

APPENDIX C

RUNNING A CLUSTER JOB ON LINUX

The following Portable Batch System (PBS) script assumes that the model file 'pss_3D_matlab.mph' and the Matlab script 'pss_3D_script' is in the same folder on the user's home directory on the linux cluster. It utilizes commands specific to the cluster, and program specific commands related to Comsol and Livelink for Matlab on Linux. For more information the reader is referred to the Comsol Multiphysics Reference Manual.

```
// Start of script 'job_matlab.pbs'

#PBS -N pss_3D_script

#PBS -lnodes=4:ppn=16

#PBS -lwalltime=48:00:00

#PBS -A acc-ept

#PBS -q IntelXeon

module load comsol/4.3b

module load matlab/R2013a

cd $PBS_O_WORKDIR

case=$PBS_JOBNAME

w=/work/$PBS_O_LOGNAME/comsol/$case

if [ ! -d $w ]; then mkdir -p $w; fi

cp $case.m $w

cd $w

cat $PBS_NODEFILE | uniq > mpd.conf

export I_MPI_PIN_PROCESSOR_LIST=allcores

comsol -nn $PBS_NUM_NODES mpd boot -f mpd.conf -mpirsh ssh

comsol server -nn $PBS_NUM_NODES -np $PBS_NUM_PPN < /dev/null &

matlab -nodisplay -nosplash -r "addpath $COMSOL_INC/mli/, mphstart, pss_3D_script,
mphsave(model,'pss_3D_matlab.mph'),

exit"

comsol mpd allexit
```

```
// End of script 'job_matlab.pbs'
```

The job may be submitted to the cluster by using the command `qsub <jobname>.pbs` where `<jobname>` is the name you assign to the script. Here the `<jobname>` is simply `'job_matlab'`.