## OPERATING SYSTEM: UBUNTU 18

### Installation of minikube:

steps to install Minikube, which is a tool that runs a single-node Kubernetes cluster locally on your machine:

1. **Prerequisites**: Ensure that your system meets the following prerequisites:
    - 2 CPUs or more
    - 2GB of free memory
    - 20GB of free disk space
    - Internet connection
    - Container or virtual machine manager like Docker, VirtualBox, or KVM
2. **Download and Install Minikube**: Open a terminal and run the following commands:

```
curl -LO
https://storage.googleapis.com/minikube/releases/latest/minikube-linux-amd64
```

```
sudo install minikube-linux-amd64
/usr/local/bin/minikube && rm
minikube-linux-amd64
```

**Start Minikube**: Start Minikube by running:

```
minikube start
```

**Interact with your Cluster**: Once Minikube has started, you can interact with your Kubernetes cluster using `kubectl`. If you already have `kubectl` installed, you can use it like this:

```
kubectl get po -A
```

Alternatively, you can use `minikube kubectl`:

```
minikube kubectl -- get po -A
```

**Access Kubernetes Dashboard**: Minikube comes with a built-in Kubernetes Dashboard. You can access it by running:

```
minikube dashboard
```

That's it! You now have a single-node Kubernetes cluster running locally on your machine using Minikube. You can deploy and manage applications on this cluster as you would with any Kubernetes cluster.

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## Installation of kubectl:

To install `kubectl` on Ubuntu 18.04, you can follow the steps provided in the official documentation .

**Install kubectl binary with curl on Linux:**

1. Download the latest release of kubectl:

```
curl -LO "https://dl.k8s.io/release/$(curl
-L -s
https://dl.k8s.io/release/stable.txt)/bin/li
nux/amd64/kubectl"
```

(Optional) Validate the binary:

```
curl -LO "https://dl.k8s.io/release/$(curl
-L -s
https://dl.k8s.io/release/stable.txt)/bin/li
nux/amd64/kubectl.sha256"
```

```
echo "$(cat kubectl.sha256)  kubectl" |
sha256sum --check
```

Install kubectl:

```
sudo install -o root -g root -m 0755 kubectl
/usr/local/bin/kubectl
```

If you don't have root access, you can install it to the ~/.local/bin directory:

```
chmod +x kubectl

mkdir -p ~/.local/bin

mv ./kubectl ~/.local/bin/kubectl
```

Test the installation:

```
kubectl version --client
```

**Install using native package management:**

1. Update the apt package index and install required packages:

```
sudo apt-get update
```

```
sudo apt-get install -y apt-transport-https
ca-certificates curl
```

Download the public signing key for the Kubernetes package repositories:

```
curl -fsSL
https://pkgs.k8s.io/core:/stable:/v1.30/deb/
Release.key | sudo gpg --dearmor -o
/etc/apt/keyrings/kubernetes-apt-keyring.gpg

sudo chmod 644
/etc/apt/keyrings/kubernetes-apt-keyring.gpg
```

Add the Kubernetes apt repository:

```
echo 'deb
[signed-by=/etc/apt/keyrings/kubernetes-apt-
keyring.gpg]
https://pkgs.k8s.io/core:/stable:/v1.30/deb/
/' | sudo tee
/etc/apt/sources.list.d/kubernetes.list

sudo chmod 644
/etc/apt/sources.list.d/kubernetes.list
```

Update apt package index and install kubectl:

```
sudo apt-get update

sudo apt-get install -y kubectl
```

1.

**Install using other package management:**

If you prefer, you can use Snap or Homebrew package managers to install kubectl.

**Verify kubectl configuration:**

Check that kubectl is properly configured to access your Kubernetes cluster:

```
kubectl cluster-info
```

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## Installation of Tetragon on kubernetes running on ubuntu 18

To install Tetragon on a Kubernetes cluster running on Ubuntu 18.04, you'll need to use Helm. Here are the steps:

1. **Install Helm**: If you haven't already installed Helm, you can do so by following these steps:

```
curl
https://raw.githubusercontent.com/helm/helm/
master/scripts/get-helm-3 | bash
```

**Add Helm repository**: Add the Cilium Helm repository which contains the Tetragon chart:

```
helm repo add cilium https://helm.cilium.io
helm repo update
```

**Install Tetragon**: Install Tetragon using Helm:

```
helm install tetragon cilium/tetragon -n
kube-system
```

**Wait for Deployment**: Wait until Tetragon deployment is ready by running:

```
kubectl rollout status -n kube-system
ds/tetragon -w
```

**Verify Installation**: You can verify that Tetragon has been deployed successfully by checking the pods in the `kube-system` namespace:

```
kubectl get pods -n kube-system
```

1.

Once the deployment is successful, Tetragon should be up and running on your Kubernetes cluster.

If you need to make modifications to the Tetragon configuration or perform upgrades/uninstallation, you can refer to the provided configuration and upgrade/uninstall instructions in the original documentation.

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**Installation of Tetra CLI on ubuntu 18:**

**Open a Terminal**: You can do this by pressing `Ctrl + Alt + T` or by searching for "Terminal" in the applications menu.
**Ensure curl is installed**: Curl is usually installed by default on Ubuntu, but if it's not, you can install it by running:

```
sudo apt update
sudo apt install curl
```

**Download Tetra CLI**: Use the following command to download and extract the Tetra CLI binary:

```
curl -L
https://github.com/cilium/tetragon/releases/
latest/download/tetra-linux-amd64.tar.gz |
tar -xz
```

**Move Tetra CLI to the bin directory**: Use the following command to move the `tetra` binary to the `/usr/local/bin` directory, which is in your system's PATH and allows you to run `tetra` from any directory:

```
sudo mv tetra /usr/local/bin
```

**Verify installation**: You can verify that Tetra CLI has been installed correctly by running:

```
tetra --version
```

That's it! Tetra CLI should now be installed on your Ubuntu 18.04 system

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**Basic commands to work with Tetragon:**

Here are some basic commands to work with Tetragon once it's installed on your Kubernetes cluster:

1. **Check Tetragon Status**: To check the status of Tetragon deployment:

```
kubectl get pods -n kube-system
```

**View Tetragon Logs**: To view the logs of Tetragon pods:

```
kubectl logs <tetragon-pod-name> -n
kube-system
```

**Upgrade Tetragon**: If you need to upgrade Tetragon to a newer version:

```
helm upgrade tetragon cilium/tetragon -n
kube-system --version <version>
```

**Modify Tetragon Configuration**: To modify Tetragon configuration using Helm:

```
helm upgrade tetragon cilium/tetragon -n
kube-system --set
tetragon.grpc.address=localhost:1337
```

**Edit Tetragon ConfigMap**: If you prefer to edit the Tetragon ConfigMap directly:

```
kubectl edit cm tetragon-config -n
kube-system
```

**Restart Tetragon Pods**: After making configuration changes, restart Tetragon pods:

```
kubectl rollout restart ds/tetragon -n
kube-system
```

**Uninstall Tetragon**: To uninstall Tetragon from your Kubernetes cluster:

```
helm uninstall tetragon -n kube-system
```

These are some common commands to manage Tetragon on Kubernetes.

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**Quick links:**

**Kubernetes**
https://kubernetes.io/docs/tasks/tools/install-kubectl-linux/

**Minikube**
https://minikube.sigs.k8s.io/docs/start/

**Tetragon**
**https://tetragon.io/docs/installation/kubernetes/**

**Tetra CLI**
**https://tetragon.io/docs/installation/tetra-cli/**

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