```
PS C:\Users\noelm\Downloads\IBM Consulting\TECHADEMY\Phase 2\7. Kubernetes and Docker - The Container Masterclass\Assignment 7> helm create zookeeper-chart
Creating zookeeper-chart
PS C:\Users\noelm\Downloads\IBM Consulting\TECHADEMY\Phase 2\7. Kubernetes and Docker - The Container Masterclass\Assignment 7> cd zookeeper-chart
PS C:\Users\noelm\Downloads\IBM Consulting\TECHADEMY\Phase 2\7. Kubernetes and Docker - The Container Masterclass\Assignment 7\zookeeper-chart> cd zookeeper-chart^C
PS C:\Users\noelm\Downloads\IBM Consulting\TECHADEMY\Phase 2\7. Kubernetes and Docker - The Container Masterclass\Assignment 7\zookeeper-chart> ls templates | Where-Object { $_ -notin 'deployment.yaml','servic
e.yaml' } |
>>        ForEach-Object { Remove-Item "templates\$_" }

Confirm
The item at C:\Users\noelm\Downloads\IBM Consulting\TECHADEMY\Phase 2\7. Kubernetes and Docker - The Container Masterclass\Assignment 7\zookeeper-chart\templates\tests has children and the Recurse parameter
was not specified. If you continue, all children will be removed with the item. Are you sure you want to continue?
[Y] Yes  [A] Yes to All  [N] No  [L] No to All  [S] Suspend  [?] Help (default is "Y"): Y
PS C:\Users\noelm\Downloads\IBM Consulting\TECHADEMY\Phase 2\7. Kubernetes and Docker - The Container Masterclass\Assignment 7\zookeeper-chart> helm lint .
==> Linting .
[INFO] Chart.yaml: icon is recommended

1 chart(s) linted, 0 chart(s) failed
```

```
PS C:\Users\noelm\Downloads\IBM Consulting\TECHADEMY\Phase 2\7. Kubernetes and Docker - The Container Masterclass\Assignment 7\zookeeper-chart> helm lint .
==> Linting .
[INFO] Chart.yaml: icon is recommended

1 chart(s) linted, 0 chart(s) failed
PS C:\Users\noelm\Downloads\IBM Consulting\TECHADEMY\Phase 2\7. Kubernetes and Docker - The Container Masterclass\Assignment 7\zookeeper-chart> helm install my-zk . `
>>    --set replicaCount=5 `
>>    --set image.tag=3.9.0 `
>>    --set service.type=NodePort
NAME: my-zk
LAST DEPLOYED: Sun Jun 22 16:56:50 2025
NAMESPACE: default
STATUS: deployed
REVISION: 1
TEST SUITE: None
PS C:\Users\noelm\Downloads\IBM Consulting\TECHADEMY\Phase 2\7. Kubernetes and Docker - The Container Masterclass\Assignment 7\zookeeper-chart> kubectl get deployments
NAME            READY   UP-TO-DATE   AVAILABLE   AGE
my-zk-zookeeper 0/5     5            0           11s
PS C:\Users\noelm\Downloads\IBM Consulting\TECHADEMY\Phase 2\7. Kubernetes and Docker - The Container Masterclass\Assignment 7\zookeeper-chart> kubectl get pods -l app=my-zk-zookeeper
NAME                              READY   STATUS             RESTARTS   AGE
my-zk-zookeeper-886957fd8-8bqvb   0/1     ContainerCreating  0          16s
my-zk-zookeeper-886957fd8-8fczz   0/1     ContainerCreating  0          16s
my-zk-zookeeper-886957fd8-fmmrn   0/1     ContainerCreating  0          16s
my-zk-zookeeper-886957fd8-mq7p6   0/1     ContainerCreating  0          16s
my-zk-zookeeper-886957fd8-r4qmr   0/1     ContainerCreating  0          16s
PS C:\Users\noelm\Downloads\IBM Consulting\TECHADEMY\Phase 2\7. Kubernetes and Docker - The Container Masterclass\Assignment 7\zookeeper-chart> kubectl get svc my-zk-zookeeper
NAME            TYPE      CLUSTER-IP      EXTERNAL-IP   PORT(S)         AGE
my-zk-zookeeper NodePort  10.109.180.151  <none>        2181:31497/TCP  20s
```

```
PS C:\Users\noelm\Downloads\IBM Consulting\TECHADEMY\Phase 2\7. Kubernetes and Docker - The Container Masterclass\Assignment 7\zookeeper-chart> kubectl get svc my-zk-zookeeper `
>>    -o go-template="http://{{(index .spec.ports 0).nodePort}}"
http://31497
PS C:\Users\noelm\Downloads\IBM Consulting\TECHADEMY\Phase 2\7. Kubernetes and Docker - The Container Masterclass\Assignment 7\zookeeper-chart> helm upgrade my-zk . `
>>    --set replicaCount=2 `
>>    --set image.tag=3.10.0
Release "my-zk" has been upgraded. Happy Helming!
NAME: my-zk
LAST DEPLOYED: Sun Jun 22 16:59:12 2025
NAMESPACE: default
STATUS: deployed
REVISION: 2
TEST SUITE: None
```

```
PS C:\Users\noelm\Downloads\IBM Consulting\TECHADEMY\Phase 2\7. Kubernetes and Docker - The Container Masterclass\Assignment 7\zookeeper-chart> kubectl get svc my-zk-zookeeper `
>>    -o go-template="http://{{(index .spec.ports 0).nodePort}}"
http://31497
PS C:\Users\noelm\Downloads\IBM Consulting\TECHADEMY\Phase 2\7. Kubernetes and Docker - The Container Masterclass\Assignment 7\zookeeper-chart> helm upgrade my-zk . `
>>    --set replicaCount=2 `
>>    --set image.tag=3.10.0
Release "my-zk" has been upgraded. Happy Helming!
NAME: my-zk
LAST DEPLOYED: Sun Jun 22 16:59:12 2025
NAMESPACE: default
STATUS: deployed
REVISION: 2
TEST SUITE: None
```

```
C:\Users\noelm>kubectl get deployments
NAME            READY   UP-TO-DATE   AVAILABLE   AGE
my-zk-zookeeper 2/2     1            2           5m45s

C:\Users\noelm>kubectl get pods -l app=my-zk-zookeeper
NAME                              READY   STATUS            RESTARTS   AGE
my-zk-zookeeper-64695bbd4d-wl8nr  0/1     ImagePullBackOff  0          3m27s
my-zk-zookeeper-886957fd8-8fczz   1/1     Running           0          5m50s
my-zk-zookeeper-886957fd8-mq7p6   1/1     Running           0          5m50s

C:\Users\noelm>kubectl get svc my-zk-zookeeper
NAME            TYPE       CLUSTER-IP      EXTERNAL-IP   PORT(S)    AGE
my-zk-zookeeper ClusterIP  10.109.180.151  <none>        2181/TCP   5m53s
```

```
C:\Users\noelm>helm list
NAME    NAMESPACE   REVISION   UPDATED                              STATUS     CHART                  APP VERSION
my-zk   default     2          2025-06-22 16:59:12.551484 +0530 IST deployed   zookeeper-chart-0.1.0  1.16.0
```

```yaml
# values.yaml
replicaCount: 3

image:
  repository: bitnami/zookeeper
  tag: 3.8.0
  pullPolicy: IfNotPresent

service:
  type: ClusterIP
  port: 2181

resources: {}
```

```yaml
#deployment.yaml
apiVersion: apps/v1
kind: Deployment
metadata:
  name: {{ .Release.Name }}-zookeeper
  labels:
    app: {{ .Release.Name }}-zookeeper
spec:
  replicas: {{ .Values.replicaCount }}
  selector:
    matchLabels:
      app: {{ .Release.Name }}-zookeeper
  template:
    metadata:
      labels:
        app: {{ .Release.Name }}-zookeeper
    spec:
      containers:
      - name: zookeeper
        image: "{{ .Values.image.repository }}:{{ .Values.image.tag }}"
        imagePullPolicy: {{ .Values.image.pullPolicy }}
        ports:
        - containerPort: {{ .Values.service.port }}
        env:
        - name: ALLOW_ANONYMOUS_LOGIN
          value: "yes"
```

```yaml
#service.yaml
apiVersion: v1
kind: Service
metadata:
  name: {{ .Release.Name }}-zookeeper
spec:
  type: {{ .Values.service.type }}
  ports:
  - port: {{ .Values.service.port }}
    targetPort: {{ .Values.service.port }}
    protocol: TCP
    name: client
  selector:
    app: {{ .Release.Name }}-zookeeper
```

Kubernetes

Enable Kubernetes
Start a Kubernetes single or multi-node cluster when starting Docker Desktop.

Cluster

docker-desktop
kubeadm, 1 node, v1.32.2

● Running
Started 14 minutes ago

Reset cluster

Cluster settings

Choose cluster provisioning method

○ **Kubeadm**
Create a singe-node cluster with kubeadm.
Version: **v1.32.2**

○ **kind** ⚡ SIGN IN REQUIRED
Create a cluster containing one or more nodes with kind. Requires the containerd image store

☐ **Show system containers (advanced)**
Show Kubernetes internal containers when using Docker commands.

Enable Kubernetes