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# Histogram Control in Metron

Just a few simple steps to additional features!



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Just a few simple steps to additional features!

YOUR METRON ADVANCED IMAGING SOFTWARE IS CONTINUALLY BEING ENHANCED. WE LISTEN TO YOU, STRIVING TO ADD AND ENHANCE THE PRODUCT AND SERVICE TO ASSIST YOU WITH THE DIAGNOSIS AND TREATMENT OF YOUR PATIENTS.

## Histogram Control in Metron

We have given the user more control over one of the many details involved in image processing. This control in the user interface is labeled “Histogram” and is found at the top of the “Tune” panel associated with each detail filter.

This option gives the user some control over the high or white end of the image histogram.

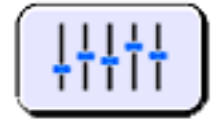
The default filter sets associated with various CR and DR hardware will be assigning a non-zero value to this number, in some cases, as a function of species and/or anatomy. If you wonder what change this has made, just click on “Tune” and move the value of “Histogram” back to zero to see (in most cases) how image would have looked.

Of course, existing images in your database are not altered unless you explicitly open them up and click on one of the detail filter buttons, or the “Tune” button.

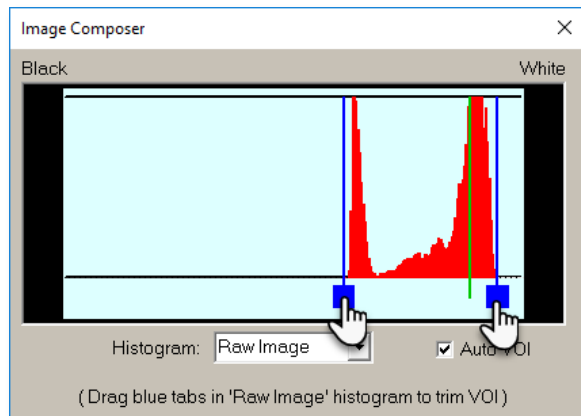
This control addresses several situations involving bright white areas in an image.

## Histograms in the Tune Panel

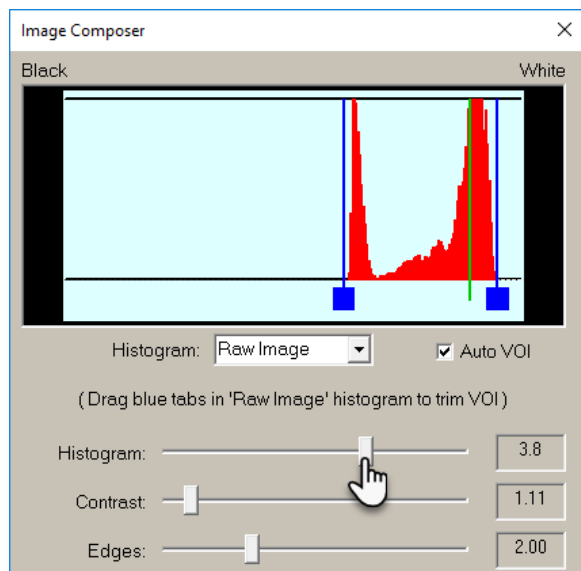
Image histograms are displayed in the **Tune Panel**. Histogram trimming is now available to the user as an image tuning tool.



Drag the trim controls on the histogram image itself....



Drag the slider bar to the left or right to change the histogram value or any of the others.



### Use #1: Dense Bone Areas too White

In the image below, the densest portion of the bone is showing some areas that are too white – a sort of ‘burnt out’ or saturated look.



*The image on the right has been improved by use of Histogram control in Tune.*

By moving the Histogram slider to the right, to a value perhaps in the 3.0 to 6.0 range, you will be able to reduce this ‘burnt out white’ look – without having much impact on the rest of the image. The downside to using too much histogram control is that the image may begin to look a bit duller.



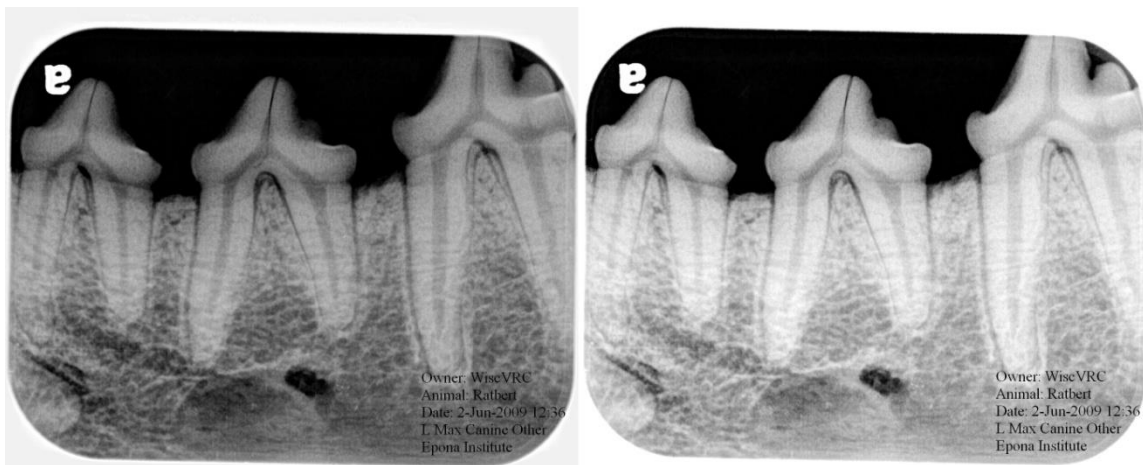
*The sesamoid bones are too bright in the image on the left. Improved using Histogram Control.*

Some images contain white areas around the outer border of the image, usually an unexposed portion due to collimator, or in some cases due to how a CR plate was scanned. We have always recommended that the user Crop the image to remove these white areas. In the past there were situations in which cropping such an image would make the image look worse, rather than improved. Now, with Histogram control, this can be handled whether the image has been cropped or not (hence, we always recommend cropping to make the most presentable image.)

## Use #2: White Borders or other Artificial White Objects

In some images, there are white areas that are not part of patient anatomy that are difficult or impossible to crop away. One such case is a small dental CR plate, which has rounded corners which, when scanned, lead to an image with white areas in the corners and possibly the whole border. In such a case it may be impossible to crop all the white out of the image. Another case is when there is a bright white metal object in the image, perhaps a surgical fixture or similar. In both cases we have white areas that probably can't be simply cropped away.

In this case, these white objects force the rest of the image to be too dark. Using the Histogram slider, and moving it to the left, we can begin to 'ignore' the white objects, and bring up the level of the remaining portions of the image.



*The image on the left is from Metron 5.38, on the right the same image using Histogram Control.*

Past versions of Metron dealt with these issues to some extent via certain built in rules. We continue to have the best pre-set values for this algorithm, based on species and anatomy, but we have also give the user explicit control (in the "Tune" panel) so that unusual images can be improved.

Since this Histogram control is part of the "detail filters" and tune mechanism of Metron, it also means that users can save their favorite adjustment by saving (or re-saving) a customer filter set.

### Use #3: Achieving Higher Contrast without Saturation

The usual goal of image processing is to achieve a high contrast image. As one increases the Contrast setting (in the Tune panel) there are generally two factors that limit how far you can go:

- 1) Bright white areas of dense bone become saturated
- 2) Noise in the image also gets enhanced and the image looks grainy

Using the Histogram slider, you may be able to avoid the onset of problem 1 above, so that you can raise the contrast setting, but avoid the bone saturation issue. This means in low-noise images, you can achieve higher contrast settings.



Contact us if you have additional questions.  
We can be reached at [metron@metronsupportservices.com](mailto:metron@metronsupportservices.com) or 1-877-638-3868.