

Exploring Volumes

Relevant Documentation

- [Volumes](#)

Exam Tips

- The `volumes` field in the Pod spec defines details about volumes used in the Pod.
- The `volumeMounts` field in the container spec mounts a volume to a specific container at a specific location.
- `hostPath` volumes mount data from a specific location on the host (k8s node).
- `hostPath` volume types:
 - `Directory` – Mounts an existing directory on the host.
 - `DirectoryOrCreate` – Mounts a directory on the host, and creates it if it doesn't exist.
 - `File` – Mounts an existing single file on the host.
 - `FileOrCreate` – Mounts a file on the host, and creates it if it doesn't exist.
- `emptyDir` volumes provide temporary storage that uses the host file system and are removed if the Pod is deleted.

Lesson Reference

Log in to **worker node 1**.

Create a directory and a file with some data on worker node 1.

```
sudo mkdir /etc/hostPath
```

```
echo "This is worker 1!" | sudo tee /etc/hostPath/data.txt
```

Log in to **worker node 2**.

Create a directory and a file with some data on worker node 2.

```
mkdir /etc/hostPath
```

```
echo "This is worker 2!" > /etc/hostPath/data.txt
```

Log in to the **control plane node**.

Create a Pod that uses a `hostPath` volume to mount the data from the host.

```
vi hostpath-volume-test.yml
```

```
apiVersion: v1
kind: Pod
metadata:
  name: hostpath-volume-test
spec:
  restartPolicy: OnFailure
  containers:
  - name: busybox
    image: busybox:stable
    command: ['sh', '-c', 'cat /data/data.txt']
    volumeMounts:
    - name: host-data
      mountPath: /data
  volumes:
  - name: host-data
    hostPath:
      path: /etc/hostPath
      type: Directory
```

```
kubectl apply -f hostpath-volume-test.yml
```

Check the Pod status.

```
kubectl get pod hostpath-volume-test
```

Check the Pod logs. You should see output from the host data indicating which worker node the Pod is running on.

```
kubectl logs hostpath-volume-test
```

Now let's create a Pod that uses an `emptyDir` volume.

```
vi emptydir-volume-test.yml
```

```
apiVersion: v1
kind: Pod
metadata:
  name: emptydir-volume-test
spec:
  restartPolicy: OnFailure
  containers:
  - name: busybox
    image: busybox:stable
    command: ['sh', '-c', 'echo "Writing to the empty dir..." > /data/data.txt; cat /data/data.txt']
    volumeMounts:
    - name: emptydir-vol
      mountPath: /data
  volumes:
  - name: emptydir-vol
    emptyDir: {}
```

```
kubectl apply -f emptydir-volume-test.yml
```

Get the container logs.

```
kubectl logs emptydir-volume-test
```