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Status and plans for the Array Control and Data Acquisition System of the Cherenkov Telescope Array

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The Cherenkov Telescope Array (CTA) is the next-generation atmospheric Cherenkov gamma-ray observatory. CTA will consist of two installations, one in each hemisphere, containing tens of telescopes of different sizes. The CTA performance requirements and the inherent complexity associated with the operation, control and monitoring of such a large distributed multi-telescope array leads to new challenges in the field of the gamma-ray astronomy. The ACTL (array control and data acquisition) system will consist of the hardware and software that is necessary to control and monitor the CTA array, as well as to time-stamp, read-out, filter and store -at aggregated rates of few GB/s- the scientific data. The ACTL system must be flexible enough to permit the simultaneous automatic operation of multiple sub-arrays of telescopes with a minimum personnel effort on site. One of the challenges of the system is to provide a reliable integration of the control of a large and heterogeneous set of devices. Moreover, the system is required to be ready to adapt the observation schedule, on timescales of a few tens of seconds, to account for changing environmental conditions or to prioritize incoming scientific alerts from time-critical transient phenomena as gamma ray bursts. This contribution provides a summary of the main design choices and plans for building the ACTL system.

Collaboration

CTA

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