Glast Code Review: 24 April 2002

G4Generator Status

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Present status

General

▷ The package works on both **Linux (RH6.1)** and **Windows (Win2000)** platforms with the last version of **Gleam** (v1r0).

▷ It uses ver.3.2 of the **Geant4** toolkit

Code

▷ It produces both `McPositionHit` and `McIntegratingHit` collections in the TDS via the **DetectorManager** hierarchy classes; this has been tested

▷ It produces the `McParticle` tree in the TDS; this has NOT been tested yet

▷ It uses `xmlGeoDbs` and `detModel`, via `GlastDetSvc` interfaces, for the geometry

▷ It uses the `FluxSvc` to retrieve the primary particle

▷ It supports a partial (optional) GUI with a `DisplayManager` class using the `GuiSvc`

Documentation

▷ The package has a `mainpage.h` with the requested structure (introduction, release.notes link, requirements)

▷ Every class in the package has been doxygenated as specified in the `template` guidelines and documentation recommendations, at least for what concern the main structures

▷ `release.notes` not updated with all the "old" release tags, only for the last ones

▷ Not all the class methods are commented properly (due to Geant4 overlapping)

Future plans

General

▷ Continue to iterate on the code following users suggestions (and complaints)

▷ Step to Geant4 ver.4.0, but not before the release of June (at least this is my suggestion based on the Geant4 release policy) ...

▷ Set up heavy tests on physics, expecially for basic hadronic processes, (Francesco, Riccardo and Alessandro will be at CERN next May 10th to speak with physics coordinators of Geant4)

▷ Tuning of the physics parameters (mainly cuts)

▷ Insert physics processes modified by Tune group (or contribute to *Geant4* with them)

▷ Check for memory leakages

▷ Is the Algorithm structure the best one? Others (ATLAS for example) have implemented a Service for *Geant4*

Code

▷ Fix as much as possible code conventions violations (all classes)

▷ It now uses a mixture of Gaudi logs output and `std::cout`; this must be fixed

▷ Remove the `FluxSvc` dependencies and step to the new FluxAlg design for the primary particle retrieval (`G4Generator`)

▷ Insert back full detector representation in the optional GUI (`DetectorConstruction` with some iteration on `detModel` and `GlastDetSvc`)

▷ Insert customizable physics processes choice in the jobOption.txt file, probably via a Geant4 messenger (`PhysicsList`)

▷ Prepare for the incoming **HepRep** support for Event Display (more to come in the next months)

Documentation

▷ Translate parts of the documentation from Italian English to pure English :)

▷ Expand documentation for all the classes

▷ Update the web page related to `G4Generator`

▷ Add more todo items in the code (using doxygen feature)

▷ Add some diagrams

▷ Add a tutorial

Urgent actions

▷ Transition to the new `FluxAlg` design

▷ Tests of `McParticle` tree

▷ Tests and validation of physics

▷ Iteration of the documentation and code using the outcomes of this code review