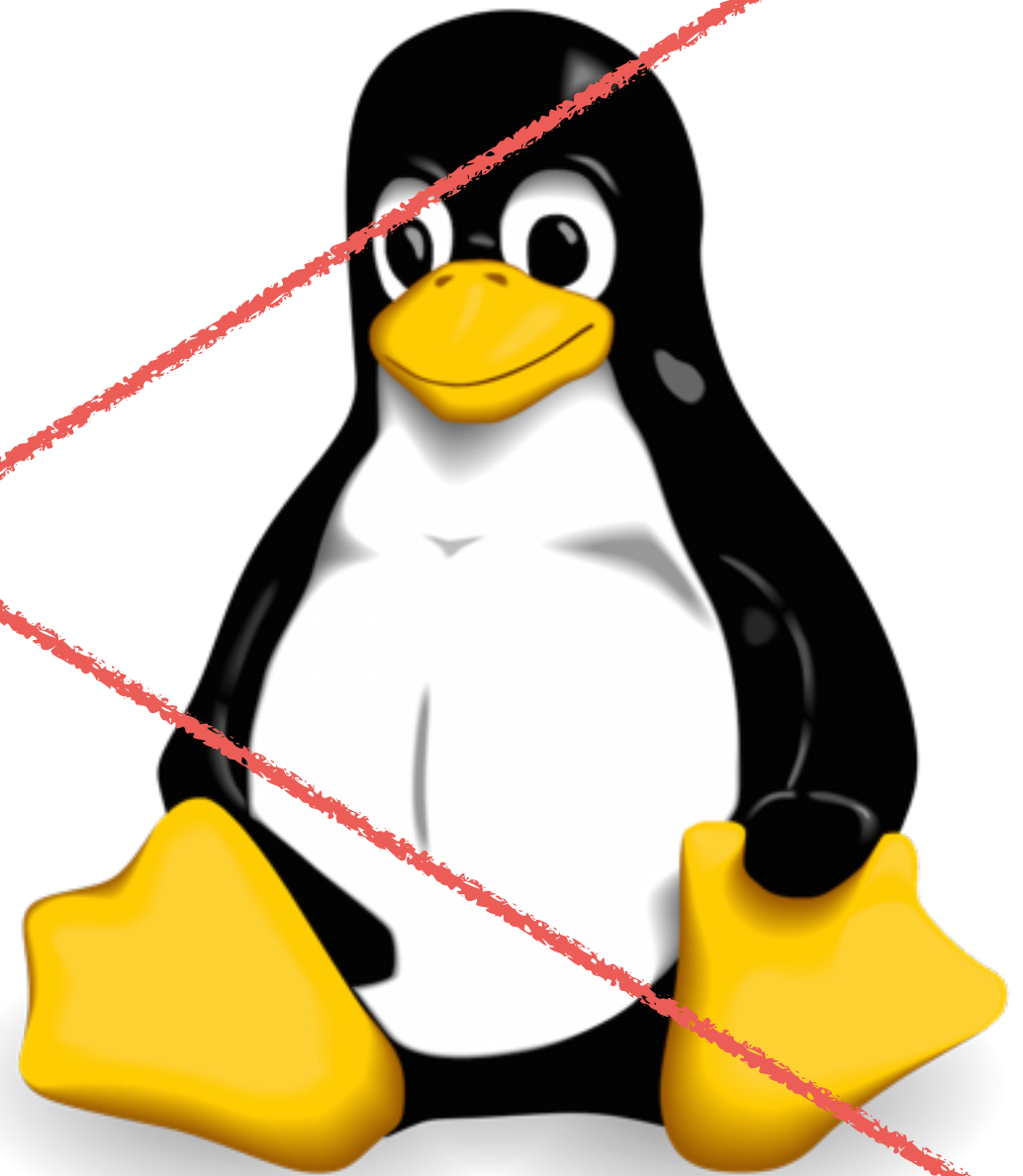# Linux - basic knowledge you need

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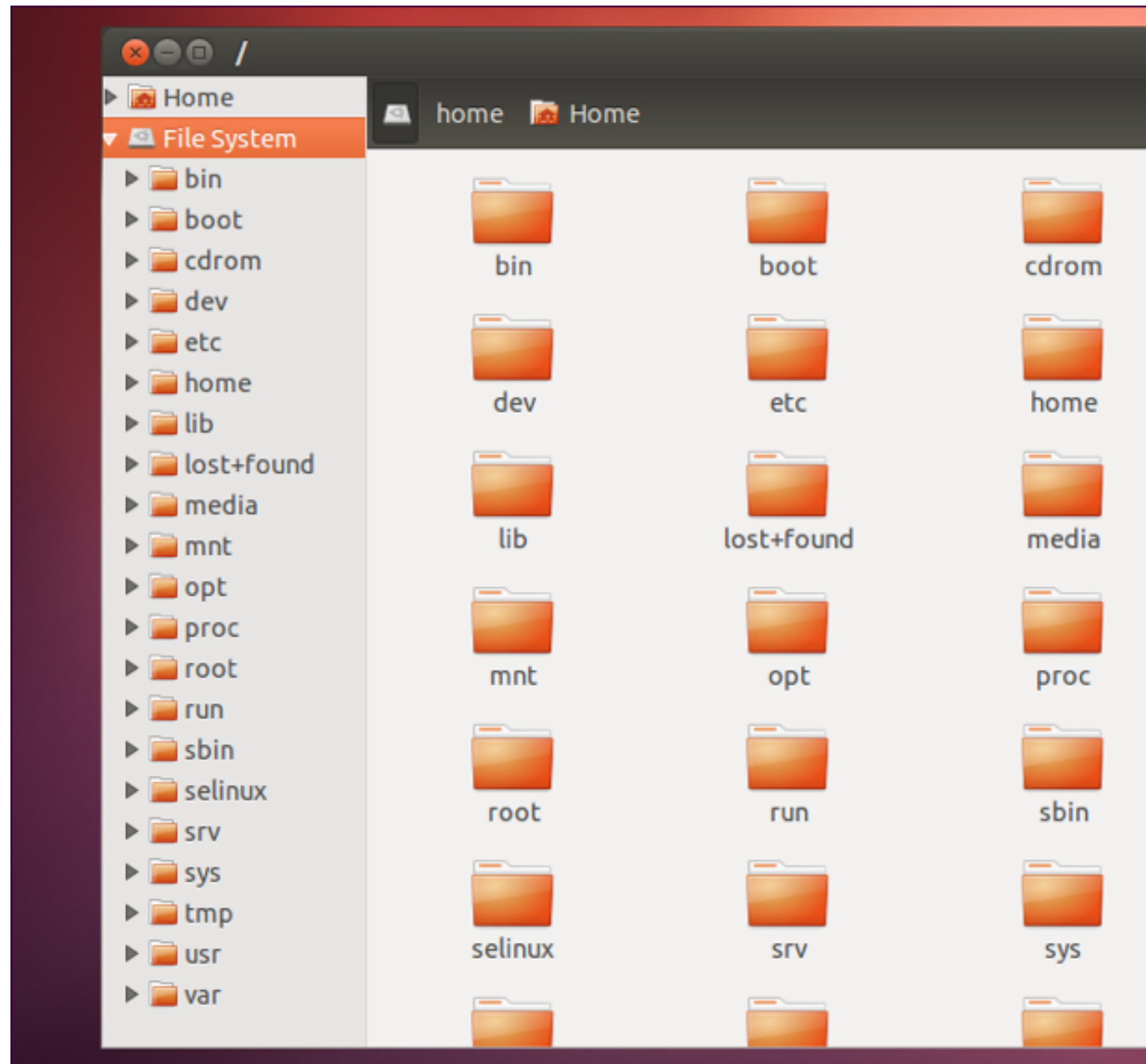
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Linux history

- Based on UNIX OS

- 1st Linux was released October 5, 1999 by Linux Torvalds

- More than 30 distributives

- Free

- Easy to adopt

*nix system structure

*nix system structure

- **/** - root folder (like C: drive in Windows system)

- **/root** - home folder for root user

- **/etc** - configured files

- **/home** - home directory

- **/bin** - system binary files

- **/usr** - user binary files (read only)

- **/tmp** - temporary files

- **/var** - like **/usr** but with write permission

- **/lib** - all libraries sit here

- **/home** - users home directory

- **/dev** - hardware files

Users in Linux

- By default *nix has around 100 users: **root, _www, cron, ftp**, etc

- **root** - the most powerful user

```
nobody:*:-2:-2:Unprivileged User:/var/empty:/usr/bin/false
root:*:0:0:System Administrator:/var/root:/bin/sh
daemon:*:1:1:System Services:/var/root:/usr/bin/false
```

`account:password:UID:GID:GECOS:directory:shell`

Most frequently used *nix commands

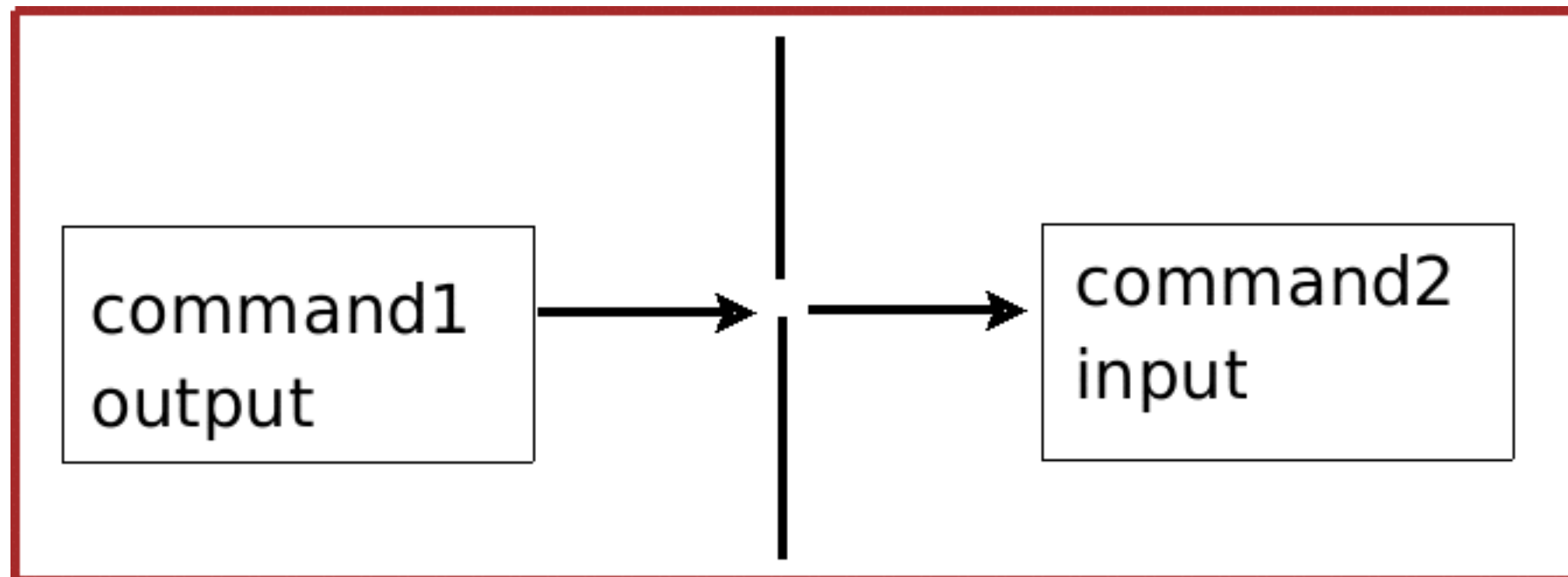|		
man	grep	passwd
cd	find	ifconfig
ls	kill	uname -a
cp / mv	ps -ef	tail
pwd	chmod	ssh
whoami	chown	whereis
su / sudo	top	vim / cat
rm	ping	history

Pipes in *nix


```
$ ls -la
```

```
$ grep 'opt'
```

```
$ ls -la |grep 'opt'
```

```
$ ls -la |grep 'opt'| sort -r
```

Understanding *nix data

CHMOD | CHOWN

```
drwx------   4 teroff   staff    136 Dec  5 22:57 Applications
drwx------+ 16 teroff   staff    544 May  1 22:10 Desktop
drwx------+ 19 teroff   staff    646 Apr 25 09:51 Documents
drwx------+ 53 teroff   staff   1802 May  1 22:10 Downloads
drwx------@ 22 teroff   staff    748 May  1 21:44 Dropbox
drwx------@ 59 teroff   staff   2006 Apr 20 14:42 Library
drwx------+  9 teroff   staff    306 Mar 23 20:47 Movies
drwx------+  8 teroff   staff    272 Mar 18 13:50 Music
drwx------+  8 teroff   staff    272 Feb 13 09:56 Pictures
drwxr-xr-x+  5 teroff   staff    170 Oct  5  2014 Public
drwxr-xr-x  11 teroff   staff    374 Apr  8 11:23 Repo
```

Owner | Group | World

Read | Write | Execute

4-R | 2-W | 1-E

CHMOD | CHOWN

COMMAND <OWNER><GROUP><WORLD> PATH

Practical Examples

chmod 400 mydoc.txt - read by owner
chmod 040 mydoc.txt - read by group
chmod 004 mydoc.txt - read by anybody (other)
chmod 200 mydoc.txt - write by owner
chmod 020 mydoc.txt - write by group
chmod 002 mydoc.txt - write by anybody
chmod 100 mydoc.txt - execute by owner
chmod 010 mydoc.txt - execute by group
chmod 001 mydoc.txt - execute by anybody

CHOWN | CHMOD

7 = 4+2+1 (read/write/execute)
6 = 4+2 (read/write)
5 = 4+1 (read/execute)
4 = 4 (read)

3 = 2+1 (write/execute)
2 = 2 (write)
1 = 1 (execute)

```
Stanislavs-MacBook-Pro-3:Desktop teroff$
Stanislavs-MacBook-Pro-3:Desktop teroff$ chmod 721 tux-base.png
Stanislavs-MacBook-Pro-3:Desktop teroff$
Stanislavs-MacBook-Pro-3:Desktop teroff$
Stanislavs-MacBook-Pro-3:Desktop teroff$ ls -la | grep tux-base.png
-rwx-w---x@  1 teroff  staff      241863 May  1 21:51 tux-base.png
Stanislavs-MacBook-Pro-3:Desktop teroff$ |
```

SSH - Secured Shel

- SSH allows us to connect to a *nix machine without a hard access

```
ssh <host>
```

```
ssh <username>@<host>
```

```
ssh -l <username> <host>:<port>
```

SSH connection

`login - stan`

`server: 52.10.191.83`

Q&A