

Release Notes LaGriT version of Fall 1999

A summary of the major changes found in this release are listed below. A complete list of changes is included at the end of this document. Refer to the user's manual for a complete description of the new, enhanced and revised commands.

New Commands:

- rzv** distribute nodes as linear combinations of 3 supplied vectors.
rzv/geom/n1,n2,n3/v11,v12,v13/v21,v22,v23/v31,v32,v33
geom can be **xyz**, **rtp** or **rtz**. n1,n2,n3 specify the max number applied to each vector. The v's are the 3 basis vectors.
- rzamr** use octree refinement to a specified level on a existing hex mesh to distribute nodes within a region- intended a a node distribution algorithm only - no hex information is preserved.
rzamr/region_name/number_of-levels
- createpts** wrapper for all the 'rz' type command:
createpts/xyz|rtz|rtp/n1,n2,n3/x1,y1,z1/x2,y2,z2/[ix,iy,iz]/
[irx,iry,irz/rx,ry,rz]
createpts/sphere/1|2|8|diamond /nr,npt,xirad,xorad
/xcen,ycen,zcen/iz/irat,rz/
createpts/brick/xyz|rtz|rtp/ni,nj,nk/xmin,ymin,zmin/
xmax,ymax,zmax/iiz,ijz,ikz/[iirat,ijrat,ikrat/xrz,yrz,zrz/isym,jsym,ksym
createpts/brick/xyz|rtz|rtp/ni,nj,nk/pstatus,get,name/connec
t/
createpts/amr/region_name/number_of_levels
createpts/random/ xyz|rtz|rtp /spacing/ x1,y1,z1/x2,y2,z2/
[xcen,ycen,zcen/ edgedist/ ranseed1,ranseed2]
createpts/vector/ xyz|rtz|rtp/n1,n2,n3
/v11,v12,v13/v21,v22,v23/v31,v32,v33

Enhanced Commands:

- boundary** add option to establish or to reset icr, icontab relationship for a set of surfaces. This is normally done by the **setpts** command, but if surfaces are defined after setpts, the surface command will cause an entry in the icontab table for the nodes on the surface, but no entry will exist for intersections of surfaces.
boundary/dirichlet/icr//surface list
e.g. **boundary/diriclet/icr//top left front** will identify the nodes on the intersection of the surfaces **top left** and **front**, and will set the icr value of these nodes to point into the correct icontab entry.
- quality** add pcc option which will identify negative coupling coefficients and create an element based attribute to store the value (1 means okay, anything less than 1 is a negative coupling) **quality/pcc**

boundary_components

Now prints out number of connected boundary components and a representative vertex from each component.

rmpoint/sparse

For expert users only. Requires reconnection when done.

Bugs:

| | | |
|----------|--|--|
| 06/10/99 | pntlimc | fix missing argument in call to writloga - return empty set if error |
| 06/13/99 | refine_face_add | fix incorrect icr and itp values assigned using refine/addpts to triangular 2d mesh |
| | refine_fix_add, cer_chain, cel_chain | |
| 06/16/99 | copypts | remove extra comma from write statement |
| 06/17/99 | readavs | read pyramid data correctly |
| 06/23/99 | control_command_lg | fix errors in nesting of infiles and in invoking infile from dotask |
| 06/25/99 | get_elements_on_edge | update len,len1 if need to increment memory |
| 07/02/99 | readgmvc_ascii | check for end of file -- skip blank lines |
| 07/07/99 | regnpts | this is really a compiler bug - change indirect indexing so optimizer does not generate bad code |
| 07/13/99 | control_command_lg | skip comments when entered as interactive or as dotasks |
| 07/23/99 | refine_face_add | make arguments in call match those in subroutine statement |
| 07/23/99 | readavs | declare pointers - use pointer_arrays.h for integer*8/integer*4 distinction |
| 08/04/99 | initlagrit | initialize pi |
| 08/05/99 | cmo_readdump_cmo | allow for zero length attributes |
| 08/05/99 | read_lagrit_geom | fix memory problem |
| 08/10/99 | multi_material | calculate length of matlst correctly |
| 08/11/99 | refine_interface_elements_lg | use nnodes for length of iseedtet |
| 08/11/99 | regnpts | use max not min for length of name comparisons |
| 08/18/99 | readdump | use ierror_return |
| 08/27/99 | rmpoint | get correct values in isetwd |
| 08/30/99 | multi_material2d_lg | refresh pointers |
| 08/30/99 | multi_material | refresh pointers |
| 08/31/99 | control_command_lg | check for an empty loop |
| 08/31/99 | matbld3d_stor, anothermatbld3d_wrapper | unformatted IO bugs |
| 08/31/99 | writedump | restore dump_recolor command |
| 09/01/99 | connect2d_lg | remove references to if4 |
| 09/01/99 | initlagrit | remove test on uninitialized variable |
| 09/01/99 | read_lagrit_geom | use lengths with concatenation operator |
| 09/01/99 | refine_face_add | initialize isn1 for all new nodes |
| 09/01/99 | surfset | change dotaskgen to dotask |
| 09/01/99 | make_bigtri | get mbndry from mesh object |
| 09/02/99 | pset | fix test on mregion names |
| 09/03/99 | surface | restore tabular surface implementation |
| 09/07/99 | recon2 | allow for nodes on external boundaries with no icr values |
| 09/07/99 | cer_chain | fix typo (mpary should have been mpar1) effecting pset type refinements |
| 10/03/99 | intradd | use nefcmo which is required for hybrid grids |
| 10/14/99 | region, mregion | check for size of stbout array |
| 10/19/99 | rzbrick3 | check value of nwds before setting isym, jsym and ksym. |

Code Improvements:

| | | |
|----------|--------------------------|--|
| 05/14/99 | boundary | new option (see above) |
| 05/18/99 | filter | cleaned-up and added comments |
| 06/18/99 | pset | use information from call |
| 06/25/99 | get_materials_on_edge_lg | returns materials around edge |
| 07/13/99 | cmo_dump_cmo | skip cmo attributes with 'L' in ioflag field when writing lagrit dump files. |

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| 07/12/99 | natbld0tri,matbld3d | assigned idebug, reduced screen output, removed print * |
| 07/12/99 | read_trilayers | postprocess by column option, preserve buffers, create buffers at interfaces, read gmw or avs files |
| 07/12/99 | temptam | new subroutine beads_ona_ring |
| 07/12/99 | rand_lg | new random number routine (fancy) |
| 07/12/99 | ran2_lg | renamed random number routine (simple) |
| 07/23/99 | temp, edit | clean up unused code |
| 07/23/99 | neighbor_recolor | improved algorithm |
| 08/03/99 | cmo_interpolate | accept 'constant' as interpolation type - implement linear,log, asinh for integer attributes |
| 08/03/99 | recon2 | test for existence of icontab |
| 08/05/99 | readgmw_binary | allow line type elements to be read |
| 08/10/99 | connect | release imts1 when no longer needed |
| 08/17/99 | cmo_modatt_cmo | look for special name icr, imt, itp, isn and change icr1,imt1,itp1, isn1 |
| 09/03/99 | zq | get rid of unused options |
| 09/03/99 | rz | change i6 formats to i10 |
| 08/26/99 | cel_chain | check for infinite isn1 chain loops |
| 09/08/99 | dumpavs | check if no nodes, elements then return without crashing |
| 10/04/99 | delaunay | replace expensive inner loop with more efficient code |
| 10/12/99 | connect, settets, checkmbndry | check if mbndry is big enough |
| 10/19/99 | inv3x3, inv2x2 inv_schmidt_hilbert_lg.f | better solution to MX=Y for 3x3 and 2x3 cases |
| 10/19/99 | volume_qud.f volume_element.f | contains 2 algorithms for calculating volume of a quad call volume_qud (element) for old method using centroid call volume_qud(element)_alt_lg for method equalizing 4 contributing triangle areas |

Code Changes:

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|----------|---|---|
| 06/11/99 | refine | refine..edge for 2d now works like refine..face (in 2d edges are facets and nodes are edges - but people don't think that way hence the change) |
| 06/24/99 | rz | initialize itp, imt and icr to zero for new nodes. |
| 06/29/99 | blockcom, local_element.h | set up relationships for edges to faces for all element types |
| 06/29/99 | readgmw_ascii | call geniee at end -- skip blank lines, test for eof |
| 06/29/99 | readgmw_binary | call geniee at end |
| 07/12/99 | popcones_lg, massage | issue rmpoint/compress from within loop (needed for big problems) |
| 08/06/99 | lineline, xsectelementscmo, calc_rdist, lineseglineseg, xsectelm, inside_element, linesegtri, kdtreeselect, tritri | new subroutines |
| 08/24/99 | dump_material_list | replace * formats to speed up code |
| 08/24/99 | hpsortip, hpsorti, matbld1 | replace all calls to ssort with calls to appropriate hpsort routine |
| 08/26/99 | agd3d | don't print 'curve neighbor' warning to standard out. |
| 08/26/99 | popcomponents | new topo change routine |
| 08/26/99 | rmpoint | zero out imt1, itp1, isn1, icr1 for removed nodes in rmpoint/compress option |
| 08/27/99 | cmo_interpolate | handle 'and' and isetwd as special case |
| 08/30/99 | delaunay, refine_edge | add, findface, matbld0tri, matbld2d_stor |
| 10/12/99 | agd, sgd | replace calls to ssort with hpsort |
| 10/12/99 | mergepts_simplex | use inscribed radius not aspect ratio use epsilon _v not epsilon _l for volume tests |