

# Lab-1: Setup Environment

## Introduction

This lab will set up the Cloud Pak for Data environment for subsequent labs and introduce you to the Project and Gallery features of Cloud Pak for Data. Cloud Pak for Data is an integrated platform of tools, services, data, and meta-data to help companies and agencies accelerate their shift to be data driven organizations. The platform enables data professionals such as data scientists, data engineers, business analysts, and application developers collaboratively work with data to build, train, deploy machine learning and deep learning models at scale to infuse AI into business to drive innovation. Cloud Pak for Data is designed to support the development and deployment of data and analytics assets for the enterprise.

## End-to-End Data Science

The general flow of the End to End Data Science PoT will be guided by the activities shown in Figure 1- End to End Flow. This lab will focus on the Create Project and Research Topics activities.

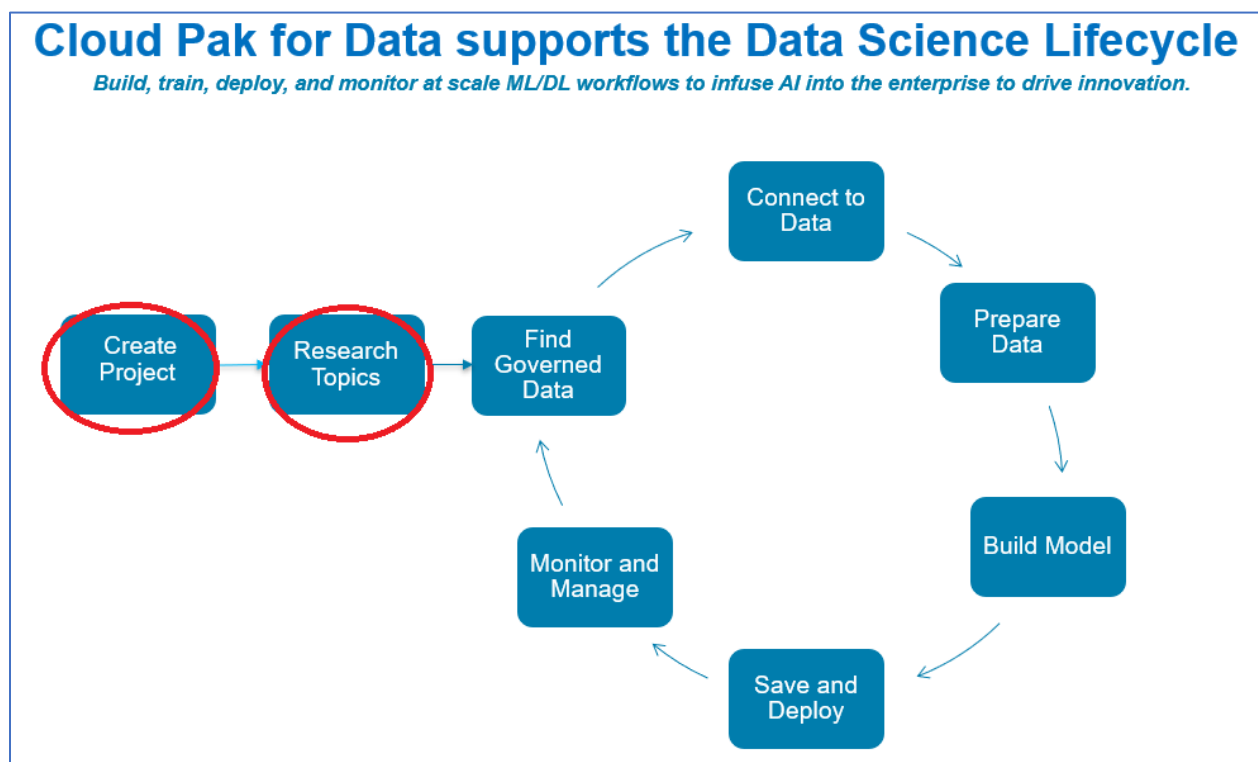


Figure 1- End to End Flow

## Objectives

The goal of this lab is to familiarize the user with the Project and Gallery features of Cloud Pak for Data, and to set up the environment for subsequent labs. Projects are a core component of Cloud Pak for Data. Projects enable you to organize your analytic and data assets in one place.

Projects are also the home base for collaboration. Colleagues can be added as collaborators on a project with administrator, editor, or viewer access.

The [Watson Gallery](#) contains samples that you can use in your project:

- Run sample notebooks to learn new techniques or to use as templates for your own notebooks.
- Add sample data sets to your project

The [Watson Community](#) contains resources to help you learn about data science:

- Read articles from many sources to keep current with data science trends.
- Read tutorials for multiple skill levels to learn how to do specific data science tasks.

The Watson Gallery and Watson Community features support the “Research Topics” activity in the end-to-end process shown above.

After completing this lab, you will be familiar with these features of Watson Studio.

1. Create a project
2. Create an object storage instance and associate it with the project
3. Associate an existing Watson Machine Learning service instance with the project
4. Add a collaborator to the project
5. Research topics by searching for a notebook in the Gallery
6. Set up the Watson OpenScale environment for a later lab.

## Create a Project

1. Log into your Cloud Pak for Data account by typing in the url **dataplatfrom.cloud.ibm.com** in your Firefox or Chrome browser.
2. Enter the **Username, Password** and click **Log in**.

**Log in to IBM Cloud Pak for Data**  
Starter edition

Need an account? [Sign up and try for free](#)


Username [Forgot ID?](#)

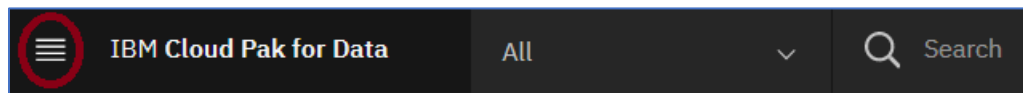
Password [Forgot password?](#)

☐ Remember ID

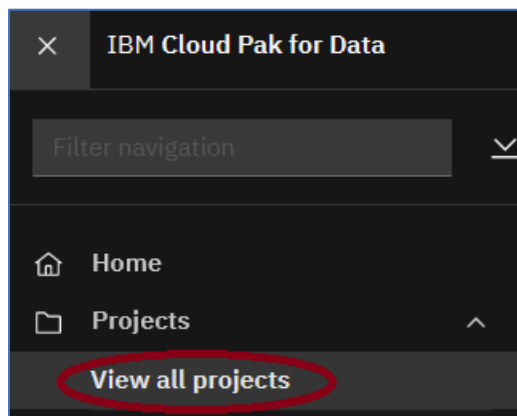
You will log into Dallas ▾

Need help? [Contact the IBM help desk](#)

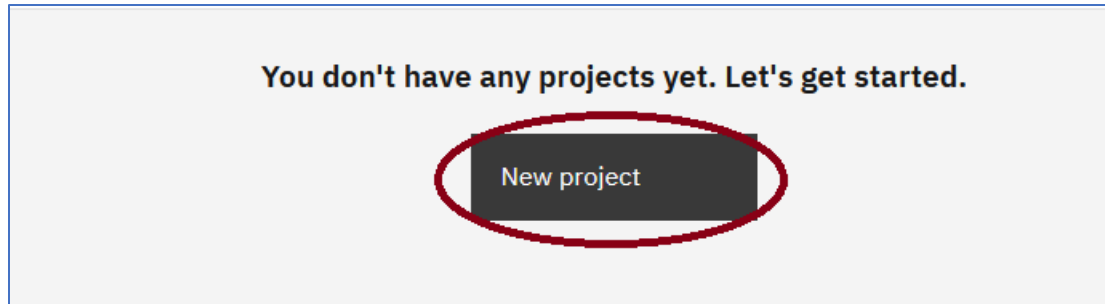
3. Click on the hamburger icon .



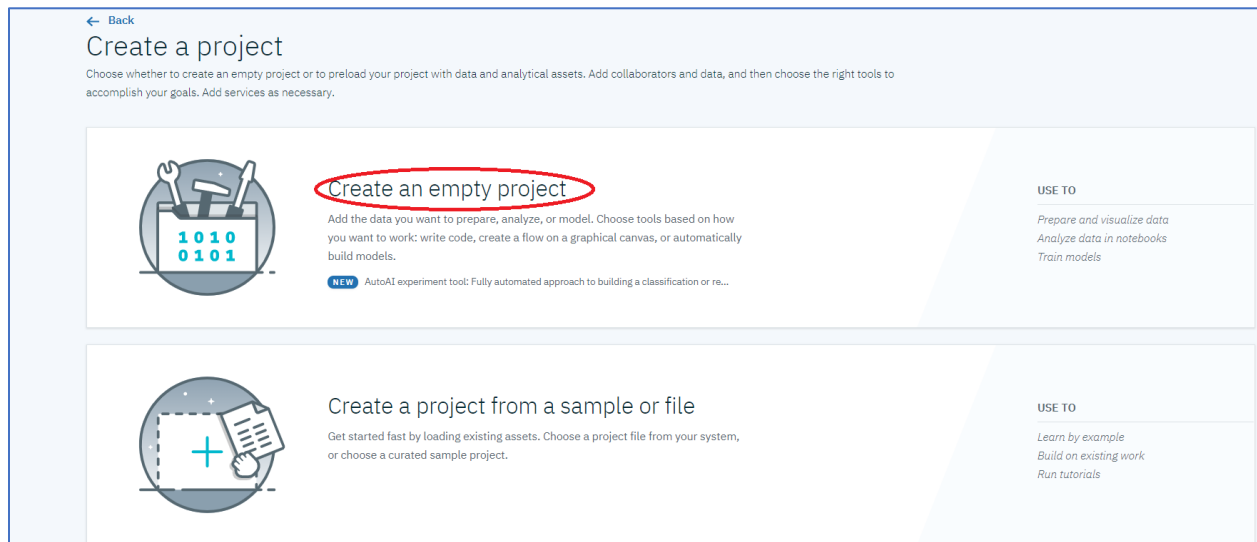
4. Click on **View All Projects**



5. Click on **New Project**.



6. Click on Create an empty project.



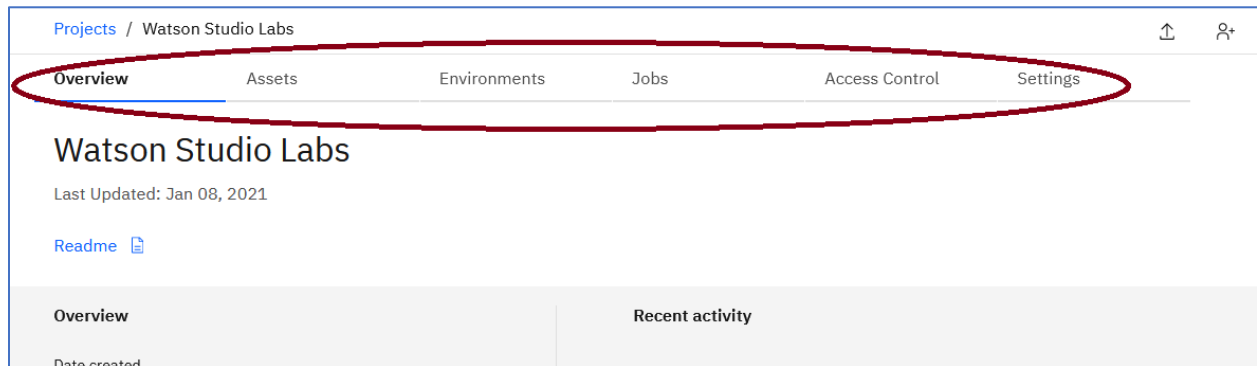
7. Enter “Watson Studio Labs” for the **Name**, optionally enter a **Description**, check **Restrict who can be a collaborator** (if it’s unchecked), and in click **Create**.

A screenshot of the project creation form. It is divided into two main sections: "Define details" and "Storage". In the "Define details" section, the "Name" field contains "Watson Studio Labs" and is circled in red. Below it is a "Description" field with the placeholder text "Project description". In the "Storage" section, the "Storage" field contains "CloudObjectStorage". Below these fields is a "Choose project options" section with a checkbox labeled "Restrict who can be a collaborator" which is checked. At the bottom right, there are two buttons: "Cancel" and "Create". The "Create" button is circled in red.

8. The Project **Overview** page is shown. This page provides summarized information about the project. In addition to the Overview page, are five other pages described below.

- a. **Assets Page** – Analytics and Data assets can be added to the project from this page.

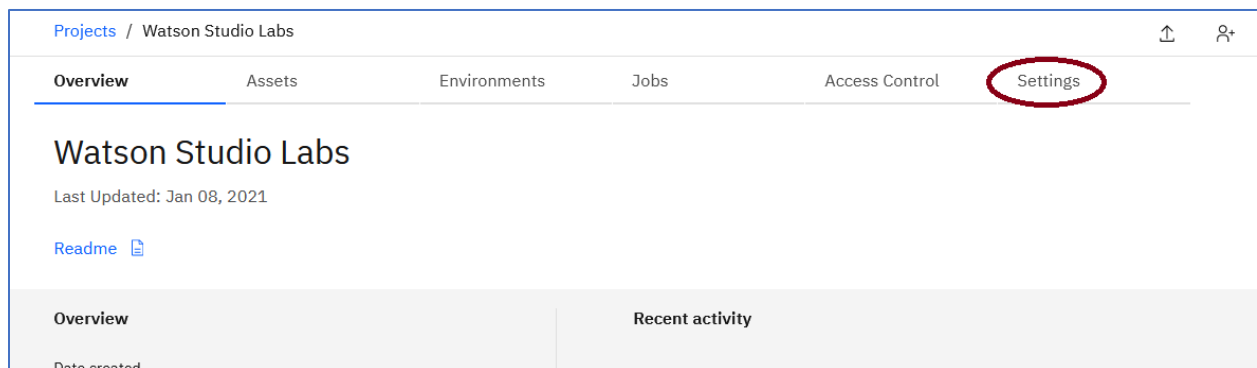
- b. Environments Page** - Provides information on the current notebook environments that are defined, lists the active notebook environments currently running, and enables users to create custom notebook environments.
- c. Jobs Page** – Provides the interface to the job subsystem.
- d. Access Control** – Lists the project collaborators and enables users to add/remove collaborators.
- e. Settings** – Enables users to view and set project attributes.



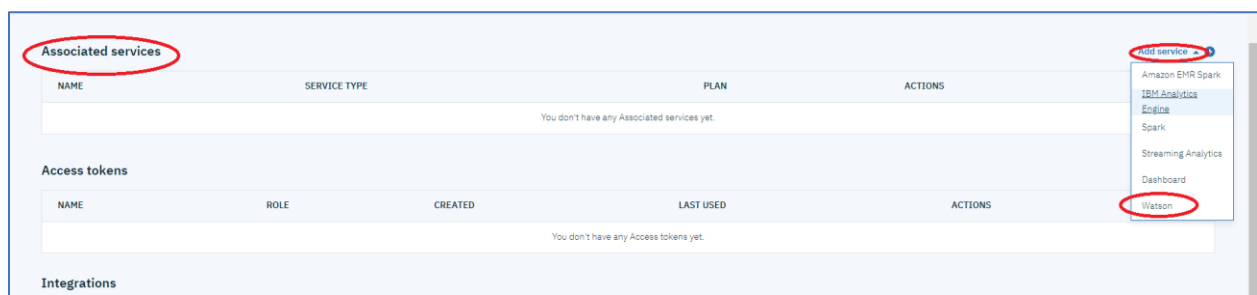
## Associate a Watson Machine Learning Service to the Project

To save and deploy machine learning models, a Watson Machine Learning service must be created (if one doesn't exist) and added to our project.

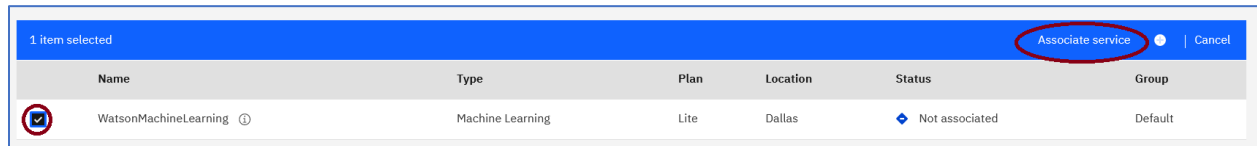
1. Click on **Settings** to navigate to the Project **Settings** page.



2. Scroll down to **Associated Services**, click on **Add service**, click on **Watson**.

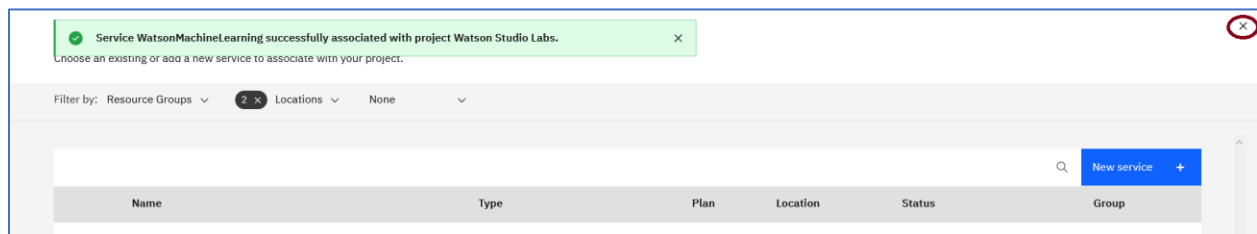


3. Newer Watson Studio accounts come with the WatsonMachineLearning instance already created. Click on the checkbox adjacent to the WatsonMachineLearning (Type-Machine Learning) service and click **Associate service**. Note, if a service of Type **Machine Learning** does not exist, go to step 6.



| 1 item selected   |                  |      |          |                |         |  | Associate service | Cancel |
|---|------------------|------|----------|----------------|---------|--|-------------------|--------|
| Name  | Type             | Plan | Location | Status         | Group   |  |                   |        |
| <input checked="" type="checkbox"/> WatsonMachineLearning ⓘ | Machine Learning | Lite | Dallas   | Not associated | Default |  |                   |        |

4. Click on **x** to close the window.



Service WatsonMachineLearning successfully associated with project Watson Studio Labs. X

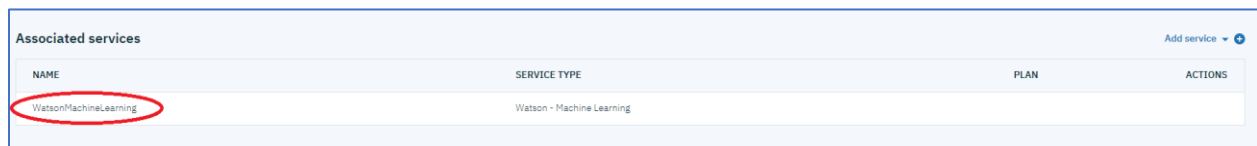
Choose an existing or add a new service to associate with your project.

Filter by: Resource Groups Locations None

New service +

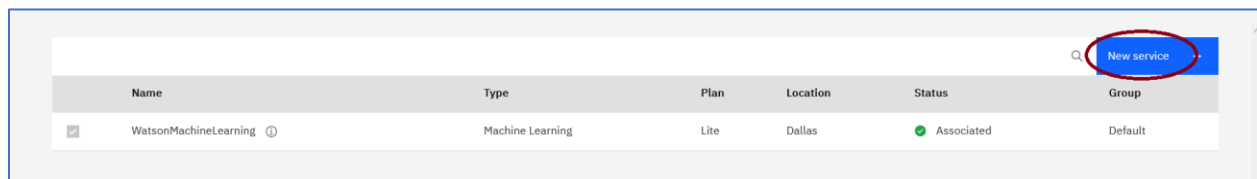
| Name                    | Type             | Plan | Location | Status     | Group   |
|-------------------------|------------------|------|----------|------------|---------|
| WatsonMachineLearning ⓘ | Machine Learning | Lite | Dallas   | Associated | Default |

5. The **WatsonMachineLearning** service is associated with the project. Skip to the next section - Add a Project Collaborator



| Associated services   |                           |      |         | Add service + |
|-----------------------|---------------------------|------|---------|---------------|
| NAME                  | SERVICE TYPE              | PLAN | ACTIONS |               |
| WatsonMachineLearning | Watson - Machine Learning |      |         |               |










6. If a service of type Machine Learning does not exist, you will need to create the service. Click on **New service**.




| Name  | Type             | Plan | Location | Status     | Group   |
|---|------------------|------|----------|------------|---------|
| <input checked="" type="checkbox"/> WatsonMachineLearning ⓘ | Machine Learning | Lite | Dallas   | Associated | Default |

New service +

7. Click on **Machine Learning**.

|  |   |   |
|--|---|---|
| <br><b>Watson OpenScale</b><br>AI / Machine Learning<br><br>IBM Watson OpenScale is an enterprise-grade environment for AI infused applications that provides...<br><br>Lite • Free           | <br><b>Watson Assistant</b><br>AI / Machine Learning<br><br>Watson Assistant lets you build conversational interfaces into any application, device, or channel.<br><br>Lite • Free             | <br><b>Watson Discovery</b><br>AI / Machine Learning<br><br>Add a cognitive search and content analytics engine to applications.<br><br>Lite • Free  |
| <br><b>Language Translator</b><br>AI / Machine Learning<br><br>Translate text, documents, and websites from one language to another. Create industry or region-specific...<br><br>Lite • Free | <br><b>Natural Language Classifier</b><br>AI / Machine Learning<br><br>Natural Language Classifier uses advanced natural language processing and machine learning techniques to...<br><br>Free | <br><b>Natural Language Understanding</b><br>AI / Machine Learning<br><br>Analyze text to extract meta-data from content such as concepts, entities, emotion, relations, sentiment and...<br><br>Lite • Free |
| <br><b>Personality Insights</b><br>AI / Machine Learning<br><br>The Watson Personality Insights derives insights from transactional and social media data to identify...<br><br>Lite • Free   | <br><b>Machine Learning</b><br>AI / Machine Learning<br><br>IBM Watson Machine Learning - make smarter decisions, solve tough problems, and improve user outcomes.<br><br>Lite • Free          | <br><b>Speech to Text</b><br>AI / Machine Learning<br><br>Low-latency, streaming transcription<br><br>Lite • Free  |

8. Make sure the Lite service is selected and click **Create**.


**Machine Learning**

Author: IBM SPSS • Date of last update: Dec 11, 2020 • [Docs](#) • [API Docs](#)

Create

About

Select a region

Select a region

Dallas

Pricing plan

Displayed prices do not include tax. Monthly prices shown are for country or region: United States

| Plan | Features  | Pricing |
|------|---|---------|
| Lite | <b>Service instance</b><br>20 capacity unit-hours (CUH) included:<br>Maximum 1 (one) GPU<br>Capacity Type:<br>• 1 (one) NVIDIA K80 GPU = 3 capacity units required per hour<br>• 1 (one) NVIDIA V100 GPU = 10 capacity units required per hour<br>• 1 vCPU and 4 GB RAM = 0.5 capacity units required per hour<br>• 2 vCPU and 8 GB RAM = 1 capacity units required per hour<br>• 4 vCPU and 16 GB RAM = 2 capacity units required per hour | Free    |

Summary

**Machine Learning**  
Region: Dallas  
Plan: Lite  
Service name: Machine Learning-gp  
Resource group: Default

Create

View terms

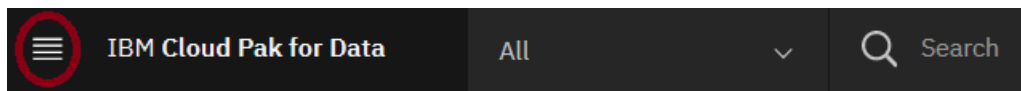
## Add a Project Collaborator

Colleagues can gain access to a project's data and analytic assets by being made a collaborator. Permissions are based on the assigned role. The roles are administrator, editor, and viewer.

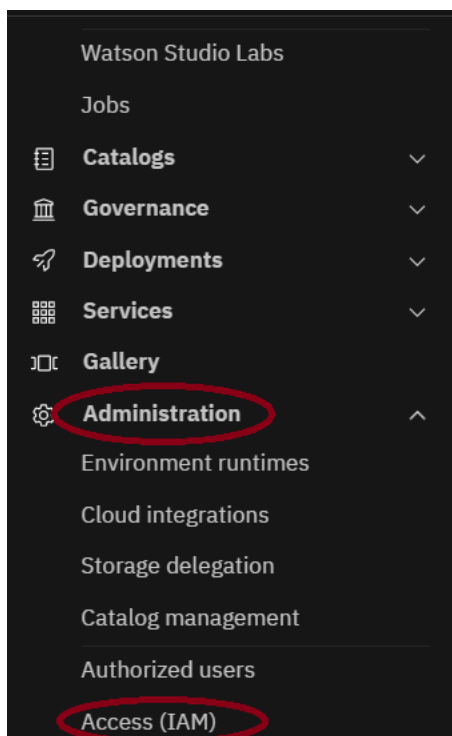
Recall, the project that was created in this lab restricts who can collaborate. This option was required to demonstrate the Watson Knowledge catalog features in lab-2. The restriction limits the collaborators to be members of your company (if your company has federated SAML with IBM Cloud), or a member of the project creator's IBM Cloud account. Given the restriction, to demonstrate adding collaborators to the project, we will need to first add the collaborator to your IBM Cloud account.

## Step 1 – Add Collaborator to the IBM Account

1. Click on the hamburger  icon



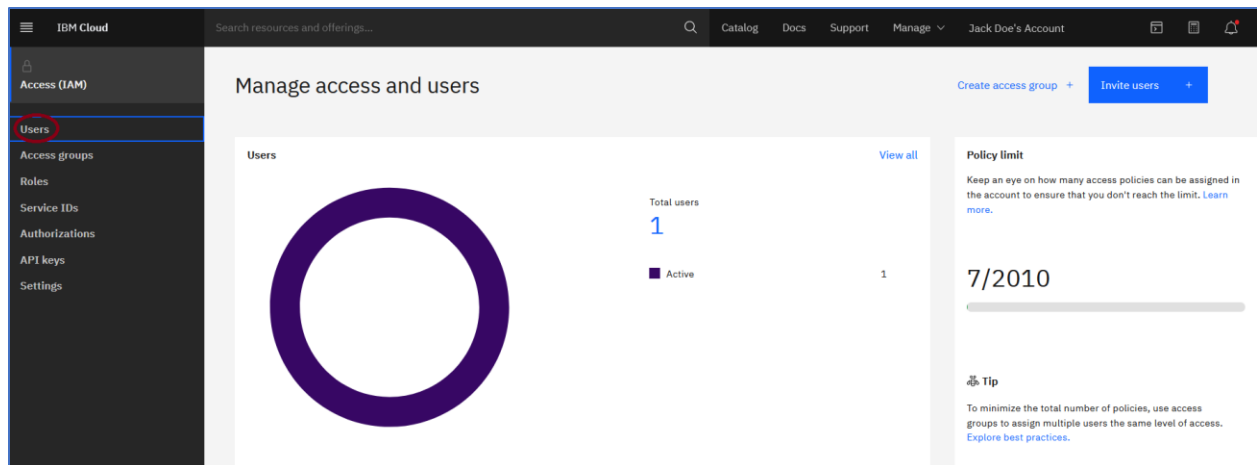
2. Click on **Administration** and then click on **Access (IAM)**. Scroll down if necessary.



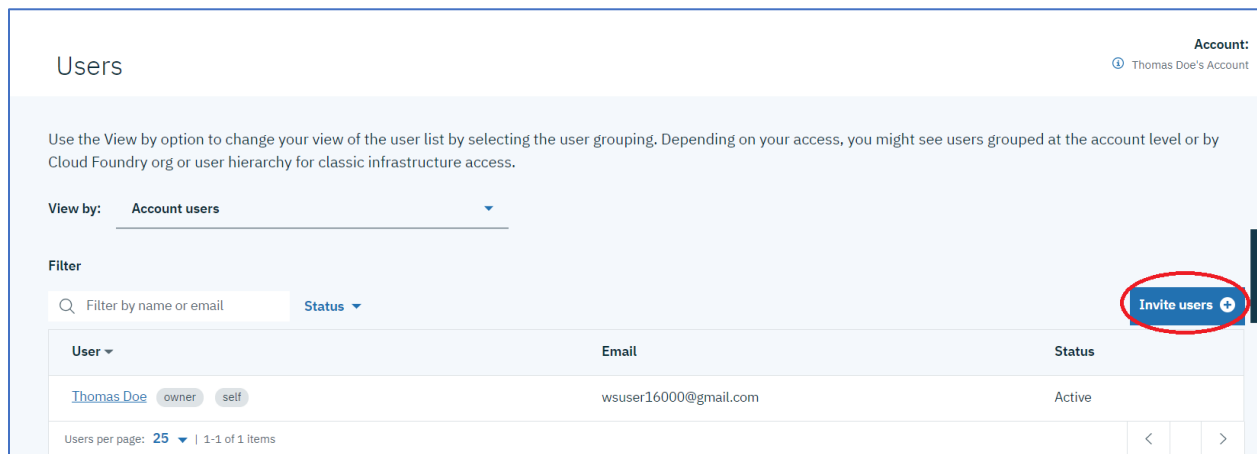
3. An **Identity and Access Management (IAM)** browser tab is created providing the IBM Cloud user interface to the IAM subsystem. Note, you may have to log-in first. Click on **Users** in the menu panel.



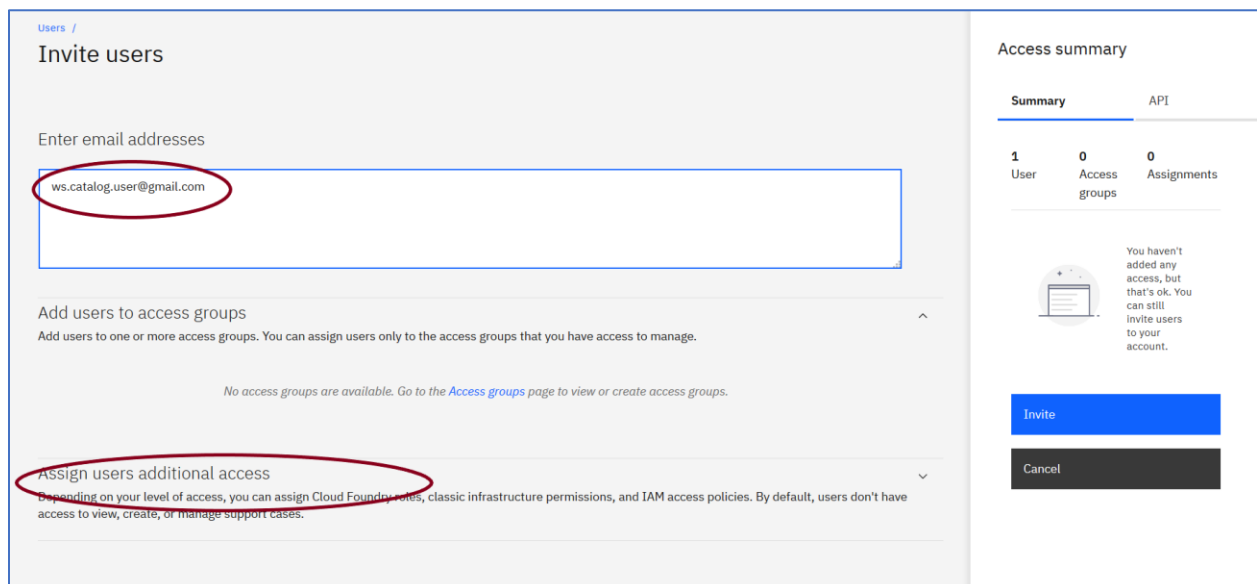




4. Click on **Invite Users**.



5. For **E-mail address**, enter **ws.catalog.user@gmail.com**, scroll down if needed, and click on **Assign users additional access**.



6. Scroll down and click on **IAM services**.

Users /

## Invite users

Enter email addresses

ws.catalog.user@gmail.com

Add users to access groups

Add users to one or more access groups. You can assign users only to the access groups that you have access to manage.

Assign users additional access

Depending on your level of access, you can assign Cloud Foundry roles, classic infrastructure permissions, and IAM access policies. By default, users don't have access to view, create, or manage support cases.

**Cloud Foundry**  
Access to orgs and spaces that contain resources managed by Cloud Foundry

**IAM services**  
Access to IAM-enabled services

**Account management**  
Access to services like billing, user management, support center, and more

7. Scroll down and click on **All Identity and Access enabled services**.

Enter email addresses

ws.catalog.user@gmail.com

Add users to access groups

Add users to one or more access groups. You can assign users only to the access groups that you have access to manage.

Assign users additional access

Depending on your level of access, you can assign Cloud Foundry roles, classic infrastructure permissions, and IAM access policies. By default, users don't have access to view, create, or manage support cases.

**Cloud Foundry**  
Access to orgs and spaces that contain resources managed by Cloud Foundry

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Access to services like billing, user management, support center, and more

What type of access do you want to assign?

No access in Account

No access

All Identity and Access enabled services

Reset Add +

8. Scroll down click on **Viewer** under **Platform access** and **Reader** under **Service access** and click on **Add**.

All Identity and Access enabled services x v in Account x v

This option automatically grants access to new services when added.

Region

All regions v

Platform access ⓘ

- ☒ **Viewer** As a viewer, you can view service instances, but you can't modify them.
- ☐ **Operator** As an operator, you can perform platform actions required to configure and operate service instances, such as viewing a service's dashboard.
- ☐ **Editor** As an editor, you can perform all platform actions except for managing the account and assigning access policies.
- ☐ **Administrator** As an administrator, you can perform all platform actions based on the resource this role is being assigned, including assigning access policies to other users.

Service access ⓘ

- ☒ **Reader** As a reader, you can perform read-only actions within a service such as viewing service-specific resources.
- ☐ **Writer** As a writer, you have permissions beyond the reader role, including creating and editing service-specific resources.
- ☐ **Manager** As a manager, you have permissions beyond the writer role to complete privileged actions as defined by the service. In addition, you can create and edit service-specific resources.

Reset Add +

9. Click on **Invite**.

ws.catalog.user@gmail.com

Add users to access groups v

Add users to one or more access groups. You can assign users only to the access groups that you have access to manage.

Assign users additional access ^

Depending on your level of access, you can assign Cloud Foundry roles, classic infrastructure permissions, and IAM access policies. By default, users don't have access to view, create, or manage support cases.

- Cloud Foundry  
Access to orgs and spaces that contain resources managed by Cloud Foundry
- IAM services** Access to IAM-enabled services
- Account management  
Access to services like billing, user management, support center, and more

What type of access do you want to assign?

No access x v in Account x v

Reset Add +

Access summary

| Summary |                 | API          |
|---------|-----------------|--------------|
| 1 User  | 0 Access groups | 1 Assignment |

IAM services

**All resources in account (including future IAM enabled services)**

- Viewer
- Reader

Remove Edit

**Invite**

Cancel

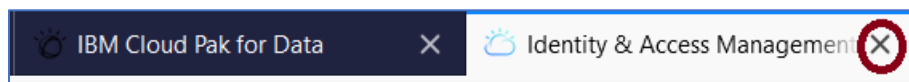
10. You should have two users in the account. The second user should be "Howard Doe".

| Filter  |                           |                |                |
|---|---------------------------|----------------|----------------|
| Filter by name or email                         |                           | Status         | Invite users + |
| User  | Email                     | Status         |                |
| George Doe <span>owner</span> <span>self</span> | wsuser42000@gmail.com     | Active         | ⋮              |
| Howard Doe                                      | ws.catalog.user@gmail.com | Active         | ⋮              |
| Items per page: 25                              |                           | 1-2 of 2 items |                |

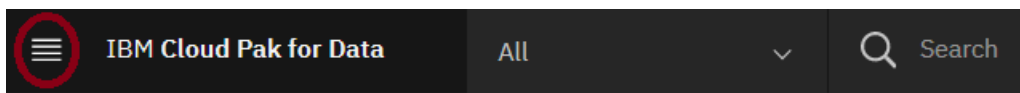
## Step 2 – Add Collaborator to the Project

Now that the collaborator has been added to your IBM Cloud Account, you can add the collaborator to the project.

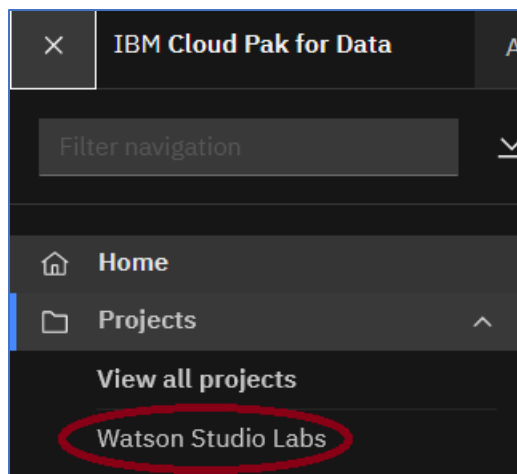
1. Close the Identity and Access Management tab.



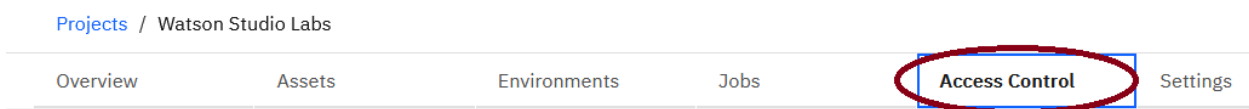
2. Click on the **IBM Cloud Pak for Data** tab. Click on the ☰ icon.



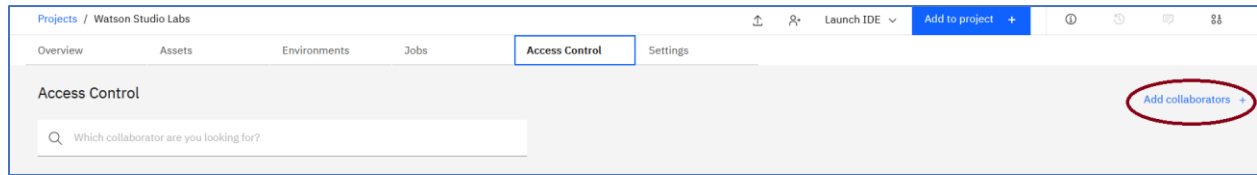
3. Click on Watson Studio Labs.



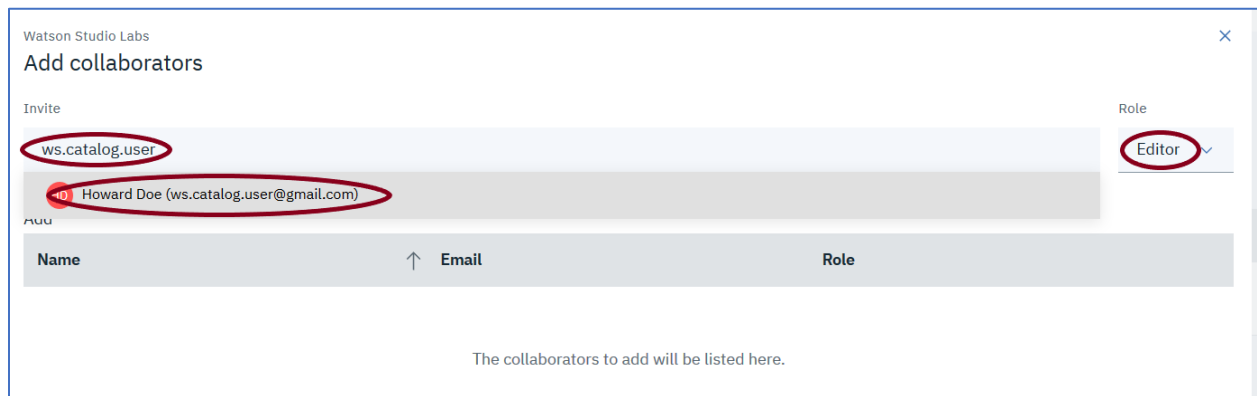
4. Click on the **Access Control** tab.



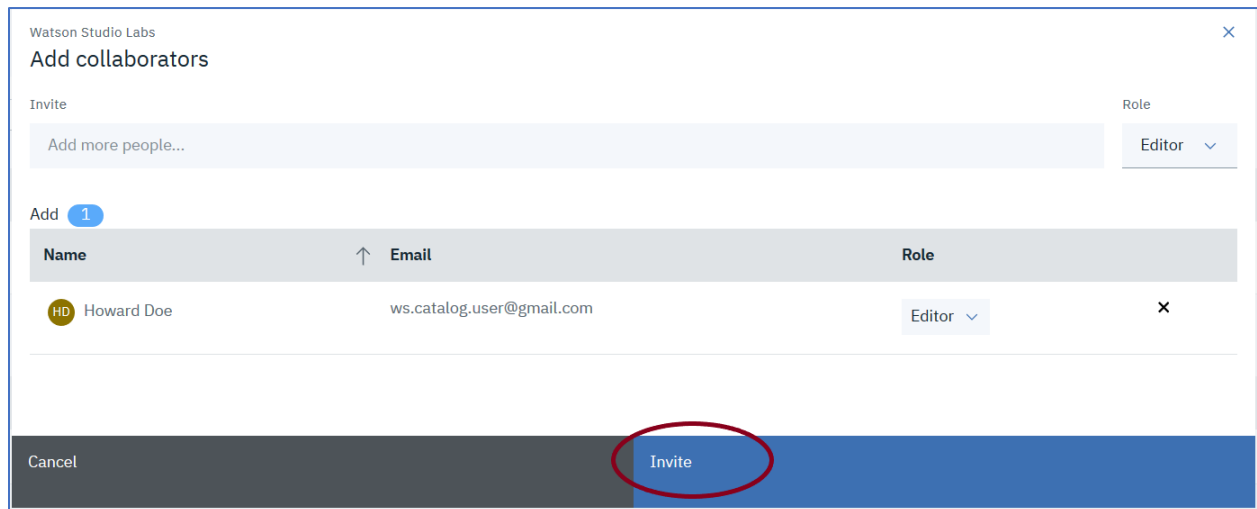
5. Click on **Add collaborators**.





6. For **Invite**, start entering **ws.catalog.user@gmail.com** and once a match has been made, make sure to select the Editor role (if not already set to Editor), and click on the name in the list.



7. Click **Invite**.




8. The collaborator is added.

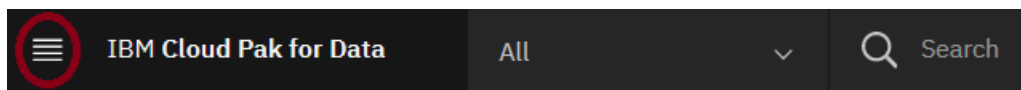
| Access Control   |                           |            |        |
|--|---------------------------|------------|--------|
| <input type="text" value="Which collaborator are you looking for?"/>                         |                           |            |        |
| Name   | Email                     | Permission | Status |
|  George Doe | wsuser42000@gmail.com     | Admin      | Active |
|  Howard Doe | ws.catalog.user@gmail.com | Editor     | Active |

## Research Topics

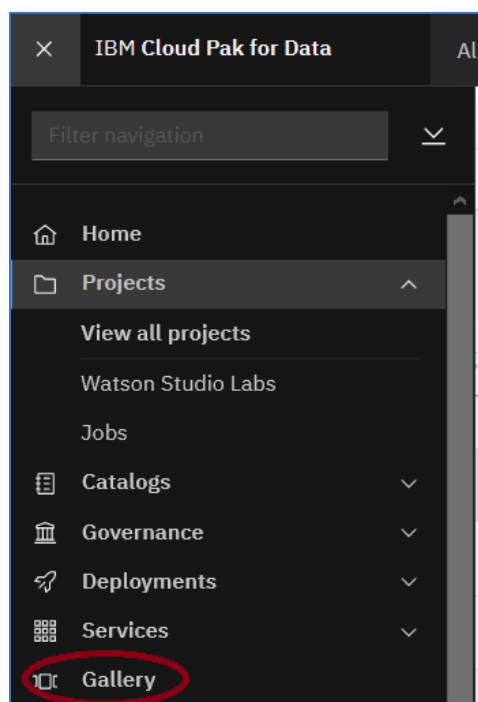
As you work on a data analysis project, you may need to do some research to help find a solution. Cloud Pak for Data provides a built-in capability, accessed via the **Gallery** option, that contains sample notebooks, sample datasets, and sample projects. These are curated on a regular basis to provide up-to-date materials.

For the lab exercise, assume that you are interested in learning how to develop a Spark model. We will look for a sample notebook that demonstrates this capability and add this notebook to our project. **Note, we are doing this exercise for illustrative purposes on using the Gallery, and not for use in any subsequent lab.**

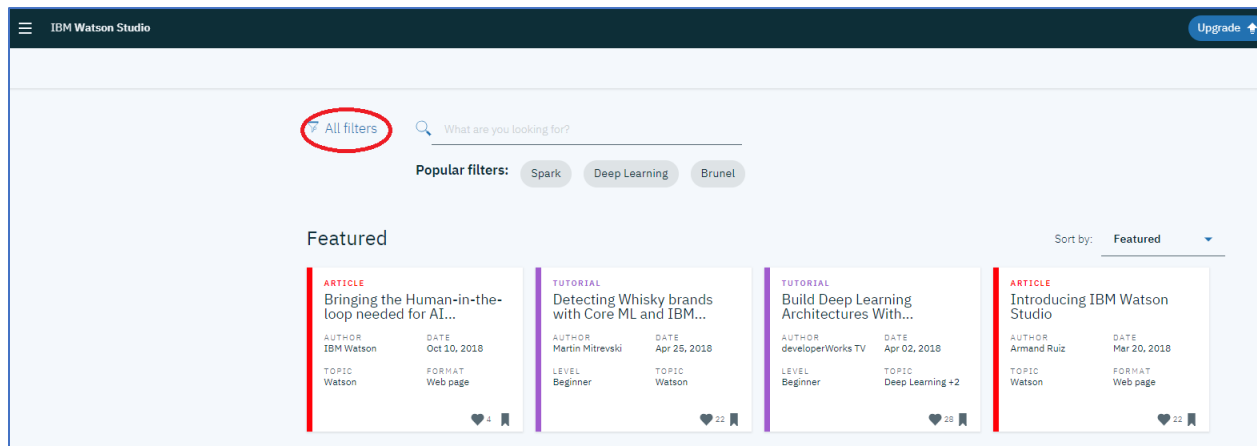
1. Click on the  icon.



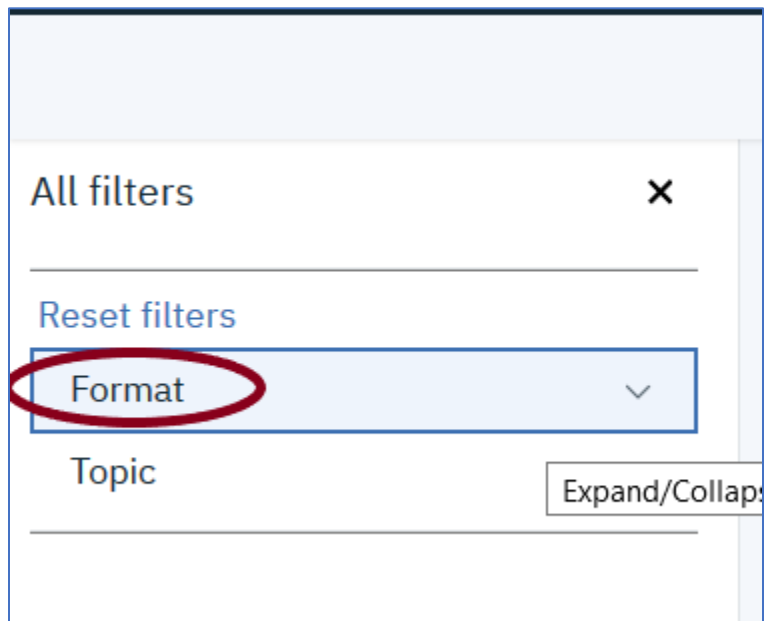
2. Click on **Gallery**.



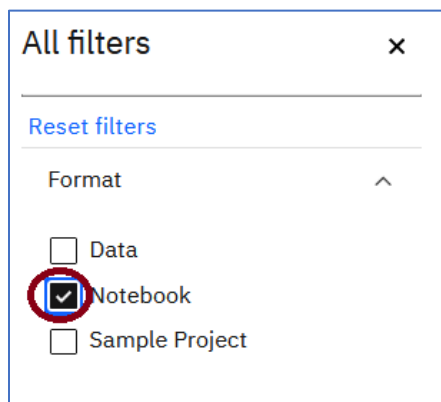
3. The Gallery is displayed. Click on **All filters**.



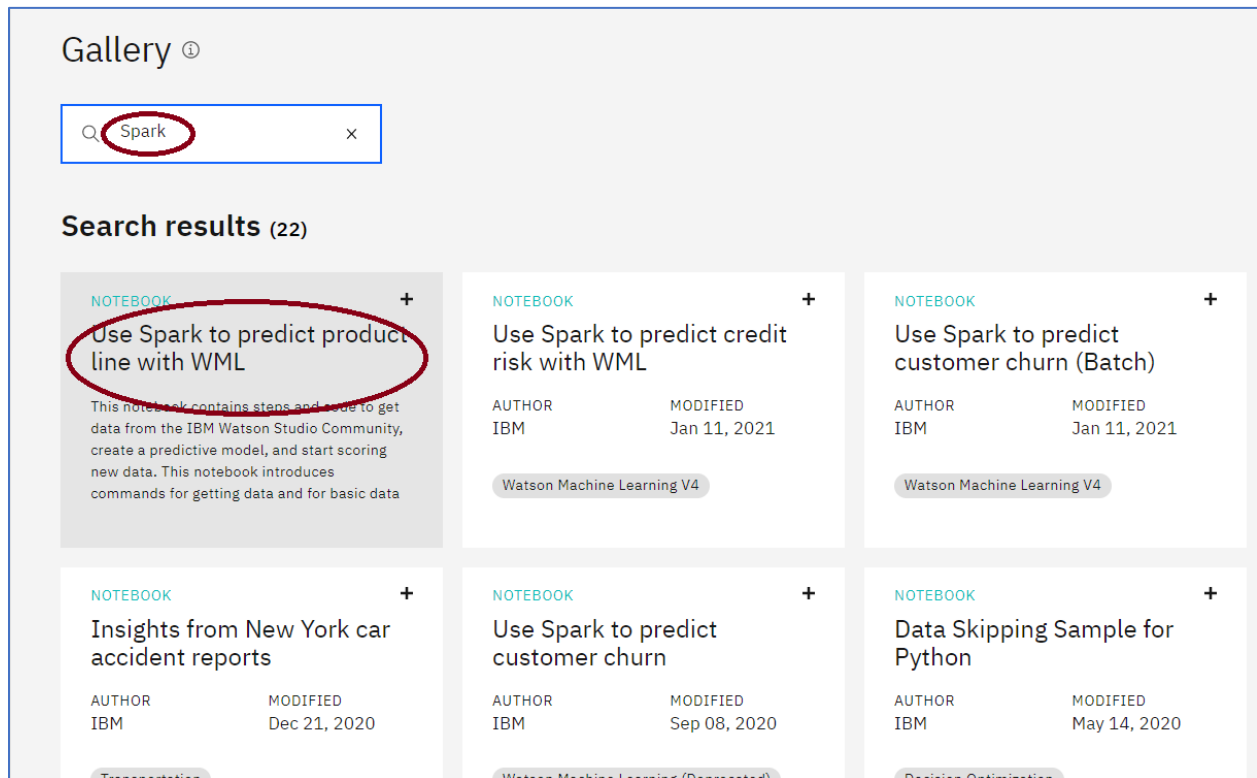
4. Click on **Format**.



5. Click on **Notebook**.




6. Enter **Spark** in the **Search** area. The Gallery view is updated. Locate the Gallery Card “Use Spark to predict product line with WML”. Hover the mouse over the card. The descriptive text provides a notebook summary. This notebook appears to be a good candidate for having code demonstrating the use of the Spark. Click on the **Gallery Card**.

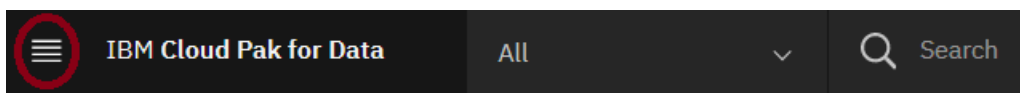


7. Here you can review the notebook documentation and then add it to the project if this notebook was a good starting point. We are not using this notebook for our labs so don't add it to the project. Our purpose was just to demonstrate the **Gallery** feature.

## Provision Watson OpenScale

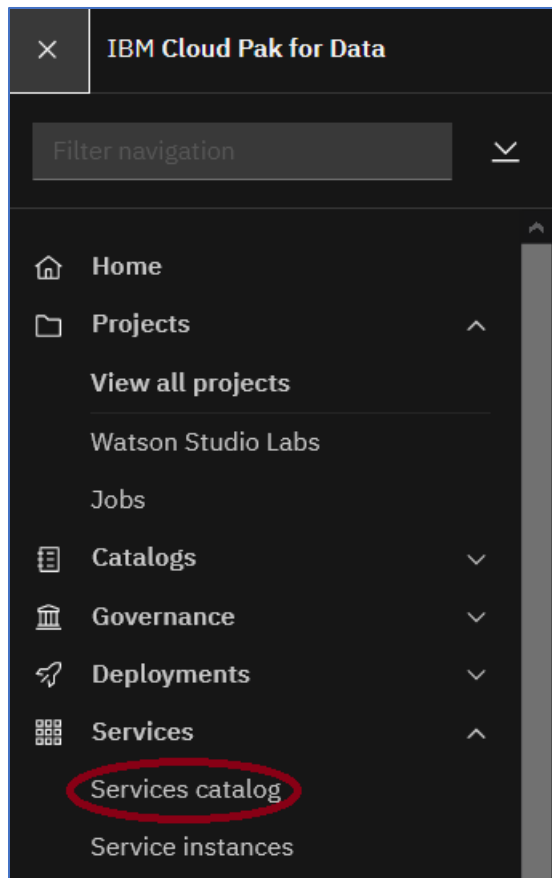
In this section, we will provision a Watson OpenScale service for use in a later lab.

1. Click on the  icon.

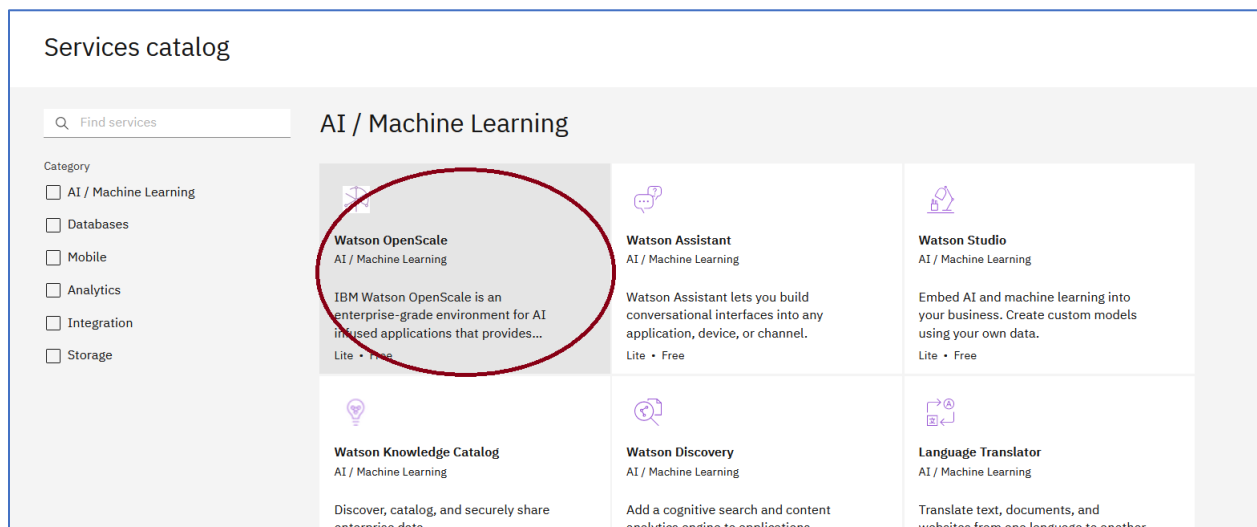


2. Click on **Services** and then **Service Catalog**.





3. Click on **Watson OpenScale**



4. Make sure the Lite plan is selected and click **Create**.

**Watson OpenScale**

Author: IBM • Date of last update: Jan 7, 2021 • [Docs](#) • [API Docs](#)

**Create** About

Select a region

Select a region

Dallas

**Pricing plan**

Displayed prices do not include tax. Monthly prices shown are for country or region: United States

| Plan | Features  | Pricing |
|------|---|---------|
| Lite | <b>Lite - Maximum 5 deployed models to be monitored</b><br>Maximum 2 protected features per model and 50,000 payload rows (cumulative) across 5 deployed models, per month for Fairness monitoring<br>Maximum 50,000 rows of input (cumulative) across 5 deployed models, per month for active De-Biasing<br>Maximum 20 transactions explained per month through the Explainability feature<br>Maximum 50,000 feedback records (cumulative) across 5 models, per month for Accuracy monitoring<br>Internal Postgres db instance that supports the above capacity; Data cannot be migrated from this instance;<br>If upgrading to Standard plan and continuity is required from Lite plan, please provision your own instance of paid Postgres db from IBM Cloud catalog | Free    |

**Create**

## You have completed Lab-1!

- ✓ Created a project
- ✓ Created an object storage instance and associate it with the project
- ✓ Associated an existing Watson Machine Learning service instance with the project
- ✓ Added a collaborator to the project
- ✓ Demonstrated researching topics by searching the Gallery.
- ✓ Created an instance of Watson OpenScale

