

# CRM meshes for the HLPW-3 generated with ANSA v17.1.0

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# Summary of created meshes for the CRM model

Four meshes were created.

	<b>Coarse gapped flaps</b>	<b>Medium gapped flaps</b>	<b>Medium sealed flaps</b>	<b>Fine gapped flaps</b>
Surface mesh size (millions)	1.8	2.4	2.3	2.8
Volume mesh size (millions)	89	147	143	237
Trailing edge rows of elements	4	6	6	8
Number of Layers	Wing:40 Fuselage:45	Wing:45 Fuselage:57	Wing:45 Fuselage:57	Wing:65 Fuselage:84
Layers growth	1.25	1.16	1.16	1.1
Layers first height (inches)	0.000787	0.000787	0.000787	0.000787

Meshes are in inches.

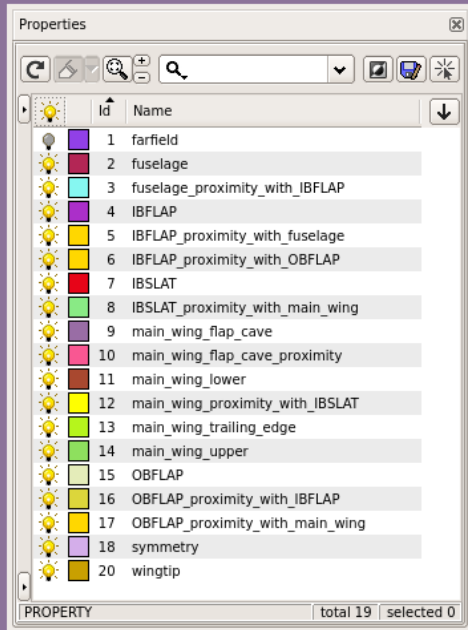
Provided formats are OpenFOAM and CGNS.

CGNS meshes have farfield boundary of hemispherical domain set as wall type and should be changed accordingly for each solver.

# Model separated in 20 areas

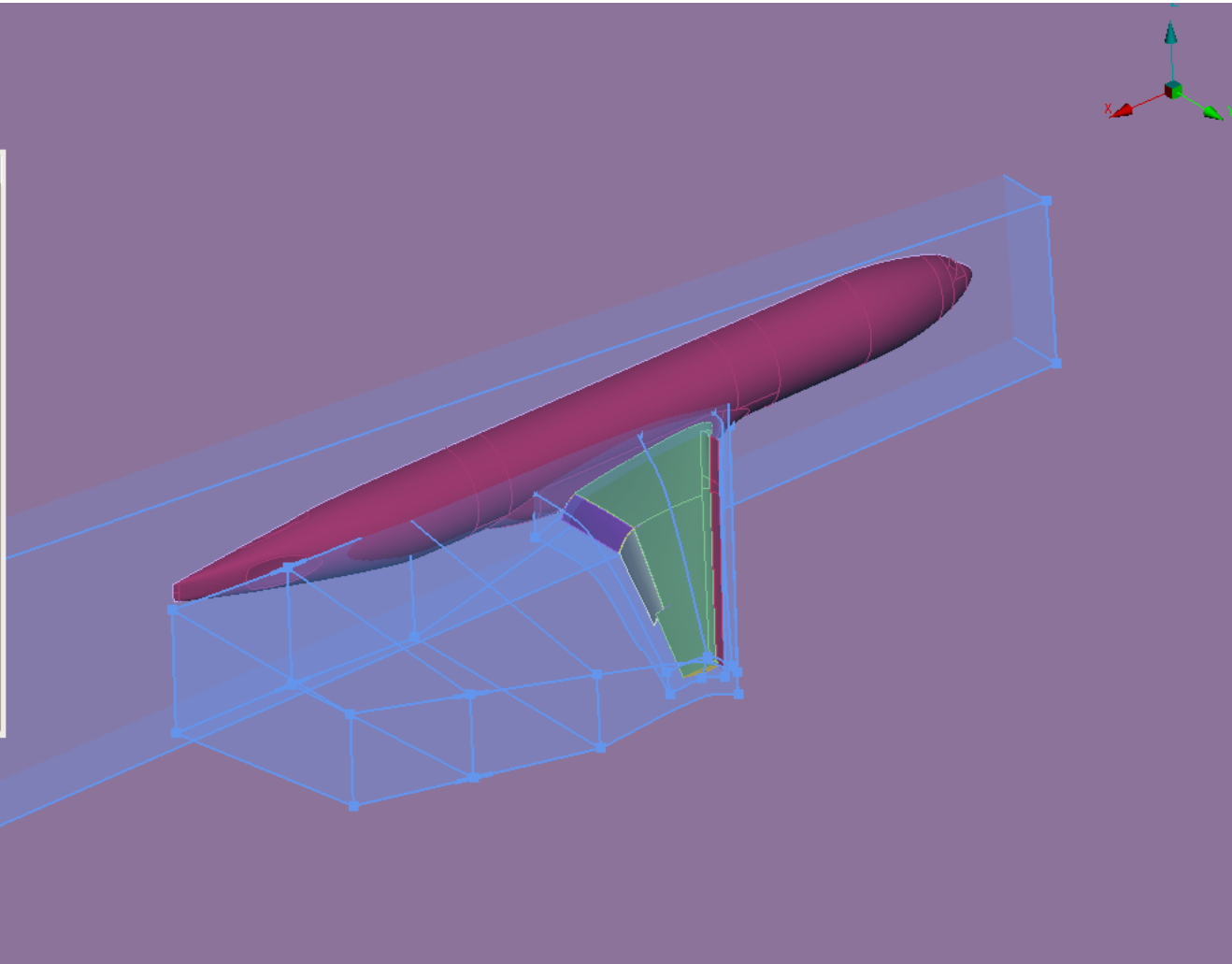
Size Boxes define additional surface and volume refinement zones

Properties

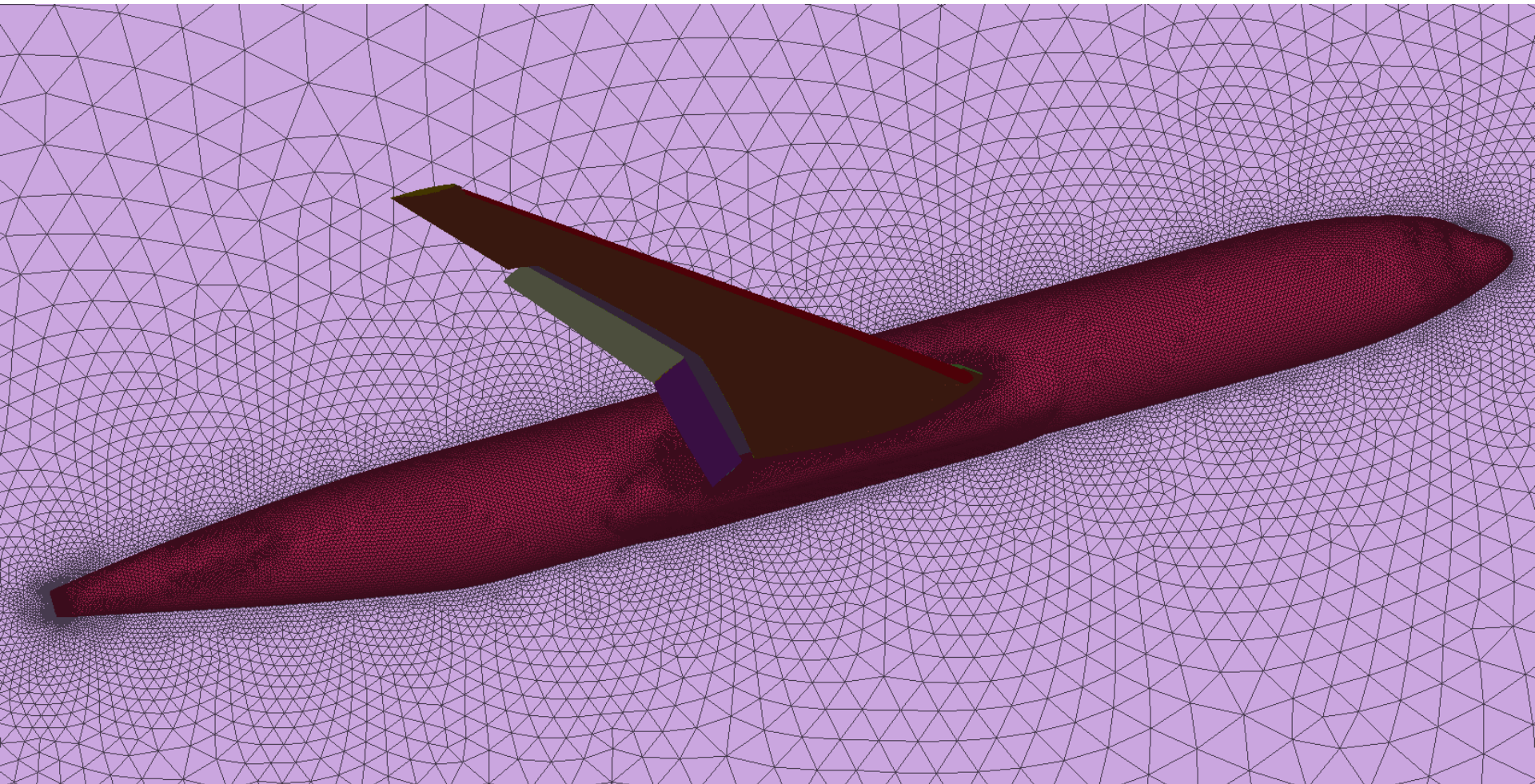


Id	Name
1	farfield
2	fuselage
3	fuselage_proximity_with_IBFLAP
4	IBFLAP
5	IBFLAP_proximity_with_fuselage
6	IBFLAP_proximity_with_OBFLAP
7	IBSLAT
8	IBSLAT_proximity_with_main_wing
9	main_wing_flap_cave
10	main_wing_flap_cave_proximity
11	main_wing_lower
12	main_wing_proximity_with_IBSLAT
13	main_wing_trailing_edge
14	main_wing_upper
15	OBFLAP
16	OBFLAP_proximity_with_IBFLAP
17	OBFLAP_proximity_with_main_wing
18	symmetry
20	wingtip

PROPERTY total 19 | selected 0



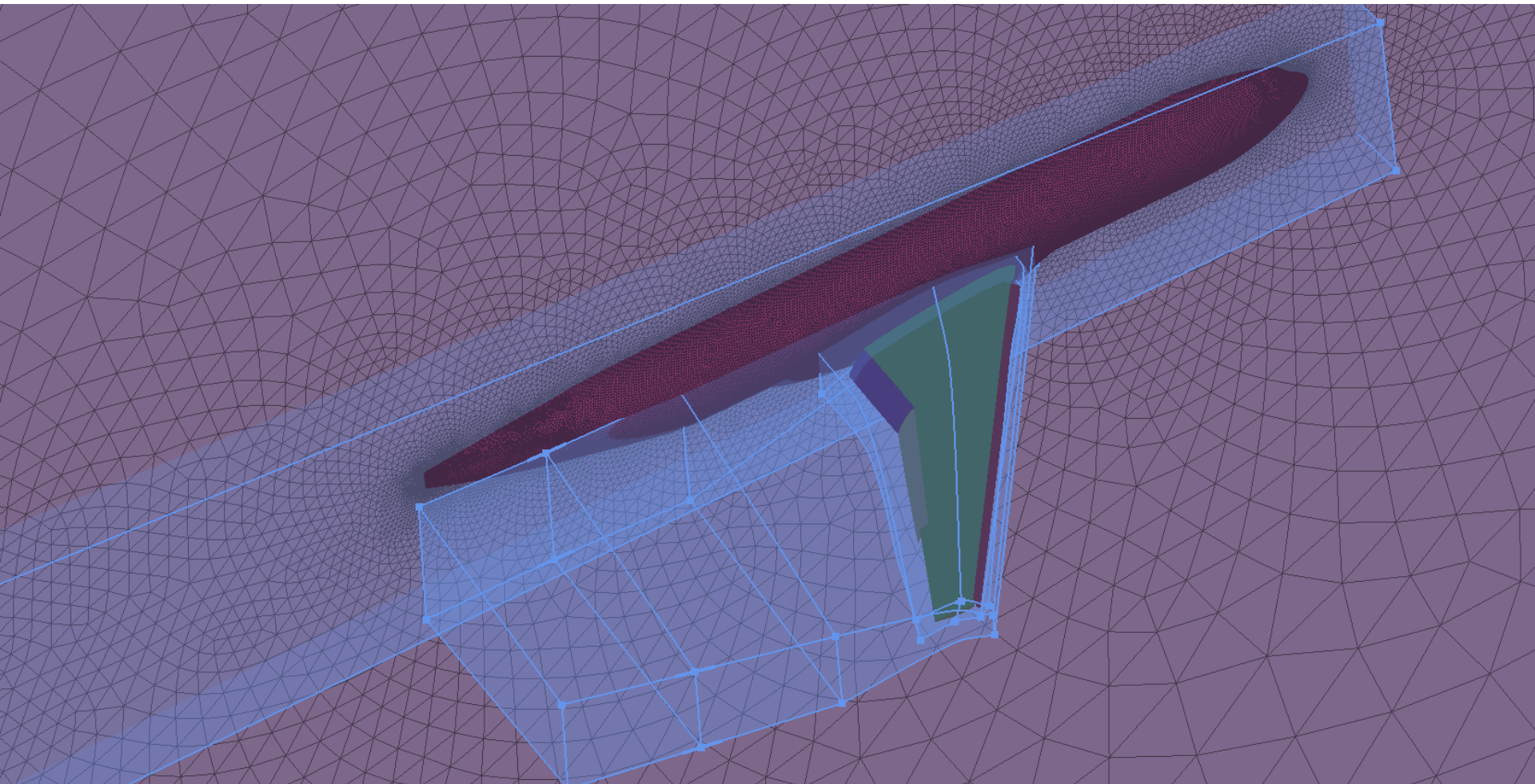
# Overview of surface mesh – 2.4 million elements



middle gapped flaps model

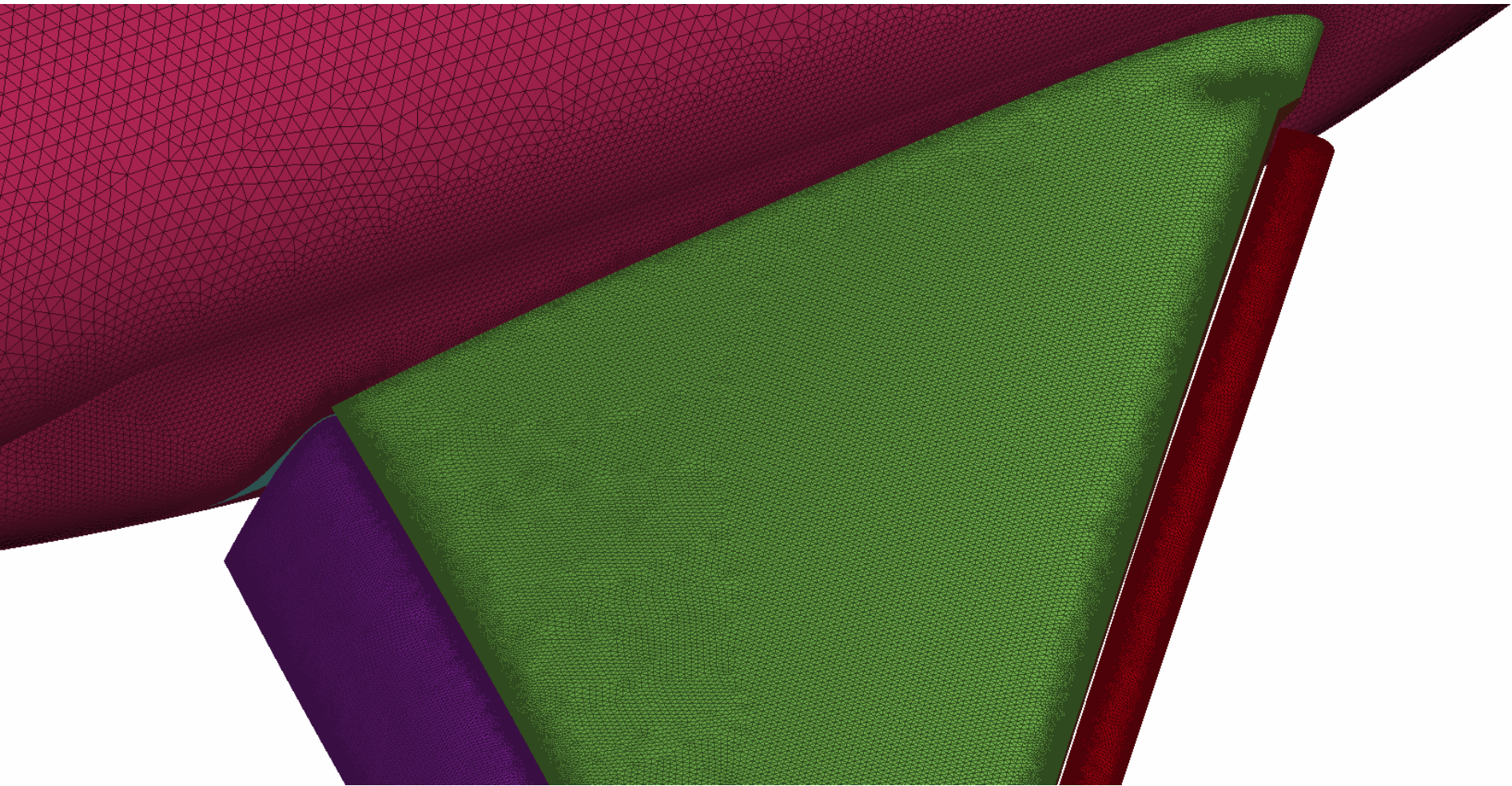


# Size Boxes used for additional refinement of the surface and volume mesh



middle gapped flaps model

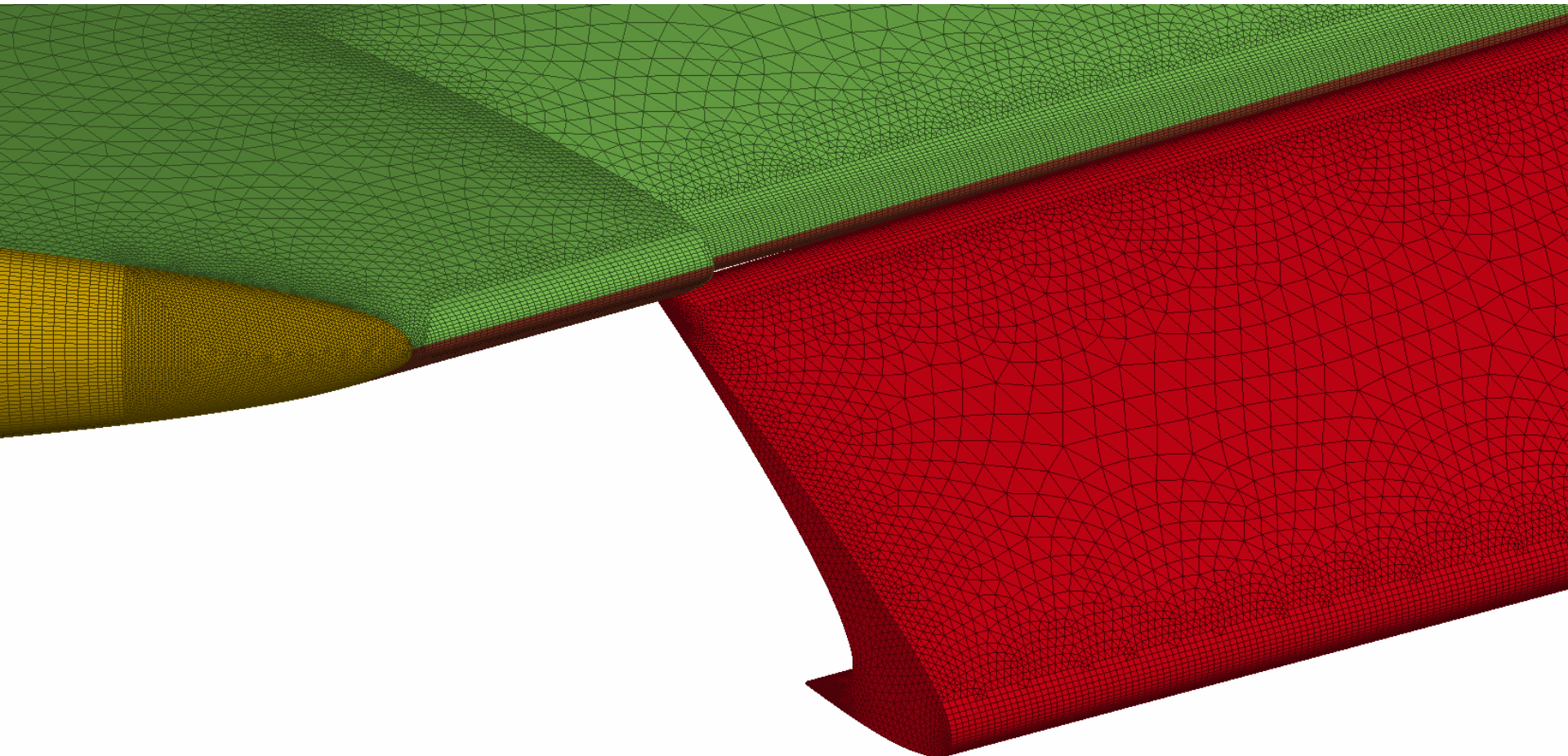
# Close up of upper wing mesh



middle gapped flaps model

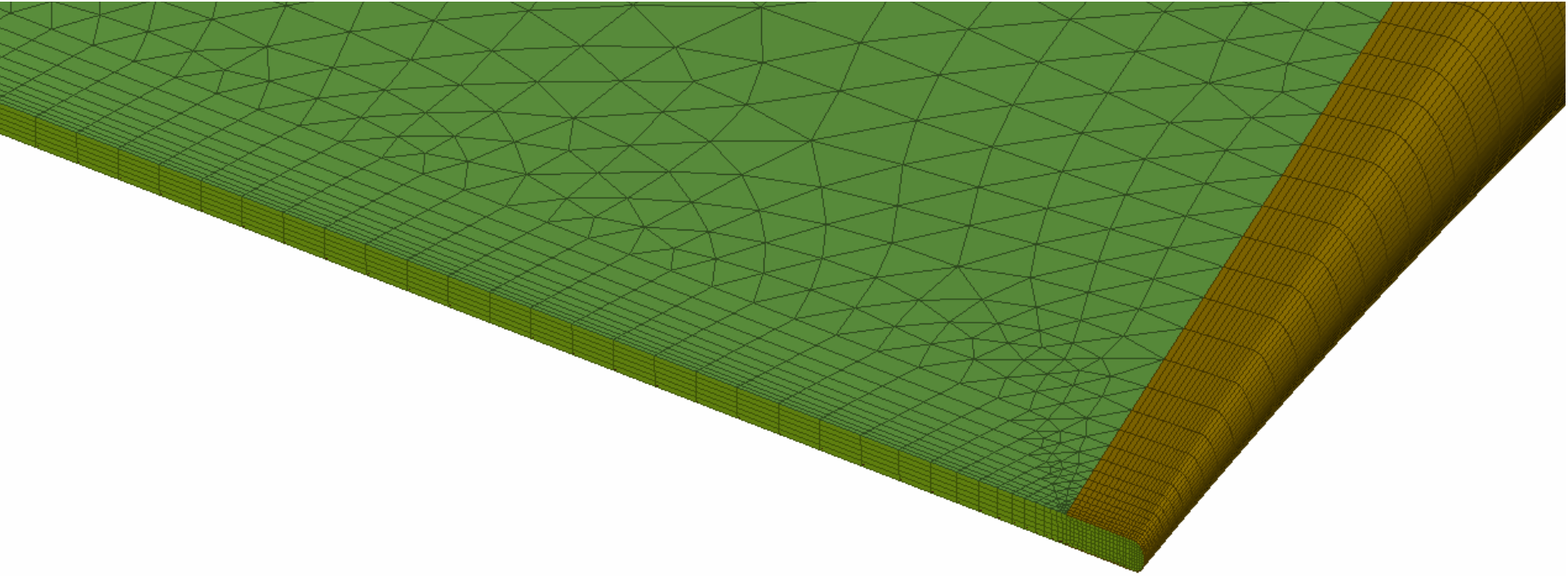


# Anisotropic quad mesh at the leading and trailing edges of wing, slat and flaps



middle gapped flaps model

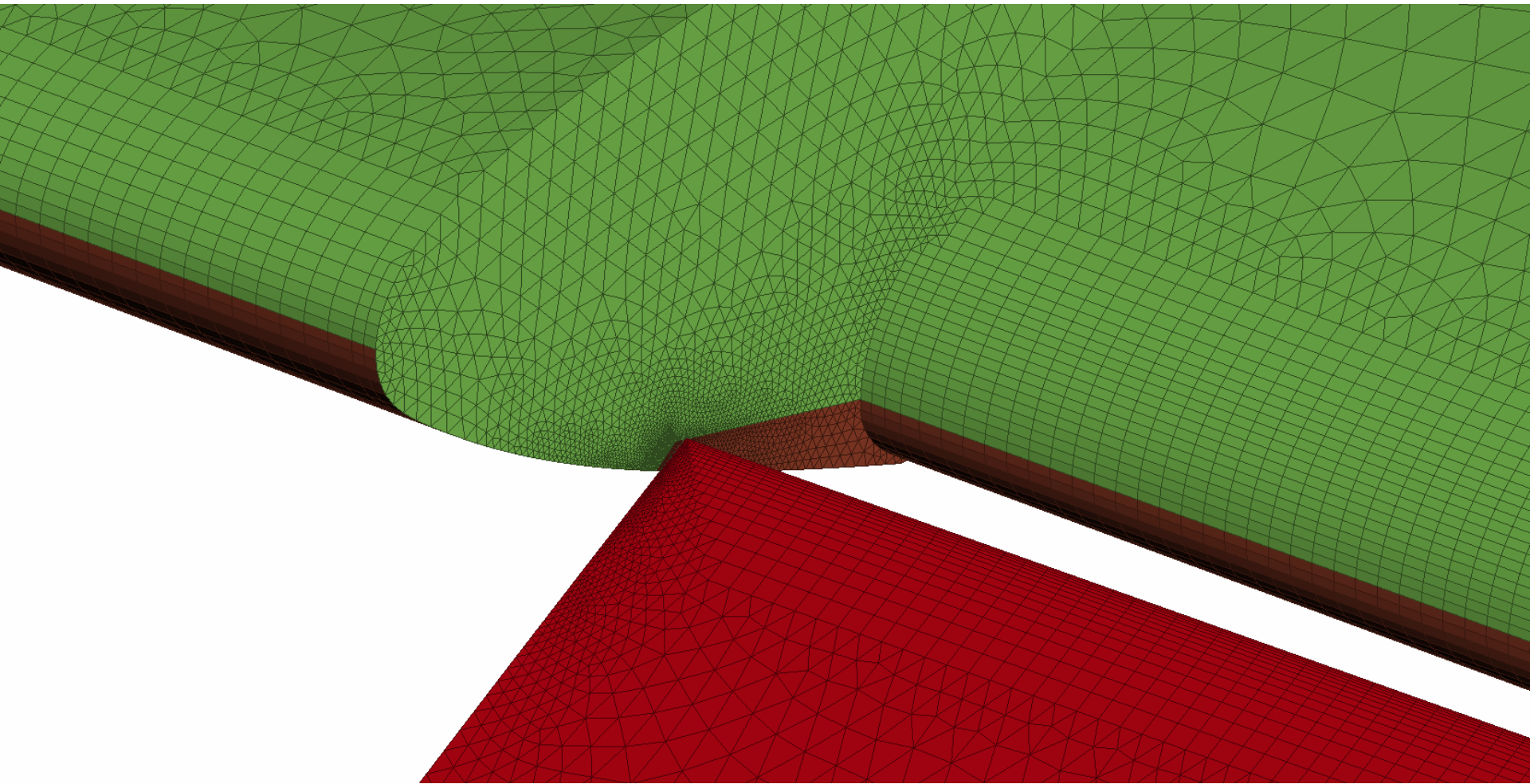
# Mapped quad mesh across the width of the trailing edge and wingtip



middle gapped flaps model

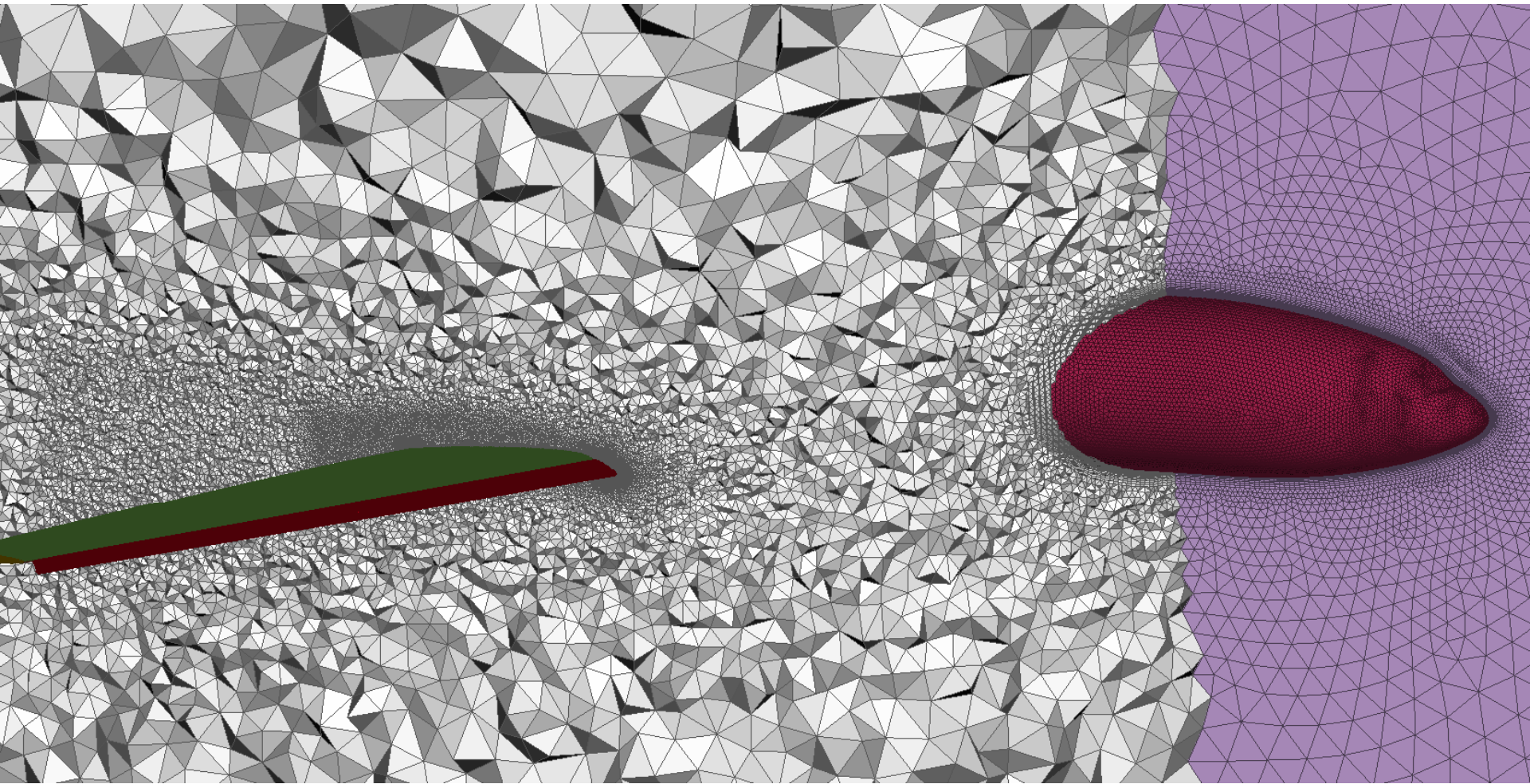


# Close up of slat proximity with the main wing



middle gapped flaps model

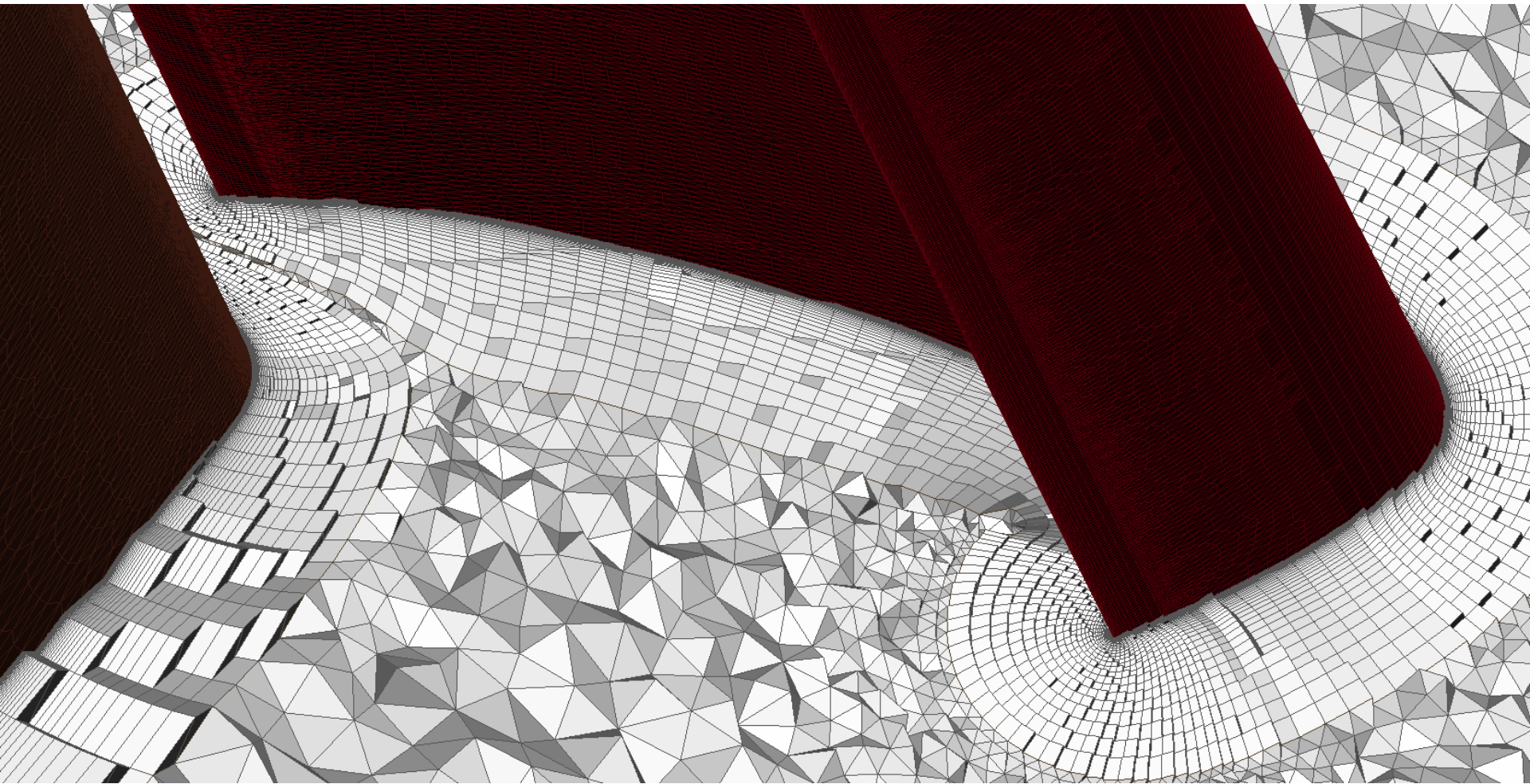
# Overview of volume mesh – 147 million elements



middle gapped flaps model



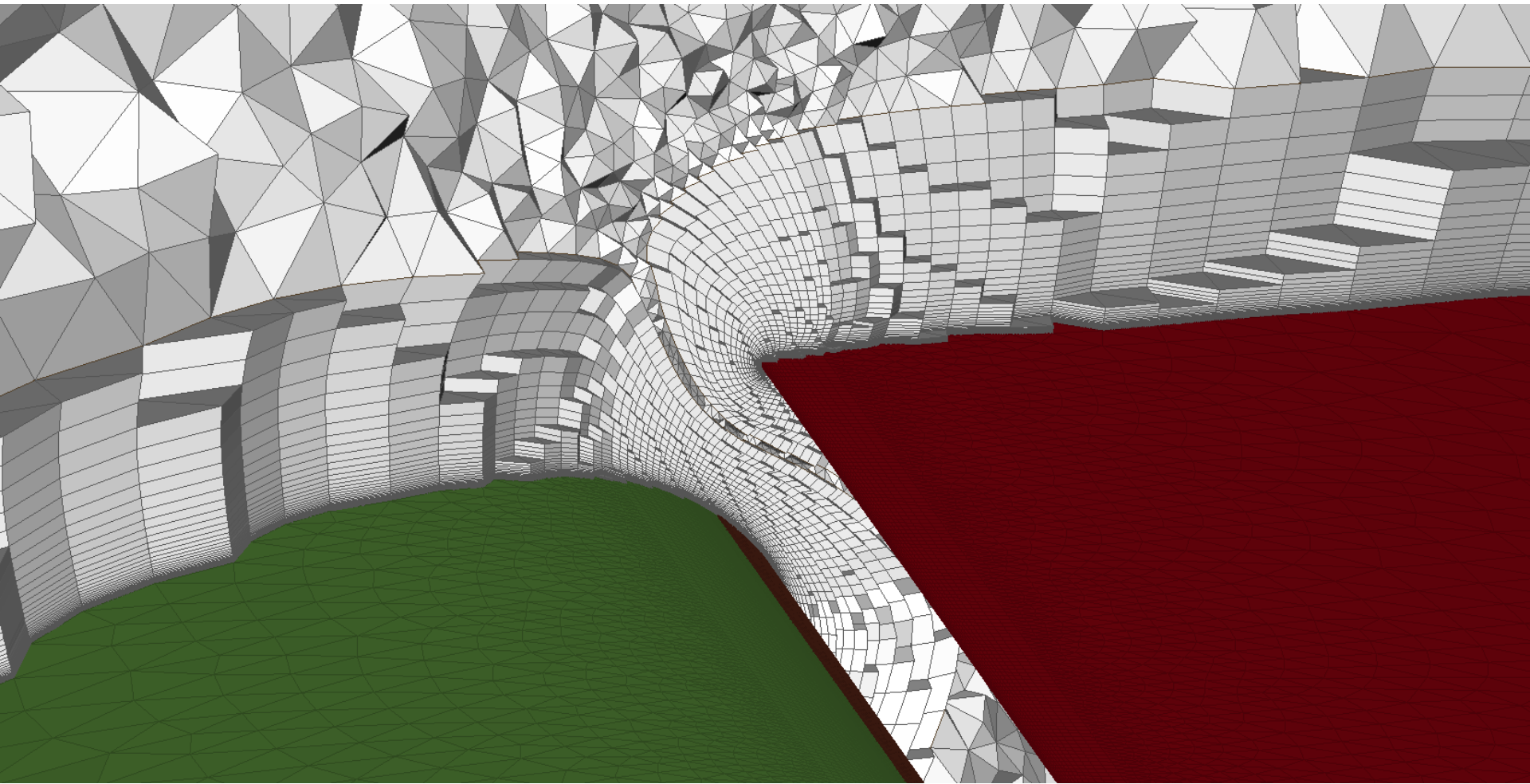
# Close up near slat lower side



middle gapped flaps model

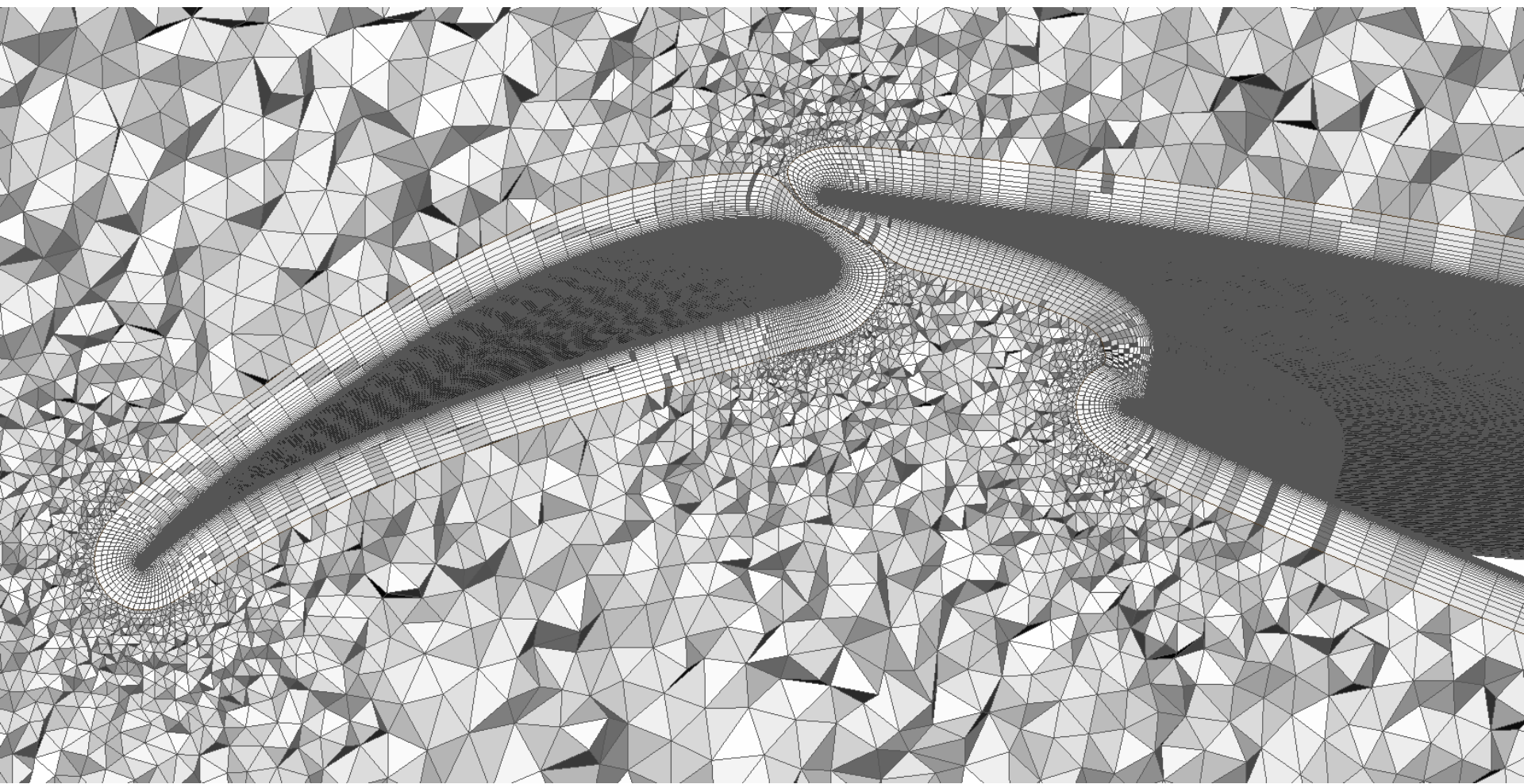


# Close up near main wing and flap gap



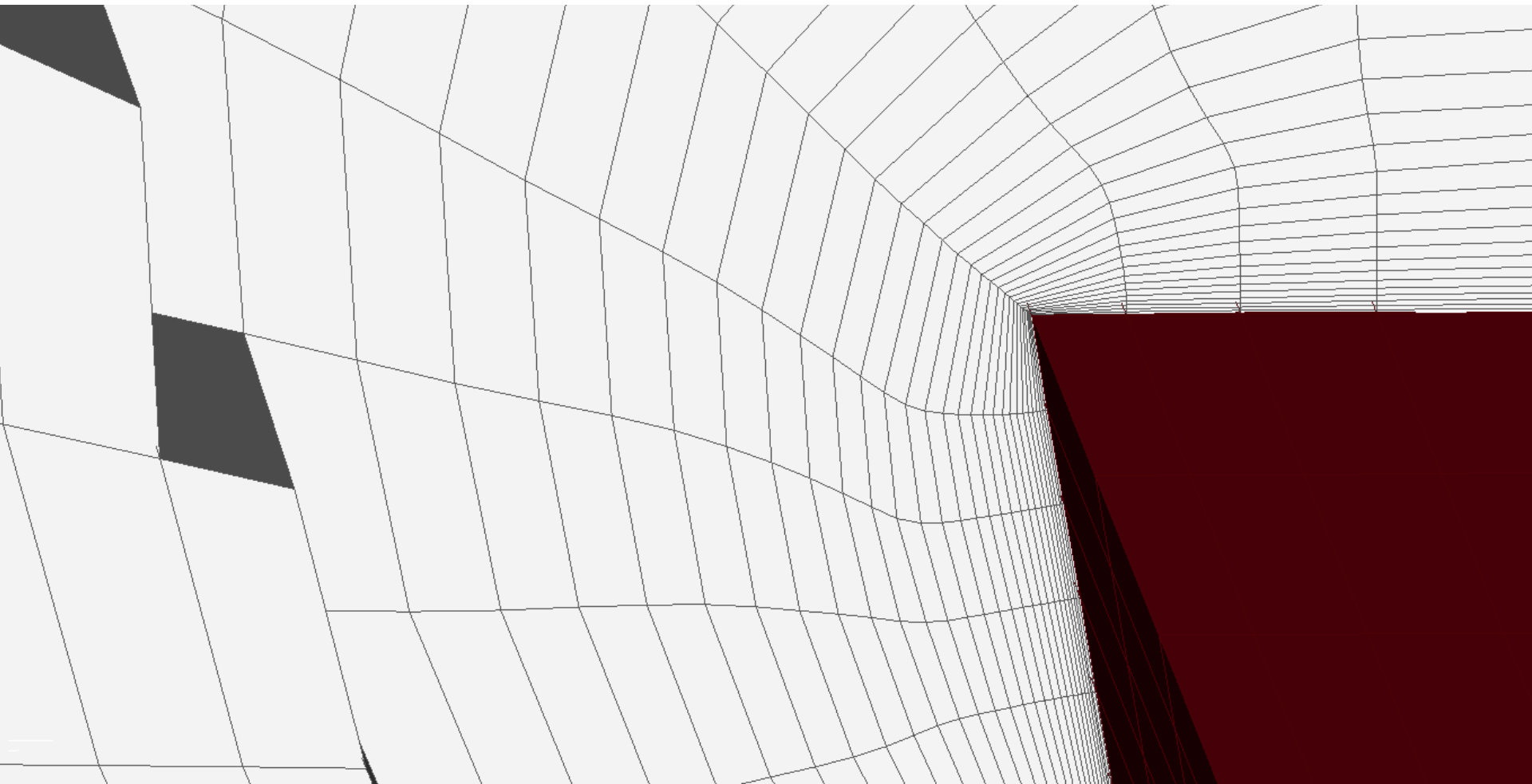
middle gapped flaps model

# Section of the mesh at wing flap gap area



middle gapped flaps model

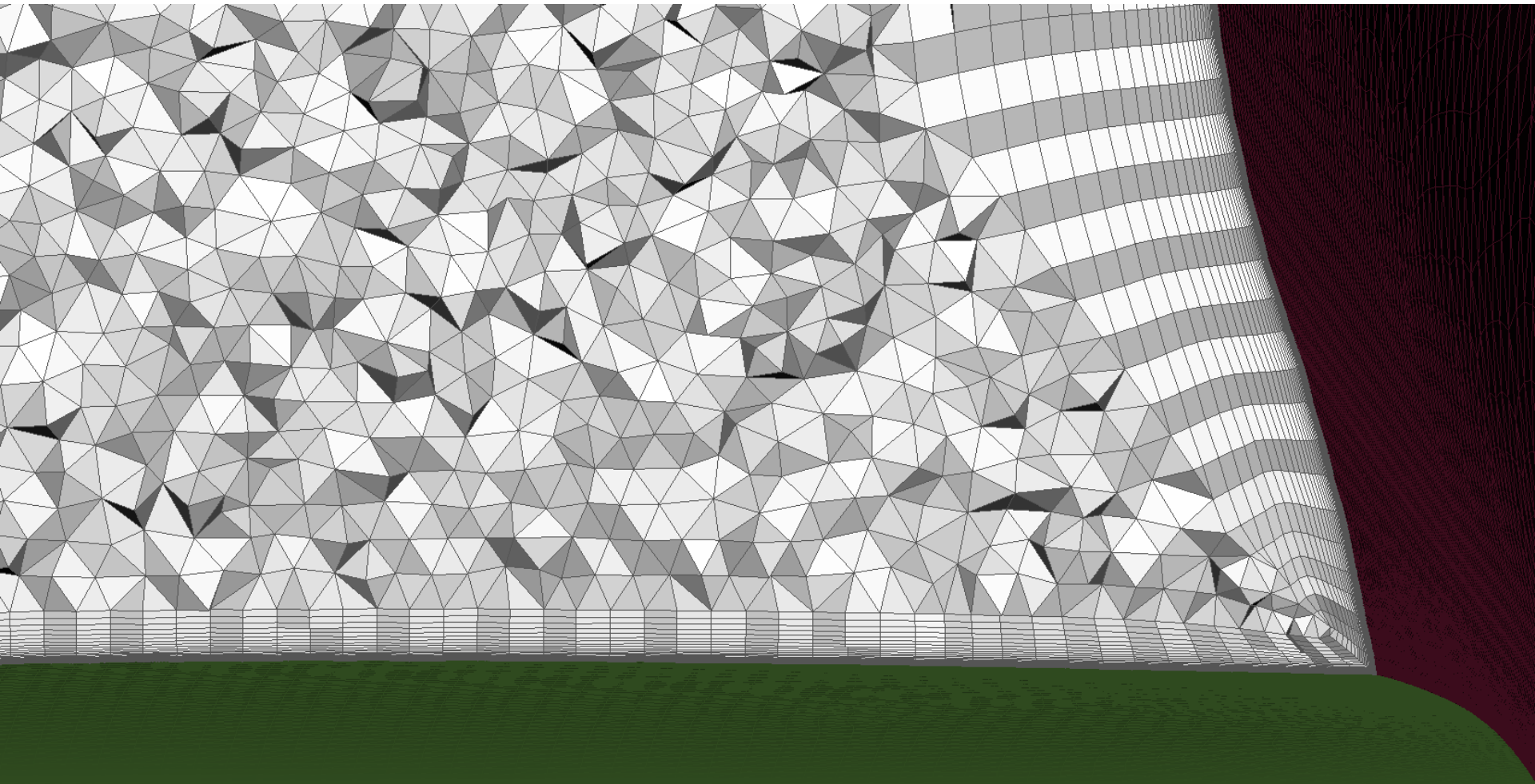
# Imposed orthogonality of layers near the wall



middle gapped flaps model

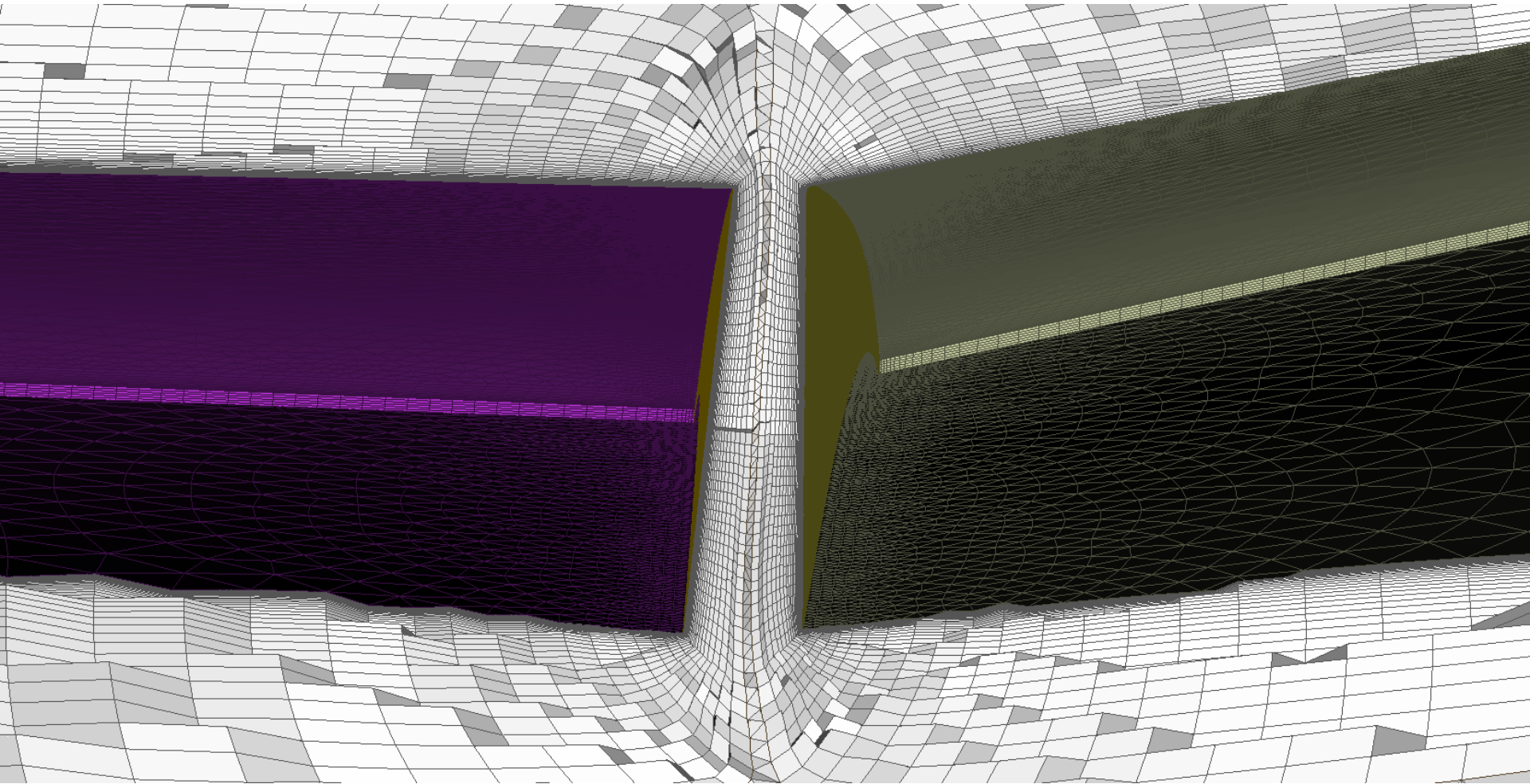


# Different number of layers from fuselage and wing



middle gapped flaps model

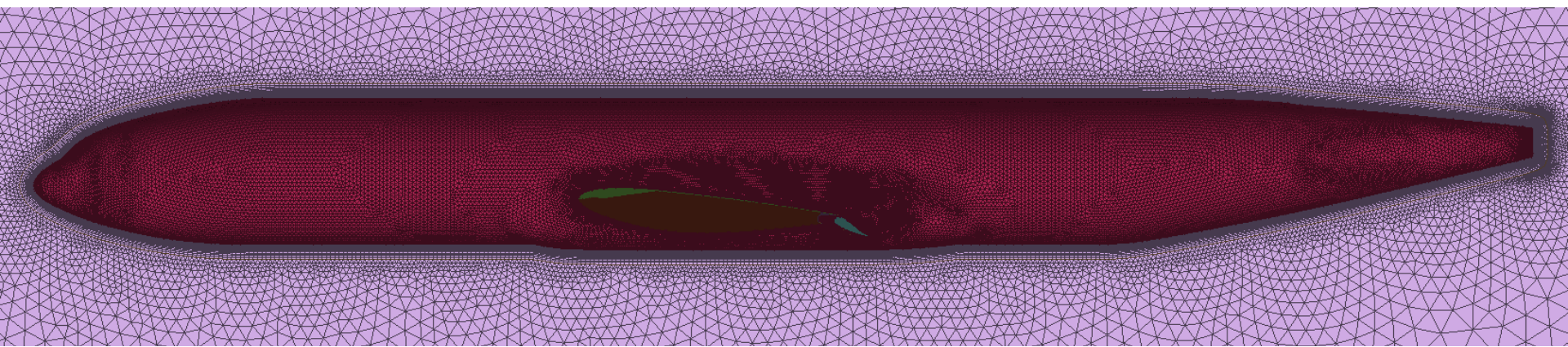
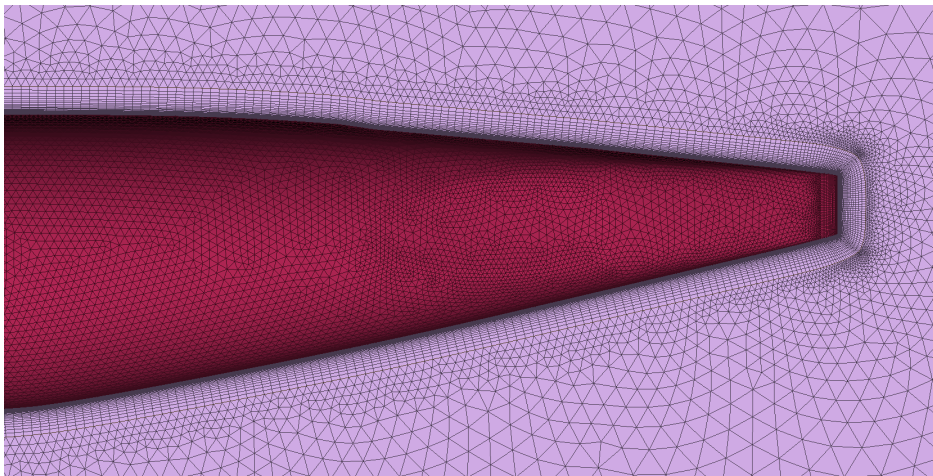
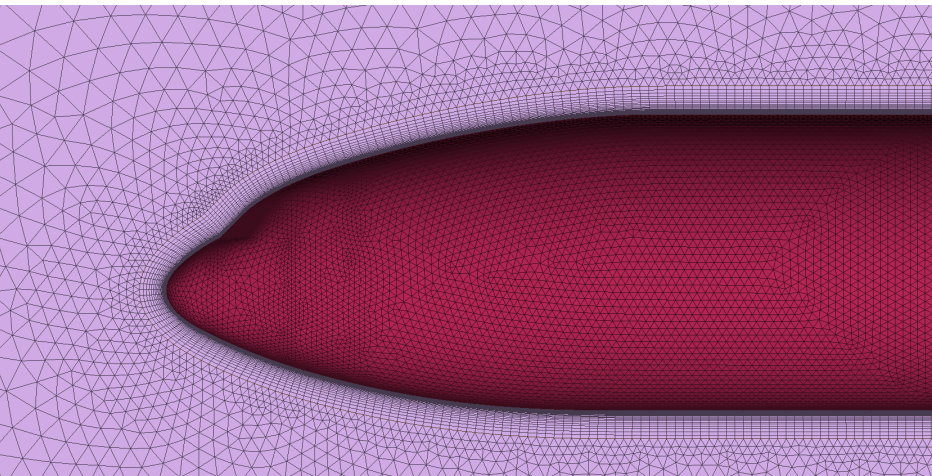
# Layers across the gap of the flaps



middle gapped flaps model



# Imprinted layers around the symmetry plane



middle gapped flaps model



# Thank you

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