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MAD – Monitoring ALICE Dataflow

ALICE (A Large Ion Collider Experiment) is the heavy-ion detector designed to study the physics of strongly interacting matter and the quark-gluon plasma at the CERN Large Hadron Collider (LHC). Following a successful Run 1, which ended in February 2013, the ALICE data acquisition (DAQ) entered a consolidation phase to prepare for Run 2 which will start in the beginning of 2015. A new software tool has been developed by the data acquisition project to improve the monitoring of the experiment's dataflow, from the data readout in the DAQ farm up to its shipment to CERN's main computer centre. This software, called ALICE MAD (Monitoring ALICE Dataflow), uses the MonALISA framework as core module to gather, process, aggregate and distribute monitoring values from the different processes running in the distributed DAQ farm. Data are not only pulled from the data sources to MAD but can also be pushed by dedicated data collectors or the data source processes. A large set of monitored metrics (from the backpressure status on the readout links to event counters in each of the DAQ nodes and aggregated data rates for the whole data acquisition) is needed to provide a comprehensive view of the DAQ status. MAD also injects alarms in the Orthos alarm system whenever abnormal conditions are detected. The MAD web-based GUI uses WebSockets to provide dynamic and on-time status displays for the ALICE shift crew. Designed as a widget-based system, MAD supports an easy integration of new visualization blocks and also customization of the information displayed to the shift crew based on the ALICE activities.

Primary author: CHIBANTE BARROSO, Vasco (CERN)

Co-authors: WEGRZYNEK, Adam (Warsaw University of Technology (PL)); GRIGORAS, Costin (CERN); COSTA, Filippo (CERN)

Presenter: CHIBANTE BARROSO, Vasco (CERN)

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