System Tests

What are we using the systems tests for?
Users: Tool to help you find the right release tag.
       Place to document releases.

or

Developers: Find bugs/test

I have been focussing mostly on developing systests as a tool for users. So tests are mostly run just on release tags and I assume that changes have been independently tested by the subsystems.
Select the release you are interested in.

### GLAST System Tests

#### Version: v6r6p1

<table>
<thead>
<tr>
<th>Test</th>
<th>Date</th>
<th>CPU (secs)</th>
<th>Memory (MB)</th>
<th>Plots (All/Fail)</th>
<th>Links</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC</td>
<td>Apr 8, 2005</td>
<td>0</td>
<td>NA</td>
<td>0 / 0</td>
<td>log meta-data files</td>
</tr>
<tr>
<td>AC</td>
<td>Apr 8, 2005</td>
<td>0</td>
<td>NA</td>
<td>0 / 0</td>
<td>log meta-data files</td>
</tr>
<tr>
<td>All</td>
<td>Apr 9, 2005</td>
<td>20532</td>
<td>256</td>
<td>114 / 0</td>
<td>log meta-data files</td>
</tr>
<tr>
<td>Bai v6r5</td>
<td>Apr 9, 2005</td>
<td>27648</td>
<td>266</td>
<td>101 / 0</td>
<td>log meta-data files</td>
</tr>
<tr>
<td>CA</td>
<td>Apr 8, 2005</td>
<td>5</td>
<td>25</td>
<td>0 / 0</td>
<td>log meta-data files</td>
</tr>
<tr>
<td>Vei v5p0</td>
<td>Apr 9, 2005</td>
<td>22028</td>
<td>298</td>
<td>114 / 0</td>
<td>log meta-data files</td>
</tr>
<tr>
<td>VerticalGamma10GeV</td>
<td>Apr 8, 2005</td>
<td>13203</td>
<td>208</td>
<td>114 / 0</td>
<td>log meta-data files</td>
</tr>
<tr>
<td>VerticalGamma15GeV</td>
<td>Apr 9, 2005</td>
<td>17716</td>
<td>268</td>
<td>114 / 0</td>
<td>log meta-data files</td>
</tr>
<tr>
<td>VerticalMuon15GeV</td>
<td>Apr 9, 2005</td>
<td>18487</td>
<td>299</td>
<td>101 / 0</td>
<td>log meta-data files</td>
</tr>
<tr>
<td>VerticalProton15GeV</td>
<td>Apr 9, 2005</td>
<td>17387</td>
<td>312</td>
<td>101 / 0</td>
<td>log meta-data files</td>
</tr>
</tbody>
</table>

System Tests, Apr 25 2005
The tick or x currently indicate whether all steps of the systests ran, it does not denote whether the test “passed” or “failed”. A ? in this column means that the systest is currently running.

The number of histos which differ significantly from the standard. (in this case how many plots from v6r6 differ from v6r5)

We could change the meaning of the left hand column so that it does indicate whether the systests have passed or failed. Passed could be defined as all either histos are consistent with the standard or the changes are understood to be benign.
To find out more about a particular release you can click on the commentary link.
Commentary example

GlastRelease v6r2p1

Last changed on Feb 26, 2005 by Troy Burnett

This is the system test report for v6r2p1.

BackGndAvg

There is something seriously wrong. The initial distributions (detection energy) of the particles looks very wrong. There are no interactions in the detector or triggerers. This is the only composite source in the system tests and is also the only test that uses a precompiled source class (CHIME).

Investigations on BackGndAvg source (RXD)

I created a jobOptions file that just runs FluxAvg. I find that the energy consistently comes back as zero from Spectrum:energy(). This started in GR v6r2, worked fine in v6r1p2. I tried this both on linux and windows, the former writing out the MC root file and verifying zero energies, the later in the debugger.

Following along in the debugger, it appears that the GetR() function is not passing along its return value properly.

Call stack is:
- FluxSource:computeSource, line 667
- FluxSource:source, line 655
- CompositeSource:source, line 36
  etc

m_energy is always zero.

I tried the default TripleRand, and HeijJamesRandom generators, via GlastRandomSrc.RandomEngine. In both cases, the generated value was non zero up to the return from the function, but was zero outside. I'm at a loss as to where the value went. I looked around on the floor beside my laptop, but nada.

Further investigations on BackGndAvg source (JME)

I recomputed FluxSrc with GlastRelease v6r2p1, but using the previous version (v8r13) of flux. The problem went away. It seems likely that some of the recent clean up of the flux package may have cleaned a little too much...

Fix to flux (THB)

The transition from flux v8r13 to v8r14 broke CHIME:spectrum, so that it was returning NaN for energy. This is now fixed in v8r14p1. I hope that, although the connection to the strange behavior above is not clear, this will fix it.

0 comments
Another example
Yet another example

GlastRelease v6r6

Last changed on Apr 12, 2005 by Richard Dubos

This is the report for GlastRelease v6r6

Calorimeter Calibration/Digi

The default mode is now ideal flight mode. Thus this release is appropriate for flight like runs (algamma, background etc)

Danger, danger! The multibump energy peak has returned, or at least a close relative of it.

http://www-glast.stanford.edu/protected/mail/calsof/0566.html

e! seq.

Comments

System Tests, Apr 25 2005
Four bump bug back...

10 GeV Vertical Gamma

This was visible in the system tests, but was independently discovered by Bill. Are developers looking at the systests?

This bug is still present in v6r6p1. It seems a little dangerous to go several weeks where the most recent tagged release of GlastRelease has a known bug.

System Tests, Apr 25 2005
Systests can be run on any head build (so you do not need to wait for a release to see systest plots). Only one head build available at a time (or the drop down list would become unusable).

We are not running systests on the new “weekly” builds (to avoid cluttering the menu). For now, we will hold off on automating the running of the systests until we come up with a method for handling these releases.
A final word

The reports/commentary is not as detailed as it should be.

Encourage anyone who spots something odd with a release to document it there. Then the explanation will be available to all.

Or suggestions on better ways to describe problems/features of a particular release would be welcome.