

Lab #0. Preparation

Prof. Jaeseung Choi

Dept. of Computer Science and Engineering

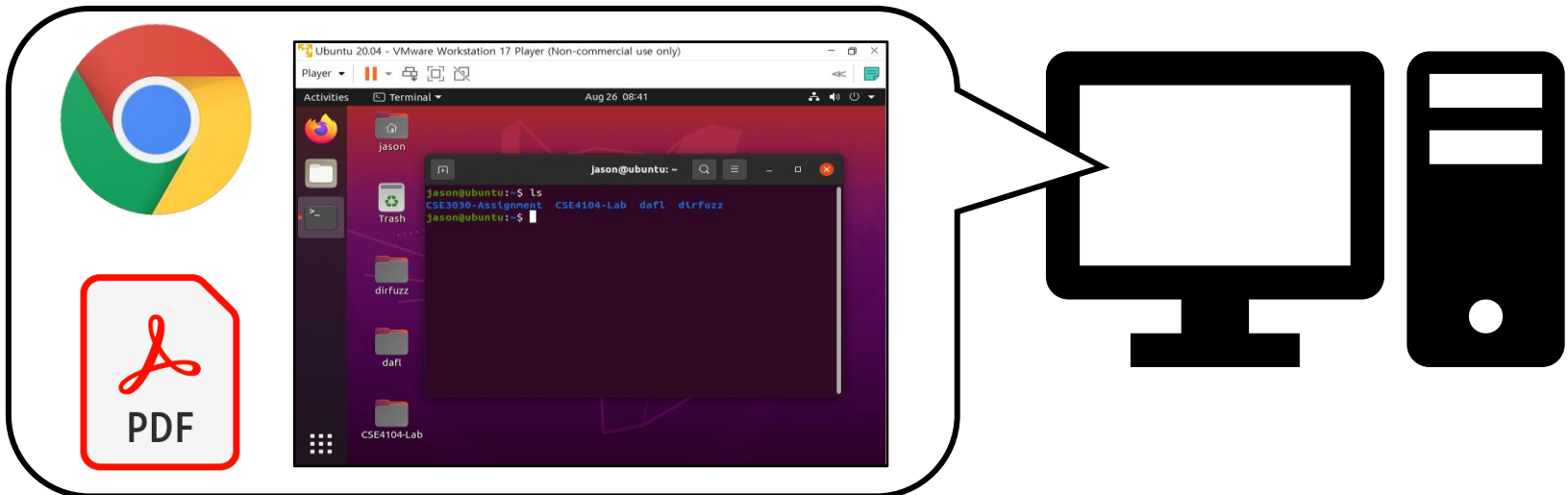
Sogang University

Task #1: Choose Your Nickname

- It will be used to announce your scores anonymously
- Please use English/Korean/digit characters only
 - No special characters or spaces allowed
- Write your anonymous ID in **nickname.txt** and submit it to the post in *Assignment* tab of *Cyber Campus*
 - *Deadline: 9/19 Tuesday 23:59*
- If you want to use your student number as your ID, you don't have to submit anything

Task #2: Prepare Linux VM (1/3)

- **(Updated!)** We will use CSPRO for the first few labs
- For Lab #5 or Lab #6 (around November), we will use **Linux (Ubuntu) + Docker** as our lab environment
 - So you must prepare your own Linux virtual machine (VM)
- *Virtual machine* allows you to use Linux in your computer
 - Even if your computer actually uses Windows or macOS



Task #2: Prepare Linux VM (2/3)

■ Install virtual machine software

- VMWare Workstation Player (recommended)
- VirtualBox
- Parallels (macOS)

■ Download Ubuntu and setup a virtual machine

- If your CPU is Intel: releases.ubuntu.com/focal/
- If it is ARM: cdimage.ubuntu.com/jammy/daily-live/current/

■ Google "ubuntu vmware install" and you will find many step-by-step tutorials

- Google will also solve most of the errors you encounter

■ You may have to modify BIOS setting to enable VT-x

Task #2: Prepare Linux VM (3/3)

- Once you have prepared a Linux VM, install Docker
 - <https://docs.docker.com/engine/install/ubuntu/>
 - "Install using the apt repository" is recommended
- After installation, configure to run "docker" command without root privilege or sudo command
 - <https://docs.docker.com/engine/install/linux-postinstall/>
- If you can run "docker run hello-world", it's done!

```
jason@ubuntu:~$ docker run hello-world
```

```
Hello from Docker!
```

```
This message shows that your installation appears  
to be working correctly.
```

Brief Introduction of Docker

■ What is Docker?

- (Roughly speaking) Lightweight version of virtual machine
- It does **not** allow you use Linux in Windows or macOS
- But running Ubuntu 18.04 in Ubuntu 20.04 is possible

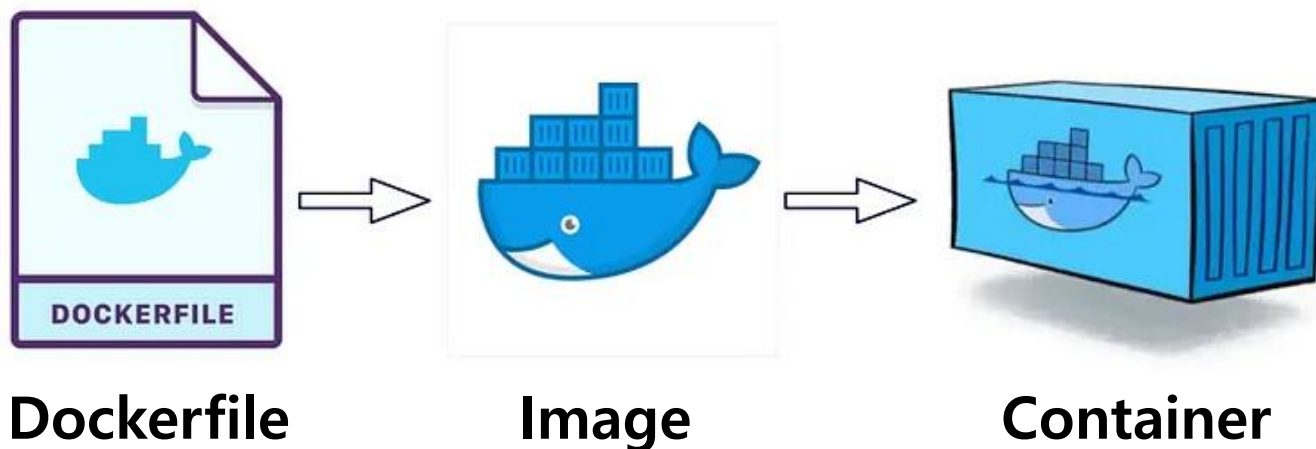
■ Why is this useful?

- Docker resolves "It works in my computer" problem
- You can specify the OS version, installed packages, etc.
- Easy to reproduce the same runtime environment
- We will use Docker for unified environment to practice hacking



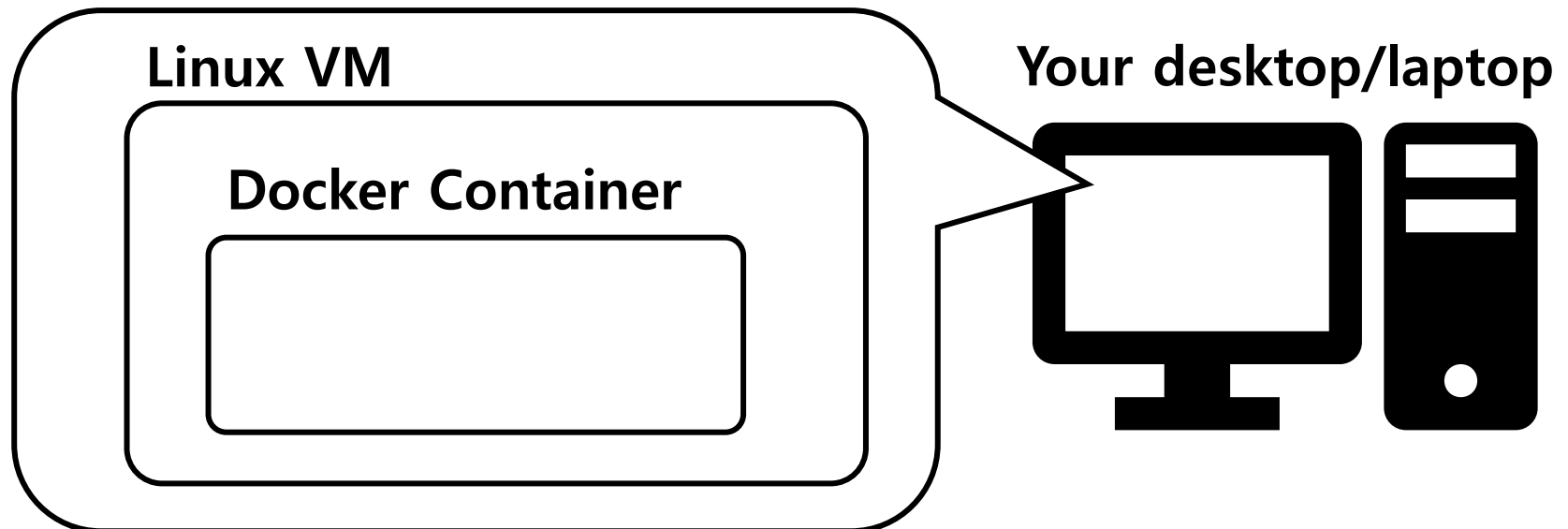
Image and Container

- We first specify the OS version, list of packages to install, setup commands, etc.
 - We usually call this specification file as **Dockerfile**
- **Image** is a snapshot of OS built from the specification
- **Container** is a running instance of an image
- Cf. Source code ► Program ► Process



Overall Structure

- To sum up, we will be using Docker within a Linux VM
- Why do we choose such a complex structure?
 - A long story behind this, but this turned out to be the best way
- In ~~Lab #1~~, Lab #5 or #6, I will assume that the following setup is finished in your computer



Task #3: Change PW in CSPRO

- We will use CSPRO for the first few Labs
- Login to CSPRO SSH server and change your password
 - Your account: cse + <student no.>
 - Ex) cse20221234
 - Default password: asdf1234
- Use SSH client (e.g., PUTTY or 'ssh' command in shell) to login to CSPRO server
 - Remember that this course assumes that you are familiar with the Linux environment