



The GENIUS Grid Portal : some success stories!

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INFN Catania

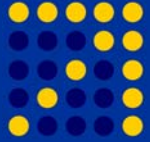
giuseppe.larocca@ct.infn.it

Joint EGEE and SEE-GRID Summer School
on Grid Application Support
Budapest – Hungary, June 25–30, 2007



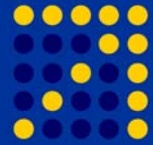


- **Grid Portals technology**
- **EnginFrame framework**
- **The GENIUS Grid Portal**
- **Some Integrated Applications**
- **References**



A grid portal: why and how

- It can be accessed from everywhere and by “everything” (desktop, laptop, PDA, cell phone).
- It can keep the same user interface to several back-ends.
- It must be redundantly “secure” at all levels:
 - 1) secure for web transactions,
 - 2) secure for user credentials,
 - 3) secure for user authentication,
 - 4) secure at VO/VOMS level.
- All available grid services must be incorporated in a logic way, just “one mouse click away”.
- Its layout must be easily understandable and user friendly.

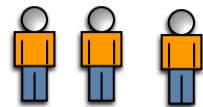


- **A Grid Portal improves usability of Grids**
 - Lowering end-user requirements for accessing the Grid
 - Hiding the complexity of data and job services management in the Grid
- **A Grid Portal improves utilization of Grids**
 - Making the Grid (r)evolution transparent to the end-user
 - Providing an appealing user-friendly Web interface
 - Enforcing Grid utilization policies

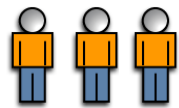


BioinfoGRID

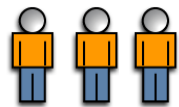
The Grid Portal / Gateway



Home Users



Project Managers



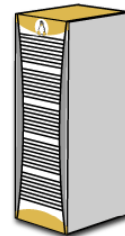
Internal Users



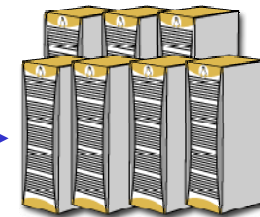
Client Apps



Standard protocols



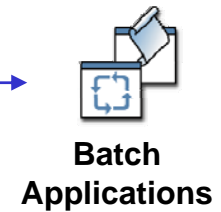
Grid Portal / Gateway



Grid / Compute Farm



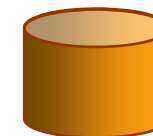
Licenses



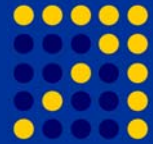
Batch Applications



Interactive Applications



Storage and Data

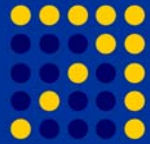


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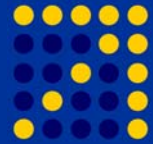
What EnginFrame is ?

- It is a web-based technology able to expose Grid services running on Grid infrastructures
- It allows organizations to provide application-oriented computing and data services to both users (via Web browsers) and applications (via SOAP/WSDL and/or RSS)
- It's a Grid *gateway*
- It greatly simplifies the development of Web Portals exposing computing services that can run on a broad range of different computational Grid systems



Who uses EnginFrame?

- **Mechanical**
 - Ferrari, Audi, BMW, FIAT Auto, Elasis, Magneti Marelli, P+Z, Swagelok, Toyota, TRW
- **Manufacturing**
 - Bridgestone, Procter & Gamble, Galileo Avionica
- **Oil&Gas**
 - Slavneft, Schlumberger, TOTAL, VNIIGaz
- **Electronics**
 - STMicroelectronics, Accent, SensorDynamics, Motorola
- **Biotech**
 - ENEA, EGEE LS community
- **Telecom**
 - Telecom Italia
- **Research**
 - INFN, ASSC, CCLRC, CERN, CILEA, CINECA, CNR, CNRS/IN2P3, ENEA, FzU, ICI, IFAE, ITEP, JSC G.G.M., KU Leuven, SSC-Russia, SDSC
- **Education**
 - Dresda University, Ferrara University, ITU, Messina University, Politecnico of Milan, Technische Universität Dresden, Trinity College Dublin, Salerno University, S-PACI



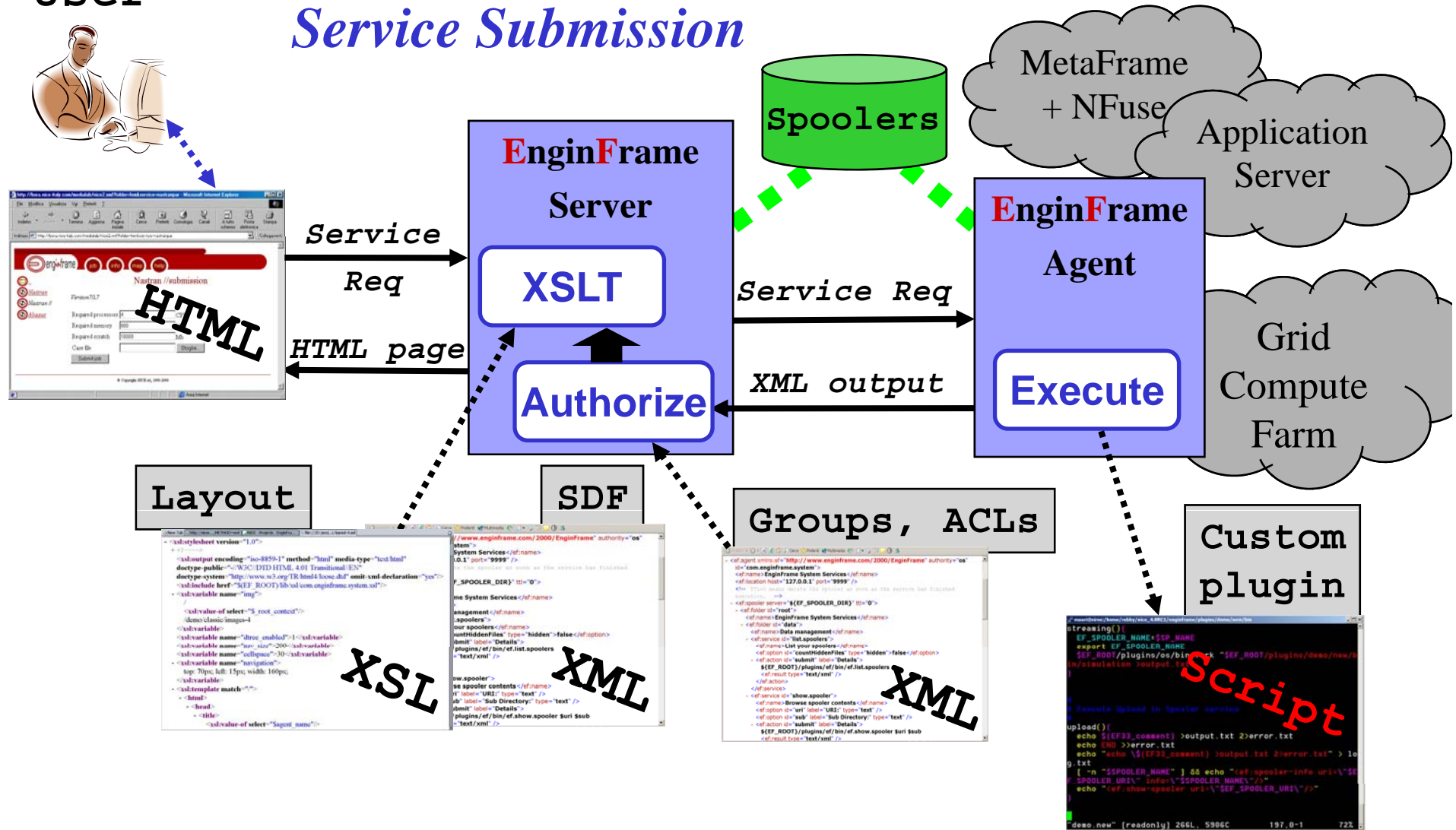
EnginFrame Working Environment

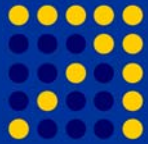
BioinfoGRID

User



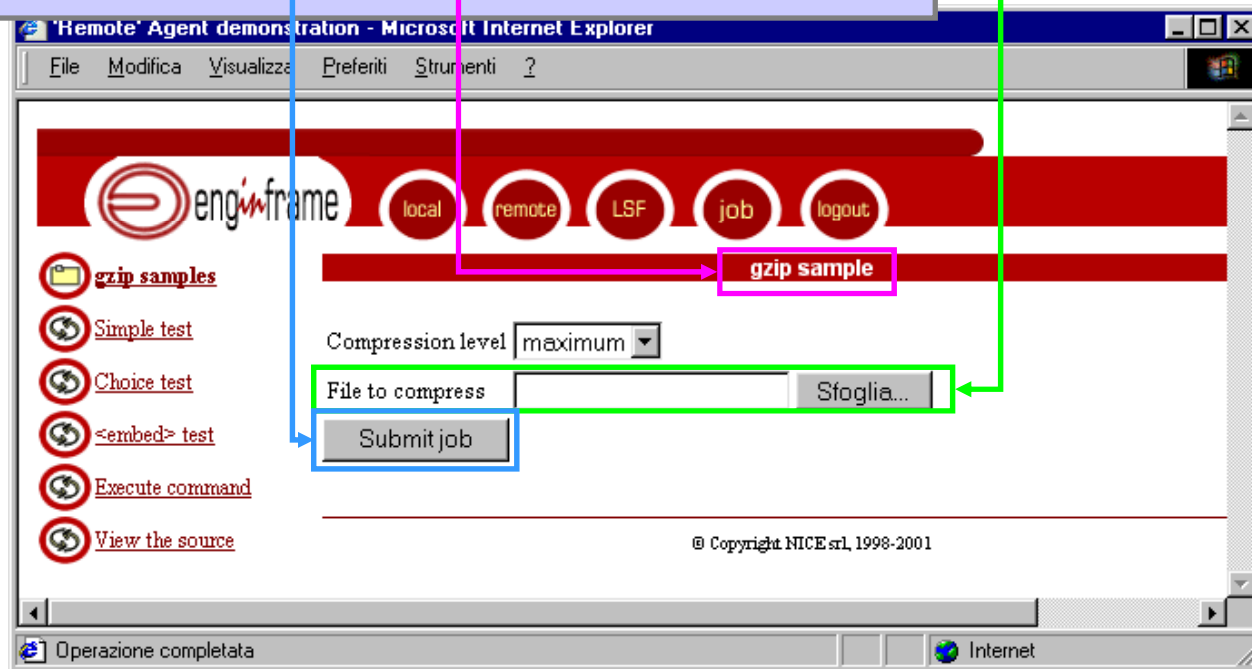
Service Submission





Service example

```
<ef:service id="gzip">  
  <ef:name>gzip sample</ef:name>  
  <ef:option id="level" label="Compression level" type="list">  
    <ef:option id="9">maximum</ef:option>  
    <ef:option id="4">medium</ef:option>  
    <ef:option id="0">none</ef:option>  
  </ef:option>  
  <ef:option id="FILE" label="File to compress" type="file"/>  
  <ef:action id="submit" label="Submit job">  
    EF_SPOOLER_NAME="gzip $file"  
    export EF_SPOOLER_NAME  
    ${EF_ROOT}/plugins/lsf/bin/bsub -o output.txt gzip -$level \"${FILE}\"  
  <ef:result type="text/xml"/></ef:action>  
</ef:service>
```





Usability & Input Management

User friendly,
Application-oriented
Job submission

Flexible and efficient
Input file management

Hide complexity of
underlying scheduler

The screenshot shows the GridAge 4.0 web interface. The browser window title is 'Mozilla Firefox' and the address bar shows 'http://www.gridage.com/enginframe/gridage/main/gridage.xml?_folder=rc'. The page has a blue header with the 'GRID AGE 4.0' logo. Below the header are tabs for 'my jobs', 'all jobs', 'cluster load', and 'logout'. A sidebar on the left lists 'Grid Services' including MSC.Nastran, MSC.Marc, MSC.Actran, MSC.ADAMS, MSC.Dytran, MSC.PThermal, MSC.Patran, and Radioss. The main content area is titled 'MSC.Nastr' and contains a form for job submission with fields for 'Welcome to MS', 'Project:', 'Label:', 'Nastran version', 'Remote input file', 'Input file (.dat or', 'No. of CPU:', 'Additional option', 'Estimated elapsed', 'Estimated memo', 'Estimated disk s', 'Notify by mail:', 'When job starts', and 'When job finish'. A 'Submit job' button is at the bottom. To the right of the form is an XML configuration editor showing the following code:

```
<ef:agent xmlns:ef="http://www.enginframe.com/2000/EnginFrame" authority="os"
id="com.enginframe.system">
  <ef:name>EnginFrame System Services</ef:name>
  <ef:location host="127.0.0.1" port="9999" />
  <!-- ?TI=0 means delete the spooler as soon as the service has finished
execution. -->
  - <ef:spooler server="{EF_SPOOLER_DIR}" ttl="0">
    - <ef:folder id="root">
      <ef:name>EnginFrame System Services</ef.name>
      - <ef:folder id="data">
        <ef:name>Data management</ef.name>
        - <ef:service id="list.spoolers">
          <ef:name>List your spoolers</ef.name>
          <ef:option id='countHiddenFiles' type="hidden">>false</ef:option>
          - <ef:action id="submit" label="Details">
            ${EF_ROOT}/plugins/ef/bin/ef.list.spoolers
            <ef:result type="text/xml" />
          </ef:action>
        </ef:service>
        - <ef:service id="show.spooler">
          <ef:name>Browse spooler contents</ef.name>
          <ef:option id='uri' label="URI:" type="text" />
          <ef:option id='sub' label="Sub Directory:" type="text" />
          - <ef:action id="submit" label="Details">
            ${EF_ROOT}/plugins/ef/bin/ef.show.spooler $uri $sub
            <ef:result type="text/xml" />
          </ef:action>
        </ef:service>
      </ef:folder>
    </ef:spooler>
  </ef:agent>
```

The word 'XML' is written in a stylized font in the bottom right corner of the XML editor window.



- **Grid Portals technology**
- **EnginFrame Framework**
- **The GENIUS Grid Portal**
- **Some Integrated Applications**
- **References**



What GENIUS is ?

- **GENIUS is a powerful Grid Portal that allows scientists to exploit Grid resources only using a conventional Web browser**
- **It's a gateway to European EGEE Project middle-ware**
- **It has been built on top of the EnginFrame framework**
- **It allows to expose gLite-enabled applications via Web-browser as well as Web Services**



The GENIUS hourglass model

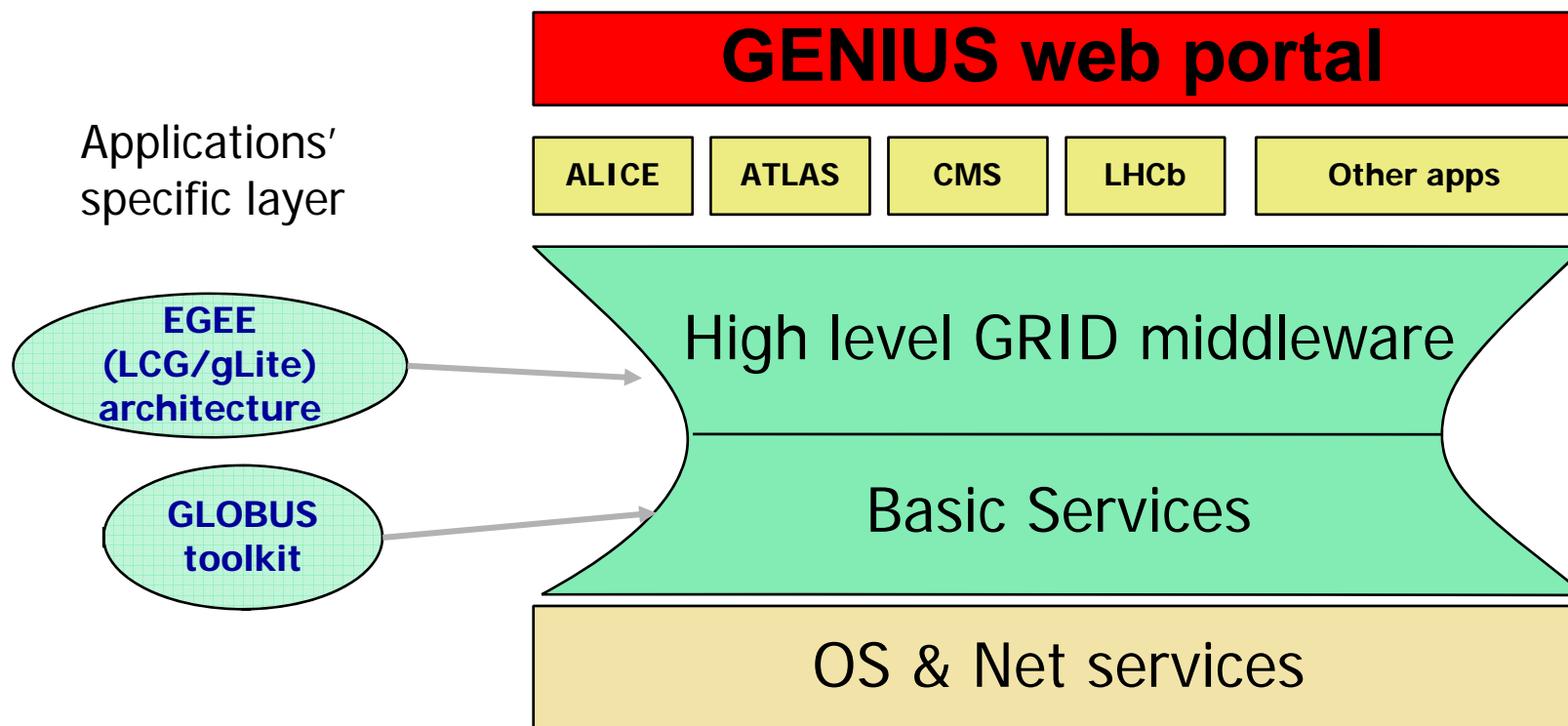


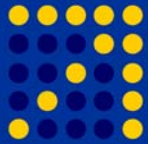
GENIUS

Grid Enabled web eNvironment for site Independent

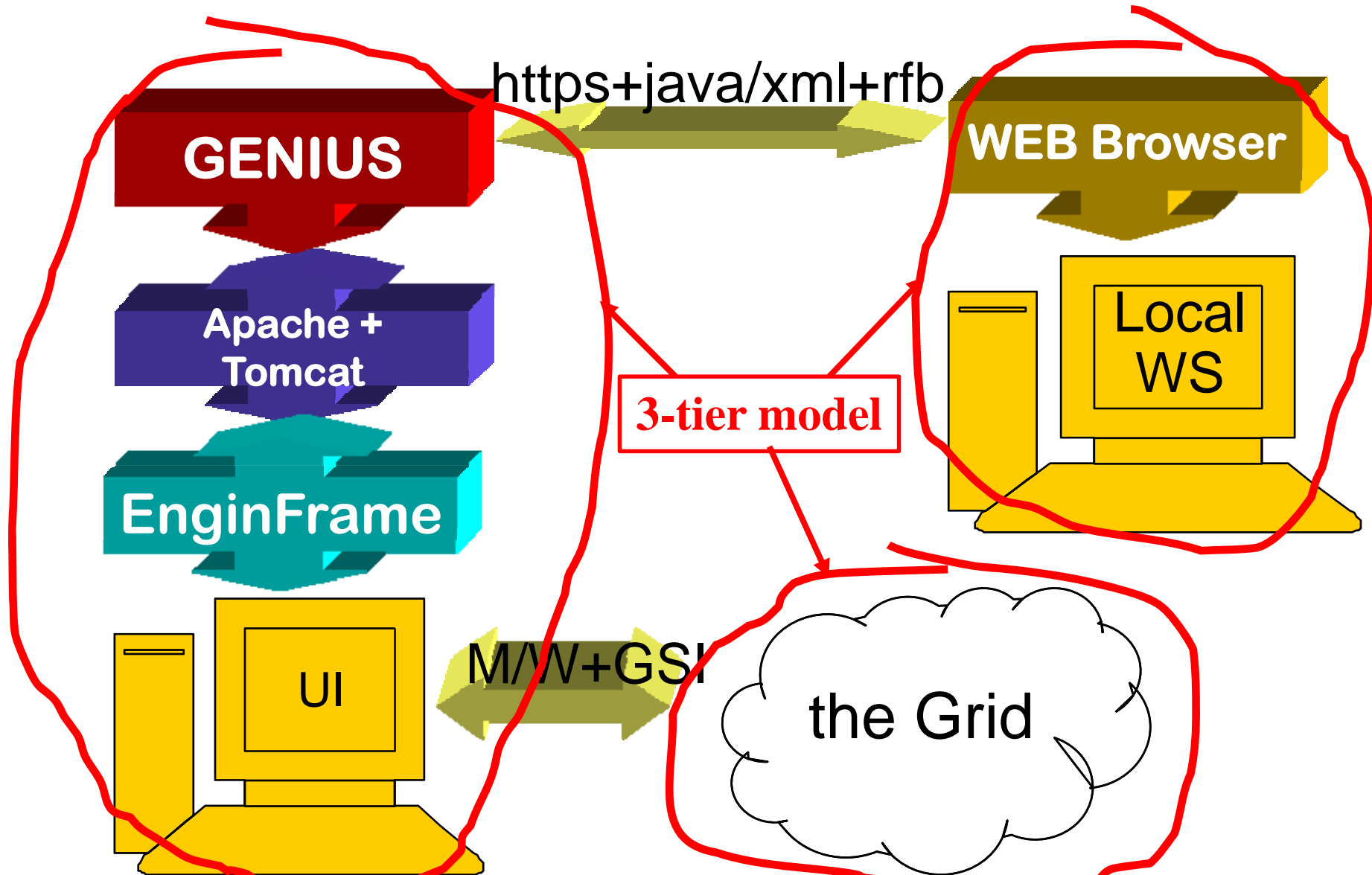
User job Submission

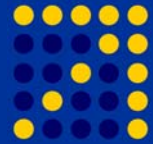
INFN / NICE Collaboration





GENIUS Architecture





GENIUS Grid Portal

BioinfoGRID

Welcome to the GENIUS Grid Portal - Mozilla



Grid Enabled web environment for



site Independent User job Submission



- GENIUS Services
 - File
 - Security
 - MyProxy
 - VOMS Exts
 - Info on proxy
 - Change OS Password
 - Remove proxy & Logout
 - Job
 - Data
 - Info
 - Monitoring
 - Interactive
 - Preferences
 - VO Services

Welcome to GENIUS Portal



ver. 3.0

compliant with [gLite-1](#) and [LCG-2](#) middlewares

[Credits](#)

This portal is best viewed with Mozilla 1.7.12 or higher.
Netscape (4.79, 4.80, 6 or higher) and Internet Explorer (5 or higher) can also be used.
The use of any other web browsers could induce some visualization mismatches and is not currently suggested.
powered by

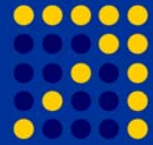


Last update: **Fri 03 February 2006**

Reference Web Site: <https://genius.ct.infn.it>

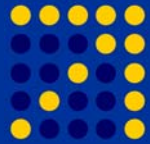
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javascript: navigation.o(11);

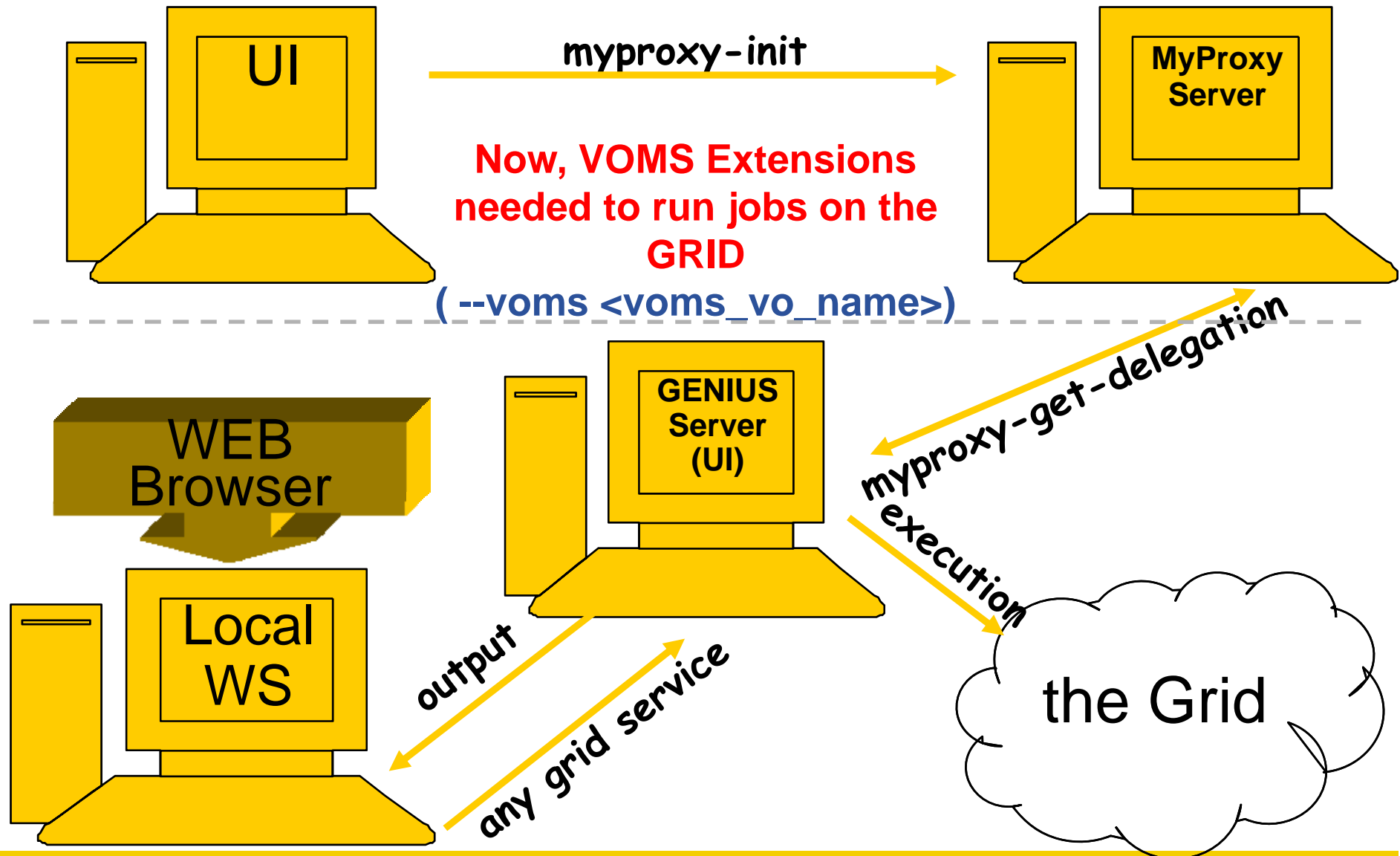


GENIUS : Security Infrastructure

- All web transactions are executed under the Secure Socket Layer (SSL) via HTTPS
- The user must have an account on the User Interface
- When the user wants to interact with the file-system of the UI, GENIUS will prompt for the username and password of user's account on that machine
- Grid authentication in GENIUS is currently based on the concept Proxy



Grid authentication with MyProxy





GENIUS: files management

BioinfoGRID

Welcome to the GENIUS INFN GRID Portal - Mozilla

INFN **EGEE** Enabling Grids for E-scienceE Grid Enabled web eNvironment for **genius** site Independent User job Submission **enginframe** **NICE**

Welcome **falzone** Your Data Logout

GENIUS Services

- File
 - Create a File
 - View/Edit a File
 - Copy/Rename a File/Dir
 - Delete Files/Dirs
 - Create a Directory
 - Upload a TAR ball
 - Upload a File
 - Change Permissions
 - Show the Environment
- Security
- Accounting
- Job
- Data
- Info
- Monitoring
- Interactive
- Preferences

Create a File

With this service you may create a file in your home directory.

Base Path default is HOME

FileName

Write here or copy and paste from a local file

alrotest
falzone_2xpGDGai6xDZJLg597W1HA
falzone_3PKbSyRA7X1JM-ikJOUUQ
falzone_6AreA9FBp9fH8dR10bo0QQ
falzone_UwcUmK8Y5x6VSGE2NVwaTg
falzone_Wrf6HbxD2J1rkq1INV054Q
falzone_XpUvqJo6wKba0upDX9V-8g
falzone_XuxWQMDawn3NRI3W_vLp9g
falzone_dGCVFzAWu5txdeg1VrPhBQ
falzone_efLEL2KXsmUZ34Gve598Yg
falzone_fycmMa3Cxo2_cyr4qb5Pg
falzone_k7z7qvWk7IX-f2JzuTx37w
falzone_oW5AdVuQXq73dotubmwaug
falzone_pHLRY3KKMO7SMwxhFnAjHA
falzone_povDeEyZDL4cS0zegft_A
falzone_pv4edRPd2m9O7ucA7Hq9gw
falzone_yvsKAxmF9b3_Ku1PtaZ46w
falzone_z45715x7772a5E7uDNr40

Path: /home/falzone OK

Selected: Cancel

Save

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GENIUS: files management

BioinfoGRID

Welcome to the GENIUS INFN GRID Portal - Mozilla

INFN Istituto Nazionale di Fisica Nucleare | EGEE Enabling Grids for E-science | Grid Enabled web Environment for **genius** | site Independent User job Submission | enginframe | NICE

Welcome **falzone** | Your Data | Logout

GENIUS Services

- File
 - Create a File
 - View/Edit a File
 - Copy/Rename a File/Dir
 - Delete Files/Dirs
 - Create a Directory
 - Upload a TAR ball
 - Upload a File
 - Change Permissions
 - Show the Environment
- Security
- Accounting
- Job
- Data
- Info
- Monitoring
- Interactive
- Preferences

Create a File

With this service you may create a file in your home directory.

Base Path default is HOME

FileName

Write here or copy and paste from a local file

```
This is a test file.
```

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GENIUS: files management

BioinfoGRID

The screenshot displays the GENIUS web portal interface. At the top, there are logos for INFN, EGEE (Enabling Grids for E-science), genius (Grid Enabled web environment for site Independent User job Submission), enginframe, and NICE. Below the logos, a navigation bar includes 'Welcome falzone', 'Your Data', and 'Logout'. The main content area is titled 'GENIUS Services' and features a sidebar with a tree view of services: File, Security, Accounting, Job, Data, Info, Monitoring, Interactive, and Preferences. The 'File' service is expanded, showing options like 'Create a File', 'View/Edit a File', 'Copy/Rename a File/Dir', 'Delete Files/Dirs', 'Create a Directory', 'Upload a TAR ball', 'Upload a File', 'Change Permissions', and 'Show the Environment'. The 'View/Edit a File' service is selected, displaying a form with the text 'With this service you may edit a file in your home directory.' and a 'Select File to View/Edit' field with a 'Select...' button. Below the field are 'View' and 'Edit' buttons. An arrow points from a blue callout box to the 'View' button. To the right, a file browser window is open, showing a directory listing of files in the path '/home/falzone'. The files listed include 'interactive.jdl', 'jdl_test.jdl', 'jigdo-bin-0.7.2.tar.bz2', 'myproxy.login', 'myproxy.tar.gz', 'opt.genius.20051202.tar.gz', 'scriptint.sh', ' triana-3.1.1.tar.gz', and 'try.txt'. The file browser window also shows the path field and 'OK' and 'Cancel' buttons.

Multiple Action in a Single Service

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GENIUS: preferences

BioinfoGRID

The screenshot shows a Mozilla browser window titled "Welcome to the GENIUS INFN GRID Portal - Mozilla". The page header includes logos for INFN, EGEE (Enabling Grids for E-science), genius (Grid Enabled web eNvironment for), site Independent User job Submission, enginframe, and NICE. A navigation bar below the header displays "Welcome falzone" and system information: "Resource Broker: gilda_glite", "Virtual Organization: gilda", "Catalog Type: fireman", "Catalog I/O: cnaf", "Your Data", and "Logout".

The main content area is titled "Grid Settings" and contains the following text: "With this service you can select the Resource Broker and the Replica Location Server you want to use. It is possible also to set the MyProxy Server on which you stored your temporary proxy to get from GRID Authentication."

The settings are presented as a list of labels followed by dropdown menus:

- Resource Broker (RB): gilda glite (currently selected)
- Catalog Type: fireman (currently selected)
- Catalog I/O server: cnaf (currently selected)
- MyProxy Server: grid001.ct.infn.it (currently selected)
- DGAS Price Authority Server: gilda (currently selected)
- DGAS Home Location Register Server: gilda (currently selected)

An "Update" button is located below the settings. A sidebar on the left lists "GENIUS Services" including File, Security, Accounting, Job, Data (with sub-items like Publish a File, Navigate Catalog, etc.), Info, Monitoring, Interactive, Preferences, MyProxy Servers, Grid Settings (highlighted), and Set VO/VOMS.

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GENIUS: Job Submission

BioinfoGRID

Welcome to the GENIUS Portal - Mozilla

INFN **egee** Enabling Grids for E-science Grid Enabled web eNvironment for **genius** site Independent User job Submission **enginframe** **NICE**

Welcome **falzone** Resource Broker: gilda_glite Virtual Organization: gilda Catalog Type: fireman Catalog I/O: cnaf Your Data Logout

Job Submission

Please, select a JDL file to submit. You may also choose a Resource Broker to connect to.

JDL File

Preferences are on the horizontal bar after successful login to the Grid (under genius authority)

File Name	Size	Permissions
Easter.jdl	757	-rw-r--r--
EtnaPerGRID.jdl	1118	-rw-r--r--
Mozart_K545.jdl	688	-rw-r--r--
ball.jdl	791	-rw-r--r--
c_sample.jdl	348	-rw-r--r--
con_rod1.jdl	843	-rw-r--r--
csound.jdl	408	-rw-r--r--
csound_hw1.jdl	485	-rw-r--r--
demtools.jdl	1158	-rw-r--r--
demtools2.jdl	415	-rw-r--r--
demtools3.jdl	436	-rw-r--r--
env.jdl	163	-rw-r--r--
g95compiler.jdl	795	-rw-r--r--
gear.jdl	431	-rw-r--r--
helloworld.jdl	798	-rw-r--r--
hostname.jdl	186	-rw-r--r--
hostname_catania.jdl	249	-rw-r--r--
interactive.jdl	194	-rw-r--r--
jacopi.jdl	776	-rw-r--r--
mills.jdl	749	-rw-r--r--
mpi-glite.jdl	534	-rw-r--r--
mpi-lcg.jdl	389	-rw-r--r--
mpi.jdl	385	-rw-r--r--

Path:

Selected:

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GENIUS: Job Editor for jdl files

Welcome to the GENIUS Portal - Mozilla

INFN **egee** Enabling Grids for E-scienceE Grid Enabled web eNvironment for **genius** site Independent User job Submission **enginframe** **NICE**

Welcome falzone Resource Broker: gilda_glite Virtual Organization: gilda Catalog Type: fireman Catalog I/O: cnaf Your Data Logout

GENIUS Services

- File
- Security
- Accounting
- Job
 - GUI
 - Job Editor
 - Workflow Editor
 - Close GUI Session
 - Job Submission
 - Job Queue
 - Clean Job Queues
 - List Available Resources
- Data
- Info
- Monitoring
- Interactive
- Preferences

Job GUI

Job GUI Session open in a new Window.

https://nbaitna.ct.infn.it:7801 - falzone's desktop - Mozilla

JDL Editor

File Help

Type Files Environment Input Data Output Data Requirements Rank Tags

Virtual Organisation

Executable Remote

Arguments

Standard Streams

StdInput Remote

StdOutput Add to Output Sandbox

StdError Add to Output Sandbox

Input Sandbox

Applet VncViewer started

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GENIUS: Job Submission

BioinfoGRID

The screenshot shows a Mozilla browser window titled "Welcome to the GENIUS Portal - Mozilla". The page features a header with logos for INFN, EGEE (Enabling Grids for E-science), genius (Grid Enabled web eNvironment for), site Independent User job Submission, enginframe, and NICE. Below the header, a navigation bar displays "Welcome falzone" and system information: "Resource Broker: gilda_glite", "Virtual Organization: gilda", "Catalog Type: fireman", "Catalog I/O: cnaf", "Your Data", and "Logout".

The main content area is titled "Job Submission" and contains the following text: "Please, select a JDL file to submit. You may also choose a Resource Broker to connect to." Below this text is a text input field containing "e/Other/mpir-glite.jdl" and a "Select..." button. A "Next" button is positioned below the input field.

A left-hand sidebar lists "GENIUS Services" with expandable folders: File, Security, Accounting, Job (expanded), GUI (expanded), Data, Info, Monitoring, Interactive, and Preferences. Under the "Job" folder, the following items are listed: Job Submission (highlighted), Job Queue, Clean Job Queues, and List Available Resources.

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GENIUS: Job Submission

BioinfoGRID



GENIUS: Job Submission

BioinfoGRID

Welcome to the GENIUS Portal - Mozilla

INFN **EGEE** Enabling Grids for E-scienceE Grid Enabled web eNvironment for **genius** site Independent User job Submission **enginframe** **NICE**

Welcome **falzone** Resource Broker: gilda_glite Virtual Organization: gilda Catalog Type: fireman Catalog I/O: cnaf Your Data Logout

GENIUS Services

- File
- Security
- Accounting
- Job
 - GUI
 - Job Submission**
 - Job Queue
 - Clean Job Queues
 - List Available Resources
- Data
- Info
- Monitoring
- Interactive
- Preferences

Job Submission

Selected Virtual Organisation name (from --vo option): gilda
Connecting to host glite-rb.ct.infn.it, port 7772
Logging to host glite-rb.ct.infn.it, port 9002

===== glite-job-submit Success =====
The job has been successfully submitted to the Network Server.
Use glite-job-status command to check job current status. Your job identifier is:

- <https://glite-rb.ct.infn.it:9000/QM16fXx-KN1oHNm2HtP3rA>

The job identifier has been saved in the following file:
/home/falzone/.genius/.tmp_submittedjob_falzone

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GENIUS: Job Queue

Welcome to the GENIUS Portal - Mozilla

INFN **EGEE** Enabling Grids for E-scienceE Grid Enabled web eNvironment for **genius** site Independent User job Submission **enginframe** **NICE**

Welcome faizone Resource Broker: gilda_glite Virtual Organization: gilda Catalog Type: fireman Catalog I/O: cnaf Your Data Logout

GENIUS Services

- File
- Security
- Accounting
- Job
 - GUI
 - Job Submission
 - Job Queue**
 - Clean Job Queues
 - List Available Resources
- Data
- Info
- Monitoring
- Interactive
- Preferences

#	Globus Job ID	Last Update Time	Status	Destination	Exit Code
33	8rx1w7Kw4bO1ZMXHqFChHw	2006 Jan 8 14:50	Ready	glite-ce.ct.infn.it2119/blah-pbs-short	
32	BFpXqz8-Qk6GI52UO8Q8cg	2006 Jan 8 14:48	Ready	egee008.cnaf.infn.it2119/blah-pbs-infinite	
31	ug271XmY1vGwYadRJ-6vqg	2006 Jan 8 14:48	Ready	egee008.cnaf.infn.it2119/blah-pbs-short	
30	QMI6fXx-KN1oHNm2HtP3rA	2006 Jan 8 14:45	Ready	egee008.cnaf.infn.it2119/blah-pbs-infinite	
29	IvKeaRNJtYijhTfjaaeaAA	2006 Jan 2 16:43	Done	egee008.cnaf.infn.it2119/blah-pbs-long	0
24	nNW0pQgp_vTNvATGcAU8rQ	2005 Dec 28 20:15	Done	glite-ce.ct.infn.it2119/blah-pbs-long	0
22	XpUvqJo6wKba0upDX9V-8g	2005 Dec 28 19:59	Done	glite-ce.ct.infn.it2119/blah-pbs-short	0
21	MIZ-y3MIPkNlfxBcivit5A	2005 Dec 28 19:59	Done	ixcde01.pd.infn.it2119/blah-pbs-infinite	0
20	XuxWQMDawn3NRI3W_yLp9g	2005 Dec 28 18:11	Done	glite-ce.ct.infn.it2119/blah-pbs-short	0
17	eciQWhy4UoPbTZmgRhfxjA	2005 Dec 28 16:52	Done	gilda-ce-01.pd.infn.it2119/jobmanager-lcgpbs-short	0
16	rvZJgqldmlEBWC-4jgv1tg	2005 Dec 28 15:08	Done	glite-ce.ct.infn.it2119/blah-pbs-short	0
3	LXplqV3AlcoQssrUWpTofA	2005 Dec 27 23:12	Done	grid004.iucc.ac.il:2119/jobmanager-lcgpbs-long	0
2	X4PZT3vFMk_EOaHF0bq7zw	2005 Dec 27 23:12	Done	grid004.iucc.ac.il:2119/jobmanager-lcgpbs-infinite	0
1	oKUA3k-0_CIEyTpiXBTyYa	2005 Dec 27 23:11	Done	grid004.iucc.ac.il:2119/jobmanager-lcgpbs-infinite	0

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Code for Job Queue management rewritten using GridML tags

GENIUS: Get Output

BiainfoGRID

Welcome to the GENIUS Portal - Mozilla

INFN **EGEE** Enabling Grids for E-science Grid Enabled web eNvironment for **genius** site Independent User job Submission **enginframe** **NICE**

Welcome falzone Resource Broker: gilda_glite Virtual Organization: gilda Catalog Type: fireman Catalog I/O: cnaf Your Data Logout

GENIUS Services

- File
- Security
- Accounting
- Job
 - GUI
 - Job Submission
 - Job Queue
 - Clean Job Queue
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- Data
- Info
- Monitoring
- Interactive
- Preferences

Job Queue

https://nbaitna.ct.infn.it

Do you really want to get output of job https://glite-rb.ct.infn.it:9000/QMI6fXx-KN1oHNm2HtP3rA?

OK Cancel

Job ID	Submission Time	Status	Resource	Exit Code
29	2006 Jan 2 16:43	GET OUTPUT	egee008.cnar.infn.it:2119/blah-pbs-long	0
24	2005 Dec 28 20:15	Done	glite-ce.ct.infn.it:2119/blah-pbs-long	0
22	2005 Dec 28 19:59	Done	glite-ce.ct.infn.it:2119/blah-pbs-short	0
21	2005 Dec 28 19:59	Done	lxcde01.pd.infn.it:2119/blah-pbs-infinite	0
20	2005 Dec 28 18:11	Done	glite-ce.ct.infn.it:2119/blah-pbs-short	0
17	2005 Dec 28 16:52	Done	gilda-ce-01.pd.infn.it:2119/jobmanager-lcgpbs-short	0
16	2005 Dec 28 15:08	Done	glite-ce.ct.infn.it:2119/blah-pbs-short	0
3	2005 Dec 27 23:12	Done	grid004.iucc.ac.il:2119/jobmanager-lcgpbs-long	0
2	2005 Dec 27 23:12	Done	grid004.iucc.ac.il:2119/jobmanager-lcgpbs-infinite	0
1	2005 Dec 27 23:11	Done	grid004.iucc.ac.il:2119/jobmanager-lcgpbs-infinite	0

New Confirmation Message!






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GENIUS: Job Queue - Spooler

BioinfoGRID

Welcome to the GENIUS Portal - Mozilla

Grid Enabled web eNvironment for **genius** site Independent User job Submission

Welcome **talzone** Resource Broker: gilda_glite Virtual Organization: gilda Catalog Type: fireman Catalog I/O: catania Your Data Logout

GENIUS Services

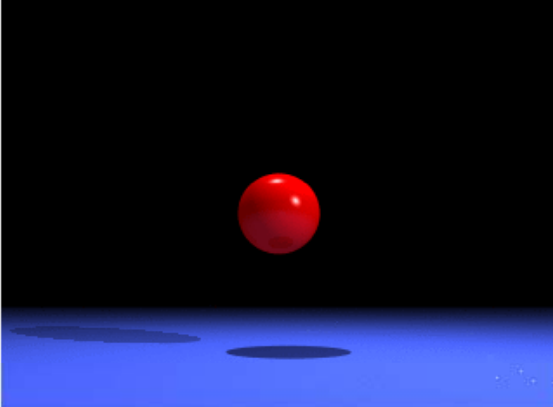
- File
- Security
- Accounting
- Job
 - GUI
 - Job Submission
 - Job Queue
 - Clean Job Queues
 - List Available Resources
- Data
- Info
- Monitoring
- Interactive
- Preferences

20060108_211105_fx2vwJQZv6Jlak89sVMXXv Jan 09, 2006 21:10:57

<input type="checkbox"/>	ball.out	Jan 08, 2006 21:10:58	0
<input type="checkbox"/>	final_ball.gif	Jan 08, 2006 21:11:00	915033
<input type="checkbox"/>	ball.err.txt	Jan 08, 2006 21:10:59	186804

Toggle select
Clear select
Action...

final_ball.gif (GIF Image, 320x250 pixels) - Mozilla



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GENIUS: Interactive

BioinfoGRID

The screenshot displays the GENIUS Portal in a Mozilla browser window. The page header includes logos for INFN, EGEE (Enabling Grids for E-science), genius (Grid Enabled web Environment for site Independent User job Submission), enginframe, and NICE. A navigation bar below the header shows the user's name 'Welcome falzone', resource broker 'gilda_glite', virtual organization 'gilda', catalog type 'fireman', and catalog I/O 'cnaf'. On the left, a 'GENIUS Services' menu lists various options, with 'Interactive' expanded to show 'Open Desktop', 'Close Desktop', and 'Set Desktop Password'. The main content area is titled 'Open Desktop' and shows a remote desktop session titled 'https://nbaitna.ct.infn.it:7801 - falzone's desktop - Mozilla'. The desktop environment is a Tight VNC session with a terminal window open showing the command `[nbaitna] /home/falzone > xclock`. A clock window titled 'xclock' is also visible on the desktop. The browser window has standard navigation buttons and a status bar at the bottom indicating 'Applet VncViewer started'. A copyright notice at the bottom of the page reads: 'Copyright © 1998 - 2005 Nice S.r.l. All trademarks and logos on this page are owned by NICE s.r.l. or by their respective owners.'



GENIUS: Data & Grid Catalogs

BioinfoGRID

The screenshot shows the GENIUS Portal web interface in a Mozilla browser window. The page title is "Welcome to the GENIUS Portal - Mozilla". The header includes logos for INFN, EGEE (Enabling Grids for E-science), genius (Grid Enabled web Environment for site Independent User job Submission), enginframe, and NICE. Below the header, there is a navigation bar with "Welcome falzone" and several menu items: "Resource Broker: gilda_glite", "Virtual Organization: gilda", "Catalog Type: fireman", "Catalog I/O: cnaf", "Your Data", and "Logout".

The main content area is titled "Publish a File" and contains the following text: "With this service you can publish local data on the Catalog of your Virtual Organization." Below this text are three input fields and buttons:

- Choose File/Directory:** A text input field followed by a "Browse..." button. A red box labeled "Local Browse on laptop" points to this button.
- Choose Remote File/Directory:** A text input field followed by "Select..." and "Clean" buttons. A red box labeled "Remote Browse on UI (GENIUS Server)" points to the "Select..." button.
- Base Directory on Catalog:** A text input field containing "/" followed by a "Select..." button. A red box labeled "Extended Remote File Browse on LFC Catalog" points to this "Select..." button.

At the bottom of the form is a "Publish" button. The footer of the page contains the copyright notice: "Copyright © 1998 - 2005 Nice S.r.l. All trademarks and logos on this page are owned by NICE s.r.l. or by their respective owners."

GENIUS: Data & Grid Catalogs

BiainfoGRID

Welcome to the GENIUS Portal - Mozilla

INFN egee Grid Enabled web eNvironment for genius site Independent User job Submission enginframe NICE

Welcome falzone Resource Broker: gilda_glite Virtual Organization: gilda Catalog Type: fireman Catalog I/O: cnaf Your Data Logout

GENIUS Services

- File
- Security
- Accounting
- Job
- Data
 - Publish a File
 - Navigate Catalog
 - Manage Dir on Catalog
 - Rename on Catalog
- Info
- Monitoring
- Interactive
 - Open Desktop
 - Close Desktop
 - Set Desktop Password
- Preferences

Navigate Catalog

With this service you can navigate the Catalog of your Virtual Organization

Selected files on Catalog

Download & View **Remove** **Show Details**

https://nbaitna.ct.infn.it - /Alberto - Mozilla

<input checked="" type="checkbox"/>	test1.jdl	0	-pdrwl-gs--r-l-g-----
<input checked="" type="checkbox"/>	DAG.jdl	566	-pdrwl-gs--r-l-g-----
<input type="checkbox"/>	test-alberto-cnaf-1.jdl	203	-pdrwl-gs--r-l-g-----
<input type="checkbox"/>	hostname.jdl	203	-pdrwl-gs--r-l-g-----
<input checked="" type="checkbox"/>	alberto.jdl	166	-pdrwl-gs--r-l-g-----
<input checked="" type="checkbox"/>	EtnaPerGRID.jdl	1740	-pdrwl-gs--r-l-g-----

Path: /Alberto OK

Select all Unselect all Cancel

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GENIUS: Data & Grid Catalogs

BioinfoGRID

Welcome to the GENIUS Portal - Mozilla

Logos: INFN, egee (Enabling Grids for E-science), genius (Grid Enabled web Environment for site Independent User job Submission), enginframe, NICE

Navigation: Welcome faizone, Resource Broker: gilda_glite, Virtual Organization: gilda, **Catalog Type: fireman**, **Catalog I/O: cnaf**, Your Data, Logout

GENIUS Services:

- File
- Security
- Accounting
- Job
- Data
 - Publish a File
 - Navigate Catalog**
 - Manage Dir on Catalog
 - Rename on Catalog
- Info
- Monitoring
- Interactive
 - Open Desktop
 - Close Desktop
 - Set Desktop Password
- Preferences

Navigate Catalog

With this service you can navigate the Catalog of your Virtual Organization.

Selected files on Catalog:

- /Alberto/test1.jdl
- /Alberto/DAG.jdl
- /Alberto/alberto.jdl
- /Alberto/EtnaPerGRID.jdl

Buttons: Select..., Clean, **Download & View**, Remove, Show Details

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GENIUS & TRIANA /1

BioinfoGRID

Welcome to the GENIUS Portal - Mozilla

INFN **EGEE** Enabling Grids for E-science Grid Enabled web eNvironment for **genius** site Independent User job Submission **enginframe** **NICE**

Welcome **falzone** Resource Broker: gilda_glite Virtual Organization: gilda Catalog Type: fireman Catalog I/O: cnaf Your Data Logout

GENIUS Services

- File
- Security
- Accounting
- Job
 - GUI
 - Job Editor
 - Workflow Editor
 - Close GUI Session
 - Job Submission
 - Job Queue
 - Clean Job Queues
 - List Available Resources
- Data
- Info
- Monitoring
- Interactive
- Preferences

Disconnect Options Clipboard Send Ctrl-Alt-Del Refresh

Triana

Triana Launcher

the Triana project.

Configure...

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loading Toolboxes

Applet VncViewer started

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GENIUS & TRIANA /2

BioinfoGRID

Welcome to the GENIUS Grid Portal - Mozilla



Grid Enabled web eNvironment for



site Independent User job Submission



Welcome falzone Resource Broker: gilda_glite Virtual Organization: gilda Catalog Type: fireman Catalog Server: cnaf Your Data Logout

- GENIUS Services
 - File
 - Security
 - Job
 - GUI
 - Workflow Editor
 - Close GUI Session
 - Accounting
 - Job Submission
 - Job Queue
 - Clean Job Queues
 - List Available Resources
- Data
- Info
- Monitoring
- Interactive
- Preferences
- VO Services

Workflow Editor

https://glite-tutor1.ct.infn.it:7805 - falzone's desktop - Mozilla

File Edit Run Tools Services Options Window Help

All Packages (default) Untitled1

- Triana Tools
 - Audio
 - Common
 - Demos
 - Editing
 - Grid
 - ImageProc
 - Math
 - SignalProc

Applet VncViewer started



GENIUS & TRIANA /3

BioinfoGRID

https://glite-tutor1.ct.infn.it:7805 - falzone's desktop - Mozilla

Triana Tools

- Audio
- Common
- Demos
 - EGEE
 - DefaultHeader
 - DefaultNode
 - GalaxySim
 - GridLab
 - Inspiral
 - AudioDemo
- Editing
- Grid
- ImageProc
- Math
- SignalProc

DefaultNode1

DefaultNode2

DefaultNode3

- Properties
- Node Editor...
- Run Continuously
- Auto Save History
- Save History...
- Create Service...
- Run Script...
- Cut Ctrl-X
- Copy Ctrl-C
- Delete Delete
- Paste Into... Ctrl-I
- Rename...
- Help F1

Applet VncViewer started



GENIUS & TRIANA /4

BioinfoGRID

https://glite-tutor1.ct.infn.it:7805 - falzone's desktop - Mozilla

Triana Tools

- Audio
- Common
- Demos
 - EGEE
 - DefaultHeader
 - DefaultNode
 - GalaxySim
 - GridLab
 - Inspiral
 - AudioDemo
- Editing
- Grid
- ImageProc
- Math
- SignalProc

nodeA

DefaultNode1

Node Type

JDL File Name nodes/nodeB.jdl

JDL Description

JDL Editor

Node Comments/Extensions

Auto commit

OK Cancel Apply

Applet VncViewer started



GENIUS & TRIANA /5

BioinfoGRID

https://glite-tutor1.ct.infn.it:7805 - falzone's desktop - Mozilla

Triana Tools

- Audio
- Common
- Demos
 - EGEE
 - DefaultHeader
 - DefaultNode
- GalaxySim
- GridLab
- Inspiral
 - AudioDemo
- Editing
- Grid
- ImageProc
- Math
- SignalProc

nodeA, nodeB, nodeC, nodeD.jdl

Node Editor: nodeA

Nodes | In Params | Out Params

Input Nodes: 0 | 2 | Output Nodes

Shortcut Key Strokes

	Input Nodes	Output Nodes
Increment	ctrl+shift+,	ctrl+,
Decrement	ctrl+shift+,	ctrl+,

OK | Cancel | Apply

Applet VncViewer started



GENIUS & TRIANA /6

BioinfoGRID

https://glite-tutor1.ct.infn.it:7805 - falzone's desktop - Mozilla

Triana Tools

- Audio
- Common
- Demos
 - EGEE
 - DefaultHeader
 - DefaultNode
 - GalaxySim
 - GridLab
 - Inspiral
 - AudioDemo
- Editing
- Grid
- ImageProc
- Math
- SignalProc

nodeA, nodeB, nodeC, nodeD.jdl

Node Editor: nodeD.jdl

	In Params	Out Params
Input Nodes	2	0
Output Nodes		
Shortcut Key Strokes		
	Input Nodes	Output Nodes
Increment	ctrl+shift+	ctrl+.
Decrement	ctrl+shift+,	ctrl+,

OK Cancel Apply

Applet VncViewer started



GENIUS & TRIANA /7

BioinfoGRID

https://glite-tutor1.ct.infn.it:7805 - falzone's desktop - Mozilla

File Edit Run Tools Services Options Window Help

All Packages (default)

- Triana Tools
- Audio
- Common
- Demos
 - EGEE
 - DefaultHeader
 - DefaultNode
 - GalaxySim
 - GridLab
 - Inspiral
 - AudioDemo
- Editing
- Grid
- ImageProc
- Math
- SignalProc

Untitled2

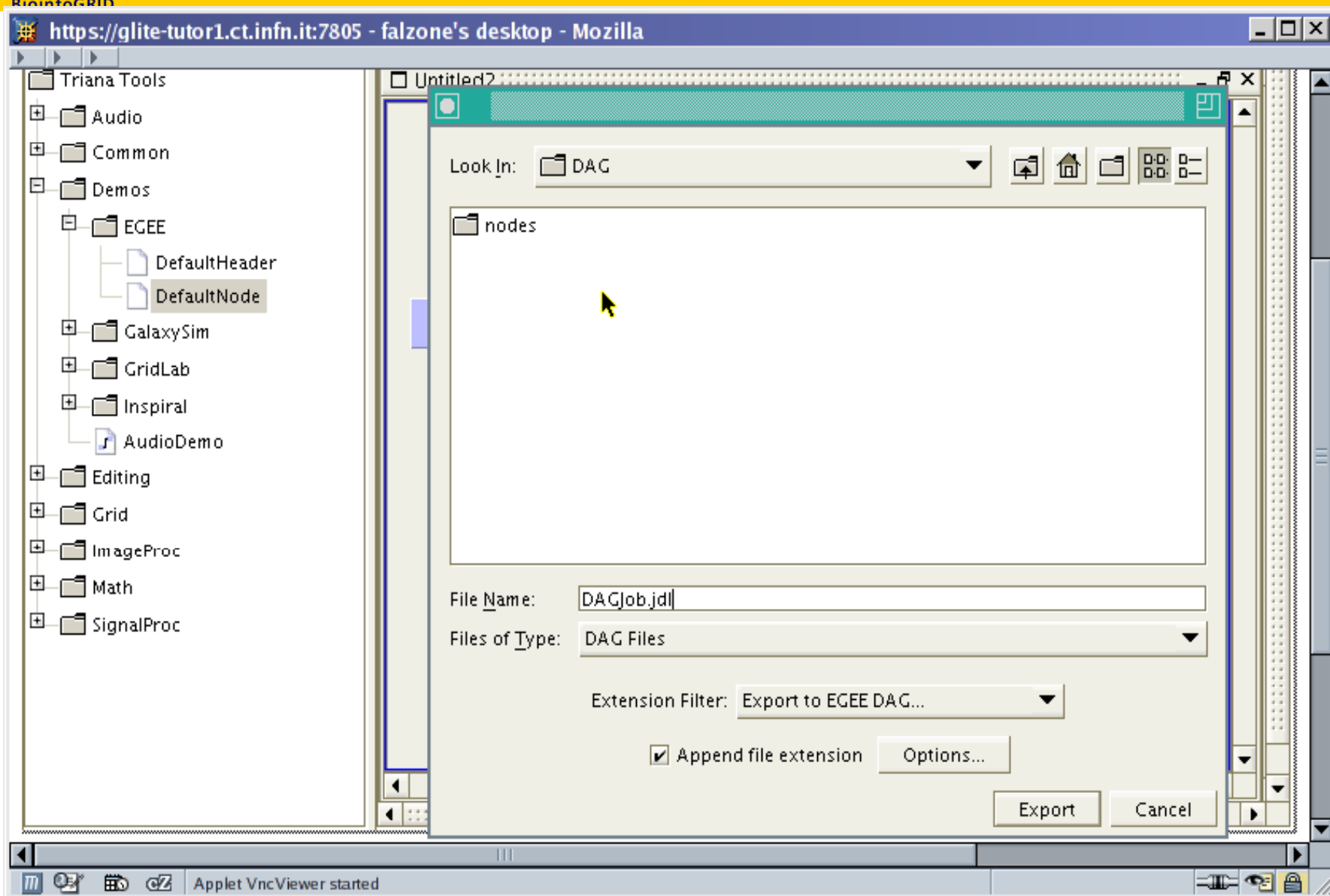
nodeA nodeB nodeC nodeD

Applet VncViewer started



GENIUS & TRIANA /8

BioinfoGRID



GENIUS & TRIANA /9

BioinfoGRID

Welcome to the GENIUS Grid Portal - Mozilla



Grid Enabled web eNvironment for



site Independent User job Submission



Welcome
falzone

Resource Broker: gilda_glite

Virtual Organization: gilda

Catalog Type: fireman

Catalog Server: cnaf

Your
Data

Logout

GENIUS Services

- File
- Security
- Job
 - GUI
 - Accounting
 - Job Submission
 - Job Queue
 - Clean Job Queues
 - List Available Resources
- Data
- Info
- Monitoring
- Interactive
- Preferences
- VO Services

Job Submission

Please, select a JDL file to submit. You may also choose a Resource Broker to connect to.

JDL File

https://glite-tutor1.ct.infn.it - /home/falzone

nodes	
DAGJob.jdl	452 -rw-rw-r--

Path:

Selected:

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GENIUS & TRIANA /10

BioinfoGRID

Welcome to the GENIUS Grid Portal - Mozilla



Grid Enabled web eNvironment for



site Independent User job Submission



Welcome
falzone

Resource Broker: gilda_glite

Virtual Organization: gilda

Catalog Type: fireman

Catalog Server: cnaf

Your
Data

Logout

GENIUS Services

- File
- Security
- Job
 - GUI
 - Workflow Editor
 - Close GUI Session
 - Accounting
 - Job Submission**
 - Job Queue
 - Clean Job Queues
 - List Available Resources
- Data
- Info
- Monitoring
- Interactive
- Preferences
- VO Services

Job Submission

```
Selected Virtual Organisation name (from proxy certificate extension): gilda
Connecting to host glite-rb.ct.infn.it, port 7772
Logging to host glite-rb.ct.infn.it, port 9002
```

```
===== glite-job-submit Success =====
The dag has been successfully submitted to the Network Server.
Use glite-job-status command to check job current status. Your dag identifier is:
- https://glite-rb.ct.infn.it:9000/_fcTBQ05-1WjXrenk0o_KQ
```

```
The dag identifier has been saved in the following file:
/home/falzone/.genius/.tmp_submittedjob_falzone
```

[Click here to see the status of this job](#)

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GENIUS & TRIANA /11

BioinfoGRID

Welcome to the GENIUS Grid Portal - Mozilla



Grid Enabled web eNvironment for



site Independent User job Submission



Welcome
falzone

Resource Broker: gilda_glite

Virtual Organization: gilda

Catalog Type: fireman

Catalog Server: cnaf

Your
Data

Logout

GENIUS Services

- File
- Security
- Job
 - GUI
 - Workflow Editor
 - Close GUI Session
 - Accounting
 - Job Submission
 - Job Queue
 - Clean Job Queues
 - List Available Resources
- Data
- Info
- Monitoring
- Interactive
- Preferences
- VO Services

Job Queue

#	Globus JobID	Last Update Time	Status	Destination	Exit Code	Name
1	_fcTBQ05-IWjXrenkOo_KQ	2006 Mar 6 22:53	Running	dagman		DAGJob.jdl

[Details](#)

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Done



GENIUS & TRIANA /12

BioinfoGRID

Welcome to the GENIUS Grid Portal - Mozilla



Grid Enabled web eNvironment for



site Independent User job Submission



Welcome falzone

Resource Broker: gilda_glite

Virtual Organization: gilda

Catalog Type: fireman

Catalog Server: cnaif

Your Data

Logout

GENIUS Services

- File
- Security
- Job
 - GUI
 - Workflow Editor
 - Close GUI Session
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 - Job Submission
 - Job Queue
 - Clean Job Queues
 - List Available Resources
- Data
- Info
- Monitoring
- Interactive
- Preferences
- VO Services

DAG Parent JobID : https://glite-rb.ct.infn.it:9000/_fcTBQ05-IWjXrcnkOo_KC

DAG Parent JobName : /home/falzone/DAG/DAGJob.jdl

#	Globus JobID	Last Update Time	Status	Destination	Exit Code
4	MSJm0f83QwmBy66jIhb6uA	2006 Mar 6 22:53	Running	dgt01.ui.savba.sk:2119/jobmanager-lcgpbs-infinite	http
3	i-xyvKAY-sq5MML15AFHRA	6 Submitted Mon Mar:	Submitted		http
2	oGAHybo-V48jdUO7xTxSSA	6 Submitted Mon Mar:	Submitted		http
1	aHCTCAF0U-Wz6rQ1oWR0A	6 Submitted Mon Mar:	Submitted		http

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GENIUS & TRIANA /13

BioinfoGRID

Welcome to the GENIUS Grid Portal - Mozilla



Grid Enabled web eNvironment for



site Independent User job Submission



Welcome falzone

Resource Broker: gilda_glite

Virtual Organization: gilda

Catalog Type: fireman

Catalog Server: cnaif

Your Data

Logout

GENIUS Services

- File
- Security
- Job
 - GUI
 - Workflow Editor
 - Close GUI Session
 - Accounting
 - Job Submission
 - Job Queue
 - Clean Job Queues
 - List Available Resources
- Data
- Info
- Monitoring
- Interactive
- Preferences
- VO Services

DAG Parent JobID : https://glite-rb.ct.infn.it:9000/_fcTBQ05-IWjXrcnkOo_

DAG Parent JobName : /home/falzone/DAG/DAGJob.jdl

#	Globus JobID	Last Update Time	Status	Destination	Exit Code
4	MSJm0f83QwmBy66jJhb6uA	2006 Mar 6 22:53	Done	dgt01.ui.savba.sk:2119/jobmanager-lcgpbs-infinite	0
3	i-xyvKAY-sq5MML15AFHRA	6 Submitted Mon Mar.	Submitted		
2	oGAHybo-V48jdUO7xTxSSA	2006 Mar 6 22:53	Scheduled	dgt01.ui.savba.sk:2119/jobmanager-lcgpbs-infinite	
1	aHCTCAF0U-Wz6rQ1oWR0A	2006 Mar 6 22:53	Scheduled	dgt01.ui.savba.sk:2119/jobmanager-lcgpbs-infinite	

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GENIUS & TRIANA /14

BioinfoGRID

Welcome to the GENIUS Grid Portal - Mozilla



Grid Enabled web eNvironment for



site Independent User job Submission



Welcome
falzone

Resource Broker: gilda_glite

Virtual Organization: gilda

Catalog Type: fireman

Catalog Server: cnaif

Your
Data

Logout

GENIUS Services

- File
- Security
- Job
 - GUI
 - Workflow Editor
 - Close GUI Session
 - Accounting
 - Job Submission
 - Job Queue
 - Clean Job Queues
 - List Available Resources
- Data
- Info
- Monitoring
- Interactive
- Preferences
- VO Services

DAG Parent JobID : https://glite-rb.ct.infn.it:9000/_fcTBQ05-IWjXrcnkOo_KC

DAG Parent JobName : /home/falzone/DAG/DAGJob.jdl

#	Globus JobID	Last Update Time	Status	Destination	Exit Code
4	MSJm0f83QwmBy66jJhb6uA	2006 Mar 6 22:53	Done	dgt01.ui.savba.sk:2119/jobmanager-lcgpbs-infinite	0
3	i-xyvKAY-sq5MML15AFHRA	2006 Mar 6 22:53	Done	dgt01.ui.savba.sk:2119/jobmanager-lcgpbs-infinite	0
2	oGAHybo-V48jdUO7xTxSSA	2006 Mar 6 22:53	Done	dgt01.ui.savba.sk:2119/jobmanager-lcgpbs-infinite	0
1	aHCTCAF0U-Wz6rQ1oWR0A	2006 Mar 6 22:53	Done	dgt01.ui.savba.sk:2119/jobmanager-lcgpbs-infinite	0

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GENIUS & TRIANA /15

BioinfoGRID

Welcome to the GENIUS Grid Portal - Mozilla



Grid Enabled web eNvironment for



site Independent User job Submission



Welcome falzone

Resource Broker: gilda_glite

Virtual Organization: gilda

Catalog Type: fireman

Catalog Server: cnaif

Your Data

Logout

GENIUS Services

- File
- Security
- Job
 - GUI
 - Workflow Editor
 - Close GUI Session
 - Accounting
 - Job Submission
 - Job Queue
 - Clean Job Queues
 - List Available Resources
- Data
- Info
- Monitoring
- Interactive
- Preferences
- VO Services

Job Queue

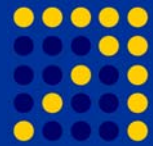
#	Globus JobID	Last Update Time	Status	Destination	Exit Code	Name
1	_fclBQ05-IWjXrcnK0o_KQ	2006 Mar 6 22:53	Done	dagman	0	DAG.Job.jdl

[Details](#)

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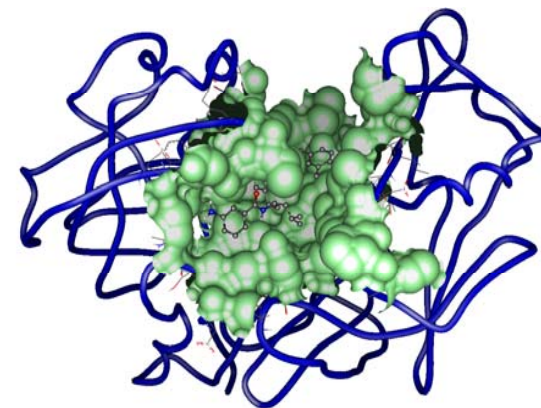
- **Grid Portals technology**
- **EnginFrame Framework**
- **The GENIUS Grid Portal**
- **Some Integrated Applications**
- **References**



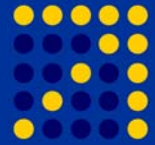
BioinfoGRID

Presented at CAPI 2006
Biocomputing - Milan

BLAST



This is a work supported in part by the [LIBI](#) and the [BIOINFOGRID](#) project.

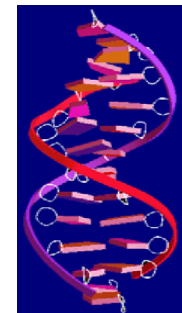


What is BLAST ?

BLAST (Basic Local Alignment Search Tool) is an algorithm used to compare biological sequences, such as the amino-acid of different proteins or the nucleotides of DNA sequences.

The program requires a query sequence (also called *target sequence*) and a database.

Its identifies all the sub-sequences of the target query that are similar to the sub-sequences in the database.





Welcome to the GENIUS Grid Portal - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

https://glite-demo.ct.infn.it/

Getting Started Latest Headlines GILDA EUCHINA


INFN **EGEE** Enabling Grids for E-science Grid Enabled web eNvironment for **genius** site Independent User job Submission **engwframe** **NICE**

Welcome demo37 Resource Broker: gilda Virtual Organization: gilda LFC Host: lfc-gilda.ct.infn.it Your Data Logout

BLAST Services!

- BLAST User Job Services
 - Simple BLAST
 - Submit Blast
 - Blast Queue
 - Data
 - Clean Queue
 - Multi BLAST
 - Submit MULTI Blast
 - Multi BLAST Queue
 - Data
 - Clean Queue
 - Database discovery
- BLAST Manager Services
 - BLAST database server
 - Navigate Catalog
 - Credits
 - Back home

Welcome to BLAST Services



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Transferring data from glite-demo.ct.infn.it... glite-demo.ct.infn.it



Bioinformatics databases

BioinfoGRID

Welcome to the GENIUS Grid Portal - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

https://gite-tutor.ct.infn.it/

Getting Started Latest Headlines GILDA

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Welcome larocca Resource Broker: gilda Virtual Organization: gilda LFC Host: lfc-gilda.ct.infn.it Your Data Logout

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 - Back home

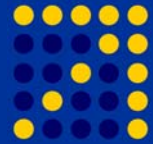
Current bioinformatic databases

Database file(s)	Version	Database name(s)
Homo_sapiens.NCB136.apr.dna.chromosome	1.0	Homo_sapiens.NCB136.apr.dna.chromosome.nhr
		Homo_sapiens.NCB136.apr.dna.chromosome.nin
		Homo_sapiens.NCB136.apr.dna.chromosome.nsd
		Homo_sapiens.NCB136.apr.dna.chromosome.nsi
		Homo_sapiens.NCB136.apr.dna.chromosome.nsq
uniprot	19_Sep_2006	uniprot_sprot.phr
		uniprot_sprot.pin
		uniprot_sprot.psd
		uniprot_sprot.psi
		uniprot_sprot.psq
		uniprot_sprot_varsplic.phr
		uniprot_sprot_varsplic.pin
		uniprot_sprot_varsplic.psd
		uniprot_sprot_varsplic.psi
		uniprot_sprot_varsplic.psq
		uniprot_trembl.00.phr
		uniprot_trembl.00.pin
uniprot_trembl.00.psd		
uniprot_trembl.00.psi		

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This table is dynamically created taking into account the databases published in the LFC Catalog.



MULTI BLAST : input form /1

Bioinformatics

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Getting Started Latest Headlines GILDA EUCHINA

INFN eGEE Enabling Grids for E-science Grid Enabled web eNvironment for genius site Independent User job Submission engwframe NICE

Welcome demo37 Resource Broker: gilda Virtual Organization: gilda LFC Host: lfc-gilda.ct.infn.it Your Data Logout

BLAST Services!

- BLAST User Job Services
 - Simple BLAST
 - Submit Blast
 - Blast Queue
 - Data
 - Clean Queue
 - Multi BLAST
 - Submit MULTI Blast**
 - Multi BLAST Queue
 - Data
 - Clean Queue
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 - Credits
 - Back home

Submit MULTI BLAST

Please, specify the parameters of the interrogation.
With this service you can specify an input file containing a list of **FASTA sequences** you want to query.

Database Name: Homo_sapiens.NCBI36.apr.dna.chromosome

Database Version: 1.0

Database Type: nucleic

Input query: C:\Documents and Settings\LaRocca\Desktop Browse...

Configure the dataset to submit your MULTI Blast to the GRID

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Done glite-demo.ct.infn.it

Upload the file with the FASTA sequences



MULTI BLAST : input form /2

BiinfoGRID

Welcome to the GENIUS Grid Portal

File Edit View Go Bookmarks Tools

Getting Started Latest Headlines

INFN egee
Enabling Grids for E-science

- Multi BLAST Queue
- Data
- Clean Queue
- Database discovery
- BLAST Manager Services
 - BLAST database server
- Navigate Catalog
- Credits
- Back home

View a File

File: run_collection_blast.jdl

----- BEGIN FILE -----

```
[
Type = "Collection";
RetryCount=0;
nodes={
  Executable="run_blast.sh";
  #Arguments = " query.input ";
  ## Please put your VO as Argument
  StdOutput="report_out.txt";
  StdError="report_err.txt";
  OutputSandbox={"report_out.txt","report_err.txt","README"};
  RetryCount = 0;
  Requirements = Member("VO-bio-blast",other.GlueHostApplicationSoftwareRunTimeEnvironment) && (!RegExp("grid010.ct.infn.it",other.
  Rank= ( other.GlueCEStateWaitingJobs == 0 ? other.GlueCEStateFreeCPUs : -other.GlueCEStateWaitingJobs);
  Arguments = "Homo_sapiens.NCBI36.apr.dna.chromosome.1.0.n.0";
  InputSandbox = {"mysql.bz2","lib.tar.bz2","run_blast.sh","list_query_0"};
},[
  Executable="run_blast.sh";
  #Arguments = " query.input ";
  ## Please put your VO as Argument
  StdOutput="report_out.txt";
  StdError="report_err.txt";
  OutputSandbox={"report_out.txt","report_err.txt","README"};
  RetryCount = 0;
  Requirements = Member("VO-bio-blast",other.GlueHostApplicationSoftwareRunTimeEnvironment) && (!RegExp("grid010.ct.infn.it",other.
  Rank= ( other.GlueCEStateWaitingJobs == 0 ? other.GlueCEStateFreeCPUs : -other.GlueCEStateWaitingJobs);
  Arguments = "Homo_sapiens.NCBI36.apr.dna.chromosome.1.0.n.1";
  InputSandbox = {"mysql.bz2","lib.tar.bz2","run_blast.sh","list_query_1"};
}];
];
```

Now, you are ready to run the BLAST to the grid

JDL file to submit

Query

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Done glite-demo.ct.infn.it

MULTI BLAST : submit

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Getting Started Latest Headlines GILDA EUCHINA

INFN egee Enabling Grids for E-science Grid Enabled web eNvironment for genius site Independent User job Submission enginframe NICE

Welcome demo37 Resource Broker: gilda Virtual Organization: gilda LFC Host: lfc-gilda.ct.infn.it Your Data Logout

BLAST Services!

- BLAST User Job Services
 - Simple BLAST
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 - Clean Queue
 - Multi BLAST
 - Submit MULTI Blast**
 - Multi BLAST Queue
 - Data
 - Clean Queue
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- BLAST Manager Services
 - BLAST database server
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 - Credits
 - Back home

Job Submission

Connecting to the service https://glite-rb3.ct.infn.it:7443/glite_was_wmproxy_server

***** glite-was-job-submit Success *****

The job has been successfully submitted to the WMPProxy
Your job identifier is:
https://glite-rb3.ct.infn.it:9000/NoQK4hkHtK60UR0HsiPpNw

The job identifier has been saved in the following file:
/home/demo37/.genius/.tap_submittedjob_demo37

[Click here to see the status of this job](#)

Done glite-demo.ct.infn.it

**Inspect the status
of the Collection**

**Multi FASTA successfully
submitted to WMPProxy**

MULTI BLAST : queue

The screenshot shows the GENIUS Grid Portal interface in a Mozilla Firefox browser. The page title is "Welcome to the GENIUS Grid Portal - Mozilla Firefox". The address bar shows "https://glite-demo.ct.infn.it/". The page features logos for INFN, EGEE, GENIUS, enginframe, and NICE. A navigation bar includes "Welcome demo37", "Resource Broker: gilda", "Virtual Organization: gilda", "LFC Host: lfc-gilda.ct.infn.it", "Your Data", and "Logout".

The main content area displays "BLAST Services!" and a tree view on the left with "Multi BLAST" selected. The "Job Queue" table is shown with the following data:

#	Globus JobID	Last Update Time	Status	Destination	Exit Code	Name
1	NoQK4hkHIK60UR0HsiPpNw	2006 Sep 21 15:27	Done	dagman	0	run_collection_blast.jdl

A "Details" link is visible below the table. A dropdown menu is open for the "Done" status, showing "Done" and "GET OUTPUT" options. A blue arrow points to the "GET OUTPUT" option.

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Done glite-demo.ct.infn.it

**Retrieve the output
of the Collection**

MULTI BLAST : Data Spooler

The screenshot shows the GENIUS Grid Portal interface in Mozilla Firefox. The browser address bar shows `https://glite-demo.ct.infn.it/`. The page header includes logos for INFN, EGEE, GENIUS, enginframe, and NICE. The main content area displays a table of BLAST job results for a specific job ID: `20060921_155022_NoQK4hkHk60UR0HsiP`. The table has columns for file names, completion times, and file sizes. A blue arrow points to the `README` file in the table. Below the table, a text box provides instructions on how to download and view the files.

File Name	Completion Time	File Size
report_out.txt	set 21, 2006 15:50:14	6083
report_err.txt	set 21, 2006 15:50:15	870
README	set 21, 2006 15:50:15	181

BLAST computation has finished and it has produced the following file: `outfile.blastn1158845459`. To get more information use the Navigate Catalog services and select Download&View.

each subjobs

MULTI BLAST : LFC Catalog

Welcome to the GENIUS Grid Portal - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

https://glite-demo.ct.infn.it/

Getting Started Latest Headlines GILDA EUCHINA

Navigate Catalog

Details of files from Catalog

```
# file: /grid/gilda/ba.infn.it/user_output/Homo_sapiens.NCBI36.apr.dna.chromosome/1.0/outfile.blastn1153898290
# owner: /C=IT/O=GILDA/OU=Personal Certificate/L=INFN Catania/CN=Gilda Demonstrator 48/Email=gilda-cafer.infn.it
# group:
user:
group:
other:
-----
```

[Top] > grid > gilda > ba.infn.it > user_output > Homo_sapiens.NCBI36.apr.dna.chromosome > 1.0

<input type="checkbox"/>	outfile.blastn1153919052	set 21, 2006 17:26:22	2074
<input checked="" type="checkbox"/>	outfile.blastn1153898290	set 21, 2006 17:26:27	39343
<input checked="" type="checkbox"/>	outfile.blastn1154077064	set 21, 2006 17:26:31	13163

Action..

- Delete selected
- Create zip
- Create tar**
- Create tar.Z
- Create tgz
- Download selected

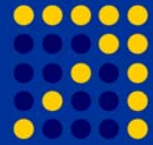
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Done glite-demo.ct.infn.it

Download & View Details



Click [here](#) to inspect a typical output file produced by BLAST during the computation



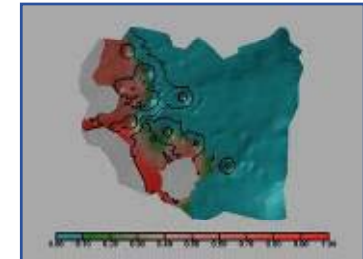
- **“Multi BLAST on Demonstrator: an easy way to run BLAST in a GRID Infrastructure”**
 - AIFTIMIEI, C. – CAROTA, L. – DE FILIPPIS, N. – DONVITO, G. – FALZONE, A – PIERRO, A. – TULIPANO, A, – LA ROCCA, G. – VERLATO, M. – Prof. BARBERA, R. – Prof. MAGGI, G.P. CAPI2006 BIOCOMPUTING – Milan 2006.



BioinfoGRID

**Presented at First
EUMedGrid Project Review
Madrid, 27-28 Feb. - SPAIN**

CODESA-3D



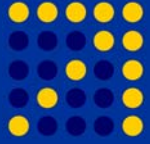
**This is a work supported in collaboration with
Giuditta Lecca¹, Jawher Kerrou², Philippe Renard³
Giuseppe La Rocca⁴ and Roberto Barbera⁴**

1 CRS4, Cagliari (Italy)

2 INAT, Tunis (Tunisia)

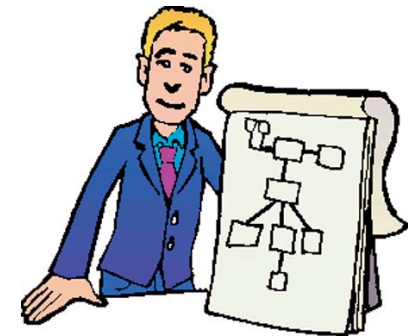
3 CHYN, University of Neuchatel (Switzerland)

4 INFN, Catania (Italy)



The CODESA-3D application

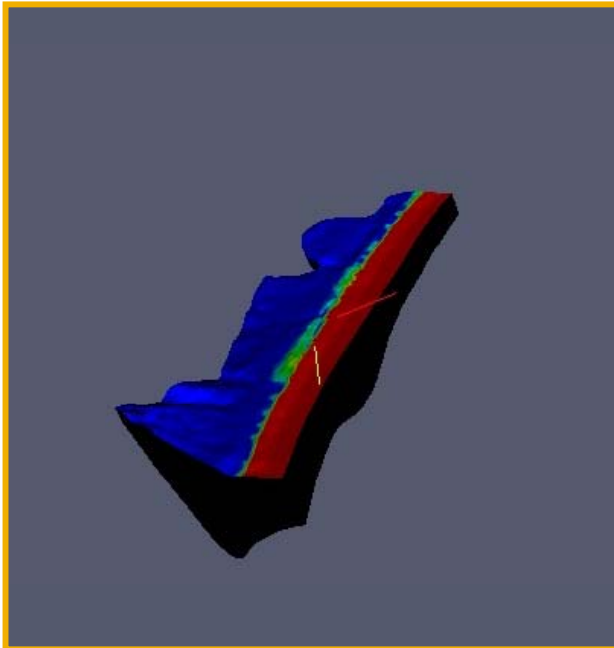
- **CODESA-3D** (*COupled variable DEnsity and Saturation 3-Dimensional*) is a software developed at **CRS4** (Center for Advanced Studies, Research and Development in Sardinia - <http://www.crs4.it/>).
- Its aims to study, taking into account detailed mathematical representations of physical, chemical and biological processes that govern water flow, saltwater intrusion in freshwater coastal aquifers.



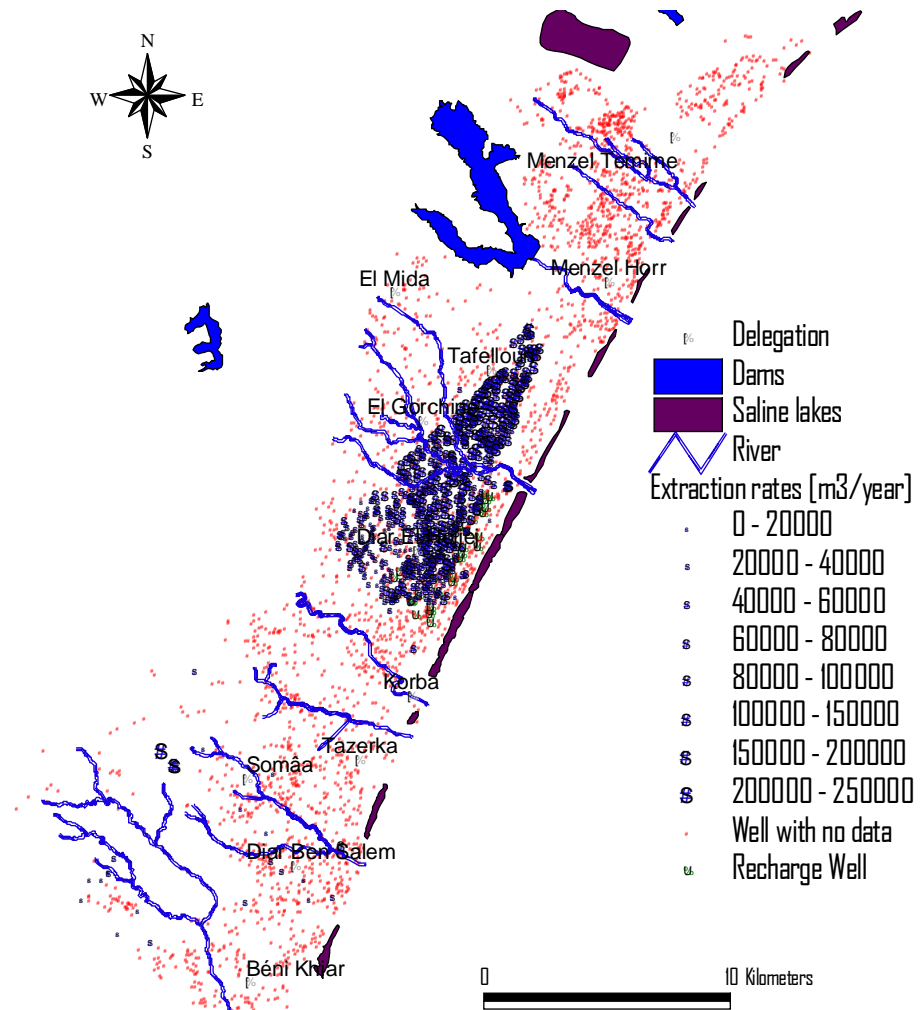


BioinfoGRID

The Korba case-study (Tunisia)



Extraction rates and Recharge Map





Integration & results

Welcome to the GENIUS Grid Portal - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

https://glite-tutor.ct.infn.it/

Getting Started Latest Headlines GILDA EUCHINA

INFN egee Enabling Grids for E-science Grid Enabled web Environment for genius Site Independent User Job Submission

Welcome larocca Resource Broker: gilda Virtual Organization: gilda LFC Host: lfcr.gilda.ct.infn.it Your Date Logout

CODESA Services!

- CODESA-3D
- Single Event
- Multi Events
 - Inputs Setting
 - Inspect Status
 - Data
 - Clean Job Queue
- Back home

Production Name : test2006
 Number of Events : 3
 Last Submission Time : Wed Jun 21 15:10:47 2006

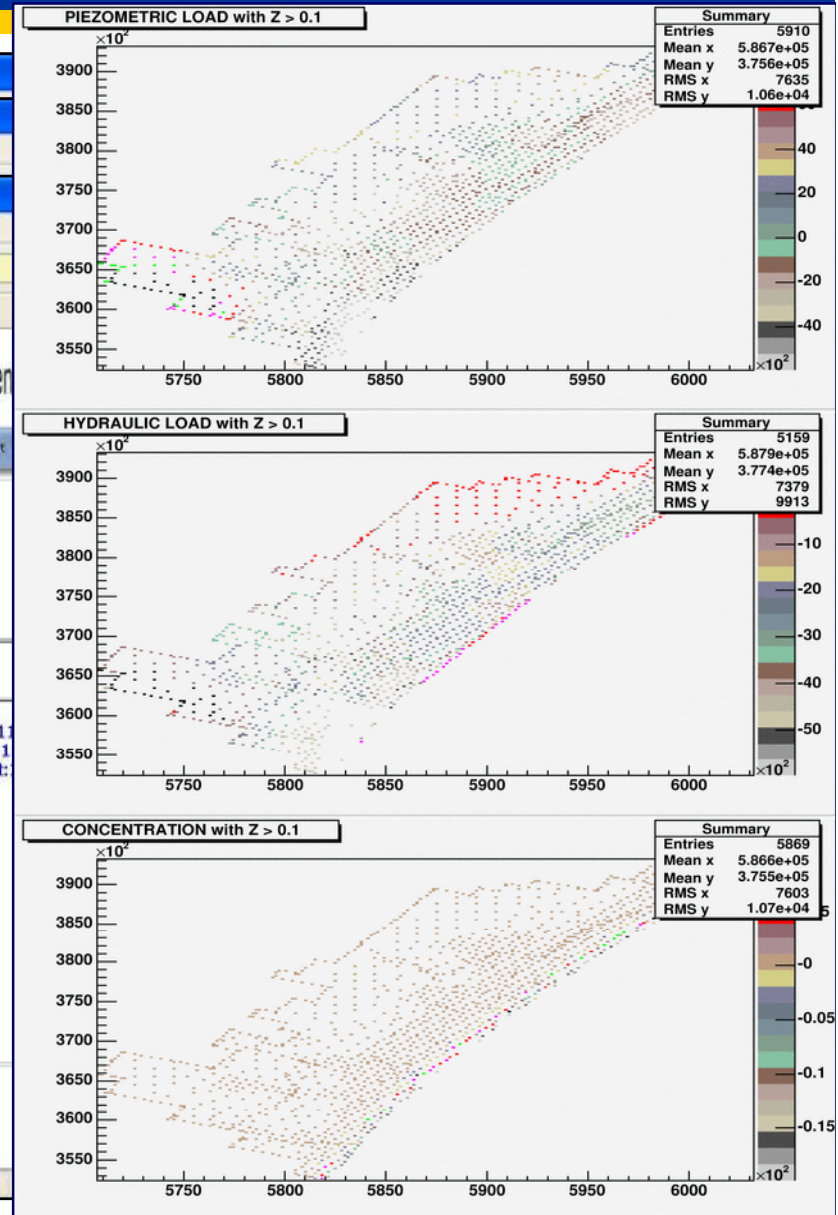
Production Status: Started

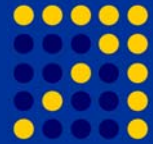
1) https://glite-rb.ct.infn.it:9000/P4fE9f6bHoXqFyG3CFLcsg ==> grid010.ct.infn.it:21
 2) https://glite-rb.ct.infn.it:9000/itChJFeXMA7-uXGMb9OKLg ==> grid010.ct.infn.it:21
 3) https://glite-rb.ct.infn.it:9000/wsYOlwLZMqi_Q_BpGdUmThw ==> grid010.ct.infn.it:

Ready Jobs = 0
 Scheduled Jobs = 3
 Done Jobs = 0
 Aborted Jobs = 0
 RUNNING Jobs = 0
 PENDING Jobs = 3

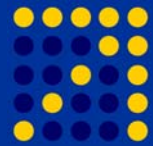
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Waiting for glite-tutor.ct.infn.it...





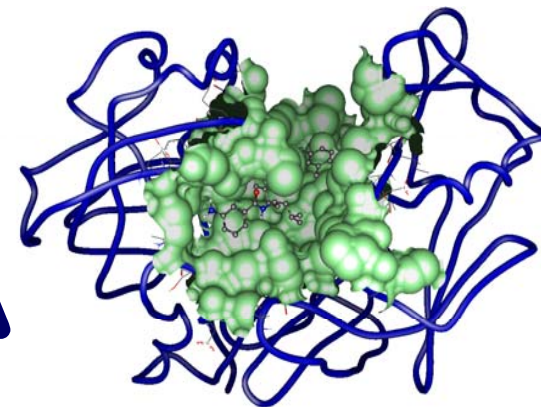
- “Sustainable management of groundwater exploitation using Monte Carlo simulation of seawater intrusion in Korba aquifer (Tunisia)”
 - Mr.KERROU, J. – Dr. LECCA, G. – Prof. RENARD, P. – Dr. LA ROCCA, G. – Prof. BARBERA, R. – EGEE User Forum 01-03 March 2006.
- Internation Science Grid This Week (ISGTW)
 - <http://www.isgtw.org/?pid=1000341> - March, 2007



BioinfoGRID

Presented at ISGC Symposium
27-29 March 2007
Taipei - TAIWAN

ROSETTA



This is a work supported in collaboration with

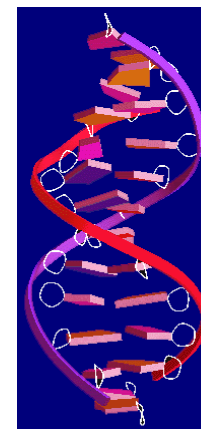
Fabio POLITICELLI (polticel@uniroma3.it)

Pier Luigi LUISI (luisi@mat.ethz.ch)

Giovanni MINERVINI (gminervini@uniroma3.it)

Computational Biochemistry Lab.

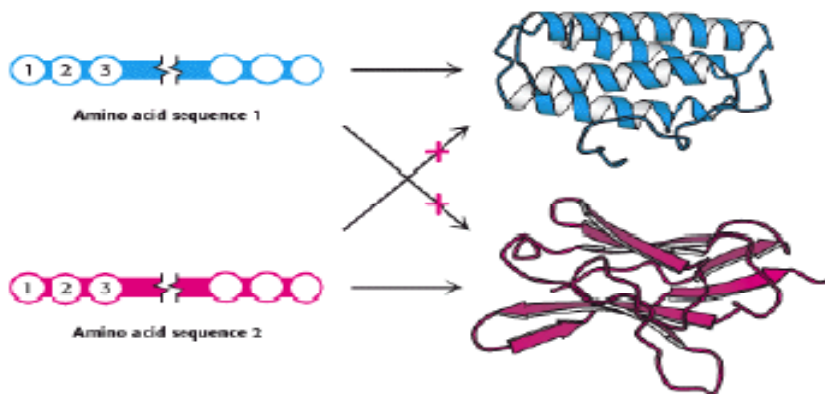
Department of Biology – Roma 3





The Biological Applications

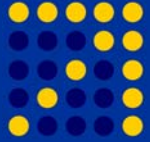
- **The protein folding “problem” and the structural genomics challenge**
 - The combination of the 20 natural amino acids in a specific sequence dictates the three-dimensional structure of the protein.
 - Protein function is linked to the specific three-dimensional arrangement of amino acids functional groups.
 - With the advancement of molecular biology techniques a huge amount of information on *protein sequences* has been made available but less information is available on structure and function of these proteins.
 - The “ab initio” prediction of protein structure is a key instrument to better understand the **protein folding principles** and successfully exploit the information provided by the “genomic revolution”.





The protein sequences space

- The number of natural proteins, though apparently huge, represents just a tiny fraction of the theoretically possible protein sequences.
 - With 20 different co-monomers, a protein chain of just 60 amino acids can theoretically exist in 20^{60} chemically and structurally unique combinations.
- Estimates of the number of proteins present in nature vary from a minimum of 10^9 to a maximum of 10^{13} , thus the ratio between the number of existing proteins and those theoretically possible is very small.
 - A particularly suggestive example is that this ratio correspond to that between the volume of the hydrogen atom and that of the entire universe.



The “Never Born Proteins”

- **Rationale**

- There exist a huge number of protein sequences that have never been exploited by biological systems, in other words enormous number of “never born proteins” (NBP).
- The NBP pose a series of interesting questions for the biology and basic science in general:



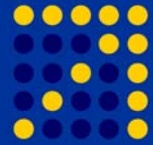
- Which are the criteria with which the existing proteins have been selected?



- Do natural proteins have peculiar properties in terms for example of thermal stability, solubility in water or amino acid composition?



- Or else they represent just a subset of the possible protein sequences generated only by the contemporary action of contingency and physico-chemical forces?



What Rosetta does ?

- The Rosetta *ab initio* module (*developed by David Baker – University of Washington*) is a software application which allows the prediction of the three-dimensional structure of an amino acid sequences starting from a secondary structure of the sequence itself and a set of fragments extracted from the *Protein Data Bank (PDB)*.
- The Protein Data Bank (<http://www.wwpdb.org/>) is a repository of proteins and nucleic acids that can be accessed for free by biologists and biochemists from around the world.



Rosetta: how it works !

- **Module I - Input generation**
 - The query sequence is divided in fragments of 3 and 9 amino acids
 - The software extracts from the data base of protein structures the distribution of three-dimensional structures adopted by these fragments based on their specific sequence
 - For each query sequence is derived a fragments data base which contains all the possible local structures adopted by each fragment of the entire sequence.
- **Module II - *Ab initio* protein structure prediction**
 - The sets of fragments are assembled in a high number of different combinations by a Monte Carlo procedure.
 - The resulting structures are subjected to a energy minimization procedure using a semi-empirical force field.
 - The principal non-local interactions considered are hydrophobic interactions, electrostatic interactions, main chain hydrogen bonds and excluded volume.
 - The compatible structures both with local biases and non-local interactions are ranked according to their total energy resulting from the minimization procedure.



- The procedure for input generation is rather complex but computationally inexpensive (10 min of CPU time on a Pentium IV 3,2 GHz).
- Due to the many dependencies of module I (*Blast* and *psipred*), the input generation is carried out locally with a script that automatizes the procedure for a large dataset of sequences.
- Approximately 500 input datasets are currently being generated daily.



- Input
 - fragment files generated by module 1
 - secondary structure prediction using **psipred**
- In output the user obtains a number of structural models of the query sequence ranked by total energy
- A single run with just the lowest energy structure as output takes approx. 10-40 min of CPU time depending on the degree of refinement of the structure
- The Module II has been implemented in GRID through the use of the **GENIUS Grid Portal** (<https://glite-tutor.ct.infn.it>)
 - From this portal, exploiting the last feature of the gLite middleware, (www.glite.web.cern.ch/glite) it's possible submitting parametric jobs and run, in one shot, a large number of jobs (structure predictions).



Create the dynamic ClassAD /1

BioinfoGRID

- ▶ **Step 1.** After MyProxy initialization the user connects to the GENIUS portal to set up the parametric JDL, specifying the number of runs (equivalent to the number of amino acid sequences to be simulated) to be carried out.

The screenshot shows a Mozilla Firefox browser window displaying the GENIUS Grid Portal. The page title is "Welcome to the GENIUS Grid Portal - Mozilla Firefox". The address bar shows the URL "https://glite-tutor.ct.infn.it/". The page features logos for INFN, egee, genius, enginframe, and NICE. A navigation bar includes "Welcome", "Resource Broker: glids", "Virtual Organization: glids", "LFC Host: lb-glids.ct.infn.it", "Your Data", and "Logout".

The main content area is titled "Specify the ClassAD". It contains the following text: "Please, select the type of parametric job that you want to create and submit to the grid. More information about how to create a parametric jobs and JDL's attributes can be found at the following [link](#)".

The form is enclosed in a red box and includes:

- Type of Parametric JOB:** Radio buttons for "Numeric" (checked) and "Alphanumeric".
- JOB Settings:** A text input for "#Parameters" with the value "3", a dropdown menu for "ParameterStep" with the value "1", and a text input for "ParameterStart" with the value "1".
- A larger text input field for "#Parameters" with a note: "(Please, use comma to separate each item)".
- A button labeled "Set the parameter for the Parametric JOB".

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Create the dynamic ClassAD /2

- ▶ **Step 2.** The user specifies the working directory and the name of the shell script.

The screenshot shows a web browser window titled "Welcome to the GENIUS Grid Portal - Mozilla Firefox" with the URL "https://glite-tutor.ct.infn.it/". The page features logos for INFN, EGEE, GENIUS, and NICE. A navigation menu on the left includes "ROSETTA Services" with sub-items like "Input Settings", "Submit ROSETTA", and "JMOL". The main content area is titled "JDL Attributes" and contains the following text and form fields:

JDL Attributes

With the next #services user can specify the attributes to customize his parametric job. Please, use the **_PARAM_** item each time you want to indicate a parametric attribute.

Working Directory

Executable

Argument

Executable, Standar Output and Standard Error

Enable Standard files

StdOutput file

StdError file



Create the dynamic ClassAD /3

- ▶ **Step 3.** Input files (fragment libraries) are loaded as a single .tar.gz folder per amino acid sequence.

The screenshot shows a web browser window titled "Welcome to the GENIUS Grid Portal - Mozilla Firefox" with the URL "https://glite-tutor.ct.infn.it/". The page features logos for INFN, EGEE, GENIUS, enginframe, and NICE. A navigation bar includes "Welcome larocca", "Resource Broker: glida", "Virtual Organization: glida", "LFC Host: lb-glida.ct.infn.it", "Your Data", and "Logout".

The main content area is titled "JDL Attributes" and contains the following text: "With the next 4 services user can specify the attributes to customize his parametric job. Please, use the **_PARAM_** item each time you want to indicate a parametric attribute."

The "InputSandbox" section is checked. Below it, there are two "Input File" fields. The first field has a "Browse..." button and the text "Not yet supported". The second field contains the paths: "/home/larocca/ROSETTA-PARAM/2pt11.tar.gz" and "/home/larocca/ROSETTA-PARAM/2pt12.tar.gz", with "Select..." and "Clean" buttons.

A note states: "N.B.: Remember that the files to upload MUST contain the following items:" followed by a text area.

The "Type of archive to create" section has radio buttons for "none", "tar", and ".gz".

At the bottom, there is a button labeled "Create JDL Attributes for the Parametric JOB (2/4)".

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Create the dynamic ClassAD /4

- ▶ **Step 4.** Output files (initial and refined model coordinates) are specified in parametric form.

Welcome to the GENIUS Grid Portal - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

https://glite-tutor.ct.infn.it/

INFN egee Enabling Grids for E-science Grid Enabled web environment for genius The Independent User job Submission enginframe NICE

Welcome larocca Resource Broker: glite Virtual Organization: glite LFC Host: lb-gfids.ct.infn.it Your Data Logout

ROSETTA Services

- Input Settings
 - Specify the ClassAD
- Submit ROSETTA
 - Submit ROSETTA
 - Inspect Status
 - Data
 - Clean Job Queue
- JMOL
 - Set VNC Password
 - Close VNC Session
 - Start JMOL Java Applet
- Navigate Catalog
- Credits
- Back home

JDL Attributes

With the next 4 services user can specify the attributes to customize his parametric job. Please, use the **_PARAM_** item each time you want to indicate a parametric attribute.
Note: Please, use coma to separate each item of the Output File.

OutputSandbox

Enable OutputSandbox

Output File

Type of archive to create

- none
- tar
- gz

Create JDL Attributes for the Parametric JOB (3/4)

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Done glite-tutor.ct.infn.it



Create the dynamic ClassAD /5

- ▶ **Step 5.** The software requirements are specified in order to properly run ROSETTA.

The screenshot shows the GENIUS Grid Portal interface in Mozilla Firefox. The browser address bar shows <https://glite-tutor.ct.infn.it/>. The page header includes logos for INFN, EGEE (Enabling Grids for E-science), genius, and NICE. The main content area is titled 'JDL Attributes' and contains the following text:

With the next 4 services user can specify the attributes to customize his parametric job. Please, use the `_PARAM_` item each time you want to indicate a parametric attribute.
Note: Remember that the following two software tags: RASTER3D and MOLSCRIPT-1.0.2 are mandatory!

Requirements
 Specify the CE

List available CE(s)

List of the available software TAG(s)

EGEODE-1.0
RASTER3D
SCILAB-2.6
G95-3.5.0
MAGIC-6.19
CODESA3D-1.0
OpenFOAM-1.2
CYCAS-3.2.0
MM5-3.7
MOLSCRIPT-1.0.2

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Submit ROSETTA to the Grid /1

- ▶ **Step 6.** The parametric JDL file is generated and visualized to be inspected by the user.

Welcome to the GENIUS Grid Portal - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

https://glite-tutor.ct.infn.it/

INFN Egee Enabling Grids for E-science Grid Enabled web Environment for genius the Independent User Job Submission engwframe NICE

Welcome brocca Resource Broker: glida Virtual Organization: glida LFC Hostfile: glida.ct.infn.it Your Data Logout

ROSETTA Services

- Input Settings
 - Specify the ClassAD
- Submit ROSETTA
 - Submit ROSETTA
 - Inspect Status
 - Data
 - Clean Job Queue
- JMOL
 - Set VNC Password
 - Close VNC Session
 - Start JMOL Java Applet
- Navigate Catalog
- Credits
- Back home

Submit ROSETTA

Please, check the ClassAD before to submit it to the grid. If you need to change something use **-Specify the ClassAD-** service.

Note (*): You have to insert a unique production name.

```
[
JobType = "Parametric";
Parameters = 3;
ParameterStep = 1;
ParameterStart = 1;
Executable = "rosetta.sh";
Arguments = "2pt1_PARAM_.tar.gz" "_PARAM_";
StdOutput = "std_PARAM_.out";
StdError = "std_PARAM_.err";
InputSandbox = {"2pt1_PARAM_.tar.gz","rosetta.sh"};
OutputSandbox =
{"aa2pt1000_PARAM_.pdb","2pt1_id1_PARAM_.pdb","timing","std_PARAM_.out","std_PARAM_.err","2pt1_id1_P
Requirements = RegExp("iceage-ce-01.ct.infn.it:2119/jobmanager-1cgpbe-short",other.GlueCEUniqueID)
&& Member("MOLSCRIPT-1.0.2",other.GlueHostApplicationSoftwareRunLineEnvironment) &&
(Member("RASTER3D",other.GlueHostApplicationSoftwareRunLineEnvironment));
Rank = 3;
```

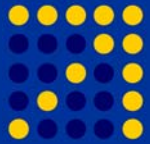
Production Name

Production Name

Submit ROSETTA to the GRID

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Done glite-tutor.ct.infn.it



Submit ROSETTA to the Grid /2

- ▶ **Step 7.** The parametric job is submitted and its status as well as the status of individual runs of the same job can be checked.

The screenshot shows a web browser window titled "Welcome to the GENIUS Grid Portal - Mozilla Firefox" with the URL "https://glite-tutor.ct.infn.it/". The page features logos for INFN, EGEE, genius, engwframe, and NICE. A navigation bar includes "Welcome larocca", "Resource Broker: glite", "Virtual Organization: glite", "LFC Host: lb-glide.ct.infn.it", "Your Data", and "Logout".

The main content area displays a confirmation message: "The following JDL(s) has/have been successfully submitted to the Network Server." followed by two URLs:

- 1) https://glite-rb.ct.infn.it:9000/JeELFCST1_5gPUmy6KxDhA
- 2) <https://glite-rb.ct.infn.it:9000/6kugCPCdt8-jROVvDFMbw>

Below the URLs, the text reads: "View the /home/larocca/.genius/.status_20070112_114503_rosetta_Venus_production file to check job(s) current status." A red arrow points from the "Inspect Status" link in the left sidebar to this text.

At the bottom, it says: "To monitor the status of the whole production Venus_production please click on the Inspect Status service."

A large red text overlay on the right side of the screenshot reads: "Inspect the status of the production".



Inspect Status /1

Welcome to the GENIUS Grid Portal - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

https://glite-tutor.ct.infn.it/

INFN egee Enabling Grids for E-science Grid Enabled with eNvironment for genius engwframe NICE

Welcome lamcca Resource Broker: glite Virtual Organization: glite LFC Host: lb.gfd.ct.infn.it Your Data Logout

ROSETTA Services

- Input Settings
 - Specify the ClassAD
- Submit ROSETTA
 - Submit ROSETTA
 - Inspect Status
 - Data
 - Clean Job Queue
- JMOL
 - Set VNC Password
 - Close VNC Session
 - Start JMOL Java Applet
- Navigate Catalog
- Credits
- Back home

#	Production Name	Number of Events	Submission Time
3	production	2	Fri Jan 12 11:45:23 2007
2	MazingaZ	4	Fri Nov 17 12:58:05 2006
1	Venus	2	Thu Nov 16 11:56:27 2006

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Done glite-tutor.ct.infn.it



Inspect Status /2

The screenshot shows a web browser window titled "Welcome to the GENIUS Grid Portal - Mozilla Firefox". The address bar shows the URL "https://glite-tutor.ct.infn.it/". The page header includes logos for INFN, EGEE (Enabling Grids for E-science), genius, and NICE. Below the header, there is a navigation bar with "Welcome lamocca", "Resource Broker: glite", "Virtual Organization: glite", "LFC Host: lb-gfids.ct.infn.it", "Your Data", and "Logout".

The main content area displays the following information:

- Production Name : **production**
- Number of Events : 2
- Last Submission Time : **Thu Nov 16 11:56:27 2006**
- Production Status: **Executed**

Below the status, there are two job submission commands:

- 1) `https://glite-rb.ct.infn.it:9000/JeELFC5TL_5gPUny6KxDhA ==> iceage-ce-01.ct.infn.it:2119/jobmanager-lcgpbs-she`
- 2) `https://glite-rb.ct.infn.it:9000/6kugCPCdt8-jROVvDFilbw ==> iceage-ce-01.ct.infn.it:2119/jobmanager-lcgpbs-she`

A red oval highlights the following text:

The Production has finished.
To inspect the outputs retrieved click on this link [production](#)

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Click [here](#) to inspect the typical output files produced by ROSETTA at the end of the prediction process



JMOL Applet Java

The screenshot shows a Mozilla Firefox browser window with the address bar at `https://glite-tutor.ct.infn.it/`. The page header features logos for INFN, EGEE (Enabling Grids for E-science), GENIUS (Grid Enabled web Environment for Independent User job Submission), enginframe, and NICE. Below the header, there are navigation links for 'Welcome larocca', 'Resource Broker: glids', 'Virtual Organization: glids', 'LFC Host: lb.gids.ct.infn.it', 'Your Data', and 'Logout'. A sidebar on the left lists 'ROSETTA Services' (Input Settings, Submit ROSETTA, JMOl) and 'JMOL' (Set VNC Password, Close VNC Session, Start JMOL Java Applet, Navigate Catalog, Credits, Back home). The main content area shows a JMOL Java applet window titled 'aa2pt0001.pdb - aa2pt0001' with a toolbar and a 3D ball-and-stick molecular model of a protein structure. The status bar at the bottom indicates 'Done' and the URL 'glite-tutor.ct.infn.it:7826'.



- **“Porting Biological Applications in Grid : an experience within the EUChinaGRID framework”**
 - Prof. POLITICELLI, Fabio – Dr. LA ROCCA, Giuseppe – Prof. LUISI, Pier Luigi, Dr. MINERVINI Giovanni – EGEE User Forum 27-29 March 2007.
- **Protein structure prediction of “never born proteins”. An experience within the EUChinaGRID framework.**
 - Prof. POLITICELLI, Fabio – Dr. LA ROCCA, Giuseppe – Prof. LUISI, Pier Luigi, Dr. MINERVINI Giovanni – EGEE User Forum 09-11 May 2007.



BioinfoGRID

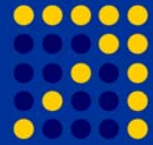
**Presented at First
EUMedGrid Project Review
Madrid, 27-28 Feb. - SPAIN**

ARCHAEO CLIMATOLOGY

This is a work supported in collaboration with

Pier Giovanni PELFER (pelfer@fi.infn.it)

University of Florence - ITALY



The Mediterranean Region at the end of the urban revolution

BioinfoGRID

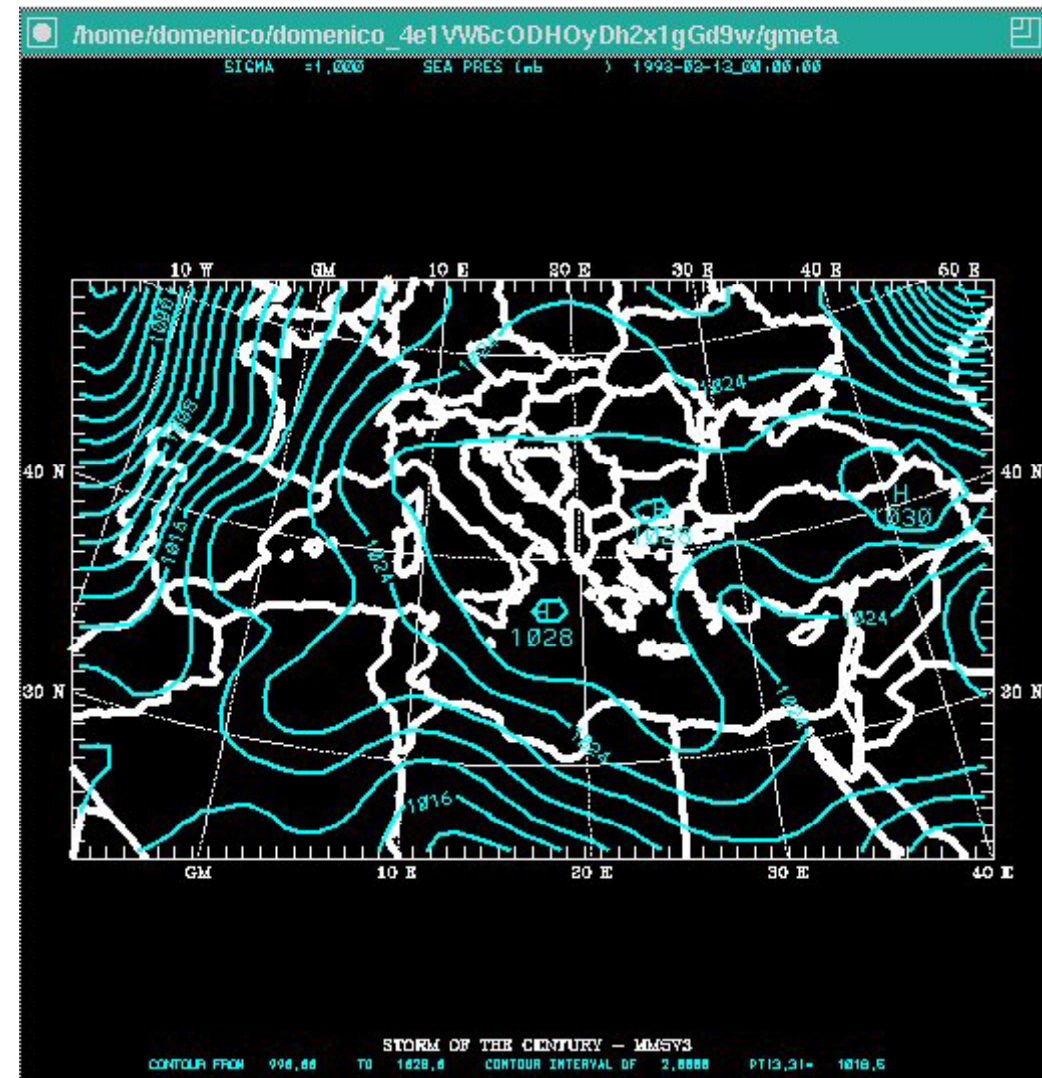


ArchaeoGrid aims to investigate the paleoclimate situation in the Mediterranean Area between XVIII centuries B.C.

This kind of studies are made available, within EUMEDGRID, using a meteorological modelling software called **MM5**. It allows to create complex atmospheric simulations and simulate weather evolution.



The MM5 program, thanks to the description of the environment, elaborates the meteorological data and generate the forecast



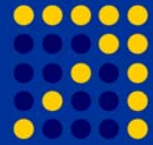


- **“Archaeological Applications on e-Infrastructures by ArchaeoGRID”**
 - Dr. PELFER, Giuliano – Dr. CECCHINI, Roberto – Prof. PELFER, Pier Giovanni, Dr. POLITI, Antonio – EGEE User Forum 09-11 May 2007.



- **Grid Portals technology**
- **EnginFrame Framework**
- **The GENIUS Grid Portal**
- **Some Integrated Applications**

- **References**



- NICE web-site <http://www.nice-italy.com>
- EnginFrame Framework <http://www.enginframe.com>
- GENIUS Portal <https://genius.ct.infn.it>
- GENIUS Repository at <https://geniuscvvs.ct.infn.it>

GENIUS Installation

- GENIUS Repository at <https://geniuscvvs.ct.infn.it>
- Write an email message to alberto.falzone@nice-italy.com or nicola.venuti@nice-italy.com for an account request to download the GENIUS package

