DATA REDUCTION PIPELINE FOR DIGITIZATION OF ASTRONOMICAL PHOTOGRAPHIC PLATES
II. PLATE DIGITIZATION SOFTWARE AND FITS FORMAT REQUIREMENTS

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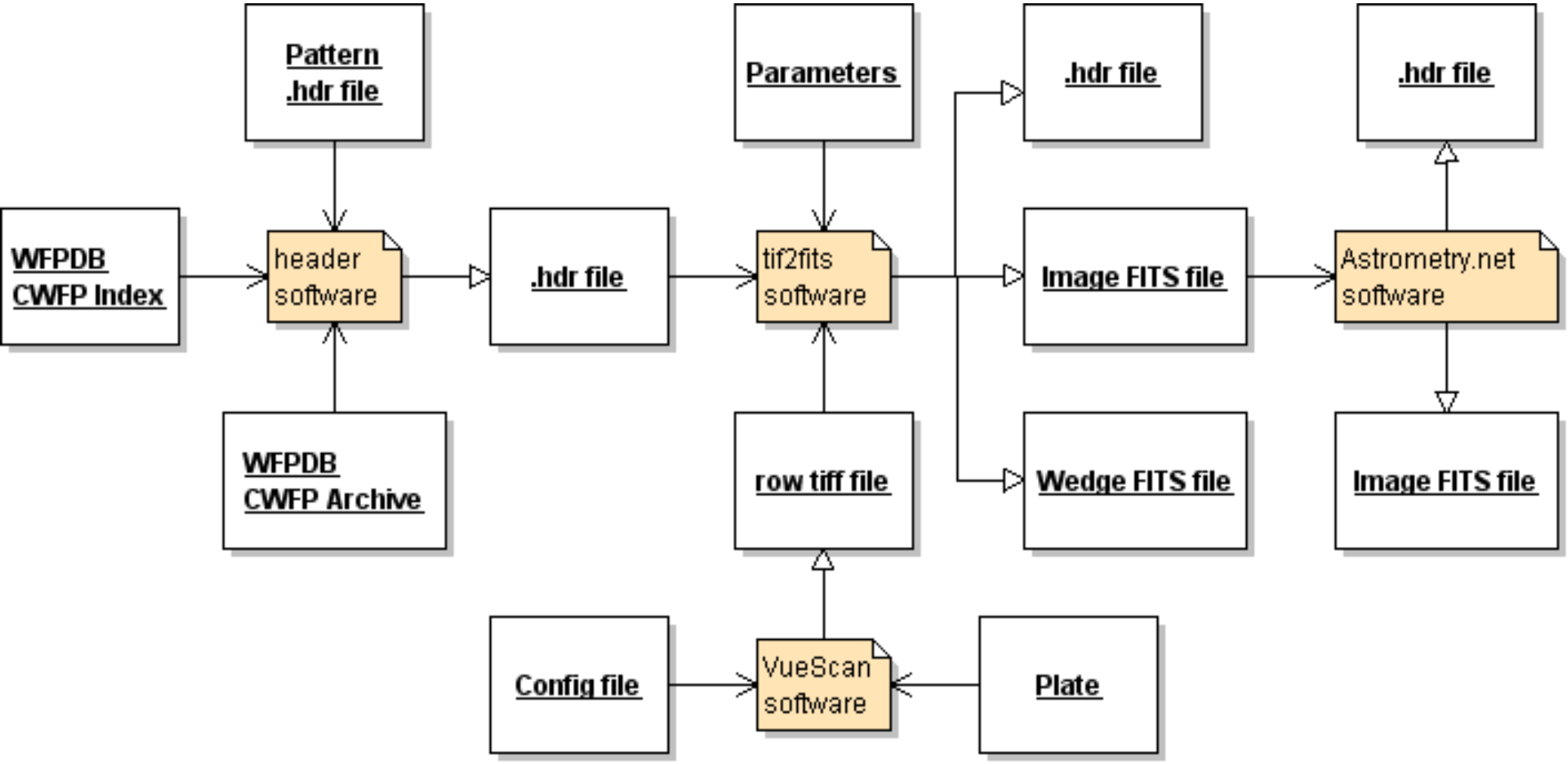
VIII Serbian-Bulgarian Astronomical Conference

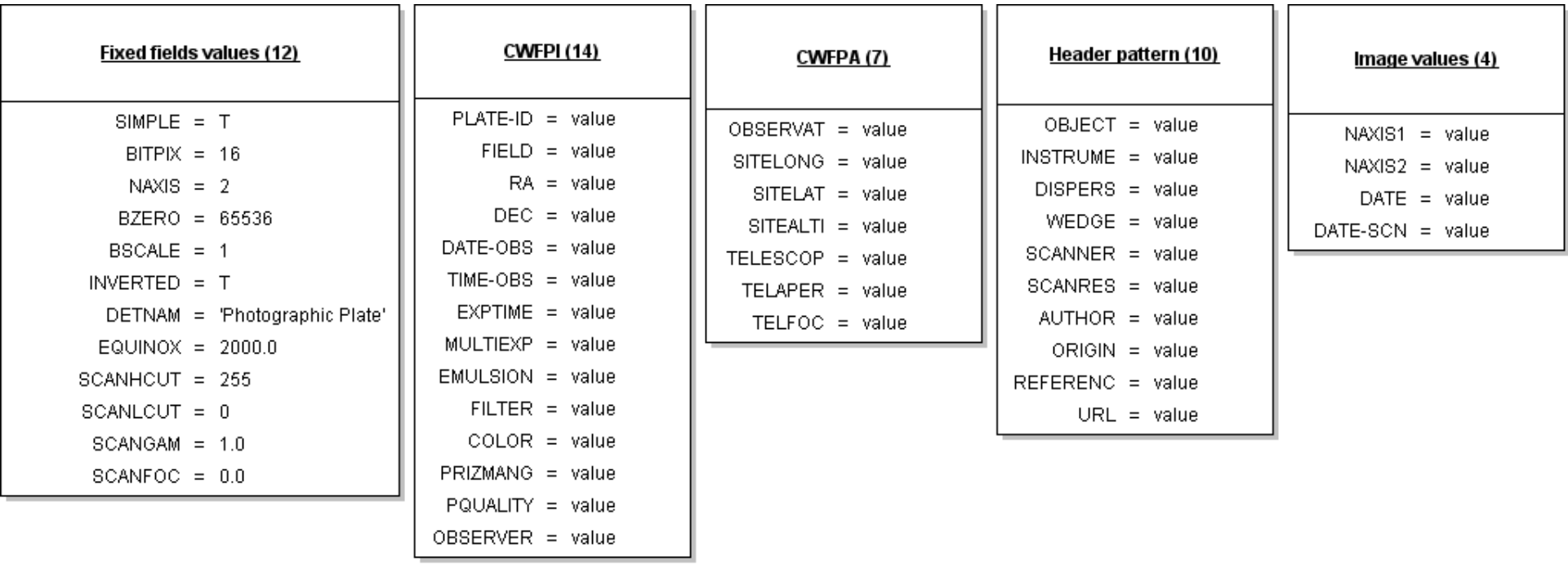
May 9-12, 2012, Leskovac, Serbia


Pattern
.hdr file
Parameters
.hdr file
.hdr file
WFPDB
CWFP Index
header
software
.hdr file
tif2fits
software
Image FITS file
Astrometry.net
software
WFPDB
CWFP Archive
row tiff file
Wedge FITS file
Image FITS file
Config file
VueScan
software
Plate

Data stream

Header software

- FITS header standard for plates
- (header_st.pdf)
- FITS header editor
- (header.exe)



Header fields

Tif2fits software

The main functions of Tif2fits are:

- to convert row-tiff files, produced by VueScan to FITS format files
- update some fields in the FITS header
- to separate the wedge part of the image producing two FITS files – one for the plate and one for the wedge
- to rotate and/or flip the plate image
- to split two plates

(demonstration)

Tif2fits software

Tif2fits ON/OFF parameters:

- Wedge – for images with grayscale step wedge
- BigImage – for plates with image file size over 600 MB
- *r.tif – for processing two plates scanned in different directions - normal and after one rotation
- 2 plates – used for small size plates, when it is efficient to scan two plates together with one wedge.
- rotate – rotation in 90 degree in opposite clockwise direction
- flop – flop (mirror) transformation

Tif2fits ON/OFF choice parameter:

- Quadratic/Nonquadratic down/Nonquadratic left – the second and third option are used for rectangular plates with a wedge placed by the corresponding plate side

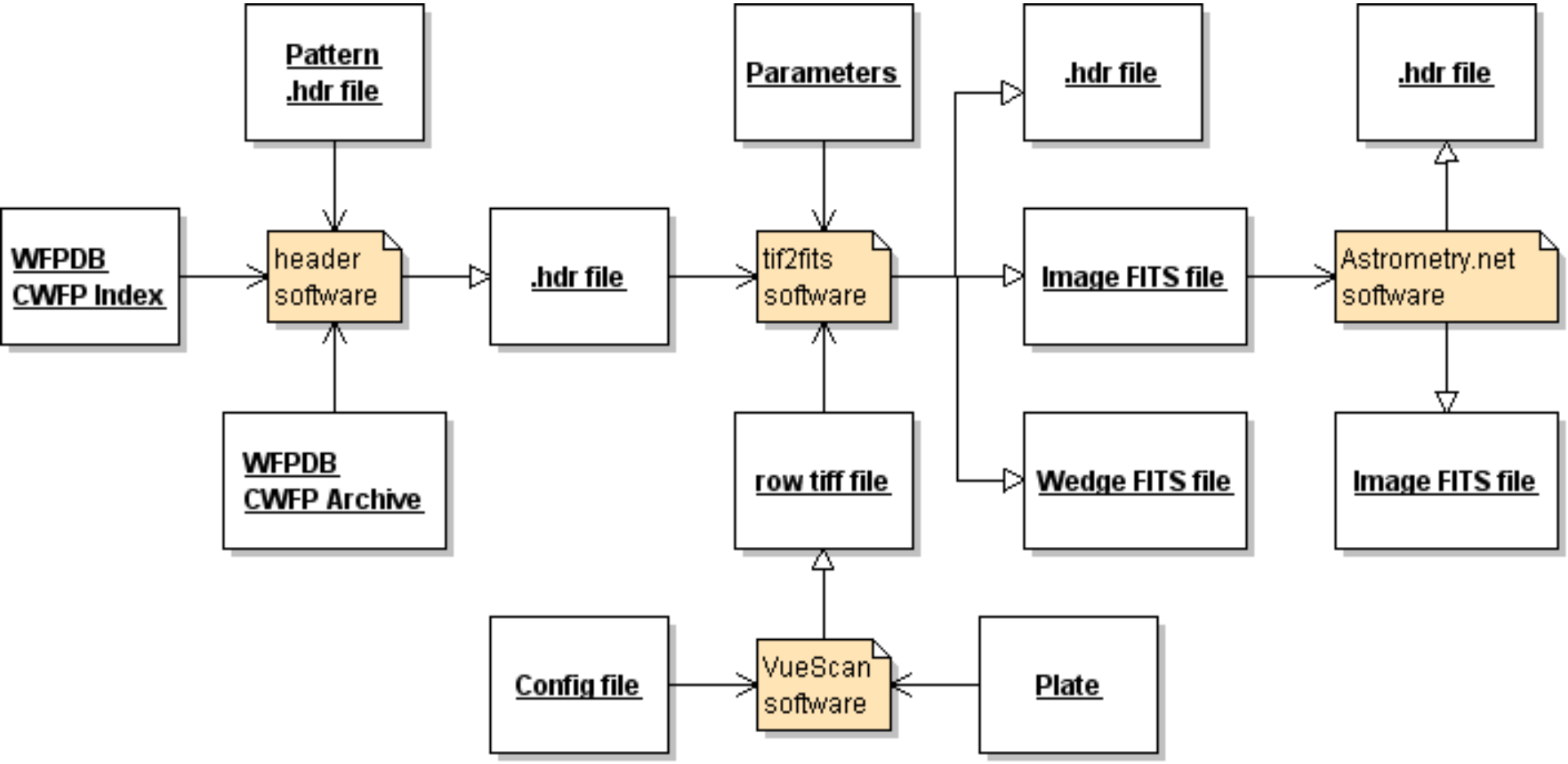
Tif2Fits parameter files:

- List file name – a plain text file contains list of plate identifires for processing
- Copyright file name – a plain text file with copyright text

File name	File size	File type	Produced by	Comment
KON060_005018.jpg	1.4M	24 bit color image		preview image
KON060_005018.tiff	477M	16 bit grayscale image	VueScan	scan image
KON060_005018.hdr	6K	plain text	header	header
KON060_005018.fits	440M	16 bit grayscale image	tif2fits	plate image
KON060_005018w.fits	38M	16 bit grayscale image	tif2fits	wedge image
KON060_005018.hdrf	7K	plain text	tif2fits	header of FITS

Example for the file names and file attributes of a digitized plate with WFPDB identifier KON060 005018.

Telescope (archive)	Scale (arcsec/mm)	Plate size (cm x cm)	Resolution (dpi)	File size (MB)	Remark
POT015	138	20 x 20	2400	680	2 images
POT080	17	16 x 16	1600	190	
BAM10C	338	16 x 16	2400	440	
BON030	138	16 x 16	2400	440	
HAR025C	167	20 x 25	1600	430	
ROZ050	120	16 x 16	2400	440	
ROZ200	13	16 x 16	2400	440	
ROZ200	13	30 x 30	1600	720	BigImage
KON060	144	16 x 16	2400	440	
CLU020	69	9 x 12	2400	186	
CLU050	82	6 x 9	2400	92	2 plates
BUC016	258	13 x 18	2400	400	2 images
BUC038	34	24 x 24	1600	430	
BUC038	34	13 x 18	1600	120	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Data stream

This work is supported by:
•German DFG grant STE: 710/6-1/2009;
•Bilateral Agreements for Scientific Cooperation: Serbian Academy of Sciences and Arts and Bulgarian Academy of Sciences – joint research project: DIGITAL DATA BASES AND IMAGE PROCESSING;
•Bulgarian Ministry of Education, Science and Youth grant: DO-02-275/2009.