Git introduction for beginners

Get off, mercurial users

Marc-Antoine Perennou   Julien Durillon

Clever Cloud – http://www.clever-cloud.com/

Who we are

Marc-Antoine Perennou - clever cloud

Marc-Antoine@Perennou.com
marc-antoine.perennou@clever-cloud.com

@Keruspe on twitter and identi.ca
http://github.com/Keruspe

Who we are

Julien Durillon - clever cloud

---

julien.durillon@gmail.com
julien.durillon@clever-cloud.com

@juuduu on twitter
http://github.com/judu

The (D)VCS concept

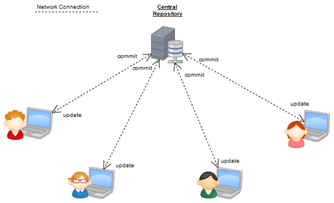
- What is a Version Control System?

The (D)VCS concept

- What is a Version Control System?
- Why must you use one?

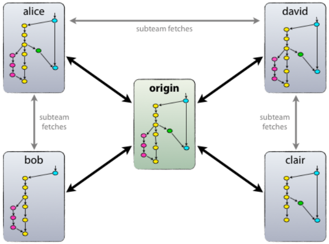
The (D)VCS concept

- What is a Version Control System?
- Why must you use one?
- Why should you consider using or switching to a Distributed VCS?



VCS

VS



DVCS

The origin of Git

- The creation of git
  - Linux development constraints (Too many developers, thousands per year)
  - First release: 2005

The origin of Git

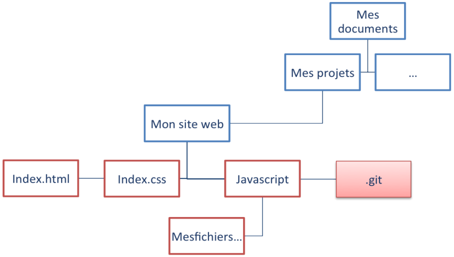
- The creation of git
  - Linux development constraints (Too many developers, thousands per year)
  - First release: 2005
- The origin of its name

The origin of Git

- The creation of git
    - Linux development constraints (Too many developers, thousands per year)
    - First release: 2005
- The origin of its name
- The evolution/complexification and usage simplification of git

Creating a repository

One command: git init
This command creates the basic files needed by git into a subdirectory named ".git"



But. . . what's in .git?

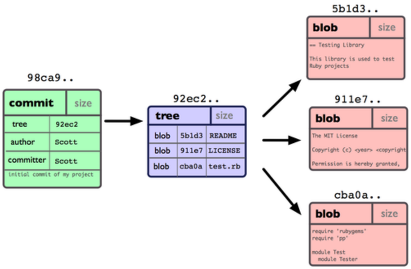
- Full repository

But. . . what's in .git?

- Full repository
- *i.e.*:
    - full commit history
    - all objects since the project beginning
    - all local and shared branches
    - all tags
    - registered remotes
    - hooks (useful for CI)

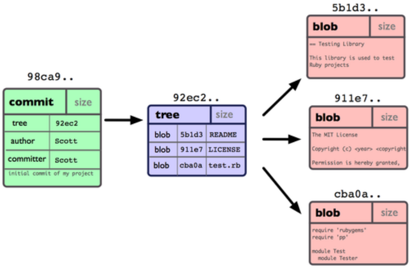
But. . . what's a commit?

- Author
- Commiter
- Parent
- Tree
- Message



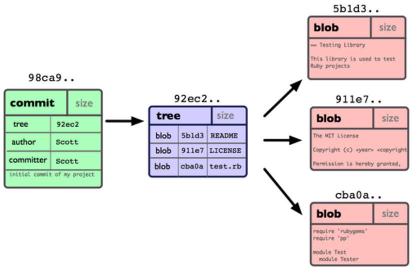
But. . . what's a commit?

- Author – The one who wrote the code
- Commiter
- Parent
- Tree
- Message



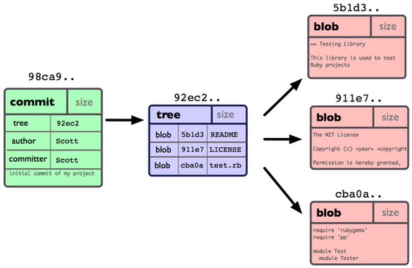
But. . . what's a commit?

- Author – The one who wrote the code
- Commiter – The one who created the commit object
- Parent
- Tree
- Message



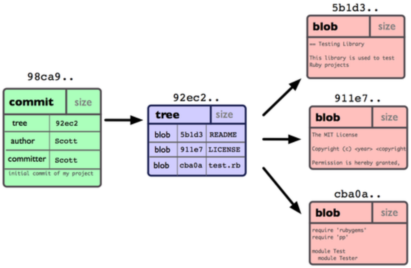
But. . . what's a commit?

- Author – The one who wrote the code
- Commiter – The one who created the commit object
- Parent – The commit(s) before this one
- Tree
- Message



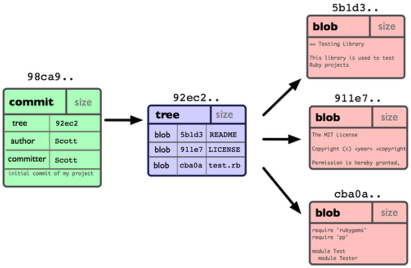
But. . . what's a commit?

- Author – The one who wrote the code
- Commiter – The one who created the commit object
- Parent – The commit(s) before this one
- Tree – The top tree object of the commited state
- Message



But. . . what's a commit?

- Author – The one who wrote the code
- Commiter – The one who created the commit object
- Parent – The commit(s) before this one
- Tree – The top tree object of the commited state
- Message – Why the commit was done



Basic usage

6 mandatory commands :

- git init
- git clone
- git add
- git commit
- git push
- git pull

With those commands (and eventually git remote), you can act with git at least like you acted with SVN (for example)

Git server side

- Introduction to github

Git server side

- Introduction to github
- Demonstration: sharing this presentation on github

Git server side

- Introduction to github
- Demonstration: sharing this presentation on github
- For your company: gitolite

Git server side

- Introduction to github
- Demonstration: sharing this presentation on github
- For your company: gitolite
- Git with non-git backend

Some useful basics

- Explanations on the tracking system (diff VS file)

Some useful basics

- Explanations on the tracking system (diff VS file)
- Configuration

Some useful basics

- Explanations on the tracking system (diff VS file)
- Configuration
- Editing the last commit

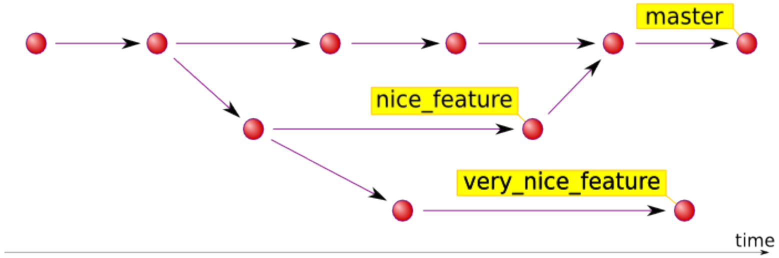
Some useful basics

- Explanations on the tracking system (diff VS file)
- Configuration
- Editing the last commit
- Cleaning a working tree

Branching

Three commands:

- git branch
- git checkout
- git merge



But. . . what's a branch?

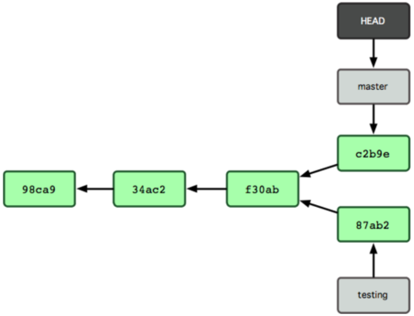
- Just a reference. . .

But. . . what's a branch?

- Just a reference. . .
- on a commit. . .

But. . . what's a branch?

- Just a reference. . .
- on a commit. . .
- that is updated by the *commit* command.



Advanced usage

- Rebasing with git rebase / git pull --rebase

Advanced usage

- Rebasing with git rebase / git pull --rebase
- Rearranging your commits

Advanced usage

- Rebasing with git rebase / git pull --rebase
- Rearranging your commits
- Patching with git format-patch and git am

Advanced usage

- Rebasing with git rebase / git pull --rebase
- Rearranging your commits
- Patching with git format-patch and git am
- Backporting with git cherry-pick for maintainance

Advanced usage

- Rebasing with git rebase / git pull --rebase
- Rearranging your commits
- Patching with git format-patch and git am
- Backporting with git cherry-pick for maintainance
- Debugging with git bisect

Advanced usage

- Rebasing with git rebase / git pull --rebase
- Rearranging your commits
- Patching with git format-patch and git am
- Backporting with git cherry-pick for maintainance
- Debugging with git bisect
- Tagging releases

Advanced usage

- Rebasing with git rebase / git pull --rebase
- Rearranging your commits
- Patching with git format-patch and git am
- Backporting with git cherry-pick for maintainance
- Debugging with git bisect
- Tagging releases
- Blaming colleagues

Demos

- Failing merge

Demos

- Failing merge
- Successfull fast-forwarding merge

Demos

- Failing merge
- Successfull fast-forwarding merge
- Backporting changes

Questions?