

Attitude

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This tab, dealing with attitude sequence is, perhaps, the most difficult to understand. Anyway, **it is mandatory to define at least one attitude law** as **PSIMU** needs to compute attitude angles as output variables.

Reference date

First, as for a maneuver sequence, the user will have to select a reference date. There are two possibilities:

- “**custom**” : a specific date will be entered by the user
- “**external**” : in that case no modification of the date is available as it corresponds to the date defined in the initial orbit parameters (note that this date is automatically updated if the initial orbit date is modified).

Reference Date:

Date mode: custom external

External date: [UTC](#) +/-

List of laws

Then, a button appears that allows displaying a new window to define a set of available attitude laws. Each law is defined as below:

- Name of the law
- Type of the law (local orbital frame (**LOF**), inertial, Sun pointing ...)
- Law evolution (constant or spinned)
- Then data linked to the type of law. As an example for LOF attitude law, the user will have to select which **LOF** to take into account and eventually angle bias.

Attitude Laws List

Amount of laws *

Number of the law [Items +/-](#)

Law1

Attitude Law: *

Law name: *

Law type: ▼

Law evolution: ▼

LOF Att. Law: *

Local Orbital Frame: ▼

Display expert config

Angles bias *

Rotation: *

Deactivate conversions

Order: * ▼

Psi: [deg](#)

Theta: * [deg](#)

Phi: [deg](#)

Attitude sequence

At last, the user will get a choice between:

- A simple attitude sequence with only a single law chosen in the previous list (not available in V11.0 version)

Attitude Laws:

Mode: Switch Simple

Simple Law: * ▼

- A more sophisticated definition of the attitude sequence using the [\[PATRIUS\]](#) “**event switch**” possibility. The user will have to define one or several switches defined by the following data:
 - The attitude law before the event (taken in the previous list)
 - The attitude law once the event occurred (taken in the previous list)
 - The type of event and data related to it.

This “**event switch**” is a very powerful option that allows defining relatively shortly a whole mission. For example, if we want to define the fact that the vehicle is **LVLH** oriented in eclipse and Sun pointing out of eclipse, we will only have to define two switches calling to two attitude laws:

- **Switch #1** with entering in eclipse as orbital event and law before "Sun pointing" and law after **LVLH**
- **Switch #2** with exiting in eclipse as orbital event and law before **LVLH** and law after "Sun pointing"

Attitude Laws:

Mode: * Switch Simple

Switches:

Amount of switches

Number of the switch [Items +/-](#)

Switch1

Law before *	<input type="text" value="Law1"/>
Law after *	<input type="text" value="Law2"/>
Event Detector *	
Type *	<input type="text" value="Eclipse"/>
<input checked="" type="checkbox"/> Display event config	
Eclipse Detector *	
Event type: *	<input checked="" type="radio"/> Entry <input type="radio"/> Exit <input type="radio"/> Both
Triggering: *	<input checked="" type="radio"/> Single <input type="radio"/> Multiple
At *	<input type="text" value="1"/> st occurrence
Action: *	<input type="text" value="RESET_STATE"/>
<input type="checkbox"/> Display expert config	

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