



## **D1.6.3 Portal versions**

---

**Coordinator: Ángel López-Cima (UPM)**

**Asunción Gómez-Pérez and M. Carmen Suárez-Figueroa (UPM)**

**Abstract.**

EU-IST Network of Excellence (NoE) IST-2004-507482 KWEB

Deliverable D1.6.3 (WP1.6)

This report summarizes the Knowledge Web Portal development.

Document Identifier:	KWEB/2005/D1.6.3/v1.0
Class Deliverable:	KWEB EU-IST-2004-507482
Version:	v1.0
Date:	July 1, 2005
State:	Final
Distribution:	Public

## Knowledge Web Consortium

This document is part of a research project funded by the IST Programme of the Commission of the European Communities as project number IST-2004-507482.

**University of Innsbruck (UIBK) – Coordinator**  
Institute of Computer Science,  
Technikerstrasse 13  
A-6020 Innsbruck  
Austria  
Contact person: Dieter Fensel  
E-mail address: dieter.fensel@uibk.ac.at

**École Polytechnique Fédérale de Lausanne (EPFL)**  
Computer Science Department  
Swiss Federal Institute of Technology  
IN (Ecublens), CH-1015 Lausanne.  
Switzerland  
Contact person: Boi Faltings  
E-mail address: boi.faltings@epfl.ch

**France Telecom (FT)**  
4 Rue du Clos Courtel  
35512 Cesson Sévigné  
France. PO Box 91226  
Contact person : Alain Leger  
E-mail address: alain.leger@rd.francetelecom.com

**Freie Universität Berlin (FU Berlin)**  
Takustrasse, 9  
14195 Berlin  
Germany  
Contact person: Robert Tolksdorf  
E-mail address: tolk@inf.fu-berlin.de

**Free University of Bozen-Bolzano (FUB)**  
Piazza Domenicani 3  
39100 Bolzano  
Italy  
Contact person: Enrico Franconi  
E-mail address: franconi@inf.unibz.it

**Institut National de Recherche en Informatique et en Automatique (INRIA)**  
ZIRST - 655 avenue de l'Europe - Montbonnot  
Saint Martin  
38334 Saint-Ismier  
France  
Contact person: Jérôme Euzenat  
E-mail address: Jerome.Euzenat@inrialpes.fr

**Centre for Research and Technology Hellas / Informatics and Telematics Institute (ITI-CERTH)**  
1<sup>st</sup> km Thermi – Panorama road  
57001 Thermi-Thessaloniki  
Greece. Po Box 361  
Contact person: Michael G. Strintzis  
E-mail address: strintzi@iti.gr

**Learning Lab Lower Saxony (L3S)**  
Expo Plaza 1  
30539 Hannover  
Germany  
Contact person: Wolfgang Nejdl  
E-mail address: nejdl@learninglab.de

**National University of Ireland Galway (NUIG)**  
National University of Ireland  
Science and Technology Building  
University Road  
Galway  
Ireland  
Contact person: Christoph Bussler  
E-mail address: chris.bussler@deri.ie

**The Open University (OU)**  
Knowledge Media Institute  
The Open University  
Milton Keynes, MK7 6AA  
United Kingdom.  
Contact person: Enrico Motta  
E-mail address: e.motta@open.ac.uk

**Universidad Politécnica de Madrid (UPM)**  
Campus de Montegancedo sn  
28660 Boadilla del Monte  
Spain  
Contact person: Asunción Gómez Pérez  
E-mail address: asun@fi.upm.es

**University of Karlsruhe (UKARL)**  
Institut für Angewandte Informatik und Formale  
Beschreibungsverfahren – AIFB  
Universität Karlsruhe  
D-76128 Karlsruhe  
Germany  
Contact person: Rudi Studer  
E-mail address: studer@aifb.uni-karlsruhe.de

**University of Liverpool (UniLiv)**

Chadwick Building, Peach Street  
L697ZF Liverpool  
United Kingdom  
Contact person: Michael Wooldridge  
E-mail address: M.J.Wooldridge@csc.liv.ac.uk

**University of Sheffield (USFD)**

Regent Court, 211 Portobello street  
S14DP Sheffield  
United Kingdom  
Contact person: Hamish Cunningham  
E-mail address: hamish@dcs.shef.ac.uk

**Vrije Universiteit Amsterdam (VUA)**

De Boelelaan 1081a  
1081HV. Amsterdam  
The Netherlands  
Contact person: Frank van Harmelen  
E-mail address: Frank.van.Harmelen@cs.vu.nl

**University of Manchester (UoM)**

Room 2.32. Kilburn Building, Department of  
Computer Science, University of Manchester,  
Oxford Road  
Manchester, M13 9PL  
United Kingdom  
Contact person: Carole Goble  
E-mail address: carole@cs.man.ac.uk

**University of Trento (UniTn)**

Via Sommarive 14  
38050 Trento  
Italy  
Contact person: Fausto Giunchiglia  
E-mail address: fausto@dit.unitn.it

**Vrije Universiteit Brussel (VUB)**

Pleinlaan 2, Building G10  
1050 Brussels  
Belgium  
Contact person: Robert Meersman  
E-mail address: robert.meersman@vub.ac.be

## Changes

<b>Version</b>	<b>Date</b>	<b>Author</b>	<b>Changes</b>
0.1	24-06-2005	Angel Lopez-Cima	First Draft
0.2	27-06-2005	Asunción Gómez-Pérez M. Carmen Suárez-Figueroa	First Revision
0.3	30-06-2005	Ángel López-Cima	Second Draft
0.4	19-07-2005	Angel Lopez-Cima, York Sure	Changes proposed by the Quality Controller
1.0	20-07-2005	Angel Lopez-Cima	Final Version

## Executive Summary

This deliverable ‘D1.6.3 Portal versions’ accompanies the implementation of the Knowledge Web portal available at <http://knowledgeweb.semanticweb.org>. It describes hardware and software related issues for development, deployment and maintenance of the portal.

This report is structured as follows:

- Section one: a description of Activity 1.6: *Semantic Portal Infrastructure*
- Section two: a description of development issues in which the hardware and the platforms used in the development, the testing and deployment stages, and the architecture implications are covered.
- Section three: a description of the configuration management and of the elements tracked and stored over time.
- Section four: a description of the tests executed to ensure the quality of the software developed.
- Section five: a description of the deployment stage.
- Section six: the references used in this report

---

<sup>1</sup> <http://knowledgeweb.semanticweb.org>

## Contents

<b>1. Knowledge Web Portal .....</b>	<b>1</b>
<b>2. Development Issues .....</b>	<b>1</b>
2.1. Platforms .....	1
2.2. Architecture.....	3
<b>3. Configuration Management.....</b>	<b>4</b>
<b>4. Testing .....</b>	<b>4</b>
<b>5. Deployment.....</b>	<b>5</b>
<b>6. References.....</b>	<b>6</b>

## 1. Knowledge Web Portal Activity

The Knowledge Web (KW) Semantic Portal<sup>2</sup> is a portal to promote and disseminate the results of the Network of Excellence Knowledge Web.

The portal, as a part of the *Activity 1.6: Semantic Portal Infrastructure*[1], has different deliverables:

- D1.6.1 specifies the portal requisites.
- D1.6.2 specifies the domain ontologies of the portal. These ontologies are used for indexing the information and for relating different information.
- D1.6.3 presents the software of the semantic portal deployed in <http://knowledgeweb.semanticweb.org>.
- D1.6.4 summarizes the content release of the portal.

Thus the D1.6.3 is a demonstrator, this report shows some relevant development issues about the current version.

## 2. Development Issues

In this section, the software and hardware platforms and the architecture used for the portal are described.

### 2.1. Platforms

The Knowledge Web portal uses three different platforms: a *development platform* in which the developers code the software, a *test platform* in which the testers check the integrity and consistency of the portal, and a *deploy platform* in which the portal is deployed. All these platforms have similar characteristics:

- Hardware:
  - Pentium IV: 2.4Ghz for development and testing, and 2.6Ghz for deployment.
  - 512Mb of RAM for development and testing, and 1Gb for deployment.
- Software:
  - Operating System: Windows2000 Workstation.
  - Oracle 8.1.7.
  - J2SE1.4.2\_08<sup>3</sup>.
  - J2EE 1.3.1<sup>4</sup>.
  - Apache Ant 1.5.1<sup>5</sup>.

---

<sup>2</sup> <http://knowledgeweb.semanticweb.org>

<sup>3</sup> <http://java.sun.com/j2se/1.4.2/download.html>

<sup>4</sup> <http://java.sun.com/j2ee/1.3/download.html>

<sup>5</sup> <http://ant.apache.org/>

- Resin 2.1.7<sup>6</sup>.
- Log4J 1.2.8<sup>7</sup>.
- JUnit 3.8.1<sup>8</sup>.
- OpenJMS 0.7.6<sup>9</sup>.
- Jakarta Commons<sup>10</sup>.
  - BeanUtils 1.6.
  - Collections 3.1.
  - Lang 2.0.
  - Email 1.0.
  - Digester 1.5.
  - FileUpload 1.0.
  - Logging 1.0.
  - Validator 1.0.
  - Jelly 1.0.
  - Jexl 1.0.
- JavaBeans Activation Framework Specification 1.0<sup>11</sup>.
- Dom4J 1.5.2<sup>12</sup>.
- JavaMail 1.3.2<sup>13</sup>.
- Jena2.1<sup>14</sup>.
- JSPWiki 2.0<sup>15</sup>.
- Java Standard Tag Libraries 1.1<sup>16</sup>.
- MultipartRequest 1.20<sup>17</sup>.
- Struts 1.2.4<sup>18</sup>.
- ICU4J 2.2<sup>19</sup>.
- Xerces J 2.6<sup>20</sup>.

---

<sup>6</sup> <http://www.caucho.com>

<sup>7</sup> <http://jakarta.apache.org/log4j>

<sup>8</sup> <http://www.junit.org/index.htm>

<sup>9</sup> <http://openjms.sourceforge.net/>

<sup>10</sup> <http://jakarta.apache.org/commons>

<sup>11</sup> <http://java.sun.com/products/javabeans/jaf/index.jsp>

<sup>12</sup> <http://www.dom4j.org>

<sup>13</sup> <http://java.sun.com/products/javamail/>

<sup>14</sup> <http://jena.sourceforge.net/index.html>

<sup>15</sup> <http://www.jspwiki.org>

<sup>16</sup> <http://jakarta.apache.org/taglibs/index.html>

<sup>17</sup> <http://freshmeat.net/projects/multipartrequest>

<sup>18</sup> <http://struts.apache.org/>

<sup>19</sup> <http://www.icu4j.org/>

<sup>20</sup> <http://xml.apache.org/xerces2-j/>



- Xalan J 2.6.2<sup>21</sup>.
- OSCache 1.0<sup>22</sup>.
- Jakarta ORO 2.0.8<sup>23</sup>.

## 2.2. Architecture

As described in the D1.6.1 of Knowledge Web, the portal is developed using the ODESeW2 platform for building semantic portals. ODESeW [2] has been built in the framework of WebODE [3], a scalable ontology engineering workbench that provides support to the ontology building methodology, METHONTOLOGY [4].

The advantage of having built ODESeW on top of the WebODE workbench (as shown in Figure 1) is that ODESeW can use any of the WebODE workbench services. For example, with the ontology import services we can import other ontologies in the workbench, and these new ontologies can be easily selected for publication in the KW semantic portal. Consequently, we can create a complete new knowledge portal (including its Intranet and its Extranet) in a very short period of time.

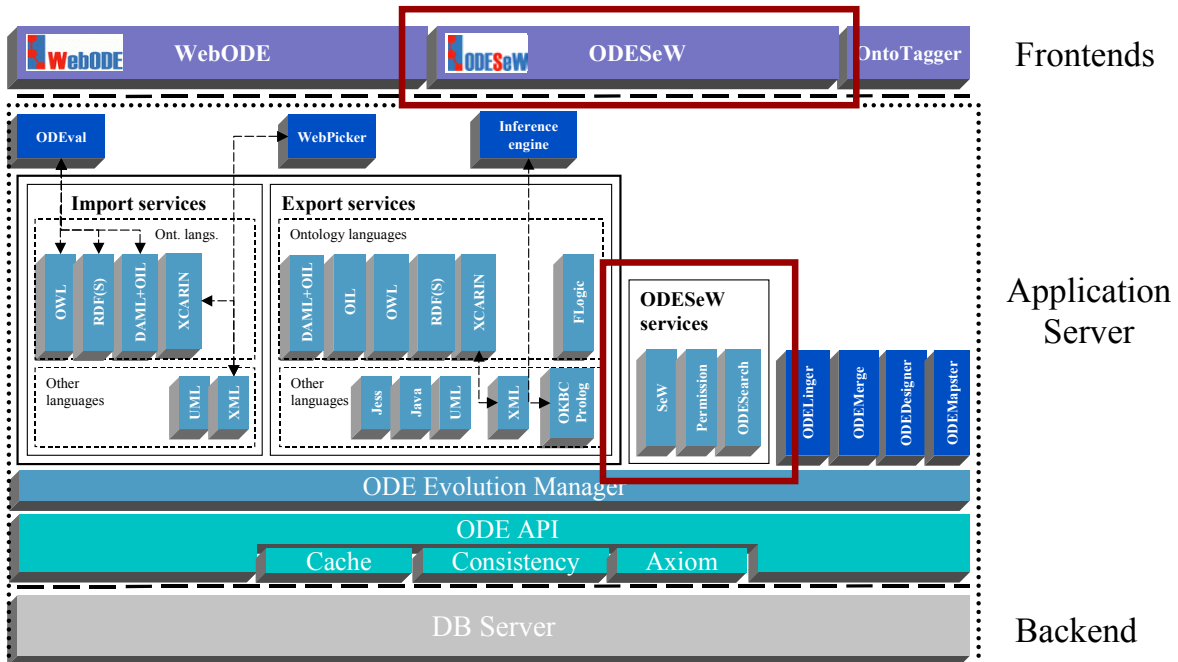


Figure 1. ODESeW on WebODE workbench

Another advantage is that we can edit any of the ontologies published with ODESeW using the WebODE ontology editor, and observe, at run-time, the modifications in the knowledge portal, which means that there is automatic synchronization of the portal with respect to the ontology.

<sup>21</sup> <http://xml.apache.org/xalan-j/>

<sup>22</sup> <http://www.opensymphony.com/oscache/>

<sup>23</sup> <http://jakarta.apache.org/oro/>

The architecture implications of ODESeW is that a version of ODESeW depends on which version of WebODE is built on. The components of WebODE that are depended on ODESeW are: ODE API, RDF(S) export service and OWL export service.

### 3. Configuration Management

The configuration management is the system that tracks the evolution and controls the changes and also the revision of different documents during the developing process.

The items tracked for the Knowledge Web Portal software are: deliverables, source code, web documents, and content.

- *Source code* and *web documents* are tracked by Subversion<sup>24</sup>, a control version software. The version number is composed of three groups of numbers: major, minor and patch. All changes in the source code or in web documents are stored in Subversion. The major number changes when a new requirement is specified; the minor changes when a functionality changes or a new functionality that covers a requisite is implemented; and the patch number changes when a bug is fixed or when a minor change is deployed. The storage of these documents are performed from the development platform.
- *Deliverable documents* are tracked as the content, because the Knowledge Web Portal deliverables are part of the portal content.
- The *content of the portal* is composed of the documents uploaded by the users and the database of WebODE. Both items are stored using a backup that is performed each day at 3:00AM (the time range with the lowest activity of the portal). These backups are stored during a week; after a week, only the backups made on Mondays are stored. The storage of these documents are performed from the deployment platform.

As mentioned before, ODESeW is linked to a specific version of WebODE. So, when the version of WebODE changes, a study of compatibility of the actual version of ODESeW and the new version of WebODE starts, in particular, executing the tests. In case of incompatibilities, developers decide whether to keep the previous version of WebODE or to adapt ODESeW to the new changes.

### 4. Testing

The Knowledge Web Portal undergoes two kinds of tests: the *white box* and the *black box*. The white box test consists in testing the functionality of the software components internally, that is, testing the functions and API of the software. The black box test consists in testing the systems externally, in the case of the Knowledge Web Portal, using the web interface.

The white box test is performed in the development and testing platforms.

---

<sup>24</sup> <http://subversion.tigris.org/>

The black box test is performed in different machines, with different web browsers, and with an instance of a version of the portal installed in the development and testing platforms.

There exists a large variety of web browsers for different platforms. Each web browser and each version support different JavaScript versions and different Style Sheet versions. If we intend to generate a web application that supports all web browsers, such a variety implies a huge amount of effort. Thus, according to the statistics of uses of the Knowledge Web portal<sup>25</sup> and the platforms that we have available in our organization, the web browsers supported by the portal are:

- Internet Explorer 5.0, 6.0 for Windows.
- Netscape 6.0, 7.0 from Windows.
- Mozilla 1.6, 1.7 for Linux and Windows.
- FireFox 1.0 for Linux and Windows.

These web browsers are used during the testing stage before deployment. In case that a user reports a bug in a different browser of a deployed version, the bug is managed as a normal bug and fixed in the next patch version.

## 5. Deployment

The Knowledge Web Portal consists of three different components: the WebODE workbench, the ODESeW platform, and the web documents for the Knowledge Web portal.

In the initial deployment, the three components are installed in the deployment platform. In subsequent deployments of new releases of software, the following steps are performed:

- Run the backup system for the content of the portal.
- Stop the server if the deployment includes changes in the core of the server.
- Deploy the new components in the server.
- Restart the server.

Very often during the deployment, the server must be stopped from 1 minute to 30 minutes, so the deployment is performed in a time range with low activity of the portal (from 20:00 to 8:00).

---

<sup>25</sup> <http://knowledgeweb.semanticweb.org/stats/cgi-bin/awstats.pl?config=kw.dia.fi.upm.es>

## 6. References

1. "Annex 1 - Description of Work". Knowledge Web FP6-507482.  
<http://knowledgeweb.semanticweb.org/semanticportal/servlet/download?ontology=Documentation+Ontology&concept=Annex+I&instanceSet=kweb&instance=Annex+I&attribute=Online+Version&value=Annex+I.doc>
2. Corcho, O.; Gómez-Pérez, A.; López-Cima, A.; López-García, V.; Suárez-Figueroa, M.C. 2003. "ODESeW. Automatic Generation of Knowledge Portals for Intranets and Extranets". International Semantic Web Conference 2003 (ISWC03). Lecture Notes in Computer Science (2870). PP: 802-817.
3. Arpírez, J. C.; Corcho, O.; Fernández-López, M.; Gómez-Pérez, A., "WebODE in a nutshell". AI Magazine, vol. 24 (3), pp. 37-48, 2003.
4. Fernández-López, M.; Gómez-Pérez, A.; Pazos-Sierra, A.; Pazos-Sierra, J. 1999. "Building a Chemical Ontology Using METHONTOLOGY and the Ontology Design Environment". IEEE Intelligent Systems & their applications. January/February PP: 37-46.