

Containment Zone Alerting Application

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|----------------------------|-------------------------------------|
| Assignment Number | 4 |
| Assignment Date | 28th October 2022 |
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| Student Roll Number | 312319104108 |
| Maximum marks | 2 MARKS |

Question:

- 1.** Pull an Image from docker hub and run it in docker playground.
- 2.** Create a dockerfile for the job portal / flask application and deploy it in Docker desktop application.
- 3.** Create an IBM container registry and push a docker image of a flask application or job portal app.
- 4.** Create a Kubernetes cluster in IBM cloud and deploy flask application image or job portal image and also expose the same app to run in nodeport.

Answers:

- 1. Pull an Image from docker hub and run it in docker playground.**

Explore [uifd/ui-for-docker](#)



uifd/ui-for-docker ☆

📦 Pulls 10M+

By [uifd](#) • Updated 6 years ago

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

Other

Image

Overview

Tags

UI For Docker

This repo is deprecated. Development continues at: [portainer/portainer](#)

chat on gitter

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

Docker Pull Command

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



20:10
21-10-2022

03:42:30

CLOSE SESSION

Instances

+ ADD NEW INSTANCE

192.168.0.13
node1

cd9an2u3_cd9av060qau0008hbjs0

IP: 192.168.0.13 OPEN PORT

Memory CPU

SSH ip172-18-0-4-cd9an2u3tccg00fg6k0@direct.labs.play-w

DELETE EDITOR

```
This is a sandbox environment. Using personal credentials
is HIGHLY discouraged. Any consequences of doing so are
completely the user's responsibilities.

The FWD team.
=====
[local] (local) root@192.168.0.13 ~
# docker pull uifd/ui-for-docker
Using default tag: latest
latest: Pulling from uifd/ui-for-docker
841154d080c8: Pull complete
Digest: sha256:fe371ff5a69549269b24073a9ab1244dd4c0b834abedf244970572150b1cb749
Status: Downloaded newer image for uifd/ui-for-docker:latest
docker.io/uifd/ui-for-docker:latest
[local] (local) root@192.168.0.13 ~
# docker run -d -p 9000:9000 --privileged --v /var/run/docker.sock:/var/run/docker.sock uifd/ui-for-docker
c590dd163101ae795bdcca0cbdd3d98f6fe549cb5f24dab9ff7c1931923fc0d
[local] (local) root@192.168.0.13 ~
```

UI For Docker

Dashboard Containers Containers Network Images Networks Volumes Info Refresh

UI For Docker

The UI for Docker container engine

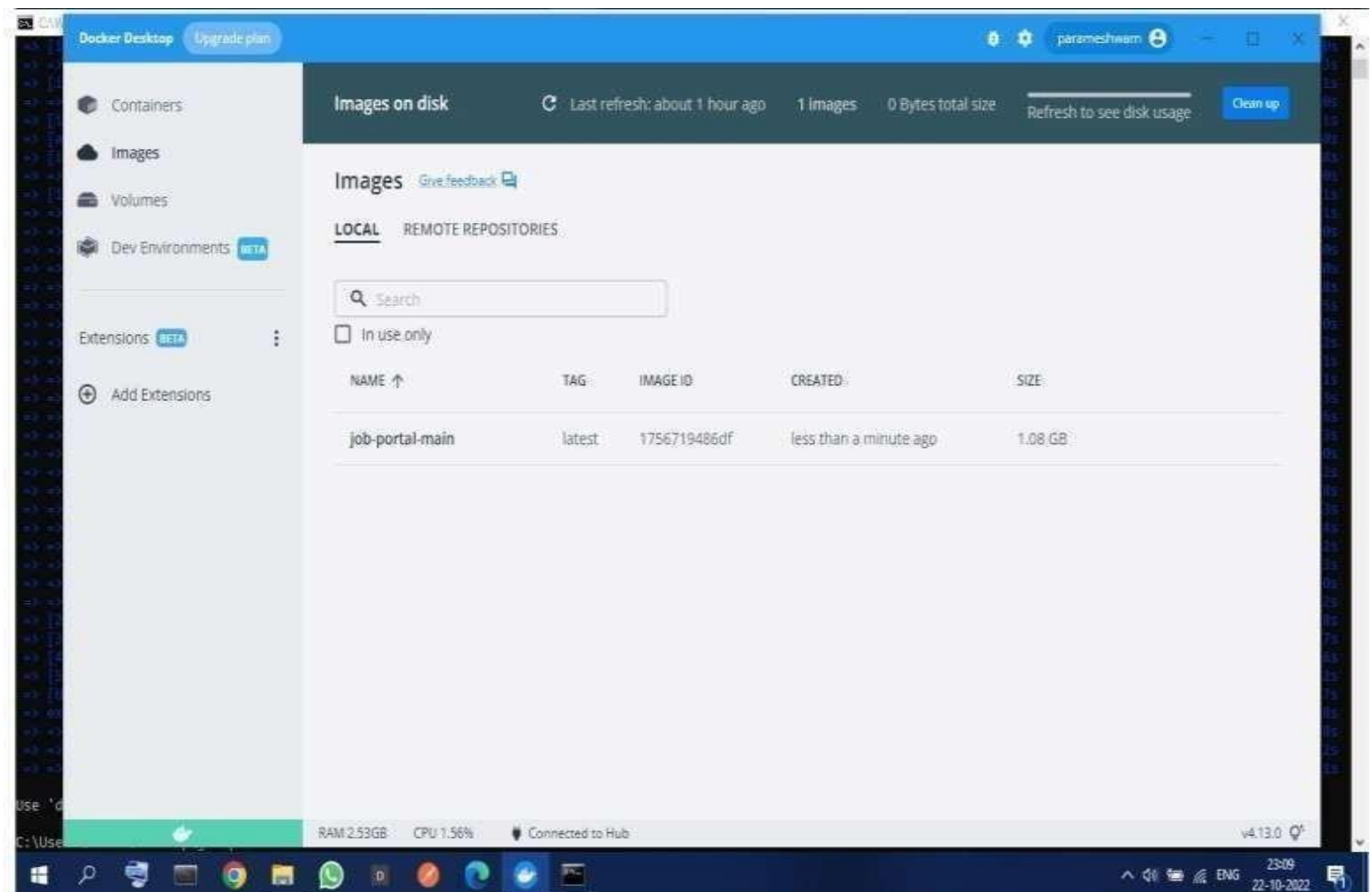
Learn more

Running Containers

- beautiful_goldwasser [View About a minute](#)

Status





3. Create an IBM container registry and push a docker image of a flask application or job portal app.



```
Activities Terminal * Sun 21/25 * rgunkar@rgunkar-Inspiron-3551: ~/Desktop/Flask_docker_demo
File Edit View Search Terminal Help
Collecting Jinja2==2.10.1 (from flask->r requirements.txt (line 1))
  Downloading https://files.pythonhosted.org/packages/05/e6/eb35e762802015cab1ccee04e8a277b03f1d8e53da3ec3106882ec42558b/Jinja2-2.10.1-py2.py3-none-any.whl (125kB)
Collecting itsdangerous==0.24 (from flask->r requirements.txt (line 1))
  Downloading https://files.pythonhosted.org/packages/70/ae/44b03b253d0fade317f32c24d100b3b35c2239807046a4c951c7b89fa49e/itsdangerous-1.1.0-py2.py3-none-any.whl
Collecting click==5.1 (from flask->r requirements.txt (line 1))
  Downloading https://files.pythonhosted.org/packages/fa/37/45185cb5abb30d7257104c434fe0b07e5a195a6847506c074527aa599ec/click-7.0-py2.py3-none-any.whl (81kB)
Collecting MarkupSafe==0.23 (from Jinja2==2.10.1->flask->r requirements.txt (line 1))
  Downloading https://files.pythonhosted.org/packages/b9/2e/640b92e53b86efccfae971321f597fa2e1b2bd3853d8ce658568f7a13894/MarkupSafe-1.1.1.tar.gz
Building wheels for collected packages: MarkupSafe
  Building wheel for MarkupSafe (setup.py): started
  Building wheel for MarkupSafe (setup.py): finished with status 'done'
  Stored in directory: /root/.cache/pip/wheels/f2/aa/04/0edf87a1b8a5f5f1aed7580fffb69ce0972edc16a505916a77
Successfully built MarkupSafe
Installing collected packages: Werkzeug, MarkupSafe, Jinja2, itsdangerous, click, flask
Successfully installed Jinja2-2.10.1 MarkupSafe-1.1.1 Werkzeug-0.10.0 click-7.0 flask-1.1.1 itsdangerous-1.1.0
You are using pip version 19.0.3, however version 19.2.3 is available.
You should consider upgrading via the 'pip install --upgrade pip' command.
Removing intermediate container 4dfb0c30b166
----> 9d778042eaa4
Step 5/7 : EXPOSE 5001
----> Running in fb71c5bc1336
Removing intermediate container fb71c5bc1336
----> f1a4f0e0259f
Step 6/7 : ENTRYPOINT [ "python" ]
----> Running in e2dea6089ae42
Removing intermediate container e2dea6089ae42
----> 8d73c854809a
Step 7/7 : CMD [ "demo.py" ]
----> Running in 4cc028df4bd6
Removing intermediate container 4cc028df4bd6
----> f53a707f955b
Successfully built f53a707f955b
Successfully tagged flask-docker-demo:latest
(base) rgunkar@rgunkar-Inspiron-3551:~/Desktop/Flask_docker_demo$
```

2. Change directory to Lab 1:

```
cd "Lab 1"
```

3. Log in to the IBM Cloud CLI:

```
ibmcloud login
```

To specify an IBM Cloud region, include the API endpoint.

4. **Note:** If you have a federated ID, use `ibmcloud login --sso` to log in to the IBM Cloud CLI. You know you have a federated ID when the login fails without the `-- sso` and succeeds with the `-- sso` option.
4. In order to upload images to the IBM Cloud Container Registry, you first need to create a namespace with the following command:

```
ibmcloud cr namespace-add <my_namespace>
```
5. Build the container image with a `1` tag and push the image to the IBM Cloud Registry:

```
ibmcloud cr build --tag us.icr.io/<my_namespace>/hello-world:1 .
```
6. Verify the image is built:

```
ibmcloud cr images
```
7. If you created your cluster at the beginning of this, make sure it's ready for use.

Create a Kubernetes cluster in IBM cloud and deploy flask application image or job portal image and also expose the same app to run in nodeport.

1 . Push an image to IBM Cloud Container Registry

To push an image, we first must have an image to push. We have prepared several

`Dockerfile`s in this repository that will create the images. We will be running the images, and creating new ones, in the later labs.

This lab uses the Container Registry built in to IBM Cloud, but the image can be created and uploaded to any standard Docker registry to which your cluster has access.

- i. Run `ibmcloud ks clusters` and make sure that your cluster is in "Normal" state.
- ii. Use `ibmcloud ks workers --cluster <yourclustername>`, and make sure that all workers are in "Normal" state with "Ready" status.
- iii. Make a note of the public IP of the worker.

You are now ready to use Kubernetes to deploy the hello-world application.

2 . Deploy your application

1. Run `ibmcloud ks cluster config --cluster <yourclustername>` .

Start by running your image as a deployment:

```
kubectl create deployment hello-world-deployment
```

```
-- image=us.icr.io/<my_namespace>/hello-world:1
```

When you're all done, you can either use this deployment in the [next lab of this course](#), or you can remove the deployment and thus stop taking the course.

1. To remove the deployment and service, use `kubectl delete all -l`

```
app=hello-world-deployment .
```

This action will take a bit of time. To check the status of your deployment, you can use

```
kubectl get pods .
```

You should see output similar to the following:

```
=> kubectl get pods
```

| NAME | READY | STATUS | RESTARTS | AGE |
|----------------------------|-------|-------------------|----------|-----|
| helloworld-562211614-0g2kd | 0/1 | ContainerCreating | 0 | 1m |

2. Once the status reads `Running`, expose that deployment as a service, accessed through the IP of the worker nodes. The example for this course listens on port `8080`. Run:

```
kubectl expose deployment/hello-world-deployment --type=NodePort --port=8080  
-- name=hello-world-service --target-port=8080
```

3. To find the port used on that worker node, examine your new service:

```
kubectl describe service hello-world-service
```

Take note of the "NodePort:" line as `<nodeport>`

4. Run `ibmcloud ks worker ls --cluster <name-of-cluster>`, and note the public IP as `<public-IP>`.

5. You can now access your container/service using `curl <public-IP>:<nodeport>`

(or your favorite web browser). If you see, "Hello world! Your app is up and running in a cluster!" you're done!