HEP Software Foundation

HL-LHC Common Software Review CMS Discussion

Graeme and Liz

WLCG
Worldwide LHC Computing Grid

2021-04-14

HL-LHC Computing

- HL-LHC will bring significant challenges in software and computing
- LHCC want to ensure that preparations to face this challenge are well mapped out and credible
  - This will be an ongoing process over the next few years
    - May 2020 - initial review looked at plans from ATLAS and CMS, from a common software perspective (prepared by HSF, including generators) and DOMA
    - **November 2021** - next review phase, with a particular *focus on common software projects*
    - Then by CDRs, TDRs in the coming years

November 2021 Review Objectives

- “focus on the requirements, plans and readiness of activities that are common to the experiments, including those under the WLGC umbrella”
- “main goal of this review is to ensure the experiments, WLCG, and the relevant software projects, have common and realistic expectations of requirements and timescales”
- “help the experiments plan their strategies and assist the projects in focusing on priorities and identifying any pinch-points”

- Areas which are reviewed are expected to provide a concise document (20-30 pages total)
  - There will be one document that covers the *DOMA* area
  - In addition to *Introduction; Event Generators; Simulation; Foundational Tools; Analysis*
  - To be delivered by **1 October**

Specific Areas to Cover

- A description of the project and present plans and timelines to deliver the agreed functionality and performance: a roadmap
- Describe how the project is managed, including how it will set priorities, monitor progress, and communicate with stakeholders.
- Present the current status of the development teams and note any gaps in skills or effort.
- Describe any major risks, potential functionality gaps, and dependencies on other projects

Review Organisation

- Discussions between WLCG Software Liaisons (Graeme and Liz), WLCG Project Leader and LHC Experiments
- Converged on two important things
  - Overall structure of inputs, with documents on Generators, Simulation, Foundation, Analysis, DOMA, plus an Introduction
  - Strong interactions between the experiments and the software projects
- For the latter point we decided that a mini-workshop would be appropriate as a place for the experiments to present some baselines and boundary conditions, as well as R&D interests
  - This should be a two-way interaction!

We converged on the following mini-workshop dates:

- Thursday 29 April for Simulation, https://indico.cern.ch/event/1028379/
- Tuesday 4 May for Analysis, https://indico.cern.ch/event/1028381/
  - Format will be to hear from the projects first on the topics from the previous slide and then hear from each of the experiments

In addition, the HSF Generator WG will be inviting discussion with the main generator teams in the next few working group meetings (starting with Sherpa, Powheg, Pythia8, EvtGen and Herwig7)

Timeline

- 1 November - Review Week
- 1 October - Documents delivered to reviewers
- September - Polish and finalise
- August and July- Summer holiday time, lower efficiency for group work
- **30 June** - We need a first draft, even if it’s rough
- w/b 26 April - Mini-workshop
- 31 March - You are here

N.B. We really believe that developing the document sections in the open is going to help converge faster and develops a relationship of trust between the projects and experiments