



DIP D2.5: Flexible Ontological Repository (FOR)

Prototype Fact Sheet, 30 June 2006

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Abstract (for dissemination)	This document contains a summary covering the ontology repository implementation provided by Unicorn, that can be used in conjunction with the Ontology Representation and Data Integration (ORDI) Framework.
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1. Availability and Contacts

Version:

0.3, 30 June 2006.

Download:

login Unicorn FTP site: <ftp://unicorn.com> User: dipftp, Pass: 796diP. download FOR.zip from "30_June_Submission" directory.

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2. Introduction: Purpose and Functionality

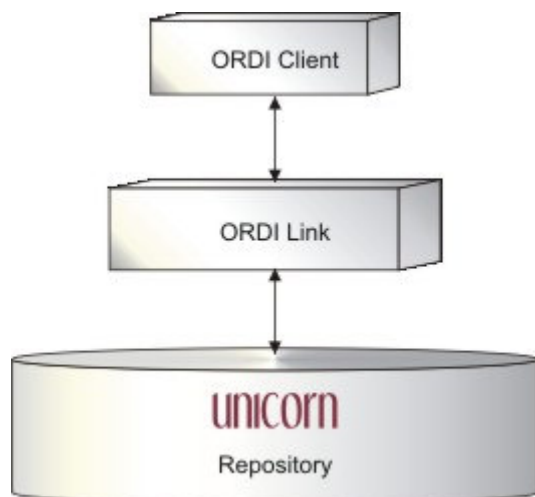
The ontology repository is backed by a flexible Relational Database (RDB) which implements [ORDI API \[1\]](#) (the DIP repository API).

FOR is a flexible and scalable repository. The flexibility of the repository is achieved by implementing a generic schema that stores any meta-modeled object. This means that the repository can store any entity with any structure, and this is done by **internally** defining a meta-model ontology. For example by meta modelling WSML ontology, the repository is able to store and retrieve WSML ontology. In addition, the Hibernate ORM tool is used to streamline application development, and to create an abstraction layer between the application logic and the actual RDB vendor so that the actual backing RDB may be easily replaced.

The implementation of the ORDI repository API is an additional layer based on the core repository as illustrated in the diagram below. The basic functionalities defined by the API are:

- Store
- Load
- Remove

of [WSML \[2\]](#) ontology entities.



FOR is configured to store [WSMO \[3\]](#) ontologies and [OMWG \[4\]](#) mapping documents.

3. Requirements

Nature: Java library

Interfaces (API, Web Services): a Java API

Platform: JDK 1.4

Supported standards: WSMO, ORDI

Required Libraries ([OMWG](#), [SDK Cluster](#), [WSMO-related](#)):

- [WSMO4J](#) and [WSMO API](#) is a [WSMO](#) compliant API and a reference implementation for building Semantic Web Services applications. Specifically the supported versions are: [WSMO1.2 \[3\]](#) and [WSML0.2 \[2\]](#).
- [ORDI API](#) is a repository API for WSML ontology entities.

Required Libraries (others):

- All other third-party libraries are bundled with the repository.

4. Licensing

- See Unicorn licensing agreement for DIP: [license.txt](#)

5. Installation and Usage

5.1 Installation prerequisite

Install an RDBMS, FOR will be backed by an RDBMS. A default free lightweight RDBMS is MSDE (Microsoft SQLServer Desktop Engine). MSDE may be downloaded from Unicorn FTP site: <ftp://unicorn.com> User: dipftp, Pass: 796diP.

MSDE DB server installation:

1. Extract msde.zip.
2. Run setup.exe.

A message reading: "The instance name specified is invalid" may appear at the end of the MSDE installation, please ignore the message.

3. When the MSDE installation is completed, go to Start > Settings > Control panel > Administrative tools > Services.
4. Start MSSQLSERVER service.

5.2 Installing FOR

After downloading the "for.zip" file, extract the files. The following files structure is expected:

- config directory
- lib directory
- log directory
- test directory
- util directory
- DemoOrdiRepositoryTest.java
- runTest.bat
- setUnicornRepositoryPath.bat

The DemoOrdiRepositoryTest.java file is a unit test that demonstrates how client code can interoperate with the repository via ORDİ API.

The runTest batch file runs the DemoOrdiRepositoryTest.

The setUnicornRepositoryPath batch file sets the required libs in to the classpath for convenience.

5.2 Configuring FOR with Pre-installed Database

FOR is design to be a multi DB vendor repository. currently it is tested with MS SQL Server, Oracle and IBM DB2. FOR is pre-configured to work with a local MSDE or SQL Server listening on port 1433 for convinience. This configuration can be easily adjusted in the "connect-micro-model.xml" file under "conf" directory. In addition, a sample configuration file for Oracle - "connect-micro-model_for_Oracle.xml", and for DB2 - "connect-micro-model_for_DB2.xml" can be also found under "conf" directory.

6. Usage Examples

Can be found in DemoOrdiRepositoryTest.java.

7. Future Plans

Due to the flexibility and the generic nature of the repository engine, there are inherited performance challenges that need to be addressed.

Appendix

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[4] Scharffe, François and de Bruijn, Jos. A Language to Specify Mappings between Ontologies. In IEEE SITIS'05, Yaoundé, Cameroon, November 27th - December 1st, 2005.
