



Advanced Ontology Development Workshop

The main goal of this workshop is to educate people responsible for creating and maintaining ontologies (ontologists) on advanced concepts and best practices for utilizing the W3C Semantic Web standards RDF, RDFS, OWL, SWRL and SPARQL in a semantic web deployment. The advanced workshop assumes that participants have a basic understanding of semantic web technologies and their design assumptions (e.g., as would be gained by completing the TopMIND training - see) <http://www.topquadrant.com/topMind.html>. In our experience, many of the ramifications of the Semantic Web technologies cannot be fully appreciated until an aspiring ontologist has spent some time working on a complex, real-world modeling problem. This workshop is targeted at ontologists at this stage of their learning. Instead of working with prepared examples (as the TopMIND training does), this workshop focuses on particular modeling challenges faced in the participants' own experience. As such, a prerequisite for this course is a modeling challenge or area for use as a workshop focus. Availability of sample data is also strongly encouraged at the outset of this workshop.

Many of the prerequisites for this workshop will be achieved as part of a Solution Envisioning process -- also offered by TopQuadrant. The Advanced Ontology Modeling Workshop is not dependent on the completion of any particular phase of the Solution Envisioning process, but should make use of any intermediate results as they are available.

The goals of this workshop are to create initial semantic models based on ontology modeling guidelines and best practices, to explore specific TopBraid solutions and alternative candidates and develop a prototype application architecture based on semantic technology standards that utilize and demonstrate the business value of ontology-based applications. TopQuadrant experts will work with personnel at the organization to understand current ontology modeling and process efforts and offer insights, guidance and recommendations.

By the close of the workshop, participants will have completed small semantic models in the chosen area(s) of focus. These sample models will demonstrate inferencing modes, information architecture and/or query scripts that address the requirements that the next draft of models must satisfy in the final semantic system.

The workshop will cover the following points using application requirements from the participating organization:

- Division of labor between inferencing, querying and coding
- Model vs. Data in ontology management
- Ramifications of semantic web assumptions — open world and unique naming
- Understand Ontology design patterns and best practices
- Common mistakes, approaches for testing and debugging of ontologies
- Lifecycle management including refactoring and splitting ontologies
- Ontology architecture - reviewing and modifying.
- Clarify and optimize the role of modeling in solution development and deployment.
- Advanced information processing — Semantic XML, spreadsheet processing, information transformation.
- Using SPARQLMotion to direct semantic data flow



- Ontology and query performance tuning

The outcome of this workshop will be a coherent and sustainable plan for satisfying organization specific goals. Technical outcomes will include artifacts such as draft ontology models, semantic architectures, data import and export plans from existing data stores (RDB, XML, etc.), queries rules and scripts for report generation, etc. These artifacts will utilize Semantic Web technology to enable durability of models and architectures in the face of future developments.

Non-technical outcomes will include a solution concept presentation and to initiate implementation of a demonstrator portal or web site to communicate to other stakeholders the possibilities and value proposition for semantic technology for customer support application management.

Outline of Proposed Agenda

Day 1	Day 2	Day 3
<ul style="list-style-type: none">▪ Semantic Web Review – RDF/S, OWL, SWRL, SPARQL▪ Identification of Goals<ul style="list-style-type: none">- commonality / variability- competency questions- Information sources- Interoperability/distribution requirements- Straw-man models▪ Technical infrastructure<ul style="list-style-type: none">- editing and development- tooling support / capabilities- evolution and version control	<ul style="list-style-type: none">▪ Treatment of data sources<ul style="list-style-type: none">- Data import- Mapping data in an ontology- Semantic data transform (semantic XML, spreadsheets, etc.)▪ Ontology modeling intensive<ul style="list-style-type: none">- modeling patterns / practices- inferencing vs. query- scripting▪ Ontology architecture<ul style="list-style-type: none">- integration / federation- lifecycle management▪ Reviewing, testing, debugging	<ul style="list-style-type: none">▪ Application technical architecture<ul style="list-style-type: none">- component / platform alternatives and tradeoffs▪ Implementation guidance for building demo web site / portal▪ Identification of future step<ul style="list-style-type: none">- Data sources- Model extensions- Architecture extensions- Application extensions▪ Integrating the presentation and demonstration of Solution Concept<ul style="list-style-type: none">- business case / value proposition- scaling and scoping the effort for full domain model

Skills and Knowledge Gained:

- Division of labor between inferencing, querying and coding
- Ramifications of semantic web assumptions — open world and unique naming
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- Using SPARQLMotion to direct semantic data flow
- Ontology performance tuning

TopQuadrant will provide two senior consultants to facilitate the workshop and deliver services as outlined above on three full days (8+ hours).