

Getting Started in Ubuntu

CIS 2230 Linux System Administration

Lecture 3

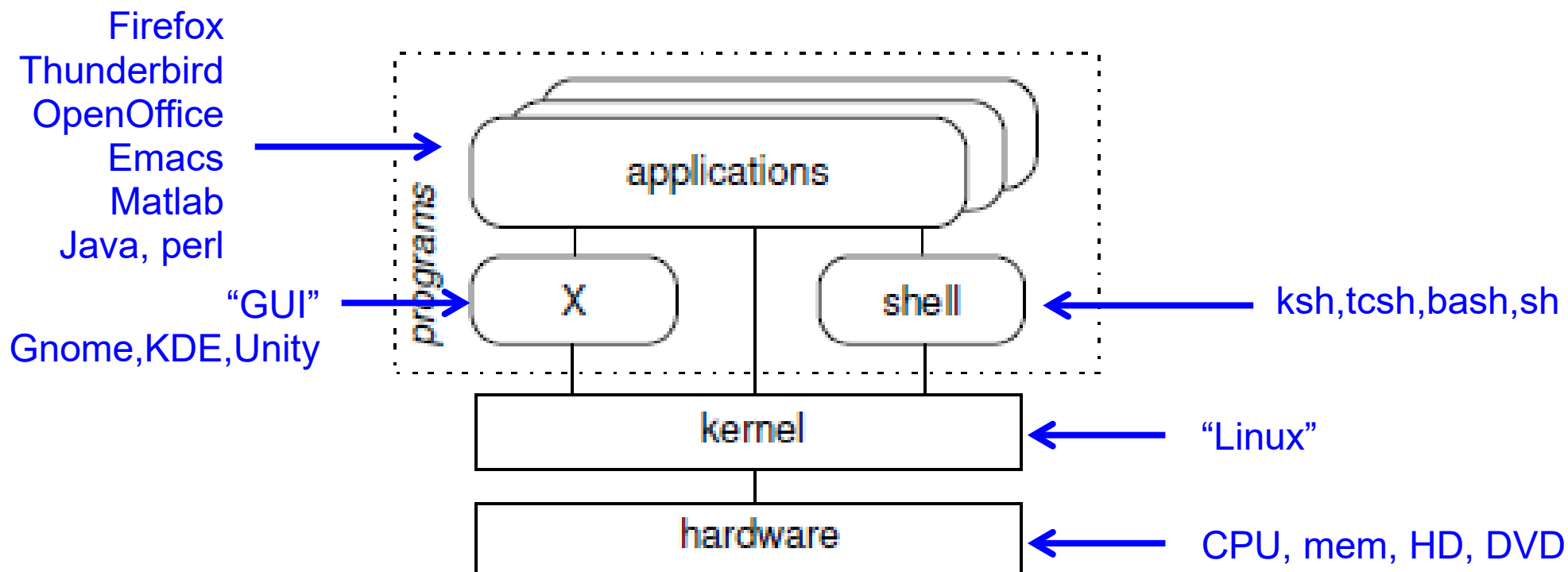
Steve Ruegsegger

Review

- How does *dual-boot* differ than a *virtualized* (guest) OS?
- What is the name of the most popular app(s) for creating a virtual OS environment (VM)?
- Describe the 3 ways to run a (non-native) linux environment?

Unix System Architecture Review

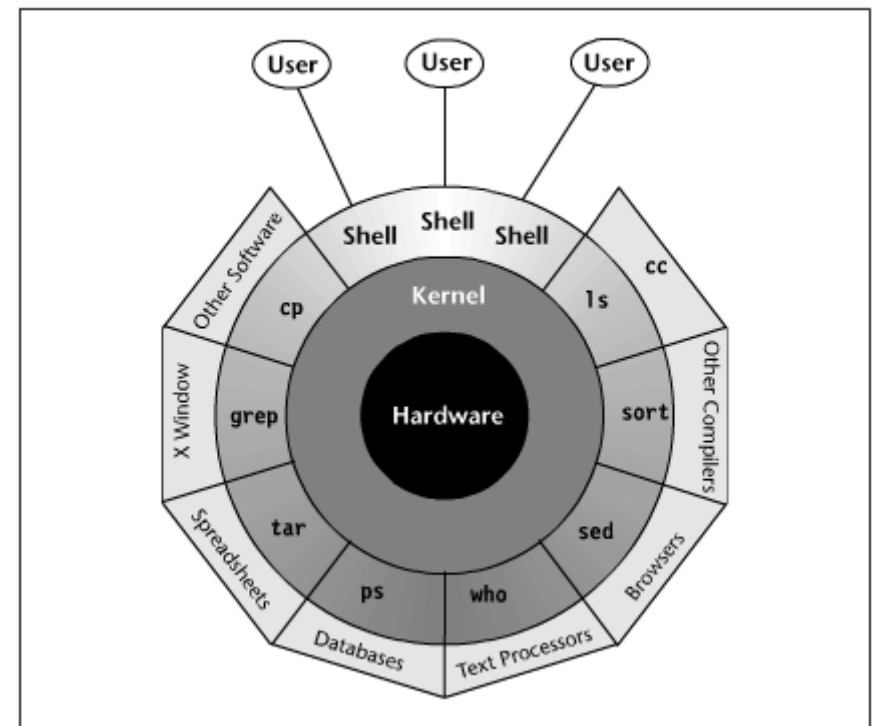
- The shell and the window environment are programs
- Linux is the “kernel” which is the “glue” or “translator” between the hardware and the programs
 - A program’s only access to hardware is *via the kernel*



Another way to view it

- What does the Kernel do?
- Who 'talks to' the Kernel?
- Where are the apps?
- How do the 'users' get tasks done?

FIGURE 1.1 The Kernel-Shell Relationship



Major services in a UNIX system kernel

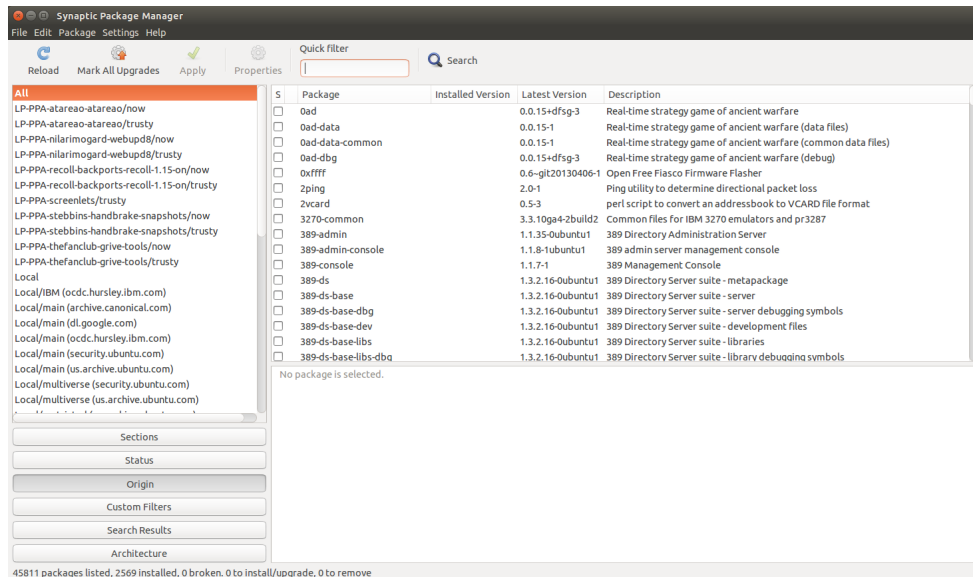
- init – runlevels, single user, multiuser
- getty – login at terminal or console
- syslog
- cron
- GUI (X)
- networking
- remote logins – telnet, ssh
- mail
- printing
- filesystem

Ubuntu distro – GUI and apps

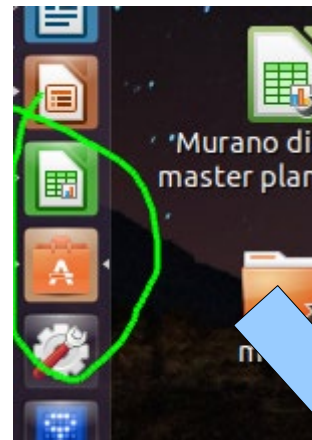
- Navigation of Unity GUI in Ubuntu
 - dash, launch bar, Nautilus, system settings
 - Moving windows (Alt)
- Apps
 - Libre Office (a.k.a. Open Office) & Draw
 - Firefox or Chrome, Thunderbird
 - Rhythmbox, shotwell
 - GIMP
 - VM running Windows
- Note: this entire course, all documentation, *was* implemented in Linux

How to get new apps?

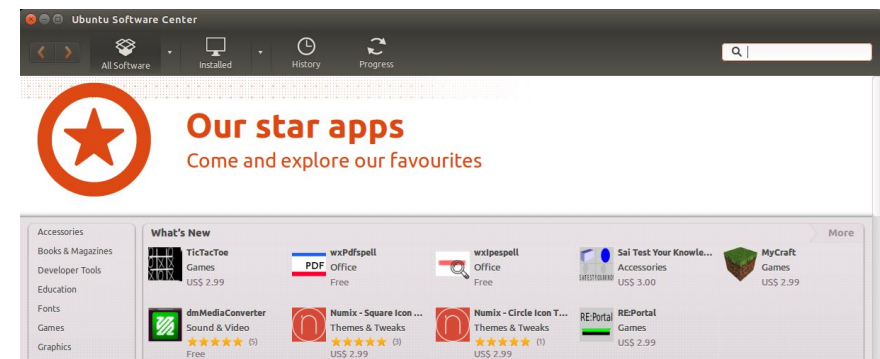
- Use `$ sudo apt-get install <package>`
 - Of course, you have to know the package name
- Use synaptic
- Use Ubuntu's Software Center



synaptic

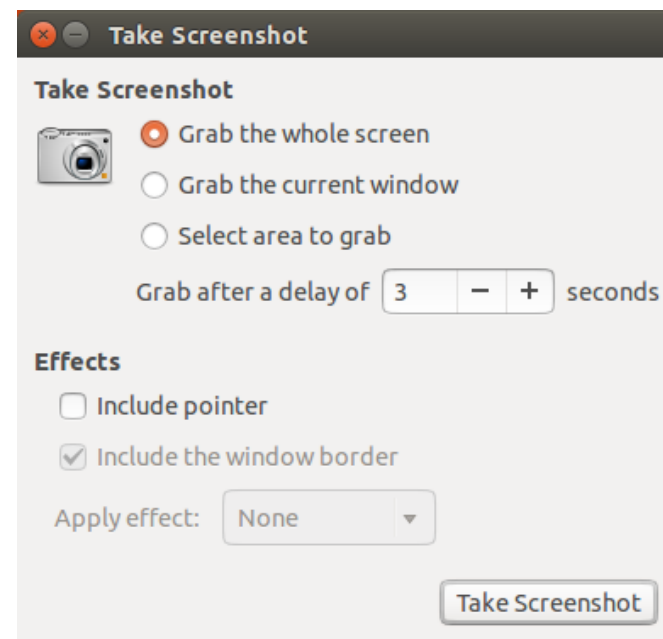
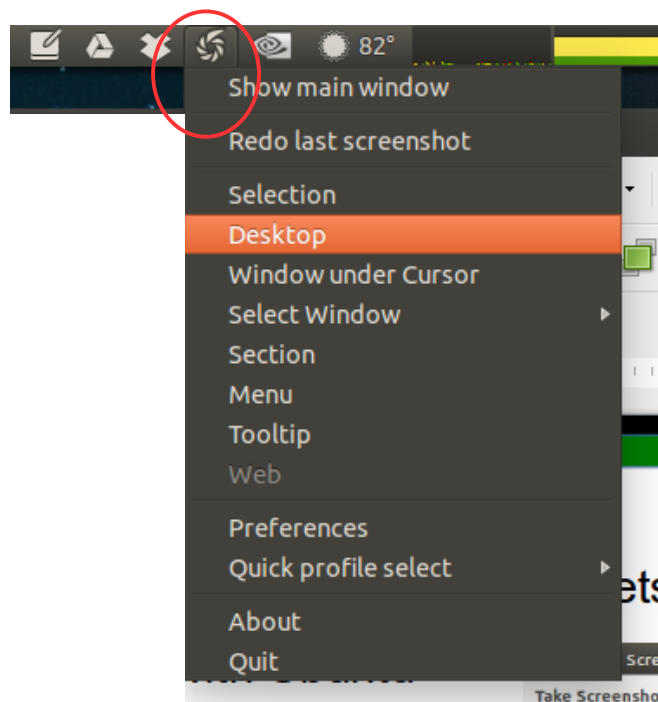


Software center



screenshots

- A very important part of being a sys admin → gets it's own page
- Default “screenshot” app with Ubuntu
- I like 'shutter'
(use apt-get or synaptic to install)

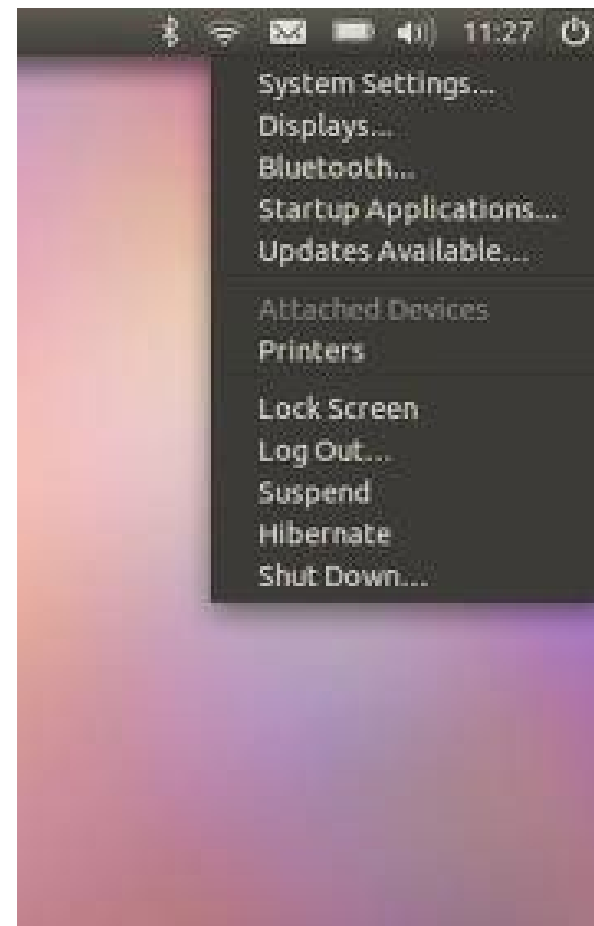


Ubuntu Unity

- Super key
 - Hit once – dash
 - Hold down – help
- Keyboard helps:
 - <https://help.ubuntu.com/14.04/ubuntu-help/shell-keyboard-shortcuts.html>
 - <https://help.ubuntu.com/14.04/ubuntu-help/keyboard-nav.html>

Logging Out

- Linux users love to never shut down!
- How long can you can keep a Windows box up? Linux boxes run **for years** without rebooting.
- So, I usually 'suspend' - I just shut my laptop lid.

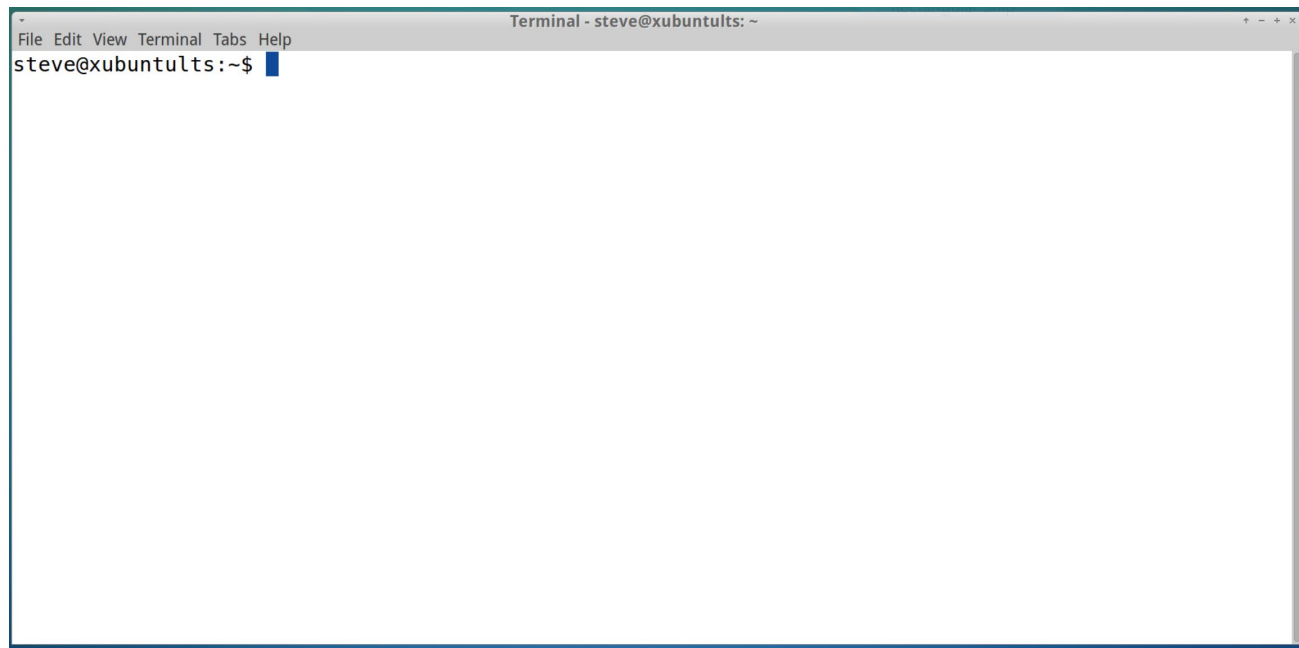


Users in a linux system

- Multi-user
 - A user needs an account to use a computer
 - Each user must log in
 - Complete separation of different users' files and configuration settings → `/home`
 - File privileges per users
- Login prompt displayed
 - When Linux first loads after booting the computer
 - After another user has logged out
 - Need to enter a username and password
 - The login prompt may be graphical or simple text

Open a “shell terminal”

- 3 ways to start a terminal to get a “prompt” (\$)
 - Dash → terminal
 - Put (lock) in launch bar
 - Ctrl-Alt-T



Linux Command Line

- The shell is where commands are invoked from the user
- A command is typed at a shell prompt
 - Prompt usually ends in a dollar sign (\$)
- After typing a command press Enter to invoke it:
 - The shell will try to obey the command
 - When done, another prompt will appear

- Example:

```
$ date
Thu Jun 14 12:28:05 BST 2001
$
```

- Notes:

- The dollar (\$) represents the prompt in this course — **do not type it**
- The prompt can get 'fancier' (we'll see how to do that later):

```
steve@xerus:~$
```

Files

- Everything in linux is a **file**
- Typically, data is stored in a file
- Each file has a filename
 - A label referring to a particular file
 - Permitted characters include letters, digits, hyphens (-), underscores (_), and dots (.)
 - Unlike DOS
 - unix is Case-sensitive
 - filenames have always been 'long' and you can as many dots as you want (not 8.3)
 - You can even put 'wacky' characters in a filename too. (Those are fun to delete...) Spaces, colons, slashes...
- The `ls` command lists the names of files
 - (like `dir` for you Windows-heads)

Creating Files

- Create an empty file by touch-ing it

```
$ touch foo.bar
```

- Add content the cat command:

```
$ cat > shopping_list.txt
```

```
cucumber
```

```
bread
```

```
yogurts
```

```
^D
```

- Ctrl+D is EOF, usually on a line by itself
- (What if that file already exists?)
- Also, use `$ cat` to view the file contents (demo)

Deleting Files with rm

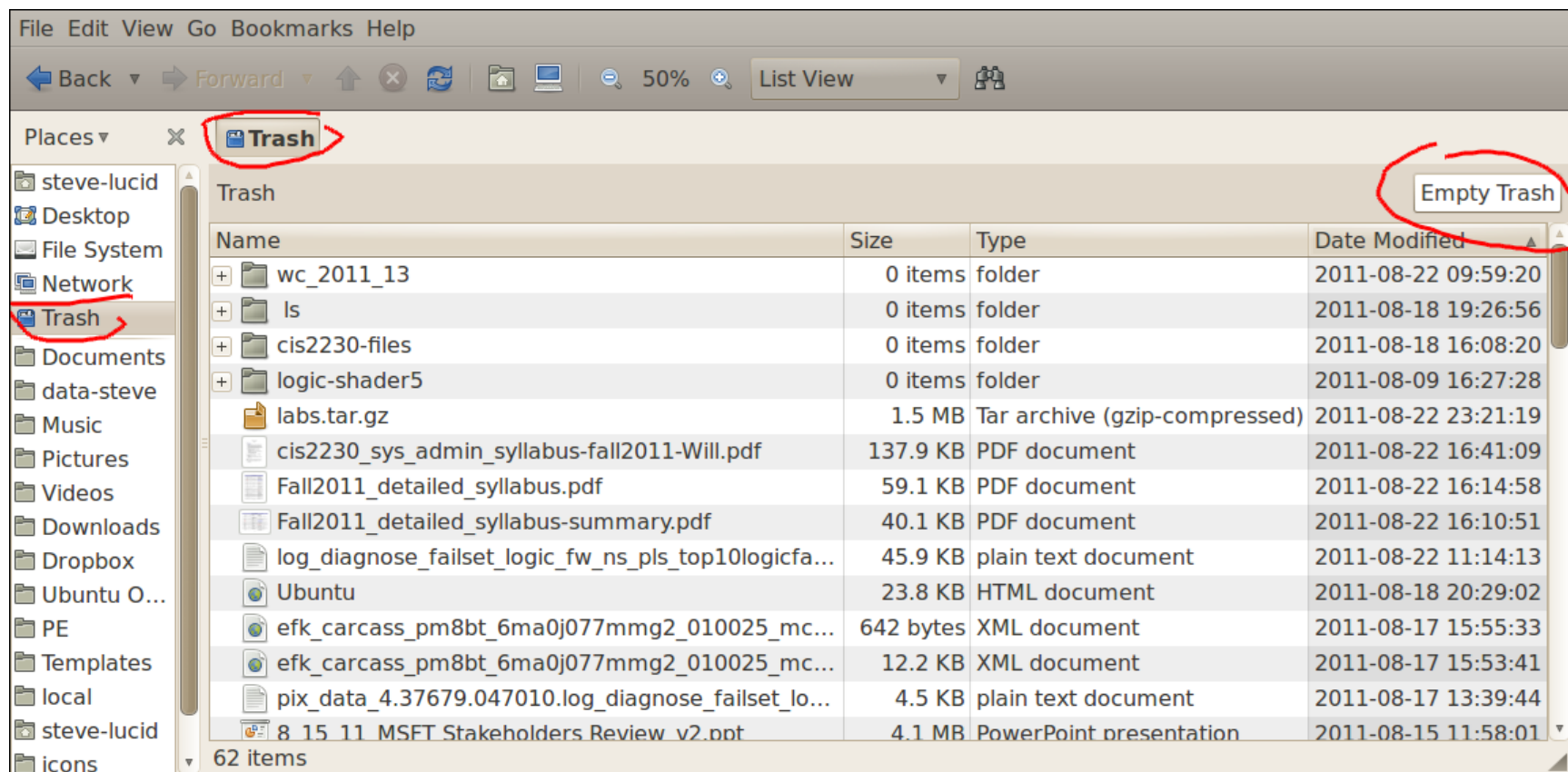
- To delete a file, use the rm ('remove') command
 - not 'del' like DOS
- Simply pass the name of the file to be deleted as an argument:

```
$ rm shopping_list
```

- The file and its contents are removed
 - There is no recycle bin in linux
 - There is no 'un-rm' command
 - To rename a file, we actually "move" it
 - There is no "rename" command – don't try to find it
- ```
$ mv old_file new_file
```
- If both old and new in same dir, then a simple 'rename' action

# Nautilus

- However, like Windows, if you use a GUI file manager in Linux, like Nautilus, then deleting a file moves it to the "trash" where it is stored until you "Empty Trash"



# Directory navigation & hidden files

- `ls` – list files
- Note: Hidden files or dir → begin with a 'dot'
  - Must ask for them specifically: `$ ls .*`
- `cd <dir>` – change directory → “go into” the dir (folder)
- `mkdir <dir>` – make a new directory
- `rmdir <dir>` – remove a dir (must be empty – why?)

# Starting linux commands

- `$ date`
- `$ uptime`
- `$ whoami`
- `$ hostname`
- `$ uname -a`
- `$ echo here is some text`
- `$ cal`
- `$ cal -3`
- `$ cal 2016`
- `$ clear`

# Linux is Sensitive

- Unix/Linux is 'case sensitive'
- Both files and commands are case sensitive
- `cron.txt` is different file than `Cron.txt`
- `$ cd` is valid while `$ CD` is not

# Unix Command output

- Typically, successful commands do not give any output
- Messages are displayed in the case of errors
- The `rm` command is typical
  - If it deletes the specified file, it does so silently
  - There is no 'success' message
  - But if the command fails for whatever reason, a message is displayed
- *e.g.* Try `$ mkdir <dir>` to make a dir twice.
- The silence can be off-putting for beginners
- It is standard behavior, and doesn't take long to get used to