

Operating Systems and Using Linux

Topics

- What is an Operating System?
- Linux Overview
- Frequently Used Linux Commands

Reading

None.



What is an Operating System (OS)?

- A computer program
- Performs many operations, such as:
 - Allows you to communicate with the computer (tell it what to do)
 - Controls access (login) to the computer
 - Keeps track of all **processes** currently running
- At this point, your main concern is how to communicate with the computer using the OS

How Do I Communicate With the Computer Using the OS?

- You communicate using the particular OS's **user interface**.
 - **Graphical User Interface (GUI)** - Windows
 - **Command-driven interface** - DOS, UNIX, Linux
- We will be using the **Linux** operating system, which is very similar to UNIX.

How Do I Communicate With the Computer Using the OS? (cont.)

- When you **log in** to the Linux system here, a **user prompt** will be displayed:

`linux#[1]% _`

- where **#** is the number of the Linux server that you have connected to. You may use any of the Linux servers.
- The number in the brackets will change as you work. It is the "number" of the command that you are about to type.
- If this prompt is not on the screen at any time, you are not communicating with the OS.

Linux Overview

- Files and Filenames
- Directories and Subdirectories
- Frequently Used Commands



Files

- A **file** is a sequence of bytes.
- It can be created by
 - a text editor (xemacs or pico)
 - a computer program (such as a C program)
- It may contain a program, data, a document, or other information .
- Files that contain other files are called **directories** (sometimes called **folders**).



Linux Filenames

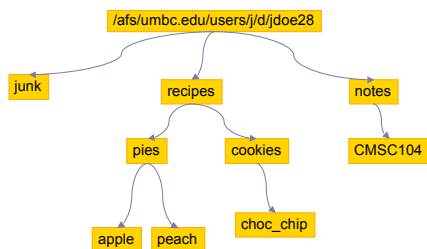
- Restrictions
 - May not contain blanks or other reserved characters
 - Have a maximum length
 - Are **case sensitive**
- It is best to stick with filenames that contain letters (uppercase or lowercase), numbers, and the underscore (_) for now.
 - Project_1.c

Directories

- Directories contain files or other directories called **subdirectories**. They may also be empty.
- Directories are organized in a **hierarchical** fashion.
- They help us to keep our files organized.



Directories (cont.)



Directories (cont.)

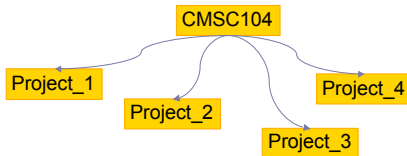


- Your **home directory** is where you are located when you log in
 - `/afs/umbc.edu/users/ij/d/jdoe28`
- The **current directory** is where you are located at any time while you are using the system.
- Files within the same directory must be given unique names.
- **Paths** allow us to give the same name to different files located in different directories.
- Each running program has a current directory and all filenames are implicitly assumed to start with the name of that directory unless they begin with a slash.

Subdirectories



- Are used for organizing your files
- For example,
 - make a subdirectory for CMSC104
 - make subdirectories for each project



Moving in the Directory Tree

- `.` (dot) is the current directory.
- `..` (dot-dot) is the **parent directory**.
- Use the Linux command `cd` to change directories.
- Use dot-dot to move up the tree.
- Use the directory name to move down.
- Use the complete directory name (path name) to move anywhere.

Frequently Used Linux Commands

- passwd, man, lpr
- pwd, ls, cat, more, cd, cp, mv, rm
- mkdir, rmdir
- ctrl-c

References:

- Linux man page
- Links from the 104 homepage
- Books and the Internet



Wildcard Characters

- You will find **wildcard characters** useful when manipulating files (e.g., listing or moving them).
- The wildcard characters are * and ?
 - ? is used to represent any single character.
 - * is used to represent 0 or more characters.