



## D9v01. WSMO Editor

WSMO Working Draft 07 July 2004

**This version:**

<http://www.wsmo.org/2004/d9/v0.1/20040714>

**Latest version:**

<http://www.wsmo.org/2004/d9/v0.1/>

**Previous version:**

<http://www.wsmo.org/2004/d9/v0.1/20040629>

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This document is also available in non-normative [PDF](#) version.

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## 1. Introduction

This prototype is intended to enable interested parties to experiment with the formal description provided by WSMO. It is based on the Flora Query Tab [[Sintek, 2001](#)] written by Michael Sintek. Note that there have been no functional changes to the software since the 19th April 2004.

## 2. Download

There are two download options:

- [Full](#) WSMOTab including Flora
- [Core](#) only the WSMOTab library (updates only)

The latter is intended for people who want to upgrade to a newer version of the plugin, in which case there is no need to reinstall the Flora engine.

## 3. Installation

The WSMOTab is a plug-in for Protege [[Crubézy et al., 2004](#)] (build 85, compiled for Protégé 2.0 or above).

### Full Installation (first install)

- Get the recommended [build](#) of Protege (see above)
- Download this [zip file](#) and unzip it's file to e.g.: "C:\WSMOTab" (make sure that your path does not contain spaces, since it was reported that xsb does not work properly in that case)
- Copy the "WSMOTab.jar" and "antlr.jar" into your protege plug-in directory (e.g. "C:\Program Files\Protege\_2.0\plugins")
- Add the following configuration parameters to your protege.properties file:

```
flora.directory=C:\WSMOTab\tmp\
flora.xsb.command=C:\WSMOTab\XSB2.2-stderr\config\lx86-pc-windows\bin\xsb
flora.xsb.stderr=true
Adapt the paths to your system if necessary.
```

- Start Protege and open the WSMO\_Lite project ("C:\WSMOTab\examples").

### Minimal Installation (Core - updates only)

- Download this [zip file](#) and unzip it into your existing WSMOTab directory (e.g. "C:\WSMOTab") and copy WSMOTab.jar and antlr.jar into your protege plug-in directory (e.g.: "C:\Program Files\Protege\_2.0\plugins")

## 4. Documentation and Example

The current version of the Editor implements WSMO-Standard V02 [Roman et al., 2004]. Please note that this is an early release, a lot of improvements are needed.

**Limitations:** The meta model for the ontology is simplified (according to the OKBC compliant meta model of Protege, i.e. we support at the moment concepts (classes) and attributes (facets)). It is currently not possible to modularize ontologies. All information (WSMO, domain ontology and instance data are exported to Flora).

**Usage:** After starting Protege load the WSMO ontology that came with the zip file ("C:\WSMOTab\examples"). In the classes and instances Tab you can maintain your domain ontology. Within the Web Service Tab you can create the annotation for your service. Note, that all instances will be exported into a separate file (when invoking Flora), so you can browse through the relevant F-logic [Kifer et al., 1995] syntax.

Within the Flora Tab, you can add additional axioms to the knowledge base and execute specific queries. For a more detailed presentation on this feature, please refer to the explanations given at [Sintek, 2001] of the Flora Tab by Michael Sintek.

**Screenshots:**

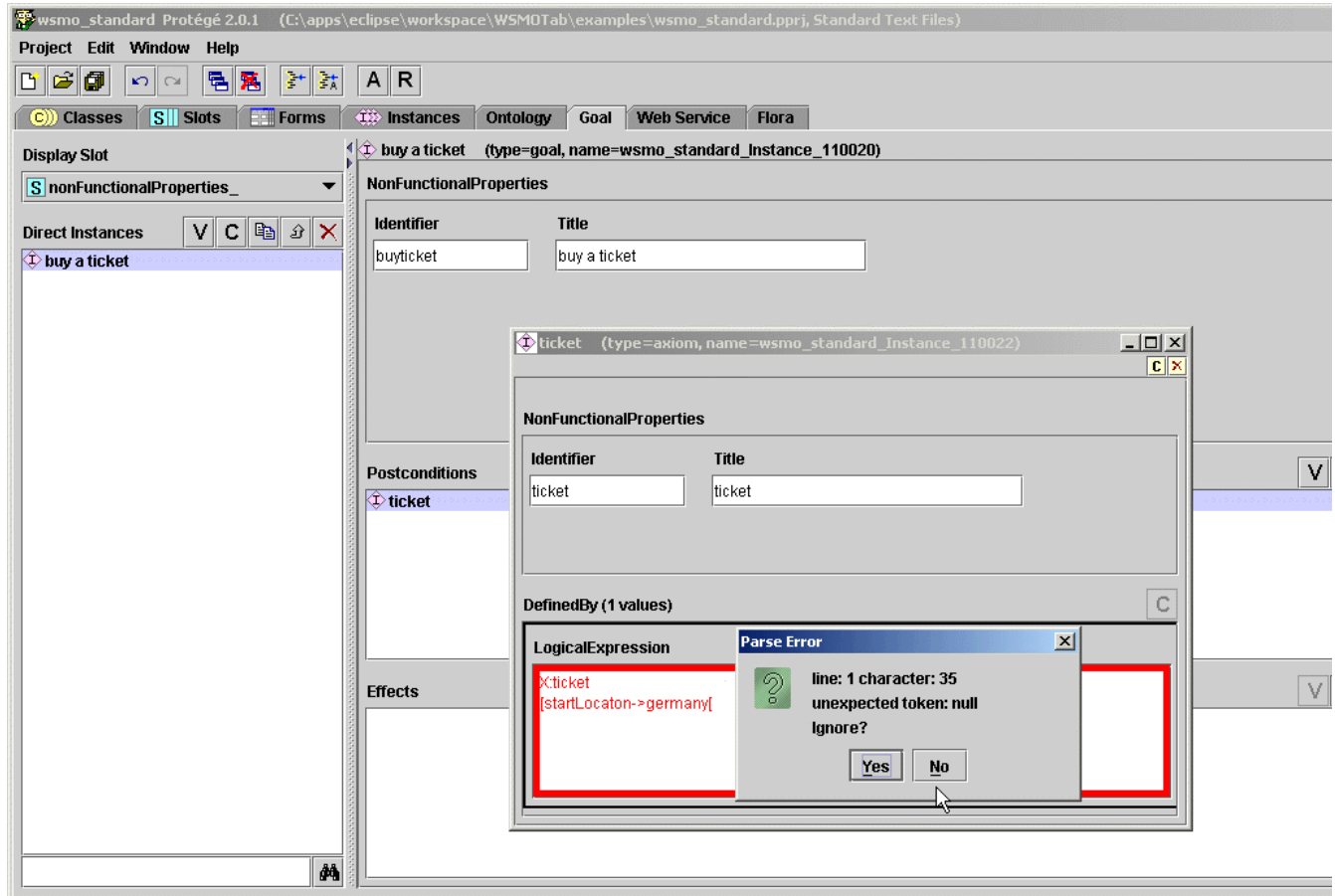


Figure 1: Axiom definition (syntax check)

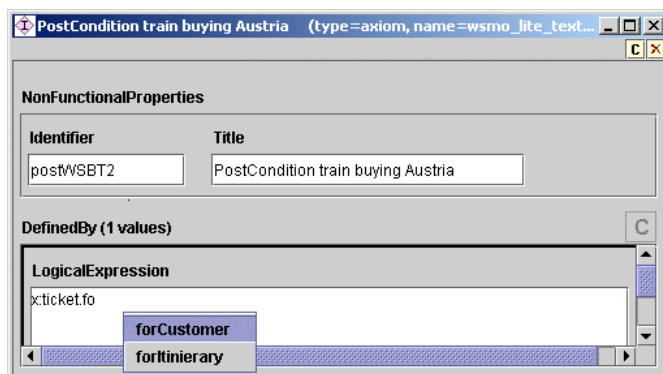


Figure 2: Syntax completion

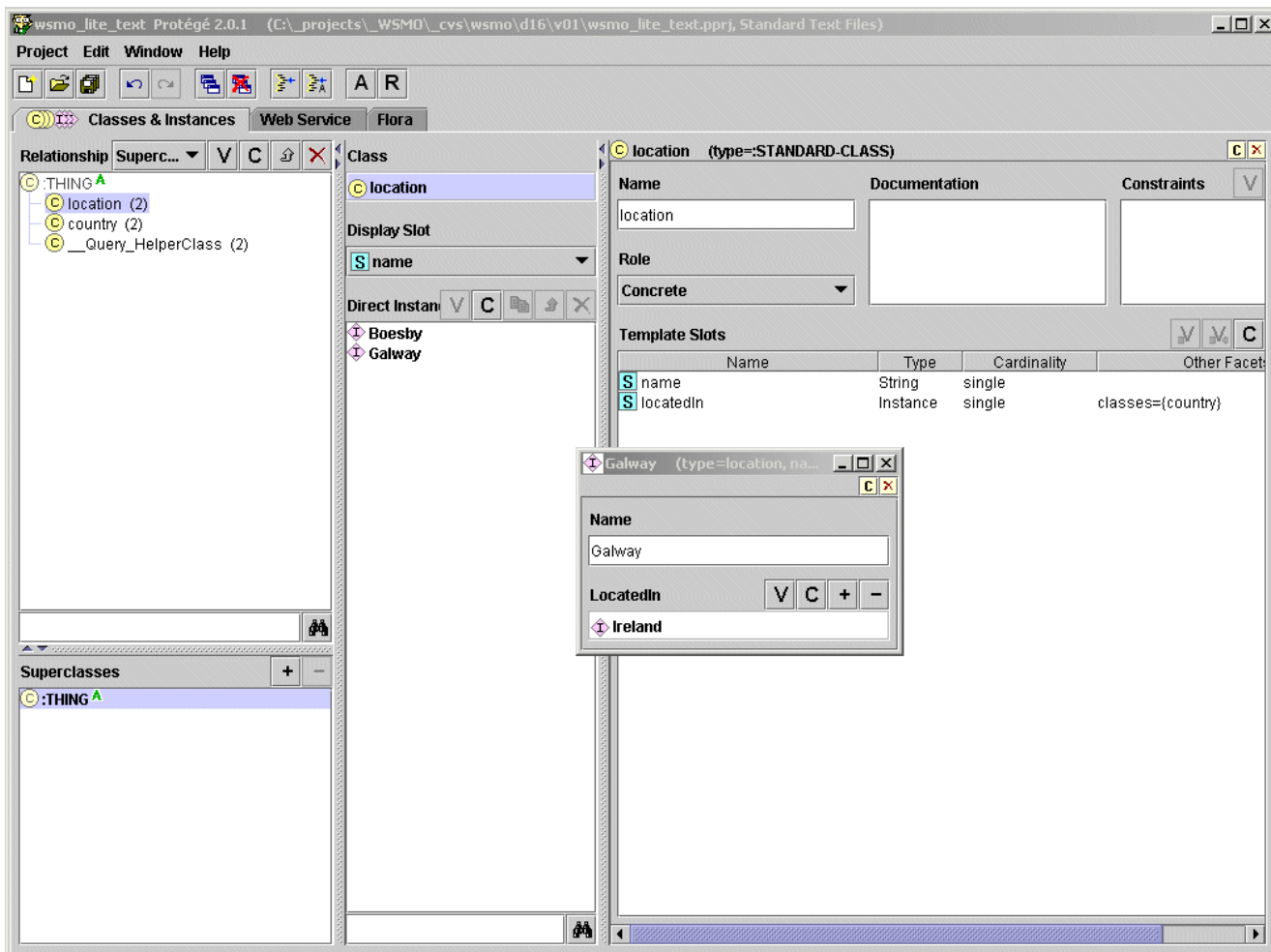


Figure 3: Ontology and instance construction

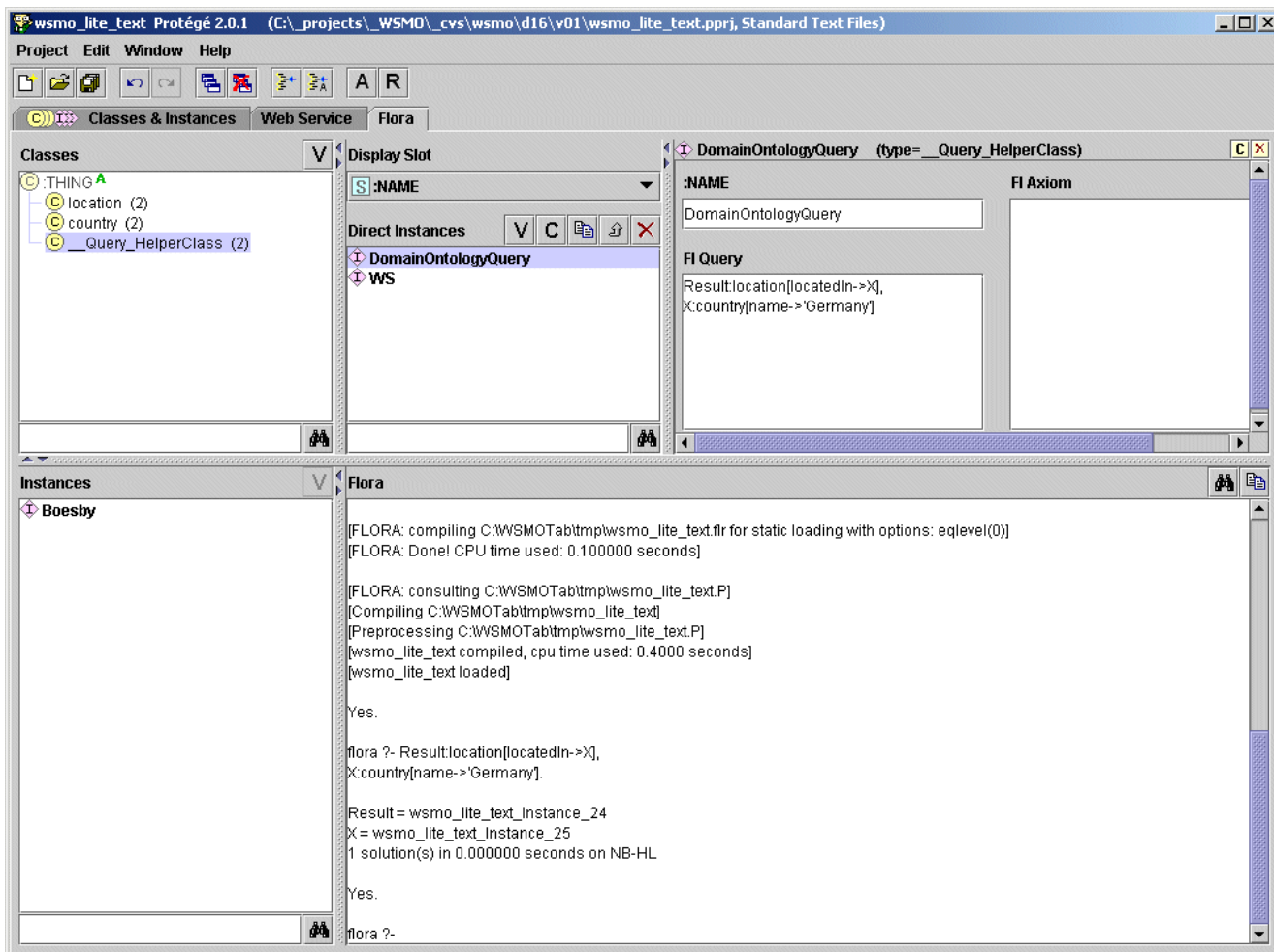


Figure 4: Interface to Flora

**Development:** A short documentation on the development environment can be found [here](#).

**JavaDoc:** The Java Documentation can be found [here](#).

## 5. Discussion, Future and Related Work

This Protege Plug-in can be seen as an early prototype that explores the possibility to integrating the WSMO Editor into a common ontology environment such as Protege. Other efforts, such as the second version of the SWWS Studio (WSMO Edition) are implemented as a standalone java application. It is available from <http://stronghold.sirma.bg/swws/> and offers support for all language constructs defined in the WSML version from the 18th of April, 2004 (<http://www.wsmo.org/2004/d16/d16.1/v0.2/20040418>).

However the concrete syntax for the annotation of WSMO concepts significantly changed in the past few months. The concrete syntax specification can be found in WSML Deliverable 16.1 (BNF grammar for WSML language), which is applied in WSMO Deliverable 3.2 (WSMO Use Case Modeling and Testing) and the corresponding conceptual model is defined in WSMO Deliverable D2 (Web Service Modeling Ontology - Standard). So far only the aspects dealing with ontology definition and their usage in the web service annotation, have been studied in detail in those documents, but a full WSMO Editor is also expected to deal with the interfaces (choreography and orchestration), including a way to ground a Service Description to a concrete technology (e.g. with a WSDL document). Additionally also Mediators need to be handled. Given that, a plug-in designed for a pure ontology editing environment, such as Protege, might in future be too inflexible to handle all the requirements. WSMO has defined its own Meta-Model for ontologies, which uses different terminology and concepts (w.r.t. to the OKBC model used by Protege).

For the above mentioned reasons we are currently considering building a new editor not based on Protege and currently gathering requirements for it. Here we just give a brief list of aspects to be considered:

- Graphical User Interface design all description elements of WSMO
- Export and Import Interface to different repositories (e.g. WSMO Registry)
- Export and Import of Ontologies in different formats (e.g. OWL)
- Integration of Reasoning Support (e.g. by conversion to a specific syntax (e.g. flora2) and execution in an appropriate reasoner).
- Mapping Support for a concrete grounding of the conceptual descriptions (e.g. WSDL)

Note that this list does not claim to be complete, but it should outline the broad scope of such an editor. It also illustrates that a plug-in architecture is needed.

## 6. Change Log

The following changes have been made with respect to the version 0.1 from the 29th of June 2004:

- Proofreading."

## 7. References

**[Crubézy et al., 2004]** Monica Crubézy, Olivier Dameron, Ray Ferguson, Holger Knublauch, Mark Musen, Natasha Noy, Daniel Rubin, Samson Tu, Jennifer Vendetti. *Protege Ontology Editor*, the Stanford University School of Medicine, available from <http://protege.stanford.edu/>.

**[Kifer et al., 1995]** M. Kifer, G. Lausen, and James Wu: Logical foundations of object oriented and frame-based languages. *Journal of the ACM*, 42(4):741-843, 1995.

**[Sintek, 2001]** M. Sintek. *The Flora Query Tab*, German Research Center for Artificial Intelligence, available from <http://www.dfki.uni-kl.de/~sintek/FloraTab/>.

**[Roman et al., 2004]** D. Roman, U. Keller, H. Lausen (Eds.): *D2v03. Web Service Modeling Ontology - Lite (WSMO-Lite)*, version 0.3 available at <http://www.wsmo.org/2004/d2/v0.3/20040329/>

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[webmaster](#)