Kubernetes Task

Task Description:

Setup minikube at your local and explore creating namespaces (Go through official documentation).

Techstacks needs to be used :

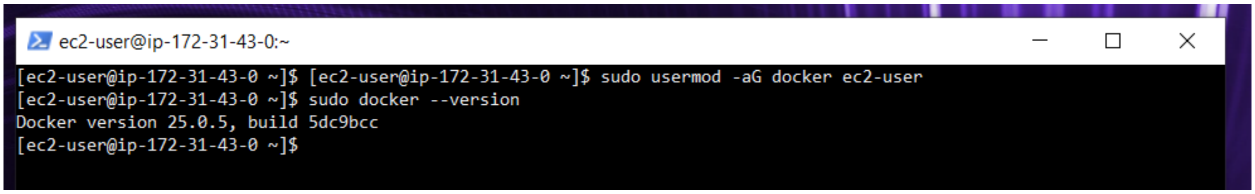
- Vbox, WSL
- Docker
- Minikube
- Kubectl

If the Local system has any issues, you can use AWS.

- AWS EC2 (t2.medium)

Step1 : Install Docker

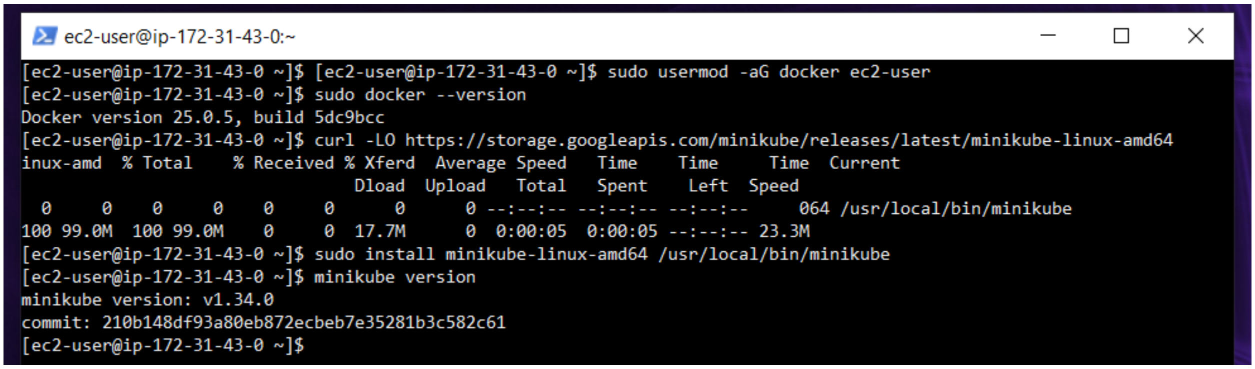
- sudo yum install docker -y
- docker –version
- sudo usermod -aG docker user



```
[ec2-user@ip-172-31-43-0 ~]$ [ec2-user@ip-172-31-43-0 ~]$ sudo usermod -aG docker ec2-user
[ec2-user@ip-172-31-43-0 ~]$ sudo docker --version
Docker version 25.0.5, build 5dc9bcc
[ec2-user@ip-172-31-43-0 ~]$
```

Step2 : Install Minikube

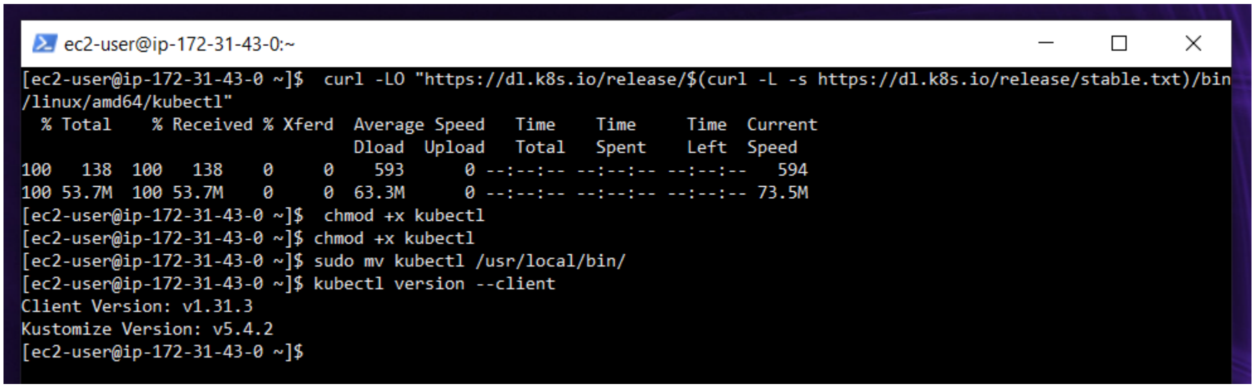
- curl -LO https://storage.googleapis.com/minikube/releases/latest/minikube-linux-amd64
- sudo install minikube-linux-amd64 /usr/local/bin/minikube



```
[ec2-user@ip-172-31-43-0 ~]$ [ec2-user@ip-172-31-43-0 ~]$ sudo usermod -aG docker ec2-user
[ec2-user@ip-172-31-43-0 ~]$ sudo docker --version
Docker version 25.0.5, build 5dc9bcc
[ec2-user@ip-172-31-43-0 ~]$ curl -LO https://storage.googleapis.com/minikube/releases/latest/minikube-linux-amd64
inux-amd  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
  0     0    0     0    0     0      0      0 --:--:-- --:--:-- --:--:--     064 /usr/local/bin/minikube
100 99.0M  100 99.0M    0     0  17.7M      0  0:00:05  0:00:05 --:--:-- 23.3M
[ec2-user@ip-172-31-43-0 ~]$ sudo install minikube-linux-amd64 /usr/local/bin/minikube
[ec2-user@ip-172-31-43-0 ~]$ minikube version
minikube version: v1.34.0
commit: 210b148df93a80eb872ecbeb7e35281b3c582c61
[ec2-user@ip-172-31-43-0 ~]$
```

Step3 : Install kubectl

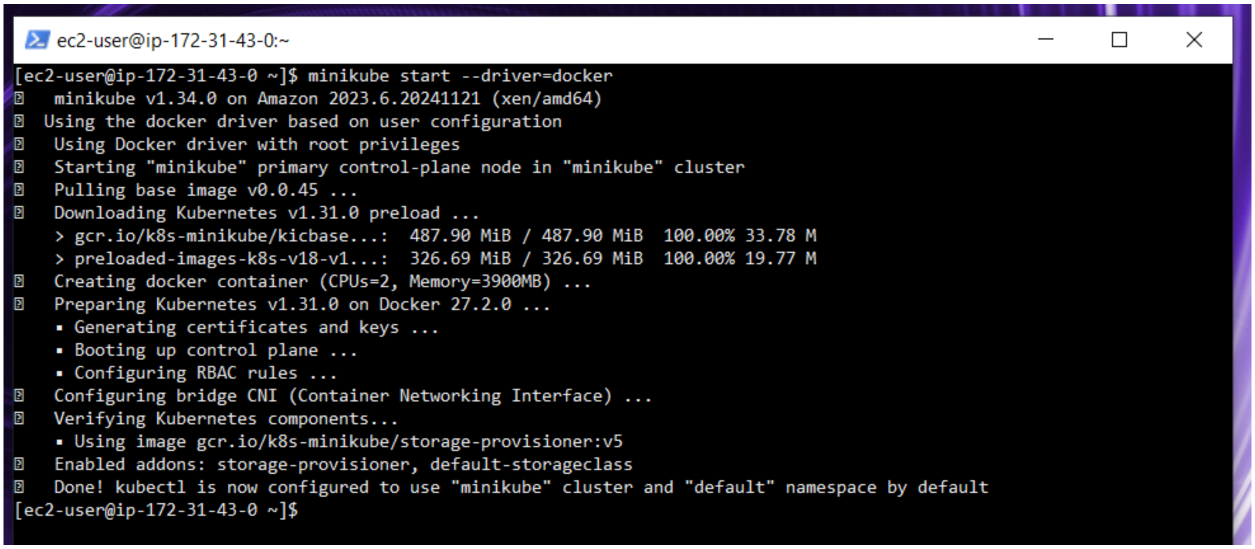
- curl -LO "https://dl.k8s.io/release/$(curl -L -s https://dl.k8s.io/release/stable.txt)/bin/linux/amd64/kubectl"
- chmod +x kubectl
- sudo mv kubectl /usr/local/bin/
- kubectl version –client



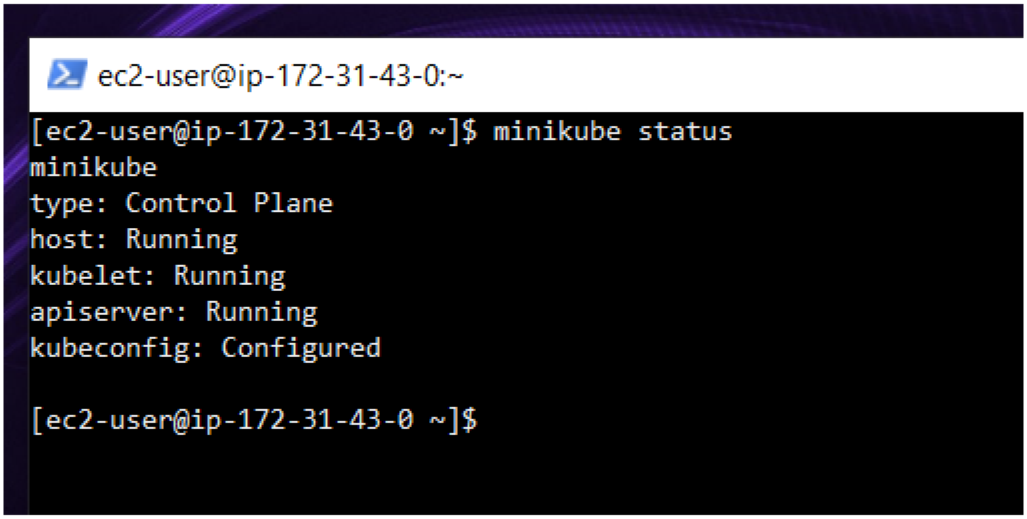
```
[ec2-user@ip-172-31-43-0 ~]$  curl -LO "https://dl.k8s.io/release/$(curl -L -s https://dl.k8s.io/release/stable.txt)/bin
/linux/amd64/kubectl"
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100   138  100   138    0     0    593      0 --:--:-- --:--:-- --:--:--   594
100 53.7M  100 53.7M    0     0  63.3M      0 --:--:-- --:--:-- --:--:-- 73.5M
[ec2-user@ip-172-31-43-0 ~]$  chmod +x kubectl
[ec2-user@ip-172-31-43-0 ~]$ chmod +x kubectl
[ec2-user@ip-172-31-43-0 ~]$ sudo mv kubectl /usr/local/bin/
[ec2-user@ip-172-31-43-0 ~]$ kubectl version --client
Client Version: v1.31.3
Kustomize Version: v5.4.2
[ec2-user@ip-172-31-43-0 ~]$
```

Step4 : Start Minikube with Docker

- minikube start --driver=docker
- minikube status



```
[ec2-user@ip-172-31-43-0 ~]$ minikube start --driver=docker
▯   minikube v1.34.0 on Amazon 2023.6.20241121 (xen/amd64)
▯  Using the docker driver based on user configuration
▯   Using Docker driver with root privileges
▯   Starting "minikube" primary control-plane node in "minikube" cluster
▯   Pulling base image v0.0.45 ...
▯   Downloading Kubernetes v1.31.0 preload ...
     > gcr.io/k8s-minikube/kicbase...:  487.90 MiB / 487.90 MiB  100.00% 33.78 M
     > preloaded-images-k8s-v18-v1...:  326.69 MiB / 326.69 MiB  100.00% 19.77 M
▯   Creating docker container (CPUs=2, Memory=3900MB) ...
▯   Preparing Kubernetes v1.31.0 on Docker 27.2.0 ...
     ▪ Generating certificates and keys ...
     ▪ Booting up control plane ...
     ▪ Configuring RBAC rules ...
▯   Configuring bridge CNI (Container Networking Interface) ...
▯   Verifying Kubernetes components...
     ▪ Using image gcr.io/k8s-minikube/storage-provisioner:v5
▯   Enabled addons: storage-provisioner, default-storageclass
▯   Done! kubectl is now configured to use "minikube" cluster and "default" namespace by default
[ec2-user@ip-172-31-43-0 ~]$
```

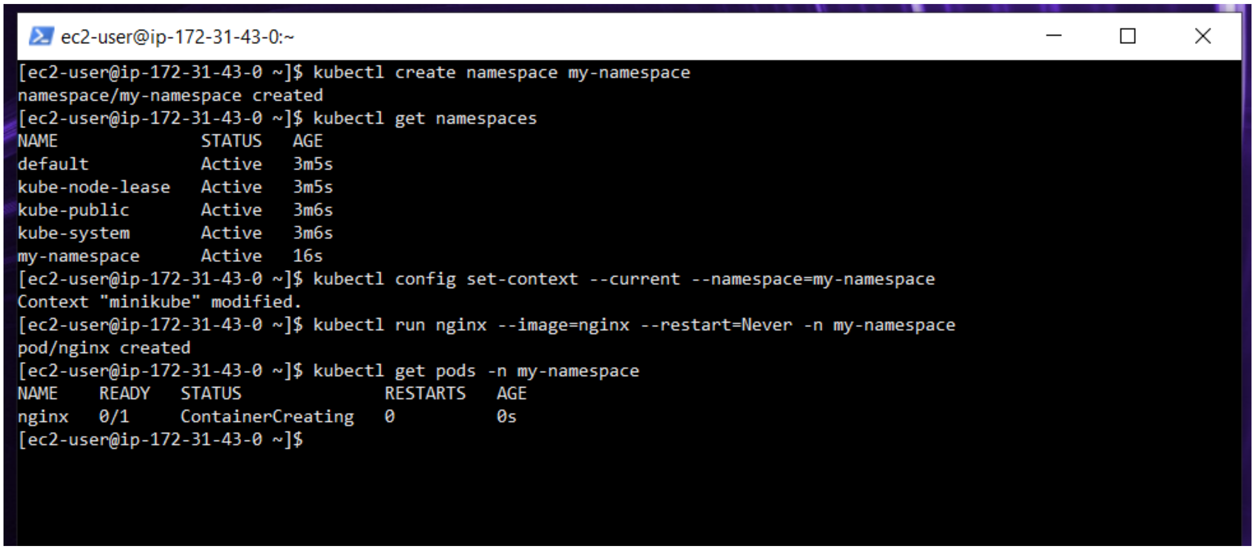


```
[ec2-user@ip-172-31-43-0 ~]$ minikube status
minikube
type: Control Plane
host: Running
kubelet: Running
apiserver: Running
kubeconfig: Configured

[ec2-user@ip-172-31-43-0 ~]$
```

Step5 : Kubernetes namespaces

- kubectl create namespace my-namespace
- kubectl get namespaces
- kubectl config set-context --current --namespace=my-namespace
- kubectl run nginx --image=nginx --restart=Never -n my-namespace
- kubectl get pods -n my-namespace



```
[ec2-user@ip-172-31-43-0 ~]$ kubectl create namespace my-namespace
namespace/my-namespace created
[ec2-user@ip-172-31-43-0 ~]$ kubectl get namespaces
NAME              STATUS   AGE
default           Active   3m5s
kube-node-lease   Active   3m5s
kube-public       Active   3m6s
kube-system       Active   3m6s
my-namespace      Active   16s
[ec2-user@ip-172-31-43-0 ~]$ kubectl config set-context --current --namespace=my-namespace
Context "minikube" modified.
[ec2-user@ip-172-31-43-0 ~]$ kubectl run nginx --image=nginx --restart=Never -n my-namespace
pod/nginx created
[ec2-user@ip-172-31-43-0 ~]$ kubectl get pods -n my-namespace
NAME    READY   STATUS              RESTARTS   AGE
nginx   0/1     ContainerCreating   0          0s
[ec2-user@ip-172-31-43-0 ~]$
```