

Install Kubernetes

```
shehrozaseem@DESKTOP-7BRNB7J:~$ curl -LO "https://dl.k8s.io/release/$(curl -L -s https://dl.k8s.io/release/stable.txt)/bin/linux/amd64/kubectl"
% Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
           Dload  Upload  Total   Spent    Left     Speed
100 138    100 138    0    0    674    0 --:--:-- --:--:-- --:--:--   676
100 47.4M 100 47.4M    0    0 2609k    0 0:00:18 0:00:18 --:--:-- 2560k
shehrozaseem@DESKTOP-7BRNB7J:~$ curl -LO "https://dl.k8s.io/release/$(curl -L -s https://dl.k8s.io/release/stable.txt)/bin/linux/amd64/kubectl.sha256"
% Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
           Dload  Upload  Total   Spent    Left     Speed
100 138    100 138    0    0    459    0 --:--:-- --:--:-- --:--:--   460
100 64    100 64    0    0    122    0 --:--:-- --:--:-- --:--:--   122
shehrozaseem@DESKTOP-7BRNB7J:~$ echo "$(cat kubectl.sha256) kubectl" | sha256sum --check
kubectl: OK
shehrozaseem@DESKTOP-7BRNB7J:~$ sudo install -o root -g root -m 0755 kubectl /usr/local/bin/kubectl
[sudo] password for shehrozaseem:
shehrozaseem@DESKTOP-7BRNB7J:~$ sudo install -o root -g root -m 0755 kubectl /usr/local/bin/kubectl
shehrozaseem@DESKTOP-7BRNB7J:~$ kubectl version --client
Client Version: v1.29.0
Kustomize Version: v5.0.4-0.20230601165947-6ce0bf390ce3
shehrozaseem@DESKTOP-7BRNB7J:~$ kubectl version --client --output=yaml
clientVersion:
  buildDate: "2023-12-13T08:51:44Z"
  compiler: gc
  gitCommit: 3f7a50f38688eb332e2a1b013678c6435d539ae6
  gitTreeState: clean
  gitVersion: v1.29.0
  goVersion: go1.21.5
  major: "1"
  minor: "29"
  platform: linux/amd64
kustomizeVersion: v5.0.4-0.20230601165947-6ce0bf390ce3
```

```
shehrozaseem@DESKTOP-7BRNB7J:~$ curl -LO https://storage.googleapis.com/minikube/releases/latest/minikube-linux-amd64
% Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
           Dload  Upload  Total   Spent    Left     Speed
100 89.3M 100 89.3M    0    0 2665k    0 0:00:34 0:00:34 --:--:-- 2892k
shehrozaseem@DESKTOP-7BRNB7J:~$ sudo install minikube-linux-amd64 /usr/local/bin/minikube
shehrozaseem@DESKTOP-7BRNB7J:~$ minikube start
🔍 minikube v1.32.0 on Ubuntu 22.04 (amd64)
🐳 Automatically selected the docker driver. Other choices: none, ssh
🐳 Using Docker driver with root privileges
🐳 For an improved experience it's recommended to use Docker Engine instead of Docker Desktop.
Docker Engine installation instructions: https://docs.docker.com/engine/install/#server
🐳 Starting control plane node minikube in cluster minikube
🐳 Pulling base image ...
🐳 Downloading Kubernetes v1.28.3 preload ...
> preloaded-images-k8s-v18-v1...: 403.35 MiB / 403.35 MiB 100.00% 1.47 Mi
> gcr.io/k8s-minikube/kicbase...: 453.90 MiB / 453.90 MiB 100.00% 1.47 Mi
🐳 Creating docker container (CPUs=2, Memory=2200MB) ...
🐳 Preparing Kubernetes v1.28.3 on Docker 24.0.7 ...
  ▪ Generating certificates and keys ...
  ▪ Booting up control plane ...
  ▪ Configuring RBAC rules ...
🐳 Configuring bridge CNI (Container Networking Interface) ...
🐳 Verifying Kubernetes components...
  ▪ Using image gcr.io/k8s-minikube/storage-provisioner:v5
🐳 Enabled addons: storage-provisioner, default-storageclass
🐳 Done! kubectl is now configured to use "minikube" cluster and "default" namespace by default
```

Running Test Application

```
shehrozaseem@DESKTOP-7BRNB7J:~$ kubectl config use-context minikube
Switched to context "minikube".
shehrozaseem@DESKTOP-7BRNB7J:~$ kubectl get nodes
NAME        STATUS    ROLES    AGE   VERSION
minikube    Ready     control-plane  74m   v1.28.3
shehrozaseem@DESKTOP-7BRNB7J:~$ kubectl get pods --all-namespaces
NAMESPACE   NAME                                     READY   STATUS    RESTARTS   AGE
kube-system  coredns-5dd5756b68-cxnmm              1/1     Running   0           74m
kube-system  etcd-minikube                         1/1     Running   0           74m
kube-system  kube-apiserver-minikube               1/1     Running   0           74m
kube-system  kube-controller-manager-minikube      1/1     Running   0           74m
kube-system  kube-proxy-ccs6t                      1/1     Running   0           74m
kube-system  kube-scheduler-minikube               1/1     Running   0           74m
kube-system  storage-provisioner                   1/1     Running   2 (73m ago) 74m
shehrozaseem@DESKTOP-7BRNB7J:~$ kubectl create deployment hello-minikube --image=kicbase/echo-server:1.0
deployment.apps/hello-minikube created
shehrozaseem@DESKTOP-7BRNB7J:~$ kubectl expose deployment hello-minikube --type=NodePort --port=8080
service/hello-minikube exposed
shehrozaseem@DESKTOP-7BRNB7J:~$ minikube service hello-minikube
|-----|-----|-----|
| NAMESPACE | NAME | TARGET PORT | URL |
|-----|-----|-----|
| default | hello-minikube | 8080 | http://192.168.49.2:30620 |
|-----|-----|-----|
[+] Starting tunnel for service hello-minikube.
|-----|-----|-----|
| NAMESPACE | NAME | TARGET PORT | URL |
|-----|-----|-----|
| default | hello-minikube |  | http://127.0.0.1:40385 |
|-----|-----|-----|
[+] Opening service default/hello-minikube in default browser...
[+] http://127.0.0.1:40385
[+] Because you are using a Docker driver on linux, the terminal needs to be open to run it.
```