



docker

Introduction to Docker

# @botchagalupe

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- 35 Years in IT Operations
- Exxon, Canonical, Chef, Enstratus, Socketplane
- Devopsdays Core Organizer

# Agenda

- Why Docker?
- Docker Platform
- Docker Installation
- Docker Workflow(s)

# Docker Blog

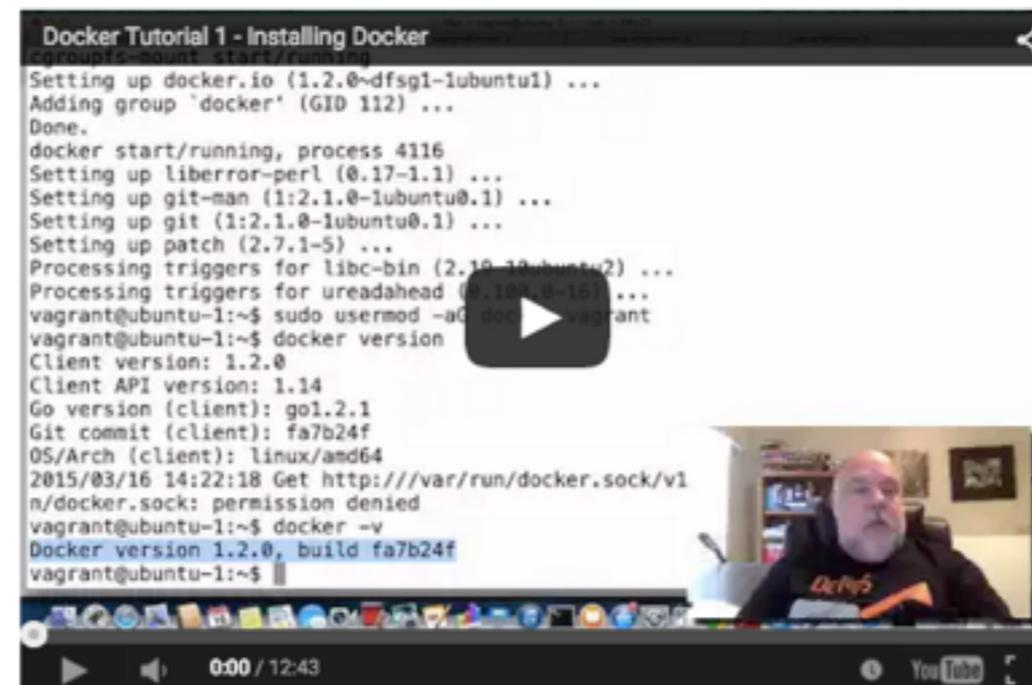


March 18, 2015

## DOCKER TUTORIAL 1 – INSTALLING DOCKER

This is a casual tutorial series. We will start out first with very simple sessions on how to [install Docker](#) and use the docker run command. In future videos we will hit more advanced topics.

This first video talks a little bit about releases in Docker and the current release cadence. We also show examples of installing from default repo's on Ubuntu, Centos and Fedora as well as installs from get.docker.com and installing from the Docker binary.



# Why Docker?

- Isolation
- Lightweight
- Simplicity
- Workflow
- Community

# Docker Community

- 1200 Docker Contributors
- 100,000 Dockerized Applications
- 3 to 4 Million Developers using Docker
- 300 Million Downloads
- 32,000 Docker Related Projects
- 70% of enterprises are using Docker

Docker Engine  
+ Docker Hub

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= Docker Platform

# Docker Engine

- Docker Daemon
- Docker CLI

# Docker Daemon

- Builds Images
- Runs and Manages Containers
- RESTful API

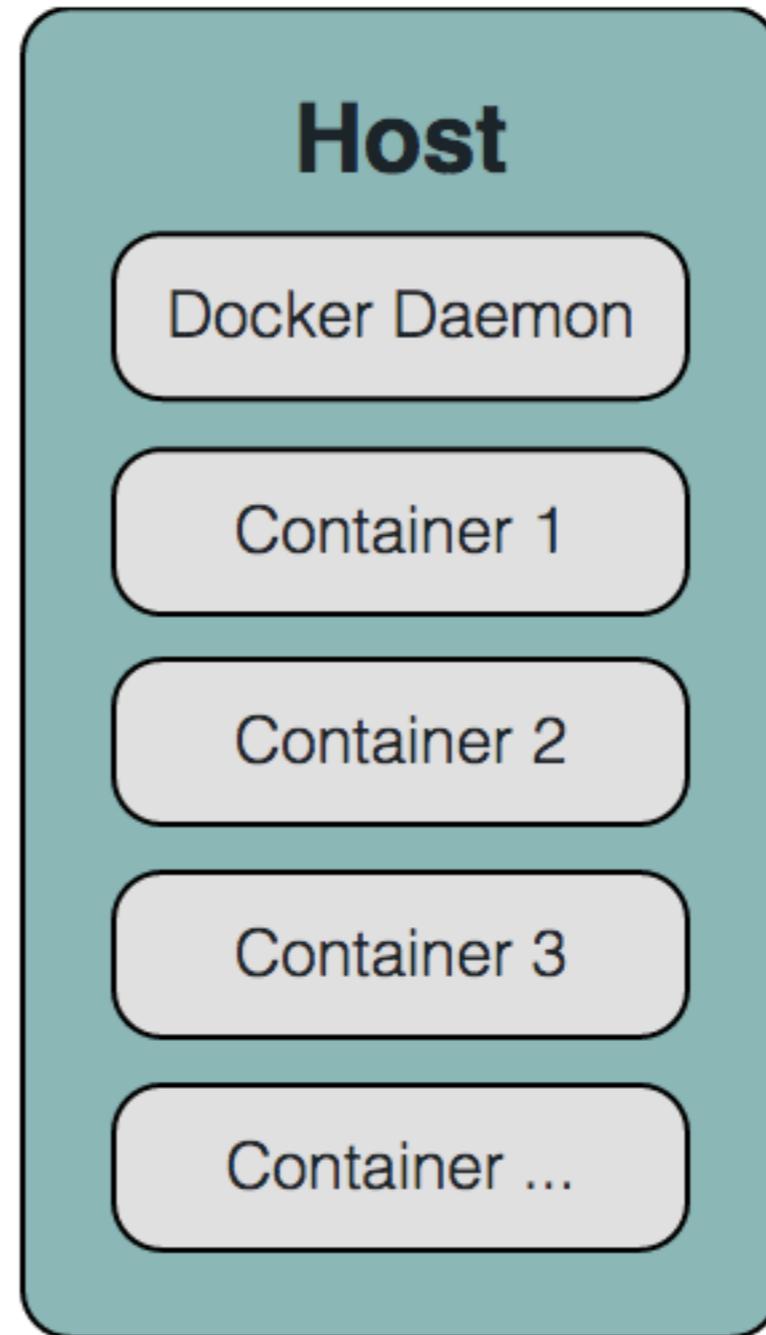
# Docker CLI

- `docker build` # Build an image from a Dockerfile
- `docker images` # List all images on a Docker host
- `docker run` # Run an image
- `docker ps` # List all running and stopped instances
- `docker stop` # Stop a running instances
- `docker rm` # Remove an instance
- `docker rmi` # Remove an image

# Docker Architecture

## Docker Client

**docker pull**  
**docker run**  
**docker ...**



# Docker Hub

- Provides Docker Services
- Library of public images
- Storage for your images
  - free for public images
  - cost for private images
- Automated builds(link github/bitbucket repo; trigger build on commit)

# Docker Hub



The screenshot shows the Docker Hub website's sign-up page. At the top, there is a navigation bar with the Docker logo on the left and "Browse & Search" and "Log In" buttons on the right. The main content area has a blue background with the Docker whale logo in the center. Below the logo, the text "Join Docker Hub and be part of the community" is displayed. A horizontal line separates this header from the sign-up form. The form is divided into two columns. The left column contains three sections: "Build better apps" with the subtext "Browse, host, share and manage apps and access within your team.", "Deploy apps faster" with "Automate and integrate your app development workflows.", and "Get the latest news" with "Subscribes to the Docker newsletter and get the latest updates". The right column contains three input fields: "Username", "Password", and "Email Address". Below these fields is a checked checkbox with the text "Yes! I want the weekly newsletter!". At the bottom of the form, there is an orange "Sign up" button and a "Sign up with Github" button with the Github logo.

https://hub.docker.com

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Join Docker Hub and be part of the community

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**Build better apps**  
Browse, host, share and manage apps and access within your team.

**Deploy apps faster**  
Automate and integrate your app development workflows.

**Get the latest news**  
Subscribes to the Docker newsletter and get the latest updates

Username

Password

Email Address

Yes! I want the weekly newsletter!

[Sign up](#)  [Sign up with Github](#)

# Docker Installation

## Install Latest

### Use (for latest)

```
wget -qO- https://get.docker.com/ | sh
```

### Pre release

```
wget -qO- https://test.docker.com/ | sh
```

## On UBUNTU 14-10

### Repo install usually back leveled

```
sudo apt-get install -y docker.io  
sudo service docker restart
```

## On RHEL/Centos/Fedora

### Repo install usually back leveled

```
sudo yum install docker  
sudo service docker start
```

# Docker Installation



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Use Cases

Try It!

Install & Docs

Browse

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This first video talks a little bit about releases in Docker and the current release cadence. We also show examples of installing from default repo's on Ubuntu, Centos and Fedora as well as installs from [get.docker.com](#) and installing from the Docker binary.

```
Docker Tutorial 1 - Installing Docker
Setting up docker.io (1.2.0~dfsg1~ubuntu1) ...
Adding group `docker' (GID 112) ...
Done.
docker start/running, process 4116
Setting up liberror-perl (0.17-1.1) ...
Setting up git-man (1:2.1.0~ubuntu0.1) ...
Setting up git (1:2.1.0~ubuntu0.1) ...
Setting up patch (2.7.1-5) ...
Processing triggers for libc-bin (2.19-18ubuntu2) ...
Processing triggers for ureadahead (0.100-0-16) ...
vagrant@ubuntu-1:~$ sudo usermod -aG docker vagrant
vagrant@ubuntu-1:~$ docker version
Client version: 1.2.0
Client API version: 1.14
Go version (client): go1.2.1
Git commit (client): fa7b24f
OS/Arch (client): linux/amd64
2015/03/16 14:22:18 Get http://var/run/docker.sock/v1
n/docker.sock: permission denied
vagrant@ubuntu-1:~$ docker -v
Docker version 1.2.0, build fa7b24f
vagrant@ubuntu-1:~$
```

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# Docker Platform Workflow

- Find an Image on Docker Hub
- Pull an Image from Docker Hub
- Run an Image on Docker Host
- Stop an Instance
- Remove an Instance
- Remove an Image

## Docker Workflow (Part 1)

```
docker search ubuntu
docker search -s 10 ubuntu

docker pull ubuntu
docker images

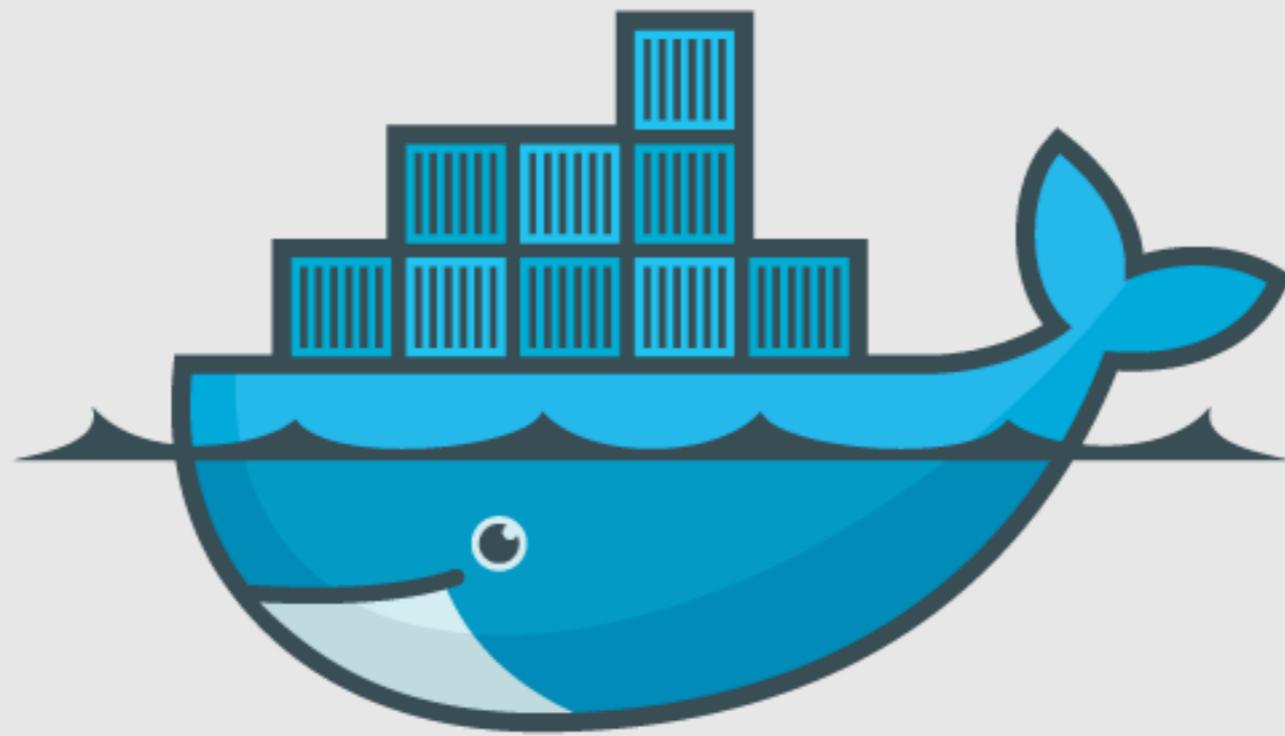
docker history ubuntu

cid=$(docker run -itd ubuntu)
echo $cid
docker ps

docker exec $cid ip a

docker stop $cid
docker rm $cid

docker rmi ubuntu
docker images
```



docker

---

Demo

# Docker Run Commands

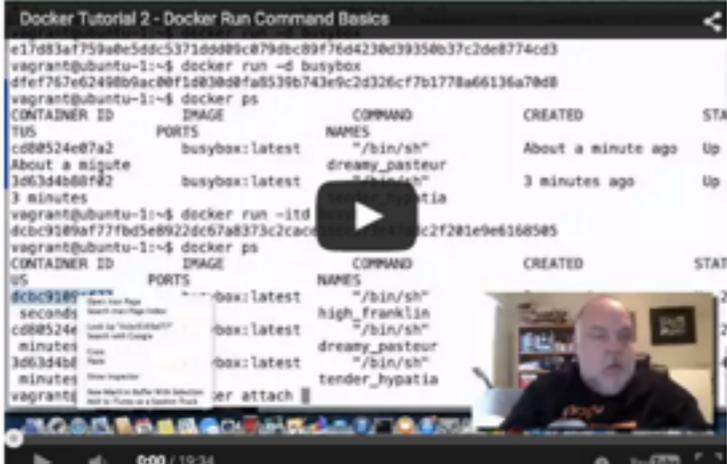
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## DOCKER TUTORIAL 2 – DOCKER RUN COMMAND BASICS

This is a casual Docker tutorial series. We will start out first with very simple sessions on how to install and use the docker run command. In future videos we will hit more advanced topics.

In this second video we explore some of the simple flags of the docker command. This is another basic tutorial. This time we explore the difference between some of the run flags (e.g., -i -t -d). We also explore the use of the docker ps commands while working with running and stopped containers.



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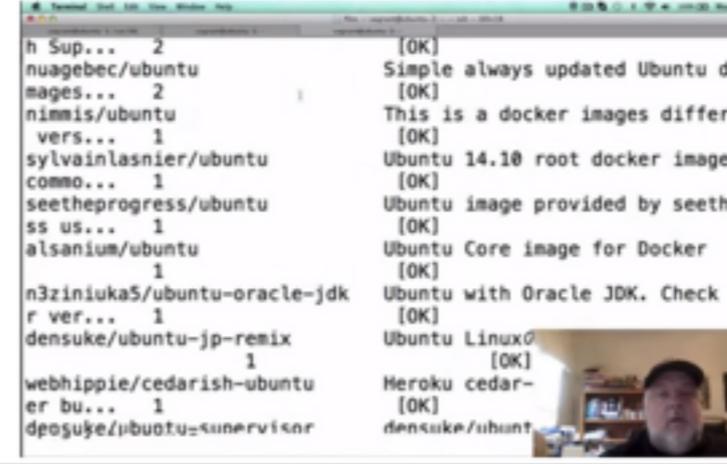
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## DOCKER TUTORIAL 4 – MORE RUN WITH A COUPLE OF EXTRA GOODIES

This is a casual [Docker tutorial series](#). We started out first with very simple sessions on [how to install Docker](#), the [docker run command](#) and had [fun with volumes](#). In future videos we will hit more advanced topics.



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# Docker Platform Workflow (Build Images)

- Build a Local Image
- Run an Image on Docker Host

## Docker Workflow (Part 2)

```
FROM ubuntu:14.04

RUN \
  apt-get update && \
  apt-get -y install apache2

ADD index.html /var/www/html/index.html

EXPOSE 80

CMD ["/usr/sbin/apache2ctl", "-D", "FOREGROUND"]
```

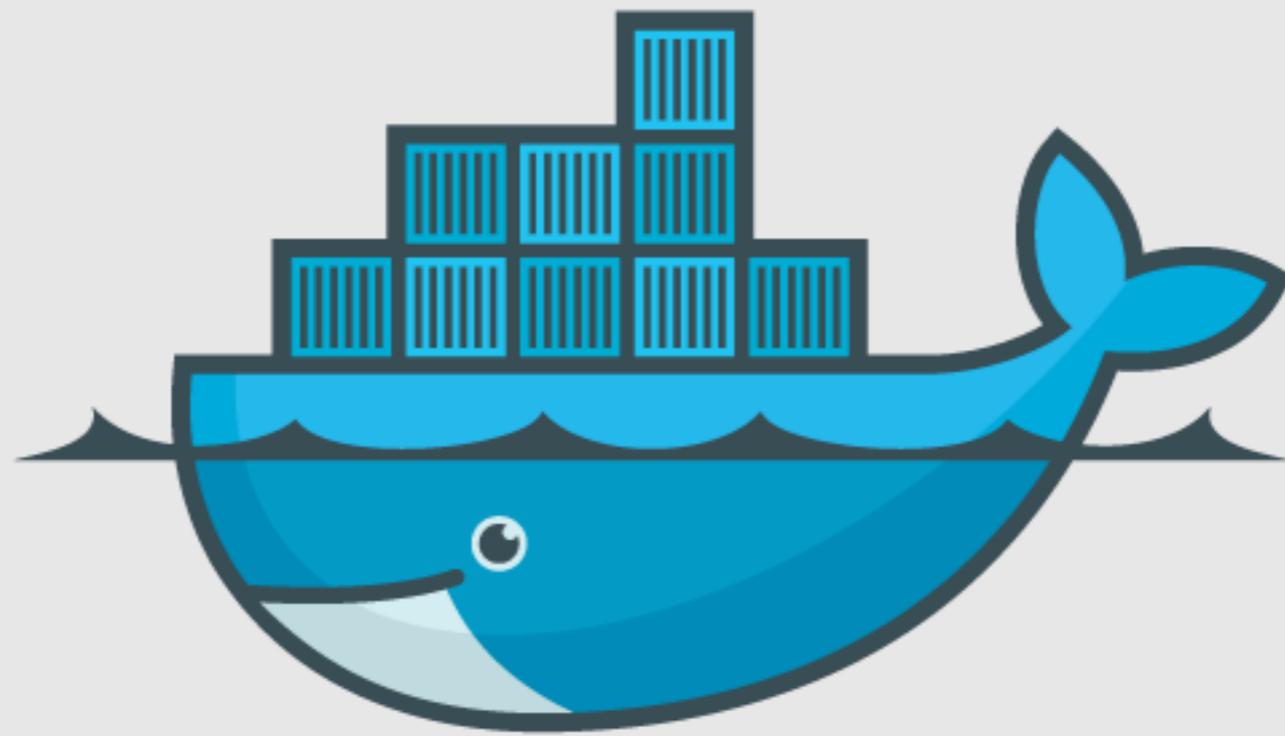
```
<h1>Docker Rocks!</h1>
```

```
docker build -t apache-test .

cid=$(docker run -itd -P apache-test)

nid=$(docker inspect --format '{{.NetworkSettings.IPAddress}}' $cid)

curl $nid
```



docker

---

Demo

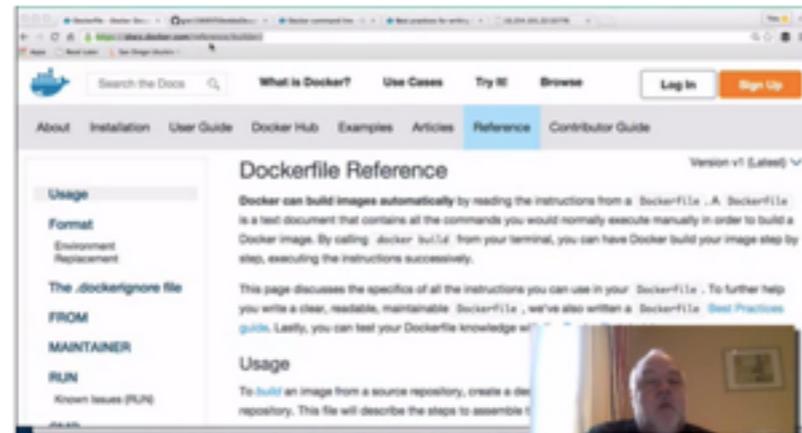
# Docker Build

April 22, 2015

## DOCKER TUTORIAL 6 – DOCKERFILE (PART 1)

This is a casual [Docker tutorial series](#). We started out first with very simple sessions on how to install and use the docker run command. In future videos we will hit more advanced topics.

In this sixth video we cover the basics of a Dockerfile. We cover basic commands such as FROM, RUN and CMD along with other basic Dockerfile commands. Basically the tutorial describes the Dockerfile DSL.



Additional Notes:

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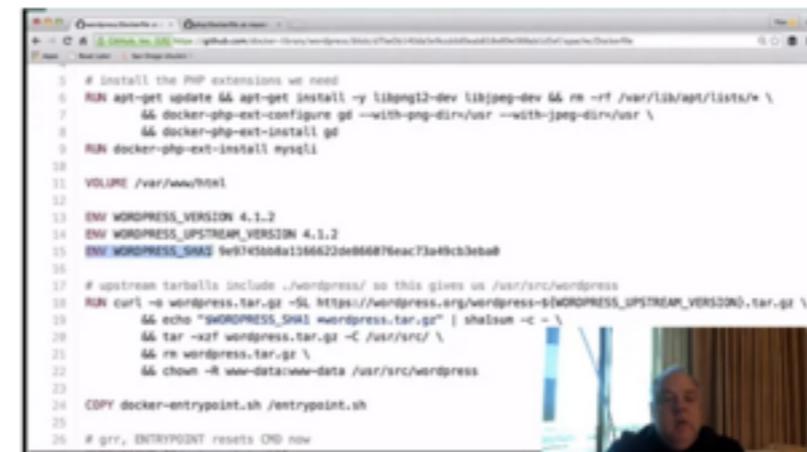
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## DOCKER TUTORIAL 7 – DOCKERFILE (PART 2)

This is a casual [Docker tutorial series](#). We started out first with very simple sessions on how to install and use the docker run command. In future videos we will hit more advanced topics.



In this seventh video we cover more advanced uses of building images with Dockerfiles. We will look at a couple of the [Docker Hub](#) repos as different examples to create Apache images..

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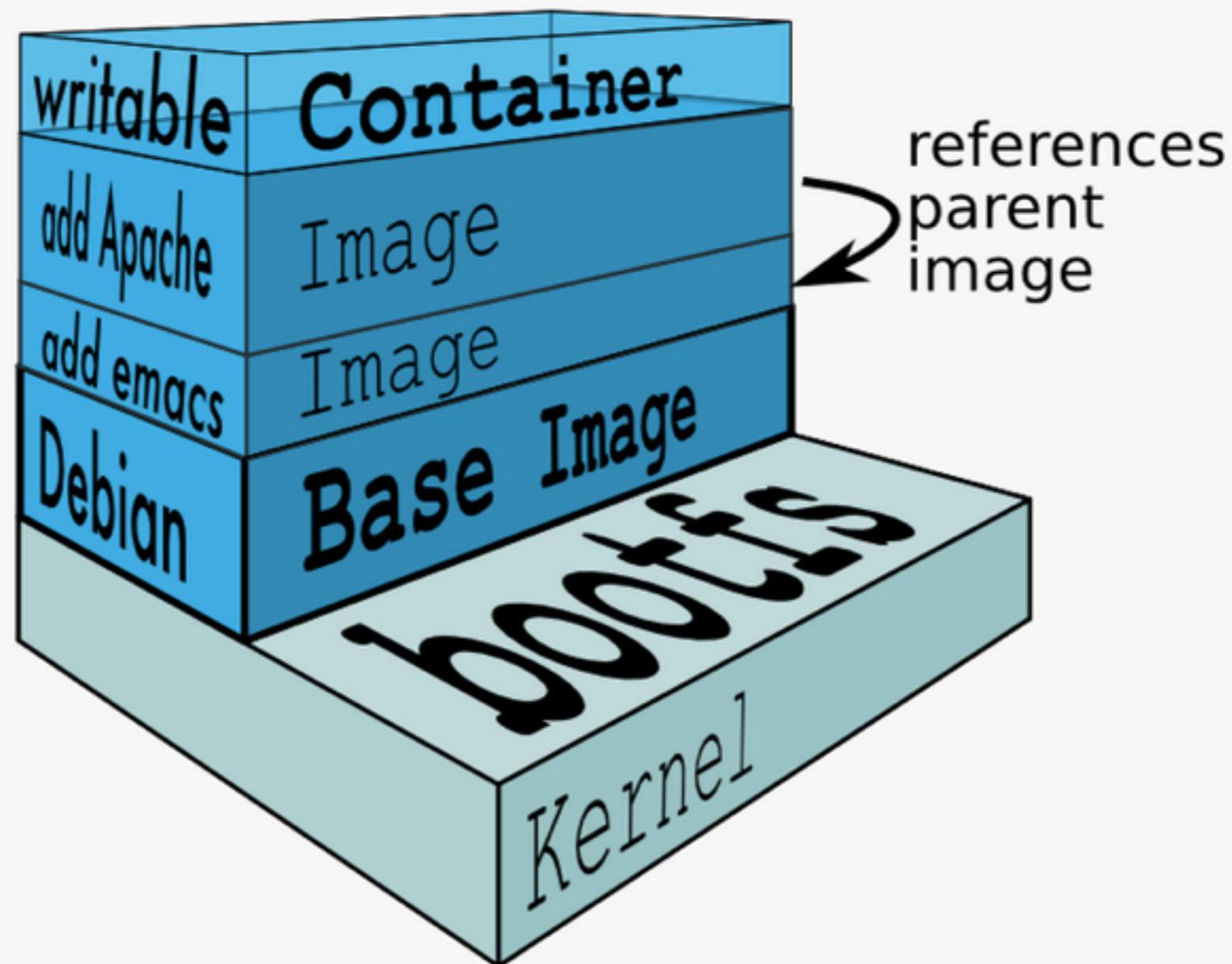
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# Docker Platform Workflow (Volumes)

- Using Volumes
- Mounting Docker Host Volumes

# Docker Platform Workflow (Volumes)



## Docker Workflow (Part 3)

```
docker run -it --name testjob1 -v /tmp1 ubuntu
mkdir test
cd test
touch file1
touch file2
```

```
docker stop testjob1
docker start testjob1
```

```
docker exec testjob1 ls /test
```

```
docker run -it --name testjob2 -v /tmp1 ubuntu
docker exec testjob2 ls /test
```

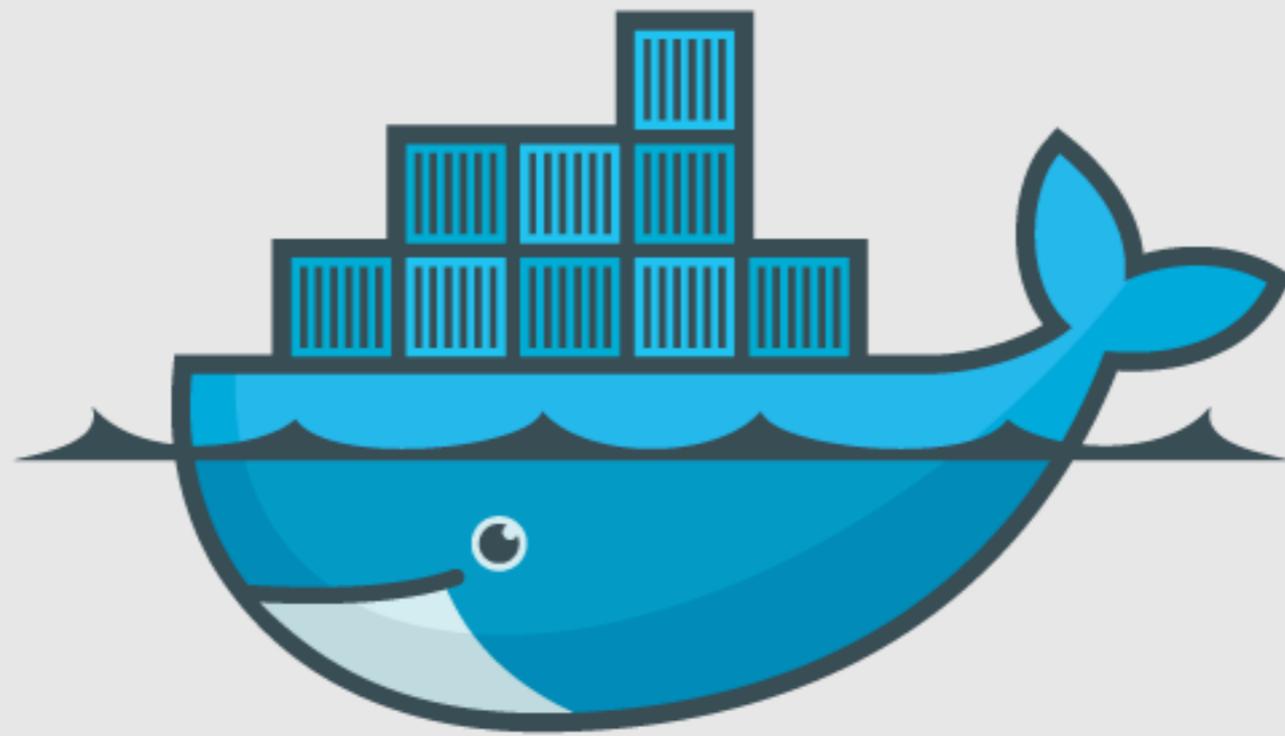
```
docker run -itd --name testjob3 -v $(pwd)/index.html:/var/www/html/index.html apache-test
```

```
nid=$(docker inspect --format '{{.NetworkSettings.IPAddress}}' testjob3)
```

```
curl $nid
```

(Change the index.html file

```
curl $nid
```



docker

---

Demo

# Docker Volumes



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## DOCKER TUTORIAL 3 – FUN WITH VOLUMES

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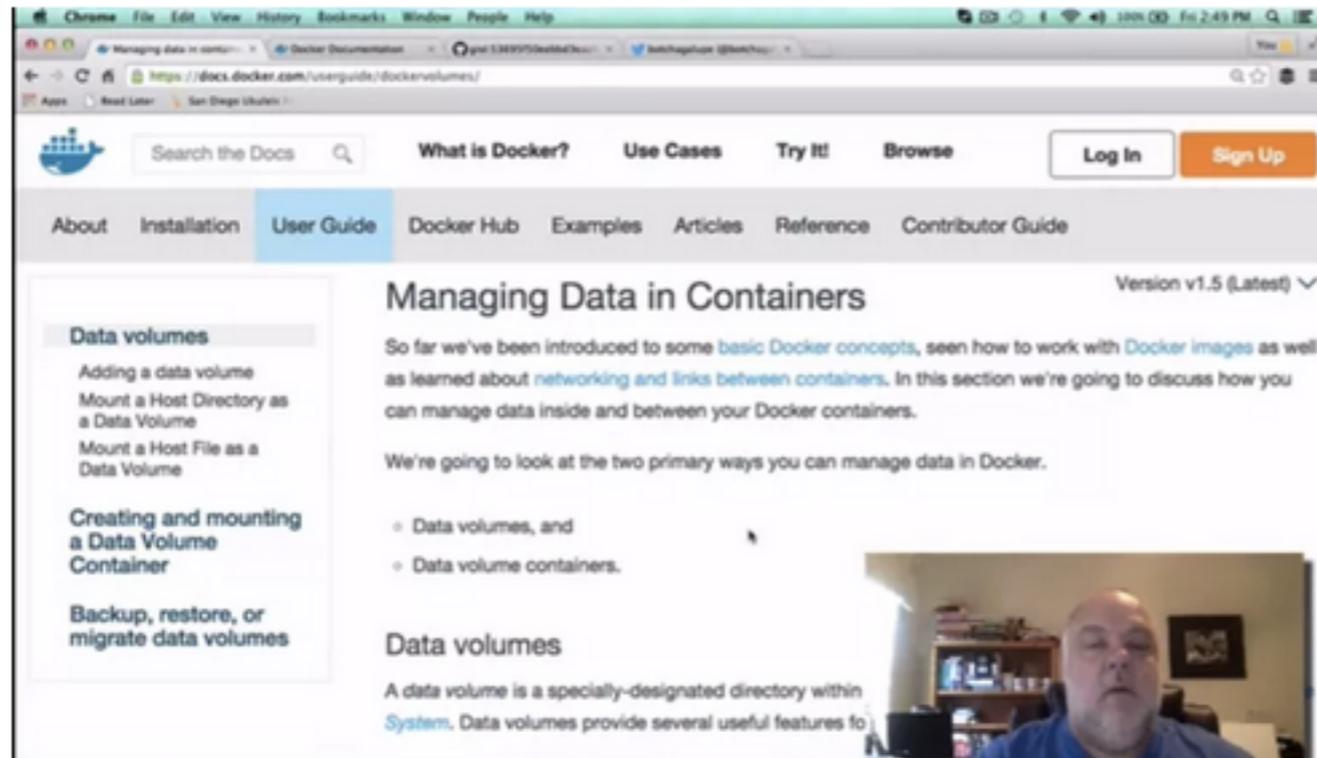
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# References

## **WHY I LOVE DOCKER... AND WHY YOU'LL LOVE IT TOO**

<https://blog.docker.com/2015/03/why-i-love-docker-and-why-youll-love-it-too/>

## **DOCKER TUTORIAL 1 – INSTALLING DOCKER**

<https://blog.docker.com/2015/03/docker-tutorial-1-installing-docker/>

## **DOCKER TUTORIAL 2 – DOCKER RUN COMMAND BASICS**

<https://blog.docker.com/2015/03/docker-tutorial-2-docker-run-command-basics/>

## **DOCKER TUTORIAL 3 – FUN WITH VOLUMES**

<https://blog.docker.com/2015/04/docker-tutorial-3-fun-with-volumes/>

## **DOCKER TUTORIAL 4 – MORE RUN WITH A COUPLE OF EXTRA GOODIES**

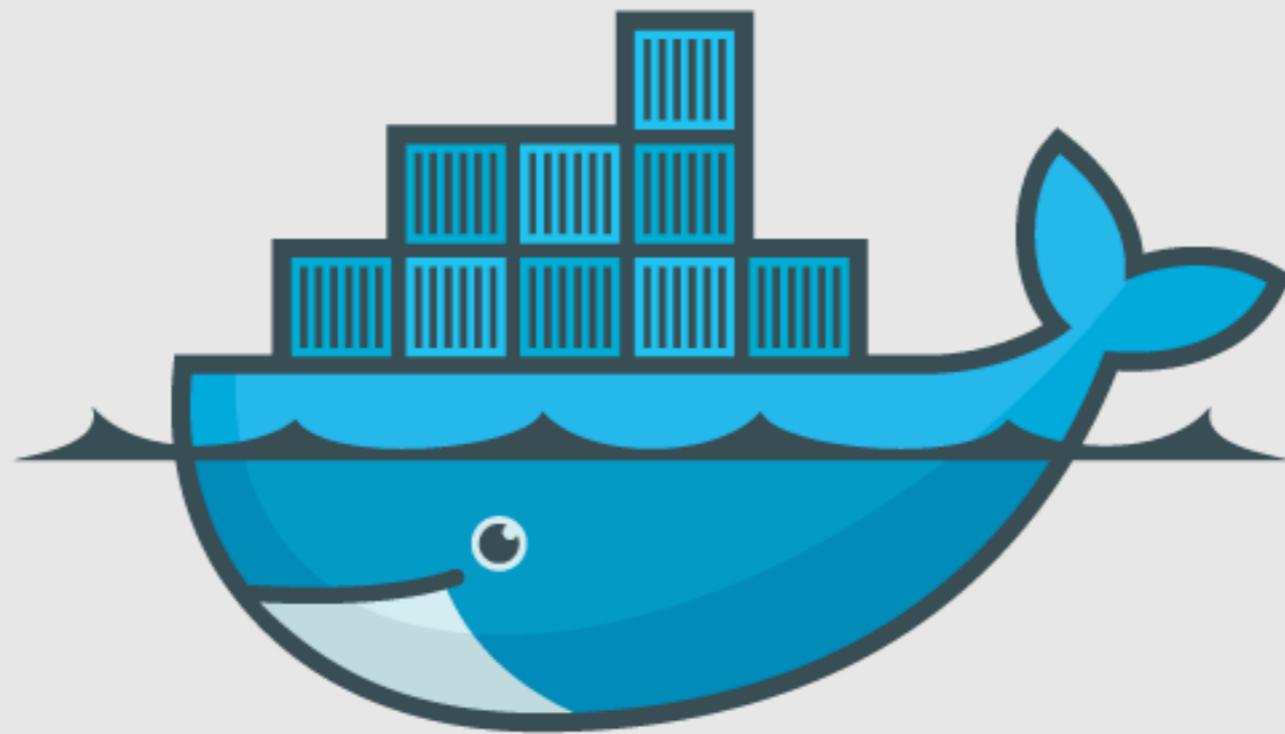
<https://blog.docker.com/2015/04/docker-tutorial-4-more-run-with-a-couple-of-extra-goodies/>

## **DOCKER TUTORIAL 6 – DOCKERFILE (PART 1)**

<https://blog.docker.com/2015/04/docker-tutorial-6-dockerfile-part-1/>

## **DOCKER TUTORIAL 7 – DOCKERFILE (PART 2)**

<https://blog.docker.com/2015/04/docker-tutorial-7-dockerfile-part-2/>



docker

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