



**SEVENTH FRAMEWORK PROGRAMME
Research Infrastructure**

**FP7-INFRASTRUCTURES-2010-2 – INFRA-2010-1.2.3:
Virtual Research Communities**

**Combination of Collaborative Project and Coordination and Support
Actions (CP- CSA)**



**LinkSCEEM-2
Linking Scientific Computing in Europe and the Eastern
Mediterranean – Phase 2**

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**D8.7
Prototype Training Portal**

Final

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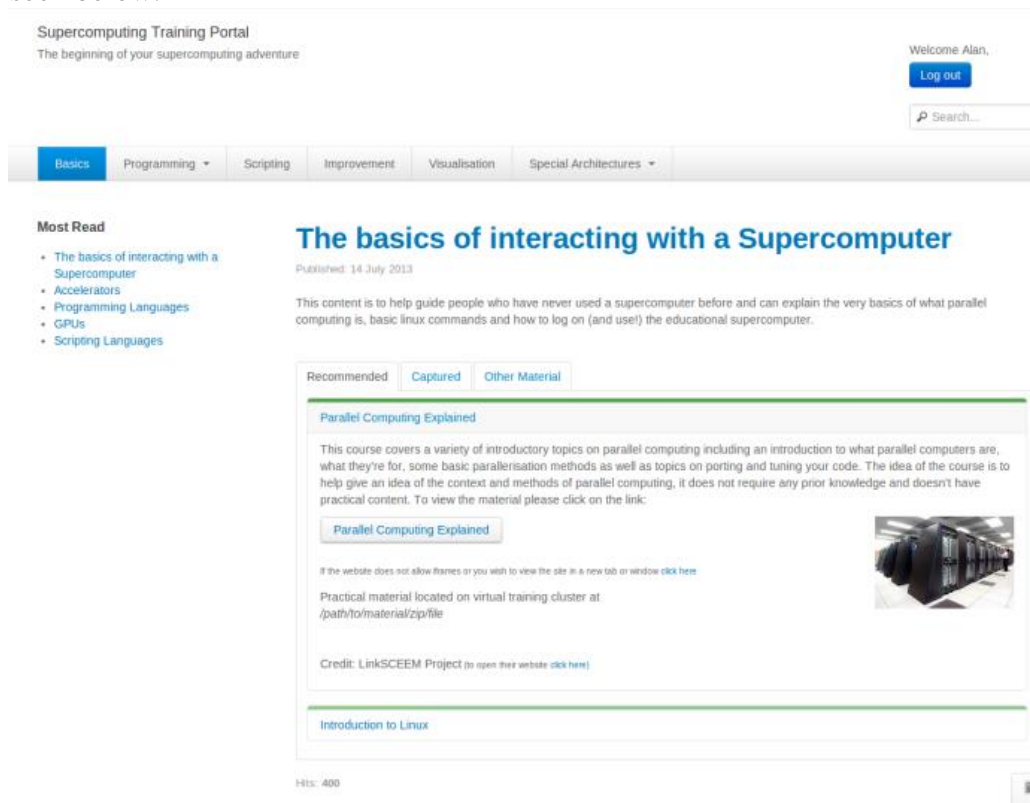
Executive Summary

The development of an interactive training portal is an essential building block for establishing a sustainable user community in the Eastern Mediterranean. While there is a wealth of online training material already available online, often the crucial element of tutorials on actual HPC hardware is missing to practice the knowledge immediately. Therefore, as part of the 2nd contract amendment for LinkSCEEM-2, the development of an innovative HTML5 based training portal with a backbone HPC environment is developed that allows easy to use browser based user access to state of the art training content. The deliverable consists of the actual prototype.

The core development of the portal has finished. The first version of the Portal website is now ready for installation and currently the servers to host the required services are being installed and configured at the Cyprus Institute.

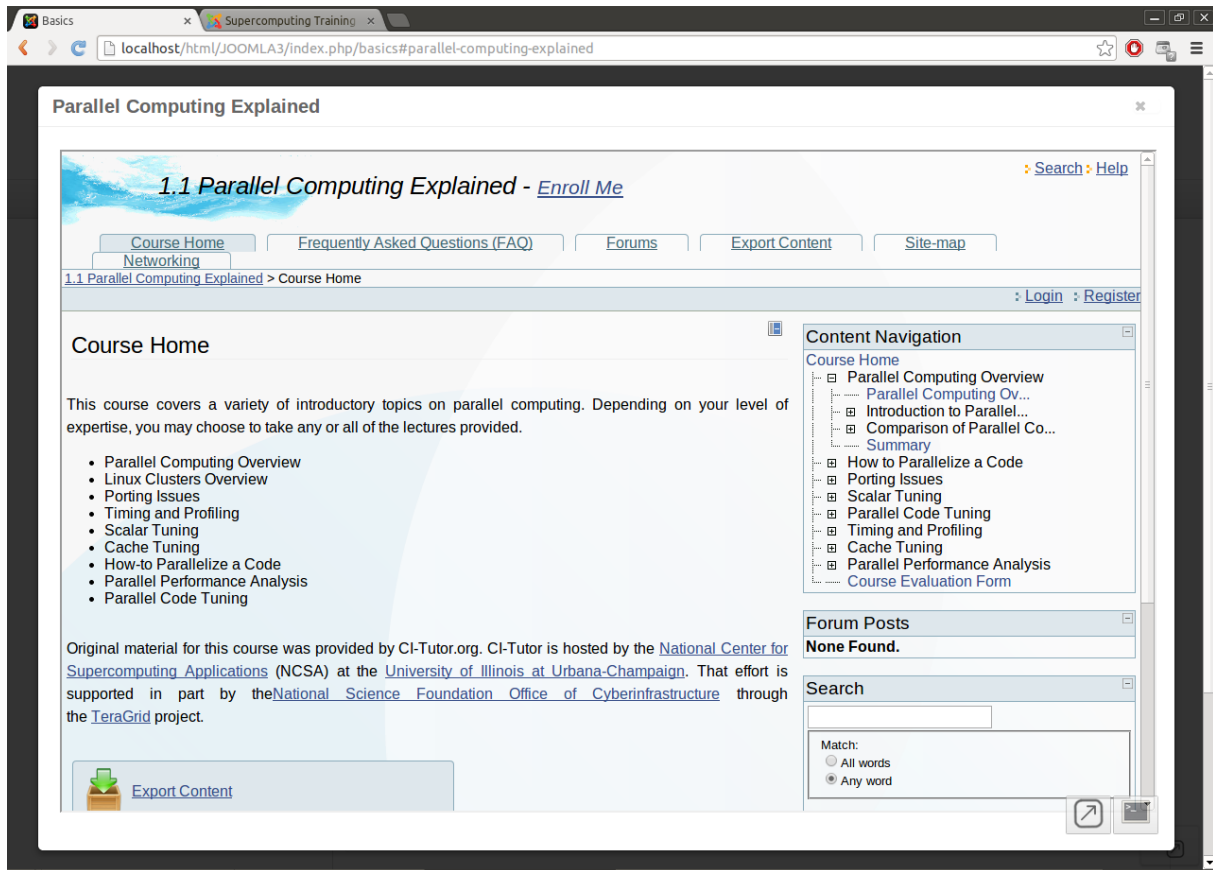
General Design of the Front-End Website

The website is using Joomla as its content management system. The design and design-related functionality is provided by freely available templates. This general design is therefore relatively straightforward to change and update. A snapshot of a sample page from the site can be seen below.

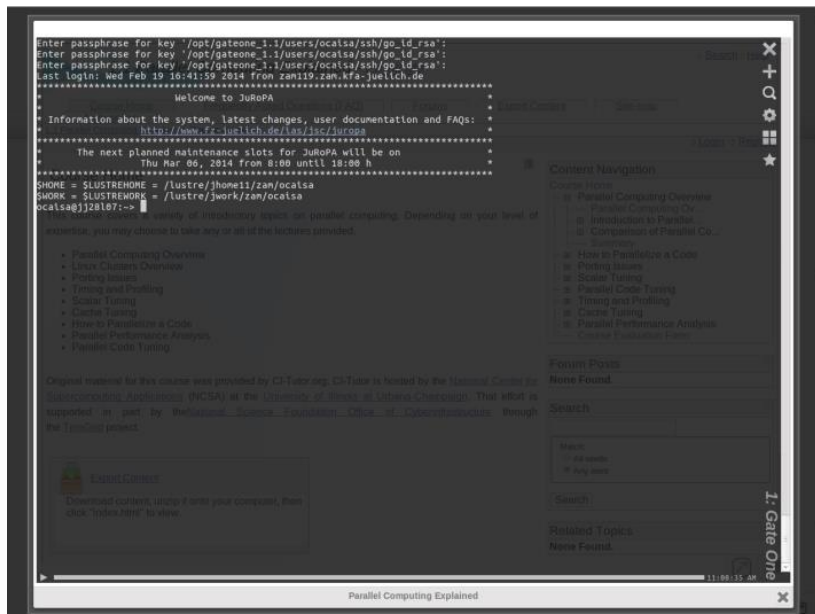


Additional Joomla components are added to provide further functionality including tabs and expandable headers within articles.

One of the core concerns was the ability to browse external content without being explicitly taken away from the site. This is done via a further plugin that provides the ability to open modal windows from within Joomla articles (which essentially means opening an iframe to an external site). An example of this is seen below.



Technical Development



Further development was required to allow us to build additional functionality into the modal windows. The external website calls are wrapped in our own html script that also inserts some buttons onto the window. The button seen above in the bottom right hand corner creates a connection to an external server and provides terminal access to that server as seen on the left.

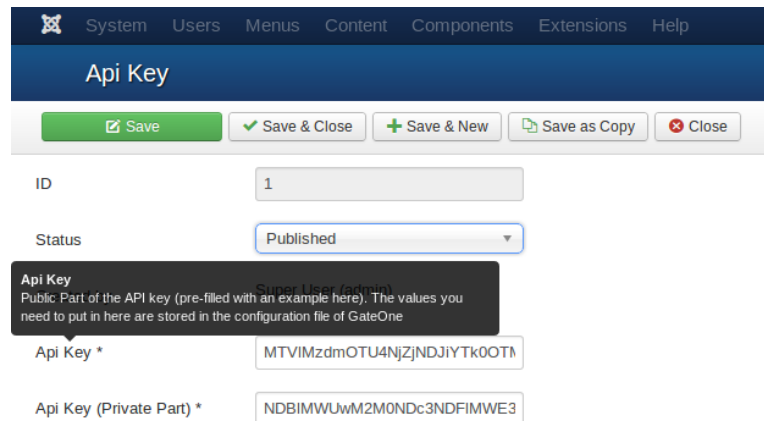
This terminal is fully functional and provides the user with the ability to write and execute programs on a remote server. It is an overlay on the modal page that can easily be sent away and brought back by repeated pressing of the escape key.

Additions to the Back-End of the Website

A number of Joomla plugins needed to be created to allow proper, secure functionality of the website. The first of these involved authenticating users for terminal access via the login facilities of the Joomla installation.

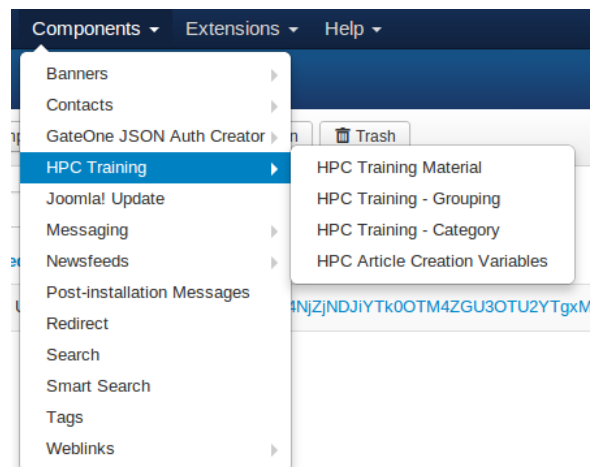
Security Plugin

With this plugin the users only log into the main website and automatically are allowed access to the terminal functionality.



Database Plugins

A number of further plugins were required to provide the required functionality on the back-end. You can see these on the right menu of the figure to the right.



These additions allow content creators to fill out a simple form (below) to create data within the database.

The screenshot shows the 'HPC Training Form' interface. At the top, there is a dark blue navigation bar with links for 'System', 'Users', 'Menus', 'Content', and 'Components'. Below this is a light blue header with the title 'HPC Training Form'. A toolbar contains four buttons: 'Save' (green), 'Save & Close' (green with a checkmark), 'Save & New' (green with a plus sign), and a red 'X' button. The form fields are as follows:

ID	<input type="text" value="0"/>
Status	<input type="text" value="Published"/>
Article Grouping *	<input type="text" value="GPUs"/>
Category *	<input type="text" value="Basics of Interacting with a ..."/>
Title *	<input type="text"/>
Description *	<input type="text"/>
Material Type *	<input type="text" value="Website URL"/>
Material URL *	<input type="text"/>
Image Type	<input type="text" value="Internally hosted Image"/>
Image	<input type="text"/>
Practical Material Course Code	<input type="text"/>
Credit *	<input type="text"/>
Credit URL	<input type="text"/>
Recommended *	<input type="text" value="Recommended content"/>
TinCan API Var	<input type="text"/>

The database includes information about the source of the content so that the appropriate person can be credited. It also provides the possibility of using the TinCan API to track which content users access.

These existing database entries can then be viewed and edited as required through the administrative interface:

HPC Training Plugin Data										
<input type="text"/> Search <input type="button" value="Q"/> <input type="button" value="X"/>										
Grouping: <input type="button" value="v"/> Ascending: <input type="button" value="v"/> 20 <input type="button" value="v"/>										
	Status	Date Added	Grouping	Category	Title	Material Type	Practical Course Code	Credit	Recommended	ID
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2013-08-28 18:03:01	GPUs	Basics of Interacting with a Supercomputer	Introduction to PyOpenCL	extdoc	CUDA1	LinkSCEEM Project	Yes	3
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2013-09-20 13:43:43	GPUs	Basics of Interacting with a Supercomputer	NCI	www		NCI	Yes	7
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2013-08-28 17:18:31	Examples for CHANGES Workshop	Basics of Interacting with a Supercomputer	Introduction to CUDA - Document	extdoc		LinkSCEEM Project	Yes	1
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2013-08-28 17:20:02	Examples for CHANGES Workshop	Basics of Interacting with a Supercomputer	Introduction to OpenACC - Captured	www		LinkSCEEM Project	Yes	2
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2013-09-03 08:31:28	Examples for CHANGES Workshop	Basics of Interacting with a Supercomputer	DDT Debugger - Youtube	www		Richard Gerber	Yes	4
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2013-09-03 14:17:37	Examples for CHANGES Workshop	Basics of Interacting with a Supercomputer	Introduction to Linux - Website	www		Cornell University	Yes	5
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2013-09-17 13:50:53	Examples for CHANGES Workshop	Basics of Interacting with a Supercomputer	Irish Newspaper	www		Irish Times	Yes	6

A script was created to automatically generate Joomla articles from the database contents. It is these articles that are viewed on the front-end of the website.

Further Development

While the core functionality of the website exists, it remains to be populated with content. To this end there has been significant contact with the organisers of the HPC University website (www.hpcuniversity.org) to discuss content organisation and the sharing of content databases.

Initial efforts within the project will focus on implementing the Training Roadmap from their website as shown below.

