Setting things up on Lattice (lattice.westgrid.ca) after you have an account:

http://www.westgrid.ca/support/quickstart/lattice

1. From ~, create a directory to store the binraries for Jetstream: **`mkdir bin`**
2. Edit **`~/.bashrc`**, and add the lines:

```
HOST=$(uname)
ARCH=$(uname)_$(uname -m)
export PATH=$PATH:$HOME/jetstream/grid_utils
export LD_LIBRARY_PATH=$LD_LIBRARY_PATH:$HOME/$ARCH/lib:$HOME/jetstream/
cgnslib_2.5/LINUX
module unload intel/11.1
module load intel/12
module load intel/2011-sp1.10.319
module load mvapich
module load python
module load git
```

   The python module only needs to be loaded if you are planning on doing aero-structural optimization or any other python-related work.
3. Type **`source ~/.bashrc`**
4. Configure git:
   a. **`git config --global user.name "My Name"`**
   b. **`git config --global user.email "me@oddjob.utias.utoronto.ca"`**
   c. **`git config --global core.editor "emacs"`** if you want to use emacs
5. Clone your Jetstream repository: **`git clone ssh://login.scinet.utoronto.ca/~/jetstream`**
6. Go to **`~/jetstream`** and:
   a. If you are not compiling any Python-related code or doing any work with aero-structural analysis, comment out the "mdo" directory in **`Makefile`**.
   b. type **`./make_jetstream lattice`** to compile everything
   c. if you need to compile only the group code, but not the other libraries (SPARSKIT, SNOPT CGNS and MeTiS), just type:
      `make extra sys=lattice`, (this line is not necessary on all the other systems) then
      `make sys=lattice`
      The extra line is because Lattice does not have the mpi_mod file compiled, and we need to compile a way to get around that.
   d. Note that as of today (February 1, 2012), compiling the code will result in a warning message appearing ("ifort command line remark #10010"). They can be ignored for now. Go to **`~/jetstream/grid_utils/code`** and type **`make SYS=lattice`** to compile grid utilities.

SUBMITTING JOBS

It's pretty much the same as SciNet. Here's an example of a 30 proc job. Since we always request 8 processors per node, this requires 4 nodes. The only difference from SciNet is that we need to include the memory. The website suggests 10-11 gb per node. If you ask for too much, your job might get blocked. If you put this in a file called latSubmit, then you would run the job with the script "qsub latSubmit" to run your job.

```
#!/bin/bash
#PBS -l nodes=4:ppn=8,walltime=01:00:00,mem=40gb
#PBS -N NAME_OF_YOUR_CHOOSING
cd $PBS_O_WORKDIR
mpirun -np 30 ${HOME}/bin/jetstream_x86_64 >& screen
```

ADDITIONAL INSTRUCTIONS FOR AERO-STRUCTURAL AND PYTHON-RELATED SET UP

1. Edit **~/.bashrc**, and add the lines:
   export PATH=$PATH:$HOME/software/pcre/bin
   export PATH=$PATH:$HOME/software/swig/bin
2. Type **source ~/.bashrc**
3. Download PCRE and swig (or copy from **~timleung/Downloads**)
4. Untar the files: **tar -xvzf pcre-8.21.tar.gz** and **tar -xvzf swig-2.0.4.tar.gz**. This will create two directories: **pcre-8.21** and **swig-2.0.4**
5. Go to **pcre-8.21** and then:
   a. **./configure --prefix=$HOME/software/pcre** to generate the makefiles
   b. **make** to compile the code itself
   c. **make install** to install the binaries etc to the directory specified in **--prefix**
6. Similar, go to the directory, and type:
   a. **./configure --prefix=$HOME/software/swig** to generate the makefiles
   b. **make** to compile the code itself
   c. **make install** to install the binaries etc to the directory specified in **--prefix**
7. In your .bashrc file, add this line:
   export LD_LIBRARY_PATH=$LD_LIBRARY_PATH:/global/software/hdf/hdf5-1.8.5-patch1/lib