[MATLAB DCE and Sun Grid Engine (SGE) Integration](http://idolinux.blogspot.com/2008/09/matlab-dce-and-sun-grid-engine-sge.html)

We are installing [MathWorks MATLAB](http://www.mathworks.com/" \t "_blank) R2008a Distributed Computing Server on a Red Hat / CentOS 5 x86\_64 compute cluster, integrating with [Sun Grid Engine](http://gridengine.sunsource.net/) 6.1u5. These steps build off of our previous [install of SGE](http://idolinux.blogspot.com/2008/09/deploying-sun-grid-engine-on-cluster.html).

Log into MathWorks and *manually* [download](http://www.mathworks.com/downloads/web_downloads) all installer components, skipping the java jre webstart option. Save them in */usr/global/src/matlabR1008a/*. We will install to */usr/global/matlabR2008a/*, which is exported to the cluster via NFS along with all home directories. Activate and download your license file from the [MathWorks License Center](https://www.mathworks.com/licensecenter/" \t "_blank), or use the license provided to you through email. Make sure that all of your licenses are network concurrent and not designated. If you want to serve the Matlab GUI and the Deistributed Computing Environment out of the same installation directory, make sure to select a license that is DCE enabled for the install wizard, and then edit your license files afterward.

# yum -y install compat-libstdc++-33 libXp

# cd /usr/global/src/matlabR2008a

# tar -xf boot.ftp

# ./install

# ln -s /usr/global/matlabR2008a /usr/global/matlab

# adduser flexlm

# setsebool -P allow\_execheap=1

# setsebool -P use\_nfs\_home\_dirs=1

# ln -s /usr/global/matlab/etc/lmboot /etc/lmboot\_TMW

# ln -s /usr/global/matlab/etc/lmdown /etc/lmdown\_TMW

# cp /usr/global/matlab/etc/flexnet.boot.linux /etc/init.d/flexnet

# vim /etc/init.d/flexnet # change username to flexlm

# chmod +x /etc/init.d/flexnet

# cd /etc/rc5.d

# ln -s ../init.d/flexnet S90flexnet

# /etc/init.d/flexnet start

# ps aux | grep lm

# /usr/global/matlab/etc/lmstat -a

Use the submit function, decode function and submit wrapper script provided with MATLAB for running distributed jobs:

# cd /usr/global/matlab/toolbox/distcomp/examples/integration/sge/

# cp sgeWrapper.sh sgeDecodeFunc.m sgeSubmitFcn.m /usr/global/matlab/toolbox/local/

In MATLAB, as a user, do a simple task submission test:

>> sched = findResource('scheduler', 'type', 'generic')

>> set(sched,'DataLocation','/home/user')

>> set(sched,'HasSharedFilesystem',true)

>> set(sched,'ClusterMatlabRoot','/usr/global/matlab')

>> set(sched,'SubmitFcn',@sgeSubmitFcn)

>> j = createJob(sched);

>> createTask(j, @sum, 1, {[1 1]});

>> createTask(j, @sum, 1, {[2 2]});

>> createTask(j, @sum, 1, {[3 3]});

>> submit(j);

And Collect your results after the job runs:

>> results = getAllOutputArguments(j);

>> results{1:3}

Some handy aliases for your ~/.bashrc:

alias testwrk='ssh node01 "matlab -logfile output.txt -dmlworker -nodisplay -r exit"'

alias testlic='ssh node01 /usr/global/matlab/etc/lmstat -a'

alias testver='ssh node01 "matlab -dmlworker -r \"ver;exit\""'