ATS Programming Short Course I
INTRODUCTORY CONCEPTS

Essential Unix Commands

Tuesday, Jan. 27th, 2009
Secure SHell

Run a shell on a remote system within a secure connection.

Examples:

(1)> ssh -Y username@hostname .atmos.edu
   Run a session (with X11 forwarding) as username at the hostname.

(2)> Command example 2
   Command example 2 description.

(3)> Command example 3
   Command example 3 description.
Print Working Directory

Displays current location in the directory tree.

Examples:

(1)> pwd

Displays the fullpath name of your current location.
List files or directories.

Examples:

(1)\textgreater \textit{ls}

\textit{List all (unhidden) files and directories in the current directory.}

(2)\textgreater \textit{ls -al}

\textit{List all files and directories (hidden included), in long format.}

(3)\textgreater \textit{ls -R}

\textit{List files and directories, as well as recursively list subdirectories.}
Change Directory

Move to different locations in the directory tree.

Examples:

(1)> cd

Move to home directory

(2)> cd ..

Move up one level in the directory tree from current directory (relative path)

(3)> cd /usr/local/bin

Move to the directory /usr/local/bin (full path)
- **CHange MODe**

*Change access modes on files.*

### Examples:

1. `chmod u+x filename`
   
   *Give ‘u’ser permission to e’x’ecute the file filename*

2. `chmod o-wx filename`
   
   *Remove permission for ‘o’thers to ‘w’rite or e’x’ecute file filename*
**Read files, concatenate files.**

**Examples:**

1. `(1)> cat filename
   
   Displays contents of file filename

2. `(2)> cat > obsFile
   
   Create file obsFile.

3. `(3)> Cat ob3File >> obsFile
   
   Append file ob3File to the file obsFile.
Displays contents of a file, like 'cat', however, does it one screen at a time.

Examples:

(1)> more filename
Displays contents of Filename to screen, on page at a time. Advance with Spacebar.

(2)> Command example 2
Command example 2 description.

(3)> Command example 3
Command example 3 description.
HEAD of file

Displays top few lines of a file.

Examples:

(1)> head filename

   Display default amount of lines at the top of filename (default is 10)

(2)> head -20 filename

   Display top 20 lines of filename.

(3)> Command example 3

   Command example 3 description.
TAIL of file

Displays bottom few lines of a file.

Examples:

(1)> tail filename

Display default amount of lines at bottom of filename (default is 10).

(2)> tail -20 filename

Display bottom 20 lines of filename.

(3)> Command example 3

Command example 3 description.
Copy files.

Examples:

(1)> cp file1 file2
   Create a copy of file1 named file2

(2)> cp file1 ./dir1/dir2/
   Creates a copy of file1 in the directory ./dir1/dir2/ with the same name.

(3)> cp file1 file2 ..
   Copies both file1 and file2 to the parent directory.
Move file

Rename a file, move a file to a different location.

Examples:

(1)> mv file1 file2
   Rename file1, file2.

(2)> mv file1 ./.filedir
   Move the file file1 to the subdirectory filedir.

(3)> mv file6 ./.filedir/file7
   Move file6 to the subdirectory filedir and rename it file7.
Move files

Removes files, permanently.

Examples:

(1)> rm filename

Removes filename without prompting.

(2)> rm –i filename

Remove filename, though prompt first.

(3)> rm –r dirName

Remove directory dirName, and all its contents (careful).
MaKe DIRectory

Creates directories.

Examples:

(1)> mkdir obs models sat

Creates the 3 directories obs, models, and sat in the current directory

(2)> mkdir obs/jan21/DNR

Creates the directory structure shown in the current directory

(3)> Command example 3

Command example 3 description.
Removes a directory. The directory must be emptied first.

Examples:

(1)> rmdir dir1

Removes directory dir1 (if it has no files or subdirs).

(2)> rmdir dir1 dir2

Removes both dir1 and dir2

(3)> Command example 3

Command example 3 description.
Word Count

Counts lines, words, characters.

Examples:

(1)> wc -l filename
   Count the lines in filename.

(2)> wc --w filename
   Count the words in filename.

(3)> wc -l filename1 filename2
   Count the total lines contained in filename1 + filename2.
Disk space Free

Shows amount of free disk space.

Examples:

(1)> df –k /dev/devicename

Report the amount of free space in kilobytes on the specified device.

(2)> Command example 2

Command example 2 description.

(3)> Command example 3

Command example 3 description.
Usage

Show how much disk space is being used.

Examples:

(1)> du –k directoryName
   Display the amount of space used by directoryName in kilobytes.

(2)> Command example 2
   Command example 2 description.

(3)> Command example 3
   Command example 3 description.
Show processes.

Examples:

(1)> ps -ef

List all processes in long format.

(2)> Command example 2

Command example 2 description.

(3)> Command example 3

Command example 3 description.
**KILL a command**

Terminates a running job/process.

**Examples:**

1. `(1)> kill processID1
   
   Kills the command identified by processID1.

2. `(2)> kill -9 processID6
   
   Kills processID6 forcefully. I.e., if processID6 is not responding to the kill signal, the -9 give the kill signal a bit more weight.

3. `(3)> Command example 3
   
   Command example 3 description.
The ARchive

Bundle (tar) files together.

Examples:

(1)> tar cvf dir1.tar ./dir1

Creates a tar file called dir1.tar with the contents of dir 1. Verbose.

(2)> tar rvf filename.tar ./dir3

Appends contents of dir 3 in already existing tar file, filename.tar. Verbose.

(3)> tar xvf filename.tar

Extracts contents of filename.tar. The output is structured as it was put in.
Gnu(?) ZIP

Zip a file (compress)

Examples:

(1)> gzip filename.tar

Compresses filename.tar, resulting in the file filename.tar.gz

(2)> Command example 2

Command example 2 description.

(3)> Command example 3

Command example 3 description.
- Gnu(?) UNZIP

Unzip a gzipped file.

Examples:

(1)> gunzip filename.tar.gz

Uncompresses the above file. Leaves filename.tar

(2)> Command example 2

Command example 2 description.

(3)> Command example 3

Command example 3 description.
Show the manuel page for a command.

Examples:

(1)> man ls
   Display lots of information about the ls command.

(2)> Command example 2
   Command example 2 description.

(3)> Command example 3
   Command example 3 description.
Display the items in the printer queue.

Examples:

(1)> lpq -P printerName

Displays queue information (jobID’s) for printer printerName.

(2)> Command example 2

Command example 2 description.

(3)> Command example 3

Command example 3 description.
Send a job (file) to be printed.

Examples:

(1)> lpr –P printerName fileName
       Send fileName to be printed on the printer PrinterName.

(2)> Command example 2
       Command example 2 description.

(3)> Command example 3
       Command example 3 description.
Line Printer ReMove

Remove a job that has been sent to a printer.

Examples:

(1)> lprm –P printerName jobID

Removes the print job identified by jobID from printerName's queue.

(2)> Command example 2

Command example 2 description.

(3)> Command example 3

Command example 3 description.
ECHO to output

Display to screen.

Examples:

(1)> echo ${SHELL}

Displays the value of the variable ${SHELL}

(2)> Command example 2

Command example 2 description.

(3)> Command example 3

Command example 3 description.
FIND files

Search for files by filename.

Examples:

(1)> find . \! –name '[A-Z]*' -print

Find all files in the current directory that don’t begin with a capital letter.

(2)> find /work –name chapter1 -print

Find all files under the directory /work that are named chapter 1.

(3)> Command example 3

Command example 3 description.
Look for files containing text patterns (Note: text patterns in the file contents as opposed to filename).

Examples:

(1)> grep -l ‘^#include’ /usr/include/*

List all files under /usr/include that contain at least one # include directive.

(2)> Command example 2

Command example 2 description.

(3)> Command example 3

Command example 3 description.