

Abstract Submitted
for the APR14 Meeting of
The American Physical Society

The Trigger and Data Acquisition System of the ATLAS experiment in preparation for Run 2 LUKAS HEINRICH, CERN, ATLAS TDAQ COLLABORATION — After its first shutdown, LHC will provide pp collisions with increased luminosity and energy. In the ATLAS experiment, aimed at recording these collisions, the Trigger and Data Acquisition (TDAQ) system is upgrading to deal with increased event rates. A new trigger strategy is deployed, exploiting new methods and technologies that will further increase robustness and flexibility. The first stage of the trigger, hardware based, will increase the number and complexity of the input signals, while accommodating new hardware for improved performance. The high-level trigger, software based, will become more flexible in operating over both limited regions of the detector, the so-called Regions-of-Interest (RoI), or complete events. Higher rejection power is achieved by incorporating more elements of the offline reconstruction in the trigger. The data-acquisition architecture is simplified, with a single network for automatically balanced distribution of the computing resources and a single node execution of the software selections, to enable further evolution. In this paper, we report on both the design and the status of the development of the new TDAQ system, pointing up performance and possible limitations of the new elements, shown as results of ongoing tests.

David Strom
University of Oregon

Date submitted: 10 Jan 2014

Electronic form version 1.4