System Prerequisites

1. **Download & Install CentOS 7 Min**
2. Creating a master node
3. **System requirements (Master)**
4. 2048 mb - RAM
5. 2 core processor
6. 20GB Disk (safer side)
7. **The Full Step by Step Installation Video:**   
   [https://www.you](https://www.youtube.com/watch?v=nbp9zxkmi74&t=138s)
8. The master node will not get initiated if the RAM and virtual CPU cores not sufficient

***Note: You don’t have to worry if you are using VirtualBox. You can always increase it.***

1. If you are using VirtualBox, make sure you have a single Network Interface and sometimes **Adapter 1** in VirtualBox does not work on **Bridged** Setting. You have to enable the second adapter and disable the first one.

Overview

This document will help you to install the k8 cluster. The document is purely for learning purposes and I do not recommend installing this setup for production use. The cluster installation will give you an idea about the installation process and what to check if something goes wrong.

**Please follow the steps:**

1. **Download Minimal ISO for OS**

[CentOS 7](http://centos.excellmedia.net/7.9.2009/isos/x86_64/CentOS-7-x86_64-Minimal-2009.iso)

1. **Complete the CentOS installation - Basic Installation**
2. **Setup static IP Address**

nmtui edit

1. **Update system hostname (all system):** vim /etc/hostname

**Example:**

k8-master

1. **Update hosts file (all node info):**  vim /etc/hosts

**Example:**

192.168.55.10 k8-master

192.168.55.20 K8-worker

192.168.55.30 k8-worker2

1. **Update system packages**

yum update

1. **Turn-Off Swap (all nodes)**

swapoff -a

vim /etc/fstab

*To permanently off the swap we need to comment the swap partition form* ***/etc/fstab***

1. **Disable Firewall (all nodes)**

sudo systemctl stop firewalld

*To permanently disable the firewall:*

systemctl disable firewalld

1. **Install below mentioned packages (All nodes):**

yum install -y wget

yum install -y vim

yum install -y git

1. **Install docker-runtime (All nodes)**

In here I wanted to use doc

[Link](https://docs.docker.com/engine/install/centos/) - Please subscribe Brother if possible

1. Install the **yum-utils**

yum install -y yum-utils

sudo yum-config-manager \

--add-repo \

<https://download.docker.com/linux/centos/docker-ce.repo>

1. **Install docker engine**

sudo yum install containerd.io

**~~Install cri-dockerd (to use docker is a runtime for K8)~~**

[~~Link~~](https://github.com/Mirantis/cri-dockerd)

1. **Install required packages:**

**kubeadm, kubelet, kubectl**

[Link](https://kubernetes.io/docs/setup/production-environment/tools/kubeadm/install-kubeadm/)

1. **Init cluster**

kubeadm init

1. **Verify the cluster info**

If check system pods before CNI configuration,

1. **Install Calico CNI**

[Link](https://www.golinuxcloud.com/calico-kubernetes/)

*By default Calico uses subnet* 192.168.0.16/24.

*If you already using that subnet for nodes, you may need to change subnet by changing below mentioned parameter in calico.yaml (before deployment)*

- name: CALICO\_IPV4POOL\_CIDR

value: "10.142.0.0/24"

Your Kubernetes control-plane has initialized successfully!

To start using your cluster, you need to run the fol lowing as a regular user:

mkdir -p $HOME/.kube

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

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

Alternatively, if you are the root user, you can run:

export KUBECONFIG=/etc/kubernetes/admin.conf

You should now deploy a pod network to the cluster.

Run "kubectl apply -f [podnetwork].yaml" with one of the options listed at:

https://kubernetes.io/docs/concepts/cluster-administration/addons/

Then you can join any number of worker nodes by running the following on each as root:

export KUBECONFIG=/etc/kubernetes/admin.conf

kubeadm init --cri-socket unix:///run/cri-dockerd.sock

**If the Join command token is expired or you forgot:**

kubeadm token create --print-join-command

**Remove node from the cluster (--ignore-daemonsets will be used if you do not care about pods running on that node)**

kubectl drain <node hostname> --ignore-daemonsets

kubectl delete <node hostname>

**On the Node:** kubeadm reset

Errors:

# Kubeadm unknown service runtime.v1alpha2.RuntimeService

Solution:

rm /etc/containerd/config.toml

systemctl restartcontainerd

kubeadm init

[ERROR FileContent--proc-sys-net-ipv4-ip\_forward]:

Solution: [Link](https://stackoverflow.com/questions/44125020/cant-install-kubernetes-on-vagrant)

echo '1' > /proc/sys/net/ipv4/ip\_forward

bridge

modprobe br\_netfilter

kubeadm join 192.168.55.10:6443 --token 7r204l.dokibh52fa83umhi \

--discovery-token-ca-cert-hash sha256:a18a6fe3b2a068853e69e1e4fb4b24e7b37b11f0f7a83a6feb34260572e7551f