# Web interface for generic grid jobs
# Web4Grid

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GRID CSIC

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# Grid users and current interfaces

**Users**

- Usual grid users are involved in large projects, and they
  - have enough resources to create (web) interfaces for their applications
  - usually run a few number of applications

- Small research groups and individuals do not take advantage of grid because
  - the access is cumbersome (certificates, large number of commands, ...)
  - requires a learning period that cannot be afforded
  - researchers developed their own applications and they need to run a large number of (different) applications

**Current interfaces are**

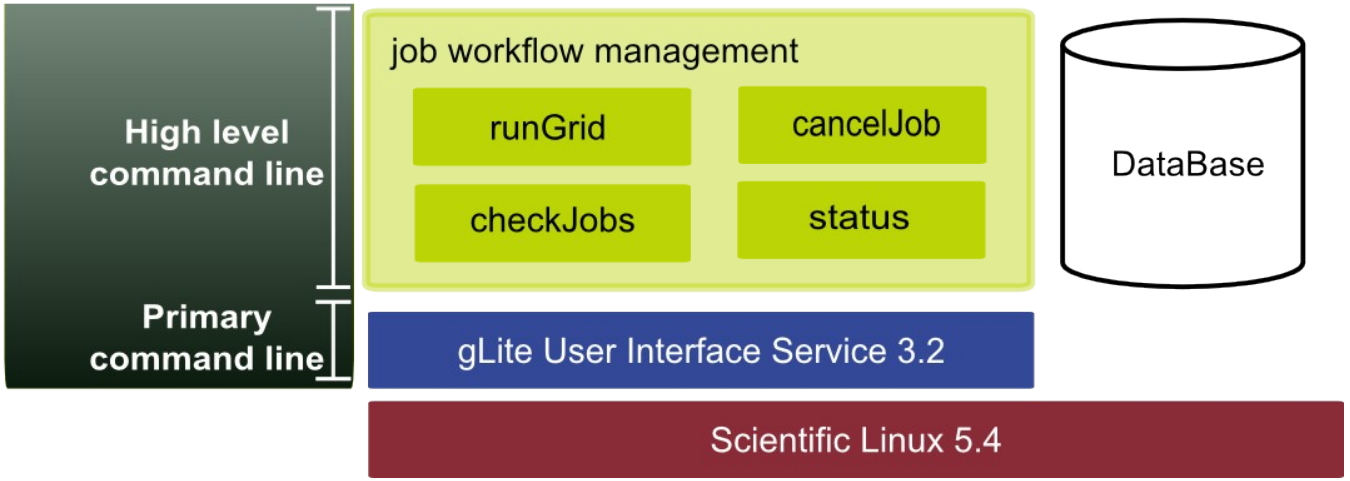
- application related
- unfriendly
- too complex

# Wish list

- no need to adapt applications to grid
- no need to know all the grid technologies behind gLite to use the grid
- no need to learn a large number of cumbersome commands
- inputs automatically uploaded to the SE
- outputs automatically downloaded to an specific directory
- non (long term) proxy issues
- user friendly interface
- non application dependent interface
- run jobs in grid as easily as if it was a cluster

**an interface that makes grid easy!**

# Command line interface




Assumptions

- Most of the jobs do not use parallelization
- All the files created by the applications are output files
- Long term proxies are created by default
- Input and output files are not extremely large (when using the web)

# CLI usage

**Run a job:**

runGrid -a application -p “p1 p2 -temp” -i inputfile.dat,*.ini,dir/*.dat

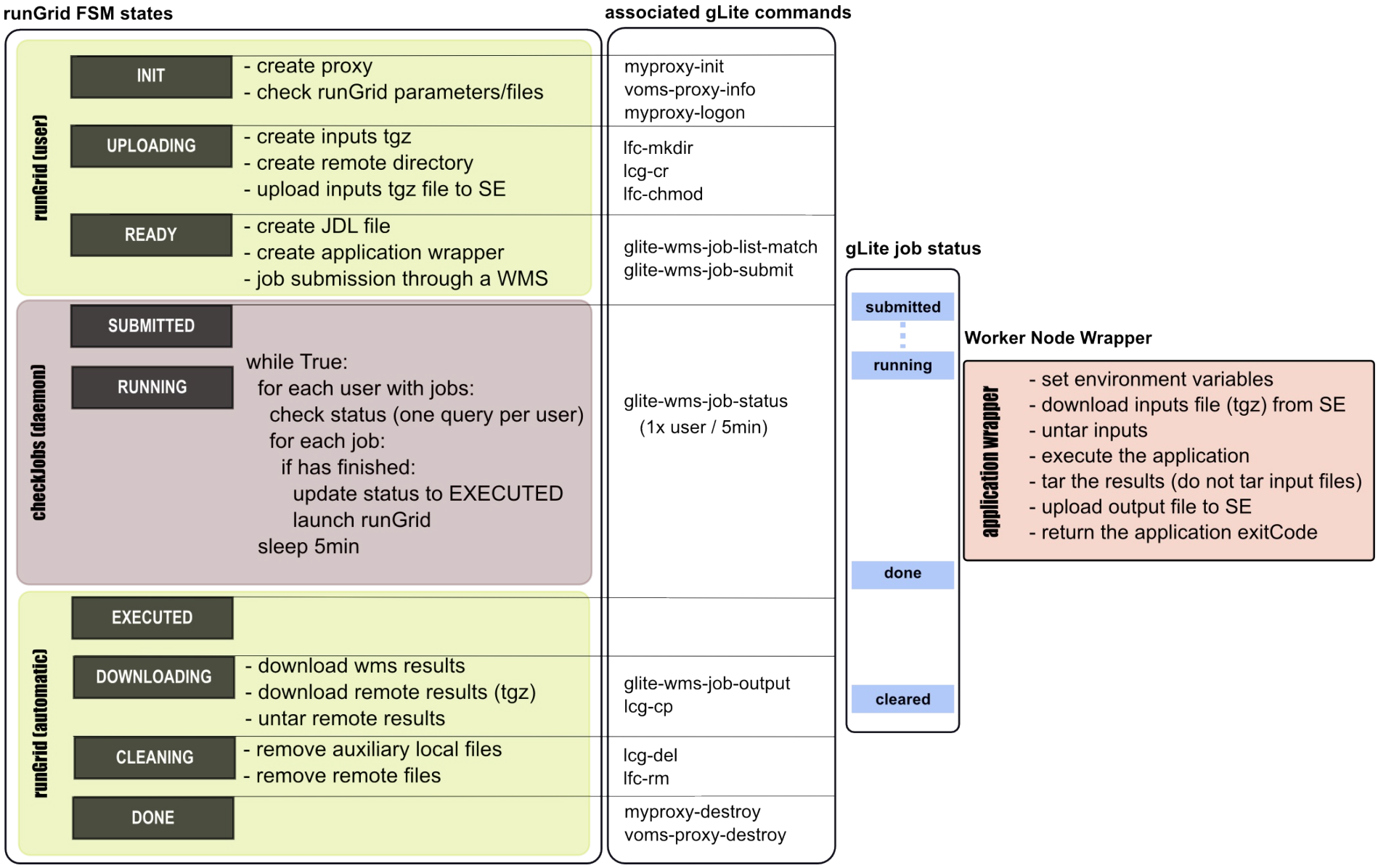
**Check jobs status:**

```
[antonia@nureddunaui ~]$ status


Id   | Username | application  | arguments | inputs        | outputsDir              | short | jobType | status    | checkedAt
-------------------------------------------------------------------------------------------------------------------------------
4952 | antonia  | mc4096blas.x |           |  mc4096blas.x | outputs_20110604_123549 | 0     | Normal  | SUBMITTED | 20110604_123605

Username | totalJobs | runningJobs | waitingJobs
---------------------------------------------
antonia  | 1         | 0           | 1

[antonia@nureddunaui ~]$
```

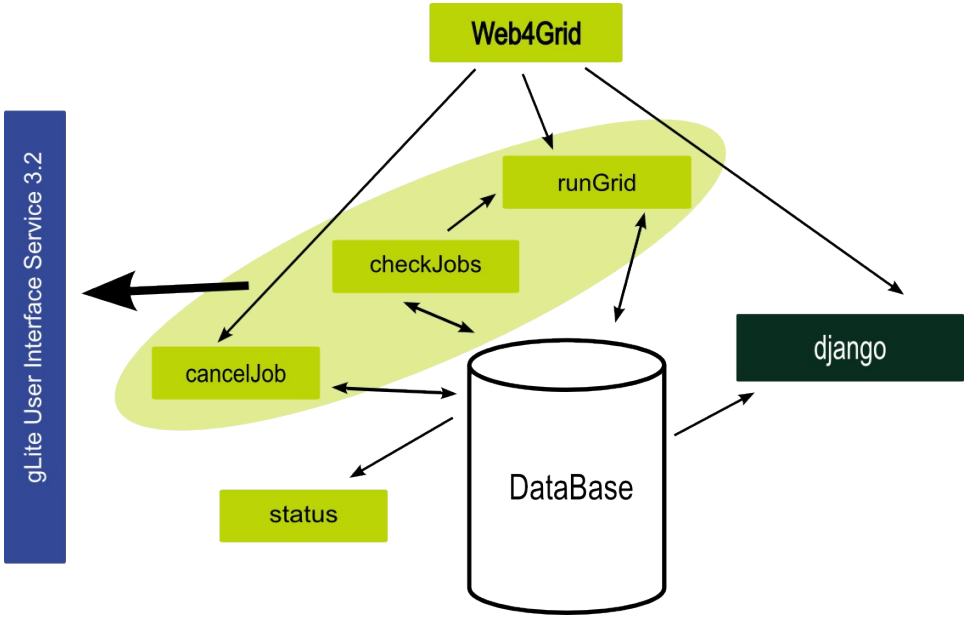
**Cancel Jobs:**

cancelJobs -p id1 id2
cancelJobs -a

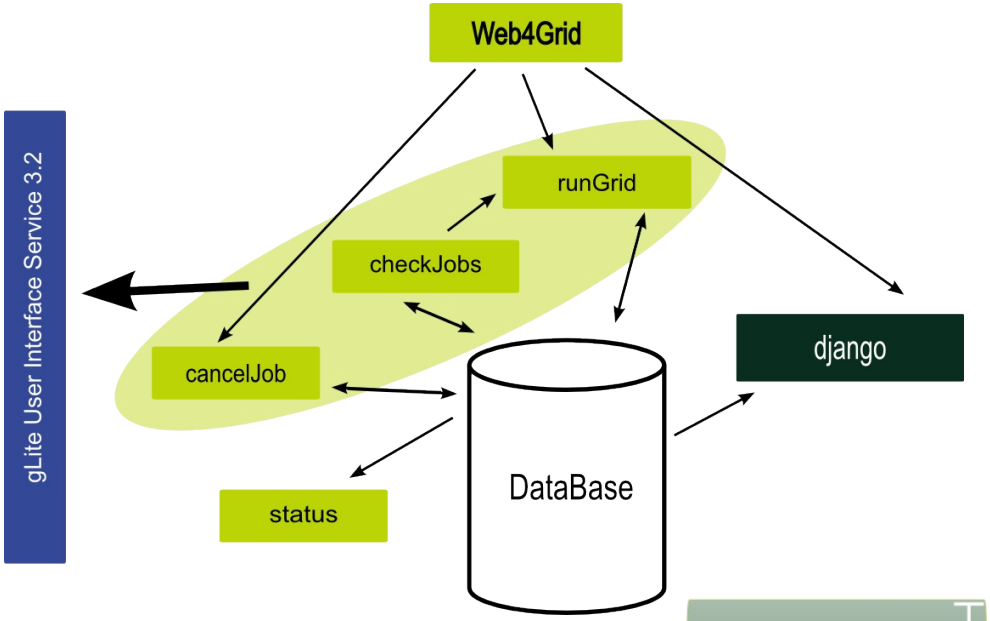
# CLI FSM


runGrid FSM states
associated gLite commands
runGrid (user)
INIT
- create proxy
- check runGrid parameters/files
myproxy-init
voms-proxy-info
myproxy-logon
UPLOADING
- create inputs tgz
- create remote directory
- upload inputs tgz file to SE
lfc-mkdir
lcg-cr
lfc-chmod
READY
- create JDL file
- create application wrapper
- job submission through a WMS
glite-wms-job-list-match
glite-wms-job-submit
checkJobs (daemon)
SUBMITTED
RUNNING
while True:
for each user with jobs:
check status (one query per user)
for each job:
if has finished:
update status to EXECUTED
launch runGrid
sleep 5min
glite-wms-job-status
(1x user / 5min)
runGrid (automatic)
EXECUTED
DOWNLOADING
- download wms results
- download remote results (tgz)
- untar remote results
glite-wms-job-output
lcg-cp
CLEANING
- remove auxiliary local files
- remove remote files
lcg-del
lfc-rm
DONE
myproxy-destroy
voms-proxy-destroy
gLite job status
submitted
running
done
cleared
Worker Node Wrapper
application wrapper
- set environment variables
- download inputs file (tgz) from SE
- untar inputs
- execute the application
- tar the results (do not tar input files)
- upload output file to SE
- return the application exitCode

# Web4Grid


gLite User Interface Service 3.2
Web4Grid
runGrid
checkJobs
cancelJob
status
DataBase
django

# Web4Grid


Web4Grid
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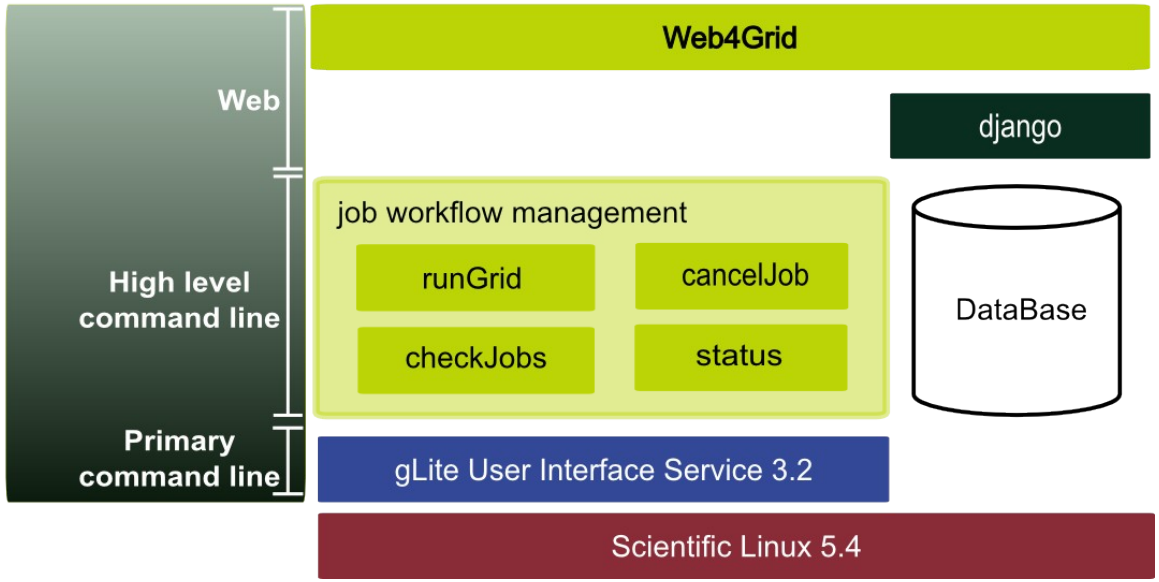
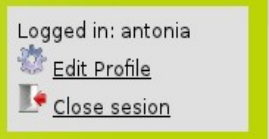
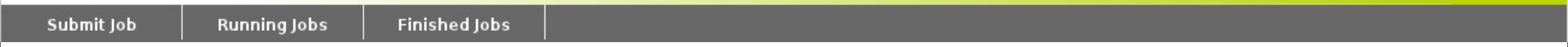

Web
High level command line
Primary command line
Web4Grid
django
job workflow management
runGrid
cancelJob
checkJobs
status
DataBase
gLite User Interface Service 3.2
Scientific Linux 5.4




- Django application
- Django-registration (registration + profile)
- Monitor jobs
- Check single job “complete” information
- Submit jobs
- Cancel jobs
- Fit users requests (when possible)

Logged in: antonia
Edit Profile
Close sesion

Submit Job | Running Jobs | Finished Jobs

## Edit profile

### User Information:

**First Name:** Antònia
**Last Name:** Tugores
**Email:** antonia@ifisc.uib-csic.es
**Institute:** IFISC
**Institution:** CSIC-UIB
**Phone Number:** 971259922
**Password:** Change

### Grid authorization:

**Certificate (pem):** Browse...
**Key (pem):** Browse...
**Key password:**
**VO:** vo.ifisc.csic.es

Update

Logged in: antonia
Edit Profile
Close sesion

Submit Job | Running Jobs | Finished Jobs

## Running Jobs

| | Id | Application | Parameters | Inputfiles | Submittet At | Status | Last Check |
|---|---|---|---|---|---|---|---|
| ☐ | 80 | matvecz_64_ifort11_fast.x | | matvecz_64_ifort11_fast.x | Sept. 6, 2011, 12:05 p.m. | SUBMITTED | Sept. 6, 2011, 3:15 p.m. |
| ☐ | 81 | matvecz_64_ifort11_fast.x | | matvecz_64_ifort11_fast.x | Sept. 6, 2011, 3 p.m. | SUBMITTED | Sept. 6, 2011, 3:15 p.m. |
| ☐ | 82 | mc6674blas_64.x | -k | data0 mc6674blas_64.x | Sept. 6, 2011, 3:15 p.m. | UPLOADING | None |

Refresh | Select All | Cancel Selected

# Details for job 80 (antonia)

## Basic data

| | |
|---|---|
| **Script submission date:** | Sept. 6, 2011, 12:05 p.m. |
| **Working Directory:** | /home/antonia/job_0ZR2hMLjzS |
| **Application:** | matvecz_64_ifort11_fast.x |
| **Parameters:** | |
| **Uploaded files:** | matvecz_64_ifort11_fast.x |
| **Outputs Directory:** | /home/antonia/job_0ZR2hMLjzS/outputs_80 |
| **Lasts less than 4 hours?** | False |

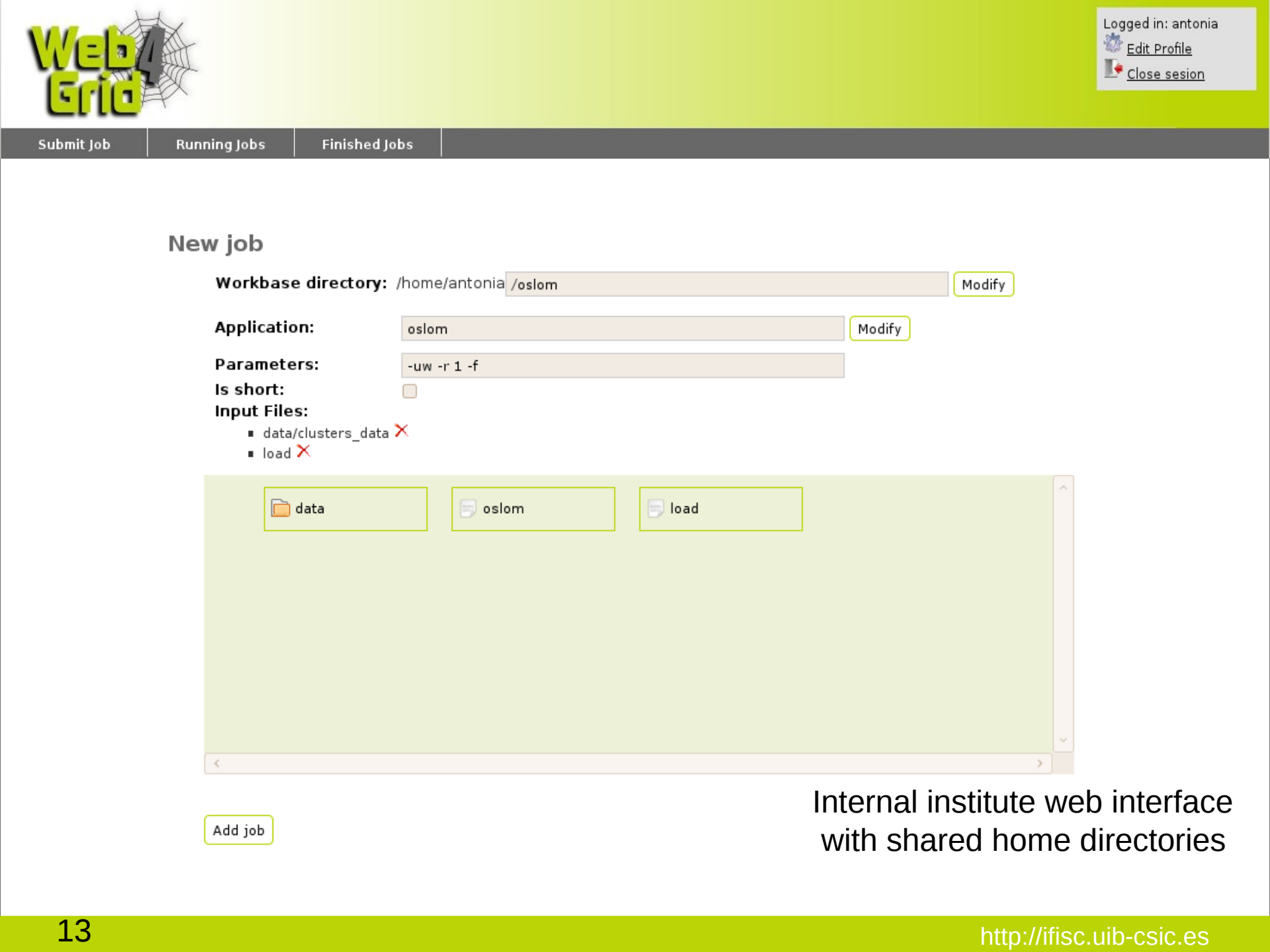
## Status Information

| | |
|---|---|
| **Current Status:** | SUBMITTED |
| **Last check time:** | Sept. 6, 2011, 3:16 p.m. |

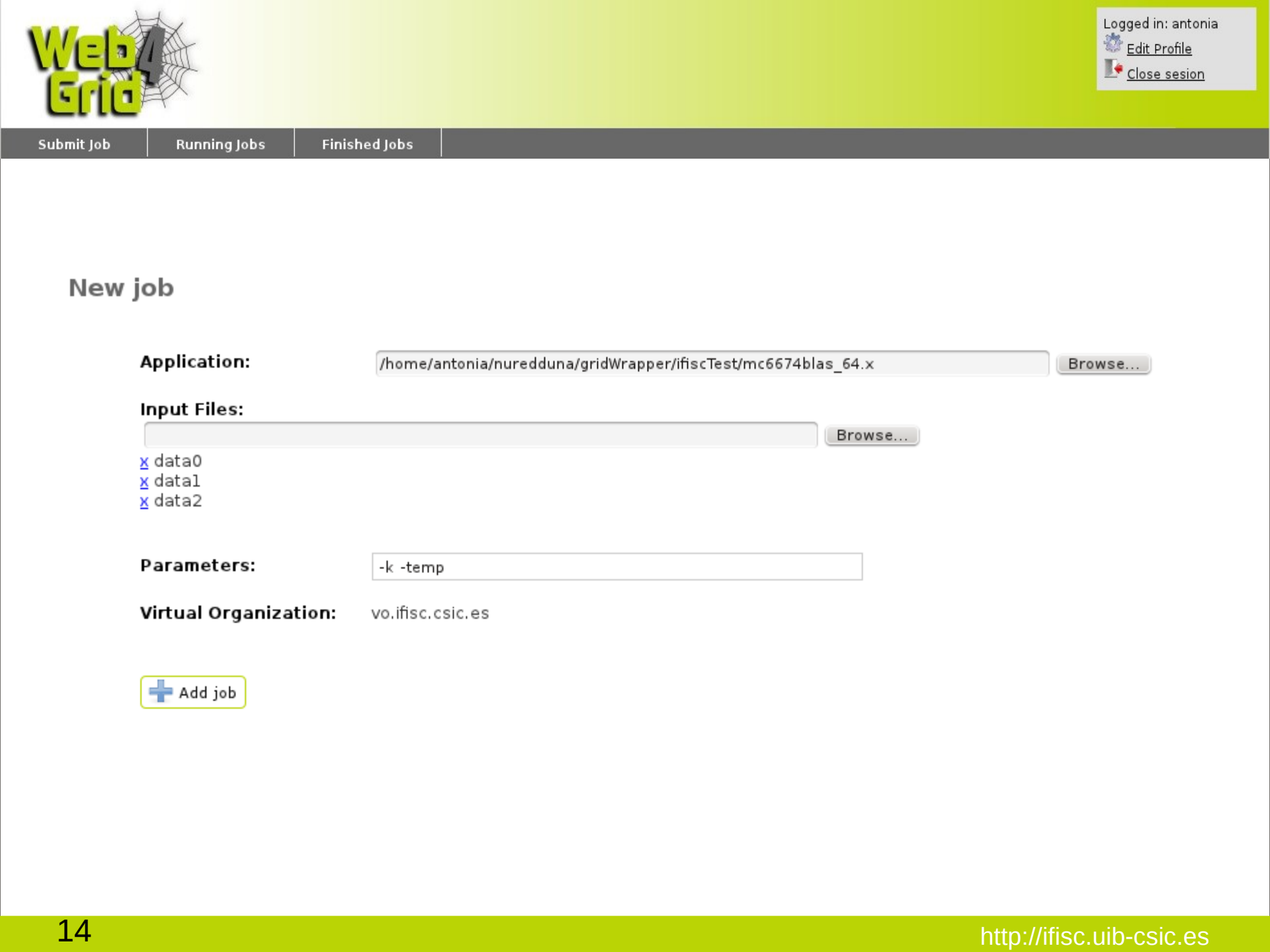
## Other data

| | |
|---|---|
| **Wrapper PID:** | 6434 |
| **Virtual Organization:** | vo.ifisc.csic.es |
| **Job Type:** | Normal |
| **Grid Job Identifier:** | https://wms01.ific.uv.es:9000/ED50VF8pPy50uq3gnrJ3MA |
| **Grid Submission Date:** | Sept. 6, 2011, 12:05 p.m. |
| **Storage Element:** | nureddunase.uib-csic.es |
| **LFC:** | nureddunalfc.uib-csic.es |

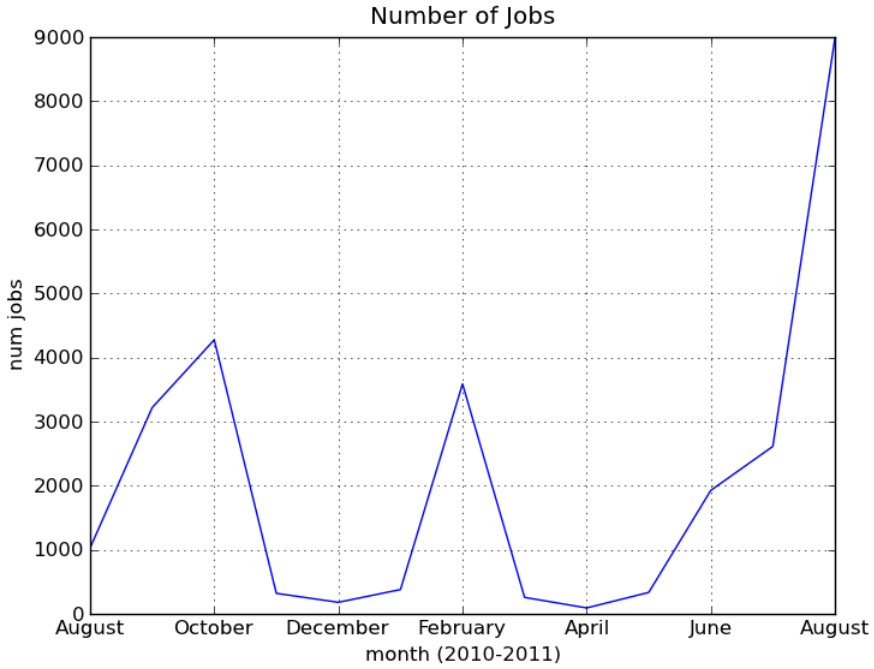
Cancel Job



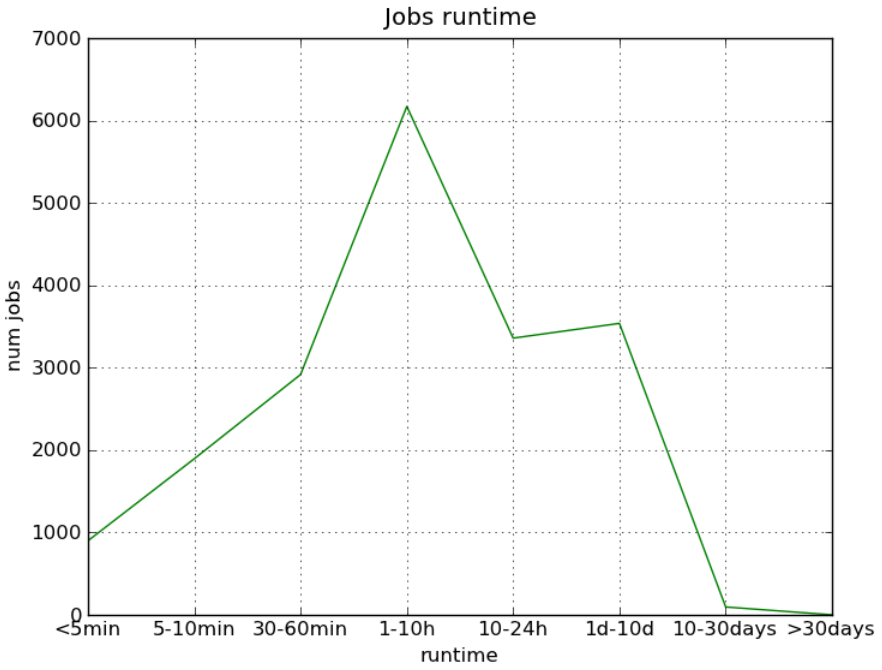

Internal institute web interface with shared home directories


Web4 Grid
Logged in: antonia
Edit Profile
Close sesion
Submit Job
Running Jobs
Finished Jobs
New job
Application:
/home/antonia/nuredduna/gridWrapper/ifiscTest/mc6674blas_64.x
Browse...
Input Files:
Browse...
x data0
x data1
x data2
Parameters:
-k -temp
Virtual Organization:
vo.ifisc.csic.es
Add job

# Statistics




Total Number of jobs: 28215



# Conclusions

- User friendly command line interface (just four commands)
- User friendly web interface
- Non application dependent
- One command manages the job execution
- Reliable
- Suitable non usual grid users
- Allows “parametrization” using the command line interface

(web parametrization will be included in future versions)

**Thank you!**

**Questions?**