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The Relational Database System of KM3NeT

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KM3NeT is a new generation neutrino telescope in the Mediterranean Sea. For the operation of the telescope a relational database is designed and implemented for several purposes, like the centralised management of accounts, the storage of all documentation on components and on the status of the detector, of the slow control and calibration data. It also contains information useful during the construction and the data acquisition phases. It means that the database is not conceived as a simple container but it plays an active role during the whole life of the experiment. Highlights in the database schema and management are discussed along with design choices that have impact on performances. In most cases, the database is not accessed directly by applications, but they go via a custom designed Web application server. It provides connection pooling and can be used to cache responses to frequently accessed information. It also allows serving and receiving data in several formats. For large data streams, binary encoding and columnar storage are used to boost performance in data access. Other issues like database connection reliability over wide area networks and fault tolerance will be discussed.

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