

SALOME 3.2.2

Maintenance release announcement

September 2006

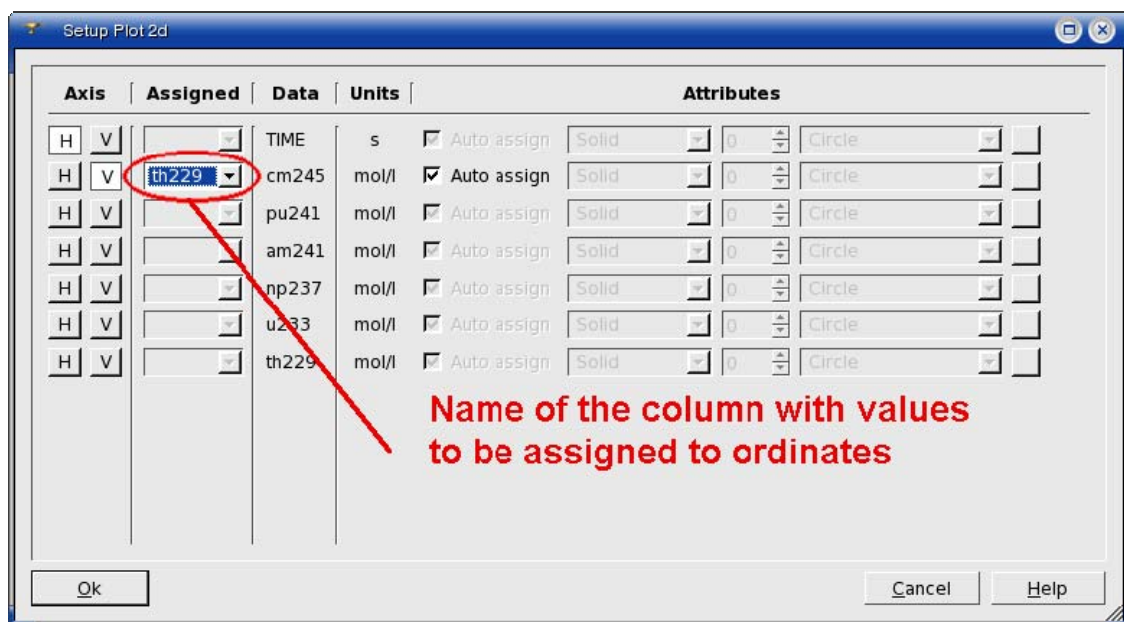
General information

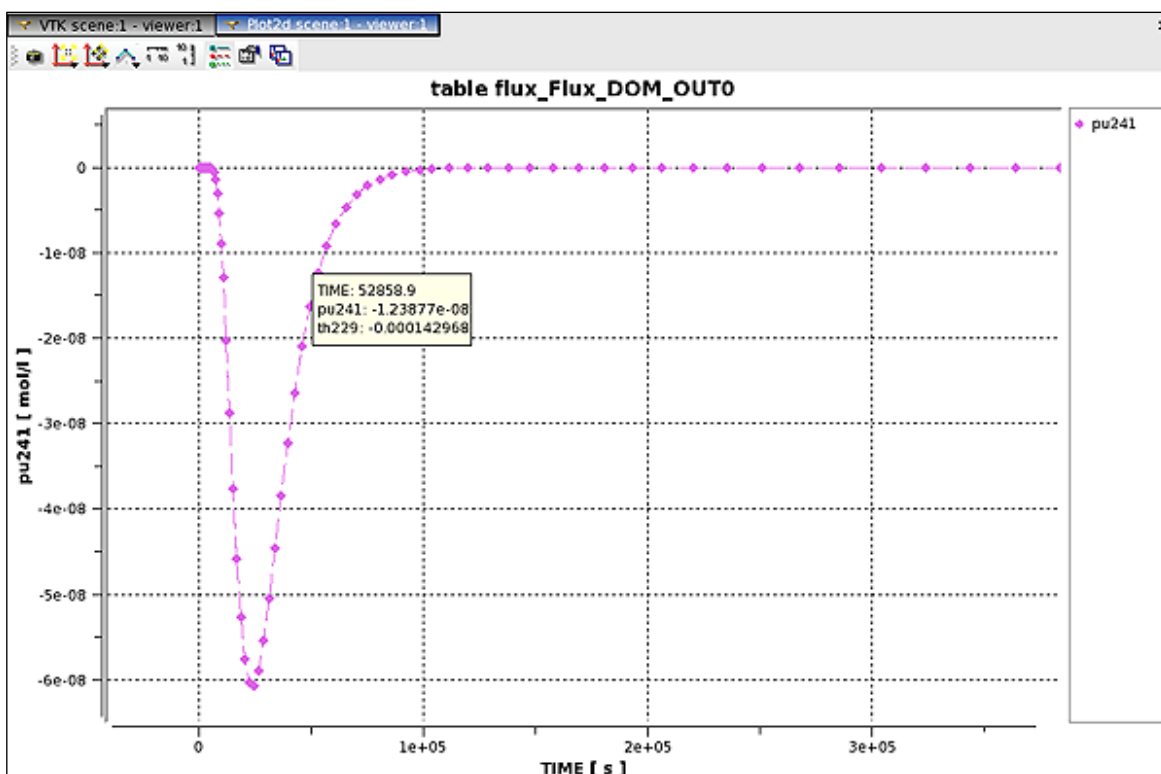
OPEN CASCADE is pleased to announce SALOME version 3.2.2. It is maintenance release that contains the results of planned major and minor improvements and bug fixes against SALOME 3.2.1 version released in July 2006.

New features and general changes

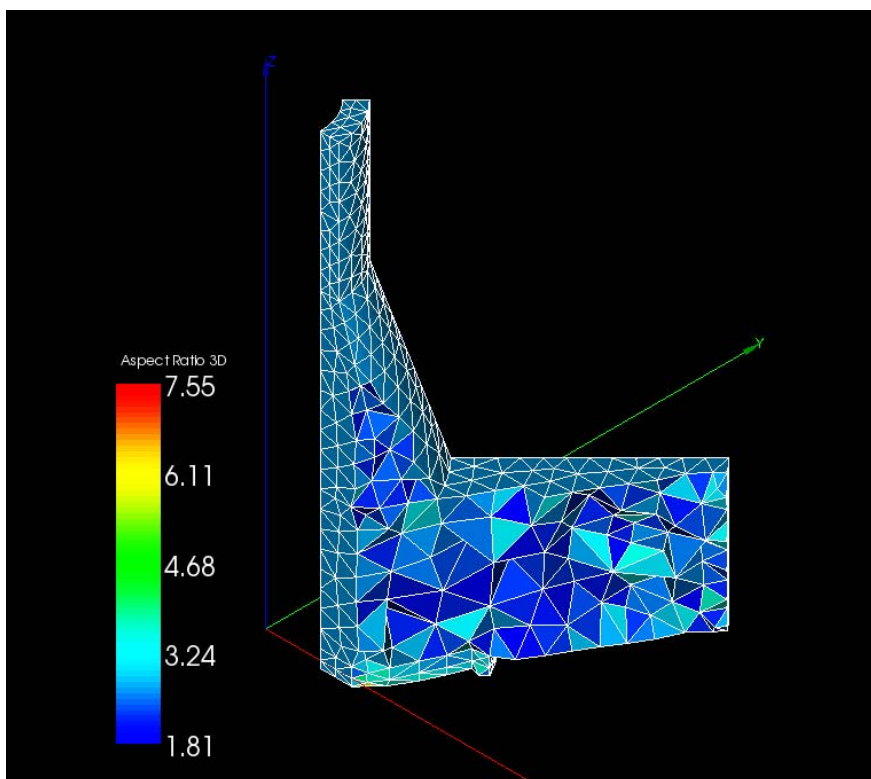
- New version of omni 4.0.7 has been implemented for Mandriva platform in order to eliminate the problem of calculation results round-off. OmniORB version 4.0.7 fixes a bug of version 4.0.6 with the loss of precision when passing the floating point values (CORBA::Double) via CORBA bus. For example, "4.1" value might become something like "4.9999988802" after transferring from client to server.
- New Plot2D functionality has been implemented to build 2D curves based on 3 values; Now Plot2d_Curve allows assigning to point arbitrary text string as a tooltip that is shown over the curve point.

Using this new feature, VISU allows creating curves with assigned third values. The dialog of curve parameters now allows choosing one of table rows as a row with the assigned value (it may coincide with the row of abscissas or ordinates). The tooltip of curve points created with the help of VISU has the same appearance that was required.





- Calculation of AspectRatio for quadratic elements is implemented.



- Support of scientific Linux 4.2 has been implemented.

Bug corrections

Environment

Rebuilding Python-2.3.5. File `_bsddb.so` has been restored in the folder `Python-2.3.5/lib/python2.3/lib-dynload`.

Remarks: To be able to built `_bsddb` extension for Python, Sleepycat DB libraries and devkit should be installed on the computer. Debian Sarge 3.1 distribution includes packages `libdb4.2` and `libdb4.2-dev` which contain the required libraries and include files.

In this case the default Python 2.3 make procedure includes `_bsddb` extension in the building process.

Fixed examples. CALCULATOR, HELLO and PYHELLO modules have been corrected to avoid problems with environment variables. RunAppli scripts have been modified to check if the environment variables have been already set. Installation scripts for SALOME modules have been modified to correct hard-coded environment variables automatically during the installation process

Kernel

New warning messages. The following cases have been provided with warnings:

- Library for the module not found.
- Python library for the module not found. (It concerns python modules).
- The module not found in the resources.
- Icon for the module not found.
- The list of modules is empty.

Improvement of `batchmode_salome`. Some improvements in cycles used for initialization of ORB, LifeCycleCORBA and Study Manager instances have been implemented in `batchmode_salome.py`.

Compilation issues. `KERNEL_SRC/doc/salome/version.texi` has been removed in order to avoid the problem during compilation of Salome src downloaded from CVS in read-only mode.

Corrected links in documentation. The type of comments, which will be processed by Doxygen, has been changed. Now the format of the comments is – See also `` an example ``

instead of – See also `` an example ``

GUI module (IAPP)

Dumping a VTK view. Now "Dump View to File" dialog and 3D viewer popup do not appear in the saved (dumped) image. The viewer is dumped before the popup is shown. The image is saved in `myDumpImage` variable(`..._ViewWindow` classes), which is refreshed each time the viewer popup is called.

Spaces in the MED file path. Spaces in the MED file path are available now in Mesh and Post-Pro.

MED files loading. Loading of MED files with 1D and 2D meshes into Post-Pro has been improved. Now the names of coordinates are correctly taken into account.

Removal of GEOM objects. Removal of a GEOM object from study has been improved: now all its sub-objects are correctly erased and removed from the engine.

Environment variables on 64-bit Linux platforms. Some Python scripts have been modified to correctly set the environment variables for SALOME session on 64-bit Linux platforms, taking into account that the folder for libraries on 64-bit platforms is called "lib64" instead of "lib" (for 32-bit platforms).

GEOM module

Import dialog box. The behavior of "Import" dialog box has been corrected. GEOMToolsGUI::Import() method has been changed.

Improvement of batchmode_geompy.py. Some improvements in the cycle used for initialization of GEOM component have been implemented in batchmode_salome.py.

Boolean operations for compounds and compsolids. Boolean operations Cut, Common and Section now work on Compounds and Compsolids.

New method for creation of objects. A new method void GetPosition(GEOM_Object, 9 doubles) has been added to GEOM_IMeasureOperations IDL interface. This method allows obtaining Origin and OZ and OX axes of LCS from any shape in the same way as for LCS creation from any selected shape.

It is wrapped by the corresponding method of geompy python package:

```
[Ox,Oy,Oz, Zx,Zy,Zz, Xx,Xy,Xz] GetPosition (GEOM_Object)
```

MakePosition() method now can perform shape transformation from global CS into a selected LCS. For that None (from python) or nil CORBA object has to be passed for its second argument (StartLCS).

The same approach is used for reation of Plane, Working Plane, LCS, sketcher, Position from a selected shape: the origin of the new object is situated at the shape's center of mass.

New preferences for GEOM. Now it is possible to predefine the color of points, edges, wires, free boundaries and other shapes separately. Also, the possibility to change the color of isolines has been added. New items have been added in the preferences (and correspondingly resources) for GEOM:

```
"Color of point—" - "point_color"
```

```
"Color of edges, vectors and wire—" - "line_color"
```

```
"Color of free boundarie—" - "free_bound_color"
```

```
"Default wireframe colo—" - "wireframe_color"
```

```
"Color of isoline—" - "isos_color"
```

Faster visualization. A new method GEOM_Swig::UpdateViewer() which permits to update the active viewer has been created.

Viewer update. The optional Boolean parameter isUpdated was added to setDisplayMode(), setColor() and setTransparency() methods of GEOM_Swig class. Now the user can choose whether to update the viewer or not. This parameter is optional and equal to "true" by default.

Objects removal. RemoveObject method has been fixed (now it is possible to remove the last object of the group).

Input float/double values. The direct type coercion (CORBA::Float) and (CORBA::Double) is used now for valid conversion from CORBA::Any to CORBA::Float and CORBA::Double types for float/double ports value instead of usage of CORBA::Any::replace(...) function.

Box creation from two points. GEOM GUI documentation has been updated to provide a better description of box creation from two points.

Diagnostics of invalid arguments. Diagnostics of invalid arguments has been improved in methods MakeLine and MakeLineTwoPnt.

Link to python API in GUI documentation. Link to python API has been added to GUI documentation on GEOM module.

Boolean operation on compounds. Regression with a Boolean operation on compounds has been corrected.

MESH module

Threshold value for "Free borders". Threshold value is no longer used as a filter criterion in "Free borders" operation.

Faster import and display of meshes. Time of import and display of meshes in VTK has been reduced in comparison with SALOME_2.2.4 version.

Aspect Ratio for quadratic elements. Calculation of AspectRatio for quadratic elements has been implemented.

Faster loading of hdf files. Performance of restoration of a study containing a mesh generated on geometry has been improved by ~2.5 times.

Desktop dialog activation. Now the child dialog of the desktop is activated after the desktop has sent "activated()" signal.

Create Mesh dialog. Behavior of "Create Mesh" dialog has been improved. Now when a lower-dimension meshing algorithm is defined, the algorithms of higher dimensions will not be assigned automatically.

MED module

Error in "medcorba_test.py". Now `createCorbaFieldDouble(SALOME_MED::SUPPORT_ptr, FIELDDOUBLE * , bool)` and `createCorbaFieldInt (SALOME_MED::SUPPORT_ptr, FIELDINT * , bool)` methods defined in `libMedCorba_Swig.py` of MED module set the support input as argument in the created field

Reading MED files without craches. Now a med file containing multiple component fields with incorrectly written component names can be read by MED module without crash. Nodal connectivity of polygons of MED_FACE entity can be correctly retrieved from python.

Loading fra.med file. Now fra.med file can be loaded by MED module. This file has invalid number of Gauss points, that is now checked and set to 1 for fields on MED_NODES or if the number of Gauss points exceeds 1000

Warnings in createCorbaFieldDouble method. Now `createCorbaFieldDouble(support_corba, field)` method, defined in `libMedCorba_Swig.py`, does not complain "No matching function for overloaded 'createCorbaFieldDouble'" when called with `support_corba` created using `createCorbaSupport()`

Method SALOMEDS_Study::GetObjectNames. Method `SALOMEDS_Study::GetObjectNames` has been improved. Now it doesn't crash Salome if an invalid context is passed in argument. In this case a `SALOMEDS::Study::StudyInvalidContext` exception will rise.

Scripts from `CALCULATOR_SRC/src/CALCULATOR/` have been updated to correspond to the file `pointe.med`, stored in resources of MED component.

Compilable constructors. Now all constructors of `MEDMEM::INTERPOLATION` are compilable

MESH copy constructor. Now copy constructor of `MEDMEM::FAMILY` works without exception if a family has no attributes.

Class members initialization. Now `GRID::GRID(const std::vector<std::vector<double> ...)` constructor initializes all fields so that it would be safe to use `MEDMEM::GRID` constructed this way.

VISU module

Improved mapping definition. A series of fixes provides a more correct definition of mapping between MED and VTK both for MED Families and for MED Entities. In case of definition of MED Families mapping it was necessary to increase the VTK index when the Family contains from mesh elements of different geometric type. And MED indexes should be taken from MED not from VISU CONVERTER internal numeration.

Tooltips in Plot2d viewer. Now Plot2d_Curve allows assigning an arbitrary text string to any point as a tooltip shown over the curve point. Using this new feature, VISU allows creating curves with assigned third values. The dialog of curve parameters now allows choosing one of table rows as a row with the assigned value (it may coincide with the row of abscissas or ordinates). The tooltip of curve points created with the help of VISU has the same appearance that has been required.

The interface VISU_Gen possesses an additional method:

CreateCurveWithZ(table, theHRow, theVRow, theZRow), where theHRow is the row for abscissas of points, theVRow – the row for ordinates and theZRow represents the assigned values. Methods Plot2d_Curve::addPoint() and insertPoint() now have a third parameter, that represents a string of point tooltip (by default it is empty). Method setData() has parameter QStringList, representing tool-tips for all points (by default, the list is empty).

Also the new methods Plot2d_Curve::setText(int, QString) and Plot2d_Curve::text() have been added. They make it possible to set/get a tooltip for a certain point.

SUPERVISOR module

Notification logging. Description of the operation has been changed in the documentation in the file SUPERV_SRC/doc/salome/gui/SUPERV/files/filtering_and_storing_output_messages.htm. The string "In this dialog box you can specify a file, where all output messages will be put, and choose the type of messages for logging by every node composing your graph." Has been replaced with the string "In this dialog box you can specify a file for all output messages sent by the component for notification purposes and choose the type of messages for logging by every node composing your graph."

String transfer in a macro-node. GraphExecutor::InNode::DataWaiting_SomeDataReadyAction() function has been changed (MacroNode : immediately assigns the value to the corresponding graph).

User and interface names. Now we take the name of the component by its component user name instead of taking it by the interface name, which is included into this component, since different components can have the same interfaces, while the user name of the component is unique inside the component catalog.

Modifications for 64 bits architectures. Supervisor module has been modified to work better on 64 bits architectures.

Study

Redundant confirmations. Salome does not ask to save the study if "Store/Restore last GUI state" has been set in the preferences and the study has already been saved.

Protection against a premature study close. Four new methods for SALOMEDS::Study: SetStudyLock, IsStudyLocked, UnLockStudy and GetLockerID have been added. A special notification on closing a locked study has been introduced in GUI: in this situation the user is shown a warning and asked if she chooses to continue closing or to cancel it.

Other

Script changes. Check_qt.m4 script has been replaced by a standard file from KERNEL_SRC_x.y.z/salome_adm/unix/config_files and the following files have been added:

ac_cxx_option.m4
ac_linker_options.m4
check_opengl.m4

Makefile.am of HXX2SALOME_3.2.1/src has been corrected.

Configure/Build with native Tcl/Tk. Open CASCADE make procedure has been updated in order to take into account TCL_INCLUDE_SPEC variable of tclConfig.sh.

HXX2SALOME example. HXX2SALOME example has been updated in accordance with the last Salome architecture changes: SalomeApp.xml has been added in the template module archive, which is used to generate Salome components.

Mandriva porting. The problem has been fixed by the usage of omniORB-4.0.7 product.

Extended trihedron sizes. Now user can define the trihedron size less than 1.0. Minimum value and minimum step are equal to 0.000001.

Supported Linux distributions and pre-requisites

SALOME 3.2.2 supports Mandrake 10.1, Debian Sarge, Mandriva 2006, RedHat 8.0, 9.0, RedHat Enterprise 4, Scientific Linux 4.2 and Mandriva 64 bit. Please note that SALOME is not certified on this latter OS.

SALOME 3.2.2 version has been mainly tested with the following pre-requisite list on Mandrake 10.1 platform.

Following prerequisites are valid for SALOME 3.2.2 version. Please note that we try to use as much as possible of native products.

	Mandriva 2006	Debian Sarge	Mandrake 10.1	RedHat Enterprise 4	RedHat 8	RedHat 9	RedHat Scientific 4.2
gcc	4.0.1	3.3.5	3.4.1	3.4.1	3.2	3.2	3.4.4
Tcltk	8.4.5	8.4.5	8.4.5	8.4.5	8.0	8.0	8.4.5
Python	2.4.1	2.3.5	2.3.4	2.3.4	2.3.4	2.3.4	2.3.4
Qt&msg2qm	3.3.4	3.3.4	3.3.3	3.3.3	3.3.3	3.3.3	3.3.3
Sip	4.2.1	4.1	4.1	4.1	4.1	4.1	4.1
PyQt	3.14.1	3.13	3.13	3.13	3.13	3.13	3.13
Boost	1.32.0	1.32.0	1.31.0	1.31.0	1.31.0	1.31.0	1.31.0
Swig	1.3.24	1.3.24	1.3.24	1.3.24	1.3.24	1.3.24	1.3.24
OpenCascade Technology	6.1	6.1	6.1	6.1	6.1	6.1	6.1
Qwt	4.2.0	4.2.0	4.2.0	4.2.0	0.4.1	0.4.1	4.2.0
OmniORB	4.0.7	4.0.5	4.0.5	4.0.5	4.0.5	4.0.5	4.0.7
Hdf	5-1.6.4	5-1.6.3	5-1.6.3	5-1.6.3	5-1.6.3	5-1.6.3	5-1.6.3
Med	2.2.3	2.2.3	2.2.3	2.2.3	2.2.3	2.2.3	2.2.3
Vtk	4.2.6	4.2.6	4.2.6	4.2.6	4.2.2	4.2.2	4.2.6
Numeric	23.7	23.7	23.7	23.7	22.0	22.0	23.7
Graphviz	2.2.1	2.2.1	2.2.1	2.2.1	1.9	1.9	2.2.1
Doxygen	1.4.6	1.4.6	1.4.6	1.4.6	1.4.6	1.4.6	1.4.6
NETGEN	4.5	4.5	4.5	4.5	4.5	4.5	4.5
docutils	0.3.7	0.3.7	0.3.7	0.3.7	0.3.7	0.3.7	0.3.7

However, other versions of pre-requisites may also work.

How to install and build SALOME

- Please follow README file from Installation Wizard for processing correctly installation of SALOME and all prerequisites
- If you would like to compile SALOME from scratch, please use build.csh script delivered with Installation Wizard. Call "build.csh -h" to see all parameters of this script.
 - *Important remark:* on RedHat 8 with the native automake-autoconf tools, sources of KERNEL from CVS can not be compiled. As a workaround there is specially prepared sources of KERNEL in Installation Wizard (after "make dist" step from Mandrake 10.1). They can be compiled with old prerequisites, but user must not call "build_configure" step. To compile he must call "configure", "make", "make install" as usual. Because of this please don't use "build.csh" with "-b" option for KERNEL, because this option forces build_configure step. Call of "build.csh -i -o" process compilation and installation on RedHat8 correctly.

How to get the version and pre-requisites

The SALOME 3.2.2 pre-compiled binaries for Mandrake 10.1, Debian Sarge, Mandriva 2006 and RedHat 8.0 can be retrieved from the PAL/SALOME FTP site (<ftp://www.opencascade.com>).

There are sources of modules inside, and user can build sources from scratch using "build.sh" script coming with installation procedure.

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 3.2.0 are available in CVS via tag [V3_2_2](#)

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. You can download NETGEN 4.5 from CVS of their official site <http://www.hpfem.jku.at/netgen/>

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

- NETGEN has not been ported on Mandriva 64 yet
- Netgen 1D-2D and 1D-2D-3D algorithm does not need definition of 2D and 1D algorithms and hypotheses both for mesh and sub-mesh. If you have defined 2D and 1D algorithms and hypotheses together with Netgen 1D-2D or 1D-2D-3D algorithm they will be ignored during calculation.
- Due to a bug with changes of tolerance in OCT 6.1, GUI test scenario PROD 04 can not be played in TUI mode without a workaround. The workaround is to call the same Boolean operation cut twice
- During the compilation of OCT 6.1 by makefiles on a station with NVIDIA video card you may 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 crash (See /usr/X11R6/lib/libGLU.la). We suggest making links:

```
"ln -s /usr/lib/libGL.so /usr/X11R6/lib/libGL.so ln -s /usr/lib/libGL.la /usr/X11R6/lib/libGL.la"
```

- VISU module does not support timestamps defined on the same field but on different meshes
- In the current implementation of "Save VISU" state operation the parameters of Gauss view Partition mode are not stored. If a window has been partitioned and saved, it will be restored as non-partitioned. The same concerns the background color.
- Failure of display of some presentation on quadratic elements in VISU (cannot create animation for IsoLines, CutPlanes etc.) is inside of the VTK. Currently used version of the VTK library (4.2.6) can not properly process the quadratic mesh elements (only ScalarMap and DeformedShape can be created only) that is presented in the MED file. Unfortunately it is impossible to replace or overload the VTK functionality outside of the library. This problem will be fixed automatically when we port the SALOME platform on the VTK 5.0 or higher version). This concerns Gauss viewer on quadratic elements. On some files with quadratic elements it is impossible to build gauss presentation.
- Problem of TestVisu20.xml failure in Supervisor still exists in version 3.2.2
- Step-by-step execution in SUPERVISOR on some graphs fails. This functionality is only a prototype and has not been finished completely
- Due to VTK 4.4 limitation, display of numbers of nodes in SMESH module has problems (some numbers disappear from the viewer)
- VTK presentation in GEOM was not completely finished and has problems with performance and memory usage. It is desirable to use OCT viewer in GEOM module.
- MEFISTO algorithm fails on some cases
- Due to some opened bugs, some non regression TUI tests fail:
 - MED component
 - SMESH module
 - GEOM module, partition problems
- End user documentation for Supervisor module was updated only in part of screenshots.
- 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 (OCCT) does not thread safe in some geometry operations, 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.