

PART 2: Hands On Engineering - Basic Command Line

► What is minikube?

Minikube is a tool that lets you run Kubernetes locally, with a single node on a cluster.

► What is kubectl?

The Kubernetes command-line tool, kubectl, allows you to run commands against Kubernetes clusters.

► How do I install Minikube and Kubectl on GCP, AWS, Mac, or Linux? (Optional)

Create an instance for training in GCP/AWS or install directly to your laptop.

Ensure you have the correct firewall rule in place for access

Install docker on the VM or instance - <https://tomroth.com.au/gcp-docker/>

Install minikube - <https://minikube.sigs.k8s.io/docs/start/>

- Run the command "minikube start"

Install kubectl - <https://kubernetes.io/docs/tasks/tools/install-kubectl-linux/>

- Run the command "kubectl cluster-info" to verify

Commands and Output

► Create a deployment (nginx server)

kubectl create deployment nginx-test --image=nginx

deployment.apps/nginx-test created

► Get/Describe

kubectl cluster-info

Kubernetes control plane is running at https://192.168.49.2:8443

CoreDNS is running at

<https://192.168.49.2:8443/api/v1/namespaces/kube-system/services/kube-dns:dns/proxy>

kubectl get pods

NAME READY STATUS RESTARTS AGE

nginx-test-84b478f9c5-b9zdv 1/1 Running 0 83s

kubectl get nodes

NAME STATUS ROLES AGE VERSION

minikube Ready control-plane,master 6h1m v1.23.3

kubectl get services

NAME TYPE CLUSTER-IP EXTERNAL-IP PORT(S) AGE

kubernetes ClusterIP 10.96.0.1 <none> 443/TCP 6h1m

kubectl api-resources (Introduce aliases)

This should print out info for many things such as shortname, API version, kind, etc.

kubectl describe deployment nginx-test

Name: nginx-test

Namespace: default

CreationTimestamp: Sat, 05 Mar 2022 18:42:43 +0000

Labels: app=nginx-test

Annotations: deployment.kubernetes.io/revision: 1

Selector: app=nginx-test

Replicas: 1 desired | 1 updated | 1 total | 1 available | 0 unavailable

StrategyType: RollingUpdate

MinReadySeconds: 0

RollingUpdateStrategy: 25% max unavailable, 25% max surge

Pod Template:

Labels: app=nginx-test

Containers:

nginx:

Image: nginx

Port: <none>

Host Port: <none>

Environment: <none>

Mounts: <none>

Volumes: <none>

Conditions:

Type Status Reason

Available True MinimumReplicasAvailable

Progressing True NewReplicaSetAvailable

OldReplicaSets: <none>

NewReplicaSet: nginx-test-84b478f9c5 (1/1 replicas created)

Events:

Type Reason Age From Message

Normal Scaling
ReplicaSet 3m17s deployment-controller Scaled up replica set nginx-test-84b478f9c5 to 1

kubectl get replicaset

NAME	DESIRED	CURRENT	READY	AGE
nginx-test-84b478f9c5	1	1	1	4m33

► **Logs**

kubectl logs nginx-test-84b478f9c5-b9zdv

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/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
2022/03/04 03:19:48 [notice] 1#1: using the "epoll" event method
2022/03/04 03:19:48 [notice] 1#1: nginx/1.21.6
2022/03/04 03:19:48 [notice] 1#1: built by gcc 10.2.1 20210110 (Debian 10.2.1-6)
2022/03/04 03:19:48 [notice] 1#1: OS: Linux 4.19.0-18-cloud-amd64
2022/03/04 03:19:48 [notice] 1#1: getrlimit(RLIMIT_NOFILE): 1048576:1048576
2022/03/04 03:19:48 [notice] 1#1: start worker processes
2022/03/04 03:19:48 [notice] 1#1: start worker process 31
2022/03/04 03:19:48 [notice] 1#1: start worker process 32
```

► **Delete**

kubectl delete pod nginx-test-84b478f9c5-b9zdv
pod "nginx-test-84b478f9c5-b9zdv" deleted

kubectl delete deployment nginx-test
deployment.apps "nginx-test" deleted