linux CheatSheet

Top-level Directories

- / : root
  - /etc : Program Configuration Files
  - /var : Frequently changing content (ex. logs)
  - /home : User account files
  - /sbin : System binary files
  - /bin : User binary files
  - /lib : Shared libraries
  - /usr : Third-party libraries

Basic Commands

ls

- lists content of a directory

```
ls [/aDirectoryName]
```

- lists content with the long flag $-l$ and human-readble flag h displays file permissions and size information

```
$ ls -lh /users/max/documents
```

- lists with the recursive flag $-R$ everything in and under a directory

```
$ ls -R /users/max/documents
```

- lists hidden files as well

```
$ ls -a /users/max/documents
$ ls -all (2 hyphens)
```

pwd (present working directory)

- print name of current/working directory
- using flag Logical $-L$ to include symlinks

cd (change directory)

- ex. : moving to root directory :

```
$ cd \
```

- back to Home to directory from where-ever

```
$ cd
```

rm (remove)

- removing a file :

```
$ rm myFile
```

- removing an empty directory:

```
$ rmdir myEmptyDirectory
```

- removing a non-empty directory and it contents recursively :

```
rm -r myDirectory
```

cp (copy)

- copy a file to a specified directory

```
$ cp myFile /home/max/anotherDirectory
```

mv (move)

- move a file to a specified directory

```
$ cp myFile /home/max/anotherDirectory
```

Other Commands

cat (concatenate)

- prints file content to output

less

- quickly display less than a complete file contents
- scroll document's content with arrows
- quit by typing 'q'

man

- brings up a one-page interface to reference manuals about a linux command

  ex. : `$ man ls`
- type \(backslash) followed by keywords to search into document

  move forward to next keyword by typing 'n'
- quit by typing 'q'

touch

- updates file timestamps
- if file doesn't exist it will create it

stat (status)

- displays file or file system status

  displays file's inode (metadata) information

| (pipe)

- creates a unidirectional data channel
- takes the output of a commande to feed it as the input of another

```
$ journalctl | grep myFile.php
```

- you can chain as many pipes as you wish

```
$ journalctl | grep myFile.php | grep error
```

info

- reading documentation in Info format
- useful, when you don't know the name of a command you want to use
- click Enter on underlined text to follow links

  'u' will bring you back one level

  'q' to exit

journalctl

- tool to query the contents of the systemd journal

  ideally do filter query with grep

```
$ journalctl | grep myPage.php
```

kernel & archictecture

- print your system architecture (ex: x86_64)

```
$ arch
```

- print your kernel's version

```
$ uname -r
```

Keyboard Shortcuts

TAB (completion)

- press TAB to complete a command

```
$ touch myNewFile
$ rm my<TAB>
```

Special Characters

* (gobbling)

- wildcard used to designate all files in a directory

```
$ mv * /home/max/archive
```

- wildcard used to designate any characters

```
$ git add linux*.tex, linux*.pdf
```

? (question mark)

- represents or matches a single occurrence of any character

  there are files named 'file1', 'file2', 'file3'

```
$ rm file?  /home/max/documents
```

\(backslash)

- The backslash character can be used to conveniently break a long command into multiple lines on the command line.

```
# yum install lxc lxc-templates \
libcaps-devel libcgroup busybox
```

System Administration

networking

- display machine's ip addresses

  ```
  $ ip addr
  ```

bash

- bashrc : file containing shell settings from non-logged in shell

  ```
  $ less .bashrc
  ```

- .profile : file containing shell settings from logged-in shell (ex.: ssh sessions)

  ```
  $ less .profile
  $ less /etc/profile
  ```

- apps user information and default shell

  ```
  $ cat /etc/passwd
  ```

- list of 1000 most recent commands typed

  ```
  $ cat .bash_history
  ```

systemd

- first process to run on a system
- show all services and processes running

  ```
  $ systemctl list-units -type service -state running
  ```

  or

  ```
  $ systemctl -no-pager | grep service | grep running | column -t
  ```

- show all installed unit-files

  ```
  $ systemctl list-units -type service
  ```

  or

  ```
  $ systemctl list-units -type service -state running -no-legend
  ```

- show processes that executed then exited

  ```
  $ systemctl list-units -type service -state exited
  ```

- show processes that have failed

  ```
  $ systemctl list-units -type service -state failed
  ```

- *In order to pass the output to *stdout* instead of a pager

  ```
  add argument '--no-pager'
  ```

- enabling and starting a service (without rebooting)

  ```
  $ systemctl enable -now httpd
  ```

- show boot time

  ```
  $ systemd-analyze
  ```

- identify which process slow down boot

  ```
  $ systemd-analyze blame
  ```

SELinux

- show SELinux status

  ```
  $ sestatus
  ```

- disable error enforcing and logging them instead

  ```
  $ sudo setenforce 0
  ```

Docker

- show Docker version

  ```
  $ docker version
  ```

- starting Docker daemon manually

  ```
  $ sudo docker daemon
  ```

- add user to Docker group (i.e. running Docker as root)

  on Ubuntu

  ```
  $ sudo usermod -aG docker
  ```

- restarting Docker

  ```
  $ sudo service docker restart
  ```

Utils

- display environmental variables

  ```
  $ echo $PATH
  ```

- locate an executable file

  ```
  $ which python3
  ```

- show regional settings

  ```
  $ locale
  $ localectl
  ```

- display information about the nature of a command

  ```
  $ type {command}
  $ type bash
  ```

- display information about time and timezones

  ```
  $ timedatectl
  ```

- display all block devices connected and their size

  df -ht ext4

- display interactions with the kernel

  ```
  $ demsg
  ```

- list all hardware connected

  ```
  $ sudo lshw | less
  ```

- show grub configuration

  ```
  $ less /etc/default/grub
  ```

python

- create a new virtual environment

  ```
  $ python3 -m venv myVenvName
  ```

Last compilation : July 25, 2020