

Watson OpenScale Workshop

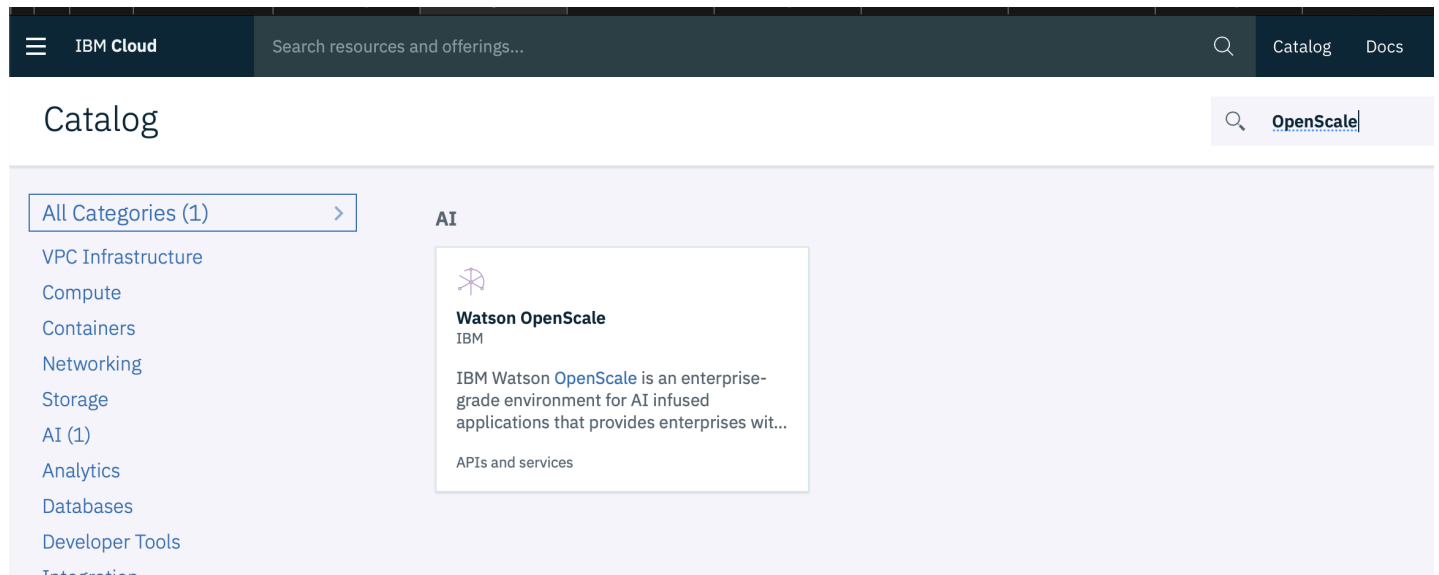
Chapter 1 : OpenScale Auto setup

Prerequisites for Watson OpenScale Labs

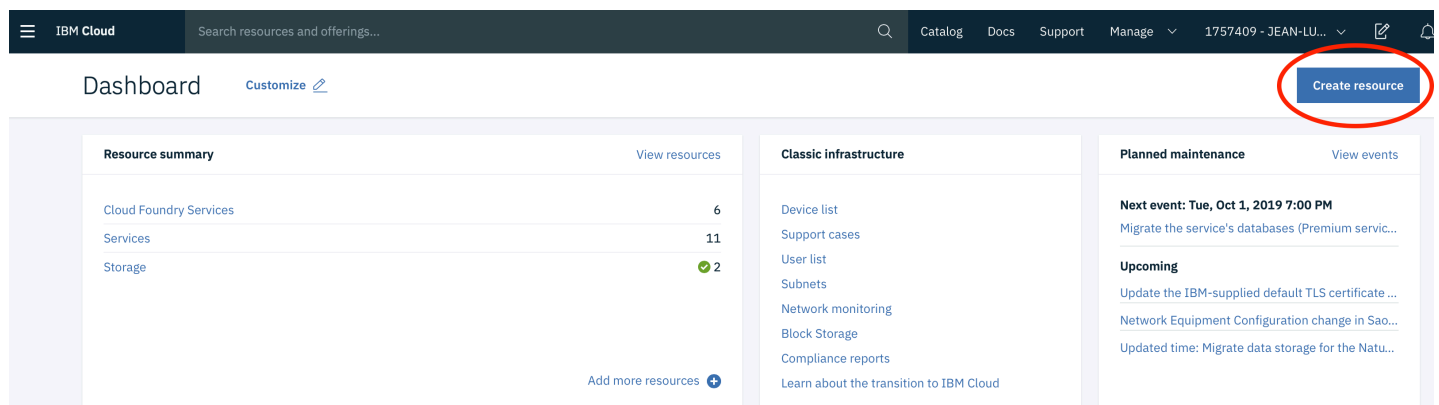
To participate in all components of the Watson OpenScale lab, you are advised to complete the following prior to attending the hands-on training session.

1. Log in to your [IBM Cloud](#) account and provision a Watson OpenScale Lite plan.

To do so please login onto the [IBM Cloud](#) website and then search the catalog for the word **OpenScale** the following result should appear



Click on the Watson Openscale service



Give it a name and more importantly select the Dallas Location to benefit all beta features of the product.

Click the create button.

IBM Cloud

Search resources and offerings...

Catalog

Docs

Support

Manage

1757409 - JEAN-LU...

Watson OpenScale

Lite

IBM

Service

IAM-enabled

Author: IBM • Date of last update: 06/20/2019

Create

About

Select a region

Dallas

Select a pricing plan

Monthly prices shown are for country or region: United States

PLAN	FEATURES	PRICING
✓ Lite	Maximum 5 deployed models to be monitored Maximum 2 protected features per model and 50,000 payload rows (cumulative) across 5 deployed models, per month for Fairness monitoring Maximum 50,000 rows of input (cumulative) across 5 deployed models, per month for active De-Biasing Maximum 20 transactions explained per month through the Explainability feature Maximum 50,000 feedback records (cumulative) across 5 models, per month for Accuracy monitoring 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	Free

The Watson OpenScale Lite Plan offers everything you need to begin your journey to deploying trusted AI across your business, including access to explainability, bias detection and mitigation, and automated AI capabilities.

Lite plan services are deleted after 30 days of inactivity.

Summary

Watson OpenScale

Region: Dallas

Plan: Lite

Service name: Watson OpenScale-5l

Resource group: default

Free

Create

Add to estimate

View terms

on the following screen CClick the **Launch Applciation** button



Watson OpenScale

Welcome to Watson OpenScale, let's get started.

Launch Application

At the application startup you're proposed to initiate an Auto Setup wizard, please do so and click on the Auto setup button



Welcome to Watson OpenScale

Watson OpenScale monitors the health of AI models in operation, detects model bias, and provides explanations for every model transaction.

With the **Auto setup** option, setup takes less than 10 minutes.

No thanks

Auto setup

The Wizard is going to fully implement a first use case of AI bias detection, mitigation and explainability use case for You. the setup will retrieve a Credit Risk dataset, build the model to determine if for a given person the credit should be approved or rejected. Once done the setup will deploy the created model on the watson machine learning runtime framework and therefore will generate user requests to simulate a few days of historical payloads. Therefore OpenScale will use it to assess the model in term of explainability and bias. You should get this screen

Watson Machine Learning

Spark German Risk Deployment - Fi...

Issues

2

QUALITY

BIAS

Quality

66%

Fairness

95%

1 alerts

Drift

N/A

Evaluated 34 minutes ago

Click on the previous image and explore all the last hour of transactions explained, with viaais detection & mitigation and strong contrastive explanation human readable of the Why of a prediction.

Chapter 2 : OpenScale API

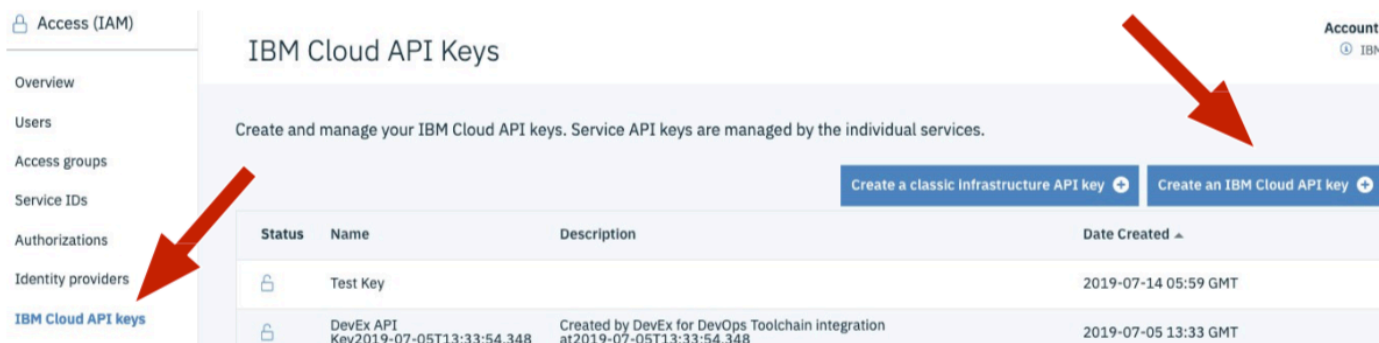
in this part we are going to explore other capabilities of Watson OpenScale. To do this we will need Watson Studio to use Jupyter Notebook environment.

1. Log in to your [IBM Cloud](#) and provision a Watson Studio Lite plan.
2. Download '**Lab 1 - Credit Risk Model Executed.ipynb**' from the box Lab folder

3. Download 'Lab 2- Multi-Class Image Explainability.ipynb' from the Box Lab folder.

Watson OpenScale — (Configuration)

To begin, you'll need to create a Cloud API Key on IBM Cloud associated with your IBMid. 1. Log in to IBM Cloud and, from the top-right menu, select Manage > Access (IAM) 2. From the menu on the left, select IBM CloudAPIKeys and then click Create as shown below.

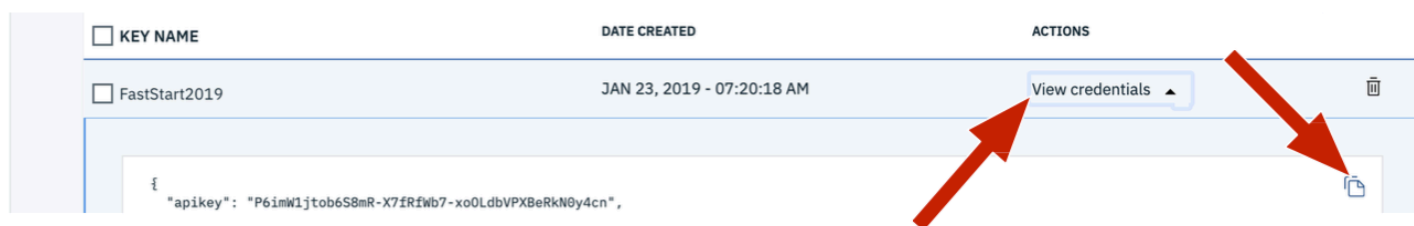


1. Give your key a name and description, then click Create. This will create a CloudAPIkey that we will use in the following steps. Download your key or record the value to a text editor for later reference.

Watson OpenScale — (WML Configuration)

4.Return to the main IBM Cloud dashboard and inspect your freshly provisioned instance of Watson Machine Learning (WML).

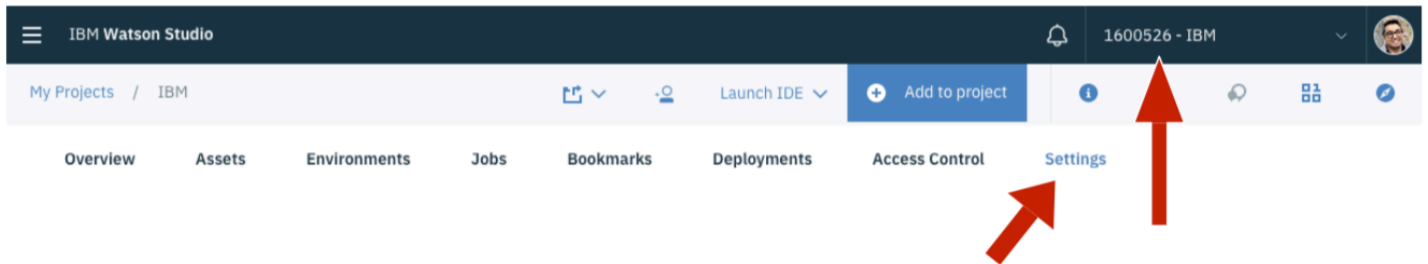
1. Under the Service Details page, click the Service Credentials tab (on the left side of the page). You can use the View Credentials button beside any existing service credential keys to view the connection details required to programmatically connect to this WML service. Alternatively, if no service credential keys are present, you can generate a new key: click the New Credential (+) button on the right side of the page. Then click View Credentials next to the new key to expose the connection & authentication details. Copy the information within your WML service credentials to a notepad. You will reference these later. Hint: You can quickly copy the contents to clipboard by pressing the Note icon on the right.



Watson OpenScale — (Watson Studio Notebook)

We are now prepared to move into our Watson Studio environment and configure the Credit Risk Model

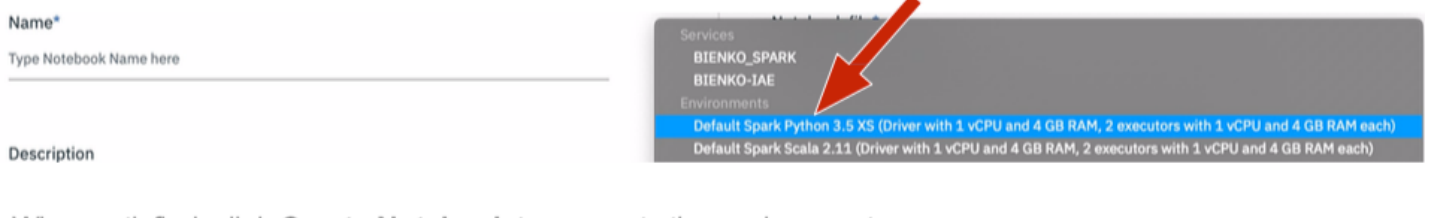
notebook downloaded in the prerequisites section of this module.



1. Log in to your Watson Studio account. Click the account avatar icon in the upper right and verify that the account you are using is the same account you used to create your IBM Cloud services.
2. Create a new Project within your environment, giving it a name and description. Select the same Cloud Object Storage instance you provisioned earlier in the Storage drop-down. Finally, click Create.
3. Once setup, click the Settings tab (see screenshot above) to associate your IBM Cloud services with the Watson Studio environment. Under the Associated Services section, click Add Services > Watson > Machine Learning. Click Existing Service Instance and specify the instance provisioned earlier. Finally click Select to associate it to this Watson Studio environment.

LAB A :CREDIT RISK A..Z (using Notebook)

1. Return to the overview dashboard for your Project page. From the tabs along the top of the page, click (+) Add to Project and then Notebook from Asset Types (see below).
2. From the 3 tabs under the New Notebook section, click **From file > Choose File** and select the **Lab-1 Credit Risk Executed.ipynb** notebook downloaded from the box folder.
3. Under the Notebook File section is a dropdown to Select Runtime. Take care to change the default select to the Default Spark Python 3.6 XS environment (you will need both Spark and Python to execute the imported notebook).



When satisfied, click Create Notebook to generate the environment.

1. The remainder of the WatsonStudio, Watson MachineLearning,and Watson OpenScale integration is documented in-line within the notebook. Run the notebook line by line, paying careful attention to the instructions along the way. After executing the Package Installation code for the first time (it may take a

while), restart the kernel by selecting from the top-menu Kernel > Restart (this will take a few moments). Take note of certain code blocks that require you to substitute in the service credentials you recorded as part of the prerequisites.

From the Box folder refer to file :

Lab-1 Credit Risk Executed.pdf

Enjoy the Lab!



Ready for the Lab 2 ??

LAB B : Image Classification Explainability

This tutorial focus on generating a Watson OpenScale explanation for a Keras/python ANN (Artificial Neural Network) image Classification model.

Source	Prediction	Explainability
	9 84%	

From the overview dashboard for your Project page.

From the tabs along the top of the page, click the upper right (+) Add to Project and then Notebook from Asset Types.

1. From the 3 tabs under the New Notebook section, click **From file > Choose File** and select the **Lab 2 - Multi-ClassImageExplanability.ipynb** notebook downloaded from the box folder.
2. Under the Notebook File section is a dropdown to Select Runtime. Take care to change the default select to the one shown hereafter

✓ Default Python 3.6 XS (2 vCPU and 8 GB RAM)
Default Python 3.6 XS + DO (2 vCPU and 8 GB RAM)
Default R 3.4 XS (2 vCPU and 8 GB RAM)
Default Python 3.6 S (4 vCPU and 16 GB RAM)
Default R 3.4 S (4 vCPU and 16 GB RAM)
Default R 3.6 S (4 vCPU and 16 GB RAM)
Default Python 3.6 Free (1 vCPU and 4 GB RAM)
Default Spark Python 3.6 XS (Driver with 1 vCPU and 4 GB RAM, 2 executors with 1 vCPU and 4 GB RAM each)
Default Spark Scala 2.11 (Driver with 1 vCPU and 4 GB RAM, 2 executors with 1 vCPU and 4 GB RAM each)
Default Spark R 3.4 (Driver with 1 vCPU and 4 GB RAM, 2 executors with 1 vCPU and 4 GB RAM each)

Python 3.6 S environment (you will need such resources to execute the imported notebook).

From the Box folder refer to file :

Lab 2- Multi-Class Image Explanability.pdf

Again enjoy the lab by running it cell by cell !!!

