

Report on the Recent WestGrid Related Projects

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TWIST Collaboration meeting

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Motivation

- Increase ease of WG job submission
- Reduce the frequency and the amount of operator monitoring time of the WG jobs
- Reduce node dependencies on each other
- Maximize node usage per WG job
- Add visual tools for tracking available WG resources and for monitoring the progress of job executions

WG processing info

- Available processing resources at UBC
 - 504 compute nodes each with dual 3.06 GHz Intel xeon processors
- MC Jobs
 - 100K events/run(file)
 - Generation (Geant3): ~2 hrs
 - Analysis (Mofia): ~1 hr
- Data Jobs
 - ~800K events/2GB run(file)
 - Analysis (Mofia): ~8 hrs

Possible Solutions

- For MC jobs
 - ✓ Combine **generation** and **analysis** of a given job
 - ✓ Chain multiple **generation** and **analysis** jobs together
 - × Increase MP spectrum sample size
 - ✓ Add the capability of using more than one sample per geant run during the **generation**
- For Data jobs
 - ✓ Chain multiple **analysis** jobs together

Possible Solutions

- Visual tools
 - ✓ Use Const's examples on TWIST Cluster disk space monitoring web pages.
 - ✓ Combine updated files provided by Roman from WG side with cron jobs and databases to make similar monitoring pages on our side.

Completed Projects

- New Scripts and modifications/updates of existing ones
 - tbsub.pl
 - tbsub_checkMC_and_resubmit.pl
 - tbdel.pl
- Implementation of web-based databases
 - Job status
 - Disk space usage
- Web-based database for job-specific parameters
- Documentation for completed projects

New Scripts: `tbsub.pl`

- Purpose

- Maximizes efficiency of resource usage
- Uniformity in running scripts and saving parameter settings for jobs
- Adds simplicity to job resubmission
- Increases automation

- Capabilities

- Submission of GEANT & MOFIA together
- Submission of GEANT only or MOFIA only
- Chaining multiple GEANT and/or MOFIA jobs

New Scripts: `tbsub.pl`

- Improvements

- Addition of run number to PBS job names to provide the capability for job resubmission while jobs in the queue
- Automatic checking of GEANT output of MC prior to MOFIA execution
- Automatic checking of MOFIA trees upon completion of MOFIA execution
- Bug fixes in the original `tbsub_geant.pl` script.
 - eg: failure of jobs at submission time due to a race condition related to the job directory tree creation

New Scripts: `tbsub_checkMC_and_resubmit.pl`

- Purpose
 - GEANT resubmission of failed MC jobs
- Capabilities
 - Resubmission while GEANT jobs are still running or queued
 - Resubmission of aborted GEANT jobs because of PBS specific reasons, network problems or node failures

New Scripts: `tbdel.pl`

- Purpose

- Deletion of all submitted PBS jobs of a given gen or set using `qdel`
- Quick recovery from user mistakes at the time of job submissions.

Web-based databases: WG Disk Space Usage

- Purpose

- Reporting e614 usage on local nodes '/data' filesystem
 - Using df
- Displaying disk usage on '/global/scratch' and '/global/home' filesystems
 - Using Westgrid-provided cron job outputs (du)

- Features

- Sorting by node name or percentage of free space
- Filtering by nodes down
- Filtering by nodes < 30% free space
- Updated daily

http://e614db.triumf.ca/private/sysman/wg_disk_db/websummary.pl

[Show All Disks](#)

[Show Disks Down](#)

[Show Disks with Low Freespace
\(<30%\)](#)

Last updated Sat Dec 11 05:30:04 PST 2004

Westgrid Global Disks

Disk	Status	Free (Gb)	Total (Gb)	Free/Total (%)	e614 Usage (Gb)	e614 Usage/Total (%)
/global/scratch	UP	3774.56	8718.84	43.3	3318.52	38.1
/global/home	UP	1155.68	3269.57	35.3	24.14	0.7

Westgrid Local Disks

Disk	Status	Free (Gb)	Total (Gb)	(Sort by) Free/Total (%)
icel_1	UP	18.65	19.69	94.8
icel_2	UP	18.65	19.69	94.8
icel_3	UP	11.75	19.69	59.7
icel_4	UP	11.99	19.69	60.9
icel_5	UP	14.33	19.69	72.8
icel_6	UP	11.59	19.69	58.9
icel_7	UP	11.41	19.69	57.9
icel_8	UP	16.11	19.69	81.8
icel_9	UP	12.84	19.69	65.2
icel_10	UP	13.32	19.69	67.7
icel_11	UP	11.06	19.69	56.2
icel_12	UP	15.96	19.69	81.1

Web-based databases: WG Job Status reporting

- Purpose

- Reporting all PBS jobs in the queue on Westgrid

- Features

- Job summary categorized by user name
- Detailed information of user jobs by clicking on user name
- Updated every 30 minutes

Last updated Sat Dec 11 08:24:25 PST 2004

Westgrid - Jobs Running Summary

User	Number of Jobs Queued	Number of Jobs Running	Number of Nodes Used
babarwg	534	16	16
barannyk	-	1	1
chzxu	8	43	86
claudiac	-	12	12
daub	-	5	5
draffa	-	1	1
fransp	-	1	7
galea	4	-	-
ikotsire	899	125	125
jlnaccal	-	11	11
kwongs	-	2	2
laflo	-	101	101
leg01	-	-	1
liu	1	15	15
lnonti	2	10	64
lotharb	-	1	7
mcewenj	-	3	3
mgauthie	-	4	4
mitchell	-	1	1
mjszabo	-	6	12
nalantha	-	108	108
oloo	-	6	24

Web-based database: Job specific parameters

- Purpose

- Book-keeping of parameters used for a given MC generation/analysis and Data analysis
- Updates are kept on the corresponding 2004 Analysis web pages:

http://e614db.triumf.ca/private/TWIST_2004_Analysis/DATA_Analysis.html

http://e614db.triumf.ca/private/TWIST_2004_Analysis/MC_Analysis.html

http://e614db.triumf.ca/private/TWIST_2004_Analysis/TWIST_04_Analysis.html


TWIST 2004 Analysis Page

[Data Analysis](#) [MC Analysis](#) [Analysis Plans](#) [West Grid White Board](#)

Last update on 2004/11/12

Data Sets and Analysis Status

Last update: 09 Dec 04

 [Back to the TWIST 2004 Analysis Page.](#)

Data Sets: # Runs Run Ranges	Description	Raw Data Archived	Analysis # And Description	Runs Analyzed	Trees Archived	# of good links	# of bad links	T ³	EC
Set 12: 189 15831-15939 15942-16021	2003 tune 28.9 MeV/c	X	anal4						
Set 13: 67 16070-16112 16114-16137	2003 tune 28.9 MeV/c map changed	X	anal4						
Set 14: 174 15452-15625	2003 tune	X	anal3						
Set 15: 200 16253-16395 16397-16421 16433-16440 16444-16459 16464-16470	2003 tune	X	anal3						
Set 30: 60 18225-18285	centered M1 trigger B2 949 G	X	anal1						
Set 31: 265 18286-18551	centered M trigger B2 949 G	X	anal1						

http://e614db.triumf.ca/private/TWIST_2004_Analysis/MC_Analysis.html

Monte Carlo Production and Analysis Status

Last update: 09 Dec 04



[Back to the TWIST 2004 Analysis Page.](#)

MC gens: # Runs and Run Ranges Generation parameters	Description	Raw MC Archived	Analysis # and Description	Mofia Version	Trees Archived	# of good links	# of bad links	T ³	EC
gen2: N (M1:M2)			Ana11						
genyyy: N (M1:M2)			Ana11						
genzzz: N (M1:M2)			Ana11						

[+Note:](#)

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Documentation

- Update of the existing WestGrid notes under:

<http://tw04.triumf.ca/private/sysman/Westgrid.html>

- Addition of notes on:
 - Description on the usage of scripts, **tbsub.pl**, **tbsub_checkMC_and_resubmit.pl**, and **tbdel.pl**
 - Description of the 'inner-workings' of the disk usage and job status databases