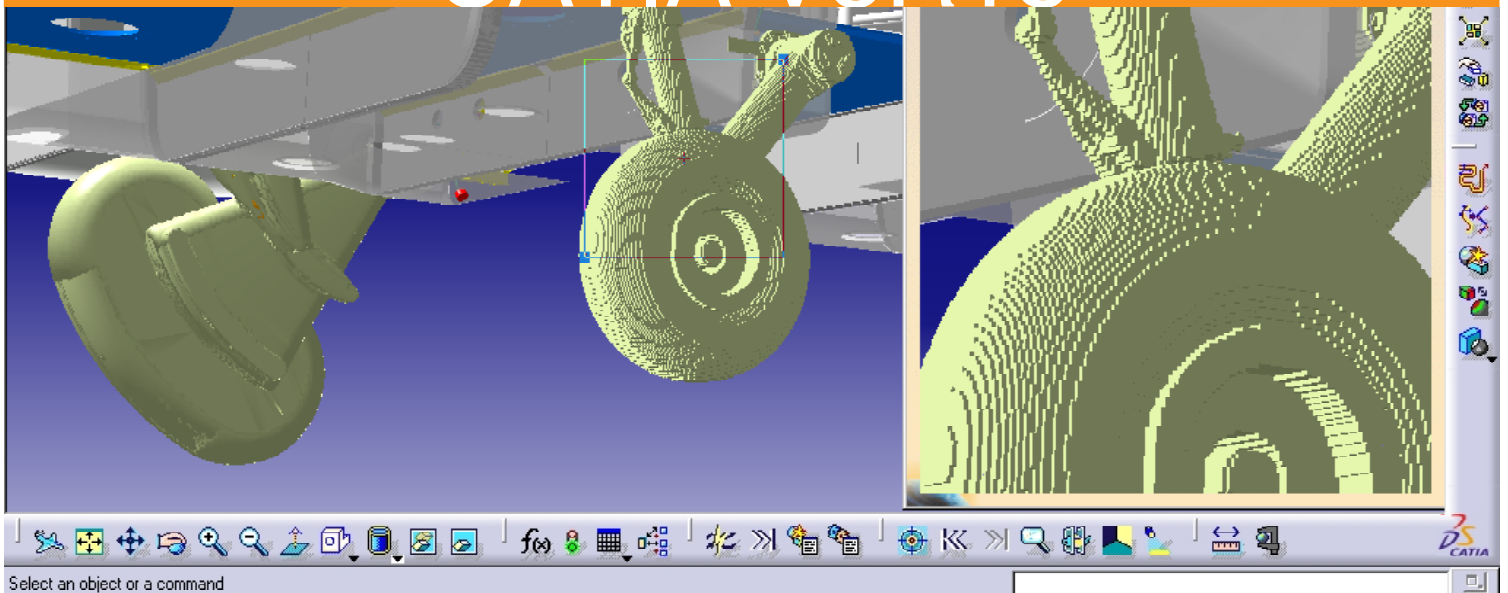


Product Synthesis
DMU Optimizer 2 (DMO)

CATIA V5R18





Product Synthesis

DMU Optimizer

Create alternate representations of products or assemblies for size reduction or geometry creation better adapted to specific contexts

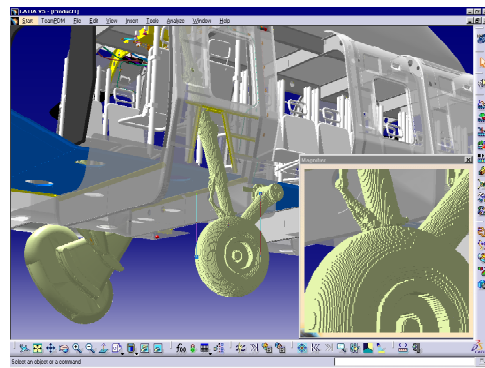
Product overview

DMU Optimizer 2 creates alternate representations of products or assemblies for size reduction or geometry creation better adapted to specific contexts. Thus, the user can create reduced but accurate representations of parts or assemblies by keeping their external representation only. He can generate simplified representations of parts ensuring confidentiality protection when communicating with suppliers. Surfaces can be converted to volumes for realistic DMU analysis. Further design is facilitated by performing space reservation through swept volume or free space calculation. Finally, all generated representations can be managed easily by saving and reusing them for productive DMU review and analysis.

DMU Optimizer 2 (DMO) increases the ability to handle digital mockups of all sizes in industries as various as consumer goods, automotive, aerospace, plant, ship or heavy machinery.

Product Highlights

- ❑ Creates accurate representations of a part (or assembly) while reducing its size by only keeping its external representation (Silhouette)
- ❑ Generates simplified representations of parts ensuring confidentiality protection communicating with suppliers (Wrapping)
- ❑ Generates lighter representations of parts by simplifying mesh to a user-selected level



- accuracy (Mesh Simplification)
- ❑ Optimized digital mock-up management through the combination of Optimizer commands
- ❑ Converts surfaces into volumes for realistic digital mock-up analysis (Thickness)
- ❑ Takes into account security margins by adding an offset value to a selected set of shapes (Offset)
- ❑ Performs space reservation by generating the swept volume of a moving part (Swept Volume)
- ❑ Generating maximum global wrapping envelope of vibrating parts (Vibration Volume)
- ❑ Facilitates further analysis and design in an assembly by visualizing the free space (Free Space)
- ❑ Manages the different representations by saving and reusing them for productive review and analysis

Product Key Customers Benefits

A Light Representation With External Shape Maintained...

The Silhouette function allows users to select a part or an assembly and to compute a representation that only keeps the external facets of the part. The resulting file is significantly smaller than the original, and yet maintains the same accuracy when interacting with other parts. For design review purposes, the outer aspect of the part is identical to the original one.

The user can activate the silhouette when performing design review with the other DMU products and thereby work faster using a lighter part.

Simplified External Representation For Sensitive Data...

The Wrapping function allows users to select a part or a set of parts and wrap it by applying an additional tessellation. This generates a very light external envelope of the selected part (a unique volume-typed solid), for situations where the outer aspect need not be identical to the original one.

Thanks to this functionality, the user can roughly reserve room for a component not completely designed yet. The user can protect confidential information by replacing accurate parts with a simplified representation when sending information to partners. Additionally this feature can be used to drastically reduce the size of an assembly for improved productivity when reviewing a mock-up. The level of tessellation is selectable enabling the user to manage file size against precision of the wrapped representation.

Mesh simplification for light representations

The mesh simplification function allows users to select a part or an assembly and simplify it through an additional tessellation in order to generate a light external envelope of the part or assembly. The resulting envelope is a unique volume. Thanks to this simplification functionality, users can easily manage the file size against the precision of the representation and thus drastically reduce the size of their assemblies. The user can directly access this

command from the silhouette and wrapping command to obtain the lightest part representation desired. By providing instantaneous simplification, it allows to avoid intermediary storage of wrapping or silhouette results. In addition, it provides a powerful help to wrapping in order to obtain an ultra light alternate representation.

Conversion of surfaces into volumes for realistic DMU analysis...

The Thickness function allows the user to create a volume typed representation of a selected surface- typed part. User-controlled offsets are applied on both faces of the original 2D surface. This function is particularly useful in industries where the design is created using surfaces and the user needs volumes to perform real-world analyses such as interference or clash detection or measurements, such as volume or inertia, on the digital mockup.

Offset Addition To a Selected Set of Shapes...

This Offset function allows the user to add an offset to a selected set of shapes in order to add a security margin around them. Users can define the offset values separately on 3 axes allowing a good offset volume result, and change them manually or automatically.

Swept Volume Generation of a Moving Part for Space Reservation...

DMU Optimizer 2 generates the swept volume of a moving part using a simulation defined by the user. This function allows the user to perform space reservation early in the process of assembly design. The number of pre-defined positions stored in the simulation can be reduced according to a controlled decrease of the final computation accuracy. This leads to a quicker computation and a lighter swept volume.

Vibration volume for accurate space reservation and collision detection

The vibration volume command generates the dynamic envelope surrounding the different positions engendered by the

vibration of a part or a group of parts to ensure accurate space reservation and collision detection

Visualization of the free space in the assembly...

The Free Space function allows visualizing the free space, represented by a solid, in the assembly to facilitate further design and analysis.

Management of the different representations for productive DMU review and analysis...

The generated shapes can be saved as a cgr file or a CATIA V4 model. They can also be saved in ENOVIAVPM or exported as VRML files. The resulting file can be automatically associated to the original shape in the Product structure. Depending on his needs, the user can perform usual DMU review and analysis, either on the original shape or on one of its computed representations. The settings of DMU representations management are provided for administrator and users.

ABOUT CATIA V5R18

CATIA is Dassault Systemes' PLM solution for digital product definition and simulation.

plm.3ds.com/CATIA

