

Experience with CTest/CDash

**17th Collaboration Meeting
Chartres, 10-17 September 2012**

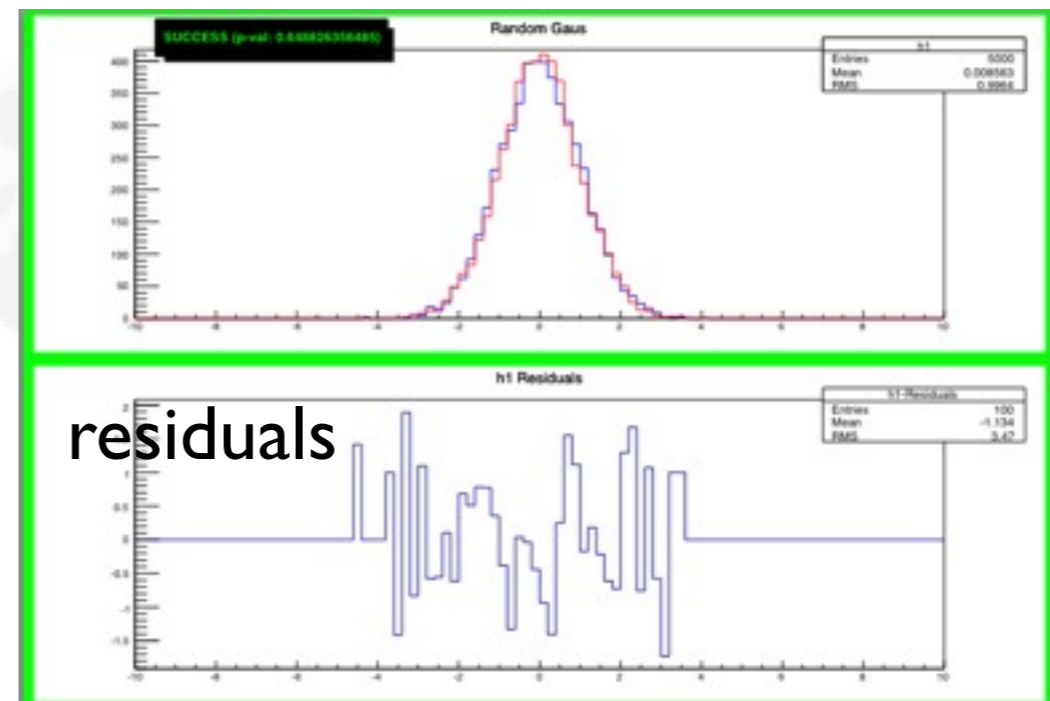
What has been done

- Introduced a **new group in CDash** “PhysicsChecks”
 - Sub-set of tests or examples from G4 source code
 - **Tests that produce sensitive physics results**
 - Add **LABELS PhysicsChecks** to your test for it to appear there
 - “LABELS PhysicsChecks Nightlies Continuous” for test to appear everywhere
- **Do not use for reject/accept tags**, but verify if code changes introduces differences in expected output
 - Difference can go in the correct direction, but still we want to trigger this!
- An **additional application available** to automatically test output (in ROOT format, but can be extended) against a referenc

StatTest application

- Get it with:
 - `svn co svn+ssh://svn.cern.ch/repos/g4tests/trunk/verification/StatTest`
- Run it with:
 - `python runtests.py -h`
 - **If you want to compare content of file A.root with B.root**
 - Write a “test configuration” file starting from provided `example/testconf.qa` (detailed) or `example/testconfall.qa` (simple)
 - `python runtests.py testconfall.qa A.root B.root`
 - with `-g image.pdf` an image file is produced
 - Few statistical tests available for both binned (one-D histos) and un-binned (tree) distributions

Binned	Un-binned
KS Test	KS Test
Chi2 Test	Anderson-Darling
Chi2 Test (weighted)	



Border: code-color

CMake integration

- A module called FindStatTest.cmake has been created to:
 - Simplifying creation of a test
- SimplifiedCalorimeter first example of application using this feature
- test30 (not yet in SVN) example of existing test extended to use this feature

Elements for discussion

— [**Reference files**

- [Where to put reference files? These are binary files that need to be updated periodically
- [Best solution so far: separate SVN repository (maybe in g4tests/verification)
- [Todo: a cmake macro to **automatically download reference** file will be provided (only needed files are checked out of repository)

— [**Update of reference file**

- [Ideally we want to make easy to update reference file
- [Proposed a special script (maybe cmake script) that:
 - [Runs all PhysicsChecks testing suite
 - [Takes freshly produced root files
 - [Commit files to repository
 - [Mark them as “new reference”

Physics Validation in CTest

- Step 1: **Create (or extend) a test** that produces results that are sensitive to one or more aspects of physics modeling. **Application should have exit code $\neq 0$ or write to `std::cerr` if results are not satisfactory**
- Step 2 (Optional): If results are in form of a ROOT histograms or TTree. **Use StatTest program to automatically compare output** with reference file

Shifts / system duties

- Still in design and development phase:
 - Need to agree that this covers all our need
 - Solve open issues (in particular handling of reference files)
- **The Physics Validation Task Force has the SB mandate to verify and help in completing the list of physics checking**
- Once CDash group PhysicsChecks is populated we can ask collaborators to help in periodically checking the results