

# Lab Exercise 7- Create Service in Kubernetes



## Objective:

- Understand the syntax and structure of a Kubernetes Service definition file (YAML).
- Learn to create different types of Services: ClusterIP, NodePort, and LoadBalancer.
- Comprehend how Services operate independently of specific Pods.

## 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.

<input type="checkbox"/>	Name	Container ID	Image	Port(s)	CPU (%)	Last started
<input type="checkbox"/>	minikube	dfe16e2d66cf	k8s-minikube/kicb	50951:22 <a href="#">↗</a> Show all ports (5)	12.65%	19 minutes ago

 Engine running	:	 Kubernetes running	RAM 3.91 GB CPU 5.73% Disk 54.01 GB avail. of 62.67 GB
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## Step-by-Step Guide

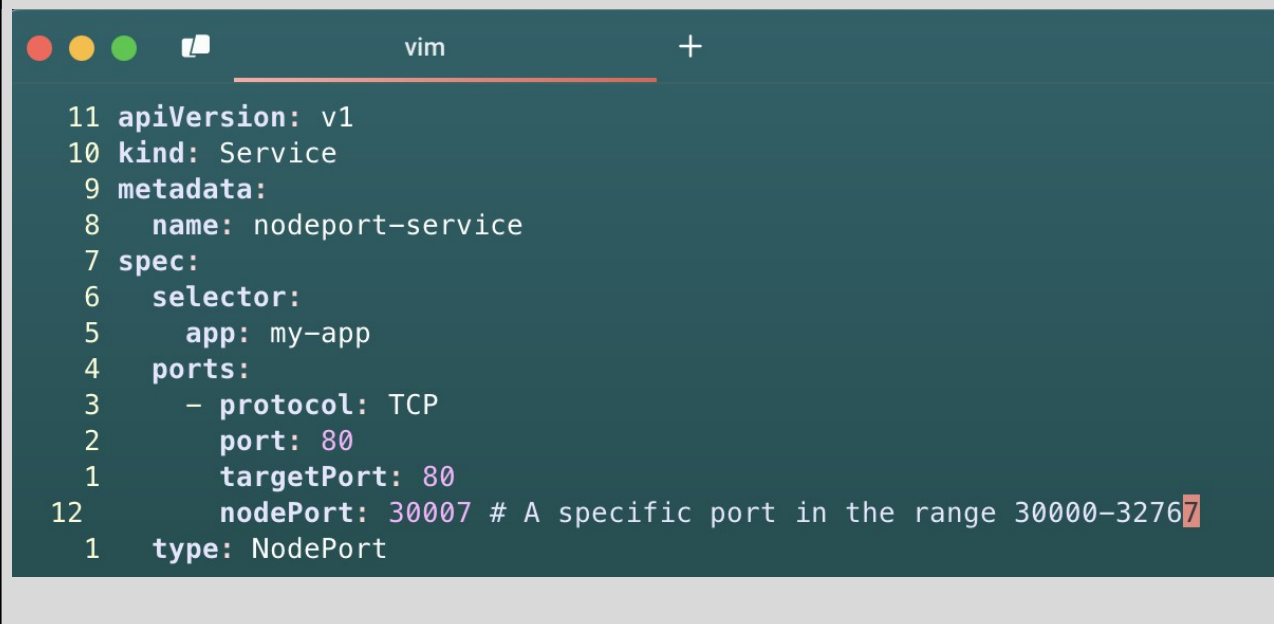
### NodePort Service

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

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

```
apiVersion: v1
kind: Service
metadata:
  name: nodeport-service
```

```
spec:
  selector:
    app: my-app
  ports:
    - protocol: TCP
      port: 80
      targetPort: 80
      nodePort: 30007 # A specific port in the range 30000-32767
  type: NodePort
```

A screenshot of a vim editor window. The window has a title bar with three colored circles (red, yellow, green) and a tab labeled 'vim'. The editor content shows a Kubernetes Service manifest with line numbers on the left. The manifest is identical to the one in the first block. The line numbers are 11, 10, 9, 8, 7, 6, 5, 4, 3, 2, 1, 12, and 1. The text is color-coded: 'apiVersion' is blue, 'kind' is blue, 'metadata' is blue, 'name' is blue, 'spec' is blue, 'selector' is blue, 'app' is blue, 'ports' is blue, 'protocol' is blue, 'port' is blue, 'targetPort' is blue, 'nodePort' is blue, and the comment is grey. The cursor is at the end of line 12.

```
11 apiVersion: v1
10 kind: Service
 9 metadata:
 8   name: nodeport-service
 7 spec:
 6   selector:
 5     app: my-app
 4   ports:
 3     - protocol: TCP
 2       port: 80
 1       targetPort: 80
12       nodePort: 30007 # A specific port in the range 30000-32767
 1   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
```

```
Apple Home ~ .....
> vim nodeport-service.yaml

Apple Home ~ .....
> kubectl apply -f nodeport-service.yaml
service/nodeport-service created
```

## Verify the Service:

```
kubectl get services
```

```
Apple Home ~ .....
> kubectl get services
```

NAME	TYPE	CLUSTER-IP	EXTERNAL-IP	PORT(S)	AGE
kubernetes	ClusterIP	10.96.0.1	<none>	443/TCP	22m
nodeport-service	NodePort	10.105.122.179	<none>	80:30007/TCP	42s

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