

## Jade's Main Toolbar

The following diagram identifies the button groups on the toolbar:



The main toolbar provides instant access to routine functions of XRD pattern processing. You can perform most of the toolbar routines from the main menu as well. But with the toolbar, you can bypass the function dialog windows that allow you to change the default parameters of the functions (which you often won't need to do).

Most of the toolbar buttons in Jade respond to the right mouse button as well as the left, to provide related or opposite functions on a single toolbar button, and the yellow tooltips use the notation 'L> ... | R> ...' to indicate actions associated with the left and right mouse buttons. You can get a lot of ideas about Jade's interface from these tooltips; sometimes you need to wait momentarily for them to appear when you point the mouse cursor at a screen object.

### Buttons to Access & Read Pattern Files:



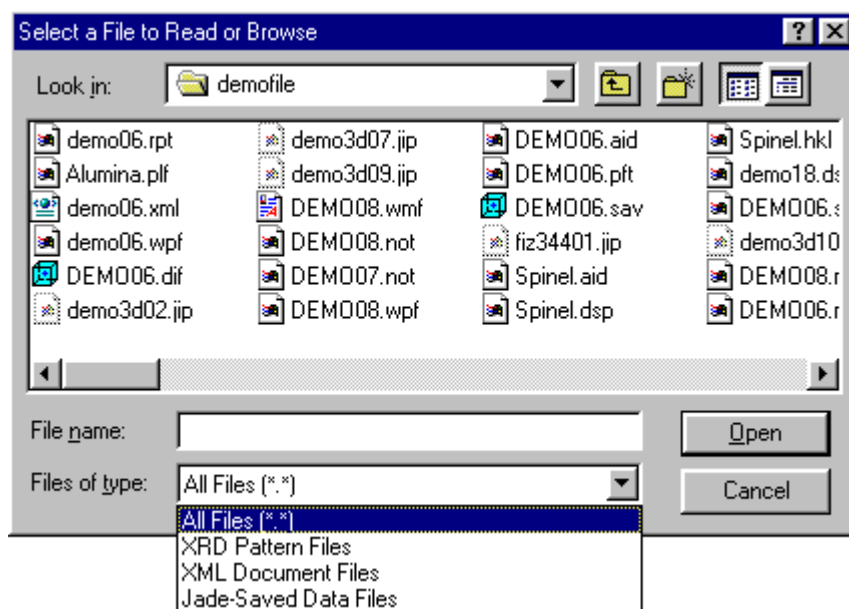
The 1st button finds and reads the latest or newly created pattern file in the folder being pointed to on [read pattern files](#) dialog. If it is your data acquisition folder, the newly acquired pattern file will be displayed, and the existing data in the zoom window will be cleared. But if you want to overlay the latest file in the zoom window, you can hold down the Ctrl key while you left-click the 1st button. You can also instruct Jade to read the latest pattern file automatically on start-up (see the option on the Misc tab of [user preferences](#) dialog). You can fetch a pattern file by its name if you right-click the 1st button, causing an input box to appear, for example:



You don't need to enter the file extension if it's the same file type as the one being displayed. You can include a folder name in the input if you want to fetch a pattern file from a different folder.





The 2nd button reads and displays the next (left-click) or previous (right-click) pattern file on the sorted list of files in the current data folder.

The 3rd button brings up [read pattern files](#) dialog for pattern file listing and selection. If you hold down the Ctrl key while left-clicking, Jade brings up [thumbnail browsing](#) dialog instead. If you right-click this button, Jade brings up the Window's file-open dialog for you to read output files saved from Jade as well as all pattern files available on the read pattern files dialog. An example is shown below:



Tip: you can overlay a pattern file from this dialog if you hold down the Ctrl key while selecting it.

The 4th button provides quick access to the floppy disk. If you left-click on it, Jade brings up [read pattern files](#) dialog to list all pattern files on the floppy. Although we don't encourage you to use removable media such as floppies for routine analysis, this button makes it easy for casual users such as students to process their data. There is an option on the Misc tab of [user preferences](#) dialog to tell Jade to copy the pattern file to the current [user/project](#) folder whenever a new pattern file is read from the floppy. Therefore the same file can be accessed again from the hard drive without the need to keep the disk in the floppy drive. The same is also true if you access pattern files over the local network. If you right-click on the floppy button, Jade brings up [copy file](#) dialog for easy data archival.

**MRU File List:** Jade maintains a list of Most Recently Used (MRU) pattern files for quick recalls. Although you can access this list from [read pattern files](#) dialog, it's also conveniently displayed below the four buttons just described (e.g.,     ). By default Jade shows the last eight pattern files on this drop-down list, but you can see more or fewer using the up-down button next to the list. Tip: you can select a pattern file from the MRU list to overlay if you hold down the Ctrl key, or load it in another instance of Jade if you hold down the Shift key. The tooltip of MRU list shows the folder name of the current pattern file if you wish to know where it comes from. The sample/scan id text next to the pattern filename can be edited for reports and printouts if desired, but the modified id will not be saved into the pattern file. Jade also widens or narrows the textbox to fit the typed text if you press the Enter key afterward. Tip: you can copy this list to clipboard by pressing the Ctrl+C keys.

### Buttons to Print and Save Data:

The 1st button will print the current display in the zoom window to the default printer. If you hold down the Ctrl key while left-clicking, the print list menu will appear. If you right-click this button, Jade brings up the [print setup](#) window instead.

The 2nd button saves the current work to a file (\*.SAV) which includes most of the current program settings as well as all the existing overlays. Notice that the 'SAV' item on the main status bar will light up upon saving the work, which you can restore simply by clicking the 'SAV' item. A list of available \*.SAV files is accessible from the 'File | Load' menu. Jade can also save the current work for you automatically upon closing. See the [file output](#) topic for more information regarding the \*.SAV file. If you right-click this button, the 'File | Save' menu will appear for saving various data items that may be present in the zoom window. Refer to [file output](#) topic for more information about saving data from Jade.

### Buttons to Process & Analyze Data:

The 1st button carries out the automatic peak search and marks the observed peaks in the zoom window. If you right-click this button, Jade brings up [peak search](#) dialog for setting the search parameters as well as the options of labeling peaks. See [edit & cursor toolbar](#) for how to edit peaks manually, and [peak list report](#) for viewing and printing the peak listing.

The 2nd button applies the active filter to the current data (the active filter is the last item selected under the 'Filters' menu and by default is pattern smoothing). If you right-click this button, [pattern smoothing](#) dialog will appear together with the smoothed pattern being overlaid in the zoom window. See [data filtering](#) topic for more information on the available filters in Jade.

The 3rd button swaps the display pattern between the 'raw' and the derived data. Jade retains a copy of 'raw' and derived data after certain analyses such as background removal, data filtering, calibration, and simulation. The 'raw' data is the data just before the analysis is carried out. Therefore it may not be the original raw data after two consecutive steps of analysis. The current pattern will always be used for subsequent analysis. You may consider this swap button to be a single-level undo in some situations. You can always restore the original raw data by reloading the file from the most recently used (MRU) file list, which is conveniently located above the pattern window.

The 4th button shows or hides the difference pattern between the 'raw' and the derived patterns. This button is activated only when the derived pattern is visible. By default, the difference intensity is  $I(\text{raw}) - I(\text{derived})$ , but you can invert it to  $I(\text{derived}) - I(\text{raw})$  if you right-click this button. You can save the difference pattern from the '[File | Save](#)' menu and Jade will reset negative data points to zeros in converting the difference pattern to the primary pattern. An agreement R-value between the two patterns is also automatically calculated and displayed at the main status bar. This R% value is calculated according to the formula:  $R\% = 100 * \text{Sqrt}(\text{sum}((I(r)-I(d))^2/I(r)) / \text{sum}(I(r)))$ , where the sum is over all data points in the patterns. See [zoom window display](#) dialog for more information about this R% value. When it's visible, the derived pattern can be cloned as a pattern overlay by selecting the 'Filters | Clone Derived Pattern' menu.

The 5th button carries out three possible tasks in this order: (1) applies external theta calibration to the current pattern if a pre-built calibration curve is available, or (2) builds the calibration curve using the current PDF overlays, if present, as reference standards or the designated standard on the calibration dialog, or (3) brings up the calibration dialog if you right-click it. See [theta calibration](#) dialog for more information.

The 6th button carries out profile fitting for peaks in the zoom window using the current profile parameters. If you hold down the Ctrl key and left-click this button, Jade profile-fits all peaks in the pattern one by one or cluster by cluster for overlapping peaks. If you right-click this button, Jade brings up [profile fitting](#) dialog. See [edit & cursor toolbar](#) for how to insert and adjust initial profiles manually.


**Buttons to Identify Phases & Access PDF Database:** 

The 1st button fits a line or curve through an array of automatically sampled tie points on the pattern background, or removes the background using the fitted line or curve if clicked once more. Tip: the search/match (S/M) button next to it will remove the background automatically if the line or curve is present. If you hold down the Ctrl key and left-click this button, Jade strips  $K\alpha_2$  peaks without removing the background. If you right-click the BG button, Jade brings up [background fitting](#) dialog. See [edit & cursor toolbar](#) for how to edit the BG tie points manually.

The 2nd button carries out phase identification on the data in the zoom window using the current S/M menu parameters. If the background level is significant in the pattern, Jade will prompt you to remove it. If you right-click this button, Jade brings up [pattern search/match](#) dialog.

The 3rd button brings up [PDF retrieval](#) dialog if the PDF index files have been established; otherwise Jade brings up [PDF setup](#) dialog so that you can establish them. The input box next to this button allows you to add PDF overlays to the zoom window as a set of colored d-I lines if you have access to a PDF database and have created the PDF index files. You can recall a PDF reference 'standard' (also called a PDF card) by entering its PDF number (such as 46-1045) or a mineral name (such as Quartz) into this input box and then pressing the Enter key. When entering a PDF number, Jade recognizes 461045 or 46 1045 or 46,1045 or 46\_1045 or 46/1045 or 46.1045 all as 46-1045. If you enter a number such as 12345, Jade takes it as 12-345.

If you enter a partial mineral name, Jade will recall all minerals whose names contain the partial name. If you mis-spell a mineral name, Jade automatically uses a Soundex algorithm to recall minerals whose

names are pronounced alike. The  button lets you select from where the minerals should be recalled if you have access to FIZ ICSD database and NIST Crystal Data besides ICDD PDF database. If you enter a chemical name or formula, Jade will search the PDF database for phases containing the name or formula you typed. This search tends to be slow but you can always perform fast Boolean chemistry retrievals from [PDF retrievals by chemistry](#) dialog. In any case, Jade overlays the matches in the zoom window if there are less than 6 hits; otherwise Jade brings up [PDF retrieval](#) dialog to list them for selection. Notice that [PDF overlay toolbar](#) appears upon overlaying PDF d-I lines.

You can also enter a filename with the extension of PLF or PDF in the PDF input box. A PLF file can contain a list of PDF cards that you retrieve and save on [PDF retrieval](#) dialog. A PDF file can contain a list of d-I files (\*.dsp) as well as the PDF cards that you overlay and save in the zoom window. If you find that you routinely overlay a certain set of PDF cards, these PLF or PDF files can come in handy. You can find the existing PLF files on [PDF retrieval](#) dialog, and restore a PDF file simply by clicking the 'PDF' item on the status bar.

Jade remembers the last 99 entries you typed in the input box. When you select an entry from this input list, Jade overlays it in the zoom window automatically. You can hold down the Ctrl key to prevent this auto-loading if you want to edit the selection. You can edit this list by browsing the 'user-id.crd' file in the current [user id folder](#).

Tip 1: you can omit the file extension in the input if you prefix the filename with a period (i.e., dot).

Tip 2: you can bring up [PDF retrieval by chemistry](#) dialog if you right-click this CD button.

Tip 3: you can recall an ICSD phase, from PDF subfiles created by ICDD or Jade in 60 <= PDF sets < 90, by entering 'ICSD=#' or 'FIZ=#' or "Z=#" in the PDF input box, where # is the FIZ ICSD collection number.

Tip 4: you can recall a JCSD phase, from PDF userfiles created by Jade entering 'JCSD=#' or 'JCS=#' or 'J=#' in the PDF input box, where # is the JCSD entry number.

Tip 5: you can resize the width of PDF dropdown list by right-dragging the  button.

Tip 6: you can copy this list to clipboard by pressing the Ctrl+C keys.

### Message Board:

To avoid popping up message boxes that require you to dismiss, Jade uses this message area quite often to show what it's up to or has done. You should check this area if you are wondering about the results of your last action or the appearance of an hour-glass indicating a time-consuming process. By default Jade writes report files to the default folder without prompting. The tooltip in this area tells you where the output file went. Jade brings up the on-line help if you click in this area. You can cancel most of the lengthy processes in Jade by pressing and holding down the ESC key. Tip: you can view a log of recent messages by right-clicking this area and copy them to clipboard by pressing the Ctrl+C keys.

### Task Macro for Auto-Processing:

This control may not appear on the main toolbar if your screen is too small or 'Macro on Toolbar' item is unchecked on 'View | Hide Toolbars' menu. If you left-click the cassette button when there is an active task macro, Jade executes the macro on the current pattern. Otherwise the left-click (or a right-click) brings up [setup macros](#) dialog. If you have assembled more than one task macro, you can choose one of them to be active from the macro list box. To process multiple pattern files using the active macro, you need to bring up [read pattern files](#) or [thumbnail browsing](#) dialog, select the files to process, and then click the Macro button on the dialog window.

This main toolbar can be hidden from the 'View | Hide Toolbars' menu if you need more vertical screen space. If it's hidden, Jade replicates the PDF recall inputbox and places it after the scan id field above the pattern window, and will use the scan id field as the message board.