Docker basic commands practice

B411001 강도연

```
ubuntu@ip-172-31-46-150: ~
login as: ubuntu
Authenticating with public key "imported-openssh-key"
Welcome to Ubuntu 18.04.3 LTS (GNU/Linux 4.15.0-1057-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/advantage

  System information as of Thu Apr  9 14:59:27 UTC 2020

  System load:  0.11              Processes:           132
  Usage of /:   49.6% of 7.69GB   Users logged in:     0
  Memory usage: 40%               IP address for eth0: 172.31.46.150
  Swap usage:   0%

  => There is 1 zombie process.

 * Kubernetes 1.18 GA is now available! See https://microk8s.io for docs
   install it with:

     sudo snap install microk8s --channel=1.18 --classic

 * Multipass 1.1 adds proxy support for developers behind enterprise
   firewalls. Rapid prototyping for cloud operations just got easier.

     https://multipass.run/

 * Canonical Livepatch is available for installation.
   - Reduce system reboots and improve kernel security. Activate at:
     https://ubuntu.com/livepatch

33 packages can be updated.
0 updates are security updates.
```

- Logged in to ubuntu machine & updated

```
ubuntu@ip-172-31-46-150: ~

*** System restart required ***
Last login: Wed Apr  8 05:12:48 2020 from 183.98.213.104
ubuntu@ip-172-31-46-150:~$ sudo apt-get update
Hit:1 http://us-east-2.ec2.archive.ubuntu.com/ubuntu bionic InRelease
Get:2 http://us-east-2.ec2.archive.ubuntu.com/ubuntu bionic-updates InRelease [8
8.7 kB]
Get:3 http://us-east-2.ec2.archive.ubuntu.com/ubuntu bionic-backports InRelease
[74.6 kB]
Get:4 http://security.ubuntu.com/ubuntu bionic-security InRelease [88.7 kB]
Get:5 http://us-east-2.ec2.archive.ubuntu.com/ubuntu bionic-updates/main amd64 P
ackages [915 kB]
Get:6 http://us-east-2.ec2.archive.ubuntu.com/ubuntu bionic-updates/main Transla
tion-en [314 kB]
Get:7 http://us-east-2.ec2.archive.ubuntu.com/ubuntu bionic-updates/restricted a
md64 Packages [43.9 kB]
Get:8 http://us-east-2.ec2.archive.ubuntu.com/ubuntu bionic-updates/restricted T
ranslation-en [11.0 kB]
Get:9 http://us-east-2.ec2.archive.ubuntu.com/ubuntu bionic-updates/universe amd
64 Packages [1065 kB]
Get:10 http://security.ubuntu.com/ubuntu bionic-security/main amd64 Packages [69
2 kB]
Get:11 http://security.ubuntu.com/ubuntu bionic-security/main Translation-en [22
1 kB]
Get:12 http://security.ubuntu.com/ubuntu bionic-security/restricted amd64 Packag
es [34.3 kB]
Get:13 http://security.ubuntu.com/ubuntu bionic-security/restricted Translation-
en [8924 B]
Fetched 3557 kB in 2s (2213 kB/s)
Reading package lists... Done
```

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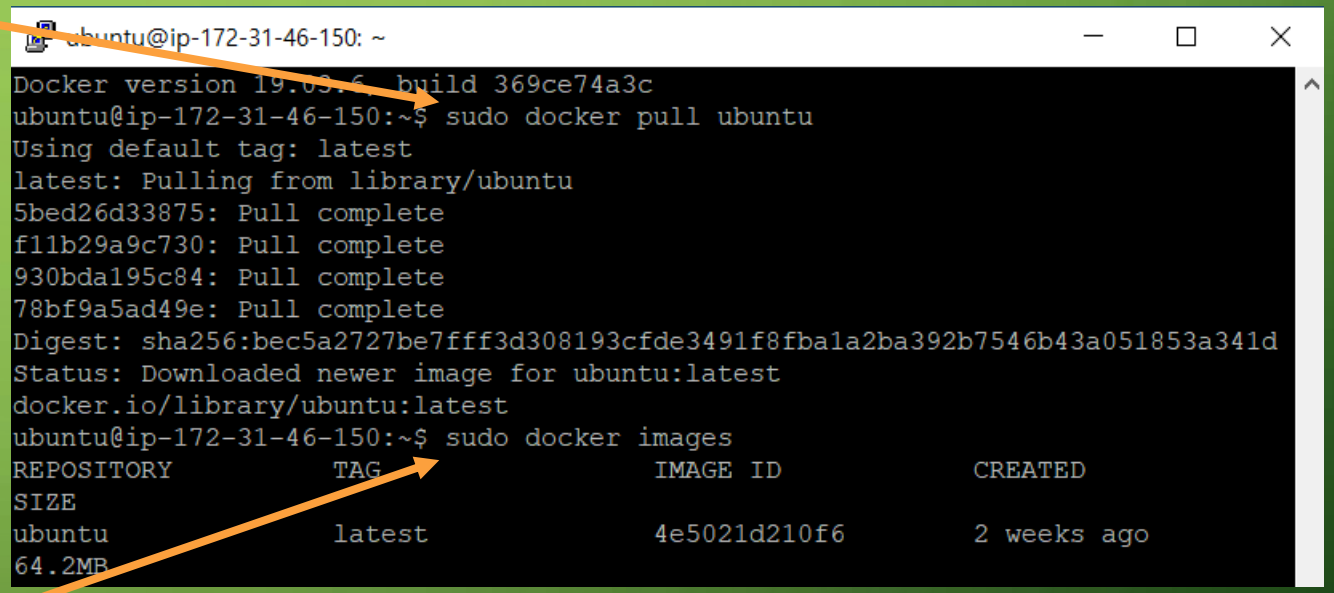
- Installing ‘docker’

```
ubuntu@ip-172-31-46-150: ~
Reading package lists... Done
ubuntu@ip-172-31-46-150:~$ sudo apt-get install docker.io
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  bridge-utils cgroupfs-mount containerd pigz runc ubuntu-fan
Suggested packages:
  ifupdown aufs-tools debootstrap docker-doc rinse zfs-fuse | zfsutils
The following NEW packages will be installed:
  bridge-utils cgroupfs-mount containerd docker.io pigz runc ubuntu-fan
0 upgraded, 7 newly installed, 0 to remove and 35 not upgraded.
Need to get 63.8 MB of archives.
After this operation, 319 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://us-east-2.ec2.archive.ubuntu.com/ubuntu bionic/universe amd64 pigz
amd64 2.4-1 [57.4 kB]
Get:2 http://us-east-2.ec2.archive.ubuntu.com/ubuntu bionic/main amd64 bridge-ut
ils amd64 1.5-15ubuntu1 [30.1 kB]
Get:3 http://us-east-2.ec2.archive.ubuntu.com/ubuntu bionic/universe amd64 cgrou
pfs-mount all 1.4 [6320 B]
Get:4 http://us-east-2.ec2.archive.ubuntu.com/ubuntu bionic-updates/universe amd
64 runc amd64 1.0.0~rc10-0ubuntu1~18.04.2 [2000 kB]
Get:5 http://us-east-2.ec2.archive.ubuntu.com/ubuntu bionic-updates/universe amd
64 containerd amd64 1.3.3-0ubuntu1~18.04.2 [21.7 MB]
Get:6 http://us-east-2.ec2.archive.ubuntu.com/ubuntu bionic-updates/universe amd
64 docker.io amd64 19.03.6-0ubuntu1~18.04.1 [39.9 MB]
Get:7 http://us-east-2.ec2.archive.ubuntu.com/ubuntu bionic/main amd64 ubuntu-fa
n all 0.12.10 [34.7 kB]
Fetched 63.8 MB in 1s (47.3 MB/s)
```

- After installing, checked the ‘version’ of it

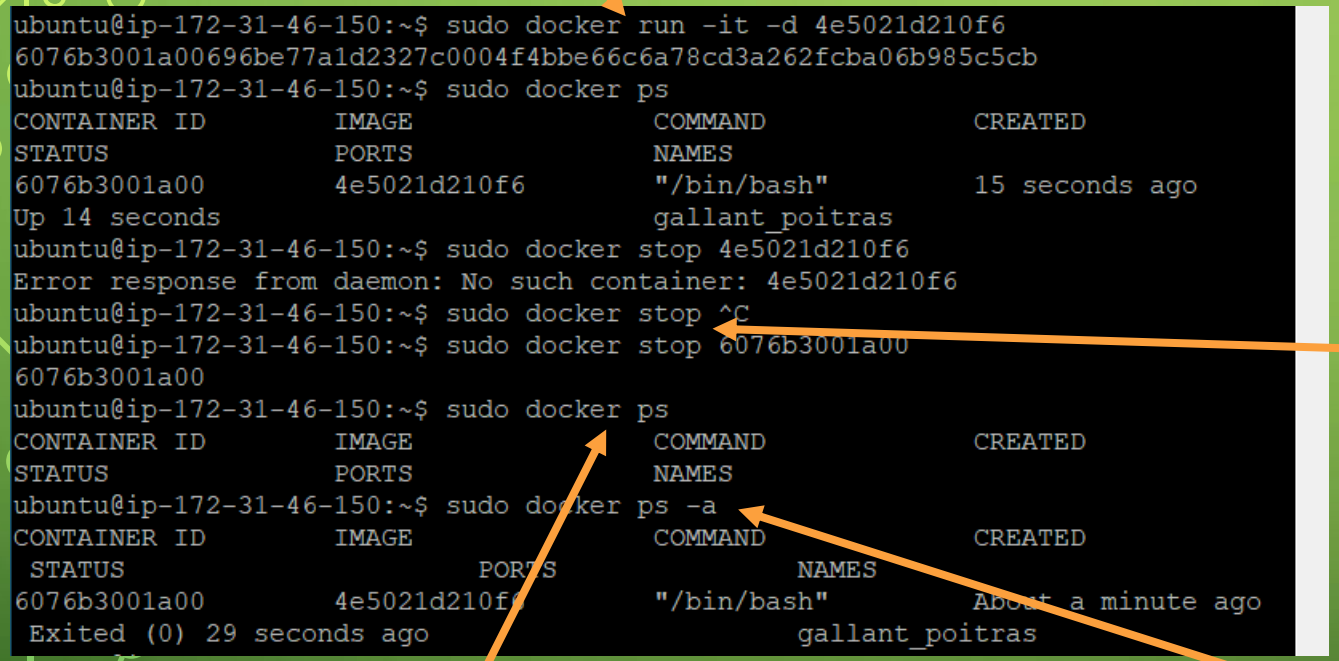
```
ubuntu@ip-172-31-46-150: ~
64 docker.io amd64 19.03.6-0ubuntu1~18.04.1 [39.9 MB]
Get:7 http://us-east-2.ec2.archive.ubuntu.com/ubuntu bionic/main amd64 ubuntu-fa
n all 0.12.10 [34.7 kB]
Fetched 63.8 MB in 1s (47.3 MB/s)
Preconfiguring packages ...
Selecting previously unselected package pigz.
(Reading database ... 167263 files and directories currently installed.)
Preparing to unpack .../0-pigz_2.4-1_amd64.deb ...
Unpacking pigz (2.4-1) ...
Selecting previously unselected package bridge-utils.
Preparing to unpack .../1-bridge-utils_1.5-15ubuntu1_amd64.deb ...
Unpacking bridge-utils (1.5-15ubuntu1) ...
Selecting previously unselected package cgroupfs-mount.
Preparing to unpack .../2-cgroupfs-mount_1.4_all.deb ...
Unpacking cgroupfs-mount (1.4) ...
Selecting previously unselected package runc.
Preparing to unpack .../3-runc_1.0.0~rc10-0ubuntu1~18.04.2_amd64.deb ...
Unpacking runc (1.0.0~rc10-0ubuntu1~18.04.2) ...
Selecting previously unselected package containerd.
Preparing to unpack .../4-containerd_1.3.3-0ubuntu1~18.04.2_amd64.deb ...
Unpacking containerd (1.3.3-0ubuntu1~18.04.2) ...
Selecting previously unselected package docker.io.
Preparing to unpack .../5-docker.io_19.03.6-0ubuntu1~18.04.1_amd64.deb ...
Unpacking docker.io (19.03.6-0ubuntu1~18.04.1) ...
Selecting previously unselected package ubuntu-fan.
Preparing to unpack .../6-ubuntu-fan_0.12.10_all.deb ...
Unpacking ubuntu-fan (0.12.10) ...
Setting up runc (1.0.0~rc10-0ubuntu1~18.04.2) ...
Setting up cgroupfs-mount (1.4) ...
Setting up containerd (1.3.3-0ubuntu1~18.04.2) ...
Created symlink /etc/systemd/system/multi-user.target.wants/containerd.service →
 /lib/systemd/system/containerd.service.
Setting up bridge-utils (1.5-15ubuntu1) ...
Setting up ubuntu-fan (0.12.10) ...
Created symlink /etc/systemd/system/multi-user.target.wants/ubuntu-fan.service →
 /lib/systemd/system/ubuntu-fan.service.
Setting up pigz (2.4-1) ...
Setting up docker.io (19.03.6-0ubuntu1~18.04.1) ...
Adding group `docker' (GID 129) ...
Done.
Created symlink /etc/systemd/system/sockets.target.wants/docker.socket → /lib/sy
stemd/system/docker.socket.
docker.service is a disabled or a static unit, not starting it.
Processing triggers for systemd (237-3ubuntu10.38) ...
Processing triggers for man-db (2.8.3-2ubuntu0.1) ...
Processing triggers for ureadahead (0.100.0-21) ...
ubuntu@ip-172-31-46-150:~$ sudo docker --version
Docker version 19.03.6, build 369ce74a3c
```

- DockerHUB에서
  ubuntu image를 pull 해온다.



- DockerHUB에서 PULL 해온 image들의 목록과
  각각의 상세설명을 확인할 수 있다.

- Image ID를 가지고 image를 데몬 서비스로 container를 만들고, terminal을 통해 interect 할 수 있도록 만든다!



- Container ID를 가지고, 그 container의 동작을 멈추도록 할 수 있다.

- ‘docker ps’ 를 통해 현재 동작하고 있는 container들의 상태를 확인한다.

- ‘docker ps –a’ 를 통해, 현재 동작하고 있는 container뿐만 아니라 history까지 확인 할수 있다.

```
ubuntu@ip-172-31-46-150:~$ sudo docker run -it -d 4e5021d210f6
c40ec2850913fede54acb935b2c3d1a12b5f2ca68596a02935e049269fc804d2
ubuntu@ip-172-31-46-150:~$ sudo docker ps
CONTAINER ID        IMAGE               COMMAND             CREATED
STATUS              PORTS               NAMES
c40ec2850913        4e5021d210f6        "/bin/bash"         21 seconds ago
Up 9 seconds                            wizardly_pike
ubuntu@ip-172-31-46-150:~$ sudo docker ps -a
CONTAINER ID        IMAGE               COMMAND             CREATED
STATUS                      PORTS               NAMES
c40ec2850913        4e5021d210f6        "/bin/bash"         41 seconds ago
Up 30 seconds                           wizardly_pike
6076b3001a00        4e5021d210f6        "/bin/bash"         6 minutes ago
Exited (0) 4 minutes ago                gallant_poitras
ubuntu@ip-172-31-46-150:~$ ^C
ubuntu@ip-172-31-46-150:~$ sudo docker exec -it c40ec2850913 bash
root@c40ec2850913:/# ls -la
total 72
drwxr-xr-x   1 root root 4096 Apr  9 15:12 .
drwxr-xr-x   1 root root 4096 Apr  9 15:12 ..
-rwxr-xr-x   1 root root    0 Apr  9 15:12 .dockerenv
drwxr-xr-x   2 root root 4096 Mar 11 21:05 bin
drwxr-xr-x   2 root root 4096 Apr 24  2018 boot
drwxr-xr-x   5 root root  360 Apr  9 15:13 dev
drwxr-xr-x   1 root root 4096 Apr  9 15:12 etc
drwxr-xr-x   2 root root 4096 Apr 24  2018 home
drwxr-xr-x   8 root root 4096 May 23  2017 lib
drwxr-xr-x   2 root root 4096 Mar 11 21:03 lib64
drwxr-xr-x   2 root root 4096 Mar 11 21:03 media
drwxr-xr-x   2 root root 4096 Mar 11 21:03 mnt
drwxr-xr-x   2 root root 4096 Mar 11 21:03 opt
dr-xr-xr-x 149 root root    0 Apr  9 15:12 proc
drwx------   2 root root 4096 Mar 11 21:05 root
drwxr-xr-x   1 root root 4096 Mar 20 19:20 run
drwxr-xr-x   1 root root 4096 Mar 20 19:20 sbin
drwxr-xr-x   2 root root 4096 Mar 11 21:03 srv
dr-xr-xr-x  13 root root    0 Apr  9 15:12 sys
drwxrwxrwt   2 root root 4096 Mar 11 21:05 tmp
drwxr-xr-x   1 root root 4096 Mar 11 21:03 usr
drwxr-xr-x   1 root root 4096 Mar 11 21:05 var
```

- 동작하고 있는 container 안에 ‘docker exec’을 통해 들어갈 수 있으며, container ID를 입력해 주어야 한다.
- 추가로, container안에서 ‘내가 어떤 프로그램을 사용해서 작업을 하겠다’ 라는것을 명시해 주어야 한다.
- 옆에 예제에서는 bash를 사용한다.

- Ubuntu container안에 어떠한 file들이 있는지 확인해보았다.

```
root@c40ec2850913:/# mkdir workPlace
root@c40ec2850913:/# ls
bin   dev  home  lib64  mnt  proc  run   srv  tmp  var
boot  etc  lib   media  opt  root  sbin  sys  usr  workPlace
root@c40ec2850913:/# docker --version
bash: docker: command not found
root@c40ec2850913:/# sudo docker --version
bash: sudo: command not found
root@c40ec2850913:/# exit
exit
ubuntu@ip-172-31-46-150:~$
```

- Ubuntu container안에 director를 만들어 보았으며, 잘 만들어 지는지 확인해보았다.

- 'sudo: command not found'라는 것을 보면, sudo command 또한 install 되어있지 않은, 기본적인 것 들로만 구성 되어 있는 light한 container임을 알 수 있다

- 'docker: command not found' 라는 것을 보면, docker는 install 되어 있지 않은 기본적인 kernel들만 있는 container임을 알 수 있다