

PSUMAC202: Intro to Command Line

PENNSTATE



MACADMINIS
CONFERENCE
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My Intro...

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 - ✦ Programmer/Analyst, Clearinghouse for Military Family Readiness
 - ✦ formerly...Systems Design Specialist, Systems Administrator, Computer Support Assistant -- ITS
 - ✦ best known as a Systems Integrator...

Overview

- ✦ Start...
- ✦ Commands + Flags
- ✦ man, HELP, clear
- ✦ Shortcuts
- ✦ Useful Commands -- some Mac Only
- ✦ Shell Operators & Unix Information Flow
- ✦ Getting to your users from your own desk

Why Use Command Line?

“One characteristic of a user-friendly system is that *it does what the user wants*. In other words, the most user-friendly system isn't necessarily the simplest one.”

“If you'd never seen a (pick your favorite car), you might think that a horse is the best way to get where you're going: it's easy to use, simple to maintain, and you might see some nice scenery as you (slowly) reach your destination. So why would you want a sophisticated automobile?”

“Just like riding a horse, using a graphical interface is fairly easy because it limits you to a few basic operations that you can learn quickly. But if those basic operations aren't what you need, then you may have problems.”

Why Use Command Line?

“The command line lets you string together hundreds of Unix building-block utility programs. Each of those programs does one little job--such as listing your files, searching for particular text, or sending an email message. The command line gives you the glue to put these programs together in an almost infinite number of ways. Once you've learned the basic operations on a command line, as well as some basic utility programs, you'll have power that window system users can't dream of having.” -- Peek, Gonquet, Strang

CLI **IS** user-friendly. It's just picky about who its friends are.

FEEL THE POWER!!!

Where to start?

START AT THE BEGINNING!!!

- ✦ So many ways you can get started...which is the best?
- ✦ There is no “best” way to get started!
- ✦ Easiest?

The Beginning

- ✦ Open /Applications/Utilities/Terminal
- ✦ type 'ls' (without the quotes)
 - ✦ what do you get?
- ✦ type 'ls -l'
 - ✦ now what do you get?

Disclaimer: You won't learn everything about CLI in this session

Commands + Flags

- ✦ Breakdown of a command -- ls -l
 - ✦ command -- 'ls'
 - ✦ option flag -- '-'
 - ✦ options 'l'

Commands + Flags

- ✦ Breakdown of commands with extended options
 - ✦ `softwareupdate -ia`
 - ✦ `softwareupdate --install --all`
 - ✦ same command, just something be aware of

Come on man!

- ✦ man
 - ✦ shows manual pages for commands
 - ✦ lists options
 - ✦ written by the command programmer...(not always helpful)
- ✦ man man

HELP!

- ✦ command -h
 - ✦ intended to be a quick guide to option flags and usage
 - ✦ fairly standard
 - ✦ not always used
 - ✦ BE CAREFUL!

Clear!

- ✦ clear
- ✦ yep, that's what it does

Shortcuts

- ✦ / -- volume root (C: for you Windows folks)
- ✦ ~ -- current user home (/Users/username/)
- ✦ .. -- previous directory
- ✦ . -- current directory
- ✦ 'tab' -- autocomplete

Useful commands

- ✦ pwd
- ✦ cd
- ✦ cat | more | less
- ✦ vi | pico | nano
- ✦ grep | egrep | fgrep
- ✦ locate | find | mdfind

Useful Commands

- ✦ touch
- ✦ mkdir
- ✦ rm | rmdir
- ✦ cp
- ✦ mv

Useful Commands

- ✦ ps
- ✦ top
- ✦ echo \$?
- ✦ kill | killall

Useful Commands

- ✦ chmod
- ✦ chown
- ✦ sudo
- ✦ su
- ✦ login

Useful Commands

- ✦ `apropos`
- ✦ `ping`
- ✦ `host`
- ✦ `dig`
- ✦ `netstat`

Useful Commands (Mac-specific)

- ✦ defaults
- ✦ plistbuddy
- ✦ system_profiler
- ✦ systemsetup
- ✦ networksetup
- ✦ softwareupdate

Useful Commands (Mac-specific)

- ✦ `asr`
- ✦ `bless`
- ✦ `diskutil`
- ✦ `hdiutil`
- ✦ `launchctl (launchd)`
- ✦ `osascript`

Useful Commands (Mac-specific)

- ✦ pmset
- ✦ sw_vers
- ✦ uuidgen
- ✦ dscl
- ✦ say

Shell Operators & Redirections

- ✦ | (Pipe)
 - ✦ allows you to string together commands
 - ✦ ex: `cat filename.txt | grep searchterm`

Shell Operators & Redirections

- ✦ `>` (Redirection)
 - ✦ allows you to redirect output
 - ✦ generally used to write output to a file or dispense with output
 - ✦ ex: `ls -l > directory_list.txt`
- ✦ `>>` (Redirection)
 - ✦ generally used to append output to a file
 - ✦ ex: `ls -l >> directory_list.txt`

Shell Operators & Redirections

- ✦ < (Redirection)
 - ✦ reads from some resource and provides input to the next thing
 - ✦ ex: mail -s "your hourly log" < logfile.log
admin@localhost

Concept of Unix Information Types (file descriptors)

- ✦ Type 0 -- Standard input (stdin)
- ✦ Type 1 -- Standard output (stdout)
- ✦ Type 2 -- Standard error (stderr)
- ✦ Redirect to/from these!!
- ✦ ex: `command 2>&1` -- redirect stderr to stdout

Putting some together

- ✦ `cd /Applications`
- ✦ `ls -l | more`
- ✦ `ls -l | grep "\<[i]."`
- ✦ `ps aux | grep "0" | sort`
- ✦ `ls -l | grep "[i]."` >> `i_directory_list.txt`

Getting to your users

- ✦ ssh
 - ✦ Enabled via System Prefs -> Sharing
 - ✦ configs in /etc
 - ✦ ssh username@host.psu.edu (or IP)
 - ✦ man ssh

Getting to your users

- ✦ scp
 - ✦ works if ssh is enabled, uses same port
 - ✦ `scp /path/to/file username@host.psu.edu:/path/to/destination (or IP)`
 - ✦ `man scp`

Getting to your users

- ✦ mount
 - ✦ to mount external volumes...out of scope
- ✦ /Volumes
 - ✦ if you've already mounted external volumes, here's where you find them the "Apple" way

Getting to your users

- ✦ GUI apps worth mentioning
 - ✦ Apple Remote Desktop (ARD)
 - ✦ VNC
 - ✦ CoRD (for getting to Windows machines)

Useful links

- <http://www.dsj.net/compedge/shellbasics1.html>
- http://www.matisse.net/OSX/darwin_commands.html
- Learning the Unix Operating System, Fifth Edition (O'Reilly Owl Book). Peek, Gonquet, Strang
- <http://freeengineer.org/learnUNIXin10minutes.html>
- <http://www.macenterprise.org/>
- <http://macadmins.psu.edu/>
- Google terms

End of PSUMAC202

Questions?

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