

# vGATE3.0 설치방법

작성일: 2015.08.04.

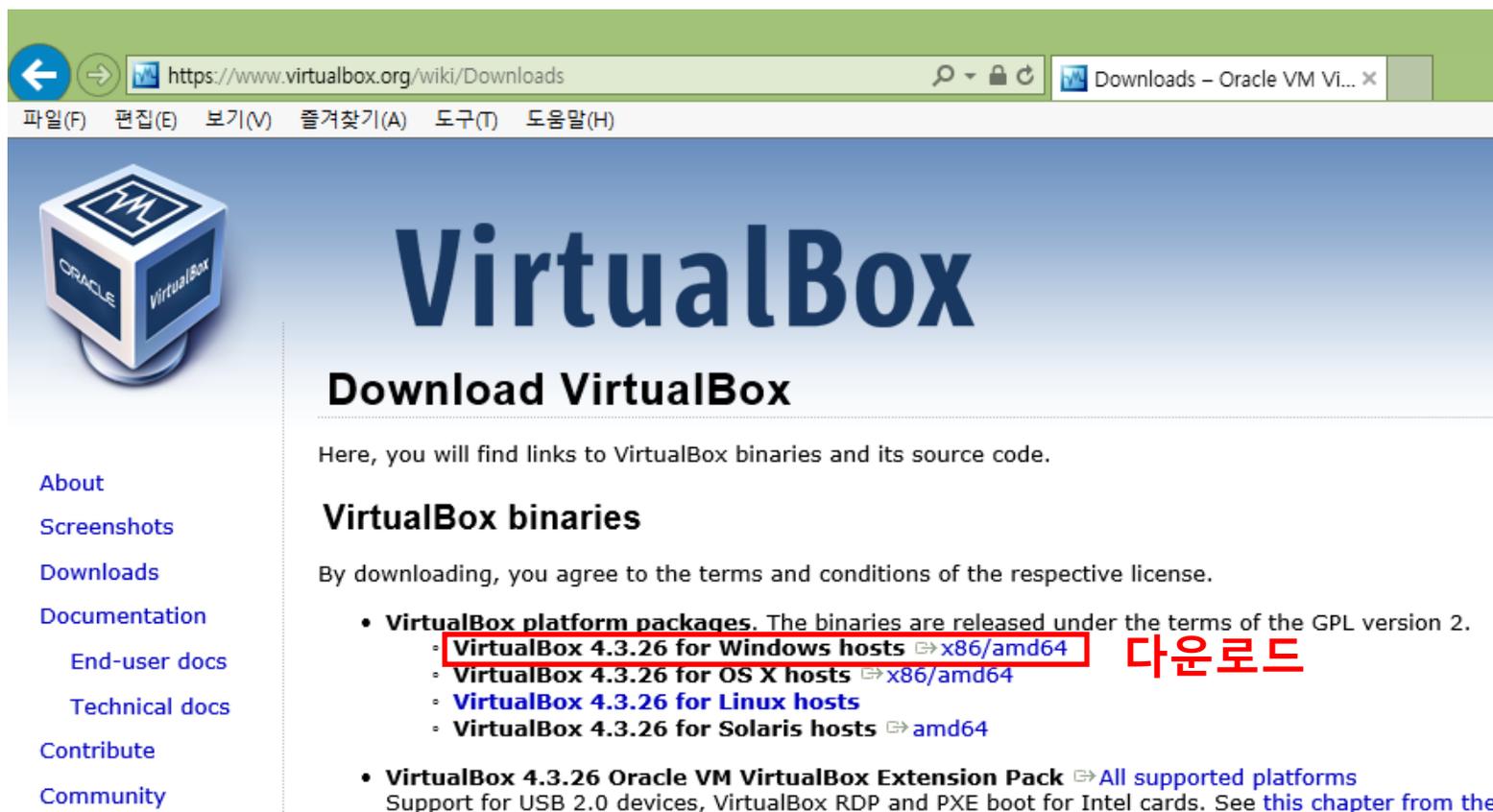
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- 2. 부팅시 CMOS화면에서 **Virtualization** [Enalbe]로 설정 (**F10**)
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- 5. ROOT프로그램으로 CT\_example 시뮬레이션 출력파일 분석방법
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# 프로그램 다운로드

- 1. Virtual Box 다운로드
  - <https://www.virtualbox.org/wiki/Downloads>



The screenshot shows a web browser window with the address bar displaying <https://www.virtualbox.org/wiki/Downloads>. The page features the VirtualBox logo on the left and a main heading "VirtualBox" in large blue letters. Below the heading is the sub-heading "Download VirtualBox". The page content includes a navigation menu on the left with links for "About", "Screenshots", "Downloads", "Documentation", "Contribute", and "Community". The main content area contains the text "Here, you will find links to VirtualBox binaries and its source code." followed by the section "VirtualBox binaries". Under this section, there is a paragraph stating "By downloading, you agree to the terms and conditions of the respective license." and a list of download links. The link "VirtualBox 4.3.26 for Windows hosts" is highlighted with a red box and the Korean word "다운로드" (download) is written next to it. Other links include "VirtualBox 4.3.26 for OS X hosts", "VirtualBox 4.3.26 for Linux hosts", "VirtualBox 4.3.26 for Solaris hosts", and "VirtualBox 4.3.26 Oracle VM VirtualBox Extension Pack".

VirtualBox

## Download VirtualBox

Here, you will find links to VirtualBox binaries and its source code.

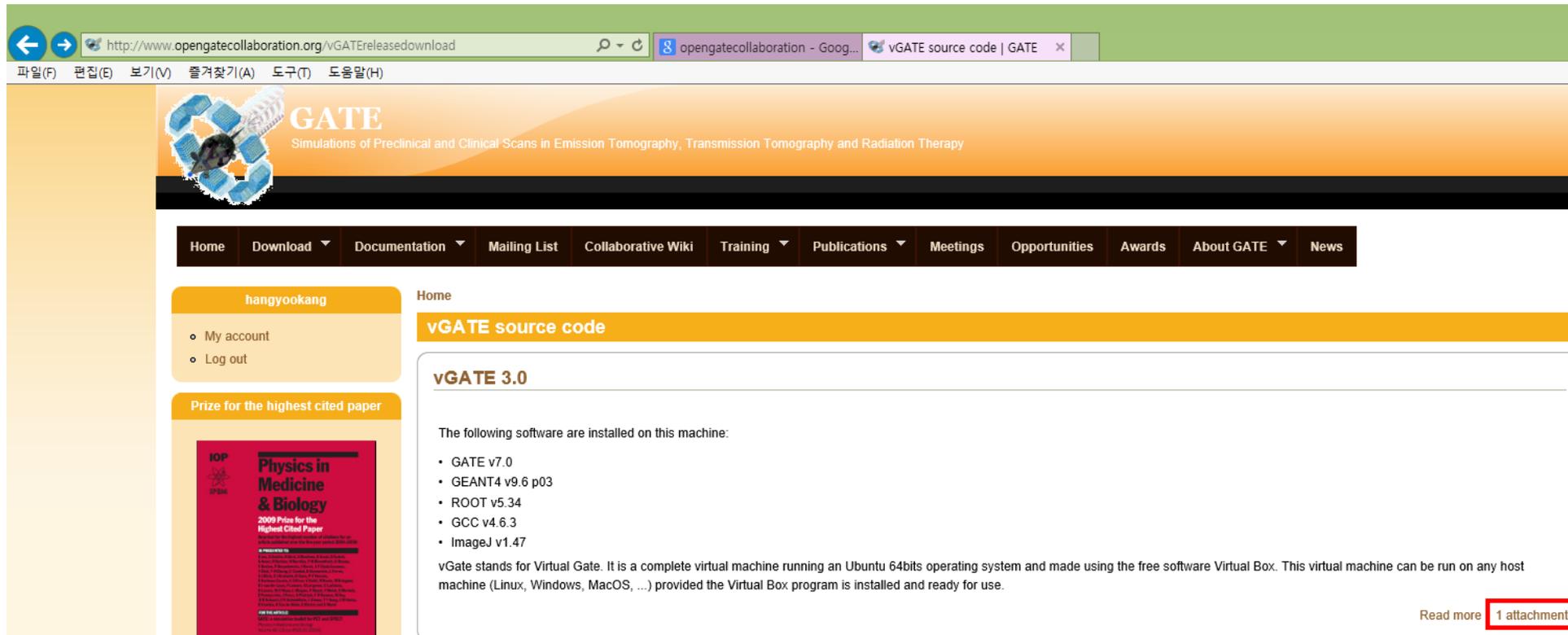
### VirtualBox binaries

By downloading, you agree to the terms and conditions of the respective license.

- **VirtualBox platform packages.** The binaries are released under the terms of the GPL version 2.
  - **VirtualBox 4.3.26 for Windows hosts** ↪ x86/amd64 **다운로드**
  - **VirtualBox 4.3.26 for OS X hosts** ↪ x86/amd64
  - **VirtualBox 4.3.26 for Linux hosts**
  - **VirtualBox 4.3.26 for Solaris hosts** ↪ amd64
- **VirtualBox 4.3.26 Oracle VM VirtualBox Extension Pack** ↪ [All supported platforms](#)  
Support for USB 2.0 devices, VirtualBox RDP and PXE boot for Intel cards. See [this chapter from the I](#)

# 프로그램 다운로드

- 1. vGATE 3.0 다운로드
  - <http://www.opengatecollaboration.org/vGATEreleasedownload>



The screenshot shows a web browser window with the URL <http://www.opengatecollaboration.org/vGATEreleasedownload>. The page features the GATE logo and navigation menu. The main content area is titled "vGATE source code" and includes a section for "vGATE 3.0" with a list of installed software and a description of the virtual machine.

**GATE**  
Simulations of Preclinical and Clinical Scans in Emission Tomography, Transmission Tomography and Radiation Therapy

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hangyookang

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- Log out

Prize for the highest cited paper

**Physics in Medicine & Biology**  
2009 Prize for the Highest Cited Paper

**vGATE 3.0**

The following software are installed on this machine:

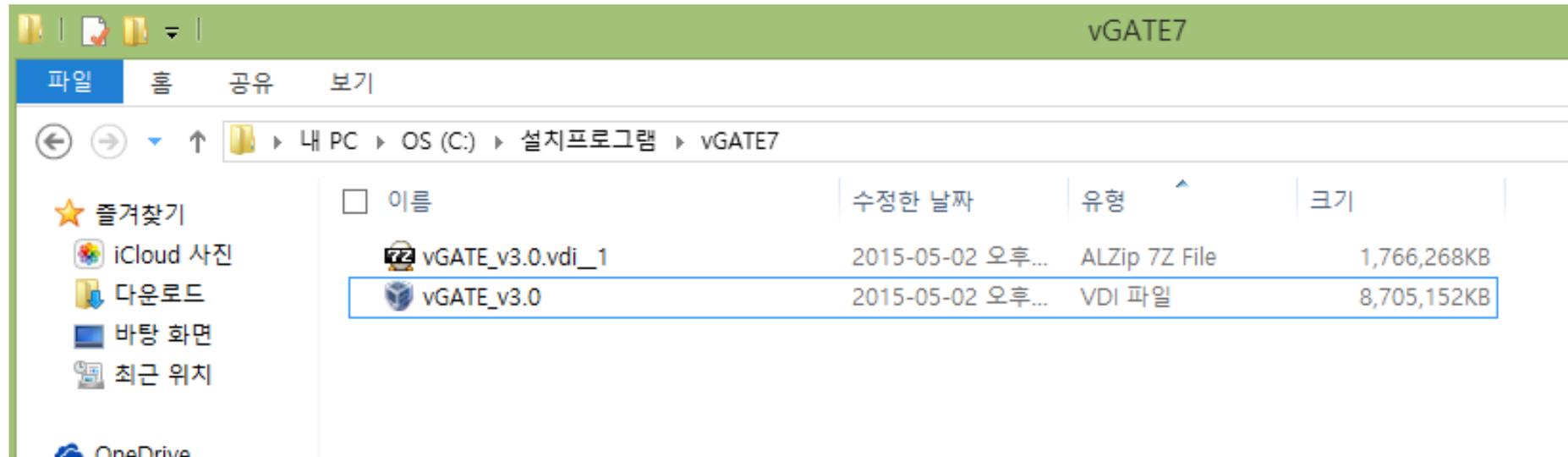
- GATE v7.0
- GEANT4 v9.6 p03
- ROOT v5.34
- GCC v4.6.3
- ImageJ v1.47

vGate stands for Virtual Gate. It is a complete virtual machine running an Ubuntu 64bits operating system and made using the free software Virtual Box. This virtual machine can be run on any host machine (Linux, Windows, MacOS, ...) provided the Virtual Box program is installed and ready for use.

Read more [1 attachment](#) **다운로드**

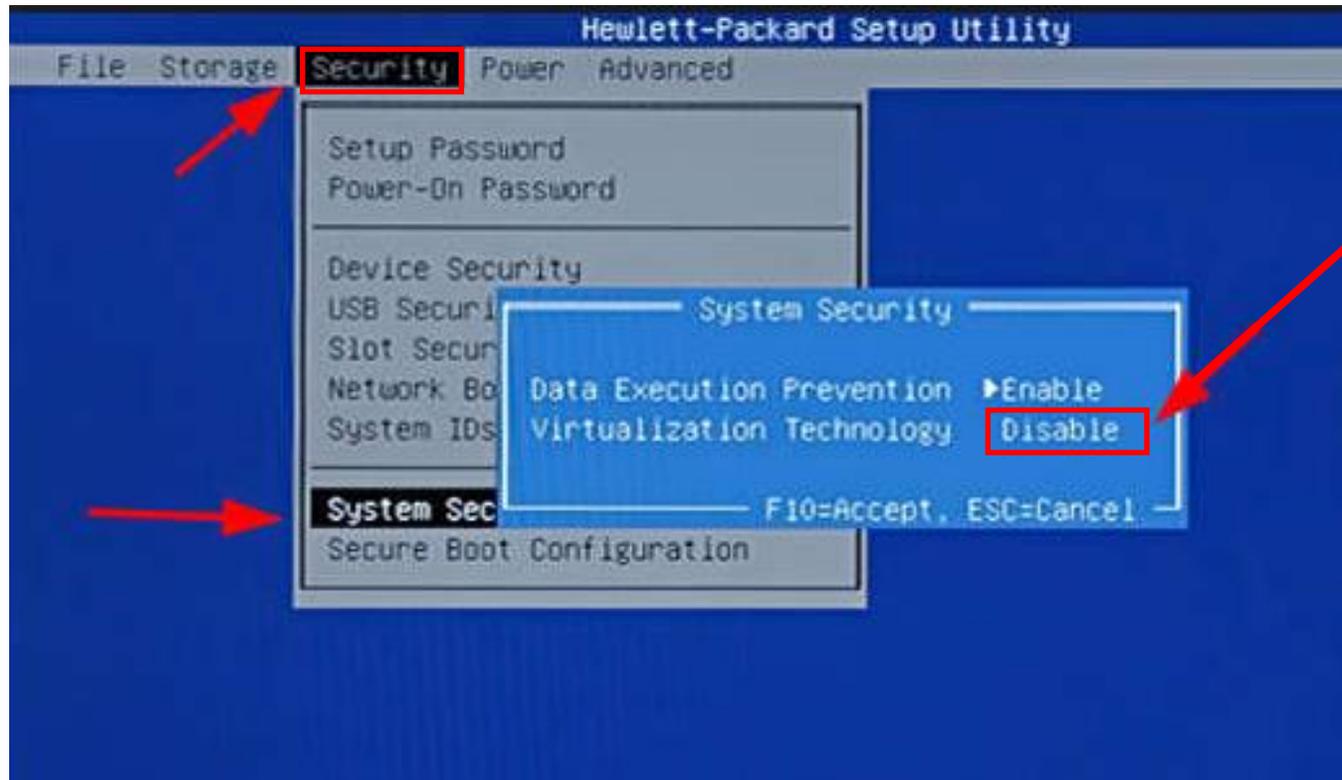
# vGATE\_v3.0.vid\_1 파일 압축풀기

“vGATE\_v3.0.vid\_1” 파일을 알집으로 압축을 풀면  
“**vGATE\_v3.0.vid**” 파일이 만들어짐



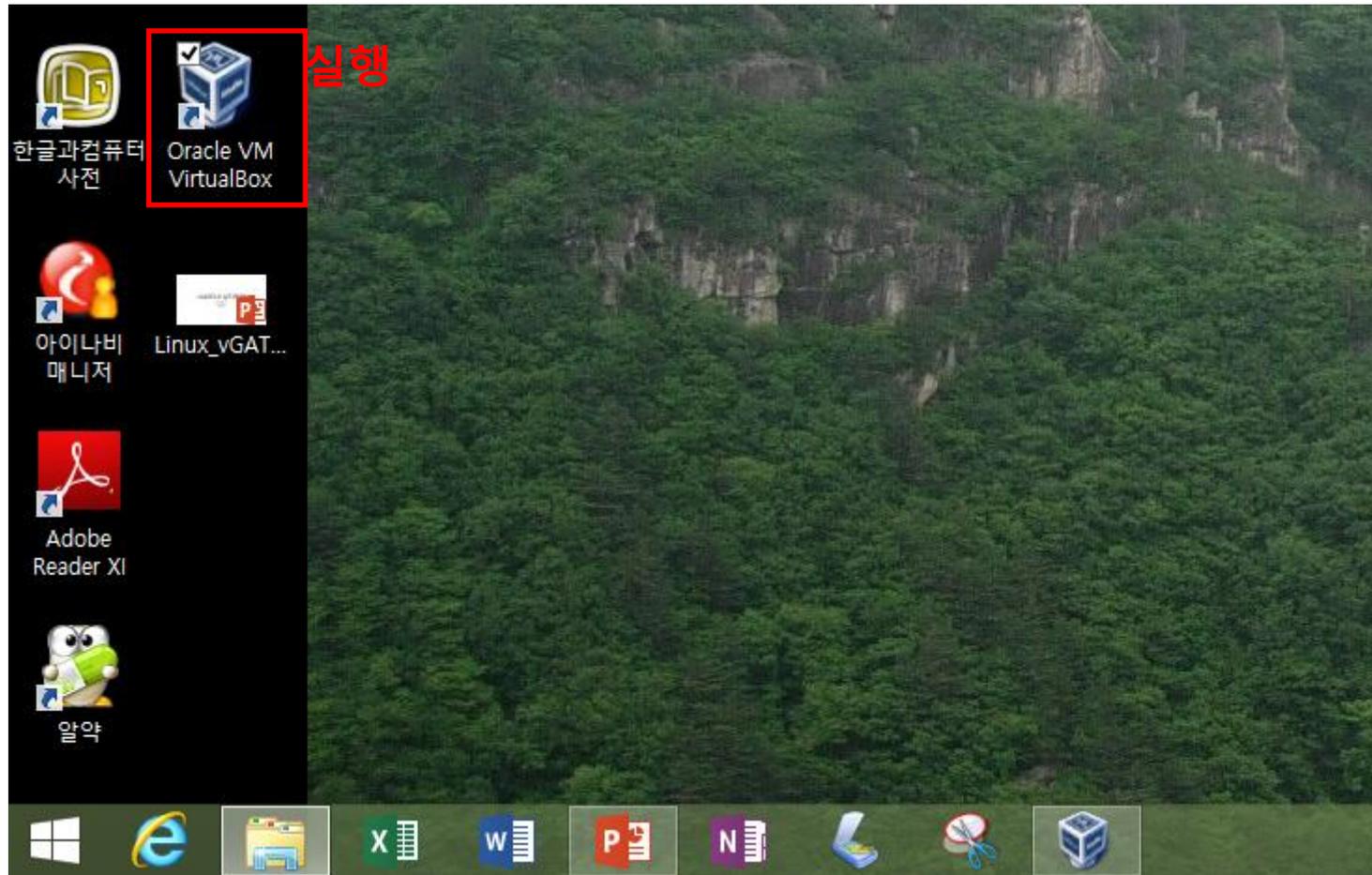
# (중요)Virtual box에서 64bit가 보이게 만들기

컴퓨터 전원 키자마자 **F10**을 눌러서 CMOS화면으로 들어감

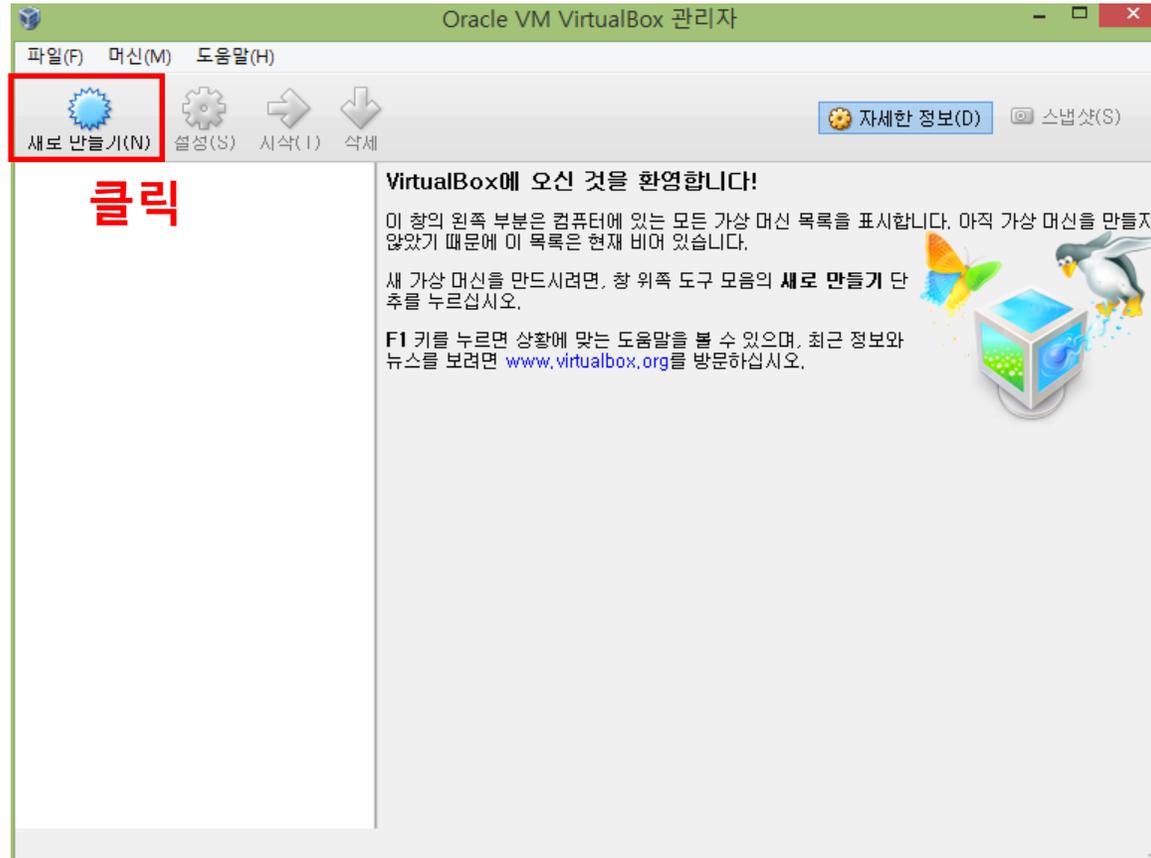


Virtualization을  
Enable로 설정(중요)

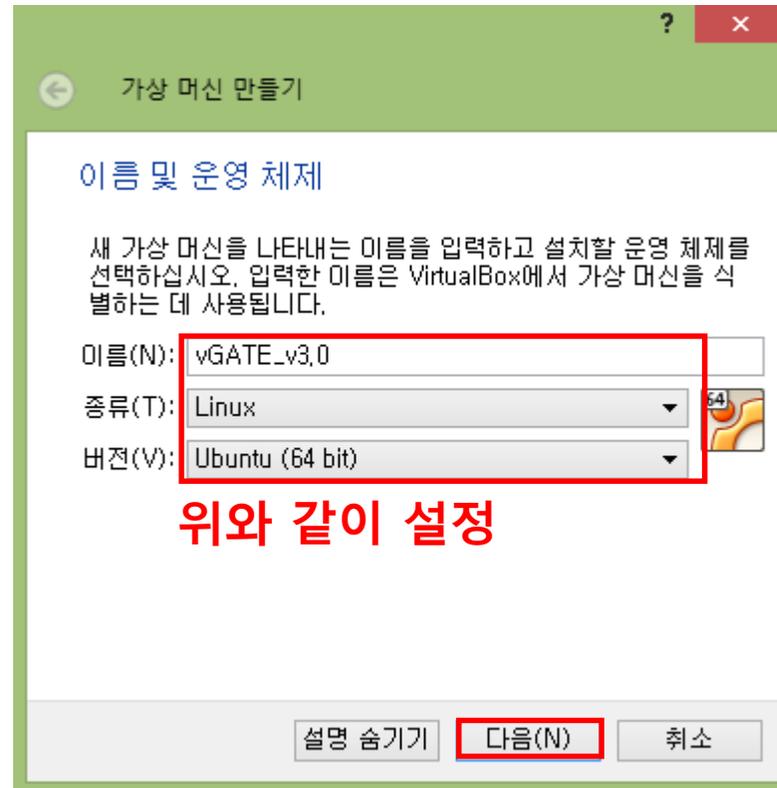
# Virtual Box 실행



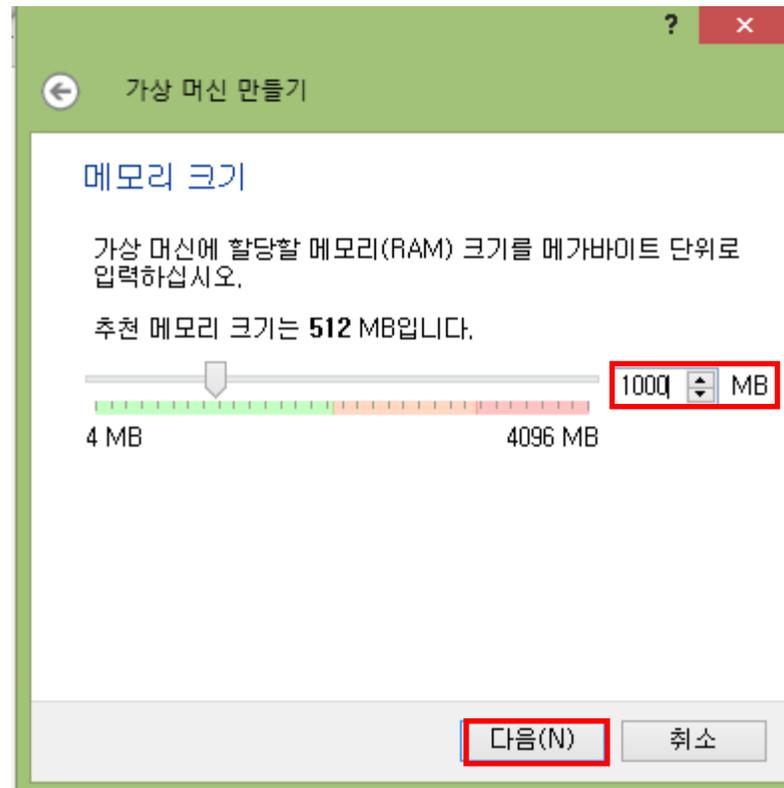
# Virtual box 실행 화면 " 새로 만들기" 클릭



# Linux, Ubuntu(64 bit)

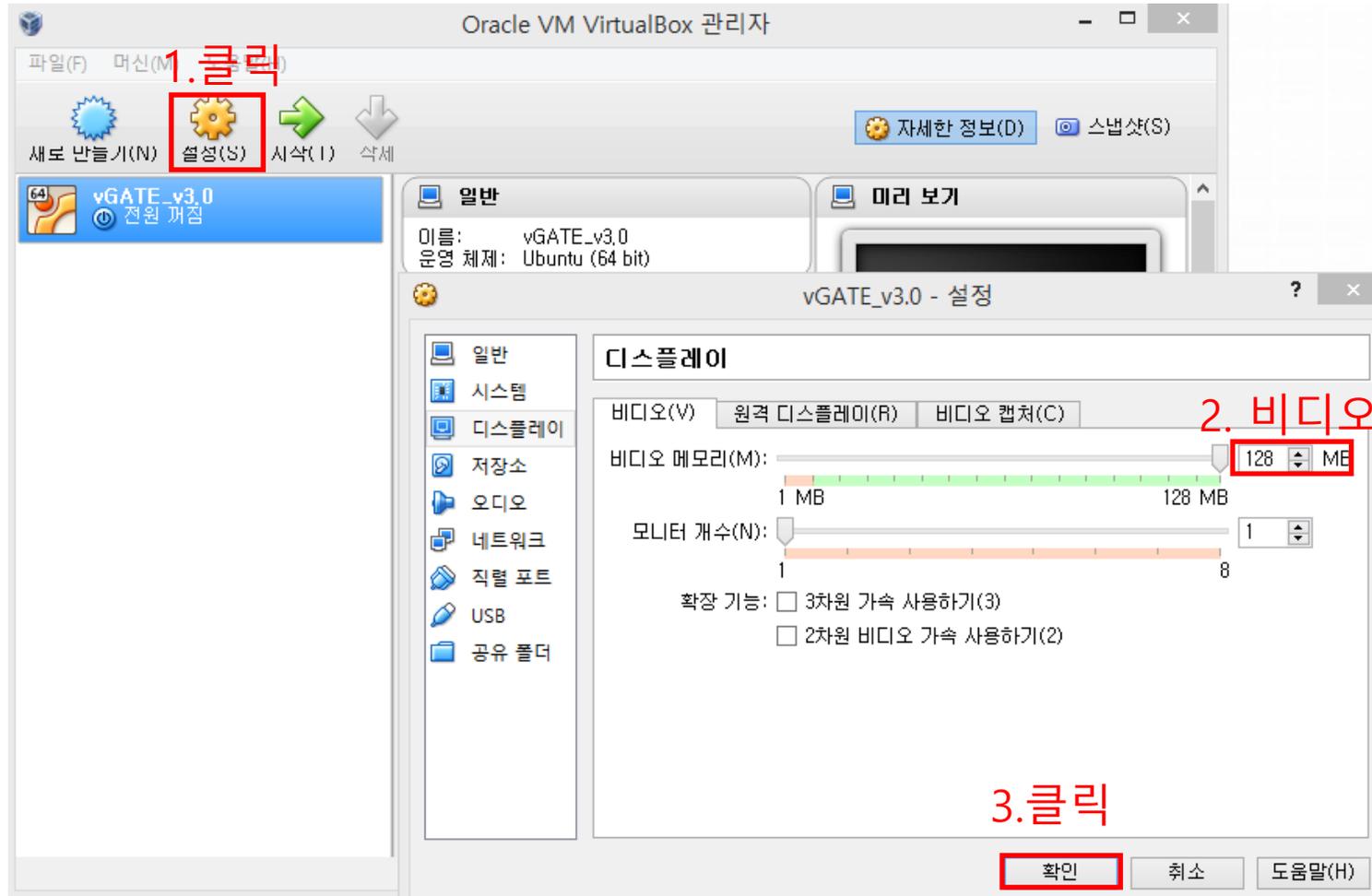


# 메모리 크기 : 512 MB -> 1000 MB로 변경



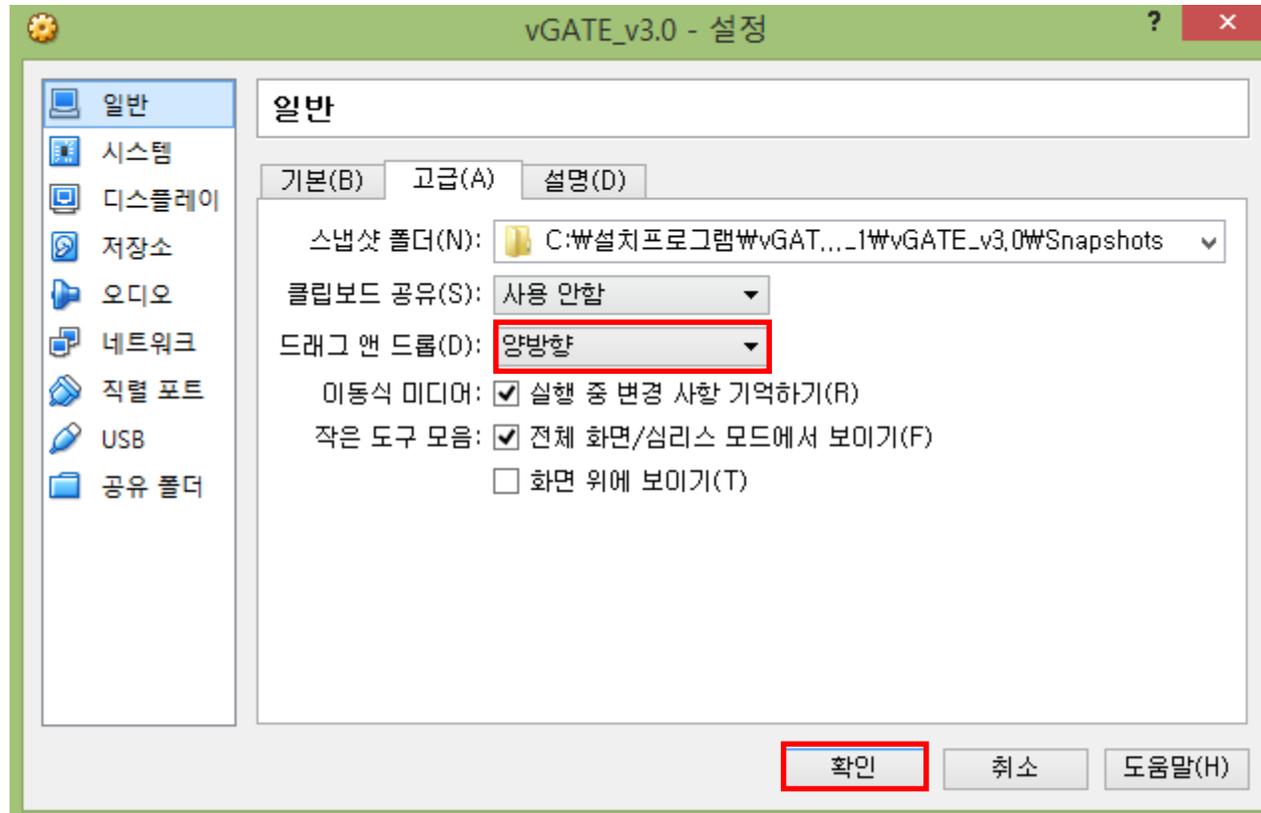
512 MB -> 1000 MB로 변경

# 설정 -> 비디오메모리 설정 -> 확인

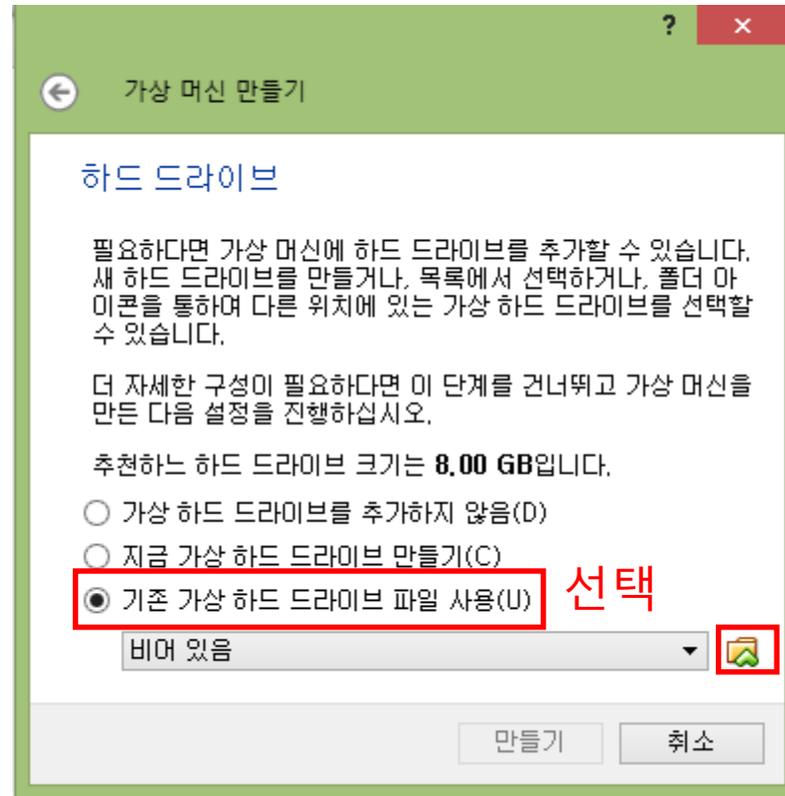


2. 비디오 메모리 128 MB로 설정

# 설정->일반->고급->드래그 앤 드롭->양방향->확인

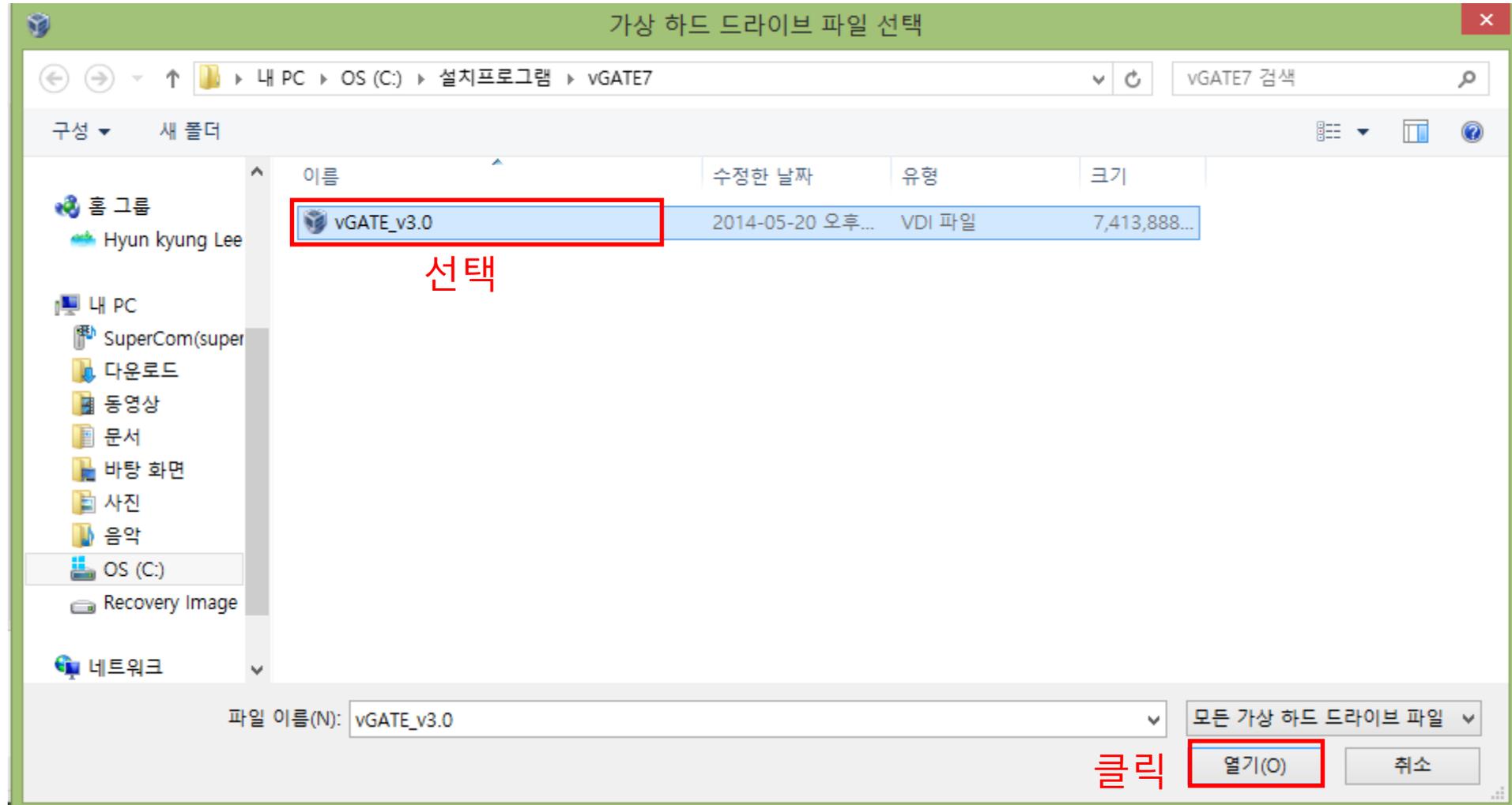


# 가상 머신 만들기

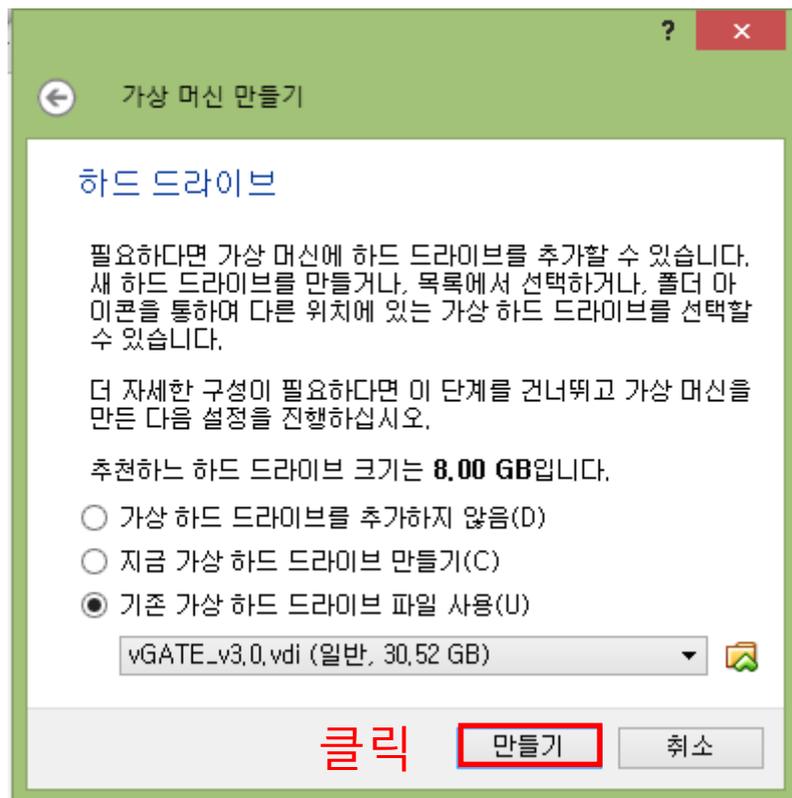


클릭

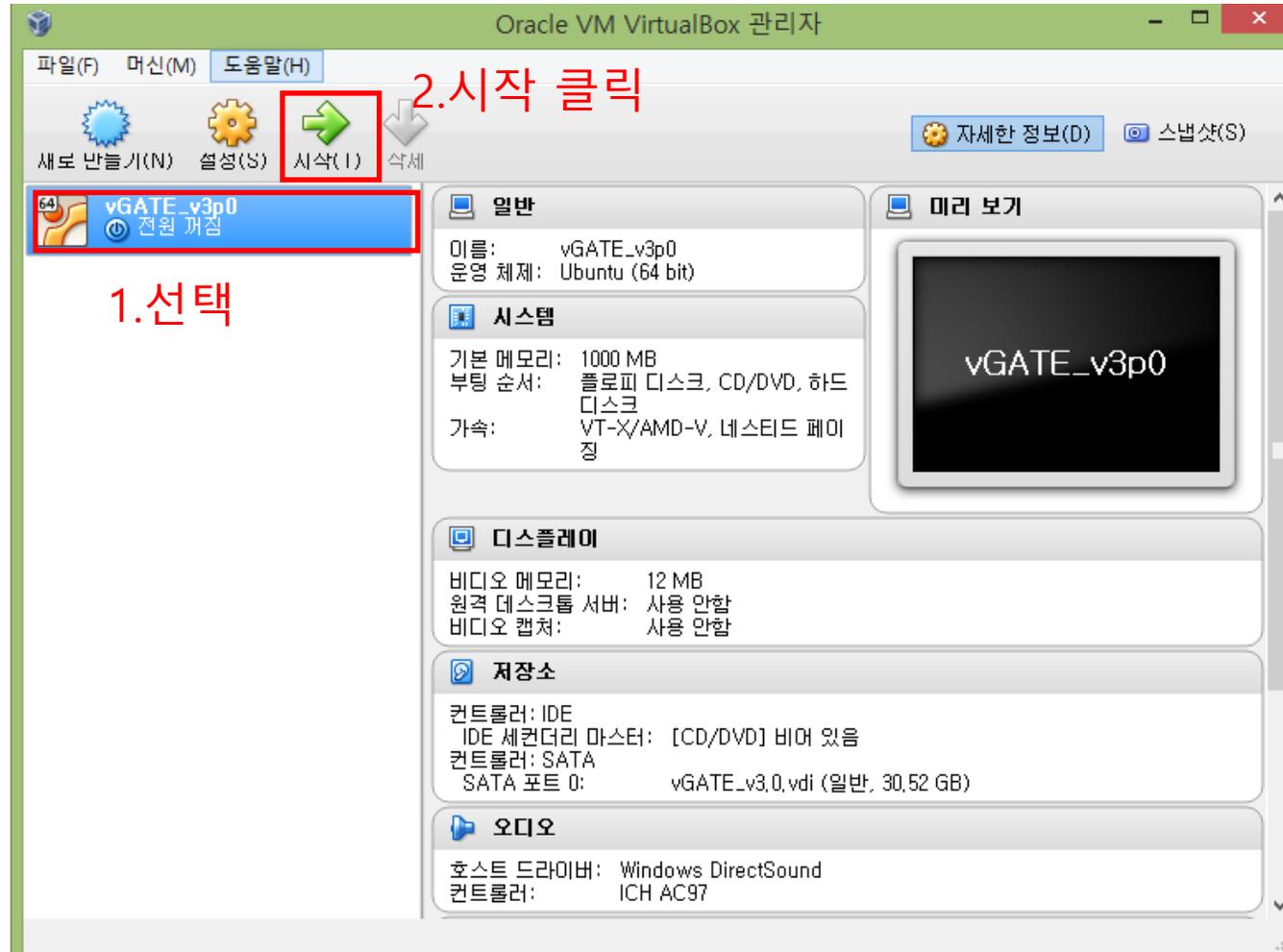
# vGATE\_v3.0.vid 파일 선택



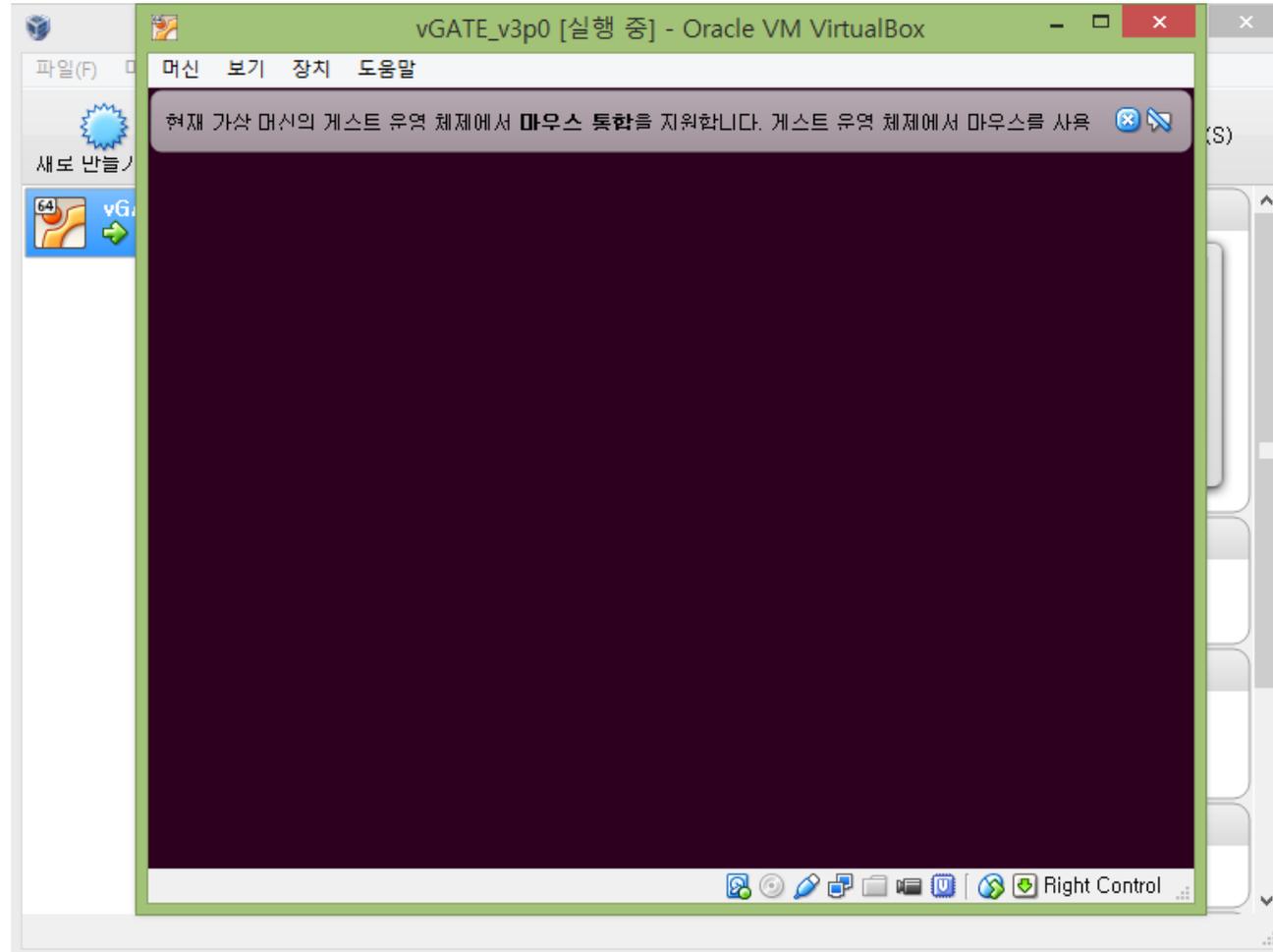
# 가상 머신 만들기(vGATE\_v3.0.vid 파일 선택)



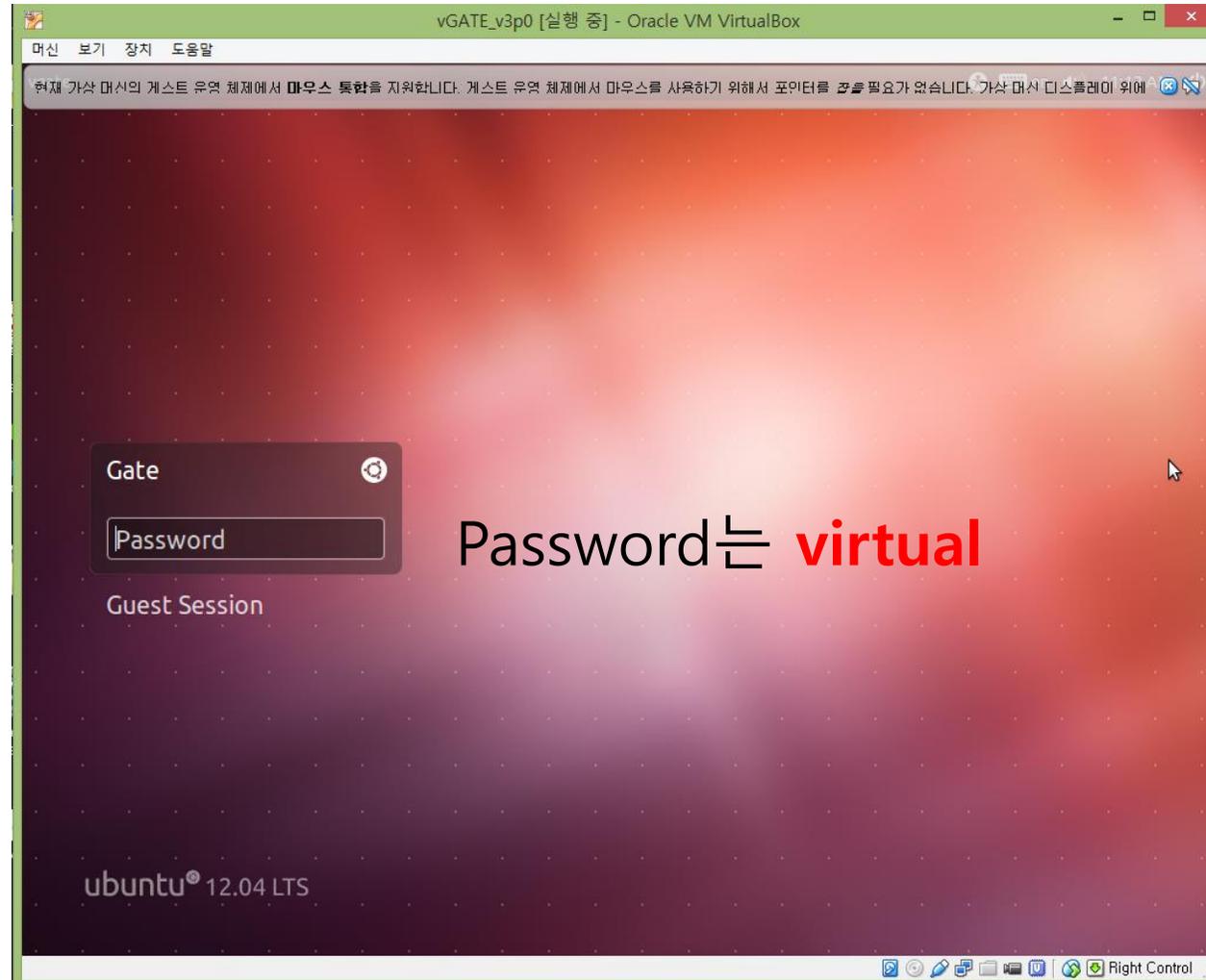
# vGATE\_v3.0을 실행



# vGATE\_v3.0을 실행중...



Password : **virtual** 입력

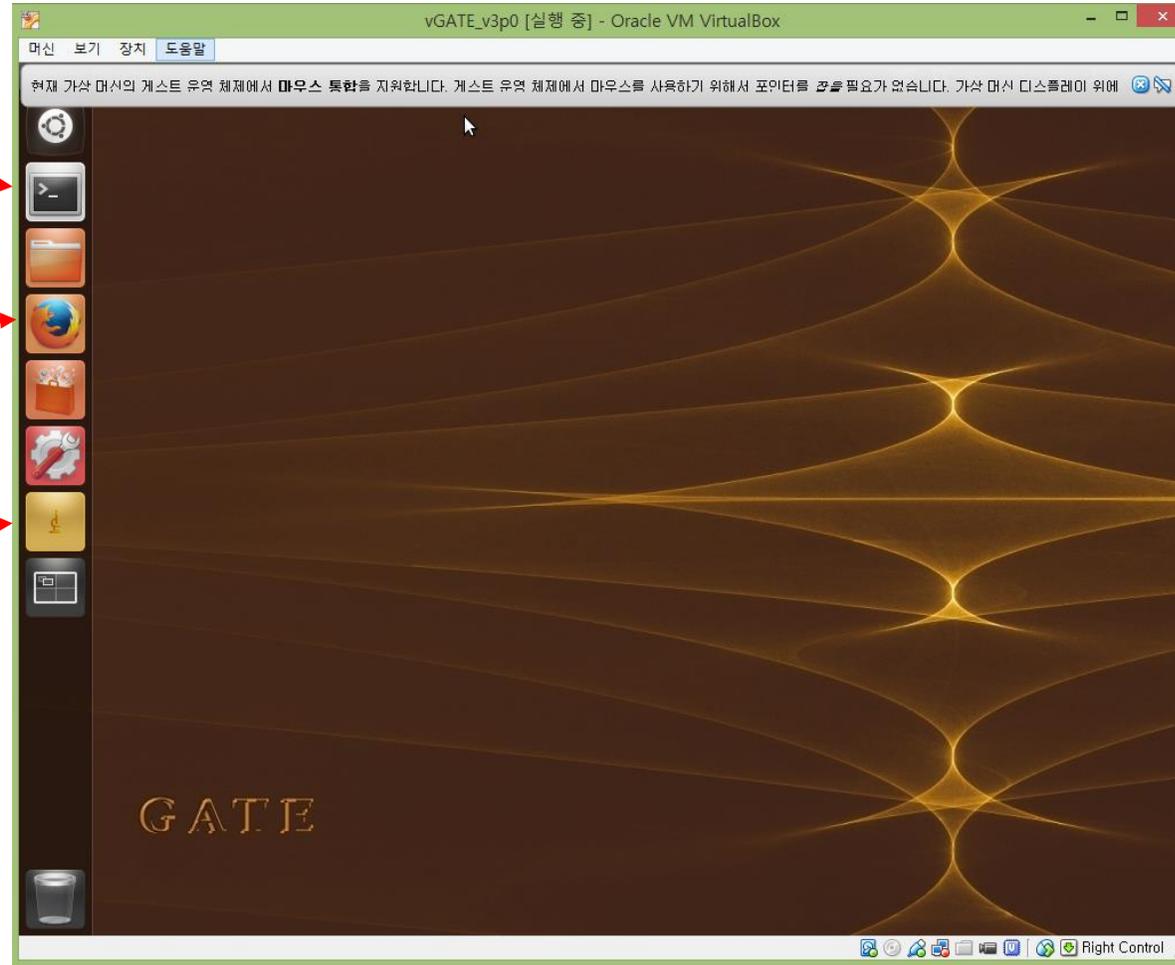


# vGATE\_v3.0 실행화면

터미널  
(Terminal)

인터넷  
(Firefox)

ImageJ

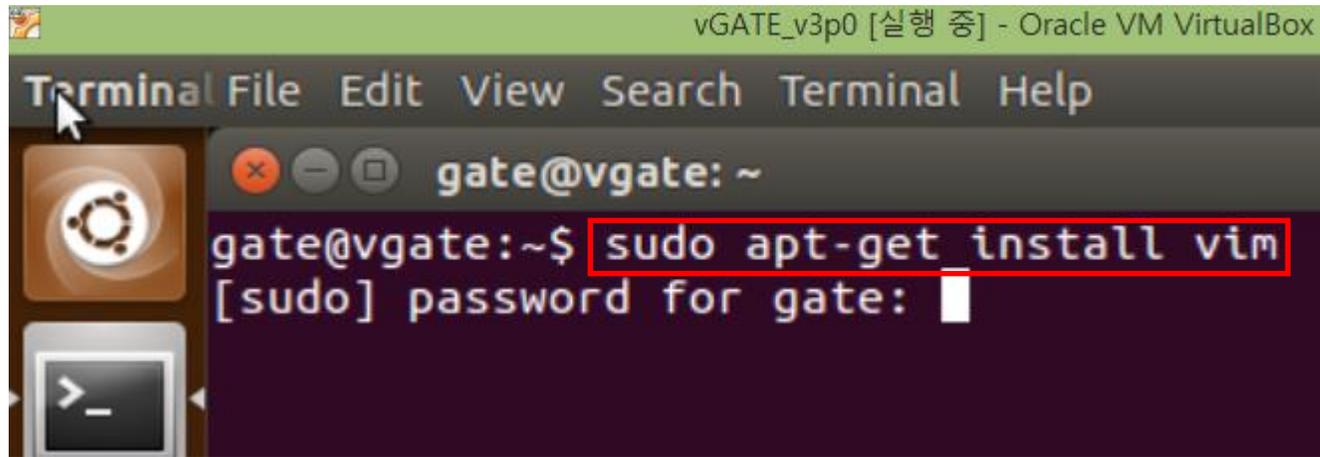






## Vi editor 설치(필수)

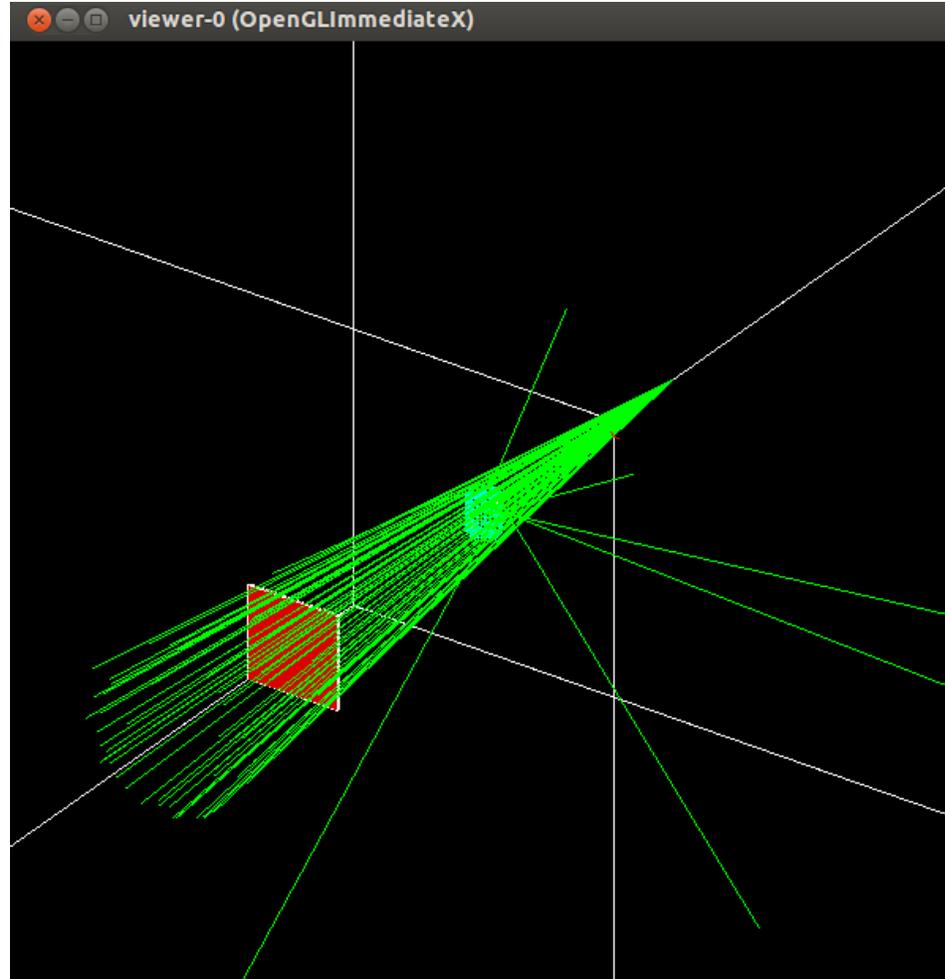
터미널(Terminal)을 열고 아래 명령어를 실행  
**sudo apt-get install vim**



```
vGATE_v3p0 [실행 중] - Oracle VM VirtualBox
Terminal File Edit View Search Terminal Help
gate@vgate: ~
gate@vgate:~$ sudo apt-get install vim
[sudo] password for gate: 
```

Password는 **virtual**

# CT example 시뮬레이션 방법 소동물용 CT!



# CT example 시뮬레이션 방법(1) 소동물용 CT!

1. 터미널에서 아래 명령어를 실행하여 CT example 폴더로 이동

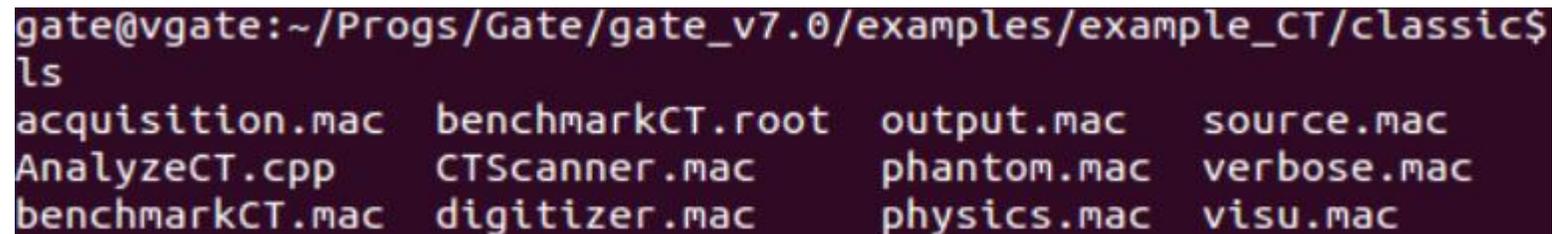
**cd /home/gate/Progs/Gate/gate\_v7.0/examples/example\_CT/classic**



```
gate@vgate: ~  
gate@vgate:~$ cd /home/gate/Progs/Gate/gate_v7.0/examples/example_CT/classic
```

2. example\_CT/classic 폴더에 있는 매크로(macro)파일들 보기

**ls**



```
gate@vgate:~/Progs/Gate/gate_v7.0/examples/example_CT/classic$  
ls  
acquisition.mac  benchmarkCT.root  output.mac  source.mac  
AnalyzeCT.cpp   CTScanner.mac     phantom.mac  verbose.mac  
benchmarkCT.mac  digitizer.mac     physics.mac  visu.mac
```

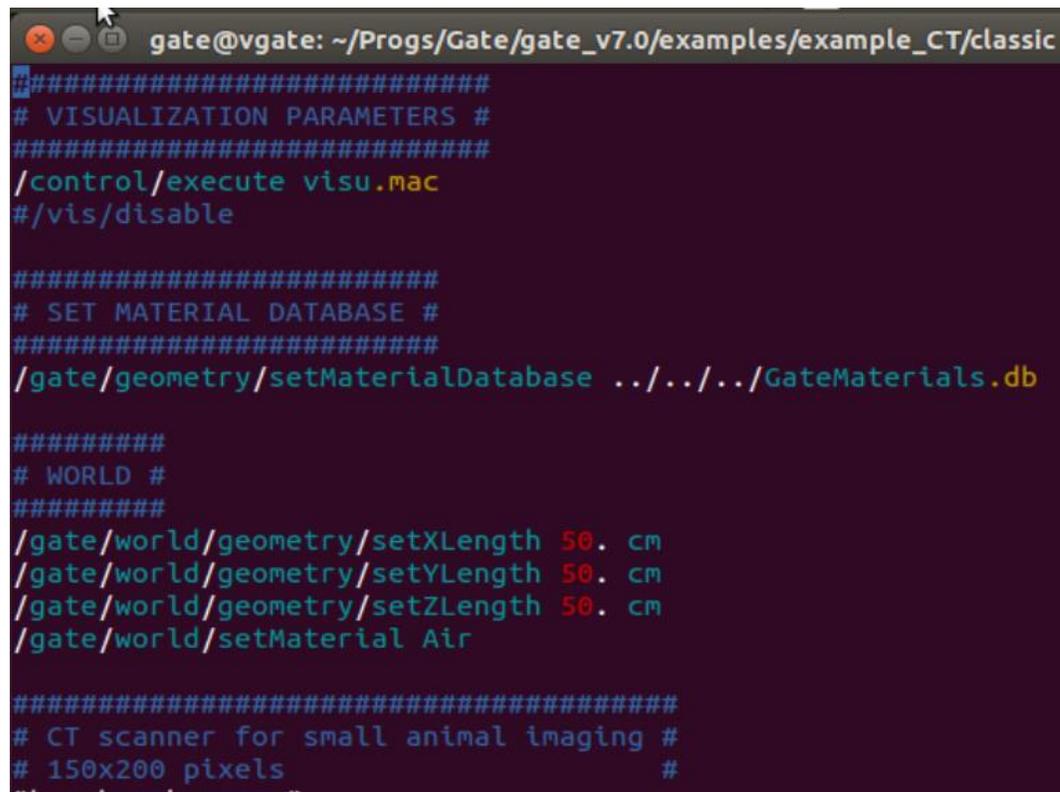
## CT example 시뮬레이션 방법(2)

3.Vi 에디터로 benchmarkCT.mac파일 열기

**Vi benchmarkCT.mac**

```
gate@vgate:~/Progs/Gate/gate_v7.0/examples/example_CT/classic$  
vi benchmarkCT.mac
```

4.Vi 에디터로 benchmarkCT.mac파일을 열은 화면



```
gate@vgate: ~/Progs/Gate/gate_v7.0/examples/example_CT/classic  
#####  
# VISUALIZATION PARAMETERS #  
#####  
/control/execute visu.mac  
#/vis/disable  
  
#####  
# SET MATERIAL DATABASE #  
#####  
/gate/geometry/setMaterialDatabase ../../../../GateMaterials.db  
  
#####  
# WORLD #  
#####  
/gate/world/geometry/setXLength 50. cm  
/gate/world/geometry/setYLength 50. cm  
/gate/world/geometry/setZLength 50. cm  
/gate/world/setMaterial Air  
  
#####  
# CT scanner for small animal imaging #  
# 150x200 pixels #
```

# CT example 시뮬레이션 방법(3)

5.vi 에디터 창에서 **insert** 키를 눌러서 "삽입모드(insert 모드)"로 들어가기

```
gate@vgate: ~/Progs/Gate/gate_v7.0/examples/example_CT/classic
#####
# VISUALIZATION PARAMETERS #
#####
/control/execute visu.mac
#/vis/disable

#####
# SET MATERIAL DATABASE #
#####
/gate/geometry/setMaterialDatabase ../../../../GateMaterials.db

#####
# WORLD #
#####
/gate/world/geometry/setXLength 50. cm
/gate/world/geometry/setYLength 50. cm
/gate/world/geometry/setZLength 50. cm
/gate/world/setMaterial Air

#####
# CT scanner for small animal imaging #
# 150x200 pixels #

insert 모드 [-- INSERT --] 5,2 Top
```

# CT example 시뮬레이션 방법(4)

6.vi 에디터 창에서 아래와 같이 바뀌어서 visualization을 실행시킴

(변경전) `#!/control/execute visu.mac` -> (변경후) `/control/execute visu.mac`  
(변경전) `/vis/disable` -> (변경후) `#!/vis/disable`  
`/gate/world/vis/forceWireframe` (새로입력)

```
gate@vgate: ~/Progs/Gate/gate_v7.0/examples/example_CT/classic
# VISUALIZATION PARAMETERS #
#####
/control/execute visu.mac
#!/vis/disable

#####
# SET MATERIAL DATABASE #
#####
/gate/geometry/setMaterialDatabase ../../../../GateMaterials.db

#####
# WORLD #
#####
/gate/world/geometry/setXLength 50. cm
/gate/world/geometry/setYLength 50. cm
/gate/world/geometry/setZLength 50. cm
/gate/world/setMaterial Air
/gate/world/vis/forceWireframe

#####
# CT scanner for small animal imaging #
# 150x200 pixels #
#
```

새로 입력

insert 모드

# CT example 시뮬레이션 방법(5)

7.vi 에디터 창에서 **Esc** 클릭 후 **shift와 :**을 입력한 후 **wq**를 입력해서 저장하고 나감

```
gate@vgate: ~/Progs/Gate/gate_v7.0/examples/example_CT/classic
#####
# VISUALIZATION PARAMETERS #
#####
/control/execute visu.mac
#/vis/disable

#####
# SET MATERIAL DATABASE #
#####
/gate/geometry/setMaterialDatabase ../../../../GateMaterials.db

#####
# WORLD #
#####
/gate/world/geometry/setXLength 50. cm
/gate/world/geometry/setYLength 50. cm
/gate/world/geometry/setZLength 50. cm
/gate/world/setMaterial Air

#####
# CT scanner for small animal imaging #
# 150x200 pixels #
#
```

**:wq**

w는 저장(wirte)  
q는 나가기(quit)

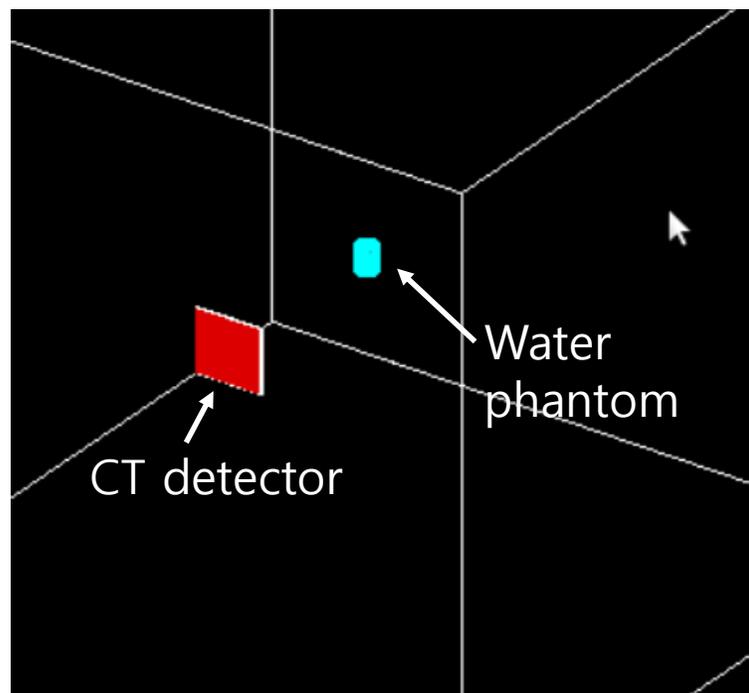
# CT example 시뮬레이션 방법(6) 소동물용 CT!

8.아래 명령어를 이용해서 Gate 시뮬레이션 실행

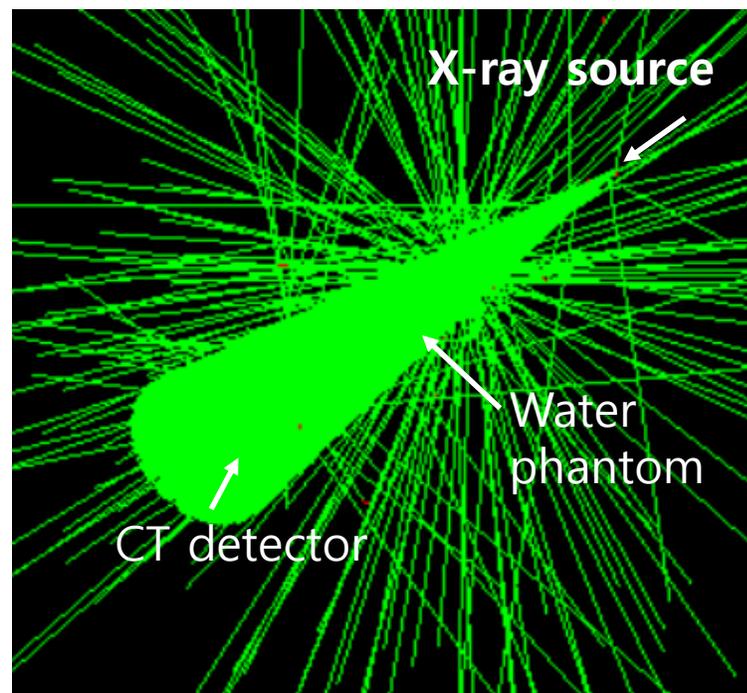
**Gate benchmarkCT.mac**

```
gate@vgate:~/Progs/Gate/gate_v7.0/examples/example_CT/classic$  
Gate benchmarkCT.mac
```

Gate시뮬레이션 모습(X-ray 입사 전)



Gate시뮬레이션 모습(X-ray 입사)



초록색은  
엑스선임

# CT example 시뮬레이션 결과를 ROOT로 분석(1)

아래 명령어를 이용해서 root파일 열기

**root benchmarkCT.root**

```
gate@vgate: ~/Progs/Gate/gate_v7.0/examples/example_CT/classic
gate@vgate:~/Progs/Gate/gate_v7.0/examples/example_CT/classic$ ls -sorth
total 3.6M
4.0K -rw-rw-r-- 1 gate 191 May 12 2014 visu.mac
4.0K -rw-rw-r-- 1 gate 218 May 12 2014 verbose.mac
16K -rw-rw-r-- 1 gate 13K May 12 2014 source.mac
4.0K -rw-rw-r-- 1 gate 687 May 12 2014 physics.mac
4.0K -rw-rw-r-- 1 gate 1.8K May 12 2014 phantom.mac
4.0K -rw-rw-r-- 1 gate 459 May 12 2014 output.mac
4.0K -rw-rw-r-- 1 gate 322 May 12 2014 digitizer.mac
4.0K -rw-rw-r-- 1 gate 2.1K May 12 2014 CTScanner.mac
16K -rw-rw-r-- 1 gate 15K May 12 2014 AnalyzeCT.cpp
4.0K -rw-rw-r-- 1 gate 1.6K May 2 14:19 benchmarkCT.mac
4.0K -rw-rw-r-- 1 gate 613 May 2 14:19 acquisition.mac
40K -rw-rw-r-- 1 gate 40K May 2 14:20 benchmarkCT_000.dat
3.5M -rw-r--r-- 1 gate 3.5M May 2 14:20 benchmarkCT.root
gate@vgate:~/Progs/Gate/gate_v7.0/examples/example_CT/classic$ root benchmarkCT.root
```

# CT example 시뮬레이션 결과를 ROOT로 분석(2)

10.아래 명령어를 이용해서 root파일 분석(Tbrowser 창 열기)  
**TBrowser b;**

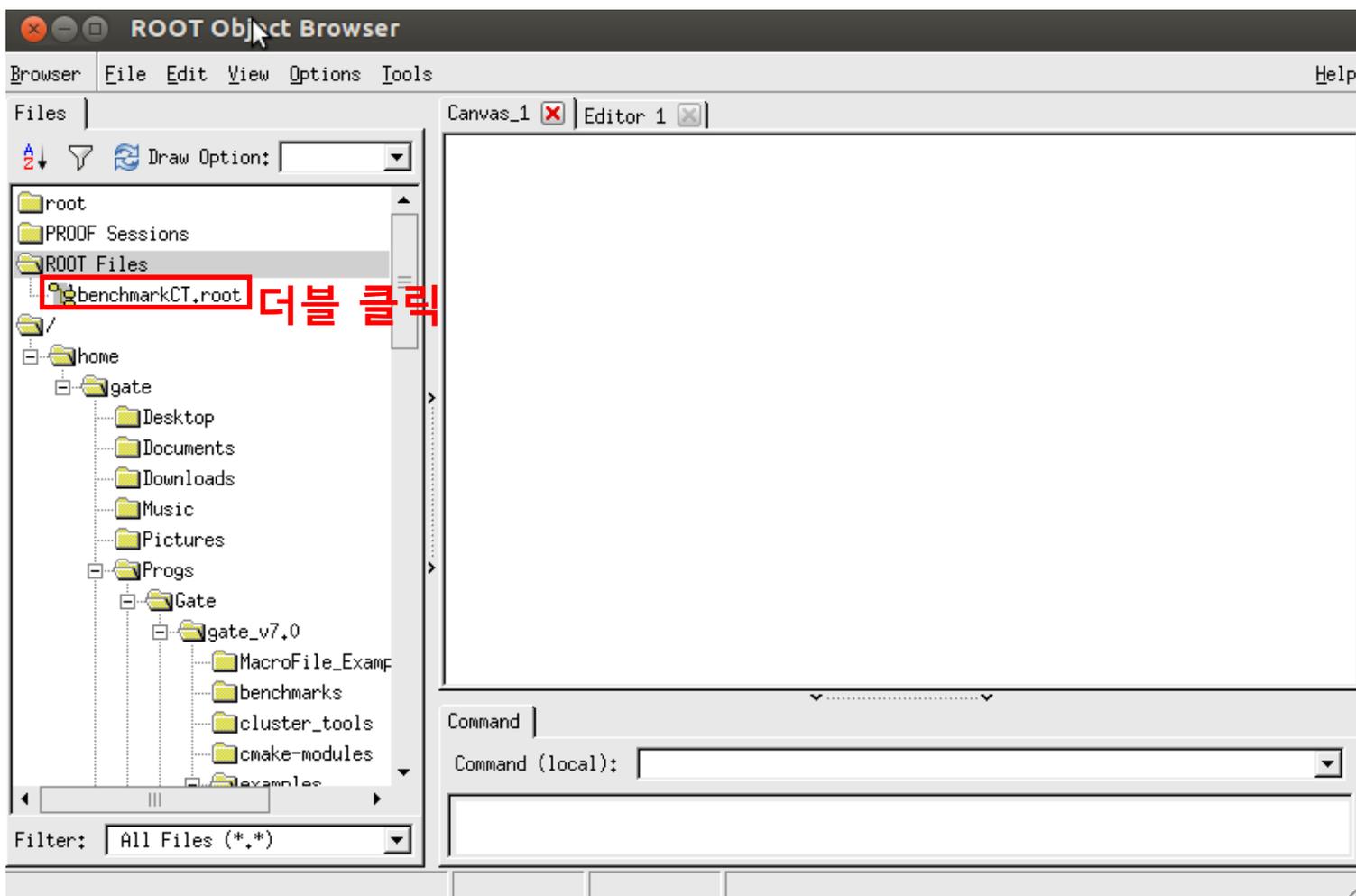
```
gate@vgate: ~/Progs/Gate/gate_v7.0/examples/example_CT/classic
trying "fixed". Please fix your system so helvetica can be found,
this font typically is in the rpm (or pkg equivalent) package
XFree86-[75,100]dpi-fonts or fonts-xorg-[75,100]dpi.
*****
*                               *
*      W E L C O M E  to  R O O T      *
*                               *
*  Version   5.34/30      23 April 2015  *
*                               *
*  You are welcome to visit our Web site *
*      http://root.cern.ch              *
*                               *
*****

ROOT 5.34/30 (v5-34-30@v5-34-30, Apr 23 2015, 18:31:46 on linuxx8664gcc)

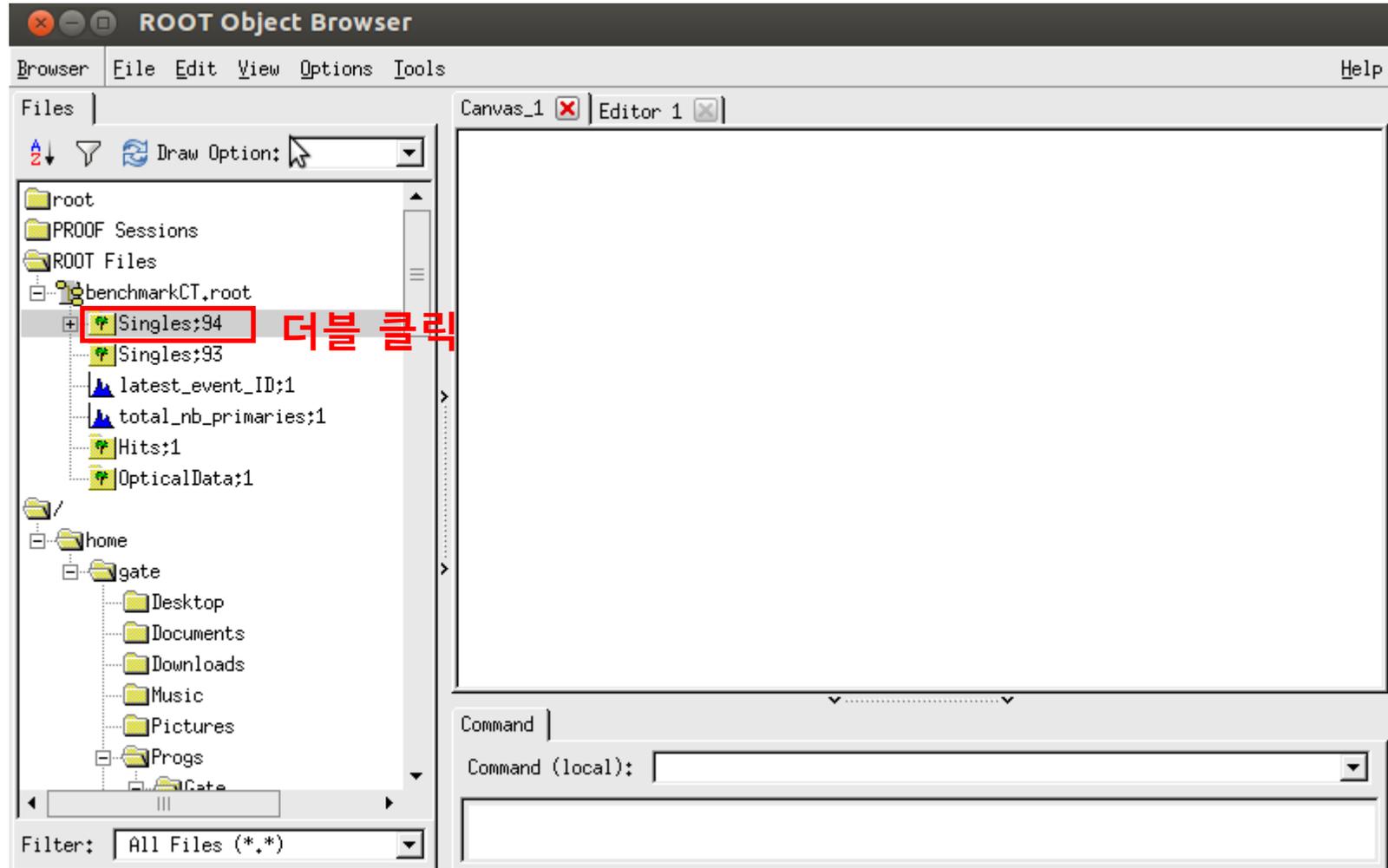
CINT/ROOT C/C++ Interpreter version 5.18.00, July 2, 2010
Type ? for help. Commands must be C++ statements.
Enclose multiple statements between { }.
root [0]
Attaching file benchmarkCT.root as _file0...
root [1] TBrowser b;
```

# CT example 시뮬레이션 결과를 ROOT로 분석(3)

TBrowser b; 실행결과

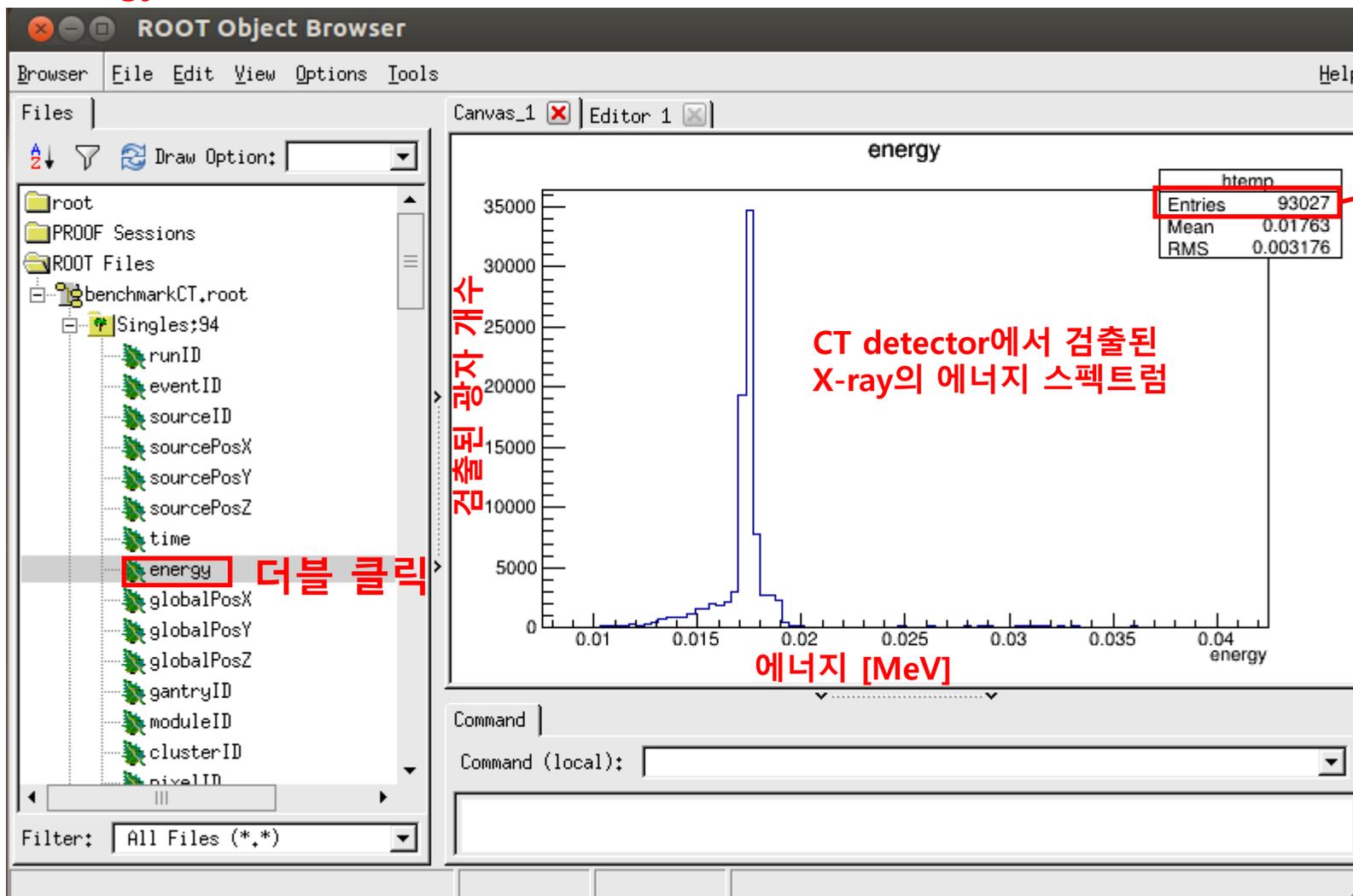


# CT example 시뮬레이션 결과를 ROOT로 분석(4)



# CT example 시뮬레이션 결과를 ROOT로 분석(5)(에너지스펙트럼)

“Singles.energy”에는 CT detector에서 검출된 에너지정보가 들어있음

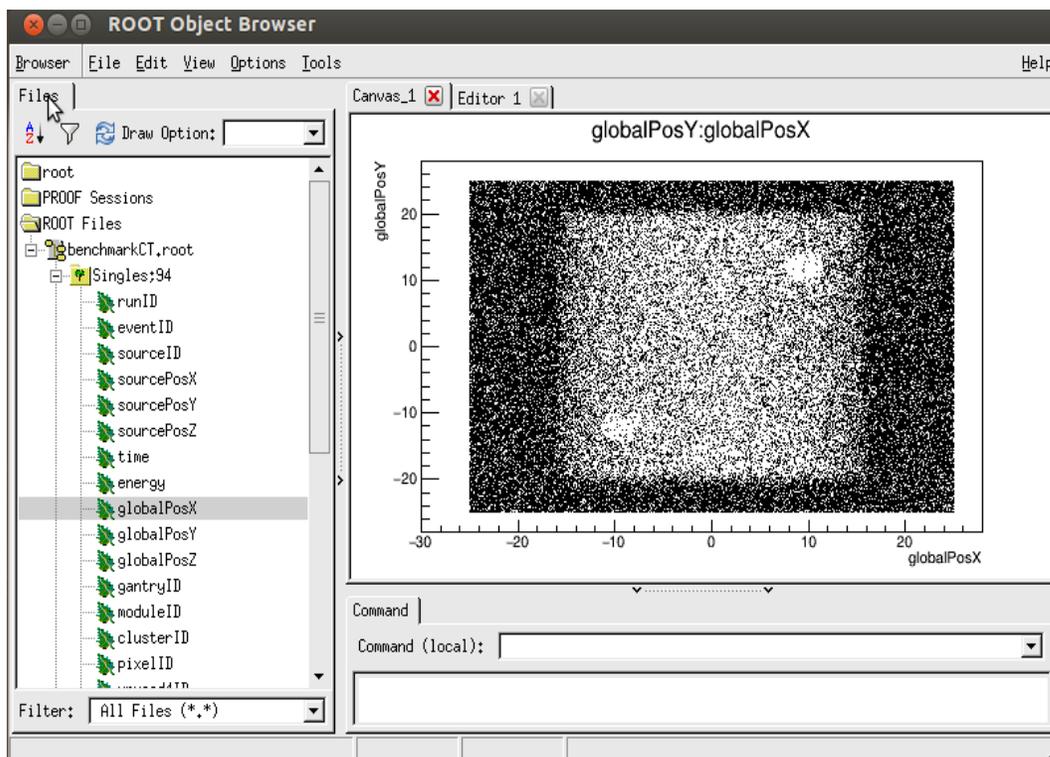


# CT example 시뮬레이션 결과를 ROOT로 분석(6)(검출기 영상)

아래 명령어를 이용해서 CT detector에 검출된 영상 보기

**Singles.Draw("globalPosY:globalPosX");**

```
gate@vgate: ~/Progs/Gate/gate_v7.0/examples/example_CT/classic
Enclose multiple statements between { }.
root [0]
Attaching file benchmarkCT.root as _file0...
root [1] TBrowser b;
root [2] Singles.Draw("globalPosY:globalPosX");
root [3]
```



# CT example 시뮬레이션 결과를 ROOT로 분석 끝.

ROOT프로그램에서 나가기

**.q**

```
root [2] .q
```

```
gate@vgate: ~/Progs/Gate/gate_v7.0/examples/example_CT/classic
ROOT 5.34/30 (v5-34-30@v5-34-30, Apr 23 2015, 18:31:46 on linuxx8664gcc)
CINT/ROOT C/C++ Interpreter version 5.18.00, July 2, 2010
Type ? for help. Commands must be C++ statements.
Enclose multiple statements between { }.
root [0]
Attaching file benchmarkCT.root as _file0...
root [1] TBrowser b;
root [2] Singles.Draw("globalPosY:globalPosX");
root [3]
root [3] .q
gate@vgate:~/Progs/Gate/gate_v7.0/examples/example_CT/classic$
```

**끝!**

## ROOT와 GATEv7.0 새로 설치하기(시작)

vGATE\_v3.0의 경우 ROOT 프로그램에서 **TBrowser b;** 명령어가 실행이 안 되는 문제가 발생

### 해결방법

- 1.ROOT를 새로 설치하고
- 2.GATEv7.0을 새로 설치

# ROOT 최신버전 다운로드

<https://root.cern.ch/drupal/content/downloading-root>



The following versions are available for download:

## ROOT 6:

- **Dev**, version 6.03/04 (see also the [release notes](#))
- **Pro**, version 6.02/08 **recommended** (see also the [release notes](#))
- **Old**, version 6.00/00 (see also the [release notes](#))

## ROOT 5:

- **Pro**, version 5.34/30 (see also the [release notes](#))
- **Old**, version 5.32/04 (see also the [release notes](#) and [development notes](#))
- **Old**, version 5.30/06 (see also the [release notes](#) and [development notes](#))
- **Old**, version 5.28/00h (see also the [release notes](#) and [development notes](#))

다운로드 (파일명: **root\_v5.34.30.source.tar.gz**)

# ROOT 최신버전 설치(중요)

/home/gate/Progs/root 폴더에서 ./configure 명령을 실행하면 에러가 남.  
아래 update, xpm, xft 들을 먼저 설치해야 됨.

1.아래 명령어로 xpm 설치하기  
sudo apt-get install libxpm-dev

```
gate@vgate:~/Progs/root$ sudo apt-get install libxpm-dev
```

2. update명령 실행  
sudo apt-get update

```
gate@vgate:~/Progs/root$ sudo apt-get update
```

3.아래 명령어로 Xft 설치하기  
sudo apt-get install libXft-dev

```
gate@vgate:~/Progs/root$ sudo apt-get install libXft-dev
```

# ROOT 최신버전 설치

4.아래 명령어로 압축풀기

```
tar zxvf root_v5.34.30.source.tar.gz
```

```
gate@vgate:~/Progs$ ls  
Gate Geant4 root root_v5.34.30.source.tar.gz  
gate@vgate:~/Progs$ tar zxvf root_v5.34.30.source.tar.gz
```

5.아래 명령어로 Makefile 만들기

```
cd root
```

```
./configure
```

```
gate@vgate:~/Progs$ cd root/  
gate@vgate:~/Progs/root$ ls  
bin                config.log         fonts              icons              Makefile           README             tutorials  
bindings           config.status     geom              include            man                roofit  
build              configure         graf2d            io                 math               rootx  
cint               core              graf3d            lib                misc               sql  
cmake              doc               gui               LICENSE            montecarlo         test  
CMakeLists.txt    documentation     hist              macros             net                tmva  
config             etc               html              main               proof              tree  
gate@vgate:~/Progs/root$ ./configure
```

6.아래 명령어로 ROOT 설치

```
make
```

```
gate@vgate:~/Progs/root$ make
```

ROOT프로그램 설치 끝!

# GATEv7.0 새로 설치

```
gate@vgate: ~/Progs/Gate/gate_v7.0-build
gate@vgate: ~/Progs/... x gate@vgate: ~/Downl... x gate@vgate: ~/Downl... x gate@vgate: ~/Progs/... x
gate@vgate:~$ cd /home/gate/Progs/Gate/gate_v7.0-build
gate@vgate:~/Progs/Gate/gate_v7.0-build$ ls
benchmarks          ExternalData          install_manifest.txt
CMakeCache.txt     Gate                  itk-mhd
CMakeFiles          GateBenchmarkData_config.cmake  Makefile
cmake_install.cmake GateConfiguration.h
examples           GateExampleData_config.cmake
gate@vgate:~/Progs/Gate/gate_v7.0-build$ ccmake ../gate_v7.0
```

# GATEv7.0 새로 설치(2)

```
gate@vgate: ~/Progs/Gate/gate_v7.0-build
gate@vgate: ~/Progs/Gat... x gate@vgate: ~/Downloads x gate@vgate: ~/Downloads x gate@vgate: ~/Progs/Gat... x
Page 1 of 1
CMAKE_BACKWARDS_COMPATIBILITY 2.4
CMAKE_BUILD_TYPE Release
CMAKE_INSTALL_PREFIX /home/gate/Progs/Gate/gate_v7.0-install
CUDA_BUILD_CUBIN OFF
CUDA_BUILD_EMULATION OFF
CUDA_SDK_ROOT_DIR CUDA_SDK_ROOT_DIR-NOTFOUND
CUDA_TOOLKIT_ROOT_DIR CUDA_TOOLKIT_ROOT_DIR-NOTFOUND
CUDA_VERBOSE_BUILD OFF
EXECUTABLE_OUTPUT_PATH
GATE_ANALYSIS_USE_FILE ON
GATE_ANALYSIS_USE_GENERAL ON
GATE_DOWNLOAD_BENCHMARKS_DATA OFF
GATE_DOWNLOAD_EXAMPLES_DATA OFF
GATE_USE_ECAT7 OFF
GATE_USE_GEANT4_UIVIS ON
GATE_USE_GPU OFF
GATE_USE_LMF OFF
GATE_USE_OPTICAL ON
GATE_USE_ROOT ON
GATE_USE_SYSTEM_CLHEP OFF
Geant496_COMPATIBILITY ON
Geant4_DIR /home/gate/Progs/Geant4/geant4.9.6.p03-install/lib/Gea
LIBRARY_OUTPUT_PATH
ROOTCINT_EXECUTABLE /home/gate/Progs/root/bin/rootcint

CMAKE BACKWARDS COMPATIBILITY: For backwards compatibility, what version of CMake commands and synt
Press [enter] to edit option CMake Version 2.8.7
Press [c] to configure Press [g] to generate and exit
Press [h] for help Press [q] to quit without generating
Press [t] to toggle advanced mode (Currently Off)
```

1. "C" 입력

2. "g" 입력

# GATEv7.0 새로 설치(3)

아래 명령어로 GATEv7.0 설치

**make**

```
gate@vgate:~/Progs/Gate/gate_v7.0-build$ make
```

아래 명령어로 GATEv7.0 설치

**sudo make install**

```
gate@vgate:~/Progs/Gate/gate_v7.0-build$ sudo make install
```

```
gate@vgate: ~/Progs/Gate/gate_v7.0-build
[ 84%] Building CXX object CMakeFiles/Gate.dir/source/general/src/GateRangeMaterialTable.cc.o
[ 84%] Building CXX object CMakeFiles/Gate.dir/source/general/src/GateNamedObject.cc.o
[ 84%] Building CXX object CMakeFiles/Gate.dir/source/general/src/GateVolumeFilter.cc.o
[ 84%] Building CXX object CMakeFiles/Gate.dir/source/general/src/GateXMLDocument.cc.o
Linking CXX executable Gate
[100%] Built target Gate
gate@vgate:~/Progs/Gate/gate_v7.0-build$ make
[ 4%] Built target ITKMetaIO
[ 6%] Built target itkzlib
[100%] Built target Gate
gate@vgate:~/Progs/Gate/gate_v7.0-build$ sudo make install
[sudo] password for gate:
[ 4%] Built target ITKMetaIO
[ 6%] Built target itkzlib
[100%] Built target Gate
Install the project...
-- Install configuration: "Release"
-- Installing: /home/gate/Progs/Gate/gate_v7.0-install/bin/Gate
-- Removed runtime path from "/home/gate/Progs/Gate/gate_v7.0-install/bin/Gate"
gate@vgate:~/Progs/Gate/gate_v7.0-build$
```

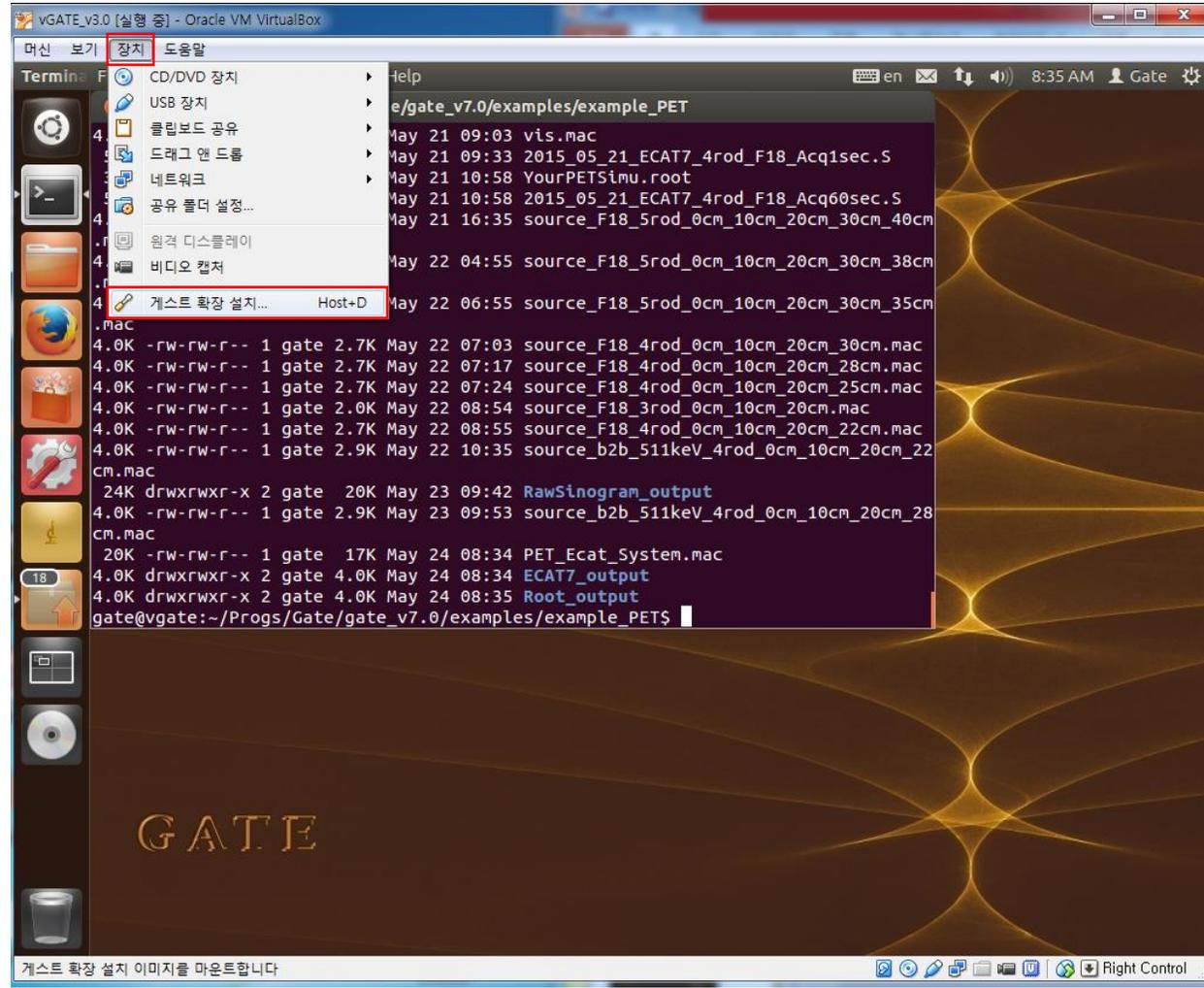
**GATEv7.0 설치완료!!!**

**ROOT와 GATEv7.0 새로 설치하기(끝!)**

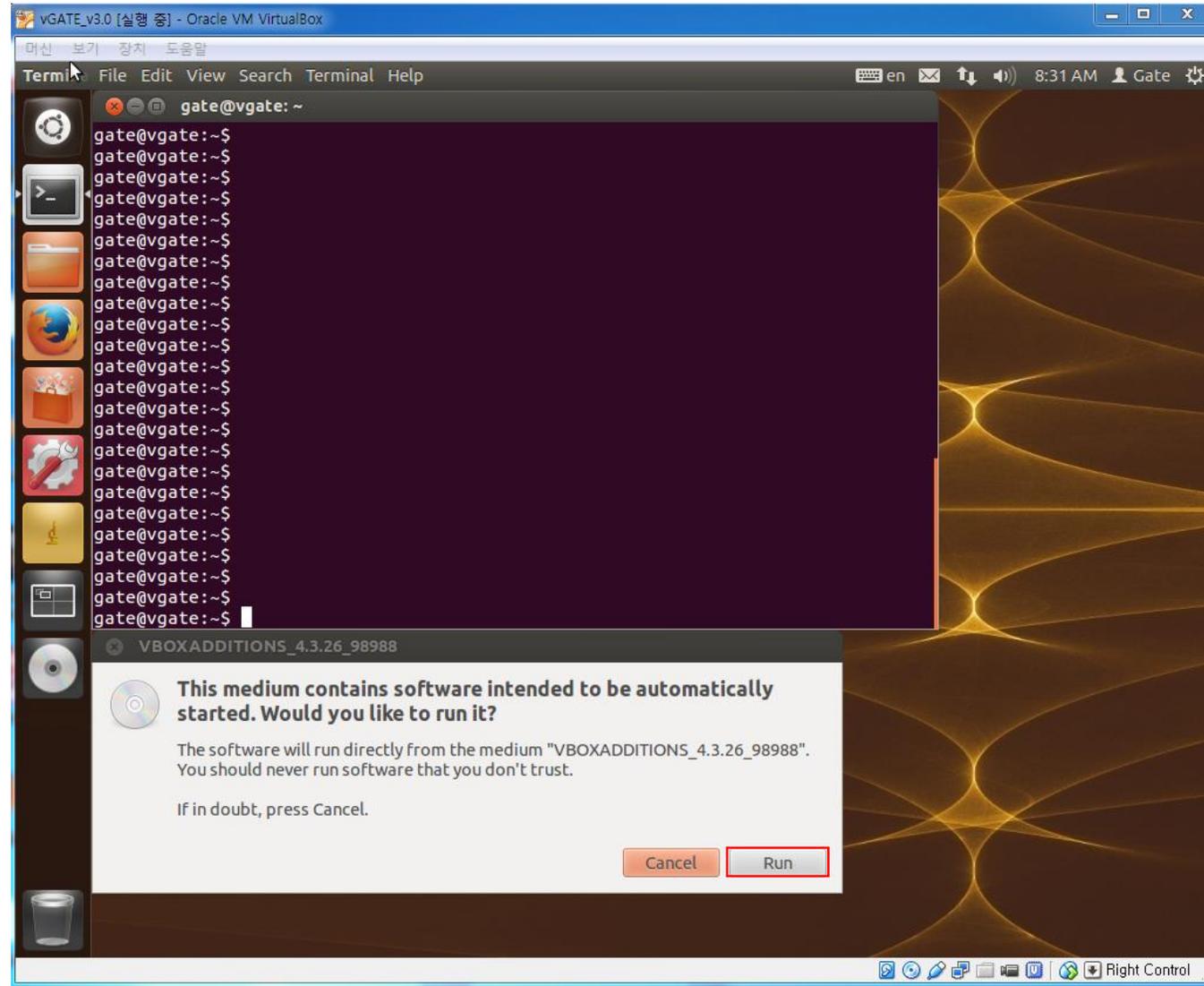


**(중요)vGATE3.0 (GATEv7.0) 마우스 휠 활성화 시키는 방법**

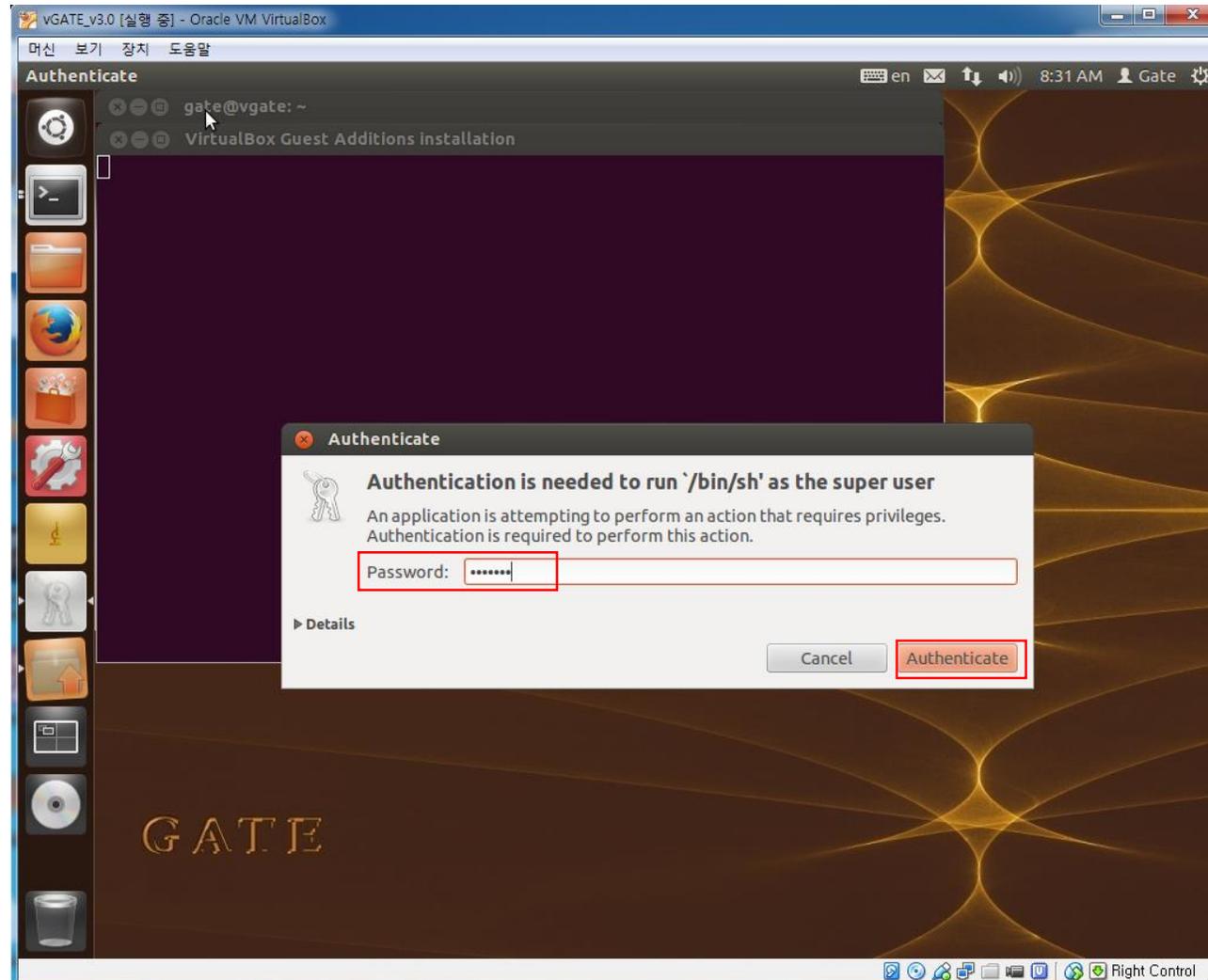
# 1.장치->게스트 확장 설치



## 2. Run 클릭



### 3. 암호 입력(PW=virtual) ->Authenticate 클릭







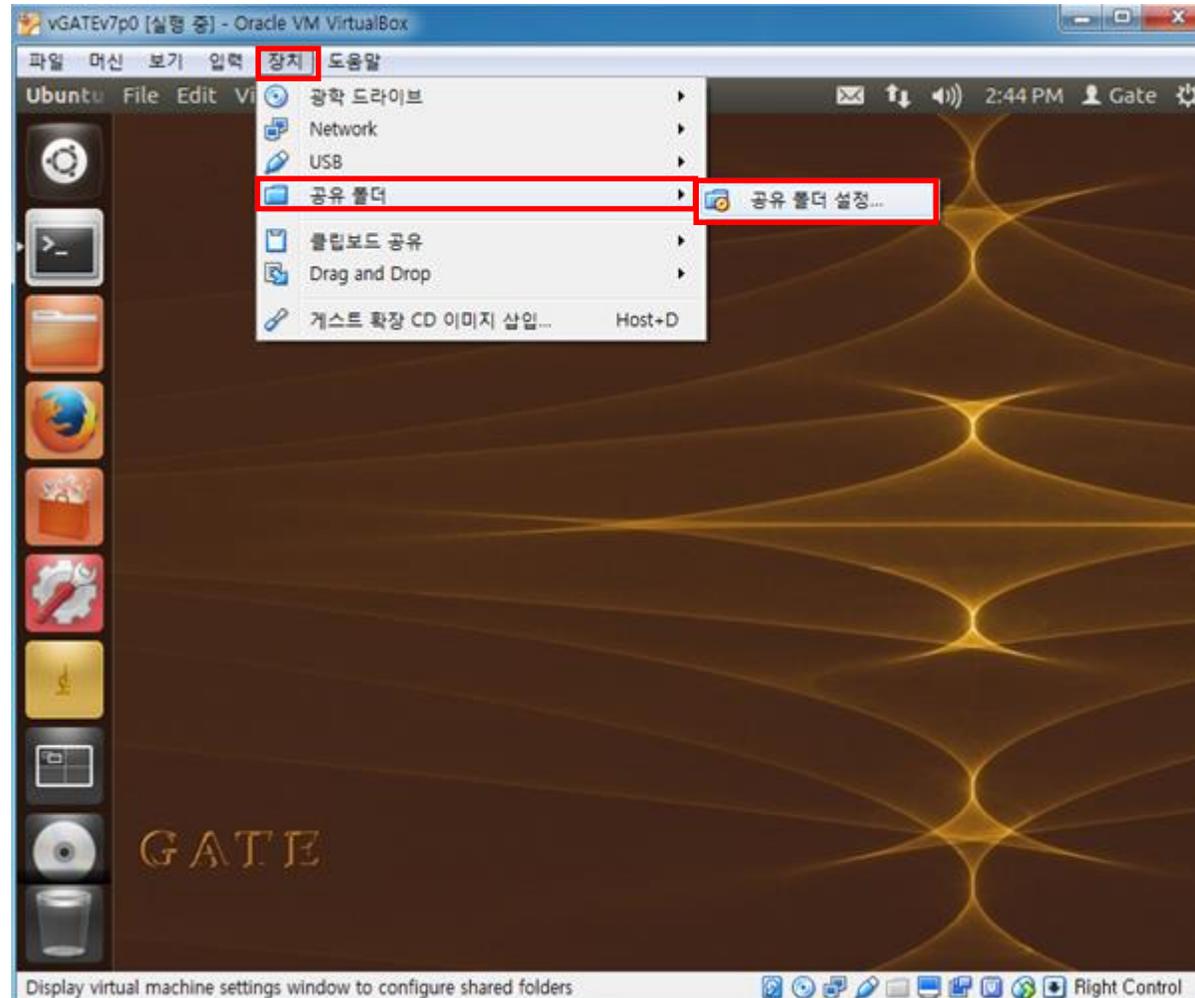
**호스트(Win7)-머신(Ubuntu)간에 공유폴더 만들기 (시작)**

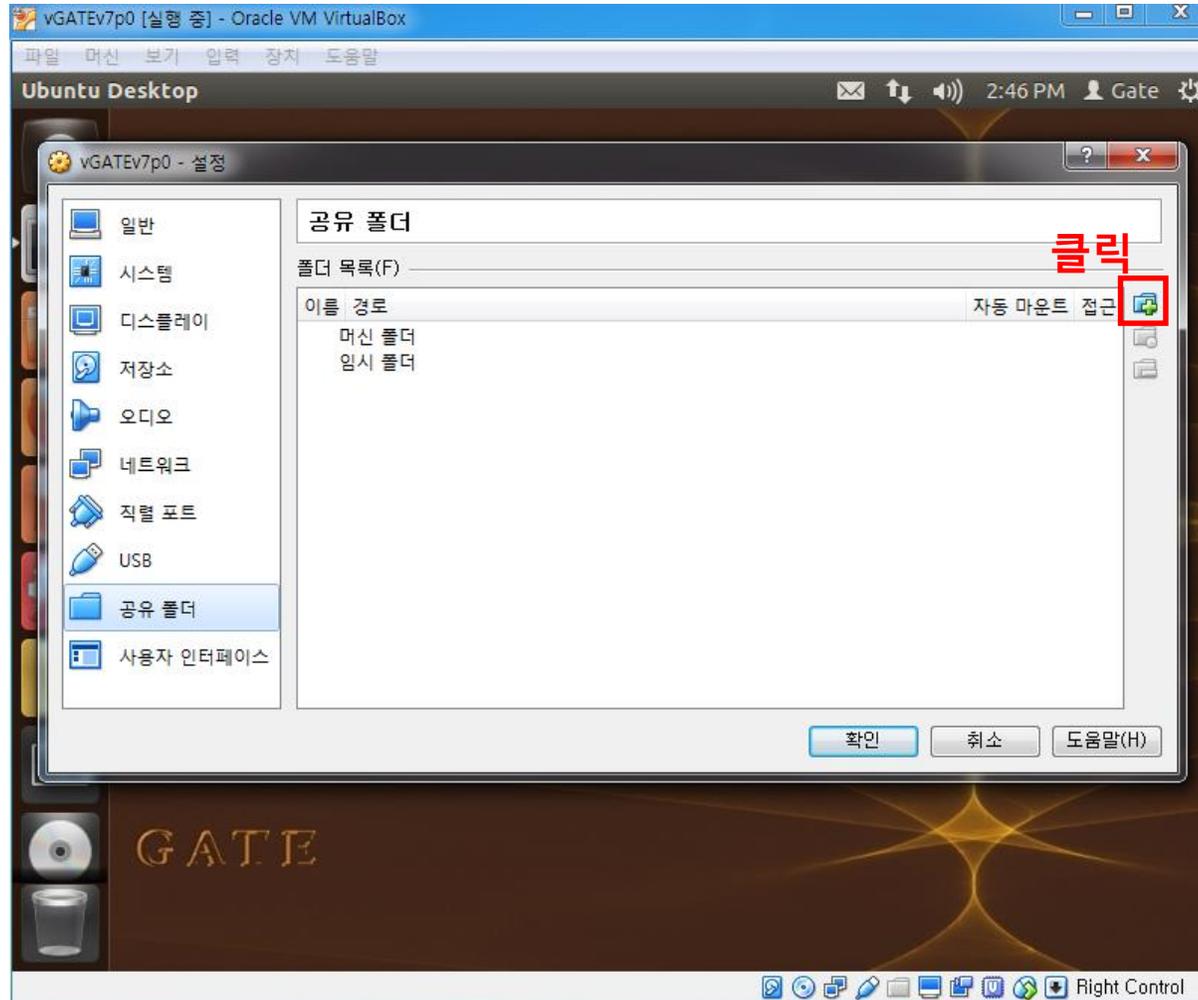
# 호스트(Win7) 컴퓨터 바탕화면에 폴더 만들기

C:\Users\user\Desktop\vGATEv7p0\_Share

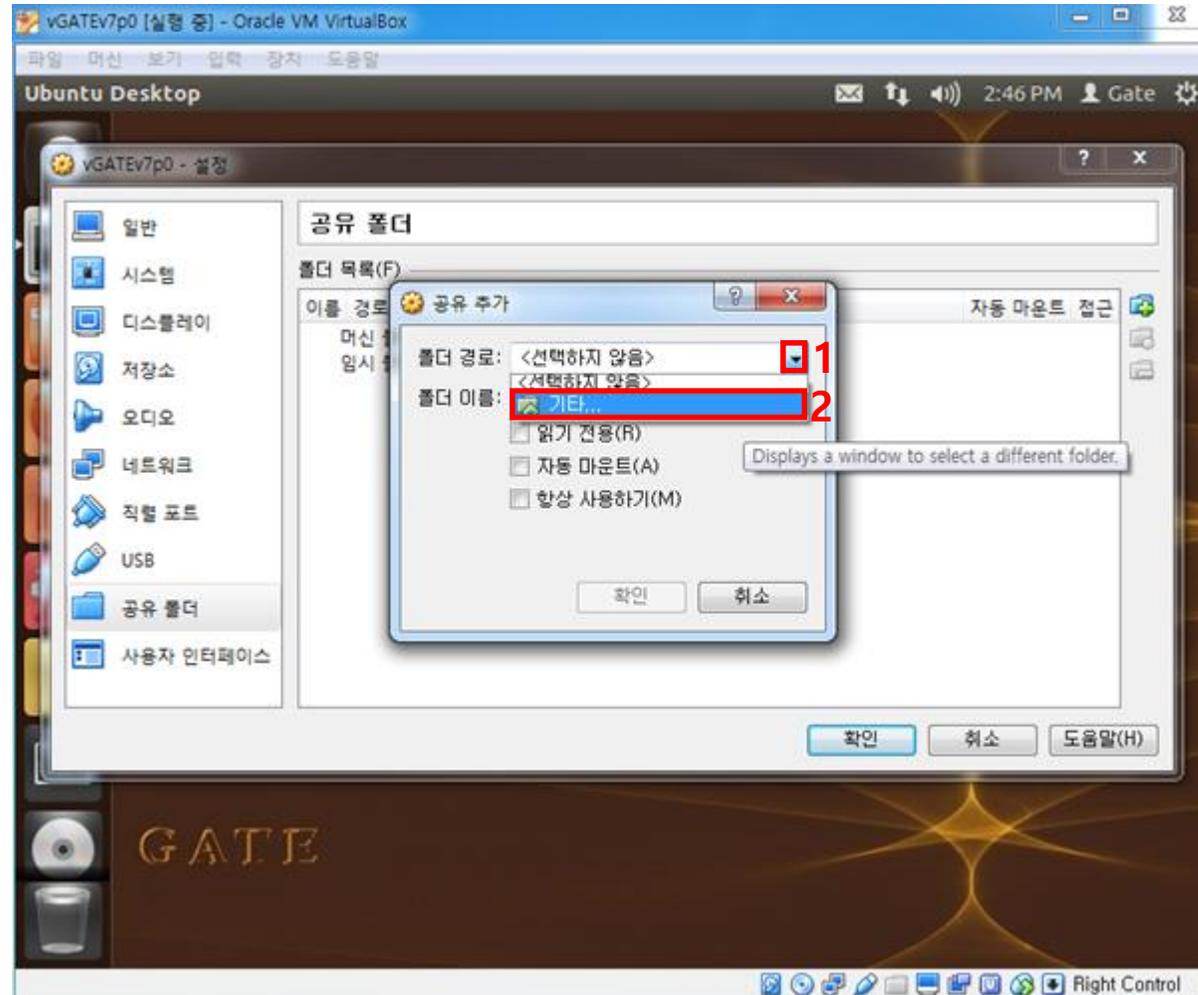


# Virtual Box에서 장치 -> 공유 폴더 -> 공유 폴더 설정

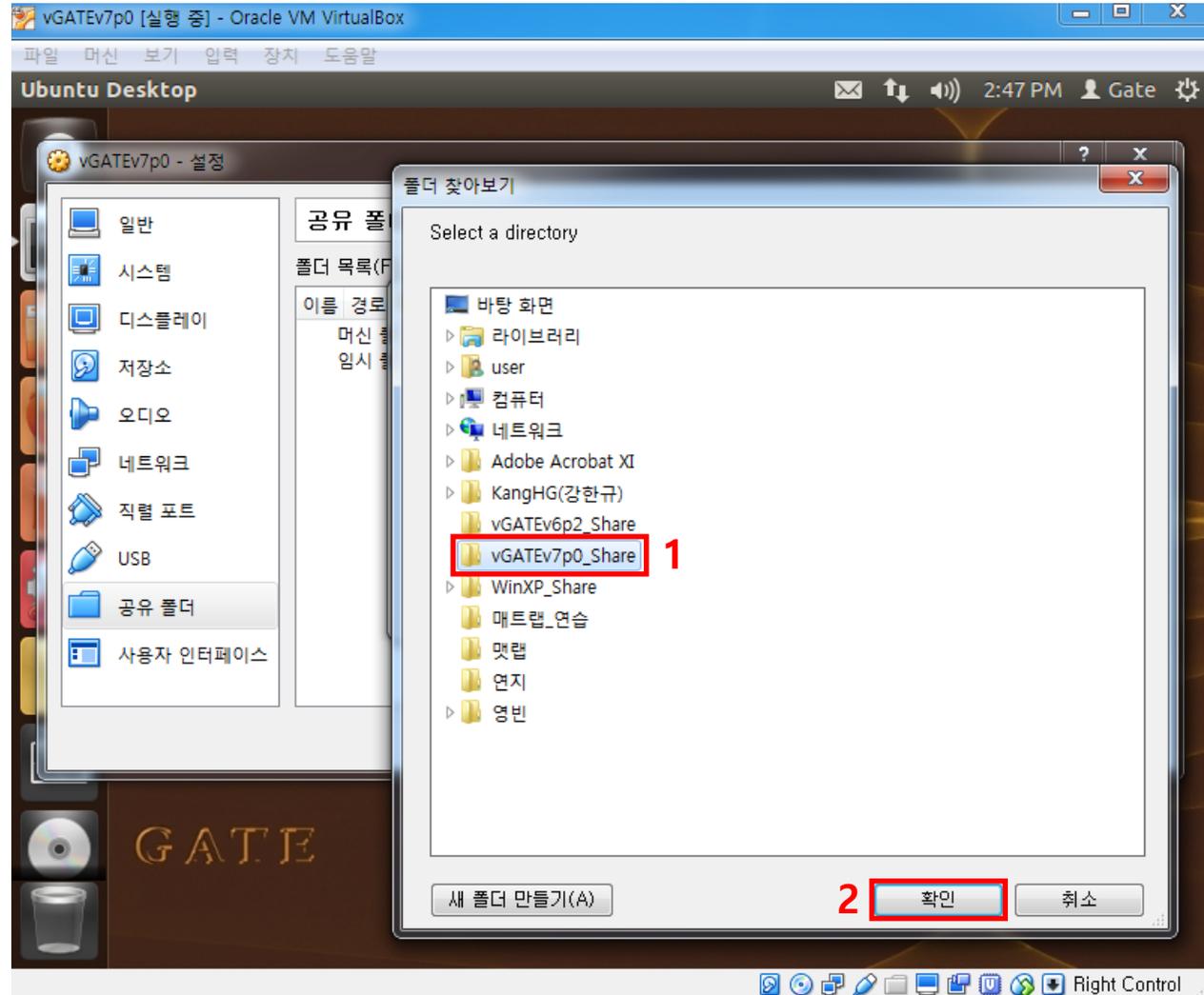




# 공유 폴더 선택(1)

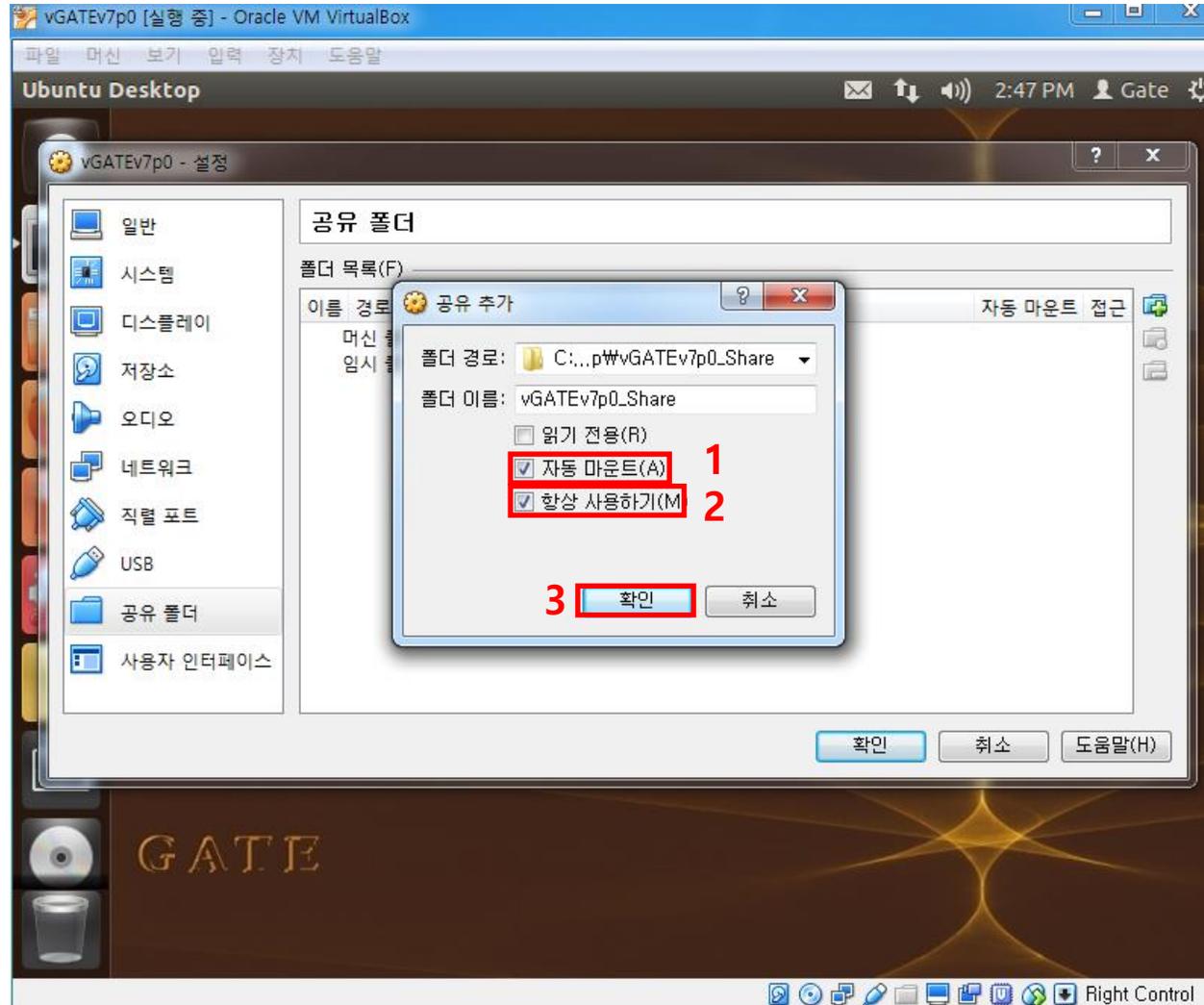


# 공유 폴더 선택(2)

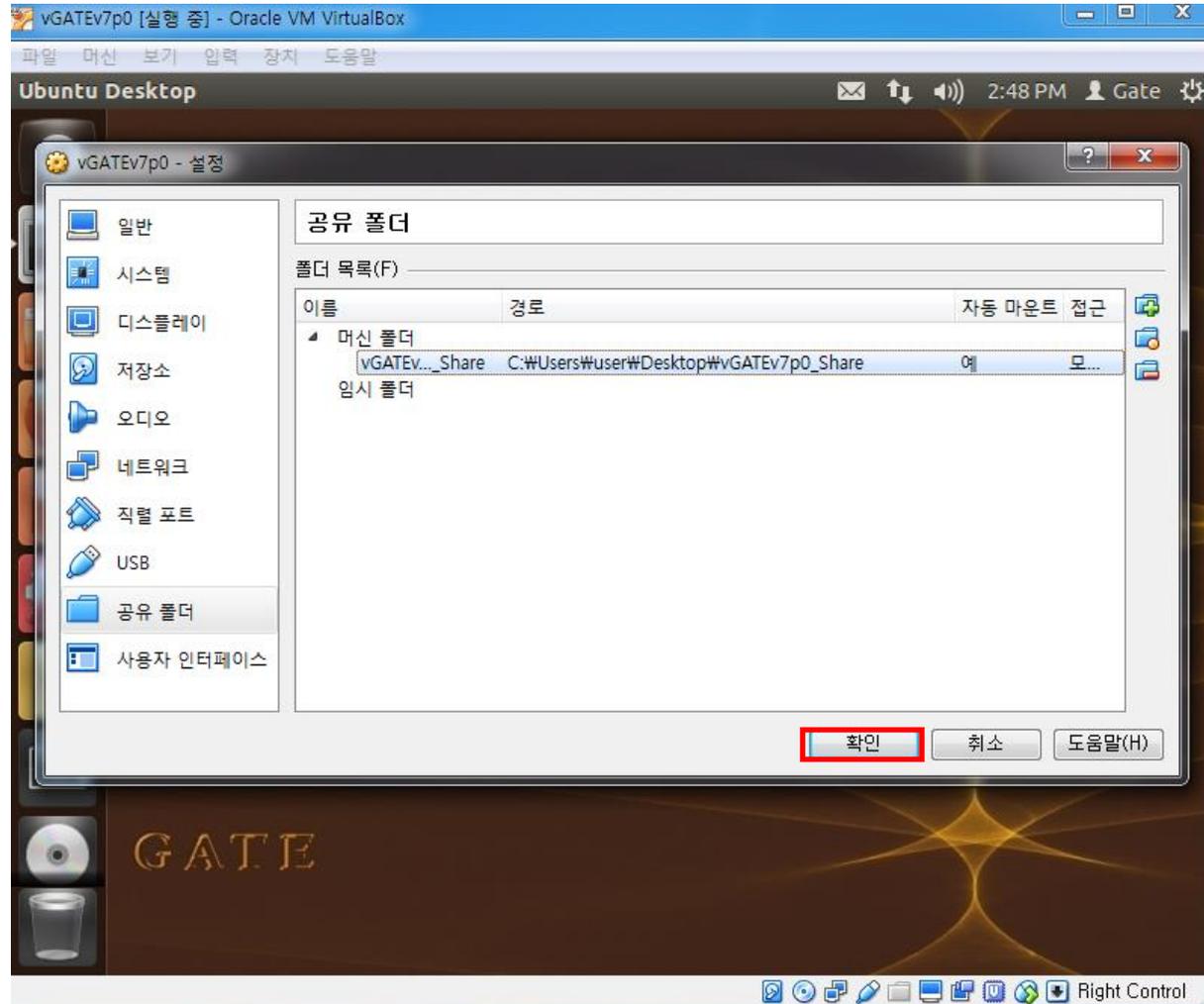


# 자동 마운트, 항상 사용하기 선택 후 확인

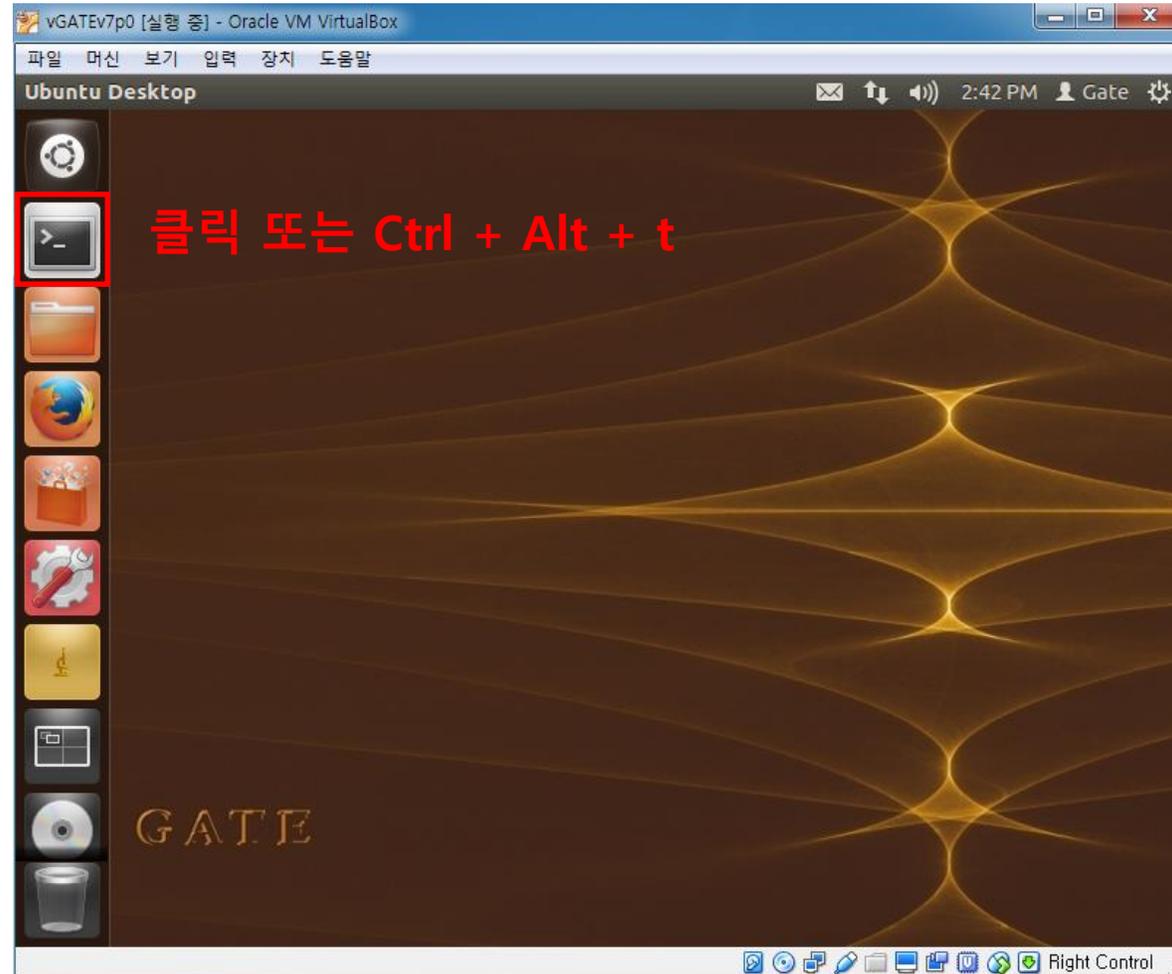
“읽기 전용”을 해제해야 머신(Ubuntu)에서  
호스트(Win7)으로 파일이 이동가능(중요)



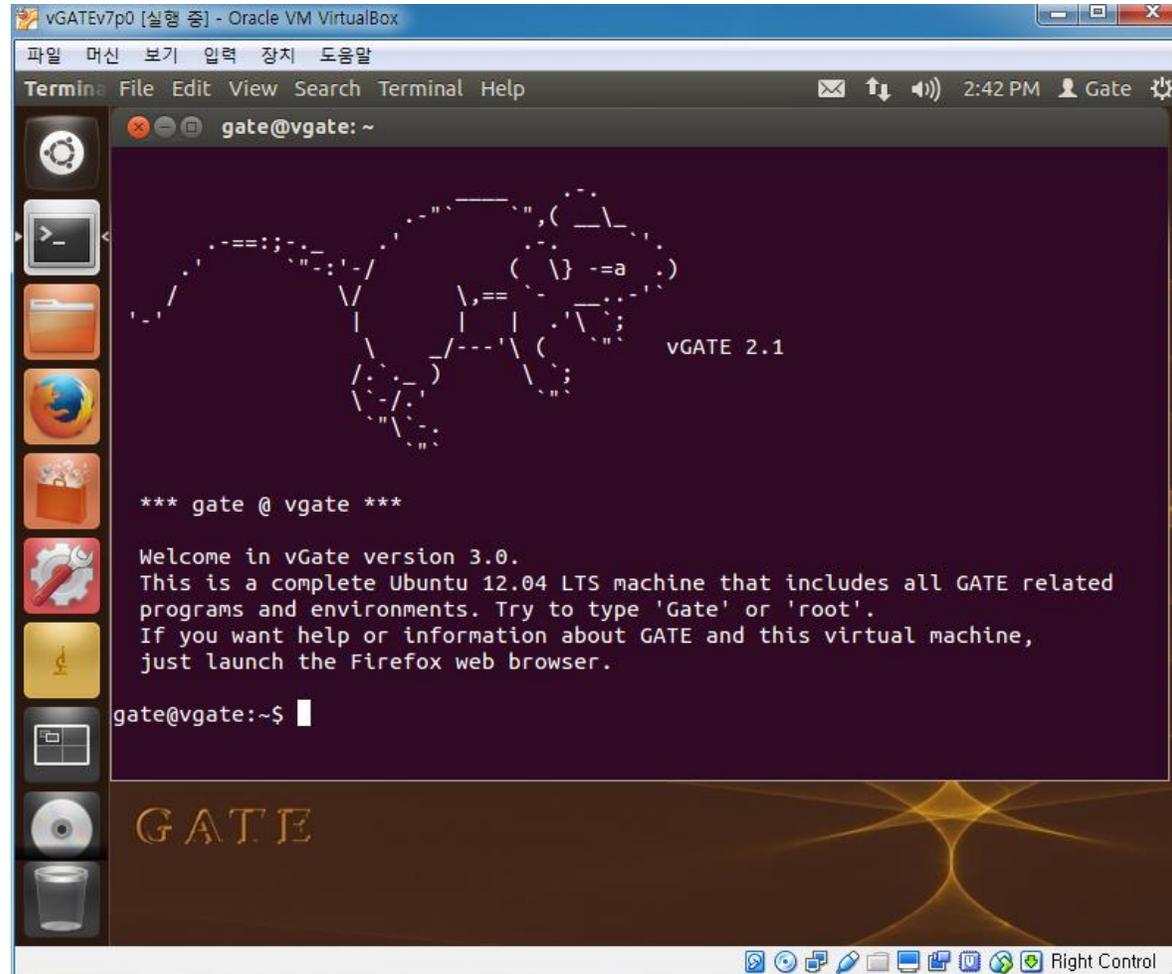
# 확인 클릭



# 머신(Ubuntu)에서 터미널 열기



# 터미널 화면



## 머신(Ubuntu)에서 공유 폴더 생성

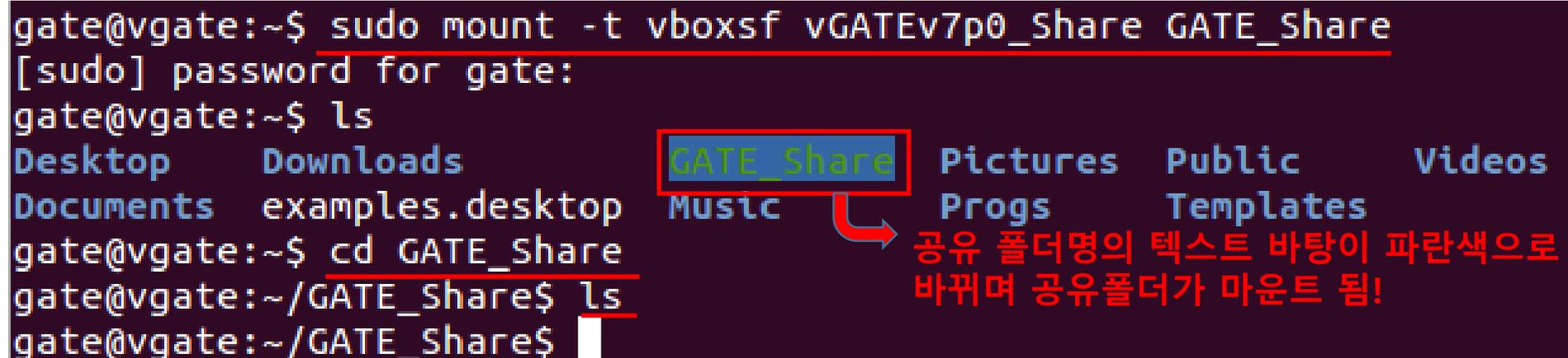
```
gate@vgate:~$ pwd   pwd (현재 경로 확인)
/home/gate
gate@vgate:~$ ls   ls (현재 경로의 폴더와 파일 내용 확인)
Desktop      Downloads      Music          Progs          Templates
Documents    examples.desktop Pictures        Public         Videos
gate@vgate:~$ mkdir GATE_Share mkdir 폴더명 (공유폴더 생성)
gate@vgate:~$ ls
Desktop      Downloads      GATE_Share    Pictures        Public         Videos
Documents    examples.desktop Music          Progs          Templates
gate@vgate:~$
```

# 머신(Ubuntu)에서 공유 폴더를 **마운트** 시킴(중요)

아래는 mount시키는 명령어

**sudo mount -t vboxsf 호스트(Win7에서의 공유 폴더명) 머신(Ubuntu)에서의 공유 폴더명)**

```
gate@vgate:~$ sudo mount -t vboxsf vGATEv7p0_Share GATE_Share
[sudo] password for gate:
gate@vgate:~$ ls
Desktop      Downloads
Documents    examples.desktop
gate@vgate:~$ cd GATE_Share
gate@vgate:~/GATE_Share$ ls
gate@vgate:~/GATE_Share$
```



공유 폴더명의 텍스트 바탕이 파란색으로 바뀌며 공유폴더가 마운트 됨!

# 호스트(Win7)에서 머신(Ubuntu)로 파일 복사

머신(Ubuntu)



호스트(Win7)

The image shows two side-by-side Windows File Explorer windows. The left window shows a network share path 'vGATEv7p0\_Share' containing a file '(발표)(1장,매트랩입문\_행렬)MATLAB 프...'. The right window shows a local drive path '컴퓨터 > DATA (D:) > KIRAMS > 매트랩발표자료' containing a file '(발표)(1장,매트랩입문\_행렬)MATLAB 프로그래밍 활용\_강한규(2014\_11\_25\_KangHG)'. A red box highlights the file in the right window, and a red arrow points from the file in the left window to the file in the right window. The text '파일 복사' is written in red in the center. The taskbar at the bottom shows the active application as a Microsoft PowerPoint presentation.

이름	수정한 날짜
(발표)(1장,매트랩입문_행렬)MATLAB 프...	2015-03-16 오전...
Chapter_7_셀배열_구조체	2015-07-23 오후...
Chapter_8_파일입출력_Binary_fread_및_PET_ASCII분석코드_포함	2015-07-23 오후...
Chapter_9_고급함수	2015-07-23 오후...
Gaussian_Fitting_예제	2015-07-23 오후...
Matlab_Code_KangHG	2015-07-23 오후...
(발표)(1장,매트랩입문_행렬)MATLAB 프로그래밍 활용_강한규(2014_11_25_KangHG)	2015-03-16 오후...
(발표)(2장,매트랩프로그래밍입문)MATLAB 프로그래밍 활용_강한규(2014_12_02_Kan...	2015-03-16 오후...
(발표)(3장,조건문if)MATLAB 프로그래밍 활용_강한규(2014_12_02_KangHG)	2015-03-16 오후...
(발표)(4장,for,while루프)MATLAB 프로그래밍 활용_강한규(2015_12_09_KangHG)	2015-03-16 오후...
(발표)(5장,사용자정의함수)MATLAB 프로그래밍 활용_강한규(2015_12_16_KangHG)	2015-03-16 오후...
(발표)(6장,문자열처리)MATLAB 프로그래밍 활용_강한규(2015_12_30_KangHG)	2015-03-16 오후...
(발표)(7장,데이터구조_셀배열과_구조체)MATLAB 프로그래밍 활용_강한규(2014_12_0...	2015-03-16 오후...
(발표)(8장,파일입출력)MATLAB 프로그래밍 활용_강한규(2014_12_30_KangHG)	2015-03-16 오후...
(발표)(9장,고급함수들)MATLAB 프로그래밍 활용_강한규(2015_01_06_KangHG)	2015-03-16 오후...
(발표전체)(1장_7장)MATLAB 프로그래밍 활용_강한규(2015_01_14_KangHG)_v6	2015-03-16 오후...
(중요)매트랩발표자료_Chapter별_m파일예제(1장부터9장까지)_강한규(2015_07_22)	2015-07-23 오후...
(중요)매트랩발표자료ppt(1장부터9장까지)_강한규(2015_07_22)	2015-07-23 오후...

# 머신(Ubuntu)에서 파일 복사된 것을 확인

```
vGATEv7p0 [실행 중] - Oracle VM VirtualBox
파일  머신  보기  입력  장치  도움말
Terminal File Edit View Search Terminal Help 2:57 PM Gate
gate@vgate: ~/GATE_Share
This is a complete Ubuntu 12.04 LTS machine that includes all GATE related
programs and environments. Try to type 'Gate' or 'root'.
If you want help or information about GATE and this virtual machine,
just launch the Firefox web browser.
gate@vgate:~$ pwd
/home/gate
gate@vgate:~$ ls
Desktop  Downloads  Music  Progs  Templates
Documents  examples.desktop  Pictures  Public  Videos
gate@vgate:~$ mkdir GATE_Share
gate@vgate:~$ ls
Desktop  Downloads  GATE_Share  Pictures  Public  Videos
Documents  examples.desktop  Music  Progs  Templates
gate@vgate:~$ sudo mount -t vboxsf vGATEv7p0_Share GATE_Share
[sudo] password for gate:
gate@vgate:~$ ls
Desktop  Downloads  GATE_Share  Pictures  Public  Videos
Documents  examples.desktop  Music  Progs  Templates
gate@vgate:~$ cd GATE_Share
gate@vgate:~/GATE_Share$ ls
gate@vgate:~/GATE_Share$ ls
(발표)(1장,매트랩입문_행렬)MATLAB 프로그래밍 활용_강한규(2014_11_25_KangHG).pptx
gate@vgate:~/GATE_Share$
```

# 머신(Ubuntu)에서 호스트(Win7)로 폴더 복사

머신(Ubuntu)



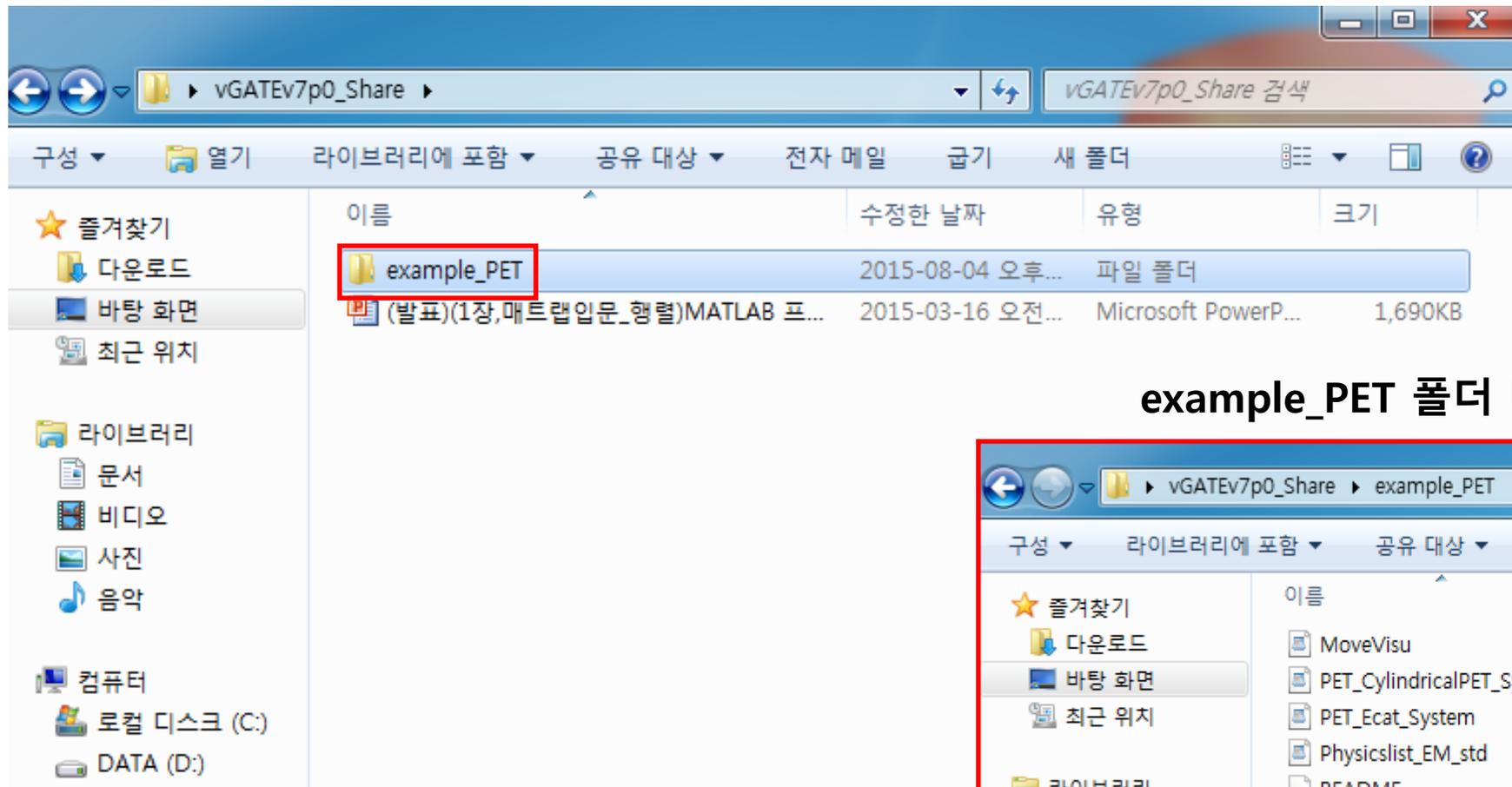
호스트(Win7)

```
gate@vgate: ~/Progs/Gate/gate_v7.0/examples
example_fluorescence example_SPECT
gate@vgate:~/Progs/Gate/gate_v7.0/examples$ cp -rf example_PET
gate@vgate:~/Progs/Gate/gate_v7.0/examples$ ls
AddExternalData.sh example_OPTICAL example_SPECT_GPU
CMakeLists.txt example_PET example_TimeActivityCurve
example_ARF example_PHANTOM_SOURCE example_TrackerDetector
example_CT example_PhysicsLists example_UserFluenceSource
example_DNA example_Radiotherapy gpumacros
example_dosimetry example_ROOT_Analyse
example_fluorescence example_SPECT
gate@vgate:~/Progs/Gate/gate_v7.0/examples$ cp -rf example_PET ~/GATE_Share/
gate@vgate:~/Progs/Gate/gate_v7.0/examples$
```

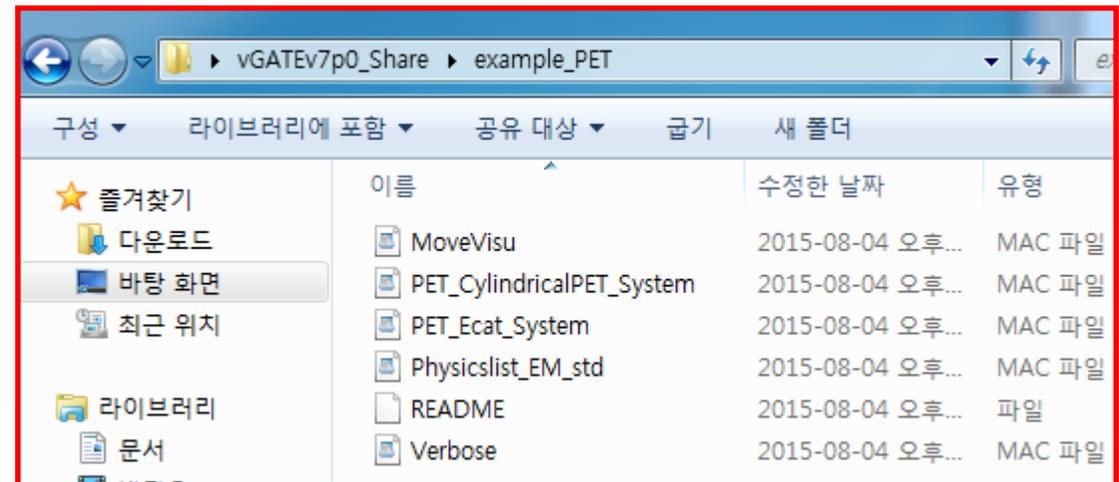
```
gate@vgate: ~/GATE_Share
Desktop Downloads GATE_Share Pictures Public Videos
Documents examples.desktop Music Progs Templates
gate@vgate:~$ sudo mount -t vboxsf vGATEv7p0_Share GATE_Share
[sudo] password for gate:
gate@vgate:~$ ls
Desktop Downloads GATE_Share Pictures Public Videos
Documents examples.desktop Music Progs Templates
gate@vgate:~$ cd GATE_Share
gate@vgate:~/GATE_Share$ ls
gate@vgate:~/GATE_Share$ ls
(발표)(1장,매트랩입문_행렬)MATLAB 프로그래밍 활용_강한규(2014_11_25_KangHG).ppt
gate@vgate:~/GATE_Share$ ls
(발표)(1장,매트랩입문_행렬)MATLAB 프로그래밍 활용_강한규(2014_11_25_KangHG).ppt
gate@vgate:~/GATE_Share$
```

폴더 복사

# 호스트(Win7)에서 폴더가 복사된 것을 확인



## example\_PET 폴더 내용



**호스트(Win7)-머신(Ubuntu)간에 공유폴더 만들기 (끝!)**