



**CROSSGRID USER MANUAL**  
**WP3.4 DATA ACCESS OPTIMIZATION**

**WP3.4**

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Abstract:

This document describe briefly how to use UDAL software developed by WP3.4 within the CrossGrid project. The document is written at high technical level and requires advance knowledge about Linux operating systems as well as distributed data processing.

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## 1. INTRODUCTION

Unified Data Access Layer (UDAL) provided by task 3.4 CrossGrid project, provides a flexible architecture for storage nodes and storage centers. UDAL allows for a very flexible optimization and control of the internal behavior access to data stored in heterogeneous devices. It is fully adaptable for future purposes, but currently is used only for organizing the estimation of data access latency and bandwidth of internal storage nodes. However, it is important to notice that the provided solution could be also directly used for other purposes. The current version of UDAL is distributed together with a set of specialized components for data access cost estimation for data stored in secondary and tertiary storage

Additionally to this document, there are available an installation guide and a developer manual.

### 1.1. ABBREVIATIONS AND ACRONYMS

Castor	HSM system developed at CERN
CrossGrid	The EU CrossGrid Project IST-2001-32243
CG	The EU CrossGrid Project IST-2001-32243
CEA	Component-Expert Architecture
CEComponent	A component designed for CEA
DataGrid	The EU DataGrid Project IST-2000-25182
DRM	Disk Resource Manager
EDG	European Data Grid Project - IST-2000-25182
GSI	Grid Security Infrastructure
HSM	Hierarchical Storage Management
HPSS	High Performance Storage System
HRM	HSM Resource Manager
MSS	Mass Storage System
RLS	Replica Location Service
SOAP	Simple Object Access Protocol
SRS	Software Requirements Specification
SDD	Software Design Description
TRM	Tape Resource Manager
UniTree	Tape Archival/Management System, formerly – UniTree Central File Manager, at present – Legato DiskXtender

### 1.2. REFERENCES AND SOURCE CODE

The source code of this application and how to install it is fully described in the Installation Guide of the application. Another important document to read for more advanced users is Developers Guide.

All scientific as well as low-level technical aspects of the described within this document modules are thoroughly described in the papers below.

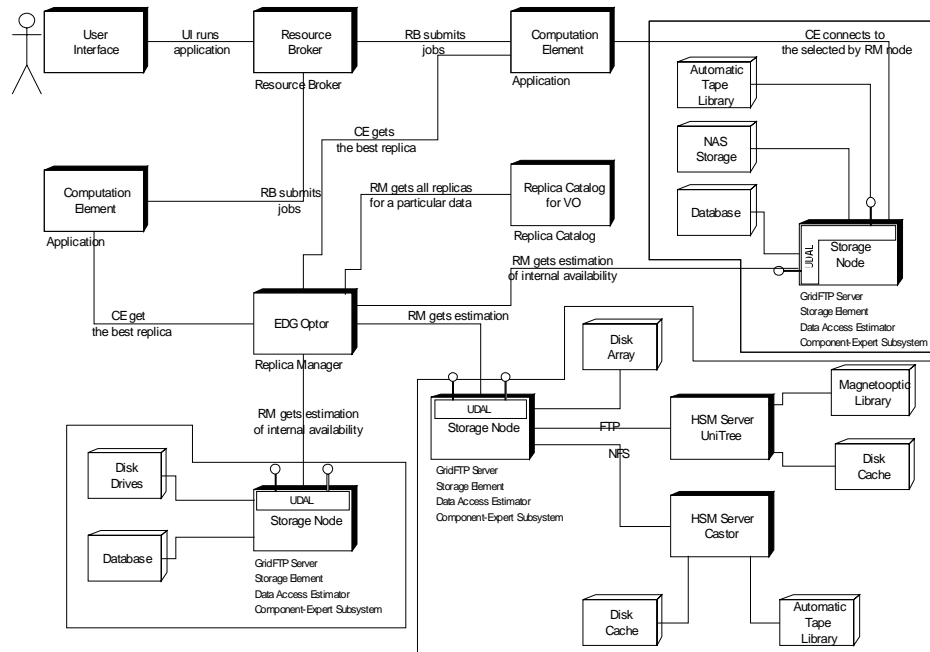
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[PrototypeDescriptionRpt.pdf](#).

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## 2. PRODUCT USAGE

Unified Data Access Layer is the software which is supposed to be transparent for grid users. In fact there is no specific interface for user allowing direct access to UDAL features.



**Fig. 1 UDAL Deployment Concept Diagram**

The presented in Fig. 1 diagram shows the general concept of UDAL deployment in the CrossGrid infrastructure. As it is easy to notice UDAL is a module installed at all Storage Elements and it communicate with other grid services via EDG Optor, which is accessible for users via EDG Reptor command line set of tools. Obviously UDAL is accessible also via SOAP or GridFTP protocol but it is possible only for developers and this way of access is mostly described in Developers Guide.

One of the UDAL features available trough Reptor/Optor command line tools or programming API is data access cost estimation to a specific data pointed at by URLs and registered in Replica Location Service.

### 2.1. RUNNING THE PRODUCT

If you run the module into the CrossGrid Testbed there are no specific requirements.

#### 2.1.1. Operating Requirements

##### 2.1.1.1. Local hardware requirements

There are no specific requirements for executing the application.

##### 2.1.1.2. Local software requirement

The program has been developed and tested on the RedHat 7.3.

##### 2.1.1.3. Grid infrastructure requirements

The program has been developed to work in the Globus testbed infrastructure. It is required user have valid proxy certificate.

### **2.1.2. Step-by-Step User Setup**

There is no specific user setup for running this application assuming that UDAL and Optor as well as Reptor have been properly installed on Grid according to description stated in Installation Guide.

## **2.2. BASIC OPERATION**

TBD

### **2.2.1. Executing from command line**

TBD

## **2.3. ADVANCED FEATURES**

Advanced options are available only for developers and are thoroughly described in Developers Guide

## **2.4. KNOWN PROBLEMS**

All the known bugs at the moment of write this manual are corrected in the available version.

### 3. INTERFACE REFERENCE GUIDE

There is no graphical user interface.

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