

??? Docker?

- Ben Golub?(Docker CEO)??Docker????Container????Container????
????????????????????Docker????????????????????
- ?????????? VMware/Xen ?????????????? Docker ?????????????????????
?????????????????
- Docker???Client-Server????????????Docker????????????????????
Docker?????Docker?????RESTful API?????????API?????Docker?????Docker
????????????????Dockerfile????????????????Docker????????????Docker?????
?Dockerfile????????????????Container????????????Registry????????????????????ubuntu??????
??MySQL????????????ubuntu?MySQL????????????Container?



?????<https://www.docker.com/>

?????

- ????: <http://youtu.be/ZzQfxoMFH0U>
- ????: <https://asciinema.org/a/13156>

??????

- [Docker?IaaS?????Google?Amazon??Container????](#)
- [Docker?????????Docker????](#)
- [Docker????IT??](#)
- [10?Q&A????Docker](#)
- [Docker ????](#)

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- [\[??\]Docker — ??????](#)
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????? Virtual machine ???? Docker ???? ?

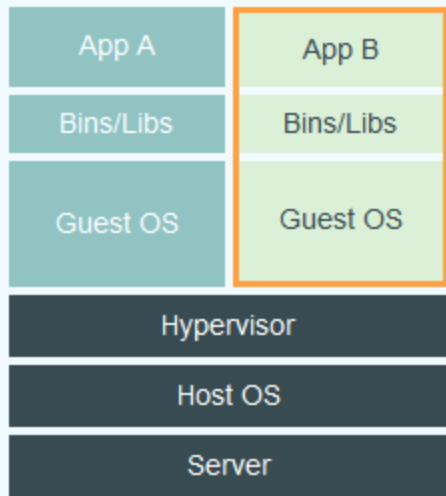
Virtual Machines

????????? Host OS ?? hypervisor ?? hypervisor ??

Docker

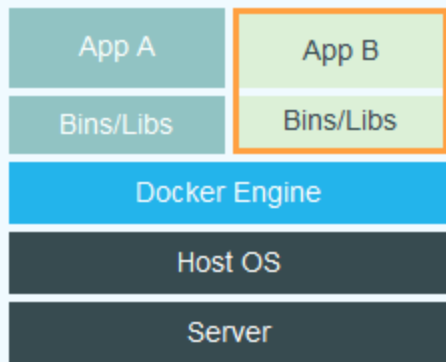
Docker ?????????? container ?????? container ?????????????????? hypervisor ? guest OS ????? Docker Engine ??????

Virtual Machines v.s Docker



Virtual Machines

Each virtualized application includes not only the application - which may be only 10s of MB - and the necessary binaries and libraries, but also an entire guest operating system - which may weigh 10s of GB.



Docker

The Docker Engine container comprises just the application and its dependencies. It runs as an isolated process in userspace on the host operating system, sharing the kernel with other containers. Thus, it enjoys the resource isolation and allocation benefits of VMs but is much more portable and efficient.

Docker Engine

????

man docker <command>

man docker build

man docker rmi

?? images

// ?? Docker Hub ?? image name

docker search lamp

// ??????? image name

docker images

// ???? image ?????

docker inspect <image-name>

// ???? image

```
docker pull ubuntu:13.10
```

```
// ?????? image
docker rmi <image-name>
```

```
// ????? images
docker rmi $(docker images -q)
```

```
// ????? images??? my-images ??
docker rmi $(docker images | grep -v 'ubuntu\|my-image' | awk {'print $3'})
```

```
// ????? <none> ????? images
docker rmi $(docker images -f "dangling=true" -q)
```

```
// ??? myapp/myimage ??? <none> ? images
docker rmi $(docker images myapp/myimage -f "dangling=true" -q)
```

```
// ????? images ???????
docker run --rm -v /var/run/docker.sock:/var/run/docker.sock nate/dockviz images -t
```

TIPS:

?? Docker Hub ??? images <https://registry.hub.docker.com/>?

image ?????????? container ????? image ??????????????

Image Name ?? <REPOSITORY>:<TAG> ?? buntu:13.10

?? dockviz ??????

<https://fabianlee.org/2017/05/24/doc...using-dockviz/>

?? Container

```
// ?????? container ? console
docker run -it <image-name> /bin/bash
docker run -it --name <container-name> <image-name> /bin/bash
```

```
// ? daemon ????? container
docker run -d -p 11180:80 <image-name>
docker run -d --name web <image-name>
TIP: ?? container ??????????????
```

```
docker run -d -p 80:80 --rm <image-name>
?? --rm ?????? container ??????????(? docker rm ?????)????????????
(docker start) ????? docker run ???
```

```
// ?????????? containers
docker ps
docker ps -a
```

```
// ????? container ???????? Volumes?IP?Hostname ??
docker inspect <container-id>
```

```
// ????? container
docker rm <container-id>
```

```
// ????? containers
NOTE: ?????????????? container
docker ps -a -q | xargs -n 1 docker rm
docker rm $(docker ps -aq)
```

```
// ?????????? container
docker ps -a | grep "Exited" | awk '{print $1}' | xargs docker rm
NOTE: ?????????? container ? rebuild image ??????????????
```

```
// ?? container
docker stop <container-id>
// Stop all containers
docker stop $(docker ps -aq)
```

```
// ?? container
docker export <container-id> > ubuntu-mysql.tar
```

```
// ?? container
cat ubuntu-mysql.tar | docker import - <image-name>
```

```
// ?????????? container
?? Ctrl P ??? Ctrl Q
NOTE: ?????????????? Ctrl+P ? Bash ??????????????????
```

```
// ?????????? container
docker attach <container-id>
?
docker attach <container-name>
?? container ?? daemon ??????????
docker exec -it <container-id/name> /bin/bash
```

```
// ?????? container ??
docker commit <container-id> <image-name>
```

```
// ?????? container ? IP
docker inspect <container-id> | grep IPAddress | cut -d '"' -f 4
```

```
??/?? container ???????
```

```
## Stop the container
docker stop <container-name>
```

```
## Save container image
docker commit <container-name> mycontainerimage
docker save mycontainerimage | gzip > mycontainerimage.tar.gz

## Load container image to destination host
gunzip -c mycontainerimage.tar.gz | docker load

## Transfer image without creating a file
docker save mycontainerimage | gzip | ssh root@203.0.113.1 'gunzip | docker load'
```

TIP:

```
?? exit ??????? container?????? Linux
???? container???????????????????????????????????????????????????????????? commit ??????? image?
-p ? Host ? port 11180 ??? container ? port 80
```

?? Volume

[\(https://docs.docker.com/userguide/dockervolumes/\)](https://docs.docker.com/userguide/dockervolumes/)

Docker ? Data Volume ???

?????

- ? container ?????volume ????????????? base image ????? volume ?????????????????????????????????
- volume ?????????????????????
- ? image ?????(commit)?volume ?????????????????
- ?? container ?????volume ?????????????

// ?? volume

```
docker run -t -i -p 80:80 -v /webapp along/centos5-lamp_php51
```

TIPs?

```
- ? container ????????????? /webapp????????????????????????????
???????????? host ????????????? container ??????????????????????????????????????????:
```

```
docker inspect -f {{.Volumes}} <container-id>
```

```
??????
/var/lib/docker/vfs/dir/bfeb8cb6.....
```

- ?? container ??????? container ID ?????????? volume ? host ?????????????

Docker ??

??????

// ?? Docker ??

docker version

// Docker ????

docker info

host ? container ??????

#> docker cp <container-name>:/etc/nginx/nginx.conf /data/web/conf

#> docker cp host_source_path my_container:destination_path

#> docker cp -a host_source_path my_container:destination_path

DB container ??????

? host ?? cron

15 2 * * * docker exec mysql bash -c "mysqldump --defaults-extra-file=/root/root.cnf -u root --all-databases | gzip > /mnt/db_backups/database_`date '+\%Y\%m\%d'`.sql.gz"

root.cnf ? root ????????

[client]

password={my-mysql-root-password}

?? container IP

#> docker inspect <container_id> | grep -i ipaddr

#> docker inspect -f '{{range .NetworkSettings.Networks}}{{.IPAddress}}{{end}}' <container_id>

????????

???????????? container????????docker???????? <none> ???? image?

#> docker system prune

???????? volume ?????????????????? --volumes

#> docker system prune -a --volumes

Docker Compose

NOTE: ??????????docker-compose.yml ?????????????????? docker-compose ??? container?????????????

????????????????????

????????????

docker-compose up -d
 docker-compose up -d <service-name>

Build the image of the service

docker-compose build <service-name>
 docker-compose up --rebuild <service-name>

?????????

docker-compose ps

??/???????????????? container

docker-compose stop
 docker-compose start

?? container ?????????????????????????????????

???????????????? container ??

docker-compose down

docker-compose stop <service-name>
 docker-compose rm -f <service-name>

NOTE:

- ????? docker-compose.yml????? down ?????? up -d ?????
- ????????????????? docker-compose up -d

????????????

docker-compose logs

????????????????

docker-compose exec <service-name> sh -c "pwd"

????

- http://yeasy.gitbooks.io/docker_prac...ent/index.html
- [Docker ?????? \(?????\)](#)
- [? Docker ?????? Web + DB + Reverse Proxy](#)

- Private Docker Repository
 - ? [How to Setup Docker Private Registry on CentOS 7.x / RHEL 7.x](#)
- [10 Docker Image Security Best Practices](#)