

# Dynamic configuration of the CMS Data Acquisition cluster

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The CMS Data Acquisition cluster, which runs around 10000 applications, is configured dynamically at run time. XML configuration documents determine what applications are executed on each node and over what networks these applications communicate. Through this mechanism the DAQ System may be adapted to the required performance, partitioned in order to perform (test-) runs in parallel, or re-structured in case of hardware faults.

This paper presents the CMS DAQ Configurator tool which is used to generate comprehensive configurations of the CMS DAQ system based on a high-level description given by the user. Using a database of configuration templates and a database containing a detailed model of hardware modules, data and control links, compute nodes and the network topology, the tool automatically determines which applications are needed, on which nodes they should run, and over which networks the event traffic will flow. The tool computes application parameters and generates the XML configuration documents as well as the configuration of the run-control system. The performance of the tool and operational experience during CMS commissioning and the first LHC runs are discussed.

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