



# LHC COMPUTING GRID

## LCG2 RELEASE NOTES

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*Abstract: These notes explain what is in the new release*

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## 1. CHANGES FROM 2\_2\_0 TO 2\_3\_0

This release contains the usual RH7.3 as well as the full SL release. The released software is identical for both operating systems. Full interoperability between both systems has been verified. In addition to the SL release, a new install method based on a scripted manual install has been created to help with the installation as LCFGng is not supported on SL. The new install method has 3 steps. Install the OS, apt-get the rpms, configure node type. The documentation has also been rearranged. We have split the old LCGReleaseNotes into five documents. LCG2 Release Notes, LCG2 LCFG Install, LCG2 LCFG Upgrade, LCG2 New Sites and LCG2 Site Testing.

Major points:

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- The following nodes have been certified for SLC3:  
BDII, CE (pbs + condor), MON, Proxy, RB, SE, WN
- A site can now mix RH7.3 nodes with SLC3 nodes, e.g. the typical configuration could be all service nodes running RH7.3 with worker nodes running SLC3, or vice versa, service nodes on SLC3 with worker nodes on RH7.3. The latter configuration may be of some interest given the facts the service nodes are exposed to the external connections and consequently the security issues may be much bigger than on worker nodes; the kernel security patches are coming faster for SLC3 while some sites may have a big problem obtaining those patches for the RH7.3.
- The inter-site operability has been verified, sites running different O/S's will be able to communicate.
- Installation on SLC3 using LCFGng is not supported.
- The APEL accounting packages from GOC are included as part of the release. It requires installing R-GMA, which has been already in the previous release. The packages parse the log files of the gatekeeper, system messages and the PBS events (so far) to extract job information and publish it using R-GMA.
- LFC: new high performance LCG File Catalog
  - Based on lessons learned in DC's in last few months
  - Fixes performance and scalability problems seen in EDG Catalogs
  - Cursors for large queries
  - Timeouts and retries from the client
  - Provides more features than the EDG Catalogs
  - User exposed transaction API
  - Hierarchical namespace and namespace operations



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Integrated GSI Authentication + Authorization  
Access Control Lists (Unix Permissions and POSIX ACLs)  
Checksums

- Based on existing code base

Supports Oracle and MySQL database backends

- Integration with GFAL and lcg\_util complete
- POOL Integration will be provided (November 2004)

Both EDG (old) and LFC (new) file catalogs are included and all clients (GFAL, lcg-util) tools support both catalogs, selectable by every user job via an environmental variable, which (as released) defaults to the old one. We have started migration with experiments of the old catalog to the new one. For details about the design, implementation and the performance of the new file catalog see Jean-Philippe Baud presentation at the CHEP2004. Find more information also in GFAL/lcg-util README.

- GFAL improvements
  - thread-safe version (requested by Atlas)
  - provide 2 new methods for asynchronous pre-staging: srm\_get and srm\_getstatus (requested by LHCB)
  - integration with the new LFC file catalog
  - increase timeout from 5 to 15 seconds when talking to BDII
  - build on SLC3 as well as RH73
- lcg\_util improvements
  - do not return actual\_guid if copy or registration in LRC failed
  - integration with the new LFC file catalog
  - fix typos in error messages
- New GIP (Generic Information Provider) should prove to be more flexible and and stable than previous methods. Now installed on CE, SE, Proxy, RB.
- Number of bigger and smaller bug fixes, as always.

For the full list see below.

Summary of changes with respect to the previous LCG2 Aug/2004 release:  
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Note: 3-digit numbers are Savannah \*patch\* numbers  
4-digit numbers are Savannah \*bug\* numbers

- VDT:



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Upgrade to 1.2.0 (from 1.1.14-4.lcg1)

- Globus functionally equivalent (2.4.3 with exactly the same patches)
- fixes annoying (but harmless) complaints from  
/opt/globus/sbin/globus-initialization.sh
- MyProxy v0.6.1 (from v0.5.9; minor bugfixes)

- CondorG:

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Upgrade from condor-6.6.0-2.edg6 to condor-6.6.0-2.edg9 (change in gahp\_server only) to help with the following:

- 4500 - gahp\_server memory usage  
Very important reduction of memory usage by "gahp\_server" processes on RB (fixes by David Smith, will be sent to VDT)
- 4578 - prevent condor\_gridmanager restarting many jobs if the gridmonitor returns an error.

- Information System:

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Updated BDII to version 3.1.11.

- 197 - BDII is now also intalled on CE for sites to replacing the SITE GIIS with a BDII
- 196 - Publishing ResourceBroker and MyProxy service
- 203 - Timeout protection when downloading the configuration
- 207 - firewall fix for localhost when restarting
- 214 - fix for long connections
- 216 - reduce "broker not able to plan" problem
- 4558 - timeout while dlapsearch is active
- 4596 - BDII DN substitution error

- Information Providers:

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GIP upgraded to version 1.0.14.

- 232 - Upgrade lcg generic information provider to 1.0.7  
Fix bug 4481.

- Workload Management System

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Upgraded from lcg2.1.32 -> lcg2.1.54 with the following changes:



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- 5109 - WMS daemon memory leaks
  - 4924 - logd race to setup confirmation socket
  - 4909 - PR sometimes doesn't renew a proxy
  - 4894 - NS can become unresponsive during dialoge with client
  - 4892 - NS can (partially) crash with 'Unable to receive'
  - 4891 - PR daemon can exit
  - 4836 - locallogger 'error getting event's jobid'
  - 3807 - LogMonitor must not crash on bad Condor-G log files
  - 3883 - Cancel request from jobcontroller never appeared in condor-g
  - 3884 - jobs not canceled, 'unknown to the system'
  - 3916 - job interactive doesn't work (not supported)
  - 4009 - Daemon startup during system boot
  - 4070 - FuzzyRanking (stochasticRankSelector)
  - 4126 - NS can crash with 'Pipe Closed'
  - 4127 - Stderr overwrites stdout when redirected to the same file
  - 4144 - Malformed requirements expression causes WM/NS to exit
  - 4261 - edg-wl-wm daemon fails under sl3
  - 4285 - UI-with-voms-certificate bug
  - 4286 - Thread behaviour & the WM
  - 4299 - interlogd can become deadlocked
  - 4318 - Matchmaking policy for resubmitted jobs
  - 4350 - job wrapper must set BDII to be used
  - 4365 - WL libraries/daemons must retry BDII queries

Remember that when upgrading one should ensure that the WMS services are restarted, to allow the new version to become active.

- LCG Job Managers:

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N/A.

- Data Management:

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New edg-replica-manager v2.3.5.

edg-reptor-client :

- 5152 - overview: some memory leaks in edg-reptor-client (LDAP)
- 5229 - overview: edg-reptor-client non-portable code
- 2889 - "edg-rm pi" should filter out unwanted VOs.  
Old behaviour is still accessible by simply not specifying a VO.
- 3466 - Wrong error message with a guid with no SURLS
- 3586 - file zero size left during data transfer. On an  
exception during copying, we delete the destination filehandle.
- 4346 - edg-rm should obey LCG\_GFAL\_INFOSYS



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- 4370 - edg-rm cr/rep should not retry if catalog errors occur
  - 4390 - make edg-rm search harder for a correct `\$JAVACMD`.  
We now check on the path too.
  - 4391 - edg-rm should abort if credentials have expired/are missing.
  - 4405 - edg-rm fails with SEs with similar names

- GFAL:

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Upgraded to GFAL-client 1.4.0.

For changes see the 'GFAL' paragraph in the 'Major points' section above.

- 4577 - protect against NULL pointer to error message (reported by Jens)
- 4579 - implement support for multiple files in SRM get/put requests:  
`turlsfromsurls()` (requested by LHCb)

- lcg-util:

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New lcg-util 1.1.0.

For changes see the 'lcg-util' paragraph in the 'Major points' section above.

- 4131 - `lcg_rf` does not correctly get filesize for classic SE
- 4132 - `lcg-del`: do not remove entry from catalog and return an error if physical file removal failed. Print better error messages in case of expired certificate.
- 4133 - `lcg-gt`: for a classical SE, check protocol validity and use the requested protocol if ok
- 4134 - return an error if provided/generated guid exists already in the LRC database
- 4574 - add method `lcg-sd` to set the file status to "Done" (especially needed for dCache)

- R-GMA:

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N/A.

- APEL accounting:

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Included GOC accounting packages which parse log files of gatekeeper, system message and PBS event to extract job information and publishes it using R-GMA.

- Others:

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CA updated to verion 0.24, which added:



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- Slovenian SiGNET CA
  - SEE-GRID CA
  - Estonian Grid CA
  - and updated LIP CA
  - 205 - IUCC and BEGrid root certificates and updated Russia CA
  - 218 - Add new package lcg-info-api-ldap-1.1-0 which include tools and API to gather information related to Grid services
  - 225 - Include SIXT VO  
Following the idea of Fokke Dijkstra and Ron Trompert, introduce a mechanism for sites to add their new VOs easily
  - 234 - Update lcg env component to version 1.0.3 to fix bug 4483
  - 239 - Fix a problem introduced by patch 234
  - 267 - Add cron job for lcg-expiregridmapdir.pl on RB and SE to clean the hardlink between the user's certificate and the local username
  - 4483 - LCG\_GFAL\_INFOSYS cannot be superseded with Environment in JDL

Cleanup of unused configuration settings for the registration to TOP GIIS from SITE GIIS.

- Monitoring (Grid ICE):

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N/A.