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Quality Assurance for simulation and reconstruction software in CBMROOT

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The software framework of the CBM experiment at FAIR - CBMROOT - has been continuously growing over the years. The increasing complexity of the framework and number of users require improvements in maintenance, reliability and in overall software development process. In this report we address the problem of the software quality assurance (QA) and testing. Two main problems are considered in our test suit. First, test of the build process (configuration and compilation) on different systems. Second, test of correctness of the simulation and reconstruction results. The build system and QA infrastructure are based on CMake, CTest and CDash. The build process is tested using the standard above-mentioned set of tools. For the simulation and reconstruction tests a set of tools was developed, which includes base classes for reports, histogram management, a simulation and reconstruction QA classes and scripts. Test results in form of the user-friendly reports are published on the CDash and on the dedicated web-server where developer can browse, for example, the tracking performance two weeks ago in order to fix the bug. Described QA system considerably improves the development process and leads to a faster development cycles of CBMROOT.

Summary

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