

Assignment 4

Assignment date	10 November 2022
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Maximum Marks	2 Marks

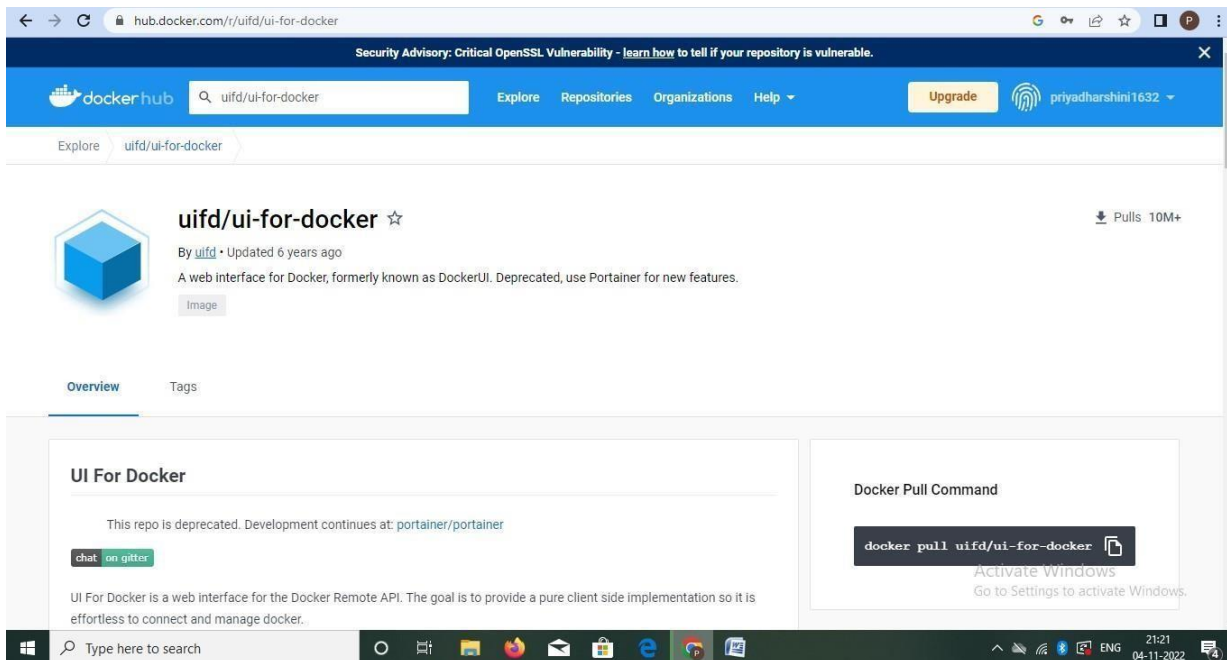
Question 1:

Pull an image from docker hub and run it on docker playground.

Solution 1:

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

```
docker run -d -p 9000:9000 --privileged -v /var/run/docker.sock:/var/run/docker.sock uifd/ui-for-docker
```



Docker playground:

The screenshot shows the Docker Playground interface in a web browser. The browser tabs include IBM, WhatsApp, IBM-Project-22133-1659805, uifd/ui-for-docker - Docker, and Docker Playground. The address bar shows the URL: labs.play-with-docker.com/p/cdijgm3tccg00a7r71g#cdijgm3_cdijhlm3tccg00a7r74g. The interface has a dark blue sidebar on the left with a clock showing 03:45:22, a 'CLOSE SESSION' button, and an 'Instances' section with a list of instances (192.168.0.18, node1). The main area displays the instance details for 'cdijgm3_cdijhlm3tccg00a7r74g', including IP (192.168.0.18), Memory (1.63% (65.11MiB / 3.906GiB)), CPU (0.51%), and an SSH command. Below this is a terminal window showing a series of Docker commands and their output, including pulling the 'uifd/ui-for-docker:latest' image and running a container. The terminal output shows the container is running and the user is root. The Windows taskbar is visible at the bottom with the search bar and various application icons.

Docker UI:

The screenshot shows the Docker UI interface in a web browser. The browser tabs include Docker Hub, Docker Playground, and UI For Docker. The address bar shows the URL: ip172-18-0-40-cdi0ji60qau0008f9u80-9000.direct.labs.play-with-docker.com/#/. The interface has a navigation bar with tabs for Dashboard, Containers, Containers Network, Images, Networks, Volumes, and Info. A 'Refresh' button is also present. The main area is divided into two sections: 'Running Containers' and 'Status'. The 'Running Containers' section shows a list of containers with columns for Name, Status, and Up Time. The 'Status' section shows a donut chart representing the status of containers: Running (green), Stopped (red), and Ghost (grey). Below the chart are two line graphs: 'Containers created' and 'Images created', both showing a count of 1. The Windows taskbar is visible at the bottom with the search bar and various application icons.

Question 2:

Create a docker file for the job portal app or hello world app and deploy it in docker desktop app.

Solution 2:

DockerFile

 Dockerfile - Notepad

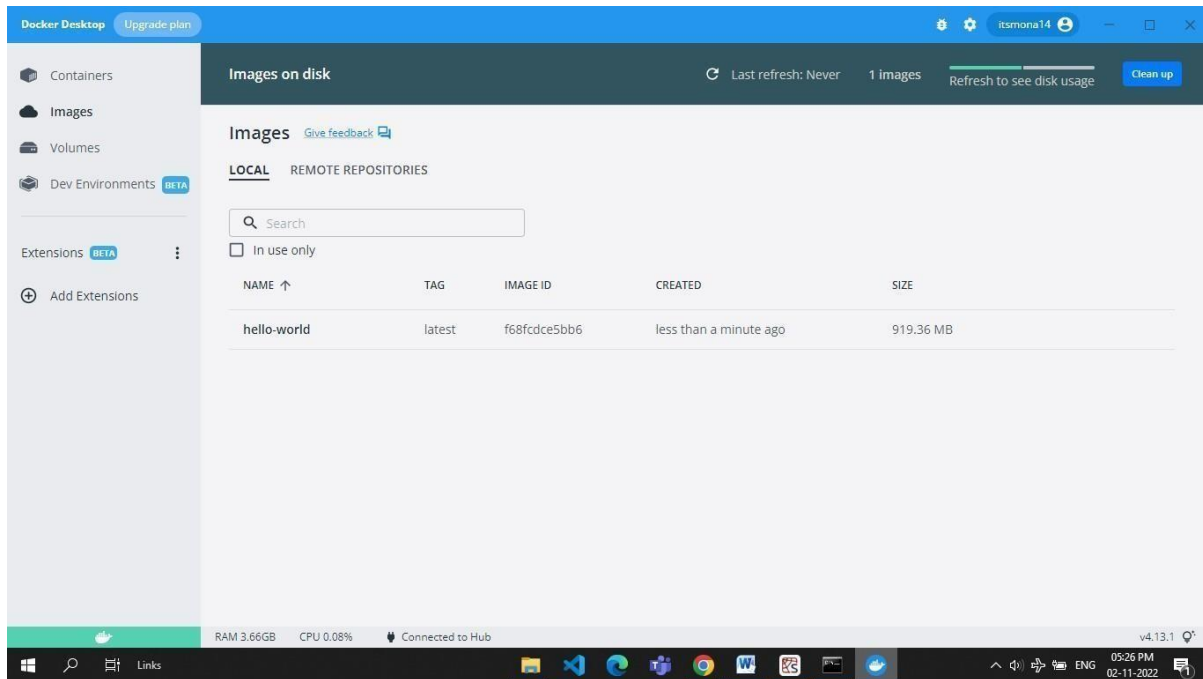
File Edit Format View Help

```
FROM python:3.8
WORKDIR /app
ADD . /app
COPY requirements.txt /app
RUN python3 -m pip install -r requirements.txt
EXPOSE 5000
CMD ["python", "app.py"]
```

Bulid Docker image

```
C:\Windows\System32\cmd.exe
S:\Study materials\Sem 7\IDM\Exercise\Assignment4>docker build -t hello-world .
[+] Building 160.4s (10/10) FINISHED
-> [internal] load build definition from Dockerfile
-> [internal] load .dockerignore
-> [internal] load context: 2B
-> [internal] load metadata for docker.io/library/python:3.8
-> [1/5] FROM docker.io/library/python:3.8@sha256:089d758211770a2dd09eccc4b10a8d851f6f77af3f1e3f362d08519190b8aa1d5
-> resolve docker.io/library/python:3.8@sha256:089d758211770a2dd09eccc4b10a8d851f6f77af3f1e3f362d08519190b8aa1d5
-> sha256:900972f2feec8c17c25b21573681851f902e054f57ccd7eb43937a1a47114400 0.56kB / 0.56kB
-> sha256:17c9e6141fdb3387e5a1c07d4f9bba05ac1498e90029fa3ea55470d4504f7770 55.05MB / 55.05MB
-> sha256:4edced88a7e0c1841281701921f504a9c0e42fc800cecf13d7f780d78a79d 10.89MB / 10.89MB
-> sha256:089d758211770a2dd09eccc4b10a8d851f6f77af3f1e3f362d08519190b8aa1d5 1.00kB / 1.00kB
-> sha256:254101fc7727ef89a912ce9ad7488801a01e0a35bffc5e7d0b086d8b6e1c3f 2.22kB / 2.22kB
-> sha256:de444c6ceae8001bb0b7377e10220a914da403bc93fa79663cbf2dcf1800b6f1 5.16MB / 5.16MB
-> sha256:a7909cfff46e6a91291fd76b19ecbe93c03ea4dd0d14042aebc4c0c4211a43 54.59MB / 54.59MB
-> sha256:74fbfde6af91271fb88f0a1716224dce5c0e0ead3609943792a9cbbba40d3d 196.87MB / 196.87MB
-> sha256:16fe51aed899f36817fe42b59801a622b29e0e0c3622e92e13df14578825eb37 0.29MB / 0.29MB
-> sha256:2b079a731384cf50dac8fd25d381b70026d67b69b45c1a2b6c3ea10b92636d4 17.39MB / 17.39MB
-> sha256:a3c4359fdb43300669ae8ba78b2ebb713221ef3a3eca97f93590508f1506de1 234B / 234B
-> extracting sha256:17c9e6141fdb3387e5a1c07d4f9bba05ac1498e90029fa3ea55470d4504f7770
-> sha256:58700fbcfa0c82e5d24a9f76ba7748a194c4fd7312a397860b4637f72ce91b6 2.89MB / 2.89MB
-> extracting sha256:de444c6ceae8001bb0b7377e10220a914da403bc93fa79663cbf2dcf1800b6f1
-> extracting sha256:4edced88a7e0c1841281701921f504a9c0e42fc800cecf13d7f780d78a79d
-> extracting sha256:a7909cfff46e6a91291fd76b19ecbe93c03ea4dd0d14042aebc4c0c4211a43
-> extracting sha256:74fbfde6af91271fb88f0a1716224dce5c0e0ead3609943792a9cbbba40d3d
-> extracting sha256:16fe51aed899f36817fe42b59801a622b29e0e0c3622e92e13df14578825eb37
-> extracting sha256:2b079a731384cf50dac8fd25d381b70026d67b69b45c1a2b6c3ea10b92636d4
-> extracting sha256:a3c4359fdb43300669ae8ba78b2ebb713221ef3a3eca97f93590508f1506de1
-> [internal] load build context
-> [internal] load context: 1.15KB
-> [2/5] WORKDIR /app
-> [3/5] ADD . /app
-> [4/5] COPY requirements.txt /app
-> [5/5] RUN python3 -m pip install -r requirements.txt
-> exporting to image
-> exporting layers
-> writing image sha256:f68fcdce5bb665f00ef47bc4d137a4f7e0533348402c5bfddad71121d7d43f63
-> naming to docker.io/library/hello-world
Use 'docker scan' to run Snyk tests against images to find vulnerabilities and learn how to fix them
```

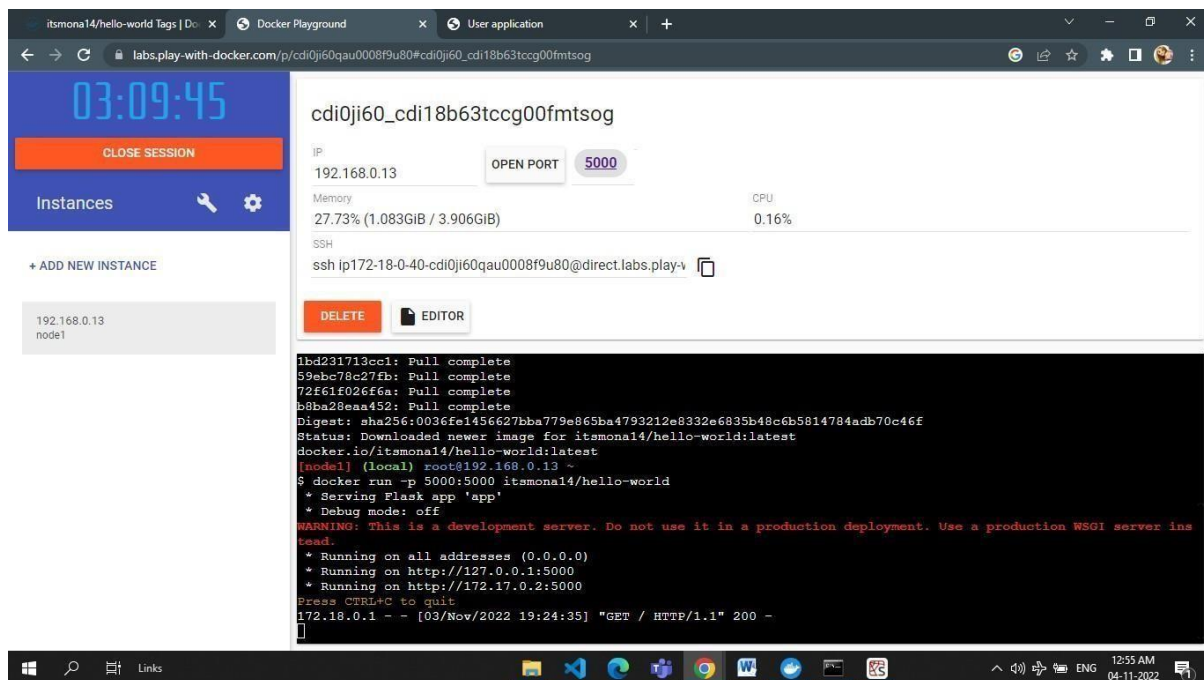
Deploy it on Docker hub



```
C:\Windows\System32\cmd.exe
Use 'docker scan' to run Snyk tests against images to find vulnerabilities and learn how to fix them
E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker images
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
hello-world    latest    f68fcdce5bb6   5 minutes ago  919MB
E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker login
Authenticating with existing credentials...
Login Succeeded

Logging in with your password grants your terminal complete access to your account.
For better security, log in with a limited-privilege personal access token. Learn more at https://docs.docker.com/go/access-tokens/
E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker tag hello-world itsmona14/hello-world
E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker push itsmona14/hello-world
Using default tag: latest
The push refers to repository [docker.io/itsmona14/hello-world]
373eb5cf4ceb: Pushed
1e595dc1de5e: Pushed
990c85cb75c5: Pushed
ded8299b8f1a: Pushed
1fe0699af9f7: Mounted from library/python
156568a71809: Mounted from library/python
5fca8a94d542: Mounted from library/python
eb183c62e3d7: Mounted from library/python
882fd36bfd35: Mounted from library/python
d1dec9917839: Mounted from library/python
d38adf39e1dd: Mounted from library/python
4ed121b04368: Mounted from library/python
49907d703dd5: Mounted from library/python
latest: digest: sha256:46ff91edc98aaa5d7ffff51ba708b6498af3c4f64612d9a990bf437497555fd82 size: 3049
E:\Study materials\Sem 7\IBM\Exercise\Assignment4>
```

Tested it using Docker playground

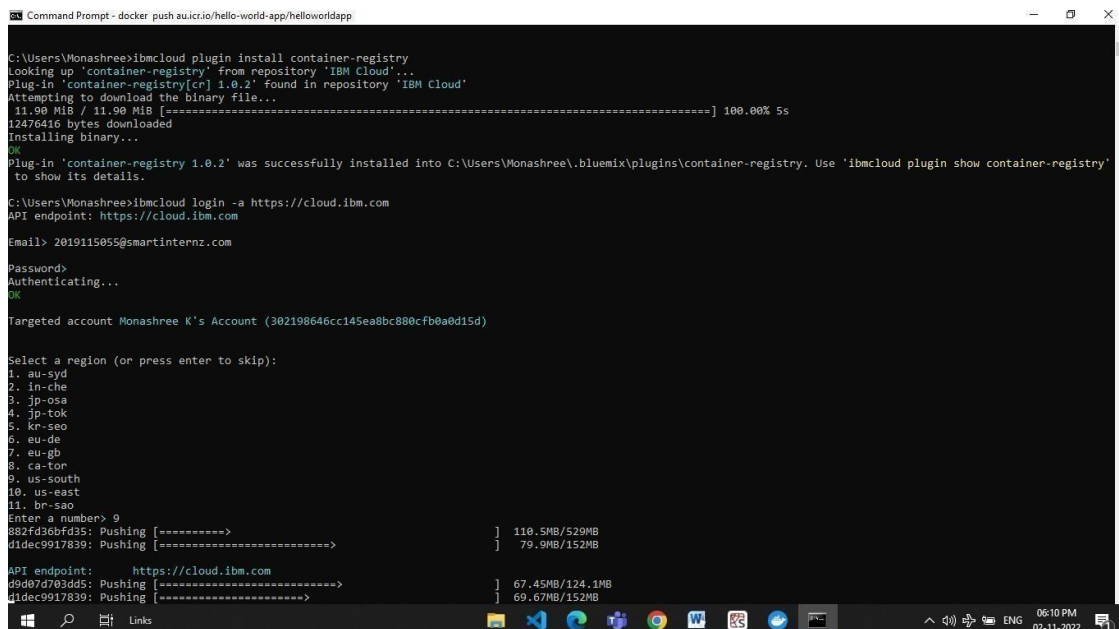


Question 3:

Create an IBM container registry and deploy helloworld app or job portal app.

Solution 3:

My image link: au.icr.io/hello-world-app/hello-world



```
C:\Windows\System32\cmd.exe - docker run -p 5000:5000 au.icr.io/hello-world-app/hello-world

E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker tag hello-world au.icr.io/hello-world-app/hello-world

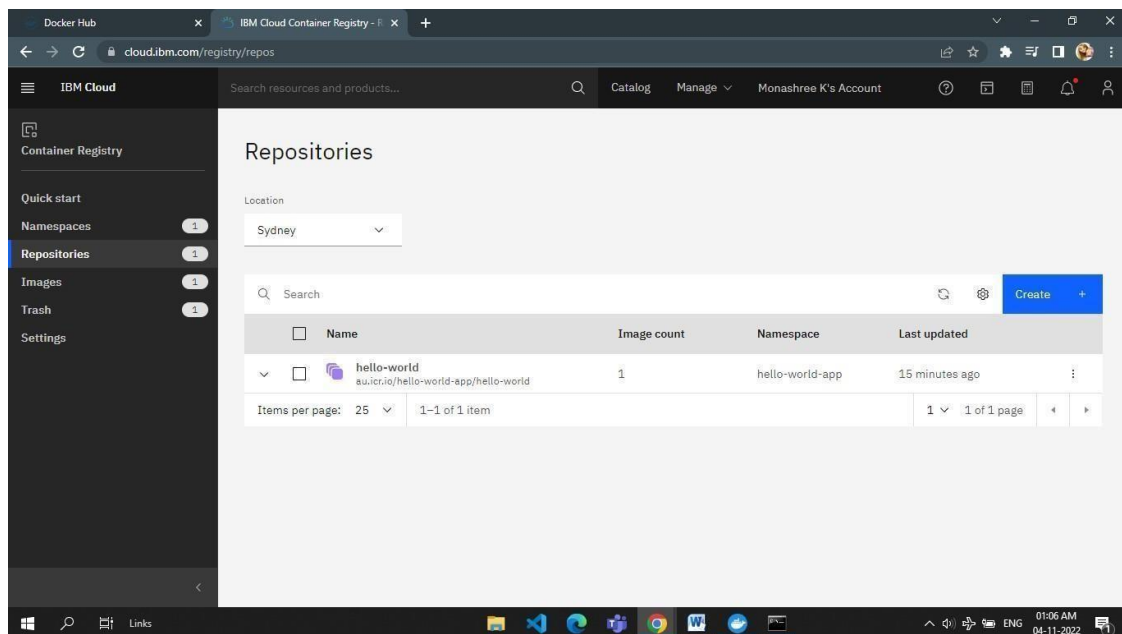
E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker push au.icr.io/hello-world-app/hello-world
Using default tag: latest
The push refers to repository [au.icr.io/hello-world-app/hello-world]
492bcd5cc069: Pushed
006e0938fc5e: Pushed
4bb20ce8724f: Pushed
402dea3c8533: Pushed
f5d161bba139: Pushed
1569e0d95ce6: Pushed
d9e08da15d0c: Pushed
6b183c62e3d7: Mounted from hello-world-app/hello-world-app
882fd36bf3d5: Mounted from hello-world-app/hello-world-app
d1dec9917839: Mounted from hello-world-app/hello-world-app
d38ad9f391dd: Mounted from hello-world-app/hello-world-app
4ad121b04368: Mounted from hello-world-app/hello-world-app
d9d07d703dd5: Mounted from hello-world-app/hello-world-app
latest: digest: sha256:0036fe1456627bba779e865ba4793212e8332e6835b48c6b5814784adb70c46f size: 3049

E:\Study materials\Sem 7\IBM\Exercise\Assignment4>ibmcloud cr image-list
Listing images...

Repository          Tag      Digest      Namespace      Created      Size      Security status
au.icr.io/hello-world-app/hello-world  latest  0036fe145662  hello-world-app  12 minutes ago  356 MB  -

OK

E:\Study materials\Sem 7\IBM\Exercise\Assignment4>docker run -p 5000:5000 au.icr.io/hello-world-app/hello-world
* Serving Flask app 'app'
* Debug mode: off
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server 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
172.17.0.1 - - [03/Nov/2022 19:35:58] "GET / HTTP/1.1" 200 -
```



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 4:

<https://raw.githubusercontent.com/itsmona14/IBM-Assignment-cloud/main/deployment.yaml>

```
apiVersion: v1
kind: Service
metadata:
  name: hello-world-deployment
spec:
  ports:
    - port: 5000
      targetPort: 5000
  selector:
    app: hello-world
---
apiVersion: apps/v1
kind: Deployment
metadata:
  name: hello-world-deployment
spec:
  replicas: 1
  selector:
    matchLabels:
      app: hello-world
  template:
    metadata:
      labels:
        app: hello-world
    spec:
      containers:
        - name: hello-world
          image: au.icr.io/hello-world-app/hello-world
          imagePullPolicy: Always
          ports:
            - containerPort: 5000
```


mycluster-free - IBM Cloud

cloud.ibm.com/kubernetes/clusters/cd1j33f0a6mchav5kig/overview

IBM Cloud Search resources and products... Catalog Manage Monashree K's Account

Clusters / mycluster-free Normal Expires in 29 days Add tags Help Kubernetes dashboard Actions...

Overview

Worker nodes

Worker pools

DevOps New

Expires in 29 days:
Be sure to back up your data, your cluster will be deleted in 29 days. To access the full capabilities of the service, try out a standard cluster.

Node status: 1 of 1 Normal Details

Add-on status: 0 of 0 Normal Details

Master status: Normal Docs

Ingress status: Unknown Docs

Details

Cluster ID: cd1j33f0a6mchav5kig

Version: 1.24.7_1542

Infrastructure: Classic

Zones: Milan 01

Created: 04/11/2022, 01:12

Resource group: Default

Image security enforcement: Enable

mycluster-free - Kubernetes Dashboard

eu-de.containers.cloud.ibm.com/kubeproxy/clusters/cd1j33f0a6mchav5kig/service/#/deployment?namespace=default

kubernetes default Search

Workloads > Deployments

Workloads

Cron Jobs

Daemon Sets

Deployments

Jobs

Pods

Replica Sets

Replication Controllers

Stateful Sets

Service

Ingresses

Ingress Classes

Services

Config Maps

Config Maps

CPU Usage

Memory Usage

Deployments

Name	Images	Labels	Pods	Created
hello-world-deployment	Show all		1 / 1	34 minutes ago

mycluster-free - Kubernetes Dashboard

eu-de.containers.cloud.ibm.com/kubeproxy/clusters/cd1j33f0a6mchav5kig/service/#/log/default/hello-world-deployment-6c75b9c898-p4ntv/pod?namespace=...

kubernetes default Search

Workloads > Pods > hello-world-deployment-6c75b9c898-p4ntv > Logs

Workloads ^N

- Cron Jobs
- Daemon Sets
- Deployments
- Jobs
- Pods
- Replica Sets
- Replication Controllers
- Stateful Sets

Service

- Ingresses ^N
- Ingress Classes
- Services ^N

Config and Storage

Logs from hello-world in hello-world-dep...

```
* Serving Flask app "app"
* Debug mode: off
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
* Running on all addresses (0.0.0.0)
* Running on http://127.0.0.1:5000
* Running on http://172.30.82.142:5000
Press CTRL+C to quit
```

Logs from Nov 4, 2022 to Nov 4, 2022 UTC

eu-de.containers.cloud.ibm.com/kubeproxy/clusters/cd1j33f0a6mchav5kig/.../ser...

Windows taskbar: 03:49 PM 04-11-2022