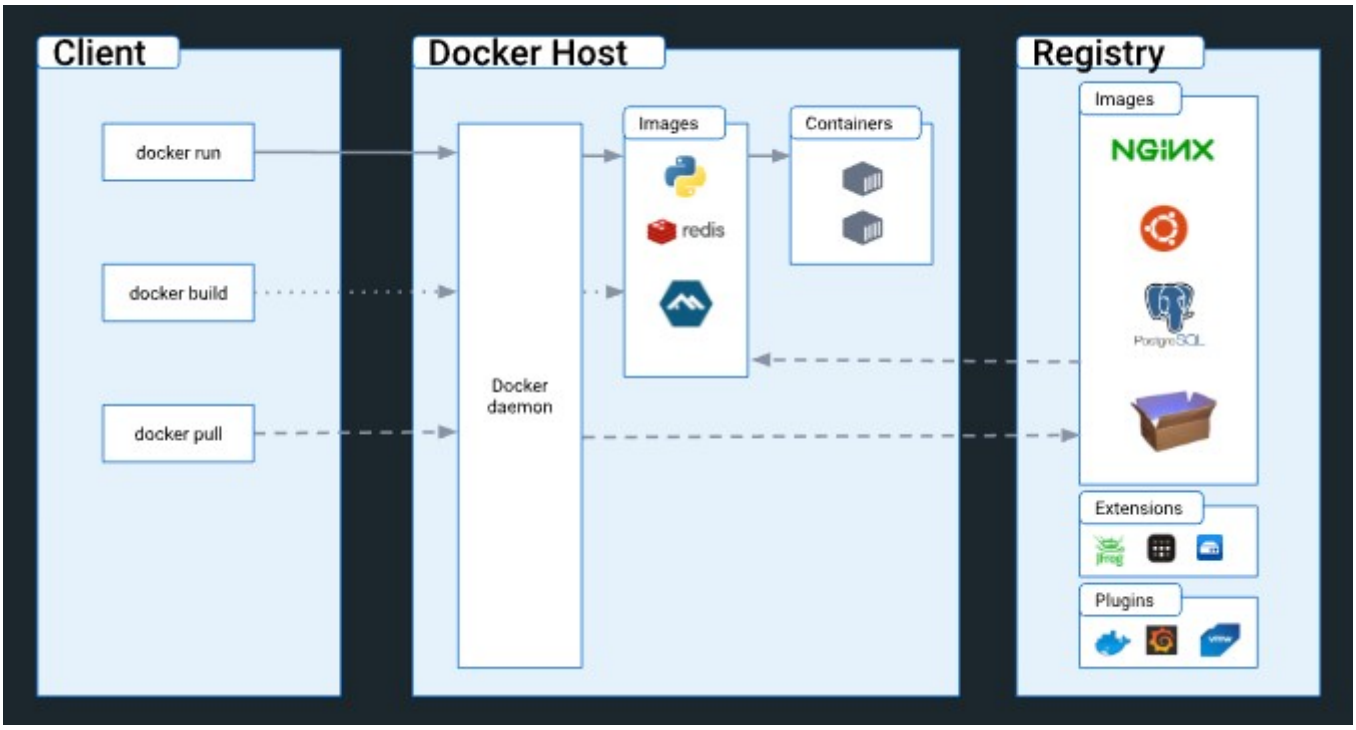
Light

PSScriptAnalyzer passing | Create Release no status | Check Docker App passing

LICENSE MIT | FORKS 0 | STARS 0 | CONTRIBUTORS 1 | ISSUES 0 OPEN

LINKEDIN

LEARNING Docker



Explore the docs »

Main Page - Code Page - Report Bug - Request Feature

Summary

▶ **TABLE OF CONTENT**

About Project

This project aims to help students or professionals to learn the main concepts of Docker

(back to top)

Getting Started

Light

This is an example of how you may give instructions on setting up your project locally. To g
local copy up and running follow these simple example steps.

Prerequisites

This is an example of how to list things you need to use the software and how to install them.

- git
- Virtual Box and extension
- Vagrant

Installation

Clone the repo

```
git clone https://github.com/marcossilvestrini/learning-docker.git
```

Usage

Use this repository for get learning about Docker exam

(back to top)

Roadmap

- [x] Create repository
- [x] Create github action for automation tasks
- [x] Create examples about docker containers
- [x] Create examples about docker images

(back to roadmap)

(back to top)

Docker Engine work with namespaces(PID,NET,IPC,MNT,UTS) and cgroups.

```
# Get a version of docker
docker --version
```

Docker Containers

Light

```
# list containers
docker container ls
docker ps

# list containers id
docker container ls -aq
docker ps -aq

# list containers virtual size
docker container ls -s

# create containers
docker container create -it ubuntu

# run container
docker run hello-world

# run container iterative
docker run -it <image_name> bash

# execute command in container
docker exec -it <container_id_or_name> <command>

# connect to docker container
docker container attach <CONTAINER ID>

# run container with name
docker run -it --name ubuntu01 ubuntu bash

# create container with specified network
docker run -it --name ubuntu01 --network skynet ubuntu bash

# create container with network host
docker run -it --name ubuntu01 --network host ubuntu bash

# start containers
docker container start ubuntu

# stop pause containers
docker stop <container_id_or_name>
docker stop -t=0 <container_id_or_name>

# Stop all containers
docker stop $(docker container ls -q)

# Pause\Unpause containers
docker pause <container_id_or_name>
docker unpause <container_id_or_name>

# delete container
docker rm <container_id_or_name> --force

# delete all containers
docker container rm $(docker container ls -aq) --force
```

```
# forwarding port
docker run -d -P <container_id_or_name>
docker run -d -p 8080:80 <container_id_or_name>

# show map ports
docker port <container_id_or_name>

# inspect container
docker inspect <container_id_or_name>

# show container resources usage information
docker container stat
docker container stats <container_id_or_name>

# show process in execution in container
docker container top <container_id_or_name>

# show container logs
docker container logs <container_id_or_name>
docker container logs -f <container_id_or_name>

# set limit of memory for container
docker container run -it -m 512M --name testmemory debian
docker container run -it --name testmemory2 --memory 1G debian

# set limit of cpu for container
docker container run -it --cpus=0.5 --name testcpu nginx

# update ram|cpu resource in container
docker container update -m 2048 testmemory
docker container update --cpus=3 testcpu

# get infos memory and cpu
docker inspect <container_id_or_name> | grep -i cpu
docker inspect <container_id_or_name> | grep -i mem
```

(back to docker containers)

(back to top)

Docker Images

```
# pull image
docker pull <image_name>

# show local images images
docker images

# show details of images
docker inspect <image_id>
```

```
# show  details of images layers
docker history <image_id>

# remove docker images
docker rmi <image_id> --force

# remove all docker images
docker rmi $(docker images -aq) --force

# commit changes in container
## install and customize your container after...then:
docker commit -m "my container" CONTAINERID
docker tag IMAGEID marcossilvestrini/apache_2:1.0
```

Docker Build

Build a docker image

```
# first, create your Dockerfile with your app



# Example Dockerfile
FROM debian
RUN /bin/echo "HELLO DOCKER"



# then create a docker image.
cd <path_of_your_dockerfile>
docker build -t <dockerhub_username/image_name:tag>

# publish your image in docker hub
docker push <dockerhub_username/image_name:tag>
```

(back to docker images)

(back to top)

Docker Volumes

```
# list docker volumes
docker volume ls

# inspect docker volumes
docker volume inspect <volume_name>

# find docker volumes
docker volume inspect --format '{{ .Mountpoint }}' <volume_name>
```

```
# create docker volume
docker volume create <volume_name>

# delete docker volume
docker volume rm <volume_name>

# delete all docker volume if not in user]
docker volume prune

# create container with docker bind mounts
docker run -d --mount type=bind,source=/myfolder-volume,target=/app <image_name_or_i

# mount volumes
docker run -it -d -v <path_local_for_data>:<path_container_for_data> <image_name_or_
docker run -d -v <volume_name>:/app <image_name_or_id>

# mount file
docker container run -ti --mount type=bind,src=<path_local_for_data/file>,dst=<path_

# share container volumes

##  create container volume
docker container create -v /data --name dbdata centos

## create containers
docker run -d -p 5432:5432 --name pgsql1 --volumes-from dbdata \
    -e POSTGRESQL_USER=docker -e POSTGRESQL_PASS=docker \
    -e POSTGRESQL_DB=docker kamui/postgresql

docker run -d -p 5433:5432 --name pgsql2 --volumes-from dbdata \
   -e POSTGRESQL_USER=docker -e POSTGRESQL_PASS=docker \
   -e POSTGRESQL_DB=docker kamui/postgresql

## find volume
docker inspect dbdata | grep -i Source

## list containers data of shared volume
sudo ls /var/lib/docker/volumes/<volume_id>/_data

# create backups of shared volume
docker run -ti --volumes-from dbdata -v $(pwd):/backup debian tar -cvf /backup/backu
```

(back to docker volumes)

(back to top)

Docker Network

```
# list networks
docker network list
```

```
# inspect docker network
docker network inspect <network_name>

# create docker network bridge
docker network create --drive bridge <network_name>

# delete docker network
docker network rm <network_name>
```

(back to docker network)

(back to top)

Docker Compose

```
# list containers|services
docker-compose ps
docker-compose -f configs/docker/apps/app-silvestrini/docker-compose.yaml  ps

# create containers|services
docker-compose up
docker-compose up -d
docker-compose -f configs/docker/apps/app-silvestrini/docker-compose.yaml up
```

(back to docker composed)

(back to top)

Docker Stack

```
# create service
docker stack deploy -c docker-compose.yml first

# list stacks
docker stack ls

# view services
docker stack services first

# view detailed services
docker stack ps first
```

(back to docker stack)

(back to top)

Docker Swarm

```
# init docker swarm with manager
docker swarm init --advertise-addr 192.168.0140:2377

# get swarm token
MANAGER_TOKEN=$(docker swarm join-token manager -q)
WORKER_TOKEN=$(docker swarm join-token worker -q)

# join server in docker swarm
docker swarm join --token $MANAGER_TOKEN 192.168.0.140:2377

# promote node worker to manager
docker node promote debian-server02

# list swarm nodes
docker nodes ls

# leave node
docker swarm leave --force

# delete node
docker node rm debian-server01

# list services
docker service ps
docker service ps webserver

# create service
docker service create --name webserver --replicas 5 -p 8080:80 nginx
docker service create --name webserver --replicas 5 -p 8080:80 --mount type=volume,s

# inspect service
docker service inspect webserver

# scale service
 docker service scale webserver=10
```

(back to docker secrets)

(back to top)

Docker Secrets

```
# create secret
echo 'mypassword' | docker secret create my_password -
docker secret create my_secret2 my_secret.txt

# list secrets
docker secret ls

# inspect secrets
docker secret inspect my_secret2
```

```
# delete secrets
docker secret rm my_secret2

# create service with secrets
docker service create --name web --detach=false --secret my_password  nginx
```

(back to docker secrets)

(back to top)

Contributing

Contributions are what make the open source community such an amazing place to learn, inspire, and create. Any contributions you make are **greatly appreciated**.

If you have a suggestion that would make this better, please fork the repo and create a pull request. You can also simply open an issue with the tag "enhancement". Don't forget to give the project a star! Thanks again!

1. Fork the Project
2. Create your Feature Branch (`git checkout -b feature/AmazingFeature`)
3. Commit your Changes (`git commit -m 'Add some AmazingFeature'`)
4. Push to the Branch (`git push origin feature/AmazingFeature`)
5. Open a Pull Request

License

- This project is licensed under the MIT License * see the LICENSE.md file for details

Contact

Marcos Silvestrini - marcos.silvestrini@gmail.com

Follow @mrsilvestrini

Project Link: https://github.com/marcossilvestrini/learning-docker

(back to top)

Acknowledgments

- Docker Website
- Docker Overview

- Light
  - Convert Command in Dockerfile
  - Deploy Docker Register

(back to top)