

Main differences between V4.0 and V3.4.1

De Wiki

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[Main differences between V4.0 and V3.4.1](#)

PATRIUS V4.0 is a major release and has a simplified architecture: its former dependencies (**Commons-Math**, **OREKIT** and the addons) have been merged into a single standalone library (*patrius_V4.0.jar*). Users only need to download one library for compilation purpose. To help migrate sources based on **PATRIUS** 3.x, a script is available (search & replace all the import) and make it quite easy to update to **PATRIUS** 4.0. The script will transform all Java files found under the current directory.

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Java 7 compatibility

PATRIUS is now a **Java 7** project : all users need a **JRE** (or **JDK 7**) (or higher).

Constant/continuous maneuvers

[ConstantThrustManeuver](#) & [VariableThrustManeuver](#) have been merged in [ContinuousThrustManeuver](#). Constructors use [PropulsiveProperty](#) object to set all parameters. Besides, the behavior and the numerical results are the same as before.

Bug fixes

- [AtmosphereData](#) uses molar mass in kg/mol (and not in g/mol). [GlobalAeroModel](#) results are affected.
- [Assembly](#) can now correctly handle mobile parts
- [\[STELA\]](#) propagator can use osculating parameters for its initial orbit.
- Some optimizations in:
 - [AbsoluteDate](#): around 5% gain in a lot of algorithms
 - [HelmholtzPolynomial](#)
 - **GTOD** frame : a big computation time issue has been fixed. All the frames of this branch now have the same performances as the **IERS** one.
- Normalized Earth potential coefficients can be used for order°rees above **86** (numerical quality bug fix)

API incompatibilities

- [EarthGravitationalModelFactory](#) methods need a new parameter to allow missing coefficients.
- [FramesConfigurationBuilder](#): the new method [setEOP2000History\(\)](#) replaces [setEOPHistory\(\)](#)
- [TOD](#), [VEIS](#), [ITRF](#) equinox based frames now need to be configured with [EOP](#) History, through a [FramesConfiguration](#)

Regressions

- [GlobalAeroModel](#): some regression (about 10 cm after a 6h [LEO](#) propagation)
- Use of [MultiNumericalPropagator](#) & [Assembly](#): small regression have been observed ($\sim 1e^{-14}$ m)
- [CnCookModel](#) and [CtCookModel](#): theses models have been fixed (former results were wrong)
- [ContinuousThrustManeuver](#): some numerical regression (ie : $1e^{-7}$ m in position) can be observed while propagating through a maneuver
- Earth potential : for high order/degree, there are some numerical regression ($1e^{-7}$ m after 24h numerical propagation of [LEO](#) orbit) but a better precision (see § bug fixes).

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