Environment Setup Instructions

Introduction

Complete the steps in this guide to ensure your desktop environment has all the required tools/libraries installed and ensure you have the necessary IBM Cloud access.

1. Obtaining your Techzone Environment

Please follow the Techzone_reservation.pdf file to reserve the following resources that will be used later on in the lab

- Watsonx.ai
- Watsonx.assistant
- Watson.discovery
- Milvus DB (watsonx.data)

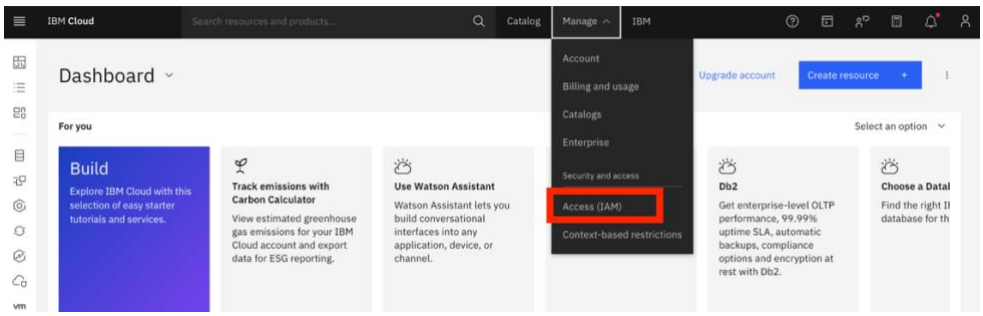
2. Obtain your IBM keys

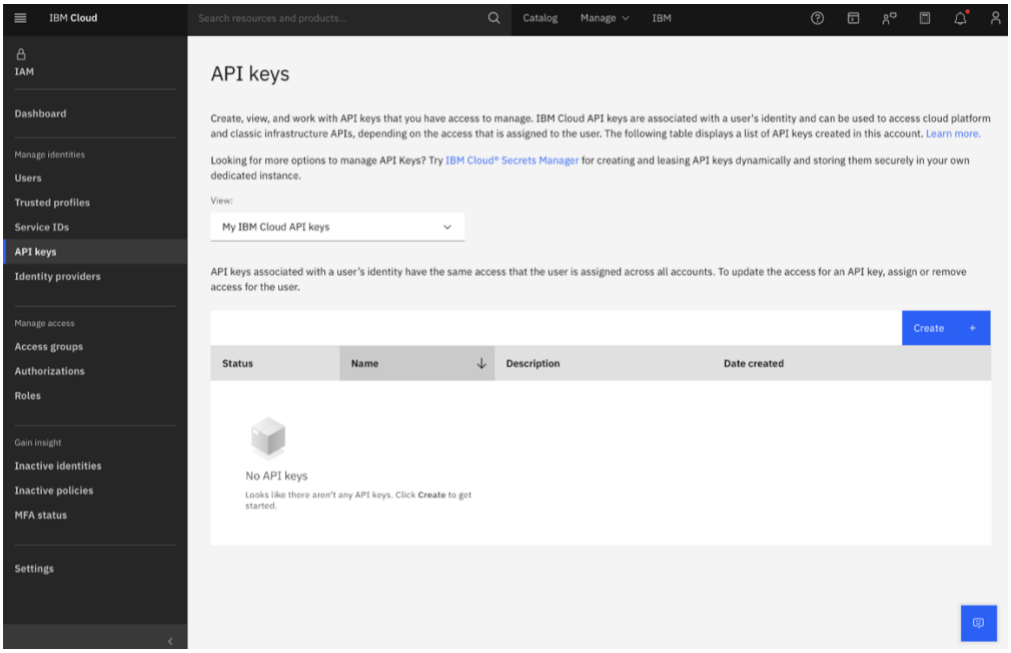
2.1 Obtain your IBM Cloud API key

If you already have an existing API key please use it, otherwise follow these instructions to generate a new one in the IBM cloud. You will need this API key for next steps.

2.1.1 Login to your IBM cloud account through this link. If you have not had an IBM cloud account, please create one

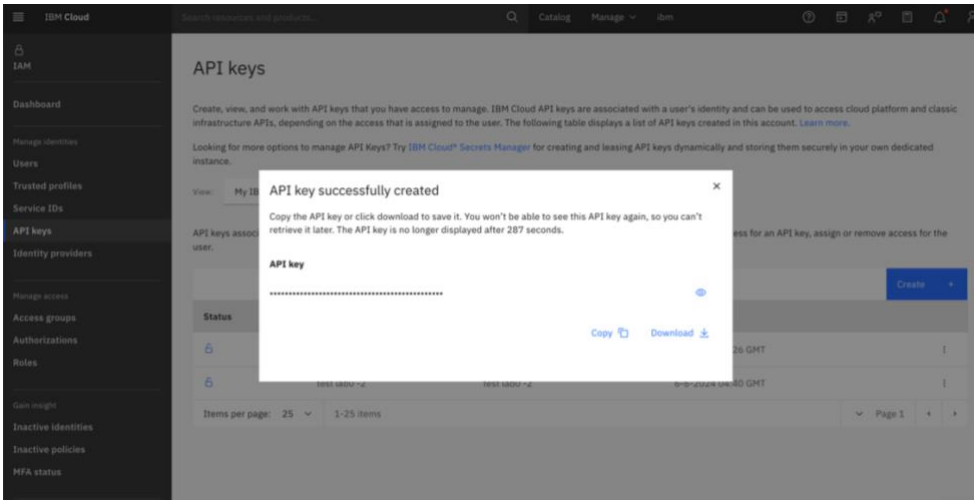
2.1.2 In the IBM Cloud console, go to **Manage** > **Access (IAM)** > **API keys**.





2.1.3 Click **Create** to create an IBM Cloud API key.
2.1.5 Enter a name and description for your API key.
2.1.5 Click **Create**.
2.1.6 Click **Show** to display the API key.

Please make sure to click **Copy** to copy and save it for later, you will not be able to access them again.
Save this key for later step in this set up.

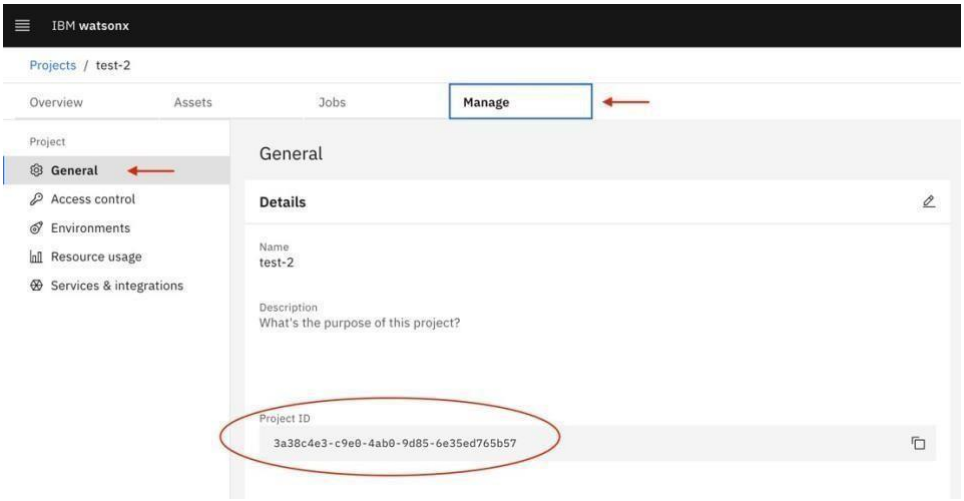


2.2 Connect to your watsonx.ai instance

Ensure that you can log into to watsonx.ai.

2.3 Locate the Watsonx.ai Project Id.

2.3.1 Ensure you are logged into to watsonx.ai.
2.3.2 Select the project under your organization name.
2.3.3 Select the "Manage" tab from your Project's main page.
You will see your Project ID under the "General" tab as shown below.
Save this key for later step in this set up.

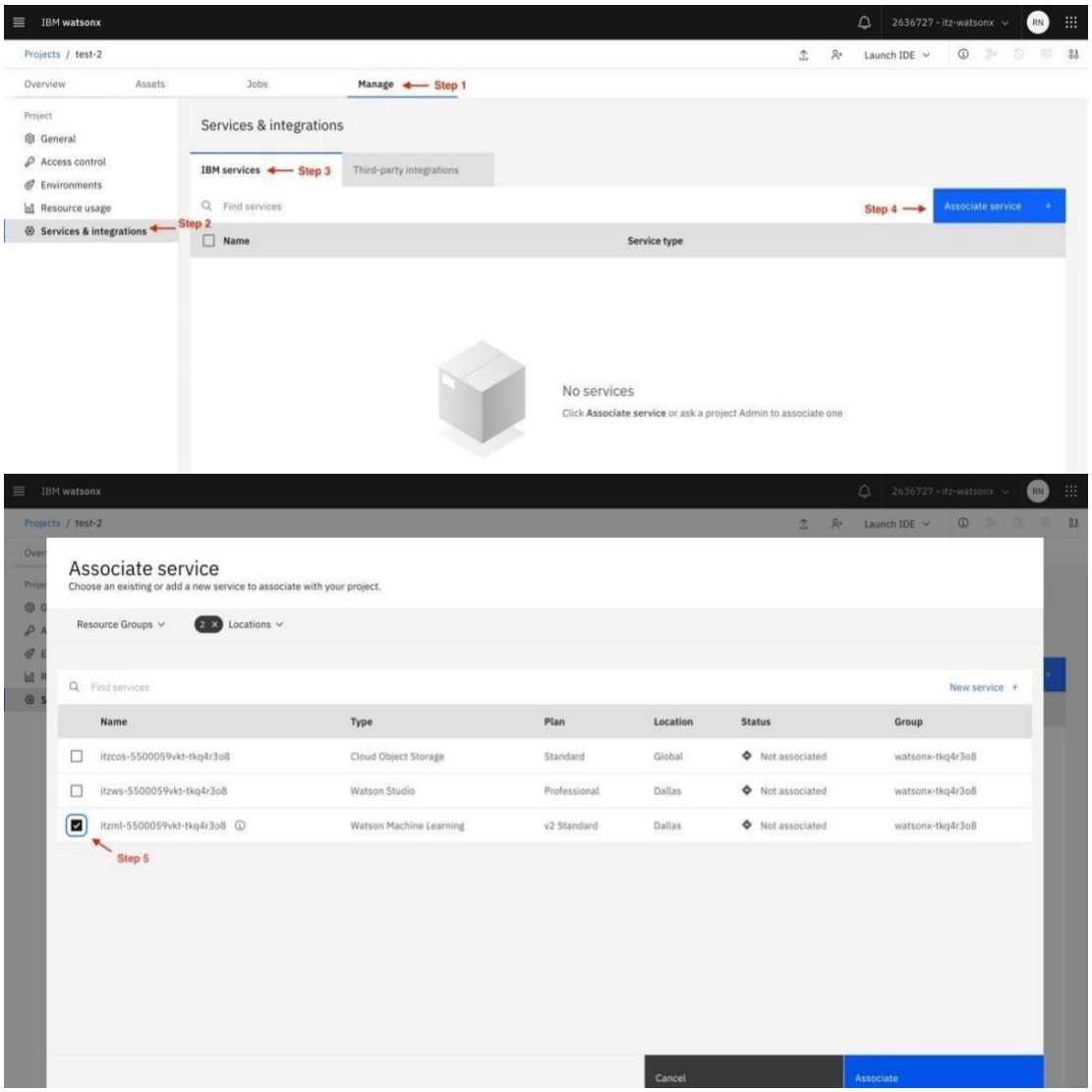


2.4 Associate your project with a WML instance

A watsonx.ai project must always be associated with an instance of Watson Machine Learning (WML) before you can use the Prompt Lab or interact with the WML Python SDK.

If the WML instance is not associated for some reason complete the following steps

1. Within your newly created watsonx.ai project, click the Manage tab
2. Select Services & integrations from the side navigation menu
3. Select the IBM Services tab
4. Select Associate service +
5. Choose a WML instance and select Associate



3. Clone the workshop Git repo

If you are familiar with git command, you can directly clone this GitHub repository by create a new directory in your local computer and run the following command

```
git clone https://github.com/edsml-kl121/TH_msc_generative_ai_incubation_program
```

Otherwise, we recommend downloading and installing the Github Desktop and then follow these instructions on how to clone a repository using Github Desktop.

4. Install Visual Studio Code (VS Code)

We recommend installing VS Code for this workshop, so we are on a common platform.

5. Update credentials in .env file

Python provides support for **.env** files through a library called **dotenv** that we will use in this workshop to pass the credentials.

5.1 Create a new file inside the TH folder, and name the file **".env"**. If you have created the file, but are having trouble viewing it, learn how to view hidden files on a Mac or how to view hidden files on Windows.

5.2 Open the .env file, add the following content:

```
WATSONX_APIKEY = <your-ibm-cloud-api-key>
IBM_CLOUD_URL = 'https://us-south.ml.cloud.ibm.com'
PROJECT_ID=<your-project-id>
MILVUS_HOST=<TBC>
MILVUS_PORT='8080'
MILVUS_SERVER_NAME='localhost'
MILVUS_USER='root'
MILVUS_PASSWORD='4XYg2XK6sMU4UuBEjHq4EhYE8mSFO3Qq'
MILVUS_SERVER_PEM_PATH='./cert.pem'
EMB_IBM_CLOUD_URL=<TBC>
EMB_PROJECT_ID =<TBC>
EMB_WATSONX_APIKEY=<TBC>
EMB_SPACE_ID =<TBC>
EMB_DEPLOYMENT_ID =<TBC>
```

Use the IBM_CLOUD_URL given above. The API_KEY and PROJECT_ID need to be filled in by you.

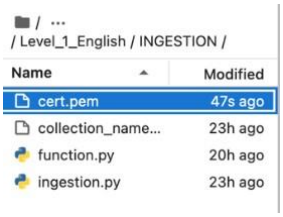
5.3 Add your IBM Cloud API key from Step 2.1.6 in API_KEY
5.4 Add your project ID from Step 2.3.3 in PROJECT_ID
5.5 Follow the instructions to get the milvus credentials (MILVUS_HOST and cert.pem file)
5.6 The remaining will be provided by the watsonx team

Save your changes and close the file.

6. Adding cert.pem file

3.1.2 Add `**cert.pem**` file that you received in your email inside this lab 0 base directory.

File content starts with *-----BEGIN CERTIFICATE----* and end with *-----END CERTIFICATE---*



3.1.2 Also add `**cert.pem**` file to lab 04 directory > INGESTION folder before running lab 6

7. Download Environment

7.1 Install podman

Install **podman** by follow instruction below. For further information, please follow this link.

For Mac installation

1. Make sure you have homebrew installed in your computer, if not please run this command

```
/bin/bash -c "$(curl -fsSL
https://raw.githubusercontent.com/Homebrew/install/HEAD/install.sh)"
```

2. After brew is installed, use this command to install podman

```
brew install podman
```

3. Create your first podman machine

```
podman machine init
podman machine start
```

For windows installation

You can install it by searching the **Windows Store** or
by running the following winget command

```
winget install Microsoft.WindowsTerminal
```

Checkout this link for more information

7.2 Running the lab with podman/docker

Execute the following in terminal.

1. Pull images of the environment that will be used in the lab

```
podman pull u1800085/ibm-watsonx-incubation-program-v2:incubation_watsonx_th_latest
```

2. Start the container with the image that was pulled. Please ensure you are executing this outside the gen_ai_incubation_watsonx_th directory

```
podman run -p 8888:8888 -p 8501:8501 -v ./:/usr/src/app --name incubation
docker.io/u1800085/ibm-watsonx-incubation-program-v2:incubation_watsonx_th_latest
```

3. Enter the *localhost:8888* on your web browser for **LAB 1-4**
4. For **LAB 5-6** please open another terminal and execute the following command

```
podman exec -it incubation /bin/bash
```

then cd to your lab's base directory to run your command.

7.3 ONLY If docker/podman installation is unsuccesfull you can try the following method,
otherwise **skip this step**. (Create a virtual python environment and install all required libraries.)

Install all the python libraries using this requirements_venv.txt.

You can use your favourite python package manager and create a virtual environment called genai and install all the python using this requirements_venv.txt. For windows users, it is recommended to use conda.

```
conda create --name genai python=3.11  conda activate  genai
pip install -r requirements_venv.txt
```

Optionally, if you want to use a virtual environment using `venv`, follow the steps below.

1. Upgrade to Python v3.11 to avoid any conflicts: Minimum python version needed for our workshop is 3.11. Upgrade your python version to Python 3.11

2. Create your Python virtual environment:

    a. Create a folder <my-folder>
    b. Open a terminal/console window and enter the commands below to create a Python environment called `genai`.

    ```
    cd <directory to store your Python environment>
    ```

    ```
    python -m venv genai
    ```

    c. Download requirements_venv.txt
    d. Move the requirements_venv.txt file to the folder <my-folder>
    e. Activate your Python virtual environment with these commands:
    Mac-

    ```
    source genai/bin/activate python -m pip install r requirements_venv.txt
    ```

    Windows-

    ```
    .\genai\bin\activate python -m pip install -r requirements_venv.txt
    ```

    f. Validate that the start of the prompt line in your terminal/console window changed to genai.

```
(base) anthonystevens@anthonys-mbp Python.venv % python -m venv genai
(base) anthonystevens@anthonys-mbp Python.venv % source genai/bin/activate
(genai) (base) anthonystevens@anthonys-mbp Python.venv %
```