Oasys LS-DYNA Environment Software

ARUP

Oasys

The software house of Arup

Contents

1 Enhancements to Oasys PRIMER 9.3 RC1

This is a summary of enhancements of Oasys PRIMER 9.3 RC1 which have been added since 9.2.3. Details are available in the accompanying PPT slides.

- Single/multiple copy on translate and rotate

- Orient scale/rotate option to centre on CofG of part

- Display of cut-sections

    - control visibility of elements either side of section plane

    - drag section through the model (translate/rotate)

    - cut section through shell element shows true thickness

- Include file location of entity displayed and modified on edit panels

- Generic handling of text box overflow (hover text)

- Optional check for mesh continuity of rigid bodies

- Function to remove include file from model

- Version checking for include files

- Overwrite/increment name function for keyout of include files

- Enhanced translation for Radioss block format

- BOM write of part mass and CofG coordinates

- Full support for solid element spotwelds including multiple-element "nuggets"

- Connection entity concept implemented

    - Primer xml connection file

    - connection table to manage/edit/fix spotwelds/bolts

    - support for connection between layers of parts defined by Set, CAD-name, etc

- Bolts (merged rigid patch or Nodal Rigid Body) can be created, read from file, interpreted from existing FE model.

- Capability to create and position arbitrary mechanisms

    - assemblies of parts can be linked to form mechanisms

    - position the mechanism by dragging or typing in coordinates of reference points

    - occupant models can also be positioned "freely" as mechanisms by dragging

    - mechanisms can be linked, e.g. seat mechanism can "drive" dummy motion

- Seat foam compression within Primer

- Seat foam compression – assisted creation of LS-DYNA deck

- ECER21 Instrument panel pendulum impact simulation

- Model build from database enhancements

    - support for Nastran component files

    - integration of Primer connection file

    - version control and history comment storage

2 Bugs Fixed in Oasys PRIMER 9.3 RC1

The following is a summary of bugs fixed and minor enhancements made to Oasys PRIMER 9.3 RC1 since the release of 9.2.3.

- Case 9651

Primer did not check for the node <sbrnid> on a slipring being massless or unrestrained in translation, which is an error during initialisation in LS-DYNA. The same check was missing for retractor nodes (which LS-DYNA does not appear to pick up). These checks have now both been added.

- Case 9636

Primer failed to read a mixed [label][title] line (I10,A70 format) which contained a comma in the label section. This was due to the numeric label field being assigned part of the title string by mistake, as if comma-separated. This has now been fixed.

- Case 9630

When dummies are positioned any assemblies without a parent, implicitly 'root' assemblies, now have their orientation angles reported in the dummy's axis system. Where this system was not defined the global Cartesian system was used, leading to angles changing if the dummy as a whole was rotated.

To get round this if no dummy axis system is defined a default one, initially aligned with the global Cartesian axes, is set up and used for calculating 'root' assembly angles. Since this system rotates with the dummy, angles now remain the same despite any global transformations, giving a consistent interface to the user.

- Case 9623

In the generic renumbering panel for item types the 'base offset' number would change to zero after a relabelling operation. It has now been changed so that it is always the lowest label for that item category.

- Case 9565

In cases such as MEASURE, where cross-model picking without a controlling menu panel is performed, problems arose when MODEL LIST was used to swap model visibility while picking was active. Effectively picking was restricted to the model that was active when the operation started, and models subsequently made visible were not pickable because they were 'latched' off internally.

This has been corrected, and picking across models is now possible when their visibility status changes while the picking operation is still active.

- Case 9559

Labelling and sketching from 'daisy chain' popup menus was hard-wired to draw in white, making such items invisible if the background colour was also white.

In addition such labels were rendered taking into account hidden surface removal, making them invisible if they were obscured by overlying structure. Both have now been fixed: labels are drawn using 'not background' colour; and are always drawn in wireframe mode, ignoring any hidden surface removal.

- Case 9542

Coat part function now uses a single object menu, externally filtered to solid and shell parts. This means that screen picking is active for all parts displayed in the object menu and the user no longer has to click <vis> to activate it.

- Case 9536

Primer now supports read/write of CAD names for parts (from Bill of Materials), storing the special comment $PR_CADNAME in the keyword deck. This is intended for use with Connections or Spotweld files.

- Case 9517

Creation of INCLUDE_TRANSFORM with label offsets caused

selection from object menu to fail because of a missing call to resort Primer's internal list of labels. Note: this did not affect read in or write out of models with INCLUDE_TRANSFORM.

- Case 9515

Some slightly obscure errors in *MAT(erial) processing have been corrected:

- A few orthotropic materials would not have had their explicitly defined axes oriented correctly during Rotate operations.
- Explicit (cases AOPT = 1 or 4) orthotropic material coordinates would not have been changed when material units were changed.
- MAT_ADD_EROSION and MAT_NON_LOCAL would not have been modified when their materials were oriented, nor would their units have been changed.

These have all been corrected.

- Case 9514

Field <tfailm> had been left out of the *MAT_ADD_EROSION card, and would be neither read, edited nor written. This has been corrected.

- Case 9505

Discretization of MAT24 load-curves in some versions of LS-Dyna uses 1000pts rather than the previous 100pts. Users may now change the default from 100 to 1000 on the check options panel. There is also a new oa_pref option <mat24_discretization_points>.

- Case 9501

If the current working directory was the same as the $OASYS directory then some 'system' oa_pref file settings could be reread, superseding the values in the 'user' file.

This would only affect window management settings (eg MAXIMISE), and would probably only occur on Windows platforms when the 'start in' value of a desktop icon had been set to the $OASYS directory. The error has been fixed.

- Case 9440

The default directory permission of 744 (owner: rwe, group and others: r) has proved to be a problem on Unix/Linux systems where different users in the same group wish to access files on a common project. If the parent project has the 'sticky' bit set then files created by user A cannot be processed by user B.

The ability to set an alternative directory permission mask has been added via the oa_pref file preference:

primer*directory_permission: <octal code>

The <octal code> should be 3 octal digits in traditional Unix file permission format, for example 774 would allow group members full access.

- Case 9436

The csv target file written from the FMH module has been corrected to write the tag 'rootname' rather than 'root'. Additionally, the model and impactor name (previously left blank) are now written.

- Case 9422

Previously, orientation of a contact defined with a segment set, resulted in the orient being applied to segments. This has been changed so that orienting a contact has no effect on segments (just as it would have no effect on shells).

The old behaviour meant that orienting a part (which consequently oriented its contact) could also move elements of parts on the other side of the contact. This has now been prevented.

- Case 9416

Some rigid element defaults for contouring have been corrected.

- Case 9415

Primer was unnecessarily preventing user from changing section from one element type to another when all parts associated with the section were empty. This has now been enabled.

- Case 9409

The editing panel for *ELEMENT_SEATBELT_RETRACTOR had an entry for '#elements inside retractor', created automatically on panel exit, that was being reported wrongly when the panel was reopened for subsequent edits. This could lead to excessive numbers of

seatbelt elements being created inside the retractor if the user reset it to what he believed was the correct value.

This has now been corrected so that it reports correctly the current number of seatbelt elements within the retractor.

- Case 9404

The coding to screen-pick *DEFINE_COORDINATE_SYSTEM items had been omitted, making it impossible to pick them from the screen. This has been fixed.

- Case 9372

Some batch commands, notably 'ORIENT' but others as well, attempt to draw things on the screen. When Primer ran in non-graphical mode (-d=batch on the command line) these could cause problems, including a crash, due to attempts to perform graphical operations without these being set up correctly.

This has been corrected: graphics commands issued either directly or indirectly from the command-line are now ignored when in batch mode. This means that it is not necessary to have a graphics window open when running Primer in batch.

- Case 9353

*PARAMETER definitions would only be read if the 'R' or 'I' was in the first column of the relevant field.

This was due to a mis-interpretation of the user manual: in fact the 'R' or 'I' header can be anywhere in the parameter field so long as it precedes the parameter name.

This has been corrected, and the code will now read parameters with these headers anywhere in the field.

- Case 9350

When editing *SET_SEGMENT, and removing items from the set, screen-picking of segments failed to work if <ctrl> (wireframe) dynamic viewing was used.

This was due to an internal error which caused sketched items (the segments in this case) to fail to be pickable following a <ctrl> dynamic view, and has now been fixed.

- Case 9339

If the user deleted items in a model while using the cross reference viewer it was possible that the cross reference viewer could show 'junk' values for the items that had been deleted. This has now been fixed.

- Case 9327

View-edit panel for modifying segment set could crash Primer if the node popups (N1..N4)were accessed. An erroneous message about not being able to find a picked segment has also been corrected. The bug has been fixed.

- Case 9296

Missing TEMP field for INITIAL_GAS_MIXTURE in keyword editor supplied.

- Case 9295

Labels in *DEFINE_VECTOR Window have been corrected to be XT, YT, ZT, XH, YH, ZH to match LS-DYNA manual.

- Case 9200

The part replace panel has been modified to display the options more clearly.

- Case 9173

When using comma-separated format for input, the test for a field being too wide was too severe in that it objected if the number of columns between commas exceeded the permitted (fixed format) field width.

This was a poor interpretation of the ls-dyna user manual which in fact says that the data contained within a comma-separated field must not breach the implicit format limit, i.e. white space before and after a legitimate number could be of unlimited extent. This has now been corrected.

- Case 9163

When creating a model build database by manual edit, category names for keyword type items are now automatically generated from the branch above. The user only enters the subcategory name.

- Case 9158

Assign mass function was not detecting mass 'attached' to a part/parts to be massed by *CONSTRAINED_NODE_SET. This has now been corrected to work in same way as *NODAL_RIGID_BODY.

- Case 9149

The orient into contact function in Primer9.2 was broken for the case of orient across different models, when the item to be oriented was Model or Include file. The reason being that the orient selection failed to exclude the 'ghost' part that is created to simulate a contact within a single model. This is now fixed.

- Case 9137

When Primer cannot recognize a keyword it puts it into a <skip_file>. The skipped data can then be optionally re-inserted on keyout. Primer was failing to distinguish between pre and post *END keywords and inserting all skipped data above *END. Now the distinction is made, two skip files being written if necessary, and the option to re-insert skipped data puts data in correct place.

- Case 9095

Primer could give a confusing warning message when checking spotweld beams if spiders of 'normal' beams were given ELFORM 9 (spotweld) on the *SECTION_BEAM card by mistake. This has now been fixed.

- Case 9091

Error when reading *SECTION_BEAM card with a parameter in row 2 column 1, which was (wrongly) failing a numeric check. This has now been fixed.

- Case 9078

Certain model copying operations, such as copy and translate, were creating duplicated DAMPING_FREQUENCY_RANGE cards. This is an error where the parts set id is zero.

- Case 9056

DEFINE_COORDINATE_NODES were not being oriented. This has been corrected. Orientation, unit change and flagging of these are now consistent with other types of DEFINE_COORDINATE.

- Case 8960

Saved comments written in a *INCLUDE_TRANSFORM file were wrongly getting transferred into the master file when the model was written out by Primer.

This has been corrected.

- Case 8946

Support for *PARAMETER_EXPRESSION in Primer is very limited in that it does not parse the expression, but rather converts it to 1 (integer) or 1.0 (float).

However even this was not working properly, and 'expression' type parameters would get mishandled in a variety of ways ranging from being ignored to causing a crash.

The mishandling has been fixed, and these now work as intended, but the limitation (that the expression is not parsed) still remains.

- Case 8934

Two problems arose when OpenGL 'Pbuffers' were used for graphics refresh on Linux platforms:

(1) In a few cases subsequent Hidden or Line mode plots could come out in thick linestyle when they shouldn't.

(2) Graphics refresh after an area was exposed could either be very slow, or not happen at all, or have some regions missing.

Both problems are believed to have been cured, but if users still experience graphics problems on Linux it is recommended that they swap to 'Pixmap' graphics refresh mode. (Options, Refresh >, Backing Store >, Pix/Bitmap).

There is circumstantial evidence to suggest that the problem is limited to NVidia cards prior to the FX3400. If you have such a card using 'Pixmap' refresh seems to work.

- Case 8766

Primer92 failed to include provision for field A23 on Hybrid and Wang/Nefske airbags to refer to a Part if -ve. This has now been corrected.

- Case 8580

For some time there has been a problem in Primer that some text entry fields can be too small for very wide data, and the problem has become worse as models have got larger and item labels have also grown.

Therefore where any text entry button has data overflowing its field a pair of bars are placed above the end-most character to provide a visual marker that the data shown is incomplete. This applies to either or both ends, depending on the extent of the overflow.

In addition such fields get an automatically generated 'hover text' popup box, so that if the user hovers the mouse over the field the popup box will show the full entry.

- Case 7855

Multiple redraws when finding attached through the clipboard has been reduced. This operation is much quicker now.

- Case 6246

The ability to screen-pick *CONSTRAINED_INTERPOLATION has been added.