Viewing Git Log and Modifying History

by Jonathan Miedel and Alvin Wang

Merge Commits

Why are they annoying?

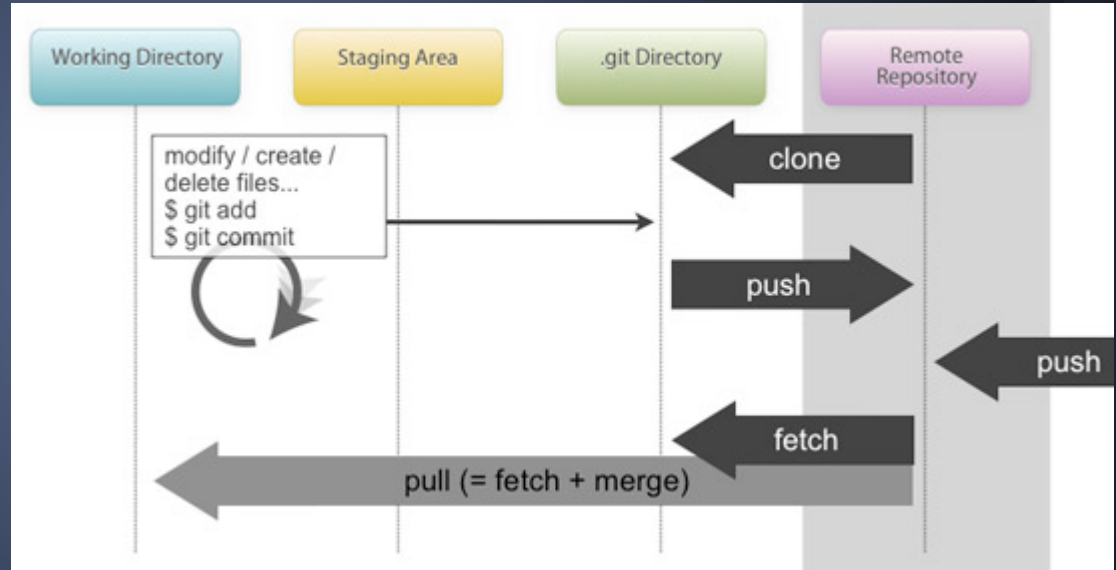How can we get rid of them?

Last Time on Git

- git log
- git commit
- git diff
- History
- Classification of Different VCS

Quiz

- Name something you can find in git log
- Difference between git diff and git status
- Name a problem that can be caused by git push -f
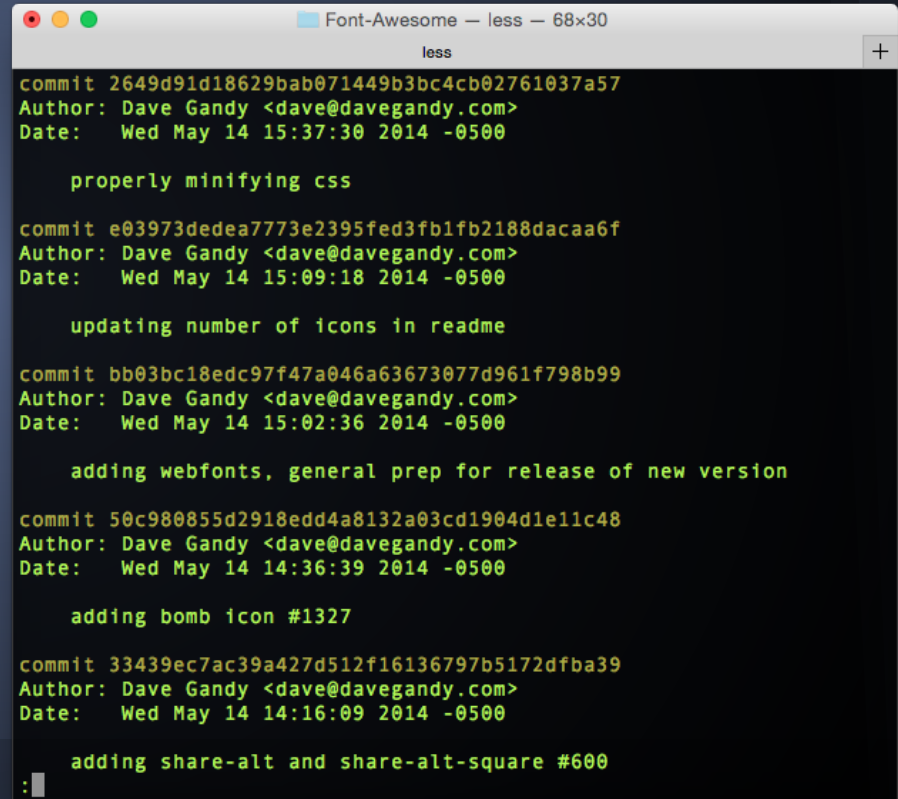- Who created git?
- Name a VCS other than Git

Git Pull

- `git pull <remote> <local branch>`
- Fetches any updates from the remote and merges them into your branch
- Essentially the same as git fetch followed by git merge

Viewing Repository Log (review)

- git log
- shows a list of all your commits

Font-Awesome — less — 68×30

less

```
commit 2649d91d18629bab071449b3bc4cb02761037a57
Author: Dave Gandy <dave@davegandy.com>
Date:    Wed May 14 15:37:30 2014 -0500

    properly minifying css

commit e03973dedea7773e2395fed3fb1fb2188dacaa6f
Author: Dave Gandy <dave@davegandy.com>
Date:    Wed May 14 15:09:18 2014 -0500

    updating number of icons in readme

commit bb03bc18edc97f47a046a63673077d961f798b99
Author: Dave Gandy <dave@davegandy.com>
Date:    Wed May 14 15:02:36 2014 -0500

    adding webfonts, general prep for release of new version

commit 50c980855d2918edd4a8132a03cd1904d1e11c48
Author: Dave Gandy <dave@davegandy.com>
Date:    Wed May 14 14:36:39 2014 -0500

    adding bomb icon #1327

commit 33439ec7ac39a427d512f16136797b5172dfba39
Author: Dave Gandy <dave@davegandy.com>
Date:    Wed May 14 14:16:09 2014 -0500

    adding share-alt and share-alt-square #600
:
```

Useful Options

```
git log --oneline
git log -p
git log --graph --all
git log -<number>
```

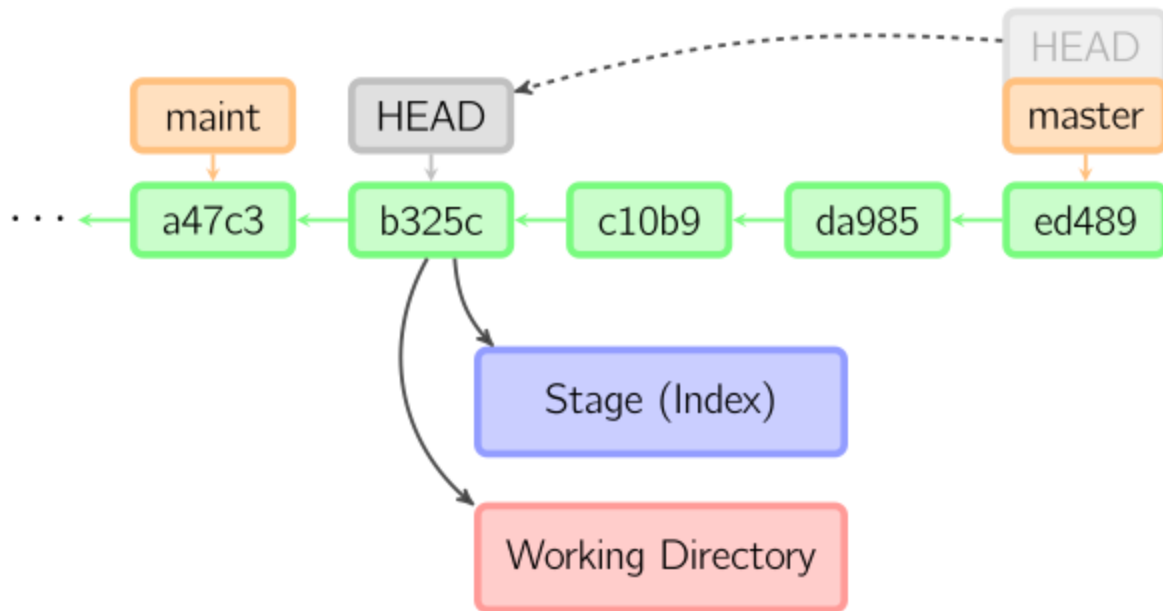# Pretty Formats

- oneline
- short
- medium
- full
- fuller

```
| * 4fcbcc1 - (7 weeks ago) Update list.less - Dan Stroot
|/
* b0c9730 - (9 weeks ago) Updated less and sass gem instructions according to fontawesome-less and fontawesome-sass READMEs - Geremia Taglialatela
* 54a585f - (3 months ago) Updated gems (debugger still doesn't work with ruby 2.1.2) - Geremia Taglialatela
* d6a2511 - (3 months ago) Revert "LESS: wrong relative font path" - Geremia Taglialatela
*   ff96aa6 - (4 months ago) Merge pull request #3549 from jacekhajduk/4.1.1-wip - Geremia Taglialatela
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| * 389f4a7 - (4 months ago) Too much of please - Geremia Taglialatela
| * ed4be20 - (4 months ago) fixed typo - Geremia Taglialatela
| * 664a399 - (4 months ago) fixed links - Geremia Taglialatela
| * 791e0fe - (4 months ago) Updated contributing.md Updated "request new icons" section and fixed smiley icon - Geremia Taglialatela
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*   1a0574f - (4 months ago) Merge pull request #3508 from sigo/files-permissions - Geremia Taglialatela
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| * 37a838a - (4 months ago) Fix files system permission - Mateusz Jagiełło
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*   c23a6b6 - (4 months ago) Merge pull request #3500 from leniel/4.1.0-wip - Geremia Taglialatela
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* 0fed1ec - (4 months ago) making text-width icon taller #1956 - Dave Gandy
* 6303ab9 - (4 months ago) adding aliases to variables files - Dave Gandy
* a1ff975 - (4 months ago) adding sliders icon #2357 - Dave Gandy
* 6a30d5c - (4 months ago) adding paragraph and header icons #747 - Dave Gandy
* daa4896 - (4 months ago) adding thin circle #1370 - Dave Gandy
* 2615694 - (4 months ago) adding history icon #895 - Dave Gandy
* 5b575ca - (4 months ago) adding a category for spinning icons - Dave Gandy
* 623b6dc - (4 months ago) adding paper-plane and paper-plane-o icons #1566 - Dave Gandy
* d39fdb8 - (4 months ago) adding tencent weibo, qq, and weixin (wechat) #1279 - Dave Gandy
* 19cd660 - (4 months ago) adding hacker news icon #1197 - Dave Gandy
* 63ac6c6 - (4 months ago) adding git and git square icons #1197 - Dave Gandy
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| * a59aa66 - (7 weeks ago) Fix LESS strict math in lists - Dan Stroot
```

Git Checkout

- Allows you to bring back files from any of your previous commits into your working directory
- `git checkout <Sha1 hash>`
- Can be used on single files, commits, and branches
- Alternate notation: `HEAD~1, HEAD^`

Git Checkout Cont.

When not given a path, git checkout moves your HEAD reference to the specified commit

How do you move your HEAD back to the latest commit?

Git Tag

Allows you to set release versions in Git

`git tag v0.7`

Why is this useful?

```
less
```

```
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```

HEAD

master

origin/master

origin/HEAD

Git Reset

- `git reset`
- can be used
  - un-add things
  - move head (and possibly staging area and working directory) to previous commit

To unstage a file

- `git reset <path>`

Reset Soft

- git reset --soft
- Moves only head back to last commit
- Also can move to a specific commit

Reset Mixed (default)
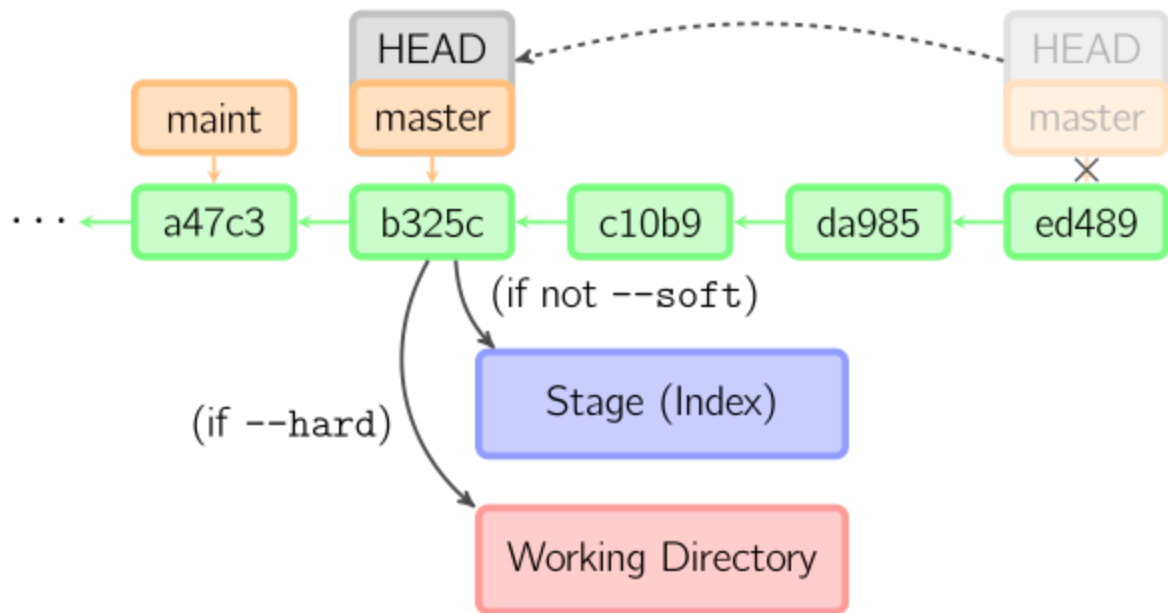
- git reset --mixed
- Also changes staging area

Reset Hard

- git reset --hard
- Moves working directory and staging area

Checkout vs. Reset

- Checkout moves the HEAD, but not Master
- Checkout is used for bringing back previous versions of files
- Reset is used more for undoing commits
- Checkout changes the working directory, reset will not (unless --hard is used)

Git Blame

- git blame
- Shows who edited each line last
- Why is this useful?

Rebase interactive

- pick p
- reword r
- edit e
- squash s
- fixup f
- exec x

Dangers of -f

- forces your changes can be very disruptive to others

Bonus Topics

- Setting up aliases for git commands
- Setting up ssh with Github
- git gc

Next Week in Git

- Branching
  - What it is
  - How to do it
- Merging
  - How it works
  - How to fix conflicts