
CSE 391

Lecture 10

Do anything from anywhere – tools to free your choice of OS

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<http://www.cs.washington.edu/391/>

Important Announcement

- There will not be a traditional final
 - Instead, we will have a **take-home Final**
 - Everyone needs to complete it
 - It is a bit more involved / comprehensive than other assignments
 - Have to choose a number of "achievements" and turn in evidence that you completed them
 - Will involve quite a bit of discovery of how to do the tasks
 - If you need to make up an assignment from earlier in the quarter to get up to your 14 points, you can do extra "achievements"
 - **To pass the class you must:**
 - Earn 14 points from HW 1-9
 - Earn a passing mark on the take-home final

Lecture summary

- **Remote connections** – get to your application or resource from anywhere
- **Local options** – get your application or resource to work on your setup
- Figure out how to do what you want to do in a new environment
- Course Evals – Don't forget to fill these out!

Remote Connections: **to a linux machine**

- You've seen remote connections **to a Linux machine** in action
 - *Departmental attu.cs.washington.edu Linux server*
 - Can use **ssh** (or **PuTTY**) from anywhere – independent of location *and OS*

Remote Connection: to a Windows machine

What about remote connections to a Windows machine?

- RDP – Remote Desktop Protocol, Enables remote connections to a Windows box from anywhere, independent of OS.
 - From Linux – **xfreerdp** or **rdesktop** commands, for example for user rea:
 - `xfreerdp /d:CSEPCLAB /size:1280x1024 /u:rea /v:vdilab12.cs.washington.edu /sec:nla`
 - Note: On the CSE VM you will need to install xfreerdp . If you try to run xfreerdp it should ask you if you want to install it, say yes.
 - From Windows – Remote Desktop Connection
 - From Mac – “Microsoft Remote Desktop” App from Apple store
 - **Note:** You must have an account on the Windows machine in question in order to connect to it remotely.

CSE Virtual Windows nodes

- For students with CSE accounts: The **CSE department** offers a set of hosted virtual machine nodes, imaged similar to Windows machines in basement labs, remotely accessible via RDP for people with CSE accounts. **YOU MUST USE YOUR CSE Windows PASSWORD!**
 - Overview: <http://www.cs.washington.edu/lab/services/vdi/>
 - Pick an available node from the list of currently available nodes: <http://vdi.cs.washington.edu/vdi/>
 - **Need to use the right domain!!** CSEPCLAB\<username>
 - **Note:** Windows and Mac users must now install the Husky OnNet Package before doing a remote desktop from a non-CSE (personal) machine
See: <http://vdi.cs.washington.edu/vdi/> for more details.

Non-remote options: **linux on Windows?**

- **Cygwin:** unix style environment within Windows
 - <https://www.cygwin.com/>
 - “package manager” is part of the install file
 - Provides the unix-like directory structure
 - Home directory is /home/<WindowsUsername>
 - Your actual windows directory structure is located at /cygdrive/<driveletter>
- Enables: quick use of linux style tools in a terminal environment in Windows
- Compare to: Windows cmd interface

Non-remote options: **Windows on linux?**

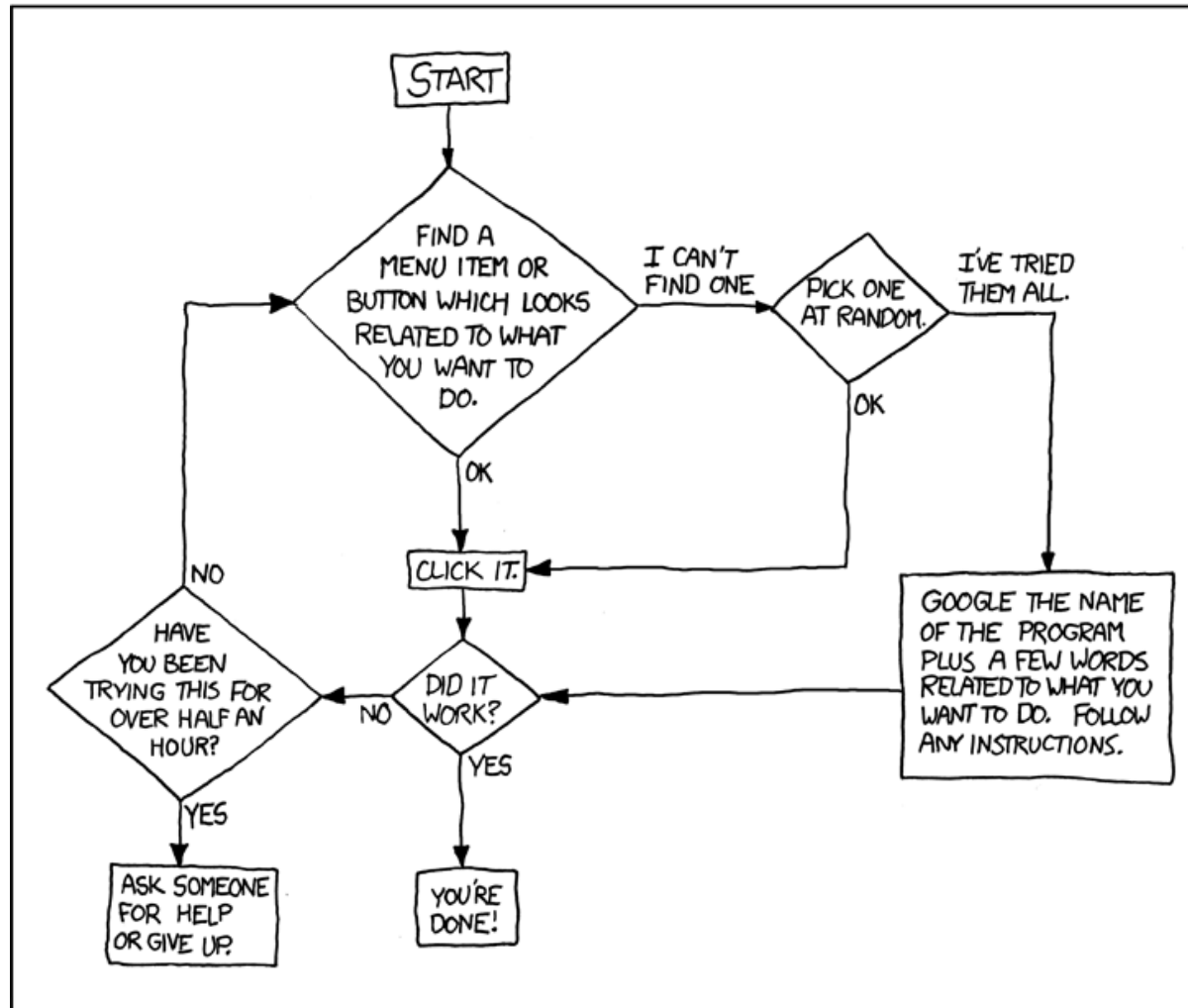
- One barrier to switching to Linux: lots of apps are built for Windows
 - <Insert app here> that I use all the time isn't ported to Linux! ☹
- **Wine** is an attempt at solving this
 - Provides an environment to run Windows applications in Linux
 - <http://www.winehq.org/>
 - Open source
 - Not perfect, but many people have good success with major programs
 - Many successfully run WoW, MS Office, TextPad...
- Lots of online tutorials / message boards / instructions to get your favorite app working in Linux

The More You Know™

- Another barrier to using Linux as your main Desktop OS: “I don’t know how to do <X> in Linux”
 - Imagine you had never seen or used Windows before. Would you somehow intuitively know how to:
 - Change your desktop background/resolution?
 - Install new graphics card drivers?
 - Change system settings? (Control Panel? What’s that?)
 - Etc etc...
 - So how do you figure it out?
 - Ever read the Windows manual? (hint: there is no “the” manual)
 - “Windows 7 Product Guide” -- 140 pages, considered very high level
 - “Windows 7 for Dummies” -- 432 pages
 - “Windows 7 Bible” -- 1248 pages
 - What do **you** do when you don’t know how to do something?

DEAR VARIOUS PARENTS, GRANDPARENTS, CO-WORKERS,
AND OTHER "NOT COMPUTER PEOPLE:"

WE DON'T MAGICALLY KNOW HOW TO DO EVERYTHING IN EVERY
PROGRAM. WHEN WE HELP YOU, WE'RE USUALLY JUST DOING THIS:



PLEASE PRINT THIS FLOWCHART OUT AND TAPE IT NEAR YOUR SCREEN.
CONGRATULATIONS; YOU'RE NOW THE LOCAL COMPUTER EXPERT!

Courtesy XKCD

The More You Know™

- Step 1: Try and explore intuitively
 - Hey, you're CSE majors. Where would *you* put that setting if you were designing the system?
- Step 1.5: Look in short, directly relating references
 - Man pages, quick start guides, the TOC in the manual (if exists...)
- Step 2: If that fails, search online!
 - Likely someone else has wanted to do what you want, and *also* couldn't figure it out
 - And, likely they've posted to a discussion board and had some guru give a detailed response
 - Or, a FAQ has been written somewhere that tells you how

Mix and match

- Don't think of Linux/Windows as a binary choice
- These tools provide a continuum of options
 - Windows
 - Windows + Cygwin
 - Windows + Cygwin + Linux VM
 - Linux + Windows VM + Wine
 - Linux + Wine
 - Linux
- Can choose the setup that best suits your situation and application requirements

The choice is yours

- To clarify: the purpose here was not to say “you should switch to Linux as your main OS”
 - But, you should know what tools and options exist, and be able to use Linux as your main OS if desired
 - You should be able to survive if someone locked you in a closet with a laptop that had Fedora or Ubuntu
- Wrap up discussion:
 - What tools seem the most useful that you learned this quarter?
 - What tools seem like they address important areas, but need to be better?
 - From your experience, are there other tools you think you’d mention in this course, tools CSE majors should be aware of?
 - Linux commands/tools, programming development tools...