REPORTER 22.0

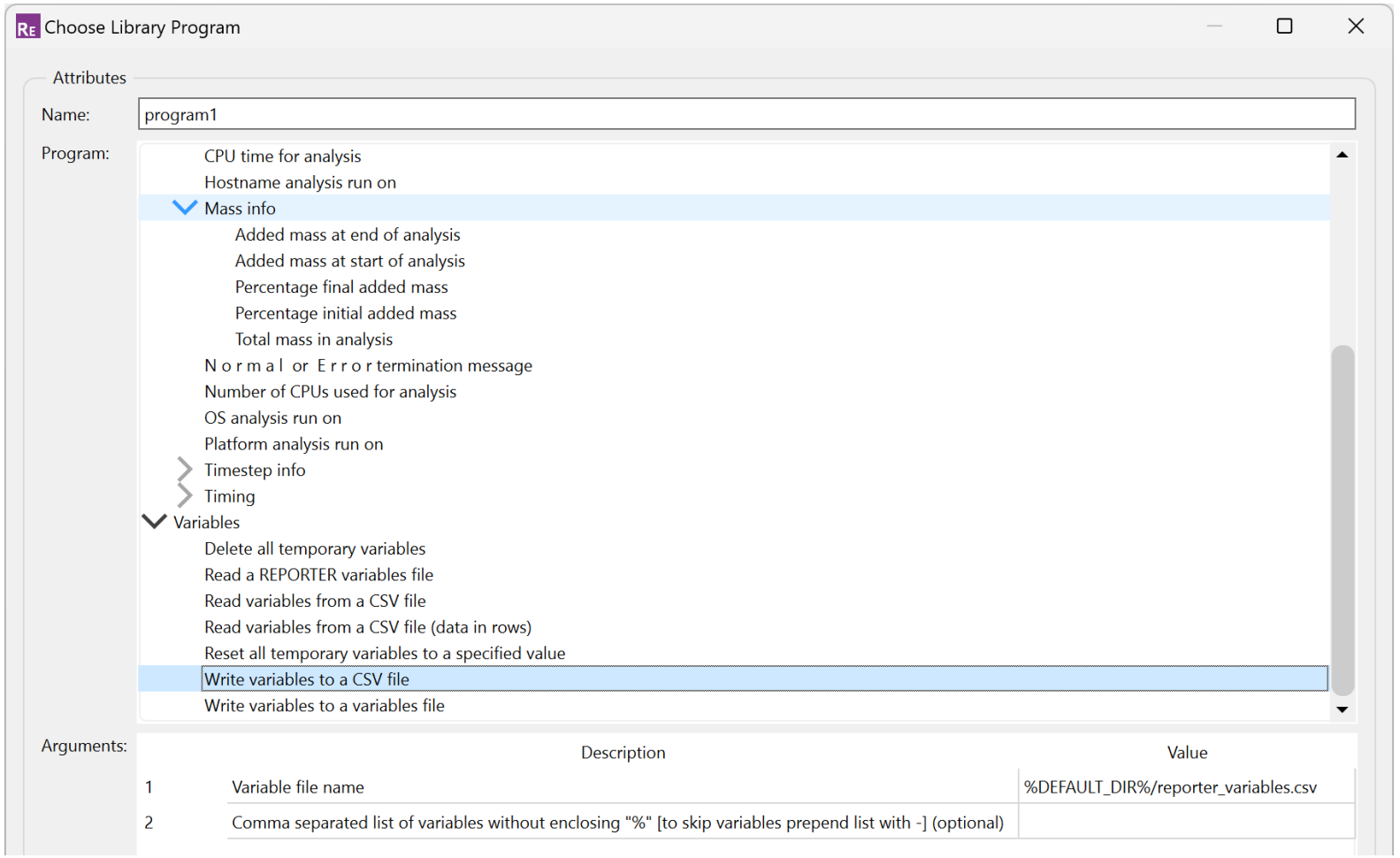
Oasys
LS-DYNA Environment

REPORTER 22.0 – Contents


Complete Ansys LS-DYNA Support

Library Programs

Library Programs



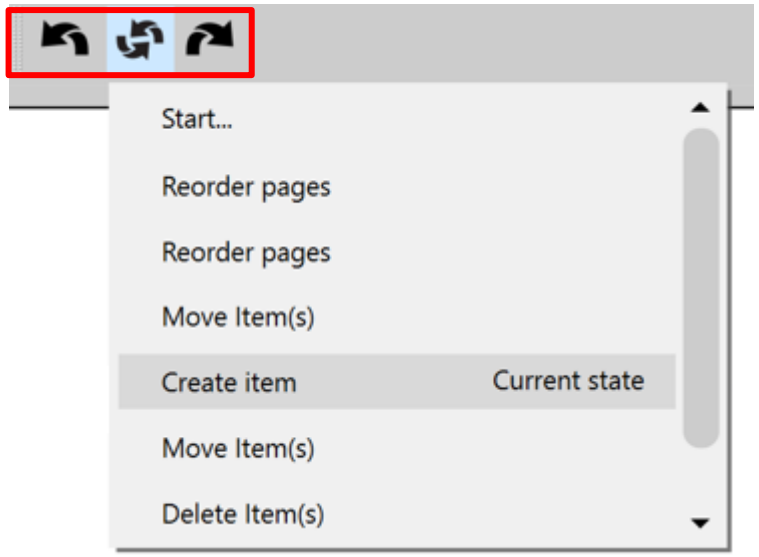
- A new Library Program has been added which allows REPORTER variables to be written to a CSV file – convenient when interfacing with other software.
- The mass info Library Programs now support d3hsp/OTF files produced by models with selective mass scaling enabled (a feature available in more recent versions of Ansys LS-DYNA).


Efficient End-to-End Workflows

Undo

Undo

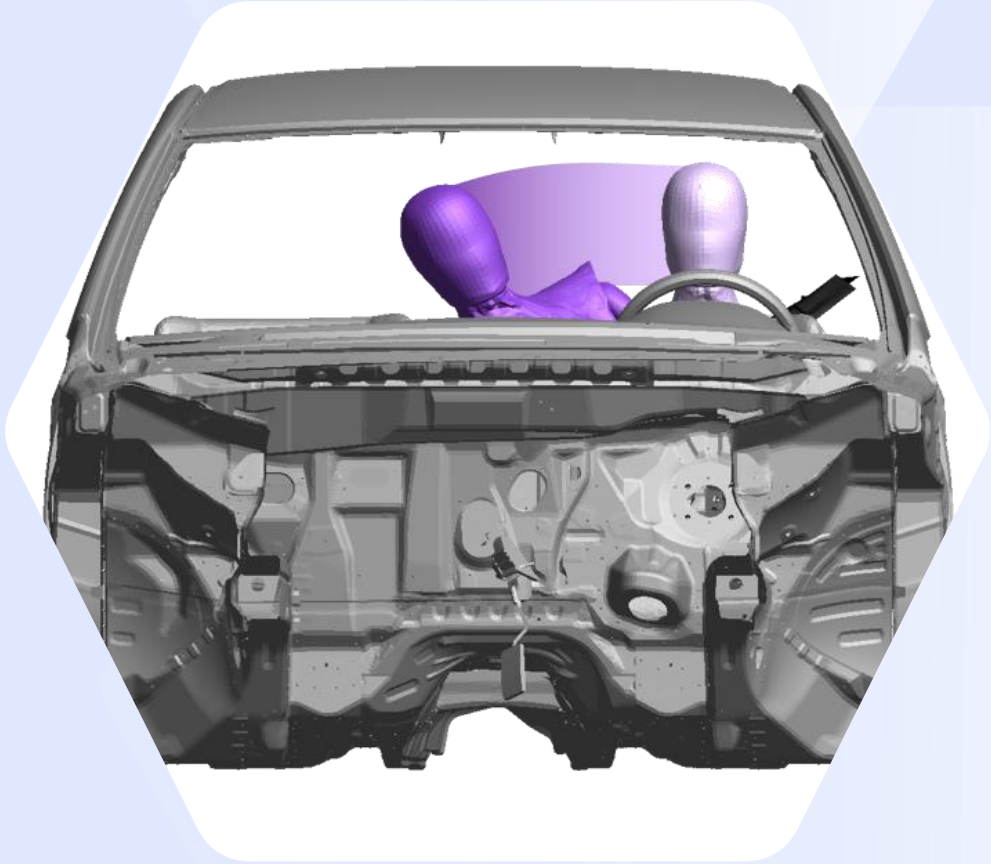
- REPORTER now includes **undo** and **redo** functionality for most actions, allowing you to correct mistakes and return to previous states easily.
- You can undo and redo actions using the top toolbar buttons, the Edit menu, or the keyboard shortcuts **Ctrl + Z** and **Ctrl + Y**. Additionally, you can navigate through the states of your entire REPORTER session, including across multiple templates, via the Undo History menu located in the top toolbar.
- The following actions will clear your undo stack:
  - Generating your report/template
  - Running scripts from the Script menu
  - Activating a gRPC server



Virtual Testing

- C-NCAP Management Regulation
- Working with Test Data
- Automotive Assessments Improvements
- SimVT Graph Options
- VTC Quality Criteria Workflows
- VTC Videos File Size

C-NCAP Management Regulation

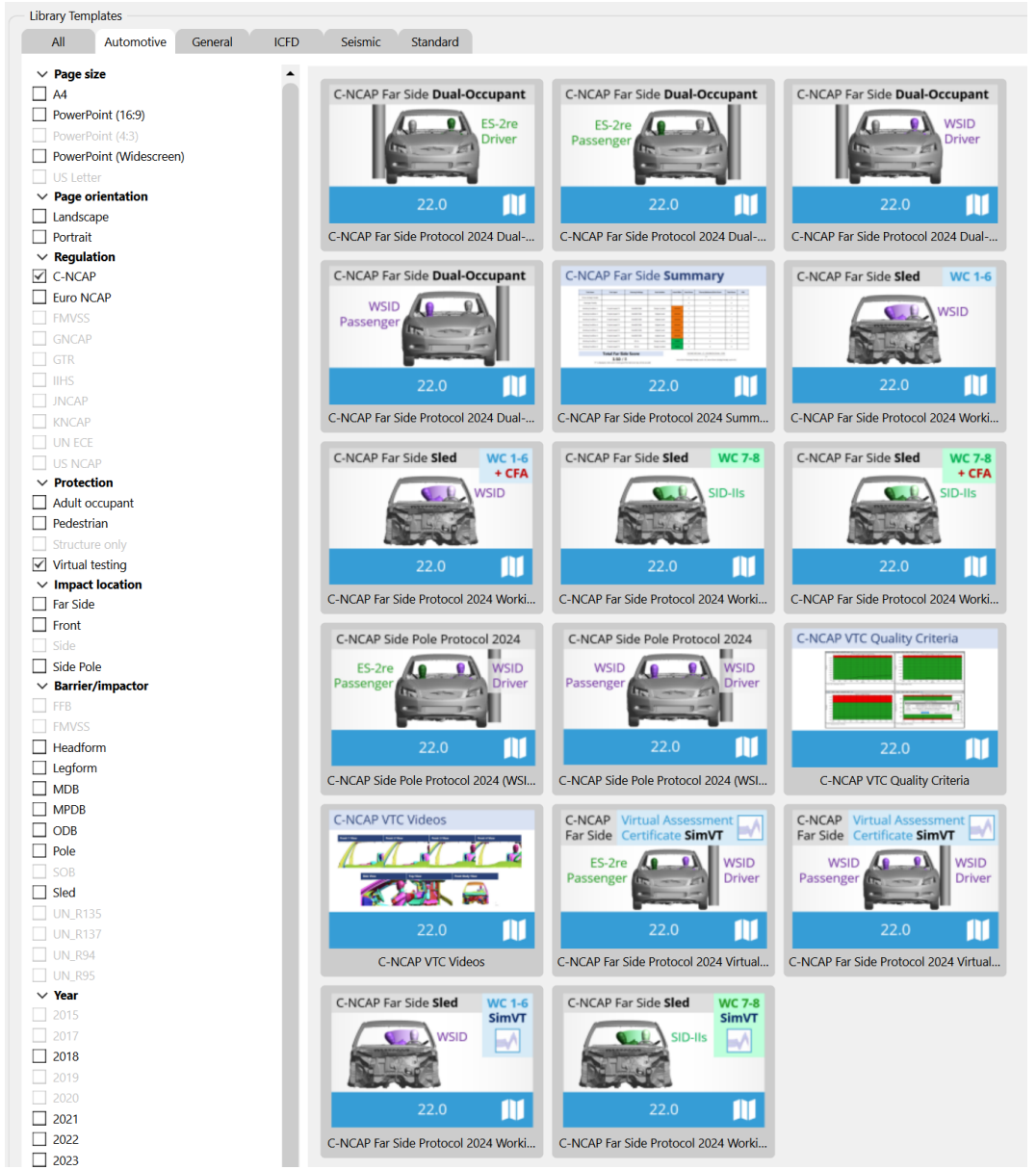


C-NCAP Management Regulation (2024 Edition)

Since Oasys 21.1, there has been support for the various requirements of the C-NCAP Far Side Occupant Protection Protocol, including:

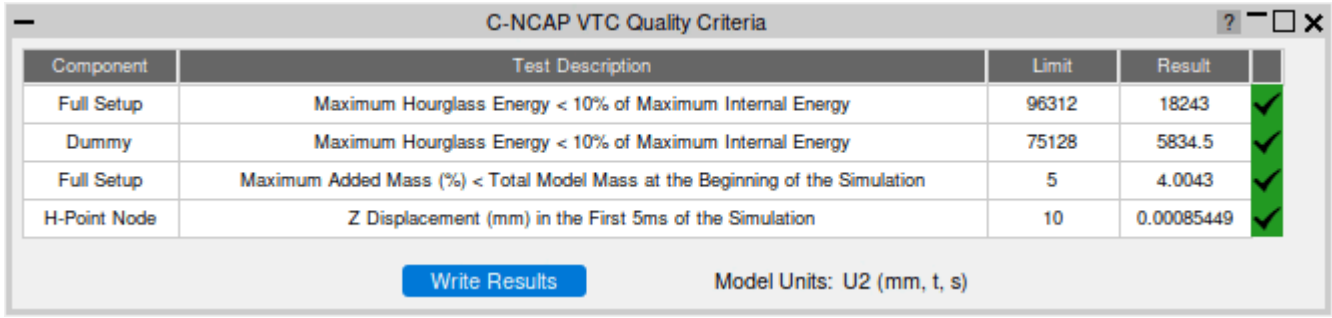
- For each of the eight Working Conditions:
  - Occupant injury assessment
  - ISO Correlation Fitting indices
  - Correction Factor A
- Dual-Occupant Penalty calculation
- ISO correlation fitting indices for the Virtual Assessment Certificate (prerequisite for the symmetry of far side occupant protection airbags)
- Overall score calculation

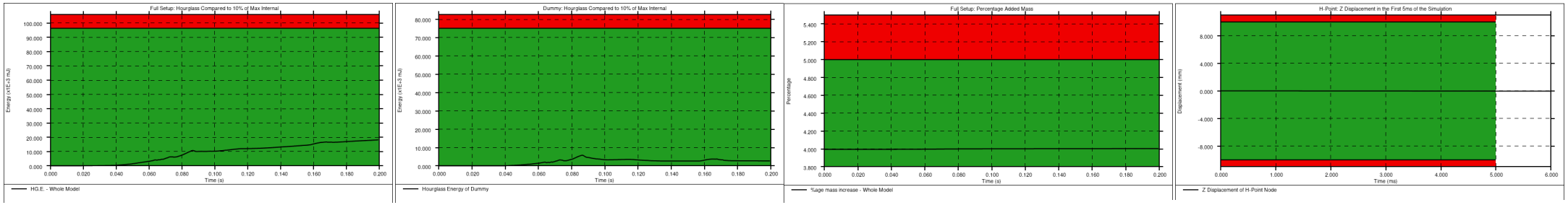
Read the documentation to learn more



C-NCAP VTC Quality Criteria

- The C-NCAP VTC Quality Criteria Workflow tool follows the same principals as the Euro NCAP version but assesses the quality criteria specified in section H.1.1(f) of the C-NCAP Far Side Simulation & Assessment Protocol.
- The tool can be automated using the REPORTER template provided.

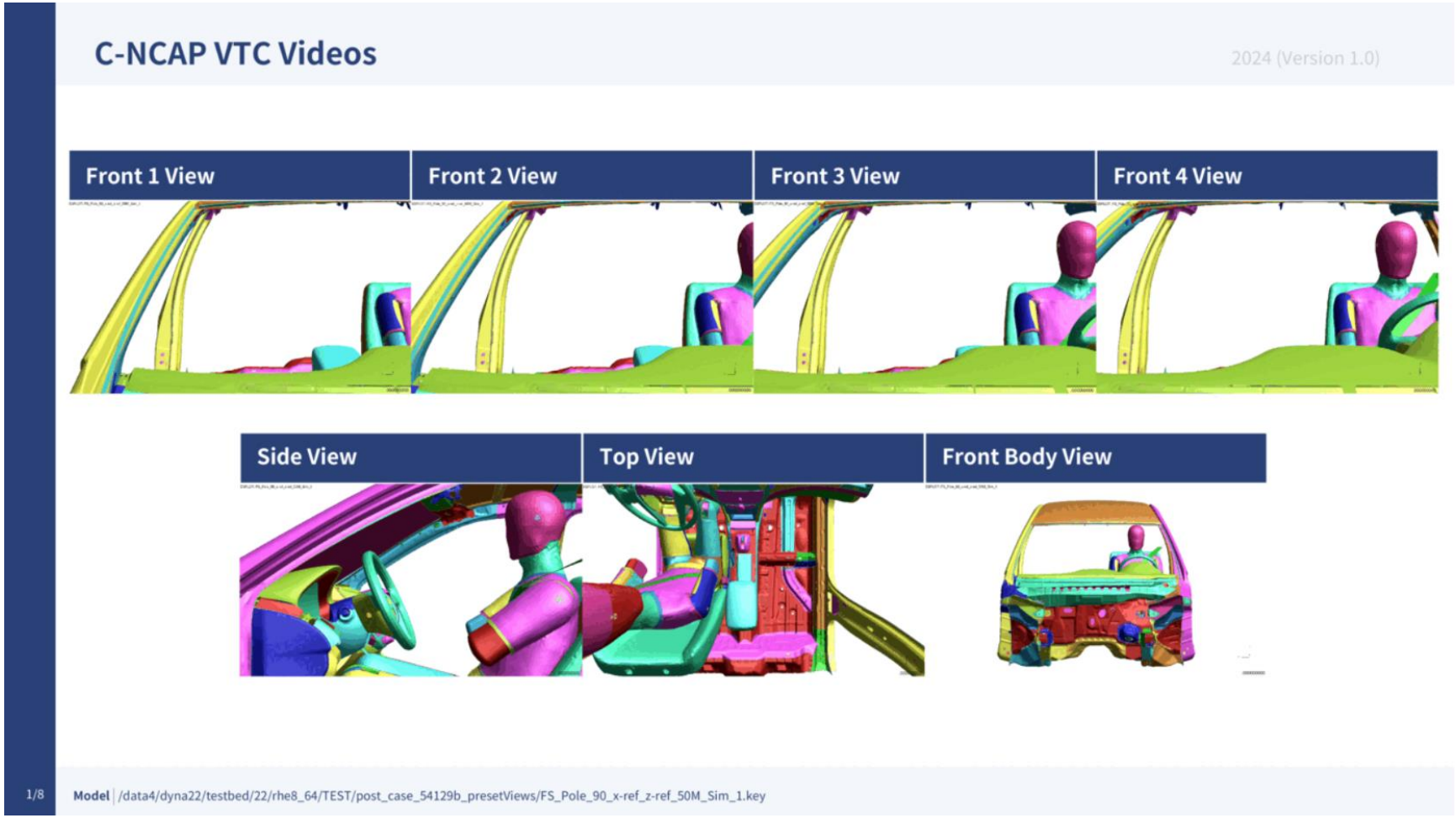




C-NCAP VTC Videos

- The **C-NCAP VTC Videos** Workflow tool follows the same principles as the Euro NCAP version but helps you calculate the views and export the videos specified in section H.2.8 of the C-NCAP Far Side Occupant Protection Protocol (2024 Edition).

- Use the standard Workflow method in **PRIMER** and **D3PLOT** or the whole process can be automated using the **REPORTER** template provided.

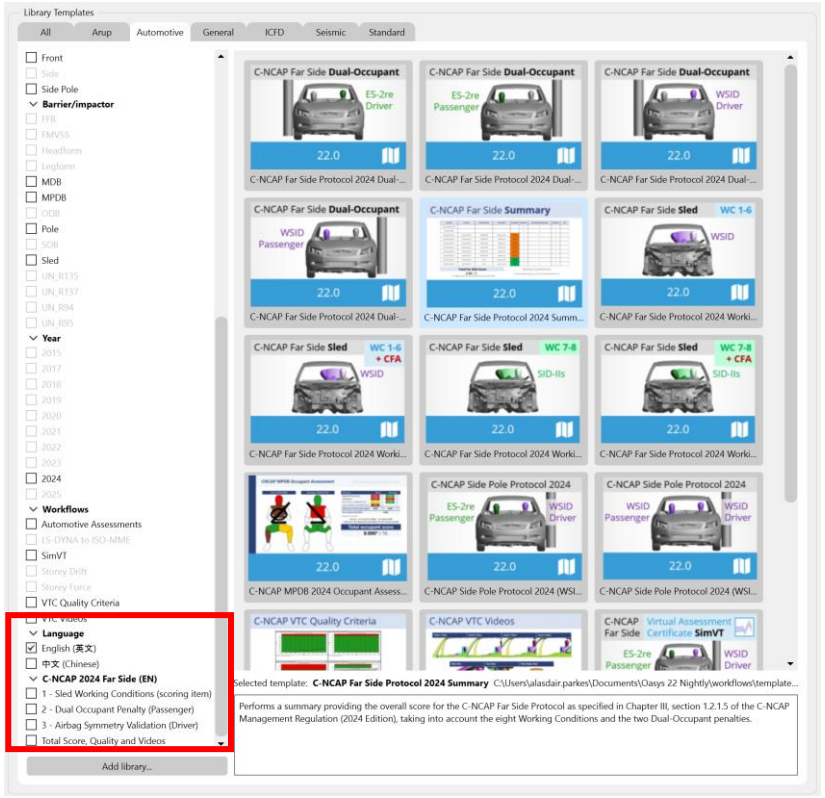


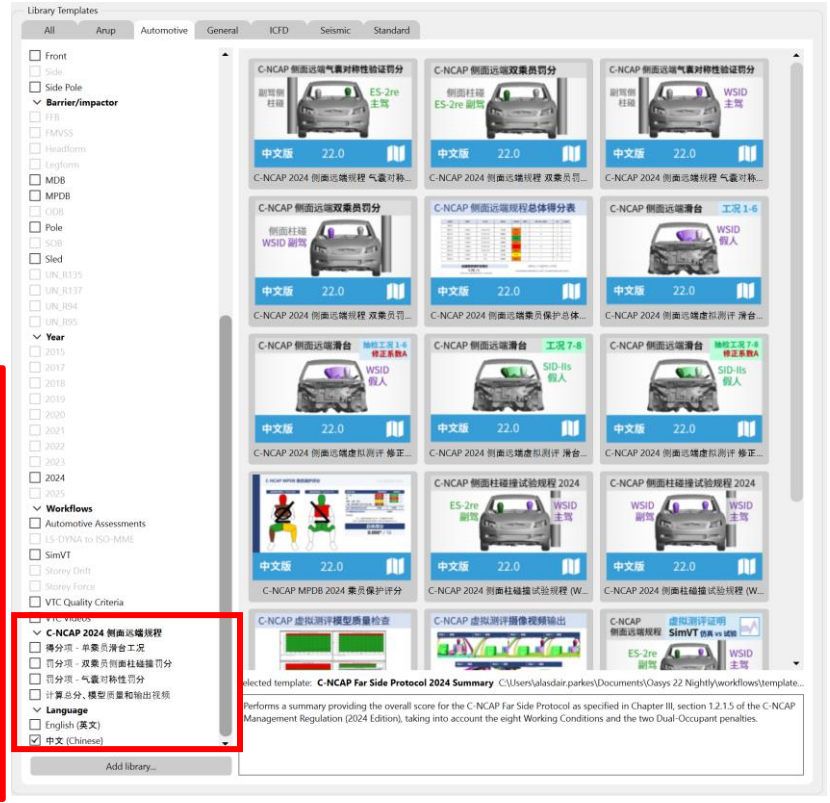
Chinese Language Reports

中文版报告模板

- You now have access to all the C-NCAP REPORTER templates in both English and Chinese, for ease of communication with your teams, partners, suppliers, and C-NCAP.

- 所有 C-NCAP REPORTER 模板都同时提供英文和中文版供您使用，方便您与团队、合作伙伴、供应商，和 C-NCAP 沟通。



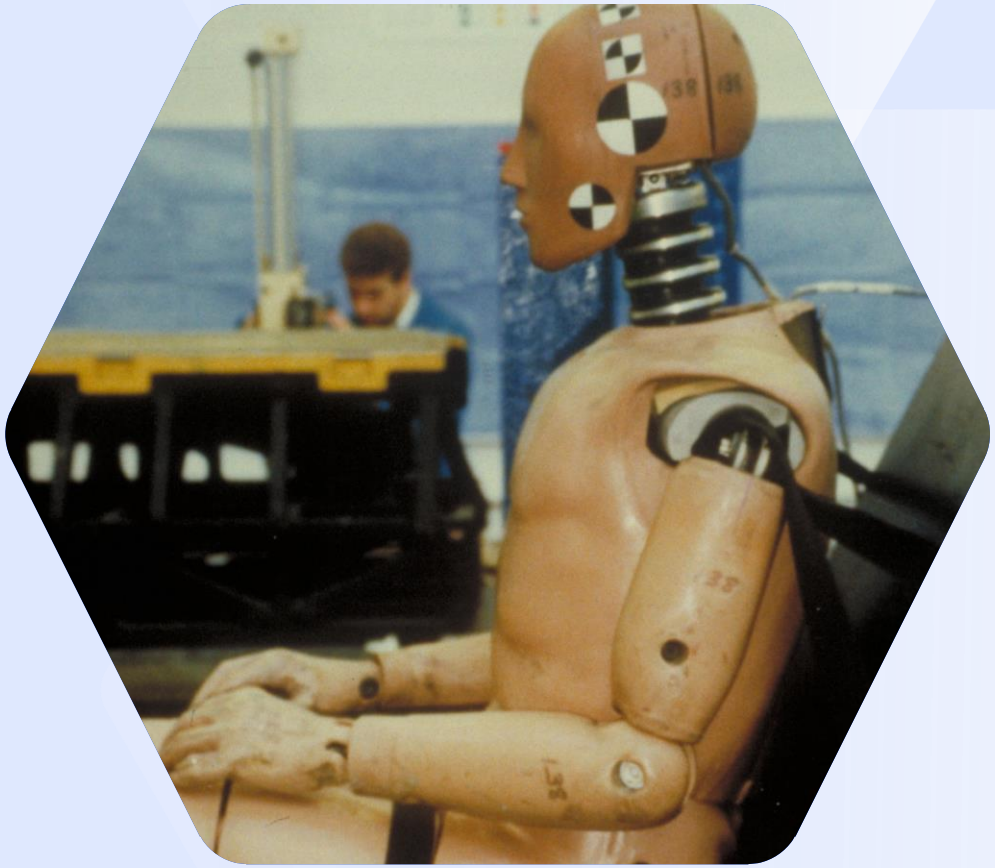


Chinese Language Reports

- Example reports generated by C-NCAP REPORTER templates, in English (left) and Chinese (right):

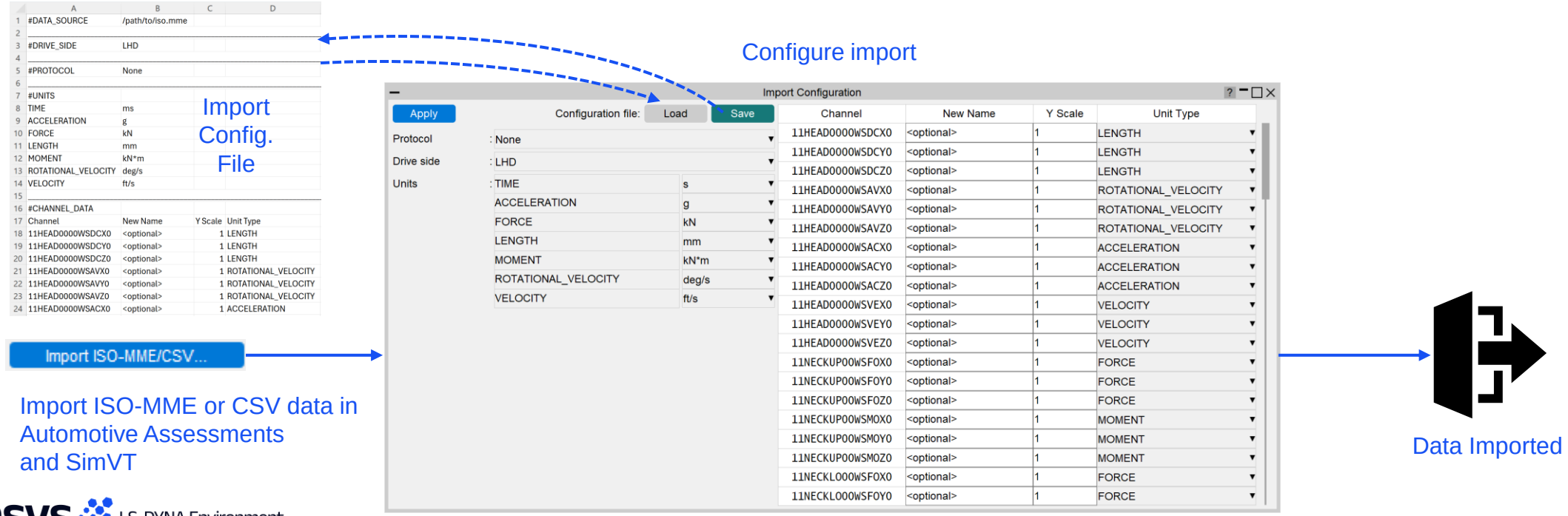
- 下方展示了由 C-NCAP REPORTER 模板自动生成的英文版（左侧）和中文版（右侧）报告示例。

Working with Test Data



Improved unit handling and configuration for imported data

- Previously, imported ISO-MME data was assumed to be in SI units. This assumption was not always valid and data with non-standard units (e.g. accelerations in ‘g’ or rotations in ‘degrees’) needed to be manually scaled.
- Additionally, the vehicle drive side was inferred from the position code of the first occupant channel, which was assumed to be the driver.
- Now, when importing ISO-MME channel data, T/HIS attempts to automatically determine the units from the unit header in each channel file and the drive side from the “Driver position object 1” header in the MME file. However, it is not always possible to correctly infer this information.
- The new Import Configuration window (and Import Config. file) gives you the option to correct any issues with the channel units, polarity, scale and naming before importing ISO-MME or CSV data.



Time of first sample

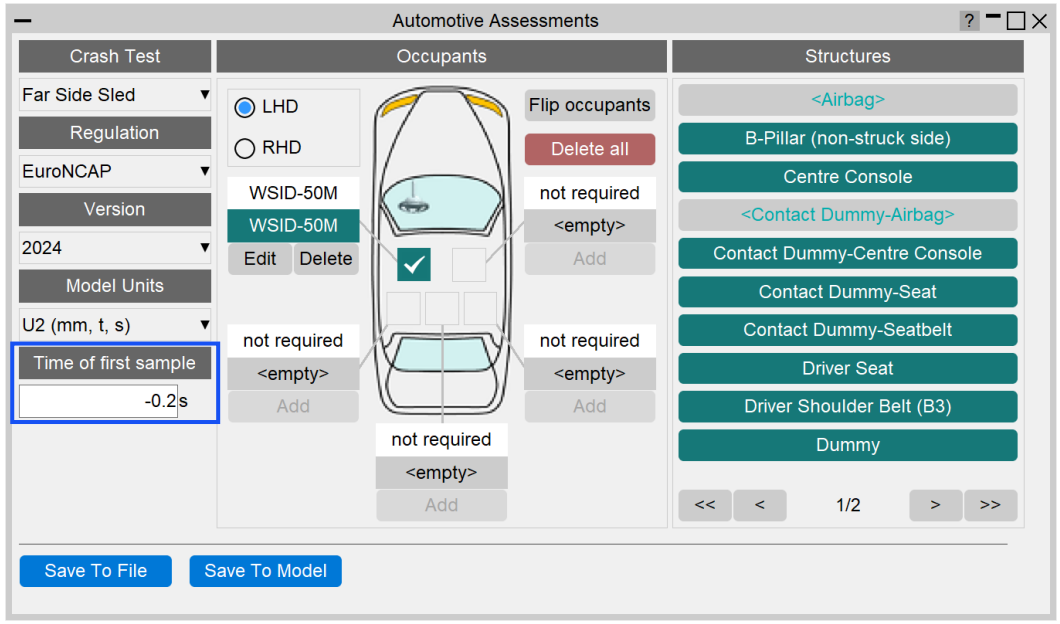
To accommodate the pre-crash (settling) phase in a simulation, a new “Time of first sample” input has been added to the Automotive Assessments workflow set-up in PRIMER.

Automotive Assessments and SimVT

- In accordance with ISO-MME convention a **negative** time value is used to shift the start time of the output curves when post-processing using the Automotive Assessments or SimVT workflows in T/HIS.
- For example, if your analysis begins with 200 milliseconds of set-up (e.g. seat squash etc.) before the crash test load case commences then you would enter -0.2 in the “Time of first sample” input to shift the curves so that the crash test will effectively start at t=0.
- Any data before t=0 is automatically discarded.

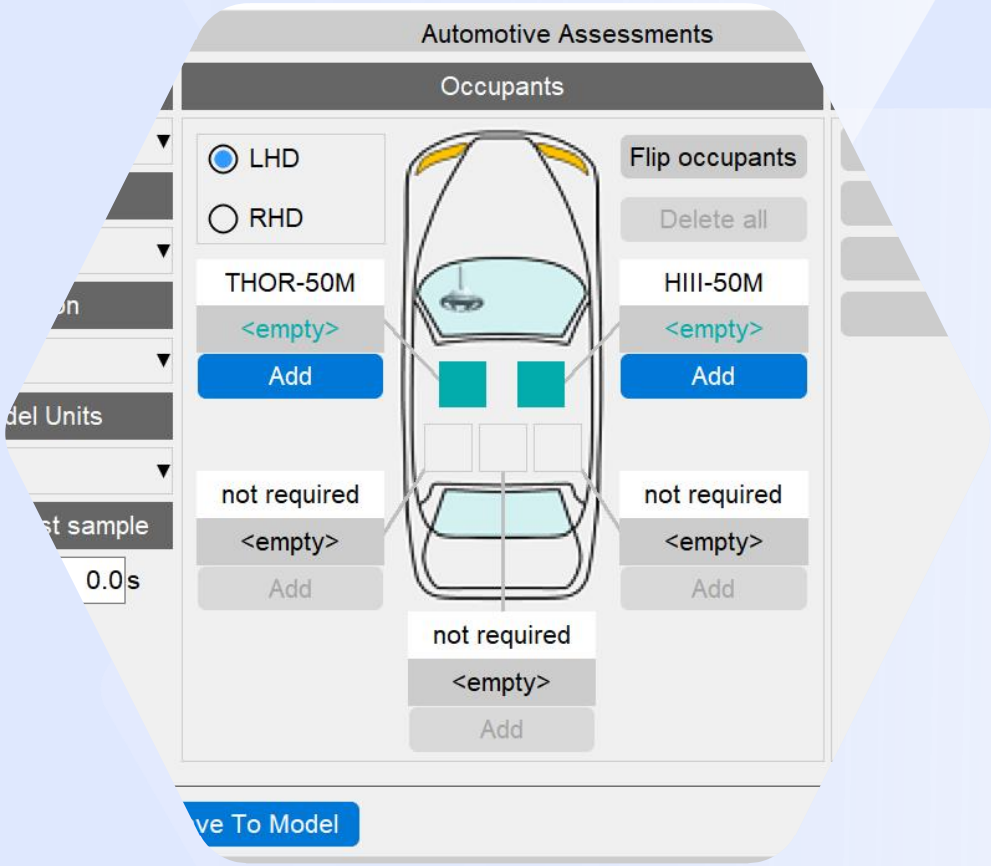
LSDYNA to ISO-MME

- The “Time of first sample” value is also used by the LS-DYNA to ISO-MME workflow.
- If it is defined, then the “Time of first sample” header value will automatically be set in the channel files.
- Note that in this instance the samples which are shifted to time < 0 will not be discarded as this only happens when the ISO-MME data is processed.



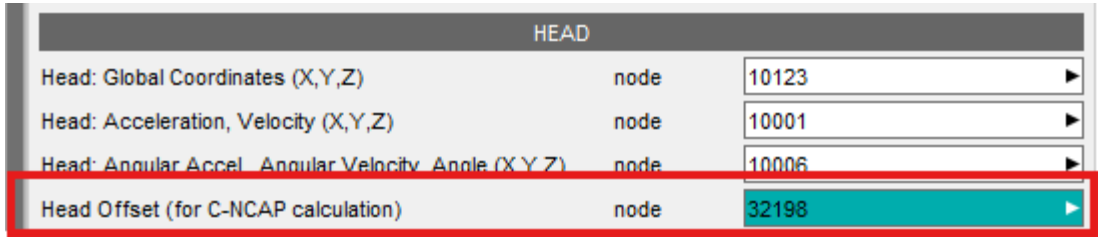

```
Test object number          :1
Name of the channel         :Accel x - Node 10001 : ( HEAD0000WSAC) (Reg 0.100E-03)
Laboratory channel code     :NOVALUE
Customer channel code       :NOVALUE
Channel code                :11HEAD0000WSACX0
Unit                        :m/(s*s)
Reference system            :NOVALUE
Pre-filter type             :NOVALUE
Cut off frequency           :NOVALUE
Channel amplitude class     :NOVALUE
Sampling interval           :0.0001
Bit resolution              :NOVALUE
Time of first sample        :-0.02
Number of samples           :2000
0
-2.86178e-08
-5.19904e-09
```

Automotive Assessments Improvements

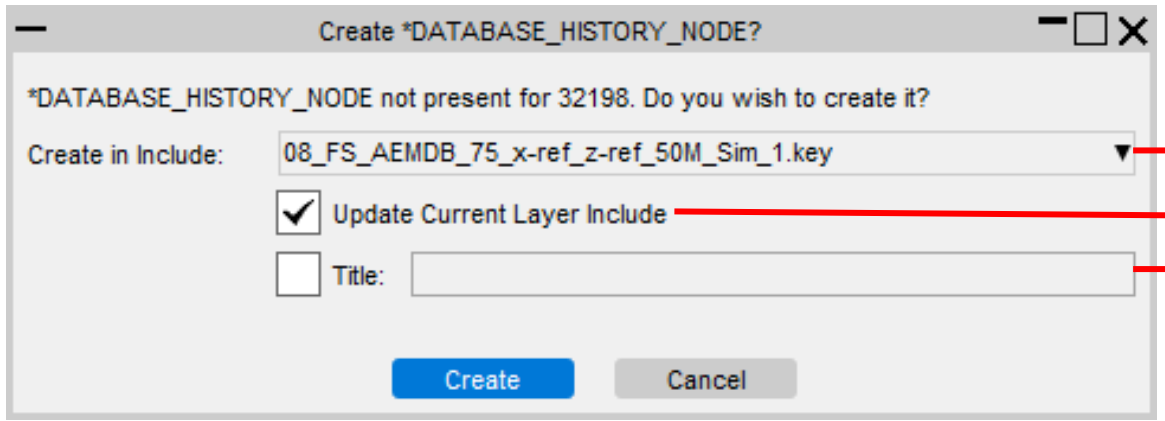


Automotive Assessments Improvements

- Entity IDs that are defined but don't have corresponding *DATABASE_HISTORY_XXXX keyword defined are now shown with a latent cyan-coloured textbox background:



- A window is now mapped when such entity IDs are selected or typed into the text box, giving you the option to create the corresponding *DATABASE_HISTORY_XXXX keyword for them. It also provides an option to select the include file to which the keyword will be added. **Note:** you have to save the include and re(run) the analysis to obtain results for the corresponding entity.



Dropdown to select the include file

If ticked, then the current layer include will be updated to the one selected in the dropdown above

Option to provide optional Title

Automotive Assessments Improvements

- The ISO channel codes have been updated for several channels in the Far Side VTC v1.1 draft protocol. The necessary changes have been incorporated in Automotive Assessments workflows tool, and backward compatibility support has been added for the older ISO codes. The channels whose ISO codes have changed are:

  - LAP Belt (SEBE00**03**B6FO00 to SEBE00**00**B6FO00)

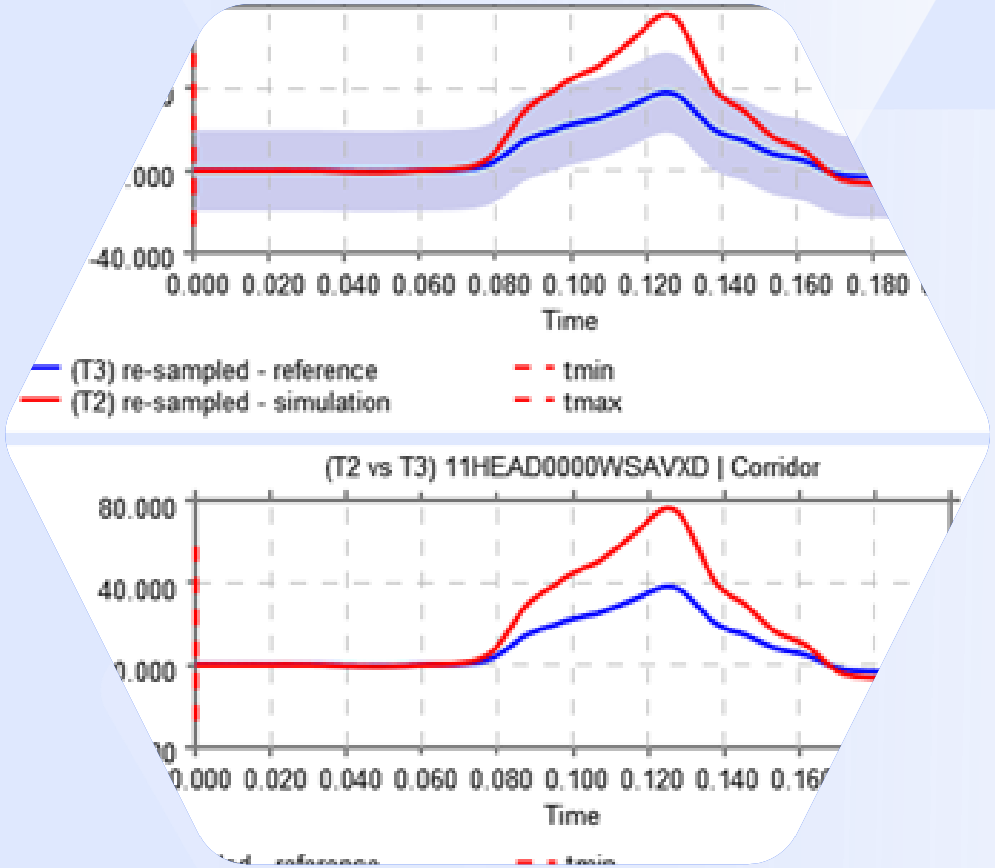
  - Shoulder Belt (SEBE00**03**B3FO00 to SEBE00**00**B3FO00)

  - Contact Dummy-Airbag (**ARBG**0000WSFOX/Y/Z to **AIRB**0000WSFOX/Y/Z)

  - Thoracic Spine 04 and 12 Displacements (THSP04/1200**00**DCX/Y/Z0 to THSP04/1200**WS**DCX/Y/Z0).

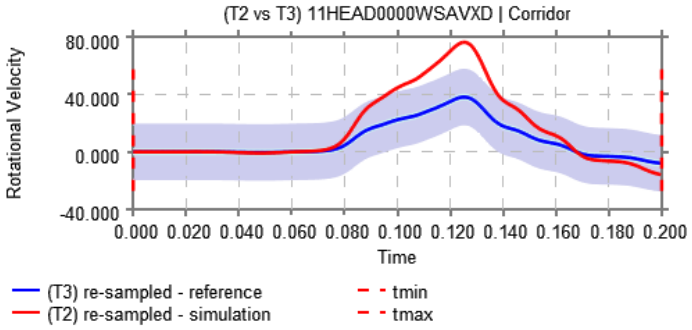
- The 'Far Side + VTC' and 'Far Side' crash tests have been renamed to 'Far Side Sled' for consistency across the tools. The version for the former 'Far Side + VTC' is now 2024, while the version for the former 'Far Side' crash test is 2022. Support for backward compatibility has also been added.
- The term Physiology has been renamed to Anthropometry and support for backward compatibility has also been added.
- Users can now select multiple contacts for contact structures (Contact Dummy – Airbag, Contact Dummy – Centre Console, Contact Dummy –Seat and Contact Dummy - Seatbelt) via SELECT option.

SimVT Graph Options

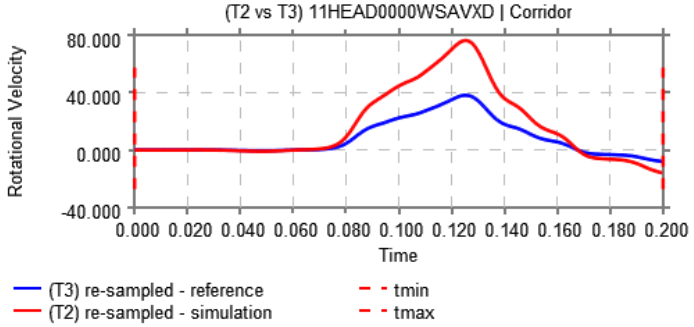


SimVT Graph Options – Show Corridors

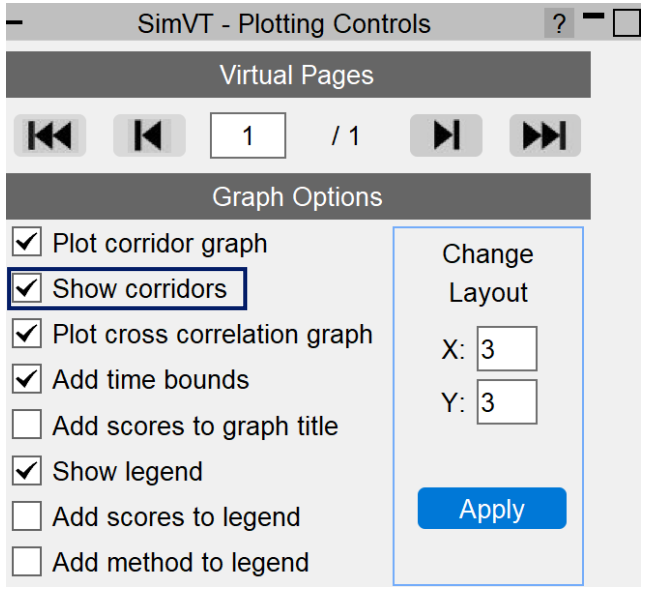
- A new graph option “Show corridors” has been added to SimVT plotting controls. This determines whether the inner and outer corridors are plotted along with the reference and simulation curves.
- Deselecting show corridors can help reduce clutter on the graphs.



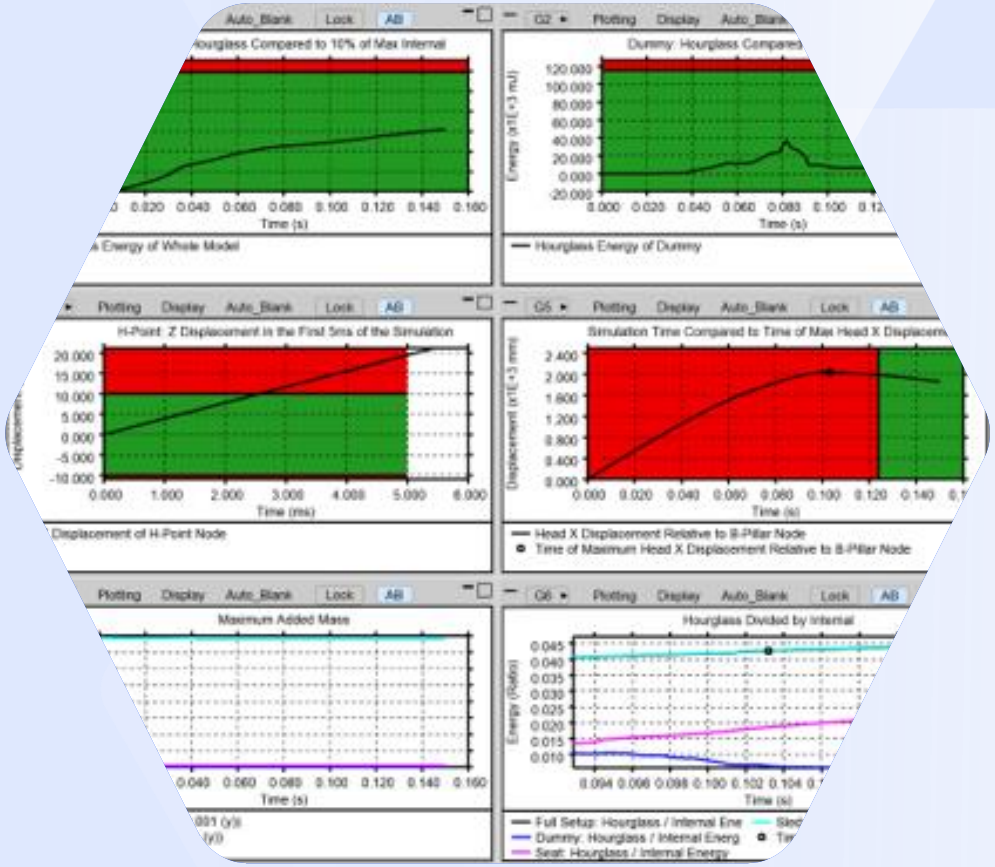
Corridors turned on



Corridors turned off

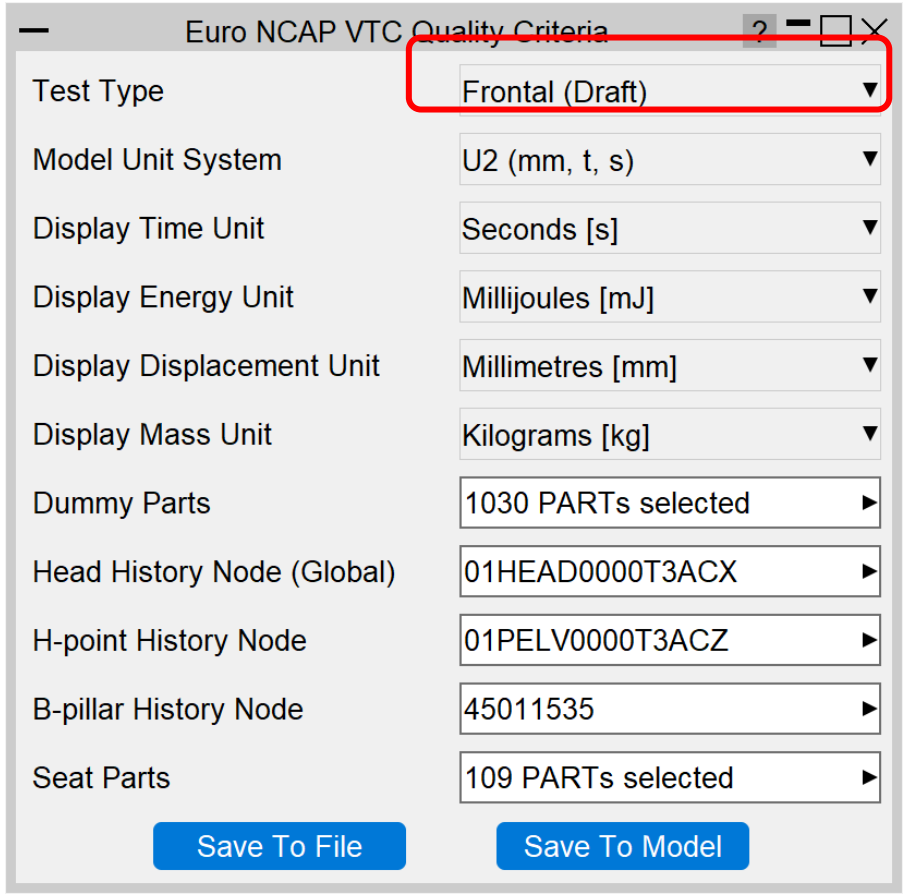


VTC Quality Criteria Workflows



Quality Criteria – Euro NCAP Frontal

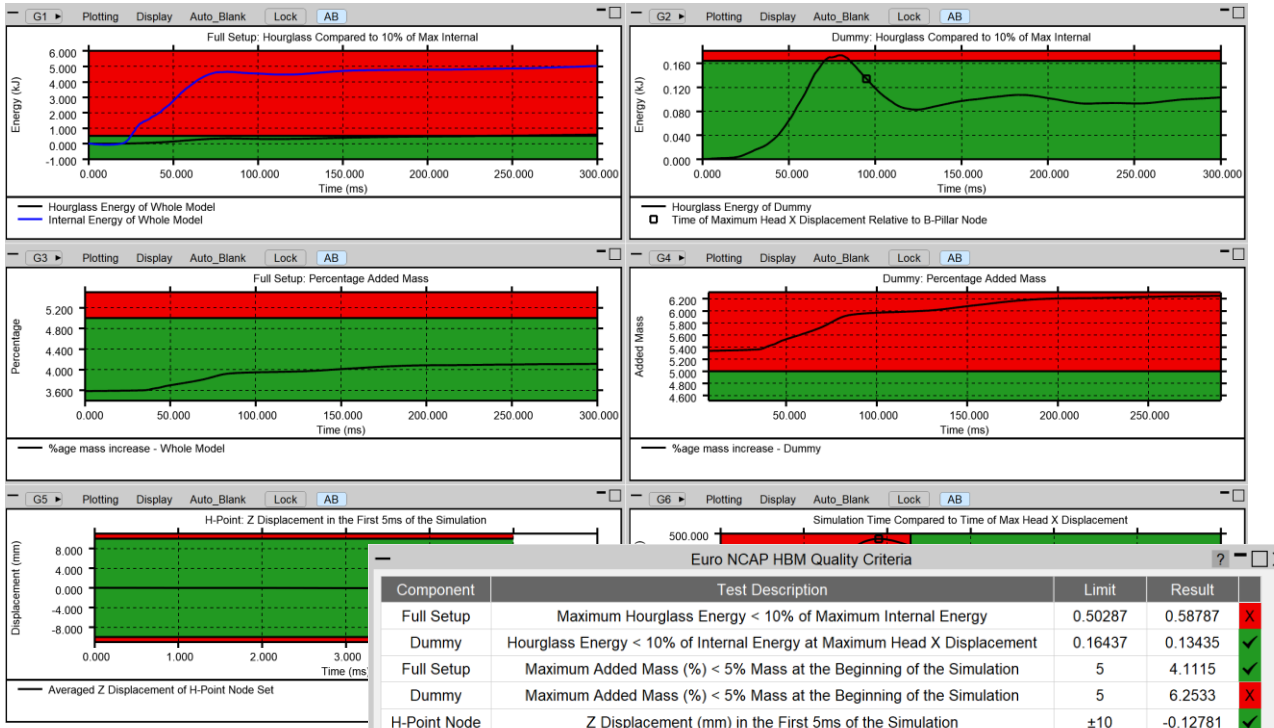
- The Euro NCAP VTC Quality Criteria Workflows tool and associated REPORTER Template are now capable of assessing the Euro NCAP Virtual Frontal Simulation & Assessment Protocol (draft) as well as the existing Far Side protocol.



Oasys LS-DYNA Environment

Quality Criteria – Euro NCAP HBM

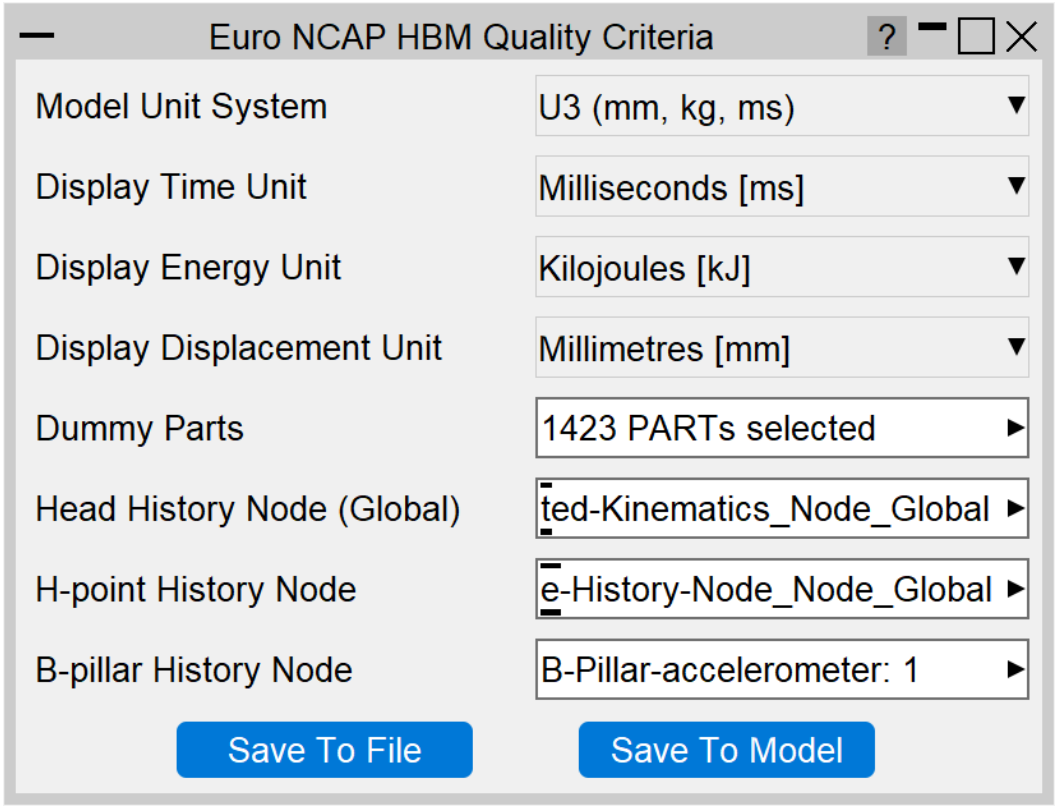
- The Euro NCAP HBM Quality Criteria Workflows tool and associated REPORTER Template allow you to perform the quality checks outlined in Section 7.1 of the Euro NCAP VTC HBM Frontal Protocol (draft) relating to energy, added mass and displacements.



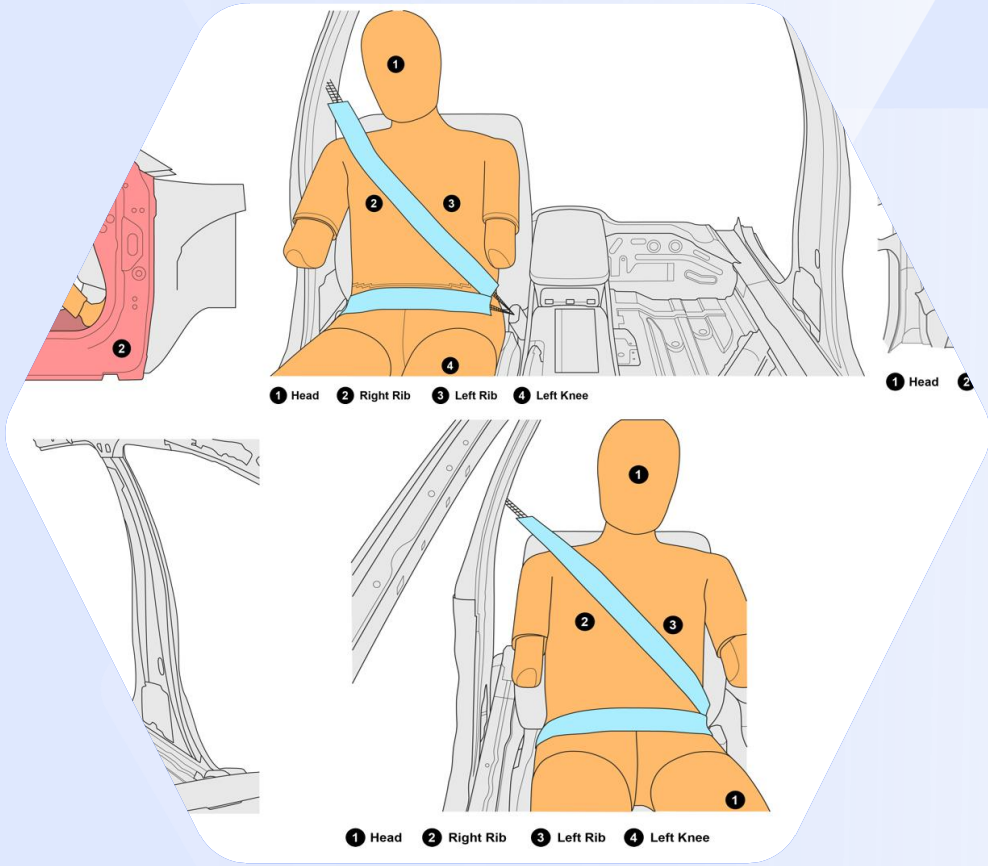
Euro NCAP HBM Quality Criteria

Component	Test Description	Limit	Result	
Full Setup	Maximum Hourglass Energy < 10% of Maximum Internal Energy	0.50287	0.58787	X
Dummy	Hourglass Energy < 10% of Internal Energy at Maximum Head X Displacement	0.16437	0.13435	✓
Full Setup	Maximum Added Mass (%) < 5% Mass at the Beginning of the Simulation	5	4.1115	✓
Dummy	Maximum Added Mass (%) < 5% Mass at the Beginning of the Simulation	5	6.2533	X
H-Point Node	Z Displacement (mm) in the First 5ms of the Simulation	±10	-0.12781	✓
Full Setup	Maximum Head X Displacement + 20% < Simulation Time	114.00	300.00	✓

Write Results Model Units: U3 (mm, kg, ms)

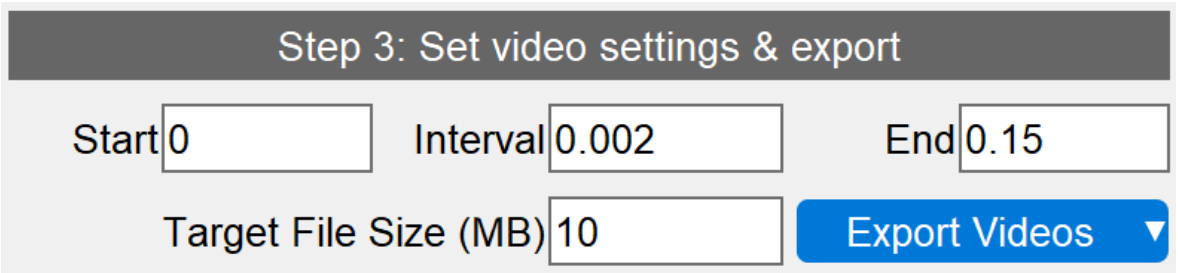


VTC Videos File Size



VTC Videos Settings Improvements

- The displayed End time is now determined by model simulation end time rounded down to three decimal places rather than model simulation end time minus 1 interval step (which had caused issues with video capture previously).
- For the Euro NCAP version, the Video Quality slider has been replaced with a target file size option to allow users to satisfy the 1-10 MB video requirement.




Human-Safe Design

Automotive Protocols

New Protocols and Regulations

- Automotive Assessments and REPORTER now support the following new protocols and regulations:

Regulation	Loadcase
C-NCAP	Far Side Occupant Protection
Global NCAP	MDB, ODB, Side Pole
JNCAP	FFB, MDB, ODB
KNCAP	FFB, MDB, Side Pole
UN ECE	R94, R95, R135, R137

Upgraded Protocols

- The following protocols have been updated:

Regulation	Loadcase	Update
Euro NCAP	MPDB Occupant Assessment	• 2024 (Follows Adult Occupant Protocol v9.3) • Includes DAMAGE assessment
IIHS	Front SOB	• 2024 (Version VII) • New fuel modifier
IIHS	Side MDB	• 2024 (Version IV) • New fuel modifier and updated head protection rating system

Latest Protocol Support

Automotive Assessments Workflow

- ● Available for some time
- ● New in version 21.1
- ● New in version 22.0

Regulation	Year	Loadcase/Workflow	PRIMER	T/HIS	D3PLOT	REPORTER (migrated to workflows)	REPORTER (standard template)
C-NCAP	2018	ODB	●	●			●
	2021	Head Impact					●
		Leg Impact					●
	2022	MPDB Occupant	●	●		●	
	2023	MPDB Compatibility					●
	2024	Side Pole	●	●		●	
		Far Side Pole	●	●		●	
		Far Side Sled	●	●		●	
		VTC Quality Criteria	●	●		●	
		VTC Videos	●		●	●	
		LS-DYNA to ISO-MME	●	●		●	
		SimVT		●		●	

Latest Protocol Support

Automotive Assessments Workflow

- ● Available for some time
- ● New in version 21.1
- ● New in version 22.0

Regulation	Year	Loadcase/Workflow	PRIMER	T/HIS	D3PLOT	REPORTER (migrated to workflows)	REPORTER (standard template)
Euro NCAP	2017	FFB	●	●		●	
		ODB	●	●		●	
	2020	MPDB Occupant	●	●		●	
		Side Pole	●	●			
		MDB	●	●	●		
	2022	Far Side	●	●	●		
		MDB	●	●	●	●	
		Side Pole	●	●		●	
	2023	MPDB Compatibility					●
		Head Impact					●
		Leg Impact					●
	Continued…						

Latest Protocol Support

Automotive Assessments Workflow

- ● Available for some time
- ● New in version 21.1
- ● New in version 22.0

Regulation	Year	Loadcase/Workflow	PRIMER	T/HIS	D3PLOT	REPORTER (migrated to workflows)	REPORTER (standard template)
Euro NCAP	2024	Far Side Sled	●	●		●	
		MPDB Occupant	●	●		●	
		VTC Quality Criteria	●	●		●	
		VTC Videos	●		●	●	
		LS-DYNA to ISO-MME	●	●		●	
		SimVT		●		●	
	2026 (Draft)	Front Sled	Early access – available on request				
		FWDB Full Vehicle					
		VTC Quality Criteria	●	●		●	
		VTC HBM Quality Criteria	●	●		●	
		SimVT	Early access – available on request				

Latest Protocol Support

Automotive Assessments Workflow

- ● Available for some time
- ● New in version 21.1
- ● New in version 22.0

Regulation	Year	Loadcase/Workflow	PRIMER	T/HIS	D3PLOT	REPORTER (migrated to workflows)	REPORTER (standard template)
Global NCAP	2022	MDB	●	●		●	
	2023	ODB	●	●		●	
	2024	Side Pole	●	●		●	
GTR	2019	Leg Impact					●
	2020	Head Impact					●
IIHS	2017	MDB	●	●	●		
		ODB	●	●			
		SOB	●	●			
	Continued…						

Latest Protocol Support

Automotive Assessments Workflow

- ● Available for some time
- ● New in version 21.1
- ● New in version 22.0

Regulation	Year	Loadcase/Workflow	PRIMER	T/HIS	D3PLOT	REPORTER (migrated to workflows)	REPORTER (standard template)
IIHS	2021	MDB	●	●	●	●	
		MDB Structure Only				●	
		ODB	●	●		●	
		ODB Structure Only				●	
		SOB	●	●		●	
		SOB Structure Only				●	
	2024	MDB	●	●		●	
		MDB Structure Only				●	
		SOB	●	●		●	
		SOB Structure Only				●	

Latest Protocol Support

Automotive Assessments Workflow

● Available for some time
● New in version 21.1
● New in version 22.0

Regulation	Year	Loadcase/Workflow	PRIMER	T/HIS	D3PLOT	REPORTER (migrated to workflows)	REPORTER (standard template)
JNCAP	2018	Leg Impact					●
	2023	FFB	●	●		●	
		MDB	●	●		●	
		ODB	●	●		●	
KNCAP	2019	Leg Impact					●
	2024	FFB	●	●		●	
		MDB	●	●		●	
		Side Pole	●	●		●	
UN ECE	2015	R135 (Side Pole)	●	●		●	
	2022	R94 (ODB)	●	●		●	
	2023	R95 (Side MDB)	●	●		●	
		R137 (FFB)	●	●		●	

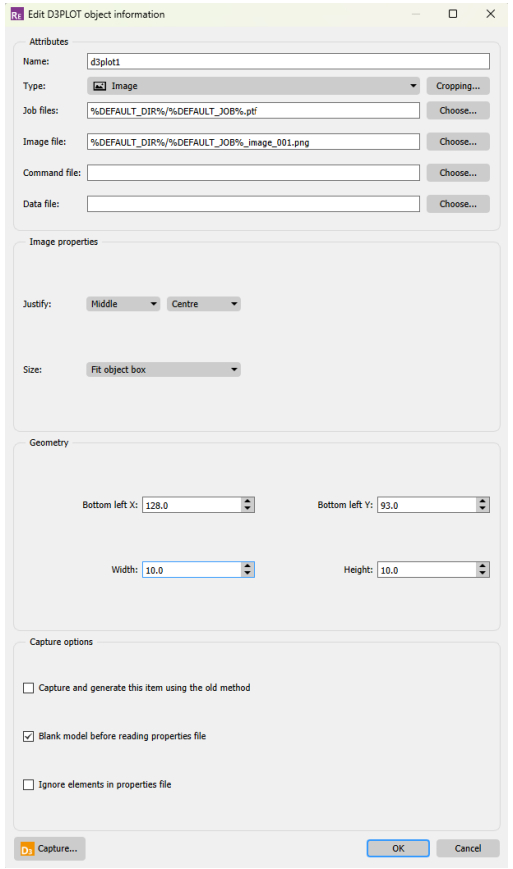

Speed and Performance

Screen Scaling (High-Res Displays)

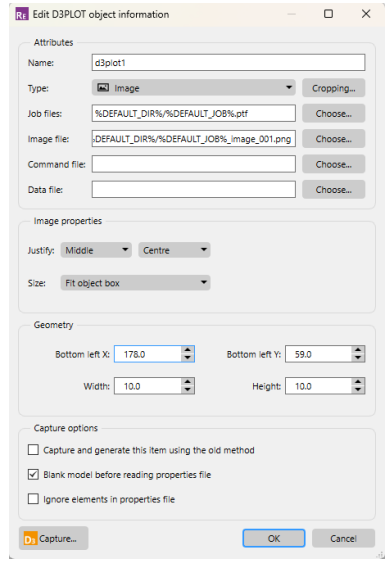
Screen Scaling (High-Res Displays)

- REPORTER now offers improved scaling for its widgets on high-DPI displays. Whether working with REPORTER on a high-resolution display or transitioning between displays with varying resolutions, widgets now scale correctly for an enhanced user experience.

Previously: Widgets inflated when connected to a high-DPI display (e.g., on the Edit D3PLOT item dialog)



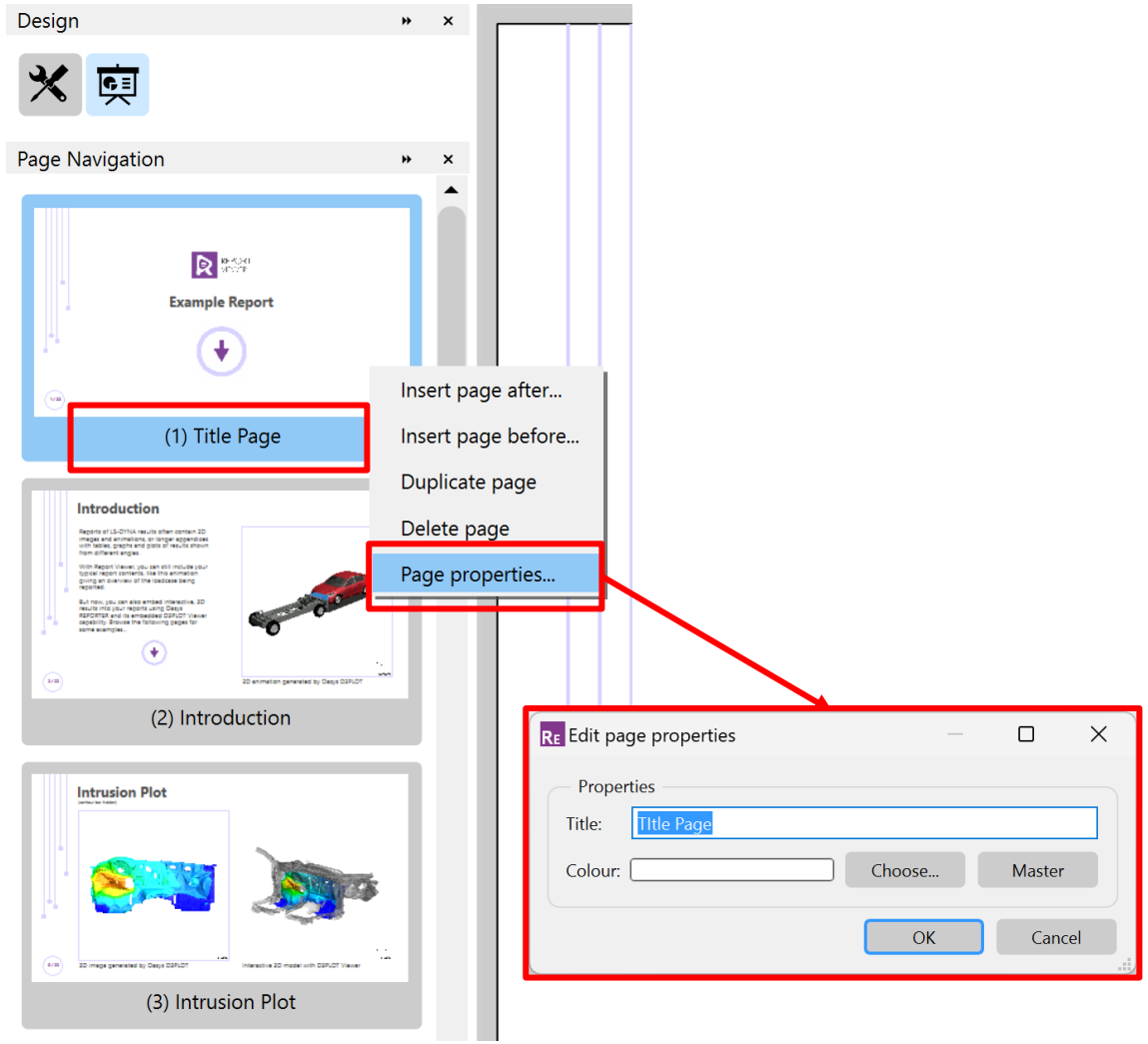
Now: Widgets correctly scaled when connected to a high-DPI display



Page Navigation

Page Navigation

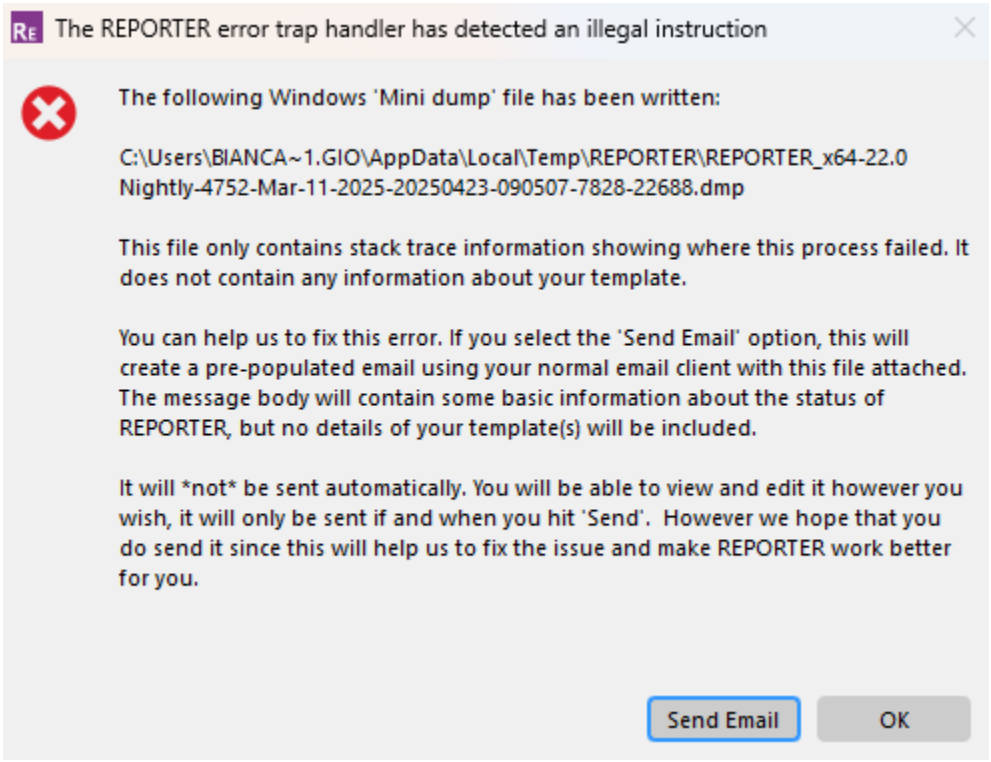
- REPORTER now displays the page number and title underneath the page button in the page navigation bar and as a tool tip whenever you hover over the button.
- The page navigation buttons in the page navigation bar now have a new right-click menu option that allows you to edit the page properties directly.



Email Minidump Files

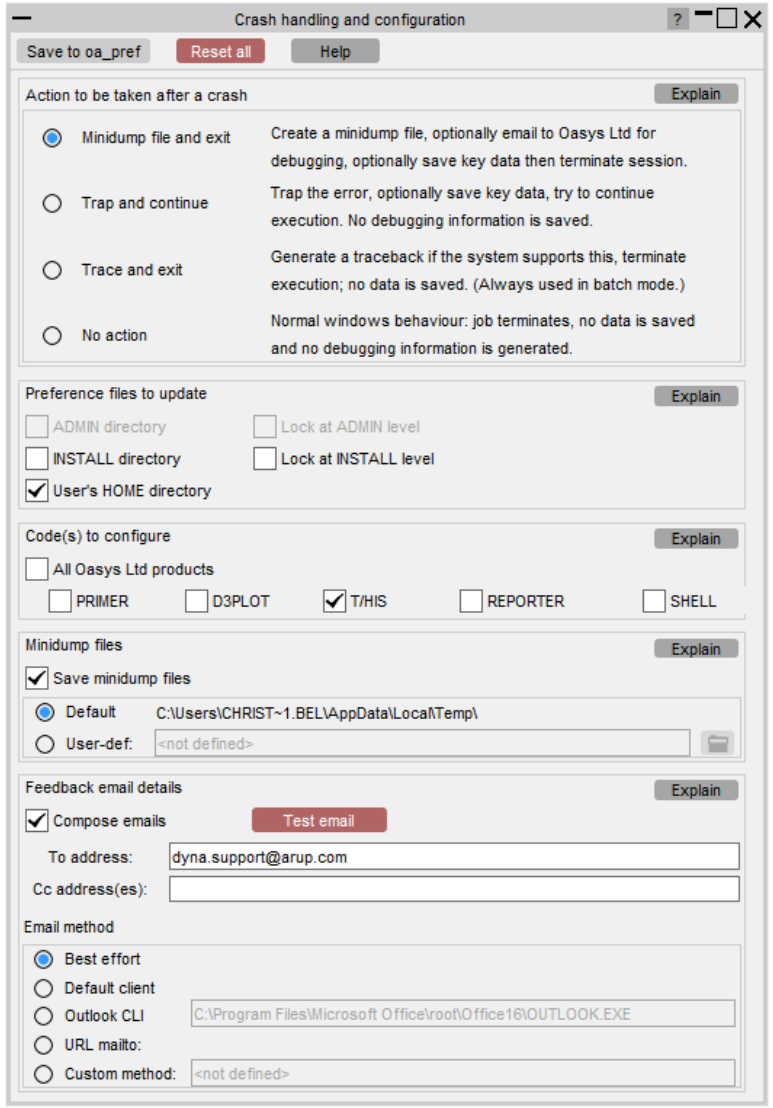
Windows Minidump files can now be emailed

- Following a crash on Windows a “minidump” file is created which, if sent, can sometimes enable us to diagnose the cause of the crash, suggest workarounds and fix the bug. Historically this file has been written to an obscure temporary directory making it laborious to extract and send it.
- REPORTER can now:
  - Compose an email automatically, attaching the minidump file.
  - Include further information about the crash (stack trace) in that email.
  - Launch the default email handler on the system so that you can add further information if you wish.
- This email is ***not*** sent automatically, you can choose to send it or not.
- Composition of these emails is optional; they can be turned off.

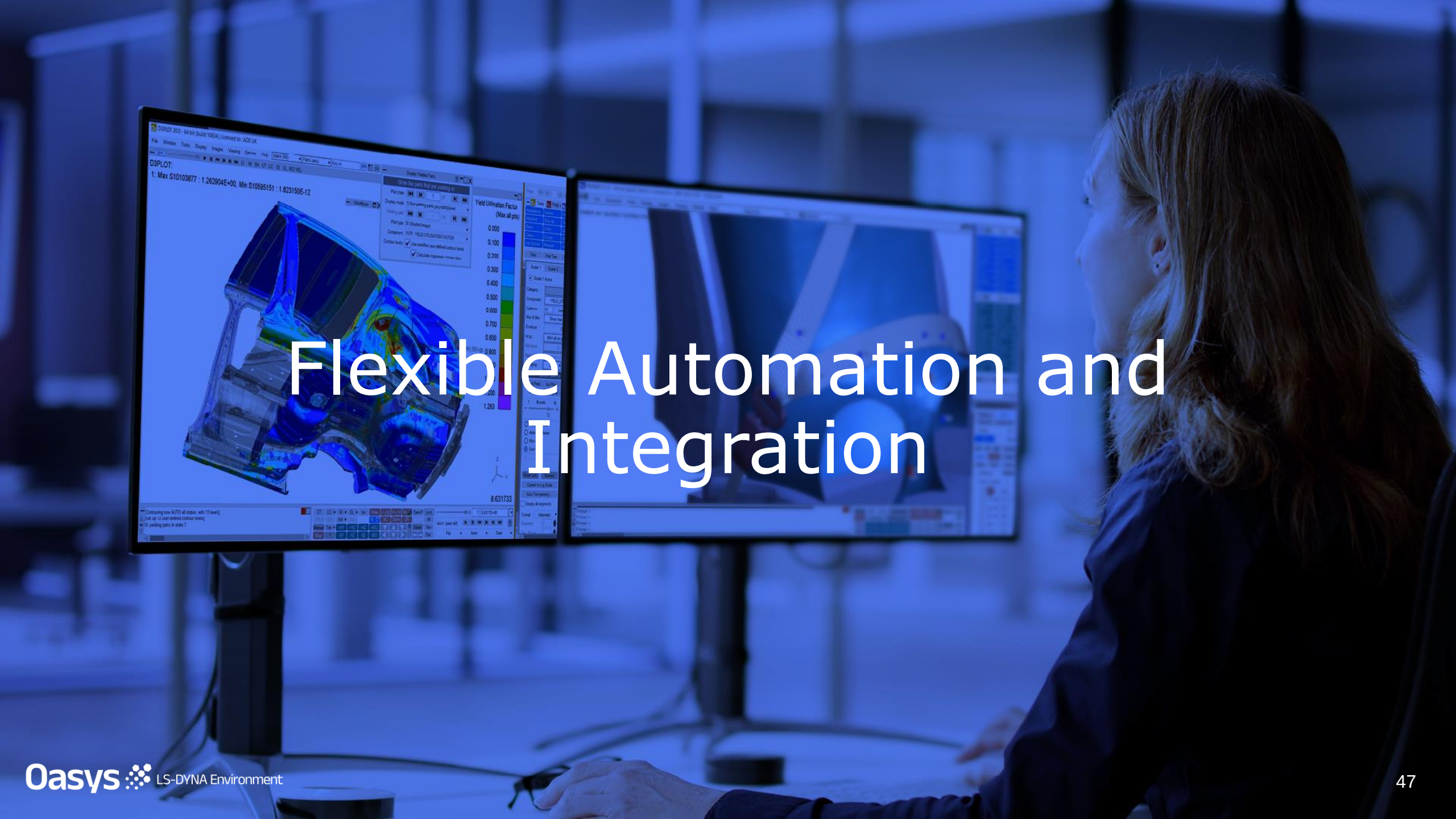


Windows Minidump files can now be emailed (continued)

- Minidump files and crash handling generally can be configured by preferences, but to make this easier there is now an interactive GUI (accessible via PRIMER, D3PLOT, and T/HIS) from which can be used to control this behaviour:



- Crash dump behaviour can also be configured at the “admin” or “installation” levels during software installation, configuring it for all users.



Flexible Automation and Integration

JavaScript API

JavaScript API

- REPORTER now supports ES6 modules. For more information on ES6 modules please refer to https://developer.mozilla.org/en-US/docs/Web/JavaScript/Guide/Modules.
- ES6 modules give JavaScript built-in support for modular programming using the **`import`** and **`export`** keywords. REPORTER now supports both static and dynamic imports for modules.
- To be able to support ES6 modules, REPORTER must compile the script in a different way to a “normal” script that does not use modules. For REPORTER to automatically detect whether a script uses modules, the file being run needs to have the extension “.mjs”. This follows the convention used by V8 and Node.js. Alternatively, you can use the extension .js, but you then need to add a special **`// module: TRUE`** comment on one of the first twenty lines of the script. For Script items, the module comment is necessary as you are not running a script file.

JavaScript API

- All “normal” scripts in REPORTER share a “context”, which means that all variables and functions declared in the global scope are shared across these scripts. Therefore, any variable or function defined in one script can be accessed or modified by another script running in the same instance of REPORTER. Sharing data between scripts can also be done using template variables.
- However, modules work differently. Any variables or functions declared in the global scope of a module script will only be available in the “context” of that script. The modules will still have access to any variables or functions declared in the global scope of “normal” scripts.

```
1   // module: TRUE
2   import { MyFile } from "../..my_modules/test/my_file.js";
3   import { my_function } from "./functions.mjs";
4
5   my_function();
6
7   // ... more code
```

Other Developments and Preferences

New preferences

Preference	Description
`oasys*javascript_maximum_memory_size`	Maximum memory allocated for garbage collection (MB)
`oasys*cd_compose_email` `reporter*cd_compose_email`	Whether or not to offer to compose an email for sending minidump files.
`oasys*cd_email_address` `reporter*cd_email_address`	Email address in To: field of crash dump emails.
`oasys*cd_cc_addresses` `reporter*cd_cc_addresses`	Email address(es) in Cc: field of crash dump emails.
`oasys*cd_custom_email` `reporter*cd_custom_email`	Custom method of sending emails.
`oasys*cd_dump_directory` `reporter*cd_dump_directory`	Directory in which to save crash dump files
`oasys*cd_email_method` `reporter*cd_email_method`	Method used to create crash dump emails.
`oasys*cd_minidump_file` `reporter*cd_minidump_file`	Whether or not to create minidump files, and what to do with them.

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