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The LHCb Configuration Database

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The aim of the LHCb configuration database is to store all the controllable devices of the detector. The experiment's control system (that uses PVSS) will configure, start up and monitor the detector from the information in the configuration database. The database will contain devices with their properties, connectivity and hierarchy. The ability to rapidly store and retrieve huge amounts of data, and the navigability between devices are important requirements. We have collected use cases to ensure the completeness of the design. Using the entity relationship modeling technique we describe the use cases as classes with attributes and links. We designed the schema of the tables using the relational diagrams. This methodology has been applied to describe and store the connectivity of the devices in the TFC (switches) and DAQ system. Other parts of the detector will follow later.

The database has been implemented using Oracle to benefit from central CERN database support. The project also foresees the creation of tools to populate, maintain, and configure the configuration database. To communicate between the control system and the database we have developed a system which sends queries to the database and displays the results in PVSS. This database will be used in conjunction with the configuration database developed by the CERN JCOP project for PVSS.

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