

Updates from Edinburgh Computing & LHCb Nightly testing



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Computing Support

For help with any general computing issues:

- Computing Support Helpdesk Room 4210
- Email: sopa-helpdesk@ed.ac.uk
- Web:
<https://www.wiki.ed.ac.uk/display/PandAIntranet/Computing+Services>



For PPE-specific computing issues and help with procurement:

- Room 5412
- Email: ppe-computing@ed.ac.uk

(This goes to both Andy and me)

Desktop PCs

A quick review of the local machines which are supported:

- All Scientific Linux 7 based (pretty much)
- Compatibility packages for SL6-based workloads will be rolled out on desktop PCs in the next week or two
- Any remaining legacy applications will be hosted on Eddie Openstack service:

Base SL6 OS with CVMFS.

Contact us to get an Openstack instance for testing.



Site Compute Resources



Batch compute resources:

- Local school batch system is underutilised for small scale workloads. ≈ 140 cores available
- Plans to pool school resources. ($\approx 700 - 800$ cores)
- Shared university cluster (Eddie3) is free at point of use for larger scale workload.

Can use paid-for resources if time critical.

Site Storage Resources

Local storage:

- 20TB PPE Datastore still available.
Some issues with initial connection and permission changes
School computing simplifying share policy
- Can be expanded on demand (at a cost)
- For anything more than 2TB consider using our Grid storage space (1+ PB)
Just a few extra steps to access and write data via command line (`xrdfs`, `gfalfts`)
- Can be accessed from local batch system and Eddie



Other Local Computing

JCMB Public Displays:

- 4th floor displays now active
- Opportunity to showcase PPE material on public displays
- Please send us any material (or any suggestions) to show on displays

Testbed Servers:

- Have 4-5 servers for hosting unsupported bespoke applications. Eg:
 - Deep learning (GPU) applications
 - Jupyter notebook hosting
 - Continuous integration testing (Jenkins, Gitlab)
- Recently migrated servers to college server room
- Please send suggestions and use cases for expanding testbed

Notable interventions

- ROE / EdLAN extension (2-3 days in June)
- PH Network redesign (expedited to accommodate above)
- VoIP handset rollout (June)



Computing tools to be aware of

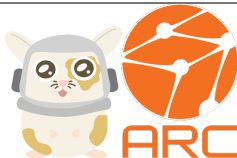
As Matt mentioned AFS support is coming to an end at CERN.
(*Personally I couldn't be happier* 🎉)

I recommend exploring/using the following technologies:

- [▶ CERNBox](#) it's like dropbox but at CERN.
- [▶ EOS](#) It's like castor but better (great for large files).
- [▶ CERN-VM](#) It gets you lxplus on your laptop.
- `xrootd://` you can access everything, everywhere.

What I'm working on

50% GridPP



50% LHCb



JavaScript



django
REST
framework



GridPP Work

Work currently ongoing at Edinburgh GridPP Tier2 site:

- Making use of new openstack resources for computing.
- Moving computing and storage services to Virtual Machines.
- Work to support the storage services at Edinburgh (1Pb+!).

Actioning tickets against the site.

Providing storage testbed for developers.

Accessing national resources for site storage.

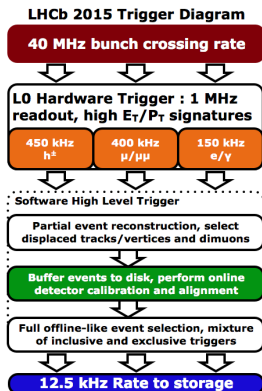
Supporting GridPP storage activities.

LHCb Trigger Upgrade (a primer)

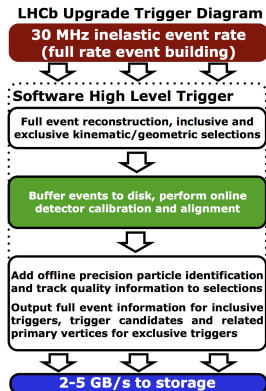
In Run3(2021) LHCb is moving to a trigger-less^(TM) data taking model.

All data will be reconstructed using the Higher Level Trigger (HLT) farm used in Run2.

Now:



Run3:



LHCb Upgrade (cont)

LHCb trigger has already moved toward a similar trigger model during Run 2.

This has several advantages:

- Data from experiment is automatically good enough for publication.
- No time consuming data (re)processings are needed.
- LHCb grid activity freed up for MC related tasks.
- Improved reconstruction efficiencies.
- More physics is possible.

With 1 minor disadvantage:

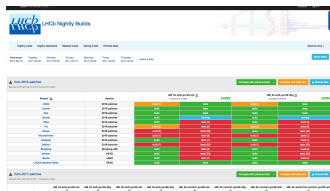
- HLT data reconstruction is intended to be final.
(Changes here directly effect Physics!)

Nightly Testing

In order to ensure the best physics results going forward into Run2+ LHCb has placed additional emphasis on nightly testing of the LHCb software stack.

LHCb has an automated build service with all major pieces of the software stack built and tested each night.

There is recently a new page which was presented in the LHCb computing week (last week).



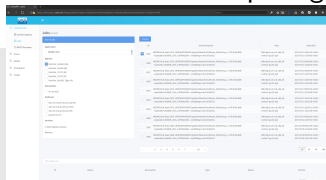
<https://lhcb-nightlies.cern.ch/>

Test Summaries

To better summarise and use the results from nightly summaries LHCb is making use of a new framework LHCbPR2 to present interesting results.

This framework makes heavy use of a microservice architecture meaning that everything is designed for reliability and the ability to plug and play.

See the [LHCbPR2](#) talk from the last LHCb computing week



Test Summaries

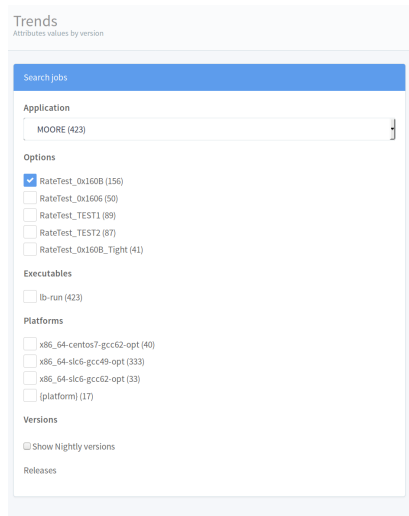
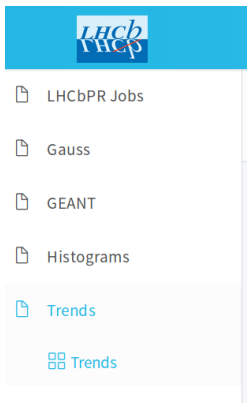
The intention of the test summary interface is to allow for an online framework for viewing and manipulating data from nightly and larger tests within the LHCb test framework.

The final goal of this work is to build a new framework which will show the results from each step of the full reconstruction process of the LHCb stack.

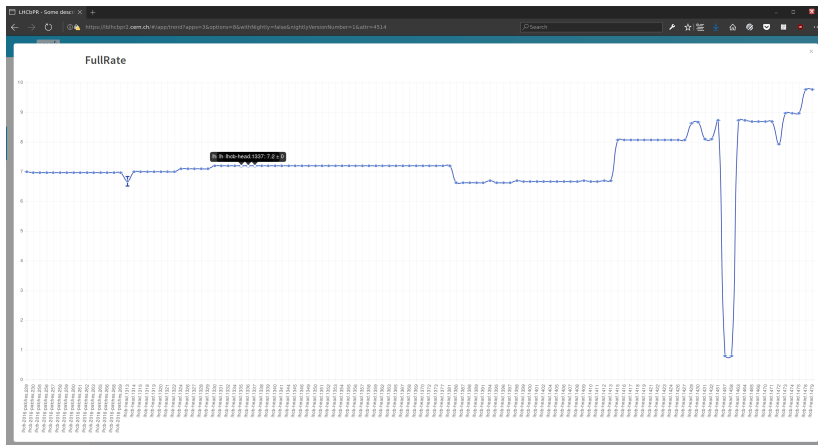
The intention is to fully reconstruct a large sample of simulated events using the full HLT software stack on LHCb on a regular basis.

This will allow tracking of the effect of reconstruction changes on important well known physics quantities.

Plotting Results (example)



A data plot



Thanks for listening

Bonus Slide



Because sometimes, you need a rainbow butterfly unicorn kitten.