**#Master Worker Nodes**

**#Root user access**

sudo su

**#setting K8s Cluster version**

export k8s\_version="v1.31"

echo $k8s\_version

**#Creating Jube config folder**

mkdir -p $HOME/.kube

**#Update the system's package list and install necessary dependencies**

sudo apt-get update

sudo apt install apt-transport-https curl -y

**## Install containerd**

sudo mkdir -p /etc/apt/keyrings

curl -fsSL <https://download.docker.com/linux/ubuntu/gpg> | sudo gpg --dearmor -o /etc/apt/keyrings/docker.gpg

echo "deb [arch=$(dpkg --print-architecture) signed-by=/etc/apt/keyrings/docker.gpg] <https://download.docker.com/linux/ubuntu> $(lsb\_release -cs) stable" | sudo tee /etc/apt/sources.list.d/docker.list > /dev/null

sudo apt-get update

sudo apt-get install containerd.io -y

**## Create containerd configuration**

sudo mkdir -p /etc/containerd

sudo containerd config default | sudo tee /etc/containerd/config.toml

**## Edit /etc/containerd/config.toml**

sudo sed -i -e 's/SystemdCgroup = false/SystemdCgroup = true/g' /etc/containerd/config.toml

**#Restart containerd:**

sudo systemctl restart containerd

**## Install Kubernetes**

curl -fsSL https://pkgs.k8s.io/core:/stable:/$k8s\_version/deb/Release.key | sudo gpg --dearmor -o /etc/apt/keyrings/kubernetes-apt-keyring.gpg

echo 'deb [signed-by=/etc/apt/keyrings/kubernetes-apt-keyring.gpg] https://pkgs.k8s.io/core:/stable:/'"$k8s\_version"'/deb/ /' | sudo tee /etc/apt/sources.list.d/kubernetes.list

sudo apt-get update

sudo apt-get install -y kubelet kubeadm kubectl

sudo apt-mark hold kubelet kubeadm kubectl

sudo systemctl enable --now kubelet

**## Disable swap**

sudo swapoff -a

**##** **Enable kernel modules**

sudo modprobe br\_netfilter

**# Add some settings to sysctl**

sudo sysctl -w net.ipv4.ip\_forward=1

**#Master Node only**

**## Initialize the Cluster (Run only on master)**

sudo kubeadm init --pod-network-cidr=10.244.0.0/16

mkdir -p $HOME/.kube

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

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

**## Install Flannel (Run only on master)**

kubectl apply -f https://github.com/flannel-io/flannel/releases/latest/download/kube-flannel.yml

**## Verify Installation**

kubectl get pods --all-namespaces

**#After Kubeadm installation needs to run on worker nodes**

kubeadm join xxxxxx:6443 --token xxxxxxxxx \

--discovery-token-ca-cert-hash xxxxxxxxxxxxxxx

vi $HOME/.kube/config #copy eh contents of this file from master node

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

kubectl get node

kubectl get pods --all-namespaces