An *open source*,
platform-independent,
flight dynamics model in C++

Aeromatic

version 0.96

This form can be used to create aircraft configuration files for use with the JSBSim Flight Dynamics Model, the default FDM for the FlightGear, Outerra and OpenEaagles (etc.) flight simulators. The configuration file format produced using this utility is version 2.0, and is incompatable with older formats because of an extensive overhaul of JSBSim's XML code that occured in December of 2004.

You will need at least two files for a complete configuration, an *aircraft* file containing information on the aircraft's mass properties, propulsion, flight control, aerodynamic properties, etc., an *engine* file describing the engine(s), and in the case of a propeller-driven aircraft you will need a *prop* file. Aeromatic will generate plausible configuration files for your aircraft using some simplifying assumptions. Note that Aeromatic allows only one type of engine to be defined per aircraft. If you want to mix engine types you'll have to make the necessary changes by hand. Also note that all turbine, turboprop and rocket engines use the default "direct" thruster.

Note: After a configuration file has been generated and is displayed in your browser, you should select (via the menu) "View Source". This is needed because when viewing aircraft configuration files (for instance), some formatting is performed for web browser viewing, but if the file is saved in that format it will not work. The source for the page needs to be viewed, and the file saved with a '.xml' extension.

For more detailed instructions see the **How-to**

Step 1: The Engine configuration ...

This step is not necessary if you are using an already existing engine configuration file. In any case you will have to edit the propulsion section of the aircraft configuration file to ensure that the engine name is the same as the name of the engine configuration file.

Engine Name

ROTAX912ULS

Engine Type

(•) piston ( ) turbine ( ) turboprop ( ) rocket

Engine Power or Thrust (per engine, without afterburning)

100.0

(•) horsepower ( ) kw ( ) pounds ( ) newtons

Augmentation (afterburning) Installed?

( ) yes (•) no

Water Injection Installed?

( ) yes (•) no

You are now ready to have Aeromatic generate your file. Aeromatic will create a file called *engine2.php*, which is your engine configuration file. You will need to save this file with a filename of the form *engine_name.xml*.

Generate

Step 2: The Prop configuration (if applicable)...

Engine Power (per engine)

100.0

(•) horsepower ( ) kw

Maximum Engine RPM

5800

Pitch

(•) fixed ( ) variable

Propeller Diameter

75

( ) feet (•) inches ( ) meters

You are now ready to have Aeromatic generate your file. Aeromatic will create a file called *prop2.php*, which is your propeller configuration file. You will need to save this file with a filename of the form *prop_name.xml*.

Generate

Step 3: The Aircraft configuration ...

Chose a system of measurement

(•) English (feet, pounds) ( ) Metric (meters, kilograms)

Name of aircraft ProMecc-Freccia

Type of aircraft (Select closest *aerodynamic* type)

( ) Glider
(•) Light Single
( ) Light Twin
( ) WWII Fighter (or subsonic racer/aerobatic)
( ) Single-engine Transonic or Supersonic Fighter
( ) Two-engine Transonic or Supersonic Fighter
( ) Two-engine Transonic Transport
( ) Three-engine Transonic Transport
( ) Four+-engine Transonic Transport
( ) Multi-engine Prop Transport

Maximum Takeoff Weight

1041.684

Empty Weight (Enter 0 to use estimated value)

650.364

Length

23.783

Wing span

28.796

Wing chord (Enter 0 to use estimated value)

3.937

Wing area (Enter 0 to use estimated value)

109.038

Wing incidence (Enter 0 to use estimated value)

0

Htail area (Enter 0 to use estimated value)

23.681

Htail arm (Enter 0 to use estimated value)

12.746

Vtail area (Enter 0 to use estimated value)

12.056

Vtail arm (Enter 0 to use estimated value)
12.162

Inertia (xx, yy, zz) (Enter 0 to use estimated value)
0 0 0

Landing Gear Layout
(•) tricycle ( ) taildragger
[ ] castering nose or tail wheel

Is the Landing Gear Retractable?
( ) yes (•) no

Number of Engines
( ) 0 (•) 1 ( ) 2 ( ) 3 ( ) 4 ( ) 5 ( ) 6 ( ) 7 ( ) 8

Engine Type
(•) piston ( ) turbine ( ) turboprop ( ) rocket ( ) electric

Engine Layout
(•) fwd_fuselage ( ) mid_fuselage ( ) aft_fuselage ( ) wings ( ) wings and tail ( ) wings and nose

Yaw Damper Installed? (Almost all jets will need one)
( ) yes (•) no

You are ready to have Aeromatic generate your file. Aeromatic will create a file called *aero2.php* which is your configuration file. Save this file with a suitable filename, such as *spitfireIX.xml*. You will need to edit the propulsion section of this file so that the engine name is the same as the engine configuration file name, and the propeller name (if applicable) is the same as the propeller configuration file name.

Generate

31 Dec 2005 [.]