

Export and Format a XFLR5 Plane for AVL

1. In XFLR5, start in the Wing and Plane Design viewing window. Under “Plane”, go to “Current Plane” and “Export to AVL”.
2. Open the exported file using a text editing application. Change all airfoil names to the following format, where the NACA is above the airfoil’s NACA number. NOTE: A flat airfoil is NACA 0005.

NACA
0014

3. To export the mass file, under “Plane”->“Current Plane” again, go to “Define Inertia”. Then, choose “Export to AVL”.
4. Save both the .avl and .mass files under “def” in the aircraft’s Github folder. For example, the file path for UltraStick120 would be AeroModels/Aircraft/AVL Def/UltraStick120/def
5. Located in the AeroModels/Analysis/AVL Wrapper folder on Github, update one of the MATLAB script files so the variable “configName” is set to the name of the plane. Save this script with a new name in the format script(insert plane name).m
6. Run the script file. Correct AVL file errors.
7. If the error says there must be more than one section for a surface in the avl file, see the following instructions. This error means that XFLR5 did not export a section correctly, so the user will need to type it in.
 - a. In XFLR5, go to “Plane”->“Current Plane”->“Edit... (advanced users)”
 - b. By going through the drop-down arrows, the sections for each wing surface can be found. Use the data in the Sections as well as the data in the Position to write the missing section in the AVL file (follow the format used for the other sections in the exported file, and look at part (c) for assistance). In the AVL file, make sure to write the section under the correct surface data.
 - c. The Section format is as follows (the quoted portions should be replaced by the numbers described).

```
# _____  
SECTION | (keyword)  
  “x position+offset”  “span position”  “z position”  “chord”  “Ainc”  “y-  
panels”  “Sspace”  | Xle Yle Zle  Chord Ainc  [ Nspan Sspace ]
```
8. After these corrections have been implemented, the user should be able to run the MATLAB script successfully. Also, using AVL, they should be able to view the plane geometry.