Generic Data Acquisition and Data Reduction at Diamond Light Source and the SRS

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GDA (Generic Data Acquisition), jointly developed by the GDA group at Diamond Light Source and Daresbury Laboratory, uses a single framework with a similar look and feel across all the beamlines to reduce the learning curve of the users. Moreover, this single framework reduces maintenance effort. The software controls the Beamline devices, the sample environments and performs the data collection. Its main programming language is Java but a scripting language in Jython is also provided to the users. Its flexibility permits a customisable GUI and “plug and play” for new extensions based on new panels. The data reduction package used on I22 at Diamond Light Source was written independently of GDA and added as a “plug in” to GDA.

Dream (Data Reduction Easily Made) is the package that will carry out data reduction on line for both 1D and 2D data on I22. Building on the GDA software, we have developed simple data reduction screens that will take the users through the basic steps, data normalisation, detector response correction and experimental background subtraction. Working with live data from the current experiment and using only a few adjustable parameters, it will give a real time view of the data so that experimental decisions can be made during beamtime rather than later offline when it is too late to amend the experiments strategy. These simple mode screens are complimented by a scripting engine that will permit more complicated operations to be performed. It is planned to "pipe" the data from these programs into user community data analysis packages including FISH and all of those from CCP13.