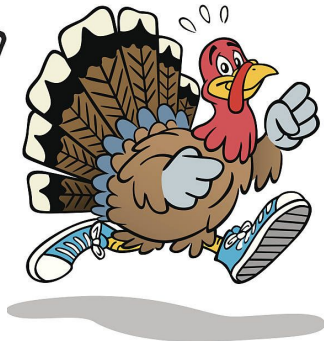


Simulation Update

Wouter Deconinck, for SimQA and CSW
December 8, 2022



1 Slide Summary

- All issues resolved or have a short term workaround implemented
- Latest reconstructed simulations exist on S3 at:
 - S3/eictest/EPIC/RECO/22.11.2
 - S3/eictest/EPIC/RECO/22.11.3 (no geometry difference, just lower memory use)
- Physics jobs have been running for two weeks now, ~125k jobs
 - Primary platform for running simulations has been Open Science Grid
 - No significant operational issues due to software stability or performance
 - Reducing memory use below 2 GB allows for more than factor 2 increase in throughput
 - Interruption during Thanksgiving weekend due to S3 storage issues (impact of multiple days)
- Remaining jobs to be run:
 - fill the 'holes' in the production samples due to the S3 outage
 - currently working through exclusive data sets (TCS, DVCS)
 - pythia6 SIDIS jobs: identified the appropriate hepmc3 files to use
 - djangoh DIS jobs: export to hepmc3 not possible, regenerating with djangoh 4.6.20
 - several sets exclusive events for which no hepmc3 files are available

What is available?

```
S3/eicctest/EPIC/RECO/22.11.3
├── epic_arches
│   ├── DIS
│   │   ├── NC
│   │   │   └── 5x41
│   │   │       └── minQ2=100 1094
│   │   └── EXCLUSIVE
│   │       ├── DIFFRACTIVE_JPSI_ABCONV
│   │       │   └── Sartre
│   │       │       ├── Coherent 2478
│   │       │       └── Incoherent 1511
│   │       ├── DIFFRACTIVE_PHI_ABCONV
│   │       │   └── Sartre
│   │       │       ├── Coherent 2305
│   │       │       └── Incoherent 1587
│   │       └── UPSILON_ABCONV 34
│   └── SIDIS
│       ├── Lambda_ABCONV 4488
│       └── epic_brycecanyon
│           ├── DIS
│           │   ├── NC
│           │   │   └── 5x41
│           │   │       └── minQ2=100 1064
│           └── SIDIS
│               └── Lambda_ABCONV 4489
```

```
S3/eicctest/EPIC/RECO/22.11.2
├── epic_arches
│   ├── DIS
│   │   ├── CC
│   │   │   ├── 10x100
│   │   │   │   ├── minQ2=100 1900
│   │   │   │   └── minQ2=1000 1767
│   │   │   ├── 18x275
│   │   │   │   ├── minQ2=100 6166
│   │   │   │   └── minQ2=1000 5663
│   │   │   └── 5x41
│   │   │       └── minQ2=100 884
│   │   └── NC
│   │       ├── 10x100
│   │       │   ├── minQ2=1 2675
│   │       │   ├── minQ2=10 1162
│   │       │   ├── minQ2=100 545
│   │       │   └── minQ2=1000 833
│   │       ├── 18x275
│   │       │   ├── minQ2=1 6969
│   │       │   ├── minQ2=10 6792
│   │       │   ├── minQ2=100 6628
│   │       │   └── minQ2=1000 6602
│   │       └── 5x41
│   │           ├── minQ2=1 1259
│   │           ├── minQ2=10 1105
│   │           └── minQ2=100 1160
```

```
└── epic_brycecanyon
    ├── DIS
    │   ├── CC
    │   │   ├── 10x100
    │   │   │   ├── minQ2=100 1917
    │   │   │   └── minQ2=1000 1727
    │   │   ├── 18x275
    │   │   │   ├── minQ2=100 6169
    │   │   │   └── minQ2=1000 5664
    │   │   └── 5x41
    │   │       └── minQ2=100 875
    │   └── NC
    │       ├── 10x100
    │       │   ├── minQ2=1 2545
    │       │   └── minQ2=10 1214
    │       ├── 18x275
    │       │   ├── minQ2=1 7019
    │       │   ├── minQ2=10 6795
    │       │   ├── minQ2=100 6634
    │       │   └── minQ2=1000 6614
    │       └── 5x41
    │           ├── minQ2=1 1260
    │           ├── minQ2=10 978
    │           └── minQ2=100 1154
```

Planning for the future

Evolution in Computing, Software, Simulation, QA working group(s)

- Joint development and operations (only joint CompSW and SimQA meetings)
- Conveners: Welcome to Markus Diefenthaler as CompSW conveners
- Discussions about scope and division of work, with goal of teams within the working group and ability for shared leadership roles and responsibilities within those teams
- Discussions about lessons learned about the reconstruction framework: how to combine planning for the future with delivering results now
 - Wednesday November 30: analysis of simulations, discussion with PWGs
[\[https://indico.bnl.gov/event/17807/\]](https://indico.bnl.gov/event/17807/)
 - Wednesday December 7: lessons learned and next steps meeting
[\[https://indico.bnl.gov/event/17858/\]](https://indico.bnl.gov/event/17858/)

Why running jobs on OSG and not (only) BNL and JLab?

- Both host labs are providing computing resources are the order of 2k jobs slots dedicated to EIC. Why are we running on OSG?
- Until we have a dedicated discussion and decision on a production workflow and scientific data management framework, we decided to use the existing infrastructure with as few changes as possible (for well-defined workflow and to limit risk). For the single software stack that means running on OSG as we did during the proposal phase.
- Running on OSG gives us access to a level of computing that is an order of magnitude above what the host labs provide. In fact, we have to throttle simulation production because otherwise we risk overwhelming xrootd on the input side and S3 on the output side.