



GIT AND GITHUB

Epic Week of Crash Courses 20112

Originally given 12/2/11 by Derek Erdmann

What the heck is Git?

Git is a *distributed version control system* focused on speed, effectivity and real-world usability on large projects.



I still have no idea what Git is.

Revision Control

Version control systems (VCSs) help you manage changes to your source code

To save a version of your code, *commit* or *check in* the current changes

If you commit regularly, you'll be able to go back to any previous version of your code

Distributed Revision Control Systems

Many older systems use a central server to which all team members push their changes

Git (and Mercurial) keeps a copy of the **entire repository** on each team member's local machine

Why is this good?

- Team members can commit without breaking tests
- If the connection to the server is lost, everyone can still commit changes locally
- Team members can push changes to each other, bypassing the server entirely

How to Git

(off my lawn)

How many VCSs store changes

Other VCSs store a base version of a file and a set of changes to that file

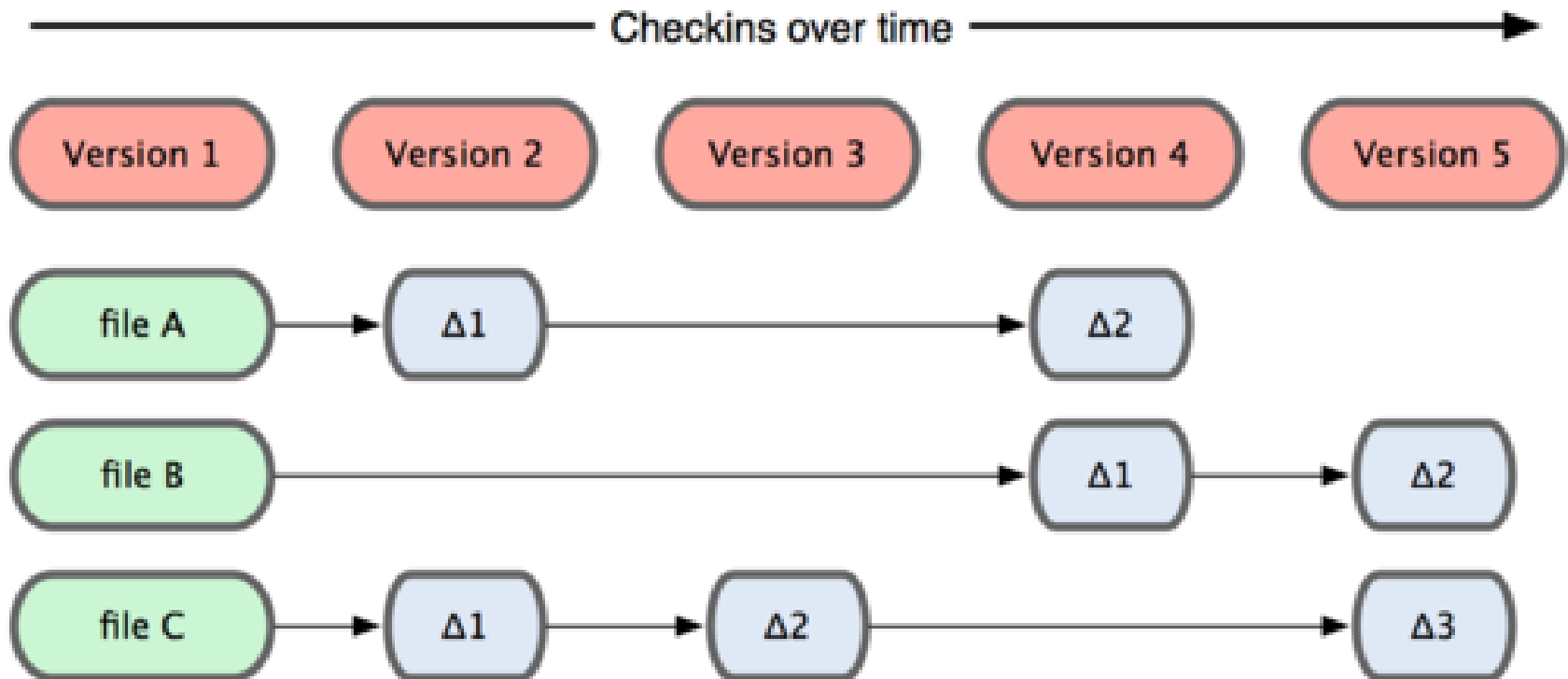


Image source: <http://progit.org/book/ch1-3.html>

How Git stores changes

Git stores a snapshot of the working directory, linking unchanged files to the previous versions

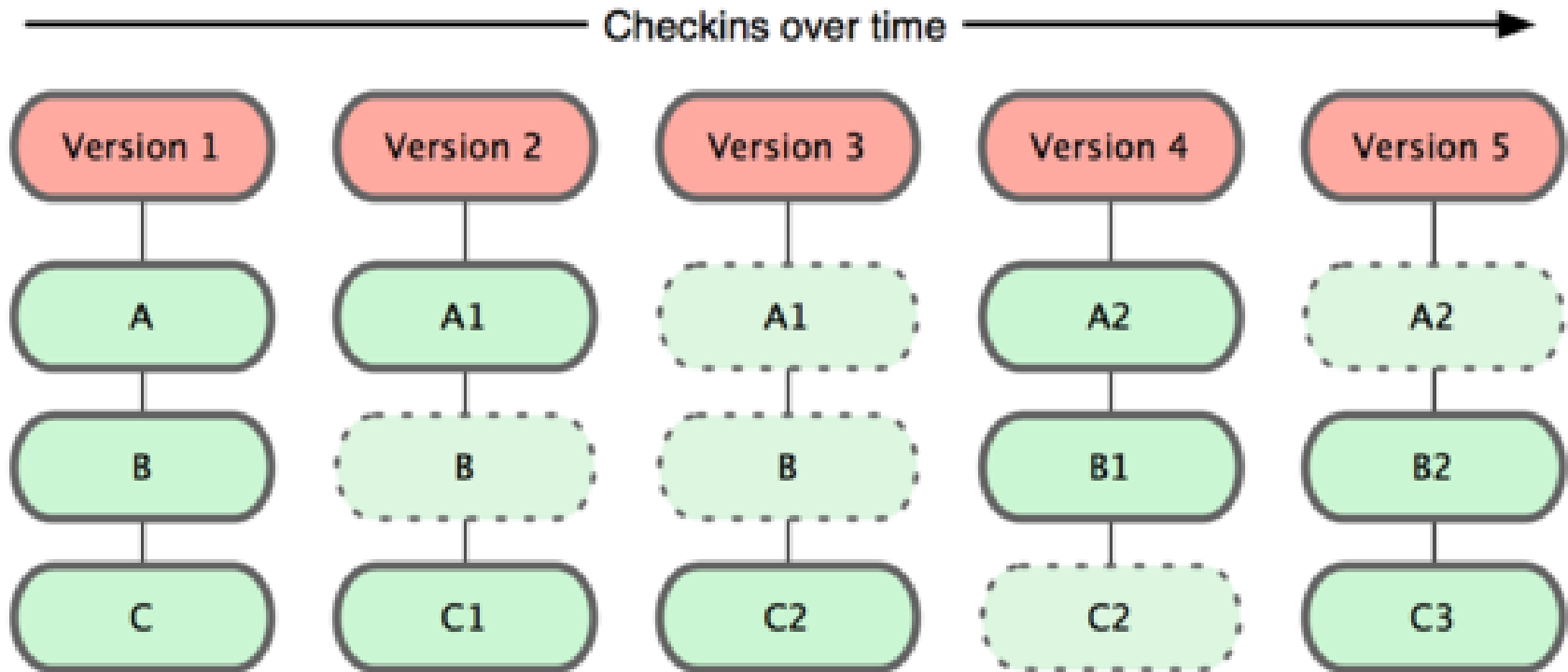


Image source: <http://progit.org/book/ch1-3.html>

Files live in 3 places

Working directory

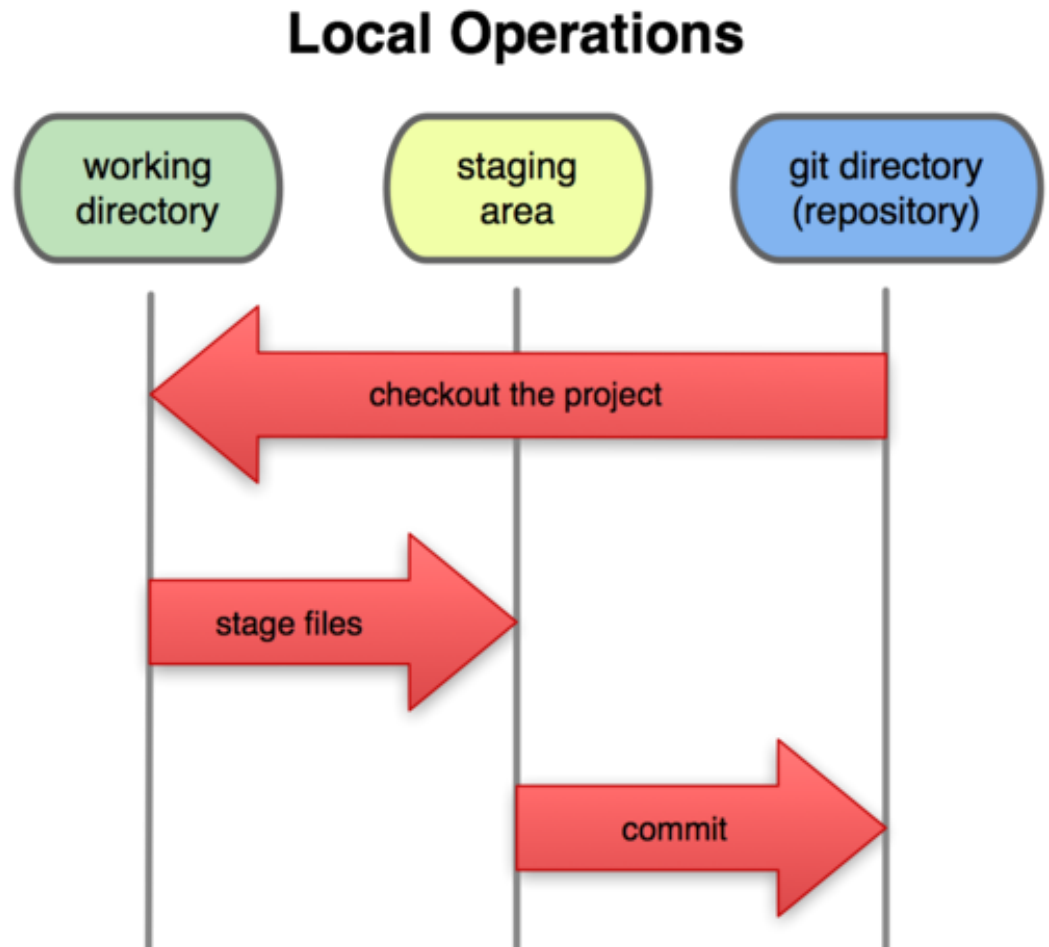
- Where you work

Staging area

- Where you stage changes before committing

Repository

- Stores all the old versions of your files



Other cool Git features

- Branching
- Merging
- Stashing changes
- Submodules
- Hooks
- Patches
- Rebasing
- Bare repositories

Installing Git

Visit <http://git-scm.com/download> and follow directions

Linux

- Use your favorite package manager

Windows

- Msysgit
- Cygwin
- TortoiseGit – needs Msysgit

OS X

- Git OSX Installer

Great Git Resources

- Official Git website - <http://git-scm.com>
- Pro Git - <http://progit.org/>
 - It's a full book, for free!
- Git Reference – <http://gitref.org>
- Github Help - <http://help.github.com/>
- Git Manual -
<http://www.kernel.org/pub/software/scm/git/docs/>
 - Too bad kernel.org is down

GitHub

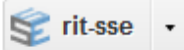
Social coding at its best

What is GitHub?

- Source code hosting
- Issue tracking
- Project hosting
- Activity tracking

“We make it easier to collaborate with others and share your projects with the universe”

- GitHub is one of the best reasons to use Git



News Feed

Pull Requests

Issues

Teams

Organization Settings

codykrieger pushed to master at rit-sse/wtf 24 minutes ago



ce47a81 Another bundle update, update to Rails 3.1.3



8be2d68 Settingslogic + some more gems

[View comparison for these 2 commits »](#)

codykrieger pushed to master at rit-sse/wtf 38 minutes ago



8270309 WAT, RUBY 1.9.3?

derekdermann created branch master at rit-sse/rapdevx-api about 12 hours ago



New branch is at /rit-sse/rapdevx-api/tree/master

[Compare master branch with master »](#)

rit-sse created repository rapdevx-api about 12 hours ago



Rapid Development Weekend X - API

derekdermann created branch master at rit-sse/rapdevx-server about 12 hours ago



New branch is at /rit-sse/rapdevx-server/tree/master

[Compare master branch with master »](#)

rit-sse created repository rapdevx-server about 12 hours ago



Rapid Development Weekend X - Server

Repositories (8)

New Repository

Find a repository...

All Repositories

Public

Private

Sources

Forks

rit-sse/wtf



rit-sse/rapdevx-api



rit-sse/rapdevx-server



rit-sse/rapdevx



rit-sse/rapdevx-client



rit-sse/winterball-website



rit-sse/Haraka

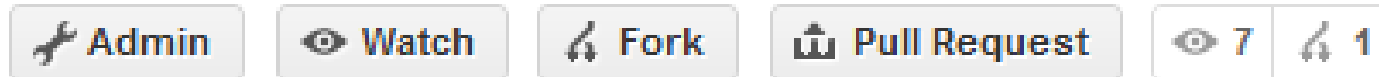


rit-sse/ssedap-client



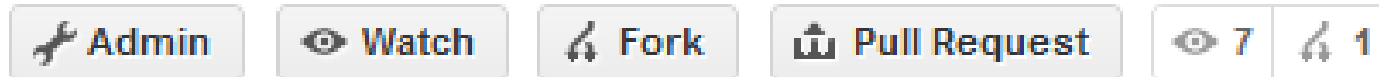
Forking

- Forking repositories makes open-source development incredibly easy
- It allows you to clone someone else's repository and create a new one on your account
- It's as easy as going to a repository and clicking the “Fork” button



Pull Requests

- Pull requests are used to get changes from a forked repo or branch in the same repo
- A notification is sent to the repo owner, and they can view the changes and choose whether or not to pull them into their original repo or the master branch



Setting up Git for GitHub

- We'll be following the guide at <http://help.github.com/win-set-up-git/>

Basic setup procedure:

- Make an account
- Set up an SSH key
- Add the SSH key to GitHub

We'll do it live!

Rapdev... GO!
