

# SALOME version 7.5.1

## Public release announcement

February 2015

### ❖ GENERAL INFORMATION

CEA/DEN, EDF R&D and OPEN CASCADE are pleased to announce [SALOME](#) version [7.5.1](#). It is a public release that contains the results of planned major and minor improvements and bug fixes against SALOME version 7.4.0 released in June 2014.

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## ❖ NEW FEATURES AND IMPROVEMENTS

### PREREQUISITES CHANGES

The table below lists pre-requisite products used with SALOME 7.5.1; the differences of 3<sup>rd</sup>-party product versions used for SALOME 7.5.1 and 7.4.0 are highlighted in bold.

Product	SALOME 7.4.0	SALOME 7.5.1
Boost	1.52.0	1.52.0
Cgns	3.1.3-4	3.1.3-4
CMake	2.8.10.2	2.8.10.2
Docutils	0.10	0.10
Doxygen	1.8.3.1	1.8.3.1
Expat	2.0.1	<b>removed</b>
Freeimage	3.16.0	3.16.0
freetype	2.4.11	2.4.11
gl2ps	1.3.8	1.3.8
Graphviz	2.30.0	<b>2.38.0</b>
HDF5	1.8.10	1.8.10
Homard	11.1	11.1
Intel® Threading Building Blocks	3.0	3.0
Jinja2	2.6	2.6
LAPACK	3.4.2	<b>3.5.0</b>
libBatch	2.1.0	<b>2.2.0</b>
Libxml2	2.9.0	2.9.0
Med	3.0.7	<b>3.0.8p1</b>
METIS	4.0	4.0
NETGEN	4.9.13	4.9.13
NumPy	1.7.1	<b>1.8.1</b>
omniORB	4.1.6	4.1.6
omniORBpy	3.6	3.6
omniNotify	2.1	2.1
Open CASCADE Technology	6.7.1	<b>6.8.0</b> <sup>1</sup>
ParaView	4.1.0	<b>4.2.0</b> <sup>2</sup>
Pygments	1.5	1.5
PyQt	4.9.6	4.9.6
Python	2.7.3	2.7.3

<sup>1</sup> Patched for SALOME.

<sup>2</sup> Patched for SALOME.

Product	SALOME 7.4.0	SALOME 7.5.1
QScintilla	2.7	2.7
Qt	4.8.4	4.8.4
Qwt	6.1.0	6.1.0
Scotch	5.1.11	5.1.11
Setuptools	0.6c11	0.6c11
SIP	4.14.2	4.14.2
Sphinx	1.1.3	1.1.3
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 <sup>3</sup>	6.1	<b>6.2</b>
Xdata	0.9.9	0.9.9
Distene MeshGems suite <sup>4</sup>	1.1	<b>1.3-8</b>
wso2-wsf-cpp	2.1.0	2.1.0
simanio	1.0	1.0

Note: the table above lists only main pre-requisite products (used with default configuration of SALOME); some optional products are not shown. For additional information about pre-requisite products and SALOME modules dependencies refer to the paragraph “[Supported Linux 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 GPL license, for more details please refer to:
  - <http://www.riverbankcomputing.com/software/pyqt/license>
  - <http://www.riverbankcomputing.com/software/qscintilla/license>

If you plan using SALOME for commercial usage please consider obtaining a commercial license for PyQt and/or QScintilla.

<sup>3</sup> Version included in ParaView distribution.

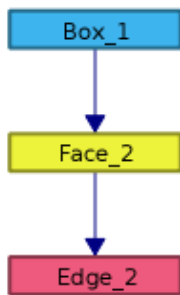
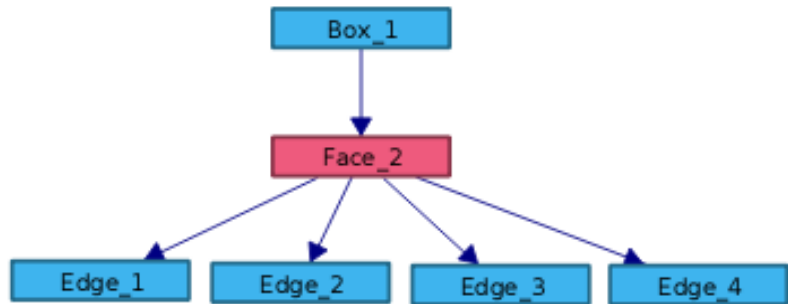
<sup>4</sup> Commercial product; requires license.

**MAIN IMPROVEMENTS**

**Dependency Tree of Geometry objects**

It is now possible to display the ascendants and descendants of one or several objects in a tree structure.

To build the dependency tree, select the object or objects in the Object Browser or OCC Viewer and call **Show dependency tree** context menu item.



Each object in the tree can be selected and the dependency tree can be **Rebuilt** for this object.

Other functions include changing the depth of tree hierarchy (from 1 to all), showing only ascendants or only descendants, moving objects in the scene.

**Reduce Study**

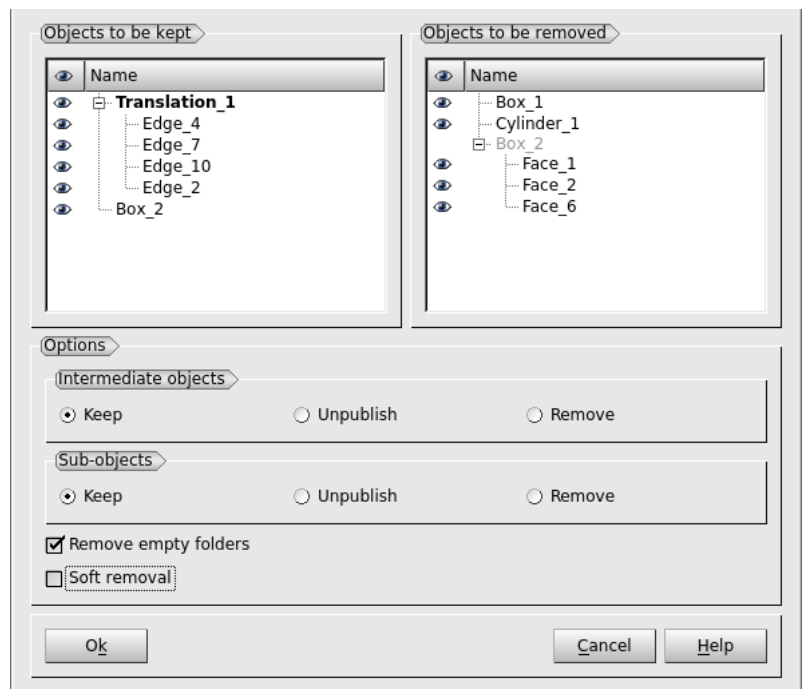
This operation allows keeping in the study only the objects that present the final result(s) of the design operations and to delete all other objects, which do not contribute to these results.

To activate it select the necessary object(s) and choose **Reduce Study** the context menu in the Viewer or in the Object Browser.

Any objects that are present in the study, but are not related to the selected object(s), will be automatically placed in the list of objects to be removed.

The options allow keeping or also removing intermediate objects and sub-objects of the selected one(s).

Soft removal option allows unpublishing the redundant objects from the study instead of deleting them. They can be restored using Publish Objects dialog.



### Polyline Editor

Polyline editor has been integrated in Salome. A polyline is a section or a set of sections lying in the XOY plane.

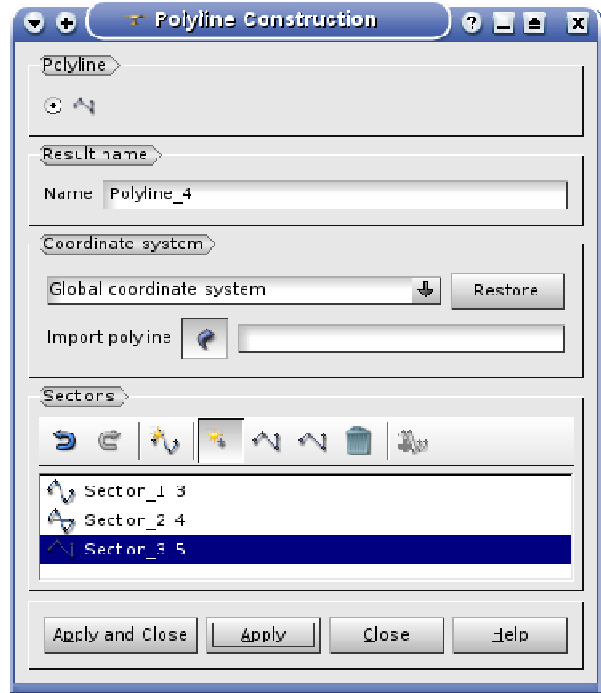
The corresponding dialog can be opened via **New Entity → Basic → 2D Polyline** in the main menu or

using **2D Polyline** toolbar button .

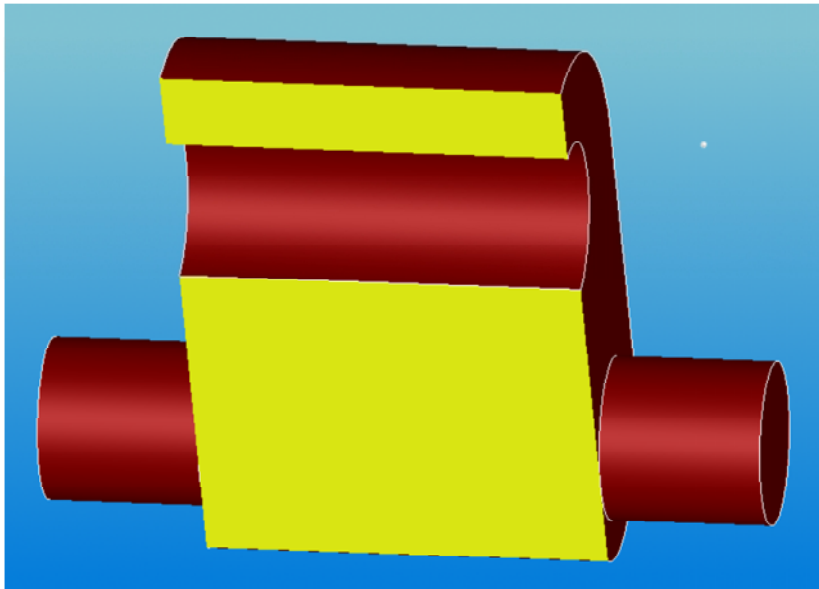
It is possible to import an existing polyline or to create a new one from scratch, by clicking **Insert New Section** button.

The section will be displayed in the list of sections

Each section is constructed from a sequence of 2D points connected by linear segments or an interpolation curve.

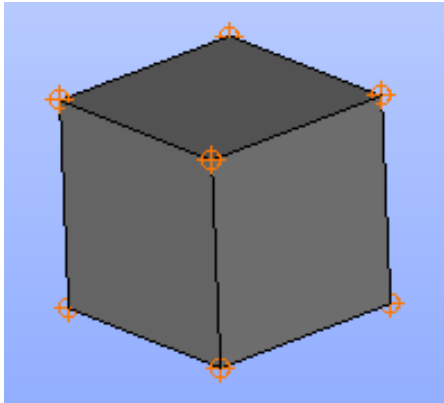


### Improvement of Clipping



Clipping of a solid in OCC view now can draw its cross-section as a polygon filled with the specified color.

### Show Vertices display mode



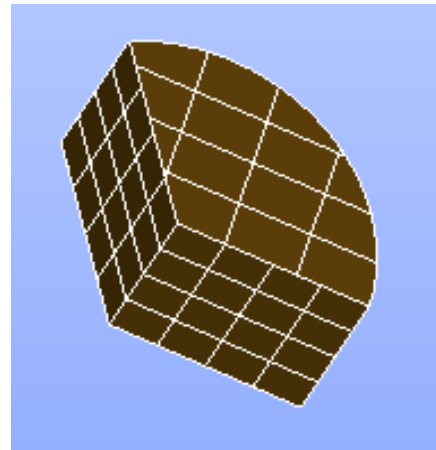
New **Show vertices** display mode can be activated using context menu item **Display Mode → Show Vertices**.

This mode shows an additional layer with vertices of the selected shape over the current display mode.

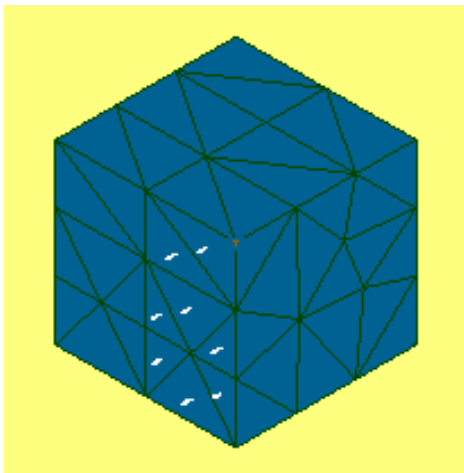
### Create a Segment of Cylinder

New optional parameter **Angle** allows creating a segment of cylinder.

A full cylinder is created if Angle is equal to 360°; 90° creates its quarter, etc.



### Reorient Faces in Relation to Adjacent Volumes



**Reorient faces** functionality now allows reorientation of faces in relation to the adjacent volumes.

This operation is accessible via **Modification → Reorient faces** in the main menu. Select the relevant face and the object (mesh, sub-mesh or group) containing reference volumes and choose if the face normals should point inside or outside of the volumes.

The corresponding Python function is `Reorient2DBy3D()`.

See the example with face normals pointing outside of the reference volume in the picture.

### HYBRIDPlugin mesher

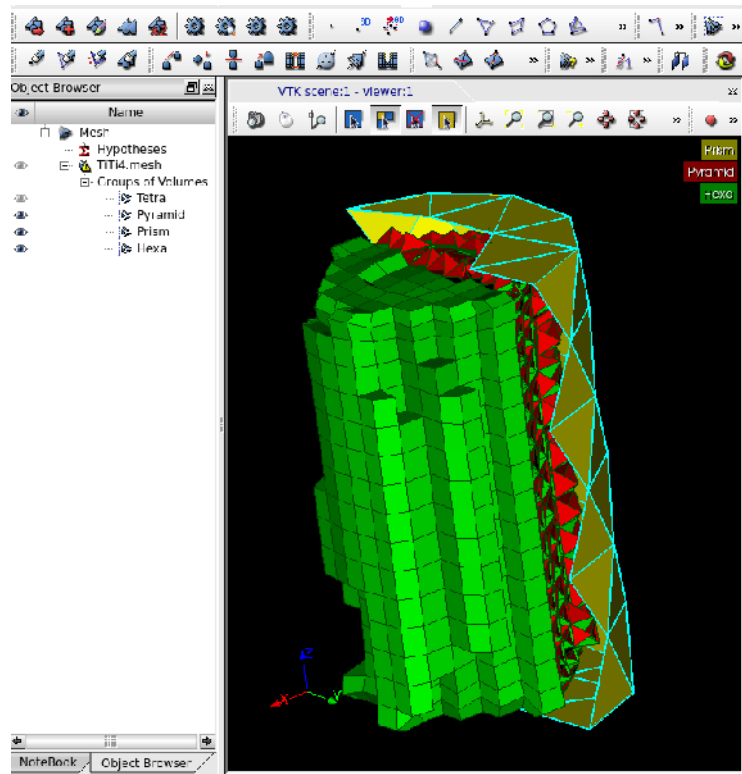
A new **HYBRIDPLUGIN** meshing plugin has been introduced.

It is designed for:

- Meshing 3D geometric closed entities: volumes are split into tetrahedra, pyramids, prisms and hexahedra elements.
- Generating 3D meshes from 2D meshes of a wrap (triangles and quadrangles), working with geometrical objects for setting and meshing layers.

**Note:** HYBRIDPLUGIN plugin uses DISTENE MeshGems-Hybrid commercial mesher utility (which is a project in 2014) and requires a license to be used with the Mesh module.

To manage parameters of the HYBRIDPLUGIN use "HYBRID Parameters" hypothesis.



### Re-architecture of the PARAVIS module

The architecture of the ParaVis module has been fully redesigned to benefit from ParaView's client-server model. All the previous cumbersome CORBA wrappings for VTK/ParaView services have been completely removed. As a result, the ParaVis module became much more light-weight and should open more quickly.

In addition, the ParaView native viewer became a part of SALOME GUI framework. Any module can now directly use ParaView viewer for visualization purposes without explicit activation of ParaVis module.

#### Tips for ParaVis's activation acceleration:

- By default, the fully detached mode of ParaView is used (independent rendering/data server - aka pvserver – is launched as a separate process). The settings of the ParaVis module allow to switch back to the built-in mode where the pvserver stays embedded in the application: this accelerates the activation, with the limitation that it is not possible to execute ParaVis' Python scripts outside the SALOME graphical interface (for instance, from an external terminal).
- The unused plugins can also be de-activated (menu Tools → Manage plugins...) to accelerate the activation of the module.



**OTHER IMPROVEMENTS**

- **KERNEL module**
  - `GiveContainer` can be called concurrently safely; Remote Container launching is parallel now.
  - `Salome_PyNode` exposes finer API for remote python evaluation (used by YACS module).
- **GUI module**
  - “Start Log” context menu command available from the Python console permits to output the history of operations in a log file. The log records all commands entered by the user in the Python console interactively or executed programmatically and their output, including errors.
  - SALOME Help Browser has been become a standalone “single-instance” application. It can be started only once per user and shared between several running SALOME sessions. This resolves problem with accessing Help information from “modal” dialogs.
- **Geometry module**
  - Import/export mechanism for Geometry module has been redesigned. Separate Import/Export plugins have been introduced for each supported format to allow implementing custom behavior (like additional parameters) within the plugin library.
  - Deflection coefficient now can be specified as a parameter of Export operation for VTK and STL formats in Geometry module. This coefficient allows controlling the quality of resulting shape approximation (triangulation).
  - “Remove extra edges” operation now uses “Fuse collinear edges within a wire” to remove all useless edges when it defines shape boundaries.
  - The default value of shape transparency now can be defined in the preferences of Geometry module.
- **Mesh module**
  - In Mesh module, a message is now shown if Viscous Layers algorithm cannot reach the thickness defined in the hypothesis.
  - In Mesh module, “Display Entity” sub-menu is now available even if the object is not yet displayed. It is possible to show only some requested entities during the first display.
  - “Create/Edit Mesh” dialog has been improved to allow adding, removing and editing unlimited number of additional hypotheses for a mesh or sub-mesh. This feature is useful for specifying several Viscous Layer hypotheses with different parameters to the different faces of the same solid.
- **Med module**
  - MEDLoader advanced API allows partial loading of meshes and fields (used by parallel MEDReader);
  - Performance of expression interpreter for `DataArrayDouble::applyFunc[ , 2 , 3 ]` has been significantly improved (~15x).
  - AMR structures (`MEDCouplingCartesianAMRMesh`) and algorithms have been added.
- **ParaVis module**
  - MEDReader is now able to manage MED files containing fields on Gauss Points that have several localizations for one geometric type.
  - When compiled with MPI support, MEDReader can read a MED file in parallel using new features of MEDLoader.

- **YACS module**
  - New context menu commands have been implemented for nodes in YACS schema: 'Shrink/Expand Children' shrinks/expands all direct child nodes (both elementary and containers) of the selected container node. 'Shrink/Expand Elementary' recursively shrinks/expands all elementary nodes of the selected container node (child container nodes are not affected).
  - Non-ASCII filenames can be used to load and save schemas.
  - New type of a container has been introduced: HP YACS container (HP stands for Homogeneous Pool of SALOME containers). An HP YACS container is mapped to a fixed size set of SALOME containers. This pool is homogeneous, i.e. each SALOME container inside the pool can be used indifferently by the nodes attached to the same HP YACS container.
  - Loading of elementary nodes is performed in parallel now (using new capability of KERNEL).
- **JobManager module**
  - New parameter "Workload Characterization Key" (`wckey`) has been added in the job creation wizard.
  - A possibility to specify extra parameters or environment variables to be added "as is" in the job submission file has been implemented.
  - A possibility to keep cluster default values for memory and time requirements has been added.
- **Meshing plug-ins**
  - In BLSURF (MG-CADSurf) meshing plug-in, it has become possible to generate a quad-dominant mesh even if a gradation parameter is activated.
  - Attractor feature of BLSURF plug-in has been improved to allow applying several attractors of different size to a face.
- **YACSGEN tool**
  - Modules generated by YACSGEN will now have building procedure based on CMake instead of autotools.

#### API CHANGES

- **GUI module**
  - Object names of standard dockable windows have become explicit and unified throughout various modules; this provides robust non-language dependent way to access dockable windows via C++ and Python API.
  - The possibility to programmatically customize behavior of module when "Default" button is pressed in application's Preferences dialog has been added; this can be done by connecting to dedicated signal.
- **MED module**
  - `writeVTK` methods returns the file name with correct extension.
  - New optional parameter has been added to `DataArrayDouble::applyFunc()`.
  - New function `DataArrayDouble::applyFuncOnThis`.
  - `computeFetchedNodeIds` is a method of `MEDCouplingPointSet` class now (so it is available in `MEDCoupling1SGTUMesh` and `MEDCoupling1DGTUMesh` classes).

## o YACSGEN tool

- `Generator.bootstrap()` function does not exist anymore, This step is no longer needed when using CMake.
- There are some modifications when declaring libraries used by the module:

With auto-tools (before):

```
c1=CPPComponent("bibdyn_compo",
  services=list_services,
  libs="-L/toto/lib -lmalib",
  rlibs="-Wl,--rpath -Wl, /toto/lib",
  includes="-I/toto/include")
```

With CMake (now):

```
c1=CPPComponent("bibdyn_compo",
  services=list_services,
  libs=[Library(name="mylib", path="/path/to/lib")]
  rlibs="/toto/lib",
  includes="/toto/include")
```

## ❖ BUG CORRECTIONS

### GUI MODULE

22614	<p><i>Summary:</i> [CEA 1146] SalomePyQt Python API tabifyDockWidgets and findDockByWT</p> <p>Object names of standard dockable windows have become explicit and unified throughout various modules.</p>
22628	<p><i>Summary:</i> [CEA 1202] The default icon disposition is not correct in French and in Japanese</p> <p>The problem with position of toolbar icons in localized Salome versions has been fixed.</p>
22651	<p><i>Summary:</i> CEA 1224] Removed code in Plot 2D</p> <p>The method <code>Plot2d_QwtPlotCurve::updateLegend</code> that is used to create legend has been restored.</p>
22652	<p><i>Summary:</i> [CEA 1194] Redirect the traces from embedded Python console in a log file</p> <p>New “Start Log” context menu command has been implemented for the Python console to output the history of operations in a log file.</p> <p>The command opens a dialog to browse for the log file for the current study.</p> <p>The log records all commands entered by the user in the Python console interactively or executed programmatically and their output, including errors.</p>
22669	<p><i>Summary:</i> [CEA 1255] Error in method <code>createSegment</code> from the class <code>Plot2d_ViewFrame</code></p> <p>The object <code>aSymbol</code> is now correctly initialized in method <code>Plot2d_ViewFrame::createSegment</code>.</p>
22671	<p>[CEA] Standalone Help Browser</p> <p>SALOME Help Browser has been become a standalone “single-instance” application. It can be started only once per user (i.e. it is shared by all instances of “parent” application).</p> <p>Any new call of the Help Browser is forwarded to its single running instance.</p>
22673	<p><i>Summary:</i> [CEA 1260] Regression: opening a new study hides the modules toolbar</p> <p>The problem with hidden modules toolbar has been fixed.</p>
22712	<p><i>Summary:</i> [CEA 1300] <code>LightApp_PreferencesDlg</code> – invalid layout / resize policy</p> <p>The preferences manager has been improved to properly layout the frame panel of the preferences dialog if it is scrollable.</p>
22769	<p><i>Summary:</i> [CEA 1312] Regression: fatal error on the opening of the menu context in the Python console</p> <p>The error arising at the attempt to open the context menu in the Python console has been fixed.</p>

22773	<p><i>Summary:</i> [CEA 1314] Plot2D: The titles of the devices no visible after validating the settings window</p> <p>The problem with invisibility of device titles in Plot 2D viewer has been fixed.</p>
22780	<p><i>Summary:</i> [CEA 1282] Override "Default" button from Preferences dialog box</p> <p>The possibility to programmatically customize behavior of module when "Default" button is pressed in application's Preferences dialog has been added; this can be done by connecting to dedicated signal.</p>
22802	<p><i>Summary:</i> EDF 9111 GUI: Regression: SIGSEV error when loading JOBMANGER after a python module</p> <p>Access to Python interpreter helper class has been redesigned to introduce a single global helper class, managed by the application. Thus, the closing of Python console window does not cause destroying of Python interpreter helper class and study closing.</p>
22825	<p><i>Summary:</i> EDF GUI regression: Issue with accent in the OB.</p> <p>Fixed regression with using UTF-8 encodings object names.</p>
N/A	<p><i>Summary:</i> Fix bug for "light" modules: when running in "full" mode, Copy/Paste actions' state is not properly updated on selection change event.</p>
N/A	<p><i>Summary:</i> Update Object browser properly after switching back from the module that does not use (and does not expose) Object browser.</p>
N/A	<p><i>Summary:</i> Fix a bug that FitAll does not properly work in VTK 3D viewer for small objects (with bounding box's size &lt; 1).</p>
N/A	<p><i>Summary:</i> Fix SIGSEGV at SALOME exit.</p>

**KERNEL MODULE**

22629	<p><i>Summary:</i> [CEA 1203] The option <code>-r</code> or <code>-resources</code> does not work</p> <p>Salome launch option <code>-r</code> or <code>-resources</code> has been fixed to properly load custom preferences.</p>
22630	<p><i>Summary:</i> EDF 8445 – using multiprocessing with the Python console of SALOME 7.4.0</p> <p>The possibility of multiprocessing using the Python Console has been restored.</p>
22790	<p><i>Summary:</i> [CEA 1317] Regression: Two different users launching Salome at the same time</p> <p>PortManager lock file is now accessible for all users. This file is always created in a temporary folder, because it should be unique on each machine, whatever OMNIORB_USER_PATH value is.</p>

N/A	<p><i>Summary:</i> Fixes of the salome runner:</p> <ul style="list-style-type: none"> <li>- Fix bug preventing SALOME applications without GUI to launch properly;</li> <li>- Process special case for YACS scheme execution;</li> <li>- Minor refactoring.</li> </ul>
N/A	<p><i>Summary:</i> Fix a bug causing concurrent access problems to the Resources Manager.</p> <p>Since the development of parallel container launch, the container manager is multi-threaded, but it used directly by the resource manager which was not thread safe. With this fix, all calls from the container manager to the resource manager are done through CORBA, and since the resource manager runs in a single-thread POA; thread-safety is thus ensured.</p>
N/A	<p><i>Summary:</i> Problem to activate ParaVis module when using new launcher to start SALOME</p> <p>Use realpath function in launcher scripts to follow symbolic links.</p>
N/A	<p><i>Summary:</i> Regression: impossible to run executable scripts or programs (not necessarily in python) available in system environment, when using new salome launcher.</p> <p>Corrected a problem preventing running of bash scripts in salome shell.</p>

**GEOM MODULE**

20824	<p><i>Summary:</i> EDF 1381 GEOM: Partition between a face and a solid fails.</p> <p>Fixed problem of Partition algorithm.</p>
21791	<p><i>Summary:</i> [CEA 623] Clipping: no difference between a closed shell and a solid</p> <p>Clipping of a solid now can draw its cross-section as a polygon filled with the specified color.</p> <p>In the clipping dialog, the spin-boxes have been replaced with sliders.</p> <p>The fix for this problem has been made with issues OCC24521, OCC24901, OCC24902, OCC24903, OCC25060, OCC25132 and OCC25202.</p> <p>See chapter "OCCT 6.8.0 bug corrections" for more details.</p>
21835	<p><i>Summary:</i> EDF 2070 GEOM: Problem with detecting Self-intersections</p> <p>A set of bugs caused incorrect work of check self-intersections algorithm has been fixed.</p>
21836	<p><i>Summary:</i> EDF 2204 GEOM: Regression in partition operation.</p> <p>Fixed with patch for OCCT 6.8.0 – issues OCC25432 and OCC25449.</p>
22057	<p><i>Summary:</i> EDF 2510 GEOM: Problem with extrusion along a path.</p> <p>The diagnostics of incorrect result obtained after pipe creation has been improved.</p> <p>The fix for this problem has been made in issue OCC24949.</p>
22149	<p><i>Summary:</i> [CEA 788] "Glue Edges" produces incorrect faces on ellipsoids =&gt; mesh computing fails</p> <p>The fix for this problem has been made in issues OCC23839, OCC24973 and OCC25084</p>

22379	<p><i>Summary:</i> EDF 2276 GEOM: Show the ascendants and descendants of a GEOM object in a family tree</p> <p>It is now possible to display the ascendants and descendants of one or several objects in form of a tree structure.</p>
22472	<p><i>Summary:</i> EDF 2690 GEOM: Keep only some terminal objects and its parents</p> <p>New “Reduce study” operation allows sorting objects that are currently in the study to keep only the final results of the design operations.</p>
22495	<p><i>Summary:</i> [CEA 1058] Shape becomes invalid after <code>UnionFaces</code></p> <p>The union face construction algorithm has been fixed by copying a surface from base faces and correcting construction of <code>PCurves</code>.</p> <p>The fix for this problem has been made in issues OCC24454 and OCC25014.</p>
22540	<p><i>Summary:</i> EDF 2857 GEOM: problem to generate a face</p> <p>The algorithm analyzing Free Bounds has been improved to handle cases when a compound contains only edges with <code>INTERNAL</code> orientation without any wires or faces.</p> <p>The fix for this problem has been made in issues OCC24807 and OCC25068.</p>
22553	<p><i>Summary:</i> EDF 2857 – 7832 GEOM: self-Intersections with partition</p> <p>The algorithm finding face/face intersection has been improved to correctly process cases when both faces are based on planar surfaces, the angle between planes is small and the origin of intersection line should be refined.</p> <p>The fix for this problem has been made in issue OCC24914.</p>
22557	<p><i>Summary:</i> EDF GEOM: Regression of <code>MakePipe</code> on <code>Salome_master/OCCT_6_7_1_beta</code></p> <p>Sweeping of shells or compounds of faces has been corrected.</p> <p>The fix for this problem has been made in issues OCC24840 and OCC24880.</p>
22581	<p><i>Summary:</i> EDF 8035 GEOM: Offset Surface fails</p> <p>The algorithm building spherical faces corresponding to sharp corners of the initial shape has been corrected.</p> <p>The fix for this problem has been made in issue OCC24910.</p>
22592	<p><i>Summary:</i> EDF 8054 GEOM: Regression with the fuse operation</p> <p>The algorithm computing the resolution of Hyperbola and Parabola curves has been corrected.</p> <p>The fix for this problem has been made in issues OCC24939 and OCC24946.</p>
22616	<p><i>Summary:</i> [CEA 1038] Improve the quality of STL and VTK exports</p> <p>Import/export mechanism has been redesigned. Separate Import/Export plugins have been introduced for each supported format (BREP, IGES, STEP, STL, VTK and XAO) to allow implementing custom functionality within the plugin library. Deflection coefficient now can be specified as a parameter of Export operation for VTK and STL formats. This coefficient allows controlling the quality of resulting shape approximation (triangulation).</p>

22617	<p><i>Summary:</i> [CEA 1060] In OCC view, add “Show vertices” in the context menu</p> <p>New “Show vertices” display mode has been introduced for GEOM objects in the 3D viewers. This mode shows an additional layer with vertexes of the selected shape over the current display mode.</p> <p>The fix for this problem has been made in issue OCC25099.</p>
22618	<p><i>Summary:</i> [CEA 1062] Define the transparency by default in the preferences</p> <p>The default transparency now can be defined in the preferences.</p>
22619	<p><i>Summary:</i> [CEA 1094] Dump study in utf8</p> <p>Support of UTF-8 coding in dumped studies has been improved.</p>
22620	<p>[CEA 1061] Remove points on collinear edges of a face’s wire.</p> <p>“Remove extra edges” operation now uses “Fuse collinear edges within a wire” to remove all useless edges when it defines shape boundaries.</p>
22626	<p><i>Summary:</i> EDF 8453 GEOM: order with <code>SubShapeAllSortedCentres</code></p> <p>The description of sub-shapes sorting criteria has been improved in the documentation.</p>
22631	<p><i>Summary:</i> [CEA 1204] <code>MakePartition</code> does not work on a compound made of hollowed spheres</p> <p>The normal direction for <code>REVERSED</code> faces is now also reversed. This allows improving the result of General Fuse algorithm.</p> <p>The fix for this problem has been made in issues OCC25095 and OCC25127.</p>
22661	<p><i>Summary:</i> EDF GEOM: [HYDRO] Integration of the polyline editor in GEOM</p> <p>The possibility to create 2D polylines has been integrated in Salome.</p>
22667	<p><i>Summary:</i> EDF 7375 GEOM: Add angle argument to “Create cylinder” function.</p> <p>New optional parameter “Angle” has been implemented to create a radial segment of cylinder.</p>
22674	<p><i>Summary:</i> [CEA 1261] Regression of function <code>MakeShell</code>.</p> <p>A check for resulting type has been added to all function constructing topological shapes like <code>MakeEdge</code>, <code>MakeWire</code>, <code>MakeFace</code>, <code>MakeShell</code>, <code>MakeSolid</code>, <code>MakeCompound</code>. If the result of the operation is not as expected, an explicit exception is raised.</p>
22689	<p><i>Summary:</i> EDF GEOM: Regression - Extrusion along a path with a divided disk.</p> <p>Fixed with patch for OCCT 6.8.0 – issue OCC25456.</p>
22697	<p><i>Summary:</i> EDF 8788 GEOM: Regression with <code>MakePipe</code>.</p> <p>Fixed with patch for OCCT 6.8.0 – issue OCC25480.</p>



22703	<p><i>Summary:</i> EDF GEOM: Regression: Partition failure</p> <p>The check for edge orientation has been introduced in <code>BrepFill_Sweep</code> algorithm</p> <p>The fix for this problem has been made in issue OCC25272.</p>
22705	<p><i>Summary:</i> <code>MakeGlueFaces</code> produces self-intersections</p> <p>The algorithm for adjustment of a 2D curve now uses precision value in parametric space.</p> <p>The fix for this problem has been made in issue OCC25285.</p>
22706	<p><i>Summary:</i> EDF GEOM: Regression in T-shape pipe primitive with fillet: <code>HexMesh</code> option induces an error.</p> <p>Fixed with patch for OCCT 6.8.0 – issues OCC25592 and OCC25657.</p> <p>Additionally, GEOM module has been patched.</p>
22714	<p><i>Summary:</i> EDF GEOM: Issue with <code>MakePipeTShapeChamfer</code></p> <p>The value of tolerance that is used for generation of section and computation of filling has been corrected.</p>
22743	<p><i>Summary:</i> EDF GEOM: Regression in <code>MakePipeTShapeChamfer</code>: Some faces are missing in a <code>GetShapesOnCylinder</code> result.</p> <p>Fixed with patch for OCCT 6.8.0 – issues OCC25450 and OCC25455.</p> <p>Additionally, GEOM module has been patched.</p>
22771	<p><i>Summary:</i> [CEA 1311] Creating a smaller wire when using function "Fuse Collinear Edges Within A Wire"</p> <p>The problem with "Fuse Collinear Edges Within A Wire" algorithm has been fixed.</p>
22786	<p><i>Summary:</i> EDF GEOM: Regression with Partition operation</p> <p>The starting point of extrusion in case of infinite border curves is now determined correctly.</p> <p>The fix for this problem has been made in issues OCC25407 and OCC25408.</p>
22819	<p><i>Summary:</i> [CEA 1339]: Regression: the distance between a sphere and an embedded box is non zero.</p> <p>Fixed bug of <code>MinDistance</code> operation.</p>
22820	<p><i>Summary:</i> [CEA 1342] Regression: the distance between a sphere and a cylinder that touch is not zero.</p> <p>Fixed bug of <code>MinDistance</code> operation.</p>
22832	<p><i>Summary:</i> EDF GEOM: Bug with curve construction.</p> <p>Fixed improper implementation of function comparing two GEOM objects.</p>

N/A	<p><i>Summary:</i> Fixes bugs in 2D sketcher:</p> <ul style="list-style-type: none"> <li>a) Improper set of command parameters (notebook variables) in "rectangle" mode.</li> <li>b) Added support of notebook variables in the Python API class Sketcher2D.</li> </ul>
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**SMESH MODULE**

21397	<p><i>Summary:</i> EDF SMESH: a quadrangle face mesh can't be projected to a cylinder Fixed regression in Projection operation.</p>
21859	<p><i>Summary:</i> Add conversion from QUAD8 to QUAD9 and from HEXA20 to HEXA27 A regression has been fixed in the script testing conversion into bi-quadratic elements.</p>
22082	<p><i>Summary:</i> EDF 1891 SMESH: Performance issues in SMESH filters In the Filter dialog, "Insert filter in viewer" button is not available for the group created on a filter.</p>
22420	<p><i>Summary:</i> [CEA 1004] Take the "incremental limit check" into account at first mesh display. Display Entity sub-menu is now available even if the object is not yet displayed. It is possible to show only some requested entities during the first display.</p>
22483	<p><i>Summary:</i> EDF 2772 SMESH: Define several 3D viscous layer hypotheses on the same Geometry. "Create/Edit Mesh" dialog has been improved to allow adding, removing and editing unlimited number of additional hypotheses for a mesh or sub-mesh. As several additional hypothesis can introduce inconsistency of meshing parameters they define, user notification on errors of hypotheses definition has been improved to provide more information on what is wrong.</p>
22484	<p><i>Summary:</i> EDF 2304 SMESH: Reorient a group of faces regarding to a volume. "Reorient faces" functionality now allows reorientation of faces in relation to the adjacent volumes. The corresponding Python function is <code>Reorient2DBy3D()</code>.</p>
22580	<p><i>Summary:</i> EDF 8049 SMESH: Problems with viscous layer. A message is now shown if Viscous Layers algorithm cannot reach the thickness defined in the construction hypothesis.</p>
22604	<p><i>Summary:</i> EDF 8219 - many SMESH plugins in Mesh menu The Python plugin manager code that creates actions has been moved from <code>activateModule()</code> to <code>initialize()</code> function to ensure that the code will be invoked only once.</p>
22611	<p><i>Summary:</i> EDF 8409 SMESH: Bad dump of <code>CutListOfGroups</code>. Python dump of <code>CutListOfGroups()</code> command has been corrected.</p>

22613	<p><i>Summary:</i> EDF 8419 SMESH: 1d hypothesis is not applied correctly with 3Dextrusion.</p> <p>Propagation of node distribution among vertical prism edges has been disabled in "3D Extrusion" mesher.</p>
22632	<p><i>Summary:</i> [CEA 1205] Regression in script from CEA 11_tui_grille.py.</p> <p>Regression of Hexahedron mesher has been fixed.</p>
22633	<p><i>Summary:</i> [CEA 1206] Regression in script 08_composite_hexahedron.py.</p> <p>Regression of Hexahedron mesher has been fixed.</p>
22638	<p><i>Summary:</i> [CEA 1210] Wrong import of an UNV file.</p> <p>The UNV file reader has been improved to support reading meshes in 2D space.</p>
22653	<p><i>Summary:</i> [CEA 1225] RuntimeError at mesh.Compute().</p> <p>The problem with computing meshes containing sub-meshes on compounds and shells has been fixed.</p>
22656	<p><i>Summary:</i> [CEA 1226] Script blsurf_submesh.py raises an exception</p> <p>The problem with computing meshes containing sub-meshes on compounds and shells has been fixed.</p>
22658	<p><i>Summary:</i> EDF 8542 SMESH: GHS3D computation randomly fails</p> <p>The problem of GHS3D algorithm used with Viscous Layers hypothesis has been fixed.</p>
22670	<p><i>Summary:</i> [CEA 1095] Deflection coefficient has no influence on a shape displayed in the VTK View</p> <p>The limitation on the lower boundary of deflection coefficient for VTK viewer has been removed (previously it was set to 0.001 to avoid application hang-up).</p>
22672	<p><i>Summary:</i> SMESH: Add a "Reset" in the "Controls" menu of SMESH</p> <p>The following improvements have been introduced in the functionality of mesh controls:</p> <ul style="list-style-type: none"> <li>• Only one control mode can be selected in the "Controls" menu and toolbar;</li> <li>• It is possible to set the general control mode for multiple selected objects;</li> <li>• "Reset" button discarding any applied controls is now available in the "Controls" toolbar and menu group.</li> </ul>
22690	<p><i>Summary:</i> [CEA 1276] Regression on the test script ecorce.py</p> <p>The problem with meshing a prism object by NETGEN 2D mesher has been fixed.</p>
22691	<p><i>Summary:</i> [CEA 1279] Regression on test attached with issue 22229</p> <p>The problem with processing intersecting triangles by NETGEN 2D mesher has been fixed.</p>

22701	<i>Summary:</i> EDF SMESH: Crash when creating mesh Salome crash at the attempt to create mesh on a T-shape object has been fixed.
22709	<i>Summary:</i> [CEA 1295] Regression of script attached to issue 22690 The problem with Projection 2D meshing algorithm on spheres has been fixed.
22710	<i>Summary:</i> [CEA 1296] Regression of a MG-CADSurf mesh with face projection The problem with projection 2D meshing algorithm on circles has been fixed.
22711	<i>Summary:</i> [CEA 1297] Regression of mesh with a projection on a spherical face The problem with Projection 2D meshing algorithm on spheres has been fixed.
22737	<i>Summary:</i> [CEA 1303] Regression on test script 12_cube_ecorce_noyau.py The problem with fineness of mesh built by NETGEN 3D meshing algorithm has been fixed.
22770	<i>Summary:</i> EDF 8871 SMESH: Bi-quadratic mesh convert with medium nodes on geometry The conversion to a bi-quadratic mesh has been fixed to position medium nodes on the geometry if this is required.
22772	<i>Summary:</i> EDF 8916 SMESH: Issue with a quadrangle mesh The problem with incorrect detection of inverted quadrangles by Quadrangle (Mapping) mesher has been fixed.
22787	<i>Summary:</i> [CEA 1320] Regression of test \$SMESH_ROOT_DIR/bin/salome/SMESH_reg.py The problem with Number of Segments hypothesis if used together with analytic density distribution has been eliminated.
22797	<i>Summary:</i> EDF 9014 SMESH: Problem with the 3D extrusion algorithm Extrusion 3D algorithm has been fixed to correctly detect source faces on a complex compound of blocks and non-blocks.
22798	<i>Summary:</i> EDF 9100 SMESH: Dump python and Compute() position Python dump in historical mode has been fixed to obtain by the execution of the dumped script the same mesh as in usual dump mode.
22806	<i>Summary:</i> EDF SMESH: Regression: Prism_3D error The problem with Extrusion 3D mesher has been fixed.
22808	<i>Summary:</i> EDF SMESH: Regression with 3D Extrusion/ViscousLayers in Salome v7_5_BR The problem with Extrusion 3D mesher has been fixed.
22812	<i>Summary:</i> EDF 9218 SMESH: An empty group is created when using the duplicate nodes and/or elements. Creation of empty groups by "Duplicate nodes/elements" operation has been suppressed.

22830	<i>Summary:</i> EDF 9557 SMESH: Quadratic conversion of a mesh fails. SIGSEGV failure in Convert to Quadratic operation, if performed after Duplicate Nodes operation, has been fixed.
N/A	<i>Summary:</i> Bug: unable to create LocalLength hypothesis for a sub-mesh on a shape with a degenerated edge.
N/A	<i>Summary:</i> Fix regression of mesh_Projection_2D_00/A1 test.

**MED MODULE**

22588	<i>Summary:</i> [CEA 1168] MEDCouplingRemapper::prepare is not documented The method MEDCouplingRemapper::prepare() has been documented.
22606	<i>Summary:</i> [CEA 1183] sauv2med returns an error if a field is scattered in two tables in the .sauv The problem with reading fields stored into two different tables has been fixed.
22609	<i>Summary:</i> EDF 8404 crash using MEDCouplingRemapper An explicit exception is raised instead of crash at the attempt to apply 3D interpolation to nonlinear 3D cells.
22612	<i>Summary:</i> [CEA 1189] sauv2med should not change faces orientation The utility sauv2med has been fixed to avoid changing cell orientation during save.
N/A	<i>Summary:</i> MEDLoader::GetTypesOfField function is implemented now with advanced API
N/A	<i>Summary:</i> Fixed bug in a MEDCouplingUMesh::Intersect2DMeshWith1DLine function
N/A	<i>Summary:</i> MEDFileUMesh::zipCoords updates correctly the part definition is any without computation of merged umesh.
N/A	<i>Summary:</i> CheckDeepEquivalWith should also return OK with two empty meshes.
N/A	<i>Summary:</i> Intersect2DMeshWith1DLine: Bug correction concerning cells in mesh1D collinear to some edges in mesh2D.
N/A	<i>Summary:</i> Bug correction of MEDFileUMesh.zipCoords seen in parallel context.
N/A	<i>Summary:</i> Using MEDparFileOpen for all Para* methods.

**PARAVIS MODULE**

22524	<p><i>Summary:</i> [CEA 1103] Unset environment variables in demo scripts</p> <p>Demo scripts have been redesigned to use files from <code>SAMPLES_SRC</code> instead of <code>ParaViewData</code>.</p>
22610	<p><i>Summary:</i> EDF 8407 PARAVIS: Filter ELNO points</p> <p>The fields are now correctly shown when "ELNO Points" filter is used.</p>
22657	<p><i>Summary:</i> EDF 8476: Major performance issue on GUI side of ParaView.</p>
22677	<p><i>Summary:</i> EDF 8655 PARAVIS: Impossible to read a MED file, <code>MEDReader</code> returns an error</p> <p><code>MEDReader</code> has been modified to support reading of files containing more than one gauss point description for a single geometry type.</p>
22682	<p><i>Summary:</i> [CEA 1265] Dumped script containing cell normals ends with an error</p> <p>The problem with locating <code>cellNormals</code> array in the input script has been fixed.</p>
22811	<p><i>Summary:</i> EDF 9266 PARAVIS: <code>PVViewer</code> is broken after connecting a study while Paravis is loading.</p>
22813	<p><i>Summary:</i> [CEA 1336] Regression: <code>SIGSEGV</code> at the med file opening.</p>
22815	<p><i>Summary:</i> [CEA 1340] Regression: Failing dump with PARAVIS.</p>
22829	<p><i>Summary:</i> EDF 9568 Paraview: Paraview pops up an X window when a file is rendered by the <code>pvserver</code>.</p> <p>Fixed by launching <code>pvserver</code> with the off-screen rendering (<code>--offscreen-rendering</code> option).</p>
22847	<p><i>Summary:</i> [CEA 1408] Regression: in 7.5.1rc1 switching to Paravis to some other modules keeps the Paravis toolbars visible</p>
22850	<p><i>Summary:</i> EDF PARAVIS: Save study does not work in ParaVis</p> <p>Prevent emitting CORBA exception from <code>Version()</code> method of PARAVIS engine in case if all SALOME are installed into the single folder (virtual application).</p>
N/A	<p><i>Summary:</i> In the Extract group filter there is no more <code>SIGSEGV</code> when it is improperly called.</p>
N/A	<p><i>Summary:</i> The data array generated by the "Generate Vector" of <code>MEDReader</code> is now correctly seen by <code>ELNO</code> filter.</p>
N/A	<p><i>Summary:</i> Fixing timesteps/timerange when PARAVIS is activated after a <code>PVViewer</code> has been launched.</p>

N/A	<i>Summary:</i> Correction of issue EDF8662 (ELNOPoint, ELNOMesh after ExtractGroup)
N/A	<i>Summary:</i> EDF9622: Correction of ELNOPoints part

**YACS MODULE**

21266	<p><i>Summary:</i> The port <code>nsteps</code> in a <code>ForLoop</code> node is editable in the execution mode</p> <p>In the schema execution mode it is no longer possible to modify:</p> <ul style="list-style-type: none"> <li>- <code>nsteps</code> in <code>ForLoop</code> nodes</li> <li>- <code>condition</code> in <code>WhileLoop</code> nodes</li> <li>- <code>nb. branches</code> and <code>SmplsCollection</code> in <code>ForEachLoop</code> nodes</li> <li>- <code>select</code> in <code>Switch</code> nodes</li> </ul> <p>Also, when <code>PyFunction</code> node is selected in the schema execution mode, the "template" button and the function name field are now disabled.</p>
22615	<p><i>Summary:</i> [CEA 1014] Fold/unfold all the nodes of a block</p> <p>Advanced behavior of 'Shrink/Expand' functionality has been implemented for YACS nodes in graphical schemes:</p> <ul style="list-style-type: none"> <li>• 'Shrink/Expand' context menu item shrinks/expands the selected node. The same can be done by double clicking on the node.</li> <li>• 'Shrink/Expand Children' context menu item shrinks/expands all direct child nodes (both elementary and containers) of the selected container node. The same can be done by double clicking on the node with pressed 'Ctrl' button.</li> <li>• 'Shrink/Expand Elementary' context menu item recursively shrinks/expands all elementary nodes of the selected container node (child container nodes are not affected). The same can be done by double clicking on the node with pressed 'Ctrl' and 'Shift' buttons.</li> </ul>
22648	<p><i>Summary:</i> [CEA 1217] Position of nodes are lost after shrink/unshrink operations</p> <p>A check at XML loading has been added to avoid null values of <code>exp<sub>x</sub></code> and <code>exp<sub>y</sub></code> coordinates, which were misinterpreted by YACS.</p>
22785	<p><i>Summary:</i> [CEA 1319] Regression of test <code>sinline4</code></p> <p>The problems introduced by the implementation of a new <code>SalomeComponent</code> type taking advantage of <code>HPContainer</code> have been eliminated.</p>
N/A	<i>Summary:</i> Non-ASCII filenames can be used to load and save schemas.
N/A	<i>Summary:</i> The problems when using a <code>ForEachLoop</code> node inside of another <code>ForEachLoop</code> node are now fixed.
N/A	<p><i>Summary:</i> New type of a container has been introduced: HP YACS container (HP stands for Homogeneous Pool of SALOME containers). An HP YACS container is mapped to a fixed size set of SALOME containers. This pool is homogeneous, i.e. each SALOME container inside the pool can be used indifferently by the nodes attached to the same HP YACS container.</p>

**BLSURFPLUGIN MODULE**

22622	<p><i>Summary:</i> [CEA 1191] No default value for gradation in Salome code</p> <p>It has become possible to generate a quad-dominant mesh even if gradation is activated.</p>
22623	<p><i>Summary:</i> [CEA 1198] Select graphically a point to set him a local size</p> <p>Problem with activating invalid selection filter by default in the BLSURF parameters has been fixed.</p>
22625	<p><i>Summary:</i> [CEA 1195] Several attractors per face</p> <p>Attractor feature of BLSURF plug-in has been improved to allow applying several attractors of different size to a face.</p>
22685	<p><i>Summary:</i> EDF 8723 SMESH: Verbosity with BLSURF</p> <p>The description of Verbosity settings for MG-CADSurf mesher has been corrected in the user's guide.</p>
22704	<p><i>Summary:</i> EDF BLSURFPLUGIN: SetPhysicalMesh parameter "BLSURF_Custom" is not defined</p> <p>A regression introduced by renaming of the DISTENE products has been fixed in Python API of MG-CADSurf (former BLSURF) meshing algorithm.</p>
22783	<p><i>Summary:</i> EDF 8824 BLSURFPLUGIN: SetEnforcedVertexNamedWithGroup() does not create a group</p> <p>The problem that prevented group creation from a compound of two faces has been fixed in method SetEnforcedVertexNamedWithGroup() of MG-CADSurf mesher API.</p>

**GHS3DPLUGIN MODULE**

22608	<p><i>Summary:</i> [CEA 1158] GHS3DPLUGIN default optimization level</p> <p>The optimization level is now set to NONE if creation of new nodes is forbidden.</p>
22687	<p><i>Summary:</i> [CEA 1271] Regression on test script bug_714_ghs3d_enforced_mesh.py</p> <p>A regression of Enforced Meshes feature of MG-Tetra has been fixed.</p>
22784	<p><i>Summary:</i> EDF 8824 GHS3DPLUGIN: SetEnforcedVertexNamedWithGroup() does not add an extra group</p> <p>It has become possible to add or modify Enforced Vertices via the GUI of MG-Tetra mesher plug-in.</p>



**OTHER ISSUES**

22778	<p><i>Summary:</i> [CEA 1298] Python file compilation should be done at build time, not install time.</p> <p>Build procedure has been improved to avoid compilation of Python files each time when 'make install' is called – only files that have been changed are compiled now (requires CMake 2.8.11 or newer).</p>
22816	<p><i>Summary:</i> [CEA 1337] file <code>runSalome.py</code> in HOMARD sources.</p> <p>Files with duplicated names in different modules have been renamed to have unique names within SALOME distribution.</p>
22824	<p><i>Summary:</i> EDF 9518 Paraview: Paraview crash when using automatic completion in the Paraview python shell.</p> <p>Fixed with additional patch for ParaView 4.2.</p>
N/A	<p><i>Summary:</i> The pvbatch is SEGFAULTing with patched version of ParaView.</p> <p>Fixed with additional patch for ParaView 4.2.</p>
N/A	<p><i>Summary:</i> Update Japanese translations.</p> <p>Japanese translations for SALOME textual resource files have been done (from Crowdin).</p>
N/A	<p><i>Summary:</i> YACSGEN: hxx2salome - create a link to c++ component documentation.</p>

## ❖ OCCT 6.8.0 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 6.8.0.

Note that only the issues related to SALOME platform are listed below.

### CORRECTIONS INCLUDED INTO OFFICIAL OCCT VERSION 6.8.0

OCC23511	<i>Summary:</i> The function <code>BRepTools::UVBounds</code> provides incorrect result for a face Regression detected from the test script CEA/A7
OCC24249	<i>Summary:</i> Crash on <code>ShapeFix_Shape</code> Referenced by 0022307: EDF GEOM: BR_new_bop3/Occdev_3f4689a163 => <code>MakePartition</code> creates two more vertices.
OCC24404	<i>Summary:</i> The function <code>BRepTools::UVBounds</code> gives wrong result for the face Referenced by 0021991: [CEA 717] <code>GlueEdges</code> fails because an unexpected point had been created by <code>MakeCut</code>
OCC24521	<i>Summary:</i> Visualization – automatic back face culling is not turned on for Solids packed into compound, Referenced by 0021791: [CEA 623] Clipping: no difference between a closed shell and a solid.
OCC24714	<i>Summary:</i> Camera integration - difference in behavior of <code>V3d_View::SetSize</code>
OCC24807	<i>Summary:</i> Exception in <code>ShapeAnalysis_FreeBounds::ConnectEdgesToWires</code> . Referenced by 0022540: EDF 2857 GEOM: problem to generate a face.
OCC24880	<i>Summary:</i> Invalid result of pipe creation. Referenced by 0022557: EDF GEOM: Regression with <code>MakePipe</code> on <code>Salome_master/OCCT_6_7_1_beta</code> .
OCC24886	<i>Summary:</i> <code>BRepOffsetAPI_NormalProjection</code> failure Referenced by 0022577: EDF 7971 GEOM: wire projection on a complex surface does not work
OCC24901	<i>Summary:</i> Visualization – Incorrect area filled with capping color. Referenced by <ul style="list-style-type: none"> <li>0021791: [CEA 623] Clipping: no difference between a closed shell and a solid;</li> <li>0022540 EDF 2857 GEOM: problem to generate a face.</li> </ul>
OCC24902	<i>Summary:</i> Visualization, <code>StdPrs_ShadedShape</code> – advanced processing of Compounds containing mixture of closed Solids and open Shells. Referenced by 0021791: [CEA 623] Clipping: no difference between closed shell and solid.

OCC24903	<p><i>Summary:</i> TKOpenGL – disable capping automatically for presentations marked as not closed.</p> <p>Referenced by 0021791: [CEA 623] Clipping: no difference between a closed shell and a solid.</p>
OCC24910	<p><i>Summary:</i> Offset of solid is not created.</p> <p>Referenced by 0022581: EDF 8035 GEOM: Offset Surface fails.</p>
OCC24914	<p><i>Summary:</i> Micro edge is created during Boolean Operations.</p> <p>Referenced by 0022553: EDF 2857 – 7832 GEOM: self-intersections with partition.</p>
OCC24920	<p><i>Summary:</i> Invalid result of Pipe construction</p> <p>Referenced by 0052423: "Extrusion along path" rotates a base face</p>
OCC24933	<p><i>Summary:</i> Inconsistent results of self-interferences checker in SALOME and DRAW Applications.</p> <p>Referenced by 0021835: EDF 2070 GEOM: Problem with detecting Self-intersections</p>
OCC24939	<p><i>Summary:</i> Incorrect result of Fuse operation.</p> <p>Referenced by 0022592: EDF 8054 GEOM: Regression with the fuse operation.</p>
OCC24946	<p><i>Summary:</i> Wrong result obtained by Extrema Curve/Curve.</p> <p>Referenced by 0022592: EDF 8054 GEOM: Regression with the fuse operation.</p>
OCC24949	<p><i>Summary:</i> Segmentation Violation during pipe creation.</p> <p>Referenced by 0022057: EDF 2510 GEOM: Problem with extrusion along a path.</p>
OCC24973	<p><i>Summary:</i> Incorrect PCurve construction.</p> <p>Referenced by 0022149: [CEA 788] "Glue Edges" produces incorrect faces on ellipsoids =&gt; mesh computing fails.</p>
OCC25014	<p><i>Summary:</i> ShapeAnalysis_WireOrder produces Standard_RangeError on empty wire (debug mode only).</p> <p>Referenced by 0022495: [CEA 1058] Shape becomes invalid after Union Faces.</p>
OCC25060	<p><i>Summary:</i> Capping breaks highlighting of shaded AIS_Shape with displayed edges.</p> <p>Referenced by 0021791: [CEA 623] Clipping: no difference between a closed shell and a solid.</p>
OCC25064	<p><i>Summary:</i> TCollection modification for Salome porting</p> <p>Fixed problem of porting to OCCT 6.8.0.</p>

OCC25068	<p><i>Summary:</i> ShapeAnalysis_FreeBounds::ConnectEdgesToWires returns wires with invalid Closed flag.</p> <p>Referenced by 0022540: EDF 2857 GEOM: problem to generate a face.</p>
OCC25071	<p><i>Summary:</i> Visualization - Inconsistent deflection values used by AIS_Shape</p>
OCC25084	<p><i>Summary:</i> Incorrect PCurve construction.</p> <p>Referenced by 0022149: [CEA 788] "Glue Edges" produces incorrect faces on ellipsoids =&gt; mesh computing fails.</p>
OCC25095	<p><i>Summary:</i> Wrong result obtained by projection algorithm.</p> <p>Referenced by 0022631: [CEA 1204] MakePartition does not work on a compound made of hollowed spheres.</p>
OCC25099	<p><i>Summary:</i> Visualization - Option to show vertices of a shape.</p> <p>Referenced by 0022617: [CEA 1060] In OCC view, add "Show vertices" in the context menu.</p>
OCC25127	<p><i>Summary:</i> Wrong result done by General Fuse algorithm.</p> <p>Referenced by 0022613: [CEA 1204] MakePartition does not work on a compound made of hollowed spheres.</p>
OCC25129	<p><i>Summary:</i> Visualization - add interactive object for Points Cloud objects.</p> <p>Referenced by 0022660: EDF GEOM: [HYDRO] Display big point clouds in the OCCT viewer.</p>
OCC25132	<p><i>Summary:</i> Visualization - treat any TopoDS_Solid as a closed volume.</p> <p>Referenced by 0021791: [CEA 623] Clipping: no difference between a closed shell and a solid.</p>
OCC25202	<p><i>Summary:</i> Incorrect value of IsClosed flag in shapes produced by some algorithms.</p> <p>Referenced by 0021791: [CEA 623] Clipping: no difference between a closed shell and a solid.</p>
OCC25251	<p><i>Summary:</i> Visualization - Vertex disappearing from the view after switching display mode</p>
OCC25263	<p><i>Summary:</i> Wrong result of cut operation.</p> <p>Referenced by 0022693: [CEA 1275] Incorrect partition and cut of a cylindrical face with a pie slice</p>
OCC25272	<p><i>Summary:</i> Regression in BRepOffsetAPI_MakePipe: invalid shape is created.</p> <p>Referenced by 0022703: EDF GEOM: Regression: Partition failure.</p>

OCC25285	<i>Summary:</i> Wrong result of General Fuse operation for an edge and a face. Referenced by 0022705: MakeGlueFaces produces self-intersections.
OCC25354	<i>Summary:</i> Intersection operation Referenced by 0022756: [EDF] Intersection operation
OCC25400	<i>Summary:</i> Visualization, TKOpenGL - Structure disappears if assigned a non-default Z layer Referenced by 0052530: TC7.5.0: Bring To Front does not work
OCC25403	<i>Summary:</i> Wrong storage of model units in AIS_AngleDimension Referenced by 0052533: TC7.5.0: 3D Sketch - preview of angle value is wrong
OCC25407	<i>Summary:</i> Exception in extrema operation. Referenced by 0022786: EDF GEOM: Regression with Partition operation.
OCC25408	<i>Summary:</i> Wrong result obtained by General Fuse operator. Referenced by 0022786: EDF GEOM: Regression with Partition operation.
OCC25420	<i>Summary:</i> Wrong result obtained by General Fuse operator. Referenced by 0021836: EDF 2204 GEOM: Regression in partition operation

**CORRECTIONS INCLUDED INTO PATCH FOR OCCT VERSION 6.8.0**

OCC25432	<i>Summary:</i> Wrong result obtained by MakeVolume operator. Referenced by SALOME issue 0021836.
OCC25449	<i>Summary:</i> Excess vertex in result of General Fuse operation. Referenced by SALOME issue 0021836.
OCC25450	<i>Summary:</i> Common operation returns wrong shape. Referenced by SALOME issue 0022743.
OCC25455	<i>Summary:</i> FixShape works at the second attempt Referenced by SALOME issue 0022743.
OCC25456	<i>Summary:</i> BOPAlgo_CheckerSI reports an error on the given shape. Referenced by SALOME issue 0022689.
OCC25465	<i>Summary:</i> Excess vertex in the result of CUT operation. Detected by non-regressions testing.

OCC25480	<i>Summary:</i> Incorrect result of BRepOffsetAPI_MakePipe. Referenced by SALOME issue 0022697.
OCC25488	<i>Summary:</i> Wrong result of two trimmed cylinders intersection. Detected by non-regressions testing.
OCC25492	<i>Summary:</i> The selected sub-shape does not have topological relationship with original shape in OCC680.
OCC25494	<i>Summary:</i> Wrong result obtained by projection algorithm. Detected by non-regressions testing.
OCC25505	<i>Summary:</i> General Fuse produces self-intersection shape. Detected by non-regressions testing.
OCC25511	<i>Summary:</i> Visualization - drop redundant viewer option <code>v3d_View::Transparency()</code> .
OCC25528	Visualization - Exception on removing an interactive object from a local context.
OCC25559	<i>Summary:</i> SIGSEGV in TKMath when computing max tolerance of curve on surface. Detected by non-regressions testing.
OCC25592	<i>Summary:</i> Bad result of Fillet operation. Referenced by SALOME issue 0022706.
OCC25637	<i>Summary:</i> Objects displayed in local context are not listed in displayed objects of interactive context
OCC25657	<i>Summary:</i> Bad result of Fillet operation. Referenced by SALOME issue 0022706.
OCC25664	<i>Summary:</i> Visualization - dynamic highlighting should not be discarded on re-displaying independent object

## ❖ SUPPORTED LINUX DISTRIBUTIONS AND PRE-REQUISITES

**SALOME 7.5.1** supports Linux Debian 6.0 64bits, Linux Debian 7.1 64bits, Mandriva 2010 64bits, CentOS 5.5 64bits, CentOS 6.3 64bits, Fedora 18 64bits, Ubuntu 13.10 64bits, Windows XP 32bits and 64bits. **SALOME 7.5.1** has been tested with the pre-requisites listed in the table below.

**SALOME 7.5.1** 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.

Product	Version	GUI (IAPP)	KERNEL	GEOM	SMESH	MED	YACS	PARAVIS	HOMARD	HEXABLOCK	NETGENPLUGIN	GHS3DPLUGIN	GHS3DPRLPLUGIN	BLSURFPLUGIN	HexoticPLUGIN	HEXABLOCKPLUGIN
gcc*	4.1***	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
Microsoft Visual C++**	2010	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
cmake	2.8.10.2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Python	2.7.3	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
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
Swig	2.0.8	X	X	X	X	X	X		X		X	X	X	X	X	X
OCCT	6.8.0	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Qwt	6.1.0	X			X											
QScintilla	2.7						X									
OmniORB	4.1.6	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
omniNotify	2.1		X													
Hdf5	1.8.10	X	X	X	X	X		X	X		X	X	X	X	X	X
Med	3.0.8p1				X	X		X	X		X		X			
Vtk	6.2.0	X		X	X	X		X		X	X	X	X	X	X	X
numpy	1.8.1		X													
lapack	3.5.0		X													
graphviz	2.38.0	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
NETGEN	4.9.13										X					
Metis	4.0					X										
Scotch	5.1.11					X										
libxml2	2.9.0	X	X			X	X									
Distene MeshGems	1.3-8											X	X	X	X	
Sphinx	1.1.3		X	X	X		X		X	X						
libBatch	2.2.0		X													
Cgns	3.1.3				X											
ParaView	4.2.0	X						X								
Homard	11.1								X							
simanio	1.0		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	2.7.3	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	6.8.0		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	1.8.10		X		X	X		X		X					
Med	3.0.8p1		X	X	X	X									
Vtk	6.2.0		X		X			X	X	X		X			
graphviz	2.38.0	X	X	X	X		X			X					
Doxygen	1.8.3.1	X	X	X	X		X			X					
Sphinx	1.1.3														X

\*) Not included into SALOME Installation procedure, Linux only  
 \*\*) Not included into SALOME Installation procedure, Windows only  
 \*\*\*) Minimal required version

The following products are not used in SALOME directly; they are only required to build other pre-requisite products.

Product	Version	Required by	Comment
tcl	8.6.0	Open CASCADE Technology	Optional
tk	8.6.0	Open CASCADE Technology	Optional
tclIX	8.4.1	Open CASCADE Technology	Optional
Jinja2	2.6	Sphinx	
pygments	1.5	Sphinx	
setuptools	0.6c11	Sphinx	
docutils	0.10	Sphinx	
freetype	2.4.11	Open CASCADE Technology	
freeimage	3.16.0	Open CASCADE Technology	Optional
gl2ps	1.3.8	Open CASCADE Technology, VTK	Optional
Intel TBB	3.0	Open CASCADE Technology	Optional
xdata	0.9.9		Can be used to create 3 <sup>rd</sup> - party SALOME modules
wso2-wsf-cpp	2.1.0	SIMANIO	Optional

**NOTE:** For some platforms SALOME uses prerequisites with patches (to fix different problems, like it is done in RPM) and defines specific configuration/compilation options. If you compile products without the Install Wizard we strongly recommend you to check configuration/compilation options using shell scripts located in config\_files folder of the SALOME Installation Wizard.



SALOME 7.5.1 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
cmake	X				
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	For YACS only Required only if used at compilation step
omniORB	X		X		
omniORBpy	X				
omniNotify	X		X		
Hdf	X		X		
Med	X		X		
Vtk	X		X		
numpy + lapack		X			
graphviz	X		X		In run-time required for YACS only
Doxygen	X				
NETGEN	X		X		For NETGENPLUGIN only
cppunit		X			Used for unitary testing
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		
MeshGems	X	X	X		Compilation: mandatory for BLSURFPLUGIN only, optional for HEXOTIC plugin Runtime: mandatory for BLSURFPLUGIN, GHS3DPLUGIN, GHS3DPRLPLUGIN, HexoticPLUGIN
Sphinx		X			
libBatch		X		X	Required only if used at compilation step
ParaView	X		X		Mandatory for PARAVIS module; optional for GUI module
Homard			X		For HOMARD module only
cgns		X		X	For SMESH only Required only if used at compilation step
freetype		X		X	Required only if used when building OCCT
freeimage		X		X	Required only if used when building OCCT
gl2ps		X		X	Required only if used when building OCCT
Intel TBB		X		X	Required only if used when building OCCT
simanio		X		X	Required only if used at compilation step
wso2-wsf-cpp		X		X	Required only if KERNEL is built with SIMAN support

## ❖ HOW TO INSTALL AND BUILD SALOME

Please follow README file from Installation Wizard for correct installation of SALOME and all prerequisites on Linux.

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

## ❖ SALOME 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 7.5.1** pre-compiled binaries for Linux Mandriva 2010 64bits, Debian 6.0 64bits, Debian 7.1 64bits CentOS 5.5 64bits, CentOS 6.3 64bits, Fedora 18 64bits, Ubuntu 13.10 64bits, Windows XP 32bits and 64bits can be retrieved from the SALOME web site <http://www.salome-platform.org> or from ftp repository <ftp://ftp.opencascade.com>.

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

SALOME Installation procedure for Linux includes a patch for **NETGEN** which is placed inside **NETGENPLUGIN** module 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 by SALOME.

## ❖ KNOWN PROBLEMS AND LIMITATIONS

- The following modules are obsolete and not included into SALOME 7.5.1 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.
  - It has been found out that BLSURF algorithm cannot 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 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.