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Introduction in High Performance Computing
Sheet 1

Hints
Exercises should be finished and handed in (email) within two weeks. Please send only sources and images - no object files, no executables.
This is no Exercise to be handed in, just a helper to get started.

Get used to work on a remote system
Inform yourself about possibilities to

- transport files from one computer to another
- login on a remote system.

Please try to transport a file and login to one of the target HPC-System:

`elweX.rhrk.uni-kl.de,  X=1,2,3,4.`

UNIX: `ssh` has several options available, one of which allows to specify X-forwarding that is to specify your monitor as terminal and display graphical contents. Please use this feature and open a window (command `xterm &`) on the target system.
WINDOWS: Use remote desktop connection. Please configure the desktop that it uses exactly 24 Bit colors.
You need an editor to create and modify files on the target system. Possible editors are `nedit` and `gedit`. Try one of these editors and write a simple `hello world` program on the target system. Compile this program with `gcc` and the Intel compiler `icc`. Build the executables `world_gcc` and `world_icc` and execute them. Inform yourself about the possibilities of the module environment to activate the Intel compiler suite on the WWW-Site `https://elwe.rhrk.uni-kl.de` (software).
Finally write a job script to be execute in batch processing mode on Elwetritsch. This job script may look like

```
#!/bin/bash
#SBATCH -p short
#SBATCH --mem=200

echo "Executing world_gcc"
module load ... # whatever you used for compilation
./world_gcc
module purge ... # clean environment

echo "Executing world_icc"
module load ... # whatever you used for compilation
./world_icc
```

Inform yourself about the meaning of the SBATCH lines and possible other options. Submit the job script to the batch system. Later an option is required to guarentee the execution of different jobs on the same computer architecture - the cluster is heterogeneous. Look for an overview of available architectures and an option to execute on the same in subsequent jobs.