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Go4 Version 5 - a ROOT based online and offline analysis environment

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The GSI Object Oriented On-line Off-line system Go4 provides a user environment for online monitoring of DAQ data with ROOT based analysis code. The raw data files can be processed and visualized with the same code also in an offline mode. The interactive Go4 GUI combines ROOT and Qt graphics and can control the parameters of the separate Go4 analysis process by means of a generic inter-task communication layer and a user plug-in architecture. For many years Go4 has been used at GSI and elsewhere for production data analysis of experiments in nuclear and atomic physics, for detector test beam monitoring, and for characterization of frontend-electronics prototypes.

Go4 development was started in 1999 and has always applied and improved most recent ROOT features, like the TThread classes and the Qt-ROOT graphics interface. Go4 version 5.0 has been released in June 2015. Besides supporting Qt5 and ROOT 6, this major release introduces the ROOT HTTP package for communication between analysis and GUI processes. Moreover, the Go4 analysis process with a ROOT web server offers a dedicated JavaScript ROOT GUI, so Go4 analysis may be controlled by any web browser with GUI elements similar to the established Go4 Qt GUI. Vice-versa, the Go4 Qt GUI may visualize ROOT objects like histograms from any ROOT HTTP server even without Go4.

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