SALOME version 8.4.0

Release Notes

November 2017

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❖ GENERAL INFORMATION

CEA/DEN, EDF R&D and OPEN CASCADE are pleased to announce SALOME version 8.4.0. It is a public minor release that contains the results of planned major and minor improvements and bug fixes against SALOME version 8.3.0 released in May 2017.

❖ PREREQUISITES

The table below lists pre-requisite products used with SALOME 8.4.0. The differences of 3rd-party product versions used for SALOME 8.3.0 and 8.4.0 are highlighted in bold.

Product	SALOME 8.3.0	SALOME 8.4.0
Babel	2.0	2.0
Boost	1.52.0	1.52.0
Cgns	3.1.3-4	**3.3.1**
Cmake	3.3.0	3.3.0
Cppunit	1.12.1	1.12.1
Cython	0.23.2	0.23.2
Distene MeshGems suite[1]	2.4-5	**2.5-7**
Distribute	0.7.3	0.7.3
Docutils	0.12	0.12
Doxygen	1.8.3.1	1.8.3.1
Freeimage	3.16.0	3.16.0
Freetype	2.4.11	2.4.11
Gl2ps	1.3.9	1.3.9[2]
Gmsh	-	**3.0.5**
Graphviz	2.38.0	2.38.0
Hdf5	1.8.14	1.8.14
H5py	2.5.0	2.5.0
Homard	11.8	**11.10**
Intel® Threading Building Blocks	4.2.4	4.2.4
Jinja2	2.7.3	2.7.3
Lapack	3.5.0	3.5.0
Libbatch	2.3.1	**2.3.2**
Libxml2	2.9.0	2.9.0
Markupsafe	0.23	0.23
Matplotlib	1.4.3	1.4.3
Med	3.2.1	**3.3.1**
Metis	5.1.0	5.1.0
Mpi4py	1.3.1	1.3.1
Netgen	5.3.1	5.3.1[3]

[1] Commercial product; requires license.

[2] Patched version supplied within ParaView distribution.

[3] Patched for SALOME.

Product	SALOME 8.3.0	SALOME 8.4.0
Nose	1.3.7	1.3.7
Numpy	1.9.2	1.9.2
Omniorb	4.1.6	4.1.6
Omniorbpy	3.6	3.6
Open CASCADE Technology	7.1.0p1	**7.2.0p1**[4]
Opencv	2.4.6.1	2.4.6.1
Openmpi	1.8.5	1.8.5
Paco++	0.5.5	0.5.5
Paraview	5.1.2	**5.4.0**[5]
Pkgconfig	1.1.0	1.1.0
Pygments	2.0.2	2.0.2
Pyparsing	2.0.3	2.0.3
Pyqt	5.6.0	**5.9.0**
Python	2.7.10	2.7.10
Python-dateutil	2.4.2	2.4.2
Pytz	2015.4	2015.4
Qt	5.6.1	**5.9.1**
Qwt	6.1.2	6.1.2
Scipy	0.15.1	0.15.1
Scotch	5.1.11	5.1.11
Setuptools	0.6c11	0.6c11
Sip	4.18	**4.19.3**
Six	1.9.0	1.9.0
Sphinx	1.2.3	1.2.3
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[6]	7.1.0	**8.1.0**

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.

[4] Patched for SALOME.

[5] Patched for SALOME.

[6] 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

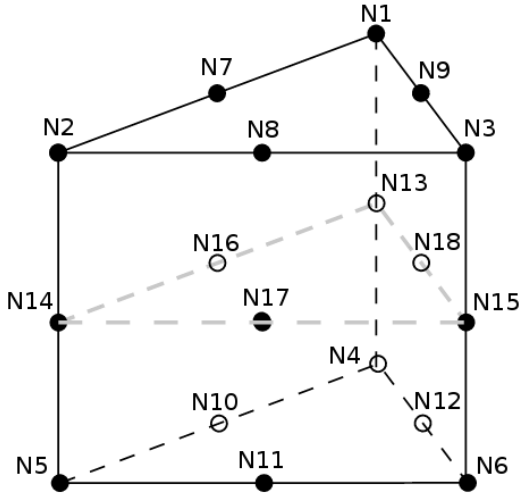
MED 3.3.0 prerequisite

- **Introduction of new types of fields**

  New types of fields: MED_FLOAT32, MED_INT32 and MED_INT64 (in addition to MED_INT and MED_FLOAT64 present into MED3.2) were introduced. The MED user can now choose freely between the 5 choices of type of field on writing phase. It gives user a way to optimize the trade-off between size of data stored in file/memory consumption and precision.

- **Introduction of new type of element**

  New type of element: BiQuadratic pentahedron, with 18 nodes (penta18) was introduced



- **Possibility to write MED files in a lower minor version of MED file format**

  With MED 3.3.0, it is possible to write a file in MED 3.0, 3.1, 3.2 and, of course, by default, in 3.3 format. This allows for instance someone working with SALOME 8.4.0 to write a MESH usable in SALOME 7.8 or any SALOME 8. User is warned if the mesh or field is incompatible with the selected version.

MEDCoupling module

- **Improvements of MED 3.3.0**

  Following improvements of MED 3.3.0, MEDCoupling has introduced new classes (MEDCouplingFieldFloat, MEDFileFloatField1TS, MEDFileFloatFieldMultiTS)

- **Management of MED_SEG4 into MEDCoupling.**
- **Management of multi levels in MEDLoaderSplitter.py**
- **API modification**

  MEDCouplingMesh::getNumberOfCells returns std::size_t instead of int

ParaVis module

- **Using the multi-server mode of ParaView**

  ParaViS now uses the multi-server mode of ParaView into the SALOME Session. It means that when a new server is connected, the previous one is no more closed.

- **Using the the built-in server of ParaView**

  ParaViS is no more launched in remote server like SALOME8.3 and earlier ones. ParaViS now uses the built-in server of ParaView. Two main consequences:

a. A faster ParaViS launch
b. It's no more possible by default to access ParaViS engine from outside python process (like using YACS post processing node).

This new default mode can be changed by setting no_ext_pv_server to false in the SalomeApp.xml of ParaViS.

- **Introduction management of float32**

  Management of float32 into MEDReader and MEDWriter ParaViS plugins has been introduced.

- **Sharing server description file**

  Server description file (servers.pvsc) is shared between ParaViS module and ParaView launched into "SALOME shell"

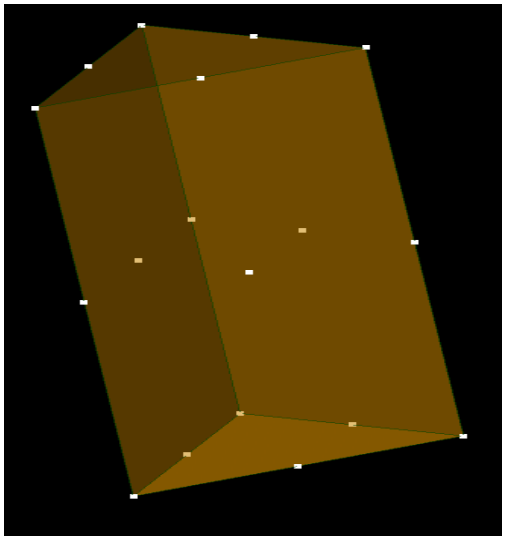
Mesh module

- **Possibility to write MED files in a lower minor version of MED file format**

  Mesh module allows writing the mesh in a lower minor version of the MED file format (see MED 3.3.0 prerequisite above).

- **Introduction of new type of element**

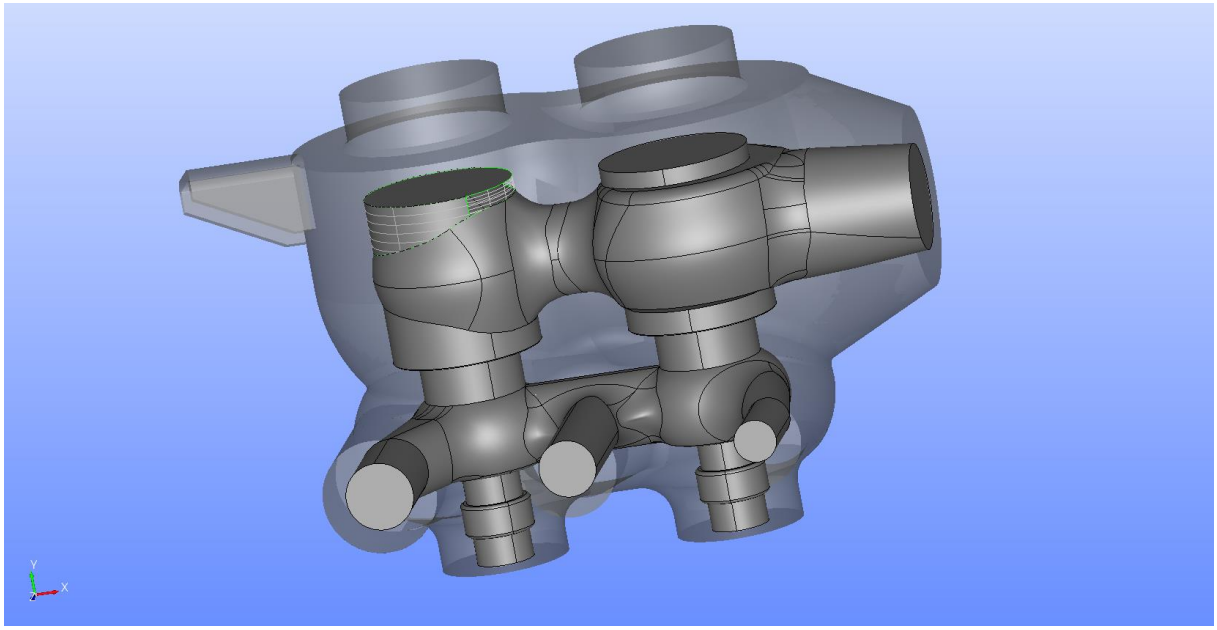
  Mesh module allows the new type of BiQuadratic pentahedron, with 18 nodes (penta18). Mesh conversion to and from biquadratic take into account the conversion of pentahedrons (linear, quadratic, biquadratic). Direct edition of BiQuadratic pentahedron is also possible.

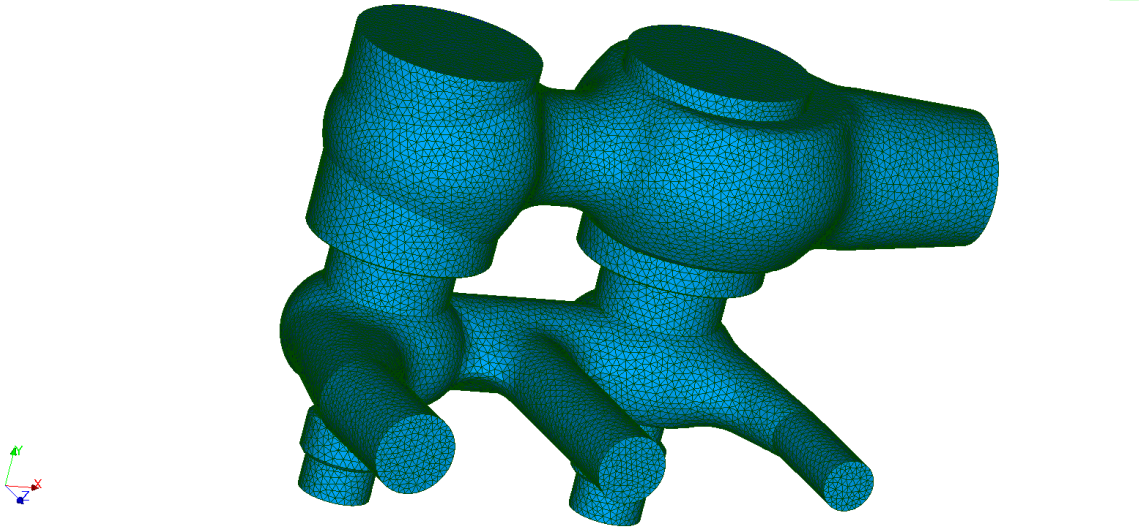


GMSH plugin module

GMSH has been reintroduced as a plugin of SMESH (it was available in SALOME 7.8, and was removed in SALOME for compatibility reasons).

One of the main interests of GMSH in SALOME is to allow meshing several connected geometry faces with C1 continuity as a unique face, without internal edges





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

23423	*Summary:* [CEA 2029] `salome -t --valgrind-session` does not launch Salome with *valgrind* When running SALOME in batch mode (with `--terminal` / `-t` option), `--valgrind` option allows connecting *valgrind* tool to the *FactoryServer* container.
23471	*Summary:* [CEA 2162] Upgrade of the test `salome_test.py` Usage of deprecated `presentations.py` Python module has been suppressed in `salome_test.py` script

GUI MODULE

23454	*Summary:* [CEA 2110] Display warning message only in debug mode To minimize the warnings about unavailability of some modules printed during SALOME launch, new behaviour has been implemented: 1. An additional description attribute `"gui"` is now supported in the module's configuration file (`SalomeApp.xml` and/or `LightApp.xml`). This boolean attribute can be added to each particular module by its developer in order to inform that this module is intended for usage in batch mode only as it does not implement any GUI features. For such modules SALOME GUI does not perform a check for presence of GUI library/module during the application start-up. 2. The default value of the `"gui"` attribute is forced to `"true"`, to prevent any backward compatibility problems. Configuration files of a all standard SALOME modules have been updated correspondingly. The behaviour is now as follows: • If `"gui"` attribute is present in the configuration file, it is taken into account by GUI; • If `"gui"` attribute is not present in the configuration file, it is considered equal to `"true"`. This means that developers have to explicitly add `"gui" ="false"` parameter to the configuration file for each module that does not have GUI, in order to prevent a warning message during SALOME start-up.
23463	*Summary:* [EDF] `dumpView()` in OCC viewer produces incorrect image Fixed incorrect colour mapping in the image file when dumping view contents via the Python API function of `SalomePyQt` interface.
23467	*Summary:* [EDF] SALOME open modules (i.e. OpenTurns) in new window Fixed “flickering” problem during module activation procedure, which sometimes resulted in opening a custom view window in a separate window instead of docking it into the workspace area.

23479	*Summary:* [CEA] GUI: Compatibility with *sip* 4.19.1 Fixed compilation problem when using *sip* of version < 4.19.
23484	*Summary:* [EDF] Event blocked if `QGraphicsView` and `QGraphicsScene` are used in a module Fixed a bug with blocking child events from widgets embedded into `QGraphicsView`-based view windows.
23498	*Summary:* EDF 15706 - Problem with VTK viewer Fixed incorrect rendering of textured and gradient background of VTK 3D view.
23502	*Summary:* EDF 15840 - SIGSEGV when editing manually clipping plane Fixed SIGSEGV on manual manipulation with clipping plane's preview in OCC 3D view.
23503	*Summary:* EDF 15850 - No VTK Viewer after several actions Problem with the incorrect initialization if OpenGL context in VTK 3D view has been fixed by additional patching of VTK libraries.
23504	*Summary:* [CEA 2193] Segmentation fault at SALOME close (GEOM/Preferences) *Fixed bug with segmentation violation on application exit caused by using of custom fonts.*

GEOMETRY MODULE

22881	*Summary:* [EDF 10225] GEOM: `MakePipe` produces an invalid shape Fixed with migration on *Open CASCADE Technology* version 7.2.
23231	*Summary:* [CEA 1722] `MinDistance` returns wrong result on a set of spheres Fixed with migration on *Open CASCADE Technology* version 7.2, issues #27184 and #27981.
23410	*Summary:* [EDF 14183] Problem with `MakePipeWithDifferentSections` Fixed with migration on *Open CASCADE Technology* version 7.2, issue #28468.
23424	*Summary:* [EDF 14383] Problem with *Cut* operation Fixed with migration on *Open CASCADE Technology* version 7.2, issue #28591.
23425	*Summary:* [EDF 14404] Problem when importing *STEP* file Fixed with migration on *Open CASCADE Technology* version 7.2, issue #28715.
23428	*Summary:* [CEA 2072] A dump with *Create Group* creates a lot of lines with `SubShapeAllIDs` and `GetSameIDs` The commands like `SubShapeAllIDs()`, `SubShapeAllSortedIDs()`, `GetSameIDs()`, `GetShapesOnShape()`, etc are not dumped anymore to the Python script, to avoid appearing

	unnecessary extra lines of Python code; these functions are useless in the Python dump as their output is not used anywhere in the script.
23434	*Summary:* [EDF] Error of projection operation of a point on a geometric entity Fixed with migration on *Open CASCADE Technology* version 7.2, issue #28692.
23449	*Summary:* [CEA] Study loading error in GEOM on Fedora 24 Fixed with migration on *Open CASCADE Technology* version 7.2, issue #28842.
23450	*Summary:* [CEA] Fields are not displayed in GEOM A problem with incorrect display of Geometry fields in OCC 3D viewer has been fixed. Warning: the behaviour of Geometry fields' management has been changed comparing with previous versions of SALOME (to cope with API differences between OCCT 6 and 7). Since colour scale is a singleton object (as it was in previous versions of OCCT), it is only displayed for the single object currently being selected, even if there are several fields displayed in the viewer. This behaviour may be seen as not quite good in some cases. An additional improvement is required for this feature.
23451	*Summary:* [EDF] *Remove Extra edges* produces invalid shape Fixed problem with producing invalid shape in some cases.
23464	*Summary:* [EDF] Incorrect dump of `RestoreGivenSubShapes` function Fixed problem with incorrect dumping of `RestoreGivenSubShapes` function.
23470	*Summary:* [EDF 15183] GEOM: *Partition* between a solid and a shell Fixed with migration on *Open CASCADE Technology* version 7.2p1, issues #29073, #29103.
23480	*Summary:* [EDF] Bug on *Partition* Fixed with migration on *Open CASCADE Technology* version 7.2p1, issue #29099.
23493	*Summary:* [EDF 15626] Problem with *Dump Study* Fixed problem with `GetExistingSubObjects()` function dumping.

MESH MODULE

23462	*Summary:* [CEA 2142] *Import12D* fails Bug of *Import 1D-2D elements* algorithm has been fixed.
23473	*Summary:* [CEA 2163] SMESH compilation failure with a *PyCompileError* Solved problem of build procedure when running *make* in parallel: missing dependencies between several targets produced by different *CMake* macros have been added in order to prevent failure of compilation.

23487	*Summary:* [EDF 15571] Mesh with quadratic algo 1D Construction of an incorrect quadratic mesh using *Quadrangle (Mapping)* algorithm and *Quadratic Mesh* hypothesis has been fixed.
23492	*Summary:* EDF 15654 - Simple case NETGEN1D2D3D fails Fixed problem of loading the same symbols from several versions of netgen library.

PARAVIS MODULE

23430	*Summary:* [CEA 2076] Impossible to export several time steps in MED format with ParaVis Support of multi time steps have been implemented in *MEDWriter* plug-in.
23472	*Summary:* [CEA 2164] Display problem when *ParaView* is not the first viewer The problem has been fixed by disabling ParaView behaviour responsible for saving/restoring positions of dock windows.
23494	*Summary:* [CEA 2183] In ParaViS, a right click doesn't trigger the context menu A bug with incorrect order of ParaView behaviors initialization has been fixed.

MED MODULE

23453	*Summary:* [CEA 2130] MED module crashes on *Fedora 24* with SALOME 8.3.0 Fixed `SIGSEGV` in MED module.
23461	*Summary:* [CEA 2141] MED module exception after action in ParaVis Fixed crash during deactivating MED module.

HOMARD MODULE

23489	*Summary:* [EDF 15587] Problem with repositioning of nodes Invalid projection while node re-positioning fixed.

NETGEN PLUGIN MODULE

21674	*Summary:* [CEA] problem with *Netgen 2D* and *Netgen 1D2D* on *Windows* platform Fixed with migration on *Netgen* version 5.3.1.
22189	*Summary:* [CEA 807] Regression: mesh compute on two concentric spheres fails Fixed with migration on *Netgen* version 5.3.1.

OTHER ISSUES

23465	*Summary:* [CEA] Add Copyright headers in git CONFIGURATION base Sample Copyright headers have been added into CONFIGURATION repository; a README file describing rules of copyright notice usage has been provided. Additionally, a helper script for inserting copyright notice into the source file has been implemented.
23466	*Summary:* [EDF] Migrate build procedure of EFICAS module to *CMake* A build procedure of EFICAS module has been migrated from GNU auto-tools to CMake.
23492	*Summary:* [EDF 15654] Simple case `NETGEN1D2D3D` fails Fixed problem with linking to different versions of *Netgen*, from NETGENPLUGIN and GMSHPLUGIN (via *gmsh* libraries), by using `RTLD_LOCAL` option of `dlopen` function.
23505	*Summary:* Sigsegv with fuse on cylinder and cone Migration to OCCT 7.2: switch to the standard C++ exception handling mechanism, to avoid application crash due to usage of deprecated API.

❖ OCCT 7.2.0 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 7.2.0 used by SALOME 8.4.0.

27182	*Summary:* [OCCT:Modeling Algorithms] Wrong result of *General Fuse* operation for two spheres. Related SALOME issue: #23230.
27981	*Summary:* [OCCT:Modeling Algorithms] `BRepExtrema_DistShapeShape` returns not null distance on interfered shapes. Related SALOME issue: #23231.
27998	*Summary:* [OCCT:Modeling Algorithms] Self-intersection is not detected. Related SALOME issue: #22184.
28017	*Summary:* [OCCT:Modeling Algorithms] Unexpected result of *General Fuse* operation. Related SALOME issue: #23330.
28221	*Summary:* [OCCT:Modeling Algorithms] *General Fuse* operation error. Related SALOME issue: #23384.
28361	*Summary:* [OCCT:Visualization] Visualization, TKV3d - buggy behavior of *Transformation Persistence* compiled on several *Linux* platforms in optimized mode.
28468	*Summary:* [OCCT:Modeling Algorithms] *Sweep* with different sections raises `Standard_NoSuchObject`: `BRep_Tool::` no parameter on edge. Related SALOME issue: #23410.
28486	*Summary:* [OCCT:Modeling Algorithms] *Fuse* of several solids fails due to presence of common zones between faces.
28496	*Summary:* [OCCT:Modeling Algorithms] *BOP Cut* failed on two attached faces with error "`ErrorStatus : 191`". Related SALOME issue: #23330.
28535	*Summary:* [OCCT:Modeling Algorithms] *BOP Fuse* reports "`ErrorStatus : 11`" on two attached faces. Related SALOME issue: #23380.
28591	*Summary:* [OCCT:Modeling Algorithms] *BOP Cut* creates wrong result. Related SALOME issue: #23424.
28661	*Summary:* [OCCT:Modeling Algorithms] `BRepOffsetAPI_MakePipeShell` throws an exception `Standard_NoSuchObject: NCollection_DataMap::Find`.

	Related SALOME issue: #23314.
28692	*Summary:* [OCCT:Modeling Algorithms] *Projection* failed (`projponf`). Related SALOME issue: #23494.
28715	*Summary:* [OCCT:Data Exchange] Invalid shape produced by reading of attached *STEP* file. Regression from OCCT-6.9.1 to OCCT-7.0.0. Related SALOME issue: #23425.
28811	*Summary:* [OCCT:Visualization] Visualization - merge texturing support into `AIS_Shape` class and get rid of `AIS_TexturedShape`. Related SALOME issues: #23450, #54211.
28813	*Summary:* [OCCT:Visualization] Visualization, `AIS_ColorScale` - color scale title invalid placement. Related SALOME issue: #54211.
28842	*Summary:* [OCCT:Application Framework] Attribute `TNaming_NamedShape` is not restored from `.sgd` document. Related SALOME issue: #23449.
29073	Summary: [OCCT:Modeling Algorithms] Regression: *General Cut* produces invalid shape. Related SALOME issue: #23470.
29099	*Summary:* [OCCT:Modeling Algorithms] Extra shapes in result of *General Cut* (box by ellipsoid). Related SALOME issue: #23480.
29103	*Summary:* [OCCT:Modeling Algorithms] No intersection curve between faces if starting points are given. Related SALOME issue: #23470.

❖ 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	MED	YACS	PARAVIS	HOMARD	HEXABLOCK	JOBMANAGER	NETGENPLUGIN	GHS3DPLUGIN	GHS3DPRLPLUGIN	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
GNU make*	3.81***	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Microsoft Visual C++**	2010	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
CMake	3.3.0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Python	2.7.10	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	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	1.52.0	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Swig	2.0.8	X	X	X	X	X	X		X	X									
OCCT	7.2.0p1		X	X	X				X	X		X	X	X	X	X	X	X	X
Qwt	6.1.2		X		X														
OmniORB	4.1.6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
OmniORBpy	3.6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Hdf5	1.8.14	X	X		X														
Med	3.3.1				X	X		X	X										
Vtk	8.1.0		X	X	X	X		X		X		X	X	X	X	X	X	X	X
Numpy	1.9.2		X		X	X		X	X										
Graphviz	2.38.0	X	X	X	X	X	X					X	X	X	X	X		X	X
Doxygen	1.8.3.1	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	5.1.11					X													
Libxml2	2.9.0	X	X			X	X												
Distene MeshGems	2.5-7												X	X	X	X		X	
Sphinx	1.2.3	X			X	X	X	X	X	X	X								
Libbatch	2.3.2	X																	
Cgns	3.3.1				X														
Paraview	5.4.0		X			X		X											
Homard	11.10								X										
Gmsh	3.0.5																		X

*) *Linux only*
**) *Windows only*
***) *Minimal required version*

*) *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
Babel	2.0	Sphinx	Not used directly by SALOME
Cppunit	1.12.1	KERNEL, MED, GEOM, YACS, HEXABLOCK	Optional
Cython	0.23.2	H5py, Mpi4py, Scipy	Not used directly by SALOME
Distribute	0.7.3	Matplotlib	Not used directly by SALOME
Docutils	0.12	Sphinx	Not used directly by SALOME
Freeimage	3.16.0	Open CASCADE Technology	Optional; not used directly by SALOME
Freetype	2.4.11	Open CASCADE Technology, ParaView	Optional; not used directly by SALOME
Gl2ps	1.3.9	Open CASCADE Technology, VTK, ParaView	Optional; not used directly by SALOME
H5py	2.5.0		Not used directly by SALOME
Intel TBB	4.2.4	Open CASCADE Technology, SMESH	Optional
Jinja2	2.7.3	Sphinx	Not used directly by SALOME
Lapack	3.5.0	Numpy	Not used directly by SALOME
Markupsafe	0.23	Shinx	Not used directly by SALOME
Matplotlib	1.4.3	ParaView	Optional; not used directly by SALOME
Mpi4py	1.3.1		Not used directly by SALOME
Nose	1.3.7	H5py	Not used directly by SALOME
Opencv	2.4.6.1	GEOM	Optional
Openmpi	1.8.5	ParaView, Hdf5, Med, KERNEL, MED	Optional
Paco++	0.5.5	KERNEL	Optional
Pkgconfig	1.1.0	H5py	Not used directly by SALOME
Pygments	2.0.2	Sphinx	Not used directly by SALOME
Pyparsing	2.0.3	Matplotlib	Not used directly by SALOME
Python-dateutil	2.4.2	Matplotlib	Not used directly by SALOME
Pytz	2015.4	Matplotlib	Not used directly by SALOME
Scipy	0.15.1	Matplotlib	Not used directly by SALOME
Setuptools	0.6c11	Sphinx, Matplotlib, Numpy, Scipy, …	Not used directly by SALOME
Six	1.9.0	Matplotlib	Not used directly by SALOME
Tcl	8.6.0	Open CASCADE Technology, Python	Optional; not used directly by SALOME
Tk	8.6.0	Open CASCADE Technology, Python	Optional; not used directly by SALOME
Tclx	8.4.1	Open CASCADE Technology, Python	Optional; not used directly by SALOME

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 MED
Netgen	X		X		For NETGENPLUGIN only
Numpy (+ Lapack)		X		X	Required by MED
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 MED
Sip	X				
Sphinx		X			Needed only for documentation generation
Swig	X				
Vtk	X		X		

❖ SYSTEM REQUIREMENTS

Minimal Configuration:

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

Optimal Configuration:

- Processor: Dual or Quad Core
- RAM: 4 GB
- Hard Drive Space: 5 GB
- Video card: 512 MB

❖ HOW TO GET THE VERSION AND PRE-REQUISITES

Sources of SALOME 8.4.0 can be retrieved from the Git repositories using V8_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 8.4.0 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.
- 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.
- 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 8x; 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 8x, 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.