

## Appendix IV: Running SRAS on gLite based grid

1. Request a user certificate. You can follow the step by step instructions of the link to apply one.  
[http://ca.grid.sinica.edu.tw/certificate/request/request\\_user\\_cert.html](http://ca.grid.sinica.edu.tw/certificate/request/request_user_cert.html)
2. Join a gLite VO (Virtual Organization) and apply for a UI (User Interface) Account. You can join EUAsia VO and apply for ASGC UI Account by filling ASGCCA User Application Form in the link of step 1.
3. Login a UI machine. To access grid resources, you must initialize you VOMS(Virtual Organization Membership Service) proxy by using “voms-proxy-init” command.

```
[ui01] /home/ytc00/socsim/SRAS > voms-proxy-init --voms euasia
Enter GRID pass phrase: Your VO
Your identity: /C=TW/O=AS/OU=GRID/CN=Yu-Ting Chen 140560
Creating temporary proxy ..... Done
Contacting voms.grid.sinica.edu.tw:15015 [/C=TW/O=AS/OU=GRID/CN=voms.grid.sinica.edu.tw] "euasia" Done
Creating proxy ..... Done
Your proxy is valid until Thu Apr 21 19:15:30 2011
```

4. (Optional) VOMS proxy has 12 hours duration, if your job runs longer than that, you can extend your proxy life time by using “myproxy” service.

```
[ui01] /home/ytc00/socsim/SRAS/out2 > myproxy-init -d -n
Your identity: /C=TW/O=AS/OU=GRID/CN=Yu-Ting Chen 140560
Enter GRID pass phrase for this identity:
Creating proxy ..... Done
Proxy Verify OK
Your proxy is valid until: Fri Apr 29 03:05:08 2011
A proxy valid for 168 hours (7.0 days) for user /C=TW/O=AS/OU=GRID/CN=Yu-Ting Chen 140560 now exists on lcg00127.grid.sinica.edu.tw.
Proxy duration extends to 7 days
```

5. Write a script to run SRAS.

- I. We defined four parameters, TP, MP, Seed, and Duration for this script.

```
#!/bin/bash
#####
# Parameters:
# 1. TP: Agents' propensity to talk politics
# 2. MP: Agents' propensity to access the news media
#
# 3. Random seed for this simulation
# 4. Simulation duration (ticks)
#####
tp_value=$1
mp_value=$2
seed=$3
duration=$4
```

- II. Extract the input files

```
#extract java
tar xzvf jdk1.6.0_20.tgz
]
#extract repast symphony 2.0
tar xzvf repasts-2.0beta.tgz

#extract Expertise
tar xzvf Expertise.tgz
```

### III. Set environment variables.

```
export CPATH=$(pwd)
export JAVA_HOME=${CPATH}/jdk1.6.0_20
export REPAST_HOME=${CPATH}/repasts-2.0beta

# add RePast core jar files
export CLASSPATH=${CPATH}/Expertise/bin:${CPATH}:${find ${REPAST_HOME}/ -name "*.jar" -exec printf {}: {} \;}
export PATH=${JAVA_HOME}/bin:${PATH}
```

### IV. Use ParameterModifier to generate xml contains newly defined TP, MP, Seed, and Duration values

```
java ParameterModifier ${CPATH}/Expertise/batch/batch_params.xml duration ${duration} batch_params.xml

java ParameterModifier batch_params.xml randomSeed $seed new_tmp_1.xml
java ParameterModifier new_tmp_1.xml c1TP $tp_value new_tmp_2.xml
java ParameterModifier new_tmp_2.xml c1MP $mp_value new_tmp_3.xml
java ParameterModifier new_tmp_3.xml duration $duration new.xml
```

### V. Run simulation with those parameters

```
java repast.simphony.batch.BatchMain -params new.xml ${CPATH}/Expertise/Expertise.rs 2> expertise.err 1> expertise.out
```

### VI. Refine the output file (Don't worry about the code, it just make a better format)

```
grep "Tick" expertise.out | awk '{ print $7 $9 $10 $11 $12}' | sed -n 's/[ ]{4}//gp' > data.txt
cat data.txt | sed -n 's/Tick=//pg' | sed -n 's/,OpinionAvg=//pg' | sed -n 's/,Minority=//pg' \
| sed -n 's/,Changed=//pg' | sed -n 's/,FracDiffer=//pg' > data_refine.txt

mv data.txt data_c1TP_${tp_value}_c1MP_${mp_value}_seed_${seed}.txt
mv data_refine.txt data_refine_c1TP_${tp_value}_c1MP_${mp_value}_seed_${seed}.txt

sed -i 'li Tick OpinionAvg Minority Changed FracDiffer' \
data_refine_c1TP_${tp_value}_c1MP_${mp_value}_seed_${seed}.txt

tar -czf result.tgz data*.txt expertise.out expertise.err
```

### 6. Write a JDL(Job Description Language) file.

```
Executable = "sras_run_gridftp.sh";
StdOutput = "stdout.txt";
StdError = "stderr.txt";
InputSandbox = { "sras_run_gridftp.sh",
  "gsiftp://v104.grid.sinica.edu.tw/storage/euasia/socsim/jdk1.6.0_20.tgz",
  "gsiftp://v104.grid.sinica.edu.tw/storage/euasia/socsim/repasts-2.0beta.tgz",
  "gsiftp://v104.grid.sinica.edu.tw/storage/euasia/socsim/Expertise.tgz",
  "gsiftp://v104.grid.sinica.edu.tw/storage/euasia/socsim/ParameterModifier.class"
};
OutputSandbox = { "stderr.txt",
  "stdout.txt",
  "result.tgz"
};

#tp_value=$1
#mp_value=$2
#seed=$3
#duration=$4
Arguments = "0.9 0.1 1 900";
```

In a JDL file, “Executable” is the program we want to execute. Here, we can see the executable of this demo case is actual the script we wrote in step 5. The “StdOutput” and “StdError” are file names of our standard output and standard error. The “InputSandbox” defines the input files of the job. You may notice that you can either put them in local file system or in grid ftp server. The “OutputSandbox” defines the output files which will be retrieved back after job finished. Finally,

the “Arguments” defined the arguments you want to pass to your executable. In our script, there are four arguments needed. They are TP, MP, seed, and duration respectively.

7. Submit your job using “glite-wms-job-submit” command.

```
[ui01] /home/ytc00/socsim/SRAS > glite-wms-job-submit -a -o jobID SRAS_single_gridftp.jdl
Connecting to the service https://wms02.grid.sinica.edu.tw:7443/glite_wms_wmproxy_server

===== glite-wms-job-submit Success =====

The job has been successfully submitted to the WMProxy
Your job identifier is:

https://lb01.grid.sinica.edu.tw:9000/gzrxDxTRDBB1S-fG0yUC-w

The job identifier has been saved in the following file:
/home/ytc00/socsim/SRAS/jobID

=====
```

8. You can monitor your job status with “glite-wms-job-status” command.

```
[ui01] /home/ytc00/socsim/SRAS > glite-wms-job-status -i jobID

*****
BOOKKEEPING INFORMATION:

Status info for the Job : https://lb01.grid.sinica.edu.tw:9000/gzrxDxTRDBB1S-fG0yUC-w
Current Status:      Running
Status Reason:      Job successfully submitted to Globus
Destination:        quanta.grid.sinica.edu.tw:2119/jobmanager-pbs-euasia
Submitted:          Mon Apr 25 03:22:31 2011 UTC
*****
```

9. Once the job has been done, you can retrieve job output using “glite-wms-job-output”.

```
[ui01] /home/ytc00/socsim/SRAS > glite-wms-job-status -i jobID

*****
BOOKKEEPING INFORMATION:

Status info for the Job : https://lb01.grid.sinica.edu.tw:9000/gzrxDxTRDBB1S-fG0yUC-w
Current Status:      Done (Success)
Logged Reason(s):
- Job got an error while in the CondorG queue.
- Job terminated successfully
Exit code:          0
Status Reason:      Job terminated successfully
Destination:        quanta.grid.sinica.edu.tw:2119/jobmanager-pbs-euasia
Submitted:          Mon Apr 25 03:22:31 2011 UTC
*****
```

```
[ui01] /home/ytc00/socsim/SRAS > glite-wms-job-output -i jobID --dir output

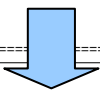
Connecting to the service https://wms02.grid.sinica.edu.tw:7443/glite_wms_wmproxy_server

=====

JOB GET OUTPUT OUTCOME

Output sandbox files for the job:
https://lb01.grid.sinica.edu.tw:9000/gzrxDxTRDBB1S-fG0yUC-w
have been successfully retrieved and stored in the directory:
/home/ytc00/socsim/SRAS/output

=====
```



You will see the output files stored in “output” directory. After you extract “result.tgz” file, you can find the simulation results in “data\_refine\_c1TP\_0.9\_c1MP\_0.1\_seed\_1.txt” which corresponds

to the arguments (TP=0.9, MP=0.1, seed=1, and duration=900) we defined in our JDL file.

Note:

Files mentioned in this file can be found in the following links:

jdk:

[http://t-ap204.grid.sinica.edu.tw/socsim/appendix4/jdk1.6.0\\_20.tgz](http://t-ap204.grid.sinica.edu.tw/socsim/appendix4/jdk1.6.0_20.tgz)

repast simphony:

<http://t-ap204.grid.sinica.edu.tw/socsim/appendix4/repasts-2.0beta.tgz>

ParameterModifier:

<http://t-ap204.grid.sinica.edu.tw/socsim/appendix4/ParameterModifier.java>

<http://t-ap204.grid.sinica.edu.tw/socsim/appendix4/ParameterModifier.class>

Expertise:

<http://t-ap204.grid.sinica.edu.tw/socsim/appendix4/Expertise.tgz>

sras\_run\_gridftp.sh:

[http://t-ap204.grid.sinica.edu.tw/socsim/appendix4/sras\\_run\\_gridftp.sh](http://t-ap204.grid.sinica.edu.tw/socsim/appendix4/sras_run_gridftp.sh)

SRAS\_single\_gridftp.jdl:

[http://t-ap204.grid.sinica.edu.tw/socsim/appendix4/SRAS\\_single\\_gridftp.jdl](http://t-ap204.grid.sinica.edu.tw/socsim/appendix4/SRAS_single_gridftp.jdl)