

DE LA RECHERCHE À L'INDUSTRIE

cea



BOF Session: reviewing code with gerrit and gerrithub

Philippe DENIEL (philippe.deniel@cea.fr)

www.cea.fr

When working in community, reviews are necessary

- Other people points of view is always useful
 - A different eye will see different things
 - The developer of a piece of code is too “inside” the code he just wrote, he can't take the needed distance with it
- QA is not only running tests and more tests, it includes reviews

Reviews are release manager friendly

- The release manager has the responsibility to validate/integrate patches
 - When bunches of patchsets come, the workload is high
 - Bugs of others that you integrated upstream become your bugs...
- Code reviews engage the responsibilities of the reviewers
 - Several reviewers => working is leveraged by stripping ;-)
 - Several points of view are always better than a single one
 - Code Reviews are like Tribal Council : they are part of a community's life

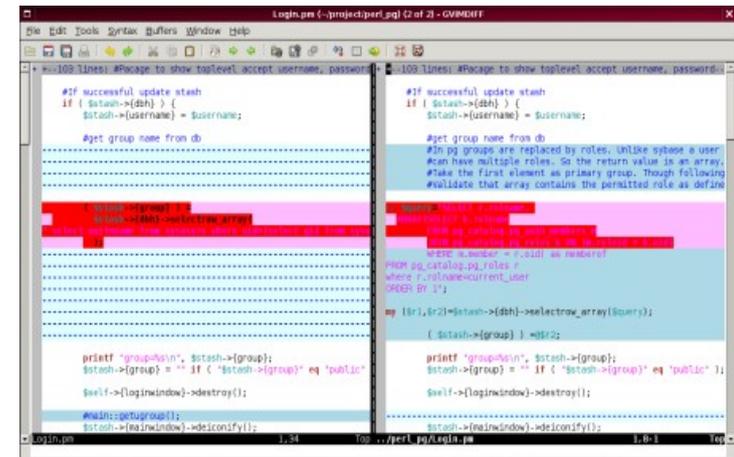


git diff / git status

- A fundamentally local tool : you need other tools to share the content of your review
- Nice if you have no X11, limited otherwise

Vimdiff/gvimdiff

- Comes with vim-enhanced/vim-X11 packages
- Basic setup to be used
 - git mergetool -t vimdiff
- Nicer but remains local
- You still need a way to share reviews and follow changes



Github provides a user-friendly “diff” interface

- Natural to use : NFS-Ganesha's repository is hosted by github.com
- Everyone has a github account, everyone is using github
- Reviews are shared : everyone can see everyone's comments



Drawbacks

- This interface is a fancy git diff
 - It shows one commit, following changes across several commits is tricky
- Rebased code becomes your enemy
 - You push a commit in your “for_review” branch
 - People review it and see a bug
 - You fix the bug, but you won't push a buggy commit, so you rebase the code to squash the initial commits and the related fixes
 - A new commit is born => all comments associated with the first one are lost
 - Trace-ability becomes almost impossible
 - Initial commit becomes orphan : sooner or later, github.com will gc it.

This interface is a “diff” interface, not a review interface

Several tools exists

- Differential
- Gerrit (forked from Rietveld)
- Kallithea (forked from RhodeCode)
- Review Board
- Rietveld (SVN related, used on Google Cloud Service, an evolution of Mondrian)
- Crucible (proprietary)

Gerrit has become a de-facto standard

- Large projects review code via Gerrit
 - Some examples : Android, LibreOffice, KitWate (Cmake), OpenStack, Qt, Scilab
 - This a non-exhaustive list
- Why Gerrit is nice
 - Makes it easy to follow changes, by following Changelds, not CommitIds
 - User interface is not as fancy as github's one, but it is not ugly
 - If you do not like X11 and want a command-line base review, install git-review
 - Well... in fact, try it on your own, and you'll see how cool it can be ;-)



Setting Up Gerrit is NOT cool

Gerrit is a bit tricky to install

- Provided as a jar file : won't fit sysadm's best practices
- You need an authentication service (for example OpenId) to log in
 - If you want to manage authentication on your own, you need to install and deploy an authentication proxy
- Setting up projects and ACLs is complex
 - Gerrit has user access control for almost every feature
 - You spend more time searching for the access control to add than to review

Github.com folks created gerrithub.io

- Gerrithub.io is really acquainted with github.com
 - Sign-In is based on your github credentials
 - Sign-Up is fast : just tell which of your github repository you want to clone
- No difficult setup to do: everything is already done and ready to use

GerritHub™

Setup to be done in you git repository

- Gerrit is git based, you just need to have gerrit as a remote repository
 - github URL : `git@github.com:phdeniel/nfs-ganesha.git`
 - gerrithub URL : `ssh://phdeniel@review.gerrithub.io:29418/phdeniel/nfs-ganesha`
 - Port 29418 is uncool, but you can use https if you do not want to talk with your firewall administrator

Create a review

- Push a single commit to gerrit, for 'next' branch: `git push gerrithub HEAD:refs/for/next`
- If commit-message contains no Changelid, push request is rejected
 - But the error message will tell you which Changelid to add, using `git commit -amend` and re-push
 - You can have setup a git hook to automatically add the Changelid
 - You can push a complete branch instead of a single commit, but each commit must have a Change Id

Manages changes and versions of a patchset

- Rebase code makes no difficulty as long as the Changelid remains unchanged in the commit message
 - `“git rebase -i “` is your friend (use `“fixup”` instead of `“squash”`)

Using GerritHub : real life example (1/4)

The screenshot shows the GerritHub web interface in a Mozilla Firefox browser. The page title is "My Reviews | review.gerrithub Code Review". The URL is "https://review.gerrithub.io/#/dashboard/self". The browser's address bar shows several open tabs, including "Google", "HP Service Manager", "protocol - diod - 9P2...", "File and Storage Sy...", "#ganesha - freenod...", "Mailing lists service ...", "phdeniel/nfs-ganesha", "git.qemu.org Git - q...", "RESA SALLE TGCC", and "Wikilabs".

The GerritHub interface includes a navigation menu with "All", "My", "Projects", "People", "Documentation", and "GitHub". Below this, there are sub-menus for "Changes", "Drafts", "Draft Comments", "Watched Changes", "Starred Changes", and "Groups". A search bar and the user's name "Philippe DENIEL" are visible in the top right.

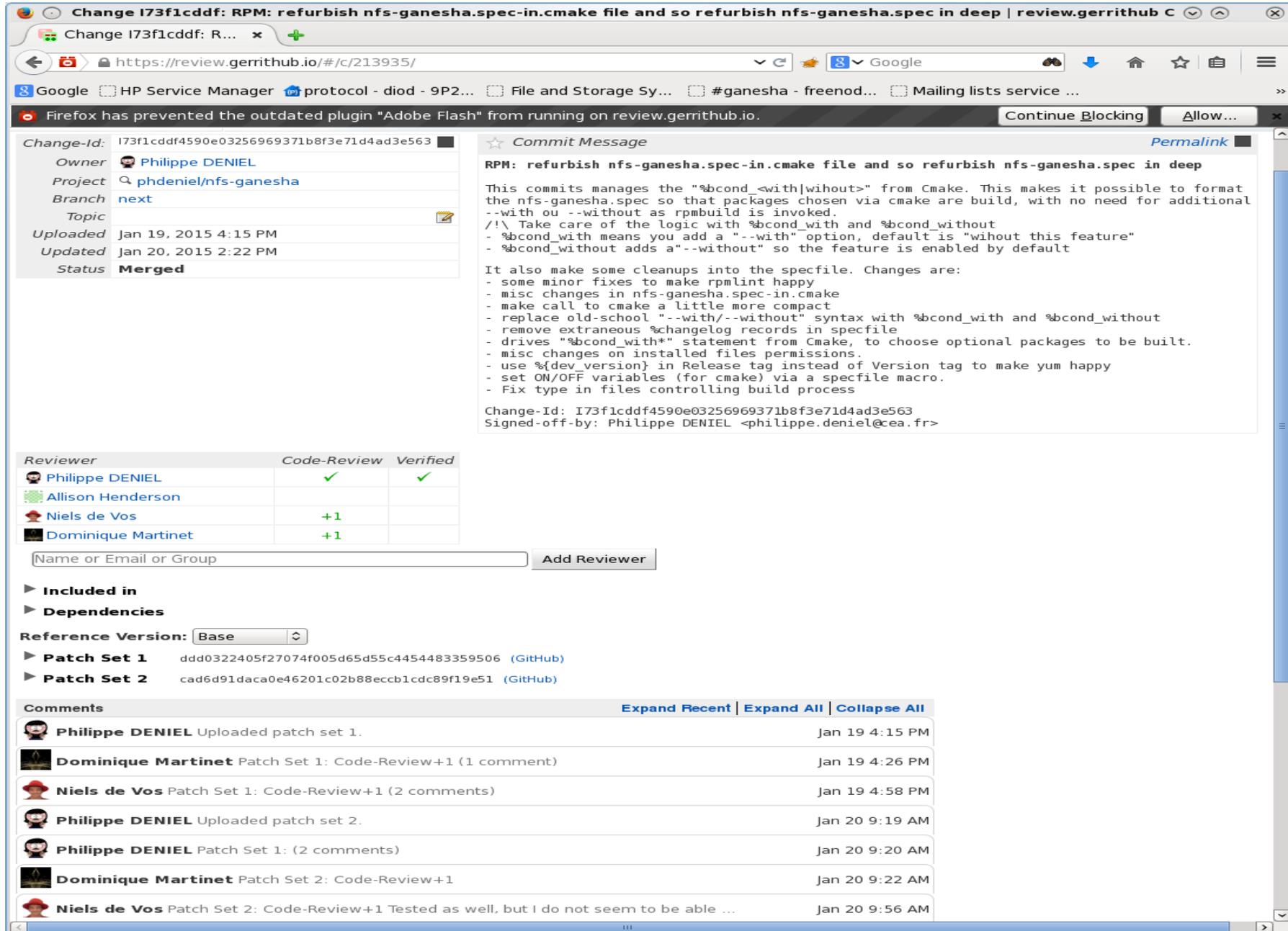
The main content area is titled "My Reviews" and contains a table with columns: "Subject", "Status", "Owner", "Project", "Branch", "Updated", "Size", "CR", and "V".

Subject	Status	Owner	Project	Branch	Updated	Size	CR	V
Outgoing reviews								
(None)								
Incoming reviews								
☆ Add 9p protocol operations statistics - account number of calls - script to ...		Grégoire Pichon	pichong/nfs-ganesha	next (GitHub #1)	Jan 28			
Recently closed								
☆ RPM: refurbish nfs-ganesha.spec-in.cmake file and so refurbish nfs-ganesha.sp...	Merged	Philippe DENIEL	phdeniel/nfs-ganesha	next	Jan 20		✓	✓

At the bottom of the page, there is a footer with the text "Powered by Gerrit Code Review (2.10-rc1-988-g333a9dd) | Report Bug | Press '?' to view keyboard shortcuts".

The footer also includes the GerritHub logo, "Keep in touch" with social media icons for Twitter, Facebook, RSS, LinkedIn, and YouTube, and copyright information: "Copyright © 2013 | GerritForge LLP" with contact details "info@gerritforge.com" and "www.gerritforge.com".

Using GerritHub : real life example (2/4)



Change-Id: I73f1cddf4590e03256969371b8f3e71d4ad3e563

Owner: Philippe DENIEL

Project: phdeniel/nfs-ganesha

Branch: next

Topic:

Uploaded: Jan 19, 2015 4:15 PM

Updated: Jan 20, 2015 2:22 PM

Status: Merged

Commit Message:

RPM: refurbish nfs-ganesha.spec-in.cmake file and so refurbish nfs-ganesha.spec in deep

This commits manages the "%bcond_<with|without>" from Cmake. This makes it possible to format the nfs-ganesha.spec so that packages chosen via cmake are build, with no need for additional --with ou --without as rpmbuild is invoked.

/>\ Take care of the logic with %bcond_with and %bcond_without

- %bcond_with means you add a "--with" option, default is "without this feature"
- %bcond_without adds a "--without" so the feature is enabled by default

It also make some cleanups into the specfile. Changes are:

- some minor fixes to make rpmlint happy
- misc changes in nfs-ganesha.spec-in.cmake
- make call to cmake a little more compact
- replace old-school "--with/--without" syntax with %bcond_with and %bcond_without
- remove extraneous %changelog records in specfile
- drives "%bcond_with*" statement from Cmake, to choose optional packages to be built.
- misc changes on installed files permissions.
- use %dev version in Release tag instead of Version tag to make yum happy
- set ON/OFF variables (for cmake) via a specfile macro.
- Fix type in files controlling build process

Change-Id: I73f1cddf4590e03256969371b8f3e71d4ad3e563
Signed-off-by: Philippe DENIEL <philippe.deniel@cea.fr>

Reviewer	Code-Review	Verified
Philippe DENIEL	✓	✓
Allison Henderson		
Niels de Vos	+1	
Dominique Martinet	+1	

Reference Version: Base

Patch Set 1: ddd0322405f27074f005d65d55c4454483359506 (GitHub)

Patch Set 2: cad6d91daca0e46201c02b88eccb1cdc89f19e51 (GitHub)

Comments:

- Philippe DENIEL Uploaded patch set 1. Jan 19 4:15 PM
- Dominique Martinet Patch Set 1: Code-Review+1 (1 comment) Jan 19 4:26 PM
- Niels de Vos Patch Set 1: Code-Review+1 (2 comments) Jan 19 4:58 PM
- Philippe DENIEL Uploaded patch set 2. Jan 20 9:19 AM
- Philippe DENIEL Patch Set 1: (2 comments) Jan 20 9:20 AM
- Dominique Martinet Patch Set 2: Code-Review+1 Jan 20 9:22 AM
- Niels de Vos Patch Set 2: Code-Review+1 Tested as well, but I do not seem to be able ... Jan 20 9:56 AM

Using GerritHub : real life example (3/4)

Change I73f1cddf: RPM: refurbish nfs-ganesha.spec-in.cmake file and so refurbish nfs-ganesha.spec in deep | review.gerrithub C

Change I73f1cddf: R... x +

https://review.gerrithub.io/#/c/213935/

Google HP Service Manager protocol - diod - 9P2... File and Storage Sy... #ganesha - freenod... Mailing lists service ...

Firefox has prevented the outdated plugin "Adobe Flash" from running on review.gerrithub.io. Continue Blocking Allow...

Change-Id: I73f1cddf4590e03256969371b8f3e71d4ad3e563

Owner Philippe DENIEL

Project phdeniel/nfs-ganesha

Branch next

Topic

Uploaded Jan 19, 2015 4:15 PM

Updated Jan 20, 2015 2:22 PM

Status **Merged**

☆ Commit Message Permalink

RPM: refurbish nfs-ganesha.spec-in.cmake file and so refurbish nfs-ganesha.spec in deep

This commits manages the "%bcond_<with|without>" from Cmake. This makes it possible to format the nfs-ganesha.spec so that packages chosen via cmake are build, with no need for additional --with ou --without as rpmbuild is invoked.

```
#!/\ Take care of the logic with %bcond_with and %bcond_without
- %bcond_with means you add a "--with" option, default is "without this feature"
- %bcond_without adds a "--without" so the feature is enabled by default
```

It also make some cleanups into the specfile. Changes are:

- some minor fixes to make rpmlint happy
- misc changes in nfs-ganesha.spec-in.cmake
- make call to cmake a little more compact
- replace old-school "--with/--without" syntax with %bcond_with and %bcond_without
- remove extraneous %changelog records in specfile
- drives "%bcond_with*" statement from Cmake, to choose optional packages to be built.
- misc changes on installed files permissions.
- use %{dev_version} in Release tag instead of Version tag to make yum happy
- set ON/OFF variables (for cmake) via a specfile macro.
- Fix type in files controlling build process

Change-Id: I73f1cddf4590e03256969371b8f3e71d4ad3e563
Signed-off-by: Philippe DENIEL <philippe.deniel@cea.fr>

Reviewer	Code-Review	Verified
Philippe DENIEL	✓	✓
Allison Henderson		
Niels de Vos	+1	
Dominique Martinet	+1	

► **Included in**

► **Dependencies**

Reference Version:

► **Patch Set 1** ddd0322405f27074f005d65d55c4454483359506 [\(GitHub\)](#)

▼ **Patch Set 2** cad6d91daca0e46201c02b88ecb1cdc89f19e51 [\(GitHub\)](#)

Author Philippe DENIEL <philippe.deniel@cea.fr> Jan 13, 2015 1:46 PM

Committer Philippe DENIEL <philippe.deniel@cea.fr> Jan 20, 2015 9:18 AM

Parent(s) 16e189f8e8c2ee6d54bd21b12951c00382120228 pNFS/LUSTRE: invalidate attrs on close (force DS/MDS coherency)

Download [checkout](#) | [pull](#) | [cherry-pick](#) | [patch](#) | [Anonymous HTTP](#) | [SSH](#) | [HTTP](#)
git fetch ssh://phdeniel@review.gerrithub.io:29418/phdeniel/nfs-ganesha refs/changes/35/213935/2 && git checkout FETCH_HEAD

File Path	Comments	Size	Diff	Reviewed
► Commit Message			Side-by-Side	✓
M src/CMakeLists.txt		+58, -22	Side-by-Side	✓
M src/nfs-ganesha.spec-in.cmake		+126, -228	Side-by-Side	✓
		+184, -250	All Side-by-Side	All Unified

Reviewer engages his responsibility when reviewing

- Each reviewer must explicitly ack or reject a change

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

Integration is possible when patchset's score is high enough

- Code reviews are not an option, they are mandatory
- In case of emergency, the repository owner can give a “+2” which unlock integration
- Integration upstream is done via the gerrithub interface
 - You get the merged branch by fetch the git repository behind gerrithub



We need to have code reviews

- NFS-Ganesha is growing regularly
 - A larger community needs rules (e.g. : using checkpatch.pl) to make it work properly
- NFS-Ganesha is the core of community member's business
 - We'll never be too strict
- Later works :
 - It would be cool to have common test best practices
 - It would be even cooler to have common test platform
 - Jenkins ? Ok, but who would host it ?
 - TravisCI ? A interesting track to be followed
 - The good thing with Jenkins is that you can couple it with Gerrit, by making gerrit trigger a job in Jenkins
 - Can Gerrithub do the same ?

Moving reviews to gerrithub would really help

- This is a BOF session : we are here to discuss about this



