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

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http://www.cs.washington.edu/390a/
Important Announcement

• There will **not** be a traditional final

  ▪ Instead, the last Assignment will take the place of the 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
    • If you need to make up an assignment from earlier in the quarter, you can do extra "achievements"
    • **Must earn a passing mark on last assignment to "pass" the course**
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:
    • xfreerdp -u rea -d CSEPCLAB vdilab4.cs.washington.edu
    • Note: Currently there are some issues on Fedora 22 (see [http://vdi.cs.washington.edu/vdi/](http://vdi.cs.washington.edu/vdi/) for a workaround). On the CSE VM you will need to install xfreerdp and then issue the command: sudo update-crypto-policies and use the command format shown above for xfreerdp.
  ▪ **From Windows** – Remote Desktop Connection
  ▪ **From Mac** – CoRD, Microsoft Remote Desktop App

• The CSE department offers 15 hosted virtual machine nodes, imaged similar to Windows machines in basement labs, remotely accessible via RDP.
  ▪ Pick an available node from the list of currently available nodes: [http://vdi.cs.washington.edu/vdi/](http://vdi.cs.washington.edu/vdi/)
  ▪ **Need to use the right domain!!** CSEPCLAB\<username>
Non-remote options: **linux on Windows?**

- **Cygwin**: unix style environment within Windows
  - [https://www.cygwin.com/](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/](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
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
• 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...