

# CS150: USB Flash Drive Configuration

John C. Lusth

Revision Date: January 19, 2012

Some of the configurations listed below are aimed at reducing the number of disk writes on a Ubuntu full-install USB stick: Others are to make a nice looking and acting environment for programming in Sway and Python.

Start by installing *Ubuntu* on a usb flash drive: [usb-install.html](#).

Once installed, boot your computer from the USB stick.

## Modify *fstab* to use *noatime* options

The first tweak is to modify `/etc/fstab`. The first change to *fstab* is to add the option `noatime` to the *ext4* (or *ext2*, *ext3*) file system you created. You need root privileges to do this:

```
sudo vim /etc/fstab
```

Use whatever editor you are comfortable with if you do not use *vim* as your editor.

Change the line that reads something like this:

```
UUID=xxxxxx / ext4 errors=remount-ro 0 1
```

to this:

```
UUID=xxxxxx / ext4 defaults,noatime,errors=remount-ro 0 1
```

Continue on to the next step.

## Disable swap

Find the line in `/etc/fstab` that looks like:

```
UUID=xxxxxx none swap sw 0 0
```

Comment that line out by adding a `#` in front:

```
#UUID=xxxxxx none swap sw 0 0
```

Continue on to the next step.

## Use a RAM disk for logging and caching

Use a RAM disk for `/tmp` and log files. Add to `/etc/fstab`:

```
tmpfs      /tmp                tmpfs      defaults    0 0
```

Save your changes to `/etc/fstab` and reboot.

## Firefox caching

Have *firefox* save its cache in the RAM disk. Type in `'about:config'` in the address bar and then click right on the list of attribute-value pairs and select *New* → *String*. Enter the attribute:

```
browser.cache.disk.parent_directory
```

and then enter the value:

```
/tmp
```

Now *firefox* will cache to the RAM disk.

## Reduce synching to the flash drive

To reduce the number of syncs to the flash drive, add to `/etc/sysctl.conf`:

```
vm.dirty_ratio = 40
vm.dirty_background_ratio = 1
vm.dirty_writeback_centisecs = 12000
```

## Add important packages

Add the following packages:

```
sudo apt-get install vim \
network-manager-pptp sshfs \
build-essential manpages-dev \
alsa-utils mpg123 \
python-tk python3-minimal python3-tk
```

Next, go to [adobe.com](http://adobe.com) and download and install the latest version of flash.

## Install the *cs150* package

Get the latest package of programs and scripts for *cs150*:

```
wget beastie.cs.ua.edu/cs150/cs150-2.7_i386.deb
```

and install it:

```
sudo dpkg -i cs150-2.7_i386.deb
```

Perform the additional “cp” commands as instructed. These commands adds a local bin directory and updates the path to include the bin and allow execution of the local programs.

## Install the Sway Programming Language

Install the Sway deb package:

```
wget sway.cs.ua.edu/sway_1.0.6e-1_i386.deb
sudo dpkg -i sway_1.0.6e-1_i386.deb
```

## Look and feel

Add sophisticated window decorations and an elegant look-and-feel. In *Start* → *Settings* → *Settings Manager* → *Window Manager* → *Style*, select *Today*. In ... → *Settings Manager* → *User interface* → *Theme*, select *Xfce-kolors*.

Spring 2010 uses the *Gorilla* window manager style and the *Cruz* theme.

Fall 2010 uses *Gnome* and the *Graphite* theme.

Spring 2011 use *Gnome* and the *AgingGorilla* theme.

Fall 2011 uses *Unity* with the *Graphite* theme.

## Remote graphical logins

Install the NoMachine client software for graphical logins to nixie.cs.ua.edu:

[http://www.nomachine.com/download-package.php?Prod\\_Id=1048](http://www.nomachine.com/download-package.php?Prod_Id=1048)

## Installing ubuntu updates

To have an updated linux image, do the following command in the terminal:

```
sudo apt-get update
sudo apt-get upgrade
sudo apt-get dist-upgrade
```

After the first command, you will be asked to enter the administrative password. For USB sticks, the password is

```
ubuntu
```

Press the Enter key, when asked if you wish to continue. This will install the most recent updates on the system.

## Remove old kernels

To remove old kernels residing on the USB, first find the name of the current kernel:

```
uname -r
```

You should see something like:

```
2.6.38-10-generic
```

Note the number: 2.6.38-10. Next, do a listing of the */boot* directory:

```
ls /boot
```

You will see something like:

```
abi-2.6.38-8-generic  
abi-2.6.38-10-generic  
config-2.6.38-8-generic  
config-2.6.38-10-generic  
grub  
initrd.img-2.6.38-8-generic  
initrd.img-2.6.38-10-generic  
memtest86+.bin  
System.map-2.6.38-8-generic  
System.map-2.6.38-10-generic  
vmcoreinfo-2.6.38-8-generic  
vmcoreinfo-2.6.38-10-generic  
vmlinuz-2.6.38-8-generic  
vmlinuz-2.6.38-10-generic
```

Find any lower kernel numbers and remove them with:

```
sudo apt-get remove --purge linux-image-x.x.xx-xx-generic
```

where *x.x.xx-xx* represents the old kernel version number.

## Clean up other unnecessary files

Install *localepurge*:

```
sudo apt-get install localepurge
```

and select your locale (*en* for english). Then run *localepurge* from the command-line:

```
localepurge
```

Finally, remove *localepurge*:

```
sudo apt-get remove localepurge
```

Next, run the *apt-get* cleaning commands:

```
sudo apt-get autoremove
sudo apt-get autoclean
sudo apt-get clean
```

## Reduce boot time

Reduce the *GRUB.TIMEOUT* option in the */etc/default/grub/* to 2 seconds. This will start booting the default image after the configured *timeout* seconds.

Rebuild the grub config file by running the command:

```
sudo update-grub
```

## Final steps

Now boot the usb drive and, in the home directory, run the command:

```
sudo find . -exec chown ubuntu.ubuntu {} \; -print
```

Again, the password is *ubuntu*. The drive should be ready for imaging. For bulk imaging of the drives, see [imaging.html](#).

If you have tested the cs150 scripts by setting your email, make sure you removing your imprinting before saving the master image. You can get the current master image (4G, Lucid Lynx) with the following command:

```
wget beastie.cs.ua.edu/images/lucid.img
```