Development & Release Plan and User Support Processes

Makoto Asai (SLAC)

On behalf of Geant4 Collaboration

Geant4 Technical Forum

@ Geant4 Space Users' Workshop

Vanderbilt University

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Scheduled releases

- Geant4 version 6.2
  - June 25th, 2004
  - Minor release
    - Interfaces are to be kept unchanged
- Geant4 version 7.0
  - December 17th, 2004
  - Major release
    - A few interfaces may be changed, i.e. user's code may be needed to be updated
- Detailed development plan can be found at

  http://cern.ch/wwwasd/geant4/source/planned_features.html

Planned new features (Configuration and Kernel)

- Revision of library building
  - Include support for DLLs on Windows platform (*6.2*)
  - Make shared-libs become the default and archive-libs in alternative directory (*7.0*)
- Minor design iteration of modular physics list (7.0)
  - Easier addition of 'user-modules'
  - Easier handling of cuts by region feature
- Improvement in mechanism for saving/restoring physics tables (6.2/7.0)

Planned new features (Geometry)

- Extensions to GDML and new import/export module (6.2/7.0)

- Mixing of placements and parameterized volumes (7.0)

- Reflection of parameterized volumes and reflection-factory enhancement (7.0)

- Implementation of new specific twisted trapezoid shape (6.2/7.0)

- Performance optimization in propagation in field (6.2)

Planned new features (Standard EM physics)

- Examples of EM physics-lists by use-cases (6.2)
- Updates to the muon Bremsstrahlung process (6.2)
- Performance analysis and optimization for EM showers (6.2/7.0)
- A specific implementation of Multiple Scattering for generic ions (7.0)
- Deexcitation in the *PhotoElecticEffect* process (7.0)
- New implementation of the Synchrotron radiation (7.0)
- Revision of the Transition Radiation process (7.0)
- Revision of the Photo Absorbtion Ionization model (7.0)
- High Energy processes above 10 TeV (7.0)
  - Revision of the *Bremsstrahlung* process and implementation of the LPM effect in *Gamma Conversion*
  - Addition of options for Mu-Nuclear interaction
  - Implementation of an alternative model to *Multiple Scattering* for high energy muons

Planned new features
(Low-E EM physics)

- Optimized Bremsstrahlung angular distribution (6.2)

- Prototype of photoelectric angular distribution (6.2)

- Precise range & new models for fluctuations

  - For proton and ion (6.2)

  - For electron (7.0)

- New model of photoelectric angular distribution (7.0)

- New or improved model of PIXE (7.0)

Planned new features (Hadronic physics)

- In-core inspection of reactions conditions leading rare problems in mass production (6.2/7.0)

- Revision of binary cascade to aid use in calorimeter simulation (6.2)

- Enable use of binary cascade as backend of string models for tracker simulation (7.0)

- Revised physics-lists according to physics in latest releases (6.2/7.0)

Planned new features (GUI/Visualization)

- Extend support of OpenGL driver for Windows (6.2/7.0)
- Visualization of regions (6.2)
  - Color by region, set visibility by region
- Setting of trajectory color schemes from a simple command (6.2)
- Fully instrumented trajectory (attributes on all points) (6.2)
- Improve modeling of more solids in HepRep (6.2)
- Improve visualization of Boolean solids (6.2/7.0)
- Extensions to HepRep2 driver (6.2/7.0)
  - Create separate output files for Geometry
- Complete immediate mode for HepRep/WIRED (7.0)
- Improve interoperability of the different vis drivers (7.0)
  - Simplify switching among multiple vis drivers for the same event
- Integrated visualization of field lines (7.0)

Platforms

- Official platforms:
  - Linux, gcc 2.95.2 (to be dropped after 6.2)
  - Linux, gcc 3.2 moving to gcc 3.2.3.
  - SUN Solaris 5.8, C++ CC-5.4 Patch 111715-02.
  - Windows/2000 and CygWin Tools
    - Visual C++ 6.0 Service Pack 5 (to be dropped after 6.2)
    - Visual C++ 7.1 on Windows XP
- More verified configurations:
  - SUN Solaris 5.8, C++ CC-5.5.
  - Linux, gcc 3.3.3.
  - Linux, Intel-icc 8.0.
  - MacOS 10.3, gcc-3.3
- Platforms configured but not tested and not supported:
  - AIX 4.3.2, xlC 6.0
  - DEC V4.0, cxx C++ V6.1-027
  - HP 10.20, aCC C++ B3910B A.01.23
  - SGI V6.5.5, CC 7.2.1

User Support

- Geant4 Collaboration offers extensive user supports.

  – Users workshops

  – Tutorial courses

  – HyperNews and mailing list

  – Bug reporting system

  – Requirements tracking system

  – Daily "private" communications

  – New implementation - Technical Forum

Geant4 users workshop

- Users workshops were held or are going to be held hosted by several institutes for various user communities.
  - General
    - SLAC - Feb.2002
    - CERN - Nov.2002
  - National / Focused
    - KEK - Dec.2000, Jul.2001, Mar.2002, Jul.2002, Mar.2003, Jul.2003
    - Spain (supported by INFN) - Jul.2002
    - Helsinki - Oct.2003
    - ESA - Jan.2003
    - NASA/Vanderbilt - May.2004
  - Local workshops of one or two days were held or are planned at several places.

Geant4 tutorials / lectures

- In addition to the users workshops, many tutorial courses and lectures with some discussion time slots were held for various user communities.
  - CERN School of Computing, 2000
  - Italian National School for HEP/Nuclear Physicists
  - MC2000
  - MCNEG workshop 2001
  - IEEE NSS/MIC 2003
  - KEK, SLAC, DESY, FNAL, INFN, Frascati, Karolinska, GranSasso, etc.
  - Presentations to meetings of ATLAS, CMS, LHCb
  - Tutorials/lectures at universities
    - Italy - Genoa, Bologna, Udine, Roma, Trieste
    - U.K. - Imperial
    - U.S. - Vanderbilt
- Geant4 collaboration is happy to offer tutorial courses
  - Requests are welcome

HyperNews

- HyperNews system was set up in April 2001

[Membership | Subscriptions | Recent Index | Search | Geant4 Home | Feedback | Help]

Geant 4

Geant4 HyperNews Forums

Welcome to the Geant4 HyperNews system.

The Geant4 collaboration welcomes user participation in this forum through the exchange of questions about and experiences with the Geant4 toolkit. When possible, developers will monitor these contributions and provide assistance. To report a problem or program error please use the Geant4 Problem Reporting System.

The following list is a short guide to what you can do from this page:

- To read a forum, click on the title of the forum in one of the available indices. Available indices include a Time Ordered Index, and a Recent Post Index.
- To post a new message (start a new thread) in a forum, click on the Add Message button at the bottom of the forum page. One can also use email.
- To create a membership, follow the directions here.
- To edit your membership information in the system, go to the Membership page.
- To subscribe (once you are a member) to any forum or to see what forums you are currently subscribed to, go to the Central HyperNews Subscription Page. You can also see who else is subscribed to a forum from there.
- To search the messages in the HyperNews system, go to the HyperNews Search Page.
- To request a new forum be created, use the Request a New Forum page.

HyperNews

- 21 threads in 6 categories
- Not only "user-developer", but also "user-user" information exchanges and discussions are quite intensive.
- New threads for application specific discussions
  - Medical applications
  - Space applications

Categorized Index of Foruns

Applications
Control of runs, events, tracks, particles
Experimental Setup
General matters
Interfaces
Physics

Applications
Medical Applications
Space Applications

New !

Control of runs, events, tracks, particles
Event and Track Management
Particles
Run Management

Experimental Setup
Fields: Magnetic and Otherwise
Geometry
Hits, Digitization and Pileup
Materials

General matters
Documentation and Examples
HyperNews System Announcements
Hypernews Testing
Installation and Configuration
User Requirements

Interfaces
(Graphical) User Interfaces
Analysis
Persistency
Visualization

Physics
Electromagnetic Processes
Fast Simulation, Transportation & Others
Hadronic Processes
Physics List

Technical Forum

- In the Technical Forum, the Geant4 Collaboration, its user community and resource providers discuss to:
  - Achieve, as much as possible, a mutual understanding of the needs and plans of users and developers.
  - Provide the Geant4 Collaboration with the clearest possible understanding of the needs and requirements of its users.
  - Promote the exchange of information about physics validation performed by Geant4 Collaborators and Geant4 users.
  - Promote the exchange of information about user support provided by Geant4 Collaborators and Geant4 user communities.
- The Technical Forum is open to all interested parties
  - To be held at least 4 times per year (in at least two locales) since September 2003
  - Fourth Forum on May 12th, 2004 at Vanderbilt University.
  - Fifth Forum in July hosted at CERN (under consideration).