

SRM SUPERCOMPUTER CENTER

USER GUIDE

FOR

“ANSYS”

SRM INSTITUTE OF SCIENCE AND TECHNOLOGY

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Introduction:

In our SRM HPC Cluster, we are using **PBS Pro – Portable Batch System Professional**. It is designed to manage the distribution of batch jobs and interactive sessions across the available nodes in the cluster.

Batch System:

The batch system allows the users to submit their jobs by requesting the resources (nodes, processors, memory) that they need. PBS Pro is handling these jobs on a First-Come, First-Served basis.

Login (Linux):

If you are using Linux os, then simply open you're **Terminal**, type

ssh -X username@ipaddr_of_server

Example Login page:

```
[admin@boopathi ~]$ ssh -X testuser@172.16.18.141
#####
#                                                                 #
#   ALERT...!!! Only authorized users from SRM can login to this server. #
#           You are entering into a secured area!!!                #
#           Your IP, Login Time, Username will be noted...         #
#           Unauthorized access to this system is forbidden and suspected #
#                                                                 #
#####
testuser@172.16.18.141's password: |
```

Submitting a job:

All users must submit their job via queuing system only using the command **qsub**.

Example for a script file: qsub.sh

APDL Script file:

```
#!/bin/bash
#PBS -N try1
#PBS -q work-01
#PBS -l select=1:ncpus=7:mpiprocs=7
#PBS -j oe

cd $PBS_O_WORKDIR
cat $PBS_NODEFILE > ./pbsnodelist
CORES=`cat ./pbsnodelist|wc -l`

"/opt/software/ansys_inc/v182/ansys/bin/mapdl" -p aa_r_me -np 7 -lch -dir "/opt/home/
testuser/test" -j "test" -s read -l en-us -b < "/opt/home/testuser/test/1234.inp" | te
e -i '/opt/home/testuser/test/test.out'
```

#PBS -N <job name> - Specifies the name of the job that will appear in the job queue.

#PBS -q <queue name> - Specifies that the job should be run in the named queue.

#PBS -l select=X: ncpus=Y: mpiprocs=Z - X = Requesting no. of node
- Y = Requesting no. of cores for a node.
- Z = It takes no. of MPI process per node.

#PBS -j oe - Specifies PBS to join standard output and standard error together in the output file.

PBS_O_WORKDIR - Contains the name of the directory from which the user submitted the PBS job.

PBS_NODEFILE - Name of the file that contains a list of the HOSTS provided for the job.

mapdl - Name of the executable file.

-p - Denotes the license type.

-np - Requesting the number of cores required for the job.

-b - Batch mode.

-dir - Working directory

-i - Input file

NOTE: The input file format should be in **.inp**

FLUENT Script file:

```
#!/bin/bash
#PBS -N AnsysFluent
#PBS -q work-01
#PBS -l select=1:ncpus=7:mpiprocs=7
#PBS -j oe

cd $PBS_O_WORKDIR
cat $PBS_NODEFILE > ./pbsnodelist
CORES=`cat ./pbsnodelist|wc -l`

# Run fluent
"fluent" 3d -t7 -g -i input.txt
```

fluent	-	Name of the executable file
3d/2d/2ddp	-	Indicates the version of the solver
-t	-	Total number of cpus required by this job
-g	-	No graphics (Batch mode)
-i	-	Specifies the input file name

INPUT FILE (Sample for Fluent):

```

; Read case file
rc example.cas
; Initialize the solution
/solve/initialize/initialize-flow
; Calculate 50 iterations
it 50
; Write data file
wd example50.dat
; Calculate another 50 iterations
it 50
; Write another data file
wd example100.dat
; Exit Fluent
exit
yes

```

Once job submission script is ready to submit, and then use the command `qsub` to submit a job to the queuing system.

`#qsub your_script.sh`

Example: **qsub qsub.sh**

After submitting a job, an ID will be generating for that particular job. We can see that job ID by using a **qstat** command.

To Display the available job queue:

qstat -q - It will display all available queue for job.

To view all the node status:

\$pbsnodes -aSj

This command gives you the status of all the compute nodes in this server.

Queuing System:

There are 4 types of queue available,

- res-4
- res-2
- work-01
- short

Their corresponding maximum Wall time will be **30 days** for each job.

Deleting Job:

A queuing/running job can be delete by using following command,

#qdel <jobID>

Example:

#qdel 238

(Where 238 is the job ID, that can be obtained from qstat command)

CONTACT US:

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