



# D13.16 v0.1 WSMX Triple Space Storage

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## Executive Summary

Web Service Execution Environment (WSMX) aims to facilitate the dynamic discovery, selection, invocation and inter-operation of the Semantic Web Services. In order to provide these functionalities, WSMX needs to store various data generated internally or externally. Data storage requirement can be addressed using using different storage mechanisms such as relational databases, flat file databases, RDF databases, etc.

The purpose of this deliverable is to provide an efficient storage mechanism for

addressing WSMX storage requirements. This deliverable starts by looking at current state of the art storage mechanisms, identifies the problems, analyse the requirements and provides a storage mechanism which we call as WSMX Triple Space Storage. Furthermore, the deliverable defines required access interfaces. This deliverable concludes by stating current status and future direction for developing an efficient, robust and reliable storage facility for WSMX.

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## 1. Introduction

WSMX aims to provide functionalities for dynamic discovery, selection, invocation and inter-operation of Semantic Web Services. The Semantic descriptions of the Web services are required to be registered with WSMX before they are actually been discovered, selected, mediated, and invoked. The Web service descriptions of the registered Web services needs to be stored persistently for future use.

Each event generated by WSMX components, semi processed data or intermediary results, component interfaces and system specific data that may be useful at later point in time should be stored. WSMX also needs storage for storing global information such as semantic description of registered Web services, semantic descriptions of general goals, domain specific ontologies, mediators and global interfaces of the components e.g., choreography interfaces.

This deliverable provides a scalable storage mechanism called WSMX Triple Space Storage. It defines the access interfaces and provides their implementation details.

## **2. Problem Definition**

### **2.1 Data Storage**

#### **2.1 Semantic Data Storage**

## **3. Requirements Analysis**

### **3.1 Data Persistency**

### **3.2 Context Representation**

## **4. State of the Art**

### **4.1 Relational Storage Systems**

### **4.2 Non-relational Storage Systems**

## **5. WSMX Triple Space Storage**

### **5.1 Storage Specification**

### **5.2 Architecture**

### **5.3 Implementation Approach**

### **5.4 Access Interfaces**

## 6. Conclusions and Future Works

### References

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