

The Common Infrastructure Control of the Atlas experiment

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ATLAS is the largest particle detector at the new accelerator Large Hadron Collider (LHC), scheduled to start operations in summer 2008 at CERN in Geneva, Switzerland. ATLAS will study proton-proton collisions at the unprecedented energy of 14TeV. In order to guarantee efficient and safe operation of the ATLAS detector, an advanced Detector Control System (DCS) has been implemented. With more than 150 PCs, the DCS is a highly distributed system, hierarchically organized for operating the detector. An important role is played by the Common Infrastructure Control (CIC), supervising the experimental area. The CIC provides monitoring and control for the environment in the cavern and in the counting rooms, all common services like cooling and ventilation, electricity distribution, gas and cryogenic systems. Distributed I/O concentrators, called Embedded Local Monitor Boards (ELMB), have been developed to operate under the special conditions of the experiment such as strong magnetic field and ionizing radiation. They are used for a variety of applications and are geographically distributed over the whole experiment. The communication is handled via the Controller Area Network (CAN) fieldbus using the CANopen protocol. Data is managed by the CIC control station where a commercial Supervisory Control And Data Acquisition (SCADA) package runs. Information and high level control is available to the users by a Finite State Machine (FSM) software running in the control room and information is also available on the web. The technical infrastructure of ATLAS is already continuously supervised during the commissioning phase by the CIC and ensures safe operation.

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