

FV3 transition to Vlab and Git

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Background and roadmap

- ▶ Made FV3 available (read-only) on Vlab git on May 15, 2017.
- ▶ Currently 35+ members added to the Vlab project
- ▶ FV3 Members granted write access to git repo on June 12, 2017.
- ▶ Introduction to using vlab and git (this briefing) on June 12, 2017.
 - ▶ Invitation to practice using git and learn how to checkout, update, commit, push and merge.
- ▶ After a month or so of practice with git, further training on using Gerrit for code review.
- ▶ Transition fully to git and Gerrit around the end of July 2017.
- ▶ Convert svn to read-only at same time as transition to git/Gerrit.

Get added to Vlab and FV3!

- ▶ Go to <https://vlab.ncep.noaa.gov/group/fv3gfs/home> and fill out the web form to get added to the project and repository.
- ▶ If you have any particular branches from subversion you would like pushed to the git repo, put your branch in this shared document on the google drive—
https://docs.google.com/a/noaa.gov/document/d/1mNfwoqmSX_owdFlYqiK_Q5EmBcKCgUSqg51yZT8ezHg/edit?usp=sharing
- ▶ Any users without noaa.gov email addresses will need to request they be sponsored for a vlab account (contact me mark.potts@noaa.gov).

Git basics

- ▶ Git works somewhat differently than subversion (svn)
- ▶ Clone creates a full copy, including all remote branches, in your local directory
- ▶ Changing between branches is all done in the same directory
 - ▶ Untracked files remain
 - ▶ Tracked files are swapped
- ▶ Commits are first done on the local repo
 - ▶ Local commits to a branch must be pushed to the vlab repo explicitly

Specifics of FV3 Git repo on Vlab

- ▶ COMFV3 is set up as a superproject that includes submodules containing both NEMS and FV3 repositories.
 - ▶ <https://svnemc.ncep.noaa.gov/projects/apps/NEMSFv3gfs>
 - ▶ <https://svnemc.ncep.noaa.gov/projects/nems>
 - ▶ <https://svnemc.ncep.noaa.gov/projects/fv3>
- ▶ To pull all at once

```
git clone --recursive https://user.name@vlab.ncep.noaa.gov/git/comfv3
```

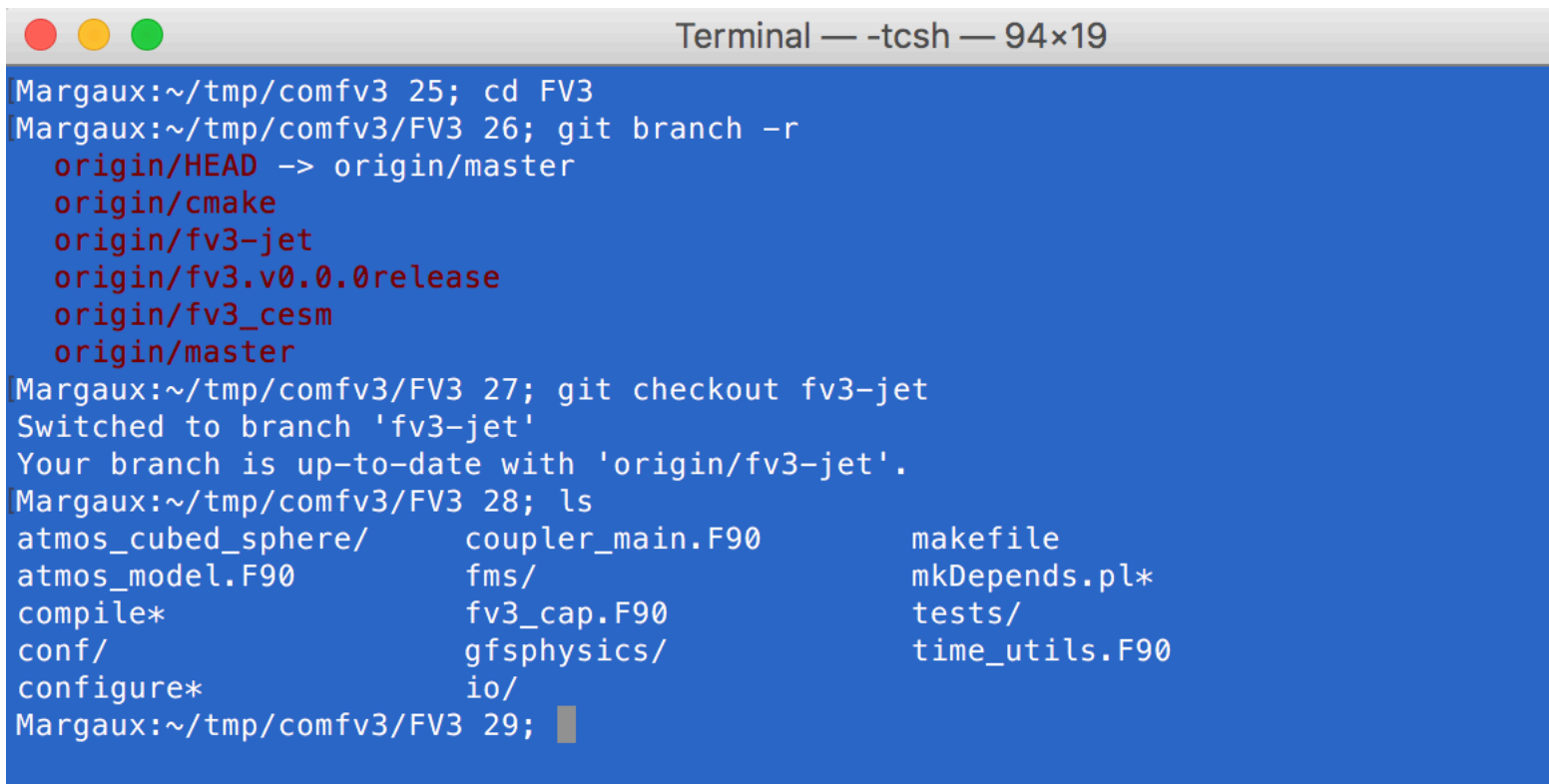
Sample of git clone

```
Terminal — -tcsh — 93x27
Margaux:~/tmp 4; git clone --recursive https://mark.potts@vlab.ncep.noaa.gov/git/comfv3
Cloning into 'comfv3'...
remote: Counting objects: 484, done.
remote: Compressing objects: 100% (300/300), done.
remote: Total 484 (delta 260), reused 319 (delta 156)
Receiving objects: 100% (484/484), 807.71 KiB | 1.34 MiB/s, done.
Resolving deltas: 100% (260/260), done.
Submodule 'FV3' (https://mark.potts@vlab.ncep.noaa.gov/git/fv3-ext) registered for path 'FV3'
Submodule 'NEMS' (https://mark.potts@vlab.ncep.noaa.gov/git/nems-ext) registered for path 'NEMS'
Cloning into '/Users/mpotts/tmp/comfv3/FV3'...
remote: Counting objects: 899, done.
remote: Compressing objects: 100% (477/477), done.
remote: Total 899 (delta 407), reused 875 (delta 396)
Receiving objects: 100% (899/899), 4.07 MiB | 0 bytes/s, done.
Resolving deltas: 100% (407/407), done.
Cloning into '/Users/mpotts/tmp/comfv3/NEMS'...
remote: Counting objects: 20671, done.
remote: Compressing objects: 100% (5231/5231), done.
remote: Total 20671 (delta 15200), reused 20603 (delta 15192)
Receiving objects: 100% (20671/20671), 479.72 MiB | 11.27 MiB/s, done.
Resolving deltas: 100% (15200/15200), done.
Submodule path 'FV3': checked out '507a870fbbf8f5fa303b604c43eeef1747f4b2f1'
Submodule path 'NEMS': checked out '247d9e8c0fa4637b69e2d89f553bbec17bf2790d'
Margaux:~/tmp 5; █
```

Get started with the new repo

- ▶ Change to the new comfv3 directory and look around
- ▶ Note that FV3 and NEMS are actually separate repositories in the comfv3 root.
- ▶ CD to FV3 and check out a branch from the vlab repo

```
git branch -r
git checkout origin branch-name
```



```
Terminal — -tcsh — 94x19
Margaux:~/tmp/comfv3 25; cd FV3
Margaux:~/tmp/comfv3/FV3 26; git branch -r
  origin/HEAD -> origin/master
  origin/cmake
  origin/fv3-jet
  origin/fv3.v0.0.0release
  origin/fv3_cesm
  origin/master
Margaux:~/tmp/comfv3/FV3 27; git checkout fv3-jet
Switched to branch 'fv3-jet'
Your branch is up-to-date with 'origin/fv3-jet'.
Margaux:~/tmp/comfv3/FV3 28; ls
atmos_cubed_sphere/   coupler_main.F90      makefile
atmos_model.F90       fms/                  mkDepends.pl*
compile*              fv3_cap.F90           tests/
conf/                 gfsphysics/          time_utils.F90
configure*            io/
Margaux:~/tmp/comfv3/FV3 29; █
```

Create a new branch

- Create a new branch starting from master
`git checkout -b new-branch`
- Verify the branch you are on
`git branch`
- Change a file, check status, and commit change
`git status`
`git commit -a (changed existing file)`
`git add new-file; git commit`
- Enter commit message
- Push your local branch up to the vlab server
`git push origin local-branch`

```
Terminal — vim ◀ git comr
This is a smaple comment for a sample file
# Please enter the commit message for your changes. Lines starting
# with '#' will be ignored, and an empty message aborts the commit.
# On branch new-branch
# Changes to be committed:
#   new file:   new-file
#
~
~
```

```
Terminal — -tcsh — 96x27
Margaux:~/tmp/comfv3/FV3 36; git branch
[  fv3-jet
   master
  * new-branch
Margaux:~/tmp/comfv3/FV3 37; echo "this is a new file" > new-file
Margaux:~/tmp/comfv3/FV3 38; git add new-file
Margaux:~/tmp/comfv3/FV3 39; git commit -a
[[new-branch 0ab72e3] This is a smaple comment for a sample file
 1 file changed, 1 insertion(+)
 create mode 100644 new-file
Margaux:~/tmp/comfv3/FV3 40; git push origin new-branch
[Counting objects: 3, done.
Delta compression using up to 4 threads.
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 312 bytes | 0 bytes/s, done.
Total 3 (delta 1), reused 0 (delta 0)
To https://vlab.ncep.noaa.gov/git/fv3-ext
 * [new branch]      new-branch -> new-branch
Margaux:~/tmp/comfv3/FV3 41; git branch -r
[  origin/HEAD -> origin/master
   origin/cmake
   origin/fv3-jet
   origin/fv3.v0.0.0release
   origin/fv3_cesm
   origin/master
   origin/new-branch
Margaux:~/tmp/comfv3/FV3 42;
```


Delete a branch

- ▶ To delete a local branch

```
git branch -D new-branch
```

- ▶ To delete a remote branch

```
git push origin :new-branch
```

- ▶ Generally not a good idea if anyone else may have checked out a copy!

```
Terminal — -tcsh — 96x31
[Margaux:~/tmp/comfv3/FV3 43; git branch
  fv3-jet
  master
* new-branch
[Margaux:~/tmp/comfv3/FV3 44; git checkout master
Switched to branch 'master'
Your branch is up-to-date with 'origin/master'.
[Margaux:~/tmp/comfv3/FV3 45; git branch -D new-branch
Deleted branch new-branch (was 0ab72e3).
[Margaux:~/tmp/comfv3/FV3 46; git branch
  fv3-jet
* master
[Margaux:~/tmp/comfv3/FV3 47; git branch -r
  origin/HEAD -> origin/master
  origin/cmake
  origin/fv3-jet
  origin/fv3.v0.0.0release
  origin/fv3_cesm
  origin/master
  origin/new-branch
[Margaux:~/tmp/comfv3/FV3 48; git push origin :new-branch
To https://vlab.ncep.noaa.gov/git/fv3-ext
- [deleted]          new-branch
[Margaux:~/tmp/comfv3/FV3 49; git branch -r
  origin/HEAD -> origin/master
  origin/cmake
  origin/fv3-jet
  origin/fv3.v0.0.0release
  origin/fv3_cesm
  origin/master
[Margaux:~/tmp/comfv3/FV3 50; █
```

Common issues

- ▶ Made a bunch of changes, but want to scrap them all and go back to last commit

```
git reset --hard HEAD
```

- ▶ Made a bunch of changes and committed locally, but want to revert to previous commit

```
git checkout master
```

```
git branch -D localbranch
```

```
git checkout origin localbranch
```

OR

```
git reset --hard <SOME-COMMIT> // this will delete history
```

```
git revert <SOME-COMMIT> // this will revert to some commit
```

```
git reset --hard HEAD~1 // this will reset to previous commit
```

Using git log to find commits

- ▶ Git log will provide a listing of the history of a given branch

```
Terminal — less ◀ git log — 115×32
in GSD to analyze the observations on coastlines with GSI. The results of this work was represented as a poster (11
62) in WAF/NWP conference in AMS annual meeting 2017.

2. There are many high frequency observations used in RAP/HRRR, such as aircraft and surface observations. GSI
inflates the observation error for duplicated observations from the same station. Another option is added for dupli
cated observations to use one that is closer to the analysis time only.

3. Several bugs were found and fixed in GSI T&E for RAP/HRRR application and from community GSI support and DTC
T&E. Will list those bug fixes and code changes inside this ticket.

commit e0c60d92272aa5bfede1c05883f0561627d9bcb6
Author: ming.hu@noaa.gov <ming.hu@noaa.gov>
Date: Tue Apr 18 15:38:29 2017 +0000

Create this branch to merge the code changes described in ticket 639 to top of the trunk.

commit 20f9cfe364cccb927bc3a3837175351dd1b9645e
Merge: 9fb34aaf e83ba032
Author: Michael.Lueken <Michael.Lueken@noaa.gov>
Date: Mon Apr 17 14:53:41 2017 +0000

Trunk: Merged kbathmann_updcovcalc branch at r91366 to the trunk. The utility to compute inter-channel error co
variances currently includes spatial and temporal information in the calculation, which is not correct for Desrozie
rs' method. This update fixes this, so that observation pairs are taken at the same time and location only (for Des
roziers' method) and greatly simplify the computation. Please note that this is a change to contents of the util di
rectory only, no changes were made to the src directory.

Please see ticket #630 for more details.

commit e83ba03270fd916ad5fa1e4bf01de197ddc5a1b1
Merge: 9af446a8 9fb34aaf
:
```

git log --pretty=oneline

```
Terminal — -tcsh — 115x32
34463be699fabf9c73e3a9fa4ffc4fec75a605fb Added submodules for vlab
14b4da5277762415f0b06745f8a134077862ad1d Added submodules for fix and libsrc
53eadd6e69bac3de030b11b67e94bd9d2944f13 Trunk: Merged updateNoVarCloud_ticket640 branch at r92401 to the trunk. The major code update for this commit is adding the cloud water and cloud ice number concentration in the ARW background IO and the non-var cloud analysis driver. Other changes include: * Small enhancements to the non-var cloud analysis: add analysis to use visibility/fog observations; add option to limit the cloud building with METAR observation unto 1200m; apply the thetaV conservation to the grid that is outside the observed cloud coverage but need to ensure the saturation because of the existing of the background cloud. * Clean unused variable in non-var cloud analysis package. Some unused variables are kept because it needs further investigation to decide if they are still useful at sometime in the future. Most of code changes in lib/GSD/gsdcloud are for code cleaning. * A bug fix in update_guess.f90 for correctly updating 2-m Q and T for surface analysis. * Added a new option to read and process global NASA LaRC cloud products in BUFR format. The observation type for this dataset is "larcglb" and the subroutine is: "read_NASA_LaRC_cloud". * A new driver ( gsdcloudanalysis4gfs.F90 ) and background converting subroutine ( BackgroundCldgfs ) for applying non-var cloud package for the GFS are added. We tested this option with single case and a short retro. This new code can use the global NASA LaRC cloud products to update the background cloud liquid water (cloud ice + cloud water) but further evaluation and tuning on the impact to the GFS forecast should be conducted.
5f697d47777379f1a0be8c6609c8cee6bd0bdcfcd Clean the code for committing to the trunk.
9188d8f5b9830a797662d71e8e9fa28feb9e55b1 Code changes to include GSD no-var cloud analysis update.
f1e755d453ea40ca653dafd8f4456c20162eddcbb Create this branch to hold the code from GSD for the enhancements of non-var cloud analysis.
62454bcc35398454b14b27a0cedf47811723e4ea Trunk: Merged ImproveObsOperator_ticket639_C branch at r91564 to the trunk. This update brings in three changes: * Current GSI forward model for surface observations can induce large representativeness error when surface conditions are inhomogeneous, such as on coastlines. An improved forward model for surface observations is developed in GSD to analyze the observations on coastlines with GSI. * There are many high frequency observations used in RAP/HRRR, such as aircraft and surface observations. GSI inflates the observation error for duplicated observations from the same station. Another option is added for duplicated observations to use one that is closer to the analysis time only. * Several bugs were found and fixed in GSI T&E for RAP/HRRR application and from community GSI support and DTC T&E.
fef10c9d3684ce3cb89c5b21ef01f788ce4a426d Delete unused variables and add precision to hr_offset=min_offset/60.0_r_k
```

Gitk and GitX

The screenshot shows the GitX application window titled "NEMS (branch: master-full)". The interface includes a top toolbar with "View", "Branch" (set to "master-full"), and "Create Branch" buttons. A search bar on the right is labeled "Subject" and "Search".

The main area displays a commit log with columns for Subject, Author, and Date. The selected commit is highlighted in blue:

Subject	Author	Date
Remove the atmos layer from NEMS.	samuel.trahan@noaa.gov	2016-12-21 13:51:46
Update NEMSAppBuilder to load the module command on Gaea and Yellowstone	samuel.trahan@noaa.gov	2016-12-21 13:19:39
Merge revision 85735 of the modulefiles branch. This moves the report*log files to the app-level log directory	samuel.trahan@noaa.gov	2016-12-21 11:56:15
NEMSAppBuilder must forward the \$CHOSEN_MODULE variable to configure	samuel.trahan@noaa.gov	2016-12-21 11:22:32
configure script needs to point to the ../../conf instead of conf	samuel.trahan@noaa.gov	2016-12-21 11:22:15
merge-cap branch: merging revisions 83333 through the head (85704) of ATM-refactor to this branch	samuel.trahan@noaa.gov	2016-12-21 09:51:54
GSM-capping: two bug fixes to NEMSAppBuilder: 1. Do not delete build logs after exiting. 2. Do not clear screen af...	samuel.trahan@noaa.gov	2016-11-29 10:09:05
update exngac_fcst.sh.sms to be same as exglobal_fcst_nems.sh	jun.wang@noaa.gov	2016-11-08 07:56:48
More correct choice of nuopc build targets in build_gsm().	theurich@sourcespring.net	2016-11-04 18:32:59
Fix up the application selection.	theurich@sourcespring.net	2016-11-04 16:55:19
M tests/exglobal_fcst_nems.sh : removed module load for theia M src/conf/modules.nems.Wcoss_ESMF_N...	jun.wang@noaa.gov	2016-11-04 16:40:11
Implement support for component build options via % syntax.	theurich@sourcespring.net	2016-11-04 15:02:42
Removal of atmos layer now that GSM and NMMB are regular external components.	theurich@sourcespring.net	2016-11-03 18:41:01

Below the log, the selected commit message is repeated: "merge-cap branch: merging revisions 83333 through the head (85704) of ATM-refactor to this branch".

The "git-svn-id:" field is: `https://svnemc.ncep.noaa.gov/projects/nems/branches/merge-cap@85706 281fb692-3a18-0410-826d-9e847983f365`

Changed files are listed:

- changed `src/MAIN_NEMS.F90`
- changed `src/makefile`

The diff view for `src/MAIN_NEMS.F90` shows the following changes:

```
... ..@@@ -44,18 -43,12 +44,18 @@@
0 0      USE module_NEMS_GRID_COMP, ONLY: NEMS_REGISTER
1 1      !
2 2      !-----
3 3      - !*** The following module contains error-checking.
3+ 3+ !*** The following module contains error-checking, and other utilities
4 4      !-----
5 5      !
6 6      - USE module_ERR_MSG, ONLY: ERR_MSG, MESSAGE_CHECK
```

Git stash

- ▶ Sometimes, you want to keep things you have been working on, but temporarily do something else.
- ▶ Git stash will put all changes since last commit into “hiding”
- ▶ Run `git stash`, then do some other new thing.
- ▶ To pull changes back, run `git stash pop`
- ▶ Can also be used to stash changes made on one branch and then apply them to another.

Git Stash example

```
Terminal — -tcsh — 80x39
Margaux:~/tmp/comfv3/FV3 24; git status
On branch master
Your branch is up-to-date with 'origin/master'.
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:   gfsphysics/physics/sascnv.f
       modified:   gfsphysics/physics/sascnvn.f
       modified:   gfsphysics/physics/set_soilveg.f
       modified:   gfsphysics/physics/sfc_cice.f
       modified:   gfsphysics/physics/sfc_diag.f
       modified:   gfsphysics/physics/sfc_diff.f
       modified:   gfsphysics/physics/sfc_drv.f
       modified:   gfsphysics/physics/sfc_land.f
       modified:   gfsphysics/physics/sfc_nst.f
       modified:   gfsphysics/physics/sfc_ocean.f
       modified:   gfsphysics/physics/sfc_sice.f
       modified:   gfsphysics/physics/sfcsub.f
       modified:   gfsphysics/physics/sflx.f
       modified:   gfsphysics/physics/shalcnv.f
       modified:   gfsphysics/physics/shalcv.f
       modified:   gfsphysics/physics/shalcv_1lyr.f
       modified:   gfsphysics/physics/shalcv_fixdp.f
       modified:   gfsphysics/physics/shalcv_opr.f

Untracked files:
  (use "git add <file>..." to include in what will be committed)

       gfsphysics/physics/comment
       gfsphysics/physics/lst

no changes added to commit (use "git add" and/or "git commit -a")
Margaux:~/tmp/comfv3/FV3 25; git stash
Saved working directory and index state WIP on master: 507a870 TRUNK UPDATE, tic
ket 15: update for runnig FV3GFS with NSST, output frequency, grid size length s
cales etc.
HEAD is now at 507a870 TRUNK UPDATE, ticket 15: update for runnig FV3GFS with NS
ST, output frequency, grid size length scales etc.
```

Merging changes

- ▶ Git tends to be pretty smart about handling merges. Will look for common ancestor and apply changes one on top of the other.

- ▶ To prepare for merge of your branch into trunk/master

```
git checkout your-branch
```

```
git merge master
```

- ▶ If conflicts arise, use `git mergetool -t` (vimdiff, kdiff3, etc.) I prefer to do this locally (mac or linux) using kdiff3

```
git mergetool -t kdiff3
```

- ▶ Once conflicts are settled, commit changes to local branch and push them to vlab.

- ▶ Now, change to master and merge your updated local branch into master

```
git checkout master
```

```
git merge your-branch
```


Git merge example

```
Terminal — -tcsh — 108x50
Margaux:~/comgsi 110; ls
fix/          lib/          libsrc/       scripts/      src/          util/
Margaux:~/comgsi 111; git branch
* fov_util_goes
  master
Margaux:~/comgsi 112; git merge master
Auto-merging util/Radiance_Monitor/parm/Makefile.conf.theia
Removing util/Radiance_Monitor/nwprod/radmon_shared.v2.0.2/sorc/verf_radtime.fd/Makefile.conf
Removing util/Radiance_Monitor/nwprod/radmon_shared.v2.0.2/sorc/verf_radbcor.fd/Makefile.conf
Removing util/Radiance_Monitor/nwprod/radmon_shared.v2.0.2/sorc/verf_radbcoef.fd/Makefile.conf
Removing util/Radiance_Monitor/nwprod/radmon_shared.v2.0.2/sorc/verf_radang.fd/Makefile.conf
Auto-merging util/Radiance_Monitor/nwprod/gdas_radmon.v2.0.2/scripts/exgdas_vrfyrad.sh.ecf
Auto-merging util/Radiance_Monitor/nwprod/gdas_radmon.v2.0.2/jobs/JGDAS_VERFRAD
Removing util/Radiance_Monitor/nwprod/gdas_radmon.v2.0.0/versions/gdas_radmon.ver
Removing util/Radiance_Monitor/image_gen/src/Makefile.conf
Removing util/Radiance_Monitor/data_extract/sorc/validate_time.fd/Makefile.conf
Removing util/Radiance_Monitor/data_extract/sorc/make_base.fd/Makefile.conf
Removing util/Radiance_Monitor/data_extract/parm/rgnl_conf
Removing util/Radiance_Monitor/data_extract/parm/glbl_conf
Removing util/Radiance_Monitor/data_extract/parm/README
Removing util/ObsStat/gsistats/plot_gsistat.py
Removing util/ObsStat/gsistats/parse_gsistat.py
Removing util/ObsStat/gsistats/cmp_gsistat.py
Removing util/ObsStat/gsistats/README
Removing util/NMC_Bkerror/util/convert2gcv.f
Removing util/NMC_Bkerror/sorc/Makefile.conf
Removing util/Minimization_Monitor/nwprod/gdas_minmon.v1.0.0/versions/gdas_minmon.ver
Auto-merging util/EnKF/gfs/src/recenterstemp.fd/Makefile.conf.nco
Removing util/EnKF/gfs/src/getnstensmeanp.fd/getsfcensmeanp.f90
Removing src/wrwrnmma.F90
Removing src/wrwrffmassa.F90
Removing src/write_obsdiags.F90
Removing src/wrf_netcdf_interface.F90
Removing src/wrf_binary_interface.F90
Removing src/setupyobs.f90
Removing src/regional_io.f90
Removing src/read_wrf_nmm_guess.F90
Removing src/read_wrf_nmm_files.F90
Removing src/read_wrf_mass_guess.F90
Removing src/read_wrf_mass_files.F90
Removing src/read_obsdiags.F90
Auto-merging src/read_obs.F90
Auto-merging src/read_goesndr.f90
CONFLICT (content): Merge conflict in src/read_goesndr.f90
Auto-merging src/read_diag.f90
Removing src/m_obdiag.F90
Removing src/get_wrf_nmm_ensperts.F90
Removing src/get_wrf_mass_ensperts_netcdf.F90
Removing src/get_pseudo_ensperts.F90
Auto-merging src/enkf/smooth_gfs.f90
```


Kdiff3 as mergetool

git mergetool -t kdiff3

The screenshot shows the KDiff3 merge tool interface with three panels (A, B, C) comparing different versions of the file `scripts/rungsi_globalprod.sh`. Panel A (Base) shows the original script with `gencode=$IGEN`. Panel B (Local) shows a modification where `gencode=82` and `delti` is added. Panel C (Remote) shows another modification where `gencode=82` and `delti` is added. A dialog box in the center reports: "Total number of conflicts: 29", "Nr of automatically solved conflicts: 27", and "Nr of unsolved conflicts: 2". The unsolved conflict is highlighted in yellow in the bottom panel, showing a merge conflict between the local and remote changes. The bottom panel also shows the merged content with the conflict resolution options.

```
cat << EOF > gsiparm.anl
&SETUP
miter=2,niter(1)=100,niter(2)=100,
niter_no_gc(1)=50,niter_no_gc(2)=0,
write_diag(1)=.true.,write_diag(2)=.false.
qoption=2,
gencode=$IGEN,factqmin=5.0,factqmax=0.005,
iguess=-1,
oneobtest=.false.,retrieval=.false.,l_foto
use_pbl=.false.,use_compress=.true.,nsig_e
use_gfs_nemsio=.false.,lrun_subdirs=${lrun
newpc4pred=.true.,adp_anglebc=.true.,angor
passive_bc=.true.,use_edges=.false.,diag_p
step_start=1.e-3,emiss_bc=.true.,
$SETUP
/
&GRIDOPTS
JCAP_B=$JCAP_B,JCAP=$JCAP,NLAT=$NLAT_A,NLO
regional=.false.,nlayers(63)=3,nlayers(64)
$GRIDOPTS
/
-----
Output: /Users/mpotts/comgsi/scripts/rungsi_globalprod.sh
&SETUP
miter=1,niter(1)=10,niter(2)=10,
niter_no_gc(1)=50,niter_no_gc(2)=0,
write_diag(1)=.true.,write_diag(2)=.false.,write_diag(3)=.true.,
qoption=2,
? <Merge Conflict>
iguess=-1,
oneobtest=.false.,retrieval=.false.,l_foto=.false.,
use_pbl=.false.,use_compress=.true.,nsig_ext=12,gpstop=50.,
use_gfs_nemsio=.false.,lrun_subdirs=${lrun_subdirs},
newpc4pred=.true.,adp_anglebc=.true.,angord=4,
passive_bc=.true.,use_edges=.false.,diag_precon=.true.,
step_start=1.e-3,emiss_bc=.true.,
$SETUP
/
&GRIDOPTS
JCAP_B=$JCAP_B,JCAP=$JCAP,NLAT=$NLAT_A,NLON=$NLON_A,nsig=$LEVS,
regional=.false.,nlayers(63)=3,nlayers(64)=6,
$GRIDOPTS
/
```

Using Redmine

- ▶ Access via <https://vlab.ncep.noaa.gov/redmine>
 - ▶ Select the Community FV3 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

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
```

Eventually shows up 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 browser's bookmark bar includes items like 'Apps', 'Bookmarks', 'Get Bookmark Add...', 'stellarscience.com...', 'NOAA', 'Kids', 'Bookmarks Toolbar...', 'Installing Ubuntu 7...', 'Bike frames', and 'Other Bookmarks'. The Redmine interface has a blue navigation bar with tabs for Overview, Activity, Issues (selected), Gantt, Calendar, News, Documents, Wiki, Files, Repository, and Settings. The main content area is titled 'Bug #34666' and includes options to Edit, Log time, and Watch. A yellow box highlights the issue's creation details: 'Creating a test issue' (added by mark.potts about 1 hour ago), with fields for Status (New), Priority (4 - Normal), Assignee (mark.potts), Start date (05/30/2017), and Due date. A progress bar shows 0% completion. Below this is the 'Description' section with the text 'This is a test issue. It will be linked to a change in a new branch'. There are sections for 'Subtasks' and 'Related issues', both with 'Add' buttons. The 'Associated revisions' section shows a revision d18e1192 (diff) added by mark.potts about 1 hour ago, with the comment 'Merged fov with master for test refs #34666'. On the right side, there is a sidebar with '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)' with an 'Add' button.

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](#)

Link to page showing changes made

The screenshot shows a web browser window with the following elements:

- Address Bar:** <https://vlab.ncep.noaa.gov/redmine/projects/comgsi/repository/comgsi-git/revisions/d18e1192b5938b2c03e258...>
- Browser Tabs:** Apps, Bookmarks, Get Bookmark Add..., stellarscience.com..., NOAA, Kids, Bookmarks Toolbar..., Installing Ubuntu 7..., Bike frames, Other Bookmarks.
- Page Content:**
 - A link: [Bug #34666: Creating a test issue](#)
 - Files** section with a legend: ● added ● modified ● copied ● renamed ● deleted
 - File tree structure:
 - .gitmodules
 - CMakeLists.txt
 - README.cmake
 - cmake
 - Modules
 - FindCORELIBS.cmake
 - FindGSICONTROL.cmake
 - FindNetCDF.cmake
 - FindWRF.cmake
 - setCompilerFlags.cmake
 - setPlatformVariables.cmake
 - core-libs
 - CMakeLists.txt
 - bacio
 - CMakeLists.txt
 - bacio.c
 - baciof.f
 - baciof.h
 - bafrio.f
 - byteswap.c
 - chk_endianc.f
 - clib.h
 - makebacio_ccs.sh
 - makebacio_theia.sh
 - makebacio_wcross.sh
 - makebacio_zeus.sh

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 navigation menu includes 'All', 'My', 'Projects', 'People', and 'Documentation'. The change is titled 'Change 10132 - Merged' and has the description 'Updated to support gfortran compilation (version 5.2)'. The owner is Mark Potts and the reviewer is Michael Lueken. The project is ProdGSI and the branch is master. The change was updated 4 weeks ago. The interface shows a 'Code-Review +2' and 'Verified +1' by Michael Lueken. A 'Related Changes (1124)' list is visible on the right, showing a series of updates and merges. At the bottom, a 'Files' section shows a list of files with their paths, comment counts, and sizes.

Change 10132 - Merged
Updated to support gfortran compilation (version 5.2)

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

Code-Review +2
Verified +1
Michael Lueken

Author: Mark A. Potts <mark.potts@noaa.gov> May 1, 2017 2:25 PM
Committer: Mark A. Potts <mark.potts@noaa.gov> May 1, 2017 2:25 PM
Commit: d55c4544cf8ea30fa266849c263e114a1c87f11f
Parent(s): 6744018a36a60f91470cdc9585024d96c0b2a71e
Change-Id: Id55c4544cf8ea30fa266849c263e114a1c87f11f

Files

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

Subversion	Git
svn checkout https://svn....	git clone https://....
svn update	git pull origin branchname (may need git remote update to refresh upstream info)
svn commit	git add; git commit OR git commit -a git push origin branchname (to push to vlab)
svn merge --dry-run ^/fv3/trunk svn merge ^/fv3/trunk	From your branch, 'git merge master' After conflicts fixed, 'git checkout master' 'git merge yourbranch' (your branch merged to master locally) git push prod HEAD:/refs/for/master (your merged branch pushed to Gerrit for code review/approval)
svn copy https://...trunk https://newbranch	from master, 'git checkout -b newbranch' Also, 'git branch newbranch; git checkout newbranch'
svn stat	git status
svn merge -rNEW:OLD	git revert oldSHA git checkout oldSHA git reset -hard HEAD~1
svn log	git log git log -pretty=oneline gitk or GitX (Mac)

Conclusion

- ▶ The final transition to Vlab will not occur until the end of July at the earliest.
- ▶ We have not turned on Gerrit yet. There will be a further briefing before we transition to the code review section of Vlab.
- ▶ Please try out git and start becoming familiar with it.
- ▶ Feel free to push new branches to vlab and modify/merge/delete them as you wish (master branch excepted).
 - ▶ Note that if you are sharing work on a branch, deleting it on vlab can cause issues with collaboration.
- ▶ If you run into problems, feel free to contact me (mark.potts@noaa.gov) and I will help you work through them.