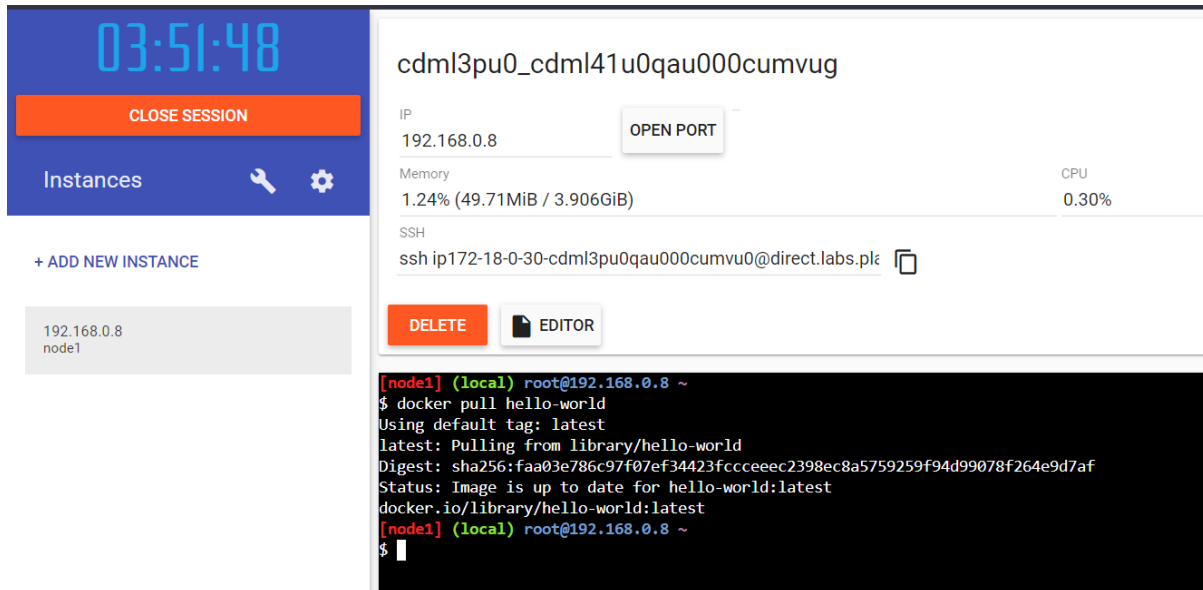


TEAM ID: PNT2022TMID02725

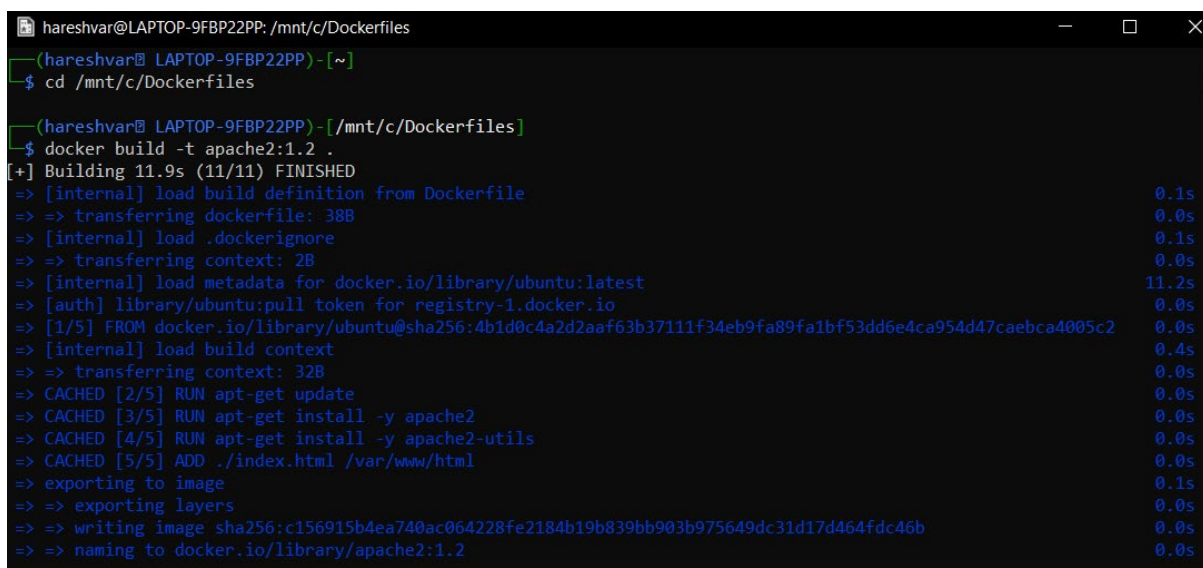
1) Pull an Image from docker hub and run it in docker playground.



The screenshot shows the Docker Playground interface. On the left, there's a sidebar with a clock showing 03:51:48, a 'CLOSE SESSION' button, and a list of instances. The main area displays details for an instance named 'cdml3pu0\_cdml41u0qau000cumvug' with IP 192.168.0.8. It shows memory usage (1.24%) and CPU usage (0.30%). Below this, there's an SSH terminal window showing the command 'docker pull hello-world' being executed. The output indicates that the image is already up to date.

```
[node1] (local) root@192.168.0.8 ~
$ docker pull hello-world
Using default tag: latest
latest: Pulling from library/hello-world
Digest: sha256:faa03e786c97f07ef34423fccceec2398ec8a5759259f94d99078f264e9d7af
Status: Image is up to date for hello-world:latest
docker.io/library/hello-world:latest
[node1] (local) root@192.168.0.8 ~
$
```

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



```
hareshvar@LAPTOP-9FBP22PP: /mnt/c/Dockerfiles
(hareshvar@LAPTOP-9FBP22PP)-[~]
$ cd /mnt/c/Dockerfiles

(hareshvar@LAPTOP-9FBP22PP)-[/mnt/c/Dockerfiles]
$ docker build -t apache2:1.2 .
[+] Building 11.9s (11/11) FINISHED
=> [internal] load build definition from Dockerfile 0.1s
=> => transferring dockerfile: 388 0.0s
=> [internal] load .dockerignore 0.1s
=> => transferring context: 2B 0.0s
=> [internal] load metadata for docker.io/library/ubuntu:latest 11.2s
=> [auth] library/ubuntu:pull token for registry-1.docker.io 0.0s
=> [1/5] FROM docker.io/library/ubuntu@sha256:4b1d0c4a2d2aaf63b3711f34eb9fa89fa1bf53dd6e4ca954d47caebca4005c2 0.0s
=> [internal] load build context 0.4s
=> => transferring context: 32B 0.0s
=> CACHED [2/5] RUN apt-get update 0.0s
=> CACHED [3/5] RUN apt-get install -y apache2 0.0s
=> CACHED [4/5] RUN apt-get install -y apache2-utils 0.0s
=> CACHED [5/5] ADD ./index.html /var/www/html 0.0s
=> exporting to image 0.1s
=> => exporting layers 0.0s
=> => writing image sha256:c156915b4ea740ac064228fe2184b19b839bb903b975649dc31d17d464fdc46b 0.0s
=> => naming to docker.io/library/apache2:1.2 0.0s
```

```
(hareshvar@ LAPTOP-9FBP22PP) - [/mnt/c/Dockerfiles]
$ docker run -d -p 80:80 apache2:1.2
9c5904c8af49d6cb1b962f357269a6a2aaae565f6ac989824b31c8b4085b2d5a







(hareshvar@ LAPTOP-9FBP22PP) - [/mnt/c/Dockerfiles]
$
```

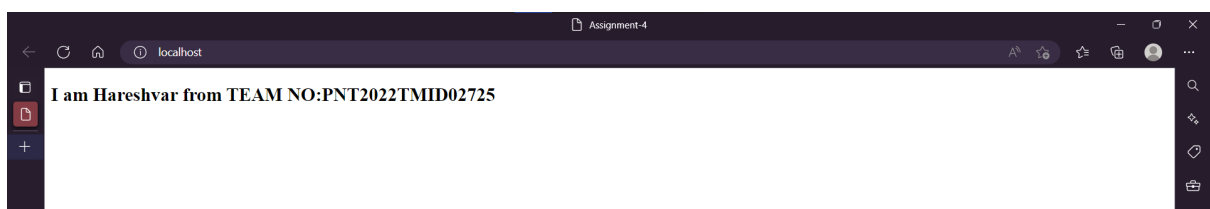
```
(hareshvar@ LAPTOP-9FBP22PP) - [/mnt/c/Dockerfiles]
$ docker ps
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS                    NAMES
9c5904c8af49   apache2:1.2    "/bin/sh -c 'apache2..." 48 seconds ago Up 24 seconds 0.0.0.0:80->80/tcp      infallible_euler

(hareshvar@ LAPTOP-9FBP22PP) - [/mnt/c/Dockerfiles]
$
```

Only show running containers

Search

	NAME	IMAGE	STATUS	PORT(S)	STARTED	ACTIONS
<input type="checkbox"/>	 <b>infallible_euler</b> 9c5904c8af49 	<a href="#">apache2:1.1</a>	Running	<a href="#">80:80</a> 	1 minute ago	  



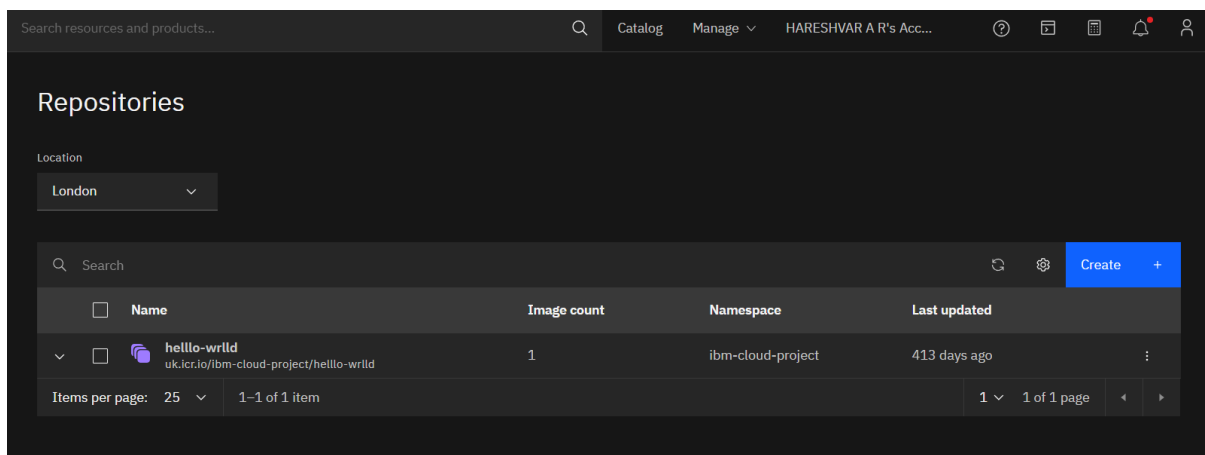
### 3) Create IBM Cloud Registry

```
C:\Users\HARESHVAR A R>docker pull hello-world
Using default tag: latest
latest: Pulling from library/hello-world
Digest: sha256:faa03e786c97f07ef34423fccceec2398ec8a5759259f94d99078f264e9d7af
Status: Image is up to date for hello-world:latest
docker.io/library/hello-world:latest

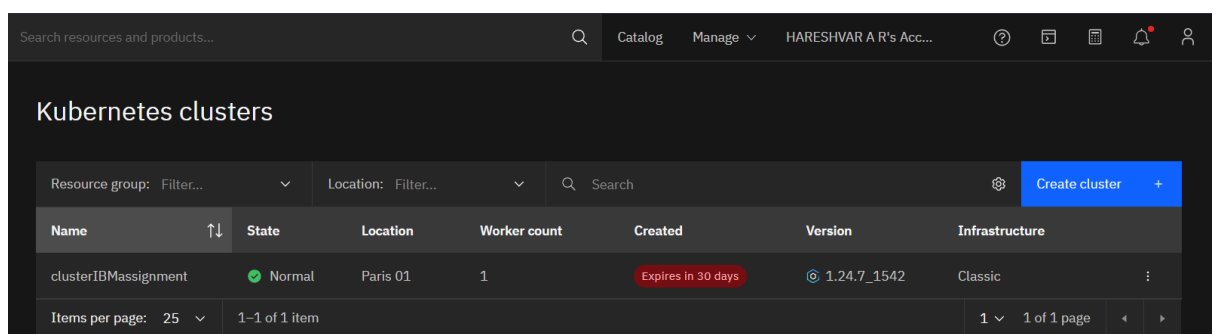
C:\Users\HARESHVAR A R>docker tag hello-world uk.icr.io/ibm-cloud-project/hello-wrllld

C:\Users\HARESHVAR A R>docker push uk.icr.io/ibm-cloud-project/hello-wrllld
Using default tag: latest
The push refers to repository [uk.icr.io/ibm-cloud-project/hello-wrllld]
e07ee1baac5f: Pushed
latest: digest: sha256:f54a58bc1aac5ea1a25d796ae155dc228b3f0e11d046ae276b39c4bf2f13d8c4 size: 525

C:\Users\HARESHVAR A R>
```



### 4) Create Kubernetes cluster in IBM cloud and deploy app and also expose the same in nodeport



```

C:\Users\HARESHVAR A R>ibmcloud ks cluster config --cluster cdmphupf0h8pv4c1i530
OK
The configuration for cdmphupf0h8pv4c1i530 was downloaded successfully.

Added context for cdmphupf0h8pv4c1i530 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.

C:\Users\HARESHVAR A R>kubectl config current-context
clusterIBMassignment/cdmphupf0h8pv4c1i530

C:\Users\HARESHVAR A R>kubectl create -f deployment.yaml
error: the path "deployment.yaml" does not exist

C:\Users\HARESHVAR A R>kubectl get pods
No resources found in default namespace.

C:\Users\HARESHVAR A R>kubectl get nodes
NAME                STATUS    ROLES    AGE     VERSION
10.144.182.14       Ready     <none>    3h18m   v1.24.7+IKS

C:\Users\HARESHVAR A R>cd C:/Dockerfiles/kubernetes

C:\Dockerfiles\Kubernetes>kubectl create -f ibm_deployment.yaml
deployment.apps/flask-deploy created

C:\Dockerfiles\Kubernetes>kubectl create -f flask_service.yaml
service/flask-app-service created

C:\Dockerfiles\Kubernetes>kubectl create -f flask_ingress.yaml
ingress.networking.k8s.io/flask-app-ingress created

C:\Dockerfiles\Kubernetes>kubectl create -f flask_deployment.yaml
deployment.apps/flask-app created

C:\Dockerfiles\Kubernetes>kubectl create -f dashboard_adminuser.yaml
clusterrolebinding.rbac.authorization.k8s.io/admin-user created

```

<b>Workloads</b> ⓘ Cron Jobs Daemon Sets Deployments Jobs Pods Replica Sets Replication Controllers Stateful Sets Service Ingresses ⓘ Ingress Classes Services ⓘ Config and Storage Config Maps ⓘ Persistent Volume Claims ⓘ	<b>Deployments</b>						
	Name	Images	Labels	Pods	Created ↑		
	flask-app	Show all	-	0 / 3	19 minutes ago		
	flask-deploy	Show all	-	0 / 3	21 minutes ago		
	<b>Pods</b>						
	Name	Images	Labels	Node	Status	Restarts	CPU Usage (cores)
	flask-app-5df9dfbd56-5586v	Show all	Show all	10.144.182.14	ErrImageNev 0	-	-
	flask-app-555694bdc7-fgb8x	Show all	Show all	10.144.182.14	ErrImageNev 0	-	-
	flask-app-555694bdc7-gmh7m	Show all	Show all	10.144.182.14	ErrImageNev 0	-	-
	flask-app-555694bdc7-lrqnd	Show all	Show all	10.144.182.14	ErrImageNev 0	-	-
	flask-deploy-5b55d88fdd-6wgc7	Show all	Show all	10.144.182.14	ImagePullBa 0	-	-
							Memory Usage (bytes)
							Created ↑