The ESO-MIDAS Table File System

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The new and substantially upgraded version of the Table File System in MIDAS is presented as a scientific database system. Midas applications for performing database operations on tables are discussed, for instance, the exchange of the data to and from the TFS, the selection of objects, the *uncertainty* joins across tables and the graphical representation of data.
This upgraded version of the TFS is a full implementation of the binary table extension of the FITS format; in addition, its also supports arrays of strings. Different storage strategies for optimal access of very large data sets are implemented and are addressed in detail.

As a simple relational database, the TFS may be used for the management of personal data files. This opens the way to intelligent pipeline processing of large amount of data.

One of the key features of the Table File system is to provide also an extensive set of tools for the analysis of the final results of a reduction process : Column operations using standard and special mathematical functions as well as statistical distributions can be carried out, commands for linear regression and model fitting using non linear least square methods and user-defined functions are available. Finally, statistical tests of hypothesis and multivariate methods can also operate on tables. Some of these facilities are described in detail.