

SETTING ENVIRONMENT

- **kubectl**
 - <https://kubernetes.io/docs/tasks/tools/install-kubectl-macos/>
 - it allows you to **run commands against Kubernetes clusters**. You can use kubectl to deploy applications, inspect and manage cluster resources, and view logs
- **minikube**
 - <https://minikube.sigs.k8s.io/docs/start/>
 - a tool that lets you **run Kubernetes locally**. minikube runs an all-in-one or a multi-node local Kubernetes cluster on your personal computer (including Windows, macOS and Linux PCs) so that you can try out Kubernetes, or for daily development work

SETTING ENVIRONMENT



```
1 # install kubectl
2 brew install kubectl
3
4 # install minikube
5 brew install minikube
6
7 # minikube start
8 minikube start
9
10
```

START MINIKUBE

```
➜ ~/git/learn-k8s/ minikube start

😄 minikube v1.29.0 on Darwin 13.0 (arm64)
⭐ Automatically selected the docker driver
✖ Using Docker Desktop 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...: 330.51 MiB / 330.51 MiB 100.00% 92.46 M
  > gcr.io/k8s-minikube/kicbase...: 368.75 MiB / 368.75 MiB 100.00% 18.83 M
🔥 Creating docker container (CPUs=2, Memory=4000MB) ...
🐳 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
```

MINIKUBE STATUS

```
➔ ~/git/learn-k8s/ kubectl get po -A
```

NAMESPACE	NAME	READY	STATUS	RESTARTS	AGE
kube-system	coredns-787d4945fb-vr9wk	1/1	Running	0	3m40s
kube-system	etcd-minikube	1/1	Running	0	3m53s
kube-system	kube-apiserver-minikube	1/1	Running	0	3m53s
kube-system	kube-controller-manager-minikube	1/1	Running	0	3m53s
kube-system	kube-proxy-fsktx	1/1	Running	0	3m41s
kube-system	kube-scheduler-minikube	1/1	Running	0	3m53s
kube-system	storage-provisioner	1/1	Running	1 (3m10s ago)	3m52s

DEPLOY HELLO-MINIKUBE



```
1 # first deployment called hello-minikube
2 kubectl create deployment hello-minikube --image=kicbase/echo-server:1.0
3 kubectl expose deployment hello-minikube --type=NodePort --port=8080
4
5
6 ➜ ~/git/learn-k8s/ kubectl get services hello-minikube
7
8   NAME           TYPE      CLUSTER-IP        EXTERNAL-IP    PORT(S)          AGE
9   hello-minikube   NodePort  10.105.170.245  <none>        8080:31861/TCP  6s
10
```

LAUNCH THE SERVICE BY MINIKUBE

```
➜ ~/git/learn-k8s/ minikube service hello-minikube
|-----|-----|-----|-----|
| NAMESPACE |     NAME      | TARGET PORT |          URL          |
|-----|-----|-----|-----|
| default   | hello-minikube |        8080 | http://192.168.49.2:31861 |
|-----|-----|-----|-----|
🏃 Starting tunnel for service hello-minikube.
|-----|-----|-----|-----|
| NAMESPACE |     NAME      | TARGET PORT |          URL          |
|-----|-----|-----|-----|
| default   | hello-minikube |           | http://127.0.0.1:49699 |
|-----|-----|-----|-----|
🎉 Opening service default/hello-minikube in default browser...
❗ Because you are using a Docker driver on darwin, the terminal needs to be open to run it.
```

```
← → C ⚒ 127.0.0.1:49699
```

The screenshot shows a web browser window with the address bar set to 127.0.0.1:49699. The page content is as follows:

Request served by hello-minikube-77b6f68484-vn2wv

HTTP/1.1 GET /

Host: 127.0.0.1:49699

Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,image/apng,*/*;q=0.8,application/signed-exchange;v=b3;q=0.9

Accept-Encoding: gzip, deflate, br

Accept-Language: en-US,en;q=0.9,ko;q=0.8

Connection: keep-alive

Cookie: _xsrf=2|dbe7880b|e464eeee4da855719b0a190442f9234d|1673306832; csrftoken=vyJsic4YJkNMbZylaqtNhJJc1EdUIfPU

Sec-Ch-Ua: "Not?A_Brand";v="8", "Chromium";v="108", "Google Chrome";v="108"

Sec-Ch-Ua-Mobile: ?0

Sec-Ch-Ua-Platform: "macOS"

Sec-Fetch-Dest: document

Sec-Fetch-Mode: navigate

Sec-Fetch-Site: none

Sec-Fetch-User: ?1

Upgrade-Insecure-Requests: 1

User-Agent: Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/108.0.0.0 Safari/537.36

MINIKUBE COMMAND



```
1 # Pause Kubernetes without impacting deployed applications
2 minikube pause
3
4 # Unpause a paused instance
5 minikube unpause
6
7 # Halt the cluster
8 minikube stop
9
```