

# GEMC

## Updates

OSG Status and Outlook

Generators on OSG

Status and upcoming changes of gemc

# OSG Resources Summary

1 core = 24\*365 = 8760 hours / year

Dedicated, paid for by CLAS12 institutions

OSG Name	Country/Institution	Number of CPUs	MHours / Year
INFN-T1	Istituto Nazionale di Fisica Nucleare, Italy	600	5.3
UKI-SCOTGRID-GLASGOW	Glasgow University, Scotland	900	7.9
MIT*	Massachusetts Institute of Technology, USA	320 (2000)	2.8
LAMAR	Lamar University, USA	200	1.7

Offline since May 23.

\* accepts other projects if cores are idles. Occasionally allocates more.

## Summary of resources

OSG Name	Number of CPUs	MHours / Year
Dedicated	2000	17.7
High Priority	16000	140
Opportunistic	10000	88
<b>Total</b>	<b>28000</b>	<b>245</b>

## Summary of current jobs

user	submission	total	done	run	idle
carman	5	50000	16629	28353	4987
total	5	50000	16629	28353	4987

## High Priority and Opportunistic

OSG Name	Country/Institution	Number of CPUs	MHours / Year
UCONN	University of Connecticut, USA	2,500	17.5
SU	Syracuse University	13,000	113
GRIF	Grille au service de la Recherche en Ile-de-France, France	500	4.4
OSG	OSG Opportunistic	10,000	88

# OSG Status and Outlook

*Portal keeps improving under the hood for better error handling.*

*Mostly smooth running.*

*Uses de-noising software (installed on CVMFS)*

*Uses **new clas12-config** repository*

Software versions

Checkboxes for **z-pos, beamspot, raster**

Radio Button for vertex reference

Configuration	rga_spring2019
Versions (see <b>README</b> )	gemc/5.4 coatjava/10.0.2
MC Gen Versions (see <b>README</b> )	2.31b
Magnetic Fields	
Vertex	<input checked="" type="checkbox"/> z: adjust for target position and semi-length -3.0*cm, 2.5*cm <input type="checkbox"/> x/y: smear beamspot n/a <input type="checkbox"/> x/y: raster n/a <input checked="" type="radio"/> Ignore Generator Vertex <input type="radio"/> Relative to Generator Vertex
Generator	
Generator Options	
Once you've chosen the generator, review the linked documentation and insert the desired options above. Do not utilize the following options, as they are automatically included: <code>--docker</code> , <code>output file name</code> , <code>--trig</code> .	
Number of Events per Job	
Number of Jobs	
Total Number of Events	M
Background Merging	No
Submit	

- clas12-elSpectro
- clasdis
- claspyth
- deep-pipi-gen
- dvcsgen
- genKYandOnePion
- inclusive-dis-rad
- JPsiGen
- MCEGENpiN\_radcorr
- TCSGen
- twopeg
- genepi
- onepigen
- gemc

# CLAS12 Simulations on OSG: Generators

<https://github.com/JeffersonLab/clas12-mcgen>

name	description	maintainer
<a href="#">clasdis</a>	SIDIS MC based on PEPSI LUND MC	Harut Avakian
<a href="#">claspyth</a>	SIDIS full event generator based on PYTHIA	Harut Avakian
<a href="#">dvcsgen</a>	DVCS/pi0/eta generator based on GPD and PDF parameterizations	Harut Avakian
<a href="#">genKYandOnePion</a>	KY, pi0P and pi+N	Valerii Klimenko
<a href="#">inclusive-dis-rad</a>	Inclusive electron and optionally radiative photon using PDFs	Harut Avakian
<a href="#">tcsgen</a>	Timelike Compton Scattering	Rafayel Paremuzyan
<a href="#">jpsigen</a>	J/Psi photoproduction	Rafayel Paremuzyan
<a href="#">twopeg</a>	pi+pi- electroproduction off protons	Iuliia Skorodumina
<a href="#">clas12-elspectro</a>	General electroproduction final states	Derek Glazier
<a href="#">MCEGENpiN_radcorr</a>	Exclusive single pion electroproduction based on MAID	Maksim Davydov
<a href="#">deep-pipi-gen</a>	Deep double pion production	Dilini Bulumulla
<a href="#">genepi</a>	Photon and meson electroproduction	Noémie Pilleuxi
<a href="#">onepigen</a>	Single charged pion production based on AO/Daresbury/MAID	Nick Tyler
<a href="#">GiBUU</a>	not supported on OSG yet, pending configuration wrapper script and LUND output	Rhidian and e4nu group
<a href="#">GENIE</a>	not supported on OSG yet, pending configuration wrapper script and LUND output	

Fortran

Fortran

Fortran

C++

Fortran

C++

C++

C++

C++

C++

C++

C++, New

C++, Upcoming

*Please consider adding generator to clas12-mcgen. Contact Nathan / Mauri.*

# OSG Outlook

Currently: job\_6645 / simu\_(1-10,000) / dst.hipo (eww)

Upcoming: output files re-organization

- No more 10K sub-directories, all 10K files in the **job\_6645** sub-dir
- Files output names:
  - New field on portal: USER DEFINED STRING (**\$STRING**)
  - Allowed chars on **\$STRING**: a-z, A-Z, 0-9, -, \_, .
  - **\$STRING**-(**\$LUND**)-**\$JOBINDEX**-**\$JOBID**.hipo

|  
If LUND job type

|  
Typically 0-10,000

OSG Submission ID

Any requests?

# Upcoming changes of gemc2

- ➔ Current Version: 5.4. Uses geant4 10.6.2
- ➔ Upcoming Version: 5.5. Uses geant4 10.6.2
  - updated uRwell digitization
  - FADC time is double not int. Precision is 62.5ps
  - RICH Geometry includes Sector 1 and updated digitization
- ➔ If no pressing issues: 5.6 release identical to 5.5 except it uses Geant4 10.7.4.
- ➔ Future support of latest geant4 11.2 considered next
- ➔ Geometry and digitization / Run Number

Any requests?