STARLINK

The Original And Best

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The UK Starlink project, initiated in 1980 and discontinued in 2005, wrote a large and varied collection of astronomical software that is known as the Starlink Software Collection (SSC). From 2005 onwards the SSC was maintained and developed by the Joint Astronomy Centre, Hawaii, which ran the James Clerk Maxwell Telescope (JCMT) and the UK Infrared Telescope (UKIRT). In 2015 these tasks were taken over by the East Asian Observatory (EAO), which continues to adapt the SSC for the needs of today's astronomers, adding new features, supporting new compilers and providing user support. The acquisition of the JCMT by the EAO is introducing Starlink software to a new and larger population of East Asian astronomers. The name may have been borrowed by another project, but the Starlink Software Collection is still very much alive. This poster lists some of the important changes it has undergone since it was last described by an ADASS poster (2013).

- The Starlink NDF data model is now layered on top of the HDF5 library rather than the classic Starlink HDS library.
- The NDF access library has been translated from Fortran to C, and modified to allow access to arrays with more than 2^{31} pixels.
- Starlink applications are being converted to use the above new facilities and to use multi-threaded processing where possible.
- The new starlink-pywrapper package allows pythonic access to Starlink commands.
- 20 new commands have been added to the core Starlink packages such as KAPPA, POLPACK, etc. Major new features have been added to 40 other core commands. Many other more minor enhancements and bug fixes have been made.
- Many new and diverse features have been added to applications and the ORAC-DR pipeline in order to support and improve the reduction and analysis of JCMT data (particularly data from the POL2 polarimeter), and to create standardised archival products . These have been used in high profile research such as the recent discovery of phosphine in the atmosphere of Venus.
- The widely used AST library, which provides an object-oriented WCS system, has had many enhancements including:
  - Ability to read and write celestial WCS using the ASDF format developed at STScI.
  - A GUI to allow AST FrameSets to be explored and manipulated.
  - Extended support for regions, including support for IVOA MOC format.
  - Better simplification of long mapping chains.

See:

Starlink: `starlink.eao.hawaii.edu`
EAO: `www.eaobservatory.org`
NDF: `arxiv.org/pdf/1502.04029.pdf`
AST: `arxiv.org/pdf/1602.06681.pdf`
pywrapper: `pypi.org/project/starlink-pywrapper`