

# MusicMash2: A Web 2.0 Application Built in a Semantic Way

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## 1 Introduction

MusicMash2 is semantic mashup application, which is intended to integrate music-related content from various folksonomy based tagging systems and music meta-data Web services. MusicMash2 provides the functionality for users to search for information (including videos) related to artists, albums and songs. An application of this nature presents two main problems.

The first problem lies with the availability of populated domain ontologies on the Web. The Music Ontology (<http://www.musicontology.com/>) provides the main classes and properties for describing music on the Web. However, to instantiate this ontology, MusicMash2 must integrate music meta-data from various sources.

Secondly, search both within and across folksonomy based systems is an open problem. A naive approach to folksonomy search, such as those provided most tagging systems<sup>1</sup>, results in unacceptable precision in domain specific searches. The lack of search precision is due to the limitations of tagging systems themselves [3]. MusicMash2 addresses this problem by making use of the Folksonomy Search Expansion methods provided by the Taggr system [2]. The search functionality provided by Taggr makes use of the populated Music Ontology provided by the MusicMash2 system to take advantage of domain specific information when searching folksonomies.

An alpha version of MusicMash2 is available at <http://www.musicmash.org/>.

## 2 Data Sources

As mentioned in Section 1, one of main tasks for MusicMash2 is to populate the Music Ontology with information about artists, albums and songs. Users of the Music Ontology must themselves, find the information required to populate the ontology. MusicMash2 makes use of Web services which provide such information (each in their own proprietary format), such as, MusicBrainz , Last.fm and DBpedia MusicMash2 maps the data from each music meta-data Web service, to the standardised Music Ontology format and submits the populated ontology to ONTOSEARCH2 [1]. This allows for the ontological information to be queried by MusicMash2 and used by Taggr to perform searches on folksonomy based systems. Furthermore, since the populated ontology is stored in the ONTOSEARCH2 repository, it can be reused by others elsewhere on the Web.

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<sup>1</sup> YouTube Developer API: <http://www.youtube.com/dev/>

### 3 Design and Development Constraints

The main design and development constraints are related to the lack of readily available, populated domain specific ontologies on the Web. Specifically, both the Music Ontology held in ONTOSEARCH2 and the the Tagging Database held in Taggr must be populated at runtime. This clearly adds on overhead to MusicMash2, where if no information is found in the Music Ontology or Tagging Database relating to the user's search, then the appropriate information must be retrieved from external Web services. However, once retrieved, this information can be reused by MusicMash2 in later searches since it stored in the ONTOSEARCH2 repository.

### 4 Reusable Infrastructure

MusicMash2 is designed in such a way that it is possible for its infrastructure can be reused to create similar application in other domains. MusicMash2 essentially consists of three components. The first component is responsible for populating and querying the Music Ontology. The second, deals with sending search requests to Taggr to retrieve related videos. The third is the web-based GUI for the application. To create a similar application, for example in the domain of Movies, the same infrastructure could be used by modifying the three components appropriately. For example, the ontology population and querying component would be modified by swapping the Music Ontology for a Movie ontology and adding appropriate data sources.

### 5 Example Scenario

A typical scenario for MusicMash2 can be illustrated by a user searching for information related to an artist. The user first enters the name of the artist into the search box. On completion of a successful search, MusicMash2 displays information to user related to the artist. This includes a short abstract from DBpedia, the artist's discography and links to the artists homepage and Wikipedia articles. The user can also select the Video Gallery tab to display videos relating to the current artist. The Video Gallery makes use of Taggr to return high precision search results for related videos. An example artist page can be viewed at the following URL: <http://www.musicmash.org/artist/Metallica>.

### References

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3. A. Passant. Using Ontologies to Strengthen Folksonomies and Enrich Information Retrieval in Weblogs. In *Proc. of 2007 International Conference on Weblogs and Social Media (ICWSM2007)*, 2007.