

# Applications Area Report

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The SPI project has been concentrating in two main areas: porting the AA software stack to new platforms and upgrades of key software packages. In addition, the project has been developing HEP-SOFT, which is a new way of distributing AA software packages to potentially new clients in a "flat" structure. This has been deployed both in AFS and through the CernVM infrastructure. The packages included are currently being used successfully by the Theory group in the PH department but also other groups in the BE department have shown interest in using this deployment method. It provides up to date and easy to setup software packages on top of existing operating systems such as SL4/5, CernVM, MacOSX, etc.

On the release side a new release series "LCG 59" has been started, being the most important change the upgrade from Python 2.5 to 2.6 series and Qt 4.4 to 4.6. In addition, a total of 26 external software packages have been upgraded (clhep, doxygen, frontier, gccxml, xerces-c, ...). LCG 59 is also the first release series containing MacOSX 10.6 ("snow leopard") builds for 32 and 64 bit architectures.

All areas of ROOT have seen steady improvement over the last quarter. In the area of I/O improvements have been made in read-ahead and cache management that resulted in major speedups of data access for ATLAS and CMS. PROOF has also seen developments enhancing the robustness of the system and developments in data set management in collaboration with ATLAS. The Math, TMVA and RooFit packages have seen many enhancements and new API's requested by users for the ongoing analysis of first LHC data. For more detailed information on what is new see the ROOT release notes: <http://root.cern.ch/root/v528/Version528.news.html>

The new Beta release of Geant4 9.4 has been announced as scheduled on June 25th; most of the effort in the Geant4 PH/SFT team has been put in providing some of the developments included therein, system and integration testing, also on the GRID. The new Beta release includes a new revised Bertini cascade hadronic model (from the SLAC team), new physics-lists configurations using improved modeling for anti-baryons and hyperons (CHIPS instead of parameterized LEP/HEP models); fixes for a number of memory management issues to improve efficiency reported by performance monitoring teams in ATLAS and CMS; a new geometrical shape, G4GenericTrapezoid, requested by ALICE and implementing an arbitrary trapezoid with up to 8 vertices standing on two parallel planes.

Good progress has been made in understanding the effects of models transition on energy resolution in Geant4. Regression tests of MC generators based on distributions are now in place, using the Rivet and HepMC analysis tools. Progress made also in porting most of the MC generators in GENSER on the MacOSX platform.