LCG Generator Services
project planning meeting

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Outline

- Introduction
- **Progress report**
- **Planning for the next 6 months**
- Summary

Introduction

- Previous Generator Services project planning meeting held on 29 May 2009
  - Slides and minutes available from
    - http://indico.cern.ch/conferenceDisplay.py?confId=56100
- Regular monthly meetings with technical presentations
- Purpose of the present meeting
  - Review the progress since the last meeting
  - Plan the work for the next 6 months

Work-packages

- Generator libraries repository [GENSER]
- Testing and Validation of generators [VALIDATION]
- Event Record [HEPMC]
- Event Database [MCDB]

Progress report: GENSER

- GENSER
  - Structure stable and used by the experiments
  - 26 generators installed
    - http://lcgapp.cern.ch/project/simu/generator/
    - 2 new generators added since the last review
      - baurmc (Wγ / Zγ)
      - Pomwig (Herwig for diffraction)
    - 1 new generator ready, waiting for ATLAS feedback
      - AcerMC (SM bkg processes for LHC)
  - Porting on SLC5 : i686-slc5-gcc43-opt
    x86_64-slc5-gcc43-opt

    completed!

Migration to autotools (1/2)

- The migration, for some Fortran generators in GENSER, from the home-made building system to a new autotools-based building system is essentially completed.
- So far only few versions of some generators have been installed with the new system, but all future versions will be.
- Our comparisons of generators built with the old approach with respect to the new building system show no difference. However, feedback from users, especially on Grid production, will be essential to make improvements.
- For some generators/versions, builds on Mac OS X `osx105_ia32_gcc401` are available, as requested by LHCb.

Migration to autotools (2/2)

- A “bootstrap” script that allows to build the generators supported by GENSER with any version of the “utility packages” (e.g. HepMC, Root, FastJet) has been developed in parallel with the migration to autotools, and it is now available for essentially all generators.

  It will be used by the GENSER developers, but it can also be used by any user for installing locally (e.g. on her/his laptop) some GENSER generators.

  For the next 6 months, the main effort should be of deploying the new building system and to debug & improve it based to the users’ feedback.

Progress report: Validation

- All generators are tested regularly as soon as new versions are installed
- Most of the tests consist of comparing numbers (e.g. cross-sections) between two versions (new vs. ref), but we now have also some distribution-based tests:
  - for b-bbar production with Pythia6, provided by LHCb
  - MC-Tester, provided by the TAUOLA/PHOTOS team
  - HepMC Analysis Tool , provided by DESY MC group

We need to review all the tests, adding new ones (e.g. MC@NLO, POMWIG still do not have any test), and use distribution-based tests more systematically and widely.

This should be the main task for the next 6 months.

Progress report: HepMC

- The experiments are still using HepMC **2.03.09**
- The latest version HepMC **2.05.00** has been released in June this year.
- Need to test the latest release of HepMC to spot any problem before it is adopted by the experiments.
  We propose to use the "**LCG nightly builds**" to perform some tests of HepMC using the "HepMC Analysis Tool" with the new C++ generators (Herwig++, Pythia8, Sherpa).
- A first discussion of next year's release HepMC **2.06** held in July, and the next meeting is expected on:

Wednesday 3 February at 16:30 (CET)

Progress report: MCDB

- CMS is using MCDB in large Grid production
  - for saving intermediate parton-level events
- CMS is also interested in MCDB
  - to allow exchange of files with people outside the collaboration
- The deployment of MCDB in a massive production (around 1 billion events, with tens of thousands of files to handle) for the first time shows the need of some improvements in MCDB:
  - HepML support
  - Scripts for summary statistics of generated samples
  - Limits in the length of filenames, etc.

New leadership

Witold Pokorski, the previous coordinator of the LCG Generator Services project, will be back as new leader of the project starting from January.

No changes in the LCG Russian team of GENSER developers:

- Mikhail Kirsanov
- Oleg Zenin
- Anton Korneev
- Dmitri Konstantinov
- Alexander Ryabov
- Sergei Bityukov

Milestones overview

GENSER_1	01/12/2009	include new versions of supported generators	DONE
GENSER_2	01/12/2009	build all new versions with autotools	DONE
GENSER_3	01/12/2009	complete the bootstrap approach for building the whole GENSER	DONE
GENSER_4	30/07/2009	complete the migration to SLC5	DONE
VALIDATION_1	01/12/2009	try Rivet for regression testing	PENDING
HEPMC_1	30/07/2009	release HepMC 2.05 and prepare for 2.06	DONE
MCDB_1	01/12/2009	support MCDB for CMS productions	DONE

Agreed new milestones

GENSER_1	01/06/2010	include new versions of supported generators
GENSER_2	01/06/2010	use, debug, improve the new building system
GENSER_3	01/06/2010	try to build all generators on Mac OS X (both 32- and 64-bits)
VALIDATION_1	01/06/2010	review of tests, add new tests, use more distribution-based tests
VALIDATION_2	01/06/2010	try Rivet for regression testing
VALIDATION_3	01/06/2010	create nightly tests for HepMC
HEPMC_1	01/06/2010	evaluate an extra library for ROOT I/O
HEPMC_2	01/06/2010	release HepMC 2.06
MCDB_1	01/06/2010	support MCDB for CMS productions

Summary

- Project in good shape
- The main focus for the next 6 months should be:
  - deployment and debugging of the new building system
  - review and extension of the tests used to validate the generators installed in GENSER
- Next planning meeting: around end of May 2010
- Witold Pokorski will take over the coordination of the project in January 2010