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The upgrade and re-validation of the Compact Muon Solenoid Electromagnetic Calorimeter Control System

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The Electromagnetic Calorimeter (ECAL) is one of the sub-detectors of the Compact Muon Solenoid (CMS) experiment of the Large Hadron Collider (LHC) at CERN. The Detector Control System (DCS) that has been developed and implemented for the CMS ECAL was deployed in accordance with the LHC schedule and has been supporting the detector data-taking since LHC physics runs started in 2009. During these years, the control system has been regularly adapted according to operational experience and new requirements, always respecting the constraints imposed on significant changes to a running system. Several hardware and software upgrades and system extensions were therefore deferred to the first LHC Long Shutdown (LS1). This paper presents the main architectural differences between the system that supported the CMS ECAL during its first years and the new design for the coming physics runs after LS1. Details on the upgrade planning, including the certification methods performed in the CMS ECAL DCS laboratory facilities, reports on the implementation progress and the expectations for the post-LS1 system are highlighted.

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