

IBM TechXchange

# Agentic AI Hackathon with IBM watsonx Orchestrate

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# Agentic AI Hackathon with IBM watsonx Orchestrate

[AI agents](#) are intelligent systems that can perceive their environment, reason about it, and take actions to achieve specific goals. These agents can operate autonomously or collaboratively, making them ideal for solving complex real-world problems.

In this hackathon, you will design and build a proof-of-concept agentic AI solution using [IBM watsonx Orchestrate](#) – a no-code and low-code platform designed to orchestrate AI agents across business workflows. With watsonx Orchestrate, you can create, deploy, and manage intelligent assistants and agents that automate tasks, streamline processes, and enhance productivity.

This hackathon guide will walk you through accessing watsonx technologies and building your solution.

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## Hackathon expectations

In this hackathon, participants are expected to design and build a **proof-of-concept AI agent solution** using [\*\*IBM watsonx Orchestrate\*\*](#) to redefine how people and businesses get work done. The watsonx Orchestrate platform provides a robust foundation for creating and orchestrating intelligent AI agents and assistants. Leverage its capabilities to automate repetitive tasks, streamline workflows across tools, and empower employees to focus on high-value work.

Participants may also **optionally** use the below listed watsonx product:

- [IBM watsonx.ai](#) is a powerful AI studio that supports the development of agentic AI solutions using a wide range of foundation models. Through the Prompt Lab, participants can experiment with IBM's Granite models and other leading models to create agents that understand and respond to natural language. IBM watsonx.ai can also serve as an inference provider for your agents, allowing them to generate responses, make decisions, and interact with users or systems intelligently.

### Note on using other technologies

You may use any framework or technology to build your solution, provided you adhere to product usage policies. However, to be eligible for judging, your solution must showcase **IBM watsonx Orchestrate** as a core component.

### Note on data sets before you begin

Participants are required to bring their own datasets to build the solution aligning to your use case. As you collect data for your project, you'll want to use the best practices. Here are some helpful tips:

- Teams are responsible for ensuring data is compliant.
- Data from public websites may be used, if the terms allow for commercial use, but please keep a list of the websites you use.
- Do not use data or assets containing company confidential data, or any other data without permission from the data owner. Teams are responsible for getting approval.
- Do not use any client data.
- Do not use any data containing personal information (PI).
- Do not use data obtained from social media.

# Get started with IBM watsonx

To access and use IBM watsonx products for this hackathon, participants must be registered for the hackathon, and request for a pre-configured IBM Cloud account. This account will provide the necessary environment to work with watsonx Orchestrate and other supporting products for this hackathon.

You can follow the provided instructions to [request](#) and [access](#) your hackathon IBM Cloud account.

## Note on available services

The IBM Cloud account provisioned for this hackathon is **pre-configured with only the services required** to complete the hackathon. You will not be able to configure any new service or modify permissions for existing ones due to restricted access. If you notice a permission/access issue for any service or the cloud catalog, then they are not required/available for this hackathon.

The following optional IBM Cloud lite/trial services are provided for your hackathon solution building:

- [National Language Understanding](#)
- [Speech-to-Text](#)
- [Text-to-Speech](#)
- [Cloudant](#)

## Note on preventing exposure of IBM Cloud credentials

Hackathon participants may use IBM Cloud credentials to build their solutions that leverage IBM technologies on IBM Cloud. During development, testing, collaboration, or while submitting their final project in a public repository, participants may unintentionally expose these credentials on publicly accessible platforms.

Exposing IBM Cloud API keys or any cloud credentials can lead to unauthorized access, misuse of resources, and account suspension. If any IBM Cloud credential associated with your hackathon account is detected in a public repository or publicly accessible platform:

- The credential will be deactivated immediately.
- Your hackathon cloud account access will be suspended until you:
  1. Remove the exposed credential from all public sources. If you are using GitHub, you can refer to [Removing sensitive data from a repository](#).
  2. Rotate and replace the exposed credential
  3. Confirm remediation with the hackathon support team and request access to your hackathon cloud account

Please follow the [Preventing exposure of IBM Cloud credentials in public repositories and platforms guide](#) for best practices to avoid disruptions to your project and ensure the security of your IBM Cloud resources.

## Note on teaming

If you are working as part of a team, please plan to collaborate using one team member's cloud account. Adding or removing team members is not supported on the hackathon-provisioned IBM Cloud accounts.

## Request your hackathon IBM Cloud account

Follow the steps below to request your cloud account:

1. Access the hackathon's IBM Cloud account request URL in your browser:  
<https://www.ibm.com/account/reg/us-en/signup?formid=urx-54162>.
2. Create an IBMID if you have not already created one using the same email you used to register for the hackathon by completing the account information. Then click the “**Next**” button (If you already have an IBMID that uses the same email you used to register for the hackathon, proceed to log in, complete the authentication process and skip to step 4).

3. Verify your email by entering the 7-digit code sent to your email and select the “**Submit**” button.

4. Complete the IBM Cloud account request by verifying your name and email and click the “**Request account**” button.

**Note:** If you see the message “Submission error Unable to verify registration,” it means you are not registered for the hackathon and cannot request a cloud account.

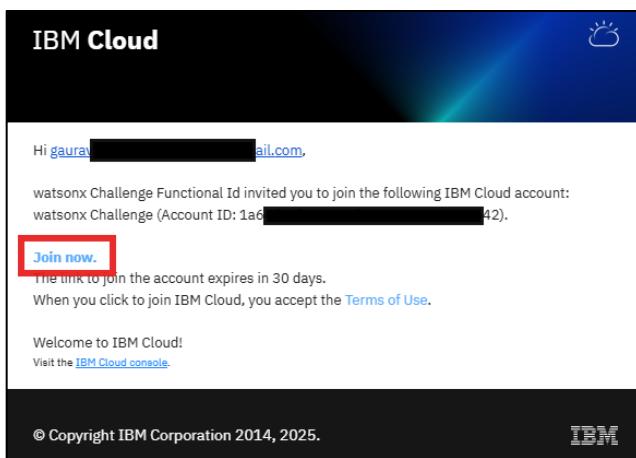
The screenshot shows a web form titled "Complete the request" for the "Agentic AI Hackathon with IBM Watsonx Orchestrate". The form includes fields for "Name" (with "G" entered), "Email" (with "gaurav[REDACTED]@gmail.com" entered), and "Access code (optional)". Below the form, a note states: "Once you have submitted an account request, please allow 1 hour for your account to become active. Check the email address seen in this form, and check your junk/spam folder if you are not able to find the email in your inbox." At the bottom, there is a "Request account" button.

- Once your request is successfully submitted, you will receive an email invite to join the cloud account. Next, follow the [Access your IBM Cloud account](#) instructions to access your account.

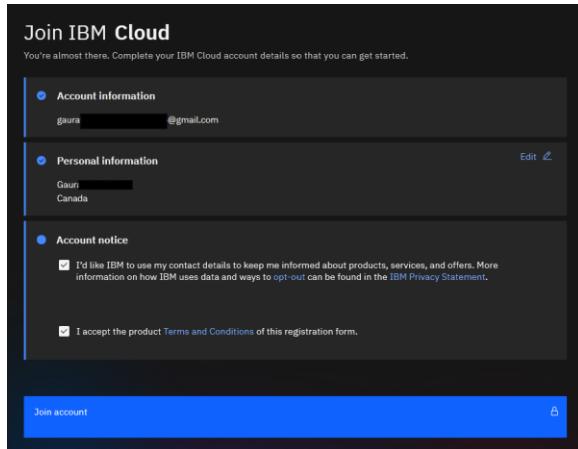
## Access your hackathon IBM Cloud account

After requesting a cloud account, participants will receive an email invite to join the cloud account. Follow the steps below to access your cloud account:

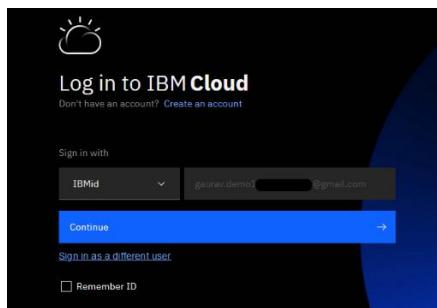
- Check the email inbox you used to register for the hackathon and open the email you received from the IBM Cloud team about joining your cloud account. Please check your junk/spam folders if you cannot find the email in your inbox. You can also search for “*IBM Cloud*” to locate the email.
- Click the **Join Now** button seen in that email. A new browser tab will open with the cloud account sign up page.



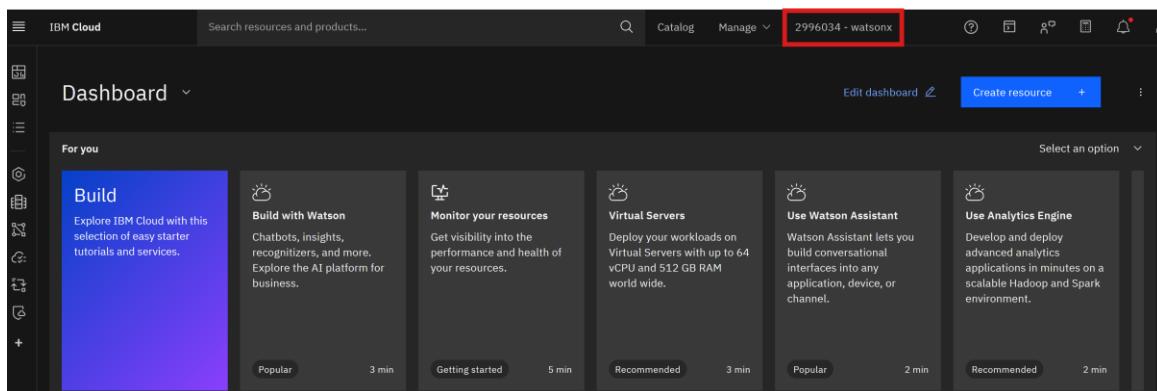
- Review your account and personal information. Read and accept the Account notice and click the **Join Account** button.



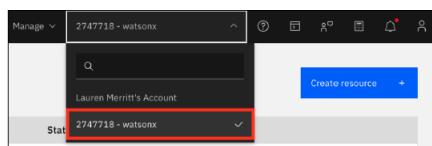
4. Complete the authentication process by clicking the Continue button.



5. After you authenticate successfully, you will be taken to the IBM Cloud dashboard.



6. If you have an existing personal IBM Cloud account for the same email/IBMid, sometimes you will be directed to your personal account. In this case, please switch your account to the **xxxxxxxx - watsonx** account. Select your account drop-down at top-right of the dashboard and select watsonx account. Refer to the below image on switching accounts in your cloud dashboard.



## Accessing and utilizing IBM watsonx products

To begin building your agentic AI solution, explore the capabilities and resources for each IBM watsonx product enabled for this hackathon. Note, **watsonx Orchestrate** is a **required** product in this hackathon and any other product (watsonx.ai) are optional.

### 1. [IBM watsonx Orchestrate](#)

The core platform for designing, deploying, and managing AI agents that automate workflows and tasks using a no-code/low-code interface.

### 2. [IBM watsonx.ai \(Optional\)](#)

A powerful AI studio that enables you to experiment with foundation models like IBM Granite through the Prompt Lab. It can be used to enhance your agents with natural language understanding, intelligent decision-making, and dynamic response generation—serving as an inference engine to make your AI agents smarter and more interactive.

## 1. IBM watsonx Orchestrate

After successfully [joining the IBM Cloud account](#), you can now access the watsonx Orchestrate to work on the platform and build your solution.

IBM watsonx Orchestrate is an intuitive, AI-powered platform that you can use to create, configure, and deploy intelligent agents that can automate business tasks. Whether you're automating repetitive workflows or building complex multi-agent systems, the platform is designed to support users of all skill levels.

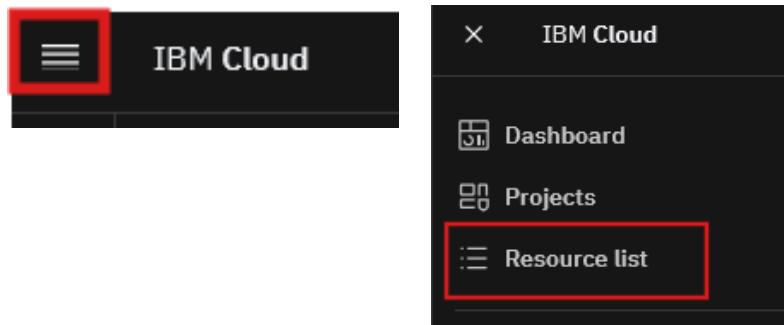
With watsonx Orchestrate, you can:

- Build and deploy agents without writing code
- Automate tasks such as scheduling, data entry, and approvals
- Start small and scale up with advanced tools and integrations
- Explore the clean, guided UI that simplifies agent creation and management.

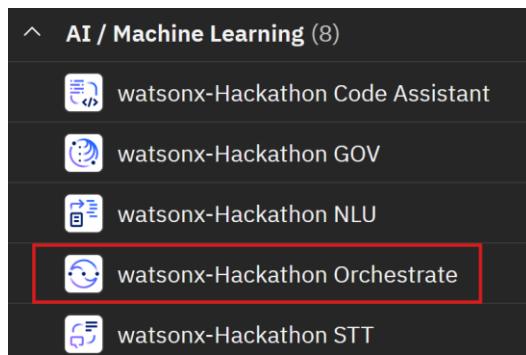
Get a quick overview of [how to use watsonx Orchestrate](#).

## Accessing watsonx Orchestrate

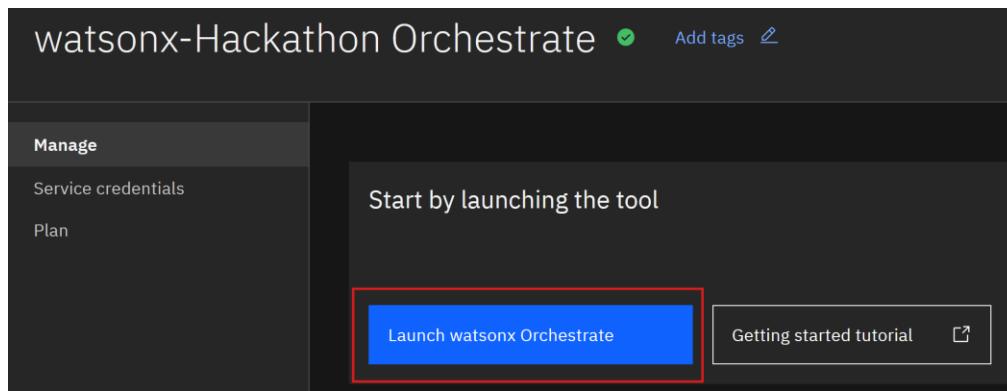
In your IBM Cloud account dashboard, select the **Navigation menu** on the top left of the dashboard and select the **Resource list** option.



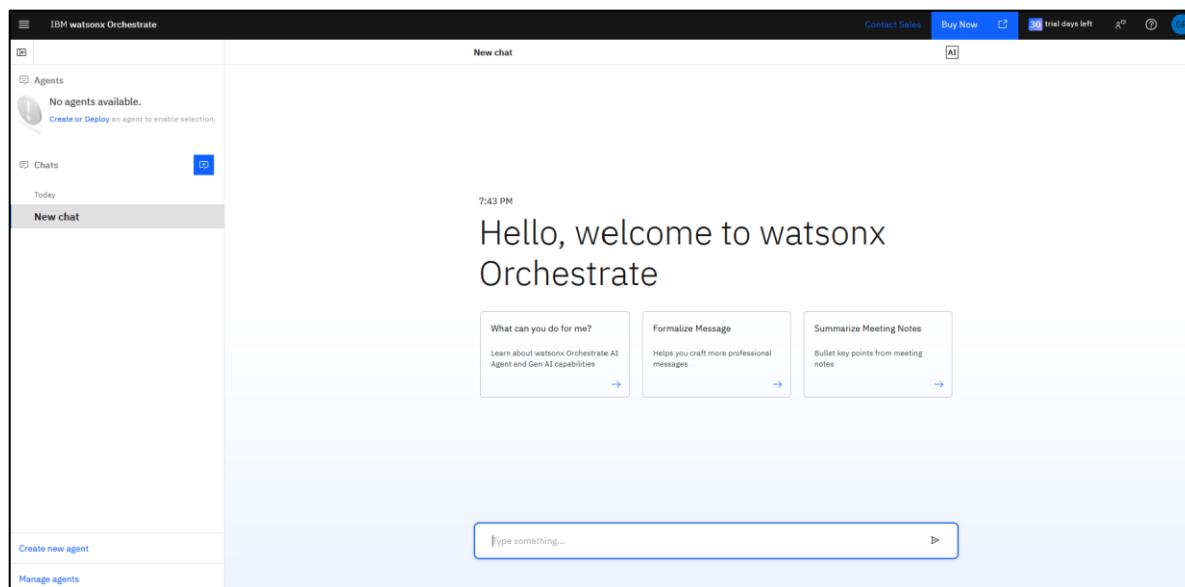
Expand the **AI / Machine Learning** section and select **watsonx-Hackathon Orchestrate** service.



You will be navigated to **watsonx-Hackathon Orchestrate** service instance dashboard. Select the **Launch watsonx Orchestrate** button.



You will be navigated to the watsonx Orchestrate platform with a welcome message and a new chat window.



## Discover the catalog

The IBM watsonx Orchestrate catalog is your gateway to a rich collection of prebuilt AI agents and tools, designed to support a wide range of business functions and use cases. Whether you're looking to automate tasks, enhance productivity, or integrate with backend systems, the catalog helps you find the right solutions quickly and efficiently. [Learn more about discovering the catalog](#).

The screenshot shows the IBM Watsonx Orchestrate Catalog interface. It features a search bar at the top with the placeholder 'Search "Help me recruit qualified candidates"'. On the left, there are filters for 'Type' (Agents, Tools) and 'Categories' (Customer Care, Finance, HR, Healthcare, IT, Investment, Legal, Procurement, Productivity, Research, Sales, Supply Chain). The main area displays a grid of agent cards:

- Account management**: An AI agent focused on executing specific tasks using a defined set of tools and domain knowledge. Select an agent to see their details.
- Alice**: An AI Sales Development Representative (SDR) that helps your team scale prospecting. It researches prospects across...
- Asset Manager**: A specialist agent for tracking and managing IT and business assets in ServiceNow. Users can easily create, update, and view...
- Assign Manager**: Efficiently manage and maintain manager assignments and organizational updates in Oracle HCM with this HR agent. Access...
- Blocked supplier invoices**: Resolve mismatches and manage blocked invoice workflows within the Coupa procurement system by matching invoices with...
- BrightAgent**: Your agentic data companion specializing in data analysis and data governance, making complex data work...

## Building agents

In IBM watsonx Orchestrate, agents are a key component of the agentic AI framework, enabling you to create complex, dynamic systems that can adapt and respond to changing conditions.

By building agents, you can:

- Automate repetitive tasks

- Improve decision-making processes
- Enhance customer and employee experiences
- Increase operational efficiency

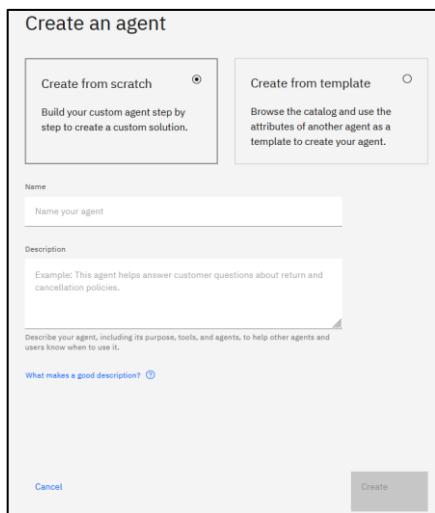
## 1. Prepare to build AI agents

Developing intelligent, scalable, and reliable agents in Watsonx Orchestrate requires a strategic, multi-phase approach. It goes beyond writing prompts or connecting APIs. Successful agents need thoughtful planning, structured development, testing, and ongoing governance. The following overview breaks down each phase of agent development, highlighting key considerations. Learn more about [preparing to build AI agents](#).

## 2. Creating and customizing agents

Creating and customizing an AI agent involves defining its purpose and personality through thoughtful descriptions, selecting the most suitable foundation model, and choosing a style that aligns with your brand or use case. You can also configure key elements like the welcome message and starter prompts to ensure the agent engages users effectively from the first interaction. Together, the configured components shape how the agent communicates, responds, and delivers value across conversations.

Learn [how to create an agent from scratch or from a template](#).

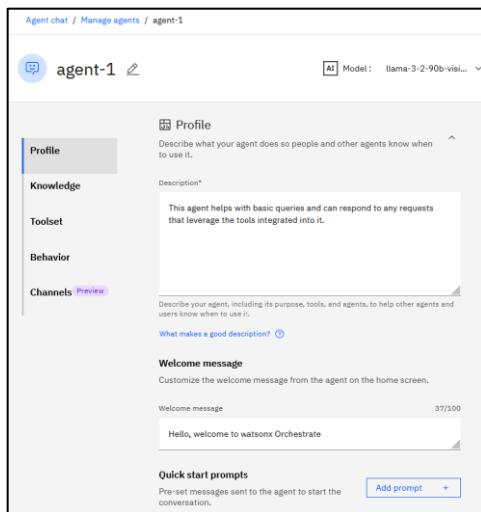


### Expanding your agent's capabilities:

To enhance your agent's abilities, explore the following configuration options:

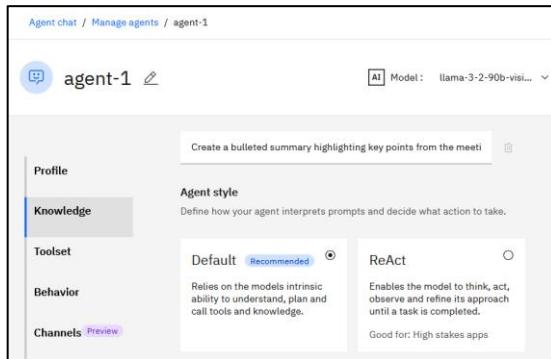
- **Define a profile**

Provide a clear and specific description of the agent's purpose. This helps in multi-agent orchestration by enabling accurate selection based on capabilities. See [Defining the description of your agent](#).



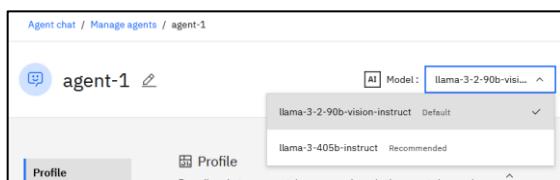
- **Define a style**

Choose how the agent interprets and responds to user requests, selects actions, and engages with tools. See [Choosing a style for your agent](#).



- **Choosing a foundational model**

Select a foundation model from the Agent Builder UI to define your AI agent's core capabilities. See [Choosing an LLM model](#).



- **Customize the welcome message and starter prompts**

Customize the welcome message and starter prompts to guide users when they begin interacting with the agent. See [Customizing the welcome message and starter prompts](#).

The screenshot shows the 'Profile' section of the agent configuration interface. It includes fields for the 'Welcome message' (containing 'Hello, welcome to watsonx Orchestrate.'), 'Quick start prompts' (with a placeholder 'Summarize the capabilities of watsonx Orchestrate.'), and 'Channels' (with a placeholder 'Create a bulleted summary highlighting key points from the meeti...').

- Customize the text below the welcome message**

You can now modify the default light gray text below the welcome message only through ADK. For more information, see [Customize the light gray text](#).

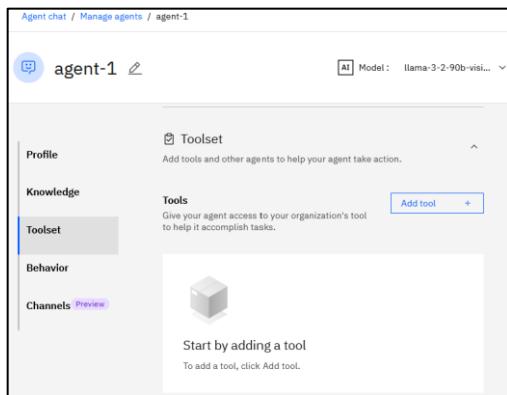
- Add knowledge**

Enhance the agent's domain expertise by adding contextual knowledge from files or content repositories. See [Adding knowledge to agents](#).

The screenshot shows the 'Knowledge' section of the agent configuration interface. It includes a 'Knowledge source' field (with a placeholder 'Upload files or connect to content repositories to add knowledge to your agent.') and a 'Choose knowledge' button.

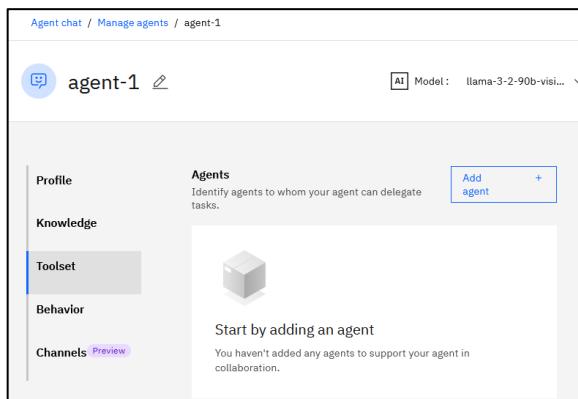
- Add tools**

Integrate tools to enable the agent to perform automated tasks such as retrieving data or sending emails. See [Adding and managing tools for agents](#).



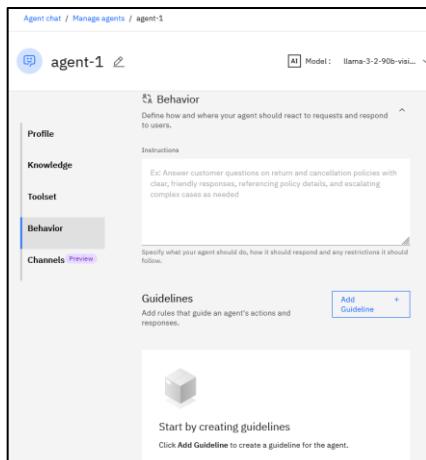
- Add collaborator agents**

Enable multi-agent orchestration by adding collaborator agents that work together to achieve shared goals. See [Adding agents for orchestration](#).



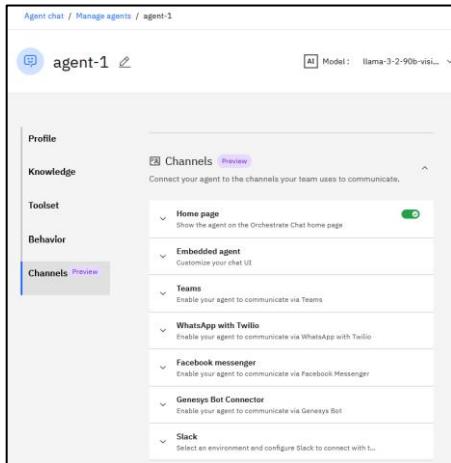
- Add instructions**

Define behavioral rules and interaction logic to guide the agent's responses and actions. See [Adding instructions to agents](#).



- **Connect to channels**

Make the agent accessible to your team by connecting it to various interaction channels. See [Connecting to channels](#).

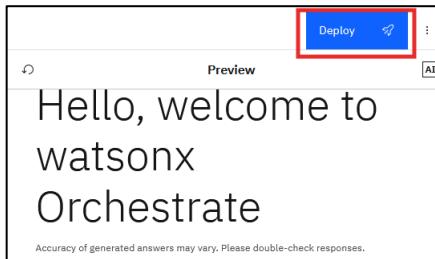


- **Configure rich responses**

Enable rich responses to incorporate multimedia and structured elements, making AI interactions clearer, more efficient, and engaging for users. See [Configuring rich responses from the AI assistant builder](#).

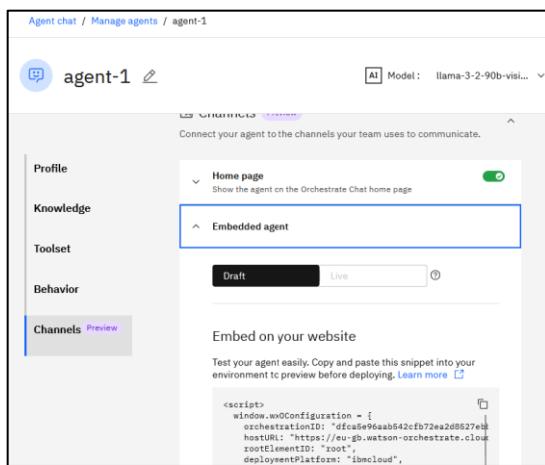
- **Deploy the agent**

Finalize the setup by deploying the agent to make it available in live environments such as chat interfaces. See [Deploying the agent](#).



- **Embedding your agents**

You can embed your agents into various applications such as websites, Slack workspaces, or other messaging apps, allowing users to interact with them across different environments. See [Using an agent in embedded chat](#).



- **Building agents using the ADK**

You can build powerful, customizable agents using the IBM Watsonx Orchestrate Agent Development Kit (ADK). [Learn more about using the ADK.](#)

## Building AI assistants

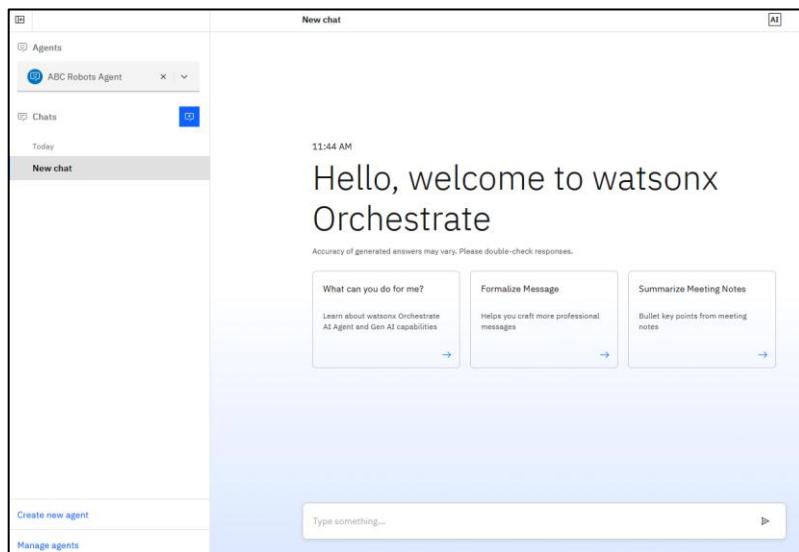
In IBM Watsonx Orchestrate, you build the AI assistant by using AI assistant builder. AI assistant builder is a chat interface builder that helps to deploy an engaging and embedded chatbot experience. AI assistant builder integrates the power of large language models (LLMs) and conversational capabilities of Watsonx Assistant to enable responsive and interactive conversation between the users and Watsonx Orchestrate.

To learn more, see [Building AI assistants in AI assistant builder](#).

The screenshot shows the 'Welcome to AI assistant builder' interface. At the top, there are four buttons: Create (highlighted in blue), Personalize, Customize, and Preview. Below this, the main section is titled 'Create your first assistant' with a sub-section 'Let's get your assistant up and running. Name your assistant, add a description, and choose a language. In following steps we'll gather more information, show you basic customizations, and give you a preview of what your assistant will look like.' There are three input fields: 'Assistant name' (Example: Banking Bot), 'Description (optional)' (Add a description for this assistant), and 'Assistant language' (English (US)).

## Using agents in the chat

In IBM watsonx Orchestrate, agents collaborate to automate tasks and manage workflows. [Learn more using agents in Orchestrate Chat.](#)



## Managing app connections

To use the external applications within IBM watsonx Orchestrate, you must establish a connection between them which acts as bridge enabling communication between watsonx Orchestrate and the external applications. [Learn more about managing app connections and credentials.](#)

## Admin capabilities

IBM watsonx Orchestrate provides a robust set of administrative capabilities to help organizations manage their environments securely, efficiently, and at scale. As an administrator, you can control user access, configure integrations, and ensure compliance with enterprise policies.

- [Managing users](#)

Add, remove, and manage users. Assign roles such as Admin, Builder, or User to control access and permissions.

- [Managing settings](#)

Customize system configurations.

- [Securing your instance](#)

Learn how to secure your watsonx Orchestrate instance.

## watsonx Orchestrate API

Use resources from watsonx Orchestrate with the API. Access resources from the chat such as AI assistants, AI agents, and message threads, or resources from the skill sets such as imported skills, decisions, workflows, and generative AI skills.

- [Getting started with the API](#)

Begin using the API with practical, step-by-step guidance.

- [API reference](#)

Get the methods that you can use to call custom skills, projects, or other resources from the AI chat.

## Quick start hands-on exercises

Try the quick start hands-on exercises for sample use cases to get started with using watsonx Orchestrate:

**Important note:** You must use the hackathon provisioned cloud account to access and use watsonx Orchestrate platform to complete the exercises and to avoid any cloud account usage issues.

### watsonx Orchestrate SaaS sample exercises:

- [Develop agents with no code using watsonx Orchestrate](#)
- [Creating intelligent, reusable agentic workflows on watsonx Orchestrate with no code](#)
- [Build context-aware AI agents with watsonx Orchestrate and Astra DB](#)
- [AgentOps in watsonx Orchestrate: Observability for Agents with Langfuse and IBM Telemetry](#)

### watsonx Orchestrate Agent Development Kit (ADK) sample exercises:

- [Getting Started with watsonx Orchestrate Agent Development Kit](#)
- [Build an AI agent with Langflow, Granite 4.0 models, and watsonx Orchestrate](#)
- [A hands-on guide for creating MCP tools and consuming them with watsonx Orchestrate Agent Development Kit](#)
- [A hands-on guide to bring your own model \(BYOM\) into watsonx Orchestrate using AI Gateway](#)

## 2. IBM watsonx.ai (OPTIONAL)

After successfully [joining the IBM Cloud account](#), you can now access IBM watsonx.ai to work on the platform and build your solution.

### Note on IBM watsonx.ai service usage

For this hackathon, **\$100 credits** will be automatically applied on the provisioned **IBM watsonx.ai platform**. This should be sufficient for designing and creating compelling submissions.

You will receive periodic email notifications about your **credit consumption** at the following usage levels: **25%, 50%,** and **80%**. Once you reach **100% usage**, your account will be **suspended**. You can appeal the suspension by completing the form shared in the account suspension notification email.

Please note that these email notifications are sent **once per hour**, so there is a possibility that you may **exhaust all your credits before receiving an alert**.

Please plan to use the watsonx.ai efficiently and back up your work accordingly. Refer [tips to work efficiently on watsonx.ai platform \(Tokens and CUH explained\)](#) and [saving your work](#).

#### Important:

- **Foundation model inferencing** consumes tokens, which are measured as Resource Units (RUs). **1,000 tokens = 1 RU**, and each RU costs **\$0.0001 USD**.  
[Learn more about tokens and tokenization](#).
- If you are using **Jupyter Notebook editor on watsonx.ai**, consider selecting a **lower runtime environment** to avoid high resource consumption and quickly depleting your credits. Notebook runtimes are billed based on **Capacity Unit Hours (CUH)** at a rate of **\$1.02 USD per CUH**.  
[Learn more about capacity unit hours and watsonx.ai Studio pricing plans](#).

### Note on available watsonx.ai services

The watsonx.ai platform is **pre-configured with only the services required** to complete the hackathon. If you notice a permission/access issue for any service or the cloud catalog, then they are not required/available for this hackathon.

#### These features/capabilities are out of scope for this hackathon:

- Agent Lab (Beta)
- Deploy on IBM Cloud
- Bring your own model
- Fine tuning models
- AutoAI pipeline
- AI governance

- Evaluation Studio
- SPSS Modeler

**DO NOT USE the below listed models as they are out of scope for the hackathon and can negatively impact the judgment of your project submission.**

- llama-3-405b-instruct
- mistral-medium-2505
- mistral-small-3-1-24b-instruct-2503

**The hackathon provisioned IBM Cloud account will be deactivated after the completion of the hackathon. Please plan to [save your work](#) at the end of the hackathon.**

## Access Prompt Lab on watsonx.ai

After successfully joining the IBM Cloud account, you can now access the Prompt Lab on watsonx.ai platform to work with the AI models supported on the platform and build your solution.

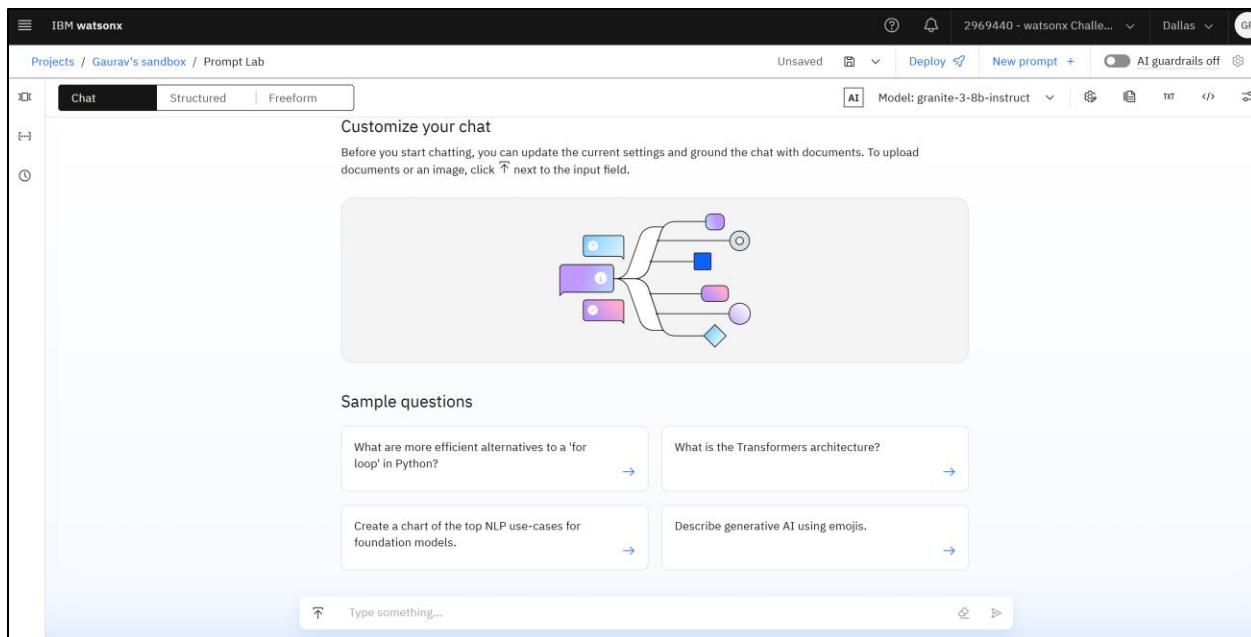
1. Log in to the [watsonx.ai platform](#) with the email you used to access your IBM Cloud account.
2. After successful authentication, you will see “Welcome to watsonx” widget. You have to read and accept the terms, data use policy and cookie use to proceed. You can either take the tour or skip it.
3. Next, you will see the watsonx.ai dashboard. Ensure the name of the account is “xxxxxxxx – watsonx” and the region is “Dallas”.

The screenshot shows the IBM Watsonx AI Platform dashboard. At the top, there's a navigation bar with 'IBM Watsonx' and various dropdowns for account and region. Below the header, there are several tabs: 'Quick links', 'Foundation models', 'Samples', 'Projects', 'Deployment spaces', and 'Documentation'. A 'Welcome back, Gaurav' message is displayed. In the center, there's a 'Default project: watsonx Hackathon Sandbox' section. Below it, there are four cards: 'Automate experiments for machine learning or RAG with AutoAI', 'Tune a foundation model with labeled data with Tuning Studio', 'Evaluate and compare AI assets with Evaluation Studio', and 'Ground gen AI with vectorized documents with Vector indexes'. At the bottom of this section is a 'Filter by goal' dropdown. Further down, there's a 'Chat and build prompts' section with an 'AI' icon, a text input field 'Start chatting...', and a red-bordered 'Open Prompt Lab' button. To the right of this section are 'View all' and a three-dot menu.

4. Select the **Open Prompt Lab** button on the “Chat and build prompts with foundational models” widget.



5. The “Welcome to Prompt Lab” tour will be displayed. You can take the tour to get a quick introduction or skip it.
6. The Prompt Lab Editor opens with a chat window to get you started with the prompt session.



## Work with the watsonx.ai Prompt Lab

The watsonx.ai Prompt Lab is an easy-to-use prompt engineering interface where you can experiment prompting different AI foundation models, explore sample prompts, tune model parameters, integrate applications with an API endpoint, and save and share your best prompts.

[Take a tour of the Prompt Lab](#) and try the [interactive demo](#).

You can access and use the AI models to build your innovative solution using Prompt Lab.

### Prompt Lab editor

In the Prompt Lab, you can experiment with prompting different foundation models, explore sample prompts, as well as save and share your best prompts. The Prompt Lab editor is a great place to experiment and iterate with your prompts. Try the [quick start lab](#).

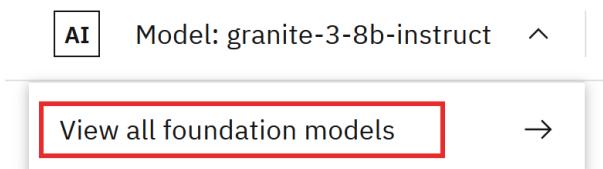
However, you can also prompt foundation models in watsonx.ai programmatically. Refer to “[Programmatic access \(API/SDK\)](#)” section.

### Selecting an AI model

A default AI model will be pre-selected in the Prompt Lab editor. You can either use the same model or change

to a different model. To select a different model:

1. Select the AI Model drop-down menu at the top-right of the editor and select **View all foundation models**.



2. The **Select a foundation model** widget will appear. Clear the filters to see all the available models. You can use the filters to choose the right model for your solution building. You can select a model tile to learn about the model and use it. If you are limited to only “**Chat**” supported models, change the Prompt Lab editor to **Structured** or **Freeform** view and try selecting the models to see all the available model options.

**Important: DO NOT USE the below listed models as they are out of scope for the hackathon and can negatively impact the judgment of your project submission.**

- llama-3-405b-instruct
- mistral-medium-2502
- mistral-small-3-1-24b-instruct-2503

To understand how models can address your use case, including information on model modalities, supported languages, tuning, and indemnification, see our product documentation on [choosing a model](#).

**Note:** Bigger models are not always better. [Learn](#) why smaller models can be better and more cost effective.

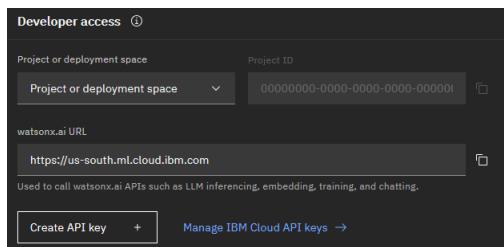
## Programmatic access (API/SDK)

You can inference the watsonx.ai models with API or SDK requests.

### Developer access information

To use the supported watsonx.ai APIs/SDKs, you will need three values: a **project ID**, an **endpoint URL** and an **API key**.

- Go to [watsonx.ai home page](#).
- Scroll down to the “**Developer access**” section.



- Select the **Project or deployment space** drop-down and select the **watsonx Challenge Sandbox** option. A **project ID** will be displayed.

**Note:** A space ID is **not required** as it is out of scope for the hackathon.

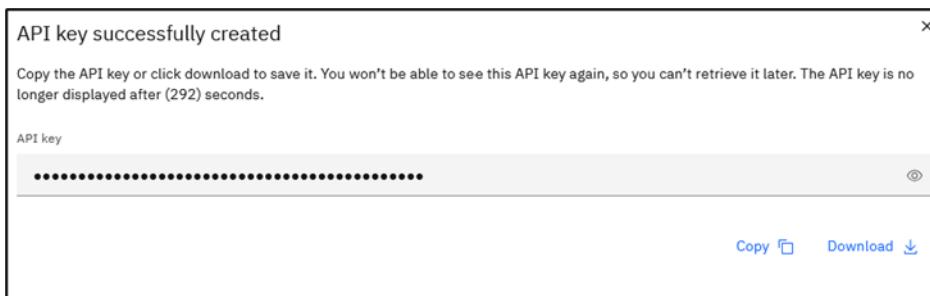


- A default **watsonx.ai endpoint URL** will be displayed for the Dallas region. Ensure the region is always set to **Dallas** at the top right of the watsonx.ai home page.



- Select the **Create API key** button. A **Create API key** widget will be displayed. Enter a name, provide optional description and choose the “Disable the leaked key” option. Click the **Create** button.

- An API key will be created successfully. Copy the API key and save it safely to use for calling the API/SDK. You can also download and save the file in a secure path in your system.



## watsonx.ai programmatic options

There are multiple options to help you get started using watsonx.ai APIs/SDKs.

### Option 1: Prompt Code on Prompt Lab

Refer to the [access prompt code instructions](#) to learn how to quickly get access to the text generation API within the watsonx.ai Prompt Lab.

### Option 2: Different watsonx.ai API capabilities

Explore and leverage different watsonx.ai API capabilities in your solution.

- [Chat](#)
- [Agent-driven chat](#)
- [Tool calling](#)
- [Text generation](#)
- [Time series](#)
- [Text rerank](#)
- [Embeddings](#)
- [Text extraction](#)

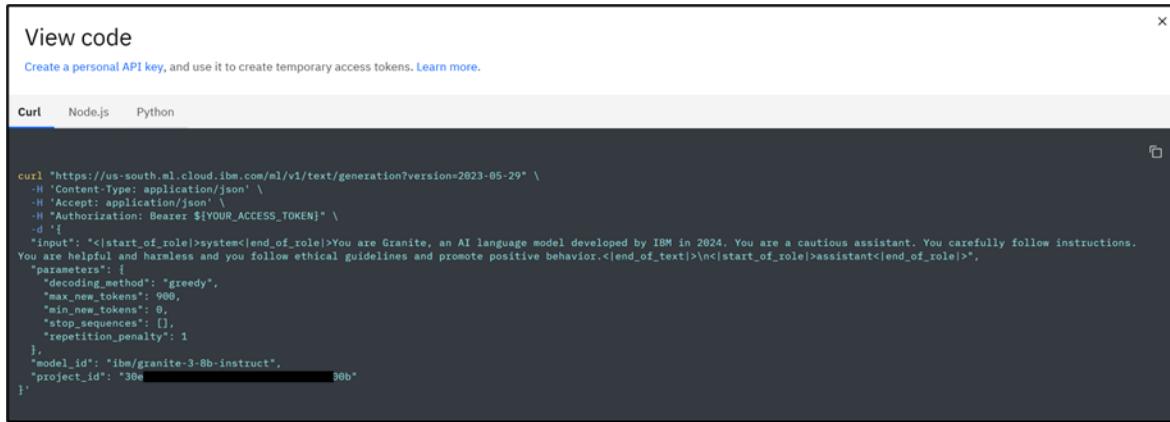
Refer to supported API functionality by model [here](#).

### Access the prompt code (API) from Prompt Lab editor

To prompt an AI model programmatically, you can view and copy the prompt code by selecting the **View code** icon </> at the top-right of the prompt lab editor.



The prompt code is available as a Curl, Node.js and Python.



You will require an IAM access token to authorize the prompt code and need to replace **`YOUR_ACCESS_TOKEN`** placeholder in the prompt code. You can create an IAM access token using an API key.

- API key:

Refer to [Developer access information](#) to get an API key.

- **Generate IAM Access Token:**

Programmatically generate an IAM access token with the API key using the following cURL command:

```
curl -X POST 'https://iam.cloud.ibm.com/identity/token' -H 'Content-Type: application/x-www-form-urlencoded' -d 'grant_type=urn:ibm:params:oauth:grant-type:apikey&apikey=MY_APIKEY'
```

- **curl -X POST** → Specifies an HTTP **POST** request.
  - **URL ("https://iam.cloud.ibm.com/identity/token")** → The endpoint to request an authentication token from IBM Cloud.
  - **-H "Content-Type: application/x-www-form-urlencoded"** → Sets the request header to indicate that the data is sent in form-encoded format.
  - **-d (Data Payload)** → Sends the required data:
  - **grant\_type=urn:ibm:params:oauth:grant-type:apikey** → Specifies the OAuth grant type as API Key.
  - **apikey=MY\_IBM\_CLOUD\_API\_KEY** → Replace MY\_IBM\_CLOUD\_API\_KEY with your actual IBM Cloud API key.

### Expected Response:

```
{  
    "access_token": "eyJhbGciOiJIUzI1NiBhaIiKg....sgrKIi8hdFs",  
    "refresh_token": "not_supported",  
    "token_type": "Bearer",  
    "expires_in": 3600,  
    "expiration": 1473188353,  
    "scope": "ibm openid"  
}
```

**Note:** An IAM token is valid for up to 60 minutes, and it is subject to change. When a token expires, you must generate a new one. Use the property “*expires\_in*” for the expiration of the IAM token that you have just created.

## watsonx.ai AI agent libraries and tutorials

Explore the watsonx.ai supported AI agent framework libraries and tutorials to help you get started building your AI agent solution.

- [LangChain](#)
- [LangGraph](#)
- [LlamaIndex](#)
- [CrewAI](#)
- [BeeAI](#)
- [AutoGen](#)
- [Python SDK](#)
- [Node.js SDK](#)

## Quick start hands-on exercises

Try the quick start exercises and notebooks for sample use cases to get started with using watsonx.ai.

### Important notes:

- Refer to [developer access information](#) section to use watsonx.ai credentials as you try the exercises.
- Some of the exercises could include the usage of old model version. You can replace them with newer versions for better performance and output. To check the latest supported AI models on watsonx.ai, either follow [selecting an AI model on Prompt Lab](#) or refer to [supported foundation models on watsonx.ai](#).
- The hackathon provisioned cloud accounts **do not support solution deployment**. You can run your solution deployment locally on your machine and showcase them in your submissions.
- **Foundation model inferencing** consumes tokens, which are measured as Resource Units (RUs). **1,000 tokens = 1 RU**, and each RU costs **\$0.0001 USD**.  
[Learn more about tokens and tokenization](#).
- If you are using [Jupyter Notebook editor on watsonx.ai](#), consider selecting a **lower runtime environment** to avoid high resource consumption and quickly depleting your credits. Notebook runtimes are billed based on **Capacity Unit Hours (CUH)** at a rate of **\$1.02 USD per CUH**.  
[Learn more about capacity unit hours and watsonx.ai Studio pricing plans](#).

### watsonx.ai Prompt Lab app templates:

- [LangGraph LLM app template with function calling capabilities](#) (base template)
- [LlamaIndex Workflow LLM app template with function calling capabilities](#) (base template)

- [CrewAI LLM app template with function calling capabilities](#) (base template)
- [arXiv Research agent](#) (community template)
- [Agentic RAG LangGraph template](#) (community template)

### BeeAI Agent Framework:

- [BeeAI framework examples](#)

### LangChain and LangGraph:

- [Create a LangChain AI Agent in Python using watsonx](#)
- [Build a RAG agent using LangGraph to answer complex questions](#)
- [Build a LangChain agentic RAG system using the Granite model in watsonx.ai](#)
- [Use watsonx, and LangChain Agents to perform sequence of actions](#)
- [Use watsonx, and LangChain to make a series of calls to a language model](#)
- [arXiv Research agent](#)
- [Base LangGraph LLM app template with function calling capabilities](#)

### LlamaIndex:

- [Use watsonx and LlamaIndex for Text-to-SQL task](#)
- [Use watsonx, and `llama-3-1-70b-instruct` and LlamaIndex to make simple chat conversation and tool calls](#)
- [LlamaIndex Workflow LLM app template with function calling capabilities](#)

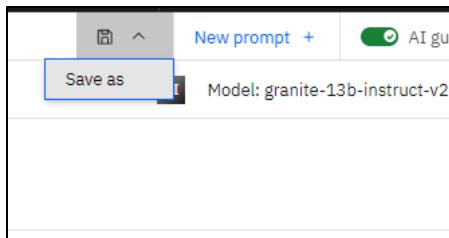
### CrewAI:

- [Leveraging CrewAI and IBM watsonx](#)
- [Build an agentic framework with CrewAI memory, i18n, and IBM watsonx.ai](#)
- [Base CrewAI LLM app template with function calling capabilities](#)

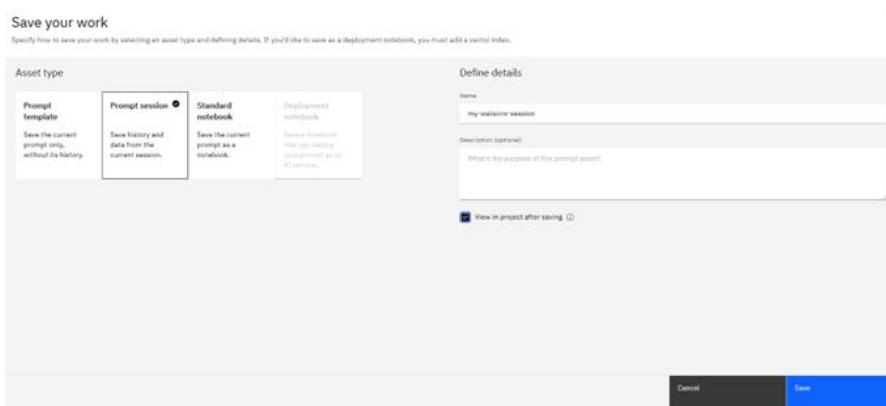
## Save your Prompt Lab session

You can save your Prompt Lab editor session for later use.

1. At the top of the Prompt Lab screen, select the **Save work** dropdown button and then select the **Save as** option.



2. A **Save your work** widget will appear. Select **Prompt session** under the **Asset type** option.
3. Enter a **name** and check the **View in project after saving** option under the **Define details** section.
4. Finally, click the **Save** button. Once you save, you will see the saved work under the **Assets** tab



You can also save your work as:

- **Prompt template** to save only the current prompt without its history and selecting a **Task** suitable for your prompting.
- **Notebook** to continue prompting on a Jupyter Notebook environment. Prior knowledge of notebooks and Python programming language would be helpful to work with a Jupyter notebook. [Read more about notebooks](#).

## Save your work on watsonx.ai

Make sure to save any work you want to retain for your records. IBM Cloud accounts will be deactivated at the end of the hackathon. Follow the steps below to save your work:

1. Go to your project's 'Overview' tab.
2. Select the 'Export or import project' drop down below the Bell icon in the top menu bar.
3. Click the 'Export project' option. This will open 'Export project to desktop' screen.
4. Select all the assets shown in your project (Work saved as Project session cannot be exported) and click 'Export' on the bottom-right of the screen.

5. The next screen will ask for confirmation that all sensitive information has been removed.
6. Click on ‘Continue export’.
7. The download (zip) will be initiated, and the file will be saved on your computer.