eGee

Enabling Grids for E-sciencE

The GILDA User Interface PnP

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(Slides courteously provided by Gianluca Passaro)

INFN Catania

ICTP/INFM-Democritos Workshop on Porting Scientific Applications on Computational GRIDs
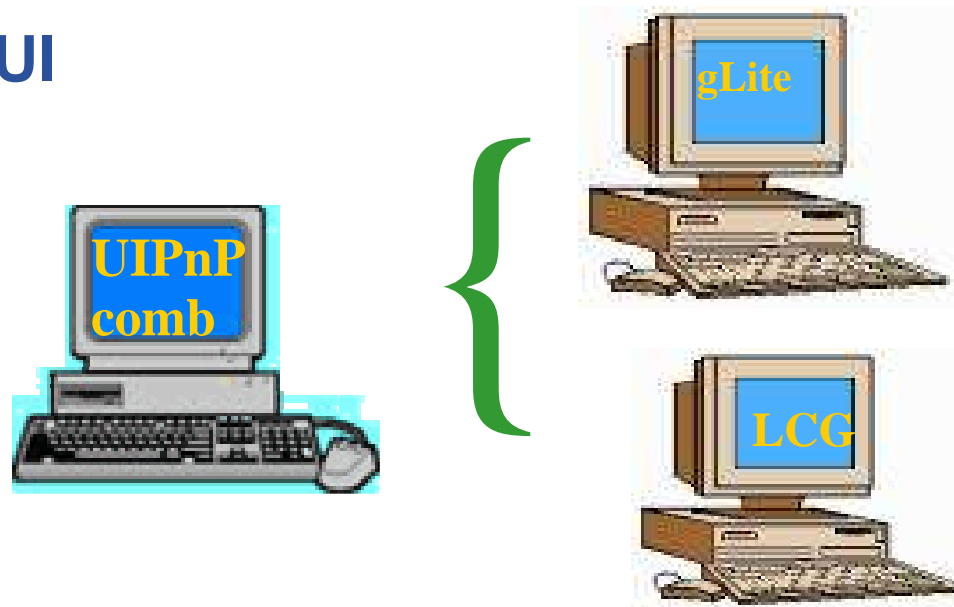
Trieste, 06-17 February 2006

Information Society

- **What is?**

- **GILDA Combined PnP UI installation**

- **Configuration customization**

- **UI on a Virtual Machine (VM)**

- **UI Live DVD**

The User Interface Plug & Play is a combination of:

1) gLite 1.4 UI
2) LCG 2.6.0 UI

gLite

UIPnP
comb

LCG

- **A big tarball with all the software necessary to turn your Linux desktop into a machine from you can access and use the GILDA testbed**

eGee System requirements

- **One of the following Linux distribution:**
  - Fedora Core 2/3
  - Scientific Linux 3.0.x
  - Suse 9.x (with some slight modifications)
  - Mandrake 9.2
- **NO root privileges is required**
- **Date and time of the system must be correct!**
- **You should make sure some port are opened. The list of the needed ports can be found here:**
  - http://lcgdeploy.cvs.cern.ch/cgi-bin/lcgdeploy.cgi/*checkout*/lcg2/docs/lcg-port-table.pdf
- **A X509 personal certificate and a successfully join request to a Virtual Organization**

The GILDA UI PnP homepage is:

https://gilda.ct.infn.it/UIPnPcomb/

(you can find some documentation here too)

Login into your Linux desktop computer and issue the following commands:

1) *wget* **https://gilda.ct.infn.it/UIPnPcomb/UIPnPcomb.tar.gz**

2) *tar zxvf* **UIPnPcomb.tar.gz**

3) *cd* **UIPnPcomb**
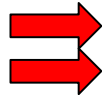
4) *source* **install.sh**

5) *upload your private key and personal certificate* **$HOME/.globus**

(For more details look at the README file)

What install.sh does under the hood :

- – Downloads CA certificates, Signing Policy, CRLs, if needed

- – creates the .globus directory (where you have to upload your personal certificates)

- – Creates the JobOutput directory (where the output of your jobs will be stored)

- – Sets all the relevant environment variables in .bashrc

- – Sets a cron job to update the CRL's periodically

eGee Default VO settings

In $HOME/UIPnPcomb/glite/etc/, you can edit the file:
glite_wmsui_cmd_var.conf

gLite

```
[
    NSLoggerLevel = 6 ;
    ErrorStorage = "~/JobOutput" ;
    LoggingSyncTimeout = 10 ;
    DefaultVo = "gilda" ;
    OutputStorage = "~/JobOutput" ;
    DefaultLogInfoLevel = 1 ;
    DefaultStatusLevel = 1 ;
    ListenerStorage = "~/JobOutput" ;
    ...
]
```

DefaultVo: default VO
OutputStorage: default output folder of all jobs

… Default VO settings

LCG

In $HOME/UIPnPcomb/edg/etc/, you can edit the file:

edg_wl_ui_cmd_var.conf

```
[
...
OutputStorage = "~/JobOutput";
ListenerPort = 44000;
LoggingSyncTimeout = 30;
LoggingDestination = "grid004.ct.infn.it:9002";
NSLoggerLevel = 0;
…
DefaultLogInfoLevel = 0;
DefaultStatusLevel = 0;
DefaultVo = "gilda";
]
```

DefaultVo: default VO
OutputStorage: default output folder of all jobs

You can customize your VO, RB/LB, MyProxy server locations

in $HOME/UIPnPcomb/glite/etc/, doing that:

1. create a folder with the same name of a VO
2. configure the file glite_wmsui.conf getting a template from $HOME/UIPnPcomb/glite/etc/vo_template

gLite

```
[
VirtualOrganisation = "gilda";
NSAddresses = {"glite-rb.ct.infn.it:7772"};
LBAddresses = {"glite-rb.ct.infn.it:9000"};
MyProxyServer = "grid001.ct.infn.it";
]
```

In this file you define :
- **the VO name**
- **hostname and port of the Resource Broker and Logging&Bookkeeping server**
- **hostname and port of the MyProxy Server**

- **You can customize your VO, RB/LB, MyProxy server locations**

In $HOME/UIPnPcomb/edg/etc/ , doing that:

LCG

- create a folder with the same name of a VO
- configure the file edg_wl_ui.conf getting template from $HOME/UIPnPcomb/edg/etc/vo_template

```
[
VirtualOrganisatio_cmd_var.confn = "gilda";
NSAddresses = "grid004.ct.infn.it:7772";
LBAddresses = "grid004.ct.infn.it:9000";
MyProxyServer = "grid001.ct.infn.it"
]
```

In this file you define :
- VO name
- hostname and port of the Resource Broker and Logging&Bookkeeping server
- hostname and port of the MyProxy Server

Settings for the endpoinds for many other gLite services (Fireman Catalog, File Transfer Service, Channel Management etc ...) can be found into $HOME/UIPnPcomb/glite/etc/services.xml

```
<service name='gildaCatalog'>
```

https://grid017.ct.infn.it:8443/gilda/glite-data-catalog-service-fr-mysql/services/FiremanCatalog

```
<service name='gildaFts'>
```

https://fts.ct.infn.it:8443/gildav/glite-data-transfer-fts/services/FileTransfer

```
<service name='gildachannel'>
```

https://fts.ct.infn.it:8443/gildav/glite-data-transfer-fts/services/ChannelManagement

```
<service name='gildaSEIndex'>
```

https://grid017.ct.infn.it:8443/gilda/glite-data-catalog-service-fr-mysql/services/SEIndex

Setting for the endpoint of the gLite I/O Server
found in $HOME/UIPnPcomb/glite/etc/glite-io-client.properties.xml

```xml
<service>
 <components>
  <component name="io-client">
   <init>
    <param name="Server">
     <!--value>glite-se-test.trigrid.it</value-->
     <value>egee015.cnaf.infn.it</value>
     <!--value>glite-se.ct.infn.it</value-->
    </param>
    <param name="ServerPort">
     <value>9999</value>
    ...
     ...
</service>
```

> voms-proxy-init --voms gilda

Your identity: /C=IT/O=GILDA/OU=Personal Certificate/L=INFN Sezione di Catania/CN=Passaro Gianluca/Email=gianluca.passaro@ct.infn.it

Enter GRID pass phrase:

Creating temporary proxy .... Done
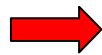
Contacting voms.ct.infn.it:15001 [/C=IT/O=GILDA/OU=Host/L=INFN Catania/CN=voms.ct.infn.it/Email=emidio.giorgio@ct.infn.it] "gilda" Done

Creating proxy .... Done

Your proxy is valid until Wed Jan 4 10:40:56 2006

UI
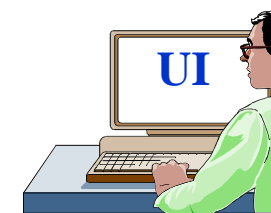
> glite-job-list-match --vo gilda hostname.jdl

gLite

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

****

COMPUTING ELEMENT IDs LIST
The following CE(s) matching your job requirements have been found:

CEId
cn01.be.itu.edu.tr:2119/jobmanager-lcglsf-infinite
cn01.be.itu.edu.tr:2119/jobmanager-lcglsf-long
cn01.be.itu.edu.tr:2119/jobmanager-lcglsf-short

...

UI

> edg-job-list-match --vo gilda hostname.jdl

LCG

Selected Virtual Organisation name (from --vo option): gilda

➡ **Connecting to host grid004.ct.infn.it, port 7772**

****

COMPUTING ELEMENT IDs LIST
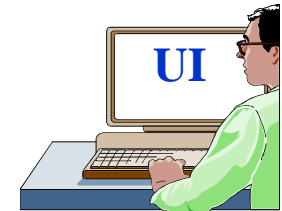**The following CE(s) matching your job requirements have been found:**

CEId
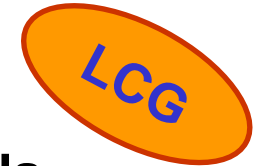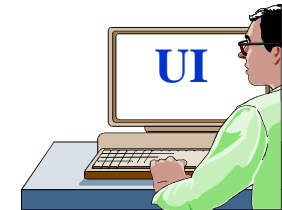**cn01.be.itu.edu.tr:2119/jobmanager-lcglsf-infinite**
cn01.be.itu.edu.tr:2119/jobmanager-lcglsf-long
cn01.be.itu.edu.tr:2119/jobmanager-lcglsf-short
...

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> glite-job-submit --vo gilda hostname.jdl

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

****
**   JOB SUBMIT OUTCOME**
** The job has been successfully submitted to the Network Server.**
** Use glite-job-status command to check job current status. Your job**
identifier is:
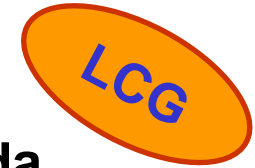
** - https://glite-rb.ct.infn.it:9000/3WFTTW3ph3SZm7t1UqWSyQ**

****

UI

> edg-job-submit --vo gilda hostname.jdl

LCG

Selected Virtual Organisation name (from --vo option): gilda
Connecting to host grid004.ct.infn.it, port 7772
Logging to host grid004.ct.infn.it, port 9002

****
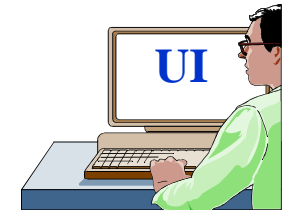
JOB SUBMIT OUTCOME
The job has been successfully submitted to the Network Server.
Use edg-job-status command to check job current status. Your
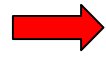**job identifier (edg_jobId) is:**

- https://grid004.ct.infn.it:9000/tnGRbee9IsxaVhqm4ebNRA

****

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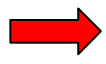
> **glite-job-status**
https://glite-rb.ct.infn.it:9000/3WFTTW3ph3SZm7t1UqWSyQ

gLite

****

BOOKKEEPING INFORMATION:

Status info for the Job : https://glite-rb.ct.infn.it:9000/3WFTTW3ph3SZm7t1UqWSyQ
Current Status: Done (Success)
Exit code: 0
Status Reason: Job terminated successfully
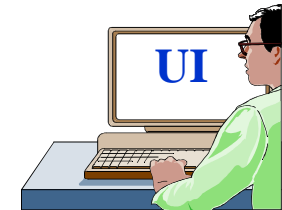**Destination: gilda-ce-01.pd.infn.it:2119/jobmanager-lcgpbs-short**
Submitted: Thu Jun 9 15:09:13 2005 CEST
****
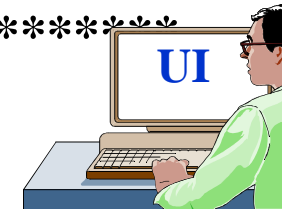
UI

> **edg-job-status**
https://grid004.ct.infn.it:9000/tnGRbee9lsxaVhqm4ebNRA

LCG

****

BOOKKEEPING INFORMATION:

Status info for the Job :
https://grid004.ct.infn.it:9000/tnGRbee9lsxaVhqm4ebNRA
Current Status: Done (Success)
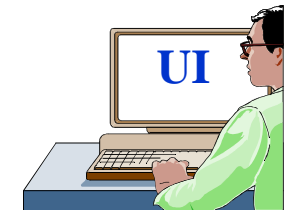**Exit code: 0**
Status Reason: Job terminated successfully
Destination: cn01.be.itu.edu.tr:2119/jobmanager-lcglsf-short
reached on: Thu Jun 9 13:13:46 2005
****

UI

Enabling Grids for E-sciencE

> **glite-job-output**
https://glite-rb.ct.infn.it:9000/3WFTTW3ph3SZm7t1UqWSyQ

gLite

Retrieving files from host: glite-rb.ct.infn.it (for https://glite-rb.ct.infn.it:9000/3WFTTW3ph3SZm7t1UqWSyQ)

****
JOB GET OUTPUT OUTCOME

Output sandbox files for the job:
- https://glite-rb.ct.infn.it:9000/3WFTTW3ph3SZm7t1UqWSyQ
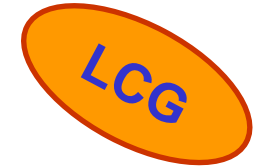**have been successfully retrieved and stored in the directory:**
/home/gianluca/JobOutput/gianluca_3WFTTW3ph3SZm7t1UqWSyQ

****

UI

Enabling Grids for E-sciencE

> edg-job-get-output
https://grid004.ct.infn.it:9000/tnGRbee9lsxaVhqm4ebNRA

LCG

Retrieving files from host: grid004.ct.infn.it (for
https://grid004.ct.infn.it:9000/tnGRbee9lsxaVhqm4ebNRA)

****

JOB GET OUTPUT OUTCOME

Output sandbox files for the job:
- https://grid004.ct.infn.it:9000/tnGRbee9lsxaVhqm4ebNRA
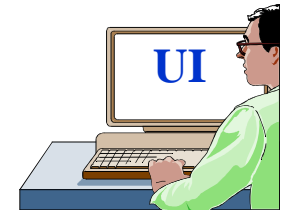**have been successfully retrieved and stored in the directory:**
/home/gianluca/JobOutput/gianluca_tnGRbee9lsxaVhqm4ebNRA

****

UI

- **Set the following environment variables to specify the catalog type and its location:**

  - **export LCG_CATALOG_TYPE=lfc**

  - **export LFC_HOST=lfc-gilda.ct.infn.it**

  - **export LFC_HOME=/grid/gilda/**

LCG

> lfc-ls –l /

```
...
-rw-rw-r--   1 4401      4400                        0 Jun 21 09:40 tutor02-rel-pippo-pluto
-rw-rw-r--   1 4401      4400                        0 Jun 21 09:39 tutor14
-rw-rw-r--   1 4401      4400                        0 Jun 21 09:40 tutor16-mytxt
-rw-rw-r--   1 4401      4400                        0 Jun 21 09:32 unitprot-ibcp02
-rw-rw-r--   1 4401      4400                        0 Jun 21 09:36 uploadfile
-rw-rw-r--   1 4401      4400                        0 Jun 21 09:36 uploadfilelfn
-rw-rw-r--   1 4401      4400                        0 Jun 21 09:38 user.example
-rw-rw-r--   1 4401      4400                        0 Jun 21 09:38 user.example2
-rw-rw-r--   1 4401      4400                        0 Jun 21 09:40 valencia15.ejemplo
-rw-rw-r--   1 4401      4400                        0 Jun 21 09:40 valencia15.example
...
```

Data upload and removal example

Upload a local file to a SE and register it in a File Catalog

> glite-put filename.txt lfn:///filename.txt

[glite_put] Total 0.00 MB |====================| 100.00 % [0.0 Mb/s]

Transfer Completed:

   LFN   : /filename.txt

   GUID   : 001b482e-c538-13be-b4f6-c1ced02ebeef

   SURL   : srm://egee016.cnaf.infn.it:8443/srm/managerv1?SFN=/dpm/cnaf.infn.it/home/gilda/filename.txt

   Data Written [bytes]   : 29

   Eff.Transfer Rate[Mb/s] : 0.000007

> glite-rm lfn:///filename.txt

Unlink Completed:

   File   : lfn:///filename.txt

   Time [s]   : 7.840000

To find out which SEs the user is allowed to use, one can use the following command:

> lcg-infosites --vo gilda se

LCG

****

These are the related data for gilda: (in terms of SE)

****

Avail Space(Kb) Used Space(Kb) Type   SEs

912374468   32948   grid005.iucc.ac.il

143547648   2472788   cn02.be.itu.edu.tr

68300000   6830000   egee016.cnaf.infn.it

….   ……   …….

Resource discovering example

In gLite, the Monitoring's System is R-GMA.

A simple way to interact with it is to use:

> **> rgma**

> **> select HostName, RunningJobs, TotalJobs, FreeCpus from GlueCE**

gLite

```
+----------+--------------------+-------------+----------+----------+

| Name     | HostName           | RunningJobs | TotalJobs | FreeCpus |

+----------+--------------------+-------------+----------+----------+

| long     | egee008.cnaf.infn.it | 0         | 0         | 1       |

| infinite | egee008.cnaf.infn.it | 0         | 0         | 1       |

| short    | egee008.cnaf.infn.it | 0         | 0         | 1       |

| short    | lxcde01.pd.infn.it   | 0         | 0         | 1       |

| short    | glite-ce.ct.infn.it  | 0         | 0         | 1       |

| infinite | glite-ce.ct.infn.it  | 0         | 0         | 1       |

| long     | glite-ce.ct.infn.it  | 0         | 0         | 1       |

+----------+--------------------+-------------+----------+----------+

7 Rows in set
```
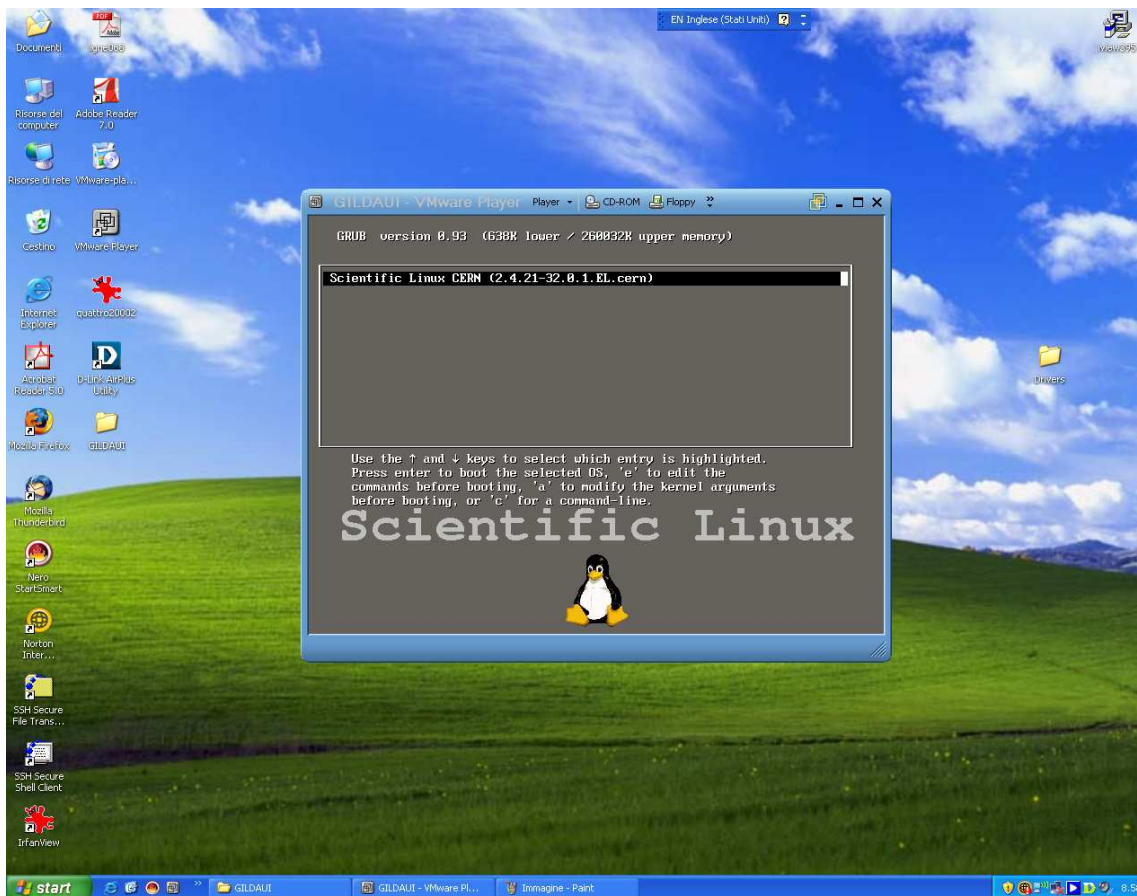
Gilda UI PnP on a Virtual Machine

eGee
Enabling Grids for E-sciencE

In order to allow to all windows's users to access to grid, we have created a User Interface into a Virtual Machine builded with VMWare Workstation 5.0. Thanks to the free VMWare-Player tool, any Windows users can run a PnP UI on Windows environment !

For more details and download *http://www.vmware.com/products/player/*

egee Getting the Gilda UI PnP VM

Enabling Grids for E-sciencE

- **It can be downloaded at:**

  ## https://gilda.ct.infn.it/uivm/uivm.tar.gz

  (be aware: it's 1.5GB download!!)

  Default Account on the included OS (Scientific Linux Cern 3.0.x)

  Login: gildausr
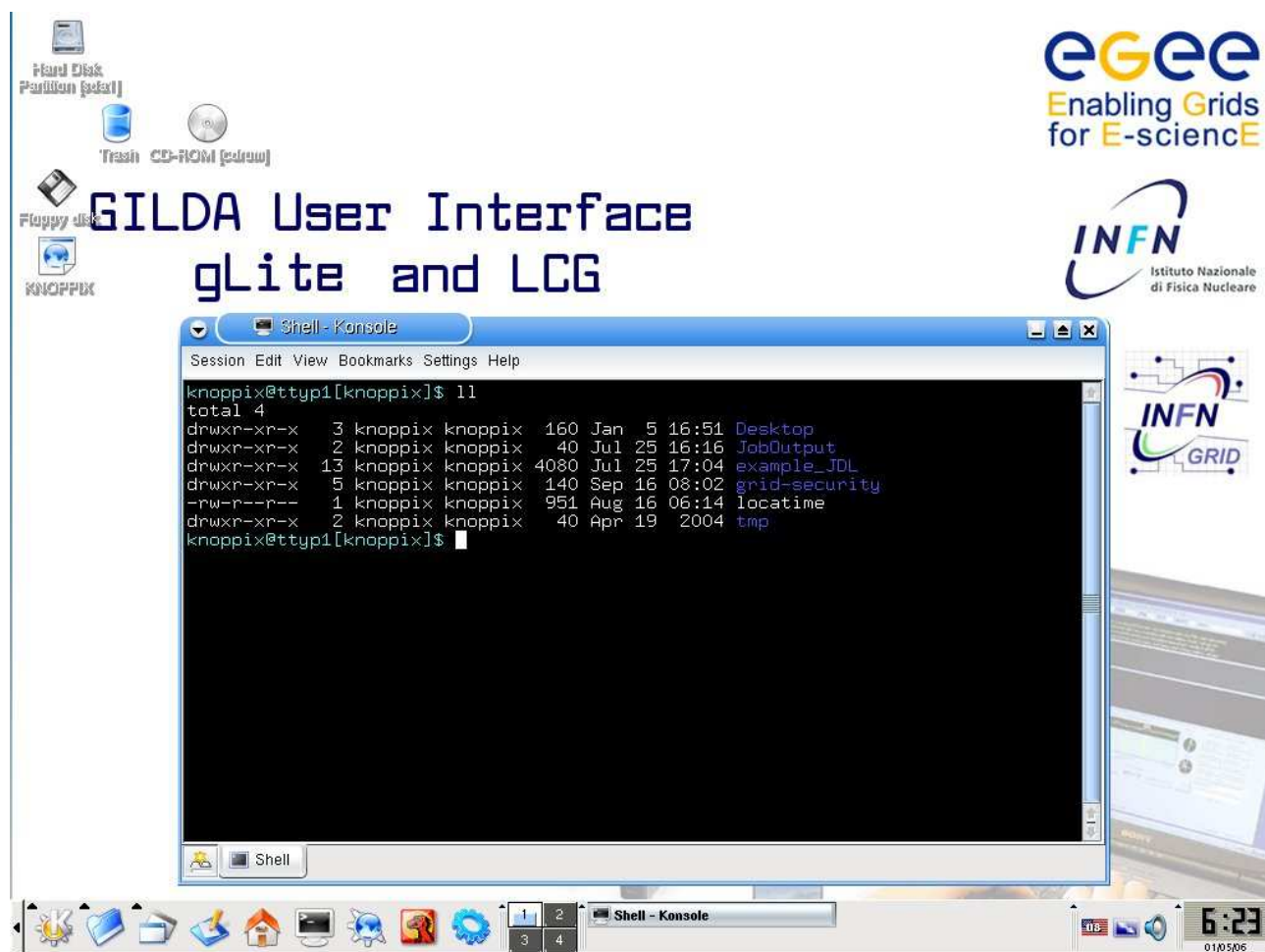 **password : gildausr**

- **VMPlayer can be downloaded at**

  ## http://www.vmware.com/download/player/

  For more information on VMPlayer *http://www.vmware.com/products/player/*

Another tool is the DVD Live UI based on knoppix 3.6 providing a glite 1.3 and LCG 2.4 UIs. You can freely download the .iso at the following link:

https://gilda.ct.infn.it/live-cd/

…Thanks for your attention.