Kube2SONiC

Deployment Guide

Oct 2023

Revision History

Revision No.	Description	Editor	Date
1.0	Install Docker, Install Kubernetes	Saba Akram	Oct 06, 2023

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Introduction

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Install Docker (MASTER and WORKER NODE)

Following are the steps to install docker:

```
Python
$ sudo apt-get update
```

```
Python
$ sudo apt-get instal l docker.io
```

```
Python
$ docker --version
```

```
Python
$ sudo systemctl start docker
```

```
Python
$ sudo systemctl enable docker
```

```
Python
$ sudo docker ps -a
```

Install Kubernetes

Verify Pre-requisite

 # Set the hostname (MASTER NODE)

```
Python
$ sudo hostnamectl set-hostname master
```

```
Python
$ sudo reboot
```

 # Set the hostname (WORKER NODE)

```
Python
$ sudo config hostname woker1
```

```
Python
$ sudo config save -y
```

```
Python
$ sudo reboot
```

 # Disable swap (MASTER NODE)

```
Python
$ sudo swapoff -a
```

```
Python
$ sudo sed -i '/ swap / s/^/#/' /etc/fstab
```

```
Python
$ sudo vi /etc/fstab
```

comment out the /swapfile line by preceding it with a # symbol

 # Set up the IPV4 bridge (MASTER and WORKER NODE)

```
Python
$ sudo tee /etc/modules-load.d/containerd.conf<<EOF
overlay
br_netfilter
EOF
```

```
Python
$ sudo modprobe overlay
```

```
Python
$ sudo modprobe br_netfilter
```

 # Setup Sysctl params (MASTER and WORKER NODE)

```
Python
$ sudo tee /etc/sysctl.d/kubernetes.conf <<EOF
net.bridge.bridge-nf-call-ip6tables = 1
net.bridge.bridge-nf-call-iptables = 1
net.ipv4.ip_forward = 1
EOF
```

```
Python
$ sudo sysctl --system
```

 # Add the Cgroup drivers (MASTER and WORKER NODE)

```
Python
$ sudo sudo tee /etc/docker/daemon.json<<EOF
{
  "exec-opts": ["native.cgroupdriver=systemd"]
}
EOF
```

```
Python
$ sudo systemctl daemon-reload
```

```
Python
$ sudo systemctl restart docker
```

Install kubelet, kubeadm, and kubectl

(MASTER and WORKER NODE)

Package Name	Version
kubeadm	1.22.2-00
kubectl	1.22.2-00
kubelet	1.22.2-00
kubernetes-cni	0.8.7-00
kubernetes-version	v1.22.2

```
Python
$ sudo apt-get update
```

```
Python
$ sudo apt-get install -y apt-transport-https curl
```

```
Python
$ sudo apt-get install -y gpg-agent
```

```
Python
$ curl -s https://packages.cloud.google.com/apt/doc/apt-key.gpg | sudo apt-key
add -
```

```
Python
$ sudo sh -c 'cat <<EOF >/etc/apt/sources.list.d/kubernetes.list
deb https://apt.kubernetes.io/ kubernetes-xenial main
EOF'
```

Install above mentioned k8s versions

```
Python
$ sudo apt-get update
```

```
Python
$ sudo apt-get install -y kubelet kubeadm kubectl kubernetes-cni
```

Lock current version

```
Python
$ sudo apt-mark hold kubelet kubeadm kubectl
```

Initialize Master

```
Python
$ sudo kubeadm init --kubernetes-version --pod-network-cidr=10.244.0.0/16 --v=5
```

Pod-Network-cider ip details

Save the token to use within 24 hours

Once completed, follow onscreen instructions

```
Python
$ mkdir -p $HOME/.kube
```

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

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

 # Install network Add-ons (MASTER NODE)

```
Python
$ kubectl apply -f https://github.com/weaveworks/weave/releases/download/v2.8.1/weave-daemonset-k8s.yaml (After this step the master node will get in to the Ready state)
```

Join Worker

```
Python
$ sudo kubeadm join <master-ip>:<master-port> --token <> --discovery-token-ca-cert-hash <>
```

Python

```
$ mkdir ~/.kube
```

Python

```
$ scp <user>@<master-ip>:~/.kube/config ~/.kube/
```

Python

```
$ sudo systemctl restart systemd-resolved.service
```

https://github.com/adamdunstan/sonic-nos-vm-lab/tree/main