

Karsten Dambekalns

How Git and Gerrit make you more productive

Karsten Dambekalns

co-lead of TYP03 5.0 and FLOW3

34 years old

lives in Lübeck, Germany

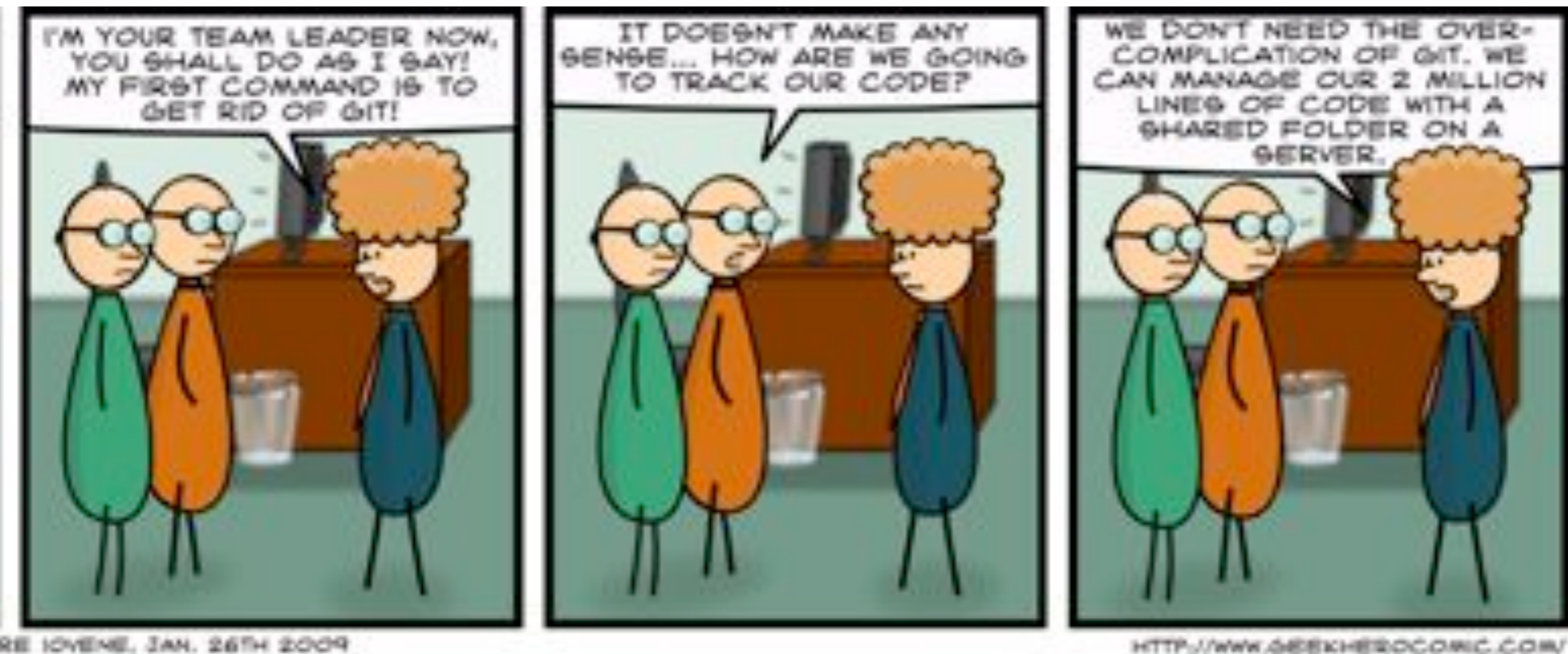
1 wife, 3 sons, 1 espresso machine

likes canoeing



Git

Git is a distributed version control system



Git

- originally developed by Linus Torvalds
- is a distributed version control system
 - every working copy is a complete repository
- very powerful
- can seem more complex than Subversion
- basic operations actually quite simple

Git

Clone a repository

```
$ mkdir FLOW3
$ cd FLOW3
$ git clone --recursive git://git.typo3.org/FLOW3/Distributions/Base.git .
Cloning into ....
remote: Counting objects: 3837, done.
remote: Compressing objects: 100% (2023/2023), done.
remote: Total 3837 (delta 2007), reused 2721 (delta 1465)
Receiving objects: 100% (3837/3837), 3.49 MiB | 28 KiB/s, done.
Resolving deltas: 100% (2007/2007), done.
```


Git

Commit to a local repository

```
$ git commit -a -m 'A useful commit message'  
  
[master (root-commit) 419aaa2] foo  
1 files changed, 0 insertions(+), 0 deletions(-)  
create mode 100644 .userchain
```

- it's your repository, so you can commit anything, anytime
- until published feel free to change history as needed

Git

Push to a remote repository

```
$ git push

Counting objects: 82, done.
Delta compression using up to 2 threads.
Compressing objects: 100% (31/31), done.
Writing objects: 100% (57/57), 6.09 KiB, done.
Total 57 (delta 24), reused 21 (delta 7)
To git@github.com:typo3/gerrit.git
+ 6cd4495...a2bcced production -> production
```

- after publishing do not change history anymore

Git

Cool features

- local repository allows commits anytime
- local history can be cleaned up before pushing changes
- branches are local, fast and cheap
- changes can be shared easily
- distinguishes author and committer
- powerful history rewriting

Code Reviews



Code Reviews

- are a quality assurance tool
- all code contains errors, more or less
- it's easier to spot them with four, six, eight, ... eyes
- a review must be passed for code to be integrated

Code Reviews

Code Review

is about the *looks*

- good variable and function names
- CGL compliance
- reasonable program flow
- clean coding

Can be checked by reading the code, can partly be automated

Code Reviews

Functional Review

is about the *functionality*

- do the unit and functional tests pass?
- does the bugfix fix the bug? the feature work?
- is nothing else broken?

Can be checked by testing the code, can partly be automated

Gerrit

Gerrit is a code review tool

- developed by Google for Android
- based on Git
- acts as a firewall in front of a Git repository
- is a web-based review tool
- is a SSH server
- is a Git server
- manages Git permissions along the way
- see it at <https://review.typo3.org>

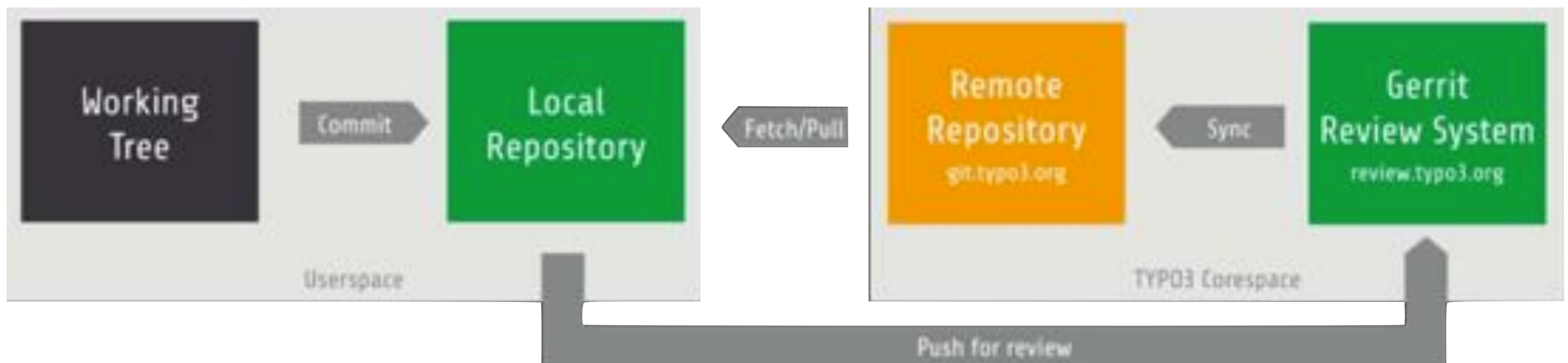


Gerrit

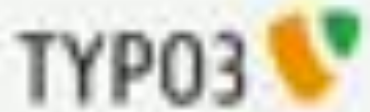
Git standalone



Git & Gerrit



Gerrit



All My Admin Documentation

Open Merged Abandoned

Search for status:open

ID	Subject	Owner	Project	Branch
E10711047	FEATURE: Security: Add request returning after security inspection	Andreas Fortner	FL0ND3PackagesFL0ND3	master
E17121016	TASK: Fixed submodule pointer of bootstrap/extensions	Oliver Hader	T3P03ty3Core	master (BASE)
Eee2af618	TASK: Use Storage objects for FastMessage	Christian Muster	FL0ND3PackagesFL0ND3	master
E84d1e910	FEATURE: Add RUFF support (T3P03)	Georg Ringer	T3P03ty3Core	master (2025_August)
E113d1740	BUGFIX: Remove usage of Ext::getUrl() in FEILoader::renderCode	Woo Huh	T3P03ty3Core	master (21728)
E100c1000	FEATURE: Add AP support and editor loading	Christopher Huber	FL0ND3PackagesFL0ND3	master
E102d1002	FEATURE: Add AP number configuration	Christopher Huber	FL0ND3DistributionsBase	master
E71c10123	BUGFIX: Fix Mailbox with subdomains	Andreas Fortner	FL0ND3PackagesFL0ND3	master
E192c10708	BUGFIX: Change argument handling of WizardViewHelpers	Sebastian Schuler	FL0ND3PackagesFluid	master
E104c1000	FEATURE: expandList for widget	Georg Ringer	T3P03ty3Core	master (Issue_18472)
Ea1d10984	TASK: Fixed submodule pointer of bootstrap/extensions	Oliver Hader	T3P03ty3Core	master (BASE)
E109e1111	BUGFIX: Submodule path will be used in composer archive	Sebastian Mast	T3P03ty3CoreComposerArchives&Version	master (11100)
E13ae103c	BUGFIX: Bring back redirectToRoute hook in Page Tree	Georg Ringer	T3P03ty3Core	master (Issue_21247)
Ea181a07c	TASK: Livelocked: Fix content editing with Apache 2.4	Sebastian Kuchera	FL0ND3PackagesT3P03	master (28710)
E13d11230	TASK: Livelocked: Apache Core and VCL bugfixes	Sebastian Kuchera	FL0ND3PackagesT3P03	master (28710)
E130e108a	TASK: Livelocked: Upgrade Apache to recent version 2.4 Apache	Sebastian Kuchera	FL0ND3PackagesT3P03	master (28710)
E1fac1467c	FEATURE: Introduce preview URL in notification	Michael Heuser	T3P03ty3CoreComposerArchives&Composer	master (11018)
E0e18034	FEATURE: Security: Fix CSRF protection	Oliver Hader	T3P03ty3CoreComposerMCDatabase	master (2e1e2e2e)

Gerrit

see user's changes

ID	Subject	Owner	Project	Branch
E10f71047	FEATURE: Security: Add request resuming after security interruption	Andreas Fortmeier	FL000/Packages/FL000	master
E1f52b018	TASK: Based submodule: justify of base2base2workspaces	Olivier Hader	T000+ACore	master (T000)
Eee2a6a28	TASK: Use Message objects for MailMessage	Christian Meier	FL000/Packages/FL000	master
184d04e10	FEATURE: Add KAFF support (T000)	Sebastian Meier	T000+ACore	master (T000)
E1f5d7f4b	BUGFIX: From name of Test module (FL in THE_EDITOR) re-use code	Wolfgang Huber	T000+ACore	master (T000)
E100c1000	FEATURE: Add API support and related bootstrap	Christopher Huber	FL000/Packages/FL000	master
E10200002	FEATURE: Add API: Number configuration	Christopher Huber	FL000/Distributions/Boot	master
E71c10e13	BUGFIX: fix Mailboxer with subdomains	Andreas Fortmeier	FL000/Packages/FL000	master
E10c10708	BUGFIX: Change argument handling of WizardViewWizard	Ekman Schuler	FL000/Packages/Flut	master
E10c1000c	FEATURE: expand List for address	Georg Singer	T000+ACore	master (T000)
Ea4d00004	TASK: Based submodule: justify of base2base2workspaces	Olivier Hader	T000+ACore	master (T000)
E100e0444	BUGFIX: method call will be used in other view classes	Sebastian Meier	T000+ACore/Community/Infrastructure/Version	master (T000)
E10ae100c	BUGFIX: Bring back redaction for hooks hook in Page Tree	Georg Singer	T000+ACore	master (T000)
Ea1010027	TASK: Levelized: fix connect error with Apache 2.2	Sebastian Fuhrer	FL000/Packages/T000	master (T000)
E10d11000	TASK: Levelized: Apache Core and VCL support	Sebastian Fuhrer	FL000/Packages/T000	master (T000)
E100e400a	TASK: Levelized: Upgrade Apache to recent version 2.2 Apache	Sebastian Fuhrer	FL000/Packages/T000	master (T000)
E10c04075	FEATURE: ...	Michael Fasser	T000+ACore/Community/Infrastructure/Version	master (T000)
E10000034	...	Oliver Düb	T000+ACore/Community/Infrastructure/Version	master (T000)
E10100010	FEATURE: ...	Karen Dambekala	FL000/Packages/Flut	master
E10000010	FEATURE: ...	Karen Dambekala	FL000/Packages/Flut	master
E10000020	FEATURE: make displayed links in "Send to user" view configurable	Simon Scholz	T000+ACore/Community/Infrastructure/Version	master
E10000000	FEATURE: ...	Karen Dambekala	FL000/Packages/Flut	master

unique change id

filter by project

Gerrit

★ Change I97c6d735: [TASK] Move profiling data setup to command controller

Change-Id:	I97c6d73526af02999e22a97c9e142881fb3a4479
Owner:	Karsten Dambekalis
Project:	FLOW3/Package/Blog
Branch:	master
Topic:	
Uploaded:	Jun 7, 2011 22:01
Updated:	Jun 8, 2011 05:42
Status:	Review in Progress

[Permalink](#)

[TASK] Move profiling data setup to command controller
Also removes some unused code from the web setup controller.
Change-Id: I97c6d73526af02999e22a97c9e142881fb3a4479

Reviewer	Verified	Code Review	
Bens Admiral	<input checked="" type="checkbox"/>	+1	Looks good to me, but someone else must approve

- Need Verified +2 (Verified by team member)
- Need Code Review +2 (Looks good to me, approved)

Dependencies

ID	Subject	Owner	Project	Branch	Updated
Depends On					
★ I096414c0	[FEATURE] Enable category search in Blog	Karsten Dambekalis	FLOW3/Package/Blog	master	05:33
Needed By					
(None)					

Gerrit

Old Version History: 

▼ Patch Set 1 a086bc7adc3269a65480b475890962f9749e1a07 [gitweb]

Author	Karsten Dambekalis <karsten@typo3.org> Jun 7, 2011 21:57				
Committer	Karsten Dambekalis <karsten@typo3.org> Jun 7, 2011 21:57				
Parent(s)	db86177aa1cadeebf769c9d4254666396f9142f5 [FEATURE] [Enable category search in Blog]				
Download	checkout	pull	cherry-pick	patch	Anonymous Git SSH
	git fetch git://git.typo3.org/Flow3/Packages/Blog refs/changes/77/2577/1 && git cherry-pick FETCH_HEAD				

	File Path	Comments	Size	Diff		Reviewed
	Commit Message			Side-by-Side	Unified	
A	Classes/Command/SetupCommandController.php		143 lines	Side-by-Side	Unified	
M	Classes/Controller/SetupController.php		+4, -60	Side-by-Side	Unified	
			+147, -60			

Comments

Rens Admiraal

Patch Set 1: Looks good to me, but someone else must approve

Gerrit

Change I97c6d735: Classes/Controller/SetupController.php

Patch History

	Old Version	New Version	Comments
Base			
Patch Set 1			

[TASK] Move profiling

Also removes some other

Change-Id: I97c6d735

Ignore whitespace: None Space Tab
 Tab Width: 2 Syntax Coloring Whitespace Errors Skip Uncommented Files Reviewed
 Context: 20 lines Ignore Differences Show Tabs Skip Deleted Files

SetupCommandController.php

View in changes

Old Version

```

60- */
61- protected $authenticationManager;
62-
63- /**
64-  * @var Project
65-  * @var PDUFDND\Security\Context
66-  */
67- protected $securityContext;
68-
69- /**
70-  *
71-  * @return void
72-  */
73- public function indexAction() {
74-     $this->forward($this->blogRepository->findActive() == null ? "index/setup" : "setup/setup");
75- }
76-
77- /**
78-  * Sets up a fresh blog and creates a new user account.
79-  *
80-  * @return void
81-  */
82- public function installBlogAction() {
83-     if (!$this->blogRepository->findActive() != null) {
84-         $this->redirect("index", "Post");
85-     }
86-
87-     $this->blogRepository->removeAll();
88-
89-     $blog = $this->projectManager->create(PDUFDND\Security\Model\Blog);
    
```

```

60- */
61- protected $authenticationManager;
62-
63- /**
64-  * @var Project
65-  * @var PDUFDND\Security\Context
66-  */
67- protected $securityContext;
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85-     }
86-
87-     $this->blogRepository->removeAll();
88-
89-     $blog = new PDUFDND\Security\Model\Blog();
    
```

Gerrit

Communication is Key

- inline comments by double clicking in diff view



- per patch set comments

Gerrit

Functional Tests Made Easy

- ready-to-use commands for getting a change provided by Gerrit

```

Author Karsten Dambekalns <karsten@typo3.org> Jun 7, 2011 21:57
Committer Karsten Dambekalns <karsten@typo3.org> Jun 7, 2011 21:57
Parent(s) db86177aa1cadeebf769c9d4254b6639bf9142f5 [FEATURE] Enable category search in Blog
Download checkout | pull | cherry-pick | patch | Anonymous Git | SSH |
git fetch git://git.typo3.org/FLOW3/Packages/Blog refs/changes/77/2577/1 && git cherry-pick FETCH
    
```

- choice between checkout and cherry pick
 - checkout exactly reproduces what was pushed
 - cherry-pick adds the change to your current state

Gerrit

Functional Tests Made Easy

- after getting the change run tests and/or test manually
- then leave a review in Gerrit



Gerrit

Verified:

+2 Verified by team member
 +1 Verified
 0 No score
 -1 Fails

Code Review:

+2 Looks good to me, approved
 +1 Looks good to me, but someone else must approve
 0 No score
 -1 I would prefer that you didn't submit this
 -2 Do not submit

Cover Message:

Functional review
vote here

Code review
vote here

Explain your vote
if needed / helpful



Gerrit

Contributing a Change

- Git needs to be set up (your name and email must match the Gerrit user)
- Upload your SSH public key to Gerrit



- Make Git push to Gerrit by default

```
$ git config --global  
url."ssh://review.typo3.org".pushInsteadOf git://git.typo3.org
```

Gerrit

Creating the Change-ID

- Gerrit comes with a commit hook to create the ID
- just copy it into every repository

```
$ scp -p -P 29418 review.typo3.org:hooks/commit-msg .git/hooks/
```

- for submodules use this

```
$ git submodule foreach  
    'scp -p -P 29418 review.typo3.org:hooks/commit-msg .git/hooks/'
```

Gerrit

Prepare & Push the Change

- make your code change
- commit and provide a good commit message
- check your change again

```
$ git log -p origin/master..HEAD
```

- push to a virtual branch to create a change set

```
$ git push origin HEAD:refs/for/master
```

- Gerrit will tell you the URL for the new change

Summary

- Git allows for more efficient work
- Gerrit makes code review comfortable
- central hub for code comments and change history
- functional tests are easy through ready-to-use commands

Thank You!

- These slides: <http://slideshare.net/kfish>
- Follow me on twitter: @k_fish
- Give me feedback:
 - karsten@typo3.org
 - <http://joind.in/3550>