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`

!

- replay last command which first letters starts with the provided letters

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 & architecture

- 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>`
- clear the terminal
  - `ctrl-l`

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
```

- restart service

```
systemctl restart servicename
```

SELinux

- show SELinux status

```
$ sestatus
```

- disable error enforcing and logging them instead

```
$ sudo setenforce 0
```

Apache web server

- check config file syntax

```
apachectl configtest
```

- display loaded modules

```
apachectl -M
```

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
```

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