

Simulation, Production, and QA

Weekly meetings:

- <https://indico.bnl.gov/category/416/>
 - And subcategories for fun4all and dd4hep office hours
- **Thursdays 2pm EDT**

Today's brief topics:

1. Simulation resource planning
2. Office hours reminder

Simulation QA WG – Simulation resource planning

- **Quarterly** simulation planning process in which each WG submits a 1-pager:
 - Requests on short term (next 3 months), typically based on available technical features
 - Anticipated future requests (through CD2/3a), in particular if large or currently blocked
- **Narrative document** to capture all relevant information on what is expected to be included (specific geometry, reconstruction algorithms), in particular important if not available yet or in progress. All 1-pagers will be public.
- **Tabular format** will be completed by SimQA based on narratives.
- **Planned timeline:**
 - Formal requests sent out on Thursday May 12, return to SimQA by Wednesday May 25
 - To cover period June-September as short term

Simulation QA WG – Simulation resource planning

EIC Detector-1 Simulation, Production, QA - Planning

Working Group: [your working group name]

Contact Person: [name and individual email address]

Synopsis

[Describe the main goals between now and CD-2/3a. Describe the overall strategy of your working group in its transition towards a single software stack.]

Current requests

This section includes your requests for the next three months. This should not be an exhaustive specification of what is needed, but should be sufficient for us to assess what computational and storage resources will be needed and what outstanding development is required.

1. [Request 1]:
 - a. Number of events: [e.g. 10M]
 - b. Event generator to be used: [e.g. Pythia8]
 - c. Geometry to be simulated: [e.g. reference design + ZDC]
 - d. Required reconstructed quantities: [e.g. forward tracks + central photons]
2. [Request 2]:
 - a. Number of events: [e.g. 10M]
 - b. Event generator to be used: [e.g. Pythia8]
 - c. Geometry to be simulated: [e.g. reference design + ZDC]
 - d. Required reconstructed quantities: [e.g. forward tracks + central photons]

Future requests

This section includes anticipated requests for the next year (which can be more vague). This should focus on larger efforts or those that are held-up by missing technical features.

1. [Request 1]:
2. [Request 2]:

← Most important: single contact person

← Overall philosophy, goals, transition to single software stack (once identified)

← Specific short-term requests

← Anticipated future requests

Simulation QA WG – Office Hours

- **DD4hep-based software stack:**
Monday, Friday, 2pm EDT
Wednesday, 2pm⇌9pm EDT
- **Fun4all-based software stack:**
Tuesday, 3pm⇌8:30pm EDT

Zoom links on indico.



Extra Slides

Simulation QA WG – Statement on **Cross-Validation**

The SimQA WG **will not** commit resources to support **parallel large scale simulations in both frameworks** as a means for cross validation between the frameworks. Any software framework should ultimately be validated with real/simulated data input, such as from test beams or physics generators, and not with output from another simulation framework.

We encourage WGs (in particular detector WGs) to identify test beam data, secure access to them for the collaboration, and include them in validation exercises which the SimQA WG can support.

Simulation QA WG – Liaisons to PWG/DWG

Experience has shown that liaisons between WGs are a powerful way to ensure we remain on the same page and that no duplicate work is done (or, worse, that no important work fall between the cracks).

- We are identifying who among our conveners who will attend the PWG and DWG regular meetings. We aim for full coverage of all WGs by the combination of SimQA and CompSW.
- We invite each PWG and DWG to pro-actively identify a liaison to the SimQA working group who can attend our Thursday 2pm EDT weekly meetings.

* Or: We should *require* a liaison to SimQA/compSW.

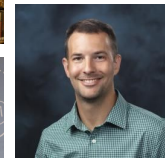
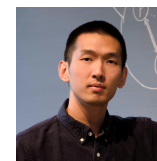
Simulation QA WG – Productivity Tools

- ✓ Instant messaging, e.g. slack/mattermost/...
- ✓ Shared documents, e.g. shared google drive/...
- ✓ Live notes server, e.g. hedgedoc/...

Simulation, Production, and Quality Assurance WG

Conveners:

- Wouter Deconinck, wouter.deconinck@umanitoba.ca
- Wenliang (Bill) Li, wenliang.li@stonybrook.edu
- Joe Osborn, osbornjd@ornl.gov
- Zhoudunming (Kong) Tu, zhoudunming@bnl.gov



Mailing list:

- Preferred contact: eic-projdet-simqa-l@lists.bnl.gov
- <https://lists.bnl.gov/mailman/listinfo/eic-projdet-simqa-l>

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Simulation, Production, and QA – Draft Charge

We act as a **bridge** between the detector and physics working groups and the computing/software working group:

1. **Simulation:** We provide technical guidance to PWG/DWG for simulation needs, help them i) with small-scale development/debugging, and ii) to be ready for large-scale productions.
2. **Production:** We run/manage/coordinate large-scale simulation campaigns, bridging the demand and supply between PWG/DWG and the computing/software group.
3. **QA:** We ensure communication and consistency among PWG/DWG on quality control of large-scale productions (e.g., 1 & 2).

Simulation, Production, and QA – Short-Term Plans

Philosophy:

Pragmatically, we have two frameworks and continuity requires that we support both for now. Limited personnel does not allow this as a sustainable solution.

In the **short term** (through ~August) we foresee needing to support two simulation frameworks. In the **medium term** (through CD-2/3a) we foresee consolidation and transition to a single framework (to be determined through further discussion/review in collaboration with the S&C group). We expect that CD-2/3a will be based on a single framework. All WGs must prepare for a transition to this single framework.

We see it as our role in facilitating PWG/DWGs in their transition for large simulation production campaigns.

Simulation, Production, and QA – Short-Term Plans

1. Solicit from each Physics and Detector WG a living document that includes:
 - a. **Desired simulation campaigns** between now and CD-2/3a:
 - i. Generator used, number of events, configurations expected
 - ii. Required software and computing features to be implemented
 - iii. Plan for and progress in the transition to single software framework (TBD)
 - b. Identify a **single liaison** to the Simulation, Production, and QA working group who will be responsible for updating this document
 - c. We expect this **living document** to be updated and reviewed on a quarterly basis
 - d. This should be about a **one-page** document.