SECRETS

Kubernetes Secrets is a resource designed to hold sensitive information, such as passwords, OAuth tokens, and ssh keys. Unlike ConfigMap, which is tailored for non-sensitive configuration data, Secrets are specifically designed to manage confidential data.

The main purposes of Secrets include:

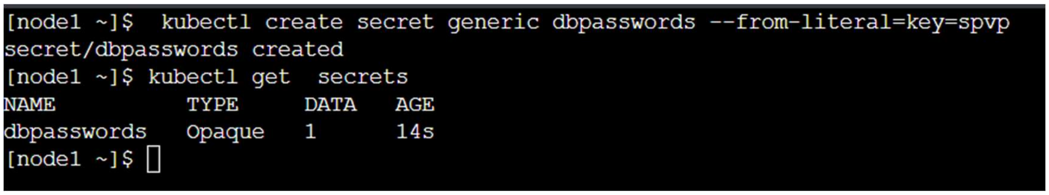
Data Protection: Though Secrets are not encrypted by default when stored in etcd (the storage backend for Kubernetes), they can be with the right configuration, which means sensitive data is better protected than if it were stored in a plain ConfigMap.

Decoupling sensitive content:
Similar ConfigMap, Secrets allow you to decouple sensitive content from pods, promoting a clean separation of concerns.

Scoped Access: You can fine-tune which pods can access a specific Secret using Kubernetes RBAC.

Create Secret in imperative method:

# kubectl create secret generic dbpasswords --from-literal=key=value.



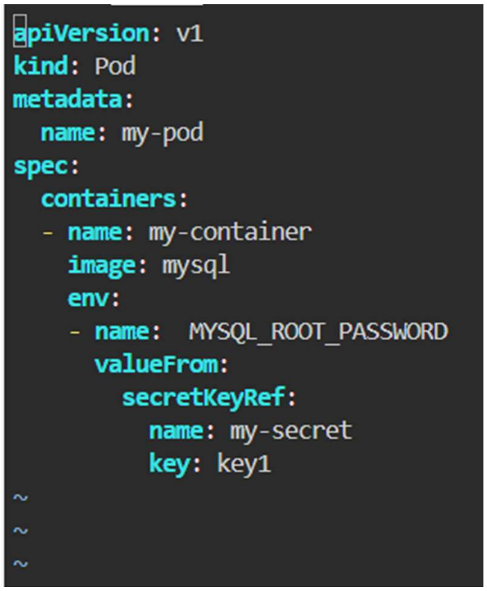
```
[node1 ~]$  kubectl create secret generic dbpasswords --from-literal=key=spvp
secret/dbpasswords created
[node1 ~]$ kubectl get  secrets
NAME          TYPE     DATA   AGE
dbpasswords   Opaque   1      14s
[node1 ~]$ 
```

Now I create an pod using secreate.

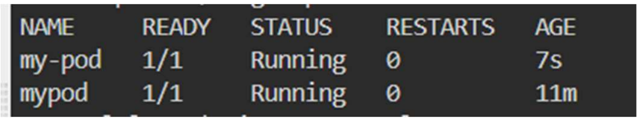
Using Secrets in Pods:

Secrets can be mounted as data volumes or exposed as environment variables.

Environment Variable:

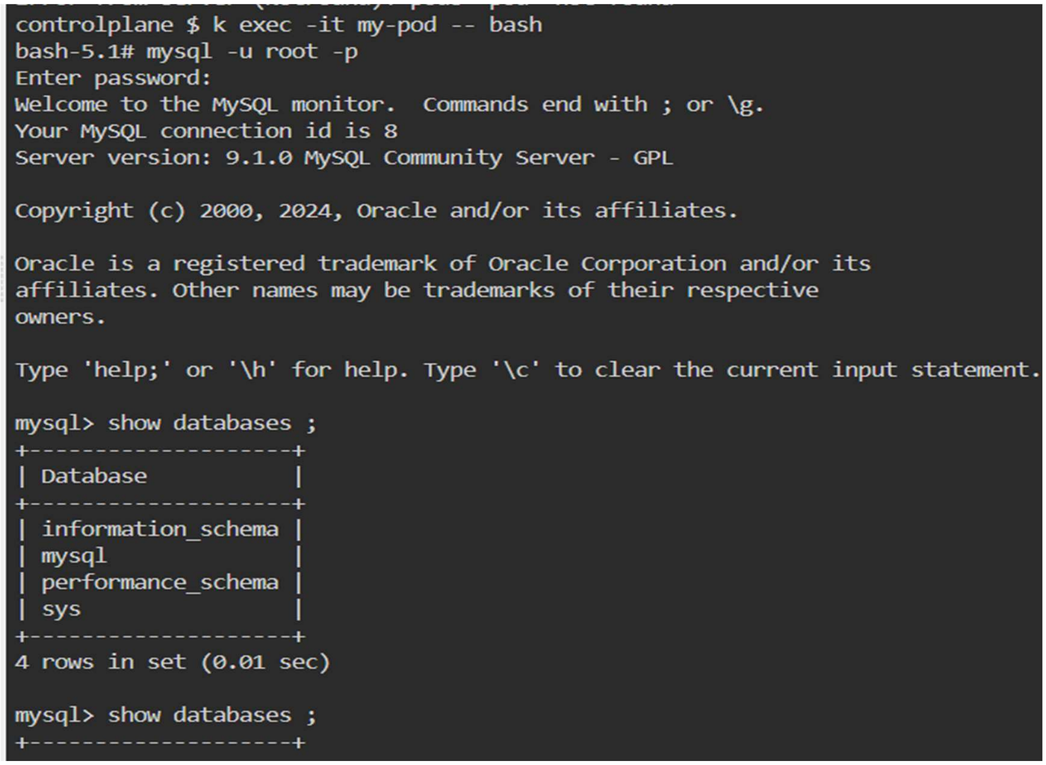


```
apiVersion: v1
kind: Pod
metadata:
  name: my-pod
spec:
  containers:
  - name: my-container
    image: mysql
    env:
    - name:  MYSQL_ROOT_PASSWORD
      valueFrom:
        secretKeyRef:
          name: my-secret
          key: key1
~
~
~
```



```
NAME      READY   STATUS    RESTARTS   AGE
my-pod    1/1     Running   0          7s
mypod     1/1     Running   0          11m
```

Now I login into the container



```
controlplane $ k exec -it my-pod -- bash
bash-5.1# mysql -u root -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 8
Server version: 9.1.0 MySQL Community Server - GPL

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affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> show databases ;
+--------------------+
| Database           |
+--------------------+
| information_schema |
| mysql              |
| performance_schema |
| sys                |
+--------------------+
4 rows in set (0.01 sec)

mysql> show databases ;
+--------------------+
```
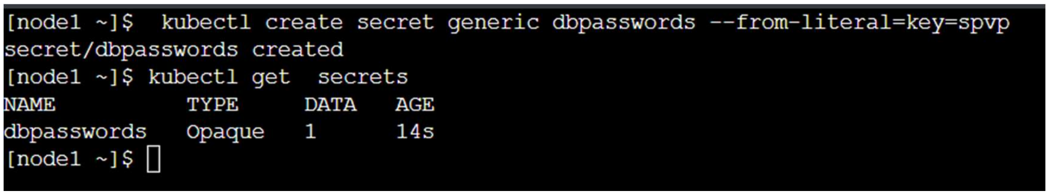
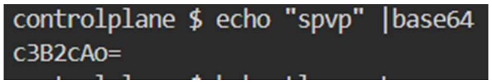

I had enter **spvp** in password to login. But it was not secure . because in the secrete the passwrd was we give directly.

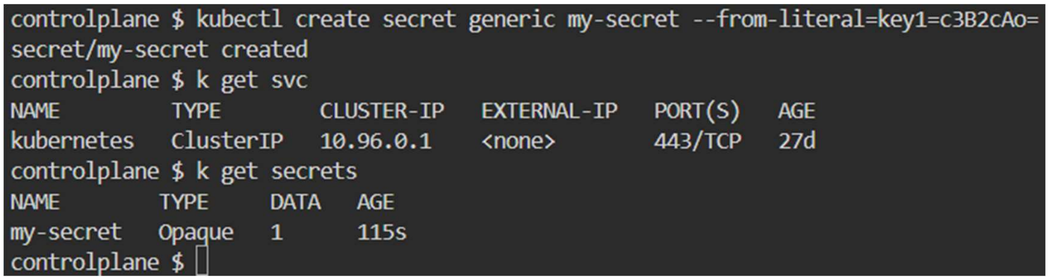


```
[node1 ~]$  kubectl create secret generic dbpasswords --from-literal=key=spvp
secret/dbpasswords created
[node1 ~]$ kubectl get  secrets
NAME           TYPE     DATA   AGE
dbpasswords    Opaque   1      14s
[node1 ~]$ 
```

For that we should give the password in decode form

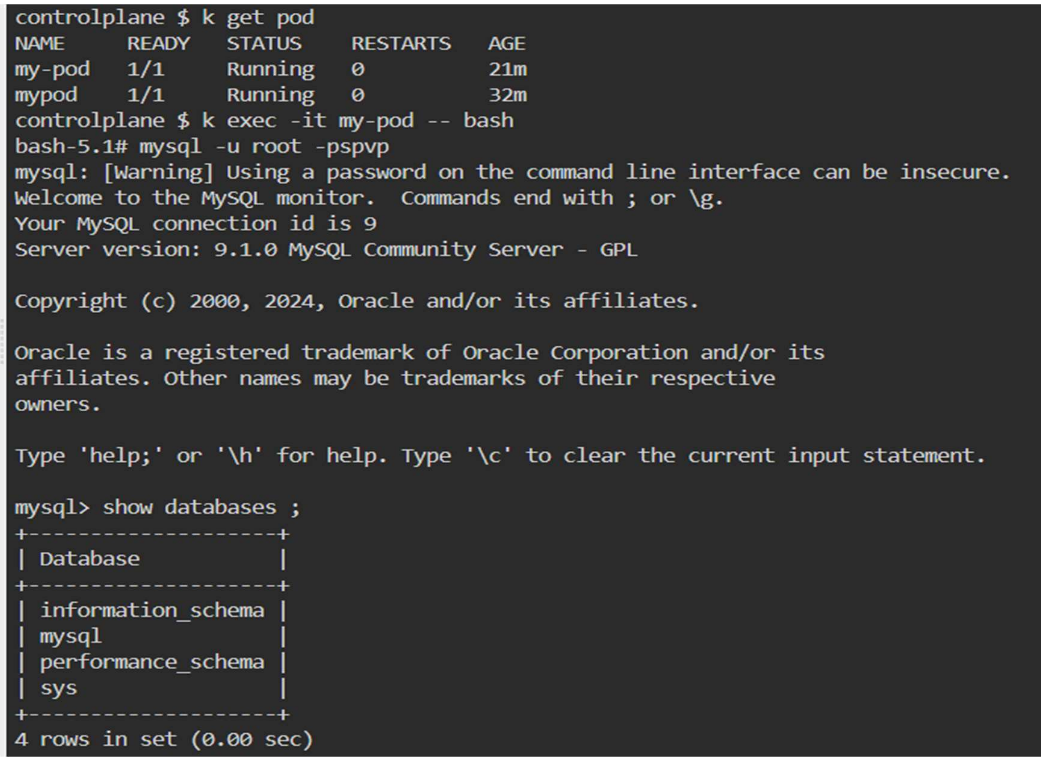


```
controlplane $ echo "spvp" |base64
c3B2cAo=
```



```
controlplane $ kubectl create secret generic my-secret --from-literal=key1=c3B2cAo=
secret/my-secret created
controlplane $ k get svc
NAME         TYPE        CLUSTER-IP   EXTERNAL-IP   PORT(S)   AGE
kubernetes   ClusterIP   10.96.0.1    <none>        443/TCP   27d
controlplane $ k get secrets
NAME        TYPE     DATA   AGE
my-secret   Opaque   1      115s
controlplane $ 
```

Now I login into the container.



```
controlplane $ k get pod
NAME     READY   STATUS    RESTARTS   AGE
my-pod   1/1     Running   0          21m
mypod    1/1     Running   0          32m
controlplane $ k exec -it my-pod -- bash
bash-5.1# mysql -u root -pspvp
mysql: [Warning] Using a password on the command line interface can be insecure.
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 9
Server version: 9.1.0 MySQL Community Server - GPL

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mysql> show databases ;
+--------------------+
| Database           |
+--------------------+
| information_schema |
| mysql              |
| performance_schema |
| sys                |
+--------------------+
4 rows in set (0.00 sec)
```