



Linux Commands

This tutorial is written as a reference guide to basic Linux command terminal navigation techniques. It covers the main aspects of terminology, options, shortcuts, commands, file editing, and system commands.

Shortcuts:

Tab – used to autofill whatever you are typing in the command terminal, use often to prevent typos

Up/Down arrow keys – used to autofill previously entered commands

Commands:

Read – opens specified object as a read only file

Reboot – reboots the system

Clear – clears the terminal

Shutdown – shuts down the system

ls – shows all sub-directories within the current directory

sudo – used to temporarily give the user root access, can be accessed using a separate password from the root password

su – makes the user root until canceled, requires the root (administrative) password

more – thumbs forward through pages

less – thumbs backward through pages

passwd – allows the change of user password

ping – used to ping an ip address or website for connection speed

history – shows a history of all commands entered into the terminal

*history > terminalhistory.txt saves it in a text file named terminalhistory

ifconfig – displays current networking information including IP Addresses, subnet masks, etc...

iwconfig – used to display wireless network information

dmesg – displays the kernels system messages for trouble shooting

fdisk – manipulates system partitions through various arguments. Use caution as hard drives are easily corrupted or damaged.

df -h – displays available memory for target file or the whole system if no target is specified. “-h” prints it in a “human readable” format ex.. 2G, 215mb etc...

File Management:

mv:

move/rename a file or directory

In this example we are taking the file “document.txt” and renaming it “notes.txt”

Example:

```
mv document.txt notes.txt
```

In this example we are moving the text document “notes.txt” (which is on the desktop) to the file “my_notes” in the Documents directory:

Example:

```
mv Desktop/notes.txt/ Documents/my_notes
```

cp:

Copy: This function is used to copy a file from one directory into another. Using cp will leave a copy of the file in the old directory, and copy the file into the new directory

In this example, we are going to copy a file named tinkernow.txt from the directory ~/home/Desktop into the directory ~/home/Desktop/TinkerNow

Example:

```
cp ~/home/Desktop/tinkernow.txt ~/home/Desktop/TinkerNow
```

rm:

removes a file from the system tree

syntax: rm [option] file name

In this example we will delete the document notes.txt

Example:

```
rm notes.txt
```

To delete entire directories us the -r option

Example:

```
rm -r my_notes
```

*this example assumes you are in the directory that this file exists

shred – destroys a file completely by overwriting it many times on the hard disk making it very difficult for someone to come back later and physically recover it

syntax: shred [option] file name

In this example we will shred the document notes.txt

Example:

```
shred notes.txt
```

using the -u option will additionally remove the file, this is not done by default because you may be working on one of the hard drives partition itself

Example:

```
shred -u notes.txt
```

also of some use may be the -z option which after overwriting the file on the hard drive it puts down zero's to hide the fact that anything was shredded.

Example: `shred -z notes.txt`

mkdir – makes a new directory (file) within the current directory.

Syntax: `mkdir [option] directory name(s)`

rmdir – removes a directory; used the same way as `mkdir`

cd – moves around in the directory system

Syntax: `cd directory name/file path`

to back out of a directory use `..`

Syntax: `cd ..`

scp – copies files using ssh security protocol from a separate host to the current folder

Syntax: `scp account@target machine: location/document`

In the following example we will be copying the document `notes.txt` from the target machine (such as a beaglebone black, or another laptop) into the current directory

Example: `scp tinkernow@mylaptop: /Home/Documents/notes.txt`

chmod – changes the “mode” of a given file or program, giving it more or less permissions

Syntax: `chmod [option] {permission} file`

Permissions (in `chmod`): numbers are used to represent read(4), write(2), and execute(1). 4 digit slots are used, The first digit selects the set user ID, set group ID, and restricted deletion or sticky attributes (often unused). The second digit selects permissions for the user who owns the file (super user), the third selects permissions for other users in the file's group, and the fourth for other users not in the file's group. If only 3 digit slots are used the system assumes there is a leading zero and applies the first digit to the user who owns the file. The digits are added together.. If the first digit is 4 then the super user only has permission to read the file, if it is 6 they can read and write, 5 would be read and execute, 7 is read, write, and execute, etc...

Example: `chmod 777 notes.txt` gives all users full permission to read, write, and execute the document `notes.txt`

Example: `chmod 744 notes.txt` gives only the file owner permission to read, write, and execute, while everyone else can only read it.

gzip – file compression

ex.. gzip example_file.txt

alternatively -r can be used for a file with sub-directories

ex.. gzip -r documents_folder

also -c can be used to leave a copy of the file behind

ex.. gzip -c example_file.txt

To unzip a file that was compressed use gunzip

ex.. gunzip example_file.txt.gz (the .gz is added on during the packaging process)

tar – a method of compressing and decompressing multiple files into one large zip file (usually for distribution in packages) similar to gzip

bzip2 – a program that compresses and decompresses files, similar to gzip

System Commands:

wget – downloads files from the web in the background, if computer gets shutoff it continues from where it was last

Example: wget http://www.example.com/page/file.tar.gz

apt-get – retrieves and downloads system files and programs from the net. Option “update” should always be used first to tell the system to search for any new versions of files.

Syntax: [sudo] apt-get [option] target

Common options are:

Update: tells the system to scan for new versions of current packages

Upgrade: upgrades target files (or all files)

Install: installs targeted package

Remove: removes targeted package

mount – mounts the object to the file tree

ex.. mount /directory name

umount – dismounts the target from the file tree, usually used for things such as a flash drive, sd card etc...

ex.. umount /file path

date – display with command:

date “%D”

other arguments can be used to change formatting, time etc..

ssh – opens a secure communication connection between 2 machines

Syntax: ssh user@target machine

Example (to log into a Beaglebone Black): `ssh ubuntu@192.168.7.2`



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