**Task queue**

* Send your tasks to the queue immediately, even if there are hundreds of waiting tasks (yours or other users). Do not wait to empty the queue first – this may not happen soon if other users fill it up actively at the same time. The system for resource sharing works by rearranging the queuing tasks of all users according to the use of the cluster in the past rather than by preventing the backsliding of those who have exceeded their assigned share. Use e-mail notification when starting and / or completing the task.
* Setting a realistic timeframe to accomplish your task with the resource parameter h\_rt will allow the scheduler to better distribute your tasks. The computing cluster Physon splits task duration across three types:
1. short ( h\_rt < 4 h)
2. medium (4 h < h\_rt < 48 h )
3. long ( 48 h < h\_rt < 168 h)
4. special – long (168 h < h\_rt < 500 h) – this resource is disabled by default. For more information.contact the system administrator at hpc <AT> phys.uni-sofia.bg

**Parallel programs (Open MPI)**

* When you evaluating the memory that your program will use during execution to indicate the correct value for the parameter h\_vmem, you should keep in mind that Open MPI uses some extra memory to buffer the messages. Depending on the type and size of the task, this memory can reach up to 800 MB per slot.
* When running long (over 48 hours) parallel jobs, specify parameter -q p\_long.q. This avoids a bug in the batch execution system. Without this parameter, the job will remain in the waiting state qw until you delete it or modify it with the command:

qalter -q p\_long.q number of the job

* Programs that make MPI\_Alltoall calls such as the distributed 2/3D FFT can increase performance through the following parameter to mpirun:
--mca coll\_tuned\_use\_dynamic\_rules 1 --mca coll\_tuned\_alltoallv\_algorithm 2
the directive replaces the default algorithm for the MPI\_Alltoall call.

**Disk storage**

**How much disk space and where do I have?**

You have three different file storages:

|  |  |  |  |
| --- | --- | --- | --- |
| Location1 | Quota | Time of life | Access |
| /home/$PROJECT/$USER | 2 GiB[2](http://physon.phys.uni-sofia.bg/faq-en#fn13715973365e3d37696bc5e) | Until account is deleted | network |
| /work/$PROJECT/$USER | project specific | project specific | network |
| $TMPDIR | 220 GiB | during the execution of the task | direct |

* home directory /home/$PROJECT/$USER — it is used for long-term storage of small volume of configuration files, program codes and more. File lifetime is until the account is deleted. Because it is a network file system, continuous writing and reading from it is not desirable except during compilation of software.
* network storage /work/$PROJECT/$USER — mainy data repository for each of the work projects. File lifetime is up to the end of the project, and allocation of participants quota is determined by agreement between them.
* working directory $TMPDIR — created automatically when a task is executed in batch mode, and then its content is automatically deleted at the end of the task. The size is limited by the free space on the hard disk of the node where the job is executed and is about 220 GiB shared among all the tasks. **It is recommended that intensive I/O operations be performed in this directory as it is placed on a hard disk directly connected to the node on which the task is being executed.** The directory name is stored in the environment variable TMPDIR and is accesses in scripts such as $ TMPDIR.

1 $PROJECT is not a real environment variable, but is used in the text instead of the name of a user’s main project.

2 You can check the home directory quota with the following command: quota -s

**Batch job processing**

**My task does not start, though SGE indicates the availability of the required free slots.**

Machines in the cluster have a limited volume RAM memory. Several tasks with high memory requirements (h\_vmem) can consume the available memory and leave free slots.

**When trying to send a task to SGE with the qsub command, I get the following error message: Unable to run job: error: no suitable queues. Exiting.**

The most common reason for this error is setting too high resource requirements that can not be covered by the current machine configuration – too much memory or too much time to run. Note that for parallel tasks, the required memory (h\_vmem) is set to a slot rather than a whole. You can check the reason for denying SGE by adding the -w v option at the qsub command line.

**No e-mails from SGE are received at start / finish of the task, although the corresponding option is set.**

Perhaps your e-mail provider filters out emails sent by the cluster. Check if the messages are in the spam folder. If you have an option to specify “safe” senders, add the following address to it:
bq. hpc AT phys.uni-sofia.bg (substitute AT with @)

**Executing programs**

**I have a program (program package) but when I try to run it I get the following message. What to do?**

progname: /lib64/tls/libc.so.6: version `GLIBC\_2.x' not found (required by progname)

The program you are trying to run is a dynamic executable file that requires a newer version of the glibc C library. You can try to recompile the program if you have access to its source code. If you do not have such access, look for a package version that is related to the library glibc-2.7 or older (but not older than 2.0), or the best statically related to all necessary libraries version. If this is not available, you will not be able to use the program in question on PHYSON.

**General**

**How to change my password?**

Changing the password is done with the standard Unix command passwd. You will first be prompted for your current password, then you will need to enter the new password twice. The requirements for passwords are:

* length of at least 8 characters
* a difference of at least 5 characters to the old password
* at least one lowercase letter
* at least one capital letter
* at least one digit

If the new password does not meet any of these requirements, it will not be accepted.

**I continually receive messages from user *ups* (or other users) in the console. How can I stop them?**

Receiving messages (via the write command) from other users can be disabled with the command

mesg n

After running this command, you will only receive messages from the system administrator. To resume receiving such messages, use the command

mesg y

Messages from administrators or system service providers that handle administrative rights can not be blocked.

**How do I access the various installed programs and compilers?**

Via the system [modules](http://physon.phys.uni-sofia.bg/modules-desc-bg).

<http://physon.phys.uni-sofia.bg/modules-desc-bg>