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Proposal for a new SG on “Reproducibility in Nuclear Data Evaluation”

WPEC meeting, 27-28 June, 2019, OECD/NEA, Paris, France

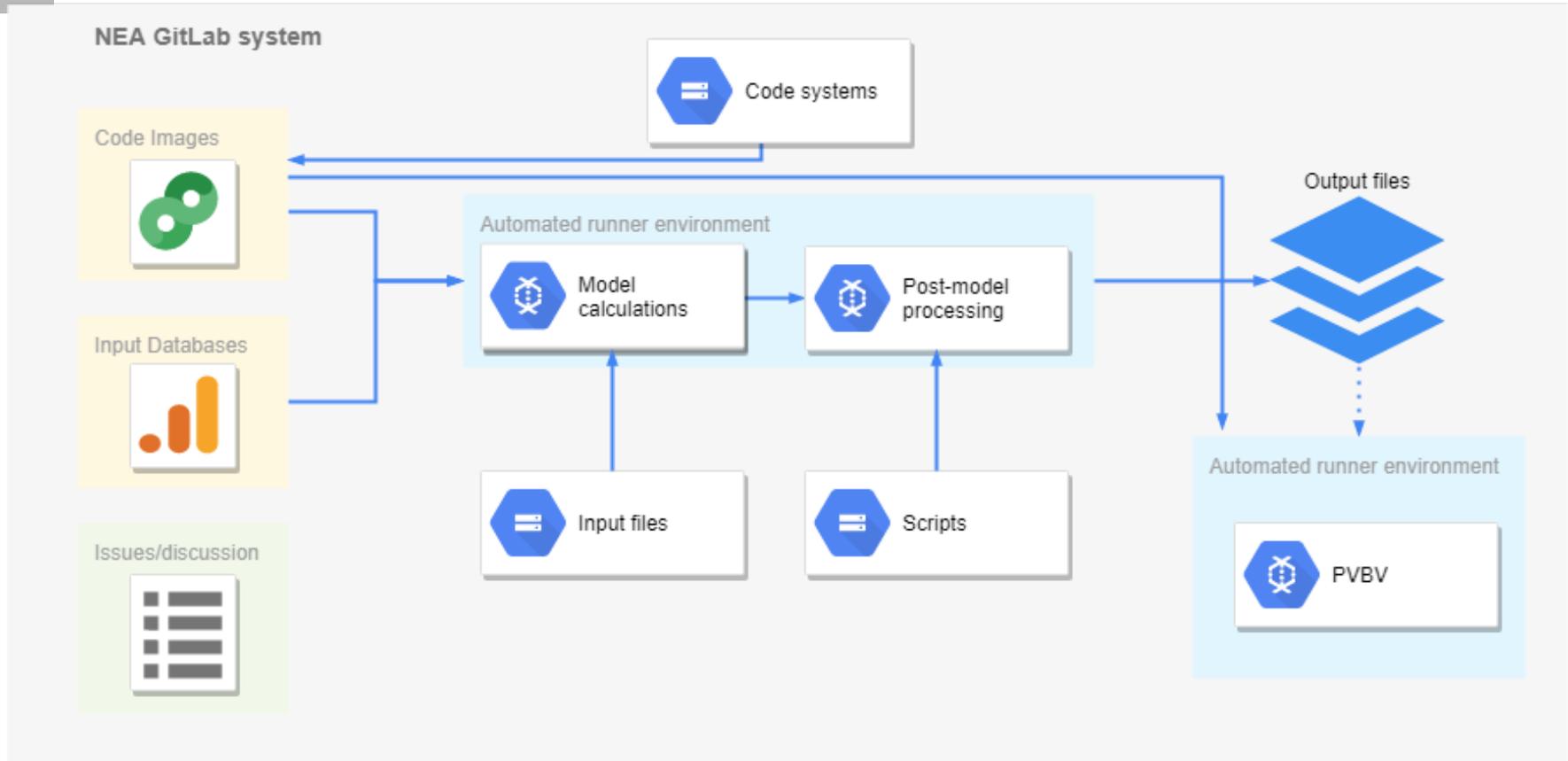
- Nuclear data evaluations, library producing, and processing: all require a high level of QA
 1. in line with the rest of the industry
 2. as expected by (any) users
 3. to avoid repeating work
 4. and to help us going forward
- Facts:
 - Evaluations require expertise, tuning, selection, modelling, formatting
 - These processes were historically poorly documented
 - These processes were historically irreproducible
 - Still performances are “good enough” (depends on the application ?)
 - Difficulty to globally raise the average level (uniformity, completeness)
- Part of the solution:
 - Make sure we follow general QA practices (document, storage, version control)
 - Use modern tools to support this approach (*e.g.* Gitlab)

Present status

- ENDF/B-VIII.0 performs ENDF-6 file version control via SVN/Gforge
- TENDL publishes all inputs and makes codes publicly available
- IAEA stores EMPIRE versions/inputs and data in bespoke VC system
- JEFF has strong desire for a VC system with built-in documentation
- Many/(all?) evaluators save some working data for future use

1. Use the expertise of nuclear data producers in a “reproducible environment”
 2. Provide “realistic” examples of such evaluations: to be reproduce by anyone, anywhere
- How ?
 - With the NEA GitLab, we have a private, collaborative space to develop methods/systems to store the evaluation with VC:
 - Software
 - Scripts
 - (Evaluated) experimental data
 - History of changes with space for brief or lengthy descriptions
 - Containerisation of codes for reproducibility
 - Continuous integration that checks inputs and the process and can be fed into any pipeline (technical and figurative sense) for PVBV

Evaluation repository overview



Plan for the subgroup

- 06/2019: approval
- 11/2019: model developer workshop for repository/VC use
- 11/2019-05/2020: engage devs to VC/container models/tools
- 05/2020: kick-off meeting, showing models available and use
- 11/2020: workshop on environment use for evaluation
- 05/2021: preliminary report content on tools and use via GitLab and
- 11/2021: workshop on post-model systems/scripts for evaluation
- 05/2022: presentations of full model/post-model feedback in VC
- 05/2023: final report delivered to WPEC

Wir schaffen Wissen – heute für morgen

