

Overview and Evolution of the DAQ and Trigger Systems for the STAR Experiment at RHIC

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The Solenoidal Tracker at RHIC (STAR) detector at the Relativistic Heavy Ion Collider (RHIC) at Brookhaven National Laboratory has been in operation since the year 2000. The capabilities of the Trigger and DAQ systems have undergone constant upgrades to improve the performance, capabilities and stability during the 13 years since the beginning of operations. The performance has been increased by several orders of magnitude from design throughput of about 1 MB/sec at event rates of a few Hz, to current capabilities with sustained data throughput well over 1GB/sec and event rates in excess of 2kHz. Numerous features have been added to the system to provide an extremely flexible yet controlled general purpose multi-trigger capability. In addition extensive tools have been created to track and monitor the performance and reliability of the DAQ and Trigger systems. We will discuss the significant highlights from the development of the STAR DAQ and trigger systems.

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