

Release Notes Univa Grid Engine 8.0.0 (Stoat)

From GEWiki

Contents

- 1 License
- 2 Fixes and Enhancements
 - 2.1 Summary
 - 2.2 Change of Architecture String
 - 2.3 Qrsh extensions
 - 2.4 Full List of Fixes and Enhancements
- 3 Supported Platforms and Upgrade Notes
 - 3.1 Supported Platforms
 - 3.2 Upgrade Requirements
- 4 Known Issues and Limitations
 - 4.1 Project Spooling
 - 4.2 Slotwise Preemption

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Fixes and Enhancements

Summary

Univa Grid Engine v8.0.0 is intended as a drop-in replacement to Sun Grid Engine 6.2u5. It is also an upgrade target from earlier versions of Sun Grid Engine 6.2 and later as well as an upgrade target from Oracle Grid Engine 6.2u6 and 6.2u7.

Univa Grid Engine v8.0.0 support is available from <http://univa.com/products/grid-engine.php>

Here is a summary of things that have changed since version 6.2u5

- Qrsh (interactive job support) was extended by an advanced multi-threaded implementation
- process-suspend handling
- Qsub -pty extension
- Change of qhost and qstat output
- Dropped Linux Kernel 2.4 Support
- Dropped BDB RPC Spooling Support
- Dropped JMX Support

Change of Architecture String

Univa Grid Engine 8.0.0 drops the 2.4 kernel for the Linux architecture as a supported binary target platform. As a result of that the architecture string that is reported by the script `$$SGE_ROOT/util/arch` has changed. Instead of `lx24-x86` or `lx24-amd64` it will now return `lx-x86` or `lx-amd64`. The binary/library paths within the Univa Grid Engine have also changed. Files are now located in

- `$$SGE_ROOT/bin/lx-x86`
- `$$SGE_ROOT/utilbin/lx-x86`
- `$$SGE_ROOT/lib/lx-x86`

For users that have hardcoded the old architecture string into paths, environment or script settings this will be an issue. Corresponding users should either adjust the scripts or the Univa Grid Engine administrator can add links that refer to the new directory so that the old paths remain valid.

```
# ln -s $$SGE_ROOT/bin/lx24-x86 $$SGE_ROOT/bin/lx-x86
# ln -s $$SGE_ROOT/lib/lx24-x86 $$SGE_ROOT/lib/lx-x86
# ...
```

Also architecture strings that are hard coded into strings that are passed to the Univa Grid Engine as resource requests might cause problems. Users must modify their usage of the resource to match the new resource string.

Qrsh extensions

Qrsh has been enhanced to provide following functionality when Ctrl-Z or %Ctrl-Z is pressed:

Qrsh Suspension Overview		
Command	Ctrl-Z	%Ctrl-Z
qrsh (without command)	Suspends the process started by the qrsh-session.	Suspends the local qrsh client. The process started by qrsh-session stays untouched.
qrsh -pty yes <cmd>	Only the local qrsh-client will be suspended. The remotely executed <cmd> stays untouched.	Suspends the qrsh-client as also the remotely executed <cmd>.
qrsh -pty yes -suspend_remote yes <cmd>	Both processes will be suspended, the qrsh-client as also the remotely executed <cmd>.	Only the local qrsh-client will be suspended. The remotely executed <cmd> stays untouched.

Note

Univa Grid Engine will track all jobs as running, regardless of the process state.

Full List of Fixes and Enhancements

- [GE-111] - qconf man page updated with new -clearusage option
- [GE-114] - Two new cluster configuration parameters (max_aj_instances, max_aj_tasks)
- [GE-178] - New cluster configuration parameter 'max_jobs'
- [GE-488] - INSTALL NOTES: Separate set of gid-ranges on a nfs-server
- [GE-553] - Admin guide: Moved object references from pe/ckpt into queue
- [GE-601] - queue_conf(5) incomplete for owner_list description
- [GE-615] - Admin doc has to reflect changes of the complex matching
- [GE-691] - missing documentation concerning HGRPs and CQs
- [GE-1202] - Need a means to find out jobs submission hosts
- [GE-1577] - sge_conf man page error
- [GE-1592] - commlib: replace cl_bool_t by the sge bool type
- [GE-2143] - va_end call missing after some va_start/va_copy calls
- [GE-2360] - sge_conf sentence for execd_params in wrong location
- [GE-2379] - manpage of qconf uses 'fname' and 'file, all should be 'fname'
- [GE-2765] - \$SGE_CWD_PATH not mentioned in qsub's manpage
- [GE-2766] - man qsub uses GE_* instead of SGE_* for defined variables
- [GE-2783] - Enhance shutdown behaviour of new IJS when client is stopped with CTRL + C or killed with SIGKILL
- [GE-2820] - man accounting has wrong indentation for 'priority'
- [GE-2841] - submit(1) man page reports that qrsh does not support -display option
- [GE-2891] - Restrict interactive jobs to certain users
- [GE-3112] - uninitialized memory due to incorrect use of memset
- [GE-3132] - Job validation behaviour changed since 6.0 / 6.1
- [GE-3148] - jobs do not always go to the least loaded host
- [GE-3190] - qrsh hostname: commlib error on linux
- [GE-3214] - manpage queue_conf does not fully describe 'slots' notation
- [GE-3217] - 'man host_conf' refers to 'cluster global 'host' complex (see complex(5))'
- [GE-3243] - SGE 6.2u5 - Man page for qconf -Arqs is formatted incorrectly.
- [GE-3252] - Wrong ' coding in qstat manpage
- [GE-3259] - Manpage of qstat and qhost still lists Transfer queues
- [GE-3262] - -t not available for qalter
- [GE-3274] - man qsub doesn't mention [command_args] for job scripts
- [GE-3275] - entry ENABLE_BINDING at wrong location in `man sge_conf`
- [GE-3277] - SGE_BINDING missing at the end of `man qsub`

- [GE-3287] - References to REQNAME should be removed
- [GE-3290] - `man sge_pe` doesn't explain settings 'NONE' for start/stop_proc_args
- [GE-3294] - Wrong header for sge_ckpt.1
- [GE-3299] - On Windows Vista Enterprise, sgeexecd can fail to start up at boot time
- [GE-3302] - net continue SGE_Helper_Service.exe STOPS the service
- [GE-3304] - no accounting information for Windows GUI jobs
- [GE-3336] - qmon has segmentation fault when changing Job Script in submit dialogue
- [GE-3350] - adjust default paths in aimk.site, build.properties, distinst.site
- [GE-3364] - evaluate / fix / improve the spooling performance tests
- [GE-3375] - remove service tags from installation
- [GE-3390] - qrsh does not forward necessary environment variables
- [GE-3427] - qllogin and qsh jobs cannot be deleted after upgrade from 6.2u5 to 8.0.0
- [GE-3428] - Long running qrsh jobs fail when master is upgraded.
- [GE-3438] - exchange qmon icons with icons from opengridscheduler project
- [GE-3444] - need better os version handling on aix for arch and ibm-loadsensor
- [GE-3449] - error messages generated during scheduler order processing are duplicated
- [GE-3464] - use absolute pathnames for dynamically opening openssl-libraries instead of just the lib-name
- [GE-3465] - topology string is wrong on AMD magny-course architecture
- [GE-3467] - try to detect location of libc.so.6 on Linux in arch script
- [GE-3468] - workaround optimizer bug of Sun Studio 9 on Solaris Sparc 64
- [GE-3469] - add -version option to all binaries
- [GE-3470] - error messages when sourcing settings file or starting sgemaster/sgeexecd on Ubuntu
- [GE-3471] - man page sge_conf.5, execd_params, section ENABLE_BINDING is within section PDC_INTERVAL
- [GE-3472] - output file of "qsub -pty" belongs to UGE admin user (local Administrator on Interix) instead of the job user
- [GE-3473] - output file of "qsub -pty" belongs to UGE admin user (local Administrator on Interix) instead of the job user
- [GE-3474] - PDC_INTERVAL=NEVER does not work
- [GE-3475] - Typos in interactive installation
- [GE-3479] - parallel jobs are not dispatched to the least loaded host
- [GE-3481] - clone upgrade might fail if master host is referenced in host_aliases file.
- [GE-3482] - job start time is not available in qstat -j -xml output
- [GE-3490] - junit tests are broken
- [GE-3497] - mark reporting_params log_consumables as deprecated in the man page sge_conf.5
- [GE-3499] - qconf man page references non-existent ge_conf(5) man page
- [GE-3503] - on Windows, the loadcheck.exe binary output misses a line break
- [GE-3505] - fstype binary doesn't detect NFS4 on Linux if the mountpoint is deeper than one directory or if the name of the mountpoint is e.g. "/sge2"
- [GE-3508] - JSV should also support -sync switch
- [GE-3510] - cannot build with aimk -gcc option on aix51
- [GE-3511] - gdi_retries option is not used for qrsh -inherit
- [GE-3512] - gdi_retries option shall also have effect on sending gdi requests
- [GE-3514] - Pass data as part of GDI return value
- [GE-3515] - Provide sync/terse/pty-parameter in JSV
- [GE-3575] - qmaster can't read spooled jobs after a hot upgrade to version 8.0.0
- [GE-3577] - qtsh does not build on aix with gcc
- [GE-3579] - hadoop is missing in the common-package
- [GE-3580] - Input redirection of qrsh does not work properly
- [GE-3581] - need means to configure build options for the uge-extensions only
- [GE-3584] - increase MAX_DYN_EC
- [GE-3585] - can only start one qsub -sync y less than configured with MAX_DYN_EC
- [GE-3586] - incomprehensible error message from qsub -sync y (at event client registration)
- [GE-3587] - When submitting a qrsh job a warning message is displayed
- [GE-3591] - sge_shepherd might not deliver a signal because "remaining_alarm" might be 0
- [GE-3596] - change the LINUX code from PLPA library to the successor HWLOC
- [GE-3604] - Qconf man pages have wrong object_spec for Resource Quotas
- [GE-3607] - 62u5 clients causes a segmentation fault of a 8.0.0 qmaster
- [GE-3613] - version.c contains a GDI version which never existed
- [GE-3623] - Add all inherited environment variables of qrsh to documentation and man-page
- [GE-3624] - generate a WARNING message if processing a GDI request takes too long
- [GE-3627] - Limit number of multi GDI get requests in qmaster
- [GE-3628] - Make it possible to disable sending of environment variables in combination with qstat -j requests
- [GE-3629] - qstat -j * should show only own jobs per default
- [GE-3633] - make loadcheck utility hwloc aware and do additional binding tests

- [GE-3634] - Add wiki documentation for JSV changes
- [GE-3635] - Finalize Release Notes for 8.0.1
- [GE-3638] - ship the CUDA load sensor with Grid Engine
- [GE-3639] - add CUDA load sensor description into WIKI
- [GE-3643] - queue/job error states should be explained in more detail
- [GE-3645] - execution daemon installer hangs when libnuma is not found
- [GE-3646] - bootstrap file has the wrong version number
- [GE-3647] - man-pages have the wrong version
- [GE-3649] - Upgrade Matrix needs to be updated.
- [GE-3651] - Better description of master and slave queues in Parallel Environments.
- [GE-3654] - fix the upgrade matrix

Supported Platforms and Upgrade Notes

Supported Platforms

Univa Grid Engine 8.0.0 supports various hardware architectures and versions of operating systems.

Supported Platforms, Operating Systems and Architectures

Operating System	Version	Architecture
SLES	10,11	x86, x86-64
RHEL	4-5.6, 6	x86, x86-64
CentOS	4-5.6, 6	x86, x86-64
Oracle Linux	4-5.6, 6	x86, x86-64
Ubuntu Server	10.04LTS-10.10	x86, x86-64
Microsoft Windows ¹	Vista, HPC Server 2003, 7, XP SP3	x86, x86-64
Oracle Solaris	9,10	x86_64
HP-UX	11.0 or higher	32 and 64bit
IBM AIX	5.3, 6.1 or later	64 bit

¹ Hosts running the Microsoft Windows operations system cannot be used as master or shadow hosts.

Upgrade Requirements

This is a summary of the Upgrade Matrix that describes how you can make the transition from Sun or Oracle Grid Engine 6.2uX to Univa Grid Engine 8.0.0 when you currently use classic or BDB local spooling. If your current version of Grid Engine you are using is missing in the overview then please have a look into the full Upgrade Matrix located in the section Updating Univa Grid Engine of the Installation Guide.

Upgrading from SGE and OGE to UGE 8.0.0

Version	Upgrade Method
Sun Grid Engine 6.2u5	Binary replacement and restart
Sun Grid Engine 6.2u4	Upgrade to SGE 6.2u5 and then binary replacement
Sun Grid Engine 6.2u3	Upgrade to SGE 6.2u5 and then binary replacement
Sun Grid Engine 6.2u2	Upgrade to SGE 6.2u5 and then binary replacement
Sun Grid Engine 6.2u1	Upgrade to SGE 6.2u5 and then binary replacement
Sun Grid Engine 6.2 FCS	Upgrade to SGE 6.2u5 and then binary replacement
Oracle Grid Engine 6.2u6	Backup/Restore
Oracle Grid Engine 6.2u7	Backup/Restore

Please note that for a binary replacement the existing cluster needs to be partially drained. Qrsh, qlogin, qsub -sync, qmake, qsh and tightly integrated parallel jobs have to leave the Grid Engine System before the binaries can be replaced. Detailed step-by-step instructions for the upgrade process can be found in the section Hot Update of the Installation Guide.

In case BDB RPC spooling is currently in use or if using Oracle Grid Engine 6.2u6 or 6.2u7, then use the backup/restore mechanism to install a cluster using the configuration information of the existing cluster as outlined in the section Clone

Known Issues and Limitations

Project Spooling

SGE 6.2u5 has a bug in the project spooling. This might cause problems during the upgrade when using classic spooling and all of the following conditions were met in the existing cluster in the past:

- Share-tree exists
- Project as part of share-tree exists
- Core-binding is activated
- Job uses core-binding and project that is referenced in share-tree

In this case, unnecessary values were spooled in projects that might cause Univa Grid Engine to drop those projects if the sge_qmaster process is started during the upgrade. This issue can be identified by corresponding error messages that are written into the message file of qmaster.

In order to overcome this issue, the project spooling files have to be modified before the new master is started. Entries like "binding_inuse=ScsSCC=0.000000" (key/value pairs that contain two equal characters (=)) have to be removed. (see also http://gridengine.markmail.org/search/?See%20http://gridengine.markmail.org/search/q=project+spooling+binding_inuse#query:project%20spooling%20binding_inuse+page:1+mid:pdcyphwjksjvv3gp+state:results)

Slotwise Preemption

If OGE 6.2u6 or OGE 6.2u7 was used with parallel jobs in slotwise preemption, be aware that Univa Grid Engine does not support this.

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