



Enabling Grids for
E-science in Europe

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GLite Integration Infrastructure

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- Build server platforms
- Build server management
- Auto-build tools
- CruiseControl
- HotSpots
- Discussion



Build server platforms

- Weekly builds
 - RHEL v3 commercial edition (i386, ia64)
 - WinXP (i386), 2003 (i386, ia64)
- Continuous integration
 - RHEL v3 commercial edition (i386, ia64)
 - WinXP (i386), 2003 (i386, ia64)
- Testing & validation @ CERN
 - CERN Scientific Linux (SLC3)
 - Scientific Linux (SL3)

Build server management I

- Fully Managed infrastructure
- Machines located in the CERN CC
 - UPS secured
- Daily backups
- Periodic updates/upgrades
- Security patches
- QoS: Reliable, reproducible environment

Build server management II

- Automated installations
- Kickstart based
 - PXE: Pre Execution Environment
 - DHCP: IP assignment
 - TFTP: Trivial FTP
- Quattor
- Image based
 - using System Imager
 - HW/SW homogeneity, but fine tuning possible
- Host booting scenarios
 - Local
 - Netboot install
 - Netboot “run”

Auto-build tools

- Ant
 - Base tool of the build system
 - Extensible using Java classes to add additional functionality
 - XML-based configuration files (no missing tabs or extra spaces)
- CruiseControl
 - Ant-based continuous integration tool with scheduling, notifications, reporting functionality
- Maven
 - Build tool with powerful reporting, metrics, documentation and web site generation

CruiseControl

- Framework for a continuous integration process
 - <http://www.martinfowler.com/articles/continuousIntegration.html>
 - plug-ins for email notification
 - various source control tools
 - web-based interface
- Build loop allows running incremental builds at configurable intervals
- CVS change-driven builds to speed up process
- XML-based
 - configuration files
 - build reports (unit tests, change logs, custom docs)
- Benefits
 - contiguous integration, build errors are found very early in the process
 - developers discipline, build results are public and verifiable
- Notification mechanism
 - Individual developers for build breaks/fixes, list boxes for general notifications
- Demo: <http://lxn5203.cern.ch:8080/cruisecontrol/>

CruiseControl Status Page

Project	Last build result	Last build time
org.glite	passed	27/06/2004 19:10:20
org.glite.data	passed	27/06/2004 19:11:23
org.glite.data.catalog-interface	passed	23/06/2004 19:26:35
org.glite.data.catalog-service-fr	passed	24/06/2004 10:04:17
org.glite.rgma	passed	27/06/2004 19:03:48
org.glite.rgma.base	passed	23/06/2004 19:30:31
org.glite.security	passed	27/06/2004 19:03:38
org.glite.security.lcas-interface	passed	23/06/2004 19:29:58
org.glite.rgma.api-java	passed	23/06/2004 19:30:54
org.glite.wms	passed	27/06/2004 19:03:15
org.glite.wms.thirdparty-globus_ssl_utils	passed	23/06/2004 19:31:47
org.glite.wms.thirdparty-globus_gridftp_server	passed	23/06/2004 19:32:49
org.glite.wms.thirdparty-bypass	passed	23/06/2004 19:34:23
org.glite.wms.thirdparty-loki	passed	23/06/2004 19:35:40
org.glite.wms.common	passed	26/06/2004 17:09:14
org.glite.wms.tls	passed	23/06/2004 19:45:58
org.glite.wms.jobid	passed	24/06/2004 19:11:18
org.glite.wms.jdl	passed	23/06/2004 19:49:19
org.glite.wms.jdlj	passed	23/06/2004 19:48:43
org.glite.lb	passed	27/06/2004 19:03:58
org.glite.lb.client-interface	passed	23/06/2004 19:56:06
org.glite.lb.common	passed	24/06/2004 13:06:02
org.glite.lb.client	passed	24/06/2004 13:06:41

listing generated at 23:23

Next Build Starts At:
22/06/2004 10:04:44

Latest Build

- 22/06/2004 09:04:30 (build.147)
- 22/06/2004 08:02:43 (build.146)
- 21/06/2004 19:33:09 (build.145)
- 21/06/2004 18:32:58
- 21/06/2004 17:32:36
- 21/06/2004 16:32:09 (build.144)
- 21/06/2004 15:15:20 (build.143)
- 21/06/2004 14:13:45 (build.142)
- 21/06/2004 13:12:07 (build.141)
- 21/06/2004 12:10:15 (build.140)
- 21/06/2004 11:08:45 (build.139)
- 21/06/2004 11:08:45 (build.139) ▾

Build Results

Test Results

XML Log File

Control Panel

BUILD COMPLETE - build.147

Date of build: 22/06/2004 09:04:30

Time to build: 6 seconds

Build Artifacts

Unit Tests: (0)

No Tests Run

This project doesn't have any tests

Modifications since last build: (0)

Current Build

Started At:

22/06/2004 09:06:08

Latest Build

16/06/2004 19:12:54

(build.2)

10/06/2004 21:55:48

(build.1)



```
<cruisecontrol>
  <modifications>
    <modification type="modified">
      <filename>Makefile.am</filename>
      <project/>
      <date>16/06/2004 18:28:57</date>
      <user>eronchie</user>
      <comment>Added configure options
WARNING: work in progress</comment>
      <revision>1.3</revision>
      <email>elisabetta.ronchieri@cnaif.infn.it</email>
    </modification>
    <modification type="modified">
      <filename>build.xml</filename>
      <project/>
      <date>16/06/2004 18:51:12</date>
      <user>eronchie</user>
      <comment>Added configure options
WARNING: work in progress</comment>
      <revision>1.8</revision>
      <email>elisabetta.ronchieri@cnaif.infn.it</email>
    </modification>
    <modification type="modified">
      <filename>configure.ac</filename>
      <project/>
      <date>16/06/2004 18:28:57</date>
      <user>eronchie</user>
      <comment>Added configure options
WARNING: work in progress</comment>
      <revision>1.6</revision>
      <email>elisabetta.ronchieri@cnaif.infn.it</email>
    </modification>
    <modification type="added">
      <filename>configure-options.xml</filename>
      <project>project</project>
      <date>16/06/2004 18:46:08</date>
      <user>eronchie</user>
      <comment>Added configure options
WARNING: work in progress</comment>
      <revision>1.1</revision>
      <email>elisabetta.ronchieri@cnaif.infn.it</email>
    </modification>
  </modifications>
  <info>
    <property name="projectname" value="org.glite.wms.thirdparty-loki"/>
    <property name="lastbuild" value="20040610215548"/>
    <property name="lastsuccessfulbuild" value="20040610215548"/>
    <property name="builddate" value="16/06/2004 19:12:54"/>
    <property name="cctimestamp" value="20040616191254"/>
    <property name="label" value="build.2"/>
    <property name="interval" value="3600"/>
    <property name="lastbuildsuccessful" value="true"/>
    <property name="logfile" value="/log20040616191254Lbuild.2.xml"/>
  </info>
</cruisecontrol>
```

<cruisecontrol>

```
<project name="org.glite">
  <bootstrappers>
    <cvstrapper localWorkingCopy="/home/glbuild/CC_WORK/checkouts/org.glite" /
  >
    <currentbuildstatusbootstrapper
      file="/home/glbuild/CC_WORK/logs/org.glite/currentbuildstatus.txt"/>
  </bootstrappers>
  <modificationset quietperiod="60" requiremodification="false">
    <cvstrapper localWorkingCopy="/home/glbuild/CC_WORK/checkouts/org.glite" />
  </modificationset>
  <schedule interval="3600">
    <ant antWorkingDir="/home/glbuild/CC_WORK/checkouts/org.glite/project" buildfil
e="glite.csf.xml"
      antscript="/opt/ant/bin/ant">
    </ant>
    <pause starttime="1959" endtime="0759" />
  </schedule>
  <log dir="/home/glbuild/CC_WORK/logs/org.glite">
  </log>
  <publishers>
    <currentbuildstatuspublisher
      file="/home/glbuild/CC_WORK/logs/org.glite/currentbuildstatus.txt"/>
    <email mailhost="mmm.cern.ch"
      buildresultsurl="http://lxn5203.cern.ch:8080/cruisecontrol/buildresults/o
rg.glite"
      reportsuccess="fixes"
      returnaddress="glbuilder@cern.ch"
      returnname="gLite Builder">
      <always address="alberto.di.meglio@cern.ch"/>
      <failure address="alberto.di.meglio@cern.ch" reportWhenFixed="true"/>
    </email>
  </publishers>
  <dateformat format="dd/MM/yyyy HH:mm:ss" />
</project>

<project name="org.glite.data">
```

- User training
 - System may take some getting used to. Broken build notifications should not be too frequent, but they should not be ignored either
- Variety of OSes/versions outside the integration infrastructure
 - Risk of incompatibilities (they should all be binary compatible, but...)
 - Slower or inadequate support for non RHEL30 versions
- CVS support@CERN
 - Stability, occasional changes without impact analysis (ex. see recent problems with loginfo format and log date format)
- Secure access to the web-based tools
 - Should they be public or restricted to EGEE?
 - Can we use certificates for secure access?
- Repository access
 - Which systems do you need us to provide? AFS, NFS, HTTP, ...?

Documentation

- Users/developers manual will contain detailed information about using the build tools and web-based interfaces
- Installation manual for the build servers can be provided to replicate the environment locally if needed
- FAQ(s) pages with all your questions
- What else do you think is needed?