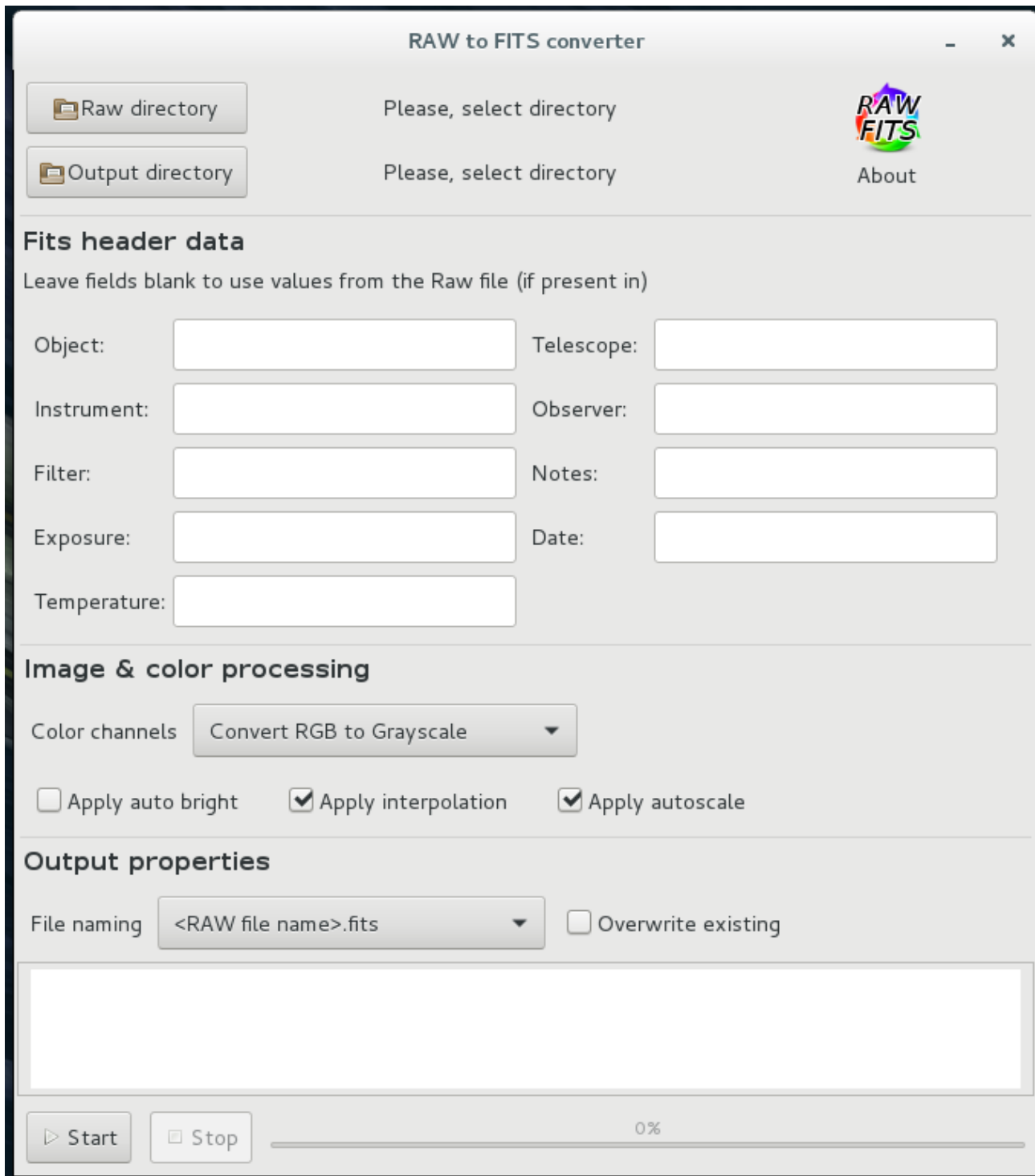


# Raw2Fits converter



The screenshot shows the 'RAW to FITS converter' application window. At the top, there are two buttons: 'Raw directory' and 'Output directory', both with folder icons. To the right of these buttons are the instructions 'Please, select directory'. Further right is the 'RAW FITS' logo and an 'About' button. Below this is the 'Fits header data' section, which includes a note: 'Leave fields blank to use values from the Raw file (if present in)'. This section contains input fields for Object, Telescope, Instrument, Observer, Filter, Notes, Exposure, Date, and Temperature. Below this is the 'Image & color processing' section, which has a 'Color channels' dropdown menu set to 'Convert RGB to Grayscale'. There are three checkboxes: 'Apply auto bright' (unchecked), 'Apply interpolation' (checked), and 'Apply autoscale' (checked). Below this is the 'Output properties' section, which has a 'File naming' dropdown menu set to '<RAW file name>.fits' and an 'Overwrite existing' checkbox (unchecked). At the bottom, there is a large empty text area, a 'Start' button with a play icon, a 'Stop' button with a square icon, and a progress bar showing 0%.

RAW to FITS converter

Raw directory Please, select directory

Output directory Please, select directory

RAW FITS About

### Fits header data

Leave fields blank to use values from the Raw file (if present in)

Object: Telescope:

Instrument: Observer:

Filter: Notes:

Exposure: Date:

Temperature:

### Image & color processing

Color channels Convert RGB to Grayscale

☐ Apply auto bright ☒ Apply interpolation ☒ Apply autoscale

### Output properties

File naming <RAW file name>.fits ☐ Overwrite existing

Start Stop 0%

## 1. Directories selection

Select directory with your RAW files by clicking «Raw directory» button.  
Select directory where you want 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.
- \* **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** — Observations 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 grayscale 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 experiment 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 observation time.

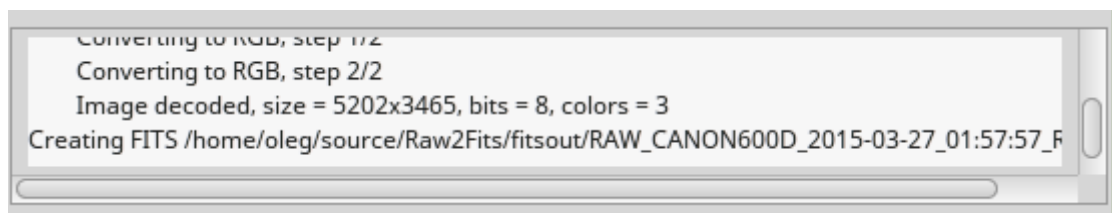
Additionally all filenames may contains postfix corresponing to selected color processing mode.

### 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.

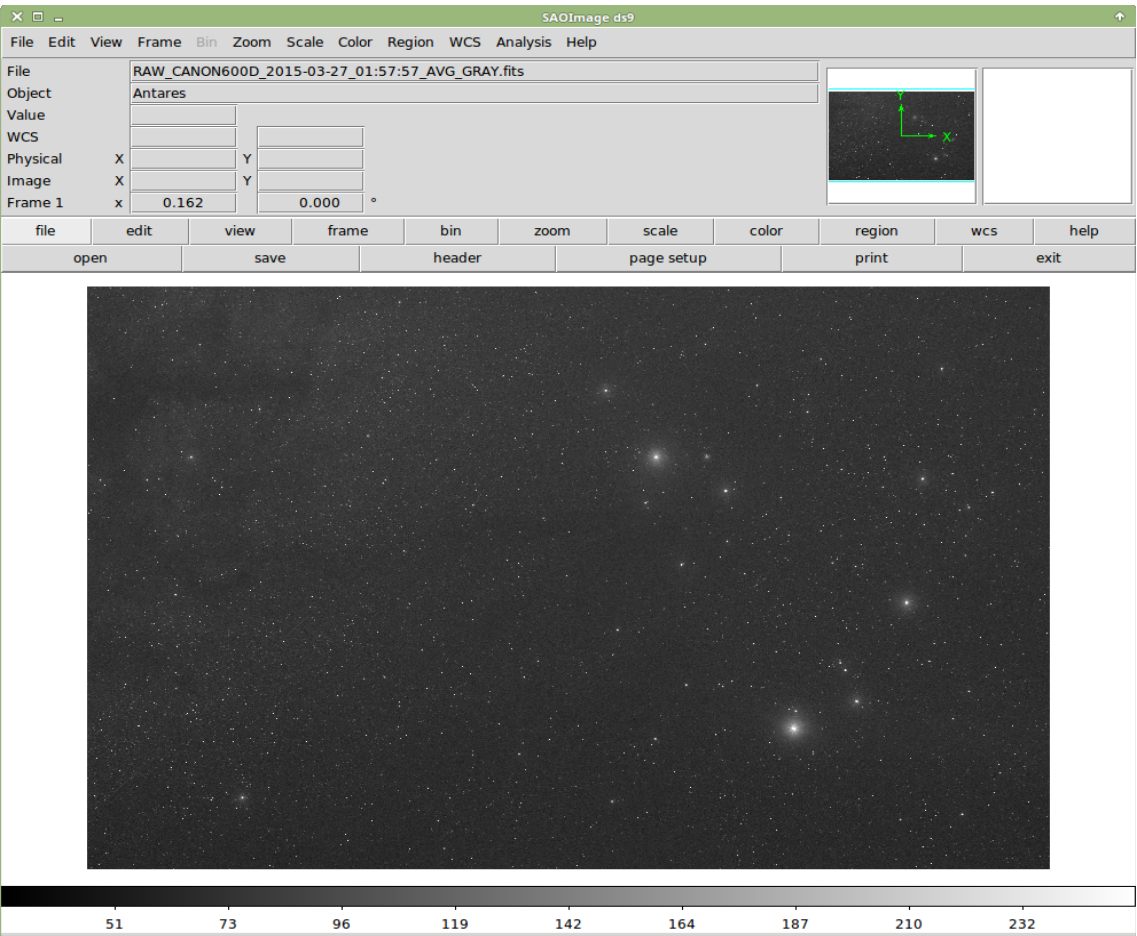
Press «Stop» button to stop conversion.

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.

```
RAW_CANON600D_2015-03-27_01:57:57_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 = 5202 / length of data axis 1
NAXIS2 = 3465 / 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
OBJECT = 'Antares '
OBSERVER= 'Kutkov '
TELESCOP= 'Newton 150/750'
INSTRUME= 'Canon EOS 600D'
FILTER = ' ' / Filter used when taking image
EXPTIME = 178. / Exposure time in seconds
TEMPER = 4. / Camera temperature in C
DATE = '2015-03-27 01:57:57' / Date and time
NOTES = 'Clear '
COMMENT Average grayscale
END
```

Fits header