K8S Cluster Installation

1. Ubuntu 20.04 설치와 환경 설정

❶ 소프트웨어 업데이트 비활성화

❷ Ubuntu 저장소 설정

```
cd /etc/apt
mv sources.list sources.list.bak
nano sources.list
deb http://ftp.daumkakao.com/ubuntu/ focal main
deb http://archive.ubuntu.com/ubuntu/ focal main
deb http://ftp.daumkakao.com/ubuntu/ focal universe
deb http://archive.ubuntu.com/ubuntu/ focal universe
deb http://ftp.daumkakao.com/ubuntu/ focal multiverse
deb http://archive.ubuntu.com/ubuntu/ focal multiverse
deb http://ftp.daumkakao.com/ubuntu/ focal restricted
deb http://archive.ubuntu.com/ubuntu/ focal restricted
```

❸ Package Update

```
apt update
```

❹ 네트워크 툴 설치

```
apt install net-tools
```

❺ SSH 설치

```
apt install openssh-server
systemctl status ssh
systemctl enable ssh
systemctl start ssh
```

2. [All Node] Docker Engine Installation (https://docs.docker.com)

❶ Docker에 필요한 툴 설치

```
apt-get update
apt-get install -y ca-certificates curl software-properties-common apt-transport-https gnupg lsb-release
```

❷ Docker GPG key와 저장소 지정

```
mkdir -p /etc/apt/keyrings
curl -fsSL https://download.docker.com/linux/ubuntu/gpg | gpg --dearmor -o /etc/apt/keyrings/docker.gpg
echo "deb [arch=$(dpkg --print-architecture) signed-by=/etc/apt/keyrings/docker.gpg] https://download.docker.com/linux/ubuntu $(lsb_release -cs) stable" | tee /etc/apt/sources.list.d/docker.list > /dev/null
```

❸ 패키지 업데이트

```
apt update
```

❹ Docker Engine 설치

```
curl -O http://archive.ubuntu.com/ubuntu/pool/main/libs/libseccomp/libseccomp2_2.5.1-1ubuntu1~20.04.2_amd64.deb
dpkg -i libseccomp2_2.5.1-1ubuntu1~20.04.2_amd64.deb
apt install docker-ce docker-ce-cli containerd.io
```

❺ Docker 활성화

```
systemctl enable docker
systemctl start docker
docker version
```

3. K8S 설치 전 준비사항(All Node)(https://kubernetes.io/docs/home)

❶ Swap 비활성화

```
swapoff -a && sed -i '/swap/s/^/#/' /etc/fstab
```

❷ Master와 Worker node 브릿지(스위치) 연결

```
cat<<EOF | tee /etc/sysctl.d/k8s.conf
net.bridge.bridge-nf-call-ip6tables = 1
net.bridge.bridge-nf-call-iptables = 1
EOF
sysctl --system
```

4. [All nodes] Kubeadm, kubect, kubelet Install

❶ K8S GPG key와 저장소 지정

```
apt-get update
apt-get install -y apt-transport-https ca-certificates curl
curl -fsSL https://pkgs.k8s.io/core:/stable:/v1.28/deb/Release.key | sudo gpg --dearmor -o
/etc/apt/keyrings/kubernetes-apt-keyring.gpg
echo 'deb [signed-by=/etc/apt/keyrings/kubernetes-apt-keyring.gpg]
https://pkgs.k8s.io/core:/stable:/v1.28/deb/ /' | tee /etc/apt/sources.list.d/kubernetes.list
```

❷ K8S 저장소의 패키지 업데이트와 K8S 설치

```
apt-get update
apt-get install -y kubelet kubeadm kubectl
apt-mark hold kubelet kubeadm kubectl
```

❸ K8S 서비스 활성화

```
systemctl daemon-reload
systemctl restart kubelet
systemctl enable kubelet
```

5. [Master] Kubeadmn을 이용한 cluster 구성

❶ 마스터 노드 초기화

```
  nano /etc/containerd/config.toml
            disabled_plugins 항목에서 CRI 제거한 뒤
  systemctl restart containerd
  kubeadm init
  ---------------------------------------------
      **kubeadmin join~~을 파일로 저장
      nano /kube.txt
          kubeadmin join~~
    ---------------------------------------
mkdir -p $HOME/.kube
cp -i /etc/kubernetes/admin.conf $HOME/.kube/config
chown $(id -u):$(id -g) $HOME/.kube/config
kubectl get nodes
```

❷ CNI 구성

```
 kubectl apply -f https://github.com/weaveworks/weave/releases/download/v2.8.1/weave-daemonset-k8s-1.11.yaml
 kubectl get nodes
```

6. [Worker Node] Master node와 Worker node join (Cluster 구성)

```
nano /etc/containerd/config.toml
            disabled_plugins 항목에서 CRI 제거한 뒤
systemctl restart containerd
```

```
    ----------------------------------------
```

* kubeadmin join 복사

7. [Master]클러스터 노드 확인

```
kubectl get nodes
```