

Using MDA Utilities for accessing data stored by saveData

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- The MDA Utilities extract information from MDA data files, generated by EPICS saveData
- MDA format
 - It's a binary format, using XDR containers
 - Header → Scan → Scan → Scan → ... → Extra PVs
 - It can support data sets of arbitrary dimensionality
 - Tied to sscan records, which acquire the data
 - Subscans do **not** have to have same ranges, although they typically do

- MDA Utilities
 - Written in C (C99 for intXX_t types)
 - Requires no special libraries to build
 - Support for Linux, Solaris, MacOS X, Windows
 - <http://www.aps.anl.gov/bcda/mdautils/>
 - Source and binaries at web page
- Written to be extremely portable
- Meant to be taken home with a user, so MDA files can be converted there

- mda-ls
 - Shows basic information about MDA files in a directory (name, dimensionality, positioners)
- mda-info
 - Shows parameters of an MDA file (triggers, positioners, detectors, dimensionality, etc.)
- mda-dump
 - Dumps all data in an MDA file as it is encountered
 - Helps to diagnose where a problem exists in a faulty data file

- mda2ascii
 - Converts MDA files to ASCII format
 - Many command line options
 - Can specify multiple files to convert
 - Can specify comment or data separator strings
 - Options for output file location, name, and extension
 - Option for aligned columns of data for easy viewing
 - Default operation
 - Splits a multidimensional file into 1D files
 - Outputs files for scan dimensions with detectors

- mda2ascii
 - Very verbose, but is intended to expose almost all file information in a consistent way
 - Does no transformation of the data
 - By default, only converts data within completed data points of the highest dimensionality; all other subscans in an unfinished scan are not reliable
 - Loads entire file at once, which could cause a problem with a large file on a computer with low memory

- mda-load library
 - Few simple C functions
 - Generates structures that contain the data
 - Heavy use of pointers
 - Can either load the entire data file or certain parts
 - Can load a structure that contains only the parameters of the file
 - Has programming documentation

The utilities come with documentation which hopefully cover how to use them completely. The documentation is also on the website.

At the APS, architecture-sensing scripts for all these programs reside in **/APSshare/bin**

If you have questions or problems with the MDA Utilities, please contact me at dohnarms@anl.gov

Website: <http://www.aps.anl.gov/bcda/mdautils/>