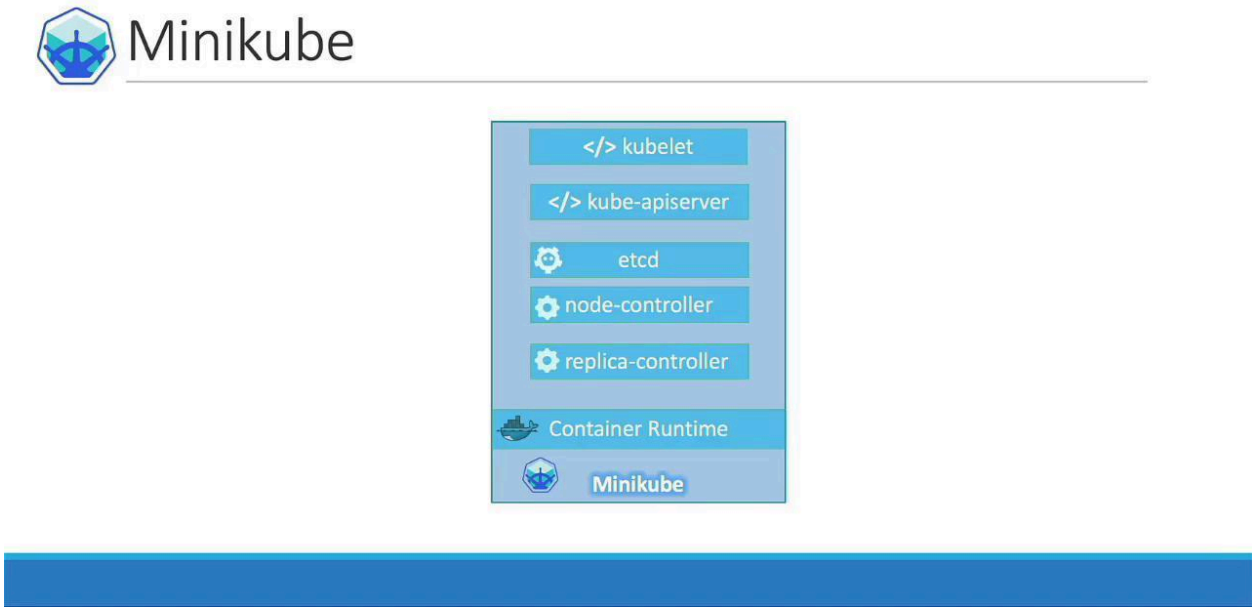
INSTALLING MINIKUBE AND KUBECTL IN WSL(UBUNTU)

Minikube is the easiest way to launch a local Kubernetes cluster.



How Minikube Works

Minikube packages the complete Kubernetes bundle into an ISO image that is automatically downloaded and deployed using its command-line utility. It integrates seamlessly with various virtualization platforms, such as:

- Oracle VirtualBox
- VMware Fusion
- Hyper-V (for Windows users)
- KVM (for Linux users)

To interact with your Kubernetes cluster, you also need to install the kubectl command-line tool. Here's a quick summary of the requirements to get started with Minikube:

Requirement	Description
Hypervisor	A virtualization tool such as VirtualBox, Hyper-V, or KVM
kubectl	The official Kubernetes command-line tool
Minikube executable	The utility that automates ISO download and cluster deployment

Step 1: Install Dependencies in Ubuntu (WSL)

Open your Ubuntu WSL terminal:

```
sudo apt update -y

sudo apt install -y curl wget apt-transport-https
ca-certificates gnupg lsb-release conntrack
```

🐳 **Step 2: Install Docker (Optional but Recommended)**

Minikube can use Docker as a driver:

```
sudo apt install -y docker.io

sudo usermod -aG docker $USER

newgrp docker
```

Verify Docker:

```
docker version
```

📦 **Step 3: Install kubectl (Kubernetes CLI)**

LINK: https://gist.github.com/cmendible/ee6119ee202becd743888435e830b987

```
curl -LO
https://storage.googleapis.com/kubernetes-release/release/v1.16.0/bin/linux/amd6
4/kubectl
```

chmod +x ./kubectl

sudo mv ./kubectl /usr/local/bin/kubectl

windowsUser=$1

mkdir -p ~/.kube

ln -sf "/mnt/c/users/$windowsUser/.kube/config" ~/.kube/config —(try without this line once)

kubectl version

Step 4: Install Minikube

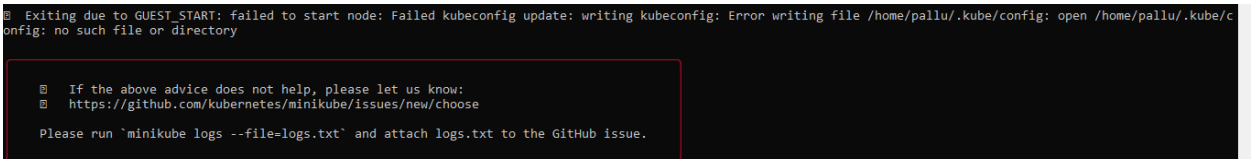
```
curl -LO
https://storage.googleapis.com/minikube/releases/latest/minikube-linux-amd64
chmod +x minikube-linux-amd64
sudo mv minikube-linux-amd64 /usr/local/bin/minikube
```

** Verify: `minikube version`

Step 5: Start Minikube (Using Docker driver)

```
minikube start --driver=docker
```

Got the below error:



Solution;

rm ~/.kube/config

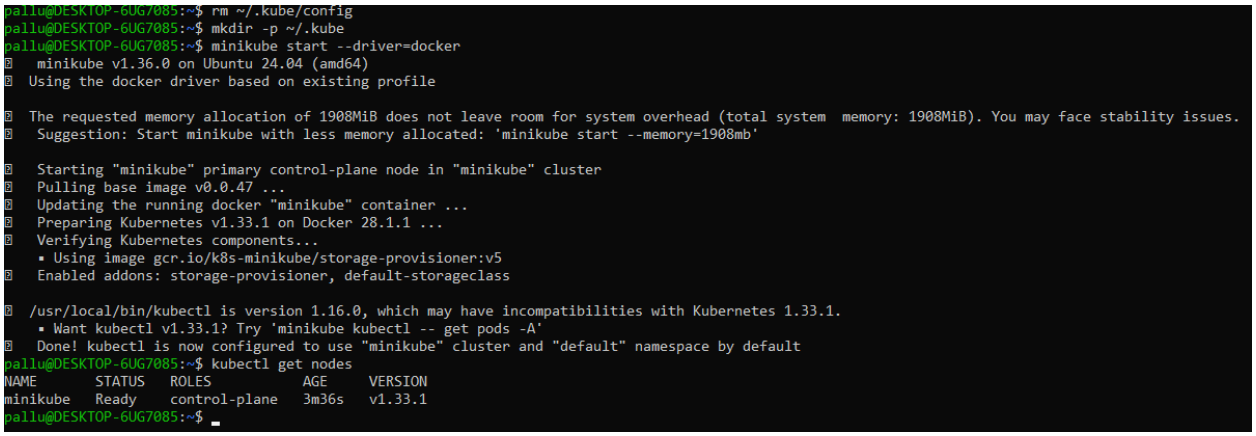
mkdir -p ~/.kube

minikube start --driver=docker

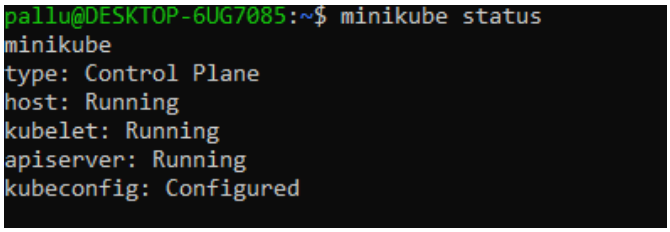
Verify After Restart

Once it starts:

```
kubectl get nodes
```



minikube status



Deploying a Sample Application

With your cluster up and running, deploy a sample application to verify that the environment is fully operational.

1. Create a Deployment

Deploy a sample echoserver application with the following command:

```
kubectl create deployment hello-minikube --image=k8s.gcr.io/echoserver:1.10
```

You should see a confirmation message:

```
deployment.apps/hello-minikube created
```

2. Verify the Deployment

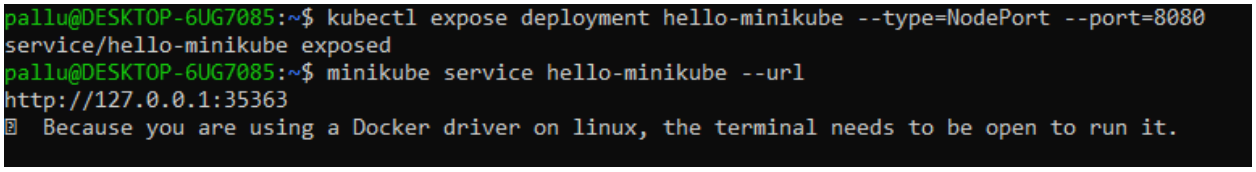
Check the deployment status with

```
kubectl get deployments
```

3. Expose the Deployment as a Service

Expose the deployment on port 8080 using a NodePort service:

```
kubectl expose deployment hello-minikube --type=NodePort --port=8080
```



To obtain the URL of the exposed service, run:

```
minikube service hello-minikube --url
```

Open the URL in your browser to view details of the application. Although the interface may be basic, this confirms your cluster's functionality.

URL: http://127.0.0.1:35363/