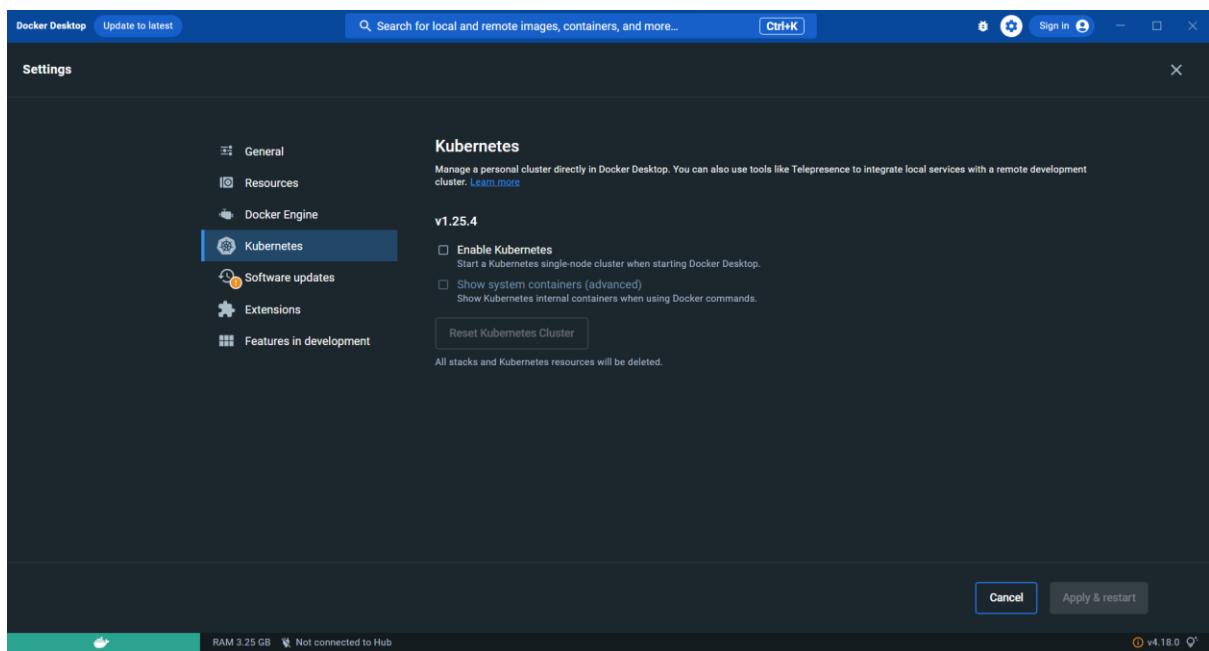


Name : Madhavi Suratkar

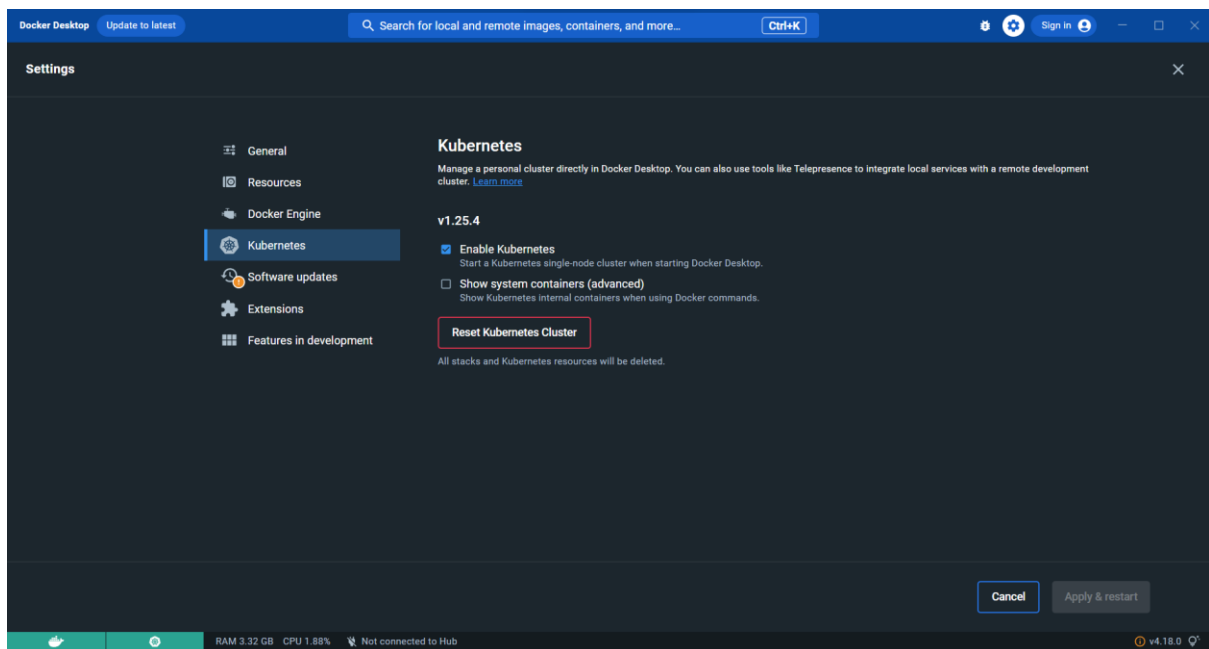
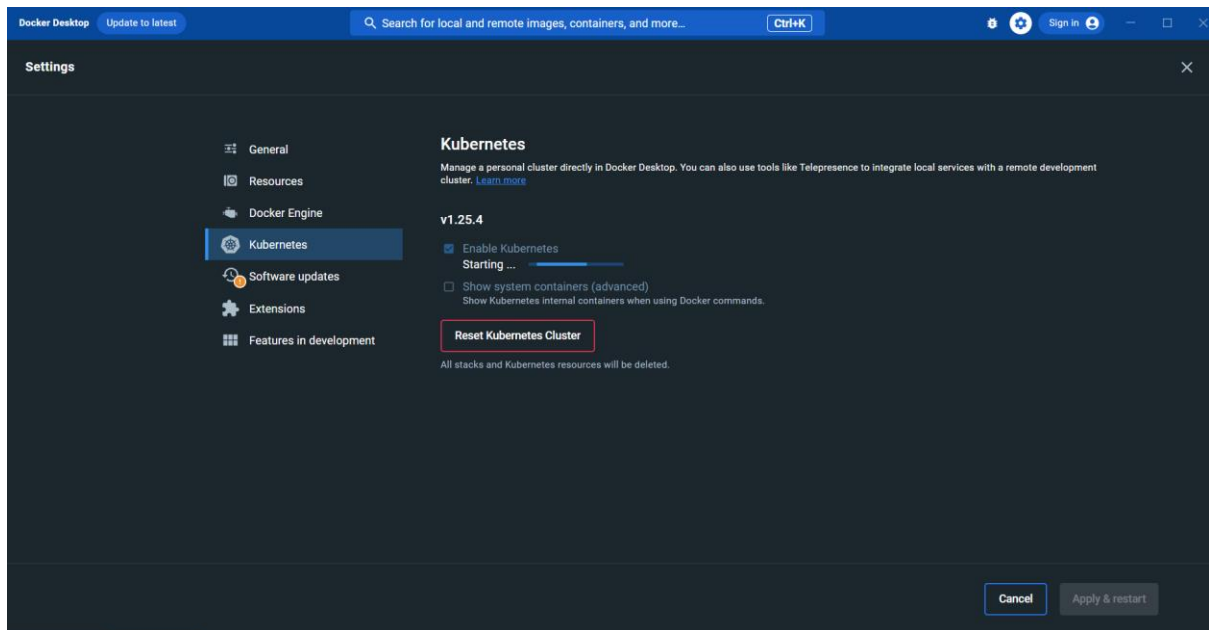
Topic : Kubernetes

Date : 26-04-2023

## Installation of Kubernetes & Minikube



# Enable kubernetes



The command "**minikube version**" is used to check the version of the Minikube tool installed on your local machine.

```
PS C:\Users\surat> minikube version
minikube version: v1.30.1
commit: 08896fd1dc362c097c925146c4a0d0dac715ace0
```

**minikube start** is a command used to start a single-node Kubernetes cluster locally on your machine using Minikube.

```
Removed all traces of the minikube cluster.
PS C:\Users\surat> minikube start
>>
* minikube v1.30.1 on Microsoft Windows 11 Home Single Language 10.0.22621.1555 Build 22621.1555
* Automatically selected the docker driver. Other choices: virtualbox, ssh
* Using Docker Desktop driver with root privileges
* Starting control plane node minikube in cluster minikube
* Pulling base image ...
* Creating docker container (CPUs=2, Memory=2200MB) ...
* Preparing Kubernetes v1.26.3 on Docker 23.0.2 ...
  - 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: default-storageclass, storage-provisioner
* Done! kubectl is now configured to use "minikube" cluster and "default" namespace by default
PS C:\Users\surat> |
```

The command "**kubectl get nodes**" is used to retrieve information about the nodes in a Kubernetes cluster. It lists the names, status, roles, age, version, and any labels assigned to each node.

```
PS C:\Users\surat> kubectl get nodes
NAME          STATUS    ROLES          AGE    VERSION
minikube      Ready     control-plane   57s    v1.26.3
PS C:\Users\surat> |
```

The "**kubectl get services**" command is used to list all the services in the currently active Kubernetes context

```
PS C:\Users\surat> kubectl get services
NAME          TYPE          CLUSTER-IP    EXTERNAL-IP    PORT(S)    AGE
kubernetes    ClusterIP     10.96.0.1     <none>         443/TCP    54m
```

```
PS C:\Users\surat> kubectl --help
kubectl controls the Kubernetes cluster manager.

Find more information at: https://kubernetes.io/docs/reference/kubectl/

Basic Commands (Beginner):
  create      Create a resource from a file or from stdin
  expose      Take a replication controller, service, deployment or pod and expose it as a new Kubernetes service
  run         Run a particular image on the cluster
  set         Set specific features on objects

Basic Commands (Intermediate):
  explain     Get documentation for a resource
  get         Display one or many resources
  edit        Edit a resource on the server
  delete      Delete resources by file names, stdin, resources and names, or by resources and label selector

Deploy Commands:
  rollout     Manage the rollout of a resource
  scale       Set a new size for a deployment, replica set, or replication controller
  autoscale   Auto-scale a deployment, replica set, stateful set, or replication controller

Cluster Management Commands:
  certificate Modify certificate resources.
  cluster-info Display cluster information
  top         Display resource (CPU/memory) usage
  cordon      Mark node as unschedulable
  uncordon    Mark node as schedulable
  drain       Drain node in preparation for maintenance
  taint       Update the taints on one or more nodes

Troubleshooting and Debugging Commands:
  describe    Show details of a specific resource or group of resources
  logs        Print the logs for a container in a pod
  attach      Attach to a running container
  exec        Execute a command in a container
  port-forward Forward one or more local ports to a pod
  proxy        Run a proxy to the Kubernetes API server
  cp          Copy files and directories to and from containers
```

The 'ls' command is used to list files and directories.

```
PS C:\Users\surat> ls

Directory: C:\Users\surat

Mode                LastWriteTime         Length Name
----                -
d-----          28-01-2023   11:31 AM             .cache
d-----          25-04-2023   12:30 PM             .docker
d-----          24-02-2023    04:02 PM             .dotnet
d-----          01-03-2023    05:01 PM             .eclipse
d-----          24-04-2023    09:37 PM             .gradle
d-----          26-04-2023    01:08 PM             .kube
d-----          09-03-2023   12:17 PM             .lemminx
d-----          29-01-2023    02:39 PM             .librarymanager
d-----          25-04-2023   10:26 AM             .m2
d-----          26-04-2023    01:26 PM             .minikube
d-----          16-01-2023    08:53 PM             .ms-ad
d-----          29-01-2023    03:01 PM             .nuget
d-----          25-04-2023    01:08 PM             .p2
d-----          24-04-2023    09:36 PM             .redhat
d-----          10-04-2023    05:49 PM             .ssh
d-----          01-03-2023    06:37 PM             .sts4
d-----          16-01-2023   11:52 AM             .templateengine
d-----          21-04-2023   12:25 PM             .VirtualBox
d-----          16-01-2023    08:28 AM             .vscode
d-r---          15-01-2023    02:38 PM             Contacts
d-----          22-02-2023    05:25 PM             Documents
d-r---          26-04-2023    09:43 AM             Downloads
d-----          01-03-2023    04:57 PM             eclipse
d-----          01-03-2023    05:00 PM             eclipse-workspace
d-r---          15-01-2023    02:38 PM             Favorites
```

The **kubectl get pods --all-namespaces** command is used to list all the pods in all the namespaces of a Kubernetes cluster. This command can be useful for getting an overview of all the pods running in a cluster

```
PS C:\Users\surat> kubectl get pods --all-namespaces
NAMESPACE   NAME                                READY   STATUS    RESTARTS   AGE
kube-system  coredns-787d4945fb-7vbx             1/1     Running   0           4m35s
kube-system  etcd-minikube                        1/1     Running   0           4m47s
kube-system  kube-apiserver-minikube              1/1     Running   0           4m47s
kube-system  kube-controller-manager-minikube     1/1     Running   0           4m46s
kube-system  kube-proxy-6kf9w                    1/1     Running   0           4m35s
kube-system  kube-scheduler-minikube              1/1     Running   0           4m47s
kube-system  storage-provisioner                  1/1     Running   1 (4m34s ago) 4m43s
PS C:\Users\surat> |
```

The **kubectl get svc** command will list all the services in the default namespace.

```
PS C:\Users\surat> kubectl get svc
NAME          TYPE        CLUSTER-IP   EXTERNAL-IP   PORT(S)    AGE
kubernetes    ClusterIP   10.96.0.1    <none>        443/TCP    6m52s
```

The command "**kubectl get all**" is used to retrieve information about all resources of all types in a Kubernetes cluster. This includes information about pods, services, deployments, replicaset

```
PS C:\Users\surat> kubectl get all
NAME          TYPE        CLUSTER-IP   EXTERNAL-IP   PORT(S)    AGE
service/kubernetes    ClusterIP   10.96.0.1    <none>        443/TCP    7m31s
```

The command "**kubectl get pod -o wide**" is used to list all the pods in the current Kubernetes namespace, along with additional information about each pod's status, such as the pod's IP address, node name, and the node's internal IP address.

```
PS C:\Users\surat> kubectl get all -o wide
NAME          TYPE        CLUSTER-IP   EXTERNAL-IP   PORT(S)    AGE    SELECTOR
service/kubernetes    ClusterIP   10.96.0.1    <none>        443/TCP    8m27s    <none>
```

The "**kubectl cluster-info**" command is used to retrieve information about the Kubernetes cluster that the current context points to. This command provides the cluster endpoint, namespace, and authentication information.

```
PS C:\Users\surat> kubectl cluster-info
Kubernetes control plane is running at https://127.0.0.1:62952
CoreDNS is running at https://127.0.0.1:62952/api/v1/namespaces/kube-system/services/kube-dns:dns/proxy
```

```

PS C:\Users\surat> minikube dashboard
* Enabling dashboard ...
  - Using image docker.io/kubernetes/metrics-scraper:v1.0.8
  - Using image docker.io/kubernetes/dashboard:v2.7.0
* Some dashboard features require the metrics-server addon. To enable all features please run:

    minikube addons enable metrics-server

* Verifying dashboard health ...
* Launching proxy ...
* Verifying proxy health ...

```

```

PS C:\windows\system32> kubectl get services
NAME         TYPE        CLUSTER-IP   EXTERNAL-IP   PORT(S)    AGE
kubernetes   ClusterIP   10.96.0.1    <none>        443/TCP    60m
PS C:\windows\system32> kubectl create deployment nginx -depl --image=nginx
error: unknown shorthand flag: 'd' in -depl
See 'kubectl create deployment --help' for usage.
PS C:\windows\system32> kubectl create deployment nginx-depl --image=nginx
deployment.apps/nginx-depl created
PS C:\windows\system32>

```

```

PS C:\windows\system32> kubectl get deployment
NAME          READY   UP-TO-DATE   AVAILABLE   AGE
nginx-depl    1/1     1            1           32s

```

```

PS C:\windows\system32> kubectl get pod
NAME                                READY   STATUS    RESTARTS   AGE
nginx-depl-56cb8b6d7-f2prj          1/1     Running   0           57s

```

```

PS C:\windows\system32> kubectl get replicaset
NAME                                DESIRED   CURRENT   READY   AGE
nginx-depl-56cb8b6d7               1         1         1       80s

```

```

PS C:\windows\system32> kubectl create deployment mongo-depl --image=mongo
deployment.apps/mongo-depl created

```

```

PS C:\windows\system32> kubectl get pod
NAME                                READY   STATUS             RESTARTS   AGE
mongo-depl-5ccf565747-wm4w5         0/1     ContainerCreating   0           22s
nginx-depl-56cb8b6d7-f2prj          1/1     Running             0          2m17s

```

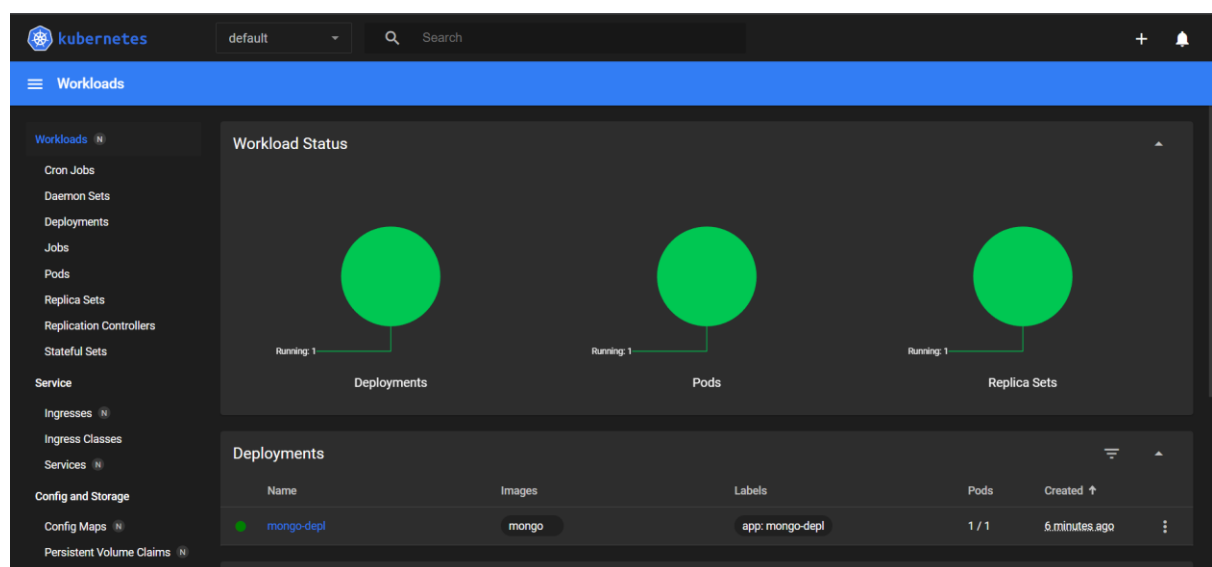
```

PS C:\windows\system32> kubectl exec -it mongo-depl-5ccf565747-wm4w5 -- bin/bash
root@mongo-depl-5ccf565747-wm4w5:/# ls
bin boot data dev docker-entrypoint-initdb.d etc home js-yaml.js lib lib32 lib64 libx32
root@mongo-depl-5ccf565747-wm4w5:/# exit
exit

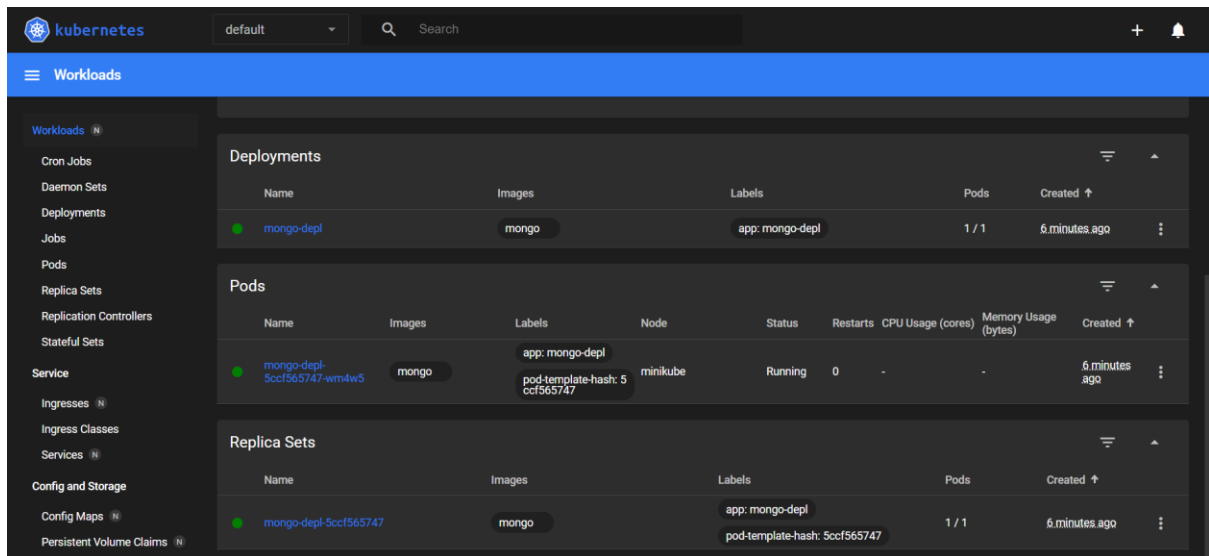
```

## To Delete the deployment

## Minikube dashboard







## Docker Desktop

