Agenda

• Tool features
• List of tools
• Octopus (version 2.2.0)
• Demo of Octopus
• USE (version 2.3.1)
• Demo of OCLE
Desired features

• Syntax checking
  – Grammar
  – Type checking
  – Undefined class, attributes, …

• Semantic checking
  – Constraint incompatibility: conflicting constraints
  – Validation of OCL constraints

• Generate Java code

• Generate SQL statements
<table>
<thead>
<tr>
<th>Syntax</th>
<th>Verification</th>
<th>Constraint Incompatibility</th>
<th>Java code</th>
<th>SQL</th>
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<td>Octopus [4]</td>
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<tr>
<td>OCLE [5]</td>
<td>✓</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
Other tools

- **Oclarity**: Plugin for Rational Rose. ([http://www.empowertec.de/products/rational-rose-ocl.htm](http://www.empowertec.de/products/rational-rose-ocl.htm))


- **Open Source Library for OCL (OSLO)**, University of Kent, 2005 ([http://oslo-project.berlios.de/](http://oslo-project.berlios.de/))


- **“KeY”**, University of Karlsruhe, 1998 ([http://key-project.org](http://key-project.org))
Tools

• Octopus: http://www.klasse.nl/ocl/index.html
• OCLE: http://lci.cs.ubbcluj.ro/ocle/index.htm
Octopus (version 2.2.0)

- Plugin for Eclipse
- Conforms to OCL version 2
- Can perform syntax checking on OCL expressions
- Can transform UML model and OCL constraints to Java code
Steps in using Octopus

• Create Java project or an Octopus project
• Create the UML model
• Create OCL expressions
• Check the OCL expressions
• Generate Java code
Creating a project

• File ➔ New ➔ Project ➔ Java ➔ Java Project
• Add Octopus Nature to the project
Create UML model

• Import through XML Metadata Interchange (XMI) file or

• Textual representation of UML:
  – Each package in separate file. Subfolders represent sub-packages.
  – File must begin with “<package> DIRNAME” and ends with “<endpackage>”
  – Class is written between “<class>” and “<endclass>” tags.
  – Each association is written near the end of file along with the multiplicity.
XMI support

- Supports XMI generated by following tools:
  - Poseidon for UML Standard Edition 2.4.1 (URL: http://www.gentleware.com)
  - MagicDraw 7.5 beta (URL: http://www.magicdraw.com)
  - Together
  - Objecteering
  - Enterprise Architect
View UML model

• Octopus ➔ Show UML model
• “Add UML elements” icon
Create and check OCL expressions

• Import from examples
• Project ➔ Clean, Project ➔ Build Project
  or set the Project ➔ Build automatically
USE (version 2.3.1)

• Standalone application.
• Conforms to OCL version 2.
• Can perform syntax checks.
• UML model and OCL constraints are verified by creating objects and assigning values to them.
• Can generate Java code.
OCLE (version 2.0)

- Conforms to OCL version 2
- Can perform syntax checking on OCL expressions
- Transform the UML model to Java code
References

   http://www.cybernetic.org/
   http://dresden-ocl.sourceforge.net/index.html
[3] USE, Martin Gogolla, Mark Richters, 2001,
   http://www.db.informatik.uni-bremen.de/projects/USE/