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 catalaog for the word **OpenScale** the follwoingresult should appear
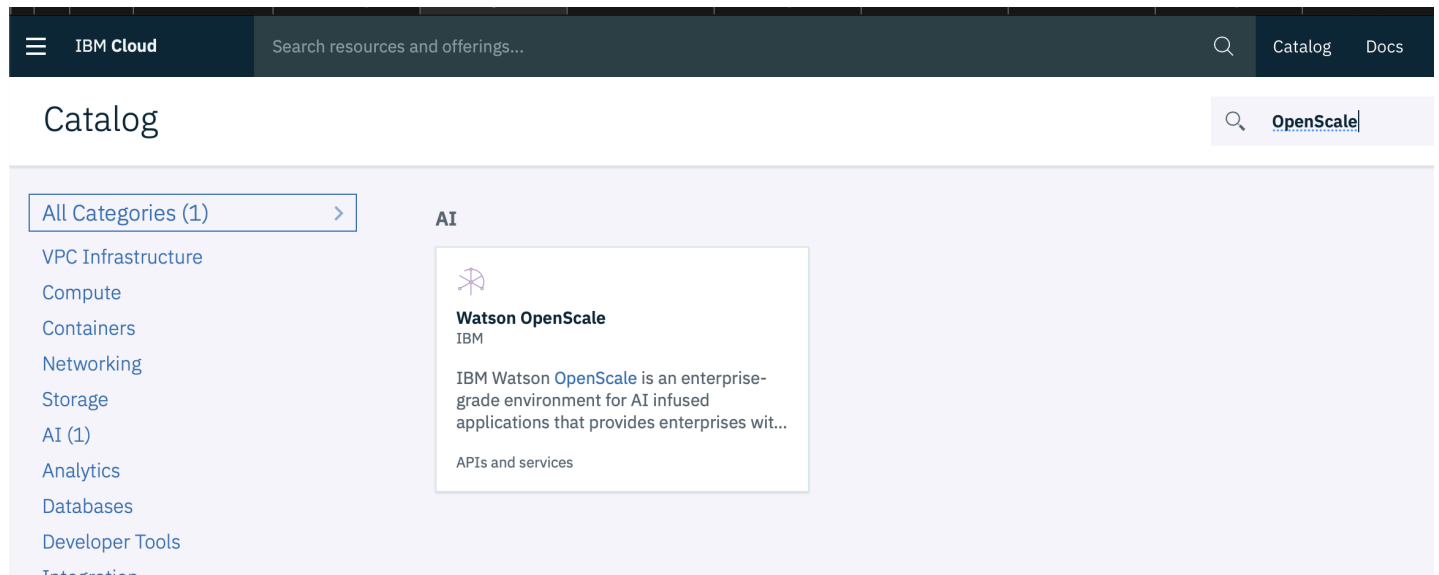
Click on the Watson Openscale service
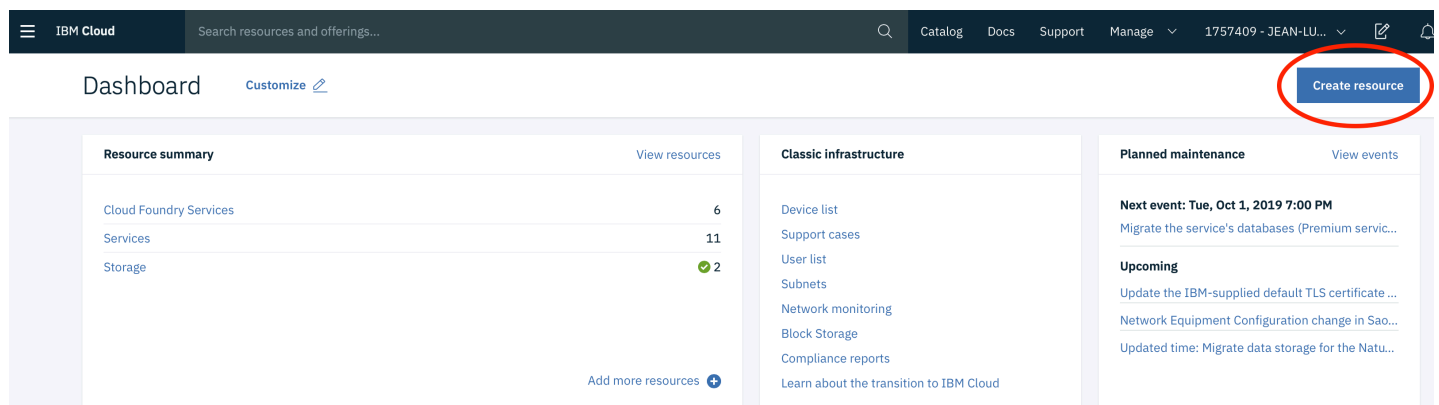
Give it a name and more importantly select the Dallas Location to benifit all beta features of the product.

Click the create button.

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

At the application startup you're proposed to intiate 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 biais 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 apporved 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 biais. You should get this screen

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 Explanability.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.
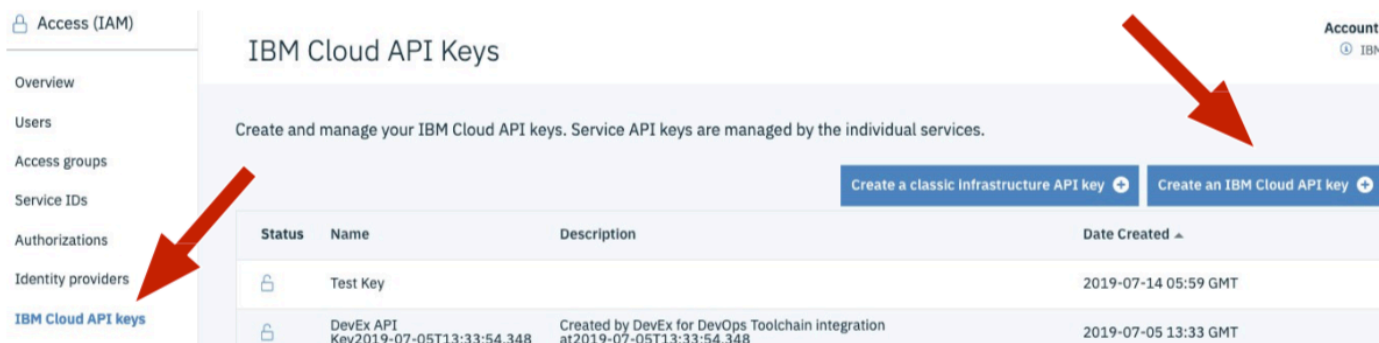

1. Give your key a name and description, then click Create. This will create a CloudAPIkey that we will use in the following steps. Download your key or record the value to a text editor for later reference.

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.
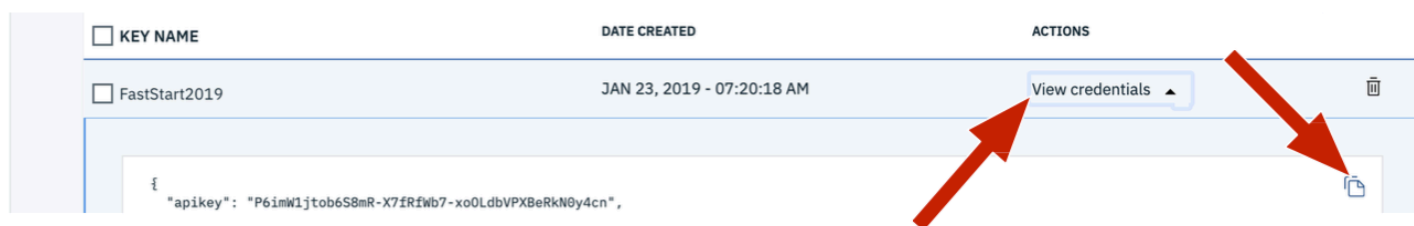
Watson OpenScale — (Watson Studio Notebook)

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.
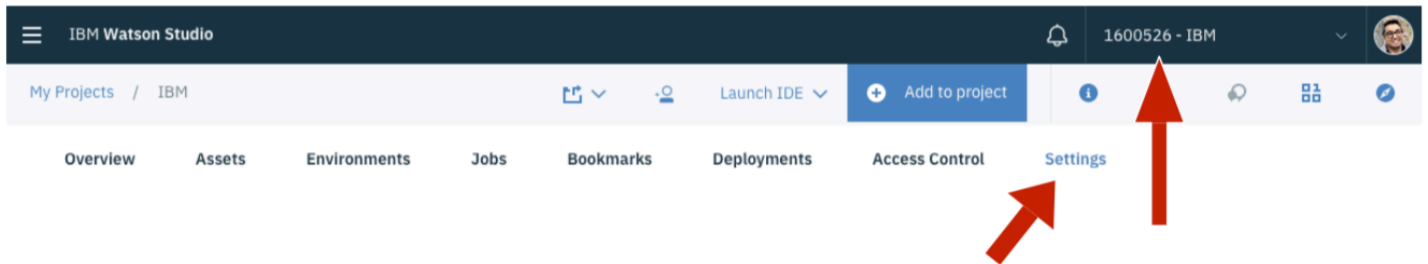
1. Log in to your Watson Studio account. Click the account avatar icon in the upper right and verify that the account you are using is the same account you used to create your IBM Cloud services.

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).
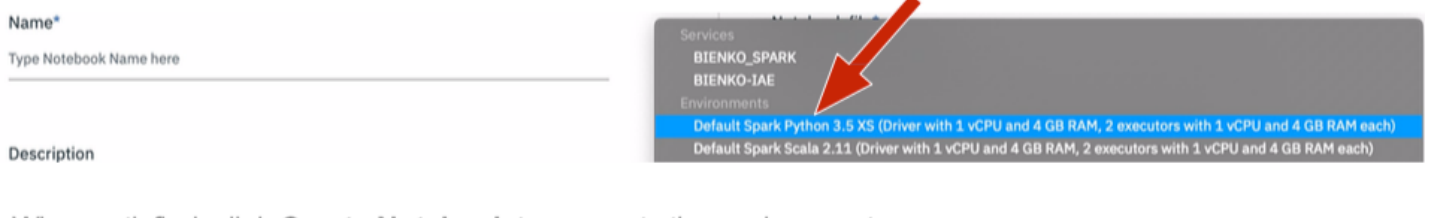
When satisfied, click Create Notebook to generate the environment.

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-Class*Image*Explanability.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 runnning it cell by cell !!!

WELL DONE!