

# Installation of NEVIS

## Introduction

I decided to install NEVIS inside a kubernetes cluster.

[Installation in Kubernetes Cluster](#)

## Installation of kubernetes

[Fedora installation of kubernetes](#)

```
sudo dnf install kubernetes kubernetes-kubeadm kubernetes-client
```

Open firewall ports 6443, 10250

```
sudo systemctl enable kubelet.service
sudo systemctl enable containerd
sudo systemctl start containerd
sudo swapoff -a
sudo dnf install iproute-tc

sudo cat <<EOF | sudo tee /etc/modules-load.d/k8s.conf
overlay
br_netfilter
EOF

sudo modprobe overlay
sudo modprobe br_netfilter

# sysctl params required by setup, params persist across reboots
sudo cat <<EOF | sudo tee /etc/sysctl.d/k8s.conf
```

```
net.bridge.bridge-nf-call-iptables = 1
net.bridge.bridge-nf-call-ip6tables = 1
net.ipv4.ip_forward = 1
EOF

# setting DNS correctly
sudo mkdir -p /etc/systemd/resolved.conf.d/
sudo cat <<EOF | sudo tee /etc/systemd/resolved.conf.d/stub-listener.conf
[Resolve]
DNSStubListener=no
EOF

sudo systemctl --system

sudo systemctl enable --now kubelet

sudo kubeadm init

# set KUBELET_KUBEADM_ARGS
sudo tee -a /etc/kubernetes/kubelet.conf <<EOF
KUBELET_LOG_LEVEL=5
KUBELET_KUBEADM_ARGS="--v=4 --logtostderr=true"
EOF
```

# Kubelet configuration

[using-kubernetes-kubelet](#)

## Accessing the cluster as normal user

```
mkdir -p $HOME/.kube
sudo cp -i /etc/kubernetes/admin.conf $HOME/.kube/config
sudo chown $(id -u):$(id -g) $HOME/.kube/config
```

```
# Allow the control plane machine to also run pods for applications. Otherwise more than one machine is
needed in the cluster.
```

```
kubecttl taint nodes --all node-role.kubernetes.io/control-plane-
```

```
# Install flannel into the cluster to provide cluster networking. There are many other networking solutions
besides flannel. Flannel is straightforward and suitable for this guide.
```

```
kubecttl apply -f https://github.com/coreos/flannel/raw/master/Documentation/kube-flannel.yml
```

## Useful commands

```
sudo systemctl restart kubelet
sudo systemctl status kubelet
sudo journalctl -u kubelet
ss -tlnp | grep 6443
kubecttl config use-context
kubecttl config view
kubecttl cluster-info
kubecttl get pods --all-namespaces
kubecttl get svc -A
kubecttl get events --namespace=kube-system
kubecttl get nodes -o wide
```

## Additional .conf files:

The kubernetes-kubeadm rpm installs an overriding `kubelet` unit file at:

```
/usr/lib/systemd/system/kubelet.service.d/10-kubeadm.conf
```

We strongly recommend to **not** modify either file as any changes could be lost during an update.

As documented by the Kubernetes team (<https://kubernetes.io/docs/setup/production-environment/tools/kubeadm/kubelet-integration/#the-kubelet-drop-in-file-for-systemd>), create the following directory for user managed, system-level systemd `kubelet` overrides:

```
$ sudo mkdir -p /etc/systemd/system/kubelet.service.d/
```

Then create a unit file (`.conf` extension required) and copy the file to the directory listed above. Settings in this file will override settings from either or both of the default systemd files.

## misc

Run "kubectl apply -f [podnetwork].yaml" with one of the options listed at:

<https://kubernetes.io/docs/concepts/cluster-administration/addons/>

Then you can join any number of worker nodes by running the following on each as root:

```
kubeadm join 192.168.1.35:6443 --token dapwn1.21bvsun7tw95b6j7 \
```

```
  --discovery-token-ca-cert-hash
```

```
sha256:bc878aa0a8db726627f0be2a9bfbec584bde1156114e1af61aa727e2e39302b5
```

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Revision #14

Created 4 October 2024 08:40:50 by Admin

Updated 10 May 2025 12:07:02 by Admin