

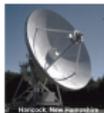
One Year of DiFX News

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Purpose

- * Bring users and developers up to speed on changes in the DiFX code since last DiFX meeting.
- * Encourage developers to update ChangeLog files with their commits.
- * Provide good starting point for those wishing to help with documentation.
- * Capture from audience other significant changes that I missed (I'll update the slides to reflect these items).
- * Aim for more complete DiFX 2.5 release notes.
- * Note: ChangeLogs and some out-of-band information used to derive this list.
- * Note: some arbitrariness in choosing items here.

Bugs fixed

- * difx2fits: MC table: clock polynomial truncated one term early. Bug since DiFX 2.0.
- * mpifxcorr: 0.5ns jitter in Mark5B processing for data rates ≥ 2 Gbps; special cases required to trigger.
- * vex2difx: guardNS feature fixed for Earth-based observations of Sidereal sources.
- * Support for multi-thread complex VDIF (there was a bookkeeping error blocking this).

Changed behavior

- * difxio + difx2fits: New concept of EOP merging mode with three options:
 - o None: don't allow merging at all, even if values are identical.
 - o Relaxed: (difx2fits default) merge if EOPs are consistent (same days have same values).
 - o Strict: EOPs must have exactly the same days.
 - o Note: a small step toward more sane EOP behavior ...
- * Some python utilities stopped responding to Ctrl-C on some operating systems. Change put in to explicitly capture sig-term.

New features

- * Early Mark6 support (see talks by HR and WB focused on this).
- * mpifxcorr (via vdifio and mark5access): per-thread weights.
- * mark5access and vdifio: python bindings and examples added.
- * vex2difx and m5pcal: proper support for unusual pulse cal intervals and offsets.
- * m5d: support complex samples and custom format for printing.
- * test5b: reports skipped frames.
- * vdifio: more complete coverage of multiplexing and decoding nThread, nChan, nBit/samp.

New features

- * mk5daemon: automatically check for Streamstor card to determine if it is a Mark5 unit.
- * mk5deemon: Mark6 support (coming soon; c.f. HR talk).
- * Support for multi-channel, multi-thread VDIF.
- * Support for multiple DATASTREAMs per ANTENNA.
- * vex2difx: explicit binding of MPI machine to DATASTREAM or ANTENNA.
- * vmux: can generate EDV4 header with per-thread validity flags.
- * printVDIFheader: has Mark6 awareness: can operate on single (ungathered) Mark6 files.
- * printVDIFheader: prints contents of EDV headers for known types.

New programs

- * difxcalc11: Calc 11 with native DiFX interface. In late test phase. NRAO memo to appear soon. Improved support for near-field cases.
- * datasim: baseband data simulator (not yet in DiFX SVN)
- * vis2screen: plotDiFXPCal.py (not sure this is the best home for this new program?)

New utilities

- * difxio: avgDiFX: takes two complete DiFX file sets (`.input`, ..., `.difx/`) and does point by point average, making new file set as result.
- * difxio: reducepoly: takes a `.im` file as input, writes new one with reduced polynomial order.
- * difxio: tabulatedelays: takes a `.im` file as input and writes in columns delay vs. time.
- * vdifio: m6gather: fairly general program to read data from a Mark6 unit and "gather" it into a time-sorted VDIF file.
- * vdifio: mk6ls: list scan names recorded on mounted Mark6 module(s).
- * vdifio: mk6vmux: combines m6gather and vmux into one new program.
- * m5iacorr.py: Perform intensity autocorrelations.
- * misc_utils: filterDifx2Fits.py: helps choose jobs to include in running difx2fits.

New libraries

- * mark5sg: routines useful for reconstructing streams recorded on Mark6.
- * difxpp: generic vector / DSP routines for correlators (not yet in SVN).