Vienna Scientific Cluster

Operational Regulations

Preamble

The Vienna Scientific Cluster (VSC) is a pool of high-performance computing resources that covers the computing demands of 3 different Universities: the University of Vienna (UNI), Vienna University of Technology (TU) and the University of Natural Resources and Applied Life Sciences (BOKU). Projects that have passed a *peer-review* panel and - besides having established scientific excellence - have also proven the need for extremely high performance processing power, are eligible to access the VSC.

For all decisions concerning access to the VSC a Steering Committee has been formed by the Universities taking part.

Definitions

The definitions of certain terms are explained in the VSC Access Conditions.

Operational Accountability

The Information Technology Services (ZID) of the Vienna University of Technology (TU), is responsible for the operation of the VSC, and strives to assure a faultless and continuous performance. It is however expressly stated that there is no guarantee against possible failures, such as power supply and cooling malfunctions. In that case, the VSC must immediately be turned off, without regard to any jobs running at the time. The TU is only accountable for loss or damage of a job when gross negligence or intent of its employees is involved. Accountability for consequential damage is categorically out of the question.

The continuous performance of the VSC is managed by the system administrators, who are authorized employees of the participating Universities, and supervised by the head of the department at the ZID.

System Administration

The maximum continual running time of a job is defined in Supplement 1 for each system. An eventual checkpointing is the responsibility of the user.

All projects have the same priority, however after exhausting allocated resources, the priority is strongly reduced. To support developing work, it is possible for a job that has a short duration to be given a higher priority, allowing that good reason is given and space is available. If a shortage of resources occurs, the system administrator may divide jobs that have reserved resources of one year into monthly allotments, whereby, in each case an advancement of the following months allotment is allowed. Large jobs, that use more processor cores at the same time than defined in the parameter “maximum job size without operator invention”, can be sent, but will be manually enabled by the system administrator. The system administrators will implement approved block reservations upon request, allowing that enough resources are available.

The system administrator will be responsible for a smooth flow and fair distribution of resources, - achieved through agreement with the users, appropriate staggering of the block reservations and large jobs, as well as the adoption of a heuristic queuing system - between the users and the

different Universities. Fair distribution means that individual projects, that at a certain time have jobs running in the system, achieve a throughput that are in relation to the allotted computing time.

Information for the Users

The system administrator will inform users about any important news, such as the installation of new software and updates, and interruptions and/or limitations of operations, through a VSC web page, log in messages, and through e-mail when necessary.

User obligations

The owner of a personal account carries the full responsibility for its use. Forwarding entry codes to other people is not allowed. Software with server-function, that allows entry into the VSC from outside, can only be installed with the approval of the system administrators. The installation of illegally produced copies of programs or data onto the VSC is forbidden. The user of illegally produced copies of software or data carries the full responsibility and is liable to the holder of, or grantor of, the license. When utilizing the VSC, the user agrees to be wary of improper usage and/or any other interferences or malfunctions, and to notify the system administrator so that appropriate actions can be taken to minimize adverse effects against other users.

In all other respects the provisions and regulations of the participating Universities (Operational and User regulations, Acceptable Use Policy, Security Policy, etc.) as well as ACOnet, apply.

Data protection

The Vienna Scientific Cluster is professionally operated and maintained at a security level typical of a Linux system within a University environment, however, for the handling of personal and sensitive data this may not be enough. Before transferring sensitive information the user should, proof the legal constraints, follow the legal guide lines as defined by the Federal Act concerning the Protection of Personal Data, (Datenschutzgesetz 2000 - DSG 2000), and make all personal data anonymous. If users intend to install software and / or data onto the VSC, that require a special license or a non disclosure agreement, even when that agreement has already been made, the legal constraints should still be proofed by the respective users before transferring that data. As soon as the legal constraints are verified, the ZID of the TU Vienna will give written permission for the transferring of the above described instances of such data and programs. Before this takes place, a transfer is not allowed.

The participating Universities are only accountable for loss or damage when gross negligence or intent of its employees is involved. Accountability for consequential damage is categorically out of the question.

Data backup

Due to financial reasons, a backup of the database is performed at an extremely limited scale. The user is responsible for making backups of his or her data. Making a backup is possible at certain facilities of the participating Universities.

Reimbursement

Payment for external projects should be made upon receipt to the appropriate account of the TU Vienna, where the Steering Committee decides how to distribute the funds. Unless otherwise stated the funds will be used to cover the operating expenses.

When deciding about the distribution of received funds, the Steering Committee will deliberate to ensure that all users and all participating Universities benefit there from.

Reports

Project progress

All project managers are obligated to deliver a yearly report in electronic form. This will be published on the VSC webpage and in print where applicable.

Resources used

The system manager makes a monthly statistic report about the utilization of the VSC by each project. These statistics are also published on the VSC webpage. Project managers and users can review their statistics, and members of the Steering Committee can evaluate all projects. One yearly statistic report will be published. Accounting data that is needed to make the statistics will be archived on a long-term basis.

Acknowledgement

When publishing articles that draw from computations done upon the VSC, users should make an acknowledgement, such as:
The computational results presented have been achieved [in part] using the Vienna Scientific Cluster (VSC).

Complaints

Complaints about operational management should first be reported to the appropriate department head of the ZID at the TU Vienna. If they cannot resolve the problem, then the Steering Committee should be contacted.

Final Provisions

These operational regulations have been authorized by an enactment of the Steering Committee on the 7th of September 2009, and in this actual version by an enactment on the 19th of May 2011, and can when needed, be changed by the steering committee with a new enactment.

Supplement 1

Systems in the VSC pool

VSC-1

Description:
476 nodes, approx. 3968 cores (Intel i7 2,66 GHz), InfiniBand DDR and QDR, 114 TByte bulk storage.
Main storage per node: 24 GByte, each node has 8 or 12 cores, which results in 2 or 3 GByte per core.
4 special nodes have 2 graphic processors (GPUs) each.
Location: TU Vienna, Freihaus, computer room
minimum job size: 1 core
maximum job size without operator intervention: 512 cores
accounting and scheduling unit: 1 core
maximum runtime of a job: 72 hours

VSC-2

Description:
1314 nodes, 21024 cores (AMD 2,2 GHz), InfiniBand QDR, 216 TByte bulk storage.
Main storage per node: 32 GByte, each node has 16 cores, which results in 2 GByte per core.
Location: TU Vienna, Science Center Arsenal, Object 214
minimum job size: 16 cores (1 node)
maximum job size without operator intervention: 4096 cores (256 nodes)
accounting and scheduling unit: 16 cores (1 node)
maximum runtime of a job: 72 hours