OSG for CLAS12: Status

OSG Production Image Contents OSG Production Image Resources Docker Image v4.4.1 CLAS12 images tags and usage OSG Submission Software and Priorities CLAS12 OSG Usage, and failures OSG CLAS12 Farm Resources

OSG Production Image Contents

CLAS12 Tag: 4.4.0

Docker Container tagged: 4.4.0 (production).

OS: CentoOS8

- version: 1.07.00 > CCDB version: 2.4.1.3 > CLHEP > GEANT4 version: 4.10.06.p02 using system installation > QT > XERCESC version: 3.2.3 > EVIOversion: 5.1 version: 1.4 > MLIBRARY > SCONS version: 1.9
- > CLAS12 Tag: 4.4.0

> CLAS12 MCGEN Generators

Available Configurations:

- rga_spring2018: RGA spring 2018
- rga_fall2018: RGA fall 2018
- rgk_fall2018_FTOn: RGA fall 2018, with FT On
- rgk_fall2018_FTOff: RGK fall 2018, with FT Off
- rgb_spring2019: RGB spring 2019
- rga_spring2019: RGA spring 2019

OSG Production Image Resources

CVMFS Tagged Software and data:

- > Coatjava:
 - 6.5.9 (rgb)
 - 6.5.6.1 (rga and rgk)
- > CCDB sqlite tagged file 4.4.0
- > Magnetic Fields Maps
- > Environment modules (automatic)

modules in /cvmfs/oasis.opensciencegrid.org/jlab/hallb

module load coatjava/6.5.9
module load jdk/1.8.0_31

XROOTD: Background Merging Files

Uses xroot://sci-xrootd.jlab.org//osgpool/hallb/

- Files are organized under: clas12/backgroundfiles/
- Accessible interactively

bgMerginFilename.sh rga_fall2018 tor-1.00_sol-1.00 45nA_10604MeV

will pick a random background file (among 100) to load onto the node and use to be merged

The plan is to use CVMFS also for C++ software, ideally supported by Computer Center.

Maurizio Ungaro, CLAS Collaboration Meeting. November 10, 2020

Docker Image v 4.4.1

https://hub.docker.com/repository/docker/jeffersonlab/clas12software/ Also linked from OSG Portal "about"

CLAS12 Tags 4.4.1: Z Tracking limit change in gcard configuration files

- limit changed to 9m from 8m. This fixed an issue in the configurations where a corner of ECAL was effectively cut off from the simulation.
- While preliminary studies found the fix resulted in not significant changes, this may affect electrons at large momentum, small angles (low W and Q²).

CLAS12 Events Generators

- new generator: twopeg
- new requirement for generators: seed option --seed
 <integer>. High precision random number.
- generators must
 - or use it sets a to set the random seed
 - ignore option (must then provide its own high precision seed)

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net

name		summary description	maintainer	email
clasdis	clas SI LUND	DIS MC based on PEPSI MC	Harut Avakian	avakian@jlab.org
claspyth	SIDIS f	ull event generator based on A	Harut Avakian	avakian@jlab.org
dvcsgen	DVCS/ GPD a	pi0/eta generator based on nd PDF parameterizations	Harut Avakian	avakian@jlab.org
genKYandOnePion	KY, pi0	IP and pi+N	Valerii Klimenko	valerii@jlab.org
inclusive-dis-rad	genera option PDFs	ates inclusive electron and ally radiative photon using	Harut Avakian	avakian@jlab.org
tcsgen	Timelik	e Compton Scattering	Rafayel Paremuzyan	rafopar@jlab.org
jpsigen	J/Psi		Rafayel Paremuzyan	rafopar@jlab.org
twopeg	pi+pi-	electroproduction off protons	Iuliia Skorodumina	skorodum@jlab.org
name		executable name	output ok	seed support
clasdis				•
claspyth				•
dvcsgen				•
genKYandOne	Pion			•
inclusive-dis-rad				•
JPsiGen				•
TCSGen				•
twopeg				

Maurizio Ungaro, CLAS Collaboration Meeting. Novem

November 10, 2020

CLAS12 images tags and usage

https://hub.docker.com/repository/docker/jeffersonlab/clas12software/ https://clasweb.jlab.org/clas12/clas12SoftwarePage/html/index.html *Also linked from OSG Portal "about"*

4.4.1: "z limit" removal –seed option	4.4.1		4 days ago
4.4.0 is the current production	production		a month ago
	4.4.0		a month ago
	4.3.2		2 months ago
	devel	\diamond	2 months ago

Production and devel docker images are automatically made into singularity images by OSG:

/cvmfs/singularity.opensciencegrid.org/jeffersonlab/clas12software:production
docker run -it --rm -v /cvmfs:/cvmfs jeffersonlab/clas12software:production bash

See CLAS12 Docker Distribution for details on how to use the docker/singularity instruction and resources

New: docker images now require **CVMFS**.

See CLAS12 Software Center for details on how to install CVMFS.

OSG Submission Software

Top of portal:

Jobs Summary

https://gemc.jlab.org/web_interface/

Summary of current jobs

user	submission	total	done	run	idle
tyson	2	1002	20	980	2
mdefurne	1	10000	9715	285	0
jnewton	1	100	93	7	0
carman	4	20000	6848	7032	6120
sdiehl	2	240	230	10	0
total	10	31342	16906	8314	6122

Details of current OSG Jobs

user	job id	submitted	total	done	run	idle	hold	osg id
tyson	1951	11/04 09:18	501	2	497	2	0	2778241
tyson	1952	11/04 09:44	501	18	483	0	0	2778242
mdefurne	1943	11/03 08:55	10000	9715	285	0	0	2778126
jnewton	1944	11/03 14:23	100	93	7	0	0	2778131
carman	1945	11/03 14:32	5000	4315	685	0	0	2778132
carman	1946	11/03 14:32	5000	2133	2862	5	0	2778133
carman	1947	11/03 14:33	5000	398	3485	1117	0	2778134
carman	1948	11/03 14:34	5000	2	0	4998	0	2778135
sdiehl	1949	11/03 15:51	120	119	1	0	0	2778136
sdiehl	1950	11/03 15:52	120	111	9	0	0	2778137

Priority: by default all users have the same priority.

- User with identical priority will have, at regime, the same number of jobs running. This is why Stefan could run his jobs before Dan completed his batch.
- Higher priority multiplier possible (used by Giovanni).
- Analysis groups can submit the Priority Permission Increase Form to increase an account priority. Link is on the portal "about" page.

Total for all users: 14598 jobs; 0 completed, 0 removed, 12378 idle, 1903 running, 317 held, 0 suspended Maurizio Ungaro, CLAS Collaboration Meeting.

Page bottom:

Jobs Details

November 10, 2020

OSG Submission Software

configuration: selects gcard and yaml	→	Configuration	rgb_spring2019			
dropdown menu shows only what has been		Magnetic Fields	tor-1.00_sol-1.00 \$			
run with the configuration chosen above		Generator	clasdis 🗘			
generator command lines options		Generator Options	t 20 25	clasdis options		
		After selecting the generator, check the documentation and paste the needed options above. Notice: do no use the following options as they are automatically passed for you:docker, output file nametrig options.				
		Number of Events / Job	10000			
		Number of Jobs	1000			
dropdown menu shows only what has been		Total Number of Events	10 M			
run with the configuration and magnetic fields chosen above		Background Merging	50nA_10200MeV \$			
			✓ dst			
		Output Options	Warning: any of the choices below will enlarge the overall output size significantly. generator gemc gemc decoded reconstruction			
		L	<u> </u>	1		

CLAS12 OSG Usage





Accounting for last 6 months

- American Museum of Natural History has its own campus submit host
 - They choose to treat their users as part of the OSG-connect community
- Snowmass decadal process in HEP community has its own submit host in Chicago.
- JLab and BNL now have their own submit points to OSG.
 - JLab supports GLUEX, CLAS12, SOLID, JAM, and EIC
 - BNL supports EIC
- NIKHEF is our first submit host outside the USA, to support Virgo/LIGO

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CLAS12 OSG Usage and Failures

https://gemc.jlab.org/web_interface/osgStats.html Also linked from OSG Portal



Maurizio Ungaro, CLAS Collaboration Meeting. November 10, 2020

CLAS12 OSG Usage and Failures

https://gemc.jlab.org/web_interface/osgStats.html

Variety of problems

- collector server caught fire
- jlab server overload
- condor misconfigurations
- A farm has troubles: last month SU troubles affected half of our jobs
- Pilots misconfigurations cause no jobs to dedicated farm.
- Hard to automatically monitor sometimes (no exit code, servers down)
- Python bindings fixed monitoring issues and could be used to catch issues
- More server problems should be mitigated by a second submit node
- OSG Staff always prompt in fixing issue



Container Contents

INFN-T1 ~500 nodes SCOTGRID ~700 nodes

Upcoming:

GRIF (tested, imminent): ~400 nodes

Lamar University: ~200 nodes

Process is straightforward and greatly supported by OSG Staff

UCONN 0-1000 nodes Syracuse 0-10000 nodes

Opportunistic: 0-4000 nodes

Dedicated,

Guaranteed

Semi-Dedicated

Higher Priority Opportunistic

Shared with GLUEX