

Notes on **how** to run my Cape vs SWA publication BRT-models using UCT's HPC

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Connecting to the UCT HPC

In local home directory,

```
$ ssh vmzrua001@hex.uct.ac.za
```

and enter password. One can change password when on this node with `passwd`.

Should now be live on that node, as such:

```
vmzrua001@srvslshpc001:~>
```

Moving files to the active node

In local home directory, open another shell instance and

```
vmzrua001@srvslshpc001:~> scp myfile.txt vmzrua001@hexdata.uct.ac.za:/home/vmzrua001/
```

to move files onto the node. Note: `hexdata.uct.ac.za` a.o.t. `hex.uct.ac.za`

Also, to move whole folders use `scp -r`.

Running jobs

To execute a PBS-style job (see below):

```
vmzrua001@srvslshpc001:~> qsub myjob.sh
```

Diagnose errors with `cat myjob.e210993` to view error logs (have long numeric identifiers like that).

To execute code live from the command-line on node:

```
vmzrua001@srvslshpc001:~> qsub -I -l nodes=1:ppn=64:series600
```

(See below for details on `-l`.)

PBS headers in job `.sh`-files

E.g.

```
#PBS -q UCTlong
#PBS -l nodes=1:ppn=64:series600
#PBS -N my-computations
module load software/R-3.5.1
Rscript my-computations.R
```

- #PBS-headers:
 - `-q` denotes which computing protocol (??technical??) to use (`UCTlong` is default)
 - `-l` denotes:
 - * no. of **nodes** to use (1 is default; need special permission to use > 1)
 - * no. partitions per node (**ppn**) (max 64; try to keep to ca. 1/2 RAM requirement in GB)
 - * the **series** (??technical??)
 - `-N` denotes the job name to show up on the UCT HPC cluster Dashboard
- `module load` to load in software needed
- And then your code

Installing R-packages on the node

Good to do this in interactive session (`qsub -I -l ...`). Log into the R CLI,

```
vmzrua001@srvslshpc001:~> module load software/R-3.5.1
vmzrua001@srvslshpc001:~> R
```

and install packages to a custom library path on the node (e.g. `~/R-3.5.1/lib/`) that you have made beforehand on the node (e.g. `mkdir R-3.5.1/lib/`)

```
> install.packages(pkgs = "fooPkg", lib = "~/R-3.5.1/lib/", dep = TRUE)
```

(May require a lot of interactive debugging.)

Note, when/if prompted to choose a CRAN mirror, Austria (no. 7) works (so far).