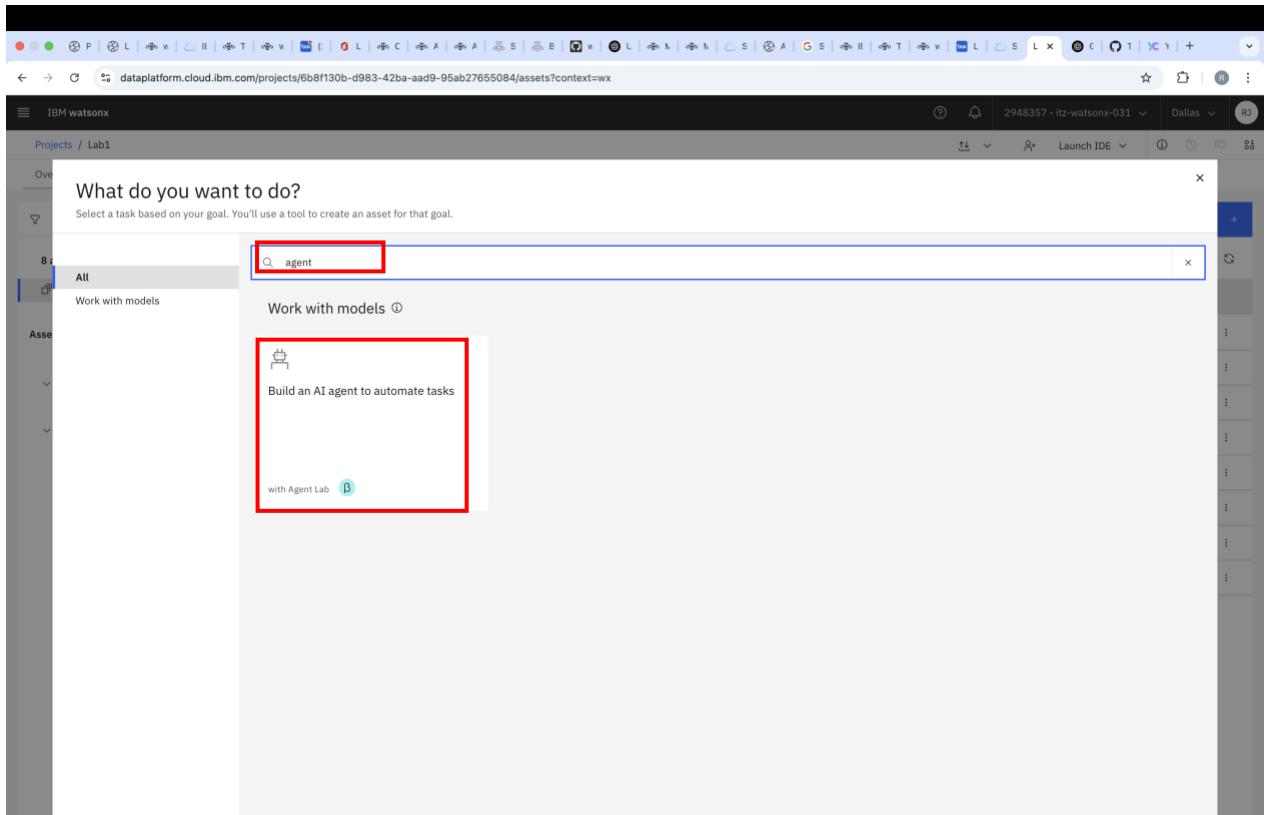
- Once the index is created, a summary screen will display all configured details.

The screenshot shows a web browser window with multiple tabs open. The active tab is titled "input_data - Lab2 | IBM WatsonX". The page displays the "Vector index details" section for a project named "Lab2". It includes sections for "Vector store" (In memory), "Embeddings model" (Xenova/all-MiniLM-L6-v2), and "Settings" (Text chunk size: 2000, Text chunk overlap: 200, Split PDF: On). Below this, a table lists "Data included in vector index" with two entries: "Procurement Requisition Rules.docx" (17.7KB) and "Supplier Sales Report for Procurement.docx" (17.6KB). To the right, there is a sidebar titled "About this asset" with fields for "Name" (input_data), "Description" (What's the purpose of this asset?), "Asset details" (Vector store, In memory, Data, 2 files), and "Last modified" (Now by Ridha Juneja). There is also a link to "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

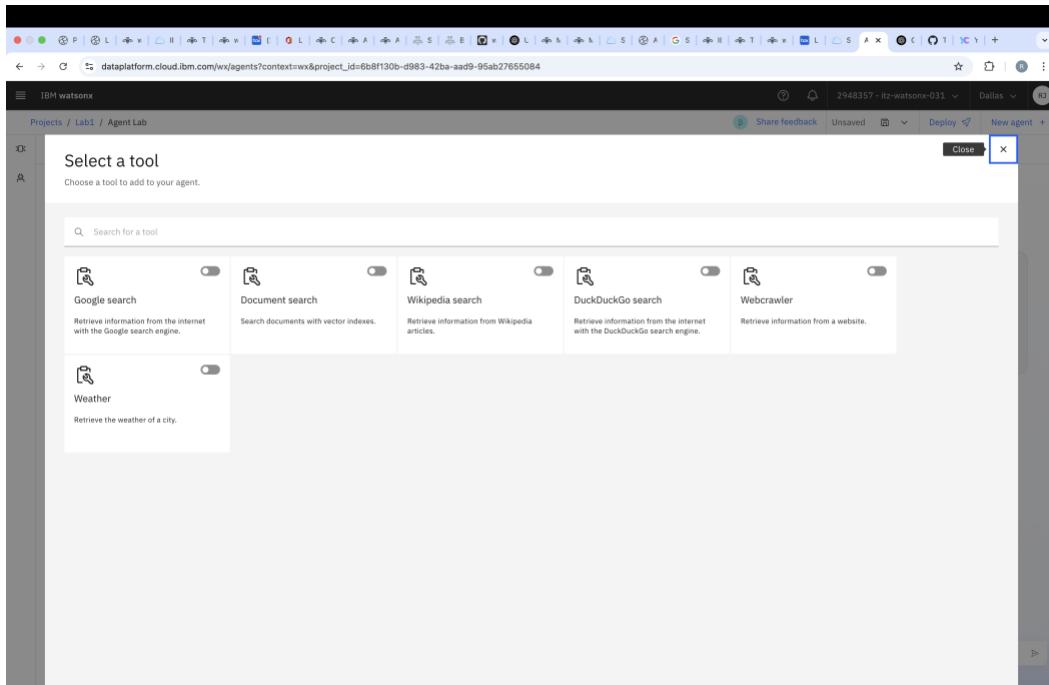
- Click **Build an AI Agent to Automate Tasks** and assign a name to your agent.

The screenshot shows the IBM Watsonx Agent Lab interface. On the left, there's a sidebar with sections like 'Build', 'Setup', 'Configuration', 'Instructions', and 'Tools'. The 'Configuration' section is expanded, showing 'Framework' set to 'LangGraph' and 'Architecture' set to 'React'. The 'Instructions' section contains the text: '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?"'. The 'Tools' section lists a single tool: 'Google search', which is described as 'Retrieve information from the internet with the Google search engine.' On the right, there's an 'Agent preview' window titled 'Welcome to watsonx Agent'. It includes a message from 'watsonx Agent 06:22 PM' and a placeholder text area 'Change this description to reflect your particular agent'. Below that is a graphic of a magnifying glass over a network of nodes. At the bottom of the preview window is a text input field with the placeholder 'Type something...'. The top of the screen shows a browser header with the URL 'dataplatform.cloud.ibm.com/wx/agents?context=wx&project_id=6b8f130b-d983-42ba-aad9-95ab27655084'.

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

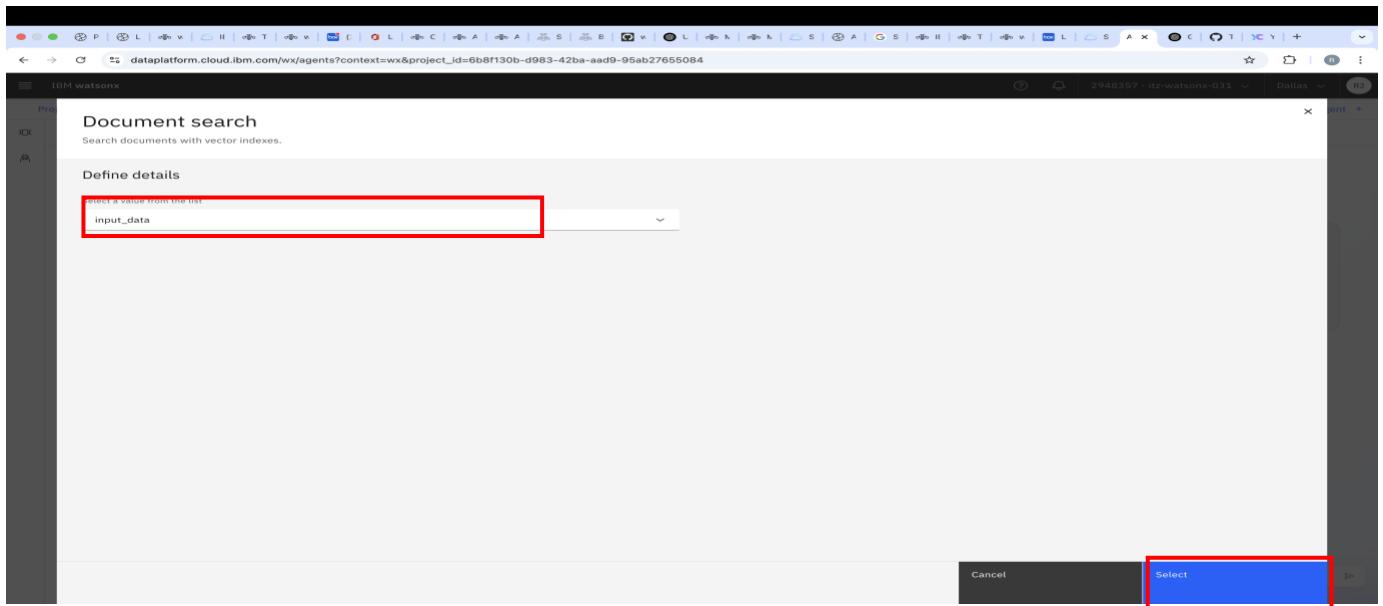
Step 10: Add Tools to the Agent

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



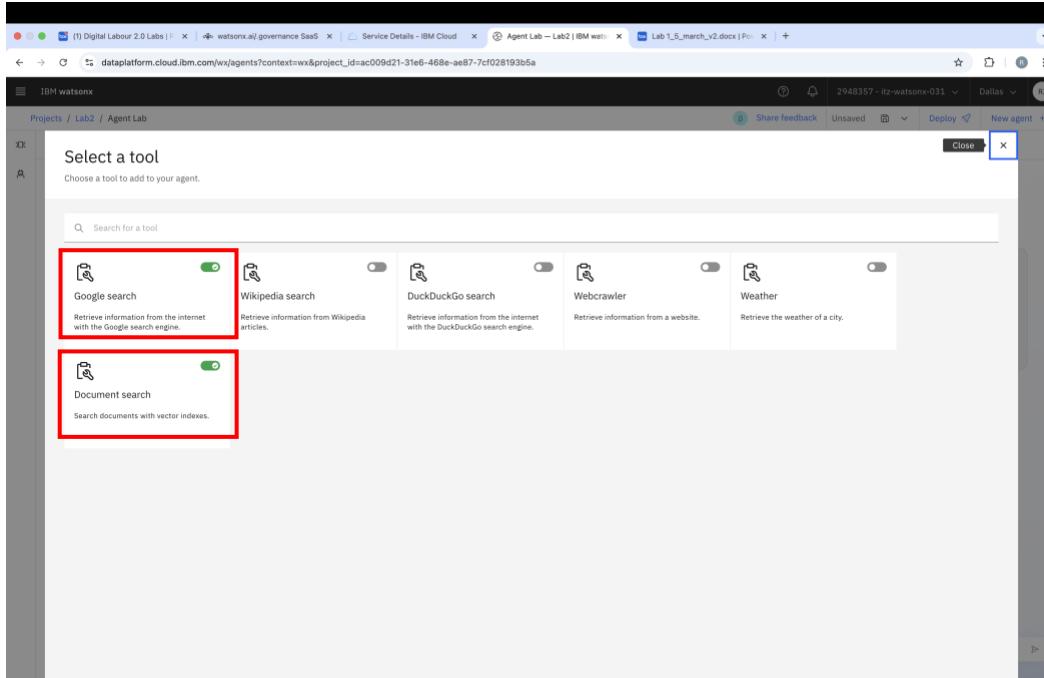
Step 11: Link the Vector Index

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



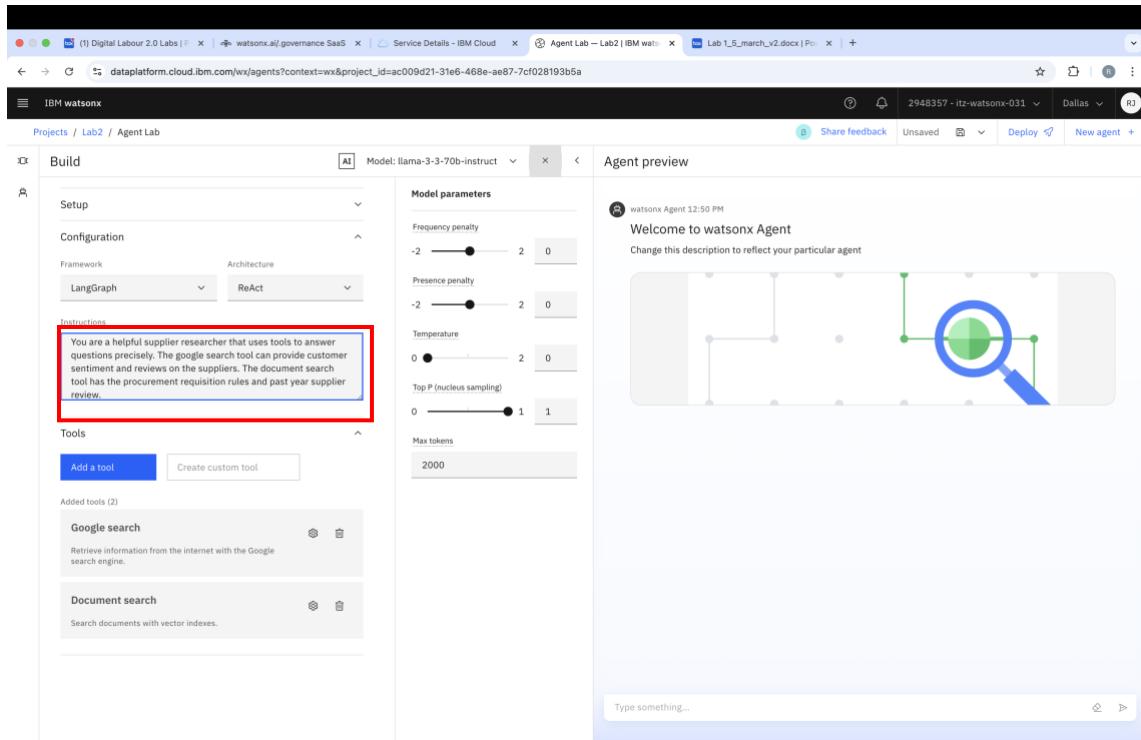
Step 12: Add Additional Tools

- 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' section is visible, featuring a 'Setup' tab, a 'Configuration' tab with 'LangGraph' selected under 'Framework' and 'React' under 'Architecture', and an 'Instructions' section with a note about being a helpful supplier researcher. Below this is a 'Tools' section with 'Google search' and 'Document search' added. On the right, the 'Agent preview' section displays a welcome message from 'watsonx Agent 12:52 PM' and a graphical interface with a magnifying glass icon over a network of nodes. A red box highlights a question input field: 'Which supplier out of Excellentia 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 after the AI has generated a response. The 'Agent preview' section now displays the AI's response to the question: 'Based on the search results, it appears that both Excellentia Supplies and Global Office Supplies have good reviews and ratings. However, it's important to note that the search results are limited and may not provide a comprehensive view of the suppliers' performance.' It also includes a note: 'To get a better understanding of the suppliers' pros and cons, it would be helpful to conduct a more thorough review of their products, services, and customer feedback. This could involve reading more reviews, checking their websites, and contacting them directly to ask questions.' Below this, the AI lists pros and cons for both suppliers. A red box highlights the AI's response to the question.

Step 16: Save Your Agent

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

The screenshot shows the 'Build' tab of the Watsonx Agent configuration interface. On the right, there is an 'Agent preview' window titled 'Watsonx Agent 01:02 PM'. The preview shows a circular icon with a magnifying glass and the text 'Welcome to watsonx Agent'. Below the preview is a search bar with the placeholder 'Type something...'. At the top of the preview window, there are buttons for 'Share feedback', 'Autosave', 'Deploy', 'New agent', and a dropdown menu. A red box highlights the 'Save' and 'Save as' buttons in the top right corner of the preview area.

Step 17: Export the Agent

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

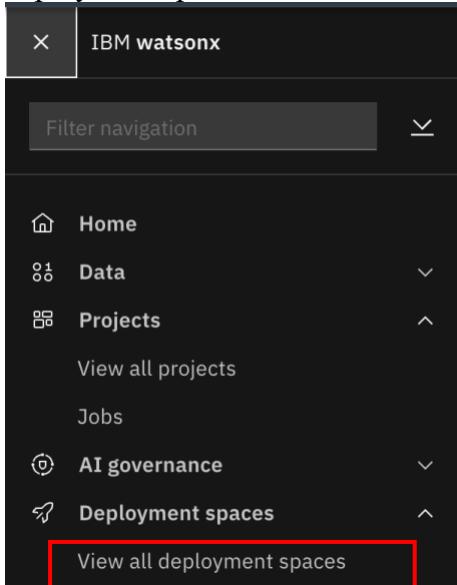
The screenshot shows a 'Save your work' dialog box. On the left, under 'Asset type', there are three options: 'Agent' (selected and highlighted with a red box), 'Standard notebook', and 'Deployment notebook'. Each option has a description below it. On the right, the 'Define details' section contains fields for 'Name' (set to 'watsonx Agent') and 'Description (optional)'. There is also a checkbox for 'View in project after saving'. At the bottom, there are 'Cancel' and 'Save' buttons, with 'Save' being highlighted in blue.

=====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)
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.

The space is being prepared...

The space "SY deployment space" is being created.

C Step 1 of 1. Creating deployment space.

[View new space](#)

- You can click on “View New Space”

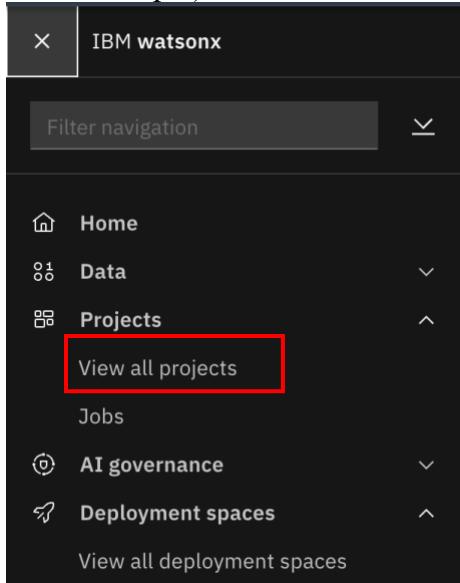
The space is ready

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.

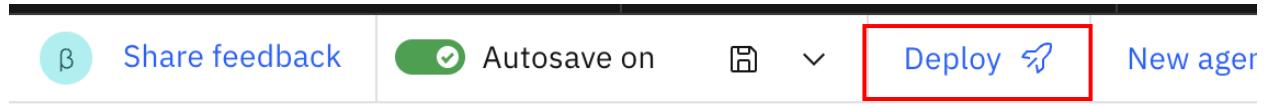
The screenshot shows the "Assets" tab selected in the navigation bar. On the left, there's a sidebar with "1 assets" and a "All assets" button. Below that is an "Asset types" section with a "Agents" link. The main area is titled "All assets" and shows a table with one row:

Name	Last modified
Supplier Research Agent Agent	7 minutes ago Modified by you

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

The screenshot shows a confirmation dialog box. It asks "Edit this agent?". Below the question, it says: "If you open this agent in edit mode, you lock it for other users. You can preview the agent without locking it." There is a checkbox labeled "Don't show this message again." At the bottom right of the dialog is a large blue button labeled "Edit", which is also highlighted with a red box.

- Now on the top right, click on Deploy



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

The screenshot shows the 'Deploy as an AI service' dialog box. At the top, there's a message: 'You must create a user API key. Click Create to open the API key page in a new tab.' Below this, there are fields for 'Deployment name' (set to 'Supplier Research Agent'), 'Target deployment space' (set to 'Target deployment space'), and a 'Description (optional)' field containing 'Research for suppliers'. A checkbox 'View in space after deploying' is checked. At the bottom right, there are 'Cancel' and 'Deploy' buttons, with 'Deploy' being the one highlighted by a red box.

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

The screenshot shows the 'User API key' creation page. At the top, there's a header with tabs: 'Profile', 'Git integrations', and 'User API key' (which is underlined). Below the header, there's a section titled 'User API key' with the sub-instruction: 'A user API key is required to authenticate runtime operations in IBM Watsonx.' There's also a note: 'Rotate keys as needed to create a new key and phase out the current key. [Learn more](#)'. At the bottom right, there's a 'Create a key' button, which is highlighted with a red box.

- You will see the page changed to the below.

User API key is successfully created. Your new key is stored in IBM Watson and IBM Cloud.

User API key

A user API key is required to authenticate runtime operations in IBM Watson. Rotate 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

- 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".

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](#)

- You will now be in the deployment page.

SY deployment space

Overview	Assets	Deployments	Jobs	Manage		
Name	Type	Status	Asset	Asset type	Tags	Last modified
() watsonx Agent	Online	Initializing	watsonx Agent	Ai service	wx-agent	44 seconds ago Suk Yee Gong (You)

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

SY deployment space

Overview	Assets	Deployments	Jobs	Manage
Name	Type	Status	Asset	
() watsonx Agent	Online	Deployed	watsonx Agent	

- Click on the Agent

Name
() watsonx Agent

- 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

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

Bearer <token>

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

IAM

Public endpoint

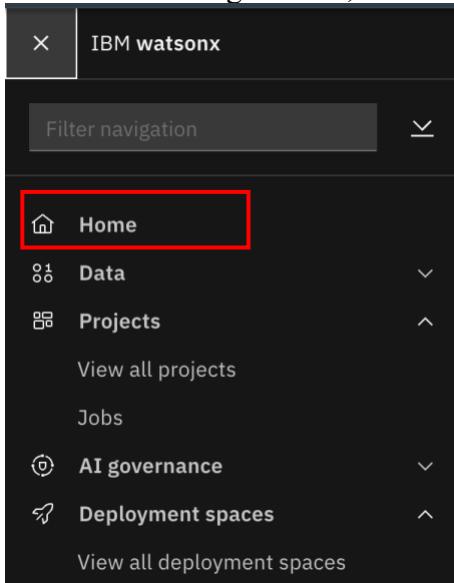
https://us-south.ml.cloud.ibm.com/ml/v4/deployments/a861dac9-de90-4669-b89a-cf4f3632b2d8/ai_service?version=2021-05-01 Copy

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

IAM

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	Project ID
Auto AI	dbc1327-2b8b-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

Description (optional)

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! 🎉