GiD
The universal, adaptative and user friendly pre and post processing system for computer analysis in science and engineering

What's New

Table of Contents

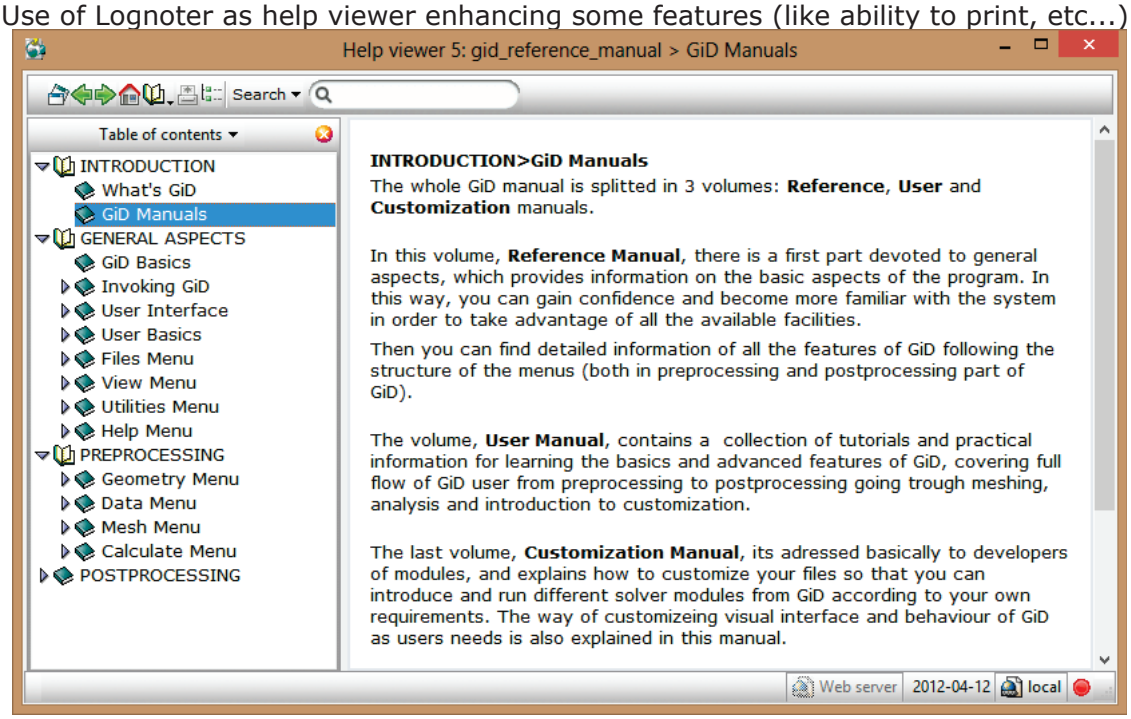
1 From 11 to 12

What's new

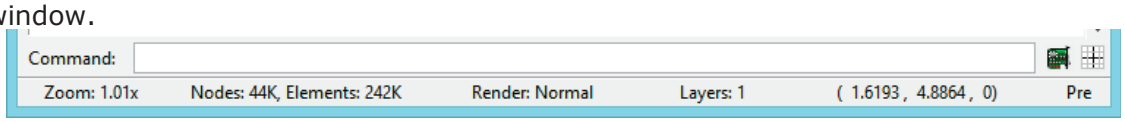
Main news from version 11 to version 12. (See Detailed changes of 11.1.x developer releases -pag. 8- for the full list of news).

General

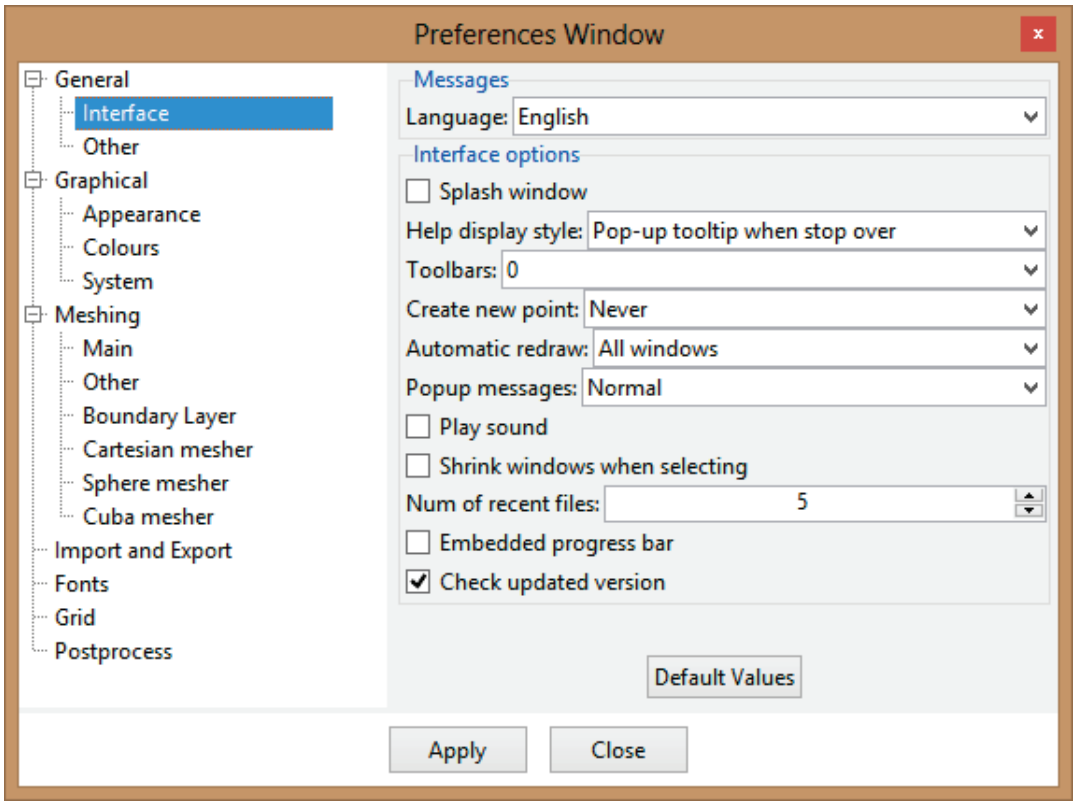
- Use of Lognoter as help viewer enhancing some features (like ability to print, etc...).



- Status bar containing mesh information, render type, etc in the lower part of the window.



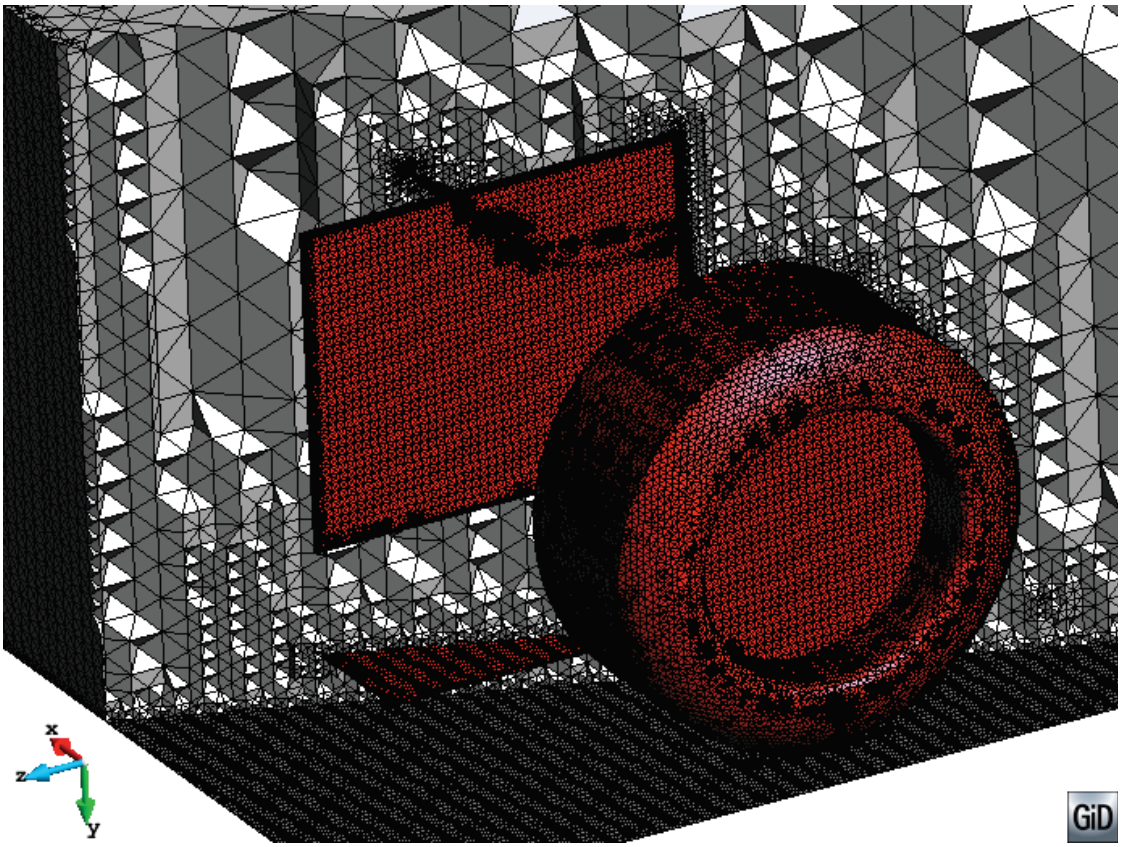
- Improved preferences window using a tree to organize the information.



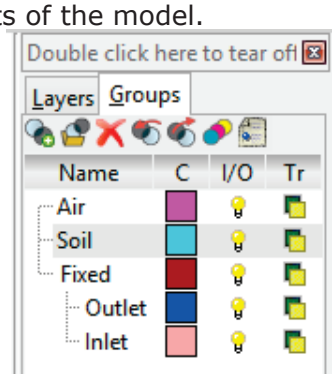
- Spheres and points rendering enhanced for big meshes (using textures, VBO,...)
- New and enhanced verctorial output: PostScript, PDF, SVG.
- Added new acceleradors: Control-1...4 for views, Control-t, Alt+Mouse to snap dynamic lines to horzontals, verticals or 45º diagonals.

Preprocessing

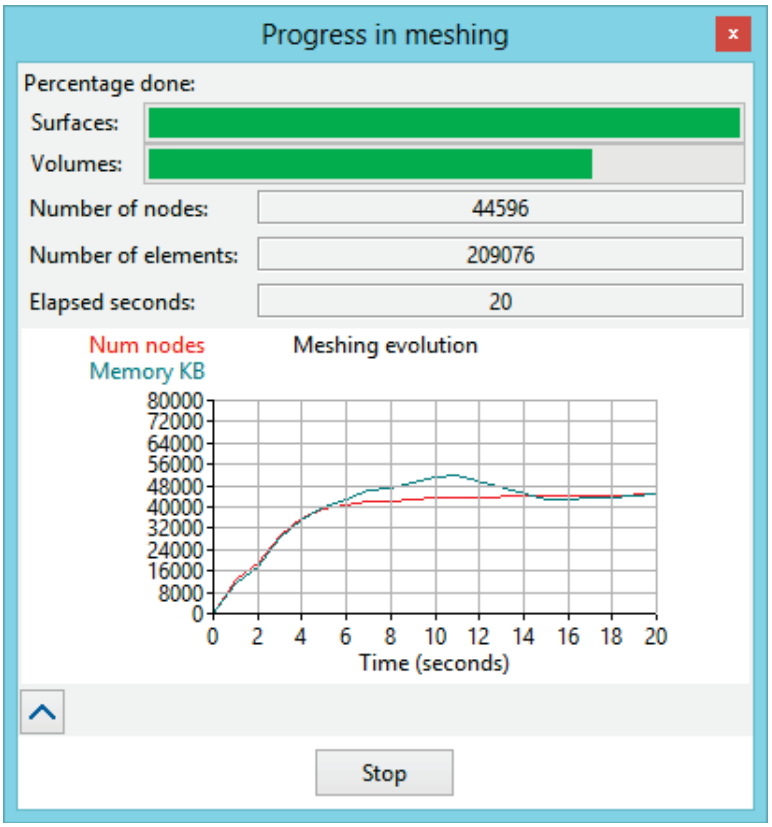
- New octree-based volume mesher: a robust and fast unstructured tetrahedra mesher, cappable to generate meshes from non-watertight definitions of the boundaries.



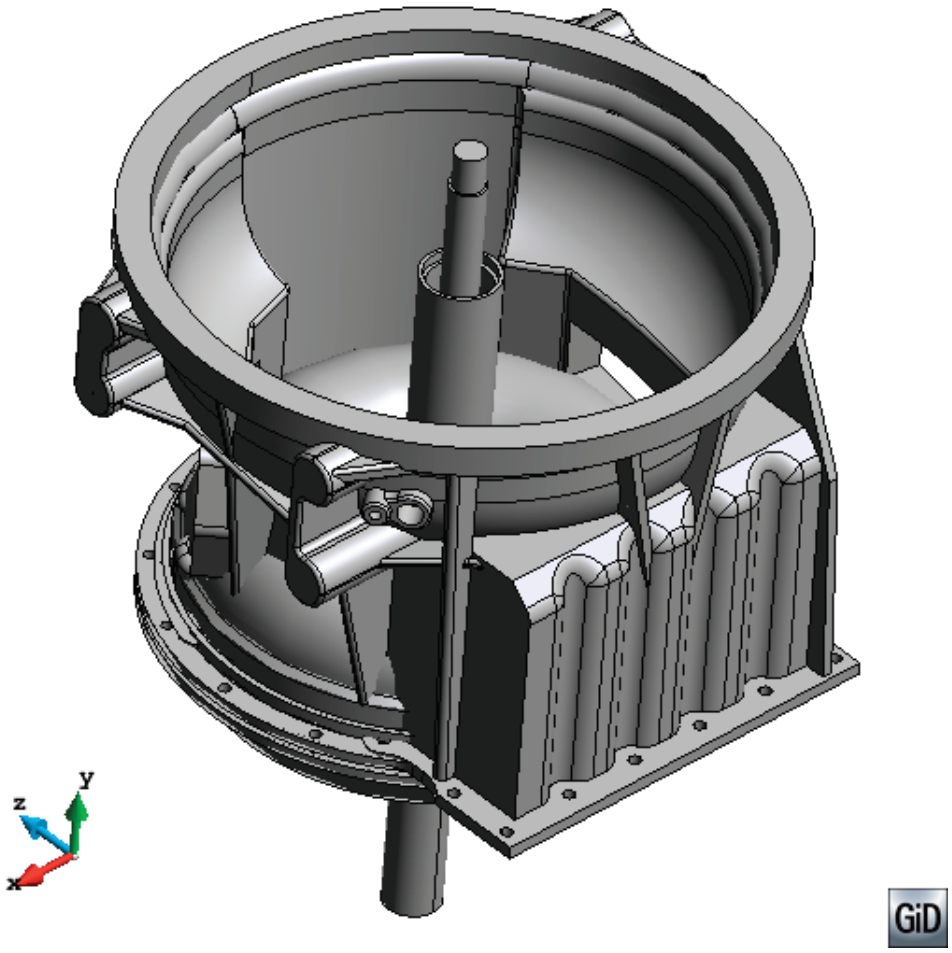
- Native groups, to better organize and assign properties (boundary conditions and materials) to the different parts of the model.



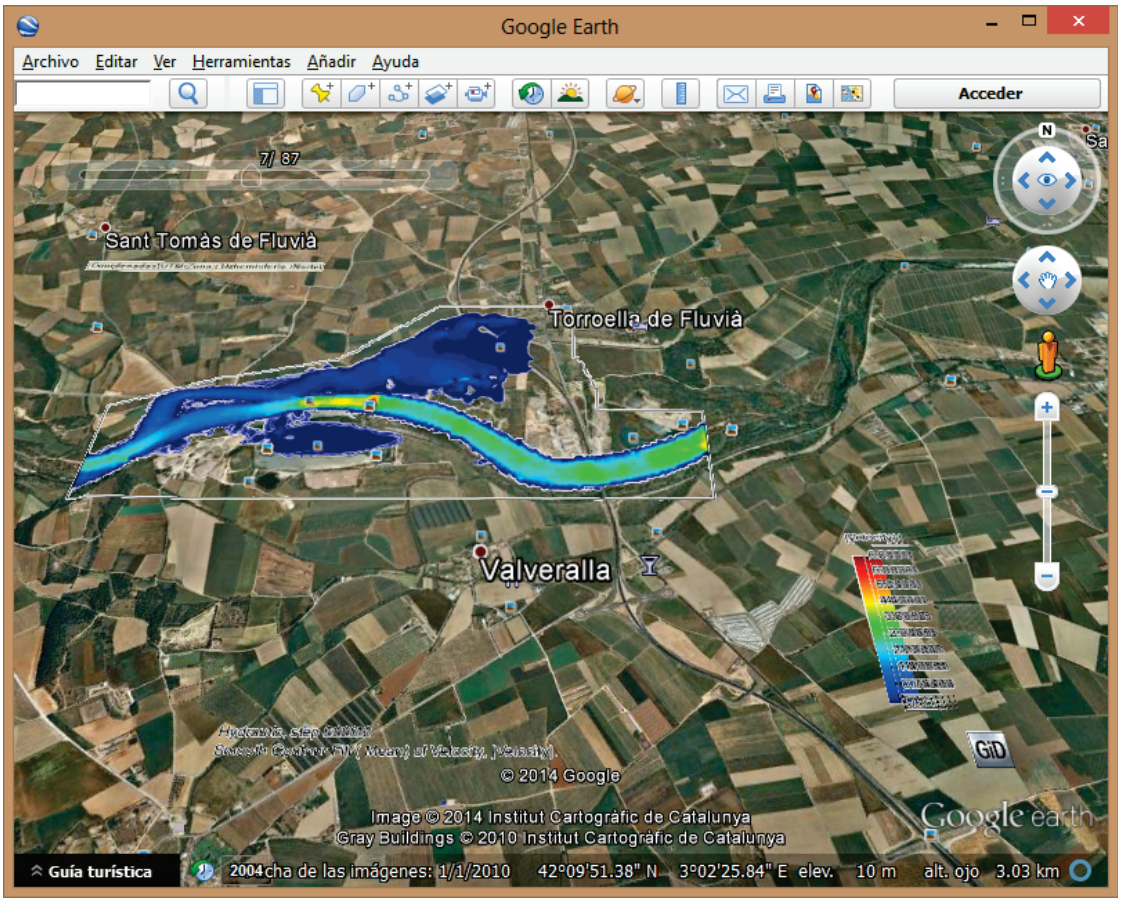
- New advance bar mesh window, showing memory and time consumed graph along time.



- Parallelization of mesh of volumes and surfaces
- STEP CAD format import (AP 214)

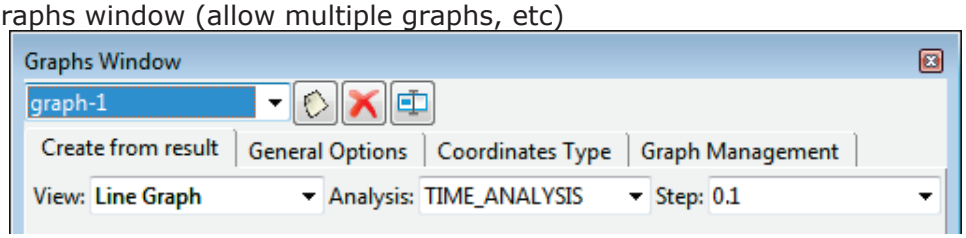


- KML plugin, to import 'Google Earth' .kml/.kmz meshes in preprocess, and export results in postprocess.

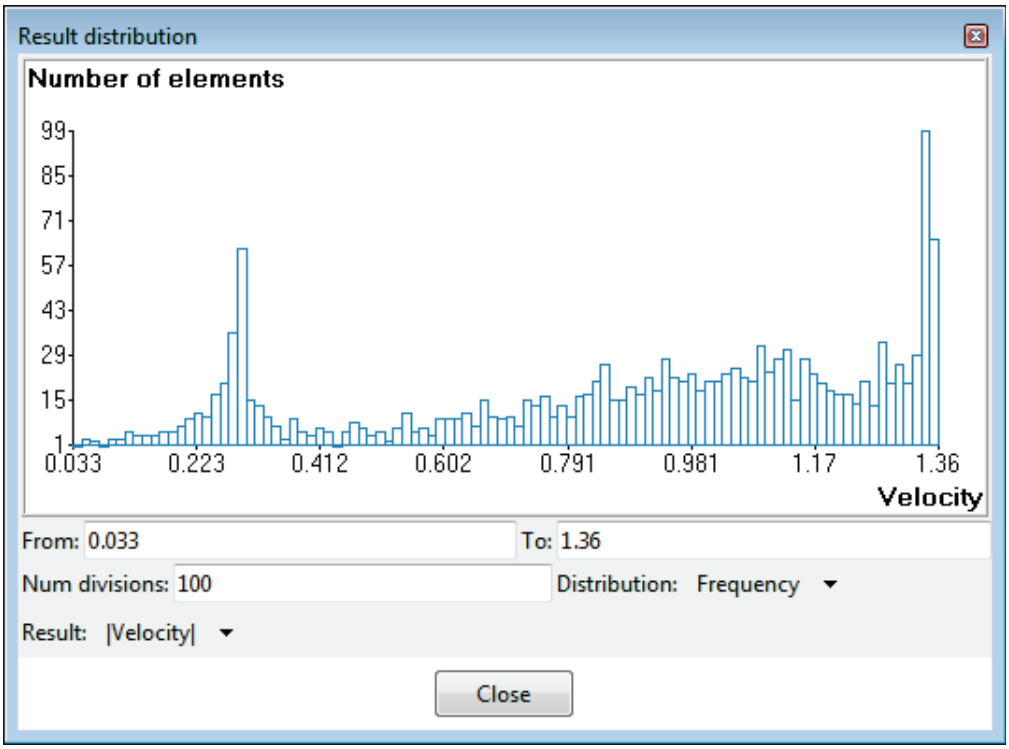


Postprocessing

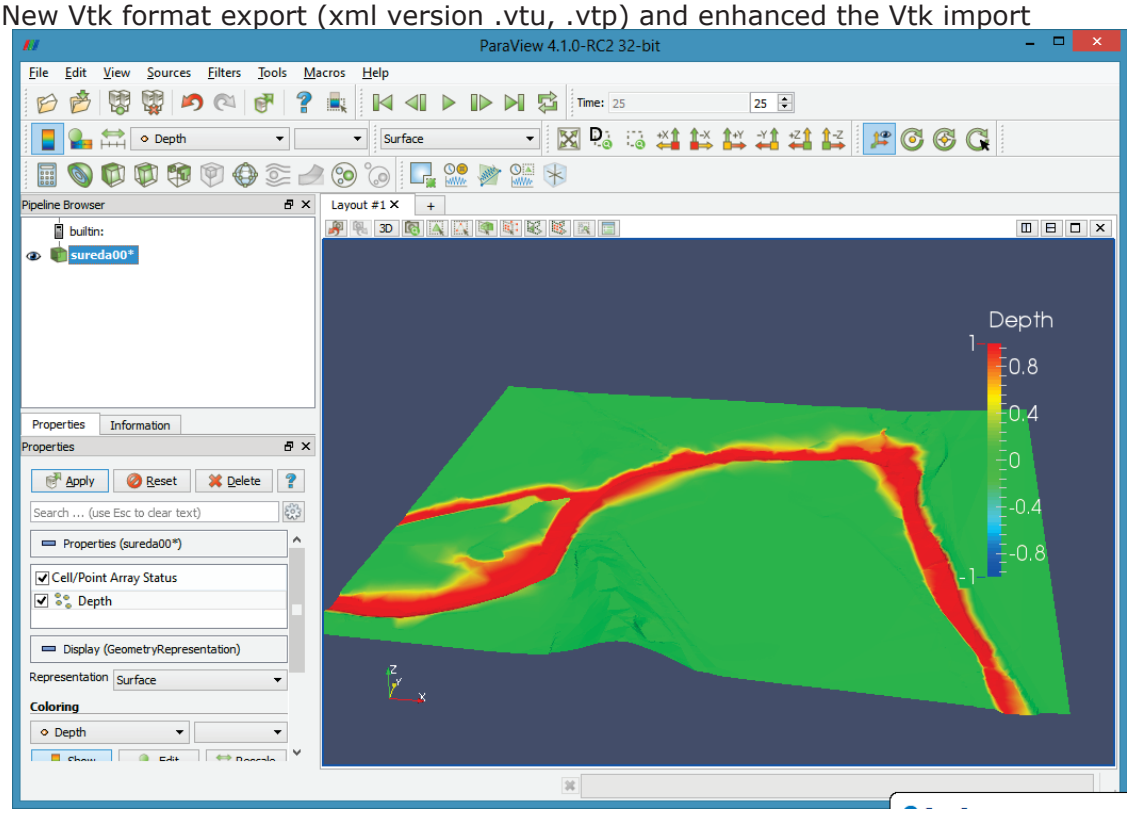
- 2D polygonal cut, new Line Thickness result visualization, smoothed gauss points results integrated in contour fill, lines, isosurfaces and other result visualizations.
- New graphs window (allow multiple graphs, etc)



- Result distribution window: to show a graph of frequency distribution of nodes or elements by result spans.



- New Vtk format export (xml version .vtu, .vtp) and enhanced the Vtk import



- Huge meshes: new simplification mode for visualizing huge meshes, can be user switchable through in the icon bar, or enabled as 'Fast rotation' mode. Geometric criteria is used and then results are interpolated at each result visualization, like c.fill and display vectors.
- Huge results files: enchanced and faster accesses using 'results cache'.

Customization

- Implemented plugin volume mesher mechanism
- Several new GiD-Tcl commands and events

1.1 Detailed changes of 11.1.x developer releases

1.1.1 From v 11.1.9d to 12

What's new

What's new from version 11.1.9d to 12

General:

- Licence change to GiD 12.x (11.x licences are not valid for 12.x versions)
- Using the *Alt* key when creating lines, cuts or other objects, will snap the dynamic line to one of the axis or to 45 degrees.

Preprocess:

- Fixed bugs in semi-structured volumes
- *Fixed bugs in contact volumes meshing*
- *Fixed bugs in contact volumes creation*

Postprocess:

- *Quadrilateras with 8 nodes:* now the central point (9th point in Quadratic 9 quadrilaterals) and its result is interpolated in Vertex Buffer Object and Vertex Array drawing methods. This is done also for *Hexaedrons with 20 nodes* and *Prisms with 15 nodes.* Including gauss point results and smoothed gauss points results.
- *Point and Sphere options:* separated size and detail options for points (and point mesh style) and for spheres and circles.
- *Indexed result files:* corrected problems when reading small files or incomplete results, at the end of the file or in the middle of a running simulation.
- *Display lists / Vertex Array / Vertex Buffer Objects:* avoid rebuilding graphical structures too often when changing mesh properties like style, colours, etc., or when changing from Fast Draw to Normal draw mode.
- *AVI and FLV animations:* corrected fps calculation when delay between frames is too big.

1.1.2 From v 11.1.8d to 11.1.9d

What's new

What's new from version 11.1.8d to 11.1.9d

General:

- Use of Lognoter as help viewer
- Macros window: checkbox to show only the list of user-defined macros
- *Spheres / points:* added line styles when drawing spheres and points with quick textures:
  - preprocess: in render normal and flat these elements are drawn with a lines texture
  - postprocess: all lines, hidden lines and body with lines styles uses lines textures too.
- *Vectorial ps, eps, svg, pgf and pdf snapshots:* smaller files, added vectorial pdf output, added vectorial option in the TakeSnapshot window, same snapshot/print to file options in pre and postprocess.
- Avoid crash meshing with tetgen with multiple threads

Preprocessing:

- STEP CAD format import (AP 214)
- 'Insert GiD geometry' changed to 'Insert GiD model' because now mesh and groups information is imported too
- Fixed some bugs related to the creation of 'separated contact volumes'
- *Labels:* corrected colours when drawing labels for spheres and when using Vertex Array, Vertex Buffer Object draw methods.
- *Labels:* added NoImmediate / Immediate right mouse button menu to switch between the click and show label mode and the complex selection mode.
- Improved efficiency in advancing front 3d mesher.
- Added macro to toolbar to send each volume to a different layer
- Fixed bugs in contact volumes and surfaces
- Fixed bug of layers hierarchy

Postprocessing:

- *Indexed result files:* corrected problem when gauss points where defined between results and not at the begining of the file.
- *Gauss points:* increased verbosity now it will complain if gauss point definitions are repeated; also when the mesh name is specified for the gauss point, it will check it the

mesh exists.

- *Gauss points:* now gauss points which can not be extrapolated to nodes are drawn as (contour fill) coloured spheres for the Vertex Array, Vertex Buffer Object draw methods.
- *Memory leaks:* keep track of shared temporal memory and delete them when not used anymore.
- *Binary result files:* added checking for *NaN* and *Inf* values.
- *Animation:* corrected contour limits problem when changing result visualization in the middle of an animation and rewind it.
- *Isosurfaces:* corrected crash when converting isosurfaces to cut meshes when no surface was there or no elements where generated.
- *Indexed binary results files*:
  - handling of gauss points definitions between results definitions
  - increased gauss points warning verbosity
  - option to rebuild the indices from the postprocess open file dialog
- *Scale Transformation:* Added scale transformation in copy window, as in preprocess it allows a uniform, or non-uniform, scaling of the model. This transformation, as the others, can be done only for viewing purposes or to create new meshes.
- *Deformation slide bar:* (from the deformation icon) corrected/enhanced its behaviour: if model is deformed using a result/factor, the slide bar will use the actual factor when deforming with the same/actual result. Resolution and size adjusted too.
- *Isosurfaces:* also for smoothed gaussian results
- *Contour Fill / Smooth Contour Fill* menus merged together; and the same for *Contour Lines / Smooth Contour Lines* menus.
- *Result surface:* also for smoothed gaussian results.
- *Line thickness:* also for smoothed gaussian results.
- *Line thickness:* render correctly lines, and extrapolate values at nodes, with gaussian results when they do not include the nodes of the lines.

Customization:

- Implemented plugin volume mesher mechanism

  several events: GenerateSphereMesh (to be invoked to generate the mesh of spheres)

  variable SphereMesher to store the kind of sphere mesher

  several Tcl procedures: (see gid_plugin_mesh.tcl)

  GiDMeshVariables TclOO superclass to derivate subclasses for variables of plugin meshers

  GiD_RegisterPluginMeshVariablesClass / GiD_UnRegisterPluginMeshVariablesClass

  GiD_RegisterPluginPreferencesProc / GiD_UnRegisterPluginPreferencesProc

  GiD_RegisterPluginGenerateSphereMesh / GiD_UnRegisterPluginGenerateSphereMesh

  PluginMeshVariablesClass_VariableManager, to access values of variables

  CreateWidgetsFromXml::AddAfterName , to modify the preferences window

GiD_RegisterProcedureToInvokeAfterSourcePlugins, to do something after plugins are sourced

- GiD_Mesh get element returns also radius for spheres and circles, and normal for circles
- New Tcl/Tk packages added
  - gdi (access to a subset of Windows drawing routines)
  - printer (Windows printer interface and utilities)
  - Lognoter, pdfwriter, tktablet, xml2pdf (to use lognoter as help viewer)

1.1.3 From v 11.1.7d to 11.1.8d

What's new

What's new from version 11.1.7d to 11.1.8d

General:

- *File dialog:* new options to sort files and folders alphabetically (exaple: a1 a11 a2), by dictionary (understanding integers within name, example: a1 a2 a11), by modification date (newer first) and by size (bigger first). These options are accesible using the right buttom mouse menu.
- *New preference:* 'checkbox updated version' variable in General preferences window.
- *New key bindings:*
  - Control-1 to 4 for common views
  - Control-t to set the focus in the command line to write commands.

Preprocessing:

- Selection 'Children of', to select child entities of a picked parent.
- Entities of frozen layers drawn in gray
- Fixed bug with orthogonal view to z axis, the model is drawn in a wrong place.
- Fixed error saving a mesh with only nodes but not elements (nodes were not saved)

Postprocessing:

- *New Vtk format export* (xml version .vtu, .vtp) and enhanced the Vtk import.
- *Open Multiple files:* corrected problem when reading an unordeder list of files.
- *Several analysis, different results:* corrected problem which arised when doing first a result visualizacion (c.fill, display vectors) of a results of analysis/step AS1, then deforming the model with another results of another analysis/step AS2, and then gid tries to actualize over the deformed model the first result visualization.
- *Polygonal cut:* corrected crash when a polygonal cut was deleted and another

postprocess model was loaded.

- *Iso-surfaces:* corrected problem when a mesh is drawn as points, and it was switched off, it was still drawn if it had an isosurface.
- *Iso-surfaces*: corrected problem when all meshes were switched off and a zoom frame was selected, the iso-surface was moved out of the view.
- *Line Thickness:* support for several gauss points in line elements, before only 1 gp was handled.
- *Line Thickness:* correct drawing of thick+nice lines for render flat and for render smooth.
- *Line Thickness:* correct update of line thickness visualization when some result surface/line thickness options were changed.
- *Smooth Contour Lines:* added this new result visualization, to draw contour lines using smoothed gauss points results, like Smooth Contour Fill.
- *Iso-surfaces:* corrected problem (too much memory was used) when converting iso-surfaces into cuts (proper meshes).
- *Contour lines:* new option to set the widht of the lines of this visualization, they will also be scaled when creating high resolution images.
- *Animating smooth contour fill:* corrected crash when fixing global limits when several meshes are used at different time steps.

Customization:

- New command *GiD_Book material|condition create|set|exists* to create a book, check if exists or set the book of a condition or material
- *GiD_Info materials:* new option to list materials of a book: GiD_Info materials($book)
- *GiD_ModifyData:* new option -book to change a material or condition to other book
- *GiD_CreateData:* material now return the number of the new material
- *GiD_Info Mesh -post NumElements:* implemented missing option -post -step $step_index
- *GiD_Info Mesh -post Nodes:* added -step $step_index option

1.1.4 From v 11.1.6d to 11.1.7d

What's new

What's new from version 11.1.6d to 11.1.7d

General:

- *USB linux passwords*: now passwords registered using USB memory sticks are recognized on Ubuntu 13.04 and Fedora 18 (linux kernel >= 3.8).

- Tk Img package incorporated in GiD. Other packages actualized.
- *Multiple windows:* corrected size distribution problem when multiple windows were enabled.
- *Batch mode:* corrected some problems and issues when running GiD in this mode.
- *Selection lines by software (emulate front buffer)*: corrected problem when GiD window is very big on modest graphic cards or using GiD in 'safe mode', or gidx.
- *MS Windows 64:* corrected problem with progress bar and results cache when reading files with size > 2GB.

Preprocessing:

- *Perspective:* corrected normal render of geometry when model is using huge coordinates.
- *STL binary on Linux:* corrected problem when reading binary STL's on Linux x64.
- *Conditions over groups:* if name is present and not repeated, it's used, otherwise a new name is generated.

Postprocessing:

- *Result Surface:* splitted into two result visualizations: *Result Surface,* for everything except lines, and *Line Thickness,* with new icon in the Results icon bar.
- *Result Surface:* corrected drawing problem when using Result surface with gauss points results.
- Line thickness: now thickness is correctly drawn as world absolute thickness, and not screen size fixed.
- *Legends:* correct width calculation for high resolution prints.
- *Spheres:* corrected zoom frame problem when reading only one sphere.
- *Polygonal cut:* corrected problem when doing polygonal cuts on models with huge coordinates.
- *Integral graphs:* drawing symbol over the original model to tell that there is a integral graph.
- *Iso-surface export:* corrected problem when exporting iso-surfaces as cuts.
- *Iso-surfaces:* corrected isosurface style problems, when it's bad defined --> set at least body visualization of isosurfaces.
- *Read/save state*: now cuts converted to set are also saved and read between session.
- *Several Meshes:* corrected problem with several meshes with different number of layers at each time step, when animation a deformation and a contour fill.
- *Graphs:* Point evolution and point graph (res1 vs. res2): do not include points with undefined results in graphs.

Customization:

- New GiD-Tcl e*vents:*
  - proc AfterSaveAs { old_name new_name } { body... }
  - proc AfterChangeViewMode { mode } { body... }
  - proc AfterDeleteGroup { name } { body ... }
- New GiD-Tcl command: GiD_Togl current|list

- *Retrieve Problem Type:* corrected problems when cancelling download and suggesting platforms and version when current version on current platform is not found.
- *Calculation:* corrected problem with fast calculations in Linux, which caused gid to lock.

1.1.5 From v 11.1.5d to 11.1.6d

What's new

What's new from version 11.1.5d to 11.1.6d

General:

- *Views:* corrected problem when preprocess views were used in postprocess and viceversa.
- *Animation Scripts:* window works again, scripts can be read, saved and exported again. Added cehckbutton to link animation with results animation window, still alpha.
- *VA/VBO:* fast render methods checking enhanced when graphics driver is badly installed or corrupted due to partial actualizations.
- Added a lower information bar containing zoom level, number of nodes and elements, render type, coordinates with length units and indicator of preprocess/postprocess.
- *Window automatic placement:* windows between pre- and post- remain open instead of being closed and, sometimes, opened again. Batch window and preferences window remain open between pre and post.
- *Retrieving problemtypes:*
  - Better handling of versions and suggestions if selected problemtype can not be found for the current platform, for examples MS Windows 32 bits problem type will be offered if MS Windows 64 version can not be found.
  - Window will pop-up to provide feedback to the user when he selectes a problemtype to download directly from the menu.
  - Asking for administrative privileges when retrieveing problemtype if the installation directory is restricted.
  - Linux: corrected problem now problemtypes folder is scanned and problemtype's icons are read so that they appear in menus and file browsers.
- *Linux:* corrected problem when launching internet browser in linux with links to web pages.
- *Linux:* if GiD is installed on restricted directory, i.e. as root, then later the user will be asked for permission to save password and retrieve problemtypes.

Preprocessing:

- New advancing mesh window, showing graph along the time.
- Fix bugs in octree based volume mesher.

Postprocessing:

- *Deformation:* if some nodes do not have the deformation defined, then when the model is deformed, these nodes will be placed 'out of sight', instead of not being deformed at all.
- *Results animation:*
  - corrected problem with which user defined limits were not hold when doing animation of several results.
  - verify only user specified step in the *from:* and *to:* entries when doing animation of a deformation of an analysis and c.fill of another one.
  - *iso-surfaces with contour fill:* now the animation of these two combined result visualization can be done without the 'several results' option.
- *Contour colours window:* corrected resizing problem and drawing of more than 100 colours. Now the first time the user selects the design map option, the rainbow colours are shown.

- **Customization:**
- *Data window:* avoid problem of non equispaced columns of tables, now it shows the true table header too.
- *Data window:* fixed problems of unordered rows with copy/paste of table values.
- New GiD-Tcl events for postprocess:
  - AfterCreateVolumeSet, AfterRenameVolumeSet, BeforeDeleteVolumeSet
  - AfterCreateSurfaceSet, AfterRenameSurfaceSet, BeforeDeleteSurfaceSet
  - AfterCreateCutSet, AfterRenameCutSet, BeforeDeleteCutSet
- New Tcl/Tk packages added
  - Img (Tk images several formats)
  - Twapi (Tcl Windows API)
  - Tcllib
  - Tklib

1.1.6 From v 11.1.4d to 11.1.5d

What's new

What's new from version 11.1.4d to 11.1.5d

General:

- New button to create a new interval inserted in the specified location
- *High-resolution pictures:* corrected problem which arised on Intel graphics and on Linux and on MS Windows.
- *Initial GiD window:* adjusted size of first-time initial configuration window for small screens.
- *File dialog:* now the last used directory is remembered for images, graphs, postfiles besides normal files and projects.
- *TTFonts:* a list of the TTF fonst is saved between GiD sessions. The TTF fonts of the system are queried if the list does not exists or at user request, from the preferences window. With this option the font preferences panel will open faster.
- Draw legend with names when drawing Groups

Preprocessing:

- Utilities->Swap normals, new option to set normal of skin surfaces/curves of selected volumes/surfaces pointing inside
- *Circles and spheres:* also drawn as points when using the quick draw mode for those elements, besides the internal textura and nice options.
- *Legends:* new options for condition and material legends, as in post: draw with opaque background and with a surrounding border. They are also in the preferences windo, under Graphical --> Appearance. Both are also used in postprocess legends.
- Fixed bugs in boundary layer meshing.
- Fixed bugs in octree volume mesher.

Postprocessing:

- *Results cache:* improved performance when results are retrieved from disk by sorting the accesses.
- *Comments:* new parameter for comments %tcl() to evaluate a tcl command and display it's result as comment, for instance: "Step id = %sv, correct step value = %tcl(expr $sv * 2.5 + 3.4)" --> will translate to "Step id = 1, correct step value = 5.9".
- *2D Polygonal cut (former Cut Wire):* polygonal cuts can be done on triangular and quadrilateral surfaces, any point can be selected and not just over element edges like the 'cut wire' option. These cuts can be imported and exported and are saved between sessions, like normal cut planes. Quadratic elements are handled as linear ones, like normal cut planes. Nodal results and 1gp results are passed to the new cuts as well.
- *Circles and spheres:* corrected error when drawing these elements as quick points using the Vertex Array (VA) or the Vertex Buffer Object (VBO) methods.
- *Utilities-->List:* corrected bug when listing cached results
- *Result surface:* corrected problem when drawing extruded result surface with va/vbo drawing method.
- *Binary results:* added support for indexed binary postprocess files to speed-up the results cache mechanism and the reading process.

  Two new preferences has been added under the *Results' cache* label:

  - *Use indexed binaries:* uses the index file just to access the data
  - *Use indexed results information:* if present in the index file, the results information

will be used instead of reading it directly from the whole postprocess binary file. If the index file is not present, then it will be created (if the 'Use indexed binaries' option is enabled). The index file will be regenerated if the original binary file is newer than the index file. The user can also recreate the index file by using Files-->CreateBinaryIndex in the right buttons menu.

A new command line option has been added 'gid -createindex results_binary_file.post.bin' to create the index file from the command line or in a script.

- *Change orientation:* new option to change orientation, and their normals, of surface meshes (triangles, quadrilaterals and circles) under *Options-->Geometry-->Swap* orientation of visible surfaces.
- *Display vectors:* corrected drawing error when drawing as vectors a component of a resullt vector with fxed size vectors.
- Graphs window enhanced:
  - graphs selection: double click -> edit selected graph, right mouse -> contextual menu to delete or edit graph
  - graphset preferences of legend:
  - combobox to set position instead of swap it, and allow also hide the legend
  - allow hide graphset text of the legend
  - access to opaque-transparent variable (common to all legends)

Customization:

- GiD_IntervalData create ?<number>? ?copyconditions? : new option <number> to be inserted in the specified location
- GID_Info condition, new suboption -count to return the amount of enties with the condition instead of the list of values
- *New Tcl command:* GiD_Info opengl to get info about Opengl/glew version and renderer.
- New Tcl subcommands related to graphs:
  - GiD_GraphSet edit <graph_set> legend_location|title_visible <value>
  - GiD_Info postprocess get graphs_option LegendLocation|TitleVisible
  - GiD_Graph selection set|get|swap <value> <graph_name>
  - GiD_Graph get_name <num> ?<graph_set>?

1.1.7 From v 11.1.3d to 11.1.4d

What's new

What's new from version 11.1.3d to 11.1.4d

General:

- Fixed bugs in new preferences window.

Preprocessing:

- Fixed bugs in octree volume mesher.

Postprocessing:

- P*oints, spheres and circles sizes:* maximum limit restriction relieved and turned into a warning, values above the maximum limit may cause that these elements not be drawn if *Quick draw mode* is used.

1.1.8 From v 11.1.2d to 11.1.3d

rom v 11.1.1d to 11.1.2d

What's new

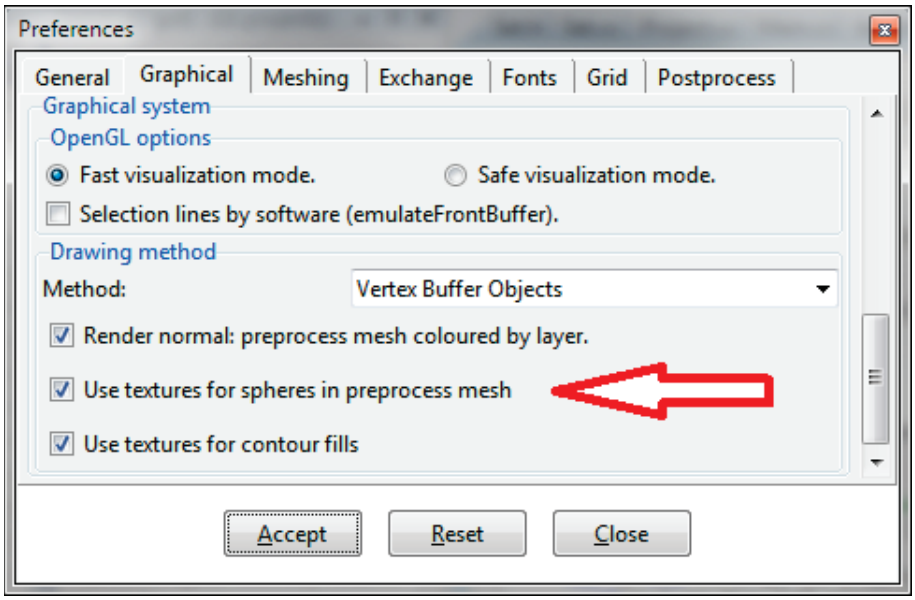
What's new from version 11.1.2d to 11.1.3d

General:

- *Spheres + VBO:* added memory limit when drawing thousands of spheres with high detail level. If limit is reached, then the detail level is lowered. At detail level 0, spheres are drawn as points. The memory limit is set to 1 GB, which implies that up to 120 thousand spheres can be drawn with a nice detail level (n.d.l.) of 9, i.e. ~630 triangles per sphere, 150 thousand spheres up to n.d.l. 8 (510 triangles), ..., 560 thousand up to n.d.l. 4 (128 triangles).
- Problem saving the GiD password avoided (Windows platform with 'User Acess Control' enabled). Administrator permission is asked to allow write the password to file.
- gid -tclsh ?<tcl_filename>? to source a file in a tclsh or open a interactive Tkcon console (e.g. to do special thinks with and auxiliary script or execute the solver calculation)
- MouseWheel now zoom the model directly, without require pressing the <Shift> key
- Improved preferences window using a tree to organize the information.

Preprocessing:

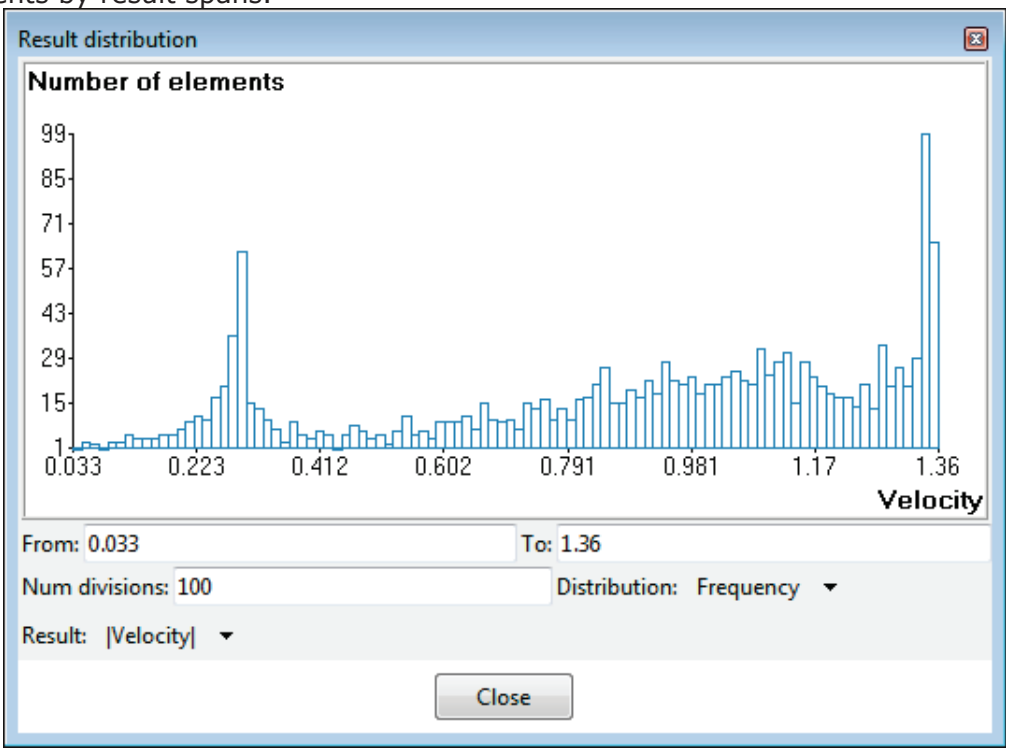
- Improvements in Octree based mesher.
- *Spheres rendering:* new draw and faster mode for spheres which uses a texture to draw a sphere. Can be enabled and disabled in the Graphical panel of the Preferences window:



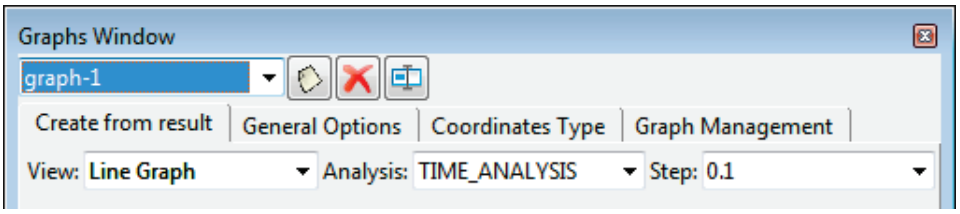
- Fixed some bug related to groups, and some new features, like select dependencies, and list conditions applied to some group

Postprocessing:

- *Result distribution window*: to show a graph of frequency distribution of nodes or elements by result spans.



- Multiple graphs: now it is possible to have more than one graph, separating them by 'graph sets' that can be handled from the 'Graphs window'



- Table to edit graph points enhanced: multiple selection, allow copy/paste in Excel, etc.
- Graphs are drawn inside the 'graphs window' instead of the main window, to simultaneously see the model and graphs.
- Graphs operations enhanced: now it is possible to operate with two graphs,e.g. to substract them, with different amount of x values.
- Graphs: Labels are properly showed with logarithmic scale.
- *Graphs*: If applicable units are drawn in the axis label.
- *Graphs*: Result step is specified in the graph title.
- *Cut Wire*: now all edges of elements of the model between user specified points are cut. Still the user should pick points lying on model edges.
- *Stream lines:* better calculation of initial time step to create stream lines.
- *Stream lines:* new **2D constraint** option, with which the stream lines calculations discards the z-coordinates of the mesh and the z-component of the vector field. The stream lines is projected to the triangle or quadrilateral mesh though.

Customization:

- New GiD-Tcl event BeforeReadGIDProject that allow to return -cancel- to abort it.
- New GiD-Tcl event AfterSaveFile raised when exporting a file in some format.
- New macro to import a selection of multiple IGES files and send then to layers named with file names and collapse independently.
- New GiD_Info parametric uv_projection_z_fromcoord subcommand, to get the location of a point projected in direction z on a surface
- New GiD-Tcl command: GiD_GraphSet create|current|delete|edit|exists|list
- Addet options edit and exists to the GiD-Tcl command GiD_Graph, and an optional <graphset_name> parameter could be specified.
- GidUtils::TkwidgetGetVector3D predefined Tkwidget procedure to show in a single row three entries for x, y, z real coordinates of points or directions.

1.1.9 From v 11.1.1d to 11.1.2d

What's new

What's new from version 11.1.1d to 11.1.2d

General:

- File 'download.xml' to get a problemtype on demand from the 'Internet retrieve' repository
- New KML plugin, to import 'Google Earth' .kml meshes in preprocess, and export results in postprocess, .kmz compressed files are supported.
- Plugin Ema3D, fixed bug with some special description of cartesian meshes.
- *Grey images:* Corrected problem with grey images when they were used as textures or background.
- *new command line option -noredirect :* to avoid redirection of stdoutput and stderror messages and print them in the console.
- *Linux:* some redraws avoided when a tooltip or a menu is displayed over the graphical window

Preprocessing:

- Material window: added a button to allow rename a material
- Import xyz files: option to triangulate points or nodes after import, and allow XYZ first line header.
- Allow generate structured mesh on surfmeshes of 4 or 3 sides.
- Bugs fixed in octree volume mesher.
- Parallel processing used in octree mesher (unstructured volume mesher). (Number of threads to be used defined by the user in the Utilities->Preferences window, General tab).
- Fixed bug in the creation of ContactVolumes when its surfaces have holes.

Postprocessing:

- New Calculix plugin, to import 'Calculix' .frd mesh and results in postprocess (Files->Import->Calculix...)
- *Labels of results:* corrected problem which appeared sometimes with labels of results, when the timestep was changed the label of the result change to label of node number.
- *Spheres:* when drawing sphered / particles / points in nice mode, the quads now are drawn as 4 triangles, instead of 2, so the render quality has been increased a bit.
- *Textures:* when applying textures, if the render mode is vertex array or vertex buffer object, it is changed to display lists, because textures mapped on meshes are still not supported in va/vbo mode.
- *Textures --> ScreenMap*: if GeoReference information is present, it can be shown and used to project the image to the mesh, f.i. applying terrain images to a terrain mesh.
- *Textures*: corrected problems: when changing mesh style, texture now remains on; and when applying a texture, draw no results (c.fill & co) --> c.fill hides texture
- *Results:* corrected bug when result's name is > 100.
- *Reading TIFFs*: (for textures or background) support for tiff using colour maps and inverse black-white maps.
- *XYZ import*: option to triangulate/tetrahedrize the point cloud after importing.
- *line graphs:* corrected bug for line-graphs when triangles are aligned and "very close" to the line.

Customization:

- .bas template command *FileId to provide the channel of the calculation file to a tcl procedure to directly print data.
- GiD_File fopen|fclose|fprintf|list command to allow print data from tcl in the calculation file opened from a .bas template
- GiD_EntitiesGroups get , new options:
  -count to get only the number of objects instead of its list.

  -element_type <types_allowed>: to filter the types of elements to be taken into account
- GiD_Groups edit|get, new 'state' option with possible values: normal, disabled, hidden
- new function gid_themes::GetImageModule, retrieve images from module according to GiD theme, more info on customization manual.
- Fixed bug overwitting .spd file when using 'Save as' (current file get from memory data was overwritten with old .spd disk file)

1.1.10 From v 11.1.0d to 11.1.1d

What's new

What's new from version 11.1.0d to 11.1.1d

Preprocessing:

- Native groups.
- Dimensions: allow create a Radius dimension in mesh view setting three coordinates.
- Fixed some bug concerning semi-structured volumes when checking topological compatibilities before meshing.
- *Layers window:* is no more restricted to be opened in preprocess integrated in the main graphical window
- Octree volume mesher ready to be used from MeshFromBoundary option. Option to set a maximum angle to consider sharp edges (MaxAngleSharpEdges).
- Several bugs fixed in octree volume mesher.

Postprocessing:

- *Isosurfaces and Streams:* corrected bug which reset iso+stream visualization styles when *Geometry --> NoResult* was selected.
- *Isosurfaces:* transparency factor of monochrome isosurfaces can be changed with *Geometry --> Options --> Iso surfaces --> Change color*.
- *Display Style window:* now the layers window can be opened when it's integrated in the

main graphical window.
- *Several results:* corrected problem which caused color artifacts when drawing c.fill, vectors with colour depending on the vector's modulus and several isosurfaces with their own result's colour.
- *Isosurfaces:* corrected problem related to empty legend window when they were placed outside the main window.
- *Display matrix vectors (stresses):* corrected bug which caused to draw only the *X* component of the *Si* main stress vector in *render normal* mode. In *render flat* and *render smooth* modes, stress vectors were drawn correctly though.
- *Labels:* labels are drawn a little bit nicer and smarter, i.e., GiD tries to place labels in one of four positions, where the label is less occluded by the model.
- *Spheres and circles:* corrected bug when merging files with spheres or circles.
- *Quadrilaterals and VertexArray and Vertex Buffer Objects:* now quads are drawn as 4 triangles, as with Display List draw mode.

Customization:

- GiD-Tcl event proc AfterProcess { words is_rotation } , to able send GiD commands from a master to a slave
- GiD-Tcl commands:
  - GiD_Groups create|delete|edit|get|list|window|exists|draw|end_draw
    - edit rename|color|visible|allowed_types|parent <group> <value>
    - get color|visible|allowed_types|num_entities|num_conditions|id|parent <group>
  - GiD_EntitiesGroups assign|unassign|get <group> <over> <selection> or GiD_EntitiesGroups entity_groups <over> <entity_id>

  (over: points|lines|surfaces|volumes|nodes|elements|faces|all_geometry|all_mesh)
  - GiD_Info conditions ovgroup, GiD_Info conditions $condname groupallow|condmeshtype|canrepeat
- .cnd file: Conditions 'over groups' and special field GROUPALLOW to restrict allowed categories of enties of the group: points lines surfaces volumes nodes elements faces
- New .bas template commands related to groups (see Dump.bas example template) :
  - *loop groups, *groupnum, *groupfullname, *groupname, *groupcolorrgb, *groupparentnum,
  - *set group *GroupName *nodes, *GroupNumEntities,*loop nodes *onlyingroup
  - *set group *GroupName *elems, *loop elems *onlyingroup
  - *set group *GroupName *faces, *loop faces *onlyingroup, *faceelemsnum:*faceindex
- New .bas template commands related to conditions over groups:
  - *loop conditions *groups, *loop groups *onlyincond, *groupnum *groupname
- *GiDPost library + GiD*: the GiD_FlushPostFile command ensures that the last result is flushed to the postprocess file so that gid can read it completly and only complain about the incomplete file.

General:

- *Labels:* now labels are shown when they are selected and not after pressing the 'escape'

key.

- Fixed some bug when using remote calculation.
- *Calculate in Linux:* now the line ending of the first line in the **.unix.bat** file is checked and issues an error if it looks like a ms windows one.
- *PostScript (ps, eps), pdf,svg:* added gl2ps library, by C. Geuzaine, which
  - improved size of vectorial postcripts (x4 in size reduction),
  - adds new output formats: svg (scalable vector graphics), pdf (portable document format).
- *when generating vectorial images* (ps, pdf, pgf, svg) contour fills are drawn without textures, drawing method is changed to display lists and after the image is generated, their state is restores back.
- *Vectorial prints (ps, eps, svg, pdf)*: comments and legend are ensured to be drawn over the model.
- *Drawing Zoom factor*: now the zoom factor is shown just under the axes. *Zoom frame* set the zoom factor to 1x. When a project or a postprocess model is opened, the readed view is also used as zoom factor 1x, but the next *zoom frame* will be zoom factor to 1x. The showing of the zoom factor can be disabled through the right menu option (or command line commands) *Utilities --> Variables --> ShowZoomFactor* .

1.1.11 From v 11 to 11.1.0d

What's new

What's new from version 11 to 11.1.0d

Preprocessing:

Geometry:

- Conditions window: allow list values of applied conditions along all intervals.
- Creation of NURBS line as curve u or v constant on a NURBS surface.
- Creation of points specifying u and v on a parametric surface.

Mesh

- Octree volume mesher
- Draw grid on cartesian mesh.
- Variable AlignSemiStructuredNodes to force the semi-structured volumes to have the structured nodes aligned.

Postprocessing:

- new simplification mode for visualizing huge meshes. at the moment only geometric

criteria is used. c.fill and display vectors can be drawn over this simplified mesh.
- Post state also saves cut between sessions.
- Faster vectors drawing in render mode, corrected " options --> vector--> draw all vectors " option
- more integrate vector options to appear in graph window
- Enabled quick internal texture drawing method with display style nodes and nodes+boundary now, selectable through Options --> Geometry --> point options
- Legends: same look for linux and ms windows.

Customization:

- Condition with locals axes field #LA#, new kind of 'automatic main' #M# axes for surfaces using its main curvature directions if they can be defined.
- Plugins: GDAL 1.1 allow convert raster file into Arc/Info grid ASCII file.
- Problemtype Ansys, added function to import mesh of hexahedra from Ansys file.
- *dev_kit / GidUtils*: new gidutils functions:
  - GidUtils::TransformScreenToWorld { scr_x scr_y} # transforms screen coordinates to world coordinates
  - GidUtils::PickWorldPoint { { WarnLineMsg ""}} # waits for the user to picka world point

Fixed bugs:

General:

- **Fixed problem when taking JPG snapshots.**
- **Fixed bug: now** *'gid -help'* **prints help in the linux console.**
- **Fixed bug with tooltips which caused to draw a very long single line.**
- **Fixed problem when taking snapshots with the** *'take snapshot'* **icon**

Preprocessing:

Geometry:

- **Fixed bug in geometry from mesh option.**
- **Avoid error messages directly printed to stdout when trying to open a jpeg file (e.g. background image)**
- **Surface division: fixed bug that join close points of the surface**

Mesh:

- **Fixed bug in semi-structured volumes meshing.**
- **Fixed bug in RSurf unstructured surface mesher.**
- **Fixed bug in meshing advance bar.**
- **Fixed bug in unstructured quadrilateral mesher.**
- **Fixed normal orientation on faces of prisms for** *vertex buffer objects* **drawing method.**
- **Fixed several configurations where Tetgen crash.**
- **Fixed bug in cartesian mesher for non-uniform meshes**

Postprocessing:

- **Fixed bug when drawing transparencies in normal render, i.e. without ilumination, which caused to draw the mesh too dark.**
- **Fixed bug when taking PNG snapshots of displayed vector results, also stresses and complex vectors, which caused to draw vectors and legends somewhat transparent, and looked too light.**
- **Corrected bug when** *results cache* **was activated and cuts were converted to full featured sets (** *Do cuts --> convert cuts to sets***), when interpolating the new results, the original were not retrieved from disk.**
- **Fixed problem with which the user could not abort reading multiple files.**
- **Fixed problem which caused gid to crash with vertex buffer objects and some complex visualization combinations.**
- **Fixed problem when exporting PLY: now the number of faces is checked to avoid writing empty ply files, only surface meshes and cuts converted to sets are exported.**
- **Fixed problem when exporting cuts: avoids writing of empty files.**
- **Fixed problem with graphs, which added '_' in names.**
- **Fixed bug when doing a contour fill which caused to change the 'Point' visualization style.**
- **Fixed problems with the thousand separator in numbers.**
- **Fixed problem then creating a** *Do cuts --> cut wire* **which could not be created when the 'draw interior elements' is disabled for a surface mesh.**
- **Fixed problem when selecting points for cuts, graphs, etc., on large dimensioned models.**
- **Fixed problem with which sometimes nodes could not be labeled.**
  - **Created meshes inherits settings from parent meshes in following operations:**
  - **separating connected components,**
  - **extracting boundaries,**
  - **joining sets or volumes,**
  - **dividing by selection,**
  - **...**
- *Graphs:* **when doing several integrals, only the first message is displayed in a window, the rest is showed at the command line.**
- *Integrals:* **When doing integrals, values are no more displayed in a window.**
- *Stream lines & line size:* **ensure line size is not 0.0.**
- *Point visualization style:* **the** *Options --> Geometry --> point option* **'internal texture' can also be used with this style to speed-up drawing with a nice look.**
- *Importing cut planes***: import all cut planes by default, the user is no longer asked.**
- **Fixed problems reading automatically view when changing to postprocess.**
- **Fixed errors when changing line size drawing value.**
- **Fixed bug drawing graphs while the model was in perspective mode.**
- *Merging multiple files***: corrected problem when merging parts of meshes when there are different meshes at different steps**

- *Smooth contour fill:* **only smooth nodal results for the meshes where the gauss points, and their results, are defined.**
- *Several Results + Contour Fills with Gauss Points results*: **corrected problem when doing several c.fill with different results on gauss points, which caused previous applied contour fills to be corrupted.**

Customization:

- **Fixed bugs in chinese messages catalog that crash GiD using this language.**
- **Units: fixed bug converting degrees Kelvin <-> celsius.**
- **Hdf5 package: fixed bug writting sets of strings without compression.**
  - **Plugins:**
    - **EMA3D 1.1 import also ISOTROPIC BODY and NEW THIN WIRE entities.**
    - **GDAL 1.1 allow convert raster file into Arc/Info grid ASCII file.**
    - **Amelet 1.20 fixed bug exporting isolated nodes of cartesian mesh.**
- **Automatically update menus when special Tcl variable ::GidPriv(PostSpaceDimension) change.**
- **GiD_Mesh: refresh mesh to visually see changes in VBO and VA visualization modes.**
- **GiDCustomHelp find html help on the folder appropiated for the current language.**

1.2 Detailed changes of 11.0.x official releases

1.2.1 From v 11.0.7 to 11.0.8

General:

- *USB linux passwords*: now passwords registered using USB memory sticks are recognized on Ubuntu 13.04 and Fedora 18 (linux kernel >= 3.8).

1.2.2 From v 11.0.6 to 11.0.7

What's new

General:

- *Gif No dithering:* corrected crash when taking snapshot with this format and there are more than 256 colours on screen.

Preprocessing:

- Fixed some bugs of layers
- Corrected bug converting a planar surface to NURBS expression
- Fixed error when using drag and drop of a mesh file (stl, 3ds, nas, etc) is a previous mesh exists

Postprocessing:

- *Results animation:*
  - corrected problem with which user defined limits were not hold when doing animation of several results.
  - verify only user specified step in the *from:* and *to:* entries when doing animation of a deformation of an analysis and c.fill of another one.
  - *iso-surfaces with contour fill:* now the animation of these two combined result visualization can be done without the 'several results' option.
- *Several files:* corrected problem when several files were read and the list was not sorted.
- *Animating smooth contour fill:* corrected crash when fixing global limits when several meshes are used at different time steps.
- *Animation:* corrected contour limits problem when changing result visualization in the middle of an animation and rewind it.
- *Isosurfaces:* corrected crash when converting isosurfaces to cut meshes when no surface was there.

Customization:

- Transform: enhanced to preserve the material's books

1.2.3 From v 11.0.5 to 11.0.6

What's new

What's new from version 11.0.5 to 11.0.6

General:

- *Selection lines by software (emulate front buffer)*: corrected problem when GiD window is very big on modest graphic cards or using GiD in 'safe mode', or gidx.
- *MS Windows 64:* corrected problem with progress bar and results cache when reading files with size > 2GB.

Postprocessing:

- *Display vectors:* corrected drawing error when drawing as vectors a component of a resullt vector with fixed size vectors.
- *Isosurfaces:* corrected isosurface style problems, when it's bad defined --> set at least body visualization of isosurfaces.
- *Several Meshes:* corrected problem with several meshes with different number of layers at each time step, when animation a deformation and a contour fill.

1.2.4 From v 11.0.4 to 11.0.5

What's new

What's new from version 11.0.4 to 11.0.5

General:

- *Linux sysinfo number:* now the same local sysinfo number (i.e. usb and floating sysinfo remains the same) is shown when the users upgrades to Ubuntu 13.04 .
- *High-resolution pictures:* corrected problem which arised on Intel graphics and on Linux.
- Initial configuration window: better size for smaller displays.
- Several minor errors corrected.

Preprocessing:

- Drawing normals: corrected problem in which the normals drawn where not correctly update when normals were swaped.
- Avoid crashing when contactvolume is wrong oriented

Postprocessing:

- *Several results:* corrected problem when deleting all result's views which caused to disappear analysis, steps and results entries on menus.
- *Graphs:* corrected problem when clearing graphs or switching between graph's view and result's view which caused sometimes that GiD exited.
- *Graphs:* corrected problems related to graphs labels.

Customization:

- Fxed bug loading a *.sim symbols empty file.

1.2.5 From v 11.0.3 to 11.0.4

What's new

What's new from version 11.0.3 to 11.0.4

General:

- *Spheres + VBO:* added memory limit when drawing thousands of spheres with high detail level. If limit is reached, then the detail level is lowered. At detail level 0, spheres are drawn as points. The memory limit is set to 1 GB, which implies that up to 120 thousand spheres can be drawn with a nice detail level (n.d.l.) of 9, i.e. ~320 triangles per sphere, 150 thousand spheres up to n.d.l. 8 (250 triangles), ..., 560 thousand up to n.d.l. 4 (64 triangles).

Preprocessing:

- Avoid bug using quadratic mesh from preferences instead of the model's value
- Refresh mesh to show changes when creating a mesh connecting points

Postprocessing:

- *Stream lines:* better calculation of initial time step to create stream lines.
- The labels are properly showed in graphs with logarithmic scale
- Fixed bug reading ComplexScalar results
- Fixed bug inverting line graphs
- Fixed bug labeling graph nodes

Customization:

- Amelet import, fixed bug: avoid layer without its parent layer

1.2.6 From v 11.0.2 to 11.0.3

What's new

What's new from version 11.0.2 to 11.0.3

General:

- *Linux:* some redraws avoided when a tooltip or a menu is displayed over the graphical window
- command line flag -noredirect -> do not redirect standard error nor standard output
- avoid lock if there are connection problems when checking for new versions.

Preprocessing:

- Fixed bug numbering nodes of sphere mesh elements
- Fixed bug calculating volume bounded by trimmed closed surfaces.

Postprocessing:

- Fixed bug using deformation scale: when factor was 0 the results were not shown
- *line graphs:* corrected bug for line-graphs when triangles are aligned and "very close" to the line.

Customization:

- .spd 'specific problemtype data' file not overwritten when using 'save as'
- Avoid raising some window error messages when meshing from boundary
- Allowed Altair licence for Click2Cast problemtype

1.2.7 From v 11.0.1 to 11.0.2

What's new

What's new from version 11.0.1 to 11.0.2

General:

- *Snapshots:* Added gl2ps library (by C. Geuzaine):
  - smaller vectorial PS files
  - new formats: vectorial PDF, SVG and PGF formats.
- *Grey images:* Corrected problem with grey images when they were used as textures or backgrounds.
- Show error message if it is not possible to save the password in disk, and explain possible solutions.
- Fixed bug drawing text in front buffer with OpenGL by software and 'emulate front buffer' enabled (e.g. showing for axes "w x y" instead "x y z")
- Saved and restored in preferences the option of transparent background on captured images

Preprocessing:

- Variable AlignSemiStructuredNodes to force the semi-structured volumes to have the structured nodes aligned.
- Fixed some bug concerning semi-structured volumes when checking topological compatibilities before meshing.
- *Layers window:* is no more restricted to be opened in preprocess integrated in the main graphical window
- Faster calculation of points and derivatives on NURBS
- Fixed crash exporting Rhino models with surfaces with wrong render mesh without any element
- Fixed crash writting PS vectorial images in preprocess.

Postprocessing:

- *Smooth contour fill:* only smooth nodal results for the meshes where the gauss points, and their results, are defined.
- *Several Results + Contour Fills with Gauss Points results*: corrected problem when doing several c.fill with different results on gauss points, which caused previous applied contour fills to be corrupted.
- *Several results:* corrected problem which caused color artifacts when drawing c.fill, vectors with colour depending on the vector's modulus and several isosurfaces with their own result's colour.
- *Isosurfaces and Streams:* corrected bug which reset iso+stream visualization styles when *Geometry-->NoResult* was selected.
- *Isosurfaces:* corrected problem related to empty legend window when they were placed outside the main window.
- *Display Style window:* now the layers window can be opened when it's integrated in the main graphical window.
- *Faster vectors* drawing in render mode, corrected " options --> vector--> draw all vectors " option
- *Display matrix vectors (stresses):* corrected bug which caused to draw only the *X*

component of the *Si* main stress vector in *render normal* mode. In *render flat* and *render smooth* modes, stress vectors were drawn correctly though.

- *Spheres and circles:* corrected bug when merging files with spheres or circles.
- *Labels of results:* corrected problem which appeared sometimes with labels of results, when the timestep was changed the label of the result change to label of node number.
- *Textures:* when applying textures, if the render mode is vertex array or vertex buffer object, it is changed to display lists, because textures mapped on meshes are still not supported in va/vbo mode.
- *Textures --> ScreenMap*: if GeoReference information is present, it can be shown and used to project the image to the mesh, f.i. applying terrain images to a terrain mesh.
- *Textures*: corrected problems: when changing mesh style, texture now remains on; and when applying a texture, draw no results (c.fill & co) --> c.fill hides texture
- *Results:* corrected bug when result's name is > 100.
- *Reading TIFFs*: (for textures or background) support for tiff using colour maps and inverse black-white maps.
- *Dimensions:* Allow creation of dimension-radius in postprocess, asking for 3 points instead of a arc-curve than not exists in post
- Graphs: Fixed bug cutting hexahedra to create a line-graph (only graph points were created, without lines connecting them)
- Graphs: Fixed bug that display labels on all graph points instead the selected ones

Customization:

- *Vtk import plugin*: avoided bug opening filenames with non-ASCII characters

1.2.8 From v 11 to 11.0.1

What's new from version 11 to 11.0.1

General:

- Fixed problem when taking JPG snapshots.
- Fixed bug: now *'gid -help'* prints help in the linux console.
- Fixed bug with tooltips which caused to draw a very long single line.
- Fixed problem when taking snapshots with the *'take snapshot'* icon

Preprocessing:

Geometry:

- Fixed bug in geometry from mesh option.
- Avoid error messages directly printed to stdout when trying to open a jpeg file (e.g. background image)
- Surface division: fixed bug that join close points of the surface

Mesh:

- Fixed bug in semi-structured volumes meshing.
- Fixed bug in RSurf unstructured surface mesher.
- Fixed bug in meshing advance bar.
- Fixed bug in unstructured quadrilateral mesher.
- Fixed normal orientation on faces of prisms for *vertex buffer objects* drawing method.
- Fixed several configurations where Tetgen crash.
- Fixed bug in cartesian mesher for non-uniform meshes

Postprocessing:

- Fixed bug when drawing transparencies in normal render, i.e. without ilumination, which caused to draw the mesh too dark.
- Fixed bug when taking PNG snapshots of displayed vector results, also stresses and complex vectors, which caused to draw vectors and legends somewhat transparent, and looked too light.
- Corrected bug when *results cache* was activated and cuts were converted to full featured sets (*Do cuts --> convert cuts to sets*), when interpolating the new results, the original were not retrieved from disk.
- Fixed problem with which the user could not abort reading multiple files.
- Fixed problem which caused gid to crash with vertex buffer objects and some complex visualization combinations.
- Fixed problem when exporting PLY: now the number of faces is checked to avoid writing empty ply files, only surface meshes and cuts converted to sets are exported.
- Fixed problem when exporting cuts: avoids writing of empty files.
- Fixed problem with graphs, which added '_' in names.
- Fixed bug when doing a contour fill which caused to change the 'Point' visualization style.
- Fixed problems with the thousand separator in numbers.
- Fixed problem then creating a *Do cuts --> cut wire* which could not be created when the 'draw interior elements' is disabled for a surface mesh.
- Fixed problem when selecting points for cuts, graphs, etc., on large dimensioned models.
- Fixed problem with which sometimes nodes could not be labeled.
- Created meshes inherits settings from parent meshes in following operations:
  - separating connected components,
  - extracting boundaries,
  - joining sets or volumes,
  - dividing by selection,
  - ...
- *Graphs:* when doing several integrals, only the first message is displayed in a window, the rest is showed at the command line.

- *Integrals:* When doing integrals, values are no more displayed in a window.
- *Stream lines & line size:* ensure line size is not 0.0.
- *Point visualization style:* the *Options --> Geometry --> point option* 'internal texture' can also be used with this style to speed-up drawing with a nice look.
- *Importing cut planes*: import all cut planes by default, the user is no longer asked.
- Fixed problems reading automatically view when changing to postprocess.
- Fixed errors when changing line size drawing value.
- Fixed bug drawing graphs while the model was in perspective mode.
- *Merging multiple files*: corrected problem when merging parts of meshes when there are different meshes at different steps

Customization:

- Fixed bugs in chinese messages catalog that crash GiD using this language.
- Units: fixed bug converting degrees Kelvin <-> celsius.
- Hdf5 package: fixed bug writting sets of strings without compression.
- Plugins:
  - EMA3D 1.1 import also ISOTROPIC BODY and NEW THIN WIRE entities.
  - GDAL 1.1 allow convert raster file into Arc/Info grid ASCII file.
  - Amelet 1.20 fixed bug exporting isolated nodes of cartesian mesh.
- Automatically update menus when special Tcl variable ::GidPriv(PostSpaceDimension) change.
- GiD_Mesh: refresh mesh to visually see changes in VBO and VA visualization modes.
- GiDCustomHelp find html help on the folder appropiated for the current language.

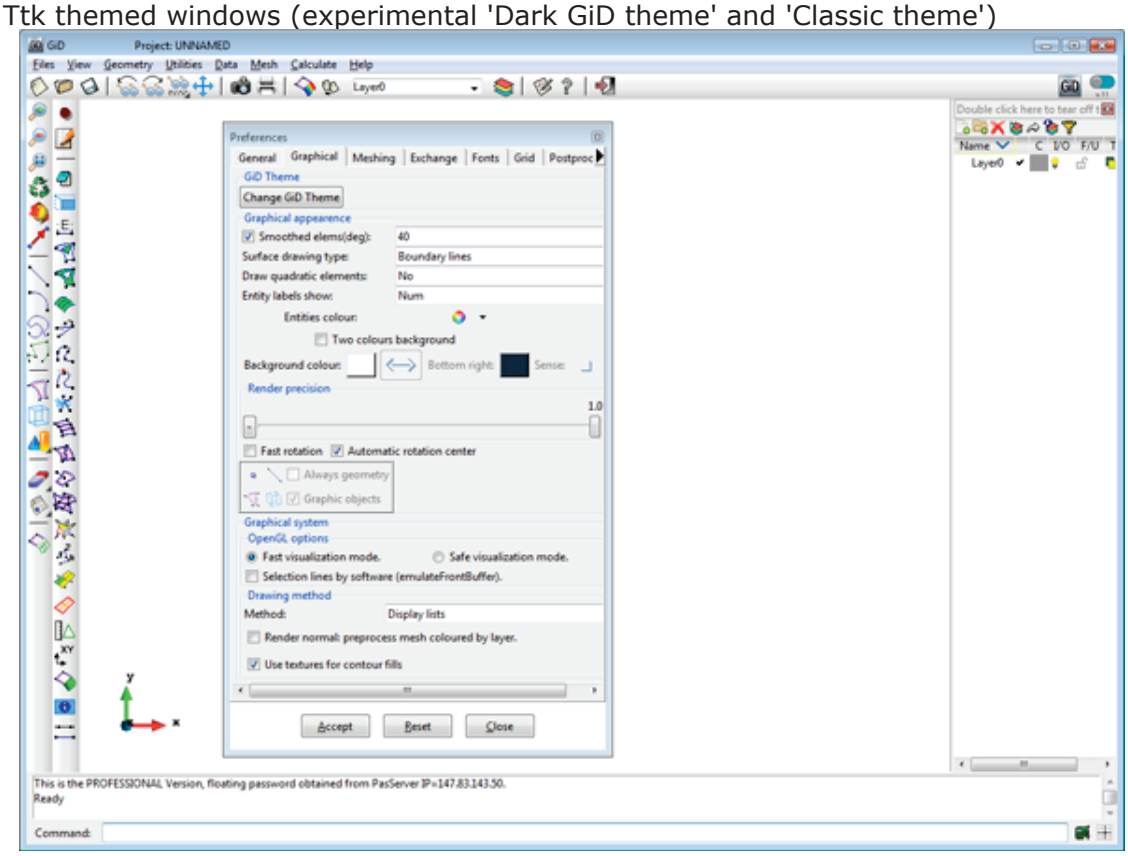
2 From 10 to 11

What's new

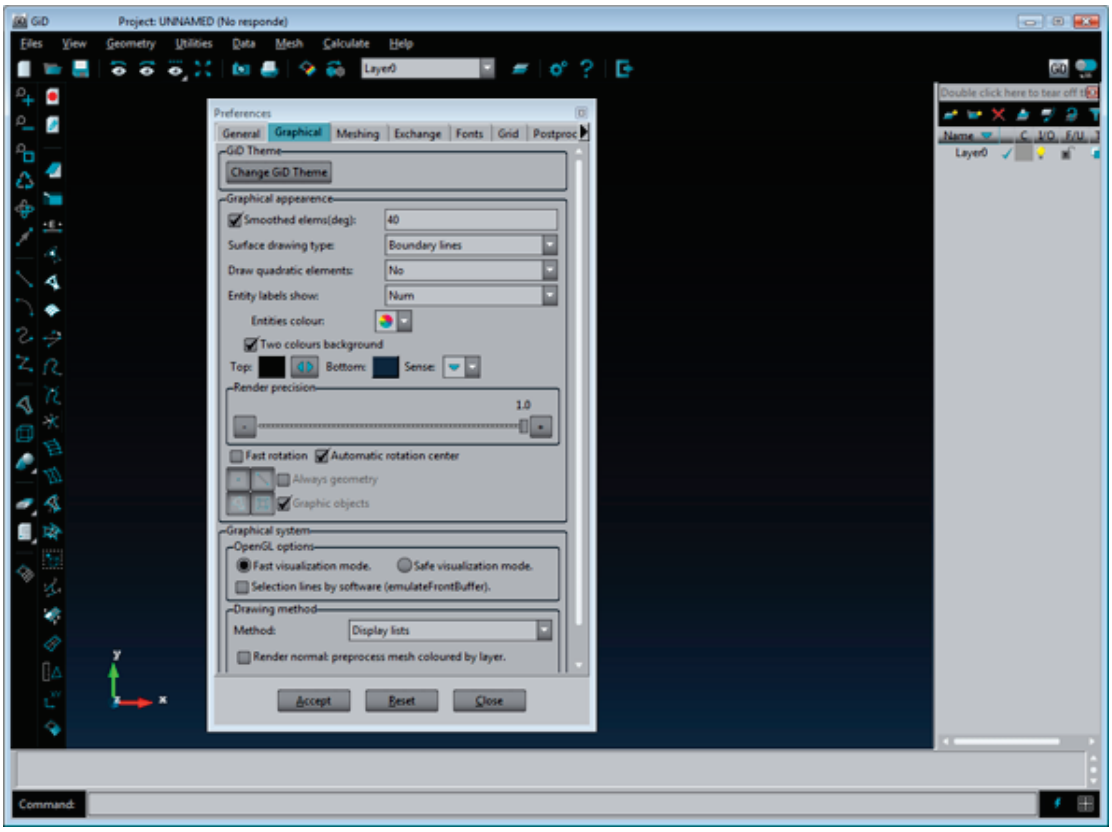
Main news from version 10 to version 11. (See Detailed news from 10 to 11 -pag. 41- for the full list of news).

General

- Ttk themed windows (experimental 'Dark GiD theme' and 'Classic theme')

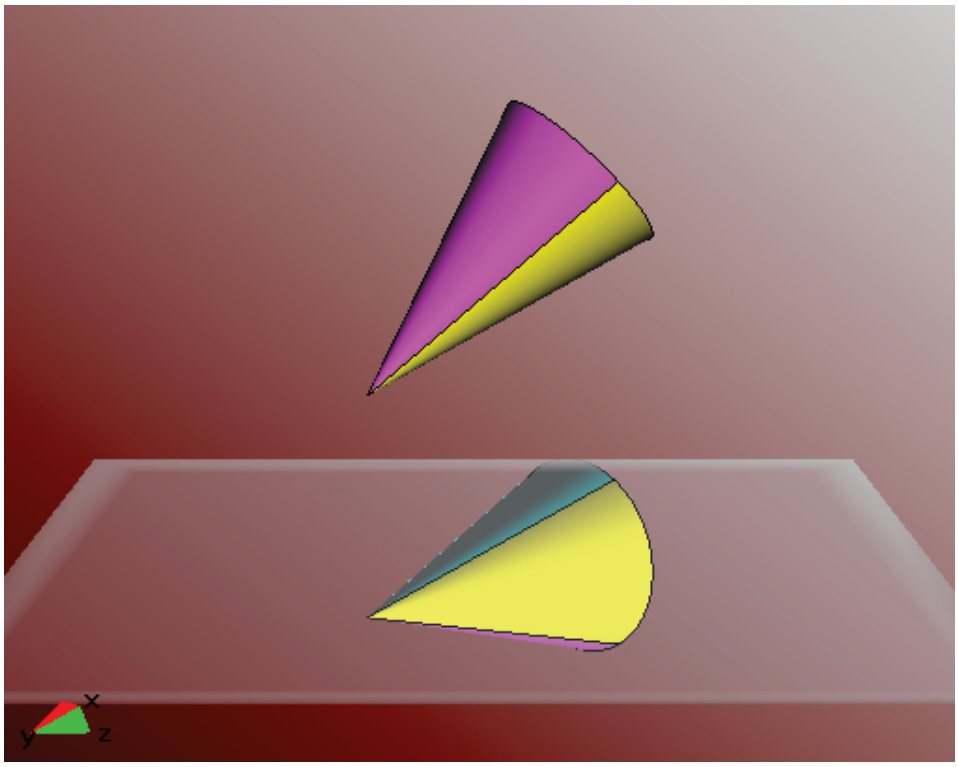


Classic theme window

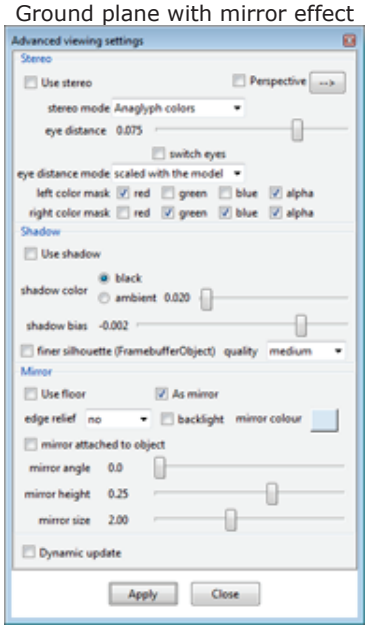


Dark theme window

- Faster drawing using advanced OpenGL features (Vertex arrays and Vertex buffer objects) and textures
- Plugins: new postprocess import plugins: PLY, OFF and OBJ formats
- OffScreen: to run GiD in background with graphic features without any window (.e.g. to create images in batch mode)
- Sphere and circle element support enhanced: draw as texture and more generation options
- Ground plane: can be used as floor (shadows are drawn on it) or as mirror (window View->Advanced viewing settings..)



Ground plane with mirror effect



- Automatic check if a new version is available when starting GiD.

Preprocessing

- Tetgen volume mesher inside GiD, based on Delaunay algorithm.
- Meshing in parallel. The volumes can be meshed in parallel using the number of threads wanted by the user (set at Preferences->General).
- Join volumes for geometric edition, and join surfaces preserve applied conditions.
- Edit NURBS: conversion to Bezier form for curves and surfaces.
- Draw curvature of curves by colors.
- Cartesian volume mesh with non-uniform grid spacing, size ratio, settings in

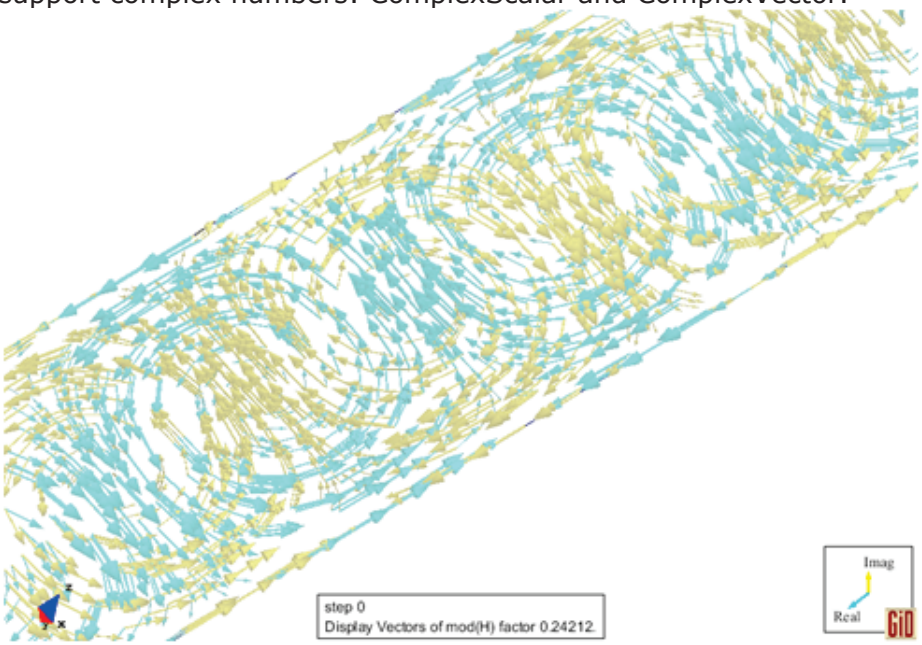
preferences window and support of cartesian 'face' and 'edge' elements.

- Draw higherentity on mesh edges. (View->Higher Entities->Edge).
- Structured lines: allow to assign real size to set the equivalent number of cells.
- Option for manual creation of nodes and elements.
- GDAL plugin to import GIS files as geometric or mesh entities.
- EMA3D plugin to import cartesian meshes generated by CADfix
- STAR-CD plugin to import STAR-CD meshes
- Improvements in most meshers: rfast, rsurf, semi-structured, boundary layer, quadrilateral mesher, etc.

Postprocessing

- Results cache: Avoid load all results simultaneously in memory, and allow set maximum memory to be used.

- Node tracing: Draw of the path followed by a node in along time steps.
- Saving postprocess state (isosurfaces, stream lines and view information is saved between sessions).
- Integral: more options available in numerical integration of results.
- Creation of boundary mesh of currently visualized mesh.
- Separate connected parts in different sets.
- Render: Added two new fixed lights (switchable separately).
- Results support complex numbers: ComplexScalar and ComplexVector.



- Animation: new Macromedia Flash Video (.flv) export format.
- Create Results: added more operators (sqrt, log10, db10, db20, abs, exp, inverse,

dFT).

- Creation of statistical result calculating the minimum, maximum, average or the standard deviation of other result.
- Create Graphs window: to create a graph applying some operator to another graph.
- Read of postprocess files with GiD postprocess HDF5 format written by the GiDPost library, and files with Amelet HDF5 format.
- Contour Fill/Contour ranges: option to display the range just under the cursor.
- VTK plugin to import mesh and results.
- PDF output*:* now outputs images in pdf format.
- PLY export: shown meshes and current nodal result can be exported in the Polygon File Format, aka. Stanford Triangle Format.
- Improvements in several algorityms: stream lines, etc.

Customization

- GiD dynamic library plug-in mechanism to load/unload dynamic libraries (developed an interface to create posprocess mesh and nodal results).
- New GiD-Tcl commands:
  - GiD_Geometry now allow also create and ask for contactsurface and contactvolume and to list the problematic unrendered surfaces.
  - GiD_Cartesian to get and set cartesian grid properties.
  - GiD_BackgroundImage to handle background image.
  - GiD_MeshPost to create and inquire postprocess mesh.
  - GiD_Result, new 'gauss_point' and 'result_ranges_table' sub-commmands to manage them.
  - GiD_Graph to handle postprocess graphs.
- Tcl-GiD events:
  - New events AfterCreateMaterial, AfterRenameMaterial, BeforeDeleteMaterial, AfterChangeMaterial, AfterAssignMaterial, BeforeMeshErrors, BeforeResultReadErrors.
  - GiD_Info *events*: to know the full list of raised events.
- Global Tcl variables:
  - GidPriv(HideQuadraticTypeLevel) to disable quadratic options .
  - GidPriv(PostSpaceDimension) to disable 3D results.
- Tcl packages:
  - GDAL Tcl package to read/write GIS digital terrain models from multiple formats (Arc/Info, tiff and most image formats ,etc).
  - Vtk Tcl package to wrap vtk functionality.

2.1 Detailed news from 10 to 11

What's new

General

- Faster drawing using advanced OpenGL features
  - Use of Open GL's Vertex Arrays and Vertex Buffer Objects. Utilities --> Variables --> OGL_useMeshObjects values:
    - OGL_useMeshObjects = 0 --> draw using immediate mode
      - slow, no extra memory,
        - safe & quick graphic mode, works always
        - OGL_useMeshObjects = 1 --> draw using Display Lists
    - quick, uses memory to create objects,
      - safe & quick graphic mode, works always,
        - limited number of elements
        - OGL_useMeshObjects = 2 --> draw using Vertex Arrays
        - quick, uses less memory than Display Lists,
    - safe & quick graphic mode, works always,
      - better suited for Software mode and Intel graphics cards
      - OGL_useMeshObjects = 3 --> draw using Vertex Buffer Objects
        - quick, uses less memory than Display Lists but more than Vertex Arrays,
        - safe & quick graphic mode, OpenGL 1.5 required,
    - better using a graphic card
- More, and bigger, bitmap fonts for PGF's PmFont style.
- Colours: changed first default color in pre (Layer0) and postprocess, corrected automatic color change/reset.

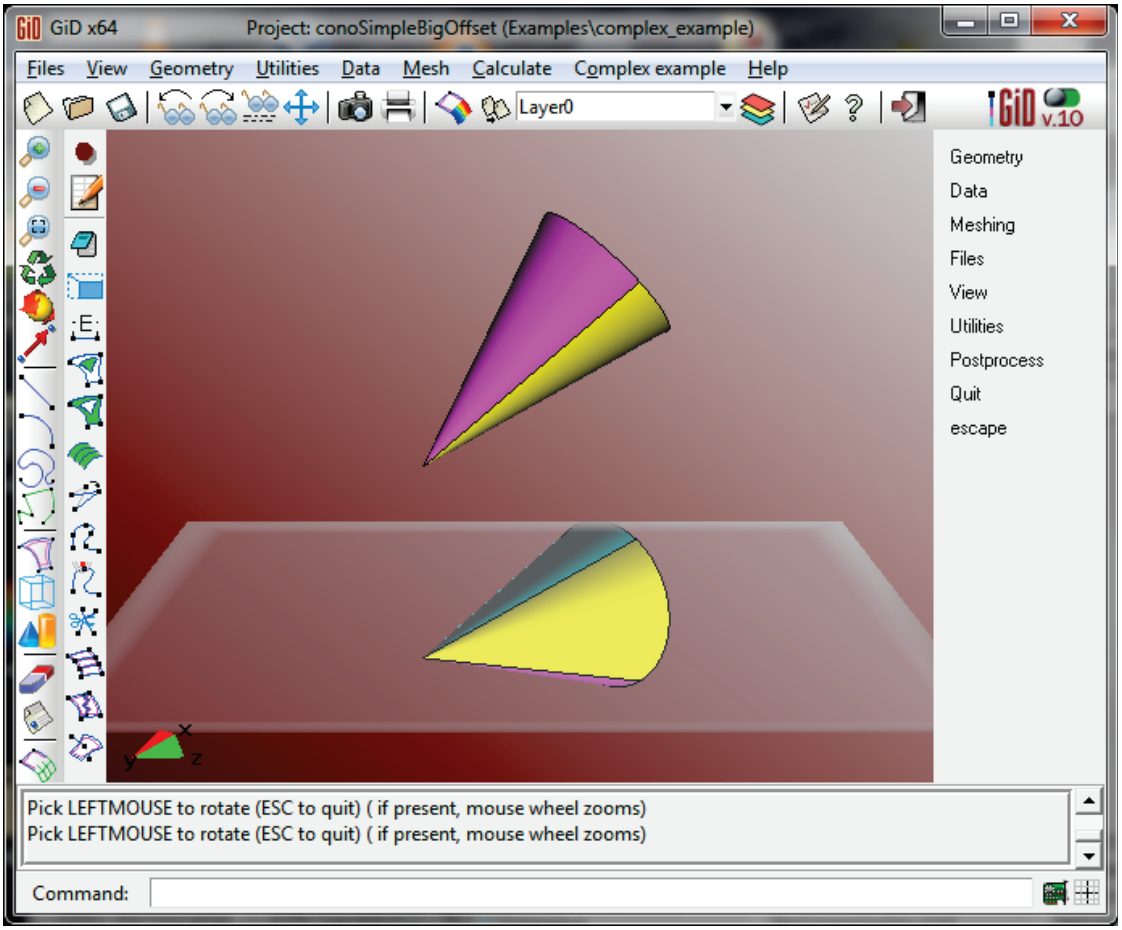
- Plugins: New import plugins (mesh and results): PLY format, OFF format, added a tcl progress bar in ply plug-in
- Plugins: Automatic load of plugins under Files --> Import --> Plugins, of the dynamic libraries located in $GID/plugins/Import/.../NamePlugIn/NamePlugIn.dll (or .so)
- VA / VBO: improvements and bugs corrected in VBO / VA visualization mode, in pre and in postprocess mode.
- Plugins: added new function: GiD_GetTclInterpreter so the GiD's tcl interpreter can be used inside the client plug-in, PLY + progressbar example added.

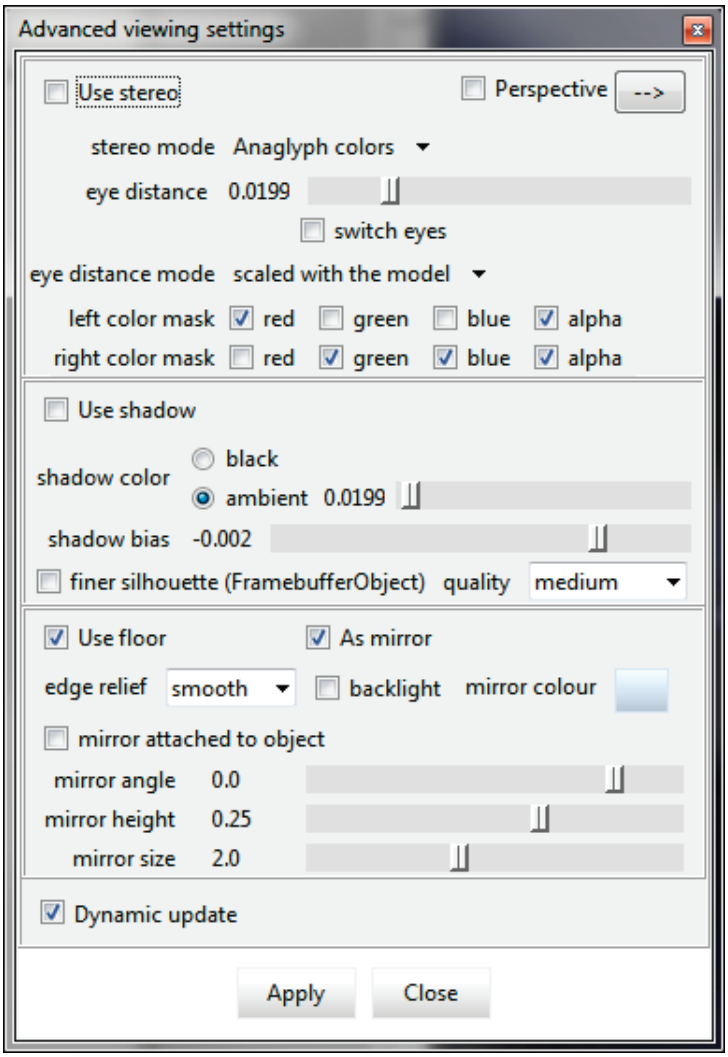
- Page Setup window with information about the dimension of the image to be generated (in mm/inches and pixels).

- OffScreen: added ofscreen support for MS Windows and Linux, so that GiD can work in background (or batch queue), for instance to create long animations or a series of snapshots.
- OffScreen: added button in the Animation Window to create a batch file to be used with GiD in background or batch mode.

- Linux + ATI drivers: workaround to the problem which caused GiD to lock just after saving project or image with 'selection lines by software (emulation front buffer)' on.
- Problemtypes Abaqus, Ls-Dyna and Nastran updated to use floating PasServer licences

- Linux + usb: better usb checking.
- Now the splash window shows the packages being loaded at start time. Can be switched off in ConfigureProgram.tcl
- Spheres + internal texture: brighter texture when drawing spheres in this mode and in without light (render normal).
- New ground plane: can be used as floor (shadows are drawn on it) or as mirror.
- New mirror effect: the model is mirrored on a ground surface with the window View --> Other viewing effects..





- Create results and graphs: layout rearranged and tool tips added.
- Backup: a version will only recover a backup if it was written by its exact GiD version, not from other GiDs.
- Some widgets have been updated to Ttk style.
- Now GiD checks if there is a new version available.
- User colour map, for contour fills for instance, are named and saved between sessions.
- Stream lines: can be exported and imported (in the same model), new command to delete all stream lines at once.
- Post Result State: now stream lines are saved between sessions.
- Ttk themed windows (experimental 'Dark GiD theme' and 'Classic theme')

- Ask the user for theme 'classic' or 'black' when starting the first time.
- *Snapshot:* all image formats have been merged into a single "write image file dialog", where the user can choose the format by selecting the apropiate filter or entering the corresponding extension.
- *Views:* new Utilities -> Variables -> ReadViewWithModel variable to disable reading views when a project is read in pre or a model is read in post.
- Macros icons can be selected from themed GiD icons, or import an image file that will

be converted to the current toolbar button size.

Preprocessing

- Join surfaces: transfer conditions to the joined entities

Cartesian mesh with non-uniform grid spacing and settings in preferences window

- Improvements in advancing front volume mesher (tetrahedra).
- In 3D boundary layer mesh generation, improved the way of deciding when to stop shifting a node, depending on the proximity of the close nodes in the isotropic mesh.

- New option: DontDrawNormals/DrawNormals in Utilities --> SwapNormals to avoid draw the normals when there are a lot of surfaces, or when the process is automatized, for instance, in a macro.
- Quadratic type of the model (variable IsQuadratic) loaded automatically when the model is loaded.
- Support for Vertex Arrays and Vertex Buffer Objects so that the drawing of lots of surfaces (in flat or smooth render mode) and meshes (in any render mode) is faster.
- Initial green color for Layer0 has been changed to grey.

- Join volumes for geometric edition
- Edge Collapsing in triangles mesh. If the normals of selected elements are not coherent, now GiD make them coherent in order to be able to detect the sharp edges of the mesh.
- Added option to draw higherentity on mesh edges. (View->Higher Entities->Edges)
- Default element type in semi-structured volumes is tetrahedra (before, it was prism).
- Improvements in render mesh.

- Cartesian mesher: added SizeRatio option and removed WeightStart/End
- Cartesian mesher: support to read cartesian 'face' and 'edge' elements (Amelet format)
- Structured lines: if ndivisions is zero (default), now the number of cells equivalent to the unstructured size is assigned. In previous versions 2 divisions were applied.
- Improvements in unstructured size transition regarding volume unstructured mesher.
- Improvements in the smoothing with HighGeom option (trying to minimize the chordal error in surface meshes).
- Correct sizes operations before meshing are faster because of improvements.

- Option for manual creation of nodes and elements.
- ACIS import updated until version 20.
- Improvements in quadrilateral unstructured mesher.
- Visualization: VA + VBO mode, now the colour of the mesh can be coloured by layer or with a single colour (dark green) through the preferences window.
- Mesh generation: now the final message tells the user if the generated mesh is quadratic or not.
- Improvements in RSurf and RJump surface mesher.
- Visualization: Inmediate mode, now the colour of the mesh can be coloured by layer or with a single colour through the preferences window.

- Edit NURBS: conversion to Bezier form for curves and surfaces.

- Boundary layer mesher is faster.
- VA + VBO: now circles and spheres are drawn
- Modification of hierarchy of layers, now parent layers exists explicitly. The layer tree information is imported now from Rhino files.
- Selection of entities filtering subtypes: e.g. to assign a condition defined over volumes - over face elements only to surfacic elements
- Draw curvature of curves by colors.
- Improvements in surface meshing when chordalerror is assigned in meshing preferences.

- New Delaunay volume mesher using Tetgen.
- Option to mesh inner part of unstructured volumes with structured mesh (faster).
- Mesh from boundary: new option to fit or not the surface boundary, allowing refinement (now for Tetgen only)
- Improvement in the automatic detection of Master surface in semi-structured volumes.
- Improvement in final mesh quality in unstructured quadrilateral meshes.
- Improvements in semi-structured volume mesher.
- Labels + ATI cards: corrected bug displaying labels with the latest catalyst driver.

- Meshing in parallel. The volumes can be meshed in parallel using the number of threads wanted by the user (set at Preferences->General).
- Rball sphere/circle mesher updated.
- *VA, VBO:* less memory required to get unique lines when drawing meshes in normal render mode. corrected problem with quadratic elements.

Postprocessing

- Postprocess state: now saves and reads isosurfaces information.
- Stream lines: faster location of elements when a stream line is created.

- Postprocess state: now saves and reads stereo and shadow information.
- Integral: New option in Integral calculation: '2D' mode, in order to do vector integration over lines in 2D (normal of line = vector(Node0, Node1) ^ Vector(0, 0, 1))
- Preferences: new panel for Postprocess options:
  - Draw method: immediate mode, display lists, vertex arrays or vertex buffer objects
  - Enable or disable use of textures to draw Contour Fills
  - Enable or disable 'Results cache': (Linux, Mac OS X) uses a portion of the main memory as 'cache' of results so that not all the results are loaded into GiD. The amount of main memory to be used can also be specified.
- Graphs: Point evolution and integral graphs bugs corrected. Now works also for 1 Gauss Point per element.
- Graphs: Integral works also for 1 Gauss Point per element.
- Graphs: new option to show the values of a graph into a table window.

- New option: Options --> Geometry --> Extract boundaries from shown volume and

surface meshes; for each mesh creates a set with its boundary elements. The original mesh is left untouched.

- New option: Options --> Geometry --> Separate connected components from shown volume and surface meshes; for each mesh detects groups of connected elements and stores them in separate sets. For instance a single volume mesh which corresponds to three unconnected spheres will be separated into three sets each one containing the volume elements of a single sphere. The original mesh is left untouched. By default a maximum of 50 connected groups will be separated into separated sets. This limit can be modified with the variable Utilities --> Variables --> PostMaxNumComponents on the main's window the right menu.
- Display Window can be integrated into GiD's main window
- PGF Fonts: now True Type fonts are also used in Mac OS X, thanks to free type library actualization

- Read State: when the state is read and all meshes were off, now all are siwtched on.
- Results cache: now works in MS Windows
- Results cache: when reading a big file, lasts steps remain in memory (so many as memory pool specified by the user).
- Graphs: problems corrected related to title, point style visualization (disconected node graph), repeated names.
- Selection in post improved.
- New PostProgressBar: using the 'tile' progress bar in postprocess, allows indeterminate progress too.

- Line graph: added option to use the x, y or z coordinates as 'x' axis, besides the already existant 'line variation' option.
- Create result window can mix results between different analysis and time steps
- Results cache & Merge: check if some files uses mesh 'Group's and some no, issue an error if so.
- Render: Added two new fixed lights (switchable separately): one orange and another blue, accesible throught the right mouse button menu.

- Health check: added option to filter outlier vertices, for instance, to filter out vertices with coordinates bigger than 1e+32.
- Mesh read: for line elements, accept 'line' keyword ad element type in the mesh description line, besides the old keyword 'linear'.

- Animation Window: rewind button puts slider at the user selected starting step, and not the first step of the analysis.

  - New results types:
    - ComplexScalar: results with two components: real and imaginary part --> a + b · i
      - ComplexVector: vectors with six components: (rX + iX, rY + iY, rZ + iZ). If not provided, GiD will calculate the modulus of the real part (sqrt(rX^2 + rY^2 + rZ^2), of the imaginary part (sqrt(iX^2 + iY^2 + iZ^2) and of the

whole vector (sqrt(rX^2 + rY^2 + rZ^2 + iX^2 + iY^2 + iZ^2)
    - DisplayVectors visualization draws both parts (real and imaginary) when the modulus of the whole vector is selected
        - LineDiagram draws both parts (real and imaginary) when the modulus of the whole vector is selected.
            - Stream lines can be done on the real part (field) of the complex vector or on the imaginary part (field).
            - Look at the customization and reference manuals to get more information on how to specify complex numbers for GiD.
- Animation: GiD now can save animations in a new format: Macromedia Flash Video (.flv)

- Labels: limited the maximum amount of labels to be displayed to 5.000.
- STL export: added option to select whether the quadrilaterals should be divided into two or four triangles
- Graphs: new Point Complex Evolution graph, similar to 'Point Evolution' but for complex results, where both real and imaginary part of the result are displayed as 'x' and 'y' in the graph.
- Icon bars: the contour options icons and the graphs icons have been grouped into two submenus, so the general view is less cluttered
- Stream Lines: creation options are more visible now: View results --> Stream lines --> Single point / Along line / In a quad(rilateral)
- Stream Lines: made the algorithm a bit faster for big meshes made and for the first stream line.
- Show Min Max: added 'show minimum', 'show maximum' and ' show min max' options which shows the minimum result alone, the maximum result alone or both at once.
- Contour Lines + VA / VBO: now contour lines are drawn in Vertex Array or Vertex Buffer Object mode.

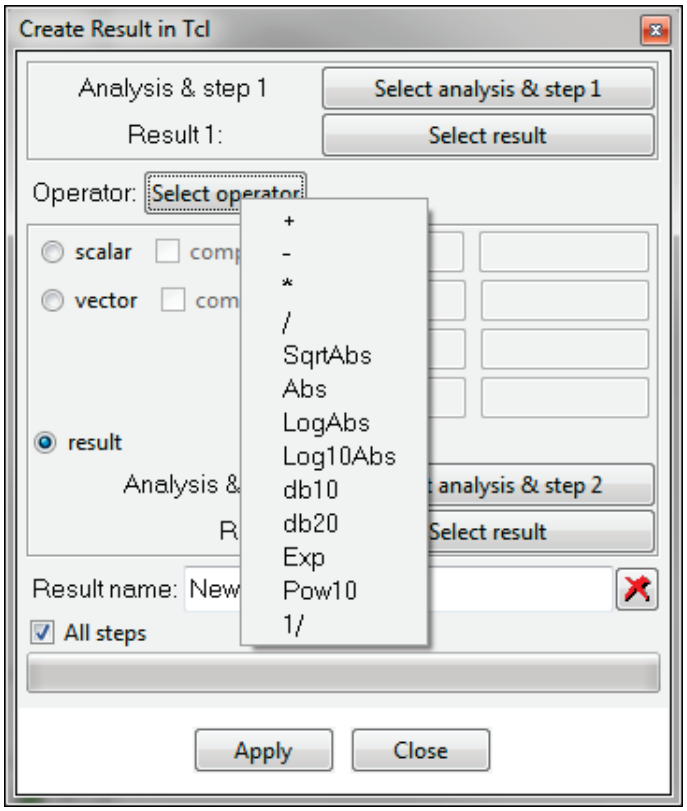
- Display vectors: first time fixed size vectors is used, the minimum size is 8.
- results cache + several meshes: free results always except in the last meshgroup.
- Postscript vectorial mode: if model is 2D no triangle discretization is done and so, smaller files are created.
- GUI: added 'disable tooltips' preference
- Remote display (Linux): disabled Vertex Array / Vertex Buffer Object in remote visualization which caused GiD to crash.

- Stream lines: faster search tree creation (up to x4) for the first stream line.
- Post state: solved bug which caused mesh styles to be read wrong.
- Toolbar's buttons: now icons can be showed with short names or names alone.
- Tooltips can be: showed as always, disabled or displayed at the bottom of the main window.
- Import plug-in: added support for complex scalar and complex vector results, now they can be imported too.

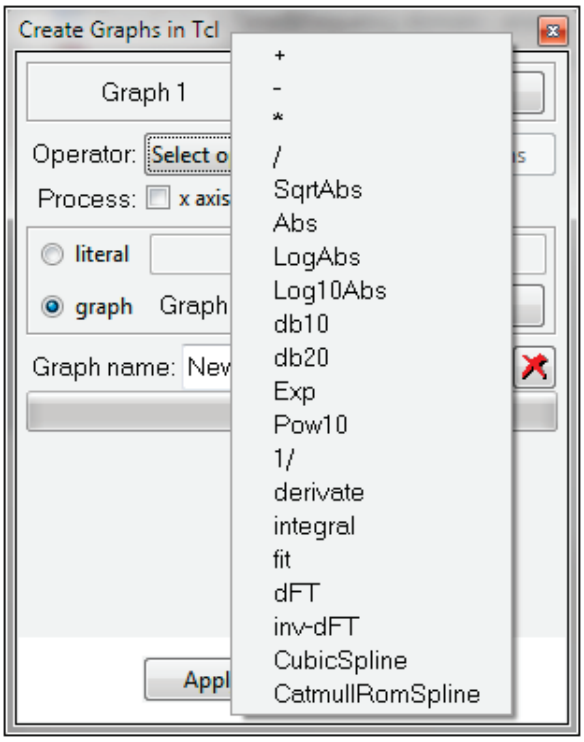
- Spheres: support for VA and VBO for faster drawing of nice spheres.

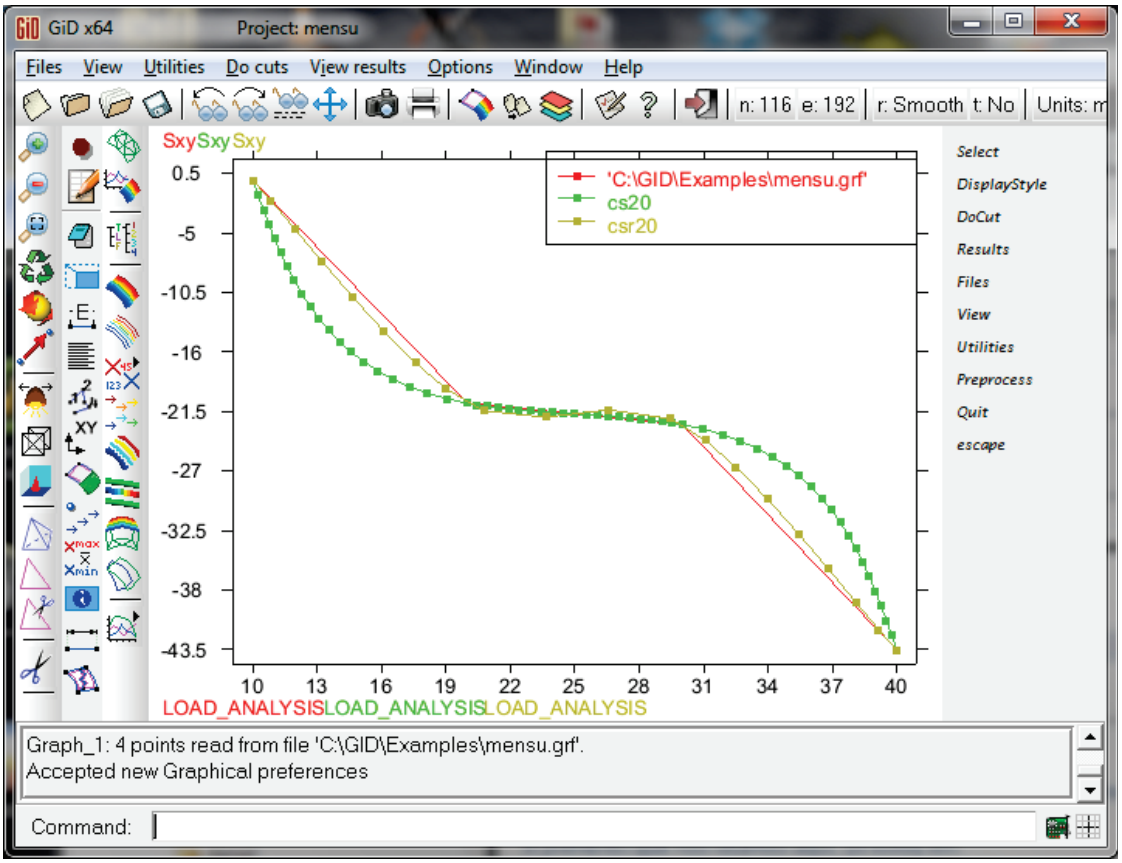
- Standard (internal) gauss points (GP_TRIANGLE_1, GP_QUADRILATERAL_4, ...) should not be explictly defined to be used.
- Delaunay: elements bigger than 10 times (default) the mean size of elements are culled. Check Utilities --> Variables --> PostDelaunauCullBigElements to modify it.
- Macros: Added macro to create a result with the minimum, maximum or average value of a scalar for all steps.
- Create Results: added some single operator functions (sqrt, log10, db10, db20, abs, exp, inverse (1/)) to *Window-->Create Result...*
- Graphs: new tcl command GiD_Graph
- ** GiD_Graph show --> shows the graphs
- ** GiD_Graph hide --> hides the graphs
- ** GiD_Graph list --> list the existant graphs
- ** GiD_Graph clear --> deletes all graphs
- ** GiD_Graph get <graph_name> --> gets the graph data of "graph_name", the same as the create data.
- ** GiD_Graph delete <graph_name> --> deletes the graph "graph_name" causing an error if does not exists
- ** GiD_Graph create <graph_name> <label_x> <label_y> <list_x_values> <list_y_values> <unit_x> <unit_y> --> creates the graph "graph_name" with the provided information, causing an error if the graph already exists.

- Graphs: added discrete Fourier Transform of a Graphs. Uses the y values as real part and 0 as the imaginary part for the fft transformation. The graph created will use an index for the x axis and the real, imaginary or module of the dft result as the y axis. Check Options-->Graphs-->dFT-->real , imaginary or module
- Graphs: added discrete Fourier Transform of a Graphs. Uses the x values as real part, and the y values as imaginary part for the fft transformation. The graph created will use an index for the x axis and the real, imaginary or module of the dft result as the y axis. Also the graph created can have as x axis the real part and as y axis the imaginary part of the dft result. Check Options-->Graphs-->dFT complex-->real , imaginary, module or complex
- Read of postprocess files with GiD postprocess HDF5 format written by the GiDPost library, and postprocess files with Amelet HDF5 format.
- Create Results: added option for operators +, -, * and / which now accepts a scalar or vector (both can be complex) as second operand check the window: *Window-->Create Result...*
- Create Results: added operators sqrt, log10, db10, db20, abs, exp, inverse (1/) which operates on one result. Only operators **+, -, *** or **/** accept **scalars,vectors** or **results** as second operand. **SqrtAbs, Abs, Log10Abs, Exp, 1/** requires a **result** as second operator.

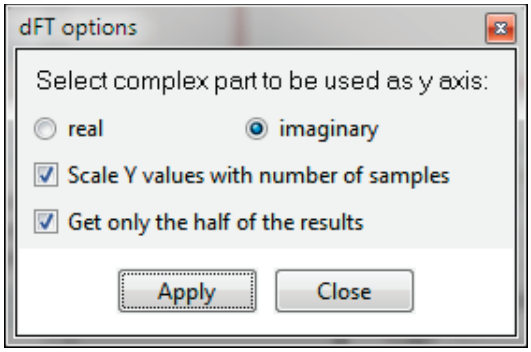


- New Create Graphs window: to create graphs from another ones, with following operators: +, -, *, /, sqrt, log10, db10, db20, abs, exp, inverse (1/), derivate, integral and fit. The "g1 fit g2" operator fits the bounding box of the second graph g2 to the bounding box of the graph g1. Also interpolador has been added: CubicSpline and Catmull-Rom Spline. Graphs can also be scaled and traslated in order to match another one. This is the new window, and below some interpolated graphs examples.





- Create Graphs: added dFT options:
  - create graph(idx, dft.real) or dft(idx, dft.imaginary)
    - sale y values according to the number of items
    - get half the values, dft seems to be symmetric



- Integration graph: added tangencial and un projected vector integration for lines and 2d
- Graphs: now, if the Amelet plugin is present, they can be exported to the Amelet HDF5 format
- Label results: now labels of vectors, tensors and local axes displays a letter with the component's name.

- VA + VBO: now quadratic elements are drawn as several triangles / cuadrilaterals, instead of drawing them as linear elements if Utilities --> Preferences --> Graphical -->

DrawQuadraticElements is set to "**As lines**".

- New import of Vtk format mesh and results, implemented as an auxiliary plugin
- *Result surface* on Lines will draw them using the result as thickness, including 1gp results.

- *Contour Fill / Contour ranges*: option to display the range just under the cursor.
- *Result surfaces***:** using this result visualization style on lines will draw lines with their thickness depending on the absolute value of the result. For nodal and 1 gauss point results.
- *Animation Window*: make gif options more evident to the user, so that they can be selected more easily.

- *Edge colour:* added new option to define the colour to be used to draw edges, instead of the default black colour (Options --> Geometry --> Change edge colour...).
- *PDF output:* now outputs images in pdf format.
- *PLY export*: shown meshes can also be exported in the Polygon File Format, aka. Stanford Triangle Format. Ascii and binary. Nodal results of current selected step are also written in the PLY file as nodal properties.
- *Statistical results:* macro passed to Windows menu, which creates a statistical result: foreach node calculates the minimum, maximum, average or the standard deviation of all values, i.e. across all steps, of the selected result.
- *Node traces:* now traces of nodes can be drawn. For a single mesh for the whole analysis, the node will follow the path of the deformed mesh across all steps. When several meshes are used for several time steps, then the nodes can follow the track of the original mesh or from the deformed one.

Customization

- $GID/plugins folder, recursivelly load all tcl files with the same name as the folder.
- GiD_Info group_entities
- GiD_Cartesian get|set ngridpoints|boxsize|corner|dimension|coordinates|iscartesian <values>
- Cartesian() GiD variables MinSizeMainGrid WeightStart WeightEnd GridUniform
- BeforeMeshGeneration GiD-Tcl event now stop the generation when returning -cancel-
- Tcl global variable ::GidPriv(PostSpaceDimension) to declare that our resuls is 2D (e.g. to integrate results in 2D projection)
- package hdf5 updated from 1.0 to 1.2 (-vtype string|char allow creation of sets of strings, and unsigned chars)
- package tablelist updated from 4.9.1 to 5.1

- New -elementtype and -higherentity options in GiD_Info layer command
  GiD_Info layer -entities elements -elementtype $type $layername1 $layername2 ...

  GiD_Info layer -entities nodes -higherentity $num $layername1 $layername2 ...
- BeforeDeleteLayer event: if it returns -*cancel*- the layer deletion is cancelled.
- GiD_Geometry get/create now allow also contactsurface and contactvolume

- New Tcl command GiD_BackgroundImage get|set show|filename|location <values>

- Conditions: added #WIDTH# option in the value description to specify the length, in characters, of the entry used by the user to enter the value of the condition (already in GiD 10.1.0d but not acknowledged). For instance:

```
CONDITION: Volume_Vector_function

CONDTYPE: over volumes

CONDMESHTYPE: over nodes

HELP: Here you can define a function/expresion ...

QUESTION: Ux

VALUE: 0.0#WIDTH#(64)

END CONDITION
```

- Tcl events for materials: AfterCreateMaterial, AfterRenameMaterial, BeforeDeleteMaterial, AfterChangeMaterial.

- GDAL as Tcl package to read/write GIS digital terrain models from multiple formats (Arc/Info, tiff and most image formats ,etc)
- GDAL plugin using the previous package to import GIS files as geometric or mesh entities
- New Tcl-GiD event AfterAssignMaterial { name leveltype }
- hdf5 plugin updated to version 1.4
- verifp plugin updated to version 1.33
- GiD_MeshPost tcl command to create postprocess mesh
- Special self-updated field #FUNC#(NumPointToNumNode), to automatically convert the point number in a node number

- GiD_MeshPost tcl function to create postprocess meshes enhanced
- GiD_Result, new 'gauss_point' sub commmand to manage gauss point definitions and 'result_ranges_table' to manage 'result ranges tables'.
- GiD_Graph tcl function to handle postprocess graphs.
- drawopengl: new suboption -getstring vendor|renderer|version|extensions
- GiD_Geometry list surface unrendered, to know the surfaces with problems to create its render mesh.
- GidPriv(HideQuadraticTypeLevel) global variable to be used by a problemtype to hide and disable not allowed quadratic options.

- BeforeRunCalculation event: retuning -cancel- and an optional value the calculation is not started.
- GiD_Info parametric line Tcl command, new subcommand length_to_t to obtain the line length.
- Package vtk added to scripts.
- New GiD-Tcl events: *AfterCreateGroup*, *BeforeDeleteGroup*, *AfterRenameGroup*

- Tcl events *BeforeMeshErrors* and *BeforeResultReadErrors*

- *GiD_Info events* : to know the list of raised events

2.1.1 From v 11.0-rc2 to 11.0-rc3

What's new

Preprocessing:

- Removed groups which were added in version 10.2.1 .
- Fixed bug when contactvolumes, semi-structuredvolumes and unstructured quadrilateral were in contact.
- Check if number of nodes generated is lower than the allowed by the license after generating mesh using MeshFromBoundary.
- Fixed bugs in semi-structured volumes
- Fixed bug in rjump: sometimes lines were 'artificially' marked not to be skipped.
- Fixed bug related with meshing or not entities in frozen layers.
- *ATI + labels:* corrected problem were overlapping labels were not drawn overlapped, only latest was drawn, now they are drawn overlapped. Also the background of the labels are now transparent.
- *quadratic elements:* corrected draw problem in normal render mode where quadratic elements always were drawn with lines, despite the user preferences.
- *drawing meshes:* in flat render, lines now are drawn black, always.
- *PS / EPS:* corrected crash when saving the vectorial version of these formats.
- Rebuild by boundary: now original surface number is maintained, and a 'No try planar' option is added to avoid rebuilding the shape as trimmed planar, and force be untrimmed.

General:

- *Fullscreen:* if the mouse is near the upper left corner, the view menu appears, this is the same menu as the right mouse button menu.
- *New version checking:* now GiD, at the beginnig checks if there is a new version and tells the user if so.
- *Clip planes window:* now clip planes can be set nearer or further than the ones set by Zoom Frame.

PostProcess:

- *Border graph and line graph:* corrected problem were a graph could not be done for scalar results if its component name was different than the scalar result name itself.

- *Dividing meshes:* now the new meshes inherits the properties of the original meshes: colour, style, transparency, interior drawing mode, etc.) to avoid black drawing artifacts such as drawing interior elements of volume meshes by default, when the original mesh wasn't drawing them.
- *Legends:* of contour fills, contour lines, graphs, isosurfaces, vectors now they adjust their width according to the contents and font type and size.
- *Vector legend:* corrected problem when min == max.

2.1.2 From v 11.0-rc1 to 11.0-rc2

What's new

General:

- Macros icons can be selected from themed GiD icons, or import an image file that will be converted to the current toolbar button size.

Preprocessing:

- Fixed bug when selecting several surfaces for seting forced points in them (Mesh Criteria->Forced Points). Sometimes some point was not assigned to the corresponding surface.
- Fixed bug related with structured prism meshing when the volume has 'NoMesh' criteria assigned.
- Fixed bug related with meshing progress advance bar

Postprocessing:

- *Result surface + vbo:* corrected bug which caused that the result surface visualization was wrong with vertex array or vertex buffer objects, or crashed gid.
- L*abels & legends & graphs:* corrected background problems for labels and legends when background was choosen with two dark colours.
- L*abels:* corrected bug which caused that some labels were overdrawn by other mesh layers.
- *hidden lines & hidden boundaries:* corrected colour for these styles when background was choosen with two dark colours.
- T*ransparencies:* corrected problem which caused the model to be drawn twice when parts of it, or the whole model, were drawn transparent.

Customization:

- Tcl events *BeforeMeshErrors* and *BeforeResultReadErrors*
- *GiD_Info events* : to know the list of raised events
- *GiD_GetWorldCoord screen_x screen_y :*
  given the screen coordinates (screen_x, screen_y) returns a list with sis coordinates:

  ```
  { x y z nx ny nz}
  ```

  being

  (x, y, z) the coordinates mapped into the world (model) of the screen coordinates,

  (nx, ny, nz) the normal vector components of the world (model) pointing to the user.

  the mapping screen --> world (model) is done by intersecting the line perpendicular to the screen, passing through the coordinates (screen_x, screen_y), with the plane parallel to the screen (in real, model, world) at the centre of the view / model. The returned normal is the normal of this plane.

2.1.3 From v 10.2.1d to 11.0-rc1

General:

- Password is changed from 10.x to 11.x, then a new password will be required.
- Ask the user for theme 'classic' or 'black' when starting the first time.
- *Snapshot:* all image formats have been merged into a single "write image file dialog", where the user can choose the format by selecting the apropiate filter or entering the corresponding extension.
- *Views:* new Utilities -> Variables -> ReadViewWithModel variable to disable reading views when a project is read in pre or a model is read in post.

Preprocessing:

- Meshing in parallel. The volumes can be meshed in parallel using the number of threads wanted by the user (set at Preferences->General).
- Rball sphere/circle mesher updated.
- Fixed bug in volume Octree mesher.
- *VA, VBO:* less memory required to get unique lines when drawing meshes in normal render mode. corrected problem with quadratic elements.

Postprocessing:

- *Node traces:* now traces of nodes can be drawn. For a single mesh for the whole analysis, the node will follow the path of the deformed mesh across all steps. When several meshes are used for several time steps, then the nodes can follow the track of the original mesh or from the deformed one.
- *ATI cards:* corrected problem where the axes and model is drawn black after returning from postprocess mode to preprocess mode.

Customization:

- New GiD-Tcl events: *AfterCreateGroup*, *BeforeDeleteGroup*, *AfterRenameGroup*

2.1.4 From v 10.2.0d to 10.2.1d

What's new from version 10.2.0d to 10.2.1d

Preprocessing

- *Group management:* conditions over groups of entities. New Groups data similar to organize geometric and mesh entities without the limitation of layers (an object can't belong to multiple layers)

2.1.5 From v 10.1.9d to 10.2.0d

What's new from version 10.1.9d to 10.2.0d

General:

- Ttk themed windows (experimental 'Dark GiD theme' and 'Classic theme')

Preprocessing:

- New Delaunay volume mesher using Tetgen.
- Mesh from boundary: new option to fit or not the surface boundary, allowing refinement (now for Tetgen only)
- Improvement in the automatic detection of Master surface in semi-structured volumes.
- Improvement in final mesh quality in unstructured quadrilateral meshes.
- Improvements in semi-structured volume mesher.
- Labels + ATI cards: corrected bug displaying labels with the latest catalyst driver.

Postprocessing:

- New import of Vtk format mesh and results, implemented as an auxiliary plugin
- *Result surface* on Lines will draw them using the result as thickness, including 1gp results.
- *Merge:* corrected error when merging meshes with set number specified for each element.
- *Isosurfaces:* corrected wrong style which was sometimes set when reading files.
- *Shadows + ATI cards + contour fill as texture*: corrected bug which caused errors with this combination and which caused posterior visualization problems even when shadows where off.
- *Shadows + nVidia / Intel cards + contour fill as texture and transparencies:* corrected bug which caused visualization artifacts when the combination was used and c.fill had some transparent outer limits.
- *Contour Fill / Contour ranges*: option to display the range just under the cursor.
- *Result surfaces***:** using this result visualization style on lines will draw lines with their thickness depending on the absolute value of the result. For nodal and 1 gauss point results.
- *Animation Window*: make gif options more evident to the user, so that they can be selected more easily.
- corrected error when merging and exporting ascii files.
- corrected problem when displaying animated vectors with multiple meshes after no results was selected.
- *Edge colour:* added new option to define the colour to be used to draw edges, instead of the default black colour (Options --> Geometry --> Change edge colour...).
- *PDF output:* now outputs images in pdf format.
- *PLY export*: shown meshes can also be exported in the Polygon File Format, aka. Stanford Triangle Format. Ascii and binary. Nodal results of current selected step are also written in the PLY file as nodal properties.
- *Statistical results:* macro passed to Windows menu, which creates a statistical result: foreach node calculates the minimum, maximum, average or the standard deviation of all values, i.e. across all steps, of the selected result.

Customization:

- BeforeRunCalculation event: retuning -cancel- and an optional value the calculation is

not started.

- GiD_Info parametric line Tcl command, new subcommand length_to_t to obtain the line length.
- Package vtk added to scripts.

2.1.6 From v 10.1.8d to 10.1.9d

What's new from version 10.1.8d to 10.1.9d

Preprocessing:

- Modification of hierarchy of layers, now parent layers exists explicitly. The layer tree information is imported now from Rhino files.
- Selection of entities filtering subtypes: e.g. to assign a condition defined over volumes - over face elements only to surfacic elements
- Draw curvature of curves by colors.
- Fixed bug modifying field values of conditions applied to layers.
- Fixed bug related with some specific case of boundary layer meshing.
- Fixed bug related with the use of the meshing preference 'Avoid elements with all its nodes in boundray'. Sometimes GiD crashed if this variable was set.
- Fixed bug related with Forced Points in surface. Sometimes some points were not present in the final mesh.
- Fixed bug concerning automatic correct sizes for meshing.
- Fixed bugs when reading the user preferences.
- Improvements in surface meshing when chordalerror is assigned in meshing preferences.
- Fixed bug related with semi-structrued volume meshing when closed entities were involved.

Customization:

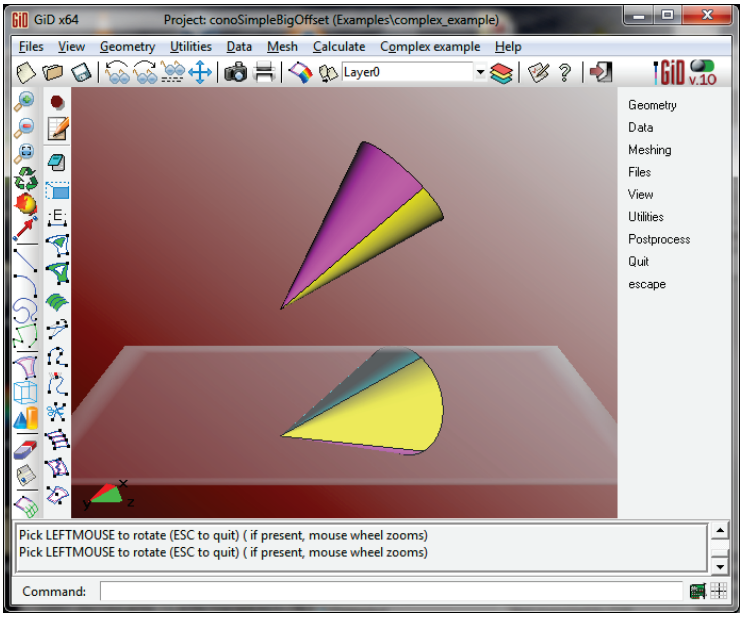
- GidPriv(HideQuadraticTypeLevel) global variable to be used by a problemtype to hide and disable not allowed quadratic options.

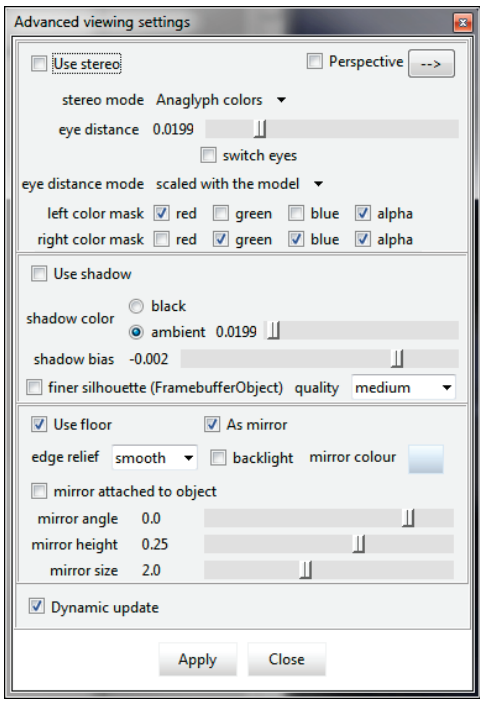
General:

- Va + quads from hexas: corrected bug which caused to drawn wrong the quadrilateral faces of hexahedrons using vertex arrays.

- Spheres + internal texture: brighter texture when drawing spheres in this mode and in without light (render normal).
- New ground plane: can be used as floor (shadows are drawn on it) or as mirror.
- New mirror effect: the model is mirroed on a ground surface with the window View --> Other viewing effects..

.





- Create results and graphs: layout rearranged and tool tips added.
- Backup: a version will only recover a backup if it was written by its exact GiD version, not from other GiDs.
- Some widgets have been updated to Ttk style.
- Now GiD checks if there is a new version available.
- User colour map, for contour fills for instance, are named and saved between sessions.
- Stream lines: can be exported and imported (in the same model), new command to delete all stream lines at once.
- Post Result State: now stream lines are saved between sessions.

2.1.7 From v 10.1.6d to 10.1.8d

What's new from version 10.1.6d to 10.1.8d

Preprocessing:

- VA + VBO: now circles and spheres are drawn
- Fixed bug when ForcedPoints were used in surfaces, using triangle quadratic mesh.
- Sphere generator preferences: circumvented the problem that caused rball preferences not to be saved.
- Fixed bug in boundary layer mesher. Sometimes not all the layers were generated.

Customization:

- GiD_MeshPost tcl function to create postprocess meshes enhanced
- GiD_Result, new 'gauss_point' sub commmand to manage gauss point definitions and 'result_ranges_table' to manage 'result ranges tables'.
- GiD_Graph tcl function to handle postprocess graphs.
- drawopengl: new suboption -getstring vendor|renderer|version|extensions
- GiD_Geometry list surface unrendered, to know the surfaces with problems to create its render mesh.

General:

- Now the splash window shows the packages being loaded at start time. Can be switched off in ConfigureProgram.tcl

Postprocessing:

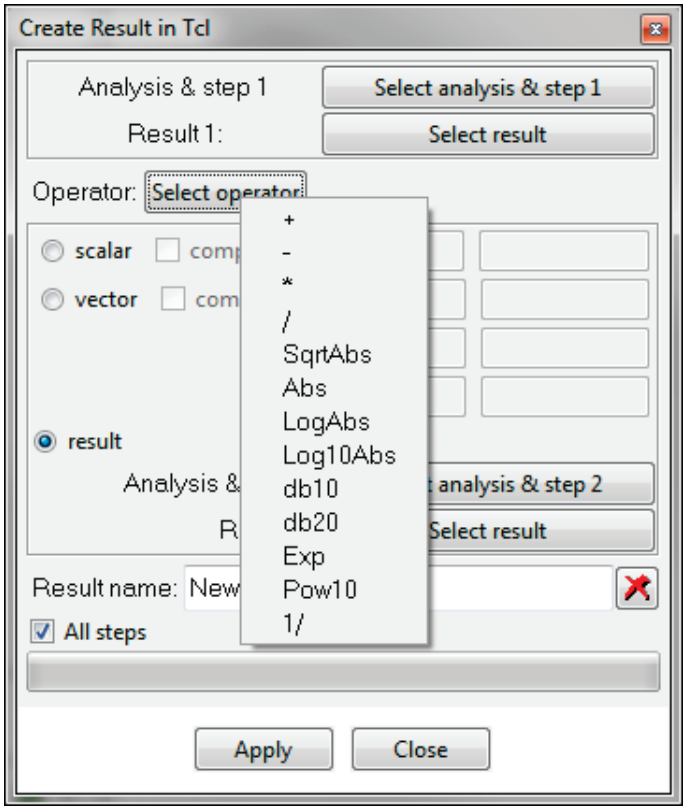
- Import plug-in: added support for complex scalar and complex vector results, now they can be imported too.
- Graphs: corrected some bugs related to undefined results and importing graphs with no titles.
- Spheres: support for VA and VBO for faster drawing of nice spheres.
- Display vectors: corrected bug which caused gid to crash after this sequence: open multiple files + c.fill of resA + animate + displayVectors of resB + (zoom in) + animate AND c.fill was done using textures AND display of monochrome vectors.
- Standard (internal) gauss points (GP_TRIANGLE_1, GP_QUADRILATERAL_4, ...) should not be explictly defined to be used.
- Delaunay: elements bigger than 10 times (default) the mean size of elements are culled. Check Utilities --> Variables --> PostDelaunauCullBigElements to modify it.
- Macros: Added macro to create a result with the minimum, maximum or average value of a scalar for all steps.
- Create Results: added some single operator functions (sqrt, log10, db10, db20, abs, exp, inverse (1/)) to *Window-->Create Result...*
- Graphs: new tcl command GiD_Graph
- ** GiD_Graph show --> shows the graphs
- ** GiD_Graph hide --> hides the graphs
- ** GiD_Graph list --> list the existant graphs
- ** GiD_Graph clear --> deletes all graphs
- ** GiD_Graph get <graph_name> --> gets the graph data of "graph_name", the same

as the create data.

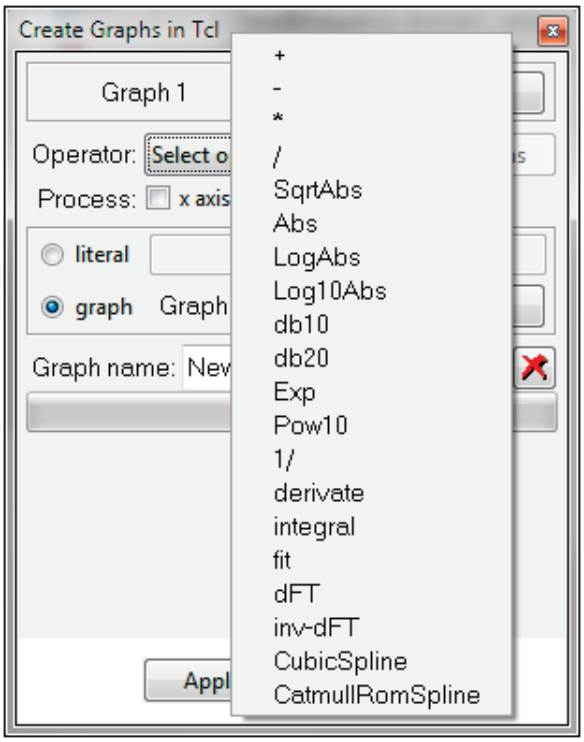
- ** GiD_Graph delete <graph_name> --> deletes the graph "graph_name" causing an error if does not exists
- ** GiD_Graph create <graph_name> <label_x> <label_y> <list_x_values> <list_y_values> <unit_x> <unit_y> --> creates the graph "graph_name" with the provided information, causing an error if the graph already exists.

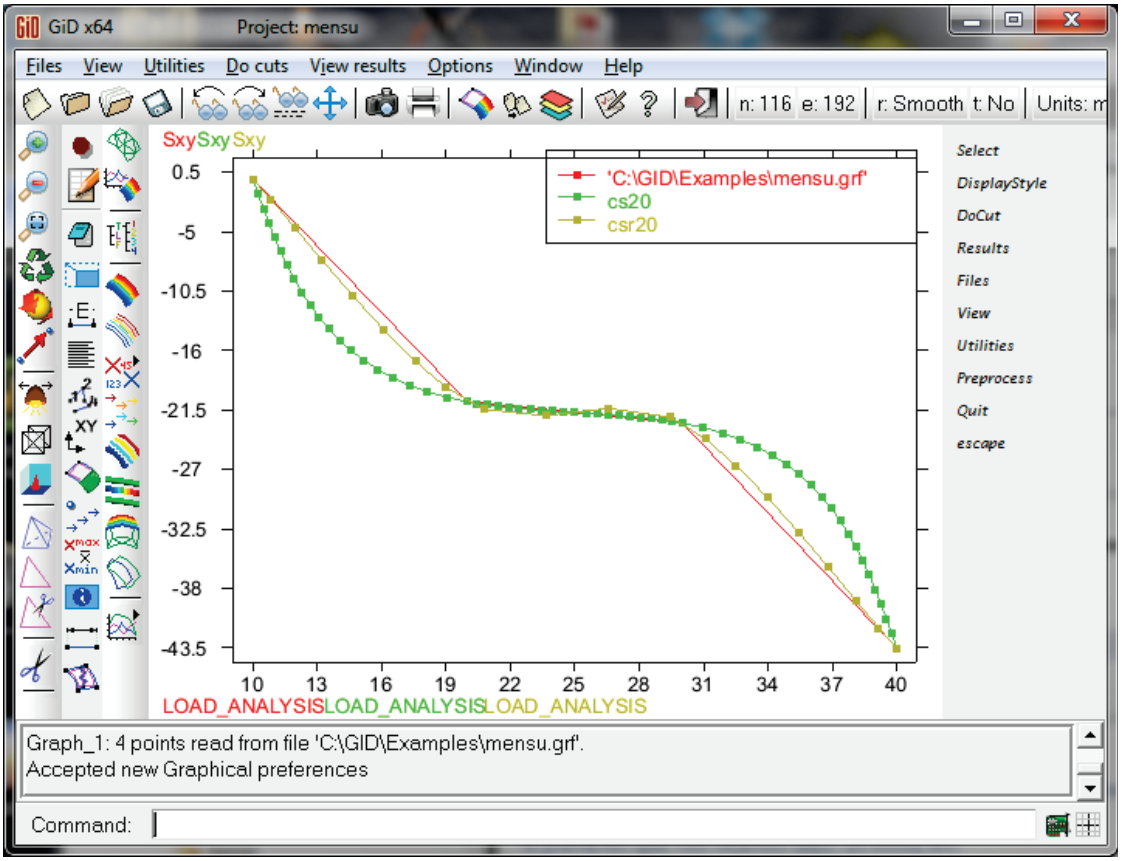
- Graphs: added discrete Fourier Transform of a Graphs. Uses the y values as real part and 0 as the imaginary part for the fft transformation. The graph created will use an index for the x axis and the real, imaginary or module of the dft result as the y axis. Check Options-->Graphs-->dFT-->real , imaginary or module

- Graphs: added discrete Fourier Transform of a Graphs. Uses the x values as real part, and the y values as imaginary part for the fft transformation. The graph created will use an index for the x axis and the real, imaginary or module of the dft result as the y axis. Also the graph created can have as x axis the real part and as y axis the imaginary part of the dft result. Check Options-->Graphs-->dFT complex-->real , imaginary, module or complex
- Read of postprocess files with GiD postprocess HDF5 format written by the GiDPost library, and postprocess files with Amelet HDF5 format.
- Create Results: added option for operators +, -, * and / which now accepts a scalar or vector (both can be complex) as second operand check the window: *Window-->Create Result...*
- Create Results: added operators sqrt, log10, db10, db20, abs, exp, inverse (1/) which operates on one result. Only operators **+, -, *** or **/** accept **scalars,vectors** or **results** as second operand. **SqrtAbs, Abs, Log10Abs, Exp, 1/** requires a **result** as second operator.

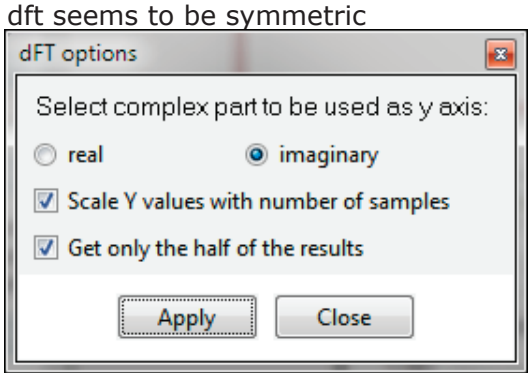


- New Create Graphs window: to create graphs from another ones, with following operators: +, -, *, /, sqrt, log10, db10, db20, abs, exp, inverse (1/), derivate, integral and fit. The "g1 fit g2" operator fits the bounding box of the second graph g2 to the bounding box of the graph g1. Also interpolador has been added: CubicSpline and Catmull-Rom Spline. Graphs can also be scaled and traslated in order to match another one. This is the new window, and below some interpolated graphs examples.





- Create Graphs: added dFT options:
  - create graph(idx, dft.real) or dft(idx, dft.imaginary)
  - sale y values according to the number of items
  - get half the values, dft seems to be symmetric



- Graphs: corrected bug when doing line graphs on volumes
- Animation + several results: corrected bug when doing animation of several results combination isosurface + contour fill
- Result state: corrected bug which caused the results menu not to be displayed when an incorrect step was present in the result state file (.vv)
- Integration graph: added tangencial and un projected vector integration for lines and 2d
- Graphs: now, if the Amelet plugin is present, they can be exported to the Amelet HDF5 format
- Post preferences: circumvented the problem that overwrites the user preferences with original ones.
- Graphs: corrected bug in *Options --> Graph --> Invert Graphs* .
- Label results: now labels of vectors, tensors and local axes displays a letter with the component's name.
- Extract boundaries: corrected bug when creating boundaries from a quadratic element mesh
- VA + VBO: now quadratic elements are drawn as several triangles / cuadrilaterals, instead of drawing them as linear elements if Utilities --> Preferences --> Graphical --> **DrawQuadraticElements** is set to "**As lines**".

2.1.8 From v 10.1.5d to 10.1.6d

What's new from version 10.1.5d to 10.1.6d

Preprocessing:

- Fixed bug in 3D Boundary Layer Mesh, in cases where the boundary layer ends in onto a surface.
- Boundary layer mesher is faster.
- Fixed bug in SurfMesh meshing, when Avoid Elements in Boundary option (from meshing preferences) was set.

Customization:

- New Tcl-GiD event AfterAssignMaterial { name leveltype }
- Fixed bug when transfering conditions over nodes, when they came from isolated points.
- hdf5 plugin updated to version 1.4
- verifp plugin updated to version 1.33
- GiD_MeshPost tcl command to create postprocess mesh
- Special self-updated field #FUNC#(NumPointToNumNode), to automatically convert the point number in a node number

Postprocessing:

- Stream lines: faster search tree creation (up to x4) for the first stream line.
- Post state: solved bug which caused mesh styles to be read wrong.
- Toolbar's buttons: now icons can be showed with short names or names alone.
- Tooltips can be: showed as always, disabled or displayed at the bottom of the main window.
- Graphs: corrected bug when doing a graph with undefined results such a node evolution of a result which is not defined for that node.

2.1.9 From v 10.1.4d to 10.1.5d

What's new from version 10.1.4d to 10.1.5d

Preprocessing:

- Edit NURBS: conversion to Bezier form for curves and surfaces.
- Fixed bug in unstructured quadrilateral mesher.
- Fixed bug related to automatic correct sizes.
- Fixed bug to do remote calculations using procserver.

Customization:

- GDAL as Tcl package to read/write GIS digital terrain models from multiple formats (Arc/Info, tiff and most image formats ,etc)
- GDAL plugin using the previous package to import GIS files as geometric or mesh entities

Postprocessing:

- Legends outside: corrected bug which caused that legends were not displayed in an independent window (Options --> Legend --> Outside).
- Several meshes: corrected problem which slowed down the deformation of the meshes of the current step.
- Display vectors & other vector related results: corrected bug which caused gid to crash when the comments where displayed.
- Display vectors: first time fixed size vectors is used, the minimum size is 8.
- results cache + several meshes: free results always except in the last meshgroup.
- Linux + usb: better usb checking.
- Postscript vectorial mode: if model is 2D no triangle discretization is done and so, smaller files are created.
- GUI: added 'disable tooltips' preference
- Loading single file: corrected bug which caused what the display information was calculated twice
- Remote display (Linux): disabled Vertex Array / Vertex Buffer Object in remote visualization which caused GiD to crash.
- Gauss points: solved problem while reading gauss points with given natural coordinates for prisms and pyramids.

2.1.10 From v 10.1.3d to 10.1.4d

What's new from version 10.1.3d to 10.1.4d

Preprocessing

- Fixed bug in volume mesher
- Fixed bug in lines orientations when reconstructing geometry from mesh.

Postprocessing

- Contour Lines: corrected bug which caused the contour lines to be drawn black in

render flat or smooth.

- Contour Lines + VA / VBO: now contour lines are drawn in Vertex Array or Vertex Buffer Object mode.

2.1.11 From v 10.1.2d to 10.1.3d

What's new from version 10.1.2d to 10.1.3d

Preprocessing

- Option for manual creation of nodes and elements.
- ACIS import updated until version 20.
- Fixed bug in rjump mesher. Now its probability of succes in meshing surface patches skipping inner lines is higher.
- Improvements in quadrilateral unstructured mesher.
- Fixed bug creating copy of triangles by offset.
- Enhanced bottleneck when splitting elements with applied conditions
- Fixed bug in mesh collapse, and less memory is required.
- Fixed orientation bug when copying volumes by mirror.
- Visualization: VA + VBO mode, the selected elements and surfaces are now drawn correctly.
- Visualization: VA + VBO mode, now the colour of the mesh can be coloured by layer or with a single colour (dark green) through the preferences window.
- Mesh generation: now the final message tells the user if the generated mesh is quadratic or not.
- Improvements in RSurf and RJump surface mesher.
- Improvements and bugs fixing in IsoStuffing unstructured volume mesher.
- Fixed bug concerning quadrilateral unstructured mesher.
- Fixed bug concerning quadratic unstructured meshes.
- Visualization: Inmediate mode, now the colour of the mesh can be coloured by layer or with a single colour through the preferences window.

Customization

- Conditions: added #WIDTH# option in the value description to specify the length, in characters, of the entry used by the user to enter the value of the condition (already in GiD 10.1.0d but not acknowledged). For instance:

```
CONDITION: Volume_Vector_function
```

```
CONDTYPE: over volumes
CONDMESHTYPE: over nodes
HELP: Here you can define a function/expresion ...
QUESTION: Ux
VALUE: 0.0#WIDTH#(64)
END CONDITION
```

- Tcl events for materials: AfterCreateMaterial, AfterRenameMaterial, BeforeDeleteMaterial, AfterChangeMaterial.

Postprocessing

- Health check: added option to filter outlier vertices, for instance, to filter out vertices with coordinates bigger than 1e+32.
- Mesh read: for line elements, accept 'line' keyword ad element type in the mesh description line, besides the old keyword 'linear'.
- OffScreen: added ofscreen support for MS Windows and Linux, so that GiD can work in background (or batch queue), for instance to create long animations or a series of snapshots.
- OffScreen: added button in the Animation Window to create a batch file to be used with GiD in background or batch mode.
- Graphs: fixed a couple of bugs regarding label displays and repeated names.
- Animation Window: rewind button puts slider at the user selected starting step, and not the first step of the analysis.
- Result state: corrected bug when restoring the line diagram visualization at start-up.
- Result state: corrected bug when restoring the result surface visualization at start-up, and its options.
- New results types:
  - ComplexScalar: results with two components: real and imaginary part --> a + b · i
  - ComplexVector: vectors with six components: (rX + iX, rY + iY, rZ + iZ). If not provided, GiD will calculate the modulus of the real part (sqrt(rX^2 + rY^2 + rZ^2), of the imaginary part (sqrt(iX^2 + iY^2 + iZ^2) and of the whole vector (sqrt(rX^2 + rY^2 + rZ^2 + iX^2 + iY^2 + iZ^2)
  - DisplayVectors visualization draws both parts (real and imaginary) when the modulus of the whole vector is selected
  - LineDiagram draws both parts (real and imaginary) when the modulus of the whole vector is selected.
  - Stream lines can be done on the real part (field) of the complex vector or on the imaginary part (field).
  - Look at the customization and reference manuals to get more information on how to specify complex numbers for GiD.
- Animation: GiD now can save animations in a new format: Macromedia Flash Video (.flv)
- Contour fill and transparencies: corrected problem when using contour fill with textures and switching layers to transparent. Also when creating png's.

- Result cache: corrected problem regarding several meshes in different timesteps
- Graphs: corrected problem with integral graphs and cuts.
- Labels: limited the maximum amount of labels to be displayed to 5.000.
- Translations: corrected problems when passing the result's name to the translation routine into another language.
- Icons: added an icon in the 'Standard bar' showing GiD's mode: preprocess or postprocess.
- Corrected bug when extracting boundaries and exporting ASCII boundaries from hexahedral meshes.
- STL export: added option to select whether the quadrilaterals should be divided into two or four triangles
- Graphs: new Point Complex Evolution graph, similar to 'Point Evolution' but for complex results, where both real and imaginary part of the result are displayed as 'x' and 'y' in the graph.
- Icon bars: the contour options icons and the graphs icons have been grouped into two submenus, so the general view is less cluttered
- Stream Lines: creation options are more visible now: View results --> Stream lines --> Single point / Along line / In a quad(rilateral)
- Stream Lines: made the algorithm a bit faster for big meshes made and for the first stream line.
- Images / animations: for contour fills or results surfaces with contour fill colours, corrected transparency issue.
- Show Min Max: added 'show minimum', 'show maximum' and ' show min max' options which shows the minimum result alone, the maximum result alone or both at once.
- Multi-monitor support: corrected problem which caused windows no to be reopened in the second monitor.
- Translations: corrected problem regarding result names with spaces in legend and comment boxes.

General

- Linux + ATI drivers: workaround to the problem which caused GiD to lock just after saving project or image with 'selection lines by software (emulation front buffer)' on.
- Problemtypes Abaqus, Ls-Dyna and Nastran updated to use floating PasServer licences

2.1.12 From v 10.1.1d to 10.1.2d

What's new from version 10.1.1d to 10.1.2d

Preprocessing

- Join volumes for geometric edition
- Edge Collapsing in triangles mesh. If the normals of selected elements are not coherent, now GiD make them coherent in order to be able to detect the sharp edges of the mesh.
- Quadratic type of the model (variable IsQuadratic) loaded automatically when the model is loaded.
- Added option to draw higherentity on mesh edges. (View->Higher Entities->Edges)
- Default element type in semi-structured volumes is tetrahedra (before, it was prism).
- Improvements in render mesh.
- Bugs fixed related with meshing compatibilities checking before meshing semi-structured volumes.
- Bugs fixed related with 3D boundary layer meshing.
- Improvements in Isosurface volume mesher.
- Cartesian mesher: added SizeRatio option and removed WeightStart/End
- Cartesian mesher: support to read cartesian 'face' and 'edge' elements (Amelet format)
- Bugs fixed related with semi-structured volume meshing.
- Structured lines: if ndivisions is zero (default), now the number of cells equivalent to the unstructured size is assigned. In previous versions 2 divisions were applied.
- Improvements in unstructured size transition regarding volume unstructured mesher.
- Improvements in the smoothing with HighGeom option (trying to minimize the chordal error in surface meshes).
- Background image is saved and restored with the GiD model, and new menu option to show or hide it.
- Correct sizes operations before meshing are faster because of improvements.

Customization

- New -elementtype and -higherentity options in GiD_Info layer command
  GiD_Info layer -entities elements -elementtype $type $layername1 $layername2 ...

  GiD_Info layer -entities nodes -higherentity $num $layername1 $layername2 ...
- BeforeDeleteLayer event: if it returns -*cancel*- the layer deletion is cancelled.
- GiD_Geometry get/create now allow also contactsurface and contactvolume
- New Tcl command GiD_BackgroundImage get|set show|filename|location <values>

Postprocess & General

- More, and bigger, bitmap fonts for PGF's PmFont style.
- Colours: changed first default color in pre (Layer0) and postprocess, corrected automatic color change/reset.
- Contour Fill: bugs corrected related to gauss points, using same minimum and maximum limits
- Plugins: New import plugins (mesh and results): PLY format, OFF format, added a tcl progress bar in ply plug-in
- Plugins: Automatic load of plugins under Files --> Import --> Plugins, of the dynamic libraries located in $GID/plugins/Import/.../NamePlugIn/NamePlugIn.dll (or .so)

- VA / VBO: improvements and bugs corrected in VBO / VA visualization mode, in pre and in postprocess mode.
- Results cache: when reading a big file, lasts steps remain in memory (so many as memory pool specified by the user).
- Graphs: problems corrected related to title, point style visualization (disconected node graph), repeated names.
- Selection in post improved.
- Linux / Mac: verify that the defaults files are owned by the owner of the directory where they are (corrected problem when GiD is launched as root from a user home directory).
- Added option (checkbox) to WarnWin window to 'skip these messages'.
- Corrected bug when selection analysis and steps.
- Plugins: added new function: GiD_GetTclInterpreter so the GiD's tcl interpreter can be used inside the client plug-in, PLY + progressbar example added.
- New PostProgressBar: using the 'tile' progress bar in postprocess, allows indeterminate progress too.
- Warning if contour fill uses textures and the user tries to generate a vectorial (encapsulated) postcript file.
- Spheres & circles: corrected bug when drawing them transparent in c.fill.
- Page Setup window with information about the dimension of the image to be generated (in mm/inches and pixels).
- Post Import plug-ins now also works in Apple's Mac OS X. Makefiles provided too.
- Read state: corrected problem while reading result surface parameters
- Result surface: now works with VA / VBO and, when drawing elevations, now takes into account diferent normals on boundaries
- Result surface: support for gauss points results and VA / VBO.
- Line graph: added option to use the x, y or z coordinates as 'x' axis, besides the already existant 'line variation' option.
- Create result window can mix results between different analysis and time steps
- Results cache & Merge: corrected bug using Results cache
- Results cache & Merge: check if some files uses mesh 'Group's and some no, issue an error if so.
- Render: Added two new fixed lights (switchable separately): one orange and another blue, accesible throught the right mouse button menu.

2.1.13 From v 10.1.0d to 10.1.1d

What's new from version 10.1.0d to 10.1.1d

Preprocessing

- Bugs corrected related with meshing compatibilities checking before meshing semi-structured volumes.
- New option: DontDrawNormals/DrawNormals in Utilities --> SwapNormals to avoid draw the normals when there are a lot of surfaces, or when the process is automatized, for instance, in a macro.
- Bugs corrected related with 3D boundary layer meshing.
- Quadratic type of the model (variable IsQuadratic) loaded automatically when the model is loaded.
- Support for Vertex Arrays and Vertex Buffer Objects so that the drawing of lots of surfaces (in flat or smooth render mode) and meshes (in any render mode) is faster.
- Preferences --> OpenGL & Postprocess: added option to draw the preprocess mesh with smoothed normals at the vertex or not.
- Initial green color for Layer0 has been changed to dark red.

Postprocessing

- New option: Options --> Geometry --> Extract boundaries from shown volume and surface meshes; for each mesh creates a set with its boundary elements. The original mesh is left untouched.
- New option: Options --> Geometry --> Separate connected components from shown volume and surface meshes; for each mesh detects groups of connected elements and stores them in separate sets. For instance a single volume mesh which corresponds to three unconnected spheres will be separated into three sets each one containing the volume elements of a single sphere. The original mesh is left untouched. By default a maximum of 50 connected groups will be separated into separated sets. This limit can be modified with the variable Utilities --> Variables --> PostMaxNumComponents on the main's window the right menu.
- Display Window can be integrated into GiD's main window
- PGF Fonts: now True Type fonts are also used in Mac OS X, thanks to free type library actualization
- Vertex Arrays / Vertex Buffer Objects bug correction caused no display or crahes gid some times when colors are not correctly defined in the range 0.0 ... 1.0. Also some memory leak is corrected.
- Read State: when the state is read and all meshes were off, now all are siwtched on.
- Tk OpenGL: correction of the error which, when the colour was changed using PGFFonts, the second printed string used the specified colour.
- Results cache: now works in MS Windows

2.2 Detailed changes of 10.0.x official releases

2.2.1 From v 10.0.8 to 10.0.9

What's new from version 10.0.8 to 10.0.9

(10.0.9 version is not available yet)

General

- External window: avoid errors using mouse-wheel
- Avoided problems when resizing the main window to very small size

Preprocess

- Fixed bug concerning automatic correct sizes for meshing.
- Natran import: fixed bug importing CE2 entities, and avoid crash with problemtype Nastran loaded.
- IGES import: removed bottleneck of very slow reading with some patologic case (like DPW4_wbt_ih+0_v03.igs of GiD tutorial)
- Rhino import: fixed some crash

Customization

- LoadGIDProject envent invoked with full path also is a model is readed with relative path, to avoid problems to problemtypes
- Tcl procedure WaitUntilAllProcessTerminate to force that GiD doesn't exit until all calculation processes have finished (usefult for batchs and tester)

Postprocess

- Fixed bug restoring automatic comments

2.2.2 From v 10.0.7 to 10.0.8

What's new from version 10.0.7 to 10.0.8

Preprocess

- Fixed bug concerning automatic correct sizes for meshing. In some cases the size already assigned to the entity was not taken into account, and only the general mesh size was used.
- Fixed bug when ForcedPoints were used in surfaces, using triangle quadratic mesh.
- Fixed bug related with some specific case of boundary layer meshing.
- Fixed bug related with the use of the meshing preference 'Avoid elements with all its nodes in boundray'. Sometimes GiD crashed if this variable was set.

Postprocess

- Graphs: corrected bug when doing a graph with undefined results such a node evolution of a result which is not defined for that node.
- Graphs: corrected some bugs related to undefined results and importing graphs with no titles.
- Display vectors: corrected bug which caused gid to crash after this sequence: open multiple files + c.fill of resA + animate + displayVectors of resB + (zoom in) + animate AND c.fill was done using textures AND display of monochrome vectors.

2.2.3 From v 10.0.6 to 10.0.7

What's new from version 10.0.6 to 10.0.7

Apple's Mac OS X version uploaded.

Preprocessing

- Fixed bug in unstructured quadrilateral mesher.
- Fixed bug in 3D Boundary Layer Mesh, in cases where the boundary layer ends in onto a surface.
- Fixed bug in SurfMesh meshing, when Avoid Elements in Boundary option (from meshing preferences) was set.

Customization

- Fixed bug when transfering conditions over nodes, when they came from isolated points.

Postprocess

- Legends outside: corrected bug which caused that legends were not displayed in an independent window (Options --> Legend --> Outside).
- Several meshes: corrected problem which slowed down the deformation of the meshes of the current step.
- Display vectors & other vector related results: corrected bug which caused gid to crash when the comments where displayed.
- Display vectors & other vector related results: corrected bug which caused gid to crash when the comments where displayed.
- Display vectors: first time fixed size vectors is used, the minimum size is 8.
- Linux + usb: better usb checking.
- Postscript vectorial mode: if model is 2D no triangle discretization is done and so, smaller files are created.

2.2.4 From v 10.0.5 to 10.0.6

What's new from version 10.0.5 to 10.0.6

Preprocessing

- Fixed bug in unstructured quadrilateral mesher.

Postprocessing

- Contour fill and transparencies: corrected problem when using contour fill with textures and switching layers to transparent. Also when creating png's.
- Graphs: corrected problem with integral graphs and cuts.
- Labels: limited the maximum amount of labels to be displayed to 5.000.
- Multi-monitor support: corrected problem which caused windows no to be reopened in the second monitor.
- Translations: corrected problem regarding result names with spaces in legend and comment boxes.

2.2.5 From v 10.0.4 to 10.0.5

What's new from version 10.0.4 to 10.0.5

Pre Process:

- Fixed bug in rjump mesher. Now its probability of succes in meshing surface patches skipping inner lines is higher.
- Improvements in quadrilateral unstructured mesher.
- Fixed bug concerning quadrilateral unstructured mesher.
- Fixed bug of intersections
- Fixed bug in 3D boudary layer mesher
- Fixed bug in Isostuff mesher
- Improved efficiency when splitting elements with applied conditions
- Fixed bug in node collapse
- Try to Detect USB device for latest Ubuntu distributions

Post Process:

* Linux / Mac: verify that the defaults files are owned by the owner of the directory where they are (corrected problem when GiD is launched as root from a user home directory).

- Corrected bug when selection analysis and steps.
- Graphs: problems corrected related to title, point style visualization (disconected node graph), repeated names.
- Warning if contour fill uses textures and the user tries to generate a vectorial (encapsulated) postcript file.
- Spheres & circles: corrected bug when drawing them transparent in c.fill.
- Plugins: added new function: GiD_GetTclInterpreter so the GiD's tcl interpreter can be used inside the client plug-in.
- Post Import plug-ins now also works in Apple's Mac OS X. Makefiles provided too.
- Read state: corrected problem while reading result surface parameters

2.2.6 From v 10.0.3 to 10.0.4

What's new from version 10.0.3 to 10.0.4

Preprocessing

- Bugs fixed related with meshing compatibilities checking before meshing semi-structured volumes.
- Bugs fixed related with 3D boundary layer meshing.
- Quadratic type of the model (variable IsQuadratic) loaded automatically when the model is loaded.
- Bugs fixed related with semi-structured volume meshing.
- batch files always needs .bch extension

Postprocessing:

- selection: faster when selecting lots of elements or nodes, corrected a bug when selectiong nodes
- linux: corrected explosion when shadows where on and creating a hires image with nvidia drivers
- avoid som redraw's
- c.fill with textures: corrections when min = max, and when only 1 colour was selected
- c.fill: corrected error when drawing interior elements of volume meshes and in pg's
- graphs: corrected 'dot' style, title box adjusted when itle is changed
- Linux: owner of .gidDefaults and .GiDPostPreferences.ini is the same as owner of directory where these files are, usualy $HOME
- mesh colours: corrected bug which reseted the colours after deforming, animating or cutting meshes.
- utilities status: store volume and area values, avoiding recalculating them innecesarily
- Post state: on quit, save only if there is a model loaded.
- post state: if saved state is graph view, then stay in normal postprocess view.
- results cache: several corrections
- fonts: corrected bug when fixed width font is selected(pmfont).
- tkogl: when using opengl from Tk, corrected problem when setting the color of printed fonts (PGF).

2.2.7 From v 10.0.1 to 10.0.3

What's new from version 10.0.1 to 10.0.3

General

- Minor bugs corrected

Preprocessing

- Fixed bug when checking prismatic topology of volumes, to allow to assign semi-structured meshing properties to the volume.
- Improvements in advancing front volume mesher (tetrahedra).
- Fixed some bug in 3d boundary layer mesh generation.
- Fixed bug deleting materials

Postprocessing

- Postprocess state saves and reads isosurfaces information.
- Stream line bug corrected.
- Graphs: Point evolution and integral graphs bugs corrected. Now works also for 1 Gauss Point per element.
- Graphs: Integral works also for 1 Gauss Point per element.
- Graphs: Fixed bug changing 'y' scale
- Postprocess state saves and reads stereo and shadow information.

2.2.8 From v 10 to 10.1.0d

What's new from version 10 to 10.1.0d

Preprocessing

- Fixed bug creating a volume with holes.
- Join surfaces: transfer conditions to the joined entities
- ACIS import: try to read files with version higher than 7.00
- Fixed bug copying an arc by scaling with different xyx scale
- Fixed bug specifying coordinates related con local axes: 'local_axes_name' x,y,z

Meshing

- Cartesian mesh with non-uniform grid spacing and settings in preferences window
- Fixed bug when checking prismatic topology of volumes, to allow to assign semi-structured meshing properties to the volume.
- Improvements in advancing front volume mesher (tetrahedra).
- Fixed some bug in 3d boundary layer mesh generation.
- In 3D boundary layer mesh generation, improved the way of deciding when to stop shifting a node, depending on the proximity of the close nodes in the isotropic mesh.
- Fixed bugs with sphere/circle meshing with conditions over face elements

Postprocessing

- Use of Open GL's Vertex Arrays and Vertex Buffer Objects. Utilities --> Variables --> OGL_useMeshObjects values:
  - OGL_useMeshObjects = 0 --> draw using immediate mode
    - slow, no extra memory,
    - safe & quick graphic mode, works always
  - OGL_useMeshObjects = 1 --> draw using Display Lists
    - quick, uses memory to create objects,
    - safe & quick graphic mode, works always,
    - limited number of elements
  - OGL_useMeshObjects = 2 --> draw using Vertex Arrays
    - quick, uses less memory than Display Lists,
    - safe & quick graphic mode, works always,
    - better suited for Software mode and Intel graphics cards
  - OGL_useMeshObjects = 3 --> draw using Vertex Buffer Objects
    - quick, uses less memory than Display Lists but more than Vertex Arrays,
    - safe & quick graphic mode, OpenGL 1.5 required,
    - better using a graphic card
- Postprocess state: now saves and reads isosurfaces information.
- Stream lines: bug currected which causes to get short lines on very slow velocities.
- Stream lines: faster location of elements when a stream line is created.
- Graphs: Point evolution and integral graphs bugs corrected.
- Postprocess state: now saves and reads stereo and shadow information.
- Integral: New option in Integral calculation: '2D' mode, in order to do vector integration over lines in 2D (normal of line = vector(Node0, Node1) ^ Vector(0, 0, 1))
- Preferences: new panel for Postprocess options:
  - Draw method: immediate mode, display lists, vertex arrays or vertex buffer objects
  - Enable or disable use of textures to draw Contour Fills
  - Enable or disable 'Results cache': (Linux, Mac OS X) uses a portion of the main

memory as 'cache' of results so that not all the results are loaded into GiD. The amount of main memory to be used can also be specified.

- Graphs: Point evolution and integral graphs bugs corrected. Now works also for 1 Gauss Point per element.
- Graphs: Integral works also for 1 Gauss Point per element.
- Graphs: new option to show the values of a graph into a table window.

Customization

- $GID/plugins folder, recursivelly load all tcl files with the same name as the folder.
- GiD_Info group_entities
- GiD_Cartesian get|set ngridpoints|boxsize|corner|dimension|coordinates|iscartesian <values>
- Cartesian() GiD variables MinSizeMainGrid WeightStart WeightEnd GridUniform
- BeforeMeshGeneration GiD-Tcl event now stop the generation when returning -cancel-
- Tcl global variable ::GidPriv(PostSpaceDimension) to declare that our resuls is 2D (e.g. to integrate results in 2D projection)
- package hdf5 updated from 1.0 to 1.2 (-vtype string|char allow creation of sets of strings, and unsigned chars)
- package tablelist updated from 4.9.1 to 5.1
- Fixed bug on Linux with conditions with 'grid fields'

2.2.9 From v 10 to 10.0.1

What's new from version 10 to 10.0.1

General

- Minor bugs corrected

Preprocessing

- Minor bugs corrected

Postprocessing

- Postprocess state saves and reads isosurfaces information.
- Stream line bug currected.
- Graphs: Point evolution and integral graphs bugs corrected.
- Postprocess state saves and reads stereo and shadow information.

3 From v 9 to 10

What's new from version 9 to 10

GENERAL FEATURES

- Mac OS X version
- Added stereoscopy (3D view) support with anaglyphs and Quad planes and save animations.
- Added shadow support using the shadow mapping technique for a better depth perception and enhance presentations.
- GMED: new module for treatment of medical images.
- Added shadow support.
- Ready for Windows Vista an 7
- Added support for usb's SpaceNavigator and 3D SpaceBall in Linux
- Plugins: tcl files inside the \plugins folder will be automatically sourced when starting.
- zoom centered on the current cursor when using mouse wheel

PREPROCESSING

- Rhinoceros 4.0 export
- Import of x y z? ASCII files as points of nodes
- Import of 'ply' mesh files
- Geometric surfaces reconstruction from triangle or quadrilateral meshes.
- Join surfaces (also able to rebuild a single surface by contour)
- Boolean operations with multiple selection
- Tcl wrapper of the HDF5 library to read/write this data format.

MESHING

- Boundary layer mesh generation in 3D
- Generation of quad dominant meshes (surface mesh with quadrilateral and triangles), if a meshing preference is set.
- New unstructured volume mesher available, based on constrained Delaunay algorithm.
- New unstructured non constrained volume mesher, based in Isostuffing.
- Force Points to Volume Mesh option available (Mesh Criteria->Force Points to Volume Mesh)

- Sphere/Circle mesher options in preferences window and new generation algorithms.

POSTPROCESSING

- Graphs: polar graphs, logarithmic scales, draw axes and labels, select grid color.
- Integral of a scalar or vector result over a mesh part.
- New Points/Circles/Spheres visualization mode: Internal texture
- Support for 'Units' has been added, both for mesh and results:
- *Options-->Geometry-->Create delaunay meshes* allows the user to create delaunay meshes from the nodes of the postprocess model
- New 18 nodes prism element
- New file **.post.lst*: a file which contains a list of the files for multiple meshes and graphs.
- Isosurface exportation is done now with GiD format.
- Visualization: in the 'View Style' windows, posibility to visualize the preprocess model (geometry or mesh) with the postprocessed results. There is also de posibility to selec which render mode to use with the preprocess model.
- Basic postprocess state is saved and restored.

CUSTOMIZATION

- CompassLIB problemtype Toolkit
- Separated customization manual
- New Tcl events:
  - *AfterChangeBackground*
  - *AfterRenumber*
  - *BeforeCopy, AfterCopy, BeforeMove, AfterMove*
  - *AfterCreatePoint, BeforeDeletePoint, AfterCreateLine, BeforeDeleteLine, etc.*
  - *AfterCreateLayer AfterRenameLayer BeforeDeleteLayer AfterChangeLayer AfterSetLayerToUse*
  - *AfterCreateDimension BeforeDeleteDimension*
  - *AfterChangeLicenceStatus*
- Tcl-GiD commands:
  - *GiD_Geometry* can get and create more types of surfaces: plsurface, coonsurface and meshsurface
  - *GiD_Geometry create line:* new option to create NURBS interpolating points
  - *GiD_Mesh'get'* to obtain information of nodes and elements
  - *GiD_Info Mesh* also for meshes of post
  - *GiD_Result* create , *-array* option to efficiently handle data
  - *GiD_Info IsPointInside*
  - New Tcl commands to register procedures (interesting for plugins)
    - To modify menus: *GiD_RegisterPluginAddedMenuProc*, *GiD_UnRegisterPluginAddedMenuProc*
    - To handle dropped files with some extension: *GiD_RegisterExtensionProc*, *GiD_UnRegisterExtensionProc*
  - *GiD_OpenGL get modelviewmatrix|projectionmatrix|viewport* , and *polygonoffsetfill* constant

- *GiD_OpenGL pgffont pushfont* | *popfont* | *print* | *dimensions* | *foreground* | *background*
- *.central.s graphmode , dynamicbox*, and *dynamicline*
- *objarray* command to ask type and length of this vector object

New bas template commands:

- *loop conditions nodes|bodyelements|faceelements|layers
- *condname, *condnumfields, *condelemface *condhaslocalaxes
- *matprop, *cond, *gendata, *intvdata: without arguments print all fields

- Other:
  - Grid data showed with a new widget to easily copy/paste big data, and a XY plot can be drawn
  - Added option #WIDTH# to the Value: field in .cnd to set a specific width for value entries in the Condition Window
  - Data Conditions NewCond process command, to define a new condition at runtime
  - Hide/show all volume related menus and toolbars when setting the global variable GidPriv(HideVolumeLevel) to 1/0
  - Updated to Tcl/Tk 8.5.8
  - Added more Tcl packages: Tktable, sqlite, ..., and the rest updated to the latest

3.1 From v 9.3.1b to 10.0

What's new from version 9.3.1b to 10.0.RC1

General:

- First 10.x release candidate version, with new password required.
- added options to draw, or not, the background images when taking pictures or saving animations
- File browser support links

Preprocess:

- Delaunay volume mesher also for quadratic meshes.
- Improvements in unstructured quadrilateral mesher.

Customization:

- Added option #WIDTH#(width_of_entry) to the Value: field in .cnd to set a specific width for value entries in the Condition Window

3.2 From v 9.3.0b to 9.3.1b

What's new from version 9.3.0b to 9.3.1b

General:

- Tcl/Tk scripting interpreter updated from 8.5.6 to 8.5.8 version.
- More USB memory sticks allowed to register GiD

Preprocess:

- Parasolid format import updated from version 16004 to 20000
- Meshing: isolated points generate isolated nodes, and these nodes are visualized (by default nodes are hidden)

Postprocess:

- variable PostDoStereoAnimation
- Polar graphs enhanced

Customization:

- GiD_OpenGL get modelviewmatrix|projectionmatrix|viewport , and polygonoffsetfill constant
- GiD_OpenGL pgffont pushfont | popfont | print | dimensions | foreground | background
- .central.s graphmode , dynamicbox, and dynamicline
- objarray command to ask type and length of this vector object

Fixed bugs:

- Circle/sphere mesher bug with conditions over face elements
- Copy of elements by mirror with conditions over face elements
- Copy by offset, don't allow create 'contact volumes'
- Tcl error unselecting materials
- Crash on GiD x64 for Windows selecting from menu a batch file to be read and other menus.
- Error in Windows Vista and 7 running the external 'only points' volume mesher.
- HDF5 Amelet import corrections
- Shadows fixed bugs
- Fixed some bug in Semi-structured volumes with structured prisms
- problems running batch files without any window (-n flag)

- postprocess mirror inverted the orientation of the elements

3.3 From v 9.2.9b to 9.3.0b

What's new from version 9.2.9b to 9.3.0b

General:

- Improvements in meshing advance bar..
- Shadows can also be used in preprocess.

Preprocess:

- Improvement in unstructured quadrilateral mesher: better element quality when very sharp sizes transition are present.
- Included option to reconstruct one surface by contour.

Postprocess:

- corrections
- Stereo and Shadow options are melted into the same window.
- Basic postprocess state is saved and restored, the state variables saved are:
    - mesh information: on/off, display style, color, transparency, edge width, vector filter factor
    - result information: current result visualization, except stream lines

Customization:

- GiD-Tcl event proc AfterChangeLicenceStatus { status }
- GiD_Result create , -array option to efficiently handle data

3.4 From v 9.2.8b to 9.2.9b

What's new from version 9.2.8b to 9.2.9b

General:

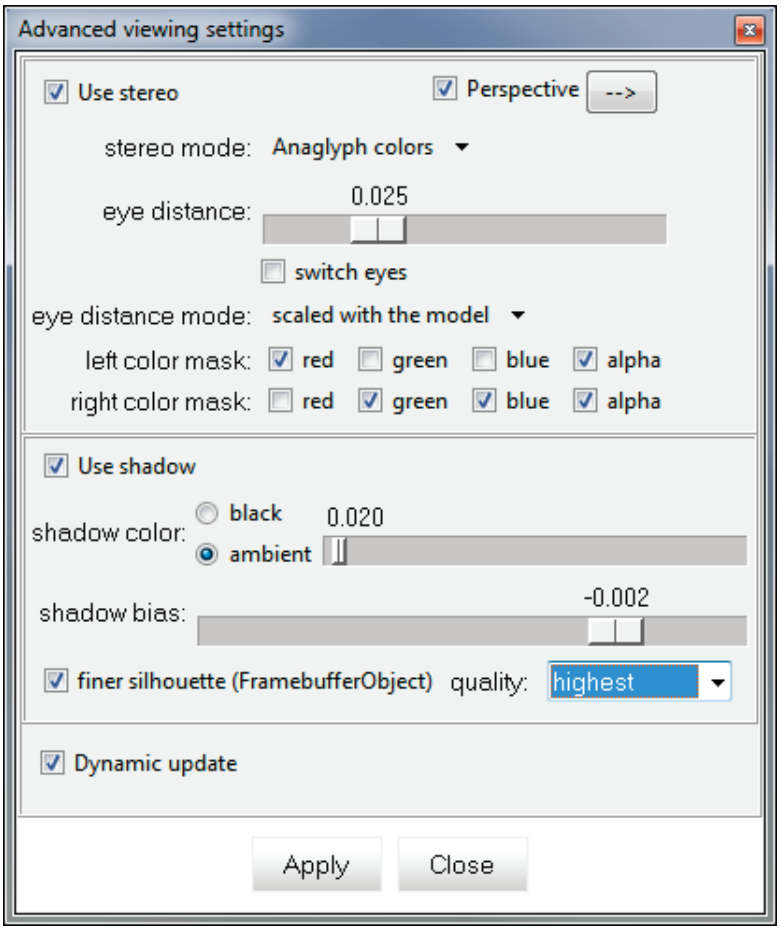
- Draw selected lines with a higher width in render mode.

Preprocess:

- Improvement in volume mesher based in advancing front
- Improved surface structured meshes
- Better treatment of meshing parameters to be used when meshing.
- Fixed bug when meshing boundary layer mesh, and more than boundary layer affected the same volume.
- Fixed some bugs in volume mesher based in isostuff method
- Fixed bug when assigning Cartesian mesh to entities.
- Fixed bug when meshing semi-structured volumes

Postprocess:

- Added shadow support. GiD uses the shadow mapping technique. By clicking View-->Advanced options... following window will appear:



Stereo and shadow options.

- **Use shadow**: enables or disables the shadows visualization.
- **shadow color:** this option controls if the shadows should be black or shoule be drawn with and dimmable ambient light.
  - **shadow bias:** this advanced options allows the user to adjust the offset between the oclusor and the shadow. The default value is -0.002.
    - **finer silhoutte:** this advanced option allows the user to control the granularity of the shadow, i.e., the resolution of the texture to be used to create the shadow. By default, i.e. deactivated, the same graphical window is used to created the shadow texture. An accelerated OpenGL 2.0, or the *framebuffer object* extension is needed for this option to be used. If checked, the options are
      - **medium:** which uses a texture of 1024 x 1024 pixels to create the shadow map, using 4 MB of memory,
      - **high:** which uses a texture of 2048 x 2048 pixels to create the shadow map, using 16 MB of memory,
    - **very high:** which uses a texture of 4096 x 4096 pixels to create the shadow map, using 64 MB of memory,
    - **highest:** which uses a texture of 8192 x 8192 pixels to create the shadow map, using 256 MB of memory.

- **NOTE:** requires OpenGL 1.5 upwards
- **NOTE:** for the *'finer silhouette',* OpenGL 2.0 or the *framebuffer object* extension is

required.

Customization:

- Grid data showed with a new widget to easily copy/paste big data, and a XY plot can be drawn

3.5 From v 9.2.7b to 9.2.8b

What's new from version 9.2.7b to 9.2.8b

General:

- fixed save stereoscopic animations using quad buffers

Preprocess:

- Improvements in volume mesher based in advancing front method.
- Improvements in volume mesher based in Isostuffing.
- Improvements in geometry boolean operations (new 'Substract and intersect' operation)

Postprocess:

- Changed Contour Fill drawing algorithm. Now uses textures achieving a Speed-Up between 2x and 20x. Can be activated and deactivated with the right button menu option: Utilities-->Variables-->OGL_useCFillTexture and entering 1 or 0 respectivelly, in the command line.

Customization:

- Ramdebugger package updated from version 7.1.2 to 7.7.1
- fulltktree package updated from version 1.7 to 1.8

3.6 From v 9.2.6b to 9.2.7b

What's new from version 9.2.6b to 9.2.7b

General:

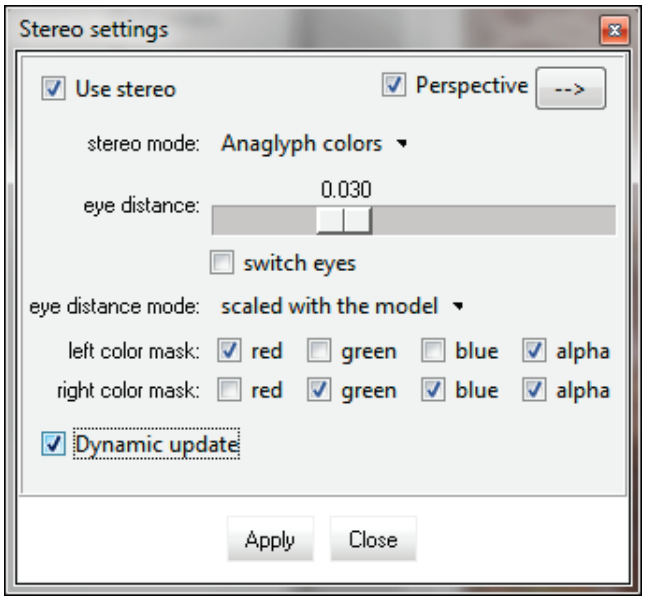
- Fixed some important bug of the 9.2.6b version
- Save stereoscopic animations

3.7 From v 9.2.5b to 9.2.6b

What's new from version 9.2.5b to 9.2.6b

General:

- **-openglconfig** option also works in Linux.
- Added stereoscopy (3D view) support with anaglyphs and Quad planes (if there is hardware support). Also specific Contour fill colours scales has been added for anaglyphs stereo mode. By clicking on View-->Stereo... or on Utilities-->Tools-->Stereo... following window appears:



Stereoscopy window possibiliting 3D view

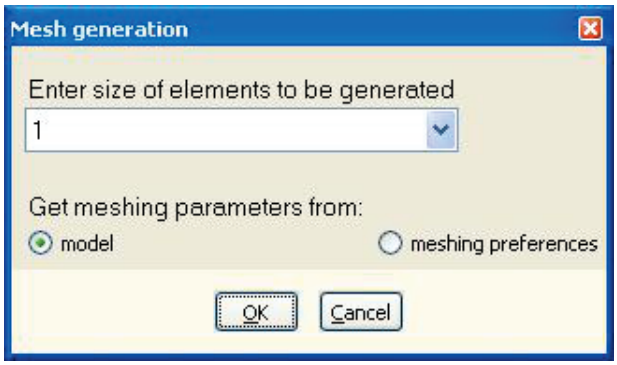
which allows the user to set following options:

- **stereo mode:** selects the stereo mode to use between **anaglyph colors** and **quad buffers**
- **eye distance:** distance between left and right eyes, which influences the stereo perception
- **eye distance mode:** the eye distance can be specified in **absolute mode,** i.e. the distance is always the same (in meters) regardeless the dimension of the currently visualized model, or **scaled with the model.**
- **left/right color mask:** set the colour buffer (red, green, blue or alpha) to filter for the anaglyphs.
- **dynamic update:** if on, any change on the window will be shown inmediately in the model visualization window.

- **Animation:** if the selected stereo mode is **quad buffers,** then the left and right eye frames are stored together in a double width frame in the animation file. Only avi files are supported.

Preprocess:

- Improvements (robustness and efficiency) in unstructured volume mesher based in Advancing Front technique.
- Improvements in unstructured surface mesher RFAST (based in AdvancingFront technique).
- Added the possibility to get the meshing parameters from the ones saved with the model (user can see them from Utilities->Status) or from the meshing preferences (Utilities->Preferences). The choice is made just before the mesh generation, when the general meshing size is asked.



New mesh generation window

- Automatic verification of constrained boundary for the Delaunay tetrahedra mesher
- Improvement in the list mass properties, independent of the current surface render quality
- GiD variable DrawBorderElementVol to disable drawing a border of volume elements (to speed up redraw)

Customization:

- Hide/show all volume related menus and toolbars when setting the global variable GidPriv(HideVolumeLevel) to 1/0

Postprocess:

- Integration graph: integral of a vector result or scalar component over a mesh through all the steps of an analysis. The results can be a nodal result or a smoothed gauss point result.
- Visualization: in the 'View Style' windows, posibility to visualize the preprocess model (geometry or mesh) with the postprocessed results. There is also de posibility to selec which render mode to use with the preprocess model.

3.8 From v 9.2.4b to 9.2.5b

What's new from version 9.2.4b to 9.2.5b

General:

- plugins: tcl files inside the \plugins folder will be automatically sourced when starting.

Preprocess:

- New unstructured volume mesher available, based on constrained Delaunay algorithm.
- Surface reconstruction from triangle or quadrilateral meshes.
- Quadratic option inside meshing preferences, instead of in the Mesh menu.
- Automatic correct sizes: the sizes correction does not affect to entities which are not topologically in touch, althought they are close in space.
- Improvements made when using a background mesh for unstructured size assignment

Customization:

- New GiD-Tcl events:
  - *AfterCreateLayer AfterRenameLayer BeforeDeleteLayer AfterChangeLayer AfterSetLayerToUse*
  - *AfterCreateDimension BeforeDeleteDimension*
- New Tcl Info commands:
  - *GiD_Info IsPointInside*
- New Tcl GiD commands
  - GiD_Geometry create line, option to create NURBS interpolating points
- New Tcl commands to register procedures (interesting for plugins)
  - To modify menus: GiD_RegisterPluginAddedMenuProc, GiD_UnRegisterPluginAddedMenuProc
  - To handle dropped files with some extension: GiD_RegisterExtensionProc, GiD_UnRegisterExtensionProc
- New bas template commands:
  - *loop conditions nodes|bodyelements|faceelements|layers
  - *condname, *condnumfields, *condelemface *condhaslocalaxes
  - *matprop, *cond, *gendata, *intvdata: without arguments print all fields

Postprocess:

- File *.*post.lst*: can also contain a list of graphs (*.*grf*).
- New graph: integral of a result over a mesh through all the steps of an analysis. The results can be a nodal result or a smoothed gauss point result.

3.9 From v 9.2.3b to 9.2.4b

What's new from version 9.2.3b to 9.2.4b

General:

- Calculate: the priority and the affinity of the selected running calculation can be

adjusted on MS Windows and Linux. On MAC OS X only the priority can be changed.

- Page Setup --> Page and capture settings: added options to select whether to capture images or record movies with a white background instead of the displayed one.
- The problem type's name appears in the title of the main window, together with the project's name.
- command line: if gid is started with a name of a postprocess file, then it changes to postprocess and loads the file. This can happen when a user drags and drops a postprocess file over the GiD icon on the desktop.

Pre:

- Sphere/Circle mesher options in preferences window.
- Import of unstructured meshes with Amelet HDF5 format
- Improvements in surface mesher to make easier volume meshing.

Post:

- Gauss Points: elemental results (1 gp per element) are transfered to cuts/sets, so that these type of results can be drawn on cuts/sets.
- View Style: a list of predefined colours of materials has been added in the view style window.
- New file **.post.lst*: a file which contains a list of the files to be read by the postprocess:
  - The first line should contain one of these words: Single / Merge / Multiple to read a single file, merge the list of files or handle them as several meshes (for diferent time steps);
  - rest of lines: the files to be read, with one filename per line;
  - both comments starting with '#' and blank lines are admited;
  - if the filenames do not have its absolute path, then the path of the file containg the list will be used;
  - the file will be read if it's inside a gid project (projectName.gid/projectName.post.lst);
  - and can also be read with File-->Open (select the proper filter).
- The file **.grf* (which contains graphs) is read when:
  - changing from pre to post process and projectName.gid/projectName.post.grf exists, or
  - the postprocess files are read through File-->Open, then example.msh/res/bin and example.grf are read.
- Delaunay: added option to force a triangulation of 3D points, the axis with less delta is skipped. Repeated points are also skipped and the user gets a message.

Corrections:

General:

Pre:

- Corrected some minor bug in 3d boundary layer meshing.

- Enhanced boolean operations and intersections.

Post:

- Spheres/Circles: Corrected bug when these elements are selected. Now they are also drawn in red when selected.
- Vectors/Matrices/LocalAxes: corrected bug which causes to display vectors although the mesh is switched off.
- Fonts: corrected error which prevents the user to change the fonts for legends, commands, etc.
- IsoSurfaces: with several isosurfaces at once, corrected problems when the step is changed.
- ShMinMax: labels now are always drawn
- Contour Fill: corrected problem that does not change the display style when hidden lines and render were used together.
- Multiple meshes: when a mesh is deleted, then all the meshes with the same name in each time step are also deleted.
- Delaunay: added repeated points detection and warning.
- XYZ ascii files (*.txt) are not added to the recent post files.
- isosurface exportation is done now with GiD format.

3.10 From v 9.2.2b to 9.2.3b

What's new from version 9.2.2b to 9.2.3b

General:

- corrected option to load problemType from the command line: gid -p problemType
- Initial OpenGL Configuration takes into account the previous user preferences and default preferences
- Initial OpenGL Configuration: when Software mode is selected, it also activates the emulateFronBuffer (dynamic lines by software)

3.11 From v 9.2.1b to 9.2.2b

What's new from version 9.2.1b to 9.2.2b

Preprocess:

- New version of the circles and spheres mesher (rball)

Postprocess:

- Support for 'Units' has been added, both for mesh and results:
  - Mesh: add **Unit "Unit name"** between *MESH* and *Coordinates* keywords
  - Result: add **Unit "Unit name"** between *Result* and *Values* keywords
  - ResultGroup: for each result in the group, add **Unit "Unit name"** below its *ResultDescription* line
  - on the icon bar a status label show the unit used by the mesh, for instance *Units: m*
  - clicking on this status label, the user can change the units used to draw the results:

Window to the change results units

3.12 From v 9.2.0b to 9.2.1b

What's new from version 9.2.0b to 9.2.1b

General:

- MAC OS X: OpenGL acceleration enabled. Software OpenGL can also be selected from GiD preferences window.
- New window for first time use to select between accelerated OpenGL (faster) and software OpenGL (safer).
- Fixed bugs using batch files

Preprocess:

- Improvements in recognizing prismatic shapes for semi-structured volume meshes.
- Fixed bugs in structured surface meshing and semi-structured volumes.
- Fixed bugs in closed surfaces meshing (like cylinders).
- Boolean operations with multiple selection
- Division of polylines.
- Fixed render surfaces bug on Linux x64

Customization:

- New GiD-Tcl events:
  - AfterRenumber
  - BeforeCopy, AfterCopy, BeforeMove, AfterMove
  - AfterCreatePoint, BeforeDeletePoint, AfterCreateLine, BeforeDeleteLine, etc.

Postprocess:

- *Utilities-->Status* shows also accumulated length, areas and volumes of the elements of the model.
- Isolines are also converted to cuts, when the option *Options-->Iso surfaces-->Convert to cuts* is selected.
- *Options-->Geometry-->Create delaunay meshes* allows the user to create delaunay meshes from the nodes of the postprocess model in three ways:
  - *One for each visible mesh*: creates separate delaunay meshes, one for each displayed mesh/set/cut
  - *Single mesh for all visible meshes*: creates a single delaunay mesh from the nodes of the displayed meshes/sets
  - *Single mesh for all points*: creates a single delaunay mesh from all the loaded points in postproces, belonging or not to an existing mesh/set.

  After the delaunay mesh(es) creation GiD applies an alpha shape algorithm to delete detect contours the the mesh, if possible.
- *Files-->Merge* joins meshes with the same element type and same name.
- *View results icon bar*: dynamic slide bar to scale the deformation when the deformation's icon is selected.
- Enchancements and fixed bugs:
  - better visualization of circles in 'internal texture mode'
  - correct position of legends, comments and axis boxes in high resolution hardcopies
- New element: prism with 18 nodes: the 6 vertices, the 9 in the middle of the edges and 3 in the centre of the four sided faces.

3.13 From v 9.1.1b to 9.2.0b

What's new from version 9.1.0b to 9.2.0b

Preprocess:

- Force Points to Volume Mesh option available (Mesh Criteria->Force Points to Volume Mesh)
- Possibility of assigning real size (not num of divisions) for structured mesh
- Improvements in structured mesh
- Fixed some bug related to closed surfaces meshing
- Improvements in chordalerror mesh size limiting using meshing preferences
- Laplacian smoothing of line elements
- Option to load meshing preferences from model in Mesh menu
- Generation of quad dominant meshes (surface mesh with quadrilateral and triangles), if a meshing preference is set.
- Import of 'ply' mesh files
- Improvements in intersections and boolean operations

Postprocess:

- Import of ASCII files, compresed with (g)zip or not, which contains only the coordinates x, y [z] of points. Coment character and format of the line can be adjuste in the open import file dialog box. For example: with the format '%*d %g %g %g" the x, y and z coordinates can be read from a file with indexed coordinates like in this line: '1 2.345 7.543 3.876'.
- StatusLabels has been added in the iconbar reflecting the number of nodes and elements, render and transparency modes. Clicking over them triggers an action: Utilities-->Status for 'number of nodes/elements', cycling over the render and transparency modes for the 'render and transparency status labels'.
- In the 'File-->Merge' dialog box, several files can be selected to be merged together. Useful to read mesh+result pieces of a partitioned model.
- Several Graphs can be read from the same file, they only need to be separated by the line

```
# Graph: "(unique) Title of the graph"
```

  which corresponds with the format of the graph files described in the manual

- All graphs are written in a unique file when the option File-->Export-->Graphs-->All is

selected.

- Translation of the graphically supported TTF fonts for vectorial PostScript and Encapsulated Postcript output.
- Linux: after a couple of seconds the full path is poped up when the mouse is over a file in the Recent Files menu.
- Added icon for OpenMultiple files in the icon bar.

- several corrections regarding graphs, emulateFrontBuffer, Dimensions and PS vectorial, and othres...

Generic:

- First GiD 9.x version for Mac OS X
- Added support for usb's SpaceNavigator and 3D SpaceBall in Linux, with left button for ZoomFrame and right button for ResetView (XY plane).
- Now the OGL_emulateFrontBuffer preference is also saved.

3.14 From v 9.1.0b to 9.1.1b

What's new from version 9.1.0b to 9.1.1b

Preprocess:

- Import of x y z? ASCII files as points of nodes
- Export template DXFSAP2000 updated
- Two more variables to control the chordal error of the whole model when generating the mesh

Postprocess:

- STL ascii and binary export of triangular and quadrilateral meshes. Only the displayed ones are exported
- New Points/Circles/Spheres visualization mode: Internal texture. This option is a compromise between a nice view and a quick response time.
- Display of axes, Matlab like, for the visualized model
- Option to attach the progress bar, when a file is opened or written, in the main windows, avoiding unnecessary redraws
- Visualization of scaled results, including the logarithm of the result: log(factor * ResultValue + Offset)

- Logarithmic graphs
- New option to improve the quality of the saved GIF images: Dither666 and Dither595, in the "Save GIF file box"
- The new meshes created with transformations have the same colour as the originals

Generic:

- zoom centered on the current cursor when using mouse wheel
- GIF: used dithering to convert the 24bit-colours to gif 256 colours' pallete.

News for problemtype developers:

- Updated to Tcl/Tk 8.5.6
- GiD_Info project subcommands RequireMeshSize and RecommendedMeshSize
- GiD_Geometry can get and create more types of surfaces: plsurface, coonsurface and meshsurface

3.15 From v 9.0.x to 9.1.0b

What's new from version 9.0.x to 9.1.0b

Preprocess:

- Boundary layer mesh generation in 3D
- Rhinoceros 4.0 export
- Creation of a NURBS surface from triangle elements
- Improvements in quadrilateral mesher
- Time savings in mesh compatibilities checking (before begining the mesh generation), and reading mesh files.
- Boolean operations: 'NoDeleteVolumes' and 'NoDeleteSurfaces' subcommand to maintain the source entities
- Cartesian mesh:
  - support of boundary conditions
  - use castesian-like numeration of mesh entities,
  - read only GiD variables to know the cartesian divisions, etc . Can be asked with the Tcl command GiD_Set

  Cartesian(NGridPoints) : return the number of points of the grid on each direction x, y, z

  Cartesian(BoxSize) : dimensions of the box of the cartesian mesh bounding the

model

Cartesian(Corner) : location of the left-down corner of the cartesian box

- Cartesian(FromRenderMesh) variable, to set if the cartesian mesh is obtained fastly from the render mesh
- Cartesian(CondFaceElem) variable, to set where to transfer conditions over face elements: to body elements or face elements

- Layers window enhanced: fully redisegned window, with tree of layers, integrated layout, etc.
- Selection
  - New filter:NumSides=xx , where xx is the number of sides of the entity (sufaces or volumes)
  - 'ParentsOf' command, to select the parents of some entity

Postprocess:

- Scale result in contour fill (scale factor or logarithmic).
- Graphs: logarithmic scales, draw axes and labels, select grid color.
- Animation: several options to control the duration of the animation, including the use of the step values.
- Draw arrows option in stream lines.
- GiD variable OGL_useMeshObjects, to activate/deactivate OpenGL draw lists.
- Time savings doing cuts.

Generic:

- Internal changes for future Mac OSX version (soon available), and offscreen rendering
- Fixed some Windows Vista platform problems:
  - Lock when showing big meshes
  - Sysinfo bugs
  - Graphical problems with Aero Glass and Intel graphic cards: use emulation of front buffer.
- Software OpenGL option in the graphical preferences window, to enable/disable the hardware acceleration

News for problemtype developers:

- Updated to Tcl/Tk 8.5.5
- New Tcl event AfterChangeBackground when changing color or other properties
- Tcl command GiD_Mesh 'get' subcommand, to ask for mesh information
- Tcl command GiD_Info Mesh also for meshes of post and -array efficient option
- GiD_Info Postprocess get with -array option
- GiD_Info Postprocess axis_option
- GiD_Info List_Entities Dimensions
- New Tcl_Obj types to handle efficiently vectors of int, float or double (interesting for C/C++ developers of plugins)
- conditions 'over face element single', the face with the same normal as the source surface will be marked.

- Data Conditions NewCond process command, to define a new condition at runtime (e.g. when importing shapefiles, to create new conditions to handle attached information)
- dev_kit.tcl: Predefined procedures to customize TKWIDGET data fields
  TKWIDGET: GidUtils::TkwidgetGetFilenameButton , to add a 'pick filename' button

  TKWIDGET: GidUtils::TkwidgetPickNode , to add a 'pick node' button

  TKWIDGET: GidUtils::TkwidgetGetLayername, to add a 'layer' combo box
- GidUtils::Disable/Enable writebatch to de/activate the writting of the batch file
- ConfigureProgram.tcl: variableGidPriv(MenuType) with values 'native' or 'generic' to use native or generic menus

3.16 from v 9.0-rc1 to 9.0-rc2

What's new from version 9.0-rc1 to 9.0-rc2

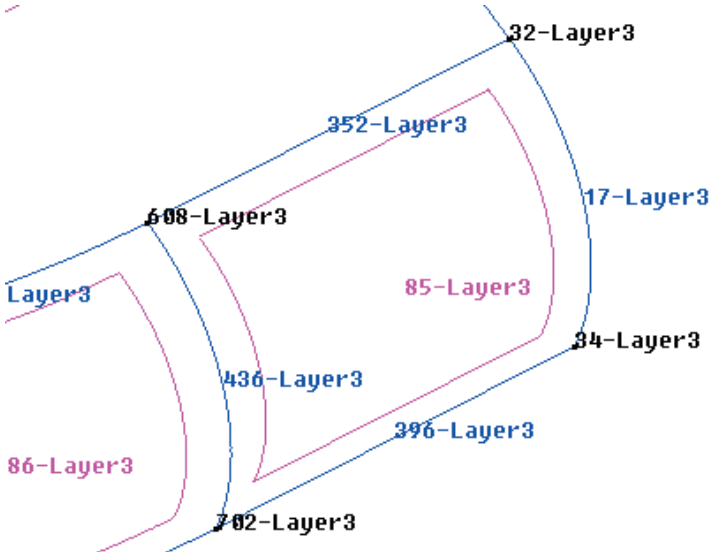
- The name of the main stresses components (Si, Sii and Siii) of the matrix results can be specified
- Isolines created for surface meshes when the isosurface option is selected.
- Option added to switch isolines off: (rightbuttons) Results-->IsoSurfaces-->DisplayStyle-->Showisolines
- Inverted Black and White colour scale.
- New Tcl command: GiD_Thumbnail get [width height] to get a downscaled image of the current view.
- Preview image in the 'Page Setup' window.

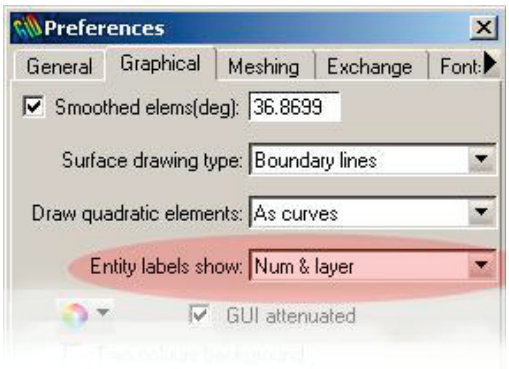
4 From v 8 to 9

What's new from version 8.0.x to 9.0.x

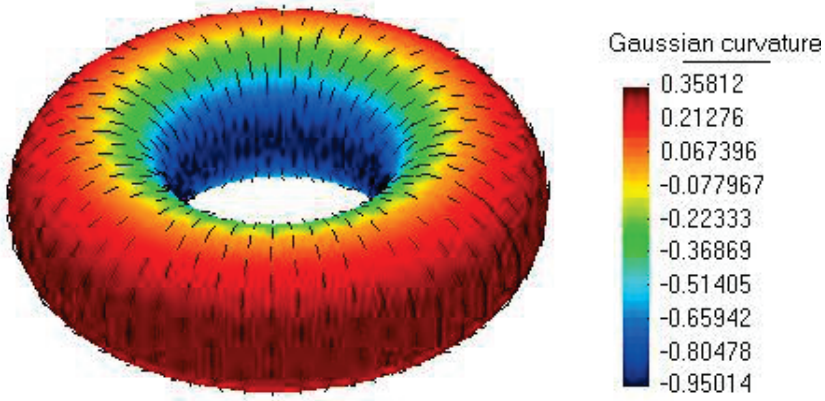
PREPROCESSING

- Visualize layer labels

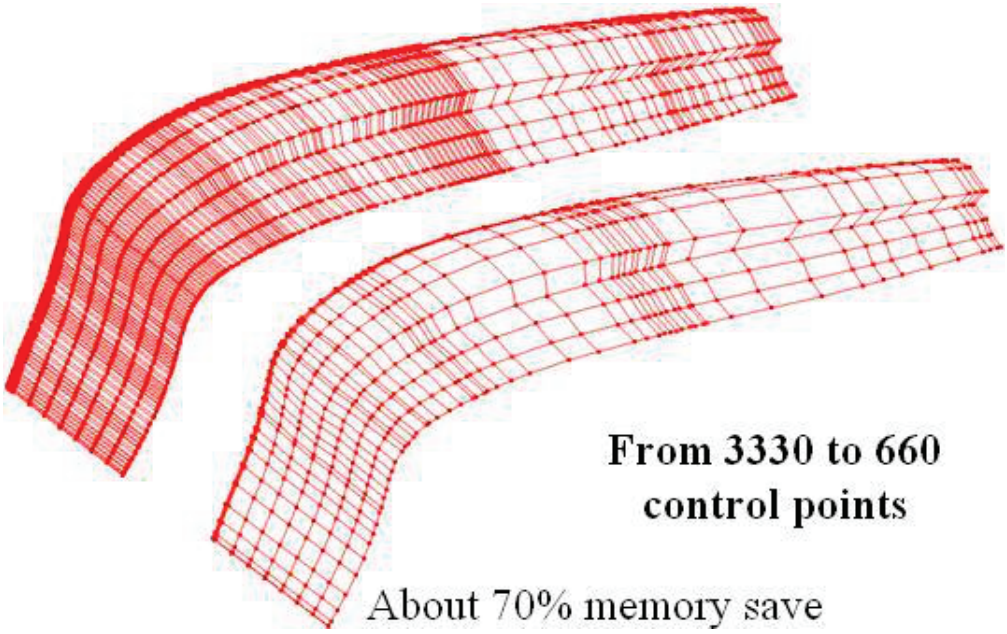




- Rhino import updated to version 4
- DXF import: support of 3DSOLID entity (ACIS based)
- Improvements in parasolid import
- CGNS mesh format import
- Draw surface curvature : mean, gaussian, main directions. Get them with GiD_Info



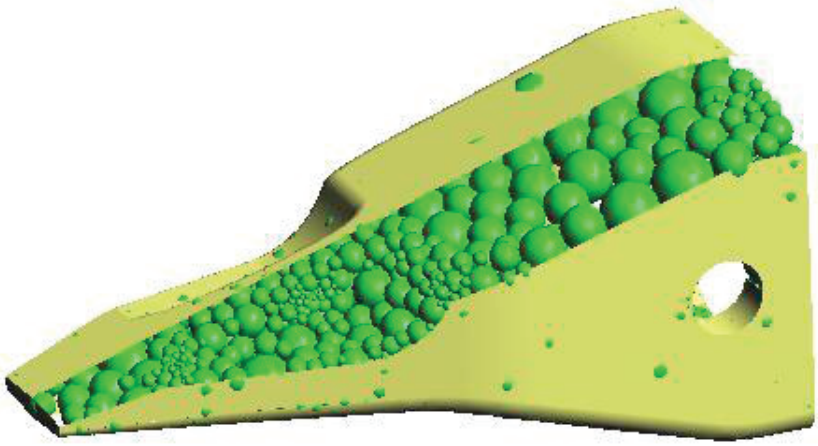
- NURBS simplification operators: knot removal and degree reduction for curves and surfaces



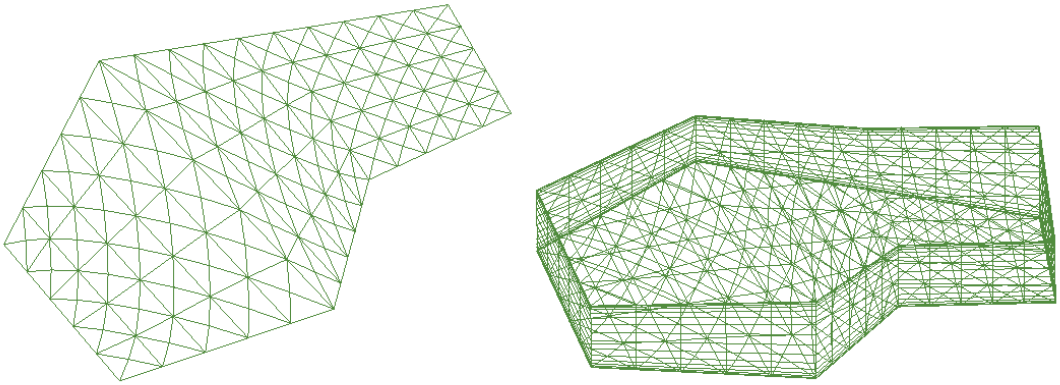
- Volume split (similar to surface split, to divide a volume from a group of dividing surfaces)
- Surface render using triangle strips
- Join surfaces function.
- Sphere element new mesh quality filters: NumNeighbors and SpaceFilling
- Transparent layers
- Combobox in the toolbar to select the current layer to use
- Mesh/nomesh criteria can be applied also to points
- Draw meshing data related to boundary layer and Points forced to the mesh
- Advance bar when reading GiD projects
- JoinSurfaces JoinCoplanary, new function to join coplanary neighbor surfaces
- GiD mesh ASCII reading: separe material in new layers

MESHING

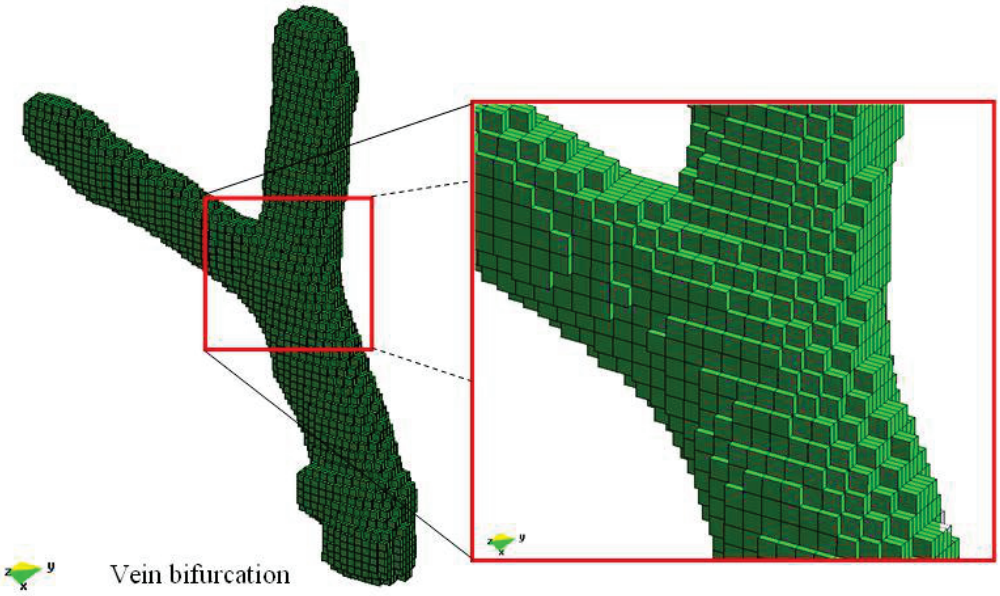
- Meshing volumes with sphere elements and 2D surfaces with circle elements.



- Align nodes of structured and semi-structured meshes (variable AlignSemiStructuredNodes)



- Apply background mesh sizes also when meshing lines
- NetCDF format import (only mesh)
- New mapping algorithm when meshing using Rsurf mesher
- Creation of voxels from an VTK file (structured points dataset), GiD_VTK2OrthoHexa Tcl command

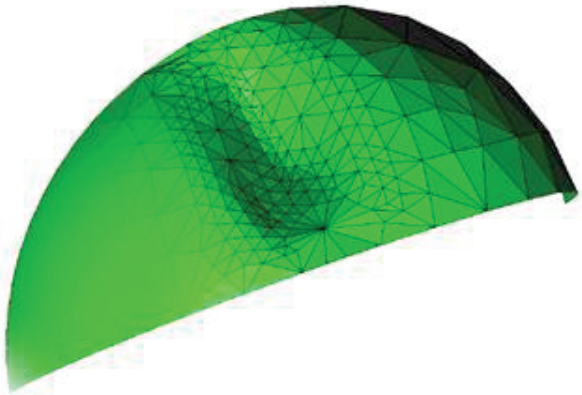


- Creation of hexaedra from an VTK file (structured points dataset), GiD_VTK2Hexa Tcl

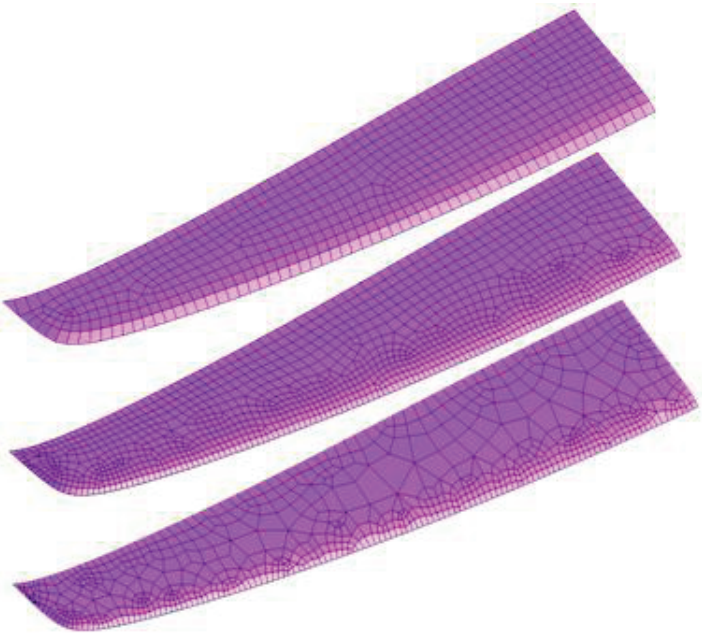
command

- Creation of isosurface of triangles from an VTK file (structured points dataset), GiD_VTKSP2MarchingCubes Tcl command
- Option to avoid elements with all its nodes in the boundary
- Advance bar improvements: show number of generated entities

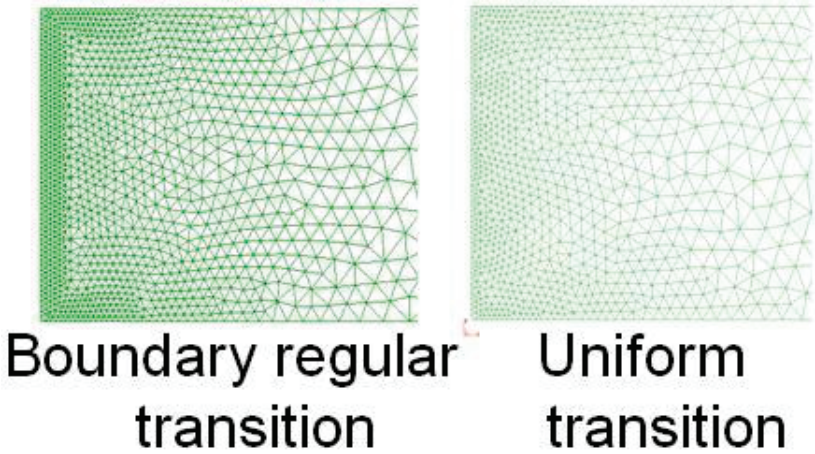
- Global option to force a maximum relative chordal error of the mesh in Preferences->Meshing



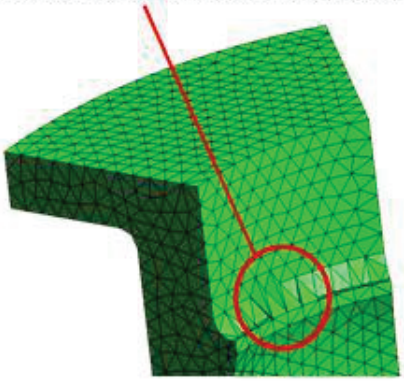
- New Rjump window to make easier the entities selection
- Different interpolation scenario (2d or 3d) in surface structured meshing depending on the surface mesher selected (RFast or RSurf).
- New quarilateral mesher



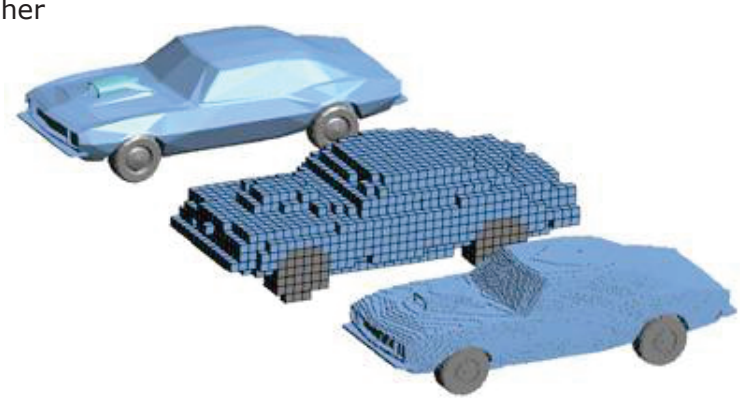
- Boundary regular transition meshing preference



- Smoothing of triangles and quadrilaterals: new opcion LaplaceSmooth to only apply a laplacian smooth, with angle tolerance and try to save the enclosed volume
- Delaunay volume mesher (GiD_Set VolumeMesher 1)
    - Faster than advancing front mesher
    - Worst element quality
    - Doesn't preserves the boundary triangulation !!



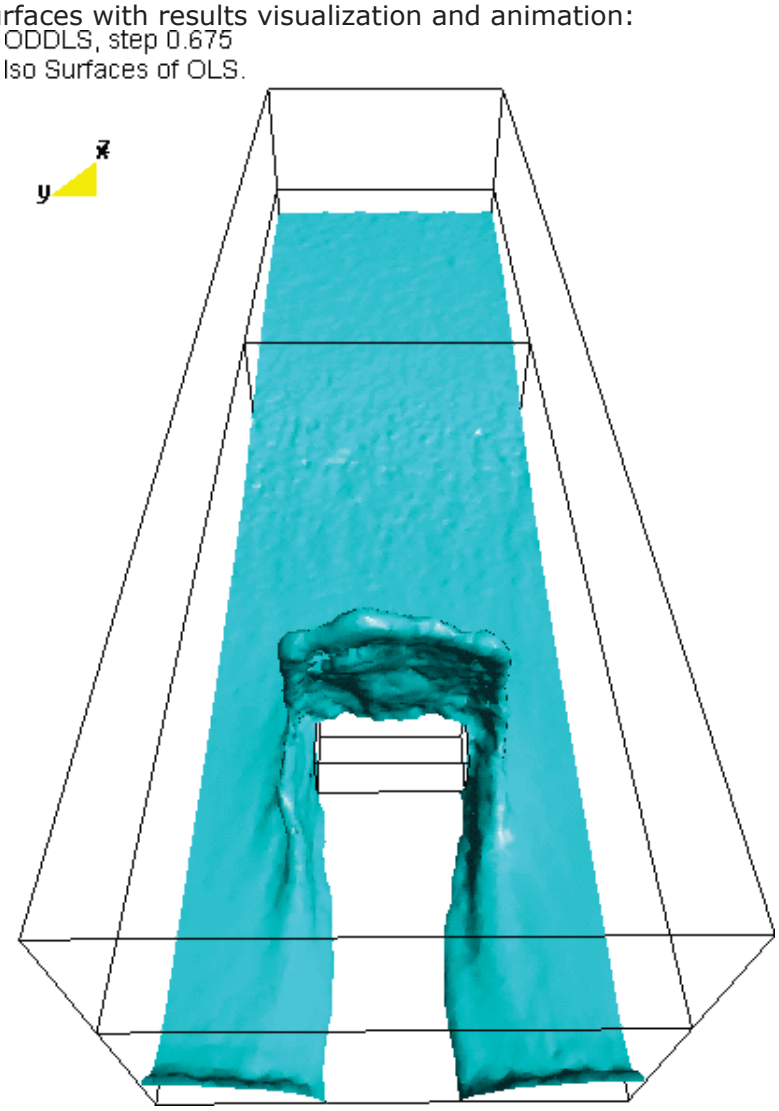
- Split tetraedra option
- Cartesian mesher



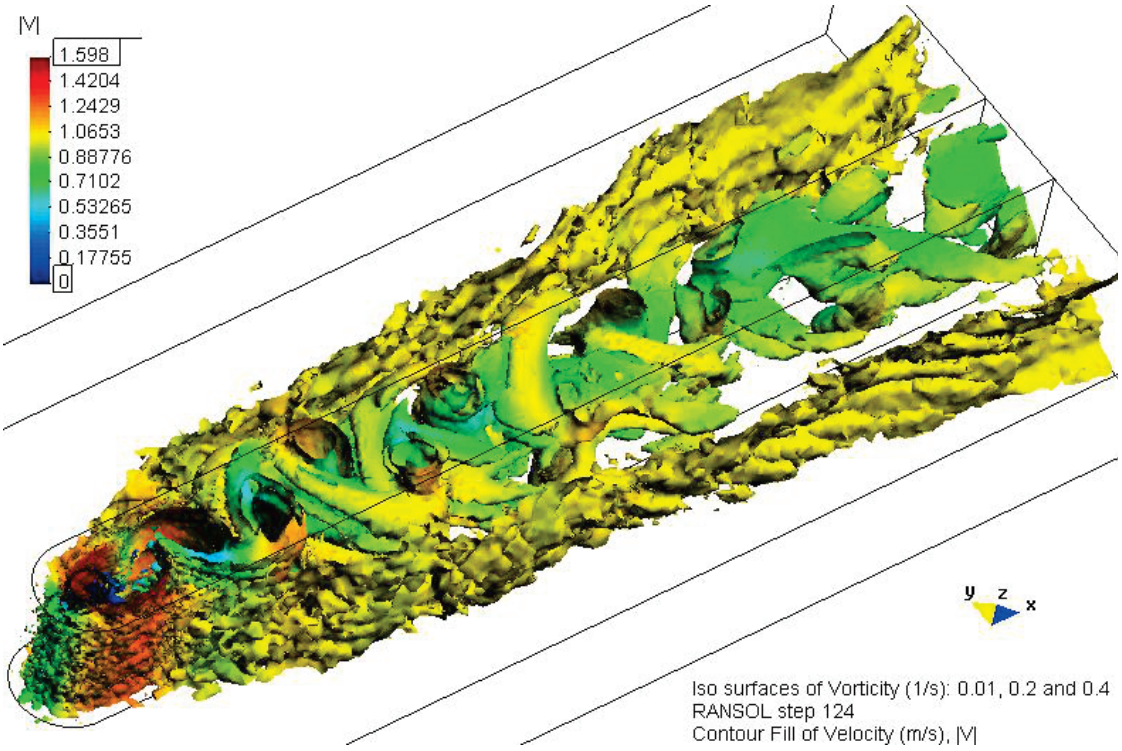
- RenumberMethod = 2 to renumber nodes following the XYZ axes
- Boundary layer meshing in 2D
- Swap normals in groups of line elements to orientate them coherently.

POSTPROCESSING

- Smooth isosurfaces with results visualization and animation:

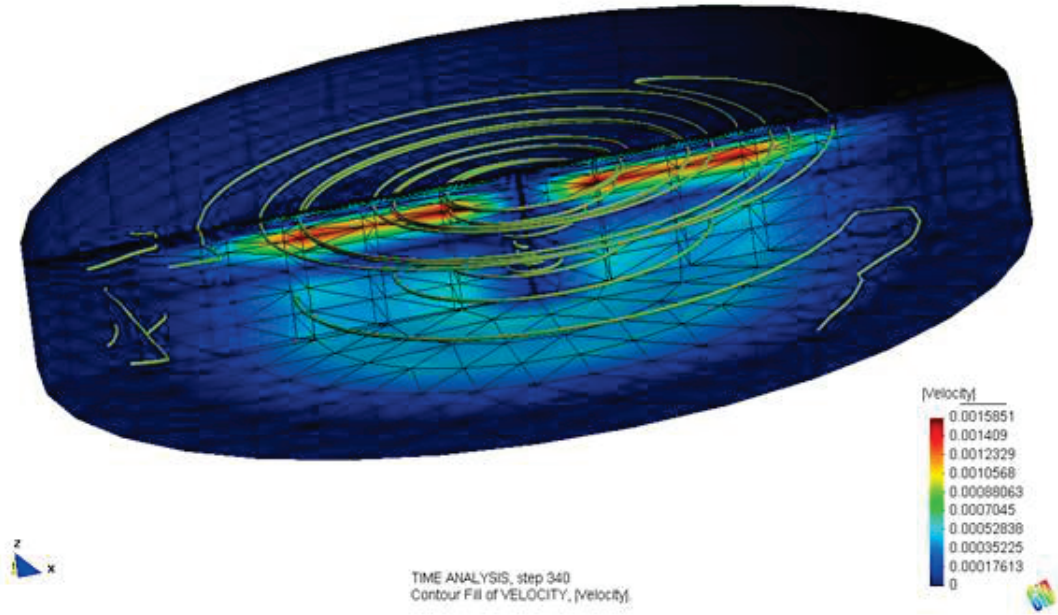


Free isosurface with smooth render

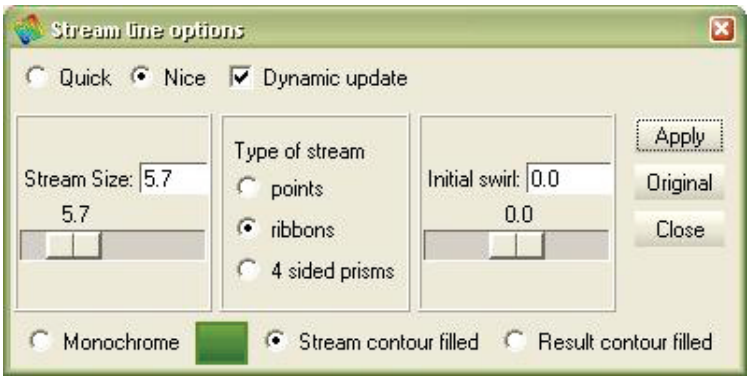


Vorticity isosurfaces with contour fill of velocity

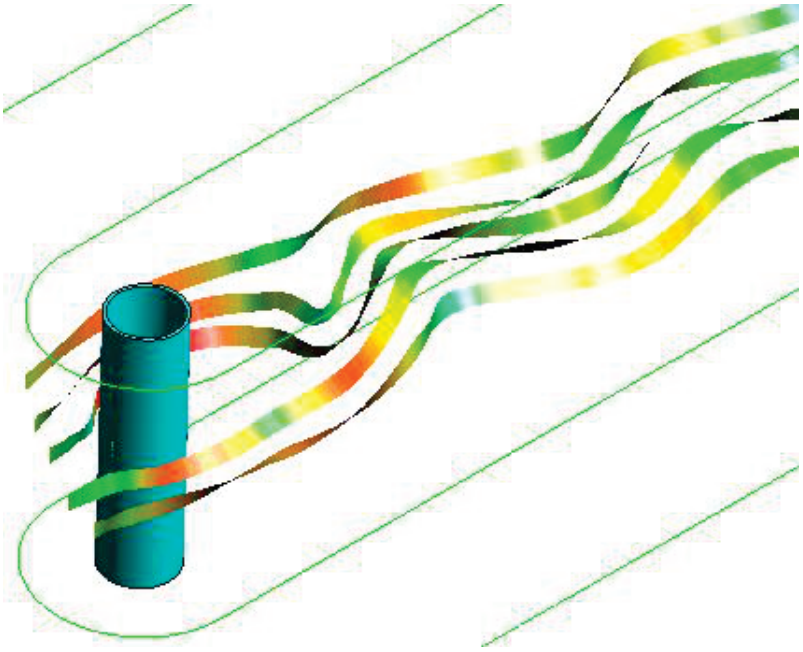
- Isolines created for surface meshes when the isosurface option is selected.
- Options added: Isosurfaces can be seen although all the meshes are switched off, and isolines can be switched off.
- Stream lines implemented for hexahedra, prisms, pyramids and quadrilaterals



- Options added for stream lines: length, initial step, maximum number of points
- Stream ribbons as stream lines with detail level=2, with rotational, and the detail level 'points' shows the calculated points from the stream:

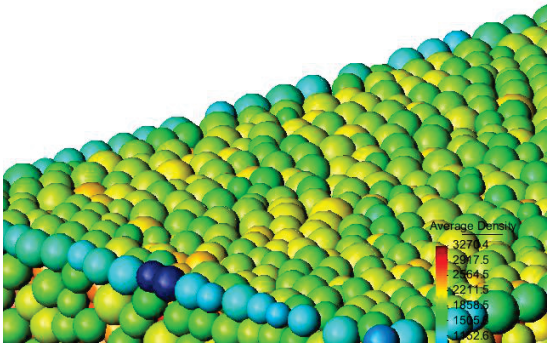


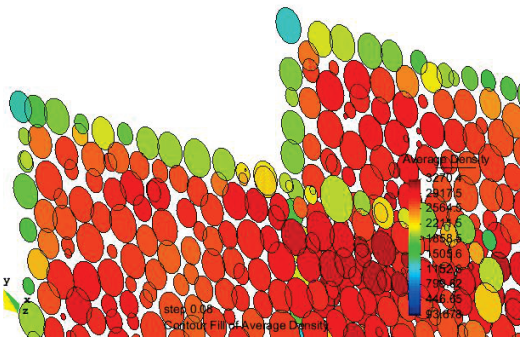
Stream line options



Stream ribbons of the velocity field with contour fill of pressure

- Supported hexahedra of 20 nodes in postprocess
- Macro to create a vector result from an scalar result
- Support for spheres (defined by a centre node and a radius) and circles (defined by a centre node, a radius and a normal) in Postprocess. Spheres can be cut and create in circles. If the normal for the circles are not given GiD assumes the normal (0.0, 0.0, 1.0):

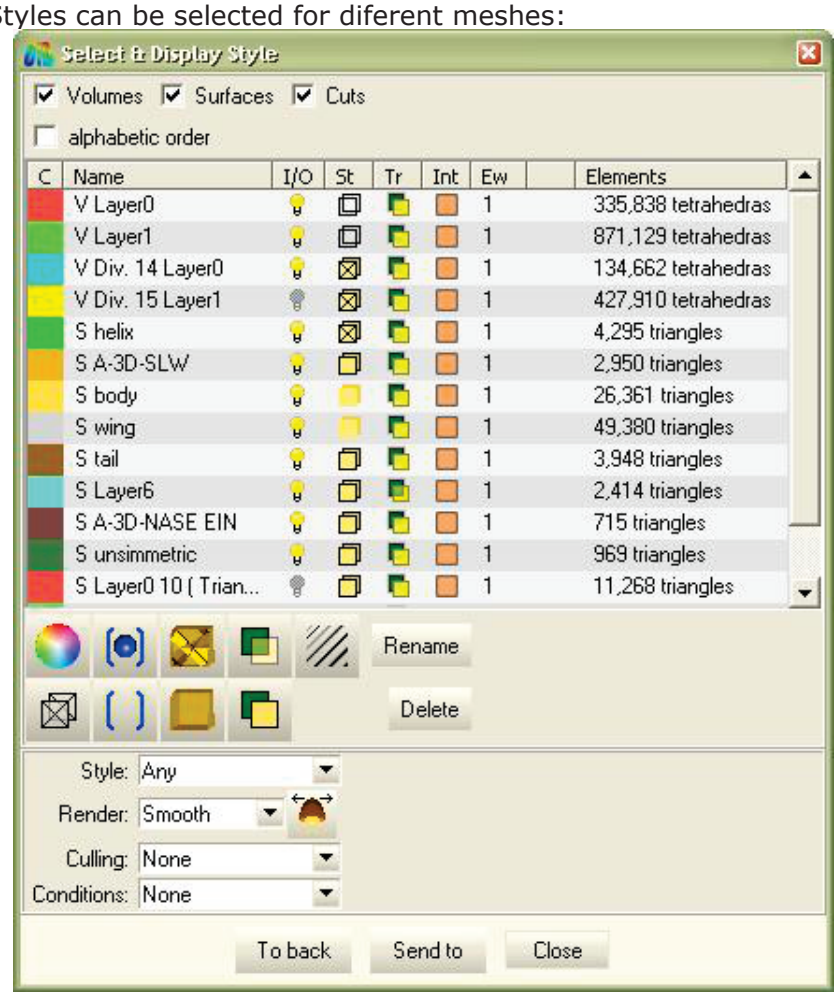




- Contour Fill colours with shininess
- New Display Style mode for meshes: 'Points Bound' showing the nodes as spheres and

the boundary lines of the mesh.

- Separate Styles can be selected for diferent meshes:



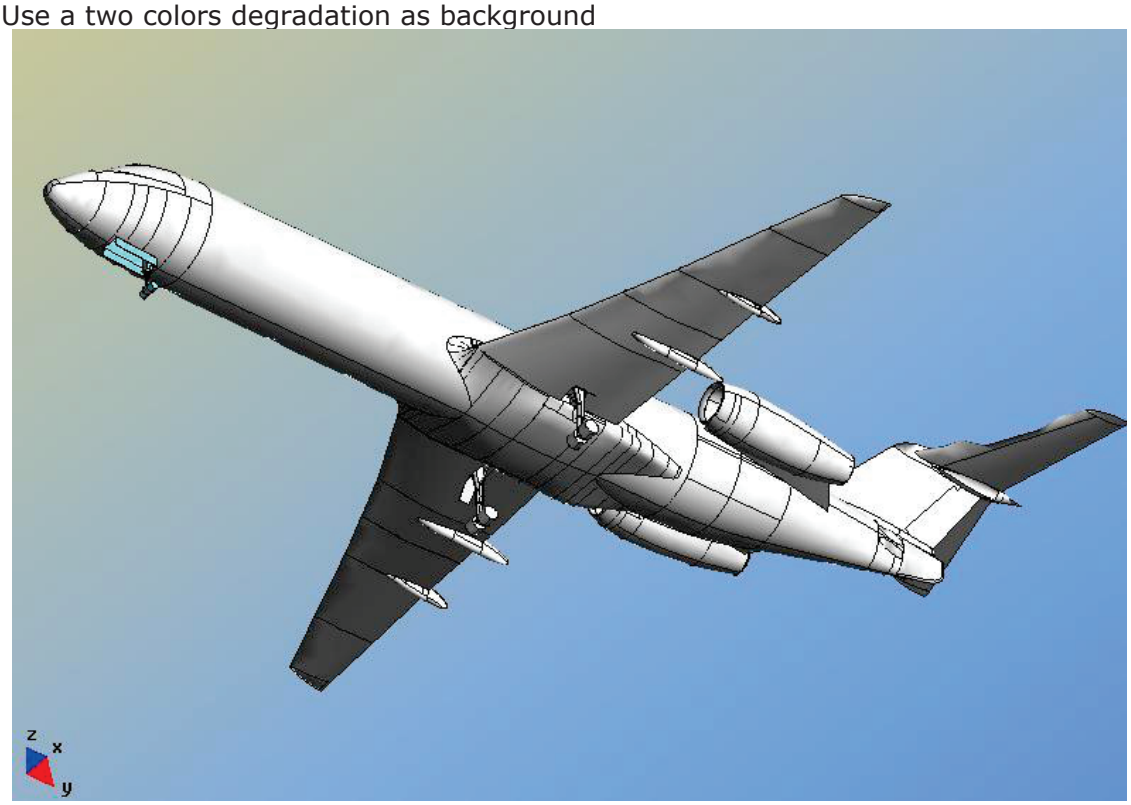
Setting different style for each mesh

- The width of edges of the elements can be set for each mesh.
- Inverted Black and White colour scale.
- The name of the main stresses components (Si, Sii and Siii) of the matrix results can be specified
- Option added to switch isolines off: (**right buttons menu**) **Results** --> **IsoSurfaces** --> **DisplayStyle** --> **Showisolines**
- Postprocess variable PostCutToMesh, to automatically convert 'cuts' to 'sets'
- Option added to the animation window: the range of steps to do the animation can be defines, skiping the firsts and/or lasts steps
- Line graphs can be done with any projectable surface and in any position.
- Option added: The displayed amount of vectors can be limited when there are lots of vectors to be drawn, for instance, when very dense meshes are used. The option allows to drawn only one vector of every N vectors. This 'N' can be customized by the user in the **right buttons menu**, under **Results** --> **Options** --> **VectorFilterFactor**.

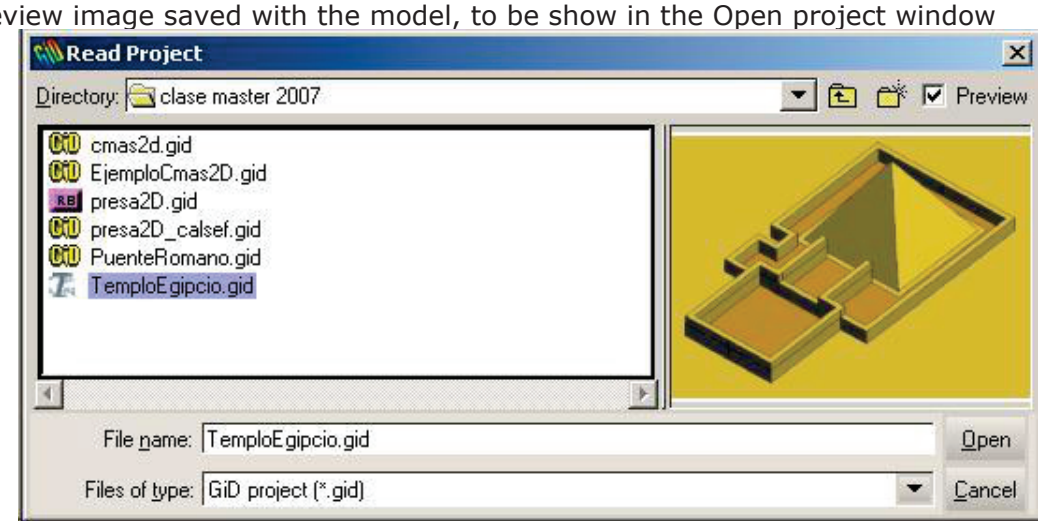
GENERAL FEATURES

- Memory savings to manage big meshes in pre and postprocess
- Basic support of pyramid elements in pre and full support in postprocess
- Draw the support grid with labels and in postprocess too

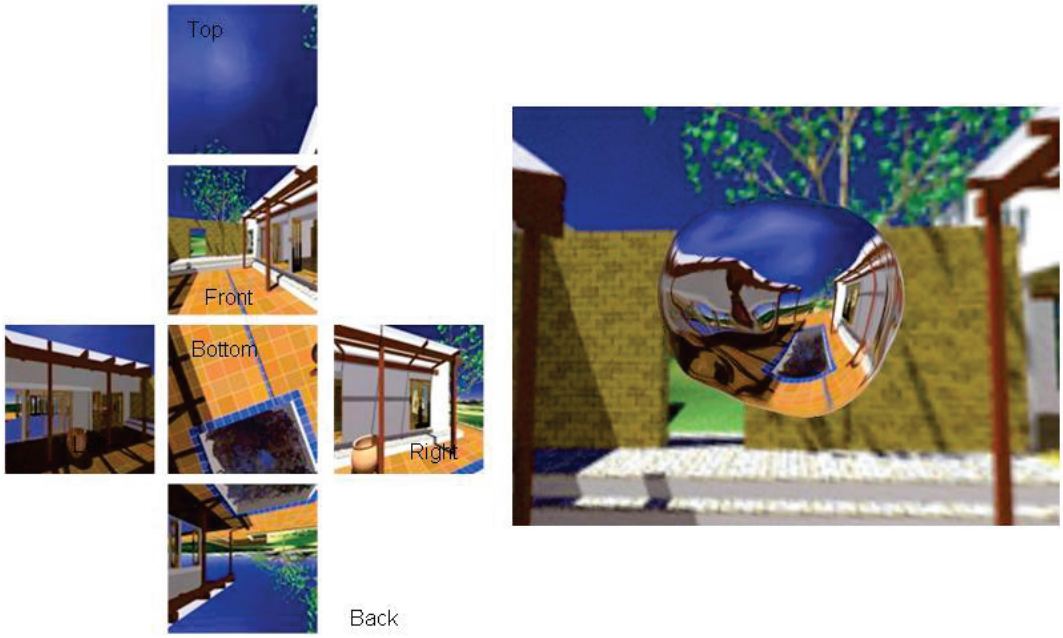
- Use a two colors degradation as background



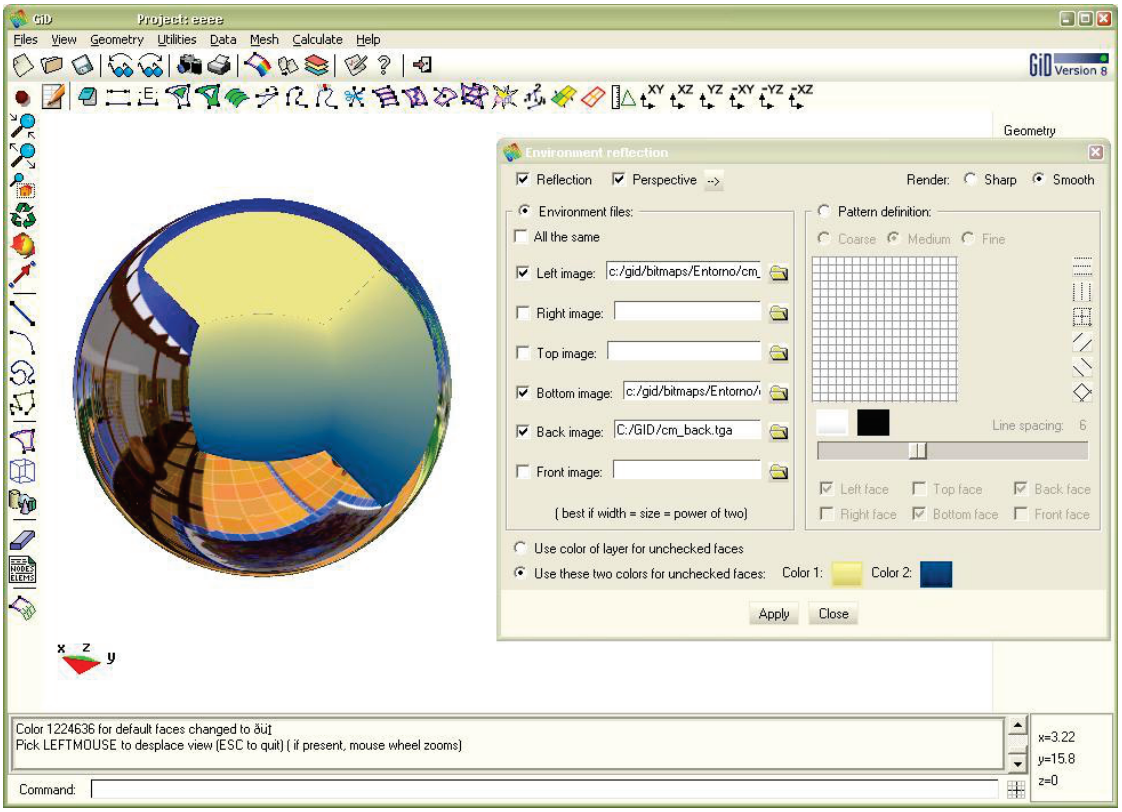
- Preview image saved with the model, to be show in the Open project window



- Views with the same name as the posprocess file, with the extension .vv, are automatically read
- Render environment projection to reflect predefined or user defined patterns in pre and postprocess



- Options for reflection: individual faces selection, layer color or two color degradation for switched off faces



- Can read TIFF files for background images and textures
- Locate real size background images from a .tfw georeferentiation file if exists
- A preview image and the view is saved together with the mesh and results
- The Preview image of the current visualization is shown in the 'Page Setup' window.
- Menu to load recent postprocess files
- Menu to select useful or last read and saved views.
- Spaceball device enabled for Windows-x64

- User preference to set the number of 'recent files' to show in menus
- Updated to Tcl/Tk 8.5
- Support for Asian encodings in OpenGL
- Handling of True Type fonts in OpenGL, with smooth edges.
- Command line parameter -c2 <yourfile.ini>, to specify in a problemtype to use "yourfile.ini" instead "gid.ini", to avoid sharing the configuration
- New command line -t option to evaluate tcl code
- File browser window dialog can have additional parameters depending on the context (e.g VTK or IGES import preferences)
- Support for BMP files with 32bpp.
- The animation also saves the composed views in the 'Multiple windows' configuration, except the independent one.

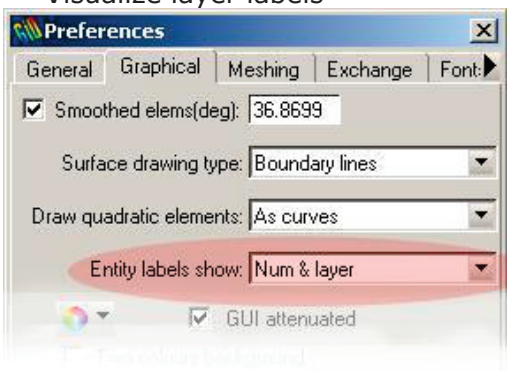
CUSTOMIZATION

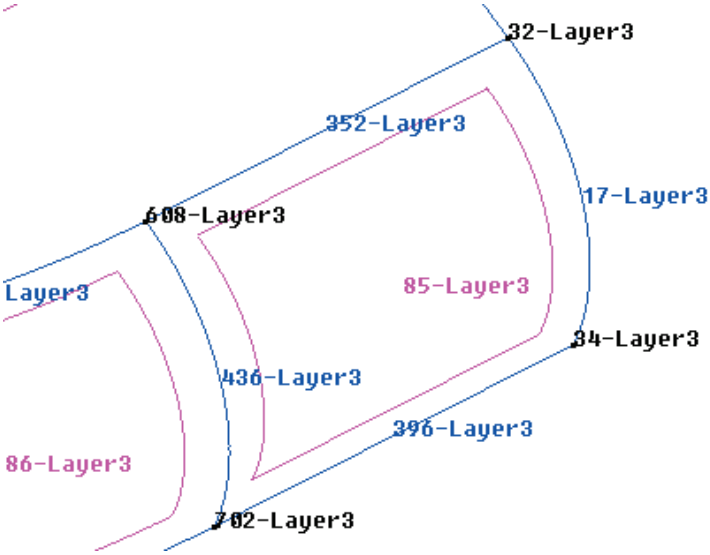
- Math functiones like max, min, log, log10 can be used in template bas files, *nintervals command
- Mathematical operator % (remainder of integer division) for template files
- bas template command *ElemsNormal, to get the normal for triangles, quadrilaterals and circles.
- GidUtils::DisableToolbar <tool> and GidUtils::EnableToolbar <tool>, to prevent show some tools, like the "Right buttons"
- drawopengl font GiD-Tcl command, to set fonts and ask its properties
- write_calc_data GiD-Tcl command, to write the calculation file from Tcl
- GiD_Info Tcl floating values with precision based on tcl_precision variable
- GiD_Info parametric curve t_fromrelativelength: Tcl procedure to calculate the parameter that provide the required arc length.
- New Tcl command: GiD_Thumbnail get [width height] to get a downscaled image of the current view.
- GiD_UnAssignData : wherefield <fieldname> <fieldvalue> To unassign this condition olny for the entities where the field named 'fieldname' has the value 'fieldvalue'
- Several Tcl events:
  - TclCalcModelBoundaries: Tcl event to calculate and set its own bounding box (for zoom frame)
  - AfterSaveImage: Tcl event, interesting for example to save a georeference file (see dev_kit.tcl)
  - BeforeTransformProblemType: Tcl event, to be raised just before this transformation

4.1 from v 8.0.x to 8.1.1b

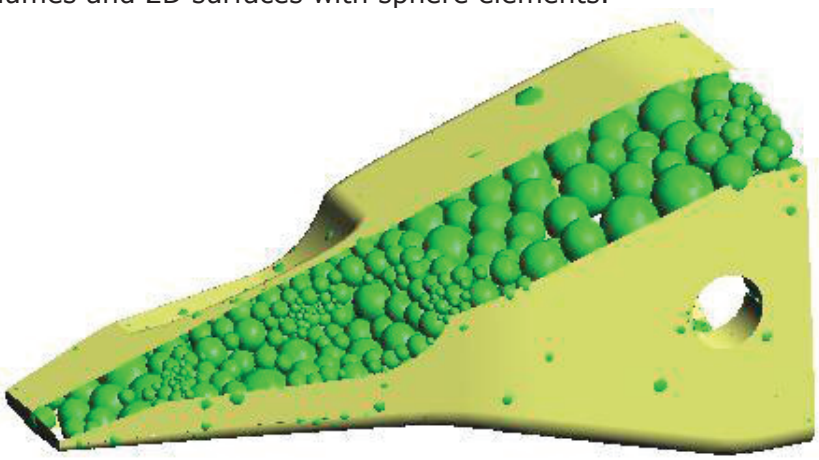
What's new from version 8.0.x to 8.1.1b

- Visualize layer labels

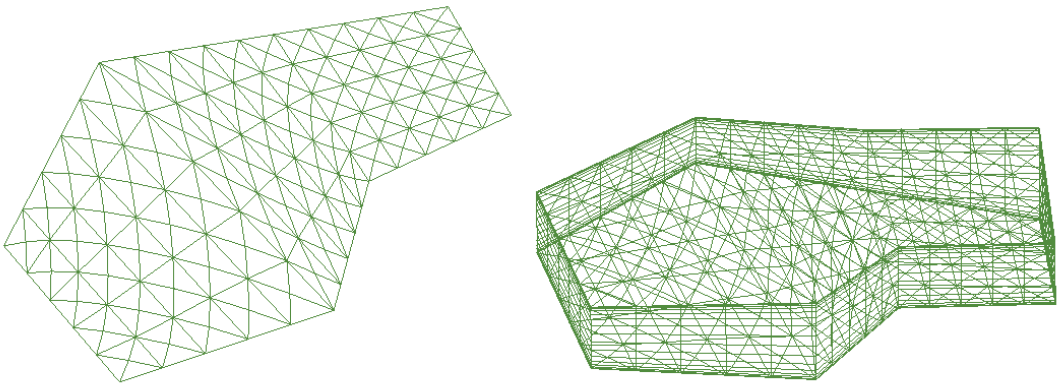




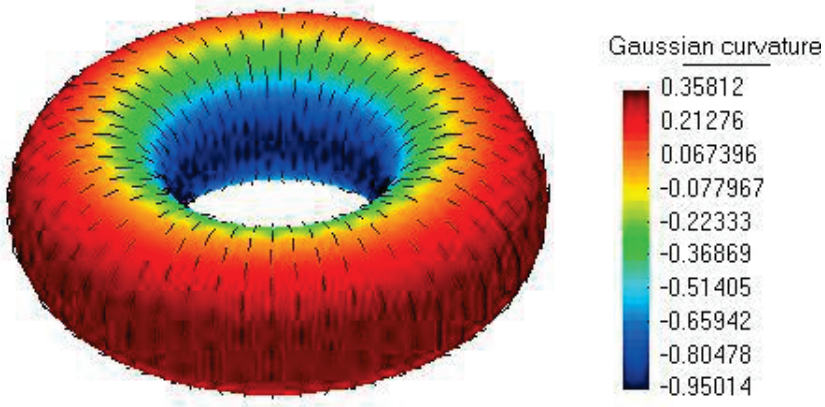
- Smooth isosurfaces with results visualization and animation
- Meshing volumes and 2D surfaces with sphere elements.



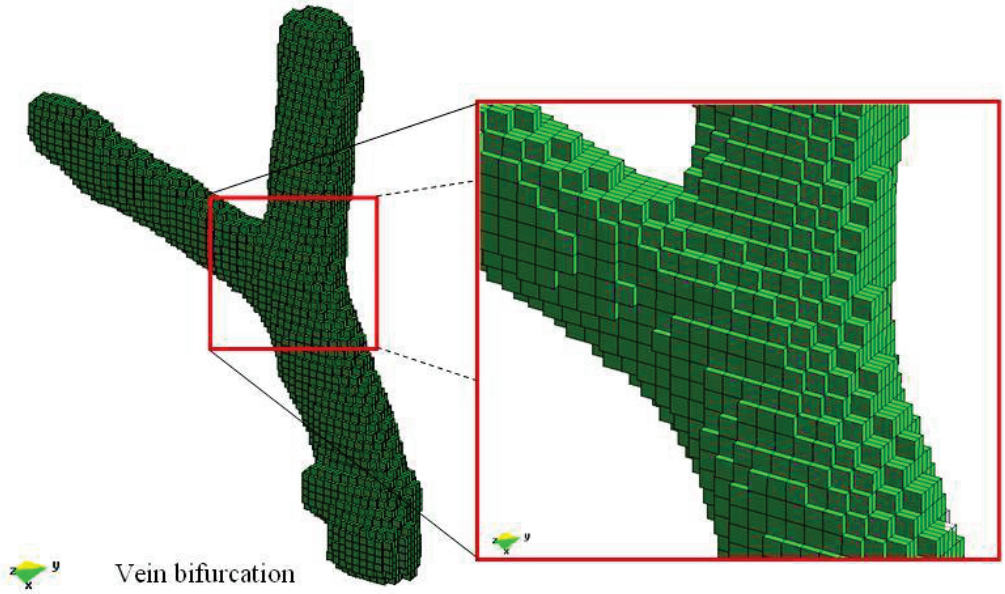
- Align nodes of structured and semi-structured meshes (variable AlignSemiStructuredNodes)



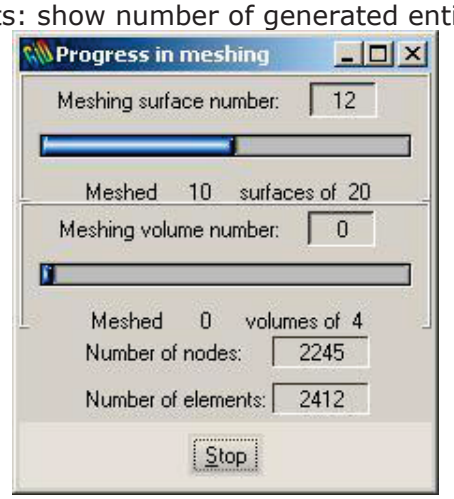
- Memory savings to manage big meshes in pre and postprocess
- Rhino import updated to version 4
- CGNS mesh format import
- Basic support of pyramid elements
- Swap group to orientate coherently groups of line elements
- Apply background mesh sizes also when meshing lines
- Draw surface curvature : mean, gaussian, main directions. Get them with GiD_Info



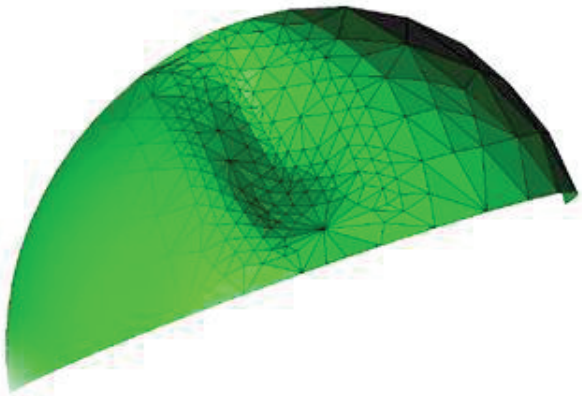
- NetCDF format import (only mesh)
- Creation of voxels from an VTK file (structured points dataset), GiD_VTK2OrthoHexa Tcl command



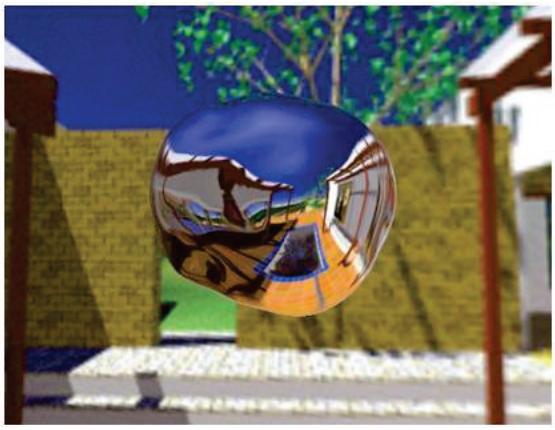
- Creation of hexaedra from an VTK file (structured points dataset), GiD_VTK2Hexa Tcl command
- Creation of isosurface of triangles from an VTK file (structured points dataset), GiD_VTKSP2MarchingCubes Tcl command
- New mapping algorithm when meshing using Rsurf mesher
- Option to avoid elements with all its nodes in the boundary
- Advance bar improvements: show number of generated entities



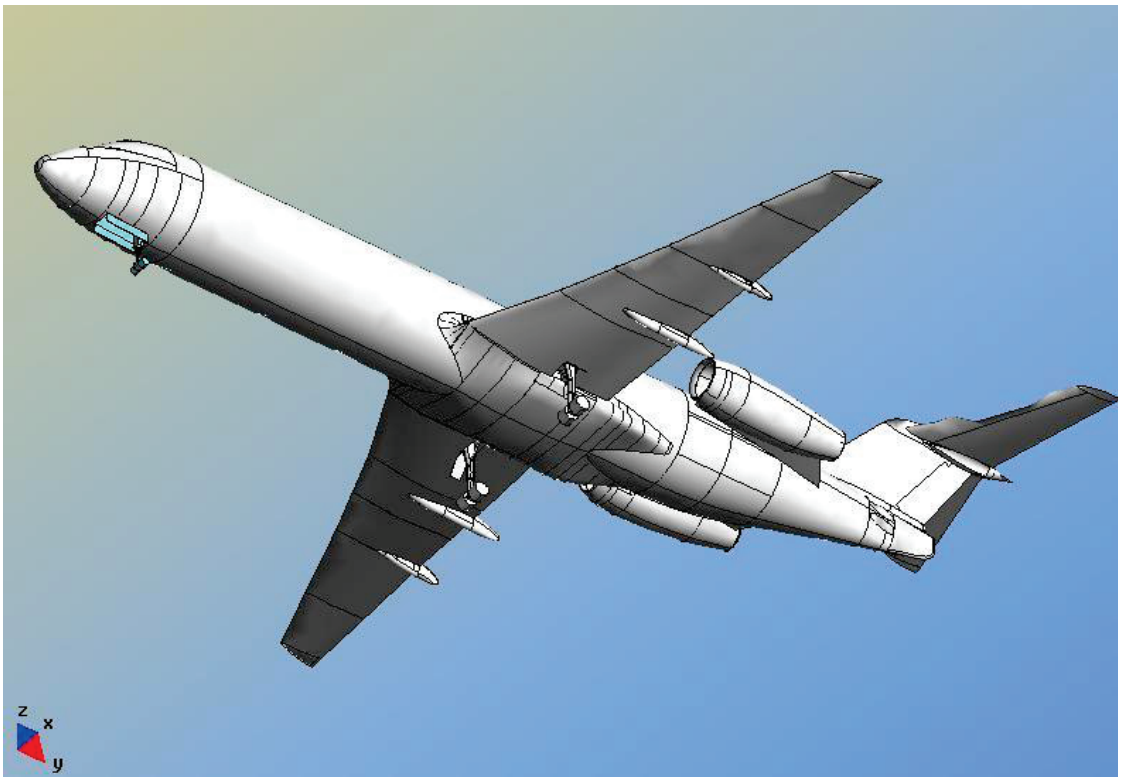
- Global option to force a maximum relative chordal error of the mesh in Preferences->Meshing



- Improvements in quadrilateral mesher
- Support to use arbitrary fonts in OpenGL (Asian encodings, etc)
- Render environment projection to reflect predefined or user defined patterns



- Draw the support grid with labels and in postprocess too
- Use a two colors degradation as background

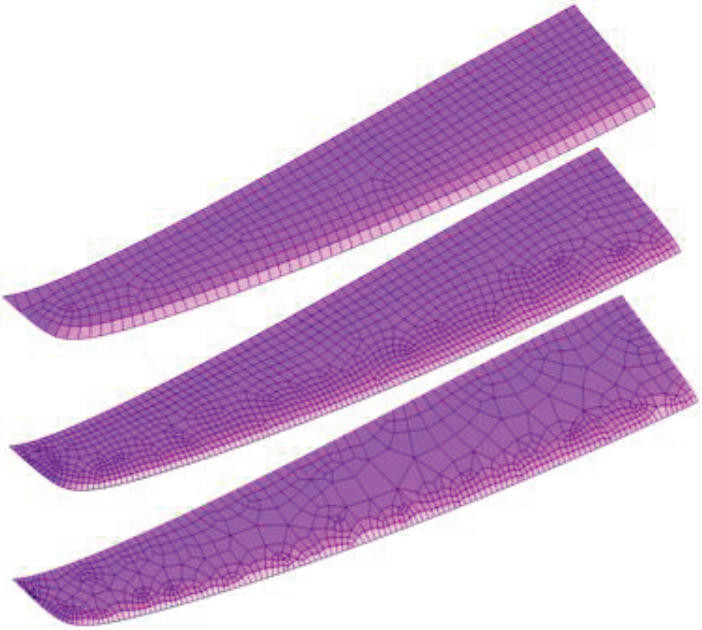


- Options added for stream lines: length, initial step, maximum number of points
- New Rjump window to make easier the entities selection
- Different interpolation scenario (2d or 3d) in surface structured meshing depending on the surface mesher selected (RFast or RSurf).
- Views with the same name as the posprocess file, with the extension .vv, are automatically read

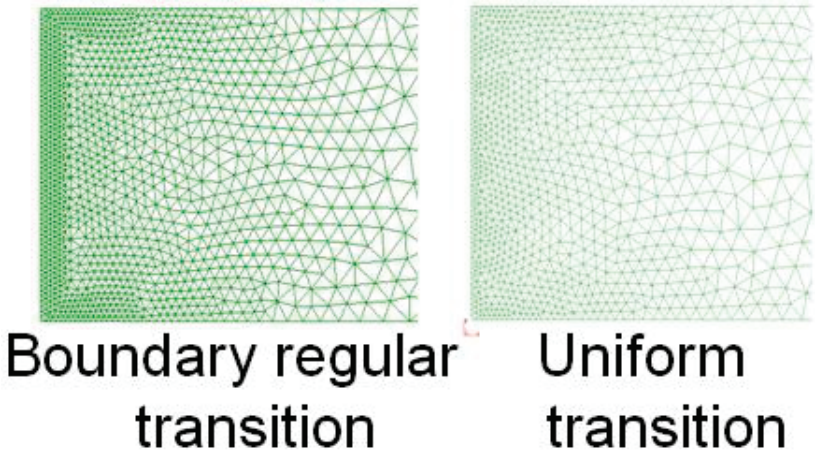
4.2 from v 8.1.1b to 8.1.2b

What's new from version 8.1.1b to 8.1.2b

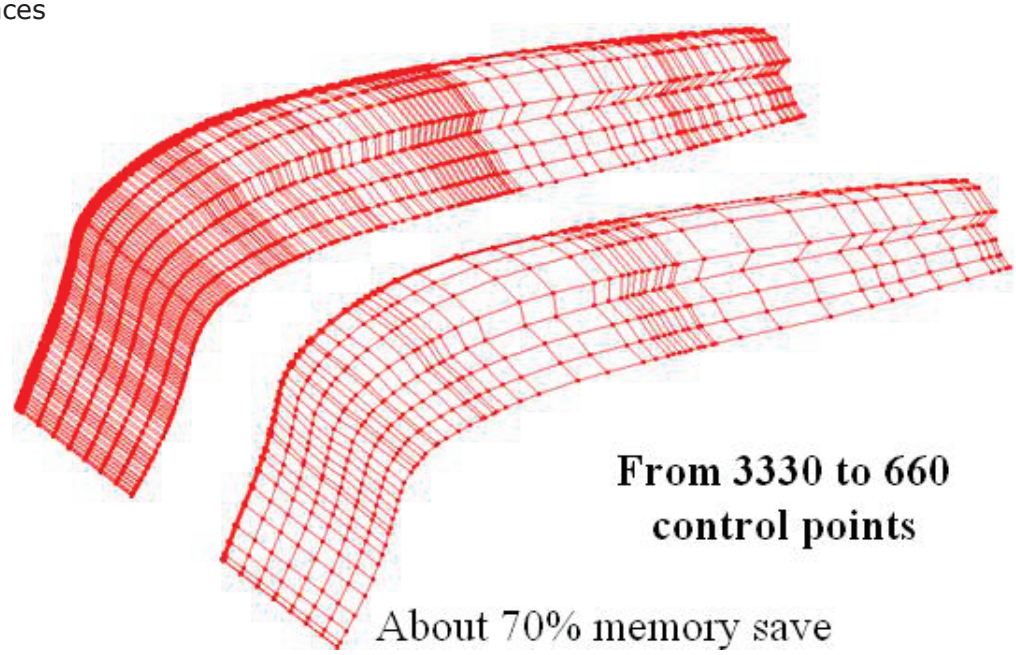
- New quadrilateral mesher



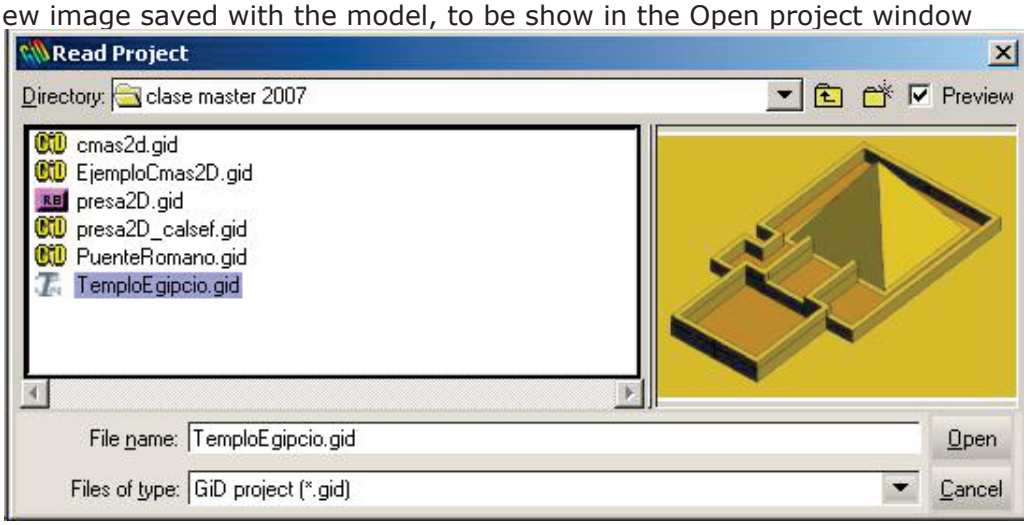
- Boundary regular transition meshing preference



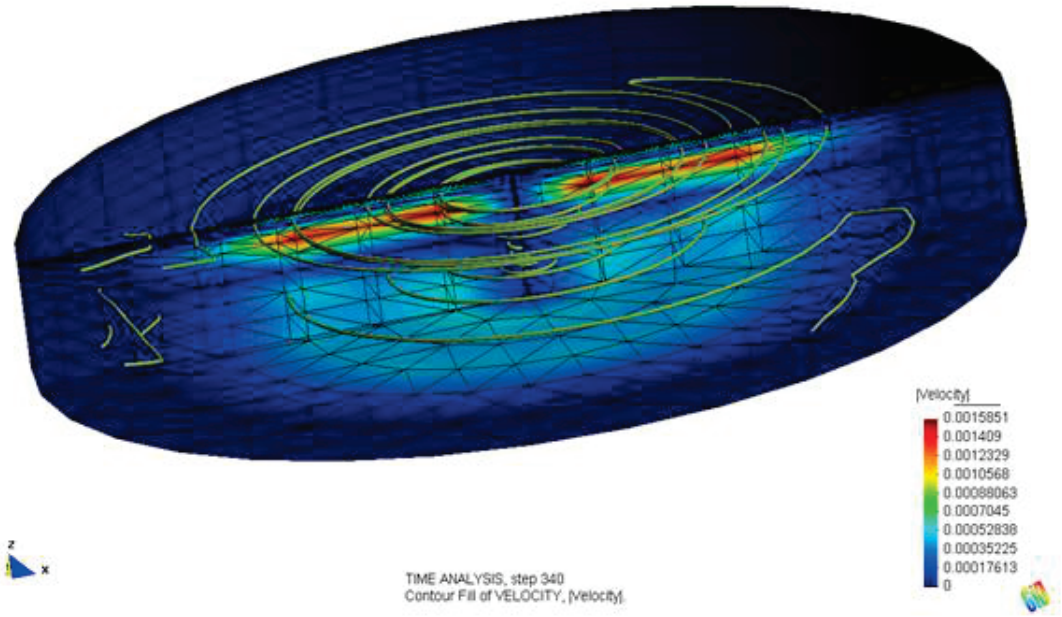
- NURBS simplification operators: knot removal and degree reduction for curves and surfaces



- Preview image saved with the model, to be show in the Open project window

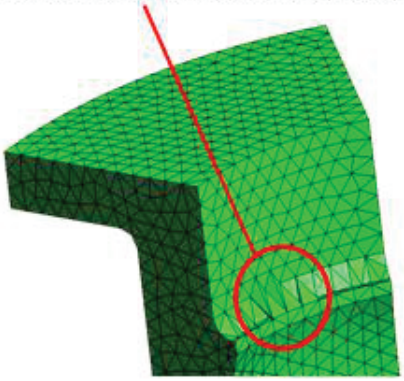


- Can read TIFF files for background images and textures
- Stream lines implemented for hexahedra, prisms, pyramids and quadrilaterals



- Supported hexahedra of 20 nodes in postprocess
- Macro to create a vector result from an scalar result
- Smoothing of triangles and quadrilaterals: new opcion LaplaceSmooth to only apply a laplacian smooth, with angle tolerance and try to save the enclosed volume
- Math functiones like max, min, log, log10 can be used in template bas files, *nintervals command
- Delaunay volume mesher (GiD_Set VolumeMesher 1)

- Faster than advancing front mesher
- Worst element quality
- Doesn't preserves the boundary triangulation !!

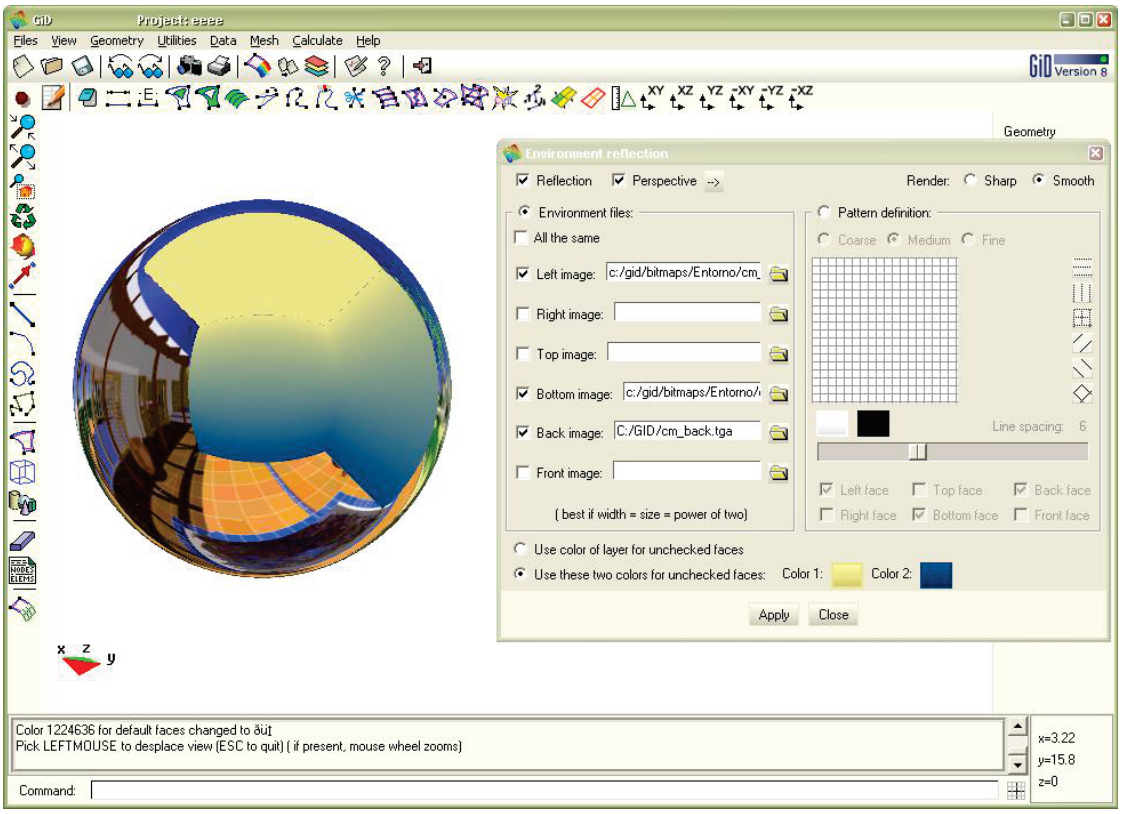


- Command line parameter -c2 <yourfile.ini>, to specify in a problemtype to use "yourfile.ini" instead "gid.ini", to avoid sharing the configuration
- GidUtils::DisableToolbar <tool> and GidUtils::EnableToolbar <tool>, to prevent show some tools, like the "Right buttons"

4.3 from v 8.1.2b to 8.1.3b

What's new from version 8.1.2b to 8.1.3b

- Volume split (similar to surface split, to divide a volume from a group of dividing surfaces)
- Locate real size background images from a .tfw georeferentiation file if exists
- drawopengl font GiD-Tcl command, to set fonts and ask its properties
- write_calc_data GiD-Tcl command, to write the calculation file from Tcl
- New options for reflection: individual faces selection, layer color or two color degradation for switched off faces.



- a preview image and the view is saved together with the mesh and results

4.4 from v 8.1.3b to 8.1.4b

What's new from version 8.1.3b to 8.1.4b

- Support for spheres (defined by a centre node and a radius) and circles (defined by a centre node, a radius and a normal) in Postprocess. Spheres can be cut and create in circles. If the normal for the circles are not given GiD assumes the normal (0.0, 0.0, 1.0).
- Stream ribbons as stream lines with detail level=2 with rotational.
- Detail level point for stream lines showing the calculated points from the stream.
- Contour Fill colours with shininess
- New Display Style mode for meshes: 'Points Bound' showing the nodes as spheres and the boundary lines of the mesh.
- Isosurfaces can be seen although all the meshes are switched off.
- Support for BMP files with 32bpp.
- Join surfaces function.

4.5 from v 8.1.4b to 8.1.5b

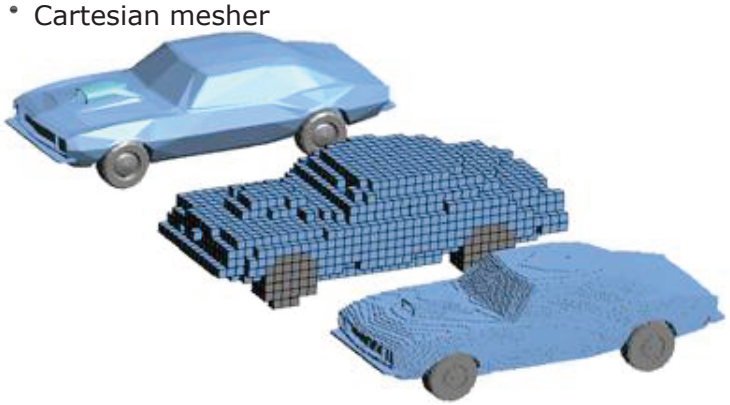
What's new from version 8.1.4b to 8.1.5b

- Surface render using triangle strips
- Mathematical operator % (remainder of integer division) for template files

4.6 from v 8.1.5b to 8.1.6b

What's new from version 8.1.5b to 8.1.6b

- Split tetrahedra
- Cartesian mesher



- Sphere element new mesh quality filters: NumNeighbors and SpaceFilling
- GiD_Info Tcl floating values with precision based on tcl_precision variable
- GiD mesh ASCII reading: separe material in new layers
- DXF import: support of 3DSOLID entity (ACIS based)
- Advance bar when reading geometry and mesh GiD files
- Several improvements: quadrilateral unstructured mesher, Parasolid import, etc.
- User preference to set the number of 'recent files' to show in menus

- Postprocess variable PostCutToMesh, to automatically convert 'cuts' to 'sets'

4.7 from v 8.1.6b to 8.1.7b

What's new from version 8.1.6b to 8.1.7b

- Boundary layer meshing in 2D
- Transparent layers
- Circle element (defined by a center, radius and normal to the plane), and internal sphere mesher.
- Updated to Tcl/Tk 8.5
- Spaceball device enabled for Windows-x64
- GiD_UnAssignData : wherefield <fieldname> <fieldvalue> To unassign this condition olny for the entities where the field named 'fieldname' has the value 'fieldvalue'
- Several Tcl events:
  - TclCalcModelBoundaries: Tcl event to calculate and set its own bounding box (for zoom frame)
  - AfterSaveImage: Tcl event, interesting for example to save a georeference file (see dev_kit.tcl)
  - BeforeTransformProblemType: Tcl event, to be raised just before this transformation
  - BeforeInitGIDPostProcess: Tcl even, raised just before change to postprocess mode
- GiD_Info parametric curve t_fromrelativelength: Tcl procedure to calculate the parameter that provide the required arc length.
- bas template command *ElemsNormal, to get the normal for triangles, quadrilaterals and circles.
- Combobox in the toolbar to select the current layer to use
- Mesh/nomesh criteria can be applied also to points
- File browser window dialog can have additional parameters depending on the context (e.g VTK or IGES import preferences)
- Menu to load recent postprocess files
- Menu to set useful or saved views.

4.8 from v 8.1.7b to 8.2.0b

What's new from version 8.1.7b to 8.2.0b

- JoinSurfaces JoinCoplanary, new function to join coplanary neighbor surfaces
- Draw meshing data related to boundary layer and Points forced to the mesh
- Use of PGF Fonts

4.9 from v 8.2.0b to 9.0-rc1

What's new from version 8.2.0b to 9.0-rc1

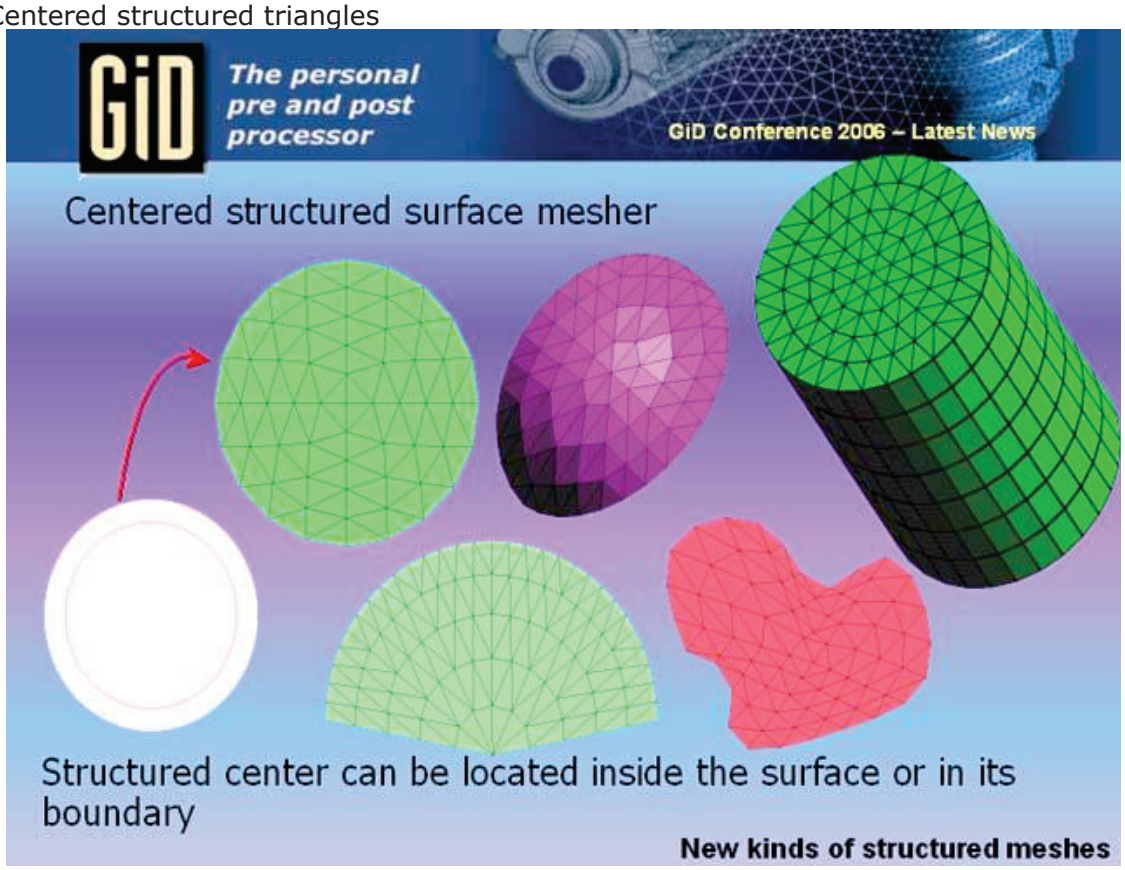
- New command line -t option to evaluate tcl code
- RenumberMethod = 2 to renumber nodes following the XYZ axes

5 From v 7 to 8

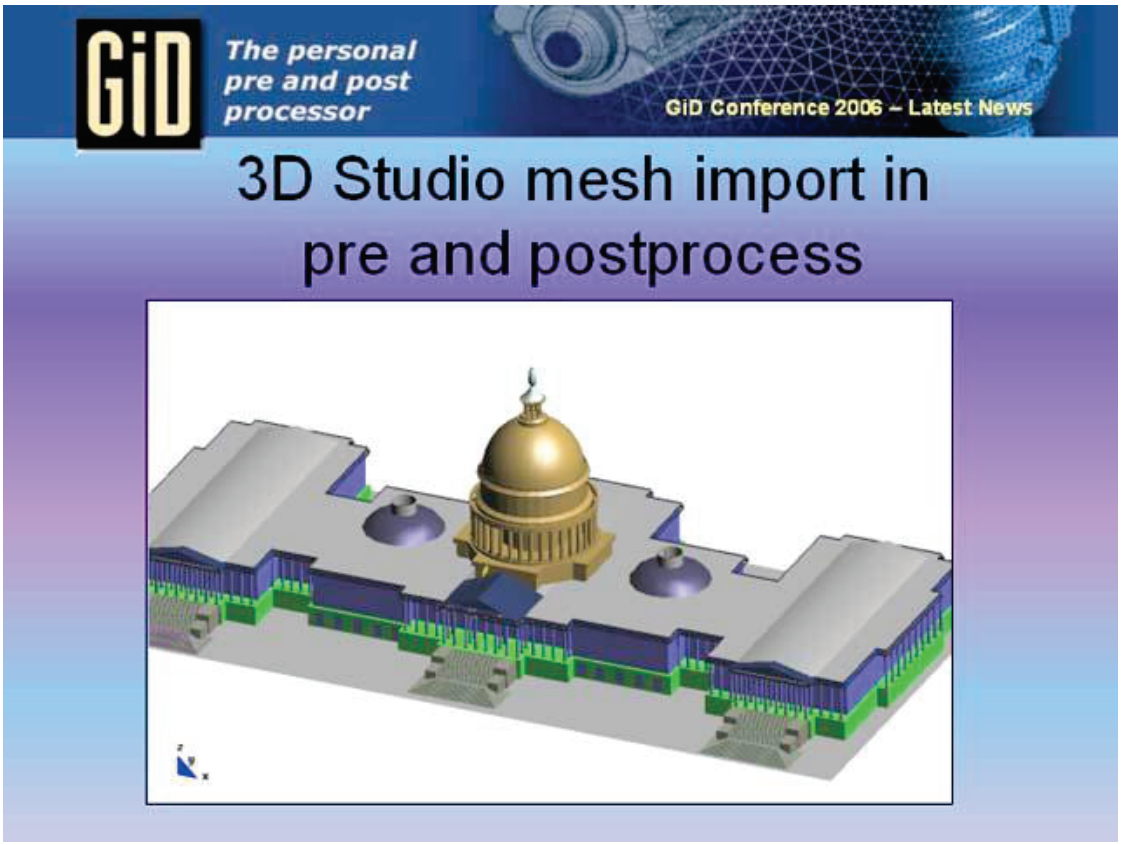
What's new from version 7.0.x to 8.0.x

NEW FEATURES - PREPROCESS

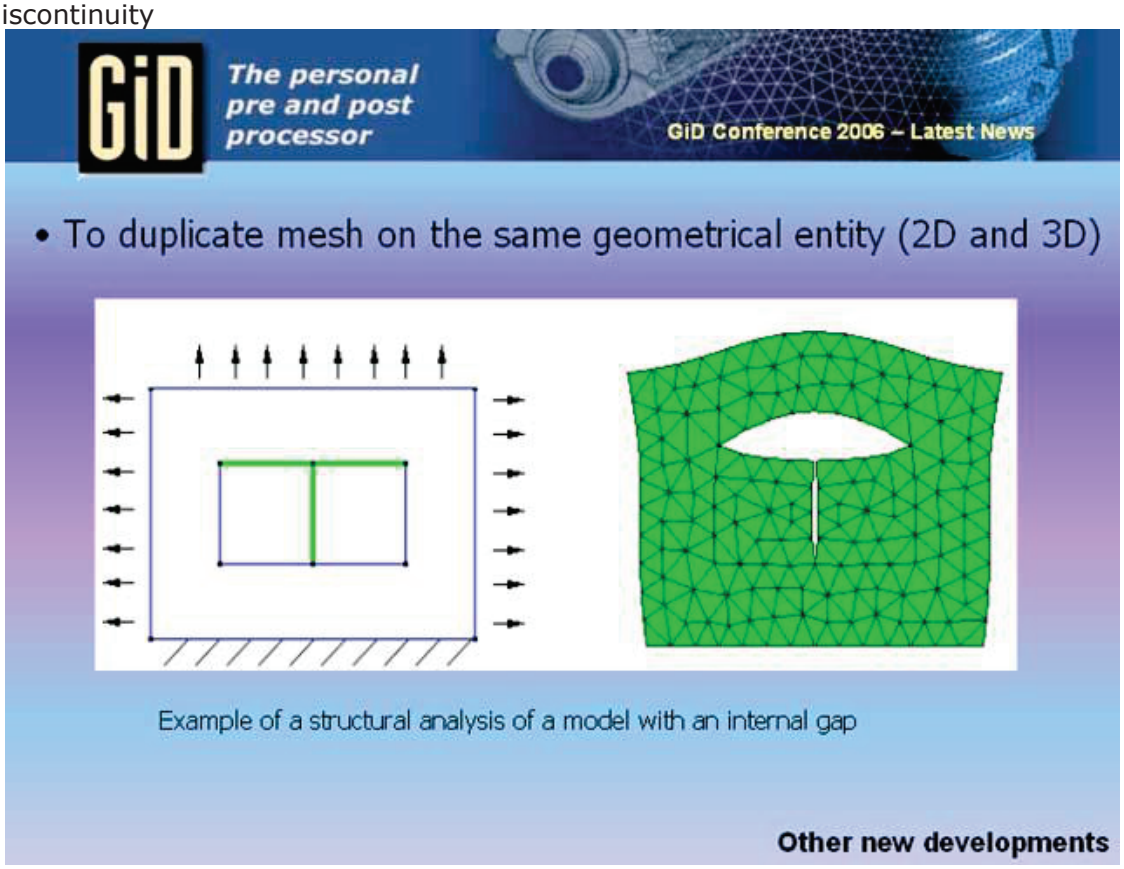
- Implemented Microsoft Video1 codec with dithering, to save animations in AVI format
- Centered structured triangles



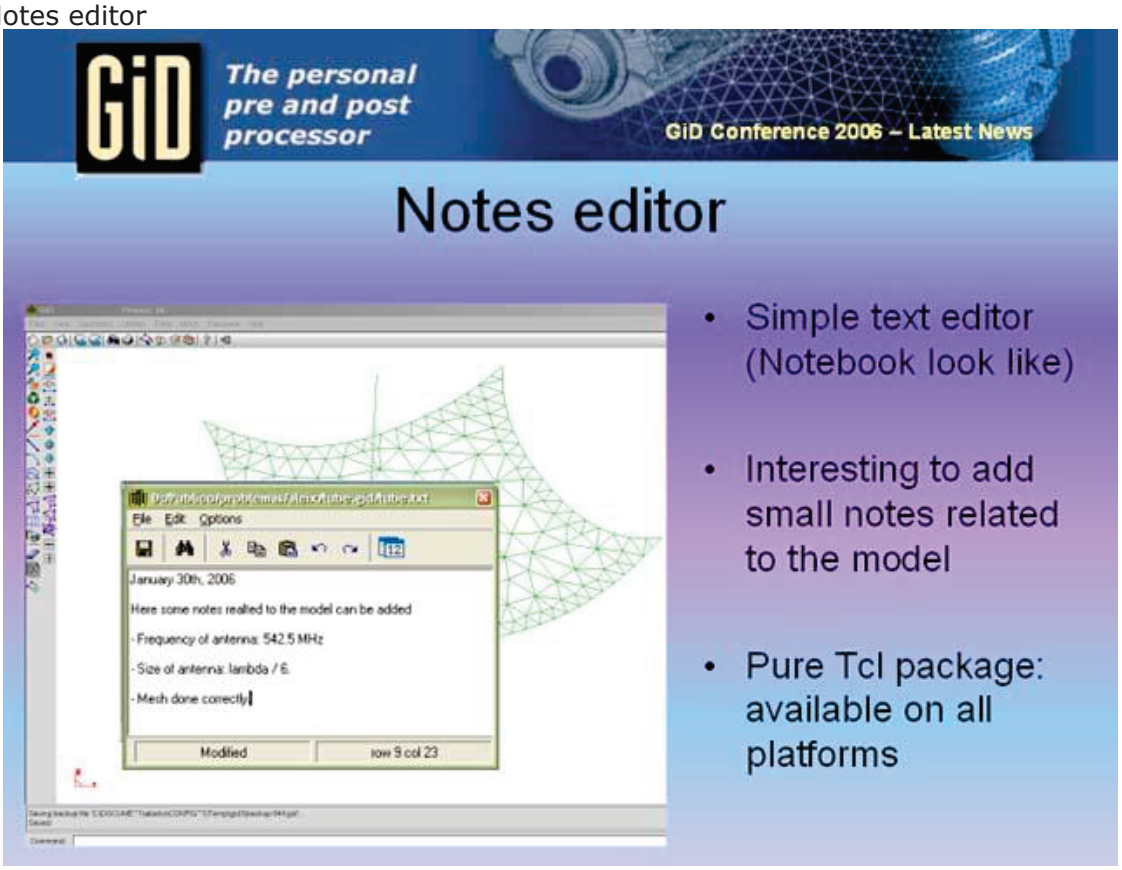
- Fill with tetrahedra a triangle boundary mesh (delaunay algorithm)
- Connect a cloud of points with tetrahedra (delaunay algorithm)
- Several macros added to the toolbar
- GiD-Tcl command: writedefaults to save to file the internal defaults
- GiD-Tcl command: GiD_GetInfoLnkFile to read .lnk Windows shell links
- 3D Studio .3ds import



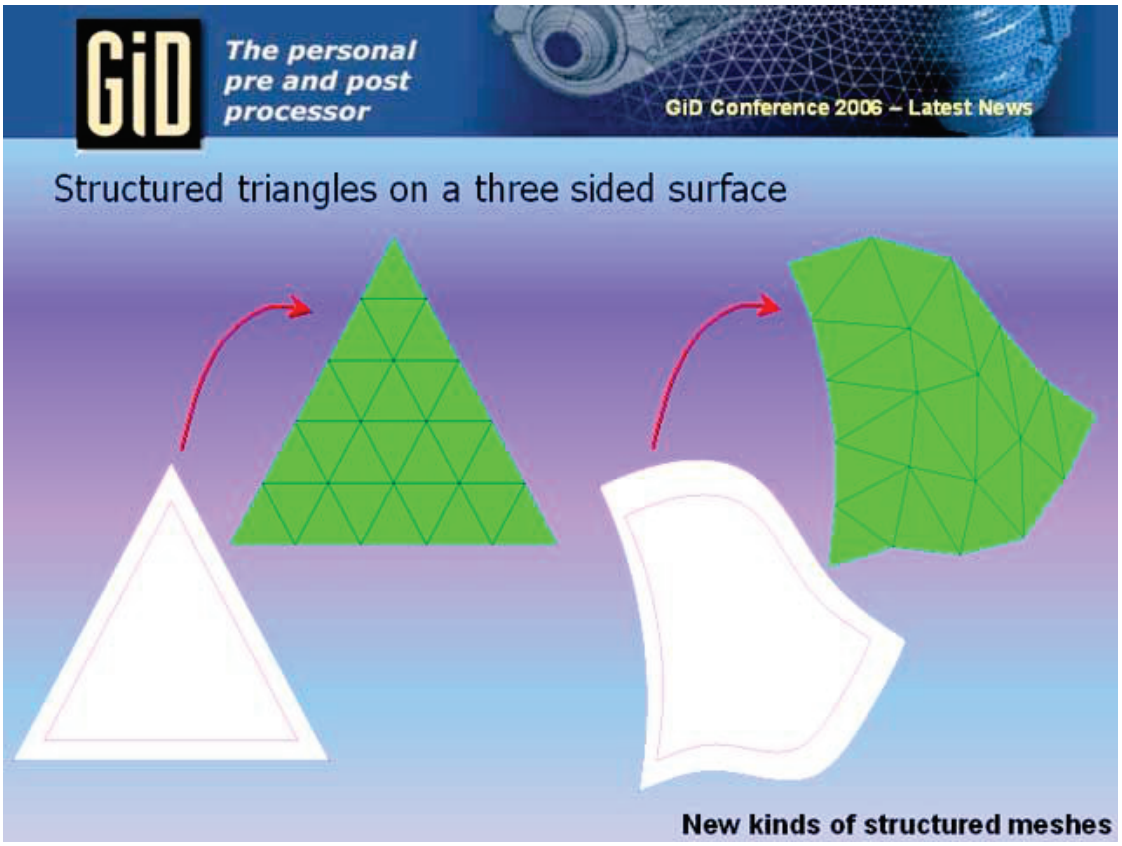
- LoadFileInGidUnknowExtension event, to handle drag and drop from a problemtype
- Draw more mesh criteria
- Mesh criteria option to force the node of a point on the surface mesh
- Mesh criteria option to duplicate nodes for some selected entities to create a discontinuity



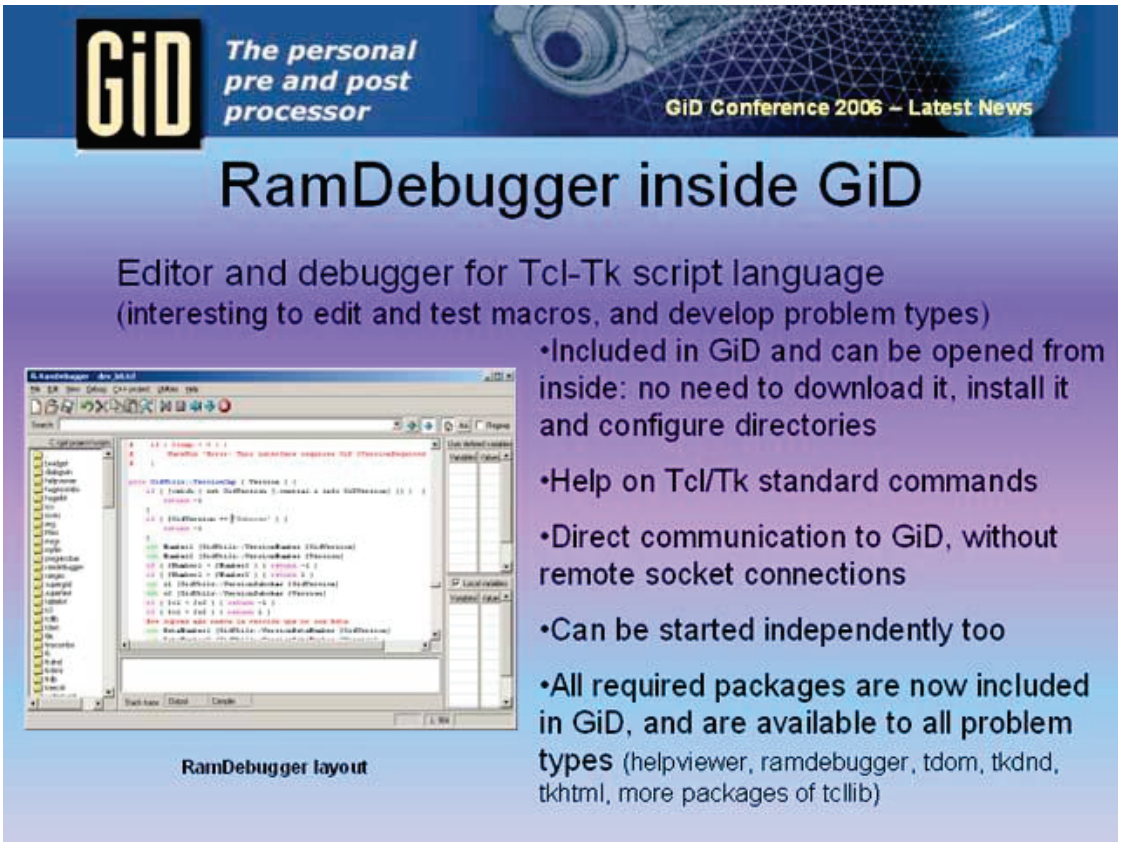
- Automatic rotation center preference, and dynamic zoom centered on the first picked coordinate
- For menus can be specified the character used to acces with <Alt> key with an ampersand
- Previous and next view buttons
- Notes editor



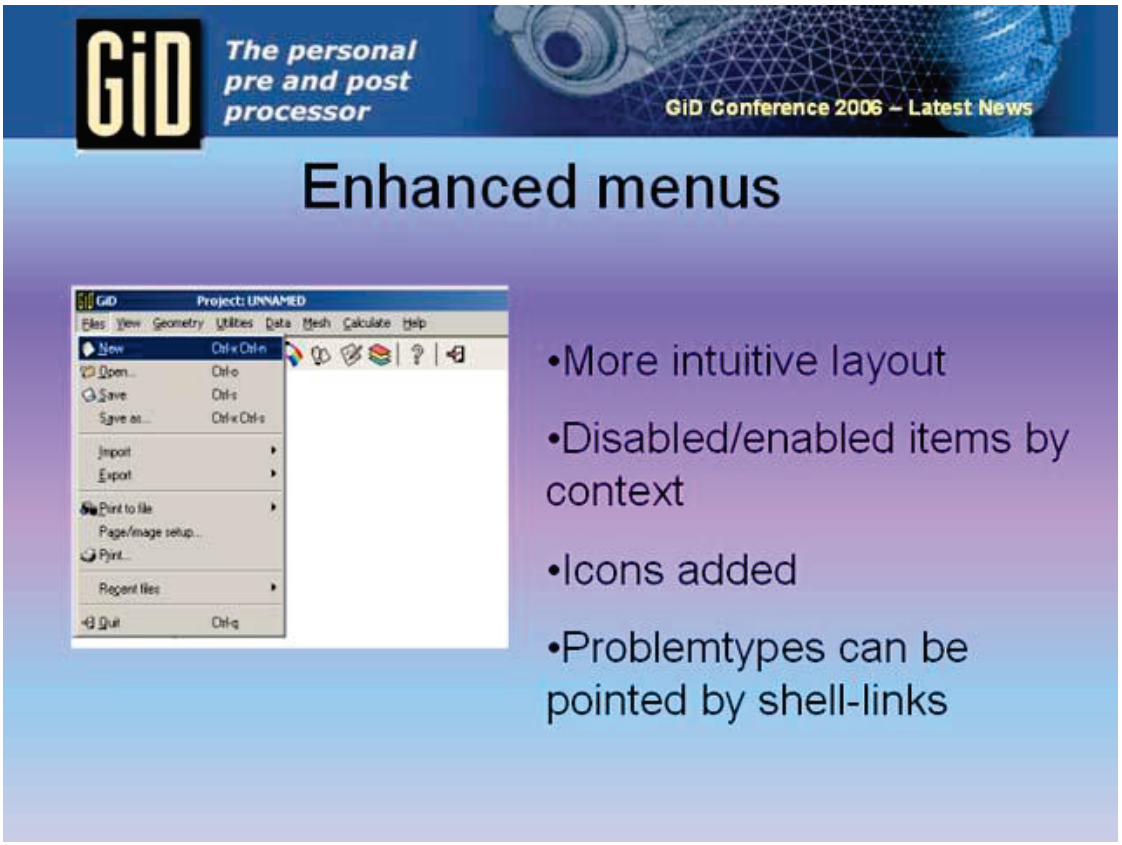
- Conditions over face element multiple
- utf-8 encoding support for all GiD files
- Structured triangles for three-sided surfaces



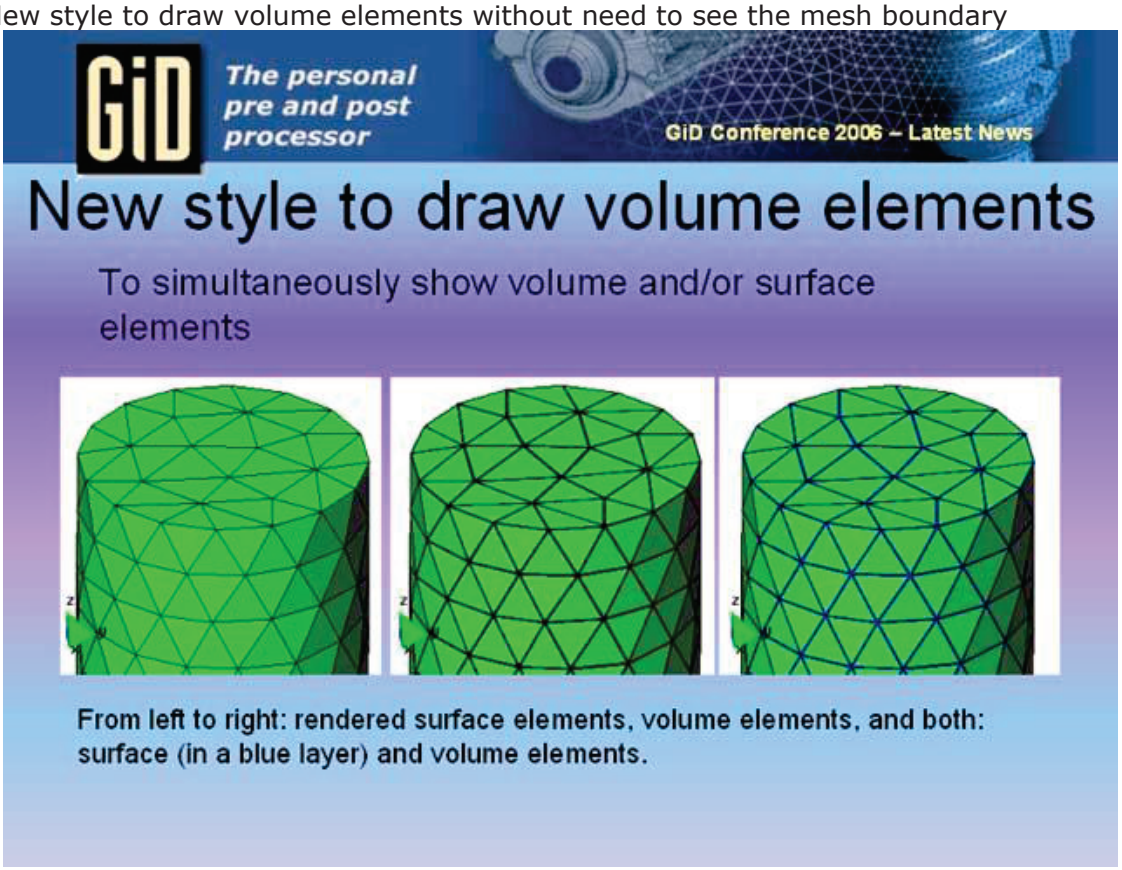
- Unassign conditions matching some field value
- Supported Windows shell links pointing to problemtypes
- Uncollapse volumes
- Intersect multiple surfaces, option to not divide surfaces and lines
- Tablelist widget updated to 4.1
- Automatic correct sizes: hard option based on chordal error
- Bas file, can set a variable with the result of a tcl procedure
- GiD_Info check command, to test possible bad entities
- Rhino 3.0 Import. New CAD import format
- New installation program
- RamDebugger provided inside GiD (F12 to open), sharing all needed packages



- SymmetrycalStructuredTriangles in preferences window
- Enhanced appearance of some windows (animation control, animation post, read batch, preferences, copy)
- Mesh errors enhanced: can reopen this window, better messages
- Unload problemtype
- Enhanced menus: (more logical location/name, disable/enable color by context, added icons)

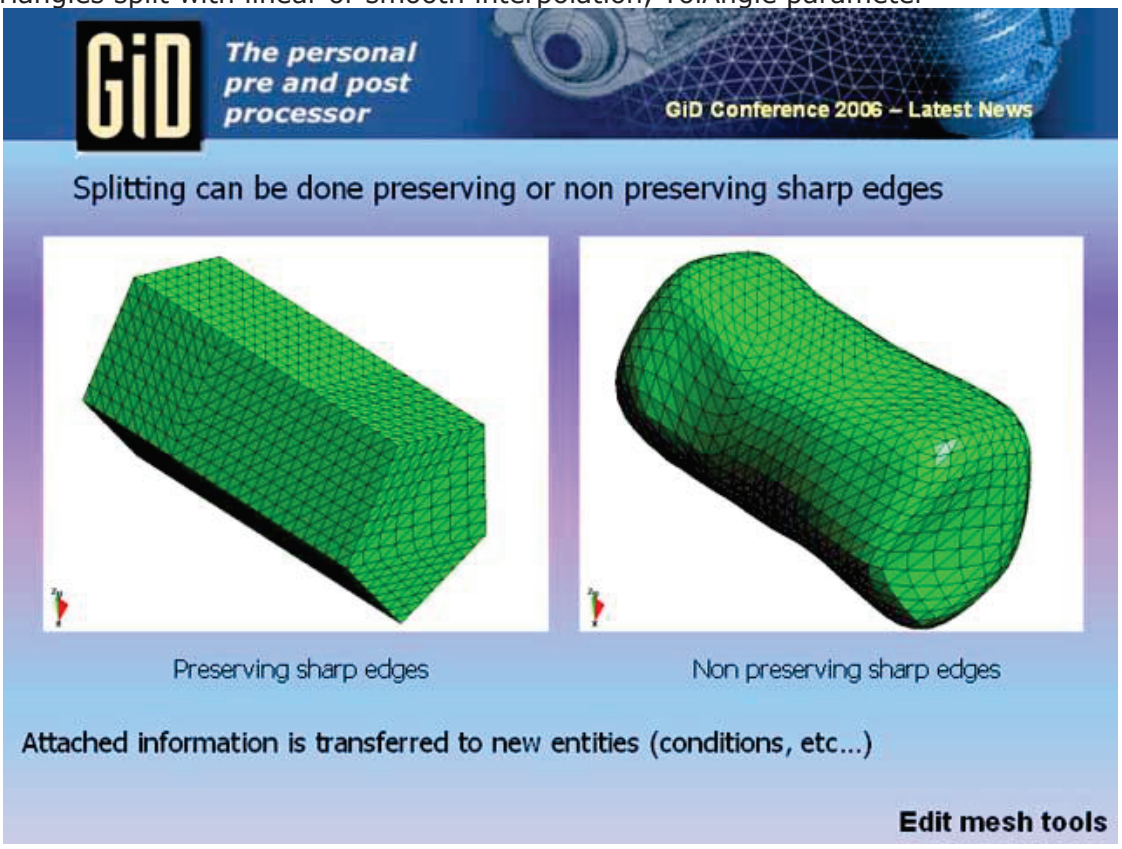


- New style to draw volume elements without need to see the mesh boundary

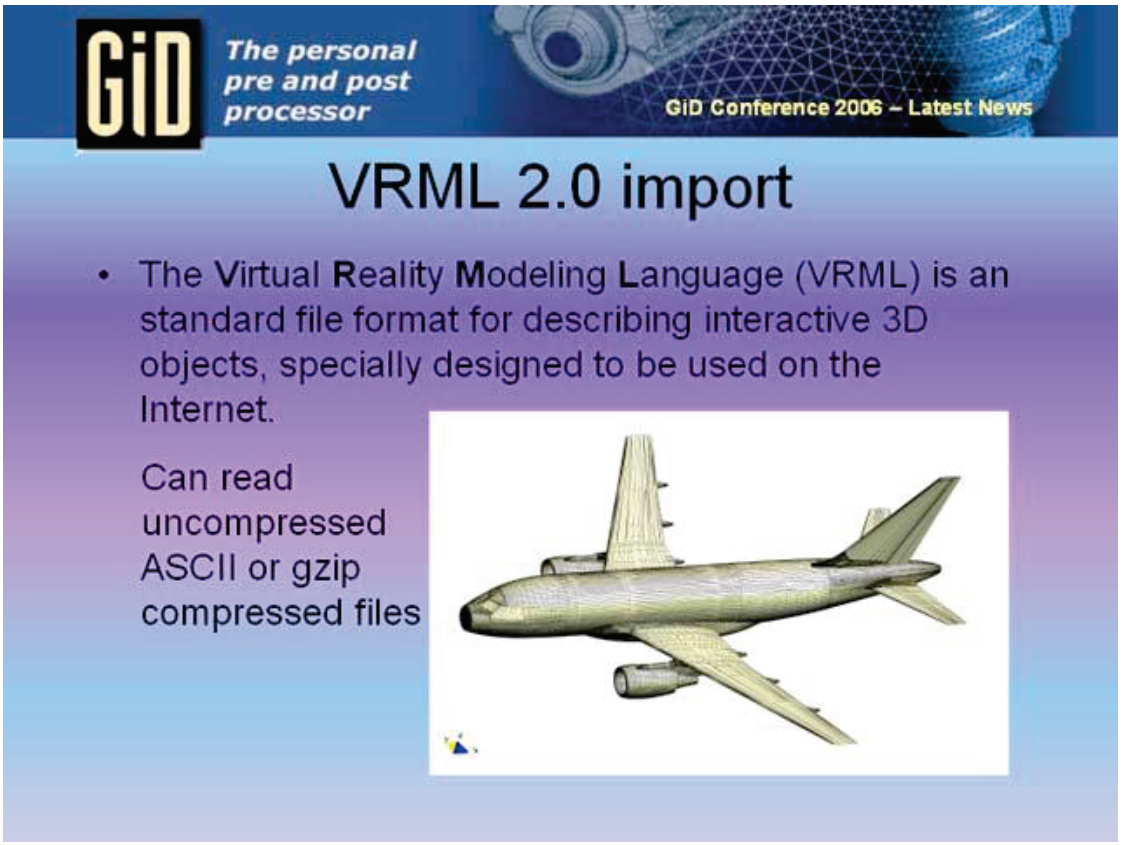


- Save and restore the project view
- Option to reload the last model when restarting
- Updated mesh menus for semi-structured meshes

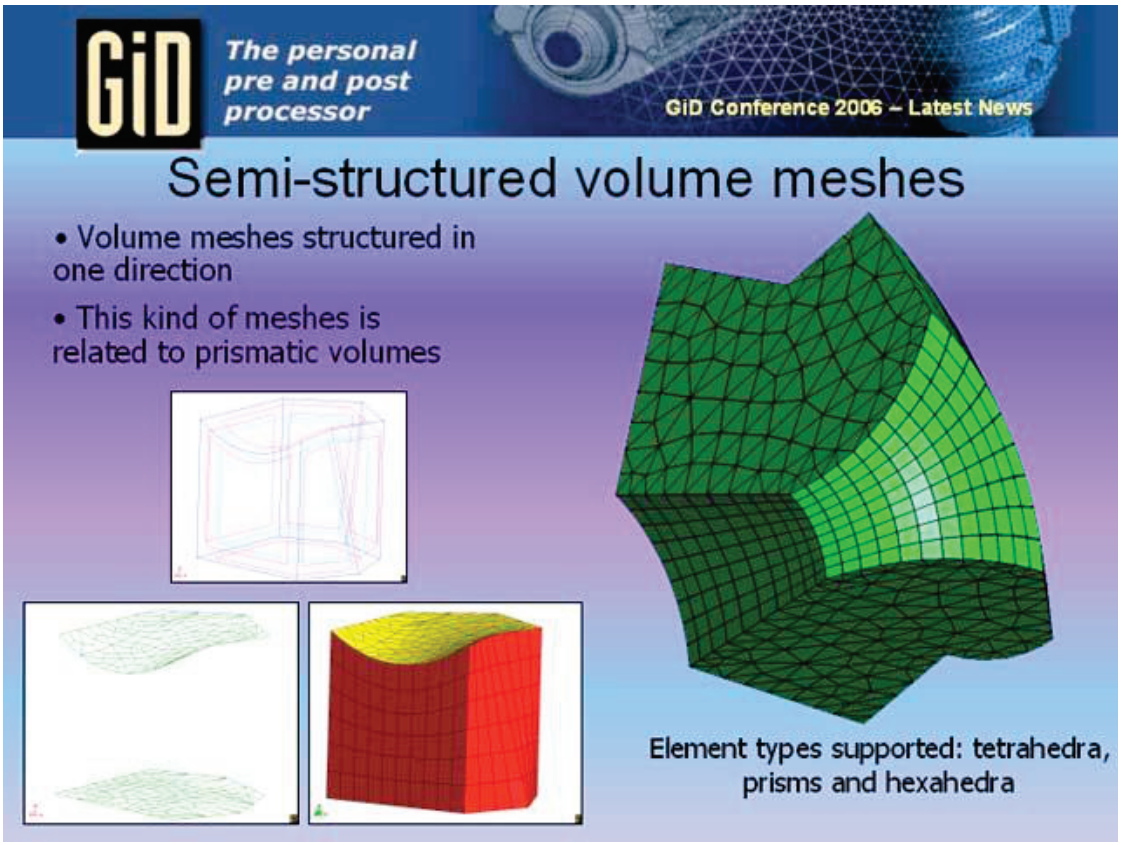
- Selection filter by condition fields
- New GiD-Tcl commands: GiD_SetModelName, AfterTransformProblemType event
- Structured volume meshes with contour surfaces with more than four contour lines.
- Hexahedrals smoothing.
- Mesh of structured prisms.
- More Edge collapse enhancements (pattern for special cases, smooting).
- Triangles split with linear or smooth interpolation, TolAngle parameter



- VRML import

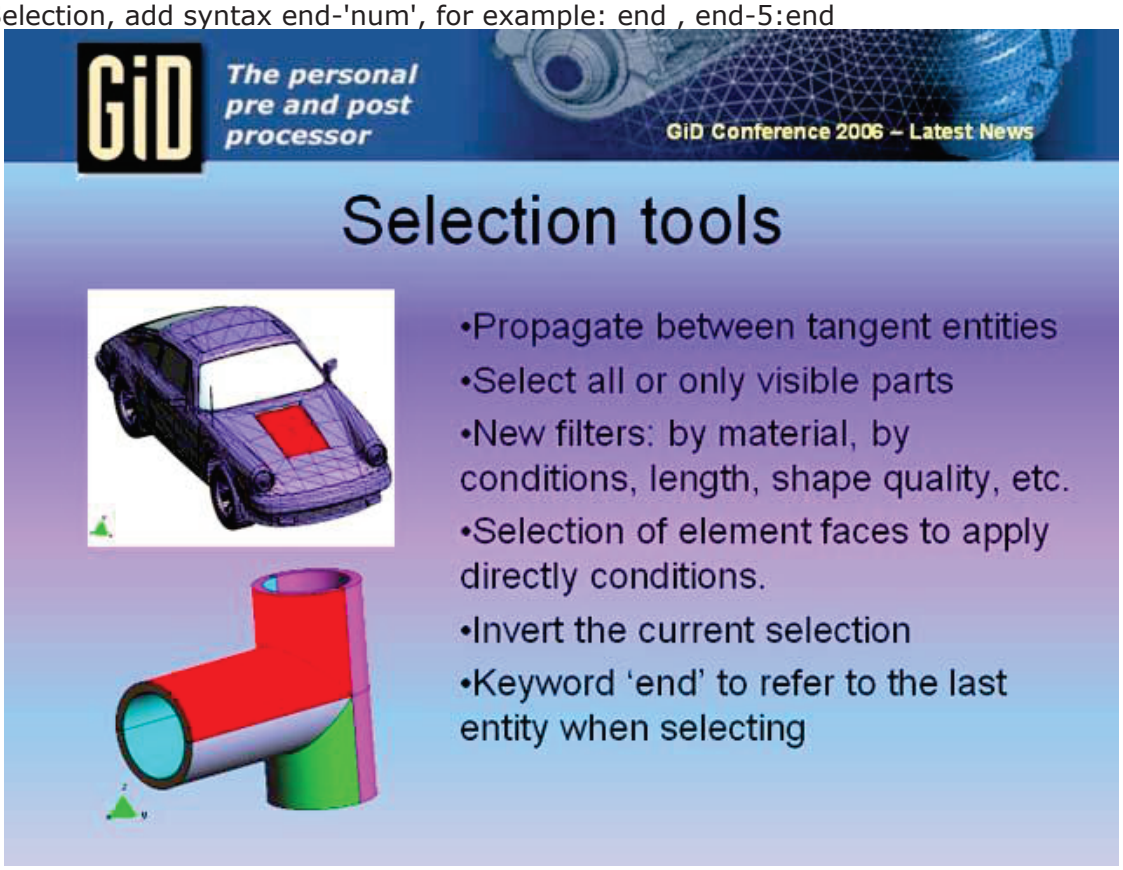


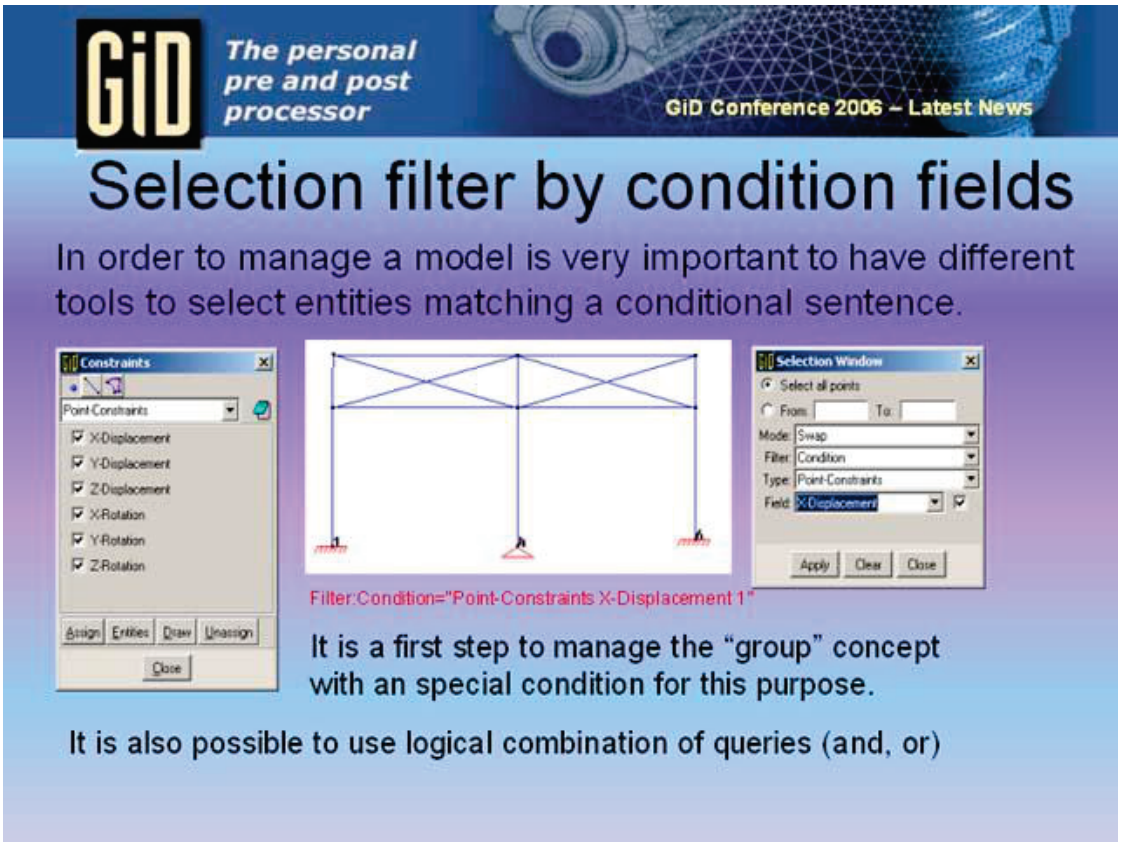
- Problemtype xml file to declare some properties: to show a customized icon in the open file dialog box, to call a function to know if the entered password is valid for the problemtype, etc.
- Structured hexahedras: corrected some degenerated cases, and enhanced interpolation of quadratic nodes.
- Mesh of structured tetrahedras.
- Transfer of applied conditions when splitting elements
- Rjump enhancements: mesh of quadrilaterals, draw by colors of entities to be jumped, show advance bar, some new variables for better control: RJump(TakeCareCurvature), RJump(TakeCareLayers), RJump(TangencyLimitAngle)
- Check of negative of zero jacobian on elements
- Semi-structured meshes



- Split of prisms and hexahedras to tetrahedras
- Source code updated for 64 bits support.
- Update to Tcl/Tk 8.4.9, and reordered and added some packages: tdom, img, treectrl
- Creation of approximated parametric surfaces
- Variable SymmetricalStructuredTriangles to create four triangles by quadrilateral instead two.
- Mesh quality: support for line and prism elements, new Minimum Jacobian criteria.
- Several translation modifications: optionbar widget changed to Bwidget NoteBook, etc., language dependent widgets size
- Function (meshing connectpoints) to create triangle elements (or surfaces) from a cloud of nodes, projecting in the plane z=0
- Transformation (copy / move) much faster
- Direct assignation to mesh of conditions with local axes
- Creation of NURBS lines fitting a list of points instead interpolating, with user selected degree.
- Events: BeforeRunCalculation, AfterRunCalculation, AfterOpenFile , ChangedLanguage
- GiD_Info Geometry
- GiD_GetInfoGeoFile, tr read the geo file version and problemtype
- Added OpenGL selection commands: rendermode, selectbuffer, getselection
- Sweep: must specify a end scale factor
- Selection: now it's possible to select element faces (to apply conditions)
- Selection of elements by tangency: ConnectedTangent and selected tolerance TolAngle (degrees)

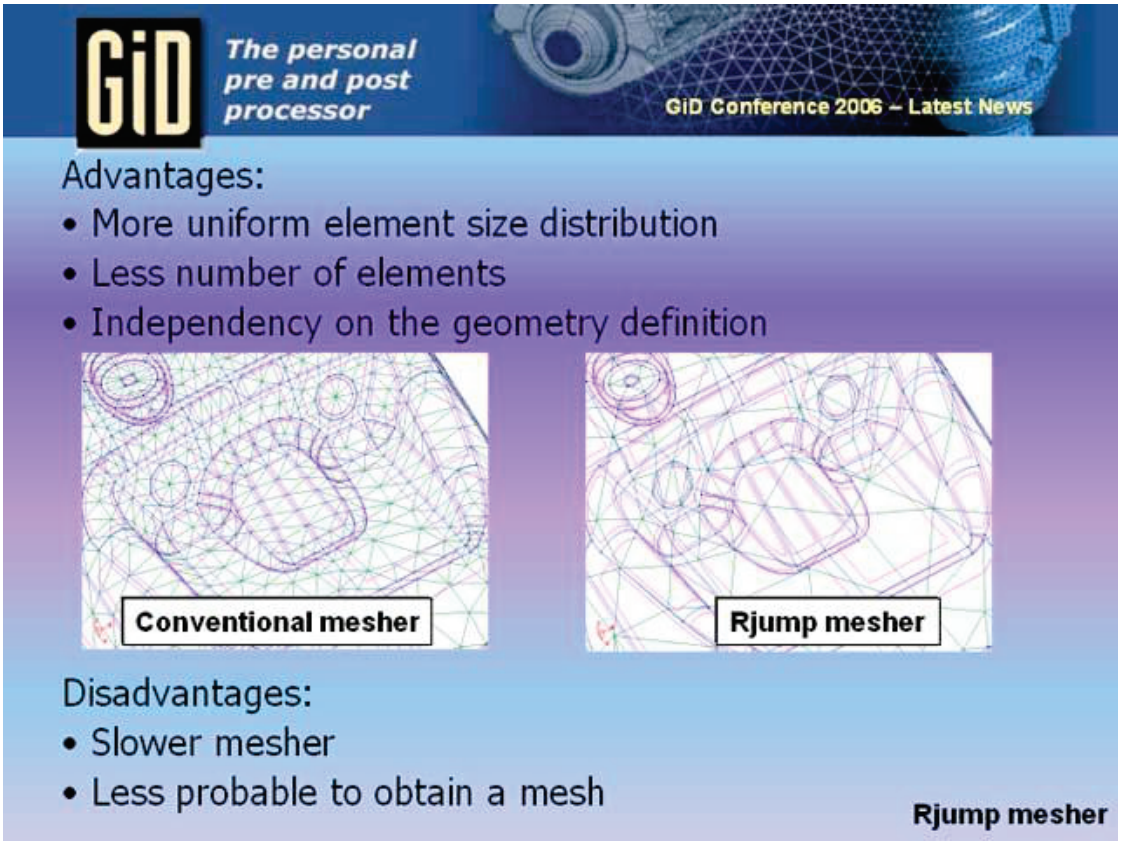
- Selection window: filters MinEdge and MaxEdge
- Selection, add syntax end-'num', for example: end , end-5:end





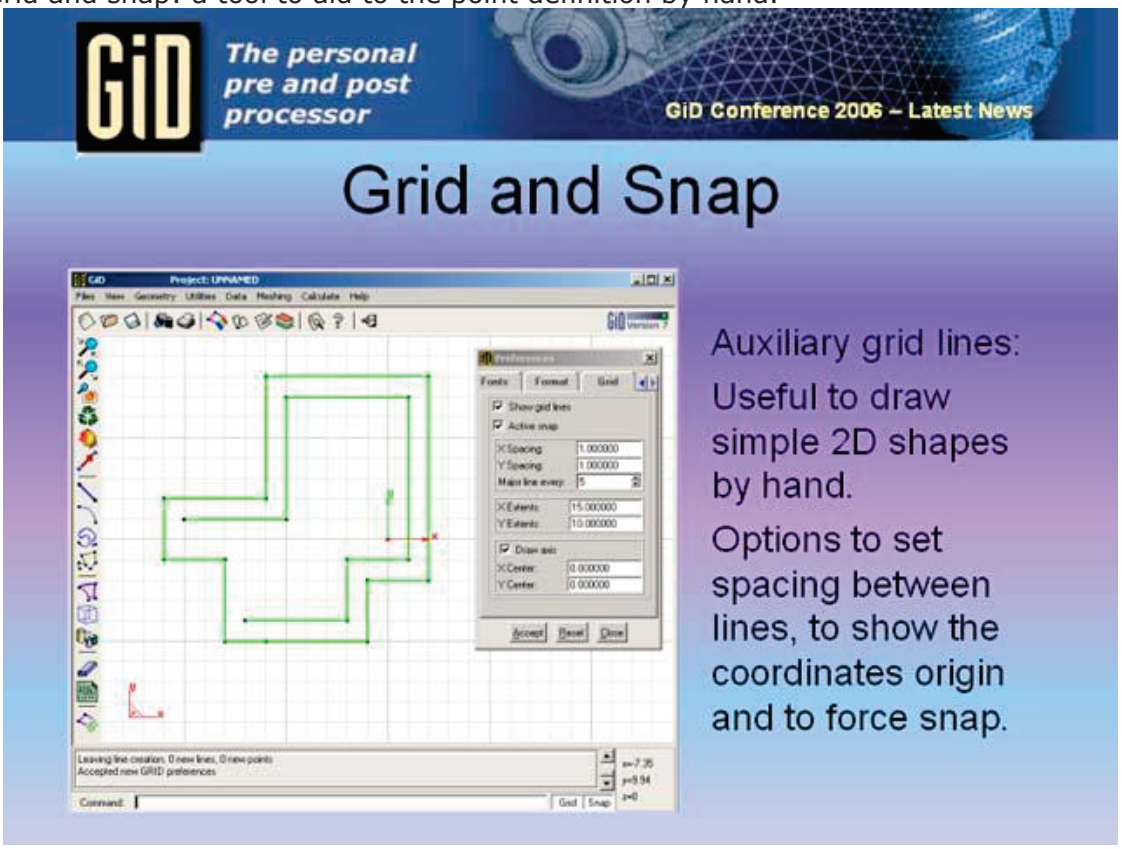
- Customizable macros toolbar

- New RJump surface-group mesher, and manually options to jump or not a line.

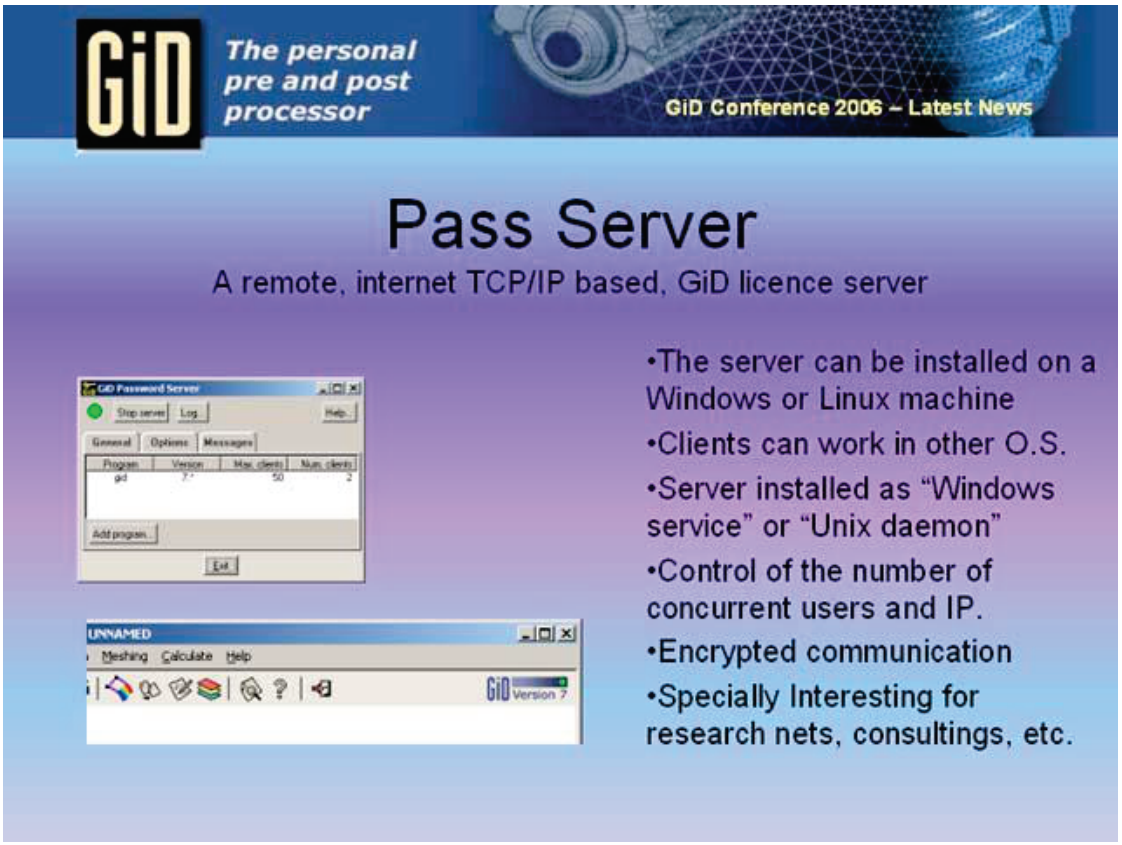


- Added a simple UNV mesh export template (Universal I-Deas format)

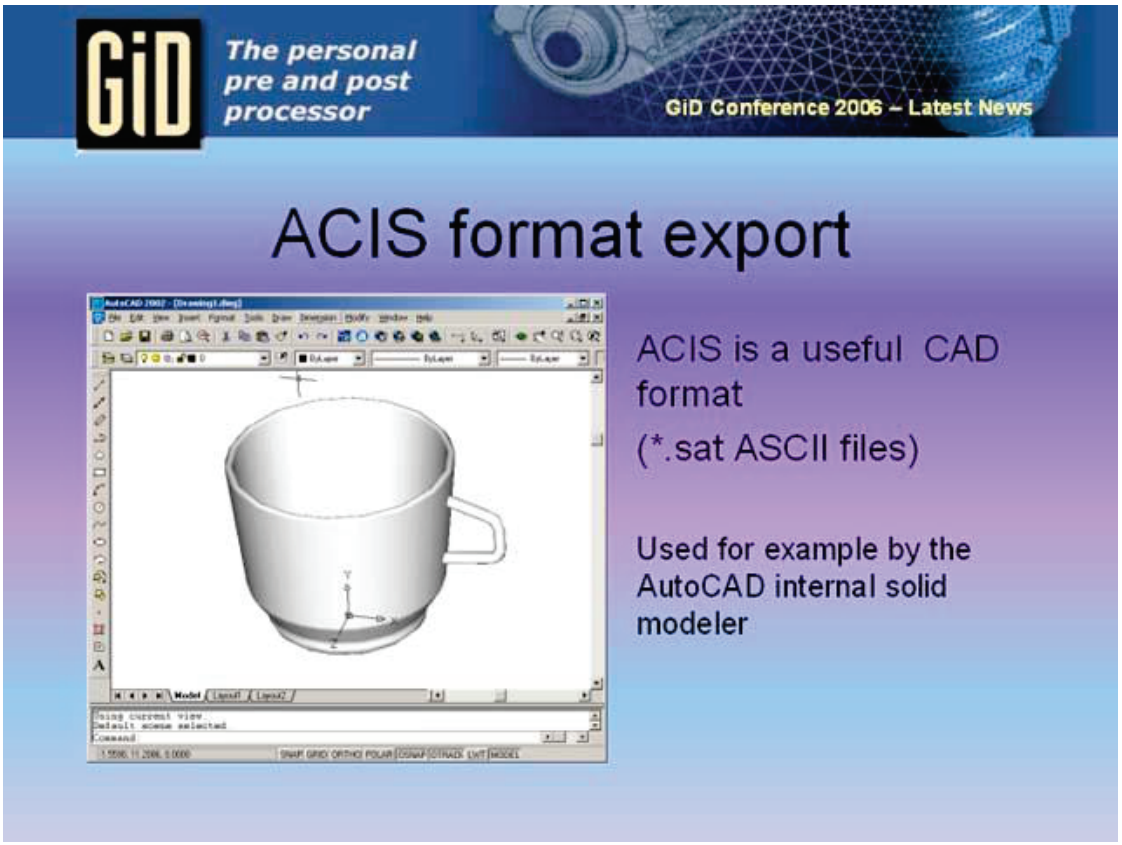
- New status window button, to set the current meshing preferences with the saved in the loaded model file.
- More tolerant with spaces in layer names, materials, etc.
- Spanish translation of the stings database
- Enhanced VDA read (more stable, and less memory requirements)
- Enhanced IGES read (much faster, and less memory requirements)
- Try to save the applied conditions when modify entities, create a new copy, etc.
- Grid and snap: a tool to aid to the point definition by hand.



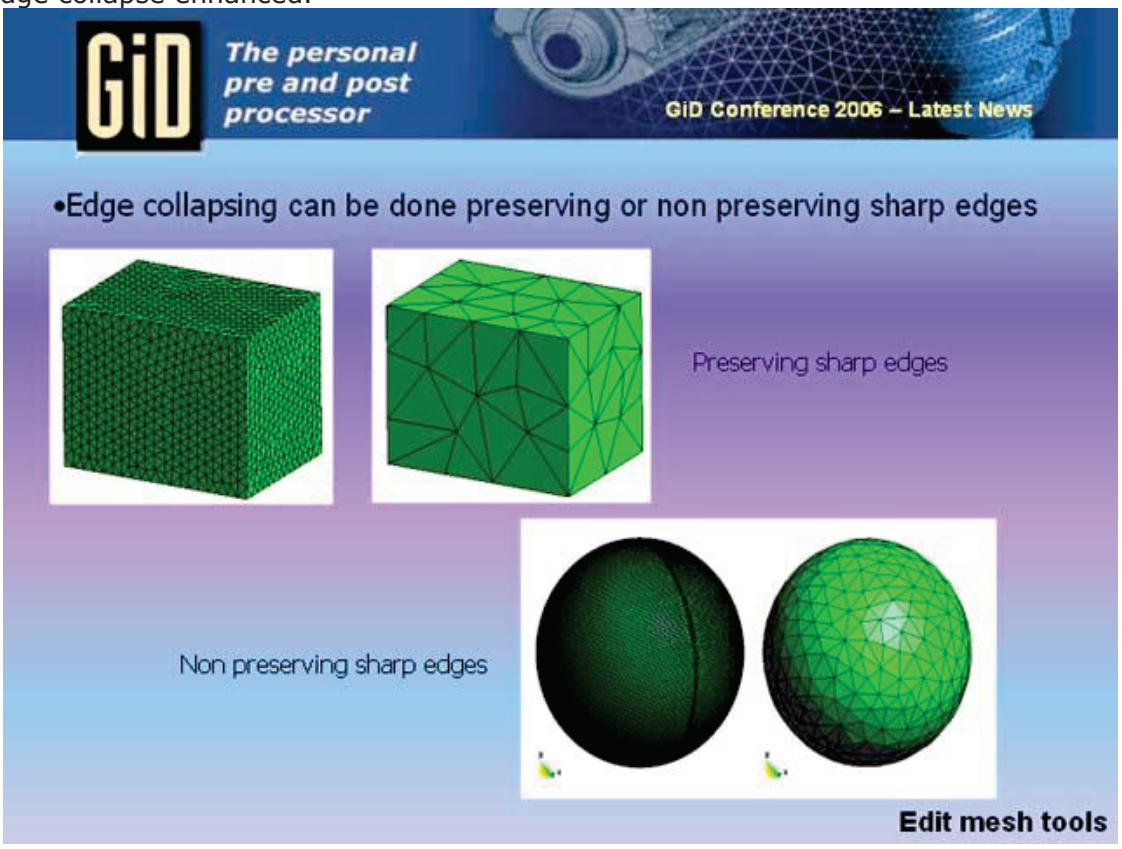
- Delete entities: new 'LowerEntities' option to delete all dependencies.
- Enhanced IGES export (optionally B-rep or traditional without topology style, more fast, saved layer information, etc)
- Selection: more entity filters: by label on/off, material or assigned condition. New InvertSelection command.
- Tcl/Tk: Included packages treectrl (a fast tree control) and tdom (a XML parser), and several scripts reordered as packages.
- Add to dev_kit.tcl more procedures: GidUtils::EvalAndEnterInBatch (to register tcl used command for undo and batch)
- GiD_BookBehaviour, GiD_MaterialBehaviour and GiD_ConditionBehaviour (to customize material and condition windows)
- GiD_Process command, using a tcl-like parameter list (not space separated list as .central.s process), to avoid problem commands as filenames including spaces.
- drawopengl drawentities subcommand (to easily draw internal GiD entities), GiD_Set (to set/get GiD variables).
- GiD_Geometry command, to create from tcl new geometric entities.
- Use of PassServer net licences system



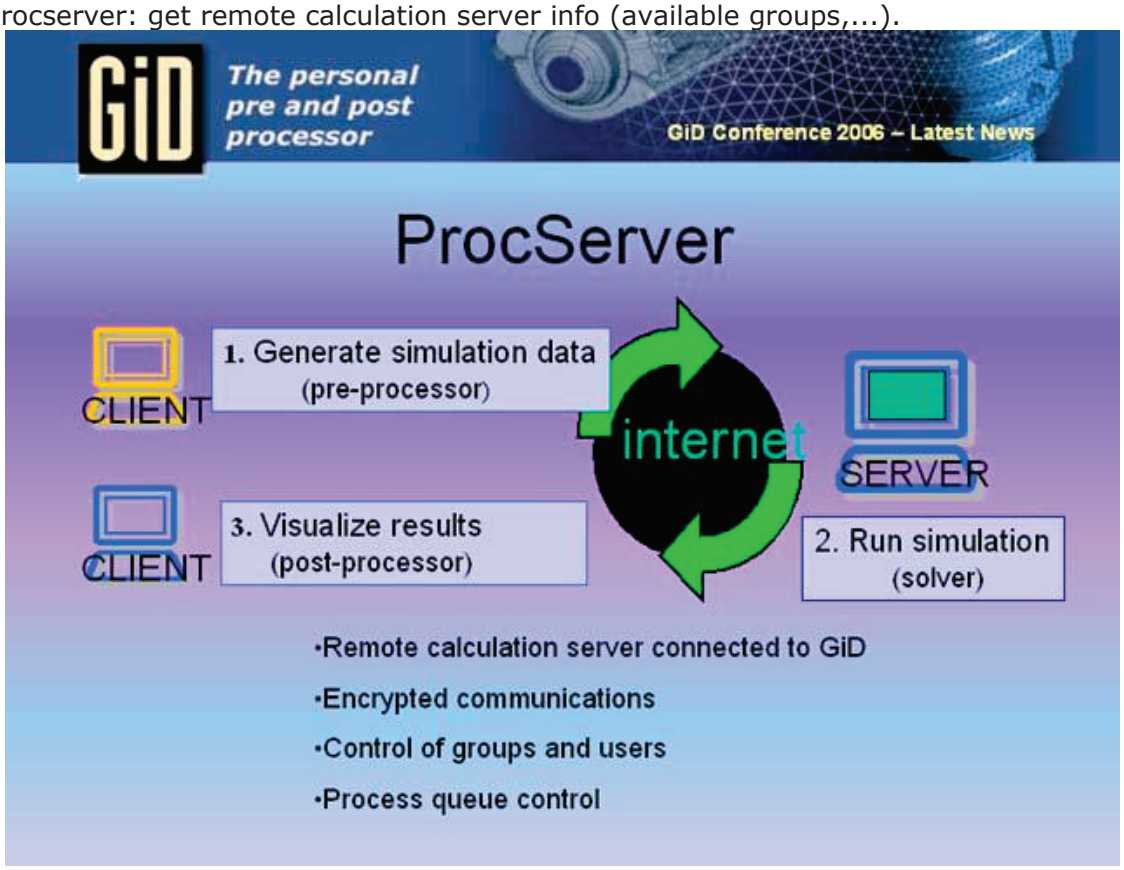
- Use of Dongle licences system, and memory sticks system.
- Bas template: new commands *SetFormatNastran, *ElemsMatProp *LayerNumEntities
- Render saved to disk to avoid to recalculate it.
- New mesh indicator of "shape quality", and "maximum edge"
- New mesh smoothing algorithm for tetrahedras
- ACIS 5.0 Export. New CAD export format



- Move node utility enhanced, deleting collapsed nodes and elements.
- Mesh from boundary command to generate tetrahedras from a triangle boundary.
- New utilities to mesh edit (smooth a selection and map nodes over geometry).
- Edge collapse enhanced.



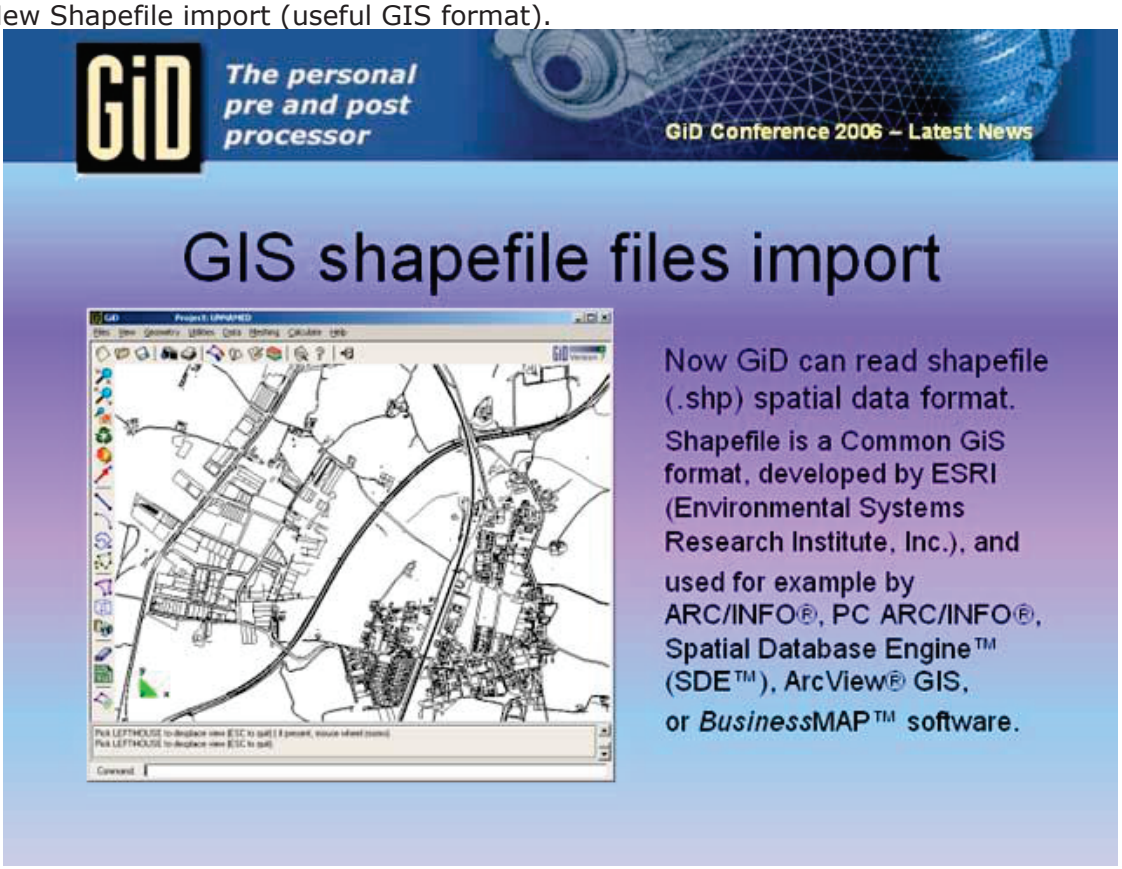
- Fast surface render for some simple cases.
- DXF export: try to export surfaces as 3Dface if possible or else an approximate polyface mesh.
- NASTRAN import: new GiD-tcl event procedures to process information in the problemtype.
- GiD-tcl info command: new order info parametric line|surface to obtain coordinates, derivatives, etc.
- IGES export: if the problemtype has model units, then write these units in the IGES output file.
- Import/export materials updated for book and special fields support, and accepted blank lines in material or condition file.
- New GiD-tcl command drawopengl to directly draw in GiD from tcl scripts.
- New specialized GiD-tcl commands to manage conditions, materials, local axes, mesh edit, etc (GiD_ModifyData, GiD_AssignData, GiD_CreateData, GiD_LocalAxes, GiD_IntervalData, GiD_Mesh).
- Variable 'CalcWithoutMesh' to write the calculation file without mesh entities (for some special problemtypes).
- It's possible to set the number of a new volume or planar surface (useful for scripts automatization).
- Procserver: get remote calculation server info (available groups,...).



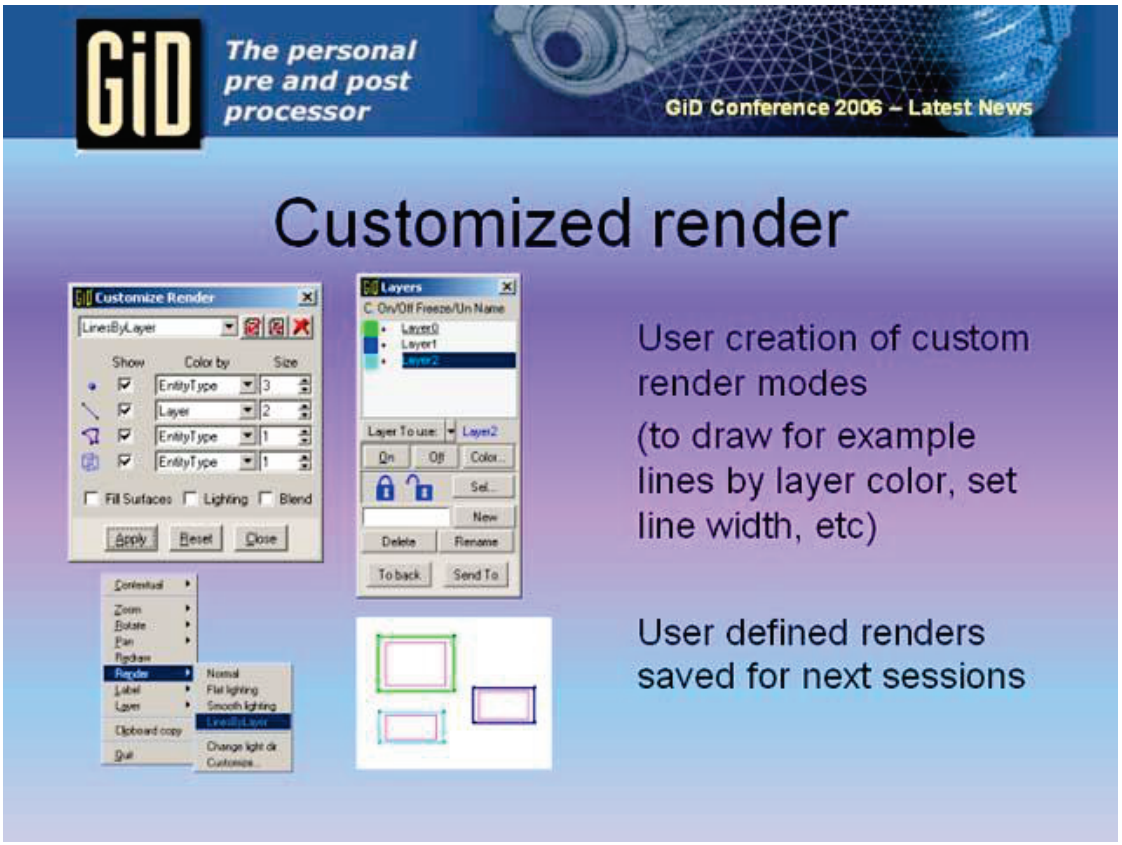
- General preference 'Shrink windows when selection' to resize some windows (layers, conditions...) when selecting to facilitate this selection.
- Play sound general preference: to play a sound when some task is finished.
- Tcl: new tcl-GiD event procedures BeforeMeshGeneration and AfterMeshGeneration.
- Tcl: it's possible cancel the calculation from the tcl-GiD event procedures

'BeforeWriteCalcFileGIDProject' or 'AfterWriteCalcFileGIDProject' returns '-cancel-' (to check data input before calculate).

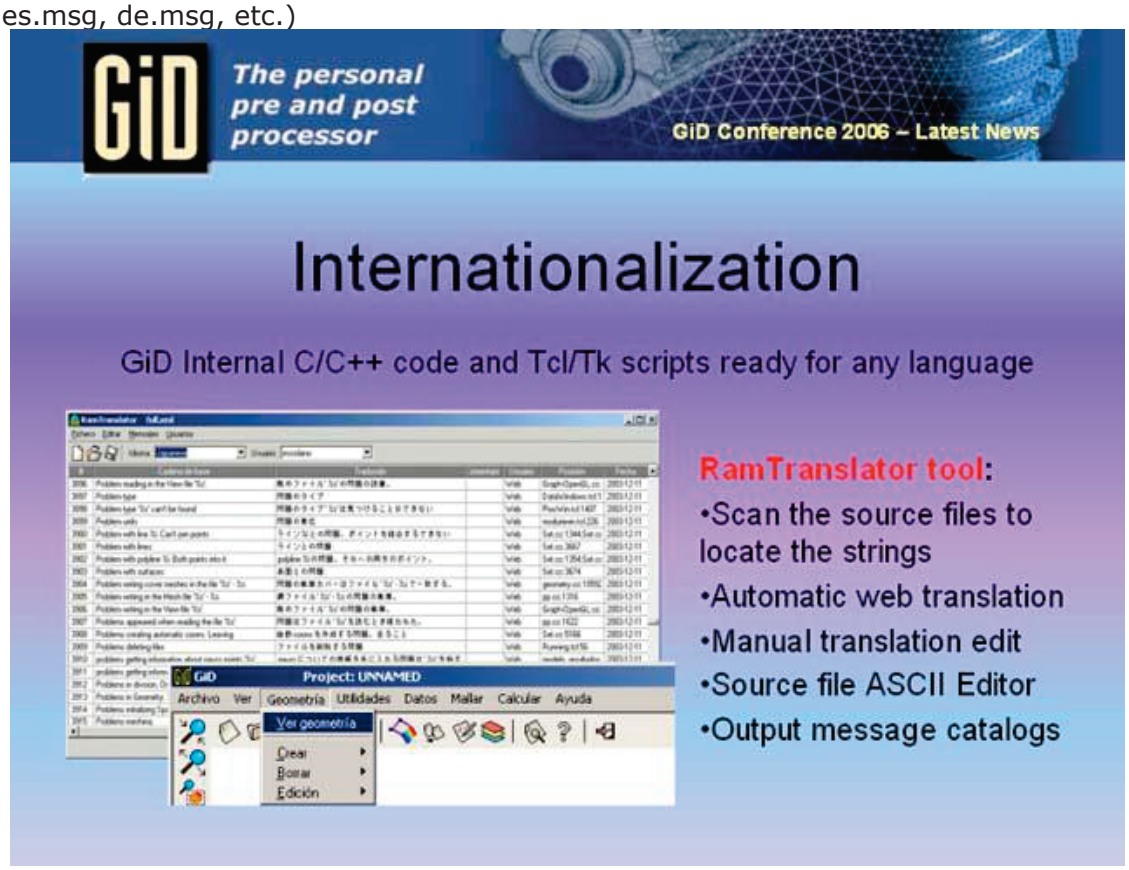
- Bas template: new commands *ElemsType, *ElemsTypeName, *SetFormatForceWidth, *SetFormatStandard, *nelem(OnlyPoints, *set elems(OnlyPoints).
- Backup: each GiD stores their own backup, and asks the user to restore the model if GiD crashes.
- Encryption functions.
- Tcl/Tk: internal GiD interpreter updated to Tcl/Tk 8.4.1 version.
- New Shapefile import (useful GIS format).



- Parasolid Import: updated to Parasolid 11 format.
- ACIS Import: updated to ACIS 7 format.
- Custom Render: The user can define new render styles, selecting the layer color to draw entities, the visibility, width, etc. (menu View->Render->Customize...)



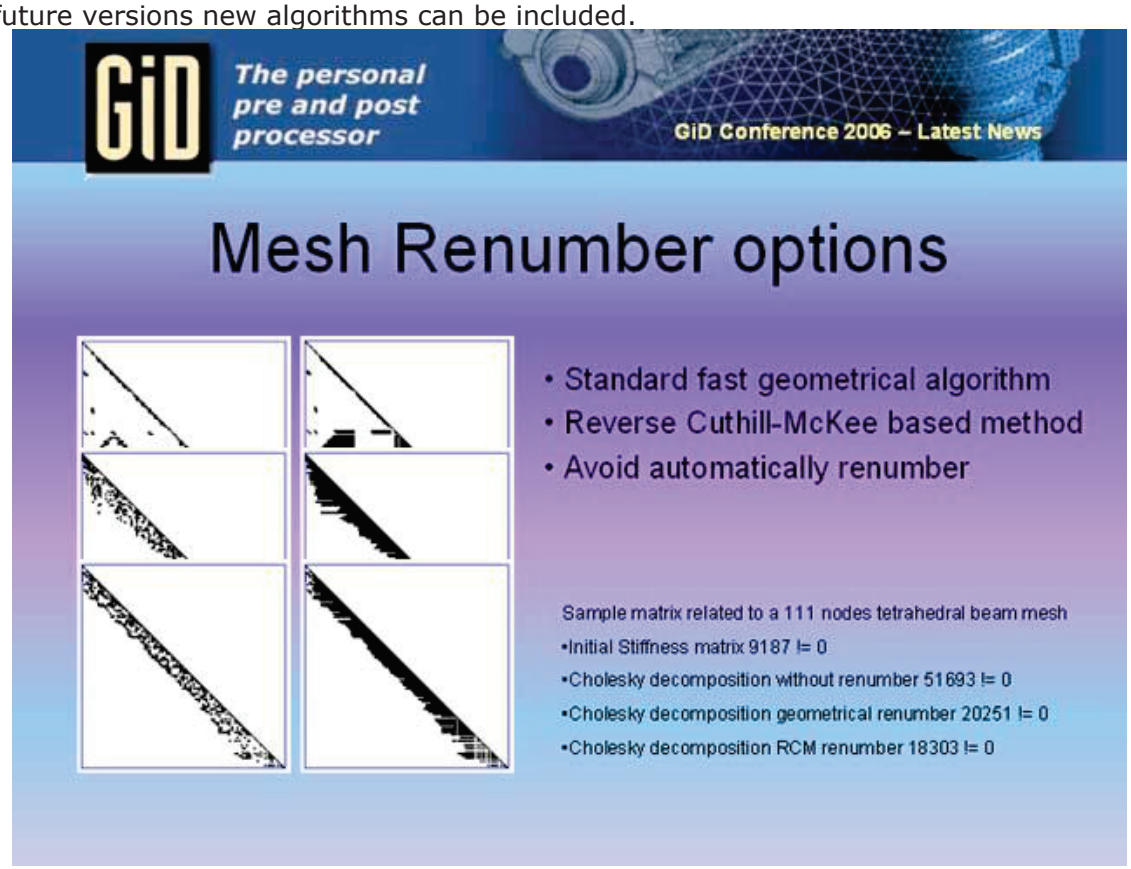
- Translation: Added to general preferences a language option. It's possible to add a new language copying inside scripts\msgs the appropiated language catalogue message file (es.msg, de.msg, etc.)



- Add to dev_kit.tcl some procedures to select GiD coordinates or entities:

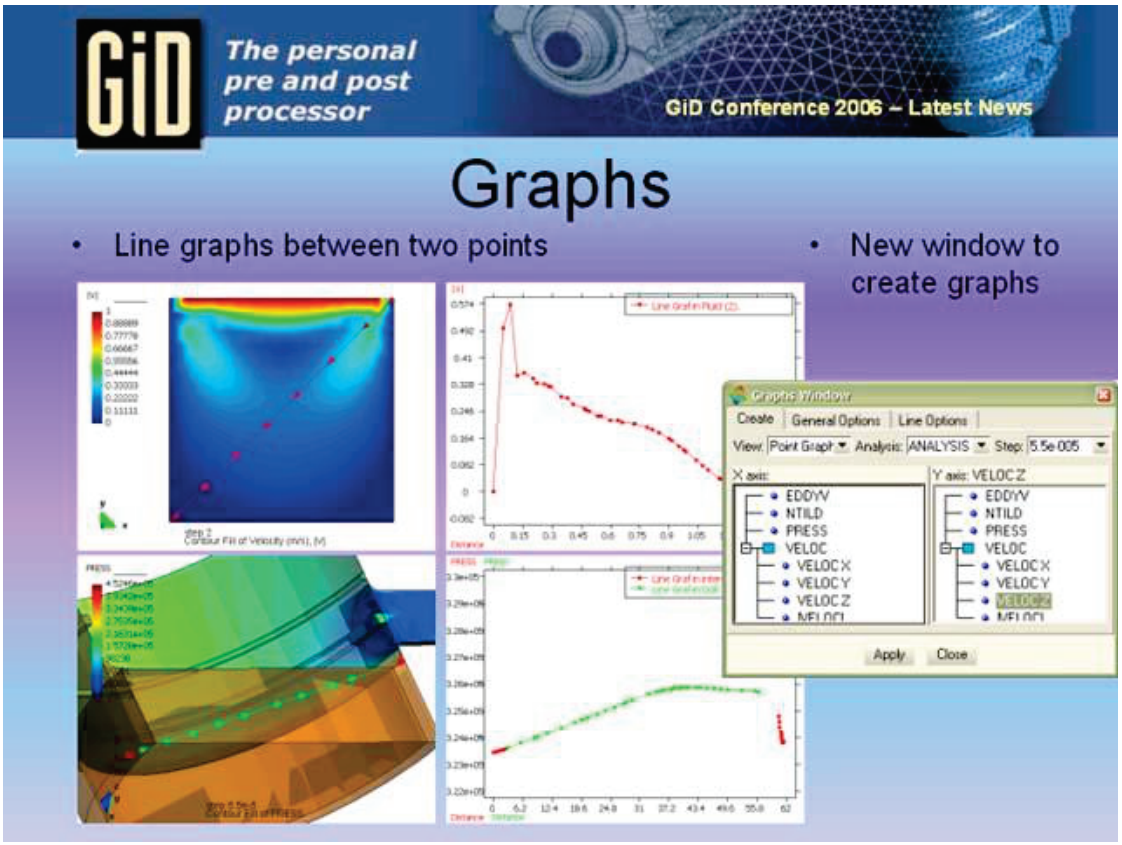
GidUtils::GetCoordinates, GidUtils::PickEntities (useful for tcl-problemtype developers)

- New mesh renumber option. Setting the variable 'RenumberMethod' to 1, after generate a mesh, the nodes are renumbered with a Reverse Cuthill-McKee algorithm. (setting 0 the old renumber method is applied, and setting -1 the mesh is not renumbered). For future versions new algorithms can be included.

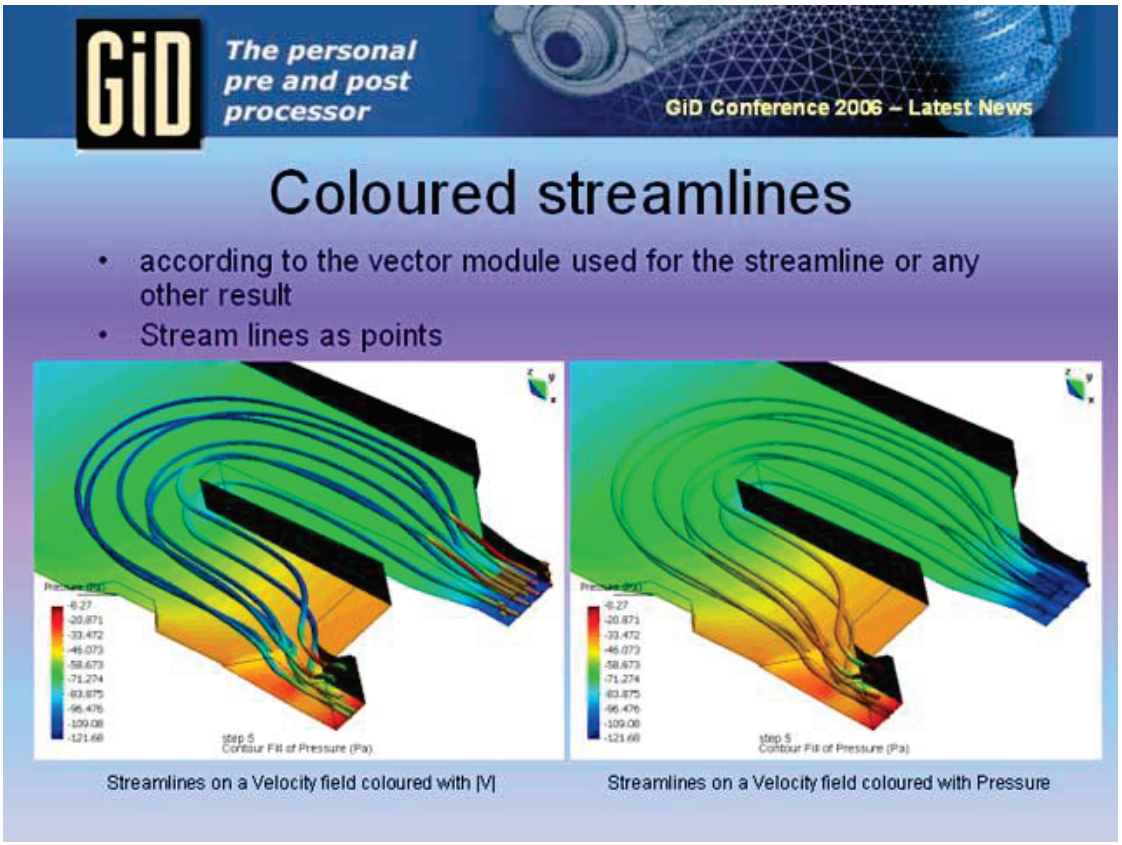


NEW FEATURES - POSTPROCESS

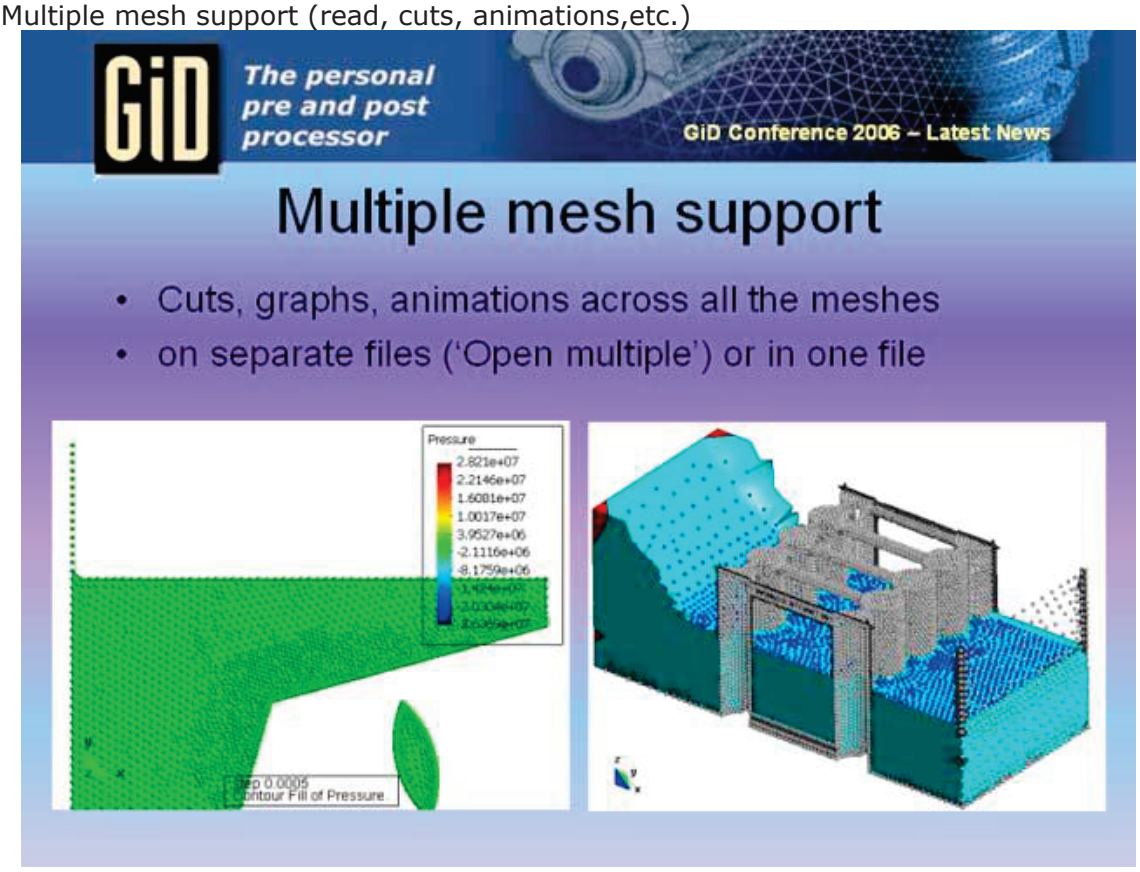
- 3D Studio .3ds import
- When user set upper or lower result limit, the legend show a box around fixed values
- Show graphs window replacing the old border graph window



- Multiple mesh and results in a single file
- Can use PNG images for background and textures
- Create graphs between two points in plain surfaces and 3d volumes
- Import NASTRAN mesh associated to FEMAP results
- JPEG Quality variable
- Changed the algorithm of stream lines to a five order Runge-Kutta and for triangles
- Coloured streamlines according to the vector used for the stream line or any other result



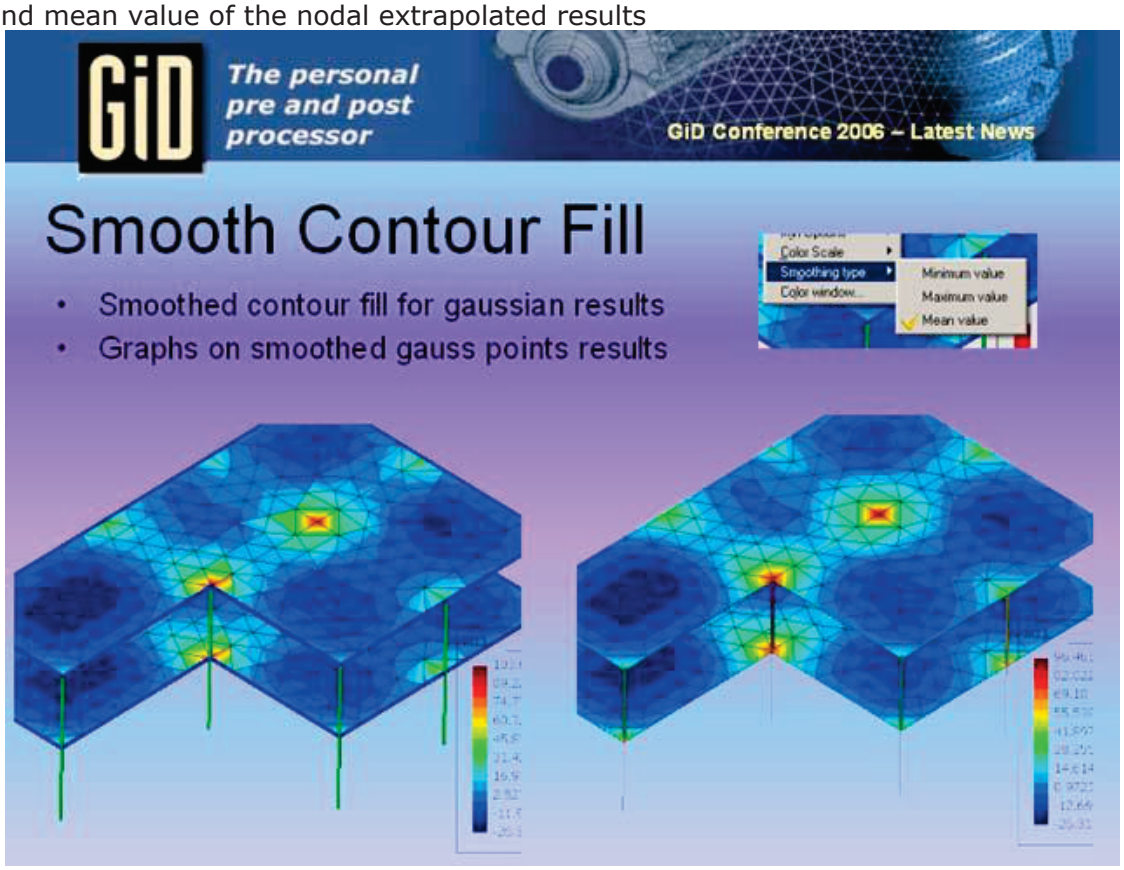
- Multiple mesh support (read, cuts, animations,etc.)



- Enhanced results window (use of a tree widget, etc)
- Show results classified in sublevels: "level_1//level_2"
- New GiD-Tcl commands: GiD_Result create|delete|get (to dynamically create, get or

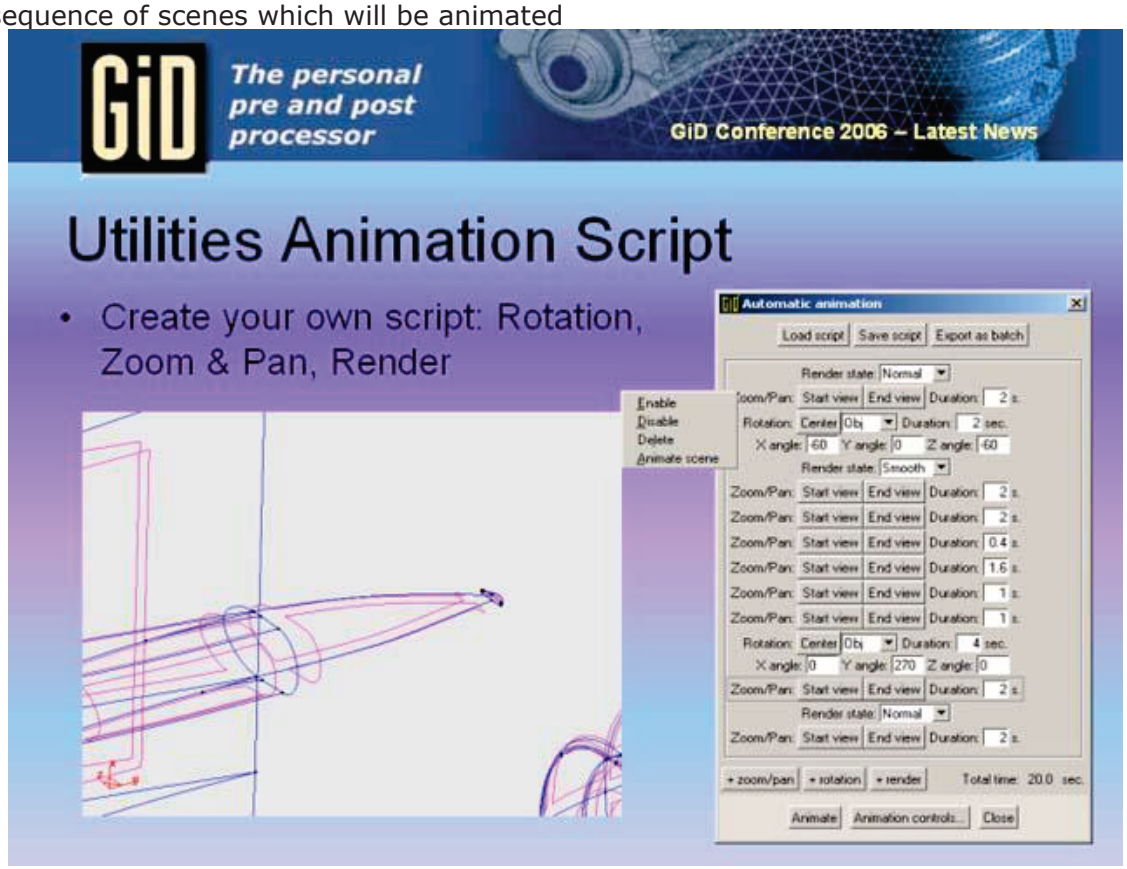
delete results from tcl)

- Femap v1.0 binary results import (.nfo)
- Option 'both sides' when divide mesh and sets
- Background image and texture also in JPEG format
- The lines of the volume meshes are also drawn when the option 'draw interior' is on, and not only the internal faces as before
- Cuts can be done giving the coefficients of the cut plane: Ax + By + Cz + D = 0
- Labels, dimensions, comments, legends and axes are scaled with High resolution printings (>200dpi).
- Smooth Contour fill: shows a contour fill with smoothed gauss points results: min, max and mean value of the nodal extrapolated results



- Changed the boundaries calculation algorithm, should be faster and uses a little less memory than before, also for preprocess-
- New 'Utilities->Report' window for creating reports: images, List Entities info, text, etc. can be inserted.

- New 'Utilities->graphical->animation script' window which allows the user to define a sequence of scenes which will be animated



- View can be accessed directly through TclTk with '.central.s info view' and '.central.s process view set view ""'

- New right buttons look

SOME CORRECTED BUGS - PREPROCESS

- DXF import support for encoded 3DSOLID ACIS entities
- Removed several static limits in the bas file
- Some ACIS 7.0 import corrections
- Sweep corrections
- IGES import (surfaces without lines)
- Several semi-structured mesh corrections
- Translation encoding corrections
- Corrected bug when drawing linear and cuadratic prism elements in flat and smooth render mode
- When re-meshing, if variable MantainOnldMesh is set to true don't delete elements on frozen layers
- DrawMaterials: don't show table of materiales on frozen layers
- Correctes problems when load tbe files
- Some corrections on transform materials
- Avoid to use excessive memory when generating hexahedras with lots of structured volumes.
- Corrected bad connectivities when generating structured meshes linked by volume-contacts
- Corrected a bug generating tetrahedras with background mesh sizes.
- Avoided geometric entities renumber when generate a mesh.
- Corrected a bug calculating the area of some trimmed surfaces.
- Swapped bad orientation of volume elements created with a copy/move by mirror.
- Corrected slow Reverse Cuthill-McKee renumbering with 1-noded elements.
- Corrected bug of additional random blank spaces in the calculation file.
- A condition over face elems is applied in a interface between materials to two elements instead to select only one.
- Corrected crash creating a surfmesh from a quadrilateral mesh.
- Corrected read/write bug of GiD ASCII files with conditions over layer.
- IGES import: more tolerant to files with incoherent data (bad parameter count field 14, etc.)
- IGES export: bad output file extension if the user not assigns any extension.
- Bas template: *break can exit a for or a loop
- Corrected Internet retrieve bug with some fast connections.
- Corrected mesh quality graph bugs with small elements.
- The user can cancel the 'quit' function if some process is still running.
- Check of bas numeric format before apply, to avoid crash using some incorrect format.
- Errors with temporary files with not occidental operating systems (Japanese, Korean, etc) using filenames with not ASCII characters.

SOME CORRECTED BUGS - POSTPROCESS

- Femap import corrections
- Stream lines can also be drawn as points

- Actualized the results visualized when meshes are switched on and off
- Corrected the problem with cut succesion
- The letters of labels are drawn always, and does not disappear
- Corrected and enchanced the stream-lines algorithm for stream near walls
- Try to read truncated binary result files.
- Corrected bugs when cutting hexahedras by a tangent plane
- Maintain layers colors as set colors
- Several texture corrections
- Correction of the 'Read Batch' windows which swallows the quotes of the batch file
- Independent behaviour for the 'animation controls' and 'animation results' windows
- Corrected the merge (ASCII) option which didn't merge partial values of the same result/step/analysis
- Some corrections when selecting results, analysis and steps with the same prefix
- Correction when cutting more than 100 meshes and when cutting volume meshes
- Correction when projecting a texture to the border of the mesh
- When changing the render style for the meshes, it changes the render of the isosurfaces too
- Some corrections for the legend and the contour fill ranges for extreme situations: range width too small, limits too close, < epsilon
- Correction while reading tecplot files with hexahedras
- Corrected some problems while animating several results at once
- Corrected bug when changing number of colors and contour fill and visualizing several results at once
- Corrected the Gauss points extrapolation with given natural coordinates and for quadratic elements
- Corrected bad precision calculating eigenvalues and eigenvectors for tensor results.

6 From v 6 to 7

What's new from version 6.0.x to 7.0.x

- The meshing parameters used and the GiD version are stored with the model. It is possible to list them with the Status command.
- Customization tcl variable GidPriv(TextOfVersion) in the ConfigureProgram.tcl file to show in the help (for example, to show the version of a problem type, not the GiD version)
- New tcl Order: ".central.s info GiDVersion" (returns the internal GiD version number)
- New tcl Order: info list_entities -more elements "selection" (-more also returns the element number, number of nodes and the volume)
- Use of enhanced memory to write the calculation file
- Draw of conditions over layer (the layer entities are drawn)
- New GiD-tcl events send to problemtype.tcl (proc EndGIDPostProcess {} and proc LoadResultsGIDPostProcess {file})
- New *.bas command *LocalAxesDefCenter (returns the center of the user defined local axis, similar to LocalAxesDef)
- Inline tutorials (see Help->Tutorials)
- Conditions Window: Entities->AllConditions (lists all conditions of the model)
- New *.bas commands *time and *clock to measure the time used to write the calculation file (useful for debug pourposes)
- The right buttons (hidden by default) now open the new conditions, materials, etc windows.
- Mesh extrusion enabled in the Copy window
- Split surface (menu Geometry->Edit->Divide->Surfaces->Split): used to divide a surface selecting the divide lines (these lines have to intersect the surface contours)
- New *.bas commands related to layers: (*Set Layer LayerName *nodes|elems, *Loop nodes|elems *OnlyInLayer, *NodesLayerNum *NodesLayerName *ElemsLayerNum *ElemsLayerName)
- Layer window updated
- Mesh only nodes (create elements with one single node)
- New import filter: ACIS V5.0 (files with ".sat" extension)
- Window to edit Nurbs lines and surfaces in "free-form" mode
- Option TangentNurbsL, to force two adjacent Nurbs lines to be tangents

- Boolean operations (union, intersection, subtraction) in "Solids 2D" (surfaces in same plane)
- Variable 'MaintainOldMesh', depending on its value the old mesh is not deleted when creating a new mesh (used to mesh separate objects by parts)
- Preference option to force the meshing of entities even if its higher entities are meshed.
- Nastran read enhanced
- Background mesh file, to assign mesh sizes (adaptative remesh)
- Layer commands in the .bas file (commands: *Loop Layer, *LayerName *LayerNum)
- New HTML help
- Utility to draw dimensions (vertex, distance, center, angle, text)
- Selection point: option center (arc or Nurbs with arc shape)
- Draw boundary mesh: interface of material is considered boundary
- Layers: classify in Front or Back (hide) containers
- Multiple surface intersection
- Division of a Nurbs surface selecting the lines to break
- Selecting entities: new options AddToSelection, RemoveFromSel or SwapSelection
- New selection filter window
- New filter selection by element type (e.g. filter:ElementType=TRIANGLE)
- Creation of a Boundary Mesh from a higher mesh (e.g. triangles from a volume mesh)
- RJump mesher: experimental option to create elements jumping between tangent contiguous surfaces
- Nurbs surface creation from a cloud of points or level curves (topographic applications)
- Now Conditions can be applied over layers
- HTML support to include help in your problem types
- New TCL functions to customize menus
- New command of the batch file. *****TCL "tcl command", to execute a tcl command in a batch file.
- New options available ("Element size" and "Minimum Edge") in the MeshQuality window.
- In the MeshQuality window, if you double click on a value, the elements below/over this value are selected.
- Option DrawSizes of the Meshing menu. Different assigned sizes in a mesh are represented in different colors.
- Optimization of the Edit Nurbs Line/Surface tool.
- Option SendLayToUse in the contextual menu sends the selection to the Layer in use.
- Option Smoothing in the mesh preferences.
- Option DrawHiger in the Utilities menu, it draws higher entities in different colors.
- New command of the .bas file, *ElemsNnode. This command returns the number of nodes of the actual element. (Useful in loops of elements)
- Option Collapse Edges. It has to be applied over a mesh, and it joins nodes that are connected by edges shorter than the Import Tolerance value.
- Now it's possible to invoke GiD with option **-n2**. That option runs the program without any window but the Tk library is loaded.
- New Tcl function available, GiDVersionCmp, useful to check the version of the GiD which is currently running.
- New command of the .bas file, **pow(a,b)**.

- 'Color Window' in contour options added.
- Legends, comments and axes can be moved around the screen.
- Enhanced Gauss Points support
- JPEG and MJPG support.
- TecPlot ASCII postprocess files supported.
- Femap neutral postprocess files supported.
- New Results file format: more understable.
- New results visualization types: contour ranges with text labels.
- Several improvements:
  - More accurate smooth render
  - More accurate cut elements generation
  - Better management of holes in result values
  - High resolution printing
  - Better gauss points management: contour values that cannot be extrapolated to the nodes, are drawn as coloured balls
- Points support, with variable radius and textures.
- Color improvements for vectors, stream lines, contours, sets, ...
- Separation of sets corresponding to materials or layers in preprocess.
- Names on Volume, Surface and Cut sets.
- Transparent and massive properties independent for each set.
- Added List status of sets, nodes and elements (entities) with results.
- New sets and Results can be merged into the current ones.
- New output possibilities: VRML, animated GIFs, PNG, AVI, pictures of multiple windows.
- Automatic results comments.

7 From v 5 to 6

What's new from version 5.0.x to 6.0.x

Preprocess

- New option 'Arc tangents' let the user create a fillet between two lines that share a common end point.
- When creating a NURBS surface, if all lines lie in a plane, it is possible to select the boundary lines and the interior lines defining holes at the same time.
- It is possible to create a NURBS surface by selecting one line, One surface containing this line will be created.
- It is possible to create a volume by selecting one surface, One volume containing this surface will be created.
- When volume cannot be meshed, surfaces with bad quality are exposed tot he user in order to help him improve the geometry.
- Last meshing size is saved with the GiD model and it appears in the status window and also in the ".central.s info project".
- Now, one condition over elements can have automatic local axes.
- New 'View' menu in the up menus. It contains mostly the same commands than the 'right button menu' but adding the command 'Multiple windows'. This command permits to have several views of the same project.
- New option 'Transform problem type' inside menu 'Problem type' in order to adapt data from an old problem type to a similar newer one.
- New window Assign sizes by cordal error. It allows to select one line to check the approximate number of elements that a given cordal error would apply in that line.
- New window 'Correct sizes'.
- New window 'Macros'. There, several macros can be defined and some keyboard shortcuts applied to them.
- New non structured quadrilateral mesher.
- New mesh quality criteria: Maximum angle.
- Added more filters to the selection (when selecting entities write'filter:' in the command line) Current filter options are: HigherEntity MinLength MaxLength EntityType BadMinAngle BadMaxAngle MinLength and MaxLength can be used also in elements of the mesh.
- Option Mass in list entities gives information about physical properties: length of lines,

center of masses, area of surfaces, and volume of solids. It works either for the geometry or for the mesh.

- Actualized DXF import filter to version 2000.
- New import filter: PARASOLID
- New export filters: DXF
- Creation of solids: new solids can be created and some of them create the surfaces and the interior volume.
- Boolean operation with solids (volumes). Union, subtraction, intersection.
- Import ASCII and binary STL mesh (also in the surfmesh option).
- Condition MESHTYPE can now be: 'over nodes', 'over face elements' or 'over body elements'.
- There is a new preference to set on or off the 'splash window'.
- There is a new option that converts the selected NURBS lines or surfaces to other ones very similar to the originals but with and easier definition
- The reference manual has a detailed example of problemtype creation.
- Preference: 'Surface drawing type' permits to draw the iso-parametric lines in u,v=0.5 for NURBS surfaces.
- A background image can be scaled to the size of the window or can be linked to three points of the real model.
- Variable 'AllowAutomaticStructured' goes to the preferences window.
- It is possible to create volumes when copying surfaces with option 'extrude'.
- Smooth elements is now a checkbox in preferences and the angle is given in degrees.
- It is possible to obtain interactive help with mouse button 2 or 3 over many windows and options.
- Conditions window have a new option to differentiate the entities where it has been assigned, drawing several colors in the window.
- New field #FUNC# can be included in a condition. This is a function that has, as variables, the geometry entity num and the position o fthe mesh element or node. It is evaluated when meshing is finished or when assigning to mesh.
- Now, there can be surfaces in symbols definition (*.geo). Useful for renders.
- Added in right button mouse menu the rotation commands: plane XY,XZ,YZ
- It is possible to delete one material or take it out from the database. This func is mainly for automatization.
- Implemented the quadratic 10-noded tetrahedra.
- Implemented quadratic surface (2D) contacts.
- Implemented a mechanism to detect errors in the execution of external process and notify the user.
- Just before calculating, GiD changes current directory to the model directory.
- When calculating, if there is and error when writing the calculations file, process is stopped.
- When finished generating mesh, a window with number of generated elements and nodes appear.
- When writing the calculations file, command *LocalAxesDef(EulerAngles) in the .basfile outputs the three Euler angles.
- Options 'Calculate' and 'CancelProcess' are included in right menu 'Utilities' and also in

the 'Calculate' up menu. This is useful because they enter in a batch file.
- A new way of creating local axes: by axe X and angle.
- Now, problemtypes can be stored in the subdirectory 'problemtypes' and subdirectories inside it forming a tree.
- Added a ClearSelection option to all the functions that select entities.
- Function Signal entities has a new option : SuperposeLines.
- Implemented a new rendering scheme where a hidden mesh is generated. Added new preference variable: SurfacePrecision.
- Now, when giving a number for a new entity to be created, if there is already one entity whith this number, its number is changed.
- Option *NodesCoord can be now inside *loop elems. It needs an additional argument that gives the local number of the node inside the element.
- When layer ToUse is set to off, ToUse is set to NULL. It means that next created entity will not be in any layer. Pressing again in ToUse with that layer selected, it will permit to use it as active. This process is made to avoid the problem of switching to off the layer ToUse and when creating new entities, they disappear from screen. Very annoying!.
- Option to avoid meshing entities in frozen layers.
- Option Allow automatic structured. If this preference is set, functions like 'Assign sizes by Cordal Error' will define some surfaces as structured with highly distorted elements over them.
- When volume cannot be meshed, surfaces with bad quality are marked.
- Last meshing size is saved in the model file and it appears in the status window and also in the "info project".
- Import/export materials from one exterior database to the current model.
- Convert to NURBS surfaces accepts the selection of several surfaces.
- It is possible to select the boundary lines and the holes at the same time when creating NURBS surfaces (planar) and when trimming one NURBS surface.
- Option Search in create NURBS surfaces lets the user select one line and creates one surface that contains this line.
- Option Search in create volume lets the user select one surface and create all the volumes that contain this surface.
- Implemented offset for the geometry.
- Now, when creating one arc, the second point will always be contained inside it.
- It is possible to change the sense of all line types. Also if they have higher entities.
- It is possible to change the default color of several entities when displaying in normal mode (norender).
- New copy and move operation: Offset.
- Color of geometrical entities in normal render mode can be selected by the user.
- When intersecting surfaces, by default the resulting surfaces are divided.
- New *tcl command in template file (.bas)

Postprocess

- Added Standard Bar with common buttons like new, open, print, exit, ...
- Added 'Animation controls' window that allows to create movies while rotating, moving,

etc. between pre and post automatically or at user request.

- Added GIF, BMP and PPM output.
- Animations can be saved in AVI True Color, AVI 32768 colors and GIF animated format.
- Support for 'high resolution' textures, so images can be of any size.
- Added a 'High resolution' option that allows the creation of high detailed pictures.
- Added a 'Page Setup' window to facilitate the printing process.
- Added command line option to activate 'software rendering' in windows, as workaround for problems appeared while using accelerated OpenGL.
- Added beam and points elements.
- Enhanced the mesh format to allow mixing of elements on the same file.
- Added Gauss Points Support for lines/triangles/quadrilaterals/tetrahedras/hexahedras: now and old format on manual.
- Support for multiple gauss points on several meshes (with the same or different element types).
- ContourFill/ContorLines and others will do a local interpolation from gauss points with internal coordinates to the nodes to draw the results.
- Added new result type (main stresses vectors: data_type = 5: vector_1 vector_2 vector_3 mod_1 mod_2 mod_3
- Added new result type (local axes): data_type = 6: angulo_euler_1 angulo_euler_3 angulo_euler_3local axes are drawn.
- On 'Files' menu added several options:· Save 'as ASCII files': saves all the postprocess meshes/sets and results on ASCII files.· Save 'as one binary file': saves all the postprocess meshes/sets and results on one binary files to speed up further loading processes.· Save 'Binary results': saves the results on one binary file to speed up the switch between pre and postprocess.
- Added join sets to create one set that withholds several ones.
- Added collapse nodes option to collapse very near nodes on the viewed sets.
- Undesirable meshes/sets/cuts can be deleted.
- Added 'Status' window and list>nodes/elements options.
- Added divide lines: to extract lines from a set.
- Added options 'exact' and 'parallel planes (with distance)' when dividing sets.
- Cuts can be converted to sets, for further cuts, or to save them with theirs results.
- By default the last step of the analysis is selected.
- Each component of Main stresses can be selected individually when doing "display vectors"
- One axis of the local axes result type can be selected when doing "display vectors".
- Added scalar and vector diagram result visualization, useful for lines when drawing beams, with 'show elevations' option.
- Added 'Define Contour Limits' window, 'define max/min limit' and 'reset limits' entries on the icon bar.
- Legends can be displayed outside the graphical windows in a independent window.
- Point Options windows added, which allows changing point size and detail (with textures). Also acts on vectors when using the 'point' ending.
- Line Options windows added, which allows changing line size and detail. Also acts on streamlines.

- Added 'Utilities>Redisplay' option to redo contourfills, contourlines and vectors after changing options.This is automatically done when changing some options through the 'top menu'.
- Added option 'VectorDetail' to allow changing between: point/lines/2/4/8 triangles to draw the arrows head of vectors.
- Added option 'no label' for streamlines.
- Added option 'fix absolute limits' to fix limits for all meshes/sets and all steps.
- Geometry/Mesh Conditions can be shown when a project is loaded in preprocess.
- Added a 'border graph' window that make easier the creation of border graphs.
- Added option 'Step delay' and 'add step' to add whole steps to animation file, instead of adding several frames to reach the delay.
- Changed algorithm to get lines and triangles of volume meshes, 80% faster