

Lesson 03 Demo 03

Developing a Backup and Restore Plan for Docker Volumes

Objective: To develop a backup and restore plan for Docker volumes for enhanced data management and disaster recovery

Tools required: Ubuntu

Prerequisites: None

Steps to be followed:

1. Create, backup, and restore a Docker volume

Step 1: Create, backup, and restore a Docker volume

- 1.1 Create a new container named **dbstore** using the following command:

sudo docker run -v /dbdata --name dbstore ubuntu /bin/bash

```
labsuser@ip-172-31-15-33:~$ sudo docker run -v /dbdata --name dbstore ubuntu /bin/bash
Unable to find image 'ubuntu:latest' locally
latest: Pulling from library/ubuntu
bccd10f490ab: Pull complete
Digest: sha256:77906da86b60585ce12215807090eb327e7386c8fafb5402369e421f44eff17e
Status: Downloaded newer image for ubuntu:latest
labsuser@ip-172-31-15-33:~$
```

1.2 Run the following command to list all containers:

sudo docker ps -a

```
labsuser@ip-172-31-15-33:~$ sudo docker run -v /dbdata --name dbstore ubuntu /bin/bash
Unable to find image 'ubuntu:latest' locally
latest: Pulling from library/ubuntu
bccd10f490ab: Pull complete
Digest: sha256:77906da86b60585ce12215807090eb327e7386c8fafb5402369e421f44eff17e
Status: Downloaded newer image for ubuntu:latest
labsuser@ip-172-31-15-33:~$ sudo docker ps -a
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
85c14fb5c9be	ubuntu	"/bin/bash"	2 minutes ago	Exited (0) 2 minutes ago		dbstore
fb3fcac0c6f5	nginx	"/docker-entrypoint..."	19 minutes ago	Up 19 minutes	80/tcp	cont01

```
labsuser@ip-172-31-15-33:~$
```

1.3 Mount a local host directory as **/backup** and pass a command to tar the contents of the **dbdata** volume into a backup.tar file using the following command:

sudo docker run --rm --volumes-from dbstore -v \$(pwd):/backup ubuntu tar cvf /backup/backup.tar /dbdata

```
labsuser@ip-172-31-15-33:~$ sudo docker run -v /dbdata --name dbstore ubuntu /bin/bash
Unable to find image 'ubuntu:latest' locally
latest: Pulling from library/ubuntu
bccd10f490ab: Pull complete
Digest: sha256:77906da86b60585ce12215807090eb327e7386c8fafb5402369e421f44eff17e
Status: Downloaded newer image for ubuntu:latest
labsuser@ip-172-31-15-33:~$ sudo docker ps -a
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
85c14fb5c9be	ubuntu	"/bin/bash"	2 minutes ago	Exited (0) 2 minutes ago		dbstore
fb3fcac0c6f5	nginx	"/docker-entrypoint..."	19 minutes ago	Up 19 minutes	80/tcp	cont01

```
labsuser@ip-172-31-15-33:~$ sudo docker run --rm --volumes-from dbstore -v $(pwd):/backup ubuntu tar cvf /backup/backup.tar /dbdata
tar: Removing leading '/' from member names
/dbdata/
labsuser@ip-172-31-15-33:~$
```

1.4 Run the following command to list the files and directories:

sudo ls

```
labsuser@ip-172-31-15-33:~$ sudo docker run --rm --volumes-from dbstore -v $(pwd):/backup ubuntu tar cvf /backup/backup.tar /dbdata
tar: Removing leading '/' from member names
/dbdata/
labsuser@ip-172-31-15-33:~$ sudo ls
```

DCV-Storage	Documents	Music	Public	Videos	cni-plugins-linux-amd64-v1.1.1.tgz	runc.amd64
Desktop	Downloads	Pictures	Templates	backup.tar	containerd-1.6.8-linux-amd64.tar.gz	snap

```
labsuser@ip-172-31-15-33:~$
```

1.5 Create a new container named **dbstore2** using the following command:

sudo docker run -v /dbdata --name dbstore2 ubuntu /bin/bash

```
labsuser@ip-172-31-15-33:~$ sudo docker run --rm --volumes-from dbstore -v $(pwd):/backup ubuntu tar cvf /backup/backup.tar /dbdata
tar: Removing leading `/' from member names
/dbdata/
labsuser@ip-172-31-15-33:~$ sudo ls
DCV-Storage  Documents  Music      Public     Videos    cni-plugins-linux-amd64-v1.1.1.tgz  runc.amd64
Desktop      Downloads  Pictures   Templates  backup.tar  containerd-1.6.8-linux-amd64.tar.gz  snap
labsuser@ip-172-31-15-33:~$ sudo docker run -v /dbdata --name dbstore2 ubuntu /bin/bash
labsuser@ip-172-31-15-33:~$
```

1.6 Execute the following command to un-tar the backup file in the new container's data volume:

sudo docker run --rm --volumes-from dbstore2 -v \$(pwd):/backup ubuntu bash -c "cd /dbdata && tar xvf /backup/backup.tar --strip 1"

```
labsuser@ip-172-31-15-33:~$ sudo docker run --rm --volumes-from dbstore -v $(pwd):/backup ubuntu tar cvf /backup/backup.tar /dbdata
tar: Removing leading `/' from member names
/dbdata/
labsuser@ip-172-31-15-33:~$ sudo ls
DCV-Storage  Documents  Music      Public     Videos    cni-plugins-linux-amd64-v1.1.1.tgz  runc.amd64
Desktop      Downloads  Pictures   Templates  backup.tar  containerd-1.6.8-linux-amd64.tar.gz  snap
labsuser@ip-172-31-15-33:~$ sudo docker run -v /dbdata --name dbstore2 ubuntu /bin/bash
labsuser@ip-172-31-15-33:~$ sudo docker run --rm --volumes-from dbstore2 -v $(pwd):/backup ubuntu bash -c "cd /dbdata && tar xvf /backup/backup.tar --strip 1"
labsuser@ip-172-31-15-33:~$
```

1.7 Run the following command to list all containers:

sudo docker ps -a

```
labsuser@ip-172-31-15-33:~$ sudo docker run -v /dbdata --name dbstore2 ubuntu /bin/bash
labsuser@ip-172-31-15-33:~$ sudo docker run --rm --volumes-from dbstore2 -v $(pwd):/backup ubuntu bash -c "cd /dbdata && tar xvf /backup/backup.tar --strip 1"
labsuser@ip-172-31-15-33:~$ sudo docker ps -a
CONTAINER ID   IMAGE     COMMAND                  CREATED    STATUS      PORTS      NAMES
ca08e0642689   ubuntu   "/bin/bash"             3 minutes ago    Exited (0) 3 minutes ago           dbstore2
85c14fb5c9be   ubuntu   "/bin/bash"             13 minutes ago   Exited (0) 13 minutes ago           dbstore
fb3fcac0c6f5   nginx    "/docker-entrypoint..." 29 minutes ago   Up 29 minutes    80/tcp     cont01
labsuser@ip-172-31-15-33:~$
```

By following these steps, you have successfully developed a backup and restore plan for Docker volumes to ensure data resilience and facilitate efficient disaster recovery strategies.