

# 가상환경구성

**실습목표:** 수업시간에 학습한 여러 네트워크 공격 기법 실습을 위해, 가상 환경을 구성한다

**유의사항:** 모든 동작 결과 화면은 full screen을 캡처하며, 가상환경 사용자 이름은 학번으로 대체하시오

**제출물:** VMware 설치 및 결과 화면을 포함하는 보고서를 제출한다

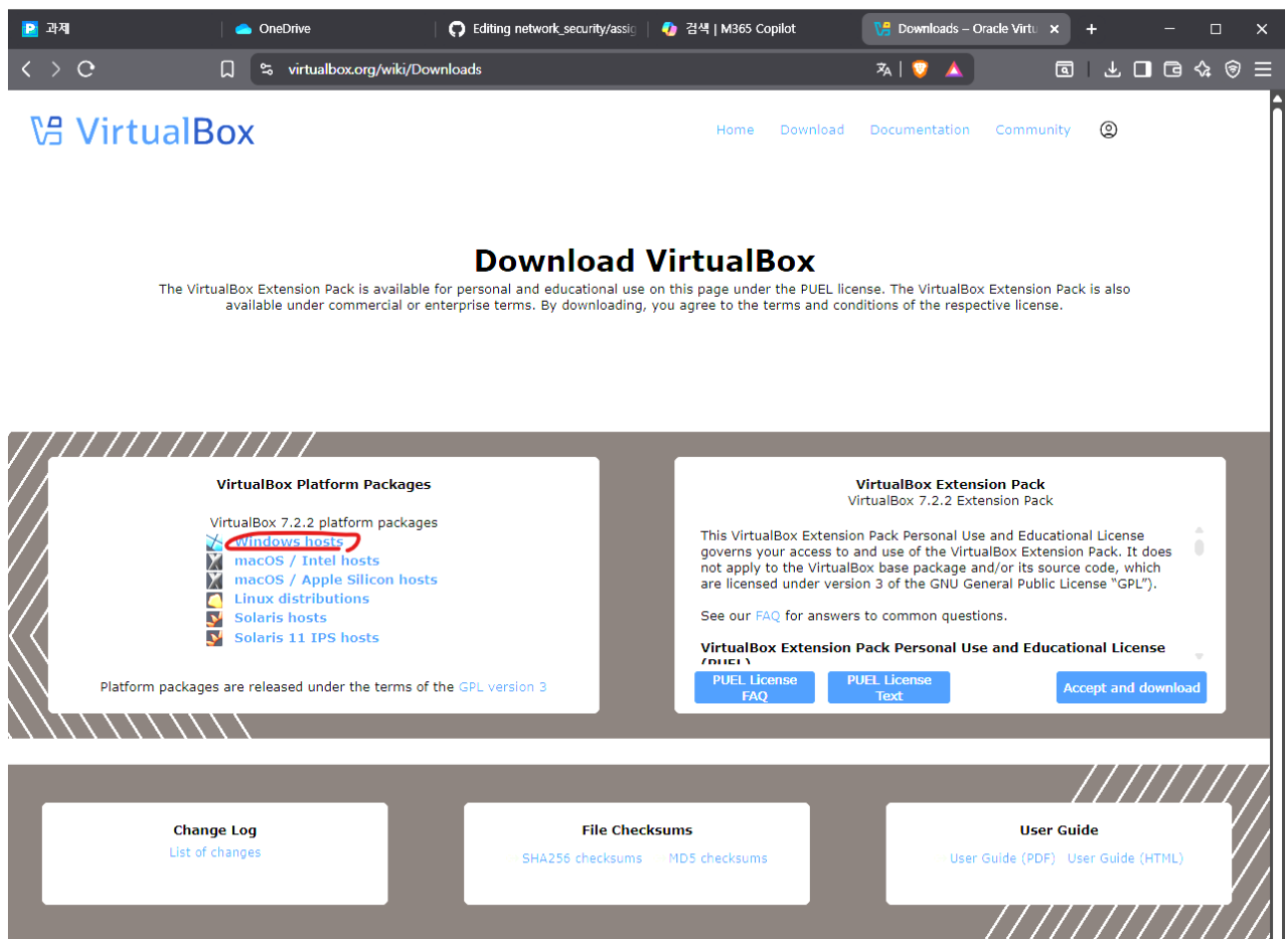
## 실습 1: 가상환경 구성을 위한 VMware 및 iso 파일 설치

- 가상환경 구성을 위한 vmware 설치
- linux 기반 가상 컴퓨터를 위한 iso 설치

## 1번 실습 과정

### 가상화툴 설치

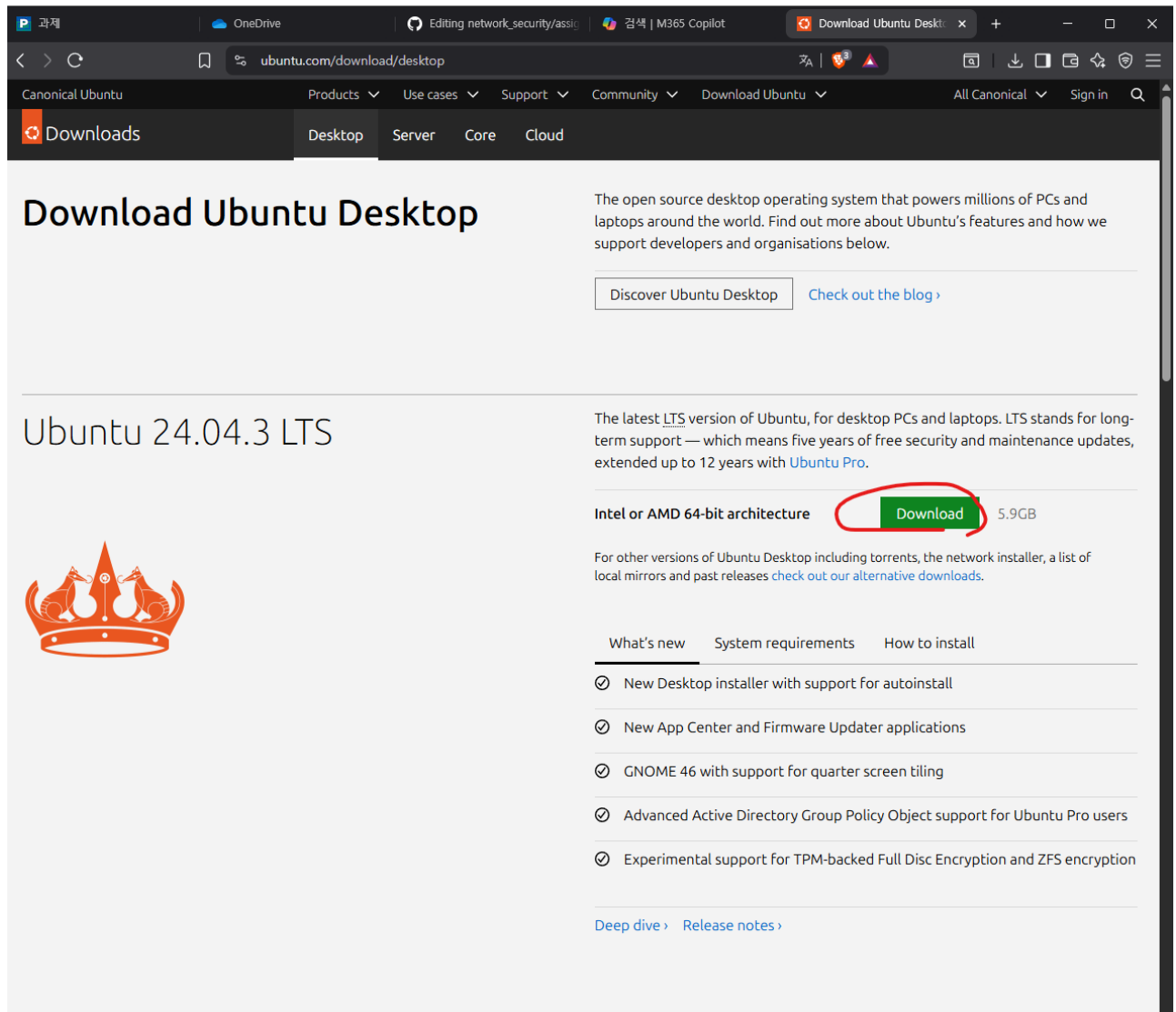
- vmware 인증코드가 안오는 문제 발생



- 비슷한 가상화 툴인 virtualbox 사용

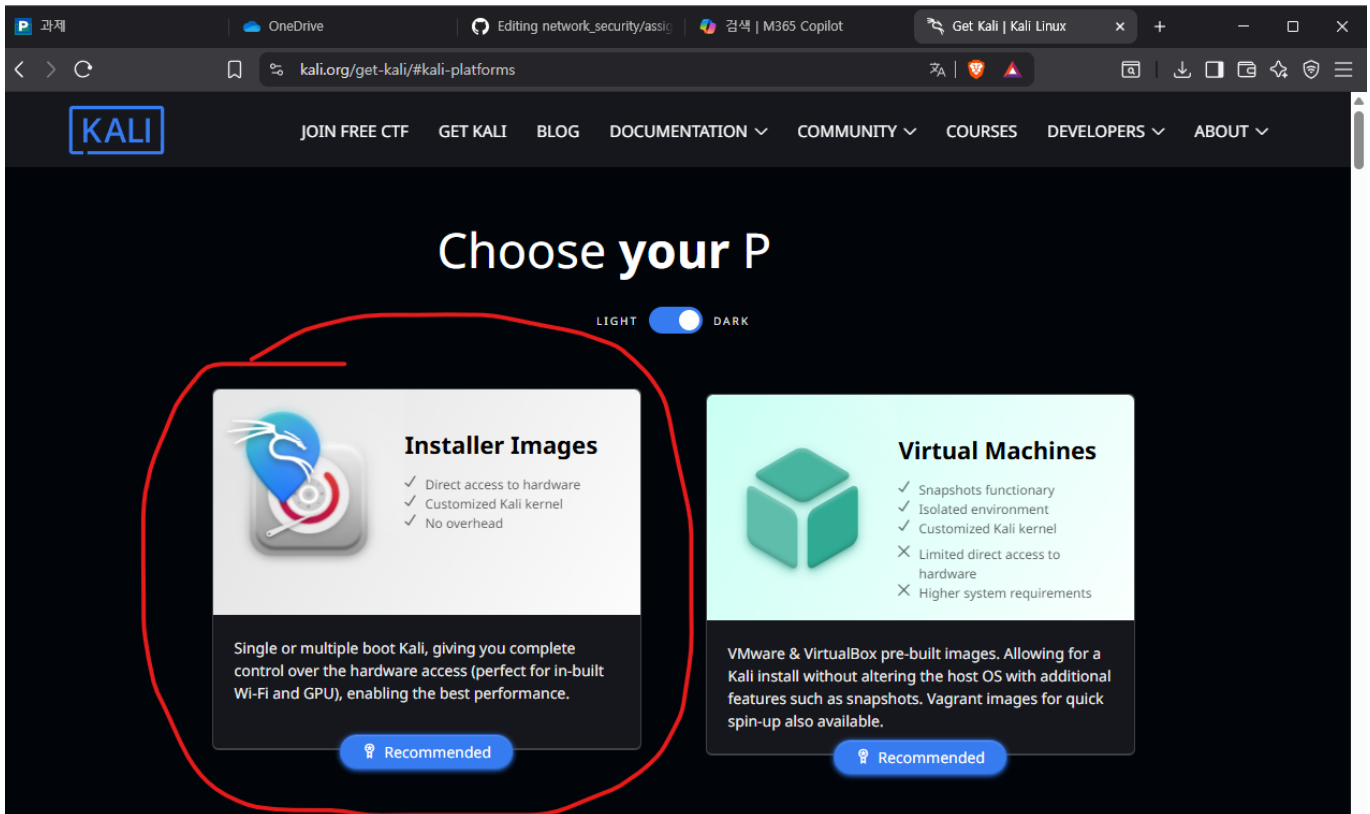
### ubuntu 운영체제 설치

- 강의자료에는 각각 16, 14버전을 사용. 과제에는 18.04.6 이라고 되어있는 것으로 보아 최신버전을 사용해도 무방할꺼라 판단



- 최신버전인 ubuntu 24.04.3 LTS 사용

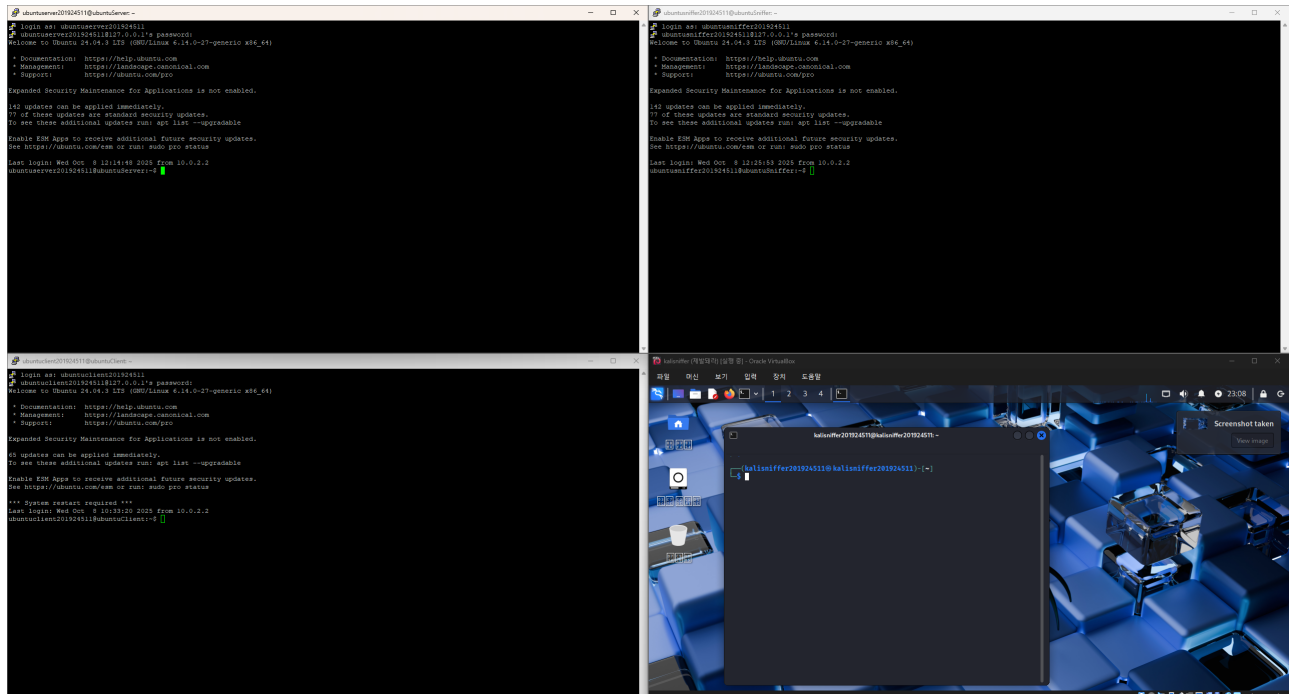
kali linux 운영체제 설치



- 다운로드 후 사용

## 실습 2: 실습을 위한 네트워크 요소 구성

- ubuntu 운영체제로 server, client, attacker node 구성



- 과제에는 모두 ubuntu로 된 3개의 node를 명시하였으나 kali linux를 다운받았으니 총 4개의 쉘스크립트 구성

## 실습 3: 실습에 사용될 라이브러리 설치

- 각 노드마다 apt update를 수행하고, 다음과 같은 라이브러리를 설치한다
- 설치된 라이브러리 확인 명령어 (ex. `dpkg -get-selections | grep -E "라이브러리1|라이브러리2"`)

- server: wireshark, net-tools, apache2

```

ubuntu-server201924511@ubuntuServer: ~
Enabling module authz_host.
Enabling module authn_core.
Enabling module auth_basic.
Enabling module access_compat.
Enabling module authn_file.
Enabling module authz_user.
Enabling module alias.
Enabling module dir.
Enabling module autoindex.
Enabling module env.
Enabling module mime.
Enabling module negotiation.
Enabling module setenvif.
Enabling module filter.
Enabling module deflate.
Enabling module status.
Enabling module reqtimeout.
Enabling conf charset.
Enabling conf localized-error-pages.
Enabling conf other-vhosts-access-log.
Enabling conf security.
Enabling conf serve-cgi-bin.
Enabling site 000-default.
Created symlink /etc/systemd/system/multi-user.target.wants/apache2.service - /usr/lib/systemd/system/apache2.service.
Created symlink /etc/systemd/system/multi-user.target.wants/apache-htcacheclean.service - /usr/lib/systemd/system/apache-htcacheclean.service.
Processing triggers for ufw (0.36.2-6) ...
Processing triggers for man-db (2.12.0-4build2) ...
Processing triggers for libc-bin (2.39-0ubuntu8.5) ...
ubuntu-server201924511@ubuntuServer:~$ dpkg --get-selections | grep -E "wireshark|net-tools|apache2"
apache2                                install
apache2-bin                           install
apache2-data                           install
apache2-utils                           install
libwireshark-data                       install
libwireshark17t64:amd64                 install
net-tools                               install
wireshark-common                         install
ubuntu-server201924511@ubuntuServer:~$

```

- dpkg --get-selections | grep -E "wireshark|net-tools|apache2"
- client: net-tools, gcc, vim

```

ubuntu-client201924511@ubuntuClient: ~
login as: ubuntu-client201924511
ubuntu-client201924511@127.0.0.1's password:
Welcome to Ubuntu 24.04.3 LTS (GNU/Linux 6.14.0-27-generic x86_64)

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

Expanded Security Maintenance for Applications is not enabled.

65 updates can be applied immediately.
To see these additional updates run: apt list --upgradable

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

*** System restart required ***
Last login: Wed Oct  8 10:33:20 2025 from 10.0.2.2
ubuntu-client201924511@ubuntuClient:~$ dpkg -l | grep -E "net-tools|gcc|vim"
ii  gcc-13-base:amd64      13.3.0-6ubuntu2-24.04
    amd64               GCC, the GNU Compiler Collection (base package)
ii  gcc-14-base:amd64      14.2.0-4ubuntu2-24.04
    amd64               GCC, the GNU Compiler Collection (base package)
ii  libgcc-s1:amd64        14.2.0-4ubuntu2-24.04
    amd64               GCC support library
ii  net-tools              2.10-0.1ubuntu4.4
    amd64               NET-3 networking toolkit
ii  vim-common              2:9.1.0016-lubuntu7.9
    all                 Vi IMproved - Common files
ii  vim-tiny                2:9.1.0016-lubuntu7.9
    amd64               Vi IMproved - enhanced vi editor - compact version
ubuntu-client201924511@ubuntuClient:~$

```

- dpkg -l | grep -E "net-tools|gcc|vim"

- attacker: wireshark, net-tools, gcc, vim, ettercap

```

ubuntuSniffer201924511@ubuntuSniffer: ~
Selecting previously unselected package libwireshark17t64:amd64.
Preparing to unpack .../11-libwireshark17t64_4.2.2-1.1build3_amd64.deb ...
Unpacking libwireshark17t64:amd64 (4.2.2-1.1build3) ...
Selecting previously unselected package wireshark-common.
Preparing to unpack .../12-wireshark-common_4.2.2-1.1build3_amd64.deb ...
Unpacking wireshark-common (4.2.2-1.1build3) ...
Selecting previously unselected package tshark.
Preparing to unpack .../13-tshark_4.2.2-1.1build3_amd64.deb ...
Unpacking tshark (4.2.2-1.1build3) ...
Setting up libssh-gcrypt-4:amd64 (0.10.6-2ubuntu0.1) ...
Setting up libnghttp3-3:amd64 (0.8.0-2) ...
Setting up libsmi2t64:amd64 (0.4.8+dfsg2-16.1build1) ...
Setting up libbcg729-0:amd64 (1.1.1-2build1) ...
Setting up libsnappy1v5:amd64 (1.1.10-1build1) ...
Setting up libspandsp2t64:amd64 (0.0.6+dfsg-2.1build1) ...
Setting up libwireshark-data (4.2.2-1.1build3) ...
Setting up liblua5.2-0:amd64 (5.2.4-3build2) ...
Setting up libopencore-amrnb0:amd64 (0.1.6-1build1) ...
Setting up libwsutil15t64:amd64 (4.2.2-1.1build3) ...
Setting up libwiretap14t64:amd64 (4.2.2-1.1build3) ...
Setting up libwireshark17t64:amd64 (4.2.2-1.1build3) ...
Setting up wireshark-common (4.2.2-1.1build3) ...
Setting up tshark (4.2.2-1.1build3) ...
Processing triggers for hicolor-icon-theme (0.17-2) ...
Processing triggers for libc-bin (2.39-0ubuntu8.5) ...
Processing triggers for man-db (2.12.0-4build2) ...
Processing triggers for shared-mime-info (2.4-4) ...
ubuntuSniffer201924511@ubuntuSniffer:~$ dpkg --get-selections | grep -E "wireshark|net-tools|gcc|vim|ettercap"
k|net-tools|gcc|vim|ettercap"
ettercap-common                                install
ettercap-graphical                            install
gcc-13-base:amd64                             install
gcc-14-base:amd64                             install
libgcc-s1:amd64                               install
libwireshark-data                             install
libwireshark17t64:amd64                       install
net-tools                                     install
vim-common                                    install
vim-tiny                                       install
wireshark-common                              install
ubuntuSniffer201924511@ubuntuSniffer:~$

```

- `dpkg --get-selections | grep -E "wireshark|net-tools|gcc|vim|ettercap"`