

ANEESH N A

PES1UG20CS050

A2-B

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```
ahorathra@peslug20cs050: ~  
Hello from Docker!  
This message shows that your installation appears to be working correctly.  
  
To generate this message, Docker took the following steps:  
1. The Docker client contacted the Docker daemon.  
2. The Docker daemon pulled the "hello-world" image from the Docker Hub.  
   (amd64)  
3. The Docker daemon created a new container from that image which runs the  
   executable that produces the output you are currently reading.  
4. The Docker daemon streamed that output to the Docker client, which sent it  
   to your terminal.  
  
To try something more ambitious, you can run an Ubuntu container with:  
$ docker run -it ubuntu bash  
  
Share images, automate workflows, and more with a free Docker ID:  
https://hub.docker.com/  
  
For more examples and ideas, visit:  
https://docs.docker.com/get-started/  
  
ahorathra@peslug20cs050:~$ minikube start  
👉 minikube v1.29.0 on Ubuntu 22.04  
🔧 Automatically selected the docker driver. Other choices: ssh, none  
🔧 Using Docker driver with root privileges  
🔧 Starting control plane node minikube in cluster minikube  
📡 Pulling base image ...  
📡 Downloading Kubernetes v1.26.1 preload ...  
   > preloaded images k8s-v18-v1...: 397.05 MiB / 397.05 MiB 100.00% 7.82 Mi/s  
   > gcr.io/k8s-minikube/kicbase...: 407.19 MiB / 407.19 MiB 100.00% 5.78 Mi/s  
🔥 Creating docker container (CPUs=2, Memory=2200MB) ...  
📡 Preparing Kubernetes v1.26.1 on Docker 20.10.23 ...  
   ▪ Generating certificates and keys ...  
   ▪ Booting up control plane ...  
   ▪ Configuring RBAC rules ...  
🔗 Configuring bridge CNI (Container Networking Interface) ...  
   ▪ Using image gcr.io/k8s-minikube/storage-provisioner:v5  
🔍 Verifying Kubernetes components...  
🌟 Enabled addons: storage-provisioner, default-storageclass  
🎉 Done! kubectl is now configured to use "minikube" cluster and "default" namespace by default  
ahorathra@peslug20cs050:~$
```

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```
ahorathra@peslug20cs050:~$ kubectl get nodes  
NAME        STATUS    ROLES    AGE   VERSION  
minikube    Ready     control-plane 2m22s v1.26.1  
ahorathra@peslug20cs050:~$ kubectl get pod  
No resources found in default namespace.  
ahorathra@peslug20cs050:~$ kubectl get services  
NAME       TYPE        CLUSTER-IP   EXTERNAL-IP   PORT(S)    AGE  
kubernetes ClusterIP  10.96.0.1     <none>        443/TCP      2m49s  
ahorathra@peslug20cs050:~$ kubectl create deployment peslug20cs050 --image=nginx  
deployment.apps/peslug20cs050 created  
ahorathra@peslug20cs050:~$ kubectl get deployment  
NAME          READY   UP-TO-DATE   AVAILABLE   AGE  
peslug20cs050 0/1     1            0           29s  
ahorathra@peslug20cs050:~$ kubectl get pod  
NAME                                READY   STATUS             RESTARTS   AGE  
peslug20cs050-59cc57dd7-8xtsj      0/1     ContainerCreating   0           41s  
ahorathra@peslug20cs050:~$
```

```
ahorathra@peslug20cs050: ~  
# Please edit the object below. Lines beginning with a '#' will be ignored,  
# and an empty file will abort the edit. If an error occurs while saving this file will be  
# reopened with the relevant failures.  
#  
apiVersion: apps/v1  
kind: Deployment  
metadata:  
  annotations:  
    deployment.kubernetes.io/revision: "2"  
    creationTimestamp: "2023-02-21T07:38:04Z"  
  generation: 2  
  labels:  
    app: peslug20cs050  
  name: peslug20cs050  
  namespace: default  
  resourceVersion: "995"  
  uid: d4113afc-8d0a-4130-9400-80bb6d8009f7  
spec:  
  progressDeadlineSeconds: 600  
  replicas: 1  
  revisionHistoryLimit: 10  
  selector:  
    matchLabels:  
      app: peslug20cs050  
  strategy:  
    rollingUpdate:  
      maxSurge: 25%  
      maxUnavailable: 25%  
      type: RollingUpdate  
  template:  
    metadata:  
      creationTimestamp: null  
    labels:  
      app: peslug20cs050  
    spec:  
      containers:  
      - image: nginx:1.16  
        imagePullPolicy: Always  
        name: nginx  
        resources: {}  
"/tmp/kubectl-edit-2524088386.yaml" 67 lines, 1823 bytes
```

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```
ahorathra@peslug20cs050:~$ kubectl rollout undo deployment/peslug20cs050
deployment.apps/peslug20cs050 rolled back
ahorathra@peslug20cs050:~$
```

```
ahorathra@peslug20cs050: ~
# Please edit the object below. Lines beginning with a '#' will be ignored,
# and an empty file will abort the edit. If an error occurs while saving this file will be
# reopened with the relevant failures.
#
apiVersion: apps/v1
kind: Deployment
metadata:
  annotations:
    deployment.kubernetes.io/revision: "3"
    creationTimestamp: "2023-02-21T07:38:04Z"
    generation: 3
  labels:
    app: peslug20cs050
    name: peslug20cs050
    namespace: default
    resourceVersion: "2205"
    uid: d4113afc-8d0a-4130-9400-80bb6d8009f7
spec:
  progressDeadlineSeconds: 600
  replicas: 1
  revisionHistoryLimit: 10
  selector:
    matchLabels:
      app: peslug20cs050
  strategy:
    rollingUpdate:
      maxSurge: 25%
      maxUnavailable: 25%
      type: RollingUpdate
  template:
    metadata:
      creationTimestamp: null
      labels:
        app: peslug20cs050
    spec:
      containers:
      - image: nginx
        imagePullPolicy: Always
        name: nginx
        resources: {}
```

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```
ahorathra@peslug20cs050:~$ kubectl get pod
```

NAME	READY	STATUS	RESTARTS	AGE
peslug20cs050-59cc57fdd7-spf4c	1/1	Running	0	6m37s

```
ahorathra@peslug20cs050:~$ kubectl logs peslug20cs050-59cc57fdd7-spf4c
/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
2023/02/21 08:35:38 [notice] 1#1: using the "epoll" event method
2023/02/21 08:35:38 [notice] 1#1: nginx/1.23.3
2023/02/21 08:35:38 [notice] 1#1: built by gcc 10.2.1 20210110 (Debian 10.2.1-6)
2023/02/21 08:35:38 [notice] 1#1: OS: Linux 5.15.0-58-generic
2023/02/21 08:35:38 [notice] 1#1: getrlimit(RLIMIT_NOFILE): 1048576:1048576
2023/02/21 08:35:38 [notice] 1#1: start worker processes
2023/02/21 08:35:38 [notice] 1#1: start worker process 29
2023/02/21 08:35:38 [notice] 1#1: start worker process 30
2023/02/21 08:35:38 [notice] 1#1: start worker process 31
2023/02/21 08:35:38 [notice] 1#1: start worker process 32
ahorathra@peslug20cs050:~$
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ahorathra@peslug20cs050: ~  
Controlled By: ReplicaSet/peslug20cs050-59cc57fdd7  
Containers:  
  nginx:  
    Container ID:   docker://b35e9a02c57be0d1998a26a2f78f8e0ac549f1bcf3780c841433b328f5663066  
    Image:          nginx  
    Image ID:       docker-pullable://nginx@sha256:6650513efd1d27c1f8a5351cbd33edf85cc7e0d9d0fcb4ffb23d8fa89b601ba8  
    Port:           <none>  
    Host Port:      <none>  
    State:          Running  
    Started:        Tue, 21 Feb 2023 14:05:38 +0530  
    Ready:          True  
    Restart Count:  0  
    Environment:    <none>  
    Mounts:  
      /var/run/secrets/kubernetes.io/serviceaccount from kube-api-access-zndzj (ro)  
Conditions:  
  Type             Status  
  Initialized       True  
  Ready             True  
  ContainersReady   True  
  PodsScheduled     True  
Volumes:  
  kube-api-access-zndzj:  
    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   10m    default-scheduler  Successfully assigned default/peslug20cs050-59cc57fdd7-spf4c to minikube  
  Normal  Pulling     10m    kubelet         Pulling image "nginx"  
  Normal  Pulled      10m    kubelet         Successfully pulled image "nginx" in 2.937970735s (2.937982012s including waiting)  
  Normal  Created     10m    kubelet         Created container nginx  
  Normal  Started     10m    kubelet         Started container nginx  
ahorathra@peslug20cs050:~$
```

```
ahorathra@peslug20cs050:~$ kubectl exec -it peslug20cs050-mongo-555dd54d54-zwf6s -- bin/bash  
root@peslug20cs050-mongo-555dd54d54-zwf6s:/# ls  
bin  data  docker-entrypoint-initdb.d  home  lib  lib64  media  opt  root  sbin  sys  usr  
boot  dev  etc  js-yaml.js  lib32  libx32  mnt  proc  run  srv  tmp  var  
root@peslug20cs050-mongo-555dd54d54-zwf6s:/# exit  
exit  
ahorathra@peslug20cs050:~$  
  
root@peslug20cs050-mongo-555dd54d54-zwf6s:/# exit  
exit  
ahorathra@peslug20cs050:~$ kubectl delete deployment peslug20cs050-mongo  
deployment.apps "peslug20cs050-mongo" deleted  
ahorathra@peslug20cs050:~$ kubectl delete deployment peslug20cs050  
deployment.apps "peslug20cs050" deleted  
ahorathra@peslug20cs050:~$
```

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```
ahorathra@peslug20cs050:~$ kubectl apply -f nginx-deployment.yaml  
deployment.apps/nginx-deployment-peslug20cs050 created  
ahorathra@peslug20cs050:~$ kubectl get deployment  
NAME                                READY  UP-TO-DATE  AVAILABLE  AGE  
nginx-deployment-peslug20cs050      0/2    2            0           9s  
ahorathra@peslug20cs050:~$ kubectl get pod  
NAME                                READY  STATUS    RESTARTS  AGE  
nginx-deployment-peslug20cs050-8cf4bf97-562dc  1/1    Running    0          18s  
nginx-deployment-peslug20cs050-8cf4bf97-mfscf  1/1    Running    0          18s  
ahorathra@peslug20cs050:~$ kubectl apply -f nginx-deployment.yaml  
deployment.apps/nginx-deployment-peslug20cs050 configured  
ahorathra@peslug20cs050:~$
```

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ahorathra@peslug20cs050: ~  
metadata:  
  creationTimestamp: null  
  labels:  
    app: nginx  
spec:  
  containers:  
    - image: nginx:1.22  
      imagePullPolicy: IfNotPresent  
      name: nginx  
      ports:  
        - containerPort: 80  
          protocol: TCP  
      resources: {}  
      terminationMessagePath: /dev/termination-log  
      terminationMessagePolicy: File  
    dnsPolicy: ClusterFirst  
    restartPolicy: Always  
    schedulerName: default-scheduler  
    securityContext: {}  
    terminationGracePeriodSeconds: 30  
status:  
  availableReplicas: 3  
  conditions:  
    - lastTransitionTime: "2023-02-21T11:29:58Z"  
      lastUpdateTime: "2023-02-21T11:30:12Z"  
      message: ReplicaSet "nginx-deployment-peslug20cs050-8cf4bf97" has successfully  
        progressed.  
      reason: NewReplicaSetAvailable  
      status: "True"  
      type: Progressing  
    - lastTransitionTime: "2023-02-21T11:37:07Z"  
      lastUpdateTime: "2023-02-21T11:37:07Z"  
      message: Deployment has minimum availability.  
      reason: MinimumReplicasAvailable  
      status: "True"  
      type: Available  
  observedGeneration: 2  
  readyReplicas: 3  
  replicas: 3  
  updatedReplicas: 3  
ahorathra@peslug20cs050:~$
```

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```
ahorathra@peslug20cs050:~$ kubectl get pod  
NAME                                READY   STATUS    RESTARTS   AGE  
nginx-deployment-peslug20cs050-8cf4bf97-562dc  1/1     Running   0           11m  
nginx-deployment-peslug20cs050-8cf4bf97-bxxsc  1/1     Running   0           4m  
nginx-deployment-peslug20cs050-8cf4bf97-mfscf  1/1     Running   0           11m  
ahorathra@peslug20cs050:~$ kubectl delete pod nginx-deployment-peslug20cs050-8cf4bf97-562dc  
pod "nginx-deployment-peslug20cs050-8cf4bf97-562dc" deleted  
ahorathra@peslug20cs050:~$ kubectl get pod  
NAME                                READY   STATUS    RESTARTS   AGE  
nginx-deployment-peslug20cs050-8cf4bf97-bxxsc  1/1     Running   0           5m32s  
nginx-deployment-peslug20cs050-8cf4bf97-mfscf  1/1     Running   0           12m  
nginx-deployment-peslug20cs050-8cf4bf97-q4ssc  1/1     Running   0           5s  
ahorathra@peslug20cs050:~$
```

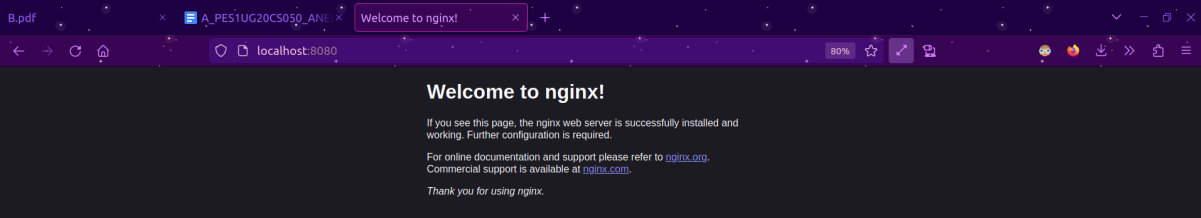
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```
ahorathra@peslug20cs050:~$ kubectl apply -f nginx-service.yaml  
service/nginx-service-peslug20cs050 created  
ahorathra@peslug20cs050:~$ kubectl get service  
NAME                                TYPE        CLUSTER-IP    EXTERNAL-IP    PORT(S)    AGE  
nginx-service-peslug20cs050         ClusterIP   10.96.0.1      <none>         443/TCP    4h13m  
ahorathra@peslug20cs050:~$ kubectl describe service nginx-service  
Name:          nginx-service-peslug20cs050  
Namespace:     default  
Labels:        <none>  
Annotations:    <none>  
Selector:      app=nginx  
Type:          ClusterIP  
IP Family Policy: SingleStack  
IP Families:   IPv4  
IP:            10.106.223.55  
IPs:           10.106.223.55  
Port:          <unset> 8080/TCP  
TargetPort:    80/TCP  
Endpoints:     10.244.0.15:80,10.244.0.18:80,10.244.0.19:80  
Session Affinity: None  
Events:        <none>  
ahorathra@peslug20cs050:~$ kubectl get pod -o wide  
NAME                                READY   STATUS    RESTARTS   AGE   IP            NODE       NOMINATED NODE   READINESS GATES  
nginx-deployment-peslug20cs050-8cf4bf97-bxxsc  1/1     Running   0           11m   10.244.0.18   minikube   <none>            <none>  
nginx-deployment-peslug20cs050-8cf4bf97-mfscf  1/1     Running   0           18m   10.244.0.15   minikube   <none>            <none>  
nginx-deployment-peslug20cs050-8cf4bf97-q4ssc  1/1     Running   0           6m17s 10.244.0.19   minikube   <none>            <none>  
ahorathra@peslug20cs050:~$
```

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```
ahorathra@peslug20cs050:~$ kubectl port-forward service/nginx-service-peslug20cs050 8080:8080
Forwarding from 127.0.0.1:8080 -> 80
Forwarding from [::1]:8080 -> 80
Handling connection for 8080
```

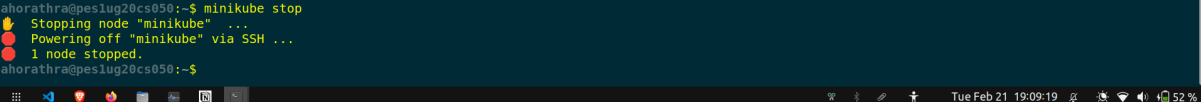


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```
ahorathra@peslug20cs050:~$ kubectl delete deployment nginx-deployment-peslug20cs050
deployment.apps "nginx-deployment-peslug20cs050" deleted

ahorathra@peslug20cs050:~$ kubectl delete service nginx-service-peslug20cs050
service "nginx-service-peslug20cs050" deleted
ahorathra@peslug20cs050:~$

ahorathra@peslug20cs050:~$ minikube stop
✳ Stopping node "minikube" ...
✳ Powering off "minikube" via SSH ...
✳ 1 node stopped.
ahorathra@peslug20cs050:~$
```



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```
ahorathra@peslug20cs050:~$ kubectl create deployment nginx-peslug20cs050 --image=nginx
deployment.apps/nginx-peslug20cs050 created
ahorathra@peslug20cs050:~$ kubectl expose deployment nginx-peslug20cs050 --port=80 --type=NodePort
service/nginx-peslug20cs050 exposed
ahorathra@peslug20cs050:~$ kubectl get service nginx-peslug20cs050
NAME                TYPE        CLUSTER-IP      EXTERNAL-IP  PORT(S)          AGE
nginx-peslug20cs050 NodePort    10.102.106.208  <none>       80:32518/TCP     18s
ahorathra@peslug20cs050:~$ minikube ip
192.168.49.2
ahorathra@peslug20cs050:~$
```

