

# Chapter 4: Forges

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October 15, 2010

# Chapter 4: Forges

## 4.1 Introduction

- Repositories (forges)
- Repositories of repositories

## 4.2 Sourceforge.net

## 4.3 Google code

## 4.4 Trac

## 4.1 Introduction

A **project repository** (aka a **forge**) is a web platform that offers project hosting and infrastructure to develop an open source project following the bazaar-model

This infrastructure includes:

- Version control system
- Bug/issue tracker
- Mail lists
- Monitoring tools
- Software downloading tools....

A **repository of repositories** (aka **RoRs**) is a repository that aggregates projects from other repositories or private websites extracting data and collecting various measures

Usually, they are not repositories that provide infrastructure to manage the project (version control system, bug tracker...) but they provide a **project index** meant to search for projects that satisfy specific features

# Repositories

[BLM2008] provides a list of repositories and repositories of repositories

		Apache	Codehaus	Codeplex	ObjectWeb	RubyForge	Savannah	Sourceforge
	Project private website	x	x	x	x	x	x	x
Search by	Prog. Language	x			x	x	x	x
	Categories (Web Server, Operative System...)	x			x	x	x	x
	Project List	x	x	x	x	x	x	x
Communication Tools	Mailing List	x		x	x		x	
	Wiki							
	Forum				x	x		
	News							
	Note		Java Projects	.Net projects				
Tools	Project Planner		x					
	Issue tracker			x	x			x
	Bug Tracker	X	x		x	x	x	x
	Versioning	X	x		x	x	x	x

Table 1: OSS Repositories comparison

(Table from [BLM2008])

A summary of these repositories and their features is presented in the next few slides

- **Apache** (<http://www.apache.org>)

It stores projects developed by the Apache foundation

These projects have some common features:

- Collaborative, community-based development process
- Open software license
- Managed by a self-selected team of software experts who are the project core developers
- Membership to the foundation (and the right to change the repository content) is granted only to volunteers that have contributed to the project (meritocracy)

The repository offers a software catalogue with a short description of each project:

- Programming languages,
- Categories,
- Lists,
- Issue tracker
- License
- Project website
- ...

- **Codehaus** (<http://codehaus.org>)

Codehaus is a Java-oriented repository of OSS projects.

The repository provides general information about the projects it contains and resources like mailing lists or issue trackers.

The Codehaus recognizes that some committers, based upon metrics, longevity and appointed management, have greater say on a project than others.

Codehaus encourages projects to strive for quality and for frequent small releases.

- **CodePlex** (<http://www.codeplex.com>)

This is the Microsoft's open source repository.

Most hosted projects are developed using .Net technologies

- **Google code**

See below

- **ObjectWeb** (<http://www.objectweb.org>)

It is an open source community whose goal is to develop open source middleware.

The ObjectWeb repository a rich project infrastructure:

- Version control: CVS, Subversion,
- Mailing lists,
- Bug tracking,
- Message boards/forums,
- Task management,
- Permanent file archive,
- Full backups,
- Total web-based administration.

- **Rubyforge** (<http://rubyforge.org>)

It is a GForge based repository dedicated to open source Ruby Projects.

The system provides:

- A classification system of the projects,
- A user profile,
- A user rating system

- **Savannah** (<http://savannah.gnu.org>)

It is a repository with a large number of features, a central point for development, distribution and maintenance of GNU and NONGNU software

Savannah offers an important supporting infrastructure both for developers and users of FOSS projects:

- Mailing lists,
- Source code repository,
- Bug/issue tracker,
- Task manager,
- Project road map
- ...

- **Sourceforge** (<http://sourceforge.net>)

It is a popular repository that holds a huge amount of projects with centralized resources

Apart from the usual supporting infrastructure, SourceForge provides a lot of information and statistics about projects and a powerful search engine to locate projects).

Software collection is split into topics. For each topic the most popular and downloaded projects are shown

For each project, it shows some statistics about project status, history and activity



- **GForge** (<http://gforge.org>)

It provides both a project repository and software to create your own repository

# Repositories of repositories

- **BerliOS** (<http://www.berlios.de>)

Its goal is to coordinate the different interest groups in the FOSS field

It provides:

- A forge for FOSS projects (Developer subproject)
- A database for open source related documentation (DocsWell subproject)
- a news service for open source projects (SourceWell subproject)
- a "best practice" database for successful open source projects (SourceLines subproject)
- a list of open source companies (SourceBiz subproject)
- a database of open source developer profiles (DevCounter subproject)
- a wiki-based open source knowledge database (OpenFacts subproject)
- a platform for coordinating open source funding (SourceAgency subproject)

- **Fortify Software** (<http://www.fortifysoftware.com/>)

It is a company that provides security risk analysis to protect business customers.

They provide several types of information about projects.

Example: A Fortify's project called Java Open Review supplies information about quality and security for the open source community

- **Free Software Foundation Directory** (<http://directory.fsf.org>)

It classifies free software that runs on free operating systems

The Directory provides a catalogue containing links to the projects' repositories

- **Ohloh** (<http://www.ohloh.net>)

It is a platform that collects and presents objective information about OSS Projects.

- Software metrics
- Project's source code
- Software development infrastructure used in the project
- Project Web Site,
- License type.
- Reports on the project...

- **Freshmeat** (<http://freshmeat.net>)

It keeps the Web's largest index of:

- Unix-like OS software,
- cross-platform software,
- Palm OS software (for PDAs)

Applications indexed by Freshmeat are preferably released under a FOSS license

It can be retrieved based on different criteria:

Development Status, Environment, Intended Audience, License, Network Environment, Operating System, Programming Language, Topic, Translations.

Each project entry provides a lot of information about the project:

- Link to its home page
- Software description
- License
- Tags
- Download section
- History of project releases
- ....

- **SourceKibitzer** (<http://www.sourcekibitzer.org>)

It is a directory of OSS Java projects that delivers information about software metrics related to:

- code quality,
- members' activity,
- development process
- project size.
- complexity of source code

In the future other features to analyze the quality of software development processes will be introduced:

- benchmarking,
- analysis of development process
- Non-code metrics for the evaluation process.

It is possible to check changes and project activity

- **SWiK** (<http://swik.net>)

It is a community-driven resource for people who use FOSS products. It is a wiki system for FOSS projects presentation.

Every logged-in user is able to add some information and comments about a project.

Swik provides information about

- the project Web Site,
- Author
- License type.
- Charts to show code changes
- Test statistics

# Sourceforge.net

- The largest repository of FOSS projects
  - Almost 150.000 projects
  - More than 1.500.000 registered users
- Sourceforge.net provides a lot of services for hosted projects
- Sourceforge.net is powered by VA Software
- Sourceforge.net is a version of the SourceForge software
- Sourceforge is a collaborative revision control and software development management system
  - In particular, Sourceforge Enterprise Edition that enables security, encryption, extensibility, ease of use...
  - Sourceforge Enterprise Edition runs under a proprietary license
- sourceforge.net is, itself, a project hosted in <http://sourceforge.net>

## Services offered by Sourceforge to the project manager

The project administrator can do the following tasks on the project:

- Create a project
- Manage members
- Manage releases
- Manage documentation
- Manage forum postings  
Different forums can be maintained
- Manage project news postings
- Manage screenshots
- Manage tracker issues (e.g., bugs)  
Different trackers can be maintained



- Manage mailing lists

Different mailing lists can be maintained

- Manage Tasks for this project.

- Access and commit to the CVS/Subversion repository

- Manage the contents of the project web site

## **Services offered by Sourceforge to the users/contributors**

- Download releases
- Submit/search bugs/issues in the event trackers
- Submit postings to forums
- Submit documentation and view project documentation
- Access (and possibly commit) to the CVS/Subversion repository

## 4.2 Sourceforge.net

Applications Places System Wed Mar 12, 18:54

SourceForge.net: InnovaCampus - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

<http://sourceforge.net/projects/innovacampus/>

ScienceDirect - Molec... Google Code for Educ... movie scripts: drew's ... Dictionary and Thesau... Cartelera Ya.com: sal... CARTELLERA CINE... ServiCaixa.com - Ven...

Campus Virtual Ud... BSD licenses - Wik... Comparison of Free... Gmail - Recibidos (2) innovacampus - Go... SourceForge.net: ... DIFF - compare sou... ELPAÍS.com: el per...

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[www.Teach12.com](http://www.Teach12.com)

**School Supplies**  
Teacher & student school supplies for the  
classroom ready to ship.  
[www.usschoolsupply.com](http://www.usschoolsupply.com)

SF.net » Projects » InnovaCampus » Summary

**InnovaCampus**   [Advanced](#) [Project Web Site](#)

[Stats](#) [RSS](#)

Innovacampus is a tool for self-assessing of university students. A student may select a topic and a test is randomly generated from the questions contained in the system. Statistics concerning students' outcomes and question difficulty are available.

**Download InnovaCampus**

Project Admins: jsepmra  
Operating System: Linux  
License: GNU General Public License (GPL)  
Category: Testing

**Get the most from Open Source**

Buy expert services from Sourceforge.net Marketplace.  
Support from the people who know.

**SOURCEFORGE.NET**  
Marketplace

**hp** Open Source and Linux from HP  
Technology for better business outcomes

Done

SourceForge.net: InnovaCampus - Mozilla Firefox [Mozilla Firefox] Starting Take Screenshot

## Project administration tasks: Project creation

A project may be created in Sourceforge by means of a short description of that project:

- Project name (identifier)
- Project description (two levels: short and more elaborated)
- Administrators
- Developers
- Development language
- Operation System
- DBMS
- License
- Project topic
- ...

The Sourceforge staff must validate the project and grant permission to enter the repository

Once the permission is granted (1-2 days), Sourceforge provides all the services shown before

# Project administration tasks: Release management

Projects consists of a collection of 1 or more packages

Each package may have several releases associated

Steps to add a release of a package: (1-2 days)

## 1. Create a package

**Menu:**

- Admin-File releases
  - Add a new package

This step needs to be done just once for each package. Afterwards, all the successive releases of this package will be associated to it

## 2. Upload all the files that constitute the new release for that package

Usually some tarballs or zip files:

```
$ ftp upload.sourceforge.net
```

```
ftp> passive
```

```
ftp> cd incoming
```

```
ftp> put foo.tgz
```

```
.....
```

```
$
```

## 3. Add the release

**Menu:**

- Admin-File releases
  - Add release

- (a) Select the package of which a new release will be made
- (b) Fill in the release information (release notes, changes....)
- (c) Select the files that constitute the release

These files have been uploaded in step 2 and are available at the Sourceforge.net server

They will be shown in the release dialog

## Project administration tasks: Developers management

The project administrator can add developers to the project:

**Menu:**

- Admin-Members
  - Add member

## Project administration tasks: Version control

- Anybody can browse the project code under version control:

<p><b>Menu:</b> – Code  * CVS browse</p>
--

- Anybody can review the difference between two versions of a file
- Anybody can get a copy of the project code under version control in his/her personal working space using the CVS commands:

```
$cvs -d:pserver:anonymous@<ProjectName>.cvs.sourceforge.net:/  
      cvsroot/<ProjectName> login
```

```
$Password:  <cr>
```

```
$cvs -d:pserver:anonymous@<ProjectName>.cvs.sourceforge.net:/  
      cvsroot/<ProjectName> checkout -P <ProjectModule>
```

```
$
```



- Project administrator and selected project developers can commit to the CVS repository:

```
$cvs -d josepma@<ProjectName>.cvs.sourceforge.net:/  
      cvsroot/<ProjectName> commit -m "log message"
```

```
$Password: <password>
```

## Project administration tasks: Tracker

- Tracker is used by SourceForge.net projects to accept and manage bug reports, support requests, feature requests, and source code patches.
- Sourceforge provides some predefined trackers:
  - Bugs
  - Support requests
  - Patches
  - Feature requests
- In addition, the administrator may define new trackers
- Anybody can post new items to a tracker
- The administrator can:
  - Assign a tracker item to a developer
  - Choose a priority for that item
  - Change the status of that item (open,closed,deleted,pending)  
Pending: The administrator has asked information to the item's author and he/she has not answered yet
  - ...

- Followup: Each item has a log with all the changes and comments associated to it
- Tracker items may be searched by different elements (priority, status, developer to whom it has been assigned...)

## Project administration tasks: Patches

```
$ cvs diff -uN f1.cc >patch.f1.cc  
$
```

The flag `u` refers to the *Unified diff format*

A patch created like this may be attached to a post sent to the patches tracker. The patch may be applied to the file using the command `patch`:

```
$ patch f1.cc <patch.f1.cc  
$
```

## Project administration tasks: Mailing lists

- Mailing lists in Sourceforge.net are implemented by means of the Mailman GNU project
- The project administrator may create/manage new mailing lists

**Menu:**

- Admin
  - \* Lists/Forums

- Anybody can subscribe to a public project mailing list

**Menu:**

- Mailing lists
  - \* Mailing list summary

- Apart from mailing lists, sourceforge also supports forums

## Project administration tasks: Documentation

Sourceforge allows the insertion of project documentation

- Anybody can submit documentation

The documentation that has been sent has a **pending** status



- The documentation with pending status must be reviewed and approved (i.e., evolve to **active** status)
- The documentation can be uploaded in text-html formats
- It can also be uploaded Up to 1 Mb of images/multimedia files
- There is a search engine for documentation
- Sourceforge supports the creation of document groups
- Sourceforge supports the editing of uploaded documentation

## Project administration tasks: Web and database services

Each project stored at `sourceforge.net` has a web site associated that may act as a project web

`http://PROJECTNAME.sourceforge.net`

Standard services offered to all projects:

- Project web service

They store web content and support common script languages

- Project shell service

UNIX shell host access to permit content generation and management.

- Project database service:

MySQL DBMS (to program a dynamic project web site)

- Project-defined Virtual Hosts (VHOSTs)

To map web requests to the registered project domains (e.g., `http://PROJECTNAME.org`)

- Script languages supported:
  - PHP
  - SSI (Server-Side Includes)
  - CGI (Perl, Python, Tcl, Ruby)



## **Project administration: other services**

- Donations
- News
- Screenshots
- Statistics
- Forums

## 4.3 The google hosting service

Google offers some services for FOSS projects:

- Google projects **licensed as FOSS**
- The **Summer of code** initiative
- A **hosting service** (a forge) for FOSS projects
- A series of **tools** and **APIs** to help FOSS developers

```
http://code.google.com/
```

## Google hosting service

It is a forge that offers hosting services for FOSS projects

In particular, the services offered are:

- Discussion groups (google groups)
- Project administration
- Wiki
- Blog
- Version control with Subversion
- Issues control
- Download section  
(By default, releases of 20 Mb.maximum)
- Source section

The source code is downloaded using a Subversion client

It is not readable from the web page

Google hosting services supports 8 licenses:

- Apache
- Artistic/GPL v.2
- BSD
- GPL v.2
- GPL v.3
- LGPL
- MIT
- MPL (Mozilla Public License)

## 4.3 The google hosting service

The screenshot shows a Mozilla Firefox browser window with the address bar containing `http://code.google.com/p/innovacampus/`. The page title is "innovacampus" and the subtitle is "Self-evaluation tool for university students with statistic generation for lecturers". The page features a navigation menu with links for "Project Home", "Downloads", "Wiki", "Issues", "Source", and "Administer". The main content area describes the application's features, including student registration, self-evaluation tests, and statistics generation. A sidebar on the right provides information about the license (GNU General Public License v2), labels (Selfevaluation, learning, java, isp, struts), project owners (josepmar, M.Alet.info), and project members (ruiz.juanalberto). The browser's status bar at the bottom shows "Done" and several open tabs: "Gmail - Mis fotos (2) - Mozilla Fir...", "innovacampus - Google Code - M...", "[Downloads]", and "Starting Take Screenshot".

Applications Places System Tue Mar 11, 17:15

innovacampus - Google Code - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

`http://code.google.com/p/innovacampus/` Go

ScienceDirect - Molec... Google Code for Educ... movie scripts: drew's ... Dictionary and Thesau... Cartelera Ya.com: sal... CARTELLERA CINE... ServiCaixa.com - Ven...

josepmar@gmail.com | [Settings](#) | [What's new?](#) | [Help](#) | [My Account](#) | [Sign out](#)

**Google Code** **innovacampus**  
Self-evaluation tool for university students with statistic generation for lecturers

[Project Home](#) [Downloads](#) [Wiki](#) [Issues](#) [Source](#) [Administer](#)

InnovaCampus? is a web application that provides:

- Student registration
- Student self evaluation based on multiple-choice tests
- Tests generated randomly
- Generation of two types of statistics which are made available to the professor:
  1. Student-oriented statistics that show the student progress
  2. Question-oriented statistics that show the difficulty of questions based on the amount of student correct answers
- Dependencies between questions (i.e., a question q2 cannot come up in a test if another question q1 does not come up first.
- Questions associated to resources (video, audio, pictures...)
- Questions discriminated by degree of difficulty (work in progress)
- Question import/export from/to files in various formats (work in progress)
- Mathematical notation and programming code should be possible in questions (work in progress)

The web application is being developed using Java technology:

Java, JSP, Java beans, Struts

**License:** [GNU General Public License v2](#)

**Labels:** [Selfevaluation](#), [learning](#), [java](#), [isp](#), [struts](#)

**Project owners:**  
[josepmar](#), [M.Alet.info](#)

**Project members:**  
[ruiz.juanalberto](#)

Done

Gmail - Mis fotos (2) - Mozilla Fir... innovacampus - Google Code - M... [Downloads] Starting Take Screenshot

### 4.3 The google hosting service

The screenshot shows a Mozilla Firefox browser window with the address bar at `http://code.google.com/p/innovacampus/adminIssues`. The page title is "innovacampus" and the subtitle is "Self-evaluation tool for university students with statistic generation for lecturers". The user is logged in as "josepmar@gmail.com".

**Predefined Status Values**

Open Issue Status Values:

New	= Issue has not had initial review yet
Accepted	= Problem reproduced / Need acknowledged
Started	= Work on this issue has begun

Closed Issue Status Values:

Fixed	= Developer made requested changes, QA should verify
Verified	= QA has verified that the fix worked
Invalid	= This was not a valid issue report
Duplicate	= This report duplicates an existing issue
WontFix	= We decided to not take action on this issue

**Instructions:**  
List one status value per line in desired sort-order.  
Optionally, use an equals-sign to document the meaning of each status value.

**Predefined Issue Labels**

Type-Defect	= Report of a software defect
Type-Enhancement	= Request for enhancement
Type-Task	= Work item that doesn't change the code or docs
Type-Patch	= Source code patch for review
Type-Other	= Some other kind of issue

**Instructions:**  
List one label per line in desired sort-order.

## The TRAC project

- Trac is a minimalistic approach to web-based management and development of software projects.
- It is designed as an enhanced wiki and issue tracking system
- BSD license
- <http://www.trac.edgewall.org>

## Trac services

- [Wiki](#)
- [Tickets](#)
- [Code browser](#)
- [Roadmap](#)
- [Timeline](#)



# Wiki

Trac provides a wiki engine to write pages and documentation

The wiki formatting language is very easy to use

## Tickets

The Trac issue database provides simple but effective tracking of issues and bugs within a project.

Tickets are used for:

- Anounce and assign project tasks
- Request help to implement/improve functionalities
- Submit bug reports
- Comment other issues

An issue is assigned to a person who must resolve it or reassign the ticket to someone else. All tickets can be edited, annotated, assigned, prioritized and discussed at any time.

## Tickets. Attributes

Some ticket information attributes:

- *Reporter* The author of the ticket.
- *Type* The nature of the ticket (defect, enhancement, task)
- *Keywords* Keywords that a ticket is marked with. Useful for searching and report generation.
- *Priority* The importance of this issue, ranging from trivial to blocker
- *Milestone* - When this issue should be resolved at the latest

Tickets can be viewed at the Roadmap sorted by milestone

- *Assigned to* Person responsible for handling the issue.
- *Status* (new, assigned, closed, reopened)
- *Description* The body of the ticket

## Tickets

- A ticket can be changed (annotated) at any time
- The change history of a ticket is visible when a ticket is viewed
- Design and implementation decisions can be discussed through tickets.

All the comments concerning that issue will be recorded in the ticket history

- Ticket change can be notified to users via e-mail (TracNotification)
- WikiFormatting can be used on tickets and ticket comments

## Roadmap

- The roadmap is a list of project milestones
- That is: a list of the project events that are planned to happen in the future
- The roadmap can be seen in the Trac itself or in calendar (e.g., Mozilla calendar)
- The recorded events are tickets
- Roadmap provides a view on the ticket system

## Timeline

The timeline provides a historic view of the project in a single report.

It lists all Trac events that have occurred in chronological order, a brief description of each event and if applicable, the person responsible for the change.

The timeline lists these kinds of events:

- Wiki page events – Creation and changes
- Ticket events – Creation and resolution/closing (and optionally other changes)
- Source code changes – Repository check-ins
- Milestone – Milestone completed

## Code browser

- This option browses the source files stored in the Subversion repository
- It is possible to see diffs and file revision log

```
$ svn checkout http://trac.example.com/svnrepos
```

The location `/svnrepos` is configured at `httpd.conf`

- To restore the local copy to the repository:

```
$svn commit -m "commit message"
```

## Trac Installation. Process

This slide outlines the steps that are to be followed in order to install the Trac and host a project in it

1. Download Trac
2. Install Trac
3. Create a subversion repository for the project to be hosted
4. Create a directory to host the Trac project (say, TP)
5. Create and configure the environment for the Trac project TP
6. Modify the Trac configuration file to:
  - Map the physical location of the Trac project with the logical location through which the web browser will access the project
  - Set up the mod\_python module on Trac
  - Map the passwords file
7. Create the passwords file



## 8. Install and load the modules:

- `dav_svn` (to allow http access to svn repository)
- `mod_python` (to speed up Trac performance)

9. Configure `httpd` so that http access to svn is possible

10. Configure Trac so that users are notified on a ticket change

11. Configure Trac to support multiple projects

## Trac Installation. Process

Trac installation of a project in a Fedora core 5

- Download Trac

```
> yum install trac
```

- Creation of a subversion repository for the innova project

```
> mkdir -p /srv/svn/innova
```

```
> svnadmin create --fs-type fsfs /srv/svn/innova
```

fsfs is the format chosen for the subversion repository (see Subversion documentation)

- Creation of a Trac environment for the innova project

```
> mkdir -p /srv/trac
```

```
> trac-admin /srv/trac/innova initenv
```

The Trac project *innova* has been created

– Configuration file:

```
/srv/trac/innova/conf/trac.ini
```

– Test:

The Trac project *innova* can be accessed for testing reasons using the Trac server:

```
> tracd --port 8000 /srv/trac/innova
```

The *innova* project can be accessed at:

```
http://localhost:8000/innova
```

– Documentation:

```
http://trac.edgewall.org
```

- Apache configuration to access Trac projects

– Set permissions

```
> chown -R apache /srv/trac
```

```
> chown -R apache /srv/svn/innova
```

- Update `/etc/httpd/conf.d/trac.conf`

```
<Location /innova>  
    SetHandler mod_python  
    PythonHandler trac.web.modpython_frontend  
    PythonOption TracEnv /srv/trac/innova  
</Location>
```
  
- Create a passwords file and update `trac.conf`

```
> htpasswd -c /srv/trac/trac.htpasswd user1
```

Map the passwords file to the project

```
<Location "/innova">  
    AuthType Basic  
    AuthName "innova"  
    AuthUserFile /srv/trac/trac.htpasswd  
    Require valid-user  
</Location>
```

– Module installation

Two modules should be installed:

- \* dav\_svn: to access the subversion repository via http
- \* mod\_phyton: To speed up Trac

```
> yum install mod_dav_svn.i386
```

Insert to /etc/httpd/conf/httpd.conf:

```
LoadModule dav_svn_module modules/mod_dav_svn.so
```

```
LoadModule python_module modules/mod_python.so
```

- Remote access to svn repository:  
Insert to `/etc/httpd/conf/httpd.conf`:

```
<Location /svninnova>  
    DAV svn  
    SVNPath /srv/svn/innova  
</Location>
```

Now the svn repository is accessible by:  
`http://localhost/svninnova`

### Examples:

```
> svn import -m "initial import" innova  
    http://localhost/svninnova
```

`innova` must be the local directory where the files contained in the `innova` project are

```
>svn checkout http://localhost/svninnova
```

## References

[BLM2008] V. del Bianco, L. Lavazza, S.Morasca et alt.: Analysis of relevant open source projects and artefacts. Quality Platform for Open Source Software (IST- FP6-IP-034763). Working Document D5.2.1 v2. 2008. Available at <http://www.qualipso.org/node/84>

[Trac] <http://trac.edgewall.org/>

[SceForg] <http://sourceforge.net/>