



**DOCUMENTATION OF THE FIRST
PROTOTYPE
- PORTALS AND ROAMING ACCESS -
USER GUIDE
FINAL VERSION**

WP3.1

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Abstract: This document explains how to access the prototype modules implemented within the confines of task WP 3.1 “Portals and Roaming Access” and make use of their functionality.



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1. INTRODUCTION

1.1. MIGRATING DESKTOP

The Migrating Desktop is a user friendly graphical tool for working with the CrossGrid environment. This tool extends the functionality of the portal (by providing a specialised advanced graphical user interface. It is useful for the designing of the workflow.

The Migrating Desktop produces a transparent user work environment, independently of the operating system version and hardware. The Migrating Desktop allows the user to access grid resources and his local resources from remote computers. It will allow to run applications, manage data files, store personal settings (configuration definitions), independently of the localisation or the terminal type.

With regards to flexibility and software-hardware independence, the Migrating Desktop has been implemented as a Java Applet and can be accessed by any Java-enabled web browser.

1.2. PORTAL

The Application Portal provides a user-friendly web-based environment for carrying out various tasks related to the handling of jobs that are processed by individual applications of CrossGrid. These include the submission of jobs, the running of benchmarks, Grid monitoring, file transfer, management of Grid resources, MPI verification, performance measurement, user authentication and storage of personal user settings.

Like the Migrating Desktop, the Application Portal produces a transparent work environment that is independent of the operating system version and hardware.

The Application Portal has been implemented as a collection of PHP scripts and may be accessed by any web browser.

2. STARTING

2.1. MIGRATING DESKTOP

The user should do the following simple steps in order to start his work with the Migrating Desktop application:

- Start the Java-enabled web browser (for example Netscape Navigator, Internet Explorer etc. with the Java plugin version 1.4.1)
- Go to the proper address of the Migrating Desktop web page (currently: <http://ras.man.poznan.pl/crossgrid>)

After that the main page of the Migrating Desktop including the main Java Applet will be loaded and applet will be initialised. As the Migrating Desktop applet is signed by the certificate which has not been authorised by any well known International Certificate Authority, the web browser could display a warning message (see Fig. 1).

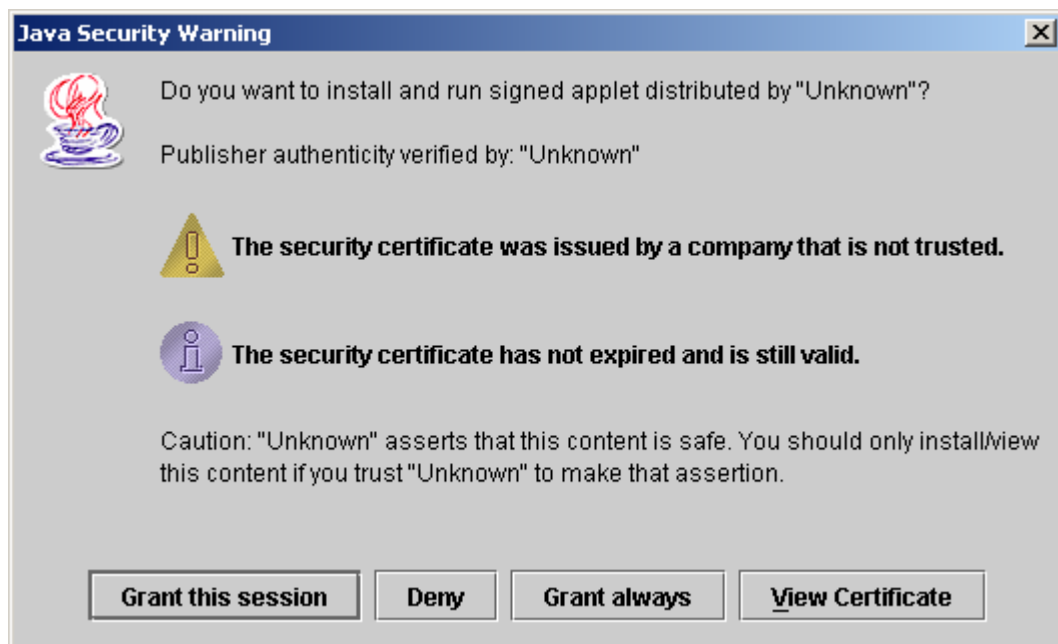


Fig. 1 Java Security Warning Dialog

Using this dialog the user can view the certificate information which the Migrating Desktop applet has been signed?. To start using the Migrating Desktop the user should accept this certificate by choosing “Grant this session” or “Grant always” option from the dialog.

Now applet is started and the process of application initialisation has begun. In a few seconds the splash screen of the Migrating Desktop will appear. It has a status bar containing some messages which will inform the user about the progress of the application initialisation.

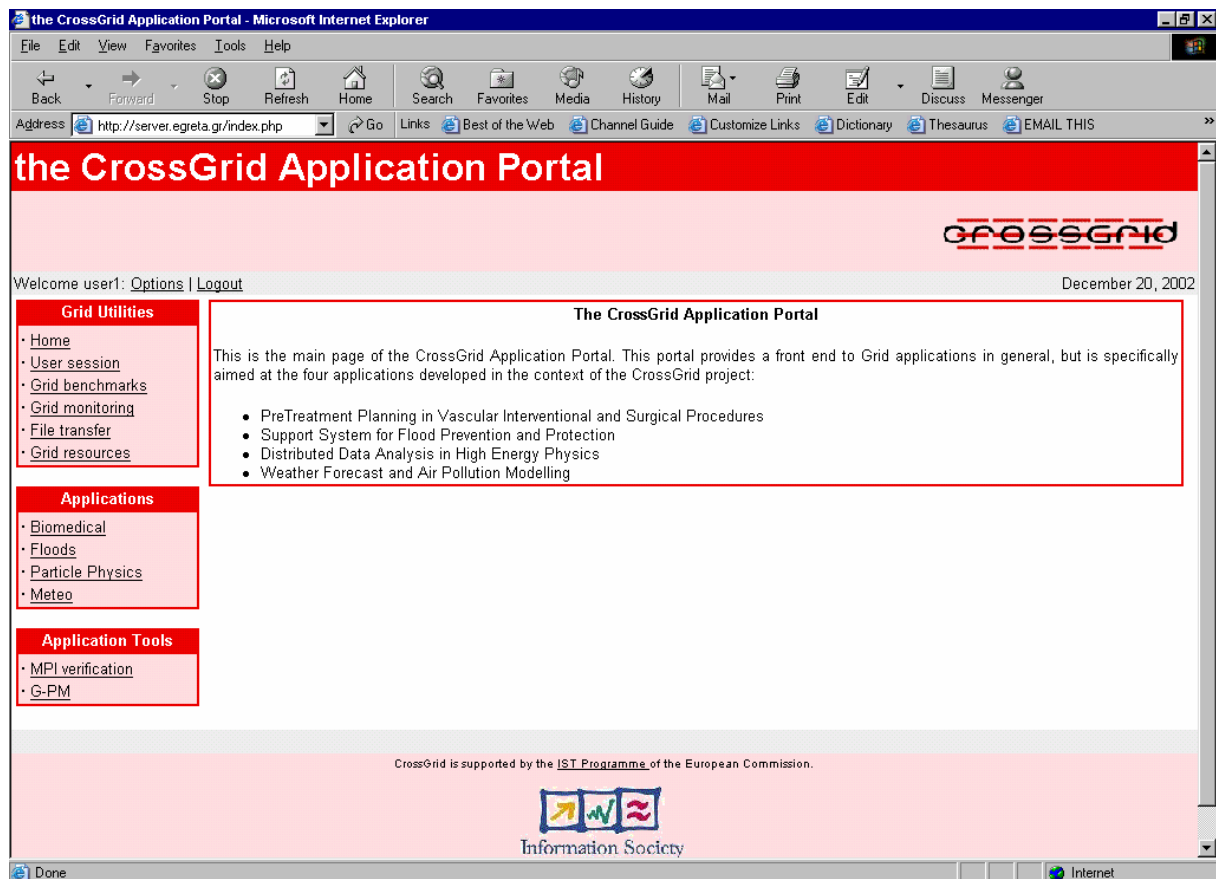
If the user worked with the Migrating Desktop before, his personal settings of the graphic user interface will be restored. In the other case a default user profile will be created by the application and the main empty Desktop will appear.

2.2. PORTAL

The user should perform the following simple steps in order to start working with the Portal:

- Start his web browser.
- Go to the address of the Portal's main page (currently <http://kentauros.rtd.algo.com.gr/php/cqportal/html/index.php>)

The portal's main page will then be loaded:



3. GRAPHICAL USER INTERFACE

3.1. MIGRATING DESKTOP

The Migrating Desktop GUI offers a set of functionalities ? typical for “windows” based applications. It is represented by the main Desktop with its menu and toolbar (see Fig. 2). Inside this desktop the user can create new windows and then new icons inside the windows. Icons support simple “cut-copy-paste” and “drag & drop” mechanisms which are helpful in managing them between the desktop windows.

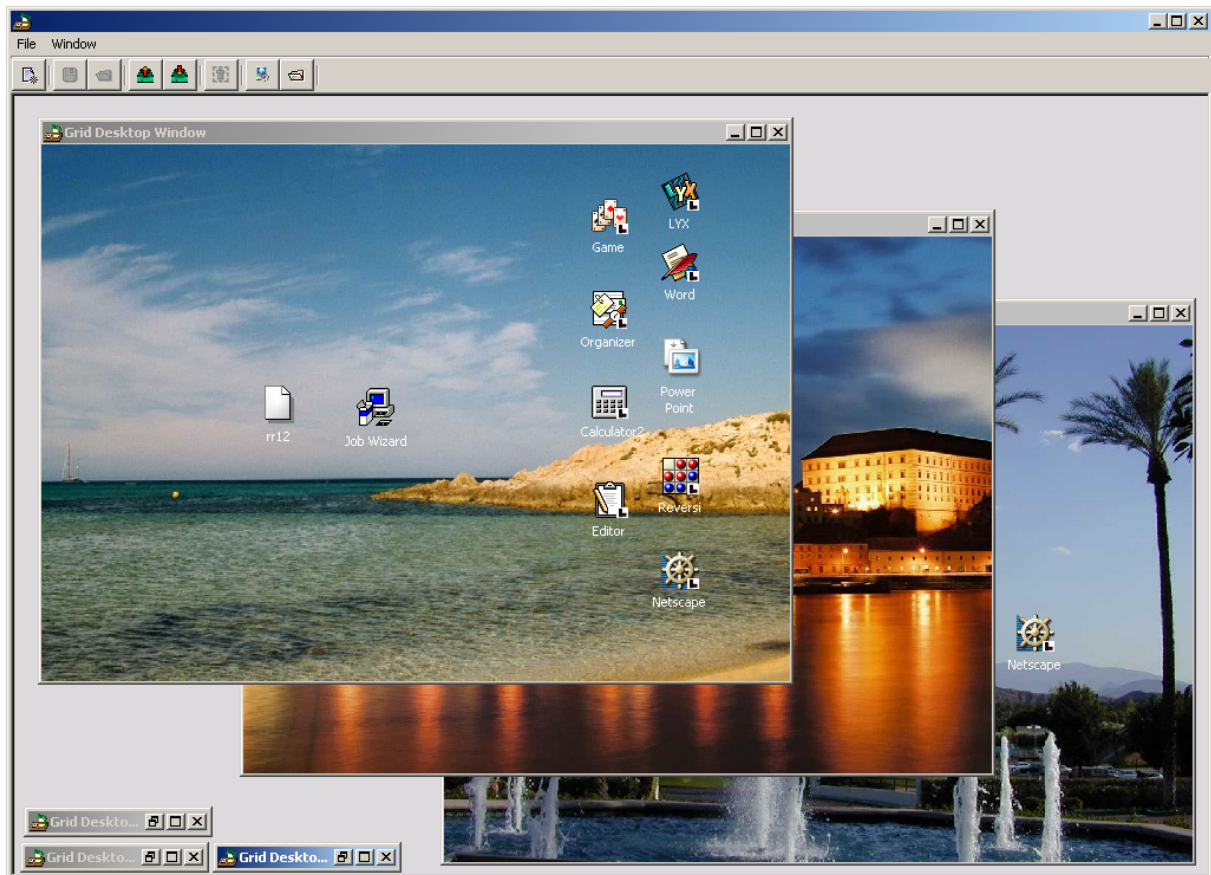


Fig. 2 Migrating Desktop GUI

3.1.1. Main desktop

The Grid Desktop is the main workspace for each user working with the Migrating Desktop. Initially it is created as an empty window with its main menu and toolbar. The background of this window contains a logo of the CrossGrid and it cannot be changed.

After the user finishes his first session with the Migrating Desktop, all his GUI settings such as position and state of the windows, position of the icons inside each window etc. will be saved in his own user profile and will be automatically restored when the user starts the Migrating Desktop once again.

3.1.1.1. Main Menu

The main menu of the Migrating Desktop allows the user to do the following operations:

- To create a new Grid Window (see Fig. 3) – also available from the Desktop popup menu;
- To store the current user profile;
- To load previously saved user profile;
- To exit the Migrating Desktop application;
- To switch between the opened Grid Windows;

When the user chooses the menu option to create a new window – a new and initially empty Grid Window is created with the default background image.

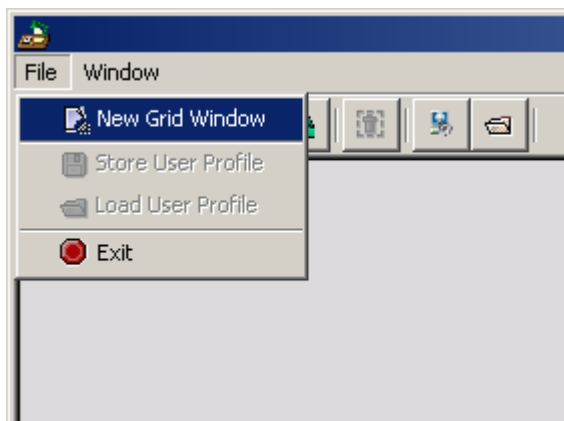


Fig. 3 Desktop Main Menu

3.1.1.2. Toolbar Buttons

The main window of the Grid Desktop contains a set of toolbar buttons (see Fig. 4) which allow the user to have easy access to the main functionality of the Migrating Desktop. The user can call the following functions through this toolbar:

- Creating a new Grid Window;
- Saving current user profile;
- Loading previously saved user profile;
- Uploading local files to the Grid environment (virtual home directory);
- Downloading remote files from the Grid environment (virtual home directory) to the local file system;
- Opening the Job Monitoring dialog;
- Managing hidden Grid Windows.

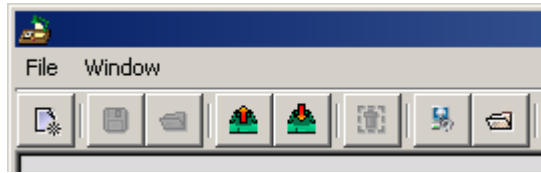


Fig. 4 Migrating Desktop toolbar

3.1.2. Desktop Windows

The Grid Desktop Window is the basic user workspace during his session with the Grid environment. One Grid Window represents one user profile – mainly containing a set of icons relating with local (stored in the local file system) and remote (stored in the user virtual home directory in the Grid) data files and application. Moreover, that user profile contains all GUI parameters such as the position and size of the window, state of the window, background image, or position of the icons.

The user can work with many Grid Windows simultaneously. He can move the icons between the windows and he can switch between such workspaces. If the user work is focused on the one Grid window, he can maximize it and minimize the other to have a better view of the icons in this workspace.

Each Grid Desktop has its own popup menu (see Fig. 5) that allows the user to:

- Arrange the icons in this Grid Window;
- Create a new icon of the Job Wizard;
- Create a new icon as a kind of shortcut of the remote file;
- Create a new icon as a kind of shortcut of the local file;
- Create a new icon as a kind of shortcut to the local application;
- Paste a previously copied icon;
- Remove the selected icon in this Grid Window;
- Rename the selected icon;
- Open the Grid Window properties dialog.

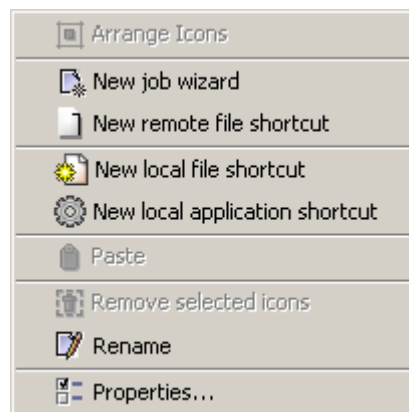


Fig. 5 Grid Window popup menu

3.1.2.1. Creating Grid Windows

The user can create a new Grid Window (workspace) by choosing “New Grid Window” option from the main menu of the Desktop or by pressing an adequate button of the toolbar. A new window is created with the initial position and size and with a default background image.

3.1.2.2. Window icons

The popup menu of the Grid window allows the user to create four types of icons:

- Job Wizard icon (option “New Job Wizard”);
- Remote file shortcut icon (option “New remote file shortcut”);
- Local file shortcut icon (option “New local file shortcut”);
- Local application icon (option “New local application shortcut”);

The Job Wizard icon (see Fig. 6) can be used by the user to start a specialized Grid application by submitting the job information. Double click on such icon will start the Job Wizard tool which allows to choose the type of the Grid application, prepare job information and submit them to the Grid. The Job Wizard tool has been described in section 4.1.2.



Fig. 6 Job Wizard icon

Remote and local file shortcut icons can be used by the user to have easy access to the data files (documents, input files for applications etc.) from his desktop. The user can distinguish the local file icon from the remote one by the letter “L” which appears at the right bottom corner of the icon image (see Fig. 7).



Fig. 7 Icons for the remote and local files

The local application shortcut icon can be used to make a link to some application that is installed on the local operating system where the user works. Such icons are dependent on the configuration of the operating system, but can be very useful as they are an element of the integration of the local environment and the Grid environment available

from the Migrating Desktop. Double click on such icon will launch the locally? installed application.

3.1.2.3. Window properties dialog

He user can change the Grid window properties by choosing the “Properties” option from the popup menu. An adequate properties dialog with two tabs will appear.

The “Description” tab (see Fig. 8) allows the user to change the window’s name (displaying as a window title) and description, which can be useful in recognizing a proper one during hidden windows management(see section 3.1.2.4.)

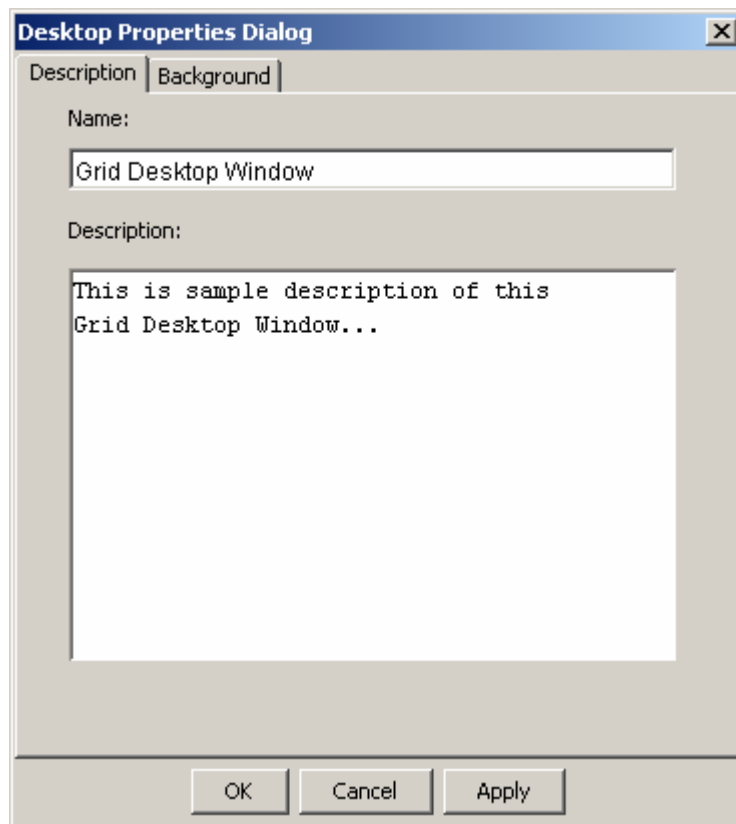


Fig. 8 Description tab of the properties dialog

The “Background” tab (see Fig. 9) allows the user to change the window background image which can be chosen from a list of available pictures.



Fig. 9 Background tab of the properties dialog

3.1.2.4. Managing hidden windows

When the user tries to close the given Grid window, the system allows him to permanently remove its profile or to make this window hidden. The second choice will allow the user to restore the window profile in the future by choosing “Managing hidden windows” option of the Migrating Desktop. The hidden window profiles are not removed from the user profiles database but such windows are not visible on the desktop.

The “Hidden windows manager” (see Fig. 10) allows the user to load (restore) or permanently remove the window profile selected from the list of the available hidden windows. Window description helps to choose the proper one to load or remove.

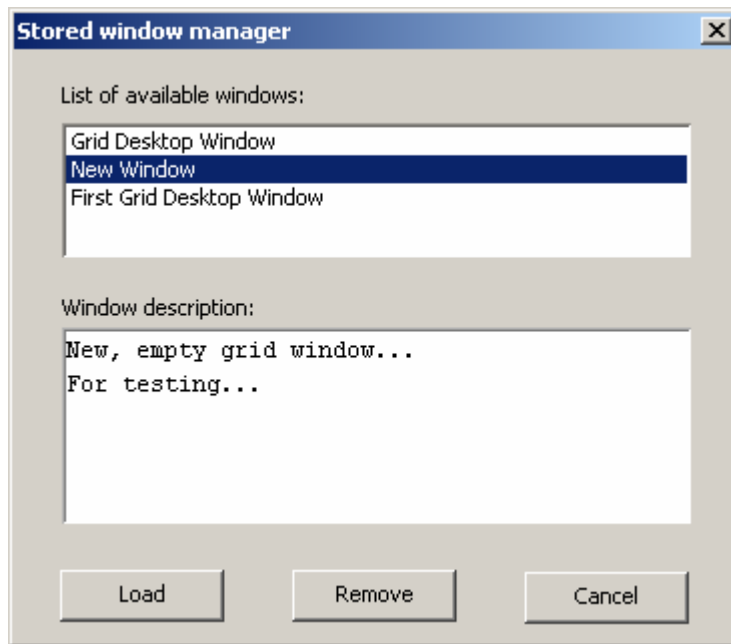
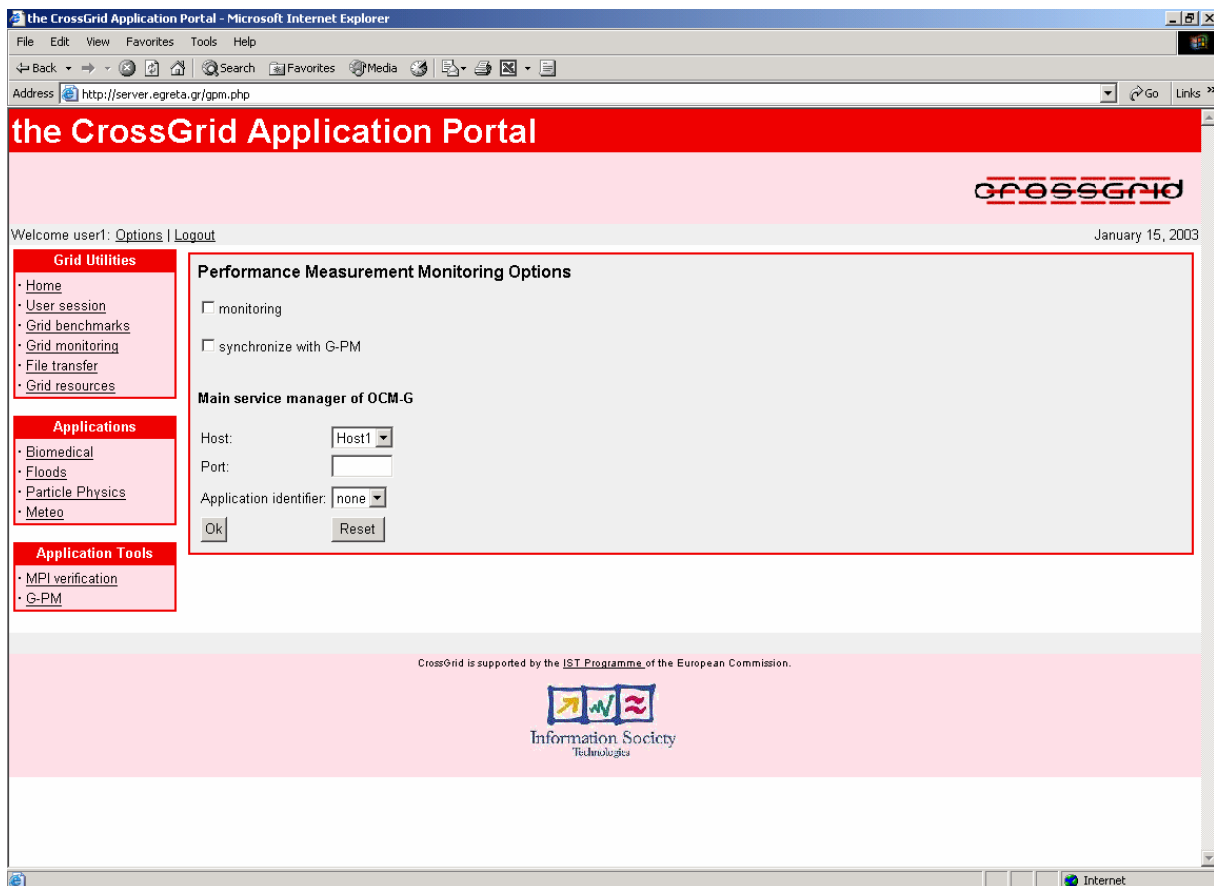


Fig. 10 Hidden windows manager

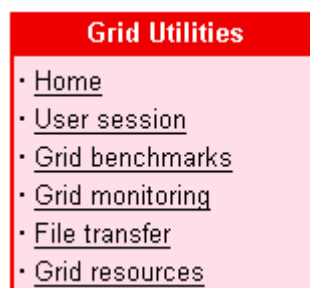
3.2. PORTAL

The Application Portal provides a browser-based graphical user interface. The whole user interaction takes place within a browser window through the successive display of a series of web pages. Each web page is divided into two or three sections, that is, a central section which has the main content of the page and, to the left and/or right of that, a column of blocks which contain various links.



3.2.1. Blocks

Blocks contain links to the Portal functions. A typical block looks like this:



Various blocks that appear in the Portal have been constructed so as to group together functions that are related to each other in some way.

Hence the standard way of using the Portal functions is to click on the appropriate link, view the content of the corresponding page, possibly submit some data through an appropriate form and obtain results in a new page.

Blocks are:

- either static i.e. are always visible to the user, or
- (dynamic) context-sensitive i.e. their appearance depends upon particular choices made by the user

4. FUNCTIONALITY

4.1. MIGRATING DESKTOP

4.1.1. File transfer

Each user of the CrossGrid environment has his own virtual Home Directory, where he can store files during his work with grid resources and applications. The Migrating Desktop supports the User Virtual Directory Browser that is similar to the local one, but it operates on the virtual user Home Directory. The user can do the following operations relating to files:

- Saving (uploading) a local file in the abstract User Virtual Directory;
- Getting (downloading) a remote file from the User Virtual Directory and storing it on the local file system;
- Creating links to the local files;
- Creating links to the remote files stored in the User Virtual Directory;
- Creating links to the local application;

Choosing appropriate option of the Migrating Desktop the user can call the file transfer dialog. There are two versions of this dialog:

- File transfer from the user virtual home directory to the local file system;
- File transfer from the local file system to the user virtual home directory;

In the first type of this dialog (see Fig. 11) the user can define the virtual source file (choosing "Browse" will call the Virtual Directory Browser) and the local directory where the file will be downloaded.

In the second type of this dialog (see Fig. 12) the user can define the local source file (choosing "Browse" will call the Open File dialog) and the remote directory where the file will be uploaded.

To start the file transfer the user should define the source file and destination directory. After the file transfer operation finishes, a proper message box appears.

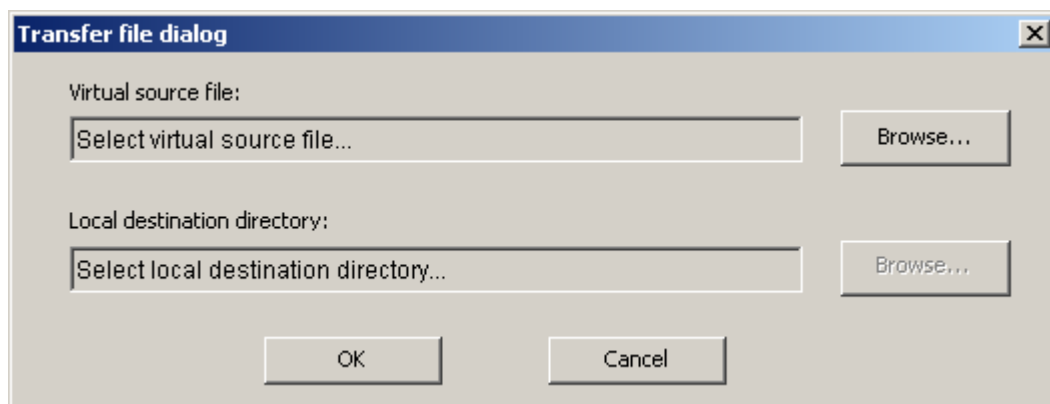


Fig. 11 File transfer (Grid -> local file system)

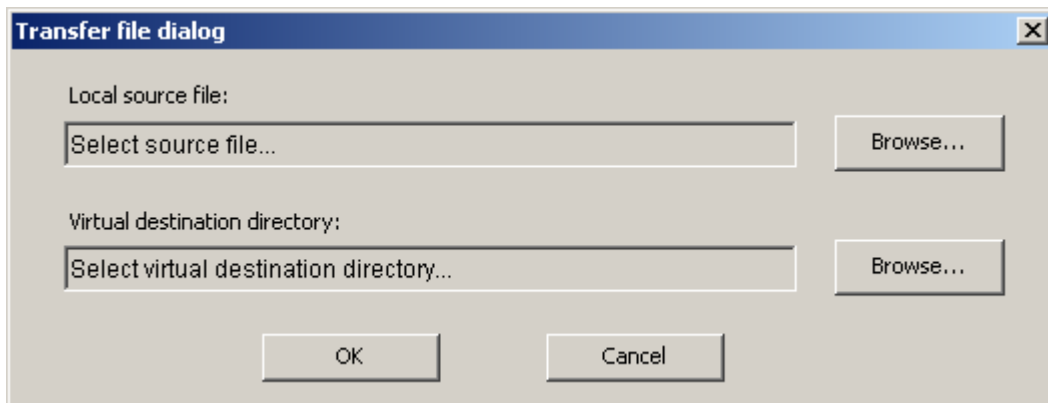


Fig. 12 File transfer (local file system -> Grid)

4.1.2. Job Submission

The main functionality of the Migrating Desktop is a possibility of submitting jobs for the Grid application which are executed on high computing power elements in the Grid environment.

The user can start the Application Wizard dialog (see Fig. 13) from the Job Wizard icon on one of his Grid windows (workspaces). This dialog allows the user to choose the proper application for execution – the application description helps to find a proper one.

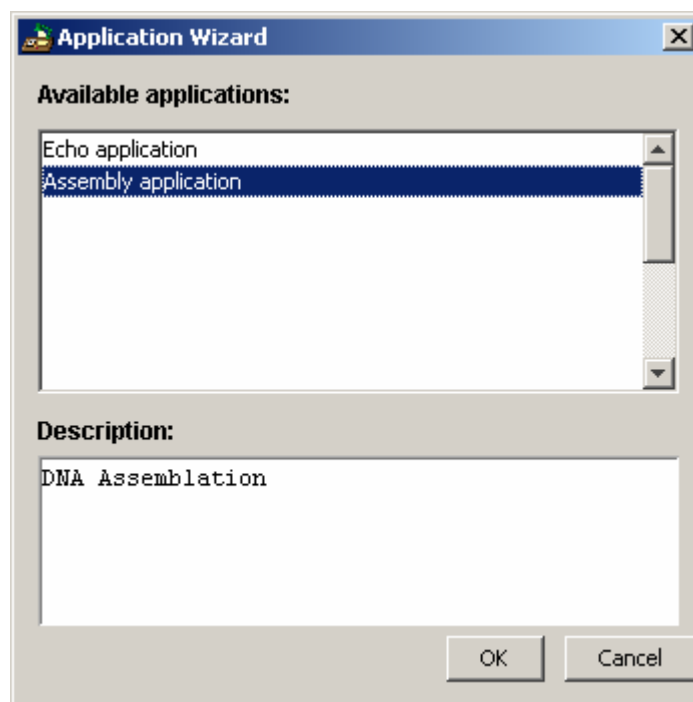


Fig. 13 Application Wizard

After the user chooses the Grid application, a Job Submission dialog appears. It should be used to define all the application parameters which are required before the Grid application starts. This dialog contains the following five tabs:

- Arguments
- Description
- Resources
- Files
- Environment

The “Argument” tab of the Job Submission dialog (see Fig. 14) allows the user to define the arguments and parameters which are directly sent to the application. This tab (its content and look) is unique for the application and can be different for different Grid applications.

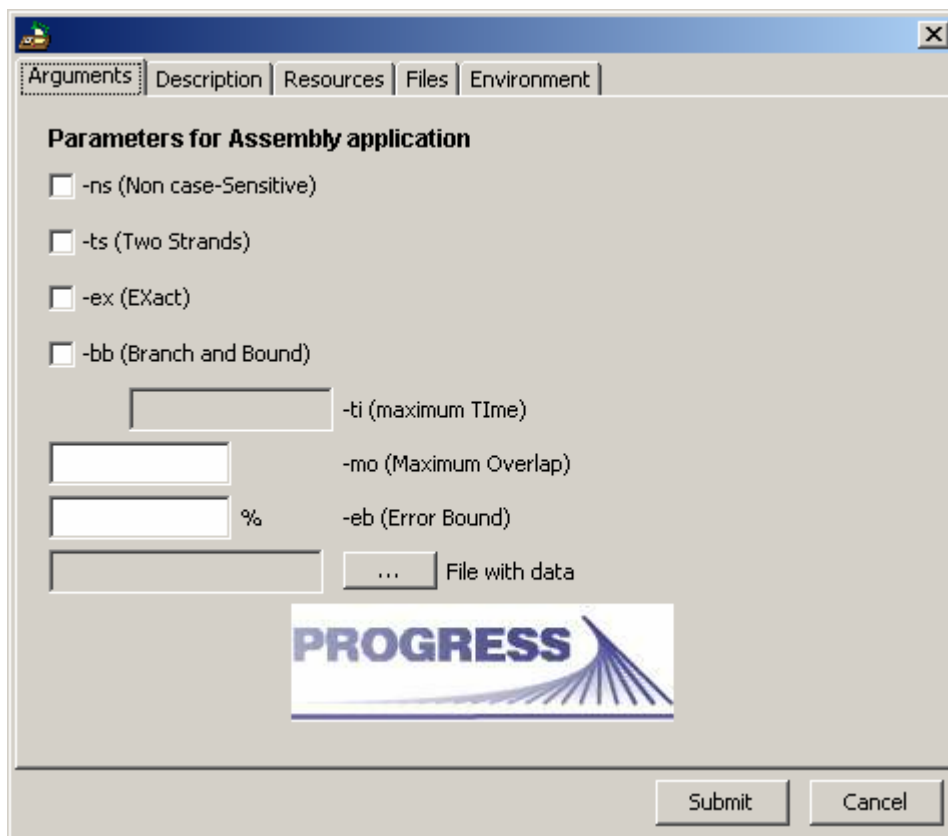


Fig. 14 Job Submission dialog - example of arguments tab

The “Description” tab of the Job Submission dialog (see Fig. 15) allows the user to define the name and description of the job that is sent to the application. Those parameters will help the user to find the status of the job execution in the Job Monitoring tool (see section 4.1.3).

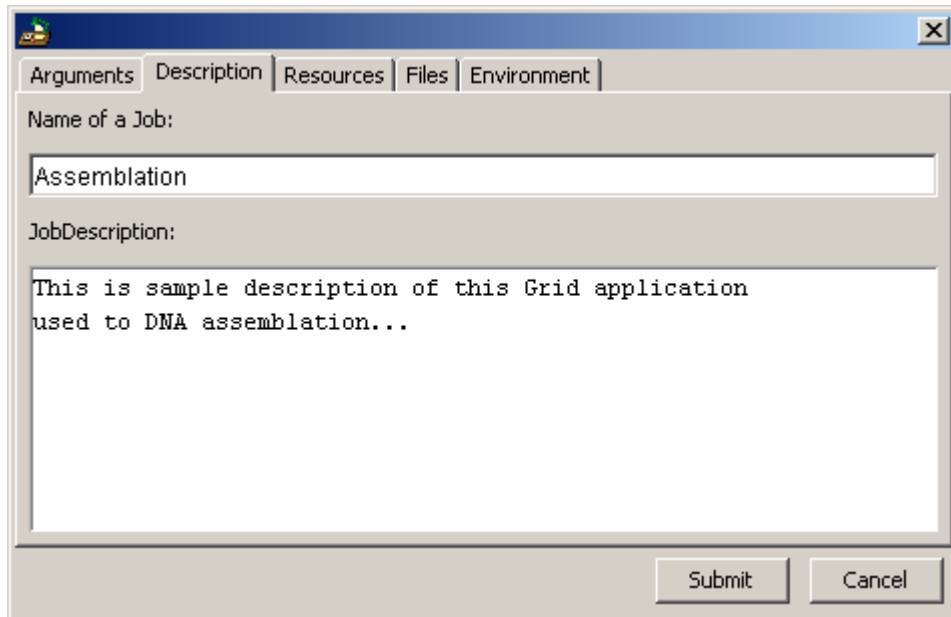


Fig. 15 Job Submission Dialog - description tab

The "Resources" tab of the Job Submission dialog (see Fig. 16) allows the user to define the limits on the resources which are used during the execution of the job. The resource limitations are related with such things as CPU, system memory, operating system etc.

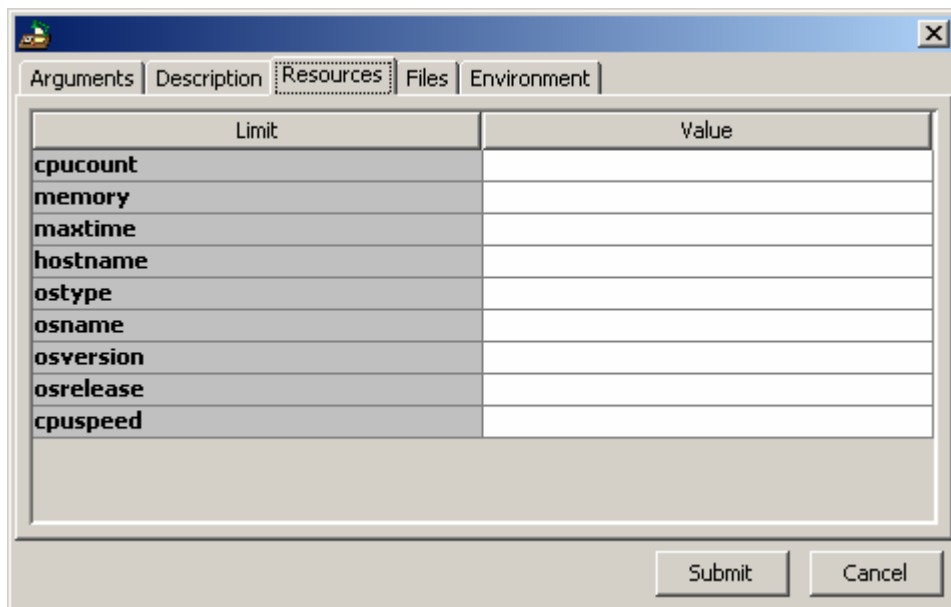


Fig. 16 Job Submission Dialog - resources tab

The "Files" tab of the Job Submission dialog (see Fig. 17) allows the user to define a set of files on which the Grid application operates. There can be a lot of such files and buttons "Add" and "Remove" help to manage them. There are three possible types of files: "in", "out"

and “in-out” files. This type defines if a given file is the input file, output file or combined. The “Path” column of the table contains the “browse” button which calls the Virtual Directory Browser to specify the location of the file in the Grid.

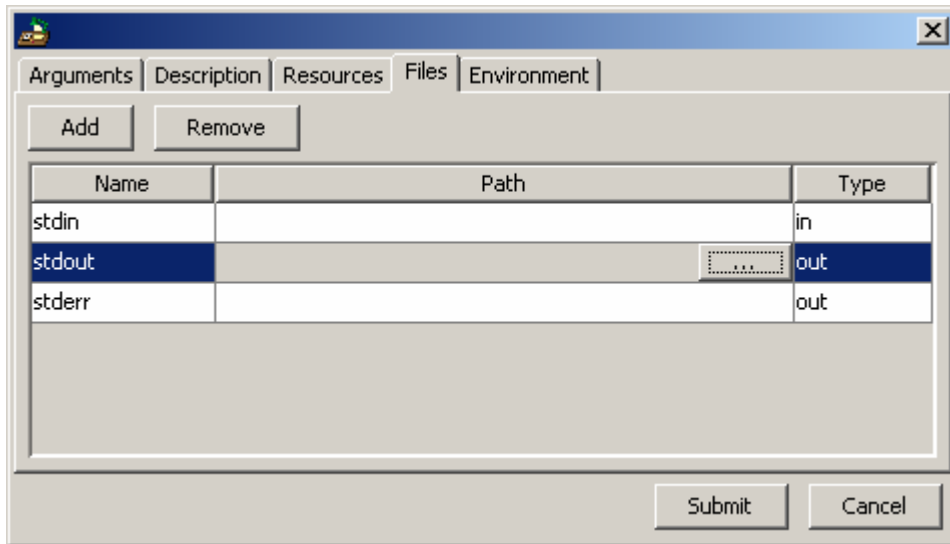


Fig. 17 Job Submission Dialog - files tab

The last “Environment” tab of the Job Submission dialog (see Fig. 18) allows the user to define a set of environment variable names and its values (strings) which are required for execution of the Grid application. There can be a lot of such variables and buttons “Add” and “Remove” help to manage them.

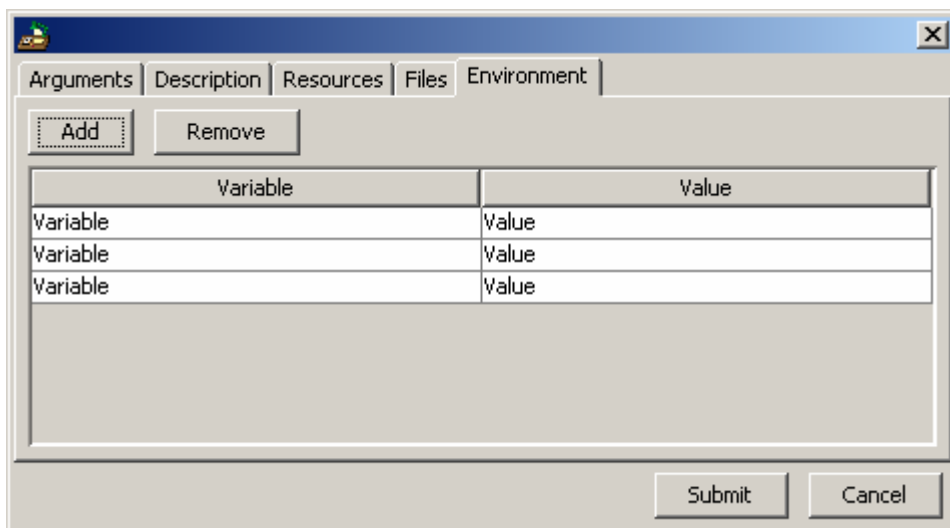


Fig. 18 Job Submission Dialog - environment tab

After the user defines all job parameters, he submits them and all job information is sent to the job submission service. The execution of the job is started and the user can trace its status in the Job Monitoring tool (see next section).

4.1.3. Job Monitoring

The Job Monitoring dialog (see Fig. 19) is a useful tool for tracing the status of the previously submitted jobs. This dialog contains all the information about the submitted job (its full description and status embedded in the jobs table) and provides the following simple functionality:

- Delete – to delete the selected jobs (stop and remove it from the computing element of the Grid);
- Cancel – to cancel theselected jobs (stop executing it but do not remove it);
- Refresh – to refresh the status of the selected jobs;
- Close – to close the Job Monitoring dialog;

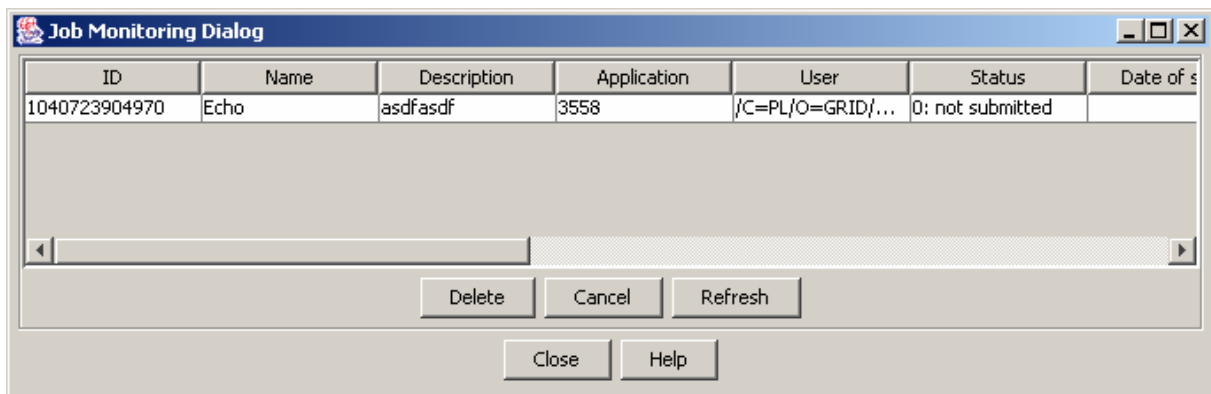


Fig. 19 Job Monitoring Dialog

4.2. PORTAL

4.2.1. Logging in

Before being able to access the portal functions, the user must login (authenticate himself) to the Portal. This is done by supplying a username and password or loading a certificate from a myProxy server.

This procedure is carried out by means of a block that has been set aside for this purpose:

Login

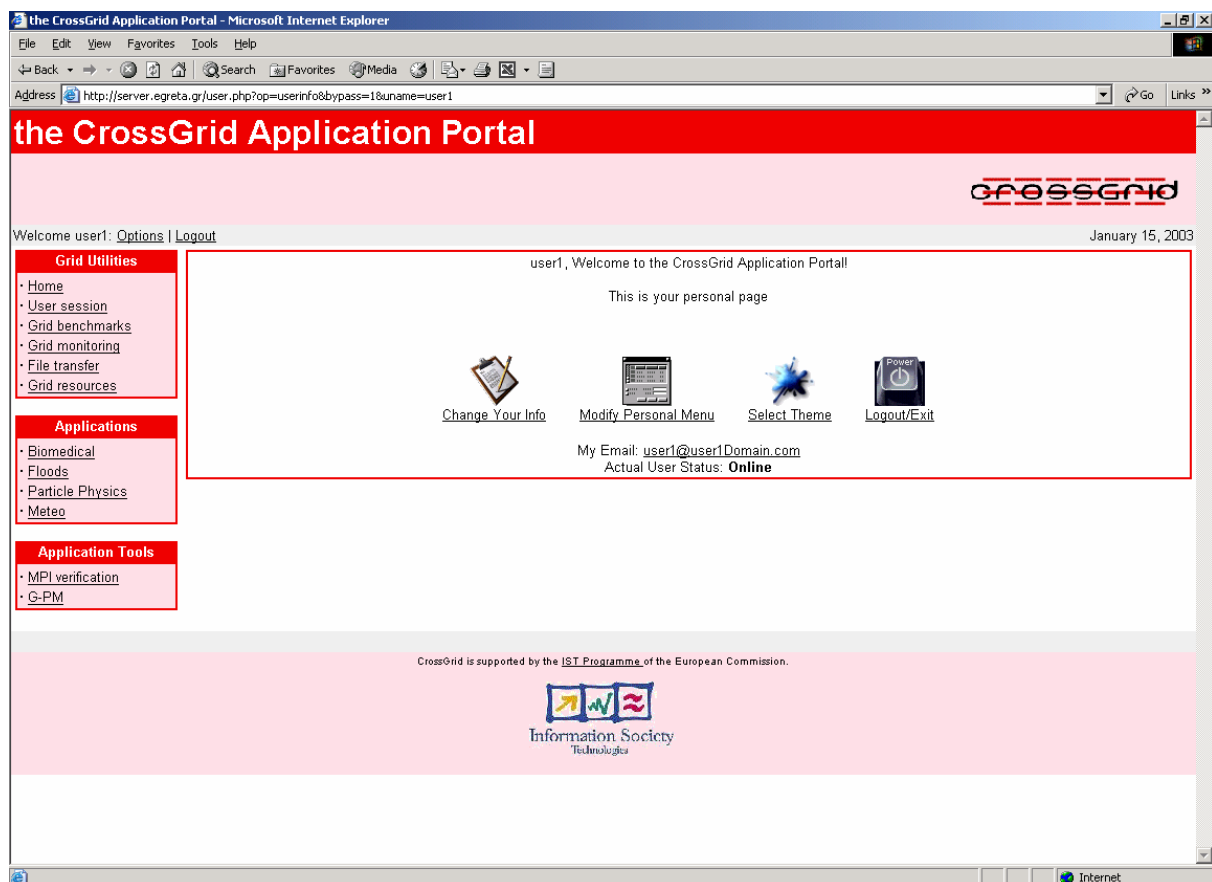
Load from MyProxy
server

MyProxyServer1 ▾

Username

Password

4.2.2. Changing user settings



When a user first logs in, the Portal displays his so-called personal page. This page allows the user to modify various personal settings and (if required) to log out.

For the modification of the user's personal settings, there are three essential links provided:

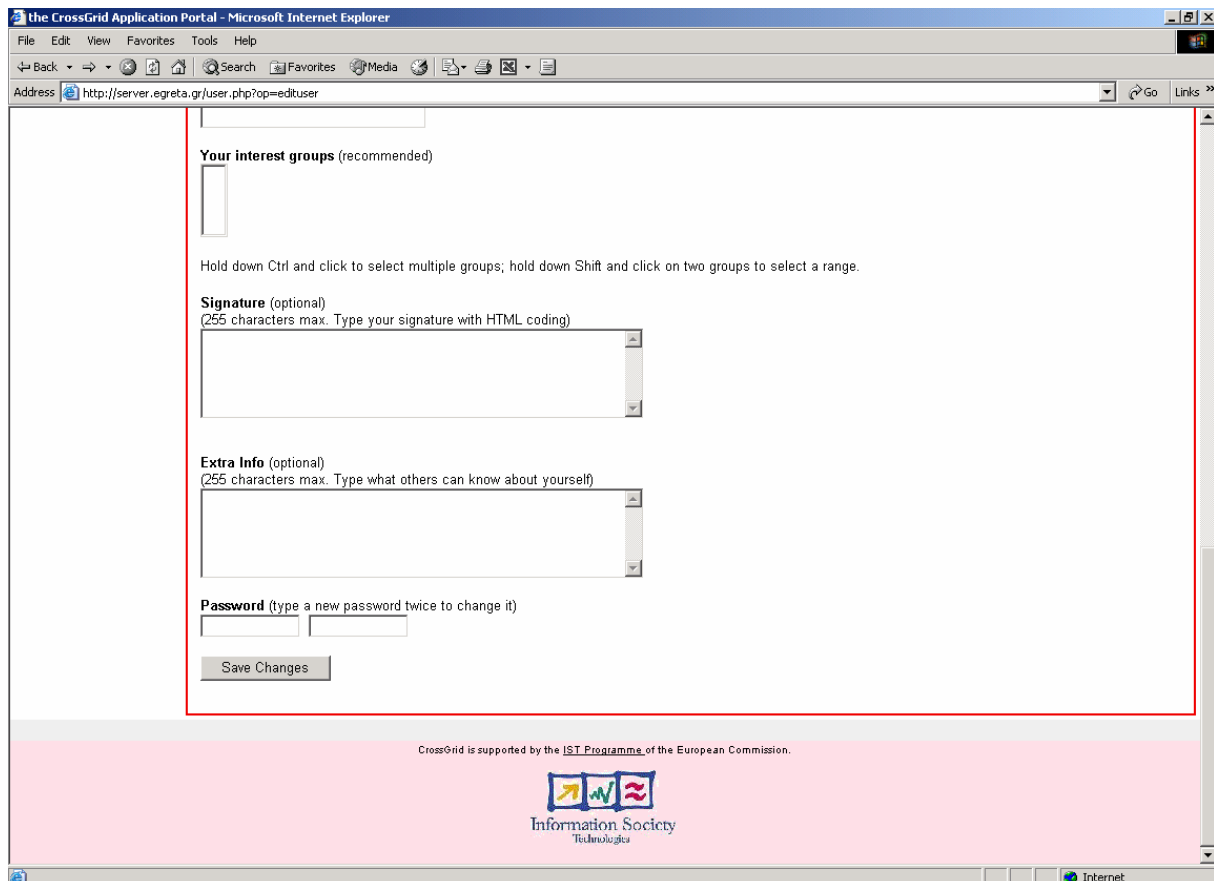
- Change Your Info
- Modify Personal Settings
- Select Theme

4.2.2.1. Change Your Info

This operation allows the user to enter various simple personal data, such as name, location, email address etc.

The user may even change his password.

When the user has finished submitting these data, he must click on the “Save Changes” button.

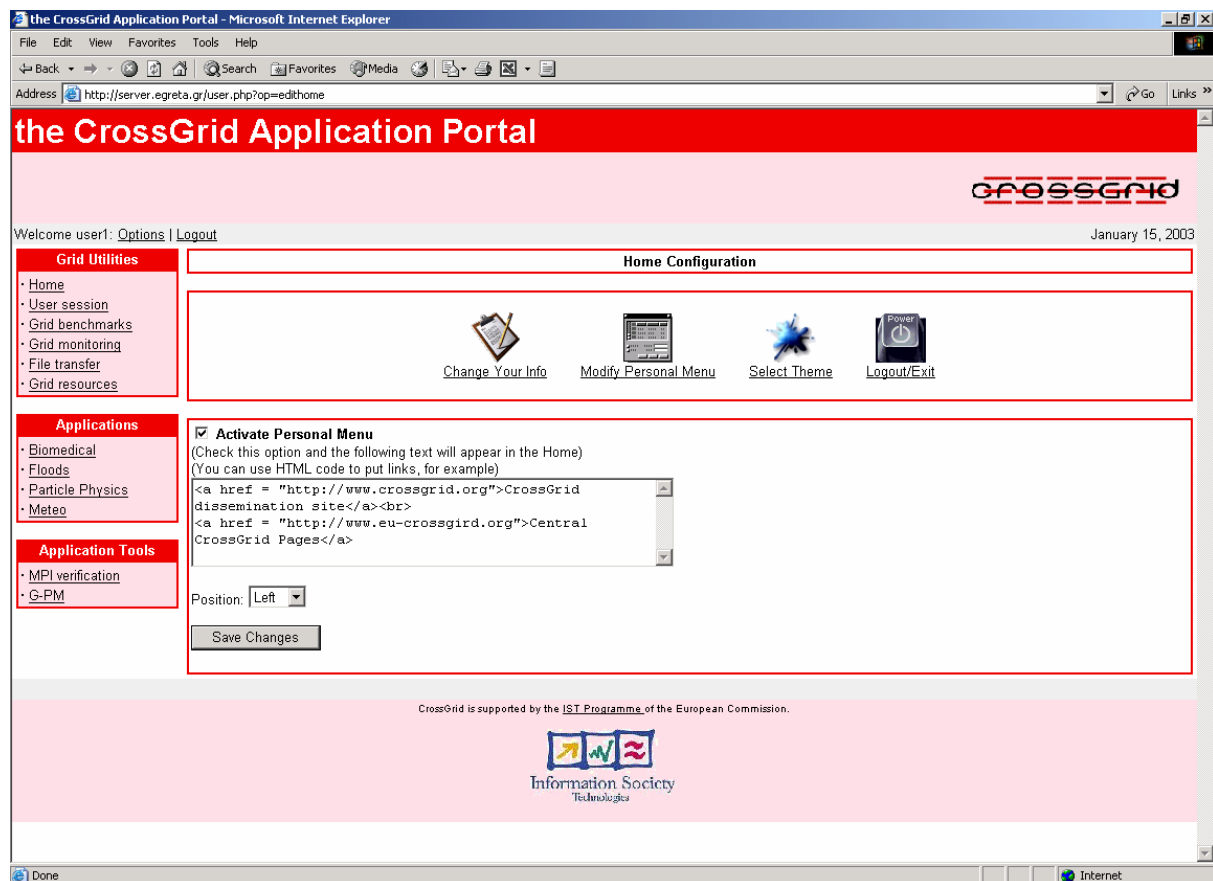


4.2.2.2. Modify Personal Menu

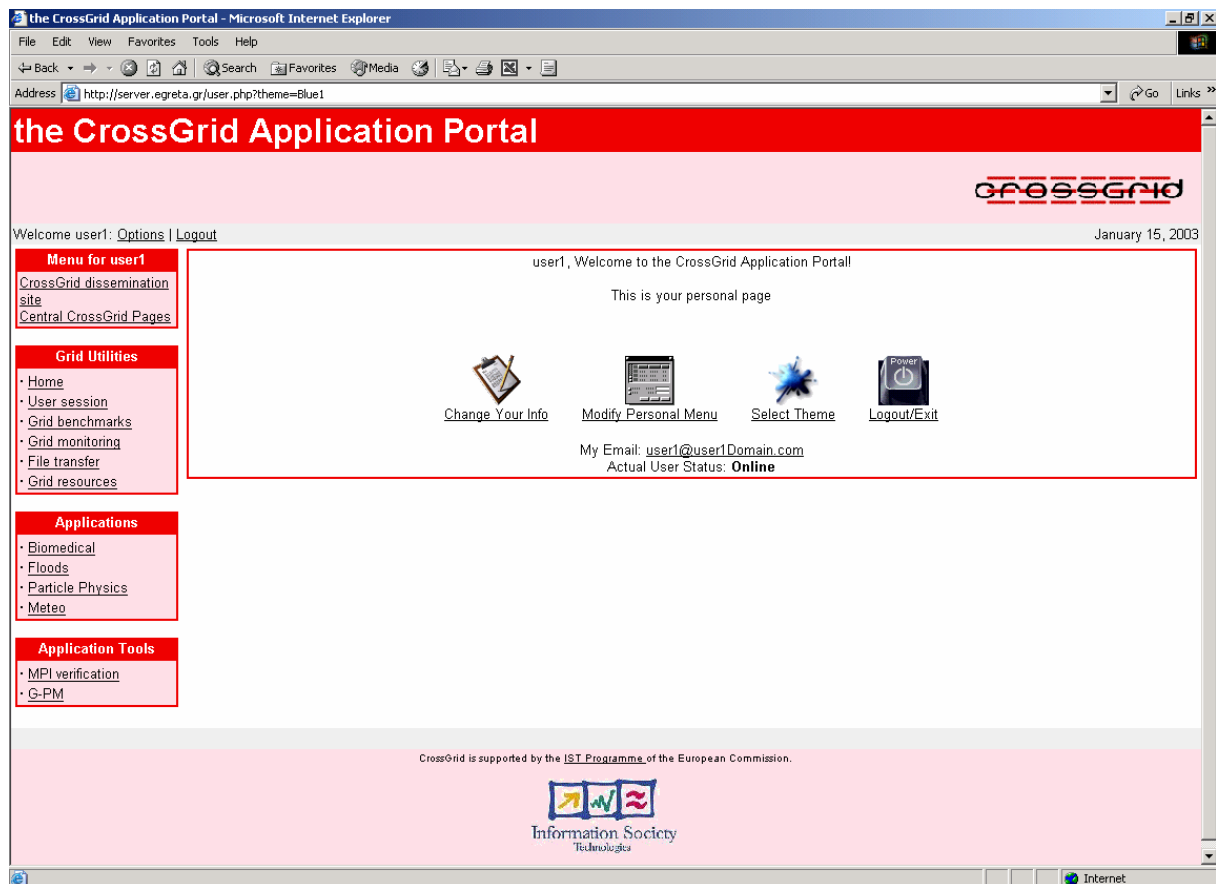
The user is able to construct a personal menu with links of his choice.

The user must:

- check the “Activate Personal Menu” checkbox
- enter some text for the menu, which in most cases is a simple HTML text with links
- determine the position (left or right) of the menu
- click on “Save Changes”

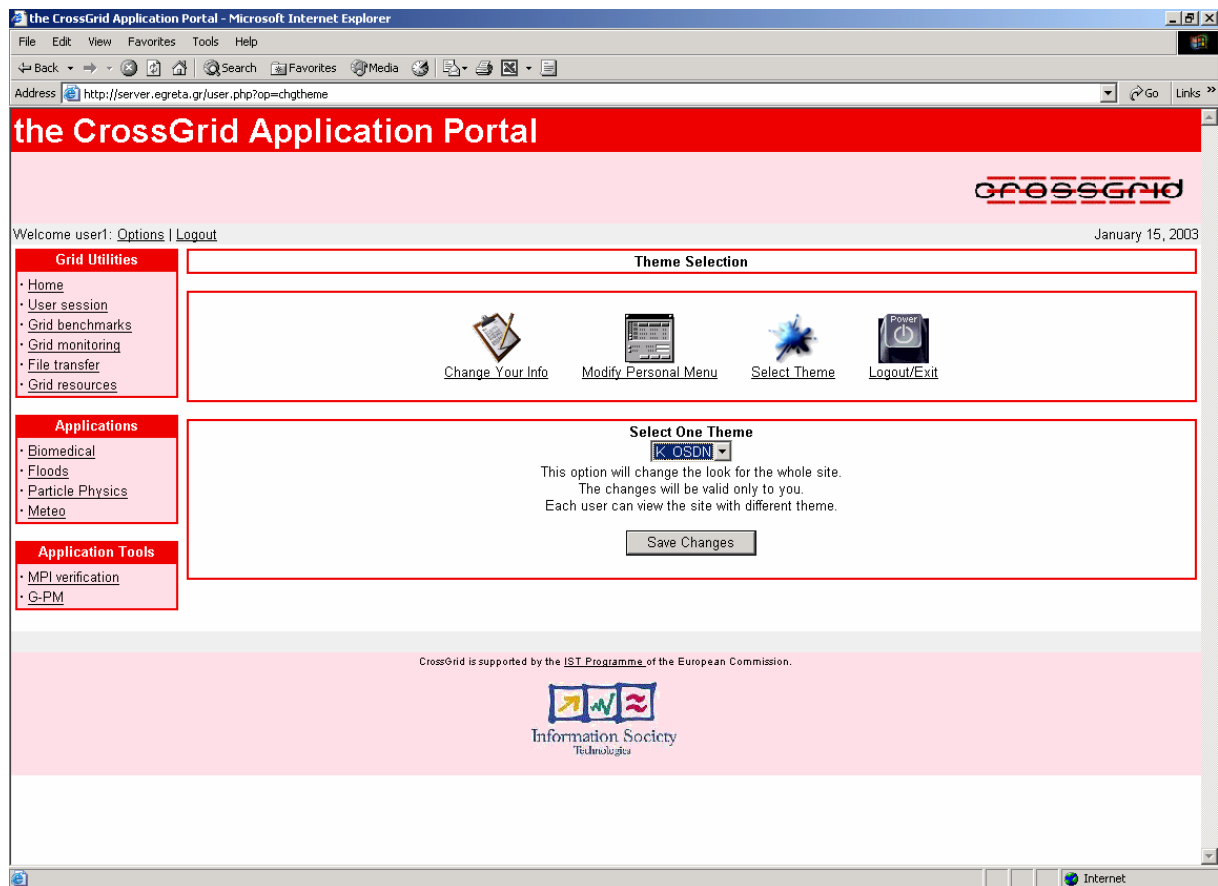


The user menu appears in the position designated:

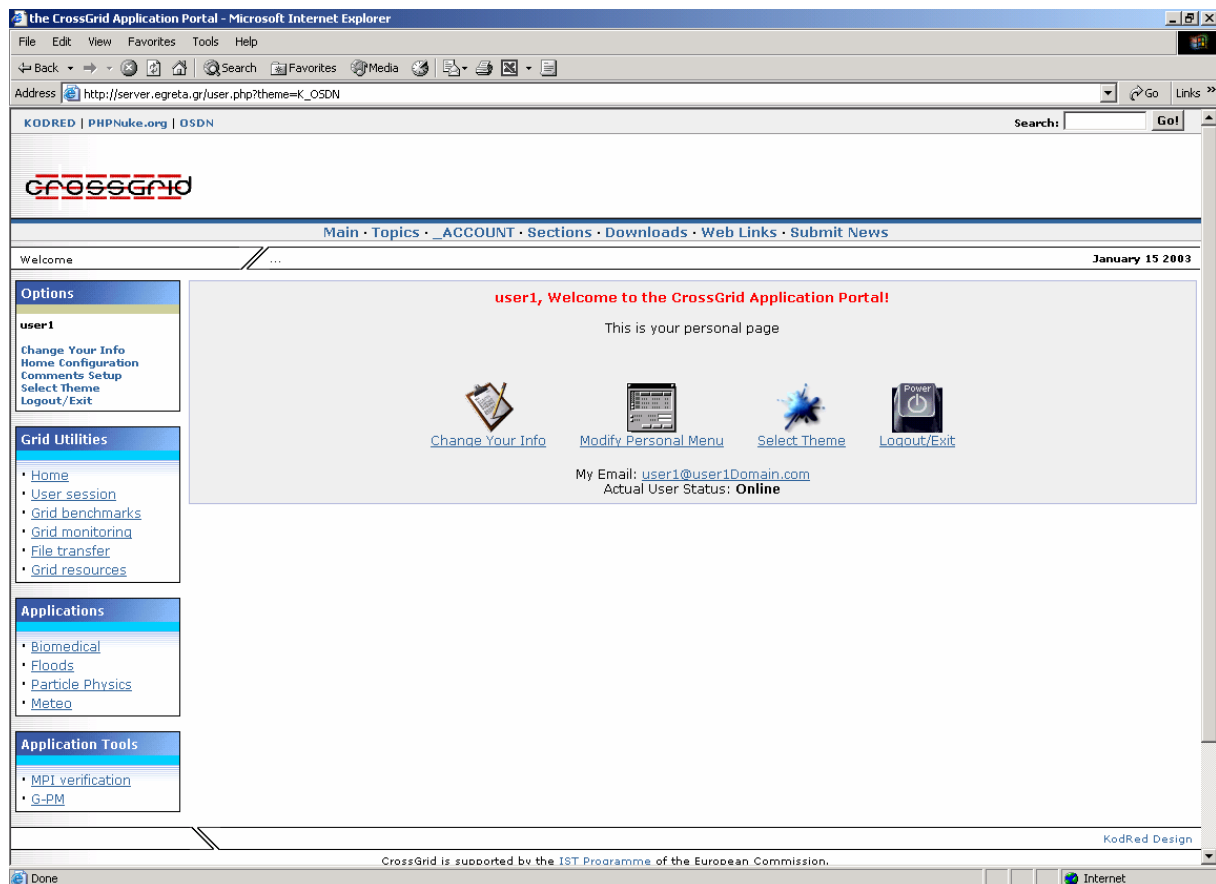


4.2.2.3. Select Theme

The user is able to modify the appearance of the portal pages according to his?taste.



The user must select the required theme from the menu provided and click on “Save Changes”. The portal’s appearance changes according to the user’s choice.



4.2.3. Selection of application

The user may select any of the four CrossGrid applications (Biomedical, Floods, Particle Physics and Meteo) by means of a block that has been set aside for this purpose.

The portal provides more or less the same functionality in each case. Of course, it provides additional functionality specific to the chosen application.