

Advanced Git

(and GitHub)

Mike McQuaid

me



Mike McQuaid

Software Engineer at GitHub

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git

gitx

gitk

gitk: GitInPracticeRedux

File Edit View Help

● master

remotes/origin/master

Ignore .tmp files.

● Remove Chapter 2 temporary file.

● Chapter 2: add first line.

● Merge branch 'separate-files'

● separate-files

Rename Chapter 1 file.

● Split chapters into files.

● Started first chapter so fix TODO.

● Add first line.

● Start Chapter 2.

● Joke rejected by editor!

● Improve joke comic timing.

Mike McQuaid <mike@mikemcquaid.com> 2013-11-16 15:12:52

Mike McQuaid <mike@mikemcquaid.com> 2013-11-16 12:59:21

Mike McQuaid <mike@mikemcquaid.com> 2013-11-16 12:57:59

Mike McQuaid <mike@mikemcquaid.com> 2013-11-10 17:52:07

Mike McQuaid <mike@mikemcquaid.com> 2013-11-10 16:11:50

Mike McQuaid <mike@mikemcquaid.com> 2013-11-10 16:10:22

Mike McQuaid <mike@mikemcquaid.com> 2013-11-09 11:35:20

Mike McQuaid <mike@mikemcquaid.com> 2013-11-09 11:34:22

Mike McQuaid <mike@mikemcquaid.com> 2013-11-09 11:31:22

Mike McQuaid <mike@mikemcquaid.com> 2013-10-11 18:30:00

Mike McQuaid <mike@mikemcquaid.com> 2013-09-30 17:30:00

SHA1 ID: 0b4087cd04632326cae940b937f1032b0d8c170e

Row 1 / 13

Find next prev commit containing: Exact All fields

Search

☒ Diff

☐ Old version

☐ New version

Lines of context: 3

☐ Ignore space change

Line diff

Comments

.gitignore

Author: Mike McQuaid <mike@mikemcquaid.com> 2013-11-16 15:12:52

Committer: Mike McQuaid <mike@mikemcquaid.com> 2013-11-16 15:12:52

Parent: [facf5753ee91e0adf76565d9c8fc778840f7ae2d](#) (Remove Chapter 2 temporary file.)

Branches: [master](#), [remotes/origin/master](#)

Follows:

Precedes:

Ignore .tmp files.

----- .gitignore -----

new file mode 100644

index 0000000..1944fd6

@@ -0,0 +1 @@

+*.tmp

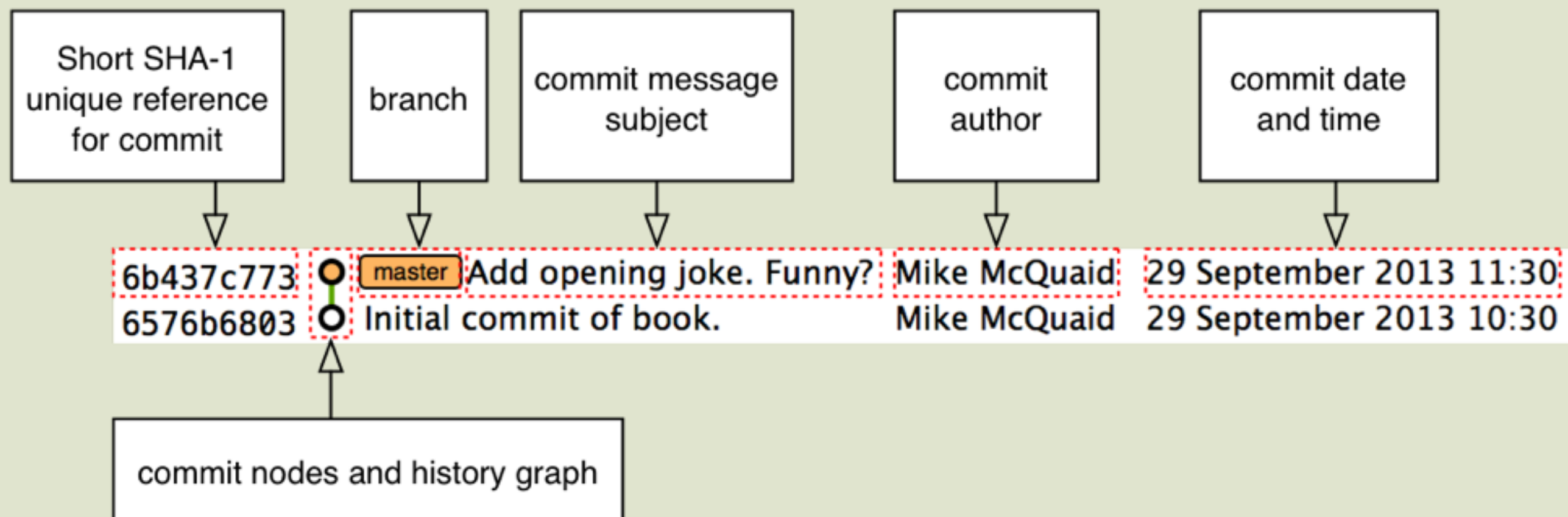
history pane for all commits

The screenshot shows the Git GUI application window titled "GitInPracticeRedux (branch: master)". The interface is divided into several sections:

- Left Sidebar:** Contains navigation links for "GITINPRACTICEREDUX", "Stage", "BRANCHES" (with "master" selected), "REMOTES", "TAGS", "SUBMODULES", and "OTHER".
- Toolbar:** A row of icons for common Git operations like commit, push, pull, and branch management.
- Commit History Table:** A table with columns "Short SHA", "Subject", "Author", and "Date". It lists two commits:

Short SHA	Subject	Author	Date
6b437c7	master Add opening joke. Funny?	Mike McQuaid	7 November 2013 21:32
6576b68	Initial commit of book.	Mike McQuaid	7 November 2013 21:31
- Commit Details Panel:** Displays information for the selected commit (6b437c7). It includes the subject "Add opening joke. Funny?", the author "Mike McQuaid", the date "Sun Sep 29 2013 12:30:00 GMT+0200 (CEST)", the SHA "6b437c7739d24e29c8ded318e683eca8f03a5260", and the parent SHA "6576b6803e947b29e7d3b4870477ae283409ba71". A "Gist it" button is also present.
- File Changes:** Shows a list of files changed in the commit, including "GitInPractice.asciidoc".
- Diff View:** A detailed view of the changes in "GitInPractice.asciidoc", showing line-by-line differences with color coding (red for deletions, green for additions).
- Footer:** Includes a status bar with "2 commits loaded" and a "Console" button.

detail pane for selected commit



next Merge branch 'master' into next	Brad King	2011-03-21 14:20:47
KWSys Nightly Date Stamp	KWSys Robot	2011-03-21 04:01:04
KWSys Nightly Date Stamp	KWSys Robot	2011-03-20 04:01:07
KWSys Nightly Date Stamp	KWSys Robot	2011-03-19 04:01:05
Merge topic 'linux-lib64-handling' into next	Eric Noulard	2011-03-20 18:21:15
Disable automatic lib64 handling (this breaks [at least] Si...	Eric NOULARD	2011-03-20 18:19:44
Merge topic 'linux-lib64-handling' into next	Eric Noulard	2011-03-19 14:34:25
fix #0011964 with the use of a new CMAKE_USE_LIB64_...	Eric NOULARD	2011-03-14 20:10:17
Merge topic 'CPackDeb-fixTestCrash' into next	Eric Noulard	2011-03-19 10:14:23
CPack fix CPackDeb crash when CPackDeb.cmake ends ...	Eric NOULARD	2011-03-19 10:12:31
Merge topic 'add-ProcessorCount-module' into next	David Cole	2011-03-18 18:30:27
ProcessorCount: Use ERROR_QUIET with execute_proc...	David Cole	2011-03-18 18:28:24
Merge topic 'fix-java-test-enable-logic' into next	Brad King	2011-03-18 18:20:57
Disable Java test with Xcode generator	Brad King	2011-03-18 18:18:11
Merge topic 'asn_check_proto' into next	Brad King	2011-03-18 18:04:43
Tests: Added test for check_prototype_definition.	Andreas Schneider	2011-03-04 15:36:29
Modules: Added CheckPrototypeDefinition module.	Andreas Schneider	2011-02-10 18:28:04
Merge topic 'fix-java-test-enable-logic' into next	Brad King	2011-03-18 17:53:12
Enable Java test more carefully on Apple	Brad King	2011-03-18 17:46:57
Merge topic 'include-flags-response-file' into next	Brad King	2011-03-18 13:30:18
Pass include directories with response files to GN...	Brad King	2011-03-17 19:44:57
Optionally pass include directories with response files	Brad King	2011-03-15 18:07:36
Generate target-wide flags before individual buil...	Brad King	2011-03-15 17:31:42
Factor old-style -D flags out from -I flag generation	Brad King	2011-03-15 17:09:06
Merge topic 'ctest-detect-maven-errors-and-wa...	David Cole	2011-03-18 13:16:52
CTest: catch warning output of Apache Maven	Rolf Eike Beer	2011-03-18 08:38:34
KWSys Nightly Date Stamp	KWSys Robot	2011-03-18 04:01:07
Merge branch 'master' into next	Brad King	2011-03-17 12:46:25
KWSys Nightly Date Stamp	KWSys Robot	2011-03-17 04:01:03
Merge topic 'multilingual-FindMPI' into next	Brad King	2011-03-16 14:14:32
FindMPI: Fix documentation formatting	Brad King	2011-03-16 14:11:33
Merge branch 'master' into next	Brad King	2011-03-16 13:45:23
KWSys Nightly Date Stamp	KWSys Robot	2011-03-16 04:01:03

history

git blame

\$ git blame --date=short 01-

IntroducingGitInPractice.asciidoc

^6576b68 GitInPractice.asciidoc (Mike McQuaid 2013-09-29 1) = Git In Practice
6b437c77 GitInPractice.asciidoc (Mike McQuaid 2013-09-29 2) == Chapter 1
07fc4c3c GitInPractice.asciidoc (Mike McQuaid 2013-10-11 3) // TODO: think of ...
ac14a504 GitInPractice.asciidoc (Mike McQuaid 2013-11-09 4) == Chapter 2
ac14a504 GitInPractice.asciidoc (Mike McQuaid 2013-11-09 5) // TODO: write ...

git bisect

\$ git bisect start

\$ git bisect bad

\$ git bisect good 6576b6

**Bisecting: 3 revisions left to test after
this (roughly 2 steps)**

**[ac14a50465f37cfb038bdec1293eb4c1
d98a2ee] Start Chapter 2.**

\$ git bisect good

...

\$ git bisect bad

...

\$ git bisect bad

**c6eed6681efc8d0bffa908e6dbb7d887c4b3fab3e is the first bad commit
commit c6eed6681efc8d0bffa908e6dbb7d887c4b3fab3e**

Author: Mike McQuaid <mike@mikemcquaid.com>

Date: Thu Nov 28 15:39:38 2013 +0000

Rename book file to first part file.

```
:000000 100644 00000000000000000000000000000000000000000000000000000000
```

5e02125ebbc8384e8217d4370251268e867f8f03 A

01-IntroducingGitInPractice.asciidoc

```
:100644 000000 5e02125ebbc8384e8217d4370251268e867f8f03
```

000 D

GitInPractice.asciidoc

36640a5	○	master	origin/master	Ignore .tmp files.
06b5eb5	○			Remove unfavourable review file.
fcd8f6e	○			Add first review temporary file.
c6eed66	●	refs/bisect/bad		Rename book file to first part file.
ac14a50	○	refs/bisect/good-ac14a50465f37cfb038bdecd1293eb4c1d98a2ee		Start Chapter 2.
07fc4c3	○			Joke rejected by editor!
85a5db1	○			Improve joke comic timing.
6b437c7	○			Add opening joke. Funny?
6576b68	○	refs/bisect/good-6576b6803e947b29e7d3b4870477ae283409ba71		Initial commit of book.

\$ git bisect reset

git bisect performance

Total commits	Max checked commits
10	6
100	13
1000	19

\$ git bisect run ls

GitInPractice.asciidoc

**Bisecting: 3 revisions left to test after this (roughly 2 steps)
[ac14a50465f37cfb038bdec1293eb4c1d98a2ee] Start Chapter 2.**

running ls GitInPractice.asciidoc

GitInPractice.asciidoc

**Bisecting: 1 revision left to test after this (roughly 1 step)
[fcd8f6e957a03061cdf411851fe38034a44c97ab] Add first review ...**

running ls GitInPractice.asciidoc

ls: GitInPractice.asciidoc: No such file or directory

**Bisecting: 0 revisions left to test after this (roughly 0 steps)
[c6eed6681efc8d0bfff908e6dbb7d887c4b3fab3e] Rename book file ...**

...

bisect run success

branches

git rerere

```
$ git config --global --  
add rerere.enabled 1
```


\$ git merge separate-files

Auto-merging 01-IntroducingGitInPractice.asciidoc

CONFLICT (content): Merge conflict in

01-IntroducingGitInPractice.asciidoc

**Resolved '01-IntroducingGitInPractice.asciidoc' using
previous resolution.**

**Automatic merge failed; fix conflicts and then commit
the result.**

\$ git commit

**Recorded resolution for '01-
IntroducingGitInPractice.asciidoc'.
[master 725c33a] Merge branch
'separate-files'**

git describe

```
$ git describe --tags
```

```
v0.1-1-g0a5e328
```

git cherry-pick

\$ git cherry-pick v0.1-release
[master c18c9ef] Advanced practice
technique.

1 file changed, 1 insertion(+), 1
deletion(-)

git cherry

\$ git cherry --verbose master

- dfe2377f00bb58b0f4ba5200b8f4299d0bfeeb5d Advanced ...
+ a8200e1407d49e37baad47da04c0981f43d7c7ff Add release ...

rewriting
history

git reflow

\$ git reflog

3e3c417 HEAD@{0}: checkout: moving from v0.1-release to master

a8200e1 HEAD@{1}: commit: Add release preface.

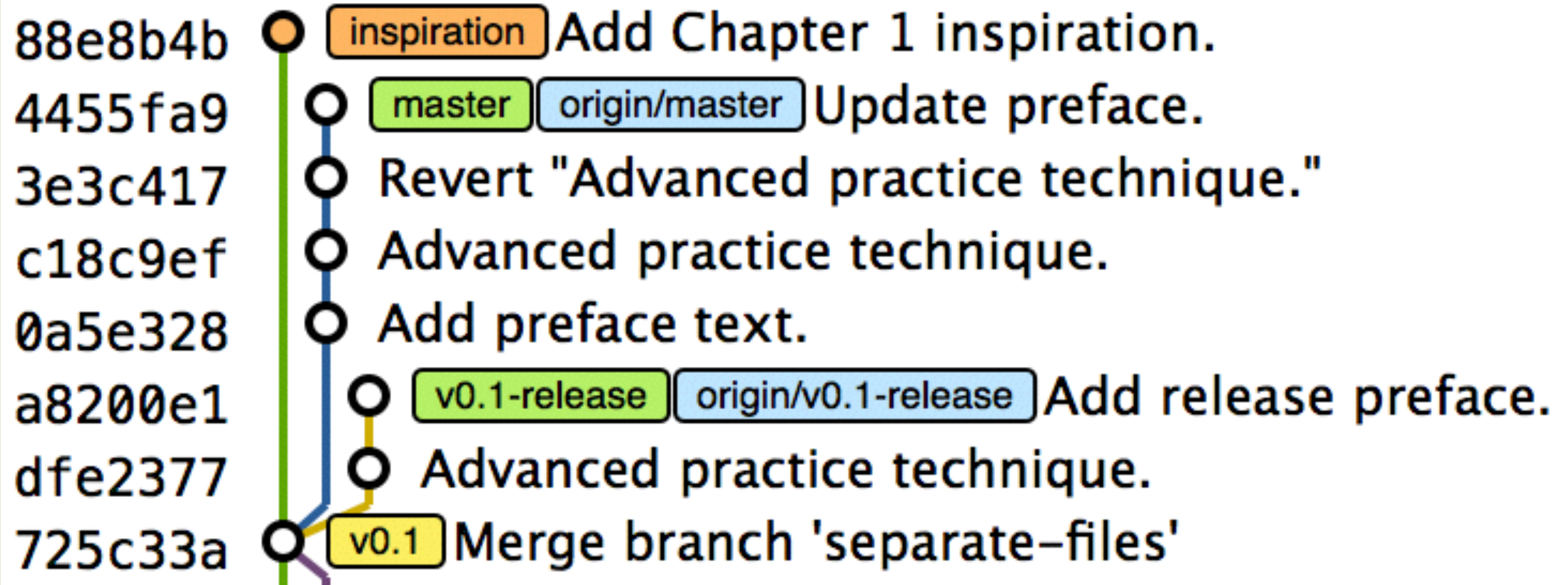
dfe2377 HEAD@{2}: checkout: moving from master to v0.1-release

3e3c417 HEAD@{3}: revert: Revert "Advanced practice technique."

git rebase

```
$ git checkout -b inspiration v0.1.
```

Switched to a new branch 'inspiration'



```
$ git rebase v0.1-release
```

First, rewinding head to replay your work on top of it...

Applying: Add Chapter 1 inspiration.



A vertical line represents the commit history. It starts with a green line at the bottom, which branches into a blue line and a yellow line. The blue line continues upwards through the first five commits, and the yellow line continues through the last two commits. Each commit is represented by a circle on this line, with a colored box next to it indicating the branch it belongs to.

Commit Hash	Branch	Commit Message
5d4ad83	inspiration	Add Chapter 1 inspiration.
a8200e1	v0.1-release	Add release preface.
dfc2377		Advanced practice technique.
4455fa9	master	Update preface.
3e3c417		Revert "Advanced practice technique."
c18c9ef		Advanced practice technique.
0a5e328		Add preface text.
725c33a	v0.1	Merge branch 'separate-files'

5d4ad83 ● inspiration Add Chapter 1 inspiration.

a8200e1 ○ v0.1-release origin/v0.1-release Add release preface.

dfc2377 ○ Advanced practice technique.

4455fa9 ○ master origin/master Update preface.

3e3c417 ○ Revert "Advanced practice technique."

c18c9ef ○ Advanced practice technique.

0a5e328 ○ Add preface text.

725c33a ○ v0.1 Merge branch 'separate-files'

git rebase -i

\$ git rebase --interactive v0.1

pick dfe2377 Advanced practice technique.

pick a8200e1 Add release preface.

pick 5d4ad83 Add Chapter 1 inspiration.

pick 26596ad Empty commit

Rebase 725c33a..5d4ad83 onto 725c33a

#

Commands:

p, pick = use commit

r, reword = use commit, but edit the commit message

e, edit = use commit, but stop for amending

s, squash = use commit, but meld into previous commit

f, fixup = like "squash", but discard this commit's log message

x, exec = run command (the rest of the line) using shell

#

These lines can be re-ordered; they are executed from top to bottom.

#

If you remove a line here THAT COMMIT WILL BE LOST.

#

However, if you remove everything, the rebase will be aborted.

#

Note that empty commits are commented out

git filter-branch

```
$ git filter-branch --prune-empty --  
index-filter "git rm --cached --  
ignore-unmatch 00-Preface.asciidoc"  
master
```

```
Rewrite 4320fad6a58b105b8a1001f4f0da0258aa622feb (13/20)  
rm '00-Preface.asciidoc'
```

```
Rewrite 725c33ace6cd7b281c2d3b342ca05562d3dc7335 (14/20)  
rm '00-Preface.asciidoc'
```

```
...
```

```
Rewrite 27f2d8b0a72427caf290e5127ab79533a0bc2867 (20/20)  
rm '00-Preface.asciidoc'
```

```
Ref 'refs/heads/master' was rewritten
```

personalising

gitconfig

**[https://github.com/
mikemcquaid/dotfiles/
blob/master/gitconfig](https://github.com/mikemcquaid/dotfiles/blob/master/gitconfig)**

```
$ cat ~/.gitconfig
```

```
[user]
```

```
name = Mike McQuaid
```

```
email = mike@mikemcquaid.com
```


aliases

[alias]

l = git log --graph --oneline --decorate

**external
command**

```
$ ls git-*
```

```
git-gc-global
```

```
git-rebase-all-branches
```

```
git-set-email-global
```

```
$ git gc-global
```

subversion

git svn

best practices

commit

messages

**This is the short commit
message**

**Longer commit message that
spans multiple lines.**

- List items**
- Like this**

**From 2ca294d83d8f64b8ff1611efa4aa4d1baa4f291a Mon Sep 17
00:00:00 2001**

From: Mike McQuaid <mike@mikemcquaid.com>

Date: Wed, 20 Apr 2011 12:17:37 +0100

Subject: [PATCH] Add DeployQt4 module.

**Add a module that gives better support to BundleUtilities to handle
Qt plugins and deploy Qt applications.**

Modules/DeployQt4.cmake | 104 ++++++

+++++

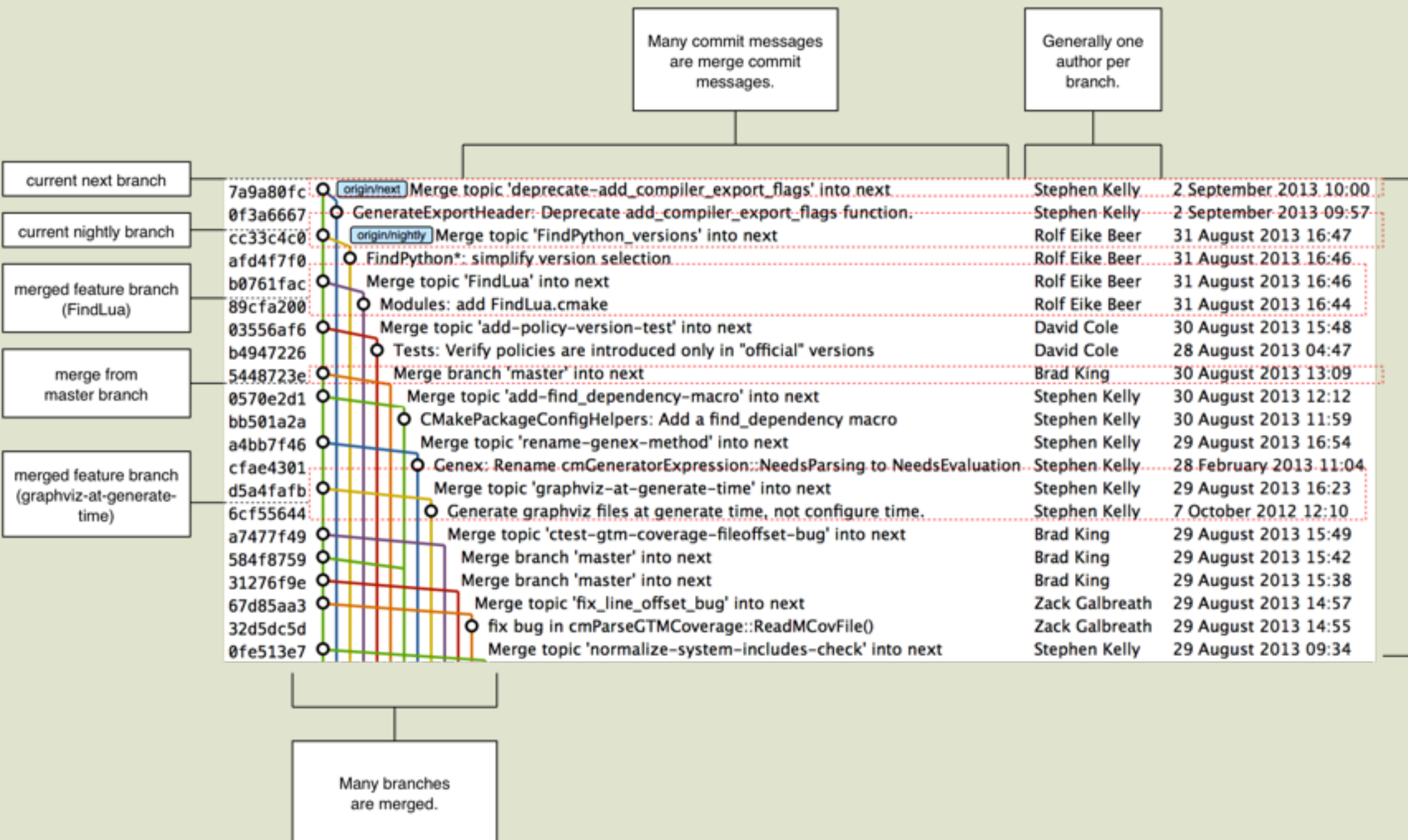
1 files changed, 104 insertions(+), 0 deletions(-)

create mode 100644 Modules/DeployQt4.cmake

**diff --git a/Modules/DeployQt4.cmake b/Modules/
DeployQt4.cmake**

...

**merge
vs
rebase**

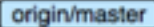


Dates and times are contiguous within feature branches but in next branch; varies based on when merge was made.

CMake

All commit messages describe single commit rather than context within a branch. No commits fixing previous visible commits.

Frequently contiguous authors due to pull/rebase/push workflow.

7db9ef96   CompilerFailure: specify attr_rw for version
3bfccca9  Remove HOMEBREW_CC warning from ENV.compiler
4a88427f  ruby-build 20130901
47c2b17b  freetype 2.5.0.1
1ddde190  Document --cc= for non-Apple compilers
500d40db  Check dependencies for a compatible C++ stdlib
881d2295  Tab: track C++ stdlib in use
4bbe6172  Move Tab creation into build process
733076ec  Implement fails_with for non-Apple compilers
512801cd  Provide reusable GNU GCC constants in ENV
5a5ed17d  Experimental support for non-Apple GCCs
2a2fd436  Fix option description that only Clang library is built.
039de909  harfbuzz: ensure icu is enabled
fe8bb5bb  harfbuzz 0.9.20
3865de15  harfbuzz: depends on freetype
02597bca  harfbuzz: does *not* depend on fontconfig
76c1d3c5  pango: update deps
1e8c6dac  fontconfig 2.10.95
c82e5a2c  fontconfig: remove patch that was upstreamed ages ago

Misty De Meo	2 September 2013 05:26
Misty De Meo	1 September 2013 22:41
Erik Michaels...	1 September 2013 13:32
Jack Nagel	1 September 2013 20:55
Misty De Meo	1 September 2013 21:23
Misty De Meo	27 July 2013 10:07
Misty De Meo	27 July 2013 08:11
Misty De Meo	27 July 2013 07:51
Misty De Meo	28 June 2013 07:38
Misty De Meo	23 August 2013 06:29
Misty De Meo	4 June 2013 16:18
Xiyue Deng	1 September 2013 20:57
Jack Nagel	1 September 2013 20:20
Jack Nagel	1 September 2013 20:14
Jack Nagel	1 September 2013 20:24
Jack Nagel	1 September 2013 20:13
Jack Nagel	1 September 2013 20:12
Jack Nagel	1 September 2013 19:49
Jack Nagel	1 September 2013 19:49

Merged branches only visible through contiguous authors and related commit messages. No merge commits.

single branch with continuous history.

Dates generally move forwards through time but not consistently.

Homebrew

GitHub

gh

<https://github.com/jingweno/gh>

\$ gh pull-request

**[https://github.com/GitInPractice/
GitInPracticeRedux/pull/1](https://github.com/GitInPractice/GitInPracticeRedux/pull/1)**

\$ gh fork

remote: Counting objects: 3, done.

remote: Compressing objects: 100% (3/3), done.

remote: Total 3 (delta 0), reused 0 (delta 0)

Unpacking objects: 100% (3/3), done.

From <https://github.com/mikemcquaid/GitInPracticeRedux>

*** [new branch] inspiration -> mikemcquaid/inspiration**

*** [new branch] master -> mikemcquaid/master**

*** [new branch] pr-test -> mikemcquaid/pr-test**

*** [new branch] v0.1-release -> mikemcquaid/v0.1-release**

new remote: mikemcquaid

@username



mtodd commented 4 days ago



@mikemcquaid happy to help when you get back if you feel like you need it. I'm curious where the best place for these kinds of scripts will be.

.patch

[https://github.com/GitInPractice/ GitInPracticeRedux/pull/1.patch](https://github.com/GitInPractice/GitInPracticeRedux/pull/1.patch)

From 071d468df295c3866054763250a1344e44f8c3be Mon Sep 17 00:00:00 2001

From: Mike McQuaid <mike@mikemcquaid.com>

Date: Fri, 18 Apr 2014 18:50:41 +0100

Subject: [PATCH] Preface: use Praxis instead of Paris.

It's probably a funnier joke.

00-Preface.asciidoc | 3 +--

1 file changed, 1 insertion(+), 2 deletions(-)

diff --git a/00-Preface.asciidoc b/00-Preface.asciidoc

index bddf201..defecfe 100644

--- a/00-Preface.asciidoc

+++ b/00-Preface.asciidoc

@@ -1,3 +1,2 @@

= Git In Practice

-// Git Through Praxis?

-The hotly anticipated sequel to Git In Paris.

+The hotly anticipated sequel to Git Through Praxis.

Fixes #1

Fix rbenv to install versions and plugins globally.

[Browse code](#)

Closes [#15750](#).



mikemcquaid authored 17 days ago

1 parent [c0a9e47932](#) commit [dd00d56d6933e4990420170b33cfff3146752919](#)



mikemcquaid authored 17 days ago

1 parent [c0a9e47932](#) commit [dd00d56d6933e4990420170b33cfff3146752919](#)



← mikemcquaid closed this pull request from a commit

17 days ago



mikemcquaid Fix rbenv to install versions and plugins globally. ...

[dd00d56](#)

svn.github

**\$ svn co https://github.com/
mikemcquaid/scripts/**

A scripts/branches

A scripts/trunk

A scripts/trunk/.gitignore

...

A scripts/trunk/thirdparty/checkbashisms

A scripts/trunk/uninstall-xcode-clt.sh

A scripts/trunk/webrick.rb

Checked out revision 86.

help

Mike McQuaid
Foreword by Scott Chacon



Git

IN PRACTICE

<http://is.gd/wFd71d>

Digital Guru Bookstore

12:30 01/01/14

<http://git-scm.com/book>

<http://help.github.com>



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http://mikemcquaid.com

questions?