
Ubuntu Desktop 22.04.4 - xrdp, xfce4, ibus-hangul (physical environment setting)

2024-08-09(금)

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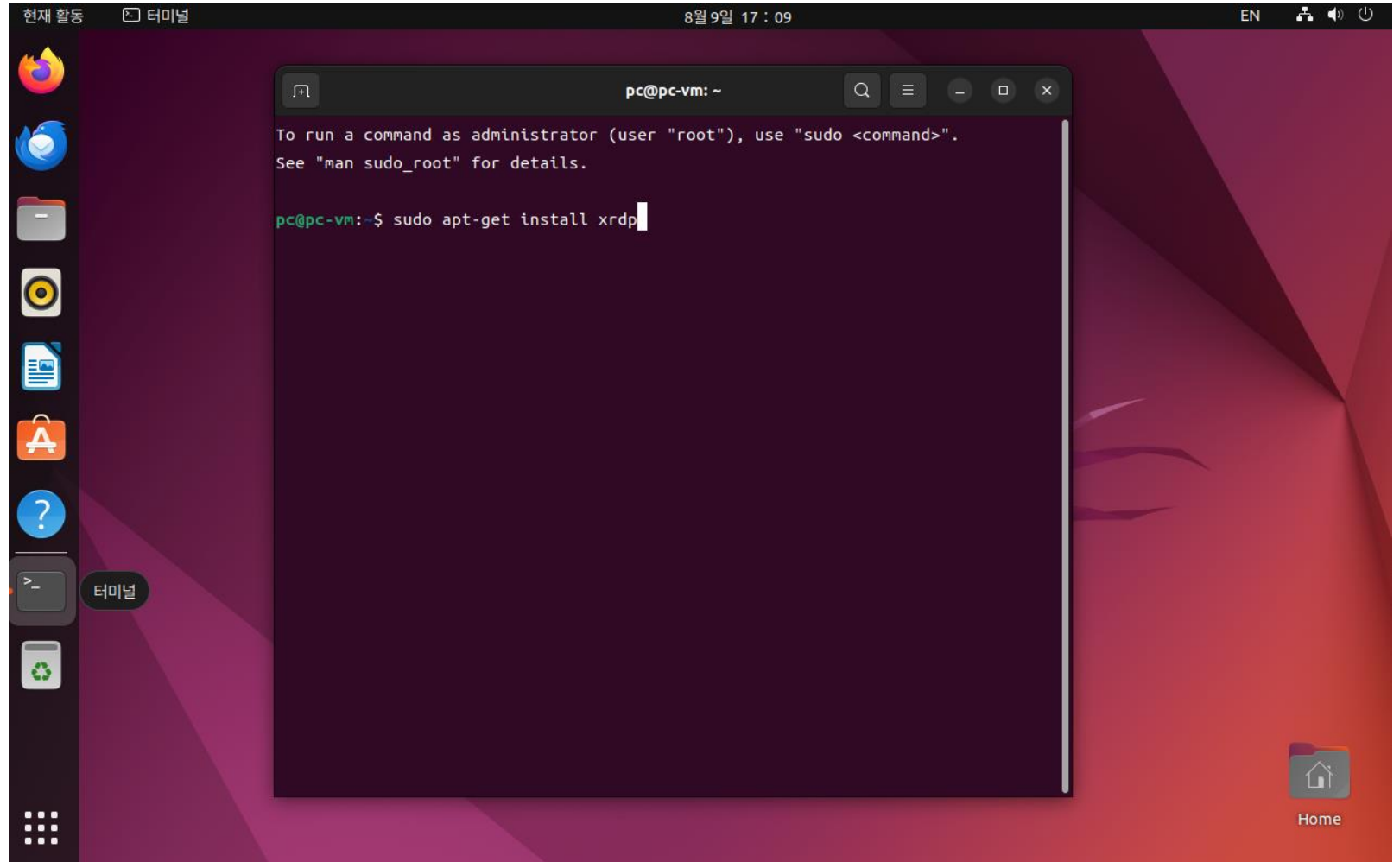
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- 23. 참고 자료

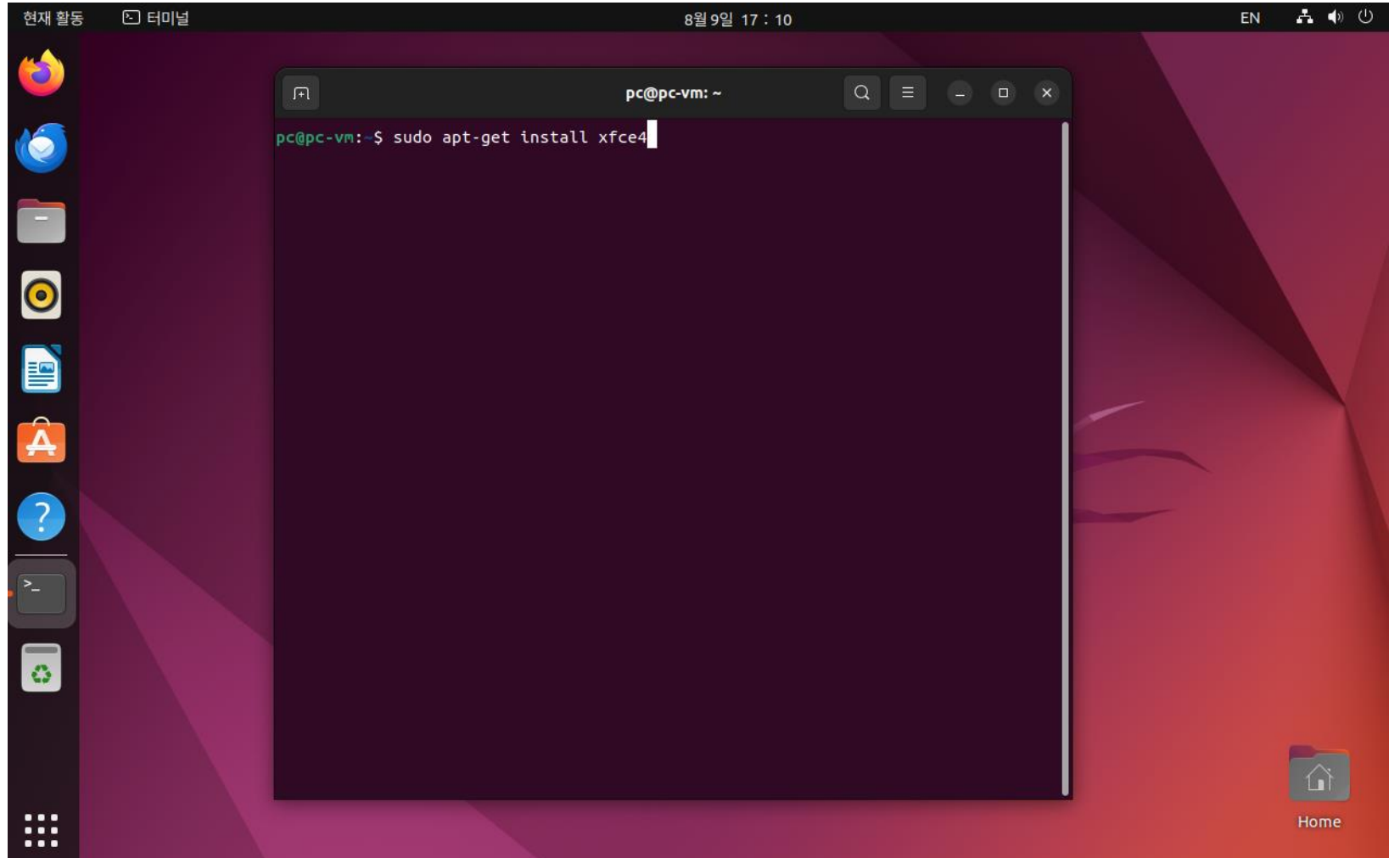
1. xrdp 설치

- `sudo apt-get install xrdp`



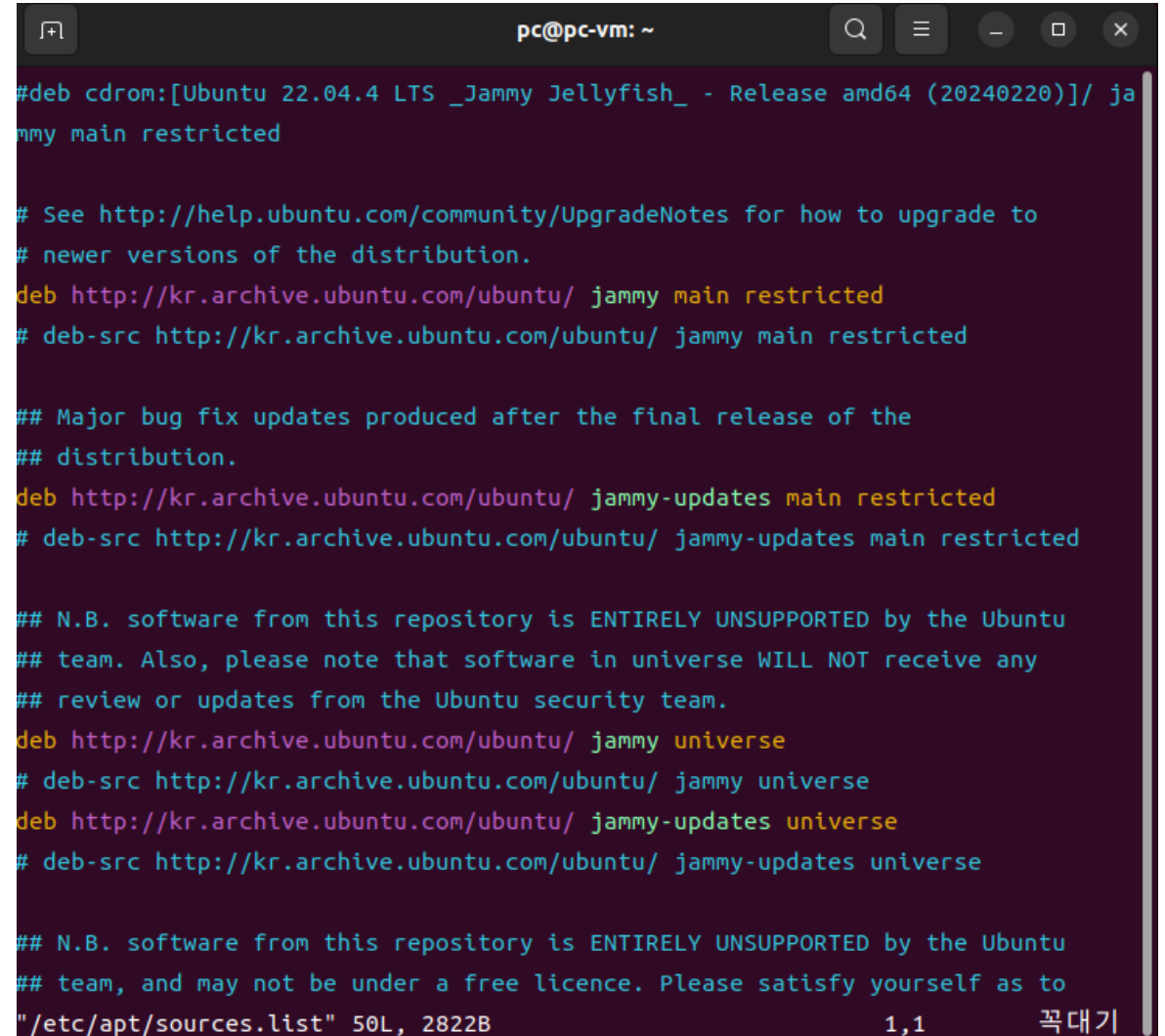
2. xfce4 설치

- `sudo apt-get install xfce4`



3. Mirror 사이트 바꾸기(국내: Kakao Mirror)

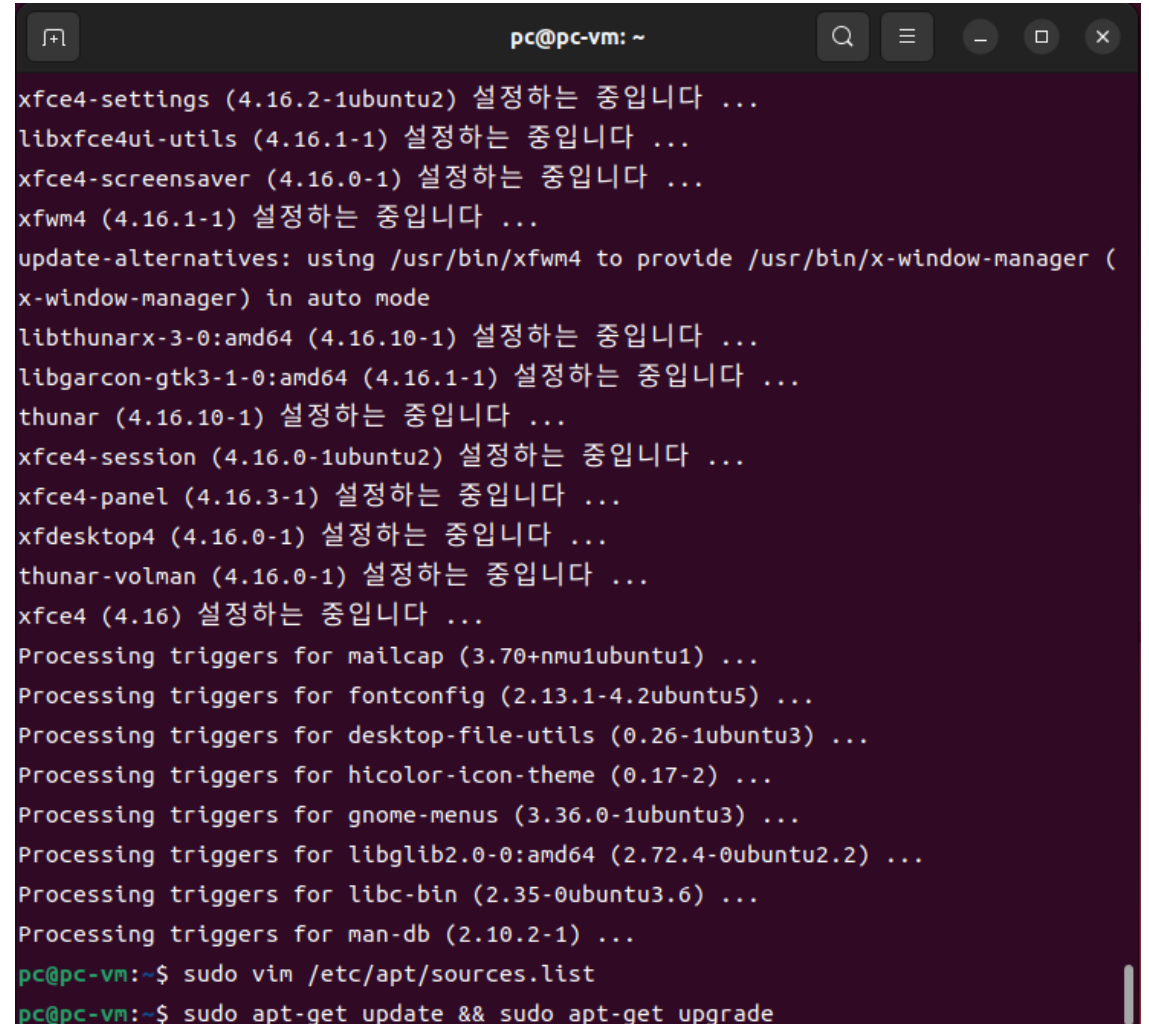
- `sudo vim /etc/apt/sources.list`
- 내용 변경
- `:%s/kr.archive.ubuntu.com/mirror.kakao.com`
- `:%s/security.ubuntu.com/mirror.kakao.com`
- `:wq`



```
pc@pc-vm: ~  
#deb cdrom:[Ubuntu 22.04.4 LTS _Jammy Jellyfish_ - Release amd64 (20240220)]/ jammy main restricted  
  
# See http://help.ubuntu.com/community/UpgradeNotes for how to upgrade to  
# newer versions of the distribution.  
deb http://kr.archive.ubuntu.com/ubuntu/ jammy main restricted  
# deb-src http://kr.archive.ubuntu.com/ubuntu/ jammy main restricted  
  
## Major bug fix updates produced after the final release of the  
## distribution.  
deb http://kr.archive.ubuntu.com/ubuntu/ jammy-updates main restricted  
# deb-src http://kr.archive.ubuntu.com/ubuntu/ jammy-updates main restricted  
  
## N.B. software from this repository is ENTIRELY UNSUPPORTED by the Ubuntu  
## team. Also, please note that software in universe WILL NOT receive any  
## review or updates from the Ubuntu security team.  
deb http://kr.archive.ubuntu.com/ubuntu/ jammy universe  
# deb-src http://kr.archive.ubuntu.com/ubuntu/ jammy universe  
deb http://kr.archive.ubuntu.com/ubuntu/ jammy-updates universe  
# deb-src http://kr.archive.ubuntu.com/ubuntu/ jammy-updates universe  
  
## N.B. software from this repository is ENTIRELY UNSUPPORTED by the Ubuntu  
## team, and may not be under a free licence. Please satisfy yourself as to  
"/etc/apt/sources.list" 50L, 2822B 1,1 꼭대기
```

3. Mirror 사이트 바꾸기(국내: Kakao Mirror)

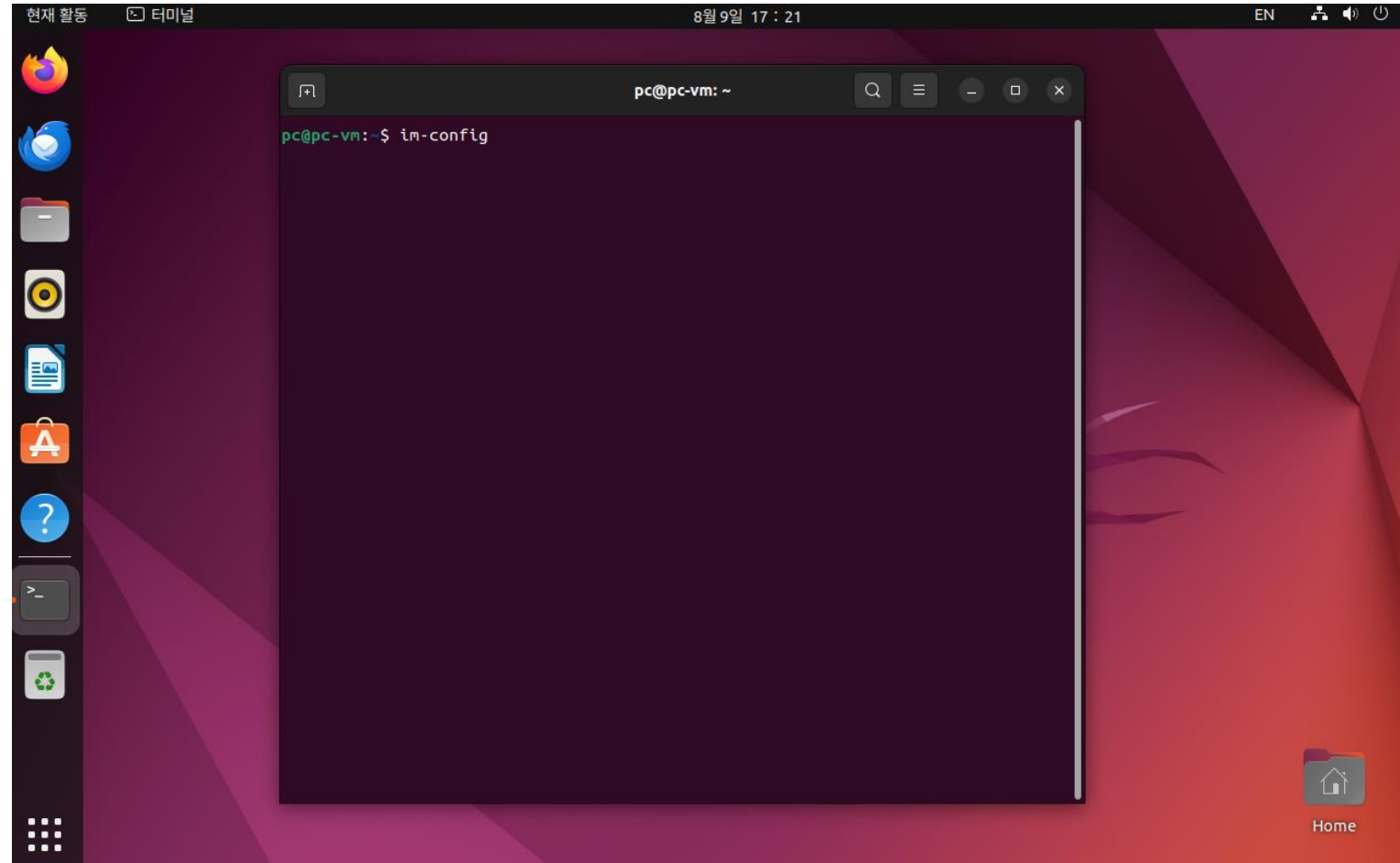
- `sudo apt-get update && sudo apt-get upgrade`
- Y 누르기



```
pc@pc-vm: ~  
xfce4-settings (4.16.2-1ubuntu2) 설정하는 중입니다 ...  
libxfce4ui-utils (4.16.1-1) 설정하는 중입니다 ...  
xfce4-screensaver (4.16.0-1) 설정하는 중입니다 ...  
xfwm4 (4.16.1-1) 설정하는 중입니다 ...  
update-alternatives: using /usr/bin/xfwm4 to provide /usr/bin/x-window-manager (  
x-window-manager) in auto mode  
libthunarx-3-0:amd64 (4.16.10-1) 설정하는 중입니다 ...  
libgarcon-gtk3-1-0:amd64 (4.16.1-1) 설정하는 중입니다 ...  
thunar (4.16.10-1) 설정하는 중입니다 ...  
xfce4-session (4.16.0-1ubuntu2) 설정하는 중입니다 ...  
xfce4-panel (4.16.3-1) 설정하는 중입니다 ...  
xfdesktop4 (4.16.0-1) 설정하는 중입니다 ...  
thunar-volman (4.16.0-1) 설정하는 중입니다 ...  
xfce4 (4.16) 설정하는 중입니다 ...  
Processing triggers for mailcap (3.70+nmu1ubuntu1) ...  
Processing triggers for fontconfig (2.13.1-4.2ubuntu5) ...  
Processing triggers for desktop-file-utils (0.26-1ubuntu3) ...  
Processing triggers for hicolor-icon-theme (0.17-2) ...  
Processing triggers for gnome-menus (3.36.0-1ubuntu3) ...  
Processing triggers for libglib2.0-0:amd64 (2.72.4-0ubuntu2.2) ...  
Processing triggers for libc-bin (2.35-0ubuntu3.6) ...  
Processing triggers for man-db (2.10.2-1) ...  
pc@pc-vm:~$ sudo vim /etc/apt/sources.list  
pc@pc-vm:~$ sudo apt-get update && sudo apt-get upgrade
```

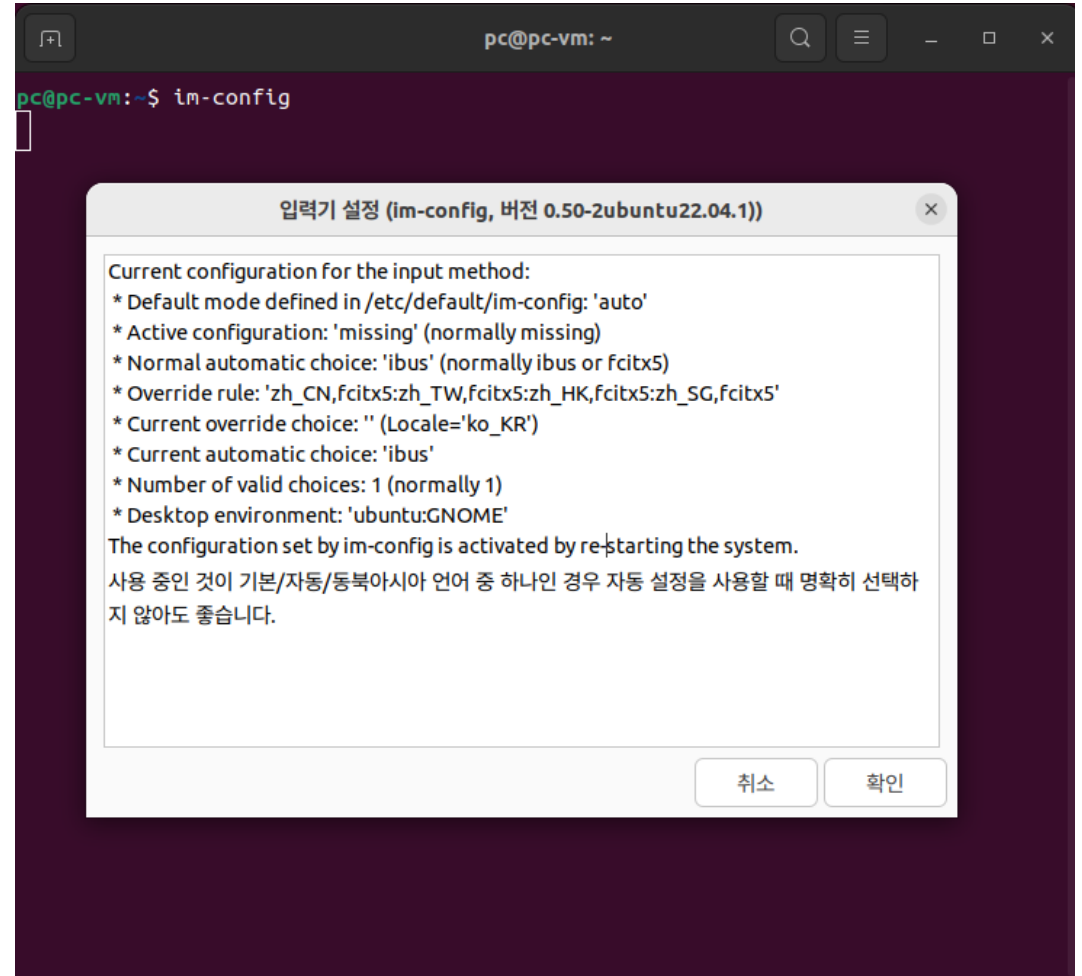
4. im-config 설정하기

- im-config



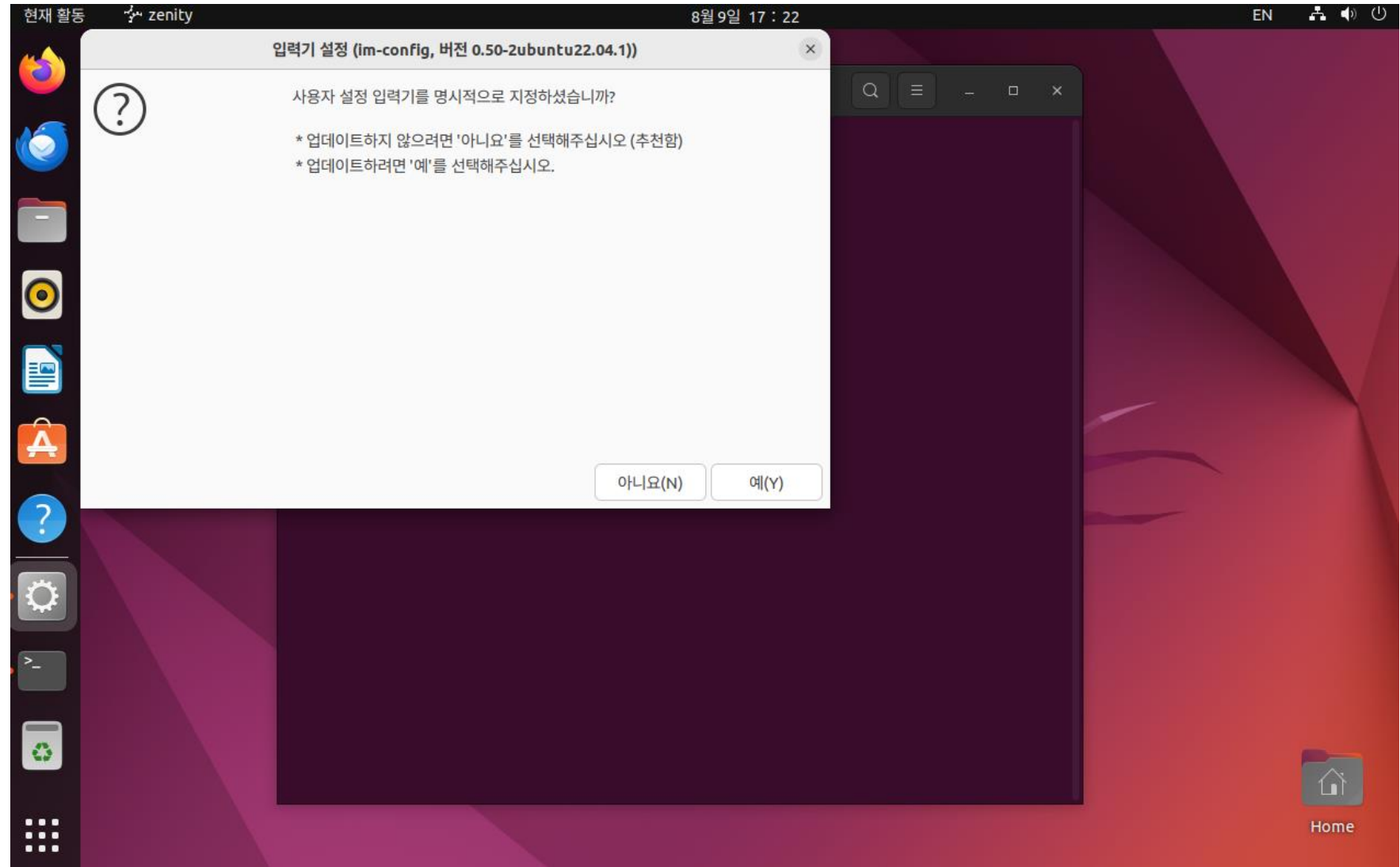
4. im-config 설정하기

- “확인” 클릭



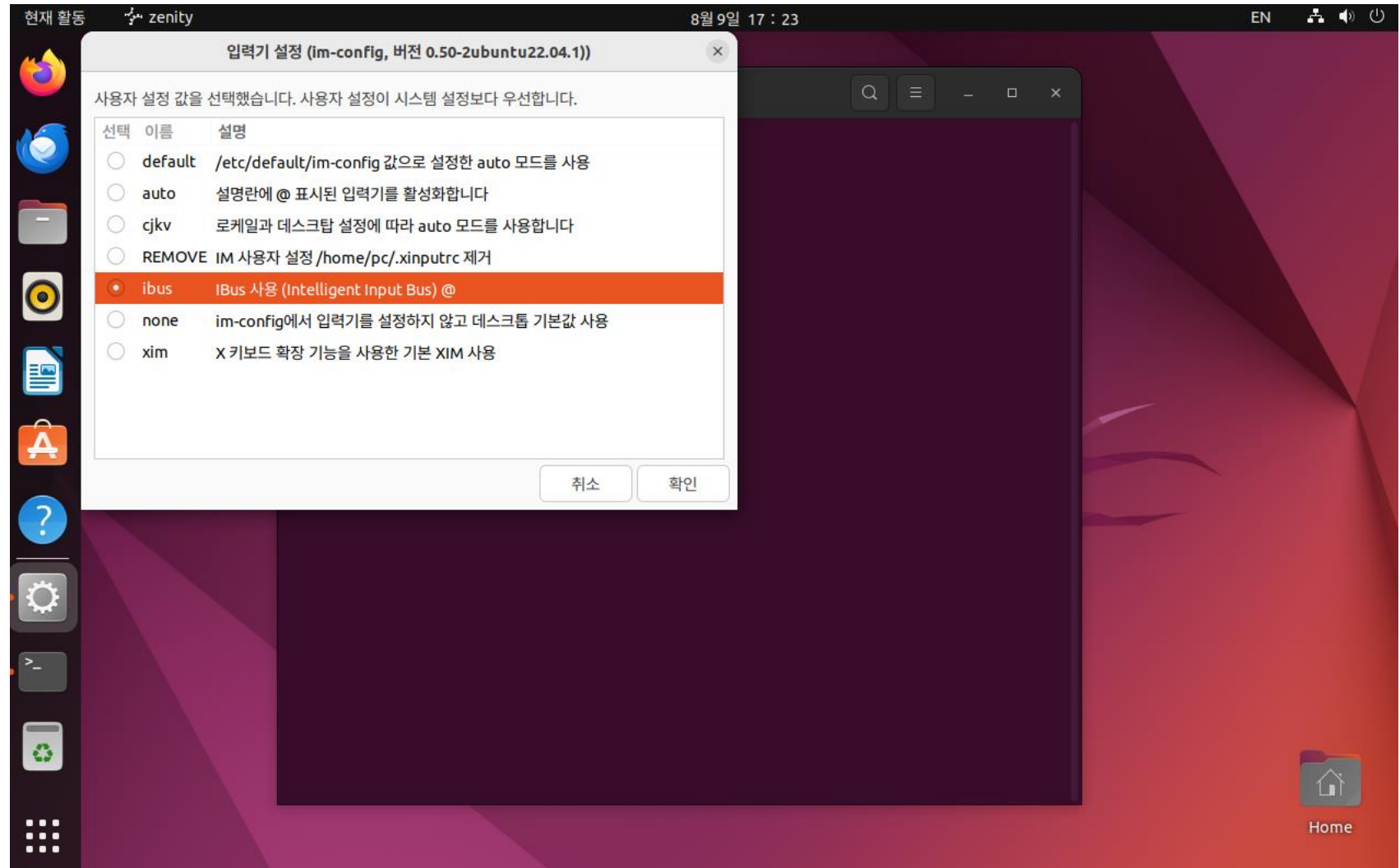
4. im-config 설정하기

- “예” 클릭



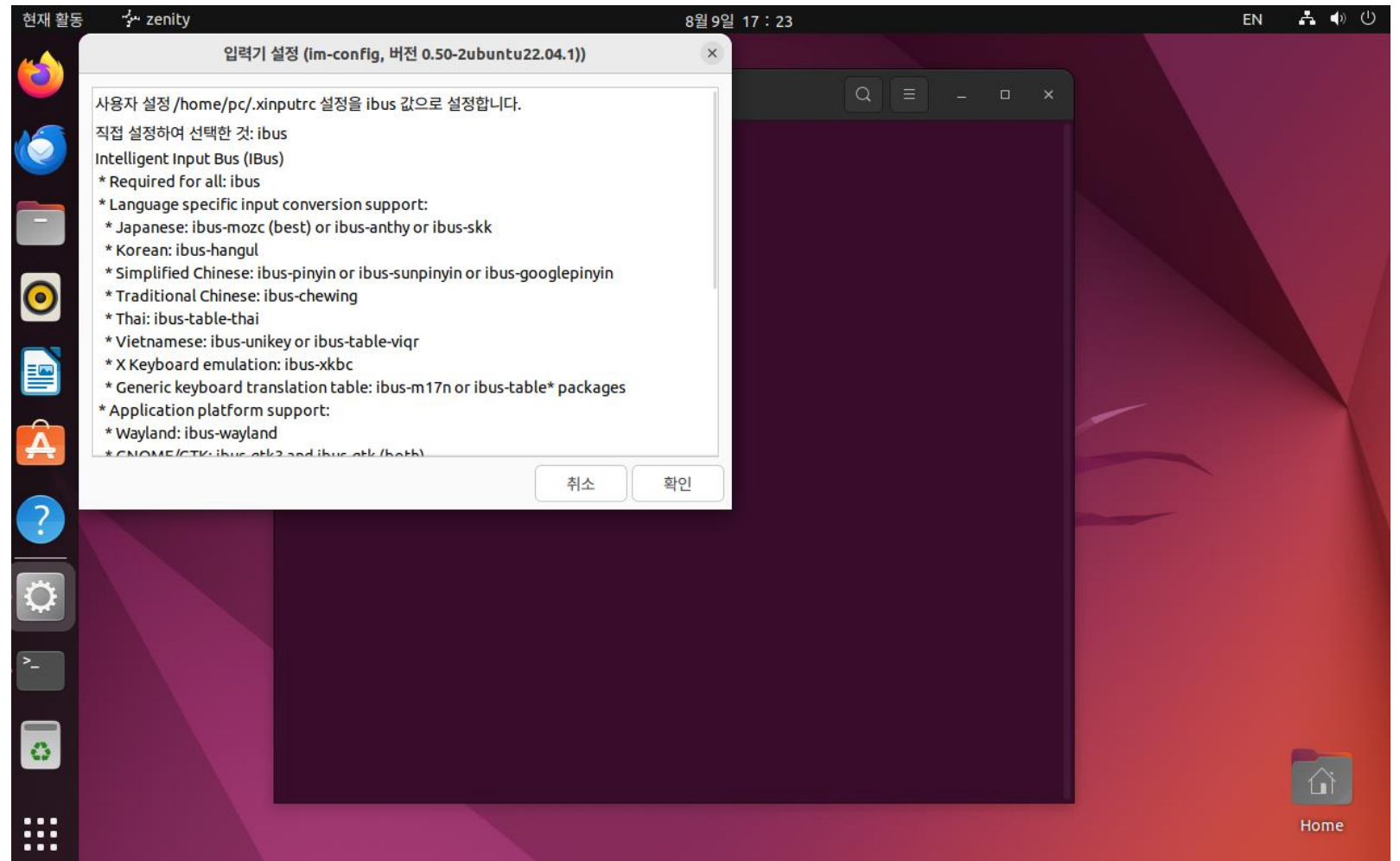
4. im-config 설정하기

- “ibus” 클릭



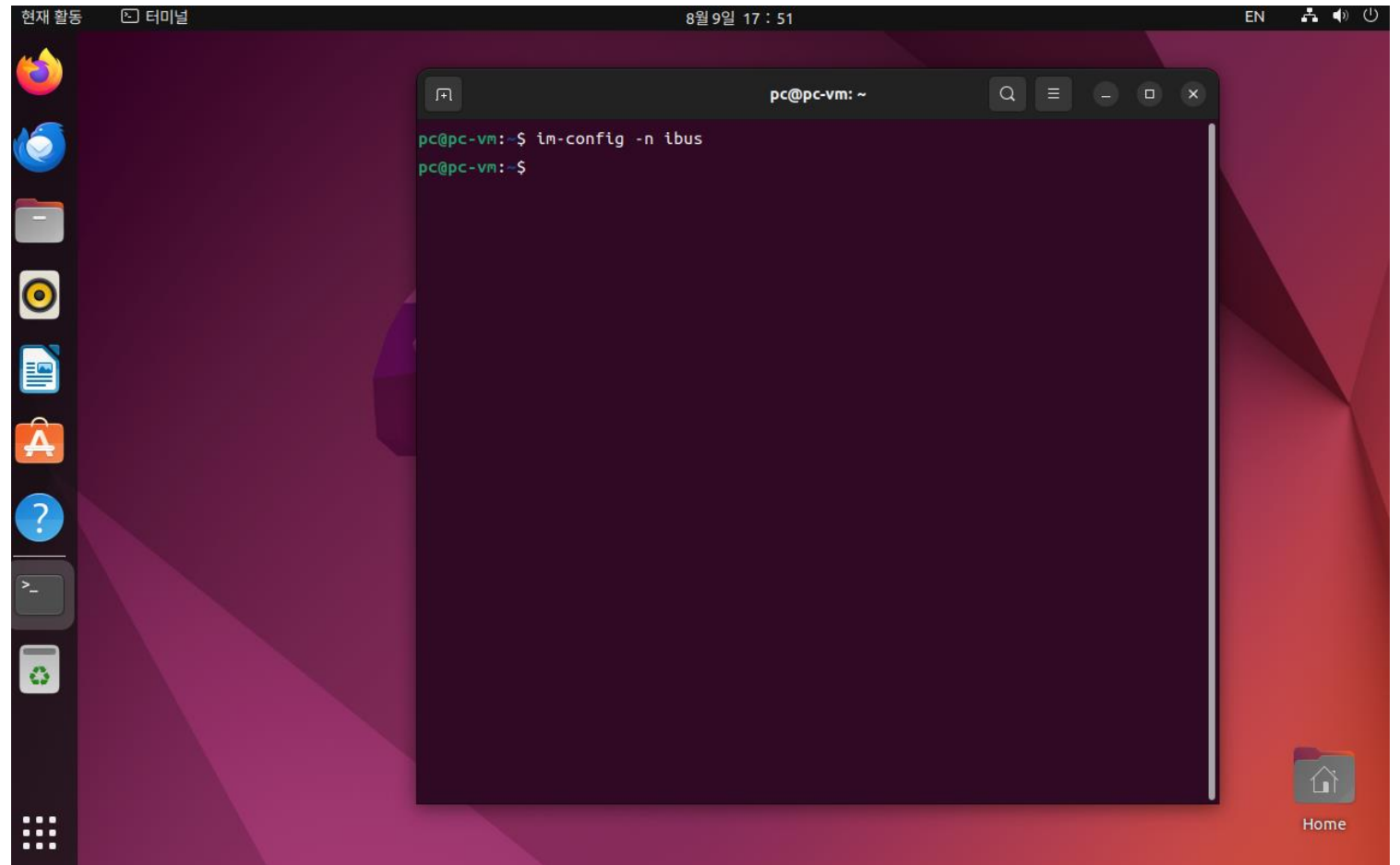
4. im-config 설정하기

- “확인” 클릭



5. im-config - 부팅시 자동으로 ibus 데몬을 실행하기

- `im-config -n ibus`



6. Vim(Vi) - .bashrc 편집하기

- vim ~/.bashrc

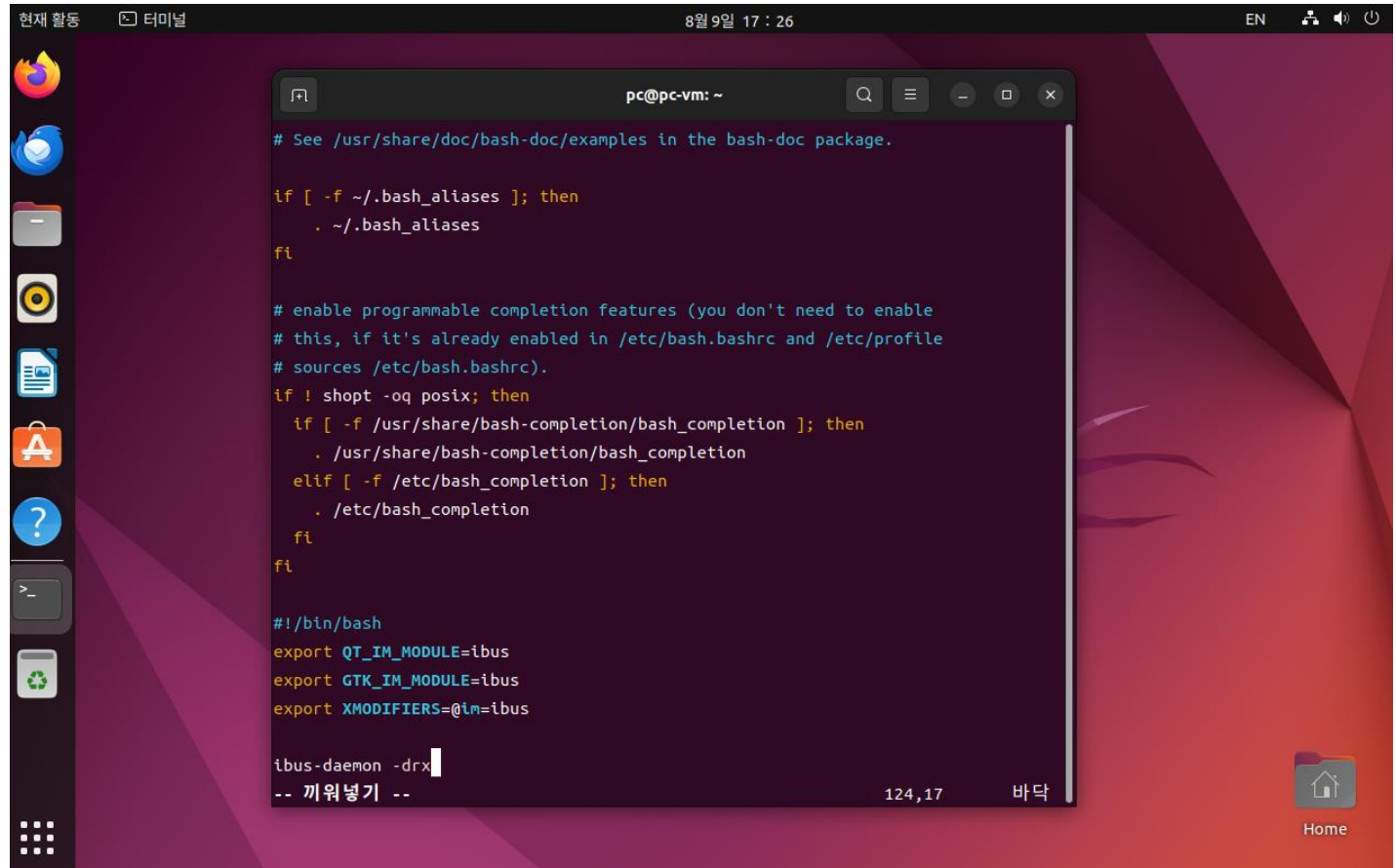
```
#!/bin/bash
```

```
export QT_IM_MODULE=ibus
```

```
export GTK_IM_MODULE=ibus
```

```
export XMODIFIERS=@im=ibus
```

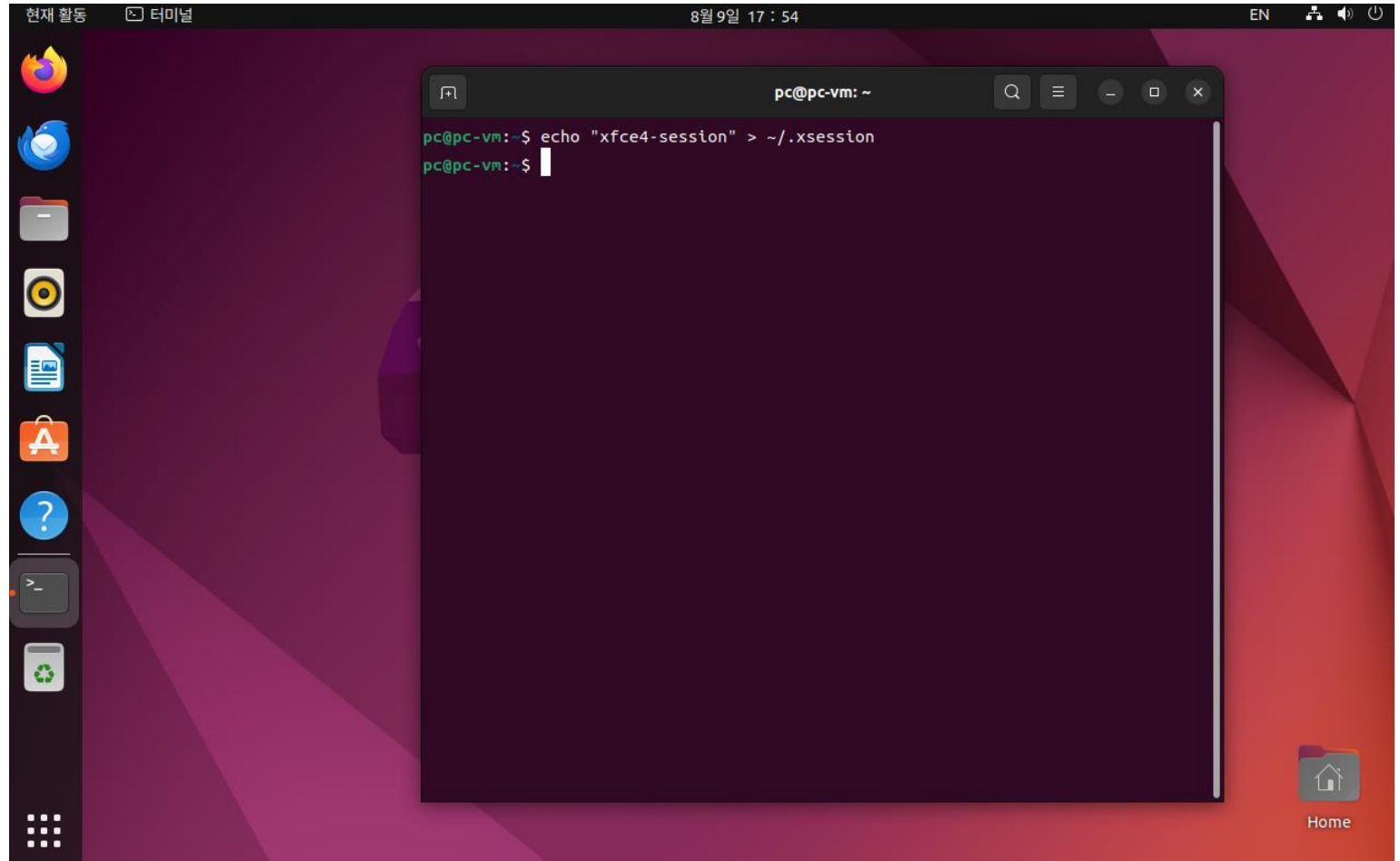
```
ibus-daemon -drx
```



```
pc@pc-vm: ~  
# See /usr/share/doc/bash-doc/examples in the bash-doc package.  
  
if [ -f ~/.bash_aliases ]; then  
    . ~/.bash_aliases  
fi  
  
# enable programmable completion features (you don't need to enable  
# this, if it's already enabled in /etc/bash.bashrc and /etc/profile  
# sources /etc/bash.bashrc).  
if ! shopt -oq posix; then  
    if [ -f /usr/share/bash-completion/bash_completion ]; then  
        . /usr/share/bash-completion/bash_completion  
    elif [ -f /etc/bash_completion ]; then  
        . /etc/bash_completion  
    fi  
fi  
  
#!/bin/bash  
export QT_IM_MODULE=ibus  
export GTK_IM_MODULE=ibus  
export XMODIFIERS=@im=ibus  
  
ibus-daemon -drx  
-- 끼워넣기 --
```

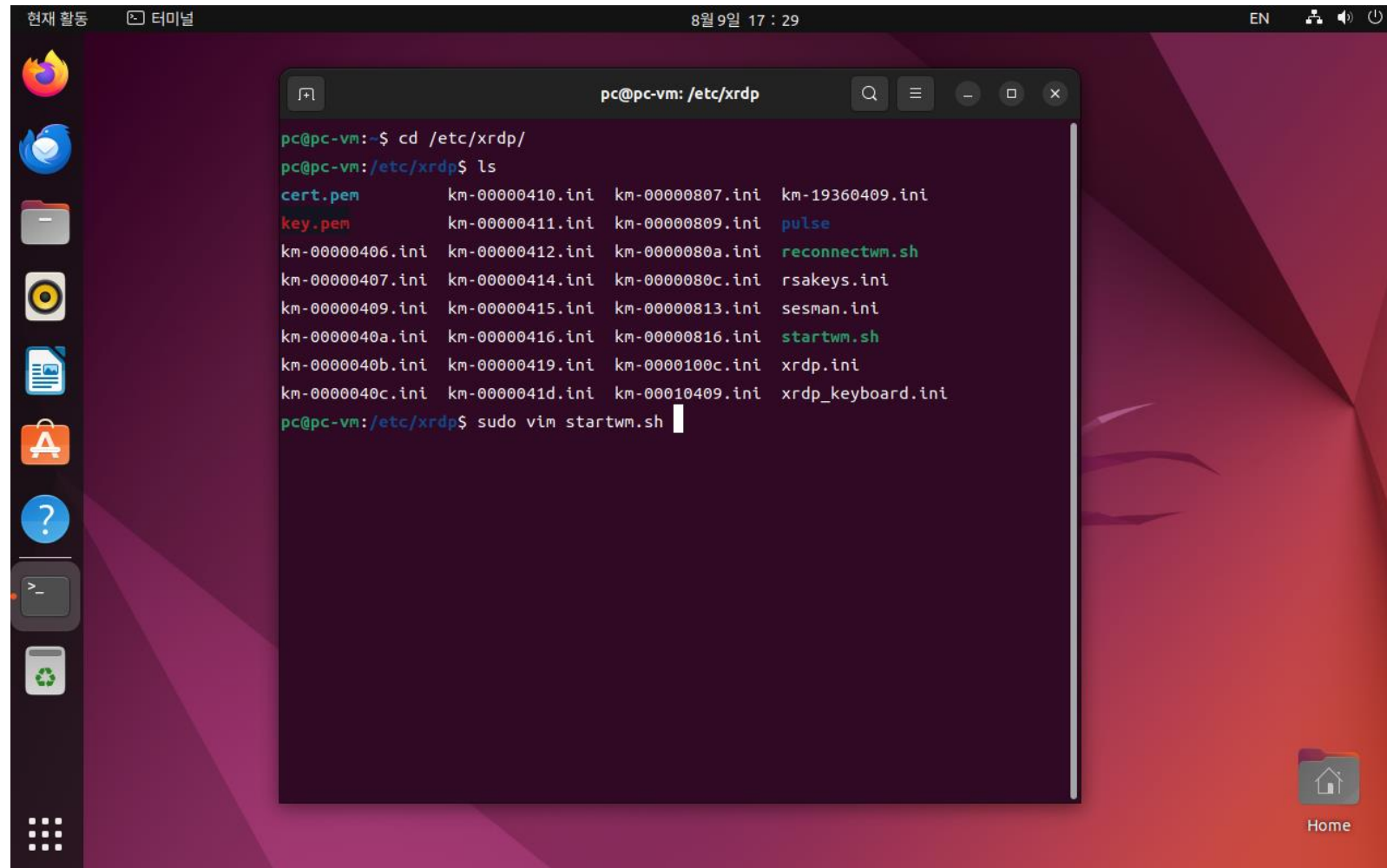
7. xfce4의 “Gnome” 환경으로 연결(홈 디렉터리)

- `echo "xfce4-session" > ~/.xsession`



8. Vim(Vi) - /etc/xrdp/startwm.sh 편집하기

- `cd /etc/xrdp`
- `ls`
- `sudo vim startwm.sh`



The screenshot shows a Linux desktop with a dark theme. A terminal window is open, displaying the following commands and output:

```
pc@pc-vm: /etc/xrdp
pc@pc-vm:~$ cd /etc/xrdp/
pc@pc-vm: /etc/xrdp$ ls
cert.pem      km-00000410.ini  km-00000807.ini  km-19360409.ini
key.pem       km-00000411.ini  km-00000809.ini  pulse
km-00000406.ini km-00000412.ini  km-0000080a.ini  reconnectwm.sh
km-00000407.ini km-00000414.ini  km-0000080c.ini  rsakeys.ini
km-00000409.ini km-00000415.ini  km-00000813.ini  sesman.ini
km-0000040a.ini km-00000416.ini  km-00000816.ini  startwm.sh
km-0000040b.ini km-00000419.ini  km-000100c.ini   xrdp.ini
km-0000040c.ini km-0000041d.ini  km-00010409.ini  xrdp_keyboard.ini
pc@pc-vm: /etc/xrdp$ sudo vim startwm.sh
```

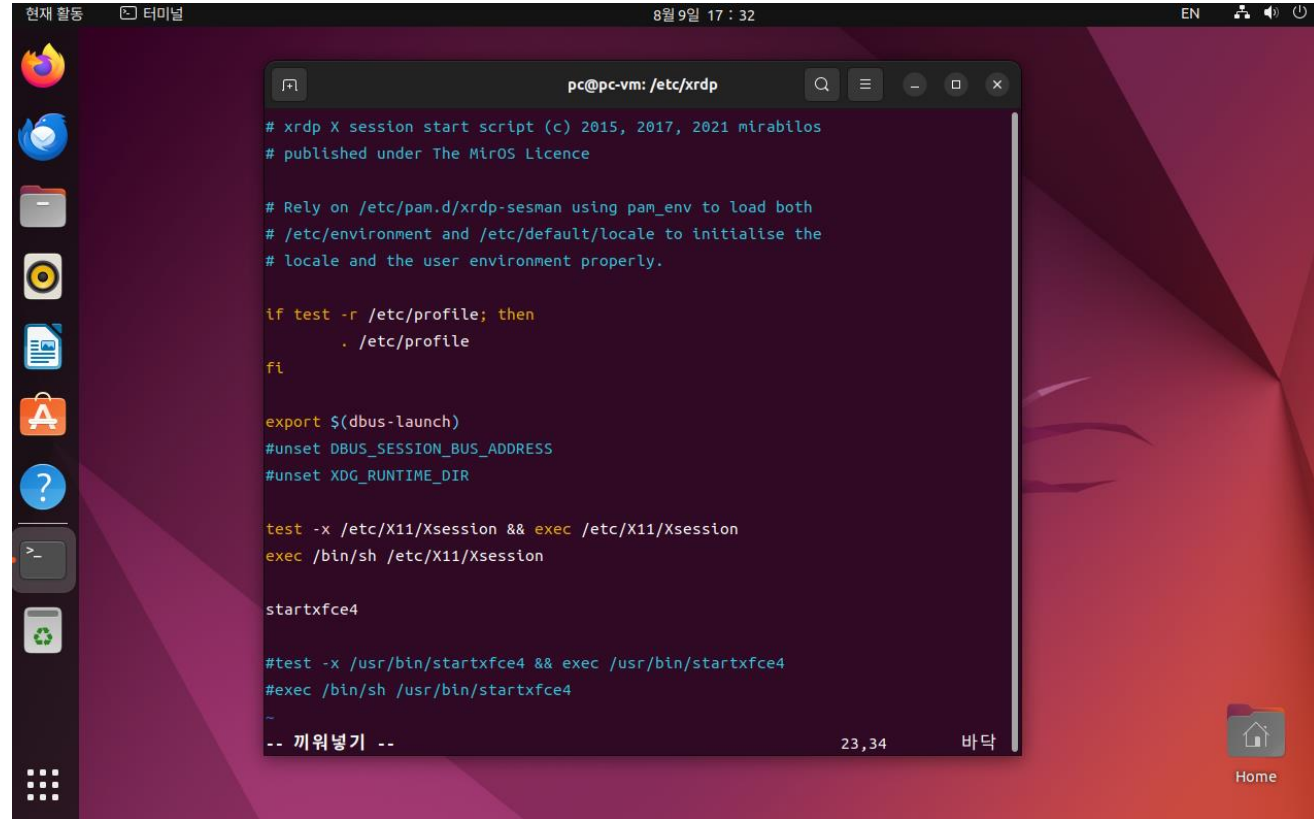

8. Vim(Vi) - /etc/xrdp/startwm.sh 편집하기

```
export $(dbus-launch)
#unset DBUS_SESSION_BUS_ADDRESS
#unset XDG_RUNTIME_DIR

test -x /etc/X11/Xsession && exec /etc/X11/Xsession
exec /bin/sh /etc/X11/Xsession

startxfce4

#test -x /usr/bin/startxfce4 && exec /usr/bin/startxfce4
#exec /bin/sh /usr/bin/startxfce4
```



8. Vim(Vi) - /etc/xrdp/startwm.sh 편집하기

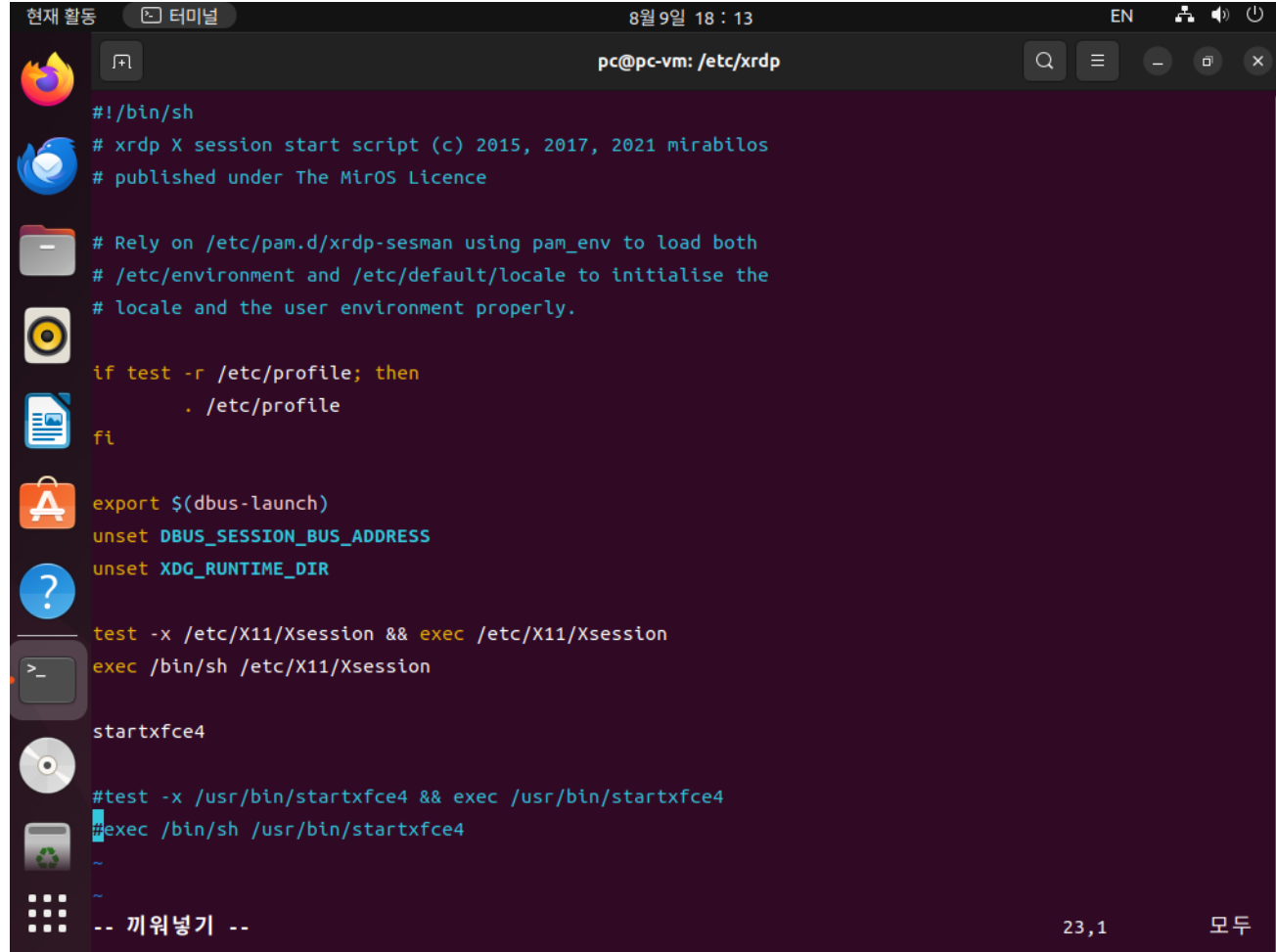
원격데스크톱 연결에서 검은색 화면으로 튕기면 다시 편집할 것

```
export $(dbus-launch)
unset DBUS_SESSION_BUS_ADDRESS
unset XDG_RUNTIME_DIR
```

```
test -x /etc/X11/Xsession && exec /etc/X11/Xsession
exec /bin/sh /etc/X11/Xsession
```

```
startxfce4
```

```
#test -x /usr/bin/startxfce4 && exec /usr/bin/startxfce4
#exec /bin/sh /usr/bin/startxfce4
```



```
#!/bin/sh
# xrdp X session start script (c) 2015, 2017, 2021 mirabilos
# published under The MirOS Licence

# Rely on /etc/pam.d/xrdp-sesman using pam_env to load both
# /etc/environment and /etc/default/locale to initialise the
# locale and the user environment properly.

if test -r /etc/profile; then
    . /etc/profile
fi

export $(dbus-launch)
unset DBUS_SESSION_BUS_ADDRESS
unset XDG_RUNTIME_DIR

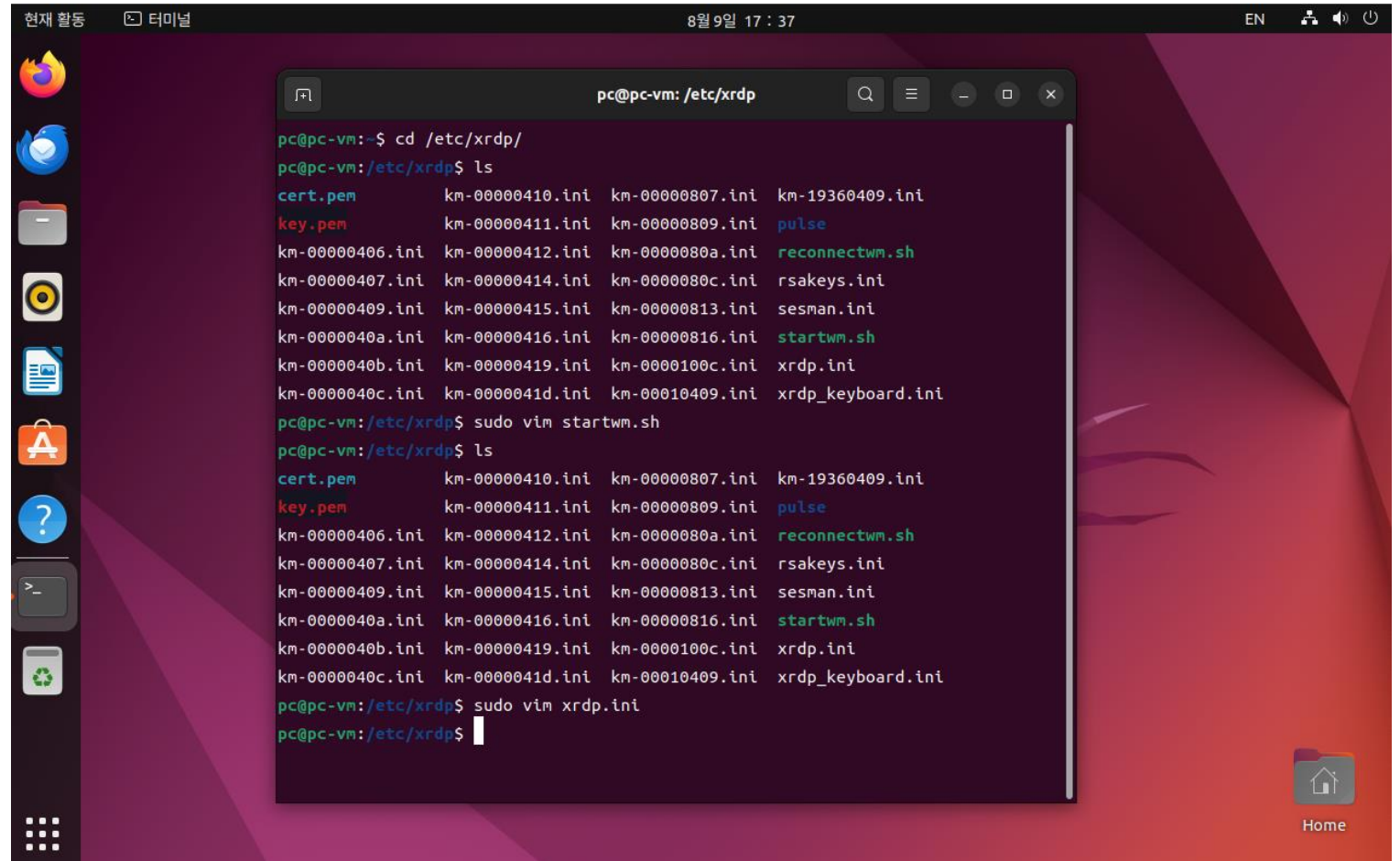
test -x /etc/X11/Xsession && exec /etc/X11/Xsession
exec /bin/sh /etc/X11/Xsession

startxfce4

#test -x /usr/bin/startxfce4 && exec /usr/bin/startxfce4
#exec /bin/sh /usr/bin/startxfce4
```

9. Vim(Vi) - /etc/xrdp/xrdp.ini 포트 편집하기

```
sudo vim /etc/xrdp/xrdp.ini
```



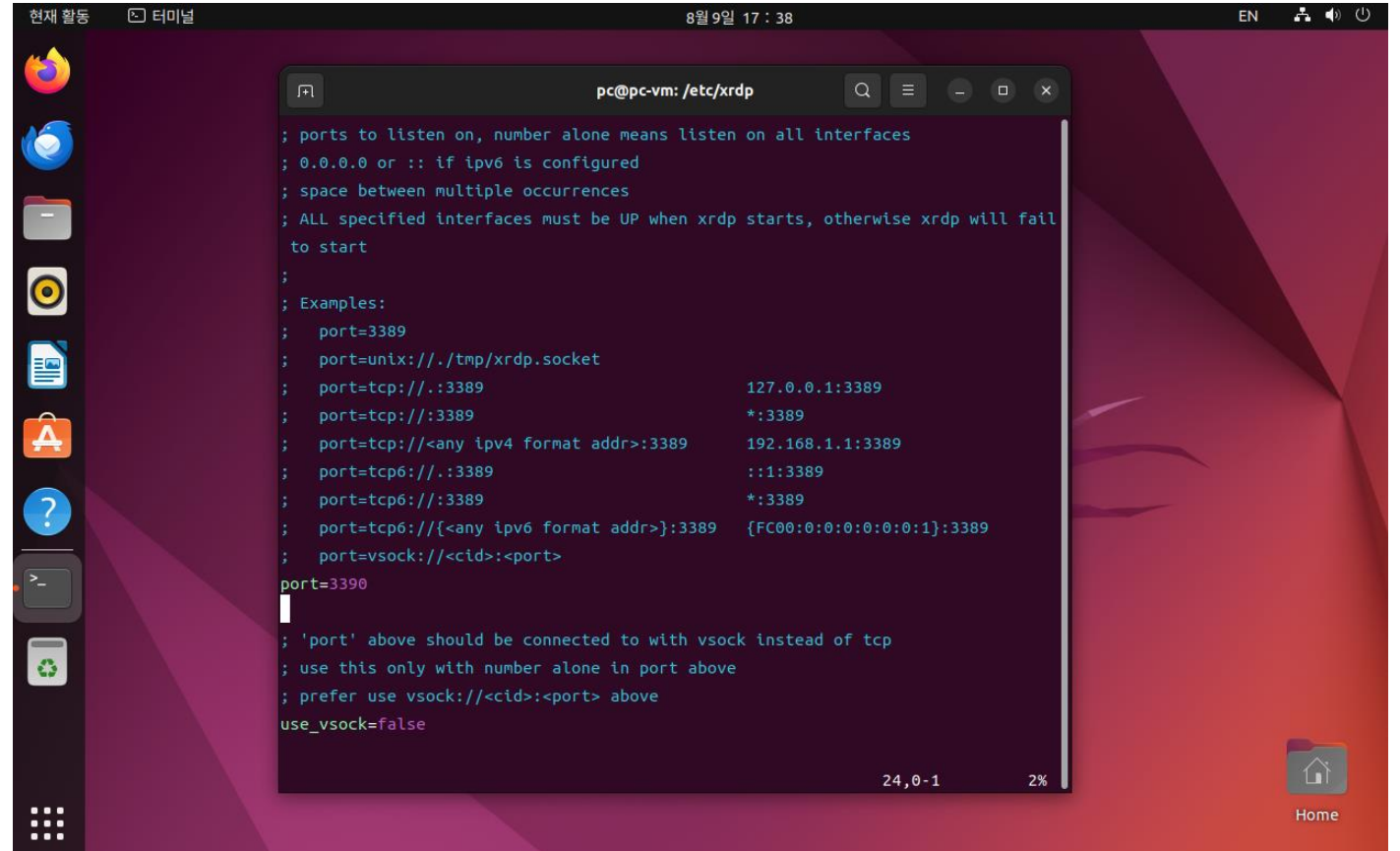
```
pc@pc-vm: /etc/xrdp
8월 9일 17 : 37
EN

pc@pc-vm:~$ cd /etc/xrdp/
pc@pc-vm:/etc/xrdp$ ls
cert.pem          km-00000410.ini  km-00000807.ini  km-19360409.ini
key.pem           km-00000411.ini  km-00000809.ini  pulse
km-00000406.ini   km-00000412.ini  km-0000080a.ini  reconnectwm.sh
km-00000407.ini   km-00000414.ini  km-0000080c.ini  rsakeys.ini
km-00000409.ini   km-00000415.ini  km-00000813.ini  sesman.ini
km-0000040a.ini   km-00000416.ini  km-00000816.ini  startwm.sh
km-0000040b.ini   km-00000419.ini  km-0000100c.ini  xrdp.ini
km-0000040c.ini   km-0000041d.ini  km-00010409.ini  xrdp_keyboard.ini
pc@pc-vm:/etc/xrdp$ sudo vim startwm.sh
pc@pc-vm:/etc/xrdp$ ls
cert.pem          km-00000410.ini  km-00000807.ini  km-19360409.ini
key.pem           km-00000411.ini  km-00000809.ini  pulse
km-00000406.ini   km-00000412.ini  km-0000080a.ini  reconnectwm.sh
km-00000407.ini   km-00000414.ini  km-0000080c.ini  rsakeys.ini
km-00000409.ini   km-00000415.ini  km-00000813.ini  sesman.ini
km-0000040a.ini   km-00000416.ini  km-00000816.ini  startwm.sh
km-0000040b.ini   km-00000419.ini  km-0000100c.ini  xrdp.ini
km-0000040c.ini   km-0000041d.ini  km-00010409.ini  xrdp_keyboard.ini
pc@pc-vm:/etc/xrdp$ sudo vim xrdp.ini
pc@pc-vm:/etc/xrdp$
```

9. Vim(Vi) - /etc/xrdp/xrdp.ini 포트 편집하기

port=3390

포트 변경

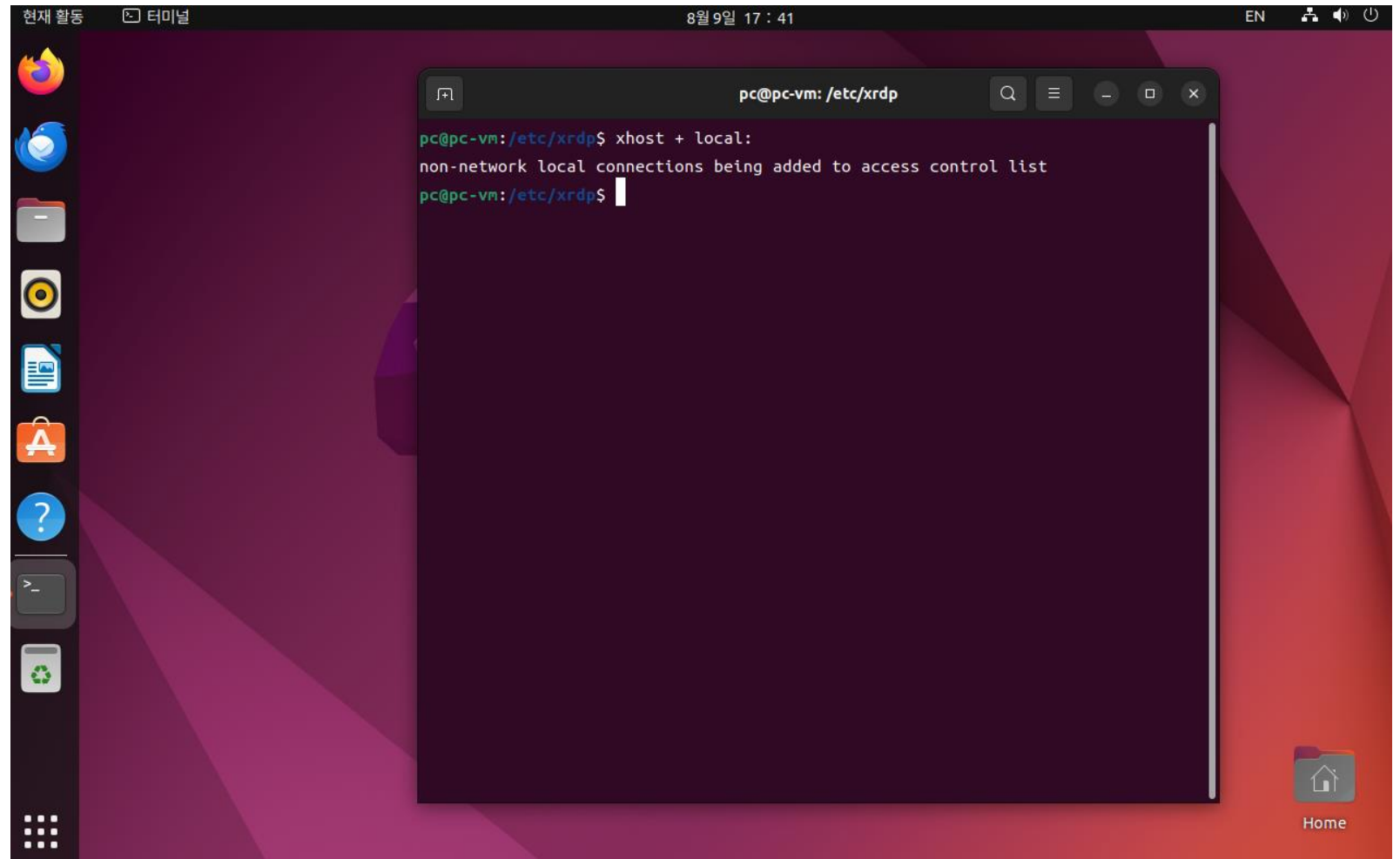


```
pc@pc-vm: /etc/xrdp
; ports to listen on, number alone means listen on all interfaces
; 0.0.0.0 or :: if ipv6 is configured
; space between multiple occurrences
; ALL specified interfaces must be UP when xrdp starts, otherwise xrdp will fail
; to start
;
; Examples:
;   port=3389
;   port=unix://./tmp/xrdp.socket
;   port=tcp://.:3389                127.0.0.1:3389
;   port=tcp://:3389                *:3389
;   port=tcp://<any ipv4 format addr>:3389  192.168.1.1:3389
;   port=tcp6://.:3389              :::3389
;   port=tcp6://:3389               *:3389
;   port=tcp6://{<any ipv6 format addr>}:3389 {FC00:0:0:0:0:0:1}:3389
;   port=vsock://<cid>:<port>
port=3390
; 'port' above should be connected to with vsock instead of tcp
; use this only with number alone in port above
; prefer use vsock://<cid>:<port> above
use_vsock=false

24,0-1 2%
```

10. Authorization required, but no authorization protocol specified 문제 - 해결 방법

xhost + local:

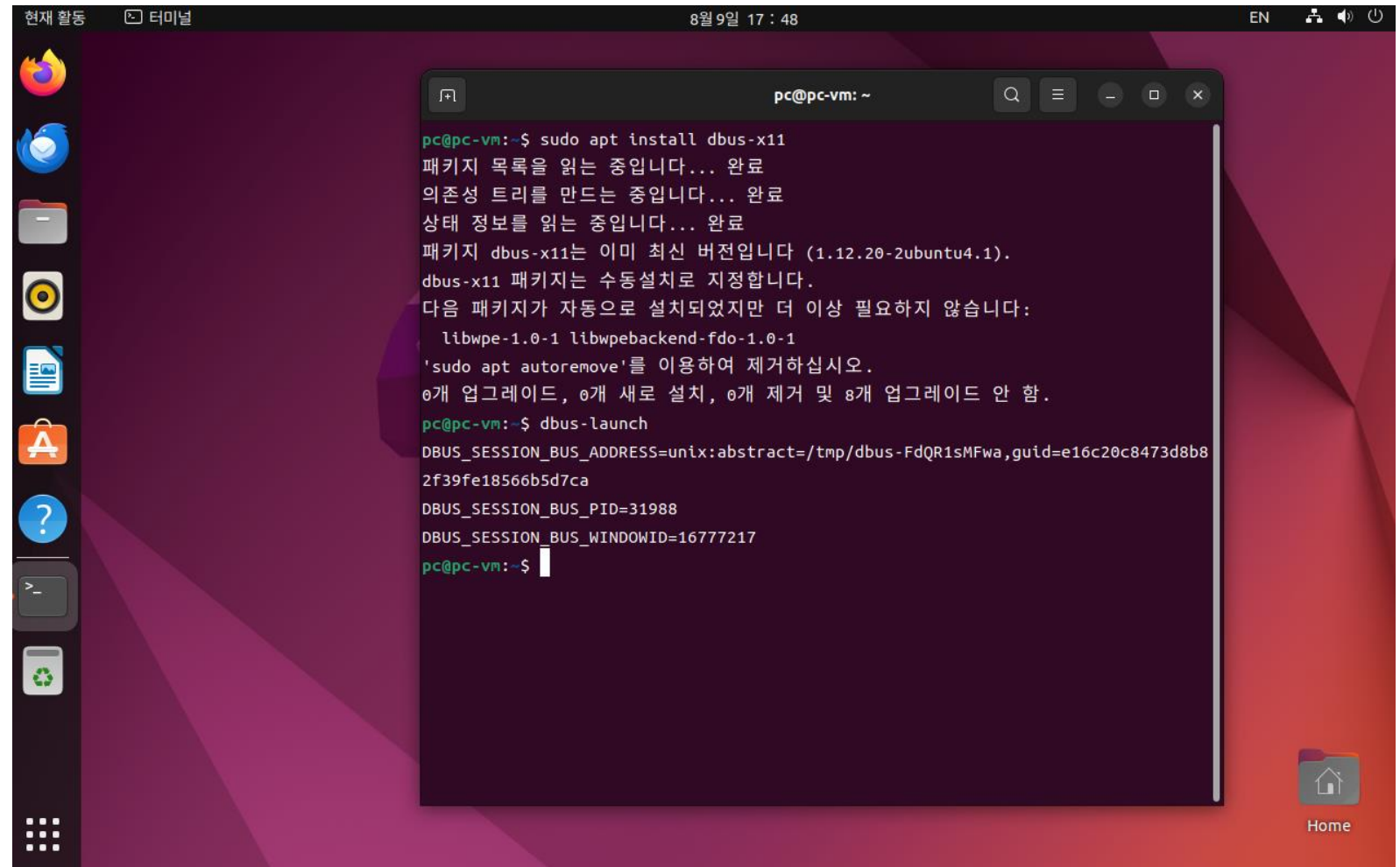


The screenshot shows a Linux desktop with a dark theme. A terminal window is open, displaying the command `xhost + local:` and its output: `non-network local connections being added to access control list`. The terminal window title is `pc@pc-vm: /etc/xrdp`. The desktop background is a red and purple geometric pattern. A sidebar on the left contains various application icons, and a 'Home' button is visible in the bottom right corner.

```
pc@pc-vm: /etc/xrdp
pc@pc-vm:/etc/xrdp$ xhost + local:
non-network local connections being added to access control list
pc@pc-vm:/etc/xrdp$
```

11. dbus-x11 설치 후 실행하기

```
sudo apt install dbus-x11  
dbus-launch
```

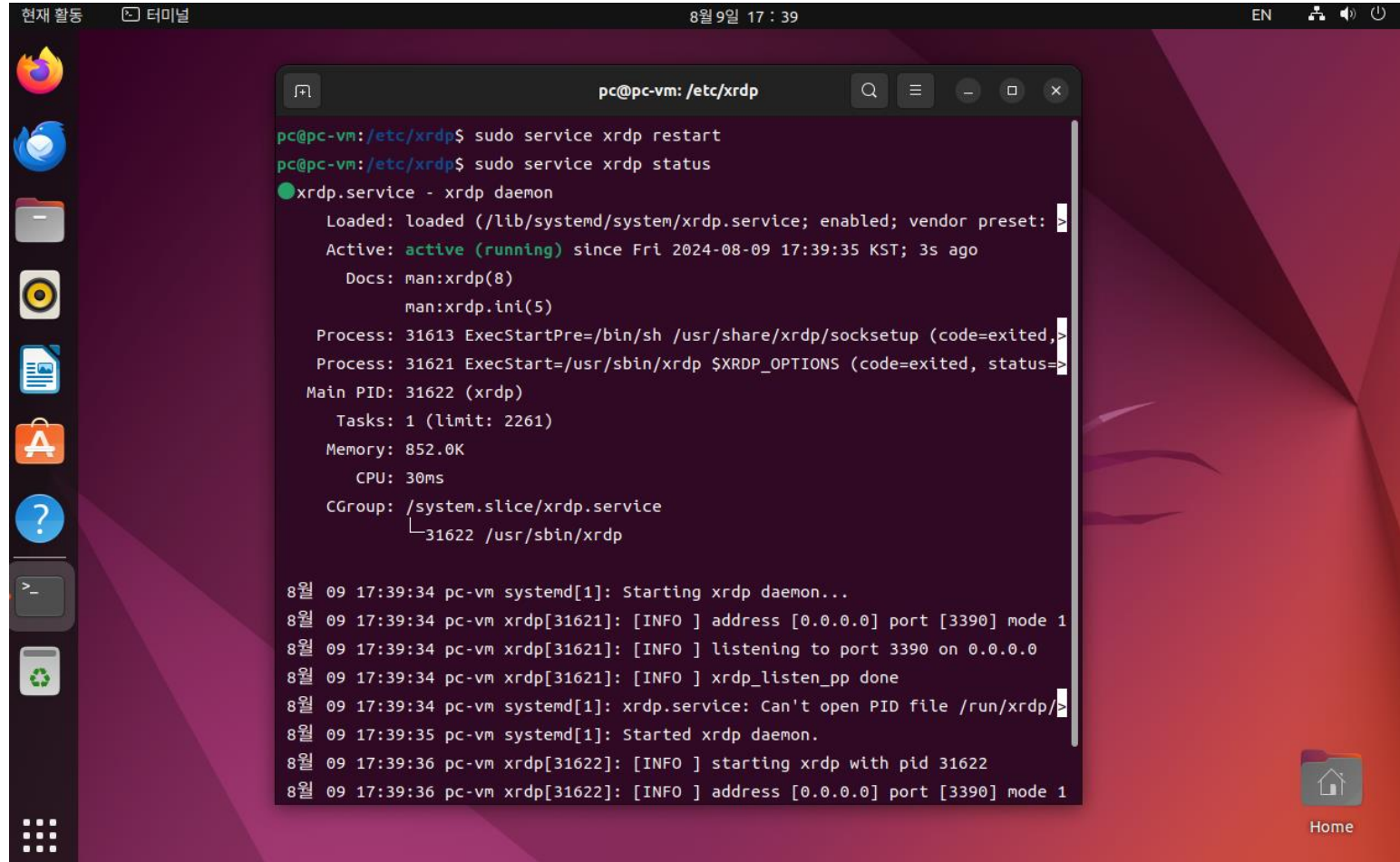


The screenshot shows a terminal window titled 'pc@pc-vm: ~' with the following output:

```
pc@pc-vm:~$ sudo apt install dbus-x11  
패키지 목록을 읽는 중입니다... 완료  
의존성 트리를 만드는 중입니다... 완료  
상태 정보를 읽는 중입니다... 완료  
패키지 dbus-x11는 이미 최신 버전입니다 (1.12.20-2ubuntu4.1).  
dbus-x11 패키지는 수동설치로 지정합니다.  
다음 패키지가 자동으로 설치되었지만 더 이상 필요하지 않습니다:  
  libwpe-1.0-1 libwpebackend-fdo-1.0-1  
'sudo apt autoremove'를 이용하여 제거하십시오.  
0개 업그레이드, 0개 새로 설치, 0개 제거 및 8개 업그레이드 안 함.  
pc@pc-vm:~$ dbus-launch  
DBUS_SESSION_BUS_ADDRESS=unix:abstract=/tmp/dbus-FdQR1sMFwa,guid=e16c20c8473d8b8  
2f39fe18566b5d7ca  
DBUS_SESSION_BUS_PID=31988  
DBUS_SESSION_BUS_WINDOWID=16777217  
pc@pc-vm:~$
```


12. xrdp 서비스 재시작

```
sudo service xrdp restart  
sudo service xrdp status
```

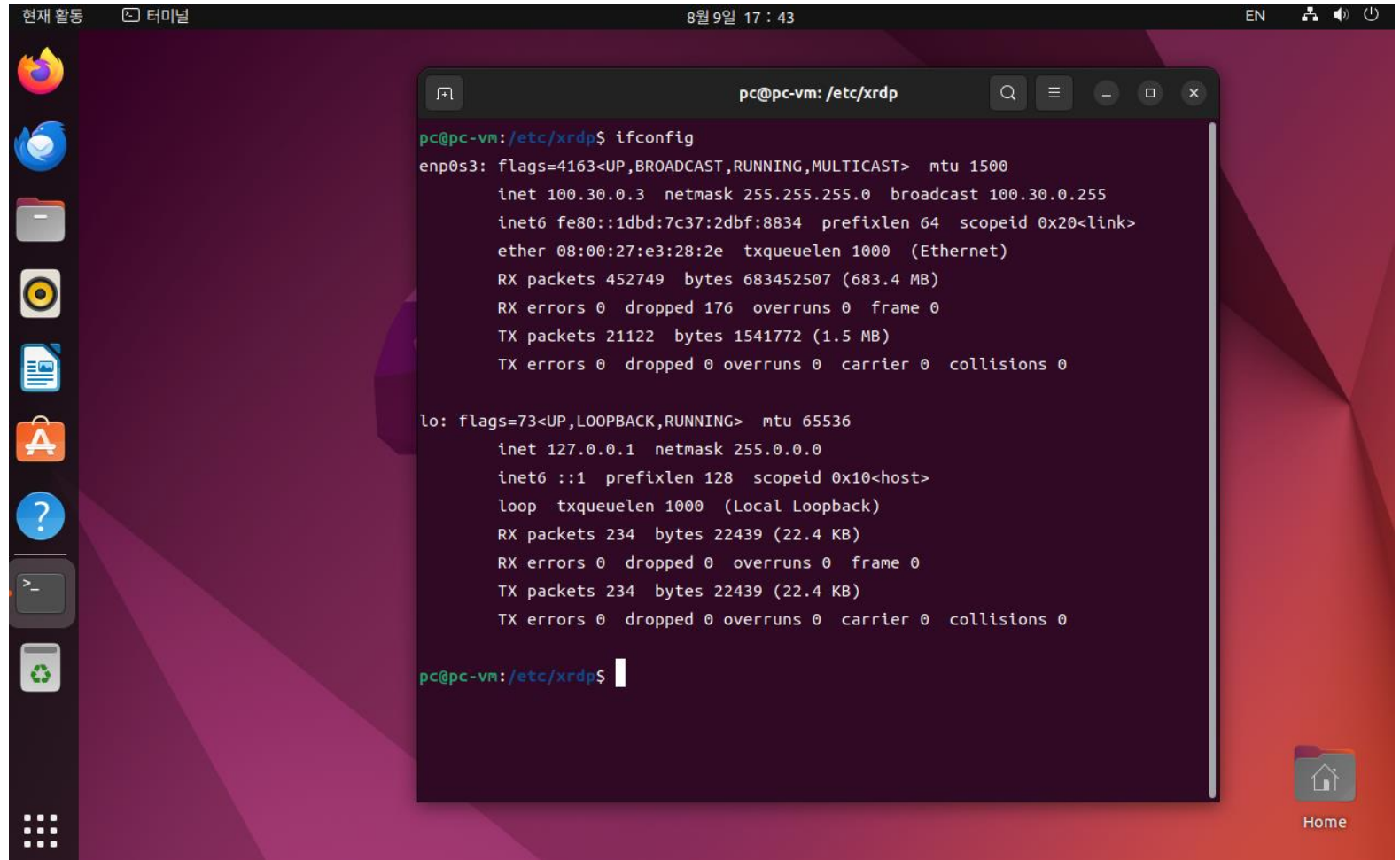


The screenshot shows a Linux desktop with a dark theme. A terminal window is open, displaying the output of the command `sudo service xrdp status`. The output shows that the `xrdp.service` is active and running. The terminal window title is `pc@pc-vm: /etc/xrdp`. The desktop background is a dark red and purple abstract pattern. A sidebar on the left contains icons for various applications, and a 'Home' button is visible in the bottom right corner.

```
pc@pc-vm: /etc/xrdp  
pc@pc-vm: /etc/xrdp$ sudo service xrdp restart  
pc@pc-vm: /etc/xrdp$ sudo service xrdp status  
● xrdp.service - xrdp daemon  
   Loaded: loaded (/lib/systemd/system/xrdp.service; enabled; vendor preset: >  
   Active: active (running) since Fri 2024-08-09 17:39:35 KST; 3s ago  
     Docs: man:xrdp(8)  
           man:xrdp.ini(5)  
  Process: 31613 ExecStartPre=/bin/sh /usr/share/xrdp/socksetup (code=exited,>  
  Process: 31621 ExecStart=/usr/sbin/xrdp $XRDPOPTIONS (code=exited, status=>  
 Main PID: 31622 (xrdp)  
    Tasks: 1 (limit: 2261)  
   Memory: 852.0K  
      CPU: 30ms  
   CGroup: /system.slice/xrdp.service  
           └─31622 /usr/sbin/xrdp  
  
8월 09 17:39:34 pc-vm systemd[1]: Starting xrdp daemon...  
8월 09 17:39:34 pc-vm xrdp[31621]: [INFO ] address [0.0.0.0] port [3390] mode 1  
8월 09 17:39:34 pc-vm xrdp[31621]: [INFO ] listening to port 3390 on 0.0.0.0  
8월 09 17:39:34 pc-vm xrdp[31621]: [INFO ] xrdp_listen_pp done  
8월 09 17:39:34 pc-vm systemd[1]: xrdp.service: Can't open PID file /run/xrdp/>  
8월 09 17:39:35 pc-vm systemd[1]: Started xrdp daemon.  
8월 09 17:39:36 pc-vm xrdp[31622]: [INFO ] starting xrdp with pid 31622  
8월 09 17:39:36 pc-vm xrdp[31622]: [INFO ] address [0.0.0.0] port [3390] mode 1
```

13. 원격데스크톱에서 xrdp 접속해보기

ifconfig



The screenshot shows a remote desktop environment with a dark purple desktop background. On the left is a vertical dock with icons for Firefox, Telegram, a file manager, a media player, a document viewer, the App Store, a help icon, a terminal, and a trash can. At the bottom right is a 'Home' button. A terminal window titled 'pc@pc-vm: /etc/xrdp' is open, displaying the output of the 'ifconfig' command. The output shows details for the 'enp0s3' (Ethernet) and 'lo' (Loopback) interfaces.

```
pc@pc-vm:/etc/xrdp$ ifconfig
enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 100.30.0.3 netmask 255.255.255.0 broadcast 100.30.0.255
    inet6 fe80::1dbd:7c37:2dbf:8834 prefixlen 64 scopeid 0x20<link>
    ether 08:00:27:e3:28:2e txqueuelen 1000 (Ethernet)
    RX packets 452749 bytes 683452507 (683.4 MB)
    RX errors 0 dropped 176 overruns 0 frame 0
    TX packets 21122 bytes 1541772 (1.5 MB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 234 bytes 22439 (22.4 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 234 bytes 22439 (22.4 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

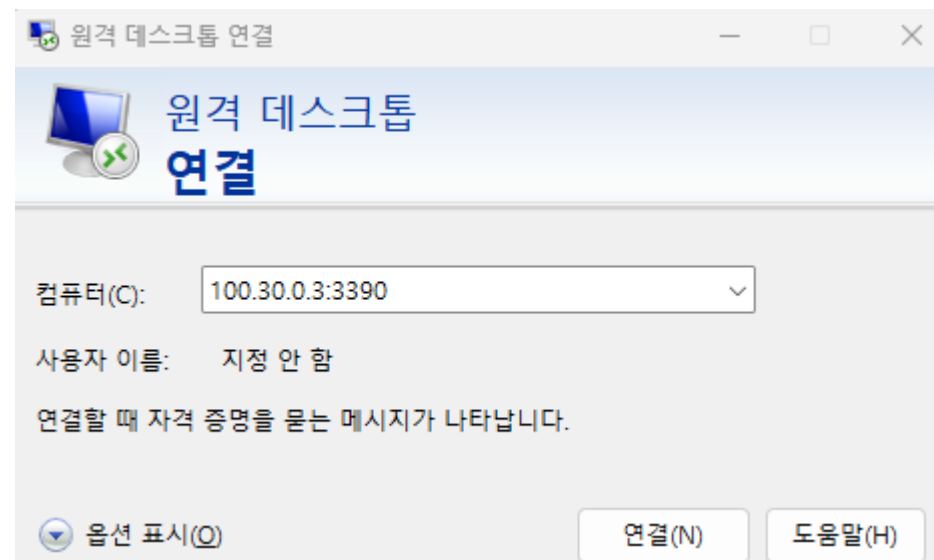
pc@pc-vm:/etc/xrdp$
```


13. 원격데스크톱에서 xrdp 접속해보기

1단계: 시작 -> mstsc

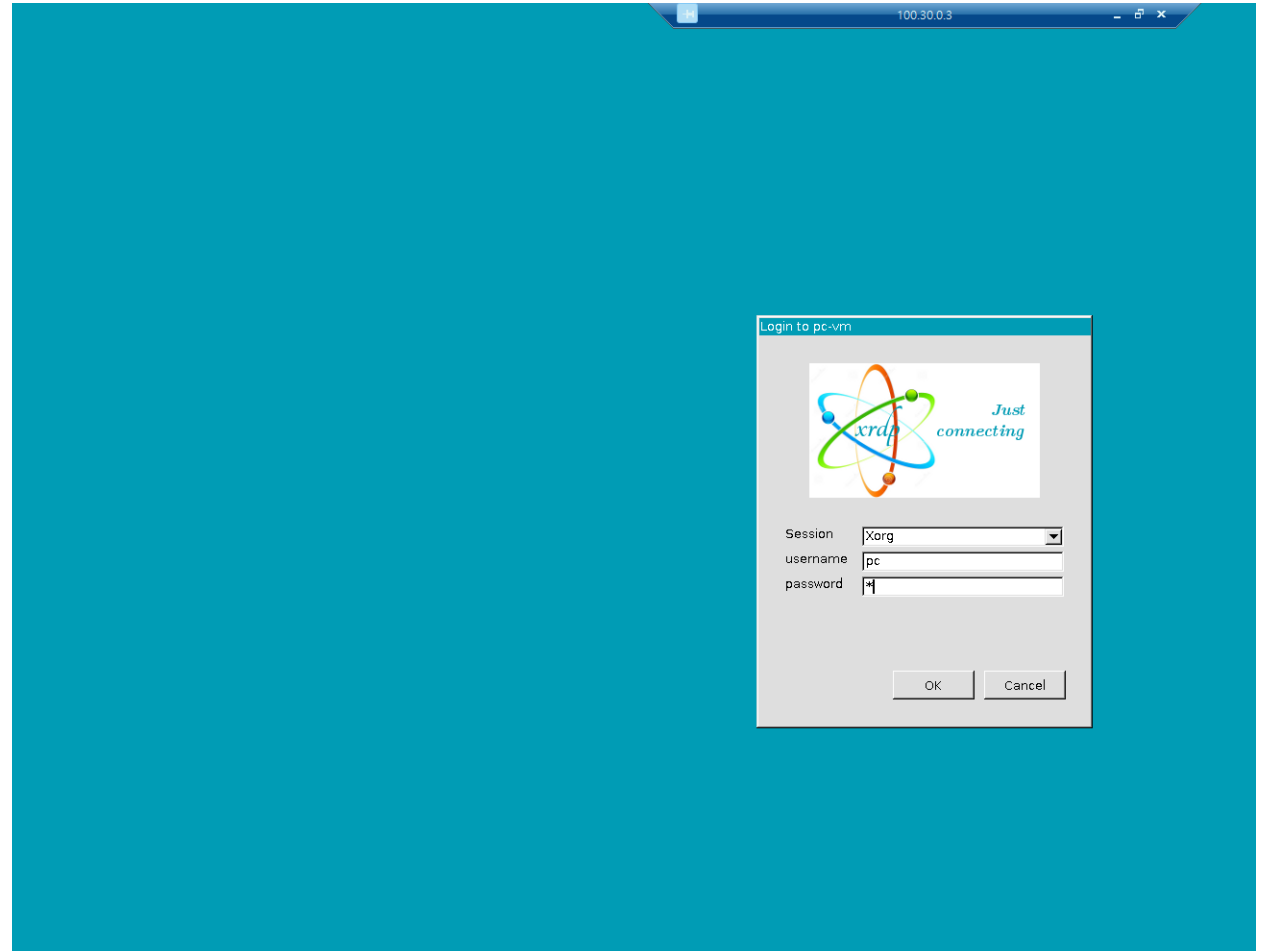
2단계: IP주소:포트번호

3단계: “연결(N)” 클릭



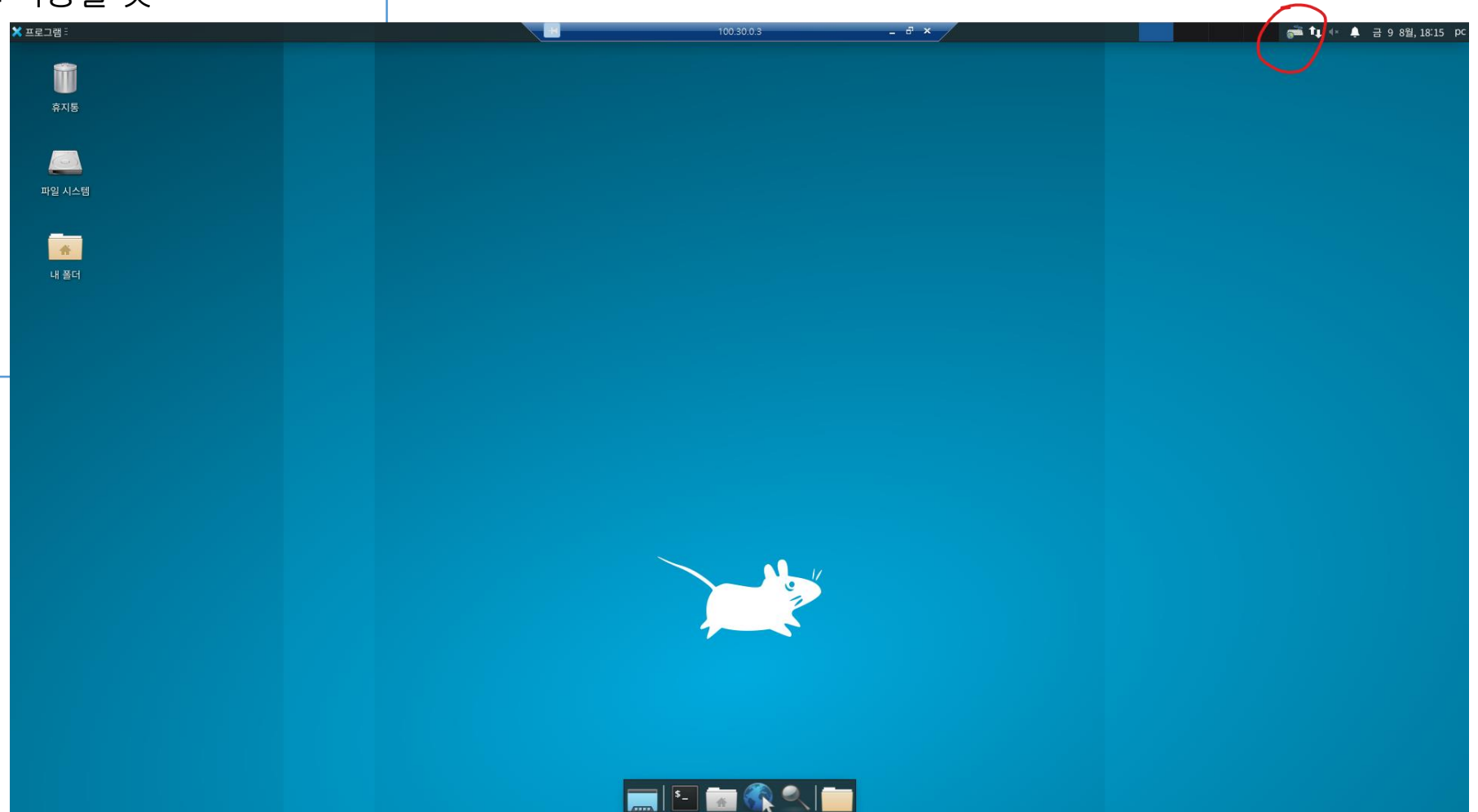
13. 원격데스크톱에서 xrdp 접속해보기

4단계: 계정, 비밀번호 입력하고 OK 클릭하기



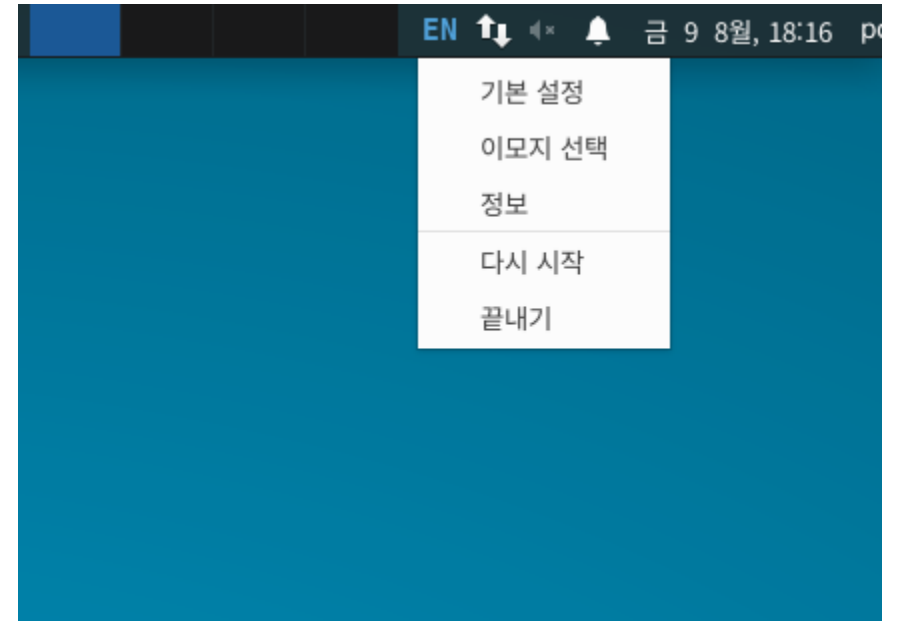
13. 원격데스크톱에서 xrdp 접속해보기

검은색 화면에서 튕기면 8장으로 이동할 것



14. ibus 기본 설정 - 입력기(한글) 추가하기

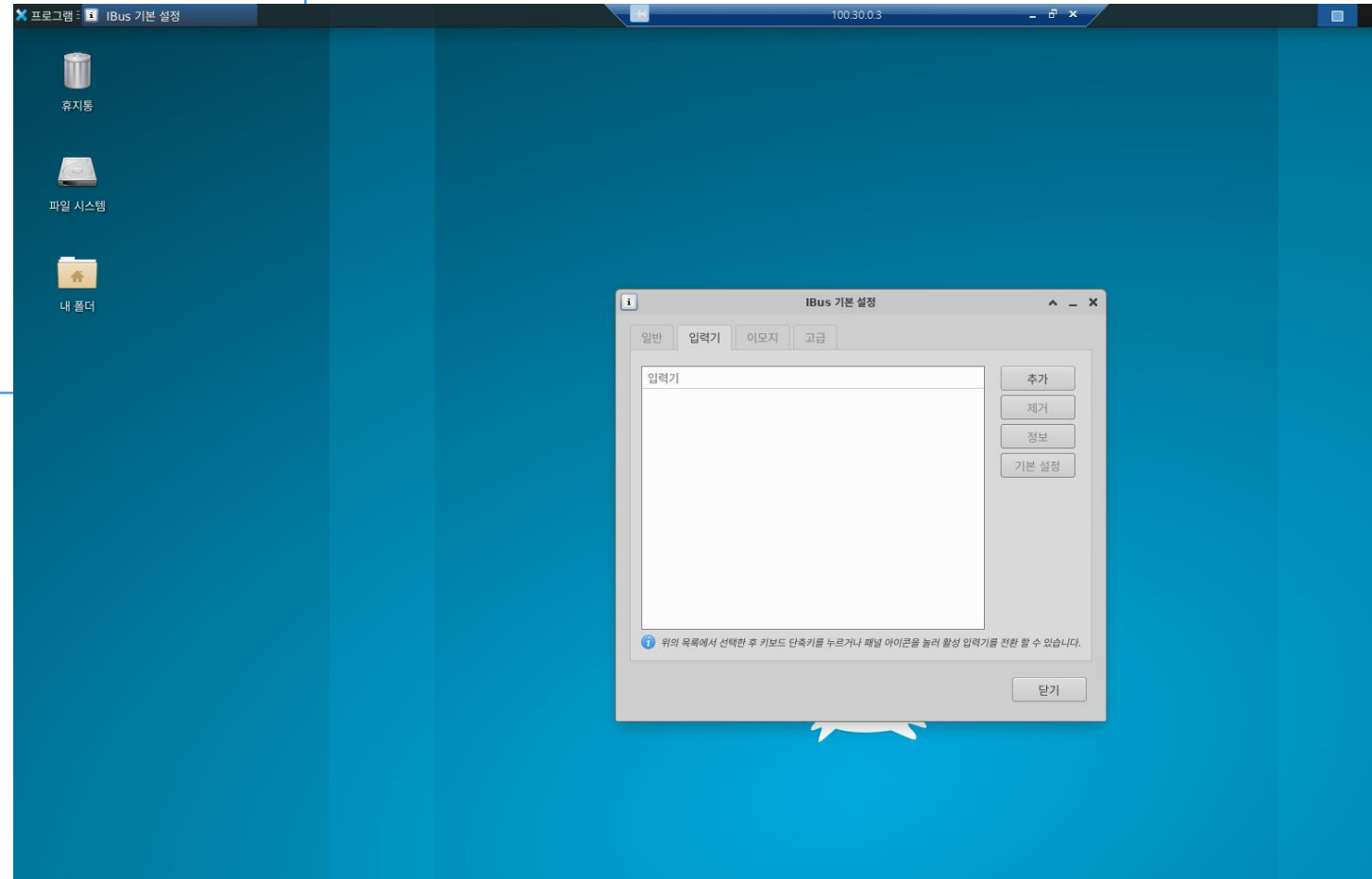
1단계: 오른쪽 상단 “EN 또는 키보드 모양” 마우스 오른쪽 버튼
2단계: 기본 설정 클릭



14. ibus 기본 설정 - 입력기(한글) 추가하기

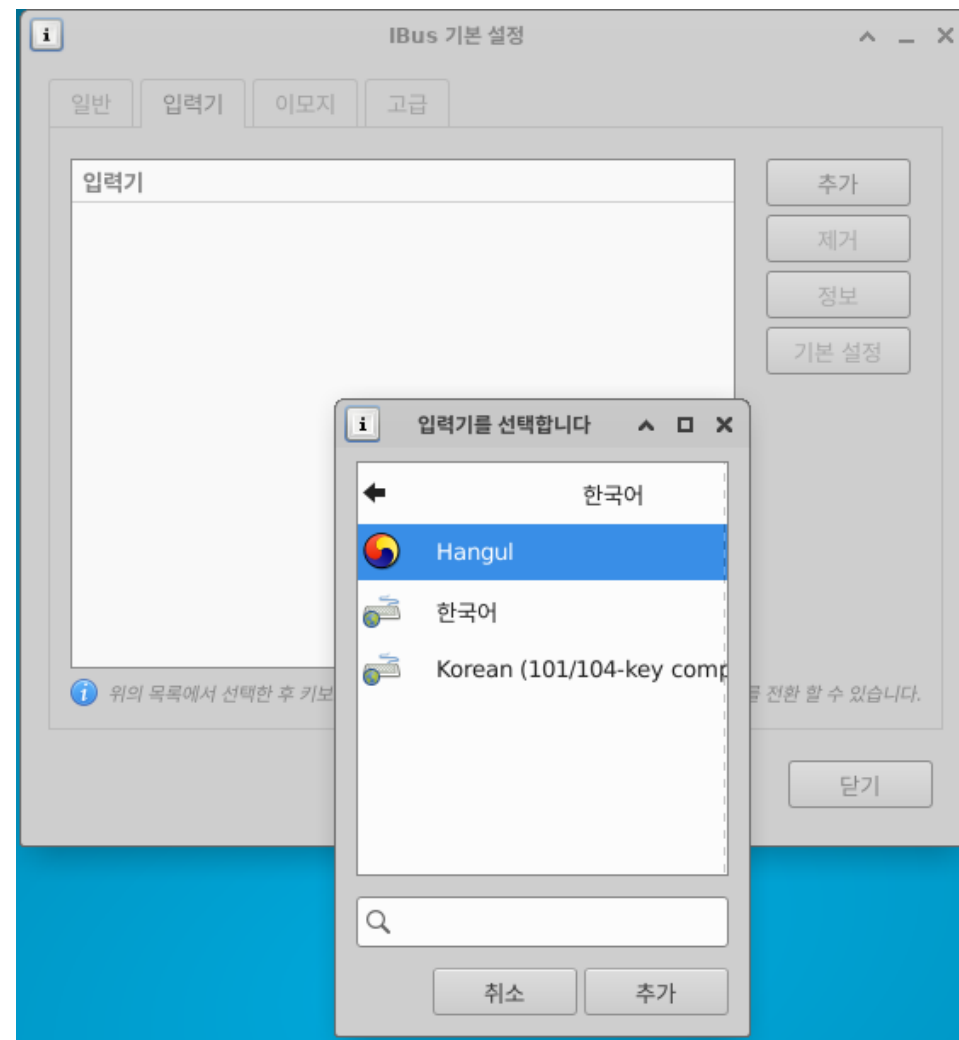
3단계: “입력기” 탭 클릭

4단계: “추가” 클릭



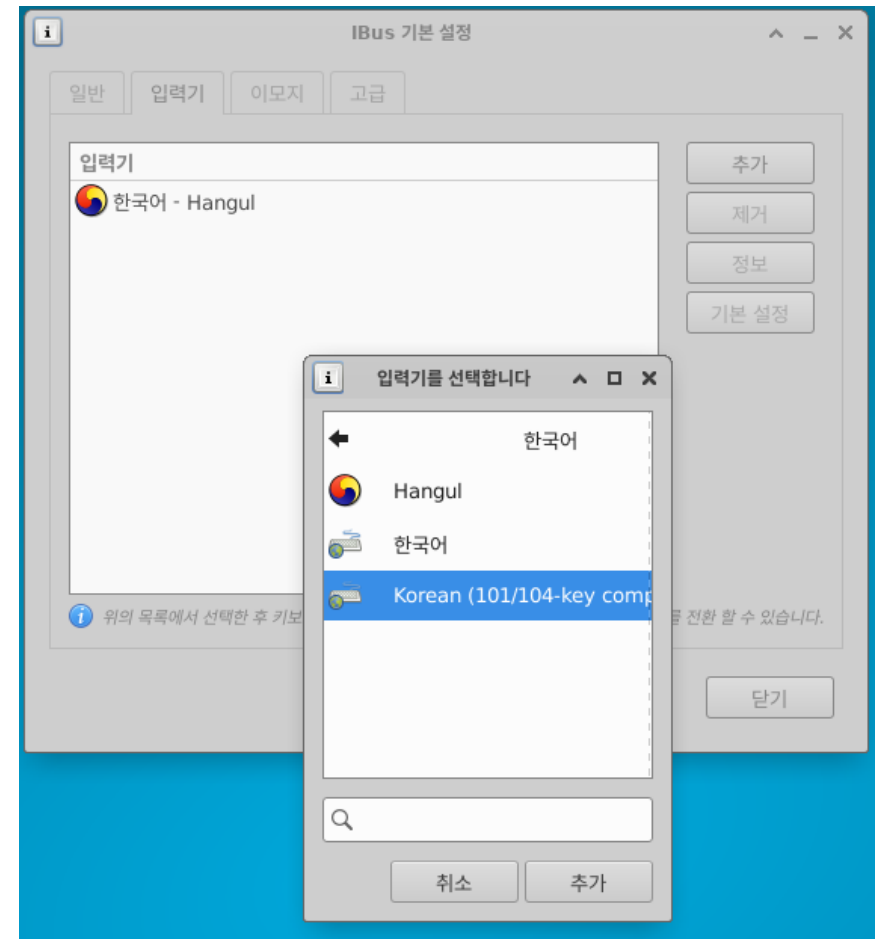
14. ibus 기본 설정 - 입력기(한글) 추가하기

5단계: 한국어, Hangul 클릭, 추가 클릭



14. ibus 기본 설정 - 입력기(한글) 추가하기

6단계: 한국어, Korean (101/104-Key), 추가 클릭



14. ibus 기본 설정 - 입력기(한글) 추가하기

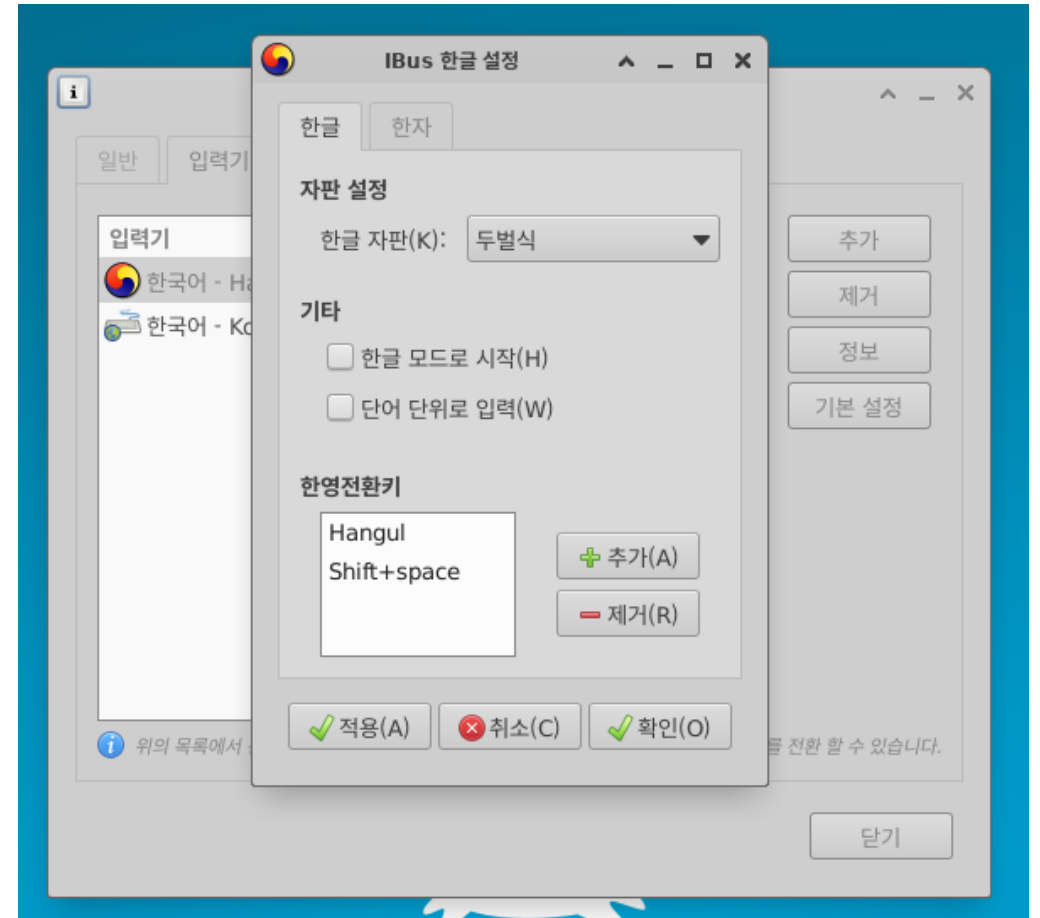
7단계: 한국어 - Hangul 선택(클릭)

8단계: 기본 설정 클릭

9단계: 추가(A), 한영키 누르기, 확인

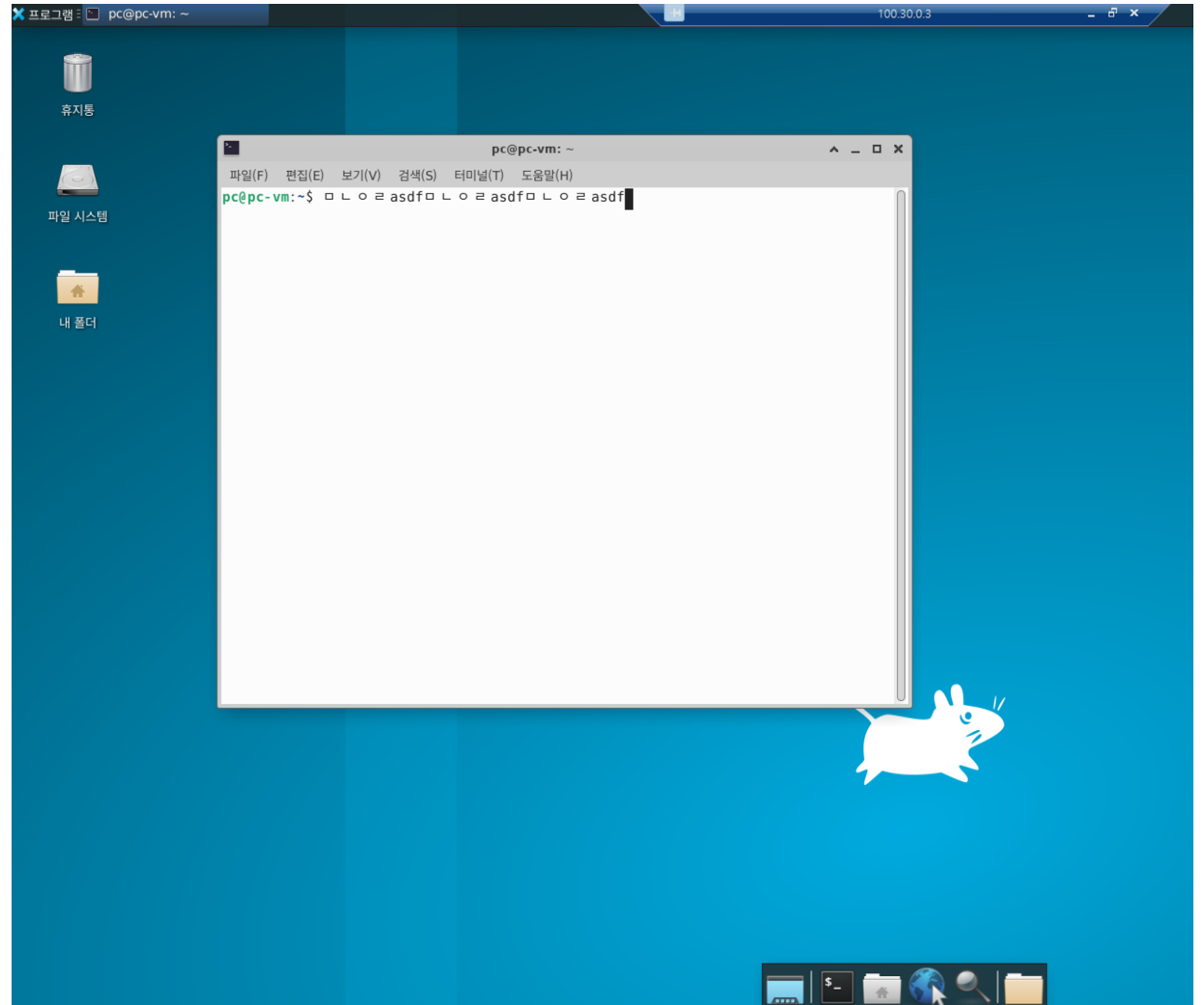
10단계: 적용(A) 클릭

11단계: 닫기



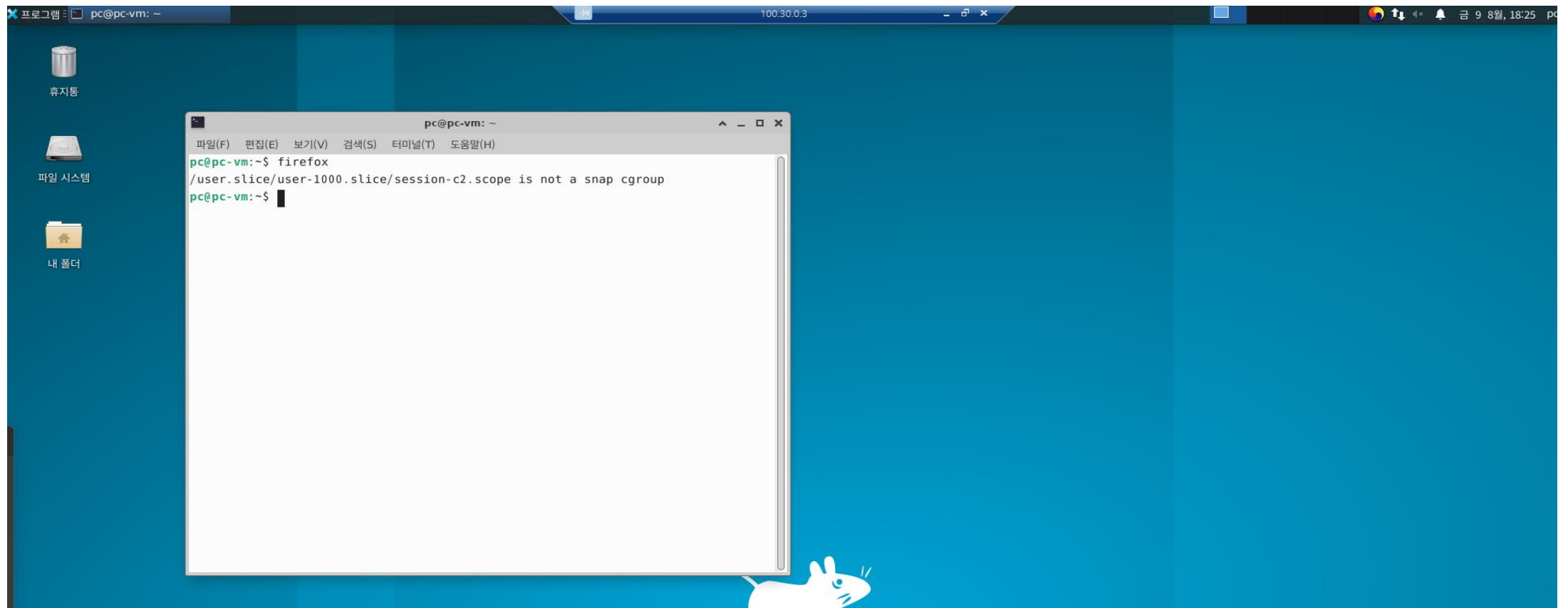
15. 터미널 실행해서 한글 키보드 입력 - 테스트하기

내용 입력해보기(테스트 해보시요.)



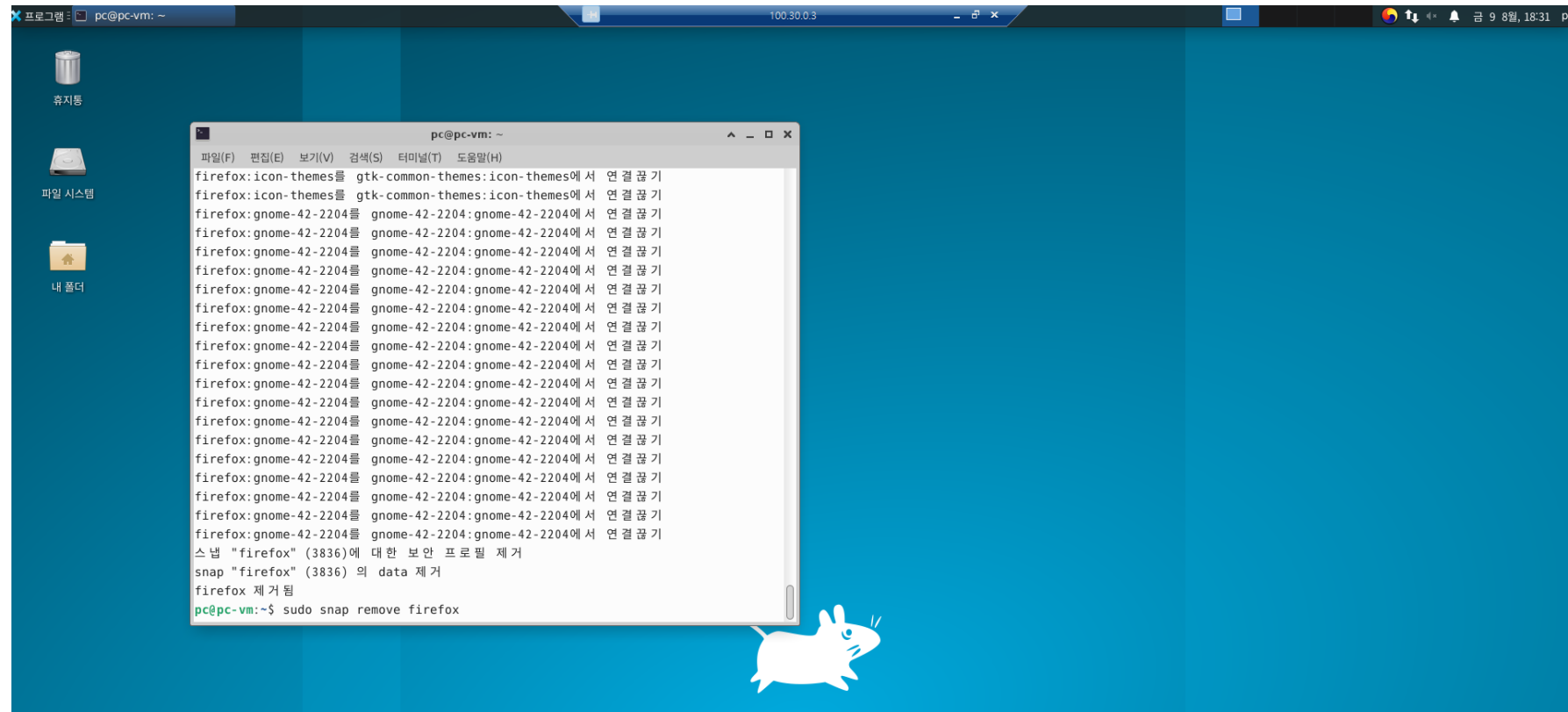
16. 터미널에서 firefox 입력했을 때 “/user.slice/user-1000.slice/session-c2.scope is not a snap cgroup” 문제 발생할 때 대처 방법

이 문제는 xrdp에서 snap을 실행할 수 없어서 해결되지 않은 문제임.
Firefox Launchpad/PPA를 통해 최신 버전으로 apt으로 재설치해야 함.



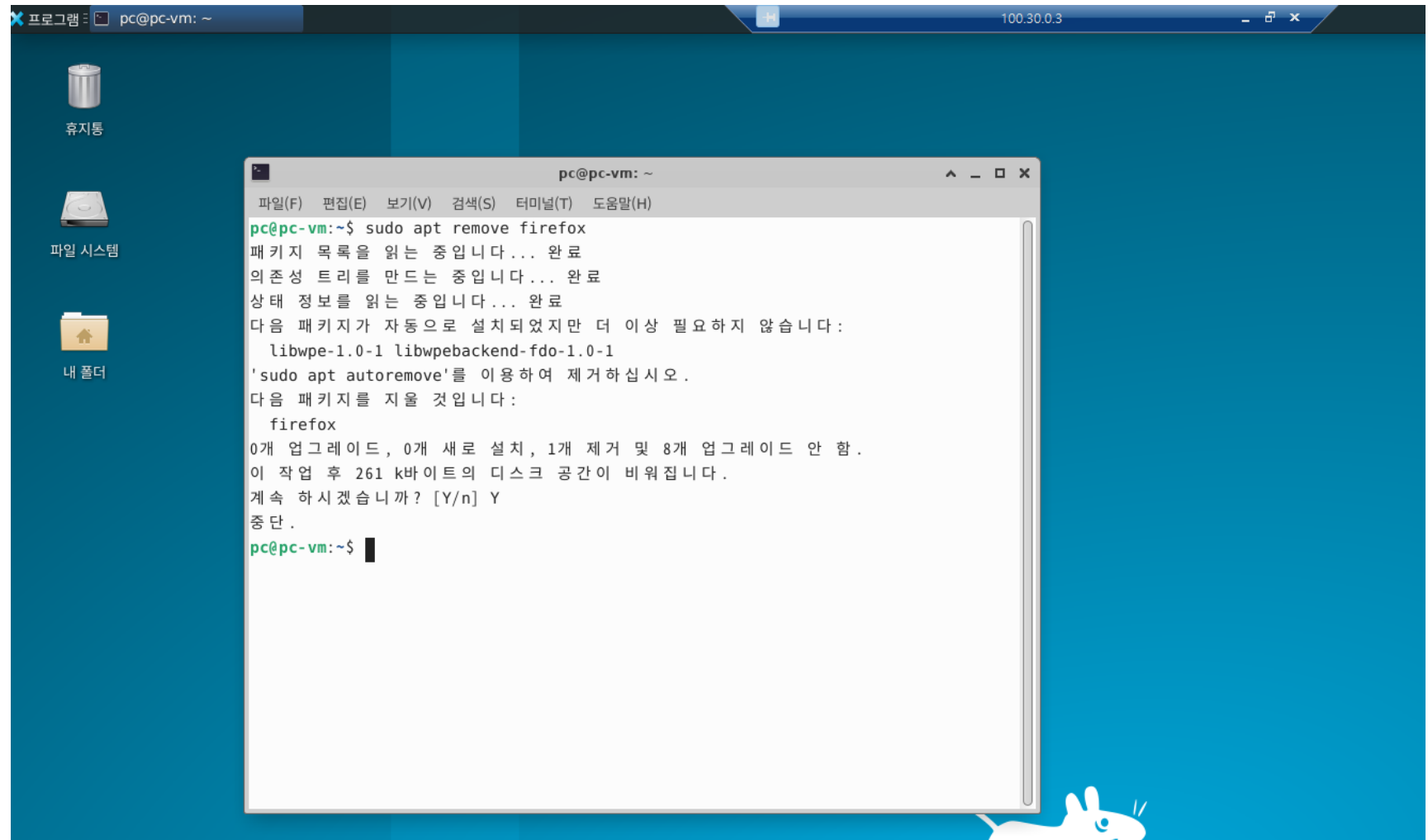
17. Firefox 최신 버전(Snap 사용 안 한 버전) 설치

- `sudo snap remove firefox`



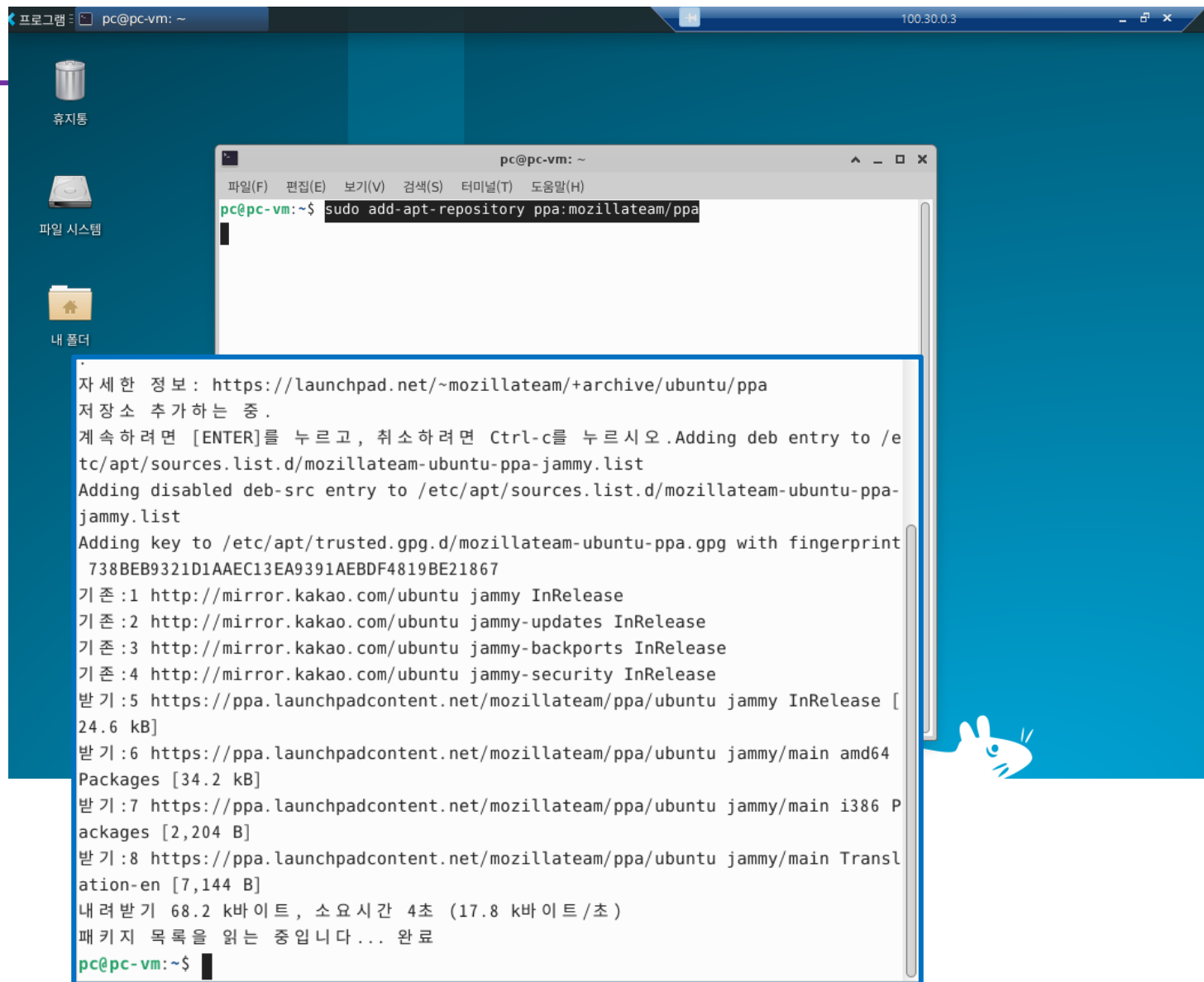
17. Firefox 최신 버전(Snap 사용 안 한 버전) 설치

- `sudo apt remove firefox`



17. Firefox 최신 버전(Snap 사용 안 한 버전) 설치

- `sudo add-apt-repository ppa:mozillateam/ppa`

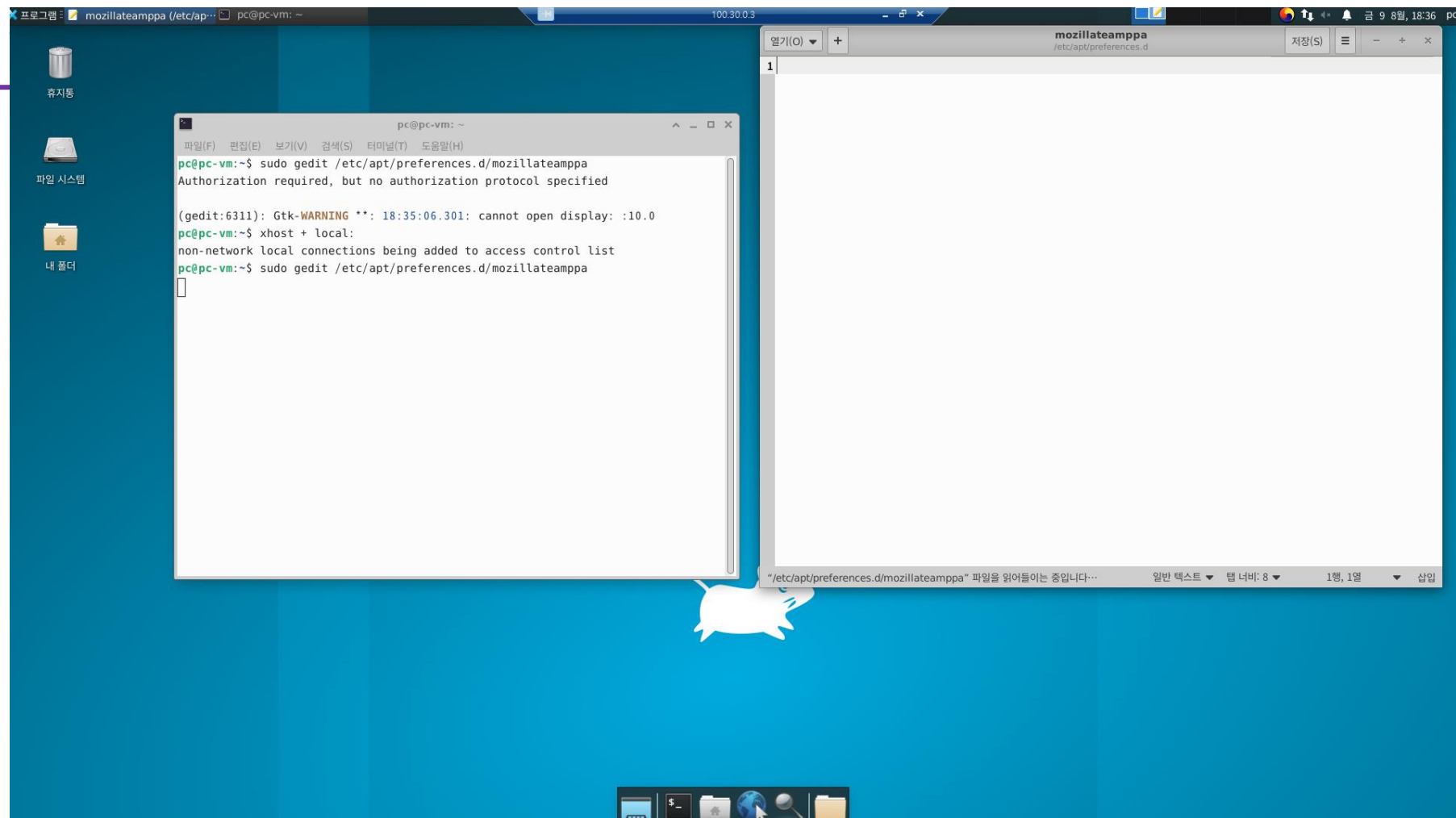


```
프로그램 : pc@pc-vm: ~ 100.30.0.3
휴지통
파일 시스템
내 폴더

pc@pc-vm: ~
파일(F) 편집(E) 보기(V) 검색(S) 터미널(T) 도움말(H)
pc@pc-vm:~$ sudo add-apt-repository ppa:mozillateam/ppa

자 세 한 정 보 : https://launchpad.net/~mozillateam/+archive/ubuntu/ppa
저 장 소 추 가 하 는 중 .
계 속 하 려 면 [ENTER]를 누 르 고 , 취 소 하 려 면 Ctrl-c를 누 르 시 오 .Adding deb entry to /e
tc/apt/sources.list.d/mozillateam-ubuntu-ppa-jammy.list
Adding disabled deb-src entry to /etc/apt/sources.list.d/mozillateam-ubuntu-ppa-
jammy.list
Adding key to /etc/apt/trusted.gpg.d/mozillateam-ubuntu-ppa.gpg with fingerprint
738BEB9321D1AAEC13EA9391AEBDF4819BE21867
기 존 :1 http://mirror.kakao.com/ubuntu jammy InRelease
기 존 :2 http://mirror.kakao.com/ubuntu jammy-updates InRelease
기 존 :3 http://mirror.kakao.com/ubuntu jammy-backports InRelease
기 존 :4 http://mirror.kakao.com/ubuntu jammy-security InRelease
받 기 :5 https://ppa.launchpadcontent.net/mozillateam/ppa/ubuntu jammy InRelease [
24.6 kB]
받 기 :6 https://ppa.launchpadcontent.net/mozillateam/ppa/ubuntu jammy/main amd64
Packages [34.2 kB]
받 기 :7 https://ppa.launchpadcontent.net/mozillateam/ppa/ubuntu jammy/main i386 P
ackages [2,204 B]
받 기 :8 https://ppa.launchpadcontent.net/mozillateam/ppa/ubuntu jammy/main Transl
ation-en [7,144 B]
내 려 받 기 68.2 k바이트 , 소 요 시 간 4초 (17.8 k바이트/초)
패 키 지 목 록 을 읽 는 중 입 니 다 ... 완료
pc@pc-vm:~$
```

17. Firefox 최신 버전(Snap 사용)



- `sudo gedit /etc/apt/preferences.d/mozillateamp`
- `xhost + local:`
- `sudo gedit /etc/apt/preferences.d/mozillateamp`

17. Firefox 최신 버전(Snap 사용 안 한 버전) 설치

```
Package: firefox*  
Pin: release o=LP-PPA-mozillateam  
Pin-Priority: 1001
```

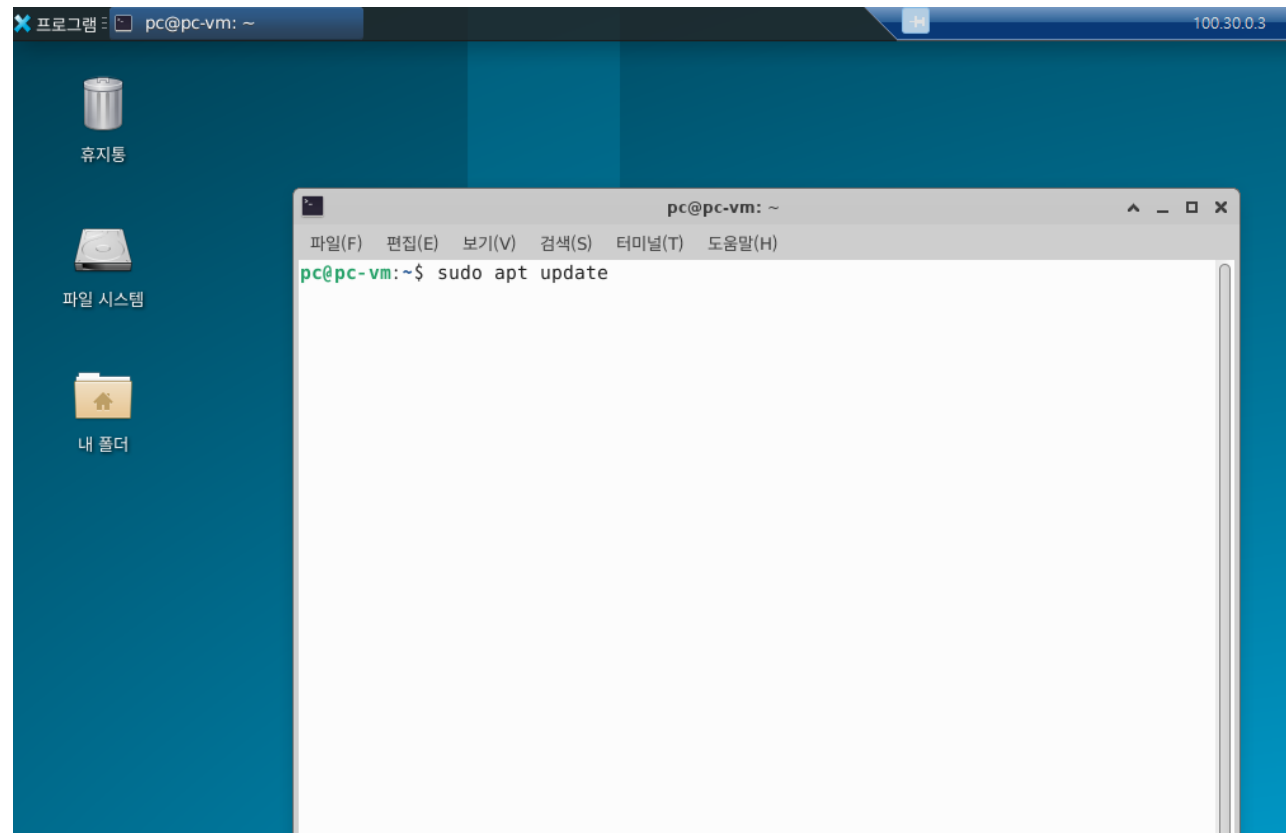


The screenshot shows a terminal window titled "mozillateamppa" with the path "/etc/apt/preferences.d". The terminal output displays the following lines:

```
1 Package: firefox*  
2 Pin: release o=LP-PPA-mozillateam  
3 Pin-Priority: 1001
```

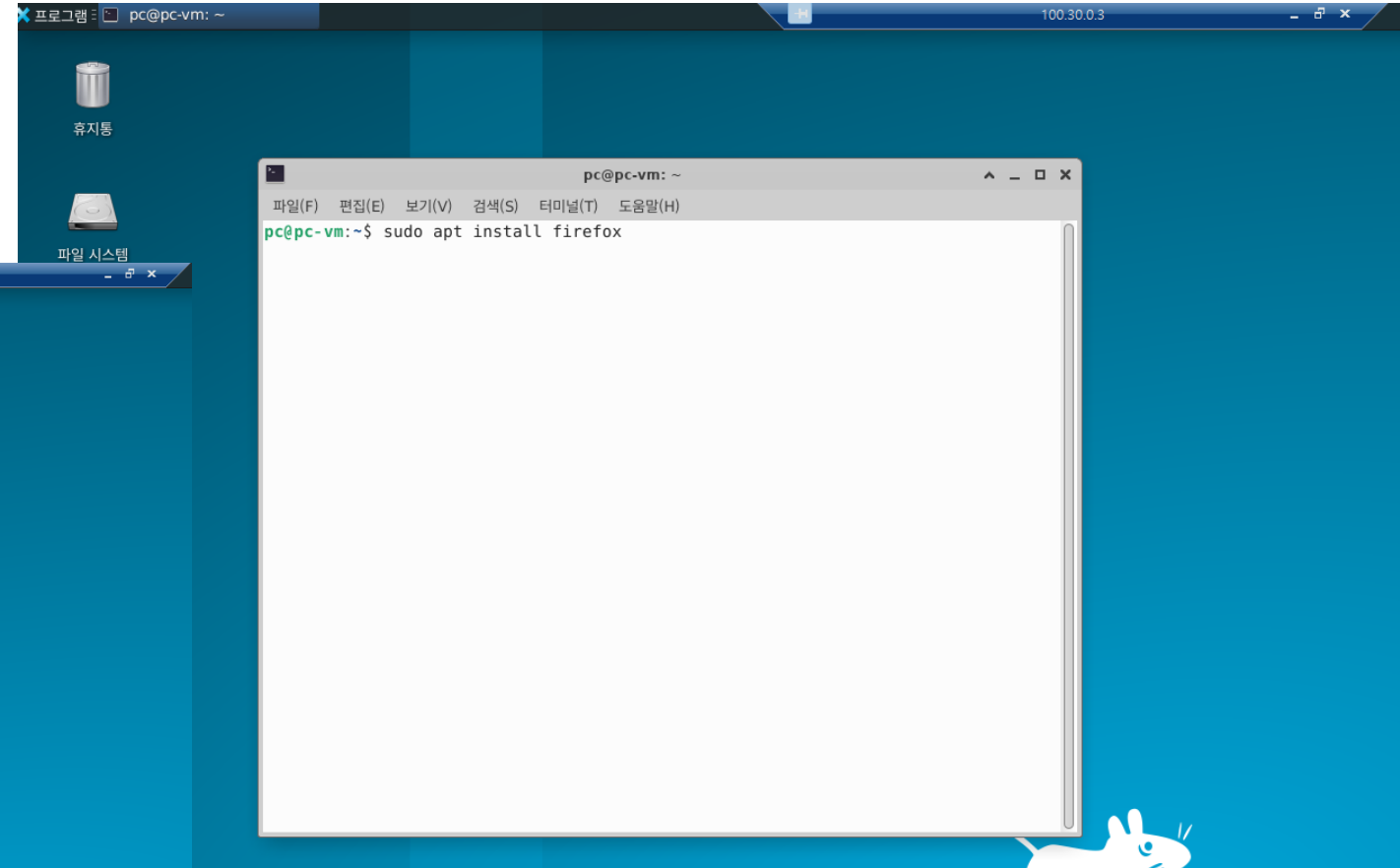
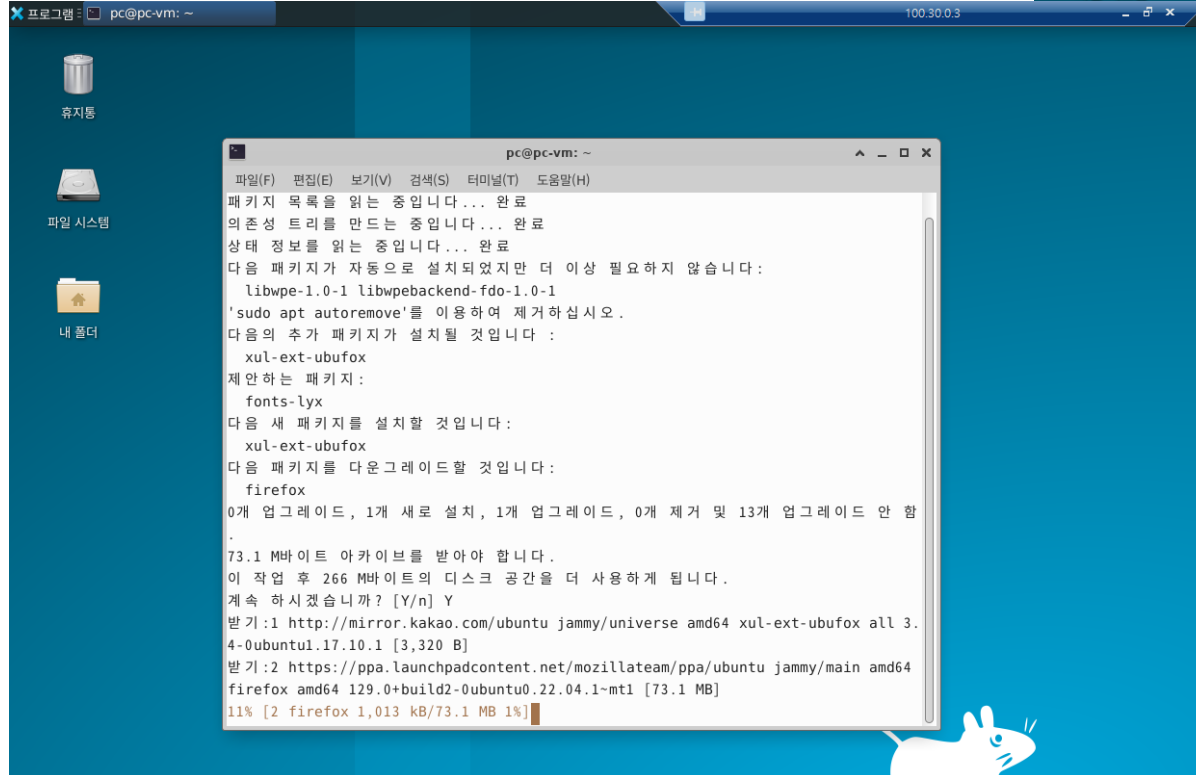
17. Firefox 최신 버전(Snap 사용 안 한 버전) 설치

```
sudo apt update
```



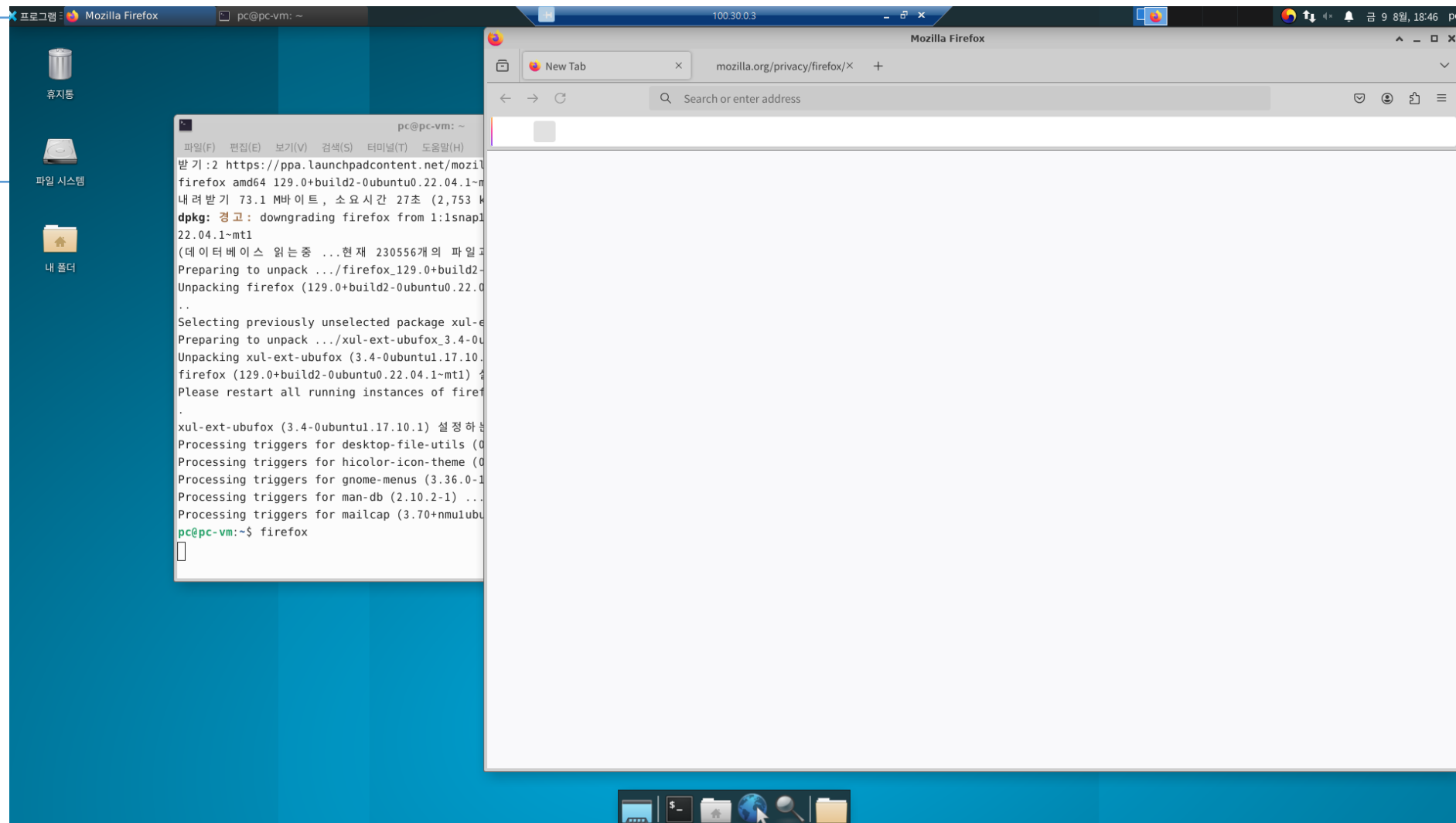
17. Firefox 최신 버전(Snap 사용 안 한 버전) 설치

```
sudo apt install firefox
```



18. Firefox 최신 버전 - 실행하기

firefox



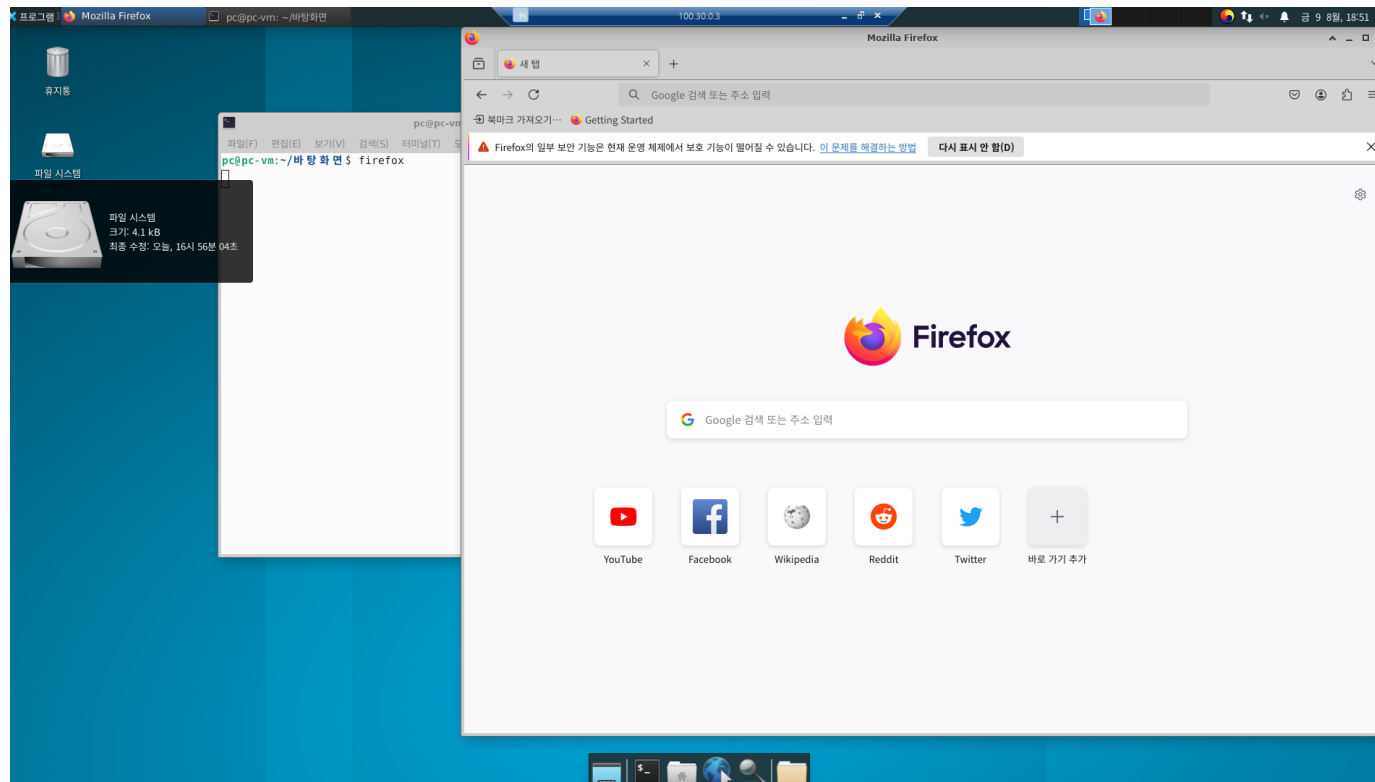
19. 안정화 여부 판단 - 재부팅 시도

1단계: sudo reboot

2단계: 재부팅 후 원격 데스크톱 연결

3단계: xfce에서 터미널 켜기

4단계: firefox 실행하기



20. Google Chrome - 설치하기

- `wget https://dl.google.com/linux/direct/google-chrome-stable_current_amd64.deb`
- `sudo dpkg -i google-chrome-stable_current_amd64.deb`

```
pc@pc-vm: ~/바탕화면
파일(F) 편집(E) 보기(V) 검색(S) 터미널(T) 도움말(H)
pc@pc-vm:~/바탕화면$ wget https://dl.google.com/linux/direct/google-chrome-stable_current_amd64.deb
--2024-08-09 18:54:52-- https://dl.google.com/linux/direct/google-chrome-stable_current_amd64.deb
dl.google.com (dl.google.com) 해석 중... 172.217.31.14, 2404:6800:4005:811::200e
다음으로 연결 중: dl.google.com (dl.google.com)|172.217.31.14|:443... 연결했습니다.
HTTP 요청을 보냈습니다. 응답 기다리는 중... 200 OK
길이: 109464716 (104M) [application/x-debian-package]
저장 위치: 'google-chrome-stable_current_amd64.deb'

google-chrome-stabl 100%[=====] 104.39M 28.1MB/s / 4.3s

2024-08-09 18:54:56 (24.5 MB/s) - 'google-chrome-stable_current_amd64.deb' 저장함 [109464716/109464716]

pc@pc-vm:~/바탕화면$
```

```
pc@pc-vm: ~/바탕화면
파일(F) 편집(E) 보기(V) 검색(S) 터미널(T) 도움말(H)

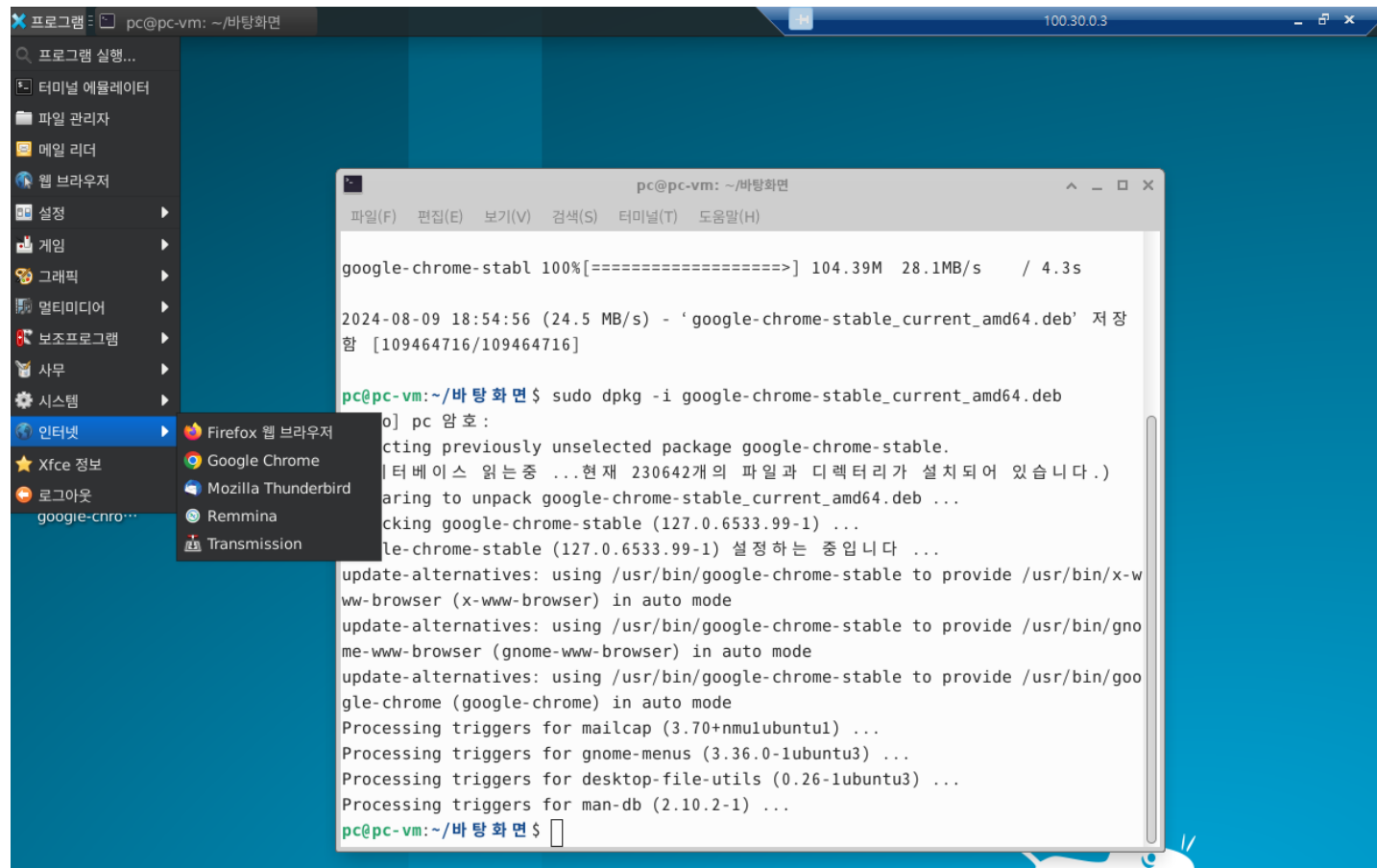
google-chrome-stabl 100%[=====] 104.39M 28.1MB/s / 4.3s

2024-08-09 18:54:56 (24.5 MB/s) - 'google-chrome-stable_current_amd64.deb' 저장함 [109464716/109464716]

pc@pc-vm:~/바탕화면$ sudo dpkg -i google-chrome-stable_current_amd64.deb
[sudo] pc 암호:
Selecting previously unselected package google-chrome-stable.
(데이터베이스 읽는 중 ...현재 230642개의 파일과 디렉터리가 설치되어 있습니다.)
Preparing to unpack google-chrome-stable_current_amd64.deb ...
Unpacking google-chrome-stable (127.0.6533.99-1) ...
google-chrome-stable (127.0.6533.99-1) 설정하는 중입니다 ...
update-alternatives: using /usr/bin/google-chrome-stable to provide /usr/bin/x-www-browser (x-www-browser) in auto mode
update-alternatives: using /usr/bin/google-chrome-stable to provide /usr/bin/gnome-www-browser (gnome-www-browser) in auto mode
update-alternatives: using /usr/bin/google-chrome-stable to provide /usr/bin/google-chrome (google-chrome) in auto mode
Processing triggers for mailcap (3.70+nmulubuntu1) ...
Processing triggers for gnome-menus (3.36.0-1ubuntu3) ...
Processing triggers for desktop-file-utils (0.26-1ubuntu3) ...
Processing triggers for man-db (2.10.2-1) ...
pc@pc-vm:~/바탕화면$
```

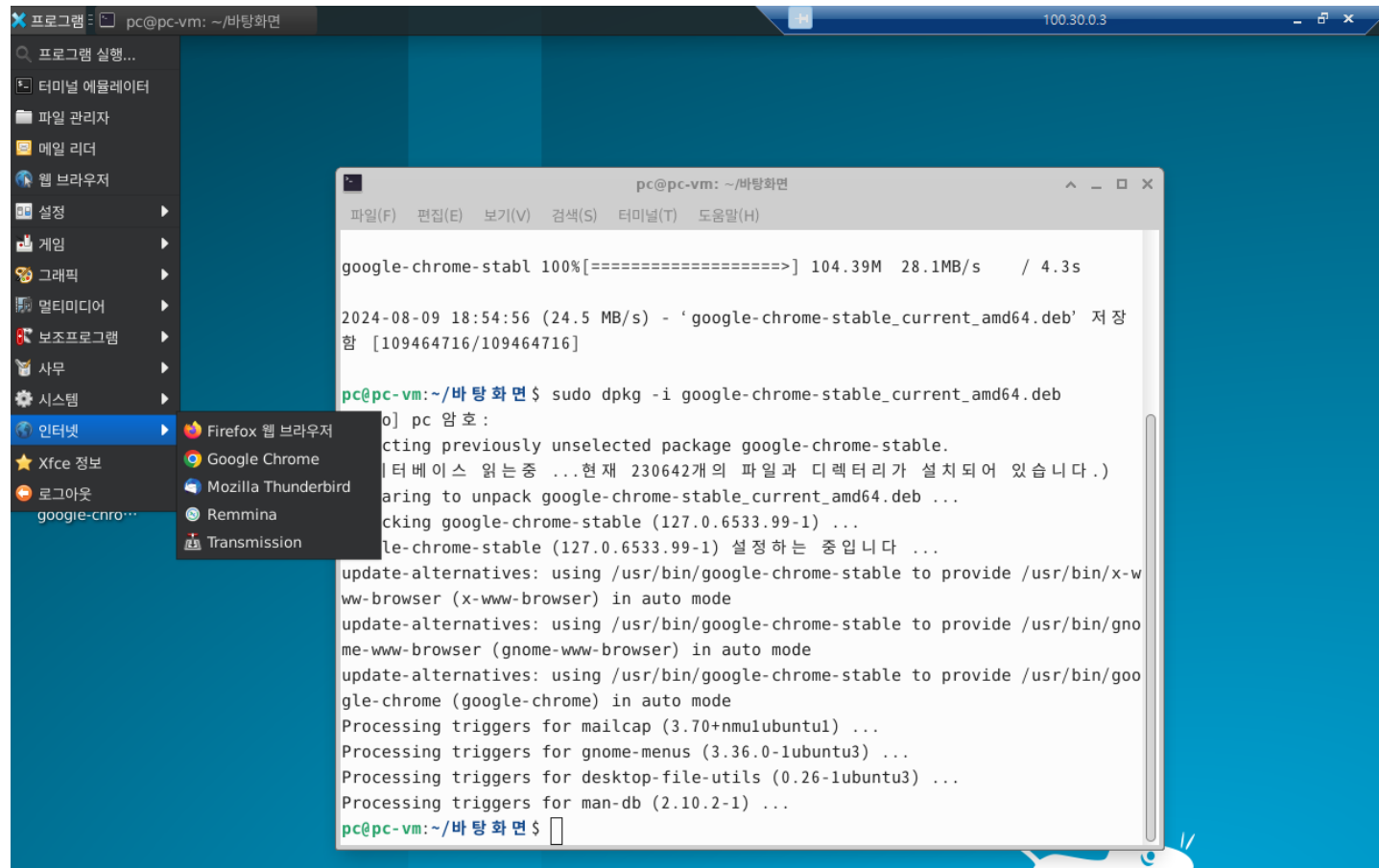
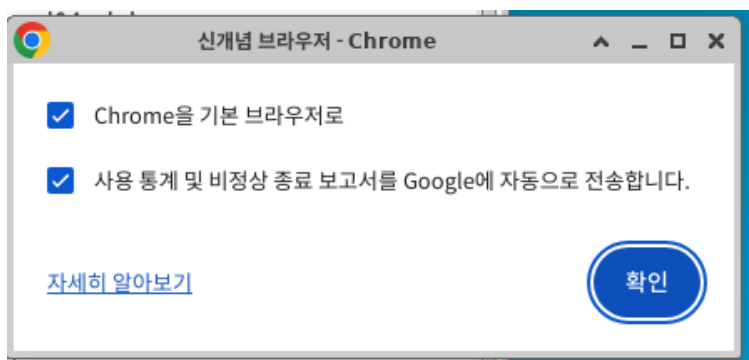
20. Google Chrome - 설치하기

- 프로그램 -> 인터넷 -> Google Chrome 실행



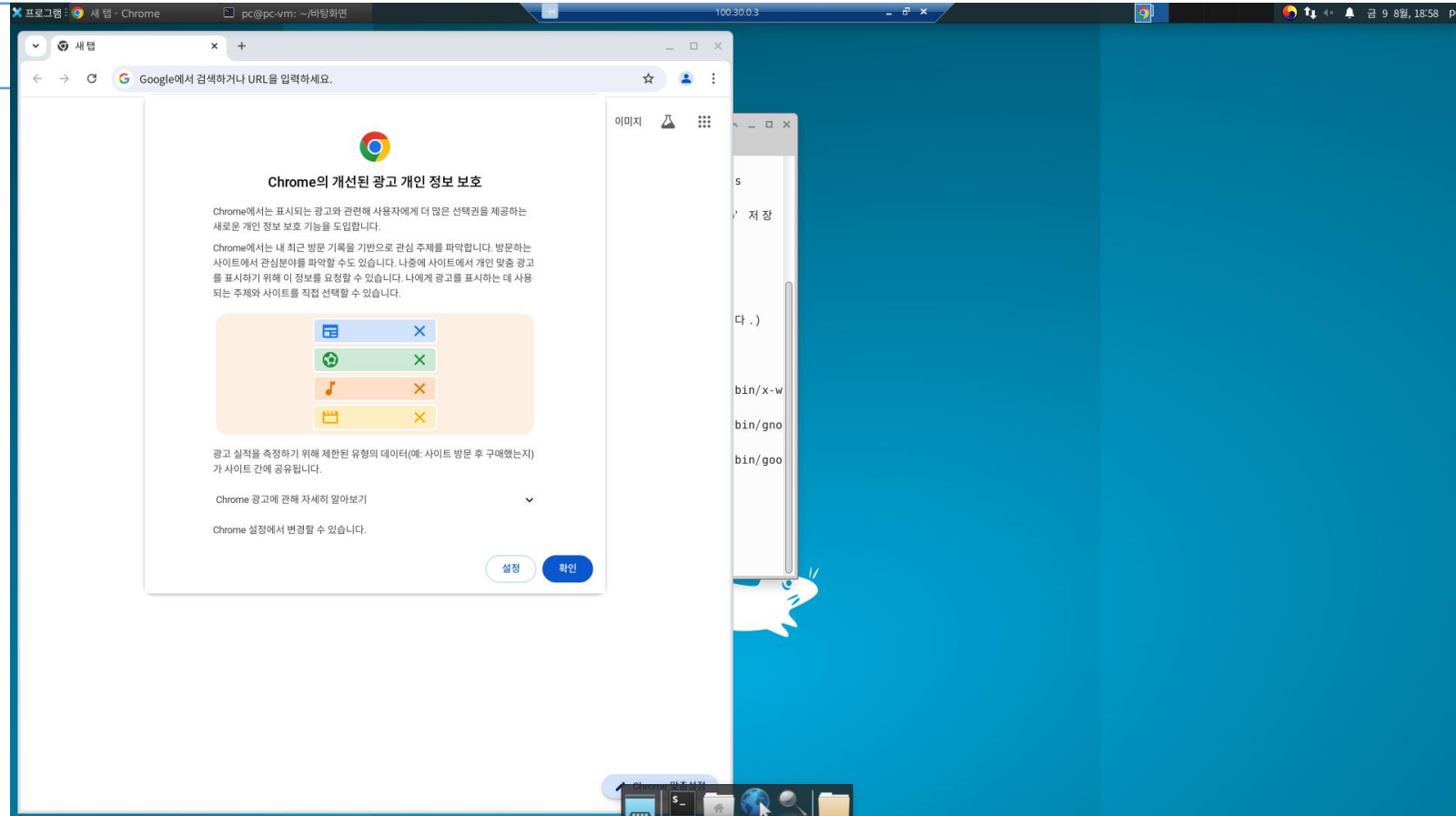
20. Google Chrome - 설치하기

- 프로그램 -> 인터넷 -> Google Chrome 실행



20. Google Chrome - 설치하기

- 정상적으로 실행되는 것을 확인할 수 있음.



21. (선택 - 보유하고 있는 경우) NVIDIA Tesla M40 24GB - CUDA 12.4 드라이버 설치(PyTorch 공식 지원 - 기준: 2024-08-09)

- 공식 다운로드 사이트에서 지원하는 CUDA Toolkit의 버전을 확인할 것 (run으로 설치 안함)

- <https://www.nvidia.com/Download/index.aspx?lang=en-us>

The image shows the NVIDIA Driver Downloads page. The top navigation bar includes the NVIDIA logo and links for Products, Solutions, Industries, and For You. The main heading is "Download Drivers". Below this, there's a section for "NVIDIA Driver Downloads" with a prompt to select from a dropdown list. The dropdowns are filled with the following values: Product Type: Data Center / Tesla, Product Series: M-Class, Product: M40 24GB, Operating System: Windows 10 64-bit, CUDA Toolkit: Any, and Language: Any. A search button is visible. Below the search button, there's a section for "NVIDIA Virtual GPU C" and "Enterprise custom" with a link to "vGPU Software Downloads page".

NVIDIA Driver Downloads

Select from the dropdown list below to identify the appropriate driver for your NVIDIA product.

Product Type: Data Center / Tesla

Product Series: M-Class

Product: M40 24GB

Operating System: Windows 10 64-bit

CUDA Toolkit: Any

Language: Any


NVIDIA Virtual GPU C

Enterprise custom

into the enterprise

your purchased licenses visit the [vGPU Software Downloads page](#).


21. (선택 - 보유하고 있는 경우) NVIDIA Tesla M40 24GB - CUDA 12.4 드라이버 설치(PyTorch 공식 지원 - 기준: 2024-08-09)

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[NVIDIA](#) > [Drivers](#) > [Data Center Driver for Linux x64](#)

Download the New NVIDIA App Beta

[Learn More](#)

Data Center Driver For Linux X64


Version: 550.90.07
Release Date: 2024.6.6
Operating System: CBL Mariner, Linux 64-bit
CUDA Toolkit: 12.4
Language: English (US)
File Size: 293.33 MB

[Download](#)

Release Highlights	Supported Products	Additional Information
Release notes, supported GPUs and other documentation can be found at: https://docs.nvidia.com/datacenter/tesla/index.html		

Fulfill Your Destiny

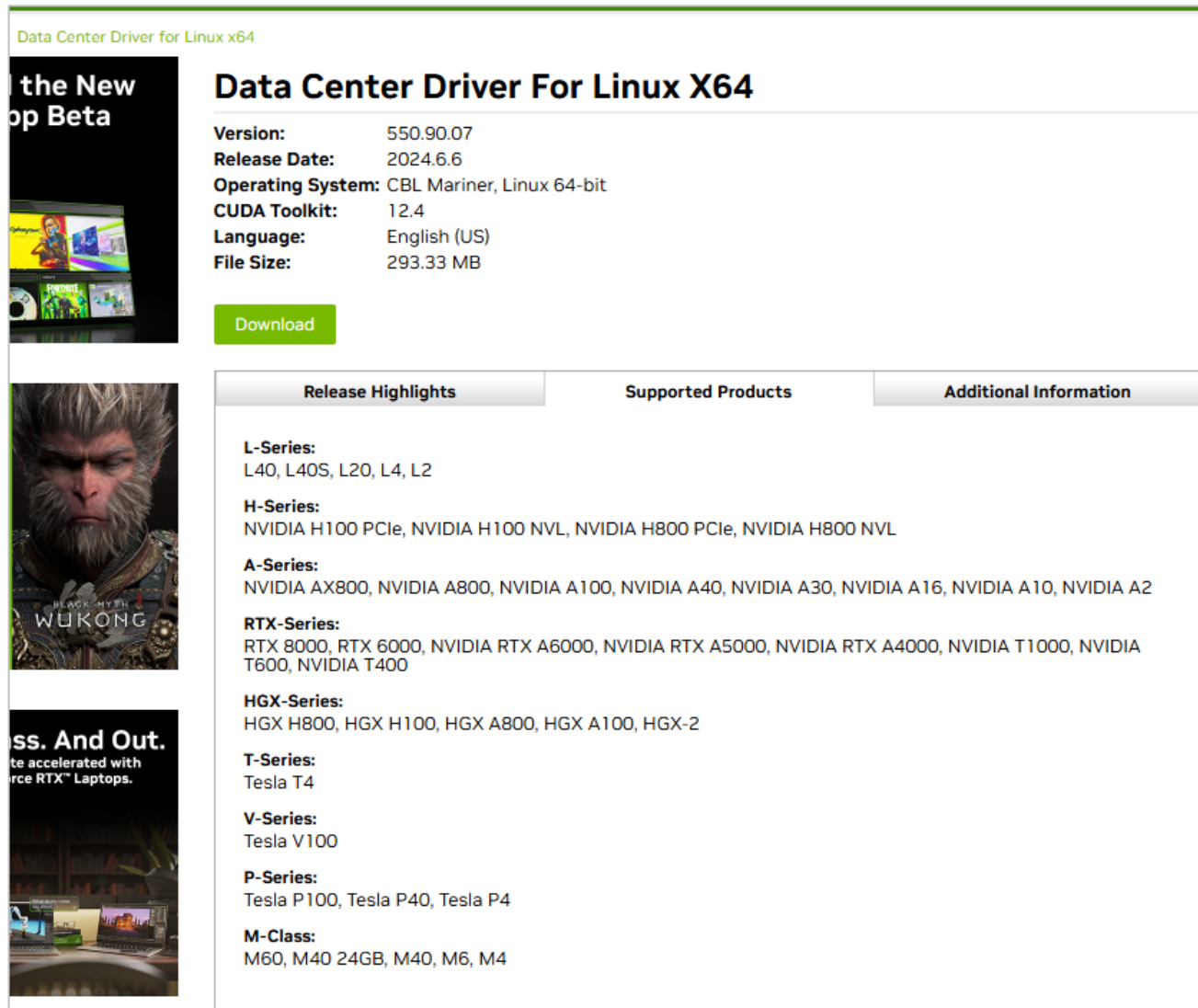
Get Black Myth: Wukong with



21. (선택 - 보유하고 있는 경우) NVIDIA Tesla M40 24GB - CUDA 12.4 드라이버 설치(PyTorch 공식 지원 - 기준: 2024-08-09)

- Download를 하지 말 것
- Version만 확인할 것

Data Center Driver for Linux x64



The image shows the NVIDIA Data Center Driver for Linux X64 page. It features a sidebar with three promotional images: 'the New op Beta', 'BLACK MYTH WUKONG', and 'ss. And Out. te accelerated with rce RTX™ Laptops.' The main content area has a title 'Data Center Driver For Linux X64' and a list of specifications: Version: 550.90.07, Release Date: 2024.6.6, Operating System: CBL Mariner, Linux 64-bit, CUDA Toolkit: 12.4, Language: English (US), and File Size: 293.33 MB. A green 'Download' button is present. Below this is a table with three tabs: 'Release Highlights', 'Supported Products', and 'Additional Information'. The 'Supported Products' tab is active, showing a list of supported GPU series and models.

Data Center Driver For Linux X64

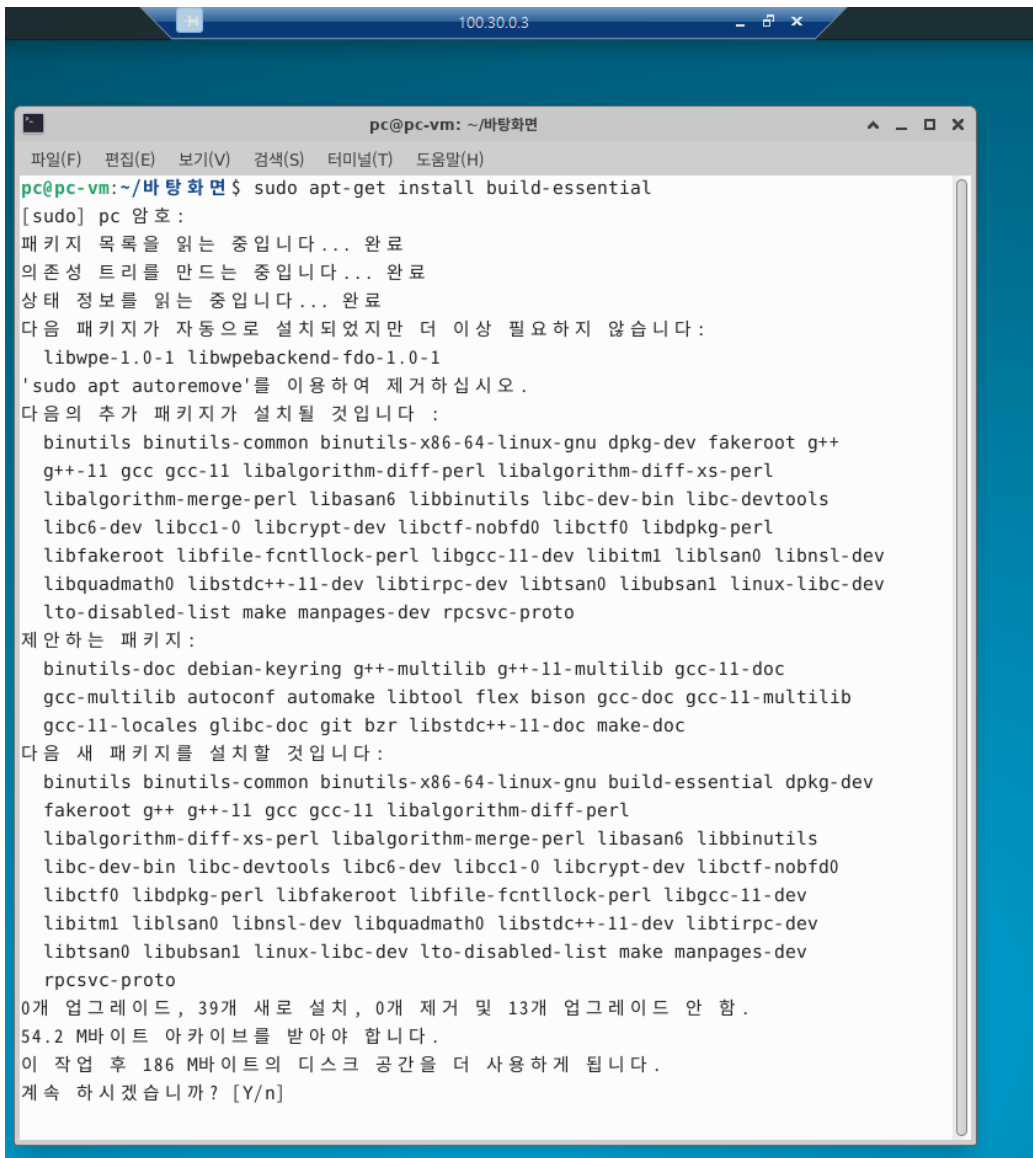
Version: 550.90.07
Release Date: 2024.6.6
Operating System: CBL Mariner, Linux 64-bit
CUDA Toolkit: 12.4
Language: English (US)
File Size: 293.33 MB

[Download](#)

Release Highlights	Supported Products	Additional Information
L-Series: L40, L40S, L20, L4, L2	L-Series: L40, L40S, L20, L4, L2	
H-Series: NVIDIA H100 PCIe, NVIDIA H100 NVL, NVIDIA H800 PCIe, NVIDIA H800 NVL	H-Series: NVIDIA H100 PCIe, NVIDIA H100 NVL, NVIDIA H800 PCIe, NVIDIA H800 NVL	
A-Series: NVIDIA AX800, NVIDIA A800, NVIDIA A100, NVIDIA A40, NVIDIA A30, NVIDIA A16, NVIDIA A10, NVIDIA A2	A-Series: NVIDIA AX800, NVIDIA A800, NVIDIA A100, NVIDIA A40, NVIDIA A30, NVIDIA A16, NVIDIA A10, NVIDIA A2	
RTX-Series: RTX 8000, RTX 6000, NVIDIA RTX A6000, NVIDIA RTX A5000, NVIDIA RTX A4000, NVIDIA T1000, NVIDIA T600, NVIDIA T400	RTX-Series: RTX 8000, RTX 6000, NVIDIA RTX A6000, NVIDIA RTX A5000, NVIDIA RTX A4000, NVIDIA T1000, NVIDIA T600, NVIDIA T400	
HGX-Series: HGX H800, HGX H100, HGX A800, HGX A100, HGX-2	HGX-Series: HGX H800, HGX H100, HGX A800, HGX A100, HGX-2	
T-Series: Tesla T4	T-Series: Tesla T4	
V-Series: Tesla V100	V-Series: Tesla V100	
P-Series: Tesla P100, Tesla P40, Tesla P4	P-Series: Tesla P100, Tesla P40, Tesla P4	
M-Class: M60, M40 24GB, M40, M6, M4	M-Class: M60, M40 24GB, M40, M6, M4	

21. (선택 - 보유하고 있는 경우) NVIDIA Tesla M40 24GB - CUDA 12.4 드라이버 설치(PyTorch 공식 지원 - 기준: 2024-08-09)

- `sudo apt install build-essential`



```
pc@pc-vm: ~/바탕화면
pc@pc-vm: ~/바탕화면$ sudo apt-get install build-essential
[sudo] pc 암호:
패키지 목록을 읽는 중입니다... 완료
의존성 트리를 만드는 중입니다... 완료
상태 정보를 읽는 중입니다... 완료
다음 패키지가 자동으로 설치되었지만 더 이상 필요하지 않습니다:
  libwpe-1.0-1 libwpebackend-fdo-1.0-1
'sudo apt autoremove'를 이용하여 제거하십시오.
다음의 추가 패키지가 설치될 것입니다:
  binutils binutils-common binutils-x86-64-linux-gnu dpkg-dev fakeroot g++
  g++-11 gcc gcc-11 libalgorithm-diff-perl libalgorithm-diff-xs-perl
  libalgorithm-merge-perl libasan6 libbinutils libc-dev-bin libc-devtools
  libc6-dev libcc1-0 libcrypt-dev libctf-nobfd0 libctf0 libdpkg-perl
  libfakeroot libfile-fcntllock-perl libgcc-11-dev libitm1 liblsan0 libnsl-dev
  libquadmath0 libstdc++-11-dev libtirpc-dev libtsan0 libubsan1 linux-libc-dev
  lto-disabled-list make manpages-dev rpcsvc-proto
제안하는 패키지:
  binutils-doc debian-keyring g++-multilib g++-11-multilib gcc-11-doc
  gcc-multilib autoconf automake libtool flex bison gcc-doc gcc-11-multilib
  gcc-11-locales glibc-doc git bzip2 libstdc++-11-doc make-doc
다음 새 패키지를 설치할 것입니다:
  binutils binutils-common binutils-x86-64-linux-gnu build-essential dpkg-dev
  fakeroot g++ g++-11 gcc gcc-11 libalgorithm-diff-perl
  libalgorithm-diff-xs-perl libalgorithm-merge-perl libasan6 libbinutils
  libc-dev-bin libc-devtools libc6-dev libcc1-0 libcrypt-dev libctf-nobfd0
  libctf0 libdpkg-perl libfakeroot libfile-fcntllock-perl libgcc-11-dev
  libitm1 liblsan0 libnsl-dev libquadmath0 libstdc++-11-dev libtirpc-dev
  libtsan0 libubsan1 linux-libc-dev lto-disabled-list make manpages-dev
  rpcsvc-proto
0개 업그레이드, 39개 새로 설치, 0개 제거 및 13개 업그레이드 안 함.
54.2 M바이트 아카이브를 받아야 합니다.
이 작업 후 186 M바이트의 디스크 공간을 더 사용하게 됩니다.
계속 하시겠습니까? [Y/n]
```

21. (선택 - 보유하고 있는 경우) NVIDIA Tesla M40 24GB - CUDA 12.4 드라이버 설치(PyTorch 공식 지원 - 기준: 2024-08-09)

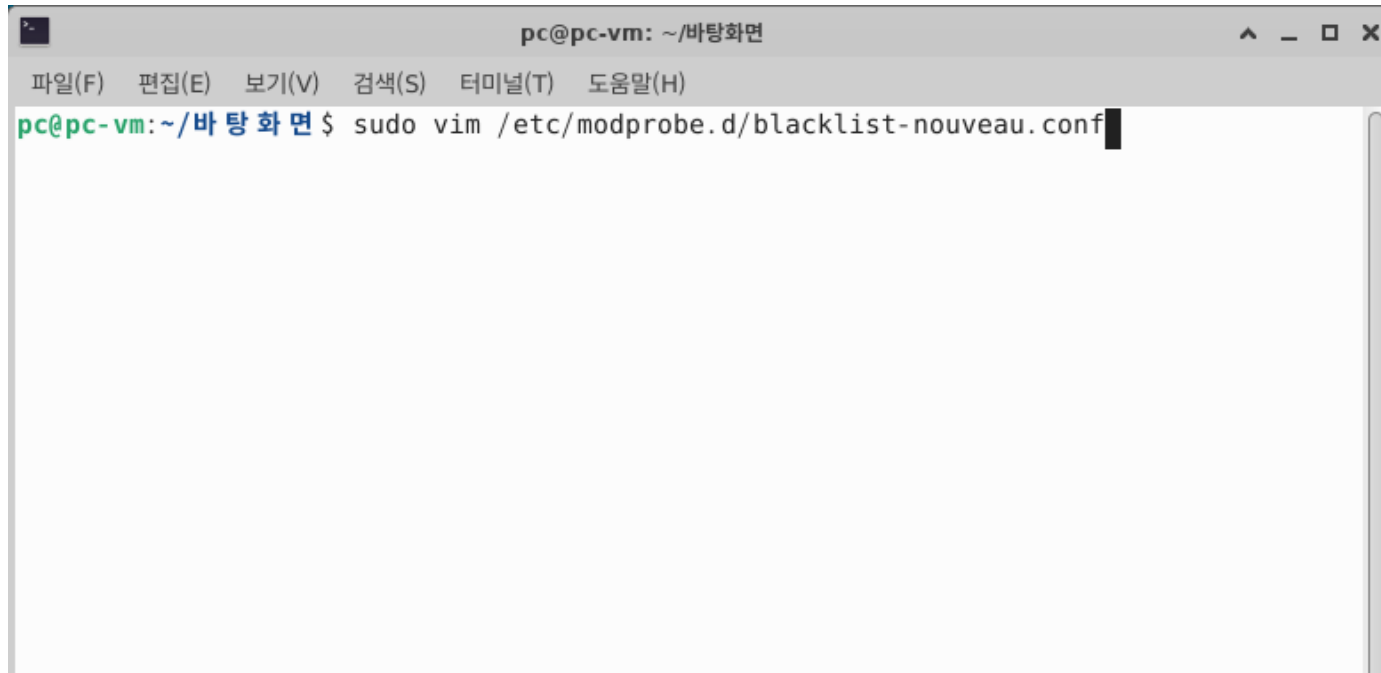
- `sudo apt update && sudo apt upgrade`

```
pc@pc-vm: ~/바탕화면
파일(F) 편집(E) 보기(V) 검색(S) 터미널(T) 도움말(H)
pc@pc-vm:~/바탕화면$ sudo apt update && sudo apt upgrade
기존:1 http://mirror.kakao.com/ubuntu jammy InRelease
받기:2 http://mirror.kakao.com/ubuntu jammy-updates InRelease [128 kB]
기존:3 http://mirror.kakao.com/ubuntu jammy-backports InRelease
받기:4 http://mirror.kakao.com/ubuntu jammy-security InRelease [129 kB]
받기:5 https://dl.google.com/linux/chrome/deb stable InRelease [1,825 B]
받기:6 http://mirror.kakao.com/ubuntu jammy-updates/main amd64 Packages [1,941 kB]
받기:7 http://mirror.kakao.com/ubuntu jammy-updates/main i386 Packages [680 kB]
받기:8 http://mirror.kakao.com/ubuntu jammy-updates/main Translation-en [343 kB]
받기:9 http://mirror.kakao.com/ubuntu jammy-updates/main amd64 c-n-f Metadata [17.7 kB]
받기:10 http://mirror.kakao.com/ubuntu jammy-updates/restricted amd64 Packages [2,314 kB]
받기:11 http://mirror.kakao.com/ubuntu jammy-updates/restricted Translation-en [397 kB]
기존:12 https://ppa.launchpadcontent.net/mozillateam/ppa/ubuntu jammy InRelease
받기:13 http://mirror.kakao.com/ubuntu jammy-updates/universe amd64 Packages [1,110 kB]
받기:14 http://mirror.kakao.com/ubuntu jammy-updates/universe i386 Packages [724 kB]
받기:15 http://mirror.kakao.com/ubuntu jammy-updates/universe amd64 c-n-f Metadata [25.9 kB]
받기:16 http://mirror.kakao.com/ubuntu jammy-updates/multiverse i386 Packages [4,752 B]
받기:17 http://mirror.kakao.com/ubuntu jammy-updates/multiverse amd64 Packages [43.3 kB]
받기:18 http://mirror.kakao.com/ubuntu jammy-security/main amd64 c-n-f Metadata [13.1 kB]
받기:19 https://dl.google.com/linux/chrome/deb stable/main amd64 Packages [1,096 B]
내려받기 7,873 k바이트, 소요시간 5초 (1,520 k바이트/초)
```

```
pc@pc-vm: ~/바탕화면
파일(F) 편집(E) 보기(V) 검색(S) 터미널(T) 도움말(H)
1 kB]
받기:19 https://dl.google.com/linux/chrome/deb stable/main amd64 Packages [1,096 B]
내려받기 7,873 k바이트, 소요시간 5초 (1,520 k바이트/초)
패키지 목록을 읽는 중입니다... 완료
의존성 트리를 만드는 중입니다... 완료
상태 정보를 읽는 중입니다... 완료
17 패키지를 업그레이드할 수 있습니다. 확인하려면 'apt list --upgradable'를 실행하십시오.
패키지 목록을 읽는 중입니다... 완료
의존성 트리를 만드는 중입니다... 완료
상태 정보를 읽는 중입니다... 완료
업그레이드를 계산하는 중입니다... 완료
다음 패키지가 자동으로 설치되었지만 더 이상 필요하지 않습니다:
libwpe-1.0-1 libwpebackend-fdo-1.0-1
'sudo apt autoremove'를 이용하여 제거하십시오.
Get more security updates through Ubuntu Pro with 'esm-apps' enabled:
exo-utils xrdp libexo-2-0 libexo-common
Learn more about Ubuntu Pro at https://ubuntu.com/pro
다음 새 패키지를 설치할 것입니다:
linux-headers-6.5.0-45-generic linux-hwe-6.5-headers-6.5.0-45
linux-image-6.5.0-45-generic linux-modules-6.5.0-45-generic
linux-modules-extra-6.5.0-45-generic ubuntu-pro-client
다음 패키지를 과거 버전으로 유지합니다:
apport apport-gtk python3-apport python3-problem-report python3-update-manager
update-manager update-manager-core
다음 패키지를 업그레이드할 것입니다:
linux-generic-hwe-22.04 linux-headers-generic-hwe-22.04
linux-image-generic-hwe-22.04 thunderbird thunderbird-gnome-support
thunderbird-locale-en thunderbird-locale-en-us thunderbird-locale-ko
ubuntu-advantage-tools ubuntu-pro-client-l10n
10개 업그레이드, 6개 새로 설치, 0개 제거 및 7개 업그레이드 안 함.
203 M바이트 아카이브를 받아야 합니다.
이 작업 후 724 M바이트의 디스크 공간을 더 사용하게 됩니다.
계속 하시겠습니까? [Y/n]
```

21. (선택 - 보유하고 있는 경우) NVIDIA Tesla M40 24GB - CUDA 12.4 드라이버 설치(PyTorch 공식 지원 - 기준: 2024-08-09)

- 기본 내장된 nvidia 드라이버와의 충돌을 막기 위해 Nouveau 드라이버 비 활성화
- `sudo vim /etc/modprobe.d/blacklist-nouveau.conf`



A terminal window titled "pc@pc-vm: ~/바탕화면" with a menu bar containing "파일(F)", "편집(E)", "보기(V)", "검색(S)", "터미널(T)", and "도움말(H)". The terminal shows the command `pc@pc-vm: ~/바탕화면$ sudo vim /etc/modprobe.d/blacklist-nouveau.conf` being entered. The cursor is at the end of the command line.

21. (선택 - 보유하고 있는 경우) NVIDIA Tesla M40 24GB - CUDA 12.4 드라이버 설치(PyTorch 공식 지원 - 기준: 2024-08-09)

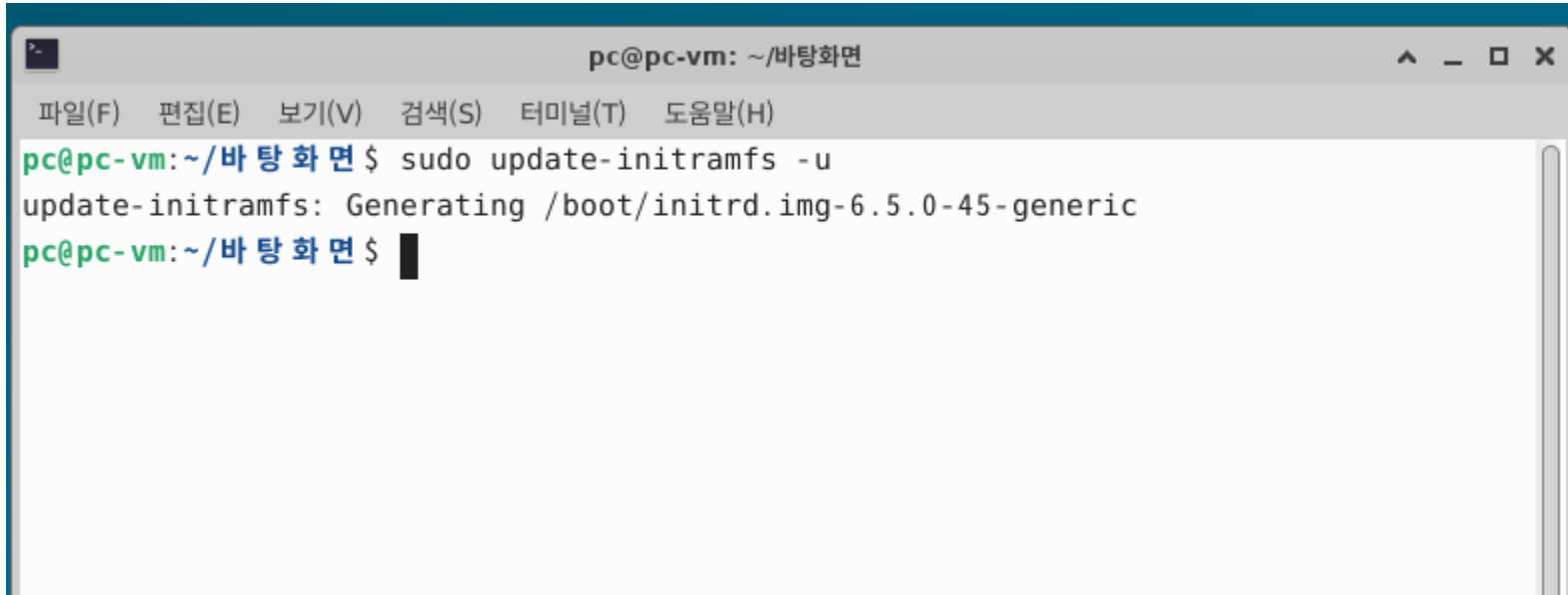
- blacklist nouveau options nouveau modeset=0



```
pc@pc-vm: ~/바탕화면
파일(F) 편집(E) 보기(V) 검색(S) 터미널(T) 도움말(H)
blacklist nouveau options nouveau modeset=0
~
~
~
~
~
~
~
~
~
~
~
```

21. (선택 - 보유하고 있는 경우) NVIDIA Tesla M40 24GB - CUDA 12.4 드라이버 설치(PyTorch 공식 지원 - 기준: 2024-08-09)

- `sudo update-initramfs -u`

A terminal window titled 'pc@pc-vm: ~/바탕화면' with standard window controls. The menu bar includes '파일(F)', '편집(E)', '보기(V)', '검색(S)', '터미널(T)', and '도움말(H)'. The terminal shows the command 'pc@pc-vm:~/바탕화면\$ sudo update-initramfs -u' being executed. The output is 'update-initramfs: Generating /boot/initrd.img-6.5.0-45-generic'. The prompt returns to 'pc@pc-vm:~/바탕화면\$' with a cursor.

```
pc@pc-vm: ~/바탕화면
파일(F)  편집(E)  보기(V)  검색(S)  터미널(T)  도움말(H)
pc@pc-vm:~/바탕화면$ sudo update-initramfs -u
update-initramfs: Generating /boot/initrd.img-6.5.0-45-generic
pc@pc-vm:~/바탕화면$
```

21. (선택 - 보유하고 있는 경우) NVIDIA Tesla M40 24GB - CUDA 12.4 드라이버 설치(PyTorch 공식 지원 - 기준: 2024-08-09)

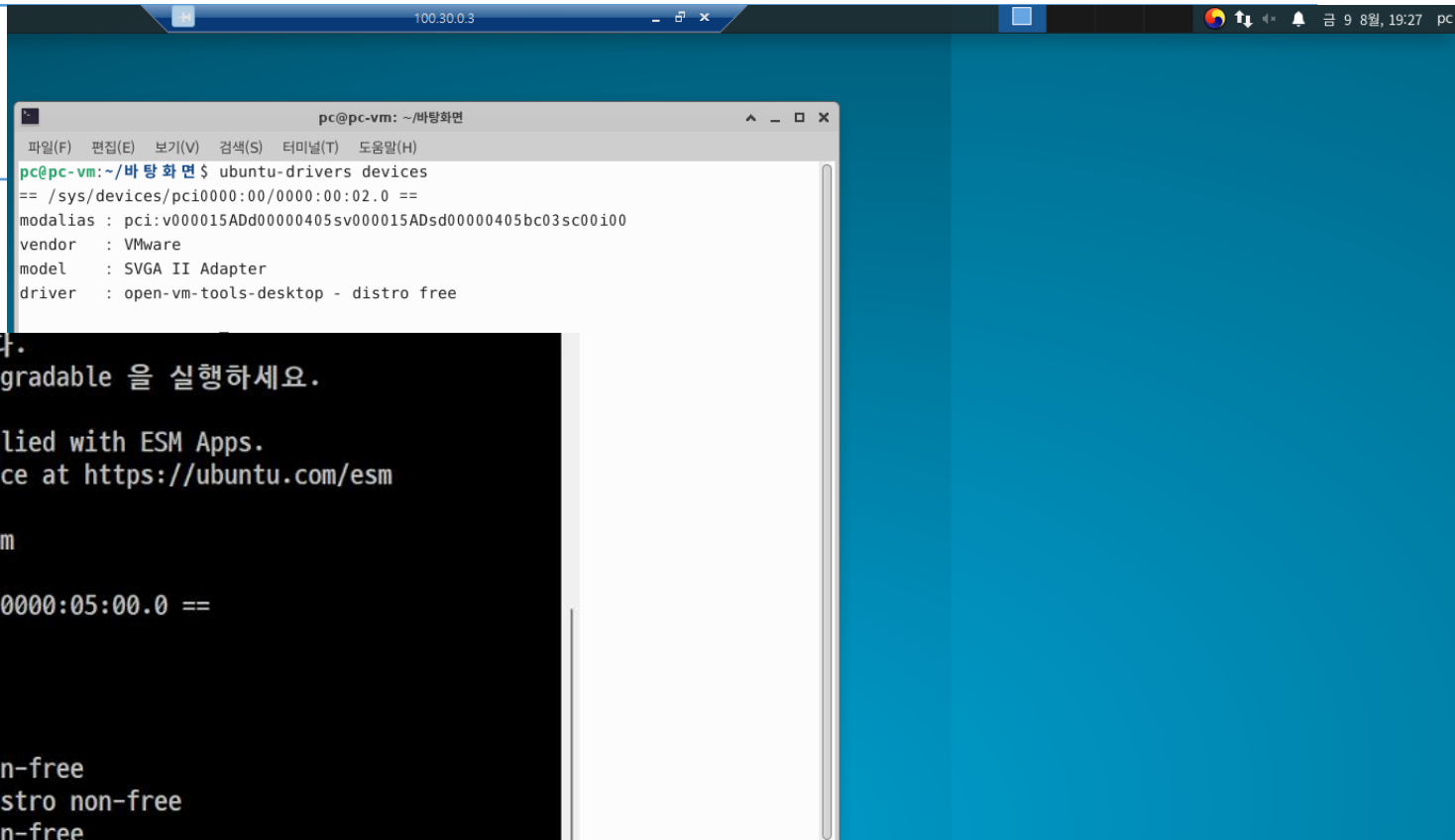
- `sudo ubuntu-drivers devices`
- 명령어가 존재하지 않으면,
 - `sudo apt install ubuntu-drivers-common`

```
pc@DYJ-WORKSTATION: ~/바탕화면
File Edit View Search Terminal Help
(base) pc@DYJ-WORKSTATION:~/바탕화면$ ubuntu-drivers devices
명령어 'ubuntu-drivers' 을(를) 찾을 수 없습니다. 그러나 다음을 통해 설치할 수 있습니다:
sudo apt install ubuntu-drivers-common
(base) pc@DYJ-WORKSTATION:~/바탕화면$ sudo apt install ubuntu-drivers-common
```

```
pc@DYJ-WORKSTATION: ~/바탕화면
File Edit View Search Terminal Help
sudo apt install ubuntu-drivers-common
(base) pc@DYJ-WORKSTATION:~/바탕화면$ sudo apt install ubuntu-drivers-common
패키지 목록을 읽는 중입니다... 완료
의존성 트리를 만드는 중입니다... 완료
상태 정보를 읽는 중입니다... 완료
다음의 추가 패키지가 설치될 것입니다 :
python3-click python3-colorama
제안하는 패키지:
python3-aptdaemon.pkcompat
다음 새 패키지를 설치할 것입니다:
python3-click python3-colorama ubuntu-drivers-common
0개 업그레이드, 3개 새로 설치, 0개 제거 및 10개 업그레이드 안 함.
162 k바이트 아카이브를 받아야 합니다.
이 작업 후 767 k바이트의 디스크 공간을 더 사용하게 됩니다.
계속 하시겠습니까? [Y/n] Y
받기:1 http://mirror.kakao.com/ubuntu jammy/main amd64 python3-colorama all 0.4.4-1 [24.5 kB]
받기:2 http://mirror.kakao.com/ubuntu jammy/main amd64 python3-click all 8.0.3-1 [78.3 kB]
받기:3 http://mirror.kakao.com/ubuntu jammy-updates/main amd64 ubuntu-drivers-common amd64 1:0.9.6.2~0.22.04.6 [58.7 kB]
내려받기 162 k바이트, 소요시간 0초 (1,101 k바이트/초)
패키지를 미리 설정하는 중입니다...
Selecting previously unselected package python3-colorama.
```


21. (선택 - 보유하고 있는 경우) NVIDIA Tesla M40 24GB - CUDA 12.4 드라이버 설치(PyTorch 공식 지원 - 기준: 2024-08-09)

- `sudo ubuntu-drivers devices`
- 명령어가 존재하지 않으면,
 - `sudo apt install ubuntu-drivers-common`



```
pc@pc-vm: ~/바탕화면
파일(F) 편집(E) 보기(V) 검색(S) 터미널(T) 도움말(H)
pc@pc-vm:~/바탕 화면$ ubuntu-drivers devices
== /sys/devices/pci0000:00/0000:00:02.0 ==
modalias : pci:v000015ADd00000405sv000015ADsd00000405bc03sc00i00
vendor    : VMware
model     : SVGA II Adapter
driver    : open-vm-tools-desktop - distro free
```

```
1개의 업데이트는 일반 보안 업데이트입니다.
추가 업데이트를 확인하려면 apt list --upgradable 을 실행하세요.

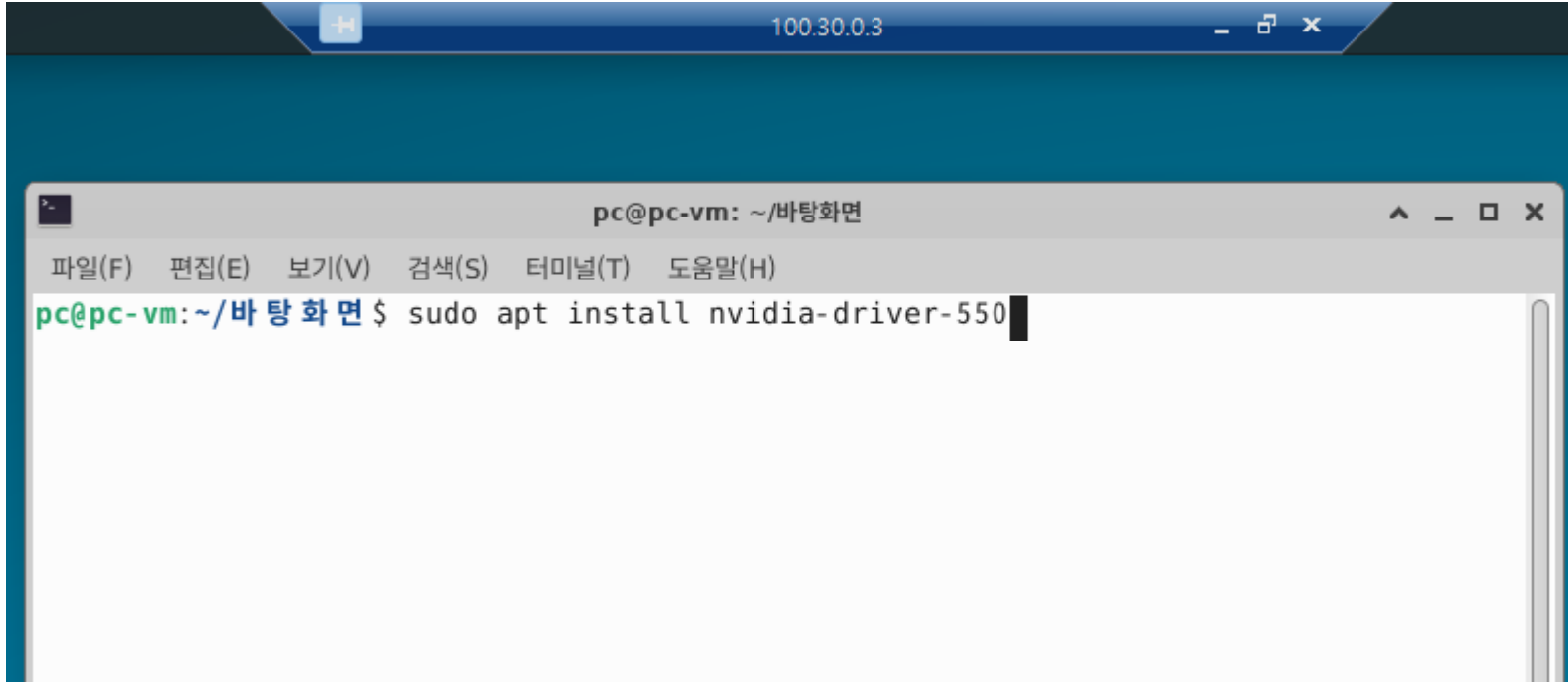
4 additional security updates can be applied with ESM Apps.
Learn more about enabling ESM Apps service at https://ubuntu.com/esm

Last login: Fri Aug  9 11:40:03 2024 from
(base) → ~ ubuntu-drivers devices
== /sys/devices/pci0000:00/0000:00:1c.4/0000:05:00.0 ==
modalias : pci:\
vendor   : NVIDIA Corporation
model    : GM200GL [Tesla M40]
manual_install: True
driver   : nvidia-driver-470 - distro non-free
driver   : nvidia-driver-470-server - distro non-free
driver   : nvidia-driver-390 - distro non-free
driver   : nvidia-driver-545 - distro non-free
driver   : nvidia-driver-535 - distro non-free recommended
driver   : nvidia-driver-535-server - distro non-free
driver   : nvidia-driver-450-server - distro non-free
driver   : nvidia-driver-418-server - distro non-free
driver   : xserver-xorg-video-nouveau - distro free builtin

(base) → ~
```

21. (선택 - 보유하고 있는 경우) NVIDIA Tesla M40 24GB - CUDA 12.4 드라이버 설치(PyTorch 공식 지원 - 기준: 2024-08-09)

- `sudo apt install nvidia-driver-550`



The screenshot shows a terminal window titled "pc@pc-vm: ~/바탕화면". The window has a menu bar with options: 파일(F), 편집(E), 보기(V), 검색(S), 터미널(T), 도움말(H). The command prompt shows the user is at the root directory (~) and has entered the command `sudo apt install nvidia-driver-550`. The cursor is at the end of the command line.

22. (선택 - 보유하고 있는 경우) NVIDIA Tesla M40 24GB - PyTorch Stable (2.4.0 / 기준: 2024-08-09)

- Latest Version

PyTorch

Select your preferences and run the install command. Stable represents the most currently tested and supported version of PyTorch. This should be suitable for many users. Preview is available if you want the latest, not fully tested and supported, builds that are generated nightly. Please ensure that you have **met the prerequisites below (e.g., numpy)**, depending on your package manager. Anaconda is our recommended package manager since it installs all dependencies. You can also [install previous versions of PyTorch](#). Note that LibTorch is only available for C++.

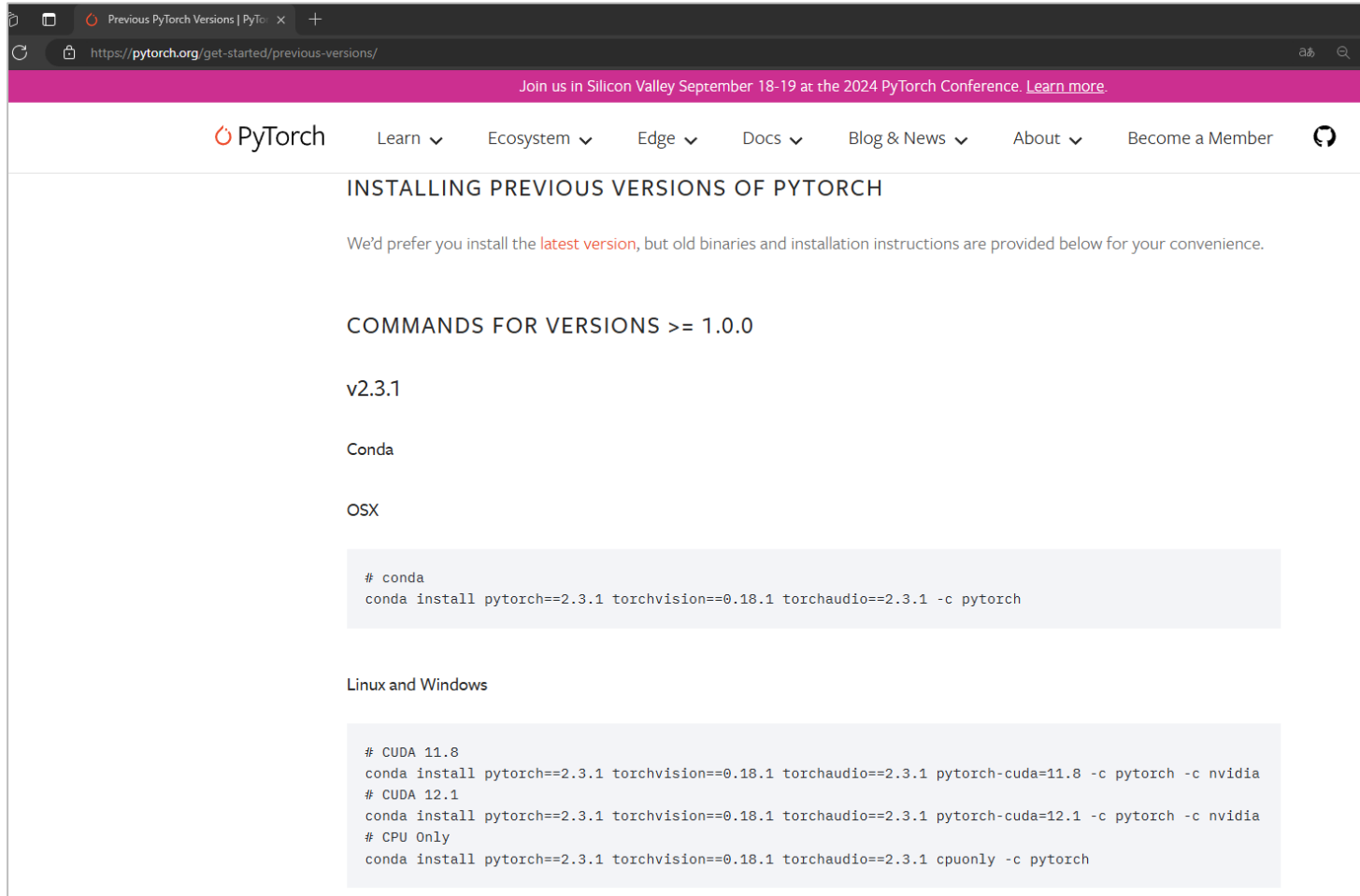
NOTE: Latest PyTorch requires Python 3.8 or later.

PyTorch Build	Stable (2.4.0)		Preview (Nightly)		
Your OS	Linux	Mac	Windows		
Package	Conda	Pip	LibTorch	Source	
Language	Python		C++ / Java		
Compute Platform	CUDA 11.8	CUDA 12.1	CUDA 12.4	ROCm 6.1	CPU
Run this Command:	<pre>pip3 install torch torchvision torchaudio --index-url https://download.pytorch.org/whl/cu124</pre>				

- <https://pytorch.org/get-started/locally/>

22. (선택 - 보유하고 있는 경우) NVIDIA Tesla M40 24GB - PyTorch Stable (2.4.0 / 기준: 2024-08-09)

- Previous Version



The screenshot shows the PyTorch website's 'Previous Versions' page. The page title is 'INSTALLING PREVIOUS VERSIONS OF PYTORCH'. A note states: 'We'd prefer you install the **latest version**, but old binaries and installation instructions are provided below for your convenience.' The page is divided into sections for 'COMMANDS FOR VERSIONS >= 1.0.0', 'v2.3.1', 'Conda', 'OSX', and 'Linux and Windows'. Under 'Conda', there is a code block with the command: `# conda
conda install pytorch==2.3.1 torchvision==0.18.1 torchaudio==2.3.1 -c pytorch`. Under 'Linux and Windows', there are three code blocks for different CUDA versions and CPU-only installation: `# CUDA 11.8
conda install pytorch==2.3.1 torchvision==0.18.1 torchaudio==2.3.1 pytorch-cuda=11.8 -c pytorch -c nvidia`, `# CUDA 12.1
conda install pytorch==2.3.1 torchvision==0.18.1 torchaudio==2.3.1 pytorch-cuda=12.1 -c pytorch -c nvidia`, and `# CPU Only
conda install pytorch==2.3.1 torchvision==0.18.1 torchaudio==2.3.1 cpuonly -c pytorch`.

- <https://pytorch.org/get-started/previous-versions/>

23. 참고 자료

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- 2. Official Drivers | NVIDIA, NVIDIA, <https://www.nvidia.com/Download/index.aspx?lang=en-us>, accessed by 2024-08-08, last modified 2024-08-09.
- 3. WSL2 Ubuntu 한글화 설정, 코딩하고분석하는돌스, <https://datanavigator.tistory.com/m/60>, accessed by 2024-08-09, last modified 2024-08-09.
- 4. 해볼까?: ibus 실행 안될 때, shallweee, <https://shallweeee.blogspot.com/2019/12/ibus.html>, accessed by 2024-08-09, last modified 2019-12-21.
- 5. 윈도우의 WSL2에서 RDP로 우분트 데스크탑 화면으로 접속 및 제어 | xrdp session login failed for display 0 Error 해결, DragonTory, <https://dragontory.tistory.com/557>, accessed by 2024-08-09, last modified 2023-03-06.
- 6. ubuntu - Sudo nautilus gives Authorization required, but no authorization protocol specified - Stack Overflow, stackoverflow, <https://stackoverflow.com/questions/73490184/sudo-nautilus-gives-authorization-required-but-no-authorization-protocol-specif>, accessed by 2024-08-09, last modified 2023-01.
- 7. How to Install Firefox as classic Deb in Ubuntu 22.04 & 24.04, UbuntuHandbook, <https://ubuntuhandbook.org/index.php/2022/04/install-firefox-deb-ubuntu-22-04/>, accessed by 2024-08-09, last modified 2024-01-29.
- 8. Firefox is not opening in ubuntu 22.04 : r/Ubuntu, reddit, https://www.reddit.com/r/Ubuntu/comments/163rz9n/firefox_is_not_opening_in_ubuntu_2204/?rdt=40545, accessed by 2024-08-09, last modified 2023.