

# 컨테이너



쿠버네티스

**쿠버네티스 소개**

**에디터**

**설치**

# 가상머신 설치

- powershell> **Enable-WindowsOptionalFeature -Online -FeatureName Microsoft-Hyper-V -All**
- powershell> **mkdir \VMs**
- powershell> **mkdir \VMdata**
- powershell> **New-VM -Name master -MemoryStartupBytes 4GB -BootDevice VHD -  
NewVHDPath .\VMs\master.vhdx -Path .\VMData -NewVHDSIZEBytes 12GB -Generation 2 -Switch External**
- powershell> **Add-VMdvdDrive -VMName master -Path rockylinux.iso**
- powershell> **SET-VMProcessor -VMName master -count 2**
- powershell> **New-VMSwitch -name InternalSwitch -SwitchType Internal**
- powershell> **ADD-VMNetworkAdapter -VMName master -Switchname Internal**

# 쿠버네티스 설치

- master/node]# **cat <<EOF> /etc/hosts**
- 192.168.90.250 master.example.com master
- 192.168.90.110 node.example.com node
- **EOF**
- master/node]# **cat <<EOF> /etc/modules-load.d/k8s-modules.conf**
- br\_netfilter
- overlay
- **EOF**

# 쿠버네티스 설치

- master/node]# **modprobe br\_netfilter**
- master/node]# **modprobe overlay**
- master/node]# **lsmod | grep -e br\_netfilter -e overlay**
  
- master/node]# **cat <<EOF> /etc/sysctl.d/99-k8s.conf**
- net.bridge.bridge-nf-call-iptables = 1
- net.ipv4.ip\_forward = 1
- net.bridge.bridge-nf-call-ip6tables = 1
- **EOF**

# 쿠버네티스 설치

- master/node]# **sysctl --system**
- master/node]# **cat <<EOF> /etc/yum.repos.d/kubernetes.repo**
- [kubernetes]
- name=Kubernetes
- baseurl=https://pkgs.k8s.io/core:/stable:/v1.26/rpm/
- enabled=1
- gpgcheck=1
- gpgkey=https://pkgs.k8s.io/core:/stable:/v1.26/rpm/repodata/repomd.xml.key
- exclude=kubelet kubeadm kubectl cri-tools kubernetes-cni
- **EOF**



# 쿠버네티스 설치

- master/node]# **dnf search --disableexcludes=kubernetes kubectl**
- master]# **dnf install kubeadm kubelet kubectl -y --disableexcludes=kubernetes**
- node]# **dnf install kubeadm kubelet -y --disableexcludes=kubernetete**

# 컨타이너 설치

- master/node]# **cat <<EOF> /etc/yum.repos.d/libcontainer.repo**
- [devel\_kubic\_libcontainers\_stable]
- name=devel\_kubic\_libcontainers\_stable
- type=rpm-md
- baseurl=https://download.opensuse.org/repositories/devel:/kubic:/libcontainers:/stable/CentOS\_9\_Stream/
- gpgcheck=1
- gpgkey=https://download.opensuse.org/repositories/devel:/kubic:/libcontainers:/stable/CentOS\_9\_Stream/repoata/repomd.xml.key
- enabled=1
- **EOF**

# 런타임 설치

- master/node]# **cat <<EOF> /etc/yum.repos.d/crio\_stable.repo**
- [crio]
- name=cri-o for derivatives RHEL
- type=rpm-md
- baseurl=https://download.opensuse.org/repositories/devel:/kubic:/libcontainers:/stable:/cri-o:/1.24:/1.24.6/CentOS\_8/
- gpgcheck=1
- gpgkey=https://download.opensuse.org/repositories/devel:/kubic:/libcontainers:/stable:/cri-o:/1.24:/1.24.6/CentOS\_8/repo/repodata/repomd.xml.key
- enabled=1
- **EOF**

# 런타임 설치

- master]# **dnf repolist**
- master]# **dnf search cri-o cri-o**
- master/node]# **dnf install cri-o -y**
- master/node]# **systemctl enable --now cri-o**
- master/node]# **systemctl is-active cri-o**
- > active

# 쿠버네티스 초기화

- master/node]# curl -o /etc/containers/policy.json  
[https://raw.githubusercontent.com/tangt64/training\\_memos/main/opensource/kubernetes-101/files/policy.json](https://raw.githubusercontent.com/tangt64/training_memos/main/opensource/kubernetes-101/files/policy.json)
- master]# kubeadm init --apiserver-advertise-address=192.168.90.250 \
- --pod-network-cidr=192.168.0.0/16 \
- --service-cidr=10.90.0.0/16
- node]# kubeadm join 192.168.90.250:6443 --token kzu7ci.jylu1yzdcwt85c20 \
- --discovery-token-ca-cert-hash \
- sha256:15a5b5e9c5463ca9c359ec96c8677ddd62615fe3afcf986e4b6703e6cbcdef0b
- master]# systemctl enable --now kubelet

# 쿠버네티스 초기화

- node]# **kubeadm join 192.168.90.250:6443 --token kzu7ci.jylu1yzdcwt85c20 \**
- **--discovery-token-ca-cert-hash \**
- **sha256:15a5b5e9c5463ca9c359ec96c8677ddd62615fe3afcf986e4b6703e6cbcd0b**
- master]# **export KUBECONFIG=/etc/kubernetes/admin.conf**
- master]# **kubectl get pods -A**
- master]# **kubectl get nodes**
- master]# **kubeadm token create --print-join-command**
- **> kubeadm join 192.168.90.250:6443 --token 7tot4i.ry9xoeum6ffw6yu --discovery-token-ca-cert-hash sha256:15a5b5e9c5463ca9c359ec96c8677ddd62615fe3afcf986e4b6703e6cbcd0b**

# 네트워크

- master]# **kubectl create -f**  
**<https://raw.githubusercontent.com/projectcalico/calico/v3.26.1/manifests/tigera-operator.yaml>**
- master]# **wget <https://raw.githubusercontent.com/tangt64/duststack-k8s-auto/master/roles/cni/cni-calico/templates/custom-resources.yaml>**
- master]# **vi custom-resources.yaml**
- > cidr: 192.168.0.0/16
- master]# **kubectl apply -f custom-resources.yaml**

# 네트워크

- master]# **kubectl get pods -A**
- > calico-apiserver calico-apiserver-7cf9cc6788-9q27x 1/1 Running 0 9m26s
- > calico-apiserver calico-apiserver-7cf9cc6788-dcvvs 1/1 Running 0 9m26s
- > calico-system calico-kube-controllers-65bfc7f4d9-2lstq 1/1 Running 0 11m
- > calico-system calico-node-5mwks 1/1 Running 0 11m
- > calico-system calico-node-qqllc 1/1 Running 0 11m
- > calico-system calico-typha-5d7cdf588-q9x2z 1/1 Running 0 11m
- > calico-system csi-node-driver-m8ht6 2/2 Running 0 11m
- > calico-system csi-node-driver-zm6r6 2/2 Running 0 11m



# 네트워크

- master/node]# **curl -o /etc/containers/policy.json**  
**[https://raw.githubusercontent.com/tangt64/training\\_memos/main/opensource/kubernetes-101/files/policy.json](https://raw.githubusercontent.com/tangt64/training_memos/main/opensource/kubernetes-101/files/policy.json)**

OCI도구

**리눅스 커널**

**명령어**

