Jupyter Notebook

Jupyter Notebooks

- To effectively build and deploy Machine Learning models, you would need the appropriate environment hence the use of Jupyter notebooks. Jupyter Notebook is an open-source web application that allows you share documents that contain codes, visualizations, equations, etc.

- In Kubeflow the jupyter notebooks are built on a notebook server. Integrating Jupyter notebooks in Kubeflow as an enterprise environment helps teams share notebooks easily amongst themselves. Users can create notebook containers or pods directly in the cluster, rather than locally. Admins can also provide standard/custom notebook images for their organization, and set up role-based access control (RBAC), secrets and credentials to manage which teams and individuals can access the notebooks.

- Kubeflow allows set up of multiple notebook servers per kubflow deployments, each having a single namespace that corresponds to a team or project name. Servers can also contain multiple notebooks.

Jupyter Notebooks

Kubeflow

kubeflow-sarahmaddox (...

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build version 0.7.0

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Quick shortcuts

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Recent Notebooks

No Notebooks in namespace kubeflow-sarahmaddox

Recent Pipelines

[Sample] Basic - Exit Handler
Created 22/12/2019, 06:50:18

[Sample] Basic - Conditional execution
Created 22/12/2019, 06:50:17

[Sample] Basic - Parallel execution
Created 22/12/2019, 06:50:16

[Sample] Basic - Sequential execution
Created 22/12/2019, 06:50:15

[Sample] ML - XGBoost - Training with ...
Created 22/12/2019, 06:50:14

Documentation

Getting Started with Kubeflow
Get your machine-learning workflow up and running on Kubeflow

MiniKF
A fast and easy way to deploy Kubeflow locally

Microk8s for Kubeflow
Quickly get Kubeflow running locally on native hypervisors

Minikube for Kubeflow
Quickly get Kubeflow running locally

Kubeflow on GCP
Running Kubeflow on Kubernetes Engine and Google Cloud Platform

Kubeflow on AWS
Running Kubeflow on Elastic Container Service and Amazon Web Services

Requirements for Kubeflow

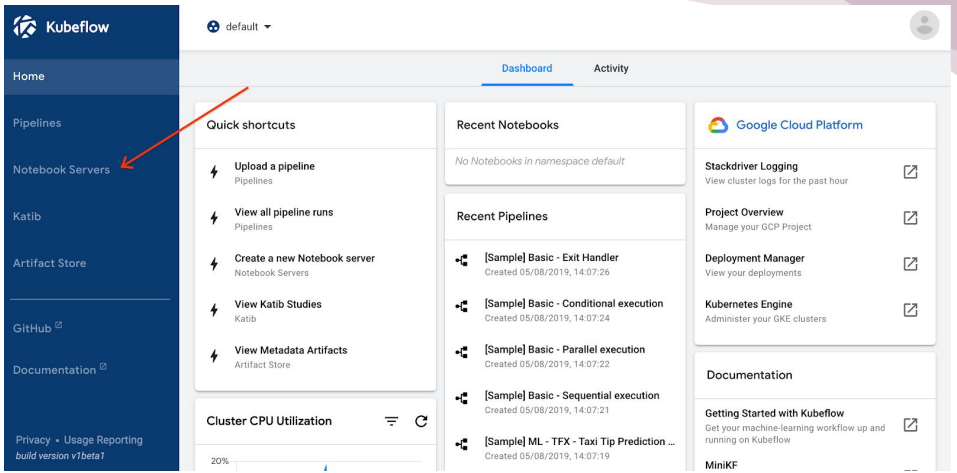
Set up your Notebook

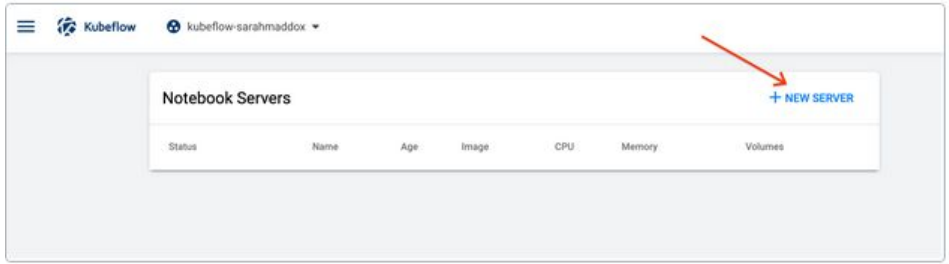
Start by setting up a jupyter notebook through the Notebook Servers tab following the steps below:

1. Click **Notebook Servers** in the left-hand panel of the Kubeflow UI.

2. Click the **namespace** dropdown and choose the one that corresponds to your Kubeflow profile.

3. Click **new server** at the top right corner of the Notebook Servers page to create a notebook server.





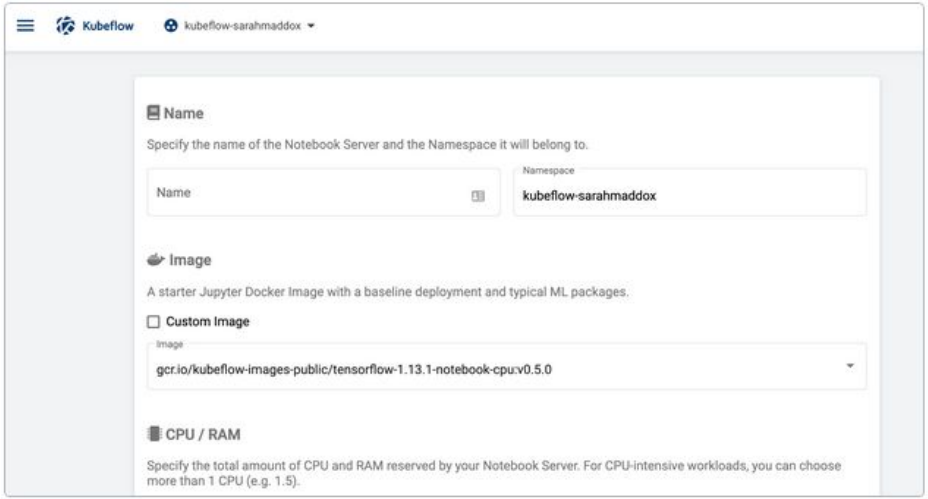
Set up your Notebook

4. Enter the details of your new server on the next page:

   a. Give a **name** of your choice to the notebook server, which must be in lowercase

   b. The **namespace** is automatically updated by Kubeflow

   c. Select a Docker image. You can either use a custom image you created or one of the standard images. If you select a custom image you have to specify the docker image in the form: `registry/image:tag`



Set up your Notebook - creating custom images

5. While setting up your Jupyter notebook you could either use a standard docker image or a custom image you created. The custom image created must meet the requirements of the Kubeflow notebook controller which manages the life cycle of notebooks.

Follow these steps to configure the launch command in your Docker image:

- Set the working directory : `--notebook-dir=/home/jovyan`
- Allow Jupyter to listen on all IP addresses: `--ip=0.0.0.0`
- Allow the user to run the notebook as root: `--allow-root`
- Set the port: `--port=8888`
- Allow passwordless access to your Jupyter notebook servers: `--NotebookApp.token=''` `--NotebookApp.password=''`
- Allow any origin to access your Jupyter notebook server: `--NotebookApp.allow_origin='*'`
- Set the base URL: `--NotebookApp.base_url=NB_PREFIX`

```
ENV NB_PREFIX /

CMD ["sh","-c", "jupyter notebook --
notebook-dir=/home/jovyan --ip=0.0.0.0 --
no-browser --allow-root --port=8888 --
NotebookApp.token='' --
NotebookApp.password='' --
NotebookApp.allow_origin='*' --
NotebookApp.base_url=${NB_PREFIX}"]
```

Set up your Notebook

6. Specify the total amount of **CPU** that your notebook server should reserve.

7. Specify the total amount of memory your notebook server should reserve.

8. Specify a **workspace volume** to hold your personal workspace for this notebook server. Kubeflow provisions a Kubernetes persistent volume (PV) for your workspace volume. The PV ensures that you can retain data even if you destroy your notebook server.

9. Click **LAUNCH** and you should see a new Notebook server entry like below.