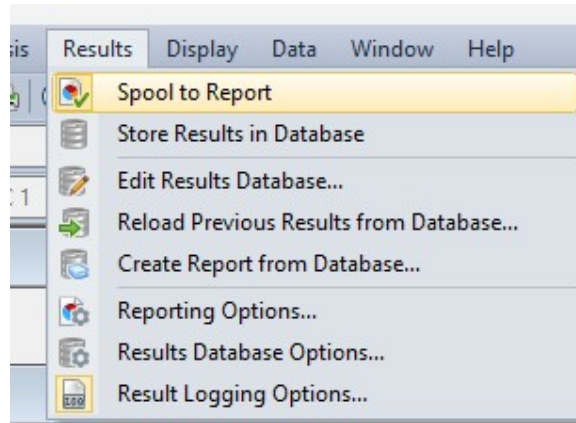


Reporting in Maxsurf Stability

Introduction

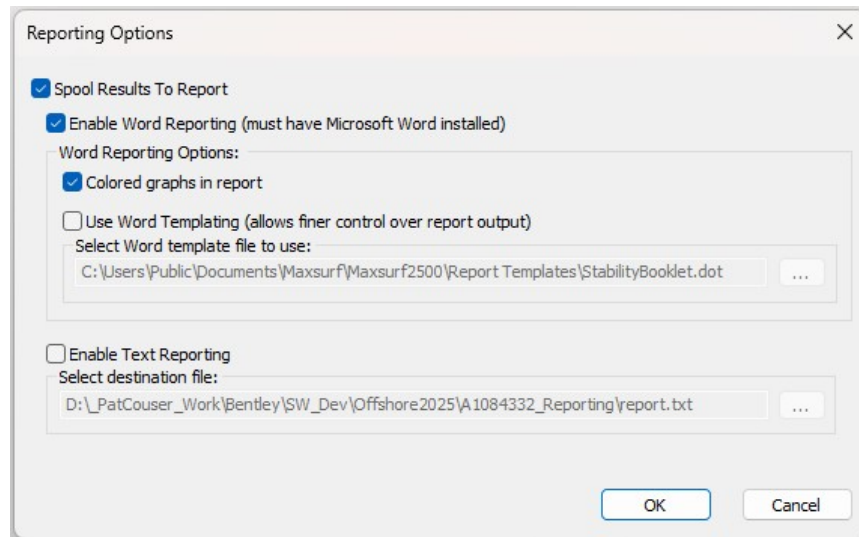
In Maxsurf stability, each time you run an analysis the resulting tables and graphs relevant to that analysis as well as analysis parameters are automatically sent to the report. The action of sending the results to the report can be toggled with the "Spool to report" switch in the Results menu (and toolbar).



Results and Reporting controls in the Results menu

Reporting options

Use the Reporting options dialog to specify where to send the report:



Results | Reporting Options dialog

Internal Report Window

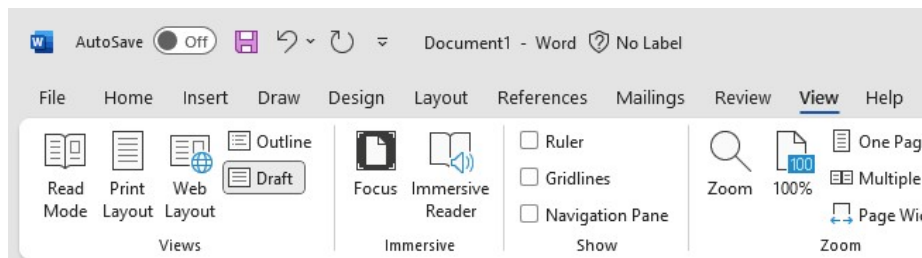
The internal Report window is a very simple RTF editor which is recommended only if you do not have Microsoft Word installed. If use, it is simplest to use it to store all the results from the analyses and then save the RTF file. Do any further editing in a dedicated RTF editor rather than the Report window.

Draft Amidships m	0.200	0.300	0.400	0.500	0.600
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Report window in Stability uses RTF to store the results of each analysis.

Microsoft Word

Microsoft Word can be used as the reporting engine and this offers better formatting of tables and other features. Microsoft Word must be installed and will automatically open as results are streamed to Microsoft Word in real time from Maxsurf Stability. Be aware that Maxsurf Stability uses the Windows Clipboard to send data to Microsoft Word so the clipboard should not be used while this data transfer takes place as the last step at the end of each analysis.



Hydrostatics - IgnorePlanarSectionSurfaces

Stability: 25.00.00.43, build: 43

Model file: D:\ADO\src\MOMAX\MAXSURF\src\Shipping\Maxsurf\Sample Modelling Features\IgnorePlanarSectionSurfaces\IgnorePlanarSectionSurfaces (High precision, 214 sections, Trimming on, Skin thickness not applied). Long. datum: User def.; Vert. datum: Baseline. Analysis tolerance - ideal(worst case):

Disp.%: 0.00001(0.001); Trim%(LCG-TCG): 0.00001(0.001); Heel%(LCG-TCG): 0.00001(0.001)

Damage Case - Intact

Fixed Trim = 0 m (+ve by stern)

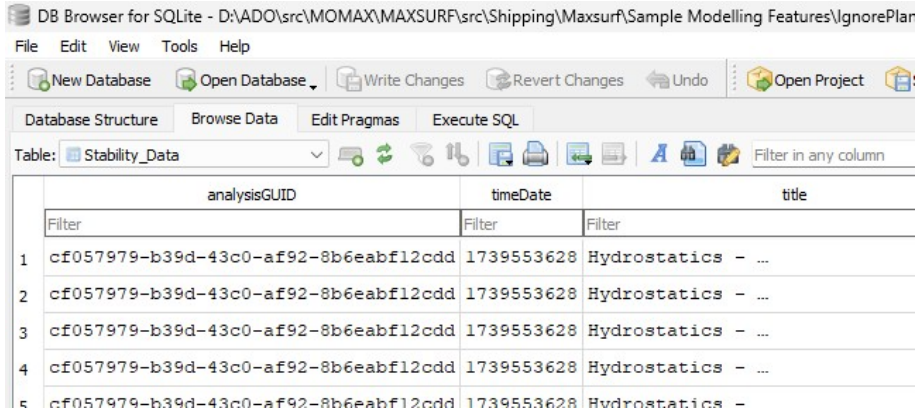
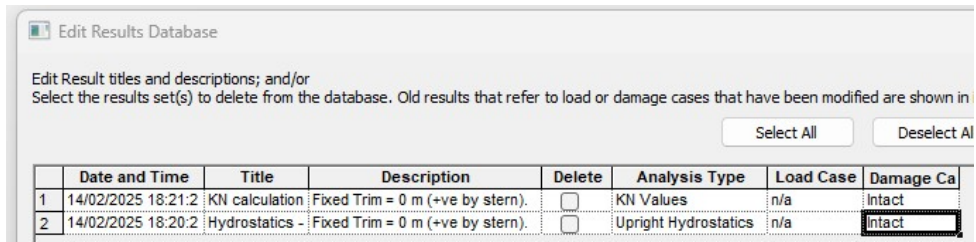
Specific gravity = 1.025; (Density = 1025 kg/m³)

Draft Amidships m	0.200	0.300	0.400	0.500	0.600	0.
Displacement kg	1416	3234	5770	9006	12924	
Volume (displaced) m ³	1.382	3.155	5.630	8.786	12.609	
Heel deg	0.0	0.0	0.0	0.0	0.0	
Draft at FP m	0.200	0.300	0.400	0.500	0.600	
Draft at AP m	0.200	0.300	0.400	0.500	0.600	

Real time streaming of results to Microsoft Word

Results Database

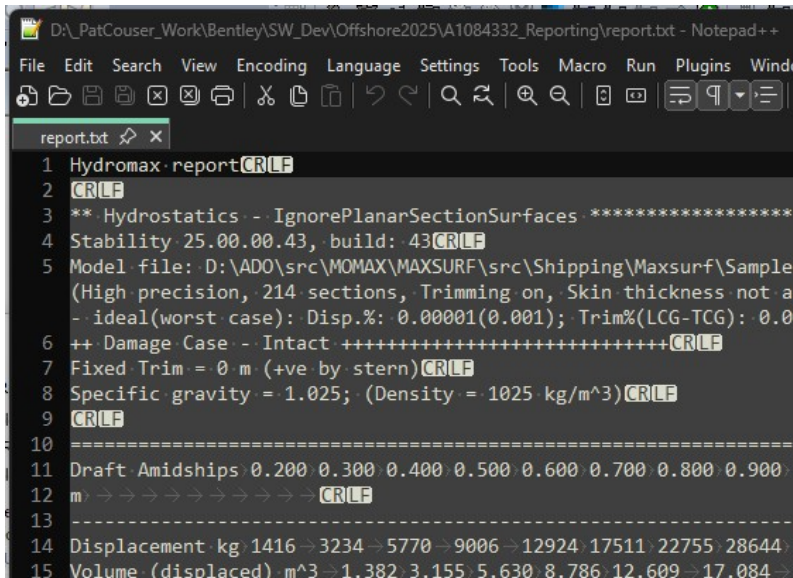
As well as sending results to a document, the results can also be stored in a SQLite database. This means that the results are stored and can be reloaded from the database into Maxsurf stability. You can also create a report from the database by selecting which results sets and in which order they should appear in the report. As we shall see later, one big advantage of having the results in the database is that you can recreate the report (with different formatting options) at any time. Whilst it is intended that users use Maxsurf Stability to access the data in the database, there is nothing to prevent direct access to the contents of the database (using DB Browser for SQLite) for example. However, it is highly recommend to access in read-only mode and not to modify the database.



Viewing the results in the database through the Maxsurf Stability interface and using a third-party database tool such as DB Browser for SQLite

Text only report

Results can also be sent to a text file. This is for output only and the results cannot be read back in to Maxsurf Stability; graphs are not included:

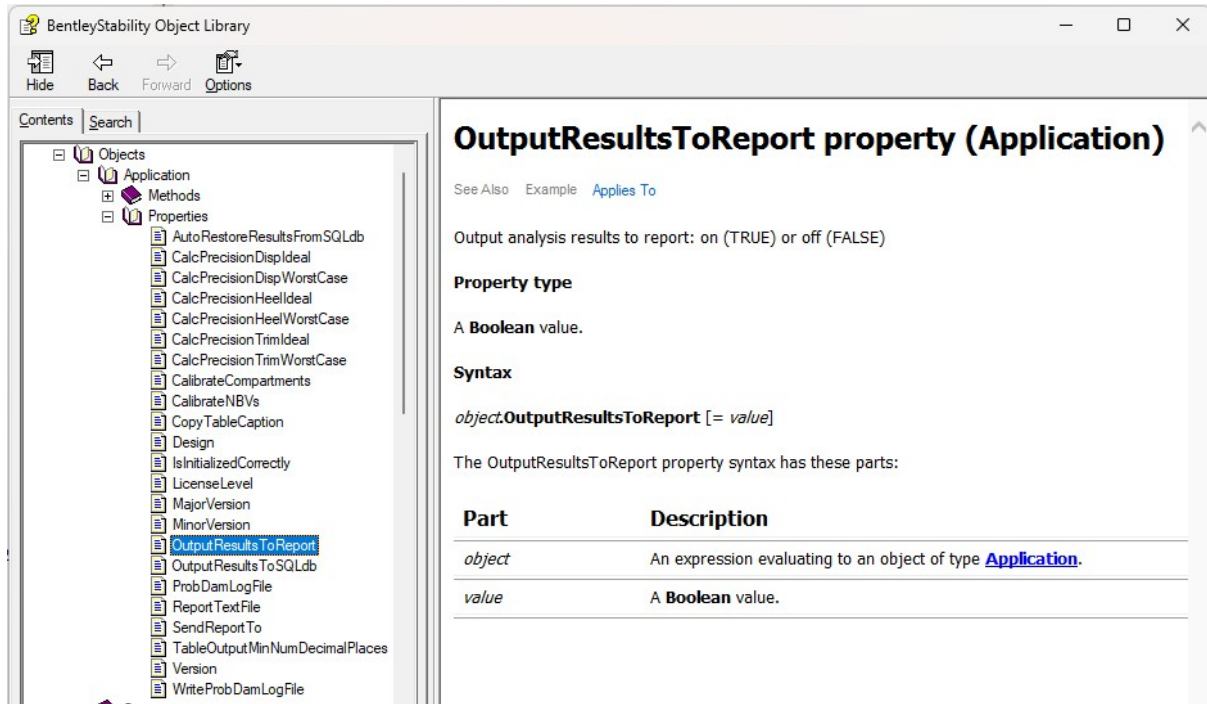


Text reporting to a plain-text file

Automation

Maxsurf stability has a comprehensive automation interface (API) which can be accessed from a range of programming and macro languages such as Python, VBScript and VBA. Automation allows you to run

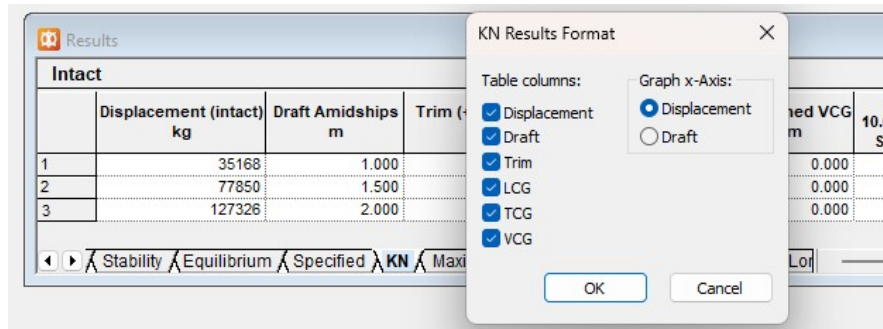
Maxsurf Stability from a script and all the reporting functions are accessible via the API in the Application object.



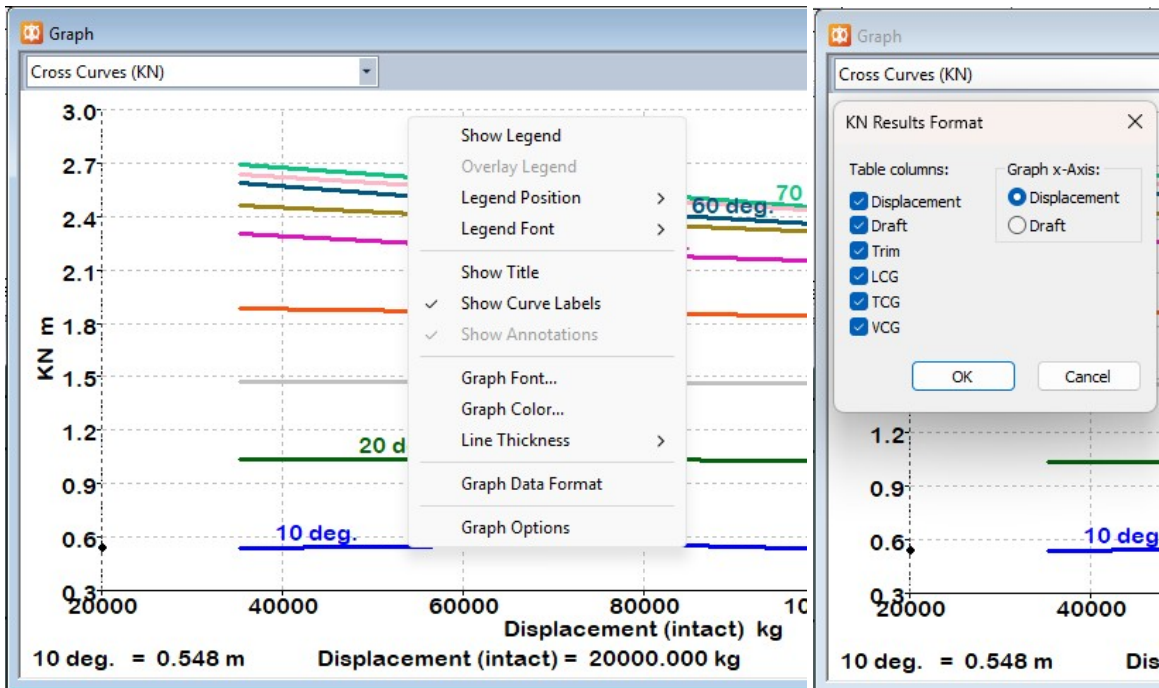
Reporting options in the Automation API

Setting up for reporting

The table and graphs sent to the report use the table format options in use at the time the results are sent to the report. It is recommended to set up all the tables as you desire them to appear in the report using the Display | Data Format dialog for each of the relevant tables and graphs. The table and graph fonts and graph colours should also be set at this point. It is also recommended to set the column widths.



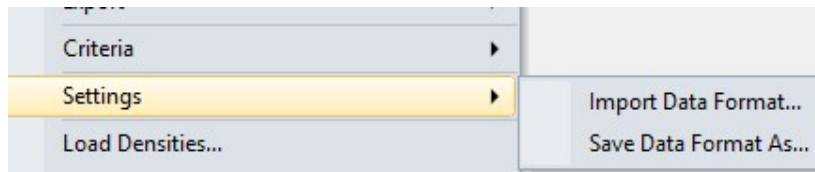
Setup the table layout before sending data to the report.



Graphs have the common Right-Click menu and may have their own Data Format options.

Saving table and graph formats

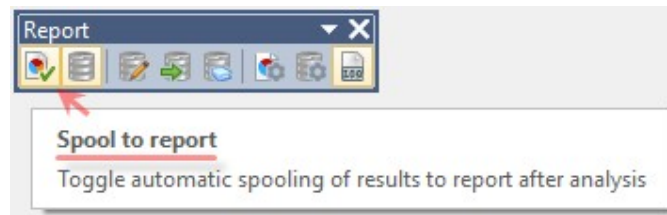
Once you have set your tables and graphs as required, you can export this data format scheme in a JSON file, these can be reloaded facilitating consistent formatting in your reports. Use the commands in the File | Settings menu. (These format settings can also be loaded through the Automation API.)



Settings menu for saving and restoring table and graph data format

Direct Reporting

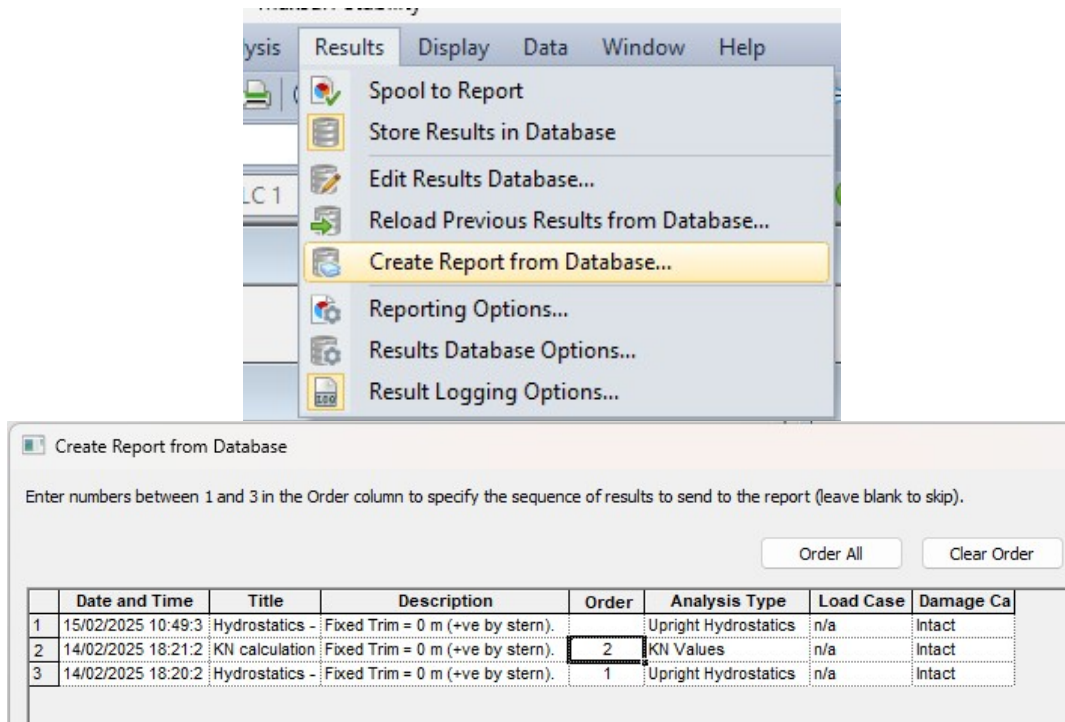
Direct reporting is simply sending the results of each analysis to the report immediately after the analysis had completed. You can use the button on the Results toolbar to toggle sending the results to the report if needed.



Use the "Spool to report" toolbar button to select which analyses are added to the report (do this before starting the analysis, or before a long analysis completes)

Indirect Reporting

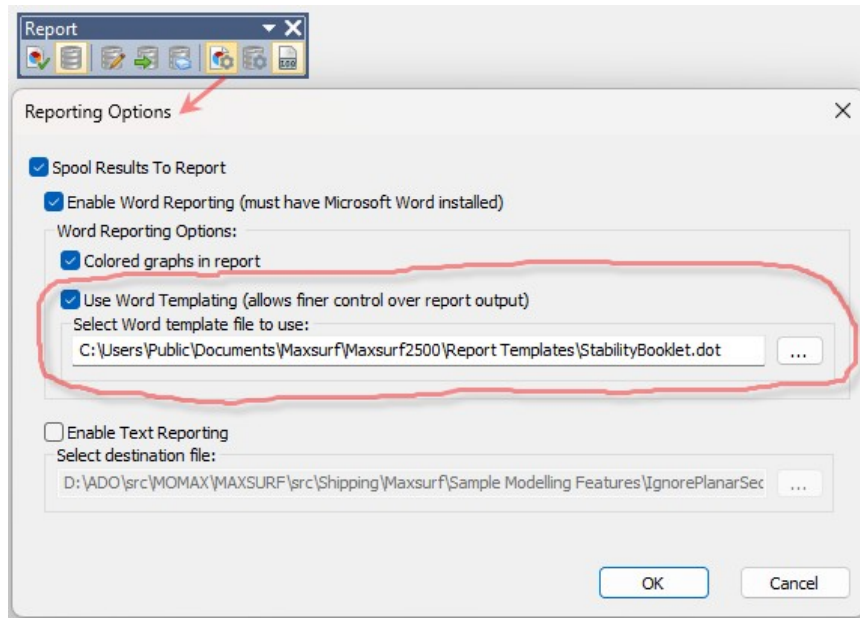
If you have results stored in the results SQLite database these can be sent to a report at any time. The table and graph format settings may be changed to produce the report in the desired format. Select the "Create Report from Database" dialog from the Results menu. In the dialog select which results should be included in the report and in which order; to omit a results set from the report, leave the "Order" cell blank.



Creating a report from results stored in the SQLite database

Report Templates

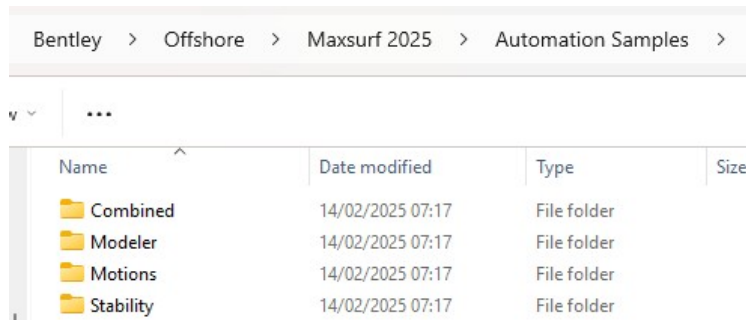
When reporting to Microsoft Word it is possible to set up a Microsoft Word document template which specifies which data tables and graphs should be included for each type of analysis. Essentially a set of tags are used to determine which objects should be included the report. Please refer to the Maxsurf Stability manual, "Reporting Tags" section on page 251 for full details.



Select the Microsoft Word template document to be used in the Reporting Options dialog

Automated Reporting

Using the Maxsurf Stability automation API in a script offers the most control over report production and formatting. Python has been found to be a convenient language because it offers libraries for creating both Microsoft Word and Excel documents, for example "xlsxwriter". Using the automation API, analyses can be set up and performed in Maxsurf Stability under the control of the Python script and the results then sent to Microsoft Word and Excel as desired. There are some automation samples shipped with Maxsurf which can be useful for getting started.



Automation samples shipped with Maxsurf