Docker 101

2nd Western Greece Developers Meetup - 15 July 2017

Dimitris Karakasilis

Structure

- What are Containers? What is Docker?
- What are Containers useful for?
- Installing Docker
- Image vs Container
- Finding images
- Starting Containers
- Image Lifecycle
- Container lifecycle
- The Dockerfile
- Useful tips, other tools

What are Containers? What is Docker?

- LXC (LinuX Containers)
- Docker
- Open Containers Initiative (OCI)

What are Containers useful for?

- Quickly spawn processes or start services
- Shareable virtual environments
- Isolation (like with Vms do but a lot more lightweight)
- New ways to orchestrate applications
- Predictable deploys on any host, cloud etc
- More

Installing Docker

Use your system's software management tool (pacman, zypper, apt-get, etc)

Or

Go to https://www.docker.com/ and follow the instructions there

Tip

https://docs.docker.com/engine/installation/linux/linux-postinstall/

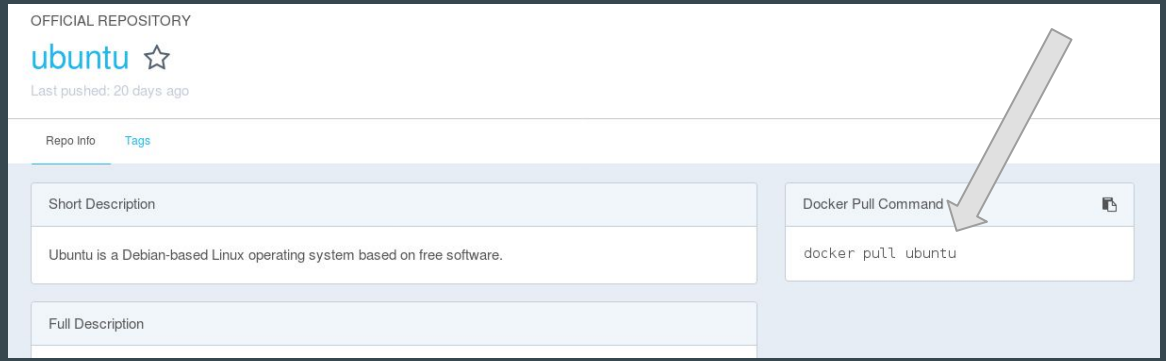
Image vs Container

- An image is a template for containers
- A container is a running instance of an image
- You can start multiple containers from the same image
- You can commit containers to create new images (or update existing)

Finding images 1/2

Wanna play?

- Go to hub.docker.com
- Search for something (e.g. “ubuntu”, “mysql”, “redis”)
- Pull it using the “Docker Pull Command”



Finding images 2/2

- Check the available tags (for different versions etc)
- Check the Dockerfile (to make sure you know what you get)

Starting containers

```
~ $ docker run --rm -it opensuse bash
bash-4.3#
```

Image lifecycle

- Can be created by:
  - Pulling from a registry
  - Committing a container
  - A Dockerfile
- Can be inspected (`docker inspect`)
- Can be listed (`docker images`)
- Can be deleted using `docker rmi`

https://docs.docker.com/engine/reference/commandline/docker/

Container lifecycle

- Can be created by calling `docker run`
- Can be inspected (`docker inspect`)
- Can be listed (`docker ps`)
- Can be deleted (`docker rm`) (Check the -v flag!)

The Dockerfile

```
1 FROM opensuse:latest
2
3 RUN zypper in -y calcurse
4
5 ENTRYPOINT ["calcurse"]
6
```

1. `docker build -t jimmykarily/calcurse .`
2. `docker run --rm jimmykarily/calcurse`

Useful tips, other tools

- Keep an eye to your disk usage
- Reuse base images
- Always use Dockerfiles for any image you plan to keep (avoid committing containers)
- Check other features (volumes, networking etc)
- Check container orchestration tools (e.g. docker-compose, kubernetes)
- Check Machine, Kitematic, Swarm
- Read the docs

Useful links

- https://linuxcontainers.org/
- https://www.docker.com/
- https://docs.docker.com/
- https://www.opencontainers.org/faq
- https://www.upguard.com/articles/docker-vs-lxc