

Setup for the Retail use case lab

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Introduction

This document contains the documentation for the setup of the environment to prepare for the step-by-step walkthrough of the [Retail use case](#).

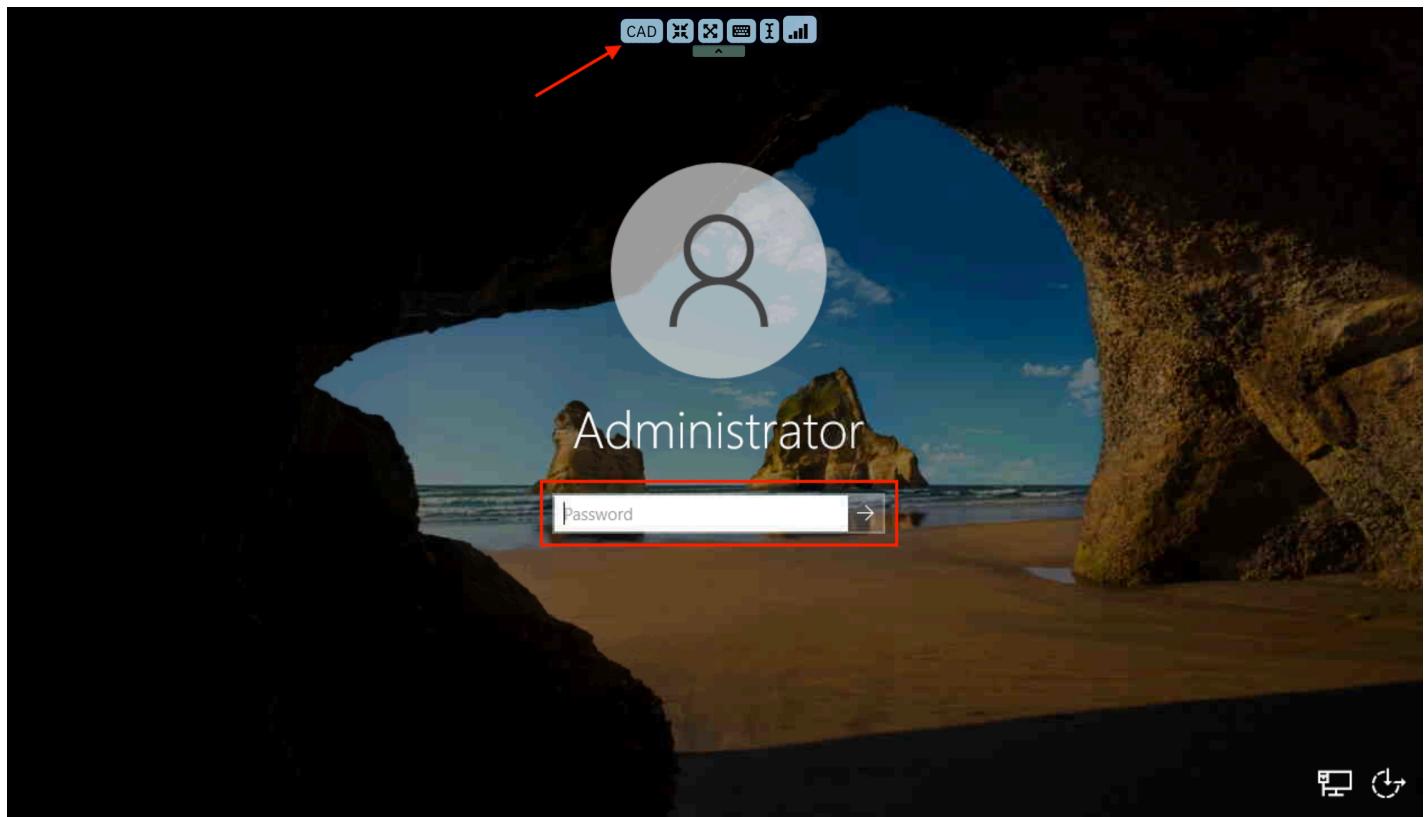
The use case takes you through the creation of tools and agents using the [IBM watsonx Orchestrate Agent Development Kit \(ADK\)](#). This toolkit can be installed on a local machine and brings with it the core components of watsonx Orchestrate, as container images that are running in a container runtime like Docker or Rancher. It also installs a CLI that can be used to manage a locally running instance as well as remote instances running in the cloud.

Virtual machine option

For this lab, you have the option to define and run the agents locally on your own laptop, using the ADK. The system requirements are mentioned/referenced in the [ADK install section](#) below.

If you are unable to run the ADK locally, your instructor will provide you with access to a virtual machine that has the ADK already installed. You can access the VM by using a console link that opens a view of the VM's desktop UI in a browser tab.

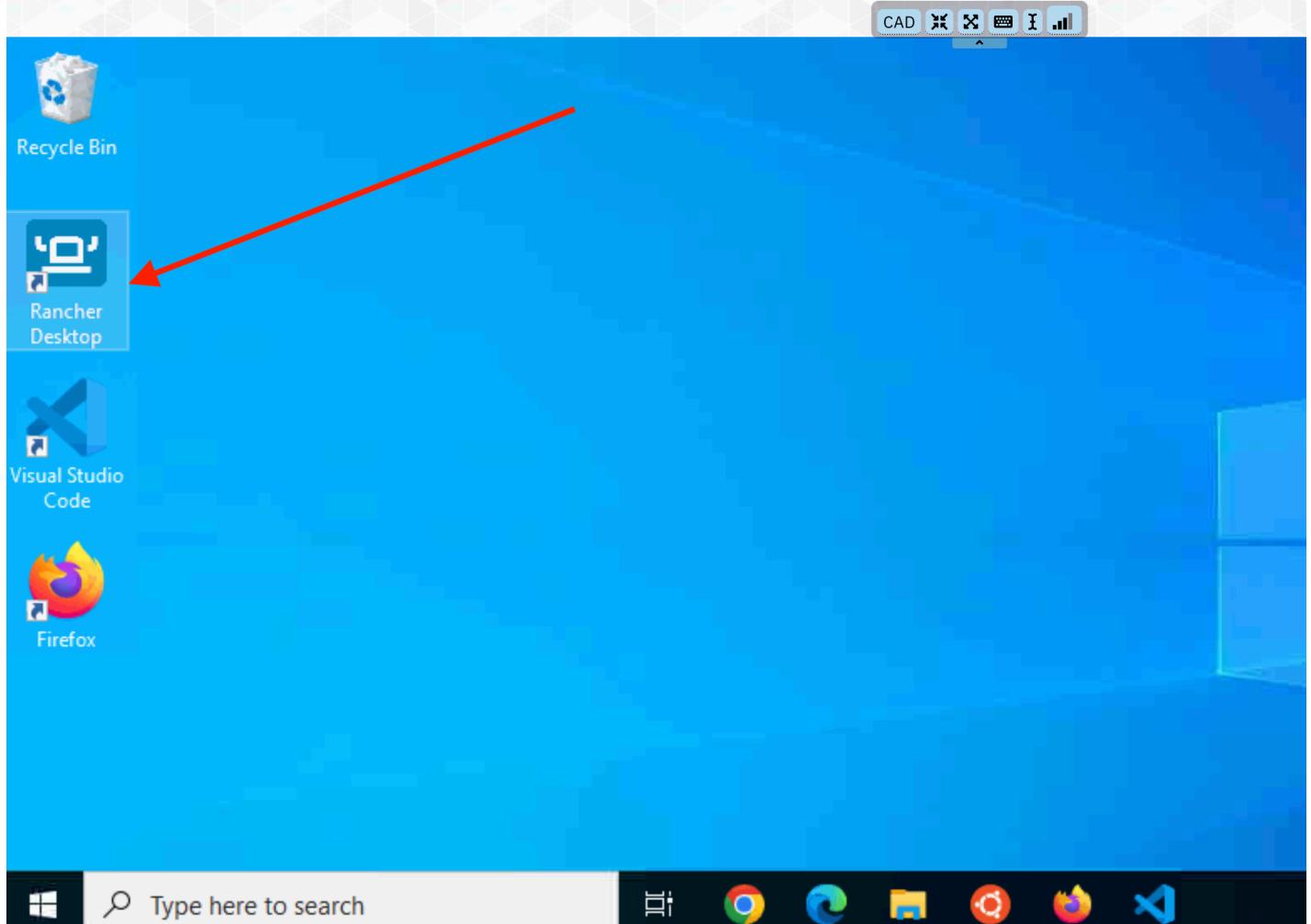
Click the **Ctrl-Alt-Delete CAD** button (annotated with red arrow) to be prompted to enter username and password. Keep the default username as **Administrator** and enter the password **IBMDem0s** in the password field (annotated with red rectangle) and hit **ENTER**.



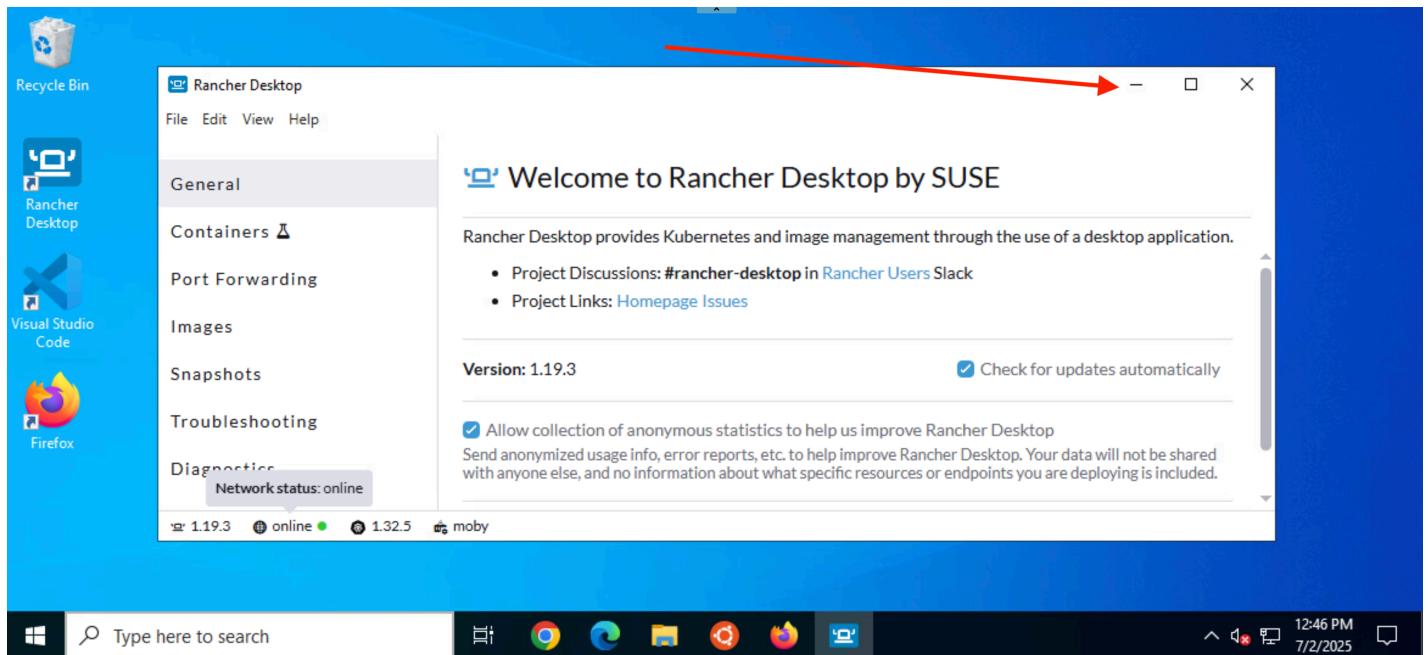
Optional It is also recommended to resize the virtual screen to Full Screen. To do so, click the **Resize** icon (annotated with red arrow) and select **Fullscreen** (annotated with red rectangle).

If you get a pop-up about an Unplanned shutdown, cancel that pop-up.

Once logged into the Windows VM, let's start **Rancher Desktop**. This is the container runtime we will use later for the ADK. On the home screen, double-click the Rancher Desktop icon.

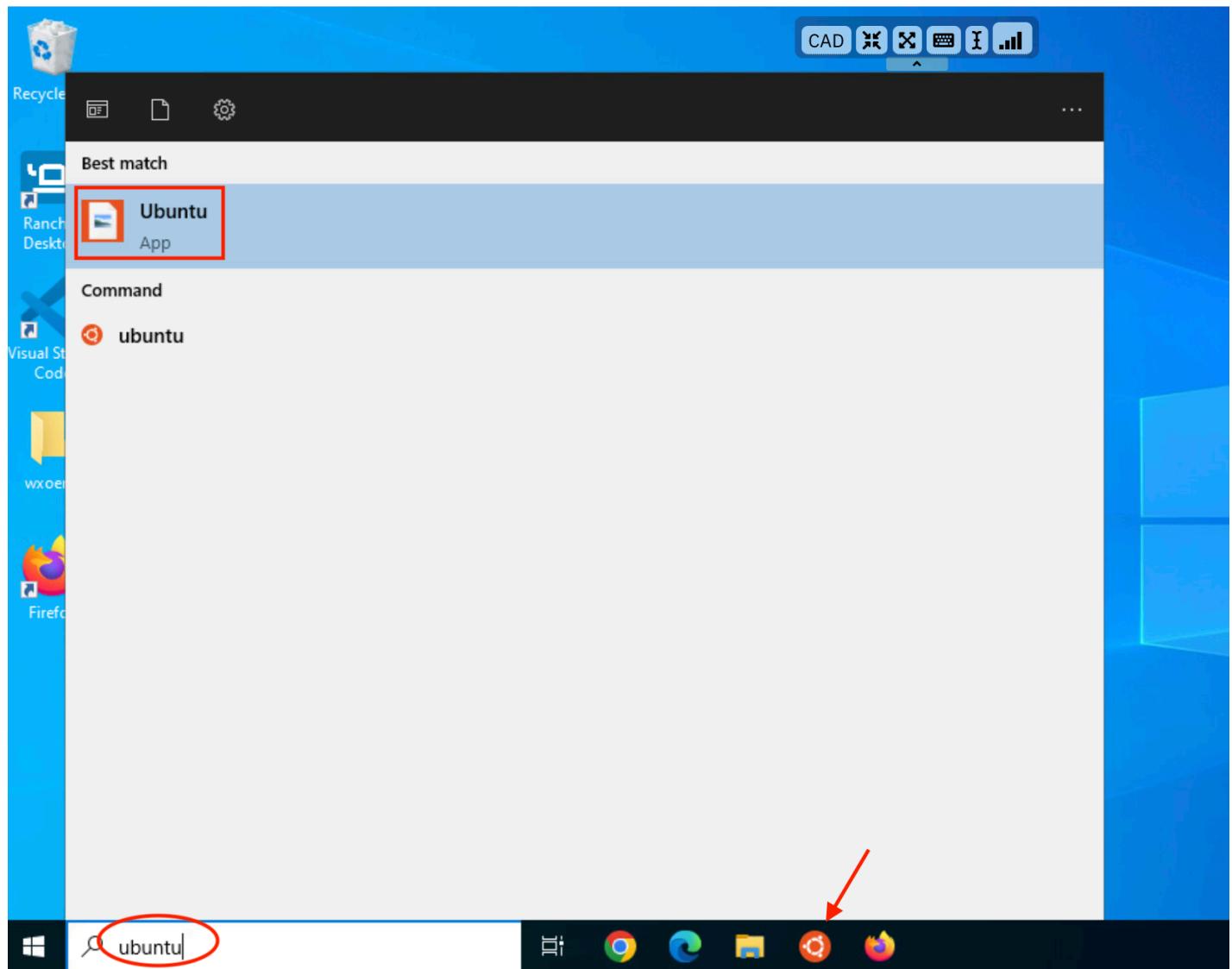


You will see in the Rancher console that it is starting up the service. Once that has completed, you can minimize the window, since we won't need it anymore.



Next, you need to open a command line terminal with access to the WSL instance. To start, click the **Ubuntu** icon (annotated with red arrow) pinned to the taskbar to start the Ubuntu terminal. Alternatively, you can type **ubuntu**

into the search field (annotated with a red oval) and click the **Ubuntu** app (annotated with a red rectangle).



In the Ubuntu terminal, you need to activate the Python environment, which is already setup and has the watsonx Orchestrate ADK pre-installed.

```
source /home/techzone/wsl_wxoenv/bin/activate
```

```
techzone@WIN-36L4N1I4M60:~$ source wsl_wxoenv/bin/activate
((wsl_wxoenv)) techzone@WIN-36L4N1I4M60:~$ python -V
Python 3.12.11
((wsl_wxoenv)) techzone@WIN-36L4N1I4M60:~$
```

Lab materials

The materials for this lab will be given to you by your instructor in the form of a zip file. You need to unzip this file into a folder on your machine. The file contains a set of markdown files that represent the instructions for various parts of the bootcamp (including this very file), as well as code samples that you are going to use. Where to unzip the file differs based on whether you are running this lab on your local machine or on a virtual machine provided to you.

Local machine

In this case, you can choose any folder as the base for the material. You should use that same folder as the current directory when installing the ADK (which is described in more detail [below](#)). After unzipping, listing the files in a command terminal should look like shown below (this screenshot is taken on MacOS):

```
(wxo_env) Andres-MacBook-Pro-2:agentic-ai-client-bootcamp andretost$ ls -l
total 11200
-rw-r--r--  1 andretost  staff  5729787 May  8 17:58 agentic-bootcamp.png
drwxr-xr-x  9 andretost  staff    288 Jun 11 12:27 environment-setup
-rw-r--r--  1 andretost  staff    973 Jun  9 08:45 README.md
drwxr-xr-x 10 andretost  staff    320 Jun  6 12:59 usecases
(wxo_env) Andres-MacBook-Pro-2:agentic-ai-client-bootcamp andretost$ █
```

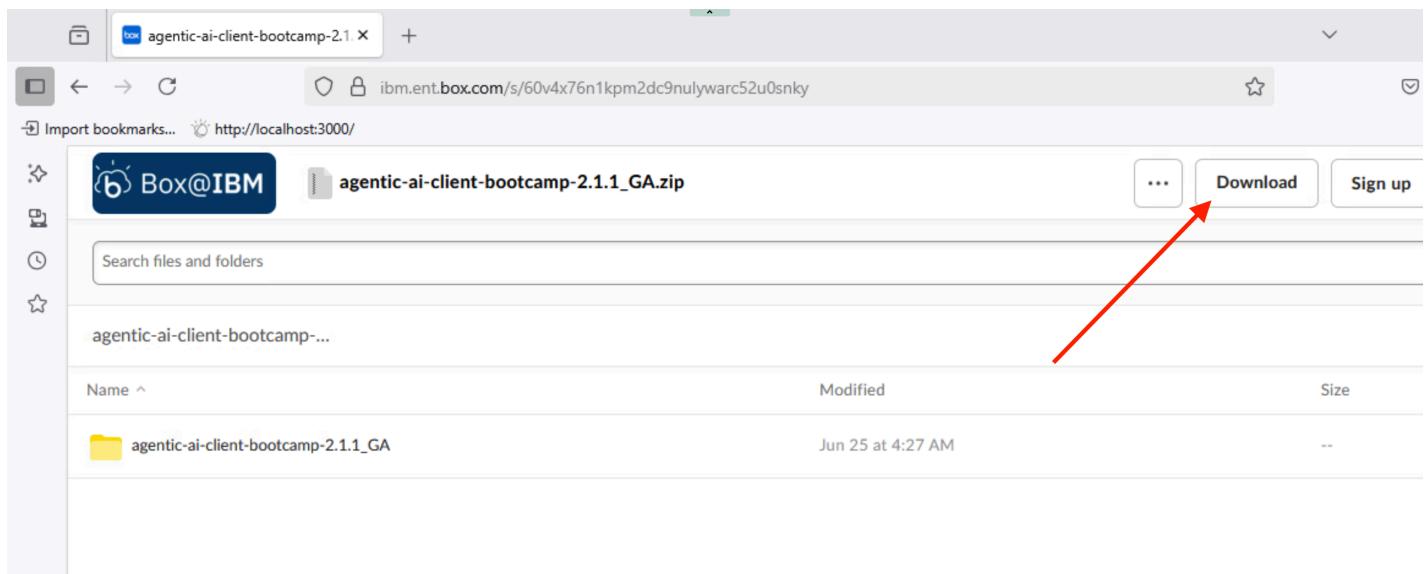
VS Code

We recommend you use VS Code to view the materials and edit files as needed. Assuming you have the command line starter installed, you should be able to start VS Code right from the command line by entering `code .`

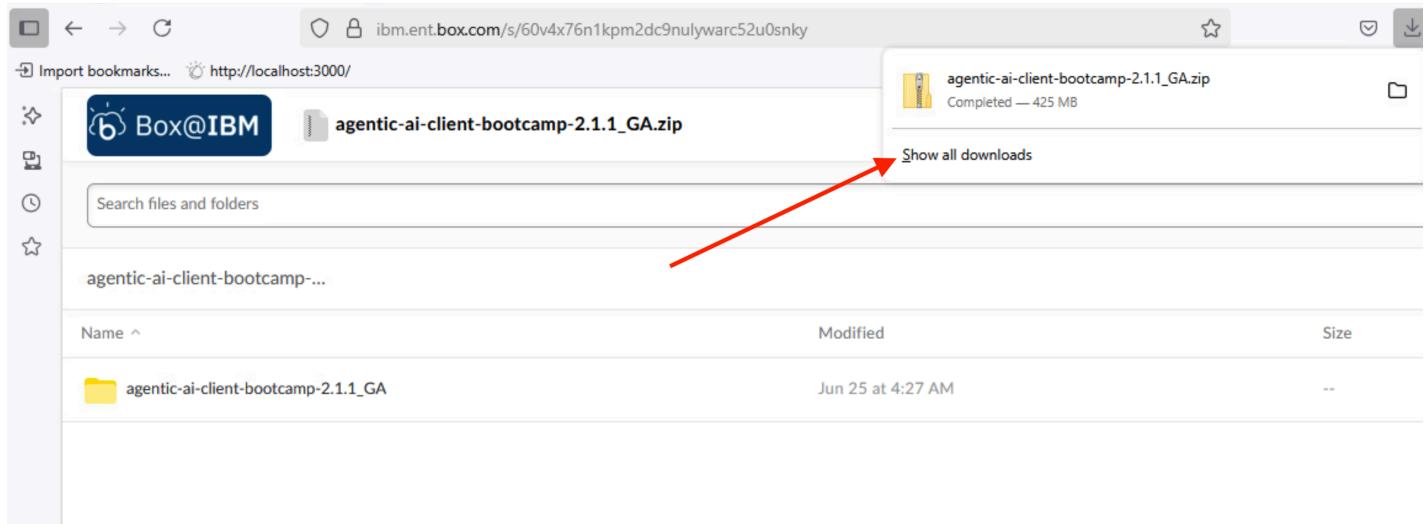
Virtual machine

The virtual machine is using Windows as its operating system; however, we will be using the "Windows Subsystem for Linux (WSL)" to run the ADK. When downloading and unzipping the file with materials, you should put it into the folder that has been precreated.

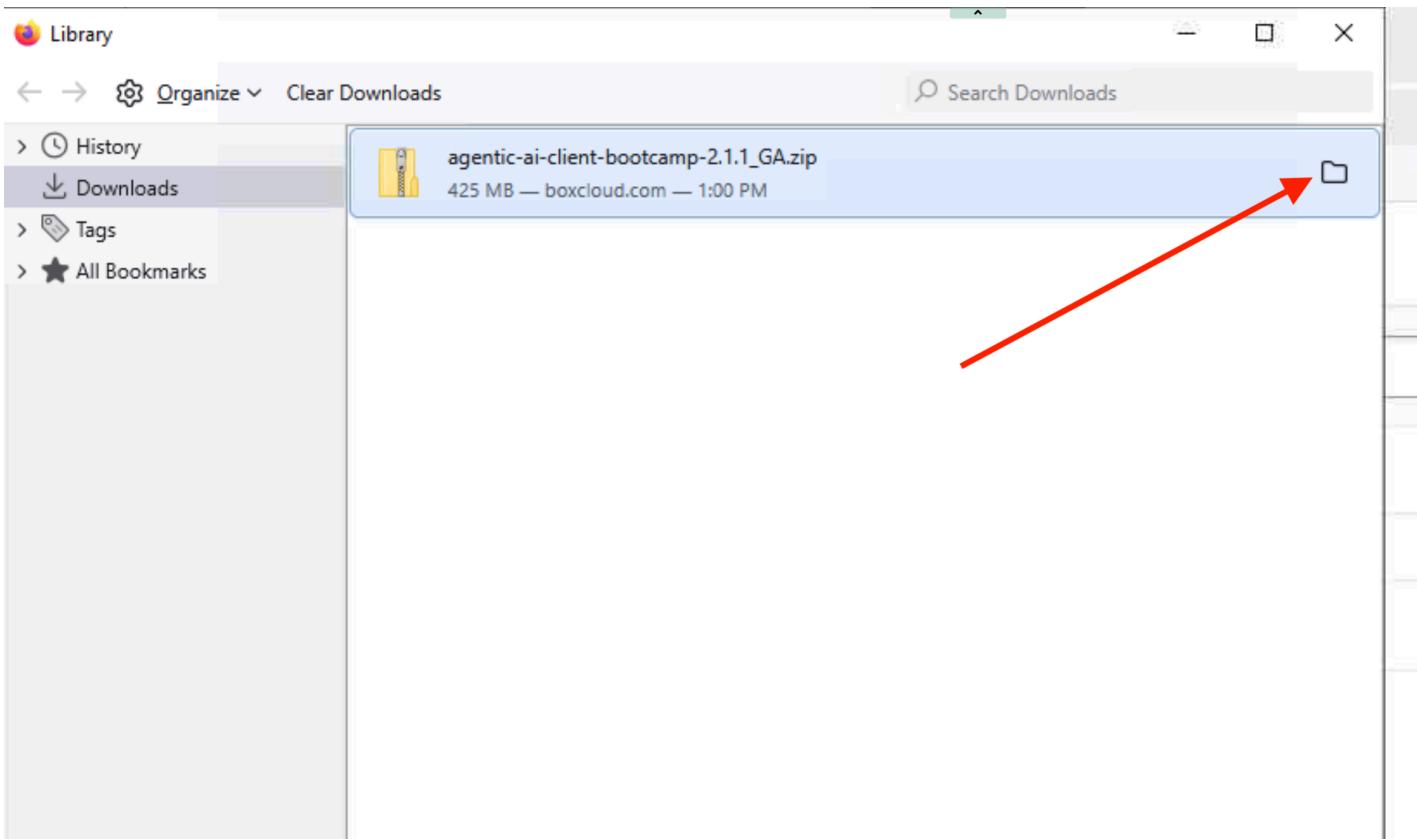
After you open the VM console in your browser, you will see the Windows user interface. There, you can open a Firefox browser window and enter the address your instructor gave you. In the example below, the zip file exists as a downloadable file in Box:



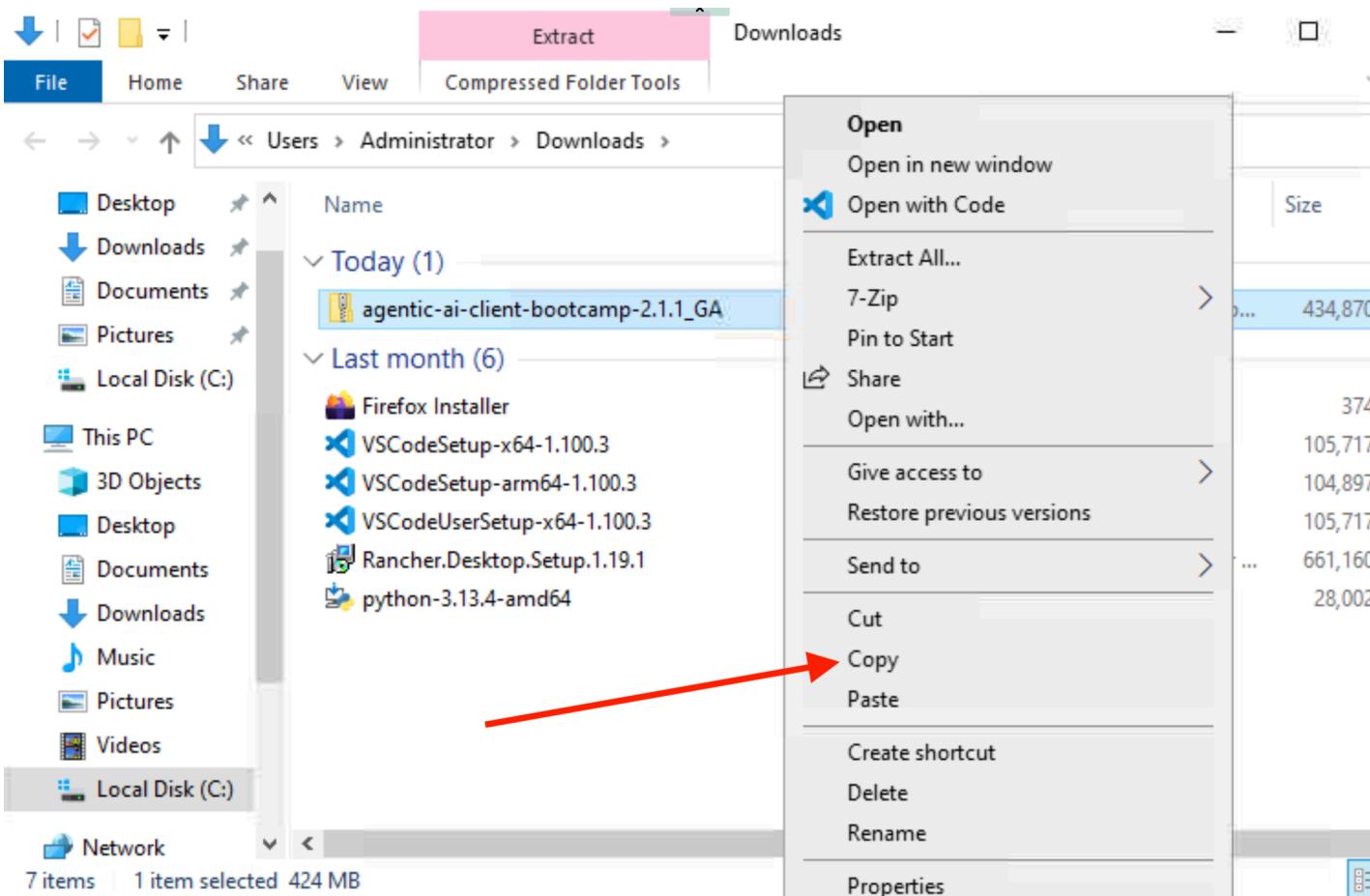
When clicking on the Download button, the file will be downloaded into the Downloads folder on the Windows machine. Open that folder by simply clicking on the Show all downloads button.



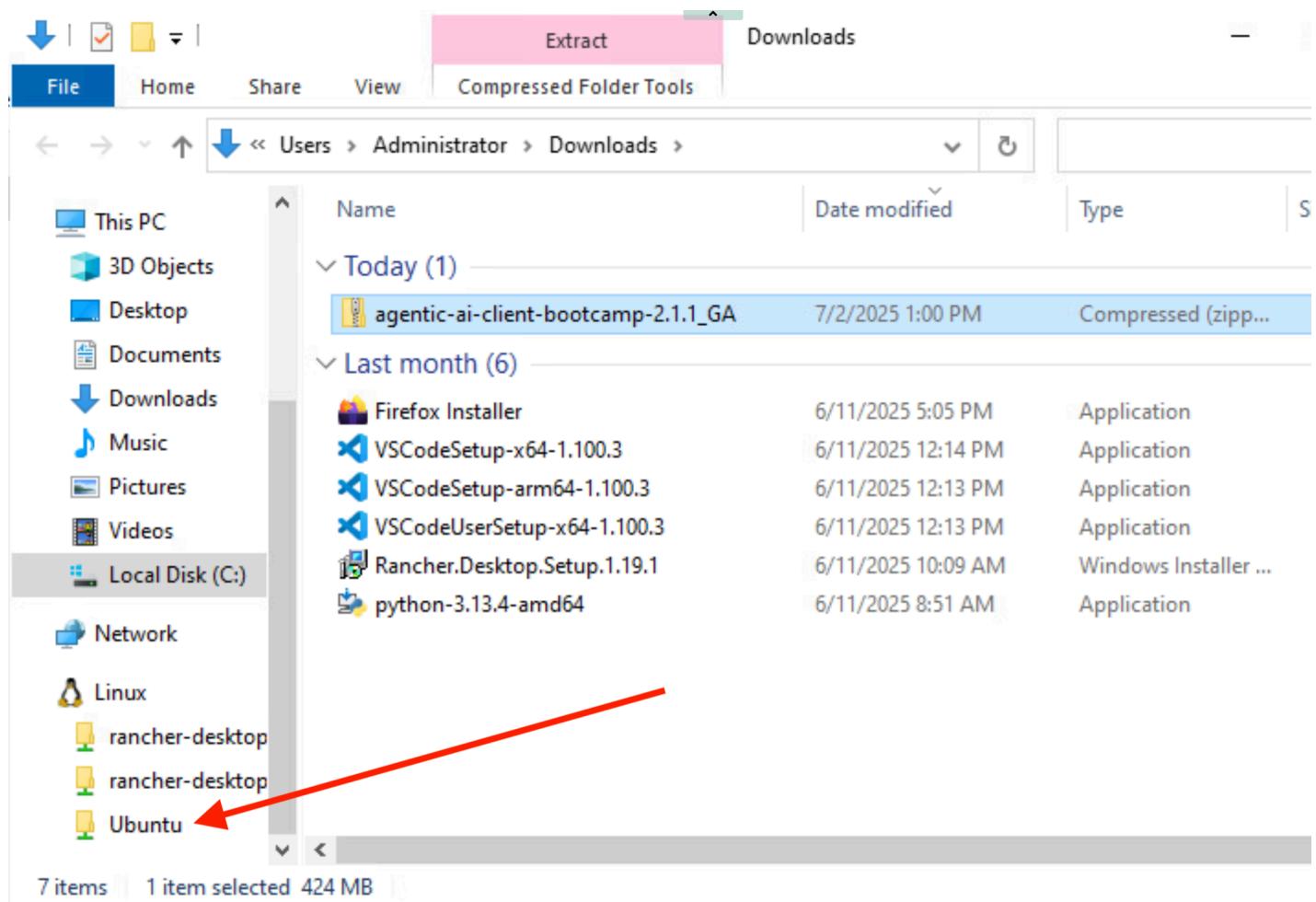
Then click on the Show in Folder icon to open the file explorer window, as shown below.



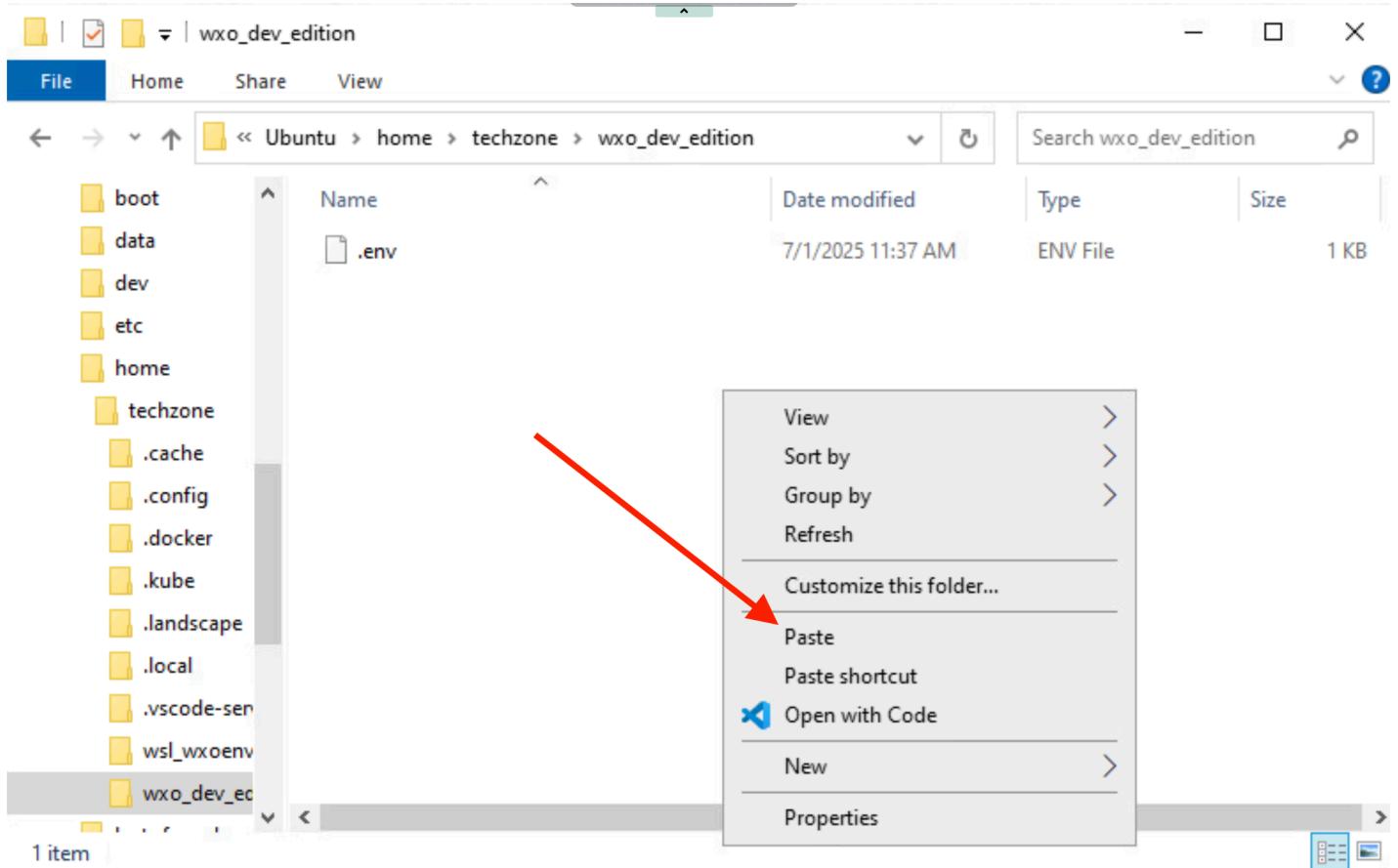
Right-click on the zip file and select Copy .



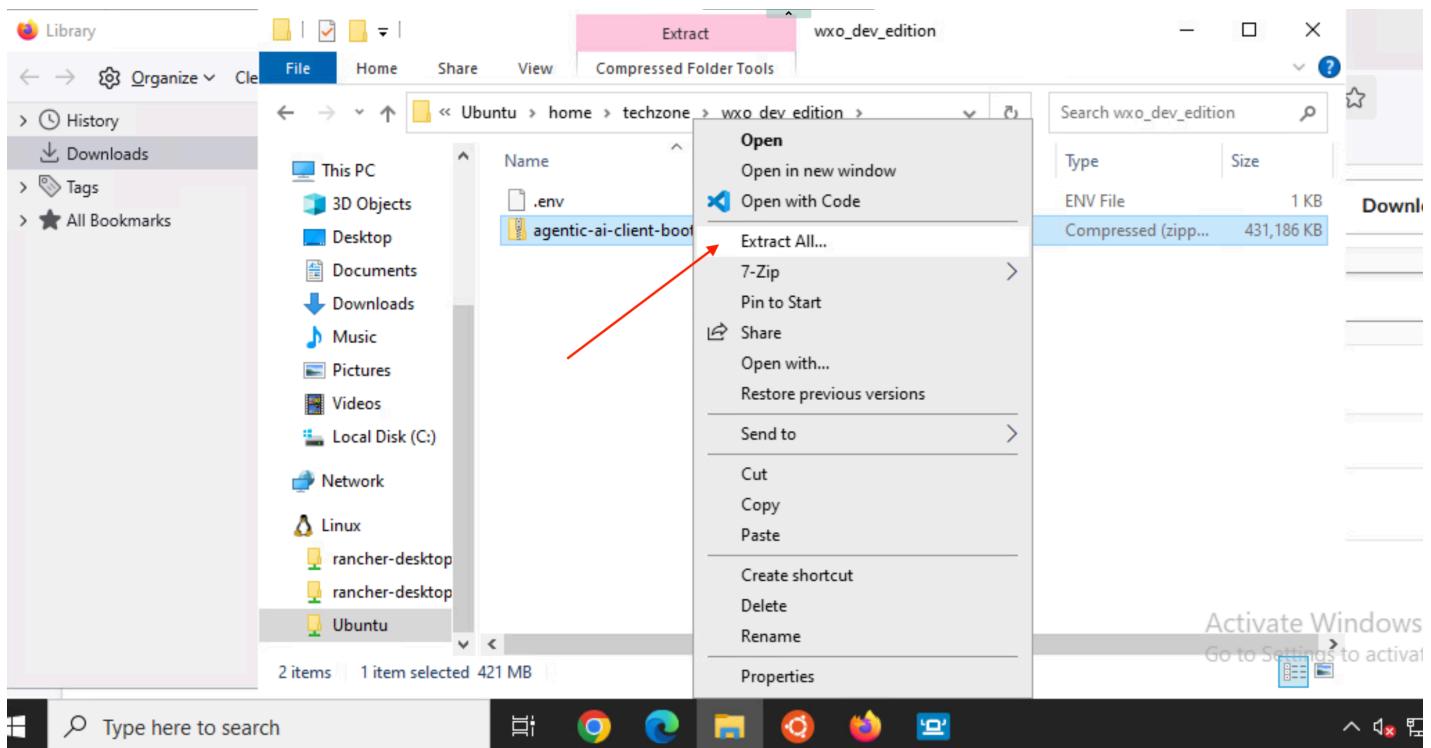
Now navigate to the Ubuntu folder under Linux on the left side of the file explorer menu.



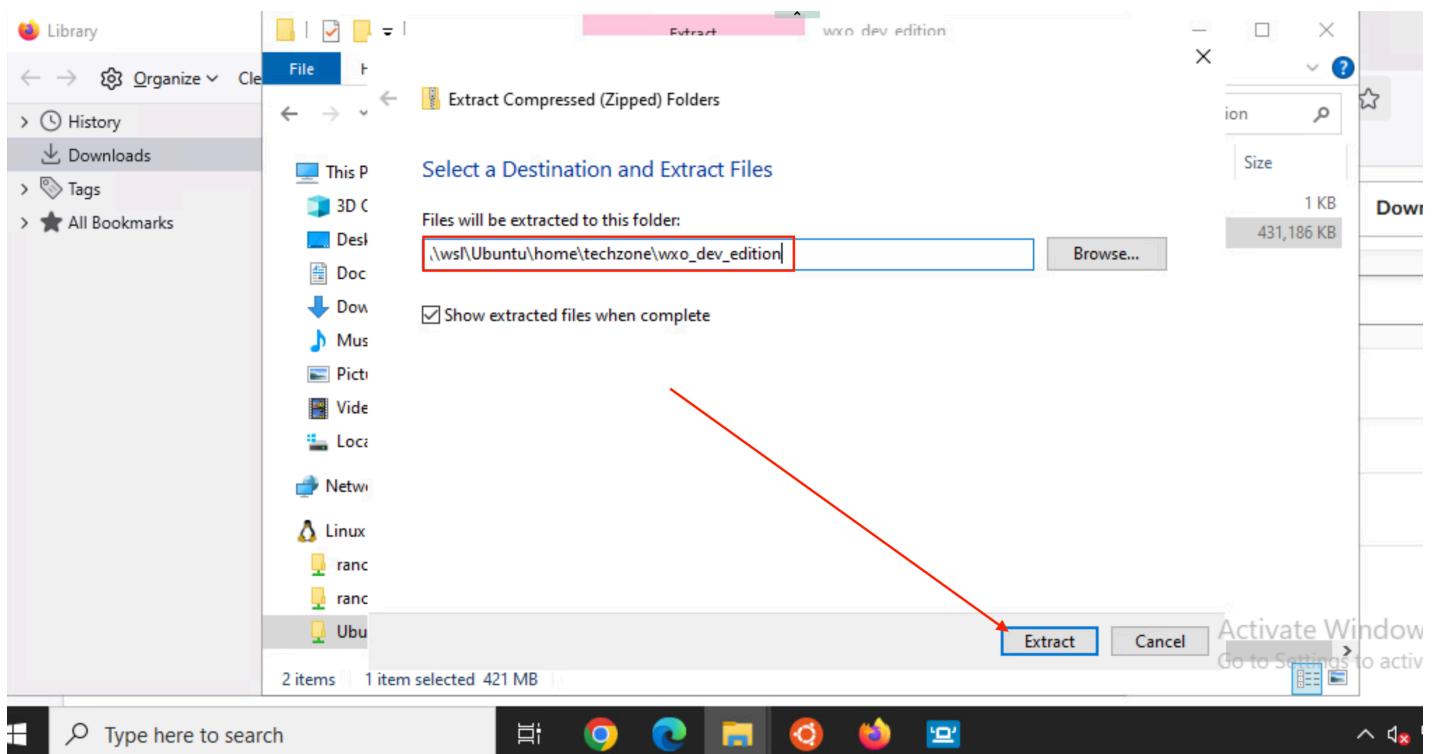
In the folder, navigate to home -> techzone -> wxo_dev_edition , right click and click on Paste.



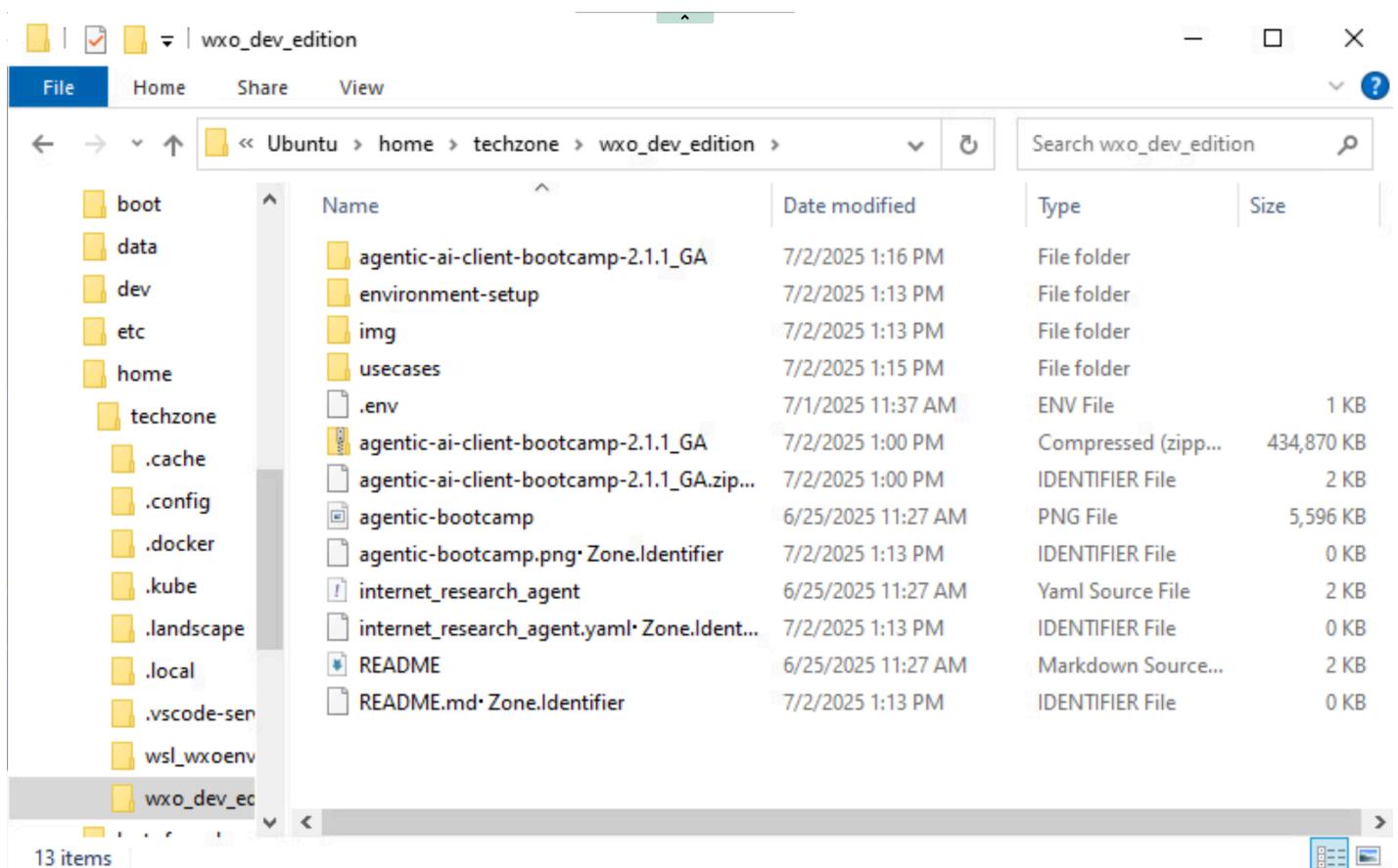
Open the folder and right-click on the zip file. In the context window for the zip file, select Extract all. You may receive a warning that this file is from the Internet. Click OK.



As the destination, make sure you enter the `wxo_dev_edition` (which is not the default), as shown below. Then click on Extract .



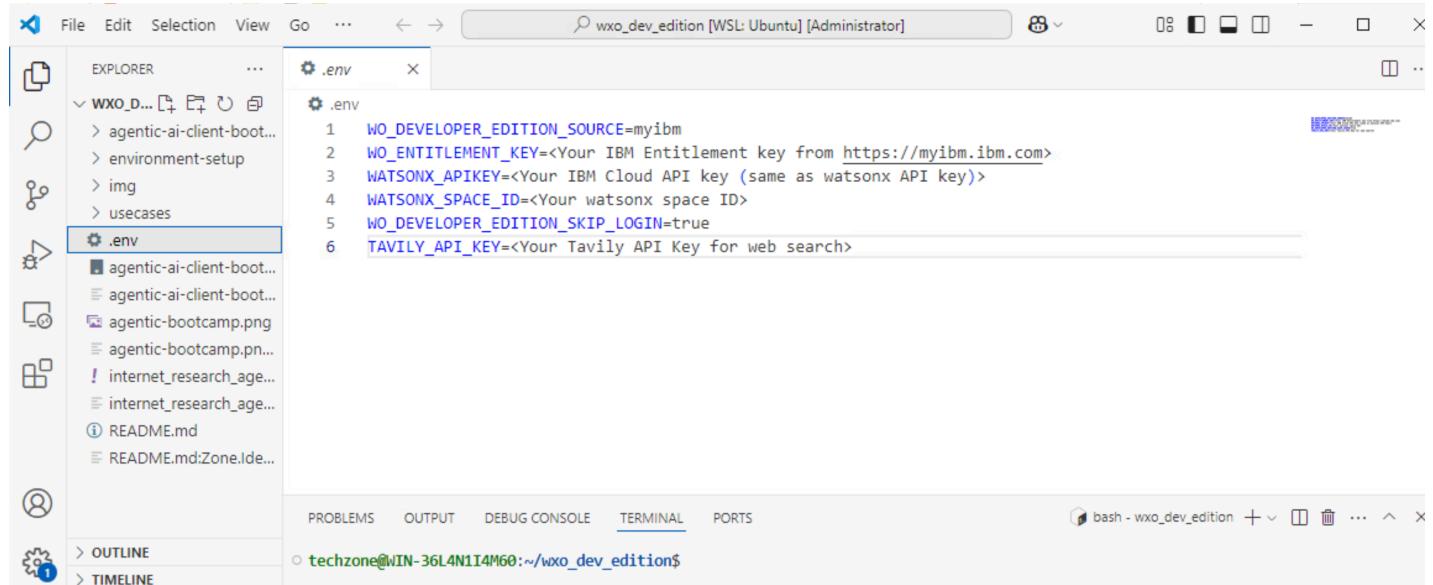
Note that the extraction process can take a couple of minutes. After it completes, your file explorer window should show the extracted files in the `wxo_dev_edition` folder. If they are placed into a subfolder, you can cut and paste them.



VS Code

VS Code is already installed on the Windows-based virtual machine. To open it, simply type "code" into the search field at the bottom left of the screen. The "VS Code" app will automatically be offered as a choice, and you can open it by clicking on the app icon.

The application will automatically open the folder with all the files you are going to need during this lab.



Environments

To run the lab end to end, you need a number of environments.

watsonx.ai

For the lab, as well as for the install of the Developer's Edition of watsonx Orchestrate, you will need access to an IBM [watsonx.ai](#) Runtime instance, and specifically, a deployment space ID for that instance as well as an API key for the IBM Cloud account the instance is running in.

Your instructor should have given you access to the instances of watsonx Orchestrate and [watsonx.ai](#) that you will use throughout the bootcamp. To access them, you start out by logging into your IBM Cloud account at <https://cloud.ibm.com>. You can find the resources that you have access to in that account when going to the so-called "hamburger menu" on the top left of the page and clicking on Resource list .

The screenshot shows the IBM Cloud dashboard with a red arrow pointing to the 'Resource list' link in the left sidebar. The sidebar also lists other categories like Dashboard, Projects, Containers, Databases, Infrastructure, Observability, Platform Automation, Security, API Management, Cloud Pak for Data, Partner Center, SAP, Satellite, VMware, Watsonx, and Navigation settings. The main area displays several cards: 'Track emissions with Carbon Calculator' (Recommended, 1 min), 'Use Watson Assistant' (Popular, 2 min), 'Use Watson Studio' (Popular, 2 min), 'Build with Watson' (Popular, 3 min), and 'Retrieval Augmented Generation (RAG) Pattern' (Recommended). Below these are sections for Recent support cases, Planned maintenance (with 7 upcoming events), and Total emissions.

On the page with all your resources, you can find your [watsonx.ai](#) Runtime instance in the AI / Machine Learning section. The instance will have `watsonx Runtime` in the Product column. Click on the name of the instance.

The screenshot shows the 'Resource list' table with a red arrow pointing to the 'watsonx.ai Runtime' entry in the 'Product' column. The table has columns for Name, Group, Location, Product, Status, and Tag. It lists resources under three categories: Containers (2/139), Storage (1/1), and AI / Machine Learning (3/221). The AI / Machine Learning section contains three entries: Watson Orchestrate-itz, wml-itz-wxo-684043ce0f81bb80d9c504 (highlighted with a red arrow), and ws-itz-wxo-684043ce0f81bb80d9c504.

Name	Group	Location	Product	Status	Tag
ce-itz-wxo-684043ce0f81bb80d9c504	itz-wxo-684043ce0f81bb80d9c504	Dallas (us-south)	Code Engine	Active	
cr-itz-qn1x2a5b	itz-wxo-684043ce0f81bb80d9c504	Dallas (us-south)	Container Registry	—	
cos-itz-wxo-684043ce0f81bb80d9c504	itz-wxo-684043ce0f81bb80d9c504	Global	Cloud Object Storage	Active	
Watson Orchestrate-itz	itz-wxo-684043ce0f81bb80d9c504	Dallas (us-south)	watsonx Orchestrate	Active	
wml-itz-wxo-684043ce0f81bb80d9c504	itz-wxo-684043ce0f81bb80d9c504	Dallas (us-south)	watsonx.ai Runtime	Active	
ws-itz-wxo-684043ce0f81bb80d9c504	itz-wxo-684043ce0f81bb80d9c504	Dallas (us-south)	watsonx.ai Studio	Active	

This will open the details page for the resource. Expand the Launch in drop-down list and click on IBM watsonx .

[Resource list](#) /wml-itz-wxo-684043ce0f81bb80d9c504 ✓ [Add tags](#) ↗

Manage

Plan



watsonx.ai Runtime in Cloud Pak for Data and watsonx

Put AI models to work. Deploy, monitor, and update models to gain insights on either platform. Work with foundation models on watsonx as a Service.

Launch in

IBM Cloud Pak for Data

IBM watsonx

Helpful links

Documentation

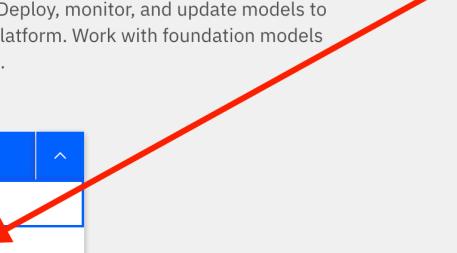
Learn about the tools and capabilities you need to run, monitor, and update your AI assets.

[Cloud Pak for Data →](#)

Learning path

Check out sample projects, notebooks, and data sets to help you be productive.

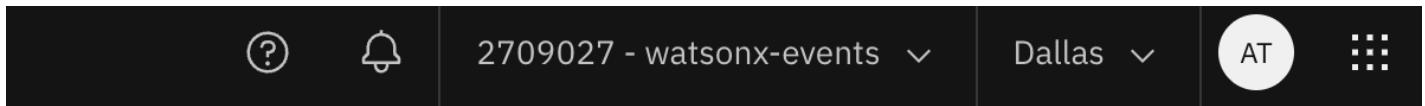
[Cloud Pak for Data →](#)



After opening the watsonx console, you can close both the Welcome and the Dive deeper pop-up windows. Now, click the 'hamburger menu' on this page, again at the top left of the page, and select View all deployment spaces .

The screenshot shows the IBM WatsonX interface. On the left, a dark sidebar contains navigation links: Home, Data, Projects, AI governance, Deployment spaces (with a red arrow pointing to it), Resource hub, Administration, and Support. Below these, there's a link to 'View all deployment spaces'. The main area has a header 'Open in: andre-events' with a dropdown menu showing '[...]' and 'Chat and build prompts with foundation models'. A button 'Start chatting...' is present, along with a 'Open Prompt Lab' button. To the right, there are cards for 'Build an AI agent to aut tasks' and 'with Agent Lab' (with a count of 3). At the bottom, a 'Developer access' section includes fields for 'Project or space' (set to 'Project or space') and 'Project ID' (set to '00000000-0000-0000-0000-000000000000'), and a 'watsonx.ai URL' field containing 'https://us-south.ml.cloud.ibm.com'.

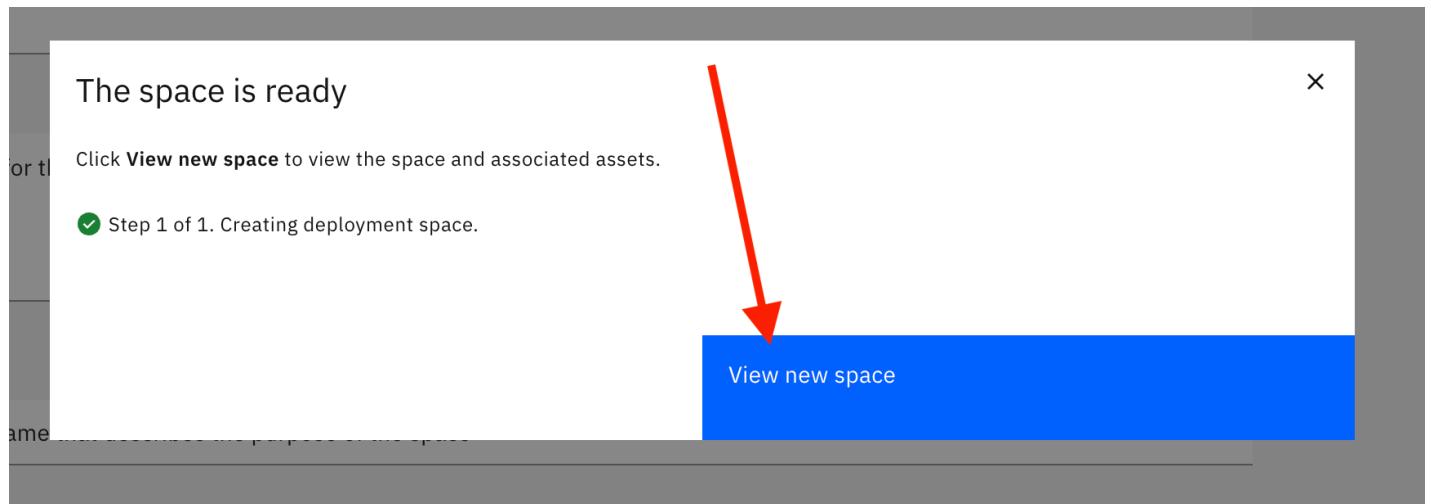
In the following view, depending on whether you have already run a different lab, you may or may not see any deployment spaces listed. However, here we will just create a new one. Click on the **New deployment space** button.



Give the new space a descriptive name. All other fields are optional. The **Storage** field should already be filled in. Click on **Create**.

The screenshot shows the 'Create a deployment space' form. The 'Name' field contains 'wxo ADK space'. The 'Description (Optional)' field has the text 'Deployment used for the watsonx Orchestrate ADK.' The 'Deployment stage' dropdown is set to 'Select or enter a name that describes the purpose of the space'. The 'Tags (optional)' section shows a dropdown menu with 'Find or create tags'. The 'Storage' section shows 'cos-itz-wxo-684043ce0f81bb80d9c504'. At the bottom right, there are 'Cancel' and 'Create' buttons, with the 'Create' button highlighted by a red arrow.

Once the space is ready, click on `View new space`.



On the details page for the new space, select the `Manage` tab.

wxo ADK space

Overview Assets Deployments Jobs Manage

Jump back in

Assets that you promote or add to the space show here.

Deployments

Deployed	Failed
0	0

[View deployments](#)

Job runs

Active	Failed last 24 hours
0	0

[View jobs](#)

AI governance

No notifications

You will see your most recent notifications here.

On the Manage page, make sure the space is associated with your [watsonx.ai](#) Runtime instance, and set it if it is not. (Hit Save if you need to set it.)

wxo ADK space

Overview Assets Deployments Jobs Manage

Space

General

- Access control
- Environments
- Resource usage

General

Details

Name: wxo ADK space

Description: Deployment used for the watsonx Orchestrate ADK.

Space GUID: 28c570ce-9a52-4de0-af4b-538c3451b6cc

Date created: Jun 6, 2025, 4:03 PM by Andre Tost (You)

Stage: Not provided

Stage type: Pre-production

Tags: No tags are set to this space.

Storage

Storage used: 0 Bytes

Bucket: a3b9b4a9-11c1-43e8-a345-0fb912ae553

[Manage in IBM Cloud](#)

watsonx.ai Runtime service

wml-itz-wxo-684043ce0f81bb80d9c504

[Copy](#)

The last step here is that we need to capture the Space GUID. You can find the GUID also on the Manage tab. Simply click on the icon next to it to copy it to your clipboard.

wxo ADK space

The screenshot shows the 'General' tab of a Space configuration in the WatsonX Orchestrate ADK. The 'Name' is 'wxo ADK space'. The 'Description' is 'Deployment used for the watsonx Orchestrate ADK.' The 'Space GUID' is listed as '28c570ce-9a52-4de0-af4b-538c3451b6cc'. The 'Date created' and 'Last updated' are both 'Jun 6, 2025, 4:03 PM by Andre Tost (You)'. The 'Stage' is 'Not provided' and the 'Stage type' is 'Pre-production'. The 'Storage' section shows '0 Bytes' used. The 'Manage in IBM Cloud' button is present. The 'watsonx.ai Runtime service' dropdown shows 'wml-itz-wxo-684043ce0f81bb80d9c504'. The 'Tags' section indicates 'No tags are set to this space.'

The .env file

The Space GUID, as well as a number of other environment variables, goes into a file called `.env`. This file should exist in **the root folder** of where you extracted the content of the repo that was provided to you by your instructor (this file is also in that repo, of course), in other words, it should be at the same level as the `usecases` or `environment-setup` subfolders.

- If you are using the virtual machine with a pre-installed ADK, you already have this file in the `wxo_dev_edition` folder in the WSL environment within that virtual machine.
- If you are running this on your local machine, you should have already unzipped the file with materials into a folder of your choosing, as described [above](#). Create an empty `.env` file and make sure you place the `.env` file in that same folder.

You can edit the file with an editor of your choosing. We recommend using VS Code for this.

Add the Space GUID value that you captured above to the `WATSONX_SPACE_ID` variable.

```

.WO_DEVELOPER_EDITION_SOURCE=myibm
.WO_ENTITLEMENT_KEY=<Your IBM Entitlement key from https://myibm.ibm.com>
.WATSONX_APIKEY=<Your IBM Cloud API key (same as watsonx API key)>
.WATSONX_SPACE_ID=04d474ab-473b-4e3a-8c14-7ac667dff3ee
.WO_DEVELOPER_EDITION_SKIP_LOGIN=true
.TAVILY_API_KEY=<Your Tavily API Key for web search>

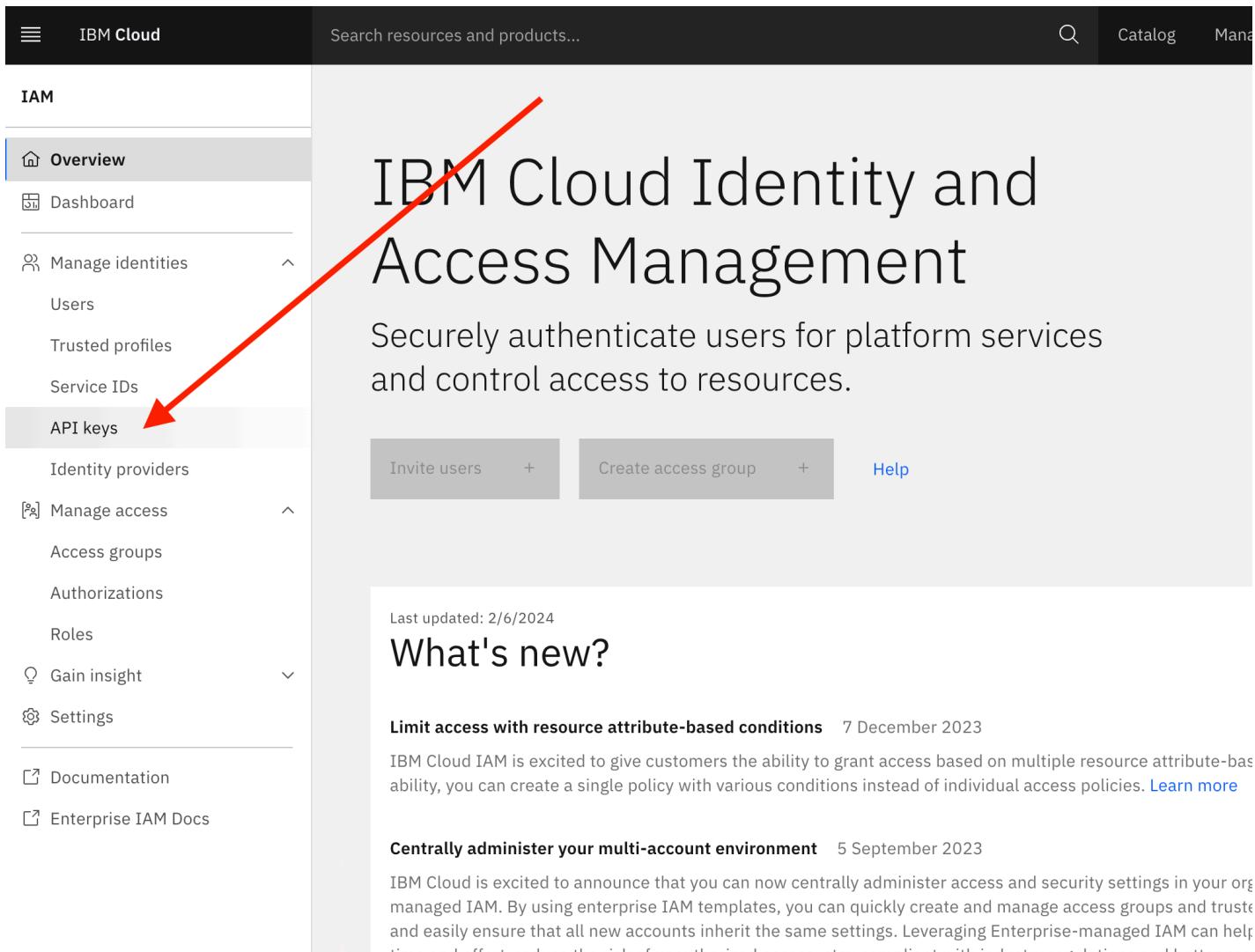
```

API key

You also need an API key for the IBM Cloud account that your [watsonx.ai](#) instance is on. To obtain one, open the IBM Cloud console (<https://cloud.ibm.com>) as before and select Access (IAM) option from the Manage dropdown at the top of the page.

The screenshot shows the IBM Cloud dashboard with the 'Manage' dropdown menu open. The 'Access (IAM)' option is highlighted with a red arrow. The dashboard includes sections for 'For you', 'IBM Cloud status', 'Recent support cases', 'Planned maintenance', and 'Total emissions'.

On the following page, select API keys from the menu on the left.



IBM Cloud Identity and Access Management

Securely authenticate users for platform services and control access to resources.

Last updated: 2/6/2024

What's new?

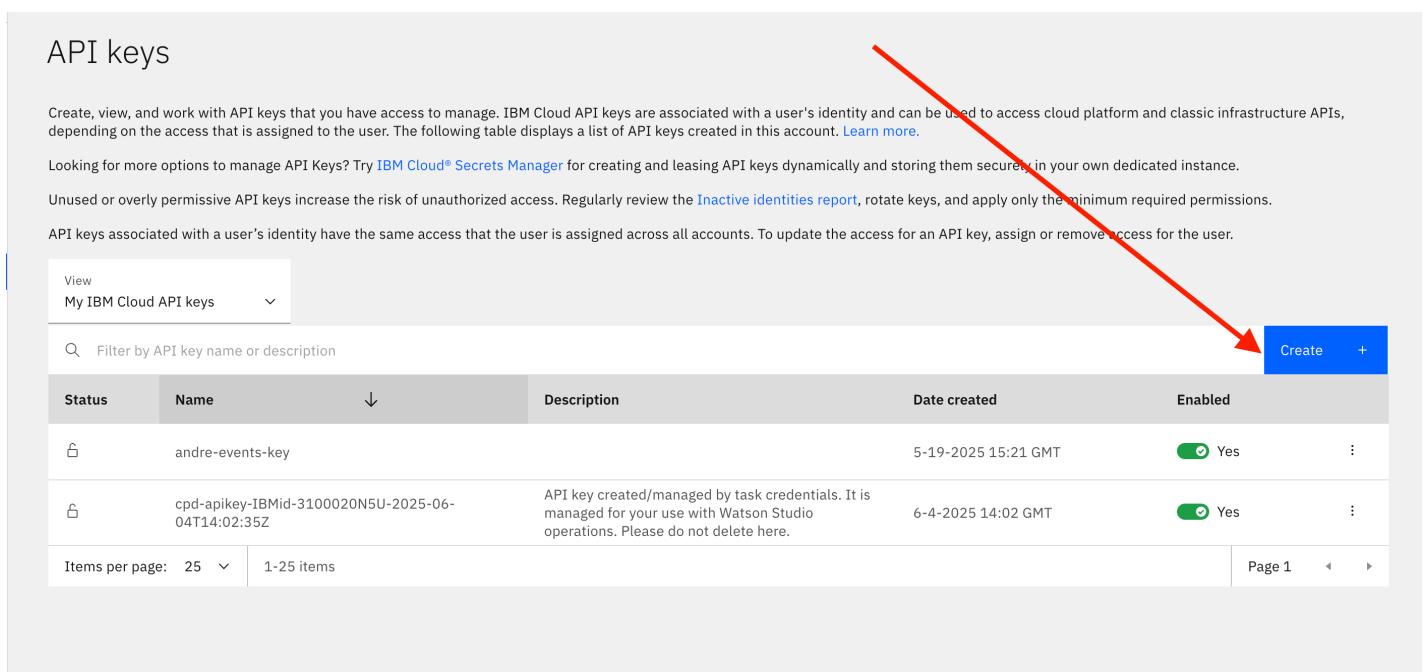
Limit access with resource attribute-based conditions 7 December 2023

IBM Cloud IAM is excited to give customers the ability to grant access based on multiple resource attribute-based conditions, you can create a single policy with various conditions instead of individual access policies. [Learn more](#)

Centrally administer your multi-account environment 5 September 2023

IBM Cloud is excited to announce that you can now centrally administer access and security settings in your org managed IAM. By using enterprise IAM templates, you can quickly create and manage access groups and trusts and easily ensure that all new accounts inherit the same settings. Leveraging Enterprise-managed IAM can help time and effort, reduce the risk of unauthorized access, stay compliant with industry regulations and better pro-

You may or may not already have an API key listed, and if so, feel free to use it (note that you cannot see the value of an existing API key after you initially created it). Or you can simply create a new one by clicking on the **Create** button.



API keys

Create, view, and work with API keys that you have access to manage. IBM Cloud API keys are associated with a user's identity and can be used to access cloud platform and classic infrastructure APIs, depending on the access that is assigned to the user. The following table displays a list of API keys created in this account. [Learn more](#).

Looking for more options to manage API Keys? Try [IBM Cloud® Secrets Manager](#) for creating and leasing API keys dynamically and storing them securely in your own dedicated instance.

Unused or overly permissive API keys increase the risk of unauthorized access. Regularly review the [Inactive identities report](#), rotate keys, and apply only the minimum required permissions.

API keys associated with a user's identity have the same access that the user is assigned across all accounts. To update the access for an API key, assign or remove access for the user.

Status	Name	Description	Date created	Enabled
Andre Events	andre-events-key		5-19-2025 15:21 GMT	<input checked="" type="checkbox"/> Yes
Watson Studio	cpd-apikey-IBMid-3100020N5U-2025-06-04T14:02:35Z	API key created/managed by task credentials. It is managed for your use with Watson Studio operations. Please do not delete here.	6-4-2025 14:02 GMT	<input checked="" type="checkbox"/> Yes

Give the new key a descriptive name, and click on `Create`.

Create IBM Cloud API key

Name
APIKeyforwxoADK

Description (optional)
Enter description

Leaked action
If API key is discovered to have been leaked out in the world, what would you like the system to do?

Disable the leaked key
 Delete the leaked key
 Nothing

Session management
Enable session management for CLI logins? [\(i\)](#)

Yes No

[Cancel](#) [Create](#)



Once the key has been successfully created, make sure you copy its value to the clipboard by clicking on the `Copy` link. As mentioned above, you won't be able to retrieve this value later.

P1 Keys

ate, view, and work with API keys that you have access to manage. IBM Cloud API keys are associated with a user's identity and can be used to access cloud platform services or other resources. You can use them to make requests to the IBM Cloud API, or to interact with other services that support API keys.

Looking for more options to manage API Keys? Try [IBM Cloud® Secrets Manager](#) for creating and managing API keys dynamically and storing them securely in your own environment.

Used or overly permissive API keys associated with your account can pose a security risk. To help protect your data, we recommend using only the minimum permissions required to assign or remove a key.

View My IBM Cloud API Keys

Filter by API key name or status

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 291 seconds.

API key

.....

[Copy](#) [Download](#)

5:21 GMT

AI Key for WXA DR

6:5 2025 21:52 GMT

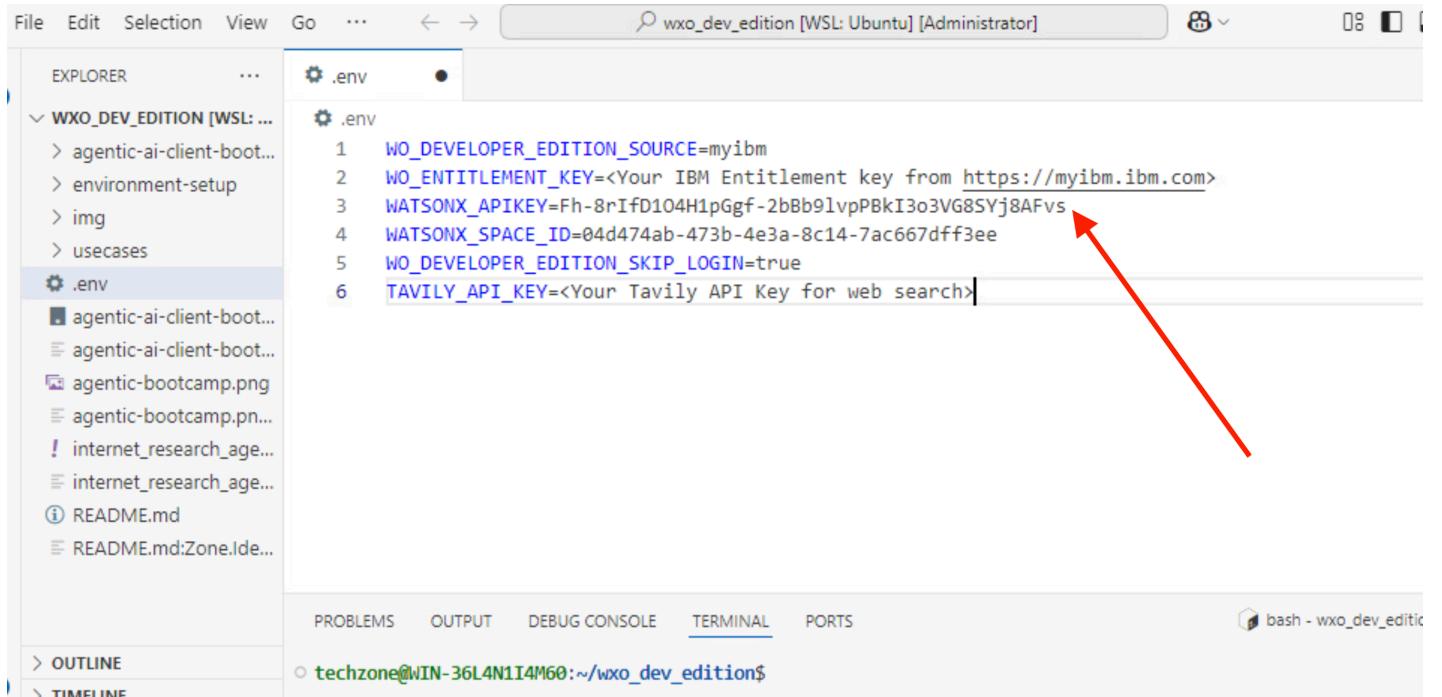
Items per page: 25 1-25 items

6:5 2025 21:52 GMT

cpd-apikey-IBMid-3100020N5U-2025-06-04T14:02:35Z API key created/managed by task credentials. It is managed for your use with Watson Studio operations. Please do not delete here.

6-4-2025 14:02 GMT

The API key also goes into the .env file, add it to the `WATSONX_APIKEY` variable.



```
File Edit Selection View Go ... ⏪ ⏩ 🔍 wxo_dev_edition [WSL: Ubuntu] [Administrator]
File Explorer Terminal Problems Output Debug Console Ports bash - wxo_dev_edition
EXPLORER ...
WKO_DEV_EDITION [WSL: Ubuntu]
  > agentic-ai-client-boot...
  > environment-setup
  > img
  > usecases
  .env
    agentic-ai-client-boot...
    agentic-ai-client-boot...
    agentic-bootcamp.png
    agentic-bootcamp.pn...
    ! internet_research_age...
    ! internet_research_age...
    README.md
    README.md:Zone.Ide...
  OUTLINE
  TIMFL INF

.env
1  WO_DEVELOPER_EDITION_SOURCE=myibm
2  WO_ENTITLEMENT_KEY=<Your IBM Entitlement key from https://myibm.ibm.com>
3  WATSONX_APIKEY=Fh-8rIfD104H1pGgf-2bBb91vpPBkI3o3VG8SYj8AFvs
4  WATSONX_SPACE_ID=04d474ab-473b-4e3a-8c14-7ac667dff3ee
5  WO_DEVELOPER_EDITION_SKIP_LOGIN=true
6  TAVILY_API_KEY=<Your Tavily API Key for web search>
```

Entitlement key

The watsonx Orchestrate Developer Edition, which you will use extensively in this lab, consists of a number of container images that are downloaded from the IBM registry during install. To authenticate with this registry, you need an "entitlement key".

Local machine

Your instructor will provide the entitlement key for you. You can add the key to your .env file via editor, to the `W0_ENTITLEMENT_KEY` variable.

Also, make sure you have the `W0_DEVELOPER_EDITION_SKIP` variable set to `false`.

Virtual machine

The Developer Edition is already preinstalled on the virtual machine, which includes downloading the container images. Since they are cached on the virtual machine, no entitlement key is required and you can leave the variable unset. However, make sure that the `W0_DEVELOPER_EDITION_SKIP` variable set to `true`.

watsonx Orchestrate ADK

As mentioned above, the ADK allows hosting the core Orchestrate components on a developer laptop. For the lab, you can choose if you want to run the ADK on your own laptop or on a virtual machine that will be provided to you by your instructor.

Local machine

To run it on your own laptop, you need to install

- [Docker](#) or [Rancher](#)
 - the containers that run as part of the ADK will require ~12GB of memory, so you need to allocate at least that much to the virtual machine hosting the container runtime
- Python 3.11
- Visual Studio Code

Once you have these prerequisites available, you can install the ADK by following the instructions at [the ADK install page](#).

Note: These instructions were created for a specific version of the ADK, namely version **1.6.0**. We recommend you specify that version when running the install: `pip install ibm-watsonx-orchestrate==1.6.0`.

You also need to install the watsonx Orchestrate Developer Edition, which is part of the ADK, by following the related [install instructions](#). However, **DO NOT** set up the .env file as described in the instructions! You already have the right values in your .env file if you followed the instructions above.

After you created the .env file with the values given to you, you can follow the instructions to start the server for the first time as documented [here](#). Note that the first time you run it, it will download all the required container images from the IBM image registry, which will take some time.

Virtual machine

At this point, you should have filled in the required values into the .env file using VS Code as described above. You should also have a command line terminal open in the UI, with `wxo_dev_edition` as the current folder.

Alternatively, you can also use the built-in terminal window in VS Code, which is located below the main editor window. Make sure you activate the Python environment as shown in the picture below.

```

.WXO_DEV_EDITION [WSL: UBUNTU]
  .github
  environment-setup
  usecases
  .env
  .env.template
  .gitignore
  .gitignore:Zone.Identifier
  agentic-ai-client-bootcamp-2...
  agentic-ai-client-bootcamp-2...
  agentic-bootcamp.png
  agentic-bootcamp.png:Zone.l...
  README.md
  README.md:Zone.Identifier
  sample_watsonx_orchestrate.sh
  start_wxo.sh

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
● techzone@WIN-36L4N1I4M60:~/wxo_dev_edition$ source ./wsl_wxoenv/bin/activate
○ (wsl_wxoenv) techzone@WIN-36L4N1I4M60:~/wxo_dev_edition$ 

```

Activate Windows
Go to Settings to activate Windows.

Ln 5, Col 57 Spaces: 4 UTF-8 LF Properties

Type here to search

You don't need to set the Tavily API key here, we will show how to obtain and set that key [below](#).

You can start the Orchestrate server by entering the following command:

```
orchestrate server start --env-file .env
```

When running it for the first time, it may take a bit longer to start, depending on whether it has to download the latest versions of the container images (the images should all be cached in the virtual machine already, though).

```

.WXO_DEV_EDITION [WSL: UBUNTU]
  .github
  environment-setup
  img
  usecases
  .env
  agentic-ai-client-boot...
  agentic-ai-client-boot...
  agentic-bootcamp.png
  agentic-bootcamp.png...
  ! internet_research_age...
  ! internet_research_age...
  README.md
  README.md:Zone.Id...
  README.md:Zone.Identifier

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
[INFO] - Migration ran successfully.
[INFO] - Waiting for orchestrate server to be fully initialized and ready...
[INFO] - Orchestrate services initialized successfully
[INFO] - local tenant found
[INFO] - You can run `orchestrate env activate local` to set your environment on `orchestrate chat start` to start the UI service
Activate Windows
Go to Settings to activate Windows.

Ln 6, Col 52 Spaces: 4 UTF-8 LF Properties

```

Type here to search

Once you see the message that the server has been started and that you should activate the local environment, enter the following:

```
orchestrate env activate local
```

```
[INFO] - Waiting for orchestrate server to be fully initialized and ready...
[INFO] - Orchestrator services initialized successfully
[INFO] - local tenant found
[INFO] - You can run `orchestrate env activate local` to set your environment or `orchestrate env deactivate` to stop the service and begin chatting.
● (wsl_wxoenv) techzone@WIN-36L4N1I4M60:~/wxo_dev_edition$ orchestrate env activate local
[INFO] - local tenant found
[INFO] - Environment 'local' is now active
○ (wsl_wxoenv) techzone@WIN-36L4N1I4M60:~/wxo_dev_edition$
```

Activ

Go to

watsonx Orchestrate

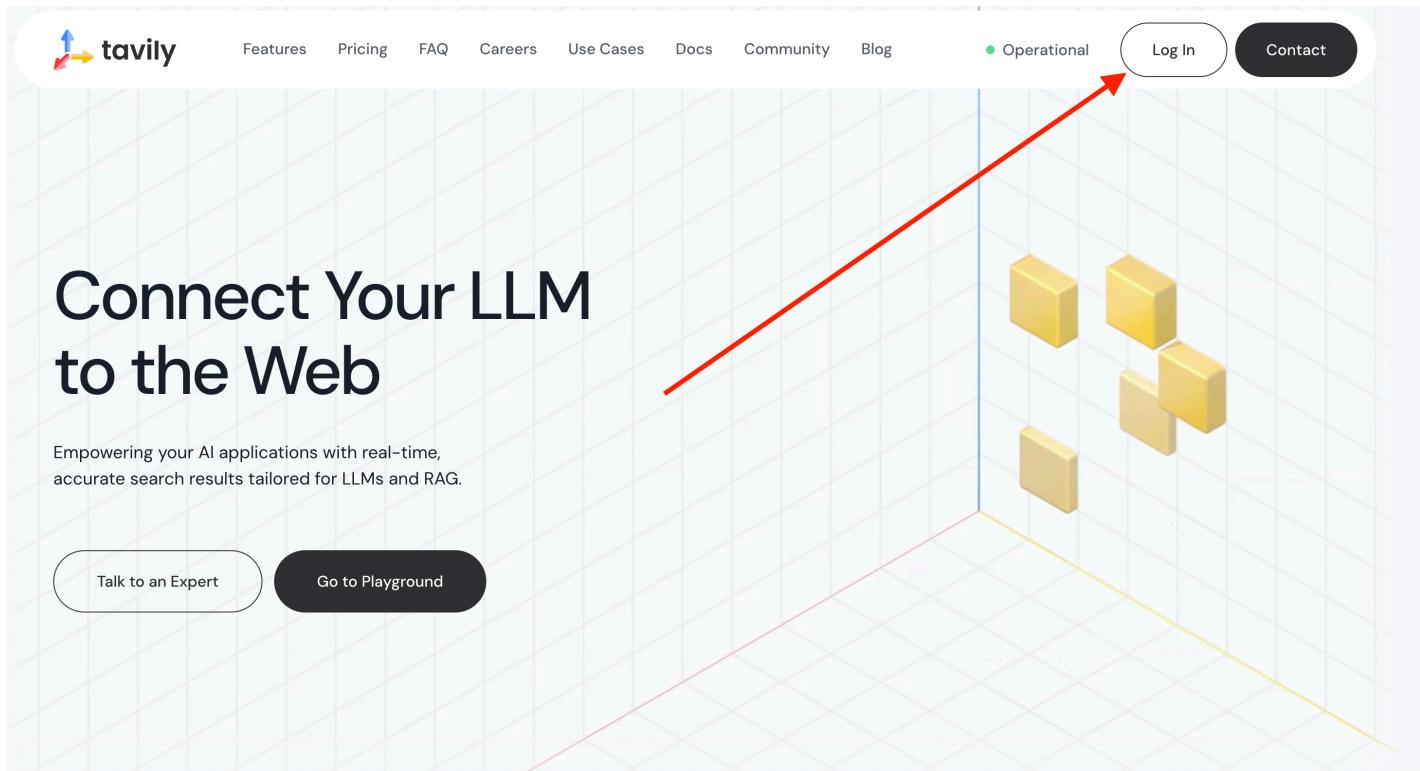
In this lab, you will create a number of components (tools, agents, etc) in your local environment and run and test them there, without the need to access an instance of watsonx Orchestrate in the cloud. However, the last part of the lab describes how you can take the same components and easily deploy and run them on a watsonx Orchestrate SaaS instance. You need such an instance for that part of the lab.

Your instructor will provision both the [watsonx.ai](#) and the watsonx Orchestrate instances for you and you can find the watsonx Orchestrate resource in the IBM Cloud resource list. This is only needed for the last part of the lab.

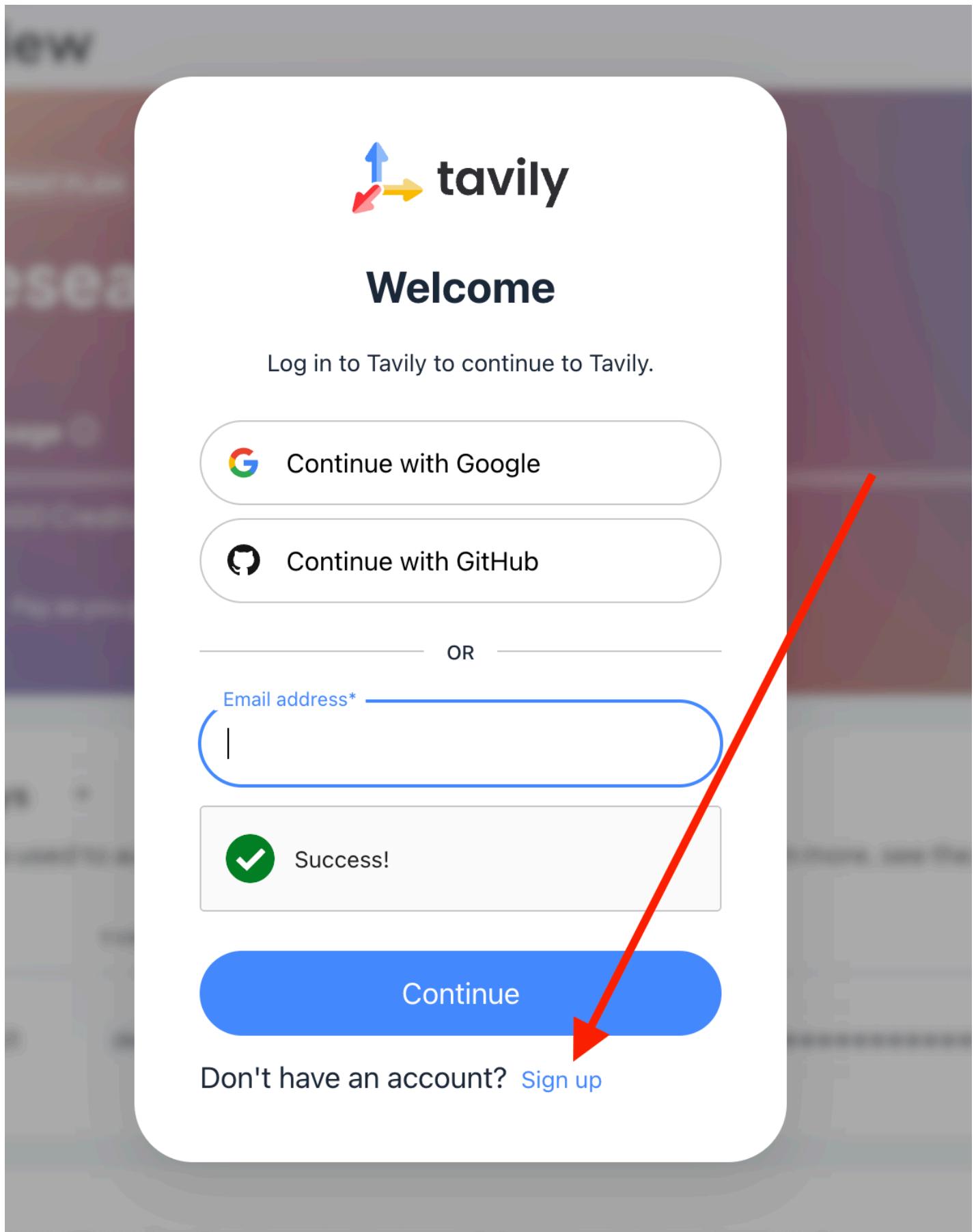
Tavily

One of the tools you will create during the lab is a web search tool that takes advantage of a service called "Tavily". To use it, you need an API key that is passed with every search request.

Go to <https://www.tavily.com/> and click on Log in .



Now click on Sign up .



You can sign up with your Google ID, or Github ID, or your email address. Once you have successfully completed the signup process and can log into the service, your page should look like this:

The screenshot shows the Tavily Overview page. On the left, there's a sidebar with links like Overview, API Playground, Use Cases, Billing, Settings, Documentation, and Tavily MCP. The main area has a large "Researcher" plan card with sections for API Usage and Credits. Below this is a table for API Keys, which currently shows "No API keys found. Click the "+" button above to create a new key." A red arrow points from the text "Click on the Plus sign as shown in the image above." to the "+" button in the API Keys section.

NAME	TYPE	USAGE	KEY	OPTIONS
No API keys found. Click the "+" button above to create a new key.				

Click on the Plus sign as shown in the image above. Name your key "default". After it has been created, you can copy its value to the clipboard by clicking on the copy icon next to your key:

The screenshot shows the same Tavily Overview page after creating a new API key. The table now lists one key: "default" (Type: dev, Usage: 0%, Key: tvly-dev-*****). A red arrow points from the text "Name your key 'default'" to the "default" entry in the table. Another red arrow points from the text "copy its value to the clipboard" to the copy icon (a clipboard with a plus sign) next to the key value.

NAME	TYPE	USAGE	KEY	OPTIONS
default	dev	0%	tvly-dev-*****	

To complete the setup for this use case, we will add the Tavily API key to the .env file as before, with an editor of your choice. Add your key to the `TAVILY_API_KEY` variable.

This is it! You are now ready to proceed to the [detailed lab instructions](#).

