

# To-Do and Wish List

## Before the end of the week

- Clock units in vex2difx
  - progress: confirmed even newest FS vex library has no support for sec/sec units
  - progress: vex2difx currently behaves legitimately – no changes required
  - plan: Ask Ed to add this.
- VDIF channel order
  - progress: complete! Documented that one cannot change to or from VDIF format with .v2d.
  - Check put in vex2difx to prevent this.
  - Complete!
- Handle >5 EOPs correctly (at least remove the incorrect sliding average code)
  - progress: email sent to DAIP regarding AIPS handling...
  - Plan: Will be solved in CALC-11. Walter to check how that handles.
- SFXC-DiFX sensitivity question
  - progress: likely related to spectral independence and not a DiFX issue
  - Plan: Need to look at detections/non-detections.
- zoom band amplitudes
  - progress: complete!
- Fix errors caused by strideLength and xmacLength during wideband + zoom band
  - progress: stridlength = 0 → automatic calculation
  - progress: xmacstride = 0 → automatic calculation
  - Plan: consider having value not set == 0.
- Update the pulsar documentation
  - progress: complete!
- Finalise the new (open-source) license (and repository?) Prepare a template that everyone can fill in.
  - progress: GPLv3 to be recommended
- Make repository available
  - Plan: Chris to get password restrictions removed.
- IPP9
  - plan: test! (Chris + everybody)
- difx2fits:
  - allow files to be mergeable even when inhomogenous array results in setups for different jobs
- Testing architecture:
  - Jenkins. (Matteo, John)
  - Make test datasets useable again (v2d files, etc.)
- Documentathon with emphasis on inner workings (all)
  - New download procedures, remove CIRA wiki (Cormac)
- Plan: DataSim feature wishlist (all).

## High Priority

- Regression testing scripts (AD)
  - Plan: Matteo investigate Jenkins

- Xcube support (at least one way of getting Xcube data into DiFX) (CP)
- Mark6 support (complete getting Mark6 data into DiFX) see [difxmark6](#)
  - Plan: progressing. Investigate vbsfs.
- Finish/publish data generator for producing test datasets. (NP,ZMZ,ASIAA)
  - datasim works
  - plan: add to difx build scripts.
- vex2 support (relies on vex2 finalization and some support from field systems)
  - document almost complete
  - vex parser is almost complete
  - Support for \$BITSTREAMS largely complete in vex2difx
  - Plan: finalise, test
- DBBC3 support
  - progress: complete, but untested
  - plan: test! (Requires access to some data)
- redirect old CIRA wiki to CSIRO wiki
  - Plan: Remove old pages from CIRA wiki

### Medium Priority

- GPU acceleration of the DiFX core code
- Add project code to difx messages (JS)
- Add DiFX diagnostics
- Documentation
  - Putting doxygen of mpifxcorr source on a webserver (link to this from the DiFX wiki if completed)
- Maintain database of benchmarking results
  - at least the regression tests
  - Even better, using fake data also
- visplot (CP, JS)
- Investigate sampler stats monitoring (AD/WB/CP)
- subband distribution/parallelisation (with VDIF) (AD/CP)
  - replumbing/refactoring vex2difx setup
- Transition to using band centres instead of band edges (WB)
- Parallelised calc server / Efficiency gains in CALC (wait for difxcalc11, which has “native” support and will be easier to parallelise)
- Cleanly separate data format and data source
- difx2vgos? Next generation geodetic output data format support
- A version of polarisation conversion code in the DiFX source codebase
- Option for zero-padded FFT

### Low Priority

- evlbi
  - reconnection/long term drop-outs (CP)
  - reliability with UDP data (CP)
  - real-time delay/rate adjustment (CP)
- Store polynomial tau(l, m) generalized delay model in FITS (WB,JM)
- Mixed module and file list on one station
- Check the relative signs of 1-bit / 2-bit unpacking

- IF selection in difx2fits
- addZoomFreq in the SETUP section (applies to all antennas)
- Document Algorithms
  - monitoring, etc - (list of error codes) (AD)
- Still produce one FITS file even when there was a clock change during the correlation
- Refactoring the mpifxcorr/mk5daemon libraries and merging functionality
- Move to a compressed text format for pcal files
- Modernize sniffer
- cleanup of DiFX error messages (appropriate verbosity level everywhere)
- eVLBI gui
- Shifted FT (moving channel boundary to edge of band) (AD)
- DiFX2fits uv shifting in trunk (JM/AD)
- Pulsar predictor support in "polyco"
- Get rid of printing to screen in mark5access (change to be called and printed from elsewhere)
- Get Eric to improve AIPS PCAL (multi tone)

### Fantasy wishlist

- Choose framework for unit testing. Implement test cases.
- Phased array
- Add per-IF phase polynomial in the calc file (and delay polynomial, too?)
- On-the-fly application of calibration (bandpasses etc) with appropriate accountability
- Space VLBI
  - Baseline dependent averaging
- Auditing / refactoring the amplitude scaling
- Restitching contiguous zoom bands into wider bands (e.g. for ALMA)

From:

<https://www.atnf.csiro.au/vlbi/dokuwiki/> - **ATNF VLBI Wiki**

Permanent link:

<https://www.atnf.csiro.au/vlbi/dokuwiki/doku.php/difx/difx-todolist-2016>

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