

SALOME version 9.2.2

Release Notes

February 2019

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❖ GENERAL INFORMATION

CEA/DEN, EDF R&D and OPEN CASCADE are pleased to announce [SALOME](#) version [9.2.2](#). It is a public release that contains the results of planned major and minor improvements and bug fixes against SALOME version 8.5.0 released in May 2018.

❖ PREREQUISITES

The table below lists pre-requisite products will be used with SALOME 9.2.2. The differences of 3rd-party product versions used for SALOME 8.5.0 and 9.2.2 are highlighted in bold.

Product	SALOME 8.5.0	SALOME 9.2.2
Alabaster	-	0.7.6
Babel	2.0	2.6.0
Boost	1.52.0	1.58.0
Certifi	-	2018.4.16
Cgns	3.3.1	3.3.1
Chardet	-	3.0.4
Click	-	6.7
Cmake	3.3.0	3.12.1
Cppunit	1.12.1	1.12.1
Cython	0.23.2	0.25.2
Distene MeshGems suite ¹	2.6-4	2.7-4
Distribute	0.7.3	-
Docutils	0.12	0.12
Doxygen	1.8.3.1	1.8.4
Eigen	-	3.2.7
Freeimage	3.16.0	3.16.0
Freetype	2.9.0	2.9.0
Gl2ps	1.4.0	1.4.0
Gmsh	3.0.5	3.0.5
Graphviz	2.38.0	2.38.0
H5py	2.5.0	2.5.0
Hdf5	1.8.14	1.10.3
Homard	11.10	11.12
Idna	-	2.7
Imagesize	-	1.0.0
Intel® Threading Building Blocks	4.2.4	4.2.4
Jinja2	2.7.3	2.7.3
Kiwisolver	-	1.0.1
Lapack	3.7.0	3.7.0
Libbatch	2.4.0	2.4.1
Libxml2	2.9.0	2.9.1

¹ Commercial product; requires license.

Product	SALOME 8.5.0	SALOME 9.2.2
Markupsafe	0.23	0.23
Matplotlib	2.0.2	2.2.2
Med	3.3.1	4.0.0
Metis	5.1.0	5.1.0
Mpi4py	1.3.1	1.3.1
Netgen	5.3.1	5.3.1 ²
Nose	1.3.7	1.3.7
Numpy	1.12.1	1.15.1
Omniorb	4.1.6	4.2.2
Omniorbpy	3.6	4.2.2
Open CASCADE Technology	7.2.0p3	7.3.0p2³
Opencv	2.4.13.5	2.4.13.5
Openmpi	1.8.5	1.8.5
Packaging	-	17.1
Paraview	5.4.1p2	5.6.0p1⁴
Pkgconfig	1.1.0	1.1.0
Planegcs	-	0.18
Pockets	-	0.6.2
Pygments	2.0.2	2.0.2
Pyparsing	2.0.3	2.0.3
Pyqt	5.9.0	5.9.0
Python	2.7.10	3.6.0
Python-dateutil	2.4.2	2.4.2
Pytz	2015.4	2015.4
Requests	-	2.19.1
Qt	5.9.1	5.9.1
Qwt	6.1.2	6.1.2
Scipy	0.18.1	0.19.1
Scotch	6.0.4	6.0.4
Setuptools	38.4.0	38.4.0
Sip	4.19.3	4.19.3
Six	1.9.0	1.10.0
Sphinx	1.2.3	1.7.6

² Patched for SALOME.

³ SHA1 identifier of this version is 2a8846f92e43a12ed86b566de289c45eb3842d75.

⁴ SHA1 identifier of this version is 7bafc2be161cf8f4870aaad35759a0dd096ea55f. Patched for SALOME.

Product	SALOME 8.5.0	SALOME 9.2.2
Sphinx-intl	0.9.10	0.9.10
Sphinxcontrib-napoleon	0.6.1	0.6.1
Sphinxcontrib-websupport	-	1.1.0
Swig	2.0.8	3.0.12
Tcl	8.6.0	8.6.0
Tk	8.6.0	8.6.0
Tclx	8.4.1	8.4.1
Urllib3	-	1.23
Vtk ⁵	9.0.0	9.0.0

Note: the table above lists only most important pre-requisite products; some optional and system 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.

⁵ SALOME uses VTK included into ParaView distribution.

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

This chapter provides short review of new features and improvements introduced in SALOME 9.2.

General improvements

- Porting to Python 3: SALOME platform has been migrated from Python 2 to Python 3 (see advices for migration in *ADDENDUM*).
- Unicode is now fully supported by SALOME. Default encoding is utf8.

```
File Edit View Tools Window Help
SALOME
Object Browser
Name
  Geometry
    Sphère
Python Console
>>> import salome
>>> salome.salome_init()
>>> from salome.geom import geomBuilder
>>> geompy = geomBuilder.New()
>>> p = geompy.MakeVertex(55, 45, 25)
>>> Sphère = geompy.MakeSpherePntR(p, 200)
>>> geompy.addToStudy(Sphère, "Sphère")
'0:1:1:1'
>>> salome.sg.updateObjBrowser()
```

- Multi-study functionality is completely removed from SALOME 9x series. Now there is only one active document in SALOME application. The architecture of SALOME platform has been redesigned to follow single-study approach (see advices for migration in *ADDENDUM*).

KERNEL module

- Use the single thread policy for Launcher Server in order to make it thread safe.
- It is now possible to change some parameters of the “localhost” resource. For instance, it is possible to modify the property “Nb nodes” which shows the number of cores.
- It is now possible to dump and restore a job with `SALOME_Launcher` interface: `dumpJob` and `restoreJob` methods were added to the interface.
- The script “launcher_proxy.py” was added in order to make easier the use of “Launcher” interface in Python with a save / reload job feature.
- The parameter `--mem-per-cpu=0` was added on the command line when launching a container with the protocol “srun”. It was not possible to use srun containers on EDF clusters without this parameter.”

GUI module

- A possibility to show popup notifications (banners) has been added; these messages are not blocking for GUI and can be shown programmatically to inform the user about some important action.
- Fit 3D view to given presentations: the contents of VTK 3D view can be programmatically (including via Python API) fit to given list of presentations.

Geometry module

- Partition algorithm is now multithreaded. The parallel processing mode of OCCT GEOMAlgo_Splitter is used. It works even if OCCT has not been built with Intel TBB, thanks to OCCT's own implementation of platform-independent threads.

Mesh module

- Method to show/hide orientation vectors of faces has been added to the Python API of Mesh module.
- A possibility to make display of selected items in a 3D view more distinct was implemented.
- Copy mesh to new geometry: now a new mesh can be created by copying mesh definition (hypotheses etc.) to a modified geometry.
- It is now possible to export meshes in several med formats (3.2, 3.3 and 4.0).

FIELDS module

- Former SALOME MED module has been renamed to FIELDS.

MEDCoupling library

- It is now possible to convert MED 4.0 file to MED 3.3 format.
- The problem of intersection 3D/3D for small cells has been corrected.
- The function `MEDFileMesh.rearrangeFamilies` has been corrected.

❖ 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

23469	<p><i>Summary:</i> EDF KERNEL: Study can't register to the naming service in Release terminal mode</p> <p>Problem of registering Naming Service when SALOME is launched in terminal mode has been corrected.</p>
23471	<p><i>Summary:</i> [CEA 2162] Upgrade of the test salome_test.py</p> <p>SALOME quick testing procedure has been fully redesigned:</p> <ul style="list-style-type: none"> • Only modules which are present in current SALOME session are tested; • Each module can export a particular test which is automatically detected and included into salome_test.py. • Testing procedure within salome_test.py has been rewritten with unittest Python package, so each module can provide as many quick tests as needed.
23628	<p><i>Summary:</i> [CEA] KERNEL_StressLauncher failure on CentOS 7.5 and wait command</p> <p>Test test_stress.sh has been corrected.</p>
23629	<p><i>Summary:</i> [CEA] KERNEL_SALOME_CONCURRENT_TestConcurrentSession: does not return</p> <p>Improper test case has been corrected.</p>
23656	<p><i>Summary:</i> [CEA] Patch for PortManager.py for Windows platform</p> <p>Fixed bug of free port detection procedure that takes place on Windows caused by wrong options used with netstat.</p>
23657	<p><i>Summary:</i> [CEA] A crash when saving hdf study with GEOM or SMESH objects under Windows</p> <p>Fixed problem with undefined symbols on Windows.</p>
23677	<p><i>Summary:</i> [CEA 13186] cannot save study to h5 format</p> <p>Fixed problem with saving study if SALOME is installed into a path containing spaces.</p>

GUI MODULE

23564	<p><i>Summary:</i> [EDF] AsterStudy: introduce a feature to show popup notifications</p> <p>A possibility to show popup notifications (banners) has been added; these messages are not blocking for GUI and can be shown programmatically to inform the user about some important action.</p>
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23565	<i>Summary:</i> [EDF] AsterStudy: Load Script operation's status is incorrectly updated Problem with incorrect state of "Load Script" menu action after activating/deactivating "light" module has been fixed.
23589	<i>Summary:</i> [EDF] AsterStudy: fit 3D view to given presentations A possibility to fit contents of VTK 3D view to given list of presentations (including via Python API) has been implemented.
23641	<i>Summary:</i> [CEA] FIELDS Window not locked to panel Fixed incorrect handling of study closing operation.
23645	<i>Summary:</i> EDF 18388 - problem with arguments of a script Lost possibility to pass arguments to the script when running SALOME session has been restored.
23659	<i>Summary:</i> [CEA] Problem with launching Help browser SALOME Help browser has been configured following Qt deployment procedure.
23661	<i>Summary:</i> [CEA 13186] Notebook: update study error Fixed bug with incorrect temporary file usage on Windows.
23671	<i>Summary:</i> [CEA 13186] Cannot import Paraview simple (pvsimple) Fixed problem importing paraview module in Python caused by corrupting environment by ParaView application.
54504	<i>Summary:</i> Exception when accessing VTK renderer with libSalomePy module Fixed problem with importing vtk modules in libSalomePy Python module.

GEOMETRY MODULE

23312	<i>Summary:</i> [CEA 1928] GEOM: Create group from second shape The problem of GetInPlace algorithm has been fixed.
23459	<i>Summary:</i> EDF 14982 - Problem with Thickness The problem has been fixed in the Open CASCADE Technology v7.3.0p2.
23497	<i>Summary:</i> EDF 15720 - Projection transforms the type of shape Modification of the shape type during projection operation has been suppressed.
23519	<i>Summary:</i> EDF - Sewing problem The problem has been fixed in the Open CASCADE Technology v7.3.0p2.

23524	<i>Summary:</i> EDF 16243 - Problem with <code>GetShapesOnShapes</code> The problem has been fixed in the Open CASCADE Technology v7.3.0p2.
23588	<i>Summary:</i> [CEA 2272]: GEOM test failed after transition to OCC 7.3 Incorrect minimum distance computation after migration to Open CASCADE Technology 7.3.0p2 has been fixed.
23592	<i>Summary:</i> [CEA 2273]: Bad result of a cut between a cylinder and a sphere Problem with cutting cylinder by sphere has been corrected.
23595	<i>Summary:</i> [CEA 2275]: Manual test KO GEOM: The fields are not displayed Displaying fields in Geometry module has been re-implemented to follow changes introduced by latest versions of Open CASCADE Technology.
23597	<i>Summary:</i> EDF 17891 - OCCT 7.3.0 - Problem with <code>GetBlockNearPoint</code> The problem of GlueFaces algorithm has been fixed.
23601	<i>Summary:</i> EDF 17891 - Cutting problem The problem has been fixed in the Open CASCADE Technology v7.3.0p2.

MESH MODULE

21803	<i>Summary:</i> EDF 2351: Available versions of MED in TUI function <code>ExportMED</code> aren't consistent with GUI behaviour Deprecated MED file formats (2.1 and 2.2) were removed from IDL interfaces and Python API.
23546	<i>Summary:</i> [EDF] AsterStudy: add a method to Python API to show/hide orientation vectors of faces. Method to show/hide orientation vectors of faces has been added in the Python API of Mesh module.
23566	<i>Summary:</i> EDF 17168 - Problem with viscous layer A bug of viscous layers construction has been fixed.
23570	<i>Summary:</i> EDF17299 - Problem with filters Wrong work of <code>BelongToGeom</code> filter has been fixed.
23580	<i>Summary:</i> [EDF] AsterStudy: more distinct display of selected items in 3D view A possibility to make display of selected items in a 3D view more distinct was implemented.
23586	<i>Summary:</i> [EDF] HYDRO: Copy mesh to new geometry Now a new mesh can be created by copying mesh definition (hypotheses etc.) to a modified geometry.

23591	<i>Summary:</i> [EDF] Add test to check meshing plug-ins to SMESH module New script <code>test_smeshplugins.py</code> has been added.
23594	<i>Summary:</i> EDF 17213: crash of salome when loading SMESH or dumping the study Crash at loading a study with sub-mesh priority defined has been fixed.
23599	<i>Summary:</i> EDF 17907 - Gnome freezes when suppressing horde of groups Displaying of a dialog of height larger than the screen height is prevented.
23603	<i>Summary:</i> [CEA 2246]: no attribute <code>SetDecimesh</code> Obsolete method <code>SetDecimesh</code> has been removed from Python API and documentation.
23604	<i>Summary:</i> [EDF] HYDRO: engine error when copy mesh A bug of copying a mesh to a new geometry has been fixed.
23605	<i>Summary:</i> [EDF] HYDRO: parent mesh for Copy mesh with new geometry Forbid selecting sub-meshes when copying a mesh to a new geometry.
23606	<i>Summary:</i> [EDF] HYDRO: Help for option Copy mesh with new geometry is absent An obsolete image in Copy Mesh documentation page has been updated.
23607	<i>Summary:</i> [EDF] HYDRO: Copy mesh with geometry - problems of Copy elements A bug of Copy Mesh With Geometry operation has been fixed.
23608	<i>Summary:</i> [EDF] HYDRO: crash when compute copied mesh A bug that a mesh got by copying another mesh to a new geometry fails to compute has been fixed.
23609	<i>Summary:</i> [EDF] HYDRO: wrong warning appears A bug that while copying a mesh to a new geometry groups are always created in spite of the state of "Generate groups" check-box has been fixed.
23622	<i>Summary:</i> [CEA 2283]: unable to select the mesh from the plugin dialog window Regression caused by incomplete multi-study removal has been corrected.
23623	<i>Summary:</i> [CEA 2284]: Mesh migration documentation link doesn't exist Text remark that addresses users to the Geometry User Guide instead of an inappropriate link has been added into Mesh module documentation.
23658	<i>Summary:</i> [CEA] Patch for <code>YamsPlugDialog.py</code> for Windows platform Integrate a patch that fixes problem with incorrect treating of Unicode data on Windows.
23666	<i>Summary:</i> [CEA 13186] MG-cleaner log window and escape sequences

	MG-Cleaner tool has been redesigned.
23667	<i>Summary:</i> [CEA 13186] click on OK does not close MGCleaner log window MG-Cleaner tool has been redesigned.
23668	<i>Summary:</i> SMESH : Remesh with MG SurfOpt → crash MG-SurfOpt tool has been redesigned.
23678	<i>Summary:</i> [CEA 13186] messages in the python window Redundant warning message printed into terminal window when saving file with mesh data has been eliminated.
54499	<i>Summary:</i> SALOME crash at mesh evaluation Fix a bug that mesh evaluation crashes SALOME if Quadrangle Mapping algorithm assigned to a not quadrilateral face.

FIELDS MODULE

23582	<i>Summary:</i> [CEA] Rename MED module to FIELDS SALOME MED module was renamed to FIELDS.
23593	<i>Summary:</i> [CEA 2265]: Segmentation fault when opening a med file Crash during opening MED file in FIELDS module has been fixed.
23632	<i>Summary:</i> [CEA] MED_ROOT_DIR environment variable still present. Obsolete environment variable was suppressed.

PARAVIS MODULE

22803	<i>Summary:</i> EDF 9128 PARAVIS: Paraview pop-up Re-addressing of ParaView messages to embedded SALOME log window has been implemented.
22856	<i>Summary:</i> EDF 9971 PARAVIS: Error message not displayed in Paravis The problem that error messages from ParaView are not shown in SALOME has been corrected.
23170	<i>Summary:</i> [CEA 1558] When a file is loaded in python, panels Information, Display and View are empty Workaround to update panels in ParaVis module has been implemented.
23191	<i>Summary:</i> 23191: [CEA 1607] REGRESSION: the file hdf does not save the data PARAVIS Show warning when data can't be saved in the hdf file.

23560	<i>Summary:</i> [CEA 987] Discrete colors: problem of display while changing Number Of Table Problem with changing Number Of Table has been corrected.
23568	<i>Summary:</i> [CEA 2245] SALOME crashes when you dump a PARAVIS study in a script file Crash during dumping ParaVis study data into Python script has been fixed.
23590	<i>Summary:</i> [CEA 2075]: The Properties panel contains Display and View even in separate panel mode The behavior of the ParaView panels (Properties, Display and View) has been synchronized with the preferences settings.

MG-CADSURF PLUGIN MODULE

23596	<i>Summary:</i> 23596: EDF - no attribute 'SetAngleMeshS' Methods obsolete since V7 have been removed from IDL API, Python API and documentation.
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YACS MODULE

23571	<i>Summary:</i> EDF 17413 - PMMLBasicsTest and PmmlExeTest tests fail Mentioned tests scripts have been corrected.
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MEDCOUPLING LIBRARY

54510	<i>Summary:</i> TC9.2.0: Cannot compile MEDCOUPLING on Windows with numpy support: there missing symbols Fixed problem with missing exports.
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OTHER ISSUES

23299	<i>Summary:</i> [CEA] Finalize multi-study removal Multi-study functionality is completely removed from SALOME 9x series. Now there is only one active document in SALOME application. The architecture of SALOME platform has been redesigned to follow single-study approach.
23495	<i>Summary:</i> EDF 15430 - Strange trace when launching SALOME Unneeded log trace has been suppressed.
23635	<i>Summary:</i> [EDF] Cannot build KERNEL and PARAVIS parallel extensions with MPI Incorrect hdf5 detection when it is built with parallel extension has been resolved.
23669	<i>Summary:</i> [CEA 13186] YACS xml scheme files with calls to print function need to be upgraded YACS sample schemes have been migrated to Python 3.

❖ **OCCT 7.3.0 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 the patched version of OCCT 7.3.0 used by SALOME 9.2.

27928	<i>Summary:</i> [OCCT:Modeling Algorithms] BOP common produces empty compound
28085	<i>Summary:</i> [OCCT:Modeling Algorithms] Incorrect result of CUT operation
28903	<i>Summary:</i> [OCCT:Modeling Algorithms] <code>BRepOffset_MakeOffset</code> produces invalid shape (thickshell) in Intersection mode.
28949	<i>Summary:</i> [OCCT:Modeling Algorithms] <code>BRepOffsetAPI_MakePipe Generated()</code> method produces no result for spine edges.
29234	<i>Summary:</i> [OCCT:Modeling Algorithms] <code>BRepOffsetAPI_NormalProjection</code> produces INTERNAL edges and vertices.
29573	<i>Summary:</i> [OCCT:Modeling Algorithms] <code>ConcatenateWireC0</code> crashes on two edges wire.
29606	<i>Summary:</i> [OCCT:Modeling Algorithms] [Regression vs 7.0] <code>BRepClass3d_SolidClassifier</code> classifies the point as IN while it is ON.
29807	<i>Summary:</i> [OCCT:Modeling Algorithms] [Regression to 7.0.0] Impossible to cut cone from prism.
30141	<i>Summary:</i> [OCCT:Modeling Algorithms] Regression in BOP Cut: cylinder is not cut by sphere.
30143	<i>Summary:</i> [OCCT:Foundation Classes] provide <code>operator[]</code> alias for <code>NCollection_Array1</code> , <code>NCollection_Vector</code> .
30354	<i>Summary:</i> [OCCT:Modeling Algorithms] BOP Cut doesn't modify the attached face.

❖ 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	SMESH	FIELDS	YACS	PARAVIS	HOMARD	HEXABLOCK	JOBMANAGER	NETGENPLUGIN	GHS3DPLUGIN	GHS3DPRPLPLUGIN	BLSURFFPLUGIN	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
GNU make*	3.81***	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Microsoft Visual Studio**	2015	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
Python	3.6.0	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
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
Swig	3.0.12	X	X	X	X	X	X		X	X									
OCCT	7.3.0p2		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	9.0.0		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
Doxygen	1.8.14	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												
Distene MeshGems	2.7-4												X	X	X	X		X	
Sphinx	1.7.6	X			X	X	X	X	X	X	X								
Libbatch	2.4.1	X																	
Cgns	3.3.1				X														
Paraview	5.6.0p1		X			X		X											
Homard	11.12								X										
Gmsh	3.0.5																		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	2018.4.16	Sphinx	Not used directly.
Chardet	3.0.4	Sphinx	Not used directly.
Click	6.7	Sphinx	Not used directly.
Cppunit	1.12.1	KERNEL, FIELDS, GEOM, YACS, HEXABLOCK	Optional.
Cython	0.25.2	H5py, Mpi4py, Scipy	Not used directly.
Distribute	0.7.3	Matplotlib	Not used directly.
Docutils	0.12	Sphinx	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.
H5py	2.5.0		Not used directly.
Idna	2.7	Sphinx	Not used directly.
ImageSize	1.0.0	Sphinx	Not used directly.
Intel TBB	4.2.4	OCCT, SMESH	Optional.
Jinja2	2.7.3	Sphinx	Not used directly.
Kiwisolver	1.0.1	Sphinx	Not used directly.
Lapack	3.7.0	Numpy	Not used directly.
Markupsafe	0.23	Sphinx	Not used directly.
Matplotlib	2.2.2	ParaView	Optional. Not used directly.
Mpi4py	1.3.1		Not used directly.
Nose	1.3.7	H5py	Not used directly.
Opencv	2.4.13.5	GEOM	Optional.
Openmpi	1.8.5	ParaView, Hdf5, Med, KERNEL, FIELDS	Optional.
Pkgconfig	1.1.0	H5py	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	0.18.1	Matplotlib	Not used directly.
Setuptools	38.4.0	Sphinx, Matplotlib, Numpy, Scipy, ...	Not used directly.
Sphinx-inl	0.9.10	GUI, GEOM, SMESH, MEDCOUPLING	Optional.
Sphinxcontrib-napoleon	0.6.1	GUI, GEOM, SMESH, MEDCOUPLING	Optional.
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.

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		Compilation: mandatory for BLSURFPLUGIN only, optional for HEXOTICPLUGIN Runtime: mandatory for BLSURFPLUGIN, GHS3DPLUGIN, GHS3DPRLPLUGIN, HexoticPLUGIN, HYBRIDPLUGIN
Doxygen		X			Needed only for documentation generation
Freetype	X		X		
Freeimage		X		X	Required only if used when building OCCT
Gl2ps		X		X	Required only if used when building OCCT and/or Paraview
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		
Matplotib				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
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 9.2.2 can be retrieved from the Git repositories using V9_2_2 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 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.
- Currently, 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: ParaView uses OpenGL 2.0 backend which does not provide full support for 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 instance:


```
[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 larger 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.

ADDENDUM

❖ ADVICES FOR MIGRATION

This chapter provides some advices about migrating third-party code and Python scripts to SALOME 9x. In particular, the changes concern adapting of dependent code to API changes caused by architecture re-design and migration to Python 3 introduced in SALOME 9.

MIGRATION FROM PYTHON 2 TO PYTHON 3

The migration of Python 2 scripts can be done by performing the steps listed below.

1. First step consists in running of *2to3* Python tool; this tool reads a Python 2 script and applies a series of fixers to transform it into valid Python 3 code:

```
2to3 -w <filename>
```

In case of success the initial file is modified and backup file is created.

2. `UnicodeDecodeError` error can be met during processing a script by the *2to3* tool; the source script won't be modified. In such a case follow next steps to fix this problem:

- a) Run

```
file -i <filename>
```

to get file's charset ('ISO-8859-1', for instance).

- b) If encoding specified in the script's header differs from that one reported at step a), or empty, change it to the correct one and run *2to3* tool again.

- c) If encoding specified in the script's header is the same as reported at step a), or `UnicodeDecodeError` error is raised again, then run

```
iconv --from-code=<ISO_8859-1> --to-code=UTF-8 <filename>
```

with the charset received at step a) as `--from-code` option's value to force converting the file to the 'UTF-8' default encoding. Then specify encoding in the script's header as 'UTF-8'.

- d) Re-run *2to3* tool.

3. Sometimes *2to3* tool detects a place in the code that needs to be changed, but cannot be fixed automatically. In this case, *2to3* tool reports a warning and developer should manually modify the corresponding code.

The most frequent warning about incorrect syntax of "raise" operator, like in the following example:

```
raise "some error string"
```

can be fixed by replacing such code with

```
raise Exception("some error string")
```

Note: it would be more informative to use different exception types for different errors (`RuntimeError`, `IOError`, `TypeError`, `NameError`, etc.) instead of common `Exception` type.

4. Python 2 division (/) operator returns the floor of the mathematical result of division if the arguments are integers or longs; in Python 3 this operator returns a reasonable approximation of the mathematical result of the division ("true division"). As a result some tests may fail with the following errors at attempt to run it:

- float value as index of enumerable objects (list, dictionary, etc.);

- integer division in mathematical calculations.

Both can be fixed by using // instead of /. With this approach errors of first mentioned kind are detected in runtime; however, problems of second kind require an analysis of failed scripts and its output for proper fixup.

- Text files (like CSV ones) should be opened with 'r' / 'w' mode, but not with 'rb' / 'wb' one
- In Python 3 signature of str.translate() and str.maketrans() functions has been changed:

- Python 2: str.maketrans(from, to) and str.translate(table[, deletechars])
- Python 3: str.maketrans(from | dict[, to[, deletechars]]) and str.translate(table).

Use new signature to correct removal of whitespaces, for instance:

- Python 2: my_str.translate(string.maketrans(' ', ''), string.whitespace)
- Python 3: my_str.translate(str.maketrans(' ', '', string.whitespace))

Note: in general, 2to3 tool applies most of needed fixes related to the API changes since Python 3 to Python 3, but in some particular cases, as described above, this might be insufficient and additional changes might be required.

- Specification of Python interpreter for the executables should be changed by replacing 'python' by 'python3', see table below:

#!/usr/bin/python	#!/usr/bin/env python3
#!/usr/bin/env python	

MIGRATION TO SALOME 9 API

This paragraph shortly describes main API changes introduced in SALOME 9 comparing with SALOME 8, which require corresponding attuning of existing Python scripts.

Main change concerns removal of multi-study support that has been started in SALOME 8 and finalized in SALOME 9. Now there is always only one study in the application context, so the code related to the particular study or study id needs to be corrected, as described below.

References to study

SALOME 8	SALOME 9
geomBuilder.New(theStudy) smeshBuilder.New(theStudy) ... any other function with studyID	Remove studyID parameter: geomBuilder.New() smeshBuilder.New()
updateObjBrowser()	Remove parameter: updateObjBrowser()

Deprecated code

SALOME 8	SALOME 9
import geompy	from salome.geom import geomBuilder geompy = geomBuilder.New()

<code>geompy.GEOM.ST_IN</code>	<code>import GEOM GEOM.ST_IN</code>
<code>import smesh</code> <code>smesh.NETGEN_2D</code>	<code>from salome.smesh import smeshBuilder smesh = smeshBuilder.New() smeshBuilder.NETGEN_2D</code>
<code>init_geom()</code> <code>init_smesh()</code>	-
<code>ImportFile(<FormatName>)</code>	<code>Import<FormatName>()</code>
<code>Export(<FormatName>)</code>	<code>Export<FormatName>()</code>
<code>MultiRotate1D()</code>	<code>MultiRotate1DNbTimes()</code>
<code>MakeExplode()</code>	<code>MakeAllSubShapes()</code>
<code>SubShapeAllIDs()</code>	<code>GetAllSubShapeIDs()</code>
<code>ExportToMED()</code>	<code>ExportMED()</code>