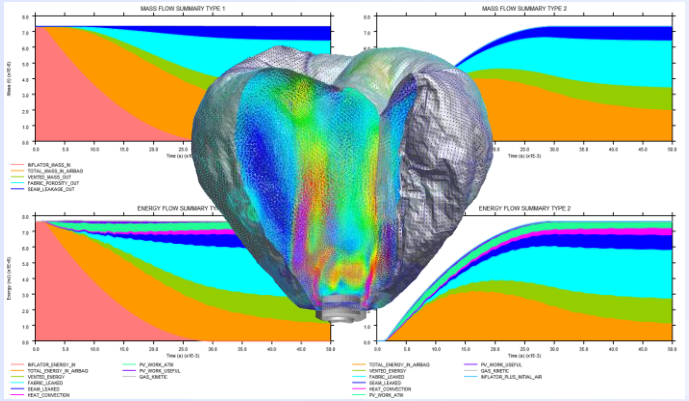
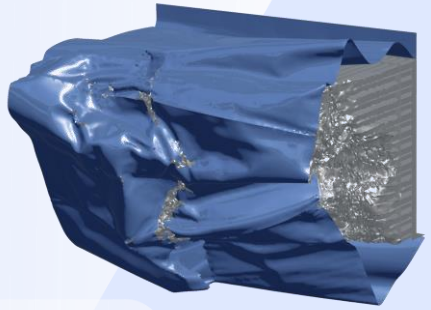
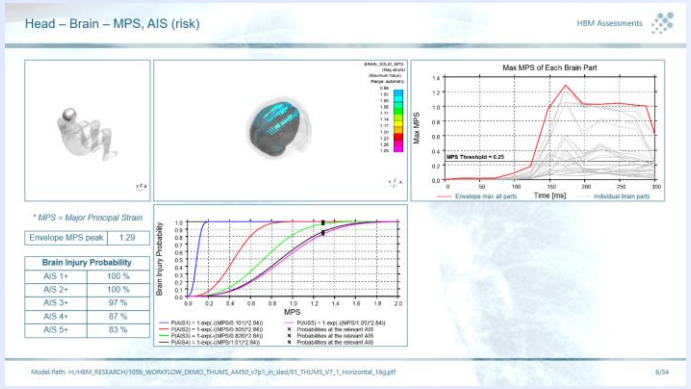
D3PLOT 23.0

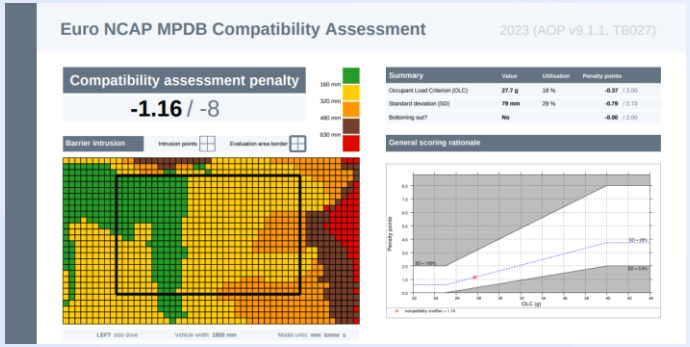
Oasys
LS-DYNA Environment

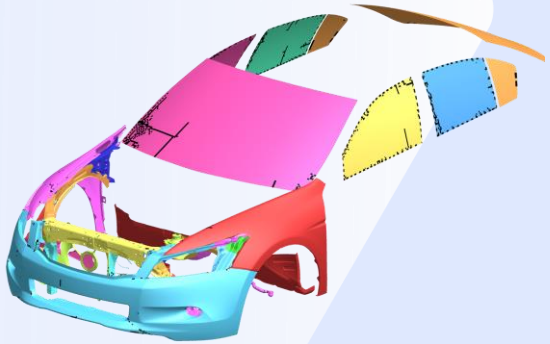
D3PLOT 23.0 – Contents





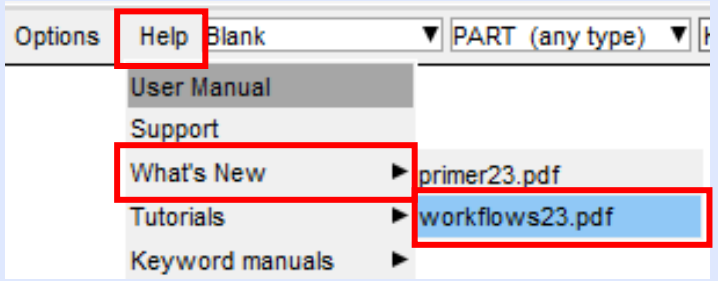






Workflows

- Workflows now has its own dedicated New Features document, which you can find in the Help menu of each program and on the Download pages of our website.
- Workflows 23 includes:
  - New Airbag Toolbox
  - New HBM Assessments
  - New Utilisation Workflows
  - Upgraded MPDB Compatibility Assessment
  - Expanded automotive protocol support
  - The latest Virtual Testing solutions

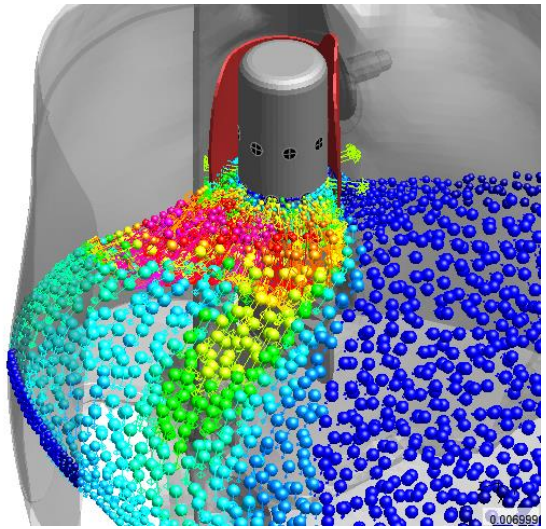


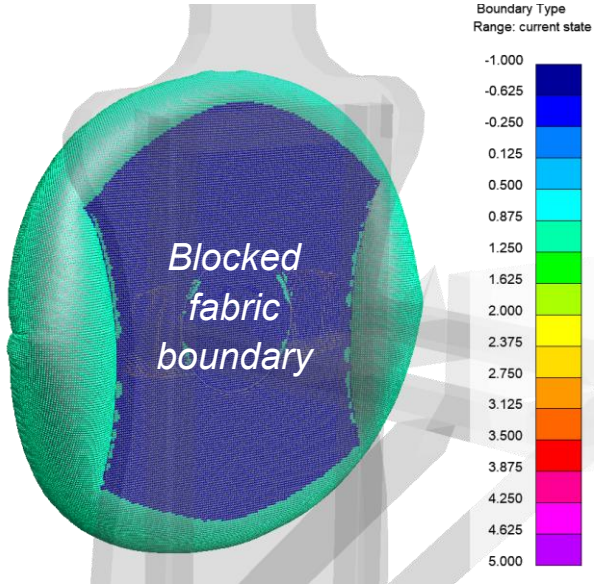

Complete Ansys LS-DYNA Support

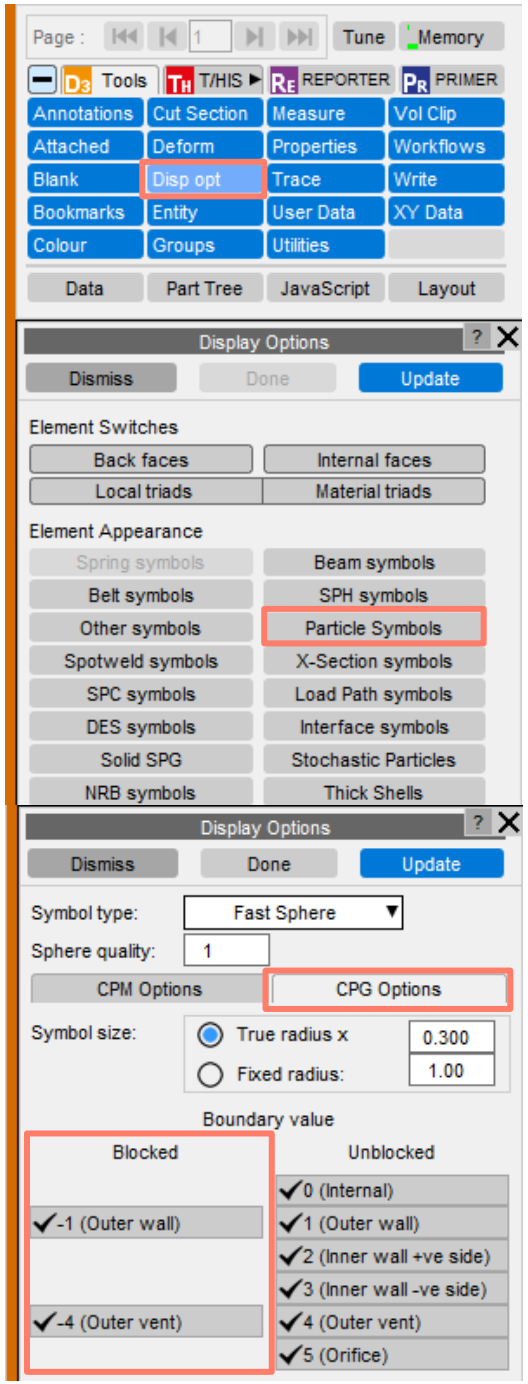
Support for *AIRBAG_CPG

Support for *AIRBAG_CPG

- Full support continues for the new CFD solver, Continuum Particle Gas (CPG), specialised for airbag gas dynamics.
- Since 22.0, support has been added for visualising airbag boundaries blocked by contact:
  - The blocking function is activated by BLOCK in ***AIRBAG_CPG**
  - Where segments are blocked, the CPG particle contour “Boundary Type” = -1.0 for outer walls and -4.0 for vents
  - In **Particle Symbols**, new visibility switches have been added for blocked outer walls and vents



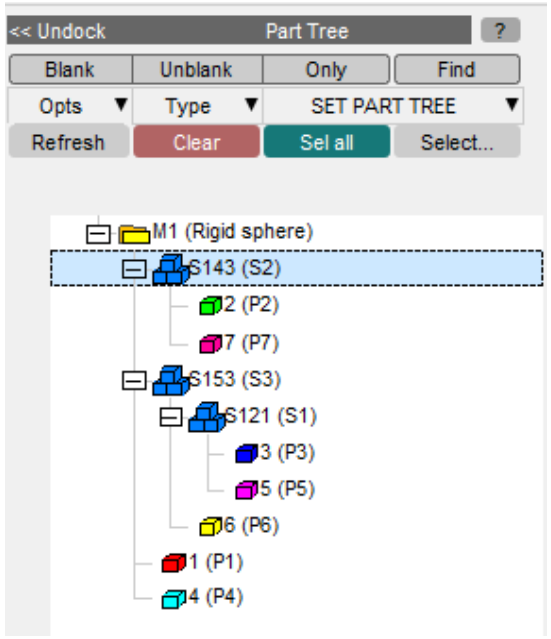


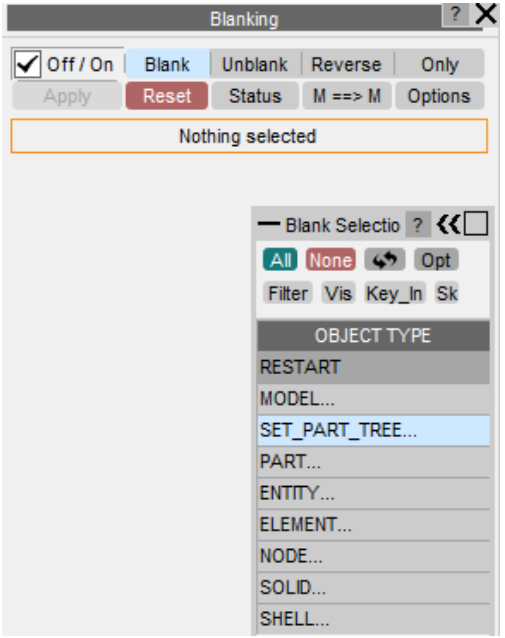


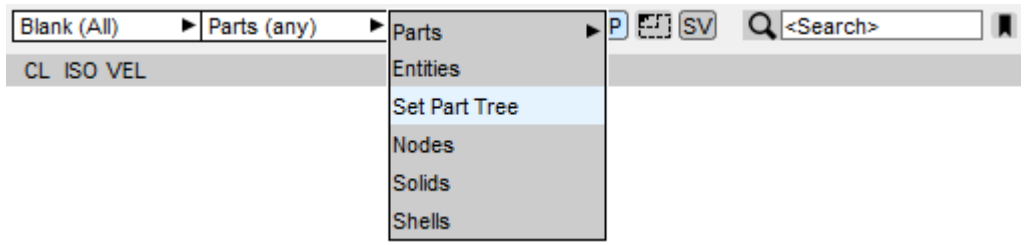
Support for *SET_PART_TREE

Support for *SET_PART_TREE

- ***SET_PART_TREE** can be used to setup hierarchal groupings of parts.
- If it is available in the *d3plot/.ptf* or a FEMZIP (.fz) file, ***SET_PART_TREE** information is now read into D3PLOT and displayed in the Part Tree.
- If it is available in the model, ***SET_PART_TREE** can be accessed from the object menu and picking menu.



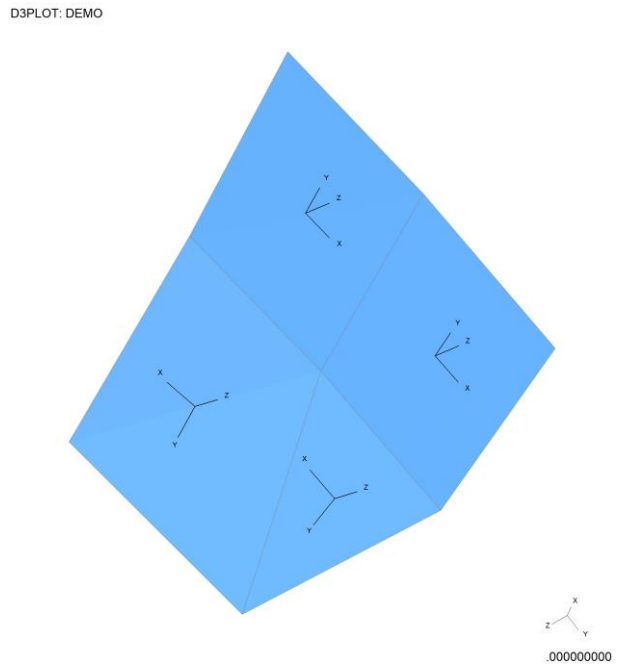


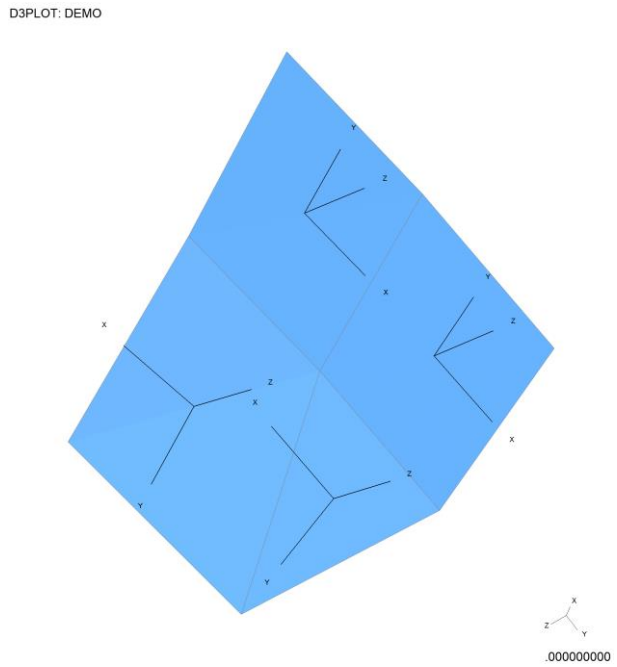


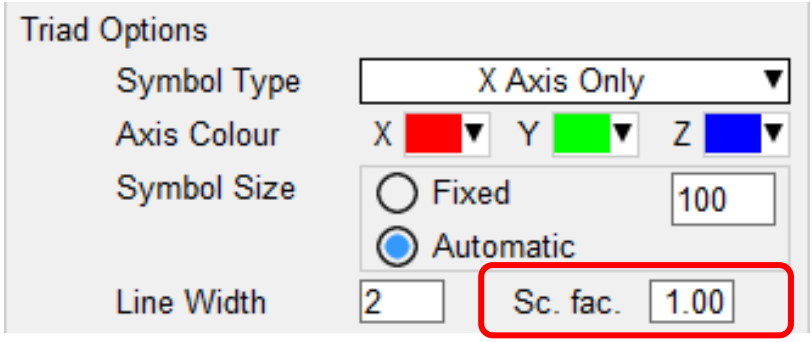
Local Axes Size Options

Local Axes Size Options

- Element triads or local X, Y, Z symbols could previously already be drawn using either a fixed user-defined size or using automatic size computation based on element length. A new scale factor has now been introduced for use with the automatic mode which enables you to increase or decrease the symbol size.








Speed and Performance

Photorealistic Graphics

Photorealistic Graphics

Create high-fidelity, presentation-ready visuals in real time using D3PLOT's photorealistic graphics capability. Real-world material attributes, reflections and environment mapping make simulation results appear more life-like than ever. Teams can communicate outcomes more clearly and persuasively to engineering, leadership, and external stakeholders without needing to export or convert the underlying CAE model.

D3PLOT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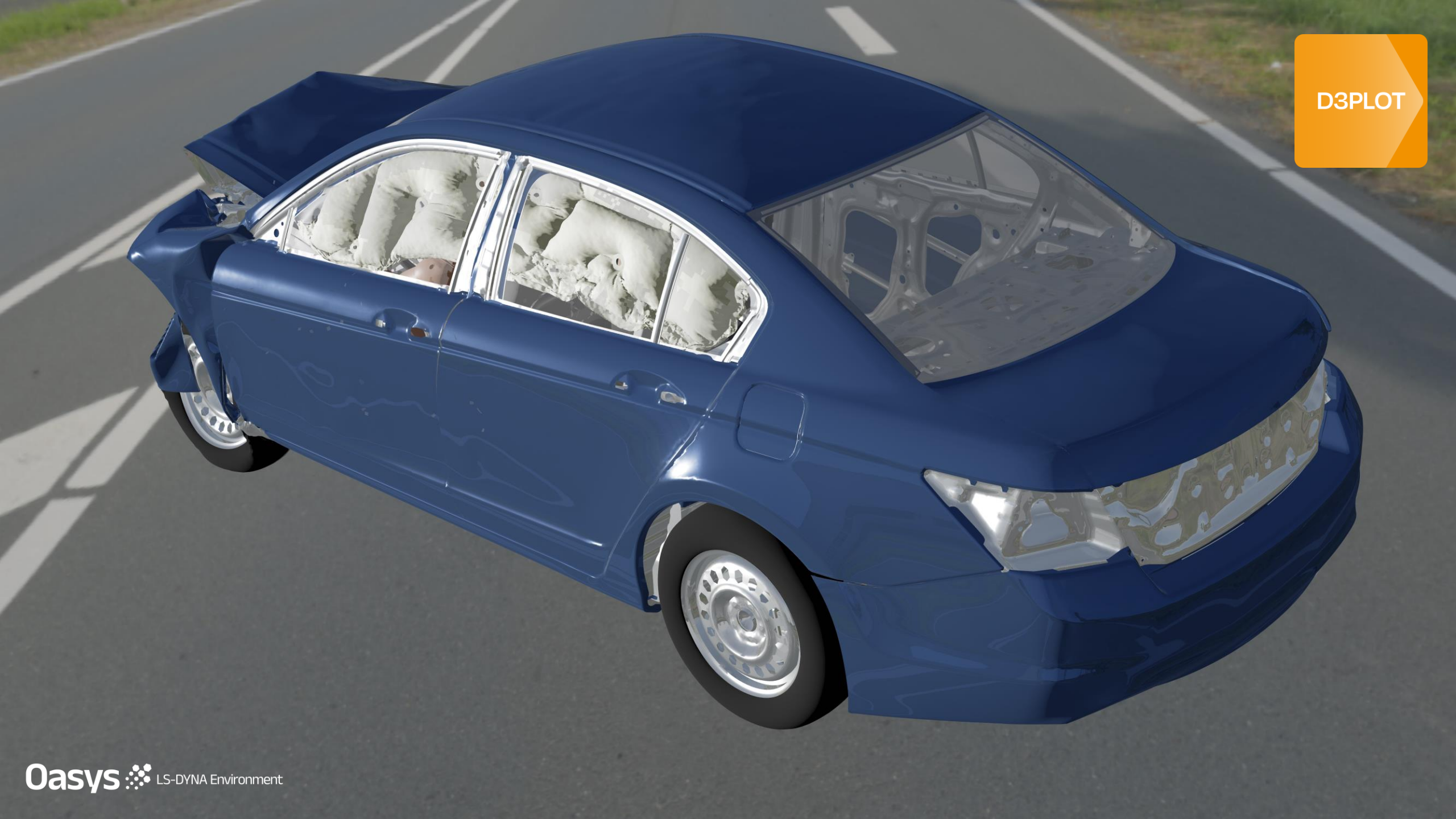
D3PLOT
Oasys
LS-DYNA Environment


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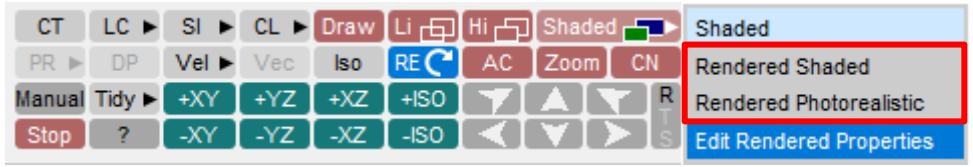
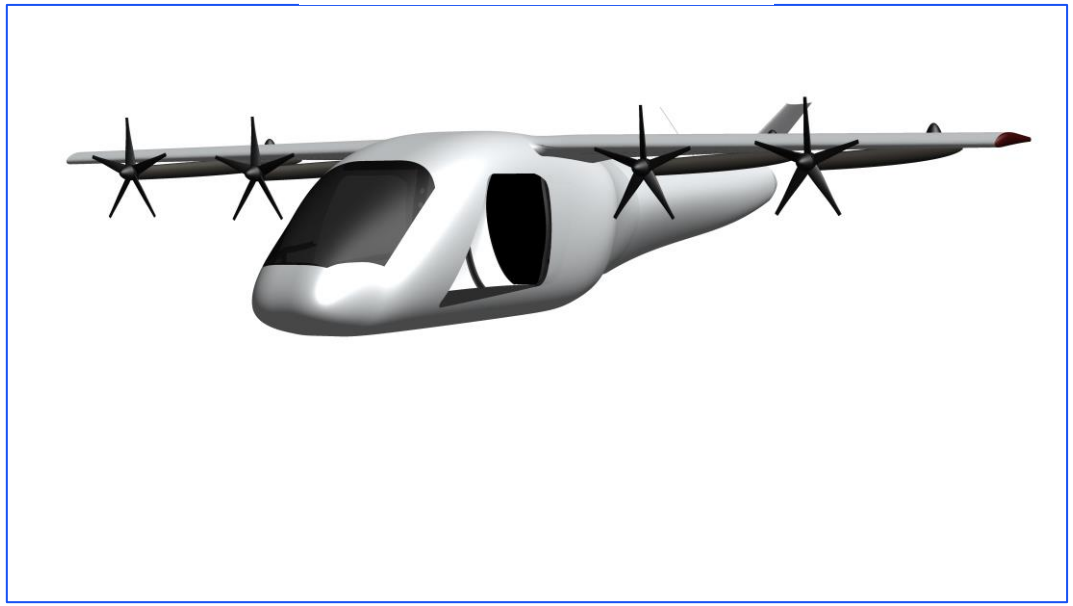
D3PLOT
Oasys LS-DYNA Environment

Photorealistic Graphics

- Two new rendered plotting modes have been added to Shaded mode that use render material properties to produce photorealistic results:



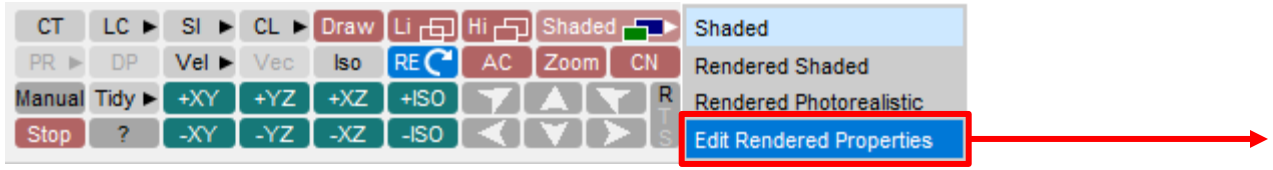
Rendered Shaded

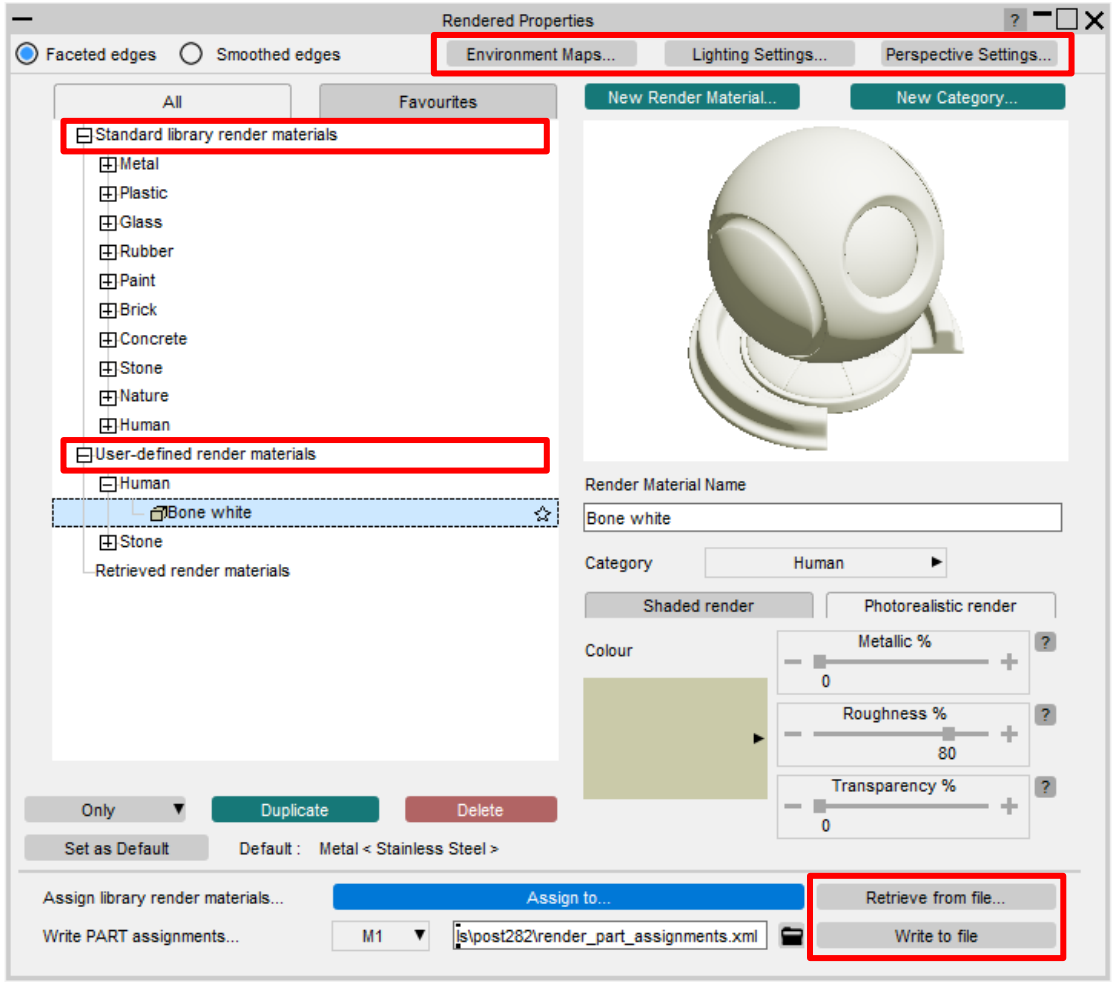


Rendered Photorealistic

Photorealistic Graphics

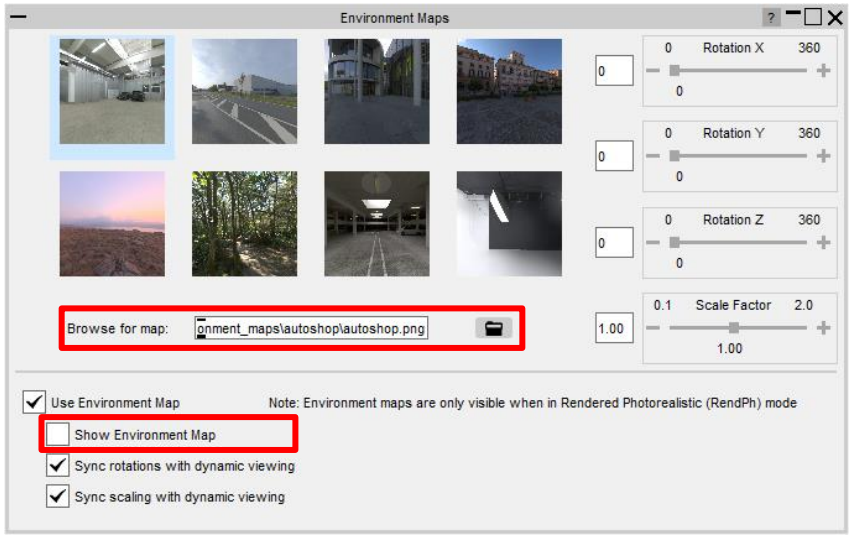
- Assign render materials from the standard library of render materials or customise them to create new user-defined materials.
- Assign render materials to selected *PARTs, *SET_PARTs, *INCLUDEs, and *MATERIALs.
- Save assigned render materials to a file and retrieve them later.
- Environment maps and related settings are accessible from the panel.





Photorealistic Graphics

- D3PLOT provides eight built-in environment maps. You can also import custom maps.
- The background environment map can be toggled on or off from the panel.



Show Environment Map **OFF**

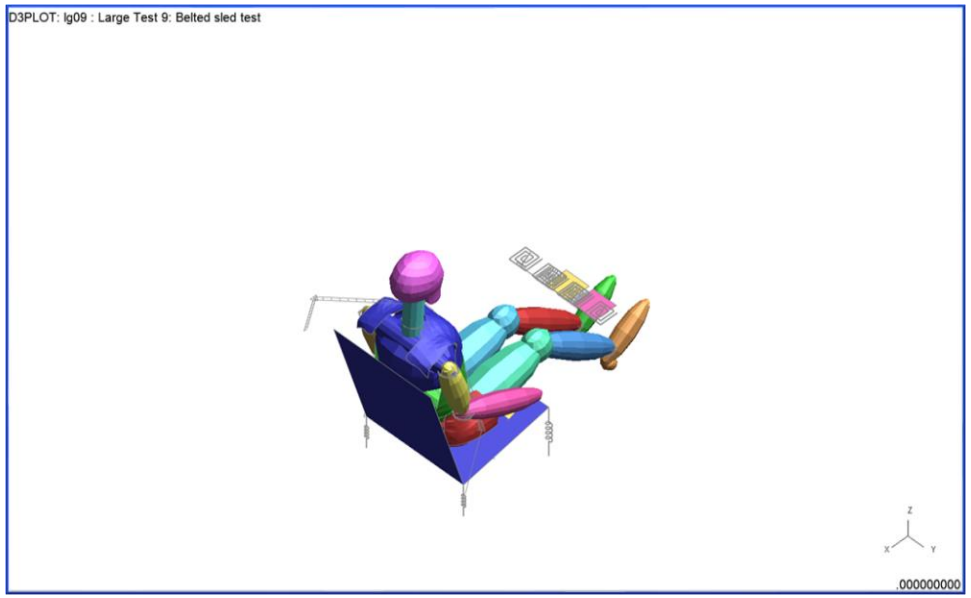
Show Environment Map **ON**

Autoscale

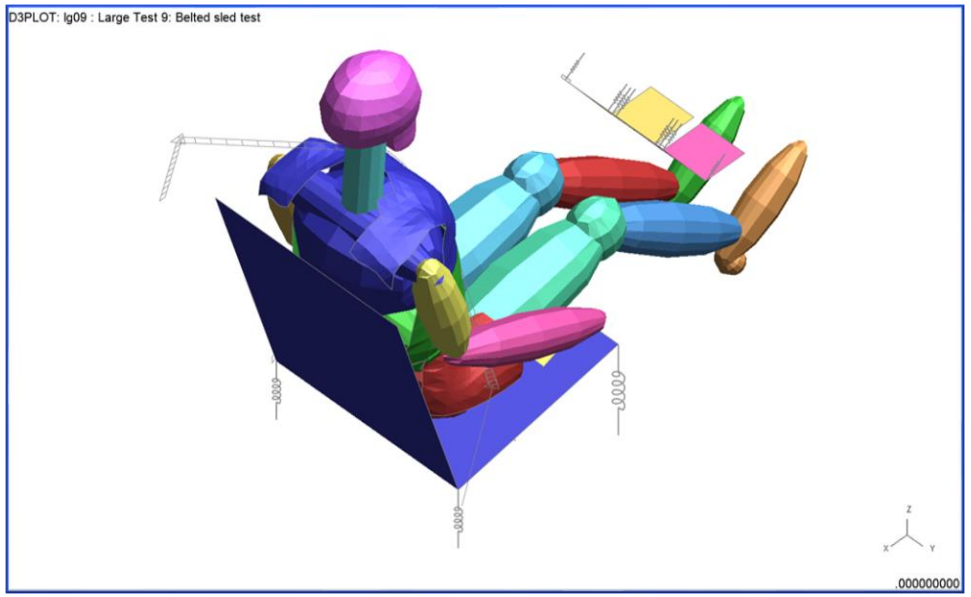
Autoscale

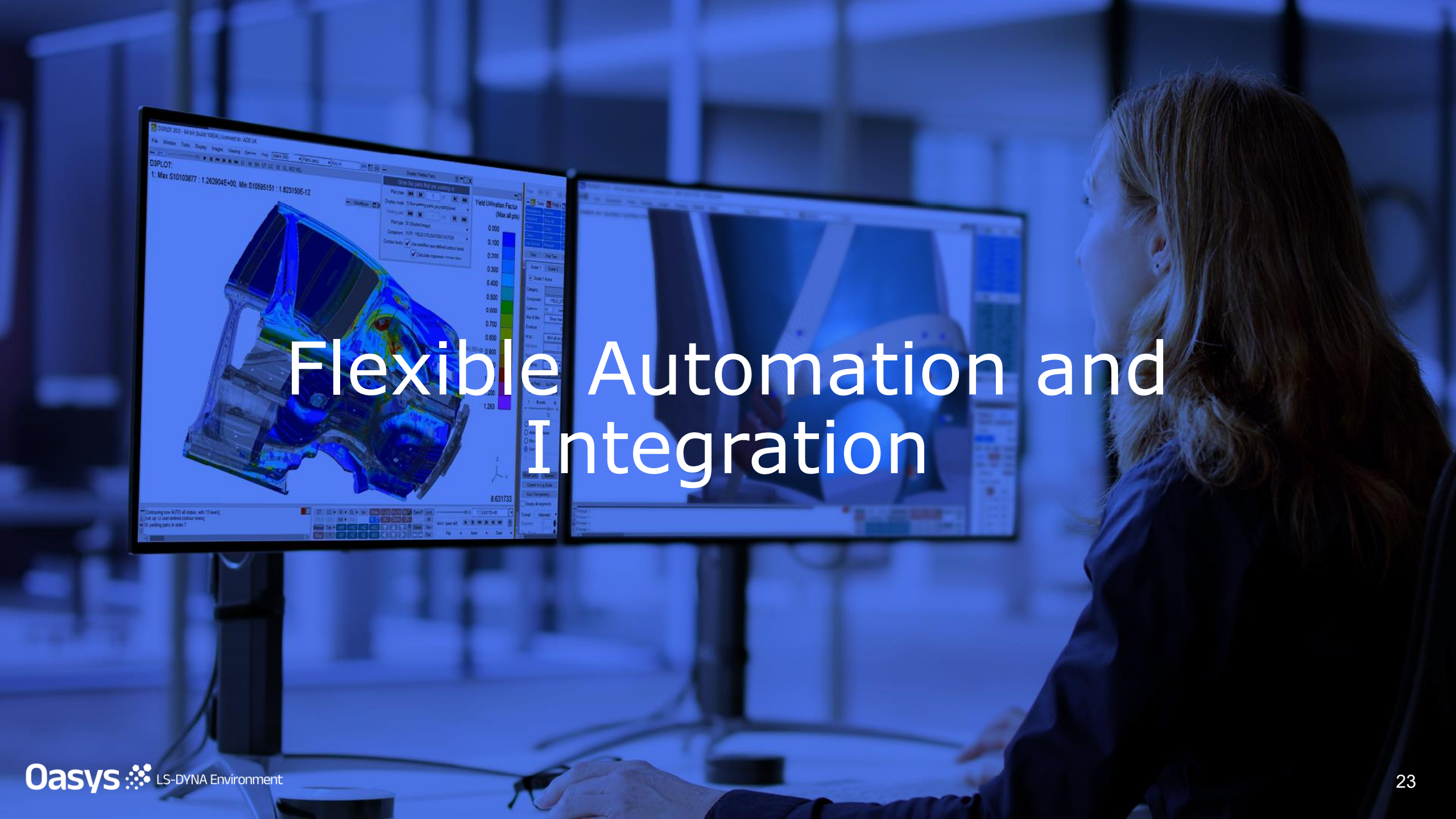
- Autoscale (shortcut key ‘a’) now fits the model size to the window using screen space rather than using model space.
- This reduces the extra empty space sometimes seen after autoscaling.

D3PLOT 22.1



D3PLOT 23.0




Flexible Automation and Integration

JavaScript and Python APIs

JavaScript and Python APIs

- There are now properties in the classes Beam, Contact, Node, Part, Segment, Shell, Solid and Tshell for the display options of these items:
  - colour
  - transparency
  - displayMode
  - overlayColour
  - overlayMode
- There is now a new CutSection class in the D3PLOT JavaScript and Python APIs.
- For the .GetData and .GetMultipleData functions in the Beam, Shell and Tshell classes there are now constants for the 'ip' option to get the maximum, minimum etc. across all integration points:
  - Constant.MAX_ALL
  - Constant.MIN_ALL
  - Constant.MAG_ALL
  - Constant.AVERAGE
- In the Page class there is now a new function Page.Current() to get a Page object for the currently selected page.

JavaScript API

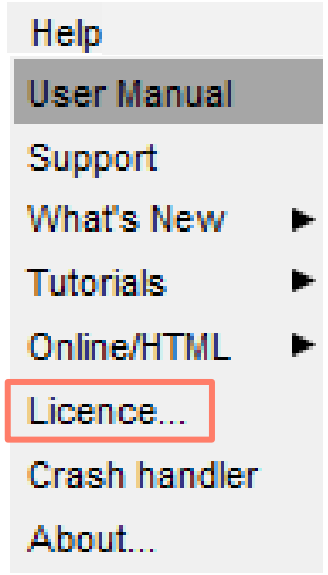
- It is now possible to define a callback function when the state changes in D3PLOT. This will be defined with GraphicsWindow.StateChangeFunction(my_callback);
  and then my_callback will be called for each graphics window whenever its state is changed interactively.
- There is a new function Part.GetConditionParts with the same functionality as the global GetConditionParts but returning an array of Part objects instead of indices. This new function is also supported in the Python API. This function also supports node-based and spotweld components in addition to the previously supported element-based data.
- In the constructor for the Measure class the properties node1, node2, node3, part1, part2 and window can now be specified as Node, Part or GraphicsWindow objects instead of indices or labels. This is more intuitive and more consistent with other API methods.
- There is a new Link class in the JS API to enable the programs in the Oasys suite to start and pass information to/from the other programs. It is the JavaScript equivalent of the user interactively pressing ‘PRIMER’ from D3PLOT and then passing data between the programs. See the Link class in the JavaScipt API documentation for more details.
- Colour properties can be set to Colour.DEFAULT. For overlay colours there are now also Colour.CURRENT for the colour selected under Display Options and COLOUR.ENTITY for the overlay to be the same colour as the entity itself.

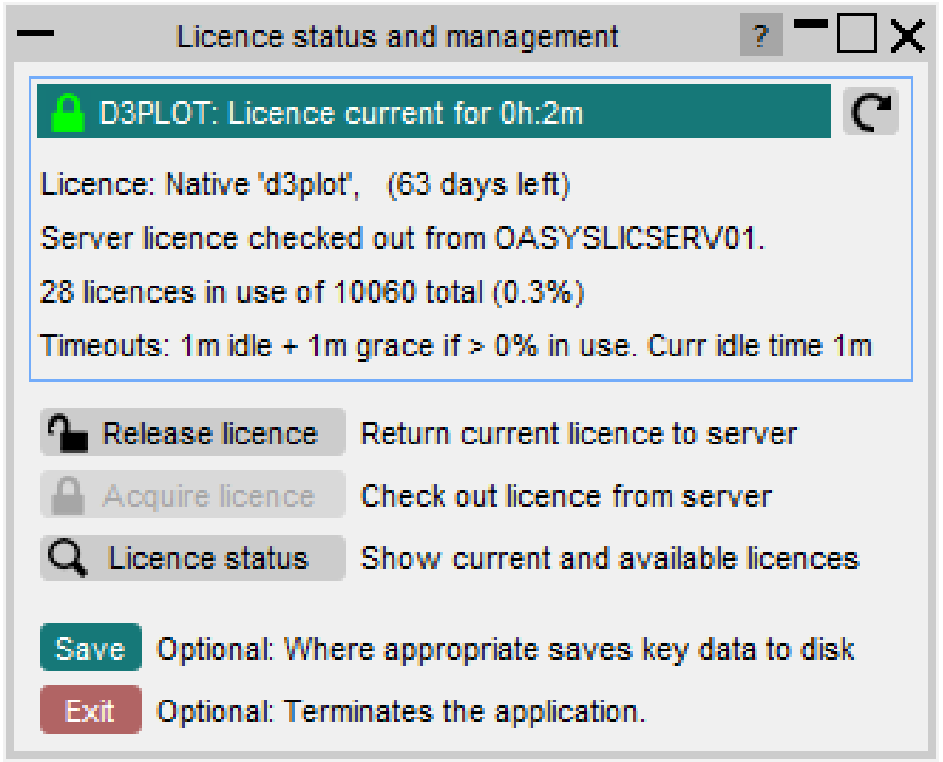
Other Developments and Preferences

Licence Manager

Licence Manager menu

- Oasys Suite 23.0 introduces a new Licence Manager window to display and control licensing.
  - Invoked from **[Help] Licence**
  - Displays current licence status
  - Interrogates the licence server to obtain overall licence usage data
  - Allows the user to release a licence temporarily
  - Manages the licence situation following “timeout”
  - Manages the licence situation after loss of connection with the licence server.



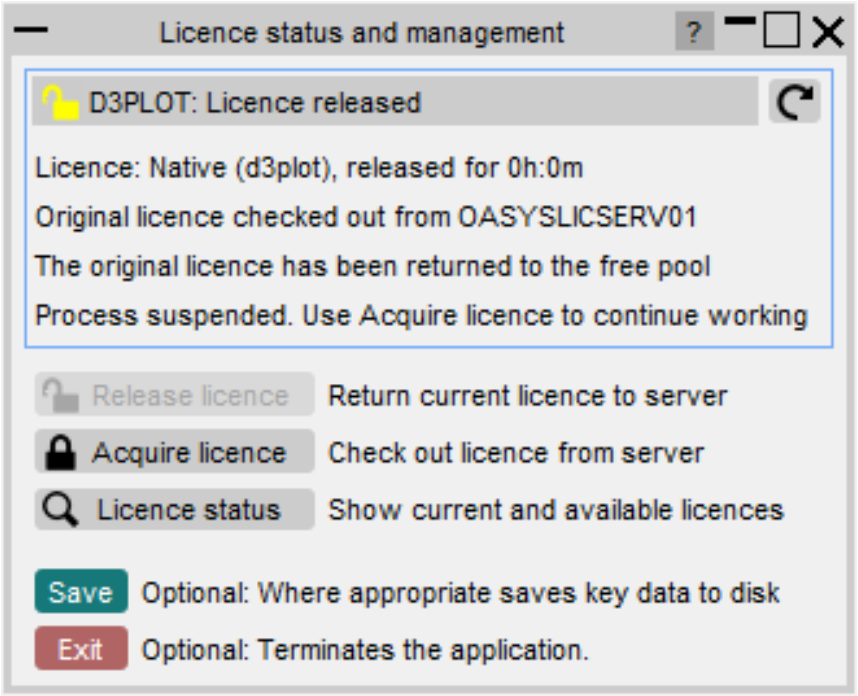


This shows the normal active licence status

Licence Manager menu

- Releasing a licence
  - **Release Licence** returns the current licence to the server's free pool.
  - The process is suspended, no data or work are lost.
  - The Licence Manager panel remains mapped in this state allowing to licence to be re-acquired at any time.

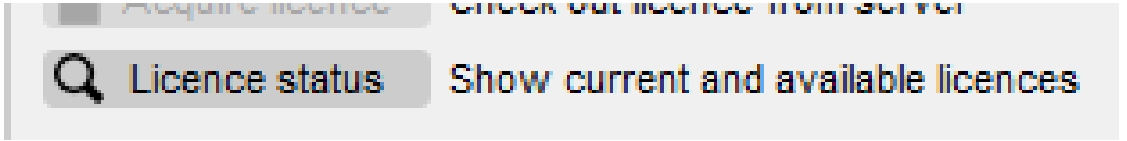
- Re-acquiring a licence
  - **Acquire licence** requests a new licence from the server. If successful, the process resumes.
  - If no licences are available the Licence manager retries at 30 second intervals until one becomes free, whereupon the process resumes. It remains suspended until this occurs.

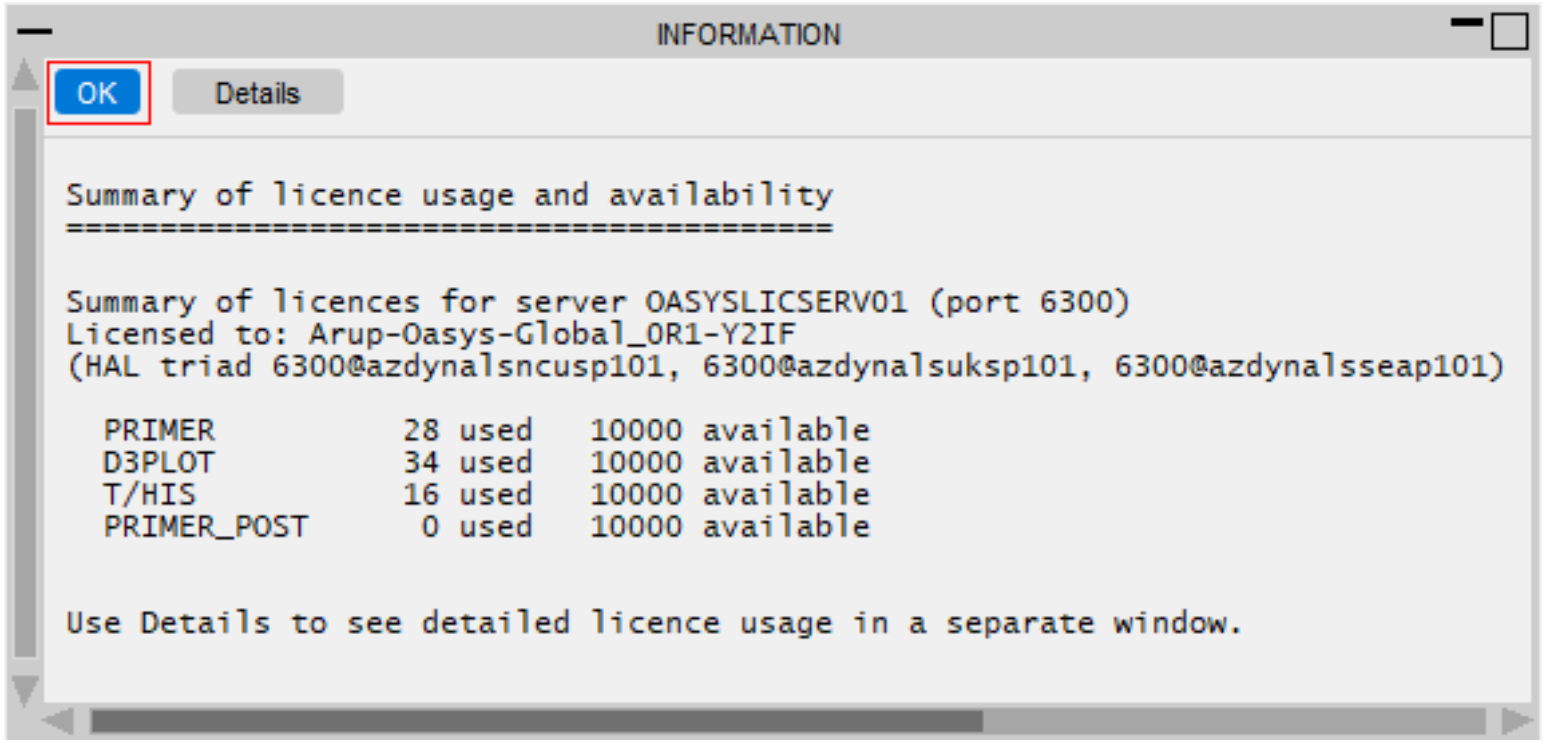


This shows the "licence released" state

Licence Manager menu

- Licence status
  - Obtains information about overall licence use.

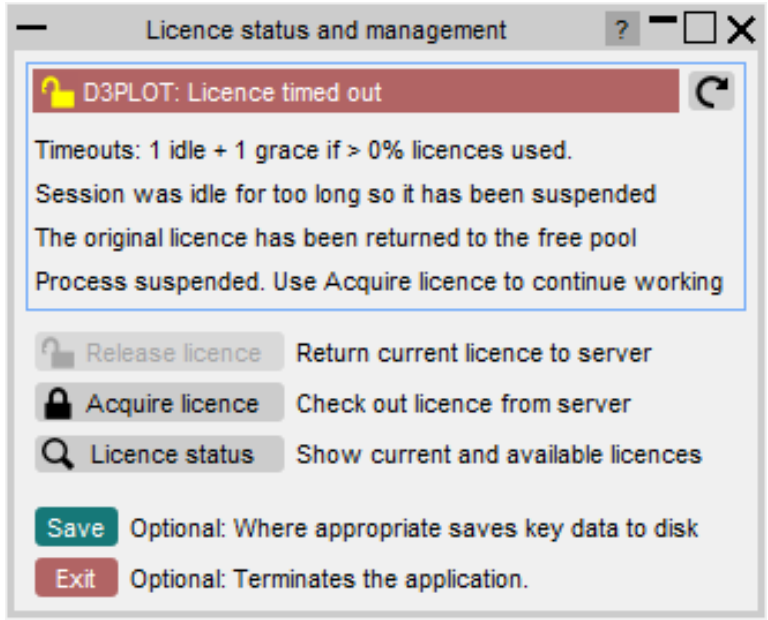




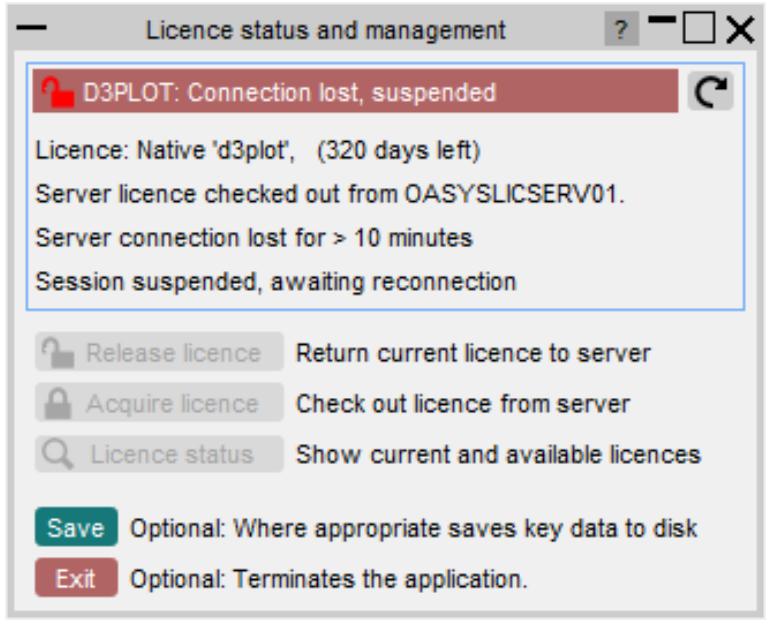
- **Details** interrogates the licence server using the lmxendutil utility to obtain detailed listings of all individual licence use.
- This information is written to a separate terminal window as it can be quite lengthy.

Licence Manager menu

- Managing the licence after “timeout” or loss of connection with the licence server.



Process suspended by “timeout” following a sustained idle period.



Process suspended after >10 mins loss of server connection.

- In both these situations the Licence Manager displays the current status. On the left **Acquire Licence** will resume the session, on the right it will resume automatically once connection with the licence server has been restored.

Timeout Control

Timeout Control

- A configurable time limit determines when PRIMER, D3PLOT, T/HIS and REPORTER shut down automatically.
- The duration is controlled through the OASYS_TIMEOUT environment variable.
- Once this threshold is reached, the program exits in a safe manner.

New Preferences

New Preferences

Preference	Description
`d3plot*cut_reload_method`	Reload cut-sections from settings files using v22 method for all, v23 method for all or v22 method for pre-v23 settings files and v23 method for v23 and later settings files
`d3plot*gtune_use_msaa`	Whether or not to use a MSAA buffer in Photorealistic Plots
`d3plot*render_library_userdefined`	Location to check for user-defined render materials XML file
`d3plot*triad_auto_scale_factor`	Scale factor used in automatic triad size mode

Contact us

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LS-DYNA Environment

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