



Vmware & Ubuntu Installation

KECE456 Code and System Optimization (Fall 2025)

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Vmware & Ubuntu image Download

- **Vmware & Ubuntu image Download Link**

- https://drive.google.com/drive/folders/13OV3DP3ggf1aOlnZU4S_ULV4iHAqTsJ1?usp=drive_link

- **Contents**

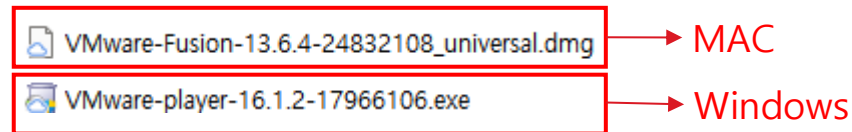
- VMware 설치 프로그램
 - 가상머신을 Host computer에 얹어서 리눅스 OS(Ubuntu)를 실행하기 위함
 - “Vmware-player-16.1.2-17966106.exe” (for Windows)
 - “VMware-Fusion-13.6.4-24832108_universal.dmg”(for MAC)
 - Ubuntu image
 - Project 수행을 위해 구성된 Ubuntu OS
 - “ubuntu-18.04.5-desktop-amd64.iso” (for Windows)
 - “ubuntu-18.04.5-server-arm64.iso” (for MAC)

- **환경 설정**

- VMware 프로그램 설치
 - Ubuntu image로 Linux 환경 구축

VMware Installation (1/4) - Introduction

- 다운로드 된 “[VMware-player-16.1.2-17966106.exe](#)” 또는 “[VMware-Fusion-13.6.4-24832108_universal.dmg](#)“ 파일을 실행하여 VMware를 설치한다.
- VMware 설치 과정은 이후 슬라이드를 참고 할 것
 - Windows OS / x86_64 환경을 가정함
 - 즉, Vmware-player-16.1.2-17966106.exe를 사용
 - MAC OS의 경우도 VMware-Fusion-13.6.4-24832108_universal.dmg를 실행하여 동일한 과정으로 설치할 수 있으며, 문제가 있을 시 TA에게 도움 요청 바람
- 슬라이드에 포함되지 않은 기타 사항은 아래의 링크를 참고
 - <https://shinb.tistory.com/5> (Virtual Machine과 VMware에 대한 설명)



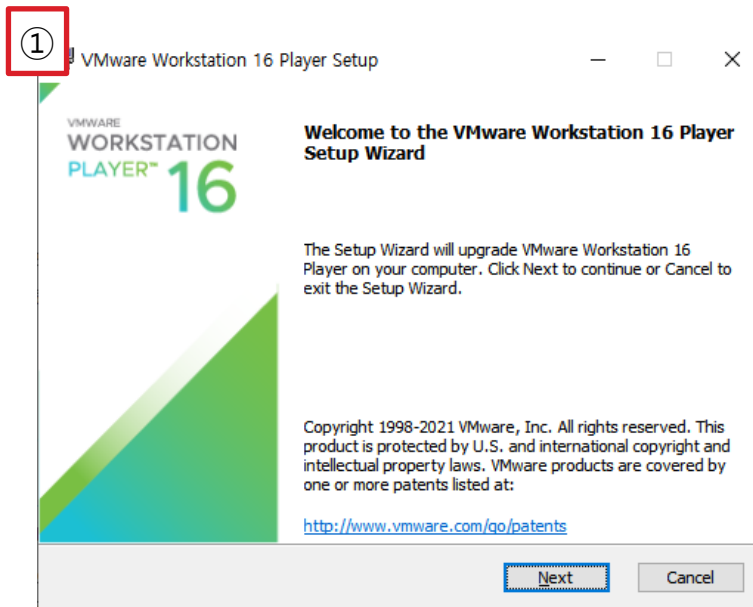
[Fig 1. VMware 설치 파일]

VMware Installation (2/4)

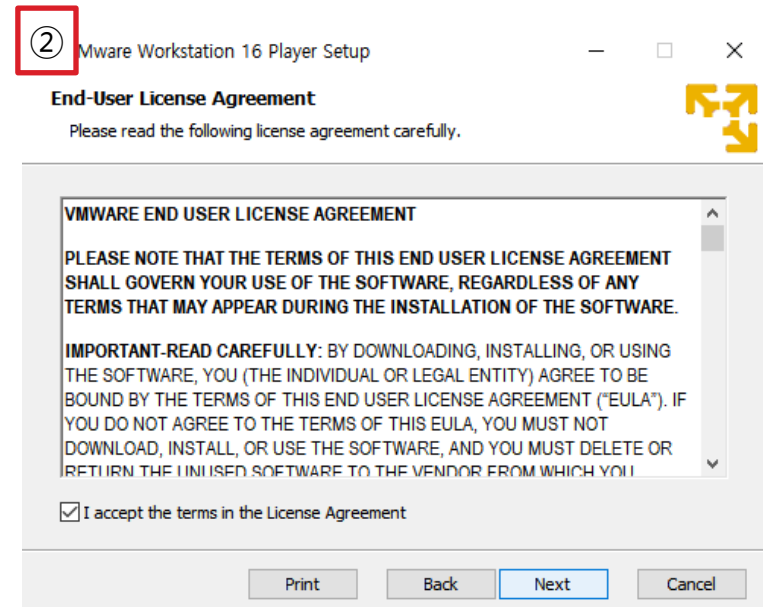
- 설치 프로그램을 실행한 이후의 단계는 다음과 같다.

① “Next”를 선택하여 다음단계로 넘어간다.

② “Accept” 체크박스를 선택하고 다음단계로 넘어간다.



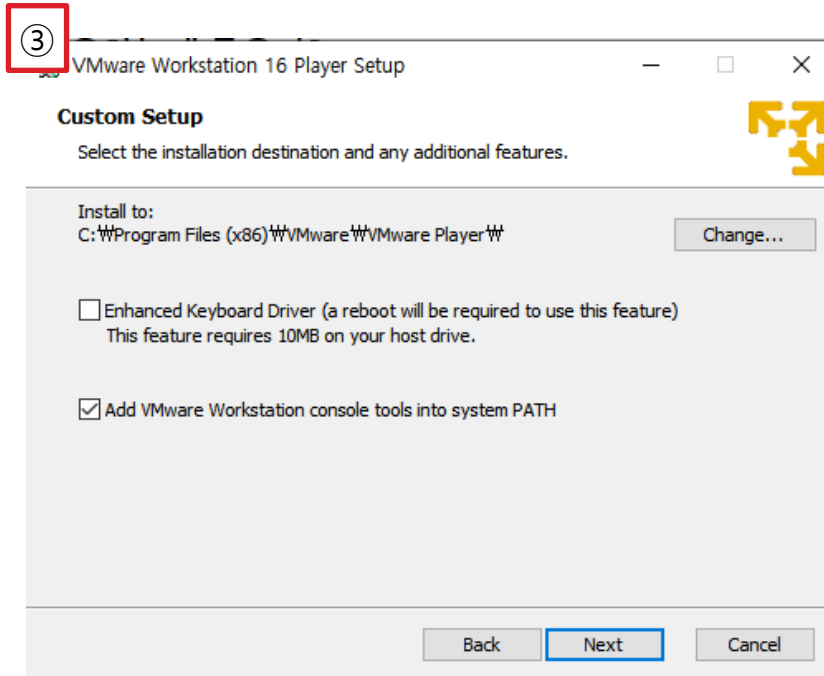
[Fig 2. VMware installation ①]



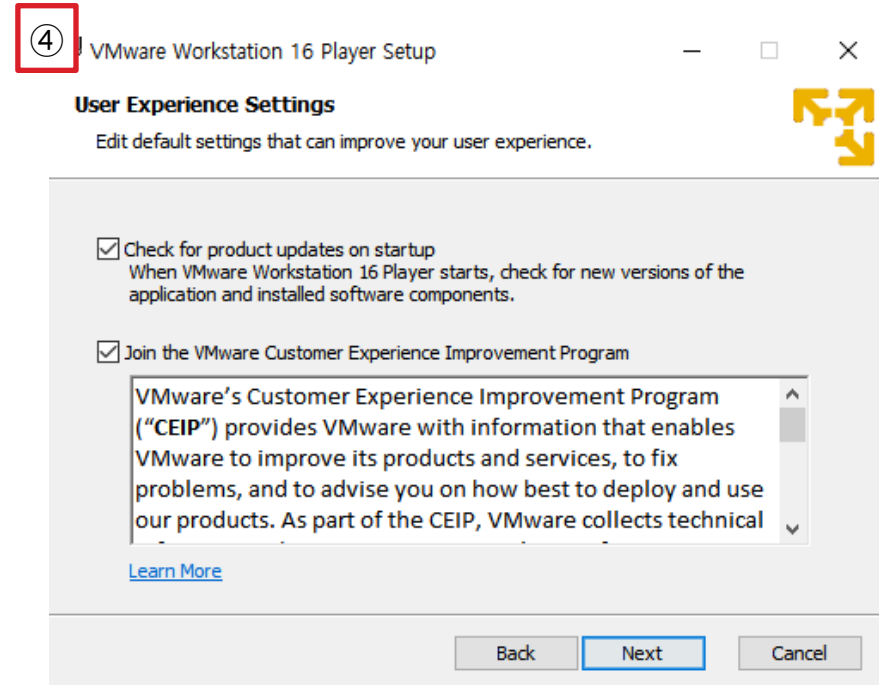
[Fig 3. VMware installation ②]

VMware Installation (3/4)

- ③ VMware의 설치 경로를 설정한다. (Default path로 설정해도 무방함)
- ④ Experience setting도 default configuration으로 진행해도 무방함.



[Fig 4. VMware installation ③]



[Fig 5. VMware installation ④]

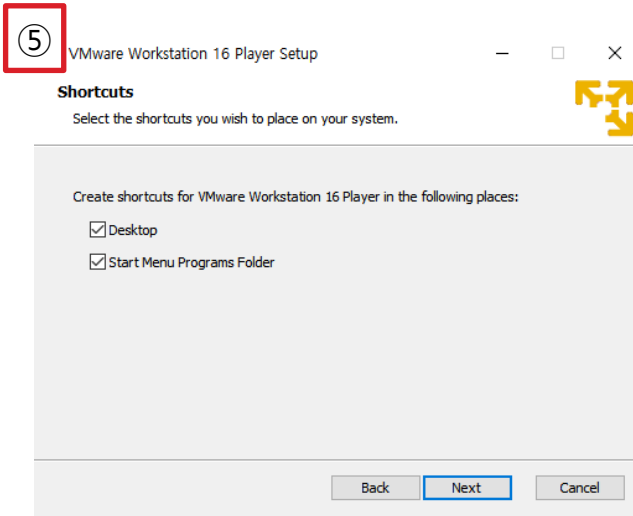
VMware Installation (4/4)

⑤ “Shortcuts” 관련 옵션을 설정한다.

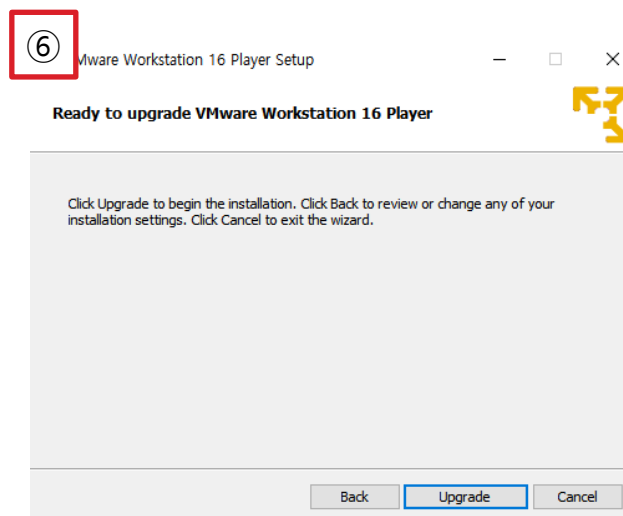
⑥ VMware를 새로 설치하는 경우, “Install”을 선택하여 설치를 진행한다.

이미 VMware가 설치되어 있는 경우, “Upgrade”를 선택하여 설치를 진행한다.

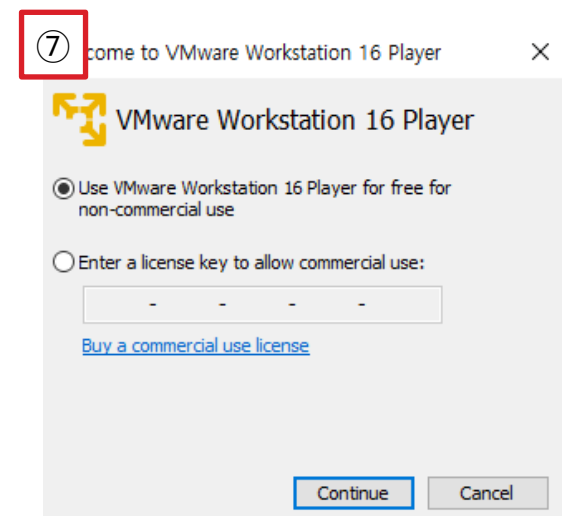
⑦ Free license를 선택한다.



[Fig 6. VMware installation ⑤]



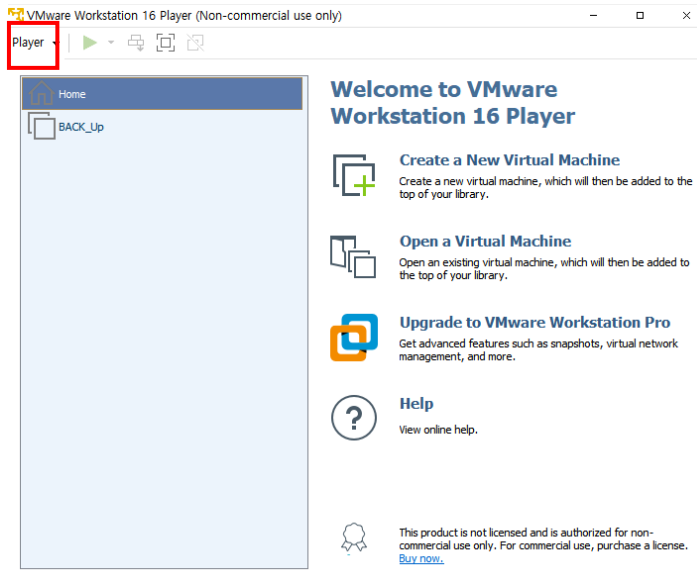
[Fig 7. VMware installation ⑥]



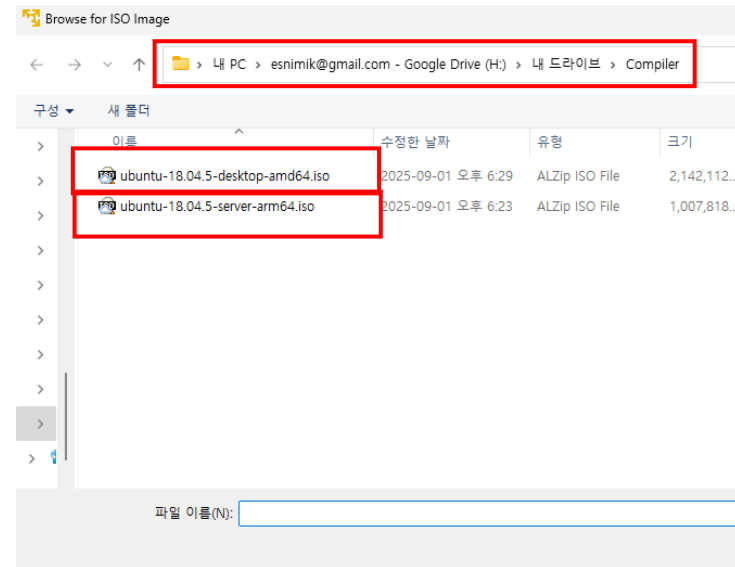
[Fig 8. VMware installation ⑦]

VMware Image Open

- 설치된 VMware를 실행하고, Ubuntu image (“ubuntu-18.04-desktop-amd64.iso” or “ubuntu-18.04.1-server-arm64.iso”)를 browse 하는 방법은 다음과 같다.
 - [Fig 9]의 위치에서 “Player → File → New Virtual Machine”을 순차적으로 선택한다.
 - [Fig 10] Ubuntu image가 설치된 경로에 OS에 맞는 iso 파일을 선택하고, “열기”를 선택한다.
 - 예시와 동일하지 않은 경로에 설치되어 있을 수 있음.



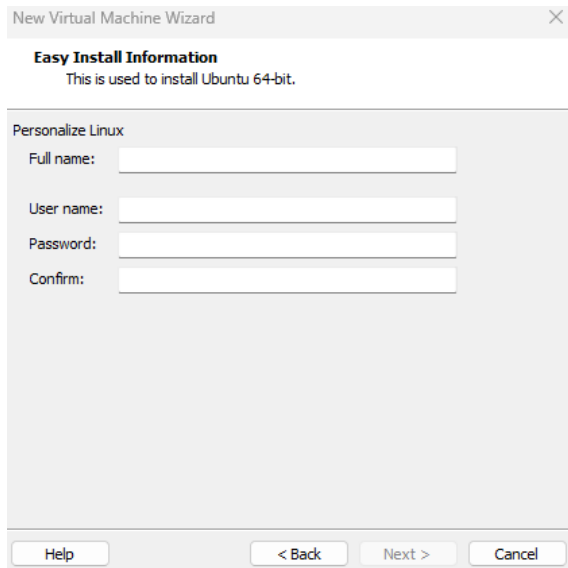
[Fig 9. VMware program 실행 화면]



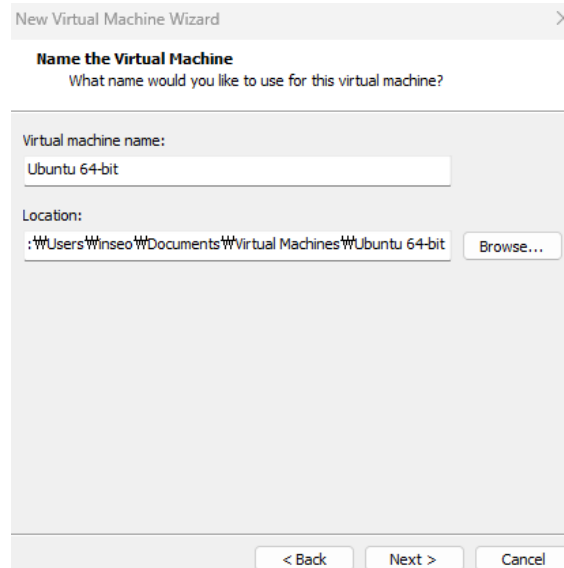
[Fig 10. VMware Ubuntu image 경로]

VMware Image Open

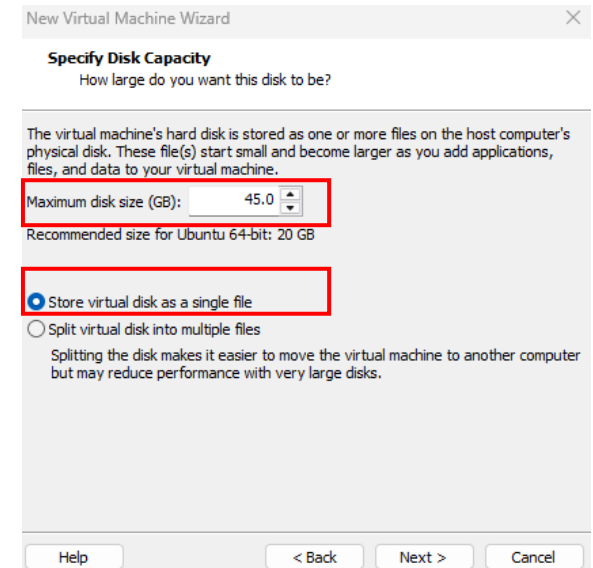
- [Fig 11] 가상환경에서 사용할 user name과 password 설정
 - Ex) Full name, User name: compiler, Password: 123, Confirm: 123
- [Fig 12] Virtual machine의 이름과 설치 경로를 선택
- [Fig 13] Virtual machine이 사용할 스토리지 용량을 설정한 후, “Store virtual disk as a single file” 선택
 - Maximum disk size를 최소 45GB로 설정



[Fig 11. VMware user/password 설정 화면]



[Fig 12. VMware virtual machine 이름/경로 설정 화면]

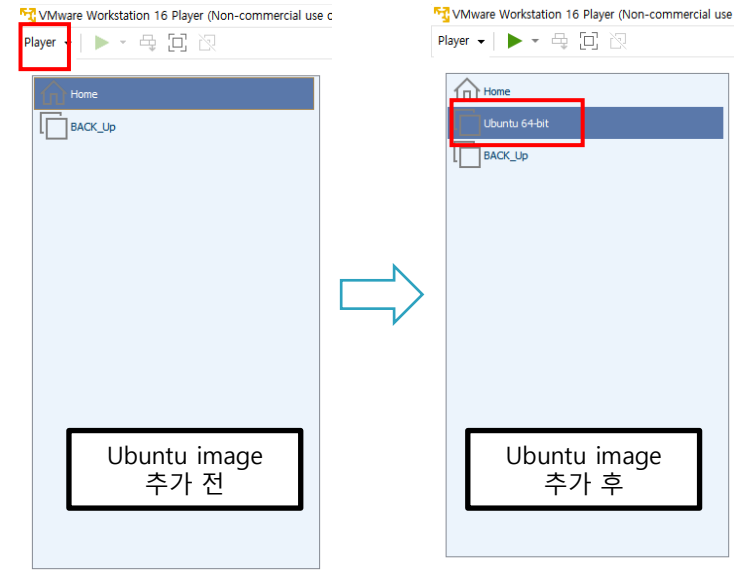


[Fig 13. VMware virtual machine 이름/경로 설정 화면]

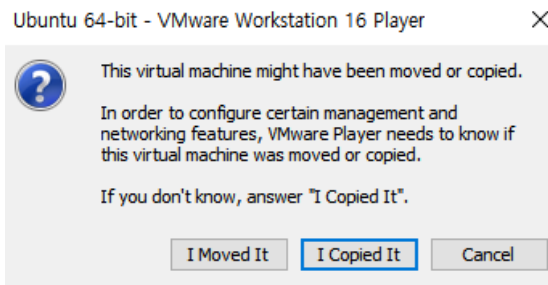
VMware Image Setting

• VMware 설정 관련 Option

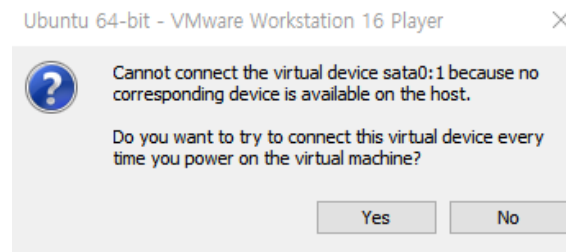
- VMware Image Open
 - “I Moved It”
- Device Connection
 - “Yes”
- Software Updates
 - “Remind Me Later”



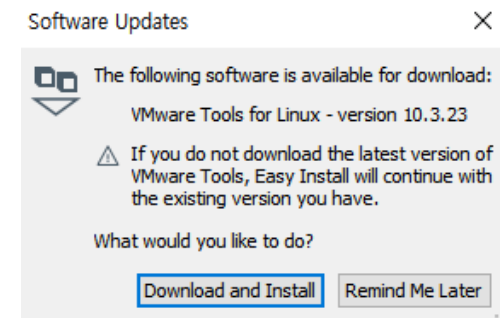
[Fig 11. Image 추가 전/후]



[Fig 14. VMware open 화면]



[Fig 15. Device 선택 화면]

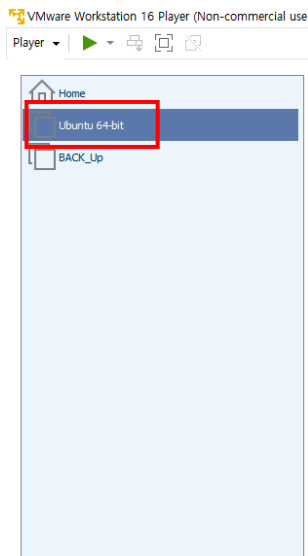


[Fig 16. SW update 화면]

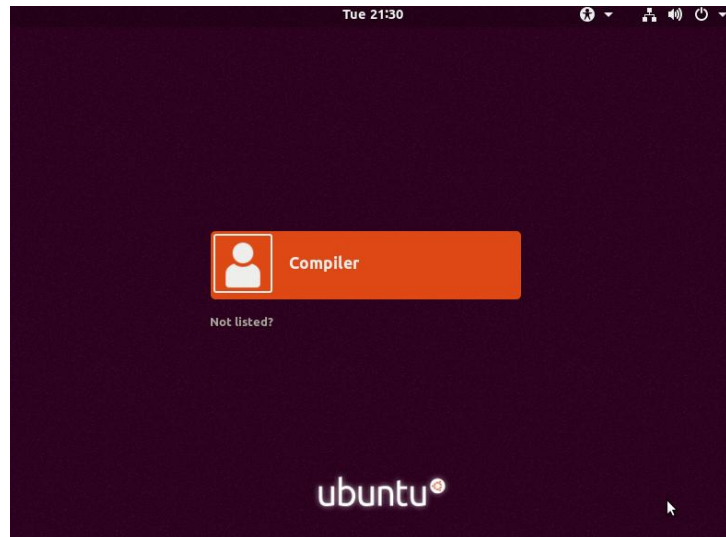
Login

– VMware OS 선택

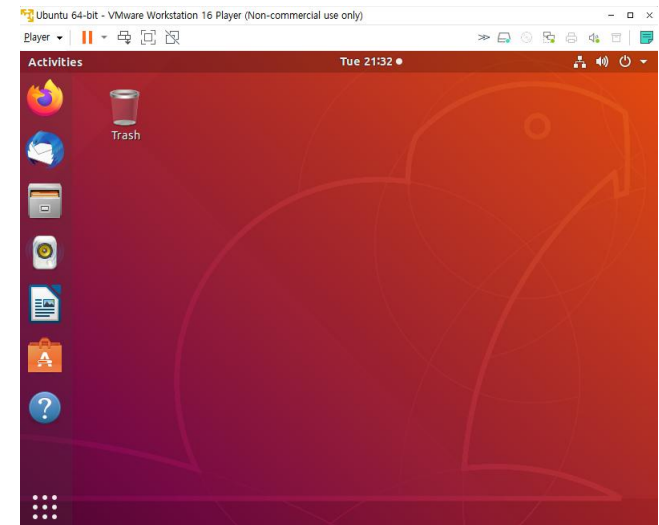
- 이전 단계에서 설치한 “Ubuntu 64-bit”을 선택하여 OS를 load한다.
 - MAC OS의 경우 desktop version이 아닌 server version이므로, [Fig 18]와 [Fig 19]가 아닌 terminal 화면이 나타남



[Fig 17. VMware OS 선택]



[Fig 18. Login 화면]

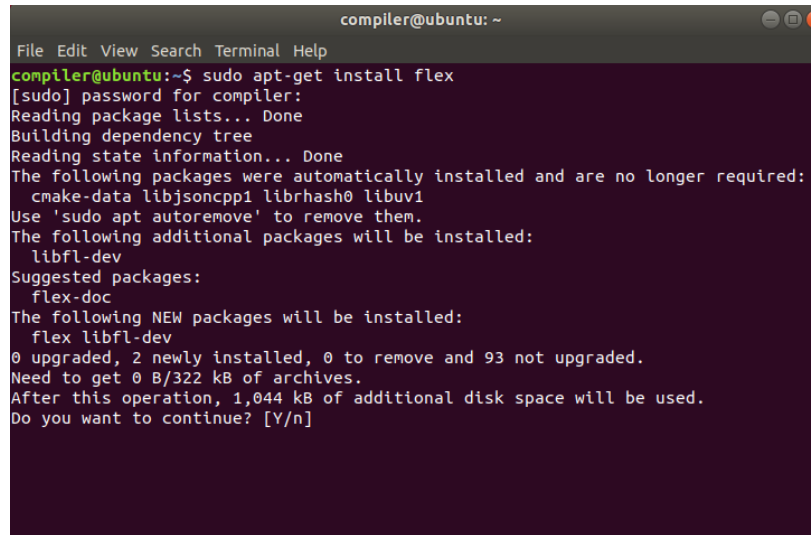


[Fig 19. 기본화면]

Test (1/3)

• Methodology

- Ctrl+alt+t 를 통해 terminal을 실행한다.
- 다음 command들을 입력하여 프로젝트에 필요한 기본 패키지를 설치한다.
 - sudo apt update
 - sudo apt install flex build-essential
 - sudo apt install git
- “sudo apt-get install flex” command를 입력하여 lex 패키지를 설치한다.



```
compiler@ubuntu: ~  
File Edit View Search Terminal Help  
compiler@ubuntu:~$ sudo apt-get install flex  
[sudo] password for compiler:  
Reading package lists... Done  
Building dependency tree  
Reading state information... Done  
The following packages were automatically installed and are no longer required:  
  cmake-data libjsoncpp1 librhash0 libuv1  
Use 'sudo apt autoremove' to remove them.  
The following additional packages will be installed:  
  libfl-dev  
Suggested packages:  
  flex-doc  
The following NEW packages will be installed:  
  flex libfl-dev  
0 upgraded, 2 newly installed, 0 to remove and 93 not upgraded.  
Need to get 0 B/322 kB of archives.  
After this operation, 1,044 kB of additional disk space will be used.  
Do you want to continue? [Y/n]
```

[Fig 20. Lex 패키지 설치 화면]

Test (2/3)

• Methodology

- 로컬 PC에 받은 project file을 virtual machine 디렉토리로 가져오기 위해 다음 과정을 진행한다.
 - Ubuntu terminal에서 virtual machine의 ip주소 확인
 - ip addr
 - Local PC의 terminal(cmd, powershell등) 실행 후 project file의 local 경로와, 앞서 확인한 ip주소를 활용하여 virtual machine으로 가져온다.
 - `scp -r /<local_path>/Project_1 <user_name>@<ubuntu_ip>:/home/<user_name>/work/`

```
compiler@ubuntu:~/work/Project_1$ ip addr
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: ens33: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 00:0c:29:14:45:ea brd ff:ff:ff:ff:ff:ff
    inet 192.168.3.129/24 brd 192.168.3.255 scope global dynamic noprefixroute ens33
        valid_lft 1714sec preferred_lft 1714sec
    inet6 fe80::f96a:2c10:7b02:c2e3/64 scope link noprefixroute
        valid_lft forever preferred_lft forever
compiler@ubuntu:~/work/Project_1$
```

[Fig 21. Ubuntu ip 주소 확인 화면]

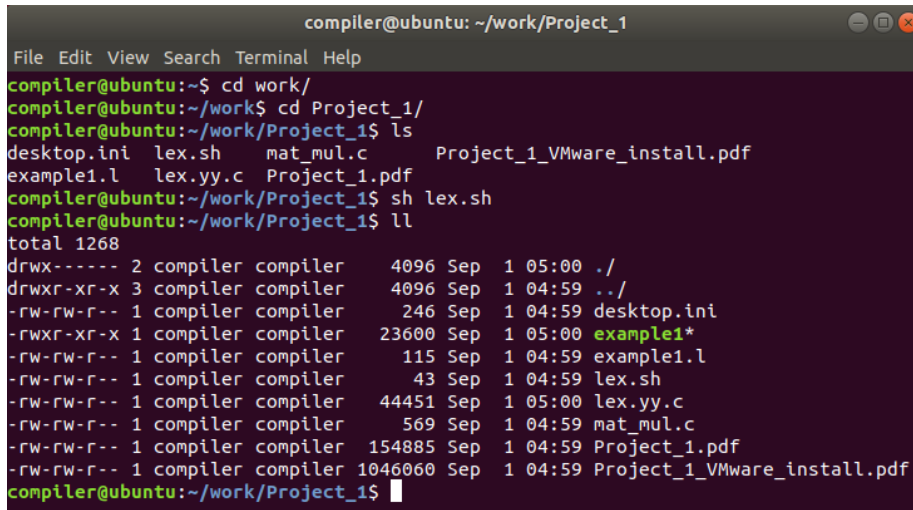
```
C:\Users\inseo\Downloads> scp -r ./Project_1 compiler@192.168.3.129:/home/compiler/work
compiler@192.168.3.129's password:
desktop.ini                                100% 246 240.2KB/s 00:00
example1.l                                100% 115 112.3KB/s 00:00
lex.sh                                     100% 43 42.0KB/s 00:00
lex.yy.c                                   100% 47KB 45.7MB/s 00:00
mat_mul.c                                  100% 569 555.7KB/s 00:00
Project_1.pdf                              100% 151KB 73.9MB/s 00:00
Project_1_VMware_install.pdf              100% 1022KB 124.7MB/s 00:00
```

[Fig 22. cmd terminal에서 virtual machine에 project file 다운 화면]

Test (3/3)

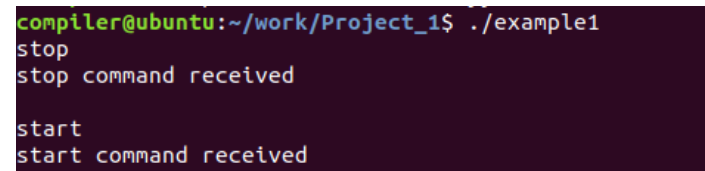
• Methodology

- Terminal에 “cd ~/work/Project_1”와 “ll” command를 입력하고, 결과를 확인한다.
- Terminal에 “sh lex.sh”와 “ll” command를 입력하고, “example1” elf file(binary file)이 생성된 것을 확인한다.
- [Fig 24] “example1”을 실행한 뒤, “stop”과 “start” command를 입력하여 lex 예제의 실행을 확인한다.



```
compiler@ubuntu: ~/work/Project_1
File Edit View Search Terminal Help
compiler@ubuntu:~$ cd work/
compiler@ubuntu:~/work$ cd Project_1/
compiler@ubuntu:~/work/Project_1$ ls
desktop.ini  lex.sh      mat_mul.c   Project_1_VMware_install.pdf
example1.l  lex.yy.c    Project_1.pdf
compiler@ubuntu:~/work/Project_1$ sh lex.sh
compiler@ubuntu:~/work/Project_1$ ll
total 1268
drwx----- 2 compiler compiler  4096 Sep  1 05:00 ./
drwxr-xr-x  3 compiler compiler  4096 Sep  1 04:59 ../
-rw-rw-r--  1 compiler compiler   246 Sep  1 04:59 desktop.ini
-rwxr-xr-x  1 compiler compiler 23600 Sep  1 05:00 example1*
-rw-rw-r--  1 compiler compiler   115 Sep  1 04:59 example1.l
-rw-rw-r--  1 compiler compiler    43 Sep  1 04:59 lex.sh
-rw-rw-r--  1 compiler compiler 44451 Sep  1 05:00 lex.yy.c
-rw-rw-r--  1 compiler compiler   569 Sep  1 04:59 mat_mul.c
-rw-rw-r--  1 compiler compiler 154885 Sep  1 04:59 Project_1.pdf
-rw-rw-r--  1 compiler compiler 1046060 Sep  1 04:59 Project_1_VMware_install.pdf
compiler@ubuntu:~/work/Project_1$
```

[Fig 23. Terminal command 및 shell 실행 화면]



```
compiler@ubuntu:~/work/Project_1$ ./example1
stop
stop command received

start
start command received
```

[Fig 24. Lex 예제 실행 화면]

Appendix. VMware 단축키

- **Terminal 켜기**
 - Ctrl + Alt + T
- **VMware Focus Out**
 - Ctrl + Alt
- **전체화면**
 - Ctrl + Alt + Enter
- **강제 재시작**
 - Ctrl + R

Appendix. 기본적인 리눅스 command

- 경로 이동

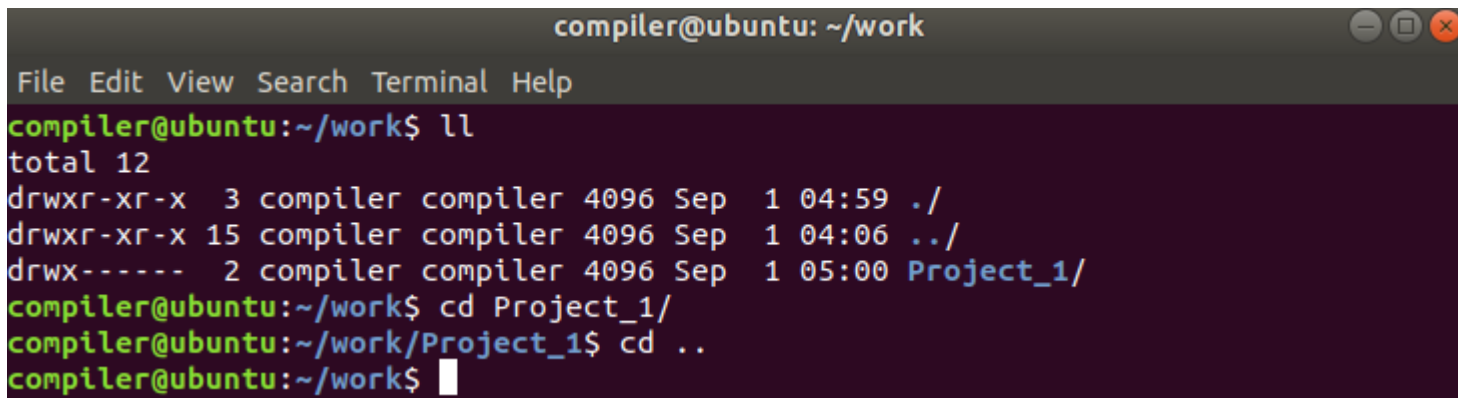
- cd [경로]
 - . : 현재 위치
 - .. : 상위 디렉토리
 - ~ : 홈 디렉토리

- 현재 디렉토리 내의 파일 확인

- ll 또는 ls

- 셸 스크립트 실행

- sh [shell_script_file].sh



```
compiler@ubuntu: ~/work
File Edit View Search Terminal Help
compiler@ubuntu:~/work$ ll
total 12
drwxr-xr-x  3 compiler compiler 4096 Sep  1 04:59 ./
drwxr-xr-x 15 compiler compiler 4096 Sep  1 04:06 ../
drwx-----  2 compiler compiler 4096 Sep  1 05:00 Project_1/
compiler@ubuntu:~/work$ cd Project_1/
compiler@ubuntu:~/work/Project_1$ cd ..
compiler@ubuntu:~/work$
```

[Fig 25. Linux command example]