



Software Construction and Development

Assignment 03

Prepared By:
Khadija mehmood (i20-0970)
SE-Q

Date: 17th May, 2024

Table of Contents

Docker hub	2
K8s Playground	2
1. Initializes cluster master node:	2
episode-01	3
episode-02	3
episode-03	3
episode-04	3
episode-05	3

Docker hub

Docker build -t imagename .

```

PS C:\Users\khadi\OneDrive\Desktop\scd-a3\mern-bootcamp\episode-84> cd ..
PS C:\Users\khadi\OneDrive\Desktop\scd-a3\mern-bootcamp> cd episode-85
PS C:\Users\khadi\OneDrive\Desktop\scd-a3\mern-bootcamp> cd episode-85 > cd backend
PS C:\Users\khadi\OneDrive\Desktop\scd-a3\mern-bootcamp\episode-85\backend> docker build
-t backendp5
2024/05/17 18:54:35 http: server: error reading preface from client ../pipe/docker_eng...
[+] Building 1.3s (10/18) FINISHED
=> [internal] load build definition from Dockerfile
=> transferring dockerfile: 452B
=> [internal] load metadata for docker.io/library/node:14
=> [internal] load dockerignore
PS C:\Users\khadi\OneDrive\Desktop\scd-a3\mern-bootcamp\episode-84> cd ..
f186e5061f2: Mounted from khadijahmehood/backendp3
b2bd40747754: Mounted from khadijahmehood/backendp3
latest: digest: sha256:56e2cf8bf9e37f381d39cf9fb9e5b5eda97eadd2b844e6ac88de284dab1
size: 3476
PS C:\Users\khadi\OneDrive\Desktop\scd-a3\mern-bootcamp\episode-83\frontend> cd ..
PS C:\Users\khadi\OneDrive\Desktop\scd-a3\mern-bootcamp\episode-83> cd ..
PS C:\Users\khadi\OneDrive\Desktop\scd-a3\mern-bootcamp> cd episode-84
PS C:\Users\khadi\OneDrive\Desktop\scd-a3\mern-bootcamp\episode-84> cd frontend
PS C:\Users\khadi\OneDrive\Desktop\scd-a3\mern-bootcamp\episode-84\frontend> docker build
d -t frontendp4
[+] Building 62.9s (13/13) FINISHED
=> [internal] load build definition from Dockerfile
=> transferring dockerfile: 452B
=> [internal] load metadata for docker.io/library/node:14
=> [internal] load dockerignore

```

```
docker tag name username/name:latest
```

Docker push username/name

Images

[Give feedback](#)

Local

Hub

khadijahmehmood

Search

[View Scout dashboard](#)

	Tags	OS	Vulnerabilities	Last pushed	Size
khadijahmehmood/frontend5	latest		Inactive	4 hours ago	421.49 MB
khadijahmehmood/backend5	latest		Inactive	4 hours ago	364 MB
khadijahmehmood/frontend4	latest		Inactive	4 hours ago	421.49 MB
khadijahmehmood/backend4	latest		Inactive	5 hours ago	364 MB
khadijahmehmood/frontend3	latest		Inactive	5 hours ago	419.58 MB
khadijahmehmood/backend3	latest		Inactive	5 hours ago	364 MB
khadijahmehmood/frontend2	latest		Inactive	5 hours ago	419.17 MB
khadijahmehmood/backend2	latest		Inactive	5 hours ago	364 MB
khadijahmehmood/frontend1	latest		Inactive	5 hours ago	419.04 MB
khadijahmehmood/backend1	latest		Inactive	5 hours ago	364 MB

Repositories per page

10

1 - 10 of 13

K8s Playground

1. Initializes cluster master node:

- `kubeadm init --apiserver-advertise-address $(hostname -i) --pod-network-cidr 10.5.0.0/16`
- `kubeadm token create --print-join-command`

- `kubeadm join 192.168.0.13:6443 --token ufbx6r.2xm6j6xc6muaelyg`
`--discovery-token-ca-cert-hash`
`sha256:28e2a20c9b26bcf9eff3e95be819f90caac7e729dfeeb051998fec2d9a4bf17`
`c`
- `[node1 ~]$ git clone https://github.com/Khadijahmehmood/SCD-A3-K8S.git`
- `[node1 ~]$ cd SCD-A3-K8S`

episode-01

- `[node1 SCD-A3-K8S]$ cd episode-01`
- `[node1 episode-01]$ ls`
- `[node1 episode-01]$ cd manifests`
- `[node1 manifests]$ kubectl apply -f deployment.yaml -n cluster`
- `[node1 manifests]$ kubectl apply -f service.yaml -n cluster`

episode-02

- `[node1 SCD-A3-K8S]$ cd episode-02`
- `[node1 episode-02]$ cd manifests`
- `[node1 manifests]$ kubectl apply -f deployment.yaml -n cluster`
- `[node1 manifests]$ kubectl apply -f service.yaml -n cluster`

episode-03

- `[node1 SCD-A3-K8S]$ cd episode-03`
- `[node1 episode-03]$ cd manifests`
- `[node1 manifests]$ kubectl apply -f deployment.yaml -n cluster`
- `[node1 manifests]$ kubectl apply -f service.yaml -n cluster`

episode-04

- `[node1 SCD-A3-K8S]$ cd episode-04`
- `[node1 episode-04]$ cd manifests`
- `[node1 manifests]$ kubectl apply -f deployment.yaml -n cluster`
- `deployment.apps/episode4-deployment created`
- `[node1 manifests]$ kubectl apply -f service.yaml -n cluster`
- `service/episode4-service created`

episode-05

- `[node1 SCD-A3-K8S]$ cd episode-05`
- `[node1 episode-05]$ cd manifests`
- `[node1 manifests]$ kubectl apply -f deployment.yaml -n cluster`
- `deployment.apps/episode5-deployment created`
- `[node1 manifests]$ kubectl apply -f service.yaml -n cluster`
- `service/episode5-service created`

```

service/episode5-service created
[node1 manifests]$ kubectl get deployments -n cluster

```

NAME	READY	UP-TO-DATE	AVAILABLE	AGE
episode1-deployment	0/2	2	0	4m2s
episode2-deployment	0/2	2	0	3m14s
episode3-deployment	0/2	2	0	2m25s
episode4-deployment	0/2	2	0	109s
episode5-deployment	0/2	2	0	72s

```

[node1 manifests]$

```

Kubectl get pods -n cluster

```

[node1 manifests]$ kubectl get pods -n cluster

```

NAME	READY	STATUS	RESTARTS	AGE
episode1-deployment-7bb757c6bb-5hqvg	0/2	Pending	0	5m32s
episode1-deployment-7bb757c6bb-scf56	0/2	Pending	0	5m32s
episode2-deployment-5cb57785-l2g7p	0/2	Pending	0	4m44s
episode2-deployment-5cb57785-s7zwf	0/2	Pending	0	4m44s
episode3-deployment-dc5457944-4sv97	0/2	Pending	0	3m55s
episode3-deployment-dc5457944-cwvbl	0/2	Pending	0	3m55s
episode4-deployment-74978c6c47-7bwtg	0/2	Pending	0	3m19s
episode4-deployment-74978c6c47-j4v82	0/2	Pending	0	3m19s
episode5-deployment-7f97479c46-78s5r	0/2	Pending	0	2m42s
episode5-deployment-7f97479c46-8vj4p	0/2	Pending	0	2m42s

```

[node1 manifests]$

```

Kubectl get service -n cluster

```

[node1 manifests]$ kubectl get service -n cluster

```

NAME	TYPE	CLUSTER-IP	EXTERNAL-IP	PORT(S)	AGE
episode1-service	LoadBalancer	10.108.110.26	<pending>	80:30751/TCP	6m46s
episode2-service	LoadBalancer	10.97.180.23	<pending>	81:31433/TCP	6m6s
episode3-service	LoadBalancer	10.101.103.222	<pending>	82:31258/TCP	5m15s
episode4-service	LoadBalancer	10.105.86.116	<pending>	83:31772/TCP	4m42s
episode5-service	LoadBalancer	10.100.41.188	<pending>	84:31779/TCP	4m3s

```

[node1 manifests]$

```

-
- kubectl expose deployment episode1-deployment
--type=NodePort --port=3000 --target-port=5000 -n cluster
 - kubectl expose deployment episode2-deployment
--type=NodePort --port=3001 --target-port=5001 -n cluster
 - kubectl expose deployment episode3-deployment
--type=NodePort --port=3002 --target-port=5002 -n cluster
 - kubectl expose deployment episode4-deployment
--type=NodePort --port=3003 --target-port=5003 -n cluster

- `kubectl expose deployment episode5-deployment --type=NodePort --port=3004 --target-port=5004 -n cluster`

```
[node1 manifests]$ kubectl expose deployment episode2-deployment --type=NodePort --port=3001 --target-port=5001 -n cluster
service/episode2-deployment exposed
[node1 manifests]$ kubectl expose deployment episode1-deployment --type=NodePort --port=3000 --target-port=5000 -n cluster
service/episode1-deployment exposed
[node1 manifests]$ kubectl expose deployment episode1-deployment --type=NodePort --port=3002 --target-port=5002 -n cluster
Error from server (AlreadyExists): services "episode1-deployment" already exists
[node1 manifests]$ kubectl expose deployment episode1-deployment --type=NodePort --port=3000 --target-port=5000 -n cluster
Error from server (AlreadyExists): services "episode1-deployment" already exists
[node1 manifests]$ kubectl expose deployment episod21-deployment --type=NodePort --port=3001 --target-port=5001 -n cluster
Error from server (NotFound): deployments.apps "episod21-deployment" not found
[node1 manifests]$ cd ..
[node1 episode-05]$ cd ..
[node1 SCD-A3-K8S]$ kubectl expose deployment episod2-deployment --type=NodePort --port=3001 --target-port=5001 -n cluster
Error from server (NotFound): deployments.apps "episod2-deployment" not found
[node1 SCD-A3-K8S]$ kubectl expose deployment episode2-deployment --type=NodePort --port=3001 --target-port=5001 -n cluster
Error from server (AlreadyExists): services "episode2-deployment" already exists
[node1 SCD-A3-K8S]$ kubectl expose deployment episode3-deployment --type=NodePort --port=3002 --target-port=5002 -n cluster
service/episode3-deployment exposed
[node1 SCD-A3-K8S]$ kubectl expose deployment episode4-deployment --type=NodePort --port=3003 --target-port=5003 -n cluster
service/episode4-deployment exposed
[node1 SCD-A3-K8S]$ kubectl expose deployment episode5-deployment --type=NodePort --port=3004 --target-port=5004 -n cluster
service/episode5-deployment exposed
```

- `Kubectl get service -n cluster`

```
[node1 SCD-A3-K8S]$ kubectl get services -n cluster
```

NAME	TYPE	CLUSTER-IP	EXTERNAL-IP	PORT(S)	AGE
episode1-deployment	NodePort	10.105.142.101	<none>	3000:32715/TCP	5m35s
episode1-service	LoadBalancer	10.108.110.26	<pending>	80:30751/TCP	40m
episode2-deployment	NodePort	10.111.225.194	<none>	3001:31024/TCP	6m5s
episode2-service	LoadBalancer	10.97.180.23	<pending>	81:31433/TCP	39m
episode3-deployment	NodePort	10.111.158.212	<none>	3002:32193/TCP	2m29s
episode3-service	LoadBalancer	10.101.103.222	<pending>	82:31258/TCP	38m
episode4-deployment	NodePort	10.108.238.199	<none>	3003:32435/TCP	2m3s
episode4-service	LoadBalancer	10.105.86.116	<pending>	83:31772/TCP	38m
episode5-deployment	NodePort	10.106.215.136	<none>	3004:31397/TCP	101s
episode5-service	LoadBalancer	10.100.41.188	<pending>	84:31779/TCP	37m