minikube Local Kubernetes

START HERE

minikube start
Create or start the cluster

minikube status
Is it running?

minikube kubectl -- get pods -A
Run a matching kubectl

minikube dashboard
Open the web UI

minikube service *<name>*
Open a service

minikube image load *<image>*
Copy a local image in

minikube stop
Stop, keep the state

minikube delete
Remove the cluster

CONCEPTS

minikube runs a single-node cluster on your machine. With the docker driver the node is a container; with VM drivers it is a virtual machine.

Your machine minikube CLI + kubectl
- **Driver** docker, podman, kvm2, virtualbox
  - **minikube node** container or VM
    - **Kubernetes** control plane, pods

Every cluster is a profile (default: minikube). Pass -p <name> to any command to target another one.

Services of type LoadBalancer stay pending until minikube tunnel is running in a separate terminal.

minikube start also sets the kubectl context to the profile name, so plain kubectl works afterwards.

CLUSTER LIFECYCLE

minikube start
Create the cluster or start a stopped one

minikube stop
Stop the cluster, keep its state

minikube delete
Delete the cluster

minikube status
Show host, kubelet and API server state

minikube pause
Pause Kubernetes, keep the node running

minikube unpause
Resume a paused cluster

minikube delete --all
Delete every profile

minikube delete --all --purge
Also remove ~/.minikube

minikube start --delete-on-failure
Recreate the cluster if start fails

minikube version
Show the minikube version

START OPTIONS

minikube start --driver *<driver>*
Choose docker, podman, kvm2 or another

START OPTIONS (cont.)

minikube start --cpus *<n>* **--memory** *<size>*
Size the node

minikube start --kubernetes-version *<vX.Y.Z>*
Pin the Kubernetes version

minikube start --nodes *<n>*
Create a multi-node cluster

minikube start --container-runtime *<name>*
docker, containerd or cri-o

minikube start --addons *<a,b>*
Enable addons at start

minikube start --cni *<name>*
Pick a network plugin, e.g. calico

minikube start --disk-size *<size>*
Set the node disk size

minikube config set driver *<driver>*
Make a driver the default

minikube config view
Show saved settings

cpus, memory and driver are fixed at creation. To change them, delete the profile and start again.

PROFILES AND NODES

minikube start -p *<name>*
Create or start a named cluster

minikube profile list
List clusters and their status

minikube profile *<name>*
Set the active profile

minikube stop -p *<name>*
Stop a named cluster

minikube delete -p *<name>*
Delete a named cluster

minikube node add
Add a worker node

minikube node list
List nodes

minikube node delete *<name>*
Remove a node

Extra nodes are named m02, m03, ... The first node keeps the profile name.

ADDONS

minikube addons list
Show all addons and their state

minikube addons enable *<addon>*
Turn an addon on

ADDONS (cont.)

minikube addons disable *<addon>*
Turn an addon off

minikube addons enable ingress
Add an NGINX ingress controller

minikube addons enable metrics-server
Make kubectl top work

minikube addons enable registry
Run an in-cluster image registry

minikube addons configure *<addon>*
Set addon options

minikube addons open *<addon>*
Open an addon in the browser

REACHING SERVICES

minikube service *<name>*
Open a service in the browser

minikube service *<name>* **--url**
Print the URL only

minikube service *<name>* **-n** *<namespace>*
Pick a namespace

minikube service list
List services and URLs

minikube tunnel
Give LoadBalancer services an IP

minikube ip
Print the node IP

minikube dashboard
Open the Kubernetes dashboard

minikube dashboard --url
Print the dashboard URL only

kubectl port-forward svc/ *<name> <local>:<port>*
Forward a port without a tunnel

With the docker driver on macOS or Windows, minikube service keeps a terminal open; the node IP is not reachable directly.

IMAGES

minikube image load *<image>*
Copy a local image into the cluster

minikube image build -t *<tag> <dir>*
Build inside the cluster

minikube image ls
List images in the cluster

IMAGES (cont.)

eval $(minikube docker-env)
Point docker at the node's engine

eval $(minikube docker-env -u)
Switch docker back to the host

Images with the :latest tag trigger a pull. Use a versioned tag or imagePullPolicy: IfNotPresent for local images.

ACCESS AND DEBUGGING

minikube kubectl -- *<args>*
Run kubectl matching the cluster

minikube ssh
Open a shell on the node

minikube logs
Show cluster logs for debugging

minikube mount *<host-dir>:<node-dir>*
Mount a host folder into the node

minikube cp *<src> <node>:<dest>*
Copy a file into the node

minikube update-context
Fix kubeconfig after an IP change

minikube mount stays in the foreground and must keep running for the files to stay visible.

RECIPES

Fresh cluster with ingress

```
minikube start --driver docker
--cpus 4 --memory 8g
minikube addons enable ingress
minikube addons enable metrics-
server
kubectl get pods -A
```

Test a local image

```
eval $(minikube docker-env)
docker build -t myapp:dev .
kubectl create deployment myapp
--image=myapp:dev
# or without docker-env:
minikube image build -t
myapp:dev .
```

Expose a deployment

```
kubectl create deployment web
--image=nginx
kubectl expose deployment web
--type=NodePort --port=80
minikube service web --url
```

Separate cluster for a branch

```
minikube start -p feature-x --
kubernetes-version <vX.Y.Z>
kubectl get nodes
minikube delete -p feature-x
```