

SALOME version 9.4.0

Release Notes

December 2019

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❖ GENERAL INFORMATION

CEA/DEN, EDF R&D and OPEN CASCADE are pleased to announce [SALOME](#) version [9.4.0](#). It is a public minor release that contains the results of planned minor improvements and bug fixes against SALOME version 9.3.0 released in May 2018.

❖ PREREQUISITES

The table below lists pre-requisite products used with SALOME 9.4.0. The differences of 3rd-party product versions used for SALOME 9.3.0 and 9.4.0 are highlighted in bold.

Product	SALOME 9.3.0	SALOME 9.4.0 (Linux)	SALOME 9.4.0 (Windows)
Alabaster	0.7.6	0.7.6	0.7.6
Babel	2.6.0	2.6.0	2.6.0
Boost	1.58.0	1.58.0	1.67.0
Certifi	2018.4.16	2018.8.24	2019.6.16
Cgns	3.3.1	3.3.1	3.3.1
Chardet	3.0.4	3.0.4	3.0.4
Click	6.7	6.7	7.0
Cmake	3.12.1	3.12.1	3.12.1
Cppunit	1.12.1	1.13.2	1.13.2
Cycler	0.10.0	0.10.0	0.10.0
Cython	0.25.2	0.25.2	0.29.12
Distene MeshGems suite ¹	2.8-6	2.9.6	2.9.6
Docutils	0.12	0.12	0.14
Doxygen	1.8.14	1.8.14	1.8.3.1
Eigen	3.2.7	3.3.4	3.3.4
Embree	-	3.3.0	3.5.2
Freeimage	3.16.0	3.16.0	3.18.0
Freetype	2.9.0	2.9.0	2.9.1
Gl2ps	1.4.0	1.4.0	1.4.0
Gmsh	4.1.4	4.1.4	-
Graphviz	2.38.0	2.38.0	2.38.0
Hdf5	1.10.3	1.10.3	1.10.3
Homard	11.12	11.12	-
Idna	2.7	2.7	2.8
Imagesize	1.0.0	1.0.0	1.1.0
Intel® Threading Building Blocks	4.2.4	4.4	2019 U8
Ispc	-	1.9.2	1.10.0
Jinja2	2.7.3	2.7.3	2.10.1
Kiwisolver	1.0.1	1.0.1	1.1.0
Lapack	3.7.0	3.8.0	3.8.0

¹ Commercial product; requires license.

Product	SALOME 9.3.0	SALOME 9.4.0 (Linux)	SALOME 9.4.0 (Windows)
Libbatch	2.4.1	2.4.2	2.4.2
Libjpeg	-	-	9c
Libpng	-	-	1.5.10
Libxml2	2.9.1	2.9.1	2.9.1
Llvm	-	3.9.1	8.0.1
Markupsafe	0.23	0.23	1.1.1
Matplotlib	2.2.2	2.2.2	3.1.0
Med	4.0.0	4.0.0	4.0.0
Metis	5.1.0	5.1.0	5.1.0
Mpi4py	1.3.1	1.3.1	-
Netgen	5.3.1	5.3.1 ²	5.3.1
Nose	1.3.7	-	-
Numpy	1.15.1	1.15.1	1.16.4
Omniorb	4.2.2	4.2.2	4.2.3
Omniorbpy	4.2.2	4.2.2	4.2.3
Open CASCADE Technology	7.3.0p3 ³	7.3.0p4⁴	7.3.0p4
Opencv	2.4.13.5	3.2.0	3.2.0
Openmpi	1.8.5	-	-
Ospray	-	1.7.3	1.8.4
Packaging	17.1	17.1	19.0
Paraview	5.6.0p1 ⁵	5.6.0p2⁶	5.6.0p2
Pip	-	19.1.1	19.1.1
Pkgconfig	1.1.0	-	-
Planegcs	0.18	0.18	0.18
Pockets	0.6.2	0.6.2	0.7.2
Pygments	2.0.2	2.0.2	2.4.2
Pyparsing	2.0.3	2.0.3	2.4.0
Pyqt	5.9.0	5.9.0	5.9.0
Python	3.6.0	3.6.5	3.6.5
Python-dateutil	2.4.2	2.4.2	2.8.0

² Patched for SALOME.

³ SHA1 identifier of this version is e1c158598a585694ad769cde5fe705a23dd586f0.

⁴ SHA1 identifier of this version is 1630119c3a5ec5a3268ddf8775a7085b5f6b06de.

⁵ SHA1 identifier of this version is 7bafc2be161cf8f4870aaad35759a0dd096ea55f.

⁶ SHA1 identifier of this version is bfaf7b82ed22ee5d5e9726ac5ff3a615eec5c092.

Product	SALOME 9.3.0	SALOME 9.4.0 (Linux)	SALOME 9.4.0 (Windows)
Pytz	2015.4	2015.4	2019.1
Qt	5.9.1	5.9.1	5.9.1
Qwt	6.1.2	6.1.2	6.1.2
Requests	2.19.1	2.19.1	2.22.0
Scipy	0.18.1	0.19.1	-
Scotch	6.0.4	6.0.4	-
Setuptools	38.4.0	38.4.0	41.0.1
Sip	4.19.3	4.19.3	4.19.3
Six	1.10.0	1.10.0	1.12.0
Snowballstemmer	1.2.1	1.2.1	1.9.0
Sphinx	1.7.6	1.7.6	2.1.2
Sphinxcontrib-applehelp	-	-	1.0.1
Sphinxcontrib-devhelp	-	-	1.0.1
Sphinxcontrib-jsmath	-	-	1.0.1
Sphinxcontrib-qthelp	-	-	1.0.2
Sphinxcontrib-napoleon	0.6.1	0.6.1	0.7
Sphinxcontrib-serializing			1.1.3
Sphinxcontrib-websupport	1.1.0	1.1.0	1.1.0
Sphinx-intl	0.9.10	0.9.10	2.0.0
Swig	3.0.12	3.0.12	3.0.12
Tcl	8.6.0	8.6.0	8.6.9
Tclx	8.4.1	8.4.1	8.6.9
Tk	8.6.0	8.6.0	8.6.9
Urllib3	1.23	1.23	1.25.3
Zlib	-	-	1.2.5

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.

Note: several prerequisites given in the above table are installed with **PIP** package manager. The installation folder for these PIP packages is SALOME-9.4.0-*SRC/BINARIES-*/Python/lib/python3.6/site-packages on Linux and SALOME-9.4.0\W64\Python\lib\site-packages on Windows.

License restrictions

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

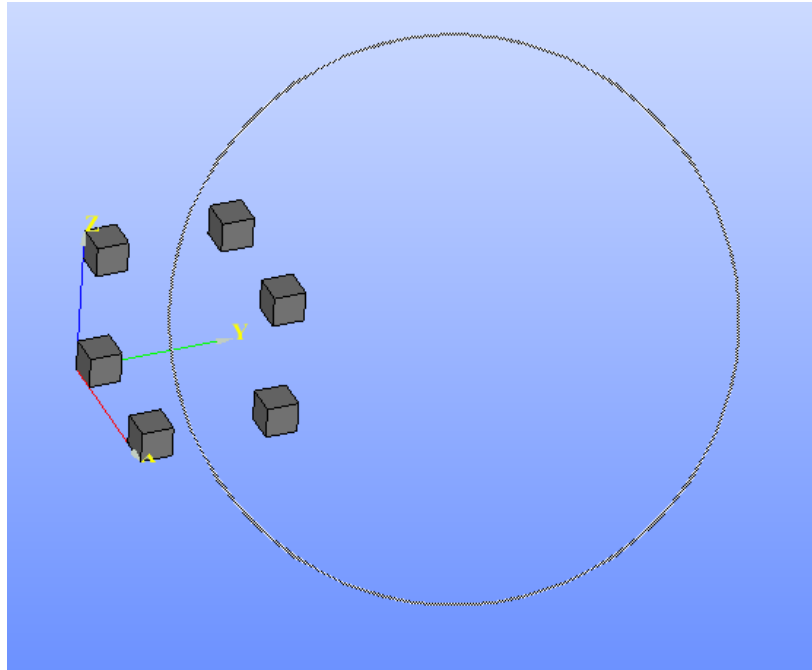
<http://www.riverbankcomputing.com/software/pyqt/license>

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

❖ NEW FEATURES AND IMPROVEMENTS

GUI module

- A possibility to select entities by a circular area has been implemented in the SALOME OCC Viewer:



Shaper module

- Ability to export the PartSet to GEOM,
- Concealment into multi-level Compounds,
- Recovering Compsolids and Compounds,
- Setting the view perpendicular to a given plane,
- Ability to change the base plane of an existing Sketch,
- Ability to remove a result,
- Capability to make results transparent,
- Extrusion to any face (not necessarily plan),
- Detect free points in the sketcher,
- Build Edge from two points,
- To enable and disable this yellow-highlighting,
- Filters in Groups,
- Combination operations on Groups,
- Ability to put an orthogonality constraint between an arc and a line,
- New arc creation mode: perpendicular to a straight edge,
- Automatic horizontal/vertical constraints when drawing edges,
- Improve the display and selection of circles and arcs,
- Ability to use the sketcher in interactive view manipulation mode,

- Zoom in to dimensions of the real sketch,
- Ability to impose a midpoint on an arc,
- New entities: ellipses and arcs of ellipses,
- Ability to call "Move to the end" when multiple Group features are selected,
- Ability to make a chamfer,
- Ability to import points from a text file,
- Ability to import parameters from a text file.

MG-CADSurf plugin module

- GUI of the SALOME Mesh-Gems plugins has been updated to include Mesh-Gems 2.9.6 options.

ParaVis module

- ParaView third-party product was built with the support of the OSPRAY library in order to activate ray tracing visualization feature in the ParaVis module.

❖ CHANGE LOG

This chapter does not provide the complete set of changes included into this version of SALOME; only the most important changes are listed.

KERNEL MODULE

16771	<p><i>Summary:</i> [CEA] Integration request : branch <code>bsr/resmgr</code> into master (KERNEL + GUI modules)</p> <p>The possibility to build and use salome resource manager apart from SALOME has been implemented.</p>
16988	<p><i>Summary:</i> [CEA] Use of <code>SALOME_Launcher</code> with sat launcher files</p> <p>Possibility to use the SALOME Launcher with the salome launcher file, generated by sat command, has been implemented.</p>
16991	<p><i>Summary:</i> [CEA] Bug in salome shell command</p> <p>A small correction is done in <code>runSession</code>, to use short hostname in related checks. Previously, short hostname was compared with the long hostname which had bad effect in selecting 'remote' case instead of 'local'.</p>
17324	<p><i>Summary:</i> EDF 19840 - Autoconf and <code>check_omniorb</code></p> <p>Autoconf script for detecting omniorb third-party product was adapted in order to properly detect latest versions of product.</p>
17662	<p><i>Summary:</i> [CEA] hostname and SALOME</p> <p>The problem with launching SALOME when network is not accessible on Linux workstation has been fixed.</p>
17716	<p><i>Summary:</i> [CEA] KERNEL: retrieve IP of Host</p> <p>The way to detect hostname in the Python code has been improved: python tools are now used instead of system-dependent calls.</p>
17745	<p><i>Summary:</i> [CEA 17744] Naming service port not released...</p> <p>The regression with releasing Naming Service's ports has been corrected.</p>
17872	<p><i>Summary:</i> [CEA] <code>/tmp/.salome_PortManager.lock</code> permission denied</p> <p>The bug that prevented launching SALOME on the same workstation by different users, caused by insufficient permissions applied to the lock file, has been fixed.</p>
17889	<p><i>Summary:</i> [CEA] <code>SALOME_LauncherServer.exe</code> Unhandled exception at <code>0x00007FFF2E99CDF3</code> (<code>ResourcesManager.dll</code>)</p> <p>The problem with incorrect environment settings has been resolved.</p>

GUI MODULE

16920	<p><i>Summary:</i> [CEA 16919] Python viewer documentation</p> <p>Minor improvement related to the formatting for Python viewer documentation has been done.</p>
16982	<p><i>Summary:</i> EDF 19512 - Crash when dumping study</p> <p>The Dump Study feature has been attuned to prevent infinite recursion (this can happen when the study contains recursive dependencies between data entities).</p>
17322	<p><i>Summary:</i> [CEA] Problems with persistence mechanism of light module on SALOME Save</p> <p>Possible loss of data for a "light" module (like Shaper) during saving operation, in case when saving is invoked directly after the study opening without explicit activating that particular "light" module, has been fixed.</p>
17901	<p><i>Summary:</i> [CEA] Integration in CurvePlot [GUI/Tools] the porting to SALOME 9</p> <p>CurvePlot GUI tool was migrated on SALOME 9, namely on Qt 4 and Python 3.</p>

SHAPER MODULE

2530	<p><i>Summary:</i> Export Feature stored into the History</p> <p>The fix filters out the "export" operations from the export to the python script, except the case when it is really needed for export to GEOM.</p>
2908	<p><i>Summary:</i> Groups are not colored when displayed by python script</p> <p>Make correct restoring of the colors of results in the viewer after the Python script loaded.</p>
2913	<p><i>Summary:</i> Hide Faces problem</p> <p>The problem of selection of the shape part when some faces of this shape were hidden by the Hide Faces panel has been fixed.</p>
2916	<p><i>Summary:</i> Reduce object browser after action</p> <p>The problem with the unexpected collapsing of folders in the Object Browser on some actions has been solved.</p>
2917	<p><i>Summary:</i> Adding a Point based on an object in python makes it created by coords</p> <p>The point creation mode is now correctly treated when exporting into the Python script.</p>
2958	<p><i>Summary:</i> Application errors when Remove part</p> <p>The parts presentation is synchronized with the data structure and Object Browser after removing of the whole part.</p>
2968	<p><i>Summary:</i> Field - names of steps are different after Export to GEOM</p> <p>Incorrect treating of initial indices in fields (including when they are exported to GEOM) has</p>

	been fixed. Now indices are zero-based everywhere.
2970	Summary: Size of Sketcher plane is ignored The viewer is correctly updated after the sketch size value is amended.
2971	Summary: Naming issue in a group when loading a dump file Correct save and restore of the referenced sub-shapes in the operation on export/import of the Python scripts.
2982	Summary: Expression for Point is <i>noValue</i> Fix the coordinates of the 3D point expressions and relations text in the Parameters feature.
2983	Summary: Hide/show result in viewer when Dump study with Save GUI state check-box activated and then Load script Fix the way the GUI state is processed in the SHAPER GUI.
3014	Summary: Partition fails Fix the partition results refinement algorithm for the case when it is not a compound.
3029	Summary: Order of parameters is wrong, not as created Correct parameters order in the data model, created <i>on the fly</i> in the feature property panel.
3040	Summary: Length constraint not visible after 'Fit All' Add Length constraint presentation into the 'Fit All' algorithm, as well as the other dimensions of the Sketch.
3041	Summary: SIGSEGV when changing sketch plane Correctly update presentations of different constraints if the sketch plane is changed.
3051	Summary: Do not kill all salome ports when executing a test For the non-regression tests of HDF files loading in the SHAPER, the managing script is corrected to kill only the corresponding instance of the SALOME session.
3055	Summary: Fatal error when setting angle Correct Sketch angle dimension presentation algorithm, to avoid the cases of uncertainty.
3076	Summary: ExportToGEOM: Fatal error SWIG director method error Make the selection of start and end faces of revolution invalid if revolution becomes 360 degrees and these faces disappear.
16837	Summary: [CEA 16749] SHAPER TUI example fails Two TUI SHAPER examples were corrected.

16931	<i>Summary:</i> [CEA]: Windows version: Dump Python: new blank line between each line Output Python scripts in binary mode to avoid differences in Windows and Linux script files.
16996	<i>Summary:</i> [CEA] model.exportToFile is missing in the output python file The fix filters out the “ <i>export</i> ” operations from the export to the python script, except the case when it is really needed for export to GEOM.
17000	<i>Summary:</i> [CEA] Errors in ENISTAT in current SHAPER master Fix the naming problem in the Extrusion operation.
17034	<i>Summary:</i> [EDF] SHAPER tests delta_p and stator_ermes Avoid setting a sketch as the current feature when re-executing features which may generate additional sketch entities.
17261	<i>Summary:</i> [CEA] Wrong extrusion result by bounding planes The Extrusion algorithm now uses solids instead of semi-spaces to cut the parts of the shape placed out of the bounding faces. This approach produces stable result for bounding planes as well as for arbitrary faces.
17281	<i>Summary:</i> EDF - several SHAPER tests fail Fix regression in the naming bounding faces of the Pipe algorithm.
17737	<i>Summary:</i> [CEA 17706] SALOME 9.4.0 alpha 1: SHAPER-GEOM A regression in OCCT Boolean operations has been fixed.
17820	<i>Summary:</i> [CEA] Salome crash after closing Shaper Viewer Do not deactivate dihedron selection on SHAPER module deactivation if viewer context is not accessible.
17822	<i>Summary:</i> EDF - Wrong result in Extrusion-Cut Problem detected by Extrusion-Cut test script has been corrected.
17853	<i>Summary:</i> [CEA 17771] SHAPER and KERNEL concurrent salome/___init__.py The SHAPER file lib/python3.6/site-packages/salome/salome/___init__.py is removed from the installation. It is not needed for the folders referencing in imports since Python version 3.3.
17867	<i>Summary:</i> [EDF] ExtrusionCut doesn't work Fix selection of sketcher points in some cases, so the user may select start or end points and detach them from the other coincident segments or points.
17906	<i>Summary:</i> [EDF] Error during suppression of group filters Use parent layout to find a filter's widget instead of parent widget.

17909	<p><i>Summary:</i> EDF - Problem of fillet</p> <p>Prevent selection algorithm from selecting as an argument the resulting sub-shapes of the current feature.</p>
17917	<p><i>Summary:</i> [EDF] Error during export to GEOM of a PartSet with groups</p> <p>Fix the problem of export to GEOM PartSet with Placement or other similar features which transform the whole Part. In the exported shapes now the additional transformation is taken into account.</p>
17924	<p><i>Summary:</i> EDF - filter F5 on geometry for faces</p> <p>Improve comparison of elementary surfaces with surfaces of linear extrusion and surfaces of revolution.</p>
17958	<p><i>Summary:</i> [CEA] Sketch displayed in edit mode after sketch feature has been closed</p> <p>Fix problem with displaying of object created by Python script when SHAPER module was non active.</p>
17962	<p><i>Summary:</i> [CEA] SIGSEGV when selecting faces with filter Belongs to</p> <p>The selection of construction elements is forbidden for the "Belongs To" filter.</p>
18095	<p><i>Summary:</i> [CEA] Show existing expressions does not work</p> <p>Add update of the viewer after changing check box's status.</p>

GEOMETRY MODULE

16294	<p><i>Summary:</i> EDF 14693 - Problem with fillet</p> <p>Problem with the Fillet operation has been corrected.</p>
16792	<p><i>Summary:</i> [CEA 16785] Cannot select COMPSOLID</p> <p>Enable selection of COMPSOLIDS in all cases where COMPOUNDS are allowed.</p>
16933	<p><i>Summary:</i> [CEA]: Windows version: Dump Python: there is an error in the file name generated for <code>geompy.ImportXAO</code></p> <p>Problem with format of the file path in the script, generated by Dump Python functionality, was corrected.</p>
16935	<p><i>Summary:</i> [CEA] exception in group creation</p> <p>Uninitialized variable was suppressed.</p>
17033	<p><i>Summary:</i> EDF - Problem with OCC View</p> <p>Problem with OCC Viewer has been fixed.</p>

17280	<i>Summary:</i> EDF 19951 - <code>GetInPlace</code> returns None Fix the problem with Partition in OCCT.
17734	<i>Summary:</i> [CEA 17706] SALOME 9.4.0 alpha 1: OCCT SHA - GEOM tests using <code>geompy.MakePartition</code> fail Fix a regression in OCCT Boolean operations.
17835	<i>Summary:</i> EDF 20239 - Export To GEOM : some GEOM functions not available Enable selection of COMPSOLIDs in all cases where COMPOUNDS are allowed.
18319	<i>Summary:</i> [CEA 18318] Display of a field with negative value Fix a problem with incorrect generation of scalar map when displaying fields containing negative values.

MESH MODULE

16648	<i>Summary:</i> [CEA 16646] <code>RadialQuadrangle</code> algorithm hypothesis change requires a Clear Mesh Data beforehand Fix Radial Quadrangle algorithm to re-discretize edges upon hypothesis modification.
16797	<i>Summary:</i> [CEA 16781] <code>QuadFromMedialAxis_1D2D</code> : Failed to mesh sinuous edges Failure of “Quadrangle: Medial Axis Projection” algorithm on a face of small size has been fixed.
16843	<i>Summary:</i> EDF 19340 - wrong quadratic mesh 1) Fix a bug that free and double nodes appear when MG-Tetra is used on a quadrangle quadratic mesh. 2) Fix a bug that some medium nodes are wrongly located on periodic B-Spline surface.
16866	<i>Summary:</i> [CEA 13186] smesh Exception during hypothesis creation SMESH exception handling mechanism has been modified to show more info on exception.
16914	<i>Summary:</i> EDF 19401 - Wrong quadratic mesh (bis) Fix converting structured mesh to a quadratic one.
16925	<i>Summary:</i> [CEA 16749] <code>MeshCut</code> Python exception with Windows Python exception in <code>MeshCut</code> plugin on Windows platform has been fixed.
16926	<i>Summary:</i> [CEA 16749] <code>MeshCut</code> Python encoding issue It is impossible to concatenate a byte array and a string with Python 3; the byte array is now explicitly converted to the string for correct concatenation.

16927	<p>Summary: [CEA] Error when loading a med file with 140 millions elements</p> <p>Fix a bug that SMESH fails to import a med file with 140 millions elements that it just created.</p>
16960	<p>Summary: EDF 19475 - Control Free nodes</p> <p>Handle 'Free node' control name string as UTF-8 string instead of Latin1.</p>
17085	<p>Summary: [CEA 17030] Warning sub-mesh with Extrusion 3D</p> <p>Unnecessary warning about concurrent hypotheses has been removed.</p>
17092	<p>Summary: EDF - Freeze / Crash</p> <p>Problem with different size of the VTK StateStorage class in release and debug has been corrected: the patch was applied to this class.</p>
17096	<p>Summary: [CEA 16891] <code>SMesh::CopyMeshWithGeom</code>: discrepancies in copied groups volumes.</p> <p><code>CopyMeshWithGeom()</code> operation has been improved to find groups of equal size but whose items are not got by transforming items of source group.</p>
17146	<p>Summary: EDF 19729 - not connected node</p> <p>Bug of ignoring internal vertices in faces by NETGEN has been fixed</p>
17319	<p>Summary: EDF 20003 - suppress Meshes in TUI</p> <p><code>smeshBuilder.RemoveMesh()</code> methods has been added</p>
17328	<p>Summary: EDF 20043 - Submeshes</p> <p>A bug that MG-CADSurf meshes at once all faces including faces of a sub-mesh, if global and local hypotheses are the same, has been fixed.</p>
17636	<p>Summary: [CEA 17369] Extrusion by normal: along average normal option issue</p> <p>Bug of Extrusion dialog that arguments were intermixed at calling engine method has been fixed.</p>
17695	<p>Summary: [CEA] SMESH build/ TopoDS_Shape compilation issue</p> <p>Compilation problem under Windows with Visual Studio 2017 was corrected.</p>
17775	<p>Summary: [CEA] SALOME 9.4.0a1: export a mesh with fields using Python API- <code>SMESH::ExportMED</code> crash</p> <p>Fix failure of field export to med in the case where med version increments.</p>
17783	<p>Summary: [CEA] Dumping Mesh information</p> <p>Fix missing exported Quality Info in case if Quality Info tab page was not open.</p>

17799	<p><i>Summary:</i> EDF 20211 - Problem with exporting to GEOM</p> <p><code>CopyMeshWithGeom()</code> operation has been improved to find existing geometrical sub-object by IDs found by <code>GetInPlace()</code> and, if not found by <code>GetInPlace()</code>, to find sub-object by name.</p>
17828	<p><i>Summary:</i> [CEA 17805] Polyhedron Mesh volume calculation and volume orientation criterion</p> <p>Bad Oriented Volume quality control criterion has been fixed to detect polyhedron with incoherently oriented facets. Modification of Orientation operation has been fixed to correct incoherently oriented polyhedron.</p>
17864	<p><i>Summary:</i> [CEA 17856] Issue with Import 1D-2D</p> <p>Documentation of Import 1D-2D Elements from Another Mesh has been clarified.</p>
17871	<p><i>Summary:</i> [CEA 17868] Import 1D 2D threshold value</p> <p>Failure of Import 1D-2D Elements from Another Mesh has been fixed.</p>
17959	<p><i>Summary:</i> [CEA 17951] MG-HEXA segments MIN/MAX parameters not saved: 9.3.0 and in 9.4.0 + max_memory</p> <p>Fix localization problem when saving/restoring hypotheses parameters.</p>
18097	<p><i>Summary:</i> [CEA] Mesh group not updated in the view after a compute with other hypotheses</p> <p>Regression that groups are not updated in the Viewer upon mesh regeneration has been fixed.</p>

NETGEN PLUGIN MODULE

17013	<p><i>Summary:</i> [CEA 17006] Meshing a compsolid with one internal vertex per face</p> <p>NETGEN failure in some cases of shapes with internal vertices has been fixed.</p>
17338	<p><i>Summary:</i> [CEA 17337] NETGEN3D regression - Illegal position in Geomsearch</p> <p>Fix a NETGEN 3D regression.</p>

MG-CADSURF PLUGIN MODULE

16954	<p><i>Summary:</i> EDF 19466 - localsize</p> <p>Limit Local Size by Min Size and User Size.</p>
17667	<p><i>Summary:</i> [CEA 17284] MeshGems: BLSURFPLUGIN patch for test</p> <p><code>quadrangles_gradation.py</code></p> <p>Upgrade test cases for anisotropic meshes.</p>
17819	<p><i>Summary:</i> [CEA] MeshGems 2.9-6 BLURFPLUGIN advanced properties</p> <p>Fix problem of collision of new options with old ones.</p>

17956	<i>Summary:</i> [CEA 17925] COMPERR_OCC_EXCEPTION SIGSEGV in MG-CADSurf plugin has been fixed.
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MG-HYBRID PLUGIN MODULE

17846	<i>Summary:</i> [CEA] SHA 90dbc5f1 and MG-Hybrid advanced parameters Fix regression of HYBRID plugin on <code>advanced_text_option.py</code>
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MG-HEXA PLUGIN MODULE

17960	<i>Summary:</i> [CEA 17952] MG-Hexa hypothesis panel: add option button not active "Add option" button in Advanced tab page works now.
18313	<i>Summary:</i> [CEA18312] MG-Hexa hypothesis Construction: Select button... "Select..." button in Advanced tab page works correctly now.
18314	<i>Summary:</i> [CEA 18312] MG-Hexa hypothesis Construction: Hypothesis construction Local size Exception raised upon clicking "Remove" button in the Local Size tab page has been fixed.

MEDCOUPLING MODULE

17181	<i>Summary:</i> EDF - broken link in MEDCoupling doc Correct broken link in the MEDCoupling documentation.
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FIELDS MODULE

16862	<i>Summary:</i> [CEA 16749] <code>medcalc.MakeSlices</code> Process file path as raw string to avoid problems on Windows platform.
17253	<i>Summary:</i> [CEA 17251] Fields: expand time series item Now it is possible to see all time steps under imported med file in the SALOME FIELD module.
17254	<i>Summary:</i> [CEA 17252] <code>Glyphs::Scalars</code> in <code>MEDPresentationVectorField</code> "Vector field" representation was adapted to new API of the ParaView 'Glyph' filter.

PARAVIS MODULE

16850	<i>Summary:</i> [CEA 16749] Macros toolbars: <code>ShowSalomeObject</code> Now a directory with the ParaVis macros is correctly cleaned each time when module is
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	activated, in order to remove old copies of macros.
16994	<i>Summary:</i> [CEA] Paraview crash if selecting a different variable in the properties panel. Paraview crash of selecting a different variable in the properties panel has been eliminated.
17117	<i>Summary:</i> [CEA] testMEDReader4: baseline image and testMEDREADER_21 patch Several tests scripts were corrected in accordance with the changes in the ParaView third-party product.

YACS MODULE

17908	<i>Summary:</i> [CEA] YACS optimizer loop crash (Windows) Bug with graphviz build procedure under Windows with Microsoft Visual Studio 2017 was corrected.
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OTHER ISSUES

16863	<i>Summary:</i> [CEA 16749] documentation browser contents lost if second salome instance is closed The problem with several instances of the SALOME internal help browser has been corrected.
17227	<i>Summary:</i> [CEA] Efficas version error Python exception that occurs when EFICAS version dialog is displayed showing has been fixed.
17904	<i>Summary:</i> [CEA] FindOpenCV cmake file SALOME CMake detection procedure of the OpenCV third-party product has been updated to take into account OpenCV 3.2.0 libraries.
18116	<i>Summary:</i> [EDF]: Broken links in the Developer's user guide in GEOM and SMESH 1) In GEOM module bad link has been corrected to point to the existing page; 2) In SMESH deprecated broken link was removed.
18316	<i>Summary:</i> [CEA] Compile CGNS on Windows with HDF5 support Problem with linkage CGNS of with dynamic HDF5 libraries has been resolved.

❖ OCCT 7.3.0 BUG CORRECTIONS

This chapter lists bug corrections and improvements made for SALOME project in Open CASCADE Technology. Below listed bug corrections and improvements are included into patch #4 for OCCT version 7.3.0 used by SALOME 9.4.0.

27928	[OCCT:Modeling Algorithms] BOP common produces empty compound
28085	[OCCT:Modeling Algorithms] Incorrect result of CUT operation
28949	[OCCT:Modeling Algorithms] BRepOffsetAPI_MakePipe Generated() method produces no result for spine edges
29573	[OCCT:Modeling Algorithms] ConcatenateWireC0 crashes on two edges wire
29807	[OCCT:Modeling Algorithms] [Regression to 7.0.0] Impossible to cut cone from prism
30143	[OCCT:Foundation Classes] Provide operator[] alias for NCollection_Array1, NCollection_Vector
30354	[OCCT:Modeling Algorithms] BOP Cut doesn't modify the attached face
30174	[OCCT:Modeling Algorithms] ShapeUpgrade_UnifySameDomain does not unify cylindrical faces
30186	[OCCT:Modeling Algorithms] BRepOffsetAPI_MakePipe Generated() method produces no results for the spine
30204	[OCCT:Modeling Algorithms] BRepOffsetAPI_MakePipeShell crash
30363	[OCCT:Modeling Algorithms] BRepLib::SameParameter with option "forced" corrupts valid shape
30510	[OCCT: Application Framework] Add missing NULL check within TDataStd_RealArray::ChangeArray()
30534	[OCCT:Modeling Algorithms] Regression in the tool UnifySameDomain - the shape loses faces
30897	[OCCT:Modeling Algorithms] Crash in UnifySameDomain [Regression]
30915	[OCCT:Visualization]: AIS_ColorScale::FindColor() returns Wrong color for maximal value
30760	[OCCT:Modeling Algorithms] Intersection fails in Occt 7.3.0
29711	[OCCT:Modeling Algorithms] General Fuse operation produces invalid result

❖ 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 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	KERNEL	GUI	GEOM	SHAPER	SMESH	FIELDS	YACS	PARAVIS	HOMARD	HEXABLOCK	JOBMANAGER	NETGENPLUGIN	GHS3DPLUGIN	GHS3DPRPLUGIN	BLSURFPLUGIN	HexoticPLUGIN	HEXABLOCKPLUGIN	HYBRIDPLUGIN	GMSHPLUGIN
Gcc*	4.4***	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
GNU make*	3.81***	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Microsoft Visual Studio**	2017	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CMake	3.12.1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Python	3.6.5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Qt	5.9.1		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Sip	4.19.3		X																	
PyQt	5.9.0	X	X			X	X		X											
Boost	1.58.0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Swig	3.0.12	X	X	X	X	X	X	X		X	X									
OCCT	7.3.0p4		X	X	X	X				X	X		X	X	X	X	X	X	X	X
Qwt	6.1.2		X			X														
OmniORB	4.2.2	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
OmniORBpy	4.2.2	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Hdf5	1.10.3	X	X			X														
Med	4.0.0					X	X		X	X										
Vtk	8.2.0		X	X		X	X		X		X		X	X	X	X	X	X	X	X
Numpy	1.15.1		X			X	X		X	X										
Graphviz	2.38.0	X	X	X	X	X	X	X					X	X	X	X	X		X	X
Doxygen	1.8.14	X	X	X	X	X	X	X					X	X	X	X	X	X	X	X
Netgen	5.3.1												X							
Metis	5.1.0						X													
Scotch	6.0.4						X													
Libxml2	2.9.1	X	X		X		X	X												
Distene MeshGems	2.9-6													X	X	X	X		X	
Sphinx	1.7.6	X			X	X	X	X	X	X	X	X								
Libbatch	2.4.2	X																		
Cgns	3.3.1					X														
Paraview	5.6.0p2		X				X		X											
Homard	11.12									X										
Gmsh	4.1.4																			X
Planegcs	0.18				X															

*) Linux only
 **) 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	Not used directly.
Babel	2.6.0	Sphinx	Not used directly.
Certifi	2018.8.24	Sphinx	Not used directly.
Chardet	3.0.4	Sphinx	Not used directly.
Click	6.7	Sphinx	Not used directly.
Cppunit	1.13.2	KERNEL, FIELDS, GEOM, YACS, HEXABLOCK	Optional.
Cython	0.25.2	Mpi4py, Scipy	Not used directly.
Distribute	0.7.3	Matplotlib	Not used directly.
Docutils	0.12	Sphinx	Not used directly.
Eigen	3.3.4	Planegcs	Not used directly.
Embree	3.3.0	ParaView	Optional. Not used directly.
Freeimage	3.16.0	OCCT	Optional. Not used directly.
Freetype	2.9.0	OCCT, ParaView	Optional. Not used directly.
Gl2ps	1.4.0	OCCT, VTK, ParaView	Optional. Not used directly.
Idna	2.7	Sphinx	Not used directly.
Imagesize	1.0.0	Sphinx	Not used directly.
Intel TBB	4.4	OCCT, Ospray, SMESH	Optional.
Ispc	1.9.2	ParaView	Optional. Not used directly.
Jinja2	2.7.3	Sphinx	Not used directly.
Kiwisolver	1.0.1	Sphinx	Not used directly.
Lapack	3.8.0	Numpy	Not used directly.
Llvm	3.9.1	ParaView	Optional. Not used directly.
Markupsafe	0.23	Shinx	Not used directly.
Matplotlib	2.2.2	ParaView	Optional. Not used directly.
Mpi4py	1.3.1		Not used directly.
Opencv	3.2.0	GEOM	Optional.
Openmpi	1.8.5	ParaView, Hdf5, Med, KERNEL, FIELDS	Optional.
Ospray	1.7.3	ParaView	Optional. Not used directly.
Pockets	0.6.2	Sphinx	Not used directly.
Pygments	2.0.2	Sphinx	Not used directly.
Pyparsing	2.0.3	Matplotlib	Not used directly.
Python-dateutil	2.4.2	Matplotlib	Not used directly.
Pytz	2015.4	Matplotlib, Sphinx	Not used directly.
Requests	2.19.1	Sphinx	Not used directly.
Scipy	0.19.1	Matplotlib	Not used directly.
Setuptools	38.4.0	Sphinx, Matplotlib, Numpy, Scipy, ...	Not used directly.
Sphinx-inlt	0.9.10	GUI, GEOM, SMESH, MEDCOUPLING	Optional.
Sphinxcontrib-applehelp	1.0.1	Sphinx	Not used directly.
Sphinxcontrib-devhelp	1.0.1	Sphinx	Not used directly.
Sphinxcontrib-jsmath	1.0.1	Sphinx	Not used directly.
Sphinxcontrib-qthelp	1.0.2	Sphinx	Not used directly.
Sphinxcontrib-napoleon	0.6.1	GUI, GEOM, SMESH, MEDCOUPLING	Optional.
Sphinxcontrib-serializing	1.1.3	Sphinx	Not used directly.
Sphinxcontrib-websupport	1.1.0	Sphinx	Not used directly.

Six	1.10.0	Matplotlib	Not used directly.
Tcl	8.6.0	OCCT, Python	Optional. Not used directly.
Tk	8.6.0	OCCT, Python	Optional. Not used directly.
Tclx	8.4.1	OCCT, Python	Optional. Not used directly.
Urllib3	1.23	Sphinx	Not used directly.
Zlib	1.2.5	Hdf5	Not used directly.

SALOME 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	X	Compilation: depending on build optioned used, can be mandatory for BLSURFPLUGIN, GHS3DPLUGIN, GHS3DPRLPLUGIN, HexoticPLUGIN, HYBRIDPLUGIN. 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
Gmsh	X		X		For GMSHPLUGIN only
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		
Matplotlib				X	Required only if used when building ParaView
Med	X		X		
Metis		X		X	Required only if used at compilation step for FIELDS
Netgen	X		X		For NETGENPLUGIN only
Numpy (+ Lapack)		X		X	Required by FIELDS
Omniorb	X		X		
Omniorbpy	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
PlanceGCS	X		X		Required by SHAPER
Pyqt	X		X		
Python	X		X		
Qt	X		X		
Qwt	X		X		
Scotch		X		X	Required only if used at compilation step for FIELDS
Sip	X				
Sphinx		X			Needed only for documentation generation
Swig	X				
Vtk	X		X		

❖ HOW TO GET THE VERSION AND PRE-REQUISITES

Sources of SALOME 9.4.0 can be retrieved from the Git repositories using V9_4_0 tag; the complete list of repositories can be found at <https://git.salome-platform.org/gitweb/>.

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.

Note: SALOME version 9.4.0 patches some third-party pre-requisite products, such as ParaView, Netgen, Open CASCADE Technology and other. These patches solve different problems and introduce some specific features needed for SALOME 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/>.

See also “*License restrictions*” paragraph above.

❖ KNOWN PROBLEMS AND LIMITATIONS

- The following modules are obsolete and not included into this SALOME 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.
- 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.
- 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 9x; 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 9x, 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.
- Compilation of OCCT by Makefiles on a station with NVIDIA video card can cause 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 (*Note: you need root permission to do this*):

```
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.
 - Different visual artifacts may take place in ParaView or VTK viewer when using a remote connection; this is a limitation of indirect rendering: ParaView uses OpenGL 2.0 backend which some features are not supported by indirect rendering.
 - 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 problem is expected to be fixed in one of the next releases; it can be temporarily avoided in the current version by applying 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`) can read only MED files of version 2.2 and newer.
- Users can experience OpenGL issues when running SALOME on virtual machines or with Intel graphic chipset. As a workaround, SALOME Windows archive contains the `opengl32.dll` library, which can be used as follows:
 - In the extraction folder of SALOME, go to subfolder: `SALOME-9.4.0\W64\mesa\64`,
 - Select and copy `opengl32.dll`,
 - In the extraction folder of Salome, go to subfolder: `SALOME-9.4.0\W64\GUI\bin\salome`,
 - Paste `opengl32.dll`,
 - Eventually, edit file `run_salome.bat` SALOME launcher and add at line 11:


```
SET MESA_GL_VERSION_OVERRIDE=3.2
```
- Sometimes a crash may be experienced on Windows when putting contents of the YACS graph to a *Bloc* node.
- For Windows 10 operating system, the Microsoft Visual C++ Redistributable for Visual Studio 2017 is required. It can be downloaded from the official Microsoft site:

<https://support.microsoft.com/en-us/help/2977003/the-latest-supported-visual-c-downloads>

For convenience, the redistributable is included into the SALOME archive as well.
- On Linux SALOME requires Python 3 package to be installed. If you don't have it, use the corresponding Linux package manager (`rpm`, `dpkg`, `apt-get`, `yum`, etc.) to install it. Alternative solution (which can also be applied on the platforms which do not provide native Python 3 package, like CentOS 6) to launch SALOME consists in using the environment script included into the SALOME archive, as follows:

```
$ cd SALOME-9.4.0-<OS>-SRC
$ . ./env_launch.sh
$ salome
```

Here, `<OS>` is an alias for the operating system being used, e.g. `CO7` for Linux CentOS 7.