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First-year experience with the ATLAS Online Monitoring framework

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ATLAS is one of the four experiments in the Large Hadron Collider (LHC) at CERN which has been put in operation this year. The challenging experimental environment and the extreme detector complexity required development of a highly scalable distributed monitoring framework, which is currently being used to monitor the quality of the data being taken as well as operational conditions of the hardware and software elements of the detector, trigger and data acquisition systems. At the moment the ATLAS Trigger/DAQ system is distributed over more than 1000 computers which is about one third of the final ATLAS size. At every minute of an ATLAS data taking session the monitoring framework serves several thousands physics events to monitoring data analysis applications, handles more than 4 million histograms updates coming from more than 4 thousands applications, executes 10 thousands advanced data quality checks for a subset of those histograms, displays histograms and results of these checks on several dozens of monitors installed in main and satellite ATLAS control rooms.
This note presents the overview of the online monitoring software framework, and describes the experience which was gained during an extensive commissioning period as well as at the first phase of LHC beam in September 2008. Performance results, obtained on the current ATLAS DAQ system will also be presented, showing that the performance of the framework is adequate for the final ATLAS system.

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