

# КИИИ Домашна 10

## Create cluster

```
PS D:\fakultet\3god\6 semestar\kiii\domasni\domasna 10> k3d cluster create k8sCluster5 -p "32222:32222@agent:0" -s 1 -a 3
INFO[0000] Prep: Network
INFO[0001] Created network 'k3d-k8sCluster5'
INFO[0001] Created image volume k3d-k8sCluster5-images
INFO[0001] Creating image k3d-k8sCluster5-images
```

## emqx.yml file

```
PS D:\fakultet\3god\6 semestar\kiii\domasni\domasna 10> cat .\emqx.yml
apiVersion: v1
kind: Service
metadata:
  name: emqx
spec:
  ports:
  - port: 32222
    nodePort: 32222
    targetPort: emqx-dashboard
    protocol: TCP
  selector:
    app: emqx
  type: NodePort
---
```

```
apiVersion: apps/v1
kind: StatefulSet
metadata:
  name: emqx
  labels:
    app: emqx
spec:
  replicas: 3
  selector:
    matchLabels:
      app: emqx
  serviceName: emqx
  template:
    metadata:
      labels:
        app: emqx
    spec:
      containers:
      - name: emqx
        image: emqx:5.0.24
        ports:
        - name: emqx-dashboard
          containerPort: 18083
        volumeMounts:
        - name: emqx-vol
          mountPath: /opt/emqx/data
```

```
env:
- name: EMQX_CLUSTER__DISCOVERY
  valueFrom:
    configMapKeyRef:
      name: configmap
      key: EMQX_CLUSTER__DISCOVERY
- name: EMQX_NAME
  valueFrom:
    configMapKeyRef:
      name: configmap
      key: EMQX_NAME
- name: EMQX_CLUSTER__K8S__APISERVER
  valueFrom:
    configMapKeyRef:
      name: configmap
      key: EMQX_CLUSTER__K8S__APISERVER
- name: EMQX_CLUSTER__K8S__NAMESPACE
  valueFrom:
    configMapKeyRef:
      name: configmap
      key: EMQX_CLUSTER__K8S__NAMESPACE
- name: EMQX_CLUSTER__K8S__SERVICE_NAME
  valueFrom:
    configMapKeyRef:
      name: configmap
      key: EMQX_CLUSTER__K8S__SERVICE_NAME
- name: EMQX_CLUSTER__K8S__ADDRESS_TYPE
  valueFrom:
    configMapKeyRef:
      name: configmap
      key: EMQX_CLUSTER__K8S__ADDRESS_TYPE
- name: EMQX_CLUSTER__K8S__APP_NAME
  valueFrom:
    configMapKeyRef:
      name: configmap
      key: EMQX_CLUSTER__K8S__APP_NAME
tty: true
```

```
volumeClaimTemplates:
- metadata:
  name: emqx-vol
  spec:
    accessModes: [ "ReadWriteOnce" ]
    storageClassName: local-path
    resources:
      requests:
        storage: 1Gi
```

configmap.yml

```
PS D:\fakultet\3god\6 semester\kiii\domasni\domasna 10> cat .\configmap.yml
kind: ConfigMap
apiVersion: v1
metadata:
  name: configmap
data:
  EMQX_CLUSTER_DISCOVERY: k8s
  EMQX_NAME: emqx
  EMQX_CLUSTER__K8S__APISERVER: http://172.31.19.161:8080
  EMQX_CLUSTER__K8S__NAMESPACE: default
  EMQX_CLUSTER__K8S__SERVICE_NAME: emqx
  EMQX_CLUSTER__K8S__ADDRESS_TYPE: ip
  EMQX_CLUSTER__K8S__APP_NAME: emqx
```

```
PS D:\fakultet\3god\6 semester\kiii\domasni\domasna 10> kubectl apply -f .\configmap.yml
configmap/configmap created
```

```
PS D:\fakultet\3god\6 semester\kiii\domasni\domasna 10> kubectl get configmap
NAME                DATA  AGE
kube-root-ca.crt    1      17m
configmap            7      30s
```

Deploy service and statefulSet

```
PS D:\fakultet\3god\6 semester\kiii\domasni\domasna 10> kubectl apply -f .\emqx.yml
service/emqx created
statefulset.apps/emqx created
```

```
PS D:\fakultet\3god\6 semester\kiii\domasni\domasna 10> kubectl get pods -o wide --watch
NAME      READY   STATUS             RESTARTS   AGE   IP            NODE                NOMINATED NODE   READINESS GATES
emqx-0    0/1     ContainerCreating   0          29s   <none>        k3d-k8scluster5-agent-2   <none>            <none>
emqx-0    1/1     Running             0          39s   10.42.0.6     k3d-k8scluster5-agent-2   <none>            <none>
emqx-1    0/1     Pending             0          0s    <none>        <none>                  <none>            <none>
emqx-1    0/1     Pending             0          0s    <none>        k3d-k8scluster5-server-0   <none>            <none>
emqx-1    0/1     ContainerCreating   0          9s    <none>        k3d-k8scluster5-server-0   <none>            <none>
emqx-1    1/1     Running             0          39s   10.42.2.5     k3d-k8scluster5-server-0   <none>            <none>
emqx-2    0/1     Pending             0          0s    <none>        <none>                  <none>            <none>
emqx-2    0/1     Pending             0          9s    <none>        k3d-k8scluster5-agent-1   <none>            <none>
emqx-2    0/1     ContainerCreating   0          9s    <none>        k3d-k8scluster5-agent-1   <none>            <none>
emqx-2    1/1     Running             0          39s   10.42.1.5     k3d-k8scluster5-agent-1   <none>            <none>
```

Storage class, persistent volume claim, persistent volume

```
PS D:\fakultet\3god\6 semester\kiii\domasni\domasna 10> kubectl get sc
NAME                PROVISIONER          RECLAIMPOLICY   VOLUMEBINDINGMODE   ALLOWVOLUMEEXPANSION   AGE
local-path (default)  rancher.io/local-path  Delete           WaitForFirstConsumer  false                   22m
```

```
PS D:\fakultet\3god\6 semester\kiii\domasni\domasna 10> kubectl get pvc
NAME                STATUS   VOLUME                                     CAPACITY   ACCESS MODES   STORAGECLASS   AGE
emqx-vol-emqx-0     Bound    pvc-7485e207-07fc-41e5-9c3e-e70704f4dda0  1Gi        RWO             local-path     3m35s
emqx-vol-emqx-1     Bound    pvc-b8bcab93-4933-484e-9a72-2f4b2fc154a6  1Gi        RWO             local-path     2m56s
emqx-vol-emqx-2     Bound    pvc-26b74274-7585-478b-acef-08367aff6336  1Gi        RWO             local-path     2m17s
```

```
PS D:\fakultet\3god\6 semester\kiii\domasni\domasna 10> kubectl get pv
NAME                CAPACITY   ACCESS MODES   RECLAIM POLICY   STATUS   CLAIM                STORAGECLASS   REASON   AGE
pvc-7485e207-07fc-41e5-9c3e-e70704f4dda0  1Gi        RWO             Delete           Bound    default/emqx-vol-emqx-0  local-path     4m11s
pvc-b8bcab93-4933-484e-9a72-2f4b2fc154a6  1Gi        RWO             Delete           Bound    default/emqx-vol-emqx-1  local-path     4m2s
pvc-26b74274-7585-478b-acef-08367aff6336  1Gi        RWO             Delete           Bound    default/emqx-vol-emqx-2  local-path     3m23s
```

## Verify the running nodes

```
PS D:\fakultet\3god\6 semestar\kiii\domasni\domasna 10> kubectl get pods
NAME      READY   STATUS    RESTARTS   AGE
emqx-0    1/1     Running   0           3m8s
emqx-1    1/1     Running   0           2m29s
emqx-2    1/1     Running   0           110s
```

```
PS D:\fakultet\3god\6 semestar\kiii\domasni\domasna 10> kubectl exec emqx-0 -- /opt/emqx/bin/emqx_ctl cluster status
Cluster status: #{running_nodes => ['emqx@10.42.0.6'],stopped_nodes => []}
PS D:\fakultet\3god\6 semestar\kiii\domasni\domasna 10> kubectl exec emqx-1 -- /opt/emqx/bin/emqx_ctl cluster status
Cluster status: #{running_nodes => ['emqx@10.42.2.5'],stopped_nodes => []}
PS D:\fakultet\3god\6 semestar\kiii\domasni\domasna 10> kubectl exec emqx-2 -- /opt/emqx/bin/emqx_ctl cluster status
Cluster status: #{running_nodes => ['emqx@10.42.1.5'],stopped_nodes => []}
```

