

Introduction to Scientific Computing

Meeting 3

Unix Commands



```
vivek@wks01:~$ echo "This is a test" | boxes
/*****
/* This is a test */
*****/
vivek@wks01:~$ echo -e "\n\tVivek Gite\n\tvivek@nixcraft
iti.biz" | boxes -d dog

      /\_/\
     (oo)\_____(
        (__)\       )\/\
           ||----w |
           ||     ||

) Vivek Gite
) vivek@nixcraft.com
) www.cyberciti1.biz
)
```



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Last meeting

- Learned some basic Unix commands
 - Seeing where you are and who you are; **pwd**, **whoami**
 - Moving around file system; **cd**, **.**, **..**
 - Viewing listing of files and corresponding file information; **ls**, **ls -F**, **ls -a**
 - Opening files and web browsers;
start *some_text_file.txt*
start notepad++ *some_text_file.txt*
start *some_image_file.png*
start chrome www.google.com

FYI

- For now, sharing slides and recordings through my Google Drive.
 - Recordings are large (~100MB) so I will share via WebEx, and will archive a recording locally.

Today's Objective

1. Learn some more Unix commands

- Creating directories and files; **mkdir, touch**
- Looking at file contents; **cat, head, tail, less**
- Moving and copying files and directories; **mv, cp, cp -r**
- Deleting files and directories; **rm, rmdir, rm -r**
- Finding text in files; **grep**
- Count number of lines, words, and characters in files; **wc**

- **Why?**

- Good basis for learning how to program.
- Becoming more comfortable on command line
- Becoming more efficient

Quick Demo of Some Commands

\$ mkdir temp

\$ cd temp

\$ touch somefile.txt

\$ start notepad++ somefile.txt

\$ cat somefile.txt

\$ mv somefile.txt junk.txt

\$ cp junk.txt junk2.txt

\$ rm junk2.txt

\$ cd ../

\$ rm -r temp

\$ start iexplore <http://waterdata.usgs.gov/ky/nwis>

\$ ls Downloads/

\$ mkdir nwis-data

\$ cp Downloads/uv.txt nwis-data

\$ cd nwis-data

\$ cat uv.txt

\$ head uv.txt

\$ less uv.txt

\$ grep KENTUCKY uv.txt

\$ mv uv.txt usgs-03287500-uv.txt

\$ wc usgs-03287500-uv.txt

\$ wc -l usgs-03287500-uv.txt

page though with *space-bar*; quit with *q*

find lines of text in file containing KENTUCKY

Video – The Unix Shell



- Software Carpentry, Greg Wilson
 - The Unix Shell: Creating and Deleting
 - <http://software-carpentry.org/v4/shell/makedel.html>

Try Out Commands – page 1

\$ mkdir temp

make directory

\$ cd temp

change directory

\$ touch somefile

make file

OR

\$ start notepad++ somefile

make file

write some lines of text

\$ cat somefile

concatenate file

\$ start notepad++ somefile

open file

write enough text that extends ~ 15 lines

\$ cat somefile

make file

\$ head somefile

see first 10 lines in file

\$ head -4 somefile

see first 4 lines in file

\$ tail somefile

see last 10 lines in file

\$ mv somefile my-play-file.txt

rename file

\$ mv my-play-file.txt ../

move file to parent dir

\$ cd ..

change directory to parent

\$ ls

list files

\$ mv my-play-file.txt temp

move file to temp

\$ cd temp

change dir to temp

Try Out Commands – page 2

\$ cp my-play-file.txt my-play-file2.txt	# copy file
\$ cat my-play-file2.txt	# concatenate
\$ cat my-play-file.txt my-play-file2.txt	# concatenate
\$ rm my-play-file2.txt	# remove file
\$ cd ..	
\$ cp temp temp2	# copy directory
\$ rmdir temp2	# remove directory
# temp2 is not empty	
\$ rm -r temp2	# remove recursively
\$ cd temp	
\$ grep 5 my-play-file.txt	# find lines with text
# edit my-play-file.txt with some additional text and then grep for it	
\$ wc my-play-file.txt	# count file lines, words, characters
\$ wc -l my-play-file.txt	# count file lines
\$ wc -w my-play-file.txt	# count file words
\$ wc --chars my-play-file.txt	# count file characters

Next meeting

- More Unix commands
 - Pipes and filters
 - `$ wc -l *.txt > lengths.txt`
 - `$ wc -l *.txt | sort lengths.txt | head -1`