2015.10.01 -- Software Meeting

Agenda

1. Collaboration Sotware Agenda — All
2. Pass 2 status, skims — Nathan
3. Update on MC production — Bradley
4. Recent errors & their resolution — Luca, All
5. Madgraph vs. Luca's Generator — Luca
6. Simulating the detector with field map — Norman
7. (Software Roundtable/Quick check – All)
8. Questions? – All

Current draft for Software Agenda at Collaboration meeting:

Software

- Intro/Tasks/Organization — Maurik
- Tracking — Update/Overview of the new multi strategy tracking scheme. — Omar or Sho
- ECAL — Update on ECAL code and calibrations — Holly or Nathan
- SVT Alignment — Allesandra or Pelle
- Tracking and Vertexing in 3D B-field — Norman
- Run Database/ Data Catalog/ Conditions — Jeremy
- DQM — Organizing “offline monitor” shifts? — Matt G

Talk on detector efficiency?
Talk on reducing the event size?
Talk on optimizing for speed?

Analysis

- Leader - Intro/Tasks/Organization/...
- Kyle - Reaction Rates and Event Selection
- Rafo - Trident Shapes
- MattG - Trident Rates
- Luca - New Event Generator
- Sho - Vertexing
- Omar - TMVA / scikit-learn Event Selection
- Brad - Moller Event Selection
- Omar - Efficiency from Mollers
- MattS - Efficiency from FEE
- Sebouh - C/CH2 or Accounting for Pileup (TBC)
- Rafo - The Extra "WAB"s (TBC)
- MattG - BumpHunt Fitting
- Nathan - Beamspot Stability
- Nathan - Mass Resolution

Notes

Not all the steering files work with all the versions of the software. This may be getting confusing (e.g. current trunk cannot run the EngineeringRun2015FullRecon.lcsim but work OK with EngineeringRun2015FullRecon_Pass2.lcsim). We are currently not keeping track of what works with what. How can we do better?

Currently the "HPS-EngRun2015-Nominal-v3" detector model does not have an entry in "Detector Geometry Overview". Do we want to keep this method of documenting the geometries? (Resolved)

Summary

MC Production

There was quite a bit of discussion on using SLIC with the new field map. The core issue is that so far we have been using an (ancient) old version of SLIC (3.0.x) that is compatible with the (ancient) old version of Geant4 9.6.1. After this version of Geant the physics models were changed significantly and we never tested whether the latest (10+) versions of Geant4 give better or worse results than 9.6.1. A detailed study of how the old and new versions compare is needed, but this is quite a bit of work, since we would probably also need to compare different versions of the physics lists in the new version of Geant.

Norman showed that the new SLIC works with the field map and for FEE electrons gives correct results.

Jeremy is also making an update to SLIC that will correct the problem with displaced vertexes, something that we will need in our analysis and was discovered when trying to simulate True Muonium events.

For the current pass 2, we will run the old version of SLIC without a field map. In parallel, we will start producing MC with the new version of SLIC to get some MC with field map.

Pass 2

Nathan showed the nice page that summarizes Pass 2. Many jobs failed, either due to the JLab file system, or an HPS-Java bug. The bug is fixed but it was decided that the failed runs will not be re-run unless requested.

Madgraph vs. Luca Generator

Luca showed some of the output of his generator and compared with Madgraph output. It is not clear what causes the differences. Probably the best thing to do now is to compare both generators with the data, including a check on the production rates.

Evio Converter

Pelle has made significant updates to the SVT EVIO converter. It will now throw an (uncaught) exception when it encounters an error in the HW monitoring data that is embedded in the EVIO, causing the analysis of that file to abort. A future update should catch the exception, put a warning in the log file, and flag the event in the event header.