



Table of Contents

| | |
|---------------------------------------------------------|----------|
| Simulation in LHCh..... | 1 |
| Introduction..... | 1 |
| Coordinators..... | 1 |
| Gauss Web..... | 1 |
| Documentation..... | 1 |
| Current and future developments..... | 1 |
| Bugs and features..... | 2 |
| MC Piquet..... | 2 |
| Future releases..... | 2 |
| Instructions to Gauss Managers to prepare releases..... | 3 |
| Fast Simulations..... | 3 |

Simulation in LHCb

This page is intended to hold fast evolving information on the simulation and to allow contributions by all. More information is available from the Gauss official web site that is cross referenced to this site.

Some topics in these pages may be not up to date, in which case they are indicated with  (**May-Be-Not-Up-To-Date**). If you find something is no longer up to date, please tag it as such.

Topic being worked on are indicated with  **In-Work**.

Introduction

Gauss is the LHCb Simulation software, built on the Gaudi Framework. It consist of a first phase where the events are generated (e.g. pp collisions at 14 TeV) and a second phase where the particles are propagated trough the LHCb detectors.




Coordinators

The Gauss integration and release manager is Gloria Corti. The list of topics and coordinators/contacts is here [↗](#).

Gauss Web

The main Gauss web page containing release information and links to user guides and tutorials, is here [↗](#).

Documentation

- Gauss FAQ
- Gauss and DecFiles Tutorials [↗](#) for self-teaching
- Information on Generators in Gauss,  **In-Work** A collection of information related to the generator part of Gauss: links, talks, notes. More information available from the Gauss web page.
- Information on Detector simulation (Gauss and Boole),  **May-Be-Not-Up-To-Date** A collection of notes, talks and links related to the description of the status of the simulation and digitization for the different subdetectors.
- Simulation Conditions used in productions and for which data are available with some explanation  **In-Work**
- Meetings, Presentation and Workshops
- Publications
- Guide for producing statistics tables. For `Sim08` production you might also want to consult this older guide.
- Information on the filtered simulation productions
- Inofficial tool for finding the event type of a decay [↗](#)
- **NEW** How to code efficient dec-files with Tight-cuts?
- **NEW** How to code efficient dec-files with a cut on decay dependent variables, such as visible mass?
- **NEW** Information on ReDecay
- **NEW** Differences between Sim09 versions

Current and future developments

- Simulation Draft Board for development contributions. Recipes, scripts and code to share. This may be make available to be centrally release once tested.

- Simulation Validation (and tuning). List of samples for validation, reference distributions from Physics Working Group, tools to help in validation.
- List of Simulation Tasks, the evolution of some of those being worked on can be followed on the Savannah task list (Simulation category) [↗](#). The old list on twiki is being migrated there. Detailed descriptions and documentation for specific topics are linked from the savannah task and are also linked from the old list on twiki that will become just a list of supporting documentation.
- Simulation for Upgrade
- Status for Sim08
- Generators in Gauss: Pythia8, Herwig++, EvtGen [↗](#), Sherpa

Bugs and features

To report new bugs or unexpected feature use the "LHCb Physics software" savannah portal [↗](#) and select "Simulation" as category.









You can also check the list of already known bugs and their status.

MC Piquet

A report on the status of the MC Requests is presented every two weeks at the PPTS meeting. Instructions for those preparing the report can be found [here](#).

Future releases

The current sets are under active development and support:

| Deadline for contributions | Project/Package | Version | Details | Group | Release |
|---------------------------------------------------------------------------------------------------|-----------------|---------|-------------------------------------------------------------------------------------------------|-------|-------------|
| 20 Jan 2013 -  | DecFiles | v25r22 | Definition of new event types for MC11a | MC11a | 21 Jan 2013 |
| 20 Jan 2013 -  | DecFiles | v26r22 | Definition of new event types for MC-2012 | 2012 | 21 Jan 2013 |
| 27 Jan 2013 | DecFiles | v27r1 | With new DECA.Y.DEC for final tests with Gauss >= v44r2 | 2012 | 28 Jan 2013 |
| 18 Jan 2013 -  | Gauss | v42r4 | All new code for LHCb as reference - no new generators nor G4 | DEV | 21 Jan 2013 |
| 18 Jan 2013 -  | Gauss | v43r4 | For tests with Geant4 v95r1 and new version of pythia6, lhpdf, based on LHCb v35r3/Gaudi v23r3, | DEV | 21 Jan 2013 |
| 22 Jan 2013 -  | Gauss | v44r4 | For tests with new EvtGen v13r1 with interface to tauola++, photos++ and pythia8 | DEV | 23 Jan 2013 |
| 25 Jan 2013 -  | Geant4 | v95r2p1 | Build of G4 9.5.p02 with G4 examples | 2012 | 28 Jan 2012 |
| 22 Jan 2013 -  | Geant4 | v95r2 | Build of G4 9.5.p02 with Voxel volumes from 9.6 | DEV | 10 Feb 2013 |
| 28 Jan 2013 | Gauss | v45r0 | First version with all new features for production for physics with 2012 data | 2012 | 31 Jan 2013 |
| 25 Jan 2013 -  | Boole | v26r2 | Based on LHCb v35r3 or v35r4/Gaudi v23r4, with support for upgrade and for productions for 2012 | 2012 | 28 Jan 2013 |

Preview as available in the nightly builds can be found [here](#)

See the LHCb Tag Collector [for details](#), status and deadline for contributions for future versions.

Instructions to Gauss Managers to prepare releases

- Geant4 releases
- Gauss releases
- DecFiles releases

Fast Simulations

- DelphesFastSimulation

-- Last Update: GloriaCorti - 16-Mar-2012

This topic: LHCb > LHCbSimulation

Topic revision: r106 - 2019-06-24 - DominikMueller



Copyright &© 2008-2019 by the contributing authors. All material on this collaboration platform is the property of the contributing authors.

Ideas, requests, problems regarding TWiki? Send feedback