

A Crash Course in SU2 Development

Dr. Thomas D. Economon

Joint NIA & SU2 Foundation Workshop
Hampton, Virginia
August 9, 2019

So, you want to be an SU2 developer?

Good news: it's easy.

We leverage **standard development processes
and the **latest tools for open-source projects**.**

You will be ready to hack at the end of this talk.

Git/Branching

Development

Regressions

Pull Request

Release

The screenshot displays the GitHub interface for the 'su2code / SU2' repository. On the left, a commit history sidebar shows several recent commits, including 'Fix relative import in ordered_bunch.py' (ce5ffbc) and 'Add polar attribut to TestCase' (dfa4b08). The main content area features a pull request titled 'Py2 and Py3 support #424', which has been merged. A green checkmark and the word 'Merged' are visible. Below the merge status, a message from 'economomon' states 'economomon merged commit 7256bea into su2code:develop 8 days ago'. A '1 check passed' section shows a successful Travis CI build. At the bottom, a notification indicates that 'petebachant deleted the petebachant:py2_and_py3_support branch 7 days ago'. The repository's current branch is 'develop', and the build status is 'passing'.

Anyone can be an SU2 developer.

Git/Branching

Development

Regressions

Pull Request

Release

The screenshot displays the GitHub repository page for `su2code/SU2`. At the top, a progress bar indicates the current stage: **Git/Branching** (highlighted with a red circle), followed by **Development**, **Regressions**, **Pull Request**, and **Release**. The repository page includes a search bar, navigation links for Pull requests, Issues, Marketplace, and Explore, and repository statistics: 164 watchers, 378 stars, and 362 forks. The repository description is "SU2: An Open-Source Suite for Multiphysics Simulation and Design" with a link to <https://su2code.github.io>. Below this, repository statistics are shown: 5,764 commits, 151 branches, 36 releases, 52 contributors, and the LGPL-2.1 license. A table of recent commits is visible, with the latest commit by `koodlyakshay` titled "Change back to original." The `Clone or download` button is circled in orange.

| Commit | Message | Time |
|----------------------|--|--------------|
| <code>f4116f4</code> | Change back to original. | 7 days ago |
| | Added the PR template to the <code>.github/</code> folder in the root dir. | 6 months ago |
| | Change back to original. | 7 days ago |
| | Merging develop. | 3 months ago |
| | Merging develop. | 3 months ago |
| | Merging develop. | 3 months ago |
| | Changed version numbers for v6.1.0. | 3 months ago |
| | Changed version numbers for v6.1.0. | 3 months ago |
| | Changed version numbers for v6.1.0. | 3 months ago |
| | Changed version numbers for v6.1.0. | 3 months ago |

Your starting point: <https://github.com/su2code/SU2>.

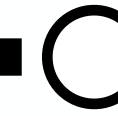
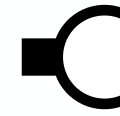
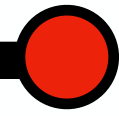
Git/Branching

Development

Regressions

Pull Request

Release



<http://xkcd.com/1597/>

Git/Branching

Development

Regressions

Pull Request

Release



Here's that list of shell commands you should memorize:

- \$ git clone <https://github.com/su2code/SU2.git>
- \$ git branch
- \$ git checkout -b feature_awesome origin/feature_awesome
- \$ git status
- \$ git diff
- \$ git commit -am "This is an awesome commit."
- \$ git push origin feature_awesome
- \$ git checkout develop
- \$ git pull origin develop
- \$ git merge develop

And their translations:

- Get a fresh copy of the entire repo (master branch to start)
- Check which branches I have locally
- Check out my feature branch that is already on the remote
- Check which files have changed since last commit
- Detailed diff of code changes since last commit
- While working, make commits frequently with messages
- Regularly push to the remote on GitHub
- Switch to the develop branch (assuming you have it locally)
- Merge the changes in the remote develop into local develop
- Merge the changes from local develop into current local branch

Git/Branching

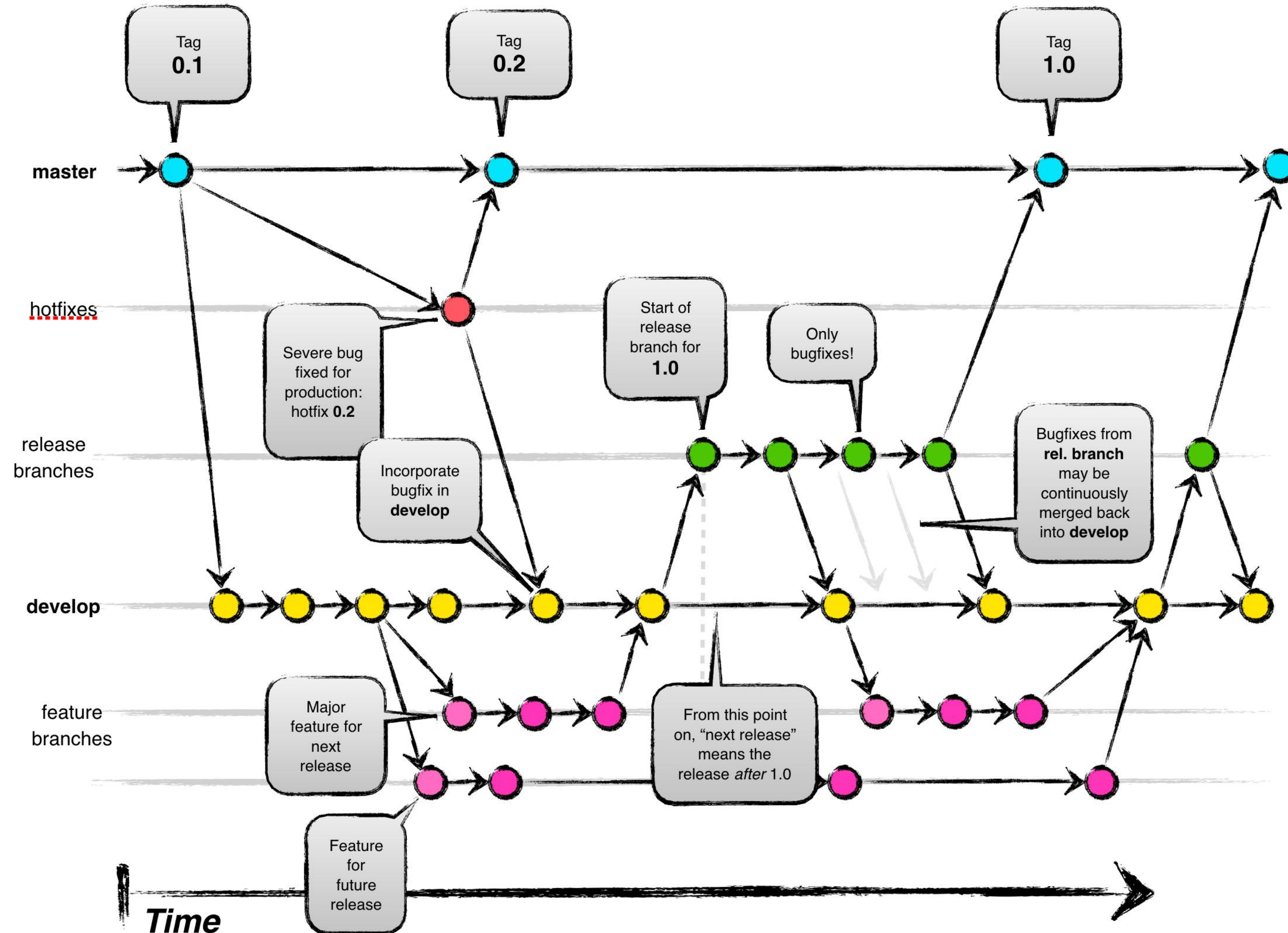
Development

Regressions

Pull Request

Release

We use the popular **Gitflow** branching model.



Author: Vincent Driessen
Original blog post: <http://nvie.com/archives/323>
License: Creative Commons

Git/Branching

Development

Regressions

Pull Request

Release

su2code / SU2

Unwatch 164 Unstar 378 Fork 362

Code Issues 94 Pull requests 16 Projects 1 Insights Settings

SU2: An Open-Source Suite for Multiphysics Simulation and Design <https://su2code.github.io> Edit

Manage topics

5,764 commits **151 branches** 36 releases 52 contributors LGPL-2.1

Branch: master New pull request Create new file Upload files Find file Clone or download

koodlyakshay Change back to original. Latest commit f4116f4 7 days ago

| | | |
|------------|---|--------------|
| .github | Added the PR template to the .github/ folder in the root dir. | 6 months ago |
| Common | Change back to original. | 7 days ago |
| QuickStart | Merging develop. | 3 months ago |
| SU2_CFD | Merging develop. | 3 months ago |
| SU2_DEF | Merging develop. | 3 months ago |
| SU2_DOT | Changed version numbers for v6.1.0. | 3 months ago |
| SU2_GEO | Changed version numbers for v6.1.0. | 3 months ago |
| SU2_IDE | Changed version numbers for v6.1.0. | 3 months ago |
| SU2_MSH | Changed version numbers for v6.1.0. | 3 months ago |

See all of our public repo branches here.

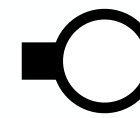
Git/Branching

Development

Regressions

Pull Request

Release



| Active branches | | | | | |
|---|-------------------------------------|---|----------|----------------------------------|--|
| feature_hom_Intel | Updated 4 hours ago by vdweide | | 2 725 | New pull request | |
| feature_hom_wallModel | Updated 21 hours ago by GomerOfDoom | | 2 743 | New pull request | |
| feature_output | Updated a day ago by talbring | | 2 199 | New pull request | |
| feature_SST_UQ | Updated 2 days ago by jayantmukho | ✓ | 2 207 | #570 Open | |
| feature_hom_shock_capturing | Updated 2 days ago by chamsolli | | 2 809 | New pull request | |
| feature_hom | Updated 2 days ago by vdweide | ✓ | 2 806 | #565 Open | |
| feature_caa | Updated 2 days ago by BeckettZhou | ✗ | 384 80 | New pull request | |
| feature_reformat_config | Updated 2 days ago by rsanfer | ✓ | 2 215 | New pull request | |
| feature_external_sens | Updated 2 days ago by economon | | 2 118 | New pull request | |
| feature_error_message | Updated 4 days ago by vdweide | ✓ | 2 178 | #574 Open | |
| feature_custom_fluid | Updated 7 days ago by economon | | 2 173 | New pull request | |
| feature_cgns | Updated 7 days ago by economon | | 2 174 | New pull request | |
| feature_periodic | Updated 7 days ago by economon | | 2 170 | New pull request | |
| fix_sorting | Updated 7 days ago by economon | ✓ | 2 171 | #576 Open | |
| remove_poisson_wave_solvers | Updated 7 days ago by rsanfer | ✓ | 2 181 | #573 Open | |
| feature_TNE2 | Updated 8 days ago by WallyMaier | | 2 104 | New pull request | |
| feature_inc_wf | Updated 8 days ago by vdweide | ✓ | 2 166 | New pull request | |
| develop | Updated 8 days ago by vdweide | ✓ | 2 166 | New pull request | |

A current snapshot of active branches

Note that develop is a protected branch

Git/Branching

Development

Regressions

Pull Request

Release

su2code / SU2

Unwatch 164 Unstar 378 Fork 362

Code Issues 94 Pull requests 16 Projects 1 Insights Settings

SU2: An Open-Source Suite for Multiphysics Simulation and Design <https://su2code.github.io> Edit

Manage topics

5,764 commits 151 branches 36 releases 52 contributors LGPL-2.1

Branch: master New pull request Create new file Upload files Find file Clone or download

| | | |
|--------------|---|----------------------------------|
| koodlyakshay | Change back to original. | Latest commit f4116f4 7 days ago |
| .github | Added the PR template to the .github/ folder in the root dir. | 6 months ago |
| Common | Change back to original. | 7 days ago |
| QuickStart | Merging develop. | 3 months ago |
| SU2_CFD | Merging develop. | 3 months ago |
| SU2_DEF | Merging develop. | 3 months ago |
| SU2_DOT | Changed version numbers for v6.1.0. | 3 months ago |
| SU2_GEO | Changed version numbers for v6.1.0. | 3 months ago |
| SU2_IDE | Changed version numbers for v6.1.0. | 3 months ago |
| SU2_MSH | Changed version numbers for v6.1.0. | 3 months ago |

New branches can be made in the browser interface here or by pushing local branches to the remote with git.

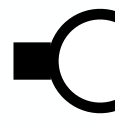
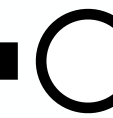
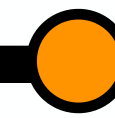
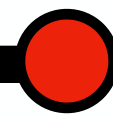
Git/Branching

Development

Regressions

Pull Request

Release



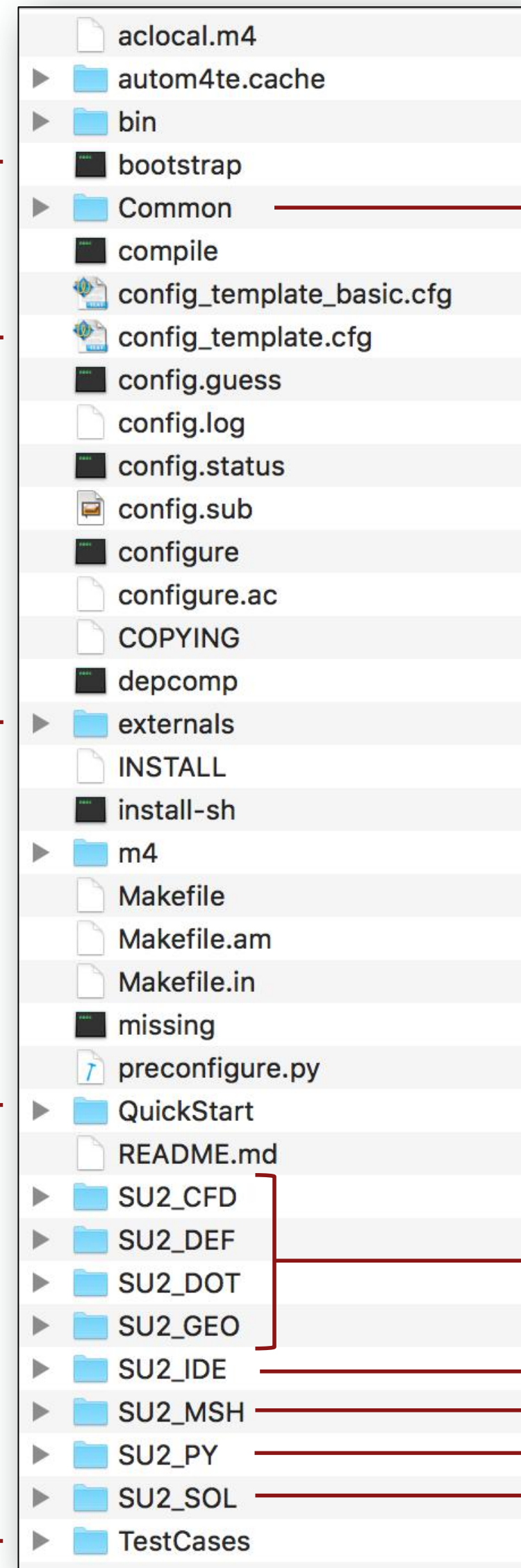
Run ./bootstrap to reset autotools

Template config file with all options

External source files, e.g., ParMETIS

Inviscid NACA 0012

Config files for tests



Here is what you see inside the SU2/ repo.

C++ Source Code in SU2_*/src/, majority of lines in Common/src/ & SU2_CFD/src

IDE project files, e.g., Xcode

Python Scripts

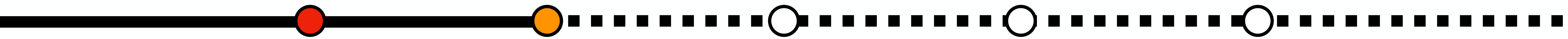
Git/Branching

Development

Regressions

Pull Request

Release



C++ Executables

- SU2_CFD -> Primary multiphysics PDE solver for primal and adjoint
- SU2_SOL -> Solution export code
- SU2_DEF -> Mesh deformation
- SU2_DOT -> Gradient projection
- SU2_GEO -> Geometry definition
- SU2_MSH -> Mesh adaptation

Python Scripts (just a subset of them)

- parallel_computation.py
- mesh_deformation.py
- shape_optimization.py
- continuous_adjoint.py
- discrete_adjoint.py
- finite_differences.py
- direct_differentiation.py


Git/Branching

Development

Regressions

Pull Request

Release

- 
- C++ class abstractions encourage code reuse and data encapsulation ensures you can make localized changes easily.
 - Common base classes/methods (grid, linear solvers, output, etc.) are reused for many sets of physical governing equations.
 - For a particular PDE, we define iteration, numerics, solver, and variable classes that are customized for the particular methods and algorithms.
 - Legacy file division: solver_*.cpp, variable_*.cpp, numerics_*.cpp, contain child classes for a particular PDE, e.g., solver_direct_mean.cpp for mean flow.
 - **We are in the process of moving to a single class per file convention!**

Git/Branching

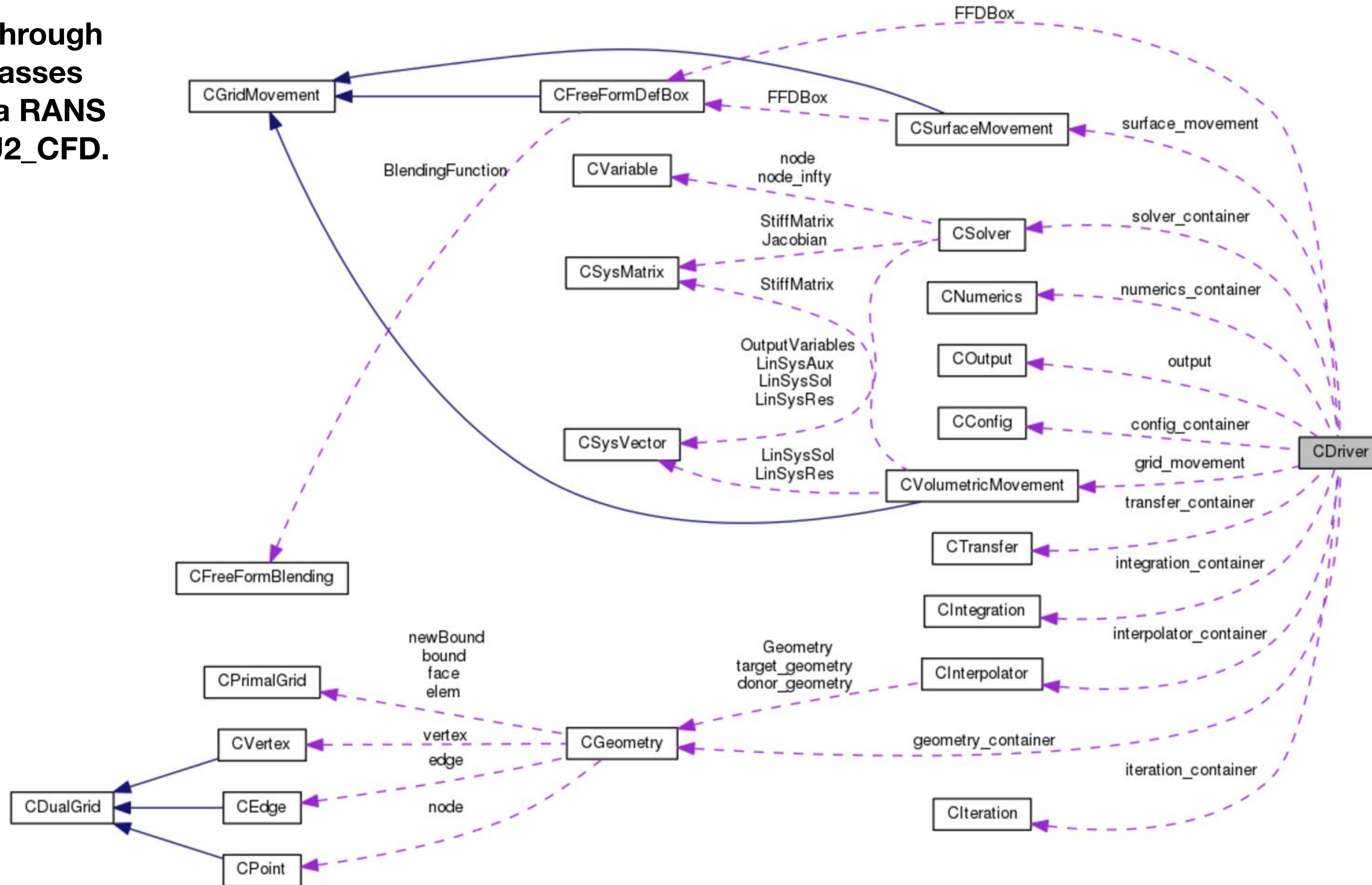
Development

Regressions

Pull Request

Release

Top-down walkthrough
of some key classes
instantiated for a RANS
calculation in SU2_CFD.



Git/Branching

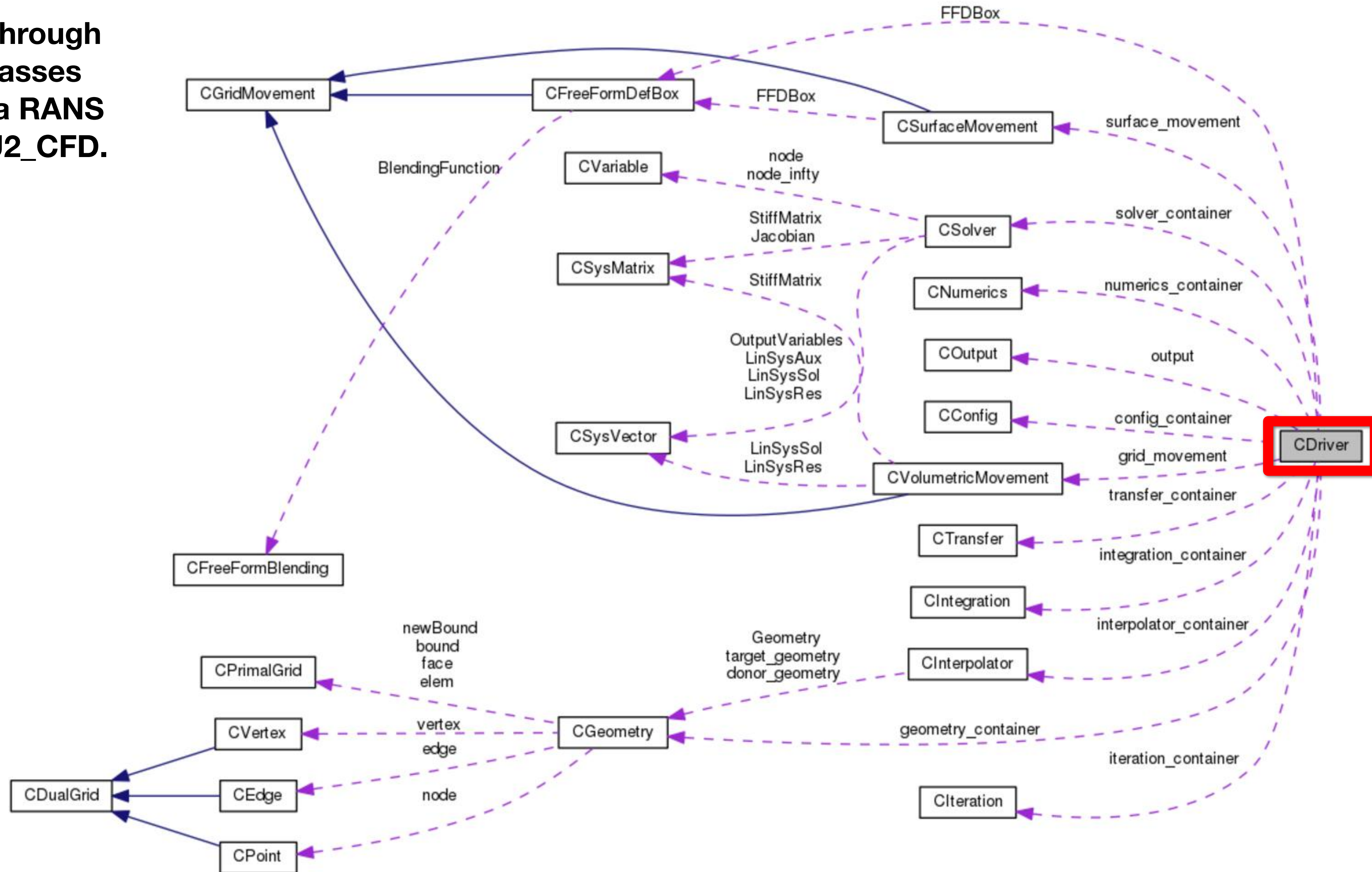
Development

Regressions

Pull Request

Release

Top-down walkthrough
of some key classes
instantiated for a RANS
calculation in SU2_CFD.



Git/Branching

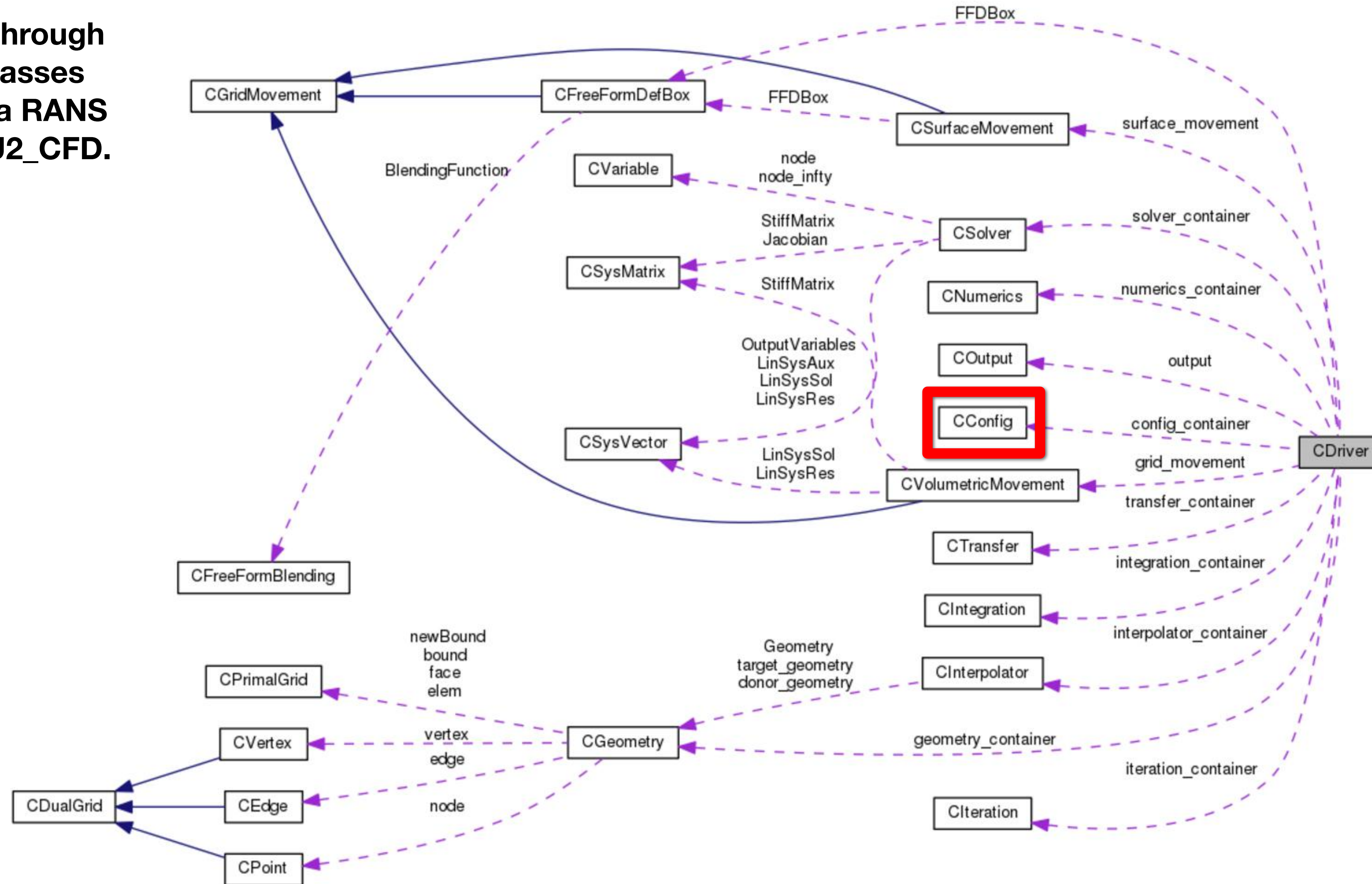
Development

Regressions

Pull Request

Release

Top-down walkthrough
of some key classes
instantiated for a RANS
calculation in SU2_CFD.



Git/Branching

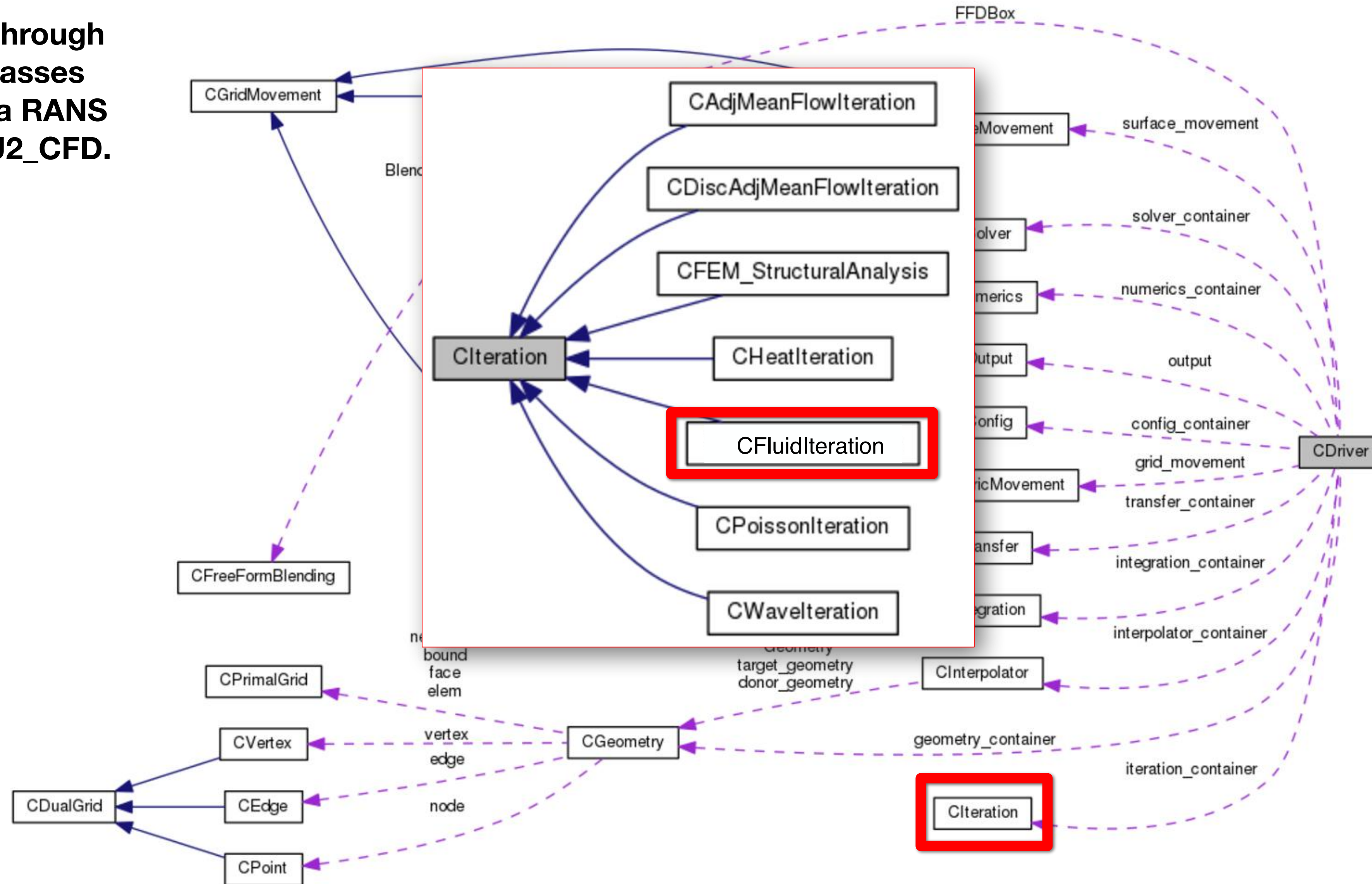
Development

Regressions

Pull Request

Release

Top-down walkthrough
of some key classes
instantiated for a RANS
calculation in SU2_CFD.



Git/Branching

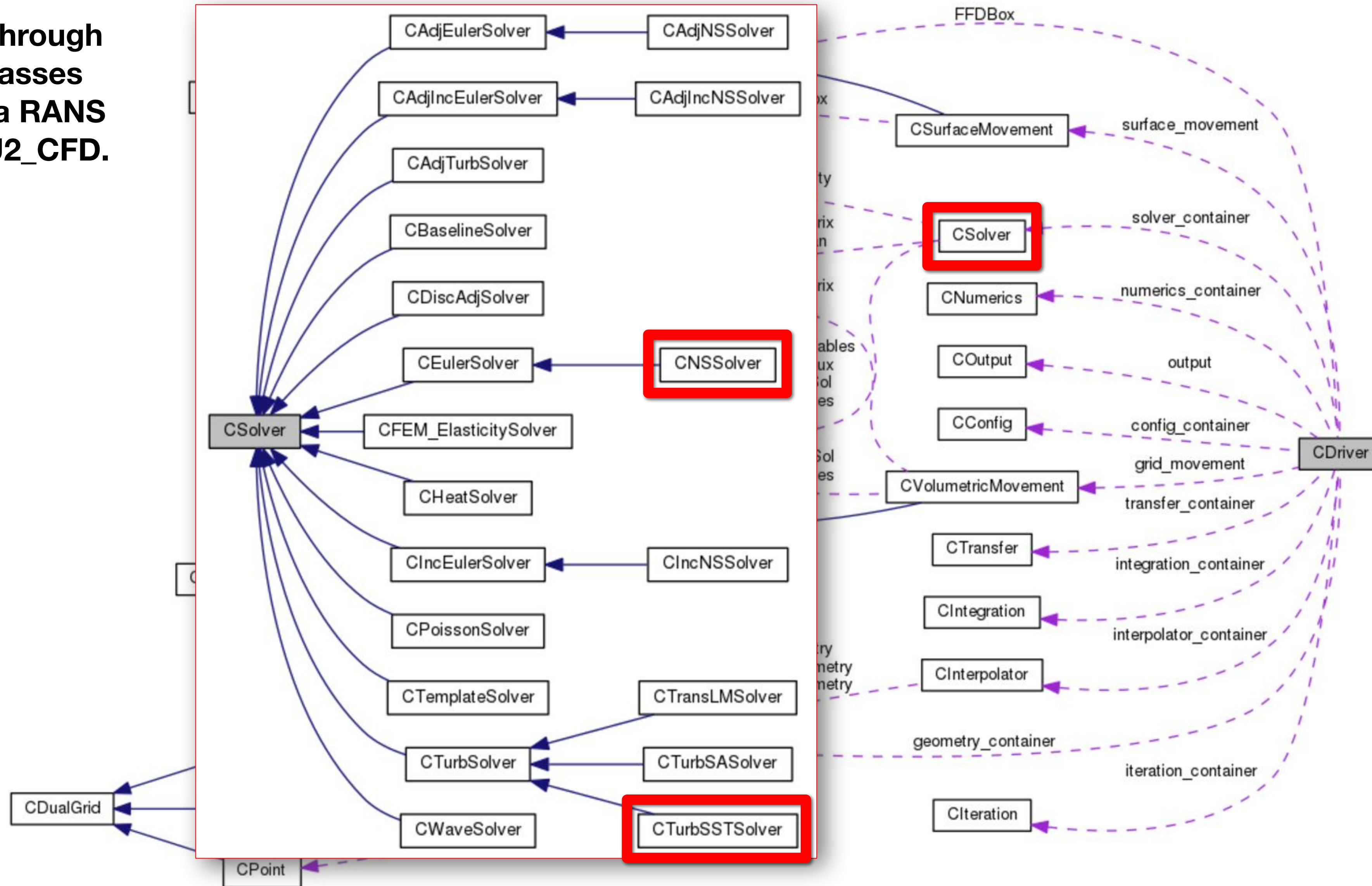
Development

Regressions

Pull Request

Release

Top-down walkthrough
of some key classes
instantiated for a RANS
calculation in SU2_CFD.



Git/Branching

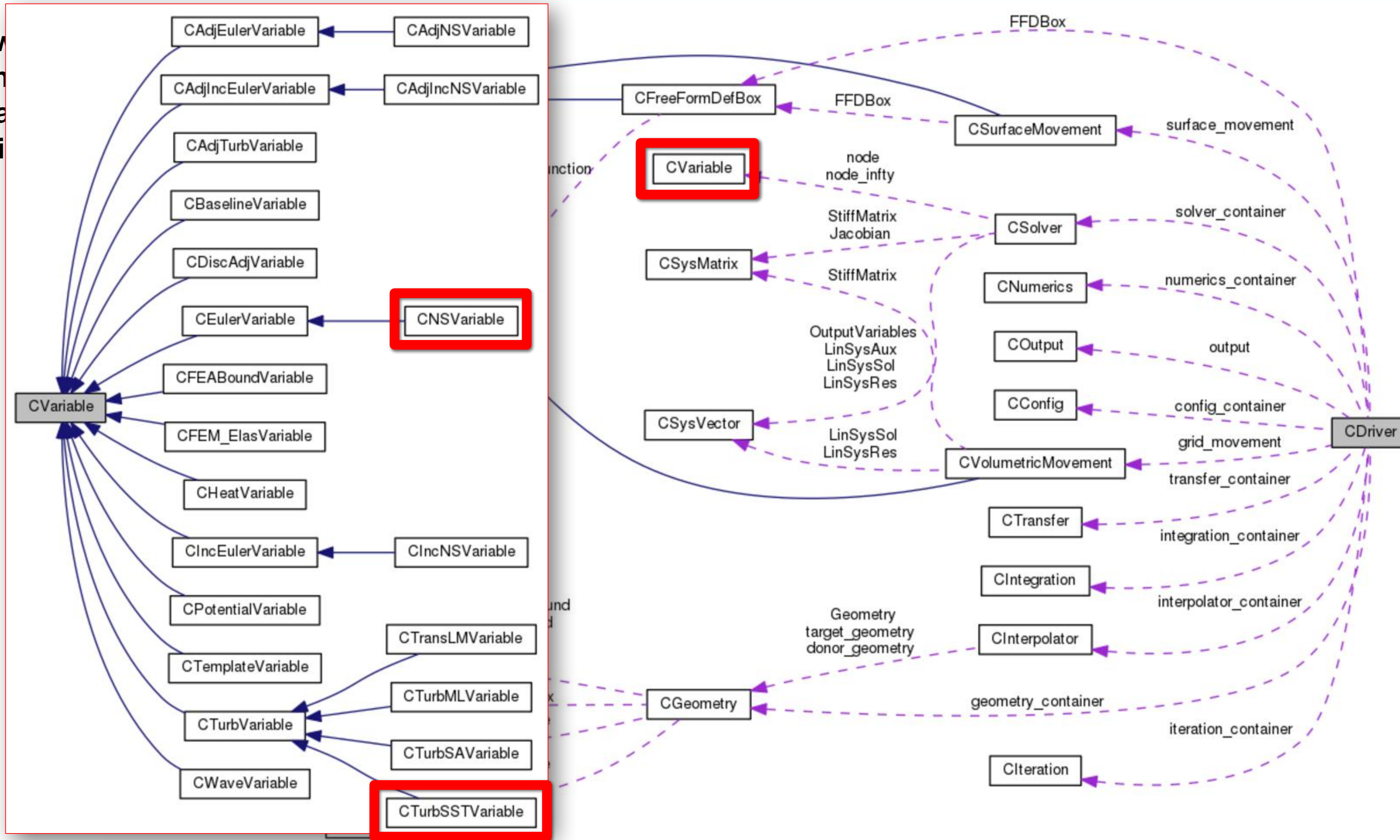
Development

Regressions

Pull Request

Release

Top-down
of some
instantia
calculati



Git/Branching

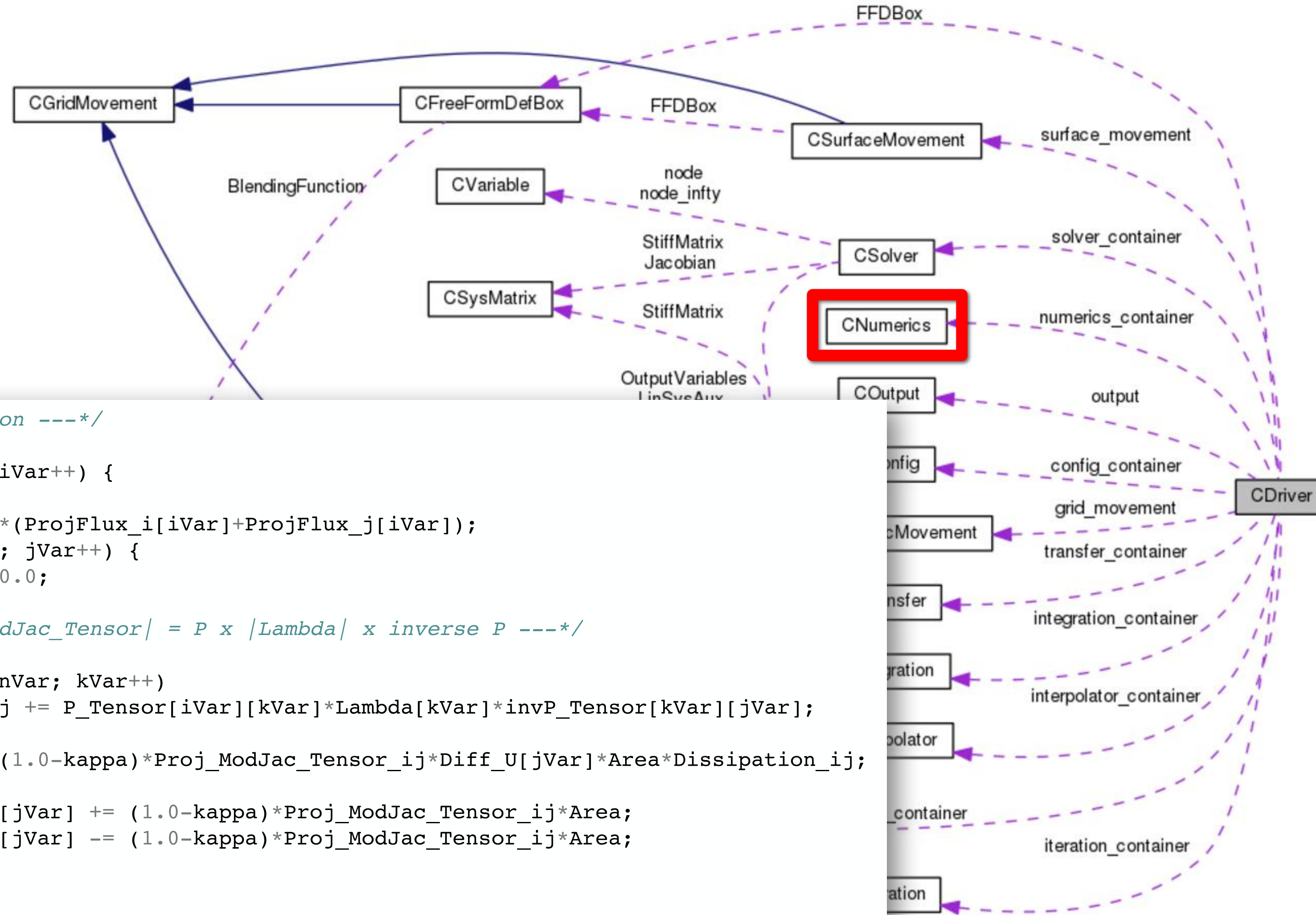
Development

Regressions

Pull Request

Release

Top-down walkthrough of some key classes instantiated for a RANS calculation in SU2_CFD.



```

/*--- Roe's Flux approximation ---*/
for (iVar = 0; iVar < nVar; iVar++) {
  val_residual[iVar] = kappa*(ProjFlux_i[iVar]+ProjFlux_j[iVar]);
  for (jVar = 0; jVar < nVar; jVar++) {
    Proj_ModJac_Tensor_ij = 0.0;

    /*--- Compute |Proj_ModJac_Tensor| = P x |Lambda| x inverse P ---*/

    for (kVar = 0; kVar < nVar; kVar++)
      Proj_ModJac_Tensor_ij += P_Tensor[iVar][kVar]*Lambda[kVar]*invP_Tensor[kVar][jVar];

    val_residual[iVar] -= (1.0-kappa)*Proj_ModJac_Tensor_ij*Diff_U[jVar]*Area*Dissipation_ij;
    if(implicit){
      val_Jacobian_i[iVar][jVar] += (1.0-kappa)*Proj_ModJac_Tensor_ij*Area;
      val_Jacobian_j[iVar][jVar] -= (1.0-kappa)*Proj_ModJac_Tensor_ij*Area;
    }
  }
}

```

Git/Branching

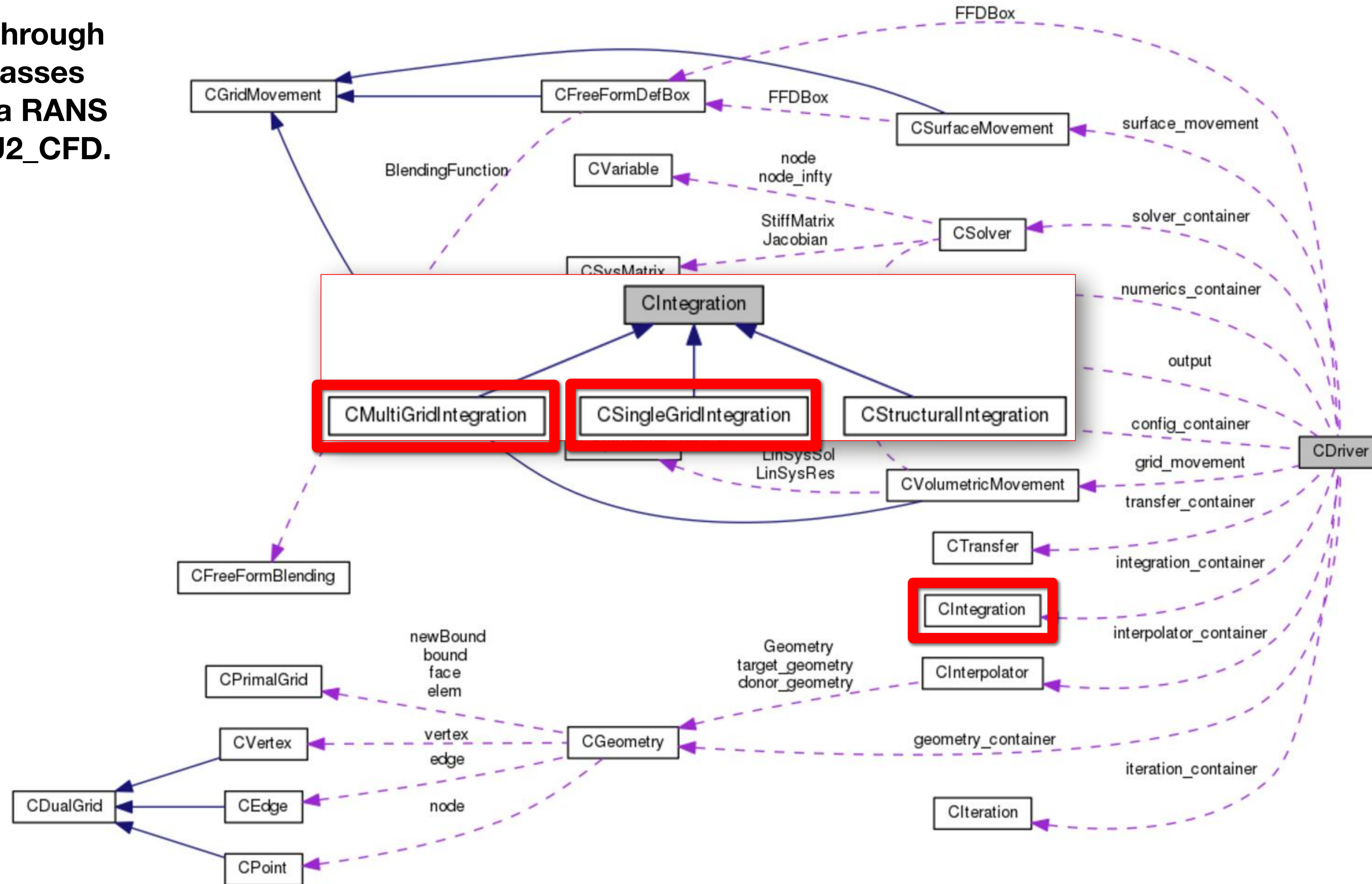
Development

Regressions

Pull Request

Release

Top-down walkthrough
of some key classes
instantiated for a RANS
calculation in SU2_CFD.



Git/Branching

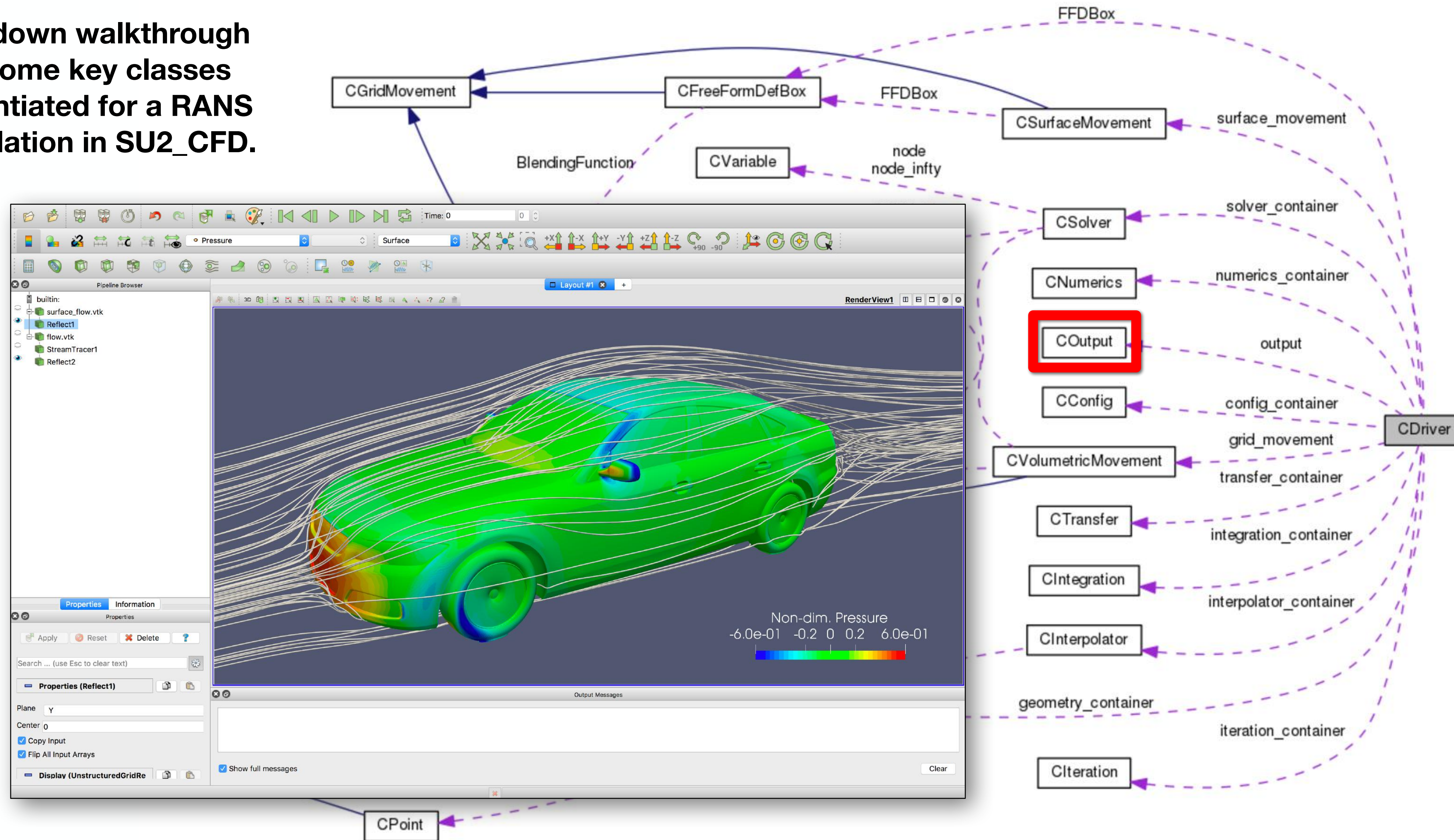
Development

Regressions

Pull Request

Release

Top-down walkthrough
of some key classes
instantiated for a RANS
calculation in SU2_CFD.




Git/Branching

Development

Regressions

Pull Request

Release

- 
- Now that you know the basics, you are ready to create a new branch for your awesome feature (feature_awesome) and start hacking.
 - But you might say, "Wait, how do I coordinate my contribution with other ongoing work in the repository?"
 - **Posting to GitHub in issues and projects or interacting with the SU2 Foundation technical Working Groups** are great ways to discuss potential developments and coordinate among other developers in the open.
 - And then maybe you'll ask, "How can I make sure that my work doesn't 'break' other capabilities that already exist in SU2?"
 - **Continuous integration will save your bacon.** Travis CI is free for open-source!

Git/Branching

Development

Regressions

Pull Request

Release

SU2 (ver. 6.1.0 "Falcon"): The C

Computational analysis tools have revolutionized... proprietary, unavailable, or prohibitively expensive analysis and design freely available as open-s...

For an overview of the technical details in SU2

"SU2: An open-source suite for multiphysics s
<http://arc.aiaa.org/doi/10.2514/1.J053813>

build passing

Our security blanket: a comprehensive suite of ~200 regression test cases for serial, parallel, physics, AD, python, etc.

su2code / SU2 build unknown

Travis CI

Current Branches Build History Pull Requests > Build #2312

More options

✓ develop Merge pull request #575 from pecos-hybrid/bugfix_viscosity_in_FD

-o- #2312 passed

Restart build

Change dynamic viscosity in FD hybrid central / upwind blending to kinematic viscosity

Ran for 2 hrs 5 min 54 sec

Total time 8 hrs 9 min 37 sec

-o- Commit d00c3b3

8 days ago

Compare a0ecddf..d00c3b3

Branch develop

Edwin van der Weide authored GitHub committed

Build Jobs

| | | | |
|------------|-----------------|--|-------------------|
| ✓ # 2312.1 | </> Python: 2.7 | CONFIGURE_COMMAND="./preconfigure.py --prefix=\$TRAVIS_BUI... | 1 hr 3 min 49 sec |
| ✓ # 2312.2 | </> Python: 3.6 | CONFIGURE_COMMAND="./preconfigure.py --prefix=\$TRAVIS_BUI... | 1 hr 3 min 25 sec |
| ✓ # 2312.3 | </> Python: 2.7 | CONFIGURE_COMMAND="./preconfigure.py --enable-mpi --with-cc... | 58 min 49 sec |
| ✓ # 2312.4 | </> Python: 3.6 | CONFIGURE_COMMAND="./preconfigure.py --enable-mpi --with-cc... | 58 min 31 sec |
| ✓ # 2312.5 | </> Python: 2.7 | CONFIGURE_COMMAND="./preconfigure.py --with-cc=gcc --with-c... | 1 hr 3 sec |
| ✓ # 2312.6 | </> Python: 3.6 | CONFIGURE_COMMAND="./preconfigure.py --with-cc=gcc --with-c... | 59 min 52 sec |
| ✓ # 2312.7 | </> Python: 2.7 | CONFIGURE_COMMAND="./preconfigure.py --enable-mpi --with-cc... | 1 hr 36 sec |
| ✓ # 2312.8 | </> Python: 3.6 | CONFIGURE_COMMAND="./preconfigure.py --enable-mpi --with-cc... | 1 hr 4 min 32 sec |

Git/Branching

Development

Regressions

Pull Request

Release

Use continuous integration to guide your development by activating Travis CI for your own branches! Update SU2/.travis.yml with your own email and branch.

```
# Continuous Integration setup for SU2.  
  
dist: trusty  
sudo: required  
  
language: python  
  
compiler:  
  - gcc  
  
notifications:  
  email:  
    recipients:  
      - your.email@here.com  
  
branches:  
  only:  
    - feature_awesome
```

Travis CI Dashboard for repository su2code / SU2. The 'Branches' tab is selected and circled in yellow. A table lists active branches with their build status and a 'Trigger build' button circled in red.

| Branch | Status | Builds | Last Build | Author | Actions |
|-----------------------------|----------|------------|-------------------------------------|---------------|---------------|
| sc_develop | Failed | 2 builds | # 3635 failed about 10 hours ago | Ole Burghardt | Trigger build |
| feature_periodic_streamwise | Passed | 17 builds | # 3633 passed about 15 hours ago | TobiKattmann | Cancel |
| develop | Passed | 407 builds | # 3609 passed 7 days ago | GitHub | Cancel |
| feature_meson | Failed | 4 builds | # 3583 failed 10 days ago | Tim Albring | Cancel |
| meson_build | Canceled | 67 builds | # 3582 canceled 10 days ago | Tim Albring | Cancel |

Git/Branching

Development

Regressions

Pull Request

Release

New capabilities in your feature branch should also have a test case to protect them in the future.

```
# NACA0012
naca0012 = TestCase( 'naca0012' )
naca0012.cfg_dir = "euler/naca0012"
naca0012.cfg_file = "inv_NACA0012_Roe.cfg"
naca0012.test_iter = 20
naca0012.test_vals = [-4.047448, -3.538057, 0.338691, 0.023131] #last 4 columns
naca0012.su2_exec = "SU2_CFD"
naca0012.timeout = 1600
naca0012.tol = 0.00001
test_list.append(naca0012)
```

If the computed values after one of your commits don't match these values, you will get an email with details of the failed cases. Investigate it!

1. Add a new test case to serial_regression.py, parallel_regression.py, etc. Use others as a guide. See NACA 0012 example.

Git/Branching

Development

Regressions

Pull Request

Release

2. Put the config file and any supporting data in the corresponding locations. Travis CI combines the complementary sets.

The screenshot shows the GitHub interface for the repository 'su2code / SU2'. At the top, there are buttons for 'Unwatch' (164), 'Unstar' (378), and 'Fork' (362). Below these are navigation tabs for 'Code', 'Issues' (94), 'Pull requests' (16), 'Projects' (1), 'Insights', and 'Settings'. The current branch is 'master'. The file path is 'SU2 / TestCases / euler / naca0012 /'. The commit history shows a recent commit by 'economon' merging 'develop' with the latest commit '08c5178' on Jun 19. Below the commit history, a file list shows 'inv_NACA0012.cfg' (Merging develop, 3 months ago) and 'inv_NACA0012_Roe.cfg' (Changed version numbers for v6.1.0, 3 months ago).

Lighter weight, more frequently updated files go in code repo.

The screenshot shows the GitHub interface for the repository 'su2code / TestCases'. At the top, there are buttons for 'Unwatch' (73), 'Unstar' (15), and 'Fork' (73). Below these are navigation tabs for 'Code', 'Issues' (0), 'Pull requests' (0), 'Projects' (0), 'Wiki', 'Insights', and 'Settings'. The current branch is 'master'. The file path is 'TestCases / euler / naca0012 /'. The commit history shows a commit by 'economon' moving config files back over into the SU2 repo from the TestCases repo, with the latest commit '7b020e6' on Aug 11, 2015. Below the commit history, a file list shows 'mesh_NACA0012_inv.su2' (Added all of the mesh files that are < 30 MB, 4 years ago).

Larger, more static files that support the tests go in the TestCases repo.



- So, you've finished your awesome feature and the tests are passing. You've even added your own regression test (or two), and you checked that there are no new compiler warnings and the style conforms to the SU2 standard.
- At this point you are wondering, "I would like to contribute my feature to the open source, but how do I do that?"
- To get your work into an official open-source release of SU2, the modifications have to first be staged in the develop branch.
- To do so, we use the standard **Pull Request (PR)** approach.

Git/Branching

Development

Regressions

Pull Request

Release

Search or jump to... Pull requests Issues Marketplace Explore

su2code / SU2 Unwatch 164 Unstar 378 Fork 362

Code Issues 94 Pull requests 16 Projects 1 Insights Settings

SU2: An Open-Source Suite for Multiphysics Simulation and Design <https://su2code.github.io> Edit

Manage topics

5,764 commits 151 branches 36 releases 52 contributors LGPL-2.1

Branch: master New pull request Create new file Upload files Find file Clone or download

| | | |
|--------------|---|----------------------------------|
| koodlyakshay | Change back to original. | Latest commit f4116f4 7 days ago |
| .github | Added the PR template to the .github/ folder in the root dir. | 6 months ago |
| Common | Change back to original. | 7 days ago |
| QuickStart | Merging develop. | 3 months ago |
| SU2_CFD | Merging develop. | 3 months ago |
| SU2_DEF | Merging develop. | 3 months ago |
| SU2_DOT | Changed version numbers for v6.1.0. | 3 months ago |
| SU2_GEO | Changed version numbers for v6.1.0. | 3 months ago |
| SU2_IDE | Changed version numbers for v6.1.0. | 3 months ago |
| SU2_MSH | Changed version numbers for v6.1.0. | 3 months ago |

Once you're ready to contribute, it's PR time.

Git/Branching

Development

Regressions

Pull Request

Release

The screenshot shows the GitHub interface for the repository 'su2code / SU2'. The 'Pull requests' tab is selected, showing 16 pull requests. A green 'New pull request' button is highlighted with an orange circle. The list of pull requests includes:

- 16 Open ✓ 278 Closed
- Fix Commands for SOL_FSI, SOL and GEO in SU2_PY/SU2/run/interface.py** ✓
#579 opened 3 days ago by Patschke • Review required 0 of 1
- Fix NTS duplicate calc** ●
#577 opened 6 days ago by clarkpede • Review required 3 of 4 4
- Efficiency improvements for sorting + loading of grid information.** ✓
#576 opened 7 days ago by economon • Changes requested 3 of 4 1
- Feature error message** ✓
#574 opened 10 days ago by vdweide • Review required 0 of 1 8
- Remove legacy Poisson & Wave solvers** ✓
#573 opened 11 days ago by rsanfer • Review required 3 of 4 1
- Fix linear elasticity discrete adjoint** ✓
#571 opened 16 days ago by pcarruscag • Changes requested 3 of 4 6

A PR is a request to the project to pull in your contribution. Can be from an internal branch or from an external fork.

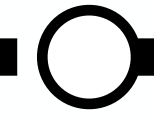
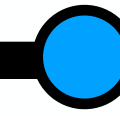
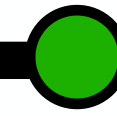
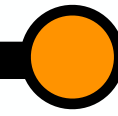
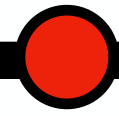
Git/Branching

Development

Regressions

Pull Request

Release



su2code / SU2

Unwatch 164 Unstar 378 Fork 362

Code Issues 94 Pull requests 16 Projects 1 Insights Settings

Open a pull request

Create a new pull request by comparing changes across two branches. If you need to, you can also [compare across forks](#).

base: `develop` compare: `feature_awesome` ✓ Able to merge. These branches can be automatically merged.

This is an awesome typo fix.

Write Preview

Proposed Changes
Give a brief overview of your contribution here in a few sentences.

I am fixing an important typo.

Related Work
Resolve any issues (bug fix or feature request), note any related PRs, or mention interactions with the work of others, if any.

N/A

PR Checklist
Put an X by all that apply. You can fill this out after submitting the PR. If you have any questions, don't hesitate to ask! We want to help. These are a guide for you to know what the reviewers will be looking for in your contribution.

Attach files by dragging & dropping, [selecting them](#), or pasting from the clipboard.

Styling with Markdown is supported

Create pull request

Submit the PR to the develop branch

Fill out the PR template questions that guide you along your way.

Git/Branching

Development

Regressions

Pull Request

Release

You can now open draft PRs on GitHub to work in the open - get feedback and continuously run regressions on your branch!

The screenshot shows a GitHub Pull Request for the 'fix_sorting' branch. The commit history includes:

- bc77ebf: Cleaning up some loops for efficiency.
- f70c8a0: More map usage for efficiency.
- ff7b098: Faster implementation of color distribution.
- bd56f3b: Merge branch 'develop' into fix_sorting
- 9a2348e: Preparing for PR.

 A review comment from 'vdweide' states: "This all looks good to me. However, in geometry_structure.cpp there are a few places where only the whitespace has changed, see the discussion we had for the feature_hom branch. If you can change that, it is good to go."

 The status bar at the bottom shows:

- Changes requested: 1 review requesting changes by reviewers with write access.
- vdweide requested changes.
- All checks have passed: 1 successful check.
- continuous-integration/travis-ci/pr: The Travis CI build passed (Required).
- Merging is blocked: Merging can be performed automatically once the requested changes are addressed.

All regression tests must pass with your code integrated. Travis CI again takes care of this for us. Merging is blocked until passage.

Code is reviewed by fellow developers for content, organization, and style. PR is blocked until at least one approval! Our convention is 2 reviewer approvals.

PRs keep community informed, offer opportunity for discussion, and are a *controlled gate* for quality assurance of contributions.

Git/Branching

Development

Regressions

Pull Request

Release

Details of the tests for all PRs can be found over in Travis CI.

| PR # | Author | Feature | Status | Commit | Build Time | Age |
|-----------|---------------------|---|--------------|---------|----------------------|--------------------|
| ✓ PR #570 | Jayant Mukhopadhaya | Feature sst uq | #2342 passed | d7e05f9 | 7 hrs 54 min 5 sec | about 17 hours ago |
| ✓ PR #565 | vdweide | Feature hom | #2341 passed | e82f700 | 9 hrs 33 min 54 sec | a day ago |
| ✓ PR #565 | vdweide | Feature hom | #2338 passed | e6418bb | 9 hrs 35 min 20 sec | 2 days ago |
| ✓ PR #579 | Patrick | Fix Commands for SOL_FSI, SOL and GEO in SU2_PY/SU2/r | #2335 passed | e9f8913 | 8 hrs 1 min 48 sec | 2 days ago |
| ✓ PR #565 | vdweide | Feature hom | #2334 passed | be211e3 | 9 hrs 29 min 55 sec | 3 days ago |
| ✓ PR #565 | vdweide | Feature hom | #2333 passed | c37f4d9 | 9 hrs 30 min 44 sec | 3 days ago |
| ✗ PR #570 | Jayant Mukhopadhaya | Feature sst uq | #2332 failed | 1348d87 | 8 hrs 4 min 19 sec | 3 days ago |
| ✓ PR #565 | vdweide | Feature hom | #2331 passed | 7029bc1 | 11 hrs 27 min 48 sec | 4 days ago |
| ✓ PR #574 | vdweide | Feature error message | #2330 passed | 2d4bd6f | 8 hrs 8 min 38 sec | 4 days ago |

Git/Branching

Development

Regressions

Pull Request

Release

The screenshot shows the GitHub interface for the 'su2code / SU2' repository. The 'Releases' tab is active, displaying the latest release: 'SU2 version 6.1.0 "Falcon"'. The release was created by 'economon' on June 22, with 2 commits to master since the previous release. It includes two assets: 'Source code (zip)' and 'Source code (tar.gz)'. The release is marked as 'Verified'. The description for the release lists several new features and upgrades, such as a new feature set for incompressible flows, user-specified inlet boundary data, and grid partitioning improvements.

Search or jump to... Pull requests Issues Marketplace Explore

su2code / SU2 Unwatch 164 Unstar 378 Fork 362

Code Issues 94 Pull requests 16 Projects 1 Insights Settings

Releases Tags Draft a new release

Latest release

v6.1.0
5d5571f
Verified

SU2 version 6.1.0 "Falcon"

economon released this on Jun 22 · 2 commits to master since this release

Assets 2

- Source code (zip)
- Source code (tar.gz)

SU2 v6.1.0 contains new features and upgrades, including:

- All new feature set for incompressible flows:
 - Robust coupled algorithm (density-based) with a custom preconditioning.
 - Energy equation available for problems with heat transfer.
 - Constant and variable density flows (incompressible ideal gas).
 - Temperature-dependent transport properties.
- User-specified inlet boundary data from a file, e.g., velocity profiles.
- Upgrade of the grid partitioning routines for better scalability.
- Enhancements to SU2_DEF for design parameterizations and mesh deformation.
- Usability improvements, bug fixes, and general maintenance.

Releases: we move develop to master, create tags, binaries, and advertise. Your awesome feature is released!

Git/Branching

Development

Regressions

Pull Request

Release

- Introduction to SU2
- SU2, the Open-Source CFD Code**
- Contribute
- Quick Start
- Installation
- Input Files
- Running SU2
- Developer Docs
- FAQ
- Contact

SU2, the Open-Source CFD Code



The Open-Source CFD

The SU2 suite is an open-source collection of C++ based software tools for performing Partial Differential Equation (PDE) analysis and solving PDE-constrained optimization problems. The toolset is designed with Computational Fluid Dynamics (CFD) and aerodynamic shape optimization in mind, but is extensible to treat arbitrary sets of governing equations such as potential flow, elasticity, electrostatics, reacting flows, and many others. SU2 is under active development by individuals all around the world on [GitHub](#) and is released under an open-source license.

For a detailed description of the code philosophy, components, and implementations, please see our [SU2 AIAA Journal article](#).

<https://su2code.github.io>

Improve this page

Search or jump to... Pull requests Issues Marketplace Explore

su2code / su2code.github.io

Unwatch 58 Star 1 Fork 16

Code Issues 0 Pull requests 1 Projects 0 Wiki Insights Settings

Branch: master su2code.github.io / _docs / index.md Find file Copy path

economon New website 8766c49 on Feb 13

1 contributor

12 lines (8 sloc) | 934 Bytes Raw Blame History

| title | permalink | redirect_from |
|-------------------------------|-------------|------------------|
| SU2, the Open-Source CFD Code | /docs/home/ | /docs/index.html |

The SU2 suite is an open-source collection of C++ based software tools for performing Partial Differential Equation (PDE) analysis and solving PDE-constrained optimization problems. The toolset is designed with Computational Fluid Dynamics (CFD) and aerodynamic shape optimization in mind, but is extensible to treat arbitrary sets of governing equations such as potential flow, elasticity, electrostatics, chemically-reacting flows, and many others. SU2 is under active development by individuals all around the world on [GitHub](#) and is released under an open-source license.

For a detailed description of the code philosophy, components, and implementations, please see our [SU2 AIAA Journal article](#).

Documentation and tutorials are critical for amplifying the impact of your work. Good news: it's the same process to create it.

Git/Branching

Development

Regressions

Pull Request

Release

Search or jump to... Pull requests Issues Marketplace Explore

su2code / SU2 Unwatch 164 Unstar 378 Fork 362

<> Code Issues 94 Pull requests 16 Projects 1 Insights Settings

SU2: An Open-Source Suite for Multiphysics Simulation and Design <https://su2code.github.io> Edit

Manage topics

5,764 commits 151 branches 36 releases 52 contributors LGPL-2.1

Branch: master New pull request Create new file Upload files Find file Clone or download

koodlyakshay Change back to original. Latest commit f4116f4 7 days ago

| | | |
|------------|---|--------------|
| .github | Added the PR template to the .github/ folder in the root dir. | 6 months ago |
| Common | Change back to original. | 7 days ago |
| QuickStart | Merging develop. | 3 months ago |
| SU2_CFD | Merging develop. | 3 months ago |
| SU2_DEF | Merging develop. | 3 months ago |
| SU2_DOT | Changed version numbers for v6.1.0. | 3 months ago |
| SU2_GEO | Changed version numbers for v6.1.0. | 3 months ago |
| SU2_IDE | Changed version numbers for v6.1.0. | 3 months ago |
| SU2_MSH | Changed version numbers for v6.1.0. | 3 months ago |

Keep up-to-date via email with all of the activity in the repo by “watching”

SU2 Development Survival Guide

A Best Practice Workflow

1. Clone main repository: `$ git clone https://github.com/su2code/SU2.git`
2. Create new feature branch (in remote and locally) for your development work. Work on this branch in the repo.
3. Activate the regressions for your branch by changing to your branch name and email in `.travis.yml` (trigger builds manually in Travis CI interface). Use this to guide development and correct any failures along the way that you will be informed of by email.
4. Work on your feature! Please mind white space issues, compiler warnings, and match SU2 style.
5. If you are working on a single branch for an extended amount of time, merge the remote develop branch into your own branch at regular, frequent intervals. This ensures that, when the time comes, it will be easy to merge your contribution into develop, as you will have resolved any conflicts on your side before a PR.
6. Once you feel your feature is ready, submit a PR. Fill out the PR template that is provided for you. Consider opening a draft PR earlier in the process to get feedback sooner and have your branch tested by Travis CI while you work.
7. Get reviews and engage with the community concerning your contribution. Fix problems in your branch or address any feedback on the message boards. Note that any new commits will appear right there in the open PR and will kick-off the regressions again.
8. Once the reviewers approve and the regressions pass, the community will merge in your work.
9. Celebrate your contribution and proudly introduce yourself as an SU2 developer at your social engagements.

Pretty easy to be a developer, huh?

We have set up safety nets and removed overhead wherever possible.

So, try crazy ideas in your branches. Don't be afraid to make big changes that push the boundaries of the code. The community and infrastructure will be there to help you. This is how we make progress.