Software Requirements Specifications Document

From Standards to Ontologies - A Web-based tool to semantify/ontologize the knowledge of a standards with semantic technologies

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Project overview

Description

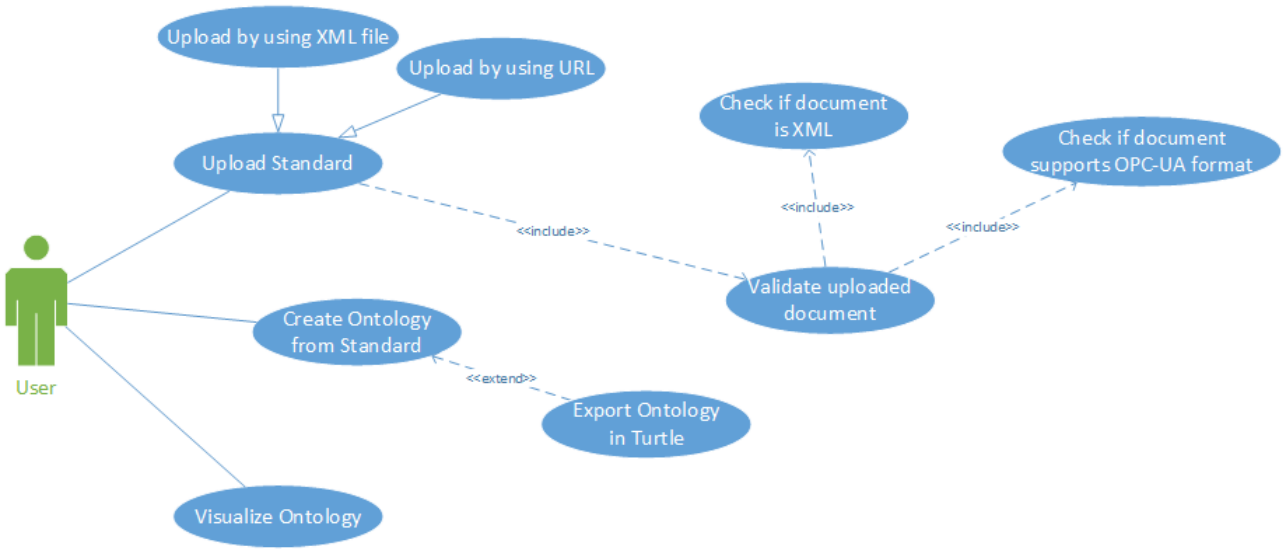
A web tool will be developed to read and analyze OPC UA standard specification documents, these will be imported and the system will provide the functionality of parsing to create a vocabulary allowing the user the edition of this vocabulary.

The development is intended to be done using web technologies such as Node.js, Express, React.js, etc.

Software requirements

Requirements	Description	Priority
Functional		
Translation of SOA OPC Schema files into OWL vocabularies/ontologies	Load and read SOA OPC Schema files and translate it into OWL vocabularies/ontologies. The load of the file could be done specifying the URL of the file or directly uploading the file.	Very high
Visualization of ontologies	The translated file will be visualized graphically in a form of graph/tree	High
Edition of vocabularies/ontologies	Once it has been obtained the ontology the user will be able to modify and update it using a visual editor	High
Management and storage of vocabularies	The user will be able to store and handle the vocabularies, having functionalities such as save, delete, save as, etc.	High
Identify Malformed XML files	The system will be able to detect XML files that not comply with the SOA OPC scheme and alert the user about it	Low
SPARQL queries support	Each of the ontologies it may be explored using the SPARQL query language	Very low
Non-functional		
Handle different format files	Manage different format files: • Turtle (.ttl) • RDF (.rdf)	Medium
Handle large files	The system will be able to load large SOA OPC files and efficiently handle and visualize them keeping a constant time performance.	Medium
Responsive interface	The system will be able to be visualized in different devices such as smart-phones, tablets and computers	Low

Use cases


Upload by using XML file
Upload by using URL
Upload Standard
Check if document is XML
Check if document supports OPC-UA format
<<include>>
<<include>>
<<include>>
Validate uploaded document
User
Create Ontology from Standard
<<extend>>
Export Ontology in Turtle
Visualize Ontology