

Files And Dirs

Where am I?

```
[train30@newblue2 ~]$ pwd
```

What's up there?

```
[train30@newblue2 ~]$ pwd
[train30@newblue2 ~]$ cd ..
[train30@newblue2 ~]$ pwd
[train30@newblue2 ~]$ cd ..
etc.
```

Going nowhere

```
[train30@newblue2 ~]$ pwd
[train30@newblue2 ~]$ cd .
[train30@newblue2 ~]$ pwd
```

Go HOME!

```
[train30@newblue2 /]$ cd
[train30@newblue2 /]$ Pwd
[train30@newblue2 /]$ echo ~
```

What have I got?

```
[train30@newblue2 ~]$ ls
[train30@newblue2 ~]$ ls -a
```

File Manipulation

New File

```
[train30@newblue2 ~]$ nano animals
[train30@newblue2 ~]$ ls
```

Copy File

```
[train30@newblue2 ~]$ cp animals Old_Animals
[train30@newblue2 ~]$ ls
```

Rename animals

```
[train30@newblue2 ~]$ mv animals Animals
[train30@newblue2 ~]$ ls
```

Let's Move the animal related files out of the way

```
[train30@newblue2]$ mkdir menagerie
[train30@newblue1 ~]$ ls
[train30@newblue2 menagerie]$ mv Animals Old_Animals menagerie
[train30@newblue2 menagerie]$ ls
[train30@newblue2 menagerie]$ cd menagerie/
[train30@newblue2 menagerie]$ pwd
[train30@newblue2 menagerie]$ ls
```

Add more animals

```
[train30@newblue2 menagerie]$ nano Animals
```

Look at the Animals

```
[train30@newblue2 menagerie]$ cat Animals
```

Lots Of Snakes

```
[train30@newblue2 menagerie]$ cp ../../linux_workshop/Snakes .
[train30@newblue2 menagerie]$ cat Snakes
[train30@newblue2 menagerie]$ less Snakes
[train30@newblue2 menagerie]$ wc -l Snakes
```

What Vipers Do we have?

```
[train30@newblue2 menagerie]$ grep Viper Snakes
```

Filenames

What Old files have we?

```
[train30@newblue2 menagerie]$ ls Old*
```

```
[train30@newblue2 menagerie]$ mv Old_Animals Animals.old
```

What Files do we now have starting with A?

```
[train30@newblue2 menagerie]$ ls A*
```

How many 6 letter files?

```
[train30@newblue2 menagerie]$ ls ???????
```

Redirection

Create a list of files

```
[train30@newblue2 menagerie]$ ls > files
```

```
[train30@newblue1 menagerie]$ cat files
```

How Many Files?

```
[train30@newblue2 menagerie]$ wc -l files
```

Alternatively

```
[train30@newblue2 menagerie]$ ls | wc -l
```

How many Vipers?

```
[train30@newblue2 menagerie]$ grep Viper Snakes | wc -l
```

What types of Vipers?

```
[train30@newblue2 menagerie]$ grep Viper Snakes | awk '{print $1}'
```

File Permissions

What can others do with my files?

```
[train30@newblue2 menagerie]$ ls -l
```

Keep everybody else out

```
[train30@newblue2 menagerie]$ chmod o-r Snakes
```

```
[train30@newblue2 menagerie]$ ls -l
```

I want my colleagues to be able to change the Snakes

```
[train30@newblue2 menagerie]$ chmod g+w Snakes
```

```
[train30@newblue2 menagerie]$ ls -l
```

Processes and Jobs

What Am I running?

```
[train30@newblue2 ~]$ ps
```

How about everyone?

```
[train30@newblue2 ~]$ ps -ef
```

Just Root?

```
[train30@newblue2 ~]$ ps -ef|grep root
```

Backgrounding

```
[train30@newblue2 ~]$ ls -lR > /dev/null &
```

```
[1] 24648
```

```
[train30@newblue2 ~]$ ps
```

Stop that Runaway

```
[train30@newblue2 ~]$ kill 24779
```

No REALLY!!

```
[train30@newblue2 ~]$ kill -9 24779
```

Variables

Let's try setting some variables

```
[train30@newblue2 ~]$ ANSWER=42
[train30@newblue2 ~]$ VOLUME=11
[train30@newblue2 ~]$ echo ANSWER
[train30@newblue2 ~]$ echo $ANSWER
[train30@newblue2 ~]$ echo $VOLUME
```

What's set?

```
[train30@newblue2 ~]$ set
[train30@newblue2 ~]$ set | less
[train30@newblue2 ~]$ set | grep ANSWER
```

```
[train30@newblue2 ~]$ echo $HOME
```

What's in another shell?

```
[train30@newblue2 ~]$ bash
[train30@newblue2 ~]$ echo $ANSWER
[train30@newblue2 ~]$ echo $HOME
[train30@newblue2 ~]$ set | grep ANSWER
[train30@newblue2 ~]$ set | grep HOME
[train30@newblue2 ~]$ exit
[train30@newblue2 ~]$ export ANSWER
[train30@newblue2 ~]$ export LOUDER=12
[train30@newblue2 ~]$ export
[train30@newblue2 ~]$ export | egrep 'ANSWER|VOLUME|LOUDER|HOME'
[train30@newblue2 ~]$ bash
[train30@newblue2 ~]$ set | egrep 'ANSWER|VOLUME|LOUDER|HOME'
[train30@newblue2 ~]$ export | egrep 'ANSWER|VOLUME|LOUDER|HOME'
[train30@newblue2 ~]$ exit
```

Miscellany

What's my disk allocation?

```
snowy:~$ quota
snowy:~$ quota -v
```

How much space am I using?

```
[train30@newblue2 ~]$ du -s
[train30@newblue2 ~]$ du -s
[train30@newblue2 ~]$ du -sh
```

Where is it all?

```
[train30@newblue2 ~]$ du -sh *
```

Where's the Big Stuff?

```
[train30@newblue2 ~]$ du -s * | sort -n
```

Lets Grab a list of users

```
[train30@newblue2 ~]$ getent passwd | awk -F: '{print $5}' > users
```

Lets make it biggish....

```
[train30@newblue2 ~]$ cat users users users users users users
users users users >BIG
[train30@newblue2 ~]$ du -s BIG
```

Shrink it

```
[train30@newblue2 ~]$ du -s BIG
[train30@newblue2 ~]$ gzip BIG
[train30@newblue2 ~]$ ls
[train30@newblue2 ~]$ du -s BIG.gz
```

But Now I can't look at it, or can I?
[train30@newblue2 ~]\$ zcat BIG.gz
[train30@newblue2 ~]\$ zless BIG.gz
Put it back
[train30@newblue2 ~]\$ gunzip BIG.gz
[train30@newblue2 ~]\$ ls
That list needs sorting..
[train30@newblue2 ~]\$ sort BIG
Do I really want those duplicates?
[train30@newblue2 ~]\$ sort BIG | uniq
I know I have an Animals file somewhere
[train30@newblue2 ~]\$ find ~ -name Animals
Not sure if I used Upper case..
[train30@newblue2 ~]\$ find ~ -name animals
[train30@newblue2 ~]\$ find ~ -iname animals

Installing Software Packages

I use tmux a lot so lets install it
[root@tsm-d0 ~]# yum install tmux
[root@tsm-d0 ~]# tmux

Building Software Packages

I need to use R but this system doesn't have it and I'm not root.
Use the source luke!
Fetch
[train30@newblue2 ~]\$ wget http://cran.r-project.org/src/base/R-3/R-3.2.1.tar.gz
Extract
[train30@newblue2 ~]\$ tar xzf R-3.2.1.tar.gz
Set Up
[train30@newblue2 ~]\$ cd R-3.2.1
[train30@newblue2 R-3.2.1]\$./configure --prefix=\$HOME/R
Build
[train30@newblue2 R-3.2.1]\$ make
[train30@newblue2 R-3.2.1]\$ make install
[train30@newblue2 R-3.2.1]\$ cd
[train30@newblue2 ~]\$ ls R

Running the Package

I can supply the full path name
[train30@newblue2 ~]\$ R/bin/R
How does the system Find other commands?
[train30@newblue2 ~]\$ echo \$PATH
[train30@newblue2 ~]\$ which cat
[train30@newblue2 ~]\$ which R
Tell it where R lives
[train30@newblue2 ~]\$ PATH=\$HOME/R/bin:\$PATH
[train30@newblue2 ~]\$ echo \$PATH
[train30@newblue2 ~]\$ which R

Run R

```
[train30@newblue2 ~]$ R
```

Make it permanent

```
[train30@newblue2 ~]$ ls -a
```

```
[train30@newblue2 ~]$ cat .bashrc
```

```
[train30@newblue2 ~]$ cat .bash_profile
```