Assignment - 4

Assignment Date	22 October 2022
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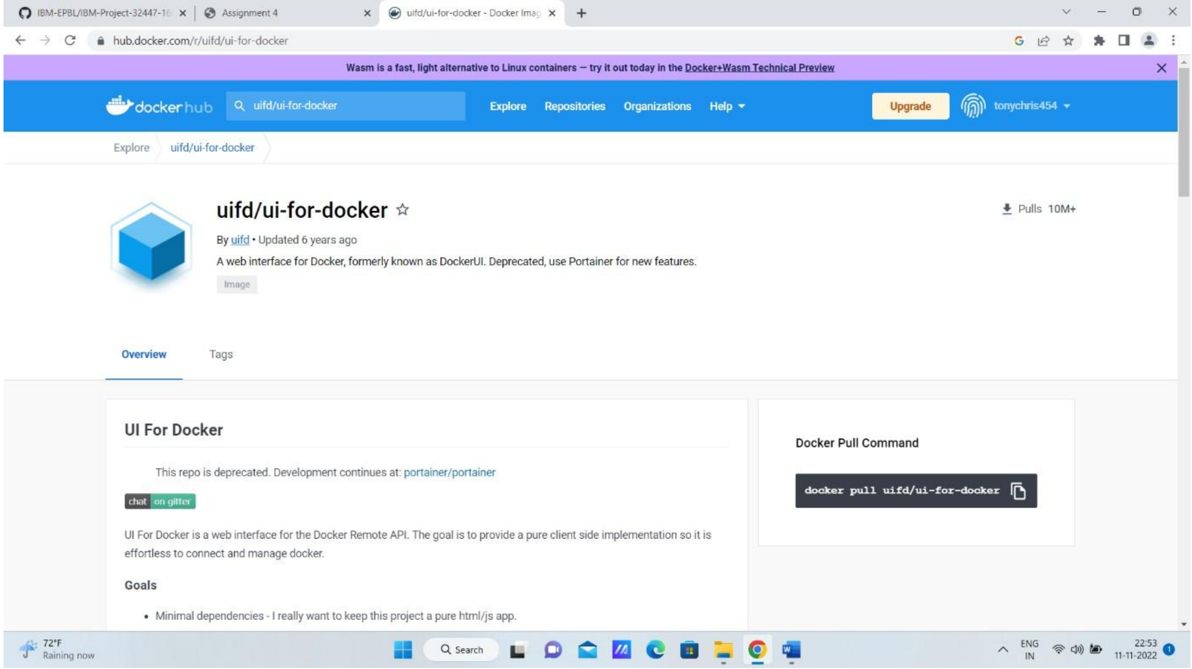
Student Roll No	812419104068
Maximum Marks	2 Marks

Question-1:

Pull an Image from docker hub and run it in Docker Playground

Solution:

a. Pull an image *uifd/ui-for-docker* from the docker hub
b. This image is used for viewing and managing the docker engine
c. Use **docker pull image name**and **docker run -it image name**commands to run the above image in the Docker Playground



Wasm is a fast, light alternative to Linux containers — try it out today in the Docker+Wasm Technical Preview

uifd/ui-for-docker

By uifd • Updated 6 years ago

A web interface for Docker, formerly known as DockerUI. Deprecated, use Portainer for new features.

UI For Docker

This repo is deprecated. Development continues at: portainer/portainer

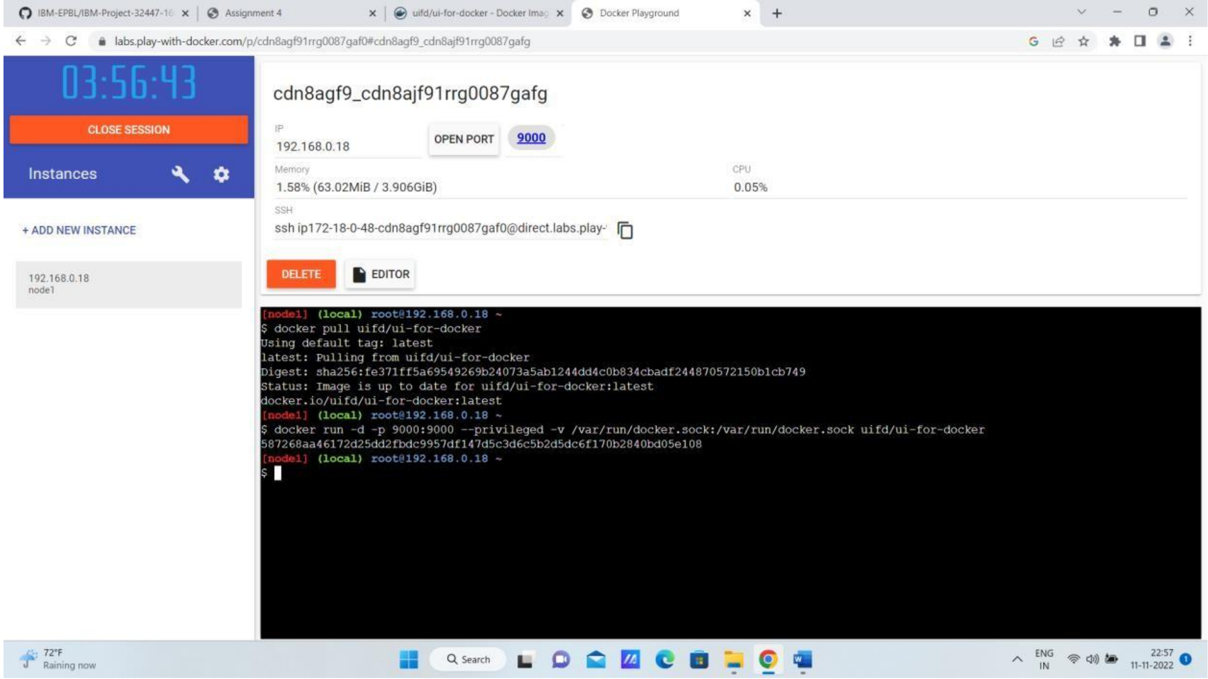
UI For Docker is a web interface for the Docker Remote API. The goal is to provide a pure client side implementation so it is effortless to connect and manage docker.

Goals

- Minimal dependencies - I really want to keep this project a pure html/js app.

Docker Pull Command

```
docker pull uifd/ui-for-docker
```



cdn8agf9_cdn8ajf91rrg0087gafg

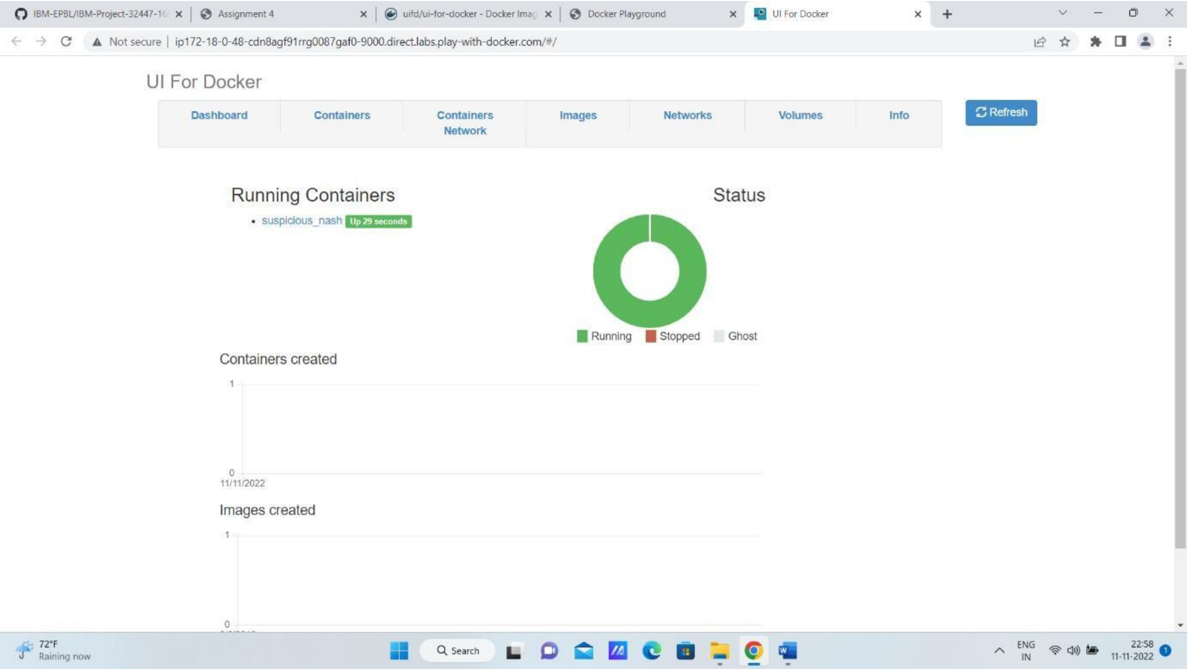
IP 192.168.0.18

Memory 1.58% (63.02MiB / 3.906GiB)

CPU 0.05%

SSH ssh ip172-18-0-48-cdn8agf91rrg0087gaf0@direct.labs.play-

```
[node1] (local) root@192.168.0.18 ~
$ docker pull uifd/ui-for-docker
Using default tag: latest
latest: Pulling from uifd/ui-for-docker
Digest: sha256:fe371ff5a69549269b24073a5ab1244dd4c0b834cbadf244870572150b1cb749
Status: Image is up to date for uifd/ui-for-docker:latest
docker.io/uifd/ui-for-docker:latest
[node1] (local) root@192.168.0.18 ~
$ docker run -d -p 9000:9000 --privileged -v /var/run/docker.sock:/var/run/docker.sock uifd/ui-for-docker
587268aa46172d25dd2fbdc9957df147d5c3d6c5b2d5dc6f170b2840bd05e108
[node1] (local) root@192.168.0.18 ~
$
```



UI For Docker

Running Containers

- suspicious_nash Up 29 seconds

Question-2:

Create a docker file for the jobportal application and deploy it in Docker desktop application

Solution:

d. Create a docker file for build and deploy flask app.

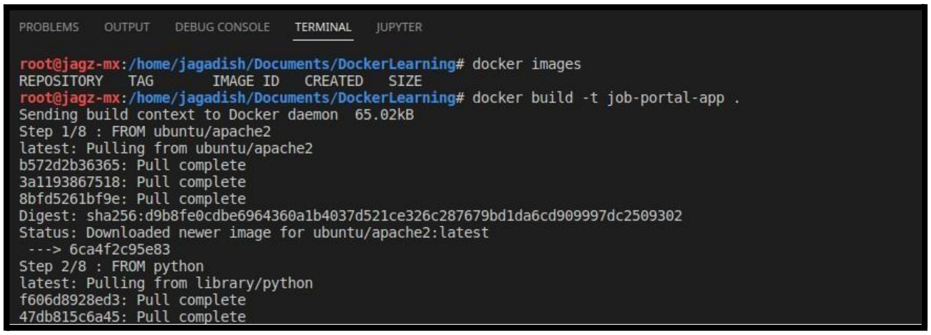
e. Use **docker build -t image_name.**in the current directory to start building the docker image and deploy in our local docker

f. Use **docker run -p 5000:5000 image_name**to run in local system

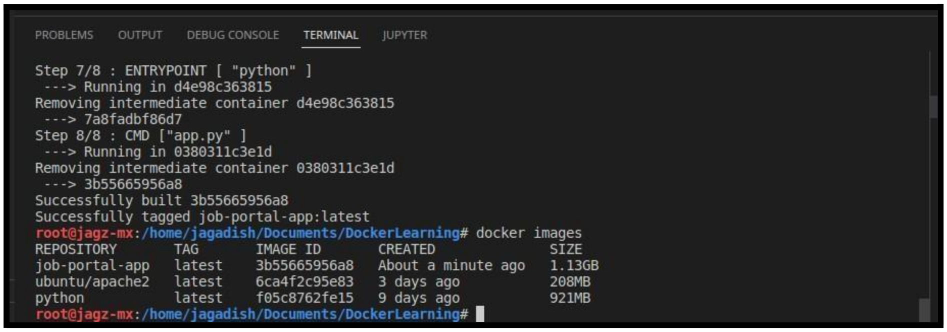
Dockerfile

```
FROM ubuntu/apache2
FROM python
COPY ./requirements.txt /flaskApp/requirements.txt WORKDIR /flaskApp
RUN pip install -r requirements.txt COPY . /flaskApp
ENTRYPOINT [ "python" ] CMD
["app.py" ]
```

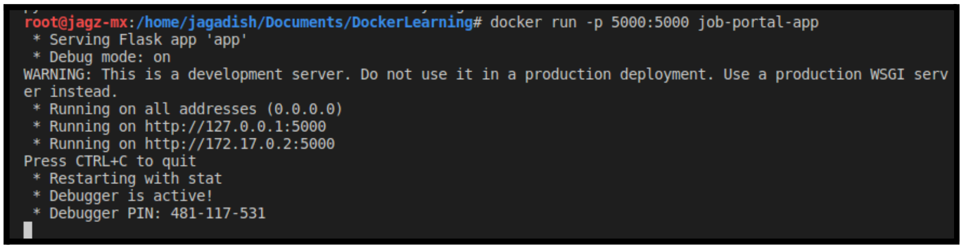
Steps Involved



```
root@jagz-mx:/home/jagadish/Documents/DockerLearning# docker images
REPOSITORY   TAG       IMAGE ID   CREATED   SIZE
root@jagz-mx:/home/jagadish/Documents/DockerLearning# docker build -t job-portal-app .
Sending build context to Docker daemon  65.02kB
Step 1/8 : FROM ubuntu/apache2
latest: Pulling from ubuntu/apache2
b572d2b36365: Pull complete
3a1193867518: Pull complete
8bfd5261bf9e: Pull complete
Digest: sha256:d9b8fe0cdbe6964360a1b4037d521ce326c287679bd1da6cd909997dc2509302
Status: Downloaded newer image for ubuntu/apache2:latest
 ---> 6ca4f2c95e83
Step 2/8 : FROM python
latest: Pulling from library/python
f606d8928ed3: Pull complete
47db815c6a45: Pull complete
```

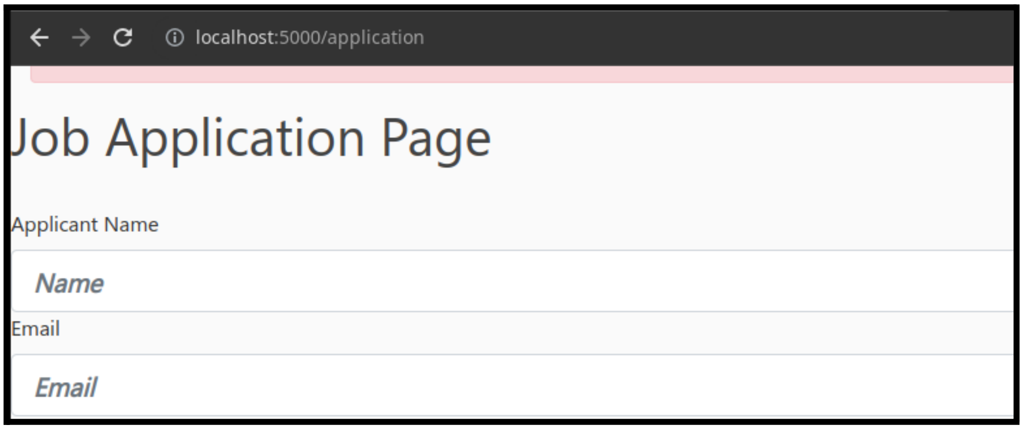


```
Step 7/8 : ENTRYPOINT [ "python" ]
 ---> Running in d4e98c363815
Removing intermediate container d4e98c363815
 ---> 7a8fadbf86d7
Step 8/8 : CMD ["app.py" ]
 ---> Running in 0380311c3e1d
Removing intermediate container 0380311c3e1d
 ---> 3b55665956a8
Successfully built 3b55665956a8
Successfully tagged job-portal-app:latest
root@jagz-mx:/home/jagadish/Documents/DockerLearning# docker images
REPOSITORY       TAG       IMAGE ID       CREATED              SIZE
job-portal-app   latest    3b55665956a8   About a minute ago   1.13GB
ubuntu/apache2   latest    6ca4f2c95e83   3 days ago           208MB
python           latest    f05c8762fe15   9 days ago           921MB
root@jagz-mx:/home/jagadish/Documents/DockerLearning# 
```



```
root@jagz-mx:/home/jagadish/Documents/DockerLearning# docker run -p 5000:5000 job-portal-app
 * Serving Flask app 'app'
 * Debug mode: on
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI serv
er instead.
 * Running on all addresses (0.0.0.0)
 * Running on http://127.0.0.1:5000
 * Running on http://172.17.0.2:5000
Press CTRL+C to quit
 * Restarting with stat
 * Debugger is active!
 * Debugger PIN: 481-117-531
```

Run locally using docker



Job Application Page

Applicant Name

Name

Email

Email

Question-3:

Create a IBM container registry and deploy helloworld app or jobportal app

Solution:

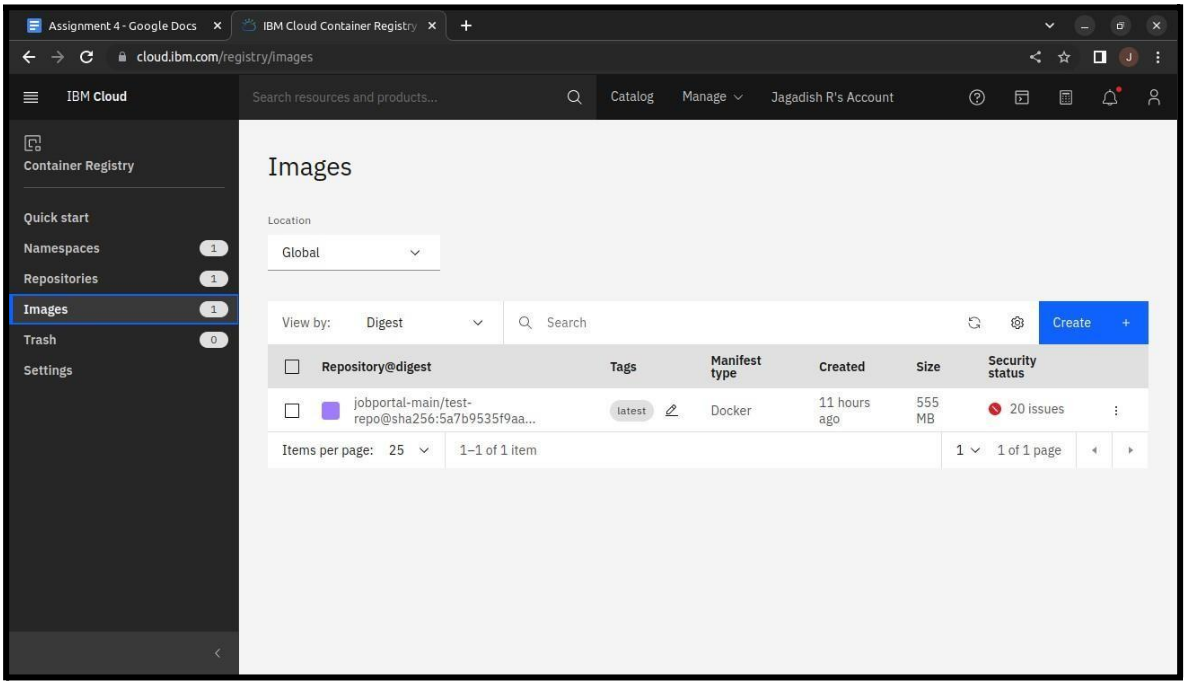
g. Log into IBM cloud

h. Create a **container registry**

i. Using IBM Cloud CLI, install the **container registry plugin** in our system

j. Push our docker image into the created container registry using **dockerpush**

k. So, our job portal app is deployed in the IBM container registry



Images

Location: Global

View by: Digest

Repository@digest	Tags	Manifest type	Created	Size	Security status
jobportal-main/test-repo@sha256:5a7b9535f9aa...	latest	Docker	11 hours ago	555 MB	20 issues

Items per page: 25 1–1 of 1 item 1 1 of 1 page

Question-4:

Create a Kubernetes cluster in IBM cloud and deploy helloworld image or jobportal image and also expose the same app to run in nodeport

Solution:

l. Log into IBM cloud

m. Create a **kubernete**

n. Using IBM Cloud CLI, install the **ks plugin** in our system

o. Create **a cluster** in the kubernetes

p. Now, go to the **kubernetes dashboard** where we need to create a service based on a yml file (given below)

q. In that file, we have to mention *which image we are going to use* and the *app name*

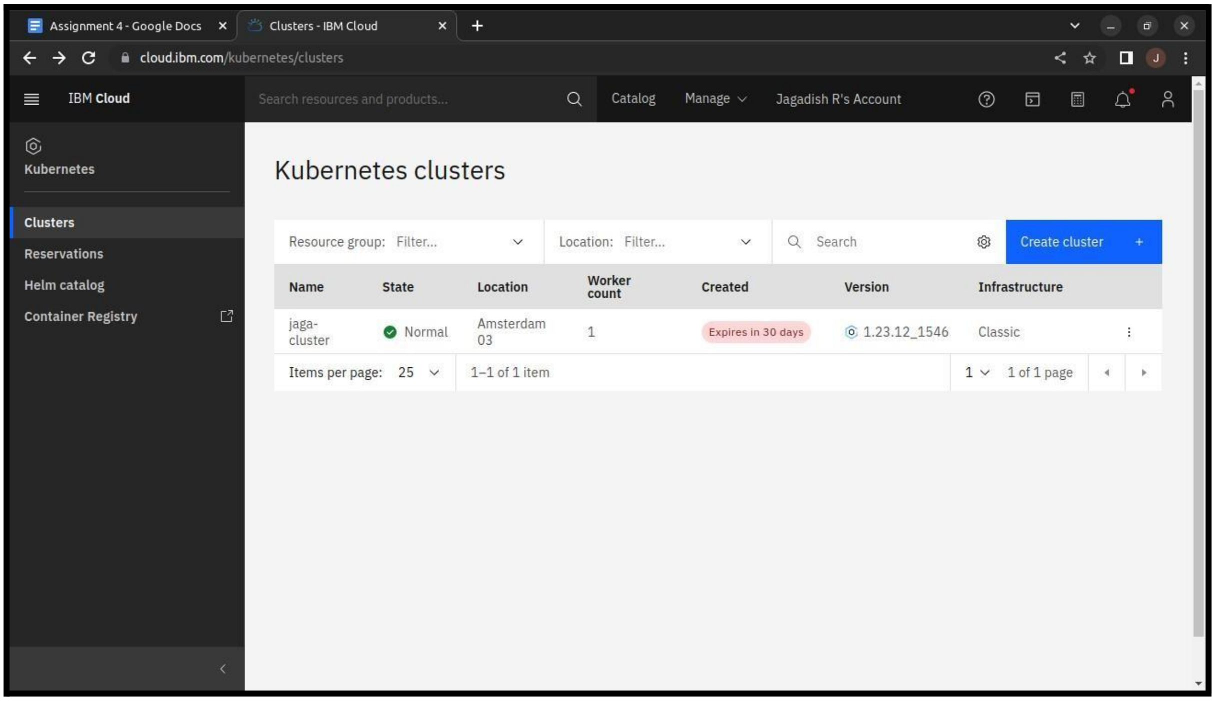
r. Take the **public IP address** and **Nodeport** since we exposed the *flask app innodeport*

s. Finally, we got the **url address** where our flask app is hosted

job-portal-app.yml

```
apiVersion: v1 kind:
Service metadata:
  name: job-portal-app spec:
  selector:
    app: job-portal-app ports:
  - port: 5000 type:
  NodePort
---
apiVersion: apps/v1 kind:
Deployment metadata:
  name: job-portal-app labels:
    app: job-portal-app spec:
  selector:
    matchLabels:
      app: job-portal-app replicas:
  1
  template:
    metadata:
      labels:
        app: job-portal-app spec:
      containers:
      – name: job-portal-app image:
        image_name ports:
        – containerPort: 5000 env:
        – name: DISABLE_WEB_APP
          value: "false"
```

Cluster creation



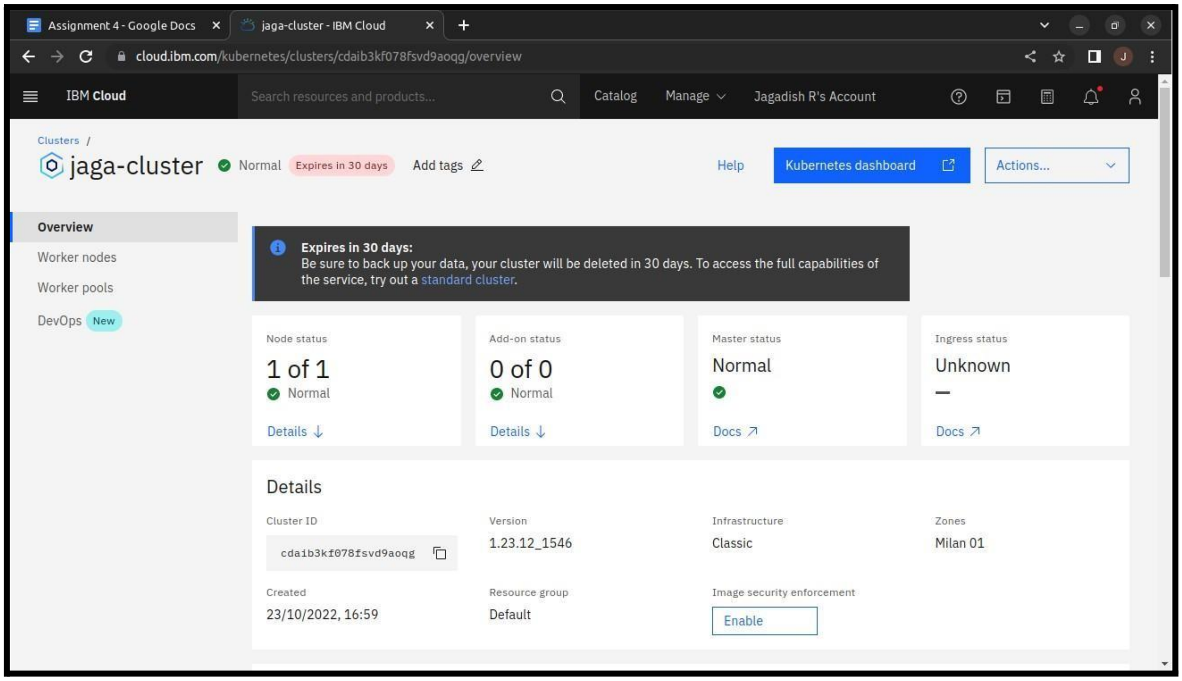
Kubernetes clusters

Resource group: Filter... Location: Filter... Search

Name	State	Location	Worker count	Created	Version	Infrastructure
jaga-cluster	Normal	Amsterdam 03	1	Expires in 30 days	1.23.12_1546	Classic

Items per page: 25 1–1 of 1 item 1 1 of 1 page

Configuring the cluster



jaga-cluster Normal Expires in 30 days

Expires in 30 days:
Be sure to back up your data, your cluster will be deleted in 30 days. To access the full capabilities of the service, try out a standard cluster.

Node status: 1 of 1 Normal

Add-on status: 0 of 0 Normal

Master status: Normal

Ingress status: Unknown —

Details

Cluster ID: cdaib3kf078fsvd9aoqg

Version: 1.23.12_1546

Infrastructure: Classic

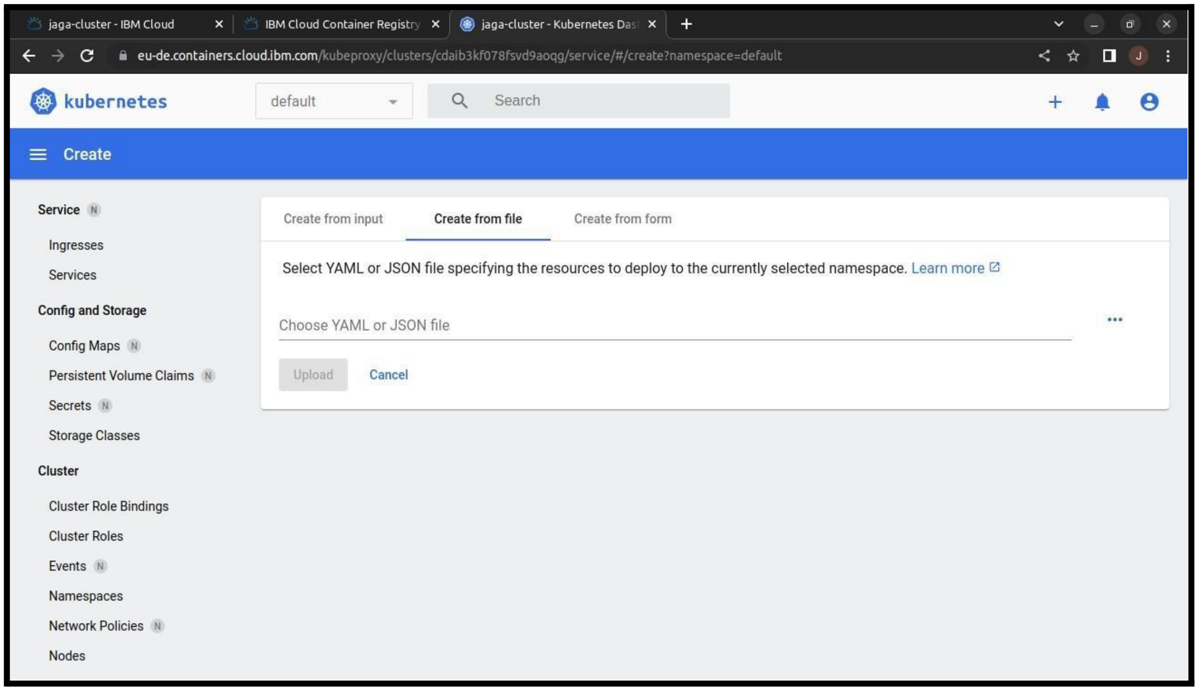
Zones: Milan 01

Created: 23/10/2022, 16:59

Resource group: Default

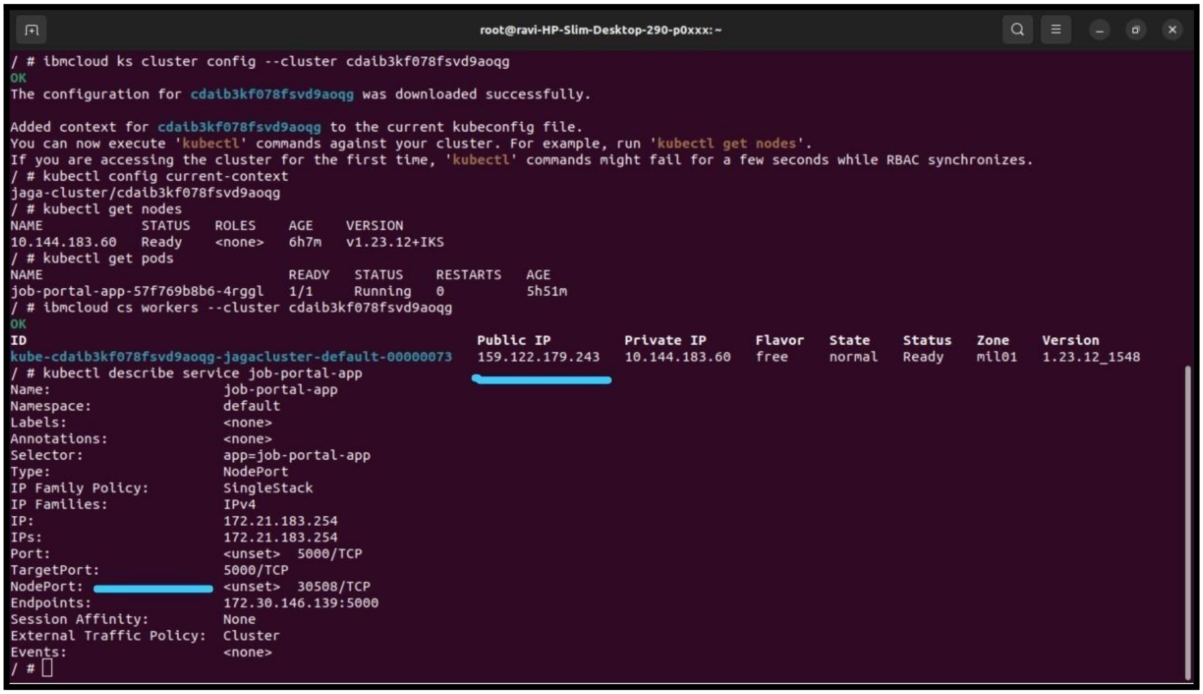
Image security enforcement: Enable

Creating a service based on the yml file



Select YAML or JSON file specifying the resources to deploy to the currently selected namespace. Learn more

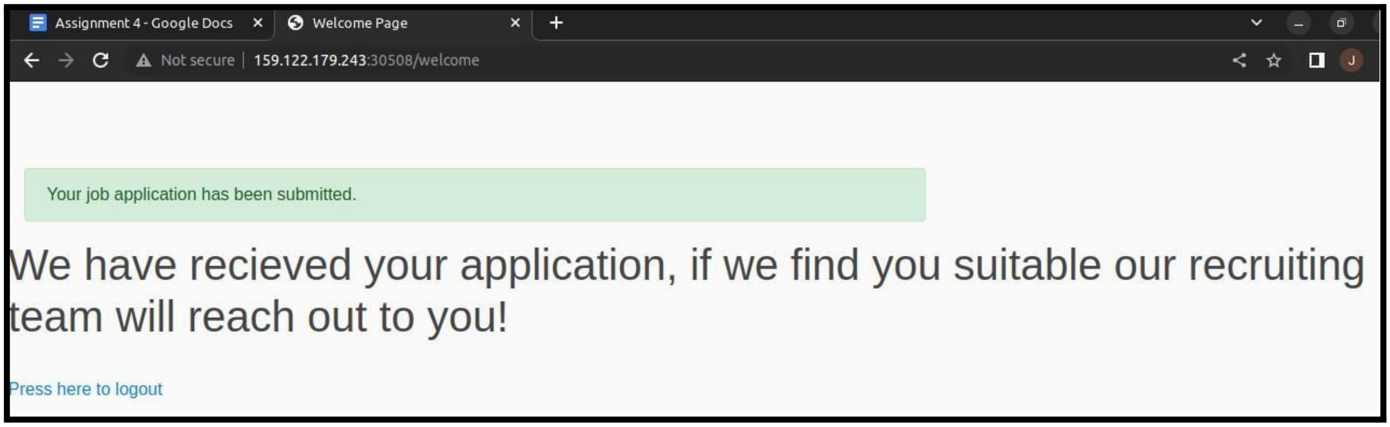
Procedure to find the exposed url



```
/ # ibmcloud ks cluster config --cluster cdaib3kf078fsvd9aoqg
OK
The configuration for cdaib3kf078fsvd9aoqg was downloaded successfully.

Added context for cdaib3kf078fsvd9aoqg to the current kubeconfig file.
You can now execute 'kubectl' commands against your cluster. For example, run 'kubectl get nodes'.
If you are accessing the cluster for the first time, 'kubectl' commands might fail for a few seconds while RBAC synchronizes.
/ # kubectl config current-context
jaga-cluster/cdaib3kf078fsvd9aoqg
/ # kubectl get nodes
NAME            STATUS   ROLES    AGE    VERSION
10.144.183.60   Ready    <none>   6h7m   v1.23.12+IKS
/ # kubectl get pods
NAME                          READY   STATUS    RESTARTS   AGE
job-portal-app-57f769b8b6-4rggl   1/1     Running   0          5h51m
/ # ibmcloud cs workers --cluster cdaib3kf078fsvd9aoqg
OK
ID                                                     Public IP         Private IP      Flavor   State    Status   Zone    Version
kube-cdaib3kf078fsvd9aoqg-jagacluster-default-00000073   159.122.179.243   10.144.183.60   free     normal   Ready    mil01   1.23.12_1548
/ # kubectl describe service job-portal-app
Name:                     job-portal-app
Namespace:                default
Labels:                   <none>
Annotations:              <none>
Selector:                 app=job-portal-app
Type:                     NodePort
IP Family Policy:         SingleStack
IP Families:              IPv4
IP:                       172.21.183.254
IPs:                      172.21.183.254
Port:                     <unset>  5000/TCP
TargetPort:               5000/TCP
NodePort:                 <unset>  30508/TCP
Endpoints:                172.30.146.139:5000
Session Affinity:         None
External Traffic Policy:  Cluster
Events:                   <none>
/ # 
```

Run our flask app in the IBM kubernetes



Your job application has been submitted.

We have recieved your application, if we find you suitable our recruiting team will reach out to you!

Press here to logout