

## **NEW RGB WORKFLOW for JLR (beginning November 1, 2005)**

***Beginning Nov 1, 2005, all color art submitted to JLR must be in RGB format.***

All manuscripts must be submitted to JLR in PDF format (one PDF file of text, tables, figures). See the Instructions to Authors for details on how to prepare manuscripts (<http://www.jlr.org/misc/ifora.shtml>). After a manuscript is accepted, the original files used to create the text and graphics must be sent to our printer (Capital City Press) for processing into the final print and online product. JLR had asked authors to submit color figures in CMYK (Cyan, Magenta, Yellow, black) color mode, as that is the native color mode for the printing process and thus optimizes color for press. However, now that the online journal is the Journal of Record, it is important that the information displayed online is the absolute best rendition of the original scientific research. Therefore, JLR is moving to an RGB (Red, Green, Blue) workflow for color figures, so authors no longer need to convert their original RGB files to CMYK.

**As of November 1, 2005, all color figures should be in RGB format and should have an ICC profile applied.** Images supplied by authors in RGB color will retain the brilliant reds, greens, and blues for online publication, but may experience a color shift in printed form. To learn more, please see <http://dx.sheridan.com>.

### ***Benefits of an RGB Workflow***

#### **Background**

For many years printers, publishers and authors have been focused on the creation, submission and processing of CMYK images for publication printing. Although it is clear that no scientific capture device renders images to CMYK by default, authors were told to convert their original RGB image content to CMYK so that they could see and understand the color shift that would take place when the file was converted. This approach was used in hopes that there would be less disgruntled authors when their CMYK paper proofs arrived. If they were seeing their images in CMYK for the first time, they would often be displeased with the de-saturation of colors resulting from the conversion. If they performed the conversion themselves, it offered them the opportunity to see the result prior to receiving the proof. It basically allowed them to “get comfortable” with what was inevitably going to happen to their file.

While this approach has been in place for many years, it has also resulted in regular and, at times, extensive and expensive color correction to CMYK files in the hopes that the graphics operator could somehow resurrect some content or science that was lost in the conversion.

## **The Age of Online Content**

Although print can only be done in CMYK, the prevalence of online journals has opened the door to the opportunity to present the author's original scientific images in full RGB color. As interest in the online journal has grown, the communities involved have pushed for online content to include audio and video in order to enhance the experience and value. Meanwhile, the images have continued to be prepared for online publication by simply converting the CMYK image back to RGB, which does not gain any of the lost color space back. Why not take advantage of the online medium, the RGB monitor, and provide the images in the raw RGB format prior to conversion to CMYK?

## **Color Management**

For many years, high-end separation houses have employed RGB scanning techniques in order to capture the widest color gamut possible and use this "excess" gamut to allow for a better CMYK conversion. In the past it was difficult and expensive, because mainstream software applications were not developed to control and support these workflows. Most of these early adopters used expensive, proprietary systems, and the process was less than an exact science and often still required color correction. However, in the past 5 years, color management has become more mainstream, in part by the adoption and use of ICC profiles in software applications from Adobe and others. For the first time in years, controlling and communicating color from every stage was more realistic and attainable.

## **What is an ICC Profile?**

Every device that displays or renders color does so in a different manner. An ICC (International Color Consortium) profile is a record of how a specific device displays or renders color. Although multiple devices may display the same color differently, they can be controlled and calibrated by using ICC profiles to communicate the differences in how they display color. When saving the color file, always embed the ICC profile you have been working with, by checking the dialogue box.

## **A Better CMYK**

With color management employed in a workflow, an author can submit the original raw RGB image from the research, and the graphics operator can perform a superior conversion to CMYK in Photoshop. It is much more than just selecting *Mode, CMYK Color* from the *Image* menu in Photoshop. In addition, if the original RGB image is supplied with an ICC profile attached, the process is enhanced, because we have the actual definition of how the image was originally displayed. Since we know the source profile and the CMYK profile for output, we can more effectively render the original image detail, even though we will be subject to some loss of color due to the color space conversion. The result is a superior, and more consistent, conversion to CMYK that can work to preserve detail or color saturation, depending upon the image content.