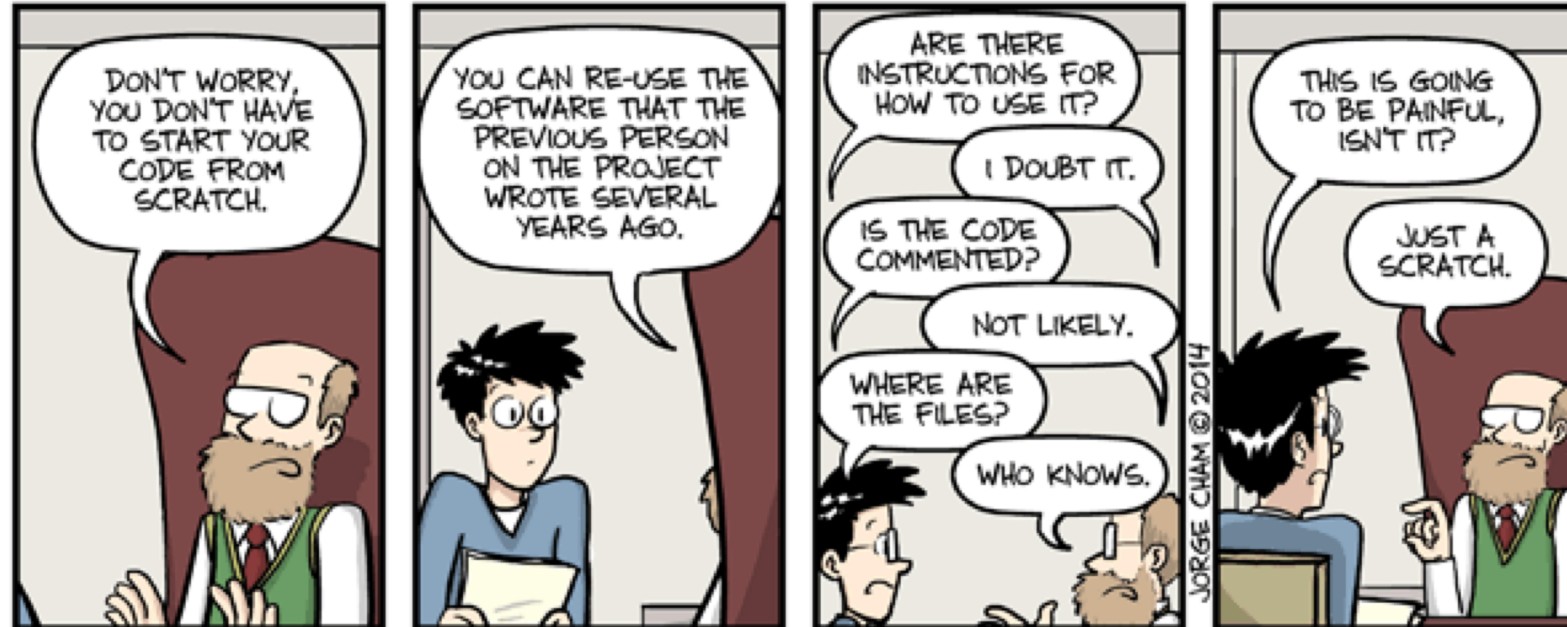


Archiving and reproducibility of Yellow Report Studies



Andrea Bressan (Trieste), Markus Diefenthaler (JLAB), Torre Wenaus (BNL)

Continue discussion from 2nd EIC Yellow Report Workshop



Collecting, organizing, and documenting EIC Software

new GitHub organization for the EIC community <https://github.com/eic>

- Please help us to make your software available on the GitHub organization.



Involvement from EICUG

**EIC(UG) repositories for software, scripts,
run cards, etc.: <https://github.com/eic>**

Guidelines on <https://eic.github.io/github/>

Why is this important?

SWG charge “ (...) simulations of physics processes and detector response (...) will be pursued in a manner that is accessible, consistent, and **reproducible** to the EICUG as a whole (...)”

Having reliable access to results previously obtained and to the arsenal of the software tools being developed by EICUG will create efficiencies as EIC is approaching the detector design stage.

Any study you share with the SWG can be used to **benchmark & validate** the EIC Software tools. If you send us analysis scripts and macros, the SWG can reproduce your studies and build up a **validation scheme and tools** on top of it, validation you can use yourself. But this can only work with your strong support.

Data and Analysis Preservation (DAP)

- Importance of preserving metadata and code alongside raw data
- Importance of documentation and proper choice of tools
- Importance of building DAP into the infrastructure at an early stage

Thanks to **PWG** co-conveners for sending contact information.

What is the status of validation?

सॉफ्टवेयर Involvement



from EIC-India

Full simulations

ESCalate

IIT Indore, RKMRC
Kolkata

Fun4All

IIT Indore, IIT Madras,
Panjab

Fast simulations

eic-smear

IIT Delhi, IIT Patna,
Karnataka, MNIT Jaipur

MCEG validation

Akal, DAV, Goa, IIT
Bombay, Delhi, Indore,
Madras, and Patna;
MNIT Jaipur, Panjab

What is the DAP status?

Expression of Interest for Software

Please indicate the name of the contact person for this submission:

Conveners of the Software Working Group:

- A. Bressan, M. Diefenthaler, and T. Wenaus
- eicug-software-conveners@eicug.org

Please indicate all institutions collectively involved in this submission of interest:

ANL	Argonne National Laboratory	29 institutions
BNL	Brookhaven National Laboratory	
CEA/Irfu	IRFU at CEA /Saclay institute	
EIC-India	AKAL University, Central University of Karnataka, DAV College Chandigarh, Goa University, Indian Institute of Technology Bombay, Indian Institute of Technology Delhi, Indian Institute of Technology Indore, Indian Institute of Technology Patna, Indian Institute of Technology Madras, Malaviya National Institute of Technology Jaipur, Panjab University, Ramkrishna Mission Residential College Kolkata	
IMP-CAS	Institute of Modern Physics - Chinese Academy of Sciences	
INFN	Istituto Nazionale di Fisica Nucleare	
JLab	Thomas Jefferson National Accelerator Facility	
LANL	Los Alamos National Laboratory	
LBNL and UC Berkeley	Lawrence Berkeley National Laboratory and University of California, Berkeley	
NCBJ	National Centre for Nuclear Research	
OhioU	Ohio University	
ORNL	Oak Ridge National Laboratory	
SBU	Stony Brook University	
SLAC	SLAC National Accelerator Laboratory	
SU	Shandong University	

<https://indico.bnl.gov/event/8552/contributions/43221/>

Common Projects

- **Software Tools for Simulations and Reconstruction**
 - Monte Carlo Event Generators
 - Detector Simulations
 - Reconstruction
- **Middleware and Preservation**
 - Workflows
 - **Data and Analysis Preservation**
- **Interaction with the Software Tools**
 - Explore User-Centered Design
 - Discoverable Software
 - Data Model

Future Technologies

- Artificial Intelligence
- Heterogeneous computing
- New languages and tools
- Collaborative software

Maxim Potekhin (BNL) “DAP is mandated by the funding agencies and recognized in the community as a way to fully leverage the large investments made in the experimental physics programs. Experience in the HEP and NP community suggests that for DAP to be truly successful it must be a part of the planning process early on and become an integral element of the experiment's infrastructure. Careful choice of tools and documentation management are essential.”

What do we wish for?

new GitHub organization for the EIC community <https://github.com/eic>

- Please help us to make your software available on the GitHub organization.



Involvement from EICUG

Join the GitHub organization as described
on <https://eic.github.io/github/>

Upload the code of your YR studies

Leave a README with simple instructions

Discussion

