

After an upgrade to Debian Wheezy went horribly wrong and choked my laptop, I re-installed Debian Squeeze from the only CD I had laying about-- a copy of version 6.0.7 standard (i.e. command-line only). I should have immediately upgraded to the GNOME version, but there was something fascinating about the command line. I'd played around before with command line programs like Lynx and Newsbeuter and had a rainy weekend to kill, so just for the heck of it I thought I'd see how much "normal" computer usage I could get from a command-line only system. I quickly discovered that short of spreadsheets and high-end word processing, I could do just about everything I normally did on a day-to-day basis from the command line. (In the end I *did* reinstall GNOME-and-all-the-trappings because I needed to be able to use LibreOffice to get some other day-to-day items done.) But those couple of days without a graphical interface inspired me to try putting an entire command-line only system on a USB drive for further experimentation.

For those who have an extra computer laying about and who don't want the added work of installing Linux on a USB drive, there's an extremely thorough, multi-part guide to building "An All-Text Linux Workstation" on [William Shotts'](#) blog. Even if you *are* going to create a USB thumbdrive system, I highly recomend reading his guide and printing out any posts you feel relevant to your needs.

And without further ado:

Creating a Command-Line-Only Debian Linux USB Drive

Loading the basic Debian OS onto a USB thumbdrive

Since I already had Debian up and running on my system, I installed debootstrap:

```
sudo apt-get install debootstrap
```

Then I followed the directions contained in the post "361. Installing Debian on a USB stick (from a running Debian system)" located at [Lindqvist's](#) blog, leaving out only step 6, "Installing a desktop." (That particular post also links to several other methods of installing linux on a USB drive if you're not currently running Linux.

Before I unmounted the USB drive, I used the existing Internet connection from my already running system to download UFW (to set the firewall), pppoeconf (since my ISP uses PPPoE to connect) and to update my system:

```
sudo apt-get install ufw
sudo apt-get install pppoeconf
sudo apt-get update
sudo apt-get upgrade
```

While I was at it, I also installed USB support (for other drives) and removed the ftp and telnet clients since they're considered insecure:

```
sudo apt-get install usbmount usbutils
sudo apt-get remove ftp telnet
```

Then I rebooted my laptop (using the USB key) into my shiny, new command-line system. The first thing I did--even before setting up the Internet connection--was to enable the firewall:

```
sudo ufw enable
sudo ufw default deny
```

This shuts off all incoming connection requests while still allowing outgoing connections. Then I ran pppoeconf:

```
sudo pppoeconf
```

Once I had my internet connection set up and running, it was time to begin tweaking the system to fit my needs.

Wrinkle #1: I quickly discovered that I couldn't set my own prompt, utilize the command history or permanently alias commands. Creating a ".profile" file in my home directory had no effect. Several hours of tinkering and online searching later, I discovered that the reason for this problem was that the entry in the "passwd" file for my account ended in ":sh" instead of ":bash," giving me a limited login shell. After I changed my entry from ":sh" to ":bash," I logged out and then back in and my ".profile" file and command history both began working properly.

Setting up Wireless

Later on, I changed to an ISP that used WPA2-PSK to connect. So the first thing I did was download the wpa_supplicant package from the Debian repository:

```
sudo apt-get install wpa_supplicant
```

Then I followed the instructions on setting up wifi located at the [Debian Wiki](#)

First, I changed the permissions of the /etc/network/interfaces file so that no one else could read it:

```
sudo chmod 0600 /etc/network/interfaces
```

Then I created a hashed passphrase for my wireless connection:

```
sudo wpa_passphrase [my connection name/SSID] [unhashed  
passphrase] >pass.txt
```

I then used vim to open both pass.txt and /etc/network/interfaces so that I could cut and paste the hashed PSK into the interfaces file:

```
auto wlan0  
iface wlan0 inet dhcp  
wpa-ssid [my connection name/SSID]  
wpa-psk [hashed PSK cut and pasted from the output of  
wpa_passphrase]
```

If you don't want your wifi connection to start automatically when you boot up, remove or comment out the first line (i.e. "auto wlan0"). I chose to manually bring my connection up/down, as I prefer to work offline as much as possible.

I deleted the extraneous stuff left over from the pass.txt file and saved a clean /etc/network/interfaces file, then exited vim. Now, whenever I want to connect/disconnect from the wireless network, I merely type:

```
sudo ifup wlan0  
sudo ifdown wlan0
```

Setting up the Framebuffer

The framebuffer gives you the ability to view images, PDFs and video. There's an excellent tutorial on how to set your framebuffer located at [Samat Jain's](#) blog, but to summarize:

```
sudo apt-get install v86d (to get the module)  
sudo nano /etc/initramfs-tools/modules and add the line  
"uvesafb"  
sudo modprobe uvesafb (to load the module)  
cat /sys/bus/platform/drivers/uvesafb/uvesafb.0/vbe_modes (to  
see what video formats your hardware supports -- in my case, the  
best mode available was 1024x768-32)  
sudo nano /etc/modprobe.d/drivers/uvesafb.conf and add the line  
"options uvesafb mode_option=[best mode] scroll=ywrap"  
sudo update-initramfs -k all -u (to update the linux kernel)  
sudo reboot
```

Now that I had my internet connection and framebuffer set, it was time to download my

favorite command-line programs. I used apt-get to install the Lynx web browser, Newsbeuter RSS reader, the fbi framebuffer image viewer (the package also includes the program fbgs, which allows you to view PDF files), the mpg123 mp3 player, and the enscript package to convert various kinds of text files from one format to another. I also installed the aspell spell-checker, dict (an online dictionary), vlock (to lock the terminal) and the program "screen," which allows you to run multiple terminal windows simultaneously and to switch between them with just a few keystrokes--something necessary if you're going to multitask from the command line.

There are times I read/write Chinese documents, so I also needed a way to do this from the command line. I imagined it would be difficult--it turned out to be fairly easy. The first thing to do is to set up Chinese localizations:

```
sudo apt-get install locales dpkg-reconfigure
locale -a (to list localizations currently on the computer)
sudo dpkg-reconfigure locales (to generate new locales)
select desired localizations (in my case, China, Hong Kong,
Taiwan)
```

Then I downloaded Chinese character fonts:

```
sudo apt get install ttf-arphic-bkai00mp ttf-arphic-sbmi00lp
ttf-arphic-gbsn00ip ttf-arphic-gkai00mp ttf-wqy-zenhai
```

Finally I downloaded a Chinese-language console with its own character input system:

```
sudo apt-get install zhcon
```

And with that, I was able to read and write Chinese by running "zhcon" before opening my browser or text editor.

Setting Up the Printer

Setting up my printer was a wrinkle in itself, as I have a HP LaserJet P1007 printer and quickly discovered that I couldn't install the HPLIP printer drivers from the web. So I searched the Internet and and discovered I could use cups and the foomatic foo2zjs driver instead. However, the driver had to be downloaded as a *.tar.bz file and compiled by hand.

```
wget -c http://foo2zjs.rkkda.com/foo2zjs.tar.gz
tar -zxf foo2zjs.tar.gz
```

Then I followed the instructions in the "INSTALL" file:

```
cd foo2zjs
make
./getweb P1007
```

```
sudo make install
sudo make install-hotplug (since it's a USB printer)
sudo make cups
```

I made sure to add myself to the "printer" and "printer admin" groups to give myself permission to use them.

```
usermod -aG lp lpadmin [user name]
```

At this point I discovered that I couldn't access the cups setup web page at <http://localhost:631>--Lynx kept saying that the socket couldn't be opened. Several fruitless hours were spent looking for a solution--my best guess was that the firewall was somehow blocking my access. However, I found that I could still set up a printer in cups without accessing the web page. So I made sure the printer was plugged in and turned on, then:

```
sudo lpinfo -v (to list available devices)
locate *HP*.ppd (to find the location of the .ppd file for my HP
printer)
sudo lpadmin -p [PrinterName] -v [the device name of the printer
] -P [the location of the ppd file for the printer] (creates the
printer)
sudo lpadmin -p [PrinterName] -E (enables the printer)
sudo lpoptions -d [PrinterName] (set the printer as default)
sudo lpstat -s (see available printers)
```

I was now able to print using the lp command. (It's worth looking at the man page for "lp" before you begin printing as there are a wide range of options for paper size, orientation, and margins.) I also downloaded the cups-pdf system so I could print to a file if needed.

```
sudo apt-get install cups-pdf
```

I set this printer up using the same commands for the HP printer, modifying them as necessary.

Setting up Audio and Video

I'd already downloaded mpg123 to play mp3 files, but I also wanted to be able to convert CDs and to watch dvd's. So I downloaded cdtools, then the cd ripper abcde and its dependencies, and finally a way to set playback levels on my computer:

```
sudo apt-get install cdtools abcde cdcid id3v2
sudo apt-get install alsamixer (includes alsamixer to set sound levels
on speakers/laptop)
```

To convert WMA or OGG files to mp3 requires the lame encoder/decoder. There's no official Debian package for lame, and rather than adding the deb-multimedia repository to my apt-get sources, I simply downloaded the file I needed directly and installed it:

```
wget -c http://deb-multimedia.org/pool/main/l/lame/lame_3.98.4-0.0_i386.deb
sudo dpkg -i lame_3.98.4-0.0_i386.deb
```

Wrinkle #2: I discovered that CDs and DVDs would only mount if I put them into the drive *before* booting up--any disk inserted later would whir-and-stop whir-and-stop, yet never mount. I even made sure I had permission as part of the "cdrom" group. The solution turned out to be to add the following line to the file "/etc/fstab":

```
/dev/sr0 /media/cdrom0 iso9660,udf user,noauto,exec,utf8 0 0
```

After a reboot, all was well. I then added myself to the "audio" and "video" groups so that I had permission to use them.

```
usermod -aG audio video [user]
```

The final step was to install mplayer, a video player capable of using the framebuffer. First I had to install libdvdread:

```
sudo apt-get install libdvdread4
```

Then I had to install the libdvdcss library. Like lame, there isn't an official Debian libdvdcss package, so once again I had to download and compile for myself:

```
wget -c
http://download.videolan.org/pub/libdvdcss/1.2.13/libdvdcss-1.2.13.tar.bz2
bunzip2 libdvdcss-1.2.13.tar.bz2
tar -xf libdvdcss-1.2.13.tar
```

Then I followed the instructions in the "INSTALL" file:

```
cd libdvdcss-1.2.13
./configure
make
sudo make install
```

Last of all, I downloaded mplayer itself.

```
sudo apt-get install mplayer
```

At this point, I popped a dvd into the drive, typed a single (rather long) command and seconds later, was watching a movie.

Some Final Thoughts

My command-line system is still far from being done--there's plenty left to tinker with. Various program settings and configuration files still need to be changed to get the system and programs just the way I want them. It also appears that if I want to create professional-looking documents, I'll have to install and learn how to use LaTeX--something which I'm sure will present even more wrinkles.

If you decide to try making your own command-line system, aliased commands will become your best friends. Learn how to alias (and how to make them permanent) because it will save you time and frustration. It's much quicker and efficient to type `printA4 foobar.txt` or `playdvd` than `lp -o media=a4 -o page-top=72 -o page-bottom=72 -o page-left=72 -o page-right=72 foobar.txt` or `mplayer -vo fbdev -fs -vf scale=1024:-3 dvd://1` whenever you want to print a page or watch a movie.

A (Hopefully Still) Useful Web Bibliography:

[William Schotts' Blog](#)

[LinuxCommand.org](#) William Schotts' site which teaches how to use the command line and shell scripts

[Motho ke motho ka botho -- K. Mandla's blog of Linux experiences](#) Includes lists and reviews of command line software, as well as many good command line tips

[Inconsolation](#) K. Mandla's new blog

[HOW-TO :CLiNU CLI Linux without X](#) A thread on the Arch Linux Forum about setting up a command-line-only linux system, including a list of software

[Command Line Interface Apps](#) A repository of command line programs

[CLIapps](#) Jared Bernard's list of command line applications that can replace their graphical counterparts

[Mostly CLI](#) Jared Bernards's blog on Linux and CLI apps

[Bash One-Liners](#) One-line bash scripts

[Command Line Fu](#) A searchable site of single-line commands to take care of almost any task

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