

Michael Käufel

July 11, 2011

Outline

- 1 History
- 2 Basics
- 3 Branching & Workflows
- 4 Tips & Tricks
- 5 Tools & Extensions
- 6 Internals
- 7 Further Reading
- 8 Notes

Outline

- 1 **History**
- 2 Basics
- 3 Branching & Workflows
- 4 Tips & Tricks
- 5 Tools & Extensions
- 6 Internals
- 7 Further Reading
- 8 Notes

History of Version Control Systems (VCS)

Local only:

1972 Source Code Control System (SCCS)

1982 Revision Control System (RCS)

Client-Server:

1970s *CA Software Change Manager*
(originally: CCC/Harvest)

1990 Concurrent Versions System (CVS)

2000 Subversion (SVN)

Distributed:

1990s? *Sun WorkShop TeamWare*

1998 *BitKeeper*

2001 GNU arch

2005 Git, Mercurial, Bazaar

Git's History

Background

Kernel development:

1991–2002 patches & archived files

2002–2005 BitKeeper

2005– Git

(since 2.6.12)

Git's History

Goals

- 1 Take CVS as an example of what *not* to do.
There is no way to do CVS right.
- 2 Support a distributed, BitKeeper-like workflow.
- 3 Very strong safeguards against corruption, either accidental or malicious.
- 4 Very high performance.

1.-3. allowed only *Monotone*. 1.-4. allowed nothing.

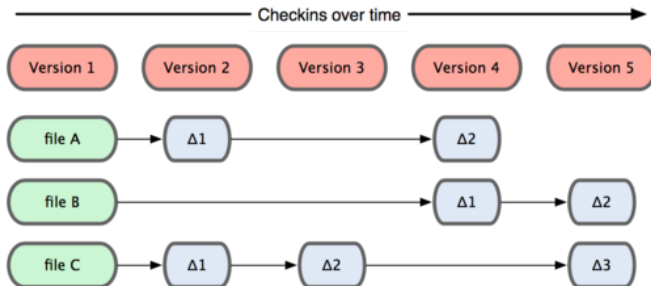
Git's History

Characteristics

- Strong support for non-linear development
- Distributed development
- Compatibility with existing systems/protocols
- Efficient handling of large projects
- Cryptographic authentication of history
- Toolkit-based design
- Pluggable merge strategies
- Garbage accumulates unless collected
- Periodic explicit object packing

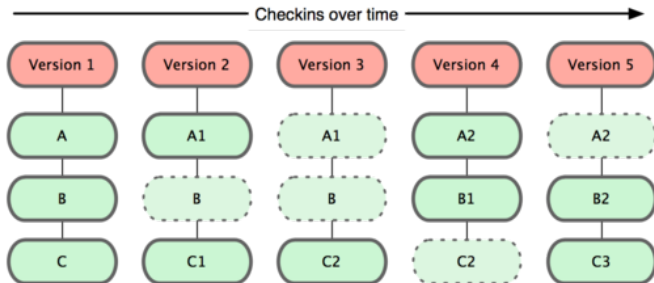
Data Storage

Others



Data Storage

Git



Outline

- 1 History
- 2 Basics**
- 3 Branching & Workflows
- 4 Tips & Tricks
- 5 Tools & Extensions
- 6 Internals
- 7 Further Reading
- 8 Notes

Basic Setup

```
$ git config --global user.name "John Doe"
$ git config --global user.email
johndoe@example.com
$ git config --global core.editor emacs
$ git config --global merge.tool vimdiff
$ git config --global color.ui auto
```

Getting a Git Repository

Initializing a Repository

```
$ mkdir ~/my-new-repo && cd ~/my-new-repo
```

```
$ git init
```

```
Initialized empty Git repository in
```

```
/home/user/my-new-repo/.git/
```

Getting a Git Repository

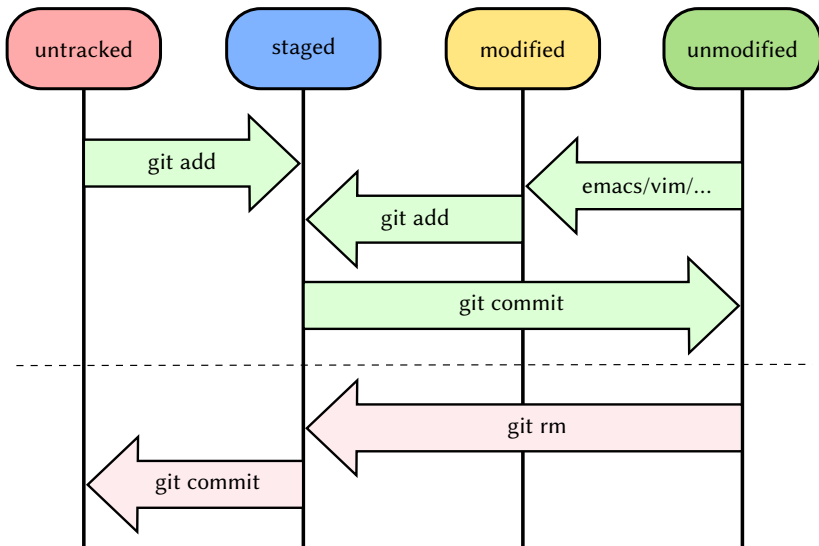
Cloning an existing Repository

```
$ git clone git://gitorious.org/qt/qt.git
my-qt-clone
Cloning into my-qt-clone...
remote: Counting objects: 615328, done.
remote: Compressing objects: 100% (123459/123459), done.
Receiving objects: 100% (615328/615328), 413.85 MiB |
1.11 MiB/s, done.
remote: Total 615328 (delta 497797), reused 604169
(delta 487253)
Resolving deltas: 100% (497797/497797), done.
```

Git natively supports *ssh*, *git*, *http(s)*, *ftp(s)*, and *rsync* protocols.

Recording Changes to the Repository

File Status Lifecycle



git commit --all

- The *all* / *a* option tells the commit command to automatically stage files that have been modified and deleted.
- New files you have not told git about are not affected.

git add --patch

```
$ git add -p LOREM
diff --git a/LOREM b/LOREM
index 7117488..3cf8771 100644
--- a/LOREM
+++ b/LOREM
@@ -1,3 +1,5 @@
+Some test text to illustrate git add --patch.
+
 Lorem ipsum dolor sit amet, consectetur adipisicing
 elit, sed eiusmod tempor incididunt ut labore et
 dolore magna aliqua. Ut enim ad minim veniam,
Stage this hunk [y,n,q,a,d,/,j,J,g,e,]? y
```


git add --patch

```
@@ -8,7 +10,10 @@
```

```
dolore eu fugiat nulla pariatur. Excepteur sint  
obcaecat cupiditat non proident, sunt in culpa qui  
officia deserunt mollit anim id est laborum.
```

```
+Some test text.
```

```
+
```

```
Duis autem vel eum iriure dolor in hendrerit in
```

```
+some more text wae filled in here
```

```
vulputate velit esse molestie consequat, vel illum  
dolore eu feugiat nulla facilisis at vero eros et  
accumsan et iusto odio dignissim qui blandit
```

```
Stage this hunk [y,n,q,a,d,/,K,g,s,e,]? s
```

git add --patch

Split into 2 hunks.

```
@@ -8,4 +10,6 @@
```

```
obcaecat cupiditat non proident, sunt in culpa qui  
officia deserunt mollit anim id est laborum.
```

+Some test text.

+

```
Duis autem vel eum iriure dolor in hendrerit in
```

```
Stage this hunk [y,n,q,a,d/,K,j,J,g,e,]? y
```

```
@@ -11,4 +15,5 @@
```

```
Duis autem vel eum iriure dolor in hendrerit in
```

+some more text was filled in here

```
vulputate velit esse molestie consequat, vel illum  
dolore eu feugiat nulla facilisis at vero eros et  
accumsan et iusto odio dignissim qui blandit
```

```
Stage this hunk [y,n,q,a,d/,K,g,e,]? n
```

git add --patch / git status

```
$ git status
# On branch master
# Changes to be committed:
# (use "git reset HEAD <file>..."to unstage)
#
# modified: README
#
# Changes not staged for commit:
# (use "git add <file>..."to update what will be
committed)
# (use "git checkout -- <file>..."to discard changes in
working directory)
#
# modified: README
#
```

Diffs

- Show *unstaged* changes:
`$ git diff`
- Show *staged* changes:
`$ git diff --cached`

Removing, Renaming, and Moving Files

- `$ git rm filename`
Removes a file from the working tree and the index.
- `$ git mv oldname newname`
 - syntactic sugar
 - git tracks content, not files

Ignoring Files

```
$ cat .gitignore
*. [oa]
*~
```

Undoing

Unstaging & Unmodifying

- Follow the instructions of *git status*.
- Unstaging a staged file:
`$ git reset HEAD filename`
- Unmodifying a modified file:
`$ git checkout -- filename`

Undoing

Changing Your Last Commit

```
$ git commit -m 'initial commit'  
$ git add forgotten_file  
$ git commit --amend
```

Warning: Do not change shared commits!

Tagging

Lightweight Tags

- `$ git tag v1.4-lw`
- like a branch that doesn't change
- designed as temporary tags

Tagging

Annotated Tags

- `$ git tag -a v1.4 -m 'my version 1.4'`
`$ git show v1.4`
- checksummed
- contain the tagger's name, e-mail address, and the date
- tagging message
- can be signed and verified with GPG

Tagging

Signed Tags

- `$ git tag -s v1.5 -m 'my signed 1.5 tag'`
You need a passphrase to unlock the secret key for
user: "John Doe <johndoe@example.com>"
4096-bit DSA key, ID 12345678, created 2011-07-11
- Verify a signed tag:
`$ git tag -v v1.5`

Tagging

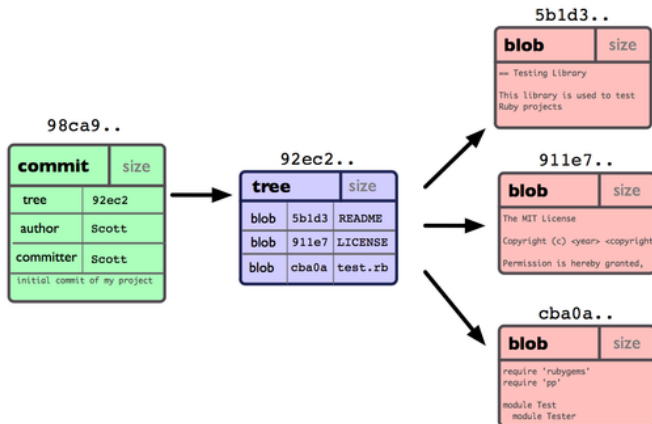
Sharing Tags

```
$ git push origin --tags
```

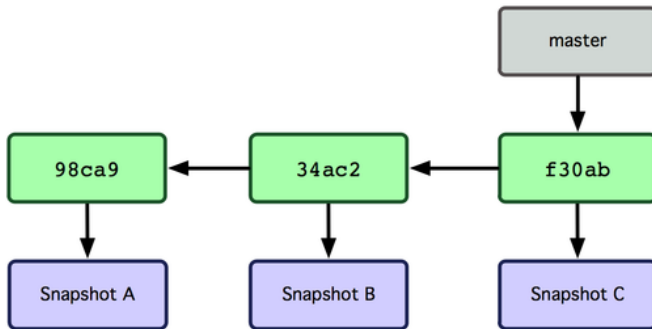
Outline

- 1 History
- 2 Basics
- 3 Branching & Workflows**
- 4 Tips & Tricks
- 5 Tools & Extensions
- 6 Internals
- 7 Further Reading
- 8 Notes

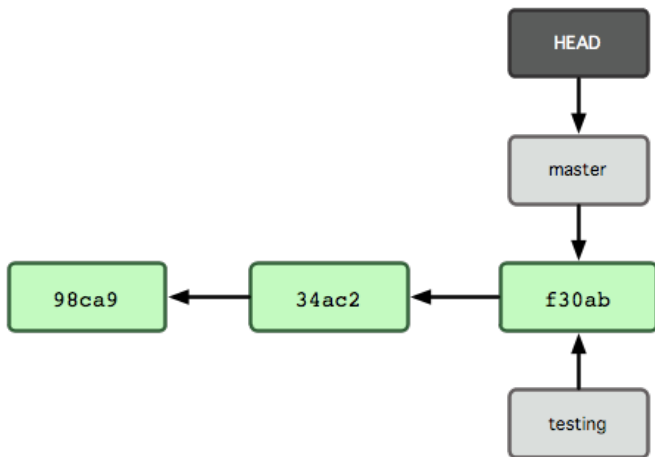
What is a Branch?



What is a Branch?



What is a Branch?



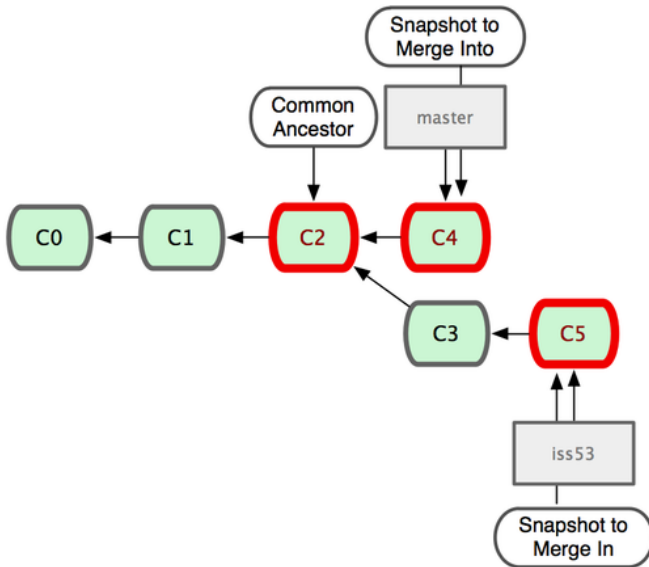
Branching

- Create a branch:
`$ git branch iss53`
- Switch to a branch:
`$ git checkout iss53`
- Delete a branch:
`$ git branch -d iss53`

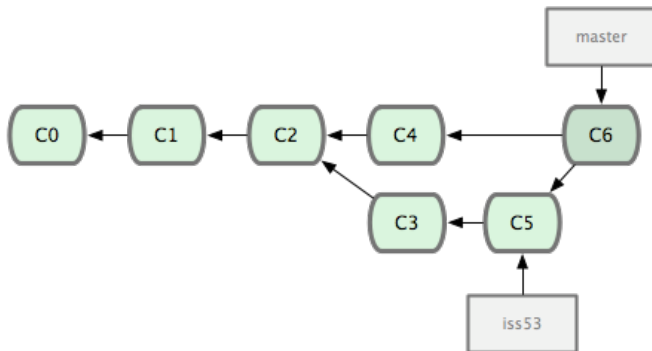
Merging

```
$ git checkout master  
$ git merge iss53
```

Merging



Merging

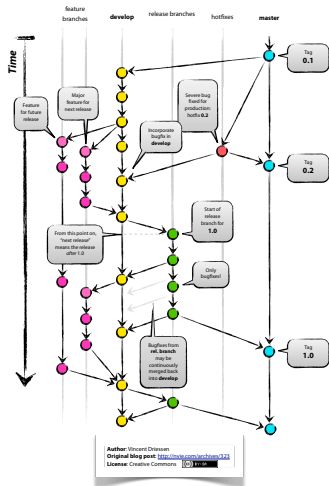


Merging

Conflicts

```
$ git merge iss53
Auto-merging lorem.txt
CONFLICT (content): Merge conflict in lorem.txt
Automatic merge failed; fix conflicts and then commit
the result.
$ editor lorem.txt / $ git mergetool
$ git add lorem.txt
$ git commit
```

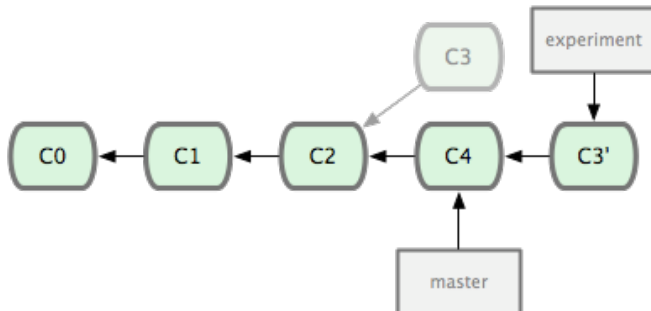
Branching Model



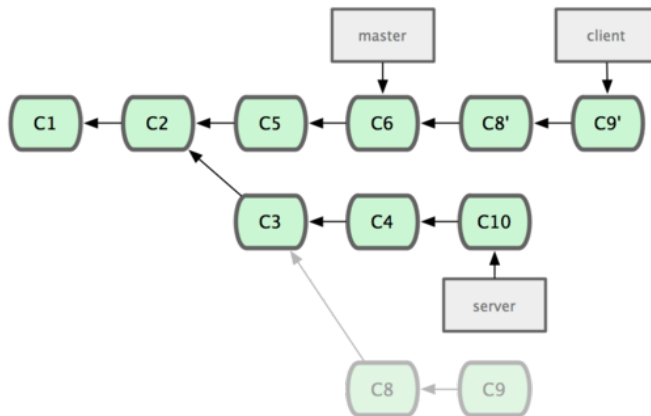
Rebasing

Warning: Rebasing changes the history! Do not change shared commits!

Rebasing



Rebasing



```
$ git rebase --onto master server client
```

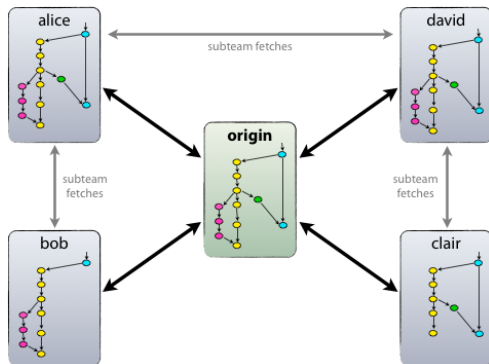
Rebasing

Interactive

```
$ git rebase --interactive HEAD~4
pick 96c8173 earliest commit message
pick 415a6a6 some changes
pick b0996fb some changes
pick d945913 latest commit message
```

- *pick*: use commit
- *reword*: use commit, but edit the commit message
- *edit*: use commit, but stop for amending
- *squash*: use commit, but meld into previous commit
- *fixup*: like 'squash', but discard this commit's log message
- *exec*: run command (the rest of the line) using shell

Remote Branches



taken from <http://nvie.com/posts/a-successful-git-branching-model/>

Remote Branches

Fetch & Pull

- Get information from remotes:
`$ git fetch origin`
- Fetch from a remote and merge:
`$ git pull origin`

Remote Branches

Push

```
$ git push origin master  
$ git push origin develop:unstable  
$ git push origin :unstable
```

Tracking Branches

Tracking branches are local branches that have a direct relationship to a remote branch.

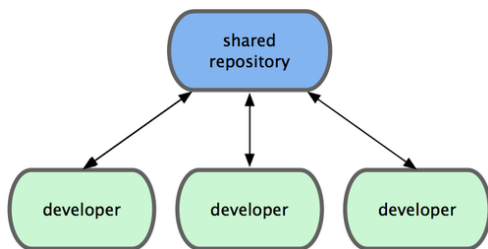
```
$ git checkout -b develop origin/unstable
```

```
$ git pull
```

```
$ git push
```

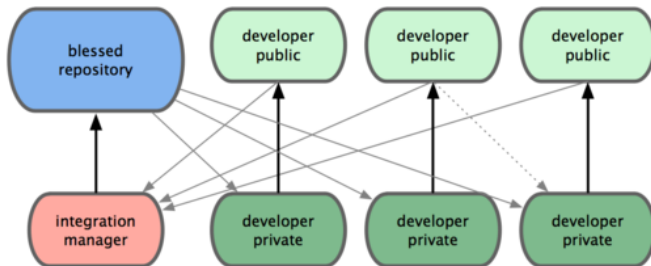
Workflows

Centralized Workflow



Workflows

Integration-Manager Workflow



Outline

- 1 History
- 2 Basics
- 3 Branching & Workflows
- 4 Tips & Tricks**
- 5 Tools & Extensions
- 6 Internals
- 7 Further Reading
- 8 Notes

git svn

Clone

```
$ git svn clone http://server/repo
--trunk=<trunk_subdir>
--tags=<tags_subdir>
--branches=<branches_subdir>
$ git svn clone http://server/repo --stdlayout
```

git svn

Branching

```
$ git svn branch -m 'Branch for fixing issue  
53' iss53  
$ git checkout -b local/iss53 iss53
```

git svn

Committing to SVN

```
$ git svn rebase
```

```
$ git svn dcommit
```

git svn

Merging

While git svn can track copy history (including branches and tags) for repositories adopting a standard layout, it cannot yet represent merge history that happened inside git back upstream to SVN users. Therefore it is advised that users keep history as linear as possible inside git to ease compatibility with SVN.

http:

[//www.kernel.org/pub/software/scm/git/docs/git-svn.html](http://www.kernel.org/pub/software/scm/git/docs/git-svn.html)

Merging

```
$ git checkout master  
$ git merge --squash local/iss53  
$ git commit
```

Initial Push to Server

```
$ ssh user@server
$ cd repos
$ mkdir new-repo.git && cd new-repo.git
$ git init --bare
$ exit

$ cd local-repo
$ git remote add origin
ssh://user@server:22/home/user/repos/new-repo.git
$ git push origin master

$ git config branch.master.remote origin
$ git config branch.master.merge
refs/heads/master
```


Outline

- 1 History
- 2 Basics
- 3 Branching & Workflows
- 4 Tips & Tricks
- 5 Tools & Extensions**
- 6 Internals
- 7 Further Reading
- 8 Notes

Shell Prompt

```
user@server 15:47 ~/current/path [±:master◆◆●3] >
```

- ±: git repository
- *master*: current branch
- staged files
- modified files
- untracked files
- 3: commits ahead of origin/master

gitk

The screenshot displays the gitk interface for a repository named 'gitk-linux-2.6'. The top section shows a commit history graph on the left and a list of commits on the right. The graph illustrates a main branch with several merge branches, including 'for-3.0', 'for-3.1', and 'for-3.2'. The commit list on the right shows the following details for the selected commit:

Author	Message	Date
Linus Torvalds <torvalds@linux-foundation.org>	Merge branch 'hmon-for-linux' of git://git.kernel.org/pub/scm/linux/kernel/git/prock/etaging	2011-07-10 19:24:47
hmon: [6904d] improve auto-detection of temperature status register		2011-07-02 02:28:03
hmon: [9d5241] Fix negative temperature fix value		2011-06-30 11:09:37
hmon: [9d5241] Fix chip selection code		2011-06-07 20:32:46
Merge branch 'for-3.0' of git://git.kernel.org/pub/scm/linux/kernel/git/wlouis/linux-2.6		2011-07-10 16:22:22
Merge branch 'for-3.0' of git://git.kernel.org/pub/scm/linux/kernel/git/wlouis/linux-2.6 into linux		2011-07-09 11:56:43
ASoC: ad1842: fix up spi, update link mode to FW_ADM427		2011-07-02 02:58:54
ASoC: Merge WM8771 ACTIVE bit as a supply wdgpt		2011-07-04 19:27:51
ASoC: Don't set master slave using to_irq, catch corner case		2011-07-05 09:25:59
Merge branch 'for-3.0' of git://git.kernel.org/pub/scm/linux/kernel/git/wlouis/linux-2.6 into linux		2011-07-05 09:20:00
ASoC: Ensure we delay long enough for WM8974 PLL to lock when starting		2011-07-02 02:24:46
ASoC: Tegra: ED: Ensure clock is enabled when writing regs		2011-07-01 21:56:13
ASoC: Fix Beasoft DS_pofmt() implementation return in bounds value		2011-06-19 13:14:07
Merge branch 'for-3.0' of git://git.kernel.org/pub/scm/linux/kernel/git/wlouis/linux-2.6 into linux		2011-07-05 07:33:56
ASoC: sb323acch: Do soft reset to avoid when going to bias of state		2011-05-20 10:15:26
ASoC: sb323acch: Don't sync first two registers from register cache		2011-05-20 10:52:27
asich: bcm20426: fix PLL register configuration		2011-05-20 10:26:06
ALSA Fix: Fix a copyleft warning		2011-07-09 11:55:28
ALSA Fix: Change all ASoCs for dual auto parking mode for Realtek		2011-07-07 09:25:54
Merge branch 'for-3.0' of git://git.kernel.org/pub/scm/linux/kernel/git/jamesg/gomags-2.6		2011-07-10 16:28:51
PCI: condition resource reservation through kernel parameter pci=nomsi		2011-07-07 20:19:10
Merge branch 'feat' of master.kernel.org:/home/mrkns/linux-2.6.git		2011-07-10 16:28:00
ARM: 69541: irq: use 'irq' in 'hw_irq_set' setting		2011-07-07 15:56:05
ARM: 69611: Don't fix debugging function to avoid deadlock		2011-07-01 16:36:19
ARM: 69661: gpioch: to inverted RTS/DTR signals on uart		2011-06-17 12:19:04
ARM: 69601: mmc: use StarBite to select bus connections		2011-06-30 10:19:21
ARM: 69774: mach-omap3: add together irq, clock connections		2011-06-28 10:10:20
ARM: move memory layout early checking before memory initialization		2011-07-02 05:58:29
ARM: 69601: MMAP_ENDIAN: add only for ARM PMU profiling and debugging		2011-07-01 16:38:53
ARM: 69601: part do not start the PMU when no events are present		2011-07-01 16:38:12
ARM: debugfs: to print, single, enter return value		2011-07-04 00:24:21
Merge branch 'for-3.0' of git://git.kernel.org/pub/scm/linux/kernel/git/linas/linas-2.6		2011-07-10 16:27:45
dma-debugfs: clean up multiple ctrl handling for evergreen-10i		2011-07-08 17:46:56
Merge branch 'sfp' into feat of git://git.kernel.org/pub/scm/linux/kernel/git/jensst/samsung		2011-07-09 02:28:22
ARM: S3C24XX: fix section mismatch in irq2443		2011-07-01 11:58:56
ARM: S3C24XX: drop return codes in vwd function of smc.c		2011-07-07 07:37:02
ARM: S3C24XX: don't use unaligned use vwd in smc.c		2011-07-04 07:33:02
ARM: EXYNOS4: Set appropriate DC device vstart		2011-07-06 09:04:09
Merge branch 'for-3.0' into sfp from feat		2011-07-05 06:48:41
usb3246x: Don't fix for DTR with all kernel (PCI) level		2011-07-05 10:14:02

The bottom section shows the commit details for the selected commit, including the commit message and the files changed:

```

SHA1 ID: 9d5241194339843980c24979e3a18211
Search: nächste | vorige | Version nach | Beschreibung: | Exakt | Alle Felder
Suchen:
+ Patch - Baum
+ Bezeichnung
Vergleich: Alle Versionen | Neue Versionen | Konfliktzahlen: 0 | Leerzeichenänderungen ignorieren | Line diff
Author: Linus Torvalds <torvalds@linux-foundation.org> 2011-07-10 19:24:47
Date: Wed Jul 13 11:09:37 2011 -0700
Merge: 9d5241194339843980c24979e3a18211 Merge branch 'for-3.0' of git://git.kernel.org/pub/scm/linux/kernel/git/wlouis/linux-2.6
Diff: 9d5241194339843980c24979e3a18211 hmon: [6904d] improve auto-detection of temperature status register
patch with g | diff
Vorgänger vom:
Merge branch 'hmon-for-linux' of git://git.kernel.org/pub/scm/linux/kernel/git/prock/etaging
* hmon-for-linux' of git://git.kernel.org/pub/scm/linux/kernel/git/prock/etaging:
hmon: [6904d] improve auto-detection of temperature status register
hmon: [69041] Fix negative temperature fix value
hmon: [69041] Fix chip detection code

```

gitweb

/pub/scm / linux/kernel/git/torvalds/linux-2.6.git / summary

summary | [shortlog](#) | [log](#) | [commit](#) | [commitdiff](#) | [tree](#)commit search: re

description Linus Torvalds
 owner Linus Torvalds
 last change Sun, 10 Jul 2011 17:24:47 +0000
 URL [git://git.kernel.org/pub/scm/linux/kernel/git/torvalds/linux-2.6.git](http://git.kernel.org/pub/scm/linux/kernel/git/torvalds/linux-2.6.git)
 <http://git.kernel.org/pub/scm/linux/kernel/git/torvalds/linux-2.6.git>
 <https://git.kernel.org/pub/scm/linux/kernel/git/torvalds/linux-2.6.git>

shortlog

4 hours ago	Linus Torvalds	Merge branch 'hwmon-for-linus' of git://git.linux...	commit	commitdiff	tree	diff
6 hours ago	Guenther Roeck	hwmon: (pmbus) Improve auto-detection of temperature...	commit	commitdiff	tree	diff
6 hours ago	Guenther Roeck	hwmon: (lm95241) Fix negative temperature results	commit	commitdiff	tree	diff
7 hours ago	Linus Torvalds	Merge branch 'for-linus' of git://git.linux/kernel...	commit	commitdiff	tree	diff
7 hours ago	Linus Torvalds	Merge branch 'fixes' of /home/rmk/linux-2.6-arm	commit	commitdiff	tree	diff
7 hours ago	Linus Torvalds	Merge branch 'drm-fixes' of git://git.linux/kernel...	commit	commitdiff	tree	diff
36 hours ago	Takashi Iwai	Merge branch 'fix/assoc' into for-linus	commit	commitdiff	tree	diff
36 hours ago	Takashi Iwai	ALSA: hda - Fix a compile warning	commit	commitdiff	tree	diff
38 hours ago	Takashi Iwai	Merge branch 'for-3.0' of git://git.linux/kernel/git...	commit	commitdiff	tree	diff
39 hours ago	Linus Torvalds	Merge branch '5sp-fixes-for-linus' of git://git.linux...	commit	commitdiff	tree	diff
39 hours ago	Linus Torvalds	Merge branch 'for-linus' of git://git.linux/kernel...	commit	commitdiff	tree	diff
39 hours ago	Linus Torvalds	Merge branch 'for-linus' of git://git.linux/kernel...	commit	commitdiff	tree	diff
41 hours ago	Bjorn Helgaas	MAINTAINERS: update Bjorn Helgaas's email address	commit	commitdiff	tree	diff
41 hours ago	Wolfram Sang	drivers/leds/leds-pca9532.c: change driver name to...	commit	commitdiff	tree	diff
41 hours ago	Bob Liu	mm/nommu.c: fix remap_pfn_range()	commit	commitdiff	tree	diff

tags

5 days ago	v3.0-rc6	Linus 3.0-rc6	tree	commit	shortlog	tree
12 days ago	v3.0-rc5	Linus 3.0-rc5	tree	commit	shortlog	tree
2 weeks ago	v3.0-rc4	Linus 3.0-rc4	tree	commit	shortlog	tree
3 weeks ago	v3.0-rc3	Linus 3.0-rc3	tree	commit	shortlog	tree
4 weeks ago	v3.0-rc2	Linus 3.0-rc2	tree	commit	shortlog	tree
5 weeks ago	v3.0-rc1	Linus 3.0-rc1	tree	commit	shortlog	tree
7 weeks ago	v2.6.39	Linus 2.6.39	tree	commit	shortlog	tree
2 months ago	v2.6.39-rc7	Linus 2.6.39-rc7	tree	commit	shortlog	tree
2 months ago	v2.6.39-rc6	Linus 2.6.39-rc6	tree	commit	shortlog	tree
2 months ago	v2.6.39-rc5	Linus 2.6.39-rc5	tree	commit	shortlog	tree
2 months ago	v2.6.39-rc4	Linus 2.6.39-rc4	tree	commit	shortlog	tree

Patchwork

Patchwork Org-mode
login register about

Project: org-mode | patches | project info
about

Incoming patches

← Previous

1 2 3 4 5 6 7 8 9 10 11 12

Next →

Patch	Date	Submitter	Delegate	State
[0] org-table.el: Calc formulas evaluate to #REFERR	2011-07-03	Maciek Staryk	bug	Accepted
[0] doc/org.texi: Add a new mode for OpenDocumentText exporter	2011-07-02	Jamburathan K	bug	Accepted
[0] l[1] org-lpview.org.el: Add doctstring. Silence lyxle compiler	2011-07-02	Jamburathan K	bug	Accepted
[0] Add org-lpview and org-soft to contrib modules	2011-07-01	Jamburathan K	bug	Accepted
[0] Fix some +- blocks fortification when there is no lang attribute	2011-07-01	Julien Bourrier	bug	Accepted
[0] Individual markup for active and inactive time stamps on export	2011-06-30	Eric S Fraga	bug	Accepted
[0] BUG: Ugly checkbox on HTML export	2011-06-29	Manuel Giraud		New
[0] org-link: fix types in doc	2011-06-29	Julian Gehring	bug	Accepted
[0] Improve images in LaTeX export documentation	2011-06-13	svayam ab	bug	Accepted
[0] org-end-of-meta-data-and-drawers	2011-06-09	Eric Abrahamson	bug	Superseded
[0] agenda: skip non-habit SCHEDULED	2011-05-19	Michael Brand	cdominik	Accepted
[0] customize: latex-label-export	2011-05-19	Christophe Rhodes	cdominik	Changes Requested
[0] References header in org-exp-lybites	2011-05-19	Christophe Rhodes	cdominik	Accepted
[0] Change addresses to hyperbms in section labels	2011-05-18	Nick Dokos	cdominik	Accepted
[0] CH-E doesn't go to end of line?	2011-05-18	Bert Hansen		Rejected
[0] [OBABEL BUG: Can't pass format string (%F) to ledger	2011-05-16	Eric S Fraga	cdominik	Accepted
[0] org-bibtex-abbreviations gives error 'bad exp'	2011-05-15	Leo		Deferred
[0] http.org-clock.el: Add param. properties to list properties in clocktable	2011-05-13	nieds giesen	cdominik	Accepted
[0] Adjust org-contact-wf functions to used standards	2011-05-12	Michael Markert		Accepted
[0] scheduler: Make alarm duration RFC5545 compliant	2011-05-12	Michal Sojka	cdominik	Accepted
[0] Markup problems when using references in source fragments (reat: Markup on same line as text)	2011-05-11	Roland Kaufmann	cdominik	Accepted
[0] org-test: tiny bugfix	2011-05-11	Michael Brand		Accepted
[0] org-preview: latex-fragment in indirect buffers	2011-05-10	Durán Cavalcante Moreira	cdominik	Accepted
[0] Shrimp: ans: extension	2011-05-10	Manuel Giraud	cdominik	Accepted
[0] Patch: tree-capture: orgexp for headline matching has changed	2011-05-10	Nick Dokos		Not Applicable
[0] Optional location argument for LaTeX export	2011-05-09	Bert Hansen		Not Applicable
[0] Optional location argument for LaTeX export	2011-05-08	Thomas S. Dye		Accepted
[0] Optional location argument for LaTeX export	2011-05-08	Thomas S. Dye	cdominik	Accepted
[0] Optional location argument in LaTeX export	2011-05-08	Thomas S. Dye		Accepted
[0] Agenda todo filter order	2011-05-08	Carsten Dominik	cdominik	Superseded
[0] v[3] Adjust wf-contact functions to overall conventions	2011-05-06	Michael Markert		Accepted
[0] v[3] Add name-email function for to indicate template interface	2011-05-06	Michael Markert		Accepted
[0] l[1] Add doctstring for "wf-get-from-header-content"	2011-05-06	Michael Markert	cdominik	Accepted
[0] Agenda todo filter order	2011-05-06	Carsten Dominik	cdominik	Superseded
[0] Don't prompt for bad links during label export	2011-05-05	Robert Goldman	eschulte	Accepted
[0] Documentation: was Re: Spurious source-code output?	2011-05-05	Nick Dokos		Accepted
[0] Documentation: was Re: Spurious source-code output?	2011-05-05	Thomas S. Dye		Accepted
[0] Spurious source-code output?	2011-05-05	Nick Dokos		Accepted

GitHub

github
SOCIAL CODING

Dashboard Inbox Account Settings Log Out

Explore GitHub Get Blog Help Search...

Explore GitHub

Explore Repositories Languages Timeline Search Tips

Trending Repos

Today | Week | Month | Forever

- [daniuncraft / git.js](#) 261 7
Javascript Git implementation
- [s9tpepper / MongoAS3](#) 7 1
AS3 Driver for mongoDB.
- [Indragiek / SNRLastFMEngine](#) 1 2
A modern block-based Objective-C interface to the Last.fm API
- [substack / node-optimist](#) 160 11
Light-weight option parsing for node.js
- [intinig / emacs.d](#) 3 3
My emacs.d directory

powered by **TOPSY**

Featured Repos

Subscribe

- [michaelledgar / ruby-patches](#) 35 1
A collection of patches for Ruby - any implementation. Install with RVM!
[Read The Changelog's Article](#)
- [DAddYE / foreverb](#) 177 4
Small daemon framework for ruby, with logging, error handler and more...
[Read The Changelog's Article](#)
- [thoughtbot / bourbon](#) 152 4
Bourbon is a set of vanilla Sass mixins using SCSS syntax
[Read The Changelog's Article](#)
- [tenderlove / nokogiri](#) 1,278 117
Nokogiri (ぬこぎり) is an HTML, XML, SAX, and Reader parser with XPath and CSS selector support.
[Read The Changelog's Article](#)
- [jacobrasch / CSS1K](#) 161 83
A demonstration of what can be accomplished with only 1 K of CSS.
[Read The Changelog's Article](#)

The Changelog Podcast

Subscribe

Brought to you by Adam Stacoviak and Wynn Netherland.

Episode 0.6.3 — CDNJS with Thomas Davis and Ryan Kirkman

June 21, 2011

Adam and Wynn caught up with the developers behind CDNJS, a community-powered CDN for JavaScript libraries.



- [IronJS with Fredrik Holmström](#)
June 02, 2011
- [Oh my zsh! with Robby Russell](#)
May 28, 2011
- [Fog and The Cloud with Wesley Boyer](#)
May 30, 2011
- [Ruby gems with Nick Quaranta](#)
May 11, 2011
- [Twisted with Glyph Lefkowitz](#)
May 03, 2011
- [Amplify.js with Mike Hostetler and Scott González from ApperTo](#)
April 27, 2011
- [Vin with Drew Neil, Tim Pope, and Yehuda Katz](#)
April 12, 2011
- [Goliath, Event Machine, and SPDY with Ilya Grigorik](#)
April 05, 2011
- [CouchBase, Erlang, and Meagers with J Chris Anderson](#)
March 30, 2011
- [Formalize and News Roundup Design Edition with Nathan Smith](#)
March 22, 2011

git-annex

git-annex allows managing files with git, without checking the file contents into git.

It is designed for archivists and nomads.

bup

It backs things up

A git-based backup solution.

etckeeper

Etckeeper puts system configuration (`/etc`) under version control.

Links:

- [Linux Magazin](#)
- <http://kitenet.net/~joey/code/etckeeper/>

Outline

- 1 History
- 2 Basics
- 3 Branching & Workflows
- 4 Tips & Tricks
- 5 Tools & Extensions
- 6 Internals**
- 7 Further Reading
- 8 Notes

Git Implementation

In many ways you can just see git as a filesystem – it's content-addressable, and it has a notion of versioning, but I really really designed it coming at the problem from the viewpoint of a filesystem person (hey, kernels is what I do), and I actually have absolutely zero interest in creating a traditional SCM system.

Data Structures

- a mutable *index* that caches information about the working directory and the next revision to be committed
- an immutable, append-only *object database*

Data Structures

Object Database

Types of objects:

- a *blob* is the content of a file without any metadata
- a *tree* is the equivalent of a directory; contains a list of filenames (snapshot of the source tree)
- a *commit* links tree objects together into a history; contains the name of a tree object, a timestamp, a log message and the names of the parent commits
- a *tag* is a container that contains a reference to another object and additional meta data

Each object is identified by a SHA-1 hash.

Outline

- 1 History
- 2 Basics
- 3 Branching & Workflows
- 4 Tips & Tricks
- 5 Tools & Extensions
- 6 Internals
- 7 Further Reading**
- 8 Notes

Why Git is Better than X?

Linux Kernel repo needs 988 MB disk space:

- 488 MB .git
- 500 MB code, doc,

More: <http://whygitisbetterthanx.com/>

Books

- [Pro Git](#)
- [The Git Community Book](#)
- [Git Magic](#)

Tutorials & Co.

- [official git tutorial](#)
- [everyday git with 20 commands or so](#)
- [git reference](#)

Videos

- [Linus @ Google \(what git isn't\)](#)
- [Randal Schwartz @ Google \(what git is\)](#)
- [git tutorial talk](#)

Thank you!

Questions?

Outline

- 1 History
- 2 Basics
- 3 Branching & Workflows
- 4 Tips & Tricks
- 5 Tools & Extensions
- 6 Internals
- 7 Further Reading
- 8 Notes**

Notes

Some links:

- <http://git-scm.com/>
- <http://www.tfnico.com/presentations/git-and-subversion>

License

All pictures except for those on slides 'Branching Model' and 'Remote Branches' are either self made or taken from the *pro git* book. They are all licensed under cc-by-sa.

The other two pictures are taken from `nvie.com`.

Most of the text content is based on the *pro git* book and licensed under cc-by-sa. The rest are cites from the git manpages, wikipedia or is based on answers on `stackoverflow.com`.