

SALOME version 7.7.0

Public release announcement

October 2015

❖ GENERAL INFORMATION

CEA/DEN, EDF R&D and OPEN CASCADE are pleased to announce [SALOME](#) version [7.7.0](#). It is a public release that contains the results of planned major and minor improvements and bug fixes against SALOME version 7.6.0 released in July 2015.

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❖ NEW FEATURES AND IMPROVEMENTS

PREREQUISITES CHANGES

The table below lists pre-requisite products used with SALOME 7.7.0. The differences of 3rd-party product versions used for SALOME 7.7.0 and 7.6.0 are highlighted in bold.

Product	SALOME 7.6.0	SALOME 7.7.0
Alabaster	-	0.7.6
Babel	-	2.0
Boost	1.52.0	1.52.0
Cgns	3.1.3-4	3.1.3-4
Cmake	2.8.10.2	2.8.11
Cppunit	1.12.1	1.12.1
Cython	-	0.23.2
Distene MeshGems suite ¹	2.0	2.1-1
Distribute	0.6.28	0.7.3
Docutils	0.10	0.12
Doxygen	1.8.3.1	1.8.3.1
Freeimage	3.16.0	3.16.0
Freetype	2.4.11	2.4.11
Gl2ps	1.3.8	1.3.8
Graphviz	2.38.0	2.38.0
Hdf5	1.8.10	1.8.14
H5py	-	2.5.0
Homard	11.1	11.1
Intel® Threading Building Blocks	4.2.4	4.2.4
Jinja2	2.6	2.7.3
Lapack	3.5.0	3.5.0
Libbatch	2.3.0	2.3.0
Libxml2	2.9.0	2.9.0
Markupsafe	-	0.23
Matplotlib	1.4.3	1.4.3
Med	3.0.8p1	3.1.0
METIS	4.0	4.0
Mpi4py	-	1.3.1
Netgen	4.9.13	4.9.13
Nose	-	1.3.7

¹ Commercial product; requires license.

Product	SALOME 7.6.0	SALOME 7.7.0
Numpy	1.8.2	1.9.2
Omniorb	4.1.6	4.1.6
Omniorbpy	3.6	3.6
Omninotify	2.1	2.1
Open CASCADE Technology	6.9.0	6.9.1
Opencv	2.4.6.1	2.4.6.1
Openmpi	1.8.4	1.8.5
Paco++	0.5.5	0.5.5
Paraview	4.3.1	4.3.1 ²
Pkgconfig	-	1.1.0
Pygments	1.5	2.0.2
Pyparsing	2.0.3	2.0.3
Pyqt	4.9.6	4.9.6
Python	2.7.3	2.7.10
Python-dateutil	2.3	2.4.2
Pytz	2015.2	2015.4
Qscintilla ³	2.7	2.7
Qt	4.8.4	4.8.4
Qwt	6.1.0	6.1.0
Scipy	0.14.1	0.15.1
Scotch	5.1.11	5.1.11
Setuptools	0.6c11	0.6c11
SimanIO	1.0	removed
Sip	4.14.2	4.14.2
Six	1.8.0	1.9.0
Snowballstemmer	-	1.2.0
Sphinx	1.1.3	1.3.1
Sphinx_rtd_theme	-	0.1.9
Swig	2.0.8	2.0.8
Tcl	8.6.0	8.6.0
Tk	8.6.0	8.6.0
Tclx	8.4.1	8.4.1
Vtk ⁴	6.2	6.2

² Patched for SALOME.³ Not used in SALOME directly.⁴ Version included in ParaView distribution.

Product	SALOME 7.6.0	SALOME 7.7.0
Wso2-wsf-cpp	2.1.0	removed
Xdata	0.9.9	0.9.11

Note: the table above lists only most important pre-requisite products; some optional products are not shown. For additional information about pre-requisite products and SALOME modules dependencies refer to the paragraph “[Supported distributions and pre-requisites](#)” below.

License restrictions

Hereby we explicitly declare that PyQt and QScintilla (by Riverbank Computing Ltd) used by SALOME are distributed under the terms of GNU GPL license; for more details please refer to the PyQt and QScintilla sites:

- <http://www.riverbankcomputing.com/software/pyqt/license>
- <http://www.riverbankcomputing.com/software/qscintilla/license>

If you plan using SALOME for commercial purposes please consider obtaining a commercial license for PyQt and/or QScintilla from Riverbank Computing Ltd.

Note that QScintilla is not used in SALOME directly since version 7.6.0.

MAIN IMPROVEMENTS

Fast Self-Intersection Detection

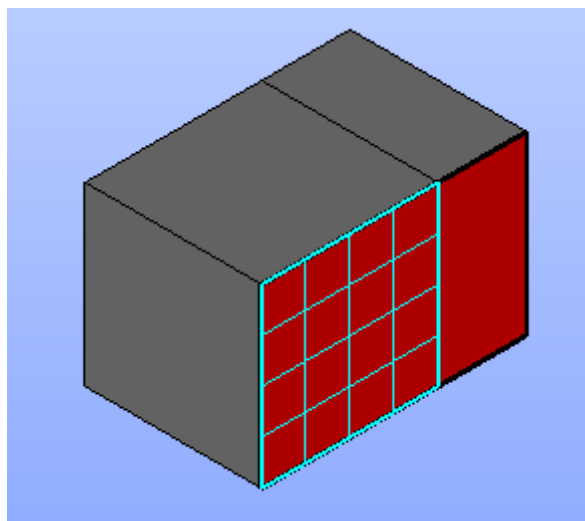
It is now possible to quickly detect self-interferences of the given geometrical shape using the algorithm based on mesh intersections.

The algorithm works on the face level, i.e. it computes only face-to-face intersections. No additional intersection types are computed.

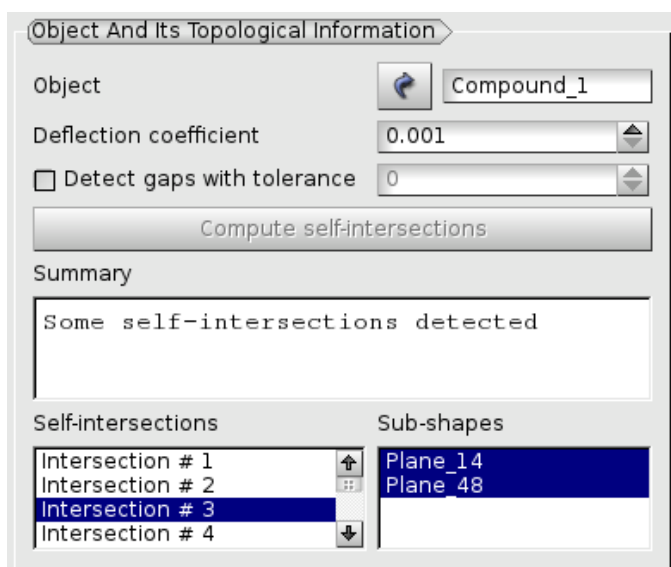
This can be useful to detect all intersections between subshapes of type "surface" in an assembly.

The result quality depends on the tessellation quality. However, small deflection values can significantly decrease the performance of the algorithm.

Nevertheless, the performance of Fast Intersect algorithm is much higher than that of the topological intersection.



The intersecting faces are highlighted in red.



The algorithm uses a linear **Deflection Coefficient** that defines the tessellation quality. If it is not positive, default deflection 0.001 is used.

An additional parameter **Detect gap with tolerance** specifies the distance between shapes used for detecting gaps.

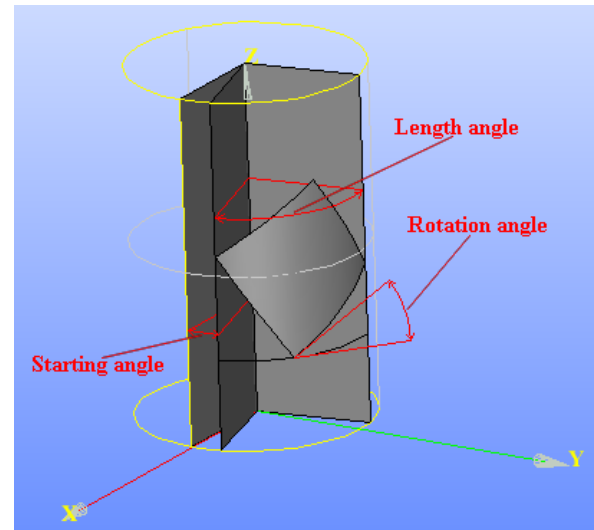
If the tolerance value is equal to zero (or negative), the algorithm detects intersections; if it is positive, the algorithm detects gaps.

Rotation angle for Projection on Cylinder

The **Projection on Cylinder** operation now can use an additional parameter, which is the **Rotation angle**.

This parameter allows to control positioning of the projection on the cylindrical surface.

See the difference between various types of angles in the picture.

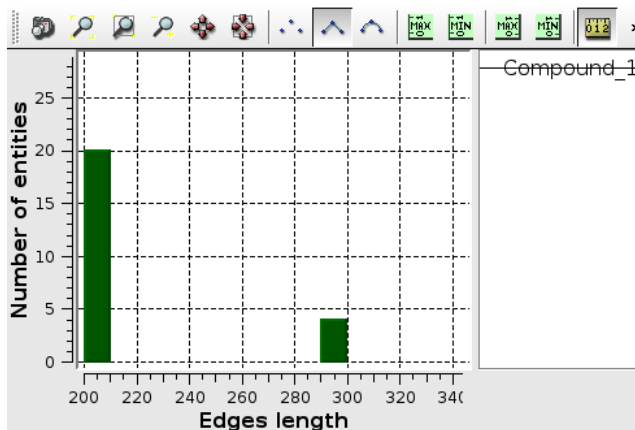
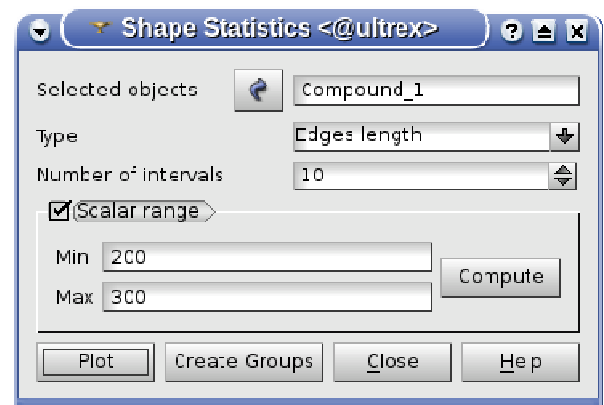


Shape Statistics

New **Shape Statistics** operation allows plotting a distribution histogram for the numerical parameters and creating the corresponding geometrical groups for the given shape(s).

It is available from the main menu by selecting **Inspection – Shape statistics**.

Select the necessary object in the view, select the **Type** of inspected values: length of edges, area of faces or volume of solids.



Number of intervals specifies the number of distribution histogram ranges.

Scalar range allows specifying custom values range used for plotting and creating groups.

It is possible to input **Min** and **Max** range manually or **Compute** them automatically.

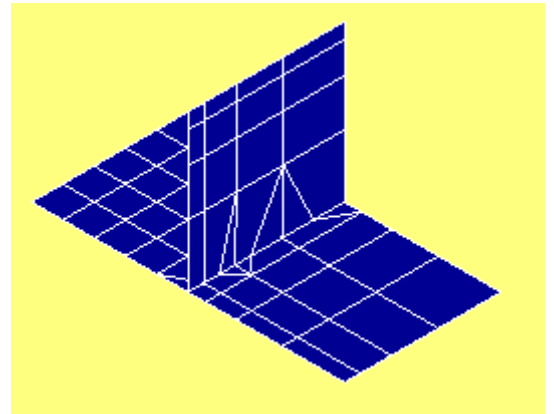
Plot button creates a plot displaying the distribution of entities (edges in the case shown on the image in the left) depending on the value of chosen parameter (in this case, length).

Create Groups button creates groups of elements for each non-empty interval.

Automatic Sewing

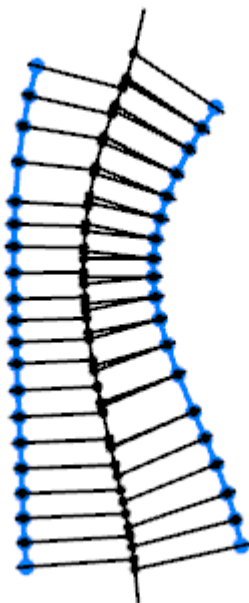
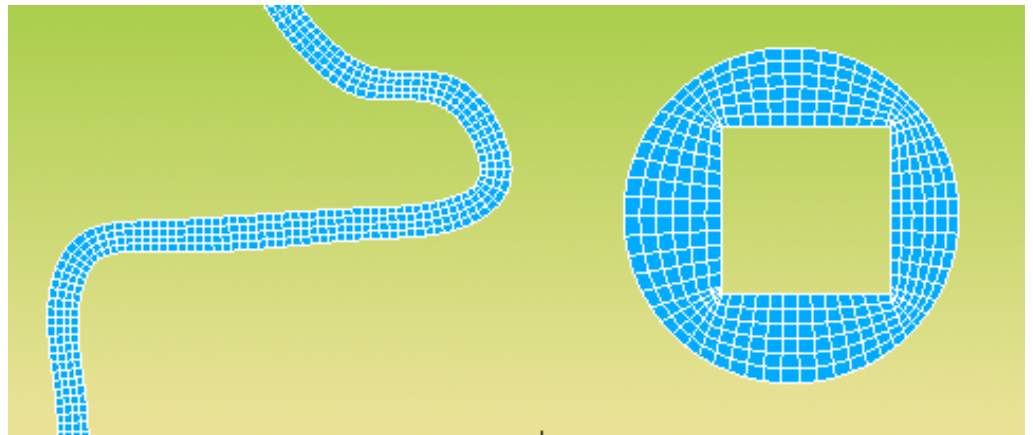
The usage of **Sewing Free Borders** operation in Mesh module has been greatly facilitated in the following aspects:

- It is possible to launch automatic sewing of all coincident free borders;
- It is possible to specify within which tolerance free borders are considered coincident;
- Result of the search can be visually checked;
- Incorrectly defined borders can be fixed;
- Sewing can be performed only on the selected borders.



Medial Axis Projection algorithm

Medial Axis Projection algorithm can be used for meshing faces with sinuous borders and a channel-like shape, for which it can be difficult to define 1D hypotheses providing good shape of generated quadrangles (see the examples).



The algorithm constructs Medial Axis between sinuous borders of the face and uses it to discretize the borders.

See the medial axis between two blue sinuous borders in the image to the left.

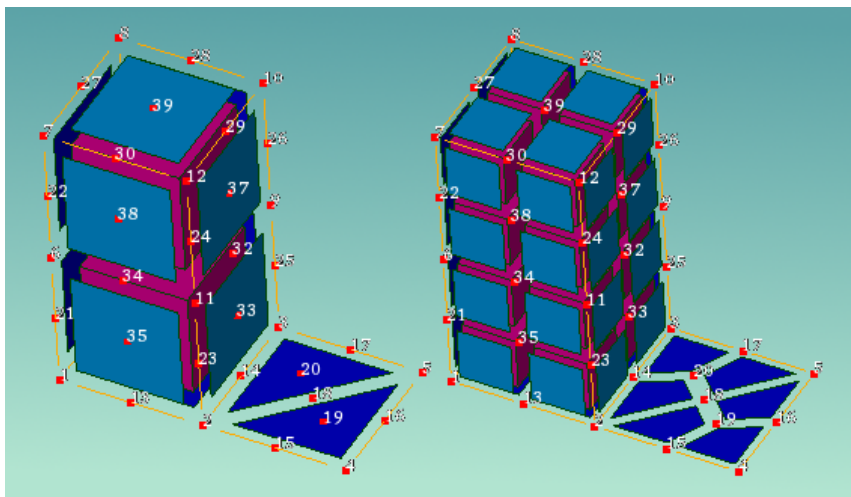
The Medial Axis is used in two ways:

- If there is a sub-mesh on either sinuous border, then the nodes of this border are mapped to the opposite border via the Medial Axis.
- If there is no sub-meshes on the sinuous borders, then a part of the Medial Axis that can be mapped to both borders is discretized using a 1D hypothesis assigned to the face or its ancestor shapes and the division points are mapped from the Medial Axis to the both borders to find positions of nodes.

Split Bi-quadratic to Linear

Bi-quadratic elements now can be split into linear ones without creation of additional nodes. This operation splits:

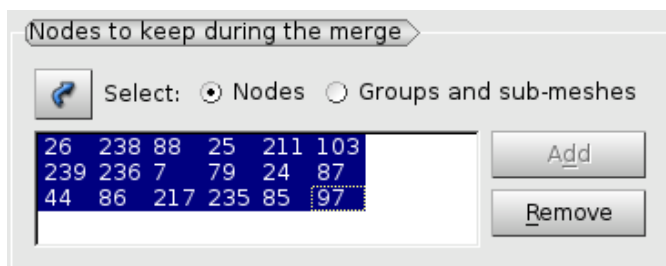
- a bi-quadratic triangle into 3 linear quadrangles,
- a bi-quadratic quadrangle into 4 linear quadrangles,
- a tri-quadratic hexahedron into 8 linear hexahedra,
- quadratic segments adjacent to the processed bi-quadratic element are split into 2 linear segments.



Merge operation improvements

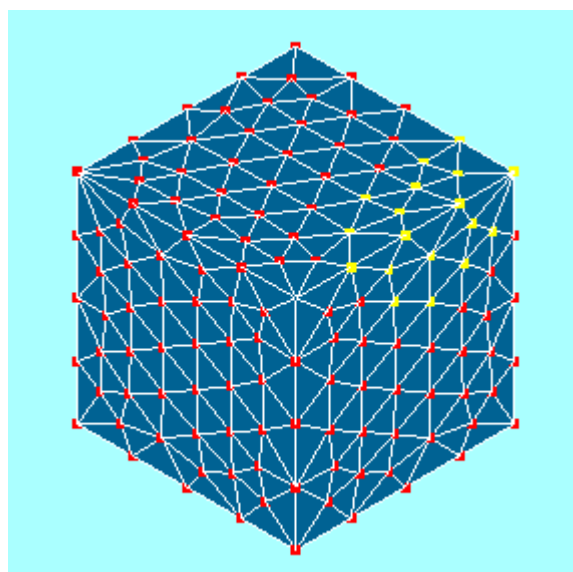
It has become possible to select the nodes that should be kept in the result after merge nodes operation.

For this, pick them in the viewer and click Add button in the dialog. The node IDs will appear in the list.



It is also possible to select all nodes that belong to a group or a sub-mesh.

Additionally, the option to avoid merging medium and corner nodes of quadratic elements has been implemented.



Stereo View Support

Stereo visual mode has been introduced in OCC and VTK 3D viewers.

The viewers support various stereo modes that have different naming in OCC and VTK viewers (to follow modes “native” for underlying pre-requisites being used – Open CASCADE Technology and VTK). See the correspondence in the table:

VTK stereo mode	OCCT stereo mode
CrystalEyes	Shutter glasses (OpenGL quad-buffer)
RedBlue	No OCCT counterpart
Interlaced	Row-interlaced
Left	MonoLeft
Right	MonoRight
Dresden	Column-interlaced
Anaglyph	Anaglyph
Checkerboard	Chess-board stereo for DLP TVs
SplitViewPortHorizontal	Horizontal anamorphic (side-by-side)
No VTK counterpart	Vertical anamorphic (Half OverUnder)

As stereo view is mostly appropriate in full screen mode, the option to enable/disable automatic hiding of the viewer toolbar in full-screen mode has been added to viewer preferences.

OTHER IMPROVEMENTS**GUI module**

- OCC and VTK 3D viewers have been enabled to fit view contents to the current selection.
- The possibility to switch between orthographic and perspective projection types in OCC 3D view has been added.
- It is now possible to set the explicit size of a view window via the Python API.

Geometry module

- “Kind of Shape” field in “What Is” operation has been improved to provide correct information about the type of canonical surfaces independently on number of edges bounding the face.
- “Point on edge” construction operation now takes the edge orientation into account.
- Dimension presentations now support both 2D and 3D text. It is possible to select the dimension text type (2D or 3D), text font, text height and color in the preferences.
- All published dimensions are grouped in a separate Object Browser Tab called Text. Dimensions sub-tree in this tab contains all dimension objects.

Mesh module

- New “Polygon per Face” meshing algorithm generates one mesh face (a triangle, a quadrangle or a polygon) per a geometrical face using all nodes from the face boundary.
- New Python method `GetFailedShapes()` returns groups of sub-shapes on which meshing has failed. The sub-shapes are grouped according to the failed mesher and named accordingly. Optionally, the method can automatically publish the returned groups.
- 2D meshing algorithms using 1D mesh at input have been improved to work correctly after merging some nodes of a 1D mesh, which results in that some vertices stay without nodes.
- New mesh element type – Quadratic Polygon is now supported. Each edge of such polygon is defined by three nodes: First, Last and Middle.

ParaVis module

- New ‘Array Renamer’ filter allows rename the data arrays and components of the data arrays in the ParaVis module.
- The option that allows choosing the trace level has been added to the preferences of SALOME ParaVis module. It is possible to choose all properties, any modified properties or only user-modified properties.

YACS module

- The values of the output ports now can be saved in output XML file.

BLSURF (MG-CADSurf) plugin module

- It has become possible to specify CADSurf options not yet hard-coded in the BLSURF plug-in.
The API of CADSurf Parameters hypothesis has been enriched with functions `AddOption()` and `AddPreCADOption()` to set an arbitrary option.
In CADSurf Parameters dialog box, the corresponding “Other option” item has been added. If this item is selected, a new row will be added to the table to let the user specify both the option name and the option value.
- Advanced MG-CADSurf options have been updated with the following options:
`optimise_tiny_edges`, `remove_duplicate_cad_faces`,
`tiny_edge_avoid_surface_intersections`, `tiny_edge_optimisation_length` and
`tiny_edge_respect_geometry`.

GHS3D (MG-TETRA) plugin module

- One-letter command line options have been replaced by their full names. For example `-c0` has been replaced by `--components all`.

HEXOTIC (MG-HEXA) plugin module

- It has become possible to input parameters of Viscous Layers hypothesis supported by MG_Hexa mesher in a dedicated page of the dialog box.
- It has become possible to provide an arbitrary command line option for MG-Hexa launch. The corresponding method `SetTextOptions()` has been added to `HexoticPlugin_Hypothesis` interface.

Med module

- Creation of Joints has been implemented in `medpartitioner` tool. `medpartitioner` has been wrapped into Python so that `MEDFileData` can be used as input and output of `medpartitioner`.
- Revamp of the overall documentation structure. The MED module documentation has been reviewed to facilitate a quicker access to pertinent information. A "Getting started" and a "Tutorial" have been introduced to guide the new user through the library. A FAQ has also been introduced to help the user spot more quickly a precise reference point. The documentation on parallel functionalities has been enhanced and aligned with the rest of the documentation. Those elements will keep on being completed in future releases.
- Integration of the Doxygen documentation into the Python API. The Doxygen documentation is now passed automatically to the Python side (docstrings). In the interactive interpreter, one can for example type:

```
import MEDCoupling as mc
help(mc.DataArrayDouble.getNumberOfTuples)
```

and obtain help on the API as it is documented on the C++ side. Note that only the most often used classes are documented.

Finally the Python examples provided with the library have been reviewed to be compliant with the latest enhancement (more "pythonic" code, notably on constructors).

- Building inner boundaries in unstructured meshes: the method `duplicateNodesOnM1Group()` has been renamed into the more explicit `buildInnerBoundaryAlongM1Group()`. It builds an internal boundary using a (-1)-level group (e.g. a group of edges in a 2D mesh). The method has also been improved and fixed to work on non-connex groups (i.e. several disjoint boundaries into a single group). This however doesn't work on non "line-" / "plane-like" groups (for example two crossing lines).
- Optimisation in `MEDCouplingFieldDouble::getweightedAverageValue()`, reducing significantly the total number of multiplications. The final result might differ from earlier version with a delta close to machine precision.
- Field operations: the constraint checks have been released on field nature when performing multiply, divide, and similar operations. Before, multiplying two fields with different nature was forbidden, which was deemed too constrained from a physical point of view (e.g. it is valid to multiply a power field -- extensive --, by a density -- intensive --). This operation is now authorized, and the resulting field has `NoNature` set. Impacted operations are: `multiply`, `divide`, `CrossProductFields`, `DotFields`.
- MED file calls protection in `MEDLoader`: as soon as MED file returns an error, an exception is thrown.
- Implementation of `PointLocator` intersector for P1P1 1D interpolation.

❖ CHANGE LOG

This chapter does not provide complete list of changes included into this version of SALOME; only most important changes are highlighted.

GUI MODULE

23083	<p><i>Summary:</i> [CEA 1400] Be able to active stereo in OCC view and to choose which kind of stereo mode.</p> <p>Quad-buffered stereo mode is now available in Salome. The corresponding option "Enable quad-buffer support" has been added to the OCC viewer preferences.</p> <p>The fix for this problem has been made in issue OCC25556.</p>
23085	<p><i>Summary:</i> [CEA 1439] To define the size of the OCC and VTK view via Python.</p> <p>The possibility to set the explicit size of a view window via the Python API has been implemented to facilitate automatic comparison of views screenshots in the Python scripts.</p> <p>New function <code>setViewSize()</code> has been implemented to explicitly resize a view or several sub-views. It works in all supported viewers.</p>
23093	<p><i>Summary:</i> [CEA 1399] Perspective view in OCC view.</p> <p>The possibility to switch between orthographic and perspective projection types in OCC 3D view has been restored.</p>
23097	<p><i>Summary:</i> EDF GEOM: [HYDRO 513] Fit only on selected objects.</p> <p>OCC and VTK 3D viewers have been enabled to fit view contents to the current selection.</p> <p>Additional change for this issue has been made in Open CASCADE Technology 6.9.1 (issue OCC26209).</p>
23105	<p><i>Summary:</i> [CEA 1535] Be able to active stereo in VTK view and to choose which kind of stereo mode.</p> <p>It has become possible to activate stereo mode in VTK view and to choose, which kind of stereo presentation will be used.</p>
23117	<p><i>Summary:</i> [CEA 1600] crash after opening a module without object browser and then opening a module with object browser.</p> <p>The problem with opening modules with and without "Object Browser" has been fixed.</p>

GEOMETRY MODULE

21246	<p><i>Summary:</i> EDF 814 GEOM: MakePartition issues</p> <p>Fixed problem of Partition algorithm.</p>
21991	<p><i>Summary:</i> [CEA 717] <code>GlueEdges</code> fails because an unexpected point had been created by <code>MakeCut</code>.</p> <p>The processing of circular and elliptical curves has been improved.</p>

22664	<p><i>Summary:</i> [CEA 1253] MakePipeWithDifferentSections fails on an elbow pipe.</p> <p>The new algorithm for creation of Extrusion along path (Pipe) has been introduced. It generates a pipe by construction of successive blocks between couples of sections and posterior gluing of these blocks.</p> <p>Additionally, detected OCCT problem has been fixed within issue OCC25185.</p>
22744	<p><i>Summary:</i> [EDF] Shape Healing improvements.</p> <p>The implementation of Shape Healing improvements has been finalized.</p>
22762	<p><i>Summary:</i> [EDF] Fast detection of face/face face/solid solid/solid interference.</p> <p>Fast intersect algorithm has been implemented for checking self-intersections.</p> <p>The corresponding OCCT improvements have been implemented within issues OCC25398 and OCC26180.</p>
22776	<p><i>Summary:</i> [CEA 1269] Project a wire or a face on a cylinder.</p> <p>A new parameter has been added in projection on cylinder operation:</p> <p>It is now possible to set the angle between the tangent vector computed in p.2 and U-direction of 2D space of the cylinder. 2D presentation is rotated to respect this angle.</p>
22782	<p><i>Summary:</i> [CEA 1315] GetFirstVertex does not return the edge's starting point.</p> <p>The functions MakeVertexOnCurve() and MakeVertexOnCurveByLength() now can take into account the orientation of a used edge as input parameter. This functionality can be activated by "Take edge orientation into account" check box in the GUI or by the corresponding Boolean parameter takeOrientationIntoAccount.</p>
22852	<p><i>Summary:</i> EDF 9937 GEOM: Kind of shape unrecognized when importing step files.</p> <p>"Kind of Shape" field in "What Is" operation has been improved to provide correct information about the type of canonical surfaces independently on number of edges bounding the face.</p>
22853	<p><i>Summary:</i> EDF 9924 GEOM: Dimension histogram.</p> <p>It has become possible to plot a distribution histogram for the numerical parameters (length of edges, area of faces and volume of solids) and to create the corresponding geometrical groups for the given shape.</p>
22888	<p><i>Summary:</i> EDF 10437 GEOM: Dimension improvements.</p> <p>Dimension presentations now support both 2D and 3D text. It is possible to select the dimension text type (2D or 3D), text font, text height and color in the preferences.</p> <p>All published dimensions are grouped in a separate Object Browser Tab called Text. Dimensions sub-tree in this tab contains all dimension objects.</p>
23112	<p><i>Summary:</i> EDF 11041 GEOM: Cut fails (one face is not cut).</p> <p>Processing of circles has been improved to avoid the loss of accuracy due to small differences in large values.</p> <p>The fix for this problem has been made in issue OCC26582.</p>

23115	<p><i>Summary:</i> [CEA 1545] Regression on KindOfShape method.</p> <p>A regression in KindOfShape method has been fixed.</p>
23116	<p><i>Summary:</i> EDF 11102 GEOM: Boolean operations fail with a face built on a B-Spline.</p> <p>The problem with common operation has been fixed.</p> <p>The fix for this problem has been made in issue OCC26351.</p>
23117	<p><i>Summary:</i> EDF 11111 GEOM: Color of free boundaries in the OCC viewer.</p> <p>The choice of colors used for wireframe presentations has been corrected.</p> <p>The fix for this problem has been made in issue OCC26163.</p>
23122	<p><i>Summary:</i> EDF 11178 GEOM: Fuse between a cylinder and a part with a hole fails.</p> <p>The problem with Remove Extra Edges functionality has been fixed.</p> <p>The fix for this problem has been made in issue OCC26446.</p>
23128	<p><i>Summary:</i> [CEA 1555] FuseCollinearEdgesWithinWire fails on the outline of a square face partitioned.</p> <p>The algorithm ordering edges in a closed wire has been corrected.</p> <p>The curve transformation management during the construction of a wire from edges has been improved.</p>
23129	<p><i>Summary:</i> GetShapesOnQuadrangle does not work with a compound of points.</p> <p>Requests for triangulation of vertices are now avoided to eliminate the exception.</p>
23133	<p><i>Summary:</i> EDF 7104 GEOM: Extruded cut fails when removing material through the entire initial shape.</p> <p>The problem shapes restored from BREP format files and stored in the study has been fixed.</p> <p>The fix for this problem has been made in issue OCC26588</p>
23134	<p><i>Summary:</i> EDF GEOM: Regression with GetInPlace.</p> <p>Filtering out shapes with the same sizes required by the old implementation of GetInPlace algorithm is now avoided.</p>
23137	<p><i>Summary:</i> [CEA 1570] What Is on a Local Coordinates System returns POLYGON.</p> <p>Kind Of Shape functionality now provides information about position of the LCS and directions of its axes.</p>
23149	<p><i>Summary:</i> EDF - Problem with planar face creation.</p> <p>Fixed problem with creation of invalid planar face.</p>

23152	<p><i>Summary:</i> EDF GEOM: Use a self-intersected wire with MakeFace.</p> <p>For “Build” operations an additional check of result has been added to allow producing only shape of expected type or, in specific cases, a compound of such shapes.</p>
23160	<p><i>Summary:</i> EDF 11486 - SIGSEGV with MakeFacewires.</p> <p>The face location is now checked when it is created from wires.</p> <p>The fix for this problem has been made in issue OCC26687.</p>
23164	<p><i>Summary:</i> Problem with Dump Study in case of an import.</p> <p>Memory leaks which leaded to appearing of removed objects in the study dump have been fixed for all “Import” operations.</p>
23168	<p><i>Summary:</i> [CEA 1593] SIGSEGV at group creation.</p> <p>Fixed crash caused by incorrect selection processing in the “Create Group” dialog box.</p>
23169	<p><i>Summary:</i> [CEA 1594] Fuse fails.</p> <p>The problem with "Remove extra edges" algorithm has been fixed.</p> <p>The fix for this problem has been made in issue OCC26786.</p>
23172	<p><i>Summary:</i> EDF 11516 - problem with StructuralElement.</p> <p>The command <code>import GEOM</code> has been added to the top of the <code>salome.geom.structelem</code> module to avoid problems with creation of structural elements.</p>
23180	<p><i>Summary:</i> [CEA 1602] Regression: MakePartition of a solid by an empty compound returns an error.</p> <p>Fixed regression caused by fix for issue 23152: it should be possible to create empty compounds.</p>

MESH MODULE

21907	<p><i>Summary:</i> EDF 2397 SMESH: Bugs with "Viscous Layers".</p> <p>The problem with using "Viscous layers" hypothesis in BLSURF plug-in has been fixed.</p>
23064	<p><i>Summary:</i> [CEA 1471] Create and support quadratic polygons in SMESH.</p> <p>Elements of type Quadratic Polygon are now supported by Mesh module.</p>
23068	<p><i>Summary:</i> [CEA 1505] Be able to keep meshing in 2D after having merged the nodes in 1D.</p> <p>2D meshing algorithms using 1D mesh at input have been improved to work correctly after merging some nodes of a 1D mesh which results in that some vertices stay without nodes.</p>

23070	<p><i>Summary:</i> [CEA 1502] Create the 2D mesh from the 1D mesh with one mesh face for each geometric face.</p> <p>The new 2D meshing algorithm “Polygon per Face” creates one mesh face per a geometrical face – a triangle, a quadrangle or a polygon depending on the discretization of face boundary.</p>
23072 23075	<p><i>Summary:</i> [CEA 1500] Split biquadratic elements into linear elements.</p> <p>New mesh modifying operation "Split bi-quadratic into linear" splits bi-quadratic elements into linear ones without creation of additional nodes.</p>
23076	<p><i>Summary:</i> [CEA 1499] Get in python all sub-shapes in error after Compute.</p> <p>New Python method <code>GetFailedShapes()</code> returns groups of sub-shapes on which meshing has failed.</p>
23078	<p><i>Summary:</i> [CEA 1498] Sewing of meshes without having to set the node IDs.</p> <p>“Sew Free Borders” operation has been improved by enabling automatic search of coincident borders to sew. The GUI now allows visually checking and adjusting the found borders.</p>
23080	<p><i>Summary:</i> [CEA 1497] Do not merge a middle node in quadratic with the extreme nodes of a segment.</p> <p>“Merge Nodes” operation has been improved by adding an option preventing merge of medium and corner nodes of quadratic elements.</p>
23081	<p><i>Summary:</i> [CEA 1496] Control merge nodes behavior: set fixed nodes.</p> <p>Merge Nodes operation has been improved by adding a possibility to specify nodes preserved in the mesh.</p>
23111	<p><i>Summary:</i> [CEA 1541] <code>copy.deepcopy</code> does not work on an object of type Mesh.</p> <p>Fixed problems with deep copying of Python Mesh objects.</p>
23118	<p><i>Summary:</i> EDF 11115 SMESH: Hexahedral mesh produces degenerate elements in quadratic conversion.</p> <p>“Convert To Quadratic” operation has been improved to avoid creating distorted elements in case of a stretched shape of hexahedrons.</p>
23121	<p><i>Summary:</i> EDF 11163 SMESH: Orphan node generated on a 3D mesh.</p> <p>The problem with meshing internal vertices in a solid, which produces free nodes, if the solid is included in a compound, has been fixed.</p>
23138	<p><i>Summary:</i> EDF SMESH Regression: New behavior with <code>ExtrusionSweepObject</code>.</p> <p>A regression in <code>ExtrusionSweepObject()</code> command has been fixed.</p>
23142	<p><i>Summary:</i> EDF 11419 SMESH: Details about extrusion methods.</p> <p>A regression in <code>ExtrusionSweep()</code> command has been fixed.</p>

23151	<p><i>Summary:</i> EDF 9626 SMESH: Opening an existing study makes Salome end with an allocation error when closing.</p> <p>Core dump at SALOME closing after creation of MESHGEMS algorithms using both new and obsolete type names has been fixed.</p>
23156	<p><i>Summary:</i> EDF 9626 SMESH: Dump study produces a non-working script.</p> <p>Incorrect Python Dump due to presence of GetSubMeshes() has been fixed.</p>
23173	<p><i>Summary:</i> EDF 11552 - Problem using Add 0D element function</p> <p>"Add 0D elements on element nodes" dialog has been improved to disable Apply button until valid parameters are set up.</p>
23179	<p><i>Summary:</i> EDF 11603 - Problem with extrusion when path is not well oriented</p> <p>The bug has been fixed that a wrong mesh is generated by Extrusion Along Path if the path consists of differently oriented geometrical edges.</p>
N/A	<p><i>Summary:</i> EDF HYDRO - #523 River, channel, embankment meshing</p> <p>New Medial Axis Projection algorithm can be used for meshing faces with sinuous borders and a channel-like shape, for which it can be difficult to define 1D hypotheses providing good shape of generated quadrangles.</p>

PARAVIS MODULE

23082	<p><i>Summary:</i> [CEA 1403] Filter to rename fields or components.</p> <p>New "Array Renamer" filter allows renaming the data arrays and their components.</p>
23084	<p><i>Summary:</i> [CEA 1431] To choose in the preferences of the type ParaVis trace ParaView.</p> <p>The option that allows choosing the trace level has been added to the preferences of SALOME ParaVis module. It is possible to choose all properties, any modified properties or only user-modified properties.</p>
23159	<p><i>Summary:</i> EDF 11434 - Problem with Extract Group.</p> <p>The functionality of filter "Extract Group" has been improved.</p>

YACS MODULE

21426	<p><i>Summary:</i> [CEA 541] Output of a YACS graph at the end of the execution .</p> <p>The values of the output ports now can be saved in output XML file.</p>
23182	<p><i>Summary:</i> [CEA 1603] Fatal error when saving scheme in YACS.</p> <p>The problem with "Fatal error" at the attempt to save a YACS scheme in a write-protected folder has been resolved.</p>

MED MODULE

22875	<p><i>Summary:</i> EDF 7690 MED: Creating joints with medpartitioner in the MEDCoupling API.</p> <p>Creation of Joints has been implemented in medpartitioner tool. medpartitioner has been wrapped into Python so that MEDFileData can be used as input and output of medpartitioner.</p>
23155	<p><i>Summary:</i> [CEA 1578] Sauv2med fails during the creation of groups there are several references.</p> <p>The problem with SAUV to MED conversion failure due to non-uniquely named references to a SAUV sub-mesh has been fixed.</p>
N/A	<p><i>Summary:</i> Fix memory leaks on MPI_Group and when throwing in MPIProcessorGroup.</p>
N/A	<p><i>Summary:</i> Univ status in MEDFileMesh is now efficient.</p> <p>Correction of bug concerning UNIV info status.</p>

BLSURF (MG-CADSurf) PLUGIN MODULE

23087	<p><i>Summary:</i> [CEA 1485] Update Advanced Options MG-CADSurf with version 2.0 of the new options.</p> <p>The following options are now available for MG-CADSurf v2.0: <code>optimise_tiny_edges</code>; <code>remove_duplicate_cad_faces</code>; <code>tiny_edge_avoid_surface_intersections</code>; <code>tiny_edge_optimisation_length</code> and <code>tiny_edge_respect_geometry</code>.</p>
23088	<p><i>Summary:</i> [CEA 1480] Able to indicate a new option by name, in addition to the already advanced options.</p> <p>It has become possible to specify CADSurf options not yet hard-coded in the BLSURF plug-in.</p>
23126	<p><i>Summary:</i> [CEA 1562] Regression: Wrong nodes position using SetEnforcedVertex on a sphere.</p> <p>The problem with generation of a quadratic mesh by default has been fixed.</p>
23174	<p><i>Summary:</i> EDF 11564 - gradation available when create a new hypothesis.</p> <p>The Gradation parameter in MG-CADSurf Parameters dialog is now disabled if the mesh is not Geometrical but Physical.</p>

GHS3D (MG-TETRA) PLUGIN MODULE

23067	<p><i>Summary:</i> [CEA 1478] Use long names.</p> <p>One-letter command line options have been replaced by their full names. For example <code>-c 0</code> has been replaced by <code>--components all</code>.</p>
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HEXOTIC (MG-HEXA) PLUGIN MODULE

23102	<p><i>Summary:</i> [CEA 1486] Add parameters to define the boundary layers.</p> <p>It has become possible to input parameters of Viscous Layers hypothesis supported by MG_Hexa mesher in a dedicated dialog.</p>
23103	<p><i>Summary:</i> [CEA 1487] To add parameters to the command line.</p> <p>It has become possible to provide an arbitrary command line option for MG-Hexa launch. The corresponding method <code>SetTextOptions()</code> has been added to <code>HexoticPlugin_Hypothesis</code> IDL interface.</p>

NETGEN PLUGIN MODULE

21131	<p><i>Summary:</i> EDF 1167 NETGENPLUGIN: SIGSEGV when trying to mesh a shape with degenerated edges.</p> <p>The problem with meshing of degenerated shapes has been fixed.</p>
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VTKMEDREADER

23161	<p><i>Summary:</i> EDF 11207 - SIGSEGV using <code>ExtractCellType</code> python method.</p> <p>Silently ignore exception raised from <code>MedCoupling</code>, to avoid SIGSEGV caused by improper incomplete data initialization.</p>
23183	<p><i>Summary:</i> [CEA 1604] Crash of SALOME while loading a file in PARAVIS.</p> <p>The problem with checking <code>this->Internal</code> pointer has been fixed.</p>
23185	<p><i>Summary:</i> [CEA 1606] SALOME freezes or crashes while loading a python script</p> <p>The problem with checking <code>this->Internal</code> pointer has been fixed.</p>

OTHER ISSUES

23066	<p><i>Summary:</i> [CEA 1509] CMake - Installation of a SALOME module should be movable.</p> <p>Hardcoded paths to the module's installation directory have been replaced with variable <code>PACKAGE_PREFIX_DIR</code> in its own configuration file.</p>
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❖ OCCT 6.9.1 BUG CORRECTIONS

This chapter lists bug corrections and improvements made for SALOME project in Open CASCADE Technology. These bug corrections and improvements are included into OCCT version 6.9.1.

Note that only the issues related to SALOME platform are listed below. For complete list of changes introduced by Open CASCADE Technology version 6.9.1 please refer to its Release Notes: <http://www.opencascade.com/content/open-cascade-technology-691-available-download>.

OCC25556	<p><i>Summary:</i> Visualization - support stereo pair formats recognized by consumer display devices.</p> <p>Referenced by 0023083: [CEA 1400] Be able to active stereo in OCC view and to choose which kind of stereo mode.</p>
OCC25613	<p><i>Summary:</i> Wrong distance found by xdistef command for attached shapes</p>
OCC26037	<p><i>Summary:</i> BRepOffsetAPI_MakePipe::Generated method throws an exception</p> <p>Referenced by 0022869: EDF 7482 GEOM: Automatically create groups with the generation operations</p>
OCC26144	<p><i>Summary:</i> Missing operators in gp_GTrsf</p>
OCC26151	<p><i>Summary:</i> Wrong result obtained by intersection algorithm.</p> <p>Referenced by 0021060: EDF 1663 GEOM: MakeCommon and GetInPlace results of a half-elliptic tore are incorrect</p>
OCC26163	<p><i>Summary:</i> Visualization - AIS_Shape::Setwidth() should not overwrite the free boundary color.</p> <p>Referenced by 0023117: EDF 11111 GEOM: Color of free boundaries in the OCC viewer.</p>
OCC26180	<p><i>Summary:</i> Modeling Algorithms - Provide shape self-intersection detector.</p> <p>Referenced by 0022762: [EDF] Fast detection of face/face face/solid solid/solid interference.</p>
OCC26193	<p><i>Summary:</i> Incomplete intersection curve</p> <p>Detected by non-regression test script smesh/bugs_07/H5</p>
OCC26196	<p><i>Summary:</i> Wrong result obtained by projection algorithm.</p> <p>Referenced by IPAL 52729: Regression: geom/Repair_00/A0</p>
OCC26206	<p><i>Summary:</i> BRepClass_FaceClassifier returns TopAbs_OUT for internal point</p> <p>Referenced by 0023092: EDF 10836 SMESH: UseExisting2DElements fails when geometry contains more than one face</p>
OCC26208	<p><i>Summary:</i> Incomplete intersection curve. [Episode 2]</p> <p>Referenced by IPAL 52733: Regression: geom/partition_06/G2</p>

OCC26209	<i>Summary:</i> Visualization - provide a method to fit view to the specific bounding box. Referenced by 0023097: EDF GEOM: [HYDRO 513] Fit only on selected objects.
OCC26218	<i>Summary:</i> Wrong result done by General Fuse algorithm Referenced by 0023063: EDF GEOM Regression: Partition with tool returns a bad result
OCC26224	<i>Summary:</i> Wrong result obtained by Common operator. Referenced by 0023095: EDF GEOM Regression: Common returns wrong result with Salome V7_6_BR/OCCT 6.9.0
OCC26233	<i>Summary:</i> BRepOffset_MakeOffset makes incorrect result Referenced by 0052645: Thickness algorithm on closed face is incorrect
OCC26289	<i>Summary:</i> STEP import/export produces an empty shape Referenced by IPAL 52501: STEP re-import fails
OCC26351	<i>Summary:</i> Wrong result found by the projection algorithm. Referenced by 0023116: EDF 11102 GEOM: Boolean operations fails with a face built on a B-Spline.
OCC26376	<i>Summary:</i> Imported STEP shape is partially wrong Problem has been reported at SALOME forum.
OCC26430	<i>Summary:</i> Visualization - segmentation fault in opened local context Detected during non-regression testing
OCC26446	<i>Summary:</i> GeomConvert::ConcatC1 produces not expected curve. Referenced by 0023122: EDF 11178 GEOM: Fuse between a cylinder and a part with a hole fails.
OCC26573	<i>Summary:</i> IGES file with one entity 128 is not read Problem has been reported at SALOME forum.
OCC26582	<i>Summary:</i> Wrong result obtained by Common operator. Referenced by 0023112: EDF 11041 GEOM: Cut fails (one face is not cut).
OCC26588	<i>Summary:</i> SIGSEGV in BRepFeat_MakeDPrism::Perform(). Referenced by 0023133: EDF 7104 GEOM: Extruded cut fails when removing material through the entire initial shape.
OCC26687	<i>Summary:</i> SIGSEGV in BRepBuilderAPI_MakeFace. Referenced by 0023160: EDF 11486 - SIGSEGV with MakeFacewires.

❖ SUPPORTED DISTRIBUTIONS AND PRE-REQUISITES

SALOME is a cross-platform solution that supports Linux and Windows. It is distributed as open-source software under the terms of the GNU LGPL license.

SALOME 7.7.0 comes with the same versions of pre-requisites on all supported platforms (with some minor exceptions). The table below lists the versions of the pre-requisite products used by SALOME platform. Other versions of the products can also work but it is not guaranteed.

Product	Version	GUI (IAPP)	KERNEL	GEOM	SMESH	MED	YACS	PARAVIS	HOMARD	HEXABLOCK	NETGENPLUGIN	GHS3DPLUGIN	GHS3DPRPLUGIN	BLSURFPLUGIN	HexoticPLUGIN	HEXABLOCKPLUGIN	HYBRIDPLUGIN
gcc*	4.1***	X	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
Microsoft Visual C++**	2010	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Cmake	2.8.11	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Python	2.7.10	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Qt	4.8.4	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sip	4.14.2	X			X												
PyQt	4.9.6	X			X												
Boost	1.52.0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Swig	2.0.8	X	X	X	X	X	X		X		X	X	X	X	X	X	X
OCCT	6.9.1	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
Qwt	6.1.0	X			X												
OmniORB	4.1.6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
OmniORBpy	3.6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
omniNotify	2.1		X														
Hdf5	1.8.14	X	X	X	X	X		X	X		X	X	X	X	X	X	X
Med	3.1.0				X	X		X	X		X		X				
Vtk	6.2	X		X	X	X		X		X	X	X	X	X	X	X	X
numpy	1.9.2		X														
lapack	3.5.0		X														
graphviz	2.38.0	X	X	X	X	X	X				X	X	X	X	X		X
Doxygen	1.8.3.1	X	X	X	X	X	X				X	X	X	X	X	X	X
NETGEN	4.9.13										X						
Metis	4.0					X											
Scotch	5.1.11					X											
libxml2	2.9.0	X	X			X	X										
Distene MeshGems	2.1-1											X	X	X	X		X
Sphinx	1.2.1		X	X	X		X		X	X							
libBatch	2.3.0		X														
Cgns	3.1.3				X												
ParaView	4.3.1	X						X									
Homard	11.1								X								

*) Not included into SALOME Installation procedure, Linux only

**) Not included into SALOME Installation procedure, Windows only

***) Minimal required version

Product	Version	RANDOMIZER	SIERPINSKY	PYCALCULATOR	COMPONENT	CALCULATOR	HELLO	LIGHT	PYLIGHT	ATOMIC	ATOMGEN	ATOMSOLV	HXX2SALOME	YACSGEN	JOBMANAGER
gcc*	4.1**	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
Microsoft Visual C++**	2010	X	X	X	X	X	X	X	X	X	X	X	X		X
Python	2.7.10	X	X	X	X	X	X	X	X	X	X	X		X	X
Qt	4.8.4		X		X	X	X	X		X	X	X	X		X
Sip	4.14.2				X						X				
PyQt	4.9.6				X				X		X				
Boost	1.52.0		X			X	X					X			X
Swig	2.0.8		X		X	X									
OCCT	6.9.1		X		X	X	X	X		X		X			
Qwt	6.1.0				X										
OmniORB	4.1.6	X	X	X	X	X	X				X	X			X
OmniORBpy	3.6	X	X	X	X	X	X				X	X			X
Hdf5	1.8.14		X		X	X		X		X					
Med	3.1.0		X	X	X	X									
Vtk	6.2		X		X			X	X	X		X			
graphviz	2.38.0	X	X	X	X		X			X					
Doxxygen	1.8.3.1	X	X	X	X		X			X					
Sphinx	1.3.1														X

*) Not included into SALOME distribution, Linux only

**) Not included into SALOME distribution, Windows only

***) Minimal required version

The following products are not mandatory for SALOME directly; these products are either optional for SALOME or only required to build other pre-requisite products.

Product	Version	Required by	Comment
Alabaster	0.7.6	Sphinx	
Babel	2.0	Sphinx	
Cppunit	1.12.1		Optional
Cython	0.23.2	h5py, mpi4py, scipy	
Distribute	0.7.3	Matplotlib	
Docutils	0.12	Sphinx	
Freeimage	3.16.0	Open CASCADE Technology	Optional
Freetype	2.4.11	Open CASCADE Technology	
GL2ps	1.3.8	Open CASCADE Technology, VTK	Optional
H5py	2.5.0		Not used directly by SALOME
Intel TBB	4.2.4	Open CASCADE Technology	Optional
Jinja2	2.7.3	Sphinx	
Markupsafe	0.23	Shinx	
Matplotlib	1.4.3	ParaView	Optionally used by ParaView
Mpi4py	1.3.1		Not used directly by SALOME
Nose	1.3.7	h5py	
Opencv	2.4.6.1		Optionally used by SALOME Geometry

Openmpi	1.8.5		Optionally used by SALOME, hdf5, med, ParaView
Paco++	0.5.5		Optionally used by SALOME Kernel
Pkgconfig	1.1.0	h5py	
Pygments	2.0.2	Sphinx	
Pyparsing	2.0.3	matplotlib	
Python-dateutil	2.4.2	matplotlib	
Pytz	2015.4	matplotlib	
QScintilla	2.7		Not used directly by SALOME
Scipy	0.15.1	matplotlib	
Ssetuptools	0.6c11	Sphinx	
Six	1.9.0	matplotlib	
Snowballstemmer	1.2.0	Sphinx	
Sphinx_rtd_theme	0.1.9	Sphinx	
Tcl	8.6.0	Open CASCADE Technology	Optional
Tk	8.6.0	Open CASCADE Technology	Optional
Tclx	8.4.1	Open CASCADE Technology	Optional
Xdata	0.9.11		Not used directly by SALOME

SALOME 7.7.0 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

Product	Compilation and Development		Execution		Remarks
	Mandatory	Optional	Mandatory	Optional	
Gcc	X		X		
GNU make	X				
Microsoft Visual C++	X		X		For execution, runtime libraries are only required
Boost	X		X		
Cgns		X		X	For SMESH only Required only if used at compilation step
Cmake	X				
Cppunit		X			Used for unitary testing
Distene MeshGems suite	X	X	X		Compilation: mandatory for BLSURFPLUGIN only, optional for HEXOTICPLUGIN Runtime: mandatory for BLSURFPLUGIN, GHS3DPLUGIN, GHS3DPRLPLUGIN, HexoticPLUGIN, HYBRIDPLUGIN
Doxygen		X			Needed only for documentation generation
Freetype	X		X		
Freeimage		X		X	Required only if used when building OCCT
Gl2ps		X		X	Required only if used when building OCCT and/or Paraview
Graphviz	X		X		In run-time required for YACS only
Hdf5	X		X		
Homard			X		For HOMARD module only
Intel TBB		X		X	Required if used when building OCCT and/or if used to build SMESH
Libbatch		X		X	Required only if used at compilation step for KERNEL
Libxml2	X		X		
Matplotib				X	Required only if used when building ParaView
Med	X		X		
Metis		X		X	Required only if used at compilation step for MED
Netgen	X		X		For NETGENPLUGIN only
Numpy (+ Lapack)		X		X	Only for MED
Omniorb	X		X		
Omniorbpy	X				
Omninotify	X		X		
OCCT	X		X		
Opencv		X		X	Required only if used at compilation step for GEOM
Openmpi		X		X	Required only if used when building SALOME and/or pre-requisites
Paco++		X		X	Required only if used at compilation step for KERNEL
Paraview	X		X		Mandatory for PARAVIS module; optional for GUI module
Pyqt	X		X		
Python	X		X		
Qt	X		X		
Qwt	X		X		
Scotch		X		X	Required only if used at compilation step for MED
Sip	X				
Sphinx		X			Needed only for documentation generation
Swig	X				
Vtk	X		X		

❖ SYSTEM REQUIREMENTS

Minimal Configuration:

- Processor: Pentium IV
- 512 MB RAM
- Hard Drive Space: 3 GB
- Video card 64 MB

Optimal Configuration:

- Processor: Dual Core
- 2 GB RAM + 2 GB Swap
- Hard Drive Space: 5 GB
- Video card 128 MB

❖ HOW TO GET THE VERSION AND PRE-REQUISITES

SALOME 7.7.0 can be retrieved from the sources repositories using V7_7_0 tag; the complete list of repositories can be found at <https://git.salome-platform.org/gitweb/>.

SALOME version 7.7.0 uses patches for some third-party pre-requisite products, such as Open CASCADE Technology, ParaView, Netgen and other. These patches solve different problems detected within SALOME project.

All pre-requisites can be obtained either from the Linux distribution (please be sure to use a compatible version) in form of native package or from the distributors of these pre-requisites.

SALOME version 7.7.0 uses patches for some third-party pre-requisite products, such as Open CASCADE Technology, ParaView, Netgen and other. These patches solve different problems detected within SAOME project.

❖ LICENSE

SALOME platform is distributed under terms of the GNU Lesser General Public License (LGPL) license version 2.1. All used pre-requisites use similar or compatible licenses (with minor exceptions). Detail information about licenses used by SALOME and its pre-requisites can be found on the following page: <http://www.salome-platform.org/downloads/license/>.

❖ KNOWN PROBLEMS AND LIMITATIONS

- The following modules are obsolete and not included into SALOME 7.7.0 release: FILTER, SUPERV, MULTIPR, VISU (Post-Pro). 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 the default font settings used in SALOME might cause bad application look-n-feel. This problem can be solved by changing the font settings with `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.
- 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 in general supports reading of documents from earlier versions but the documents created in the new version may not open in earlier ones. However, some studies may work incorrectly in SALOME 7x; mainly it concerns studies with Post-Pro data in which med v2.1 files have been imported. Due to removal of med v2.1 support and deprecation of Post-Pro module in SALOME series 7x, there can be problems with opening of such studies in SALOME.
- 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 OCCT 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
```
- 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.
- When generating a 2D mesh with "Maximum Area" hypothesis used, MEFISTO algorithm can produce cells with maximum area larger than specified by the hypothesis.
- For the current moment, because of the ParaView application architecture limitations, PARAVIS module has the following known limitations:
 - PARAVIS module works unstably using a remote connection; when SALOME is running on a remote computer, activation of PARAVIS module can sometimes lead to the application hang-up.

- PARAVIS module compilation can fail on 64-bit platforms when building ParaMEDCorba plugin (due to crash of kwProcessXML tool during generation of the plugin documentation). In such case it is necessary to unset VTK_AUTOLOAD_PATH environment variable and restart the compilation, for example:

```
[bash%] unset VTK_AUTOLOAD_PATH
```
- Loading big files in ParaVis might render SALOME instable. This will be fixed in the next release and can be avoided in the current version by one of the two solutions below:
 - In ParaVis settings (ParaVis tab), disable the use of the external pvserver. This approach has the limitation that it is not possible to execute ParaVis' Python scripts outside the SALOME graphical interface (for instance, from an external terminal).
 - In ParaVis settings (ParaView tab → RenderView tab), increase the amount of memory under "Remote/Parallel rendering options" to something bigger than the default 20 MB (for example 200 MB).
- ParaVis module executes ParaView-related code in the standalone `pvserver` process that is launched with `--offscreen-rendering` option; this can cause problems with displaying data in ParaVis module if graphic card driver does not support off-screen rendering feature.
- Med library (medfichier) supports only reading files MED if minor version of library is equal to that one used for file creation. For example, med 3.1.1 can open MED files created in med 3.1.0 but fails opening files created with med 3.0.x. This limitation has a negative effect that studies containing Mesh data (SALOME Mesh module) created with older versions of SALOME might be wrongly read in newer versions (data will be lost).