YAME

Yet Another Motion Engine



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# Installation

YAME does not require an installation on your PC. Just download the zip folder and unzip it. You can put the resulting folder in a location of your choice on your hard drive. Then run *YAME.exe* from inside that folder. It is important that you keep all the other files in that folder because the software depends on them to be right there in the same folder as the .exe.

You may want to create a link to *YAME.exe* and put it on your desktop or taskbar for easy access if you like.

# Coordinate System

YAME uses a right-handed coordinate system:

X-axis Front

Y-axis Up

Z-axis Right

So whenever you come across a subscript x, y, or z it will indicate the Front, Up and Right directions in the aircraft reference system. We deliberately deviated from the engineering standard for aerial vehicles (in which the Z-axis points downwards!).

Positive accelerations are considered…

Ax Longitudinal Acceleration. The acceleration along the aircraft longitudinal axis. Positive values indicate a forward acceleration, negative values indicate a deceleration or an acceleration towards the rear.

Ay Vertical Acceleration. The acceleration along the aircraft vertical axis. Positive values indicate an upward acceleration, negative values indicate a downward acceleration.

Az Lateral Acceleration. The acceleration along the aircraft lateral axis. Positive values indicate a rightward acceleration, negative values indicate a leftward acceleration.

Rotational orientation is also referenced according to the right-hand-rule in respect to the corresponding axis.

A picture containing logo

Description automatically generated

This means that the positive…

…yaw direction = yaw left

…pitch direction = nose up

…roll direction = roll right

# Child Windows

## General

You can open YAMEs child windows through the header menu in the main window.

## Raw Data Window

This window shows you the values of the raw data as it is being exported by the simulator. If you are in doubt whether the connection to the sim is working, or you want to troubleshoot really anything on the software, the first step is normally to check if the raw data shows up in this window. The values revert to “default values” as soon as there are no new data received for 500ms. Default values are all zeros except vertical acceleration which defaults to 9.81 m/s2.

## Scene View Window

This window shows you a representation of your rig as YAME sees it. Use your mouse to zoom in/out, pan and orbit the view.

The colors of the actuators indicate their status:

Blue: Below minimum length.

White: Between min and max length

Red: Above maximum length

In normal operation you should only ever encounter white actuators, but it might be advisable to configure the rig geometry in such a way that the actuators are a tiny little bit in under-extension (blue) when the rig is in the park position. This makes it easier to confirm at a glance that the rig has indeed reached the park position.

## Serial Connection Window

In this window you can select the type of controller A you want to use. Initially, only two types of controllers are supported:

* Motion4Sim
* Thanos

You can select the COM port B through which YAME communicates with the controllers. If in doubt, you can check Windows’ device manager to find the COM port the controller uses.

## Crash Detection Window

YAME is designed to drive a flight simulator, not a crash simulator! After all, do you really want to find out how it feels to be in a plane crash? Therefore, YAME will stop the motion stream as soon as some key operational parameters are exceeded. This window lets you set these operational parameters.

Ax Longitudinal Acceleration. The acceleration along the aircraft longitudinal axis. Positive values indicate a forward acceleration, negative values indicate a deceleration or an acceleration towards the rear.

Ay Vertical Acceleration. The acceleration along the aircraft vertical axis. Positive values indicate an upward acceleration, negative values indicate a downward acceleration.

Az Lateral Acceleration. The acceleration along the aircraft lateral axis. Positive values indicate a rightward acceleration, negative values indicate a leftward acceleration.

If you are having trouble understanding those accelerations, here’s help for you:

Imagine you put an object on the aircraft glareshield. Now as soon as you apply control inputs this object is subjected to forces that may cause it to slip around.

If you apply thrust, the object wants to slip towards the rear. That was a positive (forward) acceleration.

If you step on the right rudder and the object slips to the left, that indicates a rightward acceleration.

If you pull Gs, the object is being compressed downwards. That was a positive (upwards) acceleration.

