

Lab 3: Screenshots

Part 1: Run a multi-node cluster using the commands above.

```
PS C:\Users\Mahammad Anis> minikube start --nodes 2 -p multinode-demo
W0206 03:08:19.976011 14352 main.go:291] Unable to resolve the current Docker CLI context "default": context "default": context not found: open C:\Users\Mahammad Anis\.docker\contexts\meta\37a8eec1ce19687d132fe29051dca629d164e2c4958ba141d5f4133a33f0688f\meta.json: The system cannot find the path specified.
* [multinode-demo] minikube v1.32.0 on Microsoft Windows 11 Home Single Language 10.0.22621.3007 Build 22621.3007
* Automatically selected the docker driver
* Using Docker Desktop driver with root privileges
* Starting control plane node multinode-demo in cluster multinode-demo
* Pulling base image ...
* Creating docker container (CPUs=2, Memory=2200MB) ...
! Executing "docker ps -a --format {{.Names}}" took an unusually long time: 3.2155834s
* Restarting the docker service may improve performance.
* Preparing Kubernetes v1.28.3 on Docker 24.0.7 ...
  - Generating certificates and keys ...
  - Booting up control plane ...
  - Configuring RBAC rules ...
* Configuring CNI (Container Networking Interface) ...
* Verifying Kubernetes components...
  - Using image gcr.io/k8s-minikube/storage-provisioner:v5
* Enabled addons: storage-provisioner, default-storageclass

* Starting worker node multinode-demo-m02 in cluster multinode-demo
* Pulling base image ...
* Creating docker container (CPUs=2, Memory=2200MB) ...
* Found network options:
  - NO_PROXY=192.168.58.2
  - NO_PROXY=192.168.58.2
* Preparing Kubernetes v1.28.3 on Docker 24.0.7 ...
  - env NO_PROXY=192.168.58.2
* Verifying Kubernetes components...
* Done! kubectl is now configured to use "multinode-demo" cluster and "default" namespace by default
PS C:\Users\Mahammad Anis> kubectl get nodes
NAME                STATUS    ROLES    AGE   VERSION
multinode-demo      Ready    control-plane   60s   v1.28.3
multinode-demo-m02  Ready    <none>        17s   v1.28.3
```

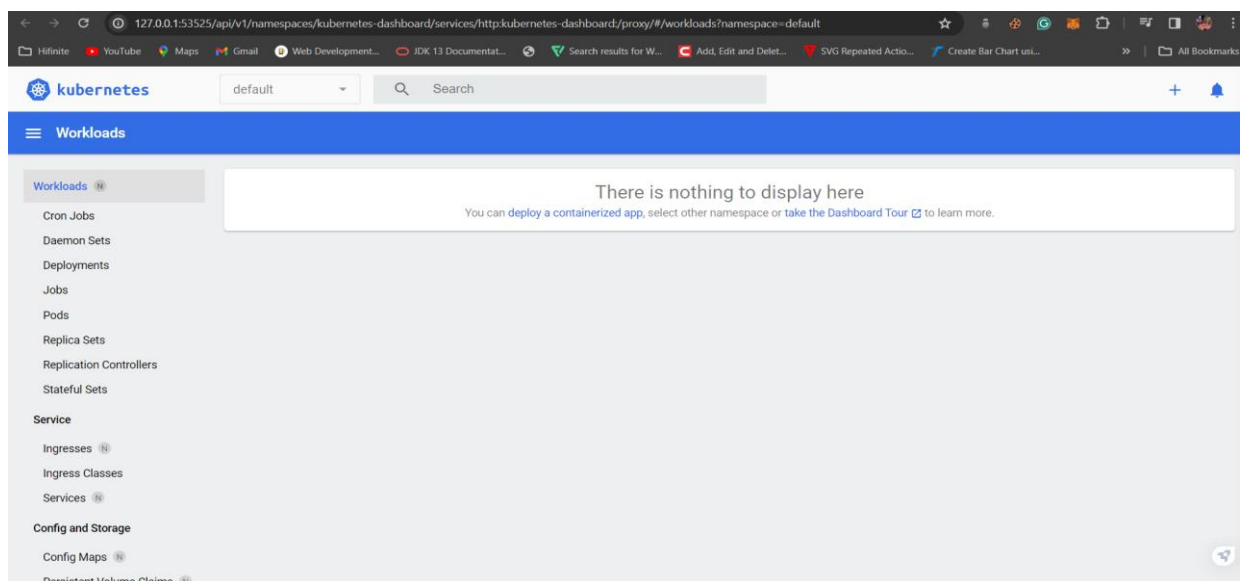
```
PS C:\Users\Mahammad Anis> minikube status -p multinode-demo
W0206 03:10:26.585893 13428 main.go:291] Unable to resolve the current Docker CLI context "default": context "default": context not found: open C:\Users\Mahammad Anis\.docker\contexts\meta\37a8eec1ce19687d132fe29051dca629d164e2c4958ba141d5f4133a33f0688f\meta.json: The system cannot find the path specified.
multinode-demo
type: Control Plane
host: Running
kubelet: Running
apiserver: Running
kubeconfig: Configured

multinode-demo-m02
type: Worker
host: Running
kubelet: Running

PS C:\Users\Mahammad Anis> minikube dashboard -p multinode-demo
W0206 03:10:52.791727 18380 main.go:291] Unable to resolve the current Docker CLI context "default": context "default": context not found: open C:\Users\Mahammad Anis\.docker\contexts\meta\37a8eec1ce19687d132fe29051dca629d164e2c4958ba141d5f4133a33f0688f\meta.json: The system cannot find the path specified.
* Enabling dashboard ...
  - Using image docker.io/kubernetesui/metrics-scraper:v1.0.8
  - Using image docker.io/kubernetesui/dashboard:v2.7.0
* Some dashboard features require the metrics-server addon. To enable all features please run:

    minikube -p multinode-demo addons enable metrics-server

* Verifying dashboard health ...
* Launching proxy ...
* Verifying proxy health ...
* Opening http://127.0.0.1:53525/api/v1/namespaces/kubernetes-dashboard/services/http:kubernetes-dashboard:/proxy/ in your default browser...
```



Part 2: Run all types of deployment yaml separately.

```
PS C:\Users\Mahammad Anis> minikube start
W0206 05:07:58.669393 26024 main.go:291] Unable to resolve the current Docker CLI context "default": context "default": context not found: open C:\Users\Mahammad Anis\.docker\contexts\meta\37a8eec1ce19687d132fe29051dca629d164e2c4958ba141d5f4133a33f0688f\meta.json: The system cannot find the path specified.
* minikube v1.32.0 on Microsoft Windows 11 Home Single Language 10.0.22621.3007 Build 22621.3007
* Using the docker driver based on existing profile
* Starting control plane node minikube in cluster minikube
* Pulling base image ...
* Updating the running docker "minikube" container ...
* Preparing Kubernetes v1.28.3 on Docker 24.0.7 ...
* Verifying Kubernetes components...
  - Using image docker.io/kubernetes/dashboard:v2.7.0
  - Using image docker.io/kubernetes/metrics-scraper:v1.0.8
  - Using image gcr.io/k8s-minikube/storage-provisioner:v5
* Some dashboard features require the metrics-server addon. To enable all features please run:

    minikube addons enable metrics-server

* Enabled addons: storage-provisioner, default-storageclass, dashboard
* Done! kubectl is now configured to use "minikube" cluster and "default" namespace by default
```

```
PS C:\Users\Mahammad Anis> kubectl apply -f replicaset.yaml
replicaset.apps/nginx created
PS C:\Users\Mahammad Anis> kubectl get pods
NAME          READY   STATUS    RESTARTS   AGE
nginx-7ntlx    1/1     Running   0           36s
nginx-pf2m5    1/1     Running   0           36s
nginx-rw7kj    1/1     Running   0           36s
PS C:\Users\Mahammad Anis> kubectl delete pod nginx-7ntlx
pod "nginx-7ntlx" deleted
PS C:\Users\Mahammad Anis> kubectl get pods
NAME          READY   STATUS    RESTARTS   AGE
nginx-pf2m5    1/1     Running   0           112s
nginx-rw7kj    1/1     Running   0           112s
nginx-z7vjz    1/1     Running   0           4s
PS C:\Users\Mahammad Anis> kubectl get replicaset
NAME      DESIRED   CURRENT   READY   AGE
nginx     3          3         3       2m3s
PS C:\Users\Mahammad Anis> |
```

Deployment YAML with ReplicaSet:

- kubectl get deployments:

```
PS C:\Users\Mahammad Anis> kubectl apply -f deploy-replica.yaml
deployment.apps/nginx-deployment created
PS C:\Users\Mahammad Anis> kubectl get deployments
NAME          READY   UP-TO-DATE   AVAILABLE   AGE
nginx-deployment 3/3      1             3           15s
PS C:\Users\Mahammad Anis> |
```

- kubectl rollout status deployment nginx

```
PS C:\Users\Mahammad Anis> kubectl rollout status deployment nginx-deployment
deployment "nginx-deployment" successfully rolled out
PS C:\Users\Mahammad Anis>
```

-Statefulsets yaml

```
PS C:\Users\Mahammad Anis> kubectl apply -f statefulsets.yaml
service/nginx created
statefulset.apps/web created
PS C:\Users\Mahammad Anis> kubectl get statefulsets
NAME    READY    AGE
web     0/3      11s
PS C:\Users\Mahammad Anis> |
```

```
PS C:\Users\Mahammad Anis> kubectl apply -f daemonset.yaml
daemonset.apps/nginx created
PS C:\Users\Mahammad Anis> kubectl get pods
NAME                                READY    STATUS    RESTARTS    AGE
nginx-bhf6g                         1/1     Running   0            8s
nginx-deployment-86dcfdf4c6-s89jr   1/1     Running   0           141m
nginx-deployment-86dcfdf4c6-tcm2g   1/1     Running   0           141m
nginx-deployment-86dcfdf4c6-zrlfc   1/1     Running   0           141m
web-0                               0/1     Pending   0           9m19s
PS C:\Users\Mahammad Anis> kubectl get daemonsets
NAME    DESIRED    CURRENT    READY    UP-TO-DATE    AVAILABLE    NODE SELECTOR    AGE
nginx   1           1           1         1              1            <none>           19s
```

```
PS C:\Users\Mahammad Anis> kubectl apply -f deployment-resource.yaml
deployment.apps/nginx-deployment configured
PS C:\Users\Mahammad Anis> kubectl get pods
NAME                                READY    STATUS    RESTARTS    AGE
nginx-bhf6g                         1/1     Running   0            14m
nginx-deployment-6cc75b8775-4f4l2   1/1     Running   0            11m
nginx-deployment-6cc75b8775-cp7f5   1/1     Running   0            11m
nginx-deployment-6cc75b8775-glh8r   1/1     Running   0            11m
web-0                               0/1     Pending   0            23m
PS C:\Users\Mahammad Anis> kubectl get deployments
NAME            READY    UP-TO-DATE    AVAILABLE    AGE
nginx-deployment 3/3      3              3            156m
PS C:\Users\Mahammad Anis> |
```

Creating Deployment object with health checks.

```
PS C:\Users\Mahammad Anis> kubectl apply -f deploy-health.yaml
deployment.apps/nginx-deployment configured
PS C:\Users\Mahammad Anis> kubectl get pods
NAME                                READY    STATUS    RESTARTS    AGE
nginx-bhf6g                         1/1     Running   0            18m
nginx-deployment-584fbb974d-jm9jc   1/1     Running   0            8s
nginx-deployment-584fbb974d-k6cd8   0/1     Running   0            3s
nginx-deployment-6cc75b8775-4f4l2   1/1     Running   0            14m
nginx-deployment-6cc75b8775-cp7f5   1/1     Running   0            14m
web-0                               0/1     Pending   0            27m
PS C:\Users\Mahammad Anis> kubectl get deployments
NAME            READY    UP-TO-DATE    AVAILABLE    AGE
nginx-deployment 3/3      2              3            160m
PS C:\Users\Mahammad Anis>
```

Part 3. Run Full stack Application Deployment

```
PS C:\Users\Mahammad Anis> cd kubernetes-demo
PS C:\Users\Mahammad Anis\kubernetes-demo> cd kubernetes
PS C:\Users\Mahammad Anis\kubernetes-demo\kubernetes> kubectl apply -f secrets/mongodb-secret.yml
secret/mongodb-secret created
PS C:\Users\Mahammad Anis\kubernetes-demo\kubernetes> kubectl apply -f stateful-sets/mongodb-stateful-set.yml
statefulset.apps/mongodb-stateful-set created
PS C:\Users\Mahammad Anis\kubernetes-demo\kubernetes> kubectl apply -f services/mongodb-service.yml
service/mongodb-service created
PS C:\Users\Mahammad Anis\kubernetes-demo\kubernetes> kubectl apply -f deployments/note-server-depl.yml
deployment.apps/note-server-deployment created
PS C:\Users\Mahammad Anis\kubernetes-demo\kubernetes> kubectl apply -f services/note-server-service.yml
service/note-server-service created
PS C:\Users\Mahammad Anis\kubernetes-demo\kubernetes> kubectl apply -f deployments/note-depl.yml
deployment.apps/note-deployment created
PS C:\Users\Mahammad Anis\kubernetes-demo\kubernetes> kubectl apply -f services/note-service.yml
service/note-service created
```

```
PS C:\Users\Mahammad Anis\kubernetes-demo\kubernetes> minikube service note-service
W0206 08:07:38.762239 13840 main.go:291] Unable to resolve the current Docker CLI context "default": context "default": context not found: open C:\Users\Mahammad Anis\.docker\contexts\meta\37a8eec1ce19687d132fe29051dca629d164e2c4958ba141d5f4133a33f0688f\meta.json: The system cannot find the path specified.



| NAMESPACE | NAME         | TARGET PORT | URL                       |
|-----------|--------------|-------------|---------------------------|
| default   | note-service | 3000        | http://192.168.49.2:30719 |


★ Starting tunnel for service note-service.



| NAMESPACE | NAME         | TARGET PORT | URL                    |
|-----------|--------------|-------------|------------------------|
| default   | note-service |             | http://127.0.0.1:53355 |


🔗 Opening service default/note-service in default browser...
! Because you are using a Docker driver on windows, the terminal needs to be open to run it.
```

note.

Assignments Add Assignment Notes Add Note

Important Assignments

```
PS C:\Users\Mahammad Anis\kubernetes-demo\kubernetes> minikube service mongo-express-service
W0206 08:12:56.222854 4584 main.go:291] Unable to resolve the current Docker CLI context "default": context "default": context not found: open C:\Users\Mahammad Anis\.docker\contexts\meta\37a8eec1ce19687d132fe29051dca629d164e2c4958ba141d5f4133a33f0688f\meta.json: The system cannot find the path specified.



| NAMESPACE | NAME                  | TARGET PORT | URL                       |
|-----------|-----------------------|-------------|---------------------------|
| default   | mongo-express-service | 8081        | http://192.168.49.2:32326 |


★ Starting tunnel for service mongo-express-service.



| NAMESPACE | NAME                  | TARGET PORT | URL                    |
|-----------|-----------------------|-------------|------------------------|
| default   | mongo-express-service |             | http://127.0.0.1:54052 |


🔗 Opening service default/mongo-express-service in default browser...
! Because you are using a Docker driver on windows, the terminal needs to be open to run it.
```

127.0.0.1:54052

Sign in

http://127.0.0.1:54052

Username

Password

Part 4:Bring down note-depp pod

```

PS C:\Users\Mahammad Anis> kubectl delete pod note-server-deployment-6fb5fcb67f-fmmqt
pod "note-server-deployment-6fb5fcb67f-fmmqt" deleted
PS C:\Users\Mahammad Anis> kubectl get pods

```

NAME	READY	STATUS	RESTARTS	AGE
mongo-express-deployment-b88f6d45f-xnf8p	1/1	Running	0	21m
mongodb-stateful-set-0	1/1	Running	0	28m
mongodb-stateful-set-1	1/1	Running	0	27m
nginx-bhf6g	1/1	Running	0	54m
nginx-deployment-584fbb974d-gtjbv	1/1	Running	0	36m
nginx-deployment-584fbb974d-jm9jc	1/1	Running	0	36m
nginx-deployment-584fbb974d-k6cd8	1/1	Running	0	36m
note-deployment-74cc946cd8-7r9k8	1/1	Running	0	27m
note-deployment-74cc946cd8-g94qf	1/1	Running	0	27m
note-server-deployment-6fb5fcb67f-l84tj	1/1	Running	0	28m
note-server-deployment-6fb5fcb67f-xnfvp	1/1	Running	0	3m14s
web-0	0/1	Pending	0	63m

```

PS C:\Users\Mahammad Anis> kubectl delete pod note-server-deployment-6fb5fcb67f-fmmqt^C
PS C:\Users\Mahammad Anis> kubectl delete pod note-deployment-74cc946cd8-7r9k8
pod "note-deployment-74cc946cd8-7r9k8" deleted
PS C:\Users\Mahammad Anis> kubectl get pods

```

NAME	READY	STATUS	RESTARTS	AGE
mongo-express-deployment-b88f6d45f-xnf8p	1/1	Running	0	22m
mongodb-stateful-set-0	1/1	Running	0	30m
mongodb-stateful-set-1	1/1	Running	0	29m
nginx-bhf6g	1/1	Running	0	55m
nginx-deployment-584fbb974d-gtjbv	1/1	Running	0	37m
nginx-deployment-584fbb974d-jm9jc	1/1	Running	0	37m
nginx-deployment-584fbb974d-k6cd8	1/1	Running	0	37m
note-deployment-74cc946cd8-g94qf	1/1	Running	0	29m
note-deployment-74cc946cd8-kxmtb	1/1	Running	0	5s
note-server-deployment-6fb5fcb67f-l84tj	1/1	Running	0	29m
note-server-deployment-6fb5fcb67f-xnfvp	1/1	Running	0	4m32s
web-0	0/1	Pending	0	65m

```

PS C:\Users\Mahammad Anis>

```