

# 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 independenly tested by the subsystems.

# Systemtest Webpage

Select the release  
you are interested  
in.

Version: v6r3p1 Ref: Default Update [Histograms Definitions](#) [Release 0.7.4 Log in](#)

**Summary** **GlastRelease version v6r6p1**

This release is v6r6. [Commentary](#) [RM Summary](#)

Test	Date	CPU (secs)	Memory (MB)	Plots (All/Fail)	Links
AC v6r1p2test	Apr 8, 2005	0	NA	0 / 0	
AC v6r1p2	Apr 8, 2005	0	NA	0 / 0	
All v6r1	Apr 9, 2005	20532	256	114 / 0	<a href="#">log meta-data files</a>
Bac v6r0	Apr 9, 2005	27648	266	101 / 0	<a href="#">log meta-data files</a>
CA v5r0p2	Apr 8, 2005	5	25	0 / 0	
Ver v5r0p1	Apr 9, 2005	22028	298	114 / 0	<a href="#">log meta-data files</a>
VerticalGamma10GeV	Apr 8, 2005	13203	208	114 / 0	<a href="#">log meta-data files</a>
VerticalGamma1GeV	Apr 9, 2005	17716	268	114 / 0	<a href="#">log meta-data files</a>
VerticalMuon1GeV	Apr 9, 2005	18487	299	101 / 0	<a href="#">log meta-data files</a>
VerticalProton1GeV	Apr 9, 2005	17387	312	101 / 0	<a href="#">log meta-data files</a>

# Systest Webpage

GLAST System Tests

Version: v6r6 Ref: Default Update [Histograms Definitions](#) [Release 0.7.4 Log](#)

**Summary for GlastRelease version v6r6**

Default reference for this release is v6r5 . [Commentary RM Summary](#)

Test Name	Date	CPU (secs)	Memory (MB)	Plots (All/Fail)	Links
ACDDigi	Apr 8, 2005	0	NA	0 / 0	
ACDDTop	Apr 8, 2005	0	NA	0 / 0	
AllGamma	Apr 8, 2005	20505	245	114 / 13	<a href="#">log meta-data files</a>
BackGndAvg	Apr 8, 2005	27494	263	101 / 13	<a href="#">log meta-data files</a>
CALSingleCrystal	Apr 8, 2005	6	36	0 / 0	
VerticalGamma100MeV	Apr 8, 2005	21937	295	114 / 0	<a href="#">log meta-data files</a>
VerticalGamma10GeV	Apr 8, 2005	13014	206	114 / 19	<a href="#">log meta-data files</a>
VerticalGamma1GeV	Apr 8, 2005	17728	268	114 / 0	<a href="#">log meta-data files</a>
VerticalMuon1GeV	Apr 8, 2005	18253	300	101 / 0	<a href="#">log meta-data files</a>
VerticalProton1GeV	Apr 8, 2005	17119	284	101 / 0	<a href="#">log meta-data files</a>

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.

# Commentary

To find out more about a particular release you can click on the commentary link.

The screenshot shows a Mozilla browser window titled "GLAST System Tests: Summary - Mozilla". The address bar contains the URL "http://glast-ground.slac.stanford.edu/SystemTests/summary.jsp;jsessionid=". The page header features the GLAST logo and navigation tabs for "GlastRelease" and "EngModel". Below the header, there are tabs for "Summary", "Meta-Data", "Plots", "Statistics", and "HistoryPlots". The "Summary" tab is active, showing "Version: v6r6" and "Ref: Default". A link for "Release 0.7.4 Log" is visible. The main content area is titled "Summary for GlastRelease version v6r6" and includes a link for "Commentary RM Summary". A table of test results is displayed below.

	Test Name	Date	CPU (secs)	Memory (MB)	Plots (All/Fail)	Links
✘	ACDDigi	Apr 8, 2005	0	NA	0 / 0	
✘	ACDTop	Apr 8, 2005	0	NA	0 / 0	
✔	AllGamma	Apr 8, 2005	20505	245	114 / 13	<a href="#">log meta-data files</a>
✔	BackGndAvg	Apr 8, 2005	27494	263	101 / 13	<a href="#">log meta-data files</a>
✘	CALSingleCrystal	Apr 8, 2005	6	36	0 / 0	
✔	VerticalGamma100MeV	Apr 8, 2005	21937	295	114 / 0	<a href="#">log meta-data files</a>
✔	VerticalGamma10GeV	Apr 8, 2005	13014	206	114 / 19	<a href="#">log meta-data files</a>
✔	VerticalGamma1GeV	Apr 8, 2005	17728	268	114 / 0	<a href="#">log meta-data files</a>
✔	VerticalMuon1GeV	Apr 8, 2005	18253	300	101 / 0	<a href="#">log meta-data files</a>
✔	VerticalProton1GeV	Apr 8, 2005	17119	284	101 / 0	<a href="#">log meta-data files</a>

# Commentary example

**GlastRelease v6r2p1**  
Last changed on Feb 26, 2005 by [Toby Burnett](#)

This is the system test report for v6r2p1.

### BackGndAvg

There is something seriously wrong. The initial distributions (direction, energy etc) of the particles looks very wrong. There are no interactions in the detector and no triggers. 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 FluxAlg. 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 latter in the debugger.

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

Call stack is:

- FluxSource::computeLaunch, line 667
- FluxSource::event, line 635
- CompositeSource::event, line 56
- etc

m\_energy is always zero.

I tried the default TripleRand, and HepJamesRandom generators, via GlastRandomSvc.RandomEngine. In both cases, the generated value was non-zero up to the return from the function, but was zero outside it. 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 recompiled FluxSvc 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 CHIMESpectrum, 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

Powered by [Atlassian Confluence](#) (Version: 1.3.3 Build:#116 Feb 08, 2005) - [Bug/feature request](#) - [Contact Administrators](#)

# Another example

The screenshot shows a Mozilla browser window with the address bar displaying `http://confluence.slac.stanford.edu/display/SYSTESTREP/GlastRelease+v6r1p2`. The page title is "GlastRelease v6r1p2 - Confluence - Mozilla". The browser's menu bar includes File, Edit, View, Go, Bookmarks, Tools, Window, and Help. The toolbar contains Back, Forward, Reload, Stop, Search, and Print buttons. Below the toolbar is a navigation bar with links for Home, Bookmarks, Red Hat Network, Support, Shop, Products, and Training. The main content area displays the "System Tests Reports" header and a breadcrumb trail: Location: [Dashboard](#) > [SYSTESTREP](#) > [Pages](#) > [GlastRelease v6r1p2](#). A "Quick Search" field is visible on the right. The page content includes a "GlastRelease v6r1p2" section, last changed on Feb 19, 2005 by Julie McEnergy. The main text states: "This is the commentary for v6r1p2. The following refers to changes between v6r1p2 and v6r0." The content is organized into several sections with shaded headers: "CPU time increase", "Number of Tracks and Vertices", "Track Energy distribution", and "Geant4 warning messages (also present in v6r0)". The "Geant4 warning messages" section contains a detailed log of warnings and errors, including messages about track stucks and potential geometry or navigation problems. A right-hand sidebar titled "Page Operations" contains links for Page Information, Page History, Space Homepage, and Space Summary. Below it, "Incoming Links" includes a link to "GlastRelease Reports". The browser's status bar at the bottom shows "Done" and a progress indicator.

**GlastRelease v6r1p2**  
Last changed on Feb 19, 2005 by [Julie McEnergy](#)

This is the commentary for v6r1p2.  
The following refers to changes between v6r1p2 and v6r0.

**CPU time increase**  
The cpu time has increased by a factor of ~2-3 since v6r0. This seems to be energy dependent, the 100 MeV gamma's and AllG gamma are more strongly affected than the 10 GeV gammas.

**Number of Tracks and Vertices**  
The number of fit tracks/event and vertices/event has increased. The vertex z position distribution for the gamma-ray tests indicates a lot more fit vertices in the thick section. The number of events with at least one fit track has remained constant (so we are tending to add more tracks to events that already had one).

**Track Energy distribution**  
The Kalman energy distribution has changed (TKRTRKENERGY). The distribution for 1 GeV muons now peaks at 690 MeV, it used to peak at 1.1 GeV.

**Geant4 warning messages (also present in v6r0)**  
We get a lot (thousands) of the following error message in the 10 GeV gamma test.

```
WARNING - G4Navigator::ComputeStep()
Track stuck, not moving for 10 steps
in volume cellHWall at point (-198.3515973,-242.93,-47.49482927)
direction: (0.05840947296,-3.059690999e-12,-0.9982927093).
Potential geometry or navigation problem !
Trying pushing it of 9e-10 mm ...
ERROR - G4Navigator::ComputeStep()
Track stuck, not moving for 25 steps
in volume cellHWall at point (-198.3428359,-242.93,-47.64457318)
direction: (0.05840947296,-3.059690999e-12,-0.9982927093).
G4Exception : StuckTrack
issued by : G4Navigator::ComputeStep()
Stuck Track: potential geometry or navigation problem.
ERROR - G4Navigator::ComputeStep()
```

# Yet another example

The screenshot shows a Mozilla browser window with the following elements:

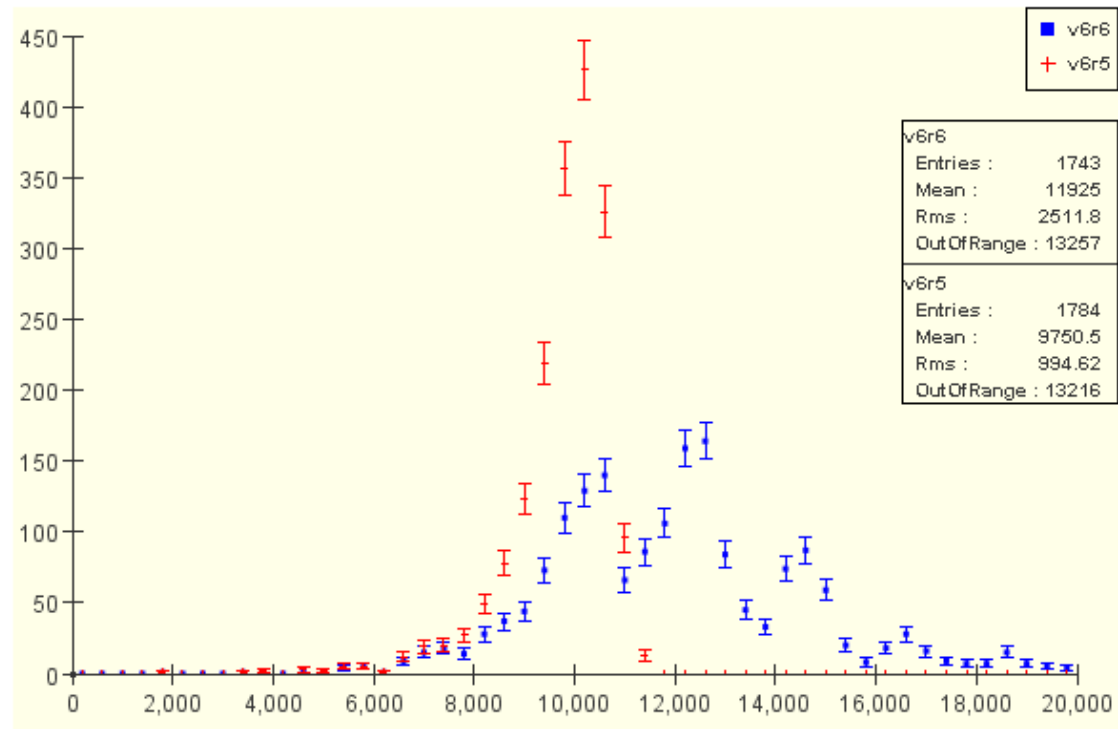
- Browser Title Bar:** "GlastRelease v6r6 - Confluence - Mozilla"
- Menu Bar:** File, Edit, View, Go, Bookmarks, Tools, Window, Help
- Navigation Bar:** Back, Forward, Reload, Stop buttons. Address bar: <http://confluence.slac.stanford.edu/display/SYSTESTREP/GlastRelease+v6r6>. Search, Print, and a logo icon.
- Bookmark Bar:** Home, Bookmarks, Red Hat Network, Support, Shop, Products, Training
- Page Header:** "System Tests Reports" with a logo. Navigation links: HOME, SPACES. "Log In" button with printer and help icons.
- Breadcrumb:** Location: [Dashboard](#) > [SYSTESTREP](#) > [Pages](#) > [GlastRelease v6r6](#). "Quick Search:" field with "Go" button.
- Main Content:**
  - ## GlastRelease v6r6
  - Last changed on Apr 12, 2005 by [Richard Dubois](#)
  - 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 (allgamma, background etc)
  - Danger, danger! The multi-bump energy peak has returned, or at least a close relative of it.
  - <http://www-qlast.stanford.edu/protected/mail/calsoft0566.html>
  - et seq.
  - [Comments](#)
- Right Sidebar:**
  - Page Operations:**
    - [Page Information](#)
    - [Page History](#)
    - [Space Homepage](#)
    - [Space Summary](#)
  - Incoming Links: (more)**
    - [GlastRelease Reports](#)
  - External References:**
    - [www-qlast.stanford.edu/protected/...](http://www-qlast.stanford.edu/protected/...)
- Footer:** Powered by [Atlassian Confluence](#) (Version: 1.3.3 Build:#116 Feb 08, 2005) - [Bug/feature request](#) - [Contact Administrators](#)
- Taskbar:** Windows taskbar with "Done" label and various system icons.

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?



Last Layer corrected energy

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



# Head builds

System tests 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 system tests on the new “weekly” builds (to avoid cluttering the menu). For now, we will hold off on automating the running of the system tests until we come up with a method for handling these releases.

Version: v6r3p1 Ref: Default Update

**Summary** **GlastRelease version v6r6p1**

This release is v6r6. [Commentary](#) [RM Summary](#)

Test	Date	CPU (secs)	Memory (MB)	Plots (All/Fail)	Links
AC v6r1p2test	Apr 8, 2005	0	NA	0 / 0	
AC v6r2p1	Apr 8, 2005	0	NA	0 / 0	
AC v6r1p2	Apr 8, 2005	0	NA	0 / 0	
AC v6r1p1	Apr 8, 2005	0	NA	0 / 0	
All v6r1	Apr 9, 2005	20532	256	114 / 0	<a href="#">log meta-data files</a>
All v6r0p1	Apr 9, 2005	27648	266	101 / 0	<a href="#">log meta-data files</a>
All v6r0	Apr 9, 2005	27648	266	101 / 0	<a href="#">log meta-data files</a>
head	Apr 9, 2005	27648	266	101 / 0	<a href="#">log meta-data files</a>
CA v5r0p2	Apr 8, 2005	5	25	0 / 0	
v4r7opt	Apr 8, 2005	5	25	0 / 0	
Ver v5r0p1	Apr 9, 2005	22028	298	114 / 0	<a href="#">log meta-data files</a>
v5r0	Apr 9, 2005	22028	298	114 / 0	<a href="#">log meta-data files</a>
VerticalGamma10GeV	Apr 8, 2005	13203	208	114 / 0	<a href="#">log meta-data files</a>
VerticalGamma1GeV	Apr 9, 2005	17716	268	114 / 0	<a href="#">log meta-data files</a>
VerticalMuon1GeV	Apr 9, 2005	18487	299	101 / 0	<a href="#">log meta-data files</a>
VerticalProton1GeV	Apr 9, 2005	17387	312	101 / 0	<a href="#">log meta-data files</a>

# 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.