```
kirillspitsyn@LAPTOP-VPGTN0GN: ~

kirillspitsyn@LAPTOP-VPGTN0GN:~$ 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
    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
    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
kirillspitsyn@LAPTOP-VPGTN0GN:~$
```

```
kirillspitsyn@LAPTOP-VPGTN0GN: ~

kirillspitsyn@LAPTOP-VPGTN0GN:~$ kubectl get nodes
NAME                STATUS   ROLES           AGE    VERSION
multinode-demo      Ready    control-plane   107s   v1.28.3
multinode-demo-m02  Ready    <none>          90s    v1.28.3
kirillspitsyn@LAPTOP-VPGTN0GN:~$
```

```
kirillspitsyn@LAPTOP-VPGTN0GN: ~

kirillspitsyn@LAPTOP-VPGTN0GN:~$ 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
your default browser...
🔌    http://127.0.0.1:38575/api/v1/namespaces/kubernetes-dashboard/services/http:kubernetes-dashboard:/proxy/
```

kubernetes

default ▾

🔍 Search

＋ 🔔

☰ Cluster ＞ **Nodes**

Cron Jobs

Daemon Sets

Deployments

Jobs

Pods

Replica Sets

Replication Controllers

Stateful Sets

Service

Ingresses ⓝ

Ingress Classes

Services ⓝ

Config and Storage

Config Maps ⓝ

Persistent Volume Claims ⓝ

Secrets ⓝ

Storage Classes

Cluster

Cluster Role Bindings

Cluster Roles

Events ⓝ

Namespaces

Network Policies ⓝ

Nodes

Nodes											
	Name	Labels	Ready	CPU requests (cores)	CPU limits (cores)	CPU capacity (cores)	Memory requests (bytes)	Memory limits (bytes)	Memory capacity (bytes)	Pods	Created
🟢	multinode-demo-m02	beta.kubernetes.io/arch: amd64 beta.kubernetes.io/os: linux kubernetes.io/arch: amd64 Show all	True	100.00m (0.63%)	100.00m (0.63%)	16.00	50.00Mi (0.64%)	50.00Mi (0.64%)	7.69Gi	4 (3.64%)	12 minutes ago
🟢	multinode-demo	beta.kubernetes.io/arch: amd64 beta.kubernetes.io/os: linux kubernetes.io/arch: amd64 Show all	True	850.00m (5.31%)	100.00m (0.63%)	16.00	220.00Mi (2.80%)	220.00Mi (2.80%)	7.69Gi	8 (7.27%)	13 minutes ago

```
kirillspitsyn@LAPTOP-VPGTN0GN: ~                                                          —    □    ✕

kirillspitsyn@LAPTOP-VPGTN0GN:~$ 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.
```

```
kirillspitsyn@LAPTOP-VPGTN0GN: ~                                            —   □   X

kirillspitsyn@LAPTOP-VPGTN0GN:~$ 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/kirillspitsyn/.minikube/machines/multinode-demo-m02 ...
💀   Removed all traces of the "multinode-demo" cluster.
🔥   Successfully deleted all profiles
```

```
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   0          96s
nginx-replica-d884s  1/1     Running   0          54s
nginx-replica-m8pxr  1/1     Running   0          54s
nginx-replica-zppfb  1/1     Running   0          54s
```

```
kirillspitsyn@LAPTOP-VPGTN0GN: ~/lab3-samples

kirillspitsyn@LAPTOP-VPGTN0GN:~/lab3-samples$ kubectl get pods
NAME                     READY   STATUS    RESTARTS   AGE
nginx-6jk59              1/1     Running   0          96s
nginx-replica-d884s      1/1     Running   0          54s
nginx-replica-m8pxr      1/1     Running   0          54s
nginx-replica-zppfb      1/1     Running   0          54s
kirillspitsyn@LAPTOP-VPGTN0GN:~/lab3-samples$ kubectl delete pod nginx-replica-d884s
pod "nginx-replica-d884s" deleted
```

```
kirillspitsyn@LAPTOP-VPGTN0GN: ~/lab3-samples

kirillspitsyn@LAPTOP-VPGTN0GN:~/lab3-samples$ kubectl get pods
NAME                   READY   STATUS    RESTARTS   AGE
nginx-6jk59            1/1     Running   0          3m34s
nginx-replica-6pbdw    1/1     Running   0          31s
nginx-replica-m8pxr    1/1     Running   0          2m52s
nginx-replica-zppfb    1/1     Running   0          2m52s
```

```
kirillspitsyn@LAPTOP-VPGTN0GN: ~/lab3-samples

kirillspitsyn@LAPTOP-VPGTN0GN:~/lab3-samples$ kubectl get replicasets
NAME            DESIRED   CURRENT   READY   AGE
nginx-replica   3         3         3       3m22s
```

```
kirillspitsyn@LAPTOP-VPGTN0GN: ~/lab3-samples

kirillspitsyn@LAPTOP-VPGTN0GN:~/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 get pods
NAME                                        READY   STATUS    RESTARTS   AGE
nginx-6jk59                                 1/1     Running   0          9m39s
nginx-deployment-replica-5479df7db-6gxlk    1/1     Running   0          51s
nginx-deployment-replica-5479df7db-9zv59    1/1     Running   0          51s
nginx-deployment-replica-5479df7db-m29vz    1/1     Running   0          51s
nginx-replica-6pbdw                         1/1     Running   0          6m36s
nginx-replica-m8pxr                         1/1     Running   0          8m57s
nginx-replica-zppfb                         1/1     Running   0          8m57s
```

```
kirillspitsyn@LAPTOP-VPGTN0GN: ~/lab3-samples

kirillspitsyn@LAPTOP-VPGTN0GN:~/lab3-samples$ kubectl get deployments
NAME                        READY   UP-TO-DATE   AVAILABLE   AGE
nginx-deployment-replica    3/3     3            3           75s
```

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

```
kirillspitsyn@LAPTOP-VPGTN0GN: ~/lab3-samples

kirillspitsyn@LAPTOP-VPGTN0GN:~/lab3-samples$ kubectl apply -f statefulsets.yaml
service/nginx created
statefulset.apps/web 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   0          24m
nginx-deployment-replica-5479df7db-6gxlk      1/1     Running   0          15m
nginx-deployment-replica-5479df7db-9zv59      1/1     Running   0          15m
nginx-deployment-replica-5479df7db-m29vz      1/1     Running   0          15m
nginx-replica-6pbdw                           1/1     Running   0          21m
nginx-replica-m8pxr                           1/1     Running   0          23m
nginx-replica-zppfb                           1/1     Running   0          23m
web-0                                         1/1     Running   0          8m2s
```

```
kirillspitsyn@LAPTOP-VPGTN0GN: ~/lab3-samples

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

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

```
kirillspitsyn@LAPTOP-VPGTN0GN: ~/lab3-samples

kirillspitsyn@LAPTOP-VPGTN0GN:~/lab3-samples$ kubectl get pods
NAME                                        READY   STATUS    RESTARTS   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                                       1/1     Running   0          17m
```

```
kirillspitsyn@LAPTOP-VPGTN0GN: ~/lab3-samples

kirillspitsyn@LAPTOP-VPGTN0GN:~/lab3-samples$ kubectl get daemonsets
NAME    DESIRED   CURRENT   READY   UP-TO-DATE   AVAILABLE   NODE SELECTOR   AGE
nginx   1         1         1       1            1           <none>          51m
```

```
kirillspitsyn@LAPTOP-VPGTN0GN: ~/lab3-samples                                              —    □    ✕

kirillspitsyn@LAPTOP-VPGTN0GN:~/lab3-samples$ kubectl apply -f deployment-resource.yaml
deployment.apps/nginx-deployment created
```

```
kirillspitsyn@LAPTOP-VPGTN0GN: ~/lab3-samples

kirillspitsyn@LAPTOP-VPGTN0GN:~/lab3-samples$ kubectl get pods
NAME                                          READY   STATUS    RESTARTS   AGE
nginx-6jk59                                   1/1     Running   0          51m
nginx-deployment-7667bf9c77-6jk6r             1/1     Running   0          25s
nginx-deployment-7667bf9c77-f492b             1/1     Running   0          25s
nginx-deployment-7667bf9c77-vhl66             1/1     Running   0          25s
nginx-deployment-replica-5479df7db-6gxlk      1/1     Running   0          32m
nginx-deployment-replica-5479df7db-9zv59      1/1     Running   0          32m
nginx-deployment-replica-5479df7db-m29vz      1/1     Running   0          32m
nginx-replica-6pbdw                           1/1     Running   0          38m
nginx-replica-m8pxr                           1/1     Running   0          40m
nginx-replica-zppfb                           1/1     Running   0          40m
web-0                                         1/1     Running   0          25m
```

```
kirillspitsyn@LAPTOP-VPGTN0GN: ~/lab3-samples

kirillspitsyn@LAPTOP-VPGTN0GN:~/lab3-samples$ kubectl get deployments
NAME                        READY   UP-TO-DATE   AVAILABLE   AGE
nginx-deployment            3/3     3            3           5m13s
nginx-deployment-replica    3/3     3            3           37m
kirillspitsyn@LAPTOP-VPGTN0GN:~/lab3-samples$
```

```
kirillspitsyn@LAPTOP-VPGTN0GN: ~/lab3-samples

kirillspitsyn@LAPTOP-VPGTN0GN:~/lab3-samples$ kubectl apply -f deploy-health.yaml
deployment.apps/nginx-deployment configured
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   0          57m
nginx-deployment-596b5b4d66-4zj7d             1/1     Running   0          113s
nginx-deployment-596b5b4d66-drp6r             1/1     Running   0          97s
nginx-deployment-596b5b4d66-tb27w             1/1     Running   0          107s
nginx-deployment-replica-5479df7db-6gxlk      1/1     Running   0          42m
nginx-deployment-replica-5479df7db-9zv59      1/1     Running   0          42m
nginx-deployment-replica-5479df7db-m29vz      1/1     Running   0          42m
nginx-replica-6pbdw                           1/1     Running   0          48m
nginx-replica-m8pxr                           1/1     Running   0          51m
nginx-replica-zppfb                           1/1     Running   0          51m
web-0                                         1/1     Running   0          35m
```

```
kirillspitsyn@LAPTOP-VPGTN0GN: ~/lab3-samples

kirillspitsyn@LAPTOP-VPGTN0GN:~/lab3-samples$ kubectl get deployments
NAME                        READY   UP-TO-DATE   AVAILABLE   AGE
nginx-deployment            3/3     3            3           5m
nginx-deployment-replica    3/3     3            3           47m
```