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A new approach for ATLAS Athena job configuration

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The offline software framework of the ATLAS experiment (Athena) consists of many small components of various types like Algorithm, Tool or Service. To assemble these components into an executable application for event processing, a dedicated configuration step is necessary. The configuration of a particular job depends on the workflow (simulation, reconstruction, high-level trigger, overlay, calibration, analysis …) and the input data (real or simulated data, beam-energy, …) leading to a large number of possible configurations.

The configuration step is done by executing python code. The resulting configuration depends on optionally pre-set flags as well as meta-data about the data to be processed that is found by peeking into the input file and even into databases. For the python configuration code, there is almost no structure enforced, leaving the full power of python to the user.

While this approach did work, it also proved to be error prone and complicated to use. It also leads to jobs containing more components that they actually need.

For LHC Run 3 a more robust system is envisioned. It is still based on python but enforces some structure and emphasises modularity. Concepts of the current system that were found to be useful are maintained, in particular the auto-configuration based on the input file.

This contribution will briefly report about the configuration system used during LHC Run 1 and Run 2 and detail the prototype of an improved system to be used in Run 3 and beyond.

Primary author: LAMPL, Walter (University of Arizona (US))

Presenter: LAMPL, Walter (University of Arizona (US))

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