

Program 8. Integrate kubernetes and Docker

Kubernetes is an open-source platform for managing containers such as Docker. Is a management system that provides a platform for deployment automation. With Kubernetes, you can freely make use of the hybrid, on-premise, and public cloud infrastructure to run deployment tasks of your project.

1. Set Docker to launch at boot by entering the following:

sudo systemctl enable docker

sudo systemctl start docker

2. Verify Docker is running:

sudo systemctl status docker

```
(base) cse@db205:~$ sudo systemctl enable docker
(base) cse@db205:~$ sudo systemctl start docker
(base) cse@db205:~$ sudo systemctl status docker
● docker.service - Docker Application Container Engine
   Loaded: loaded (/lib/systemd/system/docker.service; enabled; vendor preset: enabled)
   Active: active (running) since Tue 2023-04-25 13:37:15 IST; 20min ago
     TriggeredBy: ● docker.socket
       Docs: https://docs.docker.com
    Main PID: 5295 (dockerd)
      Tasks: 9
     Memory: 20.0M
        CPU: 589ms
    CGroup: /system.slice/docker.service
            └─5295 /usr/bin/dockerd -H fd:// --containerd=/run/containerd/containerd.sock
```

3. Use the curl command to download the key, then store it in a safe place (default is /usr/share/keyrings):

curl -fsSL https://packages.cloud.google.com/apt/doc/apt-key.gpg | sudo tee /usr/share/keyrings/kubernetes.gpg

4. To add the Kubernetes repository to your list, enter the following on each node:

echo "deb [arch=amd64 signed-by=/usr/share/keyrings/kubernetes.gpg] http://apt.kubernetes.io/ kubernetes-xenial main" | sudo tee -a /etc/apt/sources.list

5. Kubeadm (Kubernetes Admin) is a tool that helps initialize a cluster. Install Kubernetes tools with the command:

sudo apt install kubeadm kubelet kubectl

Or

sudo snap install kubeadm - - classic

```
(base) cse@db205:~$ sudo snap install kubeadm --classic  
kubeadm 1.27.1 from Canonical** installed
```

sudo snap install kubelet - - classic

sudo snap install kubectl - - classic

```
(base) cse@db205:~$ sudo snap install kubelet --classic  
kubelet 1.27.1 from Canonical** installed  
(base) cse@db205:~$ sudo snap install kubectl --classic  
kubectl 1.27.1 from Canonical** installed
```

sudo apt-mark hold kubeadm kubelet kubectl

Allow the process to complete.

Verify the installation with:

kubeadm version

```
(base) cse@db205:~$ kubeadm version  
kubeadm version: &version.Info{Major:"1", Minor:"27", GitVersion:"v1.27.1", GitCommit:"4c9  
411232e10168d7b050c49a1b59f6df9d7ea4b", GitTreeState:"clean", BuildDate:"2023-04-15T02:17:  
03Z", GoVersion:"go1.20.3", Compiler:"gc", Platform:"linux/amd64"}
```