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# TRILINOS AUTOTESTER CHANGES

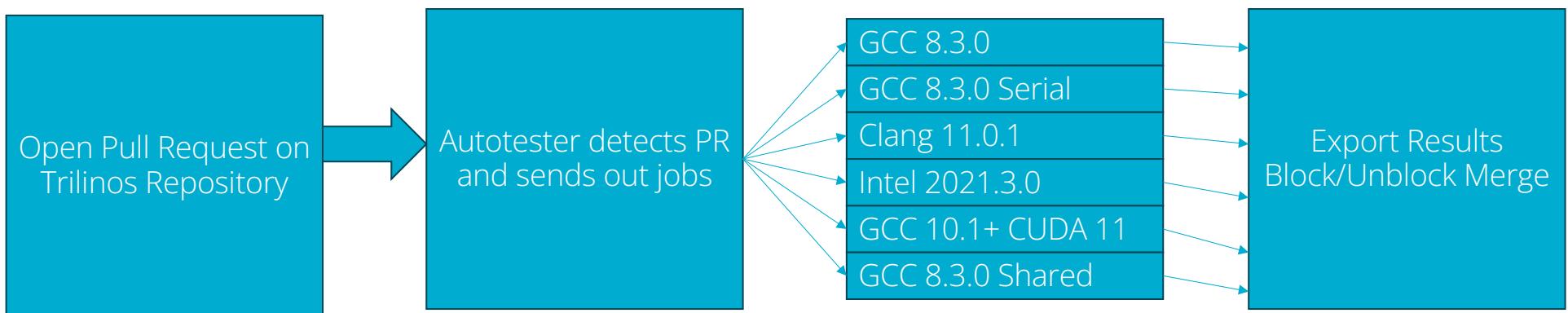
ERIC HO, SAM BROWNE

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SAND2023-11784PE



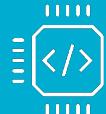
## CURRENT AUTOTESTER



## CHALLENGES WITH CURRENT AUTOTESTER

- Unable to restart individual builds within a PR
  - i.e. GCC build passes and Intel build fails, both must be restarted to pass PR
- Developers cannot monitor in-progress PR test results.
- Test results are published as pass/fail on Github. Test Results are not visible to external developers.
- Solution?



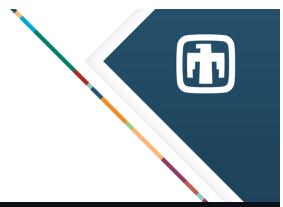


**CURRENT AUTOTESTER**

- ✓ AUTOMATED PR TESTING
- ✓ CONCURRENT PR TEST BUILDS
- ✓ VIEW PR TESTING STATUS

**Autotester4GitHub**

- ✓ AUTOMATED PR TESTING
- ✓ CONCURRENT PR TEST BUILDS
- ✓ VIEW PR TESTING STATUS
- ✓ GITHUB ACTIONS INTEGRATION
- ✓ EXPORT RESULTS TO GITHUB AND CDASH
- ✓ REAL-TIME PROGRESS TRACKING
- ✓ CONTAINERIZED PR TESTS WITH DOWNLOADABLE DOCKER IMAGES
- ✓ RESTART INDIVIDUAL PR BUILDS



# SEE EXACTLY HOW PR TESTS ARE EXECUTED

```
63 trilogpu01-gcc:
64   runs-on: [self-hosted, trilogpu01]
65   container:
66     image: /github-actions-trilinos-containers/
67     options: --shm-size=16g
68   steps:
69     - name: env
70       env:
71         GITHUB_CONTEXT: ${{ toJson(github) }}
72       run: |
73         env
74     - name: module list
75       shell: bash
76       run: |
77         bash -l -c "module list"
78         printenv PATH
79     - name: Cancel Previous Runs
80       uses: styfle/cancel-workflow-action@0.11.0
81       with:
82         access_token: ${{ github.token }}
83     - name: make dirs
84       working-directory: /
85       run: |
86         mkdir -p /home/Trilinos/src/Trilinos
87         mkdir -p /home/Trilinos/install
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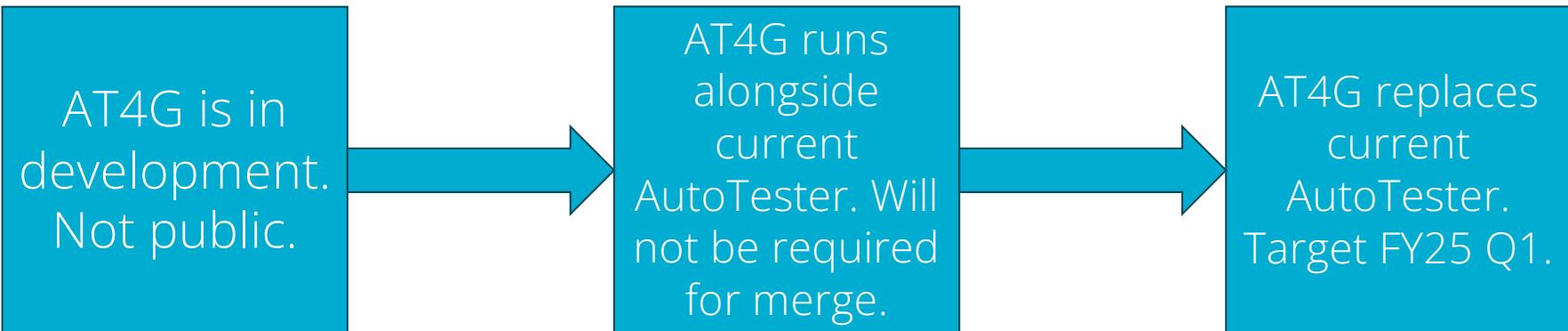


## HOW DOES THIS AFFECT TRILINOS DEVELOPERS?

- Hopefully, it doesn't
- Reduced time: PR opened -> Ability to Merge
- Streamlined test results
- Access to containerized test environments



## CURRENT STATUS AND FUTURE PLANS





# DEMO

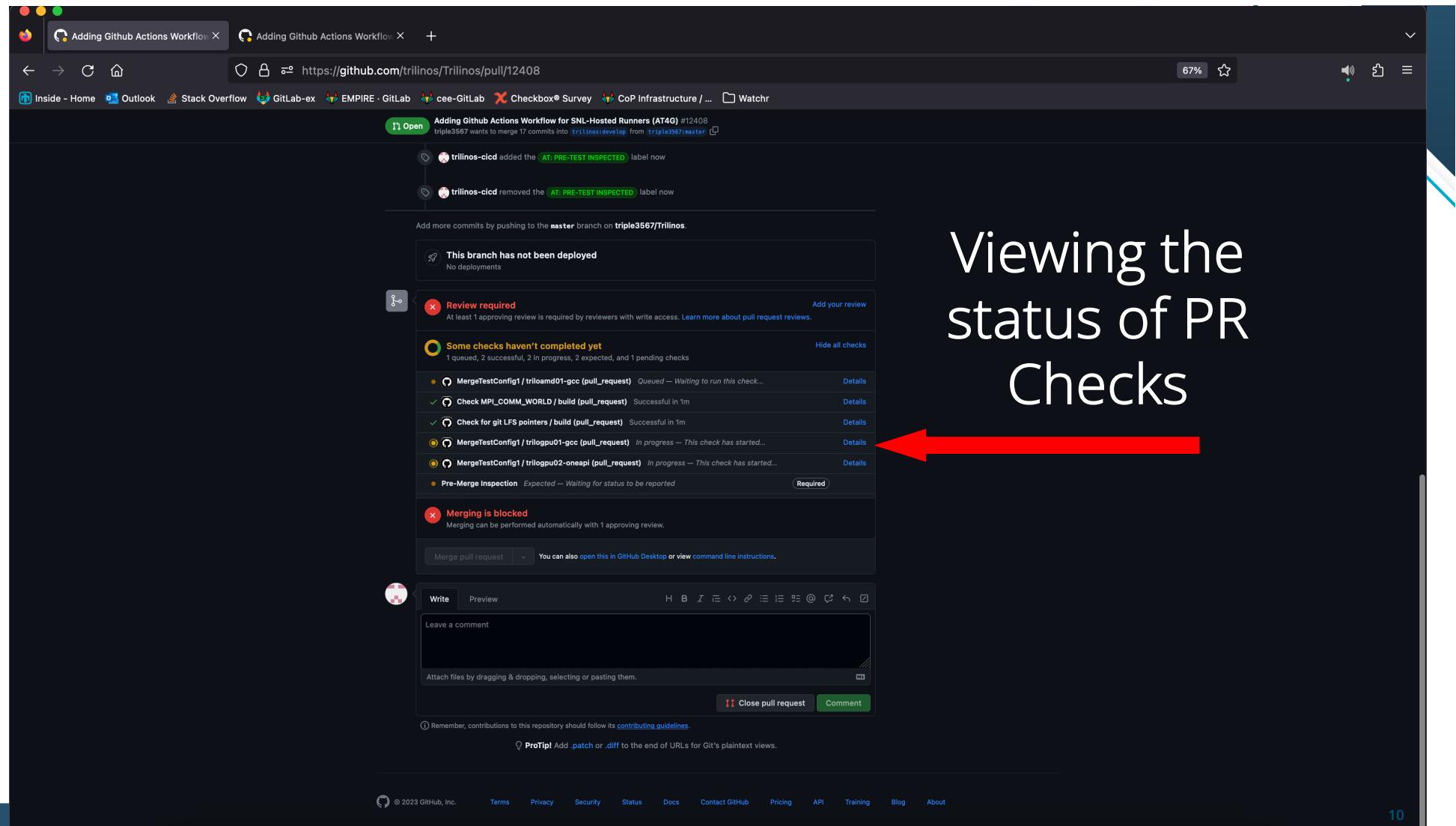
# Triggering AT4G with a label

The screenshot shows a GitHub pull request page for a Trilinos repository. The pull request is titled "Adding Github Actions Workflow for SNL-Hosted Runners (AT4G) #12408". The modal is titled "Apply labels to this pull request" and lists several labels:

- AT: AUTOMERGE
- AT: PRE-TEST INSPECTED
- AT: RETEST
- AT: STALE
- AT: WIP
- ATDM Config
- ATDM DevOps
- ATDM Env Issue

A red arrow points from the text "Triggering AT4G with a label" to the "AT: PRE-TEST INSPECTED" label in the modal.

# Viewing the status of PR Checks



A screenshot of a GitHub pull request page for a Trilinos repository. The page shows a list of checks for a pull request. A red arrow points to the 'Merge is blocked' section.

The pull request details:

- Branch: master
- Author: triple3567
- Title: Adding Github Actions Workflow for SNL-Hosted Runners (AT4G)
- Number: #12408
- Status: Open

Check status summary:

- This branch has not been deployed**: No deployments
- Review required**: At least 1 approving review is required by reviewers with write access. [Learn more about pull request reviews.](#)
- Some checks haven't completed yet**: 1 queued, 2 successful, 2 in progress, 2 expected, and 1 pending checks
- Merge is blocked**: Merging can be performed automatically with 1 approving review.

Check details:

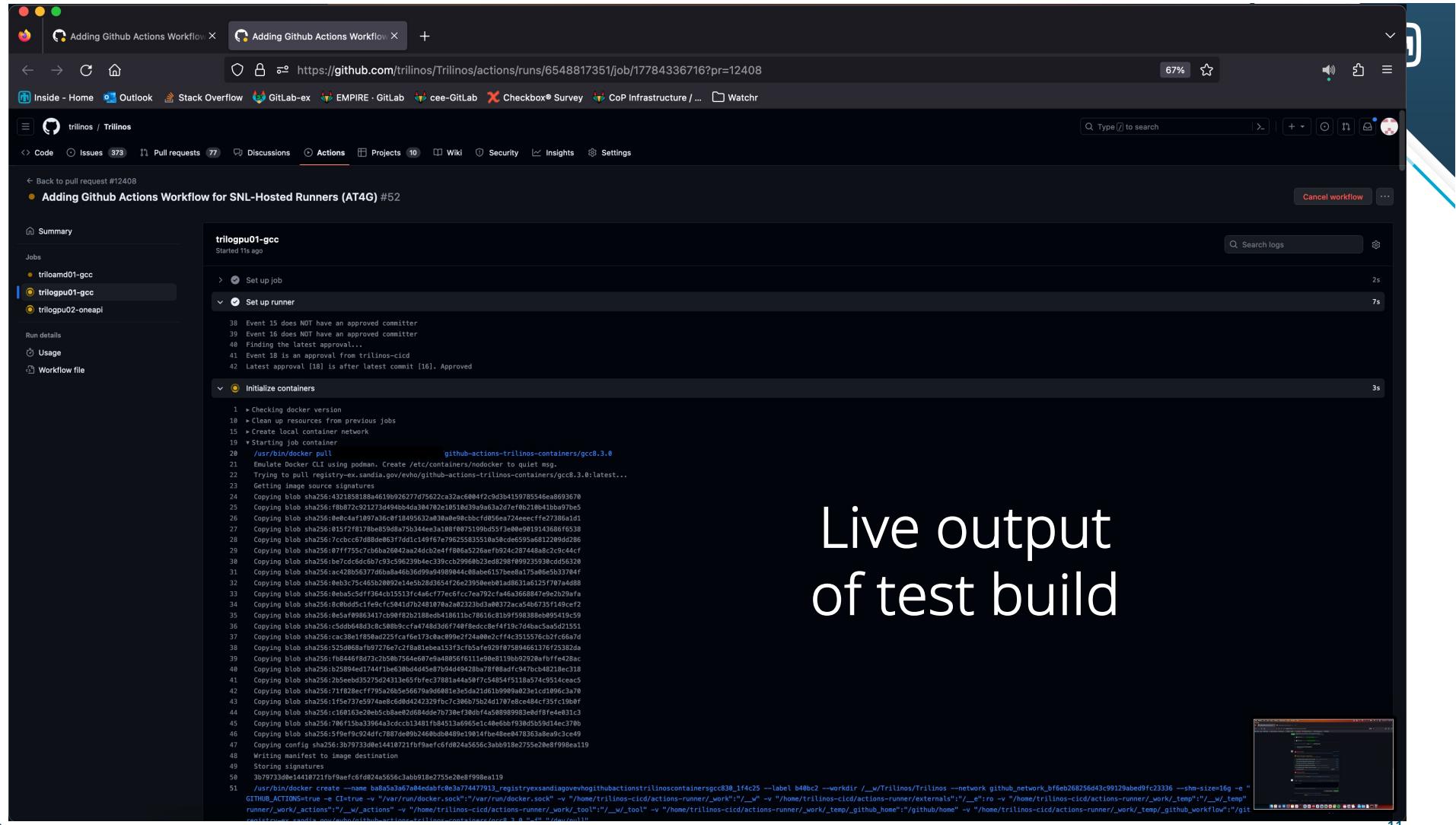
- MergeTestConfig1 / triloamd01-gcc (pull\_request) Queued — Waiting to run this check... Details
- Check MPI\_COMM\_WORLD / build (pull\_request) Successful in 1m Details
- Check for gil LFS pointers / build (pull\_request) Successful in 1m Details
- MergeTestConfig1 / trilogpu01-gcc (pull\_request) In progress — This check has started... Details
- MergeTestConfig1 / trilogpu02-oneapi (pull\_request) In progress — This check has started... Details
- Pre-Merge Inspection Expected — Waiting for status to be reported Required

Comment section:

- Write / Preview
- Leave a comment
- Attach files by dragging & dropping, selecting or pasting them.
- Close pull request / Comment

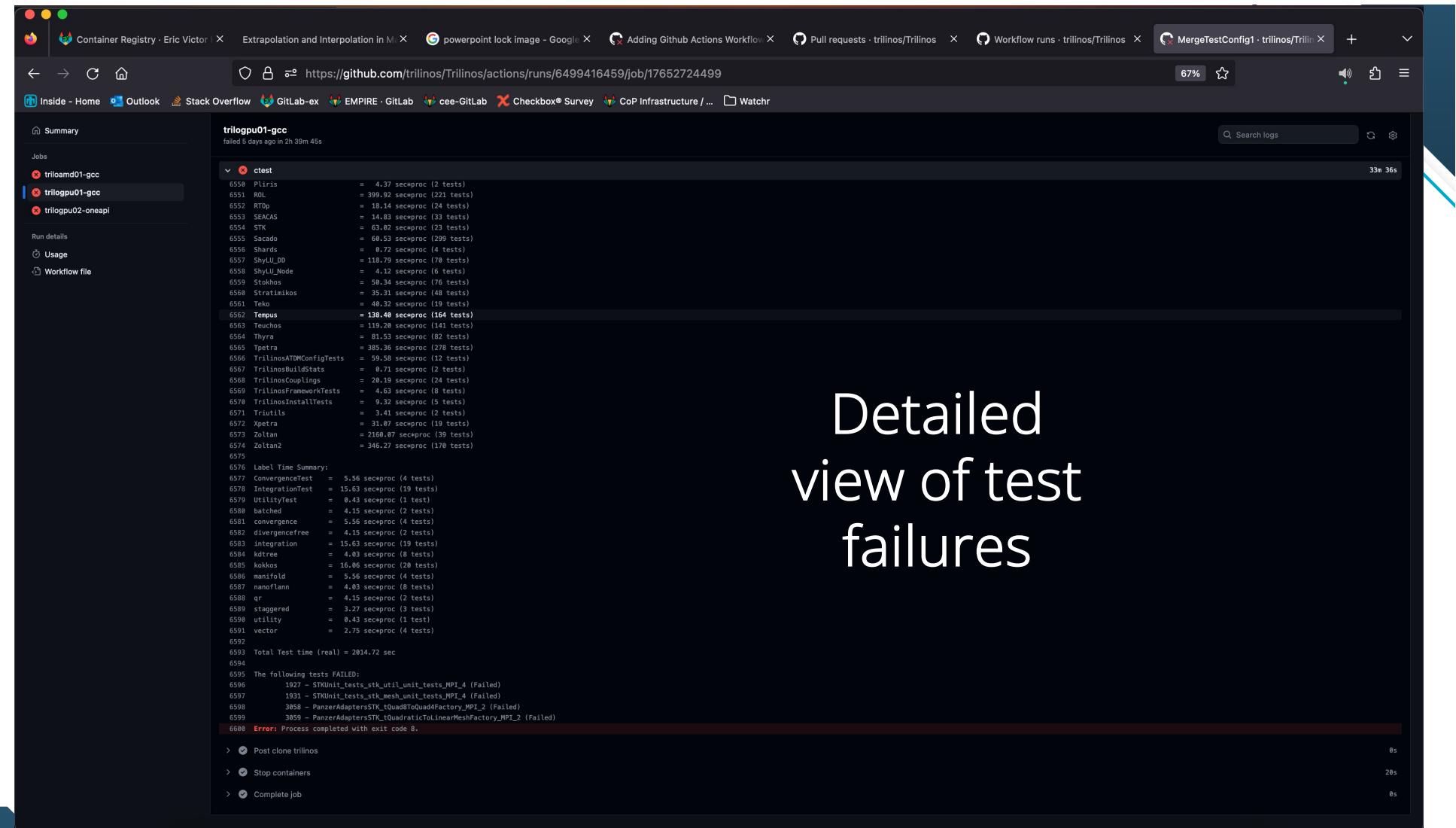
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# Live output of test build

**Detailed view of test failures**



The screenshot shows a GitHub Actions test run log for the job `trilogpu01-gcc`. The log output is as follows:

```

trilogpu01-gcc
failed 5 days ago in 2h 39m 45s
33m 36s

ctest
6550 PLiris      = 4.37 sec>proc ( 2 tests)
6551 ROL         = 399.92 sec>proc (221 tests)
6552 RTOp        = 18.14 sec>proc (24 tests)
6553 SEACAS      = 14.83 sec>proc (33 tests)
6554 STK         = 63.02 sec>proc (23 tests)
6555 Sacado      = 68.53 sec>proc (299 tests)
6556 Shards       = 0.77 sec>proc ( 4 tests)
6557 ShyLU_D0     = 118.79 sec>proc (78 tests)
6558 ShyLU_Node   = 4.12 sec>proc ( 6 tests)
6559 Stokhos     = 50.34 sec>proc (76 tests)
6560 Stratimikos = 35.31 sec>proc (48 tests)
6561 Teko        = 48.22 sec>proc (19 tests)
6562 Tempus      = 138.40 sec>proc (164 tests)
6563 Teuchos     = 119.20 sec>proc (141 tests)
6564 Thryra       = 81.53 sec>proc (82 tests)
6565 Tpetra       = 385.36 sec>proc (278 tests)
6566 TrilinosATDMConfigTests = 59.58 sec>proc (12 tests)
6567 TrilinosBuildStats = 0.71 sec>proc ( 2 tests)
6568 TrilinosCouplings = 20.19 sec>proc (24 tests)
6569 TrilinosFrameworkTests = 4.63 sec>proc ( 8 tests)
6570 TrilinosInstallTests = 9.32 sec>proc ( 5 tests)
6571 Triutils      = 3.41 sec>proc ( 2 tests)
6572 Xpetra       = 31.07 sec>proc (19 tests)
6573 Zoltan        = 2160.07 sec>proc (39 tests)
6574 Zoltan2      = 346.27 sec>proc (170 tests)
6575

6576 Label Time Summary:
6577 ConvergenceTest = 5.56 sec>proc ( 4 tests)
6578 IntegrationTest = 15.63 sec>proc (19 tests)
6579 UtilityTest    = 0.43 sec>proc ( 1 test)
6580 batched        = 4.15 sec>proc ( 2 tests)
6581 convergence    = 5.56 sec>proc ( 4 tests)
6582 divergencefree = 4.15 sec>proc ( 2 tests)
6583 integration    = 15.63 sec>proc (19 tests)
6584 kdtree         = 4.03 sec>proc ( 8 tests)
6585 kokkos         = 16.06 sec>proc (28 tests)
6586 manifold       = 5.56 sec>proc ( 4 tests)
6587 nanoflann      = 4.03 sec>proc ( 8 tests)
6588 qr              = 4.15 sec>proc ( 2 tests)
6589 staggered      = 3.27 sec>proc ( 3 tests)
6590 utility         = 0.43 sec>proc ( 1 test)
6591 vector          = 2.75 sec>proc ( 4 tests)
6592

6593 Total Test time (real) = 2014.72 sec
6594
6595 The following tests FAILED:
6596    1927 - STKUnit_tests_stk_util_unit_tests_MPI_4 (Failed)
6597    1931 - STKUnit_tests_stk_mesh_unit_tests_MPI_4 (Failed)
6598    3058 - PanzerAdaptersSTK_Qquad8ToQuadFactory_MPI_2 (Failed)
6599    3059 - PanzerAdaptersSTK_Qquad9ToLinearMeshFactory_MPI_2 (Failed)
6600 Error: Process completed with exit code 8.

> ⚡ Post clone trilinos
> ⚡ Stop containers
> ⚡ Complete job

```



# QUESTIONS?