

Experiment -1.4

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Branch: CSE-DevOps

Semester: 5th

Subject Name: Docker and Kubernetes

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Section/Group: 2IBCD-1

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1. Aim/Overview of the practical:

To manage Volumes and Containers for storing and retrieval of data in Docker.

2. Task to be done:

To manage Volumes and Containers in Docker for data storage and retrieval we would follow these steps:

1. Create a Docker volume using the command `docker volume create <volume_name>`.
2. List available volumes with `docker volume ls`.
3. Inspect volume details with `docker volume inspect <volume_name>` to find the Mountpoint.
4. Run a Docker container with the `-v` flag to mount the volume to a specific path in the container.
5. Store and retrieve data by interacting with the mounted volume within the container.

3. Theory:

DOCKER VOLUME:

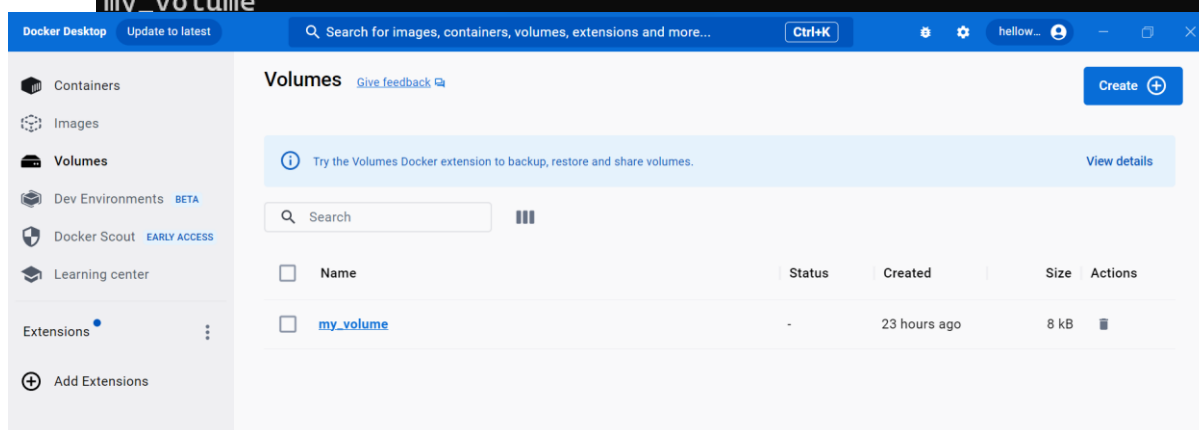
In Docker, a volume is a mechanism for persisting data generated by and used by Docker containers. Volumes are separate from the container's file system and exist outside the container itself. They are typically used for storing data that should persist even if the container is stopped or removed.

4. Steps for experiment/practical:

```
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Install the latest PowerShell for new features and improvements! https

PS C:\Users\HP> docker volume create my_volume
my_volume
```



```
Windows PowerShell
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Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\HP> docker volume create my_volume
my_volume
PS C:\Users\HP> docker volume ls
DRIVER      VOLUME NAME
local      my_volume
PS C:\Users\HP>
```

```
PS C:\Users\HP> docker volume inspect my_volume
[
  {
    "CreatedAt": "2023-09-03T07:30:11Z",
    "Driver": "local",
    "Labels": null,
    "Mountpoint": "/var/lib/docker/volumes/my_volume/_data",
    "Name": "my_volume",
    "Options": null,
    "Scope": "local"
  }
]
PS C:\Users\HP>
```

```
Microsoft Windows [Version 10.0.22621.2215]
(c) Microsoft Corporation. All rights reserved.

C:\Users\HP>docker run -v nikhil_singh:/usr/share/nginx/html:ro -d -p80:80 nginx
6a72a45c211770a65e77295d22bd4c0f5fd4a45590a1ee803e98e96495174790

C:\Users\HP>
```

The screenshot shows the Docker Desktop application window. The left sidebar contains navigation options: Containers, Images, Volumes, Dev Environments (BETA), Docker Scout (EARLY ACCESS), Learning center, Extensions, and Add Extensions. The main panel is titled 'Containers' and displays a table with one running container. Above the table, it shows 'Container CPU usage' at 0.00% / 1000% (10 cores allocated) and 'Container memory usage' at 13.98MB / 3.41GB. A search bar and a toggle for 'Only show running containers' are also present. The container table has columns for Name, Image, Status, CPU (%), Port(s), Last started, and Actions. The single container listed is 'sleepy_bhabl' with image 'nginx', status 'Running', CPU usage '0%', port '80:80', and 'Last started' '51 seconds ago'. The bottom status bar indicates 'RAM 1.63 GB', 'CPU 0.00%', and 'Connected to Hub'.

Name	Image	Status	CPU (%)	Port(s)	Last started	Actions
sleepy_bhabl 6a72a45c2117	nginx	Running	0%	80:80	51 seconds ago	[Stop] [Restart] [Refresh]

```
C:\Users\HP>docker run -v "C:\Users\HP\OneDrive\Desktop\file":/usr/share/nginx/html:ro -d -p80:80 nginx
e56c9b3fd2918bce5637673570124139bb12b9cd22be371a67d2f6d3d0257740

C:\Users\HP>
```

Durhsh patel

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1. Result/Output/Writing Summary:

After the experiment, we were able to manage Volumes and Containers for storing and retrieval of data in Docker.

2. Learning outcomes (What I have learnt):

1. Learn about docker
2. Learn how to Pull a Docker image from Docker Hub.
3. Learn how to Run a container from the pulled image.
4. Learn to manage volumes and container

Evaluation Grid (To be created as per the SOP and Assessment guidelines by the faculty):

Sr. No.	Parameters	Marks Obtained	Maximum Marks
1.			
2.			
3.			