

Experiment No. 2.3

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Branch: MCA - CCD

Section/Group: 22MCD-1/ Grp B

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Subject Name: Containerization With Docker

Subject Code: 22CAH-742

1. Aim/Overview of the practical: Maintaining States with Docker Volumes.

2. Code for experiment/practical:

Maintaining state with Docker volumes means using Docker volumes to store data that needs to be persisted between container restarts or between different containers. This is useful for applications that need to retain their state, such as databases, caching servers, and session state servers.

Two Sates:

- Stateless containers
- Stateful containers

To maintain state with Docker volumes, you need to:

- Create a Docker volume.
- Mount the Docker volume to the container.
- Write data to the Docker volume.

Once you have written data to the Docker volume, the data will be persisted even if the container is restarted or deleted.

Steps for Maintaining States with Docker Volumes.

- First create a volume and inspect.

```
PS C:\Users\Pinda> docker volume create state  
state
```

```
PS C:\Users\Pinda> docker volume inspect state  
[  
  {  
    "CreatedAt": "2023-11-04T09:15:54Z",  
    "Driver": "local",  
    "Labels": null,  
    "Mountpoint": "/var/lib/docker/volumes/state/_data",  
    "Name": "state",  
    "Options": null,  
    "Scope": "local"  
  }  
]
```

- Create a container using image with some additional flags:
 - v for volume
 - it for interaction mode
 - name container name

```
PS C:\Users\Pinda> docker run -it -v state:/var/local --name linux1 ubuntu
```

Container is in running state.

- Specify the path
- Create some files or data in running container, Then exit and remove the container.

```
root@3d1ad2887030:/# cd var/local
root@3d1ad2887030:/var/local# echo "Managing States with Docker Volumes" > state.txt
root@3d1ad2887030:/var/local# ls
state.txt
```

```
root@3d1ad2887030:/var/local# exit
exit
```

```
PS C:\Users\Pinda> docker rm linux1
linux1
```

- After removing the previous container, Now Create another container same with -v -it or --name flag
 - Specify the path
 - List the files

```
PS C:\Users\Pinda> docker run -it -v state:/var/local --name linux2 ubuntu
root@cbfc43a850da:/# cd var/local
root@cbfc43a850da:/var/local# ls
state.txt
root@cbfc43a850da:/var/local# cat state.txt
Managing States with Docker Volumes
```

- Previous generated file is visible that means different container are using the same volume.

3. Learning outcomes (What I have learned):

- a) To understand the States
- b) To Manage the States with Docker Volumes.
- c) To Share same Volume with different containers.