

# The Virtual Leaf

## Friday 11 June 2010

### Issues:

1. Every class that has an association or composition eventually will need its own custom view page template, e.g. `sed_view`. For the moment I have set the default view for these classes to `dev_view` ( a copy of `base_view` ).
2. An association in UML is cast as a `ReferenceField` in the resulting class schema. Open the association and add the `widget:label` tag to the class that is being associated.
3. The default description text for a class should be a informative description of the class, not the instance, derived from the SED-ML manual.
4. Apply 'searchable' tags to the appropriate class attributes.
5. I choose 'isTidyHtmlWithCleanup' as the MathML validator. Will this work?
6. What should be added to our implementation of SED-ML to make it more than merely a mirror image of the SED-ML XML format?
  - a. The ability to attach files at various points, e.g. parameter files.
  - b. Additional output types, e.g. animations.
  - c. Custom page templates
  - d. Custom search form
  - e. Custom catalog indexes
  - f. Custom portlet(s)
  - g. Custom viewlet(s)

## Friday 24 September 2010

### To Do:

1. Publish our mercurial repositories (Chris/Martin). This may mesh with deploying Plone.
2. Create a vleat mailing list (Henk).

Found an article on SBRML - a markup language for associating systems biology data with models. At a glance the schema seems bigger than SED-ML's, but SBRML appears to be SBML specific.

## Monday 27 September 2010

Spoke with Chris about publishing the Mercurial repositories and deploying Plone. Both can be accomplished in their own project space on a server in the DMZ. Chris said he would supply me with login credentials for both accounts. I will install Plone and Chris (or Maarten) will help me configure Apache/nginx and Varnish. Chris will install the required Mercurial packages; after which I can clone the repositories to their new home.

## Tuesday 5 October 20010

### tutorial0.pro

Added `simplugin.h` to list of header files. NB: this is the only tutorial in which `simplugin.h` appears.

## auxingrowthplugin.h

Declared, and defined, a virtual function named `DefaultLeafML()` which merely returns a `QString` naming a LeafML filename sans path.

## VirtualLeaf.cpp

Moved `Cell::SetMagnification()` and `Cell::SetOffset()` from `main()` to `MainBase::Init()`.

## canvas.h

Declare `exportCellData()`.

## canvas.cpp

Add an 'Export cell areas' to the file dropdown menu which invokes - surprise - `Main::exportCellData()`:

```
void Main::exportCellData(void) {
    QFile file("areas.csv");
    if ( file.open( IO_WriteOnly ) ) {
        QTextStream stream( &file );
        mesh.CSVExportCellData(stream);
        mesh.CSVExportMeshData(stream);
        file.close();
    }
}
```

## mesh.h

Include `<QTextStream>`

Set the `boundary_polygon` pointer to zero in the class constructor, and delete it, if it exists, in the class destructor.

Declare `Compactness()`, `CSVExportCellData()` and `CSVExportMeshData()`:

```
double Compactness(double *res_compactness=0, double *res_area=0, double *res_cell_area=0);
void CSVExportCellData(QTextStream &csv_stream) const;
void CSVExportMeshData(QTextStream &csv_stream);
```

## mesh.cpp

In `mesh::clear()`, delete the `boundary_polygon` only if the pointer hasn't been assigned:

```
if (boundary_polygon) {
    delete boundary_polygon;
    boundary_polygon=0;
}
```

Ditto for `mesh::clean()`.

Define the code for `Compactness()`, `CSVExportCellData()` and `CSVExportMeshData()`.

## modelcatalogue.cpp

In `InstallModel()`, find and load the default LeafML file.

## simplugin.h

Declare `DefaultLeafML()`:

```
// Default LeafML-file to be read after model startup
virtual QString DefaultLeafML(void);
```

## simplugin.cpp

Define `DefaultLeafML()`. Returns an empty `QString`:

```
QString SimPluginInterface::DefaultLeafML(void) { return QString(); }
```

## xmlwrite.cpp

In `Mesh::XMLReadCells()` - Delete the boundary\_ploygon only if its pointer has been assigned.

## Wednesday 6 October 2010

Wrote Simon van Mourik about his missing `libiconv-2.dll`.

## Thursday 7 October 2010

Added a `Q3FileDialog` in `canvas.cpp:Main::exportCellData(void)` to choose where to write the exported cell data.

## Friday 8 October 2010

Added new parameters to control perodic cell exprt data.

Added code to relize perodic cell export.

## Monday 11 October 2010

### Mercurial hooks

Tried several alternatives for Mercurial's `pretxnchange.group.forbid_2heads` hook.

1. <http://bitbucket.org/dgc/headcount>: **Headcount** ui complains of a missing data member
2. <http://stackoverflow.com/questions/1705921/useful-mercurial-hooks>: **forbid2\_heads.py** doesn't load
3. <http://davidherron.com/node/961>: **forbid2\_heads.sh** works as advertised

### Mercurial Repositories

Tried to install Rhode Code from: <http://packages.python.org/RhodeCode>.

1. <http://bitbucket.org/marcinkuzminski/rhodecode>
2. <http://packages.python.org/RhodeCode>, <http://pypi.python.org/pypi/RhodeCode/1.0.0rc3>

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3. <http://hg.python-works.com> (demo,demo)
4. <http://bitbucket.org/bfrog/cutehg>
5. <http://pypi.python.org/pypi/SIP>, <http://www.riverbankcomputing.com/hg/sip>
6. <http://pypi.python.org/pypi/PyQt>
7. <http://ask.github.com/celery>

All goes tolerably until you tick in the url; at which point RhodeCode complains that:

```
Exception happened during processing of request from ('127.0.0.1', 35803)
Traceback (most recent call last):
  File "/ufs/guravage/.archive/mas/mr/rhodecode/lib/python2.6/site-packages/Paste-1.7.5.1-py2.6.egg/paste/httpserver.py", line 1068, in process_request_in_thread
    self.finish_request(request, client_address)
  File "/ufs/guravage/opt/Python-2.6.2/lib/python2.6/SocketServer.py", line 320, in finish_request
    self.RequestHandlerClass(request, client_address, self)
  File "/ufs/guravage/opt/Python-2.6.2/lib/python2.6/SocketServer.py", line 615, in __init__
    self.handle()
  File "/ufs/guravage/.archive/mas/mr/rhodecode/lib/python2.6/site-packages/Paste-1.7.5.1-py2.6.egg/paste/httpserver.py", line 442, in handle
    BaseHTTPRequestHandler.handle(self)
  File "/ufs/guravage/opt/Python-2.6.2/lib/python2.6/BaseHTTPServer.py", line 329, in handle
    self.handle_one_request()
  File "/ufs/guravage/.archive/mas/mr/rhodecode/lib/python2.6/site-packages/Paste-1.7.5.1-py2.6.egg/paste/httpserver.py", line 437, in handle_one_request
    self.wsgi_execute()
  File "/ufs/guravage/.archive/mas/mr/rhodecode/lib/python2.6/site-packages/Paste-1.7.5.1-py2.6.egg/paste/httpserver.py", line 287, in wsgi_execute
    self.wsgi_start_response)
  File "/ufs/guravage/.archive/mas/mr/rhodecode/lib/python2.6/site-packages/Paste-1.7.5.1-py2.6.egg/paste/cascade.py", line 130, in __call__
    return self.appes[-1](environ, start_response)
  File "/ufs/guravage/.archive/mas/mr/rhodecode/lib/python2.6/site-packages/Paste-1.7.5.1-py2.6.egg/paste/registry.py", line 379, in __call__
    app_iter = self.application(environ, start_response)
  File "/ufs/guravage/.archive/mas/mr/rhodecode/lib/python2.6/site-packages/RhodeCode-1.0.0rc1-py2.6.egg/rhodecode/lib/middleware/https_fixup.py", line 33, in __call__
    return self.application(environ, start_response)
  File "/ufs/guravage/.archive/mas/mr/rhodecode/lib/python2.6/site-packages/Pylons-1.0-py2.6.egg/pylons/middleware.py", line 163, in __call__
    self.app, new_environ, catch_exc_info=True)
  File "/ufs/guravage/.archive/mas/mr/rhodecode/lib/python2.6/site-packages/Pylons-1.0-py2.6.egg/pylons/util.py", line 48, in call_wsgi_application
    app_iter = application(environ, start_response)
  File "/ufs/guravage/.archive/mas/mr/rhodecode/lib/python2.6/site-packages/WebError-0.10.2-py2.6.egg/weberror/errormiddleware.py", line 156, in __call__
    return self.application(environ, start_response)
  File "/ufs/guravage/.archive/mas/mr/rhodecode/lib/python2.6/site-packages/RhodeCode-1.0.0rc1-py2.6.egg/rhodecode/lib/middleware/simplehg.py", line 55, in __call__
    return self.application(environ, start_response)
  File "/ufs/guravage/.archive/mas/mr/rhodecode/lib/python2.6/site-packages/Beaker-1.5.4-py2.6.egg/beaker/middleware.py", line 152, in __call__
    return self.wrap_app(environ, session_start_response)
  File "/ufs/guravage/.archive/mas/mr/rhodecode/lib/python2.6/site-packages/Routes-1.12.3-py2.6.egg/routes/middleware.py", line 131, in __call__
    response = self.app(environ, start_response)
  File "/ufs/guravage/.archive/mas/mr/rhodecode/lib/python2.6/site-packages/Pylons-1.0-py2.6.egg/pylons/wsgiapp.py", line 98, in __call__
    self.setup_app_env(environ, start_response)
  File "/ufs/guravage/.archive/mas/mr/rhodecode/lib/python2.6/site-packages/Pylons-1.0-py2.6.egg/pylons/wsgiapp.py", line 203, in setup_app_env
    pylons_obj.translator = _get_translator(lang, pylons_config=self.config)
  File "/ufs/guravage/.archive/mas/mr/rhodecode/lib/python2.6/site-packages/Pylons-1.0-py2.6.egg/pylons/i18n/translation.py", line 165, in _get_translator
    raise LanguageError('IOError: %s' % ioe)
LanguageError: IOError: [Errno 2] No translation file found for domain: 'rhodecode'
```

## RE-INSTALL

1. easy\_install mercurial
2. mkdir src
3. cd src
4. hg clone <http://www.riverbankcomputing.com/hg/sip>
5. cd sip
6. python build.py prepare
7. python configure.py
8. make
9. make install
10. cd ..
11. wget <http://www.riverbankcomputing.com/static/Downloads/PyQt4/PyQt-x11-gpl-4.7.7.tar.gz>
12. tar xzf PyQt-x11-gpl-4.7.7.tar.gz
13. cd PyQt-x11-gpl-4.7.7
14. python configure.py
15. make
16. make install
17. cd ..
18. hg clone <https://litsol@bitbucket.org/bfrog/cutehg>
19. cd cutehg

20. python setup.py build
21. python setup.py install
22. cd ..
23. easy\_install rhodecode, <http://pypi.python.org/pypi/RhodeCode/1.0.0rc2>

This procedure fails as before.

However, upon inspection I saw that the i18n directory was missing from my build but present in the rhodecode clone from bitbucket. While I think that the `easy_install rhodecode` invocation is necessary to install the various subsidiary packages, moving the cloned rhodecode into the site-packages directory seems to have made most functionality work. e.g. graphical logs and diff highlighting.

## Tuesday 12 October 2010

### RhodeCode

I think that if Chris can install RhodeCode, I can serve individual instance from my home directory.

### SED-ML L1V1RC1

Walking through the new SED-ML schema I see that they've dropped the generic simulation class and added AddXML and RemoveXML model change classes. Adding several more SED-ML examples for the symposium might still be justified - though they become obsolete the moment I introduce the new schema changes.

## Wednesday 13 October 2010

Tweaked `.bashrc` and `virtualenvwrapper.sh` to facilitate virtualenv and virtualenvwrapper - many unbound variables!

Pushed recent changes to repository from where Roeland can retrieve and test them.

OK. RhodeCode RC4 works out of the box, excepting cutehg and PyQt4.

## Friday 15 October 2010

### Rhodecode

Installing RhodeCode locally on the nhypnos is a real pain. In addition to the previous list of dependencies, for the caterpie, add these for the nhypnos:

1. Python
2. Bison (for sip)
3. Flex (for sip)
4. m4 (for Bison)
5. Qt (for PyQt)
6. GLIBCXX\_3.4.9 (for Qt) - I draw the line at (re)installing GCC!

OK. Forget sip bison, flex, m4, Qt and the rest. Let's install just the minimum.

First, install sqlite; we'll see in a minute that Python requires it. The sources are available at: <http://www.sqlite.org/download.html>.

Second, install Python. My initial attempt complained it was missing the following bits and pieces:

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```
Python build finished, but the necessary bits to build these modules were not found:
_bsddb          _sqlite3          _ssl
_tkinter        bsddb185           dl
imageop         readline           sunaudiodev
To find the necessary bits, look in setup.py in detect_modules() for the module's name.
```

So install sqlite first. And, since Python's configure script doesn't have an option for it, I had to tweak `setup.py` to enumerate the path where it would find sqlite;

Third, install RhodeCode. I first installed it using `easy_install`, but while the result worked, the changelog view did not display the branch/merge graphics. I then cloned the code from its bitbucket repository:

```
clone https://litsol@bitbucket.org/marcinkuzminski/rhodecode
```

Replacing the egg installed by `easy_install` by this code does display the branch/merge graphics.

Fourth, `setup` and `serve` rhodecode. Following the instructions posted online at: <http://packages.python.org/RhodeCode/setup.html#setup> works as advertised:

```
paster make-config RhodeCode production.ini
paster setup-app production.ini
paster serve production.ini
```

All that's left is an apache rewrite rule directing `virtualleaf.project.cwi.nl/repository` to port 5000, or whatever we change it to, on the nhypnos.

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Added `incrementIterations()`, `getIterations()` and `int iterations` to `mesh.h`. `incrementIterations()` is called in `TIMESTEP` in `VirtualLeaf.cpp`. The actual counter, `iterations` is initialized to zero in the `Mesh` class constructor.

The iterations are inquired in two places: for the frame count in `MainBase::Plot` in `VirtualLeaf.cpp` and for the export cell data interval in `Main::TimeStepWrap` in `canvas.cpp`.

The questions remain: Should we use this count, and if yes, where should it be incremented? The previous count was incremented in `Main::TimeStepWrap`. Or should we simply use `(int)mesh.getTime()`? Since this is not an ordinal count, the results look strange.