

Software tools to easily store, share, and present scientific data: MCS, a new approach to data treatment in astronomical projects

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ABSTRACT: Today's astronomical projects needs computational systems capable of storing and analyze large amount of scientific data, effectively share data with other research groups and easily implement information services to present data for different purposes. Nowadays databases (DBs) represent the most useful, scalable and flexible way to store any sort of data. We propose here the use of a unified model where all the data are stored into the same DB becoming available in different forms to different users with different privileges. This would not be a closed environment; existing software tools and user interfaces can be integrated into the new system. Furthermore it does not make any assumption about type and quantity of data you need to deal with. **MCS** is a set of software tools aimed at easily implementing information services. Its main feature is to hide all code implementations needed to create an information service such as: multi-threading, networking, DB access, etc., behind simple high level C++ classes requiring no low-level knowledge of these entities by the users. High level means that the usage of this class is very user friendly and close to the human way of thinking. It uses a relational DB system (MySQL) to store all the data. The user can use any favorite programming language to interact with MCS. Data retrieval/visualization can also be performed using s/w tools written in C/C++, IDL, Fortran or PHP (function names are the same in all languages). The output can go into files of various format like ASCII, HTML, XML, FITS, MCS proprietary and VOTables (Virtual Observatory Tables). Beyond these features MCS will soon implement other interfaces in Perl, Java, Python and Tcl/Tk, as well as the possibility to insert VOTables and FITS files via DB engines. HEALPix and HTM sky pixelization are already implemented and will be automatically managed. Interested people can visit <http://spora.ifc.inaf.it/mcs/> for the reference documentation of all MCS's classes.