LUSAS 21.0 Error Fix and Modification Release Notes

This document lists modifications, other than the New Features in 21.0, that have been made since LUSAS 20.0-4c1 and is correct as of 8th Nov 2023.

Version 21.0-0c3 (r45249) Built 29th Oct 2023

LUSAS Modeller 21.0-0 (r44691)

Modeller was built with all revisions to r44691 (19th Sep 2023) plus r45125-45127, r45162, r45209 and is referred to as r44691. LNG was built to r4116 and MBW r470.

Known new issues
These notable issues are known to be present in V21.0-0c3 and not present in v20.0-4c1

Custom menus may fail to load under certain circumstances (32494)
Workaround: Press F5 on encountering an error opening such a menu.
Stress contours for rectangular, circular, L, T or C-sections are incorrect if the section is rotated and viewed with certain graphics settings by a user other than the one that installed LUSAS (32401)
Workaround: Set disablefleshingshaders = True in the registry for the current user, or switch to either of the OpenGL 3.3 options in the LUSAS Configuration Settings (Graphics)

Errors fixed
The following critical, major, minor or speed issues are fixed:

Incorrect depth used by RC slab designer when checking multiple thicknesses and using Clark-Nielsen approach (32365)
Modeller closes unexpectedly for a specific sequence of switching on the deformed mesh layer and setting active solved loadcases (32357)
Modeller closes unexpectedly after de-assigning mesh attributes, if 'Graph through 2d' utilities have been created (32311)
IMDPlus Moving Load/Mass graphing fails in European locales (32280)
IMDPlus sprung mass analyses do not work in European locales (32265)
MIDAS import not working for a particular material (32251)
PRW - Total Contributions gives the message 'An error occurred. No results can be shown' (32240)
Rubber material incompatible with Plane strain rubber element type (QPN4L elements) (32211)
Error when attempting to run an analysis which includes a nonlinear cable tuning loadcase 'Cannot classify material assignments to line' (32199)
Internal beam displacements are not shown when a transformation is applied (32160)
Rail Load Optimiser may fail to place load on a track due to a conflict of track directions (32145)
Discrete multi-node patch does not work with 'include full load' outside search area in a particular model (32060)
Orthotropic properties fail to be tabulated when used with axisymmetric shell or membrane elements (32052)

Nonlinear and transient controls: a negative change in load factor for automatic incrementation is disallowed (32046)
Model closes unexpectedly when creating a Print Results Wizard utility for averaged results with a complicated nested combination/envelope, and setting the extent to a group (32045)
Errors in some results exported to Excel for use in the Steel/composite designer (PontiEC4) (32030)
Scripts of three worked examples cannot be used in the Chinese version (31974)
RC slab designer - reinforcement attribute cannot be created for worked example 'Simple Building Slab Design' in the Chinese version (31971)
Opening a read-only model from an earlier version of Modeller gives a 'can't save' error (31941)
Modeller is very slow performing certain operations in a model with over 10,000 basic combinations (31860)
Error tabulating loading in load curves for rate of heat inflow/unit volume when using temperature dependency in coupled analysis (31850)
LNG - When a 2D beam stick model is generated, the material joint attribute 'Pile' should have damping defined (31843)
LNG - Beam stick model generated is incomplete when using the foundation option for raft with pedestals (31840)
RC slab designer creates the added reports based on the currently active loadset rather than selected loadset (31812)
RC slab designer rendered report for specified location is treated as a summary report (31807)
Setting beam/shell slice resultants active for a smart combination causes Modeller to close unexpectedly on some hardware (31744)
Draw time (e.g. after changing selection) for fleshing is disproportionately time-consuming for a model with tapering sections (31740)
Vehicle load optimisation results are incorrect for CS 454 in a model where the kerbs are drawn 15m above the loadable deck area (31738)
RC slab designer - setting a smart combination active results in an 'Incomplete command /set results/ error' message (31731)
Temperature profile loading gives a 'failed to integrate' message under a certain set of conditions (31730)
Draw time for fleshing is disproportionately time-consuming for a model with 121,000 elements because of checks on element orientations (31719)
RC slab designer - using JTG3362 bending and in-plane option leads to 'Object reference not set to an instance of an object' message (31716)
Vehicle load optimiser returns the loading pattern of the first influence surface considered for a beam/slice resultant when the 'Most onerous' option is selected (rather than the most onerous) (31710)
RC slab designer - JTG3362-2018 reinforcing bar shape factor C1 set incorrectly for Grade HPB300 steel (31709)
Load variation containing IF statement fails to tabulate in V20 while it was working in V19 (31703)
Using interface elements with single feature assignment can fail with 'IS8 element has an invalid orientation - error writing element topology' message (31687)
Compound section does not save mirror settings when the attribute is re-opened for editing (31682)
Import of SAP2000 (*.s2k) file indicates completion is reached but no model data is created due to use of comma decimals (31674)
P-y curve one-click report does not work in 2D model - 2D Joint (JNT3).xml was 'not found' (31523)

Modeller closes unexpectedly after creating Steel Frame Design Report for a selected line and a combination (31519)
Tendon loading assignments are lost when drag-moving them from one loadcase to another, ('Invalid assignments ranks' error) (31513)
Unable to read an lvb file that was exported from a model containing an IMD loadcase (31458)
LPI function nextGridWindowID not working as expected (31441)
Joints with single feature assignment - material from the base analysis cannot be overwritten in new analysis (31399)
No results, or Modeller closes unexpectedly, when changing active loadset while displaying results that are not compatible with the primary entity of a smart combination (31387)
Deformed mesh visualisation appears incorrect when only part of a model is visible (31380)
Constraint 'Straight Line' does not work correctly (31283)
Add option to set tensile strength factor for uncracked section check (31272)
Model closes unexpectedly when sweeping a surface and requesting the highest order of geometry created to be 'lines' (31163)
Print Results Wizard excludes some elements that have been deactivated in loadcases that are included in a combination / envelope (31101)
Vehicle load optimiser halts with 'ERROR: Cannot place vehicle at specified position' while using CS458 (31058)
Steel frame designer halts with message 'A Design Attribute for AASHTO 8th must be assigned to members to be designed' in error (31057)
'Examine Calculations' dialog is blank when accessed via Print Results Wizard (PRW) if the elements in the PRW extent (group) have been set invisible (31039)
RC frame design - torsion link spacing may be incorrect when using 'fit to lines' (31011)
Traffic load optimiser - deactivation warning dialog shows many times when once would be enough (30839)
Constraints assigned using 'specified loadcases' persist after the required final loadcase (30742)
Switching loadcases while viewing contours of pressure cause Modeller to close unexpectedly (30738)
Modeller text output window is disabled after using the LNG system to 'create 3D shell model' (30702)
Turning the mesh layer on or off while displaying a contour of SE is disproportionately time-consuming (30516)
Turning the deformed mesh layer on or off while displaying a contour of SE is disproportionately time-consuming (30505)
Loading results only for a model which contains point mass elements fails with 'Visual Fortran run-time error' messages (30371)
Selecting a subset of loadcases to solve from within a linear branch stops the whole branch from being solved (29879)
Running a script where Python type information does not mirror the Modeller type library leads Modeller to close unexpectedly (29836)
Mesh renumbering takes as long as remeshing (29489)
Modeller closes unexpectedly if changing loadsets while also showing contours of Wood Armer derived components (29484)
RC slab designer - Switching between contour components is disproportionately time-consuming (29172)

Attribute evaluation is disproportionately time-consuming - add a button for lockAttributeEvaluation() (28992)
Storing and using results cache can be slower than recalculating, when viewing a small portion of the model (28356)
Graph wizard - selecting beam stress components leads to an error (28350)
Warping beam end conditions are being tabulated the wrong way around (28244)
Modeller issues a 'Fatal database error in routine reslod' when the solution was terminated with a valid error from Solver (28116)
Contours of stress for beam elements are disproportionately time-consuming to display, especially for a combination (28078)
Contours which are unexpectedly transparent may be produced when using NVIDIA Quadro T2000 graphics card (27943)
Results for IMD load cases that are based on large numbers of eigenvalues are disproportionately time-consuming to display (27826)
RC frame designer - Danish National Annex effective concrete area in tension used for crack width calcs incorrectly follows the general EN1992-1-1 clause (27703)
Meshing - checking element faces is disproportionately time-consuming (26153)
Using a template at Modeller start-up is disproportionately time-consuming and the treeview updates repeatedly (26129)
Report generator - smart combinations and envelopes cannot be added to report when using 'specified loadcases' (25646)
Deleting a 'graph through 2D' from the Utilities tree can be time-consuming (24916)
Slicing set up in Danish (comma decimal) errors when opened in UK (period decimal) (22904)
Slidelines that do not include a 'change' in their definition should be able to be assigned to any selected analysis (20922)
IMD Plus moving load analysis gives needless warning 'No node neighbourhoods were found' when using library vehicles (20384)
Results from direct method influence analyses should be cached and reused to reduce elapsed time on display (14386)
Displaying results from an IMD loadcase with CQC combination seems disproportionately time-consuming (2520)

A number of fixes for cosmetic issues, documentation issues, installation issues, and development requests are also provided. Users with a reference number provided by LUSAS Customer Support may identify these from the following list:

32374, 32307, 32262, 32241, 32239, 32216, 32192, 32182, 32174, 32146, 32116, 32102, 32101, 32096, 32070, 32064, 32013, 32010, 31998, 31989, 31980, 31979, 31949, 31929, 31906, 31900, 31893, 31883, 31882, 31880, 31878, 31871, 31834, 31811, 31798, 31793, 31746, 31733, 31688, 31686, 31684, 31672, 31671, 31652, 31648, 31645, 31636, 31631, 31626, 31623, 31620, 31585, 31580, 31564, 31560, 31557, 31554, 31545, 31538, 31536, 31535, 31532, 31480, 31479, 31471, 31465, 31444, 31440, 31431, 31420, 31394, 31378, 31374, 31357, 31355, 31350, 31317, 31311, 31306, 31270, 31260, 31245, 31236, 31217, 31195, 31191, 31174, 31173, 31162, 31124, 31115, 31069, 31007, 31002, 30991, 30981, 30966, 30959, 30944, 30911, 30895, 30875, 30856, 30852, 30847, 30843, 30820, 30788, 30711, 30696, 30688, 30684, 30680, 30679, 30674, 30665, 30663, 30661, 30643, 30642, 30611, 30603, 30602, 30556, 30551, 30547, 30513, 30501, 30425, 30312, 30245, 30223, 30092, 29899, 29863, 29626, 29613, 29600, 29585, 29543, 29375, 29337, 29222, 28889, 28697, 28419, 28021, 27785, 27724, 27719, 27709, 27477, 26826, 26798, 26625, 26442, 26439, 26431, 26412, 26380, 25644, 24804, 24763, 24162, 23547, 22695, 21951, 20923, 20495,

18274, 18193, 18191, 17741, 17382, 16930, 15537, 13999, 13991, 12642, 11729, 11642, 11639, 10296, 10274, 9739, 9691, 8010, 6059, 2378, 2206

LUSAS Solver 21.0-0 (r7674)

Errors fixed

The following critical, major or minor issues are fixed:

Analysis of a model containing piecewise linear elastic (axial dependent) joint materials cannot be completed successfully in 20.0-4 while it can in 20.0-2 (32037)
Hygro-thermal analysis fails to converge with default Solver when mesh refinement is increased (32034)
Incorrect internal deformations shown for BMI31 elements when co-rotational formulation is invoked (31899)
System error generated by use of 2D Kirchhoff thin beam (BM3) elements together with plane strain two phase (TPN6P) elements (31720)
Results from nonlinear transient analysis loaded incorrectly due to solution failure in the first time step (31120)
Nonlinear cable tuning loadcase may fail to solve, spuriously dependent upon the transient settings of the preceding time step (29230)
Duncan-Chang material - Solver fails with a system error if no stress is applied in the first increment (28191)
Irregular pore pressure variation in a specific model (27538)
Change VFLO reaction output to FLOW RATE for transient analysis (26910)
Model including creep concrete material (along with Mohr-Coulomb and activation/deactivation) fails to converge (24992)
Acute angles between adjacent element faces of a thermal surface(s) defined in a thermal gap causes an error (13378)

A number of fixes for cosmetic or speed issues and development requests are also provided. Users with a reference number provided by LUSAS Customer Support may identify these from the following list:

26239, 21612, 20007