# Open source software for the keen photographer: file formats

Ramón Casero Cañas

OSS Watch

# Outline

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- Gimp, all a photographer needs?
- Digital photos, worse results using open source software?
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# Digital workflow

- Proprietary software from camera manufacturer (Canon ZoomBrowser EX)

- Memory cards: Memory Stick (MS), CompactFlash (CF), Secure Digital (SD), or SmartMedia
- Most cameras supported in Linux at OS level, or with libgphoto2 and/or libptp2
  - Standard connections: USB, IEEE 1394 (FireWire)
  - Standard communication protocols: Mass Storage, Picture Transfer Protocol (PTP)
- Hardware connectors:
  - Dedicated cable (non-standard)
  - Card reader (standard)

# File formats

- JPEG
    - most popular in the Internet
    - open source implementation (IJG)
    - lossy compression: quality/size
- TIFF
    - lossless format
    - private tags, non-standard
- Raw ("digital negatives")
    - lossless format
    - based on TIFF
    - serious compatibility concerns

| Image Quality | File type | File size | Number of shots in a 512M memory card |
|---|---|---|---|
| Basic | JPEG | 527K | 780 |
| Normal | JPEG | 1.2M | 400 |
| Fine | JPEG | 2.8M | 202 |
| Hi | TIFF | 15M | 33 |
| Raw | NEF | 7.9M | 62 |

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# File formats (5/5)

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Introduction

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solutions
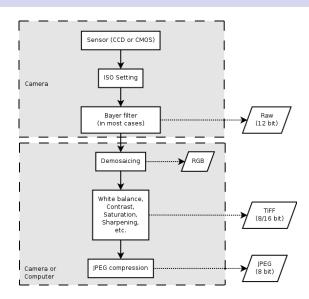
Batch
processing

Conclusions

Credits



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- "Digital negative"
- Decoding and *processing* necessary
- Maximum quality (e.g. banding in JPEG)
- Maximum flexibility and customization (e.g. exposition, sharpening)
- Offline processing (better computers and algorithms)
- 2006 RAW survey: 77% use raw all or most of the time

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- Memory card automatically mounted in e.g. /media/usbdisk-1/

- Command line
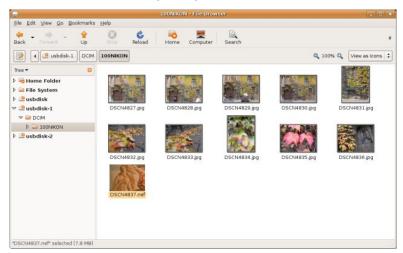  $ cp /media/usbdisk-1/DCIM/100NIKON/* ~/photos/

- Nautilus file manager + gnome-raw-thumbnailer

- dcraw
  $ dcraw -a photo.nef
  ... convert to PPM
  $ dcraw -a -T photo1.nef
  ... convert to TIFF
  $ dcraw -i -v photo1.nef
  ... display (limited) metadata
- Further options
  - Extract the camera-generated thumbnail
  - Use different interpolation methods for speed/quality trade off
  - Apply noise reduction while preserving edges.
  - Change gamma values
  - Set black point and highlights
  - Change colour balance
  - Use ICC profiles

- Canon ZoomBrowser EX vs dcraw

- rawphoto (dcraw Gimp plugin)

- UFRaw (Gimp plugin)
- adjust white balance, tone curves or exposure
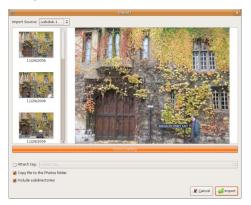
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- dcraw
  $ dcraw -a *

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- UFRaw
  $ ufraw-batch –exposure=3.0 *.nef
  ... options in the command line
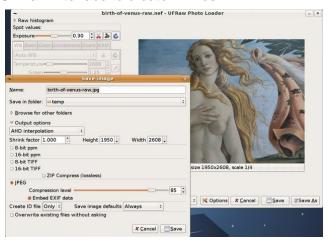  $ ufraw-batch –conf=photo1.ufraw *.nef
  ... using an ID file

- UFRaw interface to create ID files

- JPEG, TIFF, raw files from camera to computer... OK
- Support for raw files... OK, some concerns
- Good results with open source software... OK
- Batch mode... OK

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