

Press Release:

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First Platform for Semantic Web Rules Now Includes Web Services Support and More: SweetRules V2.1 Released Open Source

CAMBRIDGE, MA, USA, April 25:

SweetRules, a uniquely powerful integrated set of tools for semantic web rules and ontologies, is newly enhanced in V2.1 with several first-of-a-kind capabilities, including support for rule-triggered WSDL Web Services, RuleML presentation syntax for user-friendlier editing, an open-source courteous compiler enabling prioritized conflict handling, and full non-stratified negation-as-failure via Jess production rules, along with a new installation wizard and additional examples of e-business application scenarios. The international SweetRules team today released V2.1 free on SemWebCentral, the semantic web community's largest repository for open source software tools, at <http://sweetrules.semwebcentral.org>.

Led by Benjamin Grosf, a professor of information technology at the Massachusetts Institute of Technology's Sloan School of Management, the SweetRules project team also includes researchers from University of Maryland Baltimore County, BBN Technologies, Stanford University, and University of Zurich, and has cooperation from researchers at IBM, HP, University of Karlsruhe, National Research Council of Canada and University of New Brunswick, State University of New York at Stonybrook, and Sandia National Labs.

SweetRules revolves around the RuleML emerging standard for semantic web rules, and supports the OWL standard for semantic web ontologies. RuleML and OWL use XML and, optionally, RDF. Available under the liberal LGPL open source license, SweetRules is the first platform for semantic web business rules.

SweetRules supports the powerful Situated Courteous Logic Programs extension of RuleML, which includes prioritized conflict handling and procedural attachments for actions and tests. SweetRules' capabilities include first-of-a-kind semantics-preserving translation and interoperability between a variety of rule and ontology languages (including XSB Prolog, Jess production rules, HP Jena-2, IBM CommonRules, and the SWRL subset of RuleML), highly scalable backward and forward inferencing, and easy merging of heterogeneous distributed rulebases/ontologies.

Speaking on April 20 to an audience of 350 CIO's, CTO's, and other senior industry participants at the 2005 MIT Information Technology Conference, Grosf overviewed SweetRules and gave his vision of how semantic web rules will transform business: "At the 50,000 foot level, it's about using knowledge-based techniques to engineer the services part of the economy". Responding to the conference's theme – "IT Innovation: Emerging Priorities" – Grosf roadmapped emerging opportunities for rule-based policies in the areas of e-commerce, authorization, and contracting. Semantic web rules, Grosf concluded, "offer potential major advantages for enterprise integration, change management, business process communication, and compliance transparency – and thus business value from significantly lowered life cycle costs and increased strategic agility".

SweetRules' pluggability and composition capabilities enable new components to be added relatively quickly. Implemented in Java, SweetRules has a compact codebase: about 20,000 lines of code total for several dozen tools. This extensible kernel then enables effective interoperation among other rule (and ontology) systems whose combined code base totals an estimated several

million lines. The openness of its source provides a blueprint for rule technology vendors and academics who wish to develop RuleML-based capabilities and interoperate their own systems with the other systems supported by SweetRules and RuleML.

"For many years, the semantic web community has focused heavily on the creation of ontologies that define the concepts and relationships within application areas. The SweetRules initiative is important because it provides an integrated framework with which developers can represent what an intelligent system actually should *do* with the static knowledge represented in ontologies. The use of rules is an important step toward the creation of intelligent web-based applications," said Mark Musen, head of Medical Informatics at Stanford University. Musen leads the Protégé semantic web knowledge-base editor toolkit project, and chairs the 2005 International Semantic Web Conference.

SweetRules' development has been largely funded by the DAML (DARPA Agent Markup Language) program, which has pioneered US basic research in the area of the semantic web. The SweetRules team is collaborating closely with the RuleML Initiative, and is also collaborating with the Semantic Web Services Initiative and the Web Services Mediation Language effort. Through these, it is cooperating with the World Wide Web Consortium, Oasis, and Object Management Group standards bodies, as well.

V2.0, the first open source version, was released in Nov. 2004. Hundreds of users have already downloaded SweetRules, after its well-received demonstrations in detailed presentations this winter at the International Semantic Web Conference's tutorial program in Japan and at the DAML Principal Investigators Meeting in San Antonio, where it was highlighted by DARPA.

The major new technical features in V2.1, enhancing V2.0, include in particular:

1) WSDL Web Services are permitted as procedural attachments. Initially, this is just for effecting not yet sensing. Rules can thus directly trigger WSDL Web Services as actions. This is possibly a first-ever capability for any rigorously semantic rule system.

2) An installation wizard, with selective configuration, is provided. This reduces installation effort by 5-10X.

3) A new courteous compiler, the first ever in open source, is provided. This modular component enables the Courteous prioritized conflict handling expressive feature to be added to any rule system that supports negation-as-failure.

4) Full non-stratified NAF (negation-as-failure) is newly supported in SweetJess, the component that does translation and inferencing from RuleML into Jess production rules. This is a first-of-a-kind capability for any production rule system.

5) RuleML/SWSL presentation syntax support is newly provided. The presentation syntax is a concise ASCII syntax that is user-friendlier for editing than XML syntax. This tool is the first ever to provide such support. Initially, this is just a generator not yet a parser.

In addition, V2.1 includes:

6) More application scenario examples, e.g., multi-agent e-commerce security/trust authorization and policy management (credit).

7) General polishing, including augmented documentation.

The lead developer for the V2.1 enhancement was Shashidhara Ganjugunte, a masters student at University of Maryland Baltimore County, who worked under the overall design supervision of Grosf. Ganjugunte was lead developer for the majority of the V2.0 code as well. Other SweetRules project core team members include Mike Dean, Said Tabet, Chitravanu Neogy, Sumit Bhansali, Timothy Finin, Anupam Joshi, and Dave Kolas. Additional team members include Mark Musen, Martin O'Connor, and Abraham Bernstein.