

Computing Primer

*Or:
How
I Learned
To
Stop
Worrying
And
Love
The
Command Line*

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Overview

- Windows Command Line
- Brief Unix History
- Logging in to unix
- File system(s)
- Common shell commands
- Advanced shell commands/scripting
- Questions?



Keyboard Shortcuts

Tab, Shift+Tab

Ctrl+C, Ctrl+X, Ctrl+V

PrntScrn

Alt+Letter

⌘+E

⌘+R

⌘+M, ⌘+Shift+M

⌘+F

Go to Next, Previous Field

Copy, Cut, Paste (*different on unix, more later*)

Screen capture to clipboard

Choose any command whose Letter is underlined

Start Explorer

Run...

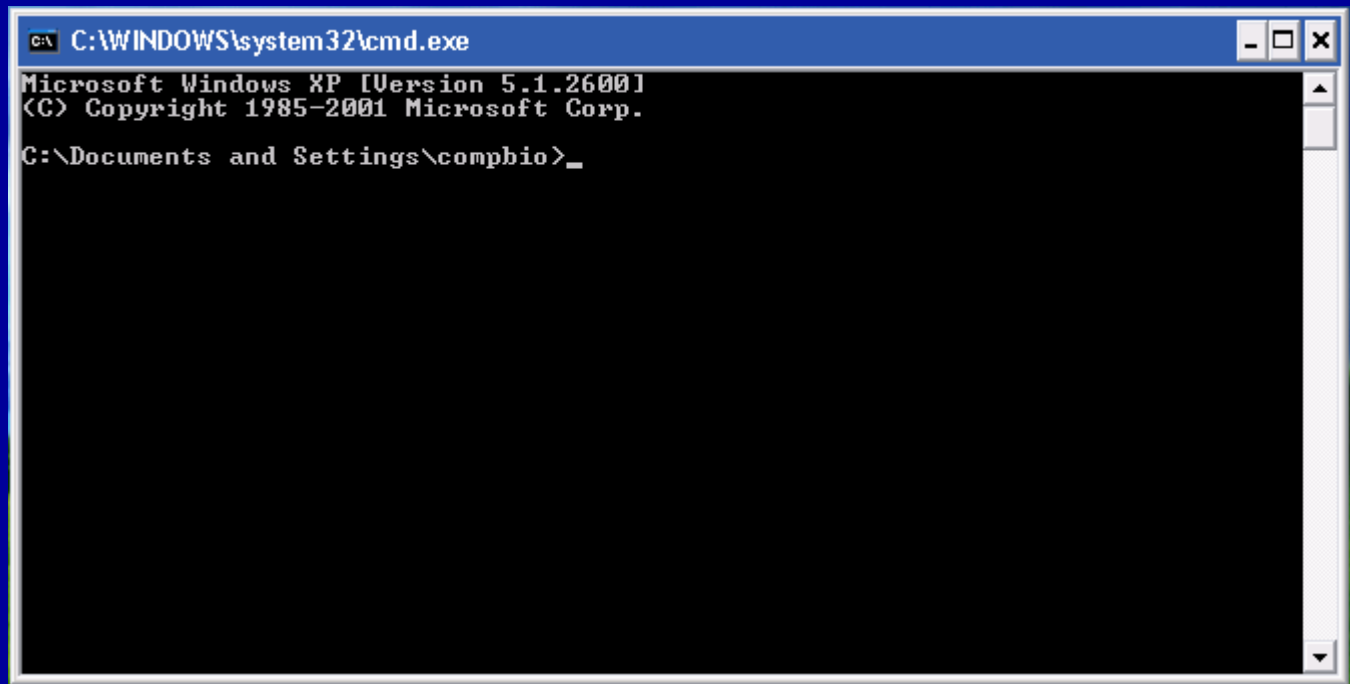
Minimize all, Unminimize

Find...



Windows Command Line

- Run... “cmd”

A screenshot of a Windows Command Prompt window. The title bar shows the path "C:\WINDOWS\system32\cmd.exe". The window content displays the following text: "Microsoft Windows XP [Version 5.1.2600] (C) Copyright 1985-2001 Microsoft Corp." followed by a blank line and the prompt "C:\Documents and Settings\compbio>_".

```
C:\WINDOWS\system32\cmd.exe
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.
C:\Documents and Settings\compbio>_
```



cmd/DOS commands

dir	List files
cd	Go to another folder
cls	Clears screen
help	Lists available commands
set	Views/sets variables
copy	Copy a file
del	Delete a file
Any .exe, .bat, etc	Runs the executable
exit	Leave the prompt



Exercise 1

- Using command prompt, create a new text document hello.bat.
 - Use the “edit” command
 - Or “notepad hello.bat”
 - Contents of hello.bat:

```
@echo off  
echo %USERNAME% says hello from %COMPUTERNAME%  
pause
```
 - Run hello.bat (double click, or just type hello)



Brief History of Unix

- 1965
 - Bell Telephone Laboratories(AT&T), General Electric and MIT join forces (Project MAC) to develop a new operating system called MULTICS.
 - MULTICS = MULTiplexed Information and Computing Service.



Brief History of Unix

Multics goals

- Provide simultaneous computer access to a large community of users (multiuser).
- Provide sufficient computational power and data storage.
- Allow users to share data easily.



UNIX

- 1969, Bell Labs
 - Kenneth Thompson and Dennis Ritchie develop new OS
 - First implemented on PDP-7 minicomputer
- The name
 - A member of the Computing Science Research Center, Brian Kernighan, gave it the name UNICS (UNiplexed Information and Computing Service) as a pun on MULTICS.
 - Spelling later changed to UNIX



An extended history of UNIX

- Look at the wall for the unix family tree and history and all the different versions
- Don't really worry about this
 - There are subtle differences, but it's easy to learn other Unix flavors when you know one.



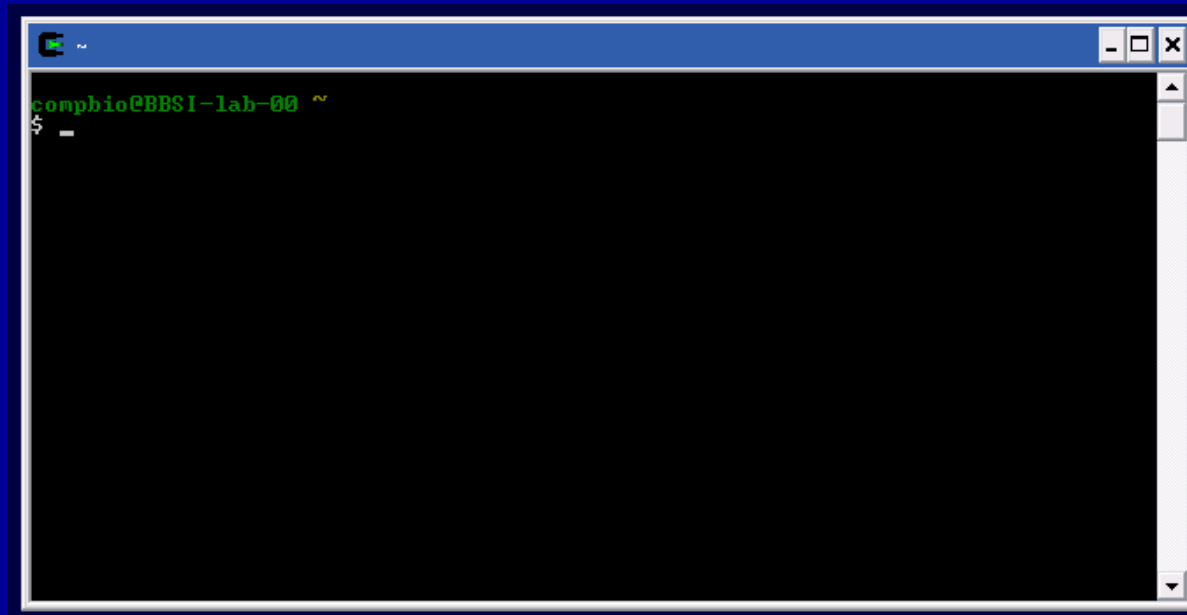
For the rest of the lab...

- We will use “unix”
 - Cygwin on Windows
 - Unix environment emulator
 - Unixs.cis.pitt.edu
 - Remote access to Solaris
 - Via SSH



Cygwin

- Double Click the Cygwin Icon
- This starts a new shell



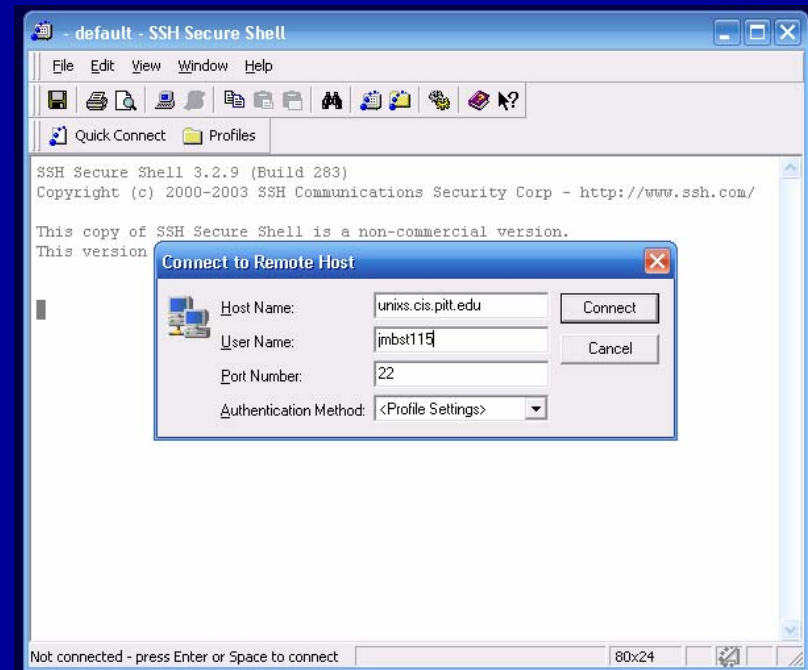
Common Shells

- Cygwin uses Bash (bourne again shell) – some other common shells are:
 1. Bourne shell - sh
 2. Korn shell ksh or zsh(enhanced ksh)
 3. C shell csh or tcsh(slightly enhanced csh)
 4. Z shell zsh



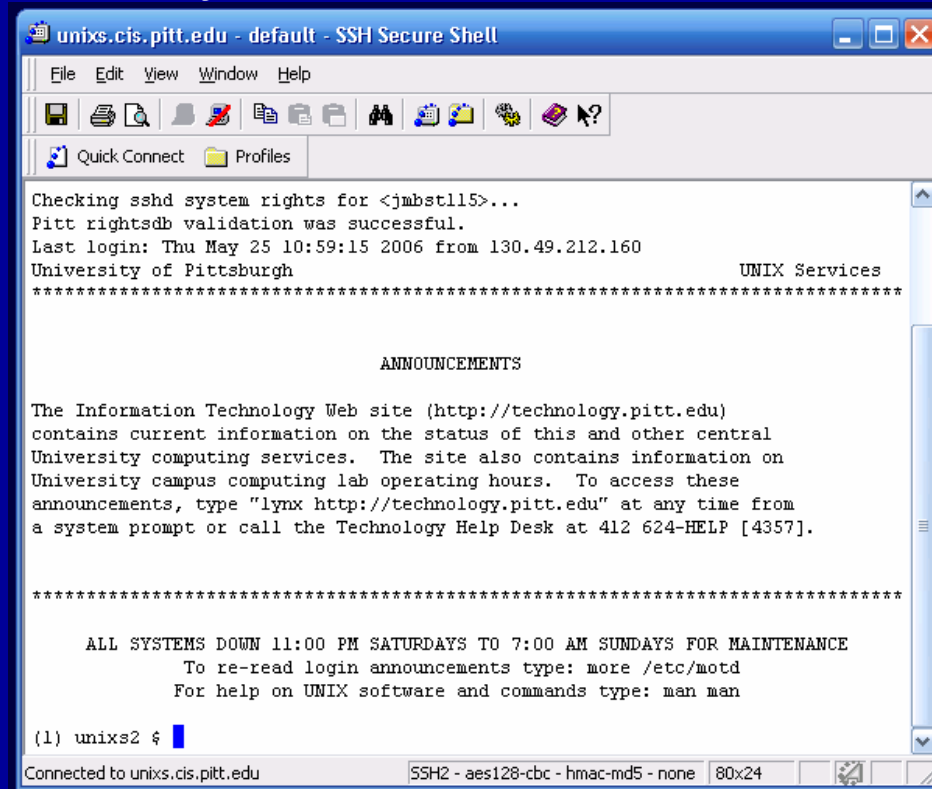
Logging in to Unixes via SSH

- Start the SSH client, click on Quick Connect
- Unixes.cis.pitt.edu
- Use your pitt ID



SSH cont'd

- When connected, you will see
 - Unixsn \$



```
unixs.cis.pitt.edu - default - SSH Secure Shell
File Edit View Window Help
[Icons]
Quick Connect Profiles
Checking sshd system rights for <jmbst115>...
Pitt rightsdb validation was successful.
Last login: Thu May 25 10:59:15 2006 from 130.49.212.160
University of Pittsburgh                                UNIX Services
*****

ANNOUNCEMENTS

The Information Technology Web site (http://technology.pitt.edu)
contains current information on the status of this and other central
University computing services. The site also contains information on
University campus computing lab operating hours. To access these
announcements, type "lynx http://technology.pitt.edu" at any time from
a system prompt or call the Technology Help Desk at 412 624-HELP [4357].

*****

ALL SYSTEMS DOWN 11:00 PM SATURDAYS TO 7:00 AM SUNDAYS FOR MAINTENANCE
To re-read login announcements type: more /etc/motd
For help on UNIX software and commands type: man man

(1) unixs2 $
```

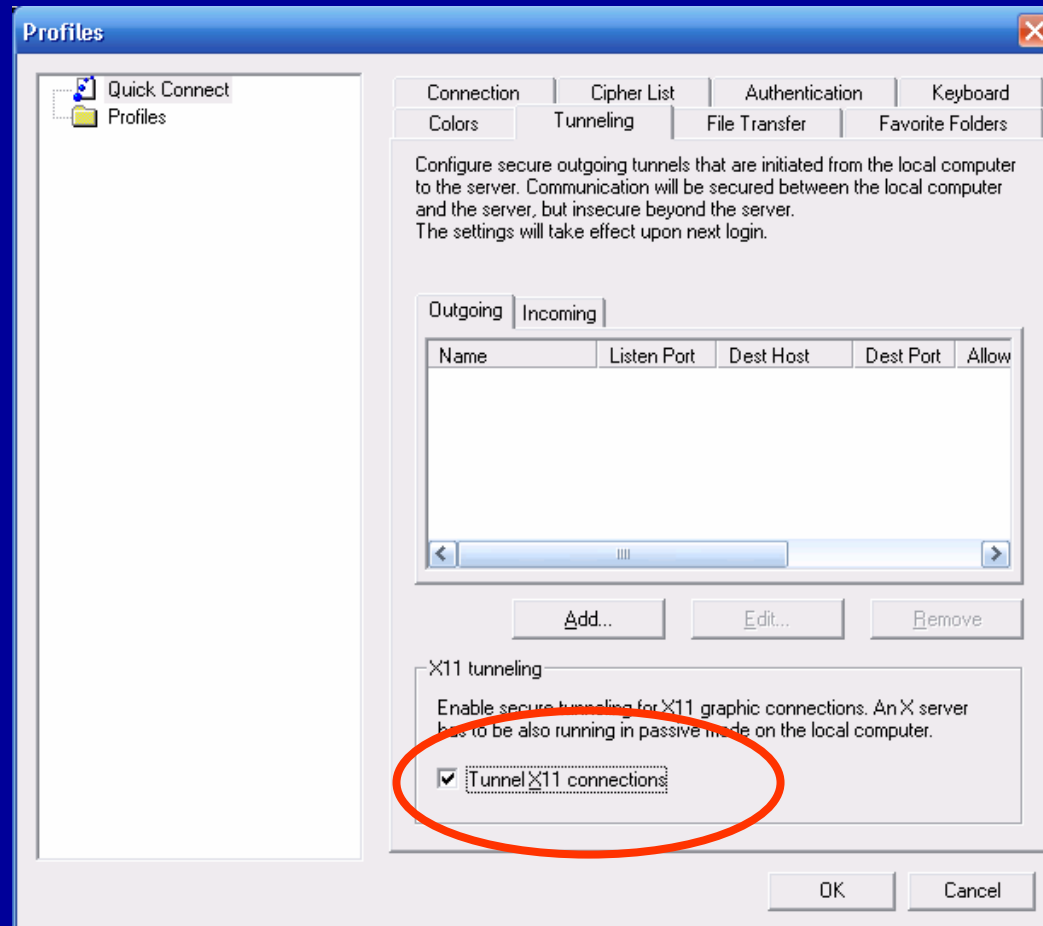


X11 / Xwin

- Local and Remote Window System (GUI)
 - Used in most unix
 - except in mac os X
- Start local one by double clicking XWin shortcut on your desktop
 - This is localhost:0



Using SSH to Tunnel X11



Environment variables

- `env` to see all
- `export varname=value`
 - Bash syntax, other shells differ
- `echo $DISPLAY`
 - Should say `localhost:10` or higher.



Interactive

- I'm gonna go through ~~some~~ (a lot) of commands, just follow along
- 2 breaks
 - 2:30
 - 3:30



Future Questions...

- My Office is 3070 BST3 (near classroom)
 - Stop by anytime
- jBoles@ccbb.pitt.edu

