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Data Quality Monitoring Display for the ATLAS Experiment at the LHC

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The start of collisions at the LHC brings with it much excitement and many unknowns. It's essential at this point in the experiment to be prepared with user-friendly tools to quickly and efficiently determine the quality of the data. Easy visualization of data for the shift crew and experts is one of the key factors in the data quality assessment process.

The Data Quality Monitoring Display (DQMD) is a visualization tool for the automatic data quality assessment of the ATLAS experiment. It is the interface through which the shift crew and experts can validate the quality of the data being recorded or processed, be warned of problems related to data quality, and identify the origin of such problems. This tool allows great flexibility for visualization of results from automatic histogram checking through custom algorithms, the configuration used to run the algorithms, and histograms used for the check, with an overlay of reference histograms when applicable. The display also supports visualization of the results in graphical form ie hardware view of the detector to easily detect faulty channels or modules. It provides the shift crew with a checklist before the final assessment of the data is saved to the database, a list of experts to contact in case of problems, and actions to perform in case of failure.

This paper describes the design and implementation of the DQMD and discusses experience from its usage and performance during ATLAS commissioning with cosmic ray and single beam data.

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