Raw2Fits converter

1. Directories selection

Select directory with your RAW files by clicking «Raw directory» button.
Select directory where you whant to store generated FITS files by clicking «Output directory» button.

3. Fill up Fits header fields:

* **Object** — Observed object name, arbitrary text, max length — 73 symbols.
* **Object RA** — Object coordinates RA.
* **Object DEC** — Object coordinates DEC.
* **Instrument** — Camera name or any other used instrument that you want to note. You can leave this field blank to automatically use camera vendor and model values from the RAW file (if available in). Max length — 73 symbols
* **Exposure** — Exposure time in seconds, for example: 0.5, 15. You can leave this field blank to automatically use camera vendor and model values from the RAW file (if available in). This is preferable way.
* **Temperature** — Specify temperature condition when observations was made.
* **Telescope —** Telescope name or model.
* **Observer —** Observer name, arbitrary text, max length — 73 symbols. You can leave this field blank to automatically use camera vendor and model values from the RAW file (if available in).
* **Notes** - Additional notes, like sky condition, etc
* **Data —** Obervations date and time. arbitrary text, max length — 73 symbols. You can leave this field blank to automatically use camera vendor and model values from the RAW file (if available in), this is most preferable way.

4. Image & color processing

Color channels

Select the way to process RGB channels:
* **Convert RGB to Grayscale** — convert color image to the averaged grayscal image.
* **R, G and B to the separate FITS's —** save Red, Green and Blue channels to the separate FITS's files with corresponding names.
* **R, G and B to the one FITS —** store Red, Green and Blue channels to the one FITS file as separate images.
* **Only R channel —** get and save only Red channel in separate FITS file.
* **Only G channel —** get and save only Green channel in separate FITS file.
* **Only B channel —** get and save only Blue channel in separate FITS file.

Additional options

* **Apply auto bright** — automatic increase of brightness by histogram.
* **Apply interpolation** — use interpolation algorithm to demosaic the image.
* **Apply autoscale** — automatically scale pixels values

You can expirement with this options to get most preferable result.
For example - *_AVG_GRAY.fits in mode "Convert RGB to Grayscale" or *_RED.fits in «Only R channel».

5. Output properties

File naming

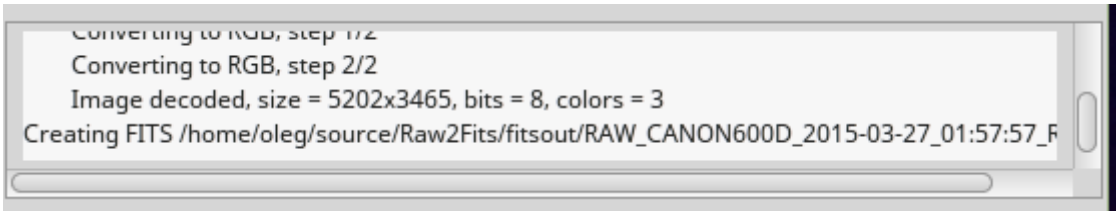
Select the basic pattern for FITS's files naming:
* **<RAW file name>.fits** — generate file with name identical to the original RAW file but with .fits extension
* **<object>_<datetime>.fits —** generate file with name which contains object name and observation time
* **<object>_<filter>_<datetime>.fits** - generate file with name which contains object name, used filter and observation time
* **<RAW file name>_<datetime>.fits** - generate file with name identical to the original RAW plus obervation time.

Additionally all filenames may contains postfix corresponing to selected color processing mode.

Overwrite existing
Switch this checkbutton to enable overwriting of already existing files or to skip such files.

6. Conversion log

On the bottom of the application window special textarea displays all messages from converter.

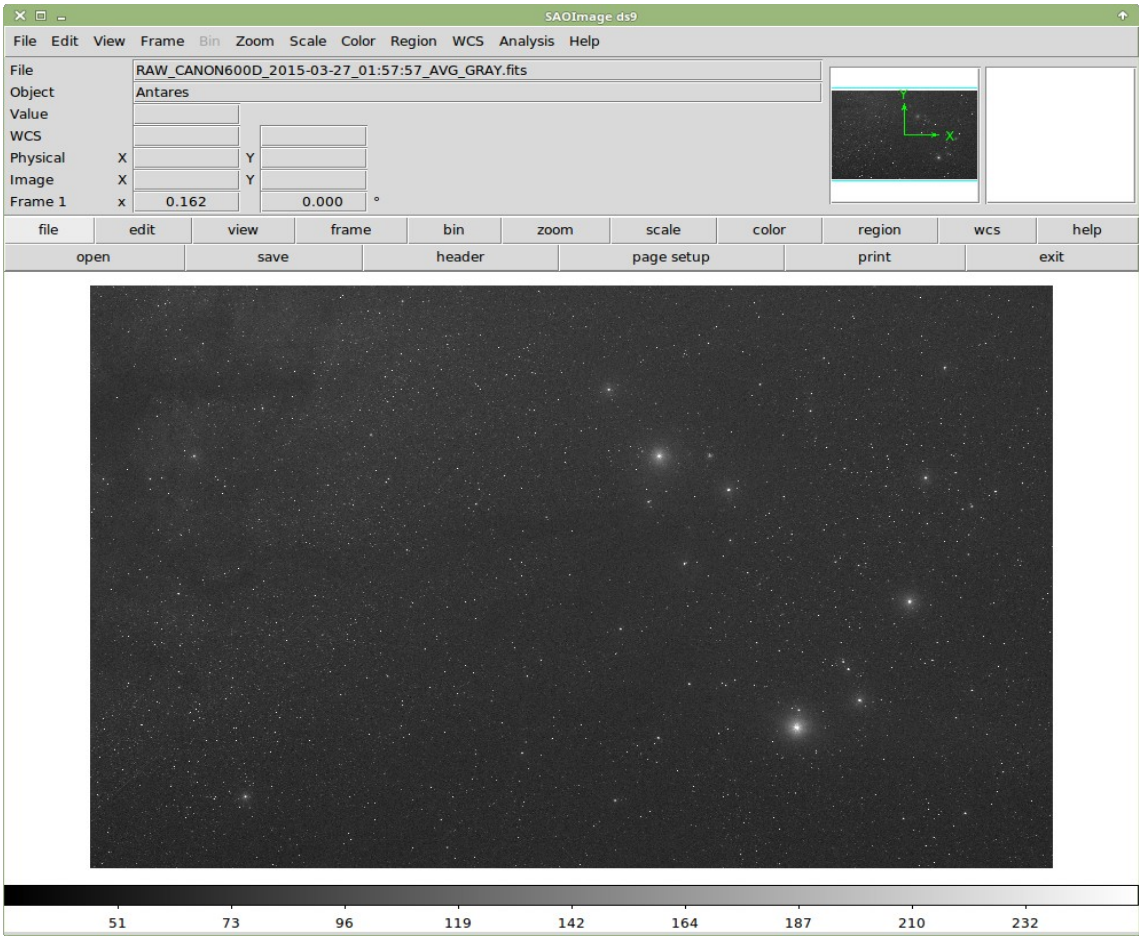


6. Start and stop

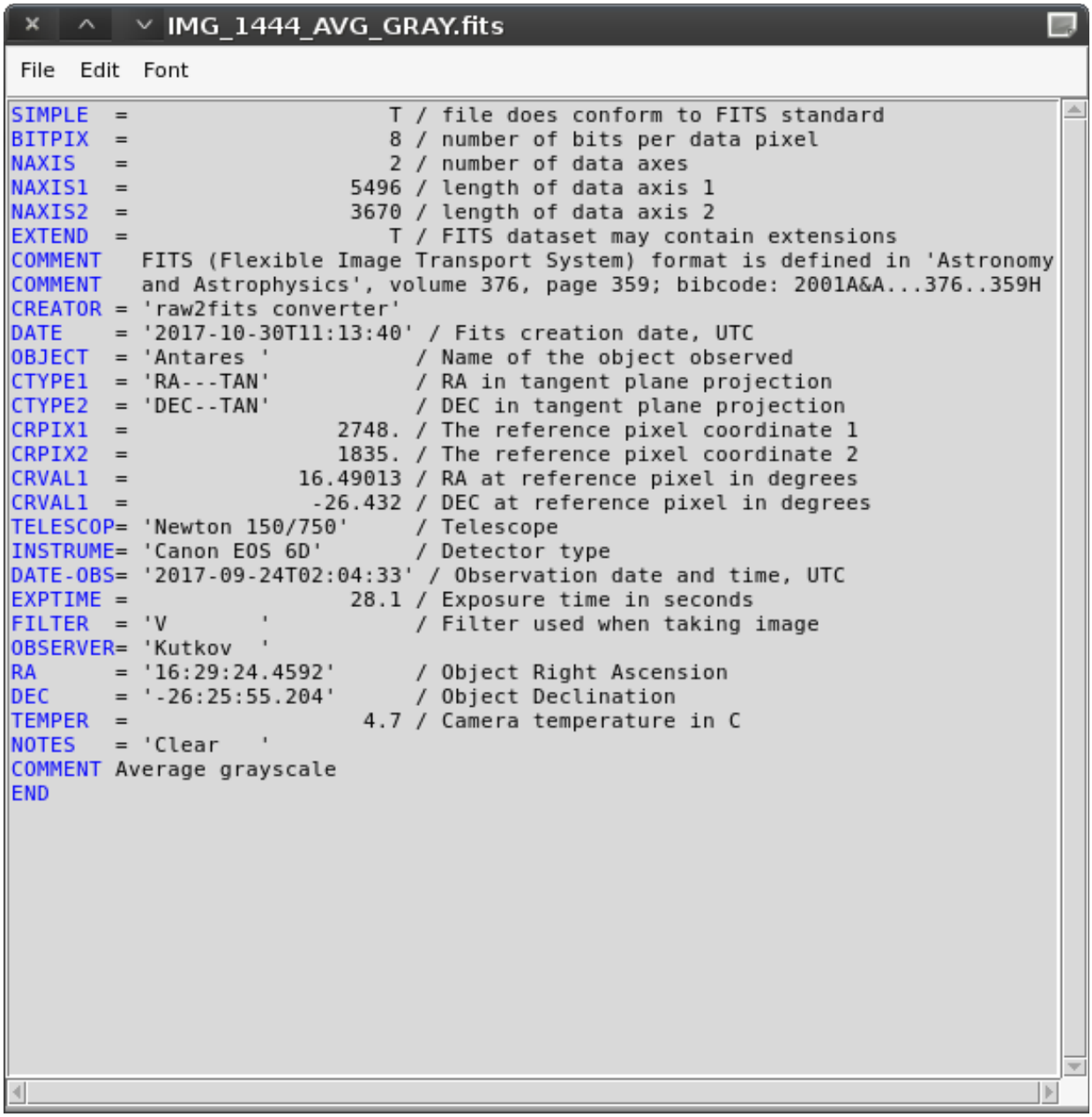
Press «Start» button to begin conversion.
Press «Stop» button to stop conversion.
You can always restart conversion from the previous point or with other parameters/other files. No need to restart whole application.

Examples

Original RAW file.



Generated FITS in «Convert to Grayscale» mode.


IMG_1444_AVG_GRAY.fits
File Edit Font
SIMPLE = T / file does conform to FITS standard
BITPIX = 8 / number of bits per data pixel
NAXIS = 2 / number of data axes
NAXIS1 = 5496 / length of data axis 1
NAXIS2 = 3670 / length of data axis 2
EXTEND = T / FITS dataset may contain extensions
COMMENT FITS (Flexible Image Transport System) format is defined in 'Astronomy
COMMENT and Astrophysics', volume 376, page 359; bibcode: 2001A&A...376..359H
CREATOR = 'raw2fits converter'
DATE = '2017-10-30T11:13:40' / Fits creation date, UTC
OBJECT = 'Antares ' / Name of the object observed
CTYPE1 = 'RA---TAN' / RA in tangent plane projection
CTYPE2 = 'DEC--TAN' / DEC in tangent plane projection
CRPIX1 = 2748. / The reference pixel coordinate 1
CRPIX2 = 1835. / The reference pixel coordinate 2
CRVAL1 = 16.49013 / RA at reference pixel in degrees
CRVAL1 = -26.432 / DEC at reference pixel in degrees
TELESCOP= 'Newton 150/750' / Telescope
INSTRUME= 'Canon EOS 6D' / Detector type
DATE-OBS= '2017-09-24T02:04:33' / Observation date and time, UTC
EXPTIME = 28.1 / Exposure time in seconds
FILTER = 'V ' / Filter used when taking image
OBSERVER= 'Kutkov '
RA = '16:29:24.4592' / Object Right Ascension
DEC = '-26:25:55.204' / Object Declination
TEMPER = 4.7 / Camera temperature in C
NOTES = 'Clear '
COMMENT Average grayscale
END

Fits header