SALOME 3.2.0alpha1 development release announcement

General information

OPEN CASCADE is pleased to announce SALOME 3.2.0alpha1 (a1) minor development version. It is an intermediate development release that contains the results of planned improvements and bug fixes with reference to the SALOME 3.1.0 development releases. Note that the SALOME 3.2.0a1 did not pass a complete industrialization cycle.

The major goal of SALOME 3.2.0alpha1 is to share the current development state among CEA/EDF/OPEN CASCADE. This document describes the main differences since SALOME 3.1.0 version.

Since the 3.2.0a1 is a development release, this document mainly addresses to the developers.

Major improvements according to SALOME 3.2.0 alpha 1

Modifications in GUI module

- Some improvements related to text the drawing performance and robustness are made into GLViewer package;
- A study driver class in LightApp is debugged (now temporary files are deleted);
- Minor code amendments and document closing debug in STD, SUIT and Plot2d.

KERNEL module improvements

- Local code branches in client classes have been protected with SALOMEDS::Locker to make local calls to SALOMEDS via SALOMEDSClient classes thread-safe when STUDY is embedded.
- Problem with module name displayed in lower case has been fixed.
- If the user does not have permissions to save study, a warning is displayed properly.
- Binary libraries of boost toolkit are now used in Gauss viewer.
- DumpStudy() method has been debugged.
- 'Invalid pointer' message when loading GEOM module after restoring the study from HDF-file has been fixed.

MED module improvements

- As a result of Gauss Viewer implementation now binary libraries of boost are used; gauss points and MED profiles are supported in MEDWrapper.
- Thread-safe support in MEDWrapper, some small modifications of interface of some MEDWrapper classes.
- Inconstant behaviour between V2.2.x and V3.1.0 has been fixed.
- Bug found during construction of a SALOME specific version for ALLIANCES (based on MED from 3.1.0 and other modules from 2.2.7) has been fixed: set field value type at creation; fix in typemap for vectors passed by value for SWIG 1.3.21.
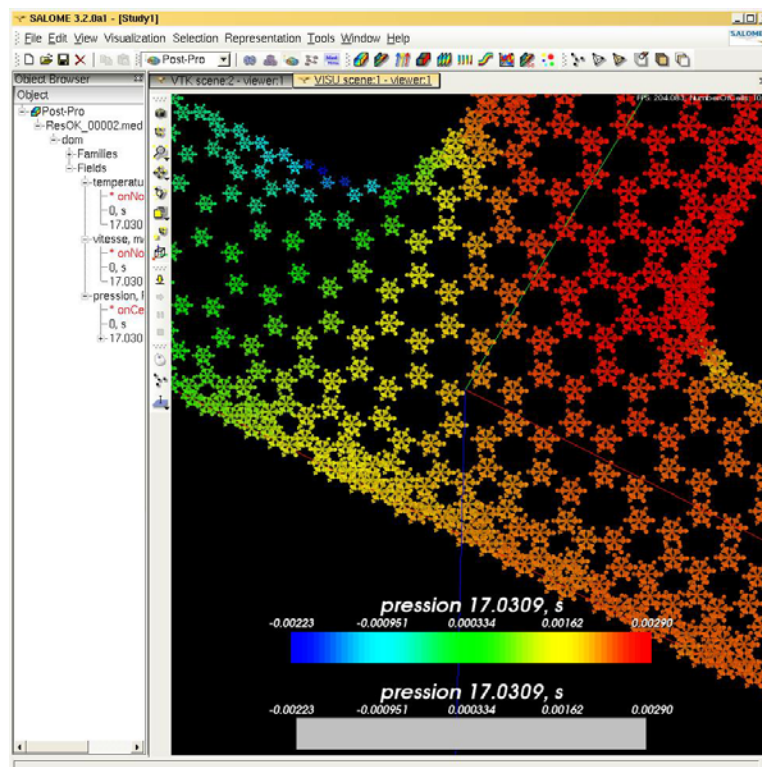

Implementation of EDF/Gauss Viewer

Salome now supports Gauss Viewer and possesses a vide range of its functionalities. This implementation necessitated the following changes and improvements.

Improvements of the SALOME VTK viewer (SVTK).

- Scaling and Graduated Axis functionality is generalized and moved from VISU to the GUI module.
- SVTK_ViewWindow can contain more than one instance of the vtkRenderWindow which is a considerable improvement of the layout management.
- Native VTK events are now fully supported which means that now it is possible to use vtk3DWidget subclasses to enrich visualization pipeline.
- It is possible to customize selection and pre-selection functionalities (every presentation can override the default selection and pre-selection functionality).
- New selection modes can be introduced in a simpler way because now every presentation can introduce and process its own selection mode.
- Visualization of the quadratic mesh elements is supported.
- Interaction with Space Mouse (external device of virtual reality) is supported.
- The style of the user interaction became customizable.

Improvements of the SALOME MEDWrapper package.

- MED PROFILE entity is fully supported (it is possible to get know whether the assigned data is defined on the whole MED ENTITY or on the specified sub-set of mesh elements only).
- MED GAUSS entity is fully supported (it is possible to read and calculate the absolute 3D space position of Gauss Points of the calculated data).
- Thread-safety for the package is implemented.
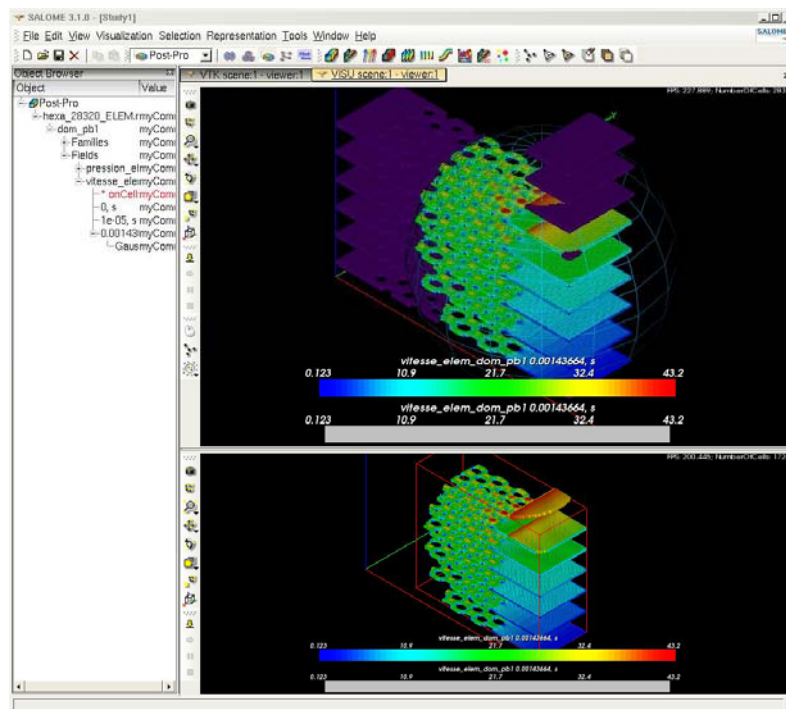
Modification of the SALOME VISU module.

- A new type of the 3D presentation – Gauss Points is implemented.
- OpenGL extensions now provide fast rendering for Gauss Points presentations.
- Background loading of MED files is implemented.
- The process of the loading of the MED files became customizable (it is possible to choose what MED entities will be loaded).
- Support for visualization quadratic mesh elements is provided.
- Full support for multi-component MED fields is provided.
- A new viewer, sub type of the SVTK, is implemented. Its users now can customize:
    - layout management (the viewer provided two views instead of a single view);
    - style of the user interaction (the user can operate in the viewer using the keyboard).
- AVI recording functionality for the sub-type of the SVTK viewer is implemented.
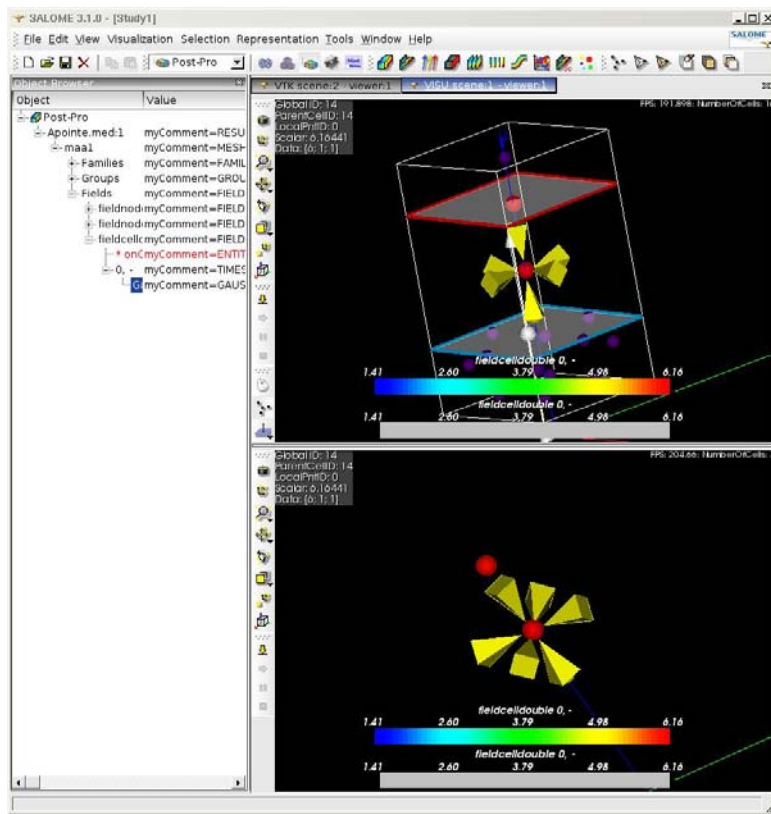
Bug fixes and improvements

Total number of corrected problems since SALOME 3.2.0a1: **47**

The following bugs were corrected in the version:

- PAL8004 - CRASH after trying to run edited MacroNode execution
- PAL8060 - Supervisor: Edit ports – existing links are deleted
- PAL8237 - Crash after trying to activate dataflow window
- PAL8364 - Corrupted behaviour of the "Data on elements" dialog box in "Visu"
- PAL8557 - "Export to Library" doesn't create ".salome" directory in home if it isn't exist
- PAL9168 - Adding a new object in a long study is too long
- PAL9301 - SIGFPE appears after changing scale mode of the Plot2d presentation
- PAL10035 : No warning on saving if pemissions are not enough
- PAL10398 : Wrong popup for tabulated viewers
- PAL10467 IMP : boulant : Meshing in quadrangles even if the number of nodes on opposite edges is not the same
- PAL10529 : Crash during mesh computing if hypothesis and algorithms are not define
- PAL10652 - Superposition of scale bars in VISU
- PAL10673 : Mark active viewer better
- PAL10703 : SIGSEGV in SUPERV view popup of SALOME
- PAL10710 : Selection is lost after trying select triangles instead quadrangles
- PAL10730 - Method "IsValid()" returns different values for the same graph in development and maintainance versions
- PAL10733 - Method "IsExecutable()" returns different values for the same graph in development and maintainance versions
- PAL10784 : "salome_test.py" from GUI raises error
- PAL10810 : "Display", "Display only" and "Erase" disappear from popup for "Post-Pro" root object
- PAL10845 : Corrupted scalar map is displayed in VTK
- PAL10849 : Redisplaying of presentation changes the representation mode into "Surfaceframe"
- PAL10870 -: postcript output for 2d views - implemented, but look IPAL11570 : corrupted and monochrome snap
- PAL10902 : Selected elements are highlighted in 3D after click "Apply"
- PAL10939 : Incorrect presentation of a polyhedral mesh volume
- PAL10959 : CRASH after clicking on "3D block" selection button of the "Pattern Mapping" dlg
- PAL11005 : "SetStudyID" node input value different in "GraphGeomEssai.xml" and "GraphGeomEssaiGates.xml"
- PAL11008 : Mandrake10.1: Preview of scalar bar work only for Scalar Map
- PAL11035 - Scalar Map visualization of fields with more than 3 components
- PAL11036 - Salome crashes when creating a group on geometry of a saved hdf
- PAL11041 - Display the incriminated sub-shapes (also fixed in maintainance)
- PAL11045 - refreshing the object browser doesn't keep its current position
- PAL11083 - Can't change the animation speed when Save pictures is checked
- PAL11104 - In SuperV.py, useless "import readline" leads to useless dependancy to the readline library
- PAL11161 - In dump study; geompy.MakeSolidShells is used instead of geompy.MakeSolid

- PAL11176 - unconstant behaviour between V2.2.x and V3.1.0 behaviour
- PAL11178 - The computation of the mesh doesn't end after that I changed its assigned hypotheses
- PAL11181 - "invalid pointer" when loading GEOM after an hdf
- PAL11188 - PAL_NO_ERROR when exploding a main shape which is not displayed
- PAL11204 : Incorrect title of the documentation page
- PAL11211 - SIGSEGV when exporting a mesh after having deleted a group
- PAL11225 : Bad resaving of the study in mutifile mode
- PAL11273 - How to set the name of the container in a Factory Node
- PAL11287 : It is impossible to create PYCALCULATOR component nodes in Supervisor
- PAL11299 : Crash during group creation using incorrect number of sub-shape IDs
- PAL11387 : After "dump study" operation python console is not work
- PAL11406 - In "Browse", changing the workspace sets the old input values
- PAL11408 : "Run()" method returns "0" after trying to start graph execution
- PAL11471 : To correct "Error"(Dataflow not executable:) message

Supported Linux distributions and pre-requisites

SALOME 3.2.0 alpha1 supports the same Linux versions as SALOME 3.1.0

Note: OPEN CASCADE TECHNOLOGY version has been changed to OCCT 6.1a. This most recent version contains all latest bug fixes.

Note: The MED component now requires SWIG 1.3.24 version.

Note: Binary libraries of Boost 1.31.0 (threads and signals) are now required. In addition patch is required for this boost to avoid conflicts with QT SIGNALS macro. This patch is automatically applied to the boost sources during installation of SALOME with Install Wizard.

The SALOME 3.2.0alpha1 version has been mainly tested with the following pre-requisite list on Mandrake 10.1 platform. However, other versions of pre-requisites may also work. The version was also tested on Debian 3.1 distribution and on native Mandrake10.1 prerequisites.
- gcc 3.4.1 - native for Mandrake 10.1
- tcl/tk 8.4.5 - native for Mandrake 10.1
- Python 2.3.4 - native for Mandrake 10.1
- Qt 3.3.3 - native for Mandrake 10.1
- Doxygen 1.3.7 - native for Mandrake 10.1
- Boost 1.31.0 - Now it is binary (patched)!
- sip 4.1
- PyQt 3.13 *officially does not support Qt 3.3.3 but nevertheless it can be used*
- Swig 1.3.24
- OpenCASCADE TECHNOLOGY 6.1
- Qwt 4.2.0/0.2.4
- OmniORB 4.0.5
- OmniORBPy 2.5
- OmniNotify 2.1
- Hdf5 1.6.3
- Med 2.2.2
- Vtk 4.2.6
- Numeric 23.7
- HappyDoc 2.1
- Graphviz 2.2.1
- NETGEN 4.3 *a patched version of NETGEN*

Note that the list of pre-requisites for RedHat 8 platforms is different and can be found within the RedHat 8 installation procedure for SALOME 3.2.0alpha1 that can be found on the FTP site.

How to get the version and pre-requisites

The SALOME 3.2.0alpha1 pre-compiled binaries for Mandrake 10.1 and RedHat 8.0 can be retrieved from the PAL/SALOME FTP site (ftp://www.opencascade.com). Alternatively, SALOME modules can be downloaded from the following CVS repositories:

- KERNEL module: :pserver:<username>@cvs.opencascade.com:/home/server/cvs/KERNEL
- GUI module: pserver:<username>@cvs.opencascade.com:/home/server/cvs/GUI
- GEOM module: pserver:<username>@cvs.opencascade.com:/home/server/cvs/GEOM
- MESH module: pserver:<username>@cvs.opencascade.com:/home/server/cvs/SMESH
- SUPERVISOR module: pserver:<username>@cvs.opencascade.com:/home/server/cvs/SUPERV
- VISU module: pserver:<username>@cvs.opencascade.com:/home/server/cvs/VISU

- **MED** module: pserver:<username>@cvs.opencascade.com:/home/server/cvs/MED
- **NETGEN** plugin module: pserver:<username>@cvs.opencascade.com:/home/server/cvs/NETGENPLUGIN
- **SAMPLES**: pserver:<username>@cvs.opencascade.com:/home/server/cvs/EXAMPLES

IMPORTANT! Source files for version 3.2.0alpha1 are available in CVS via tag **V3_2_0a1**

The Open Cascade Technology 6.1a can be retrieved in its binary and source forms from the PAL/SALOME FTP site (ftp://www.opencascade.com).

The patch on NETGEN is placed inside NETGENPLUGIN sources. During the compilation of a plug-in, the patch is applied automatically to the standard NETGEN installation.

All other pre-requisites shall be obtained either from your Linux distribution (*please be sure to use a compatible version*) or from the distributors of these pre-requisites (*www.trolltech.com for QT for example*).

Known problems and limitations

- Please, note that this version is an intermediate 2006 development release. It has not gone through complete testing and debugging processes.

- On some configurations of graphical cards / drivers an "Signal 8 (Floating Point Exception) window may regularly appear when working with the VTK viewer.

- Due to some opened bugs, some non regression TUI tests fail:
    - MED module PAL10355(003A1, 004A0), PAL8701(005A1-I9, J1-J3), PAL10348(006A4,A5), PAL11580(004A1), PAL11580(001A0-A8,G0-G7,L0-L7, 002A1)
    - COMPONENT tests: PAL11571(001C0)
    - GEOM module: PAL11259(011A3);

- End user documentation for Supervisor and VISU modules were updated only in parts of screenshots. No revision of these modules was done due to planned major changes in GUI for SALOME 3.2.0 version

- Results of some TUI non-regression testing are different on slow and fast computers. This is due to using in some test cases the functionality of GEOM from Supervisor in parallel nodes. Due to the fact that Open CASCADE Technology does not thread safe, in some hardware configurations there is parallel conflict access to some data and such supervisor graphs fail. This problem will be fixed in future. At this moment the workaround is usage of GEOM nodes subsequently.

- Two fixes from 3.1.0 branch debug were not taken into 3.2.0a1 branch. There is bug with absence of toolbar during first run of SALOME without user preference. Also there is bug with fonts in python console, when after applying of preferences it changes to first default system one (depending of Linux version). Fixes for these bugs will be integrated into next 3.2.0a2 version.

- Advanced features of 1D hypothesis "Number of segments" for SMESH are not completely finished yet. However it provides quite a good level of functionality to start its testing.

Maintenance caution!

No maintenance is provided for this version and this is not the version that will be used by end users. The functionalities of SALOME 3.2.0 alpha 1, its content and API may change and will be developed into the SALOME 3.2.0 as a maintainable version. Please contact OPEN CASCADE PAL/SALOME team for any questions.