

OSKAR Release Notes

Version history:

Revision	Date	Modification
1	2012-04-20	Creation
2	2012-05-15	Added release notes for 2.0.1-beta
3	2012-06-13	Added release notes for 2.0.2-beta
4	2012-06-19	Added release notes for 2.0.3-beta
5	2012-07-27	Added release notes for 2.0.4-beta
6	2012-10-22	Update to 2.1.0-beta
7	2012-11-20	Updated for version 2.1.1-beta.
8	2013-03-04	Revised format of release notes: Added features list; added changes for 2.2.0; removed changes for revisions prior to 2.2.0.
9	2013-03-11	Updated for version 2.2.1.
10	2013-11-26	Moved summary of OSKAR features to the introduction document. Updated with changes for version 2.3.0
11	2013-11-28	Added changes for version 2.3.1.
12	2014-02-26	Added changes for version 2.4.0.
13	2014-07-16	Added changes for version 2.5.0
14	2014-09-08	Added changes for version 2.5.1

1 Introduction

OSKAR 2.5 is the current version of the OSKAR interferometry and beamforming simulation package.

The function of these release notes is to summarise changes and new features, and highlight any known issues.

2 Changes

The changes for the current release are listed below. For earlier releases please refer to older revisions of this document or the `ChangeLog.txt` file in the OSKAR source tree.

2.1 Version 2.5.1

- Changed the integer range of random seeds to start at 1 (instead of 0).
- Changed settings so that beam normalisation is on by default.
- Further improved efficiency of Measurement Set export, using appropriate storage managers. This has the additional benefit of making the CASA imager faster.
- Added the ability to concatenate OSKAR visibility files for different observation periods into one Measurement Set as an update to the `oskar_vis_to_ms` app.
- Added a `-q` option to suppress command line output log messages for many of the OSKAR apps.
- Fixed "out of range" error encountered when making a beam pattern with isotropic elements.
- Fixed "dimension mismatch" error encountered sometimes when using normalised beams.
- Fixed the scaling of uncorrelated system noise when used with the Stokes-I only (scalar) mode added in 2.5.0.

2.2 Version 2.5.0

- Changed settings to use a half-wavelength dipole by default, instead of a geometric dipole.
- Fixed a problem in the telescope model noise loader that caused it to incorrectly report an error in one situation.
- Removed option to image interferometer output at end of simulation. (The OSKAR DFT imager is not recommended for general use.)
- Removed element pattern fitting parameters from telescope model settings.
- Created new application to fit element pattern data and write spline coefficients to a telescope model in OSKAR binary format. Added new settings group for this.
- Changed element pattern fitting procedure to use Ludwig-3 coordinate system internally. This generally produces better quality fits for a given number of knots, and eliminates instability near the zenith.
- Added the ability to specify element pattern data as a function of frequency. The element data closest to the current observing frequency is used.
- Added the ability to specify element orientations when using numerical element pattern data.
- Added the ability to specify multiple element types within a station.
- Added option to use an analytic dipole with a definable length (in metres or wavelengths) as an element pattern.

- Added option to completely normalise the centre of the station beam to 1.0 each time it is evaluated. This will effectively perform an amplitude calibration for a source at the phase centre.
- Added option to turn off the station beam completely (use the "isotropic" station type for this).
- Added scalar mode option (Stokes I only) to interferometer simulator.
- Added UV range filter for visibility evaluation.
- Added polarised sky model grid generator.
- Added a reference frequency which is used to scale the FWHM of Gaussian beams for Gaussian beam station types.
- Added run log and settings file to Measurement Set HISTORY table. (Run log will now be propagated to images made with CASA.)
- Improved efficiency of Measurement Set export.

3 Known Issues

While every effort has been made to identify and fix problems through extensive testing, some will undoubtedly remain. Please report any issues you find to oskar@oerc.ox.ac.uk and include a description of the problem, your terminal output, your version of OSKAR, and details of your operating system and hardware configuration. If necessary, we may also require settings and/or data files to replicate the problem.

3.1 Version 2.5.1

- It is currently not possible to use Stokes-I only (scalar) mode with numerically defined element patterns. This is scheduled to be resolved in version 2.6.