



Everything you need to know
about Docker and storage.

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dockercon 16

Agenda

Key Concepts

Stageful vs Stateless
Volumes
Plugins

Volumes & UCP

UCP + Volumes
External Volumes
VolumeHub

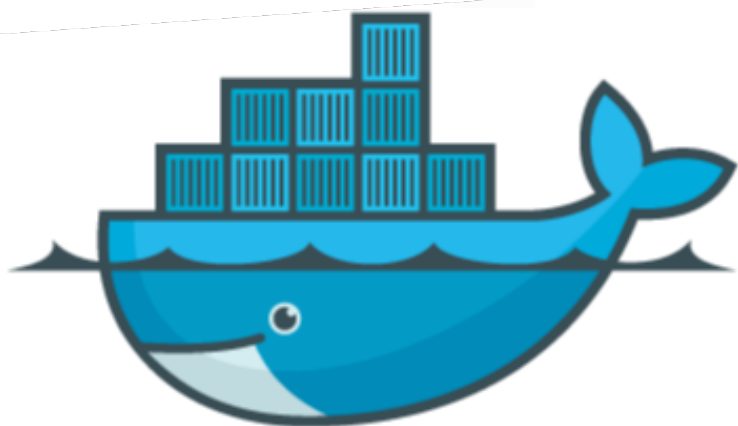
Demo

Creating Volumes
Manage Volumes
Workloads

Key Concepts

Docker & Storage

Docker + Storage



docker



Stateful vs. Stateless

"Stateful" Container

- Secrets - public/private keys, password, etc
- Databases - databases, sharded, clustered.
- Logs - to collect support bundles, run analytics for data mining, etc.
- Other - CI repo data, transcoded bits...

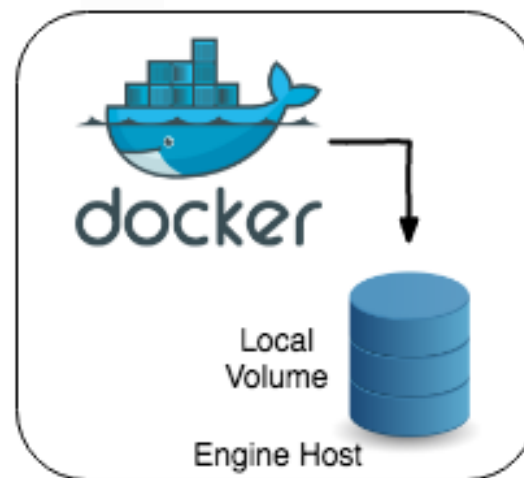
"Stateless" Container

- Nothing to Disk
- Web Front-End
- Can stop and start as many containers as you'd like
- Like http is stateless
- Container is ephemeral
- What has happened or changed will be lost.

Docker Volumes

Docker volumes help store state from the application to locations outside the docker image. They are logical primitives for shared storage when combined with plugins.

- **Data is local to engine host only.**
- **Bind-mounts also local, bypass UFS.**
- **Data is inflexible, prone to loss.**



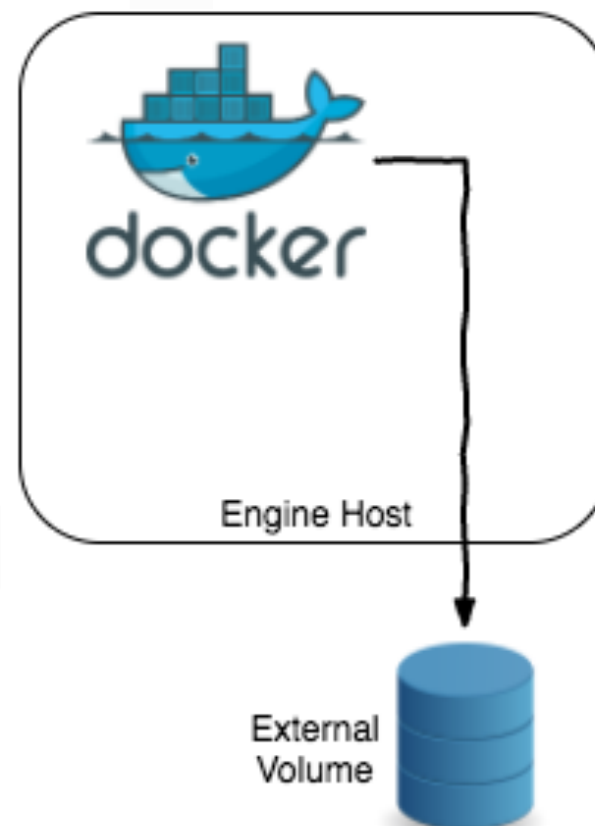
```
$ docker run \  
  --name my-special-container \  
  -v /container/dir busybox
```

```
[{e779eb1/var/lib/docker/volumes/e779eb1/_  
data /container/dir local true }]
```

Docker Volume Plugins

Enable external storage management such as shared-storage for volumes.

- **Data is external to engine host.**
- **Enables HA for data.**
- **Data can move with container.**



Example

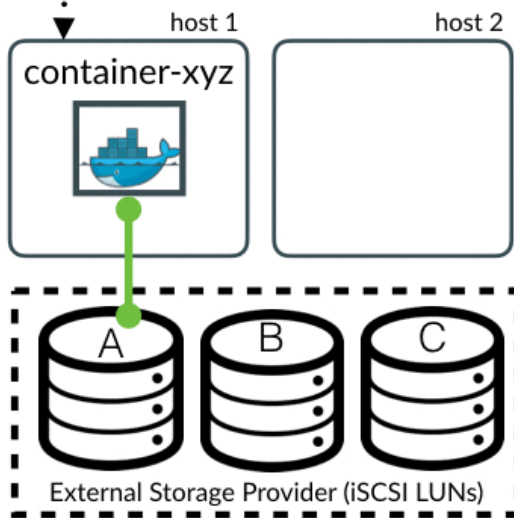
```
$ docker run --name my-container \  
  --volume-driver flocker \  
  -v vol:/data busybox  
my-container
```

```
$ docker inspect -f “{{.Mounts}}” my-container  
[{"vol /flocker/71887326.. /data flocker rw true rprivate}]
```


Container Movement

Create and Run Container on Host 1

```
$ docker run -d -v /host/data:/data --volume-driver=flocker  
--name=container-xyz app
```



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Volumes & UCP

Docker & Storage

Volumes in UCP

- Create, Delete, Use from UI
- Takes advantage of volume drivers.
- Limited view into volume management

NAME
FlockerVolume1

MOUNTPOINT
/flocker/71887326-32cb-446d-965d-9dae86afc3ae.default.d1a8f9ba-23cc-4a2b-ac74-72e3446eb8f6

Create Volume

NAME

FlockerVolume1

DRIVER

flocker

OPTIONS

size=10G

Cancel

Create

flocker



VolumeHub

- Clear visibility for volume management.
- Current status of volumes and their operations.
- Searchable name and metadata.
- How much storage in use by size of volumes.

Volumes (4) + Create new

Search

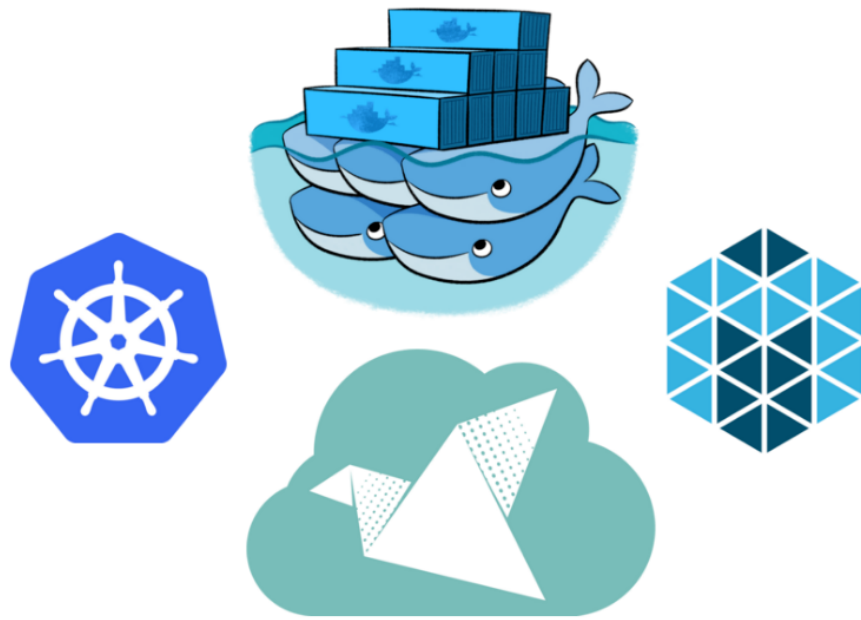
ID	Metadata	Status	Node	Size
fb03d5e8	maximum_size = 10737418240 name = flockervol003	Attached	d25b9fbb	10.00G
c0619738	name = flockervol002	Attached	d25b9fbb	75.00G
bd32de3d	name = testvol	Deleted	d25b9fbb	75.00G
24ab1836	name = flockervol001	Deleted	d25b9fbb	75.00G

Nodes (2)

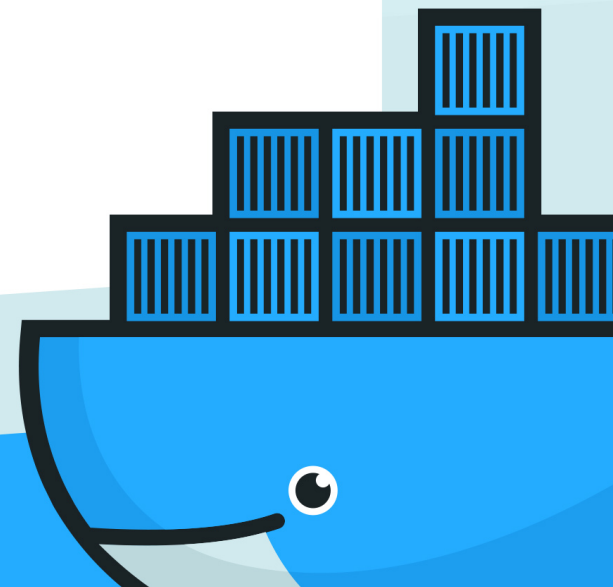
→ 1 ATTACHED VOLUMES 0 PENDING VOLUMES 0 DETACHED VOLUMES 0 DELETING VOLUMES 1 DELETED VOLUMES

Search

ID	Internal IP	Flocker version	Attached volumes	Pending volumes	Detached	Deleting	Deleted	
d25b9fbb	172.31.3.4	1.10.2	1	0	0	0	1	View details
602a9843	172.31.4.101	1.10.2	0	0	0	0	0	View details



Demo



Thank you!

