Job Submission Tools

- **Product Name:** jobsub_tools
  - A suite of tools to manage batch/grid submission

- **Why?**
  - Make submission and data i/o easier for user
  - Define common interface for experiments
  - Integrate complex grid tools sensibly
  - Protect shared resources from overload
• No Really. Why?
  ○ SAM, GlideinWMS, Condor, OSG client, and others each put some burden on the user to learn and use properly.
  ○ While there is more than one ‘right’ way to use these tools, there are many more wrong ways to use them.
  ○ Some of these use patterns wreak havoc on infrastructure and other users.
  ○ Users typically write a script that uses jobsub to submit, at this point jobsub has become an interface. When grid components change its no longer users problem.
  ○ When scientists move between experiments, the submission parts of their scripts won’t need to change.
Jobsub Tools

- Jobsub (options) executable (executable options)

- Commonly Used Options
  - Open, read, close, a SAM data set
  - Transfer data to (and back from) worker node using cpn, gridftp, or other ifdh method
  - Run job on local batch, fermigrid, or outside OSG site
  - Restrict no. of jobs running at one time
  - Use non-default grid credentials
  - Create and/or submit tarball
Jobsub Tools

- **DAG Generator**
  - Uses jobsub to generate Directed Acyclic Graphs chaining jobs into workflows

- **Monitoring**

  ```
  [dbox@gpsn01 ~]$ group_q minerva
  
  -- Summary of gpsn01.fnal.gov : <131.225.67.70:51821> : gpsn01.fnal.gov
  
<table>
<thead>
<tr>
<th>OWNER</th>
<th>RUN</th>
<th>IDLE</th>
<th>HELD</th>
<th>OLDEST_JOB</th>
</tr>
</thead>
<tbody>
<tr>
<td>hray</td>
<td>5</td>
<td>2</td>
<td>0</td>
<td>6/3 12:51 0+18:36:04 HRay_Timing_Closur</td>
</tr>
<tr>
<td>josta</td>
<td>12</td>
<td>0</td>
<td>0</td>
<td>6/1 05:59 1+02:25:36 MCMinosStage_00000</td>
</tr>
<tr>
<td>jwpark</td>
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<td>3</td>
<td>0</td>
<td>6/1 11:33 0+10:11:02 MCAnaStage_0001321</td>
</tr>
<tr>
<td>rodriges</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>6/3 16:05 0+15:26:06 GiBUU_20130603_160</td>
</tr>
</tbody>
</table>
  
  TOTALS  | 18  | 5    | 0    |
  ```
Jobsub Tools

- Configuration Requirements, New Experiment “Z”
  - Fermigrid Sci Srvr Supp.  REX/SCD Net. Storage
  - A “Z” group defined in VOMS database
  - “Z” unix group added to submit node
  - Service Desk workflow for adding new users to “Z” group
  - /Z/data and /Z/app areas allocated on bluearc
  - Entry point added to glideinWMS configuration on submit node
  - VOMS proxy and setup scripts modified to be aware of “Z” group
  - Create a “Z” gridftp server for data transfer
**User Requests**

- **Stability**
  - Don’t change the interface too quickly and break our scripts!
  - Components are constantly being upgraded, make it transparent

- **Reliability**
  - Need to get job log files off NFS
  - Unfortunately this changes way users look at job log files

- **Feature requests have been tracked in redmine issue tracker**
Future Plans

- We are moving to a new submit machine and different architecture
- Have to remove Bluearc dependency for reliability
- True client/server architecture using kx509 authentication for improved security
- Requirements (latest iteration)
- Evaluating competing proposals for
  - Quota allocation
  - Proxy generation
  - Retrieving user log files
Jobsub Tools

- **Project Wiki**

- **User Documentation**
  - Jobsub -h

- **Roadmap/Issue Tracking**