**DevOps Certification Training**

IntelliPaat

# Module-9: Kubernetes Assignment - 1

You have been asked to:

- Deploy a Kubernetes Cluster for 3 nodes
- Create a nginx deployment of 3 replicas

https://us-east-1.console.aws.amazon.com/ec2/v2/home?region=us-east-1#Instances:

aws | Services | Search for services, features, blogs, docs, and more [Alt+S] | N. Virginia ▼ | aarambh-user1 @ 3425-0804-7718 ▼

**New EC2 Experience**
Tell us what you think

EC2 Dashboard

EC2 Global View

Events

Tags

**Instances (2/14)** Info | Connect | Instance state ▼ | Actions ▼ | **Launch instances** ▼

Search

1

| | Name ▼ | Instance ID | Instance state ▼ | Instance type ▼ | Status check | Alarm status | Availability Z |
|---|---|---|---|---|---|---|---|
| | SonarQ-Apache | i-0630131420ca1317 | Stopped | t2.small | No alarms | | us-east-1d |
| ☑ | Kuber-master | i-09c6ddd37a95911c2 | ⊘ Running | t2.medium | ⊘ 2/2 checks passed | No alarms + | us-east-1d |
| ☑ | Kuber-worker | i-06a83eac22b9803a2 | ⊘ Running | t2.medium | ⊘ 2/2 checks passed | No alarms + | us-east-1d |

us-east-1a

**root@ip-172-31-25-208: ~**

```
Initialized
Ready
ContainersReady
PodScheduled
Volumes:
  kube-api-access-9s
    Type:
    TokenExpirationS
    ConfigMapName:
    ConfigMapOptiona
    DownwardAPI:
QoS Class:
Node-Selectors:
Tolerations:

Events:
  Type    Reason
  ----    ------
```

**root@ip-172-31-85-250: ~**

```
50  which java
51  java --versi
52  apt update
53  cd /var/www/
54  ls
55  cat index.ht
56  cat index.ng
57  ls
58  cd
59  ls
60  apt update
61  apt-get upda
62  echo '{"exec
63  service dock
64  curl -s http
65  echo "deb ht
```

**root@ip-172-31-17-172: ~**

```
netes.list
    14  apt-get update
    15  apt install kubeadm kubectl kubelet
    16  ls
    17  kubectl get nodes
    18  kubectl get node
    19  kubectl get pods
    20  apt update
    21  apt-get update && apt-get install -y curl apt-transport-https docker.io
    22  echo '{"exec-opts": ["native.cgroupdriver=systemd"]}' > /etc/docker/daemon.j
    23  service docker restart
    24  curl -s https://packages.cloud.google.com/apt/doc/apt-key.gpg | apt-key add
    25  echo "deb http://apt.kubernetes.io/ kubernetes-xenial main" >/etc/apt/source
netes.list
    26  apt-get update
```

10:27
26/03/2022

```
root@ip-172-31-25-208:~# kubeadm token create --print-join-command
kubeadm join 172.31.25.208:6443 --token eh0ecz.xnkrpbe9dhzwg8fk --discovery-token-ca-cert-hash sha256:d34dc9
84d88c852d41daba75012bfe8a4b0f36532ed34b823fa2639c2ab36bb9
root@ip-172-31-25-208:~# kubectl get node
NAME                STATUS    ROLES                   AGE      VERSION
ip-172-31-17-172    Ready     <none>                  20h      v1.23.5
ip-172-31-25-208    Ready     control-plane,master    22h      v1.23.5
ip-172-31-85-250    Ready     <none>                  37s      v1.23.5
root@ip-172-31-25-208:~# kubectl get pods
NAME                                 READY    STATUS    RESTARTS       AGE
kubernetes-bootcamp-59d54f7f6f-jgwlh  1/1      Running   1 (19h ago)    21h
root@ip-172-31-25-208:~# kubectl get pods -o wide
NAME                                 READY    STATUS    RESTARTS       AGE      IP          NODE
NOMINATED NODE    READINESS GATES
kubernetes-bootcamp-59d54f7f6f-jgwlh  1/1      Running   1 (19h ago)    21h      10.44.0.1   ip-172-31-17-172
<none>            <none>
root@ip-172-31-25-208:~# kubectl get rs
NAME                           DESIRED    CURRENT    READY    AGE
kubernetes-bootcamp-59d54f7f6f  1          1          1        21h
root@ip-172-31-25-208:~# kubectl get deployment
NAME                 READY    UP-TO-DATE    AVAILABLE    AGE
kubernetes-bootcamp  1/1      1             1            21h
root@ip-172-31-25-208:~# kubectl get node
NAME                STATUS    ROLES                   AGE      VERSION
ip-172-31-17-172    Ready     <none>                  20h      v1.23.5
ip-172-31-25-208    Ready     control-plane,master    22h      v1.23.5
ip-172-31-85-250    Ready     <none>                  4m17s    v1.23.5
root@ip-172-31-25-208:~#
root@ip-172-31-25-208:~# kubectl get node
NAME                STATUS    ROLES                   AGE      VERSION
ip-172-31-17-172    Ready     <none>                  20h      v1.23.5
ip-172-31-25-208    Ready     control-plane,master    22h      v1.23.5
ip-172-31-85-250    Ready     <none>                  7m17s    v1.23.5
```

```
root@ip-172-31-25-208:~# kubectl create deployment nginx --image=nginx --port=80
deployment.apps/nginx created
root@ip-172-31-25-208:~# kubectl get deployment
NAME                READY   UP-TO-DATE   AVAILABLE   AGE
kubernetes-bootcamp 1/1     1            1           21h
nginx               1/1     1            1           12s
root@ip-172-31-25-208:~# kubectl get pods
NAME                             READY   STATUS    RESTARTS      AGE
kubernetes-bootcamp-59d54f7f6f-jgwlh  1/1  Running   1 (19h ago)   21h
nginx-74d589986c-tvwsj           1/1     Running   0             27s
root@ip-172-31-25-208:~# kubectl get pods -o wide
NAME                             READY   STATUS    RESTARTS      AGE    IP          NODE
NOMINATED NODE    READINESS GATES
kubernetes-bootcamp-59d54f7f6f-jgwlh  1/1  Running   1 (19h ago)   21h    10.44.0.1   ip-172-31-17-172
<none>            <none>
nginx-74d589986c-tvwsj           1/1     Running   0             37s    10.44.0.2   ip-172-31-17-172
<none>            <none>
root@ip-172-31-25-208:~# kubectl get rs
NAME                         DESIRED   CURRENT   READY   AGE
kubernetes-bootcamp-59d54f7f6f  1         1         1       21h
nginx-74d589986c             1         1         1       3m44s
root@ip-172-31-25-208:~# kubectl exec -it nginx-74d589986c-tvwsj bash
kubectl exec [POD] [COMMAND] is DEPRECATED and will be removed in a future version. Use kubectl exec [POD] -- [COMMAND] in
stead.
root@nginx-74d589986c-tvwsj:/# which nginx
/usr/sbin/nginx
root@nginx-74d589986c-tvwsj:/# service nginx status
nginx is running.
root@nginx-74d589986c-tvwsj:/# exit
exit
root@ip-172-31-25-208:~# kubectl scale deployments nginx --replicas=3
deployment.apps/nginx scaled
root@ip-172-31-25-208:~# kubectl get rs
```

```
root@ip-172-31-25-208:~# kubectl scale deployments nginx --replicas=3
deployment.apps/nginx scaled
root@ip-172-31-25-208:~# kubectl get rs
NAME                        DESIRED   CURRENT   READY   AGE
kubernetes-bootcamp-59d54f7f6f   1         1         1       21h
nginx-74d589986c            3         3         2       8m51s
root@ip-172-31-25-208:~# kubectl get deployment
NAME                READY   UP-TO-DATE   AVAILABLE   AGE
kubernetes-bootcamp   1/1     1            1           21h
nginx               3/3     3            3           9m2s
root@ip-172-31-25-208:~# kubectl get pods
NAME                        READY   STATUS    RESTARTS       AGE
kubernetes-bootcamp-59d54f7f6f-jgwlh   1/1     Running   1 (20h ago)    21h
nginx-74d589986c-2nxjs      1/1     Running   0              24s
nginx-74d589986c-4dl4d      1/1     Running   0              24s
nginx-74d589986c-tvwsj      1/1     Running   0              9m9s
root@ip-172-31-25-208:~# kubectl get pods -o wide
NAME                        READY   STATUS    RESTARTS       AGE     IP           NODE             NOMINATED NO
DE   READINESS GATES
kubernetes-bootcamp-59d54f7f6f-jgwlh   1/1     Running   1 (20h ago)    21h     10.44.0.1    ip-172-31-17-172   <none>
     <none>
nginx-74d589986c-2nxjs      1/1     Running   0              36s     10.44.0.3    ip-172-31-17-172   <none>
     <none>
nginx-74d589986c-4dl4d      1/1     Running   0              36s     10.36.0.1    ip-172-31-85-250   <none>
     <none>
nginx-74d589986c-tvwsj      1/1     Running   0              9m21s   10.44.0.2    ip-172-31-17-172   <none>
     <none>
root@ip-172-31-25-208:~# kubectl logs nginx-74d589986c-tvwsj
/docker-entrypoint.sh: /docker-entrypoint.d/ is not empty, will attempt to perform configuration
/docker-entrypoint.sh: Looking for shell scripts in /docker-entrypoint.d/
/docker-entrypoint.sh: Launching /docker-entrypoint.d/10-listen-on-ipv6-by-default.sh
10-listen-on-ipv6-by-default.sh: info: Getting the checksum of /etc/nginx/conf.d/default.conf
10-listen-on-ipv6-by-default.sh: info: Enabled listen on IPv6 in /etc/nginx/conf.d/default.conf
```

```
root@ip-172-31-25-208:~# kubectl logs nginx-74d589986c-tvwsj
/docker-entrypoint.sh: /docker-entrypoint.d/ is not empty, will attempt to perform configuration
/docker-entrypoint.sh: Looking for shell scripts in /docker-entrypoint.d/
/docker-entrypoint.sh: Launching /docker-entrypoint.d/10-listen-on-ipv6-by-default.sh
10-listen-on-ipv6-by-default.sh: info: Getting the checksum of /etc/nginx/conf.d/default.conf
10-listen-on-ipv6-by-default.sh: info: Enabled listen on IPv6 in /etc/nginx/conf.d/default.conf
/docker-entrypoint.sh: Launching /docker-entrypoint.d/20-envsubst-on-templates.sh
/docker-entrypoint.sh: Launching /docker-entrypoint.d/30-tune-worker-processes.sh
/docker-entrypoint.sh: Configuration complete; ready for start up
2022/03/26 04:42:06 [notice] 1#1: using the "epoll" event method
2022/03/26 04:42:06 [notice] 1#1: nginx/1.21.6
2022/03/26 04:42:06 [notice] 1#1: built by gcc 10.2.1 20210110 (Debian 10.2.1-6)
2022/03/26 04:42:06 [notice] 1#1: OS: Linux 5.13.0-1019-aws
2022/03/26 04:42:06 [notice] 1#1: getrlimit(RLIMIT_NOFILE): 1048576:1048576
2022/03/26 04:42:06 [notice] 1#1: start worker processes
2022/03/26 04:42:06 [notice] 1#1: start worker process 32
2022/03/26 04:42:06 [notice] 1#1: start worker process 33
root@ip-172-31-25-208:~# kubectl describe pod nginx-74d589986c-tvwsj
Name:         nginx-74d589986c-tvwsj
Namespace:    default
Priority:     0
Node:         ip-172-31-17-172/172.31.17.172
Start Time:   Sat, 26 Mar 2022 04:42:00 +0000
Labels:       app=nginx
              pod-template-hash=74d589986c
Annotations:  <none>
Status:       Running
IP:           10.44.0.2
IPs:
  IP:           10.44.0.2
Controlled By:  ReplicaSet/nginx-74d589986c
Containers:
  nginx:
```

```
    State:          Running
      Started:      Sat, 26 Mar 2022 04:42:06 +0000
    Ready:          True
    Restart Count:  0
    Environment:    <none>
    Mounts:
      /var/run/secrets/kubernetes.io/serviceaccount from kube-api-access-9sdvf (ro)
Conditions:
  Type              Status
  Initialized       True
  Ready             True
  ContainersReady   True
  PodScheduled      True
Volumes:
  kube-api-access-9sdvf:
    Type:                    Projected (a volume that contains injected data from multiple sources)
    TokenExpirationSeconds:  3607
    ConfigMapName:           kube-root-ca.crt
    ConfigMapOptional:       <nil>
    DownwardAPI:             true
QoS Class:                   BestEffort
Node-Selectors:              <none>
Tolerations:                 node.kubernetes.io/not-ready:NoExecute op=Exists for 300s
                             node.kubernetes.io/unreachable:NoExecute op=Exists for 300s
Events:
  Type    Reason     Age    From               Message
  ----    ------     ----   ----               -------
  Normal  Scheduled  12m    default-scheduler  Successfully assigned default/nginx-74d589986c-tvwsj to ip-172-31-17-172
  Normal  Pulling    12m    kubelet            Pulling image "nginx"
  Normal  Pulled     11m    kubelet            Successfully pulled image "nginx" in 3.453289693s
  Normal  Created    11m    kubelet            Created container nginx
  Normal  Started    11m    kubelet            Started container nginx
root@ip-172-31-25-208:~#
```

```
root@ip-172-31-25-208:~# kubectl scale deployments nginx --replicas=2
deployment.apps/nginx scaled
root@ip-172-31-25-208:~# kubectl get rs
NAME                          DESIRED   CURRENT   READY   AGE
kubernetes-bootcamp-59d54f7f6f   1         1         1       21h
nginx-74d589986c                 2         2         2       23m
root@ip-172-31-25-208:~# kubectl get pods
NAME                              READY   STATUS    RESTARTS      AGE
kubernetes-bootcamp-59d54f7f6f-jgwlh   1/1   Running   1 (20h ago)   21h
nginx-74d589986c-4dl4d                 1/1   Running   0             14m
nginx-74d589986c-tvwsj                 1/1   Running   0             23m
root@ip-172-31-25-208:~# kubectl get deployment
NAME                  READY   UP-TO-DATE   AVAILABLE   AGE
kubernetes-bootcamp   1/1     1            1           21h
nginx                 2/2     2            2           23m
root@ip-172-31-25-208:~# kubectl get pods -o wide
NAME                              READY   STATUS    RESTARTS      AGE    IP            NODE              NOMINATED NODE
   READINESS GATES
kubernetes-bootcamp-59d54f7f6f-jgwlh   1/1   Running   1 (20h ago)   21h    10.44.0.1     ip-172-31-17-172   <none>
   <none>
nginx-74d589986c-4dl4d                 1/1   Running   0             15m    10.36.0.1     ip-172-31-85-250   <none>
   <none>
nginx-74d589986c-tvwsj                 1/1   Running   0             24m    10.44.0.2     ip-172-31-17-172   <none>
   <none>
root@ip-172-31-25-208:~# kubectl get node
NAME               STATUS   ROLES                  AGE   VERSION
ip-172-31-17-172   Ready    <none>                 21h   v1.23.5
ip-172-31-25-208   Ready    control-plane,master   22h   v1.23.5
ip-172-31-85-250   Ready    <none>                 43m   v1.23.5
root@ip-172-31-25-208:~# ls
snap
root@ip-172-31-25-208:~# kubectl exec -it nginx-74d589986c-tvwsj bash
kubectl exec [POD] [COMMAND] is DEPRECATED and will be removed in a future version. Use kubectl exec [POD] -- [COMMAND] in
```

```
root@ip-172-31-25-208:~# kubectl get pods
NAME                                READY   STATUS    RESTARTS     AGE
kubernetes-bootcamp-59d54f7f6f-jgwlh  1/1    Running   1 (20h ago)   21h
nginx-74d589986c-4dl4d               1/1    Running   0             14m
nginx-74d589986c-tvwsj               1/1    Running   0             23m
root@ip-172-31-25-208:~# kubectl get deployment
NAME                 READY   UP-TO-DATE   AVAILABLE   AGE
kubernetes-bootcamp  1/1    1             1          21h
nginx                2/2    2             2          23m
root@ip-172-31-25-208:~# kubectl get pods -o wide
NAME                                READY   STATUS    RESTARTS     AGE    IP          NODE              NOMINATED NODE
   READINESS GATES
kubernetes-bootcamp-59d54f7f6f-jgwlh  1/1    Running   1 (20h ago)   21h    10.44.0.1   ip-172-31-17-172  <none>
   <none>
nginx-74d589986c-4dl4d               1/1    Running   0             15m    10.36.0.1   ip-172-31-85-250  <none>
   <none>
nginx-74d589986c-tvwsj               1/1    Running   0             24m    10.44.0.2   ip-172-31-17-172  <none>
   <none>
root@ip-172-31-25-208:~# kubectl get node
NAME               STATUS   ROLES                 AGE    VERSION
ip-172-31-17-172   Ready    <none>                21h    v1.23.5
ip-172-31-25-208   Ready    control-plane,master  22h    v1.23.5
ip-172-31-85-250   Ready    <none>                43m    v1.23.5
root@ip-172-31-25-208:~# ls
snap
root@ip-172-31-25-208:~# kubectl exec -it nginx-74d589986c-tvwsj bash
kubectl exec [POD] [COMMAND] is DEPRECATED and will be removed in a future version. Use kubectl exec [POD] -- [COMMAND] in
stead.
root@nginx-74d589986c-tvwsj:/# which nginx
/usr/sbin/nginx
root@nginx-74d589986c-tvwsj:/# exit
exit
root@ip-172-31-25-208:~#
```