

g4tools @ Lund



diff -u « since last workshop »

As a reminder...

- g4tools is an automatic extraction of some code found in the softinex/inlib and namespaced “g4tools” for an embedding in Geant4.
- Pure header code. Highly portable (including iOS and Android). Easily embeddable (no “config.h” or specific build tool in the way).
- Strongly OO. No implicit management.
- Thread safe (no writable statics).
- See <http://softinex.lal.in2p3.fr>

What's new



- HDF5 introduced in 2016/2017 (see Wolongong slides) : Histos and “column-wise, single-worker” ntuples.
- g4tools/hdf5 presented in a CHEP/Sofia poster.
- Writing files is fine, but being able to read them is better !
- Work done on apps to read g4tools/hdf5 files.
- row-wise mode for // ntuple writing at the ROOT format. Presented also in the CHEP poster.

HDF5 : apps



- `ioda/1.14.x` app can read `g4tools/hdf5` files, show directories and objects, plot histo and do ntuple projection. (Available on Linux, mac, Windows, iOS, Android, docker).
- Introduce `gopaw` (The “Good Old PAW” ☺) : see CHEP Sofia dedicated poster. (Linux, mac, Windows, docker).
`gopaw` engine in `ioda/1.14` (then on iOS, Android).
- Provide examples to read these files from ROOT.

g4tools, ioda, gopaw : github

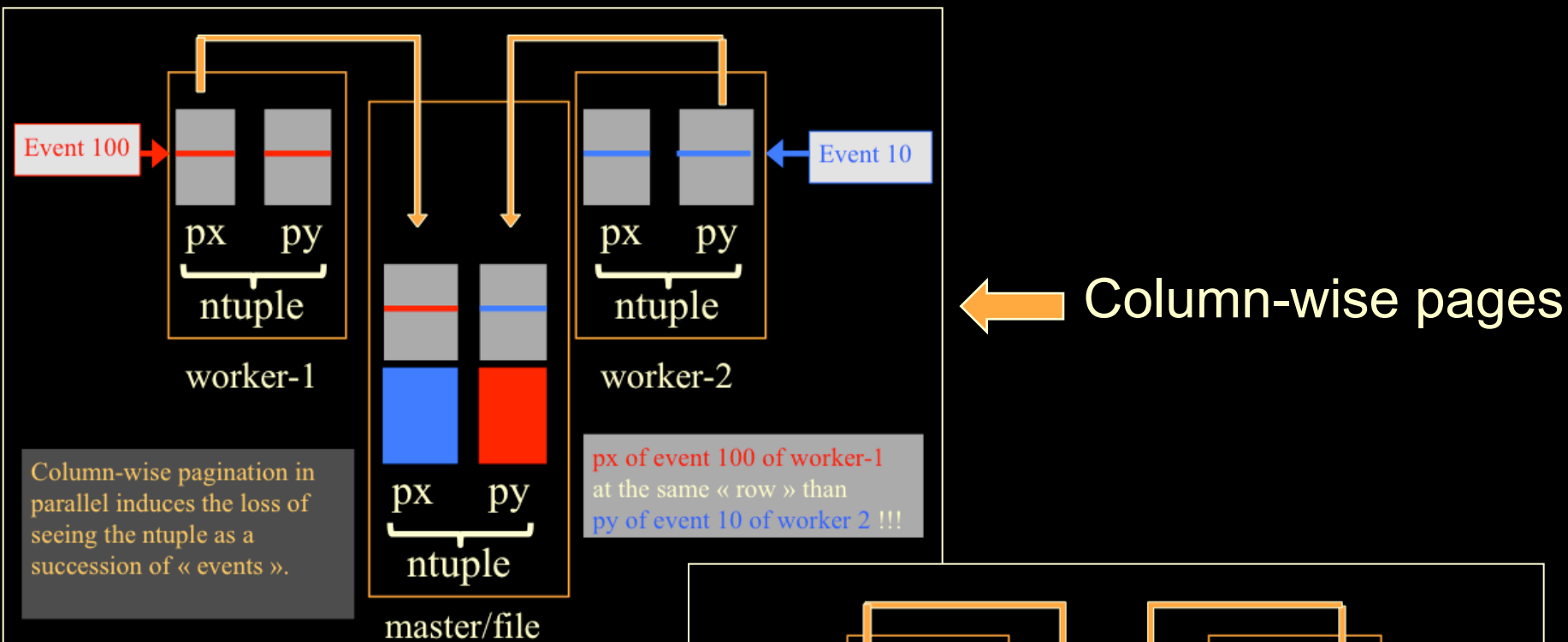


- Externalize web pages and code on Microsoft Github
- <https://gbarrand.github.io>
- <http://softinex.lal.in2p3.fr> points to github now.
- <https://github.com/gbarrand/g4tools.git>

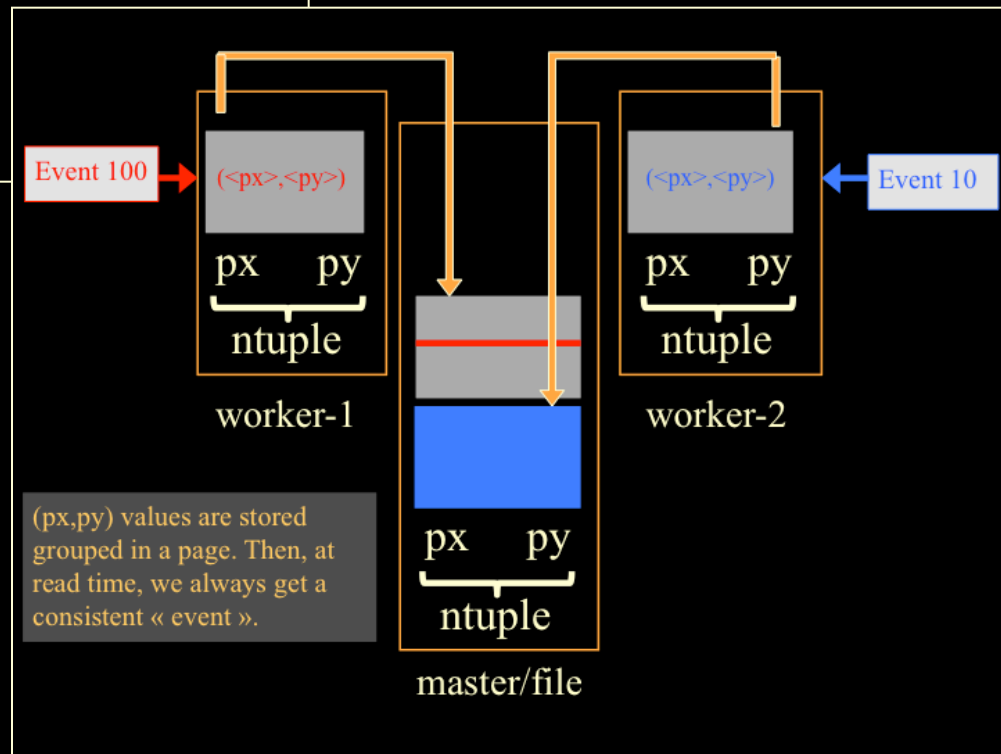
row-wise for // ntuple...



- Writing in one master file pages per column coming from various threads/workers induce an overall loss of an “event view” of a given row at read time. (For a given row, various data in columns do not correspond to the same “event”).
- For the ROOT format, it is possible to restore a “row-wise” writing by keeping the effective per page logic sent from workers. (Technically, in the row-wise mode, we create one “TBranch” per ntuple).



Row-wise pages



My todo, wish list...

- HDF5 // : the library has facilities, explore that. (For ntuple, it is perhaps not needed to do the “per page logic” introduced for the ROOT format).
- // IO : hadoop : write/read ROOT file straight with libhdfs ?
- Have g4tools/examples/cpp in the releases ?
- There is plotting in g4tools delivered for “batch plotting” for the moment. It would be nice to see g4tools/plots in G4/vis system...
- About visualisation : Apple annouced in June to no more support OpenGL ☹ (in favor of their proprietary Metal)...