```
kirillspitsvn@LAPTOP-VPGTN0GN: ~
kirillspitsvn@LAPTOP-VPGTN@GN:~$ minikube start --nodes 2 -p multinode-demo
[B [multinode-demo] minikube v1.32.0 on Ubuntu 22.04 (amd64)
Automatically selected the docker driver
   Using Docker driver with root privileges
B
   Starting control plane node multinode-demo in cluster multinode-demo
```

Pulling base image ... Creating docker container (CPUs=2, Memory=2200MB) ...

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) ... Using image gcr.io/k8s-minikube/storage-provisioner:v5

Verifying Kubernetes components... Enabled addons: default-storageclass, storage-provisioner

Starting worker node multinode-demo-m02 in cluster multinode-demo

Found network options:

Pulling base image ... Creating docker container (CPUs=2, Memory=2200MB) ...

NO PROXY=192.168.58.2

env NO PROXY=192.168.58.2

Preparing Kubernetes v1.28.3 on Docker 24.0.7 ...

Verifying Kubernetes components... Done! kubectl is now configured to use "multinode-demo" cluster and "default" namespace by default

kirillspitsyn@LAPTOP-VPGTN0GN:~\$

```
kirillspitsyn@LAPTOP-VPGTN0GN: ~
kirillspitsyn@LAPTOP-VPGTN@GN:~$ kubectl get nodes
NAME
                     STATUS
                            ROLES
                                              AGE
                                                     VERSION
multinode-demo
                            control-plane
                    Ready
                                             1075
                                                     v1.28.3
multinode-demo-m02
                    Ready
                                              905
                                                     v1.28.3
                              <none>
kirillspitsyn@LAPTOP-VPGTN0GN:~$
```

```
kirillspitsyn@LAPTOP-VPGTN0GN: ~
kirillspitsyn@LAPTOP-VPGTN@GN:~$ minikube status -p multinode-demo
multinode-demo
type: Control Plane
host: Running
kubelet: Running
apiserver: Running
```

kubeconfig: Configured
multinode-demo-m02
type: Worker

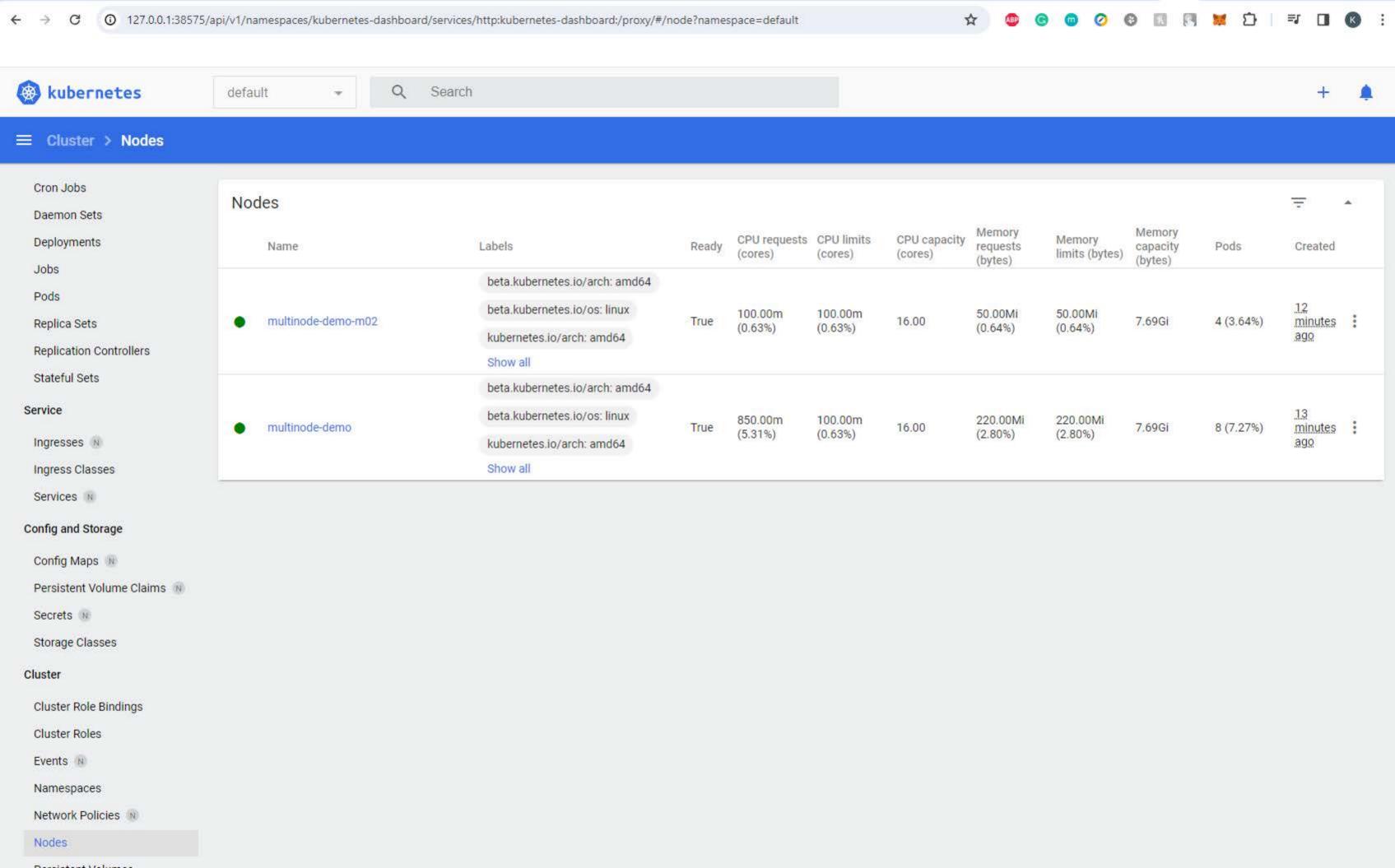
host: Running kubelet: Running

```
kirillspitsyn@LAPTOP-VPGTN0GN: ~
kirillspitsyn@LAPTOP-VPGTN0GN:~$ minikube dashboard -p multinode-demo
   Enabling dashboard ...

    Using image docker.io/kubernetesui/dashboard:v2.7.0

    Using image docker.io/kubernetesui/metrics-scraper:v1.0.8

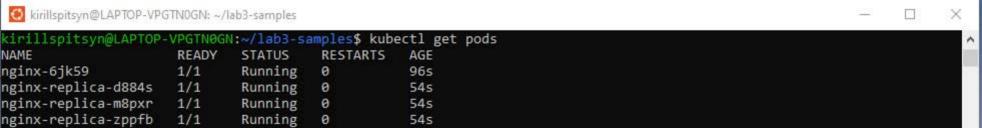
   Some dashboard features require the metrics-server addon. To enable all features please run:
       minikube -p multinode-demo addons enable metrics-server
   Verifying dashboard health ...
   Launching proxy ...
   Verifying proxy health ...
   Opening http://127.0.0.1:38575/api/v1/namespaces/kubernetes-dashboard/services/http:kubernetes-dashboard:/proxy/ in
vour default browser...
   http://127.0.0.1:38575/api/v1/namespaces/kubernetes-dashboard/services/http:kubernetes-dashboard:/proxy/
```



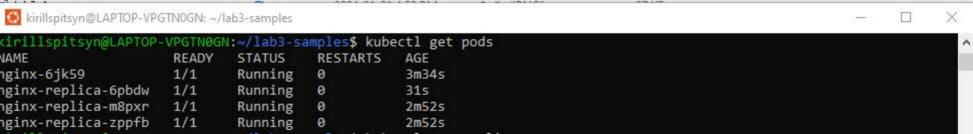
```
kirillspitsyn@LAPTOP-VPGTN0GN: ~
<irillspitsvn@LAPTOP-VPGTN@GN:~$ minikube stop -p multinode-demo</p>
Stopping node "multinode-demo" ...
Powering off "multinode-demo" via SSH ...
Stopping node "multinode-demo-m02" ...
Powering off "multinode-demo-m02" via SSH ...
2 nodes stopped.
```

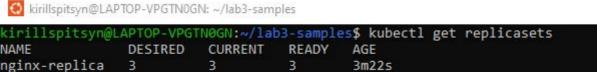
```
kirillspitsyn@LAPTOP-VPGTN0GN: ~
kirillspitsyn@LAPTOP-VPGTN@GN:~$ minikube delete --all
Deleting "minikube" in docker ...
   Removing /home/kirillspitsyn/.minikube/machines/minikube ...
   Removed all traces of the "minikube" cluster.
   Deleting "multinode-demo" in docker ...
   Removing /home/kirillspitsyn/.minikube/machines/multinode-demo ...
   Removing /home/kirillspitsvn/.minikube/machines/multinode-demo-m02 ...
   Removed all traces of the "multinode-demo" cluster.
  Successfully deleted all profiles
```

```
Выбрать kirillspitsyn@LAPTOP-VPGTN0GN: ~/lab3-samples
kirillspitsyn@LAPTOP-VPGTN0GN:~/lab3-samples$ kubectl apply -f replicatset.yaml
replicaset.apps/nginx-replica created
kirillspitsyn@LAPTOP-VPGTN0GN:~/lab3-samples$
```



```
kirillspitsyn@LAPTOP-VPGTN0GN: ~/lab3-samples
kirillspitsyn@LAPTOP-VPGTN0GN:~/lab3-samples$ kubectl get pods
NAME
                      READY
                              STATUS
                                        RESTARTS
                                                   AGE
nginx-6jk59
                      1/1
                              Running
                                                   965
nginx-replica-d884s
                     1/1
                             Running
                                                   545
nginx-replica-m8pxr
                     1/1
                             Running
                                                   545
nginx-replica-zppfb 1/1
                              Running
                                                   545
kirillspitsvn@LAPTOP-VPGTN@GN:~/lab3-samples$ kubectl delete pod nginx-replica-d884s
pod "nginx-replica-d884s" deleted
```





kirillspitsyn@LAPTOP-VPGTN0GN: ~/lab3-samples kirillspitsyn@LAPTOP-VPGTN@GN:~/lab3-samples\$ kubectl apply -f deploy-replica.yaml deployment.apps/nginx-deployment-replica created

kirillspitsyn@LAPTOP-VPGTN0GN:~/lab3-samples\$

kirillspitsyn@LAPTOP-VPGTN0GN: ~/lab3-samples kirillspitsyn@LAPTOP-VPGTN0GN:~/lab3-samples\$ kubectl rollout status deployment nginx-deployment-replica deployment "nginx-deployment-replica" successfully rolled out

7

kirillspitsyn@LAPTOP-VPGTN@GN:~/lab3-samples\$

```
kirillspitsyn@LAPTOP-VPGTN0GN: ~/lab3-samples
kirillspitsyn@LAPTOP-VPGTN@GN:~/lab3-samples$ kubectl apply -f statefulsets.yaml
service/nginx created
statefulset.apps/web created
```

kirillspitsyn@LAPTOP-VPGTN0GN:~/lab3-samples\$

Running

8m2s

1/1

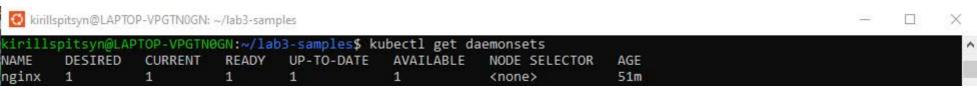
web-0

```
6 kirillspitsyn@LAPTOP-VPGTN0GN: ~/lab3-samples
kirillspitsvn@LAPTOP-VPGTN@GN:~/lab3-samples$ kubectl get statefulsets
NAME READY AGE
web 3/3 9m12s
```



daemonset.apps/nginx created

```
kirillspitsvn@LAPTOP-VPGTN0GN: ~/lab3-samples
kirillspitsyn@LAPTOP-VPGTN0GN:~/lab3-samples$ kubectl get pods
NAME
                                                                RESTARTS
                                             READY
                                                      STATUS
                                                                            AGE
nginx-6jk59
                                             1/1
                                                      Running
                                                                0
                                                                            51m
nginx-deployment-replica-5479df7db-6gxlk
                                             1/1
                                                      Running
                                                                0
                                                                            24m
nginx-deployment-replica-5479df7db-9zv59
                                             1/1
                                                      Running
                                                                0
                                                                            24m
nginx-deployment-replica-5479df7db-m29vz
                                             1/1
                                                      Running
                                                                0
                                                                            24m
nginx-replica-6pbdw
                                             1/1
                                                      Running
                                                                0
                                                                            30m
nginx-replica-m8pxr
                                             1/1
                                                      Running
                                                                0
                                                                            33m
nginx-replica-zppfb
                                             1/1
                                                      Running
                                                                0
                                                                            33m
web-0
                                                      Running
                                                                            17m
                                             1/1
                                                                0
```



kirillspitsyn@LAPTOP-VPGTN0GN: ~/lab3-samples	1.00	×
kirillspitsyn@LAPTOP-VPGTN0GN: <mark>~/lab3-samples\$ kubectl apply -f deployment-resource.yaml</mark> deployment.apps/nginx-deployment created		

Running

Running

0

0

40m

25m

1/1

1/1

nginx-replica-zppfb

web-0

Killispisylle Ent for VI o	11400141 -/1000 301	ilbics			
kirillspitsyn@LAPTOP-V	/PGTN@GN:~/la	ab3-samples\$	kubectl	get	deployments
NAME	READY	UP-TO-DATE	AVAIL	ABLE	AGE
nginy-denloyment	2/2	3	2		5m13c

nginx-deployment 3/3 3 3 5m13s nginx-deployment-replica 3/3 3 37m

nginx-deployment-replica 3/3 3 kirillspitsyn@LAPTOP-VPGTN0GN:~/lab3-samples\$

Kirillanitayn@LAPTOP-VPGTNOGN: ~/lah3-samples

kirillspitsyn@LAPTOP-VPGTN0GN: ~/lab3-samples kirillspitsvn@LAPTOP-VPGTN@GN:~/lab3-samples\$ kubectl apply -f deploy-health.yaml deployment.apps/nginx-deployment configured kirillspitsyn@LAPTOP-VPGTN@GN:~/lab3-samples\$

1/1

1/1

1/1

Running

Running

Running

0

0

0

51m

51m

35m

nginx-replica-m8pxr

nginx-replica-zppfb

web-0



kirillspitsyn@LAPTOP-VPGTNOGN: ~/kubernetes-demo

kirillspitsyn@LAPTOP-VPGTNOGN: ~/kubernetes-demo\$ minikube start

minikube v1.32.0 on Ubuntu 22.04 (amd64)

Using the docker driver based on existing profile

Starting control plane node minikube in cluster minikube

Pulling base image ...

Restarting existing docker container for "minikube" ...

Restarting existing docker container for "minikube" ... Preparing Kubernetes v1.28.3 on Docker 24.0.7 ... Configuring bridge CNI (Container Networking Interface) ... Verifying Kubernetes components... Using image gcr.io/k8s-minikube/storage-provisioner:v5 Enabled addons: storage-provisioner, default-storageclass Done! kubectl is now configured to use "minikube" cluster and "default" namespace by default kirillspitsyn@LAPTOP-VPGTN0GN:~/kubernetes-demo\$

```
kirillspitsyn@LAPTOP-VPGTN0GN: ~/kubernetes-demo/kubernetes
kirillspitsyn@LAPTOP-VPGTN0GN:~/kubernetes-demo/kubernetes$ kubectl config view
```

apiVersion: v1 clusters: cluster: certificate-authority: /home/kirillspitsyn/.minikube/ca.crt

last-update: Sun, 21 Jan 2024 19:16:53 EST

last-update: Sun, 21 Jan 2024 19:16:53 EST

kirillspitsyn@LAPTOP-VPGTN@GN:~/kubernetes-demo/kubernetes\$

client-certificate: /home/kirillspitsyn/.minikube/profiles/minikube/client.crt

client-key: /home/kirillspitsyn/.minikube/profiles/minikube/client.key

provider: minikube.sigs.k8s.io

provider: minikube.sigs.k8s.io

version: v1.32.0 name: cluster info

version: v1.32.0 name: context info namespace: default user: minikube name: minikube

server: https://127.0.0.1:32789

extensions: - extension:

name: minikube

extensions: - extension:

cluster: minikube

current-context: minikube

contexts: context:

kind: Config preferences: {}

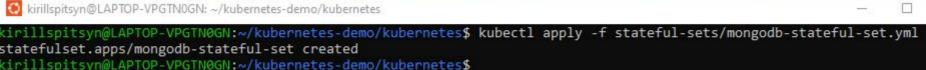
name: minikube

users:

user:



kirillspitsyn@LAPTOP-VPGTN0GN:~/kubernetes-demo/kubernetes\$





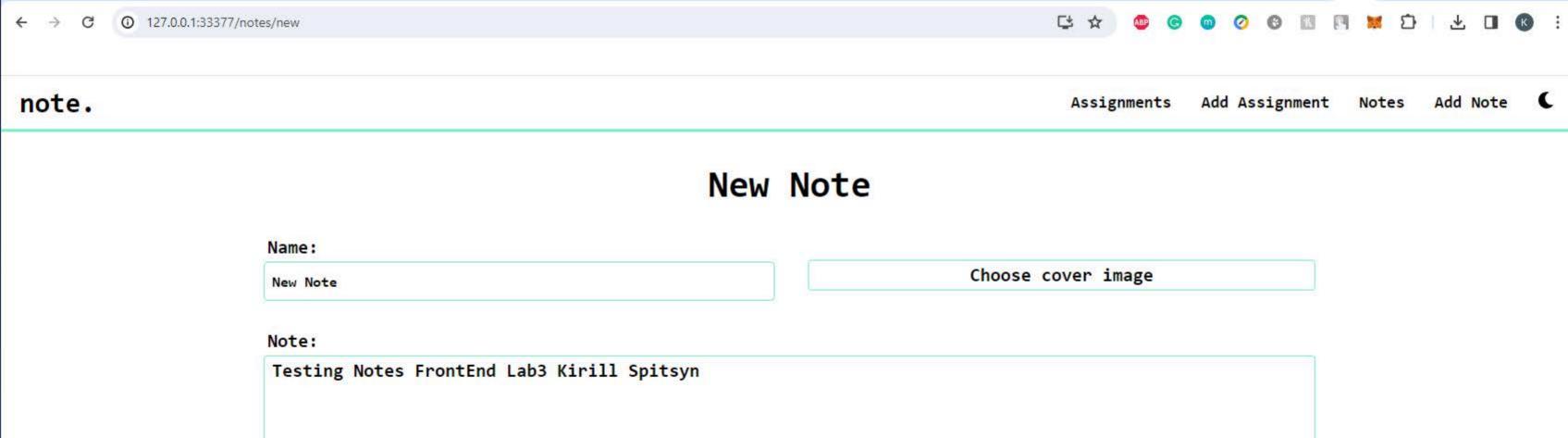
kirillspitsvn@LAPTOP-VPGTN@GN:~/kubernetes-demo/kubernetes\$

kirillspitsyn@LAPTOP-VPGTN@GN:~/kubernetes-demo/kubernetes\$

kirillspitsyn@LAPTOP-VPGTN0GN: ~/kubernetes-demo/kubernetes kirillspitsvn@LAPTOP-VPGTN@GN:~/kubernetes-demo/kubernetes\$ kubectl apply -f deployments/note-depl.yml deployment.apps/note-deployment created kirillspitsyn@LAPTOP-VPGTN0GN:~/kubernetes-demo/kubernetes\$

kirillspitsyn@LAPTOP-VPGTN0GN: ~/kubernetes-demo/kubernetes kirillspitsyn@LAPTOP-VPGTN@GN:~/kubernetes-demo/kubernetes\$ kubectl apply -f services/note-service.yml service/note-service created kirillspitsyn@LAPTOP-VPGTN@GN:~/kubernetes-demo/kubernetes\$

NAMESPACE	NAME	TARGET PORT	URL
fault	note-service	3000	http://192.168.49.2:30211
Starting	tunnel for ser	vice note-serv	ice.
NAMESPACE	NAME	TARGET PORT	URL
default	note-service	 	http://127.0.0.1:33377



9 0

Cancel

Create

```
kirillspitsyn@LAPTOP-VPGTN0GN: ~/kubernetes-demo/kubernetes
kirillspitsyn@LAPTOP-VPGTN0GN:~/kubernetes-demo/kubernetes$ kubectl apply -f deployments/mongo-express-depl.yml
deployment.apps/mongo-express-deployment created
```

kirillspitsyn@LAPTOP-VPGTN0GN:~/kubernetes-demo/kubernetes\$

kirillspitsyn@LAPTOP-VPGTN0GN: ~/kubernetes-demo/kubernetes kirillspitsyn@LAPTOP-VPGTN@GN:~/kubernetes-demo/kubernetes\$ kubectl apply -f services/mongo-express-service.yml service/mongo-express-service created kirillspitsyn@LAPTOP-VPGTN@GN:~/kubernetes-demo/kubernetes\$

	LAPTOP-VPGTN0GN: ~/kubernetes- n@LAPTOP-VPGTN0GN: ~/kube r		pernetes\$ minikube service mo	ongo-express-serv
NAMESPACE	NAME	TARGET PORT	URL	
default	mongo-express-service	8081	http://192.168.49.2:32693	
Starting	tunnel for service mongo	o-express-serv	ice.	1
IAMESPACE	NAME	TARGET PORT	URL	
efault	mongo-express-service	 	http://127.0.0.1:33473	

Because you are using a Docker driver on linux, the terminal needs to be open to run it.



Mongo Express



Server Status			
lostname	mongodb-stateful-set-1	MongoDB Version	7.0.5
Jptime	973 seconds	Node Version	18.19.0
Server Time	Mon, 22 Jan 2024 07:28:43 GMT	V8 Version	10.2.154.26-node.28
Current Connections	10	Available Connections	838850
Active Clients	0	Queued Operations	0
Clients Reading	O	Clients Writing	0
Read Lock Queue	0	Write Lock Queue	0
Disk Flushes		Last Flush	
Time Spent Flushing	ms	Average Flush Time	ms
Total Inserts	3	Total Queries	7
Total Updates	5	Total Deletes	0