

EIC Software Expression of Interest Work

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EIC Software Expression of Interest – Next Steps

- The EIC Software Expression of Interest had very strong participation with broad agreement on most topics. It captured anticipated Software needs of the EIC community quite well.
- Need to now move forward and begin to realize/implement aspects of the Software EOI, recognizing that multiple detector simulation projects will advance in 2021.
- High-priority/ near-term next steps to support such projects:
 - Facilitate/encourage adoption of common software by upcoming detector collaborations, where appropriate.
 - Maintain and validate relevant MC event generators.
 - Continue to develop/support/document/post (Fun4All) Geant4 detector simulation examples with multiple potential detector options.
 - Containerized software delivery for ease of initial adoption.
 - Continue testing/implementation of ACTS common tracking software for reconstruction.
 - Much more to do for the somewhat longer term.

Relevant Activities Underway at ORNL in 2021

- Continuing to develop [machine learning analyses](#). (So far, using ALICE data, but can be applied to EIC analyses.)
- Continuing to develop/test (ALICE ITS-based) streaming readout to be installed for sPHENIX MVTX.
- [Tier 2 Grid Site at ORNL CADES](#) providing 50% of US computing obligations to ALICE Experiment 24/7. CADES provides [cloud computing resources](#).
- ORNL intends to participate in the development of a collaborative EIC experiment proposal and is presently exercising some available relevant EIC Software Tools.
 - Continuing implementation and performance testing of [ACTS](#) tracking software for sPHENIX.
 - [EIC detector concept full simulations](#). Studying simulated performance of alternate designs of EIC subdetectors concepts. Multiple people at ORNL working on this now.
 - Exercising Fun4All + Geant4
 - Using Singularity containers for sharing/ ease of adoption.