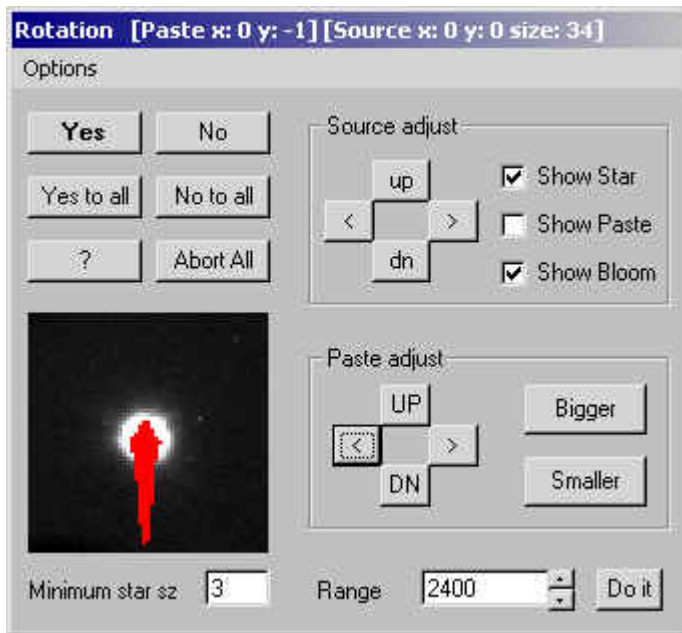


The New Astronomy DeBloomer Rotation Tool



The DeBloomer Rotation Tool

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Q. What is the Rotation Tool?

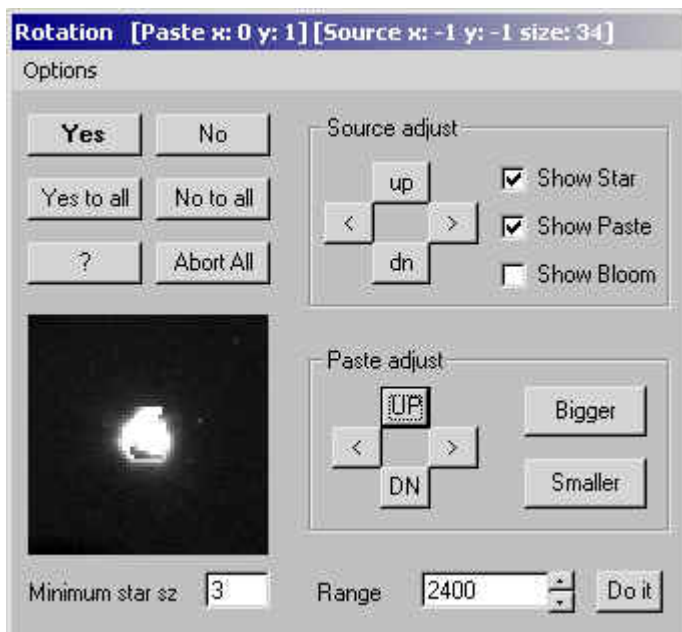
A. Blooming damages a star image to a greater or lesser degree. The rotation tool accurately pastes a rotated star image over the bloomed star image. This gives you nice round stars after the bloom has been fixed. The clean sides of the bloomed star are copied, rotated 90 degrees, and then pasted onto the damaged star image. The result is a clean, round star image without bloom damage.

Q. Why is there a manual Rotation Tool?

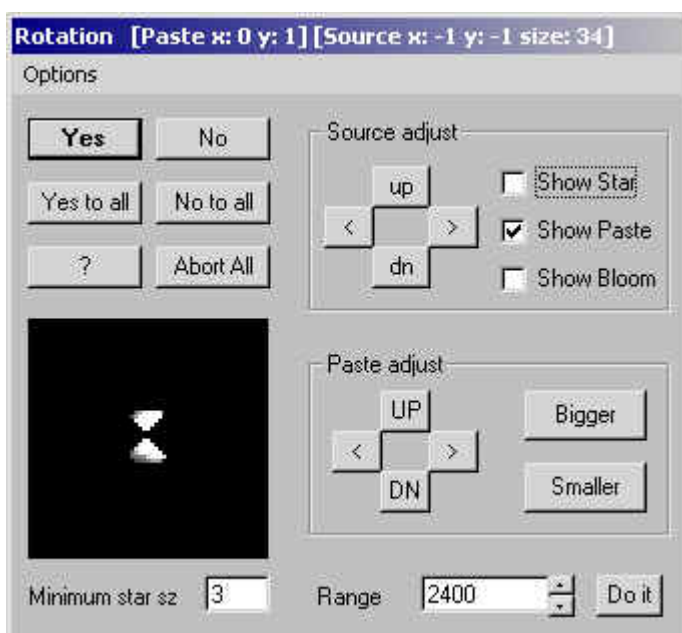
A. Severe blooming eradicates much of the visual information about a star. This makes it very difficult to calculate an accurate center. With the manual tool, you can adjust the star center accurately, and get the cleanest possible bloom removal.

To activate the manual rotation tool:

- Click the More Options button:
- "Fix stars by rotation" must be checked.
- "Rotate without showing stars first" must be un-checked.



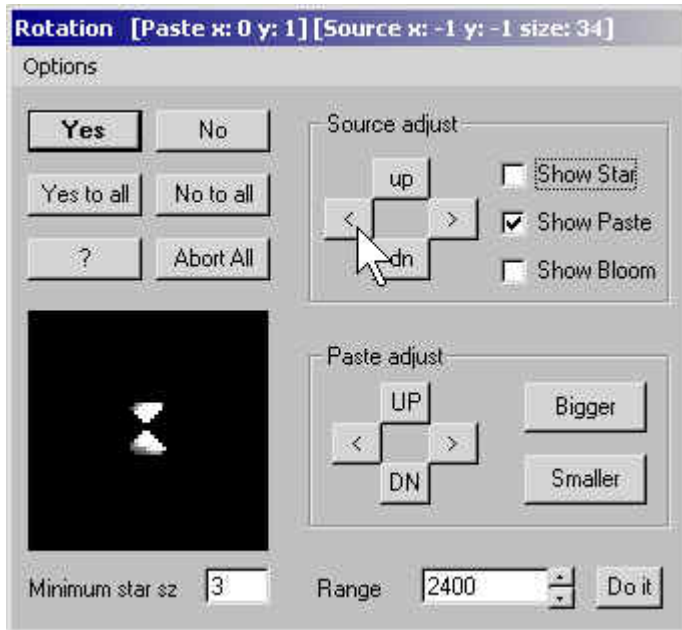
If a star looks like this when it appears in the rotation tool, the star probably had severe blooming. This makes it hard for the DeBloomer to calculate an accurate star centroid, and results in an off-center fix. It looks bad, but it's easy to fix.



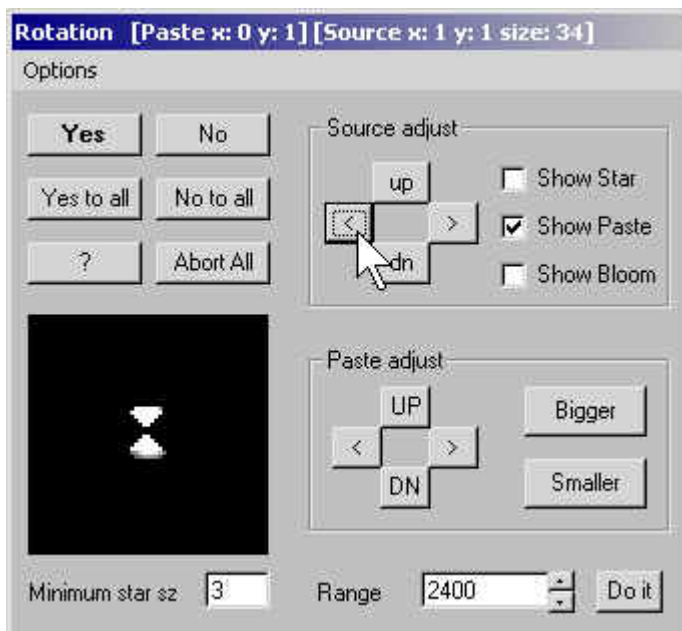
Click the "Show Star" checkbox to turn off the star. Make sure that the "Show Paste" checkbox is checked. This shows you just the portion of the star that has been picked up for rotation.

In this example, the star centroid is indeed off. You can see that the star is off center - it is slightly too far to the right. Only the two clean sides of the star are copied and rotated. That is why you only see a portion of the star here.

TIP: If you can't clearly make out the star, click the "bigger" button to increase the amount of the rotated star that is viewable.

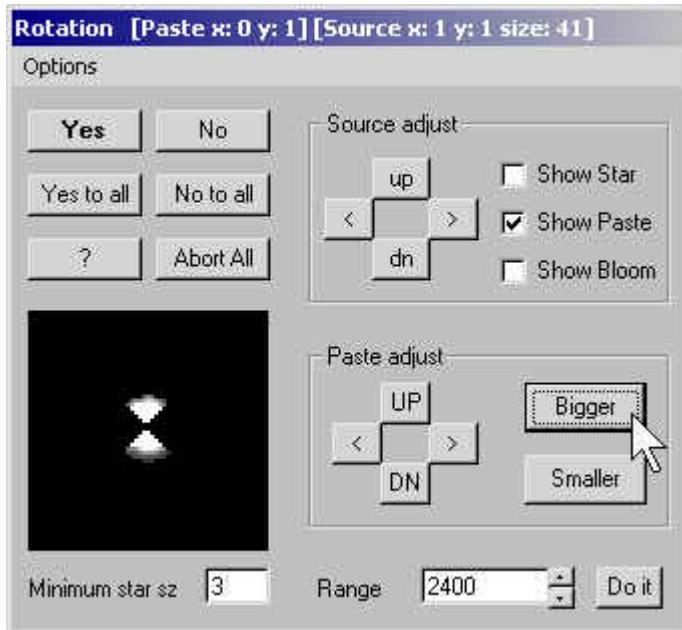


You can use the "Source adjust" direction buttons to change the way that the star is picked up for rotation. In this example, since the star is too far to the right, click the left ("<") button to center the star.

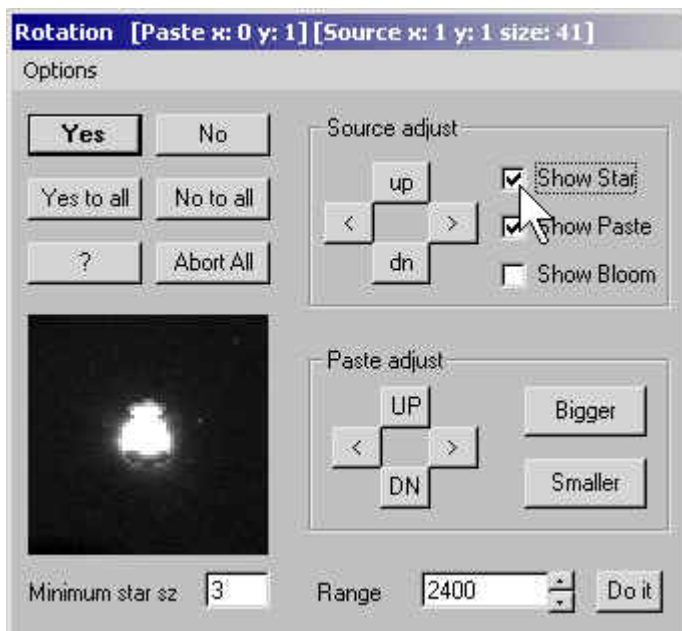


The result of clicking the left button.

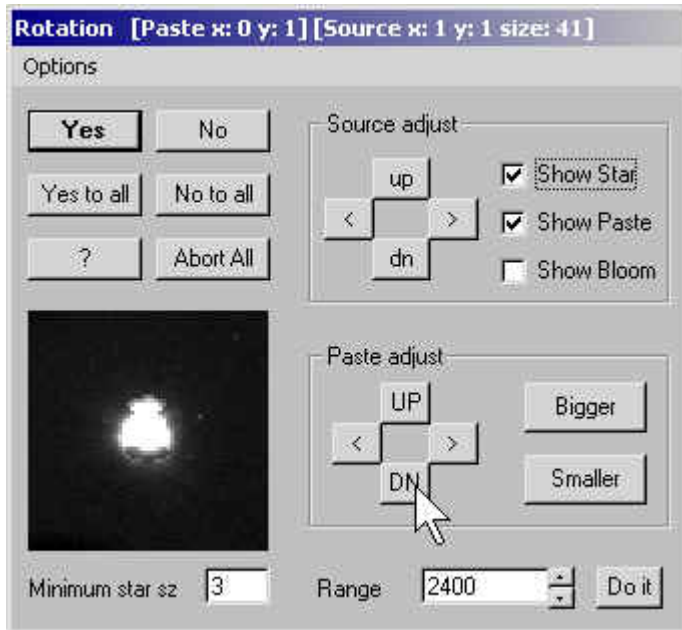
TIP: The "Minimum star sz" determines which stars show up for your review in the Rotation tool. The assumption is that small stars have minor blooms, and won't need special attention for rotation. The star size number determines the size of stars that will show up for manual evaluation in the Rotation tool. Small numbers mean that small stars will be reviewed. Larger number mean that small stars will not get reviewed. The default is 3. If you see lots of small stars showing up for evaluation, increase this number to 4 or 5.



As mentioned earlier, you can click the Bigger and Smaller buttons to view more or less of the source star image. Here, the Bigger button has been clicked to show more of the picked-up star image. You can now see the top and bottom of the star where it fades into the background.

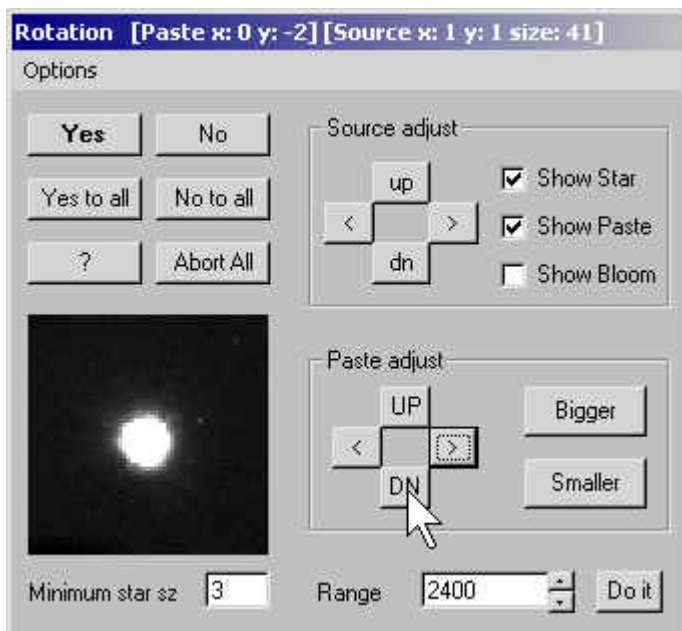


Now click the "Show Star" checkbox so that both the star and the source are visible. The source is now properly centered, but the paste operation is not yet centered, so the fix still looks awful.



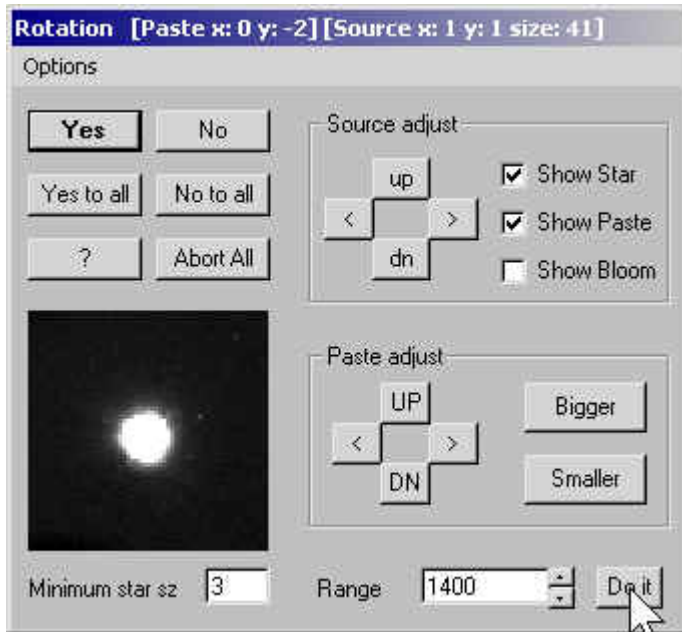
Click the direction buttons in the "Paste adjust" portion of the tool to reposition the pasted image on top of the debloomed image. In this example, clicking the DN (down) button will move the pasted image down where it belongs.

TIP: Note that as you make changes with the Source and Paste direction buttons, and with the Bigger and Smaller buttons, the net change is shown in the caption bar of the Rotation tool window.

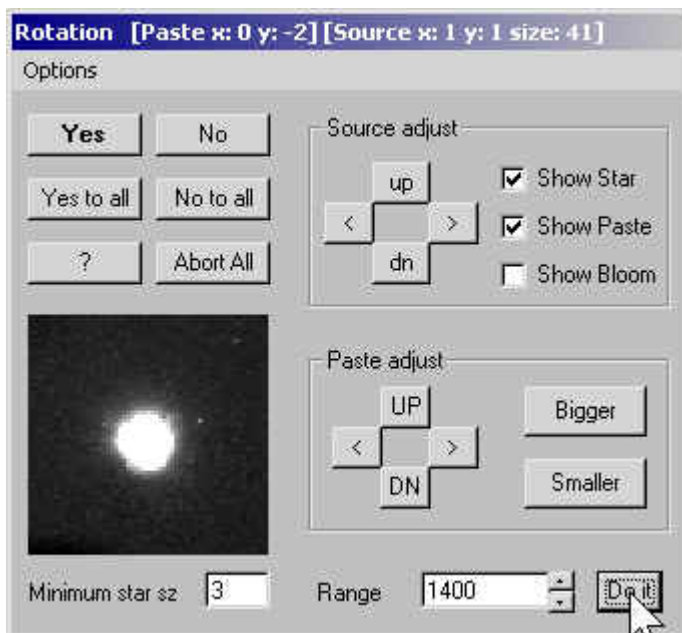


Several clicks of the DN button have positioned the pasted, rotated star image at the correct location. The star is now very clean and looks like there never was a bloom in the first place.

TIP: the Bigger and Smaller buttons set the radius of the pasted star image. If you see too much fringe around the pasted image, click the Smaller button. If the pasted image is too small (that is, it doesn't go all the way out to the edge of the star, leaving gaps), click the Bigger button.

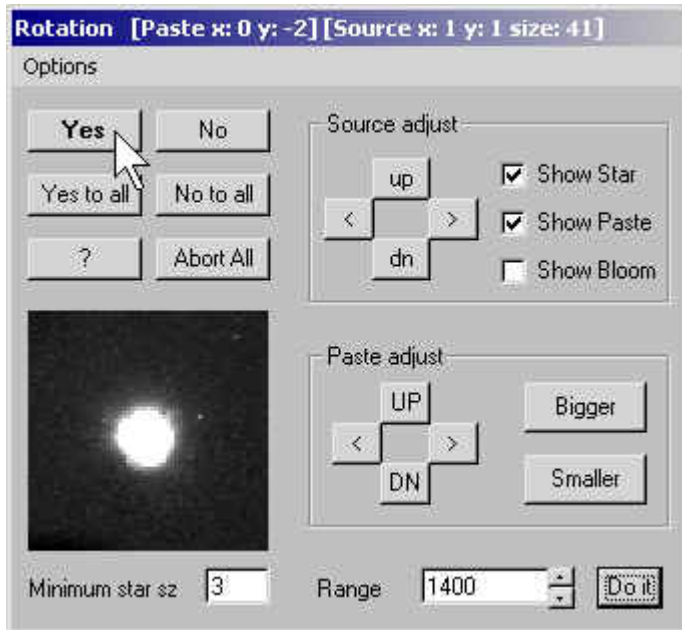


If you want to alter the contrast settings of the debloomed star, you can do this by changing the Range setting. Click the "Do it" button to change the display of the star. Lower numbers brighten the background; higher numbers darken it.



This shows the result of a lower Range setting. The main use for this feature is to get a feeling for how the corrected star will look when you are done processing the image. Typically, image processing will brighten dim details (including the edges of stars). So lowering the range to see the result can be helpful in evaluating your work with the Rotation tool.

Changing the range setting has no impact on the bloom removal. It is just for seeing how the change looks with different contrast settings. The contrast settings are not permanently altered.

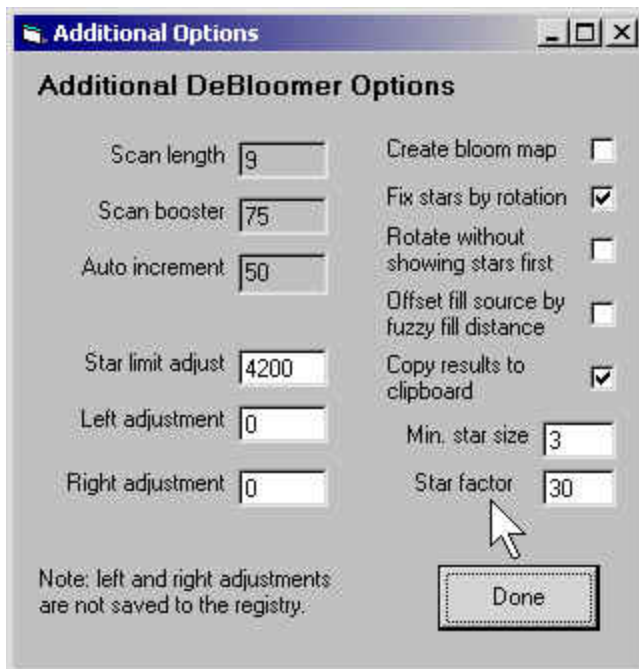


When you are satisfied with the results, click the Yes button to record the fix for the current star. Or click the No button to reject rotation (bloom removal will still occur for the star; only rotation is rejected).

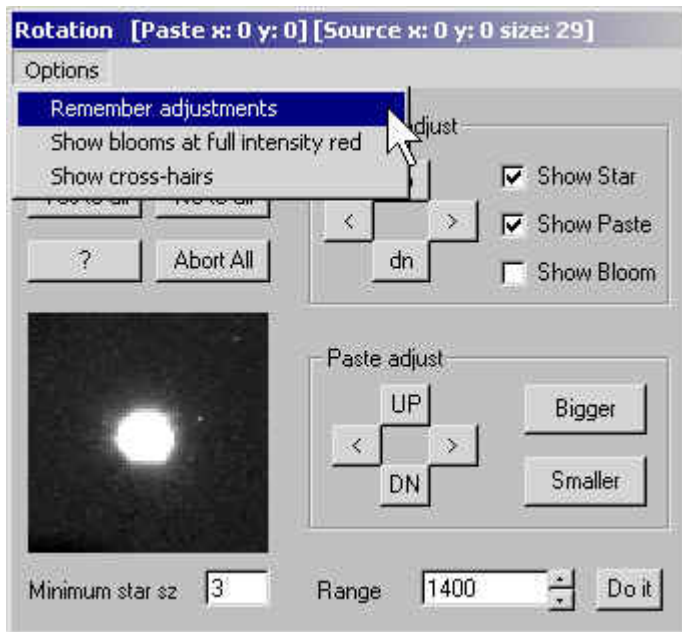
You can also click "Yes to all" or "No to all" to cause all remaining blooms to be handled in the same way.

If you think there is a problem of some kind, and need to start over, click the Abort All button. No blooms will be repaired, and no rotation will occur. The original image will remain unchanged.

Click the "?" button for information about bloom removal and star rotation.

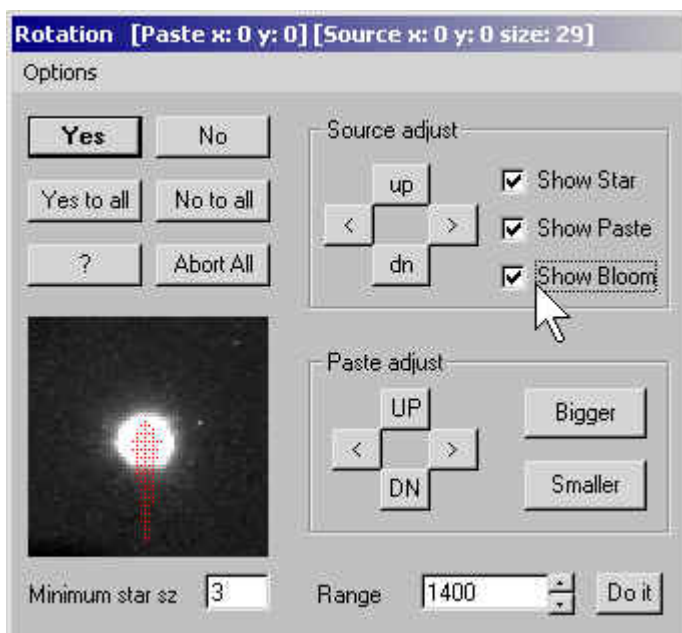


The "Bigger" and "Smaller" buttons change the "Star factor," shown at left on the "More options" dialog.

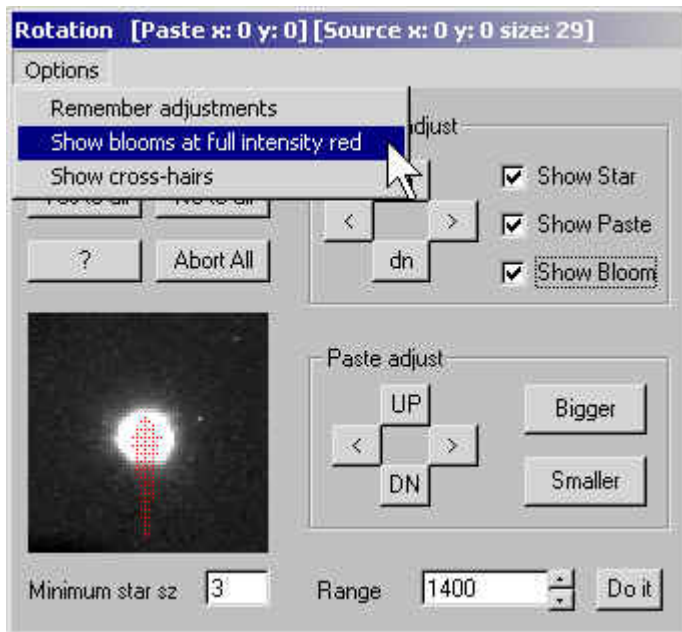


You can click the "Remember adjustments" menu item to tell the Rotation tool to retain the Paste Adjust, Source Adjust, and Bigger/Smaller corrections from one star to the next. This sometimes helps you handle an image more quickly - but the changes won't always be consistent from one star to the next, so evaluate every star by eye before you click Yes or No.

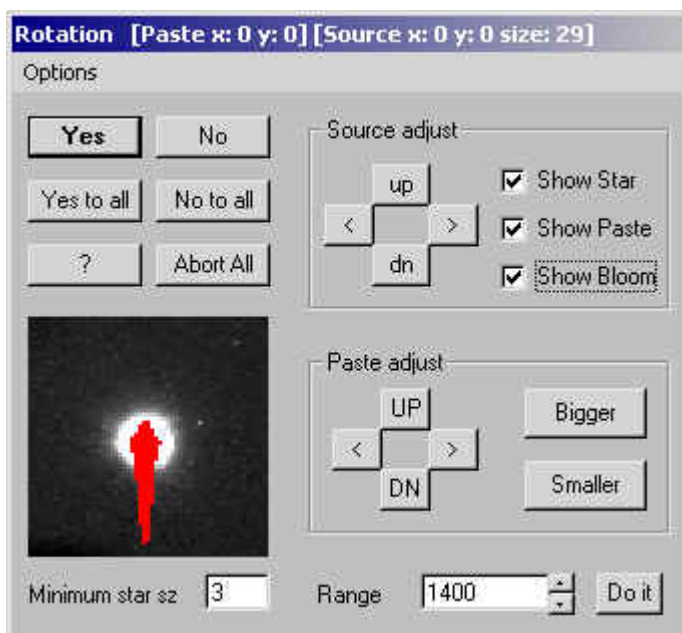
TIP: If "Remember adjustments" is active, the Star Factor value will be stored in the registry for the next time you run the DeBloomer.



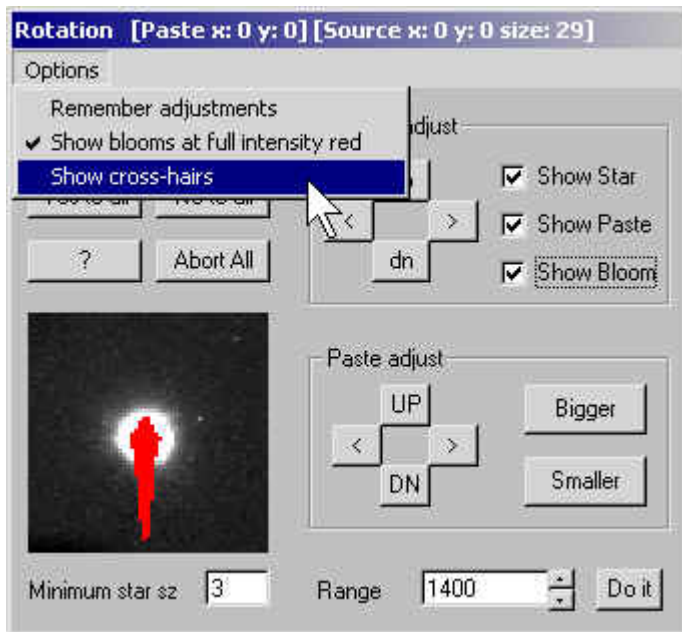
Sometimes it is useful to display the actual bloomed pixels. Use the "Show Bloom" checkbox to do this. By default, the bloomed pixels show up in a light, halftone red as shown at left. This makes it easier to still see the star and the rotated source at the same time.



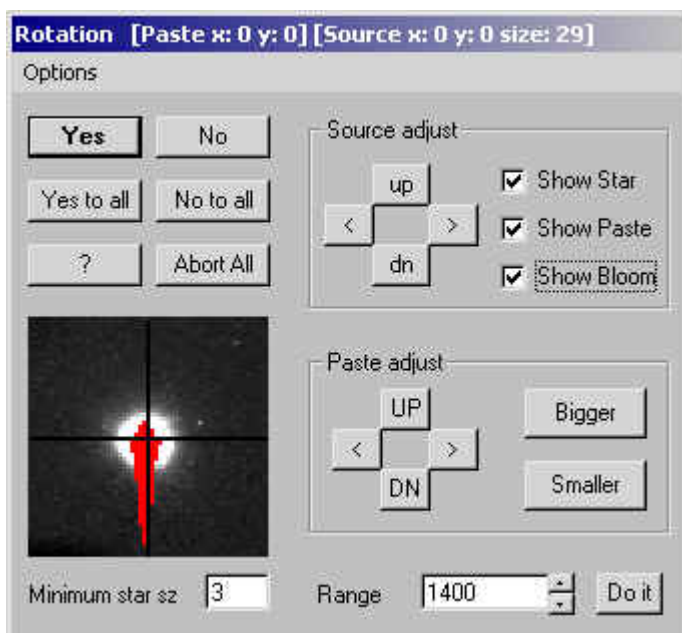
If you can't make out the bloomed pixels clearly with the halftone representation, use the "Show blooms at full intensity red" menu item.



This makes the bloomed pixels show up as a dramatic red color.



You can also show a cross-hair that indicates the center of the original star image, using the "Show cross-hairs" menu item.



This is what the cross-hairs look like when they are turned on.