3D Juump Ace User Manual

Introduction

1 - Reading guidelines

In order to point out the changes since the previous version, green and red spots have been added:

Green spots ● indicate New information.

Red spots ● indicate an Update has been operated on informaion formerly provided.

`The words in blue and italics leters refers to a 3DJuump Ace technical terminology.

The highlighted words in blue are a hyperlink to another chapter in the usermanual e.g.: License settings

2 - Scope

3D Juump Ace is a tool specialised in 3D content harnessing.

It allows to easily create, from 3D CAD data, 2D and 3D illustrations (technical documentation, sales support, non-exhaustively) and to perform 3D exports handling with instances metadata.

Easy-to-use, 3D Juump Ace offers to 3D lay people a software solution to create content from a digital mock-up directly on their own computer.

Illustration tools enable all users to value and promote their presentations (measure, transformation, cut plane, among other).

3 - Installation

3.1 - Host requirements ●

Minimum configuration requirements to install and run 3D Juump Ace are:

- **OS**: Windows 7, 8, 8.1 or 10 / 64-bit
- **Processor**: 1.2GHz Dual Core
- **Memory**: 2GB RAM
- **Hard drive**: 1GB
- **Keyboard** and **mouse** for a full use

An administrator account is mandatory to install 3D Juump Ace. Please note that the administrator account is only required upon installation. Once installed, 3D Juump Ace can be started from any regular account of the host computer.

3.2 - Installation process

To install 3D Juump Ace:

- Double click on the installer (requires administrator privileges):
  - *3DJuump Ace X64-setup-admin-2.x.xxx.exe* for the 64-bit version
- Validate the license agreement
- If required, change the installation folder
- Then, if needed, modify the program folder in the start menu and choose if you want to create a shortcut on the desktop
- Click on the *Install* button to start the installation

The installer will deploy 3D Juump Ace application, plus any dependencies (including *Visual C++ Redistributable*).

Note: an alternative installer is also available for standard users lacking administrator privileges. This installer does not deploy any _Redistributable_hence it is only usable on computers already equipped with both of the following:

- Visual C++ Redistributable 2015 x64
- Visual C++ Redistributable 2010 x64

3.3 - License installer

The **License installer** window pops-up upon first connexion; it reflects license information mandatory to access 3D Juump Ace.
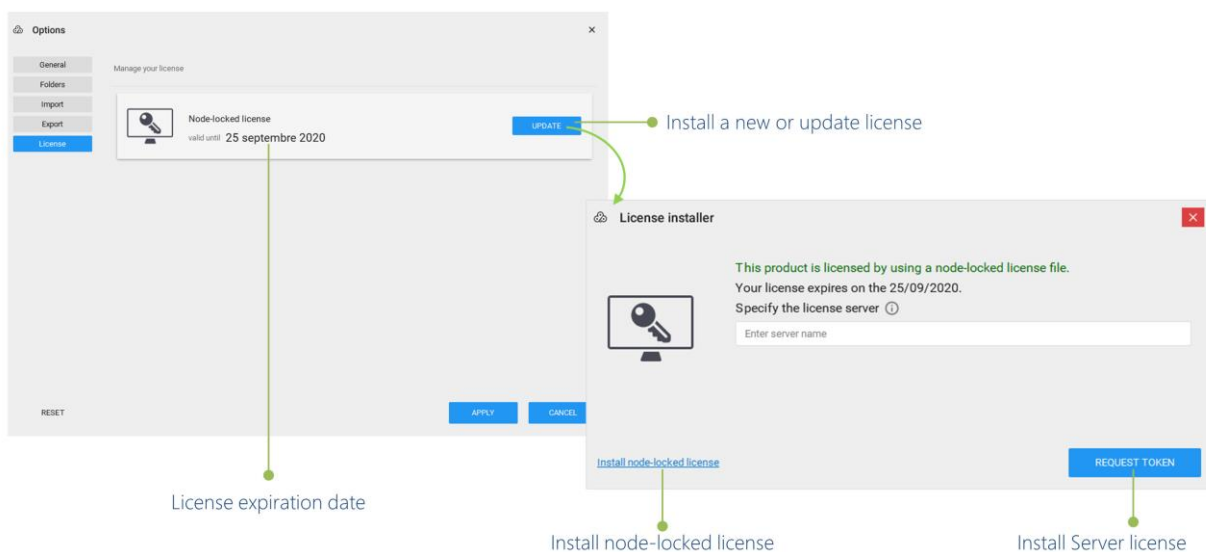
Node-locked license or Server license

To connect to 3D Juump Ace, 2 options are available, renewable and modifiable in the License settings: - Node-locked license - Server license.

3.3.1 - Node-locked license

On a regular basis, 3D Juump Ace is operated under a Node-locked license.

License locked by the node: License linked to the local computer giving access to the software

Node-locked license

Procedure:

- **Generate a license request file** for this machine: This option saves the computer's hardware ID to a TXT file. This file is required to obtain a new license file.

- **Send it to us**: Please contact us to get a license, our email address is available on the invoice you received when you paid.

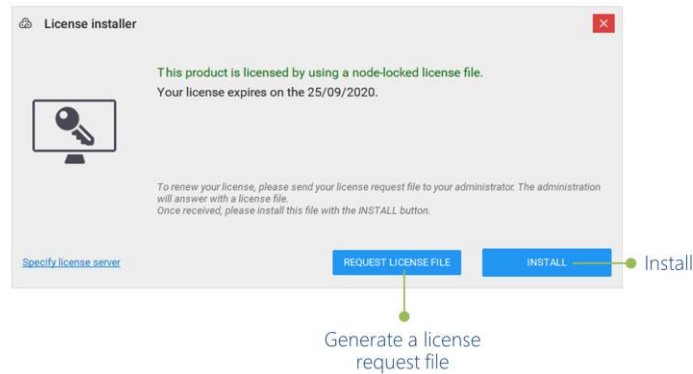- **Install the license unlock file**: This option enables a new license file for this computer. The license file to download is the one we provide you with after your request.

3.3.2 - Server license

3D Juump Ace licenses can also be operated on a server basis.

Server license: License for which access to the software is granted through tokens, limited in time; the link there displayed pops a window up, enabling to *specify license address*.
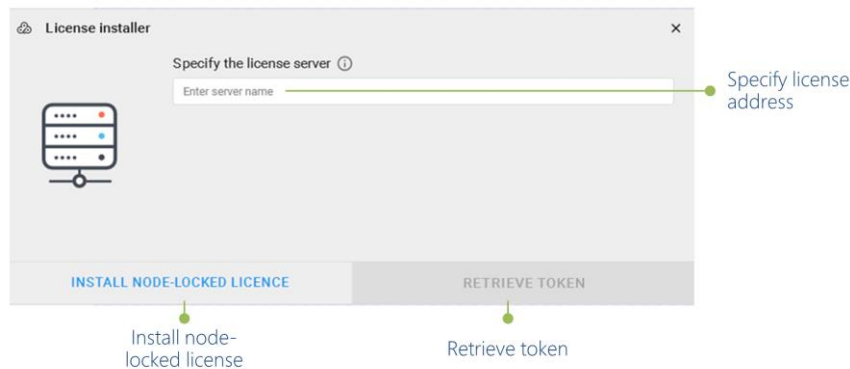
License for server use

Specify license address: Enable to validate server license address, provided by your administrator. To do so, enter the name of the server running the Network license manager. Use port@servername to specify a port (eg.: 9200@LICENSE-SERVER).

Install node-locked license: Revert to previous page, please refer to Node-locked license

Retrieve token: Validate token request

3.4 - License settings

The **license settings** panel gives access to the license request (including renewal and token borrow) and to the current licensing information. It is accessible from the button Options, as covered in the chapter Program settings.
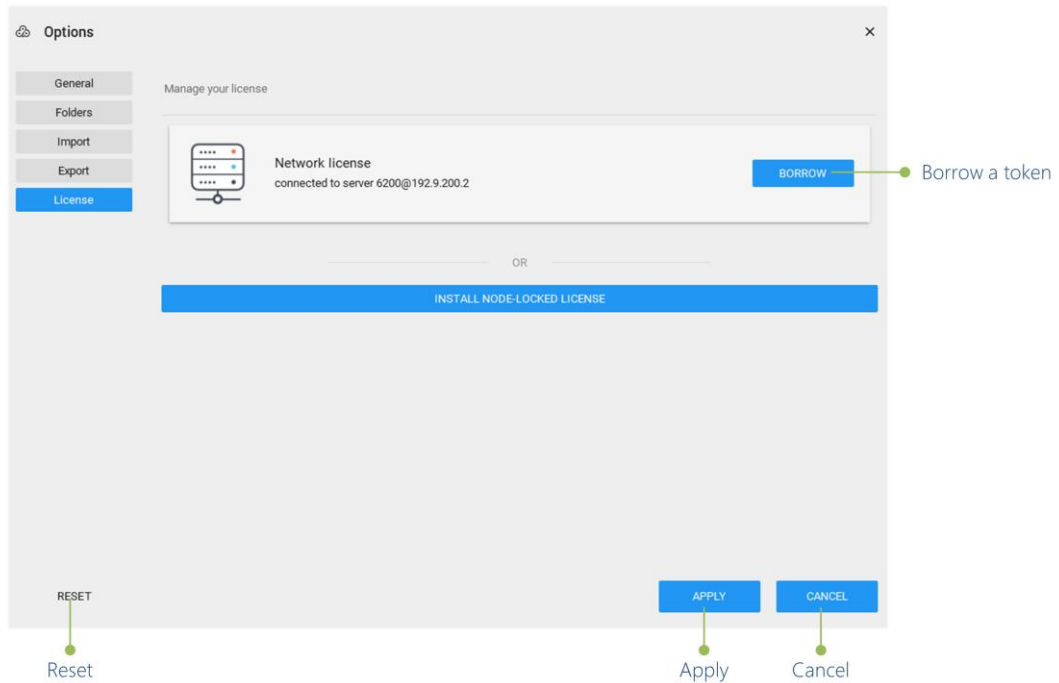
License settings panel

Borrow a token: Tool enabling to borrow a token for a defined period of time

Reset: Revert settings to the ones supplied originally

Apply: Validate settings modifications operated since last application

Cancel: Cancel settings modifications operated since last application
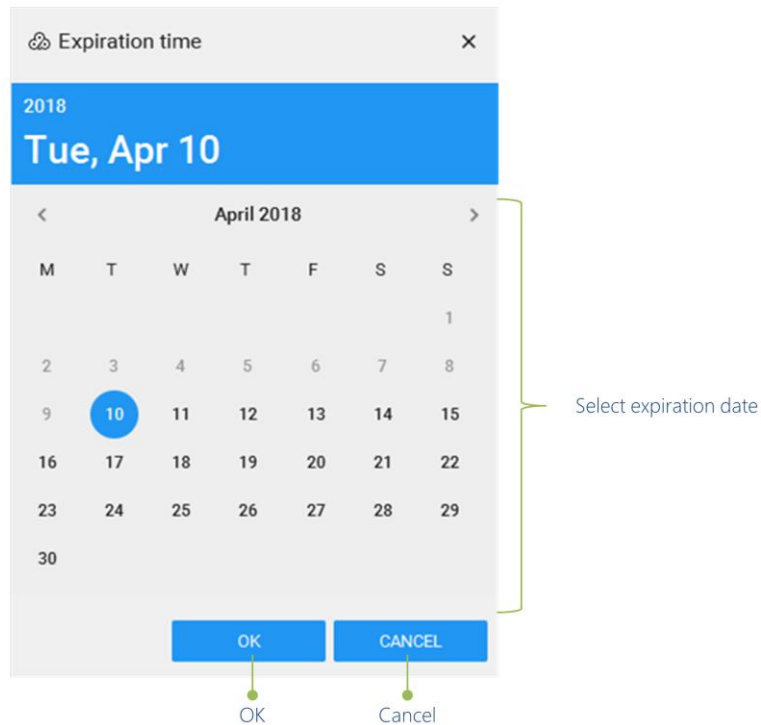
Borrow a token - expiration time

Select expiration date: Define the date until when the token is going to be used/borrowed

OK: Validate settings modifications operated since last application

Cancel: Cancel settings modifications operated since last application
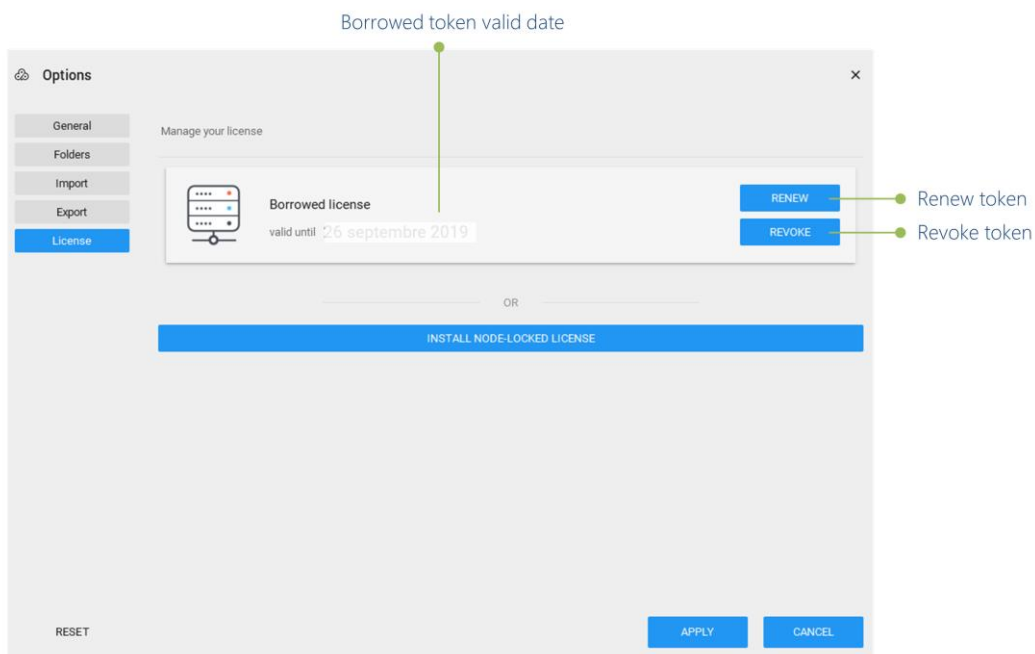
Token information and renewal

Borrowed token valid date: Date until when the currently borrowed token is valid

Renew token: Tool enabling to request for a new token / to renew your token

Revoke token: Tool enabling to revoke your token
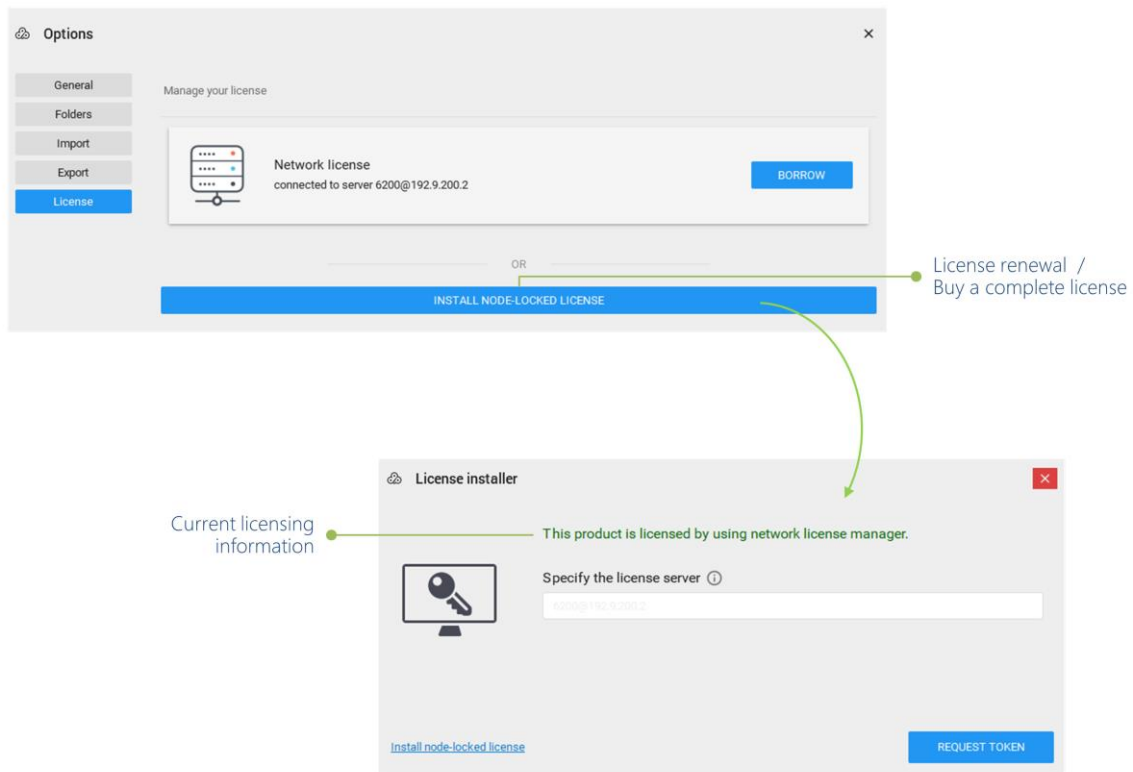
License information and renewal

License renewal / Buy a complete license: Tool enabling the user to buy a complete license or renew a license

This tool pops License installer window up. Please refer to this chapter for further information.

Current licensing information: Display information regarding the license currently running and its remaining time

3.5 - Renderer management

3D Juump Ace can run on a broad range of CPU, from a mobile to a high-end x86-64 Central Processing Unit (CPU). The CPU power required for an optimal experience of the software depends on the complexity of the visualized 3D content and the availability of a Graphics Processing Unit (GPU). Thanks to an optional Software rendering mode, a GPU is not mandatory to run 3D Juump Ace. However, this mode causes intensive computations to be performed on the CPU, which may slow the system down on low-to-mid range configurations.

In the **Display** settings panel, accessible from the button Options, as covered in the chapter Program settings, the user can manage the renderer parameters to be applied, whether a Hardware or a Software renderer is preferred.

The different settings between the Hardware accelerated (GPU) and Software rendering modes are developed in Section Display settings.

3.5.1 - Hardware renderer

In Hardware rendering mode, 3D Juump Ace benefits from the help of the computer's GPU. This is the preferred rendering mode for computer equipped with a GPU installed with an OpenGL 3.0 and above driver. Any NVIDIA GeForce 8 and above, AMD Radeon 4xxx and above or Intel HD4000 and above may fit.

3.5.2 - Software renderer

In case the computer is not equipped with a compatible GPU, 3D Juump Ace defaults to its Software rendering mode. Some 3D-intensive features may not be available in Software rendering mode or may work slightly differently than in Hardware rendering mode. This is explicitly noted in the description of the feature.

4 - Copyright

All pages and all photos of this User Manual are copyrighted material and may not be used without expressed written permission of Real Fusio. 3D date used to illustrate this manual and accompanying 3D juump Ace interface are copyrighted and belong to AKKA Technologies, here in referred to as © AKKA.

Main window

The main window of 3D Juump Ace gives accesss to all its functionnalities.
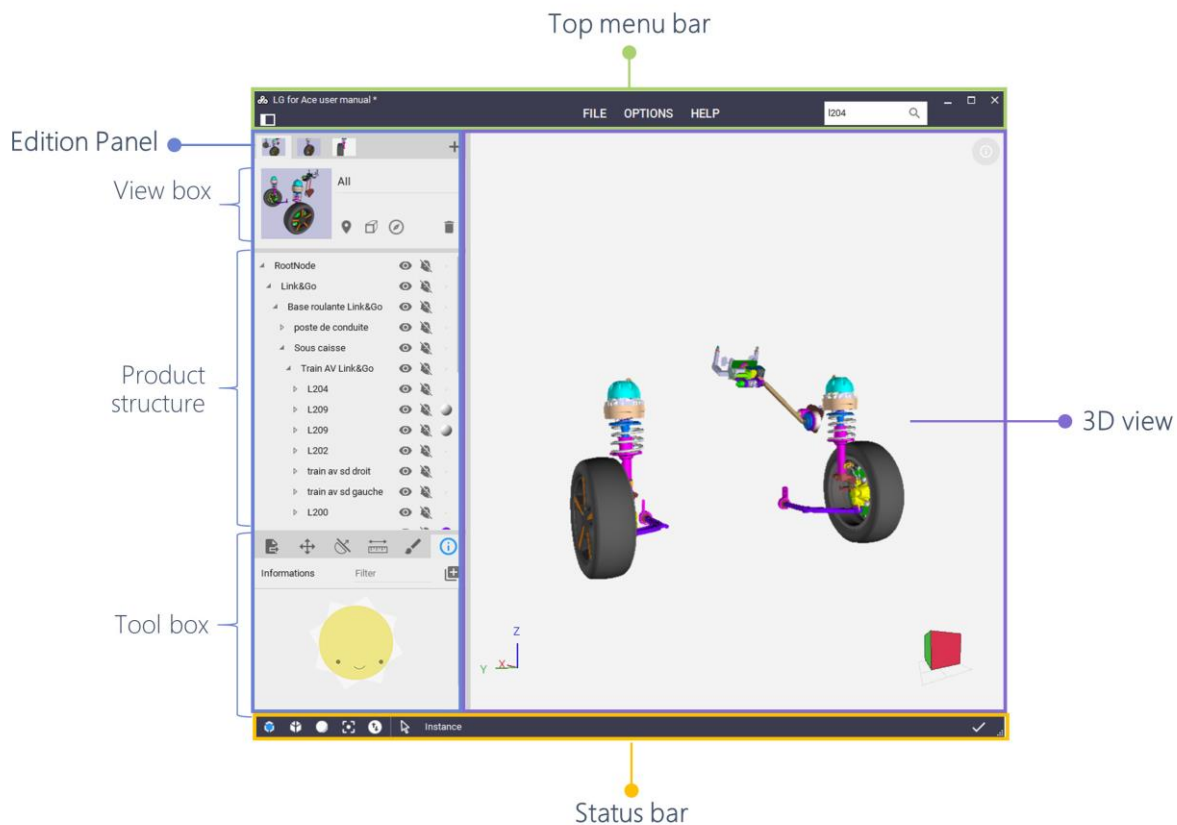
Main window of 3D Juump Ace - © Akka

Top menu bar: Give access to the Edition panel button, open and save files, manage options, access to search box; please refer to Top Menu Bar chapter

Edition panel: Create views, browse the product structure, use authoring tools; please refer to Edition panel chapter

View box: Create, edit, manage new views/thumbnails; please refer to View box chapter

Product structure: Organize in a hierarchy the designated elements as displayed in the 3D view; please refer to Product structure box chapter

Tool box: List of tool enabling interaction with the designated elements as displayed in the 3D view; please refer to Tool box chapter

3D view: Move camera, select parts; please refer to 3D view chapter

Status bar: Enable/disable features in the 3D View; please refer to Status bar chapter

1 - Top menu bar

The **Top menu bar** provides access to the user with the Edition panel button, open/save files and edit options via the Main menu or to search parts via the Search box.

Top menu bar

Edition panel button: Display/hide the Edition Panel

1.1 - Main menu

The **Main menu** enables the user to manage File, Options and access to the Help.

1.1.1 - File

The **File** entry is dedicated to file I/O. 3D Juump Ace is able to export 3D data in some of popular 3D file formats.
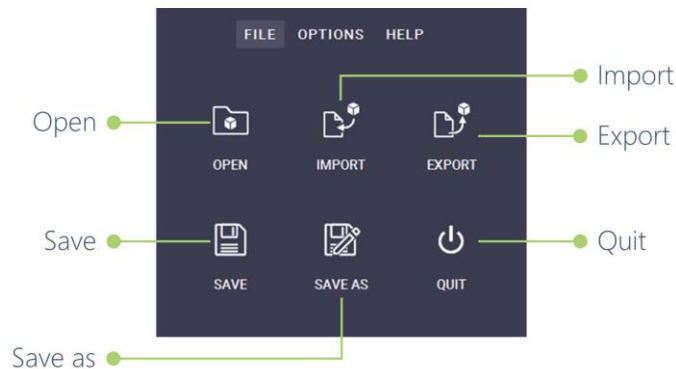
FILE pop-up window

Open: Clear the current project and open a native CAD file, a .juump or a .ace3d project file. A formerly saved file can also be simply dragged and dropped to 3D Juump Ace.

Drag & drop pop-up window

New project: Clear the current project and open a dragged and dropped native CAD file, .juump or .ace3d project file

Merge to current project: Overlay a dragged and dropped project to the one formerly opened

Cancel drag & drop: Cancel the drag & drop and remain to the former display

Import: Add a native CAD file to the current project

💡 While import/open operating, clicking on the displayed *X* does not cancel but interrupts the launch/import.
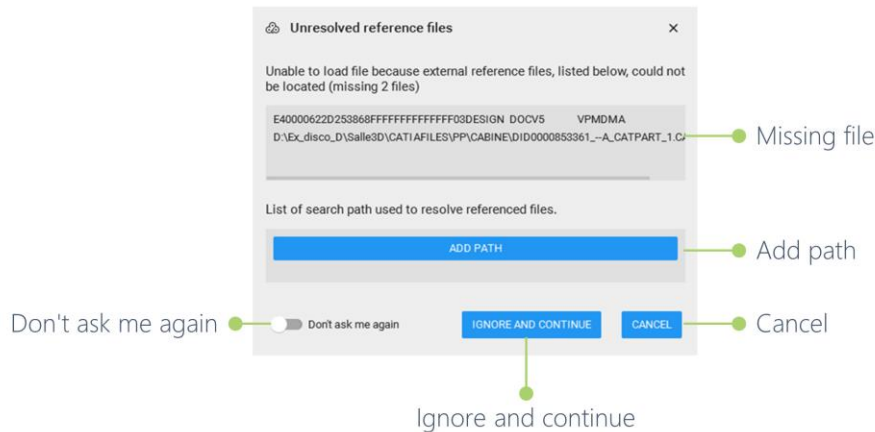
Unresolved reference files

Unresolved reference files error message might appear when (mainly CatProduct/CatPart) file(s) cannot be loaded because external references could not be located.

Missing file: Issued file

Add path: Indicate the path to access the missing file

Continue: Step further (step up to next missing path or application launch) once path has been added properly and successfully

Don't ask me again: Apply selected setting for the whole batch

Ignore and continue: Ignore currently displayed missing path and continue loading

Cancel: Cancel loading

Export: Export the current project to a 3D file

Save: Save the current modifications to the current .ace3d project file

Save as: Save the current project to a new .ace3d file

Quit: Exit the program

1.1.2 - Options

The **Options** entry gives access to the program settings. They are covered Chapter Program settings.

1.1.3 - Help ●

The **Help** button grants access to the list of keyboard shortcuts, to the User manual, to the support contact and displays the About information.

HELP pop-up window

Keyboard shortcuts: Tool enabling to quickly perform general operations such as, non-exhaustively, save the document, select/unselect objects, show/hide authoring tools

Contact: Pop-up providing the support contact for any question on the application.This contact link is customisable in settings file, by administrator see "Administrator Manual".

User Manual: Technical documentation explaining full functionalities of the software

About: ● Pop-up displaying current log, current version of 3D Juump Ace information.
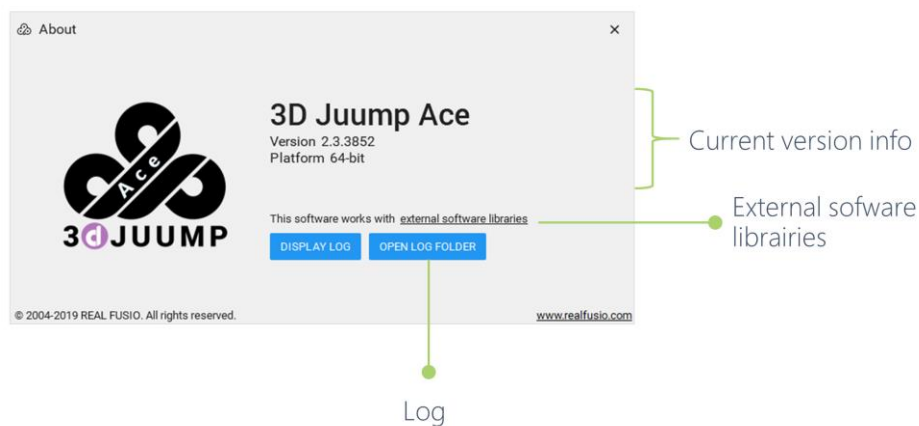
Main windows/ Help / About pop-up window

Current version info: Information re. the version of the software currently used

Log: Record of events that occurred in the software runs since last launch

External sofware librairies: Software component distributed or sold by a third entity

1.2 -   Search box

The **Search box** is the search engine used to perform queries in order to identify parts whose text data contain a given string entered by the user. The search is performed in the text field selected in the Product structure (see Section Product structure).

Search: Tool enabling to look for a 3D part by means of a particular word or phrase /group of words (mainly by Metadata)

1.2.1 - Free text search

A **Free text search** returns parts of which any metadata contain the typed value

To launch a *Free text search*, type the value to search and press *Enter*: eg. abc to get all parts containing abc.

💡 The value is not case sensitive; eg. abc will return parts named ABC

1.2.2 - Advanced search

An **Advanced search** is a search narrowed by a series of different filters.

Search engine uses PCRE query syntax.

String search: Return value(s) containing spaces

To launch a *String search*, use quotes; eg. "front left wheel".

Search on metadata: Return value(s) depending on metadata specification

To launch a *Search on metadata*, use colon; eg. :s_component_responsable=Joe.

Then, a Search on metadata can be sharpened, adding a second (or more) query(ies).

Contains metadata search: Match with metadata containing typed value

To launch a *Contains metadata search*, use simple equal; eg. :name=abs123 to match with all parts for which metadata name contains abs123.

Excluding metadata search: Match with metadata with any value not matching

To launch an *Excluding metadata search*, use operators <>; eg. :color<>blue to match with all parts for which color metadata differs from blue.

Relational operator metadata search: Match with metadata containing numerical value depending on an operator query

To launch a *Relational operators metadata search*, use =, <>, <, <=, >, >=; eg. :weight>42.

Logical combinator metadata search: Match with metadata combining 2 or more several value(s) and/or alternatives

To launch an *And/or metadata search*, combine with "()", "and" & "or" operators; eg. (:price<1.23) and (:name=="red cabbage").

💡 Priority is given from left to right and, although it is not mandatory, upon bracketing

1.2.3 - Searched results visualization

A **Searched results visualization** enables to visualize the results of the search currently performed. To visualize results once search has been launched, just click on an item; it generates a crosslink in the application.
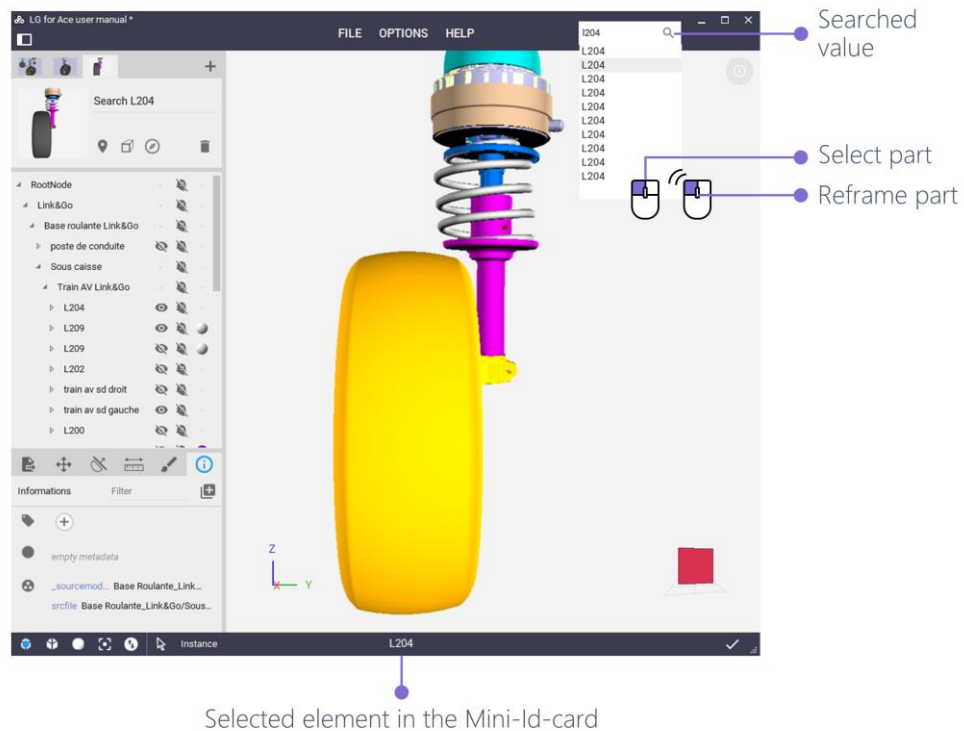
Visualize results - © Akka

Searched value: Value that has been typed in the search box

Select part: A single left click enables to select a searched element. Element flashes in yellow in the 3D view and is identified in the Mini-Id-card.

Reframe part: A double left click enables to both select and center the camera in the 3D view on a searched element. Element flashes in yellow in the 3D view, is identified in the Mini-Id-card and the content is scrolled in the Product structure until the corresponding element is visible; this allows the user to quickly find the location of a part in the hierarchy.

2 - 3D view

2.1 - Main view ●
The **3D view** shows the geometry of the imported parts.
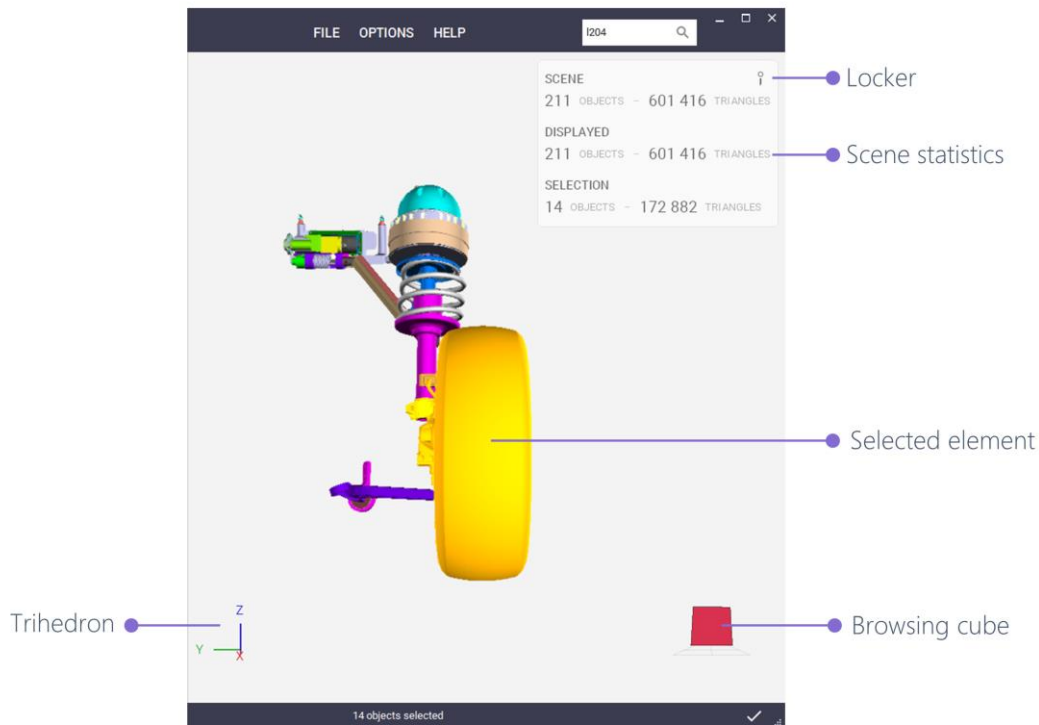
3D view - © Akka

Selected element: Designated element with which the user wants to interact

👆 Selecting a part in the 3D view also selects the corresponding element in the product structure; its metadata is automatically displayed in the Mini-Id-Card. Conversely, selecting an element in the product structure highlights the corresponding part in the 3D view.

Locker: Allows to keep the *scene statistics* window on the 3D view.

Scene statistics: Overfly window that shows/hides the scene statistics, number of objects and triangles in the scene and of the current selection

Browsing cube: Tool enabling to navigate in the 3D view on a simple click; please refer to Browsing cube

trihedron: ● The trihedron allows to quickly locate the X, Y and Z axes of the model.

2.2 - Navigation

The **Navigation** enables the user to move the parts in the 3D view using his mouse only.

The camera controls are designed so as to make it easy to rotate around an object and look at it from different viewpoints. Actually, the camera is always looking at a point called the *center of interest* which the user can change at any time.
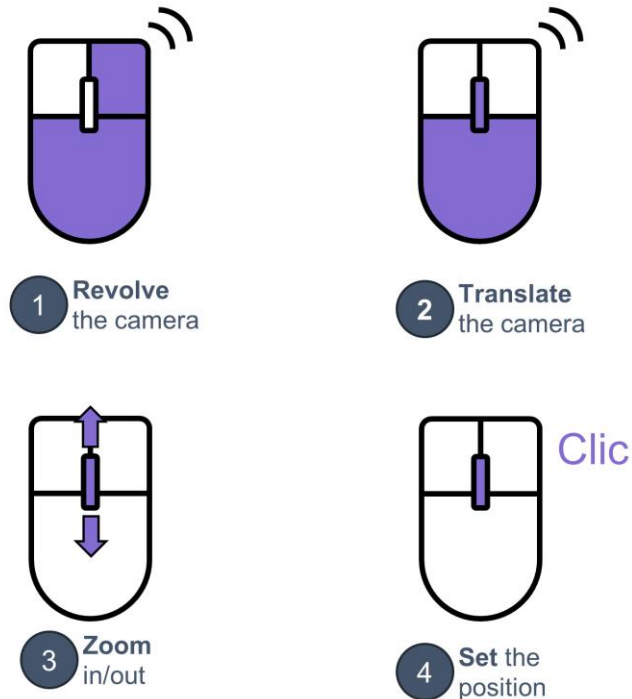
Navigation / Camera control

Revolve the camera: Revolve the camera around the center of interest

Translate the camera: Translate the camera in the image pan (pan)

Zoom in/out: Increase/decrease the magnification of the designated object

Set the position: Set the position of the center of interest

2.3 - Edit 3D visible parts

The **3D view context menu** grants access to the element(s) display features.

Accessible via a right click, the menu differs whether an element is selected before the click or not.
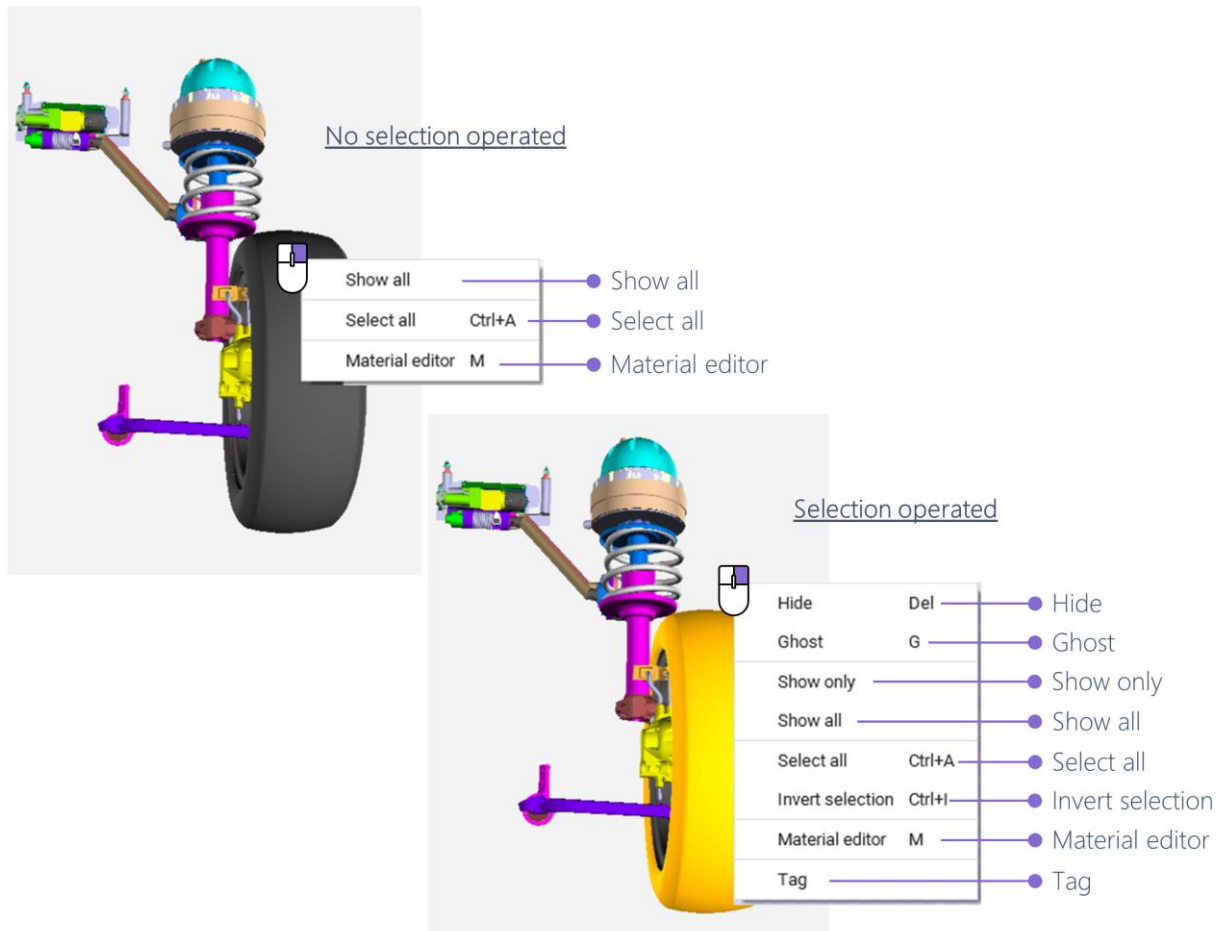
3D view / Context menu - © Akka

Hide: Hide the corresponding part(s) in the 3D view

Ghost: Enable ghost rendering mode for the corresponding part(s)

Show only: Hide every other part

Show all: Display all elements

Select all: Select all elements

Invert selection: Select elements formerly unselected in the selection and unselect elements formerly selected in the selection

Material editor: Pop-up the tool enabling to modify elements appearance, applying another element's information or creating a new model

Tag: Create/Edit keyword assigned to a part

2.4 - Browsing cube

The **Browsing cube** is a tool enabling to align the camera further predefined orientations. It also allows to redefine the ground that will impact the camera behavior.

It is located at the bottom right of the screen.
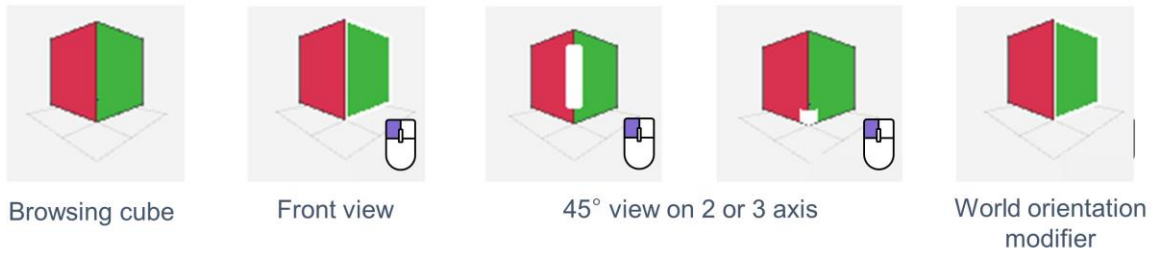
Navigation / Browsing cube

Front view: Align the camera direction with the x, y or z axis, via a left click on a face of the browsing cube

45° view on 2 or 3 axis: Align the camera direction with an intermediate axis, via a left click on an edge or a corner of the browsing cube

The **World orientation modifier** enables to select which axis is used as the ground normal vector via a right click on a face of the Browsing cube.

2.5 -   Selection

The **Selection** enables the user to choose which part(s) he wants to interact with.
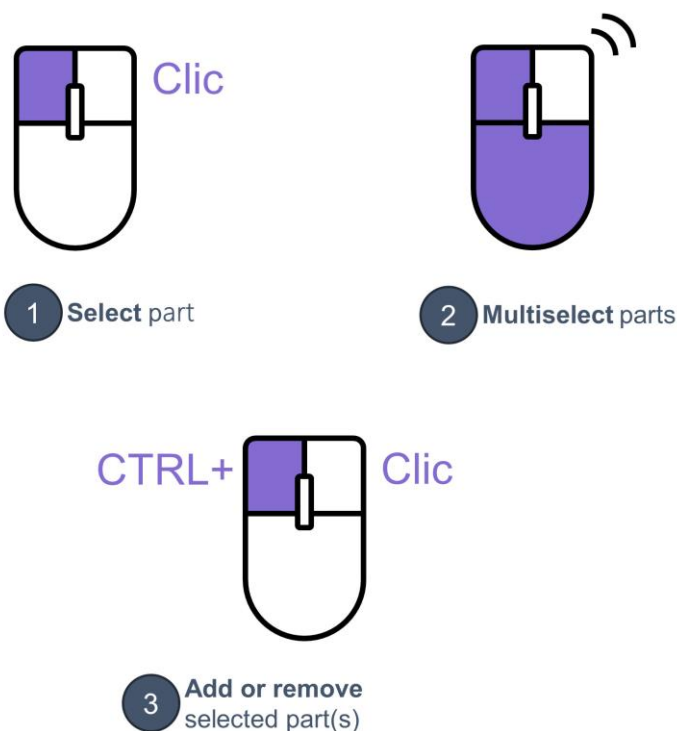
Navigation / Parts selection

Select part: Select the part pointed by the mouse cursor

Multiselect parts: Create a selection rectangle / release left mouse button to select every part in the rectangle

Add/remove selected part(s): Add (resp. remove) the selected parts to (resp. from) the current selection

👆 **Selected element in the 3D view**: Once an element has been selected with a left click in the 3D view, it flashes, the corresponding element is highlighted in the Product Structure and its metadata is automatically displayed in the Mini-Id-card.

👆 **Reframed element in the 3D view**: To center the camera in the 3D view on a designated element, double click on it. In parallel, this operation scrolls the content of the Product Structure until the corresponding element is visible. This allows the user to quickly find the location of a part in the hierarchy.

3 - Status bar ●

The **Status bar** grants access to the Quick access features, to the Frame mode selector and to the Mini Id card. It can be found at the bottom of the main window of 3D Juump Ace.

3.1 - Quick access features

The **Quick access features** is a box grouping shorter alternative routes to operate with the camera visualization.

Status bar / Quick access features

X-Ray: Enable/disable X-Ray mode, automatic ghosting of close geometries

Back-face culling: Enable/disable back-face culling, do not render triangles facing away from the camera

Rendering mode: Modify the display of the 3D View, either as normal or wireframe

Center camera: Center the camera on the scene

Visibility mode: Enable to display in one click all the hidden or ghost elements. Please refer to Visibility mode for more information regarding its functionalities.

Picking selector: Enable to configure selection parameters. Please refer to Picking selector for more information regarding its functionalities

Mini-Id-card: Display the metadata of the 3D part currently selected.

💡 *Multiselection of parts*: in this event, the Id-card toggles to a message mentioning the number of selected objects.

3.2 - Visibility mode ●

This mode enables to see the elements which have previously been ghosted and/or hidden
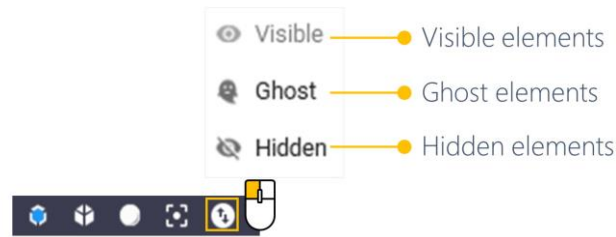
Status bar / Visibility mode

Visible: Enables to display the visible elements

Ghost: Enables to display the ghost elements

Hidden: Enables to display the hidden elements

3.3 -   Picking selector

The **Picking selector** allows to define the criteria to select parts. It will be automatically applied in the Product structure.
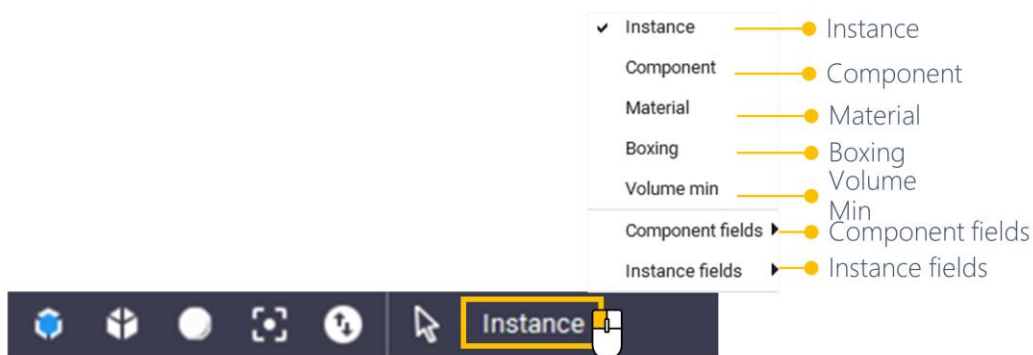
Status bar / Picking selector

Instance: Tool enabling to select designated instances.

Component: Tool enabling to select designated components.

Material: Tool enabling to select elements sharing the same material.

Boxing: Tool enabling to filter on a 3D box. Click on an element and a 3D box appears around this designated element. When Overlapped is active, it also select the elements next to the designated element.

Component fields: proposes to select elements sharing the same selected components. It depends if it is available in the CAD file.

Instance fields: proposes to select elements sharing the same selected instance. It depends if it is available in the CAD file.
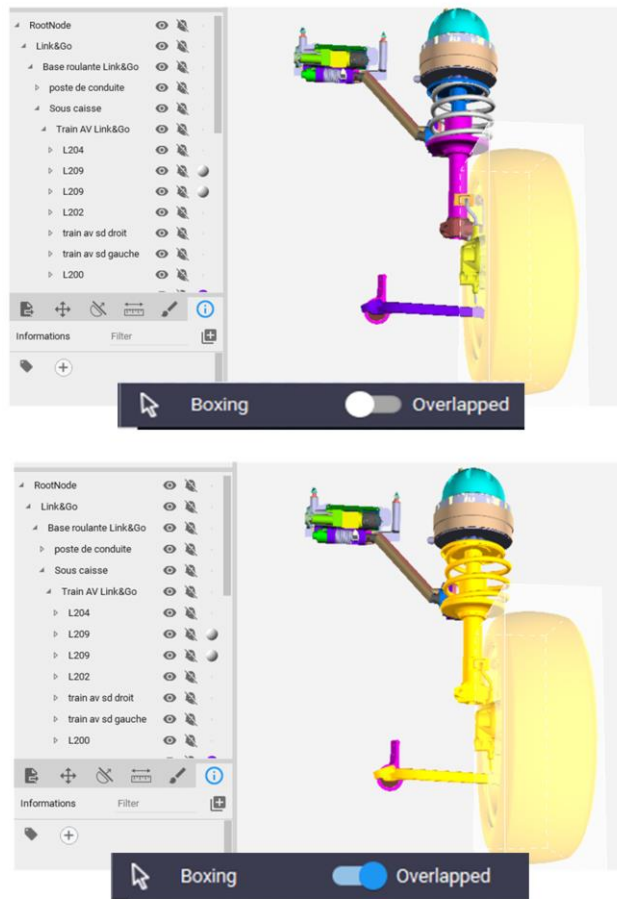
Status bar / Picking selector / Boxing

Volume Min: Tool enabling to select all the items whose size is inferior to the selected value. You can insert it manually with the scrolling arrow or by selecting an element in the 3D view.

Selected items in the product structure

Selected items in the 3D view

Minimum volume value   Number of selected items
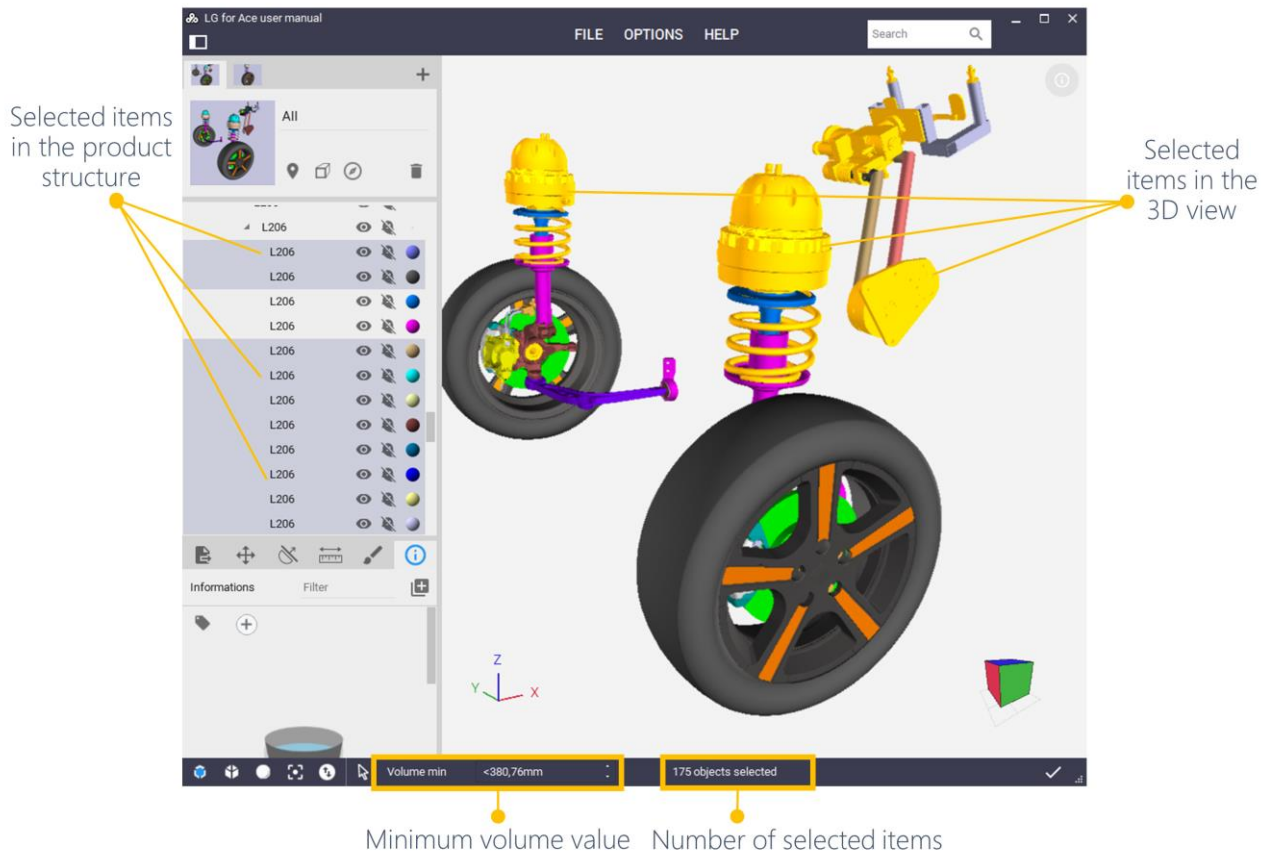
Status bar / Picking selector / Volume Min

- **Selected items in the product structure** : shows the products corresponding to the selection result in the product structure

- **Selected items in the 3D view**: shows the products corresponding to the selection result in the 3D view.

- **Number of selected items**: shows the number of products corresponding to the selection result.

- **Minimum volume value**: shows the requested minimum volume value.

4 - Edition panel

The **Edition panel** enables to select and define views in the View box, explore and change parts visibility in the Product structure or use the authoring tools in the Tool box to create new content.

4.1 - View box

The **View Box** groups features enabling to interact with the Thumbnail and the 3D view mechanisms.

A right click on the thumbnail displays a context menu.
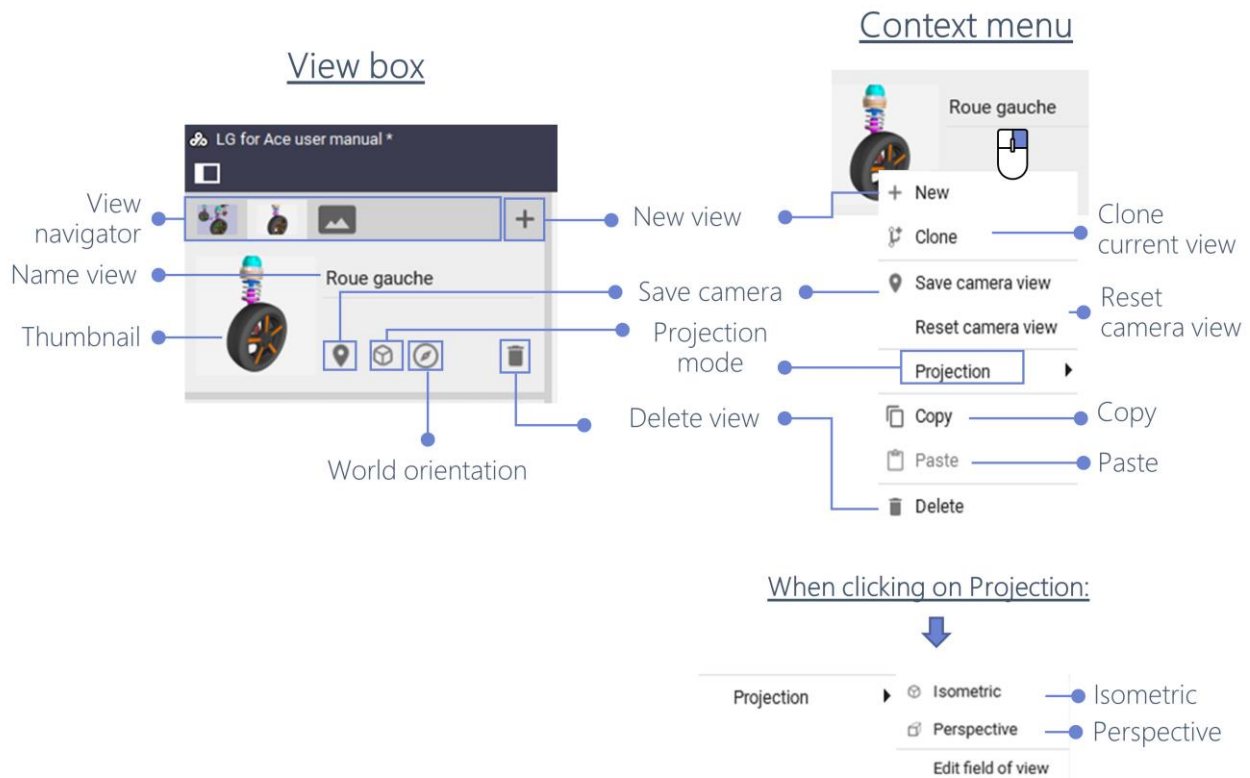
View box

A user is free to create any number of views for a given project. However, only one view may be active at once: this view is referred to as the *current view*. Any change to the camera, part (transformation or material), cut plane or measurement is stored in the current view. In the View widget, the user can activate and manage Views.

View navigator: Navigate between the different views formerly created

Name view: Create / Edit name of the current view. Any view created is given the default name "Untitled view". The user is free to rename views by clicking on their name text field.

**Thumbnail**: Small picture drafting the content of the related View from a given point of view; it also enables to recenter the 3D view on the saved view

World orientation: Align the world with an object. To *fix the world orientation*, click on the compass icon in the status bar, then select one or several objects to be aligned with the world's frame. Upon selecting parts, a pop-up message appears at the bottom of the 3D view asking for the user to confirm the new orientation. Click the *Validate* button to enforce the new world orientation or click on the compass icon again to discard changes.

New view: Create a new view with default parameters

Save camera location: Save camera position and orientation to the current view, this operation creates/modifies the thumbnail

Projection mode: Select either an isometric or a perspective view

Delete view: Delete current view

Edit field of view: In perspective projection mode, adjust the vertical field of view

Clone current view: Create a new view with the same parameters as the current view

Reset camera view: Reset the camera view in the thumbnail

Copy: copy the current camera view

Paste: paste the copied camera view

Isometric: Projection in which exact views of an object are constructed by extending perpendiculars from points on the object to the plane of projection

Perspective: Projection of points by straight lines drawn through them from some given point to an intersection with the plane of projection

4.2 - Product structure box
The **Product structure** box shows the hierarchy of the project's 3D data.
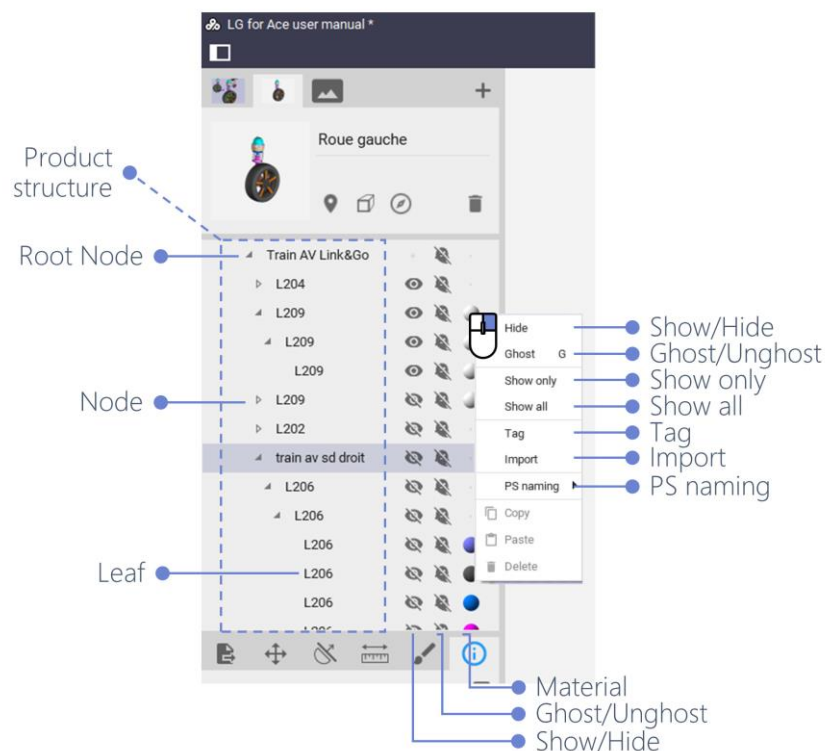
Product structure

4.2.1 - Root Node
In this representation, each row element corresponds either to a *node* or to a *leaf* of the hierarchy. Nodes can be expanded or collapsed by clicking on the triangle icon located on the left of the product structure element.

Node: Basic element of a hierarchy; using the image of a tree, a node is a branch

Leaf: Node on a tree with no child nodes

Material: Display the material of the corresponding part(s) (see Section Materials tool)

Clicking on an element of the Product structure with the right mouse button opens a context menu, in which the user can perform the following actions:

Show/Hide: Show or hide the corresponding part(s) in the 3D view

Ghost/Unghost: Enable/disable ghost rendering mode for the corresponding part(s)

Show only: Hide every other part

Show all: Display all the elements

Tag: Create/Edit keyword assigned to a part

Import: Import a file at the same level as the selected part.

PS naming: Select the text field to be displayed in the Mini-Id-card identifier. Information here-in referenced depend on input data.

👆 **Selected element in the Product structre**: Selecting an element in the Product structure also selects the corresponding part in the 3D view; its metadata is automatically displayed in the Mini-Id-Card.

👆 **Reframed element in the Product structure**: To center the camera in the 3D view on a designated element, double click on the element in the Product structure.

4.2.2 - Applications data

The **Applications**, last node located at the very bottom of the list of the Product structure, groups tools interacting and already applied in the 3D view, such as Creating and erasing cut planes or Measurements for instance. A left click on the triangle at the beginning of each group of applications gives access to the scrolling list of accessible linked applications.

4.2.2.1 - Cut plane applications
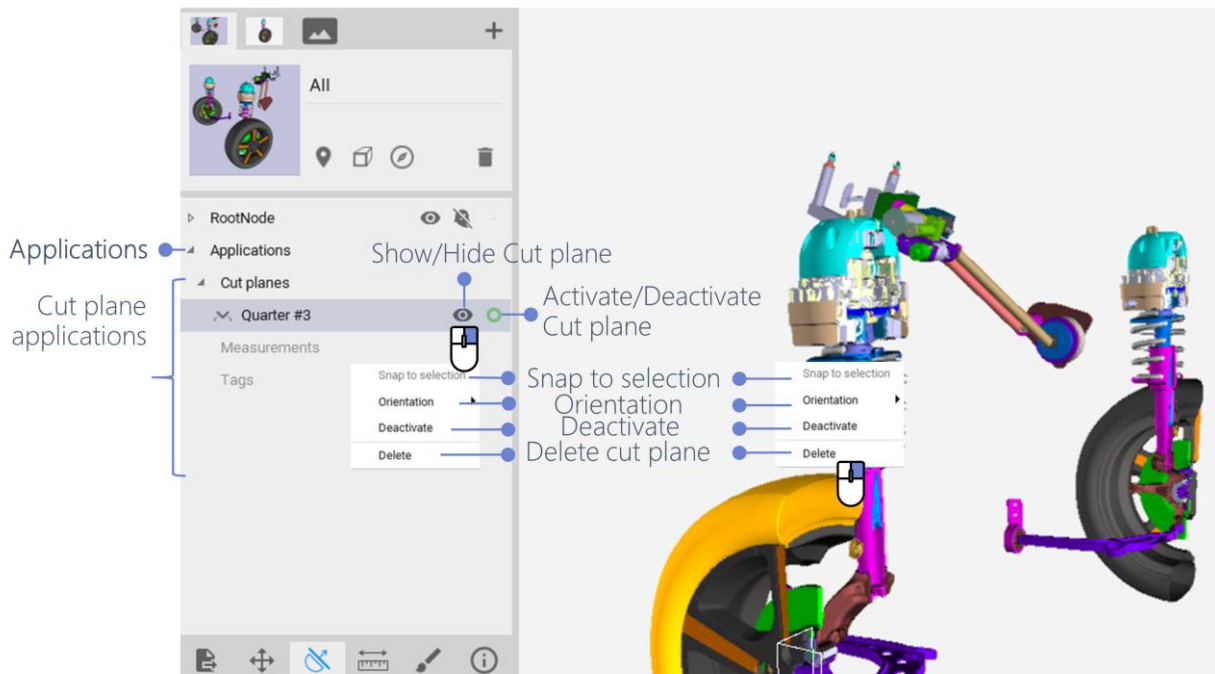
Cut plane / Applications - © Akka

Cut planes applications: List of cut planes applied in the 3D view

A left click on a designated Cut plane in the Product structure selects the cut plane, highlights it in grey in the list and the frame (please refer to the chapter Tranformation editor for more

information) automatically appears in the 3D view. This enables to interact with the Cut plane (see Section Cut plane editor).

Show/Hide cut plane: Show or hide designated cut plane graphical representation

Activate/Deactivate cut plane: Activate or deactivate the designated cut plane; when deactivated, a cut plane has no effect on the geometry of parts

A right click on a designated Cut plane in the Product structure selects the cut plane, just as a left click + provides access to a context menu. A right click on the Cut plane within the 3D view provides access to the same context menu.

Snap to selection: Switch application of the cut plane to a different part

Orientation: Select along which axis (x, y or z) the normal of the cut plane is aligned

Deactivate/Activate: Deactivate or activate the cut plane; when deactivated, a cut plane has no effect on the geometry of parts

Delete cut plane: Manage cut plane, enabling to delete the designated cut plane

Shall a part being selected AND a cut plane cutting this particular element, a specific context menu is available via left click.
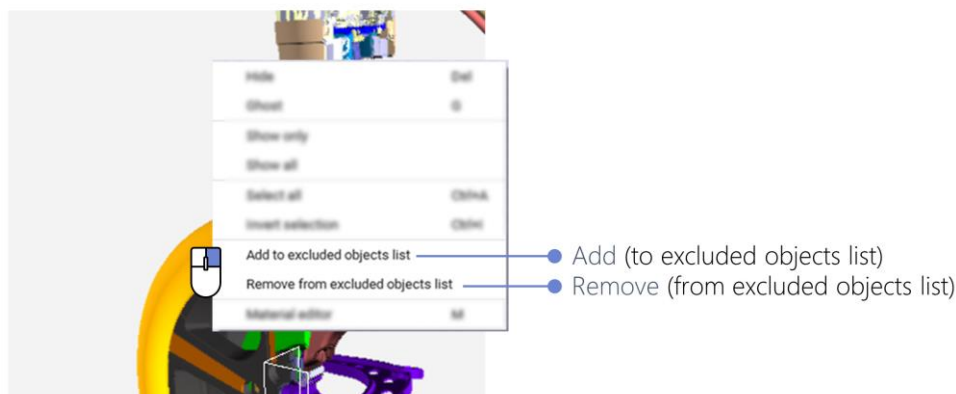
Cut plane / Selected and cut element Context menu - © Akka

Add (to excluded objects list): Add the selected part(s) to the list of objects uncut

Remove (from excluded objects list): Remove the selected part(s) from the list of objects uncut

4.2.2.2 - Measurement applications
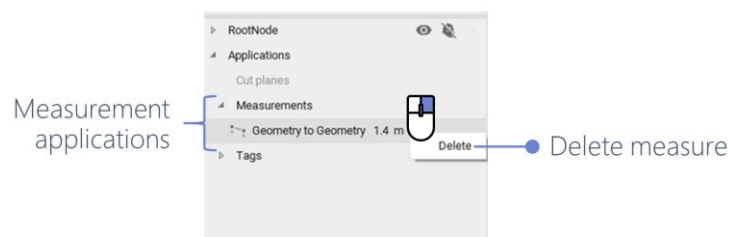
Measurement / Applications - © Akka

Measurements applications: List of measurements performed in the 3d view

A left click on a designated Measurement in the Product structure selects and displays the measure in the 3D view. This enables to interact with the designated measure (see Section Measurements)

A right click in the Product structure gives access to a context menu.

Delete measure: Manage measure, enabling to delete the designated measure

4.2.2.3 - Tag applications
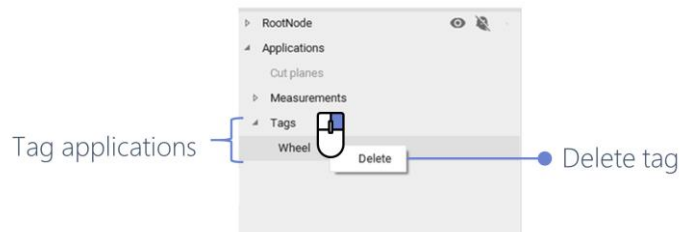
Tag / Applications - © Akka

Tag applications: List of tags available within the 3D view

A left click on a designated Tag in the Product structure selects and displays all the parts containing the designated tag in the 3D view. This enables to interact with the designated tag. Please refers to Tool box/Information/Tag for more information.

Delete tag: Manage tag, enabling to delete the designated tag from all the parts sharing it

4.3 - Tool box

In the **Toolbar** located at the bottom of the Tool box, the user can change the active tool. It can be selected among one of the following tools:
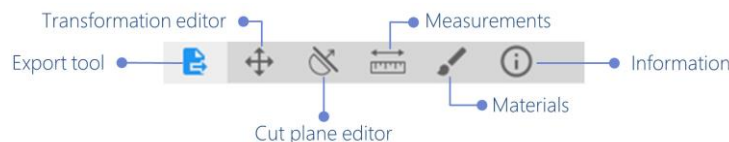
Detailled toolbar

Export tool: Export images, text data or 3D data

Transformation editor: ● ● Move objects along axes from frames

Cut plane editor: ● Create and edit cut planes

Measurements: Measure lengths or diameters of geometrical features, and distance between objects

Materials: Modify elements appearance, applying another element's information or creating a new model

Information: Docked/Floating Id-Card; toggle dock/float is operated via a right click of the mouse in the box light grey area

4.3.1 - Export tool

The **Export tool** allows to export the content of the current project to different file types. The nature of the exported content can be selected in the top bar menu of the Export.

Export tool - formats

Image export tool: Export a picture that has been created or captured in electronic form

Vectorial export tool: Export digital images created through a sequence of commands or mathematical statements that place lines and shapes in a given two-dimensional or three-dimensional space

Bill Of Material export tool: Export a list of the available metadatas

3D data export tool: Export data that provide the perception of depth

4.3.1.1 -   Export image tool (IMG)

In the **Export image tool (IMG)**, the user can modify export options.
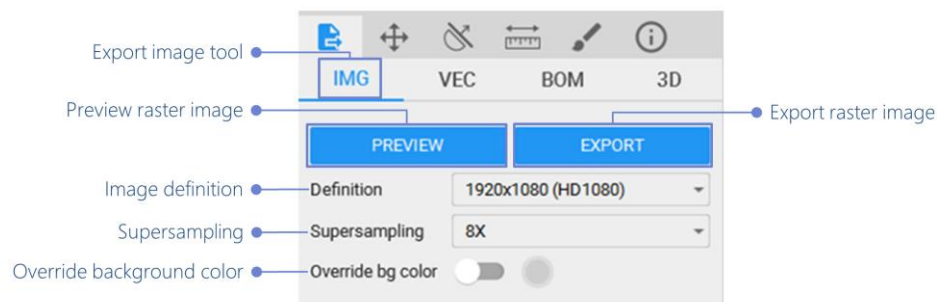
Export raster image

Preview raster image: Enable to visualize criterias applied before exporting raster image

Export raster image: Enable to directly export raster image (bitmap) in PNG, JPG or TIFF format

💡 Image export reflects parts effectively loaded in the 3D view.

Image Definition: Output size of the raster image

Supersampling: Number of samples per pixel (larger value = better quality)

Override background color: When the option is activated, edit the background color for the export only

4.3.1.2 -   Export vectorial tool (VEC)

In the **Export vectorial tool (VEC)**, the user can configure the vector image output.
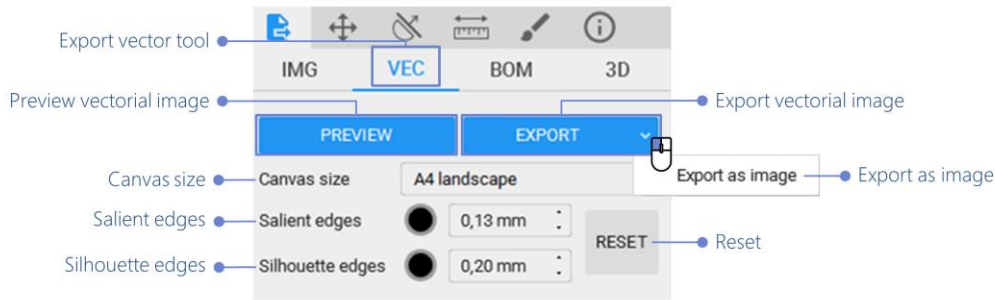
Export vector image

Preview vectorial image: Enable to visualize criterias applied before exporting vectorial image

Export vectorial image: Enable to directly export vectorized images in SVG or DXF format

⚠ Under DXF format, salient and/or silhouette edge modifications WILL NOT be exported

Export as image: Enable to directly export image in JPG, PNG or TIFF format

Canvas size: Target image size and format

Salient edges: Color and thickness of salient (crease) edges

Silhouette edges: Color and thickness of silhouette edges

Reset: Revert settings as initially implemented

4.3.1.3 - Export Bill Of Material tool (BOM)

In the **Export Bill Of Material tool (BOM)**, each part can be exported as a CSV file. Export options for text data are available in the BOM settings panel.
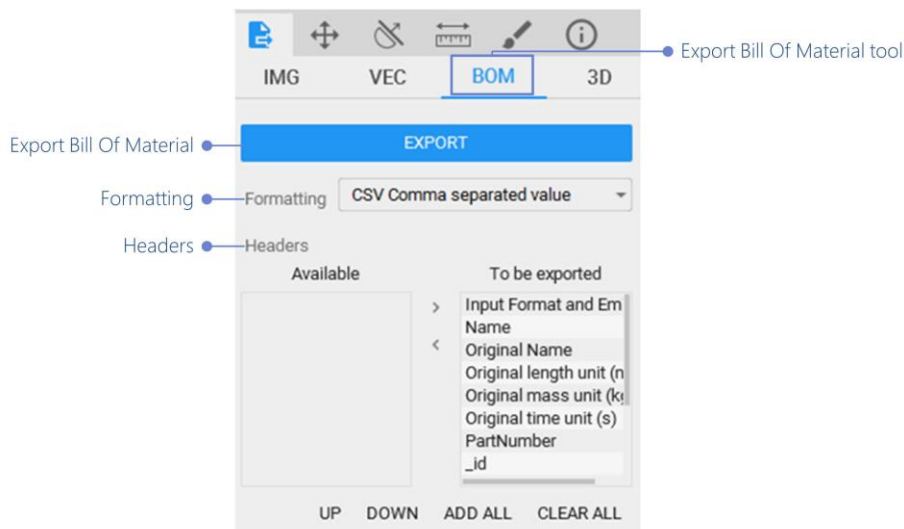
Export Bill Of Material

Export Bill Of Material: Enable to export text data of parts in CSV format

Formatting: CSV export format; 2 available formats: CSV (Comma Separated Value), CSV French version (semi-colon separated value)

Headers: At the bottom of the BOM settings panel, the user can select which text field should be exported in the CSV file

4.3.1.4 - Export 3D data tool (3D)

The **Export 3D data tool (3D)** shows the options for exporting geometry of the project in a 3D file format, where the user can choose between the simplification settings.
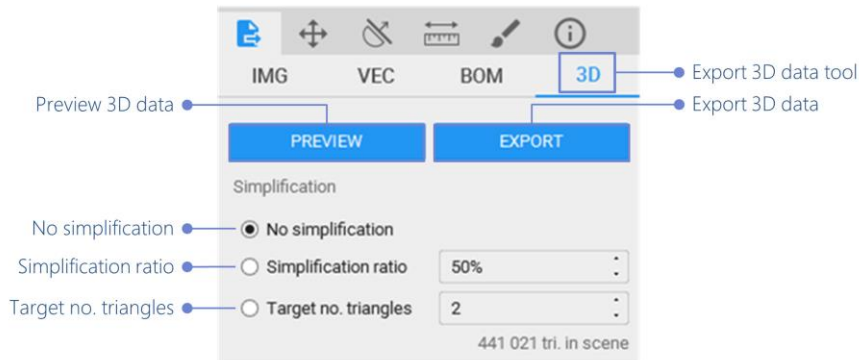
Export 3D data

Preview 3D data: Enable to visualize criterias applied before exporting geometries

Export 3D data: Enable to directly export geometries in FBX, OBJ, JT, STEP, STL, WRL, WRZ, or DAE format

No simplification: The geometry will be exported without compression

Simplification ratio: The geometry will be compressed so that the final number of triangles will not exceed a fraction of the original number of triangles

Target no. triangles: The geometry will be compressed so that the final number of triangles will not exceed the amount given by the user

4.3.2 - Transformation editor ● ●

4.3.2.1 - Translate

In the **Transformation editor**, the **Translate tool** enables to translate objects along axes from frames; basically, when the Transformation editor is activated, the user can move objects around the scene.
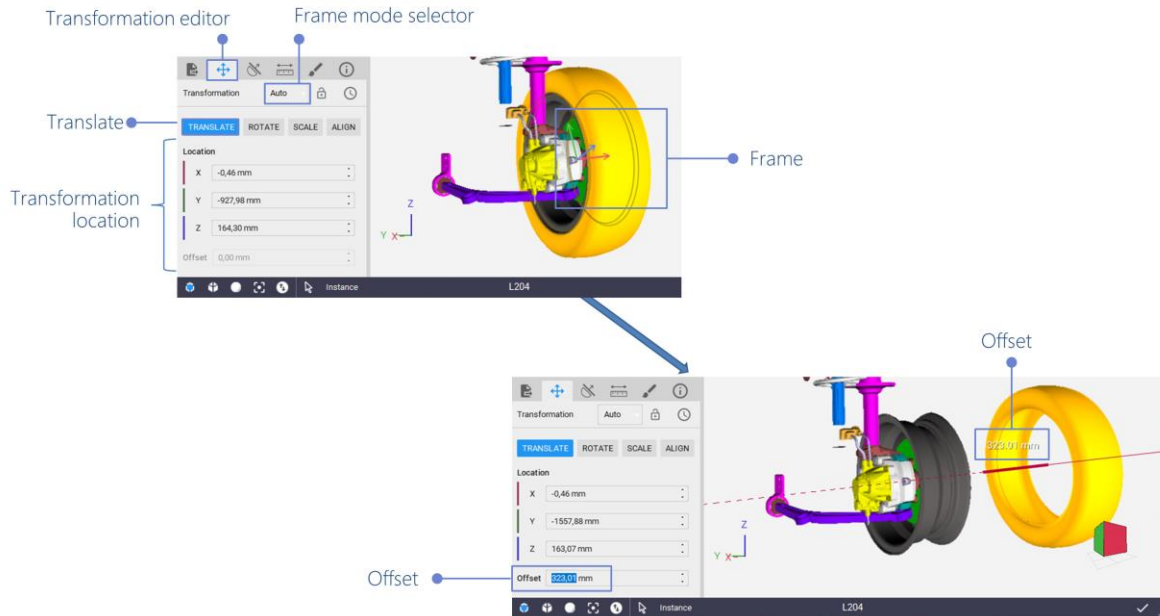
Transformation editor / Translate - © Akka

Selecting a part or a group of parts with the Transformation editor as the active tool will make a frame appear in the 3D view at the center of the selection.

Translate: Move designated element(s) along an axis

Frame: Provide access to the selected part(s) movements, by drag & drop

Offset: ● At the end of the translation this box recovers the focus, so you can edit the measurement.

The orientation of the frame defines in which directions the user can move the selected part(s). The user can change the orientation of the frame by modifying the Frame mode selector.

Tranformation location: Information enabling to locate your transformed selection in the DMU

Frame mode selector: Enable to configure the frame displayed

4.3.2.2 - Rotate

The **Rotate tool** enables to rotate objects around their orginal pivot or around a new selected Pivot.
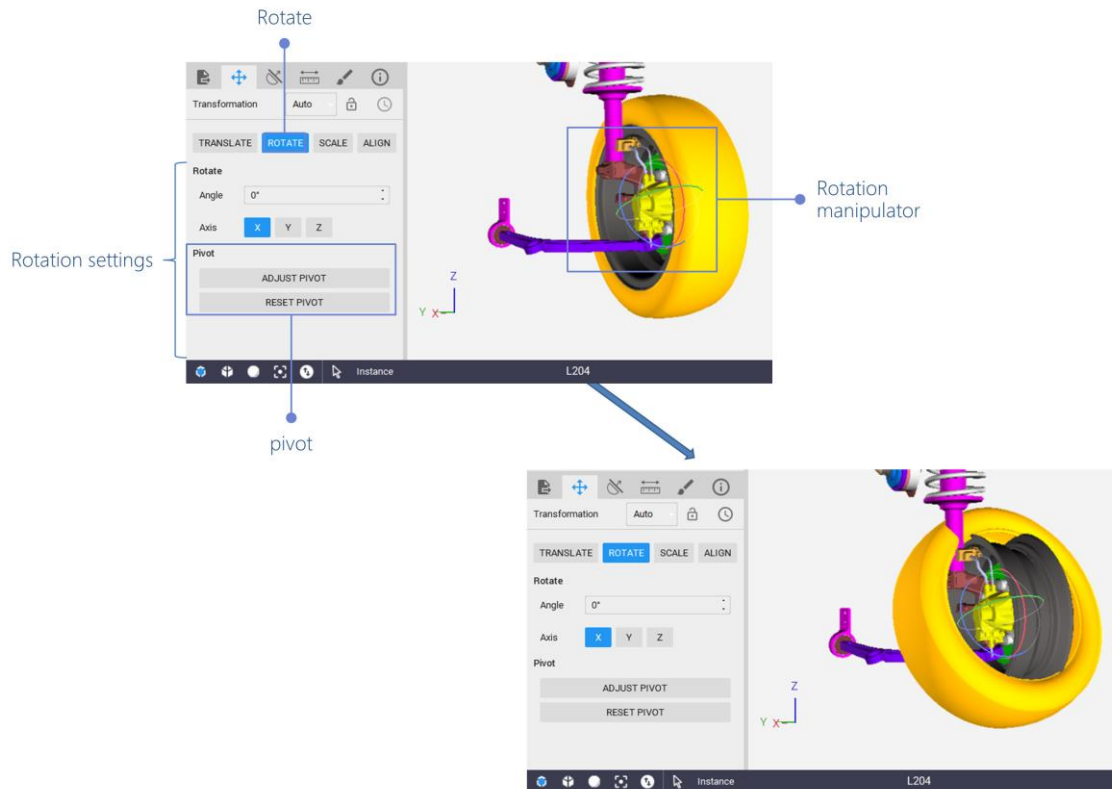
Transformation editor / Rotate - © Akka

Rotate: Spin designated element(s) around an axis using the Rotation Manipulator

Rotation Manipulator : Graphical handler to adjust the selected objects rotation; click-and-drag one of the axis circle to rotate.

Rotation settings: Select the specific *axis* on which an *angle* must be manually applied

Axis: Cartesian coordinate system indicating in which direction designated element will be moved (X, Y, Z - please refer to Orientation for more information)

Angle: Space (usually measured in degrees) between two intersecting lines or surfaces at or close to the point where they meet

Pivot
The **Pivot** can be modified in order to adjust the objects rotation center precisely.
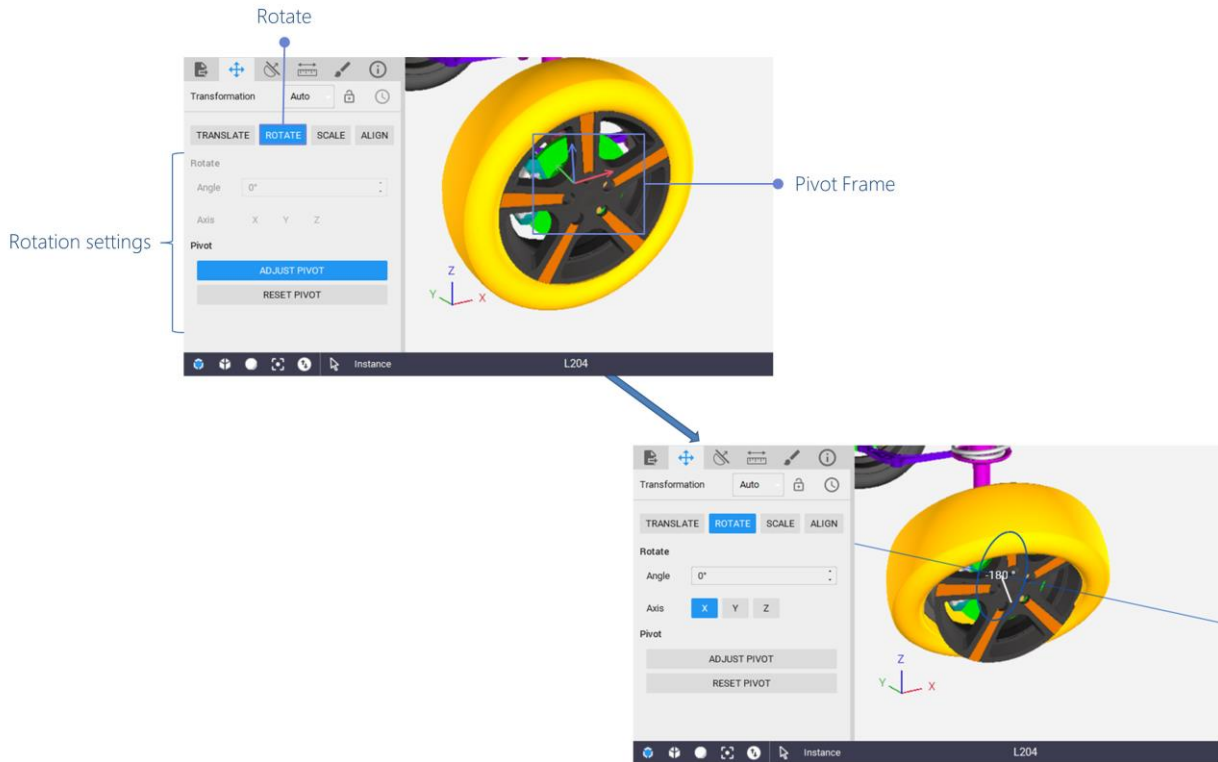
Transformation editor / Rotate Pivot - © Akka

Adjust Pivot: Select the function then move the Pivot frame, and validate the new position by clicking again on **Adjust Pivot**. Now, you can rotate the selected objects through this new point of reference.

Reset Pivot: Reset the Rotate Pivot to its initial position.

4.3.2.3 - Scale ●

The **Scale tool** enables to scale objects either uniformely.
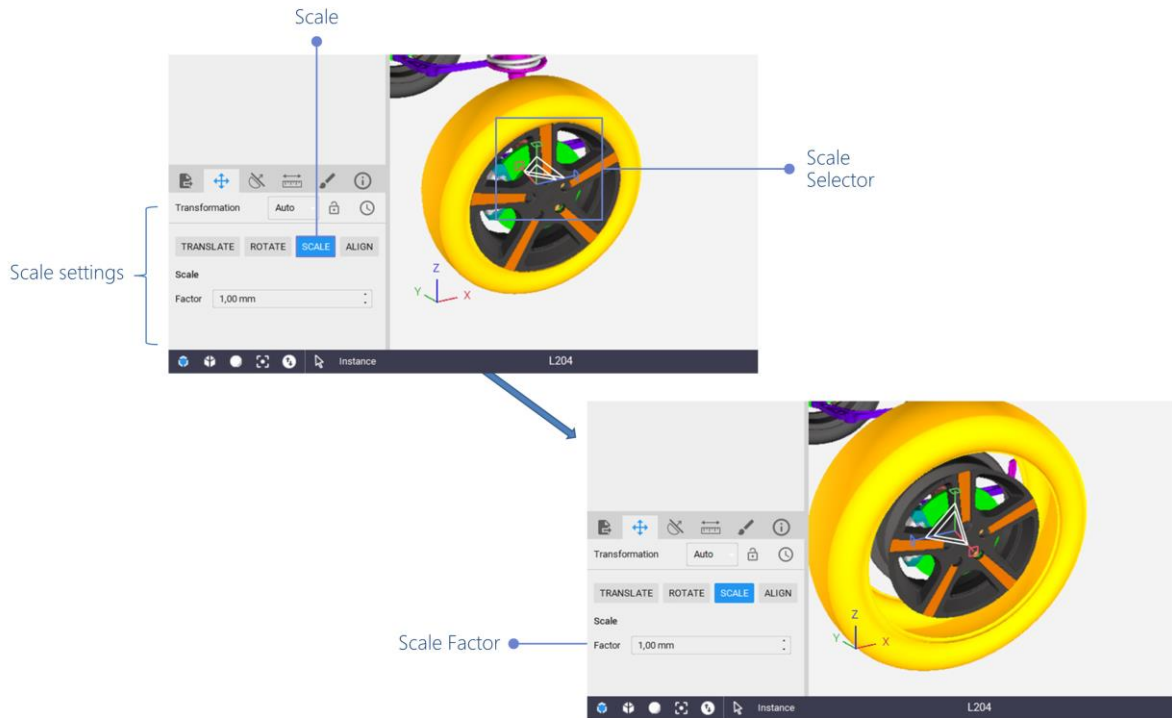
Transformation editor / Scale - © Akka

Scale: Adjust objects size of a scale factor by using the Scale Selector.

Scale selector: Graphical handler to adjust the scale; click-and-drag one of the axis handle to scale.

Scale factor: ● Input scale factor manually to adjust it precisely.

4.3.2.4 -   Align ●

The align button allows you to align one object with another.
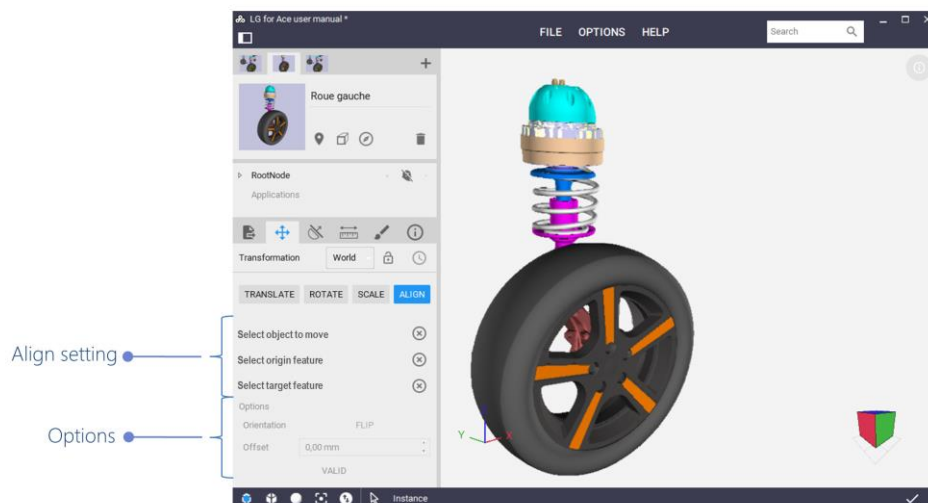
Transformation editor / Align - © Akka
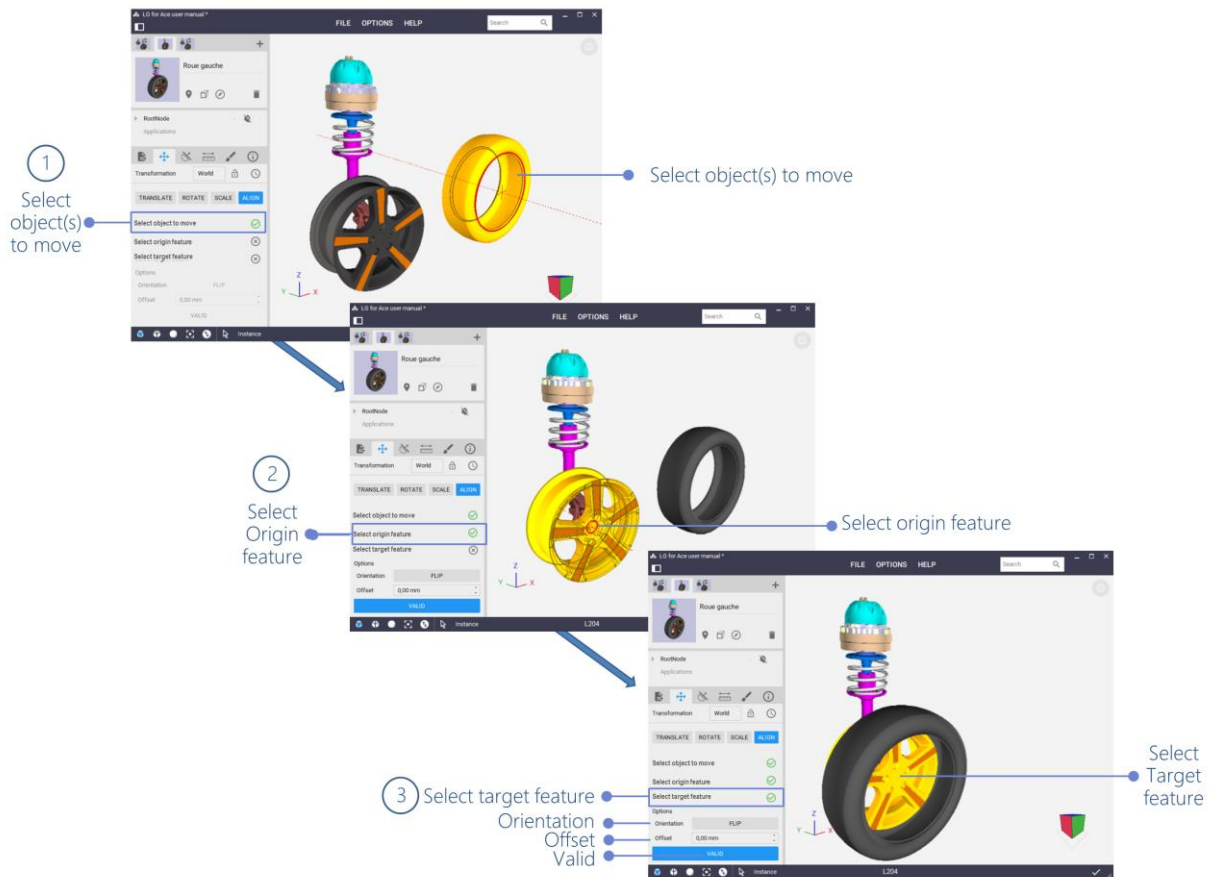
Transformation editor / Align steps - © Akka

Select object(s) to move: Select the object(s) to move.

Select Origin feature: Select the reference axis.

Select target feature: Select the destination axis.

Orientation: Go back, redirect.

Offset: Adjust along the axis, move along the axis.

Valid: Finalize the manipulation.

4.3.2.5 - Transformation history

The **Transformation history**, in the Transformation editor, contains the list of single changes in parts position made by the user from the creation of the current view.
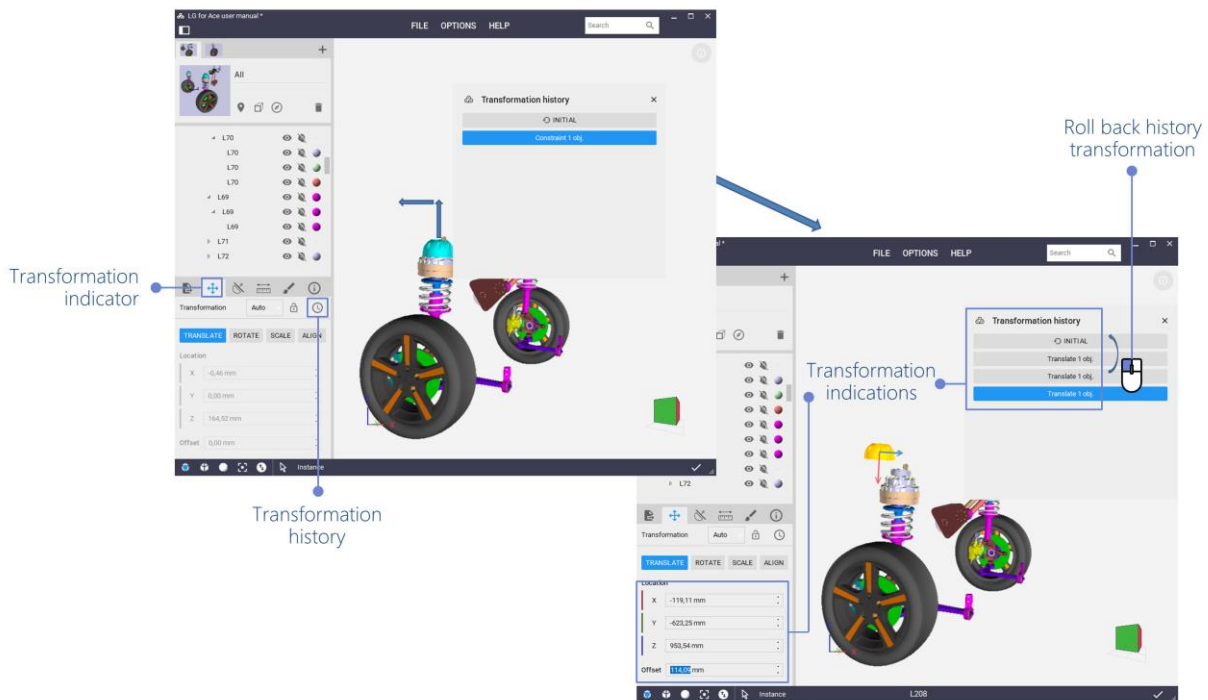
Transformation history example - © Akka

Transformation indicator: Indicate a transformation has been operated on the designated part.

Roll back history transformation: Restore every part to the position they had after the corresponding move was performed by clicking on an element of the list

4.3.3 - Cut plane editor ●

The **Cut plane editor** enables the user to create and edit cut planes. Users can move and rotate cut planes freely in the scene and the set of parts which get cut through can be specified individually for each cut plane.
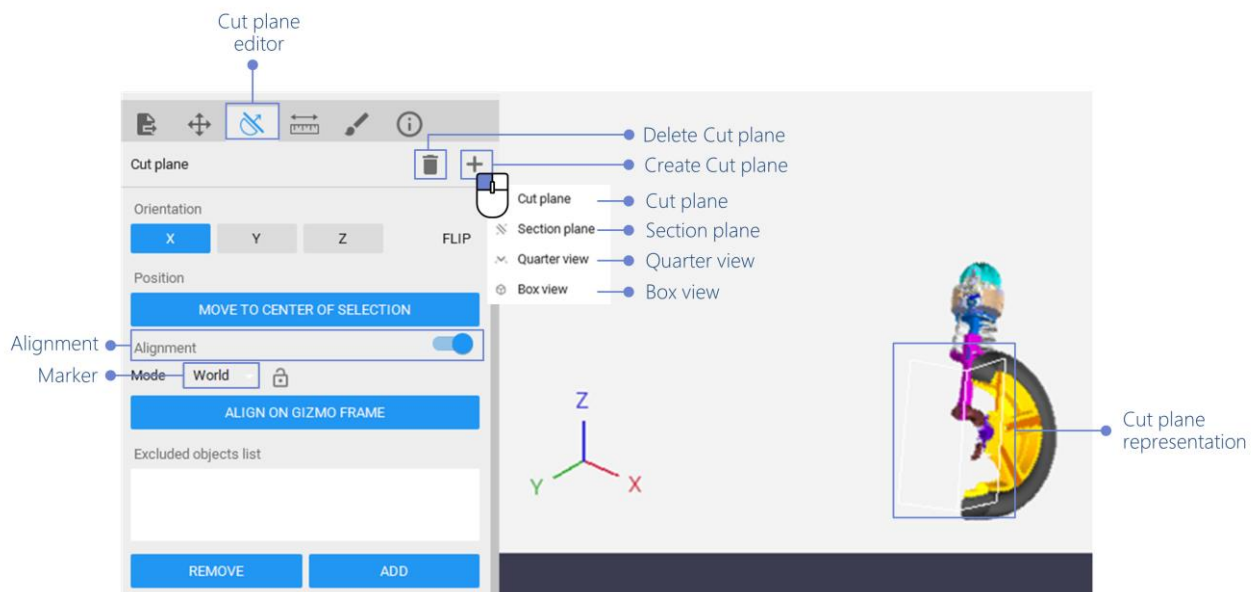
Cut plane editor - © Akka

Cut plane representation: Graphical representation of cut planes in the 3D view.

Alignment: ● Alignment of the cutplane with the selected mark (world in this case).

Cut planes are graphically represented by squares or rectangles in the 3D view. The user can interact with these representations in order to select, move or rotate cut planes. Each graphical representation of a cut plane can be enabled or disabled from the Product structure view (see Section Applications data).

4.3.3.1 -   Creating and erasing cut planes

To create new cut planes, click the *Create Cut plane* button in the Cut plane editor. A pop-up menu appears, offering the user to create either a single cut plane or a compound of cut planes:

Delete cut plane: Manage cut plane, enabling to delete the selected cut plane

Create cut plane: Manage cut plane, enabling to create a new cut plane

A left click on the + enables to creates a new cut plane by means of a context menu:

Cut plane: Create a single cut plane performing a full section of the geometry

Section plane: Create a compound of two parallel cut planes isolating the geometry between them

Quarter view: Create a compound of two orthogonal cut planes performing a quarter section of the geometry

Box view: Create a compound of six cut planes forming a box

The created cut plane(s) are restricted and aligned to the currently selected parts. If the selection is empty when creating a new cut plane, it aligns with the current world orientation and all parts are cut through.

To erase an existing cut plane, another option is to select it from the product structure as explained in Section Applications data and to proceed as explained therein.

4.3.3.2 -   Moving cut planes in the 3D view

The position and the orientation of a cut plane can be edited from the 3D view.
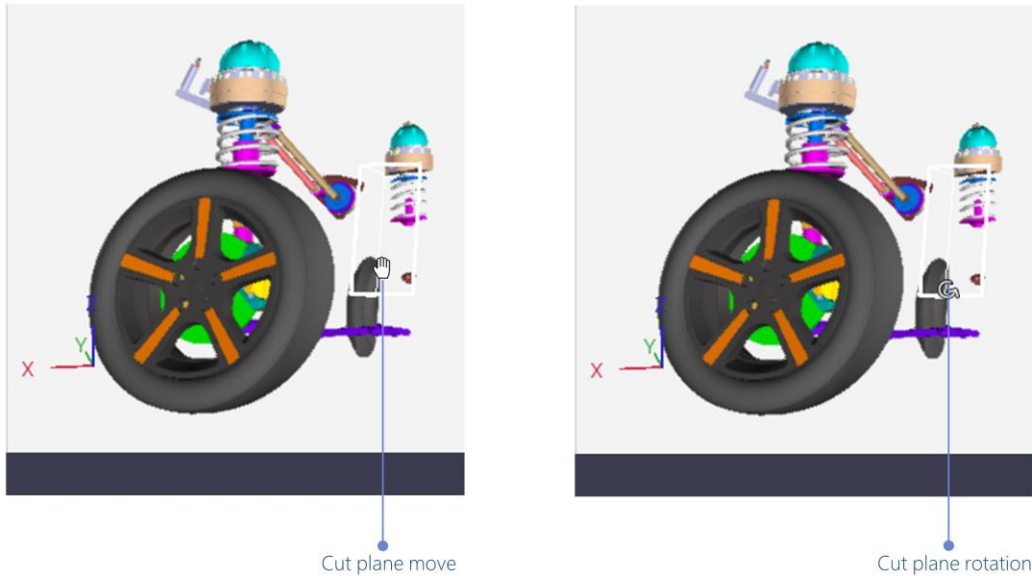
Cut plane move - © Akka

Cut plane move: Inside the graphical representation of a cut plane, click and hold the left mouse button while moving the mouse to drag the cut plane along its normal vector

Cut plane rotation: On an edge of the graphical representation of a cut plane, click and hold the left mouse button while moving the mouse to rotate the cut plane

4.3.3.3 - Editing cut plane parameters

Selecting a cut plane in the 3D view or in the Product structure will make the cut plane editor become the active tool and the parameters of the selected cut plane will be editable in the Cut plane editor. Available parameters differ one Cut plane from the other. The definition of each parameter is detailed below.
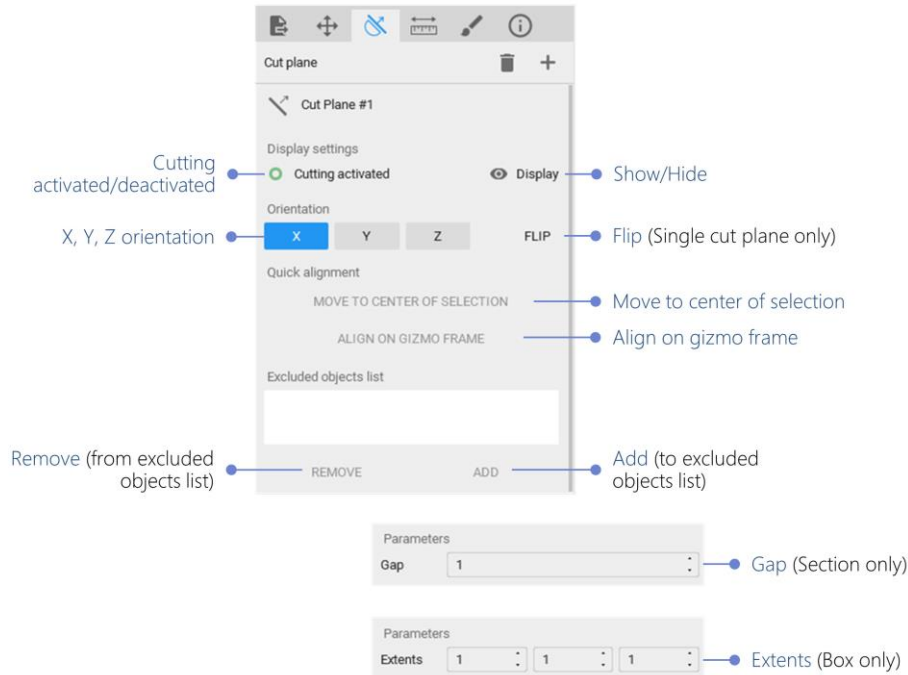
Cut plane edition

Cutting activated/deactivated: Activate or deactivate the cut plane; when deactivated, a cut plane has no effect on the geometry of parts

Show/Hide: Display or hide the cut plane graphical representation in the 3D View

X/Y/Z orientation: Select along which axis (x, y or z) the normal of the cut plane is aligned

Flip (Single cut plane only): Flip the normal of the cut plane

Move to center of selection: Center the cut plane and the current selection of parts

Align to gizmo frame: Fix the orientation of the cut plane so that it gets aligned with the current frame; the current frame depends on the frame mode (see Section Frame mode selector) and the currently selected parts

The **Excluded objects list** is the list of the parts that shall not to be cut by the cut plane by default.

Remove (from excluded objects list): Remove the selected parts from the list of objects getting cut

Add (to excluded objects list): Add the selected parts to the list of objects getting cut

Gap: Set the distance value between the cut planes defining the section

Extents: Set the dimensions of the box

4.3.4 - Measurements

The **Measurements tool** allows the user to perform various types of measurements.

By default, the Measurements tool enables to locate geometric features and their dimensions.

⚠ **All measurement values are indicative and non-contractual**. All the reported values in the measurements tool have limited precision due to floating point round-off errors and the approximation made when using tesselated surfaces. In the estimation of measurement errors, the input data is considered to have absolute precision. In most cases, however, the input data is subject to floating point round-off errors, resulting from inaccuracies in geometric transformations or clamping in the source file data format. Thus, **any measurement error computed by 3D Juump Ace may differ from its actual value**.

4.3.4.1 - Measure item

When the Measurement tool is active, clicking on an object with the left mouse button in the 3D view will select it. Toggling option to `Measure item` indicates a single element measures.
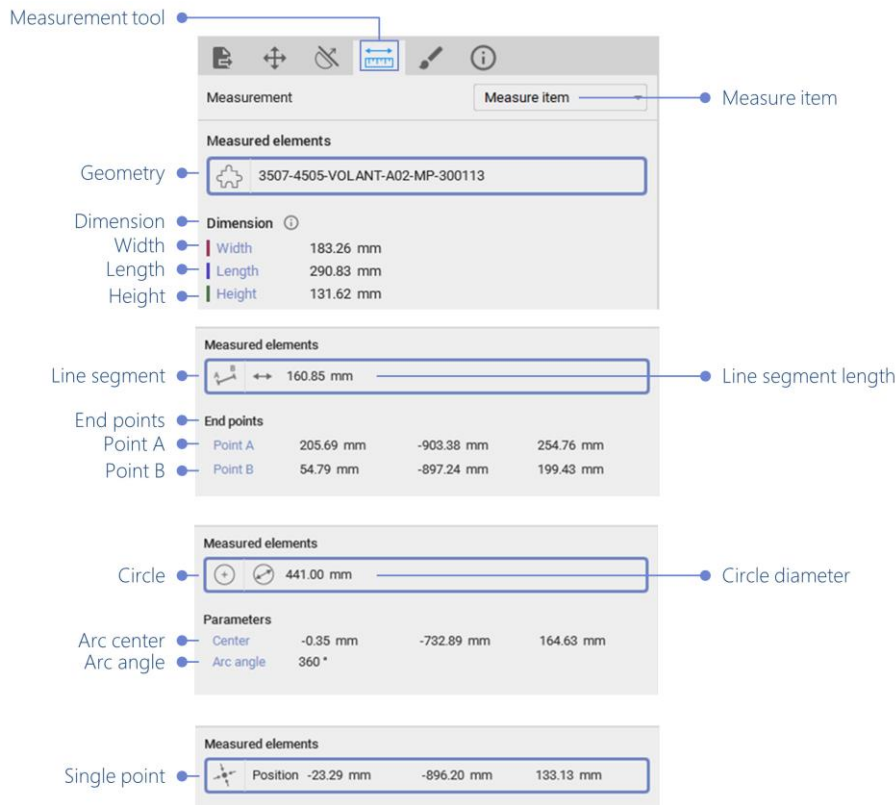
Measure item - Type of elements to measure

Geometry: Full geometry of a part.

dimensions : box dimension providing the **width**, **lenght** and **height**.

Line segment: Edge with the shape of a straight line on the surface of a part; available measurements: length of the line segment

Line segment length: Measurement from end to end of a line

End points: Indicate coordinates of the original and destination points of the designated line segment

Point A: Original point of the designated line segment

Point B: Destination point of the designated line segment

Circle: Edge with the shape of either a full circle or a circular segment on the surface of a part; available measurements: diameter, angle measure of the arc and center of the circle

Circle diameter: Measurement from end to end of the straight line passing from side to side through the center of a circle

Arc center: Coordinates of the center of an arc

Arc angle: Space measured in degrees between two intersecting lines of an element

Single point: Salient point on the surface of a part; available measurement: position of the point in the scene

4.3.4.2 -   Measure between

When the Measurement tool is active, clicking on an object with the left mouse button in the 3D view will select it. Toggling option to *Measure between* computes the minimum distance between this element and any other designated geometric feature (part, circles or single points)
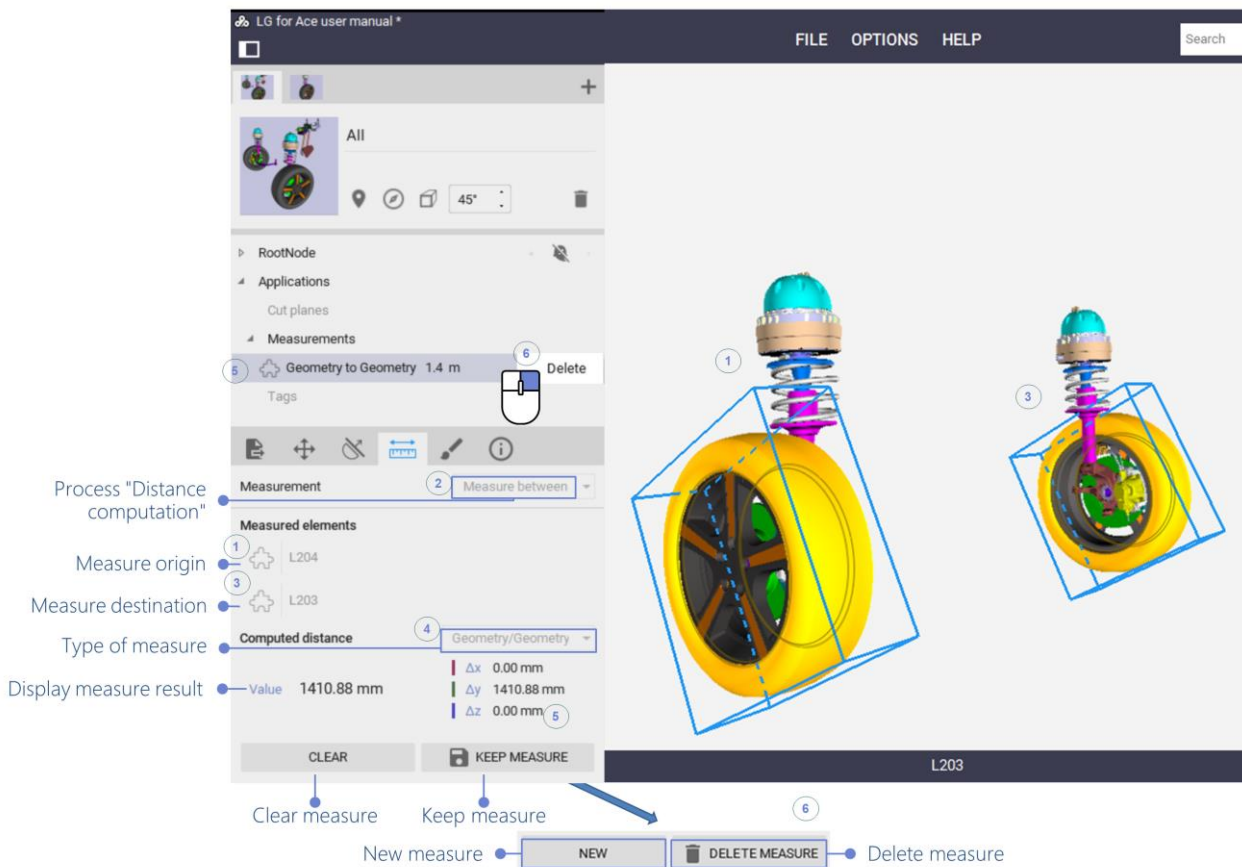
Measure between - © Akka

Process "Distance computation": Activate/desactivate the Measurement tool

Measure origin: Initiate the measure by selecting the origin element in the 3D view (either a geometry, a point or a feature)

Measure destination: Close the loop of the measure by selecting the destination element in the 3D view (either a geometry, a point or a feature)

Type of measure: Depending on the characteristics of the selected elements, several types of measure may be available to chose from. For instance, when one of the selected element is a circle feature, it is possible to measure either from its center or from the nearest point on the circle.

- Point: measure to/from the selected point,
- Line: measure to/from the nearest point on a line,
- Center: measure to/from the center of a circle,
- Circle: measure to/from the nearest point on a circle,
- Axis: measure to/from the nearest point on an axis (the axis of a circle for instance),
- Plane: measure to/from the nearest point on a plane (the plane of a circle for instance),
- Geometry: measure to/from the nearest point on a geometry,
- Box: measure to/from the nearest point of a box (the bounding box of a geometry for instance).

Display measure result: Visualize Measurement result

Clear measure: Reset the measure(s) formerly selected in order to proceed to a new measure calculation

OR

Keep measure: Save the result, it can be accessed later on from the Product Structure (Applications)

Once the measure has been saved, Clear measure button toggles to New measure and Keep measure toggles to delete measure.

New measure: Proceed to a new measure

Delete measure: Delete the designated measure; in the Product structure, a right click on the designated measure pops-up a menu enabling to delete it

4.3.5 - Materials tool
The **Materials tool** defines the appearance of objects in the 3D view.
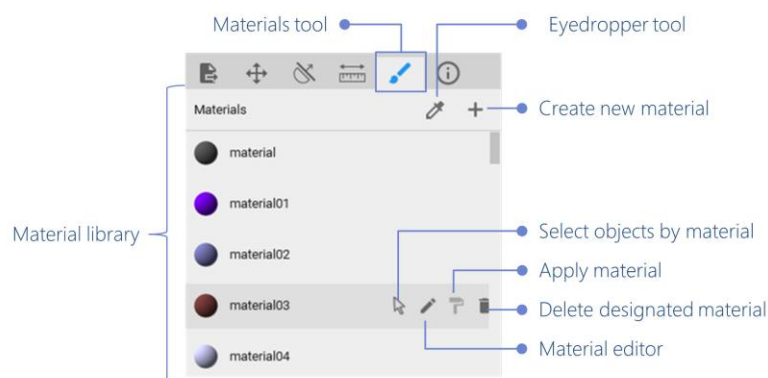
Materials tool

Eyedropper tool: Select material in the 3D view and display in the Material editor

Create new material: Create a new material at the bottom of the Material editor list; the new material appears at the bottom of the *material library*

Material library: Exhaustive list of the available materials of the current project

Overflying a material, the user can:

Select objects by material: Select all objects of the designated material

Apply material: Apply designated materials to the element(s) formerly selected in the 3D view

Delete designated material: Delete the designated material

Material editor: Modify the features of the designated material in the Material editor
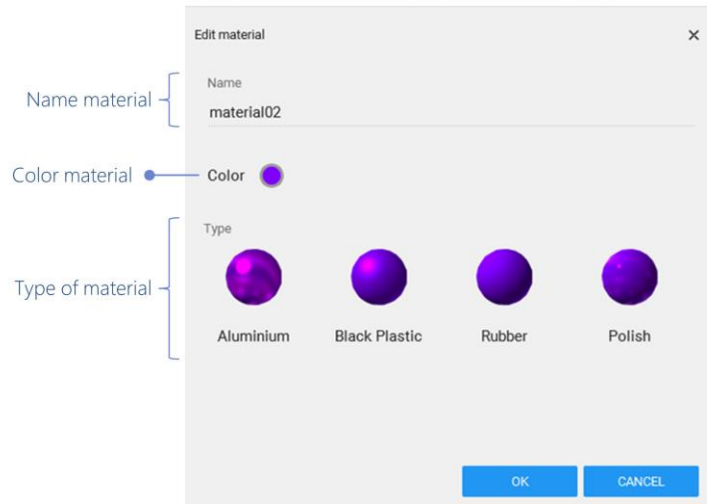
Material editor

Name material: Edit name of the current material

Type of material: Edit the type of material, choice is given between aluminium, black plastic, rubber or polish aspects

Color material: Indicate the color of the material currently selected and enable its modification
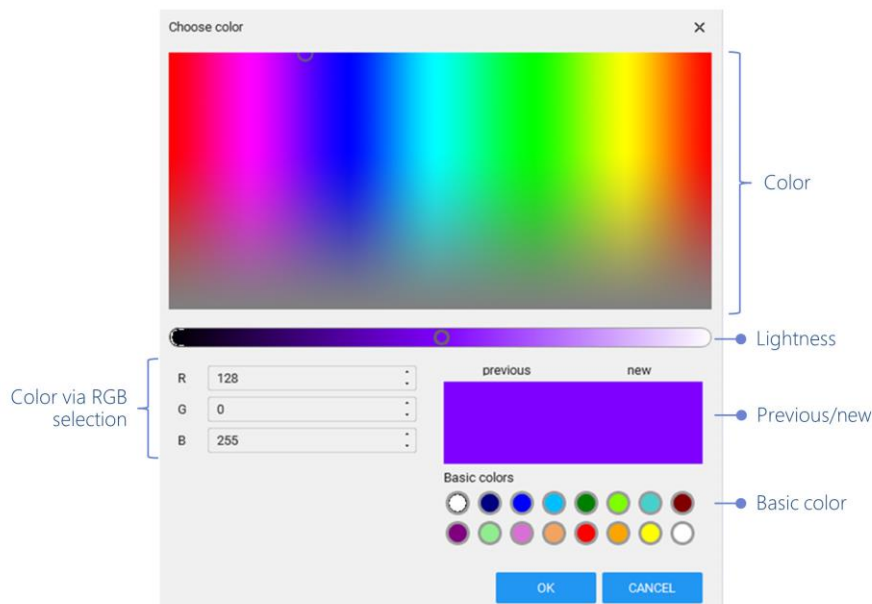
Color material

Color: Edit color of the designated material

Lightness: Edit lightness of the designated material

Previous/next: Compare previous color to the new one you wish to apply

Basic color: Quickly choose a basic color to apply

Color via RGB selection: Choose a color using RGB color code

💡 Materials modifications are applied and saved to the view currently displayed only. Each view is Material independant from the other.

4.3.6 - Information ●

The *Information* dialog displays the metadata and the tag(s) of the 3D part currently selected.

Originally, Information feature is available from the Tool Box which corresponds to the *dock mode*. Nevertheless, a right click in the Information box opens a contextual menu and enables to free-float the window. The information dialog will then be accessible by clicking left on the Mini Id-Card identifier.
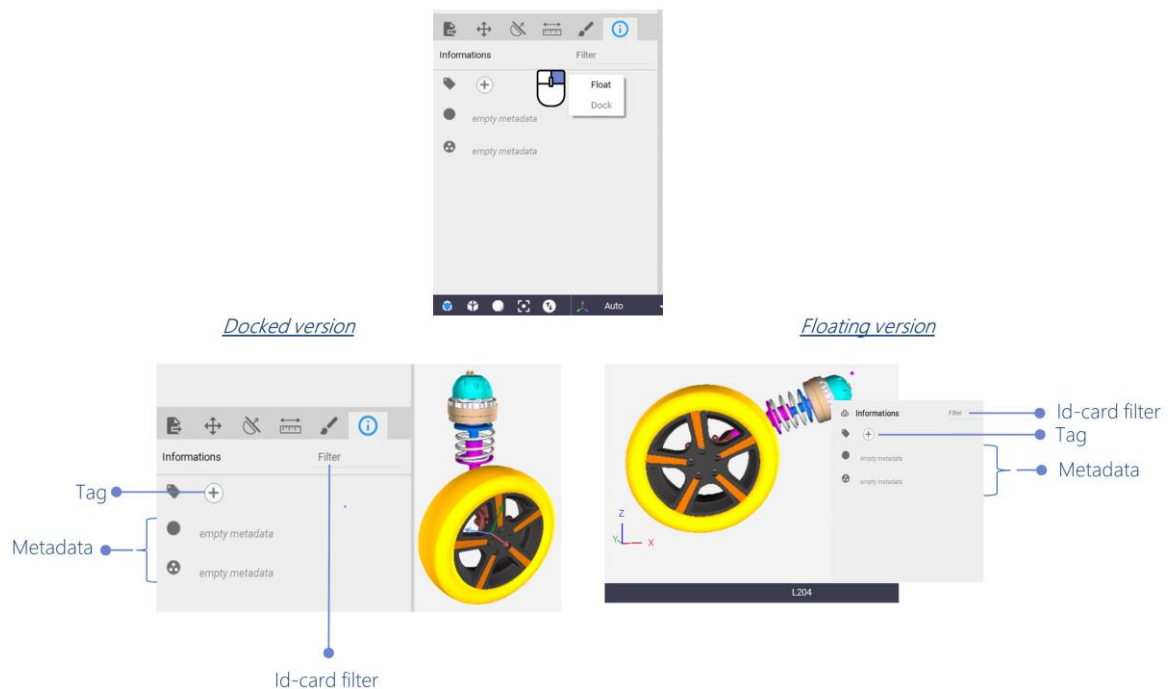
Tool box / Information - © Akka

Id-card filter: Perform search of a particular value on the part metadata

Tag: Create/Edit keyword assigned to a part

Metadata: Provide data that defines the selected part but not represented in 3D.

💡 *Multiselection of parts*: in this event, the Id-card toggles to a cleared mode and displays only the list of all the tags of parts currently selected.

4.3.6.1 - Tag

A *tag* allows to tag one or various selected parts with a keyword to easily find it or them when necessary.
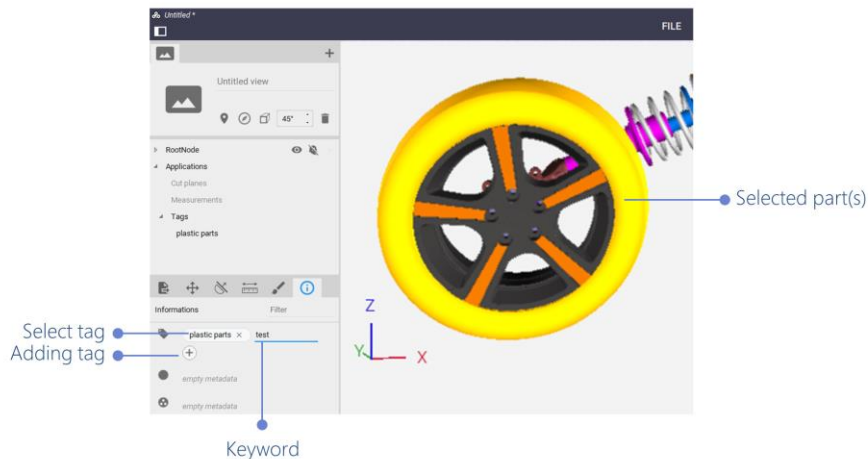
Tool box / Information / Tag

Adding tag: create a tag you select the required part(s), click on **adding a tag** and identify it (them) with a **keyword**. The tag appears then in the product structure box.

Select Tag: It can be used to manipulate multiple-parts together. Select an existing Tag in order to manipulate multiple parts together (**Selected part(s)** in the 3D zone).

Please refer to Tag applications.

4.3.6.2 - Metadata ●

Further the format, the Metadata originate from 3D files; they can be imported from CSV or FBX files.
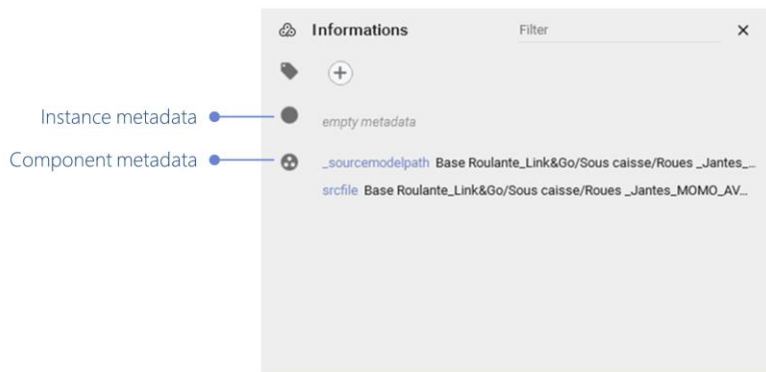
Tool box / Information / Metadata

Instance metadata: Metadata linked to the currently selected part

Component metadata: Metadata linked to the component
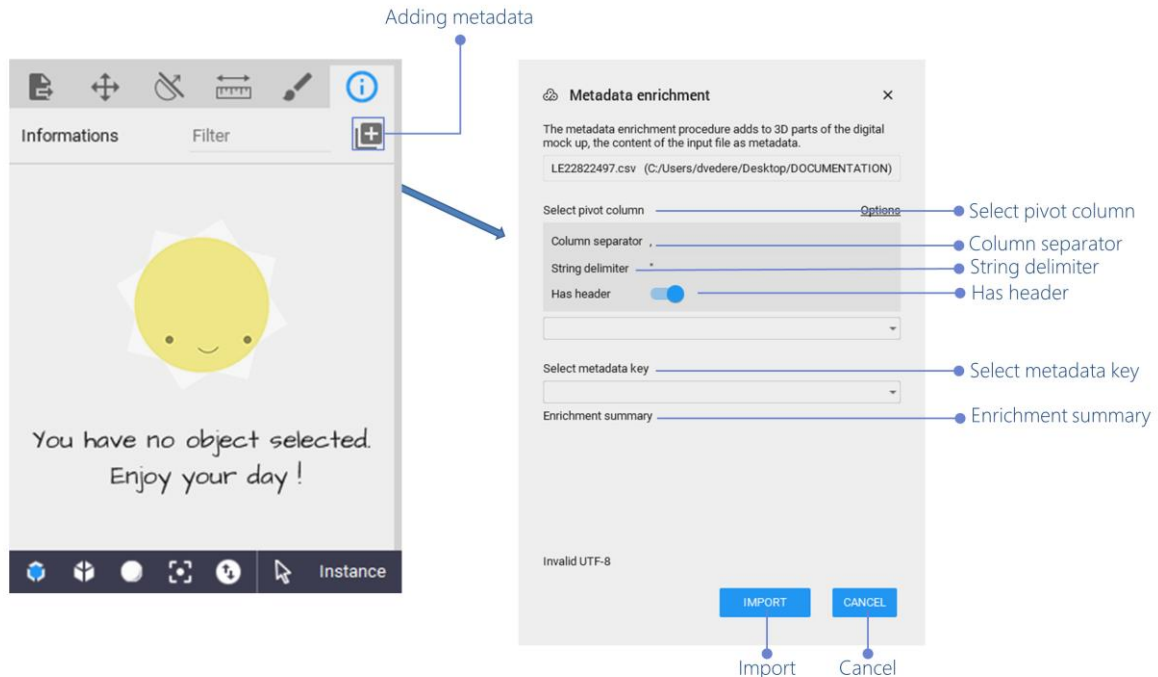
Tool box / Information / Metadata

Adding metadata: ● New import metada tool, to enrich your 3D.

Select pivot column: choose the column in the csv file to use as pivot.

Column delimiter: value separation character in the csv.

String delimiter: character for delimiting strings, all characters between the 2 "string delimiter" are part of the string itself column delimiter.

Has Header: ignores the first line of the csv, it is the name of the column.

Select metadata key: choose the metadata of the scene to use as a pivot.

Enrichment summary: information on the correspondences that will be imported.

Import: when we find a correspondence between the "pivot column" and the "metadata key", we enrich the corresponding object with the metadatas of the csv files.

Cancel: cancels the import.

Program settings

The **Program settings** is the control panel that enables the user to configure the appearance or actions of the application.

It can be opened by clicking on the **Options** entry in the top menu bar of 3D Juump Ace.

The user is then able to select one of the following categories:

General: ● Selection of the renderer type (software or hardware) and settings for balancing performance and quality

Folders: Management of temporary data folders and cache size

Import: Import settings for 3D and text contents of CAD files

Export: Export settings for each output file type

License: Status of the current product license

Reset: Restore default settings

Apply: Perform settings modifications operated since last application

Cancel: Cancel settings modifications operated since last application

1 - General settings

The *Display* settings panel enables to configure the display for optimal rendering performance on his hardware. It allows the user to manage the unit and number of decimals in the application settings for all metric value displays. Will appear in the tools for transformations (translate, align) and 3D displacements, measurements (which once saved are displayed in the PS under Applications -> measures) and for cut planes.
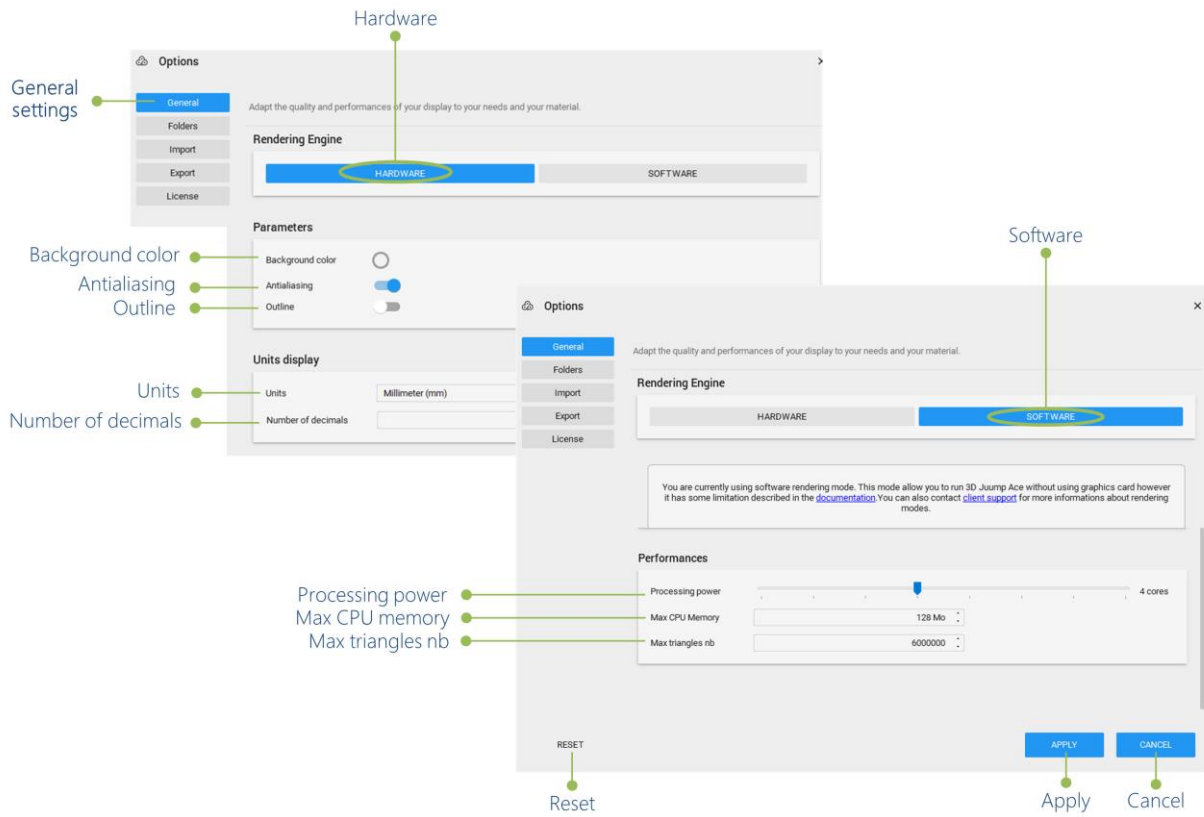
Renderer engine

1.1 - Rendering engine

The user can choose either the *Hardware* renderer or the *Software* renderer for display. Please also refer to [Renderer management](#).

If a graphics card is available on the host computer, the hardware renderer is the recommanded choice since it is likely to provide the best performance. If the display hardware is not supported by the hardware renderer, the user can switch to the software renderer which does not make use of the graphics card.

In general, the software renderer provides less performance than the hardware renderer, except on low-range or integrated graphics hardware. In those cases, if the rendering performance is insufficient with the hardware renderer, the user may get better results by switching to the software renderer.

1.2 - Renderer configuration

Background color: The color of the background; it is possible to set a transparent color for screenshots (only supported in the PNG file format)

Antialiasing (Hardware renderer only): makes rendering smoother at a small performance cost

Outline: sketchs the outline of elements

Processing power (Software renderer only): the number of threads used for display; set to the number of cores of the host CPU for the best performance

Max CPU memory: The maximum amount of memory than can be used by the software to store geometric data; higher value leads to better performance on large scenes with many parts

Max triangles nb: The maximum amount of triangles that can be displayed on a single frame

2 - Folders settings

The **Folders settings** panel enables to configure the cache folder on the Hard Disk Drive (HDD) of the computer, used by 3D Juump Ace for an efficient processing of large models.

Folders

Cache folder: The folder used for cacheing models on the HDD

Cache size: The size of the disk cache; for a better experience, it is advised to set an amount of disk space of at least 1Go

Log file: The path to the log file; the log file contains information on the various events that occur during the execution of the program

3 - Import settings

The **Import settings** panel gives the user control on how the data of CAD files is imported in 3D Juump Ace.

3.1 - Import formats ●

3D Juump Ace is able to process the following formats:

acis, asc Medusa 3D, Autodesk 3DS, Autodesk FBX, CADDS, CATIA V4, CATIA V5, CATIA V6, COLLADA, I-DEAS, IGES, Inventor, JT-Format, NX Unigraphics, OBJ, Parasolid XT-Format, ProEngineer, ROBCAD, STEP AP 203/214, STL, Solidworks, Straessle EUKLID, VDA, VRML, gITF 2, gITF binary, gltf, glb, dae, xgl, zgl, ply, ifc dxf, lwo lws, lxo, x, ac, ms3d, cob, scn, bvh, csm, xml, irrmesh, irr, mdl, md2, md3, pk3, mdc, md5, smd, vta, ogex, 3d, b3d, q3d, q3s, nff, nff, off, raw, ter, mdl, hmp, ndo.

💡 In the case of a ProEngineer file import, external references load existing latest version.

3.2 - Import 3D settings

Some CAD files contain native (parametric) surfaces definitions. These surfaces must be converted to polygons for 3D Juump Ace to display them. The 3D category of the Import settings panel allows the user to modify the parameters used for surface tessellation. For most users, the default tessellation settings should work for all CAD files. They are configured to generate well-balanced meshes providing satisfying visuals for a moderate number of triangles. Only users with advanced knowledge of what these parameters do should try and fix them, as they can decrease either the visual quality or the rendering performances of the surfaces.

Import / 3D

Load hidden objects: Allowed to import hidden parts.

Import / Tessellation

Tessellation quality: Selection of heuristic tessellation

Max face sag: Maximum allowed distance between the planar approximation polygon and the surface. This parameter ensures that mesh is similar enough to the original analytical surface (or the polyline is similar to the original curve).

Max face length: Maximum allowed size of the approximation polygon (for triangulations it can be maximum allowed length of triangle sides). This parameter ensures enough detail for further analysis.

Max face angle: Maximum allowed angle between two adjacent approximation polygons (on the same face). This parameter ensures that even very small humps or hollows that can have significant effect to analysis will not disappear in mesh.

4 - Export settings ●

The **Export settings** panel gives access to the parameters of the exporter tool. This is detailed in Section Export.

3D Juump Ace is able to process the following formats:

JPG, PNG, TIFF, Scalable Vector Graphics, Drawing eXchange Format, Comma-separated value CSV, Autodesk FBX, Collada files, gITF2, gITF2 binary, JT, OBJ, STEP, STL binary, VRML97, VRML97 Compressed, 3DS, DAE, GLTF, GLB.

5 -   License settings

The **license settings** panel gives access to the license request (including renewal) and to the current licensing information; please also refer to License settings.

Annexes

1 - **Release notes**

1.1 - 07/10/2019: version 2.3

- A Trihedron appears in the 3D Zone to understand 3D orientation of the scene. It allows to quickly locate the X, Y and Z axes of the model.

- Visibility mode enables to see the elements which have previously been ghosted and/or hidden.

- Alignment on cutplane.

- New import metadata tool, to enrich your 3D.

- New 3D format import (collada, glTF 2, glb).

- New 3D format export (glTF 2, glb).

- Import of hidden parts is now available.

- Ergonomical improvements of Transformations, including visual display in the 3D.

- Add a "ALIGN" transformation mode to line up objects axis to axis.

1.2 - 14/03/2019: version 2.2.1

- Bug Fixes

1.3 - 11/02/2019: version 2.2

- 3D Juump Ace is now available on Windows 10 Store

- Add outline rendering

- Add a way to adjust de pivot point during rotation

- Add support for uniform scale

- Add ability to import files at any level in the product structure

- Add boxing selector and bounding box size filter

- Add JT 3D export

- Add STEP 3D export

- Add ghost mode to visible space

- Speed optimisation

- File loading optimisation

- Better energy management for laptop

1.4 - 24/05/2018: version 2.1

- Change material on active selection during drag and drop

- Improve UI management of materials

- Fix bug in product structure manipulation

- Update scene statistics on preview 3D

- Add surfacique measure point

- Update UI of measurement

- Export vectorial preview to image file

- Add the token borrowing when connected to license server

- Add rotation in transformation mode

- Update UI for transformation mode

- Update UI for external reference resolver

- Add Tag

- Add DXF vectorial export

- Add the definition of the world orientation by view

- Bug fixes

1.5 -   18/08/2017: version 2.0

- Initial release

2 -   Export control classification

3D Juump Ace is subject to the US Export Administrative Regulations (EAR) 15 C.F.R. part 730 et seq. for the country Group E:1 and E:2 which are, at the date of the License Terms and Conditions: Iran, North Korea, Sudan, Syria and Cuba. In particular, the user shall not use, export or re-export 3D Juump Ace in those countries and with end users or for end uses in breach of the US export control regulations.

For more information regarding this topic, please refer to the License Terms and Conditions.