Updates from User Learning

ePIC Software and Computing Meeting
University of Illinois Chicago
22 Sept. 2023

WG co-conveners:
Kolja Kauder (BNL), Holly Szumila-Vance (JLab)

Reminder of where we are in the grand scheme…

Software and Computing Coordinator (Markus)
 + Deputy Coordinator **Operations (Wouter)**
 + Deputy Coordinator **Development (Sylvester)**
 + Deputy Coordinator **Infrastructure (Torre)**
Guiding Principles: DE&I, Software Principles, Sustainability

Operation WGs:
- **Production (CD)**
- **User Learning**
- **Validation (CD)**

Development WGs (CI):
- **Physics and Detector Simulation**
- **Reconstruction**
- Analysis Tools

Infrastructure WGs:
- **Streaming Computing Model**
- Multi-Architecture Computing
- Distributed Computing

Cross-cutting WG:
- Data and Analysis Preservation

User Learning is here to support <u>you</u>!

We are working to improve the available information and our accessibility.

You can always contact us directly:
epic-sc-faq-l@lists.bnl.gov

This email is also for submitting FAQ requests and is monitored by User Learning.

Charge:

Responsible for support via documentation, help desk, and training. Ensure that software is discoverable (easy to use with only minimal instructions) and simulated data and metadata is findable.

Priorities:

- Develop https://eic.github.io into the centralized documentation hub for ePIC Software, compiling all relevant documentation and curating a landing page that enables the collaboration to get started on software use and development.
- Establish a regular, predictable schedule of training that includes introductory and intermediate materials. Incorporate relevant materials from the HSF Training WG.
- Restart soon the help desk office hours, with a staffing schedule that distributes this workload.

Let's break this down one at a time…

"Develop https://eic.github.io into the centralized documentation hub for ePIC Software, compiling all relevant documentation and curating a landing page that enables the collaboration to get started on software use and development."

Plan:
1. Update the Landing page to include relevant tutorials
2. Collect and organize documentation and make accessible to users
3. Establish the "FAQ" section on the website with capability to improve (ask more questions!)

"Establish a regular, predictable schedule of training that includes introductory and intermediate materials. Incorporate relevant materials from the HSF Training WG. "

Plan:
- Completed: Polled DSC conveners for input into desired / already well-covered topics
- Next: Condense into a follow-up poll to the whole collaboration
- Collect topics from this very meeting / session :)

From these, draft and then finalize curricula & schedules

"Restart soon the help desk office hours, with a staffing schedule that distributes this workload."

Plan:

Before restarting the help desk office hours, we need more experts! We hope to present a more detailed plan later in the year but for now, we will focus on training and improvement of documentation and FAQ…

As discussed this week, ideally this will become an exponentially growing pool, possibly spanning multiple time zones

Landing page status

https://eic.github.io/documentation/landingpage.html

**User community exercise:
What else do you want to see?**

ePIC Software & Computing Meeting - Live Notes

Frequently Asked Questions, status

https://eic.github.io/documentation/faq.html

FAQ inputs from WG

From the WG feedback, we identify some potential FAQ.

Tracking WG:
- How can we effectively use the information stored in EICRecon rootfile outputs, such as matching reconstructed particles to their MC particles? (**<<Name>>**)

Far forward/far backward WG:
- How can we apply beam effects, including adjusting the ion beam when using a particle gun? (**<<Name>>**)
- How do we check and change beam magnet settings for both simulation and reconstruction? (**<<Name>>**)

FAQ inputs from WG, cont.

Inclusive Physics WG:
- How can we access simulation files on S3 storage? (**<<Name>>**)
- What are the commands for browsing files on S3 and copying them to local directories? (**<<Name>>**)
- How can we load files into ROOT directly from S3? (**<<Name>>**)
- What is the best practice for analyzing EICrecon output, especially regarding hadron PID likelihoods? (**<<Name>>**)

Exclusive, Diffractive, and Tagging WG:
- How can we develop a benchmark for an analysis code to pass on to the validation software team? (**<<Name>>**)

FAQ inputs from WG, cont.

Semi-Inclusive WG:

- What is included in the campaign, and what are the major changes compared to before? (**<<Name>>**)
- How can we access various (SI)DIS variables through different reconstruction methods? (**<<Name>>**)
- How do we match tracks and clusters from the calorimeters? (**<<Name>>**)
- How can we access hadron and electron PID data? (**<<Name>>**)
- How do we navigate from reconstructed to truth information? (**<<Name>>**)

Beyond the Standard Model and Precision Electroweak Physics WG:

- Can you provide an example of analyzing EICrecon data using basic methods? (**<<Name>>**)

FAQ inputs from WG, cont.

Jets and Heavy Flavor WG:

- Is there an organized repository or wiki that guides newcomers to the right tutorials and slides? (**<<Name>>**)
- Are there quick starter-code examples (Analyzer macros) for accessing branch information and creating physics plots? (**<<Name>>**)

General Topics:

- How can we work with trees in S3 storage without downloading files? (**<<Name>>**)
- How can we locate specific files in S3 and better understand their directory structure? (**<<Name>>**)
- How can we determine the properties of simulated files, such as parameters, particles, and energies? (**<<Name>>**)

Potential Tutorials from WG

- How do you configure a new detector with ACTS for track reconstruction?
- What is the process for adding new detectors or materials to the simulation and creating a material map for accurate track reconstruction?
- What is the process for 3D event visualization using Geant4 Qt GUI and dd4hep?
- What is the current status of the far forward region for analysis, and what tools are available?
- What are the fundamentals, running simulations, and setting up basic analysis in this WG?
- What are some essential aspects of Unix, shells, the terminal, and Git/GitHub that newcomers should understand?

Potential Tutorials from WG

- How can we use the ePIC container effectively?

- How to use the DD4hep geometry developer?

- How is the eic shell used, and what are its benefits?

- What is npsim used for, and why is it emphasized in the trainings?

Please feel free to submit future tutorial topic requests to the FAQ mailing list