R for HPC: Atikur R. Khan

For batch processing, you have to write R script and Job script. R script can be written in R studio and saved as a script file. But to submit a job one needs to avail of PuTTY & WinSCP.

1) Download and install PuTTY from http://www.putty.org/ following the instructions therein.

2) Download and install WinSCP from http://winscp.net/eng/docs/guide_installfollowing the instructions therein.

3) Write R script file signal.r

```
#!/usr/bin/env Rscript
# signal.r R program to compute prop correct dimension.
seq(-10,10, by=0.1)->x
plot(x, cos(x), type="l") # for Plot.pdf file
postscript("/datastore/username/signal.eps", horizontal=FALSE, height=2.5,
width=3)
  par(mfrow=c(1,1), mar=c(2,2,2,2)+0.5)
  plot(x, cos(x),type="l", lty=1, cex.axis=0.75,ylim=c(-1.1, 1.1
),xlab="m", ylab="", cex=0.8)
dev.off()
write.csv(x, file="/datastore/username/cosx.csv") # for excel output
```

4) Write job script file signal.sh

```
#!/bin/bash
#PBS -l walltime=00:15:00,vmem=4GB
#PBS -l nodes=1:ppn=8
# set the temporary file location
export TMPDIR=$WORKDIR
# go to the job submission directory
cd $PBS_O_WORKDIR
# load the R module; change the version if needed
module load R/3.1.0
# run R
Rscript --vanilla signal.r
```

5) Submit job by using the command

```
qsub signal.sh
```

6) The above procedures can be used to submit scripts on the TORQUE. If you are using some other job scheduler like SLURM, it could be modified by using commands as in the following script boxes.

   a) An example for Rscript file signal.r for SLURM submission

```
seq(-10,10, by=0.1)->x
plot(x, cos(x), type="l") # for Plot.pdf file
postscript("/datastore/username/signal.eps", horizontal=FALSE, height=2.5,
width=3) # this produces signal.eps file
par(mfrow=c(1,1), mar=c(2,2,2,2)+0.5)
plot(x, cos(x),type="l", lty=1, cex.axis=0.75,ylim=c( -1.1, 1.1 ),xlab="m",
ylab="", cex=0.8)
dev.off()
write.csv(x, file="/datastore/kha04m/cosx.csv") # for excel output
```

b) An example for SLURM job file signal.slurm for SLURM submission

```
#!/bin/bash
#SBATCH --job-name="signal"
#SBATCH --time=2:00:00
# set the temporary file location
export TMPDIR=$SUBMIT_DIR
# go to the job submission directory
cd $SLURM_SUBMIT_DIR
module load R
# run R
Rscript --vanilla signal.R
```

c) Use following commands for job submission

```
sbatch signal.slurm # to submit the job
squeue # to see the list of submitted files by all users
squeue -u atik01 # to see job submitted by the user "atik01"
squeue - u 1245 # to see the the job by its ID 1245
scancel 1245 # to delete the job with ID 1245
scontrol show job 1245 # shows details of job with ID 1245
```