

git & devops

phil

whoami

phil

experience with git: 5 years

experience with devops: a little

the internet is your best friend when you don't have an answer

slides: <https://x4m3.rocks/talks/git-devops.pdf>



on today's program

- git
- devops

wtf is git?

scm: source control management

- bazaar (ubuntu)
- cvs (netbsd, openbsd)
- git (linux kernel, a billion projects)
- mercurial (mozilla, facebook)
- apache subversion (webkit)

git history

created by Linus Torvalds to maintain the kernel in april 2005 (**15 years ago!**)

- fast
- distributed (not centralized)
- no corruptions

2 weeks to get something working

1 month later: kernel 2.6.12 released with git

<https://github.com/git/git/tree/e83c5163316f89bfbdde7d9ab23ca2e25604af290>

Git Source Code Mirror - This is a publish-only repository and all pull requests are ignored. Please follow Documentation/SubmittingPatches procedure for any of your improvements.

c shell

1 commit

5 branches

0 packages

768 releases

1,356 contributors

View license

Tree: e83c516331 ▾

New pull request

Create new file

Upload files

Find file

Clone or download ▾



Linus Torvalds Initial revision of "git", the information manager from hell

234

Latest commit e83c516 on Apr 8, 2005



Makefile

Initial revision of "git", the information manager from hell

15 years ago



README

Initial revision of "git", the information manager from hell

15 years ago



cache.h

Initial revision of "git", the information manager from hell

15 years ago



cat-file.c

Initial revision of "git", the information manager from hell

15 years ago



commit-tree.c

Initial revision of "git", the information manager from hell

15 years ago



init-db.c

Initial revision of "git", the information manager from hell

15 years ago



read-cache.c

Initial revision of "git", the information manager from hell

15 years ago



read-tree.c

Initial revision of "git", the information manager from hell

15 years ago



show-diff.c

Initial revision of "git", the information manager from hell

15 years ago



update-cache.c

Initial revision of "git", the information manager from hell

15 years ago



write-tree.c

Initial revision of "git", the information manager from hell

15 years ago

README

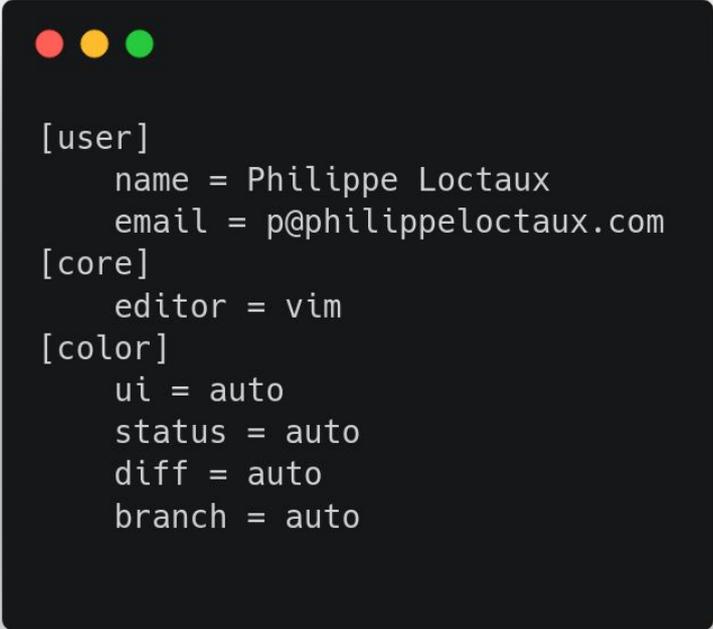
GIT - the stupid content tracker

"git" can mean anything, depending on your mood.

- random three-letter combination that is pronounceable, and not actually used by any common UNIX command. The fact that it is a mispronunciation of "get" may or may not be relevant.
- stupid, contemptible and despicable. simple. Take your pick from the dictionary of slang.
- "global information tracker": you're in a good mood, and it actually works for you. Angels sing, and a light suddenly fills the room.
- "goddamn idiotic truckload of sh*t": when it breaks

git config

~/.gitconfig

A terminal window with a dark background and three colored window control buttons (red, yellow, green) at the top left. The text inside the terminal is a git configuration file.

```
[user]
  name = Philippe Loctaux
  email = p@philippeloctaux.com
[core]
  editor = vim
[color]
  ui = auto
  status = auto
  diff = auto
  branch = auto
```

gui > cli

- gitg 👍
- gitkraken
- gitk
- github desktop
- vscode
- jetbrains

gui is bad for you

gui < cli

you learn by doing it manually

once you are comfortable with cli, move on with gui

git commit

commits help you **keep track** of your work

regular and **small** commits are important to see what you've done

with a nice message you know what you did

useful if you need to go back in time to fix a nasty bug

git commit message

first line: single short summary of the change

second line: blank

rest: description of the change, explain why you did that



```
commit 61e651f9adf9d5b3d87af5d2a8e28f0c0341bfb2
Author: Philippe Loctaux <p@philippeloctaux.com>
Date: Sun Apr 12 11:34:22 2020 +0200
```

```
fix getting multiple static files (#19)
```

```
when a static file is loaded, the function exists,
meaning that nothing else can be loaded
```

```
instead continue to the next request instead of exiting
```

```
diff --git a/src/mod.ts b/src/mod.ts
index 4846dce..e961591 100644
--- a/src/mod.ts
+++ b/src/mod.ts
@@ -125,7 +125,7 @@ export class App {
    // try getting static file
    if (await this.getStaticFile(req, res)) {
      await req.respond(res);
-     return;
+     continue;
    }

    // try respond for OPTIONS request, TODO: allowed method
```

git commit commands

```
git commit
```

```
git commit file1 file2
```

```
git commit m <msg>
```

```
git commit --amend --no-edit
```

git back in time

```
git checkout <sha>
```

```
git reset HEAD^
```

```
git reset HEAD^ --hard
```

<https://github.blog/2015-06-08-how-to-undo-almost-anything-with-git/>

git branch

```
git branch
```

```
git branch my-feature
```

```
git branch -D my-feature
```

```
git merge my-feature
```

```
git branch -d my-feature
```

<https://learngitbranching.js.org/>

git diff

```
git diff
```

```
git diff master..my-feature
```

```
git diff sha..sha
```

```
git diff --staged
```

git stash

```
git stash
```

```
git stash pop
```

```
git stash list
```

```
git stash apply
```

```
git stash drop
```

git log

```
git log
```

```
git show sha
```

```
git blame path/to/file
```

git pretty log

<https://raw.githubusercontent.com/x4m3/point/master/git/gitconfig>

```
[pretty]
  custom = "%C(magenta)%h %C(red)(%an) %C(yellow)%ar %C(green)%s %Creset%d"
  #
  #
  #
  #
  #
  #
[alias]
  l = log --graph --pretty=custom
```

git more

<https://ohshitgit.com/>

<https://git-scm.com/book/en/v2>

if it breaks `rm -rf` and start again

`man git`

on today's program

- — git
- **devops**

wtf is devops?

software development (**dev**) + information technology operations (**ops**)

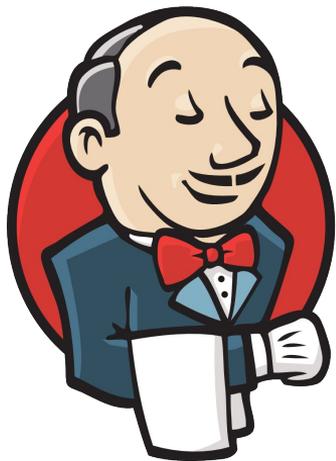
1. **coding**
2. **building**
3. **testing**
4. packaging
5. releasing
6. configuring
7. monitoring

wtf is ci/cd?

Continuous Integration: make sure it builds and passes the tests

Continuous Delivery: publish easily

continuous integration



GitHub



Travis CI



GitHub actions

free for open source, 2000 minutes for free accounts

3000 minutes for pro accounts (free for epitech students)

actions triggered by events (push on branch, pull request, etc)

works with nodejs, python, c, c++, java, php, rust, android, ios, etc

feedback on builds

updated window resolution: aligning with the interface

master 5c74b30

C++ build / build
succeeded 29 days ago in 38s

- Set up job
- Run actions/checkout@v2
- Install libraries
- make
 - Run make
 - CXX c++
 - CXXFLAGS -Wall -Wextra -I./core -I./games -I./lib -std=c++11
 - CXXFLAGS_LIB -Wall -Wextra -I./core -I./games -I./lib -std=c++11 -fpic
 - LDFLAGS -ldl
 - LDFLAGS_SFML -lsfml-graphics -lsfml-window -lsfml-system
 - LDFLAGS_SDL2 -lSDL2 -lSDL2_ttf
 - LDFLAGS_NCURSES -lncurses
 - CXX core/main.cpp
 - CXX core/Exception/exception.cpp
 - CXX core/Parser/Parser.cpp
 - CXX core/libloader/libloader.cpp
 - core/libloader/libloader.cpp: In member function 'void arcade::libloader::close()':
 - core/libloader/libloader.cpp:33:12: warning: deleting object of abstract class type 'GameModule' which has delete game;
 - EXIT_FAILURE;
 - BUILD arcade
 - CXX lib/SFML/SFML.cpp
 - lib/SFML/SFML.cpp: In constructor 'SFML::SFML()':
 - lib/SFML/SFML.cpp:20:21: warning: statement has no effect [-Wunused-value]
 - EXIT_FAILURE;
 - BUILD lib/lib_arcade_sfml.so
 - CXX lib/SDL2/SDL2.cpp
 - CXX lib/SDL2/menu.cpp
 - BUILD lib/lib_arcade_sdl2.so
 - CXX lib/ncurses/ncurses.cpp
 - BUILD lib/lib_arcade_ncurses.so
- Post actions/checkout@v2
- Complete job

[x4m3/arcade] Run failed: C++ build - master (a2807ec)



Philippe Loctaux notifications@github.com

2 recipients: x4m3/arcade Cc: CI activity

Run failed for master (a2807ec)

Repository: x4m3/arcade

Workflow: C++ build

Duration: 4 minutes and 22.0 seconds

Finished: 2020-04-01 09:00:14 UTC

[View results](#)

Jobs:

- ca395085-040a-526b-2ce8-bdc85f692774 failed (1 annotation)

You are receiving this because this workflow ran on your branch.

Manage your GitHub Actions notifications [here](#).



Click here to Reply, Reply to all or Forward

get actions

GitHub Marketplace

<https://github.com/marketplace?type=actions>

<https://github.com/sdras/awesome-actions>

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An entirely new way to automate your development workflow.

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Assignee to reviewer

By abinoda

Automatically create review requests based on assignees

116 stars



Automatic Revert

By srt32

Automatically revert a commit on '/revert' comment

86 stars



ClearlyNoticed Action

By dabutvin

Maintain a NOTICE file based on your package-lock.json

14 stars



Hugo Actions

By srt32

Commands to help with building Hugo based sites

56 stars



Node App Helper Actions

By guahanweb

Provides some helper scripts to aid in basic Node.js app delivery

29 stars



Publish to Rubygems

By cadwallion

Build and publish your gem to Rubygems

23 stars



Python Style Checker

By andymckay

Run PyCodeStyle on your Python

41 stars



Rubocop checks

By gimenete

Lint your Ruby code in parallel to your builds

68 stars



Release Notifier Action

By bitoiu

Notifies developers on release with release notes via e-mail

64 stars



Snyk CLI Action

By clarkio

Run the Snyk CLI

20 stars



Actions for Discord

By Ilshidur

Outputs a message to Discord

103 stars



Bump Git Submodules

By domdere

Bump git submodules on '/submodules' comment

28 stars

what can you do?

- compile code
- multiple architectures
- different operating systems
- coding style
- unit tests
- code statistics
- security tests
- package application
- deploy to production
- push to another repo

example of workflow

1. compile code
2. check for epitech coding style
3. run unit tests
4. if everything passes push to **git.epitech.eu**
5. send message to discord / telegram / teams

let's go custom

`.yml` or `.yaml` files in `.github/workflows`

<https://help.github.com/en/actions/reference/workflow-syntax-for-github-actions>

git remote

```
git remote add github git@github.com:x4m3/repo.git
```

```
vim .git/config
```

example of workflow

```
name: Rust

on:
  push:
    branches: [ master ]
  pull_request:
    branches: [ master ]

jobs:
  build:

    runs-on: ubuntu-latest

    steps:
    - uses: actions/checkout@v2
    - name: Build
      run: cargo build
```

let's go

1. compile code
2. check for epitech coding style
3. run unit tests
4. if everything passes push to **git.epitech.eu**
5. send message to discord / telegram / teams

thanks

<https://x4m3.rocks/talks/git-devops.pdf>