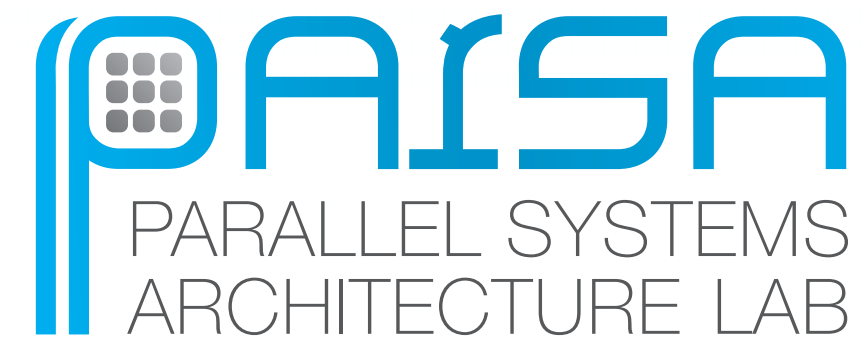


EPFL



Do you really know git?

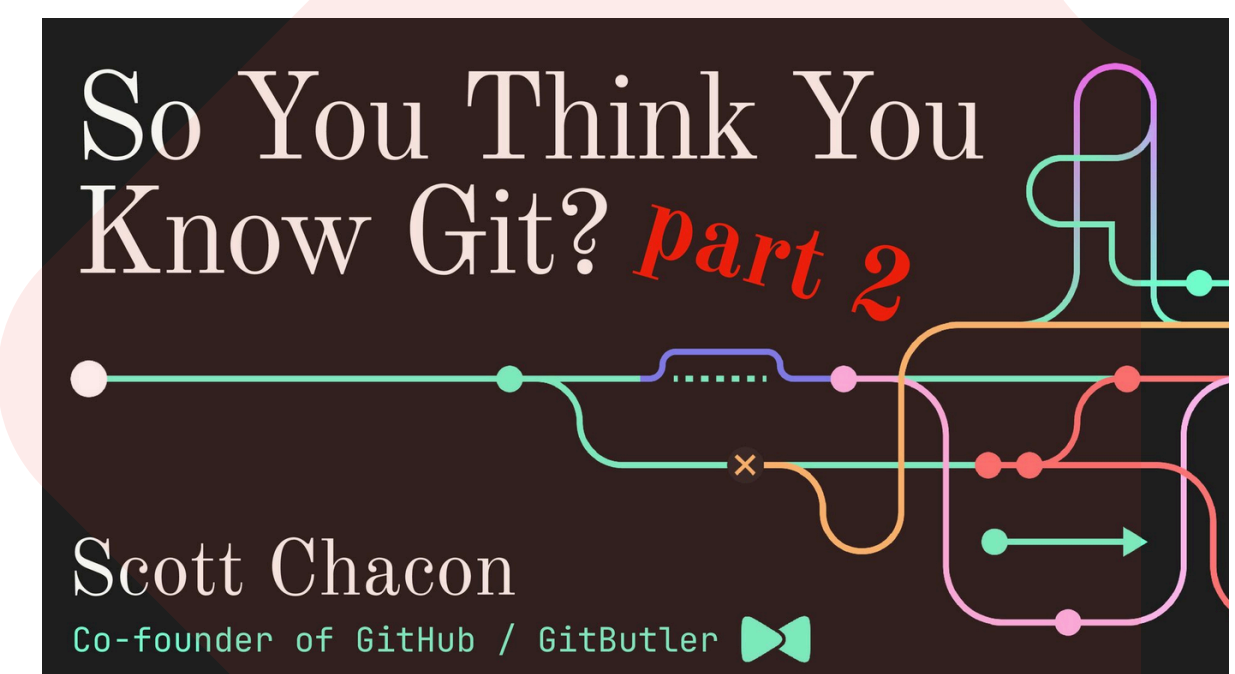
RSE lightning talk

Bryan Perdrizat - July 2024

Acknowledgement

Acknowledgement

- Watch **Scott Chacon** talks about git



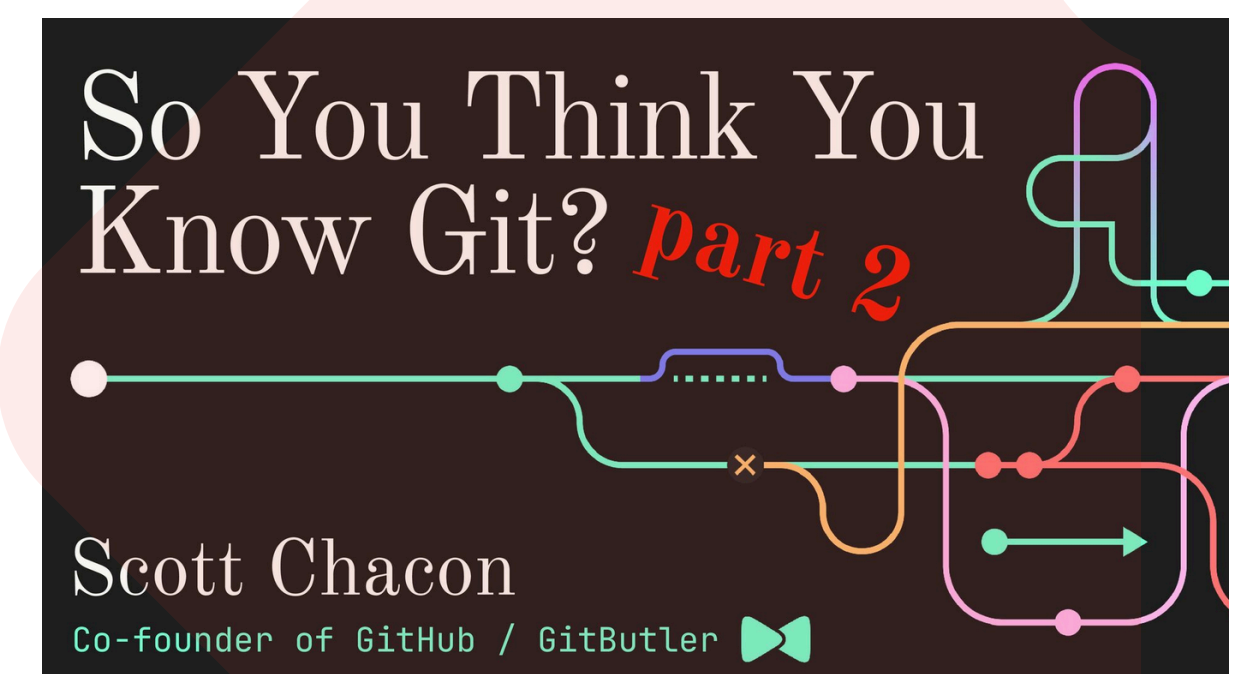
Acknowledgement

- Watch **Scott Chacon** talks about git
- My take at git for RSE environment



Acknowledgement

- Watch **Scott Chacon** talks about git
- My take at git for RSE environment
- Lots of tips, tricks, commands, or configuration



Wassup git ?

- Still actively developed
- 137 commits last month >> ~23'000 lines added
- 10k commits over the last 3 years
- Are you up to date ?

Agenda

- TUI
- configuration
- diff & log
- switch & restore
- reflog
- worktree

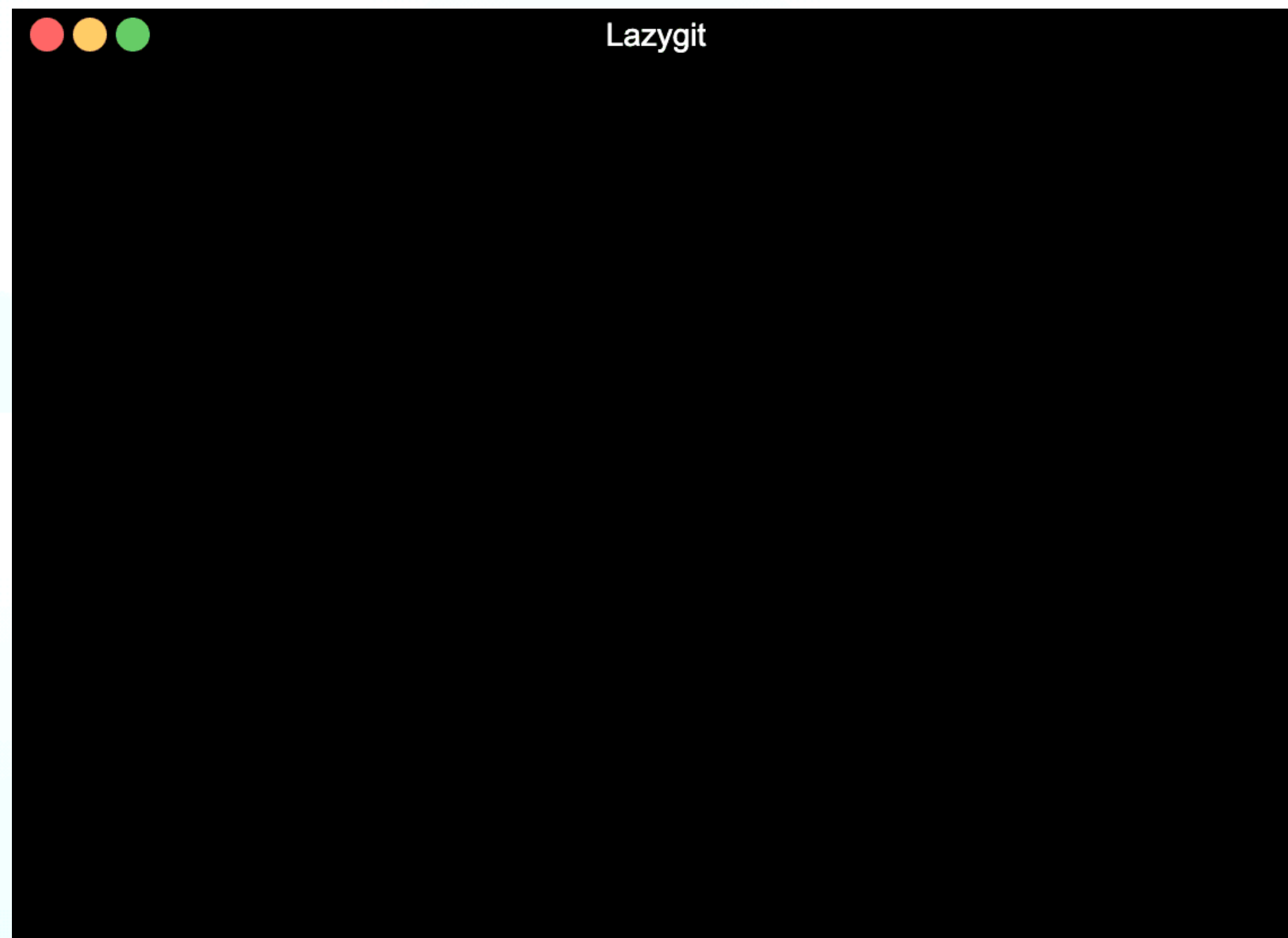
TUI

Git CLI on steroids

TUI

Git CLI on steroids

Lazygit

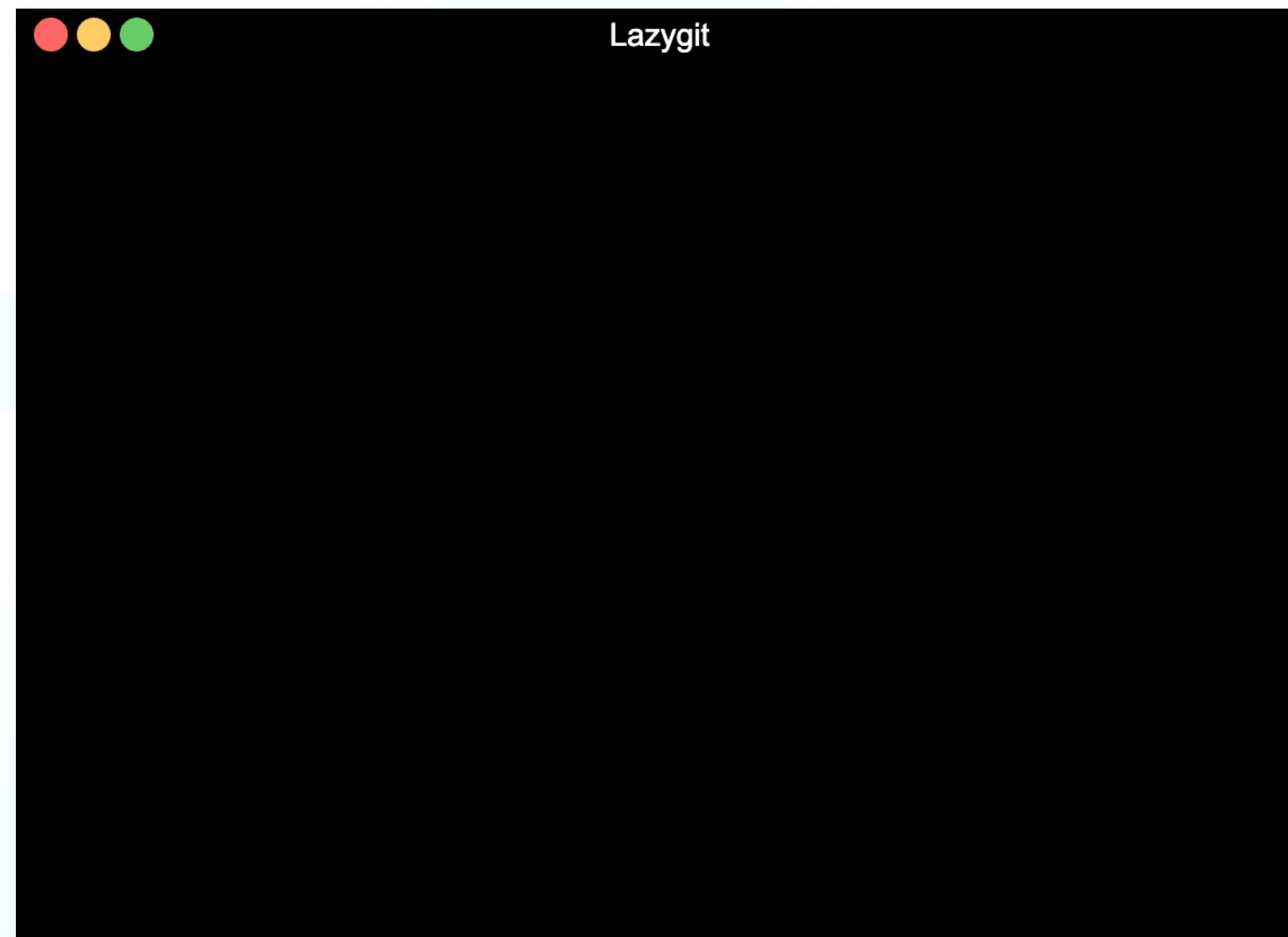


<https://github.com/jesseduffield/lazygit>

TUI

Git CLI on steroids

Lazygit



<https://github.com/jesseduffield/lazygit>

Git Delta

```
static sds cliReadLine(int fd) {  
135 :135  
136 :136     while(1) {  
137 :137         char c;  
138 :138         ssize_t ret;  
138 :139  
139 :139         if (read(fd,&c,1) == -1) {  
140 :140             ret = read(fd,&c,1);  
141 :141             if (ret == -1) {  
140 :142                 sdsfree(line);  
141 :143                 return NULL;  
142 :142             } else if (c == '\n') {  
143 :145                 break;  
144 :146             } else {  
145 :147                 line = sdscatlen(line,&c,1);  
146 :146  
147 :147     }  
148 :148  
149 :149     }  
150 :150  
151 :151     return line;  
152 :152  
153 :153 }
```

<https://github.com/dandavison/delta>

Configuration

Conditional Config

```
File: .gitconfig
1 [user]
2     name = Bryan Perdrizat
3     email = bryan.perdrizat@gmail.com
4
5     [includeIf "gitdir:PARSA/"]
6         path = ~/.gitconfig-epfl
```

Configuration

Conditional Config

```
brany@branytaftosh in ~/Documents  
22:44:42
```

```
λ git config user.email  
bryan.perdrizat@gmail.com
```

```
brany@branytaftosh in ~/Documents  
22:44:44  
λ cd PARSA/qflex-bryan/
```

```
brany@branytaftosh in repo: qflex-bryan on ↻ bryan/rework [x!]  
22:44:43
```

```
λ git config user.email  
bryan.perdrizat@epfl.ch
```

```
>  
~/projects on ☁ (us-  
> cat oss/.gitconfig  
[user]  
  email = scott@gitbut  
[commit]  
  gpgsign = true  
~/projects on ☁ (us-  
> git config user.emai  
schacon@gmail.com  
~/projects on ☁ (us-  
> cd oss/git  
git on ↻ master [?] vi  
> git config user.emai  
scott@gitbut.com
```


Diff

```
$ git diff --word-diff
```

```
[-*Understanding-]{+#### Understanding+} the [-profile*-]{+profile+}  
[Profiles Doc](https://docs.conan.io/2.0/reference/config_files/profiles.html)  
The profile in flexus `target/_profile` directory are used to  
modified the behaviour of the dependency, compiler version, and standard version, or the build type  
in this case wether `Release` or `Debug`. These also have an influence on the verbosity of the output while building.  
  
[-*Installing-]{+#### Installing+} the [-dependencies*-]{+dependencies+}  
The command install the dependencies for a given simulator and a given profile
```

Log

Log

```
86475f9 (HEAD -> mast
11c4273 update
c747d30 Merge branch
a2ee14c update
ef0a654 update
af22c0e update
2fb678a update
dd17f5f update
6075772 update
b92ae66 update
9446133 update
7f23246 update
a2aeb11 update
b9ea351 update
67787d2 update
3f52694 update
1040570 update
f7a510f update
12b7bc7 update
fdedb51 update
ea9df9f update
```

Log

```
86475f9 (HEAD -> mast
11c4273 update
c747d30 Merge branch
a2ee14c update
ef0a654 update
af22c0e update
2fb678a update
dd17f5f update
6075772 update
b92ae66 update
9446133 update
7f23246 update
a2aeb11 update
b9ea351 update
67787d2 update
3f52694 update
1040570 update
f7a510f update
12b7bc7 update
fdedb51 update
ea9df9f update
```

Showing 244 changed files with 14,615 additions and 31,012 deletions.

Log

```
$ git log -p
```

Print diff.

Log

```
$ git log -p
```

```
$ git log -S File
```

Print diff.

Pickaxe - select symbol

Log

```
$ git log -p
```

```
$ git log -S File
```

```
$ git log path/to/dir
```

Print diff.

Pickaxe - select symbol

Location specific

Log

```
$ git log -p
```

```
$ git log -S File
```

```
$ git log path/to/dir
```

```
$ git log --name-only
```

Print diff.

Pickaxe - select symbol

Location specific

List files modified

Log

```
$ git log -p
```

```
$ git log -S File
```

```
$ git log path/to/dir
```

```
$ git log --name-only
```

```
$ git log <commit>..<commit>
```

Print diff.

Pickaxe - select symbol

Location specific

List files modified

Inspect commit range

Switch & Restore

Switch & Restore

```
$ git checkout -b <branch>
```

Create new branch from HEAD

Switch & Restore

\$ git checkout -b <branch>

Create new branch from HEAD

\$ git checkout -p

Create patch from hunk

Switch & Restore

```
$ git checkout -b <branch>
```

Create new branch from HEAD

```
$ git checkout -p
```

Create patch from hunk

```
$ git checkout HEAD@{10.week.ago}
```

Go to the past

Switch & Restore

```
$ git checkout -b <branch>
```

Create new branch from HEAD

```
$ git checkout -p
```

Create patch from hunk

```
$ git checkout HEAD@{10.week.ago}
```

Go to the past

```
$ git reset HEAD <file>
```

Unstage file

Switch & Restore

Switch & Restore

```
$ git switch -c <branch>
```

Create new branch from HEAD

Switch & Restore

```
$ git switch -c <branch>
```

```
$ git restore -p
```

Create new branch from HEAD

Create patch from hunk

Switch & Restore

```
$ git switch -c <branch>
```

```
$ git restore -p
```

```
$ git restore --source HEAD@{10.week.ago}
```

Create new branch from HEAD

Create patch from hunk

Go to the past

Switch & Restore

```
$ git switch -c <branch>
```

```
$ git restore -p
```

```
$ git restore --source HEAD@{10.week.ago}
```

```
$ git restore --staged <file>
```

Create new branch from HEAD

Create patch from hunk

Go to the past

Unstage file

Reflog

`$ git reflog`

`$ git reset --hard HEAD@{7}`

```
brany@branytaftosh in repo: qflex-bryan on main [+?]
09:43:11
λ git reflog
e822bf1 (HEAD -> main, origin/main, origin/HEAD) HEAD@{0}: checkout: moving from 9fcea40e173cf0518dcb006c9805f79b81e17047 to main
9fcea40 HEAD@{1}: checkout: moving from bryan/rework to HEAD@{10.week.ago}
b5a7bec (origin/bryan/rework, bryan/rework) HEAD@{2}: pull: Fast-forward
abce45d HEAD@{3}: pull (finish): returning to refs/heads/bryan/rework
abce45d HEAD@{4}: pull (start): checkout abce45de009aba7b4f4922ff4956101ac3c200b3
e1cfa09 HEAD@{5}: commit: doc: add flexus build documentation
9fcea40 HEAD@{6}: pull: Fast-forward
f76c1e7 HEAD@{7}: pull: Fast-forward
e78a175 HEAD@{8}: pull: Fast-forward
17ad4e3 HEAD@{9}: reset: moving to HEAD
17ad4e3 HEAD@{10}: pull: Fast-forward
87f1b5c HEAD@{11}: pull: Fast-forward
5182bf7 HEAD@{12}: reset: moving to HEAD
5182bf7 HEAD@{13}: reset: moving to HEAD
5182bf7 HEAD@{14}: reset: moving to HEAD
5182bf7 HEAD@{15}: checkout: moving from develop to bryan/rework
5199b33 (origin/develop, develop) HEAD@{16}: clone: from github.com:parsa-epfl/qflex.git
```

Reflog

`$ git reflog`

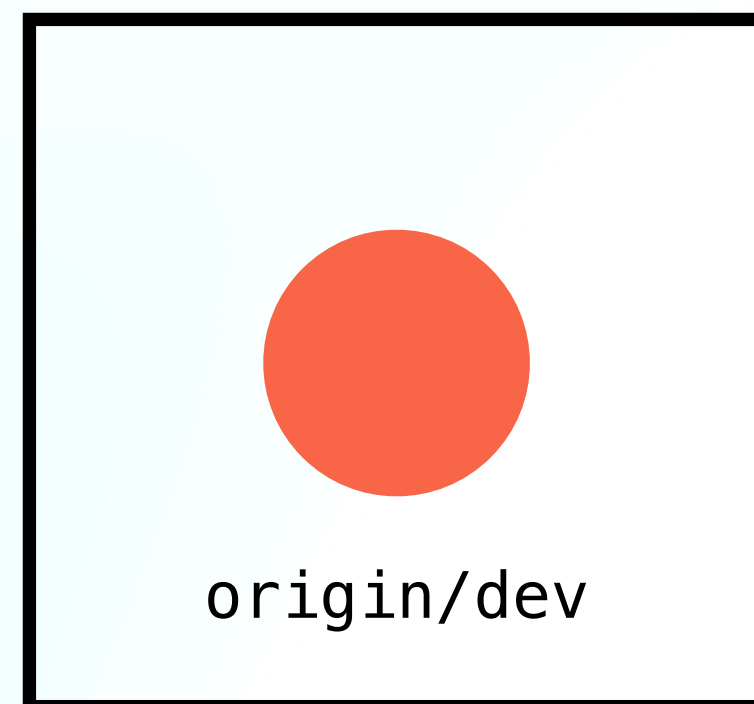
`$ git reset --hard HEAD@{7}`

```
brany@branytaftosh in repo: qflex-bryan on main [+?]
09:43:11
λ git reflog
e822bf1 (HEAD -> main, origin/main, origin/HEAD) HEAD@{0}: checkout: moving from 9fcea40e173cf0518dcb006c9805f79b81e17047 to main
b5a7bec (origin/bryan/rework, bryan/rework) HEAD@{1}: checkout: moving from bryan/rework to HEAD@{10.week.ago}
abce45d HEAD@{2}: pull: Fast-forward
abce45d HEAD@{3}: pull (finish): returning to refs/heads/bryan/rework
abce45d HEAD@{4}: pull (start): checkout abce45de009aba7b4f4922ff4956101ac3c200b3
e1cfa09 HEAD@{5}: commit: doc: add flexus build documentation
9fcea40 HEAD@{6}: pull: Fast-forward
f76c1e7 HEAD@{7}: pull: Fast-forward
e78a175 HEAD@{8}: pull: Fast-forward
17ad4e3 HEAD@{9}: reset: moving to HEAD
17ad4e3 HEAD@{10}: pull: Fast-forward
87f1b5c HEAD@{11}: pull: Fast-forward
5182bf7 HEAD@{12}: reset: moving to HEAD
5182bf7 HEAD@{13}: reset: moving to HEAD
5182bf7 HEAD@{14}: reset: moving to HEAD
5182bf7 HEAD@{15}: checkout: moving from develop to bryan/rework
5199b33 (origin/develop, develop) HEAD@{16}: clone: from github.com:parsa-epfl/qflex.git
```

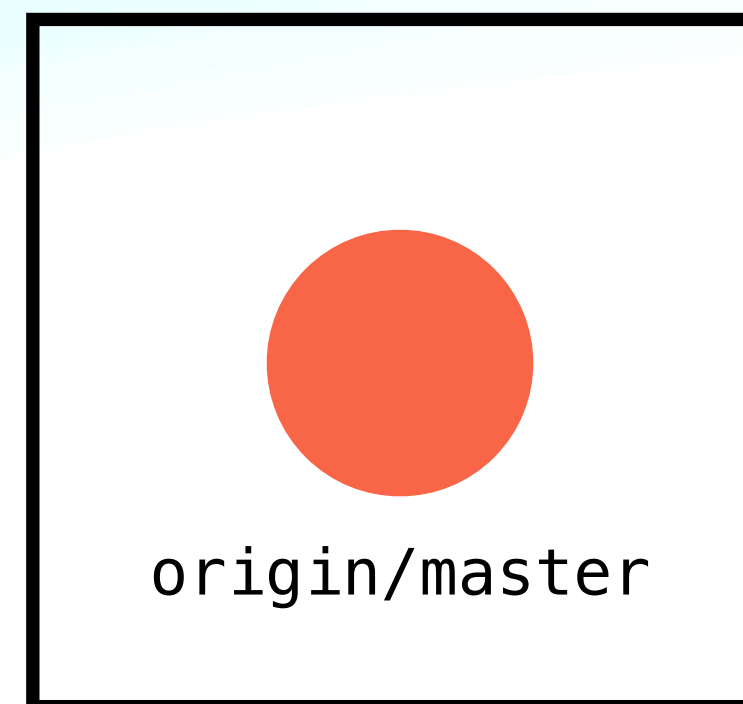

Worktree

```
$ git worktree add <path> <branch>
```

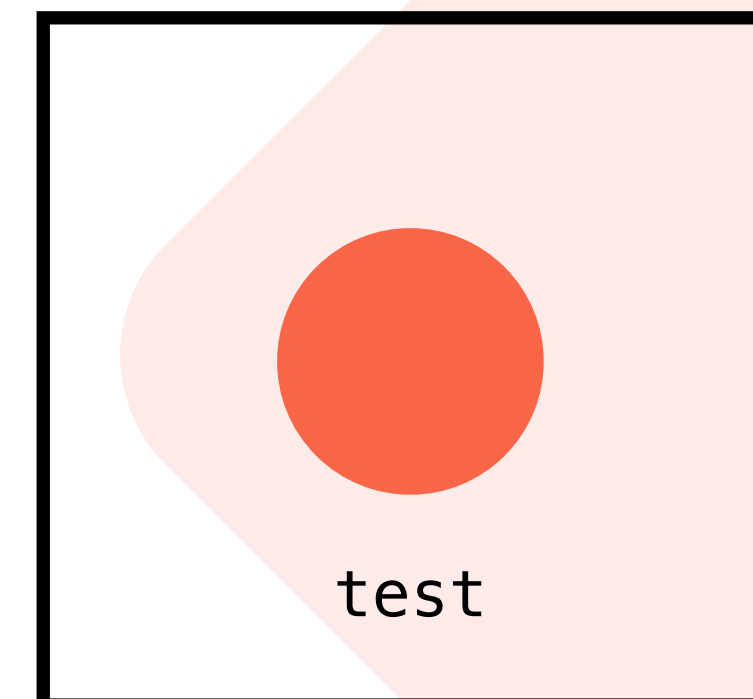
LOCAL



./tmp/dir-dev



./Project/



./TestBase/test

Thank you
&
git gud!