

TASK 4

Objective: Deploy simple web application in k8s and expose with nodeport service (tools: k8s,ubuntu vm)

Kubernetes Deployment Troubleshooting Guide

STEP 1. Created a deployment using Nginx:

```
kubectl create deployment webapp --image=nginx --port=80
```

STEP 2. Exposed the deployment as a NodePort service:

```
kubectl expose deployment webapp --type=NodePort --port=80 --target-port=80
```

STEP 3. Checked the service to get the assigned NodePort:

```
kubectl get svc
```

STEP 4. Tried to access the service using Minikube URL:

```
minikube service webapp
```

STEP 5. Tried port-forwarding to 8080 but it was already in use.

- Checked using: `sudo lsof -i :8080`
- Found Jenkins (Java process) using port 8080 and killed it.
- Switched to port 9090, which worked.

Final Fixes and Best Practices

Option 1: Use NodePort (Recommended)

Instead of port-forwarding, access your app directly using Minikube NodePort:

Open in a browser: `http://192.168.49.2:31298`

Or use curl to check: `curl http://192.168.49.2:31298`

Option 2: Port-Forward on a Different Port

Since 8080 was busy, you correctly forwarded using 9090:

```
kubectl port-forward deployment/webapp 9090:80
```

Now, open: `http://127.0.0.1:9090`

Option 3: Free Up Port 8080

If you really want to use 8080:

1. Find the process using the port: `sudo lsof -i :8080`
2. Kill the process (use the correct PID): `sudo kill -9 <PID>`
3. Retry: `kubectl port-forward deployment/webapp 8080:80`

Final Output

Your app is now accessible at:

- Via Minikube NodePort → `http://192.168.49.2:31298`
- Via Port-Forwarding → `http://127.0.0.1:9090`

Successfully done , Kubernetes app is running!

SCREENSHOTS

```
root@Kavi:/home/kaviyavikashini# kubectl get pod
No resources found in default namespace.
root@Kavi:/home/kaviyavikashini# kubectl create deployment webapp --image=nginx --port=80
deployment.apps/webapp created
root@Kavi:/home/kaviyavikashini# kubectl expose deployment webapp --type=NodePort --port=80 --target-port=80
service/webapp exposed
root@Kavi:/home/kaviyavikashini# kubectl get pod
NAME                READY   STATUS    RESTARTS   AGE
webapp-B69b646d9f-g42pz  1/1     Running   0           118s
root@Kavi:/home/kaviyavikashini# kubectl get svc
NAME    TYPE        CLUSTER-IP   EXTERNAL-IP   PORT(S)          AGE
kubernetes  ClusterIP  10.96.0.1     <none>        443/TCP          4m24s
webapp    NodePort    10.109.28.4   <none>        80:31298/TCP     27s
root@Kavi:/home/kaviyavikashini# minikube service webapp
|-----|
| NAMESPACE | NAME   | TARGET PORT | URL                     |
|-----|
| default   | webapp | 80           | http://192.168.49.2:31298 |
|-----|
🔗 Opening service default/webapp in default browser...
🔗 http://192.168.49.2:31298
root@Kavi:/home/kaviyavikashini# sudo systemctl fs.protected_regular=@sudo systemctl fs.protected_regular=0
systemctl: setting key "fs.protected_regular": Invalid argument
systemctl: cannot stat /proc/sys/systemd: No such file or directory
fs.protected_regular = 0
root@Kavi:/home/kaviyavikashini# minikube ip
192.168.49.2
root@Kavi:/home/kaviyavikashini# http://minikube-ip:31298
bash: minikube-ip: No such file or directory
root@Kavi:/home/kaviyavikashini# kubectl port-forward deployment/webapp 8080:80
Unable to listen on port 8080: Listeners failed to create with the following errors: [unable to create listener: Error listen tcp4 127.0.0.1:8080: bind: address already in use]
error: unable to listen on any of the requested ports: [{8080 80}]
root@Kavi:/home/kaviyavikashini# sudo lsof -i :8080
COMMAND PID  USER  FD  TYPE DEVICE SIZE/OFF NODE NAME
java    187  jenkins  8u  IPv6  24811      0t0  TCP *:http-alt (LISTEN)
root@Kavi:/home/kaviyavikashini# sudo kill -9 187
kill: (187): No such process
root@Kavi:/home/kaviyavikashini# sudo kill -9 187
root@Kavi:/home/kaviyavikashini# sudo lsof -i :8080
COMMAND PID  USER  FD  TYPE DEVICE SIZE/OFF NODE NAME
```

```
root@Kavi:/home/kaviyavikashini#
|-----|-----|-----|-----|
# Opening service default/webapp in default browser...
http://192.168.49.2:31298
root@Kavi:/home/kaviyavikashini# sudo systemctl fs.protected_regular=@sudo systemctl fs.protected_regular=@
systemctl: setting key "fs.protected_regular": Invalid argument
systemctl: cannot stat /proc/sys/systemctl: No such file or directory
fs.protected_regular = 0
root@Kavi:/home/kaviyavikashini# minikube ip
192.168.49.2
root@Kavi:/home/kaviyavikashini# http://<minikube-ip>:31298
bash: minikube-ip: No such file or directory
root@Kavi:/home/kaviyavikashini# kubectl port-forward deployment/webapp 8080:80
Unable to listen on port 8080: Listeners failed to create with the following errors: [unable to create listener: Error listen tcp4 127.0.0.1:8080: bind: address already in use unable to create listener: Error listen tcp6 [::]:8080: bind: address already in use]
error: unable to listen on any of the requested ports: [{8080 80}]
root@Kavi:/home/kaviyavikashini# sudo lsof -i :8080
COMMAND PID USER FD TYPE DEVICE SIZE/OFF NODE NAME
java 187 jenkins 8u IPv6 24831 0t0 TCP *:http-alt (LISTEN)
root@Kavi:/home/kaviyavikashini# sudo kill -9 1234
kill: (1234): No such process
root@Kavi:/home/kaviyavikashini# sudo kill -9 187
root@Kavi:/home/kaviyavikashini# sudo lsof -i :8080
COMMAND PID USER FD TYPE DEVICE SIZE/OFF NODE NAME
java 18109 jenkins 8u IPv6 107628 0t0 TCP *:http-alt (LISTEN)
root@Kavi:/home/kaviyavikashini# kubectl port-forward deployment/webapp 8080:80
Unable to listen on port 8080: Listeners failed to create with the following errors: [unable to create listener: Error listen tcp4 127.0.0.1:8080: bind: address already in use unable to create listener: Error listen tcp6 [::]:8080: bind: address already in use]
error: unable to listen on any of the requested ports: [{8080 80}]
root@Kavi:/home/kaviyavikashini# sudo kill -9 18109
root@Kavi:/home/kaviyavikashini# sudo lsof -i :8080
COMMAND PID USER FD TYPE DEVICE SIZE/OFF NODE NAME
java 18376 jenkins 8u IPv6 95057 0t0 TCP *:http-alt (LISTEN)
root@Kavi:/home/kaviyavikashini# kubectl port-forward deployment/webapp 8080:80
Unable to listen on port 8080: Listeners failed to create with the following errors: [unable to create listener: Error listen tcp4 127.0.0.1:8080: bind: address already in use unable to create listener: Error listen tcp6 [::]:8080: bind: address already in use]
error: unable to listen on any of the requested ports: [{8080 80}]
root@Kavi:/home/kaviyavikashini# kubectl port-forward deployment/webapp 9090:80
Forwarding from 127.0.0.1:9090 -> 80
Forwarding from [::]:9090 -> 80
Handling connection for 9090
Handling connection for 9090
```

```
291 Suggestion: Run 'sudo systemctl fs.protected_regular=0', or try a driver which does not require root, such as '--driver=docker'
292 Related issue: https://github.com/kubernetes/minikube/issues/6391root@Kavi:/home/kaviyavikashini# minikube start --driver=docker --force
293 minikube v1.30.0 on Ubuntu 24.04 (amd64)
294 minikube skips various validations when --force is supplied; this may lead to unexpected behavior
295 Using the docker driver based on user configuration
296 The "docker" driver should not be used with root privileges. If you wish to continue as root, use --force.
297 If you are running minikube within a VM, consider using --driver=none:
298 https://minikube.sigs.k8s.io/docs/reference/drivers/none/
299 Using Docker driver with root privileges
300 Starting "minikube" primary control-plane node in "minikube" cluster
301 Pulling base image v0.0.46 ...
302 Exiting due to HOST_JUJU_LOCK_PERMISSION: Failed to save config: failed to acquire lock for /root/.minikube/profiles/minikube/config.json: [Name: mk270d1b5db5965f2c9e25770a63417031943 Clock: {} Delay:500ms Timeout:1m0s Cancel:<nil>]: unable to open /tmp/juju-mk270d1b5db5965f2c9e25770a63417031943: permission denied
303 Suggestion: Run 'sudo systemctl fs.protected_regular=0', or try a driver which does not require root, such as '--driver=docker'
304 Related issue: https://github.com/kubernetes/minikube/issues/6391
305 sudo systemctl fs.protected_regular=0
306 minikube start --driver=docker --force
307 sudo systemctl fs.protected_regular=0
308 minikube start --driver=docker --force
309 kubectl get pod
310 kubectl create deployment webapp --image=nginx --port=80
311 kubectl expose deployment webapp --type=NodePort --port=80 --target-port=80
312 kubectl get pod
313 kubectl get svc
314 minikube service webapp
315 sudo systemctl fs.protected_regular=@sudo systemctl fs.protected_regular=@
316 minikube ip
317 http://<minikube-ip>:31298
318 kubectl port-forward deployment/webapp 8080:80
319 sudo lsof -i :8080
320 sudo kill -9 1234
321 sudo kill -9 187
322 sudo lsof -i :8080
323 kubectl port-forward deployment/webapp 8080:80
324 sudo kill -9 18109
325 sudo lsof -i :8080
326 kubectl port-forward deployment/webapp 8080:80
327 kubectl port-forward deployment/webapp 9090:80
328 history
root@Kavi:/home/kaviyavikashini#
```



