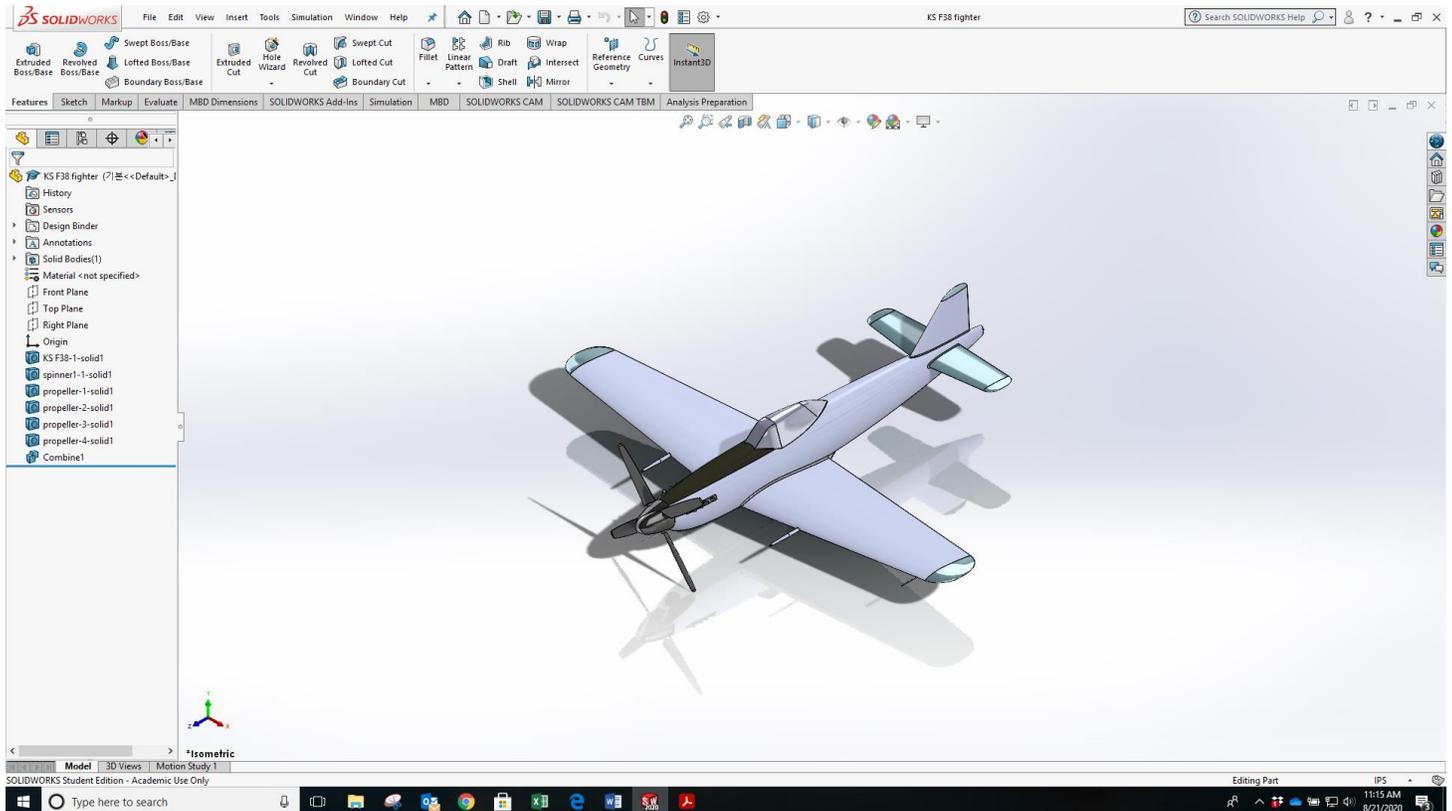


Placing the Origin at the Center of Mass

Difficulty: Intermediate | Time: 5 minutes

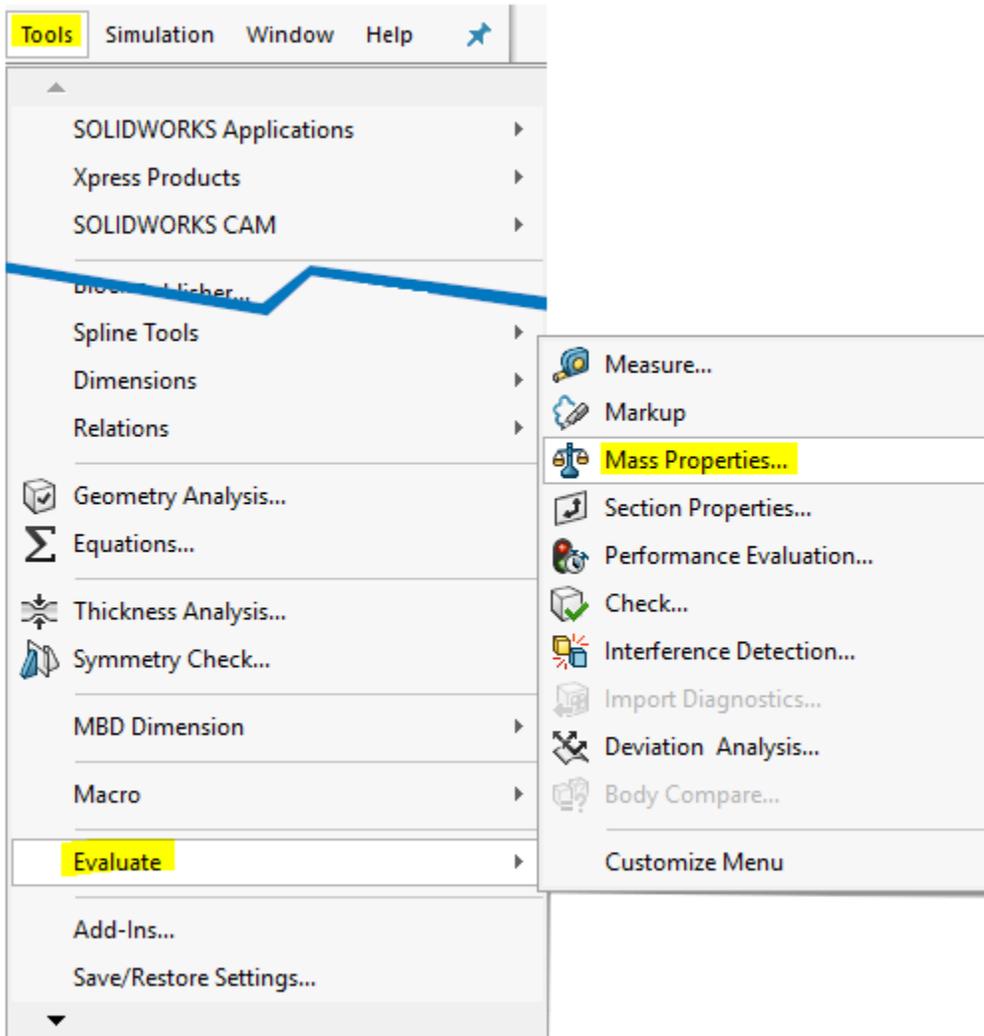
Conducting a proper flow simulation on an aircraft design starts with establishing the Origin at the Center of Gravity for the aircraft. This brief tutorial explains how to do that.



Placing the Origin at the Center of Mass

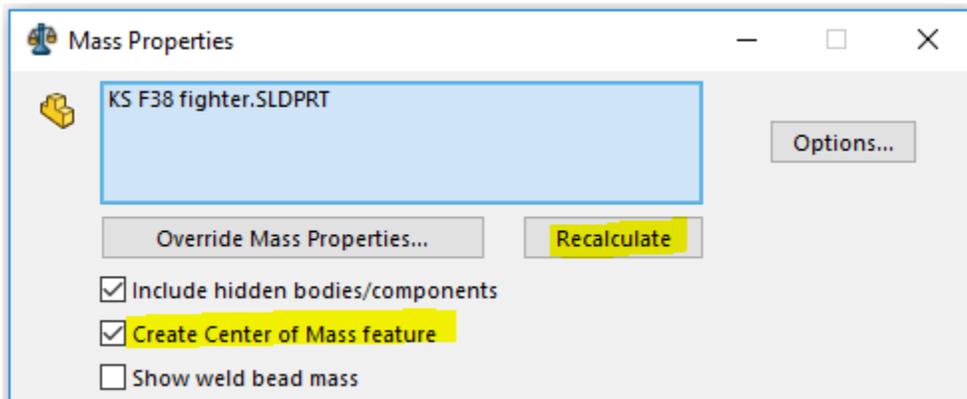
Step 1: Create the Center of Mass Feature

Open the Part model and select Tools / Evaluate / Mass Properties from the menu

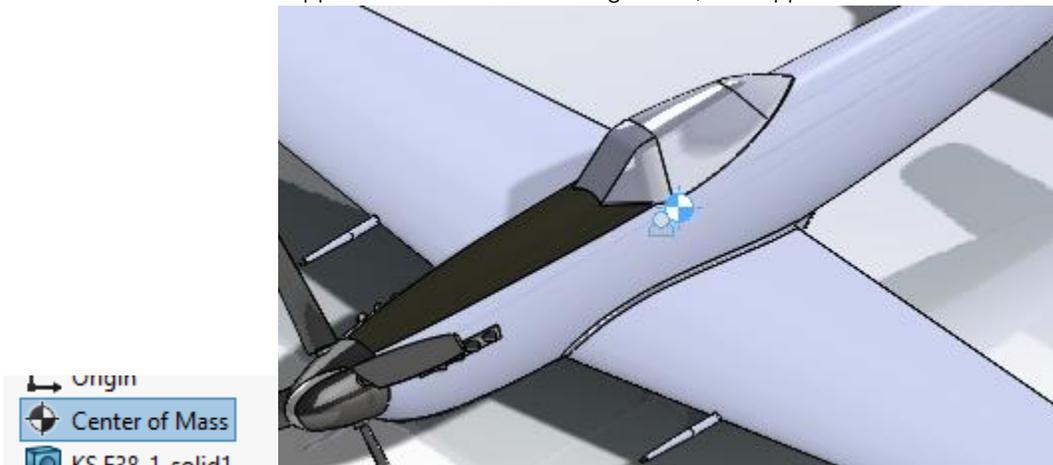


In the Mass Properties window select Create Center of Mass feature, click Recalculate, and close the window.

Placing the Origin at the Center of Mass

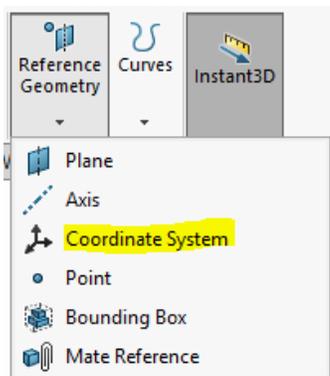


The Center of Mass will appear on the Feature Design Tree, and appear on the aircraft when selected.



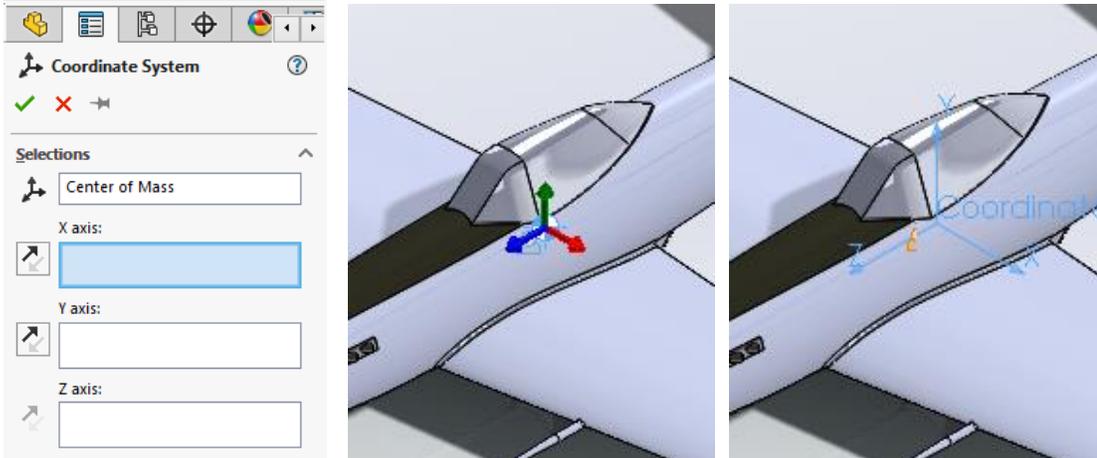
Step 2: Create a coordinate system at the Center of Mass location.

Select the Center of Mass in the Feature Manager Design Tree and click Reference Geometry / Coordinate System in the Features toolbar.



Placing the Origin at the Center of Mass

In the Property Manager, make sure Center of Mass is in the Selections field and click the green check box. This will establish the Center of Mass as a Coordinate System. Save and close this part.

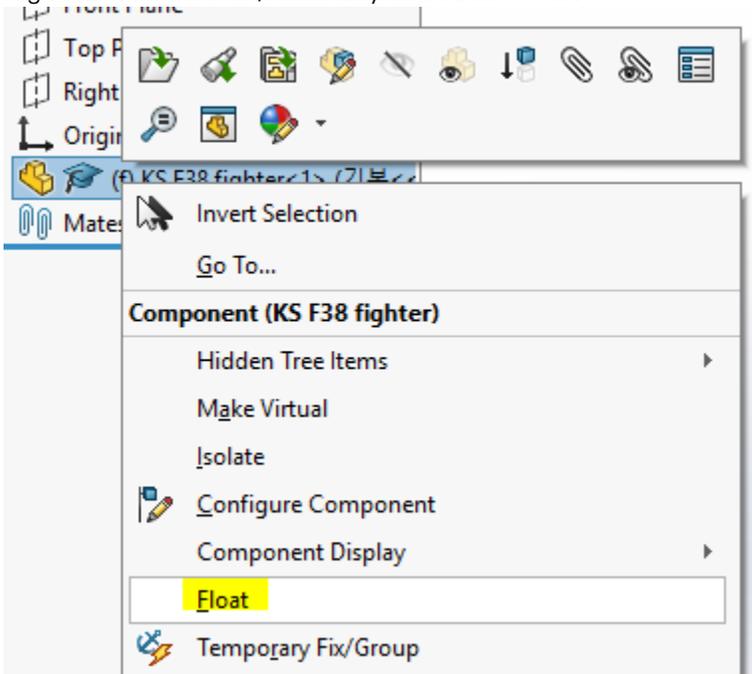


Step 3: Create a new Assembly.

Select File / New, select Assembly and click OK. Then, insert aircraft Part/Assembly into the new assembly. By default it assembles to the default coordinate system. Click the green checkmark to complete the insertion.

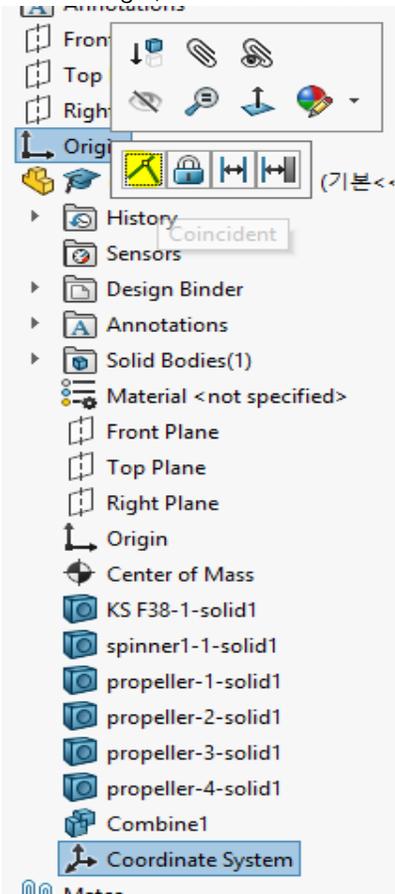
Step 4: Relocate aircraft Part/Assembly to the Center of Mass location.

Right click on the Part/Assembly and select Float.



Placing the Origin at the Center of Mass

Click the arrow next to the Part/Assembly to display the Design Tree elements. Click on the Coordinate System, Ctrl+click on the Origin, and click Coincident Mate.



Right click on the Part/Assembly and select Fix. Now, when you do the Flow Simulation, the forces and moments will be around the Assembly default Origin at the Center of Mass.

