



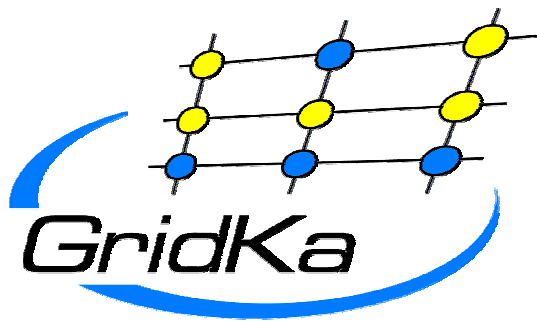
Enabling Grids for
E-science in Europe

www.eu-egee.org

GridKa School, 20-23 September 2004

LCG Installation – Site Validation

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- Introduction
- Monitoring Tools
- Information System
- CE
 - batch system
 - Globus
 - RB
- SE



- Site configuration complex
- Tests important
 - ensure correct operation of your site
 - misconfigurations might affect grid as a whole
- Some tests provided in install notes
- Read rollout mailing list
 - installation/configuration problems are discussed there
- Understanding internals helps determining source of errors

- GOC performs Grid monitoring
 - job submission
 - information system
 - storage system / replica manager
- You need to be registered in the GOC database
- `http://goc.grid-support.ac.uk/gridsite/gocmain/monitoring/`

Status Map



GIIS Monitor

GIIS Monitor 11:19:02 08/30/04 GMT - Mozilla {Build ID: 2004081709}

File Edit View Go Bookmarks Tools Window Help Debug QA

Back Forward Reload Stop http://goc.grid.sinica.edu.tw/gstat/ Search Print

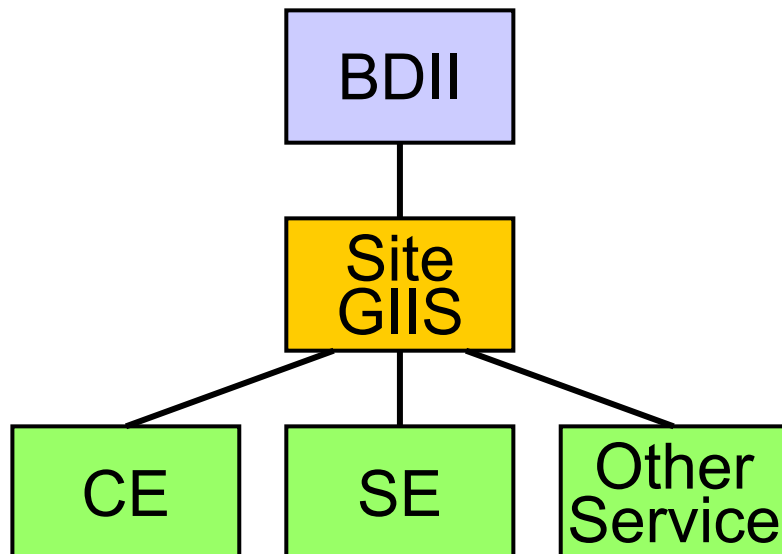
No	Site Reports	zone	GIIS Host	bdii	rgmas	sanity	version	totalCPU	freeCPU	runJobw
1	CERN-LCG2	pro,all	lxn1181.cern.ch	ok		ok	LCG-2_1_1	974	238	420 0
2	CIEMAT-LCG2	pro,all	lcg02.ciemat.es	ok		warn	LCG-2_1_1	2	2	0 0
3	CNAF-LCG2	pro,all	wn-04-07-02-a.cr.cnaf.infn.it	ok		warn	LCG-2_1_1	1584	772	818 2
4	CYFRONET-LCG2	pro,all	zeus02.cyf-kr.edu.pl	ok		ok	LCG-2_1_1	22	13	9 1
5	FNAL-LCG2	pro,all	hotdog46.fnal.gov	ok		warn	LCG-2_1_1	18	18	0 0
6	IC-LCG2	pro,all	gw39.hep.ph.ic.ac.uk	ok		ok	LCG-2_1_1	66	65	1 0
7	IFCA-LCG2	pro,all	gtbcg12.ifca.unican.es	error		warn	na			
8	IFIC-LCG2	pro,all	lg2ce.ific.uv.es	ok		ok	LCG-2_2_0	107	33	74 0
9	INFN-LNL-LCG1	pro,all	t2-ce-01.lnl.infn.it	ok		ok	LCG-2_1_0	144	46	69 0
10	INFN-MILANO-LCG2	pro,all	t2-ce-01.mi.infn.it	ok		warn	LCG-2_1_1	57	56	1 0
11	INFN-TORINO-LCG2	pro,all	grid008.to.infn.it	ok		ok	LCG-2_1_1	24	2	22 0
12	nikhef.nl	pro,all	tb18.nikhef.nl	ok		warn	LCG-2_2_0	286	108	178 0
13	PIC-LCG2	pro,all	lgce02.ifaes.es	ok		warn	LCG-2_1_1	210	48	52 0
14	RAL-LCG2	pro,all	lxn1194.cern.ch	ok		ok	LCG-2_2_0	492	459	31 0
15	Taiwan-LCG2	pro,all	lg00125.grid.sinica.edu.tw	ok		warn	LCG-2_1_1	136	51	85 0
16	Taiwan-NCU-LCG2	pro,all	grid01.phy.ncu.edu.tw	ok		ok	LCG-2_1_1	14	0	14 1
17	Uni-Wuppertal	pro,all	grid-ce.physik.uni-wuppertal.de	ok		ok	LCG-2_1_1	1	0	1 2
18	USC-LCG2	pro,all	lgce-ce.usc.cesga.es	ok		warn	LCG-2_1_1	10	10	0 0
19	ualberta-lcg2	ext,all	lgce01.nic.ualberta.ca	ok		ok	LCG-2_0_0	2	2	0 0
20	BEIJING-LCG2	ext,all	lg002.ihep.ac.cn	ok		ok	LCG-2_0_0	4	4	0 2
21	BHAM-LCG2	ext,all	epcf36.ph.bham.ac.uk	ok		ok	LCG-2_2_0	20	20	0 0
22	BNL	ext,all	atlasgrid04.usatlas.bnl.gov	error		warn	na			

- Accessible via LDAP, e.g.

```
ldapsearch -x -H
```

```
ldap://gridkap01.fzk.de:2135 -b  
"mds-vo-name=local,o=grid"
```

- No grid proxy needed



2170 / mds-vo-name=local,o=grid

2135 / mds-vo-name=fzklcg2,o=grid

2135 / mds-vo-name=local,o=grid

```
# gridkap01.fzk.de/siteinfo, local, grid
dn: in=gridkap01.fzk.de/siteinfo,Mds-Vo-name=
    local,o=grid
objectClass: SiteInfo
objectClass: DataGridTop
objectClass: DynamicObject
siteName: FZK-LCG2
sysAdminContact: lcg-admin@listserv.fzk.de
userSupportContact: lcg-admin@listserv.fzk.de
siteSecurityContact: lcg-admin@listserv.fzk.de
dataGridVersion: LCG-2_2_0
installationDate: 20040119103800Z
```

GLIS: Queue Info

```
# gridkap01.fzk.de:2119/jobmanager-pbspro-long,  
  local, grid  
dn: GlueCEUniqueID=gridkap01.fzk.de:2119/jobma  
  nager-pbspro-long, mds-vo-name=local, o=grid  
<...>  
GlueCEInfoGatekeeperPort: 2119  
GlueCEInfoHostName: gridkap01.fzk.de  
GlueCEInfoLRMSType: pbs  
GlueCEInfoLRMSVersion: PBSPro_5.4.1.41640  
GlueCEInfoTotalCPUs: 874  
GlueCEStateEstimatedResponseTime: 68540  
GlueCEStateFreeCPUs: 17  
GlueCEStateRunningJobs: 86  
GlueCEStateStatus: Production
```

```
# gridkap01.fzk.de, gridkap01.fzk.de, local,  
grid  
dn: GlueSubClusterUniqueID=gridkap01.fzk.de,  
GlueClusterUniqueID=gridkap01.fzk.de,  
    mds-vo-name=local, o=grid  
<...>  
GlueHostApplicationSoftwareRunTimeEnvironment:  
    VO-alice-ALICE-4.01.05  
<...>  
GlueHostApplicationSoftwareRunTimeEnvironment:  
    LCG-2  
GlueHostApplicationSoftwareRunTimeEnvironment:  
    LCG-2_1_0  
GlueHostApplicationSoftwareRunTimeEnvironment:  
    LCG-2_2_0
```

GLIS: Cluster Info

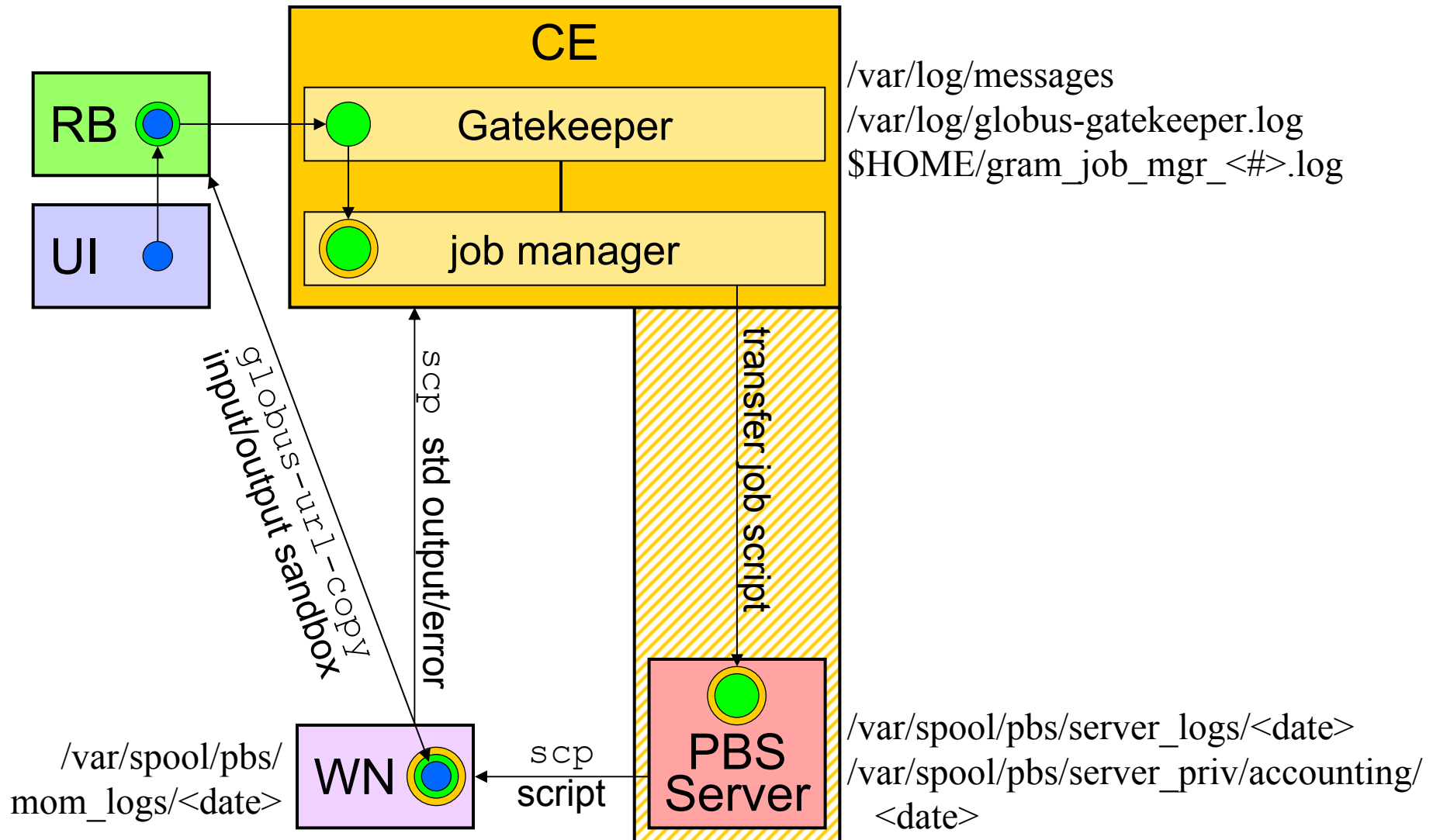
```
GlueHostArchitectureSMPSize: 2
GlueHostBenchmarkSF00: 0
GlueHostBenchmarkSI00: 600
GlueHostMainMemoryRAMSize: 1006
GlueHostMainMemoryVirtualSize: 5100
GlueHostNetworkAdapterInboundIP: FALSE
GlueHostNetworkAdapterOutboundIP: TRUE
GlueHostOperatingSystemName: Redhat
GlueHostOperatingSystemRelease:
    2.4.20-35_39.rh7.3.at.smp
GlueHostOperatingSystemVersion:
    1 SMP Thu Jun 24 15:00:33 EDT 2004
GlueHostProcessorClockSpeed: 1262
GlueHostProcessorModel:
    Intel(R) Pentium(R) III CPU family 1266MHz
```

GIIS: CE/SE Binding

```
# gridkap02.fzk.de, gridkap01.fzk.de:2119/jobma  
nager-pbspro-long, local, grid  
dn: GlueCESEBindSEUniqueID=gridkap02.fzk.de,  
    GlueCESEBindGroupCEUniqueID=gridkap01.fzk.de:2  
119/jobmanager-pbspro-long, mds-vo-name=local,  
    o=grid  
<...>  
GlueCESEBindCEAccesspoint:  
    /grid/fzk.de/mounts/nfs/data/lcg1/SE00  
GlueCESEBindCEUniqueID:  
    gridkap01.fzk.de:2119/jobmanager-pbspro-long  
GlueCESEBindSEUniqueID: gridkap02.fzk.de
```

```
# dteam:dteam, gridkap02.fzk.de, local, grid
dn: GlueSARoot=dteam:dteam,GlueSEUniqueID=gridk
  ap02.fzk.de,Mds-Vo-name=local,o=grid
<...>
GlueSAPolicyFileLifeTime: permanent
GlueSAStateAvailableSpace: 1588648960
GlueSAStateUsedSpace: 3428001280
GlueSAAccessControlBaseRule: dteam
GlueChunkKey: GlueSEUniqueID=gridkap02.fzk.de
GlueSchemaVersionMajor: 1
GlueSchemaVersionMinor: 1
```

Job Processing



- Grid proxy required (`grid-proxy-init`)
- `globus-job-run gridkap01.fzk.de:2119/jobmanager-fork /bin/hostname gridkap01.fzk.de`
- Possible errors
 - authentication failure
 - user: no proxy?
 - CE: no CA certificates?
 - no user mapping
 - user: not listed in VO?
 - CE: VO not accepted?
 - UI/CE: clock not synchronized? Firewall?

Test Job Processing

- `globus-job-run gridkap01.fzk.de:2119/jobmanager-lcgpbs -q default /bin/hostname c01-002-108`
- Possible errors
 - no output
 - copying output failed, ssh keys on CE not up to date? Test on WN:
`su - dteam001`
`scp test <CE>:`
 - batch system not working
 - try on CE:
`su - dteam001`
`qsub test.sh` ←
`<wait until job has finished>`
`cat test.sh.o*`

`#!/bin/bash`
`/bin/hostname`

Test Job Processing

- `edg-job-list-match hostname.jdl`
 - check that your site is listed here, otherwise: problem with information system
 - not yet added? nothing published? VO missing?
- `edg-job-submit -r gridkap01.fzk.de:2119/jobmanager-pbspro-default hostname.jdl`
 - works regardless of whether site is listed in information system
- in case of error:
`edg-job-get-logging-info -v 1 <jobId>`

Job Logging Info

```
Event: Match
- dest_id           = gridkap01.fzk.de:2119/jobmanager-pbspro-default
- host              = lxn1177.cern.ch
- source             = WorkloadManager
- src_instance       = WM
- timestamp          = Wed Sep  1 14:23:43 2004
- user               = /O=GermanGrid/OU=CrossGrid/CN=Peer Hasselmeyer
---
Event: Running
- host              = c01-007-107.gridka.de
- node               = c01-007-107.gridka.de
- source             = LRMS
- timestamp          = Wed Sep  1 14:25:56 2004
- user               = /O=GermanGrid/OU=CrossGrid/CN=Peer Hasselmeyer
---
Event: Done
- exit_code          = 1
- host               = lxn1177.cern.ch
- reason             = Got a job held event, reason: Globus error 155: t
he job manager could not stage out a file
- source             = LogMonitor
- src_instance        = unique
- status_code         = FAILED
- timestamp          = Wed Sep  1 14:30:46 2004
- user               = /O=GermanGrid/OU=CrossGrid/CN=Peer Hasselmeyer
```

```
[hassel@hik-lcg-ui hassel]$ edg-gridftp-ls -v  
gsiftp://gridkap02.fzk.de/
```

```
total 185
```

drwxr-xr-x	2	root	root	4096	Apr	29	11:16	bin
drwxr-xr-x	4	root	root	1024	Apr	29	11:20	boot
drwxr-xr-x	18	root	root	86016	Aug	5	19:39	dev
drwxr-xr-x	47	root	root	4096	Aug	31	16:43	etc
drwxr-xr-x	3	root	root	4096	Apr	29	11:26	grid
drwxr-xr-x	2	root	root	4096	Feb	6	1996	home
drwxr-xr-x	2	root	root	4096	Jun	21	2001	initrd
drwxr-xr-x	6	root	root	4096	Apr	29	11:15	lib
drwxr-xr-x	2	root	root	4096	Apr	2	2002	misc
drwxr-xr-x	5	root	root	4096	Jun	24	18:37	mnt
drwxr-xr-x	9	root	root	4096	Apr	29	11:36	opt
dr-xr-xr-x	122	root	root	0	Aug	5	19:38	proc
drwxr-x---	5	root	root	4096	Aug	30	09:08	root
drwxr-xr-x	2	root	root	4096	Apr	29	11:17	sbin
drwxr-xr-x	2	root	root	0	Aug	5	19:40	sw
drwxrwxrwt	3	root	root	4096	Aug	31	16:42	tmp
drwxr-xr-x	19	root	root	4096	Apr	29	11:36	usr
drwxr-xr-x	20	root	root	4096	Apr	30	04:02	var

- **Copy file to SE:** `globus-url-copy file://`pwd`/test gsiftp://gridkap02.fzk.de/grid/fzk.de/mounts/nfs/data/lcg1/SE00/dteam/my.test`
- **Get file back:** `globus-url-copy gsiftp://gridkap02.fzk.de/grid/fzk.de/mounts/nfs/data/lcg1/SE00/dteam/my.test file://`pwd`/readout`
- **Compare the files:** `diff test readout`
- **Delete file:** `edg-gridftp-rm gsiftp://gridkap02.fzk.de/grid/fzk.de/mounts/nfs/data/lcg1/SE00/dteam/my.test`

- `edg-rm -v --vo dteam cr file://`pwd`/test`
 - stores file on “close SE”
 - equivalent: `lcg-cr -v --vo dteam -d gridkap02.fzk.de file://`pwd`/test`
 - SE could be replaced by `$VO_DTEAM_DEFAULT_SE` on WN
 - error messages not useful at all, currently not recommended
- Possible errors:
 - site not in information system
 - copy failed (file might end up on different SE)
- Complete test scripts in installation guide, appendix F

- Have a look at your GLIS
 - also at the BDII (.rainbow.grid)
- Run some jobs
 - Globus, fork, lcgpbs
 - via RB (.rainbow.grid)
- Store and retrieve some files on your SE
- Replica system cannot be tested here (no RLS)