

DIRAC is a software framework for distributed computing providing a complete solution to one (or more) user community requiring access to distributed resources. In this thesis the DIRAC File Catalog (DFC) is extended by adding a DatasetManager module, thus adding support for datasets based on metadata queries. To improve the metaquery handling in the code, a new class MetaQuery was implemented that bundles the handling methods and adds normalization and optimization of the user input. The metaquery language was extended enabling logical operators and parenthesis.

In the second part of the thesis the hypothesis that connecting the metadata part of the DIRAC File Catalog to a NoSQL database could improve metaquery performance is evaluated. Several databases are tested and the best performing one is then connected via an interface module to the DFC.