

Setup Kubernetes using minikube

1. Install Minikube

Before you begin

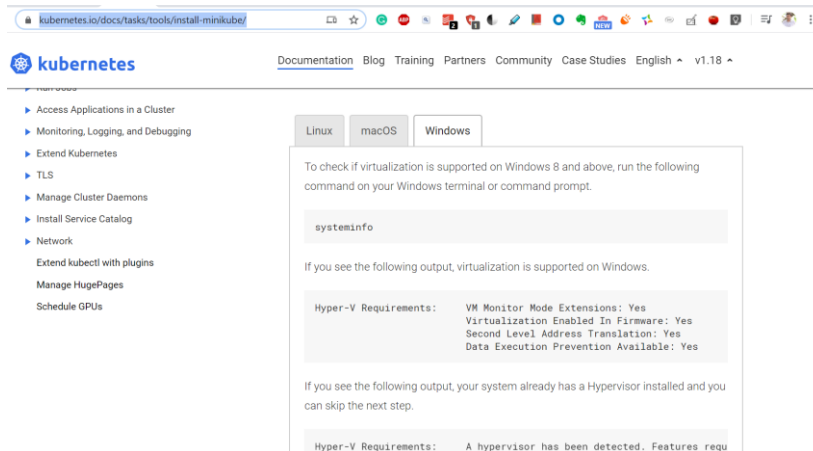


Fig1: systeminfo

minikube start

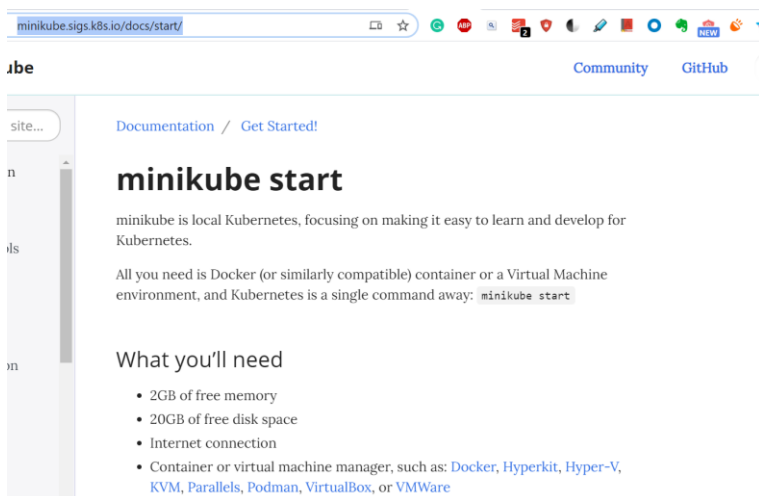


Fig2: system requirements

```
Administrator: Command Prompt
C:\WINDOWS\system32>pushd C:\k8s
C:\k8s>"minikube-installer (1).exe" start
C:\k8s>
```

Fig3: minikube start

```
Administrator: Command Prompt
C:\WINDOWS\system32>pushd C:\k8s
C:\k8s>"minikube-installer (1).exe" start
C:\k8s>minikube start
* minikube 1.9.2 is available! Download it: https://github.com/kubernetes/minikube/releases/tag/v1.9.2
* To disable this notice, run: 'minikube config set WantUpdateNotification false'

! minikube v1.5.2 on Microsoft Windows 10 Pro 10.0.18363 Build 18363
* Tip: Use 'minikube start -p <name>' to create a new cluster, or 'minikube delete' to delete this one.
* Starting existing hyperv VM for "minikube" ...
* Waiting for the host to be provisioned ...
* Preparing Kubernetes v1.16.2 on Docker '18.09.9' ...
* Relaunching Kubernetes using kubeadm ...
* Waiting for: apiserver
* Done! kubctl is now configured to use "minikube"
! C:\WINDOWS\system32\kubctl.exe is version 1.18.0, and is incompatible with Kubernetes 1.16.2. You will need to update
C:\WINDOWS\system32\kubctl.exe or use 'minikube kubctl' to connect with this cluster
C:\k8s>
```

Fig4: minikube start

2. Interact with your cluster:

```
C:\k8s>kubctl get po -A
NAMESPACE      NAME                                READY   STATUS    RESTARTS   AGE
kube-system    coredns-5644d7b6d9-87klz           1/1     Running   0           10d
kube-system    coredns-5644d7b6d9-f7pr5           1/1     Running   0           10d
kube-system    etcd-minikube                       1/1     Running   0           82s
kube-system    kube-addon-manager-minikube         1/1     Running   0           10d
kube-system    kube-apiserver-minikube             1/1     Running   0           82s
kube-system    kube-controller-manager-minikube    1/1     Running   106         7d
kube-system    kube-proxy-h92ll                   1/1     Running   0           10d
kube-system    kube-scheduler-minikube            1/1     Running   480         10d
kube-system    storage-provisioner                1/1     Running   0           10d
kubernetes-dashboard dashboard-metrics-scraper-76585494d8-jbpwc 1/1     Running   0           10d
kubernetes-dashboard kubernetes-dashboard-57f4cb4545-4h2mx 1/1     Running   548         10d
```

Fig5: pod details

```
Select Administrator: Command Prompt - kubctl port-forward service/hello-minikube 7080:8080
un default browser...
C:\k8s>kubctl create deployment hello-minikube --image=k8s.gcr.io/echoserver:1.4
deployment.apps/hello-minikube created
C:\k8s>kubctl expose deployment hello-minikube --type=NodePort --port=8080
service/hello-minikube exposed
C:\k8s>kubctl get services hello-minikube
NAME      TYPE      CLUSTER-IP    EXTERNAL-IP    PORT(S)    AGE
hello-minikube  NodePort  10.97.65.89    <none>         8080:32039/TCP  8s
C:\k8s>minikube service hello-minikube
-----
| NAMESPACE | NAME       | TARGET PORT | URL                               |
|-----|-----|-----|-----|
| default   | hello-minikube |             | http://192.168.223.110:32039 |
|-----|-----|-----|-----|
* Opening service default/hello-minikube in default browser...
C:\k8s>kubctl port-forward service/hello-minikube 7080:8080
Forwarding from 127.0.0.1:7080 -> 8080
Forwarding from [::1]:7080 -> 8080
Handling connection for 7080
Handling connection for 7080
```

Fig6: Deploy applications, expose it on port 8080

```
localhost:7080

CLIENT VALUES:
client_address=127.0.0.1
command=GET
real path=/
query=nil
request_version=1.1
request_uri=http://localhost:8080/

SERVER VALUES:
server_version=nginx: 1.10.0 - lua: 10001

HEADERS RECEIVED:
accept=text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,image/apng,*/*;q=0.8,application/signed-exchange;v=b3;q=0.9
accept-encoding=zip, deflate, br
accept-language=en-US,en;q=0.9
cache-control=max-age=0
connection=keep-alive
host=localhost:7080
sec-fetch-dest=document
sec-fetch-mode=navigate
sec-fetch-site=cross-site
upgrade-insecure-requests=1
user-agent=Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/81.0.4044.129 Safari/537.36
BODY:
-no body in request-
```

Fig7: kubectl to forward the port

3. Manage your cluster

Pause Kubernetes without impacting deployed applications:

```
minikube pause
```

Halt the cluster:

```
minikube stop
```

```
Select Administrator: Command Prompt
Microsoft Windows [Version 10.0.18363.778]
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C:\WINDOWS\system32>kubectl get services balanced
NAME      TYPE        CLUSTER-IP      EXTERNAL-IP      PORT(S)          AGE
balanced  LoadBalancer  10.104.232.160   10.104.232.160   8000:31293/TCP    79s

C:\WINDOWS\system32>minikube delete --all
* Powering off "minikube" via SSH ...
* Successfully powered off Hyper-V. minikube driver -- hyperv
* Deleting "minikube" in hyperv ...
* The "minikube" cluster has been deleted.
* Successfully deleted all profiles

C:\WINDOWS\system32>
```

References:

<https://kodekloud.com/courses/316262/lectures/4857653>

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

<https://kubernetes.io/docs/tasks/tools/install-minikube/>