

Chapter 5

A Survey on JSON Mapping With XML/RDF

Gbéboumé Crédo Charles Adjallah-Kondo

Nanjing University of Aeronautics and Astronautics, China

Zongmin Ma

Nanjing University of Aeronautics and Astronautics, China

ABSTRACT

As a data format, JSON is able to store and exchange data. It can be mapped with RDF (resource description framework), which is an ontology technology in the direction of web resources. This chapter replies to the question about which techniques or methods to utilize for mapping XML to JSON and RDF. However, a plethora of methods have been explored. Consequently, the goal of this survey is to give the whole presentation of the currents approaches to map JSON with XML and RDF by providing their differences.

INTRODUCTION

The conspicuous development in the semantic web has given birth to different data formats sanctioning exchange, management and storage of data. The challenge is to find a way for mapping a data format to another which has different structure, common (XML, JSON, RDF) and convenient dealing with different applications. First, researches stipulate that it is better to utilize JSON (JavaScript Object Notation) than XML (Extensible Markup Language derived from an older standard format called SGML). Also, XML and REST APIs can support JSON. Converting subsisting XML document to JSON became a consequential question. Albeit they have unique purport, XML has to be parsed by XML parser and JSON by a standard JavaScript function. On the other hand, verbalizing about another format, RDF (Resource Description Framework) is a standard promote mundane data format and exchange protocols on the Web. Since JSON cannot be used directly on the web of data due to certain consequential features like URIs and semantical links, the conversion from JSON to RDF is then primordial.

DOI: 10.4018/978-1-5225-8446-9.ch005

JSON designated in early 2000s (Resource Description Framework, n.d.) by Douglas Crockford, is a lightweight data-interchange format. It's a syntax sanctioning to store and exchange data. JSON is a text format predicated on Java Script programming language and is thoroughly independent language data format. It is elaborated as human-readable, "self-describing" and facile for computer to understand. It is nowadays an ideal data-interchange language on the web especially in web applications and used to supersede XML.

XML, (XML essentials, n.d.) derived from an older standard format called SGML (Standard Generalized Markup Language - ISO 8879), is text format and markup language much homogeneous to HTML. It was designed to store and convey structured data and additionally designed to be self-descriptive, simple and human-machine readable. XML was recommended by W3C (World Wide Web Consortium) in early February 1998. It is one of the most widely-used formats for sharing structured information today.

The RDF is a fundamental lower layer on top of which the semantic web is built. It is also a framework for representing information in the Web. RDF is a (Resource Description Framework, n.d.) standard model for data interchange on the Web and has features that facilitate data merging even if the underlying schemas differ, and it specifically supports the evolution of schemas over time without requiring all the data consumers to be changed. The RDF specification defines a data model and a syntax which is defined on top of the XML syntax. RDF data can be expressed with different notations like XML (for machine interchange), N3 and Turtle (human readable).

This paper elucidates the current methods that can be habituated to convert first XML to JSON and the mapping from JSON to RDF. For longtime, XML was the only option to sanction data storage and interchange. But with the apparition of JSON, it is now a popular alternative to XML for sundry reasons. The findings of this study will redound to benefit of developer dealing with APIs and users to share, exchange and store data without format issues on the web and applications.

The section one dedicatory to the conversion of XML to JSON, in particular, gives definitions, main differences and kindred attributes between them; explores methods for how this mapping can be done and conclusively explores the approach by (Falco & Thom, 2014) deeply in details. Moving on, the second part will verbalize mainly about mapping JSON to RDF. Afore this can be done, it provides definitions, the kindred attributes and convergences, analyses subsisting approaches. Furthermore, the current method to go about converting JSON to RDF is explored from the commencement to his implementation. This method emanates from Pasquale Lisena and Raphaël Troncy in Transforming the JSON Output of SPARQL Queries for Linked Data Clients. After all then comes the conclusion.

Background

This component introduces a formal data model for JSON, XML and RDF documents reflecting the comparison between these data formats. After introducing them, highlights the difference and the homogeneous attributes.

JSON Data Modeling

JSON exchanges data between browser and server. JSON is text so it can be converted in any JavaScript object and Vis versa without any complicated pursing or translation. It is built (Introducing JSON, n.d.)

20 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:
www.igi-global.com/chapter/a-survey-on-json-mapping-with-xmlrdf/230685

Related Content

A Reuse Definition, Assessment, and Analysis Framework for UML

Donald Needham, Rodrigo Caballero, Steven Demurjian, Felix Eickhoff and Yi Zhang (2005). *Advances in UML and XML-Based Software Evolution* (pp. 286-307).

www.irma-international.org/chapter/reuse-definition-assessment-analysis-framework/4940

The CORAS Methodology: Model-based Risk Assessment Using UML and UP

Folker den Braber, Theo Dimitrakos, Bjorn A. Gran, Mass S. Lund, Ketil Stolen and Jan O. Aagedal (2003). *UML and the Unified Process* (pp. 332-357).

www.irma-international.org/chapter/coras-methodology-model-based-risk/30550

The Agent Object Relationship Simulation as a Business Process

Emilian Pascalau, Adrian Giuca and Gerd Wagner (2009). *Handbook of Research on Emerging Rule-Based Languages and Technologies: Open Solutions and Approaches* (pp. 348-370).

www.irma-international.org/chapter/agent-object-relationship-simulation-business/35866

Rules Verification and Validation

Antoni Ligeza and Grzegorz Nalepa (2009). *Handbook of Research on Emerging Rule-Based Languages and Technologies: Open Solutions and Approaches* (pp. 273-301).

www.irma-international.org/chapter/rules-verification-validation/35863

Modeling XML Warehouses for Complex Data: The New Issues

Doukifli Boukraa, Riadh Ben Messaoud and Omar Boussaid (2009). *Open and Novel Issues in XML Database Applications: Future Directions and Advanced Technologies* (pp. 287-307).

www.irma-international.org/chapter/modeling-xml-warehouses-complex-data/27786