



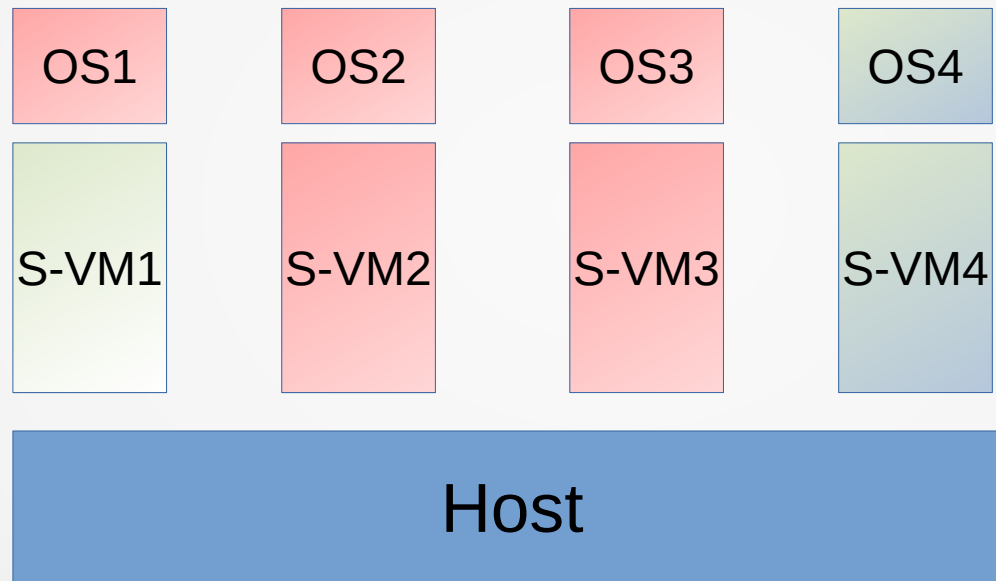
A Simple Docker Summary

Slash 2022-04-15

What is Docker

- <https://docs.microsoft.com/zh-tw/dotnet/architecture/containerized-lifecycle/what-is-docker>
- 簡單的說
 - Docker : 模擬作業系統的 “User space”，沒有底層
 - VirtualBox : 模擬整個作業系統，包含底層與硬體
- 優點
 - 對於開發 User space 的程式方便交換環境，快速
- 缺點
 - 無法處理底層或是硬體相關部份

What is Docker



Dicker Hub

- <https://hub.docker.com/>
- https://hub.docker.com/_/ubuntu
- Ubuntu 官方已在 Docker Hub 建立不同版本的 docker image
- 直接從 Docker Hub 下載需要的新環境
 - 例如 : Ubuntu 1804

IMAGE

18.04

Last updated 14 days ago by [doi4janky](#)

DIGEST

[791c24ba9b75](#)

[d1bf40f712c4](#)

[bcd6d66ac271](#)

[+3 more...](#)

OS/ARCH

linux/386

linux/amd64

linux/arm/v7

COMPRESSED SIZE ⓘ

25.9 MB

25.5 MB

21.28 MB

`docker pull ubuntu:18.04`



Install a Docker in Ubuntu

- Install docker in Ubuntu
 - `$ sudo apt-get install docker`
- Docker help
 - `$ docker --help`

How to use Docker

- Pull a Docker image that in Docker Hub
 - For example : ubuntu 18.04
 - \$ docker pull ubuntu:18.04

```
slash@slash-HD631-Q87CRM:~$ dicker images
No command 'dicker' found, did you mean:
  Command 'ticker' from package 'ticker' (universe)
  Command 'docker' from package 'docker.io' (universe)
dicker: command not found
slash@slash-HD631-Q87CRM:~$ docker images
REPOSITORY          TAG                 IMAGE ID            CREATED             SIZE
slash@slash-HD631-Q87CRM:~$ docker pull ubuntu:18.04
18.04: Pulling from library/ubuntu
f08d8e2a3ba1: Extracting [>
3baa9cb2483b: Download complete
94e5ff4c0b15: Download complete
1860925334f9: Download complete
```

How to use Docker-2

- Check docker Image in local
 - \$ docker images

```
slash@slash-HD631-Q87CRM:~$ docker images
REPOSITORY          TAG                 IMAGE ID            CREATED             SIZE
ubuntu               18.04              6526a1858e5d       2 weeks ago        64.2MB
slash@slash-HD631-Q87CRM:~$
```

- start to run docker Image in local
 - \$ docker run --help
 - \$ docker run --net=host -i -t 6526a1858e5d /bin/bash

Enter docker
content

```
slash@slash-HD631-Q87CRM:~$ docker run -i -t --net=host 6526a1858e5d /bin/bash
root@slash-HD631-Q87CRM:/#
```

How to use Docker-3

- Check docker content with docker command

```
root@slash-HD631-Q87CRM:/# cat /etc/lsb-release
DISTRIB_ID=Ubuntu
DISTRIB_RELEASE=18.04
DISTRIB_CODENAME=bionic
DISTRIB_DESCRIPTION="Ubuntu 18.04.5 LTS"
root@slash-HD631-Q87CRM:/#

slash@slash-HD631-Q87CRM:~$ docker ps --all
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS          NAMES
266a7067ab0f   6526a1858e5d   "/bin/bash"             About a minute Up About a minute          vigorous_tereshkova
slash@slash-HD631-Q87CRM:~$ cat /etc/lsb-release
DISTRIB_ID=Ubuntu
DISTRIB_RELEASE=16.04
DISTRIB_CODENAME=xenial
DISTRIB_DESCRIPTION="Ubuntu 16.04.4 LTS"
slash@slash-HD631-Q87CRM:~$
```

Docker content (ubuntu 18.04)

Host (ubuntu 20.04)

How to use Docker-4

- Install package that you want in docker image
 - For example
 - \$ apt-get install net-tools

```
root@slash-HD631-Q87CRM:/# apt-get install net-tools
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following NEW packages will be installed:
 net-tools
0 upgraded, 1 newly installed, 0 to remove and 5 not upgraded.
Need to get 194 kB of archives.
After this operation, 803 kB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu bionic/main amd64 net-tools amd64 1.60+git20161116.90da8a0-1ubuntu1 [194 kB]
Fetched 194 kB in 2s (115 kB/s)
debconf: delaying package configuration, since apt-utils is not installed
Selecting previously unselected package net-tools.
(Reading database ... 4046 files and directories currently installed.)
Preparing to unpack .../net-tools_1.60+git20161116.90da8a0-1ubuntu1_amd64.deb ...
Unpacking net-tools (1.60+git20161116.90da8a0-1ubuntu1) ...
Setting up net-tools (1.60+git20161116.90da8a0-1ubuntu1) ...
root@slash-HD631-Q87CRM:/#
```

How to use Docker-5

- Commit a docker content and push it to Docker Hub
 - 1. check which docker content that you want to commit
 - \$ docker ps --all

```
slash@slash-HD631-Q87CRM:~$ docker ps --all
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
266a7067ab0f	6526a1858e5d	"/bin/bash"	16 hours ago	Up 12 minutes		vigorous_tereshkova

```
slash@slash-HD631-Q87CRM:~$
```

- 2. check REPOSITORY and TAG of docker image current
 - \$ docker images

```
slash@slash-HD631-Q87CRM:~$ docker images
```

REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
ubuntu	18.04	6526a1858e5d	2 weeks ago	64.2MB

- 3. commit docker content
 - \$ docker commit -m "test" 266a7067ab0f ubuntu:18.04

```
slash@slash-HD631-Q87CRM:~$ docker commit -m "test" 266a7067ab0f ubuntu:18.04
sha256:769ce8b9f38081b4cedf764b51e070ba4032b8146f26cf5c5d6726a3f20b831a
slash@slash-HD631-Q87CRM:~$ rm -rf ./build-fb/^\C
slash@slash-HD631-Q87CRM:~$ docker images
```

REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
ubuntu	18.04	769ce8b9f380	11 seconds ago	94.9MB
ubuntu	<none>	6526a1858e5d	2 weeks ago	64.2MB

How to use Docker-6

- Import a Local Docker Image (Load)
 - [CMD] `docker load < docker_image_file.tar`
- Save a Local Docker Image (Export)
 - [CMD] `docker save ${IMAGE_ID} > docker_image_file.tar`
- Delete a docker **Content**
 - `$ docker ps --all`
 - `$ docker rm ${Content ID}`
- Delete a docker **Image**
 - `$ docker images`
 - `$ docker rmi ${IMAGE ID}`

A Sample Docker Usage

- **docker_info.sh**
- Set environment variables
 - -e --env
 - -e DISPLAY
- Execute application when login to docker content
 - -c --cpu-shares
 - -c "\${DOCKER_BUILD_CMD}"
- Work directory
 - -w --workdir
 - -w \${DOCKER_WORKDIR}

A Sample Docker Usage

- Login with user name
 - `-u --user`
 - `-u ${DOCKER_LOGIN_ID}`
- Mount a local disk space in docker content
 - `-v --volume`
 - `-v ${LOCAL_FOLDER}:${DOCKER_FOLDER}`
- Allocate a pseudo-TTY
 - `-t --tty`
- Keep STDIN open even if not attached
 - `-i --interactive`