

Siemens PLM Software

HEEDS MDO 2019.1 Release Notes

www.siemens.com/heeds



Welcome!

The release of HEEDS 2019.1 is full of new features and upgrades to further improve your experience.

The new version of HEEDS offers more options for implementation of complex variable relationships that allow you to simplify the definition of study relationships. To help you get more information from the study data, HEEDS Post now provides the Boruta method to evaluate sensitivities. Users can leverage Rescale cloud computing in new and improved ways to discover design insights quicker and earlier in the design process to save time and money.

HEEDS 2019.1 is packed with great enhancements that continue to streamline design space exploration through improved results, processing, and automated analysis tools.

We hope these updates will help you to continue to drive innovation and discover better designs, faster!

Please reach out to us for any questions:

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www.siemens.com/heeds

—The HEEDS Design Exploration Team

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RELEASE HIGHLIGHTS

We're constantly listening to our customer needs and requests and we've further improved HEEDS with many new features and updates to meet these needs. All the enhancements and fixes we've made increase usability, connectivity and productivity to put the user more and more in control of the design process and analysis of the results.

NEW PORTAL MESSAGING DEBUGGING

A new debugging feature was added to HEEDS portals in this release to better support the user through improved messages when something unexpected happens with the simulation tool driven by a HEEDS portal. Output messages can now be searched for specific strings and classified as error, warnings or notes [→](#)

MORE OPTIONS FOR STUDY RELATIONSHIPS

The new Study Relationships feature introduced in HEEDS 2018.10 was extended and further improved and polished with the introduction of inequality relationships. This expands significantly the application field of study relationships and allows a much higher degree of flexibility in their definition [→](#)

NEW BORUTA DESIGN SENSITIVITIES

The Boruta design sensitivities analysis method is now available to quickly identify the most significant parameters for that problem based on the study data selected. This is available for all study types (DOE, parametric optimization...), thus providing the user with an extra cutting-edge tool to gain insights in the key variables of the design. [→](#)

NEW CUSTOM PLOT COLOR OPTIONS

Based on several enhancement requests to allow customization of contour color options, we've now introduced two major usability enhancements. Firstly, you can select alternative color mappings for color plots and contours and secondly, you can customize the values associated to min and max colors. [→](#)

CUSTOMIZATION OF CONDITION AND COMMAND FOLDERS

Customers have been using HEEDS processes with many different and heterogeneous applications, with a high degree of flexibility. We're now extending this flexibility by giving the user control over the location for running the run/pre/post analysis commands as well as conditions. [→](#)

NEW SUPPORT FOR RESCALE LICENSE TYPES

Access to the cloud resources provided by Rescale has never been easier. We've further enhanced the Rescale cluster UI to support on-demand licensing for analysis software. [→](#)

UNRIVALED USABILITY



NEW PORTAL MESSAGING DEBUGGING

A new debugging feature was added to HEEDS portals in this release. Output messages written by the analysis application are searched for specific text strings at the end of each design. If a search string is found and the string is classified as an error, the design is marked as an error. Messages can also be classified as warnings or notes. In these cases, the design will not be marked as an error.

This feature is driven by two new XML files that are included in the installation. An initial set of search strings are provided in this release for the following portals: Abaqus, Abaqus CAE, ANSA, ANSYS-WB, CATIA, LS-DYNA, FEMAP, FloEFD, NASTRAN, NX CAD, Samcef, Simcenter3D, Simcenter3D Motion and STAR-CCM+. These will be augmented as our database of application errors increases. If you would like to include additional strings that should be searched for, you can report these to our HEEDS Support team and they will make sure these are added in a future release or assist you in adding the strings to your current version of HEEDS.

This image shows how the Run tab messages window appears when errors are found by this new feature.

The screenshot displays a messages window with several entries. Red boxes highlight specific parts of the window, and red arrows point to explanatory text on the right.

- Informational header:** A box containing "5 messages were found by the Nastran portal after analysis execution." is annotated with: "An informational summary header is shown with the total number of messages to follow. In this case, 5."
- File link:** A box containing "The following 2 messages were produced by the contents of file: [Nastran_Errors.f06](#)" is annotated with: "The number of messages found in each file and a link to the file is given."
- Error messages:** Two boxes containing error details (e.g., "A Nastran solver error occurred.") are annotated with: "HEEDS interpretation of the message and a possible resolution is given for each message found in the file."
- Final error:** A box containing "Portal reports analysis failure. Setting analysis status to error." is annotated with: "If an error message was found, the solver will give this message."



INEQUALITY OPTIONS FOR STUDY RELATIONSHIPS

We've extended the study relationship feature introduced in the previous release, by allowing the user to define the study relationship sum of variables to be $<$, $<=$, $=$, $>=$, or $>$ the desired target value.

The selected variables should have a sum =

☒ A fixed value:

Minimum: 39
Maximum: 43

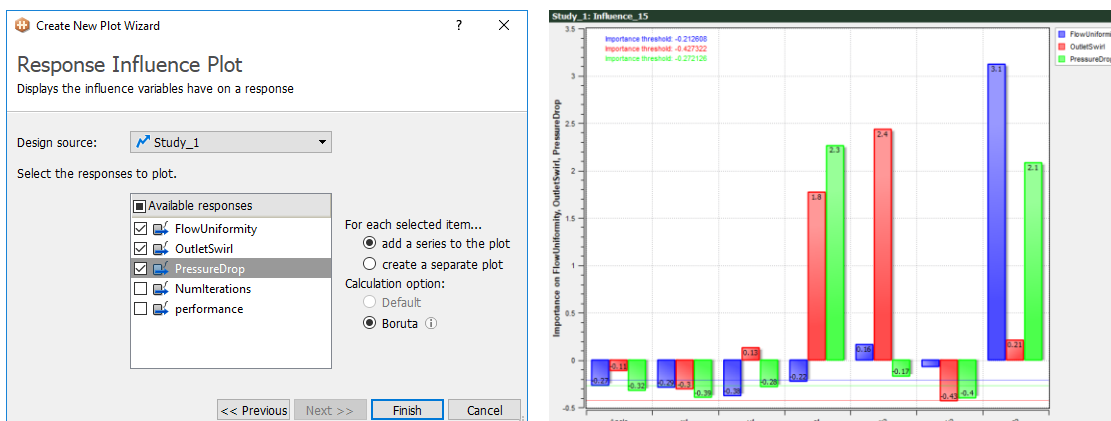
☐ A variable's value: ⓘ

Key benefits:

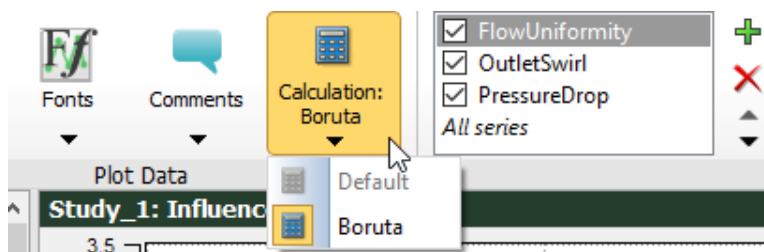
- Increased flexibility in the study relationship feature
- Easier implementation of complex variable relationships

NEW BORUTA DESIGN SENSITIVITIES

The Response Influence Plot now has a new option to choose between default (DOE) and the new Boruta calculation options. This adds a new method for determining how much each design variable affects responses, which allows the response influence plot to be available for any study type, not just DOE studies. The DOE studies will have both options available, while the other study types will only allow the influence plot to be based on the Boruta calculations. Once the Boruta option is selected, HEEDS|POST will compute and display importance values for each design and dependent variable.



Additionally, the Plot tab now includes Calculation control:

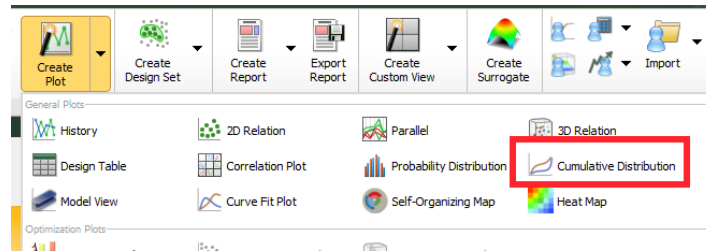


Key benefits:

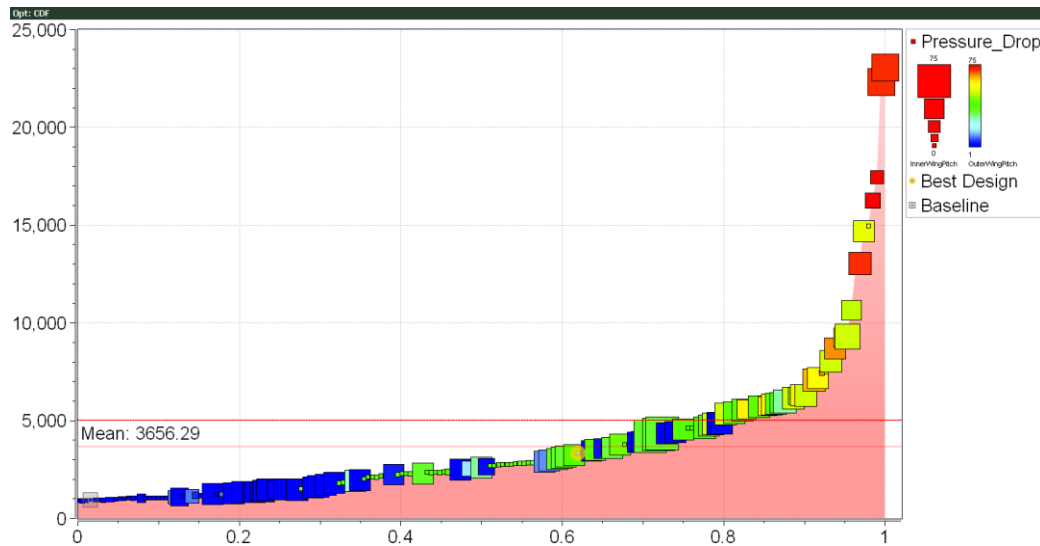
- Boruta provides insights into variable sensitivities for better understanding of the design and the design space
- Relevant for all study types (DOE, parametric optimization, ...)

NEW CUMULATIVE DISTRIBUTION FUNCTION PLOT

With this new feature, we've added a new general plot type to display cumulative distribution data (CDF) of one or more parameters. A CDF plot is a scatter plot with the data points ordered in ascending values (rank).



The plot may display the best and baseline designs.



Key benefits:

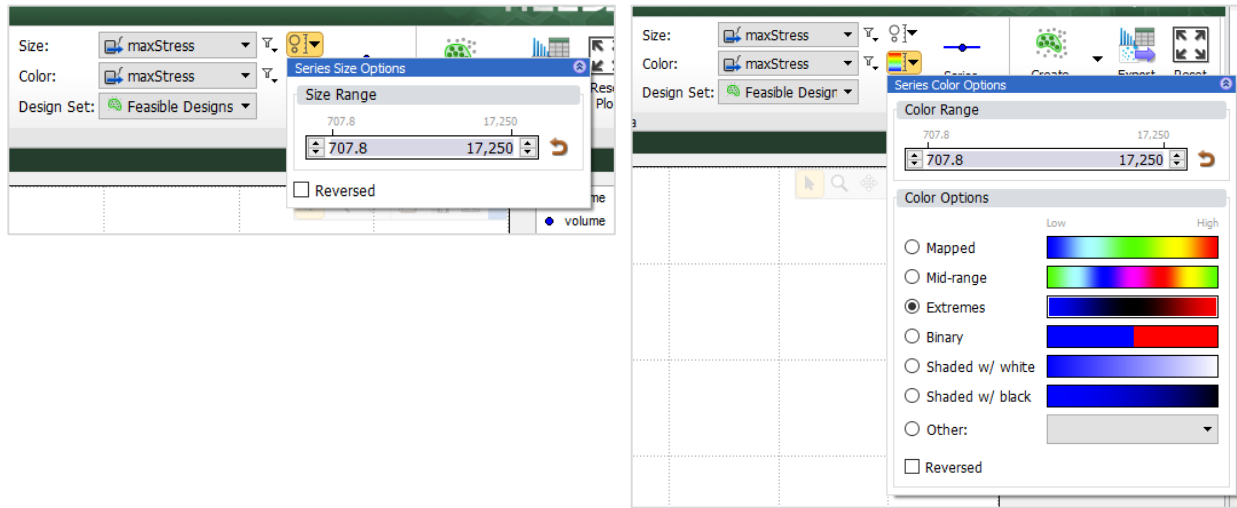
- Provides a graphical representation of the probability distribution of a response
- Makes it easier to have statistic comparisons

NEW CUSTOM PLOT COLOR OPTIONS

This feature was implemented in response to multiple user requests. It brings two major usability enhancements:

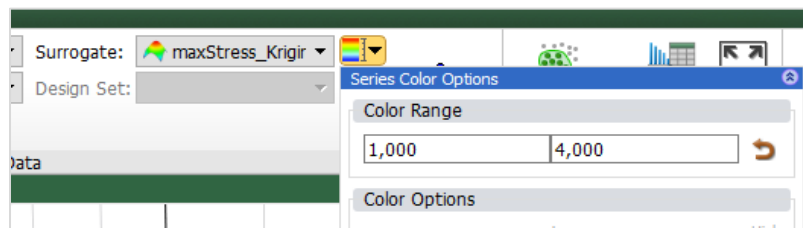
1. Select alternative color mappings for color plots and contours
2. Define the values associated with the minimum and maximum colors

Additionally, the user can also define the values associated with the minimum and maximum sizes for the bubble plots. Both also have options to reverse the min/max assignments.



History, parallel, relation, and Pareto plots that define a color or size parameter can now define the color or size options. The design table, heat map, and correlation plots only define the color options.

The response surface plot also defines the color options related to the surrogate.



Key benefits:

- Provides custom control over color and size display in plots
- Enhances the usability of data interpretation with control and easy display against user specified limits

EXTENDED CONNECTIVITY

UPDATE

JAPANESE LOCALIZATION NOW AVAILABLE FOR PORTALS AND TAGGING

A significant step towards user friendliness has been added. Messages given by HEEDS portals and tagging methods are now localized and translated to Japanese. For this release, the following portals and methods are supported: Amesim, ANSYS, CATIA, Creo Parametric, FEMAP, NX, Samcef, Scripting, Simcenter3D, STAR-CCM+, System Synthesis, Tagging and XML.

Key benefits:

- Increased usability for Japanese users

UPDATE

FLOMASTER PORTAL ENHANCEMENTS

A couple of enhancements have been made to the Flomaster portal. The first one is related to the user interface to better reflect the options used in the Flomaster interface. The second one is providing the user visual feedback to monitor the status of the connection to the Flomaster server.

The screenshot displays two side-by-side panels for connecting to the Flomaster portal.

Database Connection Panel:

- Database Server: localhost\SQLEXPRESS
- ☐ Use Windows authentication
- User name: heeds
- Password: [masked with dots]
- Connect** button (highlighted with a red box)
- Connected status indicator

Project Access Panel:

- Project: FloMASTER\Automotive System (dropdown)
- Network: Lubrication (Parametric) (dropdown)
- ☐ Use Windows authentication
- User name: Admin
- Password: [empty field]
- Role: [empty field]

Key benefits:

- Improved usability of the portal

UPDATE

FLOTHERM PORTAL ENHANCEMENTS

A couple of enhancements have been made to the Flotherm portal. The first one is related to the management of variables in leaf nodes. The second one is providing the user extra options to be more flexible when executing the portal.

- 1) In the past version of the portal, geometry variables defined in a leaf node were not displayed in Tagging, thus showing a mismatch from the Command Center in Flotherm.

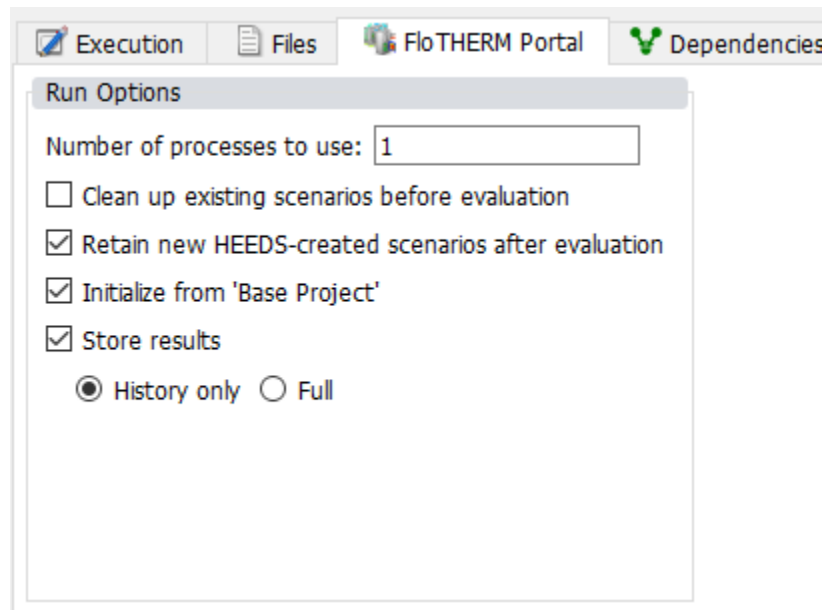
With this enhancement, the portal now shows at most 3 levels of data nodes.

Object/Attribute/Setting	Input Variable	Type	Description
board with components	Absolute Position Z (mm)	Design Parameter	Range: 7 - 12 (mm)
Heat Sink for IC7	De-activate	Design Parameter	Range: No - Yes
gappad for IC 10	Absolute Position Z (mm)	Design Parameter	Range: 0 - 1000 (mm)
gappad for IC 7	De-activate	Design Parameter	Range: No - Yes
box	Material	Default	
low Z wall of box	Surface Exchange Zo Low	Default	
board	Conductivity (W/(mK))	Design Parameter	Range: 0 - 20 (W/(mK))

Input Type	Input Property	Value
model		
Root Assembly		
board with components	gappad for IC 7	gappad_for_IC_7
box		
attribute		

In Tagging, it shows the Root Assembly and the leaf node that contains data entries. The geometry paths in between will be combined into one data node, where only the first and the last nodes are displayed with 'V' representing the ignored part name.

2) Additionally, a new option has been added to the portal:



- *Initialize from 'Base Project'*: If selected, a new scenario will be initialized from the 'Base Project'. If unselected, 'No Project' will be used for initialization.

Key benefits:

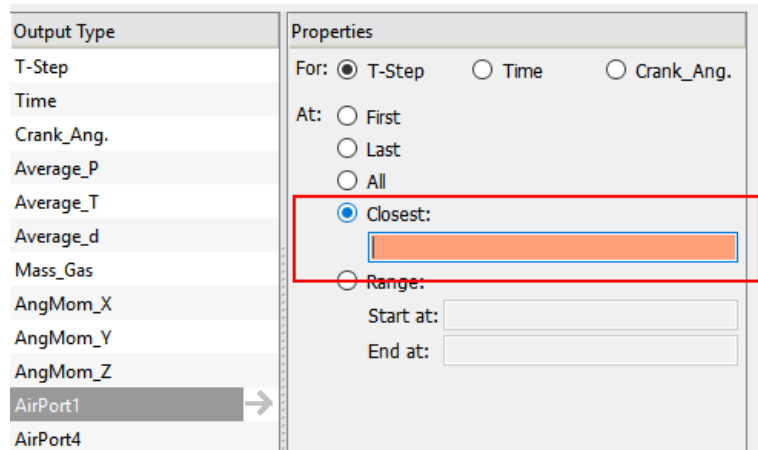
- Increased usability for leaf node variables
- More run options to increase productivity

STAR-CD PORTAL ENHANCEMENT

With the previous version of the portal, if a user wanted to perform response extraction based on the "closest" value, it was not possible. For example, if the output results would look like:

Time	Pressure	Temperature
0.10001	1.23	567
0.20012	2.34	568
0.30123	3.45	570

The “closest” value allows the user to pick the value of time=0.2012 by specifying a value 0.2 instead of the perfectly accurate value. This feature is also available already in the ES-Ice portal.



Key benefits:

- Increased productivity of the STAR-CD portal

STAR-CCM+ PORTAL ENHANCEMENT

In the previous version, when users were selecting to use the ‘Power Pre’ license feature, an incorrect token count was made when parsing was required. With this enhancement, the Power Pre option will consume 10 power tokens to perform pre- and post-processing.

Since the STAR-CCM+ solver is deactivated during the pre- and post-processing session, selecting this option also clears ‘Run’ in the Run Options group, and resets Initial steps to run to 0.

Key benefits:

- Increased consistency with supported running license options

AMESIM PORTAL ENHANCEMENTS

It is not uncommon to require a recompile of an Amesim model when certain variables are modified. This new “Force model recompilation” option of the Amesim portal enables the portal to recompile the .ame model prior to each analysis run. When this option is checked, the simulation fields are prepared for running the Amesim simulation either before the study is run or before each design evaluation.

- *Before the study run:* will re-compile the source .ame file (saved in the study folder by default) before launching the study

- *Before each design evaluation:* will re-compile the .ame file before each design evaluation. Note that this will cause unexpected long analysis time or error design if the compilation failed.

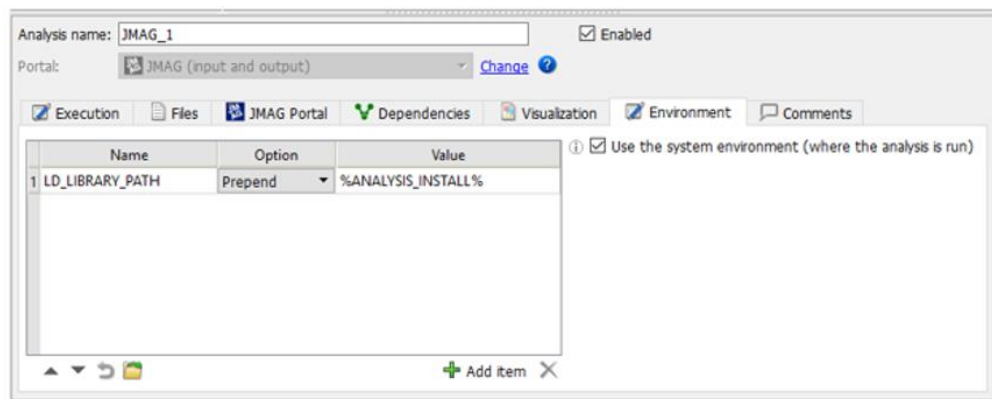
Key benefits:

- Increased usability of the portal for automatic recompilation of Amesim models

JMAG PORTAL ENHANCEMENTS AND PARALLEL SUPPORT

The JMAG portal has been substantially renewed to improve flexibility and support of other platforms as well as introduce support for parallelization. The new JMAG portal is now Python driven and runs on both Windows and Linux platforms.

The portal opens its own single instance of JMAG, without conflicting with any user instance of JMAG (if there are enough JMAG licenses available).



Now JMAG can also be run in parallel, thus allowing a much higher computational effectiveness.

Key benefits:

- New parallel execution available
- Customers can use JMAG portal directly on Linux or indirectly using remote execution.

ENHANCED PRODUCTIVITY

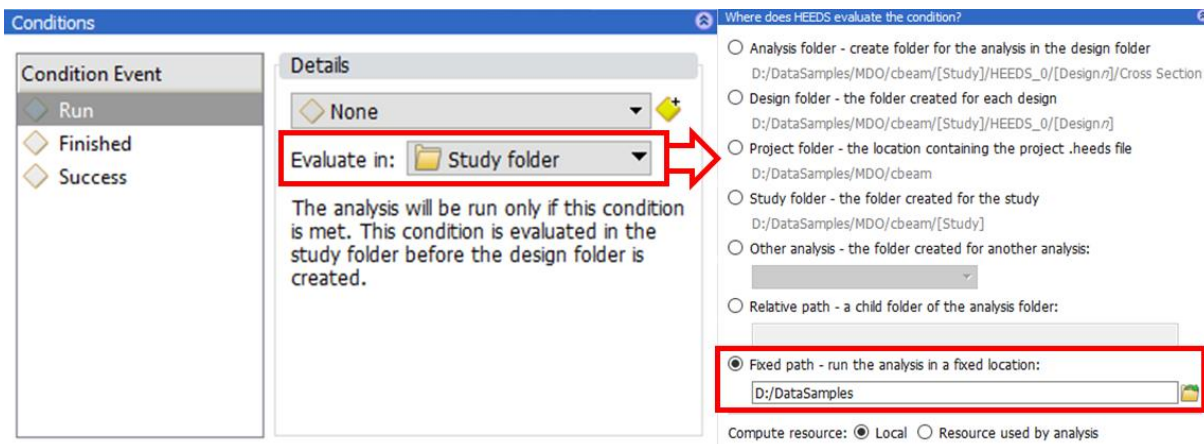


CUSTOMIZE CONDITION AND COMMAND EVALUATION FOLDER

In some situations, the user needs to either know or control where the run/pre/post analysis commands are executed. In the previous version each command and condition had a fixed location where it was executed. That path was different based on whether it was a run condition or a post analysis condition. During remote execution, some commands were executed locally while others remotely. However, the user did not have enough visibility into where the commands were executed and there was no simple way to customize their behavior.

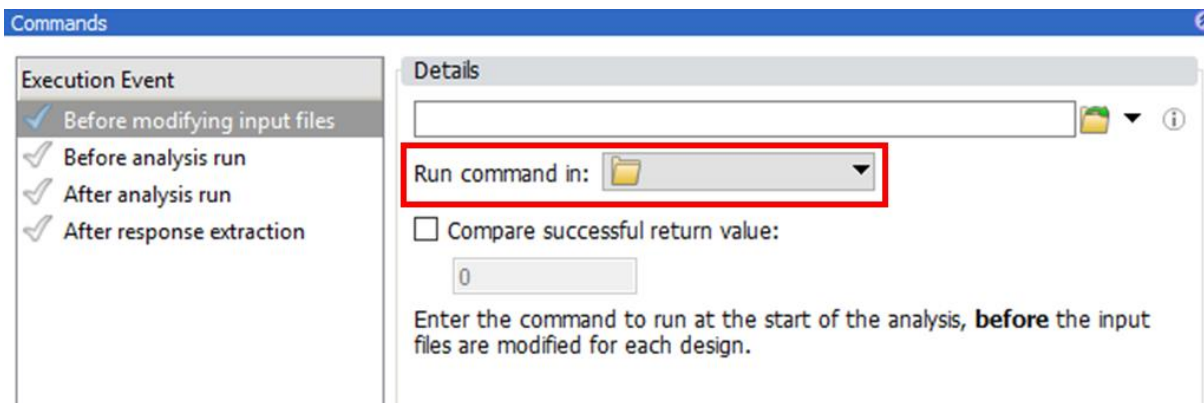
This new feature provides full control of the execution location for all pre/run/post analysis commands as well as the conditions.

When defining a **condition**, the user can select a folder where the condition will be evaluated:

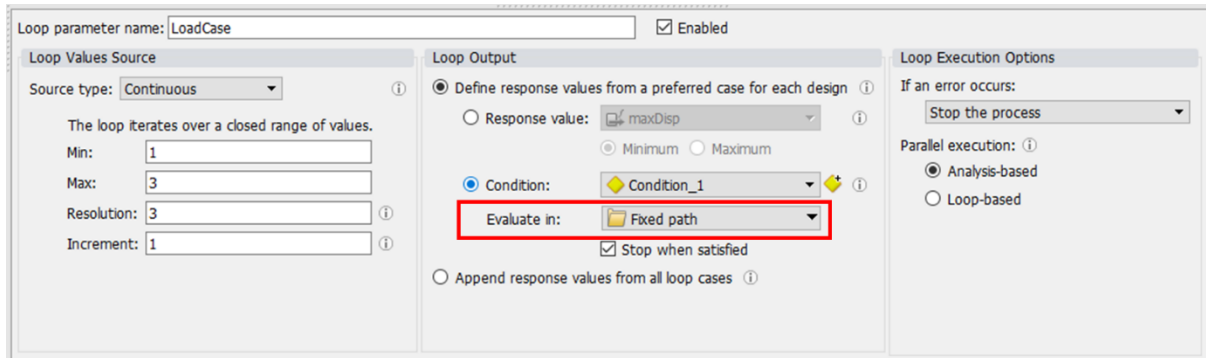


As shown at the bottom right of the image above, the user can also select if the condition/command is evaluated locally, or on the same remote system that the analysis is executed on.

The **analysis commands** have also been updated with the "Run command in" option:



The analysis loop properties have been rearranged, as shown here, and include the “Evaluate in” option if a condition is used:



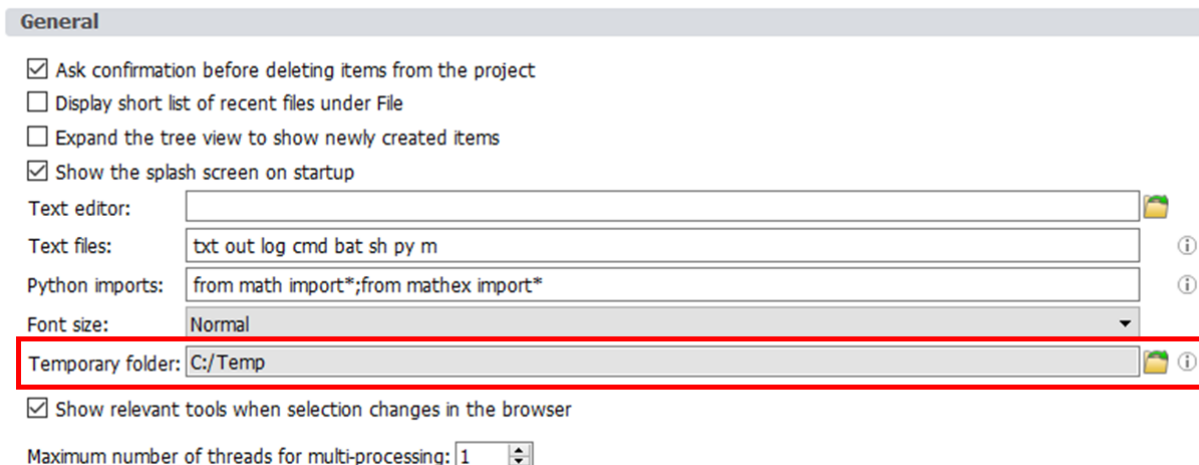
Key benefits:

- More flexibility in using conditions and commands with remote execution
- Extension of Distributed Execution beyond just the analysis execution



USER DEFINED TEMPORARY FOLDER

A new item has been added to the “General” section of the HEEDS options: now the user can customize the temporary folder that is used by portals for parsing, evaluating responses, etc. This increases flexibility in cases where the system temporary folder is not available/writeable, or it must be set to a specific location.



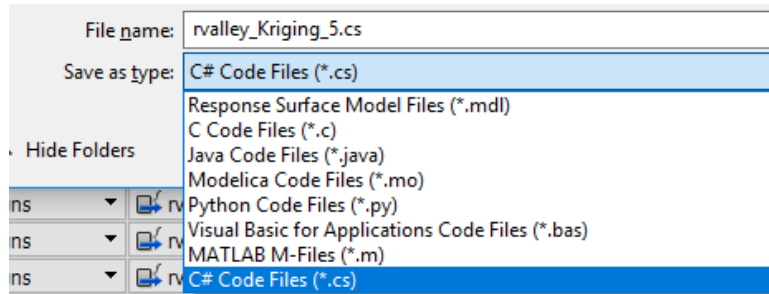
Key benefits:

- Increased flexibility when the default temp path is not available
- Direct control of parsing location



NEW EXPORT OF SURROGATES IN C#

A new export format has been added to the long list to have surrogate models exported for downstream integration: now it is possible to export also in C#.



Key benefits:

- More surrogate export options for downstream integration



VECTOR RESPONSE LINKS TO DESIGN TABLE

The visualization of the vector response has been improved: now vector response values will display as a link in the design table, similar to how the Study tab -> Responses table shows evaluated vector values.

UCESS	0.809017	26	11
UCESS	2.04508	173	
UCESS	4.61324	965	
UCESS	4.04508	733	
UCESS	0.809017	29	
UCESS	2.97214	407	
UCESS	7.46641	250	
UCESS	6.47214	185	
UCESS	0.809017	32	
UCESS	3.89919	686	
UCESS	10.3196	477	
UCESS	8.89919	349	
UCESS	0.809017	35	11

Design ID: 3 (sweep_3)
Study_1
sqr[] values:
122
101
82
65
50
37
26
17
10
5
2
1
2
5
10
Plus 18 more...

Key benefits:

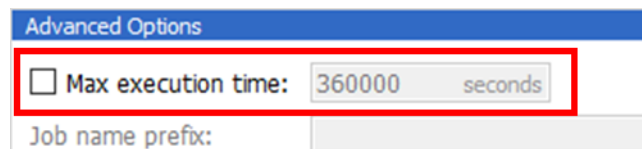
- Higher visibility and interaction with vector responses



MISCELLANEOUS MDO FEATURES

Option to disable max analysis execution time

We've added an option in the analysis advanced popup to disable the max analysis execution time. This is particularly useful for analyses that take a significant amount of time.

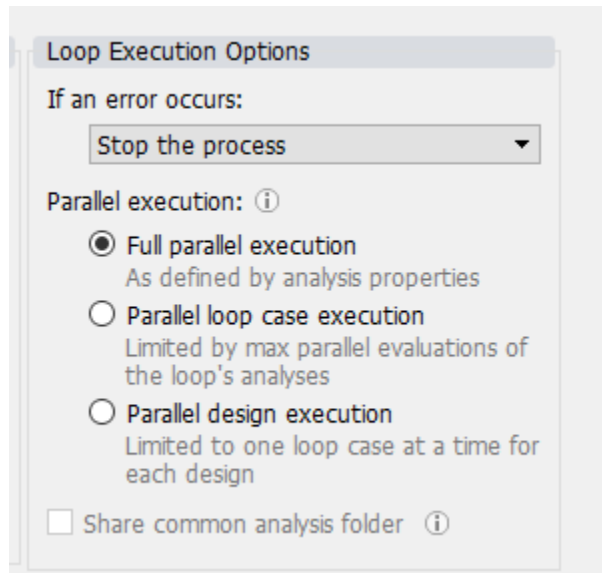


Key benefits:

- More flexibility for analyses that are expected to take a significant amount of time

More Loop Parallel Execution options

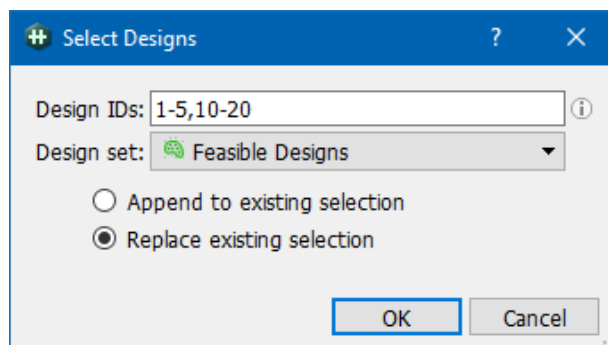
To handle additional use cases for more efficiently managing analysis hardware and software resources, we've extended the possible options for Loop Parallel Execution by adding a third execution option, the "Parallel design execution". With this new option, designs are parallelized but loop cases within each design are evaluated sequentially so that only one runs at a time. We've also added an option to share analysis folders. With this option enabled, each loop will use the same analysis folder for execution of each case, including any files remaining from previous loop cases for the same design. This simplifies the setup for co-simulation cases since the files don't have to be moved around between analyses.

*Key benefits:*

- Additional flexibility to better control the effective use of compute resources

**MISCELLANEOUS POST FEATURES****New context option in plot menu to select designs**

A new "Select Designs" menu item has been added to the plot context menu. Now users can select designs by ID and name (1-5,10-20, eval42) and/or by a design set.

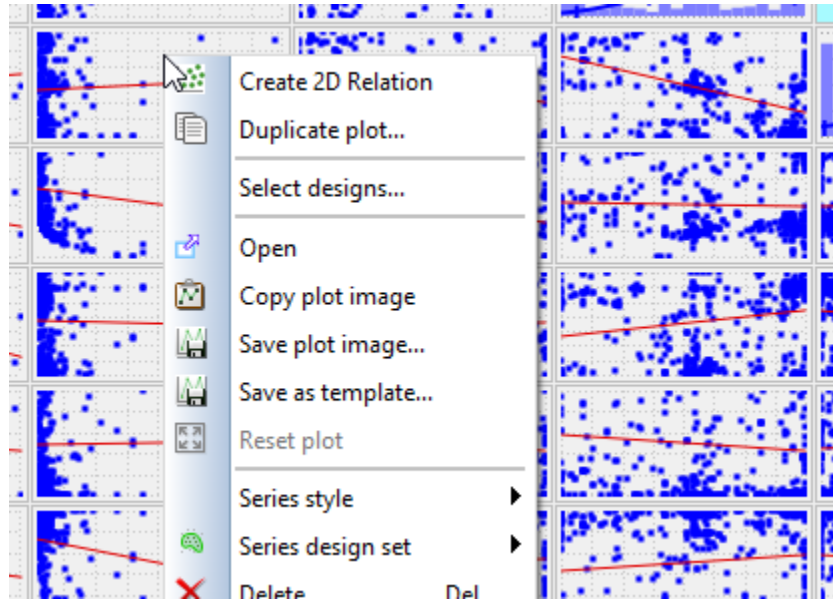


Key benefits:

- Helps users select specific designs easier

Create plots from correlation plots

A new context menu item has been added for correlation plots. Now users can create 2D plots directly from a correlation plot cell.

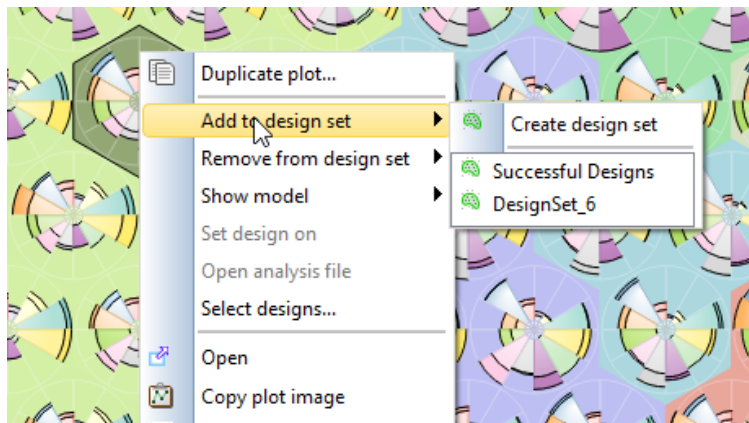


Key benefits:

- Streamlines the process for inter-connecting plots and leveraging data to uncover trends and deploy on other plots

Create design sets from SOM

A new context menu item has been added for SOM plots, so that the user can now create a design set from each selected cell in a SOM plot.



Key benefits:

- Enhanced usability in inter-connecting plots and leveraging data to uncover trends and deploy on other plots

FLEXIBLE AND SCALABLE COMPUTING



NEW

NEW SUPPORT FOR RESCALE LICENSE TYPES

The Rescale cluster UI has been extended to support On-Demand licensing for analysis software in Rescale. HEEDS support for running analysis in the cloud using Rescale has been extended to include support of different license types.

A new radio button has been added to the Rescale cluster configuration menu where users can specify the type of licensing to be used for the analysis software. Options are:

- On-Demand
- Use your own

Note:

- Users must enable On-Demand licensing with Rescale for this feature to be available in HEEDS

Key benefits:

- Users can now leverage advanced licensing capabilities in Rescale



UPDATE

IMPROVED USABILITY ON CREATING NEW OR SHARED RESCALE CLUSTERS

The lack of clarity in setting up Rescale clusters using pre-existing clusters or creating new clusters has been addressed. Now there are two radio buttons on the Rescale cluster menu that pertain to when clusters are created and if they are shared between analysis:

- **Create/Share** radio button on the top of the menu pertains to any clusters that are created for the current analysis.
- **Create New/Existing** radio determines if a cluster should be created for the current analysis or if an existing cluster should be used. Users only have the option of using an existing cluster if there is a currently running cluster that uses the same software and version as the analysis. In the context of the Create New/Existing radio, an existing cluster is a cluster that is actively running, not one that will be created for the HEEDS study. To share a cluster created by another analysis in the study, the user can set the Share/Create Unique radio at the top of the menu to "Share".

Key benefits:

- Easier and better user experience when setting up and using Rescale clusters



NEW

NEW FEATURE TO DELAY COMPUTE RESOURCE START

HEEDS sets the start time for an advance reservation to the next whole minute. If the cluster system time is ahead of the local machine's time, the start time on the cluster system may have already passed. This would cause the reservation to be created the next day.

This new feature helps to overcome the previous version's limitation by setting the "Delay start by" option under the "Resource pre-allocation" settings. Now the user can compensate for the clock skew between the machines.

Key benefits:

- Overcomes a clock-skew limitation on some setups

 UPDATE **QUERY RESCALE ONLY ON-DEMAND**

In the previous version, when the user opened a HEEDS study and just wanted to review the settings of a Rescale cluster, the full query for available software, versions, etc. was made. This caused a long delay while HEEDS was fetching information that was not requested by the user. With this new option, a “Reload” button has been to the Rescale popup so that queries are not made unless requested by the user.

Key benefits:

- Reduces need to query when user only needs to see current settings

 UPDATE **IMPROVED DIAGNOSTICS FOR RESCALE CLUSTERS AND JOBS**

Diagnostic support for Rescale clusters and jobs has been extended to include access to the state history and log files in Rescale. This information is available when a study is running. Users now have access to detailed cluster and job state and diagnostic information from within HEEDS.

Users can quickly and easily monitor the state of Rescale clusters and jobs when a study is running. This saves both time and money since problems can be discovered quickly and with sufficient information for users to address any issues.

This information can be accessed by using the context menu (right mouse button) for the analysis on the Run/Analysis Details page. When this is selected, a popup dialog will appear with information regarding the cluster and all jobs running in the cluster.

Key benefits:

- Saves time and money since problems can be discovered earlier and quicker

BUG FIXES AND OTHER ENHANCEMENTS



MISCELLANEOUS MDO FIXES AND ENHANCEMENTS

New discrete set is now available without view refresh needed

When creating a Manage Set for a variable, HEEDS would not allow the user to select the set in the variable sub-tab until it refreshed by switching to a different tab. Now this is fixed, and a refresh is not needed anymore.

The width of the column in the file list is now remembered

The width of the input file name column in the portal panel was not remembered when switching to another view and then coming back to this panel. Now this is fixed.

User can now save the project when license is lost

Occasionally, users may lose connection to the license server due to network issues. This was preventing the users to save their projects when the license was lost. Now it is possible to save the project when connection is lost with license server.

Environment variable feature changes colon to semicolon

If the value of a variable defined by the environment feature contained a colon, it was replaced by a semi-colon. This caused problems if, for instance, the user wanted to define absolute paths or something like "hostname:N_CPUS" via environment variable, since the string turned into "hostname;N_CPUS". Now this is fixed, and no substitution is done of the colon when the value immediately following the colon is a number.

Delete key doesn't work to delete tags (variables and responses)

When the user was clicking a tag, it was not possible to use the 'del' key to remove a tag when the tag list was active or when the portal table view was active. This applied to both variables and responses. Now this has been fixed.

RFE: Ability to right-click on variable name and "rename" instead of just double left click

An "Edit" entry has been added to the context menu as this is applicable to any of the selected fields in a table - not just the first column.

Dependent variables validation fixed to prevent incorrect reporting of non-existent circular reference

In the Parameters tab, occasionally a dependent-type parameter will give a circular reference warning when there is no circular reference issue at all. This is now fixed.

A Correlation Plot is not created anymore by default for Parametric Optimization Studies

The designs generated during an optimization study are generated based on the search criteria and thereby not balanced. As a result, the coefficients of correlation can be biased and potentially misleading. As such, now the Correlation Plot is no longer created by default for Parametric Optimization Studies. It is kept as a default plot for DOE - Screening/Response Surface only.

Ability to change the default option of Saved Designs for Error Designs

It is now possible for the user to change the default behavior of saved design for error designs by adding an option in File -> Options -> Exploration with (Keep, Rename, Erase) values.

Calculation of number of cores for Rescale has been corrected

The number of cores requested in a Rescale cluster could be much higher than what was needed based on the data specified. This has been fixed to use the correct number of cores for Rescale clusters.

HEEDS file structure

The HEEDS study and analysis directories now contain a hidden auxiliary subfolder. The .aux directory holds scripts, logs and debugging files that are of secondary importance when running a study.



MISCELLANEOUS SOLVER FIXES AND ENHANCEMENTS

Crash with long list in dependent variable not occurring anymore

When the user was extracting a long vector response and trying to tag it into a text file for a dependent variable, a solver crash occurred. However, this was not happening for short vectors. This has now been fixed.

Running in Design Directory Remotely is now mirrored locally

When a user had a remote analysis, which did run correctly in the remote design directory, HEEDS copied back the results in the analysis directory instead. This broke local flow (with upstream/downstream analyses) as the output files were not where the user expected them. This is now fixed so that when a user chooses to run in a design directory and remotely, that is followed locally as well.

Adding response(s) to study with existing output files is not throwing errors anymore

Because of this bug, it was not possible to add new responses to an existing study when the "Back up and reuse" option during a restart. Now this is fixed, and tag definition files are not copied to the analysis folder but referenced from the study folder.

Dependent variables now show correct data in the design table

In cases when dependent variables were depending on at least one discrete variable, HEEDS was failing to write out the correct data in the design table. The new behavior for a discrete variable using a discrete set is:

1. when used in a formula: If all the items in the discrete set are numeric, the value from the discrete set will be converted to a double and then used in the formula. If any of the values in the discrete set are non-numeric, the values for that variable will be set as text data in the calculator. In this case, numeric operators on this variable will not be valid.
2. when used in a parameter condition: If all the items in the discrete set are numeric, the value from the discrete set will be converted to a double and then used in the formula. If any of the values in the discrete set are non-numeric, the value used in the condition evaluation will be the position of the data in the discrete set instead of the actual value.



MISCELLANEOUS PORTAL AND TAGGING FIXES AND ENHANCEMENTS

Tagging multiple fields on the same line

In the previous release, if a delimited file has multiple mark tags on the same line, and the replacement text/value contains a delimiter, the wrong fields are getting modified with new variable values. Now this is fixed, and correct tagging is performed as expected.

Improved consistency in replacing values in fixed-format files (mark or script)

In the past version, if a user tags a fixed-format input file and does not define a print format that matches the column width, the total number of characters on the line could be increased or decreased.

This issue has been resolved in this release: the new value is either padded with spaces on the left or truncated so that it takes up the exact width of the column.

NX CAD portal: Evaluate Responses is now working for all NX part files

This occurred when working with NX part files that had no expressions defined. For these files, the NX Portal returned an error. This is now fixed.

Solidworks portal: when coordinate system specified in Solidworks portal CAD export is not found, an Error is issued

In some situations when the coordinate system specified in the portal options was not exactly matching the spelling of the name of the coordinate system defined in Solidworks, the portal was falling back to the origin's coordinate system without reporting any error or warning. Now, if the specified coordinate system doesn't exist in the Solidworks model, the portal writes out an error.

Excel portal fixed when exporting chart images

Blank images were shown for charts that are not visible in the Excel sheet. i.e. they are far to the left of the main data area. This is related to an Excel bug and a workaround has been implemented by activating the chart object before capturing.

ACar portal: was not reading in results if analysis name and original results file share names

If the analysis name in HEEDS is set to be the same as the original simulation run in ACar, there is a prompt when attempting to read in the analysis results. This prompt is by default "no" when running in batch so that ACar doesn't delete results from the .bin file and read in the new results from the .res file. In this scenario, the results don't update even though HEEDS is changing the variable values. This is now fixed by adding a check to see if the analysis file exists and, if it does, it is deleted.

Simcenter 3D portal: laminates inflation defined in the SC3D model are now updated

If there was a laminate inflation defined in the model, it did not get updated automatically. This is now fixed.

MDO portal: space in the name of project causes license issue with nested application

In earlier versions, when the nested HEEDS project has a space in the name, the study will error out because of a license issue. This is now fixed.

Excel portal: now ignores sheets that are hidden in Excel

If a sheet was marked as hidden or protected, it was still considered by the portal. Now this is fixed and sheets that are hidden or protected are now ignored.

FloEFD portal always uses first option for discrete set variable

When using discrete variable sets, FloEFD was using always the first option as baseline. Now the index of default selection for the baseline of a discrete variable is used.

LS-Dyna tagging fix

In the past release, input files within LS-DYNA analyses were able to be tagged with marking and scripting in the UI, but these tags were not updated during a study run. With this portal update, users can use marking/scripting to modify LS-DYNA input files even in cases where our portal doesn't support a certain variable type.



UPDATE

MISCELLANEOUS POST FIXES AND ENHANCEMENTS***Ability to customize of bubble size in bubble plots***

It is now possible to specify whether the bubble size for a bubble plot can be related to an individual series, or to all series plotted. In situations where all the series have the "Size" pointed to the same entity, the plot scales over all series instead of within the series.

Highlight baseline and best designs in all plots

Baseline and best designs are now plotted on the top for all plots so that these designs do not get hidden, for example, on the bubble plot or on the scatter plots. This holds for all plots.

Correct annotations for surface fit plot are now seen in HEEDS POST

Incorrect annotations were seen for surface fit plot in HEEDS POST. In these annotations, symbols were either not appearing or were not colored properly. This is now fixed.

More descriptive options in the design set rule editor

The options of the design set rule editor are now easier to understand. The description has been improved to highlight the differences. Now the descriptions in the options field of the design set rule editor are:

- 1) reference value
- 2) percent reference value
- 3) percent parameter ranges

Syncing in a custom view takes lot of time

In some situations, when there are large vector response series in different studies and the "AllStudies" user plot is used, the synchronization between plots in HEEDS POST took about a minute to be performed. Now this is fixed by ignoring selection changes from other studies and projects in the File and Vector plots as they are not needed.



UPDATE

MISCELLANEOUS DOCUMENTATION FIXES AND ENHANCEMENTS***Users are confused with the column headers in import variable feature***

When a user tried to import a variable table into HEEDS, an error message shows up when the column headers of the variable table don't match the one in HEEDS. Now the documentation includes instructions that explicitly highlight this requirement.

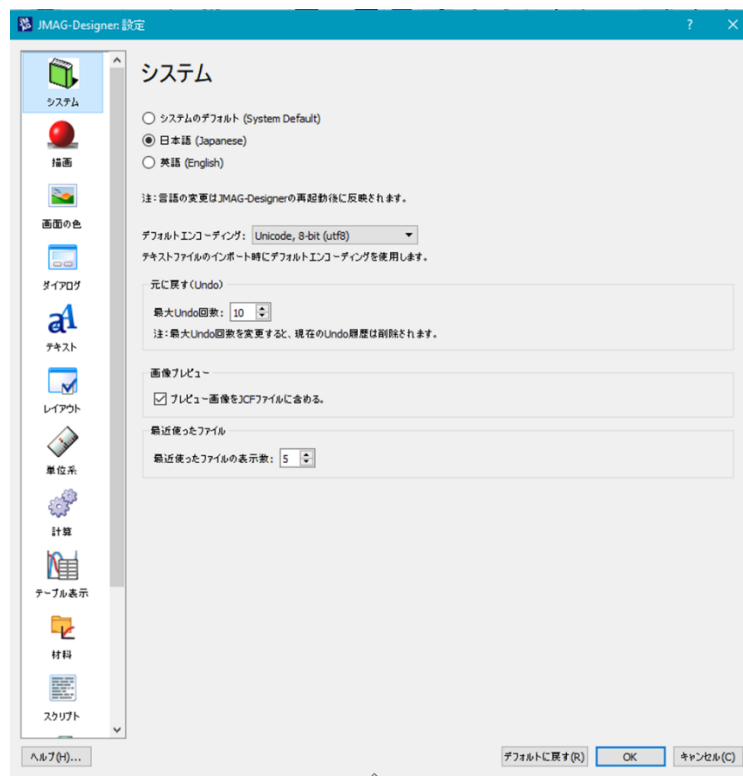
KNOWN LIMITATIONS

Flotherm XT portal

A new portal has been added – the Flotherm XT portal. Even though the documentation includes this portal, it won't be available until HEEDS 2019.1.1.

Using the JMAG portal with the JMAG language preference set to Japanese

To use the JMAG portal with the JMAG language preference set to Japanese, the JMAG Default Encoding must be set to "Unicode, 8-bit (utf8)" as shown in the JMAG image below. If the JMAG language preference is set to English, the JMAG Default Encoding may be set to "Unicode, 8-bit (utf8)" or "Latin 1 (Latin 1)".



If the JMAG language preference is changed after a JMAG model has already been parsed and tagged in HEEDS, the model must be reparsed and retagged.

Flotherm portal

- Flotherm model calibration project saved before 2019.1 needs to update the response tag with 'calibration' on the output file.
- Flotherm's Command Center may trigger a scenario to prematurely exit causing an error design. For such design scenarios, the Flotherm portal will mark their solution states in Command Center with "abnormalSolverTermination". You may choose to "Allow re-evaluation of error designs" in the Study>Run Options of HEEDS if you would like to re-evaluate such designs if they come up again in the search process.

- Due to Flotherm requires the analysis to be run in the solution direction, the evaluate responses option *"Run the analysis to generate new output files"* is currently not supported.
- The analysis time for each design evaluation may get longer as new scenarios are appended to the scenario_file.xml. This is because the use of Flotherm batch command option '-c' will take time checking the solved scenarios' states. The current workaround is to uncheck *"Retain new HEEDS-created scenarios after evaluation"*.

Study relationships

Evaluation-only studies now allow study relationships. The study relationships will override the values provided in the user design set inputs.

HEEDS DESIGN EXPLORATION TEAM AT SIEMENS PLM SOFTWARE

The HEEDS Design Exploration Team provides software and services to help you discover innovative solutions, reduce product development time and risks, and meet or exceed customer expectations.

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HEEDS, offered in the Simcenter portfolio, enables simulation to be used as a tool that drives innovation within an organization. Rather than starting with a design and limiting innovation to preconceived ideas, intuition and/or past experience, companies can automate their simulation toolsets within HEEDS, in such a way as to discover better designs, *faster*.

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