

Data Browser

Richard Tumanjong Azuah

(Draft)

The Data Browser is the main data visualization module in DAVE. It also has some basic data manipulation functionality that helps with the visualization. In the following sections a brief explanation is given for some of the main tasks that can be performed with this application, from loading data to generating a hard copy of the final results.

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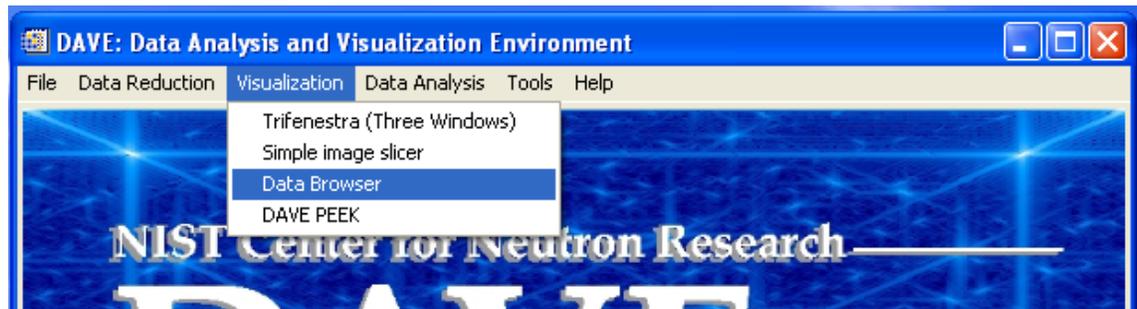
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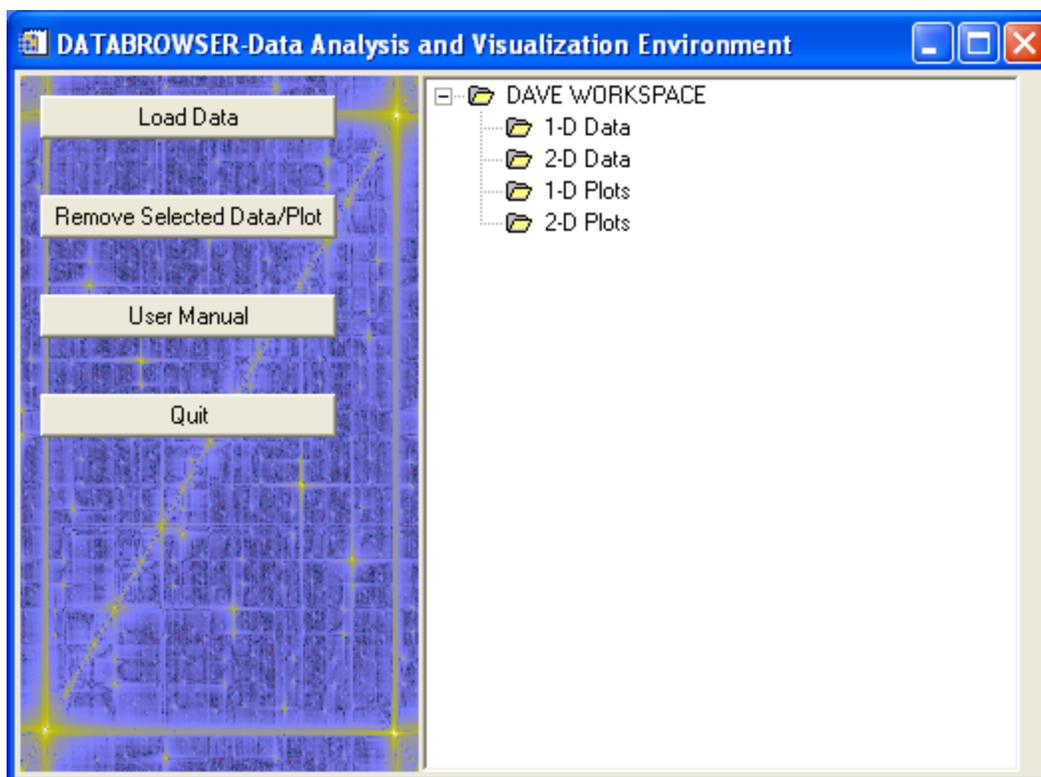
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Launching the Data Browser.

The Data Browser is launched from the Visualization menu in DAVE as shown in the screenshot.



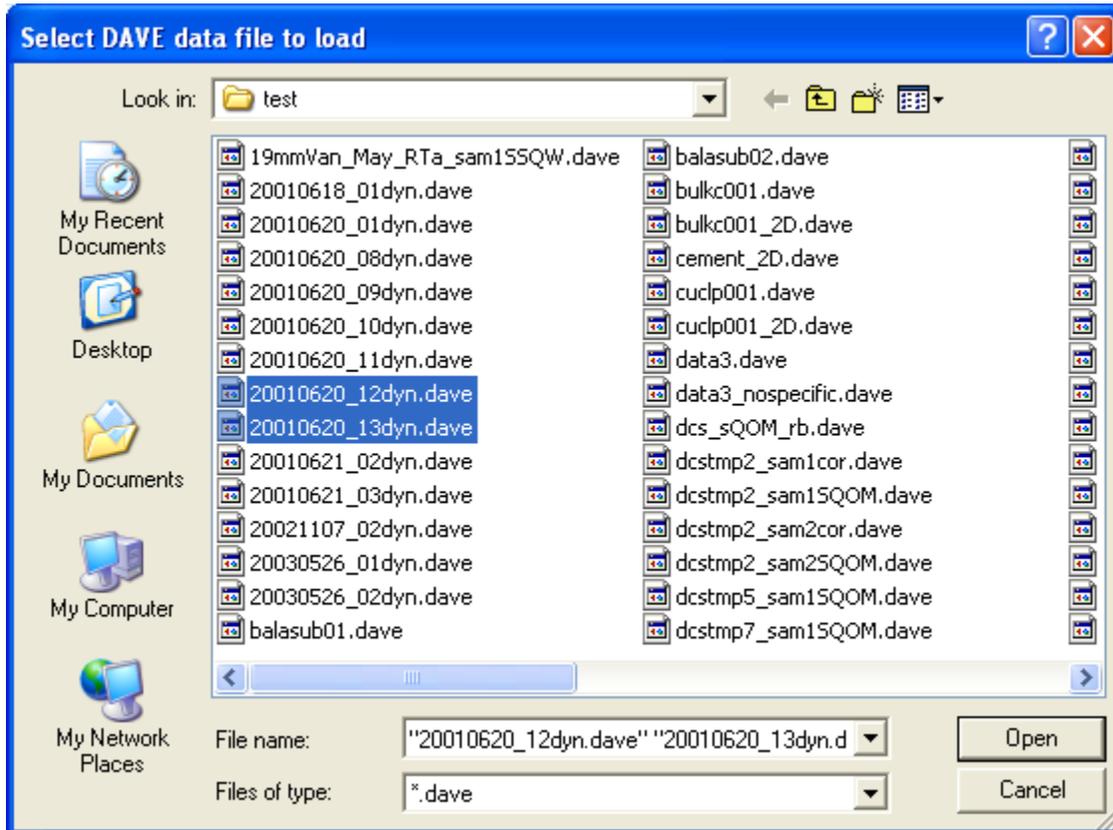
When launched, the main interface shown below is displayed. Obviously, the first thing to do now is to load some data.



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Loading Data

Select the Load Data button from the main Data Browser interface. A file selection browser is displayed as shown below. (The initial folder will be set to the DAVE *working directory* that can be define from the File menu within DAVE). Navigate to the folder which contains the data to be loaded. Select a file – multiple files can be selected while holding down the control or shift keys – and click on the Open button to load the selected file(s) or Cancel to exit without loading. Only DAVE format (.dave) files are supported by the Data Browser.

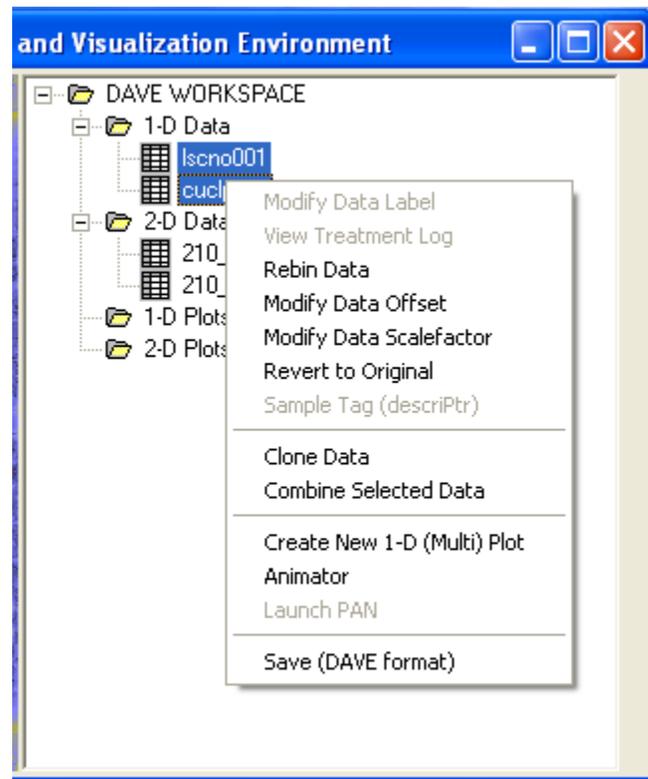
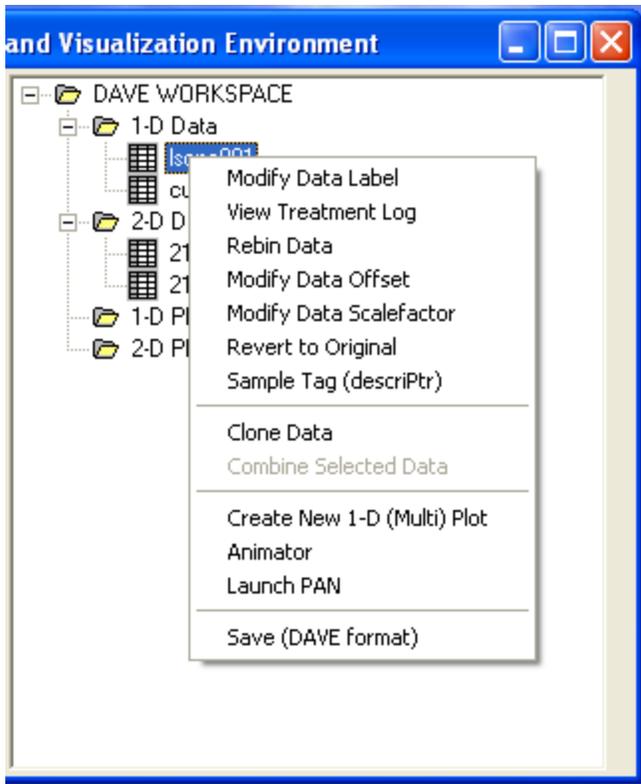


After loading, files are *automatically* sorted into two categories in the tree view located in the left pane of the main dialog of the Data Browser. Data with one independent variable (1D) are displayed in the **1-D Data** branch. Data with two independent variables (2D) are displayed in the **2-D Data** branch.

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Context Sensitive Menus

Context sensitive menus are used extensively in the Data Browser. All items listed in the tree view have menus associated with them. The menu is activated by clicking the right-mouse button on a highlighted item or group of items that share a similar category. The pop-up menu that is displayed indicates the valid actions that can be performed on the selected item(s). No context menu will be displayed if there are no valid actions available for the selected item(s). The two screenshots below show context menus for a single 1-D data (top) and multiple 1-D data (lower). Note the differences between the two. Context sensitive menus are used throughout the Data Browser – simply click the right-mouse button on any item to find out if a pop-up menu is available.

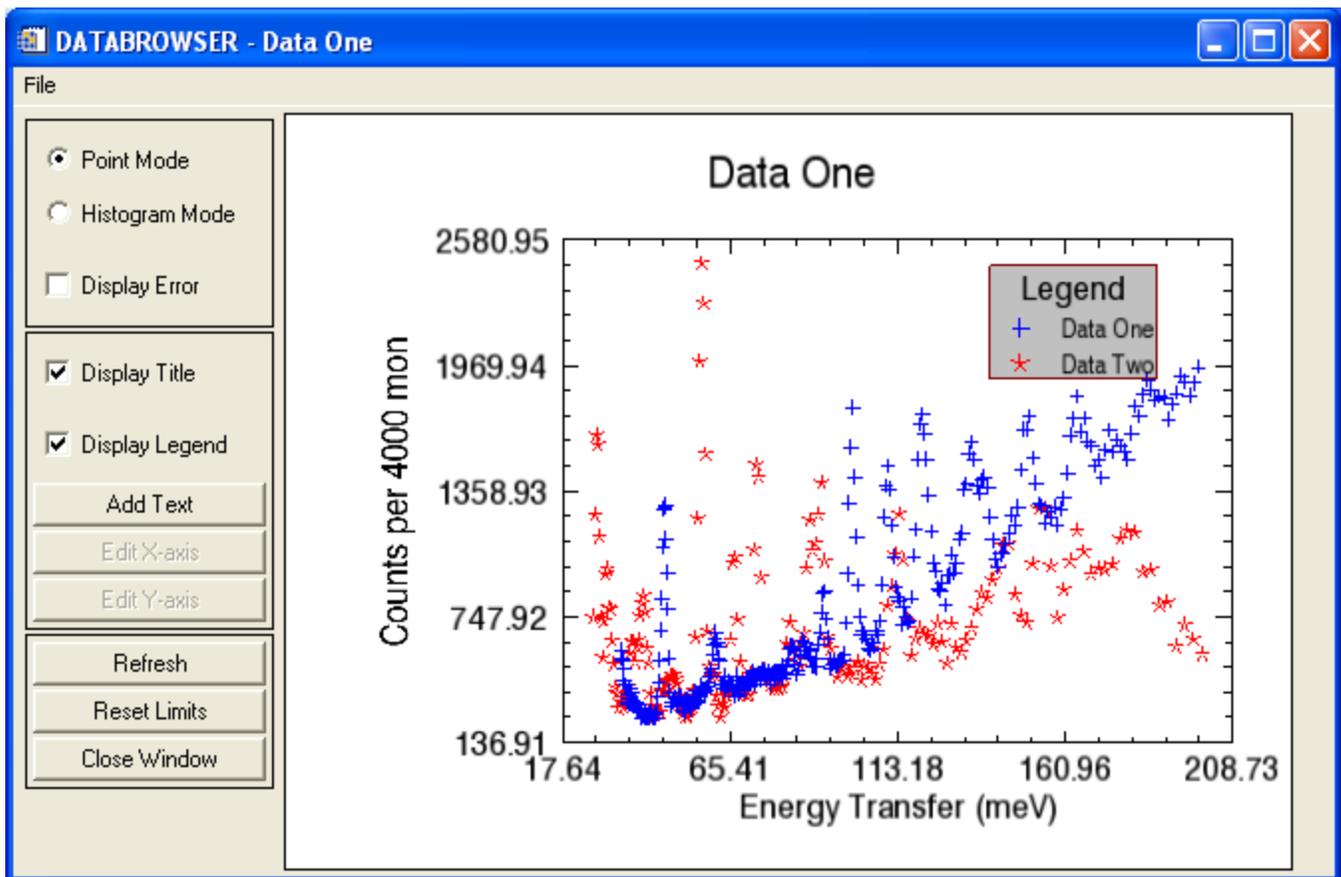


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Creating Line/Symbol Plots

Line (or symbol) plots of 1-D data can be easily generated by performing the following actions:

- Select the data of interest using the left mouse from the 1-D branch of the tree view. Multiple data can be selected.
- *Click and release* the right mouse on the highlighted item(s) to display the context menu.
- Move down along the pop-up menu to the item labeled Create New 1-D (Multi) Plot and select this by clicking on it.
- A new window will appear with a plot of the selected data and a new entry is created in the 1-D Plot branch of the tree view. The initial defaults should be similar to the following screenshot two datasets were selected from the 1-D Data container and plotted.



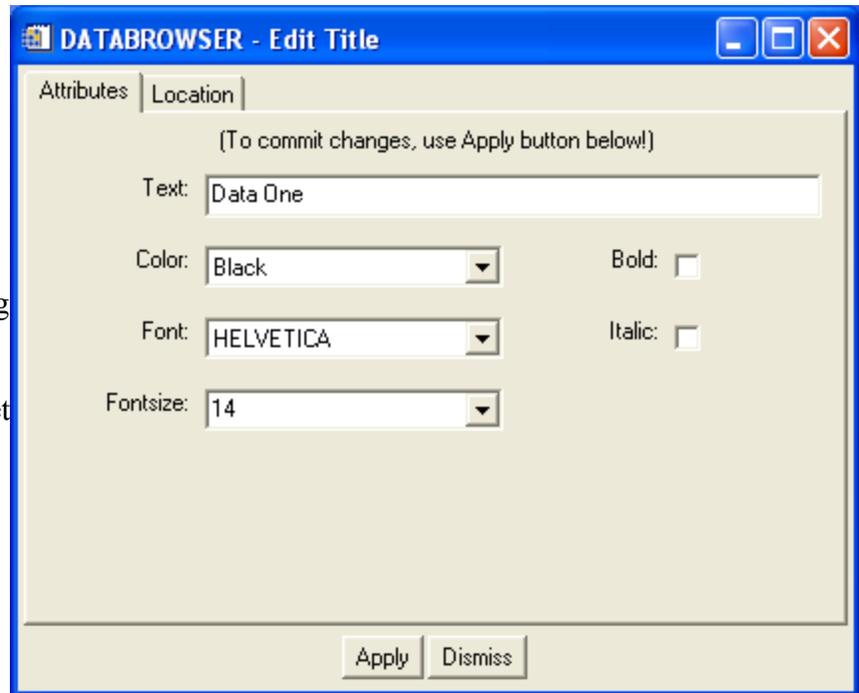
Most aspects of the plot can be customized. The title, legend, axes labels, plot attributes (symbols type, symbol size, linestyle, line thickness, color, data ranges), data errors etc can be fully customized. In most cases, quick modifications can be made achieved by right-clicking on an item in the plot window and changing an attribute from the list that is displayed in the pop-up context menu. Specific instructions on how to carry out a few of these customizations are now given. However, the user is encouraged to explore a bit. It is possible to use the Close Window button to hide the plot window – the plot can be activated by right-clicking on the icon that was created for it in the 1-D Plot branch of the main Data Browser window.

Displaying Errors

Data errors can be switched on/off by toggling the Display Error button located in the dialog area of the main line plot application window.

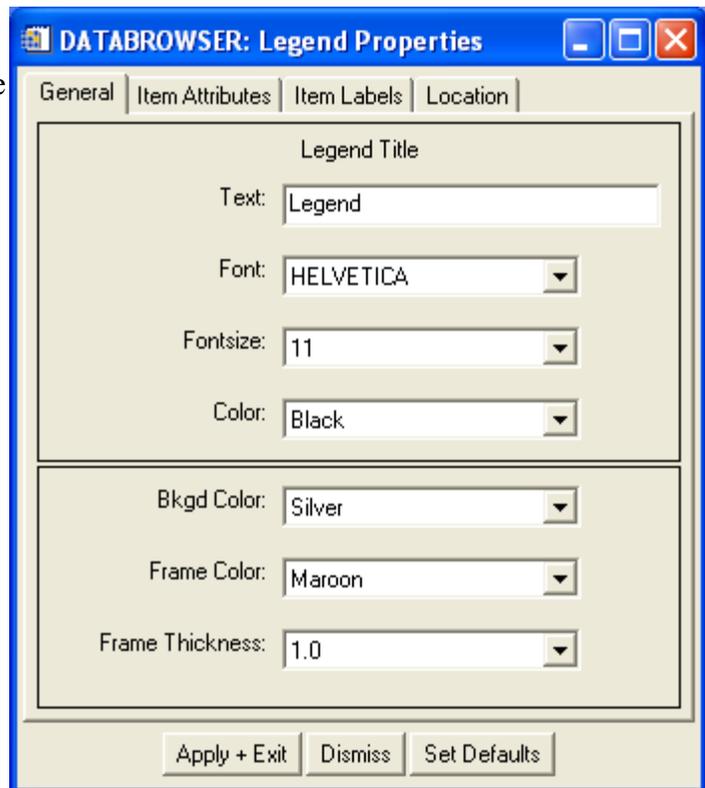
Main Title

The main plot tile can be switched on/off by toggling the Display Title button located in the dialog area of the main line plot application window. The properties of the main title can be modified by right-clicking on it and selecting the Properties... option from the pop-up menu. The following dialog will then be displayed from which changes to the main title can be made – the position of the title text can be set with the Location tab.



Plot Legend

The plot legend can be switched on/off by toggling the Display Legend button located in the dialog area of the main line plot application window. The properties of the legend such as the text labels, font, font color, position, etc can be modified by right-clicking on it and selecting the Properties... option from the pop-up menu. The following dialog will then be displayed from which the desired changes can be made. More options are accessible from the other tabs.



Adding Arbitrary Text

Click on the Add Text button located on the main window. A new text label (with text 'New text') will be added to the plot. Use the context sensitive menu to modify it.

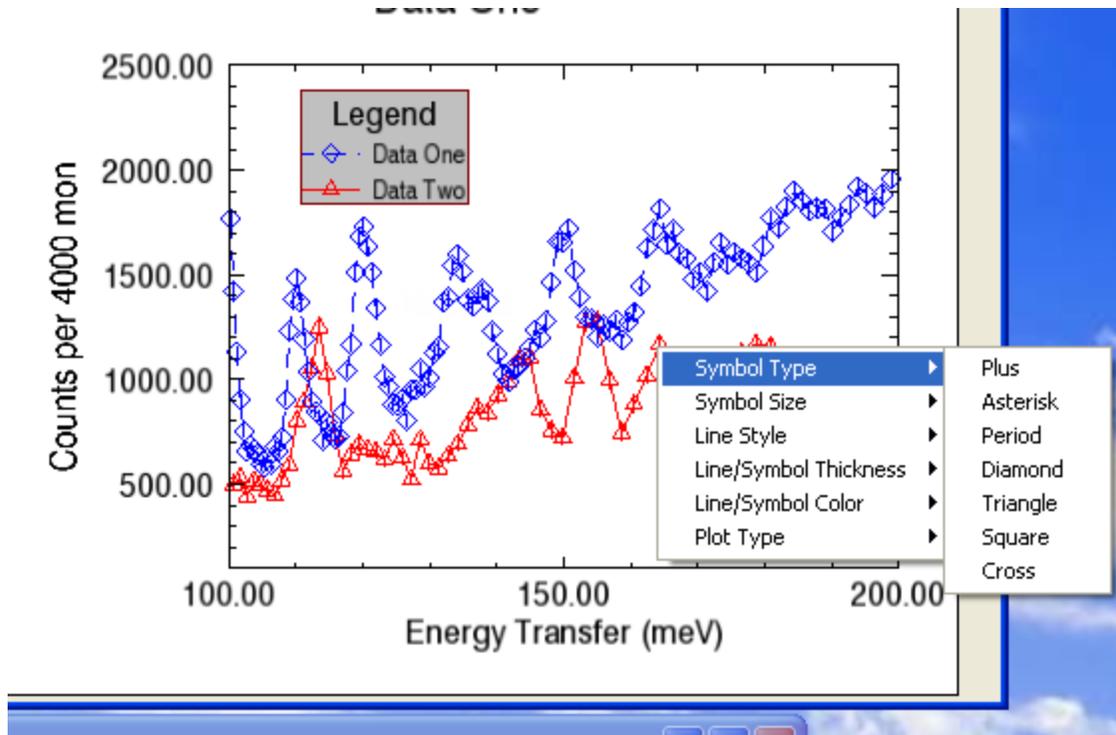
Axes Attributes

Right-click on the axis to be modified to display the context menu. For immediate single changes, select from one of the pre-define settings available from the pop-up menu. For multiple changes, use the custom dialog which can be activated by selecting the Properties... item. A screenshot of the axis property dialog is shown on the right. Use the apply button to commit the changes, the Set Defaults button to return to the initial settings or the Dismiss button to exit. There are more options available in the Scale and Format tabs.



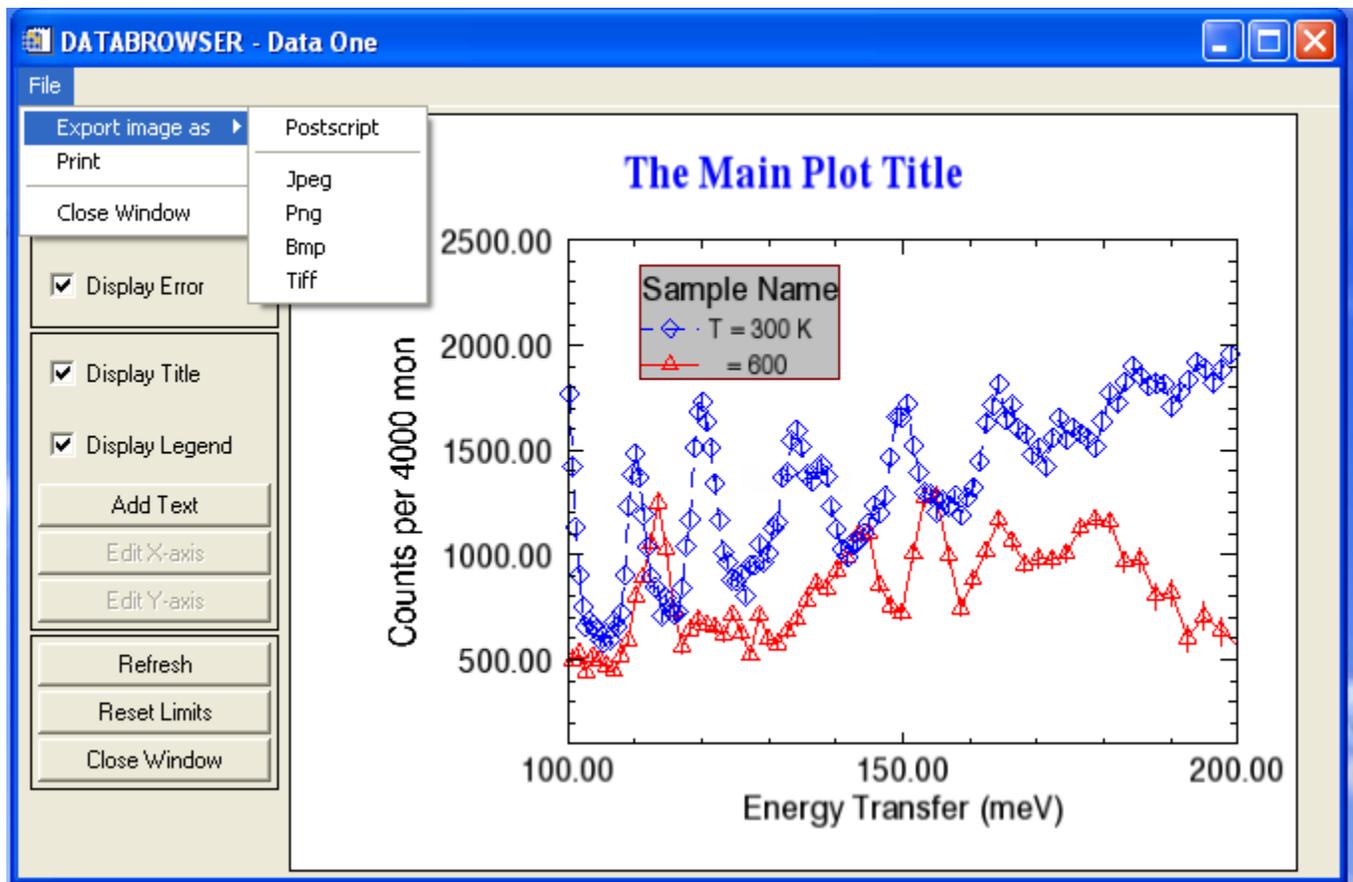
Plot Attributes (Symbols, Linestyle, Colors, etc)

Simply right-click on a plot to display the context menu. Choose from one of the many options that are available to customize the plot. Note that the changes are applied immediately.



Plot Output

The Data Browser is capable of exporting the final results to a variety of output file formats or sent directly to a printer. The available output file formats are image (JPEG, PNG, BMP, TIFF) and vector (POSTSCRIPT). To select the desired output format, click on the File menu and then select from one of the available file formats as shown in the screenshot below. Once selected, an output file dialog or a print dialog will be activated.



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Creating an Image/Contour/Surface Plot

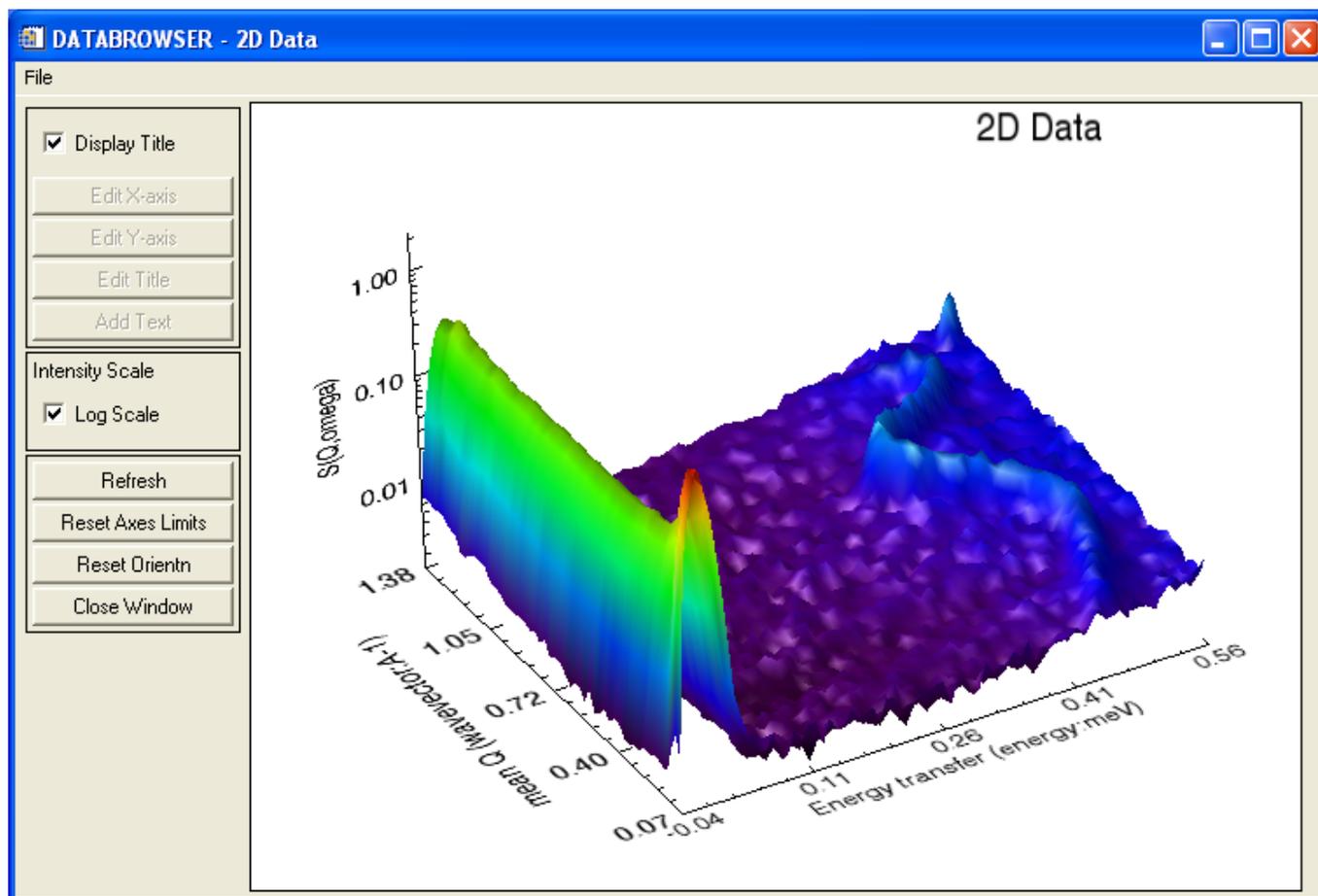
Select the data (multiple selections are not allowed) to be displayed from the 2-D Data branch of the tree view of the main dialog of the Data Browser.

Right-click on the selected item to display the context sensitive menu.

Move down to the Create New 2-D Plot entry and select from one of the available plot types: Contour, Image or Surface. Select the desired type by clicking on it.

A new window is created to display the data and a new icon for it is created in the 2-D Plot branch. An example of a newly created surface plot is shown below.

Note the log scale for the z-axis and that the default orientation has been altered slightly by dragging on the display while holding down the left-mouse.



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