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g4tools/4.x with an HDF5 IO driver and row-wise ntuple to handle single file IO in the ROOT format in a parallel-computing context.

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g4tools is a collection of pure header classes intended to be a technical low level layer of the analysis category introduced in Geant4 release 9.5 to help Geant4 users to manage their histograms and ntuples in various file formats. In g4tools bundled with the latest Geant4 release (10.4, December 2017), we introduced a new HDF5 IO driver for histograms and column wise paged ntuples as well as a "row wise" paged ntuple logic for the ROOT format to support the management of a single file in a multi-thread or MPI parallel environment. We will present these developments, in particular putting accent on the usage of the HDF5 binary IO library to write/read typical HEP objects as histograms and paged ntuples, a library widely used in other domains of science but so far quite ignored in HEP.

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