**ConfigMap and Secrets**

In Kubernetes, **ConfigMaps** and **Secrets** are essential resources that help

* Isolate configuration data and sensitive information from container images, enhancing security while allowing changes without rebuilding images, thereby increasing flexibility and maintainability.

**🔹 ConfigMap in Kubernetes**

**📘 What is a ConfigMap?**

* used to store **non-sensitive configuration data** as **key-value pairs**.

**🛠️ Creating a ConfigMap**

**We can create a ConfigMap in several ways:**

1. **From a YAML manifest:**
2. **From command line:**  
   *kubectl create configmap my-config --from-literal=LOG\_LEVEL=debug --from-literal=API\_URL=https://api.example.com*
3. **From a file:**  
   kubectl create configmap my-config --from-file=config.properties

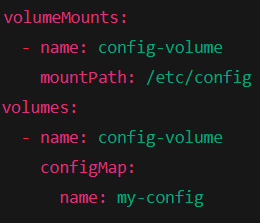
**📦 Consuming a ConfigMap**

We can use it in our pods via:

1. **Environment variables  
   A black screen with text on it

   AI-generated content may be incorrect.**
2. **Command-line arguments  
   A black background with green text

   AI-generated content may be incorrect.**
3. **Mounted as volumes**

****

**🔐 Secret in Kubernetes**

**📘 What is a Secret?**

* A **Secret** is a Kubernetes object used to store **sensitive information** (such as passwords, OAuth tokens, and SSH keys) in a **base64-encoded** form.

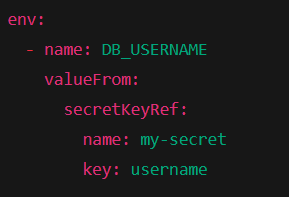
**🛠️ Creating a Secret**

1. **From a YAML file:**A black screen with white text

   AI-generated content may be incorrect.
2. **Using kubectl:**

kubectl create secret generic my-secret --from-literal=username=admin --from-literal=password=secret123

**📦 Consuming a Secret**

1. **Environment variables**
2. Mounted as volumes  
   A screen shot of a computer

   AI-generated content may be incorrect.

**🔐 Security Considerations**

* **Secrets are base64-encoded**, not encrypted by default. Use:
  + **Encryption at rest** (enable in kube-apiserver)
  + **External secret managers** (e.g., HashiCorp Vault, AWS Secrets Manager)
  + **…**

**🔁 Comparison: ConfigMap vs Secret**

| **Feature** | **ConfigMap** | **Secret** |
| --- | --- | --- |
| Purpose | Store config data | Store sensitive data |
| Data Encoding | Plain text | Base64 encoded |
| Encryption | Not encrypted | Can be encrypted at rest |