

INERTIAL EXPLORER™ VERSION HISTORY

What is new with Version 8.40.2827?

Available: August 2012 [update]

Processing:

- Fixed issue with satellite rejection when using precise ephemerides

Bug Fixes:

- Trace value now computed correctly for *Estimated Position Accuracy* plot
- Improved undulation computation for points near geoid boundaries
- Fixed plotting issue when comparing trajectories with two different data rates
- Improved GUI in *Favourites Manager* to accommodate longer group/datum names

What was new with Version 8.40.2717?

Available: July 2012 [update]

Processing:

- Fixed issue where nominal dt was being used in inertial filter instead of computed dt, which occasionally led to spikes in solution
- Fixed bug in PPP-TC processing where Doppler-derived cycle slips were not being handled properly
- Made improvements to auto-align feature when GPS data is poor
- Fixed issues with roll/pitch angle output in the *Export Wizard* when values approached +/- 180°

What was new with Version 8.40.2523?

Available: May 2012 [update]

Processing:

- Improved handling of data with large clock-shift values in tightly-coupled processor

Utilities:

- Added support for TrigNet service (South Africa) in the *Download Service Data* utility

Bug Fixes:

- Improved support for compressed RINEX data

What was new with Version 8.40.2504?

Available: May 2012 [update]

Processing:

- Improved reliability of automated zero-velocity (ZUPT) detection, which drastically improves the results of some urban surveys
- Tropospheric states can now be used during TC processing

Bug Fixes:

- Removed warning messages related to lever arm for IMU-only processing

- Fixed bug where only features would be printed when attempting to print *Map Window*
- Fixed issue where new projects created via *Project Wizard* would copy some settings from previous project
- Added support for auto-selection of “Features” as output source in *Export Wizard*
- Fixed bug where downloading SP3/CLK files in GrafNet would fail

Utilities:

- Fixed bug in OEM42GPB.DLL where some GLONASS ephemeris records would be ignored if GLOCLOCKB was not logged
- Improved handling of RINEX 3.00 navigation files in RIN2GPB.DLL

What was new with Version 8.40.1522?

Available: March 2012 [update]

Processing:

- Fixed issue during reverse PPP processing where a crash would occur if insufficient satellites were present at the end of the file
- Fixed error messaging in tightly-coupled processing to more clearly communicate any processing failures
- Improved error message when adding an empty GPB file to a project
- Fixed issue affecting correct handling of covariance information for newly acquired satellites in tightly-coupled processing. This occasionally led to position jumps after smoothing.

Export/Reports:

- Improved auto-selection of source (epochs/features/static sessions) in *Export Wizard*
- Fixed “sequence number” output in *Export Wizard*
- Fixed a week numbering issue for INS-only processing which caused a problem during export
- Now outputting correct baseline distances of first and last epochs in *Processing Summary*
- Fixed issue with CurveFit values to clearly show they are not available for GNSS/INS export

Utilities:

- Added a tool tip to auto-update tool in order to more clearly display changes in new builds
- Improved handling of very long GNSS outages (>20 minutes) in smoother
- Added full support for new SPAN models (HG1900, HG1930, LM20 and LM40)
- Improved handling of D-files in HOSE2GPB.DLL

What was new with Version 8.40.1408?

Available: February 2012 [update]

Bug Fixes:

- Fixed smoothing issues where epochs were sometimes dropped from forward or reverse solutions when using GNSS update rates greater than 1 Hz
- Fixed issue during forward PPP processing where a crash would occur if insufficient satellites were present at the beginning of the GPB file
- Improved week number support for camera mark files

What is new with Version 8.40.1214?

Available: January 2012 [update]

Bug Fixes:

- Fixed issue in Inertial Explorer where GPS outages greater than 600 seconds were not being handled properly
- Improved PPP /PPPTC performance in challenging conditions
- Fixed issue in GrafNet where printing was disabled
- *Master Coordinates* window now displays average values when coordinates in STA file are zero
- Improved profile-detection in pre-processing checks
- Fixed issue in RINEX decoder concerning Version 3.00 navigation files

What is new with Version 8.40?

Available: November 2011 [release]

New Features:

- Improved variance propagation in RTS smoother to eliminate small jumps during GNSS updates. This is especially important for LIDAR and road profiling applications.
- Users can now generate high-rate plots within Inertial Explorer. This can be useful for solution analysis.
- Body frame velocities and accelerations are now computed and available for export and plotting
- IMU to GNSS lever arms can now be entered to the antenna reference point or the phase center
- *Waypoint Updates* feature will notify customers of new software updates and patches and will download them
- *Waypoint News* feature will keep customers up-to-date regarding Waypoint software releases, training seminars, and other important announcements
- GLONASS data is now supported in the Precise Point Positioning (PPP) module
- GLONASS base station data can now be resampled
- GLONASS data can now be used in the ARTK engine to improve single frequency performance
- ARTK reliability has been improved in challenging conditions by implementing a stricter acceptance criteria
- New profile selection feature will attempt to automatically determine your application in order to select the most appropriate processing profile
- Improved ARTK performance for multi-base projects that have different start or end times for each base station
- Added option to limit the distance at which dual frequency ARTK will engage
- *Export Wizard* can now filter output based on Quality Number and/or standard deviations
- New “Combined Separation with Fixed Ambiguity” plot shows forward/reverse separations only where both solutions are fixed. This helps identify problem areas/incorrect ambiguity resolution.
- Precise ephemeris and clock files are now automatically downloaded when clicking the “Process” button for Precise Point Processing (PPP). It is no longer necessary to download the files as a separate step prior to processing.
- Added option to only accept ARTK fixes from closest baseline (for multi-base projects)
- Cache memory setting has been implemented for more efficient handling of very long and/or high rate projects
- Issues when setting the static coarse and fine alignment times have been fixed
- Issue where datum conversions were not always reversible has been fixed
- ECEF coordinates can now be used when entering base station coordinates
- Units can now be changed on many plots
- Orthometric heights are now computed using a Lagrange interpolation instead of a nine-point polynomial
- The “User” and “Description” fields in the processing dialogs can be modified and will be saved to the *Processing History*

- Improved message filtering ensures only the most important error and warning messages are output to the processing window
- HTML reports output by software now work in Google Chrome

Raw GNSS Data Converter:

- Pre-processing checks are now performed during data decoding to automatically solve common conversion issues and set the static/kinematic flag
- RINEX Version 3.0 is now supported
- IMU Auto-detection for NovAtel SPAN data has been improved
- NovAtel decoder now supports SITEDEFB logs. This ensures your static sessions are preserved and that an event is written to the STA file.
- NovAtel decoder now computes a rough estimate of velocity when writing BESTPOSB trajectories to FSP file in order to allow the file to be used as the source of updates in loosely coupled processing
- Leica System 1200 decoder now supports the Antenna Record (ID #108)
- Javad decoder now supports L2C records
- Trimble Real-Time decoder now supports dual frequency measurements for the expanded logs
- Bug where Septentrio decoder was flagging GLONASS observations as containing L2C measurements has been fixed. Multi-antenna decoding has also been improved.
- Default L2C offset for RINEX decoder has been set to zero in order to accommodate downloaded data from Trimble base stations, which commonly have the offset removed

Download Service Data Utility:

- Users can now download broadcast GPS and GLONASS orbits in EPP format. This is useful for projects with missing or incomplete ephemeris data.
- New option added to download precise GLONASS orbits and clock products for PPP
- Added support for rapid precise clock and orbit service (SGU). This service typically has products available at a latency of 4 to 6 hours.
- The maximum number of days for which data can be downloaded been increased to seven
- Support has been added for the ERGNSS, ITACyL, CATNET and BARD reference networks

What was new with Version 8.30.2105?

Available: January 2011 [update]

New Feature:

- Manufacturer file has been updated with new GPS almanac source for Mission Planner. Previous source is no longer available.

Bug Fixes:

- Fixed issue with RIN2GPB where data collected in 2011 would not convert
- Issue concerning high-rate output of angular rate data is now fixed

What was new with Version 8.30.1123?

Available: November 2010 [update]

Bug Fixes:

- Fixed bug where DMI window was unresponsive when adding DMR data to project
- Fixed bug where multiple menu items were disabled for IMU-only projects
- Automated detection of Doppler units in SYS12002GPB
- Improved support for L2C measurements in Download.exe and Gpbcats.exe
- RIN2GPB now computes valid Doppler measurements for RINEX files where D1 data is zeroed
- Improved ability to modify one/multiple/all features in *Feature Editor*

What was new with Version 8.30.1007?

Available: October 2010 [update]

New Features:

- Added support for NovAtel SPAN LCI and NovAtel SPAN μ IRS systems
- NovAtel SPAN users can filter list of processing profiles based on the IMU

Bug Fixes:

- Fixed bug in loosely-coupled processor when doing kinematic alignment during week cross-over
- Improved data handling within ARTK when used in multi-base mode with invalid baselines
- Code-only single point processor now works without precise orbit files
- RIN2GPB now handles epochs containing more than two lines of PRNs
- Fixed bug in JPS2GPB where GLONASS satellites were being assigned wrong PRN in the absence of ephemeris data. Also, decoder now handles ephemeris records of multiple sizes.
- Fixed bug in static processor where covariance matrix would become contaminated during satellite outlier detection
- Improved handling of epochs without valid ephemeris data in fixed static processor

What was new with Version 8.30.0623?

Available: June 2010 [update]

New Features:

- Added support for heading updates from dual-antenna systems
- Added heave output variable to *Export Wizard*

Bug Fixes:

- Improved auto-alignment for datasets with poor Doppler measurements
- Fixed bug where DMI data would be ignored during processing
- Fixed bug where GrafMov would use ARTK instead of KAR when loading a processing profile
- Fixed bug in GrafMov where ionospheric corrections were always being applied
- *Copy User Files* has been updated to properly transfer user files from previous installations
- RIN2GPB now supports RINEX data with epochs containing more than 24 satellites

What was new with Version 8.30.0331?

Available: April 2010 [release]

New Features:

- Automated alignment option scans data and automatically performs static or kinematic alignment, thus eliminating the need for user intervention
- Precise point positioning (PPP) now available for use with tightly-coupled processing for users who do not have base station data
- Differential tightly-coupled processing can now be run in multi-pass mode for improved attitude convergence over short surveys
- Processing settings have been simplified and the GUI has been made more intuitive
- Distance-dependent output now available through *Export Wizard*
- NovAtel SPAN decoder now automatically sorts IMU data to remove time reversals
- New *ReadWPG* utility reads most of Waypoint's binary data files, including IMR, DMR and high-rate trajectory files
- Smoother has been improved for datasets where scale and non-orthogonality states are used (i.e. SPAN-CPT)
- Float/fixed solution weighting has been improved for tightly-coupled processing
- Range updates have been implemented to improve accuracies during periods with poor GNSS data availability

- Solving routine for GNSS-IMU lever arm has been improved
- Improved support for tightly-coupled processing in local datums
- New version of AdVance™ RTK (ARTK) offers improved carrier phase ambiguity resolution, particularly for single frequency data
- Fixed static processor now supports L2C measurements
- PPP filter has been improved
- Improved support for GLONASS processing when mixing receiver types
- Processing profiles have been improved
- Ionospheric corrections automatically enabled/disabled depending on baseline distance
- Software will warn users who attempt to proceed with averaged coordinates at base station(s)
- Inertial solution automatically loaded upon opening of project. Previously, only the GPS solution was loaded.

Bug Fixes:

- Fixed bug in RIN2GPB converter where GLONASS phase measurements would occasionally be flagged as L2C
- Fixed bug in “Move-to-Static” option where features would be deleted
- ARTK fixes now displayed properly on *Map Window* when forward solutions is loaded
- *Distance Separation* plot now displays correct baseline distance after tightly-coupled processing
- ECEF covariance information for positions now available through *Export Wizard*
- Fixed bug where antenna heights were being rounded to nearest centimeter
- Fixed bug in *Signal Strength* plot when re-scaling Y-axis
- Improved *Gyro Drift* and *Accelerometer Bias* plots

What was new with Version 8.20.0522?

Available: May 2009 [update]

Bug Fixes:

- *General* tab of the IMU processing options menu now automatically fills in *Start* and *End* times
- IMU processor now properly handles large changes in the values from the DMR file
- Software now handles spaces in the mount (*.mmr) and heading (*.hmr) filenames
- Better error message returned when IMU auto-detect fails for NovAtel SPAN datasets
- RIN2GPB.DLL was not loading on some computers, leading to problems with the *Raw GNSS to GPB* and *Download Service Data* utilities. This issue has been resolved.
- Problem where *Export Wizard* would not output in any grid except UTM is now fixed
- Support for compressed RINEX format has been updated to incorporate newest changes to format
- Fixed issues surrounding the launching of baselines from GrafNet or GrafNav Batch into GrafNav

What was new with Version 8.20.0427?

Available: April 2009 [release]

New Features:

- The new *Project Wizard* allows users to easily step through the process of creating a new project. The *Wizard* automatically detects the user’s raw data types, converts them to GPB and, if requested, downloads nearby service station data. The IMU model is automatically detected for NovAtel SPAN users before conversion to IMR.
- New file handling routines effectively remove file size limitations for raw data up to 7 days
- RTS Smoother now smoothes attitude as well as position
- For marine applications, a new option is available to apply heave compensation
- Support for auto-stabilized camera mounts has been added
- External heading updates can now be used
- New plots for raw IMU gyroscope and accelerometer measurements

- Lever arm values can now be read into software (if present in IMR file header)
- EGM2008 geoid now available in WPG format
- New *Trajectory Status* plot is available for NovAtel users logging position records

Improvements:

- IMU settings have been re-organized in a more intuitive fashion
- Processing profiles can now be easily loaded through the IMU settings
- New residual tests help ensure better filtering of position, phase and ZUPT updates
- Maximum number of allowable external coordinate updates (CUPTs) has been increased to 1,000
- Decreased memory consumption means that smoothing IMU data is now faster
- Handling of manufacturer/user files has been modified to better support Windows VISTA users
- *Download Service Utility* now loads much quicker than previously
- Improved satellite rejection and base satellite selection in differential processor
- Improved handling of satellite antenna offset in PPP processor
- Users can now easily add their static PPP solution to *Favourites*
- The *Map Window* and all data plots use new drawing method that provides much better support for high-rate and/or long data sets

Decoders:

- NovAtel OEMV users can create GrafNav-readable trajectory files from 7 different position records
- NovAtel OEM4/OEMV decoder now supports MARK n TIMEB and MARK n PVAB records
- NovAtel OEM4/OEMV decoder now automatically detects IMU model for SPAN users
- For Leica 1200 receivers, support has been added for the new measurement record (#119)
- Support for the RTCMV3 raw data format has been added
- Improved handling of GLONASS data in GPB2RIN.DLL
- RIN2GPB.DLL now handles L2C data properly

Bug Fixes:

- Fixed bug in *DMI Residual* plot where DMI velocities were being plotted instead of the residuals
- Fixed bug in kinematic alignment where error was returned if GPS data rate was greater than 1Hz
- High-rate data outputted through *Export Wizard* no longer contains position jumps at top of the second
- Bug fixed in *File Data Coverage* plot where gaps in GPS data were not being plotted after IMR file had been loaded
- Fixed bug where *Select From Favorites* would not work if master GPB file did not contain position