

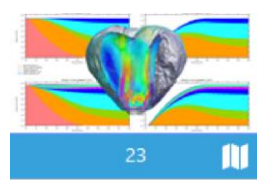
# Workflows 23.0

# Workflows 23.0 – Contents

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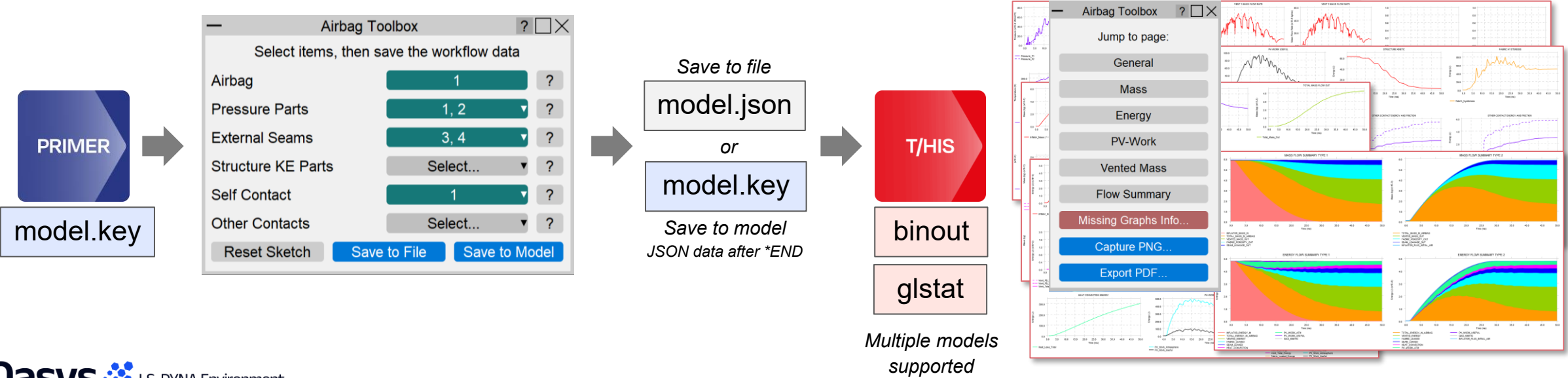


# Airbag Toolbox



# Airbag Toolbox Workflow

- Quickly generate six pages of essential CPM/CPG airbag results in just two steps with the new Airbag Toolbox Workflow:
  1. Select key airbag data in the PRIMER Workflow menu (most inputs are selected automatically)
  2. Open the Airbag Toolbox Workflow in T/HIS to generate graphs
- Pages showing general information, mass and energy evolution, components of PV-Work, vents and mass/energy summaries are presented.
- Multiple models are supported, enabling back-to-back comparisons of CPG and CPM.
- Built-in expert knowledge helps increase understanding of CPG/CPM airbags and Ansys LS-DYNA.

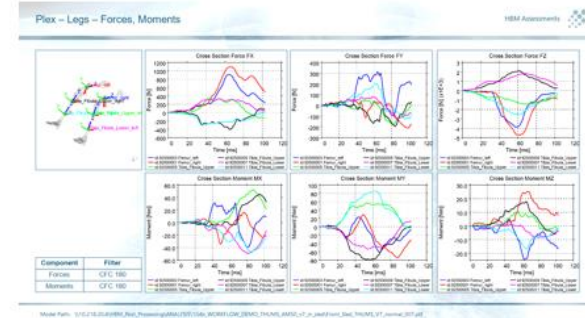
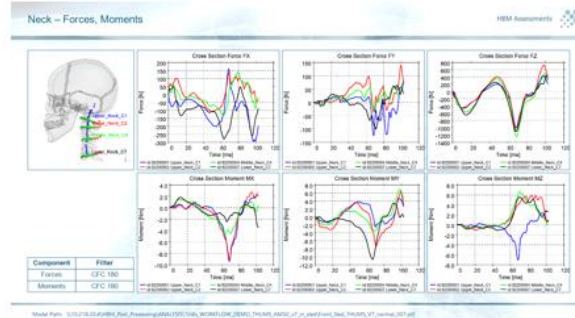
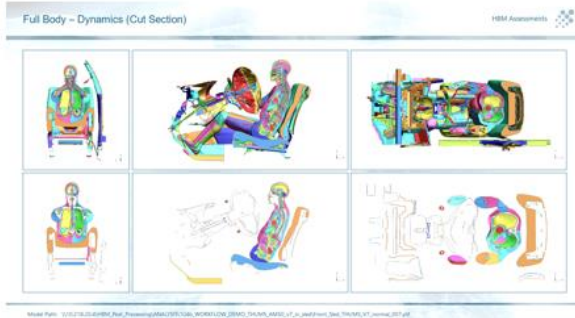
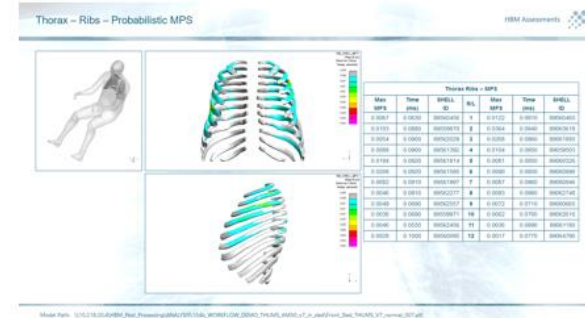
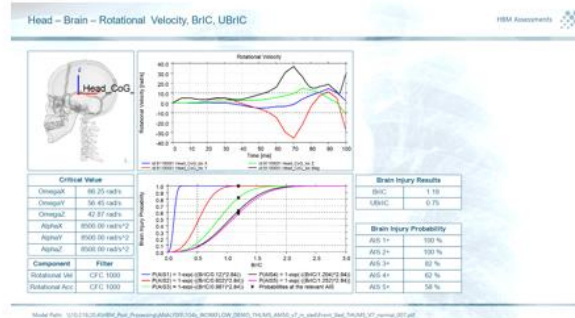


# HBM Assessments

# HBM Assessments

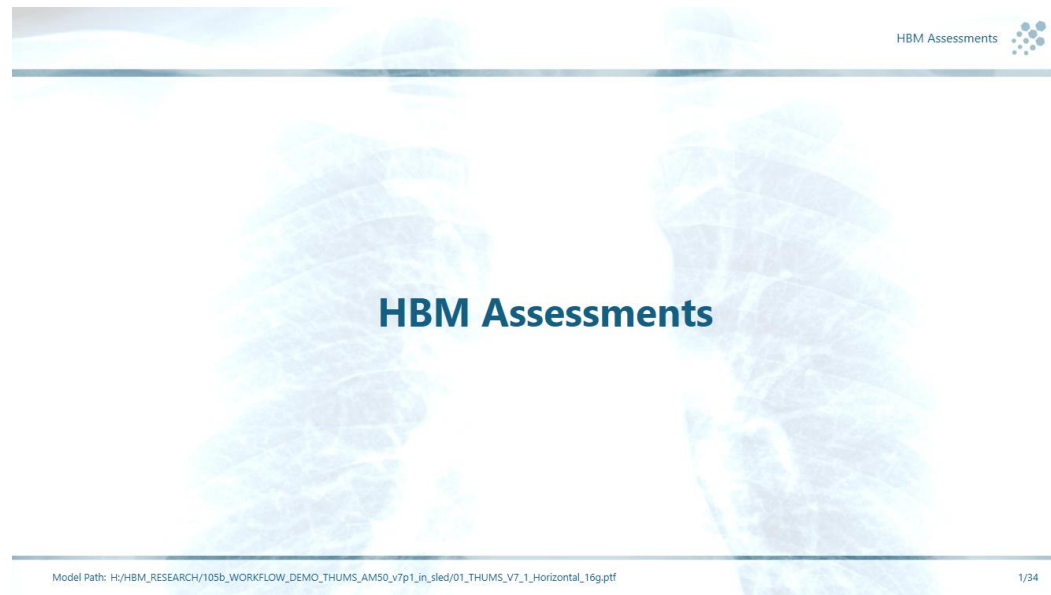
Use the HBM Assessments workflow to process human body model (HBM) simulations according to consumer safety NCAP protocols and the latest industry research.

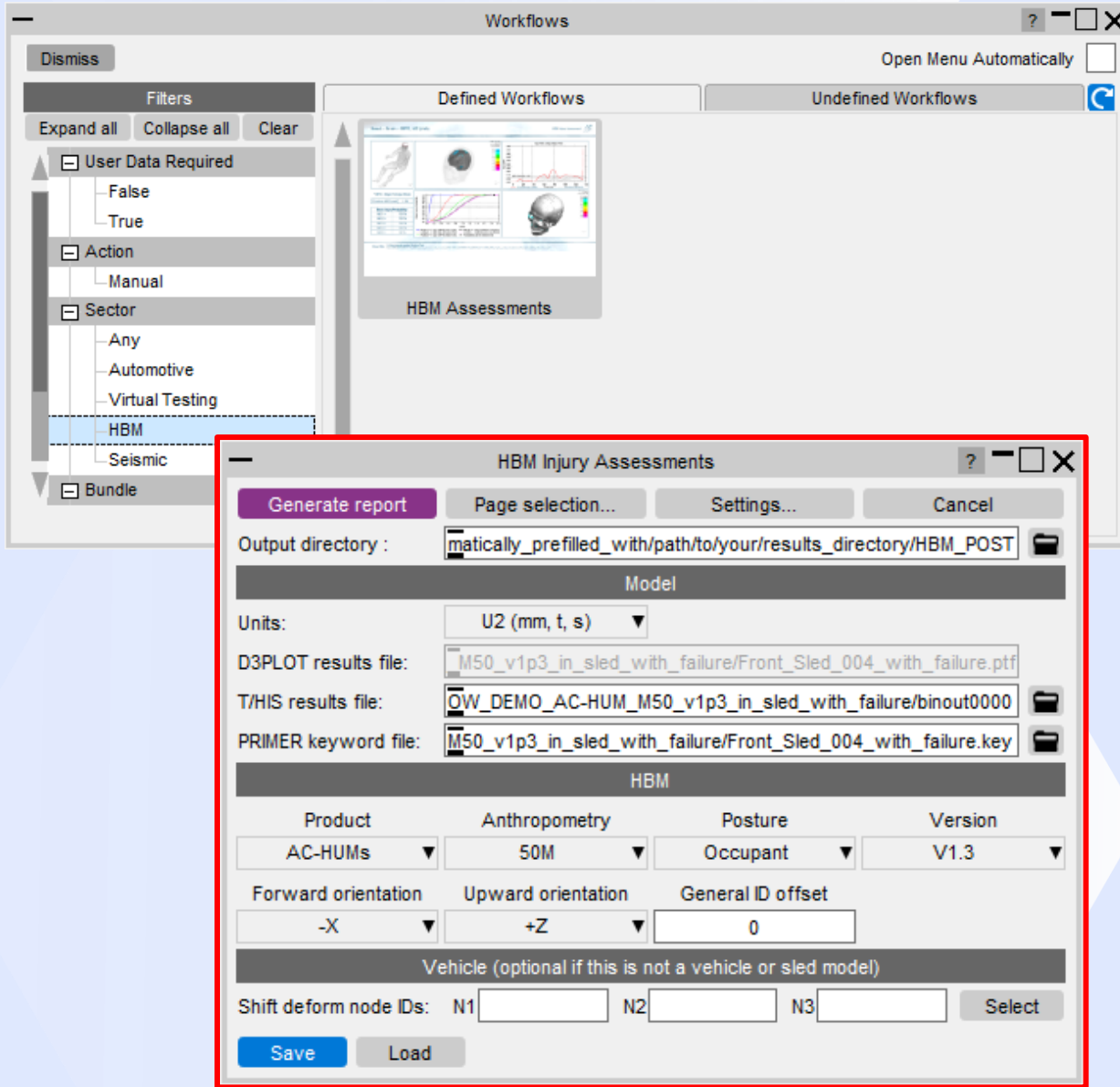
- Choose from one of the [supported HBMs](#)
- Generate reports with images, animations, graphs and key results data covering kinematics, dynamics, eroded elements, head and brain injury, rib fracture risk probability, and more.



# HBM Assessments

- There are three ways to generate an HBM Assessments report:
  1. [Interactive D3PLOT](#) (recommended)
  2. [Interactive REPORTER](#)
  3. [Batch REPORTER](#) (automation)



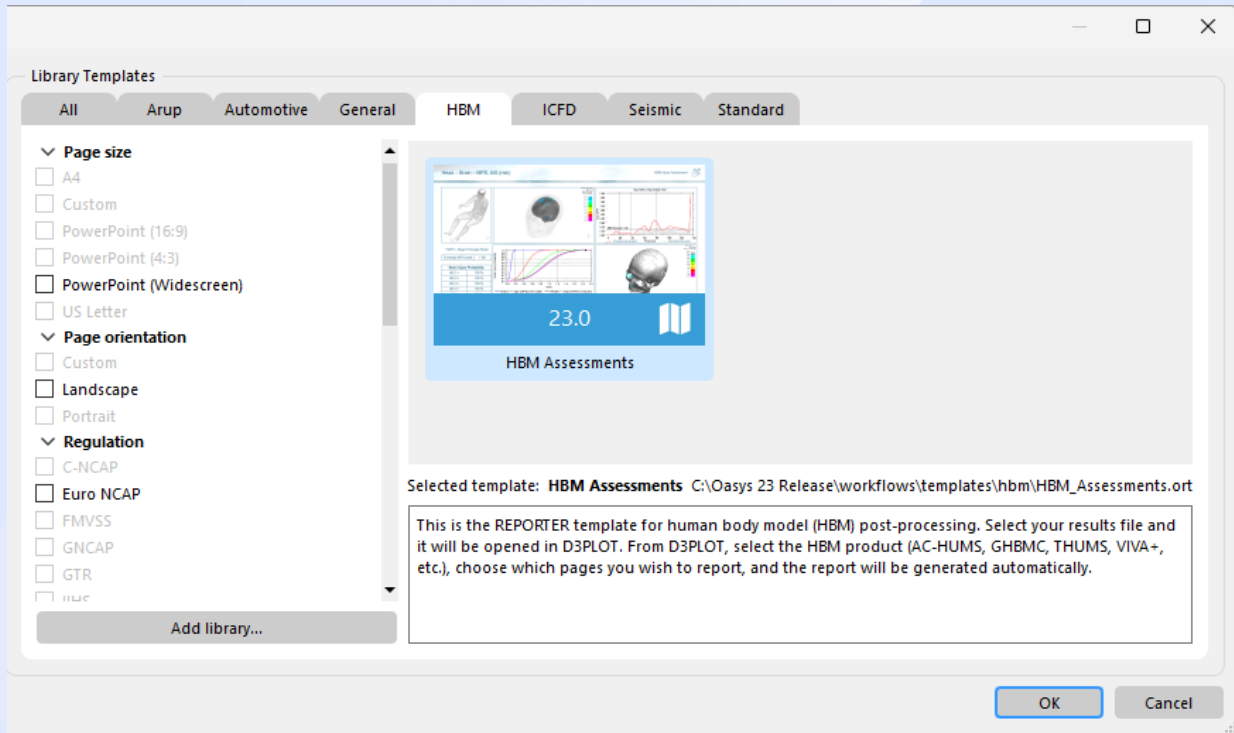


## Interactive D3PLOT Workflow

- The interactive D3PLOT Workflow is the recommended approach if you are using HBM Assessments for the first time. Simply open your HBM model results in D3PLOT. Select **Tools** → **Workflows** → **HBM Assessments**.
- The HBM Injury Assessments window will open, enabling you to configure the report for supported HBMs.
- Configure your settings as described in the following slides, then click **Generate report**. REPORTER will launch and generate the report.

# Interactive REPORTER Workflow

- The interactive REPORTER workflow is similar to the D3PLOT workflow, but starts in REPORTER. Select **File** → **Open Library Template...**, select the **HBM** tab, and open the **HBM Assessments** template.
- Upon opening the template, you will be prompted with a question asking you to locate the D3PLOT results file. Once selected, D3PLOT will launch the HBM Assessments window. Configure your settings as you would for the [interactive D3PLOT workflow](#), click **Generate report** and wait for the report to finish generating.



# Batch REPORTER Workflow

- You can configure REPORTER to generate the HBM Assessments report automatically in batch, without user interaction. You need to have an HBM Assessments [workflow user data](#) JSON file in a parent directory which can be created interactively by clicking [Save in the HBM Injury Assessments window in D3PLOT](#).
- You can then use [SHELL → REPORTER → Batch](#) or [execute REPORTER from the command line](#) to generate the HBM Assessments report automatically in batch.

Argument	Description	Required
-varOUTPUT_DIR	The directory where results will be output	Yes
-varKEYWORD_FILE	Path to the master keyword file	Yes if -varDEFAULT_DIR and -varDEFAULT_JOB not provided
-varDEFAULT_DIR	Path to the directory containing the master keyword	Yes if -varKEYWORD_FILE not provided
-varDEFAULT_JOB	The base name of the master keyword	
-varD3PLOT_RESULTS_FILE	Path to the LS-DYNA results to open in D3PLOT	Optional: define if results are not in the same location as the -varKEYWORD_FILE or -varDEFAULT_DIR
-varTHIS_RESULTS_FILE	Path to the LS-DYNA results to open in T/HIS	

Example command line (execute all arguments in a single command line):

```
/path/to/oa_install/reporter23_64.exe  
-file=/path/to/workflows/templates/hbm/HBM_Assessments.ort  
-varKEYWORD_FILE=/path/to/analysis/001/hbm_001.key  
-varOUTPUT_DIR=/path/to/analysis/001/HBM_POST  
-report=/path/to/analysis/001/HBM_POST/hbm_001.orr  
-pptx=/path/to/analysis/001/HBM_POST/hbm_001.pptx  
-log=/path/to/analysis/001/HBM_POST/hbm_001.log  
-batch -oasys_batch -iconise -exit
```

# Supported HBMs

- We continue to expand the current list to support all major HBM products. If you need support for a specific HBM, please [contact us](#).

Product	Anthropometry	Posture	Version
AC-HUMs	50M	Occupant	V1.3
GHBMC	50M	Occupant	V6.2
THUMS	50M	Occupant	V4.1
THUMS	50M	Occupant	V6.1
THUMS	50M	Occupant	V7.0
THUMS	50M	Occupant	V7.1
VIVA+	50M	Occupant	V2.0.1

[Back to HBM Assessments](#)

# HBM Assessment Outputs

HBM assessment outputs are subject to specific HBMs containing the required **\*DATABASE\_HISTORY/\*SECTION** cards

Body Region	Component	Assessment Outputs
Full Body	Body / Skeleton / Ligaments	Dynamics, Eroded Elements
Head	Head / Brain / Skull	BrIC, UBrIC, MPS, CSDM, HIC
Neck	Cervical bones	Dynamics, Kinematics, Forces & Moments
Arms	Humerus	Dynamics, Kinematics, Forces & Moments
Thorax & Abdomen	Ribs	MPS & Fracture probability risk
	Upper / Lower Spine	Dynamics, Kinematics, Forces & Moments
	Internal organs	SED, Dynamics
Plex	Pelvis / Legs	Dynamics, Kinematics, Forces & Moments

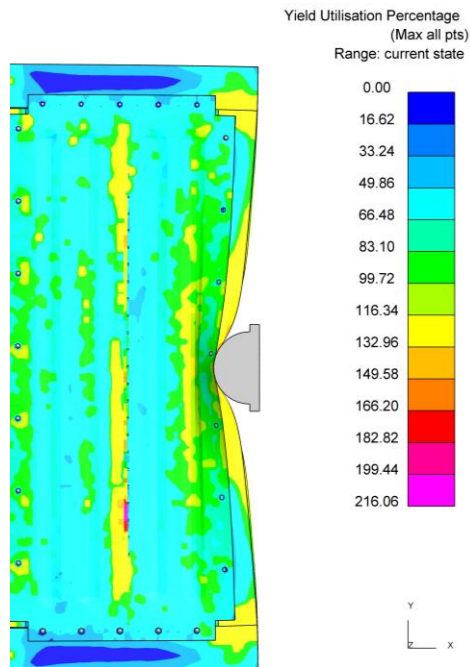
# Utilisation Workflows

# Utilisation Workflows

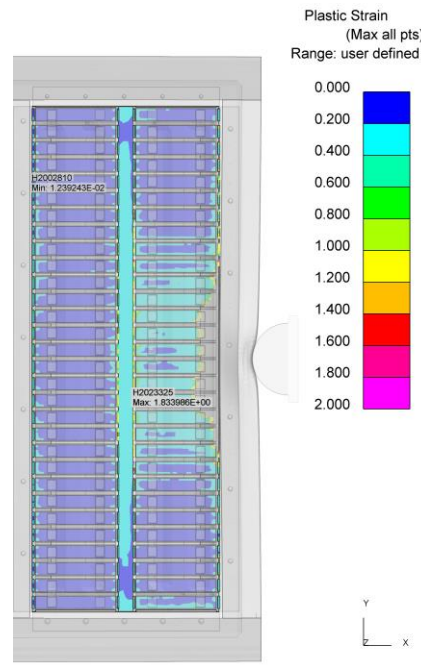
When assessing the strength of components or calculating the utilisation of fasteners, spotwelds and adhesives, engineers need to perform derivations from the standard LS-DYNA output, meaning multiple clicks and manual steps to get to the visualisations required. The new Utilisation Workflows address this problem and get you to your plots quickly, with convenient controls for customising the visuals and cycling through problematic parts for further inspection.

There are three new Utilisation Workflows:

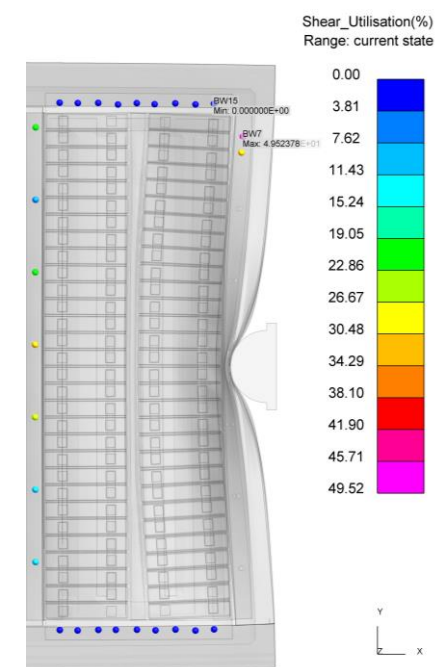
## General Utilisation



## Adhesive Utilisation



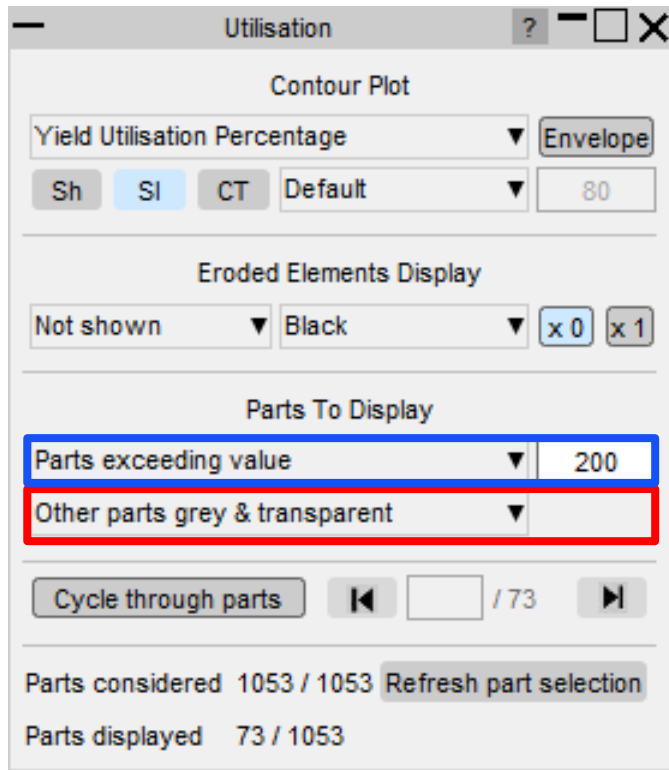
## Fastener/Spotweld Utilisation



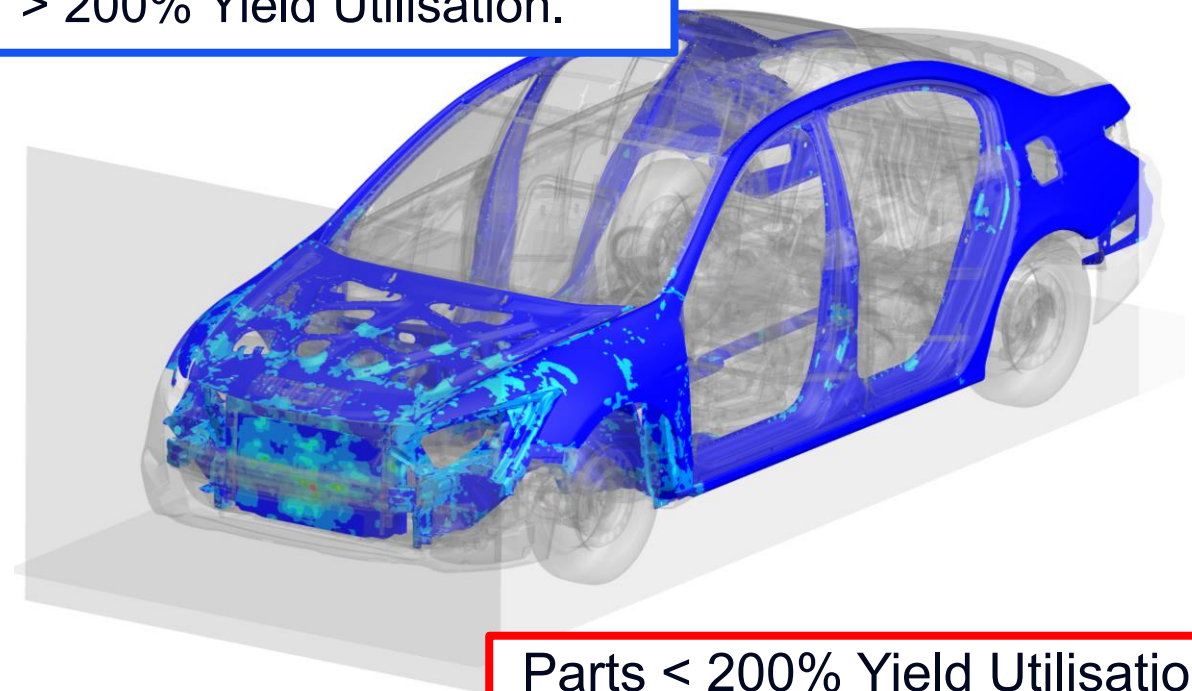
# General Utilisation

# General Utilisation Workflow

- Considers von Mises stress-based yield utilisation for shell, thick shell and solid parts.
- Available plots: Plastic strain, Von Mises Stress, Yield Utilisation Percentage & Yield Utilisation Factor.
- Flexibility in how parts and eroded elements are displayed, so that you can quickly focus on the results that matter.

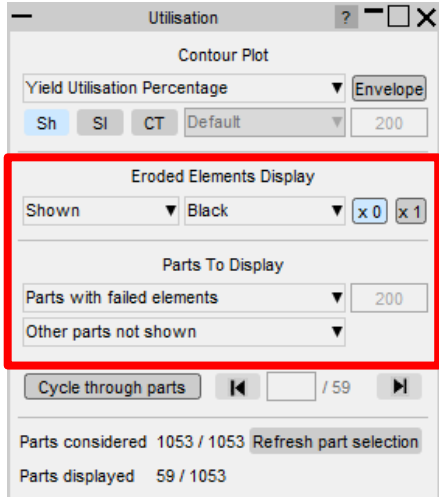


Contouring Parts with Elements  
> 200% Yield Utilisation.

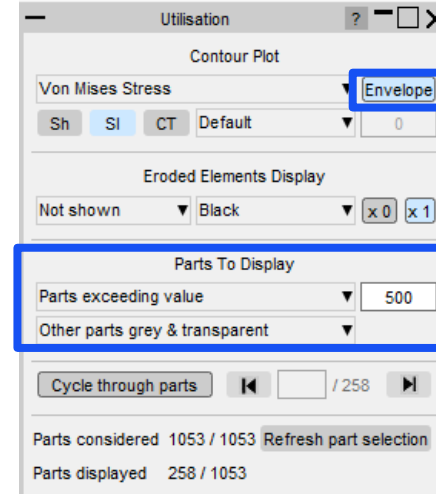
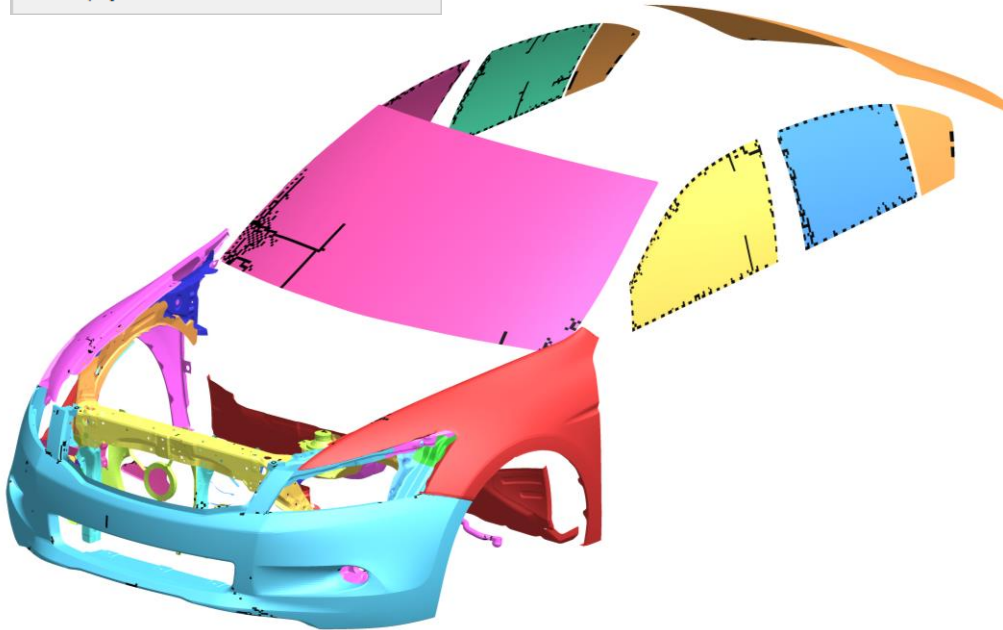


Parts < 200% Yield Utilisation  
Grey & Transparent

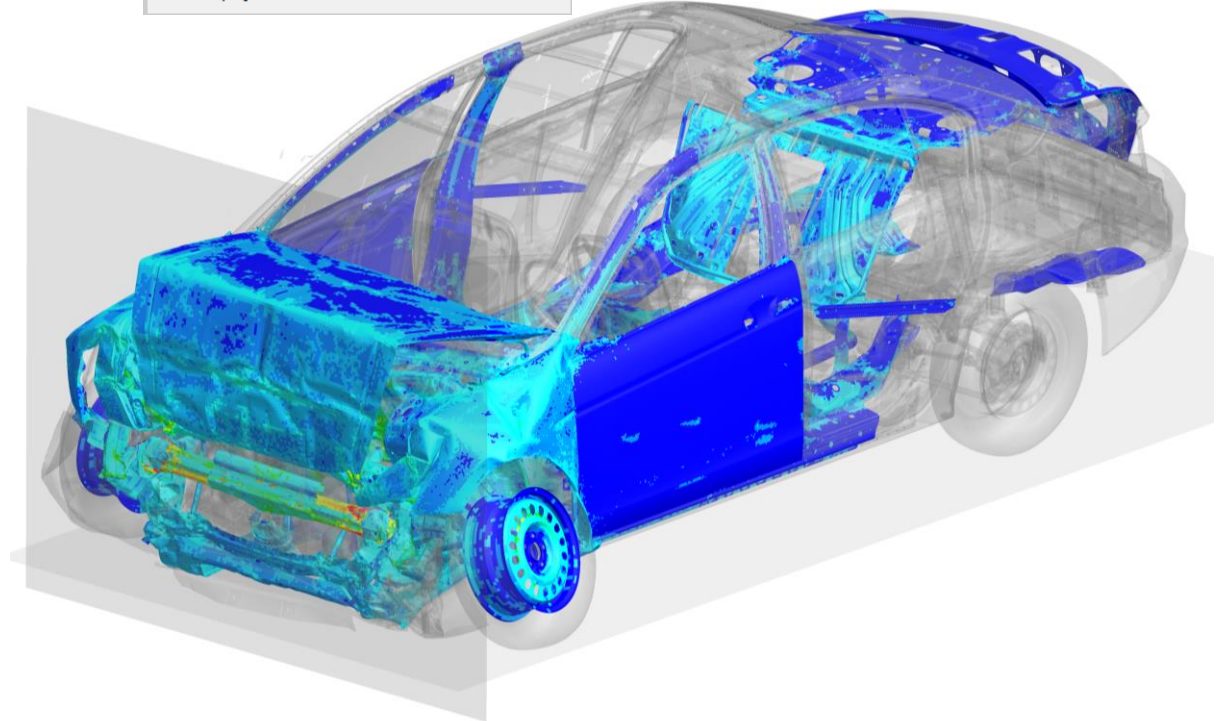
# General Utilisation Workflow Example Plots



- Only displaying Parts with failed elements
- Failed elements coloured black.



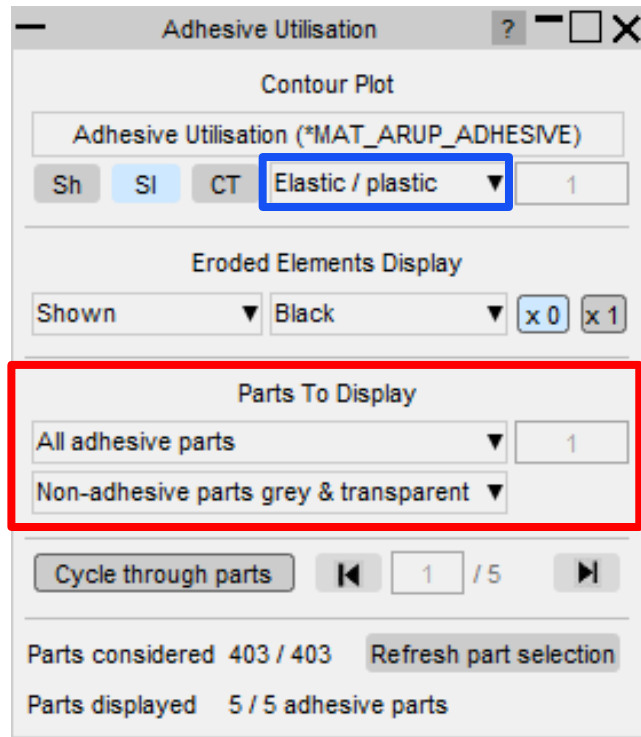
- Enveloped plot
- Parts with Von Mises Stress > 500 MPa contoured
- Other Parts grey & transparent.



# Adhesive Utilisation

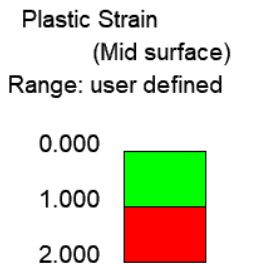
# Adhesive Utilisation Workflow

- Supports **\*MAT\_169: \*MAT\_ARUP\_ADHESIVE** and uses the variable output by LS-DYNA for adhesive utilisation.
- Enables rapid visualisation of portions of adhesive exhibiting elastic or plastic response, alongside any failed adhesive.



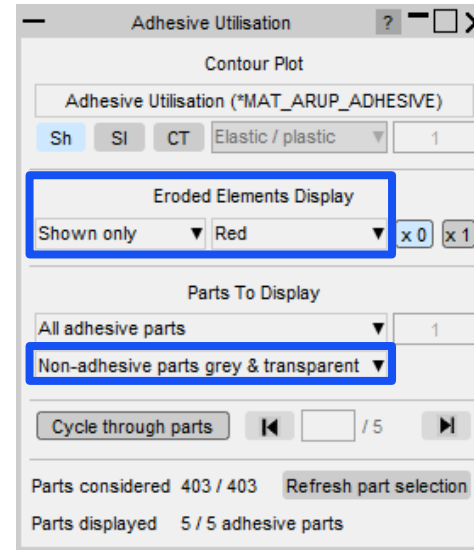
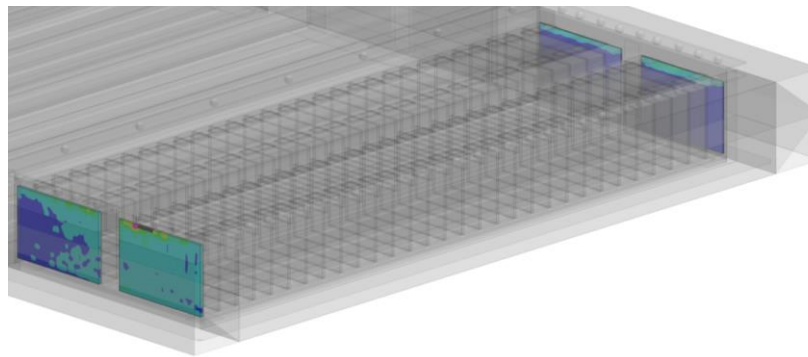
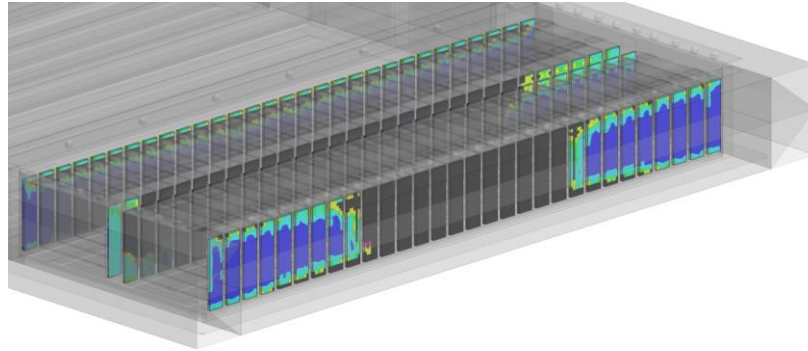
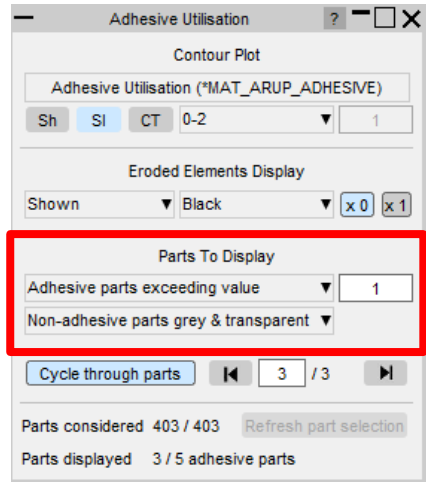
Adhesive contoured based on elastic/plastic response.

Note that the contour bar label will show Plastic Strain as adhesive utilisation is output in the plastic strain slot in the D3PLOT binary database.

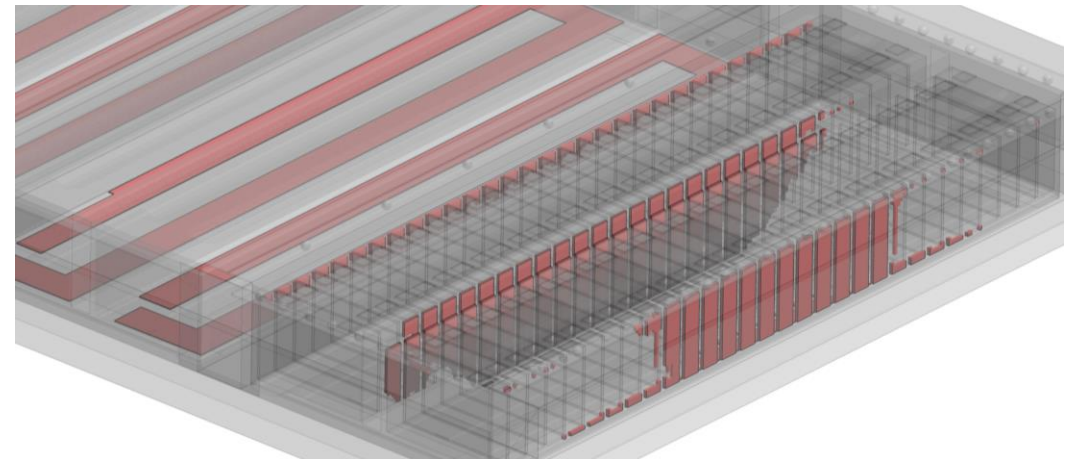


Non-adhesive Parts Grey & Transparent

# Adhesive Utilisation Workflow Example Plots



- Only displaying failed adhesive elements in red.
- Non-adhesive parts grey & transparent.

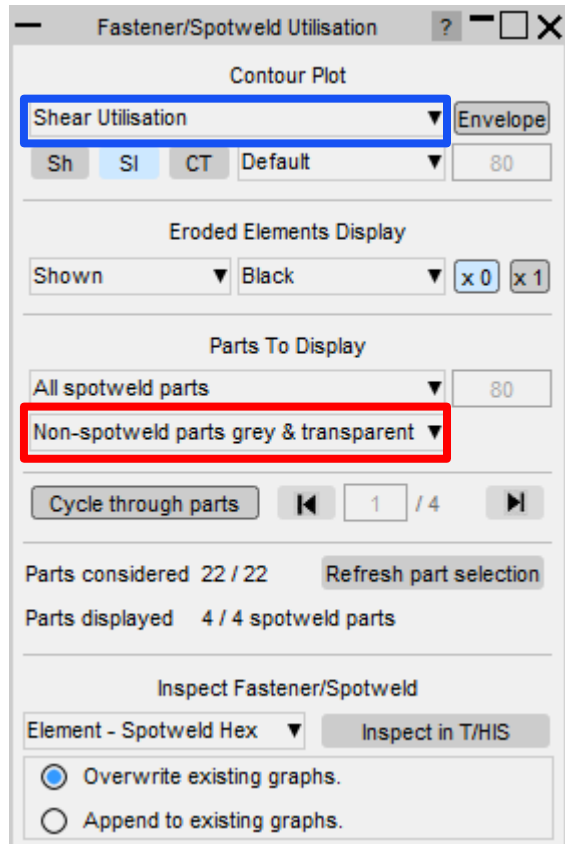


- Cycling through adhesive parts exhibiting plastic response.

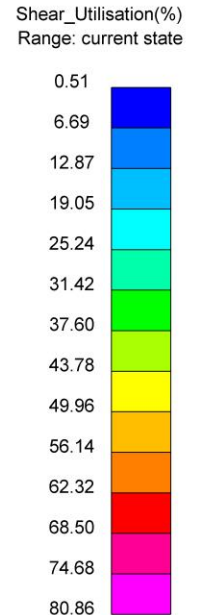
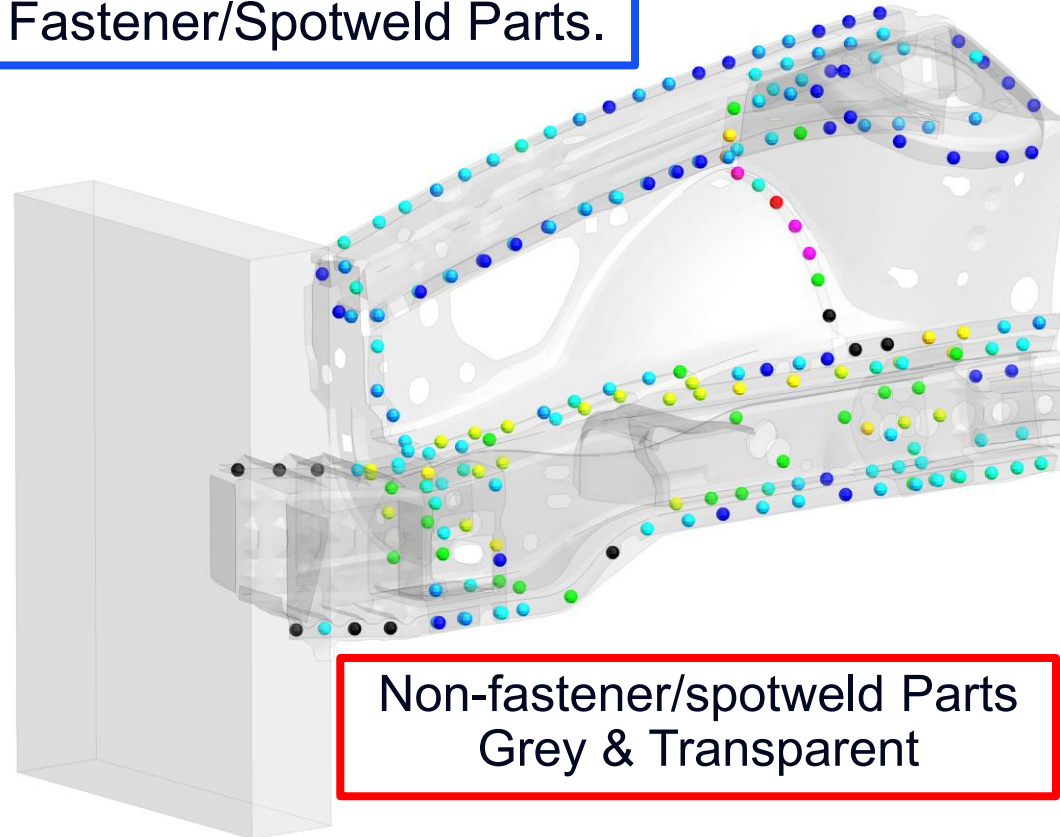
# Fastener/Spotweld Utilisation

# Fastener/Spotweld Utilisation Workflow

- Supports beam and solid elements with material type  
**\*MAT\_100: \*MAT\_SPOTWELD** or **\*MAT\_201: \*MAT\_SPR\_JLR**.
- Fastener/spotweld forces and capacities are pre-defined, allowing utilisations to be plotted.

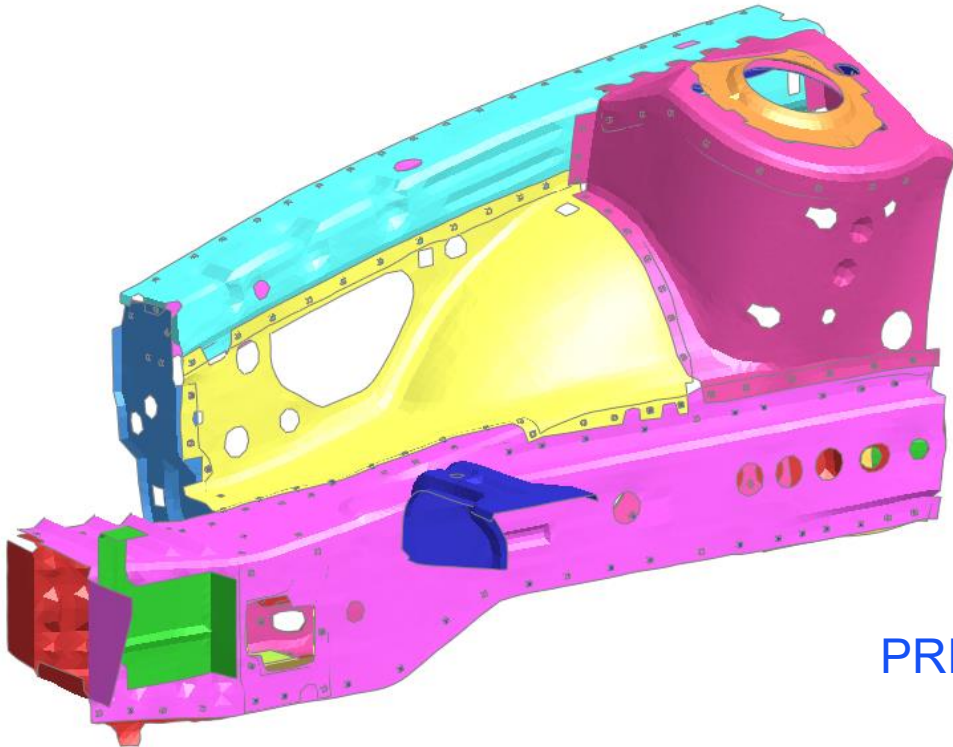


Contouring Shear Utilisation of Fastener/Spotweld Parts.



# Fastener/Spotweld Utilisation Workflow

- Fastener/Spotweld Capacities pre-populated by Oasys PRIMER based on material card data or updated by user input.
- Capacities inputted are used to calculate utilisations during post-processing.
- For example:  $\text{Shear Utilisation} = \text{Shear Force} / \text{Shear Capacity}$ .



Fastener/Spotweld Utilisation

Select Part(s) Only Save To File Save To Model

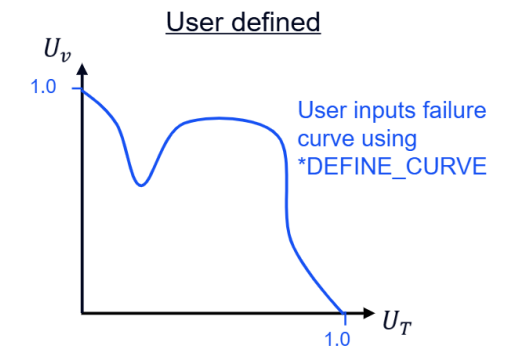
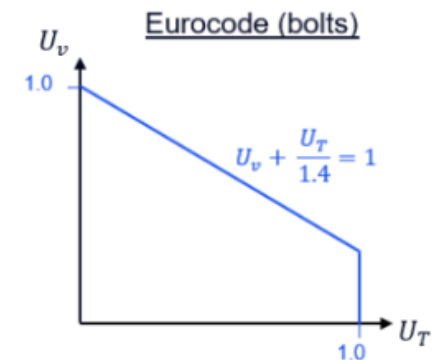
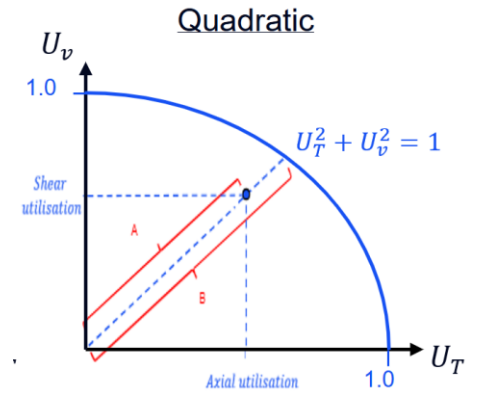
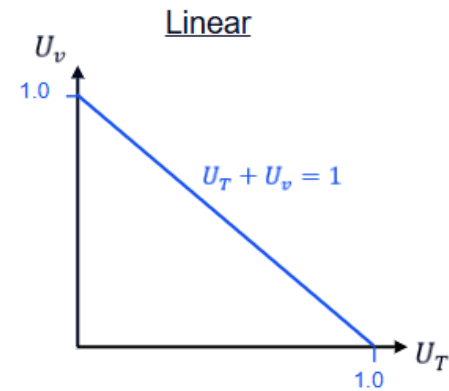
Part ID	Axial Capacity	Shear Capacity	Bending Capacity	Torsion Capacity	Interaction Curve	
MID 21008 (SPOTWELDS HEXA) [MAT_100: MAT_SPOTWELD]						
21206	10000.00	14142.14	0	0	Linear	0 x
21918	10000.00	14142.14	0	0	Linear	0 x
MID 8 (Grade 8.8 Beam Bolt) [MAT_100: MAT_SPOTWELD]						
21917	30000.00	21213.20	1414213.56	1000000.00	Linear	0 x
MID 9 (SPR) [MAT_211: MAT_SPR_JLR]						
21919	1669.34	1391.12	1669.34	0	Linear	0 x

PRIMER → Tools → Workflows → Fastener/Spotweld Utilisation

# Fastener/Spotweld Utilisation Workflow

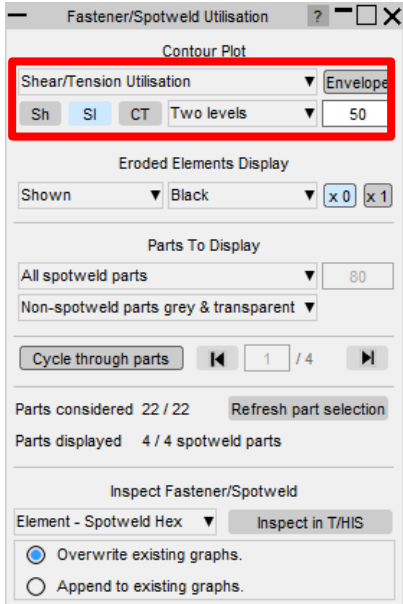
- When a fastener experiences shear and tensile forces simultaneously, its capacity to resist each type of load is reduced.
- Different interaction equations can be used to define capacity under combined shear/tensile loading.

Part ID	Axial Capacity	Shear Capacity	Bending Capacity	Torsion Capacity	Interaction Curve
MD 21008 (SPOTWELDS HEXA) [MAT_100: MAT_SPOTWELD]					
21206	10000.00	14142.14	0	0	Linear
21918	10000.00	14142.14	0	0	Linear
MD 8 (Grade 8.8 Beam Bolt) [MAT_100: MAT_SPOTWELD]					
21917	30000.00	21213.20	1414213.56	1000000.00	Linear
MD 9 (SPR) [MAT_211: MAT_SPR_JLR]					
21919	1669.34	1391.12	1669.34	0	Linear

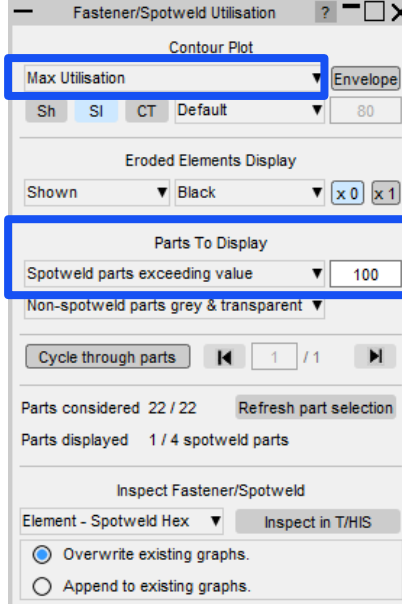
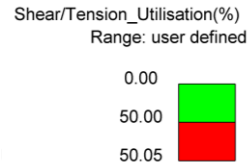
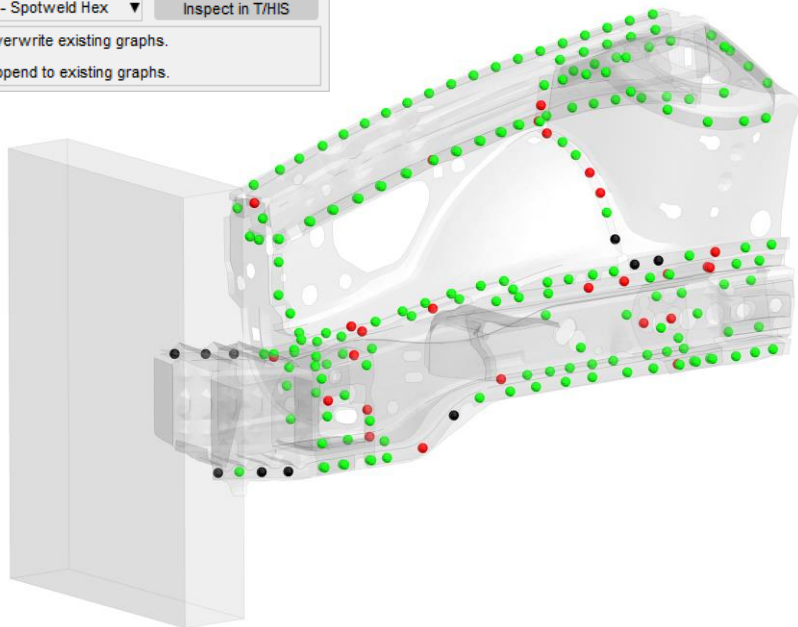


$$\text{Combined Axial Shear Utilisation} = \frac{A}{A + B}$$

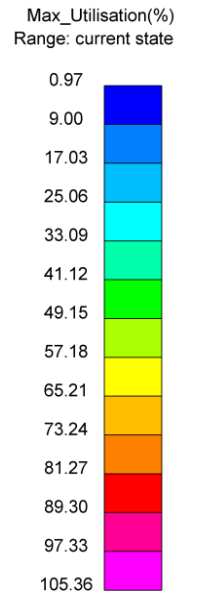
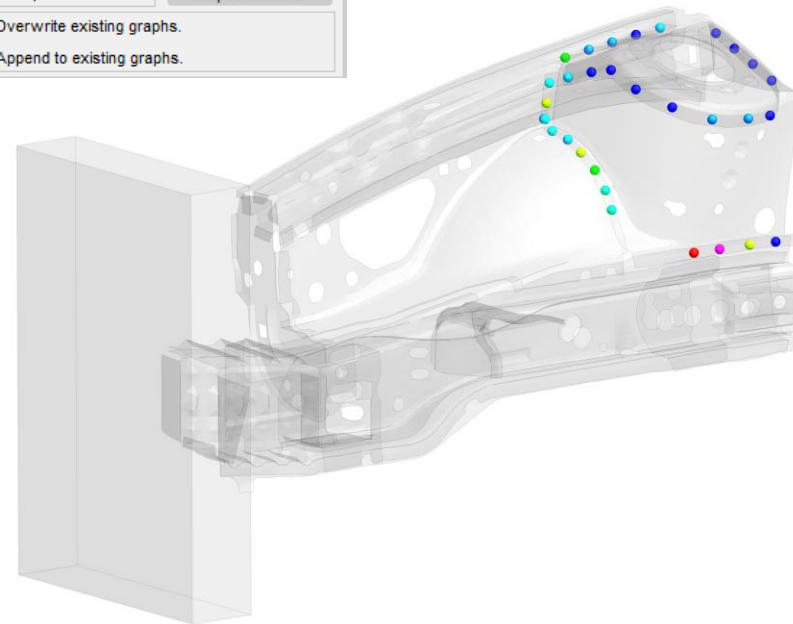
# Fastener/Spotweld Workflow Example Plots



- Combined Shear/Tension Utilisation plot
- Two levels contour plot, showing elements > 50% utilisation in red.

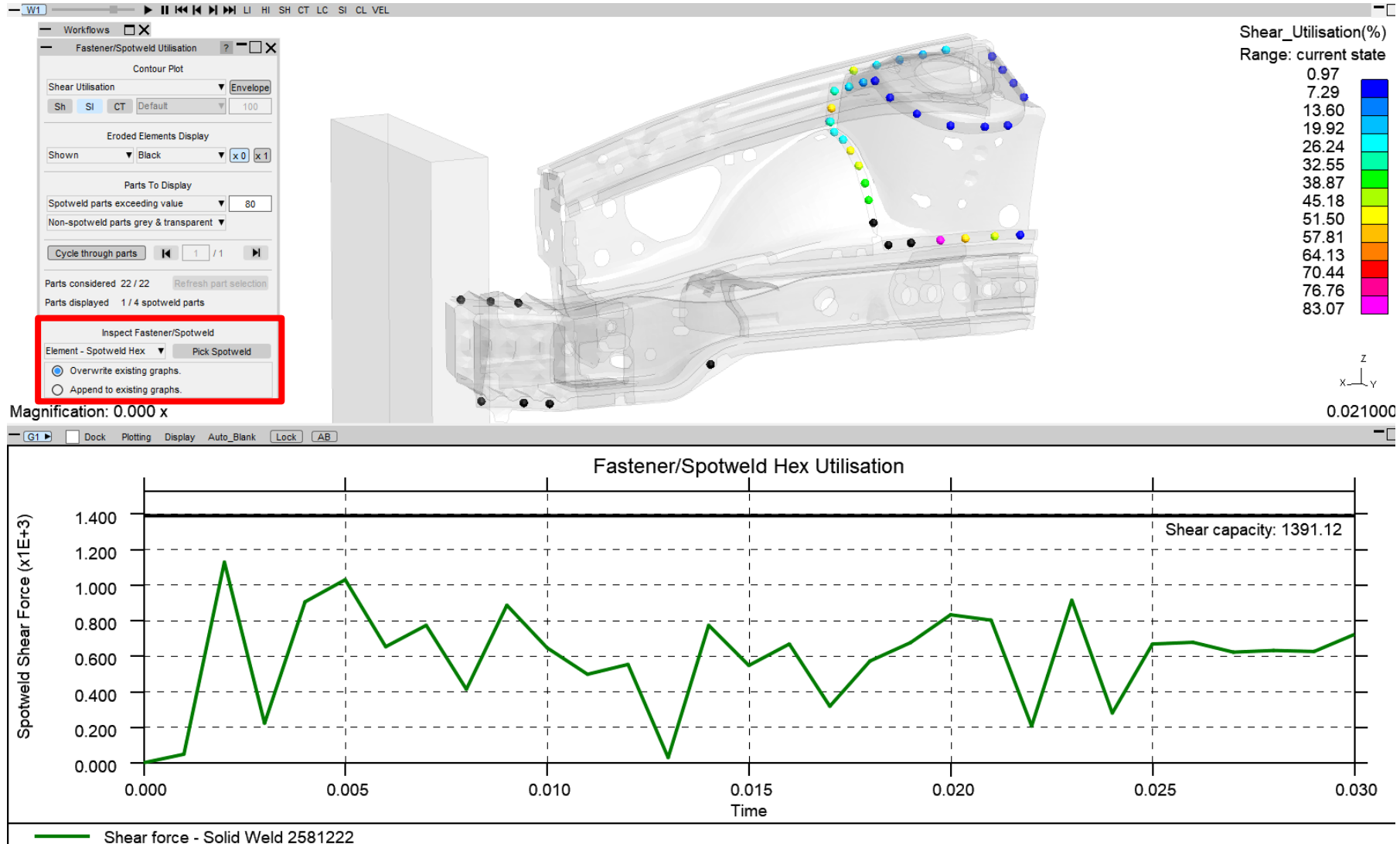


- Max utilisation plot (maximum value of all utilisations)
- Showing only spotweld/fastener parts with elements > 100% utilisation.



# Fastener/Spotweld Workflow → Inspect in T/HIS

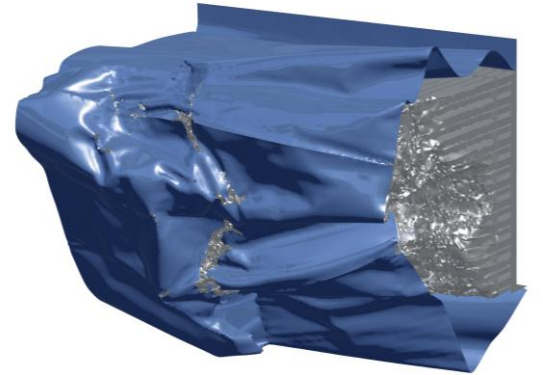
- The **Inspect Fastener/Spotweld** function opens a linked Oasys T/HIS session, allowing users to choose fastener/spotweld element/part to be plotted in Oasys T/HIS.
- This allows utilisations to be visualised through time.



# MPDB Compatibility Assessment

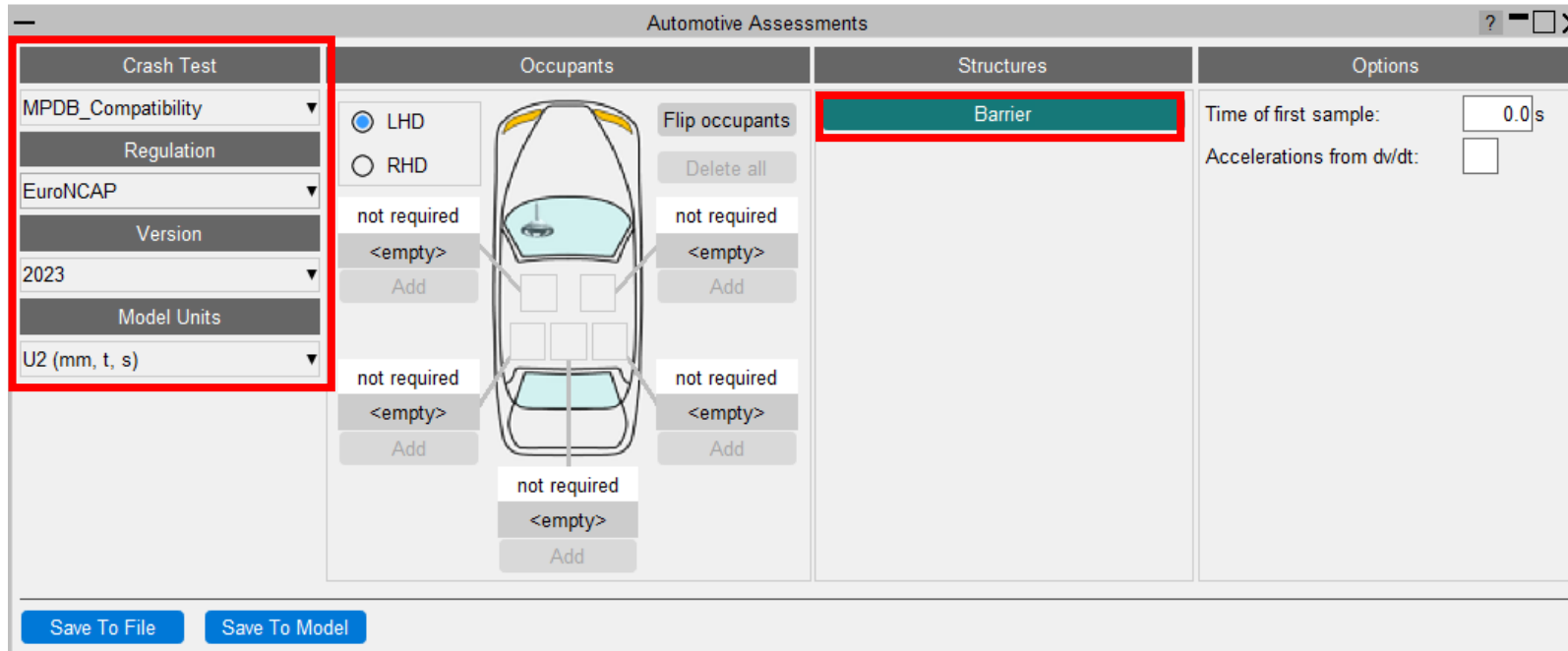
# Workflows – Automotive Assessments – MPDB Compatibility

- The MPDB Compatibility REPORTER templates have been migrated to the Automotive Assessments workflow so you can now:
  1. Configure your model setup in PRIMER; save and re-use settings to save time
  2. Plot results interactively in D3PLOT and T/HIS
  3. Generate reports in REPORTER
- Previously, the C-NCAP and Euro NCAP MPDB Compatibility Assessment REPORTER templates were designed to work only with the Arup-Cellbond MPDB FE model. Now, you can also use the LSTC MPDB FE model. Customised models are also supported to some extent; please [contact us](#) if you encounter any issues.
- MPDB Compatibility Assessment is now available for:
  - Euro NCAP 2026 (and 2023)
  - C-NCAP Management Regulation (2024 Edition)



# Workflows – Automotive Assessments – MPDB Compatibility

- Set the Crash Test to 'MPDB\_Compatibility'
- Set the required Regulation 'EuroNCAP' or 'CNCAP'
- Set the Model Units
- Click on the Barrier structure to open the Structure window



# Workflows – Automotive Assessments – MPDB Compatibility

Structure

Update All Remove Reset Cancel

Structure

Barrier

Please check that the correct units system and LEFT / RIGHT drive side have been selected in the main Automotive Assessments panel.

Barrier Model

MPDB Barrier Model Arup Cellbond MPDB Shell Model

Define parts by

Part title

Part number

You can redefine using appropriate part titles for the barrier model as needed.  
This option requires that a .ztf file is included in the folder alongside the solve results.

Rigid backplate Backplate\_grid

Honeycomb elements thickness STRONGER,1.15mm adhesive HIGH STRE

Intermediate plates parallel to backplate AYER1,Cladding plate OVERLAPPING LAYER1: Front

Redundant parts connected by tied contact to other parts named elsewhere ING LAYER3,Cladding plate OVERLAPPING LAYER2

Parts used to identify a seed element Cladding plate OVERLAPPING LAYER1: Front

Node used to read acceleration and velocity accelerometer: 1

Colour Scheme

By default, the template uses a green-yellow-orange-brown-red colour scheme for the barrier deformation plots, which we find more readable. You can instead choose to match the colours used in the euroncap.com Compatibility Assessment Spreadsheet.

Results and colour scheme

Default REPORTER colour scheme

euroncap.com spreadsheet colour scheme

Vehicle Width

Vehicle width [mm] 1750

Longitudinal Height Check

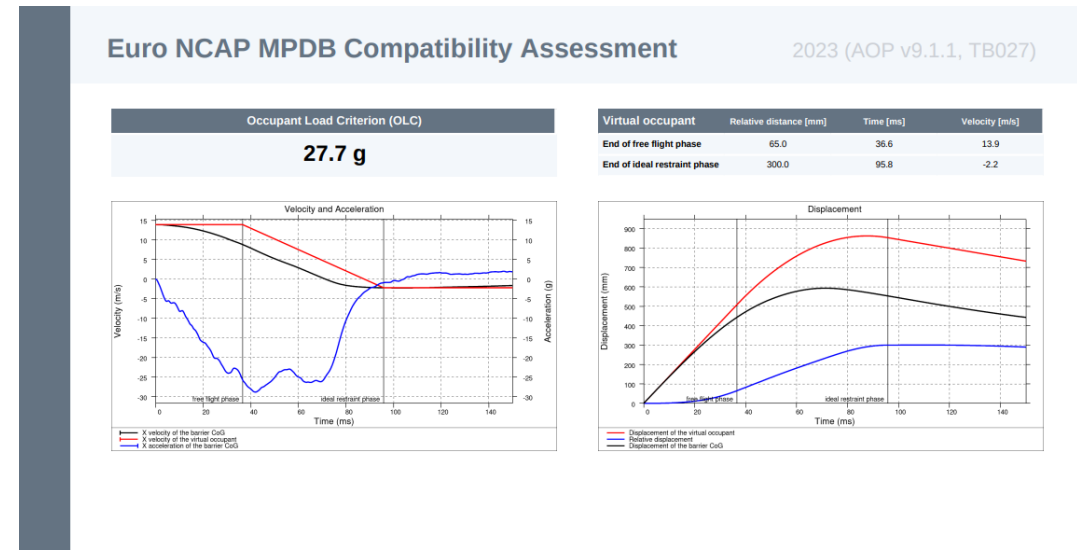
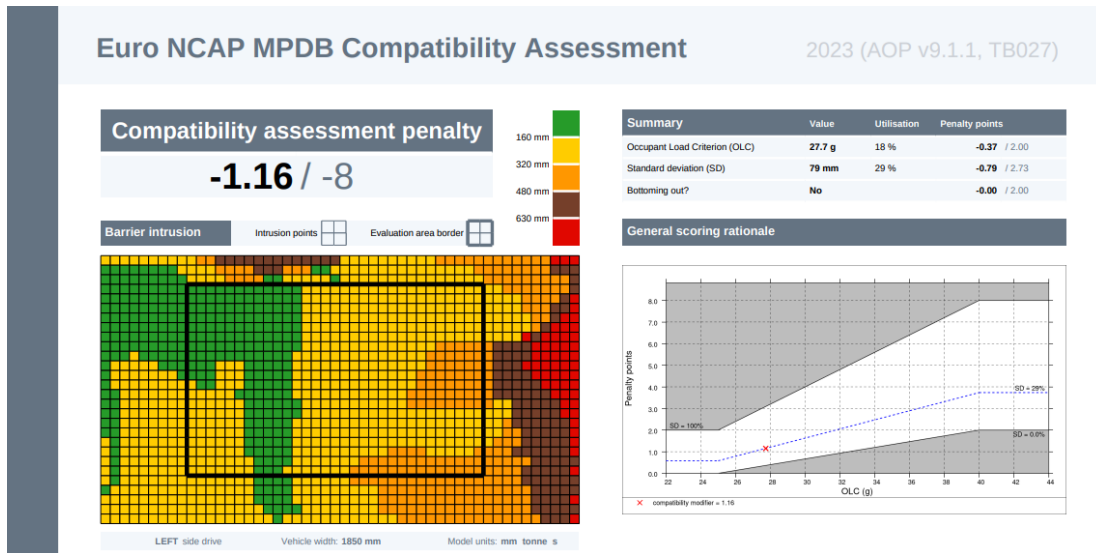
Only required for C-NCAP.

Height of longitudinals exceeds 508 mm?

- Select the MPDB Barrier (Arup or LSTC) to set the default parts and nodes
- Select how to define parts, either by title or by number
- Select the parts and node
- Select the colour scheme to use
- Set the vehicle width
- For C-NCAP, tick this box if the longitudinal height is > 508mm

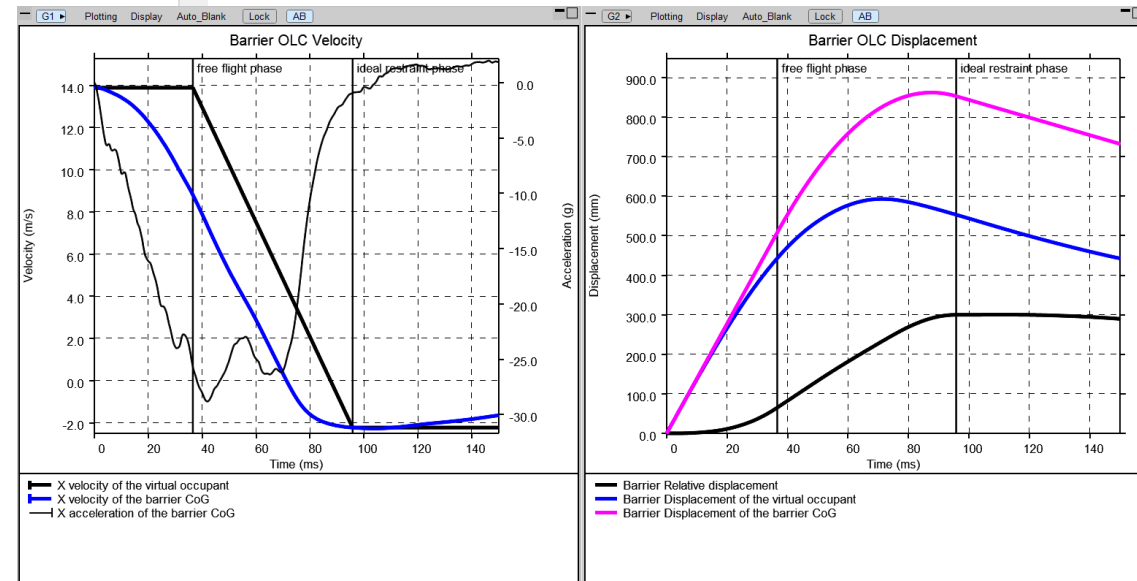
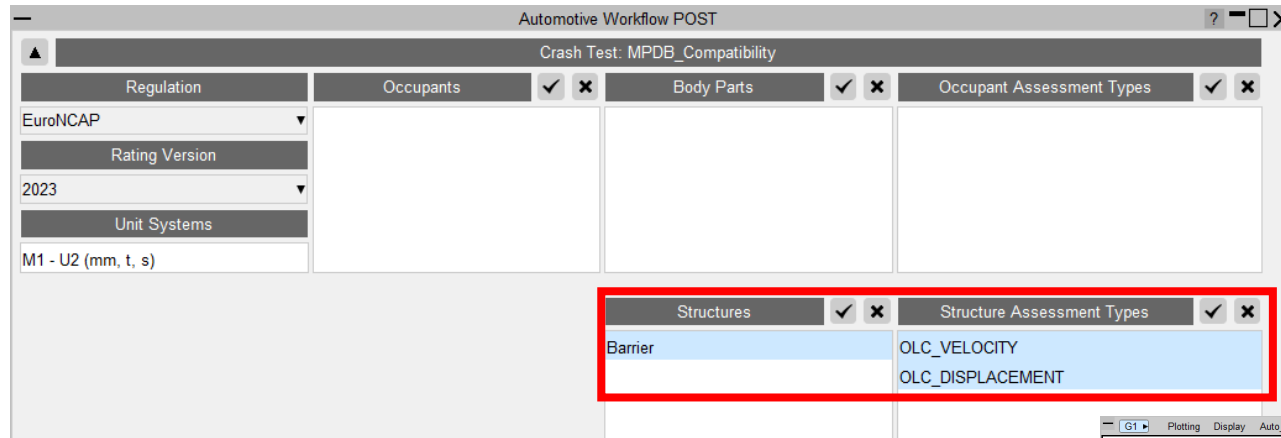
# Workflows – Automotive Assessments – MPDB Compatibility

- In Reporter select one of the MPDB Compatibility templates:
  - EuroNCAP\_Front\_MPDB\_Impact\_2023\_Compatibility\_Assessment.ort
  - EuroNCAP\_Front\_MPDB\_Impact\_2026\_Compatibility\_Assessment.ort
  - CNCAP\_Front\_MPDB\_Impact\_2024\_Compatibility\_Assessment\_EN.ort
  - CNCAP\_Front\_MPDB\_Impact\_2024\_Compatibility\_Assessment\_CN.ort
- Select the keyword file of the model to process and Reporter will carry out the assessment



# Workflows – Automotive Assessments – MPDB Compatibility

- The OLC Acceleration, Velocity and Displacement assessments can be carried out individually in T/HIS



# Workflows – Automotive Assessments – MPDB Compatibility

- The Intrusion assessment can be carried out individually in D3PLOT

The screenshot displays the 'Automotive Assessment' software interface. At the top, the window title is 'Automotive Assessment' and the current test is 'Crash Test: MPDB\_Compatibility'. Below this, there are three columns: 'Regulation', 'Structures', and 'Structure Assessment Types'. The 'Regulation' column is set to 'EuroNCAP', 'Structures' is set to 'Barrier', and 'Structure Assessment Types' is set to 'BARRIER\_INTRUSION'. The 'Rating Version' is set to '2023'. A 'Run' button is visible below the table. Below the table is an 'Output' section with the following text:

```
M1 BARRIER_INTRUSION STANDARD_DEVIATION: 79.00001967828757  
M1 BARRIER_INTRUSION STANDARD_DEVIATION_MIN_PENALTY: -2  
M1 BARRIER_INTRUSION STANDARD_DEVIATION_DIFFERENCE: -4  
M1 BARRIER_INTRUSION STANDARD_DEVIATION_MAX_PENALTY: -6
```

Below the output is a 'Model image' section with a dropdown set to 'M1' and a 'File' field. A 'Save' button is also present. At the bottom, there is a 3D visualization titled 'D3PLOT: Anup\_Cellbond\_MPDB\_v1-2'. The visualization shows a 3D model of a barrier intrusion test. A color scale on the right indicates the intrusion depth, ranging from 0.00 (green) to 790.00 (red). The maximum intrusion is 7.66581E+02 and the minimum is 0.00000E+00. The scale is 0.150000.



# General SimVT Improvements

# SimVT: Generate Report

- You can now generate both “generic” and “protocol” reports directly from SimVT
- The generic report contains only the toggled channels/sensors.
- The full protocol report contains all the channel ISO scoring required for the selected protocol.
- The output format(s) can be customised directly from the report export window.

The screenshot displays the SimVT interface. The main window is titled "SimVT - Correlation Table (ISO/TS 18571:2024)". It features a table with columns for Object, Location, and Sensor, and a "Ratings" column. The table is filtered by Object ID "11". The "Generate Report..." button is highlighted with a red box. Three "Report export" dialog boxes are shown, illustrating the process of selecting a protocol and customizing report settings. The top dialog shows the "Euro NCAP Virtual Far Side Sled 2026" protocol selected. The middle dialog shows the "Generic Report (3 toggled channels)" type selected, with the output directory set to "C:/SimVT\_REPORT" and the report filename set to "SimVT\_Report". The bottom dialog shows the "Generic Report (3 toggled channels)" type selected, with the output directory set to "C:/SimVT\_REPORT" and the report filename set to "SimVT\_Report". The "Run Options" section is checked, including "Run REPORTER iconised" and "Automatically exit REPORTER upon completion".

Object	Location	Sensor	Rating
11	HEAD	11HEAD0000WSAVZD	M1 0.8056
		11HEAD0000WSACXA	M1 0.8321
		11HEAD0000WSACYA	M1 0.8321
	THSP	11THSP1200WSACXC	M1 0.7661
		11THSP1200WSACYC	M1 0.7661
		11THSP1200WSACZC	M1 0.7661
	PELV	11PELV0000WSACXB	M1 0.8350
		11PELV0000WSACYB	M1 0.8350
		11PELV0000WSACZB	M1 0.8350
	SEBE	11SEBE0003B3FO00	M1 0.8484

# SimVT: Corridor Slope, Phase and Magnitude Ratings

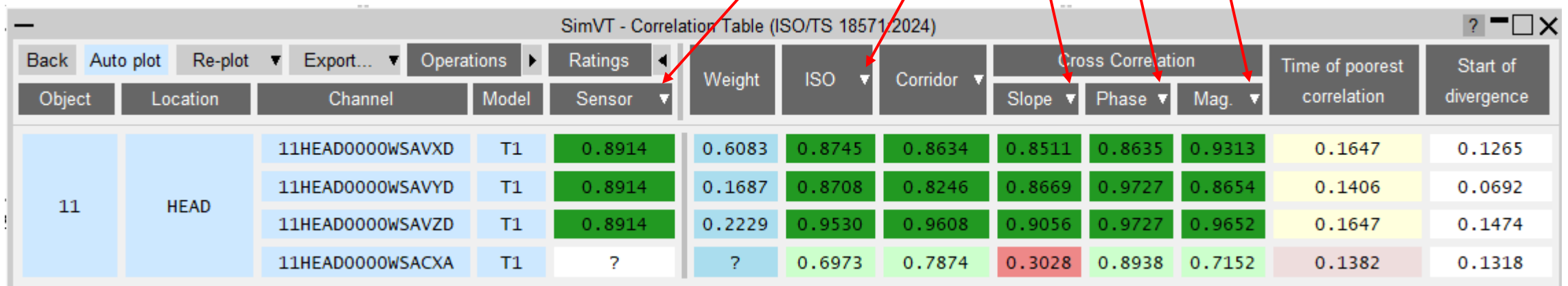
- You can now toggle the visibility of cross-correlation scores on the corridor graphs, so that while looking only at corridor graphs, you can see all the correlation scores in one place:

The screenshot displays the SimVT software interface with four plots arranged in a 2x2 grid. The top-left plot (G1) shows 'Rotational Velocity' vs 'Time' for '(T1 vs T2) 11HEAD0000WSAVXD | Corridor'. The top-right plot (G2) shows 'Rotational Velocity' vs 'Time' for '(T1 vs T2) 11HEAD0000WSAVXD | Cross Correlation'. The bottom-left plot (G3) shows 'Rotational Velocity' vs 'Time' for '(T1 vs T2) 11HEAD0000WSAVYD | Corridor'. The bottom-right plot (G4) shows 'Rotational Velocity' vs 'Time' for '(T1 vs T2) 11HEAD0000WSAVYD | Cross Correlation'. A legend in the center-right of the plots lists various data series and their corresponding colors and line styles. A red box highlights the legend entries for 'Method: ISO/TS 18571:20' and '0.87 = Overall rating', '0.85 = Corridor rating', '0.85 = Slope rating', '0.86 = Phase rating', and '0.93 = Magnitude rating'. To the right of the plots is a 'SimVT - Plotting Controls' panel with various options. A red box highlights the 'Add cross correlation scores to corridor graph' checkbox under the 'Graph options' section. The bottom of the interface shows a 'DIALOGUE' window and a 'Global Commands' panel.

# SimVT: Correlation Table Filtering

- To help you navigate and analyse results more efficiently, SimVT now includes filtering controls in column headers.
- When filters are applied, rows that do not meet the selected criteria are hidden from view.
- These controls allow you to filter by various rating thresholds (e.g., pass/fail, with min/max values, etc).
- This feature improves usability, especially when working with large datasets, and ensures that you can quickly identify areas of interest or concern.

Drop down boxes for the score filters



The screenshot shows the SimVT - Correlation Table (ISO/TS 18571:2024) interface. The table has columns for Object, Location, Channel, Model, Sensor, Weight, ISO, Corridor, Cross Correlation (Slope, Phase, Mag.), Time of poorest correlation, and Start of divergence. Red arrows point to the dropdown menus for ISO, Corridor, Slope, Phase, and Mag. The table contains four rows of data for Object 11 and Location HEAD.

Object	Location	Channel	Model	Sensor	Weight	ISO	Corridor	Cross Correlation			Time of poorest correlation	Start of divergence
								Slope	Phase	Mag.		
11	HEAD	11HEAD0000WSAVXD	T1	0.8914	0.6083	0.8745	0.8634	0.8511	0.8635	0.9313	0.1647	0.1265
		11HEAD0000WSAVYD	T1	0.8914	0.1687	0.8708	0.8246	0.8669	0.9727	0.8654	0.1406	0.0692
		11HEAD0000WSAVZD	T1	0.8914	0.2229	0.9530	0.9608	0.9056	0.9727	0.9652	0.1647	0.1474
		11HEAD0000WSACXA	T1	?	?	0.6973	0.7874	0.3028	0.8938	0.7152	0.1382	0.1318

# SimVT: Correlation Table Filtering

- The rating categories available include Excellent, Good, Fair, and Poor, and Pass and Fail (available when the protocol is set).
- The optional Pass and optional Fail filter checkboxes are displayed with brackets around them.
- There is also an Invalid checkbox which can be used to filter out any rows with any scores that had issues in obtaining the result.
- For ease of use, only the relevant checkboxes are active (ungreyed) when the popup appears.
- Additionally, you can set the Min and Max values to limit values between a certain threshold.
- You can use the Clear Filters button to remove all applied filters and restore the full dataset. Directly beneath this, a Close button allows users to exit the filter popup.

Object	Location	Channel	Model	Sensor	Weight	ISO	Corridor	Cross Correlation			Time of poorest correlation	Start of divergence
								Slope	Phase	Mag		
11	HEAD	11HEAD0000WSAVXD	T1	0.8914	0.6083	Excellent	634	0.8511	0.8635	0.9313	0.1647	0.1265
		11HEAD0000WSAVYD	T1	0.8914	0.1667	Good	246	0.8669	0.9727	0.8654	0.1406	0.0692
		11HEAD0000WSAVZD	T1	0.8914	0.2229	Fair	608	0.9056	0.9727	0.9652	0.1647	0.1474
		11HEAD0000WSACXA	T1	?	?	Poor	874	0.3028	0.8938	0.7152	0.1382	0.1318

To access them, right click on the header above a rating column (e.g. ISO).

# IIHS Whiplash Prevention Evaluation 2025

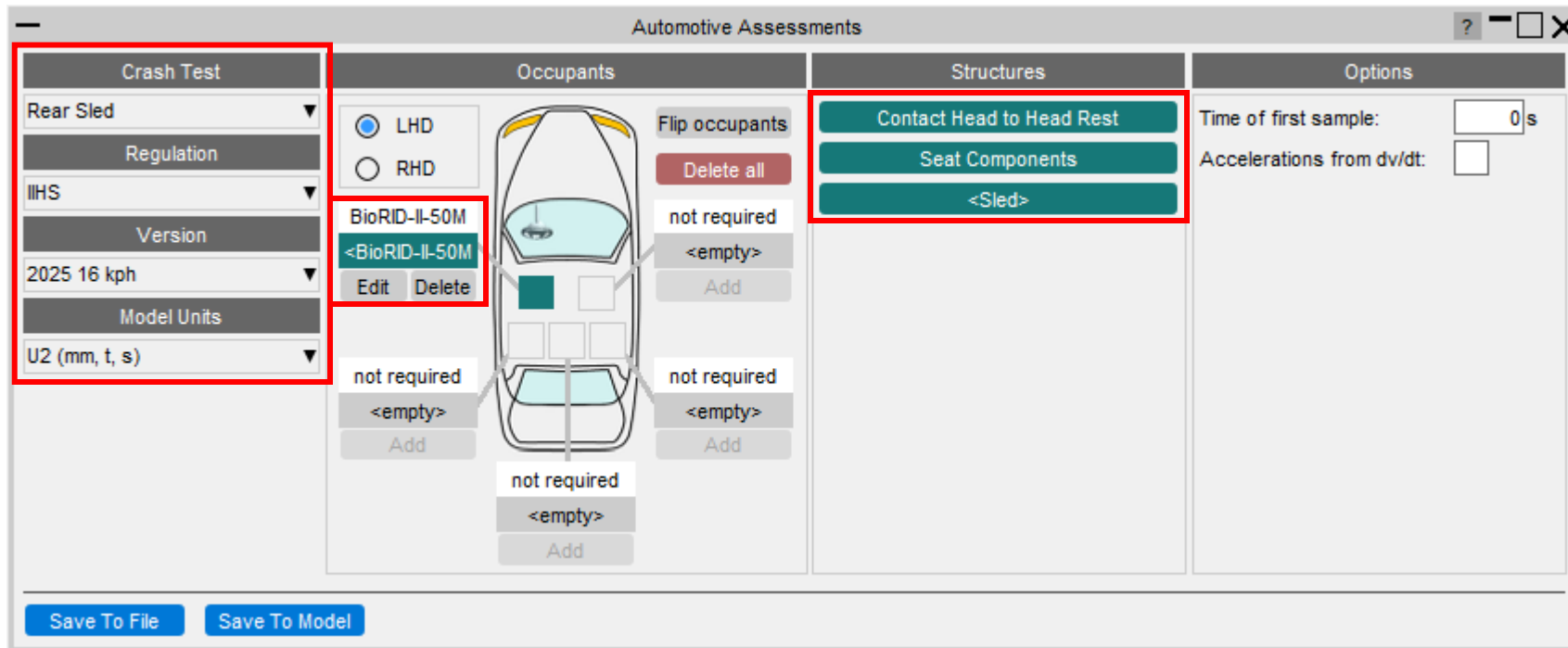
# IIHS Whiplash Prevention Evaluation 2025

- Ensure certification readiness for IIHS Whiplash Prevention Evaluation 2025 with the latest Workflow tools:
  1. Automotive assessments
  2. SimVT
  3. VTC Quality Criteria
  4. VTC Videos
- Export results directly to the IIHS simulation data Microsoft Excel spreadsheet: *IIHS Rear Impact SIMULATION Data Submission Template.xlsx*



# PRIMER → Automotive Assessments → IIHS Rear Sled

- Set Crash Test to “Rear Sled”
- Set Regulation to “IIHS”
- Set the Version to “2025 16 kph or “2025 24 kph”
- Add “BioRID-II” occupant
- Add Contact Head to Head Rest, Seat Components and Sled structures



# T/HIS → Automotive Assessments → IIHS Rear Sled

- Selected results can be plotted individually or together
- Time indexing and debiasing required by protocol are performed automatically

Automotive Workflow POST

Crash Test: Rear Sled

Regulation	Occupants	Body Parts	Occupant Assessment Types
IIHS	Driver	HEAD	HEAD_TO_PELVIS_VELOCITY
		NECK	HEAD_CONTACT_TIME_16KMPH
		BACK	
		LUMBAR	
		PELVIS	

Rating Version: 2025 16 kph

Unit Systems: M1 - U2 (mm, t, s)

Options

Graphs on same page  Overwrite existing graphs

Graphs on separate pages  Append to existing graphs

Complete IIHS Rear Impact SIMULATION Data Submission Template: Excel

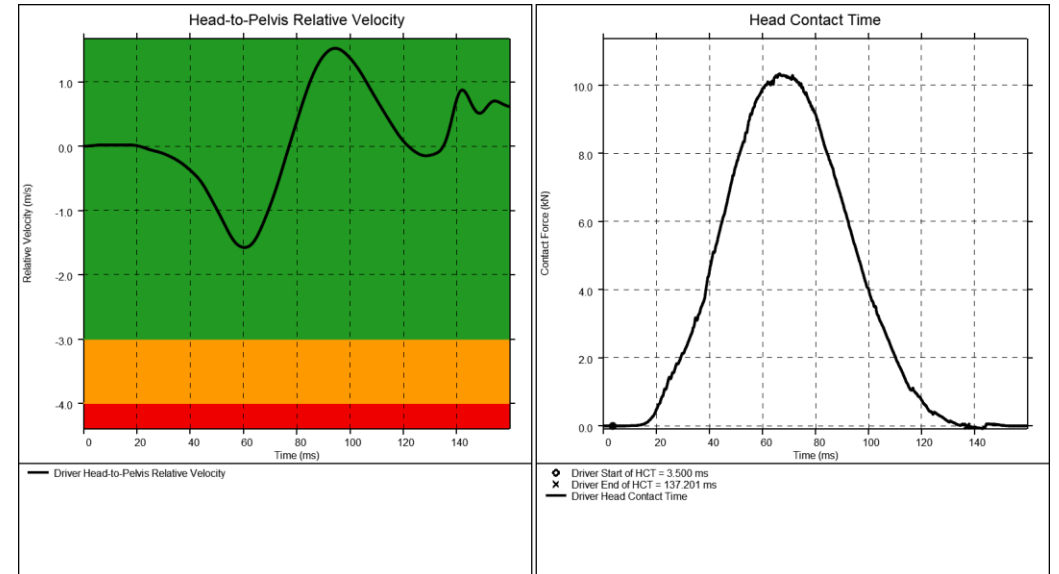
Export

Plot

Test Model

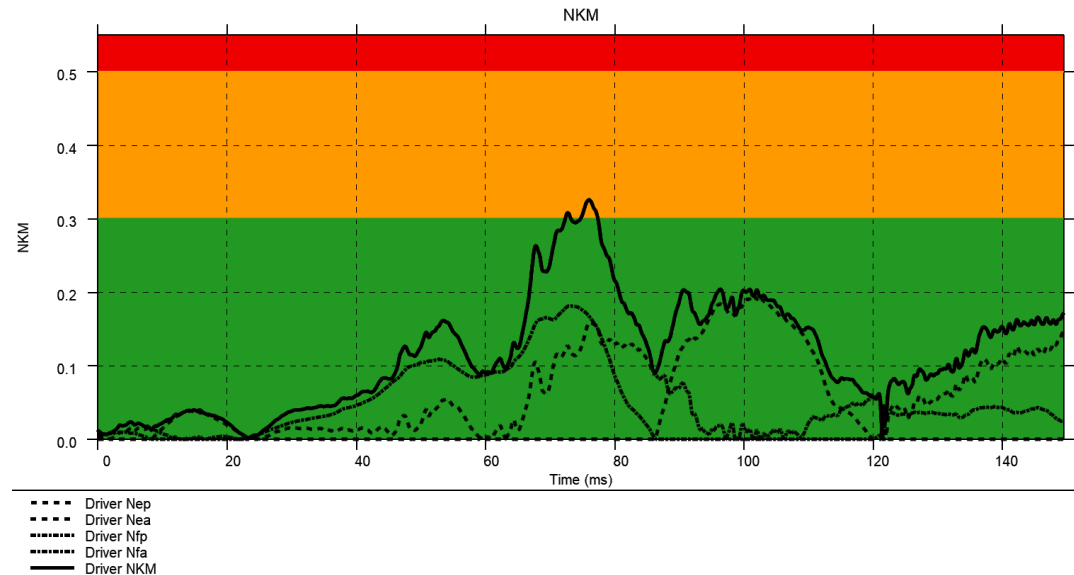
Import a test model

Output									
Tag	Location	Assessment Type	Parameter	Value	Norm Factor	Norm Abs Err	Duration	Score	Curv
M1	Driver	HEAD_TO_PELVIS_VELOCITY	Abs(Min)	1.57619 m/s				Good	->
M1	Driver	HEAD_CONTACT_TIME_16KMPH	End of HCT	137.201 ms					->
M1	Driver	HEAD_CONTACT_TIME_16KMPH	Start of HCT	3.49965 ms				Good	->



# T/HIS → Automotive Assessments → IIHS Rear Sled

- Added support for datums on graphs and demerits (Score in table)
- Added support for normalised absolute error to compare test and simulation results



Output									
Tag	Location	Assessment Type	Parameter	Value	Norm Factor	Norm Abs Err	Duration	Score	Curv
M1	Driver	NECK_NKM	Max	0.325904	0.2000	0.0119442		+1 demerit	->
T1	Driver	NECK_NKM	Max	0.328293	0.2000	N/A		+1 demerit	->

# T/HIS → Automotive Assessments → IIHS Rear Sled

- Export results directly to [IIHS Rear Impact SIMULATION Data Submission Template.xlsx](#):

The screenshot displays the Oasys LS-DYNA software interface. The 'Options' section is highlighted with a red box, showing the 'Export' button and the file name 'Rear Impact SIMULATION Data Submission Template.xlsx'. The 'Output' section shows a table with columns for Tag, Location, Assessment Type, Parameter, Value, Norm Factor, Norm Abs Err, Duration, Score, and Curv. The table contains three rows of data for Tag M1, Location Driver, with Assessment Types HEAD\_TO\_PELVIS\_VELOCITY, HEAD\_CONTACT\_TIME\_16KMPH, and HEAD\_CONTACT\_TIME\_16KMPH. The scores for the last two rows are 'Good'.

Tag	Location	Assessment Type	Parameter	Value	Norm Factor	Norm Abs Err	Duration	Score	Curv
M1	Driver	HEAD_TO_PELVIS_VELOCITY	Abs(Min)	1.57619 m/s				Good	->
M1	Driver	HEAD_CONTACT_TIME_16KMPH	End of HCT	137.201 ms					->
M1	Driver	HEAD_CONTACT_TIME_16KMPH	Start of HCT	3.49965 ms				Good	->

# T/HIS → Automotive Assessments → IIHS Rear Sled

- Results are exported to both the “Data points” and “Time-history data” sheets

	A	B	C
	Entity_type	Assessment_name	ID/Name
1	node	Sled point (any point that moves with the sled)	Sled node
2	node	Center of left front seat mounting hole	Center of left front seat mounting hole
3	node	Recliner	Center of recliner pivot (CoRP)
4	node	Head restraint post point	head restraint post (CHRP)
5	node	Head restraint point (front surface point with z coordinate matching manikin back of head relative to recliner center used to calculate backset and provided by IIHS)	Head restraint point
6			

General information | Mesh Quality | **Data points** | example | Time-history data | +

	A	B	C	D	E	F	G	H	I	J
	Global information time-history							Node time-histories		
	Time	Kinetic energy	Internal energy	Total energy	Time step	Added mass	Hourglass energy	X	Y	Z
1										
2										
3										
4										
5										
6	0	0	-165020.1	-163684.7	0.00000063	0.003249819	2.196219	0.6508	0.00023	0.87956
7	0.0001	2.489062	-165021.2	-163683.3	0.00000063	0.003249819	2.20236	0.6508	0.00023	0.87956
8	0.0002	6.167756	-165022.6	-163681.5	0.00000063	0.003249819	2.22097	0.6508	0.00023	0.87956
9	0.0003	8.516156	-165023.3	-163679.6	0.00000063	0.003249819	2.252895	0.6508	0.00023	0.87956
10	0.0004	9.594432	-165022.1	-163676.8	0.00000063	0.003249819	2.297329	0.6508	0.00023	0.87956
11	0.0005	8.627576	-165018.7	-163674.5	0.00000063	0.003249819	2.353035	0.6508	0.00023	0.87956
12	0.0006	7.391457	-165015.8	-163672.6	0.00000063	0.003249819	2.420887	0.6508	0.00023	0.87956
13	0.0007	7.401166	-165014.6	-163671.5	0.00000063	0.003249819	2.500039	0.6508	0.00023	0.87956
14	0.0008	9.313172	-165016.3	-163671	0.00000063	0.00324982	2.589468	0.6508	0.00023	0.87956

General information | Mesh Quality | Data points | example | **Time-history data** | +

# T/HIS → SimVT → IIHS Whiplash Prevention Evaluation 2025

- Check the ISO score for the protocol channels
- Time indexing and debiasing required by protocol are performed automatically
- Set evaluation interval with “Calculate Head Contact Time” automatically in line with the protocol i.e End of Head contact time + 10 ms from physical test (reference test)

SimVT - Correlation Setup

LS-DYNA model(s) + Imported data

M1 Workflow (58) T1 ISO-MME (41)

Assign CSV config... Import ISO-MME/CSV...

Reference test: T1

Simulation(s): M1

Protocol ?

IIHS Whiplash Prevention Evaluation 2025 (16 km/h pulse)

Method

ISO/TS 18571:2024

Evaluation interval (s): min = full max = 0.1058

Calculate Head Contact Time Configure intervals...

Channel Matching Rules ?

Ignore test object  Ignore position  Ignore filter class

<type rule> <select subject> Add Del

Sim Channel	Ref Channel	
M1	11HEAD0000BRACRD	T1
M1	11NECKUP00BRFOX B	T1
M1	11NECKUP00BRFOZ B	T1
M1	11NECKUP00BRMOY B	T1
M1	11THSP01LEBRACRD	T1
M1	11THSP01RIBRACXD	T1
M1	11LUSP0100BRACRD	T1
M1	11PELV0000BRACRD	T1
M1	11HEADRE00BRFOX O	T1
M1	S0SLED000000ACXD	T1

10 channel matchings

Correlate (0 channels)

Load SimVT settings... Save SimVT settings...

# IIHS VTC Quality Criteria – PRIMER, T/HIS

- Set the required parts in PRIMER
- Check the quality criteria required by the protocol in T/HIS

## PRIMER

IIHS VTC Quality Criteria

Model Unit System: U2 (mm, t, s)

Display Time Unit: Seconds [s]

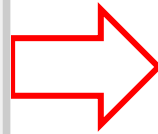
Display Energy Unit: Millijoules [mJ]

Display Mass Unit: Tonnes [t]

Dummy Parts: 474 PARTs selected

Seat Parts: 87 PARTs selected

Save To File Save To Model



## T/HIS

Graph	Component	Test Description	Units	Limit	Result	
1	Dummy	Hourglass Energy < 5% of Internal Energy at all times	Percentage	5	-0.0013348289	✓
2	Seat Parts	Hourglass Energy < 5% of Internal Energy at all times	Percentage	5	0.0000000	✓
3	Remaining Components	Hourglass Energy < 5% of Internal Energy at all times	Percentage	5	0.019742899	✓
4	Dummy	Added Mass < 5% of Physical Mass at all times	Percentage	5	0.11680540	✓
5	Seat Parts	Added Mass < 5% of Physical Mass at all times	Percentage	5	14.076694	✗
6	Remaining Components	Added Mass < 5% of Physical Mass at all times	Percentage	5	0.33645689	✓
7	Full Setup	Hourglass Energy	Millijoules [mJ]		350.84219	
8	Full Setup	Internal Energy	Millijoules [mJ]		32853.277	
9	Full Setup	Added Mass	Tonnes [t]		0.0032537314	
	Full Setup	Physical Mass from OTF/d3hsp	Tonnes [t]		0.10751674	

Write Results Model Units: U2 (mm, t, s) Reset Graphs Curve Labels Off Datum Labels Off

# IIHS VTC Quality Criteria – REPORTER

- Automate the report generation with REPORTER

IIHS VTC Quality Criteria - Rear Impact				
2025				
Summary				
Component	Test Description	Value	Limit	Result
Dummy	Hourglass Energy < 5% of Internal Energy at all times	-0.0013348%	5%	Pass
Seat Parts	Hourglass Energy < 5% of Internal Energy at all times	0%	5%	Pass
Remaining Components	Hourglass Energy < 5% of Internal Energy at all times	0.019743%	5%	Pass
Dummy	Added mass < 5% of physical mass at all times	0.11681%	5%	Pass
Seat Parts	Added mass < 5% of physical mass at all times	14.077%	5%	Fail
Remaining Components	Added mass < 5% of physical mass at all times	0.33646%	5%	Pass
Full Setup	Hourglass Energy - Millijoules [mJ]	350.84		
Full Setup	Internal Energy - Millijoules [mJ]	32853		
Full Setup	Added Mass - Tonnes [t]	0.0032537		
Full Setup	Total Mass - Tonnes [t]	0.10752		

# IIHS VTC Videos– PRIMER and D3PLOT

- Set the data needed in PRIMER
- Calculate and Update views in D3PLOT
- Export the required videos in D3PLOT

## PRIMER

IIHS Rear Impact

Protocol: IIHS Rear Impact

Unit System: U2 (mm, t, s)

\*DATABASE\_BINARY\_D3PLOT DT: 0.005 [Save DT]

Fixed Reference Node 1 (required): [Select...]

Fixed Reference Node 2 (optional): [Select...]

Fixed Reference Node 3 (optional): [Select...]

Crash Pulse (km/h): 16

Year Make Model: [ ]

Parts to Blank: [ ]

Property Files Directory: [ ]

[Save To File] [Save To Model]

## D3PLOT

IIHS Rear Impact VTC Videos

Step 1: Calculate the views

Left	<input checked="" type="checkbox"/>	Frontal	<input checked="" type="checkbox"/>
Left follow	<input checked="" type="checkbox"/>	Rear	<input checked="" type="checkbox"/>
Right	<input checked="" type="checkbox"/>	Top	<input checked="" type="checkbox"/>
Right follow	<input checked="" type="checkbox"/>	Bottom	<input checked="" type="checkbox"/>

[Reset & Calculate Views (create property files)]

Step 2: Verify and update the views (Hover for help)

Left	[View]	[Update & Save]
Left follow	[View]	[Update & Save]
Right	[View]	[Update & Save]
Right follow	[View]	[Update & Save]
Frontal	[View]	[Update & Save]
Rear	[View]	[Update & Save]
Top	[View]	[Update & Save]
Bottom	[View]	[Update & Save]

Step 3: Set video time, file size, and export



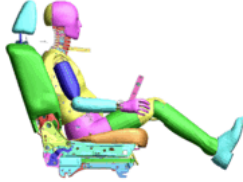




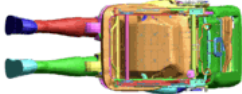
Start: 0 Interval: 0.001 End: 0.16

Target File Size (MB): 10 [Export Videos]

# IIHS VTC Videos – REPORTER

- Automate the report generation with REPORTER

IIHS Rear Impact VTC Videos 2025 (Version 1.0)

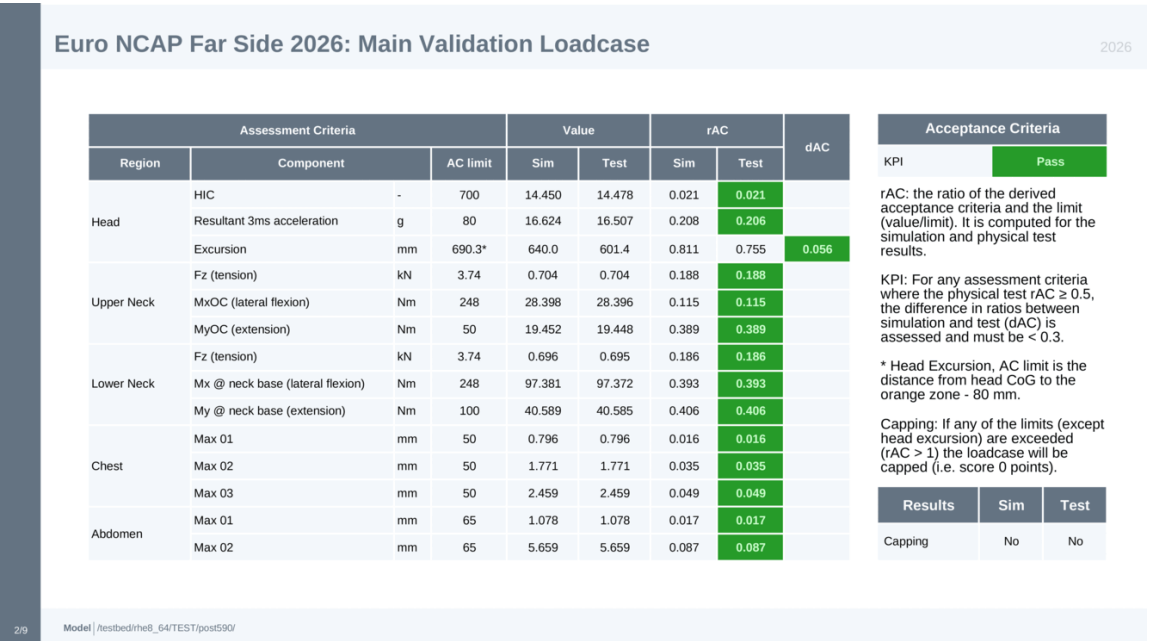
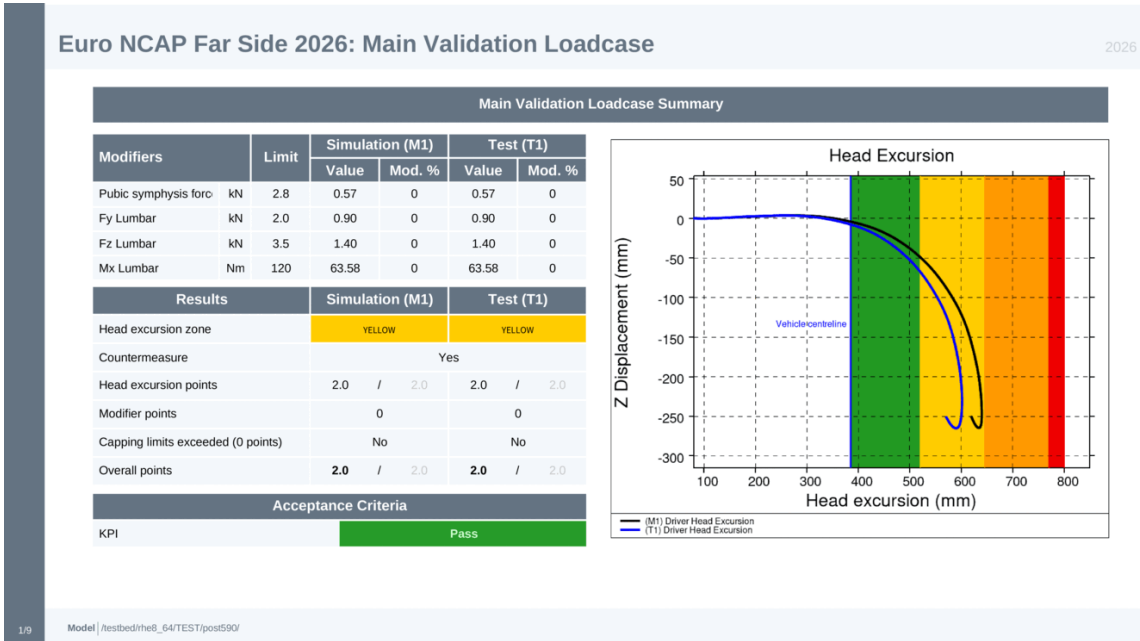
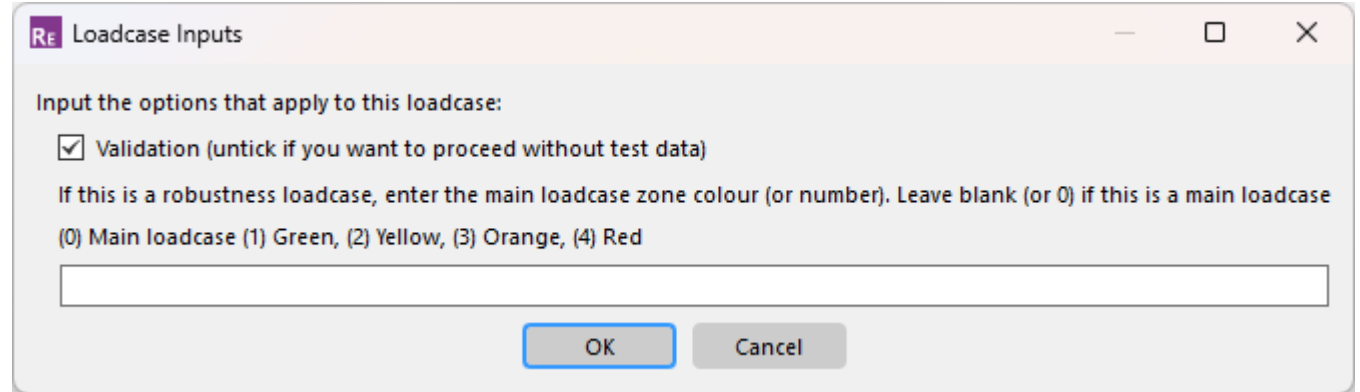
Left View	Left follow View	Right View	Right follow View
			
Frontal View	Rear View	Top View	Bottom View
			

1/9 Model | /testbed/rhe8\_64/TEST/post603/Rear\_Impact\_BioRid.key

# Euro NCAP 2026 Updates

# Euro NCAP Far Side 2026 Report

- Euro NCAP Far Side Report has been improved to support both the Main and Robustness loadcases with and without validation against test data.
- If validation test data is provided, the KPI pass/fail criteria will be reported.



# Euro NCAP Frontal VTC Videos 2026 Updates

- Euro NCAP Frontal VTC Videos has been updated following the release of the 2026 protocol (previously was in DRAFT)
- Main changes include:
  - Reference ID and file naming
  - Driver and passenger specific side views are now called left and right; view improved
  - Front view has been improved
  - New top view (replaced previous Overhead view)
  - Driver and Passenger Rear  $\frac{3}{4}$  view are now called Driver and Passenger Onboard; views improved
  - Driver and Passenger Footwell views are now calculated rather than a draft position

The screenshot shows a software window titled "Euro NCAP VTC Frontal Videos" with three main sections:

- Step 1: Calculate the views**: A grid of checkboxes for selecting views. All checkboxes are checked.

Right	<input checked="" type="checkbox"/>	Left	<input checked="" type="checkbox"/>
Front	<input checked="" type="checkbox"/>	Top	<input checked="" type="checkbox"/>
Driver Onboard	<input checked="" type="checkbox"/>	Passenger Onboard	<input checked="" type="checkbox"/>
Driver Footwell	<input checked="" type="checkbox"/>	Passenger Footwell	<input checked="" type="checkbox"/>
- Step 2: Verify and update the views (Hover for help)**: A list of views with "View", "Update & Save", and "Example" buttons.

Right	View	Update & Save	Example
Left	View	Update & Save	Example
Front	View	Update & Save	Example
Top	View	Update & Save	
Driver Onboard	View	Update & Save	Example
Passenger Onboard	View	Update & Save	Example
Driver Footwell	View	Update & Save	
Passenger Footwell	View	Update & Save	
- Step 3: Set video time, file size, and export**: Input fields for "Start" (0), "Interval" (0.002), "End" (0.15), and "Target File Size (MB)" (10), followed by an "Export Videos" button.

# LS-DYNA to ISO-MME updates

- The LS-DYNA to ISO-MME workflow has been updated in accordance with [EuroNCAP CP 005 – Data acquisition and injury calculation v1.4.1](#):
  1. Added “Combined or Separate SimM” additional mandatory MME header
  2. Several updates to ISO-MME codes:
    - Updated B-pillar acceleration to [14,16]BPILL**0**0000AC[X,Y]0 from [14,16]BPILL**O**0000AC[X,Y]0
    - Updated Seatbelt B3 and B6 force to ??SEBE000**3**B[3,6]FO00 from ??SEBE000**0**B[3,6]FO00
    - Updated seat energies and added mass channels e.g. **[11,13]**MINCSU**SE**00MA00 from ??MINCSU**0**000MA00 (It used to be 1A or 1B depending on driver or front passenger seat)
    - Added ??SHRI[LE,RI]00WSDC00, ??SHRI[LE,RI]00WSANZ0, ??TRRI[LE,RI][01,02,03]WSDC00, ??TRRI[LE,RI][01,02,03]WSANZ0 and ??FEAC[LE,RI]00WSFO[X,Y,Z]0 for Far Side Sled

# Automotive Protocols

# New/Updated Protocols and Regulations

Regulation	Loadcases introduced in V23
C-NCAP	MPDB Compatibility 2024
Euro NCAP	MPDB Compatibility 2023, Far Side Sled 2026, MDB 2026, MPDB Compatibility 2026, Side Pole 2026, VTC Quality Criteria and VTC Videos 2026 for Far Side & Front
IIHS	Whiplash 2025 including VTC Quality Criteria and VTC Videos

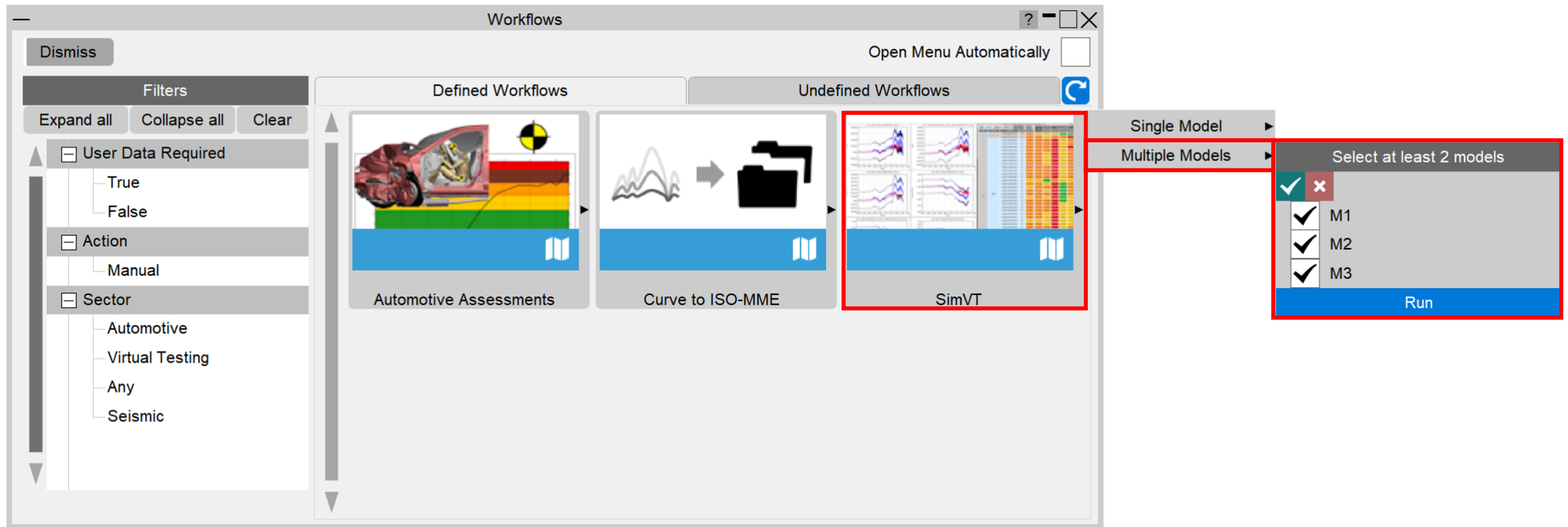
Regulation	Loadcases introduced in V22.1
C-NCAP	Far Side (including O2O & Official Format Versions), Front AEB OOP (Official Format), Side MDB, FRB
FMVSS	208 Front FFB
Euro NCAP	FWDB 2026, Front Sled 2026 (Validation 1 + (KPI), Validation 2 + (KPI), Robustness 1, Robustness 2, Robustness 3)



# Workflows Menu

# Multiple Model Selection

- To save time, in the popup for selecting multiple models to run Workflows, all models are now initially selected
- In addition, two new buttons have been added to select and deselect all the models (reduced clicks)



# JavaScript API

# Workflow class

A new **Workflow.GetWorkflowDataFromPath()** class method has been added to the Workflow class in the JavaScript API. It searches for workflow data in the specified path and can be used to read Workflow user data for models that might have been read in after the workflow was started.

# Workflow `user_data_required`

The behaviour of the `user_data_required` property in the workflow definition file has been changed.

Previously, if this was set to `false`, then user data would not be read in when running a workflow, even if it existed.

The behaviour has been changed in v23 so that it will be read in if it exists, i.e. setting `user_data_required: false` means user data is optional.

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