

# Unix tips and tricks

# Most real science is not done by GUI

The screenshot displays a 'Faction Grinder' window with several panels:

- Top Left Panel:** Shows a grid of icons with progress indicators (e.g., 0/6, 0/27) and a 'Rep Value: 0' indicator. A progress bar shows '100% + 0% = 100%'.
- Top Middle Panel:** Titled 'Felstone Field', 'Dalson's Tears or Writhing Haunt', and 'Gahrron's Withering', each with a 3x3 grid of icons and progress indicators.
- Top Right Panel:** Titled 'Winterfall Spirit Beads', showing '5 = 55 rep', '10/5 = 110 rep', and '190 to rep-up'. It includes a 'Rep Value: 605' and a progress bar showing '11.1% + 20.1% = 31.2%'.
- Bottom Left Panel:** A 'Start Grinding' button and a 'Not Grinding' status. It shows 'Today's Grinding' and 'Total Grinding' statistics including Time, Rep, Rep/Hour, and Rep-to-In.
- Bottom Center Panel:** 'Faction Grinder' settings including 'Display Settings' (Turn-ins, Grind Stats) and 'General Settings' (Include Bank Bags, Include Items on AIs).
- Bottom Right Panel:** Another 'Start Grinding' button and 'Not Grinding' status, with similar grinding statistics as the bottom left panel.

# A typical science session

The screenshot displays a Mac OS X desktop environment during a science session. The desktop features several overlapping windows:

- Terminal (top left):** Shows PBS job submission commands:
 

```
#!/bin/sh
#PBS -M k.holley@vanderbilt.edu
#PBS -n bae
#PBS -l nodes=300
#PBS -l pncn=4000mb
#PBS -l msn=120000mb
#PBS -l walltime=480:10:00
#PBS -o out.test
#PBS -j oe

echo $PBS_NODEFILE
cd $PBS_O_WORKDIR

mpirun -v -np 32 mpiexec
mpiexec -verbos -n 300 /home/
2nd.icv/2lpt.paran.2
```
- ImageMagick (top center):** Displays a colorful, circular galactic map with a color scale on the left ranging from -37.9 (blue) to 4.00 (red). The map shows a complex structure with a central bright region and surrounding diffuse emission.
- Terminal (top right):** Shows the output of a PBS job, including statistics and a file listing:
 

```
Stop= 77  t= 0.0313693  dt= 0.000110625
NF= 0134217728  total-NF= 1063200512  ex-frac= 6.03271  iter= 1
work-load balance: 1.6816  max=449.375  avg=270.446  PEO=245.509
particle-load balance: 1.4164E
max. rodnet 261489, filled: 0.0b/486
part/sep=1654.27 | 595,583  ls/part=1995,43 (678,848)

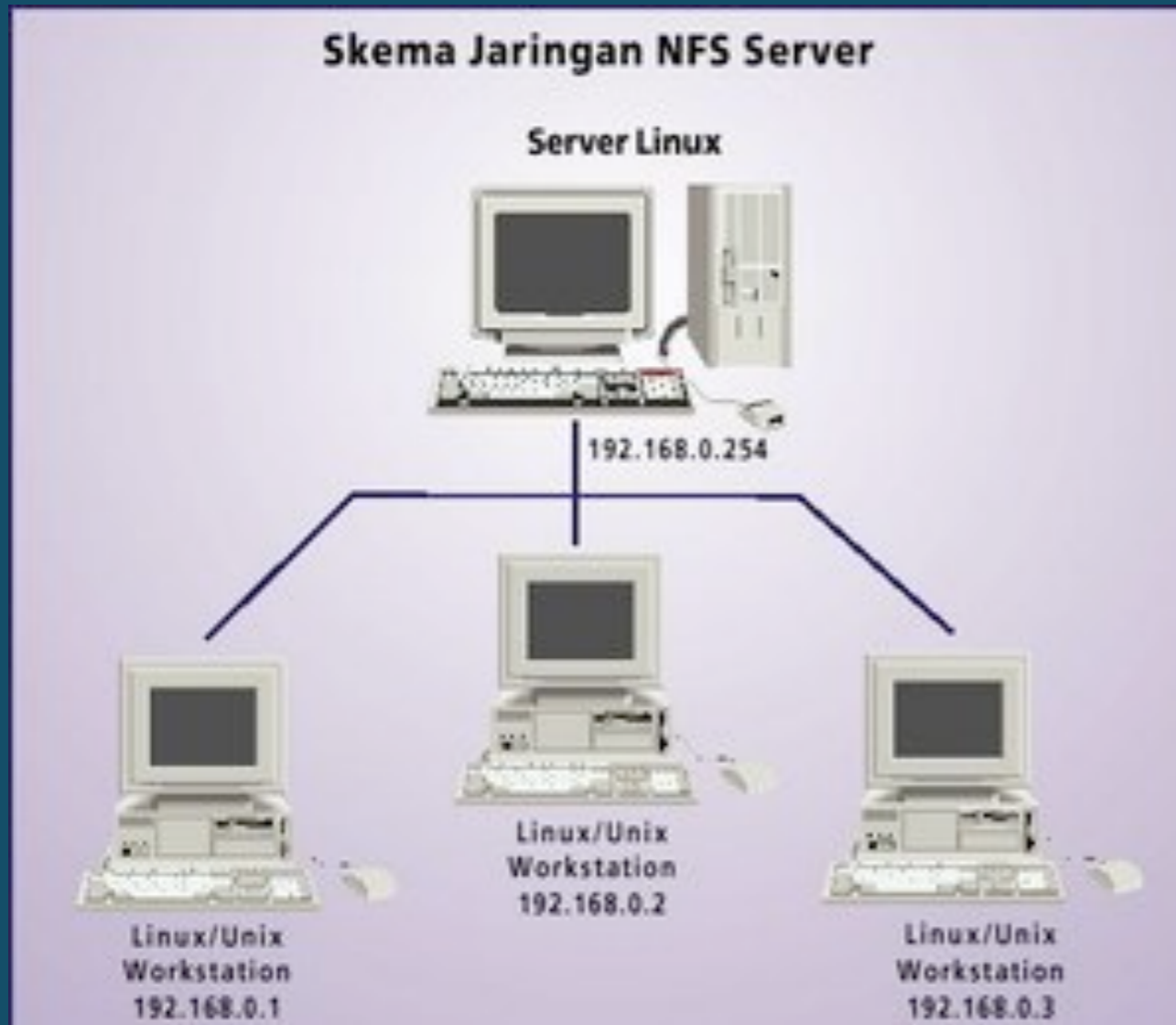
[hollegjk@vmps50 part.2]# cd 2lpt/2n*
[hollegjk@vmps50 2nd.icv]# ls -l
total 7349428
-rw-r--r-- 1 hollegjk rbody 3758096372 Jul 27 16:42 2LPT_10Hpc_z50_512_TF
-rw-r--r-- 1 hollegjk rbody 2365 Aug 7 21:21 2lpt.paran
-rw-r--r-- 1 hollegjk rbody 2369 Aug 5 14:31 2lpt.paran
-rw-r--r-- 1 hollegjk rbody 2582 Aug 8 30:40 2lpt.paran-usedvalues
-rw-r--r-- 1 hollegjk rbody 359 Aug 8 30:35 2lpt.script
-rw-r--r-- 1 hollegjk rbody 405 Aug 7 21:16 2lpt.script
-rw-r--r-- 1 hollegjk rbody 0700000 Aug 5 15:54 exold_spc_table_U4_dbl.dat
-rw-r--r-- 1 hollegjk rbody 906903 Aug 5 14:26 Gcdgst2
-rw-r--r-- 1 hollegjk rbody 1453 Aug 5 14:04 OLTTIPES
-rw-r--r-- 1 hollegjk rbody 3758096372 Jul 27 16:34 2L_10Hpc_z245_512
[hollegjk@vmps50 2nd.icv]# man 2lpt.script &
[1] 9643
[hollegjk@vmps50 2nd.icv]#
```
- emacs (bottom center):** Shows a C program for processing galactic data:
 

```
/* *****
/* TITLE: Solar System Barycenter Background
/* AUTHOR: Kelly Holley-Bockelmann
/* DATE: January 5, 2006
/*
/* ABSTRACT: This code inputs galactic binary positions in ecliptic
/* coordinates, with the distances included, and outputs a map of
/* gravitational wave sky.
/*
/*
/* COMPILER: gcc -O3 -o Execute SSB_above.c -ln
/*
/* CALL: ./Execute
/*
/* *****
/* ***** REQUIRED LIBRARIES *****
#include <stdio.h>
```
- Terminal (bottom right):** Shows a file listing:
 

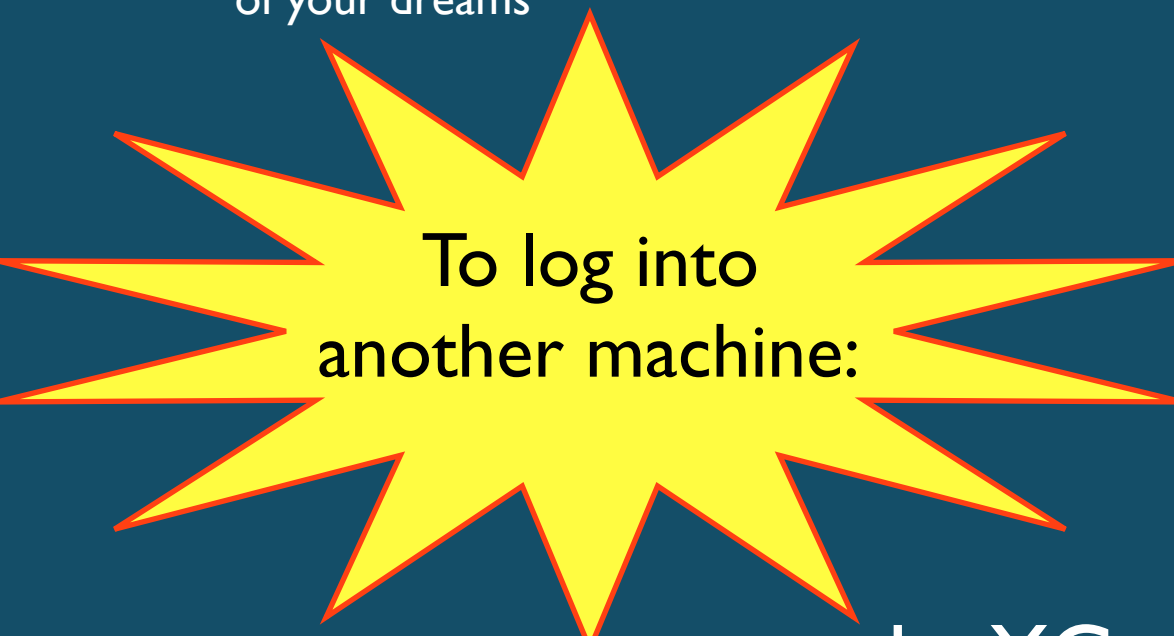
```
SS3.f4,ecliptic.dat.gz
SS3.f5,ecliptic.dat.gz
thickdisk.f1.above.dat.gz
thickdisk.f1.dat.gz
thickdisk.f1.ecliptic.dat.gz
thickdisk.f2.ecliptic.dat.gz
thickdisk.f3.ecliptic.dat.gz
thickdisk.f4.ecliptic.dat.gz
thickdisk.f5.ecliptic.dat.gz
thickDiskPositions2.f1.dat.gz
ThickDiskPositions3.f1.dat.gz
ThickDiskPositions.f1.dat.gz
thickdisk.small.f1.ecliptic.dat.gz
thindisk.f1.above.dat.gz
thindisk.f1.dat.gz
thindisk.f1.ecliptic.dat.gz
thindisk.f2.ecliptic.dat.gz
thindisk.f3.ecliptic.dat.gz
thindisk.f4.ecliptic.dat.gz
thindisk.f5.ecliptic.dat.gz
ThinDiskPositions2.f1.dat.gz
ThinDiskPositions3.f1.dat.gz
ThinDiskPositions.f1.dat.gz
Luminosity.f1.ecliptic.dat.gz
Luminosity.f3.ecliptic.dat.gz
src.f1.dat.gz
[vpac38]/net/vpac01/astro1/kelly/galshape/SSB(*);emacs SS3.c
[vpac38]/net/vpac01/astro1/kelly/galshape/SSB(*):f1
```

# Scientific workstations use a UNIX-based operating system





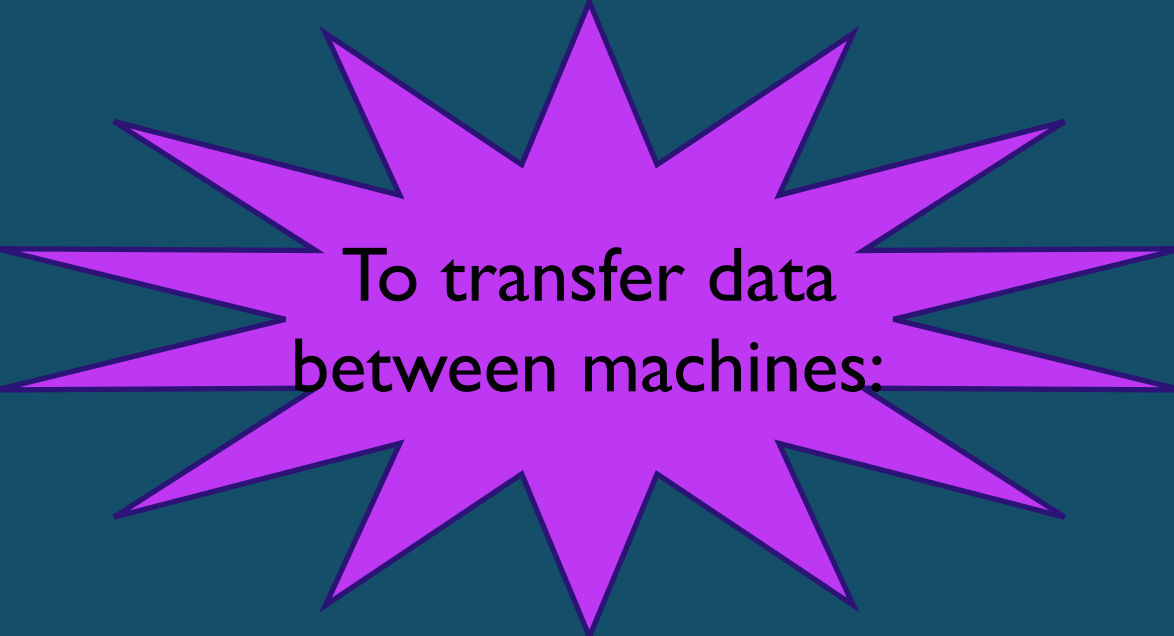
When you ssh into the vpac/accre network, you go to your home directory. Your directory can be accessed through any of these network machines. And, you can (theoretically) access data on other user's accounts, too.



To log into  
another machine:

`ssh -YC username@computer's whole address`

*example: `ssh -YC holleyjk@vpac03.phy.vanderbilt.edu`*



To transfer data  
between machines:

`scp -pr complete path of file you  
want to move complete path  
describing where you want to put it`

*example 1: `scp -pr holleyjk@vpac03.phy.vanderbilt.edu:/home/holleyjk/superfile  
/Users/kelly/Desktop/superfile.moo`*

*example 2: `scp -pr /Users/kelly/awesomefile  
holleyjk@vmplogin.accre.vanderbilt.edu:/home/holleyjk/.`*

# Getting around the directory tree

- **ls** → lists content of directory
- **pwd** → reports current directory
- **cd** 'blah' → change directory to 'blah'
- **mkdir** 'blah' → make directory 'blah'
- **rmdir** 'blah' → remove directory 'blah'

*Practice: make a subdirectory 'bootcamp' on vpac38 and scp your laptop's awesomefile1.mp4 into it.*

*Practice: copy /home/holleyjk/bootcamp/2016/Cheatsheet to your vpac home directory*

Feel the power: adding tags to your  
command can customize it.

**ls** → lists content of directory

**ls -l** long format

**ls -a** list all files

**ls -lhS** long format, file size is 'human readable', sorted by file size

```
total 101M
-rw-r--r-- 1 holleyjk astro 58M May 17 10:30 hdf5-1.8.4-patch1.tar
-rw----- 1 holleyjk astro 6.7M May 17 11:11 king_snap.dat
-rw----- 1 holleyjk astro 6.3M Aug 10 2009 mri.pdf
-rw----- 1 holleyjk astro 3.4M Jul 21 18:24 100719_Yaqiongcareerproposal.doc
-rw----- 1 holleyjk astro 2.6M Jan 1 2010 merger_44_20_2366.png
```

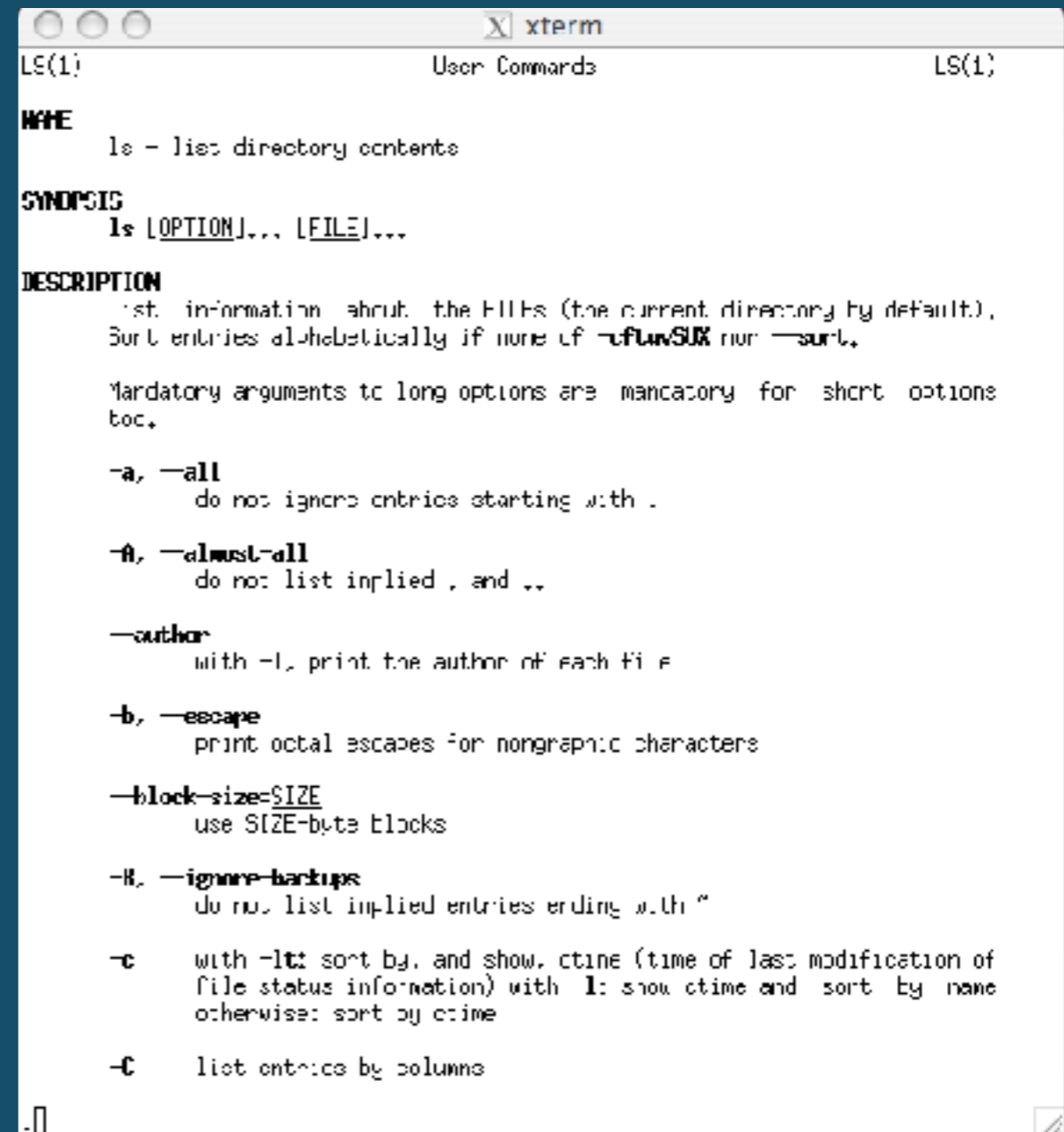
*Practice: Find out when holleyjk last modified the file .cshrc on  
in their home directory.*



# But Guru, how do I know the secret tags for each command?

**man** command

**man** intro is a good  
place to start!



```
LS(1)                               User Commands                               LS(1)

NAME
  ls - list directory contents

SYNOPSIS
  ls [OPTION]... [FILE]...

DESCRIPTION
  List information about the FILES (the current directory by default).
  Sort entries alphabetically if none of -ftuvsUX nor --sort.

  Mandatory arguments to long options are mandatory for short options
  too.

  -a, --all
      do not ignore entries starting with .

  -A, --almost-all
      do not list implied . and ..

  --author
      with -l, print the author of each file

  -b, --escape
      print octal escapes for nongraphic characters

  --block-size=SIZE
      use SIZE-byte blocks

  -H, --ignore-backups
      do not list implied entries ending with #

  -c
      with -lt: sort by, and show, ctime (time of last modification of
      file status information) with l: show ctime and sort by name
      otherwise: sort by ctime

  -C
      list entries by columns
```

# Manipulating files

- **cp** file1 file2 → copy 'file1' to 'file2'
- **mv** file1 file2 → move 'file1' to 'file2'
- **rm** 'blah' → remove file 'blah'

Note a few nifty shortcuts:

- ~ means /home/username/
- means the current directory
- means go back 1 directory
- \* means wildcard

## Translate this:

- **cp** ~/\*.sm ../
- **mv** ../density.sm ~/bootcamp/dense.s
- **rm** \*

*Practice: Copy the file 'cshrc.play' from the home directory for user holleyjk and put it in your home directory, but call it cshrc.holleyjk*

*Also copy alias from user holleyjk's bootcamp directory, and rename it alias.holleyjk*

# Your data is protected by file permissions

*Aside: How did I get this list?*

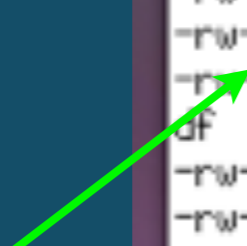
```
xterm
-rw----- 1 holleyjk astro 28672 Oct 14 2009 sesaps_09_program.xls
drwxr-xr-x 3 holleyjk astro 4096 May 17 10:42 share
-rw-r--r-- 1 holleyjk astro 14176 Jul 6 16:42 sig.khb.jpeg
-rw-r--r-- 1 holleyjk astro 13717 Jul 6 16:46 sig.khb.pdf
-rw----- 1 holleyjk astro 21470 Jun 10 14:56 sinha_69.pdf
-rw----- 1 holleyjk astro 230880 May 28 15:08 SMD-10-1678_Holley-Bokelmann
.pdf
drwx----- 4 holleyjk astro 4096 May 13 2009 smooth.2.01
-rw-ruxrwx 1 holleyjk astro 407473 Jan 25 2010 starcounts.dat.gz
-rw----- 1 holleyjk astro 407478 Jan 23 2010 starcounts.orig.dat.gz
-rw----- 1 holleyjk astro 79428 Jun 15 13:30 stassun_career_report_2009.p
df
-rw-r--r-- 1 holleyjk astro 8 Jun 1 14:16 TAR.proposal.aux
-rw-r--r-- 1 holleyjk astro 7436 Jun 1 14:16 TAR.proposal.dvi
-rw-r--r-- 1 holleyjk astro 3674 Jun 1 14:16 TAR.proposal.log
-rw-r--r-- 1 holleyjk astro 26545 Jun 1 14:16 TAR.proposal.pdf
-rw-r--r-- 1 holleyjk astro 72587 Jun 1 14:16 TAR.proposal.ps
-rw----- 1 holleyjk astro 6086 Jun 1 14:16 TAR.proposal.tex
drwx----- 6 holleyjk astro 4096 Sep 21 2007 tibs2107
drwx----- 5 holleyjk astro 4096 Feb 2 2009 tipsy-2.2.3c
drwx----- 2 holleyjk astro 4096 Mar 27 2008 TRS
drwx----- 3 holleyjk astro 4096 Mar 5 2008 web
-rw----- 1 holleyjk astro 33280 Jul 21 18:23 YaqiongSummary.doc
drwxr-xr-x 15 holleyjk astro 4096 May 17 16:48 yt
-rw----- 1 holleyjk astro 798679 Jun 14 11:03 Zampieri,2009,MNRAS,400,677,
pdf
drwxr-xr-x 12 holleyjk astro 4096 May 17 10:42 zlib-1.2.5
```

user  
permissions  
r=Read  
w=Write  
x=eXecute

# Your data is protected by file permissions

```
xterm
-rw----- 1 holleyjk astro 28672 Oct 14 2009 sesaps_09_program.xls
drwxr-xr-x 3 holleyjk astro 4096 May 17 10:42 share
-rw-r--r-- 1 holleyjk astro 14176 Jul 6 16:42 sig.khb.jpeg
-rw-r--r-- 1 holleyjk astro 13717 Jul 6 16:46 sig.khb.pdf
-rw----- 1 holleyjk astro 21470 Jun 10 14:56 sinha_69.pdf
-rw----- 1 holleyjk astro 230880 May 28 15:08 SMD-10-1678_Holley-Bokelmann
.pdf
drwx----- 4 holleyjk astro 4096 May 13 2009 smooth.2.01
-rw-rwxrwx 1 holleyjk astro 407473 Jan 25 2010 starcounts.dat.gz
-rw----- 1 holleyjk astro 407478 Jan 23 2010 starcounts.orig.dat.gz
-r----- 1 holleyjk astro 79428 Jun 15 13:30 stassun_career_report_2009.p
df
-rw-r--r-- 1 holleyjk astro 8 Jun 1 14:16 TAR.proposal.aux
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-rw-r--r-- 1 holleyjk astro 3674 Jun 1 14:16 TAR.proposal.log
-rw-r--r-- 1 holleyjk astro 26545 Jun 1 14:16 TAR.proposal.pdf
-rw-r--r-- 1 holleyjk astro 72587 Jun 1 14:16 TAR.proposal.ps
-rw----- 1 holleyjk astro 6086 Jun 1 14:16 TAR.proposal.tex
drwx----- 6 holleyjk astro 4096 Sep 21 2007 tibs2107
drwx----- 5 holleyjk astro 4096 Feb 2 2009 tipsy-2.2.3c
drwx----- 2 holleyjk astro 4096 Mar 27 2008 TRS
drwx----- 3 holleyjk astro 4096 Mar 5 2008 web
-rw----- 1 holleyjk astro 33280 Jul 21 18:23 YaqiongSummary.doc
drwxr-xr-x 15 holleyjk astro 4096 May 17 16:48 yt
-rw----- 1 holleyjk astro 798679 Jun 14 11:03 Zampieri,2009,MNRAS,400,677,
pdf
drwxr-xr-x 12 holleyjk astro 4096 May 17 10:42 zlib-1.2.5
```

group  
permissions  
r=Read  
w=Write  
x=eXecute



# Your data is protected by file permissions

```
xterm
-rw----- 1 holleyjk astro 28672 Oct 14 2009 sesaps_09_program.xls
drwxr-xr-x 3 holleyjk astro 4096 May 17 10:42 share
-rw-r--r-- 1 holleyjk astro 14176 Jul 6 16:42 sig.khb.jpeg
-rw-r--r-- 1 holleyjk astro 13717 Jul 6 16:46 sig.khb.pdf
-rw----- 1 holleyjk astro 21470 Jun 10 14:56 sinha_69.pdf
-rw----- 1 holleyjk astro 230880 May 28 15:08 SMD-10-1678_Holley-Bokelmann
.pdf
drwx----- 4 holleyjk astro 4096 May 13 2009 smooth.2.01
-rw-ruxrwx 1 holleyjk astro 407473 Jan 25 2010 starcounts.dat.gz
-rw----- 1 holleyjk astro 407478 Jan 23 2010 starcounts.orig.dat.gz
-rw----- 1 holleyjk astro 79428 Jun 15 13:30 stassun_career_report_2009.p
df
-rw-r--r-- 1 holleyjk astro 8 Jun 1 14:16 TAR.proposal.aux
-rw-r--r-- 1 holleyjk astro 7436 Jun 1 14:16 TAR.proposal.dvi
-rw-r--r-- 1 holleyjk astro 3674 Jun 1 14:16 TAR.proposal.log
-rw-r--r-- 1 holleyjk astro 26545 Jun 1 14:16 TAR.proposal.pdf
-rw-r--r-- 1 holleyjk astro 72587 Jun 1 14:16 TAR.proposal.ps
-rw----- 1 holleyjk astro 6086 Jun 1 14:16 TAR.proposal.tex
drwx----- 6 holleyjk astro 4096 Sep 21 2007 tibs2107
drwx----- 5 holleyjk astro 4096 Feb 2 2009 tipsy-2.2.3c
drwx----- 2 holleyjk astro 4096 Mar 27 2008 TRS
drwx----- 3 holleyjk astro 4096 Mar 5 2008 web
-rw----- 1 holleyjk astro 33280 Jul 21 18:23 YaqiongSummary.doc
drwxr-xr-x 15 holleyjk astro 4096 May 17 16:48 yt
-rw----- 1 holleyjk astro 798679 Jun 14 11:03 Zampieri,2009,MNRAS,400,677,
pdf
drwxr-xr-x 12 holleyjk astro 4096 May 17 10:42 zlib-1.2.5
```

other  
permissions  
r=Read  
w=Write  
x=eXecute

To change permissions:

**chmod** ugo+/-rwx filename

*Example: **chmod** go+r pro\*.dat*

Advanced: **chgrp** -R group directory

changes the group ownership of a directory (R=recursively).

Have to be admin or be member of both groups

## Taking a peek at a file:

- **head -n50 file** → displays first 50 lines of file
- **tail -n 12 file** → displays last 12 lines of file
- **more file** → scrolls through file page by page
- **less file** → a better version of more

*Practice: figure out what is the last line in  
~/alias.holleyjk*



- Is the file compressed?      **gunzip** file
- Looking for a file? Try      **find** . -iname file
- What jobs are running in your shell?      **ps**
- ...on your machine?      **htop**
- Need to kill a job?      **kill -9** PID
- Need to count lines in a file?      **wc -l** file
- Smooosh files into 1      **cat** file1 file2 > smoooshfile
- Split file into many of N bytes      **split -b N** file

# String commands together with pipes:

*try these:*

```
ls -l /home/holleyjk | less
```

```
ps aux | grep username
```

*the possibilities are huge!*

**Q. List the first 5 most recently modified files in a directory in human readable format**

**Steps:**

1. list all the files in the directory
2. list them by modification time, most recent first
3. display that list in human readable format
4. display only the top 5 in that list

**Q. List the first 5 most recently modified files in a directory in human readable format**

**Steps:**

1. list all the files in the directory **ls -al**
2. list them by modification time, most recent first
3. display that list in human readable format
4. display only the top 5 in that list

**Q. List the first 5 most recently modified files in a directory in human readable format**

**Steps:**

1. list all the files in the directory **ls -al**
2. list them by modification time, most recent first **ls -alt**
3. display that list in human readable format
4. display only the top 5 in that list

**Q. List the first 5 most recently modified files in a directory in human readable format**

**Steps:**

1. list all the files in the directory **ls -al**
2. list them by modification time, most recent first **ls -alt**
3. display that list in human readable format **ls -halt**
4. display only the top 5 in that list

**Q. List the first 5 most recently modified files in a directory in human readable format**

**Steps:**

1. list all the files in the directory **ls -al**
2. list them by modification time, most recent first **ls -alt**
3. display that list in human readable format **ls -halt**
4. display only the top 5 in that list **ls -halt | head -n5**

**Q. List the first 5 most recently modified files in a directory in human readable format**

**Steps:**

1. list all the files in the directory **ls -al**
2. list them by modification time, most recent first **ls -alt**
3. display that list in human readable format **ls -halt**
4. display only the top 5 in that list **ls -halt | head -n6 | tail -n5**



**Q.** List the first 10 most space-hogging files in a directory in human readable format

Q. List the first 10 most space-hogging files in a directory in human readable format

```
ls -halS | head -n 11 | tail -n 10
```

**last** - tells you the people who logged in, arranged chronologically

**w** - shows you who are logged in currently

**date** - gives you the current date (time-stamp)

**du** - shows you the disk usage of given directory (and sub-dirs)

**sort** - sorts data file/piped output based on specified column

**diff** - finds differences between two files

**>** - redirects result to a file

**>>** - appends data to a file

**touch** - (not sure I should teach this...)

## Exercises:

1. Who are the last 5 people that logged in to vpac38 today ?
2. How many times did 'hoffmare' login to vpac01 ?
3. Copy wang.merritt.dat from the 2015 bootcamp directory to your laptop and sort on the black hole mass. Dump results to a file.
4. How many people are on vpac02 right now ?
5. How many bytes are you using on your home directory ?
6. How many files does Kelly have in her \$HOME/bootcamp dir ?

## Exercises:

1. Who are the last 5 people that logged in to vpac38 today ?

*first, ssh into vpac38 then...*

`last | head -n5`

2. How many times did 'hoffmare' login to vpac01?

3. Copy wang.merritt.dat from the 2015 bootcamp directory to your laptop and sort on the black hole mass. Dump results to a file.

4. How many people are on vpac02 right now ?

5. How many bytes are you using on your home directory ?

6. How many files does Kelly have in her \$HOME/bootcamp dir ?

## Exercises:

1. Who are the last 5 people that logged in to vpac38 today ?

2. How many times did 'hoffmare' login to vpac01?

*first, ssh into vpac01, then...*

```
last | grep hoffmare > dummy ; wc -l dummy
```

3. Copy wang.merritt.dat from the 2015 bootcamp directory to your laptop and sort on the black hole mass. Dump results to a file.

4. How many people are on vpac02 right now ?

5. How many bytes are you using on your home directory ?

6. How many files does Kelly have in her \$HOME/bootcamp dir ?

## Exercises:

1. Who are the last 5 people that logged in to vpac38 today ?
2. How many times did 'hoffmare' login to vpac01?
3. Copy wang.merritt.dat from the 2015 bootcamp directory to your laptop and sort on the black hole mass. Dump results to a file.  

```
sort -n -k2,2 < wang.merritt.dat > sorted.wang.merritt.dat
```
4. How many people are on vpac02 right now ?
5. How many bytes are you using on your home directory ?
6. How many files does Kelly have in her \$HOME/bootcamp dir ?

## Exercises:

1. Who are the last 5 people that logged in to vpac38 today ?
2. How many times did 'hoffmare' login to vpac01?
3. Copy wang.merritt.dat from the 2015 bootcamp directory to your laptop and sort on the black hole mass. Dump results to a file.
4. How many people are on vpac02 right now ?  
*first, ssh into vpac02 then...*  
`w | sort`
5. How many bytes are you using on your home directory ?
6. How many files does Kelly have in her \$HOME/bootcamp dir ?



## Exercises:

1. Who are the last 5 people that logged in to vpac38 today ?
2. How many times did 'hoffmare' login to vpac01 ?
3. Copy wang.merritt.dat from the 2015 bootcamp directory to your laptop and sort on the black hole mass. Dump results to a file.
4. How many people are on vpac02 right now ?
5. How many bytes are you using on your home directory ?

`du -h`

6. How many files does Kelly have in her \$HOME/bootcamp dir ?

## Exercises:

1. Who are the last 5 people that logged in to vpac38 today ?
2. How many times did 'hoffmare' login to vpac01 ?
3. Copy wang.merritt.dat from the 2015 bootcamp directory to your laptop and sort on the black hole mass. Dump results to a file.
4. How many people are on vpac02 right now ?
5. How many bytes are you using on your home directory ?
6. How many files does Kelly have in her \$HOME/bootcamp dir ?

ls -a | wc -l

## Exercises:

1. Who are the last 5 people that logged in to vpac38 today ?

*first, ssh into vpac38 then...*

```
last | head -n6 | tail -n5
```

2. How many times did 'hoffmare' login to vpac01 ?

*first, ssh into vpac01, then...*

```
last | grep hoffmare > dummy ; wc -l dummy
```

3. Copy wang.merritt.dat from the 2015 bootcamp directory to your laptop and sort on the black hole mass. Dump results to a file.

```
sort -n -k2,2 < wang.merritt.dat > sorted.wang.merritt.dat
```

4. How many people are on vpac02 right now ?

*first, ssh into vpac02 then...*

```
w | sort
```

5. How many bytes are you using on your home directory ?

```
du -h
```

6. How many files does Kelly have in her \$HOME/bootcamp dir ?

```
ls -a | wc -l
```

# Setting your shell (how you interface with your operating system)

do a **less** on  
**cshrc.holleyjk**

execute an alias file that  
nicknames unix commands

tells your system where to look  
for external commands, like  
graphics programs

```
xterm
# .cshrc

set listjobs
limit coredumpsize 0
umask 022
unset autologout
if ( -e ~/.alias )    source ~/.alias

if( $?REMOTEHOST && ! $?DISPLAY ) then

    setenv DISPLAY ${REMOTEHOST}:0

endif

#set path=(/usr/local/products/mpich2/bin $path)

# pattans 20080123
set osv = `uname -a | awk '{print $1 substr ($3,1,1)}'`
set arch = `uname -m`
setenv MPICH_HOME /usr/local/mpich2/${osv}/1.0.6p1/${arch}
setenv MPI_HOME /usr/local/mpich2/${osv}/1.0.6p1/${arch}

#setenv MPICH_HOME /usr/local/products/mpich2
#setenv MPI_HOME /usr/local/products/mpich2

setenv PATH /usr/local/bin:/usr/bin:/home/holleyjk/bin:/usr/local/python2.6/x86_64/
bin:/usr/local/jdk:/usr/local/lib/jdk/jdk1.6.0_01/bin:/usr/local/mpich2/Linux2/1.0.
6p1/x86_64/bin:/usr/lib64/qt-3.3/bin:/usr/kerberos/bin:/bin:/usr/X11R6/bin
setenv CLASSPATH /home/holleyjk/lstore/accre-loci-1.0-1802.jar:/home/holleyjk/lstor
e/aspectjrt.jar:/home/holleyjk/lstore/jargs.jar:/home/holleyjk/lstore/log4j-1.2.12.
jar
setenv LD_LIBRARY_PATH /usr/lib:${HOME}/lib:/usr/local/lib:/usr/local/python2.6/x86
_64/lib:/usr/local/jdk/lib:/usr/local/lib/jdk/jdk1.6.0_01/lib:/usr/local/mpich2/Lin
ux2/1.0.6p1/x86_64/lib:/usr/include/kde/arts/gsl:/usr/lib64/qt-3.3/lib:/usr/kerbero
s/lib:/lib64:/usr/X11R6/lib:/lib

setenv IDL_DIR /usr/local/itt/idl
--More--(91%)
```

## Setting your shell (how you interface with your operating system)

Open a web browser to [github.com/djsissom](https://github.com/djsissom)

Go to bootcamp repository

Click "Clone or Download" button, and choose "Download Zip"

Scp the zip file to your vpac home directory

Unzip the file on your laptop (Mac) and on VPAC

## Setting your shell (how you interface with your operating system)

What does ``echo $SHELL`` return?

`Mv bashrc to ~/.bashrc` (if it doesn't exist yet...)

`Less .bashrc` to read it

**source .bashrc**  
will run the file and install your commands

# To change your `.bashrc`, you need a text editor

## **emacs** filename &

- `Ctrl-v` -- page up
- `Esc-v` -- page down
- `Ctrl-n` -- next line
- `Ctrl-p` -- previous line
- `Esc-<` -- top of file
- `Esc->` -- bottom of file
- `Esc-Esc-Esc` -- get out of hotkey
- `Ctrl-X-S` -- save file
- `Ctrl-X-C` -- quit
- `Ctrl-k` -- kill a line
- `Ctrl-y` -- paste line
- `Esc-%` -- query replace
- `Ctrl-x (` -- start macro
- `Ctrl-x )` -- end macro
- *Example: `Ctrl-x( Ctrl-n Ctrl-n Ctrl-x)`*
- `Ctrl-x e` -- execute macro
- `Esc-num` -- do *num* times
- `Ctrl-/` -- undo

*Practice: Open a new file called 'motivation' and write 'I love emacs with my whole heart!'  $2^{16}$  times. Then, replace 'heart' with 'mind' on every other line.*

Hacker pro tip: swap Caps Lock and CTRL

Esc = CTRL + [



## Editing text files with Vim

Set up vim files (dark terminal recommended)

```
$ vim .bashrc
```

More slides at <https://www.slideshare.net/brandonliu/introduction-to-vim>

For homework:

Add your own nicknames for unix commands -- most useful aliases win a prize!

Add aliases to make rm, mv, and cp safer (check the man pages for the interactive option for each)

Practice with your text editor of choice

# Unix Challenge!

- **Find** a file with *cereal* in its name  
(hint: it's in a vpac directory involving /home/astronoob1...)
- copy it to your home directory, add your name to the filename, and change permissions so that you can read and write to it, but group/other can only read it
- write the name of your favorite cereal in the file
- copy it to Kelly's bootcamp/2017 directory and tell me when you've done it. *First one wins a prize!!*