

## EXTENDING THE ITM WEB PORTAL

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### 1. Overview

The aim of the project is to build and maintain **the ITM-Portal**. In the context of the Integrated Tokamak Modeling Taskforce (ITM), for the Infrastructure and Software Integration Project (ISIP) the ITM Portal is needed to provide a unique service point to identify the user (single sign-on authentication) and to access the various ITM applications (simulation tools). The ITM Portal, developed in 2008, was extended in order to integrate new ITM tools and existing tools were updated and maintenance activity was performed.

### 2. Results

In the context of the Integrated Tokamak Modeling Taskforce (ITM), the Infrastructure and Software Integration Project (ISIP), task ITM-07-ISIPCP-T7 (“Define and build a portal for access to the ITM applications and databases”), a software Portal was developed. It provides a unique service point to identify the user (single sign-on authentication) and to access resources provided by the ITM Gateway.

Hosting codes and projects on the Gateway requires both an interface, provided through the Portal, and a version handling tool, allowing collaborative development for every project and the ability to access previous versions.

After a study of the various aspects related to a working web portal and its foreseen integration with the Gateway, it was decided on the following organization for the Portal:

- Public access part, available without authentication and dedicated to non-ITM members; basically this is a regular web site offering access to public information about ITM, publications, conferences and screenshots of ITM applications
- Private part, accessible only to ITM members, based on their account on the Gateway. This part is further divided into sections dedicated to each project, with the ability to have read-only or read-write access to sections based on user rights. Also, authentication in the private area gives the user access to all zones and applications requiring user credentials (single sign-on). Furthermore, access to ITM applications is foreseen through this private part of the Portal.

Work was performed under ITM task agreements **WP09-ITM-ISIP-T10** (Administration of the collaborative software) and **WP09-ITM-ISIP-T1** (Installation, hotline and support of the ITM software on the Gateway).

The ITM Portal has become fully functional and it was extended with various collaborative software, like Wiki and GForge.

The software project management tool “GForge” was integrated in the ITM Portal in order to offer both project hosting and collaborative areas for developers. Among its features, of particular interest are the trackers and forums, that offer a way for developers to share their thoughts and to monitor how the project is advancing.

The version management system, “subversion”, is integrated in the GForge system and all ITM software projects were migrated to it.

All the ITM collaborative software (namely Portal, Gforge, Wiki, Subversion) are integrated with the ITM Gateway authentication base, through Shibboleth, thus allowing a single point for authentication and authorization for all ITM users.

A special user access policy was deployed in all the components of the ITM Portal, offering a uniform access management system for users.

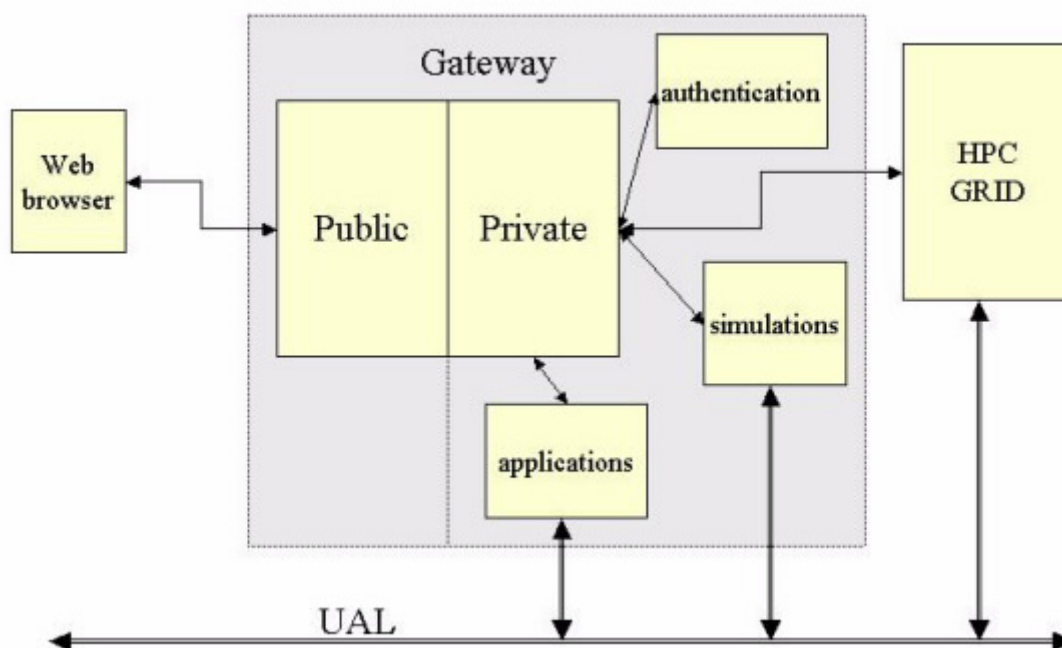
A special project was created in the software management system “GFORGE” to be used as the basis for offering support to users of the ITM software installed on the Gateway. The various features of GForge, namely trackers and forums, are used to allow users to add their questions and to get answers. Furthermore, the automatic e-mailing facility, offered by GForge, is used to allow the members of the hotline & support team to receive emails when a new question is raised through either trackers or forums.

The following technologies are currently integrated into the Portal:

- Shibboleth [1]: single sign-on mechanism, with Java-based identity provider (IdP) and native service provider (SP).
- Apache Tomcat [2]: servlet container for the Shibboleth IdP.
- JBoss Application Server [3,4]: portal server and servlet container.
- Apache HTTPD [5]: front-end server, exposing the various services offered by Shibboleth and JBoss to the external world.
- OpenLDAP [6]: directory solution for managing user accounts and user groups, with information exported from the Gateway network information system.
- GForge with Subversion: version handling tool and collaborative environment.
- JBoss Wiki: wiki based collaborative environment, based on Java servlets deployed in the JBoss AS servlet container.

These applications were installed on the Gateway and they are co-operating in order to offer the entry point for users.

The structure of the Portal is presented in the following diagram:



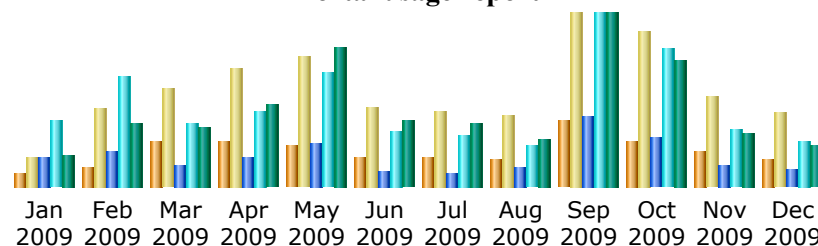
### 3. Conclusions

The ITM Portal is currently being used by scientists to access various ITM related software programs. Furthermore, it provides a unique point for collaboration, exchange of ideas and documentation.

In January 2009 there were 63 visitors, consuming a bandwidth of 151,39Mb on the main Portal machine. However, in December 2009 there were 138 visitors consuming a bandwidth of 206,09Mb.

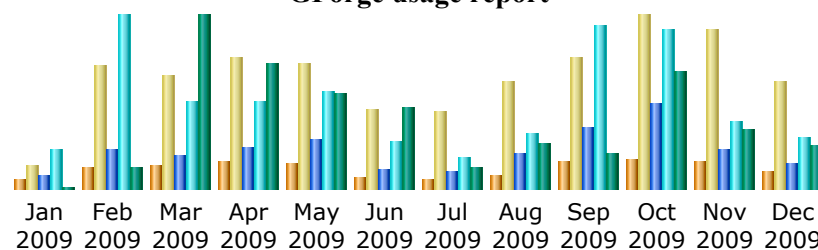
On the GForge machine we had a huge increase in usage. Since it's first installation, in January 2009 when there were 20 visitors, consuming 76,46Mb of bandwidth, the usage has increased to 33 visitors, consuming 1,85Gb of bandwidth in December 2009.

### Portal usage report



Month	Unique visitors	Number of visits	Pages	Hits	Bandwidth
Jan 2009	63	151	9788	22164	151.39 MB
Feb 2009	101	395	11784	36993	315.75 MB
Mar 2009	224	496	7221	21110	296.12 MB
Apr 2009	227	590	9929	25346	400.85 MB
May 2009	210	654	14474	38234	683.14 MB
Jun 2009	152	399	5188	18856	322.00 MB
Jul 2009	144	383	4562	17031	312.62 MB
Aug 2009	140	358	6511	14293	231.50 MB
Sep 2009	327	915	23568	61264	890.75 MB
Oct 2009	226	786	16925	46306	619.02 MB
Nov 2009	177	451	7341	19219	257.86 MB
Dec 2009	138	369	6061	15175	206.09 MB
Total	2129	5947	123352	335991	4.58 GB

### GForge usage report



Month	Unique visitors	Number of visits	Pages	Hits	Bandwidth
Jan 2009	20	49	2586	7731	76.46 MB
Feb 2009	45	251	7667	35979	956.90 MB
Mar 2009	46	232	6789	17523	7.76 GB
Apr 2009	57	269	8037	17345	5.34 GB
May 2009	50	258	9873	19498	4.12 GB
Jun 2009	23	161	3903	9220	3.49 GB
Jul 2009	18	160	3301	6095	944.22 MB
Aug 2009	25	220	6867	10956	1.92 GB
Sep 2009	55	271	12215	32757	1.54 GB
Oct 2009	58	370	16951	31584	5.02 GB
Nov 2009	54	327	7918	13253	2.56 GB
Dec 2009	33	218	4907	10125	1.85 GB
Total	484	2786	91014	212066	35.51 GB

#### **4. Publications:**

*"Enabling remote access to projects in a large collaborative environment"*, V.F. Pais, S. Balme, H.S.Akpangny, F. Iannone, P. Strand, 2009, Seventh IAEA Technical Meeting on Control, Data Acquisition, and Remote Participation for Fusion Research, 15 - 19 June 2009, Aix-en-Provence, France, Fusion Engineering and Design, in press

*"Gateway: new High Performance Computing facility for EFDA Task Force on Integrated Tokamak Modelling"*, F. Iannone, B. Guillerminet, F. Imbeaux, G. Manduchi, A. Maslennikov, V. Pais and P. Strand, 2009, Seventh IAEA Technical Meeting on Control, Data Acquisition, and Remote Participation for Fusion Research, 15 - 19 June 2009, Aix-en-Provence, France, Fusion Engineering and Design, in press

#### **5. References:**

- [1] Shibboleth, <http://shibboleth.internet2.edu>
- [2] Apache Tomcat, <http://tomcat.apache.org>
- [3] JBoss, <http://www.jboss.org>
- [4] "JBoss 4.0 – The Official Guide", *The JBoss Group*, Sams, April 30, 2005, ISBN: 978-0672326486
- [5] Apache HTTPD, <http://httpd.apache.org>
- [6] OpenLDAP, <http://www.openldap.org>