

South East Europe resources in EGEE and next steps

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Overview

- Organization of EGEE project
- Organization of EGEE SEE ROC
- Authorization/Authentication resources
- Information system resources
- Workload Management System resources
- Monitoring Tools
- Bulgarian sites in EGEE
- Conclusions

CGCC Organization of the EGEE project

- The EGEE project brings together experts from over 27 countries with the common aim of building on recent advances in Grid technology and developing a service Grid infrastructure which is available to scientists 24 hours-a-day.
- The project provides researchers in academia and industry with access to a production level Grid infrastructure, independent of their geographic location. The EGEE project also focuses on attracting a wide range of new users to the Grid.
- The EGEE II project is organized in 12 federations. Bulgaria is a member of the South Eastern Federation



Structure of EGEE operations

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- Resource centres (RC) are controlled by the Regional Operation Centres (ROC)
- Bulgaria is a member of South East European ROC, which comprises:
 - Greece
 - Bulgaria
 - Romania
 - Turkey
 - Serbia
 - Cyprus
 - Israel
 - ROC managers are located at GRNET, Greece
 - Every country has country representative in SEE ROC
 - Bulgaria is represented by Emanouil Atanassov (emanouil@parallel.bas.bg)

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SEE ROC Support Structure

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- Regional web site http://www.egee-see.org
- Regional SEE helpdesk: <u>http://helpdesk.egee-see.org</u>
- SEE wiki pages: <u>http://wiki.egee-see.org</u>
- Country web sites <u>http://www.grid.bas.bg</u> for Bulgaria
- Country representatives: Emanouil Atanassov for Bulgaria
- Security contact for SEE: Eddie Aronovich eddiea at cs.tau.ac.il



In order to access the Grid, every user needs a valid certificated from an accepted **Certification Authority** (CA) A certification authority – **BG.Acad**, is in the process of being accepted Until this happens, we use the SEE-GRID catch-all CA: http://www.grid.auth.gr/pki/seegrid-ca

The procedure requires a <u>Memorandum of Agreement between IPP-BAS</u> and the respective institute, before the certificate can be issued.

A certificate request is created on a UI computer, using correct values for the organization's name. Follow

http://www.grid.auth.gr/pki/seegrid-ca/services/GenConfig



The certificate request is sent to the RA (Registration Authority) for SEE-GRID (**Emanouil Atanassov**) and if approved, the user receives a certificate signed by SEE-GRID CA. The certificate can be used for any Grid activity.

It is extremely important that the user sends back signed e-mail stating that he or she accepts the SEE-GRID CA policy. In order to do this the user must now how to import the certificate into a browser or e-mail client.

See:

http://www.grid.auth.gr/pki/seegrid-ca/documents/ and also man pkcs12 on your UI



After the user has a valid certificate, the next step is to request membership in the appropriate VO

Users from areas like biomedicine and high-energy physics are advised to join the respective EGEE-wide VOs:

http://lcg.web.cern.ch/LCG/users/registration/registration.html

For users that can not locate an appropriate VO, we provide membership in SEE VO:

https://www.grid.auth.gr/services/voms/SEE/request.php

In order to join SEE VO the user must submit a description of the application that he or she is going to develop and/or use to the BG country representative in SEE ROC.



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•Upon approval of the request, the user joins the SEE-GRID VO and can submit jobs and perform data management.

- •Users are advised to always use voms-proxy-init instead of grid-proxyinit command. The SEE VO VOMS server is located at:
- voms.grid.auth.gr
- The command voms-proxy-init –voms see uses automatically this VOMS server
- The main myproxy server for SEE VO is located at
- myproxy.grid.auth.gr

See: <u>https://www.grid.auth.gr/services/myproxy/user_guide.php</u>

Always check if the RB/WMS you are using works correctly with the MyProxy server that you specify!



•In order to submit jobs in EGEE SEE sites using SEE VO, one can use:

✓ The production Resource Broker: rb.isabella.grnet.gr

✓ The production WMS: wms.egee-see.org

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•In order to locate resources in SEE ROC, one can use the BDII bdii.isabella.grnet.gr

•Changing the BDII used on a UI (User Interface) is accomplished by changing LCG_GFAL_INFOSYS in /etc/profile.d/lcgenv.sh and /etc/profile.d/lcgenv.csh

•Example:

export LCG_GFAL_INFOSYS=bdii.isabella.grnet.gr:2170 Using the BDII for finding information about available resources: Icg-infosites -vo see ce - for computing elements Icg-infosites -vo see se - for storage resources Icg-infosistes -vo see Ifc - the name of the LFC server for SEE VO



The picture of SEE ROC sites and their status is obtained from: http://goc.grid.sinica.edu.tw/gstat//SouthEasternEurope.html We can see there that in SEE ROC there are 30 production sites with a total number of CPUs 1390 right now, and the total storage 30 TB.

Advanced users must understand the meaning of the gstat report.

GStat: 12:45:28 12/01/06 GMT

home alert table service regional service metrics links ^{eg} prod pps test baltic eela euchina eumed seegrid gilda trigrid AsiaPacific CERN CentralEurope France GermanySwitzerland Italy NorthernEurope Russia SouthEasternEurope SouthWesternEurope UKI											
GR-03-HEPNTUA	<u>SD</u>	TR-01-ULAKBIM		HG-03-AUTH	ок	IL-BGU ETET	AEGIS01-	PHY-SCL	ОК ОК	GR-04-FORTH-ICS	Л
LCG-IL-OU	<u>0</u> K	CY-01-KIMON	ок	BG01-IPP	ок	BG04-ACAD OK	<u>GR-0</u>	1-AUTH	<u>0K</u>	GR-06-IASA	<u>0</u> K
HG-02-IASA	<u>ok</u>	HG-04-CTI-CEID	<u>ok</u>	HG-05-FORTH	<u>ok</u>	<u>HG-06-EKT</u> 0K 0K	<u>MK-0</u>	<u>1-UKIM II</u>	JS	RO-01-ICI	л
RO-07-NIPNE	<u>ok</u>	TAU-LCG2	<u>JS</u>	TECHNION-LCG2	<u>ok</u>	BG-INRNE OK	BC	302-IM	<u>0K</u>	BG05-SUGrid	<u>ok</u>
GR-05-DEMOKRITOS	<u>ok</u>	HG-01-GRNET	<u>ok</u>	NIHAM	ок	RO-02-NIPNE OK	<u>RO-1</u>	1-NIPNE	<u>0K</u>	WEIZMANN-LCG2	<u>0K</u>

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Color Legend GSTAT OK INFONOTE WARN ERROR CRITMAINTOFF SFT OK NonCrit Crit JobSub JobListMatch SchedDown

No	Site Reports	GIIS Host	bnode	cernse	gperf	sanity	serv	version	totalCPU	freeCPU	runJob	waitJob	seAvail TB	seUsed TB	maxCPU	avgCPU	DI gice
1	BG-INRNE	cel.inme.bas.bg	<u>ok</u>	<u>ok</u>	<u>ok</u>	<u>ok</u>	<u>ok</u>	GLITE-3 0 2	27	22	5	0	0.90	0.00	27	26	<u>OK ok</u>
2	BG01-IPP	ce002.ipp.acad.bg	<u>.</u>	<u>.</u>	<u>info</u>	<u>ok</u>	<u>ok</u>	GLITE-3 0 2	4	4	6	173	0.89	0.10	14	7	<u>OK ok</u>
3	BG02-IM	ce001.imbm.bas.bg	<u>.</u>	<u>.</u>	<u>ok</u>	<u>ok</u>	<u>ok</u>	GLITE-3 0 2	3	3	0	22	0.02	0.03	4	3	<u>OK ok</u>
4	BG04-ACAD	ce02.grid.acad.bg		<u>.</u>	<u>info</u>	<u>ok</u>	<u>ok</u>	GLITE-3 0 2	80	28	48	132	0.03	0.02	80	80	<u>OK ok</u>
5	BG05-SUGrid	ce001.grid.uni-sofia.bg	<u>.</u>	<u>.</u>	<u>ok</u>	<u>ok</u>	<u>ok</u>	GLITE-3 0 0	16	6	9	89	0.03	0.04	16	9	<u>OK ok</u>
6	CY-01-KIMON	ce101.grid.ucy.ac.cy	<u>ok</u>	<u>ok</u>	<u>ok</u>	<u>ok</u>	<u>ok</u>	GLITE-3 0 5	72	16	56	4	0.12	0.09	74	70	<u>OK ok</u>
7	GR-01-AUTH	node001.grid.auth.gr		<u>.</u>	<u>info</u>	<u>ok</u>	<u>ok</u>	GLITE-3 0 0	12	5	8	360	0.15	0.05	14	12	<u>ok .</u>
0	CD 02 TEDATETA	1 .			•	4	1		0.4	0.4	6	62200	0.01	0.05	60	0.0	CTD 1

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• 5 clusters in EGEE production

• The biggest cluster is BG04-ACAD, located at IPP-BAS, with 80 CPUs. 24 CPUs are equiped with Myrinet interconnect, allowing for <u>low-latency MPI</u> <u>communications</u>. Each Worker node has 4 GB RAM.

Bulgarian Grid sites

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	CPU	Storage	Таре
March 06	43	1TB	-
Nov 06	145	5TB	10TB

•BG01-IPP (21 CPU)

• BG04-ACAD (80 CPU)





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Types of the Grid nodes

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- User Interface provides user access to the Grid resources;
- Worker Node basic building block, performs the computations;
- Computing Element manages the received jobs inside the cluster;
- Workload Management System manages the jobs between clusters;
- Berkerley Database Information Index Information system;
- MON cluster monitoring;
- **R-GMA RDBMS** for accounting;
- Storage Element (Castor, dCache, DPM) reliable storage server;
- File Transfer Service guaranteed fast file transfer;
- Logical File Catalogue information about thedata files and their locations;
- AMGA metadata file catalog;
- MyProxy storage for user certificates;
- **HYDRA** encrypting data services;
- Web-portals for easy access to the Grid resources;





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