

CERN Accelerators Complex Control System

Eugenia Hatziangeli, CERN

The accelerator control system has been developed with the primary target being the LHC machine. The approach used was pragmatic with the overall goal to design and develop a modular system, flexible and generic enough to be extended to the other accelerators at CERN. The controls architecture supports both 2 and 3 tier software developments. Since LHC operates with unprecedented energies a lot of effort was put into a stringent quality assurance process and tools to support the complete development lifecycle. A set of high-level applications, using the services offered by the core controls software, is running in the CERN Control Center. High precision timing system coordinates the work of thousands of equipment. The LHC control system was progressively and thoroughly tested and validated, prior to its deployment for the operation of LHC and it is now extended to cover the LHC Injectors. At present a huge effort is invested in a massive renovation of the controls hardware and software Infrastructure to ensure that the control system is able to face the future operational challenges of the LHC and its Injectors.