Evaluating the Quality of Open Source Software

Diomidis Spinellis
(and a cast of many others)
Dept of Management Science and Technology
Athens University of Economics and Business
http://www.dmst.aueb.gr/dds
"PANHARD." Tweed or Frieze Motor Coat with detachable Leather Lining in a large variety of colourings. 7½ guineas.
changed
<table>
<thead>
<tr>
<th>Bug #</th>
<th>Dupe Count</th>
<th>Change in last 30 day(s)</th>
<th>Component</th>
<th>Severity</th>
<th>Op Sys</th>
<th>Target Milestone</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>415252</td>
<td>14</td>
<td>10</td>
<td>English US</td>
<td>normal</td>
<td>All</td>
<td>---</td>
<td>gmail (new version) doesn't show names in contacts list</td>
</tr>
<tr>
<td>215055</td>
<td>26</td>
<td>10</td>
<td>Layout: View Rendering</td>
<td>critical</td>
<td>All</td>
<td>---</td>
<td>Incorrect rendering of a tall element with overflow: scroll or overflow: auto (16-bit widget coordinates)</td>
</tr>
<tr>
<td>411831</td>
<td>11</td>
<td>9</td>
<td>GFX: Thebes</td>
<td>major</td>
<td>Linux</td>
<td>---</td>
<td>Scale images rendered incorrectly; some images not shown at all (apparently Linux &amp; Nvidia-related)</td>
</tr>
<tr>
<td>419127</td>
<td>7</td>
<td>7</td>
<td>English US</td>
<td>critical</td>
<td>Windows XP</td>
<td>---</td>
<td>Crash with Yahoo State Plugin (from Yahoo Messenger) - using some allocator that isn't NPN_MemAlloc</td>
</tr>
<tr>
<td>416306</td>
<td>9</td>
<td>7</td>
<td>Plugins</td>
<td>major</td>
<td>All</td>
<td>---</td>
<td>Firefox doesn't install Flash plugin when it is needed and absent</td>
</tr>
<tr>
<td>432484</td>
<td>17</td>
<td>6</td>
<td>Internal Components</td>
<td>normal</td>
<td>All</td>
<td>0.8</td>
<td>Time incorrectly recalculated when Lightning/Sunbird timezone does not match system timezone (datepicker)</td>
</tr>
<tr>
<td>425729</td>
<td>5</td>
<td>5</td>
<td>Keyboard Navigation</td>
<td>normal</td>
<td>All</td>
<td>---</td>
<td>Space bar action is reversed (scrolls up page)</td>
</tr>
<tr>
<td>387416</td>
<td>5</td>
<td>5</td>
<td>General</td>
<td>normal</td>
<td>All</td>
<td>---</td>
<td>Implement a dynamic UA spoofing mechanism</td>
</tr>
<tr>
<td>354527</td>
<td>22</td>
<td>5</td>
<td>Extension/Theme Manager</td>
<td>normal</td>
<td>All</td>
<td>---</td>
<td>Incompatible add-ons list during install: scroll bar for list is not working properly</td>
</tr>
<tr>
<td>319196</td>
<td>139</td>
<td>5</td>
<td>Startup and Profile System</td>
<td>critical</td>
<td>Windows XP</td>
<td>Firefox 3 beta3</td>
<td>Customized toolbar always reset to default on restart, bookmarks and search engines lost, unable to add search engines (localstore.ref corruption on upgrade or crash). SEE URL FIELD FOR SUPPORT LINK</td>
</tr>
<tr>
<td>352219</td>
<td>10</td>
<td>4</td>
<td>General</td>
<td>major</td>
<td>Mac OS X</td>
<td>0.1</td>
<td>Placeholder: Eudora importers (Mac) to import Mail Store, settings and Address books</td>
</tr>
<tr>
<td>344624</td>
<td>16</td>
<td>4</td>
<td>XPCConnect</td>
<td>critical</td>
<td>Windows XP</td>
<td>---</td>
<td>Right click on any page will crash firefox with free download manager extension</td>
</tr>
</tbody>
</table>
March 2008 Archives by thread

- Messages sorted by: [subject] [author] [date]
- More info on this list...

Starting: Fri Feb 29 16:37:00 PDT 2008
Ending: Mon Mar 31 02:04:05 PDT 2008
Messages: 623

- [head tinderbox] failure on i386ipc96 FreeBSD Tinderbox
- [head tinderbox] failure on ia64/ia64 FreeBSD Tinderbox
- why vimage? Julian Elischer
  - why vimage? Outback Dingo
  - why vimage? Outback Dingo
- [head tinderbox] failure on powerpc/powerpc FreeBSD Tinderbox
- [head tinderbox] failure on sparc64/sparc64 FreeBSD Tinderbox
- Two (2) Lock Order Reversion - tracking RELENG_7 Michael Jung
- [head tinderbox] failure on sparc64/sun4v FreeBSD Tinderbox
- [head tinderbox] failure on amd64/amd64 FreeBSD Tinderbox
- [head tinderbox] failure on i386/386 FreeBSD Tinderbox
- [head tinderbox] failure on i386/ia64 FreeBSD Tinderbox
- Broadcom Netlink BCM5906M Ayhan Molla
  - Broadcom Netlink BCM5906M Thomas Nyström
  - Broadcom Netlink BCM5906M Ayhan Molla
  - Broadcom Netlink BCM5906M Thomas Nyström
- FBSD 1GBit router? Barney Cordoba
- kernel build error in devigh Christopher M. Giordano
  - kernel build error in devigh Jack Vogel
- CFT: vr(4) Mike Tancsa
  - CFT: vr(4) Pyun Yong-Hyeon
    - CFT: vr(4) Milan Obuch
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important
super-linear
SourceForge.net is the world's largest Open Source software development web site. SourceForge.net provides free hosting to Open Source software development projects with a centralized resource for managing projects, issues, communications, and code.

Registered Projects: 173,347
Registered Users: 1,820,658
Searching projects gives 20279 results

Openbravo ERP
Web based ERP for SMEs, built on proven MVC & MDD framework that facilitate customization & maintenance of code. Already in production, it encompasses a broad range of functionalities such as finance, supply chain, project mgmt, manufacturing & much more

Services (3) Members (74)

Topic: Code Generators, Project Management, Point Of Sale, Accounting, ERP, CRM

Latest file date: 2007-03-31 TO 2008-03-31

Page: 1 2 3 ... 2028 Next »

Advanced Search

Registered  Latest File
Welcome!

The Apache Software Foundation provides support for the Apache community of open-source software projects. The Apache projects are characterized by a collaborative, consensus based development process, an open and pragmatic software license, and a desire to create high quality software that leads the way in its field. We consider ourselves not simply a group of projects sharing a server, but rather a community of developers and users.

Support the Apache Software Foundation

You are invited to participate in The Apache Software Foundation. Our membership consists of those individuals who have demonstrated a commitment to collaborative open-source software development through sustained participation and contributions within the Foundation’s projects. Of course, you can contribute to the foundation in many ways:

- Contributing to Apache
- Sponsoring Apache
- Donating to Apache
- Sponsors of Apache

Latest News

If you would like to keep up with news and announcements from the foundation and all its projects, you can subscribe to the Apache Announcements List.

ApacheCon Europe 2008 in Amsterdam - Registration is Open!

ApacheCon Europe 2008, the official user
Be free

KDE is an international technology team that creates Free Software for desktop and portable computing. Among KDE’s products are a modern desktop system for Linux and UNIX platforms, comprehensive office productivity and groupware suites and hundreds of software titles in many categories including Internet and web applications, multimedia, entertainment, educational, graphics and software development. KDE software is translated into more than 60 languages and is built with ease of use and modern accessibility principles in mind. KDE4’s full-featured applications run natively on Linux, BSD, Solaris, Windows and Mac OS X. More...

Latest Announcements

KDE 4.0.2 available.
On 5th March 2008, the KDE Community released the second update to the fourth major version of
quality
adoption
3
[2] structure and operation
[3] research
goals
This is the Alitheia System

News items would be here for this specific deployment.

Evaluated Projects

Selected: JConvert
Website: JConvert
Contact: JConvert
SVN Mirror: file://Volumes/Files/Developer/JConvert/svn
Bug Data: bts://Volumes/Files/Desktop/JConvert/bug
Files: 263

Versions: 111049 - 111457

- JConvert
- FileZilla

Available Metrics

This project has not yet been evaluated!
metrics
Did you know subscribers can see articles in the future?

**Technology: SQO-OSS Finds FreeBSD Better than Linux**

Posted by CmdrTaco on Monday March 31, @11:44AM from the species at-the-goog dept.

eldavojohn writes

"The San Francisco Chronicle is running an interesting story about Google's involvement with the CIA, NSA, NOAA and several other agencies. This has been speculated before although now Google seems to have several contracts open with several agencies. From the article, "When the nation's intelligence agencies wanted a computer network to better share information about everything from Al Qaeda to North Korea, they turned to a big name in the technology industry to supply some of the equipment: Google Inc. The Mountain View company sold the agencies servers for searching documents, marking a small victory for the company and its little-known effort to do business with the government. 'We are a very small group, and even a lot of people in the federal government don't know that we exist,' said Mike Bradshaw, who leads Google's federal government sales team and its 18 employees.'"
difference
this entry has been selected by pax. bump up reference count and
- n and - d processing.

```
void
ftree_sel(ARCHD *arcn)
{
    /*
     * set reference bit for this pattern. This linked list is only 1
     * when file trees are supplied pax as args. The list is not used
     * the trees are read from stdin.
     */
    if (ftcur != NULL)
        ftcur->refcnt = 1;

    /*
     * if - n we are done with this arg, force a skip to the next arg
     * pax asks for the next file in next_file().
     * if - d we tell fts only to match the directory (if the arg is a
     * and not the entire file tree rooted at that point.
     */
    if (nflag)
        ftree_skip = 1;

    if (!dflag || (arcn->type != PAX_DIR))
        return;

    if (ftent != NULL)
        (void) fts_set(ftsp, ftent, FTS_SKIP);
```
PR: 47395
{man, doc}
March 2008 Archives by thread

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    - CFT: vr(4) Phil Olson
      - CFT: vr(4) Pyun Yong Hyeon
        - CFT: vr(4) Phil Olson
          - CFT: vr(4) Pyun Yong Hyeon
            - CFT: vr(4) Mike Tancza
              - CFT: vr(4) Pyun Yong Hyeon
                - CFT: vr(4) Phil Olson
                  - CFT: vr(4) Pyun Yong Hyeon
                    - CFT: vr(4) Mike Tancza
                      - CFT: vr(4) Pyun Yong Hyeon
reply(thread)
close(thread)
0800  Acadan started
1000  stopped - Acadan

1350 (32) MP - MC
1350 (33) PR0 - 2.130476415
2.130476415

tests 6-2 in 033 failed special speed test
in relay - 10,000 test.
Relays changed

1100
1525  Started Cosine Tape (Sine check)

1545  Started Multi-Adder Test

1630  First actual case of bug being found.
1700  closed down.
{report,close}
(in?valid)
[2] structure and operation
SQO-OSS

Source code analysis → Data Mining
Repository analysis → Statistical Analysis
Information Extraction → Data analysis subsystem
Data acquisition subsystem → Analysis Results Database
Control engine → Presentation engine
User interaction subsystem

Bug Management Database
Source code
Code Repository & Versioning System
Mailing list

Web Browser
Application
OSGi
run(ProjectFile)
enqueue(LocJob)
run()
getData(ProjectFile)
addRecord(Result)
getResult(Metric, File)
getMetricRef(Metric)
getResult(File)
findResultObject(File)
public interface Metric {

    String getVersion();
    String getAuthor();
    Date getDateInstalled();
    String getName();
    String getDescription();
    Result getResult(DAObject o);
    void run(DAObject o);
    boolean update();
    boolean install();
    boolean remove();
}

public void run() {
    Measurement m = new Measurement();

    int lines = 0;
    File f = fds.getFile(pf);
    try {
        LineNumberReader lnr = new LineNumberReader(new FileReader(f));
        for (;;) {
            lnr.readLine();
            lines++;
        }
    } catch (FileNotFoundException e) {
        log.error(this.getClass().getName() + " Cannot open file: " +
                f.getAbsolutePath());
    } catch (IOException ignored) {
    }
    m.setMeasurement(lines);
    m.setProjectVersion(pf.getProjectVersion());
    db.addRecord(m);
}
administration
### Installed Bundles

<table>
<thead>
<tr>
<th>Bundle</th>
<th>Status</th>
<th>Services Utilised</th>
</tr>
</thead>
<tbody>
<tr>
<td>org.eclipse.osgi</td>
<td>active</td>
<td>org.osgi.service.packageadmin.PackageAdmin, org.osgi.service.startlevel.StartLevel</td>
</tr>
<tr>
<td></td>
<td></td>
<td>java.xml.parsers.SAXParserFactory, org.eclipse.osgi.framework.log.FactoryLog</td>
</tr>
<tr>
<td></td>
<td></td>
<td>org.eclipse.osgi.service.datalocation.Location</td>
</tr>
<tr>
<td></td>
<td></td>
<td>org.eclipse.osgi.service.datalocation.Location</td>
</tr>
<tr>
<td></td>
<td></td>
<td>org.eclipse.osgi.service.datalocation.Location</td>
</tr>
<tr>
<td></td>
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<td></td>
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</tr>
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<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td>org.eclipse.osgi.service.datalocation.Location</td>
</tr>
<tr>
<td></td>
<td></td>
<td>org.eclipse.osgi.service.datalocation.Location</td>
</tr>
<tr>
<td></td>
<td></td>
<td>org.eclipse.osgi.service.urlconversion.URLConverter</td>
</tr>
<tr>
<td></td>
<td></td>
<td>org.eclipse.osgi.service.environment.EnvironmentInfo</td>
</tr>
<tr>
<td></td>
<td></td>
<td>org.eclipse.osgi.service.resolver.PlatformAdmin</td>
</tr>
<tr>
<td></td>
<td></td>
<td>org.eclipse.osgi.service.pluginconversion.PluginConverter</td>
</tr>
<tr>
<td></td>
<td></td>
<td>org.eclipse.osgi.framework.console.CommandProvider</td>
</tr>
<tr>
<td></td>
<td></td>
<td>org.eclipse.osgi.service.localization.BundleLocalization</td>
</tr>
<tr>
<td></td>
<td></td>
<td>org.eclipse.osgi.internal.provisional.verifier.CertificateVerifierFactory</td>
</tr>
<tr>
<td></td>
<td></td>
<td>org.eclipse.osgi.internal.provisional.verifier.CertificateVerifierFactory</td>
</tr>
<tr>
<td></td>
<td></td>
<td>org.eclipse.osgi.framework.console.CommandProvider</td>
</tr>
<tr>
<td></td>
<td></td>
<td>org.eclipse.osgi.service.runnable.ApplicationLauncher</td>
</tr>
<tr>
<td>org.eclipse.osgi.util</td>
<td>active</td>
<td>&lt;none&gt;</td>
</tr>
<tr>
<td>org.eclipse.osgi.services</td>
<td>active</td>
<td>&lt;none&gt;</td>
</tr>
<tr>
<td>Package</td>
<td>Status</td>
<td>Dependencies</td>
</tr>
<tr>
<td>----------------------</td>
<td>----------</td>
<td>---------------------------------------------------</td>
</tr>
<tr>
<td>org.dom4j</td>
<td>active</td>
<td>&lt;none&gt;</td>
</tr>
<tr>
<td>org.hibernate</td>
<td>active</td>
<td>&lt;none&gt;</td>
</tr>
<tr>
<td>org.postgresql.jdbc</td>
<td>active</td>
<td>&lt;none&gt;</td>
</tr>
<tr>
<td>org.apache.derby</td>
<td>active</td>
<td>&lt;none&gt;</td>
</tr>
<tr>
<td>org.tmatesoft.svn</td>
<td>active</td>
<td>&lt;none&gt;</td>
</tr>
<tr>
<td>eu.sqooss.lib.result</td>
<td>active</td>
<td>&lt;none&gt;</td>
</tr>
<tr>
<td>eu.sqooss.service.core</td>
<td>active</td>
<td>eu.sqooss.core.AltheiaCore, org.eclipse.osgi.framework.console.CommandProvider</td>
</tr>
<tr>
<td>eu.sqooss.service.web.services</td>
<td>active</td>
<td>eu.sqooss.service.web.services.WebServices</td>
</tr>
<tr>
<td>eu.sqooss.metric.wc</td>
<td>active</td>
<td>eu.sqooss.impl.metrics.wc.WcImplementation</td>
</tr>
<tr>
<td>eu.sqooss.metric.productivity</td>
<td>active</td>
<td>eu.sqooss.impl.metrics.productivity.ProductivityMetricImpl</td>
</tr>
<tr>
<td>eu.sqooss.service.tester</td>
<td>active</td>
<td>&lt;none&gt;</td>
</tr>
</tbody>
</table>
 WARN [Start Level Event Dispatcher] sqooss.tds - Mail access uses an unsupported URL scheme
 WARN [Start Level Event Dispatcher] sqooss.metric - Plugin <Wc metric plug-in> is already installed, won't re-install.
 WARN [SocketListener0-3] sqooss.tds - Could not get latest revision of JConvertsvn: Unable to open an ra_local session to URL svn: Unable to open repository
 'file:///Volumes/Files/Desktop/JConvert/svn' svn: Unable to open repository
 'file:///Volumes/Files/Desktop/JConvert/svn'
 WARN [SocketListener0-3] sqooss.webadmin - Error accessing repository. Project not added
 WARN [Thread-10] sqooss.updater - MailingList - No list found for project JConvert
 WARN [Thread-11] sqooss.updater - No last stored version of project JConvert

Copyright 2007-2008 SQO-OSS Consortium Members
Install new project

Project Name:
Website:
Contact:
Bug Database:
Mail:
Subversion:

Install Project

Installed Projects

- JConvert ([id=111047]) Update: CODE MAIL BUGS ALL

Copyright 2007-2008 SQO-OSS Consortium Members
Install new project

Project Name: FileZilla
Website: http://filezilla-project.org/
Contact: 
Bug Database: http://Volumes/Files/Deskto
Mail: maildir://Volumes/Files/Des
Subversion: file://Volumes/Files/Desk

Install Project

Installed Projects

- JConvert ([id=111047]) Update: CODE MAIL BUGS ALL
alitheia-> select count(*) from project_file_measurement;
  count
------
  33714
(1 row)

alitheia-> select count(*) from project_file_measurement;
  count
------
  33841
(1 row)

alitheia-> select count(*) from project_file_measurement;
  count
------
  47812
(1 row)

alitheia->
**Job statistics**

- Jobs Executing: 2
- Jobs Waiting: 5068
- Failed Jobs: 0
- Worker Threads: 2
- Total Jobs: 7080

**Job failure statistics**

<table>
<thead>
<tr>
<th>Job Type</th>
<th>Num Jobs Failed</th>
</tr>
</thead>
<tbody>
<tr>
<td>null</td>
<td>null</td>
</tr>
</tbody>
</table>

Status

- Uptime: 0:00:05:31
- Job Queue Length: 5068

Options

- Restart
- Stop

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WWW
This is the Alitheia System

News items would be here for this specific deployment.

Evaluated Projects
Selected: No project selected.
- JConvert
- FileZilla

Available Metrics
- Developer Interaction
- Mailing List Activity
- Cyclomatic Complexity
- Commit Statistics
- Line Count

Copyright 2007-2008 by members of the SQO-OSS consortium.
This is the Altheia System

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Evaluated Projects

Selected: JConvert
Website: JConvert
Contact: JConvert
SVN Mirror: file://Volumes/Files/Developer/JConvert/svn
Bug Data: bts://Volumes/Files/Desktop/JConvert/bug
Files: 263

Versions: 111049 - 111457

Available Metrics

This project has not yet been evaluated!
performance
SELECT d.path||'/'||head.fname, pf.project_file_id, pf.file_status, pfm.result 
FROM 
(
  SELECT pf.directory_id AS dir, pf.file_name AS fname, MAX(pv.project_version_id) AS headrev 
  FROM project_file pf, project_version pv 
  WHERE pf.project_version_id=pv.project_version_id 
    AND pv.stored_project_id = 61561 
    AND pv.timestamp <= (
      SELECT pv2.timestamp 
      FROM project_version pv2 
      WHERE pv2.project_version_id = 62095 
    ) 
  GROUP BY pf.directory_id, pf.file_name 
) head, project_file pf, directory d, project_file_measurement pfm 
WHERE d.directory_id = pf.directory_id 
  AND pfm.project_file_id = pf.project_file_id 
  AND head.dir = pf.directory_id 
  AND head.fname = pf.file_name 
  AND pf.project_version_id = head.headrev 
  AND pf.file_status='DELETED' 
ORDER BY d.path, head.fname
Developers v Quality
Mean Developer Engagement
Cross-Language Metric Tool
SQO-OSS

- Accepts source code input (Java, C, and C++)
- Transform to IXR (Intermediate XML Representation)
- Calculate Code Metrics and Stores them

Metric Plugins

Cross-Language Metric Plugin
Developer Contribution
LoC

Still relevant?
$$\begin{align*}
CF(d) &= \alpha \sum_{i=0}^{n} \omega^\text{rep}_i A^\text{rep}_i(d) + \cdots + \epsilon \sum_{i=0}^{n} \omega^\text{irc}_i A^\text{irc}_i(d)
\end{align*}$$
Refactoring v Software Quality
SQO-OSS quality model
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Linux v FreeBSD v Solaris v Windows
<table>
<thead>
<tr>
<th>File Organization</th>
<th>FreeBSD</th>
<th>Linux</th>
<th>Solaris</th>
<th>WRK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of C files</td>
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<tr>
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<td>Common coupling at file scope</td>
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<td>% global functions</td>
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<td>Preprocessing expansion in files</td>
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product + process