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1 License

TERM SOFTWARE LICENSE AND SUPPORT AGREEMENT

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(b) damages for bodily injury (including death), and physical damage to tangible property, to the extent caused by the gross negligence or willful misconduct of Univa employees while at Customer’s facility.

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(b) lost profits, business, or goodwill or

(c) other special, consequential, or indirect damages

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(b) allows Univa to control, and cooperates with Univa in, the defense and any related settlement.

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11. GOVERNING LAW AND EXCLUSIVE FORUM. This agreement is governed by the laws of the State of Illinois, without regard to conflict of law principles. Any dispute arising out of or related to this agreement may only be brought in the state of Illinois. Customer consents to the personal jurisdiction of such courts and waives any claim that it is an inconvenient forum. The prevailing party in litigation is entitled to recover its attorney’s fees and costs from the other party.

12. MISCELLANEOUS.
(a) Inspection. Univa, or its representative, may audit Customer’s usage of the Univa Software at any Customer facility. Customer will cooperate with such audit. Customer agrees to pay within 30 days of written notification any fees applicable to Customer’s use of the Univa Software in excess of the license.

(b) Entire Agreement. This agreement, and all orders, constitute the entire agreement between the parties, and supersedes all prior or contemporaneous negotiations, representations or agreements, whether oral or written, related to this subject matter.

(c) Modification Only in Writing. No modification or waiver of any term of this agreement is effective unless signed by both parties.

(d) Non-Assignment. Neither party may assign or transfer this agreement to a third party, except that the agreement and all orders may be assigned upon notice as part of a merger, or sale of all or substantially all of the business or assets, of a party.

(e) Export Compliance. Customer must comply with all applicable export control laws of the United States, foreign jurisdictions and other applicable laws and regulations.

(f) US Government Restricted Rights. The Univa Software is provided with RESTRICTED RIGHTS. Use, duplication, or disclosure by the U.S. government or any agency thereof is subject to restrictions as set forth in subparagraph (c)(1)(ii) of the Rights in Technical Data and Computer Software clause at DFARS 252.227-7013 or subparagraphs (c)(1) and (2) of the Commercial Computer Software Restricted Rights at 48 C.F.R. 52.227-19, as applicable.

(g) Independent Contractors. The parties are independent contractors with respect to each other.

(h) Enforceability. If any term of this agreement is invalid or unenforceable, the other terms remain in effect.

(i) No PO Terms. Univa rejects additional or conflicting terms of a Customer’s form-purchasing document.


(k) Survival. All terms that by their nature survive termination or expiration of this agreement, will survive.

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Grid Engine

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- Open Source Software means certain open source software which is provided along with the Univa Software, and such software is licensed under the license terms located at: http://www.univa.com/resources/licenses/

Rev: March 2013
2 Summary

Univa License Orchestrator is a central policy and control system for multiple Flexera (tm) FlexLM license installations. Univa License Orchestrator is designed to solve the issue of matching software licenses to jobs and applications submitted to one or more Univa Grid Engine clusters. Multiple Flexera FlexLM License installations and Univa Grid Engine clusters can be connected to a single Univa License Orchestrator system. By configuring policies, quotas and limits an IT organization can decide on prioritized access to the software licenses by user, group, project or department. Univa License Orchestrator does not directly manage the software licenses, that process is still managed by Flexera FlexLM, but it is an additional policy and control mechanism that works side-by-side with Flexera to ensure visibility, control and accounting into software license usage in an organization. Instructions for installing Univa License Orchestrator are included with the software. Please read the installation section in the Univa License Orchestrator Guide before proceeding with installation. If you experience difficulty installing or configuring Univa License Orchestrator please contact our support team at http://support.univa.com or email us at: support@univa.com.

3 Fixes and Enhancements

3.1 Evaluation of License Constraints

Via the so called license constraints in Univa Grid Engine a certain amount of licenses can get constrained to e.g. a user or a special host. Originally, those license constraints got evaluated by the Univa License Orchestrator scheduler thread only. In Univa Grid Engine 8.3 the evaluation is done already in the connected Univa Grid Engine cluster which prevents jobs from sticking in l-state.

License constraints are automatically setup by Univa License Orchestrator and synchronized with connected Univa Grid Engine clusters. Configured license constraints can be found in the global host configuration of Univa License Orchestrator and Univa Grid Engine clusters as parameter named license_constraints.

3.2 Prevent Starvation of License Requests Sent by Univa License Orchestrator

Univa License Orchestrator has also the possibility to submit license requests via losub without the involvement of an Univa Grid Engine cluster. As Univa License Orchestrator always sends the current usage of licenses to the connected Univa Grid Engine clusters submitting jobs via losub might eat up all licenses even before a connected Univa Grid Engine cluster tries to submit a license request as all licenses are in use. To prevent this behavior a Univa Grid Engine manager is now able to add a certain amount of artificial additional licenses. This means that Univa Grid Engine is able to submit its license requests to Univa License Orchestrator so that those requests can compete with other license request.
3.3 License summary per user and per project

The Univa License Orchestrator client `lostat` got extended by `-lic_user` and `-lic_project`. With those options the current license usage sorted by user(s) or project(s) will be shown.

3.4 Decreasing licenses of a running job

In Univa License Orchestrator 1.1 in combination with Univa Grid Engine 8.3 it is possible to decrease the license usage of a running job or even set it to 0 if no license is needed anymore.

3.5 Preemption

Univa License Orchestrator 1.1 in combination with Univa Grid Engine 8.3 supports preemption of jobs using Univa License Orchestrator provided licenses. During the time a Univa Grid Engine job is preempted, previously bound license that were provided by Univa License Orchestrator can be consumed by other Univa Grid Engine jobs either in the same Univa Grid Engine cluster, in a different cluster that is also connected to Univa License Orchestrator 1.1 or by external commands sending license requests directly to the Univa License Orchestrator using the `losub` command.

Find more information concerning preemption in the man page `sge_preemption(5)` of your Univa Grid Engine installation.

3.6 Summary

Univa License Orchestrator 1.1.0

- LO-43: Make JSON communication module more robust
- LO-201: ARs submitted with a duration instead of start and end time might get rejected by LO
- LO-332: Enhance UGE configuration so that license constraints can be stored in UGE
- LO-333: Forward license constraints from LO to UGE
- LO-334: Enhance queue instance selection in UGE scheduler so that license constraints are respected
- LO-336: Create license requests for jobs with reservation
- LO-337: Enhance lodial so that license request will be created for preemptors with reservation
- LO-338: Forward manual preemption request from UGE to LO
- LO-339: Enhance UGE so that UGE job can switch to l-state and immediately to t-state
- LO-343: License summary per user, per project
- LO-344: Using losub, Grid Engine jobs requesting a license can starve
- LO-345: License maintenance and cleanup
- LO-352: Enhance the build infrastructure to create man pages for UGE and LO from markdown sources
- LO-358: UGE jobs with LO license requests won’t get scheduled due
Fixes and Enhancements

To license constraints when jobs do not specify a license manager preference.

LO-368 When LO license complex is deleted then the UGE lothread reports creation of complex that is deleted in the message file.

LO-370 When lothread is shutdown then unused license complexes are not deleted in the UGE cluster.

LO-372 In UGE clusters that are not connected to a LO cluster anymore it is not possible to delete load values.

LO-376 Running UGE jobs without license requests are rescheduled when lothread (or sge_qmaster) is restarted.

LO-377 If lodial fails for some reason there is no way to analyse the error.

LO-378 Sometimes two LO license requests are created for jobs with a reservation in UGE.

LO-379 Sometimes UGE jobs with reservation do not switch from l to t state.

LO-381 Global host in UGE cluster is not updated immediately when license request in LO gets deleted or terminates.

LO-386 Integrate LO manpage build into aimk.

LO-388 Implicitly attach reservation request to preemptor jobs in LO clusters.

Univa License Orchestrator 1.1.1beta1

LO-309 Licenses reported by multiple License Managers get booked wrongly.

LO-405 Preemption is not working with LO provided licenses.

Univa License Orchestrator 1.1.2

LO-430 Make license_constraints usable for losub.

LO-433 losub -sync r should print the license it got.

LO-364 uid and gid are bogus in a lostat -j output.

Univa License Orchestrator 1.2.0

LO-384 lostat -lic does not show locally submitted jobs via losub.

LO-445 LO jobs do not get deleted on synchronize.
4 Supported Platforms and Upgrade Notes

Univa License Orchestrator 1.1.0 supports following hardware architectures and versions of operating systems.

4.1 Supported Operating Systems, Versions and Architectures

<table>
<thead>
<tr>
<th>Operating System</th>
<th>Version</th>
<th>Architecture</th>
</tr>
</thead>
<tbody>
<tr>
<td>CentOS</td>
<td>6-6.3</td>
<td>x86-64</td>
</tr>
<tr>
<td>RHEL</td>
<td>6-6.3</td>
<td>x86-64</td>
</tr>
</tbody>
</table>

Table 1: Supported Operating Systems, Versions and Architectures

4.2 Upgrade Requirements

5 Known Issues and Limitations