

Lab Exercise 9- Create Service in Kubernetes

Objective:

- Understand the syntax and structure of a Kubernetes Service definition file (YAML).

Prerequisites

- Kubernetes Cluster: Have a running Kubernetes cluster (locally using Minikube or kind, or a cloud-based service).
- kubectl: Install and configure kubectl to interact with your Kubernetes cluster.
- Basic Knowledge of YAML: Familiarity with YAML format will be helpful for understanding Kubernetes resource definitions.

Step-by-Step Guide

NodePort Service

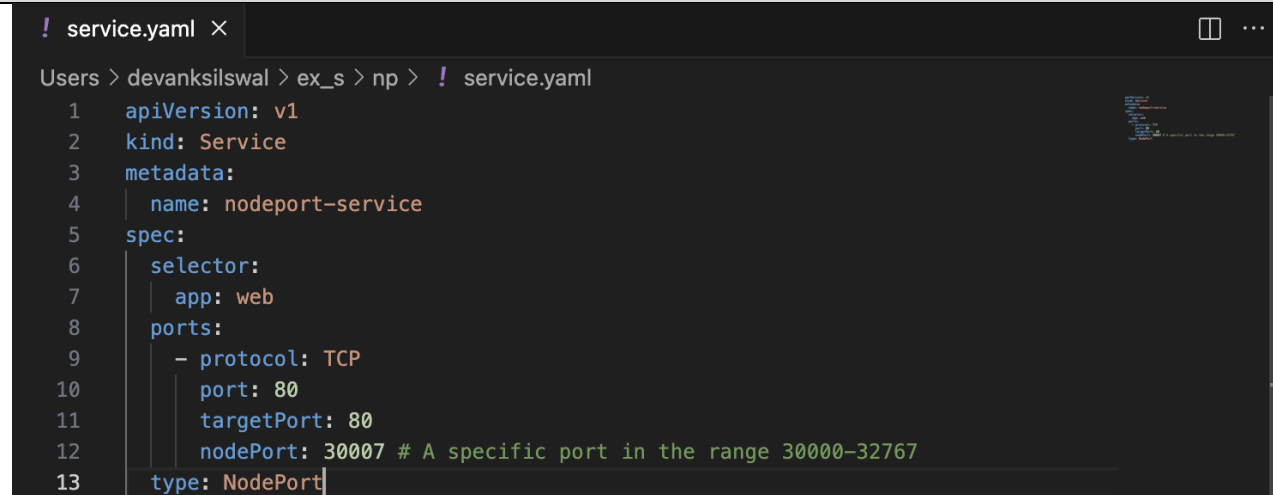
To expose the Service on a port on each Node in the cluster, modify the Service type to NodePort.

Create a YAML file named ***service.yaml*** with the following content:

```
[devanksilswal@devanks-MacBook-Air ex_s % mkdir np
[devanksilswal@devanks-MacBook-Air ex_s % cd np
[devanksilswal@devanks-MacBook-Air np % touch service.yaml
```

service.yaml

```
apiVersion: v1
kind: Service
metadata:
  name: nodeport-service
spec:
  selector:
    app: web
  ports:
    - protocol: TCP
      port: 80
      targetPort: 80
      nodePort: 30007 # A specific port in the range 30000-32767
  type: NodePort
```

A screenshot of a code editor window with a dark theme. The title bar shows '! service.yaml' and a close button. The editor content shows the same YAML configuration as the previous block, with line numbers 1 through 13 on the left. The text is color-coded: 'apiVersion' is blue, 'kind' is orange, 'metadata' is blue, 'name' is orange, 'spec' is blue, 'selector' is blue, 'app' is orange, 'ports' is blue, 'protocol' is orange, 'port' is blue, 'targetPort' is blue, 'nodePort' is blue, and 'type' is blue. The comment '# A specific port in the range 30000-32767' is green. The cursor is at the end of line 13.

```
! service.yaml ×
Users > devanksilswal > ex_s > np > ! service.yaml
1  apiVersion: v1
2  kind: Service
3  metadata:
4    name: nodeport-service
5  spec:
6    selector:
7      app: web
8    ports:
9      - protocol: TCP
10        port: 80
11        targetPort: 80
12        nodePort: 30007 # A specific port in the range 30000-32767
13   type: NodePort
```

Explanation:

- The primary difference from the ClusterIP Service is the addition of nodePort, which specifies the static port on each Node.

- type: Set to NodePort, exposing the Service on a specific port across all Nodes.

Apply this YAML to create the NodePort Service:

```
kubectl apply -f nodeport-service.yaml
```

```
[devanksilswal@devanks-MacBook-Air np % kubectl apply -f service.yaml  
service/nodeport-service created
```

Verify the Service:

```
kubectl get services
```

```
[devanksilswal@devanks-MacBook-Air np % kubectl get services  
NAME                TYPE        CLUSTER-IP    EXTERNAL-IP    PORT(S)          AGE  
kubernetes           ClusterIP    10.96.0.1      <none>          443/TCP          83m  
nodeport-service     NodePort     10.104.80.63   <none>          80:30007/TCP     22s
```

You should see the nodeport-service listed with a NodePort and details about the port exposed.