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## A database perspective on CMS detector data

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Building a state of the art high energy physics detector like CMS requires strict interoperability and coherency in the design and construction of all sub-systems comprising the detector. This issue is especially critical for the many database components that are planned for storage of the various categories of data related to the construction, operation, and maintenance of the detector like event data, slow control data, conditions data, calibration data, event meta data, etc ... . The data structures needed to operate the detector as a whole need to be present in the database before the data is entered. Changing these structures for a database system that already contains a substantial amount of data is a very time and labour consuming exercise that needs to be avoided. Cases where the detector needs to be treated as a whole are detector operation (control, error tracking, conditions) and the interfacing of there construction and simulation software.

In this paper we propose to use the detector geometry as the structure connecting the various elements. The design and implementation of a relational database that captures the CMS detector geometry and the detector components is discussed. The detector geometry can serve as a core component in several other databases in order to make them interoperable. It also provides a common viewpoint between the physical detector and its image in the reconstruction software. Some of the necessary extensions to the detector description are discussed.

**Primary authors:** AERTS, A.T.M. (TU Eindhoven); GLEGE, F. (CERN); LIENDL, M. (CERN)

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