Linux Commands

Prepared By

Nadeem Mehraj
Intern
Applied Informatics Inc

Linux is a version of UNIX operating system that started as a small, self-contained kernel for Intel 38086 processors with no support for networking and limited device driver and file system support. Early in its development, the Linux source code was made freely available which allowed collaboration of users all around the world.

The shell is a program that takes commands from the keyboard and passes them to the operating system for execution.The bash shell, acronym for Bourne Again SHell, is an enhanced replacement for sh.

The shell prompt includes username@machinename followed by the current working directory and a $ sign.

A terminal emulator is a program that allows users to interact with the shell.

Navigating File System

Linux organizes files in hierarchical directory structure, tree structure to be specific.
Linux has a single file system tree, irrespective of the number of drives or storage devices attached to the system. This is unlike Windows, which has a separate file system tree for each storage device
The storage devices are put, technically mounted, at various locations in the file system tree.

To view the directory you are currently in, type:

pwd

which stands for **p**rint **w**orking **d**irectory

When a user first logs in to a system or when a new terminal emulator session is started, the current directory is set to the user's home directory.

To view the files and directories present in the current directory, type:

ls

which stands for list.

The route taken along the branches of file system tree to get to a specific directory is known as pathname. There are two ways of specifying pathnames:
Absolute Pathnames
Relative Pathnames

The **absolute pathname** begins with the root directory and takes branches untill reaching a specific directory.

The **relative pathname** begins with the current directory and takes branches untill reaching a specific directory. For this, it uses "."(dot) to refer to the working directory and ".."(dot dot) to refer to the working directory's

parent directory.

To change the current working directory to another directory with the pathname(absolute or relative) PATH, type:

cd PATH

where "cd" stands for "change directory". There are a few shortcuts for the above command which are listed as under:
cd Changes the working directory to be the user's home directory.
cd - Changes the working directory to be previous working directory.
cd USERNAME Changes the working directory to be the home directory of the user named USERNAME.

Exploring the System

ls

The "ls" command can be used to view the contents of a directory and also various attributes of files and directories. To view the files and directories present in the current directory, type:

ls

To view the contents of a specific directory with path PATH_TO_DIRECTORY, type:

ls PATH_TO_DIRECTORY

One can specify multiple directories to list like:

ls PATH_TO_DIRECTORY1 PATH_TO_DIRECTORY2 ...

ls Options

"ls" supports many options which modify the operation of the command. Some are listed below:

Option	Long Option	Description
-a	–all	List all files including the hidden files
-A	–almost-all	Similar to -a except current directory and parent directory are r
-d	–directory	List the directory instead of its contents.When used in conjunct
-F	–classify	Appends a character at the end of each listed name to indicate
-h	–human-readable	When used with the -l option, displays the size in human readal
-l		Display results in long format
-r	–reverse	Display results in reverse order of what the order will be withou
-s		Display results sorted on size
-t		Display results sorted on last modification time

Determining the type of file

To determine what a file with path PATH_TO_FILE contains, type:

file PATH_TO_FILE

The above command will print a brief description of the contents of the file.
less
"less" is a program for viewing text files.It is one of a class of programs called pagers that allow easy viewing of long text documents in a page by page manner. To view a text file using less, type:
less FILENAME
where FILENAME is the name of the text file to be viewed.

Some of the useful commands in less are:
Page Up or **b**: Scroll back one page
Page Down or **Space**: Scroll forward one page.
Up arrow: Scroll up one line
Down arrow: Scroll down one line
G: Move to the end of the text file
g: Move to the beginning of the text file
/CHARACTERS: Search forward to the next occurrence of CHARACTERS
n: Search for next occurrence of previous search
h: Display help screen
q: Quit less

Manipulating files and directories

mkdir
This command is used to create directories. To create a single directory named DIR1, type:

mkdir DIR1

To create two directories named DIR1 and DIR2 type:

mkdir DIR1 DIR2

In general to create multiple directories, type mkdir followed by space separated list of directory names as:

mkdir DIR1 DIR2 DIR3 ...

cp

This command copies files or directories. To copy FILEA to FILEB, type:

cp FILEA FILEB

If FILEB doesn't exist, it is created and if it exists, it is overwritten. To make cp ask permission to overwrite existing file, use the -i(–interactive) option as:

cp -i FILEA FILEB

Now if FILEB already exists, cp will ask whether to overwrite FILEB or not.

To copy multiple files, say, FILEA, FILEB, FILEC to a directory named DIR(which must already exist), type:

cp FILEA FILEB FILEC DIR

Let DIR1 and DIR2 be names of directories, then the command

cp -r DIR1 DIR2

copies the directory DIR1 in its entirety to directory DIR2 if DIR2 already exists, otherwise it copies the contents of DIR1 to DIR2 after first creating DIR2. Note that it is necessary to use the -r option when copying a directory.

mv: This command performs both file moving and file renaming. The original filename no longer exists after the operation. To move file named FILE1 to FILE2, type:

mv FILE1 to FILE2

If FILE2 doesn't exist, it is created and if it exists, it is overwritten. In either case FILE1 ceases to exist. To make mv ask permission to overwrite existing file, use the -i(–interactive) option as:

mv -i FILE1 FILE2

To move multiple files, say, FILE1, FILE2, FILE3 to a directory named DIR(which must exist), type://

mv FILE1 FILE2 FILE3 DIR

Let DIR1 and DIR2 be two directories, then the command

mv DIR1 DIR2

moves DIR1 and its contents to DIR2 if DIR2 exists, else it creates DIR2, moves the contents of DIR1 to DIR2 and deletes DIR1

rm:
This command removes files and directories. To remove file named FILE1, type:

rm FILE1

To remove multiple files, type rm with space separated list of filenames.

To make rm ask for permission before deleting, use the -i(–interactive) option as:

rm - i FILE1

To delete directory, use the -r(–recursive) option as:

rm -r DIR