What is a Docker Volume?

# 📦 Definition

A volume in Docker is a persistent storage mechanism used to store data outside of the container's filesystem. It allows data to survive container restarts or deletions.

# 🧠 Why Use Volumes?

Common reasons for using volumes include:

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| Purpose | Explanation |
| Data Persistence | Keeps data safe across container restarts or removals. |
| Separation of Concerns | Keeps application code and data separate. |
| Sharing Data | Share data between multiple containers. |
| Backup/Restore | Easier to back up volumes than container filesystems. |

# 📁 Where Are Volumes Stored?

By default, Docker stores volumes in:

/var/lib/docker/volumes/ (on Linux)

On Windows (WSL2), they are stored in a managed Docker data location.

# 🛠️ Volume Commands

* docker volume create <name> - Create a new volume
* docker volume ls - List all volumes
* docker volume inspect <name> - Get details of a volume
* docker volume rm <name> - Delete a volume

# 🧪 Example: Using a Volume in a Container

Example command to use a named volume with MySQL:

docker run -d \  
 --name mysql-db \  
 -v mysql-data:/var/lib/mysql \  
 -e MYSQL\_ROOT\_PASSWORD=secret \  
 mysql:latest

This stores MySQL data in a named volume called 'mysql-data'.

# 🔄 Named vs Anonymous Volumes

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| --- | --- | --- |
| Type | Command Example | Description |
| Named | -v mydata:/data | Reusable and easier to manage |
| Anonymous | -v /data | Auto-generated name, harder to track |