

## ACTIVIDAD 6 – Kubernetes con Minikube (Debian)

### 6.1 Instalación y configuración de Minikube y kubectl

- Paso 1: Actualizar el sistema

```
sudo apt update
```

```
sudo apt upgrade -y
```

```
vboxuser@DEBIAN:~$ sudo apt update
sudo apt install -y kubectl
[sudo] contraseña para vboxuser:
Obj:1 http://security.debian.org/debian-security trixie-security InRelease
Obj:2 http://deb.debian.org/debian trixie InRelease
Obj:3 http://deb.debian.org/debian trixie-updates InRelease
Obj:4 https://download.docker.com/linux/debian trixie InRelease
Todos los paquetes están actualizados.
kubectl ya está en su versión más reciente (1.32.3+ds-2).
Summary:
  Upgrading: 0, Installing: 0, Removing: 0, Not Upgrading: 0
vboxuser@DEBIAN:~$ █
```

Descripción:

Actualiza la lista de paquetes y el sistema antes de instalar nuevas herramientas.

- Paso 2: Instalar kubectl

```
sudo apt install -y kubectl
```

```
vboxuser@DEBIAN:~$ sudo apt update
sudo apt install -y kubectl
[sudo] contraseña para vboxuser:
Obj:1 http://security.debian.org/debian-security trixie-security InRelease
Obj:2 http://deb.debian.org/debian trixie InRelease
Obj:3 http://deb.debian.org/debian trixie-updates InRelease
Obj:4 https://download.docker.com/linux/debian trixie InRelease
Todos los paquetes están actualizados.
kubectl ya está en su versión más reciente (1.32.3+ds-2).
Summary:
  Upgrading: 0, Installing: 0, Removing: 0, Not Upgrading: 0
vboxuser@DEBIAN:~$ █
```

Descripción:

Instala kubectl, el cliente oficial para administrar clústeres de Kubernetes.

Verificar instalación:

kubectl version --client

```
vboxuser@DEBIAN:~$ kubectl version --client
Client Version: v1.32.3
Kustomize Version: v5.5.0
```

✓ Paso 3: Instalar Minikube

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

```
vboxuser@DEBIAN: $ curl -LO https://storage.googleapis.com/minikube/releases/latest/minikube-linux-amd64
% Total    % Received % Xferd  Average Speed   Time     Time      Current
          Dload  Upload Total   Spent   Left  Speed
100 133M 100 133M    0      0  27.1M      0  0:00:04  0:00:04  --- 30.3M
```

Dar permisos y mover el binario:

sudo install minikube-linux-amd64 /usr/local/bin/minikube

```
vboxuser@DEBIAN:~$ sudo install minikube-linux-amd64 /usr/local/bin/minikube
vboxuser@DEBIAN:~$
```

Verificar instalación:

minikube version

```
vboxuser@DEBIAN:~$ minikube version
minikube version: v1.37.0
```

#### Paso 4: Iniciar el clúster con Docker (driver)

```
minikube start --driver=docker
```

```
vboxuser@DEBIAN: $ minikube start
└─ minikube v1.37.0 en Debian 13.2 (vbox/amd64)
  └─ Using the docker driver based on user configuration
    └─ Using Docker driver with root privileges
      └─ Starting "minikube" primary control-plane node in "minikube" cluster
        └─ Pulling base image v0.0.48 ...
          └─ Descargando Kubernetes v1.34.0 ...
            └─ > preloaded-images-k8s-v18-v1...: 337.07 MiB / 337.07 MiB 100.00% 2.70 Mi
            └─ > gcr.io/k8s-minikube/kicbase...: 488.51 MiB / 488.52 MiB 100.00% 3.30 Mi
          └─ Creating docker container (CPUs=2, Memory=3072MB) ...

  └─ Docker is nearly out of disk space, which may cause deployments to fail! (91% of capacity). You can pass '--force' to skip this check.
    └─ Suggestion:
      └─ Try one or more of the following to free up space on the device:
        1. Run "docker system prune" to remove unused Docker data (optionally with "-a")
        2. Increase the storage allocated to Docker for Desktop by clicking on:
          └─ Docker icon > Preferences > Resources > Disk Image Size
        3. Run "minikube ssh -- docker system prune" if using the Docker container runtime
        └─ Related issue: https://github.com/kubernetes/minikube/issues/9024

  └─ Preparando Kubernetes v1.34.0 en Docker 28.4.0...
  └─ Configurando CNI bridge CNI ...
  └─ Verifying Kubernetes components...
    └─ Using image gcr.io/k8s-minikube/storage-provisioner:v5
  └─ Complementos habilitados: storage-provisioner, default-storageclass

  └─ /usr/bin/kubectl is version 1.32.3, which may have incompatibilities with Kubernetes 1.34.0.
    └─ • Want kubectl v1.34.0? Try 'minikube kubectl -- get pods -A'
  └─ Done! kubectl is now configured to use "minikube" cluster and "default" namespace by default
```

Descripción:

Crea un clúster Kubernetes local usando Docker como motor.

#### Paso 5: Verificar el clúster

```
kubectl get nodes
```

```
vboxuser@DEBIAN:~$ kubectl get nodes
NAME      STATUS   ROLES      AGE      VERSION
minikube  Ready    control-plane  4m17s   v1.34.0
```

Descripción:

Muestra los nodos activos del clúster.

Debe aparecer un nodo en estado Ready.

 Paso 6: Información del clúster

kubectl cluster-info

```
vboxuser@DEBIAN:~$ kubectl cluster-info
Kubernetes control plane is running at https://192.168.49.2:8443
CoreDNS is running at https://192.168.49.2:8443/api/v1/namespaces/kube-system/services/kube-dns:dns/proxy
To further debug and diagnose cluster problems, use 'kubectl cluster-info dump'.
vboxuser@DEBIAN:~$ █
```

Descripción:

Muestra la información básica del clúster Kubernetes.