Instructions for using WSU Grid to run MPI programs


Immediately after you submit your request, you will receive an email informing you of your username and the password. Usually, they are your WSU accessId and its corresponding password.

2. Ssh to the server. If your OS is Windows, you need to install cygwin, putty, or xshell.

In cygwin and putty, type “ssh grid.wayne.edu –l {your_access_id}”, it will ask you to for password. In xshell, click the “new session”, type “ssh grid.wayne.edu”, your login name and password, then launch the session.

3. Compile your MPI program by using command “mpicc –o ge ge.c” (ge.c is the assumed MPI source file name).

4. Use PBS to allocate nodes for running your executables. There are two ways to request for computer nodes for the running.

   A. Interactive way. In this way, you first reserve nodes first for your running.

      qsub -l nodes=8:ppn=1

   In the command, you request 8 nodes (nodes*ppn = 8 *1 = 8). Of course you can request more than 8 nodes. In reality one can expect to be granted at most 8 nodes. If you do request more, you may end up waiting forever due to limited resource availability.

   If you see following message, your request is granted:

      qsub: waiting for job 174944.vpbs1 to start
      qsub: job 174944.vpbs1 ready

      Type “mpirun –n N ge” to run your program on N of the 8 allocated nodes (N <= 8 in the example).

   B. Non-interactive way. You need to write a pbs script like this:

      #!/bin/sh  
      #PBS -N ge  
      #PBS -l nodes=8:ppn=1  
      #PBS -l walltime=1:00:00  
      #PBS -o output  
      #PBS -j oe  
      mpirun -n 8 ge  

To monitor the process, use “qstat” or “qstat –f ID”. In this way, you cannot debug or monitor the code execution. You can only receive the output after the execution, which seems inconvenient if you are developing a new program.

Please refer to [https://www.grid.wayne.edu/resources/faq.html](https://www.grid.wayne.edu/resources/faq.html) for more info.