# **SALOME version 7.5.1**

## Maintenance release announcement

January 2015

### ✤ GENERAL INFORMATION

CEA/DEN, EDF R&D and OPEN CASCADE are pleased to announce SALOME version 7.5.1. It is a maintenance release that contains set of bug fixes for SALOME version 7.5.0 released in November 2014.

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### PREREQUISITES CHANGES

SALOME version 7.5.1 uses patched version of Open CASCADE Technology 6.8.0; the patch fixes some regressions introduced by this version of OCCT. Refer to "OCCT 6.8.0 patch: bug corrections" chapter for more details about patch.

Also, this SALOME release contains an additional patch for ParaView 4.2 to fix minor problems. Refer to *"Bug corrections"* chapter for more details.

There are no other pre-requisite changes introduced by this SALOME release. Refer to SALOME version 7.5.0 Release Notes for full list of used pre-requisites.

#### LICENSE RESTRICTIONS

- Hereby we explicitly declare that PyQt and QScintilla (by Riverbank Computing Ltd) used by SALOME are distributed under the terms of GPL license, for more details please refer to:
  - o http://www.riverbankcomputing.com/software/pyqt/license
  - o http://www.riverbankcomputing.com/software/qscintilla/license

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

# BUG CORRECTIONS

### **GUI** MODULE

22825	Summary: EDF GUI regression: Issue with accent in the OB. Fixed regression with using UTF-8 encodings object names.
N/A	<i>Summary:</i> Fix bug for "light" modules: when running in "full" mode, Copy/Paste actions' state is not properly updated on selection change event.
N/A	Summary: Update Object browser properly after switching back from the module that does not use (and does not expose) Object browser.
N/A	<i>Summary:</i> Fix a bug that FitAll does not properly work in VTK 3D viewer for small objects (with bounding box's size < 1).
N/A	Summary: Fix SIGSEGV at SALOME exit.

### KERNEL MODULE

N/A	<ul> <li>Summary: Fixes of the salome runner:</li> <li>Fix bug preventing SALOME applications without GUI to launch properly;</li> <li>Process special case for YACS scheme execution;</li> <li>Minor refactoring.</li> </ul>
N/A/	<i>Summary:</i> Fix a bug causing concurrent access problems to the Resources Manager. Since the development of parallel container launch, the container manager is multi-threaded, but it used directly by the resource manager which was not thread safe. With this fix, all calls from the container manager to the resource manager are done through CORBA, and since the resource manager runs in a single-thread POA; thread-safety is thus ensured.

#### **GEOM** MODULE

21836	<i>Summary:</i> EDF 2204 GEOM: Regression in partition operation. Fixed with patch for OCCT 6.8.0 – issues OCC25432 and OCC25449.
22689	<i>Summary:</i> EDF GEOM: Regression - Extrusion along a path with a divided disk. Fixed with patch for OCCT 6.8.0 – issue OCC25456.
22697	Summary: EDF 8788 GEOM: Regression with MakePipe. Fixed with patch for OCCT 6.8.0 – issue OCC25480.
22706	Summary: EDF GEOM: Regression in T-shape pipe primitive with fillet: HexMesh option induces an error.

	Fixed with patch for OCCT 6.8.0 – issues OCC25592 and OCC25657. Additionally, GEOM module has been patched.
22743	Summary: EDF GEOM: Regression in MakePipeTShapeChamfer: Some faces are missing in a GetShapesOnCylinder result. Fixed with patch for OCCT 6.8.0 - issues OCC25450 and OCC25455. Additionally, GEOM module has been patched.
22819	Summary: [CEA 1339]: Regression: the distance between a sphere and an embedded box is non zero. Fixed bug of MinDistance operation.
22820	Summary: [CEA 1342] Regression: the distance between a sphere and a cylinder that touch is not zero. Fixed bug of MinDistance operation.
22832	Summary: EDF GEOM: Bug with curve construction.
N/A	<ul> <li>Summary: Fixes bugs in 2D sketcher:</li> <li>a) Improper set of command parameters (notebook variables) in "rectangle" mode.</li> <li>b) Added support of notebook variables in the Python API class Sketcher2D.</li> </ul>

### SMESH MODULE

22812	Summary: EDF 9218 SMESH: An empty group is created when using the duplicate nodes and/or elements. Creation of empty groups by "Duplicate nodes or/and elements" operation has been suppressed.
22830	Summary: EDF 9557 SMESH: Quadratic conversion of a mesh fails. SIGSEGV failure in Convert to Quadratic operation, if performed after Duplicate Nodes operation, has been fixed.
N/A	Summary: Bug: unable to create LocalLength hypothesis for a sub-mesh on a shape with a degenerated edge.
N/A	Summary: Fix regression of mesh_Projection_2D_00/A1 test.

#### MED MODULE

N/A Summary: MEDFileUMesh::zipCoords updates correctly the part definition is any without computation of merged umesh.
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N/A	Summary: CheckDeepEquivalWith should also return OK with two empty meshes.
N/A	Summary: Intersect2DMeshWith1DLine: Bug correction concerning cells in mesh1D collinear to some edges in mesh2D.
N/A	Summary: Bug correction of MEDFileUMesh.zipCoords seen in parallel context.
N/A	Summary: Using MEDparFileOpen for all Para* methods.

#### PARAVIS MODULE

22811	Summary: EDF 9266 PARAVIS: PVViewer is broken after connecting a study while Paravis is loading.
22813	Summary: [CEA 1336] Regression: SIGSEGV at the med file opening.
22815	Summary: [CEA 1340] Regression: Failing dump with PARAVIS.
22829	Summary: EDF 9568 Paraview: Paraview pops up an X window when a file is rendered by the pvserver. Fixed by launching pvserver with the off-screen rendering (offscreen-rendering option).
N/A	Summary: Fixing timesteps/timerange when PARAVIS is activated after a PVViewer has been launched.
N/A	Summary: Correction of issue EDF8662 (ELNOPoint, ELNOMesh after ExtractGroup)
N/A	Summary: EDF9622: Correction of ELNOPoints part

### OTHER ISSUES

22778	<i>Summary:</i> [CEA 1298] Python file compilation should be done at build time, not install time. Build procedure has been improved to avoid compilation of Python files each time when 'make install' is called – only files that have been changed are compiled now (requires CMake 2.8.11 or newer).
22816	Summary: [CEA 1337] file runSalome.py in HOMARD sources. Files with duplicated names in different modules have been renamed to have unique names within SALOME distribution.
22824	EDF 9518 Paraview: Paraview crash when using automatic completion in the Paraview python shell. Fixed with additional patch for ParaView 4.2.

N/A	Summary: The pvbatch is SEGFAULTing with patched version of ParaView. Fixed with additional patch for ParaView 4.2.
N/A	Summary: Update Japanese translations. Japanese translations for SALOME textual resource files have been done (from Crowdin).
N/A	Summary: YACSGEN: hxx2salome - create a link to c++ component documentation.

### PROCESSED AND ANSWERED QUERIES

22548	Summary: EDF 7928 ParaView: Python module naming problem.
22657	Summary: EDF 8476: Major performance issue on GUI side of ParaView.
22814	Summary: [CEA 1338] Regression: freeze SALOME with an empty file HDF.
22821	<i>Summary:</i> EDF 9434 PARAVIS: Problem with plugins loading when starting a Nth session of Salome/Paravis.

# ✤ OCCT 6.8.0 PATCH: BUG CORRECTIONS

This chapter lists bug corrections made for SALOME project in Open CASCADE Technology. These bug corrections are included into the patch for OCCT version 6.8.0 used by SALOME version 7.5.1.

OCC25432	Summary: Wrong result obtained by MakerVolume operator. Referenced by SALOME issue 0021836.
OCC25449	<i>Summary:</i> Excess vertex in result of General Fuse operation. Referenced by SALOME issue 0021836.
OCC25450	Summary: Common operation returns wrong shape. Referenced by SALOME issue 0022743.
OCC25455	Summary: FixShape works at the second attempt Referenced by SALOME issue 0022743.
OCC25456	Summary: BOPAlgo_CheckerSI reports an error on the given shape. Referenced by SALOME issue 0022689.
OCC25465	Summary: Excess vertex in the result of CUT operation. Detected by non-regressions testing.
OCC25480	Summary: Incorrect result of BRepOffsetAPI_MakePipe. Referenced by SALOME issue 0022697.
OCC25488	Summary: Wrong result of two trimmed cylinders intersection. Detected by non-regressions testing.
OCC25492	<i>Summary:</i> The selected sub-shape does not have topological relationship with original shape in OCC680.
OCC25494	<i>Summary:</i> Wrong result obtained by projection algorithm. Detected by non-regressions testing.
OCC25505	Summary: General Fuse produces self-intersection shape. Detected by non-regressions testing.
OCC25511	Summary: Visualization - drop redundant viewer option V3d_View::Transparency().
OCC25528	Visualization - Exception on removing an interactive object from a local context.
OCC25559	<i>Summary:</i> SIGSEGV in TKMath when computing max tolerance of curve on surface. Detected by non-regressions testing.

OCC25592	<i>Summary:</i> Bad result of Fillet operation. Referenced by SALOME issue 0022706.
OCC25637	Summary: Objects displayed in local context are not listed in displayed objects of interactive context
OCC25657	<i>Summary:</i> Bad result of Fillet operation. Referenced by SALOME issue 0022706.
OCC25664	Summary: Visualization - dynamic highlighting should not be discarded on re-displaying independent object

#### **SUPPORTED LINUX DISTRIBUTIONS AND PRE-REQUISITES** \*\*

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

SALOME 7.5.1 comes with the same prerequisites versions on all supported platforms (with some exceptions). The table below lists the versions of the products used by SALOME platform. Other versions of the products can also work but it is not guaranteed.

Product	Version	GUI (IAPP)	KERNEL	GEOM	SMESH	MED	YACS	PARAVIS	HOMARD	HEXABLOCK	NETGENPLUGIN	GHS3DPLUGIN	GHS3DPRLPLUGIN	BLSURFPLUGIN	HexoticPLUGIN	HEXABLOCKPLUGIN
gcc*	4.1***	Х	X	X	X	X	X	Х	X	X	X	X	X	X	X	X
GNU make*	3.80***	Х	X	X	X	X	X	X	X	X	X	X	X	X	X	Х
Microsoft Visual C++**	2010	X	х	x	X	x	x	x	X	x	x	x	X	X	x	x
cmake	2.8.10.2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Python	2.7.3	Х	X	X	X	X	X	X	Х	X	X	X	X	Х	X	X
Qt	4.8.4	Х		Х	X	X	X	Х	X	X	X	X	X	X	X	Х
Sip	4.14.2	Х			X											
PyQt	4.9.6	Х			Х											
Boost	1.52.0	Х	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Swig	2.0.8	X	X	X	X	X	X		X		X	X	X	X	X	X
OCCT	6.8.0	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Qwt	6.1.0	Х			X											
QScintilla	2.7						Х									
OmniORB	4.1.6	Х	X	X	X	X	X	X	X	X	X	X	X	X	X	X
OmniORBpy	3.6	Х	X	X	X	X	X	Х	X	X	X	X	X	X	X	X
omniNotify	2.1		Х													
Hdf5	1.8.10	Х	X	Х	Х	X		Х	X		X	Х	X	X	X	X
Med	3.0.8p1				Х	Х		Х	Х		Х		Х			
Vtk	6.2.0	Х		X	X	Х		Х		X	Х	X	X	X	X	X
numpy	1.8.1		Х													
lapack	3.5.0		Х													
graphviz	2.38.0	Х	Х	X	Х	Х	Х				Х	X	Х	Х	Х	
Doxygen	1.8.3.1	Х	Х	X	Х	Х	Х				Х	X	Х	Х	Х	X
NETGEN	4.9.13										X					
Metis	4.0					X										
Scotch	5.1.11					X										
libxml2	2.9.0	Х	X			X	X									
Distene MeshGems	1.3-8											X	X	X	X	
Sphinx	1.1.3		Х	X	Х		X		Х	Х						
libBatch	2.2.0		X													
Cgns	3.1.3				X	1			1	1			1	1		
ParaView	4.2.0	Х						Х								
Homard	11.1				1	1			X	1			1	1		
simanio	1.0		X													

Not included into SALOME Installation procedure, Linux only \*)

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

Minimal required version

Product	Version	RANDOMIZER	SIERPINSKY	PYCALCULATOR	COMPONENT	CALCULATOR	НЕГГО	ПСНТ	РҮЦӨНТ	ATOMIC	ATOMGEN	ATOMSOLV	HXX2SALOME	YACSGEN	JOBMANAGER
gcc*	4.1**	X	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х		X
GNU make*	3.80***	X	X	Х	X	X	X	Х	Х	X	Х	Х	Х		X
Microsoft Visual C++**	2010	x	Х	X	X	Х	Х	X	Х	Х	X	X	X		x
Python	2.7.3	X	X	X	Х	X	X	X	X	X	X	X		X	X
Qt	4.8.4		Х		Х	X	Х	Х		Х	Х	Х	X		X
Sip	4.14.2				Х						Х				
PyQt	4.9.6				Х				X		Х				
Boost	1.52.0		Х			X	Х					Х			X
Swig	2.0.8		Х		Х	X									
OCCT	6.8.0		Х		Х	X	Х	Х		Х		Х			
Qwt	6.1.0				Х										
OmniORB	4.1.6	X	Х	Х	Х	Х	Х				Х	Х			Х
OmniORBpy	3.6	X	X	Х	Х	Х	X				Х	Х			Х
Hdf5	1.8.10		Х		Х	Х		Х		Х					
Med	3.0.8p1		X	Х	Х	Х									
Vtk	6.2.0		Х		Х			Х	Х	Х		Х			
graphviz	2.38.0	X	Х	X	Х		X			X					
Doxygen	1.8.3.1	X	Х	Х	Х		Х			Х					
Sphinx	1.1.3														X

\*) Not included into SALOME Installation procedure, Linux only

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

\*) Not included into SALOM
 \*\*) Not included into SALOM
 \*\*\*) Minimal required version

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

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

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

SALOME 7.5.1 depends on a number of products for run time execution, others are necessary only for compilation or generation of development documentation (like doxygen for example). Below there is a list of mandatory and optional products.

Software Requir	Compilation Developmen		Execution		Remarks				
	Mandatory	Optional	Mandatory	Optional					
gcc	Х		Х						
GNU make	Х								
Microsoft Visual C++	х		Х		For execution, runtime libraries are only required				
cmake	Х								
Python	Х		Х						
Qt	Х		Х						
sip	Х								
PyQt	Х		X						
Boost	Х		X						
Swig	X								
осст	X		X						
Qwt	Х		X						
QScintilla		X		x	For YACS only Required only if used at compilation step				
omniORB	Х		Х						
omniORBpy	Х								
omniNotify	Х		Х						
Hdf	Х		Х						
Med	Х		Х						
Vtk	Х		X						
numpy + lapack		Х							
graphviz	Х		X		In run-time required for YACS only				
Doxygen	Х								
NETGEN	Х		X		For NETGENPLUGIN only				
cppunit		Х			Used for unitary testing				
mpi		Х		Х	Required only if used at compilation step				
openpbs		Х		Х	Required only if used at compilation step				
Lsf		Х		Х	Required only if used at compilation step				
metis		Х		Х	Required only if used at compilation step				
scotch		Х		Х	Required only if used at compilation step				
libxml2	X		X		· · · · · · · · · · · · · · · · · · ·				
MeshGems	x	x	x		Compilation: mandatory for BLSURFPLUGIN only, optional for HEXOTIC plugin Runtime: mandatory for BLSURFPLUGIN, GHS3DPLUGIN, GHS3DPRLPLUGIN, HexoticPLUGIN				
Sphinx		Х							
libBatch		Х		Х	Required only if used at compilation step				
ParaView	Х		Х		For PARAVIS module only, optional for GUI module				
Homard			Х		For HOMARD module only				
cgns		Х		х	For SMESH only Required only if used at compilation step				
freetype		Х		Х	Required only if used when building OCCT				
freeimage		Х		Х	Required only if used when building OCCT				
gl2ps		Х		Х	Required only if used when building OCCT				
Intel TBB		Х		Х	Required only if used when building OCCT				
simanio		Х		Х	Required only if used at compilation step				
wso2-wsf-cpp		Х		Х	Required only if KERNEL is built with SIMAN support				

#### Software Requirements

### ✤ How to install and build SALOME

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

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

### SALOME SYSTEM REQUIREMENTS

#### **Minimal Configuration:**

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

#### **Optimal Configuration:**

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

### HOW TO GET THE VERSION AND PRE-REQUISITES

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

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

SALOME Installation procedure for Linux includes a patch for NETGEN which is placed inside NETGENPLUGIN module sources. This patch is used for all platforms to fix several bugs of NETGEN. During the compilation on NETGEN from sources by the SALOME Installation Wizard, the patch is applied automatically to the standard NETGEN distribution. You can download NETGEN 4.9.13 from its official site using the following link: <u>http://www.hpfem.jku.at/netgen</u>.

All other pre-requisites can be obtained either from your Linux distribution (please be sure to use a compatible version) or from the distributors of these pre-requisites (for example, <u>http://qt.nokia.com</u> for Qt). Note that for some of pre-requisite products SALOME Installation procedure also includes patches that fix the problems detected by SALOME.

### **KNOWN PROBLEMS AND LIMITATIONS**

- The following modules are obsolete and not included into SALOME 7.5.1 release: FILTER, SUPERV, MULTIPR, VISU (Post-Pro). These modules are considered obsolete and not supported anymore.
- Application crash might occur on the data publication in the study if both data server and CPP container are running in the standalone mode.
- On some platforms the default font settings used in SALOME might cause bad application look-n-feel. This problem can be solved by changing the font settings with <code>qtconfig</code> utility included into the distribution of Qt 4.
- The following limitations refer to BLSURF plug-in:
  - Mesh contains inverted elements, if it is based on a shape, consisting of more than one face (box, cone, torus...) and if the option "Allow Quadrangles (Test)" has been checked before computation.
  - SIGFPE exception is raised after trying to compute a mesh based on a box with "Patch independent" option checked.
  - It has been found out that BLSURF algorithm cannot be used as a local algorithm (on submeshes) and as a provider of low-level mesh for some 3D algorithms because BLSURF mesher (and, consequently, the plug-in) does not provide information on node parameters on edges (U) and faces (U, V). For example, the following combinations are impossible:
    - global MEFISTO or Quadrangle(mapping) + local BLSURF;
    - BLSUFR + Projection 2D from faces meshed by BLSURF;
    - local BLSURF + Extrusion 3D.
- Sometimes regression test bases give unstable results; in this case the testing should be restarted.
- A native VTK can be used only after manual recompilation with the GL2PS component.
- NETGEN 1D-2D and 1D-2D-3D algorithm do not require definition of 2D and 1D algorithms and hypotheses for both mesh and sub-mesh. 2D and 1D algorithms and hypotheses defined with NETGEN 1D-2D or 1D-2D-3D algorithm will be ignored during calculation.
- SALOME in general supports reading of documents from earlier versions but the documents created in the new version may not open in earlier ones. However, some studies may work incorrectly in SALOME 7x; mainly it concerns studies with Post-Pro data in which med v2.1 files have been imported. Due to removal of med v2.1 support and deprecation of Post-Pro module in SALOME series 7x, there can be problems with opening of such studies in SALOME.
- If SALOME modules are not installed in a single folder, SALOME may not work in the CSH shell since the environment variables are too long by default. In this case, it is suggested to use SH or to install all modules in the same folder.
- During the compilation of OCCT 6.x by Makefiles on a station with NVIDIA video card you can experience problems because the installation procedure of NVIDIA video driver removes library libGL.so included in package libMesaGL from directory /usr/X11R6/lib and places this library libGL.so in directory /usr/lib. However, libtool expects to find the library in directory /usr/X11R6/lib, which causes compilation failure (See /usr/X11R6/lib/libGLU.la). We suggest making symbolic links in that case using the following commands:
  - ln -s /usr/lib/libGL.so /usr/X11R6/lib/libGL.so
  - ln -s /usr/lib/libGL.la /usr/X11R6/lib/libGL.la
- Stream lines presentation cannot be built on some MED fields due to limitations in VTK.
- MEFISTO algorithm sometimes produces different results on different platforms.

- In some cases the number of triangles generated by MEFISTO may be different at each attempt of building the mesh.
- When generating a 2D mesh with "Maximum Area" hypothesis used, MEFISTO algorithm can produce cells with maximum area larger than specified by the hypothesis.
- For the current moment, because of the ParaView application architecture limitations, PARAVIS module has the following known limitations:
  - PARAVIS module works unstably using a remote connection; when SALOME is running on a remote computer, activation of PARAVIS module can sometimes lead to the application hang-up.
  - PARAVIS module compilation can fail on 64-bit platforms when building ParaMEDCorba plugin (due to crash of kwProcessXML tool during generation of the plugin documentation). In such case it is necessary to unset VTK\_AUTOLOAD\_PATH environment variable and restart the compilation, for example:

[bash%] unset VTK\_AUTOLOAD\_PATH

- Loading big files in ParaVis might render SALOME instable. This will be fixed in the next release and can be avoided in the current version by one of the two solutions below:
  - In ParaVis settings (ParaVis tab), disable the use of the external pvserver. This approach has the limitation that it is not possible to execute ParaVis' Python scripts outside the SALOME graphical interface (for instance, from an external terminal).
  - In ParaVis settings (ParaView tab → RenderView tab), increase the amount of memory under "Remote/Parallel rendering options" to something bigger than the default 20 MB (for example 200 MB).