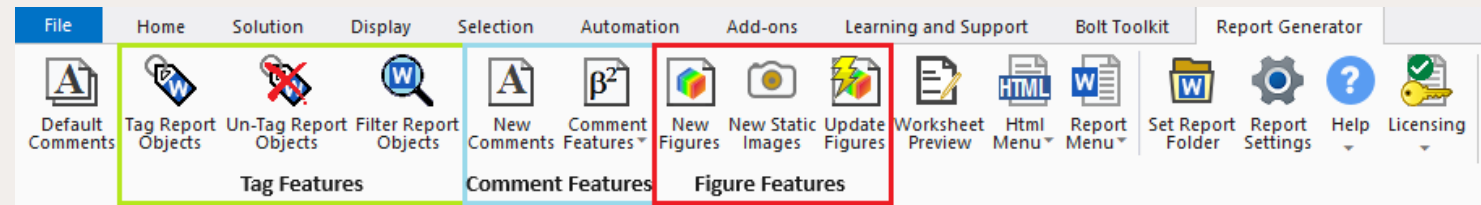




EDRMedeso Report Generator

Ansys Mechanical 2024 R1

Report Generator

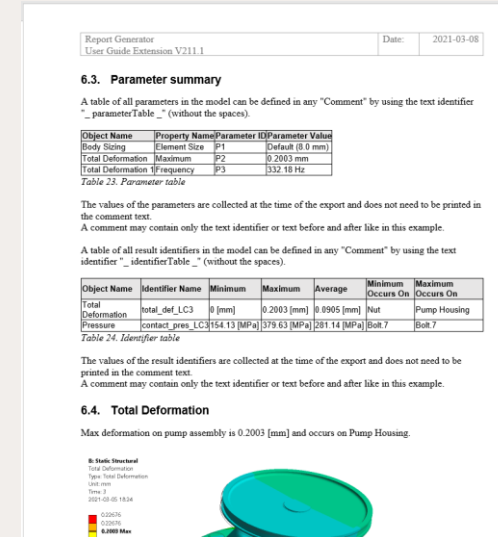
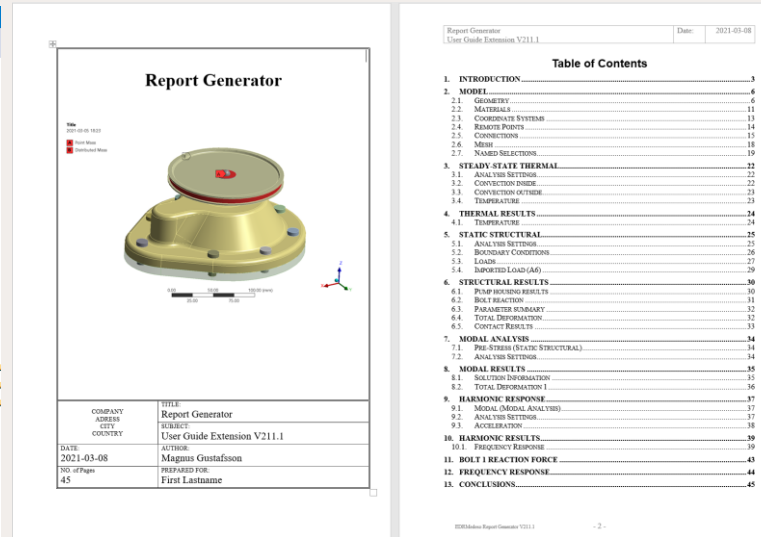
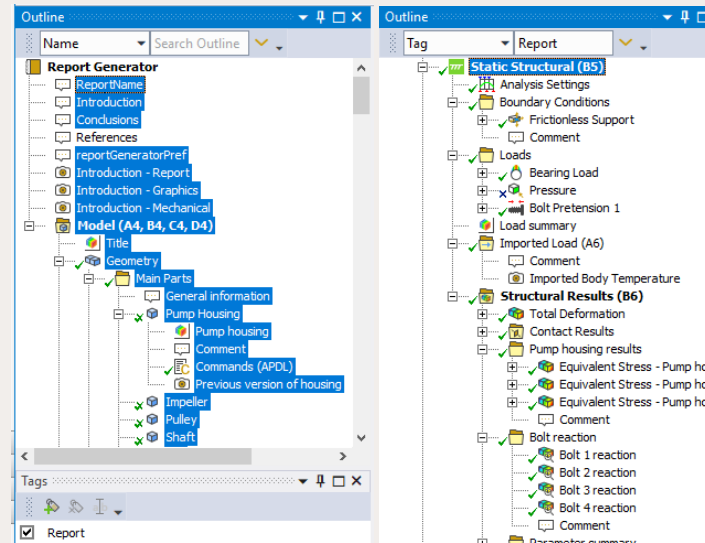


- **Main Features:**

- Automation of report creation in Mechanical saved as Microsoft Word with full language support.
- Update the report instantly to reflect e.g. new mesh, loads, results parameter tables etc.
- Multi-object creation of Figures or conversion of Figures to static Images. Greek symbols and text formatting.

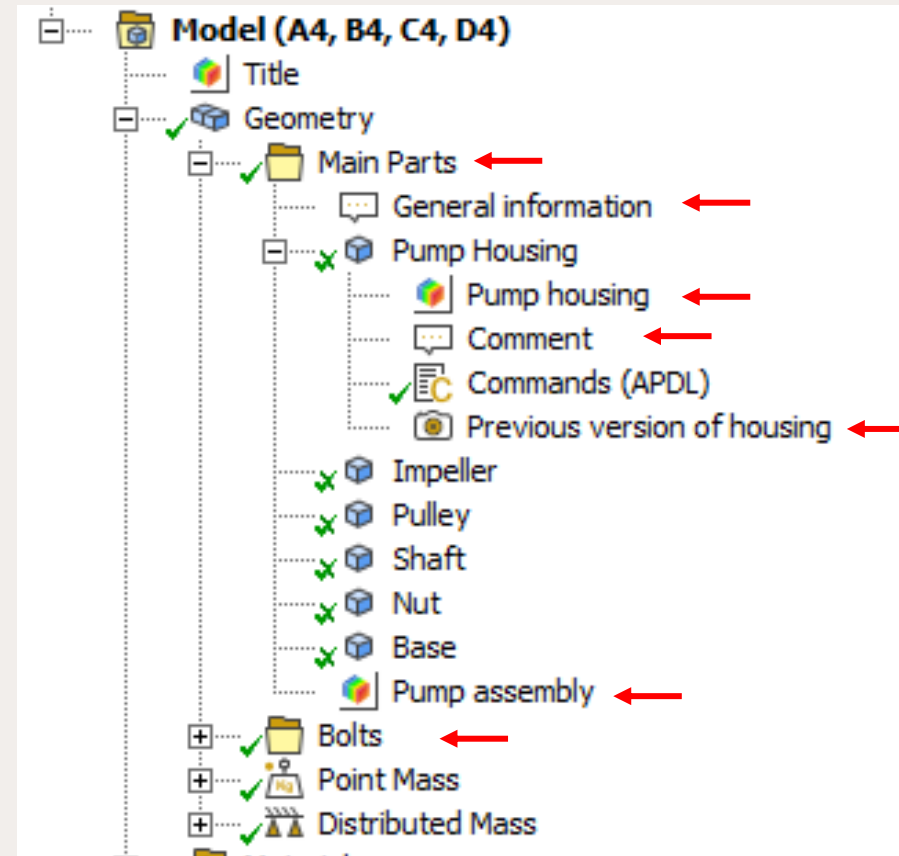
- **Business Value:**

- Ansys unique integrated and tailored reporting. Easy to select and add report content.
- Customer versions and translations can be created, Word template, layout features, naming of objects etc.
- Report is a true image of the analysis, good for 3rd party review or to set up a similar model.



Report Process

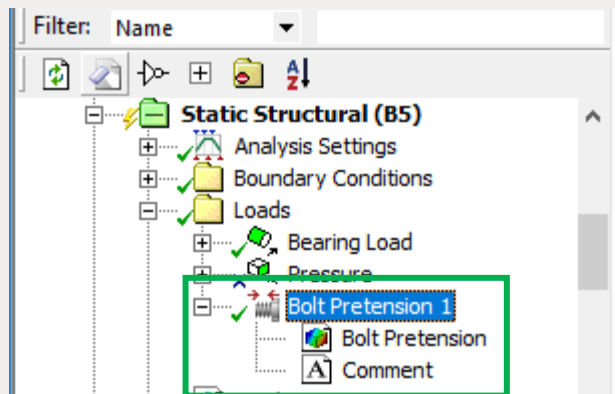
- Traditional report writing starts when the analysis is done, and results are delivered. This way of working requires a lot of work to obtain all information and manage images tables etc.
- Report writing using the *Report Generator* starts at the same time as you prepare the model for solution. Report Generator is using native features in Mechanical when creating the report such as *Comments, Figures, Images, Tags* and *Groups*.
- The enhanced report process also lets you edit the report draft in Microsoft Word and then automatically sync the changes back to Mechanical.



Add text comment



- Adding information about objects in the model tree using *Comments* makes it easy to understand why e.g. a load is used and where the value is coming from.
- The comment text is shown below the heading of the object it is created in.
- The text can be formatted and tables of data from e.g. Word can be pasted into the comment.



Report Generator
User Guide Extension V211.1

Date: 2021-03-08

5.3.2. Bolt Pretension 1

The same bolt pretension is applied to all eight bolts.

B: Static Structural
Bolt Pretension
Time: 3. s
2021-03-05 18:24

■ Bolt Pretension 1: Lock

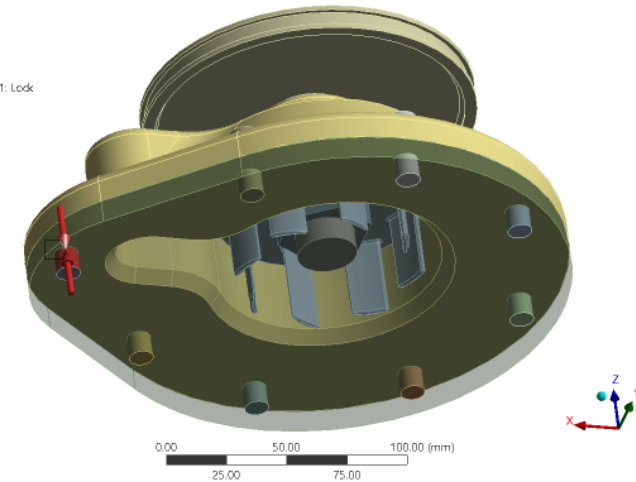


Figure 27. Bolt Pretension

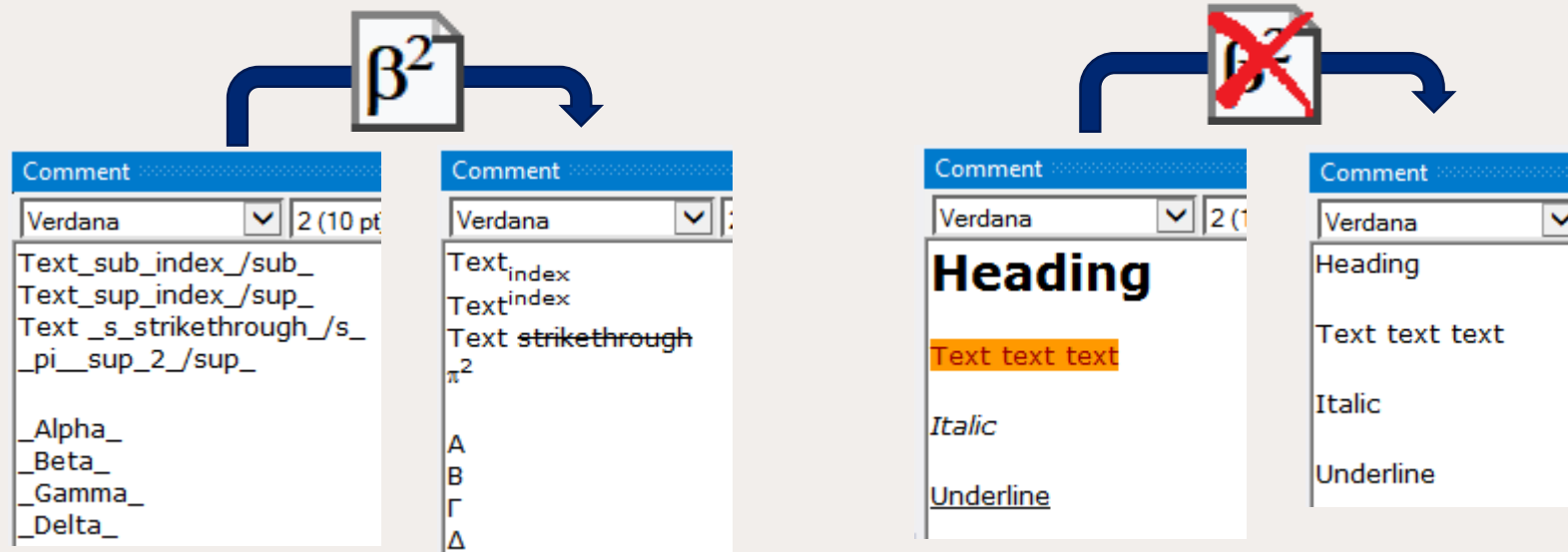
Step	Define By	Preload [N]	Preadjustment [mm]	Increment [mm]
1	Load	2.0000e+04	N/A	N/A
2	Lock	N/A	N/A	N/A
3	Lock	N/A	N/A	N/A

Table 21. Bolt Pretension 1

Format Comments, Erase Formats



- Custom formatting including subscript, superscript, strikethrough and Greek letters can be created using the button “Format Comments”.
- All Html text formatting can be erased using the button “Erase Formats”. This is useful if pasting in formatted text from Word or other editors.



A : _Alpha_	α : _alpha_
B : _Beta_	β : _beta_
Γ : _Gamma_	γ : _gamma_
Δ : _Delta_	δ : _delta_
E : _Epsilon_	ε : _epsilon_
Z : _Zeta_	ζ : _zeta_
H : _Eta_	η : _eta_
Θ : _Theta_	θ : _theta_
I : _Iota_	ι : _iota_
K : _Kappa_	κ : _kappa_
Λ : _Lambda_	λ : _lambda_
M : _Mu_	μ : _mu_
N : _Nu_	ν : _nu_
Ξ : _Xi_	ξ : _xi_
O : _Omicron_	ο : _omicron_
Π : _Pi_	π : _pi_
P : _Rho_	ρ : _rho_
Σ : _Sigma_	σ : _sigma_
T : _Tau_	τ : _tau_
Υ : _Upsilon_	υ : _upsilon_
Φ : _Phi_	φ : _phi_
X : _Chi_	χ : _chi_
Ψ : _Psi_	ψ : _psi_
Ω : _Omega_	ω : _omega_

Parameter Table



- A Parameter Table of all used parameters can be added in any text *Comment* anywhere in the model tree.
- Individual parameters may be used in the text as well, see next page.

Comment

Arial 1 (8 pt) B I U

A table of all parameters in the model can be defined in any "Comment" by using the text identifier "_parameterTable_" (without the spaces).

parameterTable

The values of the parameters are collected at the time of the export and does not need to be printed in the comment text. A comment may contain only the text identifier or text before and after like in this example.

ID	Parameter Name	Value
Input Parameters		
Steady-State Thermal (A1)		
P1	Body Sizing Element Size	0
New input parameter	New name	New expression
Output Parameters		
Static Structural (B1)		
P2	Total Deformation Maximum	0.20037
Modal (C1)		
P3	Total Deformation 1 Reported Frequency	332.18
New output parameter		New expression

6.3. Parameter summary

A table of all parameters in the model can be defined in any "Comment" by using the text identifier "_parameterTable_" (without the spaces).

Object Name	Property Name	Parameter ID	Parameter Value
Body Sizing	Element Size	P1	Default (8.0 mm)
Total Deformation	Maximum	P2	0.20037 mm
Total Deformation 1	Frequency	P3	332.18 Hz

Table 23. Parameter table

The values of the parameters are collected at the time of the export and does not need to be printed in the comment text.

A comment may contain only the text identifier or text before and after like in this example.

Parameter values in comments

- Any parameter value can be referenced to in a text comment by using the parameter ID name.
- The object and property name is also available to insert.
- A results “identifier” name can also be used in text comments to print the “min”, “max” or “average” value.

Comment

Arial 1 (8 pt) B I U

Any defined parameter value can be referenced to in any "Comment" text by using the parameter ID identifier, e.g. "_ P1_" (without the spaces). Open the "Parameter Set" on Workbench project page to find the the parameter ID to use. The object "Name", object "Property" and object "Value" are also available to use.

The body sizing parameter value is _P1_.

The P1(Name) property name P1(Property) value is P1(Value).

2.6. Mesh

Any defined parameter value can be referenced to in any "Comment" text by using the parameter ID identifier, e.g. "_ P1_" (without the spaces). Open the "Parameter Set" on Workbench project page to find the the parameter ID to use. The object "Name", object "Property" and object "Value" are also available to use.

The body sizing parameter value is Default (8.0 mm).

The Body Sizing property name Element Size value is Default (8.0 mm).

Details of "Body Sizing" - Sizing

Scope	
Scoping Method	Geometry Selection
Geometry	9 Bodies
Definition	
Suppressed	No
Type	Element Size
P Element Size	Default (8.0 mm)
Advanced	
<input type="checkbox"/> Defeature Size	Default (1.0 mm)
<input type="checkbox"/> Growth Rate	Default (1.8)
Capture Curvature	Yes
<input type="checkbox"/> Curvature Normal Angle	30.0°
<input type="checkbox"/> Local Min Size	Default (2.0 mm)
Capture Proximity	No

Add Figures and Images



- Add figures to objects, loads or results to include in the report. Set the view and contour for each figure independent. The figure name is used for the figure caption in the report.
- Figure export settings are defined in the “Graphics” and “Report” sections of Mechanical preferences, and this will make all *Figures* have the same size and quality independent of the Mechanical window size.
- Static *Images* of any kind can be added, e.g. to compare a result with a previous solution.

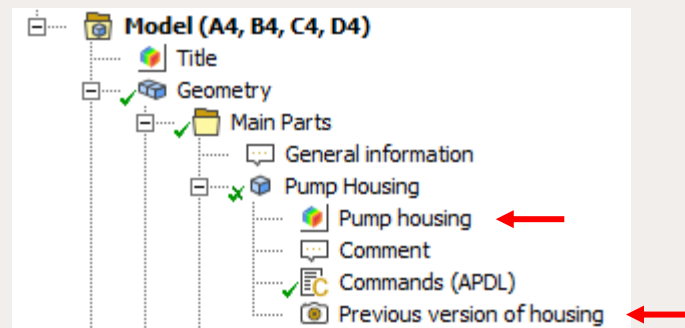
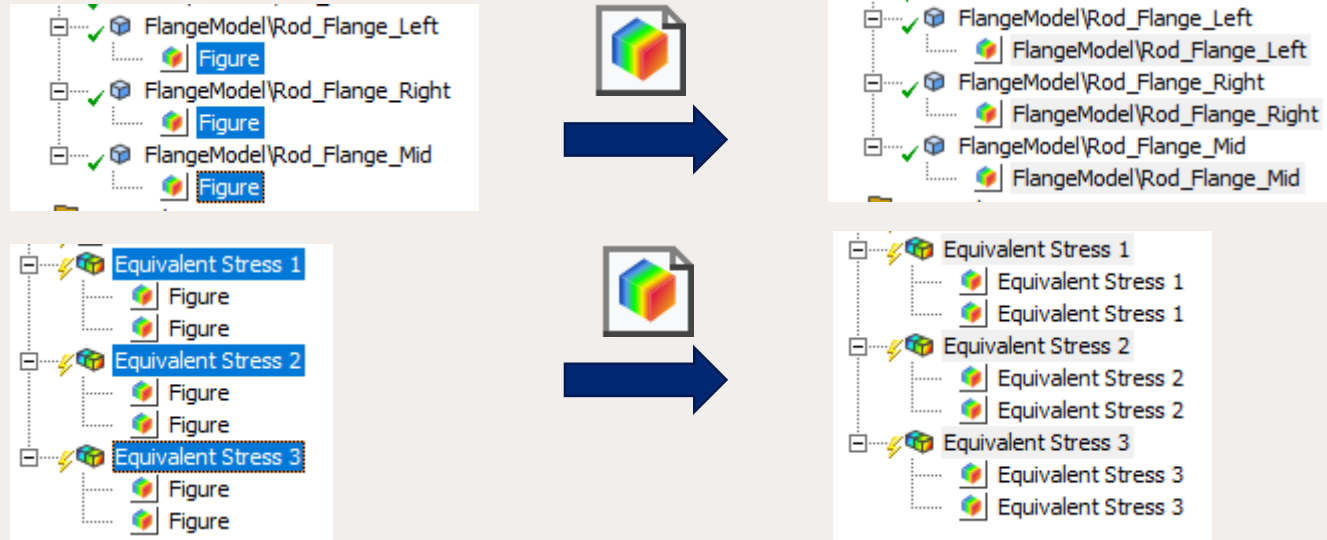


Figure Features

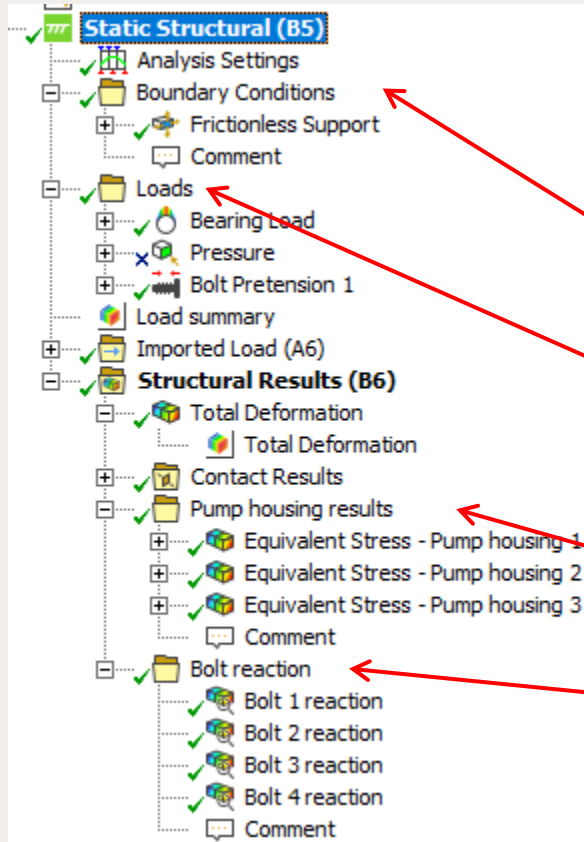


- Existing *Figures* and *Images* may be renamed based on the parent object name by selecting the objects in the tree and click “New Figures”.
- It is also possible to select the parent objects to rename all corresponding *Figure* (or *Image*) childrens.
- This feature is useful if duplicating and renaming objects such as loads or results.



Disposition

Grouping of objects may be used to define a disposition in the report with subheadings. Create groups in the order you want the sections in the report, see example below.



Report Generator User Guide Extension V211.1	Date:	2021-03-08
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Worksheet Preview



- The “Worksheet Preview” displays all details of an object including the result summary tables as it will look in the report in the “Worksheet” window.
- This feature is useful to look at the design values and different result items in the summary tables of a **bolt** or **weld** result or to see advanced formatting using text identifiers for parameters etc.

Comment Preview

A table of all result identifiers in the model can be defined in any "Comment" by using the text identifier "_ identifierTable_" (without the spaces).

Table 1. Identifier Table

Object Name	Identifier Name	Minimum	Maximum	Average	Minimum Occurs On	Maximum Occurs On
Total Deformation	total_def_LC3	0 [mm]	0.2003 [mm]	0.0909 [mm]	Base	Pump Housing
Pressure	contact_pres_LC3	154.13 [MPa]	379.64 [MPa]	281.14 [MPa]	Bolt.7	Bolt.7

The values of the result identifiers are collected at the time of the export and does not need to be printed in the comment text.
A comment may contain only the text identifier or text before and after like in this example.

Geometry [Worksheet](#)

Comment

Arial 1 (8 pt) **B** *I* U

A table of all result identifiers in the model can be defined in any "Comment" by using the text identifier "_ identifierTable_" (without the spaces).

_ identifierTable_

The values of the result identifiers are collected at the time of the export and does not need to be printed in the comment text.
A comment may contain only the text identifier or text before and after like in this example.

Advanced (184) Uf_tension Preview

Table 1. Advanced (184) Uf_tension property list

Result Name	Advanced (184) Uf_tension		
Bolt Geometry			
Bolt Group	Advanced nut (184)		
Nominal Diameter, d	12.0 mm	Nominal Diameter Length	30.0 mm
Stress Diameter, d_s	12.0 mm		
Head Diameter, d_m	22.5 mm	Hole Diameter, d_o	14.0 mm
Bolt Evaluation			
Bolt Code	Eurocode 3	Bolt material class	8.8
Bolt yield strength, f_{yb}	640.0 MPa	Bolt ultimate strength, f_{ub}	800.0 MPa
Design bolt preload, $F_{p,Cd}$	57577.0 N	Applied Pretension Force, F_p	42865.0 N
Connection Category	E preloaded	Cut thread comply with EN 1090, k_{tV}	1.0 (Yes)
Plate ultimate strength, f_u	400.0 MPa	Plate thickness, t_p	20.0 mm
Safety factor, γ_{M2}	1.25		
Countersunk bolt	No	Countersunk bolt factor, k_2	0.9
Design tension resistance, $F_{t,Rd}$	65144.0 N	Design punching resistance, $B_{p,Rd}$	271434.0 N
Bolt Result Item	$Uf_{tension}$		
Result averaging	Individual	Result Location	Mid
Definition By	Time	Display Time	5.0

Table 2. Advanced (184) Uf_tension Results summary

Bolt Id	F_n [kN]	F_v [kN]	M_b [Nm]	δ_{Adj} [mm]	P_{head} [MPa]	F_s [kN]	F_c [kN]
1	40.133	0.152	3.243	2.936e-01	164.7	0.314	35.594
2	40.140	0.122	2.602	2.938e-01	164.7	0.415	35.927

Table 3. Advanced (184) Uf_tension Results summary

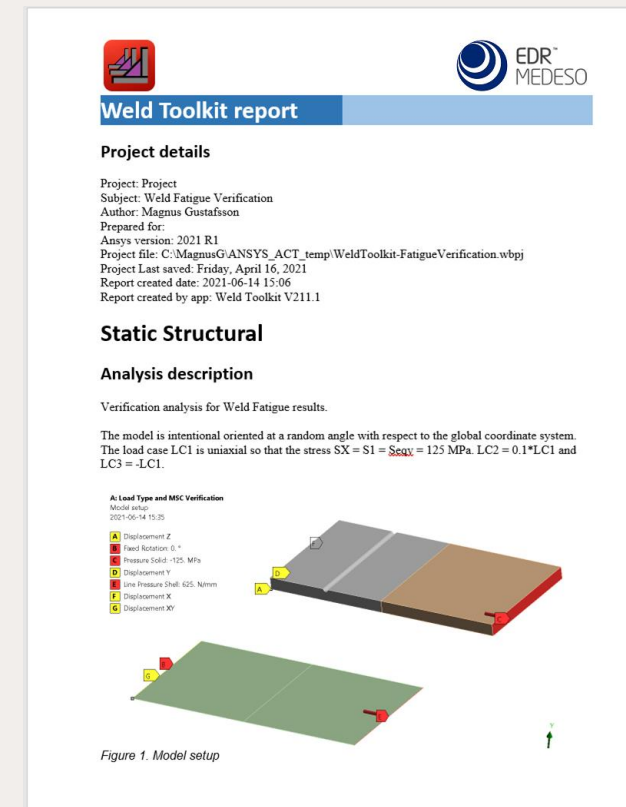
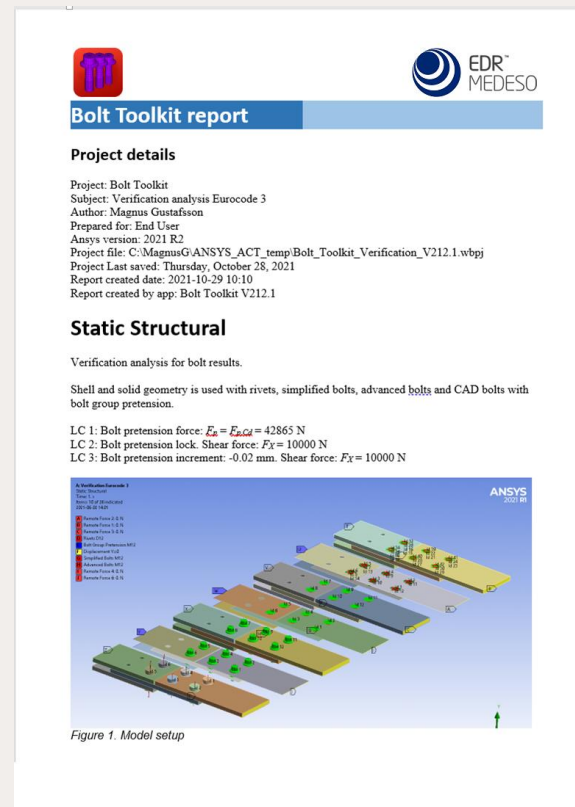
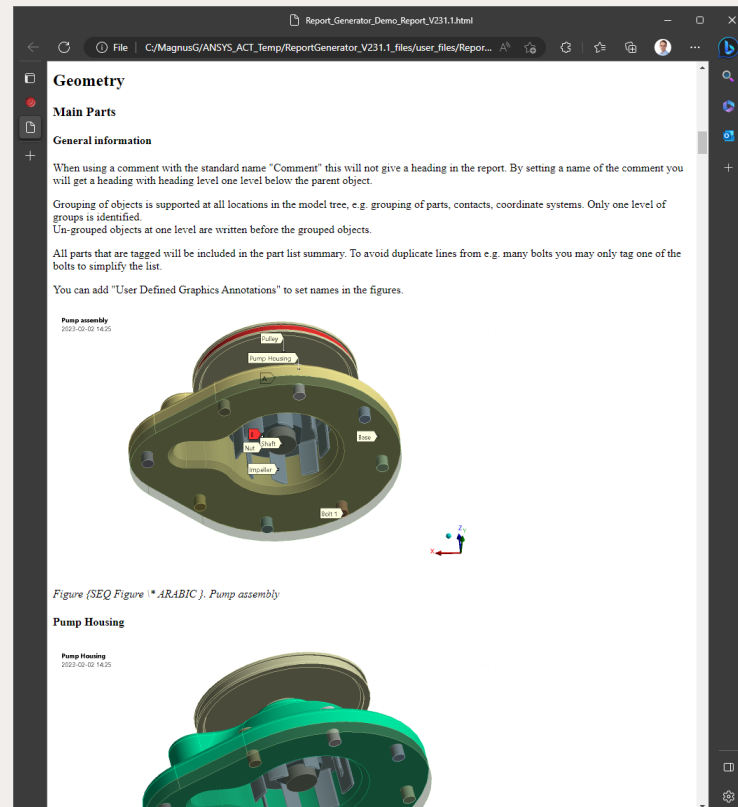
Bolt Id	$F_{t,Ed}$ [kN]	$F_{v,Ed}$ [kN]	Uf_{max}	$Uf_{tension}$	Uf_{punch}
1	40.133	0.314	0.616	0.616	0.148
2	40.140	0.415	0.616	0.616	0.148

Geometry [Worksheet](#)

Html Report



- The report can be exported as a html document.
- Bolt Toolkit and Weld Toolkit automatic html reports can also be created.



Edit Draft Report



- The report writing process is enhanced by the “Edit Draft Report” that lets you edit, add new text, check grammar and spelling in Microsoft Word.
- The changes are then automatically synced back to Mechanical using the “Refresh Model from Draft”.

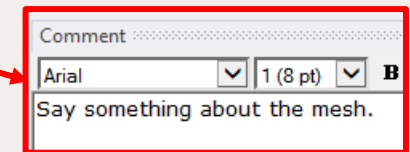
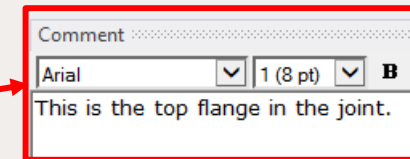
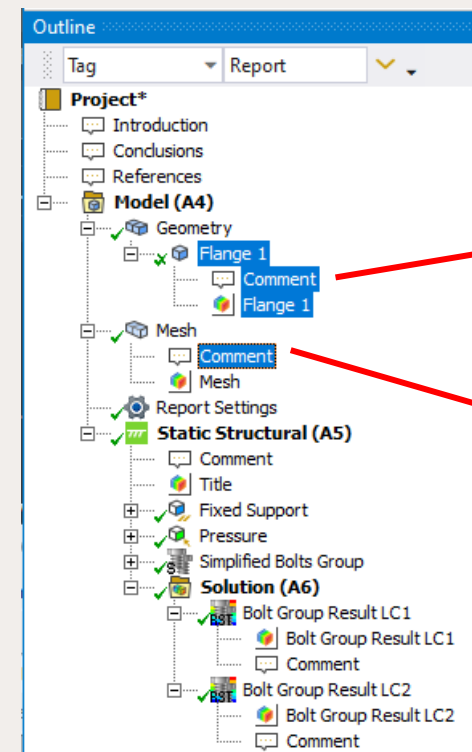
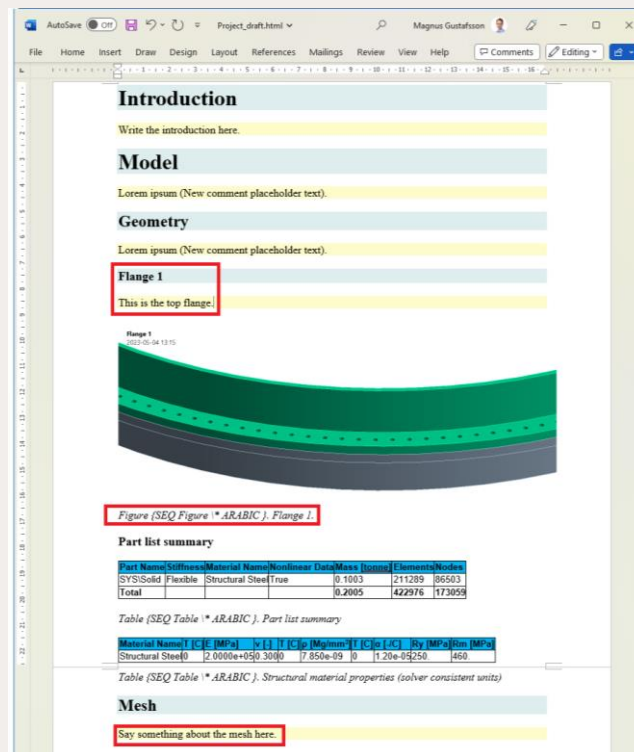
The screenshot displays the software interface for editing a draft report. It is divided into four main sections:

- Outline (Left):** A tree view showing the report structure. Key sections include Project*, Introduction, Conclusions, References, Model (A4), Geometry, SYS\Solid, SYS\Solid, Comment, Mesh, Comment, Mesh, Report Settings, Static Structural (A5), Comment, Title, Fixed Support, Pressure, Simplified Bolts Group, Solution (A6), Bolt Group Result 1, Bolt Group Result 1, Comment, Bolt Group Result 2, Bolt Group Result 2, Comment.
- Microsoft Word (Middle):** The 'Edit Draft Report' window showing the report content. The 'Introduction' section contains the text 'Write the introduction here.' The 'Model' section contains 'Lorem ipsum (New comment placeholder text.)'. The 'Geometry' section contains 'Lorem ipsum (New comment placeholder text.)' and a red box around the 'Flange 1' section with the text 'This is the top flange.' Below the text is a 3D model of a curved flange.
- Outline (Right):** The 'Outline' view after the changes are synced back to Mechanical. The 'Flange 1' section is highlighted in blue, and a 'Comment' icon is visible next to it. The 'Solution (A6)' section now shows 'Bolt Group Result LC1', 'Bolt Group Result LC1', 'Comment', 'Bolt Group Result LC2', and 'Bolt Group Result LC2'.

Refresh Model from Draft



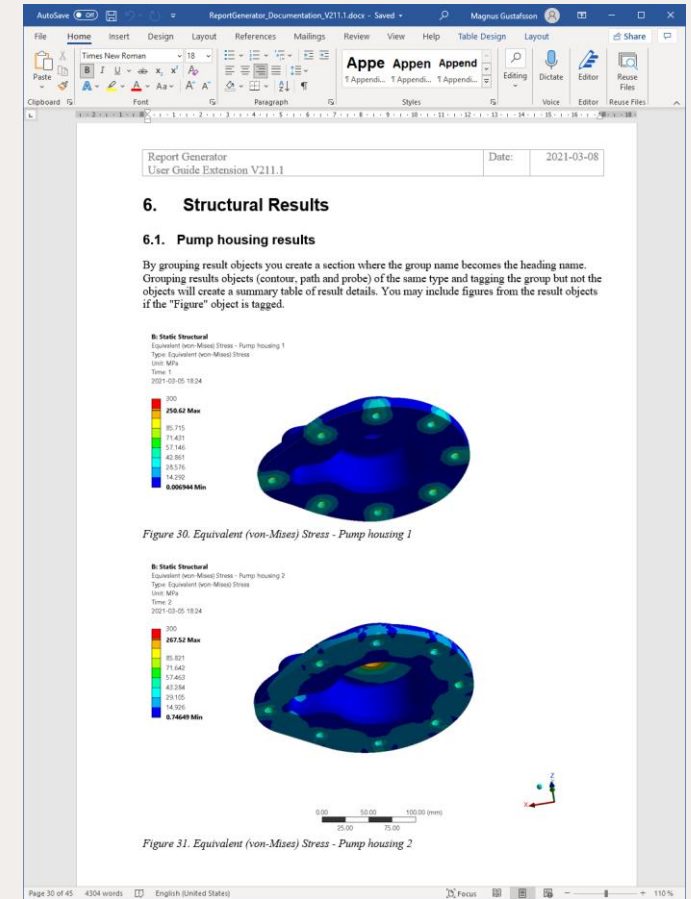
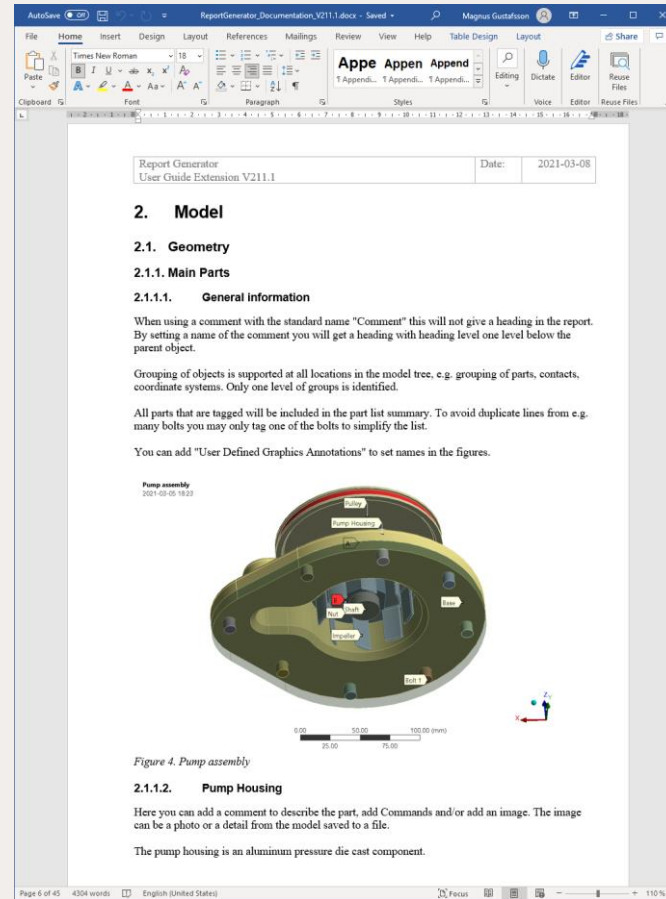
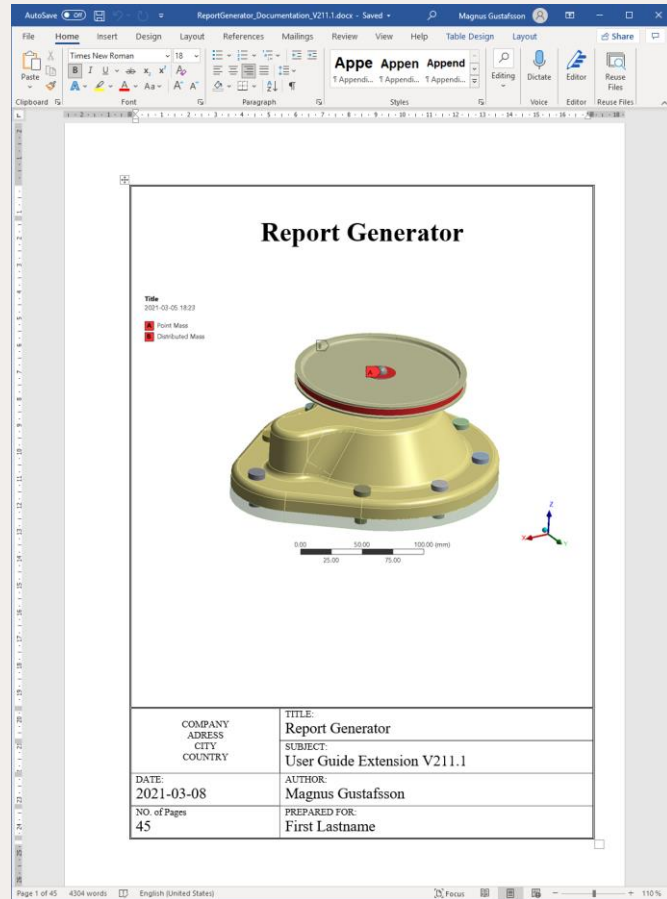
- It is possible to open the html report draft from the projects “user_files” for “off-line” editing.
- Changes in the html report draft can be synced back to Mechanical and this allows for adding more content and export the report without losing the previous updates.



Create Report



- The report is exported and saved in your company Word template and can be further edited if needed.



Batch Report



- The report can be exported in batch when solving a project on Windows.
- This is useful if running a design point study to compare result plots etc. without needing to retain all design points.
- Charts and Tabular data is currently not supported due to limitations in Ansys.

Update Project | Resume | **Update All Design Points**

Project Schematic

- 1 Static Structural
- 2 Engineering Data ✓
- 3 Geometry ✓
- 4 Model ✓
- 5 Setup ✓
- 6 Solution ✓
- 7 Results ✓
- 8 Parameters

Parameter Set

	A	B	C	D
1	Name	P1 - Force Y Component	P2 - Equivalent Stress Maximum	Retain
2	Units	N	MPa	
3	DP 0 (Current)	-1000	1131.7	<input checked="" type="checkbox"/>
4	DP 1	-1500	1697.5	<input type="checkbox"/>
5	DP 2	-2000	2263.3	<input type="checkbox"/>

ReportGenBatch_files > user_files >

- dp0
- dp1
- dp2**

user_files > dp2 >

- ReportGenBatch_images
- ReportGenBatch.html

Project*

- ReportName
- Introduction
- Conclusions
- References
- reportGeneratorPref
- Model (A4)
 - Geometry Imports
 - Geometry
 - Materials
 - Coordinate Systems
 - Mesh
- Static Structural (A5)
 - Analysis Settings
 - Title
 - Fixed Support
 - Force
- Solution (A6)
 - Solution Information
 - Equivalent Stress
 - Batch Report**

Details of "Batch Report"

Definition	
Export Report in Batch	Yes
Report Format	Html

Report Settings



- The *Report Generator* has a new easy to use “Report Settings” object to customize your report creation.
- Changes made can be saved as new app default values.

Outline

Name Search Outline

- Project*
 - Model (A4)
 - Geometry Imports
 - Geometry
 - Materials
 - Coordinate Systems
 - Connections
 - Mesh
 - Named Selections
 - Report Settings
 - Static Structural (A5)

Details of "Report Settings"

Project Details

Project Title	Project
Project Subject	Project subtitle
Document ID	Document ID
Document Revision	0
Item Number	Item Number 123456
Author	Author Name
Reviewer	Reviewer Name
Prepared for	Customer Name
Edit Project Details	Yes
Enable Document ID	Yes
Enable Document Revision	Yes
Enable Item Number	Yes
Enable Reviewer	Yes

Word Report Settings

Report Name	Project.docx
Report Path	user_files
Overwrite Report	No
Word Template	ReportGenerator.dotm
Use Word Template Font	Yes
Get Parameters	Yes

Automatic Summary Tables

Geometry Summary	Yes
Materials summary	Yes
Connections Summary	Yes
Mesh Settings Summary	Yes
Solution Information Summary	Yes
Result Details Summary	Yes
Probe Details Summary	Yes
ACT Load Summary	Yes
ACT Result Summary	Yes
Reference Summary	Yes
Result Tabular Data	Yes
Probe Tabular Data	Yes
Chart Tabular Data	Yes

Font Style Settings

Heading Font	Calibri
Paragraph Font	Times New Roman
Commands Font	Courier New 10pt

Table Style Settings

Table Align	Default
Cell Align	Default
Table Headerline Colour	Light-Blue
Table Headerline Bold	Yes
Table Style	Border 1
Table Font	Arial 10pt

Caption Style Settings

Caption Align	Default
Caption Style	Italic
Caption Font	Arial 12pt
Caption only from Figure text	No
Table Caption Location	Bottom

Image Export Settings

Use Current Display	No
Graphics Resolution	Enhanced Print Quality (2:1)
Capture	Image and Legend
Background	White
Font Magnification Factor	1
Graphics Width	640
Graphics Height	400
Chart Width	640
Chart Height	400

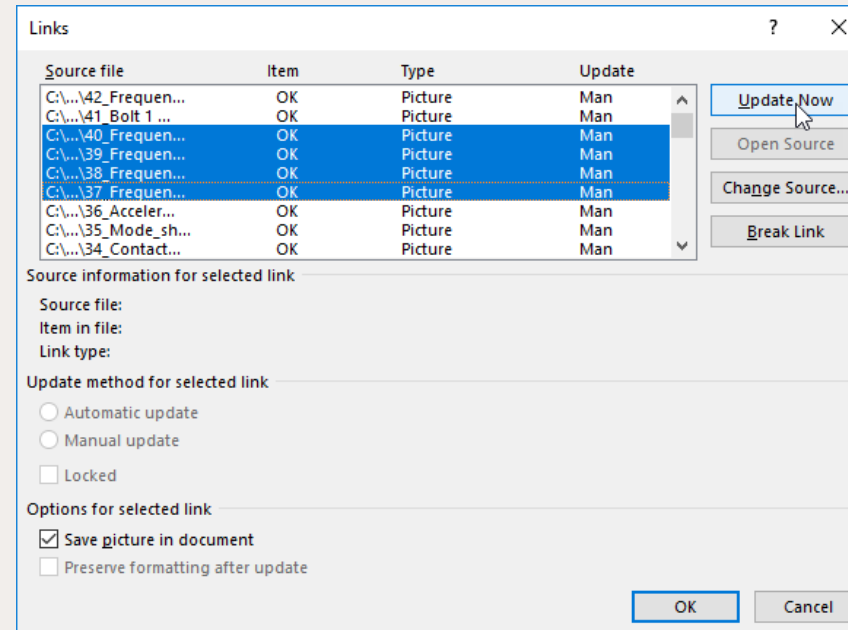
Report Layout Settings

Default Comments	Tabular Data
Model Objects	Tabular Data

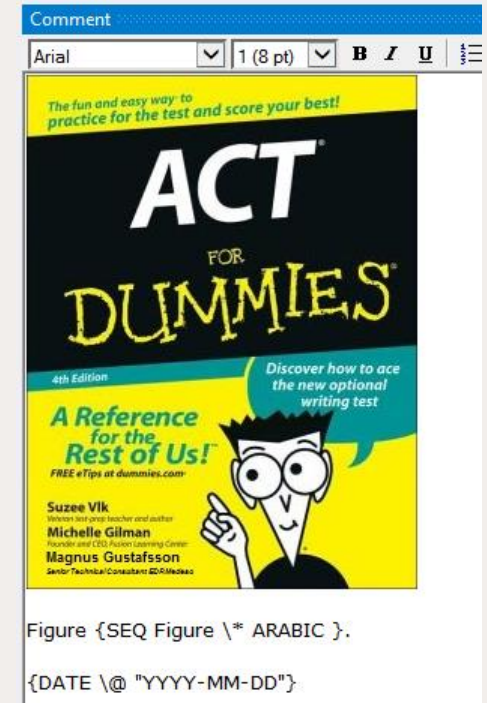
Additional Features



- Update figures in Word
- Add appendices
- Select Word template to use
- Add Word fields
- Workbench language support
- Workbench journaling



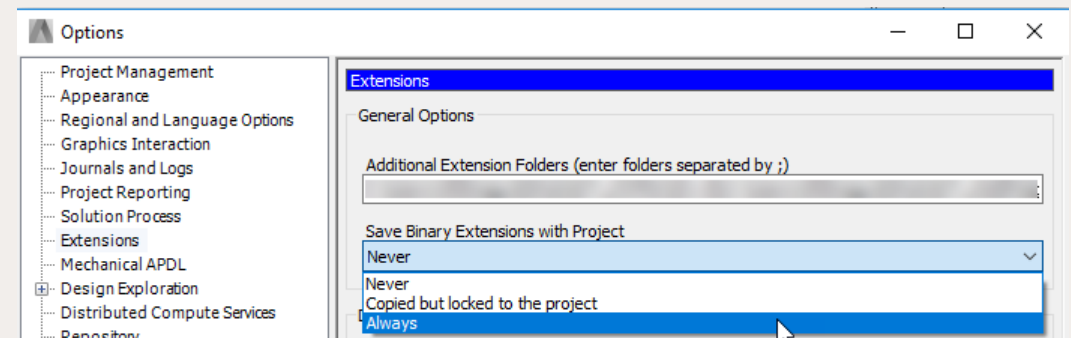
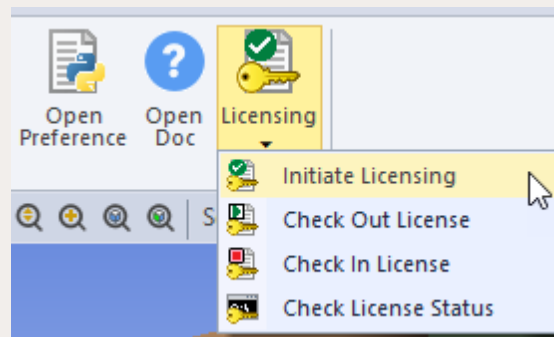
```
system1 = GetSystem(Name="SYS-2")
model1 = system1.GetContainer(ComponentName="Model")
model1.Edit()
reportName = "'myReport.docx'"
commandText = "[i-for i-in ExtAPI.DataModel.Project.Comments-if i.Name == 'ReportName'] [0].Text = " + reportName
model1.SendCommand(Language='Python', Command=commandText)
model1.SendCommand(Language='Python', Command='exportReport(None)', ExtensionName='Report-Generator')
model1.Exit()
```



EDRMedeso licensing features



- You may open a Workbench project without the app license being checked out.
- You may also open Mechanical without the app license being checked out. (This allows the model to be shared with people without access to the app or license. Just make sure to “*Save Binary Extension with Project*”, see “*WB>Tools>Options...>Extensions*” below.)
- You may activate the app license to reserve it for your continuous use. “*Check Out License*”
- You may release the app license from the current Mechanical session to use it in another session within the same project or a different project or by a different user. “*Check In License*”
- You may check the status of available licenses and who is using the license. “*Check License Status*”
- The app license is automatically checked out when evaluating a feature during solve or post processing.
- If the license is not available a warning message is displayed in Mechanical.



Thank You!

Magnus Gustafsson

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