

D3PLOT 19.1

D3PLOT 19.1 – Contents

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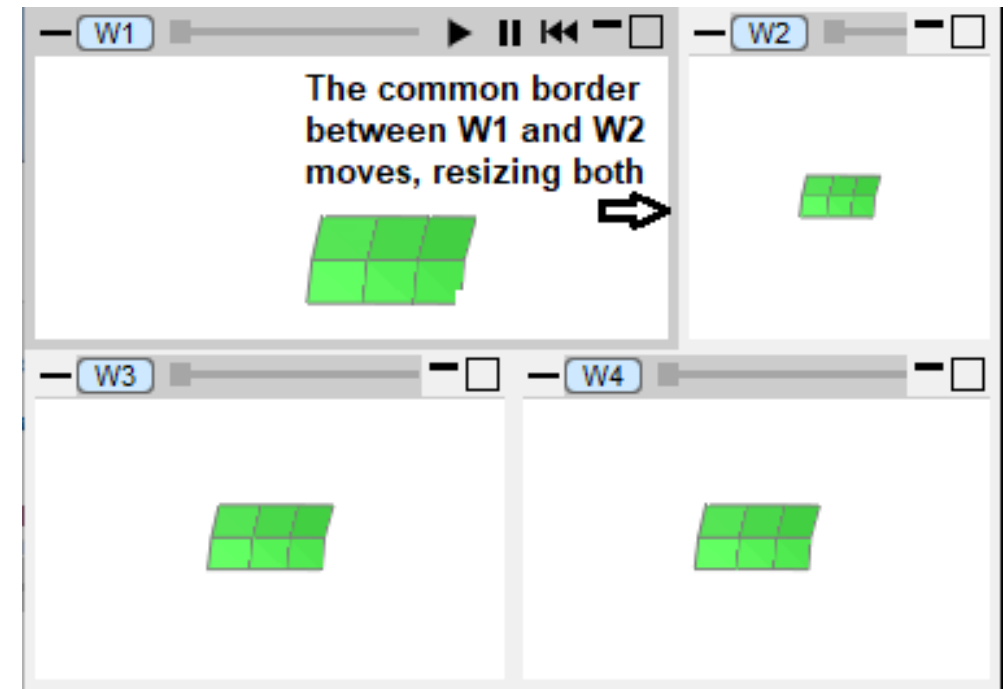
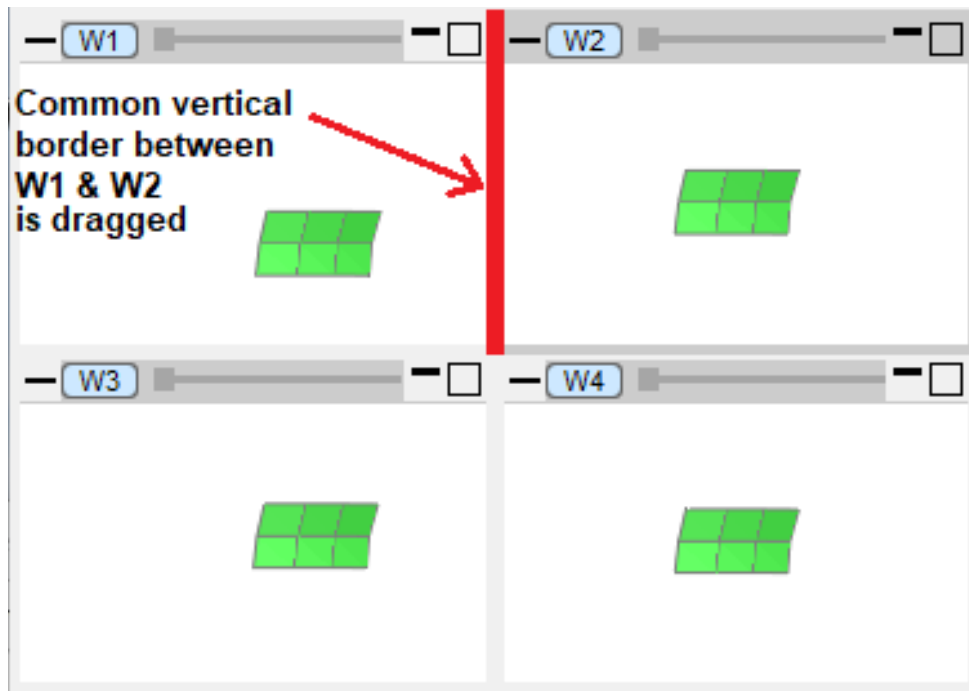
Improved Window Positioning

Window “Common Border” Dragging

Window “Common Border” dragging: introduction

When there are multiple windows on a page, it is now possible to change their position and size in a coordinated way. Windows that share a common border now “know about” their neighbours and it is possible to resize all windows sharing that border.

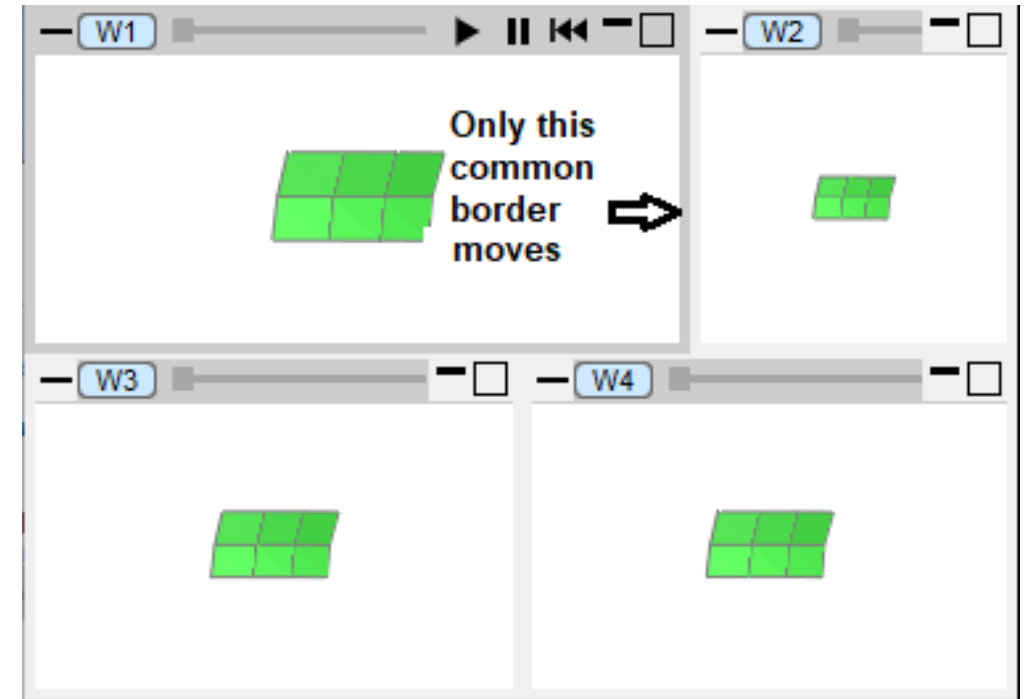
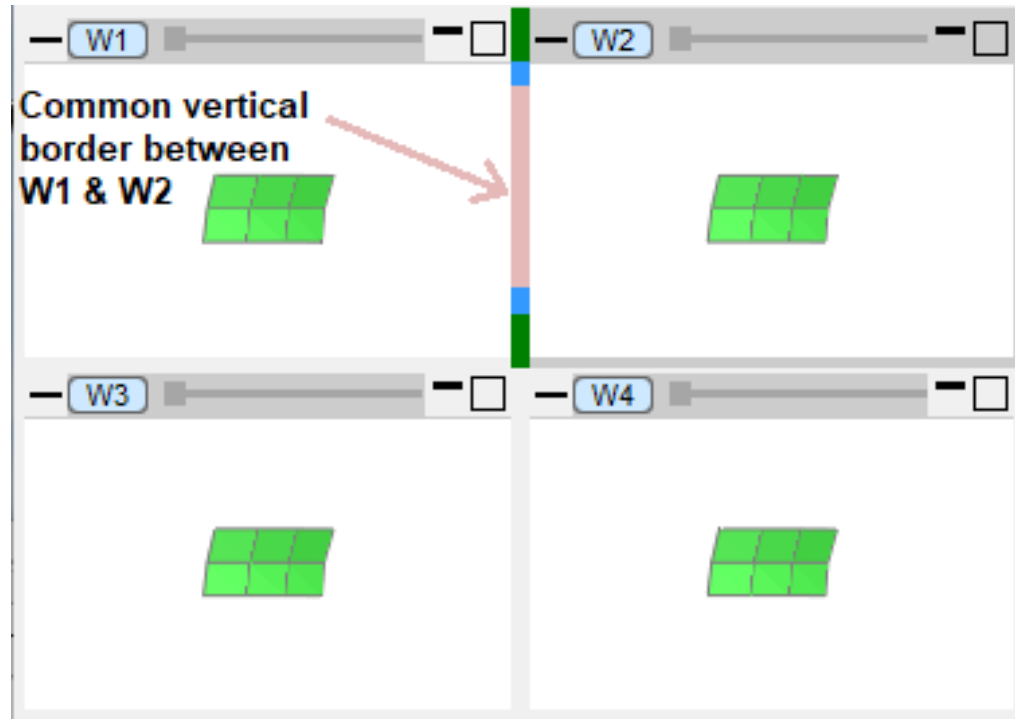
For example:



Window “Common Border” dragging: two windows case

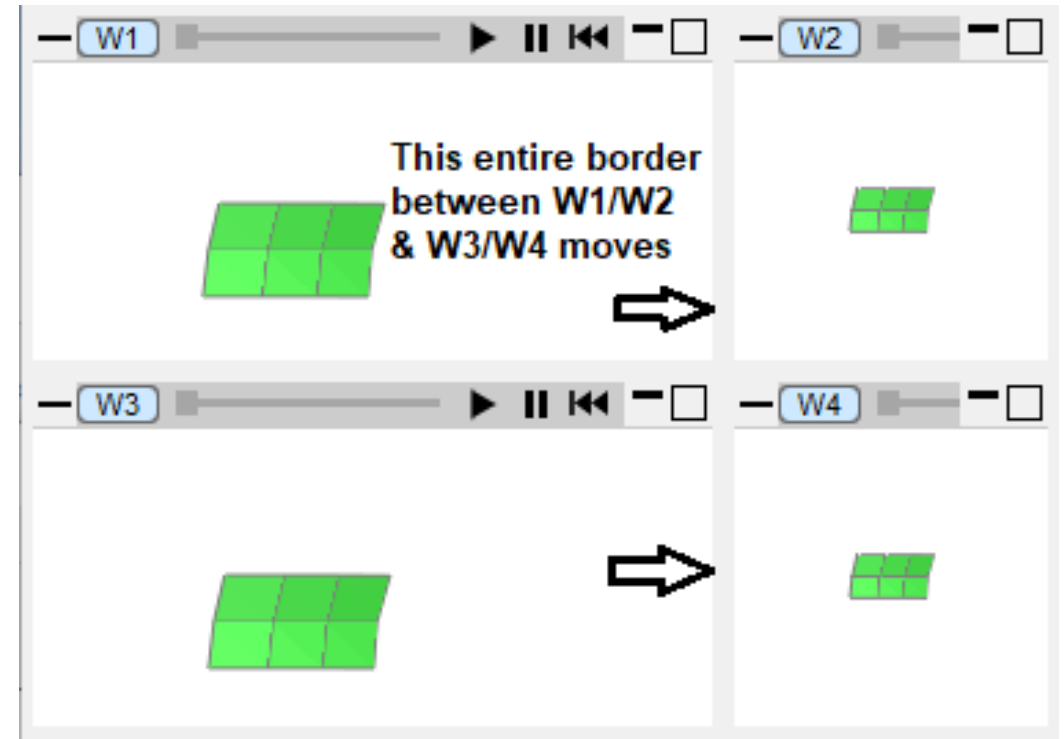
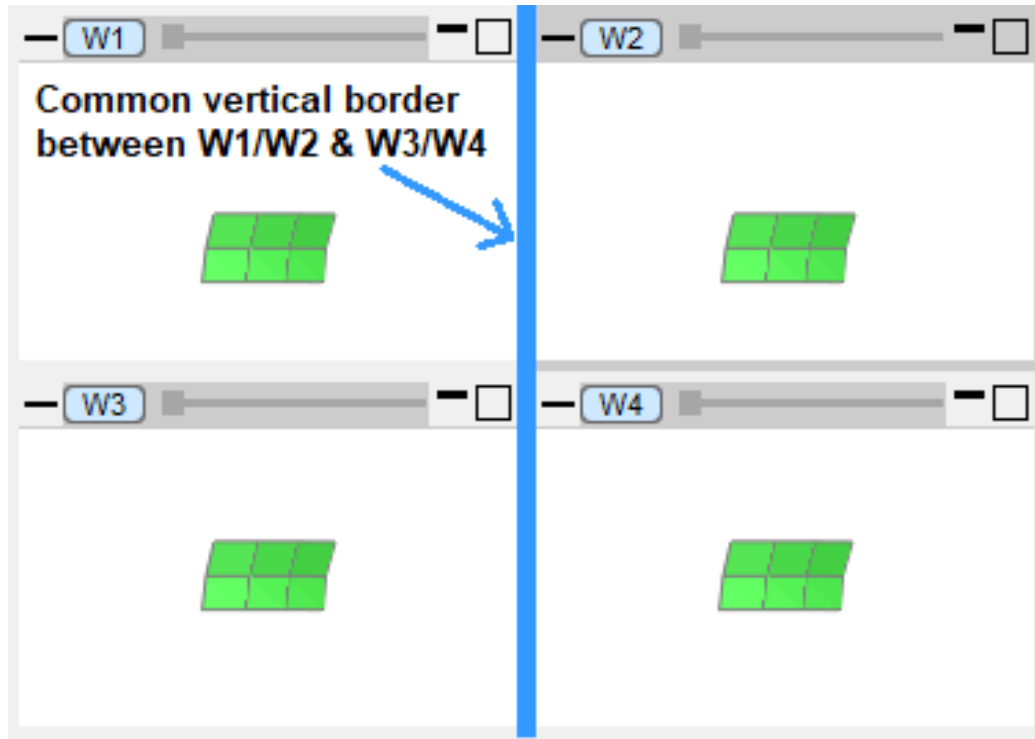
To give flexibility about what is dragged, different regions of borders perform different functions and are colour-coded to distinguish them.

To drag just the single border between two windows, use the central pink zone:



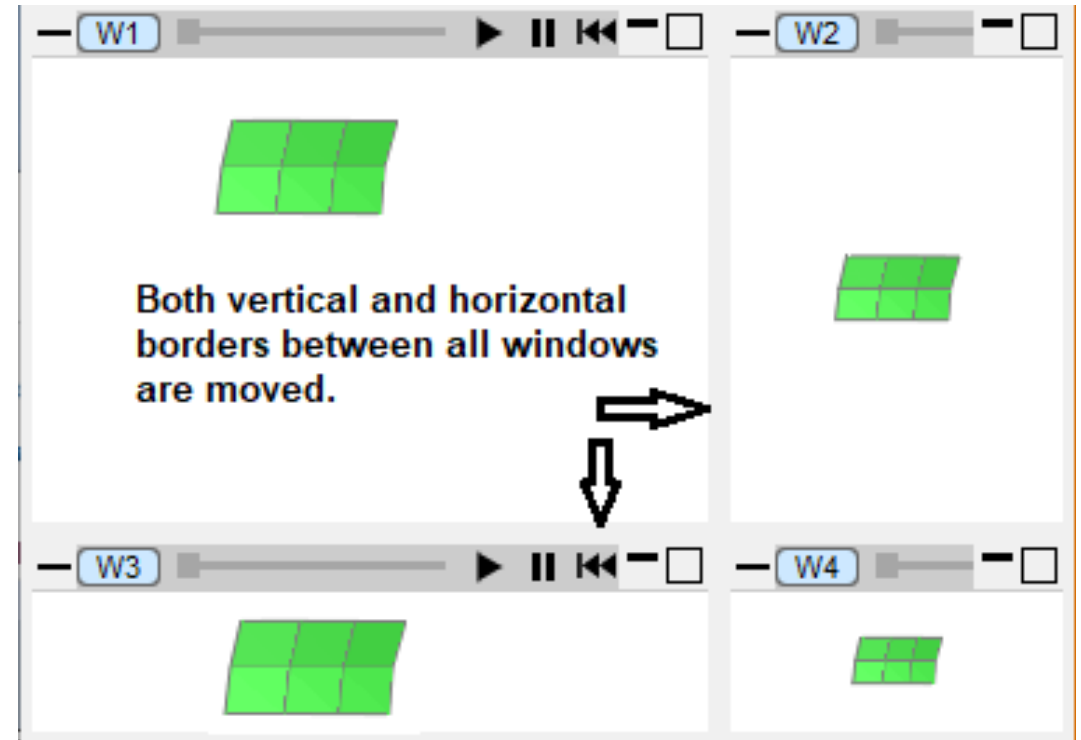
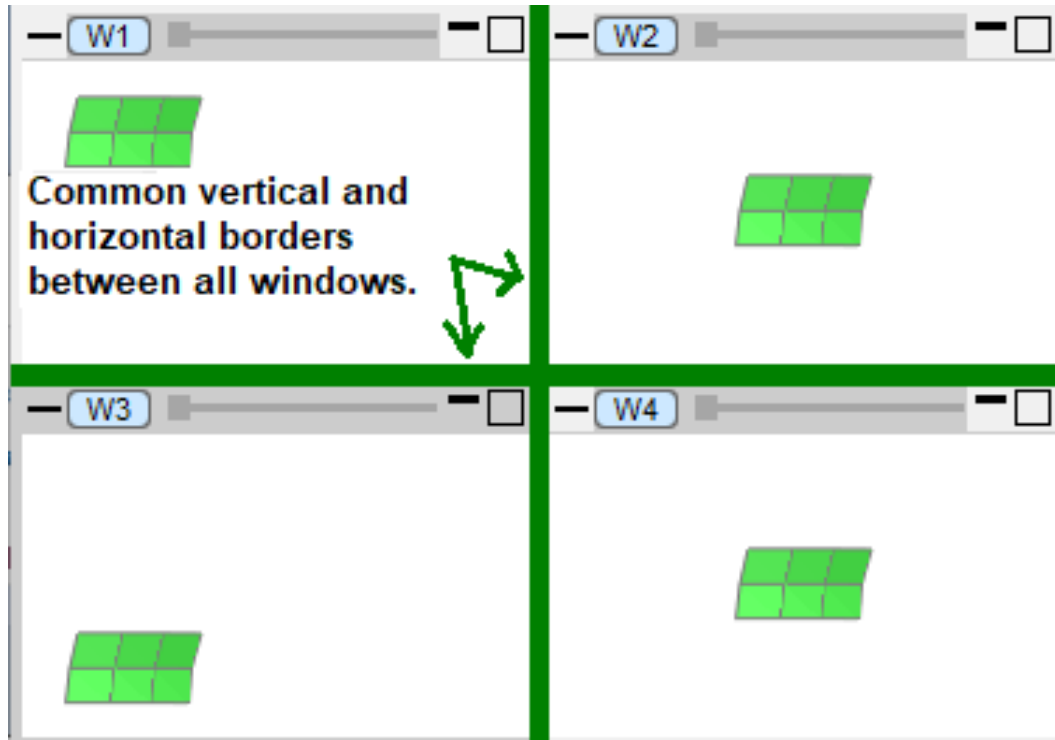
Window “Common Border” dragging: single axis case

To drag the entire single border axis in a given direction between all windows which share that border, use the blue zone (intermediate between centre and corners):



Window “Common Border” dragging: both axes case

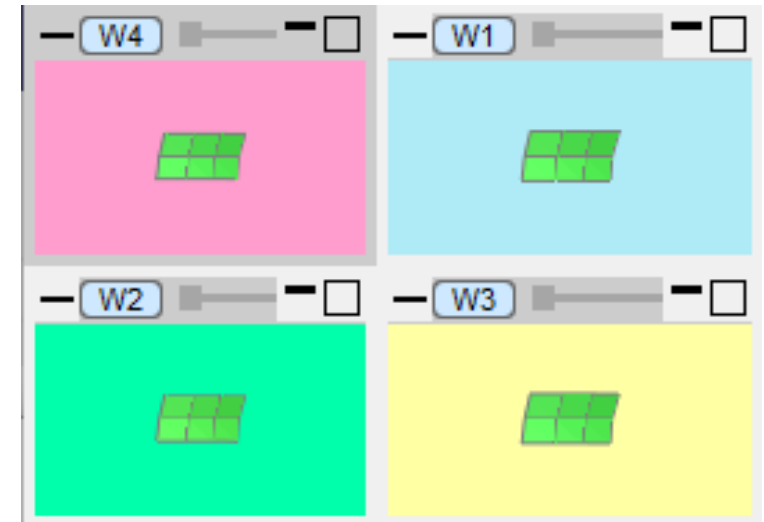
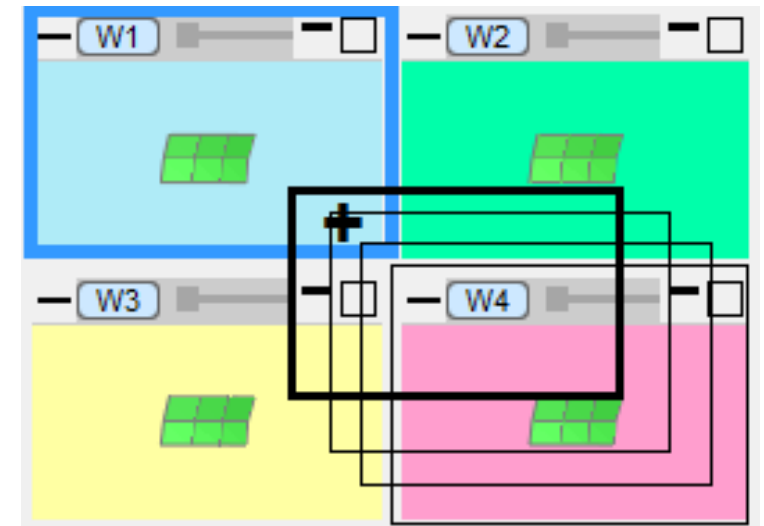
To drag both horizontal and vertical borders between all windows which share those borders, use the green zone (at the corners):



Window “Snap to grid”

Repositioning a window by dragging it used to move just that window and left it “floating” in its new position. When there are multiple windows on a page, these now occupy a grid of locations and it is possible to move a window from one cell to another, shifting the existing windows up and down as required.

1. In the top image W4 in the bottom right corner being dragged up and to the left.
2. When the cursor enters W1 its borders light up in blue to show it is the destination window.
3. On mouse release W4 “snaps” to W1’s position and windows W1 to W3 shuffle down to make space.



Improved Window Positioning

Changes to Window Layout

Changes to Window Layout Menu – Basic Mode

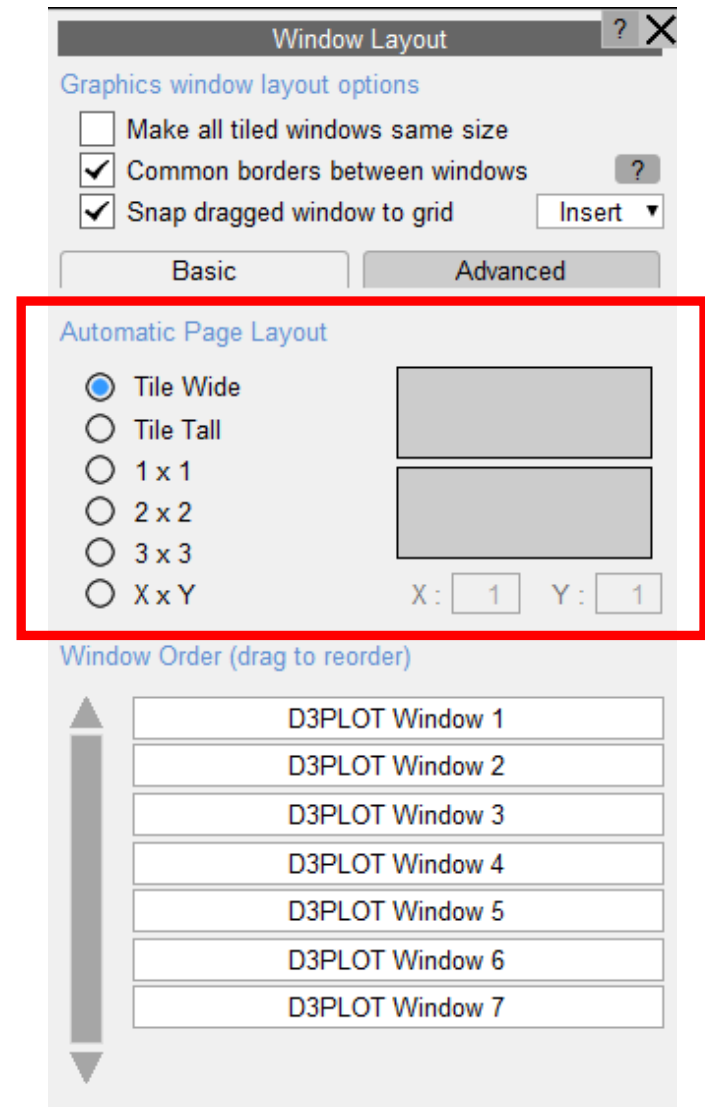
From D3PLOT and T/HIS 19.0, the Window Layout menu has changed and has been split into separate **Basic** and **Advanced** modes.

In Basic mode, the menu can be used to select a page layout that is automatically applied to all of the pages.

Automatic Page Layout

If the layout is set to “Tile Wide” or “Tile Tall” then all windows are automatically added to page 1.

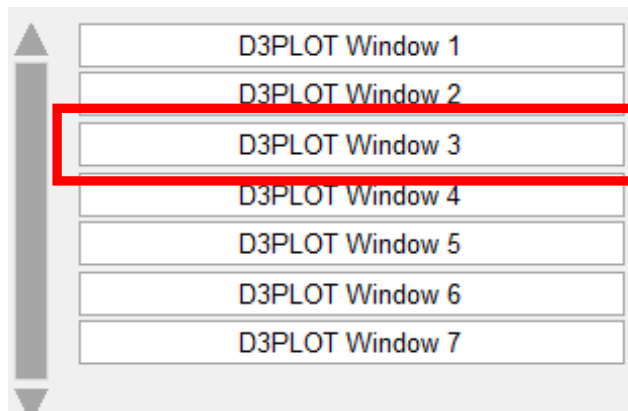
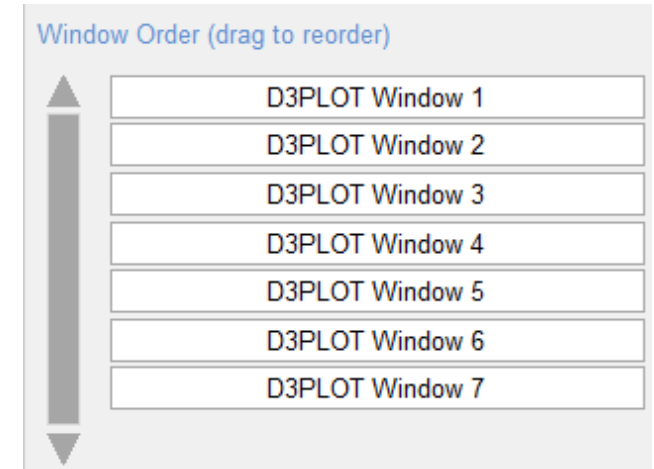
In all other layouts Windows are automatically added to pages and as many pages as needed are created to hold all the windows.



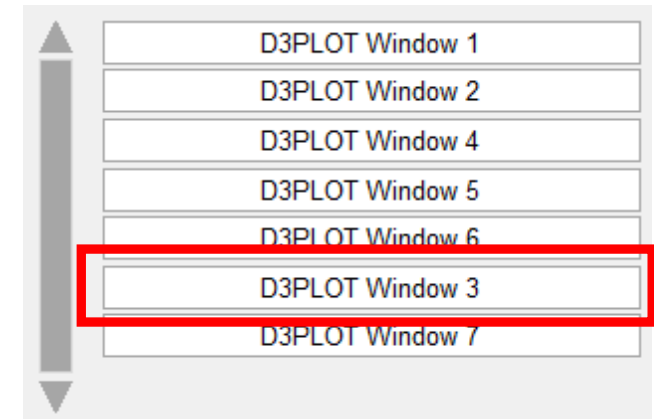
Changes to Window Layout Menu – Basic Mode

Window Order (drag to reorder)

By default, Windows are added to pages in the order they are created.



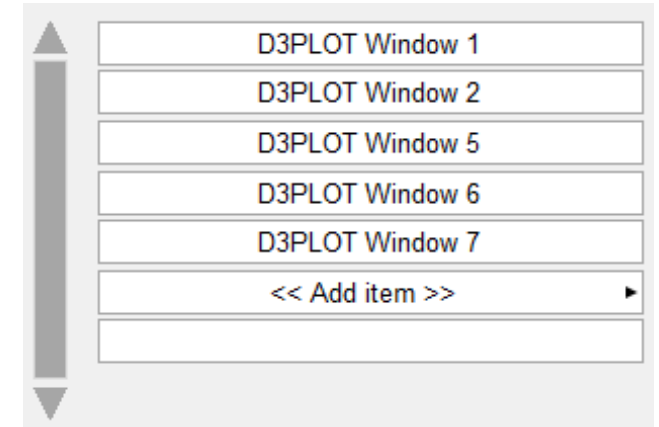
The order of Windows can be changed by clicking on a row and dragging it up or down the list to a new position.



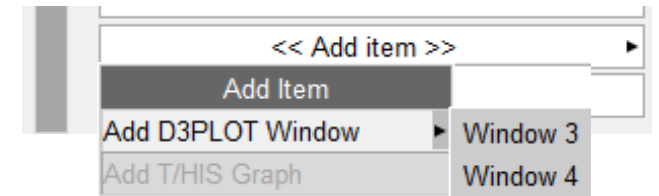
Changes to Window Layout Menu – Basic Mode

Any Windows that have been dragged out onto the desktop are removed from the list (Windows 3 and 4 in this example).

If Windows are on the desktop, the menu will display additional rows that can be used to add the windows back into the list so that they are displayed on a page again.



Right-clicking on an << **Add item** >> row will display a popup menu that can be used to select any Windows currently on the desktop.

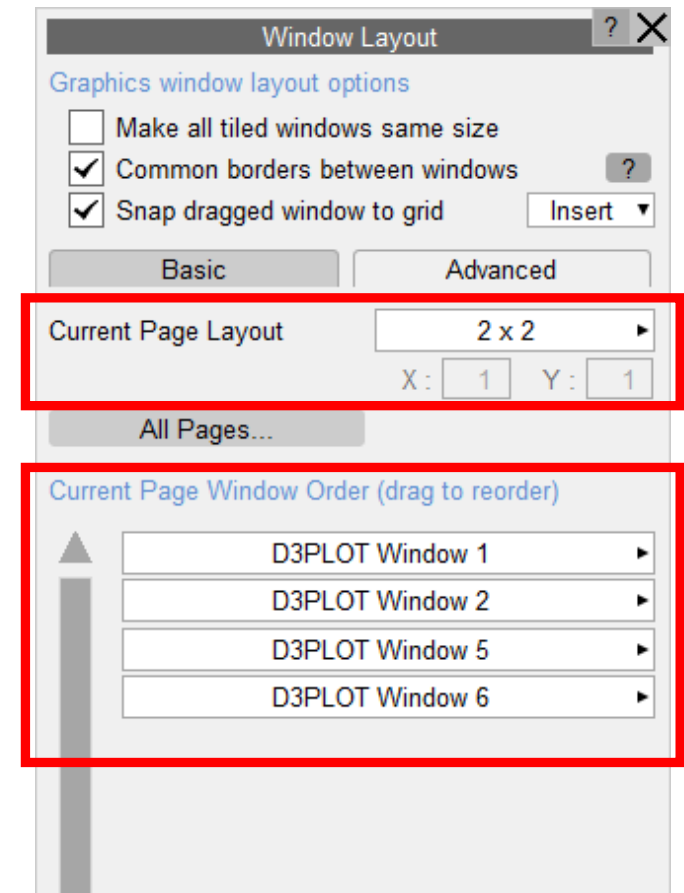


In a Linked D3PLOT → T/HIS session, this menu will also display any T/HIS graphs that are currently docked inside D3PLOT windows so that they can be added back onto a page.

Changes to Window Layout Menu – Advanced Mode

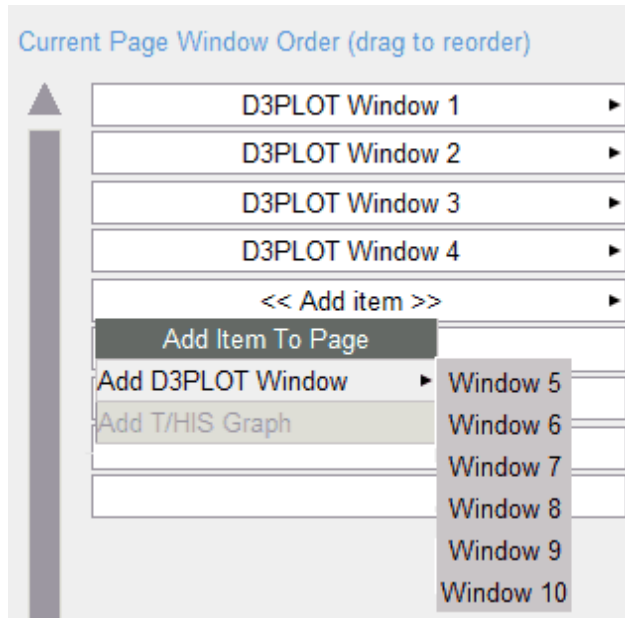
Advanced mode works in a similar way to Basic mode except that it controls the settings for the current page only.

In Advanced mode, the layout and content of each page can be set for that page and the order of the items displayed on each page can also be controlled by clicking on an item and dragging it up or down to a new position.

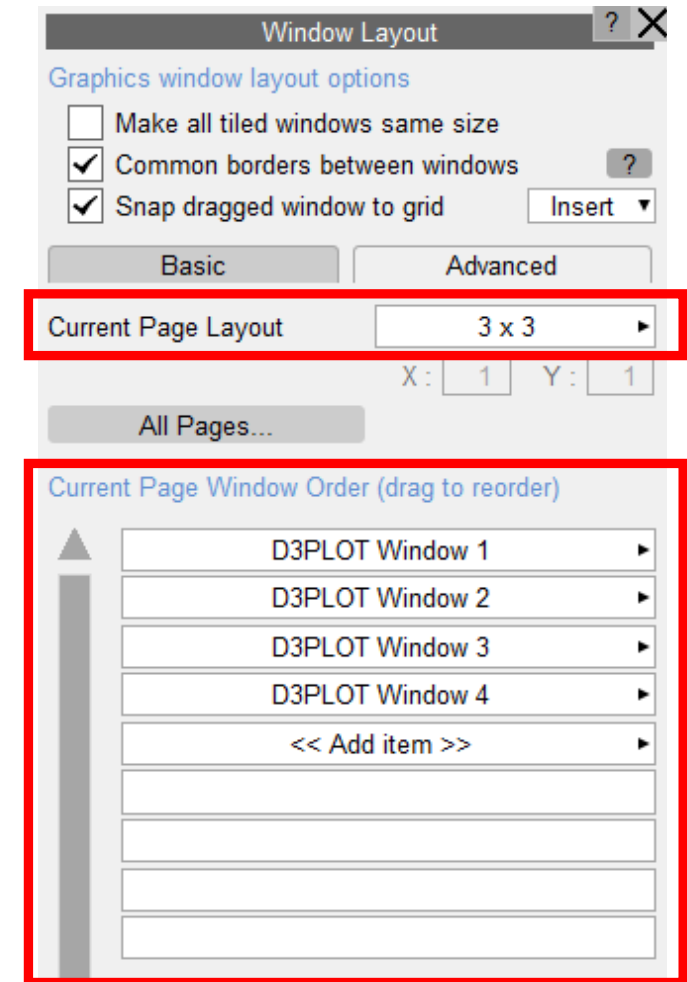


Changes to Window Layout Menu – Advanced Mode

If a page has room for additional Windows to be added to it then the menu will display additional rows with the first empty row showing << **Add item** >>.

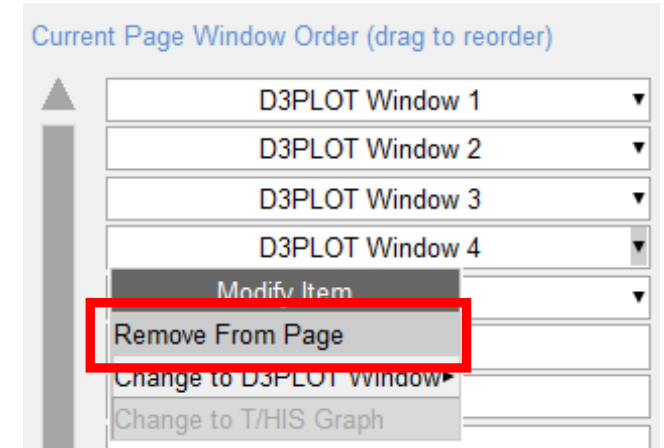


Right-clicking on << **Add item** >> will display a popup menu that can be used to select any Window that is not currently on the page.

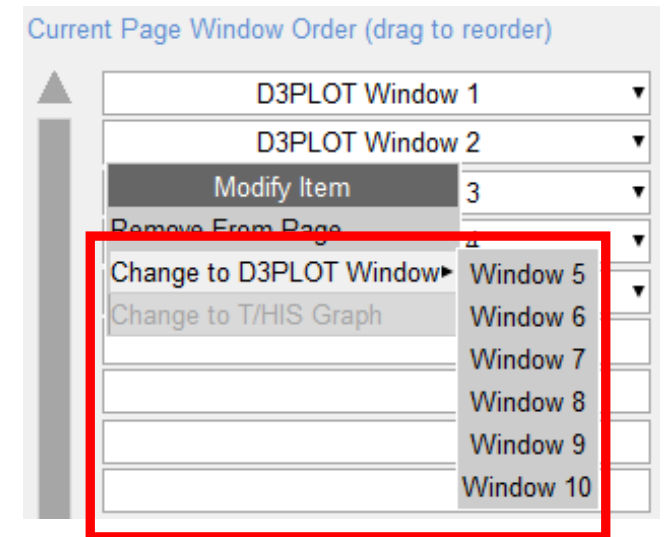


Changes to Window Layout Menu – Advanced Mode

Right-clicking on a row containing a Window will display a popup menu that can be used to remove the Window from the current page.

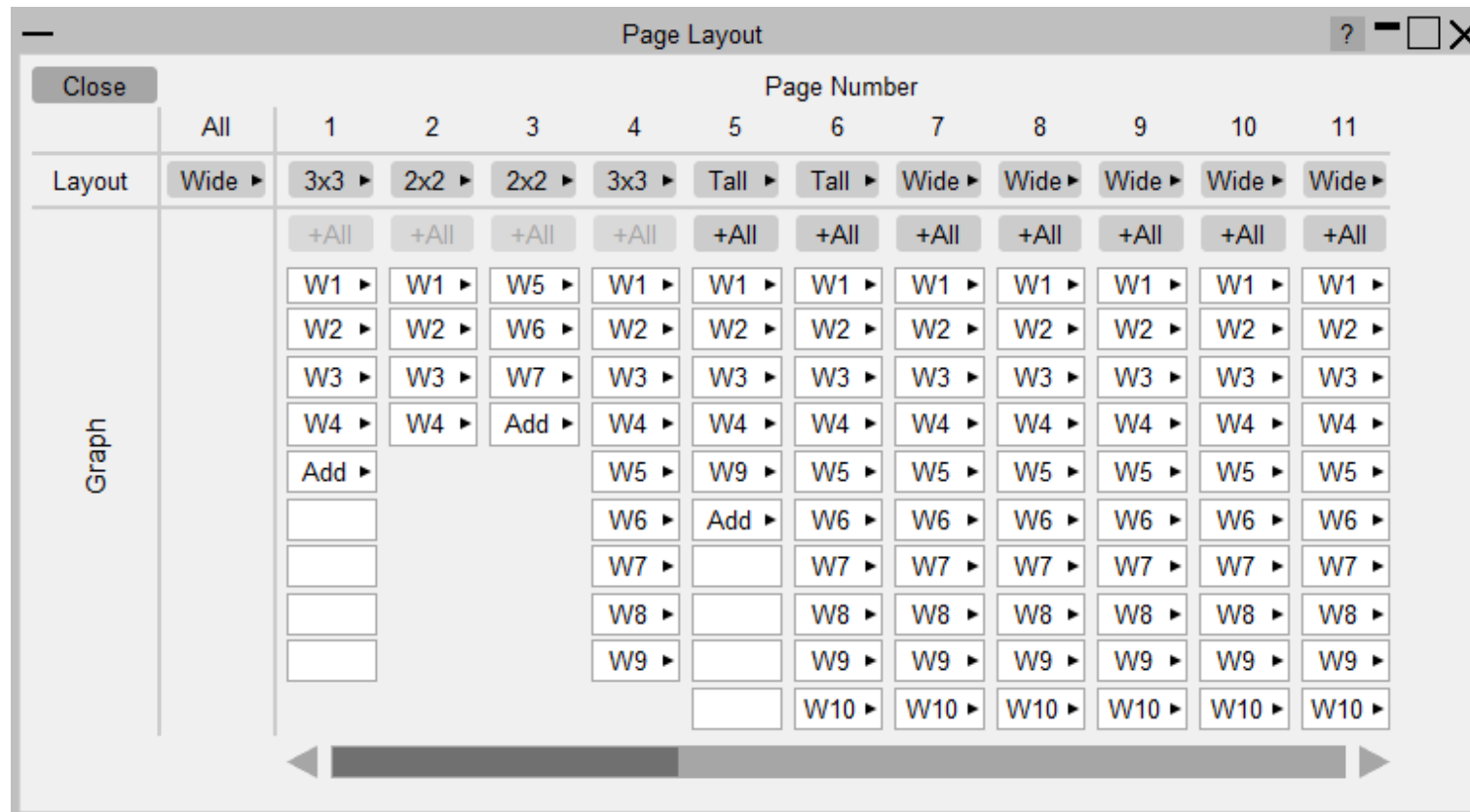
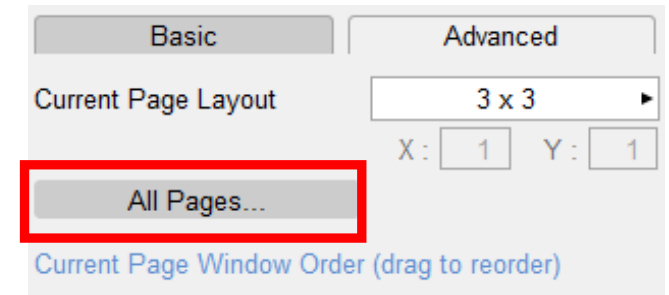


Alternatively, the same popup can also be used to change an item to a different D3PLOT Window or T/HIS graph that is not already on the current page.



Changes to Window Layout Menu – Advanced Mode

In Advanced mode, the **All Pages...** button can be used to display a separate menu that shows the layout and contents of all pages:

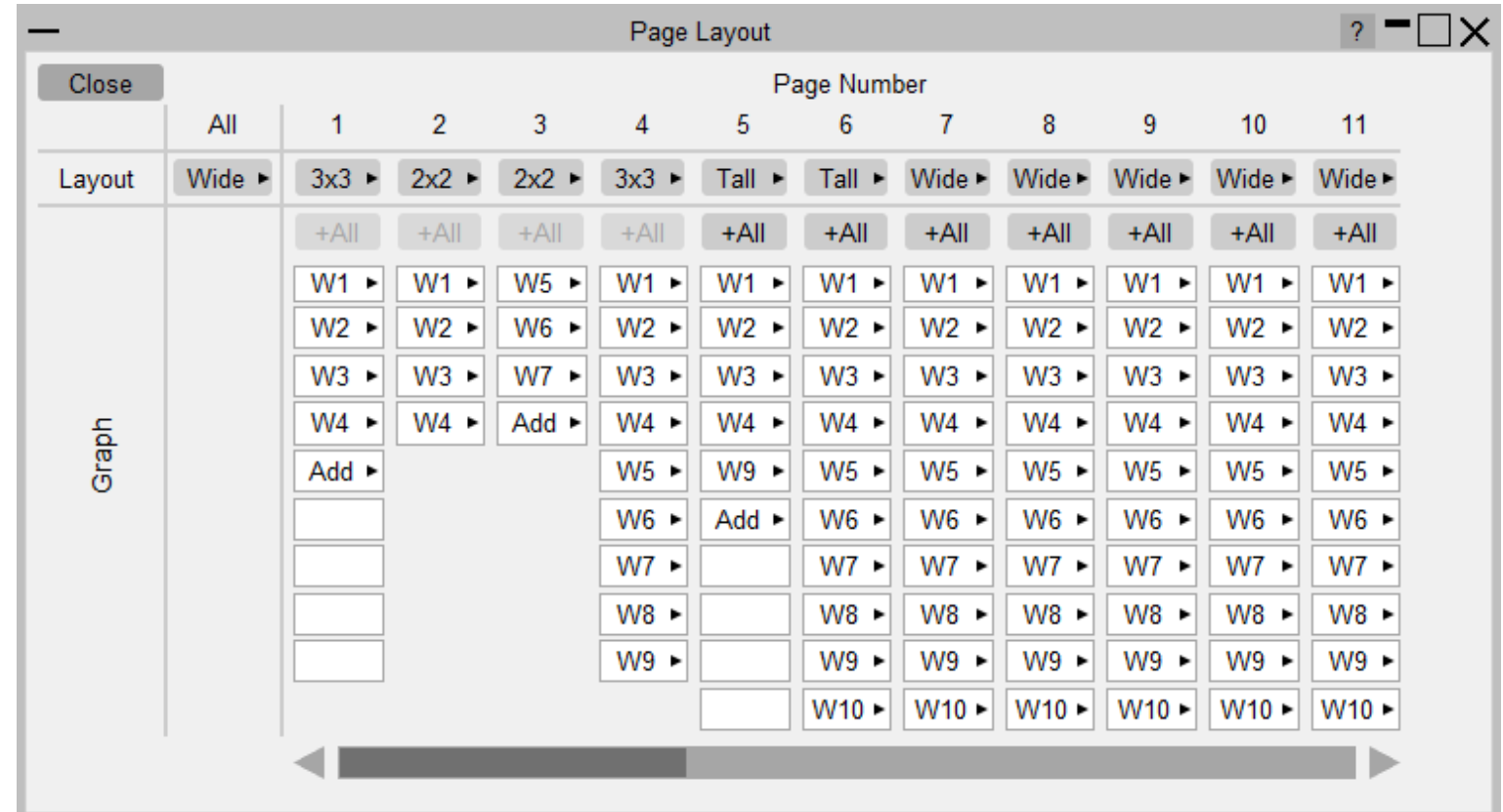


Changes to Window Layout Menu – Advanced Mode

This menu allows the layout and contents of each page to be individually changed.

The options to reorder or change the contents of each page are similar to those in the Window Order section of the Layout menu:

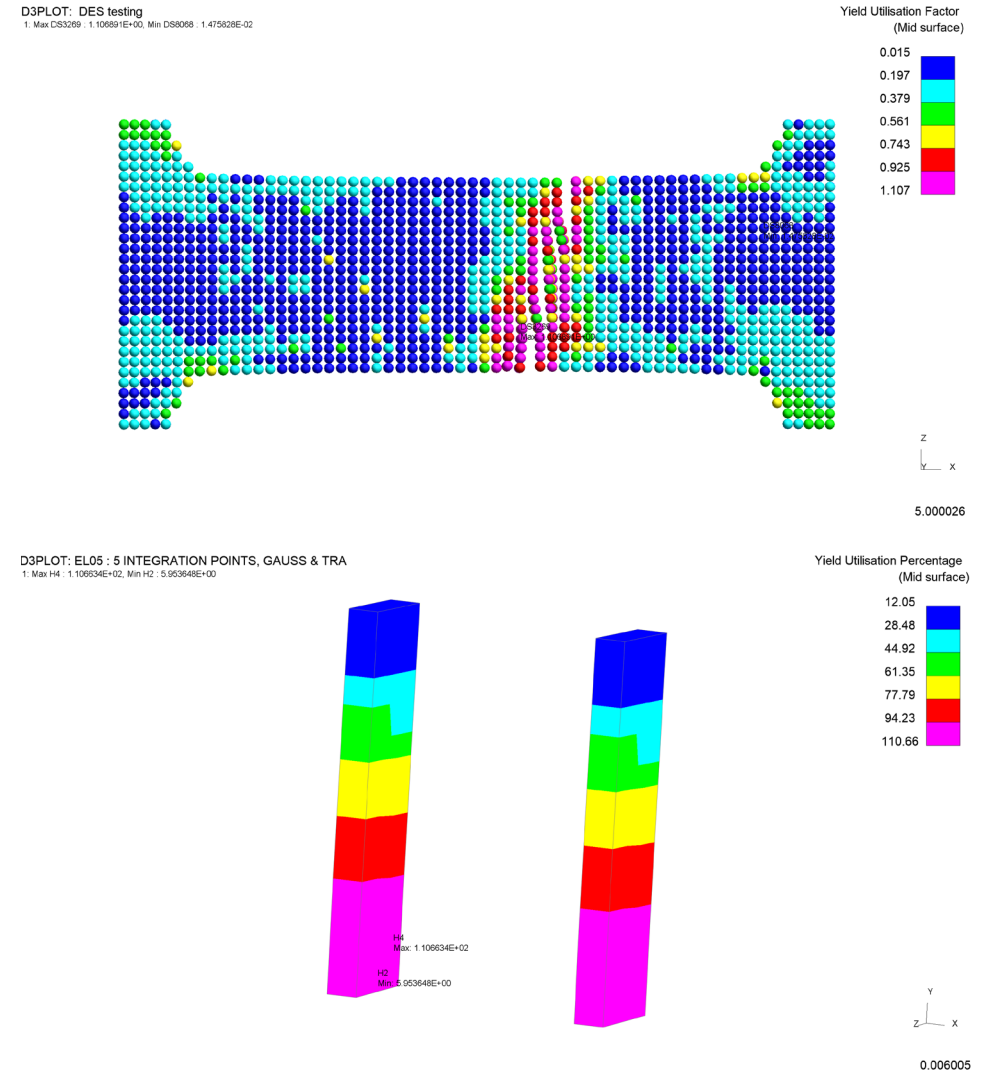
- Drag the buttons in each column up and down to reorder windows and graphs on a page
- Use the popup menus to edit page contents



New Data Components

Yield Utilisation Factor and Yield Utilisation Percentage

- New components Yield Utilisation Factor and Yield Utilisation Percentage have been added.
- Available for elements which output a stress tensor:
 - Solid / Shell / Thick Shell / SPH / DES
- Yield Utilisation Factor:
 - $\text{Von Mises Stress} / \text{Yield Stress}$
- Yield Utilisation Percentage:
 - $\text{Von Mises Stress} / \text{Yield Stress} * 100$



Extra history variables for *MAT_280 (*MAT_GLASS)

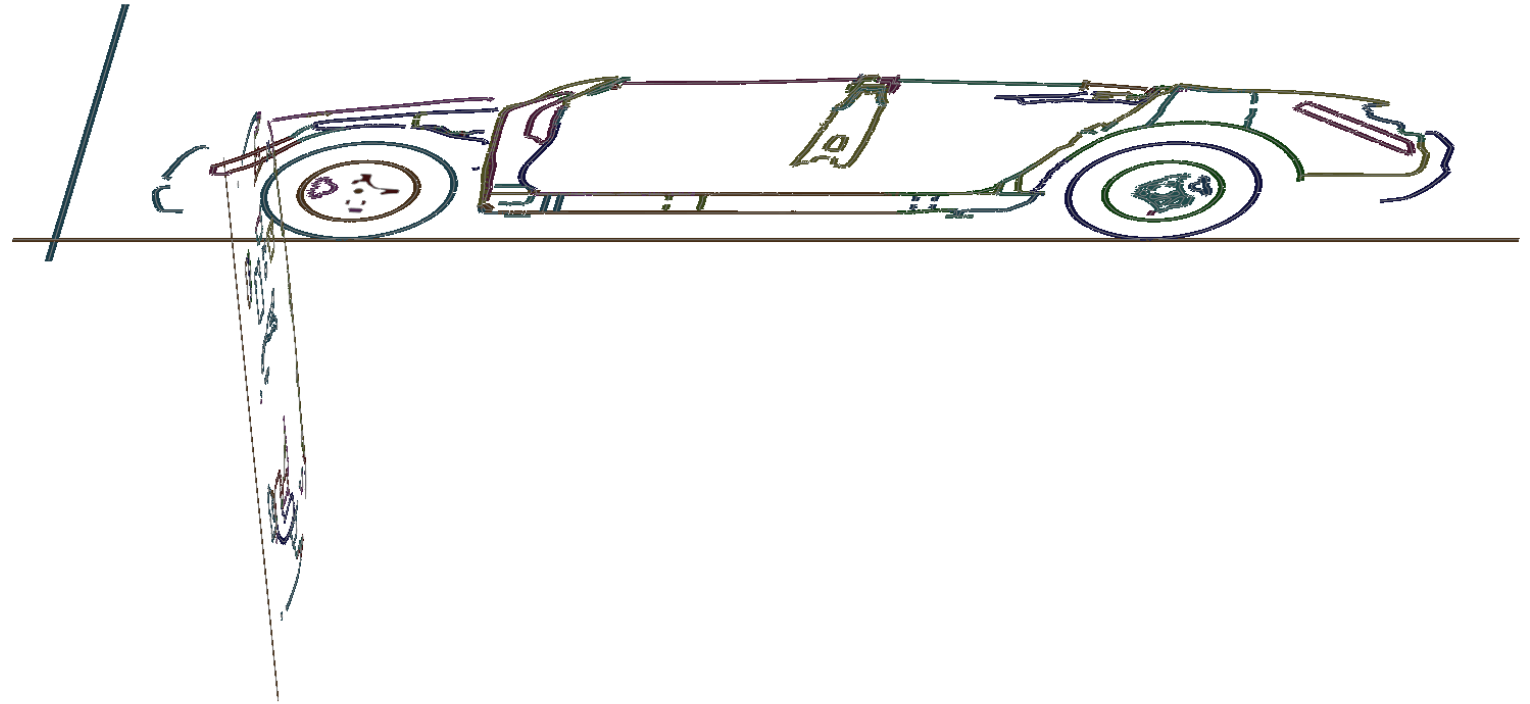
- Support has been added for new extra history variables for *MAT_280 (*MAT_GLASS).
- If your results directory contains a valid ZTF file written from PRIMER, the new variables can be accessed from the **Material Properties** category in the Data Component menu:

Material number/name		Data slot	Variable name	Description	Element type
MAT_280	*MAT_GLASS	1	CRACK_FLAG	Crack flag	Shell
MAT_280	*MAT_GLASS	2	PRINCIPAL_STRESS_1_DIRECTION	Direction of first principal stress	Shell
MAT_280	*MAT_GLASS	3	CRACK_DIRECTION_2	Second crack direction	Shell
MAT_280	*MAT_GLASS	4	FAILURE_CRITERION_VALUE	Failure criterion value	Shell
MAT_280	*MAT_GLASS	7	CURRENT_TENSILE_STRENGTH	Current tensile strength	Shell
MAT_280	*MAT_GLASS	8	CURRENT_STRAIN_RATE	Current strain rate	Shell
MAT_280	*MAT_GLASS	9	CRACK_OPENING_DISPLACEMENT	Crack opening displacement	Shell

Cut Sections

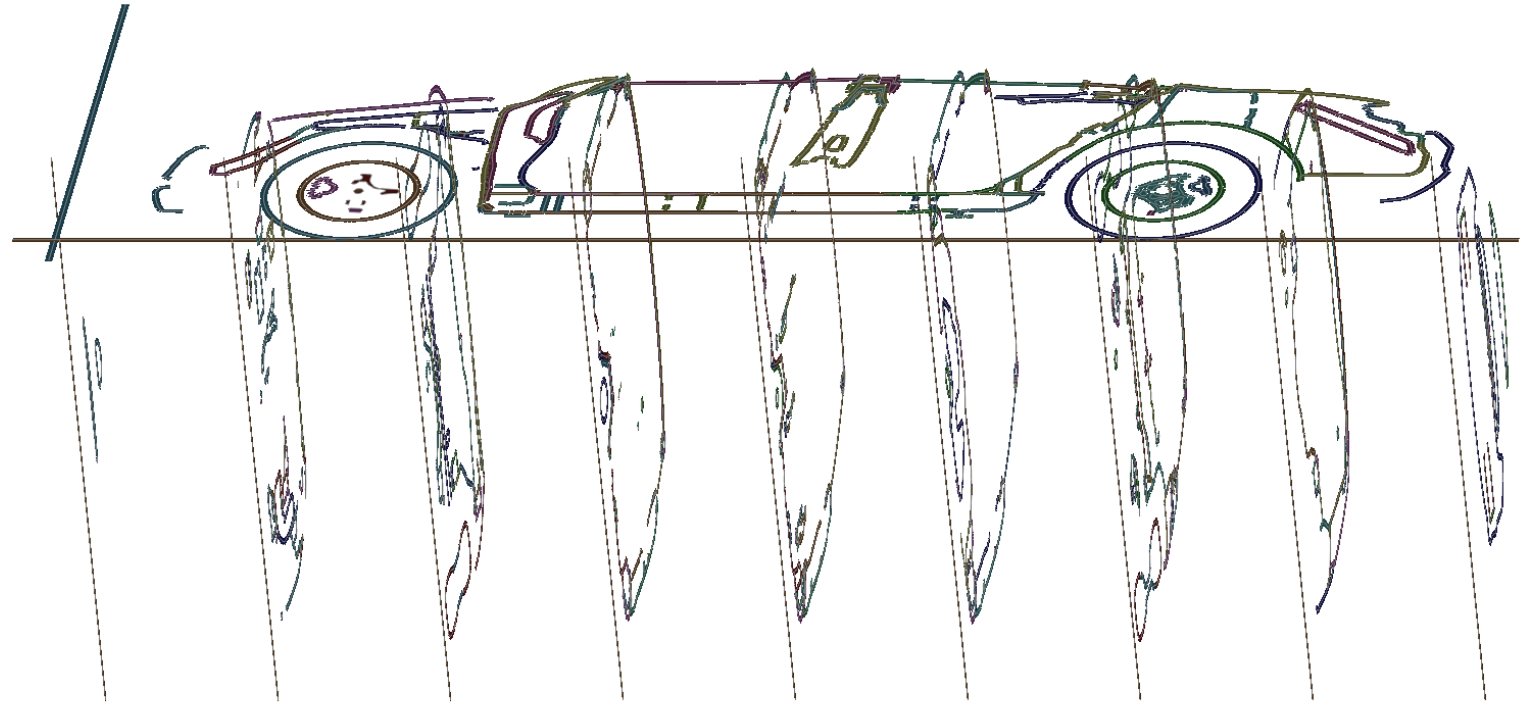
Multiple cut plane directions

- Cut planes can now be defined in up to 3 non-parallel directions.
- The example on the right shows two orthogonal planes intersecting a vehicle model.



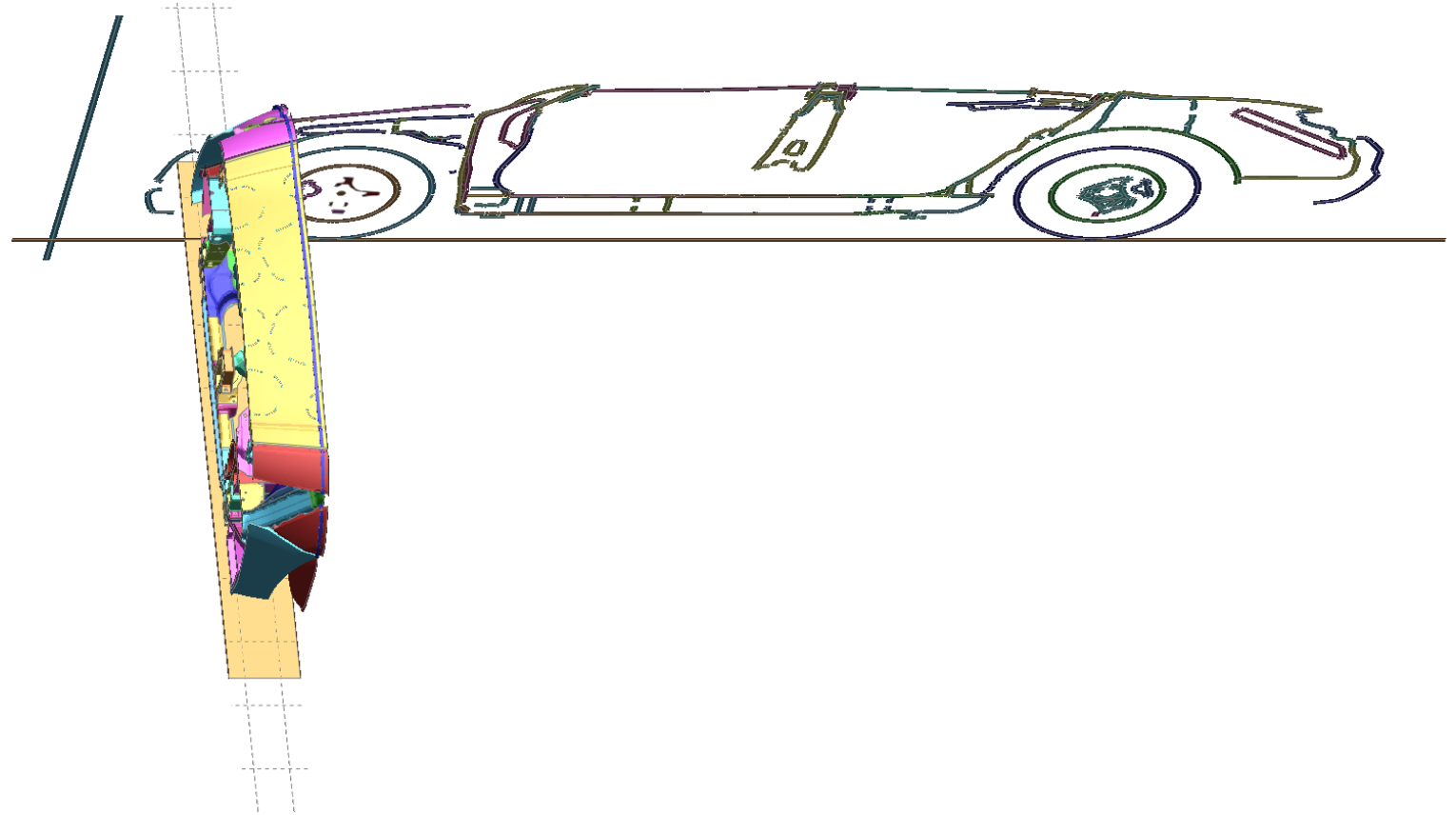
Parallel cuts with multiple directions

- Multiple directions can be combined with multiple parallel planes in one or more directions.



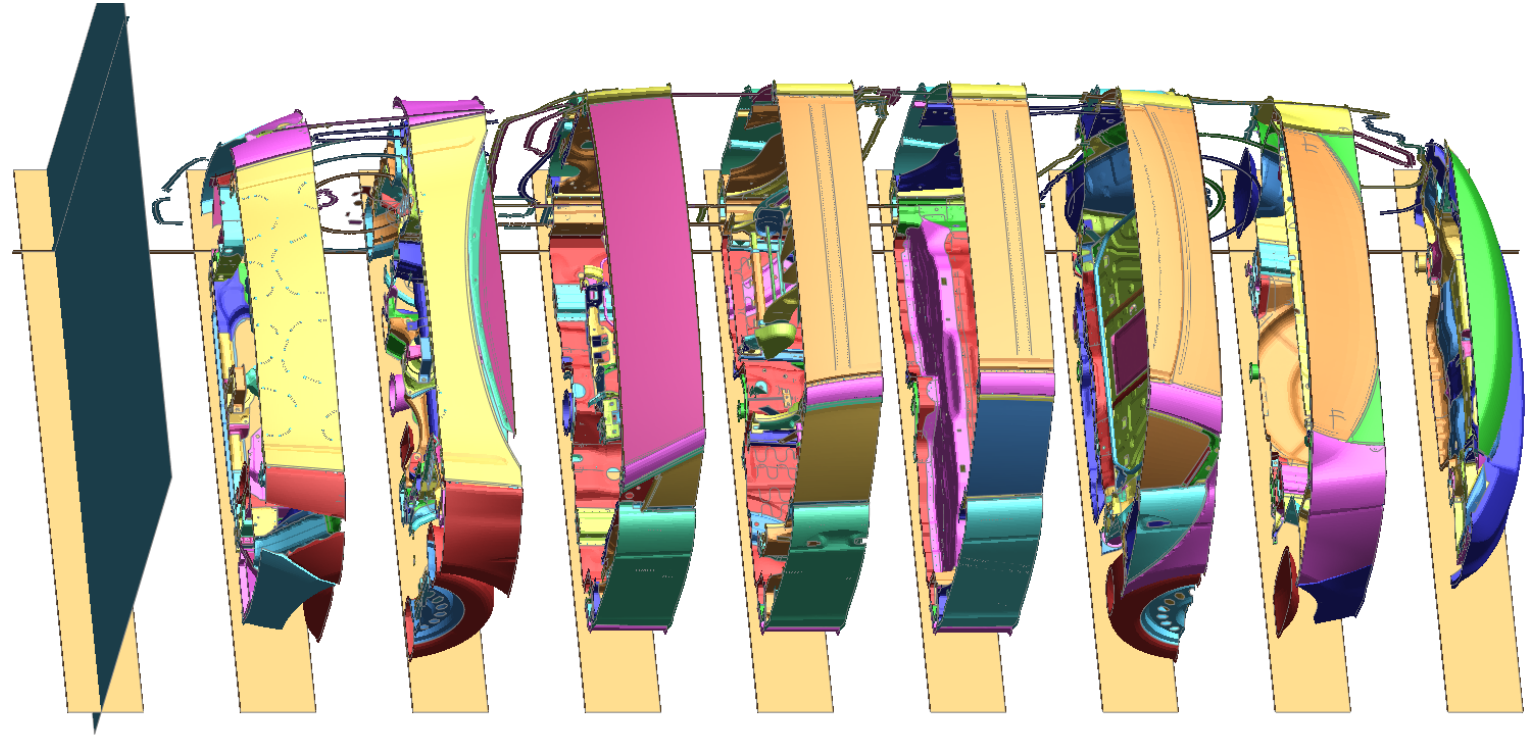
Thick cut in first direction

- Thick cuts can be turned on for the first plane direction to draw the union of that thick cut with a thin cut.



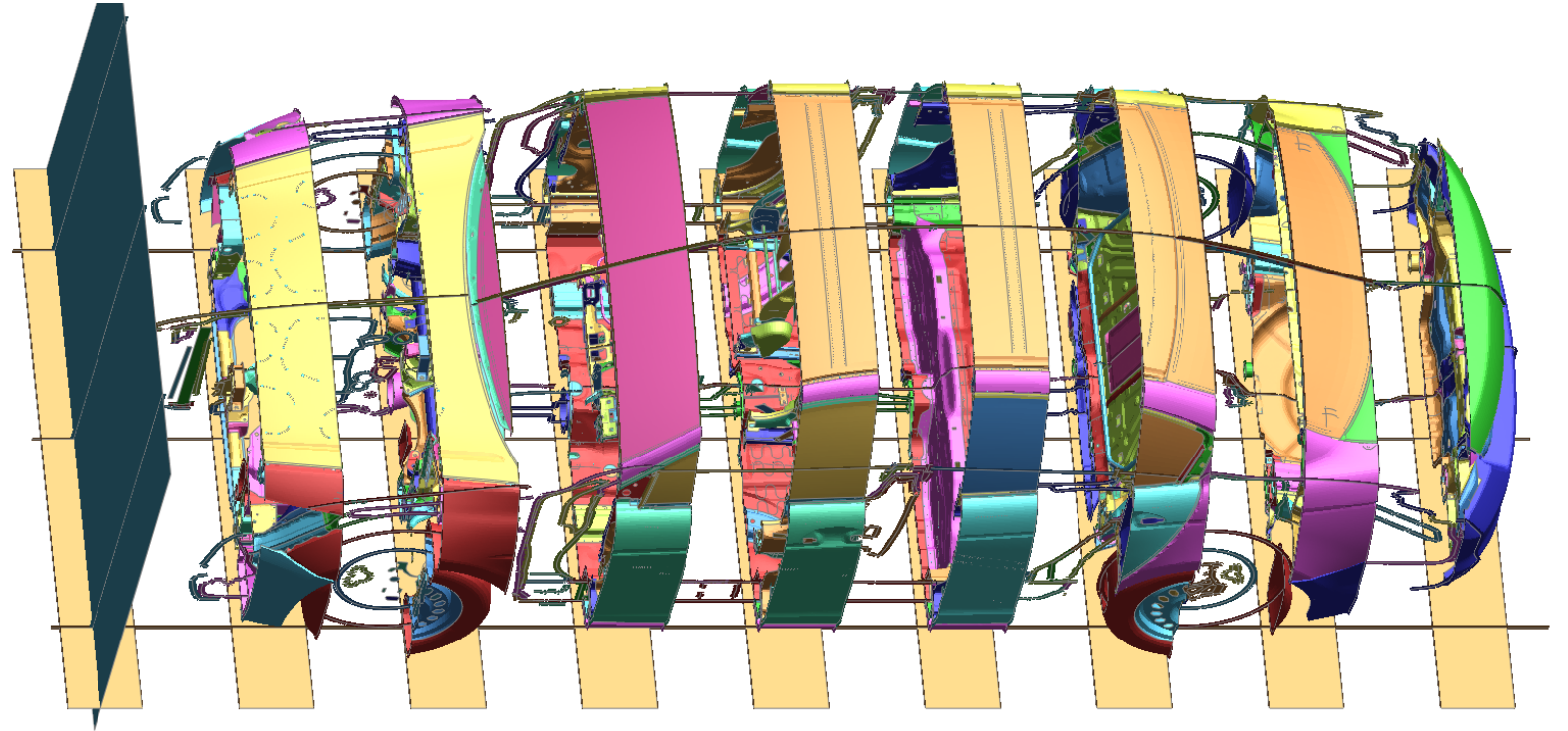
Multiple parallel thick cuts in first direction

- Thick cuts can still be turned into multiple parallel thick cuts when more than one plane direction is active.



Combination of thick cuts and multiple parallel cuts

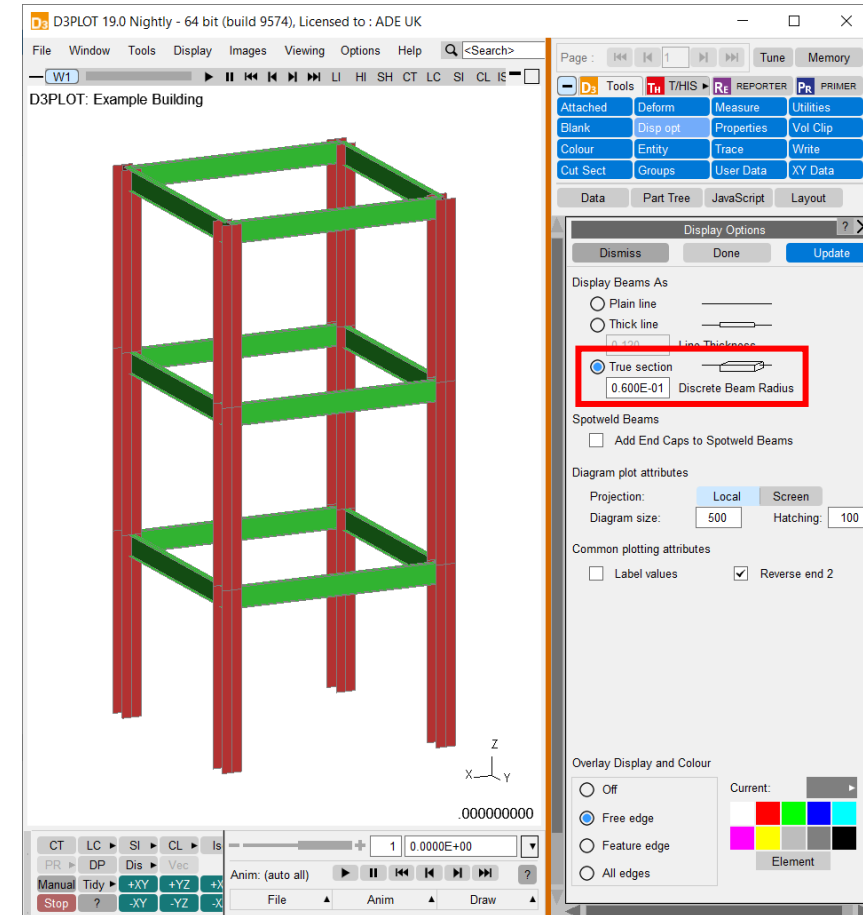
- This example shows thick cuts in the first plane directions and multiple parallel cuts in both directions.



D3PLOT Viewer Export

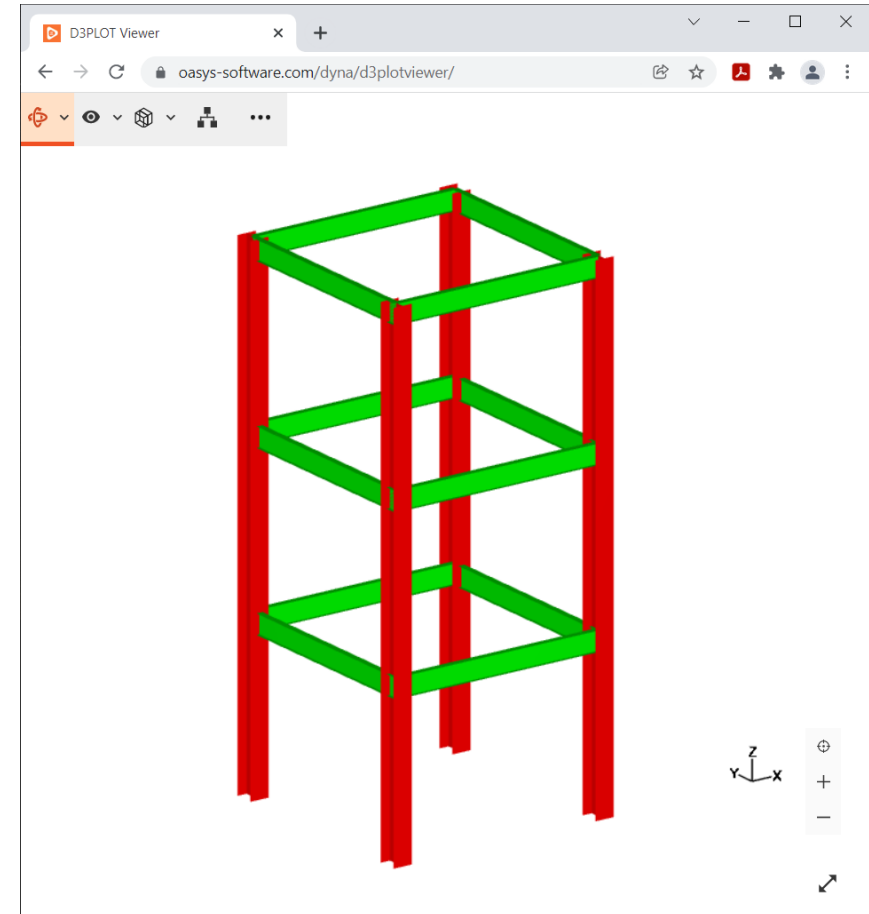
True Beam Section Export

- Beams have been able to be drawn with true sections in D3PLOT for some time
- In D3PLOT 18, beams were exported to D3PLOT Viewer as lines only
- Now, if beam true sections are switched on in D3PLOT, the true sections will be exported to D3PLOT Viewer



True Beam Section Export

- Beam elements exported with true sections are displayed in D3PLOT Viewer with true sections
- True beam sections cannot be switched off in D3PLOT Viewer
- Exporting true beam sections will result in larger files than exporting beams as lines



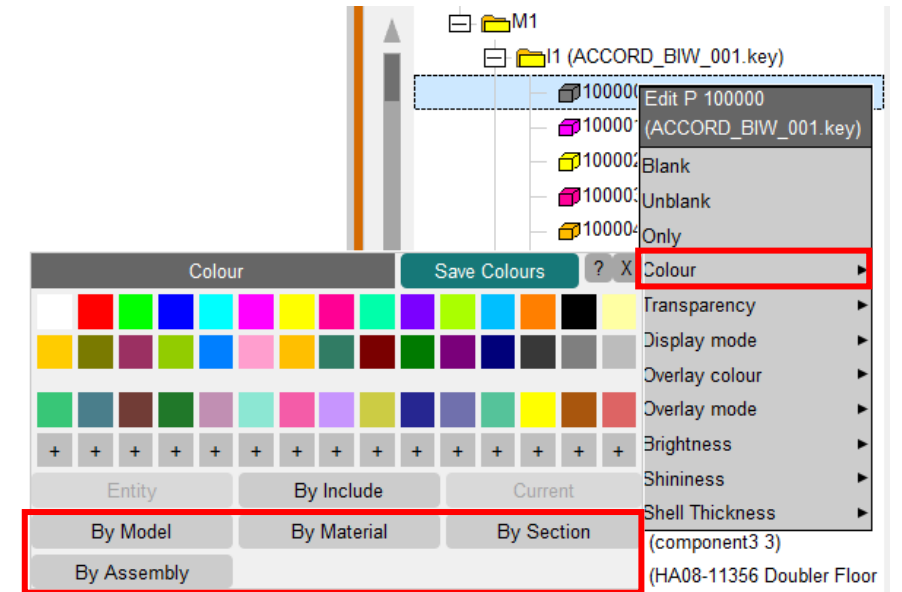
Colour

User colour updates

All entities can now be assigned colours **By Include** and **By Model**.

Setting part and element colour **By Material**, **By Section** and **By Assembly** is now available on the following menus:

- Properties panel
- Quick Pick
- Part Tree



Target marker colours


- Colours for target markers can now be selected from the colour palette:



Changes To Screen Selection

Changes To Screen Selection

The interactive screen selection of Entities has been updated to improve its performance and to add new features.

In Quick Pick, the selection mode can now be switched between 3 different options using the  button.



Drag out a rectangular area (Default)



Select items within a polygon

C : Close the Polygon

R : Reject Last Point

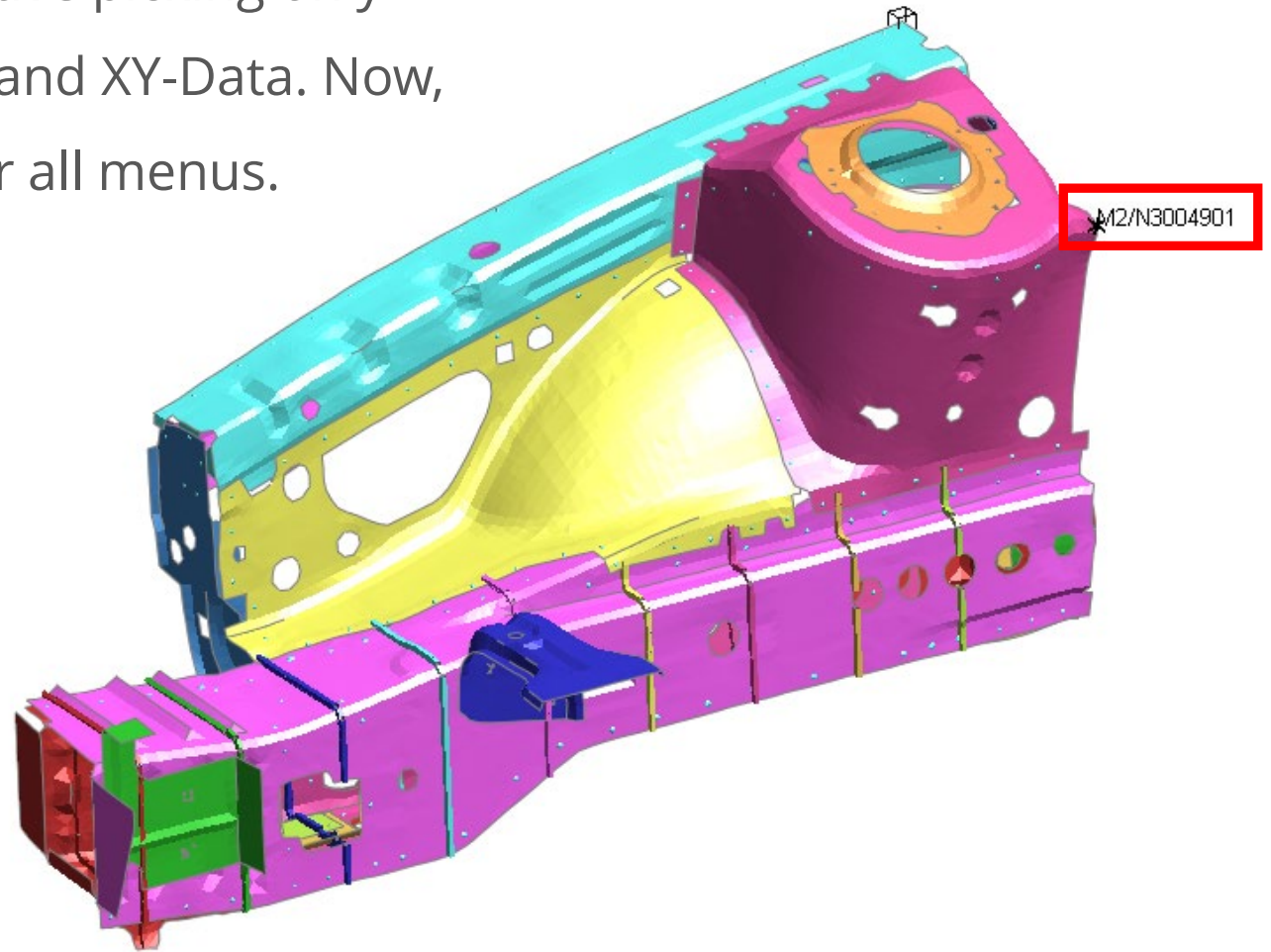
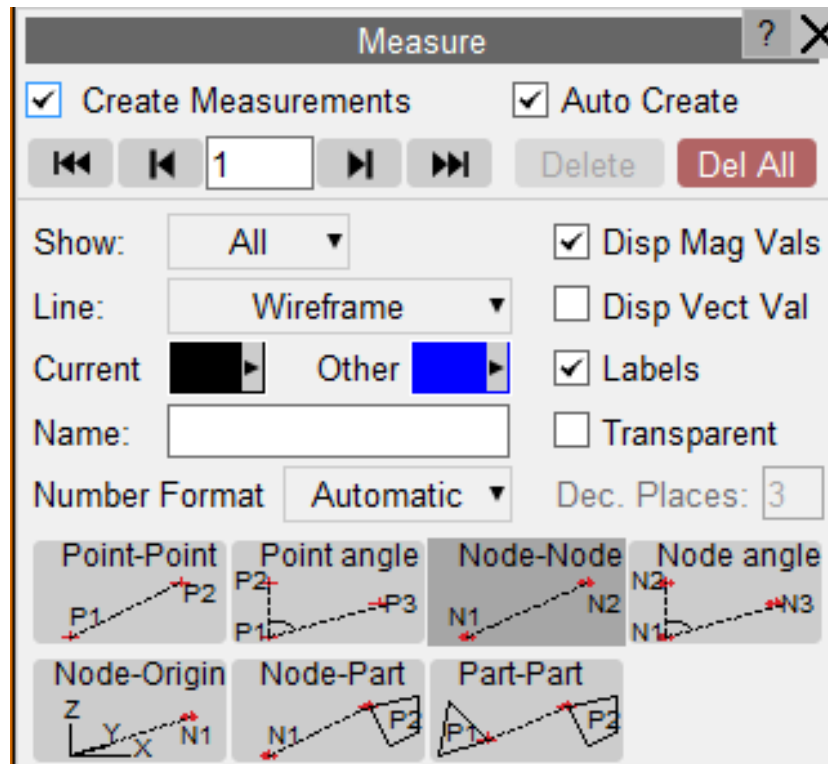
X : Abort Polygon and Restart



Drag out a circular area

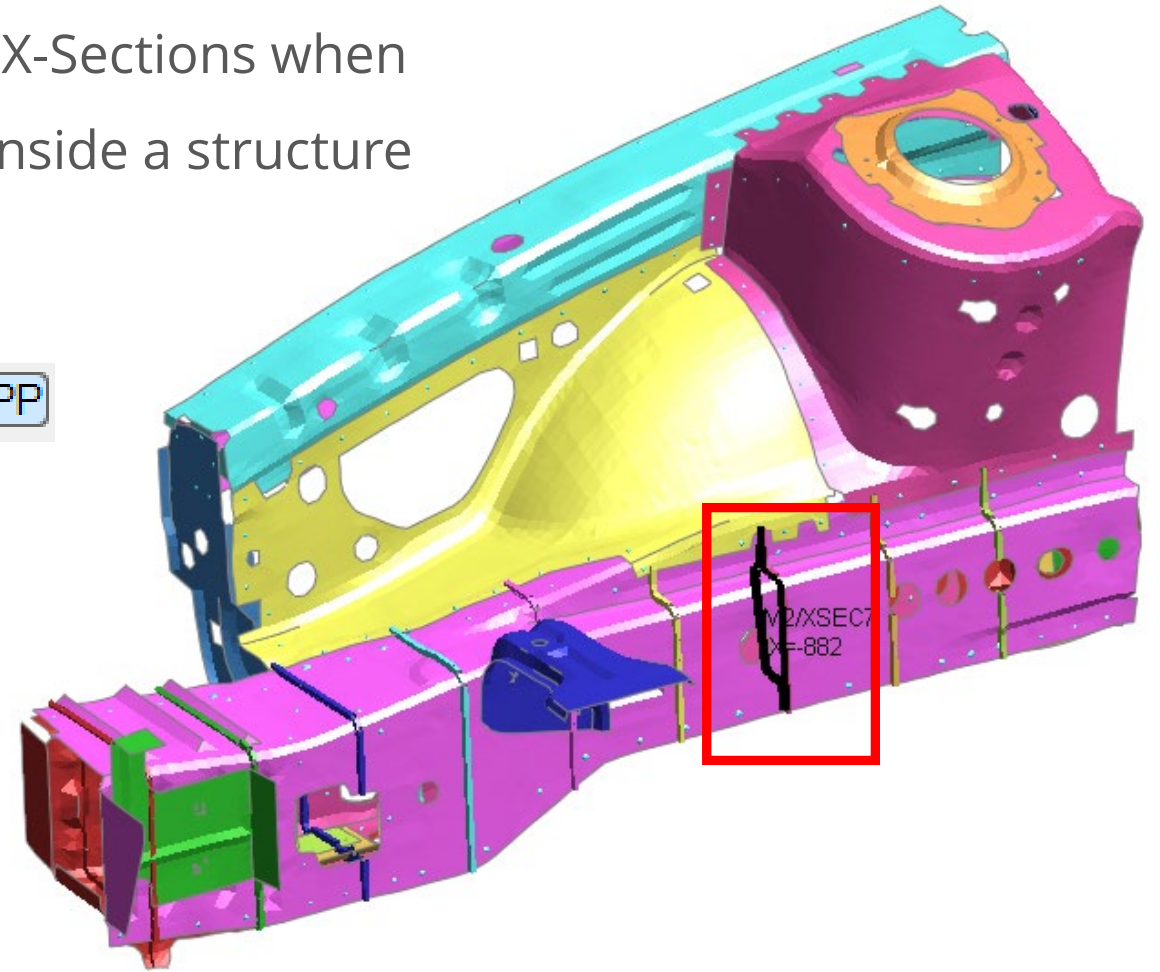
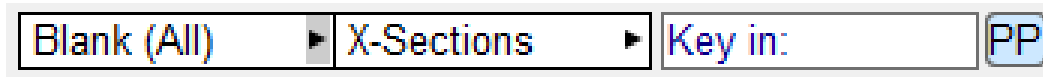
Changes To Screen Selection

In previous versions of D3PLOT, predictive picking only worked for Quick Pick, Blanking, Write and XY-Data. Now, predictive picking has been enabled for all menus.



Changes To Screen Selection

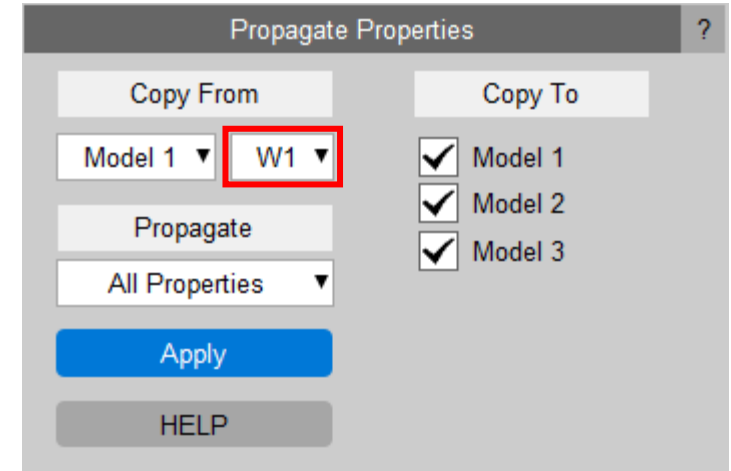
It is now also easier to select items such as X-Sections when the centroid of the cross section is hidden inside a structure or within a block of solids:



Propagating Blanking

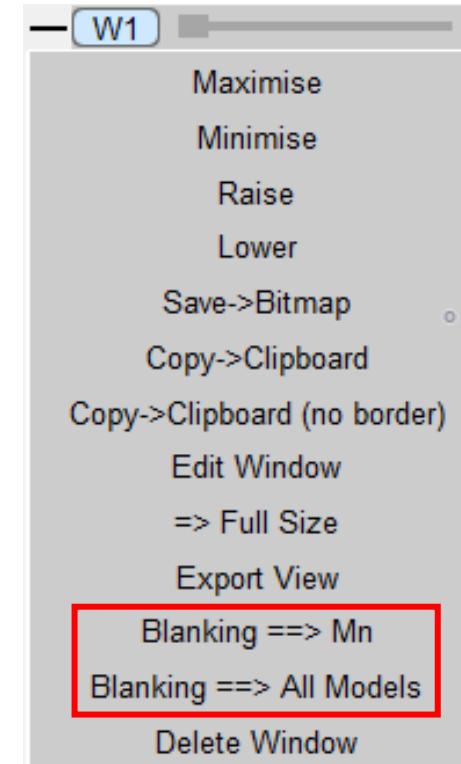
Propagating Blanking from Propagate Properties Popup

- In previous versions of D3PLOT, when blanking was propagated using the Properties Panel, entities blanked in any window would be blanked in all windows.
- Now, the Propagate Properties popup allows you to specify both the model and the window to propagate blanking from.



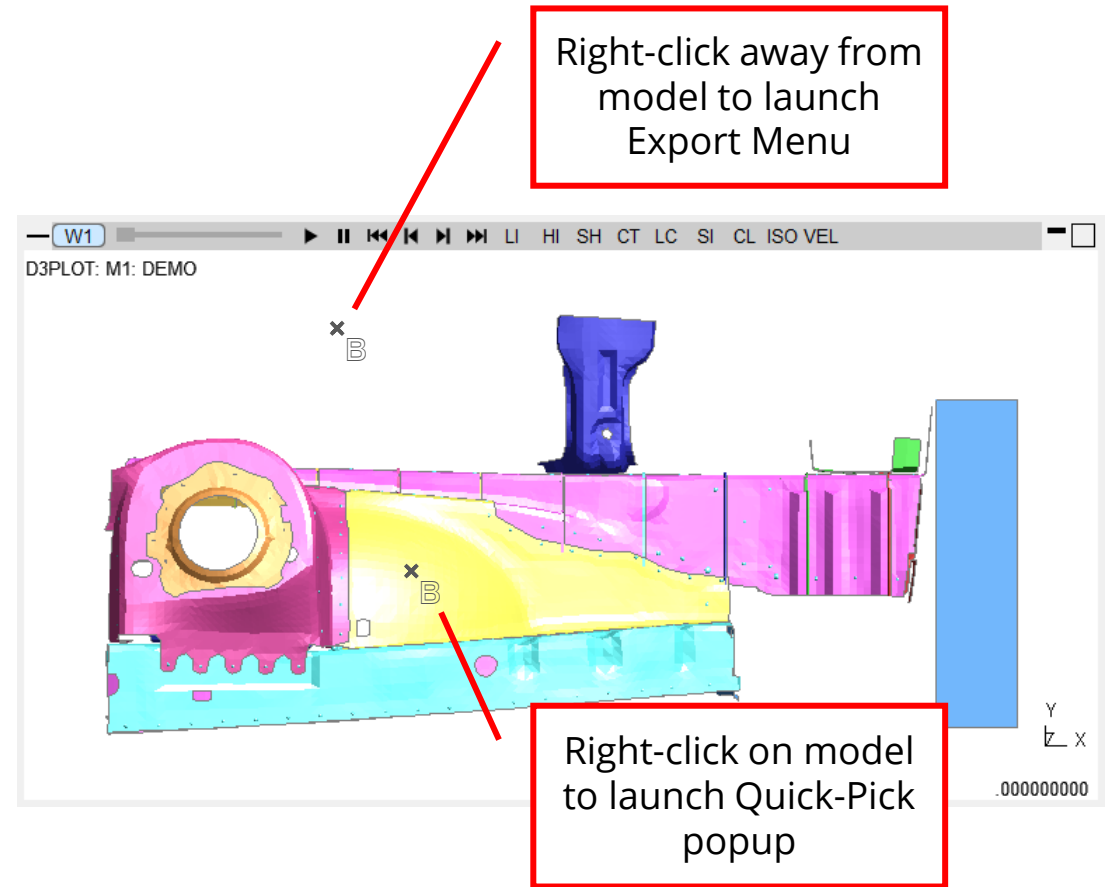
Propagating Blanking from Window Popup

- The popup menu accessible from the windows option button now contains options for:
 - **Blanking ==> Mn** to propagate the blanking of the selected model in this window to the same model(s) in all active windows
 - **Blanking ==> All Models** to propagate the blanking of the selected model to all models in all active windows



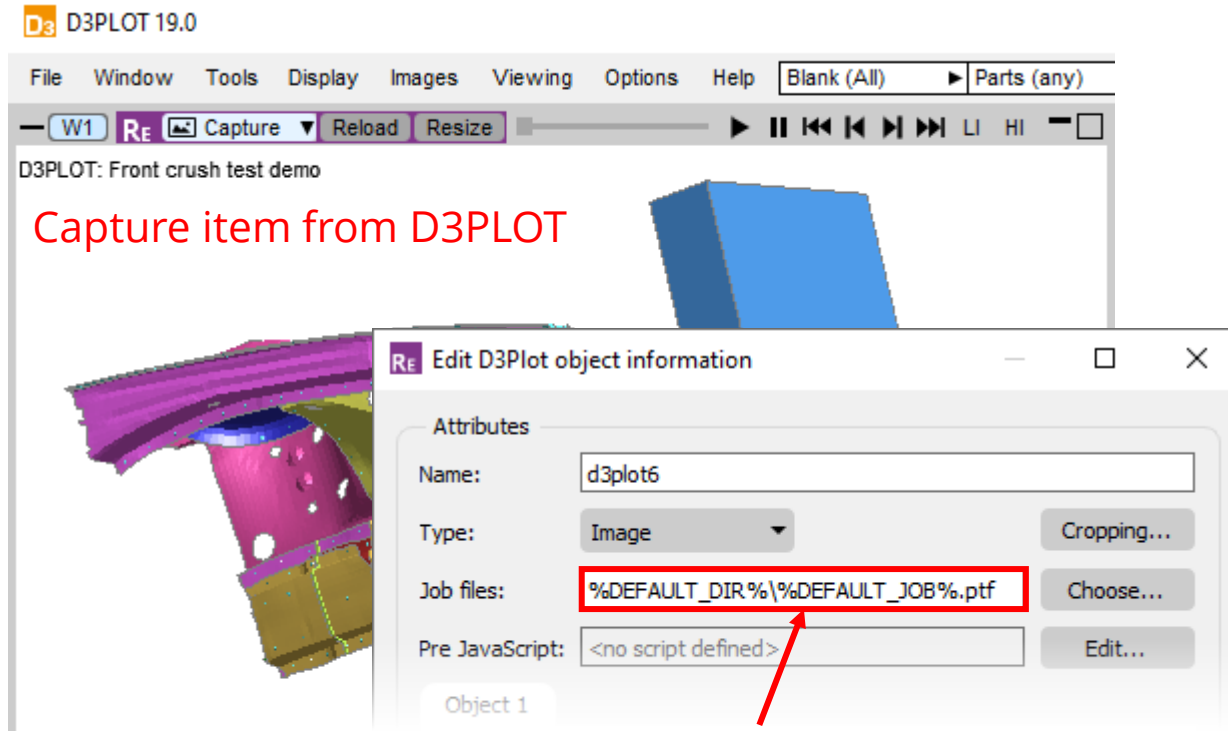
Propagating Blanking from Quick-Pick Popup and Export Menu

- The same blanking propagation options that are available in the windows option popup menu are also available in the following menus:
 - Quick-pick popup menu accessible from right-clicking on a model (but not in the drop-down above the graphics area)
 - Export menu accessible from shortcut key "E" or by right-clicking in a blank part of a window



REPORTER Integration

Automatic update of DEFAULT_DIR and DEFAULT_JOB



In REPORTER, job uses variables automatically

CURRENT_PAGE	Number	Current page number	Yes	None	2
DATE	String	Current date	Yes	None	2
DEFAULT_DIR	Directory	Reporter default directory		None	2
DEFAULT_JOB	File(basename)	Reporter default jobname		None	2
REPORTER_HOME	Directory	Reporter home directory	Yes	None	2
REPORTER_TEMP	Directory	Reporter temp directory	Yes	None	2

C:\models\FrontCrushDemo
front_crush_demo

Model file path and filename from D3PLOT automatically

If you open REPORTER from D3PLOT or T/HIS and capture an item, the values of DEFAULT_DIR and DEFAULT_JOB are now automatically updated to match the current model in D3PLOT or T/HIS (previously you would have had to edit the hardwired filenames manually). This makes it easier to set up your template to run for different models.

User-Defined Data

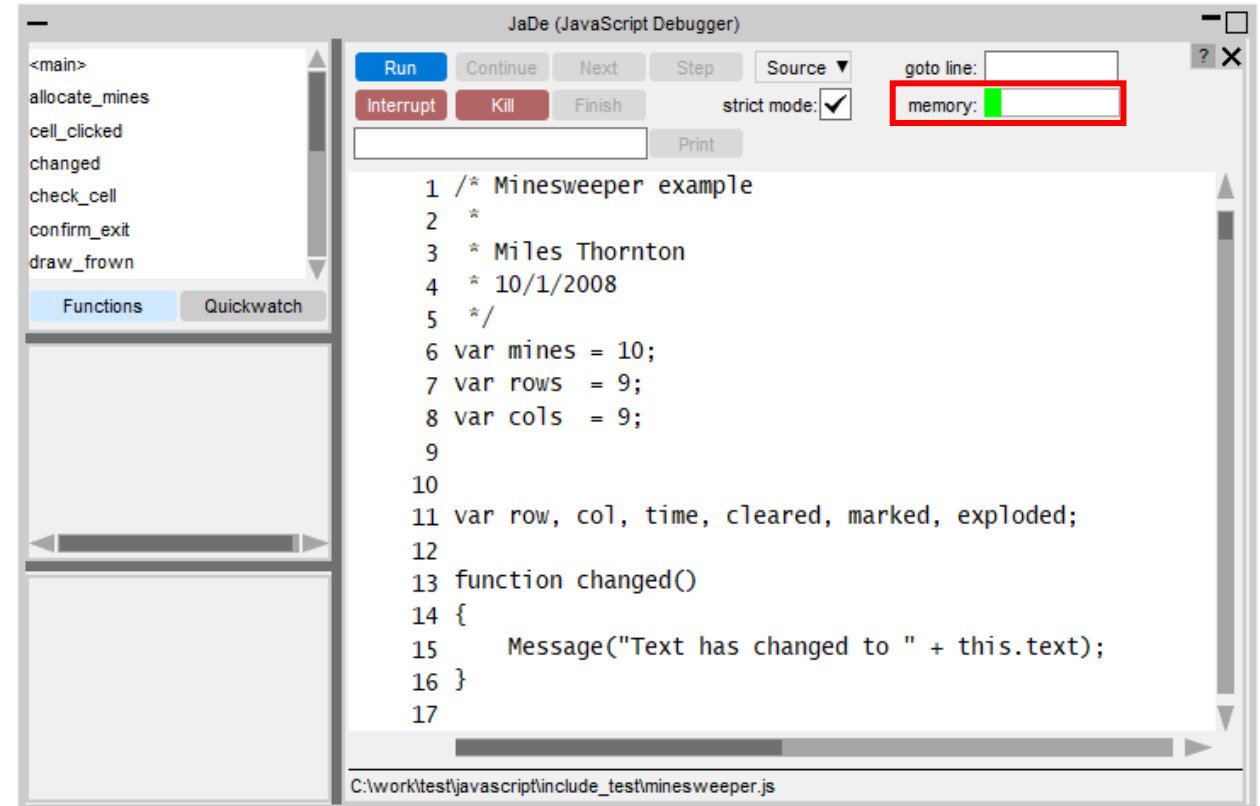
User-Defined Binary (Ubin) Data

- Ubin data is stored in the same directory as the D3PLOT input files by default, but can also be stored in a location specified by the **d3plot*ubd_file_location** preference
- If Ubin data is identified in both locations, D3PLOT will now read files from both locations and create all the required user-defined data components
- In the case where a component of the same name exists in a file in both locations, the component found in the model directory will be ignored in favour of the one in the preference location
- A warning is printed to the dialogue window when this happens so that it is clear which data will be plotted
- You can learn more about User-Defined Data in [this webinar](#)

JavaScript

Memory use in JaDe

- The JavaScript debugger now shows how much garbage collection memory is being used by a script.



console API

- The JavaScript engine now implements the console API (as specified in <https://console.spec.whatwg.org>) so functions such as `console.log()`, `console.warn()` etc are now usable.
- Output is sent to the console window on Windows and the terminal window on Linux.

Other JS API changes

- The special encoding comment at the beginning of a script now supports Shift-JIS as an encoding.
- ECMAScript 6 Modules are now supported in D3PLOT. Both static and dynamic imports are supported.
- A new function `Colour.GetFromName` has been added to return a colour value (integer) for a core colour or user colour from its name.

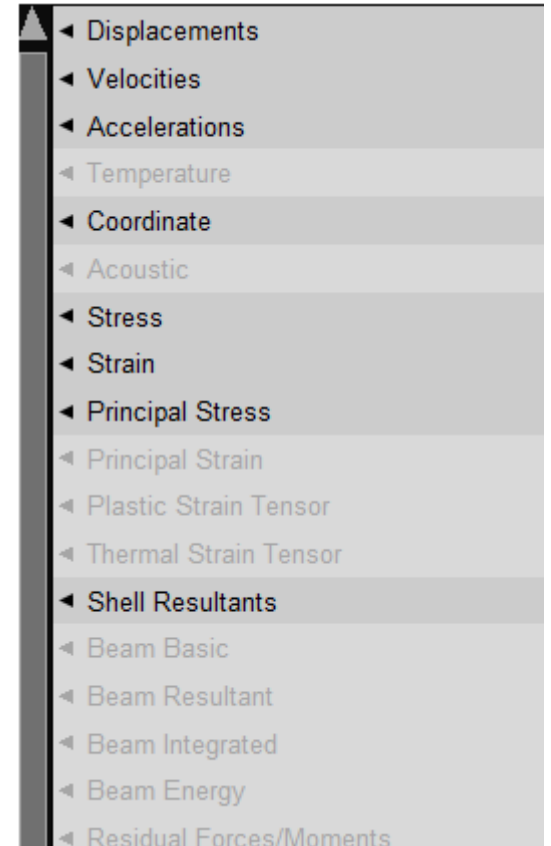
Menus

Data component popups

There is a new preference **d3plot*show_all_components**.

When this is set to TRUE, the data component popup appears in the same way as the Data menu in Write and XY Data.

Unavailable components will be greyed out rather than omitted. This is useful for automatic processes relying on the position of buttons on the popup – for example, in the playback of command files.



File skip for loading results files

- The default file skip value was changed from 5 to 50 to read, by default, analyses with more intermediate result files removed, e.g., when a subset of results has been transferred to a local drive
- This value determines the maximum permitted gap in a file family (e.g., <name>.ptf, <name>.ptf01, <name>.ptf02 for the Arup naming convention; the extension would be .d3plot for the standard LS-DYNA naming convention) that D3PLOT will check before it decides it has reached the end
- A new preference **d3plot*file_skip** which allows users to change this default value was also added

Read Options

Auto

Family size (MB):

N(o)

Title swap (Y/N):

50

File skip:

Open Model in Window

☐Next

Nastran OP2 Scale Factor

☐Absolute

1.00

Explain

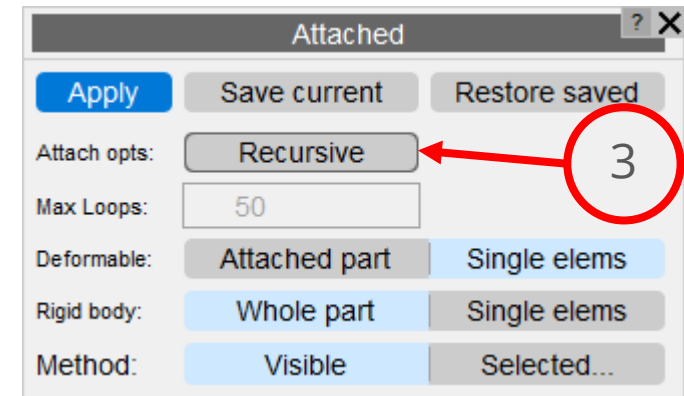
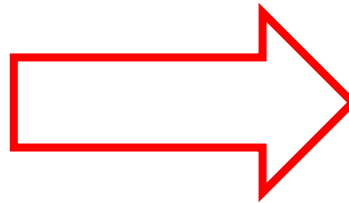
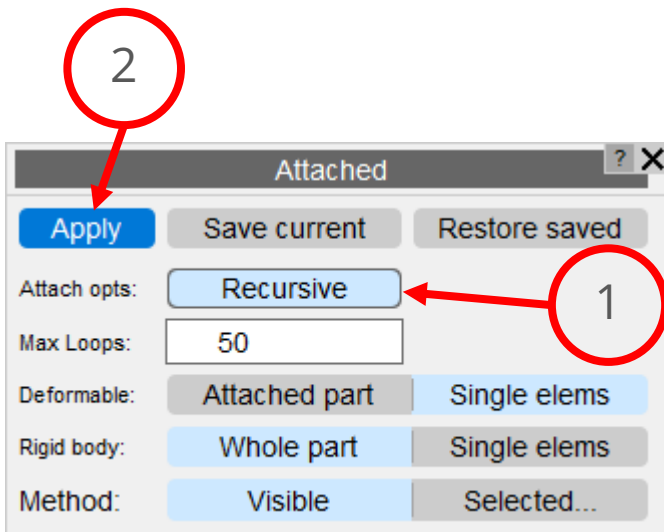
☒Percent

15.0

Save

Attached – Recursive option

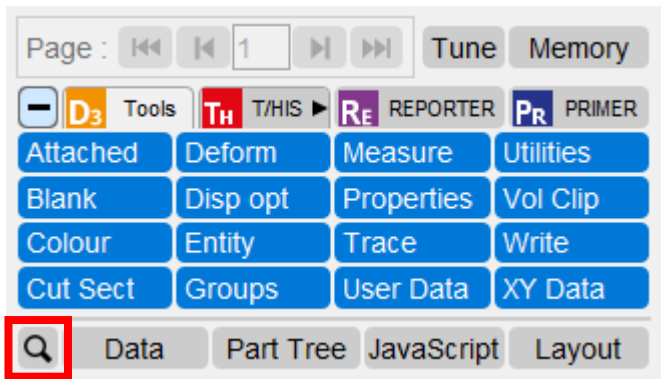
If set, the **Recursive** option in **Tools** → **Attached** will now be switched off automatically at the completion of an Attached operation. This behaviour is consistent with the Attached tool in PRIMER.



Search Box

- Previous versions of D3PLOT included a Quick Find button which has now been made more prominent in the form of a search box located on the top bar.
- The existing keyboard shortcut (#) can still be used too.

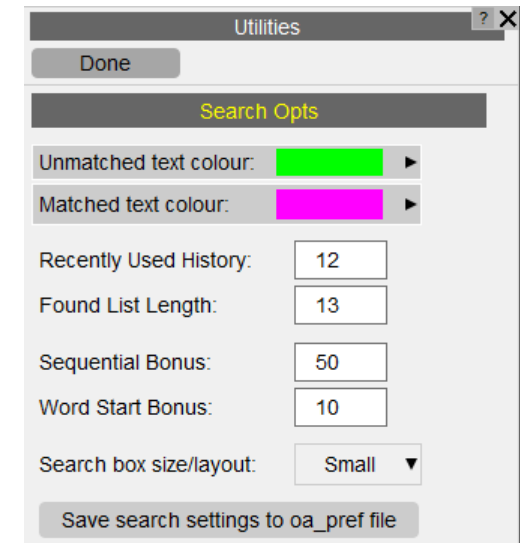
v18



v19



- Search options can be controlled from Utilities → Search Opts



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