**Kubernetes Cluster installation using kubeadm**

Follow this documentation to set up a Kubernetes cluster on **CentOS 7** Virtual machines.

This documentation guides you in setting up a cluster with one master node and two worker nodes.

Master: t2.medium Worker Nodes: t2.micro

**Ports require for kubernetes master**

6443

32750

10250

4443

443

8080

179 --> Should be allowed for Master and Worker nodes.

**On both Kmaster and Kworker Nodes**

Perform all the commands as root user unless otherwise specified

**Install, enable and start docker service**

Use the Docker repository to install docker.

If you use docker from CentOS OS repository, the docker version might be old to work with Kubernetes v1.13.0 and above

```sh

yum install -y -q yum-utils device-mapper-persistent-data lvm2 > /dev/null 2>&1

yum-config-manager --add-repo https://download.docker.com/linux/centos/docker-ce.repo > /dev/null 2>&1

yum install -y -q docker-ce >/dev/null 2>&1

systemctl enable docker

systemctl start docker

**Disable SELinux**

setenforce 0

sed -i --follow-symlinks 's/^SELINUX=enforcing/SELINUX=disabled/' /etc/sysconfig/selinux

**Disable Firewall**

systemctl disable firewalld

systemctl stop firewalld

**Disable swap**

sed -i '/swap/d' /etc/fstab

swapoff -a

**Update sysctl settings for Kubernetes networking**

cat >>/etc/sysctl.d/kubernetes.conf<<EOF

net.bridge.bridge-nf-call-ip6tables = 1

net.bridge.bridge-nf-call-iptables = 1

EOF

sysctl --system

**Kubernetes Setup**

**Add yum repository**

cat >>/etc/yum.repos.d/kubernetes.repo<<EOF

[kubernetes]

name=Kubernetes

baseurl=https://packages.cloud.google.com/yum/repos/kubernetes-el7-x86\_64

enabled=1

gpgcheck=1

repo\_gpgcheck=1

gpgkey=https://packages.cloud.google.com/yum/doc/yum-key.gpg

https://packages.cloud.google.com/yum/doc/rpm-package-key.gpg

EOF

**Install Kubernetes**

yum install -y kubeadm-1.15.6-0.x86\_64 kubelet-1.15.6-0.x86\_64 kubectl-1.15.6-0.x86\_64

**Enable and Start kubelet service**

systemctl enable kubelet

systemctl start kubelet

**On kmaster**

**Initialize Kubernetes Cluster**

kubeadm init --apiserver-advertise-address=<MasterServerIP> --pod-network-cidr=192.168.0.0/16

**Copy kube config**

To be able to use kubectl command to connect and interact with the cluster, the user needs kube config file.

In my case, the user account is praveen

mkdir /home/praveen/.kube

cp /etc/kubernetes/admin.conf /home/praveen/.kube/config

chown -R praveen:praveen /home/praveen/.kube

**Deploy Calico network**

This has to be done as the user in the above step (in my case it is **praveen**)

kubectl create -f https://docs.projectcalico.org/v3.9/manifests/calico.yaml

**Cluster join command**

kubeadm token create --print-join-command

**On Kworker**

**Join the cluster**

Use the output from **kubeadm token create** command in previous step from the master server and run here.

**Verifying the cluster**

**Get Nodes status**

kubectl get nodes

**Get component status**

kubectl get cs