



Sample Project: Continuous integration and testing framework

Code	EP2384
Programme	FCT
Department	EP
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Title

Continuous integration and testing framework

Description

The SFT group has moved its continuous integration, testing, software distribution and planning frameworks to integrated modern tools such as git, Jira and Jenkins. One of the major products for which these tools are used is the simulation code, including the Geant4 programme and the GeantV prototype.

Combination of scheduled builds of Geant4 and GeantV with different settings are performed on various operating systems compilers and other supporting packages. It is our plan to extend the usage of Jenkins to code coverage testing, static analysis tools, regression and unit tests, coding convention compliance and other specific tests and benchmarks.

Jenkins should also be integrated with external products such as Coverity code analyser, Intel Inspector & Intel Vtune Amplifier XE tools. Integration of Jenkins, git and Jira allows creating continuous build job flow by automatically creating tags and, where needed, issues in Jira.

Via the creation of specialized test cases and the analysis of the results of the various performance measurement code analysis tools, the Geant4 and GeantV programmes will be constantly monitored for errors and memory leaks and optimised in terms of performance, scalability, bandwidth,

Skills:

Knowledge of various computing architectures (many core, ARM, Intel Xeon, Intel Phi, AMD, Nvidia GPUs) operating systems and compilers

C++ programming and bash scripting

Administration of Unix systems (Linux/OS X)

Code optimization techniques

Skills

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<p>  
code optimisation, vector and parallel computing, software lifecycle, software maintenance</p>  
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Disciplines

Information Technologies

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