

# 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.

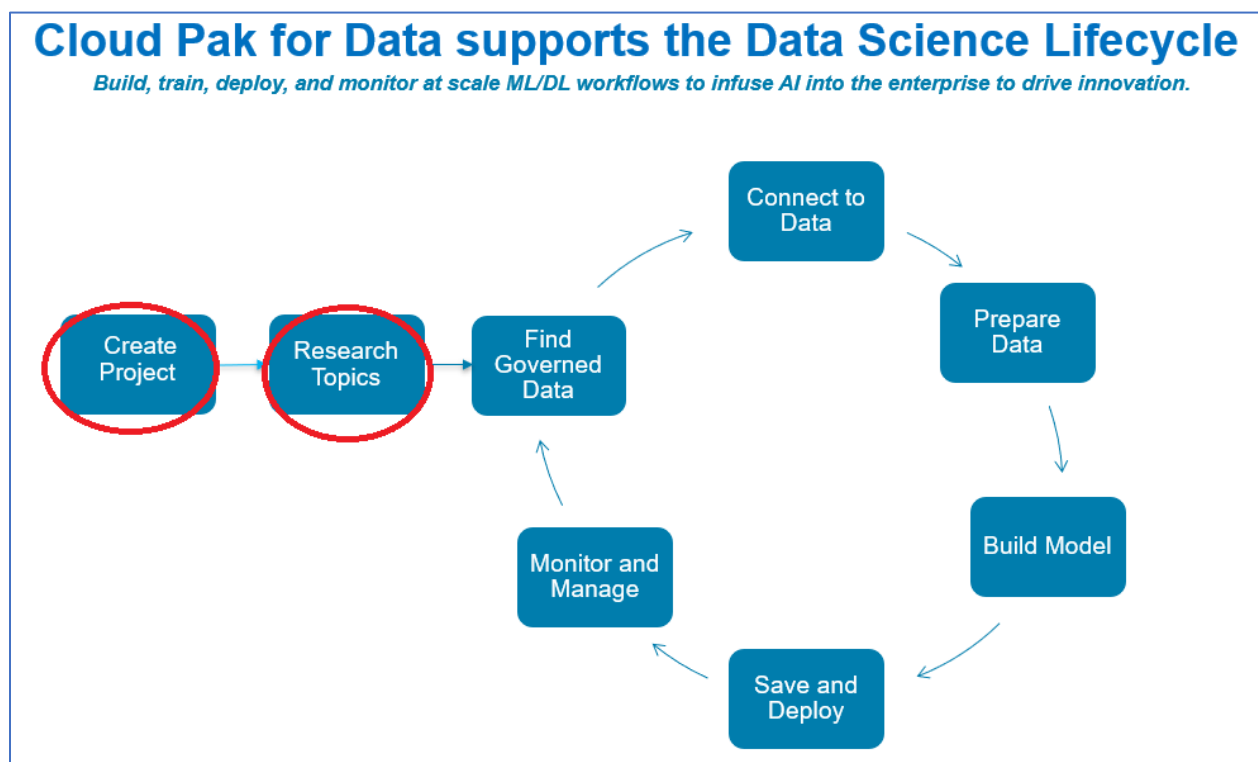


Figure 1- End to End Flow

## 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 **datapatform.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?](#)

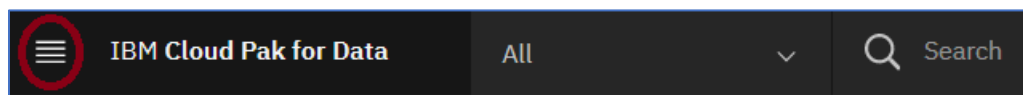
Password [Forgot password?](#)

☐ Remember ID

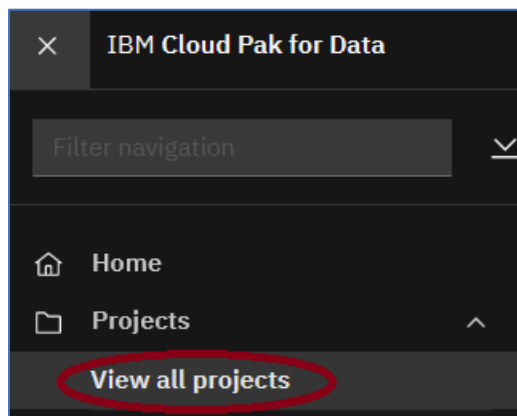
You will log into Dallas ▾

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

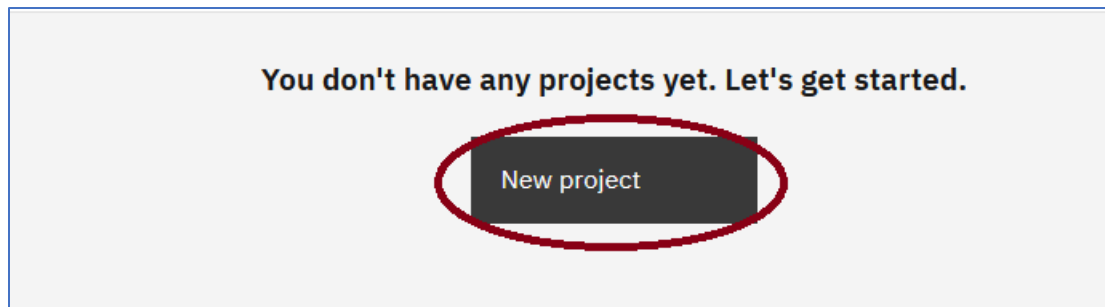
3. Click on the hamburger icon .



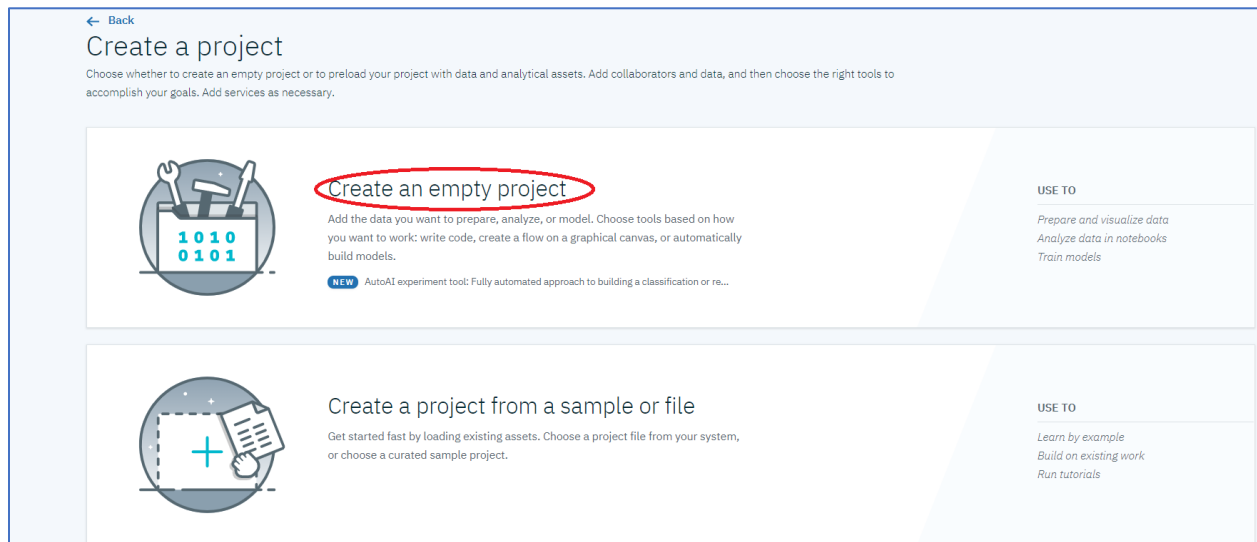
4. Click on **View All Projects**



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 **Define Storage** click on **Add** to add an object storage instance. If you already have an object storage instance, from prior use of Watson Studio or IBM Cloud (you shouldn't see the Add link), skip to step 13.

New project

Define project details

Name

Watson Studio Labs

Description

Project description

Choose project options

☒ Restrict who can be a collaborator

Project will include integration with Cloud Object Storage for storing project assets.

Define storage

1 Select storage service

Add

Add an object storage instance and then return to this page and click Refresh.

2 Refresh

Cancel

Create

8. The Lite plan should already be selected. If not, click on the Lite plan. Then click **Create**.

Cloud Object Storage

Author: IBM • Date of last update: Dec 10, 2020 • Docs • API Docs

Create

About

Pricing plan

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

Plan	Features	Pricing
Lite	1 COS Service Instance Storage up to 25 GB/month Up to 2,000 Class A (PUT, COPY, POST, and LIST) requests per month Up to 20,000 Class B (GET and all others) requests per month Up to 10 GB/month of Data Retrieval Up to 5GB of egress (Public Outbound) Applies to aggregate total across all storage bucket classes  The Lite service plan for Cloud Object Storage includes Regional and Cross Regional resiliency, flexible data classes, and built in security.  Lite plan services are deleted after 30 days of inactivity.	Free
Standard	There is no minimum fee, so you pay only for what you use.	See pricing details

Cloud Object Storage

Region: Global  
 Plan: Lite  
 Service name: Cloud Object Storage-zj  
 Resource group: Default

Create

9. Click **Refresh**.

New project

Define project details

Name

Watson Studio Labs

Description

Project description

Choose project options

☒ Restrict who can be a collaborator

Project will include integration with Cloud Object Storage for storing project assets.

Define storage

1 Select storage service

Add

Add an object storage instance and then return to this page and click Refresh.

2 Refresh

## 10. Click Create.

New project

Define project details

Name

Watson Studio Labs

Description

Project description

Storage

cloud-object-storage-gu

Choose project options

☒ Restrict who can be a collaborator ⓘ

Project includes integration with [Cloud Object Storage](#) for storing project assets.

Cancel Create

11. The Project **Overview** page is shown. This page provides summarized information about the project. In addition to the Overview page, are six 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.

Projects / Watson Studio Labs

Overview Assets Environments Jobs Access Control Settings

Watson Studio Labs

Last Updated: Jan 08, 2021

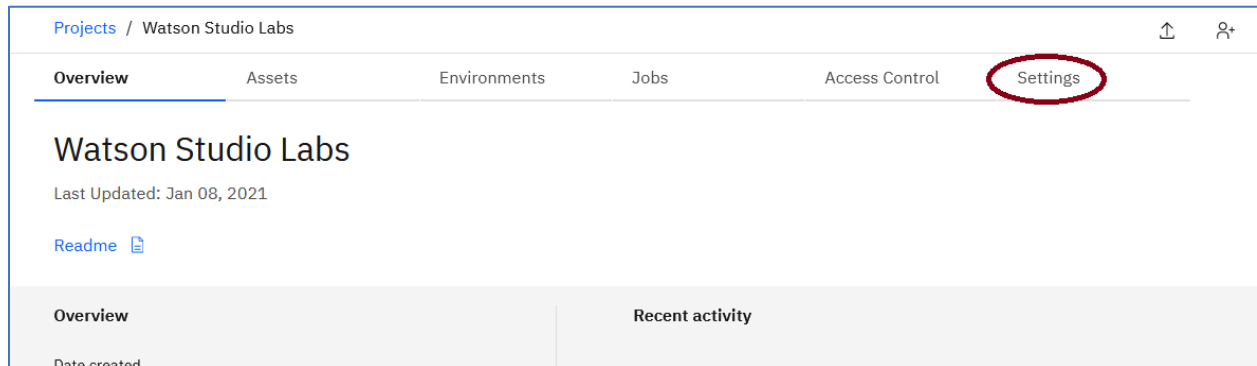
[Readme](#)

Overview	Recent activity
Date created	

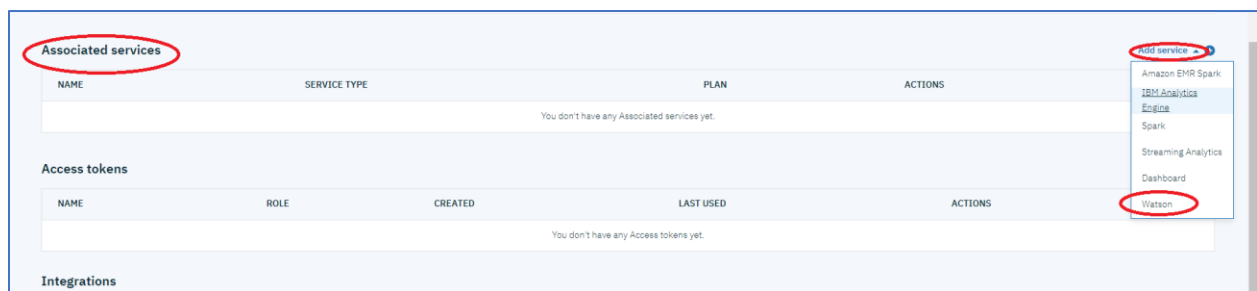
## Associate a Watson Machine Learning Service to the Project

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.

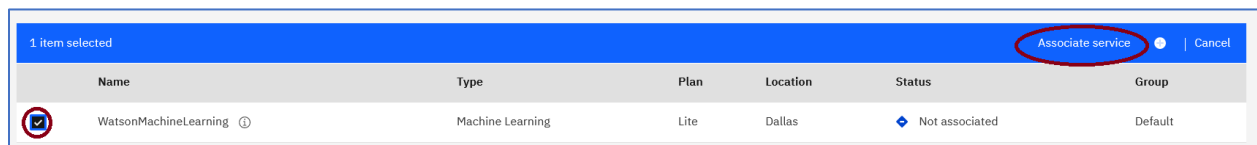
1. Click on **Settings** to navigate to the Project **Settings** page.



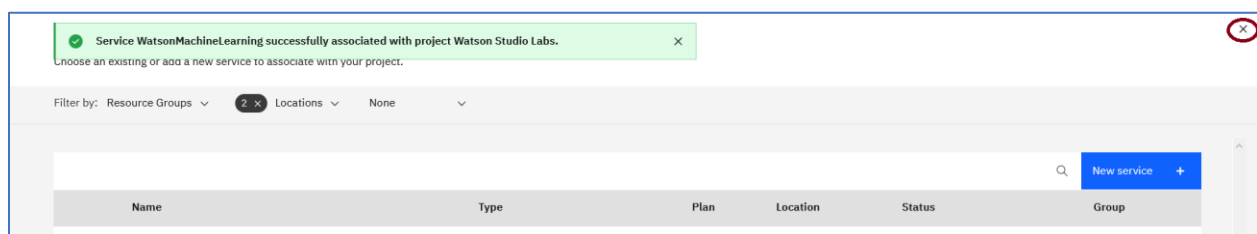
2. Scroll down to **Associated Services**, click on **Add service**, click on **Watson**.



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.



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












5. The **WatsonMachineLearning** service is associated with the project. Skip to the next section.

Associated services				<a href="#">Add service</a>
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**.

						<a href="#">New service</a>
Name	Type	Plan	Location	Status	Group	
<input checked="" type="checkbox"/> WatsonMachineLearning ⓘ	Machine Learning	Lite	Dallas	<span>Associated</span>	Default	

7. Click on **Machine Learning**.

 <b>Watson OpenScale</b> AI / Machine Learning  IBM Watson OpenScale is an enterprise-grade environment for AI infused applications that provides... Lite • Free	 <b>Watson Assistant</b> AI / Machine Learning  Watson Assistant lets you build conversational interfaces into any application, device, or channel. Lite • Free	 <b>Watson Discovery</b> AI / Machine Learning  Add a cognitive search and content analytics engine to applications. Lite • Free
 <b>Language Translator</b> AI / Machine Learning  Translate text, documents, and websites from one language to another. Create industry or region-specific... Lite • Free	 <b>Natural Language Classifier</b> AI / Machine Learning  Natural Language Classifier uses advanced natural language processing and machine learning techniques to... Free	 <b>Natural Language Understanding</b> AI / Machine Learning  Analyze text to extract meta-data from content such as concepts, entities, emotion, relations, sentiment and... Lite • Free
 <b>Personality Insights</b> AI / Machine Learning  The Watson Personality Insights derives insights from transactional and social media data to identify... Lite • Free	 <b>Machine Learning</b> AI / Machine Learning  IBM Watson Machine Learning - make smarter decisions, solve tough problems, and improve user outcomes. Lite • Free	 <b>Speech to Text</b> AI / Machine Learning  Low-latency, streaming transcription 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> 20 capacity unit-hours (CUH) included: Maximum 1 (one) GPU Capacity Type: • 1 (one) NVIDIA K80 GPU = 3 capacity units required per hour • 1 (one) NVIDIA V100 GPU = 10 capacity units required per hour • 1 vCPU and 4 GB RAM = 0.5 capacity units required per hour • 2 vCPU and 8 GB RAM = 1 capacity units required per hour • 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](#)

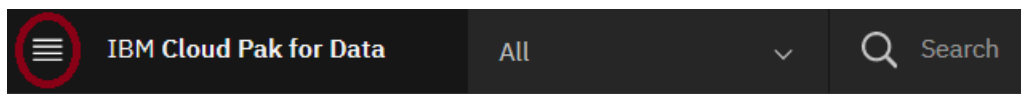
## Add a Project Collaborator

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.

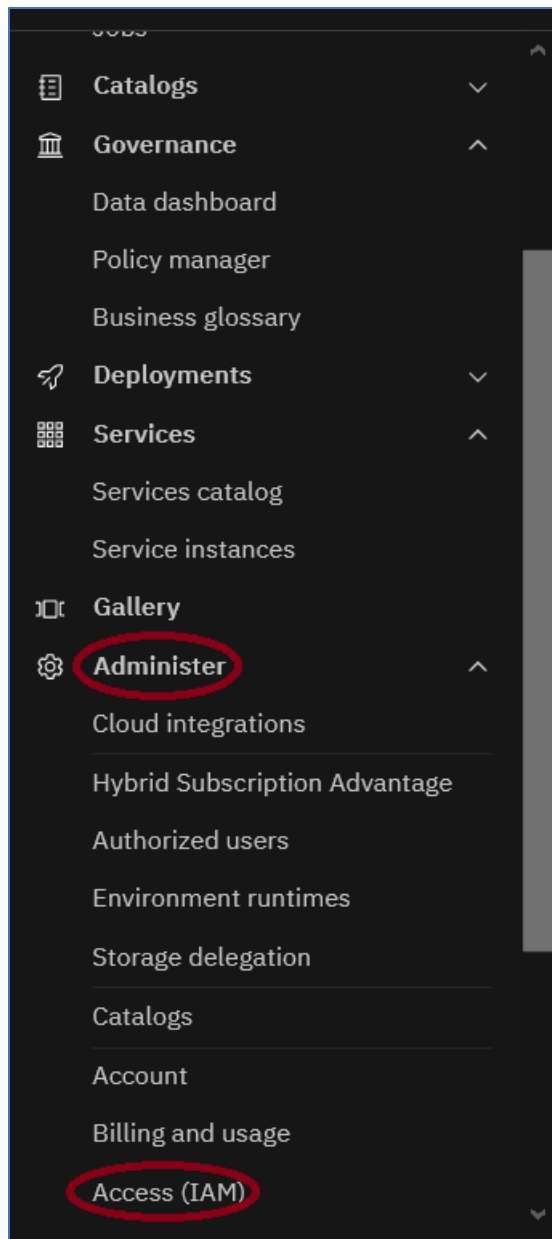
Recall, the project that was created in this lab restricts who can collaborate. This option was required to demonstrate the Watson Knowledge catalog features in lab-2. The restriction limits the collaborators to be members of your company (if your company has federated SAML with IBM Cloud), or a member 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

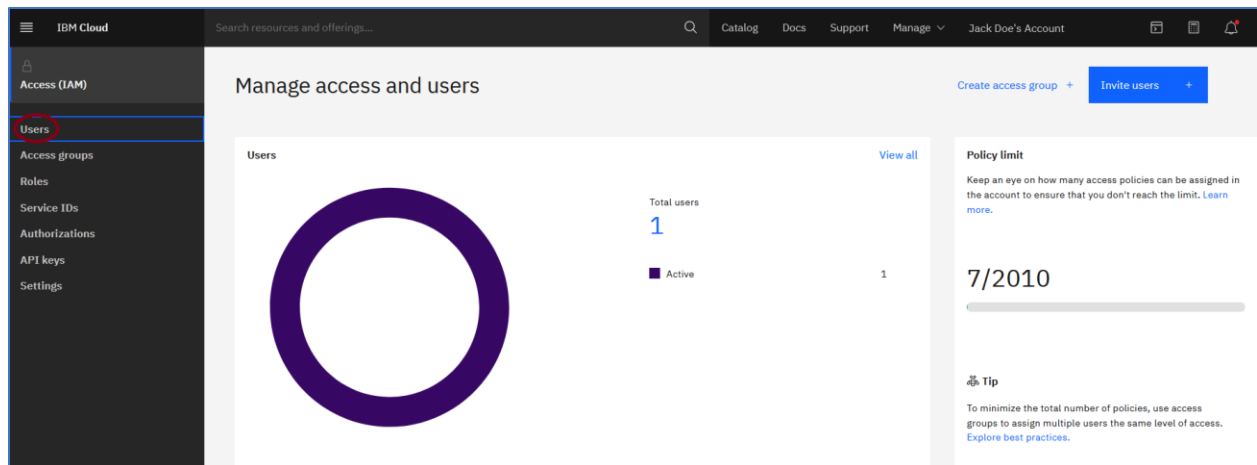


2. Click on **Administer** and then click on **Access (IAM)**. Scroll down if necessary.

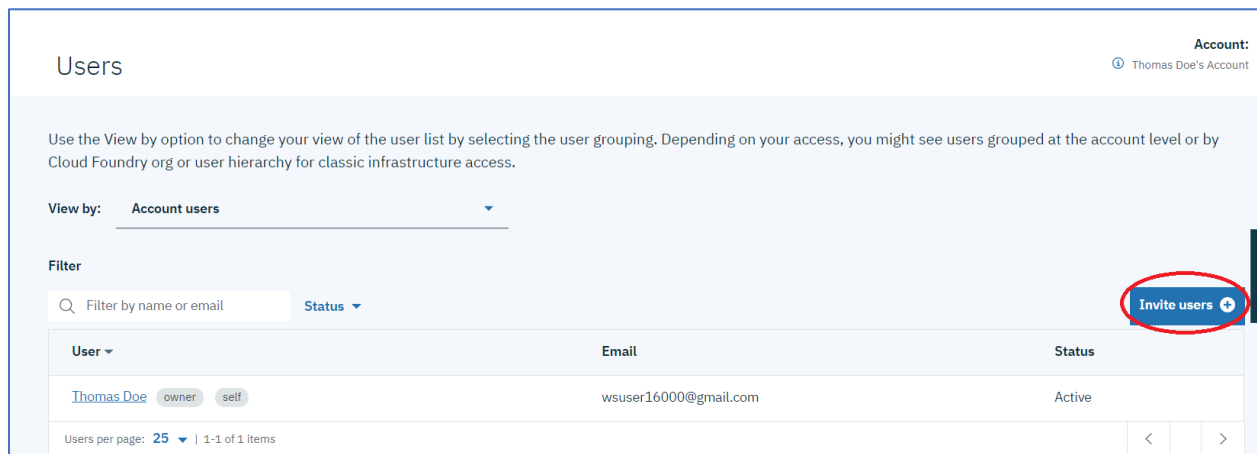


3. An **Identity and Access Management (IAM)** browser tab is created providing the IBM Cloud user interface to the IAM subsystem. Click on **Users**.

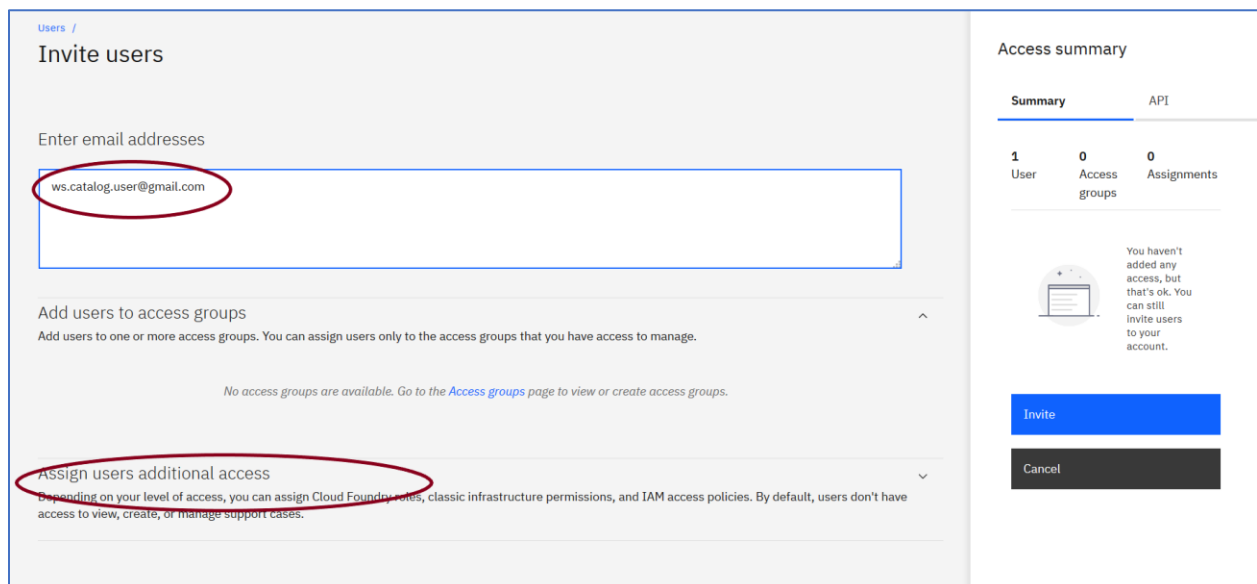




4. Click on **Invite Users**.



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



6. 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. 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

**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 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	

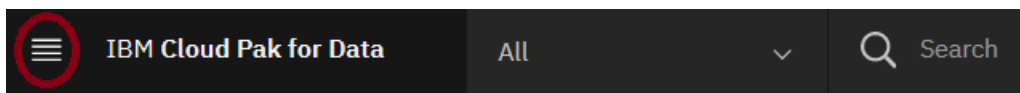
## Step 2 – Add Collaborator to the Project

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

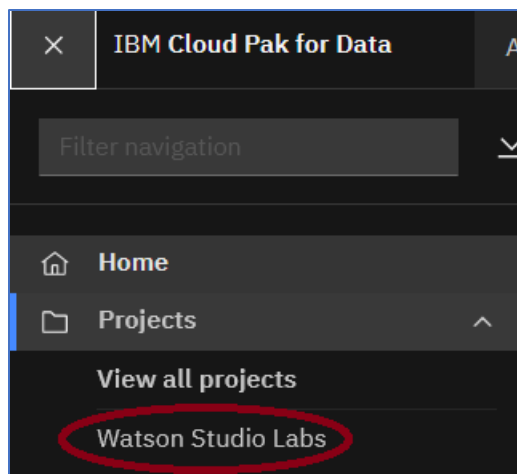
1. Close the Identity and Access Management tab.



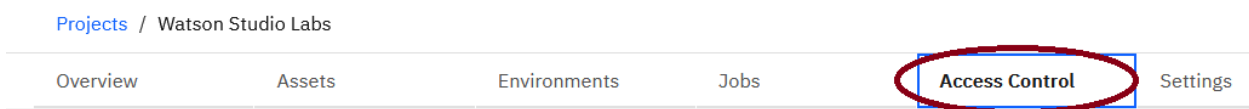
2. Click on the **IBM Cloud Pak for Data** tab. Click on the ☰ icon.



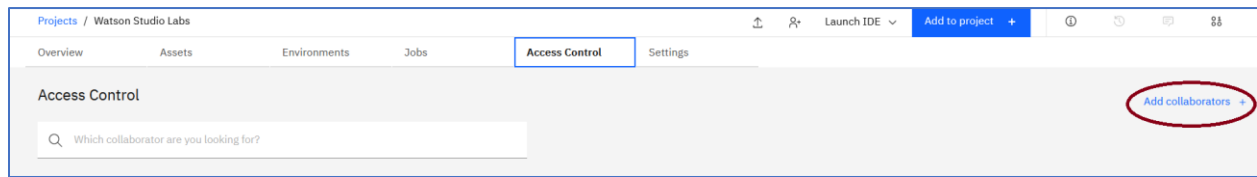
3. Click on Watson Studio Labs.



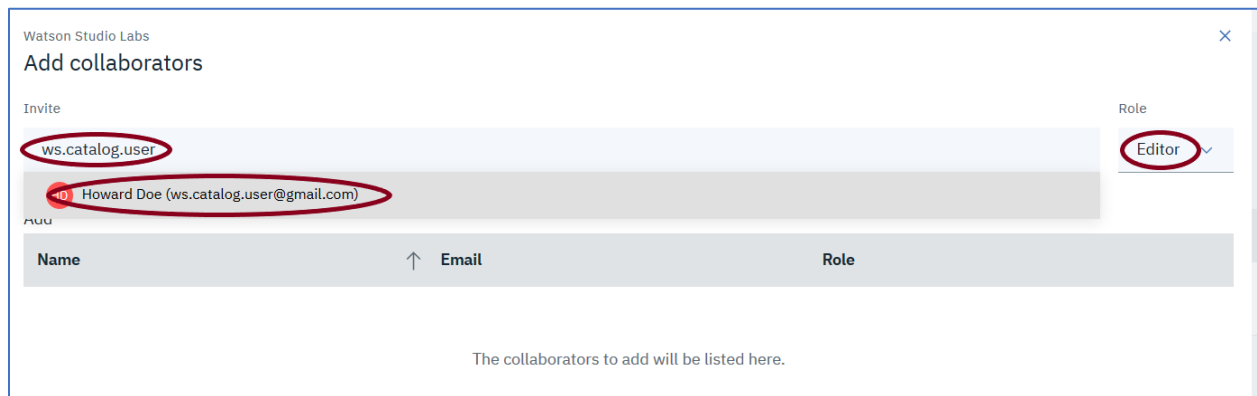
4. Click on the **Access Control** tab.



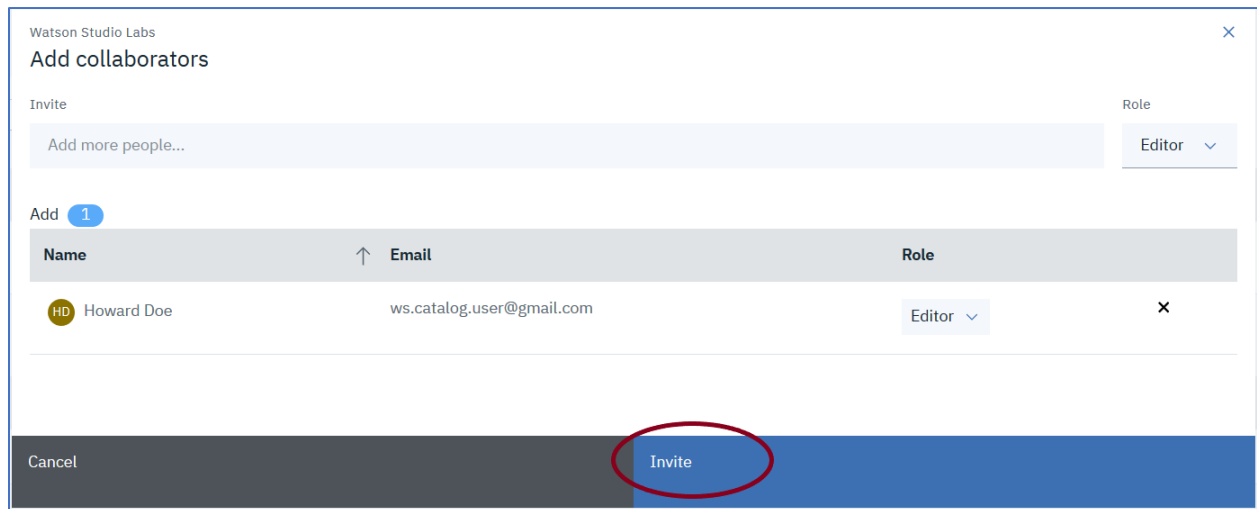
5. Click on **Add collaborators**.





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.

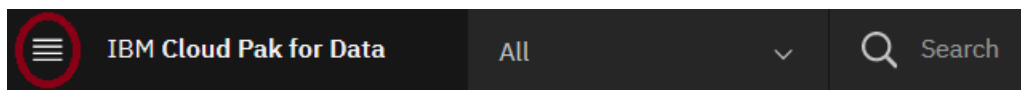
Access Control			
<input type="text" value="Which collaborator are you looking for?"/>			
Name	Email	Permission	Status
 George Doe	wsuser42000@gmail.com	Admin	Active
 Howard Doe	ws.catalog.user@gmail.com	Editor	Active

## Research Topics

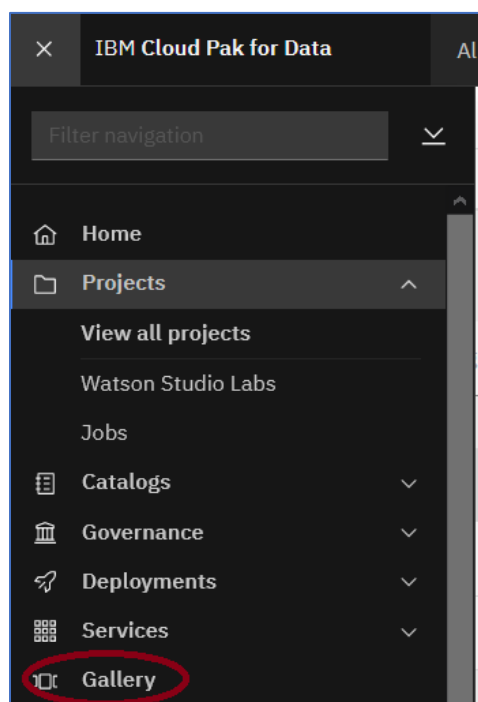
As you work on a data analysis project, you may need to do some research to help find a solution. Cloud Pak for Data provides a built-in capability, accessed via the **Gallery** option, that contains sample notebooks, sample datasets, and sample projects. These are curated on a regular basis to provide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

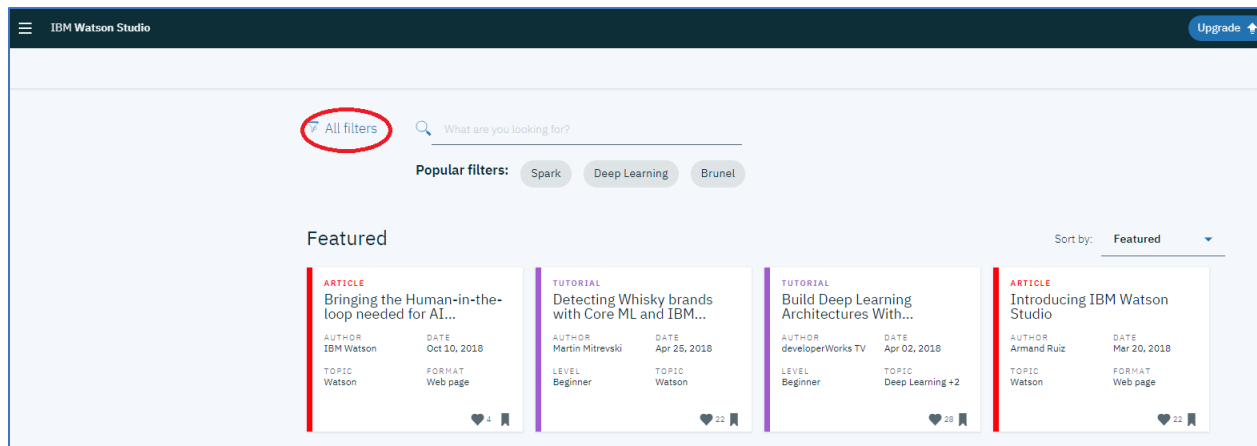


2. Click on **Gallery**.

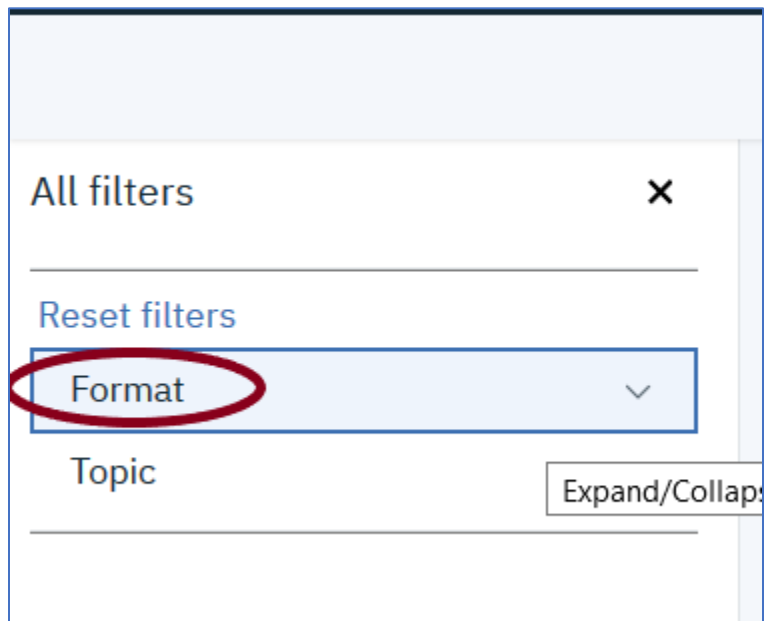




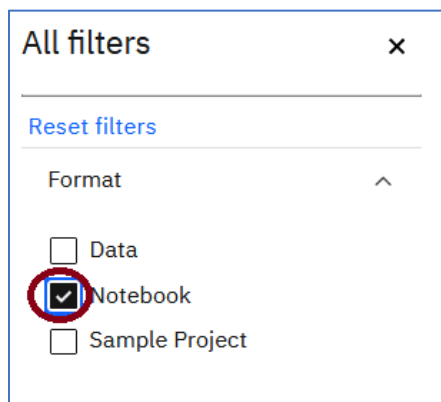
3. The Gallery is displayed. Click on **All filters**.



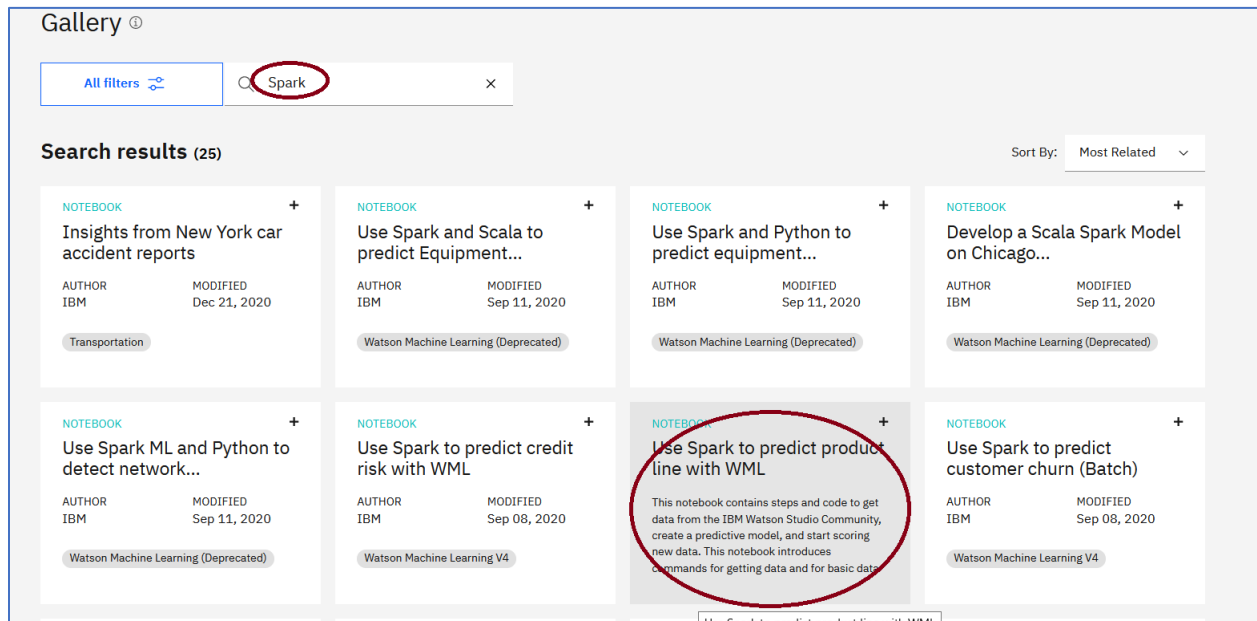
4. Click on **Format**.



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**.

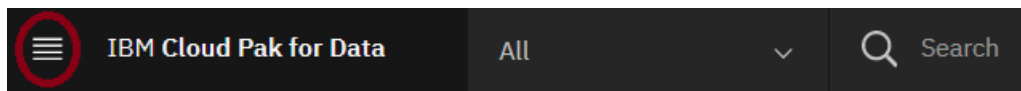


7. Here you can review the notebook documentation and then add it to the project if this notebook was a good starting point. We are not using this notebook for our labs so don't add it to the project. Our purpose was just to demonstrate the **Gallery** feature.

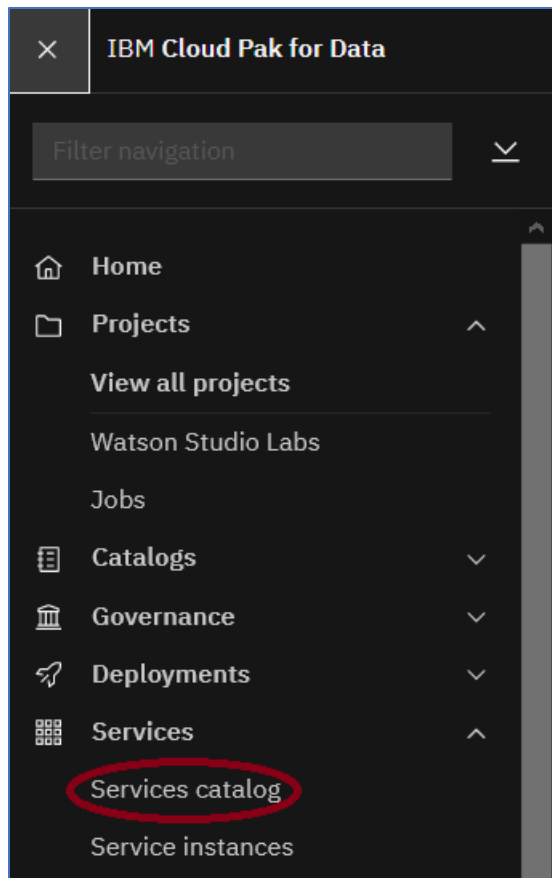
## Provision Watson OpenScale

In this section, we will provision a Watson OpenScale service and run the AutoSetup as preparation for the Watson OpenScale lab. The AutoSetup takes about 10 minutes and it can run in the background so that it is completed by the time we start the OpenScale lab.

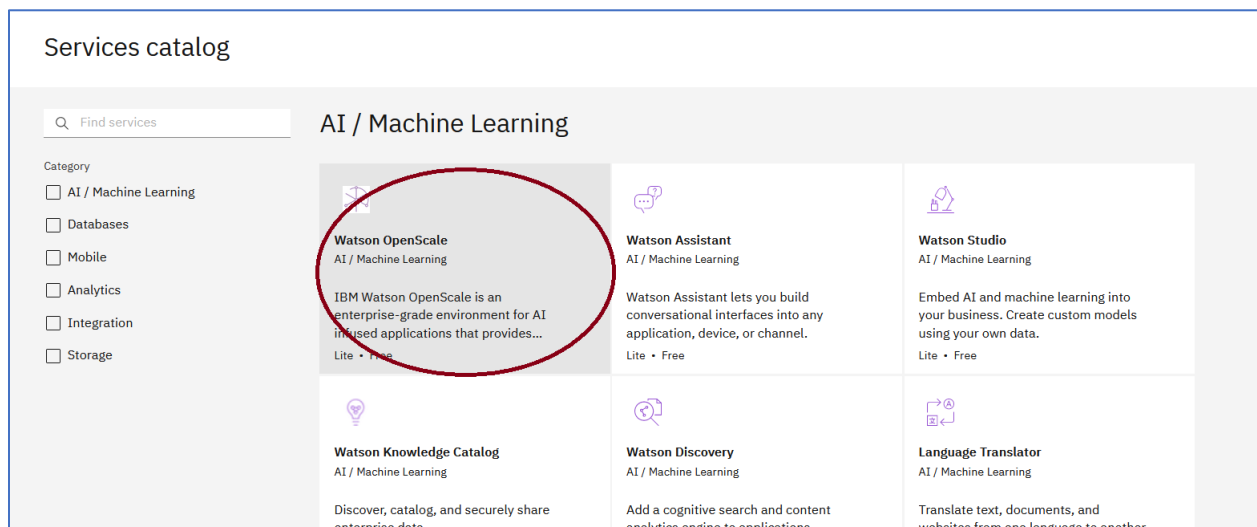
1. Click on the  icon.



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



3. Click on **Watson OpenScale**



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

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	<p><b>Lite - Maximum 5 deployed models to be monitored</b></p> <p>Maximum 2 protected features per model and 50,000 payload rows (cumulative) across 5 deployed models, per month for Fairness monitoring</p> <p>Maximum 50,000 rows of input (cumulative) across 5 deployed models, per month for active De-Biasing</p> <p>Maximum 20 transactions explained per month through the Explainability feature</p> <p>Maximum 50,000 feedback records (cumulative) across 5 models, per month for Accuracy monitoring</p> <p>Internal Postgres db instance that supports the above capacity; Data cannot be migrated from this instance; 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</p>	Free

Watson OpenScale

Region: Dallas

Plan: Lite

Service name: Watson OpenScale-1c

Resource group: Default

Create

5. Click on the icon on the right side of the Watson OpenScale entry.

Inbox (2) - wuser58000@gmail.com

IBM Cloud Pak for Data

Server Not Found

IBM Cloud Pak for Data

Costco - ice cream

<https://dataplatfom.cloud.ibm.com/data/services?target=services&nocache=true&context=cpdaas>

IBM Cloud Pak for Data

All

Search

Upgrade

Jack Doe's Account

30

**Service instances**

Your existing service instances are listed below. You must [upgrade](#) from a Lite account to a paid account before upgrading individual services.

Filter by: Resource Groups 2 Locations 1 wuser59000@gmail.com Service Type Service Plan

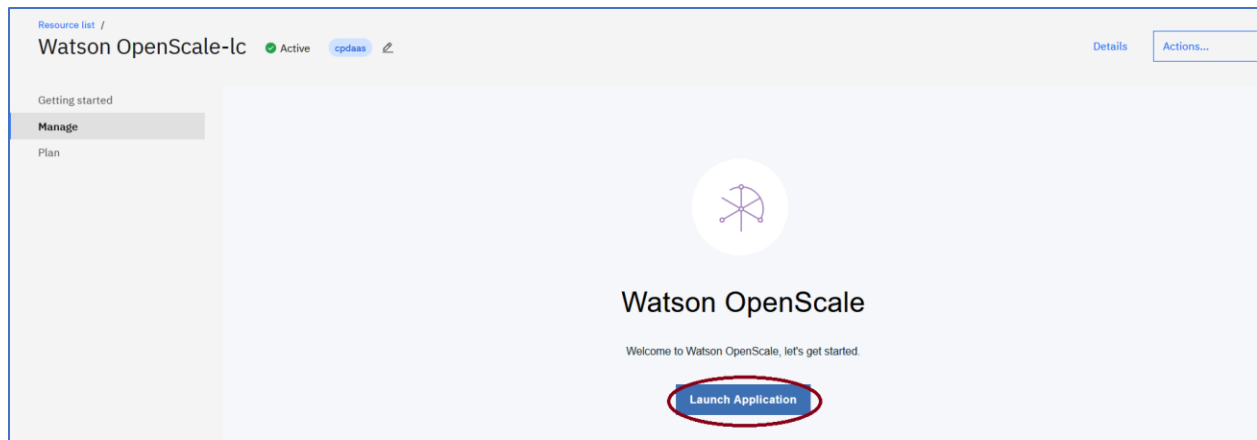
Find service instances Add service +

Name	Type	Plan	Location	Group	
Cloud Object Storage-zj	Cloud Object Storage	Lite	Global	Default	
WatsonMachineLearning	Machine Learning	Lite	Dallas	Default	
KnowledgeCatalog	Watson Knowledge Catalog	Lite	Dallas	Default	
Watson OpenScale-1c	Watson OpenScale	Lite	Dallas	Default	
WatsonStudio	Watson Studio	Lite	Dallas	Default	

6. Click **Launch**

Name	Type	Plan	Location	Group	
Cloud Object Storage-zj	Cloud Object Storage	Lite	Global	Default	
WatsonMachineLearning	Machine Learning	Lite	Dallas	Default	
KnowledgeCatalog	Watson Knowledge Catalog	Lite	Dallas	Default	
Watson OpenScale-1c	Watson OpenScale	Lite	Dallas	Default	<div> Upgrade service Launch Manage in IBM CL... </div>
WatsonStudio	Watson Studio	Lite	Dallas	Default	

7. Click **Launch Application**



8. Click **Auto setup**.



## Welcome to Watson OpenScale

Watson OpenScale maintains the health of AI models in pre-production and production environments by measuring model quality, fairness, and drift in both data and accuracy. It provides AI model transparency by explaining model transactions.

To get up-and-running, we'll set up a machine learning provider, database, and sample model for you. The process will take about 10 minutes. Ready to go?

[Manual setup](#)

[Auto setup](#)

9. The panel below will be displayed.

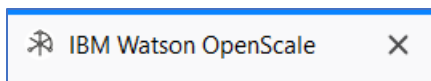


Hang tight!

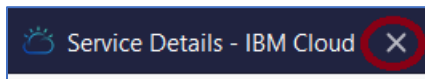
We're setting things up automatically. Follow the status messages below to review progress. This process will take about 10 minutes.

**C [1/31] Initializing and setting up services**

10. The Auto setup will run for approximately 10 minutes. Please make sure you **DON'T CLOSE** the **IBM Watson OpenScale** browser tab where the Auto setup is running.



You can close the Service Details – IBM Cloud



## 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.
- ✓ Provisioned Watson OpenScale service
- ✓ Ran Auto setup

