**Installing MiniKube on CentOS 7 with KVM**

This is the step by step installation of Minikube on CentOS 7 with KVM Hypervisor.

Minikube is an open source tool designed to enable developers and system administrators to bootstrap a single node Kubernetes cluster in their local machine in minutes.

This is ideal for development and POC purposes, but not for running Production workloads.

Kubernetes Supported features

Some of the features which you can run from Kubernetes running in Minikube are:

* DNS
* NodePorts
* ConfigMaps and Secrets
* Dashboards
* Container Runtime: Docker, [CRI-O](https://cri-o.io/), and [containerd](https://github.com/containerd/containerd)
* Enabling CNI (Container Network Interface)
* Ingress
* PersistentVolumes of type **hostPath**

Minikube supports both VirtualBox and KVM hypervisors., but this guide is for running Minikube with KVM on a CentOS 7 Linux machine.

Step 1: Update system

Run the following commands to update all system packages to the latest release:

sudo yum -y update

Step 2: Install KVM Hypervisor

We’ll install KVM and QEMU plus some tools like *libguestfs-tools* and *virt-top* which comes in handy when administering KVM. Install them as below:

sudo yum -y install epel-release

sudo yum -y install gcc libvirt libvirt-devel qemu-kvm virt-install virt-top libguestfs-tools bridge-utils

Confirm that the kernel modules are loaded:

$ **sudo lsmod | grep kvm**

kvm\_intel 147785 0

kvm 464964 1 kvm\_intel

Start and enable libvirtd service:

sudo systemctl start libvirtd

sudo systemctl enable libvirtd

Confirm that libvirtd service is running.

$ systemctl status libvirtd

● libvirtd.service - Virtualization daemon

Loaded: loaded (/usr/lib/systemd/system/libvirtd.service; enabled; vendor preset: enabled)

Active: active (**running**) since Mon 2020-01-20 14:33:07 EAT; 1s ago

Docs: man:libvirtd(8)

<https://libvirt.org>

Main PID: 20569 (libvirtd)

Tasks: 20 (limit: 32768)

Memory: 70.4M

CGroup: /system.slice/libvirtd.service

├─ 2653 /usr/sbin/dnsmasq --conf-file=/var/lib/libvirt/dnsmasq/default.conf --leasefile-ro --dhcp-script=/usr/libexec/libvirt\_leaseshelper

├─ 2654 /usr/sbin/dnsmasq --conf-file=/var/lib/libvirt/dnsmasq/default.conf --leasefile-ro --dhcp-script=/usr/libexec/libvirt\_leaseshelper

└─20569 /usr/sbin/libvirtd

Jan 20 14:33:07 cent8.localdomain systemd[1]: Starting Virtualization daemon…

Jan 20 14:33:07 cent8.localdomain systemd[1]: Started Virtualization daemon.

Jan 20 14:33:08 cent8.localdomain dnsmasq[2653]: read /etc/hosts - 2 addresses

Jan 20 14:33:08 cent8.localdomain dnsmasq[2653]: read /var/lib/libvirt/dnsmasq/default.addnhosts - 0 addresses Jan 20 14:33:08 cent8.localdomain dnsmasq-dhcp[2653]: read /var/lib/libvirt/dnsmasq/default.hostsfile

If not running after installation, then start and set it to start at boot.

sudo systemctl enable --now libvirtd

You user should be part of **libvirt** group.

sudo usermod -a -G libvirt $(whoami)

newgrp libvirt

Open the file*/etc/libvirt/libvirtd.conf* for editing.

sudo vi /etc/libvirt/libvirtd.conf

Set the UNIX domain socket group ownership to libvirt, (around line **85**)

unix\_sock\_group = "**libvirt**"

Set the UNIX socket permissions for the R/W socket (around line **102**)

unix\_sock\_rw\_perms = "**0770**"

Restart libvirt daemon after making the change.

sudo systemctl restart libvirtd.service

Step 3: Download minikube

You need to download the minikube binary. I will put the binary under /usr/local/bin directory since it is inside **$PATH**.

sudo yum -y install wget

wget <https://storage.googleapis.com/minikube/releases/latest/minikube-linux-amd64>

chmod +x minikube-linux-amd64

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

Confirm installation of Minikube on your system.

$ minikube version

minikube version: v1.26

commit: 0a0ad764652082477c00d51d2475284b5d39ceed

Step 4: Install kubectl

We need kubectl which is a command-line tool used to deploy and manage applications on Kubernetes.

curl -LO [https://storage.googleapis.com/kubernetes-release/release/`curl](https://storage.googleapis.com/kubernetes-release/release/%60curl) -s [https://storage.googleapis.com/kubernetes-release/release/stable.txt`/bin/linux/amd64/kubectl](https://storage.googleapis.com/kubernetes-release/release/stable.txt%60/bin/linux/amd64/kubectl)

Give the file executable bit and move to a location in your PATH.

chmod +x kubectl

sudo mv kubectl /usr/local/bin/

Confirm the version of kubectl installed.

$ kubectl version --client -o json

{

"clientVersion": {

"major": "1",

"minor": "22",

"gitVersion": "v1.22.2",

"gitCommit": "8b5a19147530eaac9476b0ab82980b4088bbc1b2",

"gitTreeState": "clean",

"buildDate": "2021-09-15T21:38:50Z",

"goVersion": "go1.16.8",

"compiler": "gc",

"platform": "linux/amd64"

}

}

Step 5: Install Docker

**Install the right version of docker-compose**

sudo yum install docker-ce docker-ce-cli containerd.io docker-compose-plugin

You user should be part of **docker-compose** group.

sudo usermod -aG docker $USER && newgrp docker

**Start Docker**

sudo systemctl start docker

***Check if Docker is properly installed***

sudo docker run hello-world

Step 6: Starting minikube

**For a list of options, run:**

$ minikube start --help

**To start minikube run:**

minikube start --driver=docker

**To check minikube status**

minikube status

minikube

type: Control Plane

host: Running

kubelet: Running

apiserver: Running

kubeconfig: Configured

How to Install Docker on CentOS 7

<https://phoenixnap.com/kb/how-to-install-docker-centos-7>

<https://computingforgeeks.com/how-to-install-minikube-on-centos-linux-with-kvm/>