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/e83c5163316f89bfbde7d9ab23ca2e25604af290

git / git

Stop ignoring 2.2k | Unstar 32.3k | Fork 18.8k

Code | Pull requests 27 | Actions | Security 11 | Insights

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

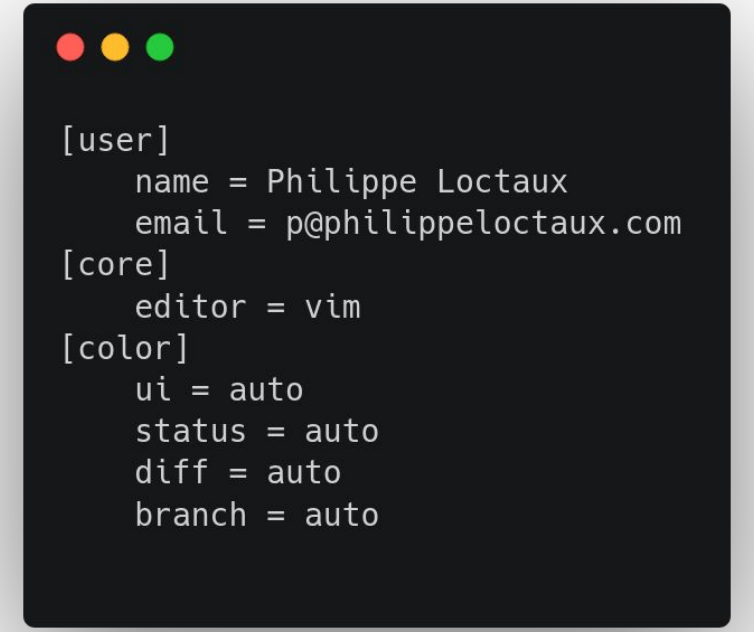
```
        GIT - the stupid content tracker

"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
   mispronounciation 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



```
[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

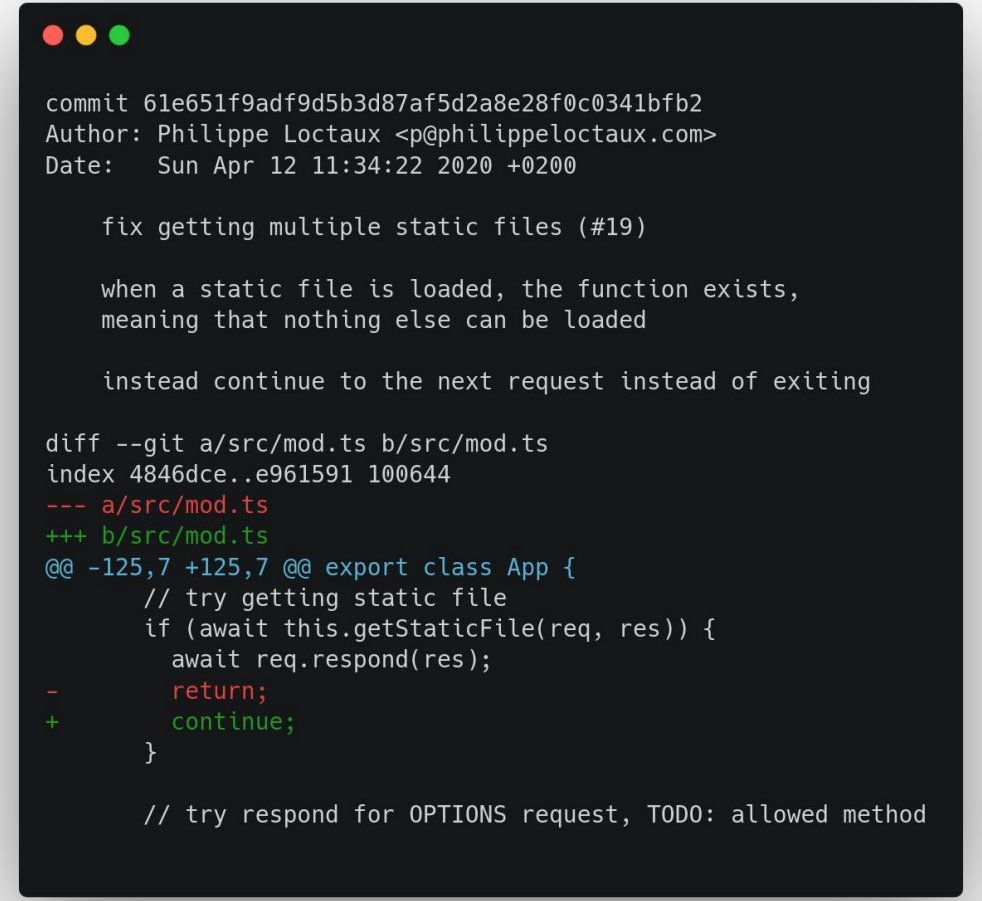
useful if you need to go back in time to fix a nasty bug

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

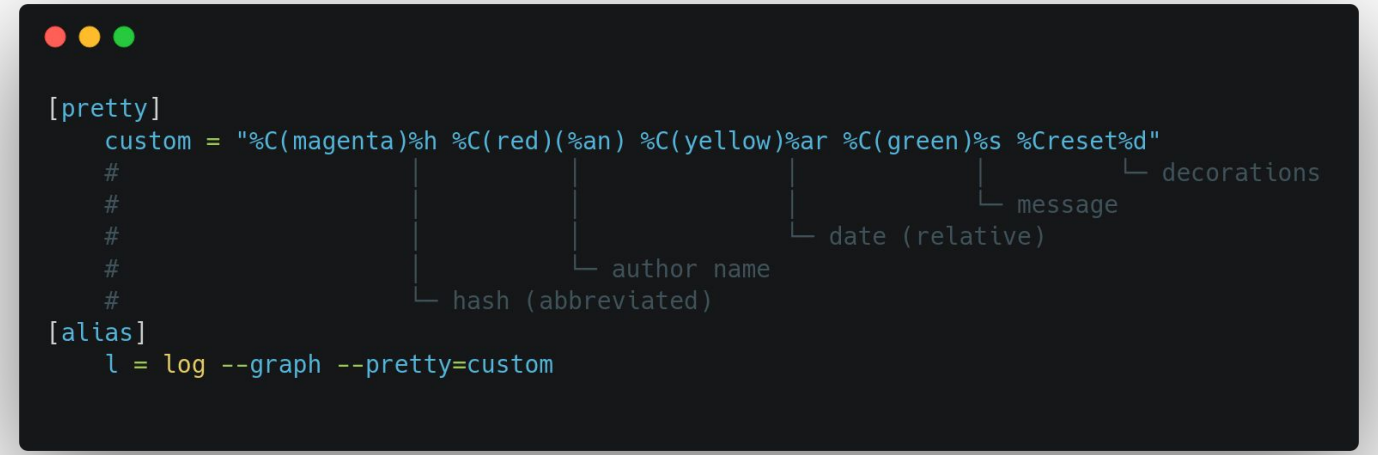
```
git stash
git stash pop
git stash list
git stash apply
git stash drop
```

git log

```
git log
git show sha
git blame path/to/file
```

git pretty log

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



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

GitLab

GitHub

Travis CI

circleci

GitHub actions

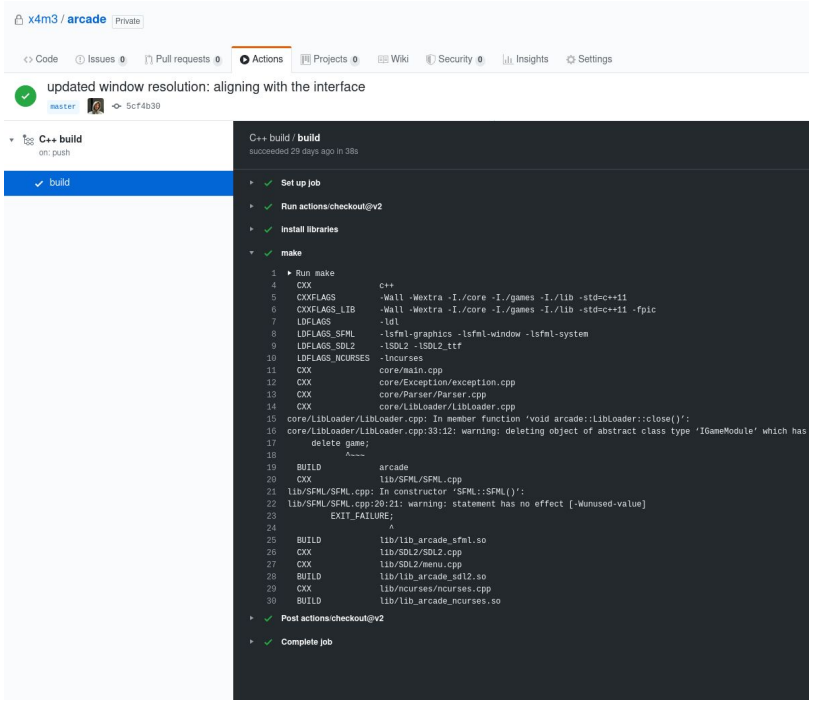
free for open source, 2000 minutes for free accounts

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



[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.

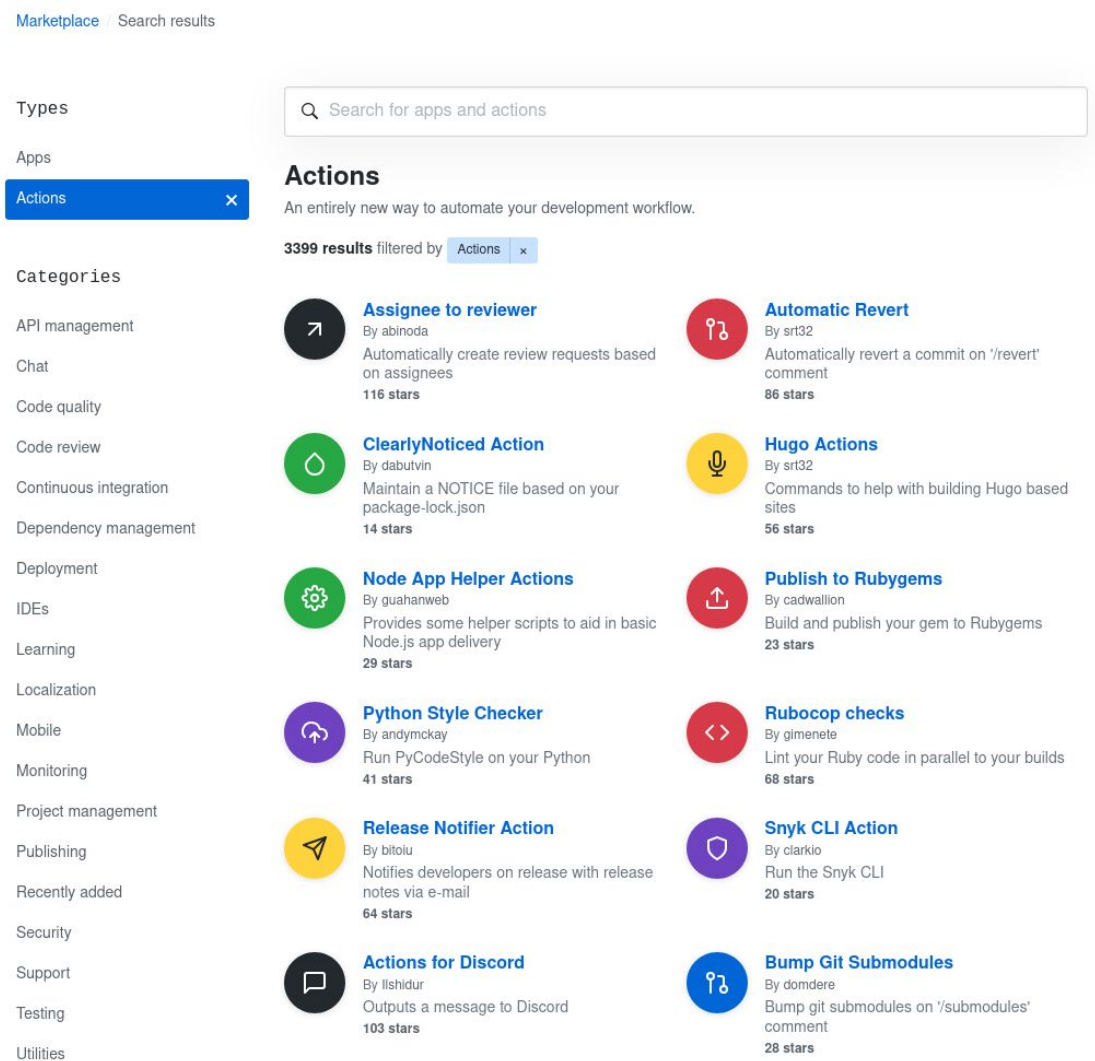
Click here to Reply, Reply to all or Forward

get actions

GitHub Marketplace

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

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



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`

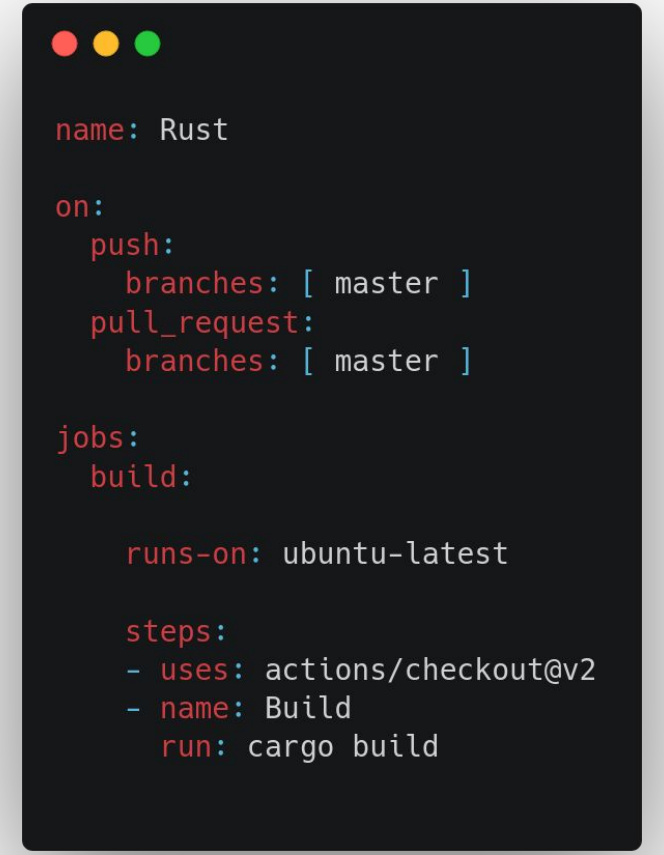
https://help.github.com/en/actions/reference/workflow-syntax-for-github-actions

git remote

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

vim .git/config
```

example of workflow



```yaml
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
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thanks

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