MINIKUBE

SAD

2ºASIR
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Contenido

Instalación.

Para realizar la instalación de todas las cosas que encesitamos seguiremos unos pasos:

(Voy a seguir los pasos en la web para realizar estos pasos.)

1º Instalar Docker:

En mi caso ya está instalado.

```
ana@ana-VirtualBox:~$ sudo docker --version
Docker version 26.1.3, build 26.1.3-0ubuntu1~24.04.1
```

Para esta práctica no es necesario la instalación de Docker-compose ya que Minikube usa kubectl para manejar los despliegues.

2º Instalar Minikube:

Seguiremos los pasos, pero aún no podremos hacer el start.

```
ana@ana-VirtualBox:~$ curl -LO https://github.com/kubernetes/minikube/releases/l
atest/download/minikube-linux-amd64
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
  0     0    0     0    0     0      0      0 --:--:-- --:--:-- --:--:--     0
  0     0    0     0    0     0      0      0 --:--:-- --:--:-- --:--:--     0
100  119M  100  119M    0     0  38.4M      0  0:00:03  0:00:03 --:--:-- 58.5M
ana@ana-VirtualBox:~$ sudo install minikube-linux-amd64 /usr/local/bin/minikube
&& rm minikube-linux-amd64
```

3ºInstalar Kubectl:

Primero nos descargamos la versión más reciente y validamos el binario para saber si está correcto.

```
ana@ana-VirtualBox:~$ curl -LO "https://dl.k8s.io/release/$(curl -L -s https://d
l.k8s.io/release/stable.txt)/bin/linux/amd64/kubectl"
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100   138  100   138    0     0    909      0 --:--:-- --:--:-- --:--:--   913
100 54.6M  100 54.6M    0     0  50.9M      0  0:00:01  0:00:01 --:--:-- 63.5M
ana@ana-VirtualBox:~$ curl -LO "https://dl.k8s.io/release/$(curl -L -s https://d
l.k8s.io/release/stable.txt)/bin/linux/amd64/kubectl.sha256"
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100   138  100   138    0     0    954      0 --:--:-- --:--:-- --:--:--   958
100    64  100    64    0     0    337      0 --:--:-- --:--:-- --:--:--   337
ana@ana-VirtualBox:~$ echo "$(cat kubectl.sha256)  kubectl" | sha256sum --check
kubectl: La suma coincide
```

Ahora instalaremos, cambiaremos los permisos y crearemos los directorios:

```
ana@ana-VirtualBox:~$ sudo install -o root -g root -m 0755 kubectl /usr/local/bi
n/kubectl
ana@ana-VirtualBox:~$ chmod +x kubectl
ana@ana-VirtualBox:~$ mkdir -p ~/.local/bin
ana@ana-VirtualBox:~$ kubectl version --client
Client Version: v1.32.1
Kustomize Version: v5.5.0
```

4ºPara poder usar minikube debemos agregar nuestro usuario al grupo Docker (en muchas máquinas no es necesario realizarlo):

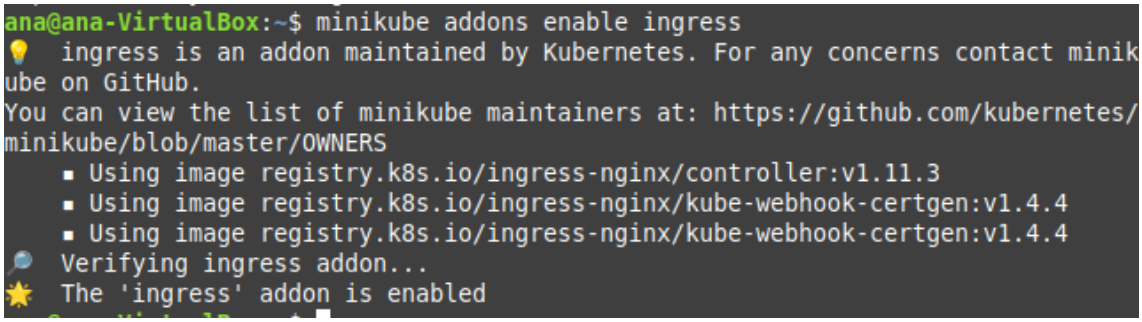
```
ana@ana-VirtualBox:~$ sudo usermod -aG docker ana
ana@ana-VirtualBox:~$ newgrp docker
ana@ana-VirtualBox:~$ docker run hello-world
Unable to find image 'hello-world:latest' locally
latest: Pulling from library/hello-world
e6590344b1a5: Pull complete
Digest: sha256:d715f14f9eca81473d9112df50457893aa4d099adeb4729f679006bf5ea12407
Status: Downloaded newer image for hello-world:latest

Hello from Docker!
This message shows that your installation appears to be working correctly.
```

5ºAhora sí podremos hacer el minikube start:

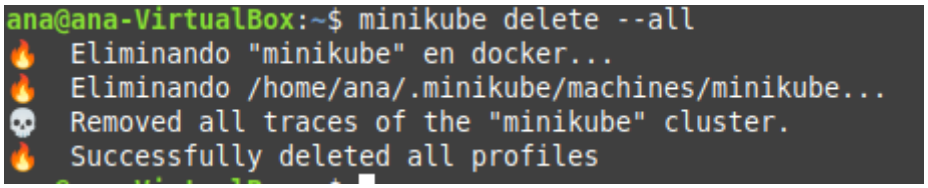
```
ana@ana-VirtualBox:~$ minikube start
😄  minikube v1.35.0 en Linuxmint 22 (vbox/amd64)
✨  Controlador docker seleccionado automáticamente. Otras opciones: none, ssh
📌  Using Docker driver with root privileges
👍  Starting "minikube" primary control-plane node in "minikube" cluster
🚜  Pulling base image v0.0.46 ...
💾  Descargando Kubernetes v1.32.0 ...
    > preloaded-images-k8s-v18-v1...:  333.57 MiB / 333.57 MiB  100.00% 22.82 M
    > gcr.io/k8s-minikube/kicbase...:  500.31 MiB / 500.31 MiB  100.00% 19.43 M
🔥  Creating docker container (CPUs=2, Memory=2200MB) ...
🐳  Preparando Kubernetes v1.32.0 en Docker 27.4.1...
    ▪ Generando certificados y llaves
    ▪ Iniciando plano de control
    ▪ Configurando reglas RBAC...
🔗  Configurando CNI bridge CNI ...
🔎  Verifying Kubernetes components...
    ▪ Using image gcr.io/k8s-minikube/storage-provisioner:v5
🌟  Complementos habilitados: storage-provisioner, default-storageclass
🏄  Done! kubectl is now configured to use "minikube" cluster and "default" name
space by default
```

6º Añadiremos plugin de ingress:

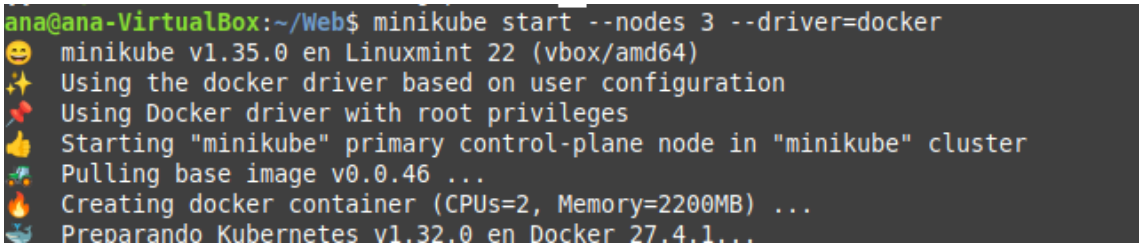


Arrancar MiniKube con 3 nodos y lanzar manifest.

Primero voy a borrar el nodo que creamos anteriormente:

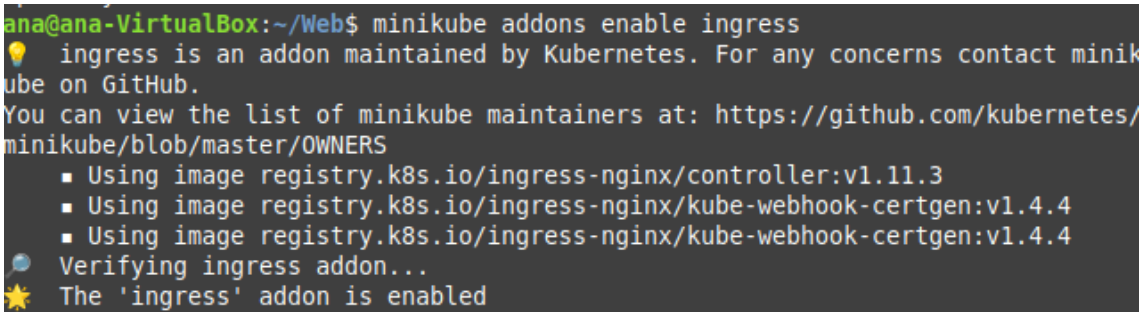


Ahora voy a crear una carpeta con todo lo necesario y después iniciaré MiniKube con 3 nodos.



Utilicé driver=Docker por un error que me estaba dando la primera vez que realicé la creación.

Añadiremos el addon ingress:



Vamos a iniciar sesión en dockerhub, contruiremos y subiremos la imagen de la web creada.

```
ana@ana-VirtualBox:~/Web$ docker login
Log in with your Docker ID or email address to push and pull images from Docker
Hub. If you don't have a Docker ID, head over to https://hub.docker.com/ to crea
te one.
You can log in with your password or a Personal Access Token (PAT). Using a limi
ted-scope PAT grants better security and is required for organizations using SSO
. Learn more at https://docs.docker.com/go/access-tokens/

Username: anaorozco99
Password:
WARNING! Your password will be stored unencrypted in /home/ana/.docker/config.js
on.
Configure a credential helper to remove this warning. See
https://docs.docker.com/engine/reference/commandline/login/#credentials-store

Login Succeeded
```

```
ana@ana-VirtualBox:~/Web$ docker build . -t anaorozco99/miweb:3.0
DEPRECATED: The legacy builder is deprecated and will be removed in a future rel
ease.
            Install the buildx component to build images with BuildKit:
            https://docs.docker.com/go/buildx/

Sending build context to Docker daemon  10.76MB
Step 1/6 : FROM php:8.1-fpm-alpine as php
8.1-fpm-alpine: Pulling from library/php
1f3e46996e29: Pull complete
53743d5ee0af: Pull complete
f9c5269af5b9: Pull complete
4b8549079a06: Pull complete
351a60115769: Pull complete
54b123184127: Pull complete
93d1ff2b8f24: Pull complete
333cacbedb35: Pull complete
a95aa41a66db: Pull complete
4f4fb700ef54: Pull complete
f20ec2dc77b5: Pull complete
Digest: sha256:7aa2fdbecb57e55500c34804913c77aafddbbc0ad16b199f302de811d879a71f
Status: Downloaded newer image for php:8.1-fpm-alpine
 ---> 1957d5561c96
Step 2/6 : RUN apk --no-cache add     nginx     bash     curl     && rm -rf /var
```

```
ana@ana-VirtualBox:~/Web$ docker push anaorozco99/miweb:3.0
The push refers to repository [docker.io/anaorozco99/miweb]
c66c5ff476af: Pushed
1a4d63c5b510: Pushed
55e9baad8a9e: Pushed
59f502325a30: Mounted from library/php
5f70bf18a086: Mounted from library/php
c9bbcf27c861: Mounted from library/php
8bb227dff750: Mounted from library/php
02faeba94237: Mounted from library/php
c8ef8e5b6452: Mounted from library/php
72c34b771b7e: Mounted from library/php
09b47e9c46f9: Mounted from library/php
9d3391ab23c5: Mounted from library/php
6ce35b37920f: Mounted from library/php
a0904247e36a: Layer already exists
3.0: digest: sha256:7d3ac44215f0cefccd5ba7df16b2cbb58237bae062a318ffe0291397ceb
f3d2 size: 3246
```

Por último, vamos a crear el manifest y lo aplicaremos:

```
ana@ana-VirtualBox:~/Web$ ls
Dockerfile  html  orozcoana.yml
```

```
ana@ana-VirtualBox:~/Web$ kubectl apply -f /home/ana/web/orozcoana.yml
deployment.apps/who created
deployment.apps/anaorozco created
service/web1-svc created
service/web2-svc created
ingress.networking.k8s.io/hello-app created
```

```
ana@ana-VirtualBox:~/Web$ kubectl get all
NAME                             READY   STATUS    RESTARTS   AGE
pod/anaorozco-84f46b66cf-2zklx   1/1     Running   0          29s
pod/anaorozco-84f46b66cf-5v9vb   1/1     Running   0          29s
pod/anaorozco-84f46b66cf-9wm7b   1/1     Running   0          29s
pod/anaorozco-84f46b66cf-9wwh5   1/1     Running   0          29s
pod/anaorozco-84f46b66cf-bm8cm   1/1     Running   0          29s
pod/who-cdfc5c44c-45gtg          1/1     Running   0          29s
pod/who-cdfc5c44c-jzj24          1/1     Running   0          29s
pod/who-cdfc5c44c-nn4hf          1/1     Running   0          29s
pod/who-cdfc5c44c-sw5w7          1/1     Running   0          29s
pod/who-cdfc5c44c-v78pl          1/1     Running   0          29s

NAME                    TYPE        CLUSTER-IP      EXTERNAL-IP   PORT(S)   AGE
service/anaorozco-svc   ClusterIP   10.106.43.102   <none>        80/TCP    29s
service/kubernetes      ClusterIP   10.96.0.1       <none>        443/TCP   4m3s
service/who-svc         ClusterIP   10.104.14.160   <none>        80/TCP    29s

NAME                         READY   UP-TO-DATE   AVAILABLE   AGE
deployment.apps/anaorozco    5/5     5            5           29s
deployment.apps/who          5/5     5            5           30s

NAME                                   DESIRED   CURRENT   READY   AGE
replicaset.apps/anaorozco-84f46b66cf   5         5         5       29s
replicaset.apps/who-cdfc5c44c          5         5         5       30s
```

```
ana@ana-VirtualBox:~/Web$ kubectl get ingress
NAME      CLASS   HOSTS   ADDRESS        PORTS   AGE
ingress   nginx   *       192.168.49.2   80      108s
```

Comprobación.

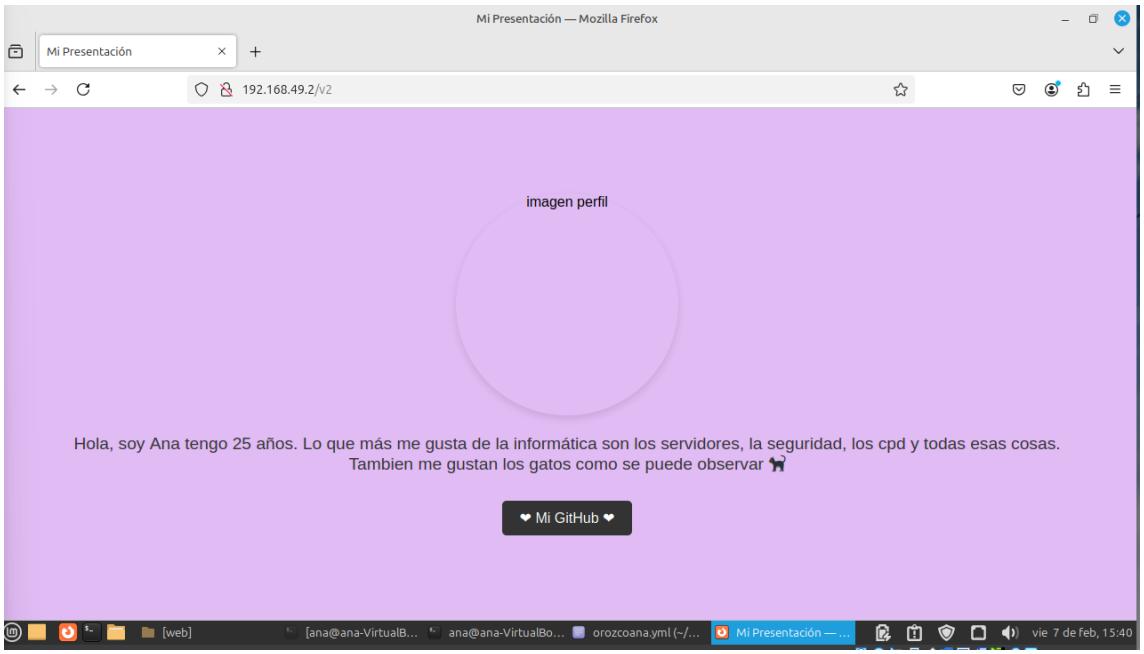
Para comprobar vamos a hacer curl a las páginas y miraré en el navegador:

```
ana@ana-VirtualBox:~/Web$ curl http://192.168.49.2/v2
<!DOCTYPE html>
<html lang="es">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <link rel="icon" type="image/jpg" href="./recursos/favicongato.png"/>
    <title>Mi Presentación</title>
    <style>
        /* estilo pagina */
        * {
            margin: 0;
            padding: 0;
            box-sizing: border-box;
        }

        body {
            background-color: #e0bbf4;
            font-family: 'Arial', sans-serif;
            display: flex;
            flex-direction: column;
            justify-content: center;
            align-items: center;
            height: 100vh;
            text-align: center;
        }

        /* imagen perfil */
        .imagen-perfil {
            width: 250px;
            height: 250px;
            border-radius: 50%;
            object-fit: cover;
            margin-bottom: 20px;
            box-shadow: 0 4px 8px rgba(0, 0, 0, 0.1);
        }
```

```
ana@ana-VirtualBox:~/Web$ curl http://192.168.49.2/v1
<!doctype html><html lang="en"><head><meta charset="utf-8"/><meta http-equiv="X-
UA-Compatible" content="IE=edge"><meta name="viewport" content="width=device-wid
th,initial-scale=1,shrink-to-fit=no"><meta name="theme-color" content="#000000"/
><meta name="description" content="Web site created using create-react-app"/><me
ta name="author" content=""><title>Who Is Who SQL</title><link rel="icon" href="
/favicon.ico"/><link rel="apple-touch-icon" href="/logo192.png"/><link rel="mani
fest" href="/manifest.json"/><link href="/vendor/fontawesome-free/css/all.min.cs
s" rel="stylesheet"><link href="https://fonts.googleapis.com/css?family=Nunito:2
00,200i,300,300i,400,400i,600,600i,700,700i,800,800i,900,900i" rel="stylesheet">
<link href="/css/sb-admin-2.css" rel="stylesheet"><script defer="defer" src="/st
atic/js/main.18c7e304.js"></script><link href="/static/css/main.cd6ed578.css" re
l="stylesheet"></head><body><noscript>You need to enable JavaScript to run this
app.</noscript><div id="root"></div><script src="/vendor/jquery/jquery.min.js"><
/script><script src="/vendor/bootstrap/js/bootstrap.bundle.min.js"></script><scr
ipt src="/vendor/jquery-easing/jquery.easing.min.js"></script><script src="/js/s
ana@ana-VirtualBox:~/Web$
```



Si eliminamos uno de los que tenemos abierto con kubectl delete se iniciará otro en cuestión de segundos.

Para eliminar completamente todo hay que hacer kubectl delete -f orozcoana.yml