

**Report on Research Visit to  
University of Karlsruhe  
3.November 2004 - 3.January 2005  
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**Goal of the visit** The main goal of the visit to Karlsruhe was to facilitate a closer cooperation between Galway and Karlsruhe in the context of the WP 2.3. Especially to design an RDF-versioning system, which is meant to be the first step towards a general ontology versioning system, and to implement a first prototypical version of the system.

**Achievements** We designed and partly implemented a system for the general versioning of semantic models called SemVersion.

For many practical applications, ontologies can not be seen as static entities, they rather change over time. Support for change management is crucial to support uncontrolled, decentralized and distributed engineering of ontologies. First approaches have been described. But, there is no one yet that functions as a standard versioning system for ontologies like CVS does in the field of software development. Therefore we developed a new RDF-based versioning approach and described the new versioning system SemVersion that provides versioning for RDF models and RDF-based ontology languages like RDFS, OWL flavors or TRIPLE[4]. We designed a working methodology accompanied by a first prototypical implementation in the system SemVersion. The methodology and the system provide a well-defined core functionality for ontology versioning.

We captured the requirements for the methodology and our system in a real-life scenario from the librarian domain. Our approach is inspired by the classical CVS system for version management of textual documents (e.g. Java code). Core element of our approach is the separation of language-specific features (the diff) from general features (such as structural diff, branch and merge, management of projects and metadata). A speciality of RDF is the usage of so-called blank nodes. As part of our approach we developed a method for blank node enrichment which is required for the versioning of such blank nodes.

The SemVersion approach is motivated by the idea that there should be a general versioning system independent from a certain ontology building environment or a specific storage system. We aim at making SemVersion a practical real world versioning system. Therefore we also took the data management and the internet oriented communication architecture into account, which is an integral part of our approach, although this aspects are often not considered by academic publications but crucial for a real world system.