



**Codelab Kubernetes nivel intermedio local**

**Desarrollo de Software III**

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**Universidad Del Valle**

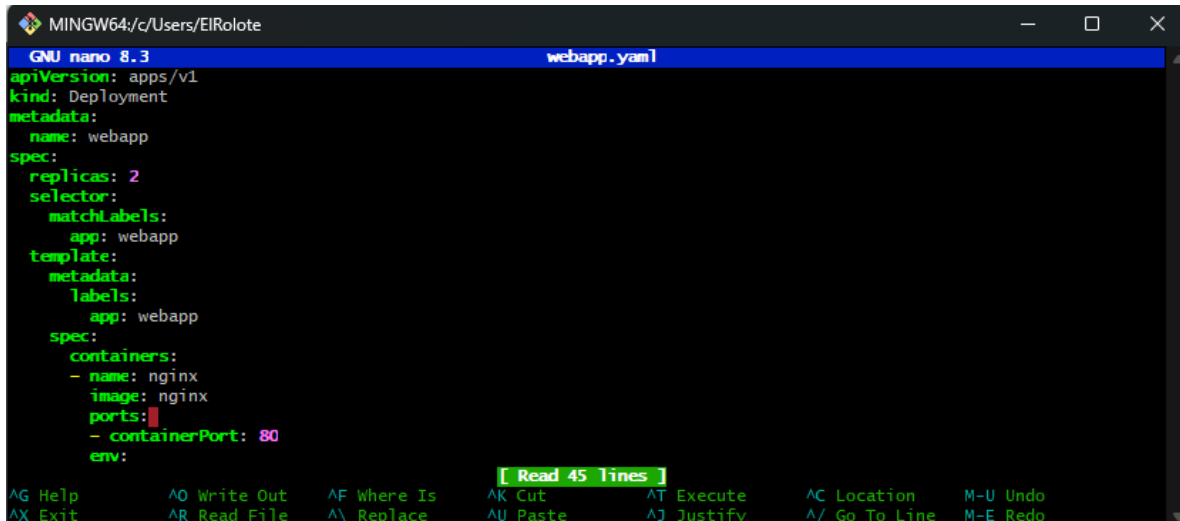
**Sede Tuluá**

**Septimo Semestre**

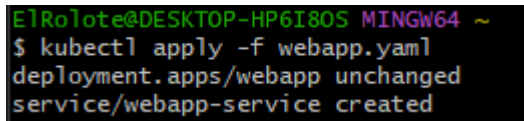
**2025**

## Evidencias codelab

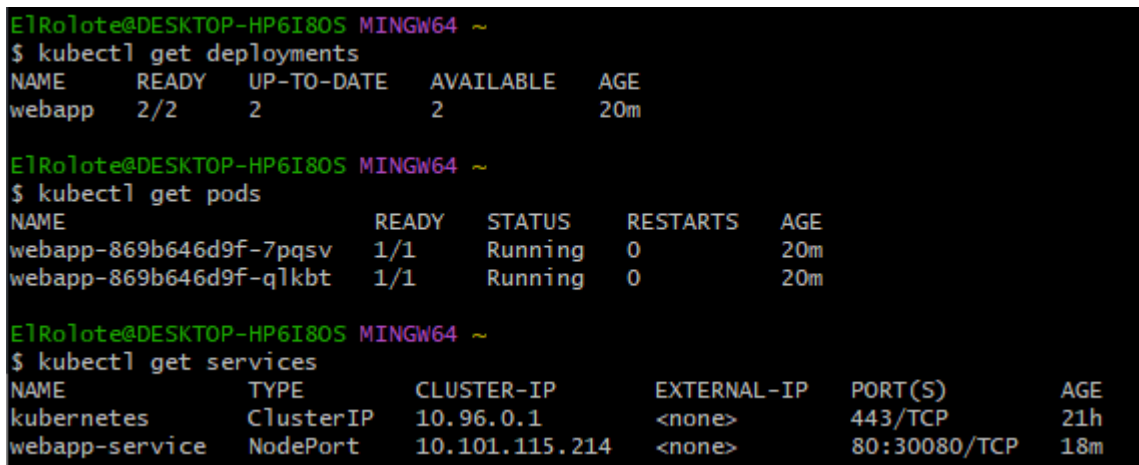
### Creacion del Webapp.yaml



```
MINGW64:/c/Users/EIRolote
GNU nano 8.3 webapp.yaml
apiVersion: apps/v1
kind: Deployment
metadata:
  name: webapp
spec:
  replicas: 2
  selector:
    matchLabels:
      app: webapp
  template:
    metadata:
      labels:
        app: webapp
    spec:
      containers:
      - name: nginx
        image: nginx
        ports:
        - containerPort: 80
      env:
[ Read 45 lines ]
^G Help      ^O Write Out ^F Where Is  ^K Cut       ^T Execute   ^C Location  M-U Undo
^X Exit      ^R Read File ^\ Replace   ^U Paste     ^J Justify   ^/ Go To Line M-E Redo
```



```
EIRolote@DESKTOP-HP6I80S MINGW64 ~
$ kubectl apply -f webapp.yaml
deployment.apps/webapp unchanged
service/webapp-service created
```

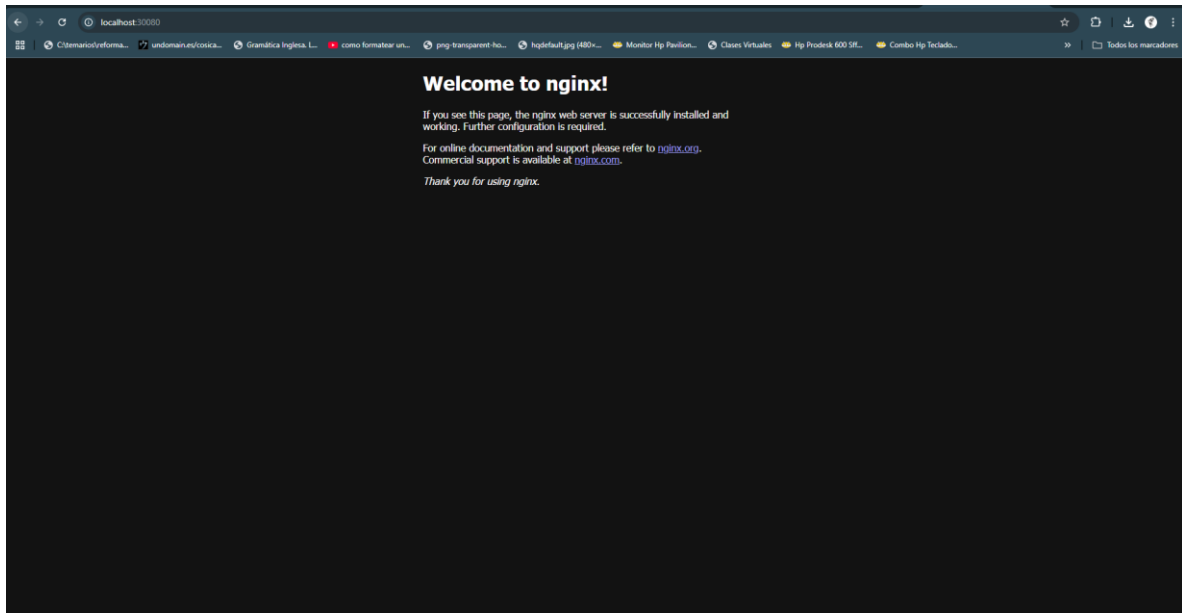


```
EIRolote@DESKTOP-HP6I80S MINGW64 ~
$ kubectl get deployments
NAME      READY   UP-TO-DATE   AVAILABLE   AGE
webapp    2/2     2            2           20m

EIRolote@DESKTOP-HP6I80S MINGW64 ~
$ kubectl get pods
NAME                                READY   STATUS    RESTARTS   AGE
webapp-869b646d9f-7pqsv            1/1     Running   0          20m
webapp-869b646d9f-qlkbt            1/1     Running   0          20m

EIRolote@DESKTOP-HP6I80S MINGW64 ~
$ kubectl get services
NAME            TYPE        CLUSTER-IP    EXTERNAL-IP  PORT(S)          AGE
kubernetes     ClusterIP   10.96.0.1     <none>       443/TCP          21h
webapp-service  NodePort    10.101.115.214 <none>       80:30080/TCP     18m
```

Accedemos por el puerto indicado que nos da en el get services



## Creacion del configmap.yml

```
MINGW64:/c/Users/EIRolote/Documents
GNU nano 8.3 configmap.yml
apiVersion: v1
kind: ConfigMap
metadata:
  name: webapp-config
data:
  SALUDO: "Hola desde Kubernetes!"

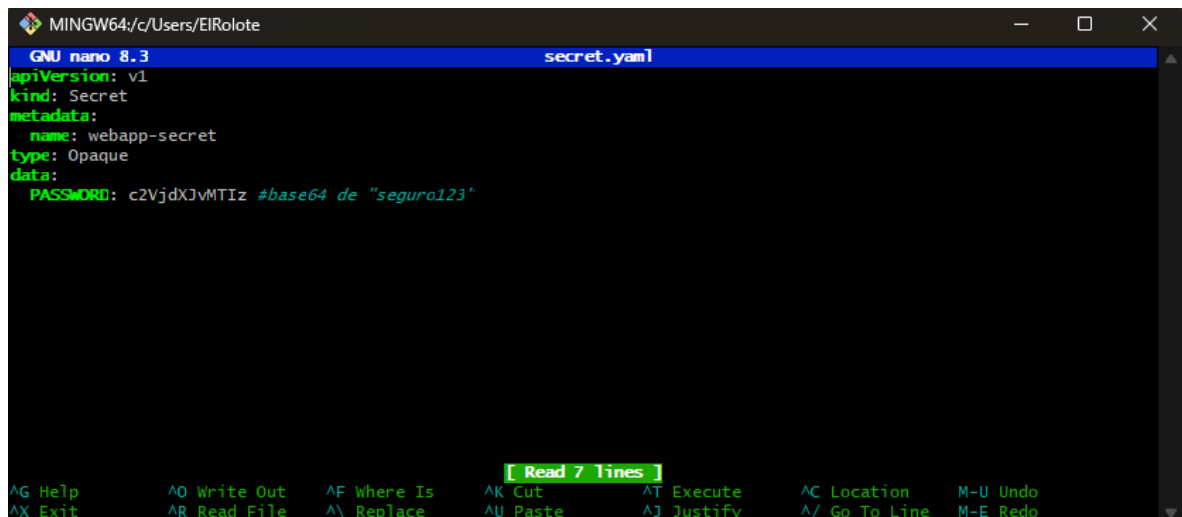
[ Read 6 Lines ]
^G Help      ^O Write Out ^F Where Is  ^K Cut       ^T Execute   ^C Location  M-U Undo
^X Exit      ^R Read File ^\ Replace   ^U Paste     ^J Justify   ^/ Go To Line M-E Redo
```

```
MINGW64:/c/Users/EIRolote
EIRolote@DESKTOP-HP6I80S MINGW64 ~
$ kubectl get pods
NAME                                READY   STATUS    RESTARTS   AGE
webapp-6b995fc796-c6cwr             1/1     Running   0           2m9s
webapp-6b995fc796-fvjz5             1/1     Running   0           2m12s

EIRolote@DESKTOP-HP6I80S MINGW64 ~
$ kubectl exec -it webapp-6b995fc796-c6cwr -- printenv SALUDO
Hola desde Kubernetes!

EIRolote@DESKTOP-HP6I80S MINGW64 ~
$ |
```

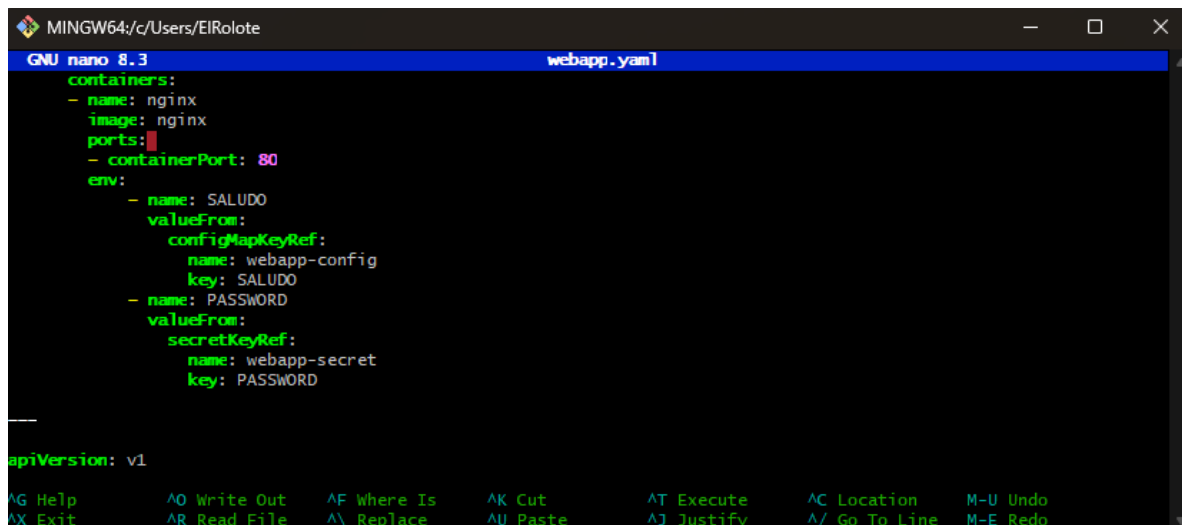
## Creacion del secret.yml



```
MINGW64/c/Users/ElRolote
GNU nano 8.3 secret.yml
apiVersion: v1
kind: Secret
metadata:
  name: webapp-secret
type: Opaque
data:
  PASSWORD: c2VjdXJvMTIz #base64 de "seguro123"

[ Read 7 lines ]
^G Help      ^O Write Out ^F Where Is  ^K Cut       ^T Execute   ^C Location  M-U Undo
^X Exit      ^R Read File ^\ Replace   ^U Paste     ^J Justify   ^/_ Go To Line M-E Redo
```

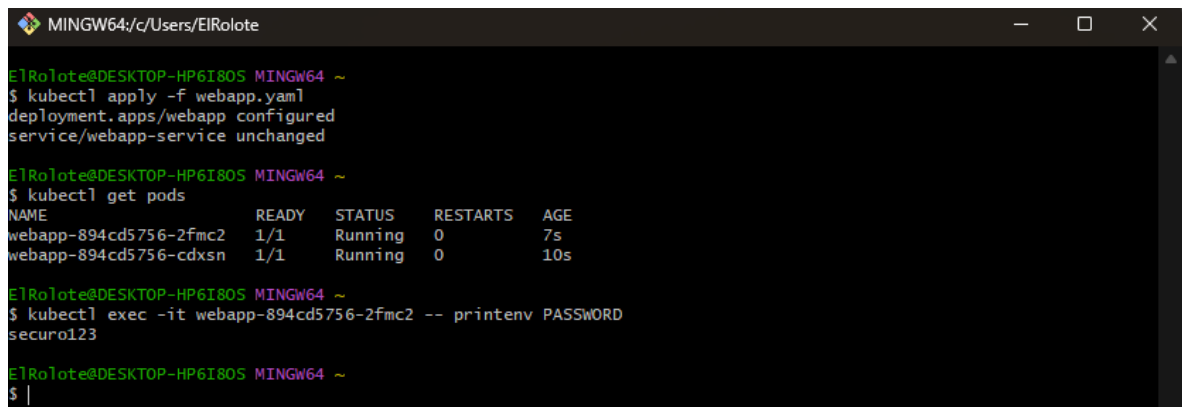
## Editamos el webapp.yml para que funcione el secret.yml



```
MINGW64/c/Users/ElRolote
GNU nano 8.3 webapp.yml
containers:
- name: nginx
  image: nginx
  ports:
  - containerPort: 80
  env:
    - name: SALUDO
      valueFrom:
        configMapKeyRef:
          name: webapp-config
          key: SALUDO
    - name: PASSWORD
      valueFrom:
        secretKeyRef:
          name: webapp-secret
          key: PASSWORD

apiVersion: v1

^G Help      ^O Write Out ^F Where Is  ^K Cut       ^T Execute   ^C Location  M-U Undo
^X Exit      ^R Read File ^\ Replace   ^U Paste     ^J Justify   ^/_ Go To Line M-E Redo
```



```
ElRolote@DESKTOP-HP6I80S MINGW64 ~
$ kubectl apply -f webapp.yml
deployment.apps/webapp configured
service/webapp-service unchanged

ElRolote@DESKTOP-HP6I80S MINGW64 ~
$ kubectl get pods
NAME                                READY   STATUS    RESTARTS   AGE
webapp-894cd5756-2fmc2             1/1     Running   0           7s
webapp-894cd5756-cdxsn             1/1     Running   0          10s

ElRolote@DESKTOP-HP6I80S MINGW64 ~
$ kubectl exec -it webapp-894cd5756-2fmc2 -- printenv PASSWORD
seguro123

ElRolote@DESKTOP-HP6I80S MINGW64 ~
$
```

## Creacion del config-volumen.yml

```
MINGW64/c/Users/EIRolote
GNU nano 8.3 config-volume.yml
apiVersion: v1
kind: ConfigMap
metadata:
  name: html-config
data:
  index.html:
    <html>
    <body>
    <h1>Hola desde un volumen en kubernetes!</h1>
    </body>
    </html>
```

[ Read 11 lines ]

^G Help ^O Write Out ^F Where Is ^K Cut ^T Execute ^C Location M-U Undo  
^X Exit ^R Read File ^\ Replace ^U Paste ^J Justify ^/ Go To Line M-E Redo

## Creacion del webapp-volumen

```
MINGW64/c/Users/EIRolote
GNU nano 8.3 webapp-volumen.yml
apiVersion: apps/v1
kind: Deployment
metadata:
  name: webapp-volumen
spec:
  replicas: 1
  selector:
    matchLabels:
      app: webapp-volumen
  template:
    metadata:
      labels:
        app: webapp-volumen
    spec:
      containers:
        - name: nginx
          image: nginx
          volumeMounts:
            - name: html-volume
              mountPath: /usr/share/nginx/html
```

[ Read 24 lines ]

^G Help ^O Write Out ^F Where Is ^K Cut ^T Execute ^C Location M-U Undo  
^X Exit ^R Read File ^\ Replace ^U Paste ^J Justify ^/ Go To Line M-E Redo

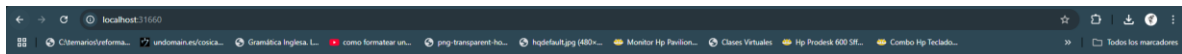
```
MINGW64/c/Users/EIRolote

EIRolote@DESKTOP-HP6I80S MINGW64 ~
$ kubectl apply -f webapp-volumen.yml
deployment.apps/webapp-volumen created

EIRolote@DESKTOP-HP6I80S MINGW64 ~
$ kubectl expose deployment webapp-volumen --type=NodePort --port=80 --name=webapp-volumen-service
service/webapp-volumen-service exposed

EIRolote@DESKTOP-HP6I80S MINGW64 ~
$
```

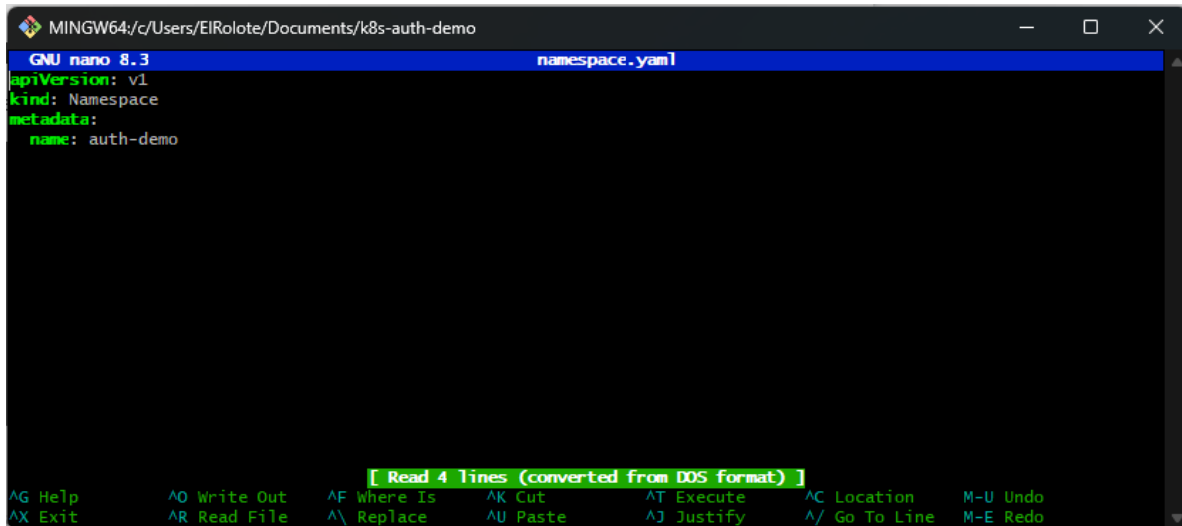
## Evidencia del funcionamiento



Hola desde un volumen en kubernetes!

## Despliegue de multiples servicios

### Creacion del namespace



```

MINGW64:/c/Users/EIRolote/Documents/k8s-auth-demo

EIRolote@DESKTOP-HP6I80S MINGW64 ~/Documents/k8s-auth-demo
$ kubectl apply -f namespace.yaml
namespace/auth-demo created

EIRolote@DESKTOP-HP6I80S MINGW64 ~/Documents/k8s-auth-demo
$ kubectl config set-context --current --namespace=auth-demo
Context "docker-desktop" modified.

```

## Creacion del db1

```

MINGW64:/c/Users/EIRolote/Documents/k8s-auth-demo

GNU nano 8.3 db1.yaml
apiVersion: v1
kind: PersistentVolumeClaim
metadata:
  name: db1-pvc
spec:
  accessModes:
    - ReadWriteOnce
  resources:
    requests:
      storage: 500Mi
---
apiVersion: v1
kind: Service
metadata:
  name: db1
spec:
  ports:
    - port: 5432
  selector:
    app: db1
[ Read 53 lines (converted from DOS format) ]
^G Help      ^O Write Out ^F Where Is  ^K Cut       ^T Execute   ^C Location  M-U Undo
^X Exit      ^R Read File ^\ Replace   ^U Paste     ^J Justify   ^_ Go To Line M-E Redo

```

## Creacion del db2

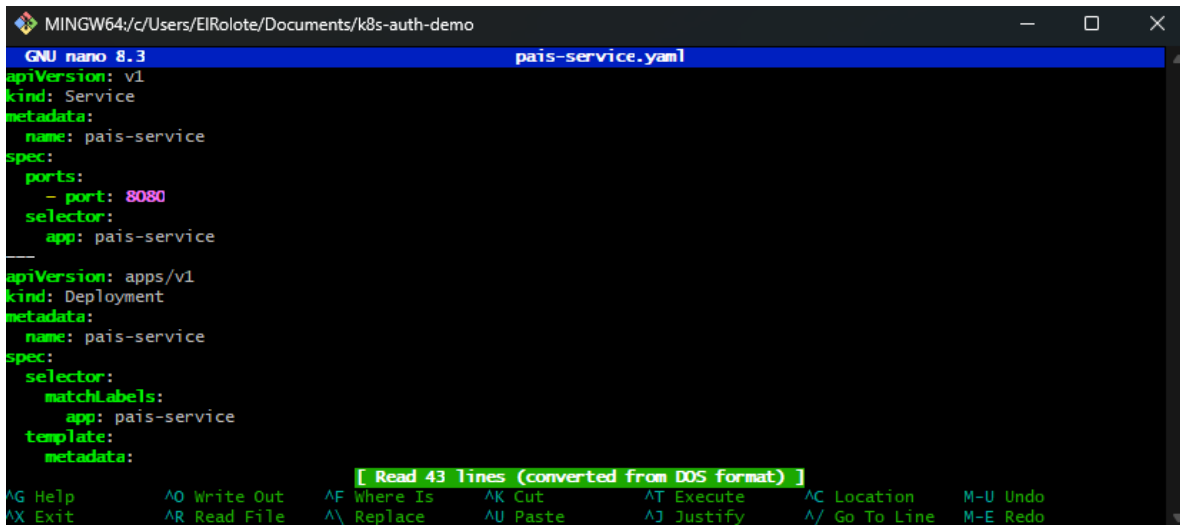
```

MINGW64:/c/Users/EIRolote/Documents/k8s-auth-demo

GNU nano 8.3 db2.yaml
apiVersion: v1
kind: PersistentVolumeClaim
metadata:
  name: db2-pvc
spec:
  accessModes:
    - ReadWriteOnce
  resources:
    requests:
      storage: 500Mi
---
apiVersion: v1
kind: Service
metadata:
  name: db2
spec:
  ports:
    - port: 5432
  selector:
    app: db2
[ Read 53 lines (converted from DOS format) ]
^G Help      ^O Write Out ^F Where Is  ^K Cut       ^T Execute   ^C Location  M-U Undo
^X Exit      ^R Read File ^\ Replace   ^U Paste     ^J Justify   ^_ Go To Line M-E Redo

```

## Creacion de pais-service

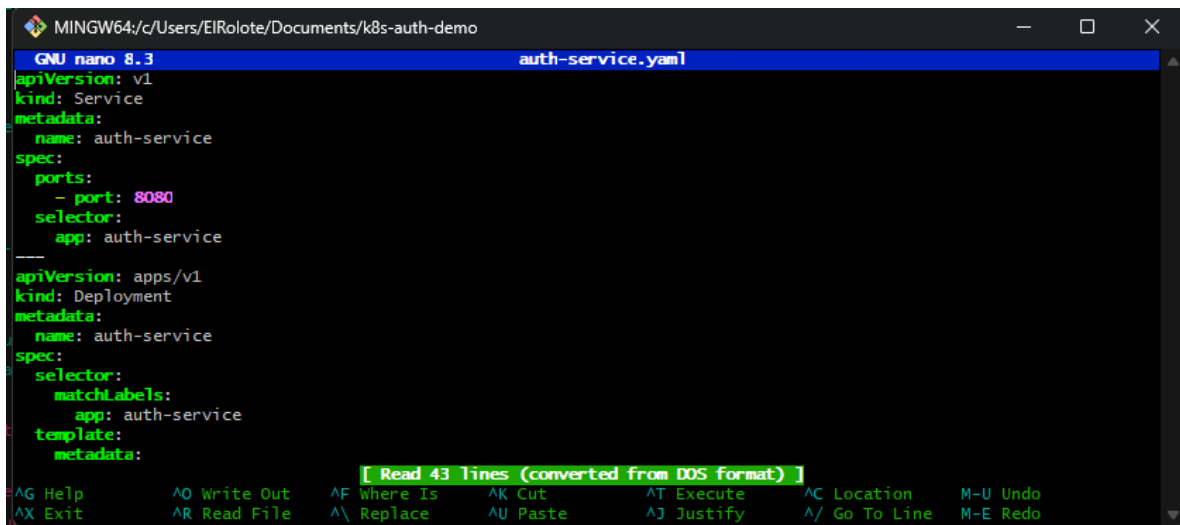


The screenshot shows a terminal window titled "MINGW64:/c/Users/ElRolote/Documents/k8s-auth-demo" with a nano 8.3 editor open to a file named "pais-service.yaml". The file contains the following YAML configuration:

```
apiVersion: v1
kind: Service
metadata:
  name: pais-service
spec:
  ports:
    - port: 8080
  selector:
    app: pais-service
---
apiVersion: apps/v1
kind: Deployment
metadata:
  name: pais-service
spec:
  selector:
    matchLabels:
      app: pais-service
  template:
    metadata:
```

The bottom of the window displays a status bar with the message "[ Read 43 lines (converted from DOS format) ]" and a row of keyboard shortcuts: ^G Help, ^O Write Out, ^F Where Is, ^K Cut, ^T Execute, ^C Location, M-U Undo, ^X Exit, ^R Read File, ^\ Replace, ^U Paste, ^J Justify, ^\_ Go To Line, M-E Redo.

## Creacion de auth-service



The screenshot shows a terminal window titled "MINGW64:/c/Users/ElRolote/Documents/k8s-auth-demo" with a nano 8.3 editor open to a file named "auth-service.yaml". The file contains the following YAML configuration:

```
apiVersion: v1
kind: Service
metadata:
  name: auth-service
spec:
  ports:
    - port: 8080
  selector:
    app: auth-service
---
apiVersion: apps/v1
kind: Deployment
metadata:
  name: auth-service
spec:
  selector:
    matchLabels:
      app: auth-service
  template:
    metadata:
```

The bottom of the window displays a status bar with the message "[ Read 43 lines (converted from DOS format) ]" and a row of keyboard shortcuts: ^G Help, ^O Write Out, ^F Where Is, ^K Cut, ^T Execute, ^C Location, M-U Undo, ^X Exit, ^R Read File, ^\ Replace, ^U Paste, ^J Justify, ^\_ Go To Line, M-E Redo.



```
MINGW64; c/Users/EIrolote/Documents/k8s-auth-demo
E1rolote@DESKTOP-HP6I80S MINGW64 ~/Documents/k8s-auth-demo
$ nano auth-service.yaml

E1rolote@DESKTOP-HP6I80S MINGW64 ~/Documents/k8s-auth-demo
$ nano auth-service.yaml

E1rolote@DESKTOP-HP6I80S MINGW64 ~/Documents/k8s-auth-demo
$ kubectl apply -f db1.yaml
kubectl apply -f db2.yaml
kubectl apply -f pais-service.yaml
kubectl apply -f auth-service.yaml
persistentvolumeclaim/db1-pvc created
service/db1 created
deployment.apps/db1 created
persistentvolumeclaim/db2-pvc created
service/db2 created
deployment.apps/db2 created
service/pais-service created
deployment.apps/pais-service created
service/auth-service created
deployment.apps/auth-service created

E1rolote@DESKTOP-HP6I80S MINGW64 ~/Documents/k8s-auth-demo
$
```

```
E1rolote@DESKTOP-HP6I80S MINGW64 ~/Documents/k8s-auth-demo
$ kubectl get pods
kubectl get svc
NAME                                READY   STATUS             RESTARTS   AGE
auth-service-65b7798f59-n7l5n      0/1     ContainerCreating   0           20s
db1-dbd647-d2nxw                    1/1     Running             0           22s
db2-6ddd5445f5-s7pp4                1/1     Running             0           21s
pais-service-796bb57fcc-tbb6j       0/1     ContainerCreating   0           21s
NAME      TYPE        CLUSTER-IP      EXTERNAL-IP   PORT(S)    AGE
auth-service  ClusterIP   10.96.149.172   <none>        8080/TCP   21s
db1         ClusterIP   10.106.205.102  <none>        5432/TCP   23s
db2         ClusterIP   10.97.199.20    <none>        5432/TCP   22s
pais-service ClusterIP   10.104.235.87   <none>        8080/TCP   22s

E1rolote@DESKTOP-HP6I80S MINGW64 ~/Documents/k8s-auth-demo
$
```