GRIDCAKE & GRIDCAMP
MAKING THE GRID EASIER

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CETA–CIEMAT
ABOUT GRID

» Useful technology, specially for researchers.
» Great tool for collaboration.
» Command line interfaces as typical front-end.
» CLIs are complex for non-technical users.
» Complexity causes contempt.
» It doesn't hide its internals.
The Grid has to be friendlier!
ABOUT GRID WEB PORTALS

» Alternative to command line interfaces.

» They only need a simple web browser.

» They can hide Grid internals.

» Two types:
  » Built for particular projects.
  » Generics.

» An essential pillar in the forthcoming Grid.
ABOUT GLITE DEVELOPMENT TOOLS

» **Globus Commodity Grid Kits**
  - 😊 The base for a lot of libraries. Generic.
  - 😞 Complex.

» **Official Java libraries of gLite**
  - 😊 Official.
  - 😞 No documentation and seems to be discontinued.

» **jLite**
  - 😊 Proper documentation. And it works!
  - 😞 No official support for new gLite/EMI versions.
OUR MOTIVATIONS

» To create a Grid library:
  » Easy to use.
  » Well documented.
  » Compatible with the latest gLite version.

» To create a Grid web portal:
  » User friendly.
  » Generic.
  » Oriented to collaboration between users.
An easy GLITE Java library
HIGHLIGHTS

» Support most of the basic Grid services.
» Java library.
» It doesn't need any User Interface.
» Based on jLite.
» Designed to be really simple.
» Documented with Javadoc and examples.
SUPPORTED SERVICES

VOMS
- Proxy creation
- Proxy delegation

MyProxy
- Delegation
- Retrieval

CREAM
- Job sent
- Job monitoring
- Pause / Resume
- Batch operations

GridFTP
- Upload
- Download
- Delete
- List
**SOME EXAMPLES**

**Proxy creation**

```java
gridSessionConfig = generateGridSessionConfig("password");
lifetime = 4 * 43200;

gliteProxyFactoryConfig = new GliteProxyFactoryConfig(
    gridSessionConfig,
    lifetime,
    "ceta");

gliteProxy = GliteProxyFactory.generateGliteProxy(gliteProxyFactoryConfig)
```

**GridFTP operations**

```java
gridFTP = new GridFTPService("se-test.ceta-ciemat.es", 2811);
gridFTP.upload(gliteProxy, new byte[] {1, 2, 3, 4, 5}, "/tmp/destino");
byte[] content = gridFTP.download(gliteProxy, "/tmp/origen");
```
SOME EXAMPLES

Job creation

```java
CREAMSService creamService = new CREAMSService("https://ce-test.ceta-ciemat.es:8443/ce-cream/services");

String delegationId = creamService.delegateProxy(gliteProxy, 3600 * 1000 * 6);

JobDescription jobDescription = new JobDescription();
jobDescription.setDelegationId(delegationId);
jobDescription.setJDL(jdlAsString);

JobId jobId = creamService.registerJob(jobDescription);

Result resultStartJob = creamService.startJob(jobId, delegationId);
```

Job monitoring

```java
Status jobStatus = creamService.jobStatus(jobId, delegationId).getJobStatus();

System.out.println("statusDescription=" + jobStatus.getDescription());
System.out.println("statusName=" + jobStatus.getName());
System.out.println("statusFailure=" + jobStatus.getFailureReason());
System.out.println("statusExitCode=" + jobStatus.getExitCode());
```
SOME EXAMPLES

JDL utilities

List<String> inputsToUpload = JDLCREAMUtils.getInputToUpload(jdlAsString);
for (String input : inputsToUpload) {
    gridFTP.upload(gliteProxy, byteArray.get(input), input);
}

List<String> outputsToUpload = JDLCREAMUtils.getOutputToDownload(jdlAsString);
for (String output : outputsToUpload) {
    byte[] content = gridFTP.download(gliteProxy, output);
}
AVAILABLE AT

https://github.com/csuarez/gridcake
gridCamp
A GLITE WEB PORTAL FOR COLLABORATION
HIGHLIGHTS

» Developed using gridCake and GWT.

» Design focused on collaborative features.

» gridCamp doesn’t need a User Interface.

» Suitable for all kind of projects.

» Easy to use.

» It shares features with social networks.
USER MANAGEMENT

» Simple registration.

» No need of Grid credentials.

» Every user has a public profile.

» Every user can be friend of another user.

» Friends can exchange messages.

» The users could form PROJECTS.
PROJECT MANAGEMENT

» Group of users.

» Every project has a public profile.

» Every user could create a project.

» Every project has a message board.

» gridCamp could host multiple projects.

» Every GRID JOB is associated to a project.
Job management

- Jobs could have metadata associated.

- Any member of a project could:
  - Send jobs.
  - Monitor any job of the project.
  - Get the output of any job of the project.

- Inputs are sent via HTTP uploads.

- Outputs are gotten via HTTP downloads.
GRIDCAMP ARCHITECTURE

[Diagram of GridCamp architecture with various components and connections, including a web server, MySQL DB, robot certificate, gridCamp, gridCalc, and glite infrastructure.]
SOME SCREENSHOTS

Login

Username: username

Password: 

Enter  Register
## Registration

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Username</td>
<td>username</td>
</tr>
<tr>
<td>Name</td>
<td>name</td>
</tr>
<tr>
<td>Surname</td>
<td>surname</td>
</tr>
<tr>
<td>Institution</td>
<td>institution</td>
</tr>
<tr>
<td>Country</td>
<td>country</td>
</tr>
<tr>
<td>Password</td>
<td>password</td>
</tr>
</tbody>
</table>

[Register] [Cancel]
SOME SCREENSHOTS

Last project updates

<table>
<thead>
<tr>
<th>Project</th>
<th>User</th>
<th>Date</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weapon X</td>
<td>mzuckerberg</td>
<td>2011-09-17</td>
<td>Let's go!!!</td>
</tr>
<tr>
<td>Weapon X</td>
<td>bgates</td>
<td>2011-09-17</td>
<td>Hello :D</td>
</tr>
</tbody>
</table>

Last jobs

<table>
<thead>
<tr>
<th>Project</th>
<th>JobId</th>
<th>LastCheck</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weapon X</td>
<td>CREAM6780539302</td>
<td>2011-09-17</td>
<td>IDLE</td>
</tr>
</tbody>
</table>

Last received messages

<table>
<thead>
<tr>
<th>User</th>
<th>Date</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>swozniak</td>
<td>2011-09-17</td>
<td>ROFL</td>
</tr>
</tbody>
</table>
## gridCamp

### Dashboard, Profile, Projects, Users, Jobs

<table>
<thead>
<tr>
<th>Username</th>
<th>Bill Gates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Bill</td>
</tr>
<tr>
<td>Surname</td>
<td>Gates</td>
</tr>
<tr>
<td>Institution</td>
<td>Microsoft</td>
</tr>
<tr>
<td>Country</td>
<td>USA</td>
</tr>
</tbody>
</table>

### Messages, Friends, Projects, Jobs

**User** | **Date** | **Message**
---|---|---
smiyamoto | 2011-09-17 | arigato!!
swozniak | 2011-09-17 | ROFL
spols | 2011-09-17 | LOVLWUT
lirwalds | 2011-09-17 | Linux 
!
SOME SCREENSHOTS

![gridCamp](image-url)

**Short Name**: Weapon X  
**Long Name**: Weapon X Project  
**Description**: Genetic research which turns willing and unwilling beings into living weapons.  
**Administrator**: bgates

<table>
<thead>
<tr>
<th>Messages</th>
<th>Users</th>
<th>Jobs</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>User</th>
<th>Date</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>bgates</td>
<td>2011-09-17</td>
<td>Hello! :D</td>
</tr>
<tr>
<td>mzuckerberg</td>
<td>2011-09-17</td>
<td>Let's go!!!1!!</td>
</tr>
</tbody>
</table>

*powered by gridCake*
SOME SCREENSHOTS
### Some Screenshots

#### GridCamp

**Description**: Genetic research which turns willing and unwilling beings into living weapons.

**Administrator**: bgates

<table>
<thead>
<tr>
<th>Description</th>
<th>JobId</th>
<th>User</th>
<th>Last Status</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sleep Job</td>
<td>CREAM197216247</td>
<td>m扎克伯克</td>
<td>DONE</td>
<td></td>
</tr>
<tr>
<td>Test #1</td>
<td>CREAM7880302802</td>
<td>bgates</td>
<td>IDLE</td>
<td></td>
</tr>
<tr>
<td>Testing new infrastructure</td>
<td>CREAM7880229060</td>
<td>statman</td>
<td>DONE-OK</td>
<td>2011-09-17</td>
</tr>
<tr>
<td>Test #2 -- Sending inputs</td>
<td>CREAM7880338361</td>
<td>m扎克伯克</td>
<td>PENDING</td>
<td>2011-09-17</td>
</tr>
</tbody>
</table>
FUTURE WORK

gridCake
» Additional Grid Services support
» Job management
» Documentation

gridCamp
» More collaborative features
» GridCertLib based security
» To improve the Grid Related functionalities
» JDL generator
» Job workflow support
CETA-CIEMAT acknowledges the support received from the European Regional Development Fund through its Operational Programme Knowledge-based Economy.

PROJECT DEVELOPED AT
CETA-CIEMAT
TRUJILLO (SPAIN)

CETA-CIEMAT acknowledges the support received from the European Regional Development Fund through its Operational Programme Knowledge-based Economy.
THANKS!
ANY QUESTIONS?
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