

SALOME 6.3.0

Public release announcement

June 2011



GENERAL INFORMATION

CEA/DEN, EDF R&D and OPEN CASCADE are pleased to announce [SALOME](#) version **6.3.0**. It is a public major release that contains the results of planned major and minor improvements and bug fixes against SALOME version 5.1.5 released in December 2010.

SALOME version 6.3.0 provides the results of the porting of SALOME to the newer versions of 3rd party prerequisite products. In addition, SALOME 6.3.0 includes several new modules like PARAVIS (new post-processing module based on Kitware's ParaView application), HEXABLOCK (hexahedral meshing by creating of a model of the blocks), HOMARD (the adaptation of the mesh generated by the Homard solver for the SALOME platform), new sample modules and tutorials, etc.

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NEW FEATURES AND IMPROVEMENTS

PREREQUISITES CHANGES

The table below provides a list of pre-requisite products for SALOME 6.3.0. This table shows the differences of 3rd-party product versions used for SALOME 6.3.0 and 5.1.5; the changes are highlighted in bold.

Product	SALOME 5.1.5	SALOME 6.3.0
Boost	1.40.0	1.46.1
Open CASCADE Technology	6.3.0 service pack 10	6.3.0 service pack 12
CMake	2.6.4	2.8.4
Docutils	0.6.0	0.7.0
doxygen	1.6.1	1.7.3 ¹
Expat	2.0.1	2.0.1
Graphviz	2.24.0	2.26.3
HDF5	1.6.9	1.8.4
Homard	-	10.1
Jinja2	2.2.1	2.5.5
LAPACK	3.2	3.3.0
libBatch	1.2.0	1.3.0
Libxml2	2.6.27	2.7.8 ²
Med	2.3.6	3.0.3
METIS	4.0	4.0
NETGEN	4.5	4.9.13
NumPy	1.3.0	1.5.1
omniORB	4.1.4	4.1.5
omniORBpy	3.4	3.5
omniNotify	2.1	2.1
Pygments	1.0	1.4
ParaView	-	3.10.1
PyQt	4.5.4	4.7.3
Python	2.4.4	2.6.6
QScintilla	2.4	2.4.3
Qt	4.5.2	4.6.3
Qwt	5.2.0	5.2.1
Scotch	4.0	5.1.11
setuptools	0.6c9	0.6c11
SIP	4.8.2	4.10.2
Sphinx	0.6.3	1.0.7
SWIG	1.3.40	1.3.40
Tcl	8.4.14	8.4.14
Tk	8.4.14	8.4.14
TclX	8.3.5	8.3.5
VTK	5.0.4	5.8.0 ³
Distene Blsurf ⁴	2.8	3.0
Distene TetMesh-GHS3D	4.1	4.2 + 4.1 ⁵
xdata	0.7.3	0.9.1

For additional information about pre-requisite products and SALOME modules dependencies refer to the paragraph "[Supported Linux distributions and pre-requisites](#)" below.

¹ Patched for SALOME (bugs in doc tree javascript)

² Patched for SALOME (bug for 64bit platforms)

³ Included to the ParaView distribution

⁴ Not supplied with the SALOME Installation Wizard

⁵ Version 4.1 is required to prevent bug in ghs3d 4.2

LICENSE RESTRICTIONS

- Hereby we explicitly declare that PyQt 4 toolkit (Riverbank Computing Ltd) is distributed under the terms of GPL license.

IMPORTANT API CHANGES

SALOME 6.3.0 includes some major API changes that might cause compatibility problems with the 3rd party source code, depending on SALOME. This paragraph lists most important changes that have to be taken into account by the developers.

- `Engines::Component` CORBA interface from the KERNEL module (`SALOME_Component.idl`) has been renamed to the `Engines::EngineComponent`.
- The function `Destroy()` of `SALOME::GenericObj` CORBA interface (`SALOME_GenericObj.idl`) has been replaced by the `UnRegister()`. The function `Destroy()` is kept for the compatibility reasons but it is considered obsolete and will be removed in future; it's recommended to use `UnRegister()` instead.
- The function `DumpStudy()` of `SALOMEDS::Study` CORBA interface (`SALOMEDS.idl`) and function `DumpPython()` of `SALOME::Component` CORBA interface (`SALOME_Component.idl`) have been extended with an additional Boolean parameter `isMultiFile` that specifies the mode the python dump operation is performed: 1 (true) means multi-file mode and 0 (false) means single-file mode.
- Function `Import()` of `GEOM::GEOM_IInsertOperations` CORBA interface (`GEOM_Gen.idl`) has been replaced by `ImportFile()`.
- The API of the MED module (mainly MEDMEM package) has been significantly modified to reflect changes in the API of the med library (v3.0).

OBSOLETE MODULES

Since version 6.3.0 of SALOME, MULTIPR module is considered obsolete and is no more supported. It is not included to the distribution of SALOME 6.3.0.

NEW MODULES

SALOME version 6.3.0 introduces several new modules:

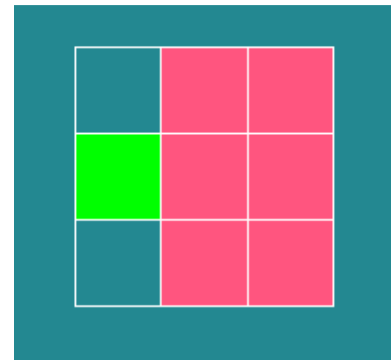
- **PARAVIS** – new visualization module representing an integration of the Kitware's ParaView application into SALOME platform. ParaView is an open-source, multi-platform data analysis and visualization application. ParaView users can quickly build visualizations to analyze their data using qualitative and quantitative techniques. All features of ParaView application are available in SALOME via the Paravis module.
- **HEXABLOCK** – aims at helping users to build hexahedral meshes by creating of a model of the blocks, association of this model to the geometry and mesh generation by splitting of the specified blocks. *Note: this module is still under development and delivered only for testing purposes. The first version for the users will be available in SALOME version 6.4.0.*
- **HEXABLOCKPLUGIN** – the plugin for SALOME Mesh module based on the HEXABLOCK.
- **HOMARD** – the module provides means for the adaptation of the mesh generated by the Homard solver for the SALOME platform.
- New sample modules:
 - **ATOMIC** – an example of complete light-weight (no-CORBA) module.
 - **ATOMGEN** – Python-based component with the CORBA engine.
 - **ATOMSOLV** – example of the component with the CORBA engine implemented with C++.
 - **TUTORIAL** – complete user's guide that provides step-by-step instructions how to implement new SALOME components.

IMPROVEMENTS

New Mesh Controls

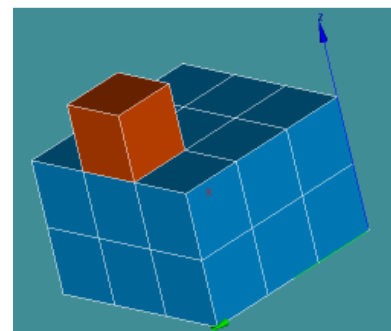
Over-constrained faces

This mesh quality control highlights faces sharing only one of the borders with other faces.



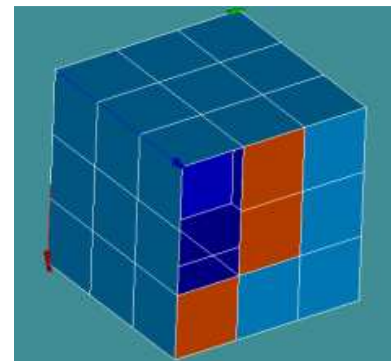
Over-constrained volumes

This mesh quality control highlights volumes sharing only one of the borders with other volumes.



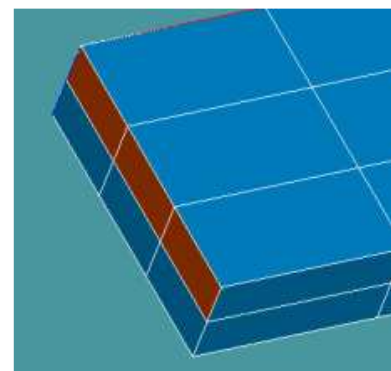
Bare border faces

This mesh quality control highlights the faces with borders not shared with other faces (free borders) and without the edges based on the nodes of the free borders.



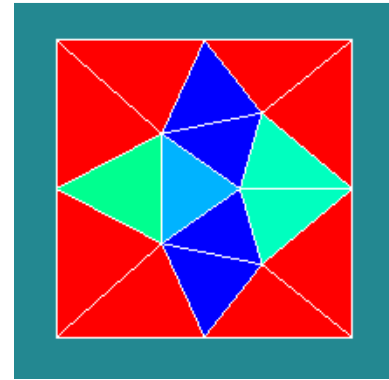
Bare border volumes

This mesh quality control highlights the volumes with borders not shared with other volumes (free borders) and without the faces based on the nodes of the free borders.



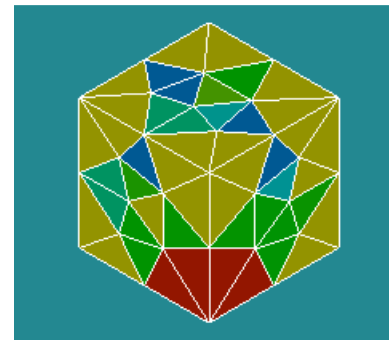
Element Diameter 2D

This quality control criterion highlights 2D mesh elements (triangles and quadrangles) basing on the calculated length of edges and diagonals combining them.



Element Diameter 3D

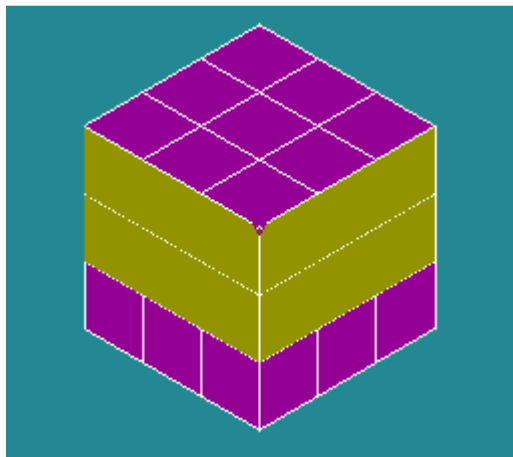
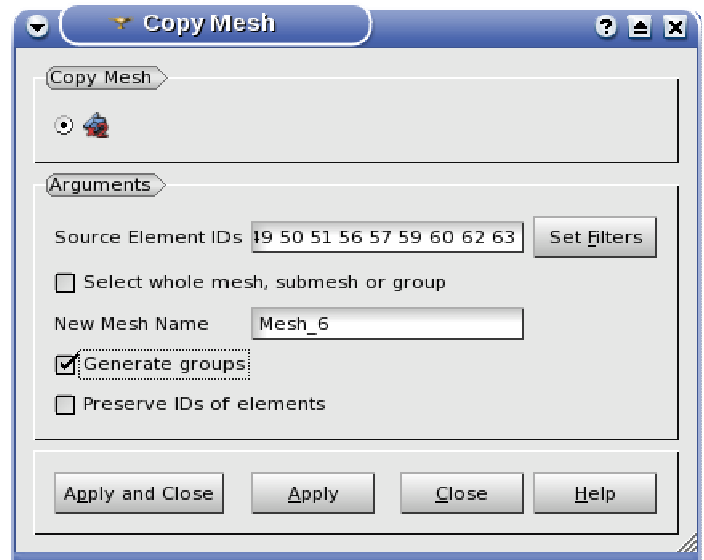
This quality control criterion highlights 3D mesh elements (tetrahedrons, pyramids, pentahedrons, hexahedrons and polyhedrons) basing on the calculated length of edges and diagonals combining them.



Copy mesh

New **Copy Mesh** functionality allows creating a mesh by copying a part of or the whole other mesh.

It is possible to select the whole mesh for copy, apply filters to mesh elements, input element IDs or select elements directly in the viewer.

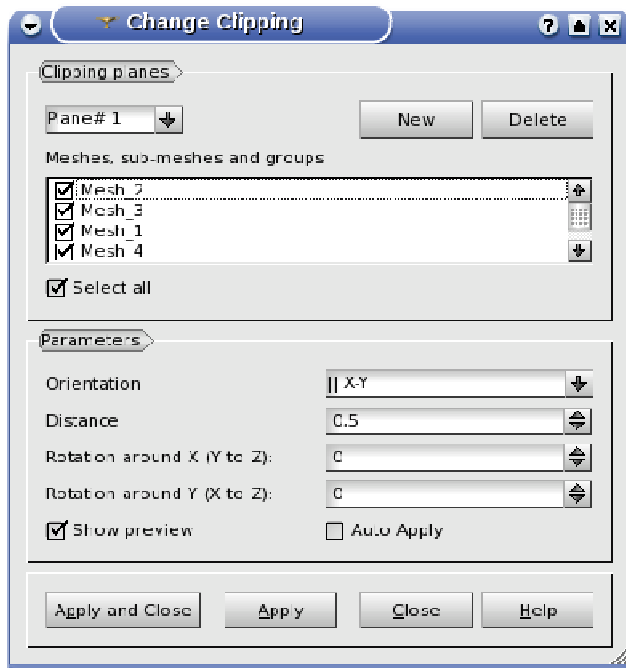
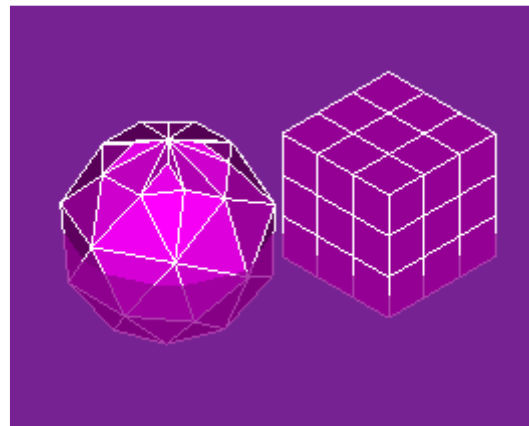


In the image, the initial mesh is violet and the elements selected for copy are yellow

Clipping on several meshes at once

It has become possible to create clipping planes on several meshes, sub-meshes and groups at once.

In the image two meshes: sphere and box are cut by the same clipping plane.



Change Clipping dialog has been extended by a list control, which allows selecting and unselecting presentations to which the corresponding clipping plane will be applied.

Select All button below this list allows selecting/unselecting all available mesh presentations at once.

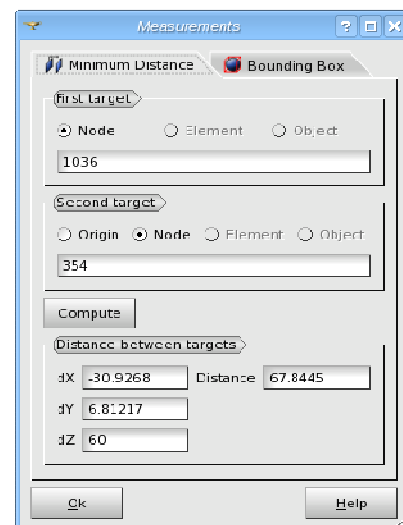
Change Clipping dialog now can be activated even if no meshes are selected.

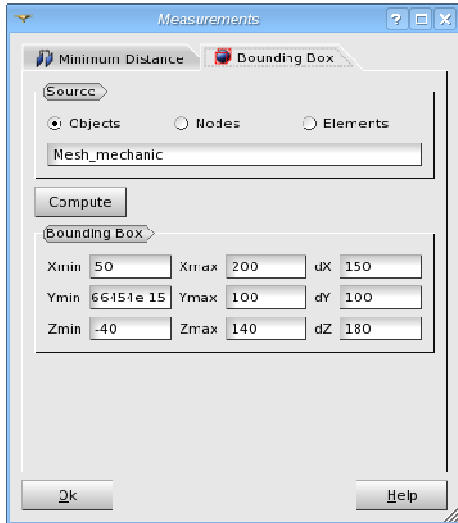
Mesh measurements

Two measurements operations have been added to the Mesh module. These operations are available via the **Measurements** main menu.

Minimum Distance operation allows measuring of the distance between different objects.

For the current moment the operation is limited by the nodes only but in future it will be extended to support mesh elements, meshes, sub-meshes and groups.



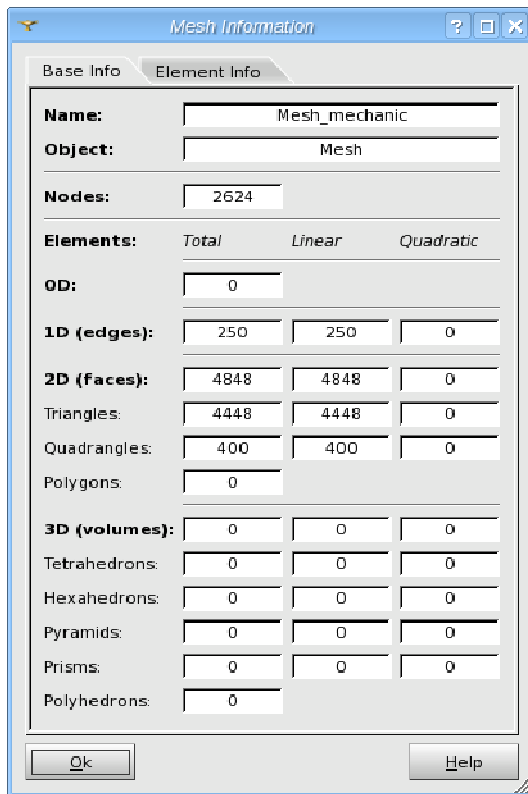


Bounding Box operation allows calculation of the bounding box for the selected mesh data.

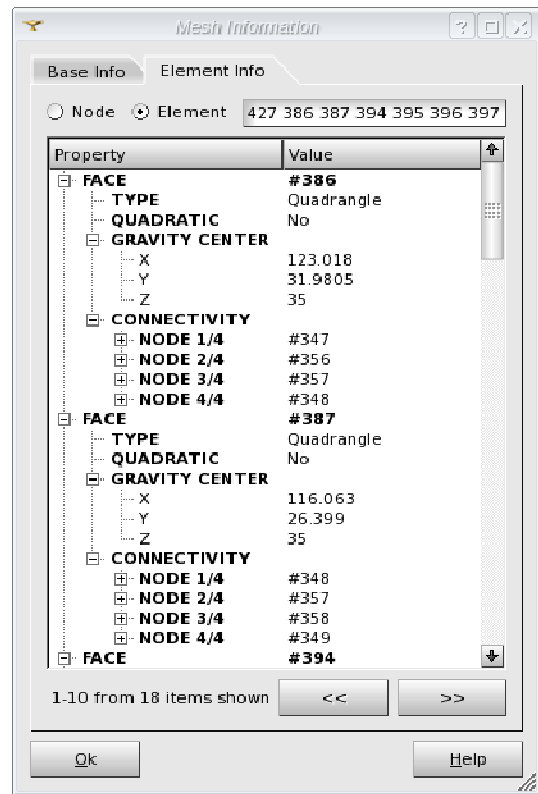
For the current moment this operation is supported for the mesh, sub-mesh, mesh group, arbitrary set of nodes, set of elements.

In addition, the Mesh Information dialog boxes have been redesigned:

- **Standard Mesh Infos** dialog box has been eliminated as obsolete.
- **Advanced Mesh Infos** and **Mesh Element Info** dialog boxes have been combined to the single dialog box **Mesh Information** with two pages (see images below).
- Single main menu action *Mesh* → *Mesh Information* provides now access to the redesigned **Mesh Information** dialog box.

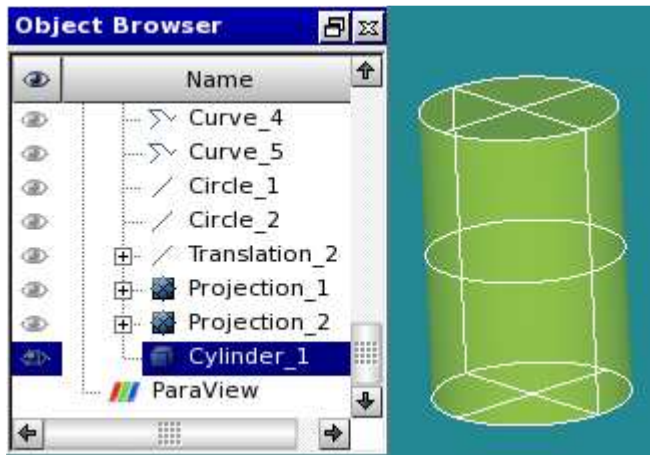


“Base Info” page



“Element Info” page

Object Browser scrolled to newly created objects



The newly created Cylinder is automatically selected in the Object browser.

Automatic browsing to the published objects has become available in GEOM, SMESH and VISU modules. When the feature is enabled, the object browser scrolls to the objects just published to the study (using GUI dialogs), makes them visible if they are collapsed and selects the first of them.

This feature has three modes of work available via the Preferences dialog box: SALOME → Object browser → Object browser settings → Browse to the published object.

- **Never** - automatic browsing is always disabled
- **After Apply & Close only** - browsing is activated when the dialog is accepted by "Apply & Close" or "OK" buttons (or if the objects are published without using a dialog, for example, by clicking a context menu button) and not activated when the "Apply" button is pressed and therefore the dialog remains visible
- **Always** - automatic browsing is always enabled.

Preview Operation Results

It has become possible to preview the result of operation using **Preview** checkbox in the GUI dialog. The following operations are concerned:

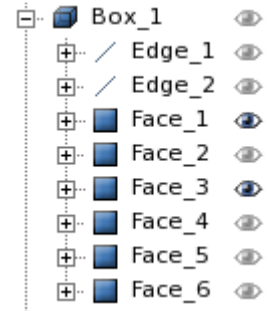
- In Geometry module:
 - Basic: Curve Construction.
 - Generation: Extrusion, Revolution, Filling Surface with Edges, Pipe Construction.
 - Advanced: Pipe TShape Construction.
 - Boolean: Fuse, Common, Cut, Section.
 - Transformation: Translation, Rotation, Modify the Location, Mirror, Scale, Offset Surface, Multi Translation, Multi Rotation.
 - Blocks: Multi Transformation.
 - Operations: Partition of Object with Tool, Archimedes, Get shapes on shape, Get Shared Shapes, Fillet (1D-3D), Chamfer.
- In Mesh module:
 - Modification: Extrusion, Extrusion along a path, Translation, Rotation, Symmetry, Scale.

The corresponding selector has been added in module preferences to define the default state of the preview check box in these dialogs.

Visibility icons

Object browser **visibility icons** now allow showing/hiding objects in one click (“eye” icon in the “visibility” column, see image to the right).

The state of the “eye” icon represents current “visibility” property of the object according to the currently active 2D/3D view.

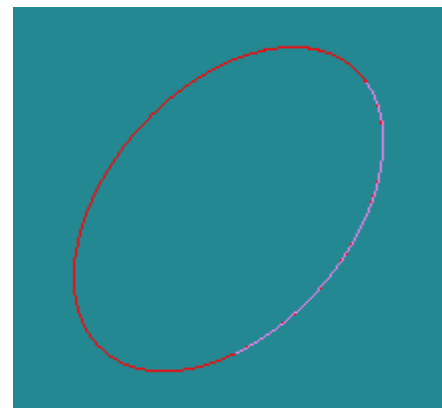


Create Edge from another Edge and Length

It is now possible to build an **Edge** of required **Length** on any existing **Edge**.

Length can exceed the length of the initial edge length or be negative. In this case the existing edge is extrapolated along its curve (except for bezier and b-spline curves).

Start Point parameter is optional (if missed, the start point of the initial edge is used) or allows selecting any point: the start point of the new edge will be selected as start or end point of the initial edge whatever closest to the selected Start Point.



Curve (violet) is built on a circle (red)

The TUI Command for this operation is

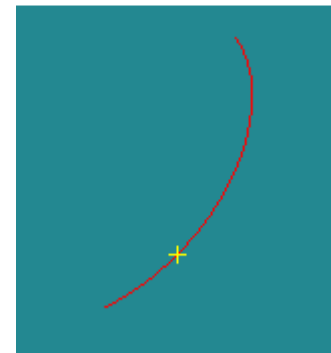
```
geompy.MakeEdgeOnCurveByLength(Edge, Length, StartPoint = None)
```

Create Vertex by Edge and Length

It is now possible to define a **Vertex** by an **Edge** and a **Length**.

Length defines the position of the point on the given edge. It can exceed the length of the edge or be negative. In this case the edge is extrapolated along its curve (except for bezier and b-spline curves).

Start Point defines the direction for the length calculation (if not defined, the first vertex of the Edge is used).



The TUI Command for this operation is

```
geompy.MakeVertexOnCurveByLength(Edge, Length, StartPoint=None)
```

Improved definition of Hypotheses

Automatic Triangulation and **Automatic Quadrangulation** have been added in the list of hypotheses sets that can be opened by *Assign a set of hypotheses* button in **Create Mesh** dialog box. In this list, set of hypotheses names are automatically grouped according to the dimension and prefixed.

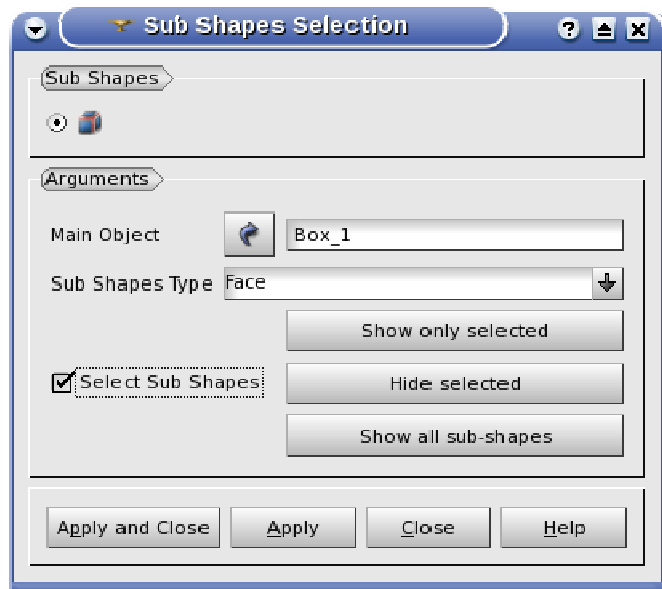
- 3D: Automatic Tetrahedralization
- 3D: Automatic Hexahedralization
- 2D: Automatic Triangulation
- 2D: Automatic Quadrangulation

It is also possible now to define custom hypotheses sets that also can be available with the "Assign a set of hypotheses" button. For this the user should create own XML file with hypotheses sets description and locate it in ~/CustomMeshers.xml. Custom hypotheses will be taken into account on SMESH module initialization and their names shown with appended "[custom]" at end. SMESH_SRC/resources/StdMeshers.xml file can be used as reference for creating of user's CustomMeshers.xml file; in this file the relevant section is <hypotheses-set-group>.

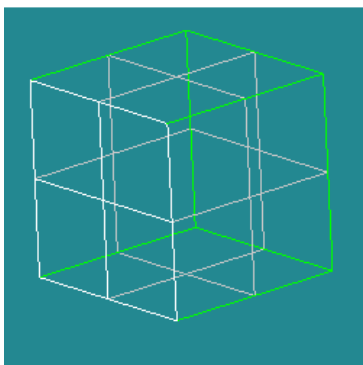
Sub-shapes Selection improvement

It has become possible to view the Exploded shape and the resulting sub-shapes in various modes after **Show only selected**, **Hide selected** and **Show all sub-shapes** buttons have been introduced.

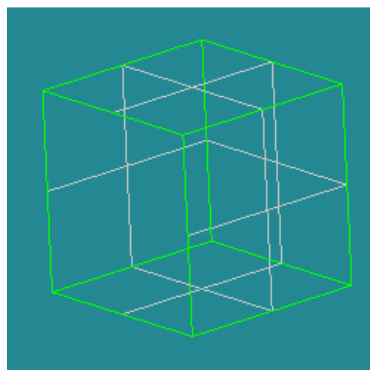
The behavior of these buttons is the same as in "Create Group" dialog box.



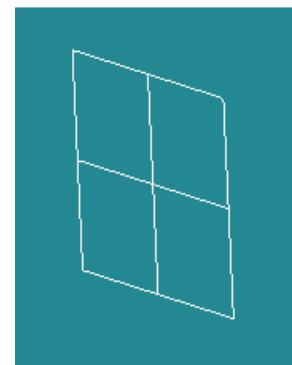
Redesigned "Sub Shapes Selection" dialog box



Exploded box with a selected face.



"Hide selected" option has been activated.



"Show only selected" option has been activated.

Analytical Curve Definition

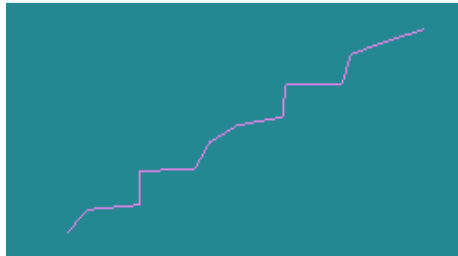
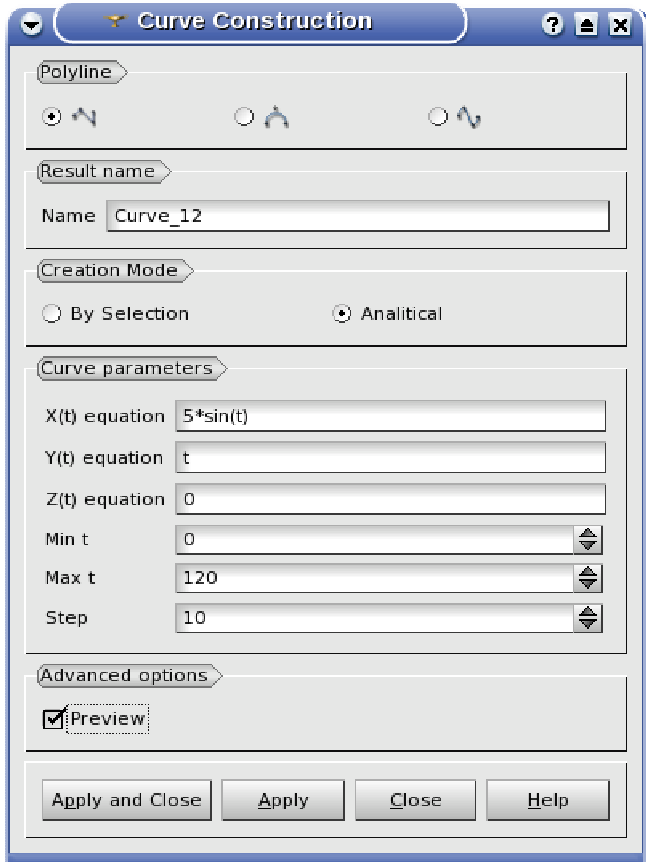
It has become possible to define Polylines, B-splines and Bezier curves by parametric equations.

The input parameters for analytical definition are common for all types of curves.

- **X(t) equation, Y(t) equation and Z(t) equation** are formulas for X, Y and Z coordinates of the basic points of the curve.
- **Min t** and **Max t** are minimum and maximum values of the parameter **t**.
- **Step** is the step of the parameter **t**.

The algorithm generates the list of vertices with **t** between **Min t** and **Max t** and creates the curve from the vertices using a chosen method.

The TUI Command for this operation is:
`geompy.MakeCurveParametric(XExpr, YExpr, ZExpr, tMin, tMax, tStep, curveType)`



Here are the examples of different curves built with the same parameters:

Polyline - a connected series of line segments.

Bezier - a curve completely contained in a convex hull of its control points.



B-spline - a union of curve segments defined at each node span.

Glue Edges

New **Glue Edges** operation accessible via menu *Repair* → *Glue Edges* glues edges that are coincident with respect to the given tolerance value. The automatically detected coincident edges are shown in the 3D viewer in red.

The python methods for this operation are:

- `def MakeGlueEdges(self, theShape, theTolerance):`
- `def GetGlueEdges(self, theShape, theTolerance):`
- `def MakeGlueEdgesByList(self, theShape, theTolerance, theEdges):`

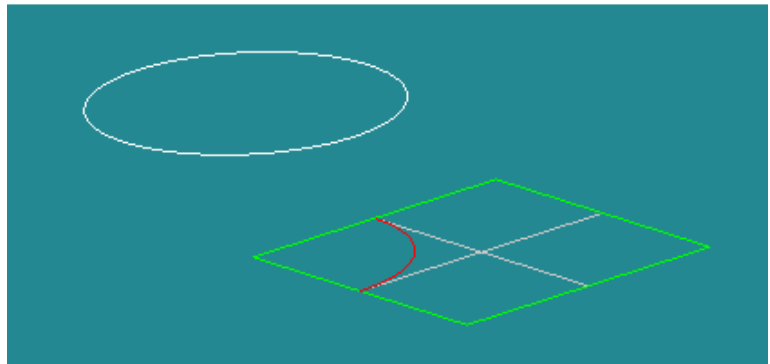
New checkbox in **Glue Faces** dialog allows (if checked) automatic gluing of all detected coincident edges, otherwise only the edges owned by the glued faces are glued together.

Projection

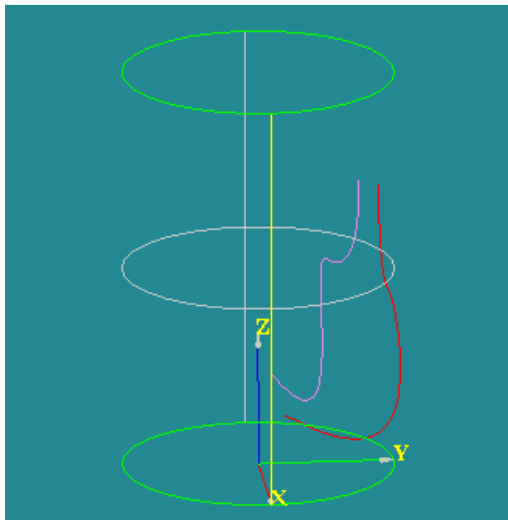
It has become possible to **project an object** (point, edge, wire) on a face (planar or cylindrical).

This functionality is accessible in Geometry module via main menu *Operations* → *Transformation* → *Projection*.

The only input parameters are: Source vertex, edge or wire and Target face.



*A circle has been projected on a quadrangle face.
The projection is colored in red.*



The curve (in red) is projected on a cylindrical surface. The projection is violet.

The TUI Command for this operation is:

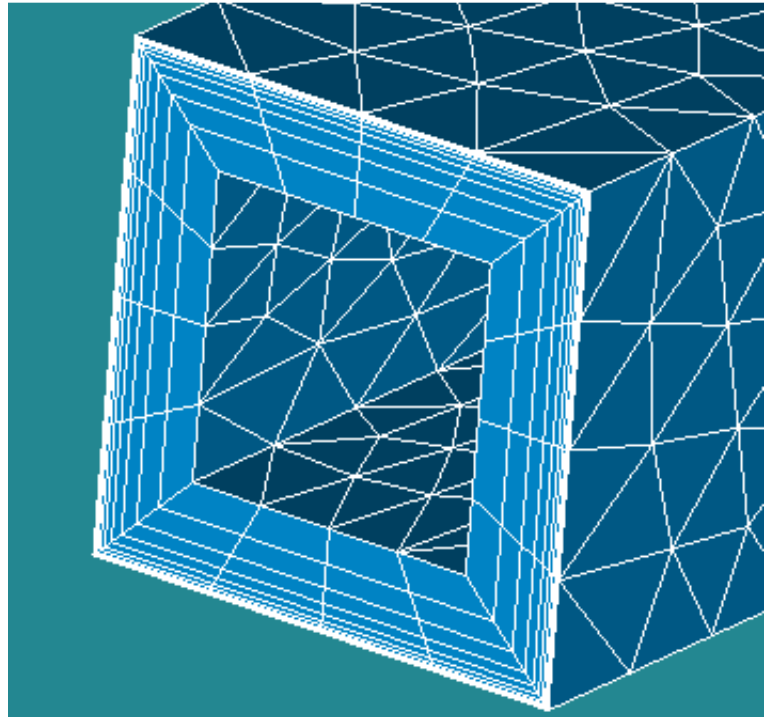
`geompy.MakeProjection(Source, Target)`, where Source is a shape which has to be projected, Target is a face, on which the Source shape will be projected.

The Result will be a `GEOM_Object`.

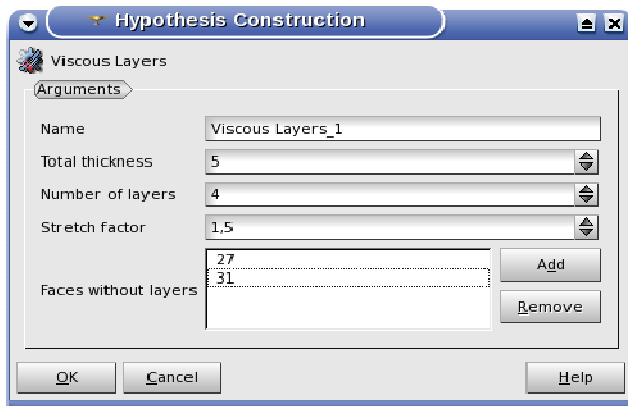
Viscous Layers hypothesis

New additional hypothesis **Viscous Layers** can be used together with NETGEN 3D, GHS3D and Hexahedron(i,j,k) 3D algorithms.

This hypothesis allows creation of layers of highly stretched prisms near mesh boundary, which is beneficial for high quality viscous computations. The prisms constructed on the quadrangular mesh faces are actually hexahedrons.



A group containing viscous layer prisms



The hypothesis has the following parameters:

- **Total thickness** - gives the total thickness of prism layers
- **Number of layers** - defines the number of prism layers.
- **Stretch factor** - defines the growth factor of prism height from the mesh boundary inwards.
- **Faces without layers** - defines geometrical faces on which prism layers should not be constructed. By default the prism layers are not constructed on geometrical faces shared by solids.

Cancel mesh computation

It is now possible to cancel mesh computation if it takes too much time. When the user starts Compute operation on a mesh, a small dialog box with a single Cancel button is shown (see the image to the right).

Clicking on the Cancel button breaks the mesh computation.

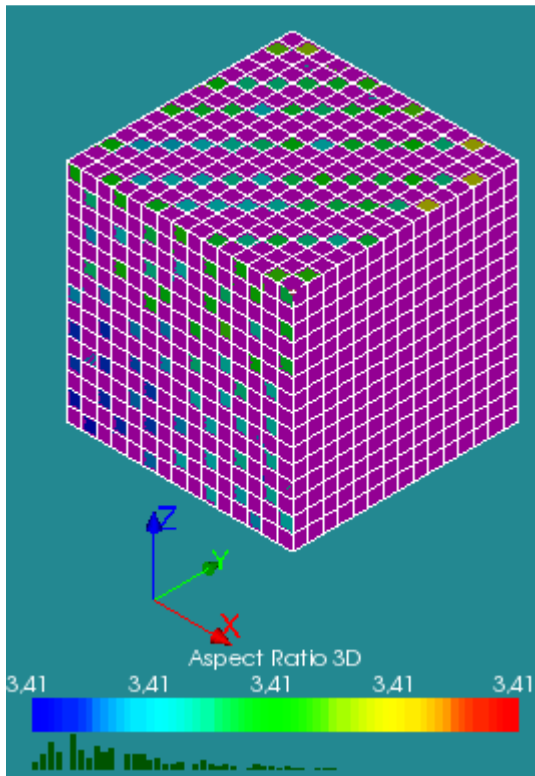
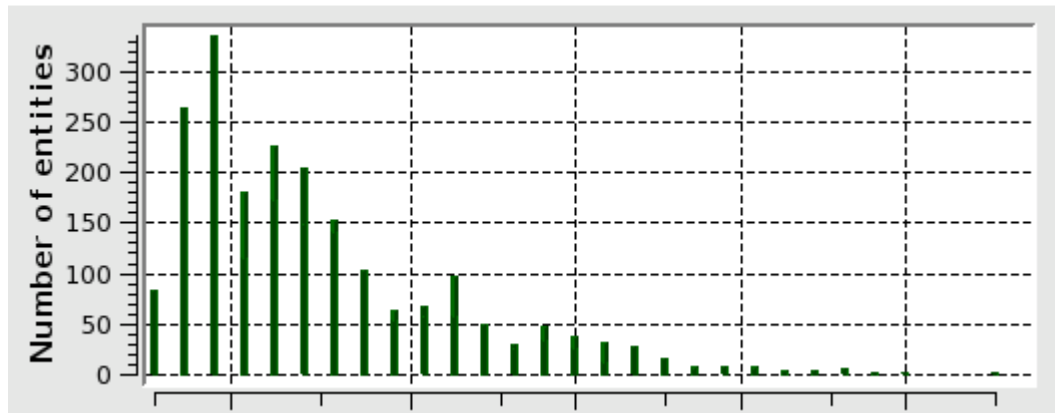


"Compute" dialog box with the "Cancel" button

Histogram view for mesh quality controls

A **histogram view** (showing the frequency of data over discrete intervals) has been implemented for Mesh quality controls. It is available via *Controls* → *Distribution* context menu item.

Plot option displays the histogram in 2D viewer.



Show option displays histogram below the scalar bar (see the image to the left).

The color properties of the histogram are customizable via the preferences. It is possible to show distribution in mono-color mode (the color is specified via preferences) or in multi-color mode (as for scalar bar).

It is also possible to export the distribution information in a text file using **Export** option. This menu command opens Save File dialog to save the distribution data to the file. The file consists of N lines (N = number or ranges), where each line is in format

RMIN RMAX RVAL

where RMIN = lower boundary of the range, RMAX = upper boundary of the range, RVAL = absolute value associated to the range.

Enforced meshes with Ghs3D

This feature is available in TUI only, for meshes with no geometry associated.

An external mesh or mesh group can be used as a constraint for the 3D mesh generated by Ghs3D. The constraint can be on nodes, 1D or 2D cells. The constraining cells will be in the result mesh and can be retrieved in groups.

This feature can be used in some cases where the use of partition is not wanted.

Advanced size maps with BLSurf

Predefined size maps have been introduced in a new **Advanced** tab in the **Local sizes** page of BLSurf hypothesis dialog box.

The following two types of maps are available in this tab:

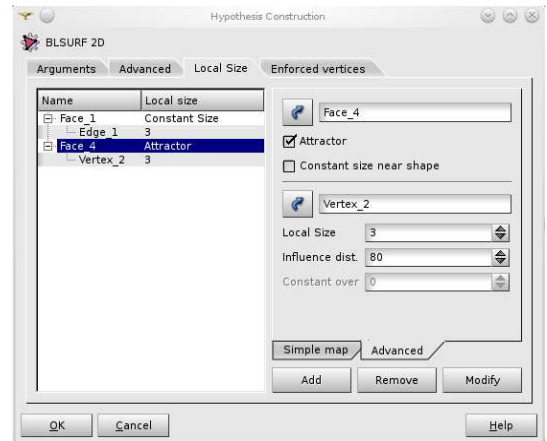
- **Attractor:** the mesh is refined on a vertex, an edge a wire or a compound of those shapes. The size increases then exponentially with the distance from the shape following the expression:

$$h(d) = h_{max} + (h_{min} - h_{max}) \cdot \exp\left(-\left(\frac{d}{R}\right)^2\right)$$

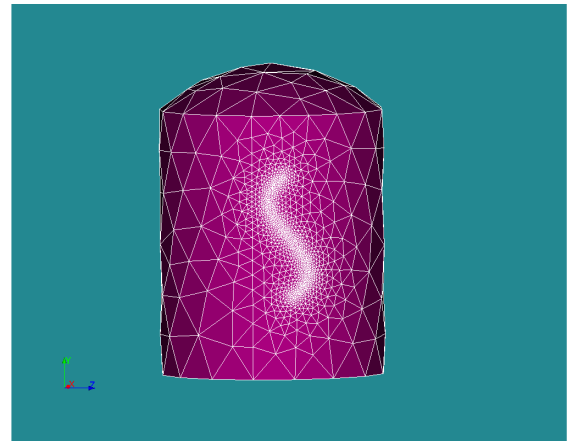
where h is the mesh size, d the distance to the shape and R the influence radius of the attractor. The distance here is the geodesic distance which means that it is also well defined on a curved surface.

- **Constant size near shape:** the mesh is refined around a shape like for an *attractor* and the size is kept constant until a certain distance from this shape.

The two types of map can also be combined to keep the mesh size constant and then let the sizes raise be controlled by an *attractor*.



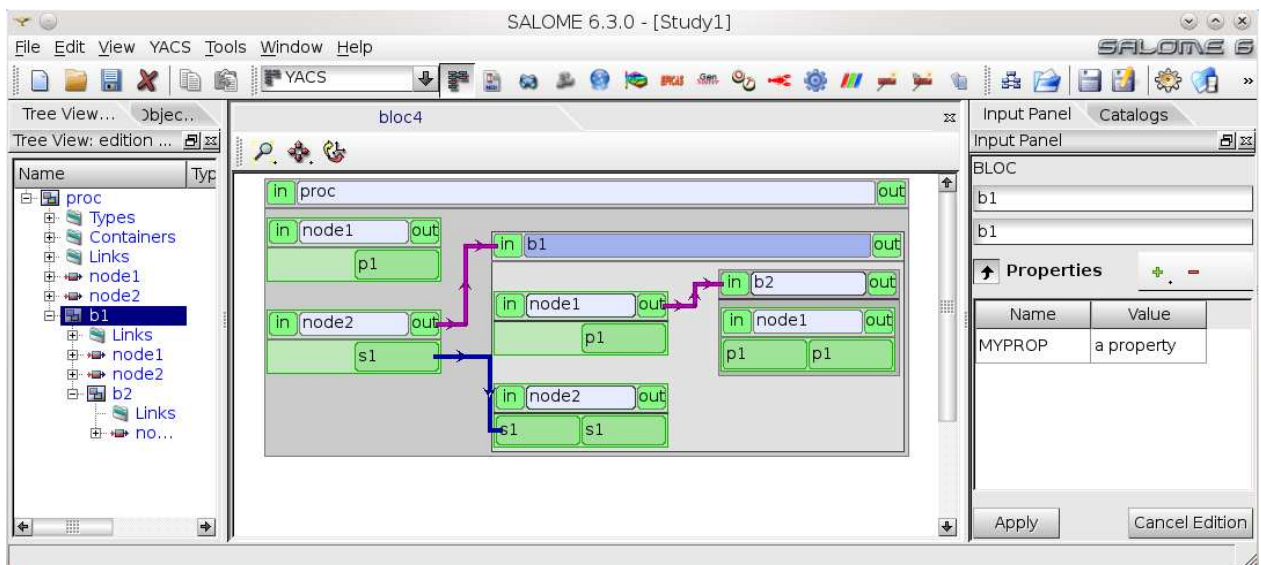
“Advanced” size maps tab



Example of use

YACS Improvements

- It is now possible to define global properties either at the schema level (proc) or at any bloc level. The properties apply to all nodes inside the bloc. A property editor is available in GUI for the following types of nodes and their derivatives: proc, bloc, Salome Node.



- A general mechanism has been set in YACS to provide specific messages adapted to a precise GUI context, in case of low level exceptions: this allows giving hints to the user. This mechanism is used in some cases like cycle detection, and can be generalized.
- The python script nodes can now be executed in the same way as python function nodes: either locally or on a remote resource.

JOBMANAGER improvements

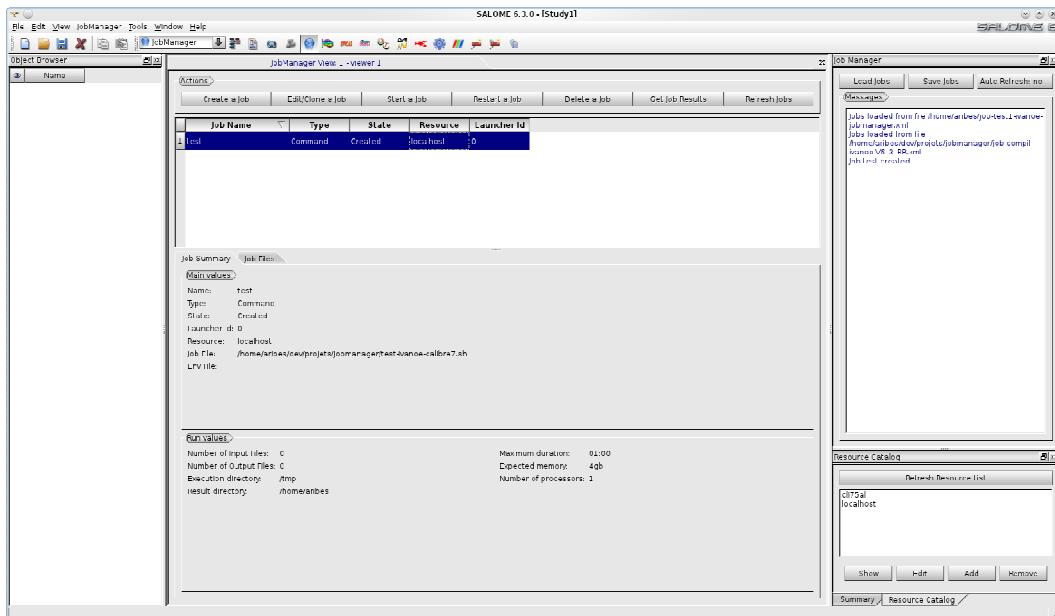
JOBMANAGER module allows creating, launching and following calculation jobs on different types of computers or clusters.

JOBMANAGER module allows defining three types of jobs:

- User scripts.
- Python scripts launched in a SALOME session
- YACS schemes launcher in a SALOME session.

The module can use different types of computers:

- Interactive computers (rsh, ssh)
- Clusters managed by batch systems like PBS, LSF, SGE, SLURM and LOADLEVELER.



Other improvements

- A document describing the **methodology of the Partition and Boolean operations** usage has been added to the Geometry module's User documentation
- **Support of non-manifold topology** has been introduced in the OCCT STEP reader/writer.
- The most appropriate result shape type (limit) is now automatically detected and proposed to the user In the "Partition" dialog box. In addition, if result shape type is not specified in the `geompy.MakePartition()` TUI function, the most appropriate value is automatically chosen.
- **New zooming style** has been introduced in OCC and VTK viewers. It allows zooming relatively not to the view center, but to the appropriate point in the view specified by the current mouse cursor position.
- The user receives a warning that Hexotic mesher is experimental and no guarantee about the results can be given.

- It has become possible to change color and size properties of all selected mesh/sub-mesh/group objects in SMESH module using single dialog box (in contrast to previous way, where specific dialog box had been shown for each object separately).
- The calculation formula of Aspect Ratio on quadrangles has been changed.
- The filters for all new mesh controls have been added.
- The function to retrieve time values of the time stamp has been added to the `VISU::Result` interface.
- The `SalomePyQt` Python interface for GUI module has been extended with the function `createView(type, widget)` that allow embedding custom view windows with arbitrary widgets to the desktop's central area from Python. In addition, new function `setViewClosable(id, closable)` allows to prevent closing of the view windows by the user.
- "Netgen 2D/3D Parameters" hypotheses have been made compatible with "Tetrahedron (Netgen)" and "Netgen 2D" algorithms.
- New algorithms "**Use existing 1D elements**" and "**Use existing 2D elements**" have been introduced to the Mesh module. These algorithms allow defining the mesh of a geometrical object by the importing suitably located mesh elements from another existing mesh. The mesh elements to import from the other mesh are to be contained in groups. The algorithms also provide a possibility to import the whole source mesh, optionally with groups.
- In Geometry module, new dialog box "**Get Shared Shapes**" has been added. This dialog box allows extracting the sub-shapes common (shared) for the all the selected shapes. The extracted shapes are published as children of the first selected shape.
- New measurements TUI functions has been added to the `smesh.py` Python interface to give access to the different properties of mesh elements: `GetArea()`, `GetLength()`, `GetVolume()`, `GetAspectRatio()`, `GetWarping()`, `GetMinimumAngle()`, `GetTaper()`, `GetSkew()`.
- New "**Drop-down buttons in toolbars for action groups**" checkbox in application preferences allows representing action groups in the viewer toolbars either as a single drop-down button, or displaying in the toolbar all buttons from the action groups.
- New operations "**Rotate view 90° clockwise / counterclockwise**" are available in OCC and VTK 3D viewers.
- **Rename operation's** behavior has been unified. It has become possible to rename Geometry, Mesh and Post-Pro objects directly in the Object browser without opening specific "Rename" dialog box.
- Dump python function has been changed to automatically replace tab symbols (`'\t'`) by the proper number of spaces.
- It has become possible to apply "**Convert to/from quadratic**" operation to **sub-meshes**.
- "Create Sub Mesh" dialog box has been improved to automatically switch the focus to the geometry field in case if a mesh is already selected in the first field.
- **Shortcuts to show/hide the dockable windows:** Python console, Object Browser and Message Log have been added.
- An option to **dump SALOME study to a single python file** has been introduced. The behavior of the "python dump" operation is customized via the preferences item in GUI and via additional parameter of `DumpStudy()` function in Python scripts.
- In MED, the default splitting policy used at 3D mesh interpolation has been changed from `GENERAL_24` to `PLANAR_FACE_5`.
- Methods to retrieve the field value at a given point have been added to `MEDMEM::FIELD` class:


```
void getValueOnPoint(const double* coords, double* output) const
void getValueOnPoints(int nb_points, const double* coords,
                      double* output) const;
```
- `MEDMEM::SUPPORT` class has been modified to contains numbers of elements even if it `isOnAllElements()`.
- Source codes of `MEDMEM` have been adjusted for compilation with clang compiler.

- New method `getGaussPointsCoordinates()` for calculation of gauss point coordinates has been added into MEDMEM.
- **Length units** (mm, cm, m, km or inch) are now selectable in the study properties. For the current moment this property is used for information purposes only. The "Study Properties" dialog box has been redesigned.
- It has become possible to **access the Object browser from Python** using new function `getObjectBrowser()`.
- GEOM Objects can be Unpublished (removed from the Object browser without deletion) using "Unpublish" context menu item or `hideInStudy(obj)` TUI method.
- **Propagate** function result sorting has been implemented to have a constant order of returned groups and shapes inside these groups.
- Function `MakeSolid()` has been upgraded to accept, in addition to previously allowed input types, compounds composed of a single closed shell. `GetSame()` now accepts, in addition to previously allowed input types, compounds with only 1 shape of higher type.
- The information of a GEOM object in the presentation (visibility, number of iso-lines, color, transparency, display mode, deflection coefficient, edge direction mode and marker type) now can be stored/retrieved in `IParameter` interface. In GUI, the presentation properties of the objects are kept between Show/Hide operations.
- The Point marker dialog in Post-Pro module has been extended with an additional type of standard marker - "Point Sprite". This was done to restore the behavior implemented before SALOME 5.1.4.
- New option has been added to the `MakeInterpol()` function both in GUI and in python interface. With this option the algorithm does not follow the given order of vertices but searches for the closest vertex.
- Option to build closed edges has been added to the `MakeBezier()` function. Option to build closed wires has been added to the `MakePolyline()` function. Options have been added both in GUI and in python interface.
- Various improvements and bug fixes in **YACSGEN**.



BUG CORRECTIONS

GUI MODULE (IAPP)

Summary: EDF PAL 514: Implement system of units (millimeters, meters, inch...)

The study properties have been extended with new attributes:

- Unit of length selectable from a predefined list (mm, cm, m, km or inch)
- Comment: arbitrary text (multi-lines field)

The unit system currently exists only for information, but can be used in the future to display the length and coordinates or for export in a data format, which supports unit information, or to store the information in a MED file, etc.

Summary: EDF 1357 GUI : Hide/Show Icon

Visibility icon states have been implemented in Salome viewers and Object browser.

Summary: [CEA 404] Pb with old hdf

Fixed problem of dumping/loading the Python script using "Import table" operation of the Post-pro module if non-C locale is used.

Summary: EDF 1600 ALL: Rename objects in the OB

It has become possible to rename Geometry, Mesh and Post-Pro objects directly in the Object Browser without "Rename" dialog box.

Summary: EDF 1601 GUI: Angle of view

"Drop-down buttons in toolbars for action groups" checkbox has been added to Preferences → Salome → Viewers. By default this option is checked and the action groups are represented in the viewer toolbars as a single drop-down button, switchable by the user; otherwise, all buttons from the action groups are displayed in the toolbar.

Additionally, new operations "Rotate view 90° clock wise / counterclockwise" have been implemented in OCC and VTK 3D viewers.

Summary: EDF 1602 STUDY: Object browser actualization when creating an object

It has become possible to automatically browse the published objects in Geometry, Mesh and Post-Pro modules. When "Browsing to the published" object is enabled in the preferences, the object browser scrolls to the objects just published to the study (using GUI dialogs), makes them visible if they are collapsed and selects the first of them.

Summary: [CEA 439] QtSpinBox in scientific notation

The last character "0" is now properly taken into account when typing a value in scientific notation in QtSpinBox.

Summary: EDF 1665 OTHER: Clipboard problem in the embedded python console

The problem with handling mouse events in the embedded Python console has been fixed. Previously the selected text was wrongly put to the Clipboard buffers instead of Selection buffer only.

<p>Summary: EDF 1731 GUI: Unexpected behavior of sg.Display() command</p> <p>The behavior of <code>Display()</code>, <code>DisplayOnly()</code>, <code>Erase()</code>, <code>EraseAll()</code> and <code>DisplayAll()</code> functions of SalomeGUI Python interface has been improved to display/erase presentable objects using <code>Displayer</code> universal mechanism.</p>
<p>Summary: EDF 1753 OTHER: Bug in the python dump due to IParameters</p> <p>The problem with empty lines created in the object browser has been fixed.</p>
<p>Summary: EDF 1612 ALL: Shortcut for the Python console, Object Browser and Message Log</p> <p>It has become possible to show / hide dockable GUI elements, such as Object browser, Python console and Message Log window by pressing keyboard shortcuts. The default height of the Python console window has been minimized to occupy as little space as possible. In addition, the option to hide/show the Python banner on top of the console window has been added in SALOME preferences.</p>
<p>Summary: [CEA] Unit test crashes Salome session</p> <p>Regression has been fixed in <code>\$GUI_ROOT_DIR/bin/salome/test_remove_ref.py</code> test. <code>SALOMEDS::SObject::IsNull()</code> has been added.</p>
<p>Summary: EDF 1745 GUI: Expand and collapse objects of the object browser from Python GUI</p> <p>Access to the Object browser from Python has been enabled. New function <code>getObjectBrowser()</code> from <code>SalomePyQt</code> module returns a reference to the Object browser of the current study. As a reference to the <code>QTreeView</code> class, it can be used to handle different properties of the Object browser.</p>
<p>Summary: [CEA 452] SalomeApp.xml not found on 6 main OK with 6.2.0</p> <p>The modules, which install <code>SalomeApp.xml</code> to <code>share/salome/resources</code> directory instead of <code>share/salome/resources/<module></code> (for example, <code>XDATA</code>), have become correctly available in GUI.</p>
<p>Summary: [CEA 453] Python examples for GUI module</p> <p>Compatibility with new VTK 5.7.0 and newer has been provided.</p>
<p>Summary: EDF GUI: Impossible to show hide toolbars</p> <p>Regression caused by fix for issue "Icons of GEOM module disappear after having opened PARAVIS" has been eliminated.</p>
<p>Summary: EDF OCCT: OCC viewer with MESA driver</p> <p>The fix for this bug has been made in bug <code>OCC22353</code>.</p> <p>OpenGI GLX context creation algorithm has been changed. Now, if the default settings of a window are not compatible with the context requirements, <code>TxglCreateWindow</code> method tries to choose suitable settings.</p>
<p>Summary: EDF 1483 GEOM,GUI,KERNEL: Degradation of performance of the "publish" and "display" actions in GEOM</p> <p>Some GUI methods used to update the visibility state of the presentable objects have been improved. To avoid the loss of performance, the objects map stored in <code>Observer_i</code> is re-used.</p>

Summary: [CEA 463] Add a preference to setOpaqueResize

Performance issues caused by a change in Qt, which by default always resizes the windows while the mouse is moving instead of waiting for the user to release the button, have been addressed. Now 2D/3D viewers are resized when the user drags the splitter handle within the workstack area and the mouse events are handled manually to provide transparent resize of the dockable windows similar to the Qt 3 approach.

Summary: EDF 1861 VISU: Eye symbol and VISU presentations

The problem with the update of Visibility State of Post-Pro presentations after using `Display()`, `Erase()` and `DisplayOnly()` methods from python has been fixed.

KERNEL MODULE

Summary: EDF PAL 273 : Option Single/Multi file dump

Possibility of dumping SALOME study to a single python script has been introduced. "Multi file dump" check box added to the Dump Study dialog allows dumping the study to multiple files, as previously. Default value for this option can be set in the preferences: SALOME → General → Study properties group.

Summary: EDF 1635 GUI: VTK Warnings when compiling GUI

The incorrect warnings about deprecated or antiquated headers shown during modules compilation have been removed by adding the option `-DVTK_EXCLUDE_STRSTREAM_HEADERS` in file `check_vtk.m4`.

Summary: [CEA 434] Compilation using gnu compiler v4.5

Source and makefile modifications have been implemented to allow Salome 6 compilation using gcc/g++/gfortran v4:

- some indirect dynamic links with dynamic libraries have been explicitly specified;
- explicit class ctor is no more allowed to replace `throw YACS::Exception::Exception(msg.str());` by `throw YACS::Exception(msg.str());`;

Summary: EDF 1605 ALL: Space in dump files instead of tabulations

Dump python function has been changed to automatically replace tab symbols (`'\t'`) by the proper number of spaces.

Summary: [CEA] Non regression test fails

Regression caused by recent renaming of `Engines::Component` to `Engines::EngineComponent` has been eliminated.

Summary: Kernel does not compile with PaCO++

KERNEL, YACS and YACSGEN have been patched for compilation with PaCO++.

Summary: EDF STUDY: Python dump in a single file (continued)

Some cosmetic changes have been introduced in python dump script.

GEOM MODULE

Summary: EDF PAL 469: RemoveFromStudy Function

It has become possible to remove a published GEOM object from the object browser without deleting it. Objects can be Unpublished/Published from/to Object Browser using "Unpublish" context menu item or `hideInStudy(obj)` TUI method.

Summary: EDF 509 GEOM : 3D line with mathematical equation in GUI

It has become possible to create 3D curves using parametric equations in both from TUI and GUI.

Summary: EDF 826 GEOM : GlueFaces problem when face is selected

New Gluer algorithm has been and integrated in Salome Geometry module.
The interface of python method has been changed:

```
def MakeGlueFacesByList(self, theShape, theTolerance, theFaces,
                        doKeepNonSolids=True, doGlueAllEdges=True)
```

New option `doGlueAllEdges` by default allows the old behavior, i.e. to glue all detected coincident edges, while the new behavior corresponding to `doGlueAllEdges=False` consists in gluing only edges, owned by glued faces.

In GUI this option is also accessible in "Glue Faces" dialog, but by default it is not checked (set to `False`).

Summary: EDF 1253 GEOM : Be able to select edges of face when we build a wire

The problem of unnecessary lines "`geomObj_XXX = ...`" appearing in dialog boxes/ which was caused by the local selection has been fixed.

Summary: EDF GEOM 1373 : AllSorted meaning

The algorithm, which calculates the coordinates of gravity centres of objects to be sorted has been changed to use `BrepGProp::LinearProperties()` only for edges and wires, `BrepGProp::SurfaceProperties()` for faces and shells and `BrepGProp::VolumeProperties()` for other shapes (except for vertices).

Earlier in the sorting algorithm the center of mass was calculated with `BrepGProp::LinearProperties()` method for all shapes.

Summary: EDF 1341 GEOM: Unadapted behaviour of the viewer when using the sketcher

Corrected bug with resetting of the view window on each preview drawing in the 2D-sketcher dialog box. Added new button to allow resetting the view window according to the selected working plane.

Summary: EDF 1399 GEOM: extend the properties of GEOM object

The information of a GEOM object in the presentation (visibility, number of isolines, color, transparency, display mode, deflection coefficient, edge direction mode and marker type) now can be stored/retrieved in `IParameter` interface. If several viewers with the same object have been opened, the presentation information is stored for each viewer and for each object in each viewer

Summary: EDF 1551 GEOM: Extra edges appear in the result of a partition and can't be removed

Now `RemoveExtraEdges()` function can process also shells. One extra edge is removed by it (two short edges are concatenated).

<p>Summary: EDF 1576 GEOM: SIGSEGV with Offset Surface</p> <p>Critical error resulting from the Offset Surface operation on complex shapes has been fixed.</p>
<p>Summary: EDF 1581 GEOM : Bad result in the partition of a compound with a plane</p> <p>New check-box "No sub-shapes intersection (Compounds only)" has been implemented. When this option is checked, <code>MakePartitionNonSelfIntersectedShape()</code> function is used instead of <code>MakePartition()</code>. In addition, the second constructor "Half Partition" has been improved: it calls <code>MakeHalfPartition()</code> function, passing one source object and one tool object (plane) as parameters.</p>
<p>Summary: EDF 1574 GEOM: Make Common doesn't stop when applied to a corrupted shape</p> <p>Check of arguments of Boolean operations has been introduced. This allows preventing infinite loop on invalid shapes.</p>
<p>Summary: EDF 1590 GEOM: No "Set presentation parameters and subshapes from arguments" in multi-translation/rotation</p> <p>Behavior of "Set presentation parameters and subshapes from arguments" option in case of in multi-translation/rotation has been corrected.</p>
<p>Summary: EDF 1582 GEOM: Bad coordinates of center of mass</p> <p>The mass center of a shape is now computed correctly.</p>
<p>Summary: EDF 1599 GEOM: Bug in GetInPlace shell of the created group may be badly shaped</p> <p>The processing of subshapes in Partition algorithm, which caused unstable behavior in some cases, has been improved.</p>
<p>Summary: EDF 1606 GEOM: add an option to MakeInterpol function</p> <p>A new option to not follow the given order of vertices but search for the closest vertex has been added to the algorithm of <code>MakeInterpol()</code> function both in GUI and in python interface.</p>
<p>Summary: EDF 1533 GEOM: Order of the list returned by Propagate</p> <p>Sorting of Propagate function results has been implemented to have a constant order of returned groups and shapes inside these groups.</p>
<p>Summary: EDF 1620 GEOM: To be able to close a polyline</p> <p>It has become possible to build a closed edge for Bezier curve or a closed wire for a polyline via a dedicated checkbox from GUI or using a special parameter in Python interface.</p>
<p>Summary: EDF 1542 GEOM: To create an edge or a vertex based on another edge and a length</p> <p>Two new methods for vertex creation have been implemented in Geometry:</p> <ul style="list-style-type: none"> ▪ <code>MakeVertexOnCurveByLength(curve, length, base_point)</code>: creates a vertex from a curve and a length on this curve; ▪ <code>MakeEdgeOnCurveByLength(curve, length, base_point)</code> creates an edge from a curve and a length on this curve. <p>In both functions the user can choose the start or end point of the curve to calculate the new vertex/edge.</p>

<p>Summary: EDF 1624 GEOM: Projection of an object on a planar or cylindrical face</p> <p>The functionality of projection of an object (point, edge, wire) on a face (planar or cylindrical) has been implemented.</p>
<p>Summary: EDF 1626 GEOM: Hide selected in explode function</p> <p>Three new buttons: "Show only selected", "Hide selected" and "Show all sub-shapes" have been added to the "Sub Shapes Selection" dialog.</p>
<p>Summary: [CEA] non regression test fails</p> <p>Regression caused by the implementation of fix "EDF 1226 GEOM: Detect the Resulting Type by default" has been eliminated.</p>
<p>Summary: EDF 1704: Geom Clipping and Change View</p> <p>The fix for this bug has been made in bug OCC22108.</p> <p>The behavior of clipping planes has been modified in OpenGL package. Now they are updated when the viewer's content is redrawn.</p>
<p>Summary: EDF 1701 GEOM: deflection value of preferences not taken into account</p> <p>The preference value of the deflection coefficient is now properly taken into account for compounds.</p>
<p>Summary: EDF 1732 GEOM: MakeCommon fails</p> <p>The fix for this bug has been made in bug OCC22310.</p> <p>The problem with Partition in Salome and the problem with Boolean operation Common in OCCT have been fixed.</p>
<p>Summary: EDF GEOM: Difference between compound of line and compound of edges</p> <p>MakeLine() functions have been improved to correctly record the topological history of the input shapes.</p> <p>Since the behavior of Line driver has been changed, the result returned by SubShapesAll() and similar functions will be different from the previous versions (number of vertices will be less), which might cause failure of some existing Python scripts.</p>
<p>Summary: [CEA 444] Problem of partition</p> <p>The fix for this bug has been made in bug OCC22241.</p> <p>The regression connected with tolerance change of a pipe and partition on it has been fixed by a precise definition of the coefficients of the equation:</p> $a*\cos(x)*\cos(x) + 2*b*\cos(x)*\sin(x) + c*\cos(x) + d*\sin(x) + e = 0$ <p>for the case of intersection between a line and an ellipse.</p>
<p>Summary: [CEA 449] Problem with transparency on Mandriva 2010 and V6_main</p> <p>Object transparency is now changed correctly in OCC viewer.</p>

<p>Summary: EDF 1780 GEOM: Result of MakePartition contains a tool used to create the partition</p> <p>The fix for this bug has been made in bug OCC22286.</p> <p>OCCT method <code>IntTools_FaceFace::Perform</code> has been modified to prevent the dependence of the result of intersection between two faces (F1, F2) upon the order of faces: [F1,F2] or [F2,F1].</p>
<p>Summary: EDF 1137 GEOM: Performance issue when manipulating large models</p> <p>Preview functionality has been implemented for many operations in Geometry module.</p>
<p>Summary: EDF 1213 GEOM: Modification of input type of MakeSolid and GetSame</p> <p><code>MakeSolid()</code> has been upgraded to accept, in addition to previously allowed input types, compounds composed of a single closed shell. <code>GetSame()</code> now accepts, in addition to previously allowed input types, compounds with only 1 shape of higher type.</p>
<p>Summary: EDF 1628 SMESH: Detection of close but not sewed edges</p> <p>"Glue Edges" functionality, similar to the existing "Glue Faces", has been implemented.</p>
<p>Summary: [CEA 460] bug_mindistance_boxCuttedBySphere_Torus</p> <p>The fix for this bug has been made in bug OCC22303.</p> <p>The loop <code>do {...} while(...)</code> has been replaced by <code>while(...) {...}</code> in <code>BRepExtrema_DistShapeShape</code>.</p>
<p>Summary: [CEA 461] Reload from disk does not work in Salome6</p> <p>"Reload from disc" operation has been improved: the shape is now removed from client cash to redisplay it correctly.</p>
<p>Summary: EDF GEOM: Problem with minimize/maximize icon</p> <p>The following view icons have become available in split views :</p> <ul style="list-style-type: none"> ▪ Show/Hide trihedron (works synchronously for all views); ▪ Memorize View / Restore View (works separately for each view); ▪ Clone View (allows to clone the main view); ▪ Clipping Plane (works synchronously for all views); ▪ Graduated axes (works separately for each view); ▪ Toggle keep only ambient light (works synchronously for all views). <p>Change Rotation Point, Rotate, Left, Right, Top, Bottom, Front, Back Views, Rotate clockwise/counterclockwise and Reset View are available only in the main view.</p>
<p>Summary: EDF SMESH: SMESH scripts fail</p> <p>The regression in <code>MakeFace()</code> function has been fixed.</p>
<p>Summary: [CEA 465] Problem with normal of a face</p> <p>Change: The problem with shape orientation lost in some cases by <code>TNaming_NamingShape</code> attribute has been solved by keeping the orientation separately.</p>
<p>Summary: EDF STUDY: Python dump in a single file (continued)</p> <p>Some cosmetic changes have been introduced in python dump script.</p>

Summary: EDF GEOM: Explode of a geometry leads to a crash of Salome

Fixed regression caused by implementation of issue "EDF 1626 GEOM: Hide selected in explode function".

SMESH MODULE

Summary: EDF 1359 SMESH : Automatic meshing of boundary layers

New Viscous Layers hypothesis can be used together with NETGEN 3D, GHS3D and Hexahedron(i,j,k) algorithms. It allows creation of layers of highly stretched prisms near mesh boundary, which is useful for high quality viscous computations.

Summary: EDF 1362 SMESH : Add a 2D quadrangle mesher of reduced type

"Reduced mesh" type for "Quadrangle Parameters" hypothesis has been improved in the following cases:

- The refinement is now possible in three layers instead of one for a Quadrangle with 7 segments on 3 edges and 1 segment on the fourth one.
- The refinement has become more symmetrical in case when the number of segments is uneven.

Summary: EDF 607 SMESH: Measure tools

Fixed crash in when then "Minimum Distance" tab of "Measurements" dialog box is activated.

Summary: EDF 1468 SMESH: Histogram of the quality controls

Histogram view (showing the frequency of data over discrete intervals) has been implemented for Mesh quality controls. It is available via Controls → Distribution context menu item.

Summary: EDF 1288 SMESH: Problem to recompute a mesh with a sub-mesh and a conversion linear-quadratic

Improvement:
The user has been enabled choose between a global and a local mesh computation if the mesh has been edited. Thus it is possible to avoid time-consuming global computations or local results possibly inconsistent with the entire mesh, whatever is more suitable.

Summary: EDF 1551 GEOM: Extra edges appear in the result of a partition and can't be removed

The Quadrangle (mapping) meshing algorithm has been improved to be able to mesh geometrical faces quadrilateral in 3D but having excess sides in 2D (represented by degenerated edges).

Summary: EDF 1475 SMESH: Convert linear to quadratic on a submesh

It has become possible to apply "Convert to/from quadratic" operation to sub-meshes.

Summary: EDF 1575 SMESH: Filters and precision preferences

Filter dialog box has been improved to take into account precision preferences for tolerance parameters.

Summary: EDF 1608 SMESH: Dialog Box "Create Sub Mesh": focus should automatically switch to geometry

Create Sub Mesh dialog box has been improved to automatically switch the focus to the geometry field in case if a mesh is already selected in the first field.

<p>Summary: EDF 1694 SMESH: overload a global hypo by a local hypo on subshape identical to main shape</p> <p>Two new methods have been implemented in geompy:</p> <ul style="list-style-type: none"> ▪ <code>NbShapes(theShape, theType)</code> returns integer number ▪ <code>ShapeInfo(theShape)</code> returns a dictionary with the number of shapes according to the shape type (set as string). Example of output dictionary for a box: {"COMPOUND":0, "COMPSOLID":0, "SOLID":1, "SHELL":1, "FACE":6, "WIRE":6, "EDGE":12, "VERTEX":8}
<p>Summary: EDF 1675 SMESH: Can't display CAO in VTK viewer while hypothesis window is opened</p> <p>Show/Hide visibility status changes now can be done during any SMESH operation.</p>
<p>Summary: EDF 1696 SMESH: Convert to quadratic generates contorted triangles</p> <p>The behavior of "Convert to/from quadratic" operation has been changed to bend internal links near concave boundary only.</p>
<p>Summary: EDF 1673 GEOM: Start and End length hypotheses don't always match edges orientation</p> <p>The behavior of "Show Edge Direction" display mode has been changed to show direction of the curve of edge which is actually defines how an edge is meshed. As a consequence, "Change orientation" operation applied to an edge does not influence the shown edge direction unless the edge represents a vector.</p>
<p>Summary: [CEA] rc3 – non regression test : unpredictable behavior</p> <p>The problem in Partition algorithm the results depended on the order of shapes in the list of arguments has been fixed.</p>
<p>Summary: EDF 1715 SMESH: <code>RotationSweepObject</code> crashes Salome</p> <p>The bug of Revolution operation has been improved to perform correctly on a mesh containing edges located on the rotation axis.</p>
<p>Summary: EDF 1179 SMESH: Efficiency of clipping plane in VTK viewer</p> <p>The performance of clipping planes mechanism has been improved more than twice both in SMESH and VISU modules.</p>
<p>Summary: EDF 1668 SMESH: <code>ExtrusionAlongPathX</code> on a Mesh group</p> <p>Dumping to python of some <code>Extrusion()</code> and <code>RotationSweep()</code> <code>smesh.py</code> interface methods has been corrected. The type of input object has been precised in their comments.</p>
<p>EDF 1739 SMESH: Python dump is false when extruding a mesh with groups</p> <p>Fixed by integrations for issue "EDF 1668 SMESH: <code>ExtrusionAlongPathX</code> on a Mesh group".</p>
<p>Summary: EDF 1734 SMESH: Bug with propagation hypothesis</p> <p>Propagation hypothesis has been fixed to provide correct meshing.</p>
<p>Summary: EDF 1233 SMESH: Degradation of precision in a test case for quadratic conversion</p> <p>The script testing the precision in quadratic conversion on a torus has been corrected.</p>

Summary: EDF 1290 SMESH: A user script fails in versions more than 512

The following modifications have been introduced to eliminate the regression:

- `RemoveExtraEdges(...)` function has been added in `enceinte_fonctions.MakeSasPartition(...)` to remove unnecessary edges in the resulting shape
- Problem with position of nodes has been fixed in `SMDS_Mesh.cxx`

Summary: EDF 1746 SMESH: Issue with export in STL format

STL mesh driver has been enabled to store any kind of 2D and 3D elements at export.

Summary: EDF 1748 SMESH: `SetAutoColor` has no effect in a python script

Automatic coloring of the mesh groups has been moved from the GUI to the engine side to allow assigning colors to `SetAutoColor()` mesh method. This allows using `SetAutoColor()` functionality from Python script.

EDF 1758 SMESH: Projection 1D of closed edges (or group of edges)

Documentation for SMESH module has been updated to reflect the limitation of Projection algorithm.

Summary: EDF 1759 SMESH: Netgen1D2D fails on subshape

Problem with NETGEN mesher failure on a mesh with sub-meshes computed with "Composite side discretization" meshing algorithm has been fixed.

Summary: EDF 1758 SMESH: Salome doesn't stop when assigning a composite side discretization hypothesis

"Composite side discretization" algorithm has been modified to work correctly on a closed wire consisting of two edges.

Summary: [CEA 441] Problem with projection

The case of failure of "Projection 2D" and "3D Extrusion" meshing algorithms on the geometry with degenerated edges has been fixed.

Summary: [CEA 445] Wrong mesh dimension

The mesh dimension is now properly calculated during export to MED file.

Summary: [CEA] unit test fails

The regression caused by re-implementation of the SMDS has been fixed by enabling a sub-shape index greater than 32767, which is a maximal allowed value for short type.

Summary: [CEA] non regression test fails

The following problems have been addressed in the frame of this issue:

- Regression of pyramid creation in tetrahedral mesh has been fixed;
- `smeshDC.py` has been updated according to changes in GEOM python API;
- Regression connected with redesign of SMDS has been fixed.

<p>Summary: EDF 1697 SMESH: Smoothing: impossible to select elements of a group</p> <p>The problem of processing of the user selection in the "Smoothing" dialog box has been fixed.</p>
<p>Summary: EDF 1563 SMESH: Preview of mesh during modification</p> <p>It has become possible to preview the result of mesh modification using "Preview" checkbox in the GUI dialog. The following operations are concerned: (extrusion, extrusion along a path, translation, rotation, symmetry, scale).</p>
<p>Summary: EDF SMESH: Cannot display a group by clicking on the "eye" of the OB</p> <p>The problem with critical exception arising at the attempt to display a mesh group using "eye" icon from the object browser has been fixed.</p>
<p>Summary: EDF 1772 SMESH: Automatic meshing hypothesis</p> <p>The following improvements have been introduced to facilitate the definition of hypotheses:</p> <ul style="list-style-type: none"> ▪ 2D variants of the existing sets of hypotheses: "Automatic Triangulation" and "Automatic Quadrangulation" – have been added in "Create Mesh" dialog. ▪ The names of available sets of hypotheses are now prefixed with the maximal dimension of the hypothesis. ▪ It is possible to define custom hypotheses sets.
<p>Summary: EDF 1797 SMESH: SIGSEGV with move node on a Mesh with 0D elements</p> <p>The critical exception arising when the nodes are moved on a mesh containing 0D elements has been eliminated.</p>
<p>Summary: EDF SMESH: Submesh is not taken into account with Netgen 1d-2d</p> <p>Meshing procedure now properly takes into account the local Netgen-1D-2D algorithm.</p>
<p>Summary: EDF 1832 SMESH: Regression when computing a mesh</p> <p>Regression of Projection 2D meshing algorithm has been fixed.</p>
<p>Summary: EDF SMESH: Split into tetra from group does not work</p> <p>The problem with selection of a group as argument in the "Splitting volumes into tetra" dialog box has been fixed.</p>
<p>Summary: SMESH EDF: Impossible to set a threshold value in the filter dialog</p> <p>It has become possible to set threshold value when creating a group on a mesh with the filter dialog.</p>
<p>Summary: EDF 1839 SMESH: Bug of convert to quadratic after pattern mapping</p> <p>It has become possible to convert mesh to quadratic after refinement of elements using pattern mapping.</p>
<p>Summary: EDF 1838 SMESH: Pattern mapping on a quadratic element</p> <p>The problems with application of a pattern mapping to a quadratic mesh have been fixed.</p>
<p>Summary: EDF SMESH: Problem in create group when Select All checkbox is checked</p> <p>The behavior of some controls in Create Group window has been fixed.</p>

<p>Summary: EDF SMESH: The python interface documentation is no more available</p> <p>Python interface documentation has been restored in SMESH module.</p>
<p>Summary: EDF 1817 SMESH: GHS3D on quadratic meshes</p> <p>GHS3D mesher has been improved to enable generation of quadratic mesh.</p>
<p>Summary: EDF SMESH 1773: Remove Mesh element Information</p> <p>"Mesh Element Info" menu command has been removed because it is a duplicate of "Mesh Information" menu command and opens the same dialog box.</p>
<p>Summary: EDF SMESH: Dump and <code>ExportToMED</code></p> <p>The group color definition is now written just after group creation instead of the end of the python dump script</p>
<p>Summary: EDF STUDY: Python dump in a single file</p> <p>Garbage information has been removed from python dump script.</p>
<p>Summary: EDF 1817 SMESH: Salome crashes when activating <code>smesh</code> after opening a specific study</p> <p>SALOME crash at the activation of MESH module has been fixed.</p>
<p>Summary: EDF STUDY: Python dump in a single file (continued)</p> <p>Some cosmetic changes have been introduced in python dump script.</p>
<p>Summary: EDF 1867 SMESH: Problem with concatenate that causes failure in an important script</p> <p>Regression of <code>MergeNodes ()</code> has been fixed.</p>

MED MODULE

<p>Summary: [CEA 293] MEDMEM::SUPPORT constructor</p> <p>MEDMEM::SUPPORT class definition has been revised to find the 'const' qualifier in function arguments and class members.</p>
<p>Summary: EDF 1387 MED: Result of medsplitter gives standalone triangles</p> <p>Change: MEDSPLITTER tool has been fixed not to create free faces in domain meshes</p>
<p>Summary: EDF 1392 MED: C++ API of medsplitter</p> <p>Changes: C++ API of MEDSPLITTER tool has been completed from point of view of available options</p>
<p>Summary: [CEA] 6.1.0rc1 -scripts fail</p> <p>Changes: Fixed two memory problems in MEDMEM.</p>
<p>Summary: [CEA 430] MEDMEM compilation with clang</p> <p>Source code of MEDMEM has been adjusted for compilation with clang compiler</p>

<p>Summary: [CEA 432] P2 field evaluation</p> <p>The methods that permit to retrieve the field value at a given point have been added to the <code>MEDMEM::FIELD</code> class:</p> <pre>void getValueOnPoint(const double* coords, double* output) const void getValueOnPoints(int nb_points, const double* coords, double* output) const</pre>
<p>Summary: [CEA 431] Computation of Gauss point location</p> <p>MEDMEM functionality to retrieve the location of a Gauss point has become independent from <code>MEDWrapper</code>. The computation is now made in <code>INTERP_KERNEL</code> and interfaced in <code>MEDMEM_Field</code>.</p>
<p>Summary: [CEA 437] interp3D hex splitting method</p> <p>Default splitting policy used at the 3D mesh interpolation has been changed from <code>GENERAL_24</code> to <code>PLANAR_FACE_5</code>. Interpolation tests have been completed with test cases using all types of splitting.</p>
<p>Summary: Porting of MEDMEM on MEDfile3 alpha2</p> <p>MED module of SALOME has been made compilable with a new version of med-file library.</p>
<p>Summary: [CEA 443] Buffer overflow in MEDSplitter</p> <p><code>MEDSPLITTER_MESHCollectionMedXMLDriver.cxx</code> has been fixed to avoid buffer overflow.</p>
<p>Summary: [CEA] non regression test fails</p> <p><code>MeshFuse</code> class has been fixed to avoid regression.</p>
<p>Summary: [CEA 448] Supports management on all elements</p> <p><code>MEDMEM::SUPPORT</code> class has been modified and now it contains numbers of elements even if it <code>isOnAllElements()</code>. Constructor <code>SUPPORT(MESH* Mesh, string Name, medEntityMesh Entity)</code> has been removed to force the user to use <code>MESH::getSupportOnAll()</code> instead.</p>
<p>Summary: [CEA 458] MEDMEM::SUPPORT: geometric type when support is on node</p> <p>Type of elements of a nodal <code>MEDMEM::SUPPORT</code> has become <code>MED_EN::MED_NONE</code>; setting type <code>MED_EN::MED_POINT1</code> has been forbidden.</p>
<p>Summary: [CEA] non regression script fails</p> <p>Regression tests have been fixed to match the changes introduced by the fix for the bug "[CEA 448] Supports management on all elements".</p>
<p>Summary: [CEA 462] Bug in med2sauv</p> <p>GIBI driver has been improved to store nodal field in a dedicated way different from storage of fields on elements.</p>
<p>Summary: EDF MED: Impossible to import MED files into MED module</p> <p>It has become possible to dump <code>MEDMEM::SUPPORT</code> even if it is not fully defined.</p>

Summary: [CEA 464] MEDMEM patch for Pleiades

A patch to be able to use native MEDMEM in Pleiades project has been integrated.

VISU MODULE

Summary: EDF243 VISU : post_processing for fields at nodes

The Point marker dialog in Post-Pro module has been extended with an additional type of standard marker - "Point Sprite". This marker is also available by default in Post-Pro Representation preferences.

Summary: [CEA 420] Problem with VISU preferences

"Imposed scalar range" property of VISU preferences has become editable in a text editor instead of a spin-box.

Summary: [EDF 1692] VISU: Scalar bar range is not good

The algorithm to find the scalar map range has been changed to take into account all Gauss points to compute the range.

Summary: [CEA] example script fails

Critical error caused by implementation of "EDF 1357 GUI : Hide/Show Icon" issue has been fixed.

Summary: EDF STUDY: Python dump in a single file (continued)

Some cosmetic changes have been introduced in python dump script.

PARAVIS MODULE

Summary: EDF PARAVIS: "Streaming Controls" windows still displayed when leaving PARAVIS

The behavior of some windows in Paravis module has been fixed.

NETGENPLUGIN MODULE

Summary: EDF 1167 NETGENPLUGIN: SIGSEGV when trying to mesh a shape with degenerated edges

NETGEN plugin has been fixed to allow meshing a shape with degenerated edges with Netgen1D-2D algorithm.

Summary: EDF 1868: Several use cases fail (regressions)

Fixed several regressions of NETGEN mesher plugin.

GHS3DPLUGIN MODULE

Summary: EDF 1749 GHS3D: GHS3D can't compute the 3D elements from 2D skin elements

A regression in "Split into tetrahedral" operation has been fixed.

BLSURFPLUGIN MODULE

Summary: EDF 1686 GEOM: Bad triangle in a BLSURF + GHS3D mesh after converting to quadratic

"Convert to quadratic" functionality has been improved to avoid bad triangles in a BLSURF + GHS3D mesh after conversion.

YACS MODULE

Summary: [CEA] problem with make check

Problem of unitary testing (make check) has been fixed.

Summary: Python nodes distributed in foreach

Fixed problem with distributed python nodes in a foreach loop

Summary: Python nodes script should be remote as function nodes

The python script nodes can now be executed in the same way as python function nodes: either locally or on a remote resource.

Summary: Error messages in GUI do not help the user

A general mechanism has been set in YACS to provide specific messages adapted to a precise GUI context, in case of low level exceptions: this allows giving hints to the user. This mechanism is used in some cases like cycle detection, and can be generalized.

Summary: Links of a switch node to other nodes are not processed correctly

Fixed problem: output links of a switch node were not correctly handled: for a python node connected to the switch outputs, operations copy/paste, undo/redo, put on a bloc... where not correct.

Summary: Problem with lists of struc

Fixed problem: bad conversion for data of type list of structures, between Python and CORBA.

Summary: Restart after StopOnError does not restart failed nodes

Fixed problem: it was not possible to restart a schema stopped on "stop on first error" condition.

Summary: Loop ForEach initialized with an empty list can't be executed

Fixed problem: a forEach loop with an empty list must be executed, and not stay forever in the ready state.

Summary: Add a properties editor for Salome nodes and global properties

It is now possible to define global properties either at the schema level (proc) or at any bloc level. The properties apply to all nodes inside the bloc. A property editor is available in GUI for the following types of nodes and their derivatives: proc, bloc, Salome Node.

Summary: It is possible to create two containers with the same name in the GUI, but they are not distinguished.

Bug has been fixed.

INSTALLATION PROCEDURE

Summary: EDF 1716 OTHER: problem with libxml2, zlib with SALOME6 on Debian Lenny

A libxml2 library has been patched to fix the problem on 64bit platforms.



CASCADE 6.3 BUG CORRECTIONS

This chapter lists all the bug corrections and improvements implemented in the Open CASCADE Technology 6.3.0 service packs 11 and 12.

SERVICE PACK 11

Summary: Shape Processing - SplitClosedFace produces wrong shape

Referenced by issue: "OCC: Shape Processing - SplitClosedFace produces wrong shape".

Summary: CheckShape command does not return faulty shapes for the face

Referenced by issue: "EDF 1574 GEOM: Make Common doesn't stop when applied to a corrupted shape".

The fix for this bug has been made in bug CheckShape command does not return faulty shapes for the face.

Summary: Wrong center of mass calculation for Compound of faces.

Referenced by issue: "EDF 1582 GEOM: Bad coordinates of center of mass".

Fixed bug in the formula calculating center of the mass for the shape.

Summary: Zoom at a point

Referenced by issue: "EDF 1450 GEOM: center of zoom".

Possibility to zoom OCC view using custom center point has been implemented.

Summary: Problems in Partition algorithm

Referenced by issues:

- "EDF 1581 GEOM: Bad result in the partition of a compound with a plane".
- "EDF 1394 GEOM: Partition fails between 2 faces".

Summary: 3D offset algorithm crashes with exception on the customer's shape.

Referenced by issue: "EDF 1576 GEOM: SIGSEGV with Offset Surface".

Fixed crash in the Offset algorithm.

Summary: Non-manifold topology in STEP

Referenced by issue: "EDF 1087 GEOM: IGES format".

Support of non-manifold topology has been added to the STEP reader/writer tool.

SERVICE PACK 12

Summary: Bad result after re-writing to IGES.

Referenced by issue: "EDF 1259 GEOM : Bug d'export IGES 5.1".

Additional patch to fix specific compilation warnings for some platforms.

Summary: 3D offset algorithm crashes with exception on the customer's shape

Referenced by issue: "EDF 1576 GEOM: SIGSEGV with Offset Surface".

Additional improvement of Offset Surface generation algorithm.

Summary: Cutting plane unpredictable behaviour in V3d_View

Referenced by issue: "EDF 1704: Geom Clipping and Change View".

Summary: Regression in STEP reader

Fix regression caused by implementation of new improvement (referenced by issue "EDF 1087 GEOM: IGES format"),

Summary: Problem of partition

Referenced by issue: "[CEA 444] Problem of partition".

Summary: Intersection between two faces gives different results.

Referenced by issue "EDF 1780 GEOM: Result of `MakePartition` contains a tool used to create the partition".

Summary: The algorithm `BRepSweep_MakeRevol` produces non-licit toroidal based face.

Referenced by issue "OCC: `MakeGlueFaces()` problem".

Summary: The algorithm `BRepExtrema_DistShapeShape` crashes with exception if one of the shapes does not contain vertices

Referenced by issue:" "[CEA 460] `bug_mindistance_boxCuttedBySphere_Torus`".

Summary: Boolean operation common fails.

Referenced by issue: "EDF 1732 GEOM: `MakeCommon` fails".

Summary: Problem in OpenGL viewer with MESA drivers

Referenced by issue: "EDF OCCT: OCC viewer with MESA driver".

SUPPORTED LINUX DISTRIBUTIONS AND PRE-REQUISITES

SALOME 6.3.0 supports Linux Debian 4.0 Etch 32bit and 64bit, Debian 5.0 Lenny 64bit, Debian Squeeze 6.0 64bit, Mandriva 2008 32bit and 64bit, Mandriva 2010 32bit and 64bit, Red Hat Enterprise 4.0 64bit and Scientific Linux 5.1 64bit. SALOME 6.3.0 version has been mainly tested with the following pre-requisite list on Mandriva 2008 32bit, Mandriva 2010 32bit and Debian 4.0 Etch 64bit platforms.

SALOME 6.3.0 comes with the same prerequisites versions on all supported platforms (with some exceptions). The table below lists the versions of the products used by SALOME platform. Other versions of the products can also work but it is not guaranteed.

	Version	GUI (IAPP)	KERNEL	GEOM	SMESH	VISU	MED	YACS	PARAVIS	HOMARD	HEXABLOCK	NETGENPLUGIN	GHS3DPLUGIN	GHS3DPRRPLUGIN	BLSURFPLUGIN	HexoticPLUGIN	HEXABLOCKPLUGIN
gcc*	4.2**	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
automake*	1.9**	X	X	X	X	X	X	X		X	X	X	X				X
autoconf*	2.59**	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
libtool*	1.5.6**	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
GNU make*	3.80**	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
cmake	2.8.4								X								
Python	2.6.6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Qt	4.6.3	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sip	4.10.2	X			X												
PyQt	4.7.3	X			X												
Boost	1.46.1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Swig	1.3.40	X	X	X	X	X	X	X		X		X	X	X	X	X	X
OCCT	6.3 sp12	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
Qwt	5.2.1	X			X												
QScintilla	2.4.3							X									
OmniORB	4.1.5																
OmniORBpy	3.5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
omniNotify	2.1																
Hdf5	1.8.4	X	X	X	X	X	X		X	X		X	X	X	X	X	X
Med	3.0.3				X	X	X		X	X		X		X			
Vtk	5.8.0	X		X	X	X	X		X		X	X	X	X	X	X	X
numpy	1.5.1		X														
lapack	3.3.0		X														
graphviz	2.26.3	X	X	X	X	X	X	X				X	X	X	X	X	
Doxygen	1.7.3	X	X	X	X	X	X	X				X	X	X	X	X	X
NETGEN	4.9.13											X					
docutils	0.7.0	X	X	X	X	X	X	X		X	X	X	X	X	X	X	
metis	4.0						X										
scotch	5.1.11						X										
libxml2	2.7.8	X	X				X	X									
bisurf	3.0														X		
TetMesh-GHS3D	4.1 + 4.2											X	X				
tcl/tk	8.4.14***																
sphinx	1.0.7		X	X	X			X		X	X						
expat	2.0.1							X									
libBatch	1.3.0		X														
jinja	2.5.5***																
pygments	1.4***																
Setuptools	0.6c11***																
ParaView	3.10.1								X								
Homard	10.1																

	Version	RANDOMIZER	SIERPINSKY	PYCALCULATOR	COMPONENT	CALCULATOR	HELLO	PYHELLO	LIGHT	PYLIGHT	ATOMIC	ATOMGEN	ATOMSOLV	HXX2SALOME	YACSGEN	JOBMANAGER
gcc*	4.2**	X	X	X	X	X	X	X	X	X	X	X	X	X		X
automake*	1.9**	X	X	X	X	X	X	X	X	X	X	X	X	X		X
autoconf*	2.59**	X	X	X	X	X	X	X	X	X	X	X	X	X		X
libtool*	1.5.6**	X	X	X	X	X	X	X	X	X	X	X	X	X		X
GNU make*	3.80**	X	X	X	X	X	X	X	X	X	X	X	X	X		X
Cmake	2.8.4															
Python	2.6.6	X	X	X	X	X	X	X	X	X	X	X	X		X	X
Qt	4.6.3		X		X	X	X	X	X		X	X	X	X		X
Sip	4.10.2				X							X				
PyQt	4.7.3				X					X		X				
Boost	1.46.1		X			X	X						X			X
Swig	1.3.40		X		X	X										
OCCT	6.3 sp12		X		X	X	X		X		X		X			
Qwt	5.2.1				X											
QScintilla	2.4.3															
OmniORB	4.1.5															
OmniORBpy	3.5	X	X	X	X	X	X	X				X	X			X
omniNotify	2.1															
Hdf5	1.8.4		X		X	X			X		X					
Med	3.0.3		X	X	X	X										
Vtk	5.8.0		X		X				X	X	X		X			
numpy	1.5.1															
lapack	3.3.0															
graphviz	2.26.3	X	X	X	X		X	X			X					
Doxygen	1.7.3	X	X	X	X		X	X			X					
NETGEN	4.9.13															
docutils	0.7.0															
metis	4.0															
scotch	5.1.11															
libxml2	2.7.8															
blsurf	3.0															
TetMesh-GHS3D	4.1 + 4.2															
tcl/tk	8.4.14***															
sphinx	1.0.7															X
expat	2.0.1															
libBatch	1.3.0															
jinja	2.5.5***															
pygments	1.4***															
Setuptools	0.6c11***															
ParaView	3.10.1															
Homard	10.1															

*) Not included into SALOME Installation procedure
 **) Minimal required version
 ***) Required to build other pre-requisite(s) only

NOTE: For some platforms SALOME uses prerequisites with patches like in RPM and defines specific keys. If you compile products without the Install Wizard we strongly recommend you to check compilation keys using shell files located in `config_files` folder of the Installation Procedure.

SALOME 6.3.0 depends on a number of products for run time execution, others are necessary only for compilation or generation of development documentation (like doxygen for example). Below there is a list of mandatory and optional products.

Software Requirements

	Compilation and Development		Execution		Remarks
	Mandatory	Optional	Mandatory	Optional	
gcc	X		X		
Automake	X				
Autoconf	X				
libtool	X				
GNU make	X				
cmake	X				for PARAVIS and LIBBATCH only
Tcl/tk					for OCCT compilation from source files only
Python	X		X		
Qt	X		X		
sip	X				
PyQt	X		X		
Boost	X		X		
Swig	X				
OCCT	X		X		
Qwt	X		X		
QScintilla		X		X	
OmniORB	X		X		
Hdf	X		X		
Med	X		X		
Vtk	X		X		
numpy/lapack		X			
graphviz	X				
Doxygen	X				
NETGEN	X		X		for NETGENPLUGIN mesh plug-in only
docutils		X			for KERNEL and YACS documentation only
cppunit		X			
mpi		X		X	required only if used at compilation step
openpbs		X		X	required only if used at compilation step
Lsf		X		X	required only if used at compilation step
metis		X		X	required only if used at compilation step
scotch		X		X	required only if used at compilation step
libxml2	X		X		
blsurf	X		X		for BLSURFPLUGIN mesh plug-in only
TetMesh-GHS3D	X		X		for GHS3DPLUGIN mesh plug-in only
sphinx		X			
expat	X		X		For YACS only
libBatch		X		X	required only if used at compilation step
jinja					to build Sphinx only
pygments					to build Sphinx only
setuptools					to build Sphinx only
ParaView	X		X		for PARAVIS module only
Homard		X	X		for HOMARD module only



HOW TO INSTALL AND BUILD SALOME

Please follow README file from Installation Wizard for processing correctly installation of SALOME and all prerequisites.

If you would like to compile SALOME from scratch, please use `build.csh` or `build.sh` script delivered with the Installation Wizard. Call "`build.sh -h`" to see available options of this script.



SALOME SYSTEM REQUIREMENTS

Minimal Configuration:

- Processor: Pentium IV.
- 512 Mb RAM.
- Hard Drive Space: 1.5 Gb.
- Video card 64mb.
- CD/DVD

Optimal Configuration:

- Processor: Dual Core.
- 2 Gb RAM.
- Hard Drive Space: 5Gb.
- 2Gb Swap.
- Video card 128mb.
- CD/DVD



HOW TO GET THE VERSION AND PRE-REQUISITES

SALOME 6.3.0 pre-compiled binaries for Linux Mandriva 2008 (32bit and 64bit), Mandriva 2010 (32bit and 64bit), Debian 4.0 Etch (32bit and 64bit), Debian 5.0 Lenny 64bit, Debian 6.0 Squeeze 64bit, Red Hat Enterprise 4.0 64bit and Scientific Linux 5.1 64bit can be retrieved from the SALOME web site <http://www.salome-platform.org>.

The SALOME Installation procedure includes SALOME modules sources, and it is possible to build sources from scratch using `build.sh` or `build.sch` script coming with installation procedure.

SALOME Installation procedure includes a patch for **NETGEN** which is placed inside NETGENPLUGIN modules sources. This patch is used for all platforms to fix several bugs of NETGEN. During the compilation on NETGEN from sources by the SALOME Installation Wizard, the patch is applied automatically to the standard NETGEN distribution. You can download NETGEN 4.9.13 from its official site using the following link: <http://www.hpfem.jku.at/netgen>.

All other pre-requisites can be obtained either from your Linux distribution (please be sure to use a compatible version) or from the distributors of these pre-requisites (for example, <http://qt.nokia.com> for Qt). Note that for some of pre-requisite products SALOME Installation procedure also includes patches that fix the problems detected in frames of SALOME project.



KNOWN PROBLEMS AND LIMITATIONS

- The following modules have not been migrated to Qt series 4 and thus are not included into SALOME 6.3.0 release: FILTER, SUPERV, MULTIPR. These modules are considered obsolete and not supported anymore.
- Application crash might occur on the data publication in the study if both data server and CPP container are running in the standalone mode.
- On some platforms default font settings used in SALOME might cause the bad application look-n-feel. This problem can be solved by changing of the font settings using the `qtconfig` utility included into the distribution of Qt 4.
- The following limitations refer to BLSURF plug-in:
 - Mesh contains inverted elements, if it is based on a shape, consisting of more than one face (box, cone, torus...) and if the option "Allow Quadrangles (Test)" has been checked before computation.
 - SIGFPE exception is raised after trying to compute a mesh based on a box with "Patch independent" option checked.
 - It has been found out that BLSURF algorithm can't be used as a local algorithm (on sub-meshes) and as a provider of low-level mesh for some 3D algorithms because BLSURF mesher (and, consequently, the plug-in) does not provide information on node parameters on edges (U) and faces (U, V). For example, the following combinations are impossible:
 - global MEFISTO or Quadrangle(mapping) + local BLSURF;
 - BLSURF + Projection 2D from faces meshed by BLSURF;
 - local BLSURF + Extrusion 3D.
- Sometimes regression test bases give unstable results; in this case the testing should be restarted.
- A native VTK can be used only after manual recompilation with the GL2PS component.
- NETGEN 1D-2D and 1D-2D-3D algorithm do not require definition of 2D and 1D algorithms and hypotheses for both mesh and sub-mesh. 2D and 1D algorithms and hypotheses defined with NETGEN 1D-2D or 1D-2D-3D algorithm will be ignored during calculation.
- SALOME supports reading of documents from earlier versions but the documents created in the new version may not open in earlier ones.
- If SALOME modules are not installed in a single folder, SALOME may not work in the CSH shell since the environment variables are too long by default. In this case, it is suggested to use SH or to install all modules in the same folder.
- During the compilation of OCT 6.x by Makefiles on a station with NVIDIA video card you can experience problems because the installation procedure of NVIDIA video driver removes library `libGL.so` included in package `libMesaGL` from directory `/usr/X11R6/lib` and places this library `libGL.so` in directory `/usr/lib`. However, `libtool` expects to find the library in directory `/usr/X11R6/lib`, which causes compilation failure (See `/usr/X11R6/lib/libGLU.la`). We suggest making symbolic links in that case using the following commands:


```
ln -s /usr/lib/libGL.so /usr/X11R6/lib/libGL.so
ln -s /usr/lib/libGL.la /usr/X11R6/lib/libGL.la
```
- VISU module does not support timestamps defined on the same field but on different meshes
- Stream lines presentation cannot be built on some MED fields due to limitations in VTK.
- MEFISTO algorithm sometimes produces different results on different platforms.
- In some cases the number of triangles generated by MEFISTO may be different at each attempt of building the mesh.

- For the current moment, because of architecture limitations of the ParaView application, the PARAVIS module has the following known limitations:
 - PARAVIS is a “singleton” module: that means that it can be used within one study only. As soon as the user activates the PARAVIS in some study, this module becomes unavailable in other studies.
 - PARAVIS module works unstably using the remote connection; when SALOME is running on remote computer, activation of PARAVIS module can sometimes lead to the application hang-up.