**Prerequisites**

1. Both nodes need Docker installed.
2. Ensure both nodes have kubeadm, kubelet, and kubectl installed.
3. The script should be run on the master and worker nodes with root privileges.

**Step 1**: Run the following script on both nodes (Master and Worker) for the initial setup

#!/bin/bash

sudo apt-get update -y && sudo apt-get upgrade -y

# Disable swap

sudo swapoff -a

sudo sed -i '/ swap / s/^/#/' /etc/fstab

# Enable time-sync with an NTP server

sudo apt install systemd-timesyncd

sudo timedatectl set-ntp true

# Install required packages for Kubernetes

sudo apt-get install -y apt-transport-https ca-certificates curl

# Add Kubernetes' official GPG key and repo

curl -s https://packages.cloud.google.com/apt/doc/apt-key.gpg | sudo apt-key add –

echo "deb https://apt.kubernetes.io/ kubernetes-xenial main" | sudo tee /etc/apt/sources.list.d/kubernetes.list

# Install kubeadm, kubelet, and kubectl

sudo apt-get update -y

sudo apt-get install -y kubelet kubeadm kubectl

sudo apt-mark hold kubelet kubeadm kubectl

# Enable IP forwarding

echo "net.bridge.bridge-nf-call-iptables=1" | sudo tee -a /etc/sysctl.conf

echo "net.bridge.bridge-nf-call-ip6tables=1" | sudo tee -a /etc/sysctl.conf

sudo sysctl –system

**Step 2**: Run the following command on the Master node only

#!/bin/bash

# Initialize the Kubernetes master node

sudo kubeadm init --pod-network-cidr=192.168.0.0/16

# Set up kubeconfig for the master node's kubectl access

mkdir -p $HOME/.kube

sudo cp -i /etc/kubernetes/admin.conf $HOME/.kube/config

sudo chown $(id -u):$(id -g) $HOME/.kube/config

# Apply a network plugin (Calico in this example)

kubectl apply -f https://docs.projectcalico.org/v3.14/manifests/calico.yaml

# Get the kubeadm join command with the token and hash to join the worker node

echo "Use the following command on the worker node to join the cluster:"

sudo kubeadm token create --print-join-command

**Step 3**: Run the output from the above command on the Worker node

**Steps for Installing Minikube on Linux**

1. **Install Minikube**:

# Download the latest version of Minikube

curl -LO https://storage.googleapis.com/minikube/releases/latest/minikube-linux-amd64

# Install the Minikube binary to /usr/local/bin

sudo install minikube-linux-amd64 /usr/local/bin/minikube

1. **Install kubectl**:

# Download kubectl

curl -LO "https://dl.k8s.io/release/$(curl -L -s https://dl.k8s.io/release/stable.txt)/bin/linux/amd64/kubectl"

# Install kubectl to /usr/local/bin and make it executable

sudo install -o root -g root -m 0755 kubectl /usr/local/bin/kubectl

1. **Start Minikube**:

# Start Minikube with Docker as the driver

minikube start --driver=docker

minikube status

1. **Use kubectl to Interact with Minikube**:

Minikube configures kubectl automatically to use the Minikube cluster context.

# Get cluster information

kubectl cluster-info

# List all nodes in the cluster

kubectl get nodes