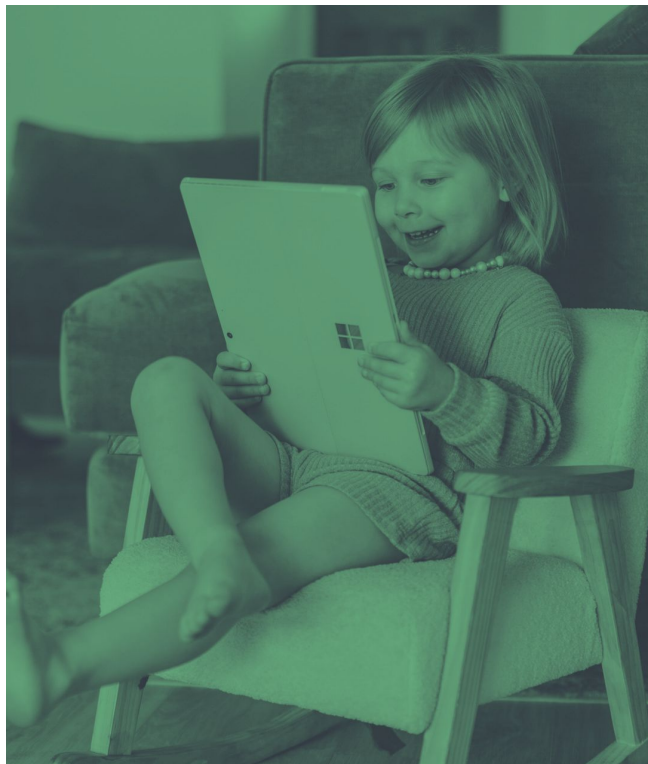


Reprenez le contrôle de votre bash en devenant un ninja de la CLI ! 🧐

David Aparicio @dadideo



Disclaimer



- 17h45 / 18h15
(Re) Découvrir les outils UNIX, Grégoire Pineau
- - Bash
- + Configuration
- + Outils



Programme

- Intro: Terminal & Shell
- Développement
- Réseau & Perfs
- Astuces
- Conclusion

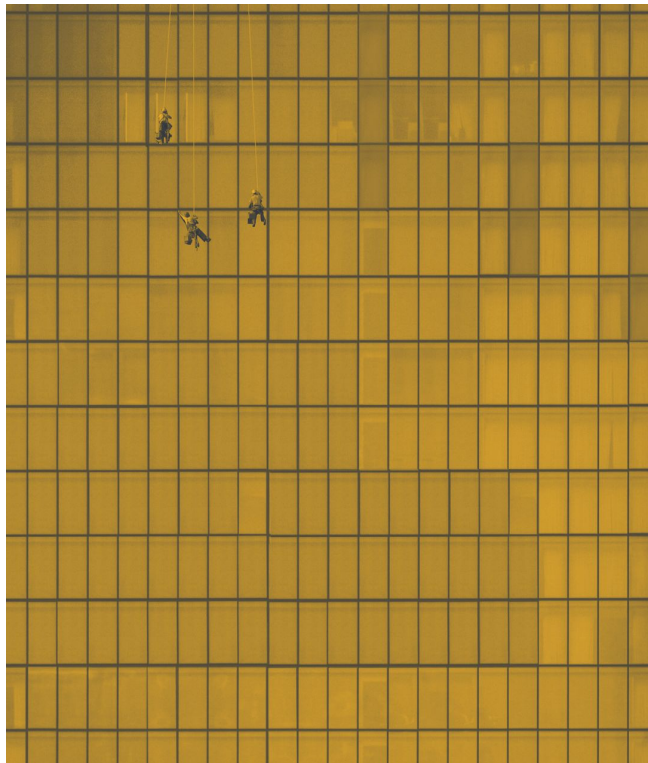
Outil de prédilection



- Interpréteur de commande (cmd)
- Interface système (shell)
- Infrastructure logicielle (framework)
- Extensions / Thèmes (plugins)



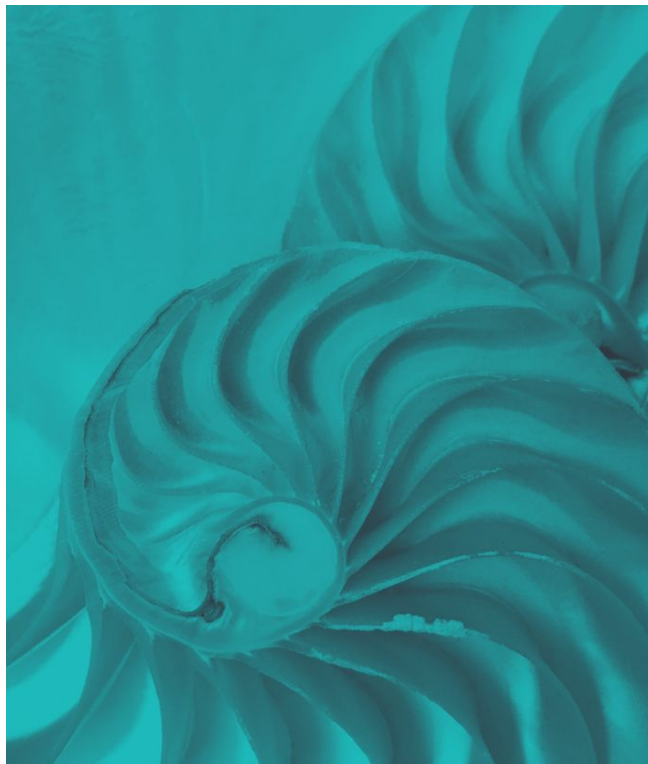
Interpréteur de commande



- Terminal / Konsole
- Terminator
- iTerm
- Alacritty / Warp
- Cmd / Cmler
- Windows Terminal



Interface système

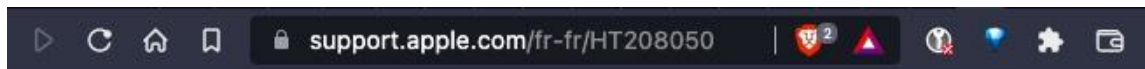


- Bash
- Zsh
- Fish
- Ksh
- Tcsh
- Powershell / DOS
- WSL2

<https://hyperpolyglot.org/unix-shells>



Par défaut, ça dépend



Utiliser zsh comme shell par défaut sur votre Mac

À partir de macOS Catalina, le Mac utilise zsh comme shell d'accès par défaut et shell interactif. Vous pouvez également définir zsh comme valeur par défaut dans les versions antérieures de macOS.

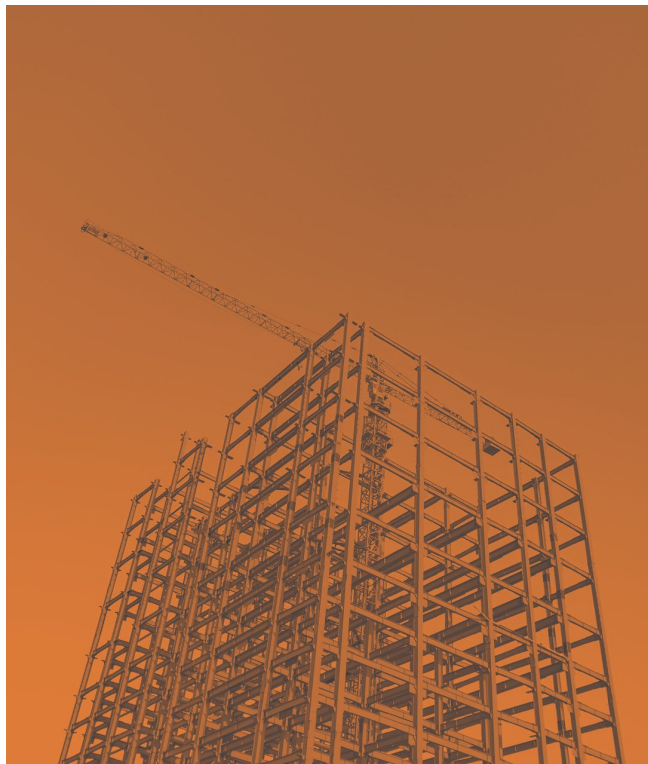
Par défaut, votre Mac utilise zsh ou bash comme interpréteur de ligne de commande pour le shell d'accès et le shell interactif :

- **zsh** (Z shell) est le shell par défaut pour tous les comptes d'utilisateur nouvellement créés, à partir de macOS Catalina.
- **bash** est le shell par défaut sous [macOS Mojave et versions antérieures](#).

zsh est hautement compatible avec le shell Bourne (sh) et globalement compatible avec bash, avec quelques différences. Pour plus d'informations sur zsh et son système exhaustif de complétion de ligne de commande, saisissez `man zsh` dans Terminal.



Infrastructure logicielle, Plugins



- Oh My Zsh / Oh-My-Fish
- Spaceship / Spacefish
- Starship (Cross/Rust)

```
rocket on 🚀 master via 🦀 v1.36.0
```

```
> sudo -s
```

```
root in rocket on 🚀 master via 🦀 v1.36.0
```

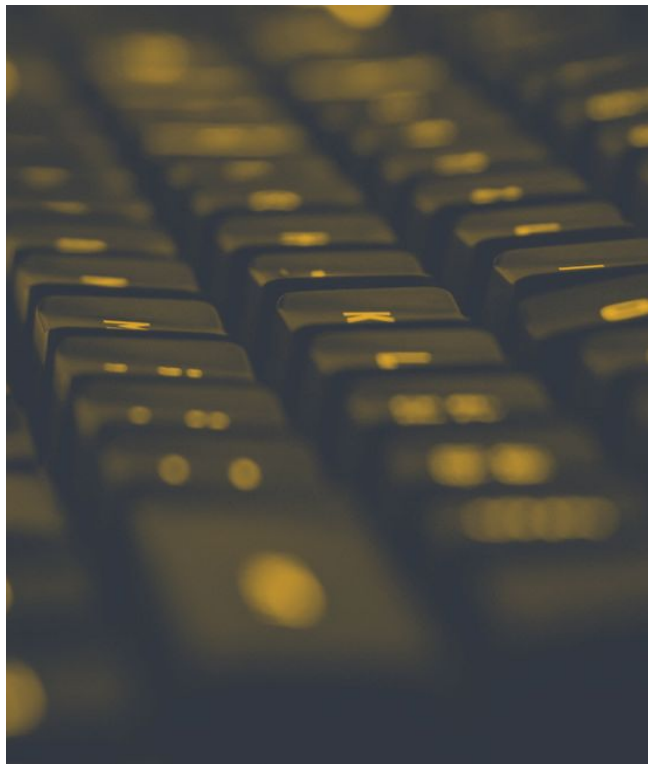
```
> exit
```

```
rocket on 🚀 master via 🦀 v1.36.0 took 4s
```

```
> vim ~/.config/starship.toml
```



Bonus: tout au clavier

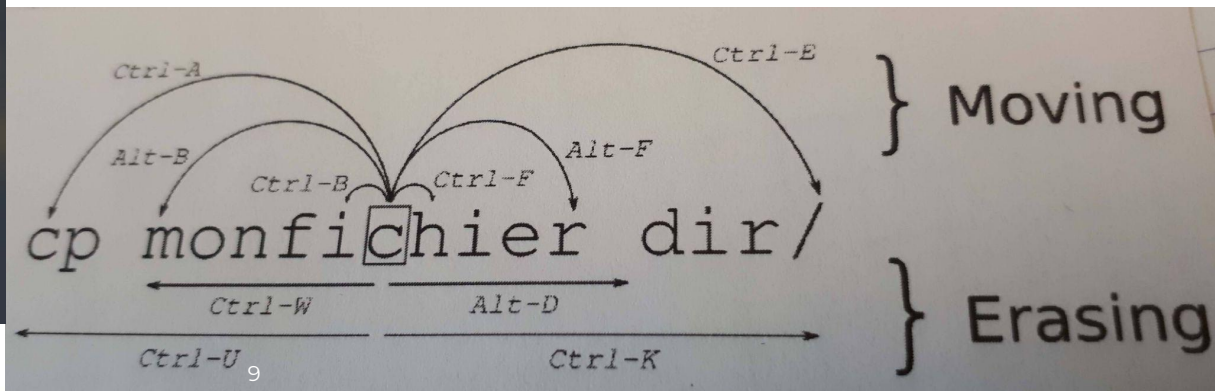


Fenêtres

- i3wm / xmonad
- rectangle
- amethyst / yabai
- bug.n / WinWM

Onglets

- screen / tmux
- byobu / zettl

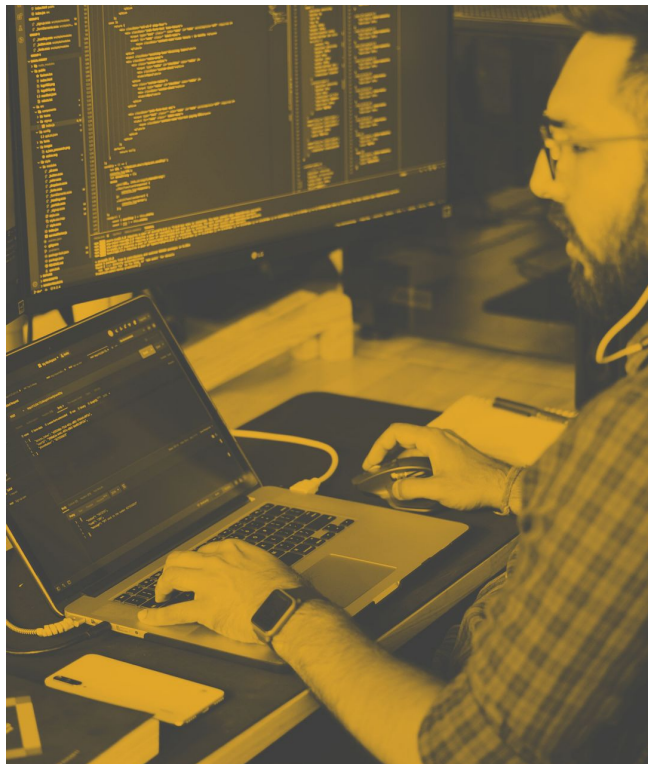




Let's Code



Espace de travail

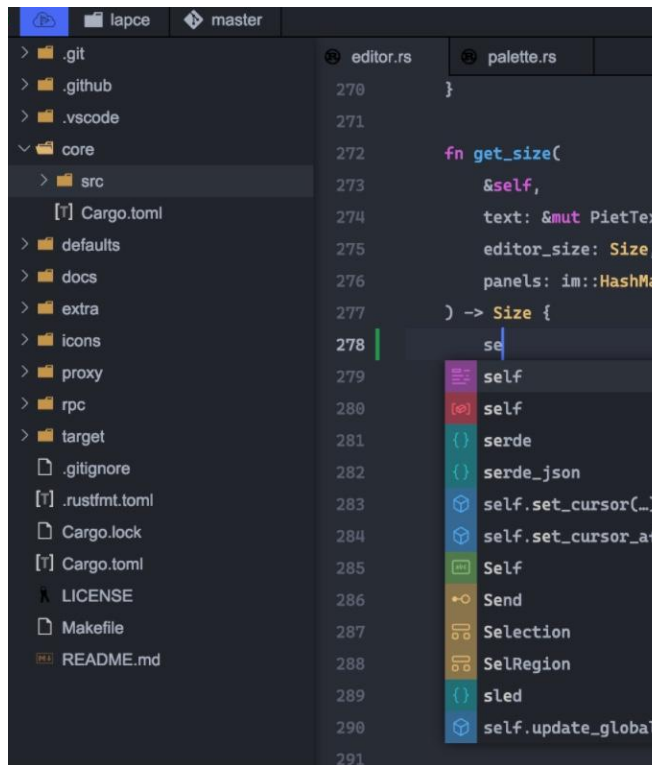


- Choix du dossier, avec cd / ls
- Exa (ls)
- Zoxide (cd)

```
~  
→ z 2022  
  
2022etmoi on 🍷 prod is 📦 v0.0.1 via 🔴 v17.8.0  
→ pwd  
/Users/daparicio/code/github.com/2022etmoi/2022etmoi  
~  
→ z website  
  
website on 🍷 master [!?] via 🐙 v1.18 on 🔵 v20.10.13  
→ pwd  
/Users/daparicio/code/gitlab.com/davidaparicio/website
```



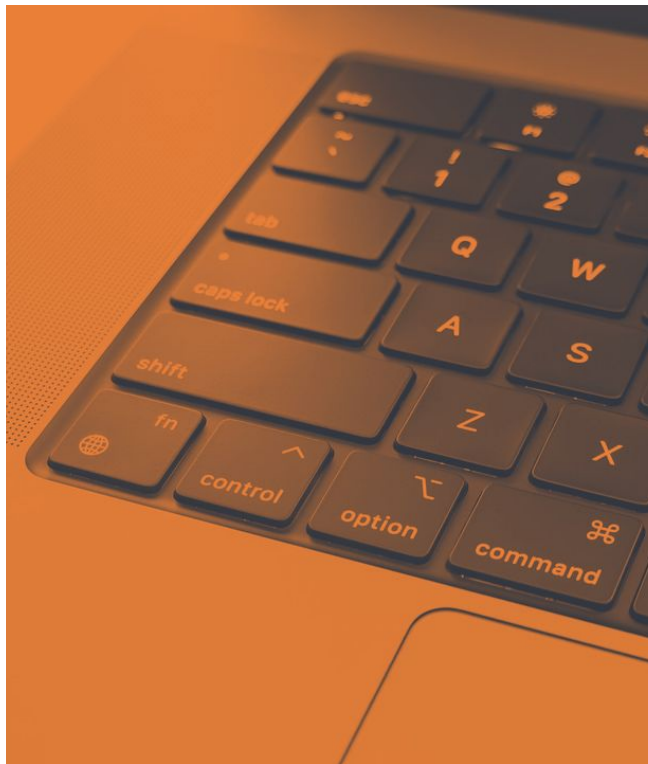
Vim ou Emacs ?



- Rust propose une liste prometteuse
- Lapce
- Ox
- Xi
- Kiro
- Bat (cat)
- Delta / Diftastic (diff)



Gestion de versions



- pyenv / conda
- nvm / volta



tldr / tealdeer

```
danilo@x2000:~$ tldr strace
```

Troubleshooting tool for tracing system calls.

Start tracing a specific process by its PID:

```
strace -p pid
```

Trace a process and filter output by system call:

```
strace -p pid -e system call name
```

Count time, calls, and errors for each system call and report a summary on program exit:

```
strace -p pid -c
```

Show the time spent in every system call:

```
strace -p pid -T
```

Start tracing a program by executing it:

```
strace program
```

Start tracing file operations of a program:

```
strace -e trace=file program
```

```
danilo@x2000:~$
```



navi

■



Problème réseau ? Une solution

```
main:6:zsh - "Yagzs-MacBook-Pro.local"
main 1 zsh 2 zsh 3 zsh 4 zsh 5 zsh 6 zsh Thu 2021-11-11 18:50 Yagzs-MacBook-Pro

→ ~ dstp https://cloudflare.com/
Ping: 14.282ms
DNS: resolving 104.16.132.229
SystemDNS: resolving 104.16.132.229, 104.16.133.229, 2606:4700::6810:84e5, 2606:4700::6810:85e5
TLS: certificate is valid for 204 more days
HTTPS: got 200 OK

→ ~ dstp 8.8.8.8
Ping: 42.874334ms
DNS: resolving 8.8.8.8
SystemDNS: resolving 8.8.8.8
TLS: certificate is valid for 60 more days
HTTPS: got 200 OK

→ ~ dstp https://jvns.ca
Ping: 69.652ms
DNS: resolving 172.67.179.90
SystemDNS: resolving 172.67.179.90, 104.21.91.206, 2606:4700:3033::6815:5bce, 2606:4700:3031::ac43:b35a
TLS: certificate is valid for 225 more days
HTTPS: got 200 OK

→ ~ █
```



Test spécifique: httpie

```
[~] http PUT httpbin.org/put hello=world
HTTP/1.1 200 OK
Access-Control-Allow-Credentials: true
Access-Control-Allow-Origin: *
Connection: keep-alive
Content-Length: 452
Content-Type: application/json
Date: Thu, 06 Dec 2018 15:43:38 GMT
Server: gunicorn/19.9.0
Via: 1.1 vegur
```

```
{
  "args": {},
  "data": "{\"hello\": \"world\"}",
  "files": {},
```

```
[~] http httpbin.org/status/418
HTTP/1.1 418 I'M A TEAPOT
Access-Control-Allow-Credentials: true
Access-Control-Allow-Origin: *
Connection: keep-alive
Content-Length: 135
Date: Thu, 06 Dec 2018 15:40:14 GMT
Server: gunicorn/19.9.0
Via: 1.1 vegur
X-More-Info: http://tools.ietf.org/html/rfc2324
```

```
--[ teapot ]--
```



Test spécifique: gRPCurl

```
Windows PowerShell
C:\> grpcurl -d '{ "name": "World" }' localhost:5001 greet.Greeter/SayHello
{
  "message": "Hello World"
}
C:\> █
```



Perfs: ab / hey / hyperfine

```
► hyperfine --warmup 3 'fd -e jpg -uu' 'find -iname "*.jpg"'
```



Logs: Inav / multitail / GoAccess

```

Thu Mar 20 23:01:23 PDT /private/tmp/demo/access_log: access_log LOG
192.0.2.33 - - [19/Mar/2014:14:37:17 +0000] "GET /features.html HTTP/1.1" 500 263049 "-" "Apache-HttpClient/4.2.3
192.0.2.55 - - [19/Mar/2014:14:37:17 +0000] "PUT /features.html HTTP/1.1" 200 422671 "-" "-"
192.0.2.33 - - [19/Mar/2014:14:37:18 +0000] "GET /index.html HTTP/1.1" 200 318902 "-" "-"
Mar 19 14:37:18 frontend3 server[121]: Received packet from 192.0.2.55
Mar 19 14:37:19 frontend3 server[123]: Received packet from 192.0.2.55
Mar 19 14:37:19 frontend3 server[123]: Handling request 9efcf643-ac89-4125-a69d-ec3203047a19
192.0.2.33 - - [19/Mar/2014:14:37:19 +0000] "PUT /index.html HTTP/1.0" 200 871988 "-" "-"
192.0.2.55 - - [19/Mar/2014:14:37:20 +0000] "GET /index.html HTTP/1.0" 200 400613 "-" "-"
192.0.2.55 - - [19/Mar/2014:14:37:21 +0000] "GET /obj/1235?foo=bar HTTP/1.0" 200 841360 "-" "Apache-HttpClient/4.
Mar 19 14:37:21 frontend3 worker[61456]: Handling request 9efcf643-ac89-4125-a69d-ec3203047a19
Mar 19 14:37:22 frontend3 worker[61456]: Successfully started helper
192.0.2.33 - - [19/Mar/2014:14:37:22 +0000] "PUT /index.html HTTP/1.0" 200 944322 "-" "Apache-HttpClient/4.2.3 (j
Mar 19 14:37:23 frontend3 worker[61456]: Received packet from 192.0.2.55
Mar 19 14:37:23 frontend3 server[123]: Handling request 9efcf643-ac89-4125-a69d-ec3203047a19
Mar 19 14:37:24 frontend3 server[124]: Received packet from 192.0.2.55
Mar 19 14:37:24 frontend3 worker[61456]: Handling request 70430eff-159e-4818-a0e7-f21a7d4ad892
Mar 19 14:37:25 frontend3 server[121]: Handling request 9ed6455c-0edf-4623-b3bc-5f65ce81825f
192.0.2.55 - bob@example.com [19/Mar/2014:14:37:25 +0000] "GET /images/compass.jpg HTTP/1.0" 200 4509 "-" "-"
192.0.2.55 - - [19/Mar/2014:14:37:25 +0000] "GET /obj/1235?foo=bar HTTP/1.1" 200 420858 "-" "Apache-HttpClient/4.
192.0.2.33 - - [19/Mar/2014:14:37:26 +0000] "PUT /features.html HTTP/1.1" 500 741005 "-" "-"
Mar 19 14:37:27 frontend3 worker[61456]: Successfully started helper
Mar 19 14:37:27 frontend3 server[123]: Received packet from 192.0.2.55
Mar 19 14:37:27 frontend3 server[121]: Handling request 70430eff-159e-4818-a0e7-f21a7d4ad892
192.0.2.55 - - [19/Mar/2014:14:37:28 +0000] "GET /index.html HTTP/1.0" 200 299909 "-" "Apache-HttpClient/4.2.3 (j
192.0.2.55 - - [19/Mar/2014:14:37:28 +0000] "GET /index.html HTTP/1.0" 200 731434 "http://inav.org/download.html"
Mar 19 14:37:29 frontend3 worker[61456]: Reading from device: /dev/hda
192.0.2.55 - bob@example.com [19/Mar/2014:14:37:30 +0000] "GET /obj/1234 HTTP/1.0" 200 763899 "-" "-"
192.0.2.55 - - [19/Mar/2014:14:37:30 +0000] "GET /obj/1236?search=demo&start=1 HTTP/1.0" 200 1014909 "-" "-"
Mar 19 14:37:31 frontend3 server[124]: Reading from device: /dev/hda
192.0.2.55 - - [19/Mar/2014:14:37:31 +0000] "GET /images/compass.jpg HTTP/1.0" 200 60044 "-" "-"
Mar 19 14:37:32 frontend3 server[121]: Received packet from 192.0.2.55
Mar 19 14:37:32 frontend3 worker[61457]: Reading from device: /dev/hda

L69 56% 9 hits ?::View Help
search: 70430eff-159e-4818-a0e7-f21a7d4ad892 Press n/N to move forward/backward through search results

```



vd: VisiData

name	<county	job title	grade #	bas	Complaint Type	count #	percent %	histogram
ALVAREZ, JUAN M	FRESNO	GENERAL EDUCATION ...	12		HEAT/HOT WATER	10207	0.46	*****
BOYD, CLAUDE A	DISTRICT OF COLUMB...	OFC AUTOMATION CLE...	4		Animal in a Park	54	0.00	
BRITT, ROBERT E	DISTRICT OF COLUMB...	MISCELLANEOUS CLER...	5		PAINT/PLASTER	2664	0.12	*****
CASTRO, JESSICA	DISTRICT OF COLUMB...	ADMIN AND OFFICE S...	7		Sanitation Condi...	1030	0.05	****
CHASTANG, LINDA EAR...	DISTRICT OF COLUMB...	MISCELLANEOUS ADMI...	14		Other Enforcement	293	0.01	*
CHAVEZ, CHRISTINE	DISTRICT OF COLUMB...	MISCELLANEOUS ADMI...	13		Street Light Condi...	4326	0.19	*****
CLIFFORD, CAROL L	DISTRICT OF COLUMB...	MISCELLANEOUS ADMI...	0		PLUMBING	2200	0.10	*****
CORTEZ, SANDRA A	DISTRICT OF COLUMB...	GENERAL EDUCATION ...	13		Noise - Commercial	2456	0.11	*****
DE LA GARZA, RUBY S	HIDALGO	GENERAL EDUCATION ...	12		Noise - Residential	9163	0.40	*****
DIAZ, VLADIMIR A	MIAMI-DADE	GENERAL EDUCATION ...	12		Noise - Street/Sid...	1778	0.08	*****
DOUGLAS, WALTER W	LEXINGTON	MISCELLANEOUS ADMI...	14		Water System	2335	0.11	*****
FLORES, MARILOU	DISTRICT OF COLUMB...	MISCELLANEOUS ADMI...	12		Graffiti	423	0.02	**
GARDNER, KURT J	MADISON	MISCELLANEOUS ADMI...	13		Noise - Vehicle	844	0.04	***
GOLDBERG, MARIA	DISTRICT OF COLUMB...	MISCELLANEOUS ADMI...	15		Maintenance or Fac...	332	0.01	*
GONZALEZ, ROBERTO JR	IMPERIAL	GENERAL EDUCATION ...	12		General Constructi...	1343	0.06	*****
GUY, DWIGHT N	LOGAN	MISCELLANEOUS ADMI...	13		Drinking	64	0.00	
HARTSFIELD, LARRY D	GUILFORD	MISCELLANEOUS ADMI...	13		DOOR/WINDOW	1655	0.07	*****
HODGE, HORACE D	WALLER	MISCELLANEOUS ADMI...	12		Homeless Person As...	1879	0.08	*****
JAMES, KRISTEN	DISTRICT OF COLUMB...	MISCELLANEOUS CLER...	4		Dirty Conditions	1446	0.06	*****
JOHNSON, ALLISON C	EAST BATON ROUGE	MISCELLANEOUS ADMI...	13		Blocked Driveway	4910	0.22	*****
KOZISKI, STEPHANIE ...	DISTRICT OF COLUMB...	MANAGEMENT AND PRO...	13		Animal Abuse	397	0.02	*
MARTIN, KARLA A	DISTRICT OF COLUMB...	MISCELLANEOUS ADMI...	14		Lead	1934	0.09	*****
MC LAREN, ANTONIO A	PETERSBURG	MISCELLANEOUS ADMI...	13					
MILLER, PIA M	DISTRICT OF COLUMB...	GENERAL BUSINESS A...	12					

FederalEmployeeSalaries-2012|

311_Service_Requests_from_2010_to_Present_Complaint F

180 4% grouping



Une typo = Une solution

```
nvbn@nvbn-desktop: ~/exp/thefuck 76x18
→ thefuck git:(master) X
```



Un accès SSH, pensez MOSH

```
[mosh]
mosh: Last contact 10 seconds ago. [To quit: Ctrl-^ .]
Mosh Web site ideas
* What should it look like?
** Ideas
*** Boring free software Web site...
*** Old-timey newspaper: "Amazing remote shell program sweeps nation!!!"
*** Make it look like a fake startup company. <-- Let's go with this.
* Benefits of Mosh
** Roam across Wi-Fi networks or to cell without dropping connection.
** More pleasant to type -- intelligent local echo is instant.
** No need to be superuser to install.
** Mosh doesn't fill up buffers, so Ctrl-C works quickly on runaways.
** Designed from scratch for Unicode; fixes bugs in SSH, other terminals.
** Free / open-source software.
-UU-+*-F1 All L19 (Org)-----
```

- En remote ou en voyage
- Connexion intermittente (3G/4G/Wifi)
- Persistence durant les changements



Alias Bash

```
alias cat="bat -pp" #less: --style=grid
alias ls="exa"
alias cd="z" #eval "$(zoxide init zsh)"
alias du="dust"
alias grep="ripgrep"
alias ps="procs"
alias find="fd" #fselect
alias sed="sd"
alias top="gotop" #"ytop"
alias sysup='brew update && \
brew upgrade; brew cleanup'
```



Alias Bash (cont.)

```
→ ls -larth
exa: Option --time (-t) has no "h" setting (choices: modif

~

→ cat test.sh
ls -larth

~

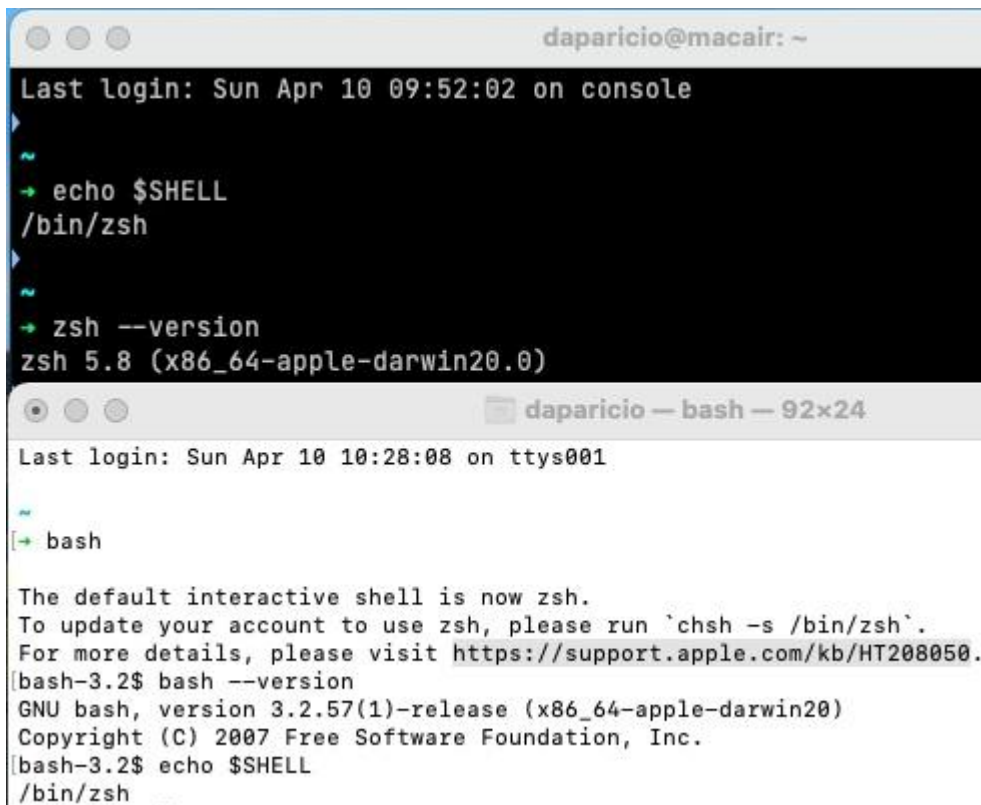
→ ./test.sh
total 1216
drwxr-xr-x  5 root      admin   160B Jan  1  2020 ..
drwxr-xr-x+ 4 daparicio staff   128B Nov 13  2020 Public
```



Astuces



Gardez un bash sous la main



```
daparicio@macair: ~  
Last login: Sun Apr 10 09:52:02 on console  
~  
→ echo $SHELL  
/bin/zsh  
~  
→ zsh --version  
zsh 5.8 (x86_64-apple-darwin20.0)  
  
daparicio — bash — 92x24  
Last login: Sun Apr 10 10:28:08 on ttys001  
~  
[→ bash  
  
The default interactive shell is now zsh.  
To update your account to use zsh, please run `chsh -s /bin/zsh`.  
For more details, please visit https://support.apple.com/kb/HT208050.  
[bash-3.2$ bash --version  
GNU bash, version 3.2.57(1)-release (x86_64-apple-darwin20)  
Copyright (C) 2007 Free Software Foundation, Inc.  
[bash-3.2$ echo $SHELL  
/bin/zsh _
```

- Afin de tester, au préalable, vos scripts de déploiement, de configuration, sur une nouvelle infra
- Bash récent ≥ 4.2 (Février 2011)
- Et un coup d'oeil à la lib "ammlib"

```
PS4='(${BASH_SOURCE##*/}:$LINENO  
${FUNCNAME[0]:-main})'
```



Assemblez vos commandes

```
curl -s  
https://presidentielle2022.conseil-constitutionnel.fr/telechargement/parrainagestotal.json | jq -r -s '[] | group_by(.Candidat) | map({"Candidat·e": .[0].Candidat, Nombre: length}) | sort_by(.Nombre) | .[]'
```

```
{  
  "Candidat·e": "HIDALGO Anne",  
  "Nombre": 1440  
}  
{  
  "Candidat·e": "MACRON Emmanuel",  
  "Nombre": 2098  
}
```

Composez vos commandes

```
du -x --max-depth=1 | sort -rn | awk -F / -v c=$COLUMNS  
'NR==1{t=$1} NR>1{r=int($1/t*c+.5); b="\033[1;31m"; for (i=0; i<r;  
i++) b=b"#"; printf " %5.2f%% %s\033[0m %s\n", $1/t*100, b,  
$2}' | tac
```

```
pi@raspberrypi:/# du -x --max-depth=1 | sort -rn | awk -F / -v c=$COLUMNS 'NR==1{t=$1} NR>1{r=int($1/t*c+.5); b="\033[1;31m"; for (i=0; i<r; i++) b=b"#";  
printf " %5.2f%% %s\033[0m %s\n", $1/t*100, b, $2}' | tac  
0.00% media  
0.00% mnt  
0.00% srv  
0.00% lost+found  
0.14% tmp  
0.26% etc  
0.51% # root  
2.51% ### opt  
4.42% ##### boot  
17.40% ##### home  
29.50% ##### var  
45.26% ##### usr
```

Parlez-vous aux inconnus ?

Alors pourquoi acceptez-vous de faire :

```
curl -s <randomURL> | sudo bash
```



Sauvegardez vos .dotfiles

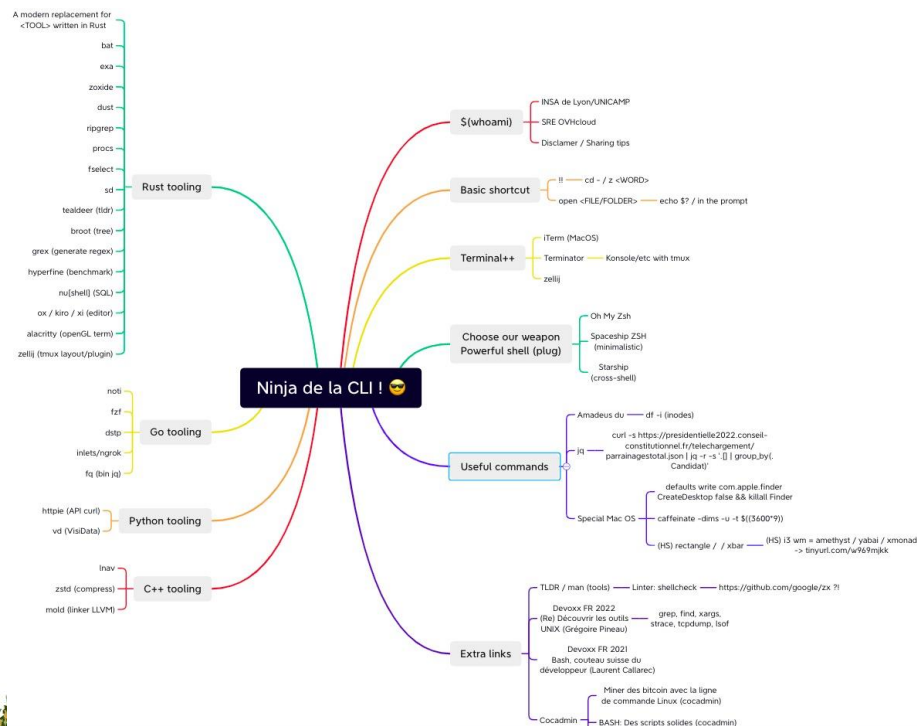
(aka vos fichiers de configurations)

```
vcsh init vim
vcsh vim add ~/.vimrc ~/.vim
vcsh vim commit -m 'Initial commit of my Vim configuration'
# optionally push your files to a remote
vcsh vim remote add origin <remote>
vcsh vim push -u origin master
# from now on you can push additional commits like this
vcsh vim push
# If all that looks a lot like standard git,
# that's no coincidence; it's a design feature.
```

Conclusion



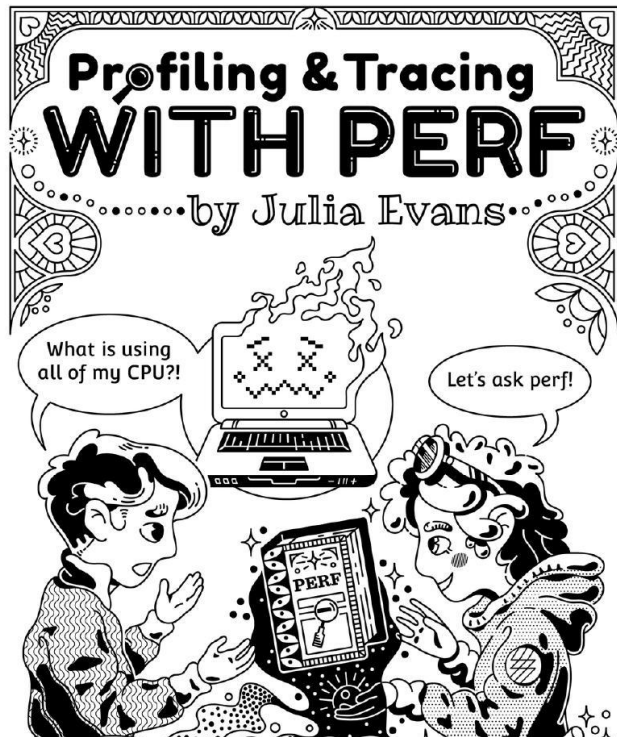
La méga-liste



Mindmap

Pour aller plus loin

- Outils installables via homebrew / chocolatey / apt / yum...
- ShellCheck (linter)
- Devovx FR 2021: Bash, couteau suisse du développeur (Laurent Callarec)
- Cocadmin: tmux, 10 astuces CLI
- Les zines de Julia Evans
- Understanding X in a visual way, de Aurélie Vache
- Rewritten in Rust: Modern Alternatives of Command-Line Tools (zaiste.net)



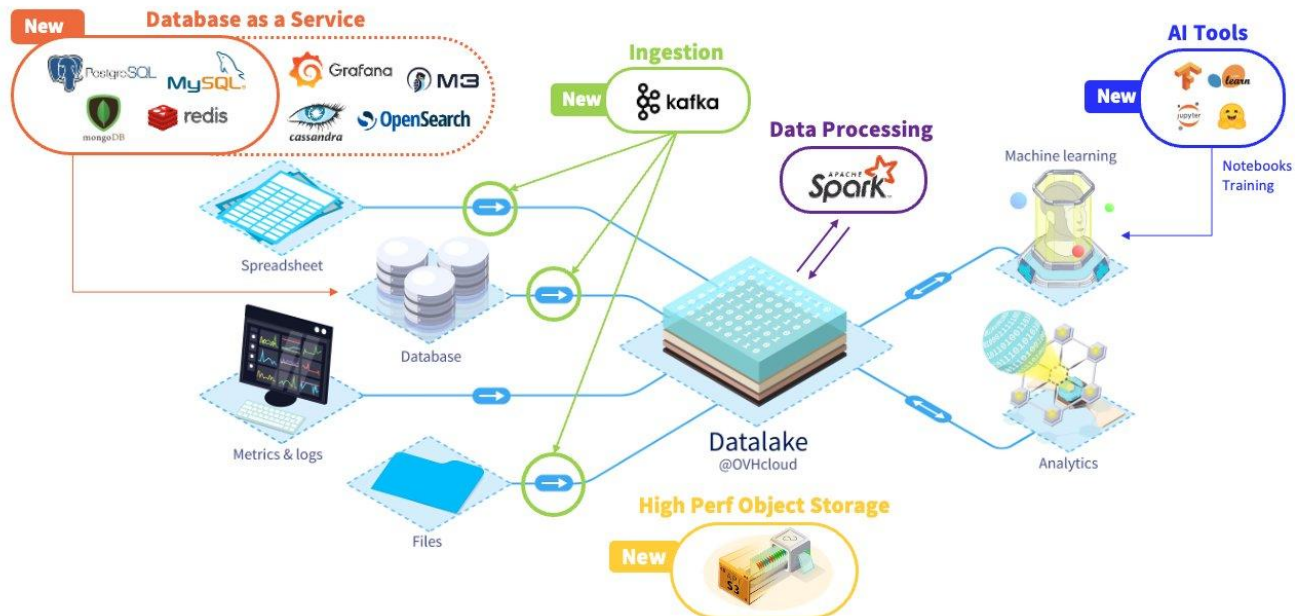
David Aparicio (@dadideo)



- 2015 INSA de Lyon / UNICAMP
- Facebook Open Academy / MIT AppInventor
- 2017 Dev(Sec)Ops @ AMADEUS (Nice, 2 ans)
- 2019 Data(Sec)Ops @ OVHcloud (Lyon, 3 ans)



GIS-DATA



careers.ovhcloud.com

Voulez-vous travailler avec David ?



Voici 3 offres dans l'équipe GIS :



IT Technical Leader



Développeur Python



Manager
Database Opensource



careers.ovhcloud.com



Merci

Slides disponibles sur mon site

J'ai besoin de vos retours

<https://s.42l.fr/devovxcli>

