

# Tutorials 4.0 Events

De Wiki

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## What is an Event ?

An [EventDetector](#) corresponds to an object that will allow to a propagator to determine when this event will occurred.

**PATRIUS** will already propose a great amount of predefined events (anomaly, [AOL](#), altitude, eclipse, ...). These events may be called with "by default" values or may be customized by defining:

- its maximum check interval (in seconds)
- the threshold value below which the convergence is acquired (in seconds)
- the fact that the event will be checked several time or not.

The following code example shows how to define an [AOL](#) detector with all these possibilities.

**Code example:** [AOL event detector](#)

## Using AbstractDetector class

If you have not found a predefined event detector into the **PATRIUS** list, you can build yourself you own detector using the [AbstractDetector](#) class.

In such a case, you will have to redefined:

- [eventOccurred\(\)](#) method ; when the event has occurred, this method will be called by the propagator and will return the appropriate action
- [g\(\)](#) method ; this method will return a double value which trigger the event when it will reach zero (+/- the threshold)
- [shouldBeRemoved\(\)](#) method

**Code example:** [Event using AbstractDetector class](#)

## Using EventDetector interface

if you want to customize deeper your event detector, rather than to use AbstractDetector class, you may use EventDetector interface.

In such a case, you will have to redefined:

- [eventOccurred\(\)](#) method ; when the event has occurred, this method will be called by the propagator and will return the appropriate action
- [getMaxCheckInterval\(\)](#) method ; this method will return a double value which trigger the event when it will reach zero (+/- the threshold)
- [getMaxIterationCount\(\)](#) method
- [getSlopeSelection\(\)](#) method
- [getThreshold\(\)](#) method

- [init\(\)](#) method
- [resetState\(\)](#) method
- [shouldBeRemoved\(\)](#) method

**Code example:** [Event using EventDetector interface](#)

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