

We are the **EPIC Computing and Software** WG!

## Why have we merged the EPIC CompSW and SimQA WGs:

- Overlap in topics between the WGs.
- Our goal of not separating software development from software use and support. This is motivated by:
  - Lessons learned from successful scientific software projects.
  - The EIC Software: Statement of Principles:

**8** We will provide a production-ready software stack throughout the development:

- We will not separate software development from software use and support.

# Priorities for 2023

Based on WG discussions.

## Priorities for the working group itself:

- Build a large and active working group with shared responsibilities and leadership
- Portal to get starting with using simulations and analysis as well as software development

**Next Priorities**

## Priorities for simulations and analysis:

- Reconstruction for full integrated detector for holistic understanding of the detector and its capabilities
  - Including PID, backgrounds and noise
  - Enforcing modularity for clear separation of development of reconstruction algorithms and development of the framework and its services
- Reproducible workflows for simulation and analysis
  - Building up on the work on continuous integration with tests and benchmarks
  - Start including handling of metadata (e.g., conditions database)
- Simulations of eA in addition to ep
- Simulations of streaming readout

**Next Priorities**

## Priorities to advance our science:

- Start incorporating AI/ML methods and approaches in our software stack
- Use heterogeneous nodes at BNL, Jefferson Lab, and other facilities as testbeds for start rolling out solutions for heterogeneous computing challenges
- Work with the collaborations towards fully reproducible, re-usable, and re-interpretable analyses as a collaboration standard

## Priorities for software development:

- Debugging in containers
- Support Jupyter notebooks for analyses through documentation and examples

# Next Simulation Campaign and Related Task Forces

- **Next simulation campaign:**

- **Target date:** End of March. tbd
- **Goal:** Improved software stack for the reconstruction, including benchmarks.

- **Task forces** to reach our goal:

- **Calorimeter Clustering**
- **Jet Reconstruction**
- **PID**
- **Tracking**
- **EICrecon** for urgent fixes to the reconstruction software stack
- **Modular Reconstruction** for substantial improvements of the reconstruction software stack
- **Simulation Production**

**Important note: Task forces != subgroups**

- Task forces solve specific issues.
- Subgroups based around interest in a general area, e.g., reconstruction, will form later.

- Each task force will be responsible for leading the effort for a particular topic with the following goals:
  - The development is accessible to the whole collaboration in our main repository.
  - We can evaluate the reconstruction quality using a set of well-defined plots that we can easily reproduce.
  - Kickoff meeting with task force leaders on January 27.

# Reconstruction Task Forces

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**Calorimeter Clustering**

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# Task Force Meetings and Updates

The screenshot shows the Indico website interface. At the top left is the Indico logo. On the top right, there are dropdown menus for 'US/Eastern' and 'English (United States)', and a 'Login' button. Below the header is a navigation bar with 'Home' and 'Create event'. A breadcrumb trail reads: 'Home » Departments » Physics » Experiments » EIC » EPIC » Software and Computing » Task Force Meetings'. The main content area is titled 'Task Force Meetings' and includes a search bar with the placeholder 'Enter your search term', a 'Create event' button, and navigation options: 'Navigate', 'Parent category', a calendar icon, and an eye icon. Below this, the date 'February 2023' is displayed. A single event is listed: 'Feb 02 Simulation Production Task Force Meeting' with a 'NEW' badge.

**Regular Updates in the EPIC Computing and Software Weekly Meeting**

# Announcements

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- **Jet Reconstruction**
  - Initial discussion on Thursday at 12:00 p.m. (EST) at next Jet/HF meeting.
  - Poll for first task force meeting: <https://www.when2meet.com/?18588885-DkOuM>
- **PID**
  - Initial discussion on Friday at 8:30 a.m. (EST) at the next CherenkovPID meeting.
  - If the TOF group cannot join, there will be an additional meeting with them.
- **Simulation Production**
  - Weekly meetings on Thursdays at 2:00 p.m. (EST).
  - Starting this week until at least the productions for the BEMCal review are complete or well underway.
  - Anticipate connections with the EICrecon and clustering task forces.
- **Tracking**
  - Weekly meetings on Thursdays at 10:00 a.m. (EST).