



# How to break Ubuntu 13.04/14.04 with vanilla CUDA driver and unbreak it back

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# Abstract

After installing CUDA driver from NVIDIA website, Ubuntu 13.04/14.04 window manager decorations (Unity, via Compiz) may stop working properly on Optimus machines (primary low-end Intel GPU + secondary high-end NVIDIA GPU).

This tutorial explains how to bring back window manager decorations.

## Purpose of CUDA driver install

- We want to install CUDA driver to enable the use of NVIDIA GPU in compute applications
- We want to have the newest CUDA development driver from NVIDIA website
- We do NOT want to do desktop acceleration with NVIDIA GPU – desktop shall still be managed by Intel GPU
- If you want to do NVIDIA desktop acceleration, this tutorial is NOT for you. Look into bumblebee instead.

# Breaking: install vanilla CUDA driver

Firefox Web Browser

CUDA Downloads | NVIDIA Developer Zone - Mozilla Firefox

CUDA Downloads | NVIDIA ... How To Reset Unity And Co... +

https://developer.nvidia.com/cuda-downloads?sid=524923

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Home > CUDA ZONE > Tools & Ecosystem > CUDA Toolkit > CUDA Downloads

## CUDA Downloads

### CUDA 6 Production Release

Distribution	x86 64-bit	x86 32-bit	ARMv7
Fedora 19	RPM RUN		
OpenSUSE 12.3	RPM RUN		
RHEL 6 CentOS 6	RPM RUN		
RHEL 5 CentOS 5	RUN		
SLES 11 [SP2 & SP3]	RPM RUN		
Ubuntu 13.04	DEB RUN	RUN	DEB

Documentation

Release Notes

End User License Agreement

Online Documentation

Download Checksums

CUDA 6 Overview & Performance Reports

Links

CUDA Toolkit Overview

Dmitry Mikushin (APC LLC)

Ubuntu 13.04/14.04 + CUDA

# Breaking: install vanilla CUDA driver

1 Switch to console-mode tty: Ctrl+Alt+F2

2 Disable Nouveau:

```
$ cd Downloads  
$ sudo service lightdm stop  
$ chmod +x cuda_6.0.37_linux_64.run  
$ sudo ./cuda_6.0.37_linux_64.run  
$ sudo reboot
```

3 Install driver, CUDA toolkit and samples:

```
$ cd Downloads  
$ sudo service lightdm stop  
$ sudo ./cuda_6.0.37_linux_64.run  
$ sudo reboot
```

# No Unity anymore after reboot

```
File Edit View Search Terminal Help
Do you want to continue [Y/n]? y
Get:1 http://us.archive.ubuntu.com/ubuntu/ raring/universe mc-data all 3:4.8.3-1
0 [1,048 kB]
Get:2 http://us.archive.ubuntu.com/ubuntu/ raring/universe mc amd64 3:4.8.3-10 [
430 kB]
Fetched 1,477 kB in 2s (720 kB/s)
Selecting previously unselected package mc-data.
(Reading database ... 155233 files and directories currently installed.)
Unpacking mc-data (from .../mc-data_3%3a4.8.3-10_all.deb) ...
Selecting previously unselected package mc.
Unpacking mc (from .../mc_3%3a4.8.3-10_amd64.deb) ...
Processing triggers for man-db ...
Processing triggers for hicolor-icon-theme ...
Processing triggers for doc-base ...
Processing 32 changed doc-base files, 1 added doc-base file...
Processing triggers for bamfdaemon ...
Rebuilding /usr/share/applications/bamf-2.index...
Processing triggers for desktop-file-utils ...
Processing triggers for gnome-menus ...
Setting up mc-data (3:4.8.3-10) ...
Setting up mc (3:4.8.3-10) ...
update-alternatives: using /usr/bin/mcview to provide /usr/bin/vview (view) in au
to mode
marcusmae@M17xR4:~$ sudo mc
```

# No Unity anymore after reboot

```
File Edit View Search Terminal Help
Do you want to continue [Y/n]? y
Get:1 http://us.archive.ubuntu.com/ubuntu/ raring/universe mc-data all 3:4.8.3-1
0 [1,048 kB]
Get:2 http://us.archive.ubuntu.com/ubuntu/ raring/universe mc amd64 3:4.8.3-10 [
430 kB]
Fetched 1,477 kB in 2s (720 kB/s)
Selecting previously unselected package mc-data.
(Reading database ... 155233 files and directories currently installed.)
Unpacking mc-data (from .../mc-data_3%3a4.8.3-10_all.deb) ...
Selecting previously unselected package mc.
Unpacking mc (from .../mc_3%3a4.8.3-10_amd64.deb) ...
Processing triggers for man-db ...
Processing triggers for hicolor-icon-theme ...
Processing triggers for doc-base ...
Processing 32 changed doc-base files, 1 added doc-base file...
Processing triggers for bamfdaemon ...
Rebuilding /usr/share/applications/bamf-2.index...
Processing triggers for desktop-file-utils ...
Processing triggers for gnome-menus ...
Setting up mc-data (3:4.8.3-10) ...
Setting up mc (3:4.8.3-10) ...
update-alternatives: using /usr/bin/mcview to provide /usr/bin/vview (view) in au
to mode
marcusmae@M17xR4:~$ sudo mc
```

■ After logging in you will get empty wallpaper

# No Unity anymore after reboot

```
File Edit View Search Terminal Help
Do you want to continue [Y/n]? y
Get:1 http://us.archive.ubuntu.com/ubuntu/ raring/universe mc-data all 3:4.8.3-1
0 [1,048 kB]
Get:2 http://us.archive.ubuntu.com/ubuntu/ raring/universe mc amd64 3:4.8.3-10 [
430 kB]
Fetched 1,477 kB in 2s (720 kB/s)
Selecting previously unselected package mc-data.
(Reading database ... 155233 files and directories currently installed.)
Unpacking mc-data (from .../mc-data_3%3a4.8.3-10_all.deb) ...
Selecting previously unselected package mc.
Unpacking mc (from .../mc_3%3a4.8.3-10_amd64.deb) ...
Processing triggers for man-db ...
Processing triggers for hicolor-icon-theme ...
Processing triggers for doc-base ...
Processing 32 changed doc-base files, 1 added doc-base file...
Processing triggers for bamfdaemon ...
Rebuilding /usr/share/applications/bamf-2.index...
Processing triggers for desktop-file-utils ...
Processing triggers for gnome-menus ...
Setting up mc-data (3:4.8.3-10) ...
Setting up mc (3:4.8.3-10) ...
update-alternatives: using /usr/bin/mcview to provide /usr/bin/vview (view) in au
to mode
marcusmae@M17xR4:~$ sudo mc
```

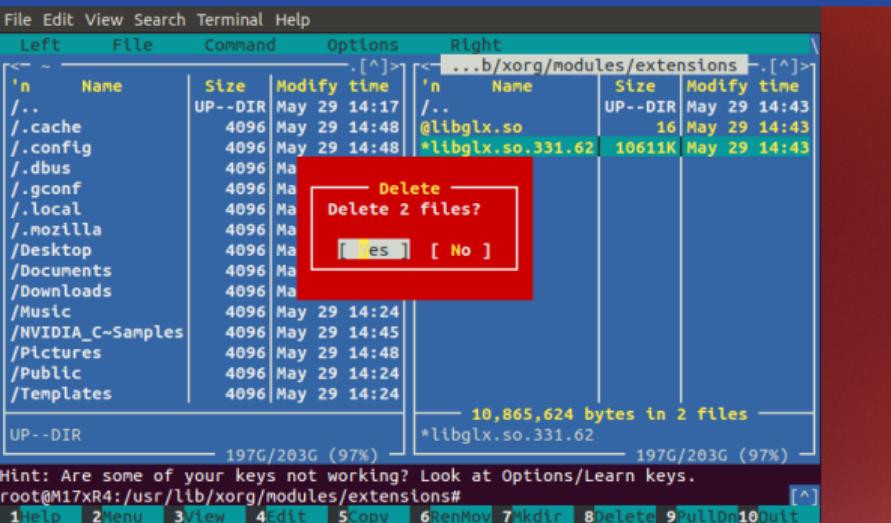
- After logging in you will get empty wallpaper
- Press Ctrl+Alt+T to open terminal

# No Unity anymore after reboot

```
File Edit View Search Terminal Help
Do you want to continue [Y/n]? y
Get:1 http://us.archive.ubuntu.com/ubuntu/ raring/universe mc-data all 3:4.8.3-1
0 [1,048 kB]
Get:2 http://us.archive.ubuntu.com/ubuntu/ raring/universe mc amd64 3:4.8.3-10 [
430 kB]
Fetched 1,477 kB in 2s (720 kB/s)
Selecting previously unselected package mc-data.
(Reading database ... 155233 files and directories currently installed.)
Unpacking mc-data (from .../mc-data_3%3a4.8.3-10_all.deb) ...
Selecting previously unselected package mc.
Unpacking mc (from .../mc_3%3a4.8.3-10_amd64.deb) ...
Processing triggers for man-db ...
Processing triggers for hicolor-icon-theme ...
Processing triggers for doc-base ...
Processing 32 changed doc-base files, 1 added doc-base file...
Processing triggers for bamfdaemon ...
Rebuilding /usr/share/applications/bamf-2.index...
Processing triggers for desktop-file-utils ...
Processing triggers for gnome-menus ...
Setting up mc-data (3:4.8.3-10) ...
Setting up mc (3:4.8.3-10) ...
update-alternatives: using /usr/bin/mcview to provide /usr/bin/vview (view) in au
to mode
marcusmae@M17xR4:~$ sudo mc
```

- After logging in you will get empty wallpaper
- Press Ctrl+Alt+T to open terminal
- Install mc: \$ sudo apt-get install mc
- Execute mc under admin: \$ sudo mc

# No Unity anymore after reboot



- After logging in you will get empty wallpaper
- Press Ctrl+Alt+T to open terminal
- Install mc: \$ sudo apt-get install mc
- Execute mc under admin: \$ sudo mc
- Delete files in */usr/lib/xorg/modules/extensions*

# No Unity anymore after reboot

```
File Edit View Search Terminal Help
Left      File   Command    Options   Right
<- ~ -> .[~]> <- /usr/lib -> .[^]>
'n  Name    Size  Modify time  'n  Name    Size  Modify time
'.. UP--DIR May 29 14:17  /xul-ext  4096 Apr 24 2013
/.cache 4096 May 29 14:48  /zeitgeist 4096 Apr 24 2013
/.config 4096 May 29 14:48  *command--t-found 3191 Mar  1 2013
/.dbus   4096 May 29 14:24  libGL.la  654  May 29 14:43
/.gconf  4096 May 29 14:47  @libGL.so  10  May 29 14:43
/.local   4096 May 29 14:24  @libGL.so.1 15  May 29 14:43
/.mozilla 4096 May 29 14:24  *libGL.so.331.62 1163112 May 29 14:43
/Desktop  4096 May 29 14:24  @libI810XvMC.so.1 20  May 29 14:16
/Documents 4096 May 29 14:40  libI810X-0.1.0.0 47496 Apr 19 2013
/Downloads 4096 May 29 14:30  @libIntel-MC.so.1 21  May 29 14:16
/Music   4096 May 29 14:24  libIntel-0.1.0.0 409856 Apr 19 2013
/NVIDIA_C-Samples 4096 May 29 14:45  @libOpenCL.so 14  May 29 14:43
/Pictures 4096 May 29 14:49  @libOpenCL.so.1 16  May 29 14:43
/Public   4096 May 29 14:24  @libOpenCL.so.1.0 18  May 29 14:43
/Templates 4096 May 29 14:24  *libOpenC-0.1.0.0 21296 May 29 14:43
UP--DIR
1,163,791 bytes in 4 files
*libGL.so.331.62
197G/203G (97%) 197G/203G (97%)
Hint: M-! will allow you to execute programs and see the output in the viewer.
root@M17xR4:/usr/lib# [^]
1Help 2Menu 3View 4Edit 5Copy 6RenMov 7Mkdir 8Delete 9PullDn 10Quit
```

- After logging in you will get empty wallpaper
- Press Ctrl+Alt+T to open terminal
- Install mc: \$ sudo apt-get install mc
- Execute mc under admin: \$ sudo mc
- Delete files in */usr/lib/xorg/modules/extensions*
- Delete libGL\* files in */usr/lib*

# No Unity anymore after reboot

```
File Edit View Search Terminal Help
Left      File   Command    Options   Right
<- ~ -> .[^]> <- /usr/lib32 -> .[^]>
'n  Name    Size  Modify time  'n  Name    Size  Modify time
'.. UP--DIR May 29 14:17  '@libGL.so.1      15 May 29 14:43
/.cache  4096 May 29 14:48  *libGL.so.331.62  1001752 May 29 14:43
/.config  4096 May 29 14:48  @libGLESv1_CM.so  17 May 29 14:43
/.dbus    4096 May 29 14:24  @libGLESv-CM.so.1  22 May 29 14:43
/.gconf   4096 May 29 14:47  *libGLESv-CM.so.1  55312 May 29 14:43
/.local   4096 May 29 14:24  @libGLESv2.so     14 May 29 14:43
/.mozilla 4096 May 29 14:24  @libGLESv2.so.2   19 May 29 14:43
/Desktop  4096 May 29 14:24  *libGLESv2.so.2   52208 May 29 14:43
/Documents 4096 May 29 14:40  @libOpenCL.so    14 May 29 14:43
/Downloads 4096 May 29 14:30  @libOpenCL.so.1   16 May 29 14:43
/Music    4096 May 29 14:24  @libOpenCL.so.1.0  18 May 29 14:43
/NVIDIA_C-Samples 4096 May 29 14:45  *libOpenC~o.1.0.0  16176 May 29 14:43
/Pictures 4096 May 29 14:50  @libcuda.so     12 May 29 14:43
/Public   4096 May 29 14:24  @libcuda.so.1    17 May 29 14:43
/Templates 4096 May 29 14:24  *libcuda.-.331.62 12651K May 29 14:43
UP--DIR
1,751,492 bytes in 13 files
-> libOpenCL.so.1
197G/203G (97%) 197G/203G (97%)
Hint: We also have a nice manual page.
root@M17xR4:/usr/lib32# [^]
1Help 2Menu 3View 4Edit 5Copy 6RenMov 7mkdir 8Delete 9PullDn 10Quit
```

- After logging in you will get empty wallpaper
- Press Ctrl+Alt+T to open terminal
- Install mc: \$ sudo apt-get install mc
- Execute mc under admin: \$ sudo mc
- Delete files in */usr/lib/xorg/modules/extensions*
- Delete libGL\* files in */usr/lib*
- Delete libGL\* and libGLES\* files in */usr/lib32*

# No Unity anymore after reboot

```
File Edit View Search Terminal Help
nvidia-310-updates: /usr/lib32/nvidia-310-updates/libGL.so
nvidia-310-updates: /usr/lib32/nvidia-310-updates/libGL.so.1
nvidia-310-updates: /usr/lib32/nvidia-310-updates/libGL.so.310.44
nvidia-313-updates: /usr/lib/nvidia-313-updates/libGL.so
nvidia-313-updates: /usr/lib/nvidia-313-updates/libGL.so.1
nvidia-313-updates: /usr/lib/nvidia-313-updates/libGL.so.313.30
nvidia-313-updates: /usr/lib32/nvidia-313-updates/libGL.so
nvidia-313-updates: /usr/lib32/nvidia-313-updates/libGL.so.1
nvidia-313-updates: /usr/lib32/nvidia-313-updates/libGL.so.313.30
marcusmae@M17XR4:~$ sudo apt-get install libgl1-mesa-glx
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following extra packages will be installed:
 libegl1-mesa libegl1-mesa-drivers libgl1-mesa-dri libglapi-mesa
Suggested packages:
 libglide3
The following packages will be upgraded:
 libegl1-mesa libegl1-mesa-drivers libgl1-mesa-dri libgl1-mesa-glx
 libglapi-mesa
5 upgraded, 0 newly installed, 0 to remove and 319 not upgraded.
Need to get 4,740 kB of archives.
After this operation, 240 kB disk space will be freed.
Do you want to continue [Y/n]? █
```

■ \$ sudo apt-get install --reinstall libgl1-mesa-glx

# No Unity anymore after reboot

```
File Edit View Search Terminal Help
marcusmae@M17xR4:~$ apt-file search libglx.so
fglrx: /usr/lib/fglrx/xorg/modules/extensions/libglx.so
fglrx-updates: /usr/lib/fglrx/xorg/modules/extensions/libglx.so
nvidia-173: /usr/lib/nvidia-173/xorg/libglx.so.173.14.37
nvidia-173: /usr/lib/nvidia-173/xorg/libglx.so.173.14.37
nvidia-304: /usr/lib/nvidia-304/xorg/libglx.so
nvidia-304: /usr/lib/nvidia-304/xorg/libglx.so.304.88
nvidia-304-updates: /usr/lib/nvidia-304-updates/xorg/libglx.so
nvidia-304-updates: /usr/lib/nvidia-304-updates/xorg/libglx.so.304.88
nvidia-310: /usr/lib/nvidia-310/xorg/libglx.so
nvidia-310: /usr/lib/nvidia-310/xorg/libglx.so.310.44
nvidia-310-updates: /usr/lib/nvidia-310-updates/xorg/libglx.so
nvidia-310-updates: /usr/lib/nvidia-310-updates/xorg/libglx.so.310.44
nvidia-313-updates: /usr/lib/nvidia-313-updates/xorg/libglx.so
nvidia-313-updates: /usr/lib/nvidia-313-updates/xorg/libglx.so.313.30
xserver-xorg-core: /usr/lib/xorg/modules/extensions/libglx.so
xserver-xorg-core-dbg: /usr/lib/debug/usr/lib/xorg/modules/extensions/libglx.so
marcusmae@M17xR4:~$ sudo apt-get install --reinstall xserver-xorg-core
[sudo] password for marcusmae: ■
```

- \$ sudo apt-get install --reinstall libgl1-mesa-glx
- \$ sudo apt-get install --reinstall xserver-xorg-core

# No Unity anymore after reboot

File Edit View Search Terminal Help

```
marcusmae@M17xR4:~$ sudo apt-get install --reinstall xorg
```

- \$ sudo apt-get install --reinstall libgl1-mesa-glx
- \$ sudo apt-get install --reinstall xserver-org-core
- \$ sudo apt-get install --reinstall xorg

# No Unity anymore after reboot

File Edit View Search Terminal Help

```
marcusmae@M17XR4:~$  
marcusmae@M17XR4:~$ dconf reset -f /org/compiz/  
marcusmae@M17XR4:~$ compiz --replace
```

- \$ sudo apt-get install --reinstall libgl1-mesa-glx
- \$ sudo apt-get install --reinstall xserver-org-core
- \$ sudo apt-get install --reinstall xorg
- \$ dconf reset -f /org/compiz/
- \$ compiz –replace

# Unity is back!

Terminal

3:01 PM

```
marcusmae@M17xR4: ~
1
WARN 2014-05-29 15:01:08 unity <unknown>:0 Failed to fetch boolean: No such interface `org/ayatana/bamf/view' on object at path /org/ayatana/bamf/window3355454
1
WARN 2014-05-29 15:01:08 unity.glib.dbus.proxy GLibDBusProxy.cpp:418 Calling method "CanHibernate" on object path: "/org/freedesktop/login1" failed: GDBus.Error:org.freedesktop.DBus.Error.ServiceUnknown: The name org.freedesktop.login1 was not provided by any .service files
ERROR 2014-05-29 15:01:08 unity.session.gnome GnomeSessionManager.cpp:334 logind CanHibernate call failed: GDBus.Error:org.freedesktop.DBus.Error.ServiceUnknown : The name org.freedesktop.login1 was not provided by any .service files
WARN 2014-05-29 15:01:08 unity.glib.dbus.proxy GLibDBusProxy.cpp:418 Calling method "CanSuspend" on object path: "/org/freedesktop/login1" failed: GDBus.Error:org.freedesktop.DBus.Error.ServiceUnknown: The name org.freedesktop.login1 was not provided by any .service files
ERROR 2014-05-29 15:01:08 unity.session.gnome GnomeSessionManager.cpp:334 logind CanSuspend call failed: GDBus.Error:org.freedesktop.DBus.Error.ServiceUnknown: The name org.freedesktop.login1 was not provided by any .service files
WARN 2014-05-29 15:01:08 unity <unknown>:0 Failed to fetch type: No such interface `org/ayatana/bamf/window' on object at path /org/ayatana/bamf/window33554541
WARN 2014-05-29 15:01:08 unity <unknown>:0 Failed to fetch boolean: No such interface `org/ayatana/bamf/view' on object at path /org/ayatana/bamf/window3355454
1

```

# How to avoid this problem in future

- Install graphics driver separately w/o OpenGL (**--no-opengl-files**):

```
Ctrl+Alt+F2
$ cd Downloads
$ ./cuda_6.0.37_linux_64.run --extract=$HOME/Downloads/cuda
$ cd cuda
$ sudo service lightdm stop
$ sudo ./NVIDIA-Linux-x86_64-331.62.run --no-opengl-files
```

- Then install CUDA and CUDA samples:

```
$ cd ..
$ sudo ./cuda_6.0.37_linux_64.run
Do you accept the previously read EULA? (accept/decline/quit): accept
Install NVIDIA Accelerated Graphics Driver for Linux-x86_64 331.62? ((y)es/(n)o/(q)uit): n
Install the CUDA 6.0 Toolkit? ((y)es/(n)o/(q)uit): y
Enter Toolkit Location [ default is /usr/local/cuda-6.0 ]: /opt/cuda
Do you want to install a symbolic link at /usr/local/cuda? ((y)es/(n)o/(q)uit): y
Install the CUDA 6.0 Samples? ((y)es/(n)o/(q)uit): y
$ sudo reboot
```