**Set up load balancer node**

##### **Install Haproxy**

|  |  |
| --- | --- |
| yum update && yum install -y haproxy |  |

##### **Configure haproxy**

Append the below lines to **/etc/haproxy/haproxy.cfg**

|  |
| --- |
| frontend kubernetes-frontend  bind 172.16.16.100:6443  mode tcp  option tcplog  default\_backend kubernetes-backend  backend kubernetes-backend  mode tcp  option tcp-check  balance roundrobin  server kmaster1 172.16.16.101:6443 check fall 3 rise 2  server kmaster2 172.16.16.102:6443 check fall 3 rise 2 |

##### **Restart haproxy service**

|  |
| --- |
| systemctl restart haproxy |

## On all kubernetes nodes (kmaster1, kmaster2, kworker1)

##### **Disable Firewall**

|  |
| --- |
| systemctl stop firewalld  systemctl disable firewalld |

##### **Disable swap**

|  |
| --- |
| swapoff -a; sed -i '/swap/d' /etc/fstab |

##### **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 |

##### **Install docker engine**

|  |
| --- |
| $ sudo yum install -y yum-utils  $ sudo yum-config-manager \  --add-repo \  <https://download.docker.com/linux/centos/docker-ce.repo>  sudo yum install docker-ce docker-ce-cli containerd.io |

### Kubernetes Setup

##### **Add yum repository**

|  |
| --- |
| cat <<EOF | sudo tee /etc/yum.repos.d/kubernetes.repo  [kubernetes]  name=Kubernetes  baseurl=https://packages.cloud.google.com/yum/repos/kubernetes-el7-\$basearch  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  exclude=kubelet kubeadm kubectl  EOF  # Set SELinux in permissive mode (effectively disabling it)  sudo setenforce 0  sudo sed -i 's/^SELINUX=enforcing$/SELINUX=permissive/' /etc/selinux/config |

##### **Install Kubernetes components**

|  |
| --- |
| sudo yum install -y kubelet kubeadm kubectl --disableexcludes=kubernetes |

## On any one of the Kubernetes master node (Eg: kmaster1)

##### **Initialize Kubernetes Cluster**

|  |
| --- |
| kubeadm init --control-plane-endpoint="172.16.16.100:6443" --upload-certs --apiserver-advertise-address=172.16.16.101 --pod-network-cidr=192.168.0.0/16 |

Copy the commands to join other master nodes and worker nodes.

##### **Deploy Calico network**

|  |
| --- |
| kubectl --kubeconfig=/etc/kubernetes/admin.conf create -f <https://docs.projectcalico.org/v3.15/manifests/calico.yaml> |

## Join other nodes to the cluster (kmaster2 & kworker1)

Use the respective kubeadm join commands you copied from the output of kubeadm init command on the first master.

IMPORTANT: You also need to pass --apiserver-advertise-address to the join command when you join the other master node.

## Downloading kube config to your local machine

**On your host machine**

|  |
| --- |
| mkdir ~/.kube  scp root@172.16.16.101:/etc/kubernetes/admin.conf ~/.kube/config |

## Verifying the cluster

|  |
| --- |
| kubectl cluster-info  kubectl get nodes  kubectl get cs |