

GridScape Manual

Creating Your First Grid Testbed Portal



The Gridbus Project
<http://www.gridbus.org>



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Introduction

This manual has been created in order to help users get familiar with GridScape and guide them through creating their first Testbed Portal. We will work through an example and explain each step as we go along. The example we will be using is the World Wide Grid Testbed, which was used at the University of Melbourne GRIDS Lab. Hopefully this will make your GridScape experience as simple as possible.

In this manual we will be using the Sun Java implementation as well as Jakarta Tomcat web server.

Installation

Preparing your system

Before we can deploy and start working with our web portal, there are some other supporting technologies which need to be installed. These technologies are Java, Jakarta Tomcat and Jakarta Struts.

Java

- Download the latest release of the Java Development Kit (J2SE SDK). It is recommended that you have a release version 1.4 or higher.
 - <http://java.sun.com/>
- Install according to instructions provided

Jakarta Tomcat

- Download the latest release of Jakarta Tomcat. GridScape was developed with release 4.1, so it is recommended that you use this release to reduce the possibility of encountering problems.
 - <http://jakarta.apache.org/tomcat/index.html>
- Install according to instructions provided.

Jakarta Struts

- Download the latest release of Jakarta Struts. Release 1.1.0 is recommended.
 - <http://jakarta.apache.org/struts/index.html>
- Install according to instructions provided. However, Struts class and jar files has been included with Gridscape package for your convenience.

Installing GridScape Web Application

Once you have Jakarta Tomcat and Struts installed and working, the GridScape template web application can be deployed.

- Download the GridScape Web Archive (gridscape.war).
- Place the GridScape Web Archive into the Tomcat webapps directory.
- The application will be deployed automatically when Tomcat is running.

If you have Tomcat running, you should now be able to view the template portal online.

Installing GridScape Admin Tool

In order for you to easily customise your testbed portal you should install the GridScape Admin Tool.

- Download the GridScape Admin Tool archive.
- Extract files into a new folder.
- The admin tool should be ready to run.

Using the Admin Tool

Now that we have successfully installed the GridScape template Web Application and the Admin Tool, we can begin to create our own testbed portal.

Launch GridScape Admin Tool

To start with, launch the GridScape Admin Tool.

The first time this is run you will be asked to open a testbed, as shown in Figure 1.

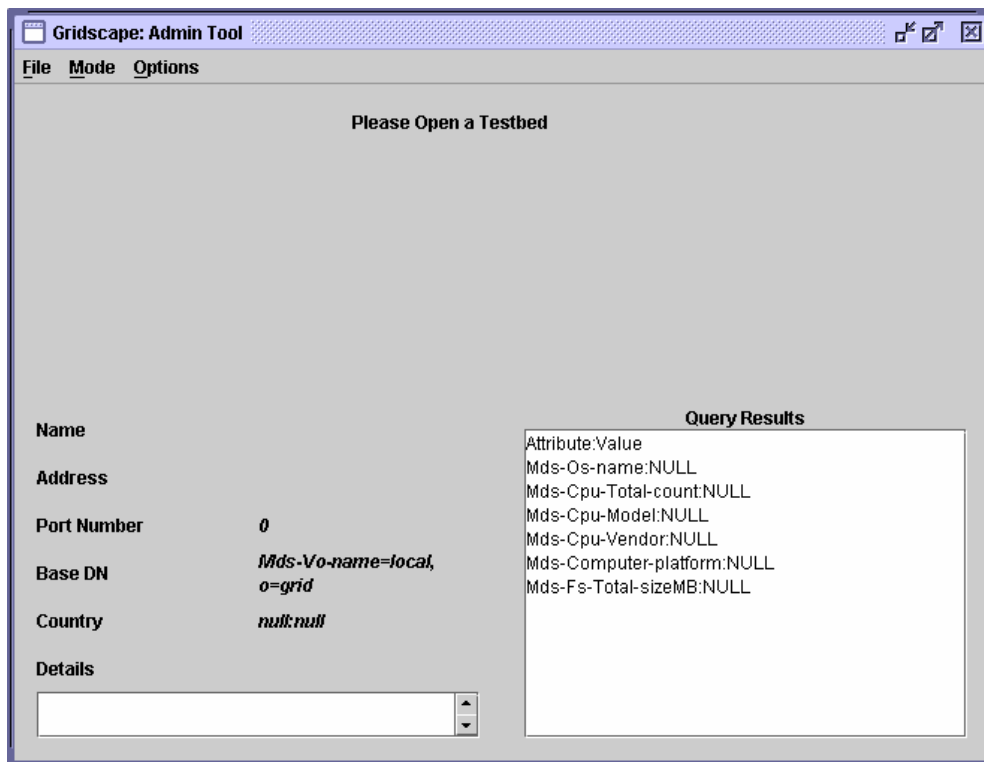


Figure 1: GridScape Admin Tool

Opening a testbed

We now need to open a testbed in order for us to start our work. You may have an existing testbed which you can open for editing, but for our first portal we want to edit the template provided with GridScape.

- In the "File" menu, select the "Open" item.

Selecting the “Open” menu item will bring up a dialog, as shown in Figure 2, to allow you to locate the testbed portal you wish to edit. In this case it will be the GridScape template.

- Locate the GridScape web application which was deployed under Tomcat.
- Select “Open”.

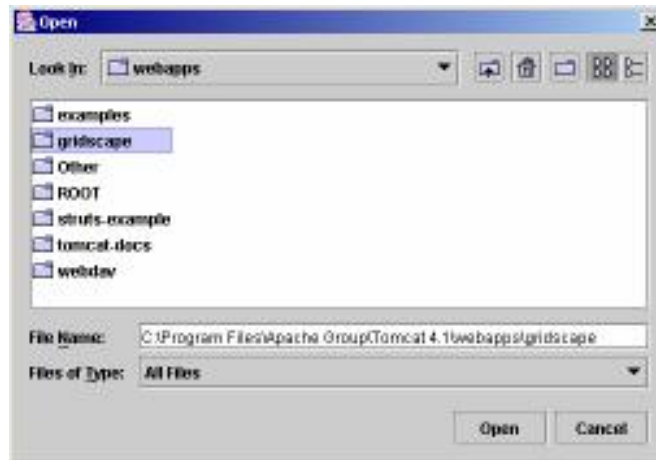


Figure 2: Open Dialog

The Admin Tool will open the web application and the interface will change to display the details of the testbed you have elected to open. Shown below in Figure 3 is the opened template web application, ready for customisation.



Figure 3: Opened Testbed Template

Changing the Testbed Name

The first step we will take in customising the template testbed portal is to change its name.

- In the “Options” menu, select the “Testbed Name” item.
- Enter the name of your testbed. Shown in Figure 4 we have entered the name for the World Wide Grid Testbed portal..
- Select the “Save” option.



Figure 4: Testbed name dialog

Once you have saved the new name, the web application will be updated immediately.

Changing the Testbed Logo

Next we will choose a logo for our testbed which will be displayed next to the testbed name on our testbed portal.

- In the “Options” menu, select the “Testbed Logo” item.
- Select the “Browse” option.

A dialog will be displayed allowing you to locate a suitable image to be used as your testbed logo.

- Find a suitable image.
- Select the “Set” option. Figure 5 shows the logo selected for our World Wide Grid Testbed portal.
- Select the “Save” option on the remaining dialog.



Figure 5: Testbed Logo Dialog

Once you have saved the new logo, the web application will be updated immediately.

Changing the Testbed Map

Now we will select the map to be used for our testbed portal. This is the map on which the locations of Grid resources will be displayed.



Figure 6: Testbed Map Dialog

- In the “Options” menu, select the “Testbed Map” item.
- Select the “Browse” option.

A dialog will be displayed allowing you to locate a suitable image to be used as a map for your testbed.

- Find a suitable image.
- Select the “Set” option. Figure 6 shows the map selected for the World Wide Grid Testbed portal.
- Select the “Save” option on the remaining dialog.

Once you have saved the map, the Admin Tool should update to display the new map and the web application will be updated immediately.

Changing Modes

Besides being able to simply modify things such as the Name, Logo and Map for our testbed portal, we still need to deal with all of our Grid resources which make up our testbed. In GridScape we discuss our Grid resources in terms of Locations, where a Location describes not only a single Grid resource, but its physical location as well.

The GridScape Admin Tool has been designed to operate in two different modes – View mode and Edit mode, which allows us to interact with Locations in different ways. Figure 7 shows changing mode from View to Edit.

View Mode: In view mode you can select individual Locations to query. Once a Location has been selected its attributes will be displayed in the “Query Results” panel.

- To enter View mode, select the “View” item from the “Mode” menu.

Edit Mode: In edit mode you can add new Locations to your testbed, edit Locations which already exist, and remove and Locations you have previously added.

- To enter Edit mode, select the “Edit” item from the “Mode” menu.

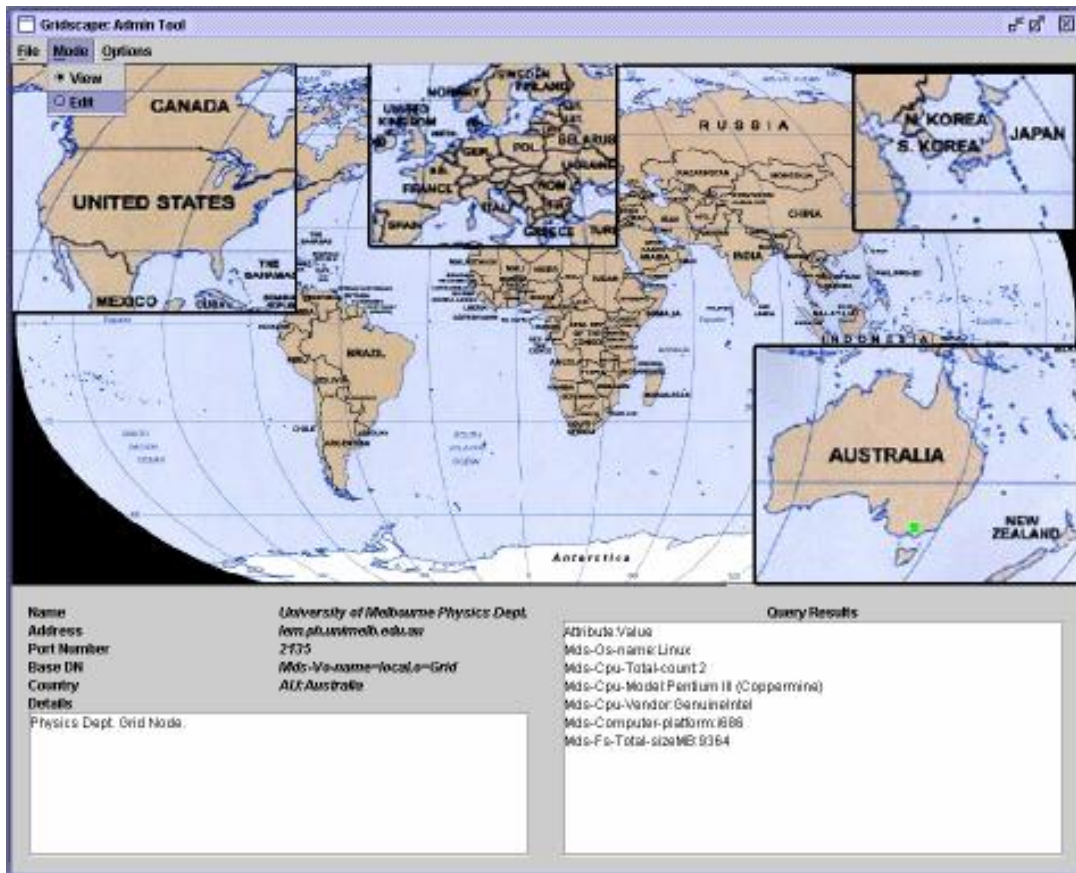


Figure 7: Changing Mode

Adding a new Location

The next step in creating your testbed portal is to add your Grid resources (Locations).

- Enter Edit Mode
- Left-click the mouse on an area of the map where you wish to position your Location. Figure 8 shows the result of this action. A new Location has been added to the testbed with default values.

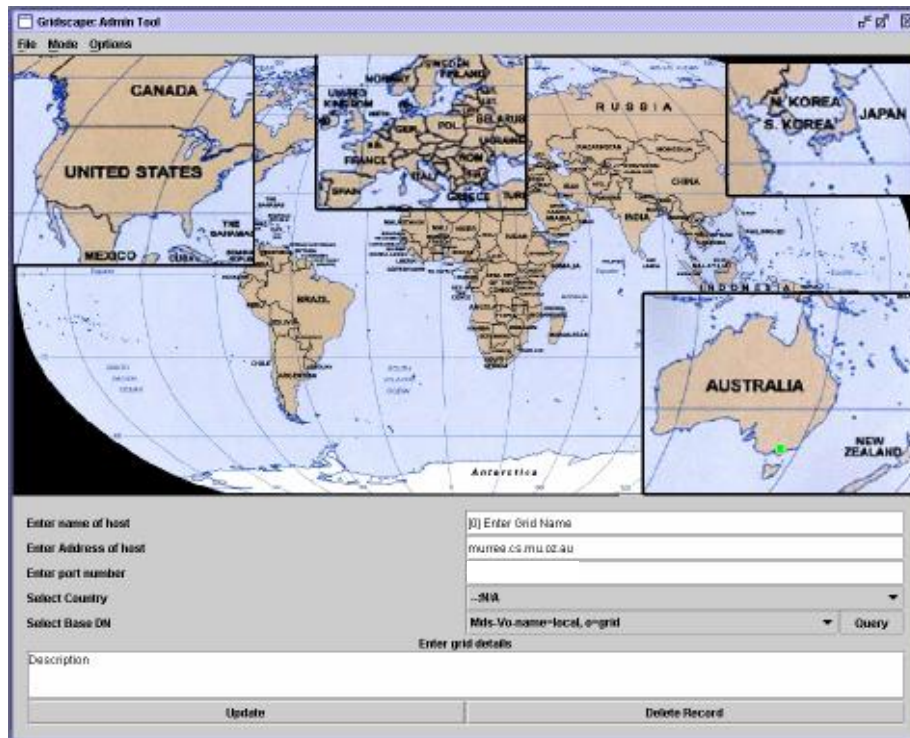


Figure 8: A new Location is added.

- Enter the name of the Location in the space provided.
- Enter the address of the Location in the space provided. This address will be used to query the Location.
- Enter the port corresponding to the address used to query the Location.
- Select the country in which this Location is located.
- Select an appropriate Base DN (for MDS purposes). The default setting should be appropriate in most instances. However, if this is not the case you may select "Query" to show a list of available options.
- Enter a short description about the Location.
- Choose the "Update" option to store the information just entered about this Location.

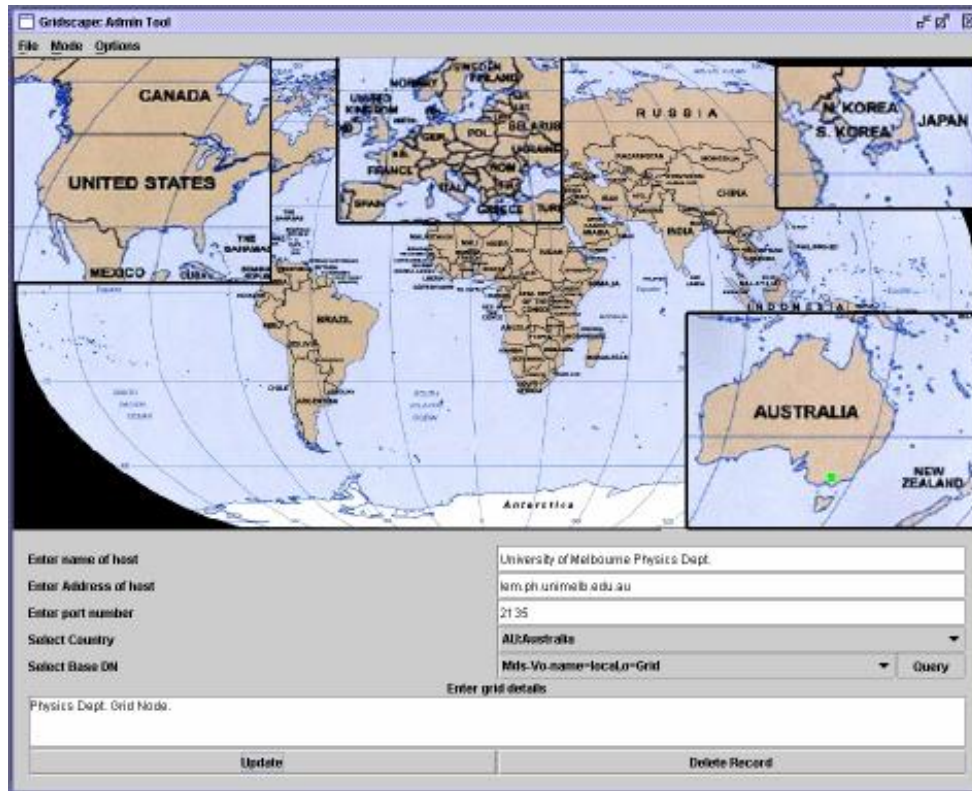


Figure 9: Updating Location information

This process should be continued until all the resources/Locations for your testbed have been added.

Moving a Location

If you notice that one of your Locations is not positioned correctly on your map, you can easily move the Location to its correct place.

- Enter "Edit" mode.
- Find the Location you wish to move.
- Left-click the mouse on the Location and drag to the desired position.
- Release the mouse button.

All your Locations may be moved around as described until you are happy with your testbed.

Editing a Location

Now that we have added all the Locations to our testbed we may want to edit some of the details – perhaps we made a spelling error or the address of one of

our Locations has changed. In such cases we may wish to edit the details of one of our Locations.

- Enter “Edit” mode.
- Find the Location you wish to edit.
- Left-click the mouse on the Location.
- Make necessary changes to any of the fields.
- Select “Update” to store the changes.

Deleting a Location

We now know how to Add, Move and Edit Locations within our testbed, but what about removing unwanted Locations? Whether you have accidentally added a Location you no longer want, or if you just need to remove a Location which is no longer needed, removing Locations is straightforward.

- Enter “Edit” mode.
- Find the Location you wish to delete.
- Left-click the mouse on the Location.
- Select the “Delete Record” option.

Querying a Location

Our testbed portal is now complete. We can now query various Locations if we want to view some information about it. Querying a Location will fetch attribute information and display it in the results panel.

- Enter “View” mode.
- Find the Location you wish to query.
- Left-click the mouse on the Location. Figure 10 shows the results of querying one of the Melb. Uni Physics Department Location within the World Wide Grid Testbed portal.

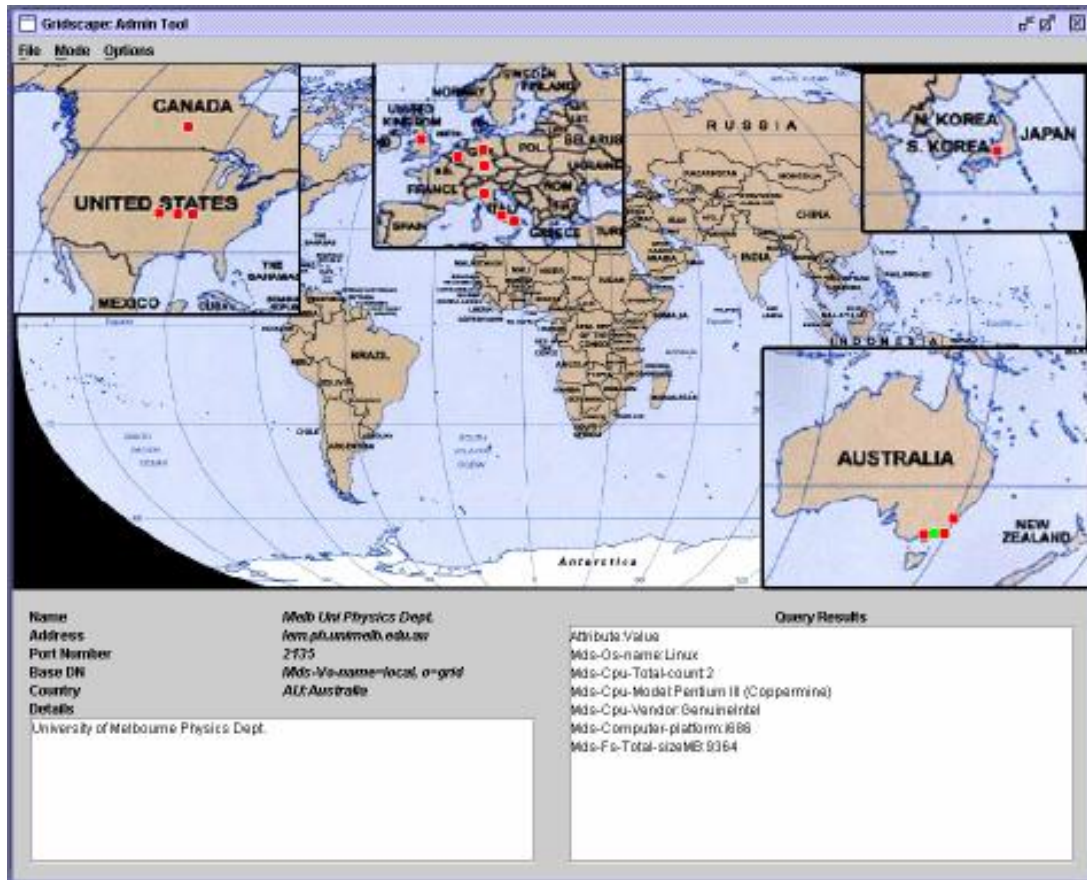


Figure 10: Querying the Physics Department Location

Saving Changes

Now that we have added and modified all of the Locations for our testbed portal we will need to save them.

- In the “File” menu, select the “Save” item.

If we do not select the save option, our Locations will be lost and will not appear online in our web application and will not be remembered for the next time we run the Admin Tool.

Finishing

Once we are happy with our testbed portal we can now exit the Admin Tool.

- In the “File” menu, select the “Exit” item.

The testbed portal creation is complete! We can now go and visit our web testbed portal online.

World Wide Grid (WWG) Testbed Portal Generated Using Gridscape

The screenshot shows the World Wide Grid Testbed portal in Microsoft Internet Explorer. The browser's address bar displays <http://www.gridbus.org>. The page title is "World Wide Grid Testbed".

At the top, there is a navigation bar with a "Submit" button and links for [list all](#), [update testbed](#), and [show info](#). Below this is a world map with several countries highlighted in green, indicating active testbed nodes. A pop-up window provides details for the NRC Canada node.

The sidebar on the right lists participating institutions and their operating systems:

Institution	Operating System
Malak University	Parhans 8 (Deochetko)
MUJ Japan	MULL
Sakura University	Linux
Malak University	Linux
Malak University	Linux
Malak University	MULL
Malak University	66
Cambridge UK	Parhans 8 (Deochetko)
Malak University	Linux
DE Paris	Linux
DE Paris	Linux
Malak University	Linux
Malak University	Linux
Malak University	MULL
Malak University	MULL
Malak University	4
Malak University	Parhans 8 (Deochetko)
Malak University	4 CPU 2

The NRC Canada node details window shows the following information:

- NRC Canada**
- IP: [hpc76.ai.iit.nrc.ca:2135](http://hpc76.ai.iit.nrc.ca)
- Website: www.nrc.ca
- Online Status: online
- Operating System: AIX
- Total CPUs: 4
- CPU Model: PowerPC_POWER3
- CPU Vendor: IBM
- Chipset Platform: 008142N4000
- Fw Total Size (MB): 12804
- [\[Go Message\]](#)