

Launching Multiple jsruns

OLCF jsrun Tutorial

Chris Fuson Feb 18, 2020

ORNL is managed by UT-Battelle, LLC for the US Department of Energy



Launching Multiple Jsruns

- Jsrun provides ability to launch multiple jsrun job launches within single batch job allocation
- Within single node, across multiple nodes

Sequential

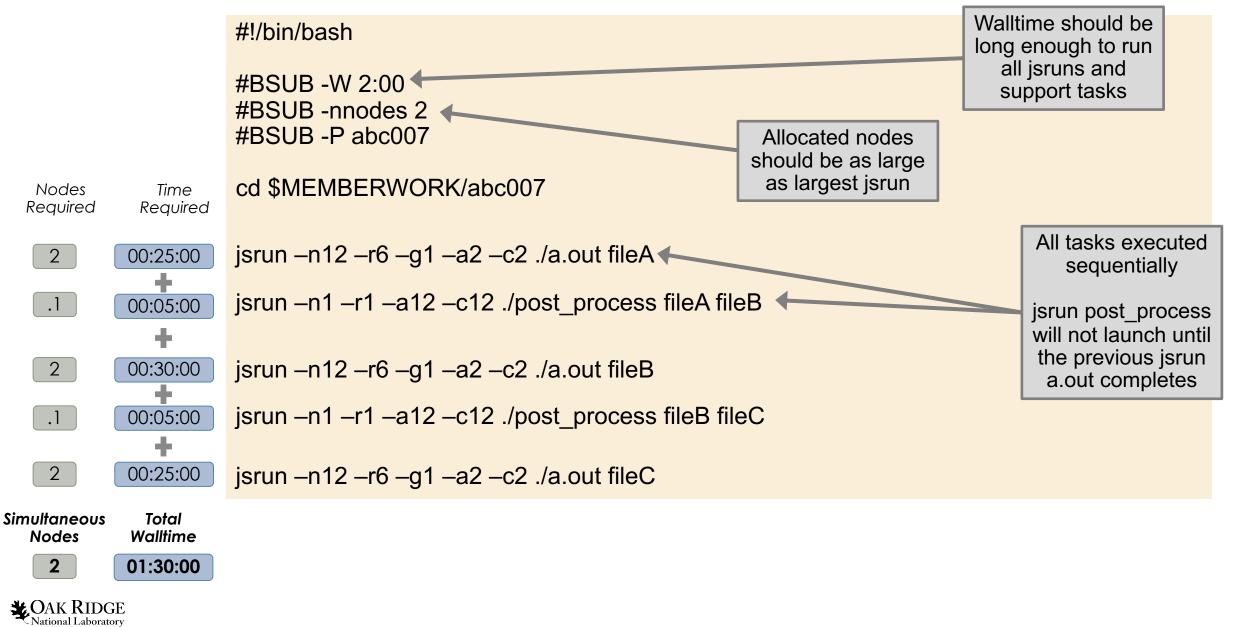
- Job launches execute one at a time
- Launch does not start until previous completes
- Bach job node allocation equal to largest jsrun
- Batch job walltime greater than sum of all jsruns

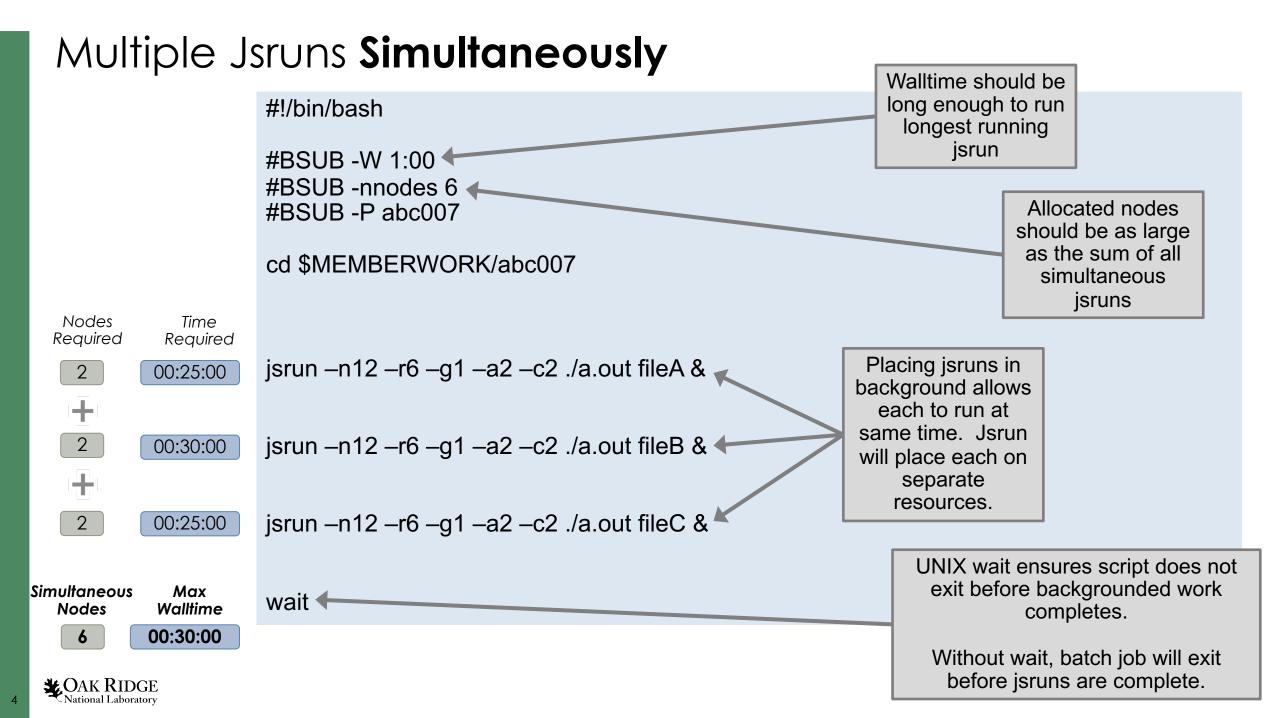
Simultaneous

- Multiple job launches start at the same time
- Jsruns will not share core/gpu resources
- Batch job node allocation equal to sum of jsruns
- Batch job walltime greater than longest task



Multiple Jsruns Sequentially





--immediate: Another Simultaneous Method

- jsrun's -immediate (-i) paired with 'jswait all'
- Queue the job step and return
- By default STDOUT/ERR sent to /dev/null
 - --stdio_stdout (-o), --stdio_stderr (-k) change location
 - If unable to open specified file, will use /dev/null

\$ jsrun -n1 -a1 -c1 -g6 js_task_info &; wait

Task 0 (0/1, 0/1) is bound to cpu[s] 0-3 on host h49n16 with OMP_NUM_THREADS=4 and with OMP_PLACES={0:4} and CUDA_VISIBLE_DEVICES=0,1,2,3,4,5

\$ jsrun -n1 -a1 -c1 -g6 -i --stdio_stdout file.o --stdio_stderr file.e js_task_info; jswait all

\$ cat file.e

Task 0 (0/1, 0/1) is bound to cpu[s] 0-3 on host h49n02 with OMP_NUM_THREADS=4 and with OMP_PLACES={0:4} and CUDA_VISIBLE_DEVICES=0,1,2,3,4,5

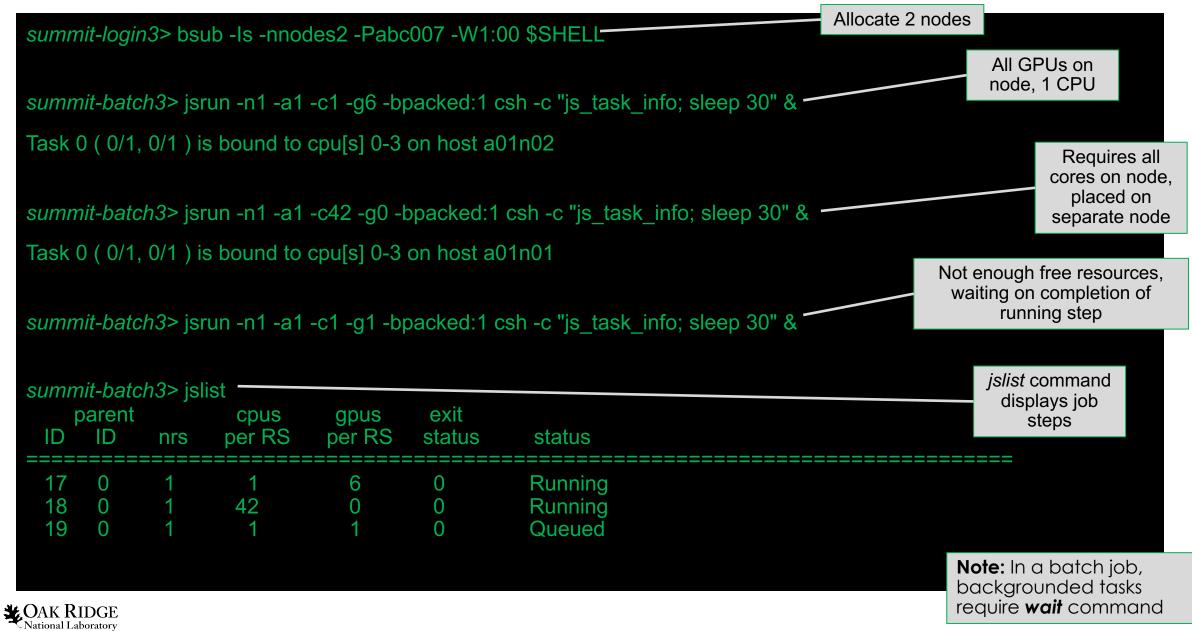


Viewing jsrun Queue -- jslist

- jsrun placement managed by IBM's CSM (Cluster System Management)
- Aware of all jsrun allocations within LSF job; allows multiple per node, multi node, ...
- jslist view the jsrun queue
 - Will show completed, running, and queued
 - Within interactive batch job will show current CSM allocation
 - Outside of a job can use -c to specify CSM allocation

```
$ bsub test.lsf
 Job <26238> is submitted to default queue <batch>.
$ bjobs -I 26238 | grep CSM_ALLOCATION ID
 Sun Feb 16 19:01:18: CSM ALLOCATION ID=34435;
$ jslist -c 34435
   parent
                             gpus
                                       exit
                   CDUS
                   per RS
                             per RS
                                      status
                                                  status
             nrs
             12
                                                 Running
                     4
                                         0
CAK RIDGE
National Laboratory
```

Multiple Simultaneous Job Steps Example





Questions ?

Documentation

- docs.olcf.ornl.gov
- Man pages
 - jsrun, bsub
- Help/Feedback
 - help@olcf.ornl.gov

