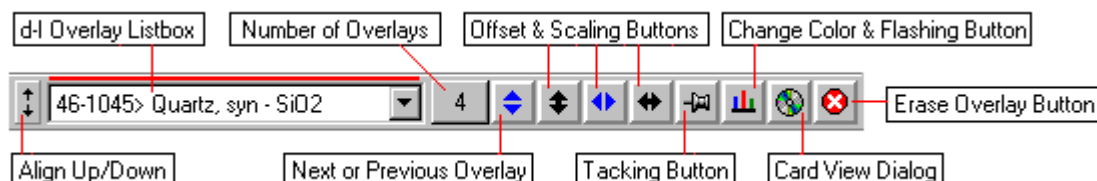


Overlay d-I List Data & PDF Overlay Toolbar

This toolbar is accessible only after you overlay d-I list data from the PDF database or from d-I list files (*.dsp) or from [d-I list editor](#). It can be placed below the main toolbar or above the main status bar or in the middle between the pattern and the zoom window. You can tell Jade to hide the toolbar when there is no overlay in the zoom window (see the option on the Display tab of [user preferences](#) dialog). Notice the appearance of the overlay color palette alongside the zoom window. You can scroll the palette to see more colors using the up-down button located at the bottom of the palette column, and hide the palette by right-clicking it.



You can overlay d-I list data as a set of colored vertical lines in the zoom window in a number of different ways:

- Retrieve the d-I list of a PDF card from the PDF database. This is the easiest way to overlay d-I list data in Jade. See [PDF setup](#) & [PDF retrieval](#) & [main toolbar](#) for more information.
- Read an existing d-I listing file (*.dsp) from the 'File | Read' menu.
- Read a 'foreign' d-I listing file from the 'Edit | [d-I list file import...](#)' menu.
- Create a new d-I list from the 'Edit | [d-I list editor](#)' menu, and use the Add button on the editor dialog.
- Overlay a calculated reflection list from lattice constants on [calculate d-I list](#) dialog.
- Overlay a calculated reflection list from [calculate XRD powder pattern](#) dialog.

Unlike the scan overlays, Jade shows only the last (active) d-I overlay when you add more than one in the zoom window. You can change this default behavior with the 'Tack Down All New PDF Overlays' check box on the Display tab of [user preferences](#) dialog. Nevertheless, you can show multiple PDF overlays by using the Tacking button on the toolbar selectively. If you right-click the Tacking button, all overlays will be tacked or untacked at the same time.

The item in the overlay listbox indicates the active overlay that can be manipulated with the toolbar buttons. Notice that a color-matching line above the overlay listbox also aids in identifying the active overlay when multiple overlays are displayed in the zoom window. If you right-click the 'Change Color' button, you can also identify the active overlay by flashing it in the zoom window. Note: Jade uses only the visible overlays for most pattern analyses and report printing, and most of the special dialogs under the Options menu load unit cell and structure data automatically from the active d-I overlay when these dialogs are brought up.

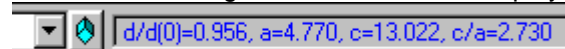
You can assign a new color to the active overlay in three ways: (a) using the 'Change Color' button on this toolbar, (b) using the color palette alongside the zoom window, (c) clicking its colored legend (if turned on) in the zoom window, (d) using [PDF overlay list](#) dialog. You can also set the line width of stick bars with the three line markers on top of the color palette. Note that Jade uses an independent setting of line width to print d-I lines because printers have much finer resolutions than the screen. You can find this setting on the Misc tab of [print setup](#) dialog. You can turn on or off the spotlights on d-I sticks and label them with a variety of phase data using either the [quick annotation toolbar](#) or [PDF overlay list](#) dialog.

The Offset & Scaling buttons enable shifting and scaling of d-I lines (also called lines) relative to the observed pattern in overall I%, theta ($2T(0)$ & d-space ($d/d(0)$). You can depress and hold them down for continuous actions with either mouse button. By default, Jade will automatically scale the d-I lines of a new PDF overlay in heights to the peak nearest to the 100% line of the d-I list. You can turn off this

auto-scaling feature on the Display tab of [user preferences](#) dialog, and Jade will scale the d-l lines to the maximum peak in the observed pattern instead.

When you shift the lines in d-space, you actually shrink or expand the lattice or unit cell of the phase isotropically since Jade multiplies the d-spacings of all lines by a single variable defined as $d/d(0)$. Therefore this button makes it easy for you to examine possible solid solutions in your pattern or to compare isotypical phases from the PDF database. If you multiply the original cell constants by the $d/d(0)$ value, the results can be used as the starting parameters for cell refinement. You can reset the offset and scaling values to 0.0 and 1.0 if you hold down the Ctrl key while clicking these buttons.

If the active overlay is a tetragonal or hexagonal phase with known cell constants, you can also change its c/a ratio by holding down the Shift key as you depress the d-scaling button. The lines will be shifted in real time according to the new c/a ratio displayed in the message area of the main toolbar (e.g.,



). Because the a-axis is kept constant in this operation, you will notice that lines of Miller indices (hk0) will not move as you alter the c/a ratio.

To illustrate these powerful tools, read the DEMO08.MDI Corundum pattern from Jade's demofile folder, and overlay the hematite from the PDF database. You can shift the Hematite lines to match the Corundum pattern without holding down the Shift key (i.e., without altering its c/a ratio). Jade will tell you the cell constants of Corundum from those of Hematite because Corundum and Hematite both have similar c/a ratios of about 2.73. Now overlay Calcite, which has a c/a ratio of 3.4, hold down the Shift key as you depress the d-scaling button so that the ratio reaches about 2.73, and release the Shift key; then shift the lines in d-space until they match the Corundum pattern--you have just indexed the Corundum pattern using Calcite data! Check out [Bravais lattice cursors](#) topic for related features in examining solid solution and isotypical phases.

The 'Card View Dialog' button will bring up [PDF card display](#) of the active overlay. The content of this dialog depends on the type of PDF overlay and the nature of the PDF database. If you have access to ICDD PDF2 CD, the card view will have more complete information.

The 'Number of Overlays' button will bring up [PDF overlay list](#) dialog for more controls such as line labeling and list ordering. Jade disables the PDF overlay toolbar when the list dialog appears. You can hide all PDF overlays rather than erasing them by right-clicking this button, and bring them back by right-clicking it again. You can also hide them from the 'View | Hide Toolbars | PDF Overlays' menu.

By default, Jade maintains an independent set of colors to print PDF overlays. But you can use the colors assigned in the zoom window for printouts if you check the 'Same Colors of Overlays on Printouts' box on the Display tab of [user preferences](#) dialog. The advantage of maintaining independent color settings for overlays is to be able to visualize them in the zoom window with a non-white background color.

Tip 1: you can offset and scale PDF overlays by dragging them directly (see [edit & cursor toolbar](#) for how).

Tip 2: you can tell Jade to clear or keep all PDF overlays when reading a new pattern file. See the option on the Display tab of [user preferences](#) dialog.

Tip 3: you can save and read a set of routine PDF overlays from a file. See the PDF section of [main toolbar](#) topic.