## Secrets in K8s

```
qtkha@instance-1:~$ echo -n "secret"
secretqtkha@instance-1:~$ echo -n "secret" | base64
c2VjcmV0
```

- We can create secret imperatively kubectl create secret and we have the following options
  - generic
  - docker-registry
  - tls
- Official docs: https://kubernetes.io/docs/concepts/configuration/secret/
- Consuming secret as Environmental variable

Refer below for the changes

```yaml
---
apiVersion: v1
kind: Pod
metadata:
  name: secretenv-pod
spec:
  containers:
    - image: nginx
      name: app
      envFrom:
        - secretRef:
            name: db-creds
        - secretRef:
            name: my-creds
```

```bash
#!/bin/bash
kubectl create secret generic db-creds --from-literal=pwd=secret!
```

```yaml
apiVersion: v1
kind: Secret
metadata:
  name: my-creds
type: Opaque
data:
  password: c2VjcmV0IQ==
```

```
PS D:\khajaclassroom\ExpertK8s\Secrets> kubectl apply -f .\podwithenv.yaml
pod/secretenv-pod created
PS D:\khajaclassroom\ExpertK8s\Secrets> kubectl exec secretenv-pod -- env
PATH=/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin
HOSTNAME=secretenv-pod
NGINX_VERSION=1.21.1
NJS_VERSION=0.6.1
PKG_RELEASE=1-buster
password=secret!
pwd=secret!
KUBERNETES_SERVICE_PORT_HTTPS=443
KUBERNETES_PORT=tcp://10.79.240.1:443
KUBERNETES_PORT_443_TCP=tcp://10.79.240.1:443
KUBERNETES_PORT_443_TCP_PROTO=tcp
KUBERNETES_PORT_443_TCP_PORT=443
KUBERNETES_PORT_443_TCP_ADDR=10.79.240.1
KUBERNETES_SERVICE_HOST=10.79.240.1
KUBERNETES_SERVICE_PORT=443
HOME=/root
PS D:\khajaclassroom\ExpertK8s\Secrets>
```

**Mounting Secret as a Volume** >> for changeset refer below

```
---
apiVersion: v1
kind: Pod
metadata:
  name: secretvol-pod
spec:
  containers:
    - image: nginx
      name: app
      volumeMounts:
        - name: secret-volume
          mountPath: /var/secrets
          readOnly: true
  volumes:
    - name: secret-volume
      secret:
        secretName: my-creds
```

```
PS D:\khajaclassroom\ExpertK8s\Secrets> kubectl apply -f .\podwithsecretvolume.yaml
pod/secretvol-pod created
PS D:\khajaclassroom\ExpertK8s\Secrets> kubectl exec secretvol-pod -- ls /var/secrets
password
PS D:\khajaclassroom\ExpertK8s\Secrets> kubectl exec secretvol-pod -- cat /var/secrets/password
secret!
PS D:\khajaclassroom\ExpertK8s\Secrets>
```
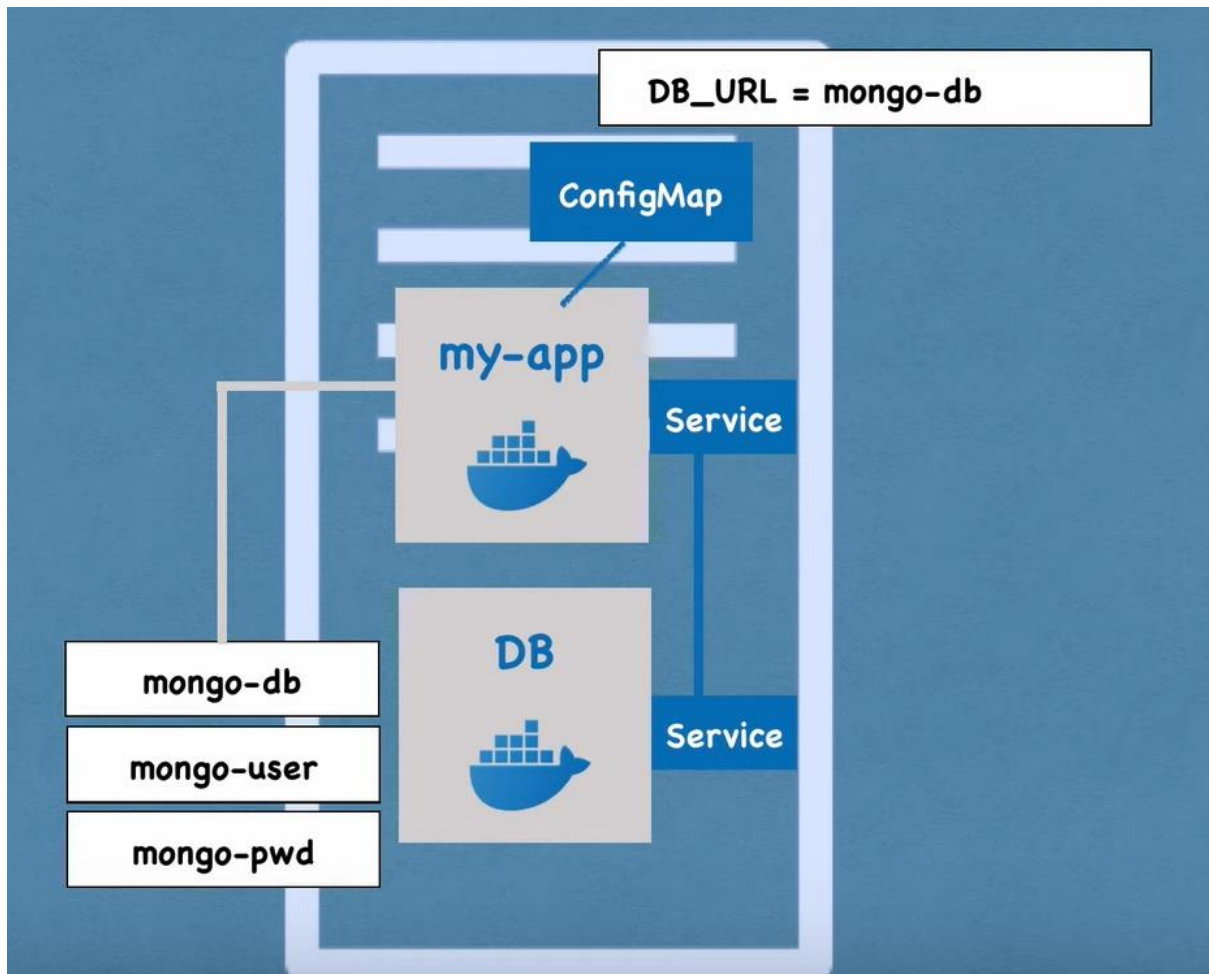
A ConfigMap is an API object used to store non-confidential data in key-value pairs. Pods can consume ConfigMaps as environment variables, command-line arguments, or as configuration files in a volume.

A Secret is an object that contains a small amount of sensitive data such as a password, a token, or a key. Such information might otherwise be put in a Pod specification or in a container image. Using a Secret means that you don't need to include confidential data in your application code.

**Secrets are similar to ConfigMaps but are specifically intended to hold confidential data.**