



Lab Experiment – 13

NAME -Divyaansh Jain

ROLL NO – R171218040

SAP ID – 500067134

COURSE – B. Tech CSE- DevOps Batch 1

SUBJECT – Application Containerization

SEMESTER – 6th semester

Submitted To:

Dr. Hitesh Kumar Sir

Deploying Pods and Services on minikube

- Use command **minikube start** to start your minikube cluster.

```
D:\CSE>minikube start
* minikube v1.9.2 on Microsoft Windows 10 Home Single Language 10.0.18363 Build 18363
* Using the virtualbox driver based on existing profile
* Starting control plane node m01 in cluster minikube
* Restarting existing virtualbox VM for "minikube" ...
* Preparing Kubernetes v1.18.0 on Docker 19.03.8 ...
* Enabling addons: dashboard, default-storageclass, storage-provisioner
* Done! kubectl is now configured to use "minikube"
```

- For creating pods, we will create a deployment. Deployment is used to manage and monitor the pods. For launching deployment, we will create a yaml file. We will use **kubectl create -f <filename>** to run these yaml files.

```
apiVersion: apps/v1
kind: Deployment
metadata:
  name: grafana-dpl
  labels:
    run: grafana
spec:
  replicas: 1
  selector:
    matchLabels:
      run: grafana
  template:
    metadata:
      labels:
        run: grafana
    spec:
      containers:
        - name: grafana-container
          image: grafana/grafana:latest

          ports:
            - containerPort: 3000

          volumeMounts:
            - name: grafana-volume
              mountPath: /var/lib/grafana

      volumes:
        - name: grafana-volume
          persistentVolumeClaim:
            claimName: pvc-grafana
```

- Similarly, to create a service, we will create a yaml file and use kubectl command to launch it.

```

apiVersion: v1
kind: Service
metadata:
  name: grafana-svc
  labels:
    run: grafana
spec:
  selector:
    run: grafana
  type: NodePort
  ports:
    - nodePort: 30009
      port: 3000
      targetPort: 3000
      name: port-grafana

```

- After launching the yaml files, use command **kubectl get pods** to check all the running pods.

```

D:\CSE\kubernetes>kubectl get pods
NAME                                READY   STATUS    RESTARTS   AGE
grafana-dpl-77fb7d89d7-xnnhw        1/1     Running   0           7m51s
html-deployment-6fffb959974-4zgg8  1/1     Running   2           264d
php-deployment-577679d5c-t6xl2      1/1     Running   2           264d
prometheus-dpl-76bb5fbf9f-q64pj     1/1     Running   0           7m51s

```

- Use command **kubectl get deployment** to check all the active deployments.

```

D:\CSE\kubernetes>kubectl get deployment
NAME                READY   UP-TO-DATE   AVAILABLE   AGE
grafana-dpl         1/1     1             1           2m39s
html-deployment     1/1     1             1           273d
php-deployment      1/1     1             1           273d
prometheus-dpl      0/1     1             0           2m39s

```

- Use command **kubectl get svc** to check all the active services.

```
D:\CSE\kubernetes>kubectl get svc
```

NAME	TYPE	CLUSTER-IP	EXTERNAL-IP	PORT(S)	AGE
grafana-svc	NodePort	10.97.175.108	<none>	3000:30009/TCP	9m21s
html-deployment	NodePort	10.108.233.234	<none>	80:31084/TCP	273d
kubernetes	ClusterIP	10.96.0.1	<none>	443/TCP	273d
php-deployment	NodePort	10.103.63.117	<none>	80:30466/TCP	273d
prometheus-svc	NodePort	10.111.193.26	<none>	9090:30008/TCP	9m21s

- We can also check these using minikube dashboard.

The screenshot shows the Kubernetes dashboard interface. On the left, there is a sidebar with navigation links: Overview, Workloads, Cron Jobs, Daemon Sets, Deployments, Jobs, Pods, Replica Sets, Replication Controllers, Stateful Sets, Discovery and Load Balancing, Ingresses, Services, Config and Storage, Config Maps, and Persistent Volume Claims. The main area is titled 'Overview' and shows 'Workload Status' with three large green circles representing Deployments, Pods, and Replica Sets. Below this, there is a table titled 'Deployments' with columns: Name, Namespace, Labels, Pods, Age, and Images.

Name	Namespace	Labels	Pods	Age	Images
grafana-dpl	default	run: grafana	1 / 1	10 minutes	grafana/grafana:latest
prometheus-dpl	default	-	1 / 1	10 minutes	prom/prometheus
php-deployment	default	-	1 / 1	9 months	ajaytyagi/kube_php
html-deployment	default	-	1 / 1	0 months	ajaytyagi/kube_html