

Revision: v1.5

Last modified: August 25, 2017

- * ztf-depot hosts the following products in rolling intra-night time-windows:
 - (i) QA information at the raw and processed image level, including QA metrics for calibration products and aggregate statistics throughout a night.
 - (ii) Survey depth-of-coverage maps, both incremental (end-of-night) and cumulative over the survey.
 - (iii) single-epoch image streaks from difference images with cutouts to support near-realtime Solar System discovery science.
 - (iv) moving-object tracks constructed from linking difference-image-detected point-source events, also to support Solar System discovery.
- * A description of the subdirectories and files herein can be found in Section 8 of [ztf_pipelines_deliverables.pdf](#)
- * Below are the metrics listed in all text (ascii) files on ztf-depot.

<MMDDYY>/AggregateStats.txt

numrawccdfilesreceived -- number of raw CCD image files ingested and archived at IPAC (not unpacked)

numrawccdfilesssplit -- number of raw CCD images successfully uncompressed and split into their readout channels (basic processing unit)

numgoodsciimgsproc -- number of science (readout channel) images "successfully" instrumentally calibrated (or labelled as "usable" with "status=1"; see below)

numgooddiffimgsproc -- number of "positive" (sci-ref) subtraction images tagged with "statusdif=1" (where candidates *were* extracted and loaded into DB)

numbaddiffimgproc -- number of "positive" (sci-ref) subtraction images tagged with "statusdif=0" (where *no* transient candidates extracted therefrom)

numcandposdiff -- number of machine-learned vetted transient candidates extracted from all "positive" (sci-ref) difference images and loaded into DB

numcandnegdiff -- number of machine-learned vetted transient candidates extracted from all "negative" (ref-sci) difference images and loaded into DB

numknownss -- number of unique known solar-system objects associated with transient extractions

<MMDDYY>/CalQA/ccd<ID>/*_qa.txt

obsdatetime -- corresponding to camera exposure

obsjd -- Julian date corresponding to obsdatetime [days]
createddateraw -- date/time when raw CCD image file was archived at IPAC
xfertime -- difference: "createddateraw - obsdatetime" [minutes]
overscanmed -- median of overscan pixels [DN]
overscanrms -- RMS (from average) of overscan pixels [DN]
overscanpct -- data scale using percentiles [DN]
rawgmed -- global median of raw CCD pixels [DN]
rawgrms -- global RMS from average of raw CCD pixels [DN]
rawgpct -- global data scale of raw CCD pixels using percentiles [DN]
fbresidmed -- median of fit residuals for floating-bias correction [DN]
fbresidrms -- RMS of fit residuals for floating-bias correction [DN]
nframescal -- number of images used to generate calibration product
nbadpixcal -- number of bad pixels
gmediancal -- global median of pixel values
gstddevcal -- global stddev of pixel values
gpctdiffcal -- global robust measure of pixel RMS based on percentiles
medstackpixuncal -- median of pixel-stack stddev/sqrt(Nframes) over all pixels
stddevmedcolcal -- stddev of median-collapsed pixel columns ($\approx$ x-axis variation)
stddevmedrowcal -- stddev of median-collapsed pixel rows ($\approx$ y-axis variation)

<MMDDYY>/<ObsTimeRange>/ccd<ID>/*_ga.txt

Instrumental calibration based:

anmatches -- total #external-cat matches for computing astrometric cal metrics
anmatches11 -- #external-cat matches in grid partition 1,1
anmatches12 -- #external-cat matches in grid partition 1,2
anmatches13 -- #external-cat matches in grid partition 1,3
anmatches21 -- #external-cat matches in grid partition 2,1
anmatches22 -- #external-cat matches in grid partition 2,2
anmatches23 -- #external-cat matches in grid partition 2,3
anmatches31 -- #external-cat matches in grid partition 3,1
anmatches32 -- #external-cat matches in grid partition 3,2
anmatches33 -- #external-cat matches in grid partition 3,3
admed1 -- median of reconst - ref posns along RA (arcsec)
admed2 -- median of reconst - ref posns along Dec (arcsec)
admedrad -- median of reconst - ref radial sepns (arcsec)
adpctdif1 -- pctdif of reconst - ref posns along RA (arcsec)
adpctdif2 -- pctdif of reconst - ref posns along Dec (arcsec)
adminmed -- minimum local admedrad over grid partitions (arcsec)
admaxmed -- maximum local admedrad over grid partitions (arcsec)
arefmatchpct -- percentage of reference catalog matches
adetmatchpct -- percentage of detected catalog matches
andegref -- SCAMP pass2 NDeg_Reference (degrees of freedom in solution)
anstarsdet -- SCAMP pass2 NDetect (number of stars detected)
anstarsref -- SCAMP pass2 n_catalog (number of reference stars)
ascmplsigma1 -- SCAMP pass1 sigma along axis 1 (arcsec)
ascmplsigma2 -- SCAMP pass1 sigma along axis 2 (arcsec)
ascmplchi2 -- SCAMP pass1 chi2
ascmp2sigma1 -- SCAMP pass2 sigma along axis 1 (arcsec)
ascmp2sigma2 -- SCAMP pass2 sigma along axis 2 (arcsec)

ascmp2chi2 -- SCAMP pass2 chi2
 awmeanscale -- Mean percentage diff of final - prior scale
 awminscale -- Min percentage diff of final - prior scale
 awmaxscale -- Max percentage diff of final - prior scale
 aboreshiftra -- Shift of boresight RA value relative to prior input [arcsec]
 aboreshiftdec -- Shift of boresight Dec value relative to prior input [arcsec]
 aimshiftra -- Shift of readout-channel image center RA value [arcsec]
 aimshiftdec -- Shift of readout-channel image center Dec value [arcsec]
 gmedian -- Global median of sci-image pixel values [DN]
 gstddev -- Robust measure of global std-deviation of sci-image pix values [DN]
 npsfcats -- Number of sources in PSF-fit catalog
 minsnr -- Minimum source signal-to-noise ratio in PSF-fit catalog
 maxsnr -- Maximum source signal-to-noise ratio in PSF-fit catalog
 minmag -- Minimum (brightest) source magnitude in PSF-fit catalog [mag]
 maxmag -- Maximum (faintest) source magnitude in PSF-fit catalog [mag]
 npsfcatslim -- Number of sources used for maglimcat and medchilosnr computations
 medchitot -- Median chi-metric of all sources in PSF-fit catalog
 medchilosnr -- Median chi-metric near 5-sigma magnitude limit
 pnmatches -- Number of source matches to support photometric calibration
 pabszp -- Absolute photometric calibration zero point [mag]
 pabszpunc -- Uncertainty in absolute photometric calibration zero point [mag]
 pcolterm -- Color coefficient for absolute photometric calibration
 pabszprms -- RMS in ZP (mag-difference) fit residuals [mag]
 maglimcat -- Magnitude limit of PSF-fit catalog based on photometric uncs [mag]
 maglimit -- Magnitude limit of PSF-fit catalog based on semi-empirical formula
 nsexcat -- Number of sources in SExtractor catalog
 fwhm -- Median FWHM of sources in SExtractor catalog [pixels]
 ellip -- Median ellipticity of sources in SExtractor catalog
 peakdist -- Median sepn: "source peak - centroid" in SExtractor catalog [pix]
 npixgood -- Number of good (unmasked) pixels
 npixbad -- Total number of masked pixels
 npixnoisy -- Number of noisy pixels
 npixsat -- Number of saturated pixels
 nnanpix -- Number of NaN'd pixels
 gpctdif -- Spread in sci-image pixel values based on percentiles [DN]
 infobits -- bit-string encoding conditions/anomalies from instrumental cal.
 bitsinfobits -- comma-separated list of bits encoded in infobits
 status -- overall science image quality flag according to specific infobits:
 0 implies processed readout-channel image is unusable, 1 otherwise

Difference-image based:

fluxrat -- scale factor for gain matching of sci and ref image pixel values
 scigain -- Effective electronic gain of rescaled sci image [e-/DN]
 scisat -- Pixel saturation value of rescaled sci image [DN]
 scibckgnd -- Robust estimate of background level in scaled science image [DN]
 scisigpix -- Robust estimate of sigma/pixel in scaled science image [DN]
 sciinpseeing -- Refined seeing FWHM of rescaled sci image [pixels]
 refimfilename -- Name of archived reference image used
 refid -- reference image database identifier
 refsat -- Pixel saturation value of resampled ref image [DN]
 refbckgnd -- Robust estimate of bckgnd level in resampled reference image [DN]
 refsigpix -- Robust estimate of sigma/pixel in resampled reference image [DN]

refinpsseeing -- Refined seeing FWHM of resampled ref image [pixels]
pdiffbckgnd -- median background level in final positive difference image [DN]
diffsigpix -- robust sigma/pixel in final difference images [DN]
diffpctbad -- percentage of difference image pixels tagged as bad/unusable [%]
diffmaglim -- approx. 5-sigma mag limit in final difference image based on
 PSF-fit photometry [mag]
difffwhm -- Effective point-source FWHM in final difference images [pixels]
diffavgsqbef -- average of squared diff-image pixel values before PSF-matching
diffavgsqaft -- average of squared diff-image pixel values after PSF-matching
diffavgsqchg -- pct change: '100 x (diffavgsqaft - diffavgsqbef)/diffavgsqbef'
ncandscimreffilt -- number of candidates extracted from sci minus ref image
ncandrefmescifilt -- number of candidates extracted from ref minus sci image
nsolarsystobj -- number of unique Solar System objects associated with
 transient candidates
infobitsref -- image InfoBits string for input reference image
bitsinfobitsref -- comma-separated list of bits encoded in infobitsref
statusdif -- overall difference-image quality flag; 0 implies bad/unusable,
 1 implies usable for transient extraction

<MMDDYY>/<ObsTimeRange>/ccd<ID>/*_streaks.txt

jd -- Observation Julian date at start of exposure [days]
fid -- Filter ID
pid -- Processing ID for image
diffmaglim -- 5-sigma mag limit in difference image based on PSF-fit phot. [mag]
pdiffimfilename -- filename of positive (sci minus ref) difference image
programpi -- Principle investigator attached to program ID
programid -- Program ID: encodes either "public", "collab", or "caltech" mode
streakid -- Streak candidate ID from DB
strid -- Internal pipeline table streak extraction ID
ra1 -- Right Ascension at first endpoint of streak [deg]
dec1 -- Declination at first endpoint of streak [deg]
ra2 -- Right Ascension at second endpoint of streak [deg]
dec2 -- Declination at second endpoint of streak [deg]
startmjd -- MJD at start of exposure [days]
endmjd -- MJD at end of exposure [days]
flux -- flux of streak [DN]
bg -- background level near streak [DN]
length -- length of streak [pixels]
sigma -- sigma from lateral PSF-fit to streak [pixels]
lengtherr -- one-sigma error in length [pixels]
sigmaerr -- one-sigma error in sigma measure [pixels]
paerr -- one-sigma error in position angle [deg]
bgerr -- one-sigma error in bg [DN]
fitmagerr -- one-sigma error in fitted magnitude [mag]
apsnr -- signal-to-noise ratio in aperture flux
apmagerr -- one-sigma error in aperture magnitude [mag]
dmag -- difference between PSF-fitted and aperture mag [mag]
dmagerr -- one-sigma error in dmag [mag]
chi2 -- chi-square of fit

numfit -- number of iterations used in fit

prob -- classification score or ML-predicted probability: $0 \leq p \leq 1$