Plans for the next release

The current version of DiFX is 2.5.1.

The next stable tag of DiFX will be 2.5.2

Timeline

- HOPS rootid code rolled over Feb.26; changes to support a new epoch (good through 2087) have been on trunk for some time; providing a new stable release with the new rootid is a significant driver for updates to 2.5 with a tested tag at 2.5.2
- the timing is such that improvements/enhancements for EHT processing should be captured in a new stable release
- svn work and testing delayed by illness and a power-outage at Haystack (due to Nor'easter storm) until Mar 12
- expect to test for a few days following the svn work and tag by Mar 16

Significant Changes

- HOPS migration to version 3.18 (rootid epoch and other bug fixes)
- difx2mark4 (rootid epoch fix)
- polconvert (bug and robustness fixes, plus parallelization of execution)
- (*additional changes as visible in svn log*)

History of 2.5 up through 2.5.1

Timeline

- DiFX-2.5 branch date: Tue May 16, 2017 (completed)
- install-difx tool, genipppc, setup* updated for 2.5 Branch: ?
- Draft release notes completed on wiki: mid June
- Proposed release (tag as 2.5.1, email difx-users): mid July, 2017, pending no problems

Process

“To keep things moving I propose to set May 16 as the date of branching DiFX 2.5. I'd be happy to do the initial branching using the same approach used previously. However, I'd like to move to using a more traditional Branch/Tag approach than we've used in the past when we come to generating the released version. The DiFX-2.5 branch would be exactly that – a living branch with a hopefully small level of activity (bug fixes primarily). This is where testing of the branch prior to release would occur. Then when we are happy with the state we tag the current DiFX-2.5 branch, immediately calling the result DiFX-2.5.1. A future DiFX-2.5.2 would come from a separate tag on the DiFX-2.5 branch after further fixing.” (email from Walter, 20170427)

Branching status (20170516)

The master tag area in SVN is: https://svn.atnf.csiro.au/difx/master_tags/DiFX-2.5/

There are a few things maybe not yet complete:

1. A couple scripts probably need updates. These were copied straight from the DiFX-2.4 master tag. The scripts are: genipppc install-difx setup.bash setup.csh . I'm not sure who is maintaining these scripts these days. Perhaps coordiate via reply to this message if you are willing to step up and do it. Specifically, install-difx will need to support some new modules (see below).

2. The difxbuild script (used by NRAO/LBO and USNO) needs updates still. I'll get to that and start testing a full check out shortly.

3. Several new modules are in 2.5 that were not in 2.4. These are: difxcalc11, dirlist, mark6sg, mark6meta, polconvert, datasim, autozoom . I've put these into the appropriate area in the 2.5 release. It is possible there are other modules that should be included in DiFX 2.5. Have I missed any?

4. There still might be an issue with difx2fits that needs fixing. I'll look into that sooner rather than later.

Note that in theory the trunk repository is open for new development. It might make sense to avoid making radical changes to trunk until the 2.5.1 release actually happens just to simplify keeping the 2.5 branch and trunk in sync. When development resumes on trunk, please take the opportunity to update ChangeLogs and the version in configure.ac as appropriate.

Some plans for changes to be incorporated in the next major release are:

- ipp9 testing (Chris)
- virtual trunk to compile (Cormac)
    - Add datasim, dirlist, polconvert, autozoom
- vex2difx testing for all use cases (everyone)
- ~~GMVA difx2fits merging of compatible setups (Helge/Walter)~~
- VDIF testing (Helge)
- ~~bug resolution for Alessandra and Gabriele (Walter)~~
- ~~native mark6 mode working and tested (Walter)~~
- Record delay model used in FITS file (Walter).
- Supporting >5 EOPs. Test and confirm AIPS support. (Walter, AIPS team)
- Changelog updates (Everybody)
- Test, test, test (Everybody)
- Documentation:
    - Datasim, autozoom (Zheng)
    - mark6 (Walter/Helge)

Plans for future release 2.6

- Production mark6 support.
- vex2 support
- cloud computing
    - real-time e-VLBI
- Filterbank channelisation
- Doing sideband inversion at unpack rather than FFT stage
- Separate mk5daemon from mk6daemon (Helge)

Previous Releases

Next major release: DiFX 2.3

Bug fixes

- mpifxcorr: Datasteam buffer send size now calculated correctly for complex sampled data
- mpifxcorr: Avoid very rare bug where combination of geometric delay and data commencing mid-subint meant one invalid FFT might be computed
- mpifxcorr: multicast weights are now computed correctly for mixed-sideband correlation
- mpifxcorr: fixed bug where some autocorrelations were not saved in a mixed-sideband correlation
- mpifxcorr: fixed bug where send size could be computed incorrectly by 1-2 bytes for Mark4/VLBA/Mark5B/VDIF formats, potentially resulting in very small amounts of data loss

New features

- mpifxcorr: LO offsets are now corrected in the time domain when fringe rotation is also done in the time domain (the usual mode), allowing considerably larger LO offsets without decorrelation
- mpifxcorr: Working polarization dependent delay and phase offsets
- mpifxcorr: Experimental linear2circular conversion
- mpifxcorr: Complex Double sideband (RDBE/Xcube) sampling support
- mpifxcorr: new file/mk5 based vdif/mark5b datastream (faster and more robust)
- utilities: some new command line tools for mk5b and vdof files (vsum, mk5bsum, vmux, mk5bfix)
- all packages: mk5 support for mark5a/b with sdk9
- new options for passing calibration (Walter B: memo forthcoming)

Other news

Known issues