Docker on centos7

Prerequisite for Docker installation:-

1> OS must be 64bit (Use command **uname -m** to check bit)
2> Kernel must be more then 3.10 (Use **uname -r** to check the kernel version)

Documentation for docker :-

https://docs.docker.com/

First check if any docker is preinstalled in the server by using the command "docker –version" or docker -v , if any docker exists then first remove all docker related instance using below command:-

yum remove -y docker docker.io docker-engine docker-ce docker-ee

Step 1 : switch to root user

```
sudo su
```

Step 2 : update repo list

```
yum update -y
```

Step 3 : run ip a and verify the output

Before installing docker

```
[root@ip-172-31-1-76 ~]# ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 9001 qdisc pfifo_fast state UP group default qlen 1000
    link/ether 0a:a3:df:54:b6:c4 brd ff:ff:ff:ff:ff:ff
    inet 172.31.1.76/20 brd 172.31.15.255 scope global noprefixroute dynamic eth0
       valid_lft 3217sec preferred_lft 3217sec
    inet6 fe80::8a3:dfff:fe54:b6c4/64 scope link
       valid_lft forever preferred_lft forever
[root@ip-172-31-1-76 ~]#
```

Step 4 : Install docker engine

a) Make sure your existing packages are up-to-date

yum update

b) Add the yum repo

vim /etc/yum.repos.d/docker.repo

[dockerrepo]

name=Docker main Repository

baseurl=https://yum.dockerproject.org/repo/main/centos/7

enabled=1

gpgcheck=1

gpgkey=https://yum.dockerproject.org/gpg

c) yum repolist all

d) Install the Docker package

yum install docker-engine*

Note:-

gpgcheck= GNU privacy guard, gpgcheck does the signature verification from its central database, If signature verification is successful then we are sure about the security for the rpm package which we downloads or in simple words we can say it checks the license of our RPM package which want to install.

Step 5 : **verify docker installation (changes on ur host)**

```
docker --version
```

```
[root@ip-172-31-1-76 yum.repos.d]# docker --version
Docker version 17.05.0-ce, build 89658be
[root@ip-172-31-1-76 yum.repos.d]# docker -v
Docker version 17.05.0-ce, build 89658be
```

Step 6 : **Start docker services and verify docker bridge is created (changes on your host)**

```
systemctl status docker
```

```
[root@ip-172-31-1-76 yum.repos.d]# systemctl status docker
● docker.service - Docker Application Container Engine
   Loaded: loaded (/usr/lib/systemd/system/docker.service; disabled; vendor preset: disabled)
   Active: inactive (dead)
     Docs: https://docs.docker.com
[root@ip-172-31-1-76 yum.repos.d]#
```

```
systemctl start docker
```

```
[root@ip-172-31-1-76 yum.repos.d]# systemctl start docker
[root@ip-172-31-1-76 yum.repos.d]# systemctl status docker
● docker.service - Docker Application Container Engine
   Loaded: loaded (/usr/lib/systemd/system/docker.service; disabled; vendor preset: disabled)
   Active: active (running) since Tue 2019-06-11 09:00:36 UTC; 7s ago
     Docs: https://docs.docker.com
 Main PID: 15710 (dockerd)
    Tasks: 16
   Memory: 18.8M
```

```
ip a
```

```
[root@ip-172-31-1-76 yum.repos.d]# ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 9001 qdisc pfifo_fast state UP group default qlen 1000
    link/ether 0a:a3:df:54:b6:c4 brd ff:ff:ff:ff:ff:ff
    inet 172.31.1.76/20 brd 172.31.15.255 scope global noprefixroute dynamic eth0
       valid_lft 3037sec preferred_lft 3037sec
    inet6 fe80::8a3:dfff:fe54:b6c4/64 scope link
       valid_lft forever preferred_lft forever
3: docker0: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc noqueue state DOWN group default
    link/ether 02:42:09:f8:83:17 brd ff:ff:ff:ff:ff:ff
    inet 172.17.0.1/16 scope global docker0
       valid_lft forever preferred_lft forever
[root@ip-172-31-1-76 yum.repos.d]#
```

Step 7 : List containers

docker ps -a or docker container ps -a

- For active container use command “docker ps” or “docker container ps”

```
[root@ip-172-31-1-76 yum.repos.d]# docker ps -a
CONTAINER ID        IMAGE               COMMAND             CREATED             STATU
[root@ip-172-31-1-76 yum.repos.d]#
```

Step 8 : List images

docker images

```
[root@ip-172-31-1-76 yum.repos.d]# docker images
REPOSITORY          TAG                 IMAGE ID            CREATED             SIZE
[root@ip-172-31-1-76 yum.repos.d]#
```

Step 8 : Obtain details information about your host

docker info

```
[root@ip-172-31-1-76 ~]# docker info
Containers: 1
 Running: 1
 Paused: 0
 Stopped: 0
Images: 2
Server Version: 17.05.0-ce
Storage Driver: overlay
 Backing Filesystem: xfs
 Supports d_type: true
Logging Driver: json-file
Cgroup Driver: cgroupfs
Plugins:
 Volume: local
 Network: bridge host macvlan null overlay
Swarm: inactive
Runtimes: runc
Default Runtime: runc
Init Binary: docker-init
```

Step 9: To get the list of command used in docker

docker --help

```
[root@ip-172-31-1-76 yum.repos.d]# docker --help

Usage:  docker COMMAND

A self-sufficient runtime for containers

Options:
      --config string      Location of client config files (default "/root/.docker")
  -D, --debug              Enable debug mode
      --help               Print usage
  -H, --host list          Daemon socket(s) to connect to
  -l, --log-level string   Set the logging level ("debug"|"info"|"warn"|"error"|"fatal") (default "info")
      --tls                Use TLS; implied by --tlsverify
      --tlscacert string   Trust certs signed only by this CA (default "/root/.docker/ca.pem")
      --tlscert string     Path to TLS certificate file (default "/root/.docker/cert.pem")
      --tlskey string      Path to TLS key file (default "/root/.docker/key.pem")
      --tlsverify          Use TLS and verify the remote
  -v, --version            Print version information and quit

Management Commands:
  container   Manage containers
  image       Manage images
  network     Manage networks
  node        Manage Swarm nodes
  plugin      Manage plugins
  secret      Manage Docker secrets
  service     Manage services
  stack       Manage Docker stacks
  swarm       Manage Swarm
  system      Manage Docker
  volume      Manage volumes

Commands:
  attach      Attach local standard input, output, and error streams to a running container
  build       Build an image from a Dockerfile
  commit      Create a new image from a container's changes
  cp          Copy files/folders between a container and the local filesystem
```

By default docker is installed in /var/lib/docker directory:-

```
[root@ip-172-31-1-76 ~]# cd /var/lib/docker
[root@ip-172-31-1-76 docker]# ls
containers  image  network  overlay  plugins  swarm  tmp  trust  volumes
[root@ip-172-31-1-76 docker]#
```

After that we can also verify if our docker is running or not with process id, by using command “ps -ef | grep docker”

```
[root@ip-172-31-1-76 docker]# ps -ef | grep docker
root     15710     1  0 09:00 ?        00:00:36 /usr/bin/dockerd
root     15713 15710  0 09:00 ?        00:00:09 docker-containerd -l unix:///var/run/docker/libcontainerd/docker-containerd.sock --metrics-i
0 --start-timeout 2m --state-dir /var/run/docker/libcontainerd/containerd --shim docker-containerd-shim --runtime docker-runc
root     18654 15710  0 11:41 ?        00:00:00 /usr/bin/docker-proxy -proto tcp -host-ip 0.0.0.0 -host-port 1234 -container-ip 172.17.0.2 -
r-port 8080
root     18658 15713  0 11:41 ?        00:00:00 docker-containerd-shim 068a3d563f7bcf4a7b6367a9459db25511b29d2380531f66a0fdfc63a9280258 /var
ker/libcontainerd/068a3d563f7bcf4a7b6367a9459db25511b29d2380531f66a0fdfc63a9280258 docker-runc
root     19790 19650  0 14:31 pts/2    00:00:00 grep --color=auto docker
[root@ip-172-31-1-76 docker]#
```