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KUBERNETES CLUSTER INSTALLATION

Install Kubernetes on Ubuntu Machine

**Harshit Shrivastava**Site Reliability Engineer | RHCE | CKA | AWS | DevOps |
Linux | Terraform | Git | Jenkins |

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Prerequisites:

- ◆ Note: Create 2 fresh Ubuntu instances in VirtualBox/VMWare/KVM.

Turn Off the Swap:

```
swapoff -a
```

Flush Existing IPTABLES:

```
iptables -L
```

```
iptables -F
```

Set Static IP for Your VMs:

Backup Current Configuration:

```
ls /etc/netplan/
```

```
sudo cp /etc/netplan/01-network-manager-all.yaml  
/etc/netplan/01-network-manager-all_backup.yaml
```

Edit Configuration:

```
sudo vim /etc/netplan/01-network-manager-all.yaml
```

Modify the file to include your static IP settings:

network:

version: 2

renderer: networkd

ethernets:

enp0s3:

dhcp4: no

addresses:

- 192.168.1.19/24

gateway4: 192.168.1.101

nameservers:

addresses: [8.8.8.8, 8.8.4.4]

Validate and Apply Configuration:

```
sudo netplan try
```

```
sudo netplan apply
```

Verify Changes:

```
ip a
```

Setup Kubernetes Cluster

On Master & Worker Nodes:

Update and Install Required Packages:

```
sudo apt update
```

```
sudo apt-get install ca-certificates curl gnupg lsb-  
release
```

```
sudo mkdir -p /etc/apt/keyrings
```

```
curl -fsSL  
https://download.docker.com/linux/ubuntu/gpg | sudo  
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" | sudo tee  
/etc/apt/sources.list.d/docker.list > /dev/null
```

```
sudo apt-get update
```

```
sudo apt-get install docker-ce docker-ce-cli  
containerd.io docker-compose-plugin
```

```
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/ ' |  
sudo tee /etc/apt/sources.list.d/kubernetes.list
```

```
sudo apt update
```

```
sudo apt-get install kubeadm kubelet kubectl -y
```

```
swapoff -a
```

```
sudo rm /etc/containerd/config.toml
```

```
sudo systemctl restart containerd
```

On Master Node Only:

Initialize the Cluster:

```
sudo kubeadm init --apiserver-advertise-address=  
<your-private-IP-address> --pod-network-  
cidr=192.168.0.0/16 --ignore-preflight-errors=ALL
```

Replace <your-private-IP-address> with the IP of your VM.

Set Up Kubernetes Configuration:

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

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

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

Apply Network Plugin (Calico):

```
kubect1 apply -f  
https://docs.projectcalico.org/manifests/calico.yaml
```

Wait for about 5 minutes, then you can check the status of nodes and pods.

On Worker Nodes Only:

Join the Cluster:

```
kubeadm join <MasterIP>:6443 --token <token> --discovery-token-ca-  
cert-hash sha256:<Hash>
```

Note: You'll get this command from the master node once initialization is complete.

Feel free to reach out if you have any questions or need further assistance with Kubernetes installation! 🚀

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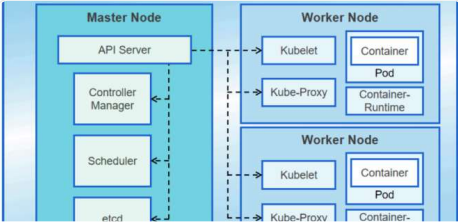




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