

The ESA/ESO/NASA Photoshop FITS Liberator 3: Have your say on new features

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Abstract

The popular, free ESA/ESO/NASA Photoshop FITS Liberator image processing software (a plug-in for Adobe® Photoshop®) is about to get simpler, faster and more user-friendly! Here we would like to solicit inputs from the community of users.

Introduction

For many years astronomical images from the world's telescopes were reserved for an elite of astronomers and technically minded people. With the two releases of the ESA/ESO/NASA Photoshop FITS Liberator anyone with a desktop computer running Adobe® Photoshop® software can try their hand at crafting astronomical images as beautiful as those from the Hubble Space Telescope. This free software plug-in makes a treasure trove of archival astronomical images from the NASA/ESA Hubble Space Telescope, the European Southern Observatory's Very Large Telescope, the European Space Agency's XMM-Newton X-ray observatory, NASA's Spitzer Space Telescope, NASA's Chandra X-ray Observatory and many other famous telescopes accessible to home astronomy enthusiasts.

Current features

The first version of the FITS Liberator gave non-professional astronomers the opportunity to produce stunning astronomical images that, for years, had only been the privilege of the scientific community. With the advent of the FITS Liberator v2, it became possible for people at home to create even more spectacular pictures like the iconic Hubble image *Pillars of Creation* in a matter of minutes. The main features of the FITS Liberator 2 release¹ are:

- Direct access to FITS images in Photoshop/Photoshop Elements.
- Powerful tools for high dynamic range compression.
- Support for Astronomy Visualization Metadata v1.0 (see Hurt et al. (2006 & 2007)).
- Choice of 8-bit, 16-bit, or 32-bit (Photoshop CS2/3 only) imports.

Issues to be addressed

Though we have come a long way since the first two versions of FITS Liberator, there is still room for improvement. One of the main issues in the current version is that the advanced powerful

¹ Version 2.1 of FITS Liberator can be downloaded free of charge from: http://www.spacetelescope.org/projects/fits_liberator/

tools offered can be relatively hard to use for novice users. On the technical side, the current version does not utilise the full power of today's modern multi-core CPUs.

The main focus of the version three release will therefore be to offer a split workflow in a “simplified” and “advanced” user experience, speed enhancements to utilise the full power of today's modern multi-core CPUs and finally conformance to the next upcoming version 1.1 of the Astronomy Visualization Metadata (AVM) standard².

The simplified interface will have a standardised three-step workflow:

1. Set black level.
2. Set white level.
3. Adjust dynamic range to recover detail.

The advanced interface will have the previous features from v.2.1 and some improvements such as displaying standard (Right Ascension, Declination) coordinates in the preview window (from the WCS coordinates), more powerful histogram display and more flexible black/background and white/peak levels.

The speed enhancements will include parallelisation and multi-threading, better panning on large images and better updating of background/peak/scaled settings.

The metadata improvements will be to support the AVM 1.1 standard, offer improved AVM “File Info...” panels for Photoshop and Bridge, utilise more of the information from the FITS header such as exposure times, distortion corrections and observation dates.

Possible additional features

Besides the main features for FITS Liberator 3 some additional features have also been considered for inclusion. These features are by no means guaranteed to be included, so if one the features has top priority for you, be sure let us know.

Additional features that are being considered for inclusion:

- Support for Planetary Data System (PDS) files.
- Scripting support.
- Photoshop batch import/processing.
- Open source the codebase (recent changes in Adobe licensing terms makes this possible now).
- Import several images into layers in one go (Photoshop CS3 only).
- Support for reading various RGB FITS formats.

² Read more at <http://www.virtualastronomy.org>

³ Mail to lars@eso.org

Have your say!

Are we missing your killer feature, or would you just like a new keyboard short cut? Please do not hesitate to contact us³. Feature requests will be considered for inclusion until January 2008 as the FITS Liberator v.3 release is planned for the second quarter of 2008.

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Project Lead:	Lars Lindberg Christensen
Development Lead:	Lars Holm Nielsen
Core Functionality:	Kaspar K. Nielsen
Engine & GUI:	Teis Johansen
Scientific Support:	Robert Hurt

References

- Hurt R.L., Christensen L.L., Gauthier A.J., Astronomical Outreach Imagery Metadata Tags for the Virtual Observatory Version 1.00, <http://www.ivoa.net/Documents/latest/AOIMetadata.html> (Sept 2006).
- Hurt R.L., Gauthier A.J., Christensen L.L., Wyatt R. Sharing Images Intelligently: The Astronomy Visualization Metadata Standard, In Christensen L.L., Zoulias M. & Robson I. (eds.) Proceedings from Communicating Astronomy with the Public 2007.