

UNIX minicourse

The Sun Lab Consultants

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To view this, type:

`gv /pro/consult/Minicourses/unixintro/unixintro.ps`

Topics

- What is UNIX/Linux?
- Moving around: files, directories, permissions
- The shell: arguments, redirection, pipes, wildcards.
- Groupware: mail, news, instant messaging
- Some shell commands that might be useful
- Using the internet
- Customizing.
- Where to get more help.

If you have other things you want to learn,
tell us!

What is UNIX/Linux

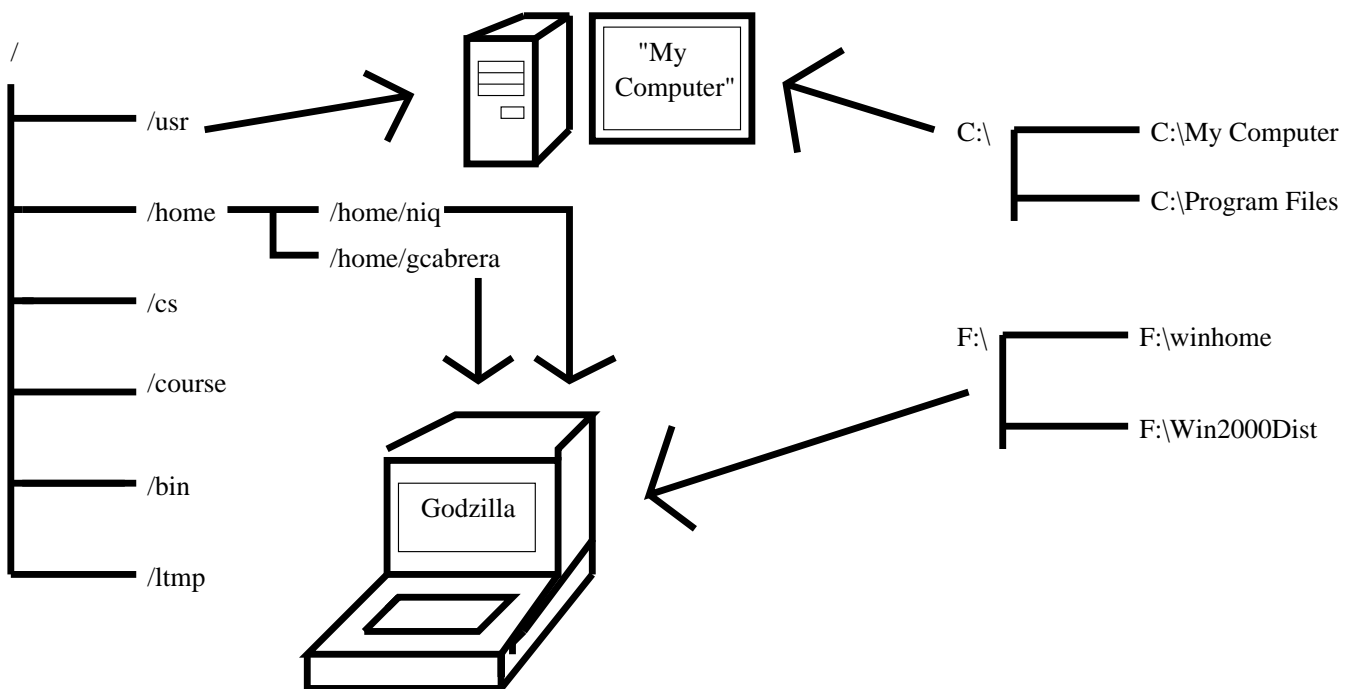
- UNIX is a really old operating system
- Linux is a newer, UNIX like, open source operating system
- Open Source means that Linux source code is available and distributable freely
- Both are *much* different than Windows
- Big on *command line interface* (the shell)
- Supports large numbers of users
- Popular in universities, research, and some industry environments
- Networking is more transparent
- Programming is easier

The Shell

- Window to your computer
- In Gnome, you can reach it by clicking the icon of a computer on the top of the screen
- Type in commands at shell prompt to execute tasks on your computer
- The terminal should have a prompt like this:
`cslab5a /u/yourusername %`

Files & Directories

- Hierarchy of the available data
- Basically the same as folders and files on Windows or Macintosh
- Key Difference: all 'disk drives' are in the same hierarchy
- Files on other computers included in this hierarchy



Home

- Each user has his or her own directory, the “home directory”
- Home directories all held in a “home” directory
- Directory names separated by the “/” character
- “home” can also be referred to as “u”
- Another name for your home directory is the tilde symbol, ~
- If your user name is `username`, then the following all refer to your home directory
 - `/home/username/`
 - `/u/username/`
 - `~`

Directory Directions

- All directories live in the “top level directory”, called “root” and are represented by the first slash you see in any directory name
- Directories have one name, but several ways of referring to them
- *absolute path* is the One True Identifier for a directory, which is its path starting from root, such as `/pro/consult/bin`
- *relative path* depends on where you are, namely your *current working directory*, so if you are in `/pro`, and want to refer to the directory `/pro/consult`, you can just call it `consult`
- The current working directory is shown in your prompt or using the `cwd` command

Moving around

- Changing directories: `cd path`
Example: `cd ..` moves you one directory up.
- Dealing with files:
 - ls** look at files
 - cp** copy files
 - rm** delete files
 - rmdir** remove directories
 - mkdir** create a directory
 - mv** move files
- Looking at files:
 - cat** the default prints out the file (this command can also be used to create a file or append to a file)
 - more** walk through the file page-by-page
 - less** lets you move up and down more easily (press `q` to quit)
 - pico** simple text editor

Permissions

- Control who can access certain files
- View permissions with `ls -l`
`-rw-r--r-- 1 ocolbert ugrad 272 Jan 22 13:45 mini-cours`
- Files belong to a *user* and a *group*
- 'r' for read, 'w' for write/delete, 'x' for execute
- Permissions are divided up into triplets - the first triplet applies to the user, the second to the group and the third to everyone else
- Directories are specified by the first character (if its a **d**, its a directory; if its a -, its a file; if its an **l**, its a link)
- The above line: `ocolbert` has read and write, `ugrad` has read and everyone else has read

- Changing permissions:

chmod add/remove certain permissions

chgrp change the group to another group that you are in

For more information on permissions, check out the permissions minicourse

The shell: Wildcards and Convenience

- Similar to '*' in MS-DOS.
Say your directory contains the files:
pie people pet
Then typing `ls p*` is equivalent to typing:
`ls pie people pet`.
- The shell expands the wildcard into multiple arguments.
- Use single quotes to prevent wildcarding ('*')
- Use tab to complete words.
ie, `ls peo<TAB>` -> `ls people`
The shell will complete the filename.
- Use the up arrow to access previous commands.

The shell: Pipes & Redirection

- You can connect programs (ie the output of one program can be used as input for another program)
- A program prints output, then that output becomes input for the next program!

- Useful programs for this:

grep searches an input for a given pattern

more displays file

less displays file

```
find . | grep monkey | less
```

- You can use a file as a “bucket” for output
`grep monkey *.c > grep.out`

Mail/Talking

- Your computer science account allows you to receive mail at the address `<login>@cs.brown.edu`, where `<login>` is the ID you used to initially log in

- Please don't read your mail with Mozilla!

- Mail:

pine uses `pico` to edit mail

mailconfig forward your email to a different email address

mutt nice for searching/filtering LOTS of mail; can be a nuisance for everyday mail reading

- Messages

zwrite send messages

zlocate see if a user is receiving zwrites

zwgc -ttymode receive zwrites in the terminal

Other Useful Commands

finger displays information about a user

w lists the users currently logged onto your computer

top lists the currently running programs, sorted by processor usage (press q to quit, k to kill a program)

ps lists the currently running programs

lpr print stuff, the default printer is dispatch

xdvi views device-independent (.dvi) files

acroread views adobe acrobat (.pdf) files

gv views postscript (.ps) files

man more on this later

Internet

- Web Browsers

firefox/iceweasel A web browser.

mozilla/iceape An application suite, including a web browser (which is a continuation of netscape)

lynx text based web browser

- Other fun programs to try

gaim instant messenger

netris networked tetris

kgoldrunner collect the gold!

xanyone keep track of your friends

xsnow let it snow, let it snow, let it snow!

Customizing

- Many application have *dotfiles* that control the way they look and feel
 - .cshrc** effects your shell
 - .Xdefaults** : change colors
 - .fvwm2rc** change window manager menus
 - .environment** environment settings loaded at startup
 - .alias** specify shortcuts to frequently used programs
 - .xsession** add programs to your startup (old `.xinitrc`)
 - .anyone** people you want to keep track of
 - .project** one line message people see when they finger you
 - .plan** longer message people see when they finger you (like a buddy profile!)
- You can get more information about this in the customization mini-course

More help

- `man <command>`: learn about other exciting options programs have.
- `man -k`: search for man pages related to a keyword.
- `info <command>`: get more in-depth information about a command (Linux tends to prefer info over man)
- The Linux Documentation Project: <http://www.tldp.org>
- Ask the consultants