

Introduction to Redmine and Gerrit

7/31/2017

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Overview of Redmine and Gerrit


▶ Redmine

- ▶ Tracks issues in a way similar to Trac Wiki
- ▶ Automatically links commit messages with ticket reference number
- ▶ <https://vlab.ncep.noaa.gov/redmine>

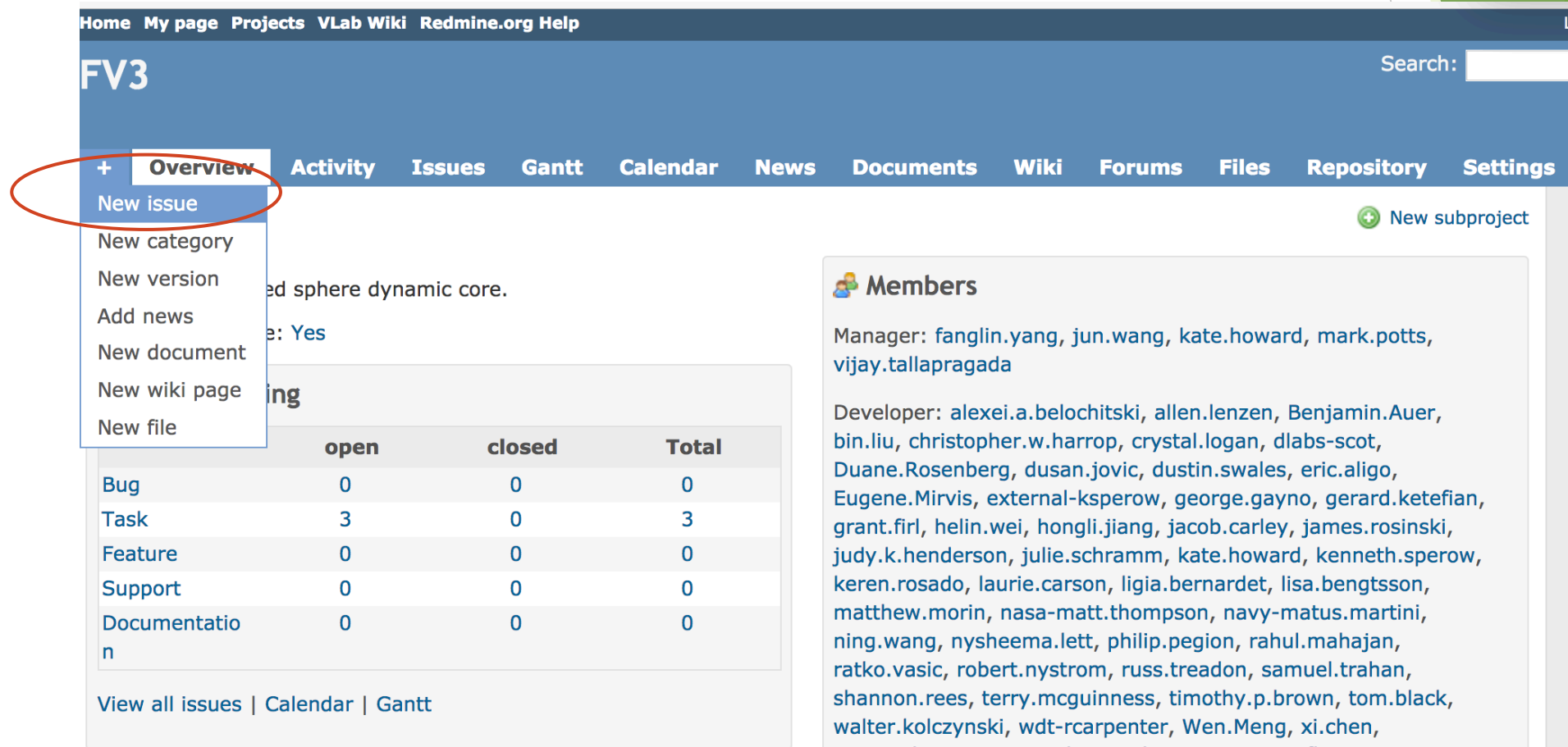
▶ Gerrit

- ▶ Used for code review
 - ▶ Manages access to what will be official version of FV3GFS project
 - ▶ Git pushes to gerrit are not immediate
 - ▶ require +2 approval from other developers/code manager
 - ▶ <https://vlab.ncep.noaa.gov/code-review>
- ▶ On hands training offered later this week and next week

Using Redmine

- ▶ Access via <https://vlab.ncep.noaa.gov/redmine>
 - ▶ Select NEMSfv3gfs from the drop down menu on the top right
- ▶ Select Issues tab
- ▶ Click on  New issue on the top right side
- ▶ Fill out the form and assign to yourself (or someone else on the project)
- ▶ Note the reference number for the issue.
- ▶ Can be linked to git commits

Example of creating a new issue in redmine



The screenshot shows the Redmine web interface for a project named 'FV3'. The navigation bar includes links for Home, My page, Projects, VLab Wiki, Redmine.org, and Help. A search bar is located in the top right. The main navigation menu is highlighted, with the 'New issue' option circled in red. Below the navigation menu, there is a table showing the status of issues (open, closed, total) for different categories. To the right, there is a 'Members' section listing various roles and their associated usernames.

Home My page Projects VLab Wiki Redmine.org Help

FV3 Search:

+ Overview Activity Issues Gantt Calendar News Documents Wiki Forums Files Repository Settings

New issue
New category
New version
Add news
New document
New wiki page
New file

+ New subproject

Members

Manager: fanglin.yang, jun.wang, kate.howard, mark.potts, vijay.tallapragada

Developer: alexei.a.belochitski, allen.lenzen, Benjamin.Auer, bin.liu, christopher.w.harrop, crystal.logan, dlabs-scot, Duane.Rosenberg, dusan.jovic, dustin.swales, eric.aligo, Eugene.Mirvis, external-ksperow, george.gayno, gerard.ketefian, grant.firl, helin.wei, hongli.jiang, jacob.carley, james.rosinski, judy.k.henderson, julie.schramm, kate.howard, kenneth.sperow, keren.rosado, laurie.carson, ligia.bernetdet, lisa.bengtsson, matthew.morin, nasa-matt.thompson, navy-matus.martini, ning.wang, nysheema.lett, philip.pegion, rahul.mahajan, ratko.vasic, robert.nystrom, russ.treadon, samuel.trahan, shannon.rees, terry.mcguinness, timothy.p.brown, tom.black, walter.kolczynski, wdt-rcarpenter, Wen.Meng, xi.chen, xuejin.zhang, yuejian.zhu, yunheng.wang, zac.flamig

Developer - Read-only Git Repo: cfic-Jason.Beech-Brandt, cfic-nick.cavanaugh, cwb-chtseng, cwb-dschen, george.gayno,

	open	closed	Total
Bug	0	0	0
Task	3	0	3
Feature	0	0	0
Support	0	0	0
Documentatio n	0	0	0

[View all issues](#) | [Calendar](#) | [Gantt](#)

Redmine Sample

Secure https://vlab.ncep.noaa.gov/redmine/issues/34666

Apps Bookmarks Get Bookmark Add-... stellarscience.com... NOAA Kids Bookmarks Toolbar... Installing Ubuntu 7... Bike frames Other Bookmarks

Home My page Projects VLab Wiki Redmine.org Help Logged in as mark.potts My account Sign out

Community GSI

Search: Community GSI

+ Overview Activity **Issues** Gantt Calendar News Documents Wiki Files Repository Settings

✔ Issue #34666 created.

Bug #34666 [Edit](#) [Log time](#) [Watch](#)

Creating a test issue [« Previous](#) | 1 of 8 | [Next »](#)

Added by mark.potts less than a minute ago.

Status:	New	Start date:	05/30/2017
Priority:	4 - Normal	Due date:	
Assignee:	mark.potts	% Done:	<div style="width: 0%;"></div> 0%

Description [Quote](#)

This is a test issue. It will be linked to a change in a new branch

Subtasks [Add](#)

Related issues [Add](#)

[Edit](#) [Log time](#) [Watch](#)

Also available in: [Atom](#) | [PDF](#)

Issues

- [View all issues](#)
- [Summary](#)
- [Calendar](#)
- [Gantt](#)

Custom queries

- [All issues created within last week](#)
- [By Project](#)
- [By Version \(Any States\)](#)
- [Due: This Week](#)
- [My: By Project](#)
- [My: By Version](#)
- [My: By Version/Project Component](#)
- [My Open Issues](#)
- [Open: By Category](#)
- [Open: By Project](#)
- [Priority: High+](#)

Watchers (0) [Add](#)

Adding reference numbers to commit

```
Terminal — -tcsh — 108x50
[Margaux:~/comgsi 125, git commit -a
[test_branch d18e1192] Merged fov with master for test refs #34666
1456 files changed, 246421 insertions(+), 71113 deletions(-)
create mode 100644 .gitmodules
create mode 100644 CMakeLists.txt
create mode 100644 README.cmake
create mode 100644 cmake/Modules/FindCORELIBS.cmake
create mode 100644 cmake/Modules/FindGSICONTROL.cmake
create mode 100644 cmake/Modules/FindNetCDF.cmake
create mode 100644 cmake/Modules/FindWRF.cmake
create mode 100644 cmake/Modules/setCompilerFlags.cmake
create mode 100644 cmake/Modules/setPlatformVariables.cmake
create mode 100644 core-libs/CMakeLists.txt
create mode 100644 core-libs/bacio/CMakeLists.txt
create mode 120000 core-libs/bacio/bacio.c
create mode 120000 core-libs/bacio/baciof.f
create mode 120000 core-libs/bacio/baciof.h
create mode 120000 core-libs/bacio/bafrio.f
create mode 120000 core-libs/bacio/byteswap.c
create mode 120000 core-libs/bacio/chk_endian.c.f
create mode 120000 core-libs/bacio/clib.h
create mode 120000 core-libs/bacio/makebacio_ccs.sh
create mode 120000 core-libs/bacio/makebacio_theia.sh
create mode 120000 core-libs/bacio/makebacio_wcoss.sh
create mode 120000 core-libs/bacio/makebacio_zeus.sh
create mode 100644 core-libs/bufr/CMakeLists.txt
create mode 100644 core-libs/crtm/CMakeLists.txt
create mode 100644 core-libs/io_int/CMakeLists.txt
create mode 100644 core-libs/nemsio/CMakeLists.txt
create mode 100644 core-libs/sfcio/CMakeLists.txt
create mode 100644 core-libs/sigio/CMakeLists.txt
create mode 100644 core-libs/sp/CMakeLists.txt
create mode 120000 core-libs/test
create mode 100644 core-libs/w3emc/CMakeLists.txt
create mode 100644 core-libs/w3nco/CMakeLists.txt
create mode 100644 doc/EnKF_user_guide/ack.tex
create mode 100644 doc/EnKF_user_guide/dtcdoc.sty
create mode 100644 doc/EnKF_user_guide/enkf_appendix_A.tex
```

Linked to repository in Vlab

The screenshot shows a web browser window displaying a Redmine issue page. The browser's address bar shows the URL <https://vlab.ncep.noaa.gov/redmine/issues/34666>. The page has a navigation bar with tabs for Overview, Activity, Issues (selected), Gantt, Calendar, News, Documents, Wiki, Files, Repository, and Settings. The issue title is "Bug #34666" and it is categorized as "Creating a test issue". It was added by mark.potts about 1 hour ago. The issue details include: Status: New, Priority: 4 - Normal, Assignee: mark.potts, Start date: 05/30/2017, Due date: (blank), and % Done: 0%. The description states: "This is a test issue. It will be linked to a change in a new branch". The "Associated revisions" section shows a revision d18e1192 (diff) added by mark.potts about 1 hour ago, with the note "Merged fov with master for test refs #34666". The revision ID "d18e1192" is circled in red. On the right side, there are sections for "Issues" (View all issues, Summary, Calendar, Gantt), "Custom queries" (All issues created within last week, By Project, By Version (Any States), Due: This Week, My: By Project, My: By Version, My: By Version/Project Component, My Open Issues, Open: By Category, Open: By Project, Priority: High+), and "Watchers (0)".

Secure <https://vlab.ncep.noaa.gov/redmine/issues/34666>

Apps Bookmarks Get Bookmark Add-... stellarscience.com_... NOAA Kids Bookmarks Toolbar... Installing Ubuntu 7... Bike frames » Other Bookmarks

Overview Activity **Issues** Gantt Calendar News Documents Wiki Files Repository Settings

Bug #34666

Edit Log time Watch

Creating a test issue « Previous | 1 of 10 | Next »

Added by [mark.potts](#) about 1 hour ago.

Status:	New	Start date:	05/30/2017
Priority:	4 - Normal	Due date:	
Assignee:	mark.potts	% Done:	<div style="width: 0%;"></div> 0%

Description Quote

This is a test issue. It will be linked to a change in a new branch

Subtasks Add

Related issues Add

Associated revisions

[Revision d18e1192 \(diff\)](#)
Added by [mark.potts](#) about 1 hour ago
Merged fov with master for test refs [#34666](#)

Issues

[View all issues](#)
[Summary](#)
[Calendar](#)
[Gantt](#)

Custom queries

All issues created within last week
[By Project](#)
[By Version \(Any States\)](#)
Due: This Week
My: By Project
My: By Version
My: By Version/Project Component
My Open Issues
Open: By Category
Open: By Project
Priority: High+

Watchers (0)

Add

Gerrit Code Review

The screenshot displays the Gerrit Code Review interface for a merged change. The browser address bar shows the URL: <https://vlab.ncep.noaa.gov/code-review/#/c/10132/>. The page title is "Change 10132 - Merged". The change description is "Updated to support gfortran compilation (version 5.2)".

Key details include:

- Owner:** Mark Potts
- Reviewers:** Michael Lueken
- Project:** ProdGSI
- Branch:** master
- Updated:** 4 weeks ago

Code-Review and Verified counts are shown as +2 and +1, both by Michael Lueken. Action buttons for "Cherry Pick" and "Revert" are visible.

A "Related Changes (1124)" list is provided on the right, including:

- Updated to support gfortran compilation
- Added submodule for external libs
- Merge branch 'master' of https://vlab.noaa.gov
- Matched to svn version of trunk
- Updated submodule
- updated to latest svn release Merge branch 'temp' into svn-master
- Trunk: Merged kbathmann_updcovcalc
- Trunk: Merged Cmake-unit-tests branch
- Merge branch 'svn-Cmake-unit-tests'
- Merge branch 'svn-m2'
- Fixed issue with merge
- Merged changes
- Merged in new code
- Merge branch 'svn-m2' into svn-Cmake-unit-tests
- Trunk: Merged satinfo_update branch a

Metadata for the change:

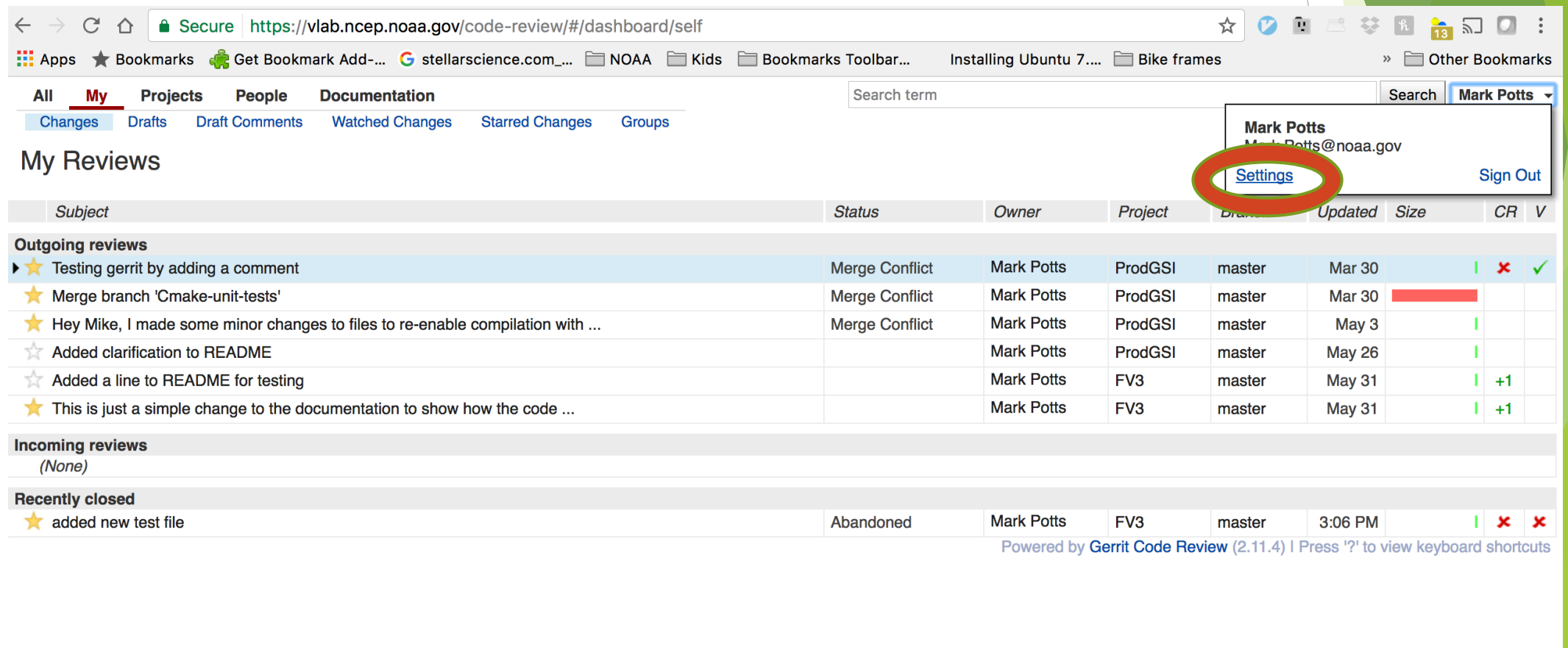
- Author:** Mark A. Potts <mark.potts@noaa.gov>
- Committer:** Mark A. Potts <mark.potts@noaa.gov>
- Commit:** d55c4544cf8ea30fa266849c263e114a1c87f11f
- Parent(s):** 6744018a36a60f91470cdc9585024d96c0b2a71e
- Change-Id:** Id55c4544cf8ea30fa266849c263e114a1c87f11f

The bottom section shows a "Files" table with columns for "File Path", "Comments", and "Size".

File Path	Comments	Size
Commit Message		
.gitmodules	4	
cmake/Modules/setCompilerFlags.cmake	10	
src/m_coreNode_F90	0	

Setting up Gerrit

- ▶ Navigate to <https://vlab.ncep.noaa.gov/code-review>
- ▶ Click on user name in right hand corner and select settings



The screenshot shows the Gerrit Code Review interface. The user is logged in as Mark Potts. The user profile dropdown menu is open, and the 'Settings' link is highlighted with a red circle. The main content area displays a table of reviews, categorized into 'Outgoing reviews', 'Incoming reviews', and 'Recently closed'.

Subject	Status	Owner	Project	Branch	Updated	Size	CR	V
Outgoing reviews								
★ Testing gerrit by adding a comment	Merge Conflict	Mark Potts	ProdGSI	master	Mar 30		✗	✓
★ Merge branch 'Cmake-unit-tests'	Merge Conflict	Mark Potts	ProdGSI	master	Mar 30		✗	
★ Hey Mike, I made some minor changes to files to re-enable compilation with ...	Merge Conflict	Mark Potts	ProdGSI	master	May 3			
☆ Added clarification to README		Mark Potts	ProdGSI	master	May 26			
☆ Added a line to README for testing		Mark Potts	FV3	master	May 31		+1	
★ This is just a simple change to the documentation to show how the code ...		Mark Potts	FV3	master	May 31		+1	
Incoming reviews (None)								
Recently closed								
★ added new test file	Abandoned	Mark Potts	FV3	master	3:06 PM		✗ ✗	

Powered by [Gerrit Code Review \(2.11.4\)](#) | Press '?' to view keyboard shortcuts

Upload ssh public key

The screenshot shows a web browser window with the address bar displaying `https://vlab.ncep.noaa.gov/code-review/#/settings/`. The browser's bookmark bar includes 'Apps', 'Bookmarks', 'Get Bookmark Add-...', 'stellarscience.com_...', 'NOAA', 'Kids', and 'Book'. The page has a navigation menu with 'All', 'My', 'Projects', 'People', and 'Documentation'. Below this is a secondary menu with 'Changes', 'Drafts', 'Draft Comments', 'Watched Changes', 'Starred Changes', and 'Groups'. The main heading is 'Settings'. On the left, a sidebar lists 'Profile', 'Preferences', 'Watched Projects', 'SSH Public Keys' (circled in red), 'Identities', and 'Groups'. The main content area displays a table of user information:

<i>Username</i>	Mark.Potts
<i>Full Name</i>	Mark Potts
<i>Email Address</i>	Mark.Potts@noaa.gov
<i>Registered</i>	Mar 22, 2017 4:23 PM
<i>Account ID</i>	1001219

Paste in public key from .ssh/id_rsa.pub

All **My** **Projects** **People** **Documentation**

[Changes](#) [Drafts](#) [Draft Comments](#) [Watched Changes](#) [Starred Changes](#) [Groups](#)

Settings

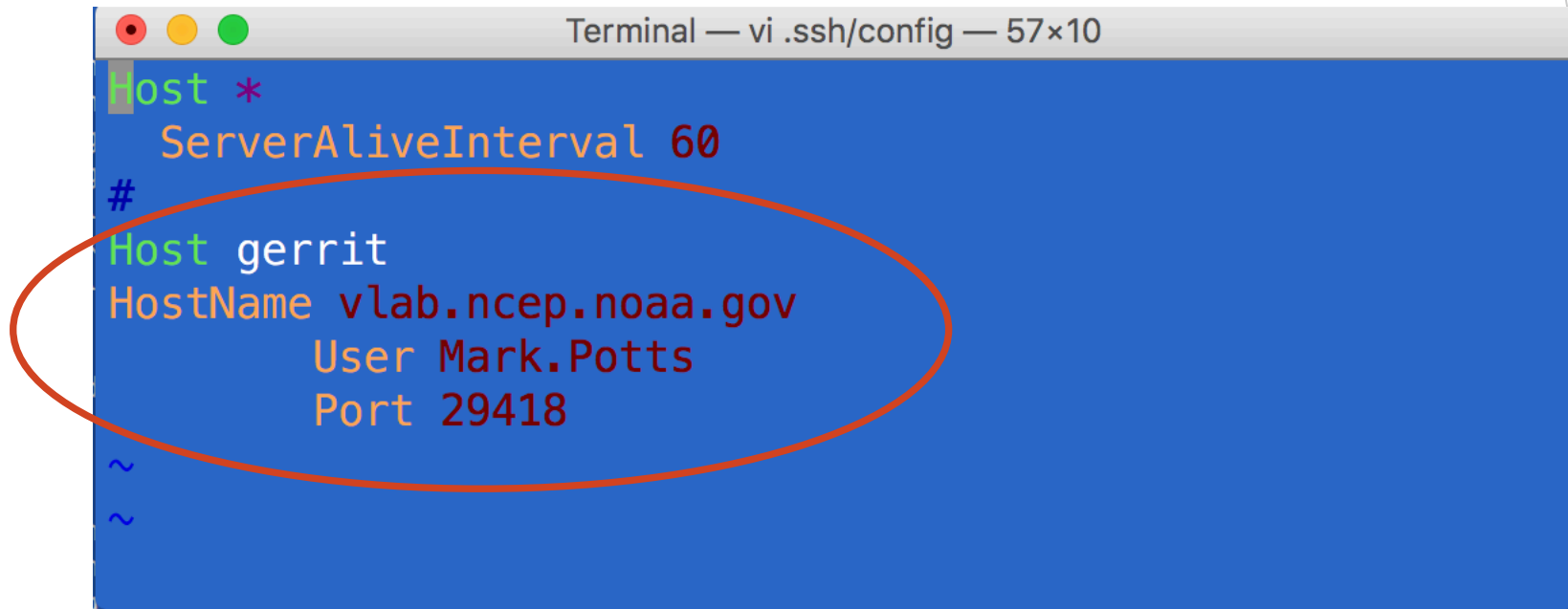
- Profile
- Preferences
- Watched Projects
- Contact Information
- SSH Public Keys**
- HTTP Password
- Identities
- Groups

Status	Algorithm	Key	Comment
<input type="checkbox"/>	ssh-rsa	AAAAB3NzaC1yc2EAAAABIwAAAQEAxh...+wuERlAQ==	mpotts@emc-lw-mpotts.ncep.noaa.gov
<input type="checkbox"/>	ssh-rsa	AAAAB3NzaC1yc2EAAAADAQABAAQ...3lXqFXtL0f	mpotts@Marks-MacBook-Pro.local
<input type="checkbox"/>	ssh-rsa	AAAAB3NzaC1yc2EAAAABIwAAAQEAzw...zKmdyBlQ==	
<input type="checkbox"/>	ssh-rsa	AAAAB3NzaC1yc2EAAAADAQABAAQ...Q1FWSIJPvp	Mark.Potts@wcoast.ncep.noaa.gov
<input type="checkbox"/>	ssh-rsa	AAAAB3NzaC1yc2EAAAABIwAAAQEA1H...rmE6QEw==	mpotts@gcat
<input type="checkbox"/>	ssh-rsa	AAAAB3NzaC1yc2EAAAABIwAAAQEA6I...yNvzqL0w==	mpotts@yslogin3

Add SSH Public Key

▶ [How to Generate an SSH Key](#)

Modify .ssh/config



```
Terminal — vi .ssh/config — 57x10
Host *
  ServerAliveInterval 60
#
Host gerrit
  HostName vlab.ncep.noaa.gov
  User Mark.Potts
  Port 29418
~
~
```

Note that on WCOSS, you will be unable to modify your .ssh/config file. In this case, you can either set up an alias for git commands or use the port directly

Clone the FV3 repository from the Gerrit based repo on VLab

The screenshot shows the Gerrit web interface for the project 'Project NEMSFV3GFS'. The browser address bar displays 'https://vlab.ncep.noaa.gov/code-review/#/admin/projects/NEMSFV3GFS'. The page has a navigation bar with 'All', 'My', 'Projects', 'People', and 'Documentation'. Under 'Projects', there are sub-links for 'List', 'General', 'Branches', 'Access', and 'Dashboards'. A search bar is present with the text 'Search term' and buttons for 'Search' and 'Mark P'. The main content area shows the project name 'Project NEMSFV3GFS' and a list of clone options: 'clone', 'clone with commit-msg hook' (highlighted with a red oval), 'Anonymous HTTP', 'SSH', and 'HTTP'. Below this is a red underlined command: `git clone ssh://Mark.Potts@vlab.ncep.noaa.gov:29418/NEMSFV3GFS && scp -p -P 29418 Mark.Potts@vlab.ncep.noaa.gov:hooks/commit-msg NEMSFV3GFS/.git/hooks/`. There is a 'Description' section with an empty text area. Below that is the 'Project Options' section, which includes: 'State: Active', 'Submit Type: Merge if Necessary', 'Automatically resolve conflicts: INHERIT (false)', 'Create a new change for every commit not in the target branch: INHERIT (false)', 'Require Change-Id in commit message: INHERIT (false)', and 'Maximum Git object size limit:'. The 'Contributor Agreements' section includes 'Require signed-off-by in commit message: INHERIT (false)'. The 'Project Commands' section includes a 'Create Change' button.

Pushing to Gerrit

- ▶ Branches are created and modified in the same way as regular git
- ▶ Master branch is protected and changes to it must go through code review process
- ▶ First merge master to your branch locally

```
git checkout my-branch
git merge master
```
- ▶ Then merge branch to master

```
git checkout master
git merge my-branch
```
- ▶ Push to gerrit

```
git push prod HEAD:refs/for/master
```

Example of pushing to Gerrit

```
Terminal — -tcsh — 97x24
Margaux:~/tmp/comfv3 60; git branch
  master
* test-branch
Margaux:~/tmp/comfv3 61; echo "this is a new file" > new-file
Margaux:~/tmp/comfv3 62; git add new-file
Margaux:~/tmp/comfv3 63; git commit new-file -m "adding a new file"
[test-branch 48bdd0d] adding a new file
 1 file changed, 1 insertion(+)
 create mode 100644 new-file
Margaux:~/tmp/comfv3 64; git push prod HEAD:refs/for/master
Counting objects: 3, done.
Delta compression using up to 4 threads.
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 295 bytes | 0 bytes/s, done.
Total 3 (delta 1), reused 0 (delta 0)
remote: Resolving deltas: 100% (1/1)
remote: Processing changes: new: 1, refs: 1, done
remote:
remote: New Changes:
remote:  https://vlab.ncep.noaa.gov/code-review/10939 adding a new file
remote:
To gerrit:FV3
 * [new branch]      HEAD -> refs/for/master
Margaux:~/tmp/comfv3 65; █
```

Gerrit view

Secure <https://vlab.ncep.noaa.gov/code-review/#/dashboard/self>

Apps Bookmarks Get Bookmark Add-... stellarscience.com_... NOAA Kids Bookmarks Toolbar... Installing Ubuntu 7... Bike frames » Other Bookmarks

All **My** Projects People Documentation

Changes Drafts Draft Comments Watched Changes Starred Changes Groups

Search term Search Mark Potts ▾

My Reviews

Subject	Status	Owner	Project	Branch	Updated	Size	CR	V
Outgoing reviews								
★ Testing gerrit by adding a comment	Merge Conflict	Mark Potts	ProdGSI	master	Mar 30		✗	✓
★ Merge branch 'Cmake-unit-tests'	Merge Conflict	Mark Potts	ProdGSI	master	Mar 30			
★ Hey Mike, I made some minor changes to files to re-enable compilation with ...	Merge Conflict	Mark Potts	ProdGSI	master	May 3			
☆ Added clarification to README		Mark Potts	ProdGSI	master	May 26			
☆ Added a line to README for testing		Mark Potts	FV3	master	May 31		+1	
★ This is just a simple change to the documentation to show how the code ...		Mark Potts	FV3	master	May 31		+1	
☆ adding a new file		Mark Potts	FV3	master	9:33 PM			
Incoming reviews								
(None)								
Recently closed								
▶ ☆ This is a new file	Abandoned	Mark Potts	FV3	master	9:32 PM			
★ added new test file	Abandoned	Mark Potts	FV3	master	3:06 PM		✗ ✗	

Powered by [Gerrit Code Review \(2.11.4\)](#) | Press '?' to view keyboard shortcuts

Adding reviewers

All My Projects People Documentation

Changes Drafts Draft Comments Watched Changes Starred Changes Groups

Change 10939 - Needs Code-Review Reply... Patch Sets (1/1) Down

adding a new file

Owner [Mark Potts](#)

Reviewers

Add **Cancel**

Project [FVS](#)

Branch [master](#)

Topic

Strategy Merge if Necessary

Uploaded 4 minutes ago

Cherry Pick **Rebase** **Abandon** **Follow-Up**

Code-Review
Verified

Author [Mark Potts <mark.potts@noaa.gov>](#) Jul 6, 2017 9:33 PM

Committer [Mark Potts <mark.potts@noaa.gov>](#) Jul 6, 2017 9:33 PM

Commit 48bdd0d695ed8a5fb9d02d174c7a9359850fc3f

Parent(s) c63c4d0cea00c07675d9017e90083c0cf1e84df9

Change-Id I48bdd0d695ed8a5fb9d02d174c7a9359850fc3f

Files Open All Diff against: **Base** Edit

File Path	Comments	Size
<input type="checkbox"/> Commit Message		
<input type="checkbox"/> A new-file	1	<div style="width: 100%; height: 10px; background-color: green;"></div>
	+1, -0	<div style="width: 100%; height: 10px; background-color: green;"></div>

Reviewing changes

The screenshot shows a web browser window with the URL `https://vlab.ncep.noaa.gov/code-review/#/c/10939/`. The browser's address bar and tabs are visible at the top. Below the browser, there is a navigation menu with tabs for 'All', 'My', 'Projects', 'People', and 'Documentation'. A search bar and a user profile 'Mark Potts' are also present. The main content area displays 'Change 10939 - Needs Code-Review' with the description 'adding a new file'. A 'Reply...' button is circled in red. Below it is a text input field. A 'Code-Review' dialog box is open, showing a scale from -2 to +2. The '+1' option is selected, with the text 'Looks good to me, approved'. The 'Verified' option is also visible with the text 'No score'. 'Post' and 'Cancel' buttons are at the bottom of the dialog. Below the dialog, the text 'Code-Review Verified' is displayed. At the bottom of the page, there is a 'Files' section with a table showing the commit message and a new file 'A new-file' with a size of 1 and a change of +1, -0.

Author [Mark Potts <mark.potts@noaa.gov>](#) Jul 6, 2017 9:33 PM
Committer [Mark Potts <mark.potts@noaa.gov>](#) Jul 6, 2017 9:33 PM
Commit 48bdd0d695ed8a5bfb9d02d174c7a9359850fc3f
Parent(s) c63c4d0cea00c07675d9017e90083c0cf1e84df9
Change-Id I48bdd0d695ed8a5bfb9d02d174c7a9359850fc3f

File Path	Comments	Size
Commit Message		
▶ A new-file	1	+1, -0

On hands training available August 2, 3, 9, and 10

- ▶ Nominally 25 people per session
- ▶ Will need a laptop or alternatively your desktop (webex)
- ▶ Please set up Gerrit (ssh keys uploaded and ssh config modified) before training
- ▶ Sign up here--
<https://drive.google.com/open?id=1zoL0lpKZRNfchzs2SaZUTE7UDAK5t0rJ4166UbSOQUw>