

Accueil

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WHY PATRIUS?

PATRIUS is a core space dynamics **Java** library that enables to quickly develop high level algorithms such as orbit extrapolator. **PATRIUS** contains several low level classes (i.e.: such as matrix, vectors, orbits parameters) as well as high level classes and interfaces (i.e.: numerical propagators, attitude laws, manoeuvres sequences).

MAIN ADVANTAGES

All the main domains of space dynamics are available:

- Analysis, algebra & geometry (quaternions, derivable functions, integrators ...)
- Core objects for space dynamics (dates, orbits, frames...)
- Orbit propagation: analytical, semi-analytical and numerical propagators, a full set of force models
- Maneuvers: impulsive or continuous thrust, sequences
- Attitude: extensible set of attitude laws, sequences and guidance framework
- Events: event detection (orbital, sensor events, etc.) and post-processing (chronograms)
- Spacecraft: characteristics of mass, geometry (drag force), sensors field of view, etc.

PATRIUS got a deep validation by comparison with precise orbitography tools. Moreover, it is now fully used by CNES tools, in particular for operational flight dynamics subsystem (**FDS**). For that reason the criticality level is “**C**”.

Furthermore, **PATRIUS** design relies on extensible **Java** interfaces and robust design patterns.

REMARKS

A data package ([PATRIUS_DATASET](#)) is also provided in addition allowing access to some data models.

Tutorials are available in specific tutorials pages.

CURRENT VERSION: 4.14

PATRIUS V4.14 is a release adding a few features as well as correcting some bugs (see [here](#)).

PREVIOUS VERSIONS (available on the Web site)

- Version 4.13

- Version 4.12
- Version 4.11
- Version 4.10
- Version 4.9
- Version 4.8
- Version 4.7
- Version 4.6.1
- Version 4.5.1
- Version 4.4
- Version 4.3
- Version 4.2
- Version 4.1.1
- Version 4.1
- Version 4.0
- Version 3.4.1
- Version 3.3
- Version 3.2

DEPENDENCIES

| | | | | | | | | | | | | | | | | |
|---------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|---------|-----|
| Version | 4.14 | 4.13 | 4.12 | 4.11 | 4.10 | 4.9 | 4.8 | 4.7 | 4.6.1 | 4.5.1 | 4.4 | 4.3 | 4.2 | 4.1.1 | 4.0 3.x | |
| Disponibility | from 23/08/2024 | from 19/12/2023 | from 23/05/2023 | from 03/11/2022 | from 30/05/2022 | from 20/10/2021 | from 04/06/2021 | from 02/04/2021 | from 13/08/2020 | from 30/10/2019 | from 15/06/2019 | from 17/01/2019 | from 16/10/2018 | from 22/01/2018 | from | |
| Javadoc | yes | yes | yes | yes | yes | yes | yes | yes | yes | yes | yes | yes | yes | yes | yes | yes |
| Dependencies | Java 1.8 | Java 1.8 | Java 1.8 | Java 1.8 | Java 1.8 | Java 1.8 | Java 1.8 | Java 1.8 | Java 1.8 | Java 1.8 | Java 1.7 | Java 1.7 | Java 1.6 | Java 1.6 | | |

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