



↘ [Requisitos previos:](#)

Instalar minikube, kubectl con sus: [bash_completion](#); Como referencia pueden consultarse post's precedentes:

https://www.cadilinea.com/blog/wp-content/uploads/2019/05/01-kubernetes_cats_and_dogs.pdf

<https://www.cadilinea.com/blog/wp-content/uploads/2019/06/Instalar-pretty-GUI-Kubernetes.pdf>

```
[labs@hp minikube]$ minikube delete
```

```
🗑️ Deleting "minikube" from virtualbox ...
```

```
♥️ The "minikube" cluster has been deleted.
```

↘ [Generamos el container 'CRI-O'.](#)

```
[labs@hp minikube]$ minikube start --memory 4096 --cpus 4 --container-runtime cri-o
```

```
😊 minikube v1.2.0 on linux (amd64)
```

```
🔥 Creating virtualbox VM (CPUs=4, Memory=4096MB, Disk=20000MB) ...
```

```
📦 Configuring environment for Kubernetes v1.15.0 on CRI-O 1.14.1
```

```
🚚 Pulling images ...
```

```
🚀 Launching Kubernetes ...
```

```
⌚ Verifying: apiserver etcd scheduler controller
```

```
👤 Done! kubectl is now configured to use "minikube"
```

```
[labs@hp minikube]$ minikube status
```

```
host: Running
```

```
kubelet: Running
```

```
apiserver: Running
```

```
kubectl: Correctly Configured: pointing to minikube-vm at 192.168.99.103
```

```
[labs@hp minikube]$ kubectl get all
```

```
NAME                TYPE          CLUSTER-IP   EXTERNAL-IP   PORT(S)   AGE
service/kubernetes  ClusterIP     10.96.0.1    <none>        443/TCP   7m39s
```

```
[labs@hp minikube]$ kubectl run nuestro-httpd --image=docker.io/httpd --labels="app=httpd-version1"
```

```
kubectl run --generator=deployment/apps.v1 is DEPRECATED and will be removed in a future version. Use kubectl run --generator=run-pod/v1 or kubectl create instead.
```

```
deployment.apps/nuestro-httpd created
```

```
[labs@hp minikube]$ kubectl get pods
```

```
NAME                                READY   STATUS    RESTARTS   AGE
nuestro-httpd-5fcd64c9cf-8jwdc     1/1     Running  0           118s
```

```
[labs@hp minikube]$ kubectl describe pods/nuestro-httpd-5fcd64c9cf-8jwdc
```

```
Name:          nuestro-httpd-5fcd64c9cf-8jwdc
```

```
Namespace:    default
```

```
Priority:      0
```

```
Node:         minikube/10.0.2.15
```



Start Time: Thu, 27 Jun 2019 12:46:17 +0200

Labels: [app=httpd-version1](#)
pod-template-hash=5fcd64c9cf

Annotations: <none>

Status: Running

IP: 10.1.0.4

Controlled By: ReplicaSet/nuestro-httpd-5fcd64c9cf

Containers:

nuestro-httpd:

Container ID:

[cri-o://522cf5635f89cb777c02ca14d62f772b6e8b5fed44d1b34739093bff5c98575a](#)

Image: docker.io/httpd

Image ID:

docker.io/library/httpd@sha256:f97d825efe5c69fbe031222292571af05a2b5cdc767e7190e93d7dab3367a9a1

Port: <none>

Host Port: <none>

State: Running

Started: Thu, 27 Jun 2019 12:48:06 +0200

Ready: True

Restart Count: 0

Environment: <none>

Mounts:

/var/run/secrets/kubernetes.io/serviceaccount from default-token-sc7q4 (ro)

Conditions:

Type Status

Initialized True

Ready True

ContainersReady True

PodScheduled True

Volumes:

default-token-sc7q4:

Type: Secret (a volume populated by a Secret)

SecretName: default-token-sc7q4

Optional: false

QoS Class: BestEffort

Node-Selectors: <none>

Tolerations: node.kubernetes.io/not-ready:NoExecute for 300s

node.kubernetes.io/unreachable:NoExecute for 300s

Events:

Type	Reason	Age	From	Message
------	--------	-----	------	---------

Normal	Scheduled	2m32s	default-scheduler	Successfully assigned default/nuestro-httpd-5fcd64c9cf-hl2v6 to minikube
--------	-----------	-------	-------------------	--

Normal	Pulling	2m29s	kubelet, minikube	Pulling image "docker.io/httpd"
--------	---------	-------	-------------------	---------------------------------

Normal	Pulled	44s	kubelet, minikube	Successfully pulled image "docker.io/httpd"
--------	--------	-----	-------------------	---

Normal	Created	43s	kubelet, minikube	Created container nuestro-httpd
--------	---------	-----	-------------------	---------------------------------



Normal Started 43s kubelet, minikube Started container nuestro-httpd

↘ [Utilizar ahora 'runc' → CRI-O, NO debes usar ahora → 'docker'.](#)

```
[labs@hp ~]$ minikube ssh docker images
```

REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
------------	-----	----------	---------	------

```
[labs@hp minikube]$ minikube ssh "sudo runc ps
```

```
522cf5635f89cb777c02ca14d62f772b6e8b5fed44d1b34739093bff5c98575a"
```

UID	PID	PPID	C	STIME	TTY	TIME	CMD
root	15520	15509	0	06:45 ?		00:00:00	httpd -DFOREGROUND
daemon	15547	15520	0	06:45 ?		00:00:00	httpd -DFOREGROUND
daemon	15548	15520	0	06:45 ?		00:00:00	httpd -DFOREGROUND
daemon	15549	15520	0	06:45 ?		00:00:00	httpd -DFOREGROUND

↘ [Incrementamos réplicas: → 3](#)

```
[labs@hp minikube]$ kubectl get all
```

NAME	READY	STATUS	RESTARTS	AGE
pod/nuestro-httpd-5fcd64c9cf-8jwdc	1/1	Running	0	5m38s

NAME	TYPE	CLUSTER-IP	EXTERNAL-IP	PORT(S)	AGE
service/kubernetes	ClusterIP	10.96.0.1	<none>	443/TCP	15m

NAME	READY	UP-TO-DATE	AVAILABLE	AGE
deployment.apps/nuestro-httpd	1/1	1	1	5m38s

NAME	DESIRED	CURRENT	READY	AGE
replicaset.apps/nuestro-httpd-5fcd64c9cf	1	1	1	5m38s

```
[labs@hp ~]$ kubectl scale --current-replicas=1 --replicas=3 deployment nuestro-httpd
```

```
deployment.extensions/nuestro-httpd scaled
```

```
[labs@hp ~]$ kubectl get replicaset
```

NAME	DESIRED	CURRENT	READY	AGE
nuestro-httpd-5fcd64c9cf	3	3	3	8m31s

→ [O tambien editando directamente: → 'replicas: 4'](#) :

```
[labs@hp minikube]$ kubectl edit deploy nuestro-httpd
```

```
...# Please edit the object below. Lines beginning with a '#' will be ignored,  
# and an empty file will abort the edit. If an error occurs while saving this file will be  
# reopened with the relevant failures.
```



```
#
apiVersion: extensions/v1beta1
kind: Deployment
metadata:
  annotations:
    deployment.kubernetes.io/revision: "1"
  creationTimestamp: "2019-06-27T10:46:17Z"
  generation: 4
  labels:
    app: httpd-version1
  name: nuestro-httpd
  namespace: default
  resourceVersion: "3029"
  selfLink: /apis/extensions/v1beta1/namespaces/default/deployments/nuestro-httpd
  uid: 5e6a107c-6c3d-4b92-8bbf-b2f912310e9a
spec:
  progressDeadlineSeconds: 600
  replicas: 4
  revisionHistoryLimit: 10
  selector:
    matchLabels:
      app: httpd-version1
  ...
deployment.extensions/nuestro-httpd edited
```

```
[labs@hp minikube]$ kubectl get all
NAME                                READY  STATUS   RESTARTS  AGE
pod/nuestro-httpd-5fcd64c9cf-8jwdc  1/1    Running  0          10m
pod/nuestro-httpd-5fcd64c9cf-bkkzw  1/1    Running  0          28s
pod/nuestro-httpd-5fcd64c9cf-n2qk8  1/1    Running  0          5m32s
pod/nuestro-httpd-5fcd64c9cf-nqhm2  1/1    Running  0          5m32s
```

```
NAME          TYPE          CLUSTER-IP  EXTERNAL-IP  PORT(S)  AGE
service/kubernetes ClusterIP  10.96.0.1   <none>       443/TCP  12h
```

```
NAME                                READY  UP-TO-DATE  AVAILABLE  AGE
deployment.apps/nuestro-httpd       4/4    4            4          10m
```

```
NAME                                DESIRED  CURRENT  READY  AGE
replicaset.apps/nuestro-httpd-5fcd64c9cf  4        4        4      10m
```

↘ [Mostramos en formato → 'yaml'.](#)

```
[labs@hp minikube]$ kubectl get pod nuestro-httpd-5fcd64c9cf-8jwdc -o yaml
apiVersion: v1
```



```
kind: Pod
metadata:
  creationTimestamp: "2019-06-28T06:43:15Z"
  generateName: nuestro-httpd-5fcd64c9cf-
  labels:
    app: httpd-version1
    pod-template-hash: 5fcd64c9cf
  name: nuestro-httpd-5fcd64c9cf-8jwdc
  namespace: default
  ownerReferences:
  - apiVersion: apps/v1
    blockOwnerDeletion: true
    controller: true
    kind: ReplicaSet
    name: nuestro-httpd-5fcd64c9cf
    uid: 7c0f4484-0e3e-4e1b-bd9f-57356a2f93bb
  resourceVersion: "3188"
  selfLink: /api/v1/namespaces/default/pods/nuestro-httpd-5fcd64c9cf-8jwdc
  uid: 0e261e52-0430-4058-a333-b4b0e8eeda4f
spec:
  containers:
  - image: docker.io/httpd
    imagePullPolicy: Always
    name: nuestro-httpd
    resources: {}
    terminationMessagePath: /dev/termination-log
    terminationMessagePolicy: File
    volumeMounts:
    - mountPath: /var/run/secrets/kubernetes.io/serviceaccount
      name: default-token-x5hmf
      readOnly: true
  dnsPolicy: ClusterFirst
  enableServiceLinks: true
  nodeName: minikube
  priority: 0
  restartPolicy: Always
  schedulerName: default-scheduler
  securityContext: {}
  serviceAccount: default
  serviceAccountName: default
  terminationGracePeriodSeconds: 30
  tolerations:
  - effect: NoExecute
    key: node.kubernetes.io/not-ready
    operator: Exists
    tolerationSeconds: 300
  - effect: NoExecute
```



```
key: node.kubernetes.io/unreachable
operator: Exists
tolerationSeconds: 300
volumes:
- name: default-token-x5hmf
  secret:
    defaultMode: 420
    secretName: default-token-x5hmf
status:
  conditions:
  - lastProbeTime: null
    lastTransitionTime: "2019-06-28T06:43:15Z"
    status: "True"
    type: Initialized
  - lastProbeTime: null
    lastTransitionTime: "2019-06-28T06:45:19Z"
    status: "True"
    type: Ready
  - lastProbeTime: null
    lastTransitionTime: "2019-06-28T06:45:19Z"
    status: "True"
    type: ContainersReady
  - lastProbeTime: null
    lastTransitionTime: "2019-06-28T06:43:15Z"
    status: "True"
    type: PodScheduled
  containerStatuses:
  - containerID: cri-o://522cf5635f89cb777c02ca14d62f772b6e8b5fed44d1b34739093bff5c98575a
    image: docker.io/library/httpd:latest
    imageID:
docker.io/library/httpd@sha256:f97d825efe5c69f9e031222292571af05a2b5cdc767e7190e93d7dab
3367a9a1
    lastState: {}
    name: nuestro-httpd
    ready: true
    restartCount: 0
    state:
      running:
        startedAt: "2019-06-28T06:45:18Z"
  hostIP: 10.0.2.15
  phase: Running
  podIP: 10.1.0.6
  qosClass: BestEffort
  startTime: "2019-06-28T06:43:15Z"
```



↘ [O también en formato → 'json'.](#)

```
[labs@hp minikube]$ kubectl get pod nuestro-httpd-5fcd64c9cf-8jwdc -o json
{
  "apiVersion": "v1",
  "kind": "Pod",
  "metadata": {
    "creationTimestamp": "2019-06-28T06:43:15Z",
    "generateName": "nuestro-httpd-5fcd64c9cf-",
    "labels": {
      "app": "httpd-version1",
      "pod-template-hash": "5fcd64c9cf"
    },
    "name": "nuestro-httpd-5fcd64c9cf-8jwdc",
    "namespace": "default",
    "ownerReferences": [
      {
        "apiVersion": "apps/v1",
        "blockOwnerDeletion": true,
        "controller": true,
        "kind": "ReplicaSet",
        "name": "nuestro-httpd-5fcd64c9cf",
        "uid": "7c0f4484-0e3e-4e1b-bd9f-57356a2f93bb"
      }
    ],
    "resourceVersion": "3188",
    "selfLink": "/api/v1/namespaces/default/pods/nuestro-httpd-5fcd64c9cf-8jwdc",
    "uid": "0e261e52-0430-4058-a333-b4b0e8eeda4f"
  },
  "spec": {
    ...
  }
}
```

```
[labs@hp ~]$ kubectl get pods
NAME                                READY STATUS RESTARTS AGE
nuestro-httpd-5fcd64c9cf-8jwdc     1/1   Running 0      16m
nuestro-httpd-5fcd64c9cf-bkkzw     1/1   Running 0      6m24s
nuestro-httpd-5fcd64c9cf-n2qk8     1/1   Running 0      11m
nuestro-httpd-5fcd64c9cf-nqhm2     1/1   Running 0      11m
```

```
[labs@hp ~]$ kubectl expose pod nuestro-httpd-5fcd64c9cf-8jwdc --port=80 --name=nuestro-
httpd-expuesto --type=NodePort
service/nuestro-httpd-expuesto exposed
```

```
[labs@hp ~]$ kubectl get services
NAME            TYPE        CLUSTER-IP    EXTERNAL-IP  PORT(S)    AGE
kubernetes      ClusterIP   10.96.0.1     <none>       443/TCP    12h
nuestro-httpd-expuesto NodePort    10.99.83.231 <none>       80:31980/TCP 70s
```



```
[labs@hp ~]$ curl 192.168.99.104:31980  
<html><body><h1>It works!</h1></body></html>
```

REFERENCIAS:

<https://www.cadilinea.com/blog/wp-content/uploads/2019/05/01-kubernetes-cats-and-dogs.pdf>

<https://kubernetes.io/docs/reference/kubectl/cheatsheet/>

<https://kubernetes.io/docs/tasks/access-application-cluster/web-ui-dashboard/>
Learn Openshift – Pack Publishing – Denis Zuev, Aertemii Kropachev (2018)

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