

watsonx Orchestrate Lab 1b:

Building A Custom Skill

Objective

Sometimes, the out of the box skills might not be enough to achieve what you want to do. Or, your organization may have a custom tool, function, which you wish to incorporate into a workflow. In this lab, you will learn how to set up a custom skill using a custom-made Open API Script. The Open API specifications are connected to two agents – “Get Historic Sales” and “Calculate Reorder Quantity” which we’ve created using a python code using watsonx.ai and crew.ai in the backend.

Use Case:

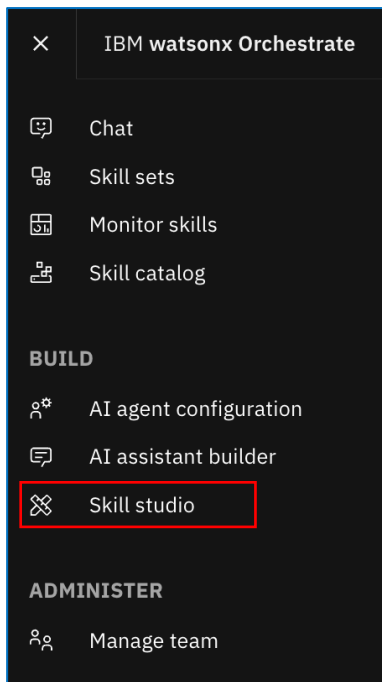
In this lab, you will learn how to configure custom skills for text2sql to retrieve historical sales and quantity data.

The high-level steps to accomplish this are as follows:

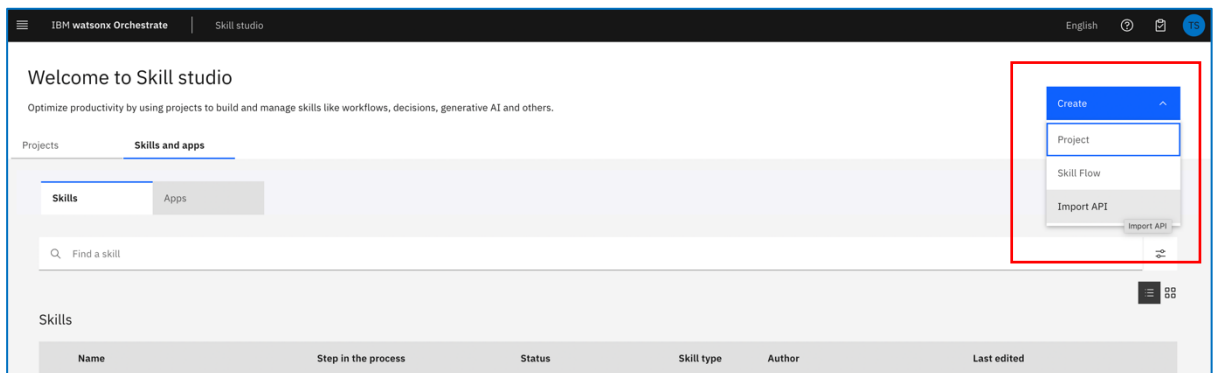
1. Create a new Skill using the custom Open API specification.
2. Enhance and Publish the Skill.
3. Add your custom skill to Skill Catalog.
4. Connect the Apps to Skill Sets
5. Add Skills to AI Chat
6. Test the Skills.

Configure Custom Skills

1. Go to Skill Studio from the top left hamburger menu



2. Create a new skill by using the option “Import API”



3. Download the Open API specification for [Text2SQL](#) and then import the file.

Add skills

Choose how you want to add skills and then select the skills you want to refer to from that source.

Choose the source

Select the skills

Choose the source

To discover new skills, connect to an app or refer to an OpenAPI file.

From an app

From a file

OpenAPI builder (experimental)

Import a skill file

Ensure your file is in the .json, or yaml format and no larger than 50 MB.

[Drag and drop files here or click to upload](#)

4. Select the Skill “Text2SQL with Crew AI” and Add.

Add skills

Choose how you want to add skills and then select the skills you want to refer to from that source.

Choose the source

Select the skills

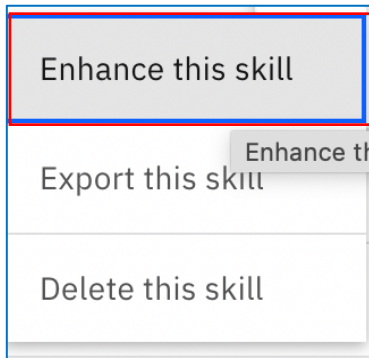
Choose skills

you can choose which skill to add here

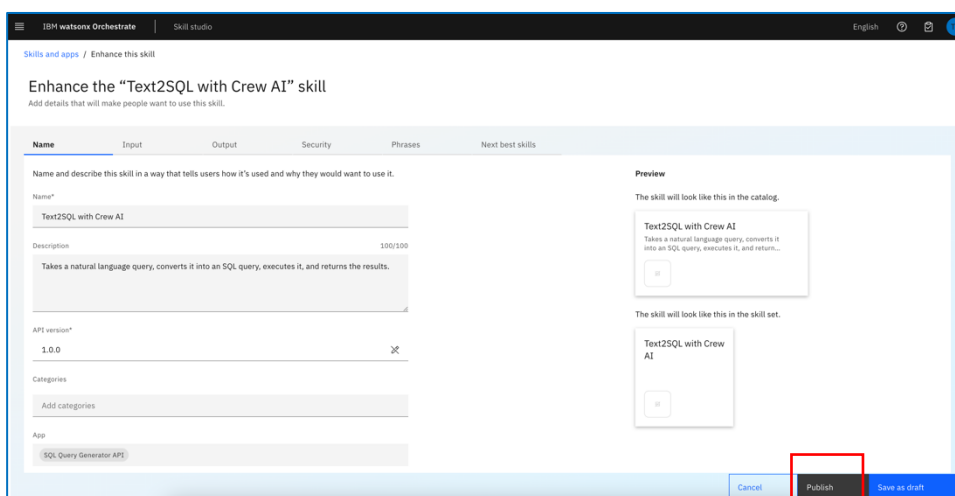
0 out of 1 selected

Skill	Description	Status
<div><div>▼</div><div><input type="checkbox"/></div><div>Text2SQL with Crew AI</div></div>	Takes a natural language query...	<div>⚠ Ready to add</div>

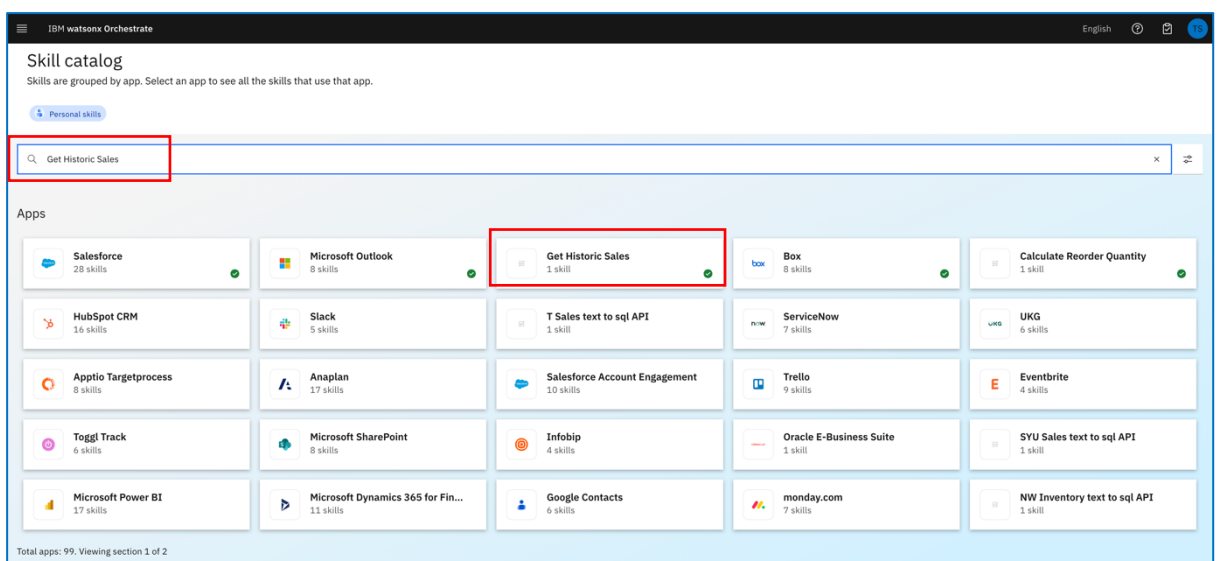
5. Click on the menu of this skill once it has been imported successfully and then select “Enhance this Skill”.



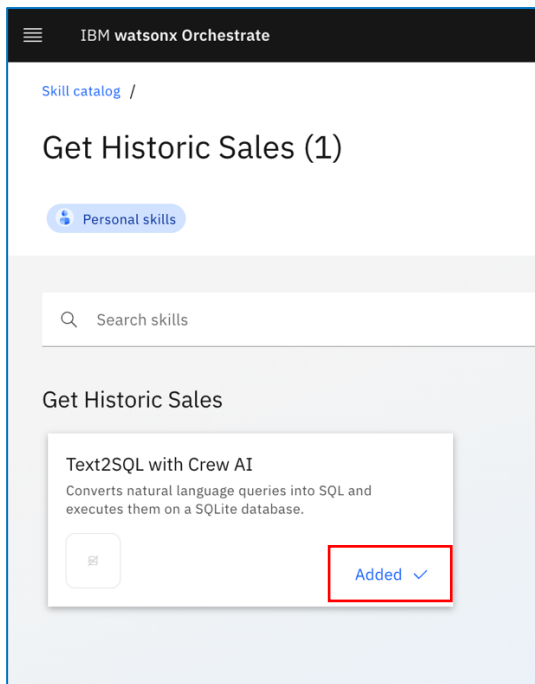
6. Publish the Skill by clicking the “Publish” button.



7. Go to Skill Catalog and search for “Get Historic Sales” and select the App.



8. Add the “Text2SQL with Crew AI” skill by clicking on the “Add Skill” button.

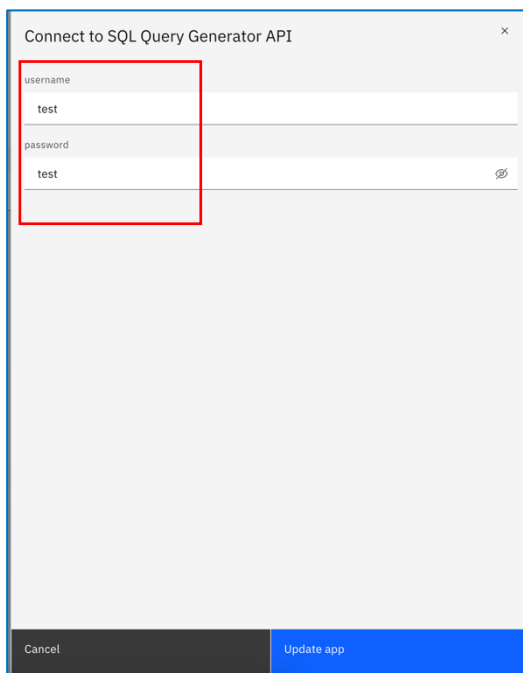


9. Connect the app by clicking on “Connect App” button and provide the following credentials:

username: **test**

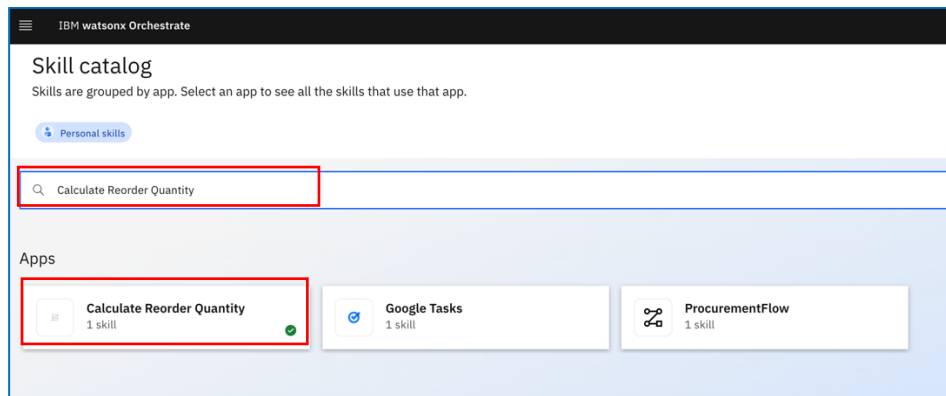
password: **test**

And then click on “Update App”/ “Connect App”.

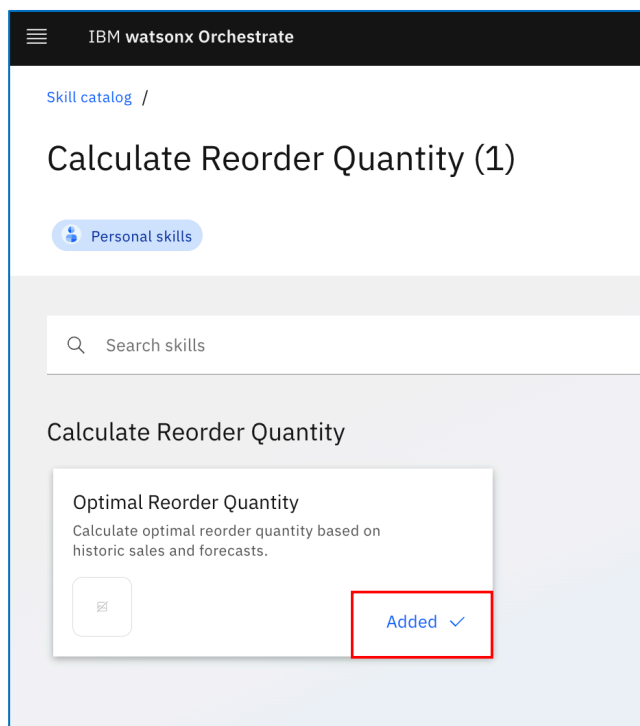


10. Follow the same steps (Steps 1 to 6) to configure [Calculate Reorder Quantity](#) skill.

11. In the Skill Catalog, search for “Calculate Reorder Quantity” and select the App.



12. Add the “Optimal Reorder Quantity” Skill.



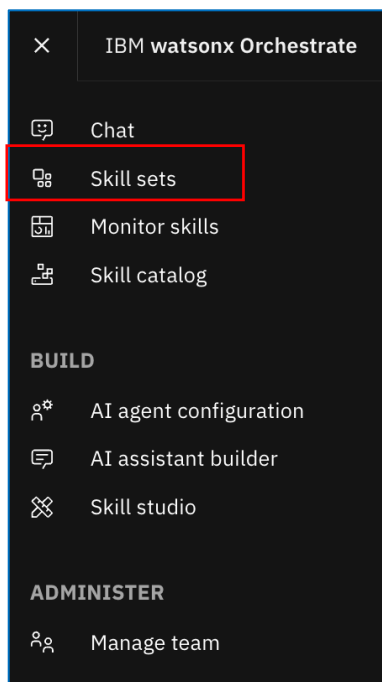
13. Connect the application using the credentials mentioned in Step 7.

Configure AI Agent with Custom Skill

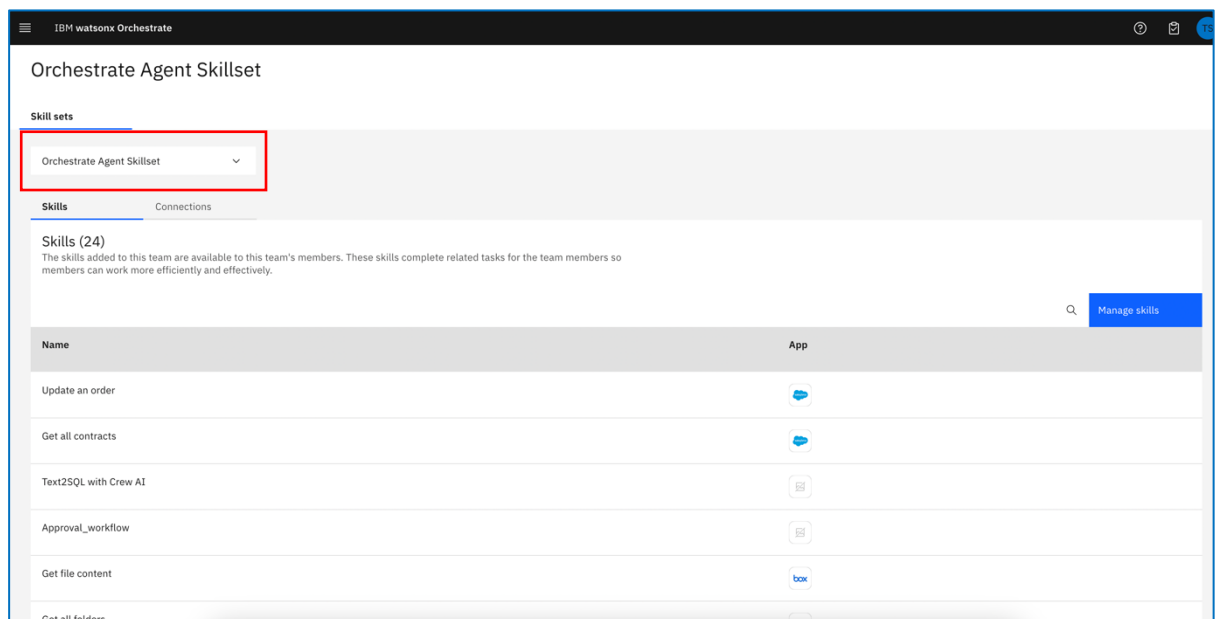
Note:

Up until 12 March 2025, only admins can configure AI agents within a tenant.
Only proceed if you have admin access.

1. Go to “Skill Sets” from the top left hamburger menu.



2. From the dropdown menu select “Orchestrate Agent Skillset”



3. Move to the Connections tab and search for “Get Historic Sales” and Edit the connection.

The screenshot shows the 'Skill sets' page in IBM Watsonx Orchestrator. The 'Connections' tab is selected. A table lists applications and their connections. The 'Get Historic Sales' connection is highlighted. A red box highlights the 'Edit connection' and 'Delete connection' buttons in the action column.

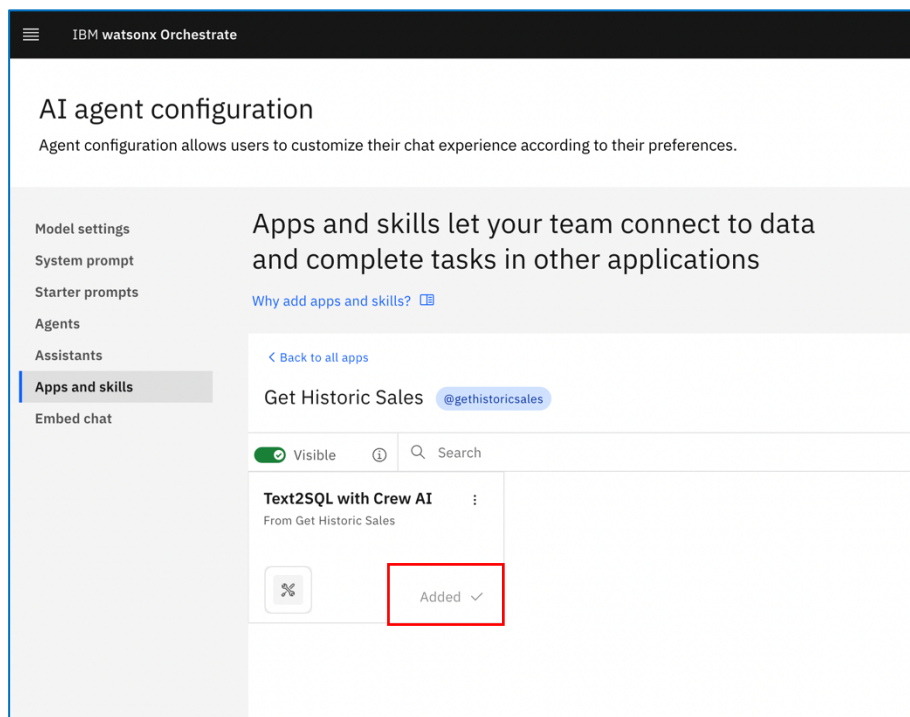
Application	Number of skills	Credential type	Connected by	Action
GenAIAutomation_NEW	3	Member	-	⋮
Get Historic Sales	1	Team	Tannavi.Snehal@ibm.com	⋮ Edit connection Delete connection
Get product Details	1	Not specified	-	⋮
get_email_outlook	1	Member	-	⋮
GitHub	11	Not specified	-	⋮

4. Connect the app by clicking on “Connect App” button and provide the following credentials:
username: **test**
password: **test**
5. Once successfully connected, move to the AI Agent Configuration from the top left hamburger and move to Apps and Skills.

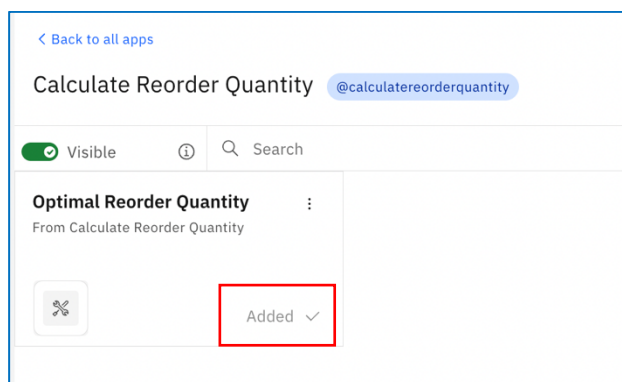
The screenshot shows the 'AI agent configuration' page in IBM Watsonx Orchestrator. The 'Apps and skills' section is selected. A red box highlights the 'Apps and skills' menu item in the left sidebar. The main content area shows a table of apps and their associated skills.

App	Skills
Box	Calculate Reorder Quantity
CWA_2	CWA_2
Demo Skills	GenAIAutomation
chinese_demo	chinese_demo
chinese_demo	chinese_demo
chinese_demo	chinese_demo
get_email_outlook	get_email_outlook
Get Historic Sales	Get Historic Sales

6. Search for “Get Historic Sales” and add the “Text to SQL with CrewAI” skill to AI Chat.



7. Go back to all apps and Search for “Calculate Reorder Quantity” and add the “Optimal Reorder Quantity” skill to AI Chat.



Test custom skills

Go to Chat window from top left hamburger menu and try the following queries:

1. @gethistoricsales What is the sales figure for Xtralife for the last 3 months?

Text2SQL with Crew AI

result

🔍

📄

101

month year	total figure
2025-02	430000
2025-01	410000
2024-12	400000

Items per page: 10 ▾

1 – 3 of 3 items

1 ▾ of 1

◀ ▶

2. @gethistoricsales What is the quantity sold last year this month for Xtralife?

Text2SQL with Crew AI

result

🔍

📄

101

month year	total figure
2024-03	1000


Items per page: 10 ▾

1 – 1 of 1 items

1 ▾ of 1

◀ ▶

3. @calculatereorderquantity What should be the optimal reorder quantity if my current inventory has 1000 units, last month sales was 3400 units and forecast for the next month is 3107 units?



watsonx 2:02 PM

reasoning : The optimal reorder quantity is calculated based on the given data and instructions. First, we calculated the shortfall by subtracting the current inventory from the forecasted quantity for the next month, resulting in a shortfall of 2107. Since the shortfall is less than or equal to the historic sales, we calculated the safety stock as 10% of the historic sales, which equals 340. Finally, we determined the reorder quantity by adding the shortfall and the safety stock, resulting in a reorder quantity of 2447. This reorder quantity ensures sufficient stock while minimizing excess inventory.

reorder_quantity : 2447