

## Lab 3

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```
lenovo@Vikram: ~$ minikube start --nodes 2 -p multinode-demo
[multinode-demo] minikube v1.32.0 on Ubuntu 22.04 (amd64)
✨ Automatically selected the docker driver
✨ Using Docker driver with root privileges
! For an improved experience it's recommended to use Docker Engine instead of Docker Desktop.
Docker Engine installation instructions: https://docs.docker.com/engine/install/#server
🔥 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: 3.159340715s
🔥 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
🔥 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
lenovo@Vikram:~$ kubectl get nodes
NAME                STATUS    ROLES    AGE   VERSION
multinode-demo      Ready     control-plane   66s   v1.28.3
multinode-demo-m02  Ready     <none>        32s   v1.28.3
lenovo@Vikram:~$ minikube status -p multinode-demo
multinode-demo
type: Control Plane
host: Running
kubelet: Running
apiserver: Running
kubeconfig: Configured

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

lenovo@Vikram:~$ minikube dashboard -p multinode-demo
🔥 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://127.0.0.1:39285/api/v1/namespaces/kubernetes-dashboard/services/http:kubernetes-dashboard:/proxy/ in your default browser...
🔥 http://127.0.0.1:39285/api/v1/namespaces/kubernetes-dashboard/services/http:kubernetes-dashboard:/proxy/
```

Assignments - BLDGSCALABLI x Project Topics:fox x vikram2580/BCDV-4032 x WSL don't start, don't open an... x Kubernetes Dashboard x +

127.0.0.1:39205/api/v1/namespaces/kubernetes-dashboard/services/http:kubernetes-dashboard/proxy/#/workloads?namespace=\_all

kubernetes All namespaces Search

### Workloads

Workloads 0

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

Service

- Ingresses 0
- Ingress Classes
- Services 0

Config and Storage

- Config Maps 0
- Persistent Volume Claims 0
- Secrets 0

### Workload Status

Running: 2 Daemon Sets

Running: 3 Deployments

Running: 12 Pods

Running: 3

```
lenovo@Vikram: ~  
lenovo@Vikram: ~$ minikube stop -p multinode-demo  
Stopping node "multinode-demo" ...  
Powering off "multinode-demo" via SSH ...  
Stopping node "multinode-demo-m02" ...  
Powering off "multinode-demo-m02" via SSH ...  
2 nodes stopped.  
lenovo@Vikram: ~$ minikube delete --all  
minikube: command not found  
lenovo@Vikram: ~$ minikube delete --all  
Deleting "minikube" in docker ...  
Removing /home/lenovo/.minikube/machines/minikube ...  
Removed all traces of the "minikube" cluster.  
Deleting "multinode-demo" in docker ...  
Removing /home/lenovo/.minikube/machines/multinode-demo ...  
Removing /home/lenovo/.minikube/machines/multinode-demo-m02 ...  
Removed all traces of the "multinode-demo" cluster.  
Successfully deleted all profiles  
lenovo@Vikram: ~$
```

```
lenovo@Vikram: ~  
Verifying Kubernetes components...  
Enabled addons: storage-provisioner, default-storageclass  
Done! kubectl is now configured to use "minikube" cluster and "default" namespace by default  
lenovo@Vikram:~$ kubectl apply -f replicaset.yaml  
replicaset.apps/nginx created  
lenovo@Vikram:~$ kubectl get pods  
NAME          READY   STATUS             RESTARTS   AGE  
nginx-8nggh   0/1     ContainerCreating   0           4s  
nginx-cp2r7   0/1     ContainerCreating   0           4s  
nginx-vmp94   0/1     ContainerCreating   0           4s  
lenovo@Vikram:~$ kubectl get pods  
NAME          READY   STATUS             RESTARTS   AGE  
nginx-8nggh   0/1     ContainerCreating   0          22s  
nginx-cp2r7   0/1     ContainerCreating   0          22s  
nginx-vmp94   0/1     ContainerCreating   0          22s  
lenovo@Vikram:~$ kubectl get pods  
NAME          READY   STATUS    RESTARTS   AGE  
nginx-8nggh   1/1     Running   0          88s  
nginx-cp2r7   1/1     Running   0          88s  
nginx-vmp94   1/1     Running   0          88s  
lenovo@Vikram:~$ kubectl delete pod nginx-vmp94  
pod "nginx-vmp94" deleted  
lenovo@Vikram:~$ kubectl get pods  
NAME          READY   STATUS    RESTARTS   AGE  
nginx-8nggh   1/1     Running   0          2m17s  
nginx-8tcvh   1/1     Running   0           16s  
nginx-cp2r7   1/1     Running   0          2m17s  
lenovo@Vikram:~$ kubectl get replicaset  
NAME          DESIRED   CURRENT   READY   AGE  
nginx         3         3         3       2m28s
```

```
lenovo@Vikram:~$ kubectl apply -f deployment.yaml  
deployment.apps/nginx-deployment created  
lenovo@Vikram:~$ kubectl get deployments  
NAME          READY   UP-TO-DATE   AVAILABLE   AGE  
nginx-deployment 3/3     3            3           3m30s  
lenovo@Vikram:~$ kubectl rollout status deployment nginx  
Error from server (NotFound): deployments.apps "nginx" not found  
lenovo@Vikram:~$ kubectl rollout status deployment nginx-deployment  
deployment "nginx-deployment" successfully rolled out  
lenovo@Vikram:~$ kubectl apply -f statefulset.yaml  
service/nginx created  
statefulset.apps/web created  
lenovo@Vikram:~$ kubectl get statefulsets  
NAME          READY   AGE  
web           0/3     11s  
lenovo@Vikram:~$ kubectl get statefulsets  
NAME          READY   AGE  
web           0/3     33s  
lenovo@Vikram:~$ |
```

```
lenovo@Vikram:~$ kubectl apply -f daemonset.yaml  
daemonset.apps/nginx created  
lenovo@Vikram:~$ kubectl get daemonset  
NAME          DESIRED   CURRENT   READY   UP-TO-DATE   AVAILABLE   NODE SELECTOR   AGE  
nginx         1         1         1       1            1           <none>          48s  
lenovo@Vikram:~$ kubectl apply -f deploymentResourceLimit.yaml  
deployment.apps/nginx-deployment configured  
lenovo@Vikram:~$ kubectl get deployments  
NAME          READY   UP-TO-DATE   AVAILABLE   AGE  
nginx-deployment 3/3     3            3           10m  
lenovo@Vikram:~$ kubectl apply -f deploymentHealthCheck.yaml  
deployment.apps/nginx-deployment configured  
lenovo@Vikram:~$ kubectl get deployments  
NAME          READY   UP-TO-DATE   AVAILABLE   AGE  
nginx-deployment 3/3     1            3           12m  
lenovo@Vikram:~$ |
```

# Kubernetes Demo screenshots

```
C:\Windows\System32\cmd.exe x lenovo@Vikram: /mnt/e/kubx + v
lenovo@Vikram:~$ cd /mnt/e/kubernetes-demo/kubernetes
lenovo@Vikram:/mnt/e/kubernetes-demo/kubernetes$ kubectl apply -f secrets/mongodb-secret.yml
secret/mongodb-secret created
lenovo@Vikram:/mnt/e/kubernetes-demo/kubernetes$ kubectl apply -f stateful-sets/mongodb-stateful-set.yml
statefulset.apps/mongodb-stateful-set created
lenovo@Vikram:/mnt/e/kubernetes-demo/kubernetes$ kubectl apply -f services/mongodb-service.yml
service/mongodb-service created
lenovo@Vikram:/mnt/e/kubernetes-demo/kubernetes$ kubectl apply -f deployments/note-server-depl.yml
deployment.apps/note-server-deployment created
lenovo@Vikram:/mnt/e/kubernetes-demo/kubernetes$ kubectl apply -f services/note-server-service.yml
Error from server (InternalError): error when creating "services/note-server-service.yml": Internal error occurred: failed to allocate a service
IP: etcdserver: request timed out
lenovo@Vikram:/mnt/e/kubernetes-demo/kubernetes$ kubectl apply -f secrets/mongodb-secret.yml
secret/mongodb-secret unchanged
lenovo@Vikram:/mnt/e/kubernetes-demo/kubernetes$ kubectl apply -f services/note-server-service.yml
service/note-server-service created
lenovo@Vikram:/mnt/e/kubernetes-demo/kubernetes$ kubectl apply -f deployments/note-depl.yml
deployment.apps/note-deployment created
lenovo@Vikram:/mnt/e/kubernetes-demo/kubernetes$ kubectl apply -f services/note-service.yml
service/note-service created
lenovo@Vikram:/mnt/e/kubernetes-demo/kubernetes$ minikube service note-service
! Executing "docker container inspect minikube --format={{.State.Status}}" took an unusually long time: 19.264245709s
! Restarting the docker service may improve performance.

X Exiting due to GUEST_STATUS: Unable to get machine status: state: unknown state "minikube": context deadline exceeded

If the above advice does not help, please let us know:
https://github.com/kubernetes/minikube/issues/new/choose

Please run 'minikube logs --file=logs.txt' and attach logs.txt to the GitHub issue.
Please also attach the following file to the GitHub issue:
- /tmp/minikube_service_4e6c8726bae76636d96e17f2be761750e8017700_0.log
```

```
C:\Windows\System32\cmd.exe x lenovo@Vikram: /mnt/e/kube + v
-----|-----|-----|-----|
| default | note-service | 3000 | http://192.168.49.2:30351 |
|-----|-----|-----|-----|

X Exiting due to SVC_UNREACHABLE: service not available: no running pod for service note-service found

If the above advice does not help, please let us know:
https://github.com/kubernetes/minikube/issues/new/choose

Please run 'minikube logs --file=logs.txt' and attach logs.txt to the GitHub issue.
Please also attach the following file to the GitHub issue:
- /tmp/minikube_service_4e6c8726bae76636d96e17f2be761750e8017700_0.log

lenovo@Vikram:/mnt/e/kubernetes-demo/kubernetes$ minikube service note-service
! Executing "docker container inspect minikube --format={{.State.Status}}" took an unusually long time: 6.453927391s
! Restarting the docker service may improve performance.
-----|-----|-----|-----|
| NAMESPACE | NAME | TARGET PORT | URL |
|-----|-----|-----|-----|
| default | note-service | 3000 | http://192.168.49.2:30351 |
|-----|-----|-----|-----|
* Starting tunnel for service note-service.
-----|-----|-----|-----|
| NAMESPACE | NAME | TARGET PORT | URL |
|-----|-----|-----|-----|
| default | note-service | | http://127.0.0.1:34429 |
|-----|-----|-----|-----|
! Opening service default/note-service in default browser...
! http://127.0.0.1:34429
! Because you are using a Docker driver on linux, the terminal needs to be open to run it.
```

## Important Assignments

```
lenovo@Vikram: /mnt/e/kuber$ kubectl get service mongo-express -n default
NAME                TYPE        TARGET PORT  URL
mongo-express-service  ClusterIP   8081         http://192.168.49.2:31907

X Exiting due to SVC_UNREACHABLE: service not available: no running pod for service mongo-express-service found

If the above advice does not help, please let us know:
https://github.com/kubernetes/minikube/issues/new/choose

Please run 'minikube logs --file=logs.txt' and attach logs.txt to the GitHub issue.
Please also attach the following file to the GitHub issue:
- /tmp/minikube_service_1a2c0ecc517ec030620e8d7ba8d741fa4f9775ef_0.log

lenovo@Vikram: /mnt/e/kubernetes-demo/kubernetes$ minikube service mongo-express-service
! Executing "docker container inspect minikube --format={{.State.Status}}" took an unusually long time: 4.355023783s
! Restarting the docker service may improve performance.

NAME                TYPE        TARGET PORT  URL
mongo-express-service  ClusterIP   8081         http://192.168.49.2:31907

* Starting tunnel for service mongo-express-service.

NAME                TYPE        TARGET PORT  URL
mongo-express-service  ClusterIP   8081         http://127.0.0.1:41593









! Opening service default/mongo-express-service in default browser...
! http://127.0.0.1:41593
! Because you are using a Docker driver on linux, the terminal needs to be open to run it.
```

Mongo Express Database

## Mongo Express

Databases

Database Name  + Create Database

 View	admin	 Del
 View	config	 Del
 View	local	 Del
 View	mydb	 Del

Server Status

Hostname	mongodb-stateful-set-1	MongoDB Version	7.0.5
Uptime	202 seconds	Node Version	18.19.0
Server Time	Sat, 20 Jan 2024 02:52:10 GMT	V8 Version	10.2.154.26-node.28
Current Connections	7	Available Connections	838853

```
C:\Windows\System32\cmd.exe x lenovo@Vikram: /mnt/e/kuber x lenovo@Vikram: /mnt/e/kuber x lenovo@Vikram: /mnt/e/kuber x +
note-server-deployment-6fb5fcb67f-ljqww 1/1 Running 1 (27m ago) 62m
web-0 0/1 Pending 0 80m
lenovo@Vikram:/mnt/e/kubernetes-demo/kubernetes$ kubectl delete nginx-deployment-584fbb974d-5hqrx
error: the server doesn't have a resource type "nginx-deployment-584fbb974d-5hqrx"
lenovo@Vikram:/mnt/e/kubernetes-demo/kubernetes$ kubectl get pods
NAME READY STATUS RESTARTS AGE
mongo-express-deployment-b88f6d45f-rx8xq 1/1 Running 0 33m
mongodb-stateful-set-0 1/1 Running 0 64m
mongodb-stateful-set-1 1/1 Running 0 45m
nginx-deployment-584fbb974d-5hqrx 1/1 Running 1 (5m31s ago) 73m
nginx-deployment-584fbb974d-f92lj 1/1 Running 1 (5m30s ago) 74m
nginx-deployment-584fbb974d-r8l8q 1/1 Running 1 (5m32s ago) 74m
nginx-jkt9l 1/1 Running 0 79m
note-deployment-74cc946cd8-clsx5 1/1 Running 0 54m
note-deployment-74cc946cd8-zbttq 1/1 Running 0 54m
note-server-deployment-6fb5fcb67f-df7rf 1/1 Running 1 (28m ago) 63m
note-server-deployment-6fb5fcb67f-ljqww 1/1 Running 1 (28m ago) 63m
web-0 0/1 Pending 0 81m
lenovo@Vikram:/mnt/e/kubernetes-demo/kubernetes$ kubectl delete pod nginx-deployment-584fbb974d-5hqrx
pod "nginx-deployment-584fbb974d-5hqrx" deleted
lenovo@Vikram:/mnt/e/kubernetes-demo/kubernetes$ kubectl get pods
NAME READY STATUS RESTARTS AGE
mongo-express-deployment-b88f6d45f-rx8xq 1/1 Running 0 34m
mongodb-stateful-set-0 1/1 Running 0 66m
mongodb-stateful-set-1 1/1 Running 0 47m
nginx-deployment-584fbb974d-7k9mx 0/1 Running 0 82s
nginx-deployment-584fbb974d-f92lj 1/1 Running 1 (7m12s ago) 76m
nginx-deployment-584fbb974d-r8l8q 1/1 Running 1 (7m14s ago) 76m
nginx-jkt9l 1/1 Running 0 81m
note-deployment-74cc946cd8-clsx5 1/1 Running 0 56m
note-deployment-74cc946cd8-zbttq 1/1 Running 0 56m
note-server-deployment-6fb5fcb67f-df7rf 1/1 Running 1 (29m ago) 65m
note-server-deployment-6fb5fcb67f-ljqww 1/1 Running 1 (29m ago) 65m
web-0 0/1 Pending 0 83m
lenovo@Vikram:/mnt/e/kubernetes-demo/kubernetes$
```