

# Integrator

De Wiki

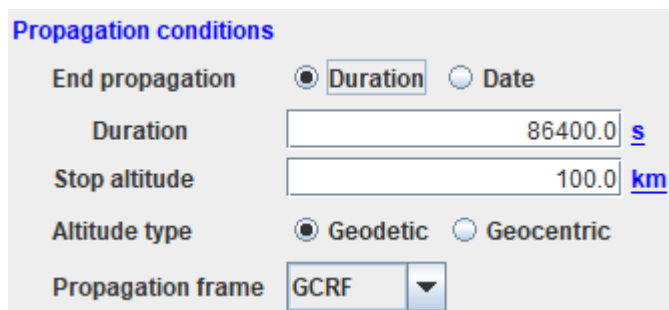
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In this tab we have to kind of information:

## Propagation data

First, data linked to the propagation with:

- Duration or date criteria for the end of the propagation
- Value of the duration or the date of the end of the propagation
- Altitude of the end of the propagation
- Type of altitude (since V11.4)



**Propagation conditions**

End propagation ☒ Duration ☐ Date

Duration  [s](#)

Stop altitude  [km](#)

Altitude type ☒ Geodetic ☐ Geocentric

Propagation frame  ▼

*Note: the propagation will stop once the first event (date or altitude) will occur.*

*Note: it is possible to retro propagate a trajectory by giving a negative duration or a date previous to the initial one.*

- Frame used for the propagation (only inertial ones among **CIRF**, **EME2000** and **GCRF**); the first one is recommended in term of **CPU** time.

## Numerical integrator

Then, we will have numerical integrator tuning:

- If the user chooses a **Runge Kutta**, only the step will have to be entered
- If the **Dormand Price** is selected the user will have to tune min/max steps and tolerances (but by default values are available).

**Integrator parameters**

Type: ☒ Dormand-Prince (8th order) ☐ Runge-Kutta (4th order) ☐ Runge-Kutta (6th order)

Minimum timestep:  [s](#)

Maximum timestep:  [s](#)

Tolerances definition: ☒ Complete ☐ Reduced ☐ Simplified

Bypass error on min Timestep ☒ Templates for tolerances definition  ▼

Absolute Tolerance		Relative Tolerance	
X	* <input type="text" value="7.0E-7"/> <a href="#">m</a>	Xr	<input type="text" value="0.0E0"/> %
Y	* <input type="text" value="7.0E-7"/> <a href="#">m</a>	Yr	<input type="text" value="0.0E0"/> %
Z	* <input type="text" value="7.0E-7"/> <a href="#">m</a>	Zr	<input type="text" value="0.0E0"/> %
Vx	* <input type="text" value="3.0E-11"/> <a href="#">m/s</a>	Vxr	<input type="text" value="0.0E0"/> %
Vy	* <input type="text" value="3.0E-11"/> <a href="#">m/s</a>	Vyr	<input type="text" value="0.0E0"/> %
Vz	* <input type="text" value="3.0E-11"/> <a href="#">m/s</a>	Vzr	<input type="text" value="0.0E0"/> %
Mass	<input type="text" value="1.0E-3"/> <a href="#">kg</a>	Massr	<input type="text" value="1.0E-2"/> %

*Note: since V11.4 and due to the V4.4 version of [PATRIUS](#) a specific option is available to by-pass the error mode when minimum step is reached. In that case, the precision given by tolerances will not be reached but the propagation will go on.*

*Note: since V11.4 some typical tuning is proposed depending on the kind of orbit and the desired precision.*

Récupérée de « <http://psimu.cnes.fr/index.php?title=Integrator&oldid=783> »

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