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Enabling Grids for
E-science in Europe

JRA1 all-hands-meeting, Padova 15.11.2004

gLite

www.eu-egee.org

Build Infrastructure & Release Procedures

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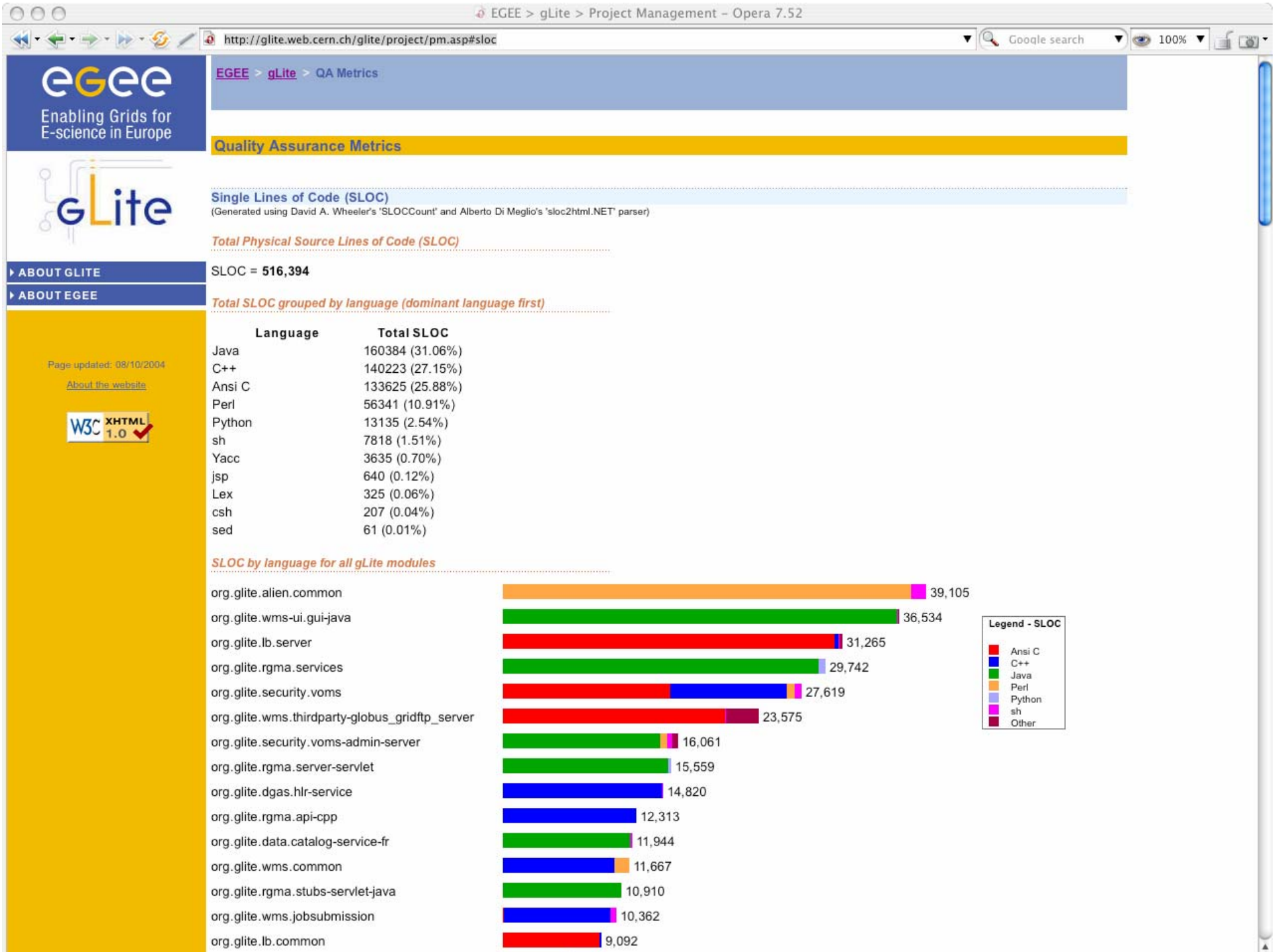
Contents

- Build Infrastructure
  - Build servers
  - Builds
  - gLite website
  - Integration testbed
  - CruiseControl
  - QA tools

- Release Management
  - Best practices
  - Manual procedures

BUILDS

- CONTINUOUS build
  - 100% automated, refreshes each night, full initial build

- NIGHTLY build
  - Fully automated
  - Clean snapshot of the HEAD from CVS
  - WinXP in "beta" phase
    - "green" for JAVA components

- INTEGRATION (weekly) build
  - Must build (manual process)
  - src, tar.gz, RPMS, quattor templates
  - Installation scripts (per deployment module)
  - Release notes, Documentation, Configuration scripts
  - "stage" area offered as a tarball

http://www.glite.org

- Automatically created content
  - DESCRIPTION, ARTIFACTS

- Build history
  - 7 days presented on our web page
  - 15 days kept on the server

- SLOC Counter at:
  http://glite.web.cern.ch/glite/project/pm.asp#sloc

- Additional counters/metrics to be added
  - Average number of Methods per Class (MC)
  - Number of Change Requests Submitted (SCR)
  - … see the Configuration Management Plan

http://glite.web.cern.ch/glite/project/pm.asp#sloc ▼ 🔍 Google search ▼ 👁 100% ▼

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Quality Assurance Metrics

Single Lines of Code (SLOC)
(Generated using David A. Wheeler's 'SLOCCount' and Alberto Di Meglio's 'sloc2html.NET' parser)

▶ ABOUT GLITE

▶ ABOUT EGEE

Total Physical Source Lines of Code (SLOC)

SLOC = **516,394**

Total SLOC grouped by language (dominant language first)

Page updated: 08/10/2004

About the website

W3C XHTML 1.0 ✓

Language	Total SLOC
Java	160384 (31.06%)
C++	140223 (27.15%)
Ansi C	133625 (25.88%)
Perl	56341 (10.91%)
Python	13135 (2.54%)
sh	7818 (1.51%)
Yacc	3635 (0.70%)
jsp	640 (0.12%)
Lex	325 (0.06%)
csh	207 (0.04%)
sed	61 (0.01%)

SLOC by language for all gLite modules

org.glite.alien.common	39,105
org.glite.wms-ui.gui-java	36,534
org.glite.lb.server	31,265
org.glite.rgma.services	29,742
org.glite.security.voms	27,619
org.glite.wms.thirdparty-globus_gridftp_server	23,575
org.glite.security.voms-admin-server	16,061
org.glite.rgma.server-servlet	15,559
org.glite.dgas.hlr-service	14,820
org.glite.rgma.api-cpp	12,313
org.glite.data.catalog-service-fr	11,944
org.glite.wms.common	11,667
org.glite.rgma.stubs-servlet-java	10,910
org.glite.wms.jobsubmission	10,362
org.glite.lb.common	9,092

Legend - SLOC
- 🟥 Ansi C
- 🟦 C++
- 🟩 Java
- 🟧 Perl
- 🟦 Python
- 🟪 sh
- 🟥 Other

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gLite

gLite
Lightweight Middleware for Grid Computing

GLITE SUBSYSTEMS
ALIEN
COMPUTING ELEMENT
DATA MANAGEMENT
ACCOUNTING
LOGGING AND BOOKEEPING
INFORMATION & MONITORING
SECURITY
WORKLOAD MANAGEMENT
▼ DOWNLOAD
DOCUMENTATION
PACKAGES
▼ QA METRICS
SLOC
▼ ABOUT GLITE
EGEE JRA1
EGEE JRA3
EGEE JRA4
▶ ABOUT EGEE

Page updated: 31/10/2004

About the website

W3C XHTML 1.0

What is gLite?

gLite (pronounced "gee-lite") is the next generation middleware for grid computing. Born from the collaborative efforts of more than 80 people in 11 different academic and industrial research centres as part of the EGEE Project, gLite provides a bleeding-edge, best-of-breed framework for building grid applications tapping into the power of distributed computing and storage resources across the Internet.

Want to know more about gLite? Read the following presentation.

gLite News

New gLite web site unveiled (13/09/2004)
The new gLite web site has officially gone online on Monday 13 September. The web site offers a single point of access to public documentation, installation packages and guides and loads of other useful information. The web site has been developed by the gLite Integration Team with the collaboration of all project members using original web templates form TERENA.

gLite People

The gLite software is produced as part of the EU EGEE Project funded by the European Communities. The following academic and industrial research centres are collaborating to the development of the software organized in three different Activities: JRA1 (data management, workload management, monitoring, accounting, computing element, logging and bookkeeping), JRA3 (security) and JRA4 (network monitoring and provisioning).

The European Organization for Nuclear Research (CERN)

Istituto Nazionale di Fisica Nucleare (INFN), Italy

Datamat Spa, Italy

CESNET, Czech Republic

Centre National de la Recherche Scientifique (CNRS), France

CS Systeme d'Information (CSSI), France

Royal Institute of Technology, Center for Parallel Computers (KTH-PDC), Sweden

Universiteit van Amsterdam (UvA), Netherlands

University of Helsinki (UH.HIP), Finland

http://glite.web.cern.ch/glite/packages/

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gLite

- ▸ **RELEASES**
- **LATEST BUILDS**
- **PREVIOUS RELEASES**
- **EXTERNAL DEPENDENCIES**
- ▾ **ABOUT GLITE**
- **EGEE JRA1**
- **EGEE JRA3**
- **EGEE JRA4**
- ▸ **ABOUT EGEE**

Page updated: 26/10/2004

About the website

W3C **XHTML 1.0** ✔

Latest builds

Build type	Build name	Build date
1.0 series stable release		
1.0 series integration build	I20041020	Wed Oct 20 2004
1.0 series nightly build	N20041104	Thu Nov 4 2004
1.0 series maintenance build		

Previous builds

Releases

Build name	Build date

1.0 Series Stable Builds

Build name	Build date

1.0 Series Integration Builds

Build name	Build date
I20041020	Wed Oct 20 2004

1.0 Series Nightly Builds

Build name	Build date
N20041104	Thu Nov 4 2004
N20041103	Wed Nov 3 2004
N20041102	Tue Nov 2 2004
N20041101	Mon Nov 1 2004
N20041031	Sun Oct 31 2004
N20041029	Fri Oct 29 2004
N20041028	Thu Oct 28 2004

1.0 Series Maintenance Builds

All gLite Components

Component name	Build status	Build time	Source	Binaries	RPMs	noarchRPMs
org.glite	passed	01/11/2004 11:03:52	n/a	n/a	n/a	n/a
org.glite-bootstrap	passed	02/11/2004 02:02:19	n/a	n/a	n/a	n/a
org.glite.alien	passed	02/11/2004 03:13:14	n/a	n/a	n/a	n/a
org.glite.alien.admin	passed	02/11/2004 03:11:11	src	bin	i386rpm	n/a
org.glite.alien.classad	passed	02/11/2004 02:55:05	src	bin	i386rpm	n/a
org.glite.alien.common	passed	02/11/2004 02:57:31	src	bin	i386rpm	n/a
org.glite.alien.gas	passed	02/11/2004 03:09:23	src	bin	i386rpm	n/a
org.glite.alien.gssapi	passed	02/11/2004 03:07:18	src	bin	i386rpm	n/a
org.glite.alien.gui	passed	02/11/2004 03:05:33	src	bin	i386rpm	n/a
org.glite.alien.monitor	passed	02/11/2004 03:03:54	src	bin	i386rpm	n/a
org.glite.alien.perl	passed	02/11/2004 02:30:33	src	bin	i386rpm	n/a
org.glite.alien.rls	passed	02/11/2004 03:02:10	src	bin	i386rpm	n/a
org.glite.alien.srm	passed	02/11/2004 03:00:01	src	bin	i386rpm	n/a
org.glite.ce	passed	02/11/2004 02:24:09	n/a	n/a	n/a	n/a
org.glite.ce.blahp	passed	02/11/2004 02:21:16	src	bin	i386rpm	n/a
org.glite.ce.ce-plugin	passed	02/11/2004 02:15:12	src	bin	i386rpm	n/a
org.glite.ce.lsf-plugin	passed	02/11/2004 02:17:11	src	bin	i386rpm	n/a
org.glite.ce.monitor	passed	02/11/2004 02:13:01	src	bin	i386rpm	n/a
org.glite.ce.monitor-api-java	passed	02/11/2004 02:10:37	src	bin	i386rpm	n/a
org.glite.ce.pbs-plugin	passed	02/11/2004 02:19:05	src	bin	i386rpm	n/a
org.glite.ce.wsdl	passed	02/11/2004 02:08:49	src	bin	i386rpm	n/a
org.glite.data	failed	02/11/2004 06:27:11	n/a	n/a	n/a	n/a
org.glite.data.api-perl	passed	02/11/2004 05:12:22	src	bin	n/a	noarchrpm
org.glite.data.catalog-api-java	passed	02/11/2004 04:30:27	src	bin	n/a	noarchrpm
org.glite.data.catalog-fas-api-c	passed	02/11/2004 04:39:31	src	bin	i386rpm	n/a
org.glite.data.catalog-fas-api-perl	passed	02/11/2004 05:14:29	src	bin	n/a	noarchrpm
org.glite.data.catalog-file-api-c	passed	02/11/2004 04:43:23	src	bin	i386rpm	n/a
org.glite.data.catalog-file-api-perl	passed	02/11/2004 05:17:04	src	bin	n/a	noarchrpm
org.glite.data.catalog-fireman-api-c	passed	02/11/2004 04:57:18	src	bin	i386rpm	n/a
org.glite.data.catalog-interface	passed	02/11/2004 04:28:21	src	bin	n/a	noarchrpm
org.glite.data.catalog-meta-api-c	passed	02/11/2004 04:48:13	src	bin	i386rpm	n/a
org.glite.data.catalog-meta-api-perl	passed	02/11/2004 05:19:14	src	bin	n/a	noarchrpm

Integration testbed

- Currently 6 machines running RHELv3 (+updates)
- Always start from the CLEAN REFERENCE OS installation
  - Scratch-return-to original configuration within minutes
- Automatic installation of integrated software for configuration testing
- Smoke tests in collaboration with the testing team

- Repository
  - gLite Web server for now
  - quattor software repository in the future
    - RHELv3 not yet supported

CruiseControl

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- Framework for a continuous integration process
  - 167 projects (includes deployment components, subsystems)

  - Build time
    - ~ 2.5h if run sequentially (Dual Xeon 2.4GHz, 1024MB of memory)
    - ~ 6.5h (scheduled)
      - Some modules build < 60sec (workaround required)
  - web-based interface
  - Custom label incrementers
    - Avoiding the confusion with tags/NIGHTLY builds

- New PRODUCTION server:

- New NIGHTLY BUILD server:

- Windows NIGHTLY BUILD server:

    http://egee-jra1-integration.web.cern.ch/egee-jra1-integration/cruisecontrol.asp

Please use the JRA1 integretion page as the startpoint

CruiseControl

- Current issues (we put lots of effort to solve them)

  - Fixing the configuration/running after developers - **please use our scripts for subsystem/module creation**
    - Missing components
  - CVS problems in the past
  - Listbox migration
    - No bounce message, changed originator policy
  - Quota
  - Slow machines
    - We just have migrated
   - Less failures (RGMA builds now)

QA

- JALOPY in
  - Build system
    - jalopied-code is put into the `<module-dir>`/**src-jalopied/** for reference
      (e.g. `<my-WorkSpace>`/org.glite.ce.pbs-plugin/**src-jalopied**/org/glite/ce/pbsplugin/MatchStrings.java)
  - CVS
    - Check against the coding convention
    - Mail notification
    - Commit always allowed (no source modification)

- CodeWizard
  - Present in the build system, but not activated
  - Requires AFS
  - CERN licence limitations

- QA infrastructure in place
  - Policy has to be decided

Release Management

- Based on CVS tags
- Close contact with the cluster release managers
  - Please **tag your components** *and subsystems* if you know what are you doing. **Note**: we can take care of your subsystems.
  - Please **send** your tags before Friday 10:00 (am preferably)

- Baseline
  - Snapshot of the code in CVS not yet completely finished
- Release
  - Snapshot … completely finished and functional; i.e. **ready** for integration and testing
- Branch
  - Useful for parallel development of the component taken from the given baseline or release tag for the bug fixes, new functionality, experiments. In the later stage could be merged to into the main dev. branch, persist as variants or die …
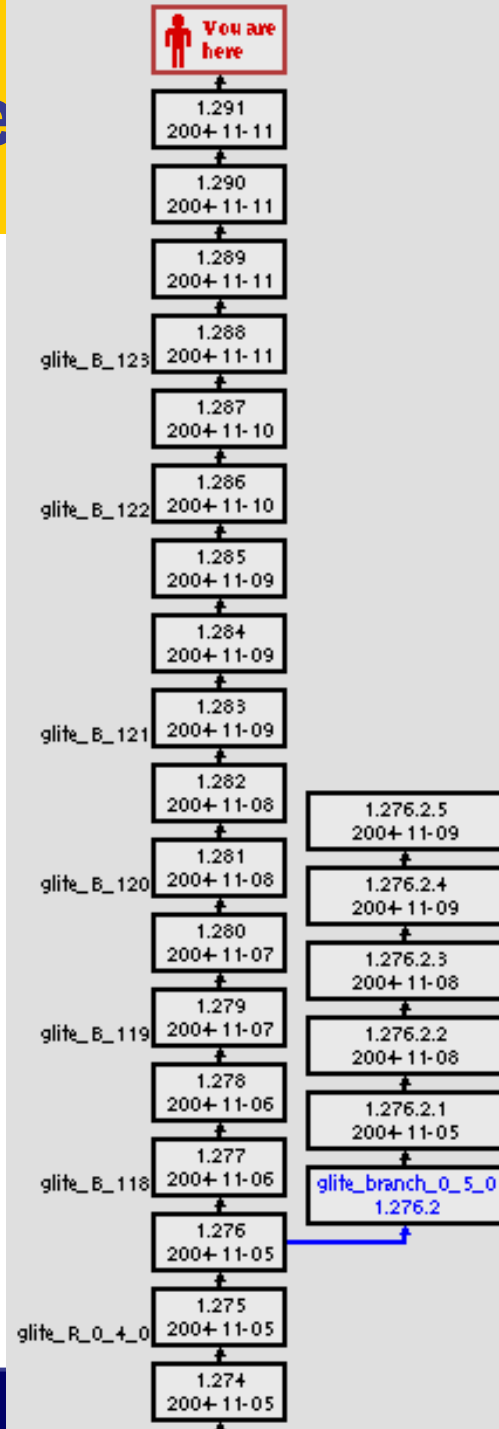
Release Management (tagging)

- Tagging
  - Using the prepared ant targets (please)
    - `cd <subsystem-dir>`
    - `ant baseline_tag` or `ant release_tag` or `ant branch_tag`
  - Manual
    - Please make sure you are creating the properly formatted tag (should contain the build number)
    - For the baseline tagging make sure you update accordingly the
      <component-dir>/project/**version.properties**

- Currently no automated global tag management, possible in the future
  - Bonsai
  - Web interface
  - …

Ideas for the future

- Builds on request (?)
- Artifacts area
- Configuration management
- SA1 packages requirements
- Subsystem DESCRIPTIONs present on the gLite web pages
- Additional build system script functionality
  - Move/remove component from the CVS
- …

Ideas for the future

- Builds on request (?)

- Artifacts area

- Configuration management

- SA1 packages requirements

- Subsystem DESCRIPTIONs

- Additional build system script functionality

  - Move/remove component from the CVS

- Savannah pending issues/bugs

  - Jalopy empty java file processing

- …