



Enabling Grids for  
E-science in Europe

[www.eu-egee.org](http://www.eu-egee.org)

*LCG WorkShop on Operations,  
CERN  
2-4 Nov 2004*

# Certification and test activity

IT ROC/CIC  
Deployment Team



# Summary

- INFN-GRID release: resources, services and supported VOs;
- Basic tests before joining the grid;
- Certification and periodic tests activity;
- Calendar and Ticketing System;
- Certification queue;
- GridAT (Grid Application Test);



- **INFN-GRID is a customized release of LCG**
  - All resources are **fully managed** via LCFGng;
  - INFN-GRID does not support the middleware installation without LCFGng;
- INFN-GRID 2.2.0 release is based upon the official LCG-2.2.0 and it is 100% compatible;
- **Main differences from LCG 2.2.0 to INFN-GRID 2.2.0:**
  - Added support for DAG jobs;
  - Added support for AFS on the WorkerNodes;
  - Added support for MPI jobs via home synchronisation with ssh;
  - Documented installation of WNs on a private network;
- Added VOMS support:
  - INFN-GRID, CDF are completely managed via VOMS server.

# INFN-GRID: Resources and supported VOs



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Site name	CPU#	Storage (GB)	Alice	Atlas	Cms	Lhcb	Bio	Inaf	Infngrid	Ingv	Gridit	Theophys	Virgo	Babar	Zeus	Cdf	Gilda	Enea	Dteam	Sixt
INFN-Bari	62	1800	x	x	x	x	x	x	x	x	x	x	x	x	x	x				
INFN-Bologna-CMS	22	2700			x				x		x									
INFN-Bologna-CNAF	6	1900	x	x	x	x	x	x	x	x	x	x	x	x	x	x			x	
INFN-Bologna	10	74	x	x	x	x	x	x	x	x	x	x	x	x	x	x				
INFN-Cagliari	16	150	x	x	x	x	x	x	x	x	x	x	x	x	x	x				
INFN-Catania	60	2100	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
INFN-Ferrara	12	25	x	x	x	x	x	x	x	x	x	x	x	x	x	x				
INFN-Frascati	6	1100		x					x		x								x	
INFN-Lecce	2	18		x					x		x									
INFN-Legnaro	142	1300	x	x	x	x			x										x	
INFN-Milano	64	3200		x															x	
INFN-Napoli	24	900	x	x	x	x	x	x	x	x	x	x	x	x	x	x				
INFN-Napoli-Atlas	12			x					x		x								x	
INFN-Napoli-Virgo																				
INFN-Padova	104	9500	x	x	x	x	x	x	x	x	x	x	x	x	x	x				
INFN-Pavia	6			x	x				x		x									
INFN-Perugia	6	225			x				x		x			x						
INFN-Pisa	13	18	x	x	x	x	x	x	x	x	x	x	x	x	x	x				
INFN-Roma1-tier2	53	3000		x					x										x	
INFN-Roma1-Virgo	10	16	x	x	x	x	x	x	x	x	x	x	x	x	x					
INFN-Roma2	6	30	x	x	x	x	x	x	x	x	x	x	x	x	x	x				
INFN-Torino	24	2000		x	x	x			x										x	x
INFN-Trieste	2	30	x	x	x	x	x	x	x	x	x	x	x	x	x	x				
INAF-Trieste	2	35						x	x		x									
<b>TOTAL</b>	<b>664</b>	<b>30121</b>	467	497	525	491	325	333	600	327	381	331	331	337	331	331	60	60	367	84
INFN-CNAF-CR	1570(**)	60000	x	x	x	x			x				x			x			x	
<b>TOTAL</b>	<b>2234</b>	<b>90121</b>																		

(\*\*) Hypertthreaded

# INFN-GRID & EGEE: Dedicated service resources



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Site name	CPU#	Storage (GB)	Alice
INFN-Bari	62	1800	x
INFN-Bologna-CMS	22	2700	x
INFN-Bologna-CNAF	6	1900	x
INFN-Bologna	10	74	x
INFN-Cagliari	16	150	x
INFN-Catania	60	2100	x
INFN-Ferrara	12	25	x
INFN-Frascati	6	1100	
INFN-Lecce	2	18	
INFN-Legnaro	142	1300	x
INFN-Milano	64	3200	
INFN-Napoli	24	900	x
INFN-Napoli-Atlas	12		
INFN-Napoli-Virgo			
INFN-Padova	104	9500	x
INFN-Pavia	6		
INFN-Perugia	6	225	
INFN-Pisa	13	18	x
INFN-Roma1-tier2	53	3000	

Site name	CPU#	Storage (GB)	Alice
INFN-Bari	62	1800	x
INFN-Bologna-CMS	22	2700	
INFN-Bologna-CNAF	6	1900	x
INFN-Bologna	10	74	x

**Service Resources are open to all  
VOs supported by INFN-GRID!**

**RB: [egee-rb-01.cnaf.infn.it](http://egee-rb-01.cnaf.infn.it)  
support also BIOMED VO**

# Upgrade/Installation activity

- Testing if "the grid is working" is not so easy;
- Certification activity in INFN-GRID can be classified into four levels:
  - Local tests by the local resource center managers;
  - Certification tests by ROC/CIC Team;
  - Monitor tests by ROC/CIC Team;
  - The fourth level, certification on demand, made both by ROC Team and Application Teams.

# Certification activity

- The ROC/CMT (Central Management Team) is responsible of the resource centers certification: checking the functionalities of a site before joining the site to the production grid.
- Although all certification jobs are VO independent, the INFN GRID VO is used to perform these jobs;
- In particular are checked:
  - GIIS' information consistence;
  - Local jobs submission (LRMS);
  - Grid submission with Globus (globus-job-run);
  - Grid submission with the ResourceBroker;
  - ReplicaManager functionalities;
- In order to certificate a site the CMT uses only **dedicated** grid services:
  - RB & BDII: [gridit-cert-rb.cnaf.infn.it](http://gridit-cert-rb.cnaf.infn.it)
- In this way we avoid to have an **uncertified** site in the production grid services;



# Periodic test

- We periodically submit certification jobs to the sites in the production grid, in order to pro-actively find ‘troubles’ before users find them.

## Site Calendar

[July 2004](#) - [August 2004](#) - **September 2004** - [October 2004](#) - [November 2004](#)

Attended: ■ Down: ■ Partly Down: ■ Unattended: ■ Partly Attended: ■ Queues Closed: ■

September 2004	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
<a href="#">INAF-Trieste</a>	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
<a href="#">INFN-Bari</a>	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
<a href="#">INFN-Bologna</a>	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
<a href="#">INFN-Bologna Alice</a>	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
<a href="#">INFN-Bologna CMS</a>	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
<a href="#">INFN-Cagliari</a>	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
<a href="#">INFN-Catania</a>	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
<a href="#">INFN-CNAF</a>	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
<a href="#">INFN-Ferrara</a>	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
<a href="#">INFN-Lecce</a>	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
<a href="#">INFN-LNF</a>	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
<a href="#">INFN-LNL</a>	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
<a href="#">INFN-LNS</a>	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
<a href="#">INFN-Milano</a>	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
<a href="#">INFN-Napoli</a>	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
<a href="#">INFN-Napoli ATLAS</a>	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
<a href="#">INFN-Napoli Virgo</a>	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
<a href="#">INFN-Padova</a>	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
<a href="#">INFN-Pavia</a>	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
<a href="#">INFN-Perugia</a>	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
<a href="#">INFN-Pisa</a>	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
<a href="#">INFN-Roma 1</a>	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
<a href="#">INFN-Roma 2</a>	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
<a href="#">INFN-Roma1 Virgo</a>	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
<a href="#">INFN-Torino</a>	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
<a href="#">INFN-Trieste</a>	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	

- ROC Team and each resource manager, could notify advices about their resources via web inserting a “**Downtime advices**”.
- The **Calendar** shows the snapshot of the Production Service Status.



# Ticketing system

- INFN-GRID ticketing system is used:
  - from users to ask questions or to communicate troubles;
  - from resource manager to communicate about common grid tasks (ex: upgrading to a new grid release), or to solve problem.
- **Support Groups** are “helper” groups and they exist to resolve the obvious problems arising with the grow of the grid:
  - Support Grid Services (RB, RLS, VOMS, GridICE, etc) Group;
  - Support VO Services Group (each for every VO);
  - Support VOApplications Group (each for every VO);
  - Support Site Group (each for every site)
- **Operative Groups** aren't "helper" groups. They exist to improve the overall grid coordination:
  - Operative Central Management Team (CMT);
  - Operative Release & Deployment Team;

**Users** -> *Create a ticket*

**Supporters/Operatives** -> *Open the ticket*

**Users** and/or **Supporters/Operatives** -> *Update an open ticket*

**Supporters/Operatives** -> *Close the ticket*

# Why a “cert” queue ?

- A CE could exist in many BDIIs with different purpose (CIC, LCG, VO specific)
- After a site upgrade, just as soon as queues were opened, a lot of jobs arrived from anywhere to an uncertified (and potentially unstable) site and making impossible its fully certification.
- To avoid this, all sites joining INFN-GRID have a cert queue (both with PBS and LSF):
  - **High priority queue;**
  - **Only open to VO INFN-GRID;**
  - **With a low max cpu time (10 minutes);**
  - After site installation/upgrade, only the cert queues is opened;
  - After certification tests by ROC, every other queues will be opened;

In addition, in this way, all periodic test jobs by ROC submitted to the cert queue will always have a higher priority than the other jobs.

# Certification steps

1. Site open Cert queue
2. Site do local basic tests/checks (globus, ldap, mount, ...)
3. Site request to join the Grid (re-join in case of an upgrade with no compatible MW)
4. ROC check info published by site's GIIS, and add it to CERT BDII
5. ROC submit the cert job (fill all WN cpus?)
6. ROC communicate the result: site certified!
7. ROC add the site to production BDII
8. Site open the production queues

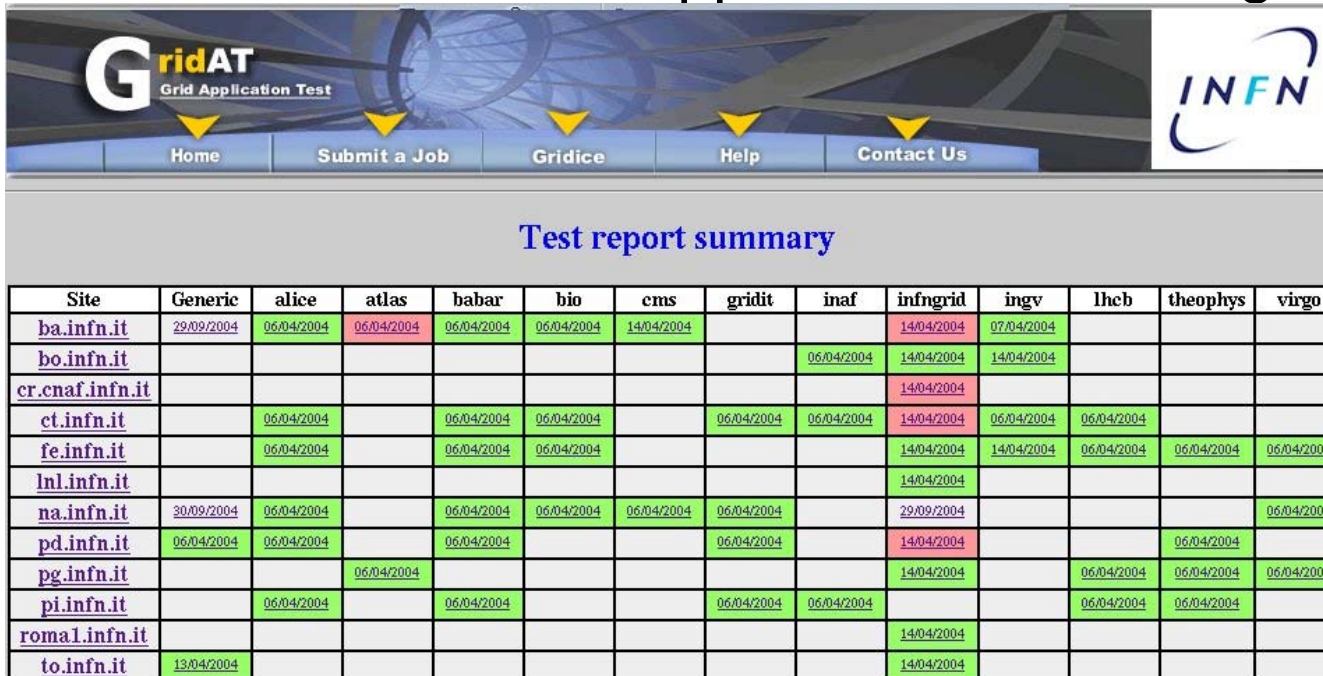
If there are open issues with the site they can be tracked on the trouble ticketing system between the grid-managers (the ROC member who have picked up the certification of that site) and site admins.

# BDII - ROC setup

- All the sites, certified by the ROC team using the test zone are added to the ROC production BDII accessible via web.
- Each Roc create, manage and publish via web the region BDII
  - Similar to <http://grid-it.cnaf.infn.it/fileadmin/bdii/gridit-bdii-update.conf>
- The ROC is 'authoritative' for its BDII, it is the master copy of CE and SE of his region
  - Operations related with ROC resource centers are reflected in the BDII content (scheduled downtime, planned upgrade, site certification failure)
- All CICs and OMC run a EGEE-BDII made of the union of all the ROCs and CERN BDII lists
- A script like this one, used by ROC-IT, can be used to automatically merge BDII lists, avoiding duplicate sites, to create EGEE-allsites-lists:
  - <http://grid-it.cnaf.infn.it/fileadmin/bdii/bdii-list-merge.sh>
- RBs can be associated with EGEE-allsites-BDII, regional or other BDII containing ad hoc selection of sites from global lists

# GridAT - Grid Application Test

GridAT has the main goal to provide a general and flexible framework for VO application tests in a grid system.



The screenshot shows the GridAT web interface. At the top, there is a navigation menu with buttons for Home, Submit a Job, Gridice, Help, and Contact Us. Below the menu is a section titled "Test report summary" which contains a table of test results for various grid sites.

Site	Generic	alice	atlas	babar	bio	cms	gridit	inaf	infgrid	ingv	lhcb	theophys	virgo
<a href="#">ba.infn.it</a>	29/09/2004	06/04/2004	06/04/2004	06/04/2004	06/04/2004	14/04/2004			14/04/2004	07/04/2004			
<a href="#">bo.infn.it</a>								06/04/2004	14/04/2004	14/04/2004			
<a href="#">cr.cnaf.infn.it</a>									14/04/2004				
<a href="#">ct.infn.it</a>		06/04/2004		06/04/2004	06/04/2004		06/04/2004	06/04/2004	14/04/2004	06/04/2004	06/04/2004		
<a href="#">fe.infn.it</a>		06/04/2004		06/04/2004	06/04/2004				14/04/2004	14/04/2004	06/04/2004	06/04/2004	06/04/2004
<a href="#">lnl.infn.it</a>									14/04/2004				
<a href="#">na.infn.it</a>	30/09/2004	06/04/2004		06/04/2004	06/04/2004	06/04/2004	06/04/2004		29/09/2004				06/04/2004
<a href="#">pd.infn.it</a>	06/04/2004	06/04/2004		06/04/2004			06/04/2004		14/04/2004			06/04/2004	
<a href="#">pg.infn.it</a>			06/04/2004						14/04/2004		06/04/2004	06/04/2004	06/04/2004
<a href="#">pi.infn.it</a>		06/04/2004		06/04/2004			06/04/2004	06/04/2004			06/04/2004	06/04/2004	
<a href="#">roma1.infn.it</a>									14/04/2004				
<a href="#">to.infn.it</a>	13/04/2004								14/04/2004				

It permits to test a grid site from the VO viewpoint.

Under development  
by T. Coviello and  
A. Pierro  
(INFN-BARI)

Results are stored in a central database and browsable on a web page so it will be also used for certification and test activity.

Plans are to integrate the GridAT interface under Grid-it portal.

# How to control a Grid

- Objective: provide a multi level control of the Grid
  - Status of each site
    - Main services status
    - Detailed node status
  - Use of the resource
    - What VO is using the Grid
    - What users is using the Grid
    - What site is used
  - Discovery and preventing the failure
    - Controlling most important hardware parameter of each machine
    - Setting advisory and allarms
  - Sites testing and certification
    - Middleware testing
    - Application testing
  - On-line accounting and reporting on resource usage
    - How many jobs each VO/user is runnig
    - How many CPU\*hours each VO/user is using



# Global Site View

Site	Q#	Slot#	Computing Resources				Storage Resources							
			SlotFree	SlotLoad	RunJob	WaitJob	JobLoad	Power	WN#	CPU#	CPUload	Available	Total	%
ba.infn.it	3	186	165	11%	2	0	1%	218K	22	56	11%	138.4 Gb	1.8 Tb	93%
bo.infn.it	0	96	57	0%	6	0	0%	71K	16	32	16%	1.6 Tb	4.5 Tb	22%
bo.lngv.it	2	0	0	-	0	6	0%	-	-	-	-	23.9 Gb	34.3 Gb	30%
ca.infn.it	3	48	48	0%	0	0	0%	52K	10	16	0%	139.0 Gb	142.1 Gb	2%
cern.ch	4	964	223	76%	79	0	26%	-	-	-	-	1.9 Tb	2.0 Tb	0%
cnaf.infn.it	19	8	8	0%	0	0	0%	-	-	-	-	1.6 Tb	1.8 Tb	8%
cr.cnaf.infn.it	14	6266	6252	0%	2	0	0%	4M	447	890	1%	158.9 Gb	1.0 Tb	82%
ct.infn.it	3	174	159	0%	2	0	1%	121K	12	24	2%	1.5 Tb	2.0 Tb	27%
fe.infn.it	3	42	42	0%	0	38	0%	53K	7	14	92%	10.4 Gb	25.6 Gb	58%
fe.infn.it	3	6	0	100%	2	2	100%	3K	1	2	100%	15.6 Gb	17.4 Gb	10%
inf.infn.it	3	18	0	100%	6	549	100%	16K	3	3	0%	899.1 Gb	1.1 Tb	23%
inl.infn.it	5	680	555	18%	25	0	4%	866K	101	202	9%	785.9 Gb	1.3 Tb	8%
mi.infn.it	3	201	156	22%	15	0	8%	271K	30	60	13%	1.2 Tb	4.0 Tb	32%
na.infn.it	9	108	102	5%	2	0	1%	211K	24	48	4%	458.4 Gb	1.6 Tb	22%
oat.ts.astro.it	3	0	0	-	0	0	0%	1K	1	2	0%	29.3 Gb	34.3 Gb	15%
pd.infn.it	5	474	474	0%	0	0	0%	495K	51	102	4%	1.3 Tb	2.5 Tb	25%

Name of the site

Slot Load

Jobs Information

Computational Information

Storage Information



# Specific Site View

Host unreachable

Deamons down

Short node information

The screenshot shows the GridICE Grid Monitoring Service interface. The main content is a table of nodes and their daemon status. The table is divided into two sections: a summary table and a detailed process table for the selected node.

Node Name	Role	UpTime	Load	Files	Socket	FS	NA	PA	Full
ba.lnf.it									
gridba2.ba.lnf.it	CE	50-4:22	0.2-0.1-0.1	3188	TCP(49)UDP(24)	FS	NA	PA	Full
vgridba1.ba.lnf.it	CE	22-21:3	0.0-0.0-0.0	632	TCP(18)UDP(22)	FS	NA	PA	Full
gridba6.ba.lnf.it	SE	50-2:36	0.0-0.0-0.0	3661	TCP(21)UDP(19)	FS	NA	PA	Full
cofin2003.ba.lnf.it	N	1-17:3	0.0-0.0-0.0	269	TCP(7)UDP(21)	FS	NA	PA	Full
gridba3.ba.lnf.it	WN	UpTime: 91-0:7	Load: 0.0-0.0-0.0	Files.: 951	Socket: TCP(10)UDP(16)	FS	NA	PA	Full

Process Name	Status	Inst#	First	Last	CPU 1Max	All	Memory 1Max	Avg	Time 1Max	All
ntpd	OFF	0	0-0:0	0-0:0	0	0	0	0	0-0:0	0-0:0
rdxprof	OFF	0	0-0:0	0-0:0	0	0	0	0	0-0:0	0-0:0

Generated: Fri, 29 Oct 2004 17:47:52 +0200

# Host information

**gridfirb1.ba.infn.it**

CPU Vendor: GenuineIntel  
CPU Model: Intel(R) Xeon(TM) CPU 2.40GHz  
CPU Version:  
CPU ClockSpeed: 2399  
CPU Load1Min: 0.0  
CPU Load5Min: 0.0  
CPU Load15Min: 0.2  
CPU User: 0  
CPU Nice: 0  
CPU System: 0  
CPU Idle: 100  
RAM Size: 2015  
RAM Available: 1431  
RAM Used: 584  
RAM Cached: 221  
RAM Shared: 0  
RAM Buffer: 42  
Virtual Size: 2532  
Virtual Available: 1939  
Virtual Used: 593  
MPage Frequency Read: 0  
MPage Frequency Write: 2  
MPage Last Read: 0  
MPage Last Write: 92  
SPage Frequency Read: 0  
SPage Frequency Write: 0  
SPage Last Read: 0  
SPage Last Write: 0  
ProcTotal: 62  
ProcSleeping: 60  
ProcRunnable: 2  
ProcZombie: 0  
ProcUnint. Sleep: 0  
ProcStopped: 0  
IntFrequency: 35  
IntLast: 2124  
CSFrequency: 115  
CSLast: 6912  
SCKTotal: 48  
SCKTCP: 9  
SCKUDP: 21  
SCKRAW: 0  
BogoMips: 9594  
SMPSize: 2  
OSName: Linux  
OSRelease: 2.4.20-30.7.legacy SMP

**gridba2.ba.infn.it** File System Statistics

name	root	type	size	avSpace	readOnly	partition	readRate	writeRate	INodeTotal	INodeFree
/boot	/boot	ext3	37 Mb	22 Mb	f	/dev/sda1	0	0	10*10 <sup>3</sup>	9*10 <sup>3</sup>
/	/	ext3	32 Gb	4 Gb	f	/dev/sda2	0	95	4*10 <sup>6</sup>	3*10 <sup>6</sup>

Close

- File system Information
  - Used/Available Space
  - Used/Available Inode
- Used/Available RAM Memory (Real/Virtual)
- CPU Utilization (System/User/Nice)
- Load (1/5/15 Min)
- Number of Process (Total/Running/Sleep/Zombie/Stopped)

# Usage control

## Job Monitoring view History

VO name	Jobs Running	VO totals		view graph
		Jobs Queued	Jobs Total	
atlas	75	0	75	
babar	14	86	100	
biomed	1	0	1	
cms	3	1	4	
dteam	10	0	10	
gridit	12	49	61	
virgo	3	0	3	
<b>TOTAL</b>	<b>118</b>	<b>136</b>	<b>254</b>	

Site Name: <b>ba.infn.it</b>				view graph
VO name	Jobs Running	Jobs Queued	Jobs Total	
biomed	1	0	1	
cms	1	0	1	
gridit	2	0	2	
<b>TOTAL</b>	<b>4</b>	<b>0</b>	<b>4</b>	

Site Name: <b>bo.infn.it</b>				view graph
VO name	Jobs Running	Jobs Queued	Jobs Total	
cms	1	0	1	
<b>TOTAL</b>	<b>1</b>	<b>0</b>	<b>1</b>	

Site Name: <b>cr.cnaf.infn.it</b>				view graph
VO name	Jobs Running	Jobs Queued	Jobs Total	
atlas	7	0	7	
dteam	1	0	1	
<b>TOTAL</b>	<b>8</b>	<b>0</b>	<b>8</b>	

Site Name: <b>ct.infn.it</b>				view graph
VO name	Jobs Running	Jobs Queued	Jobs Total	
gridit	1	0	1	
<b>TOTAL</b>	<b>1</b>	<b>0</b>	<b>1</b>	

Site Name: <b>fe.infn.it</b>				view graph
VO name	Jobs Running	Jobs Queued	Jobs Total	
babar	14	86	100	
gridit	0	40	40	
<b>TOTAL</b>	<b>14</b>	<b>126</b>	<b>140</b>	

Site Name: <b>le.infn.it</b>				view graph
VO name	Jobs Running	Jobs Queued	Jobs Total	
atlas	12	49	61	
virgo	3	0	3	
<b>TOTAL</b>	<b>15</b>	<b>49</b>	<b>64</b>	

## Job Monitoring History

Site	alice	atlas	babar	bio	biomed	cdf	cms	dteam	egrid	g1	cms	gridit	inaf	infgrid	ingv	lhcb	n/a	virgo	zeus
ba.infn.it		atlas	babar	bio	biomed		cms					gridit	inaf	infgrid	ingv	lhcb		virgo	
bo.infn.it	alice		babar	bio		cdf	cms					gridit	inaf	infgrid		lhcb	n/a	virgo	
ca.infn.it	alice		babar	bio		cdf	cms					gridit	inaf	infgrid		lhcb		virgo	
cern.ch																			
cnaf.infn.it	alice	atlas	babar	bio			cdf	cms	dteam			gridit	inaf	infgrid	ingv	lhcb			zeus
cr.cnaf.infn.it	alice	atlas						cms	dteam								lhcb	n/a	virgo
ct.infn.it	alice	atlas	babar	bio				cms	dteam			gridit	inaf	infgrid		lhcb		virgo	
dma.unina.it																			
fe.infn.it			babar	bio		cdf	cms					gridit	inaf	infgrid	ingv	lhcb		virgo	
le.infn.it												gridit		infgrid					
lnl.infn.it	alice	atlas						cms	dteam					infgrid		lhcb			
mi.infn.it		atlas							dteam										
na.infn.it	alice	atlas	babar	bio				cms	dteam			gridit	inaf	infgrid	ingv	lhcb		virgo	
oat.ts.astro.it												gridit	inaf	infgrid					
pd.infn.it	alice		babar	bio	biomed	cdf	cms		egrid	g1	cms	gridit	inaf	infgrid	ingv	lhcb		virgo	zeus
pg.infn.it							cms					gridit		infgrid					
pi.infn.it		atlas	babar	bio		cdf	cms					gridit	inaf	infgrid		lhcb		virgo	
roma1.infn.it		atlas	babar	bio				dteam				gridit	inaf	infgrid				virgo	
roma2.infn.it		atlas	babar	bio				cms				gridit	inaf	infgrid				virgo	
sns.it		atlas		bio				cms				gridit	inaf	infgrid				virgo	
to.infn.it	alice	atlas						cms	dteam					infgrid		lhcb			
ts.infn.it			babar					cms				gridit	inaf	infgrid		lhcb			

- How many jobs are running of each VO
- Which VO is running in which site
- Graphical view of distribution

# Useful links

- INFN Production Grid
  - <http://grid-it.cnaf.infn.it/>
- INFN GridICE
  - <http://grid-it.cnaf.infn.it/index.php?grisview&type=1>
- INFN test and certification
  - <http://grid-it.cnaf.infn.it/index.php?sitetest&type=1>
- INFN Support
  - <http://grid-it.cnaf.infn.it/index.php?id=51&type=1>