**K8s Cluster Setup Using RKE2**

Staging Server Eocean K8s cluster Setup using rancher:

Set hosts entries on all nodes:

192.168.10.101 master1.rke2.com

192.168.10.102 master2.rke2.com

192.168.10.103 master3.rke2.com

10.1.1.101 work1.rke2.com

10.1.1.102 work2.rke2.com

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**For control Plane Node:**

**step:01 (make directory)**

sudo mkdir -p /etc/rancher/rke2/

sudo mkdir -p /var/lib/rancher/rke2/server/manifests/

**step:02 (configure the config file)**

cat<<EOF|tee /etc/rancher/rke2/config.yaml

tls-san:

- master1.rke2.com

- 192.168.10.101

write-kubeconfig-mode: "0600"

etcd-expose-metrics: true

cni:

- calico

EOF

**step:03 (Ingress-Nginx config for RKE2)**

cat<<EOF| tee /var/lib/rancher/rke2/server/manifests/rke2-ingress-nginx-config.yaml

---

apiVersion: helm.cattle.io/v1

kind: HelmChartConfig

metadata:

name: rke2-ingress-nginx

namespace: kube-system

spec:

valuesContent: |-

controller:

metrics:

service:

annotations:

prometheus.io/scrape: "true"

prometheus.io/port: "10254"

config:

use-forwarded-headers: "true"

allowSnippetAnnotations: "true"

EOF

**step:04 (Begin the RKE2 Deployment and start service)**

curl -sfL https://get.rke2.io |INSTALL\_RKE2\_TYPE=server sh -

systemctl enable rke2-server

systemctl start rke2-server

**step:05 (Enable RKE2 service)**

export PATH=$PATH:/var/lib/rancher/rke2/bin

export KUBECONFIG=/etc/rancher/rke2/rke2.yaml

echo "export PATH=$PATH:/var/lib/rancher/rke2/bin" >> $HOME/.bashrc

echo "export KUBECONFIG=/etc/rancher/rke2/rke2.yaml" >> $HOME/.bashrc

**Verifying RKE2 K8s cluster first control plane node after complete above configurations:**



Master1 node is ready and everything working fine. Now let’s join other master/control plane nodes.

**step:06 (Get the token for joining other Control-Plane Nodes)**

cat /var/lib/rancher/rke2/server/node-token

output: K109957f42448fd7f18a1d8c4740a771d56b2860566e216275abcb57f052c2660d8::server:acbd461a1d5485681468bd48b7edfc09

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**For Others control Plane Node:**

**step:01 (make directory)**

sudo mkdir -p /etc/rancher/rke2/

sudo mkdir -p /var/lib/rancher/rke2/server/manifests/

**step:02 (configure the config file)**

cat<<EOF|tee /etc/rancher/rke2/config.yaml

server: https://master1.rke2.com:9345

token: K109957f42448fd7f18a1d8c4740a771d56b2860566e216275abcb57f052c2660d8::server:acbd461a1d5485681468bd48b7edfc09

tls-san:

- master1.rke2.com

- 192.168.10.101

write-kubeconfig-mode: "0600"

etcd-expose-metrics: true

cni:

- calico

EOF

**step:03 (Ingress-Nginx config for RKE2)**

cat<<EOF| tee /var/lib/rancher/rke2/server/manifests/rke2-ingress-nginx-config.yaml

---

apiVersion: helm.cattle.io/v1

kind: HelmChartConfig

metadata:

name: rke2-ingress-nginx

namespace: kube-system

spec:

valuesContent: |-

controller:

metrics:

service:

annotations:

prometheus.io/scrape: "true"

prometheus.io/port: "10254"

config:

use-forwarded-headers: "true"

allowSnippetAnnotations: "true"

EOF

**step:04 (Begin the RKE2 Deployment and start service)**

curl -sfL https://get.rke2.io |INSTALL\_RKE2\_TYPE=server sh -

systemctl enable rke2-server

systemctl start rke2-server

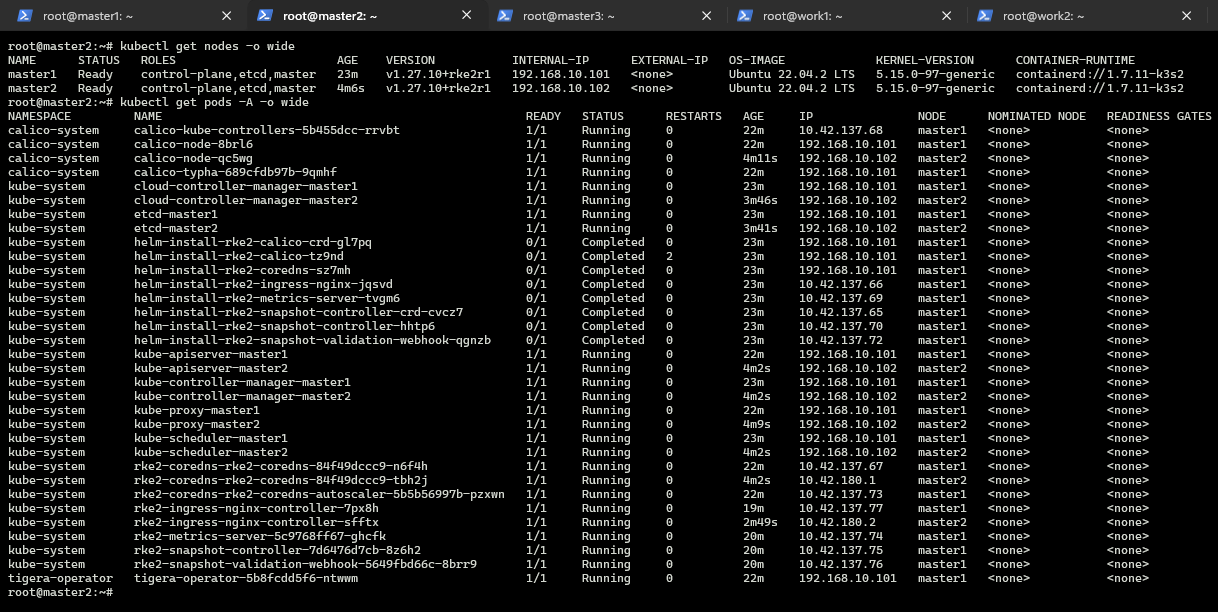
**step:05 (Enable RKE2 service)**

export PATH=$PATH:/var/lib/rancher/rke2/bin

export KUBECONFIG=/etc/rancher/rke2/rke2.yaml

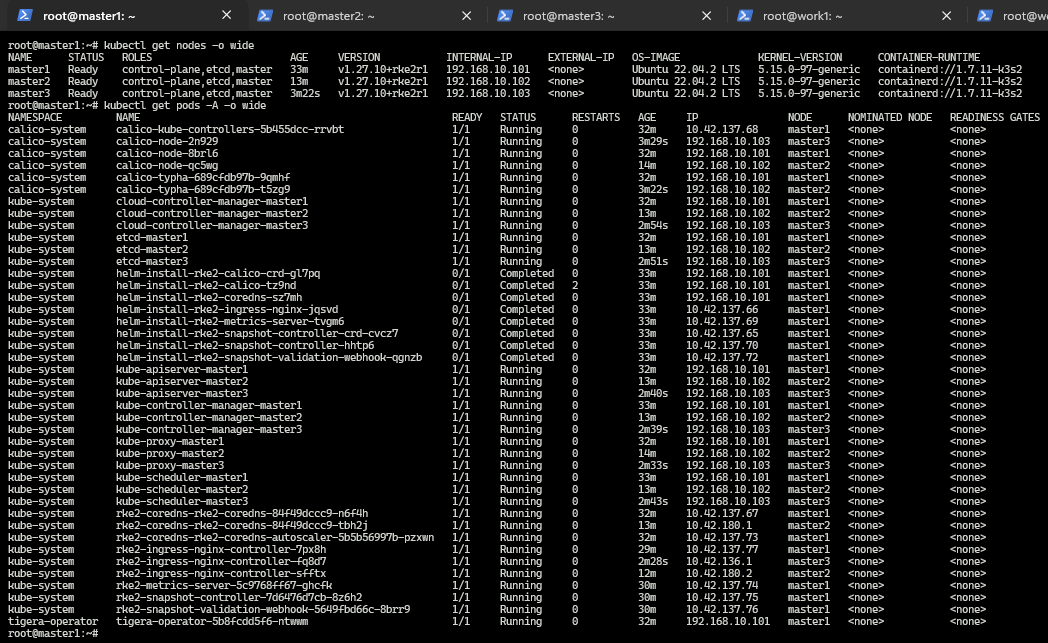
echo "export PATH=$PATH:/var/lib/rancher/rke2/bin" >> $HOME/.bashrc

echo "export KUBECONFIG=/etc/rancher/rke2/rke2.yaml" >> $HOME/.bashrc



2nd control plane has joined the RKE2 K8s cluster successfully and working fine as per above snap.

Similarly, we will join the 3rd control plane node to our cluster.



3rd control plane node has joined the cluster successfully.

Our Control plane cluster is working perfectly.

Done Setting Up Master Nodes of RKE2 K8s Cluster.  
  
Now we are going to setup our Worker (Workload) Nodes.

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**For Worker Nodes:**

On all Worker Nodes follow below steps to join the cluster.

**step:01 (make directory)**

sudo mkdir -p /etc/rancher/rke2/

sudo mkdir -p /var/lib/rancher/rke2/server/manifests/

**step:02 (configure the config file)**

cat<<EOF|tee /etc/rancher/rke2/config.yaml

server: https://master1.rke2.com:9345

token: K10a3e30a7bf1698aa39989405da14657a1397a353a5cd965f3f8065964f32c9671::server:97df339a2a287db558edff3eaba98c69

tls-san:

- master1.rke2.com

- 192.168.10.101

write-kubeconfig-mode: "0600"

etcd-expose-metrics: true

cni:

- calico

EOF

**step:03 (Ingress-Nginx config for RKE2)**

cat<<EOF| tee /var/lib/rancher/rke2/server/manifests/rke2-ingress-nginx-config.yaml

---

apiVersion: helm.cattle.io/v1

kind: HelmChartConfig

metadata:

name: rke2-ingress-nginx

namespace: kube-system

spec:

valuesContent: |-

controller:

metrics:

service:

annotations:

prometheus.io/scrape: "true"

prometheus.io/port: "10254"

config:

use-forwarded-headers: "true"

allowSnippetAnnotations: "true"

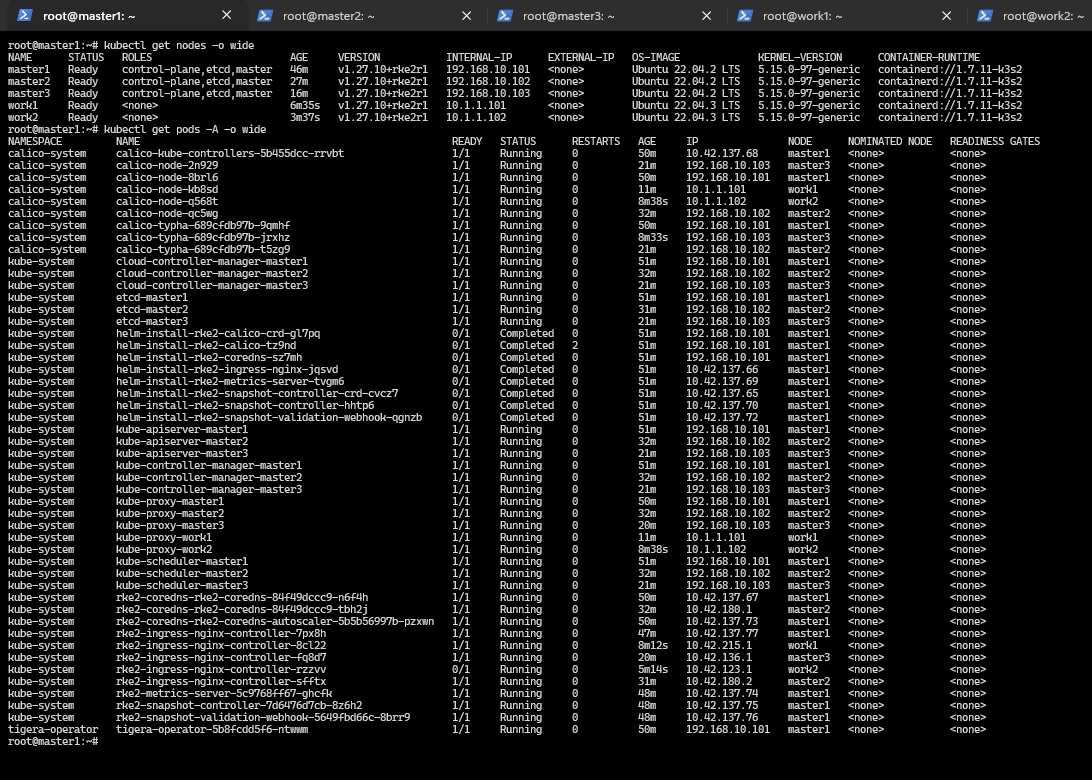
EOF

**step:04 (Begin the RKE2 Deployment and start service)**

curl -sfL https://get.rke2.io | INSTALL\_RKE2\_TYPE="agent" sh -

systemctl start rke2-agent

systemctl enable rke2-agent



Our K8s Cluster is ready to deploy our microservices workload.  
Everything working fine every node component is available and in running state. And all the nodes are in Ready state.

Done Our Staging Cluster Setup.