

VizzAnalyzer – A Reverse Engineering Framework

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The VizzAnalyzer is a framework designed to support maintenance and re-engineering of software. It allows to integrate arbitrary reverse-engineering tools, i.e. tools for program analysis and/or visualization. Then the VizzAnalyzer can interactively and iteratively retrieve program information, focus, analyze, and visualize it. For more information about architecture, design and functionality refer to [3].

Currently, the VizzAnalyzer framework connects different in-house and external reverse-engineering tools:

- Recoder [2] is a Java framework for source code meta programming aimed to deliver an infrastructure for Java analysis and transformation tools.
- CrocoPat [1] manipulates relations of any arity, including graphs. Its query and manipulation language is based on first-order predicate calculus.
- yEd [5] is a Java graph editor that can be used to generate drawings and apply automatic layouts to all kinds of diagrams and networks.
- Microsoft Excel is used for statistic analyses on metrics and their visualizations.
- WilmaScope [4] is a Java3D application which creates real time 3d animations of dynamic graph structures.
- Vizz3D is our own 3D visualization framework, allowing the illustration of program information through two main rotary slides: Layouts and Bindings.
- Analyzer is our own analysis component. It allows to perform focusing on program information, i.e. aggregation, filtering and merge of information.

A screenshot of the VizzAnalyzer framework is shown in Figure 1. The has three main menu entries Frontends, Analyser and Viewers correspond to the three main variation points for plugged-ins.

With the VizzAnalyzer we have analyzed the VizzAnalyzer itself (besides several other project). Figure 2 shows one view on the current architecture of the VizzAnalyzer using the yEd plug-in. One recognizes the following components: the Core is illustrated in the middle-upper part, the Vizz3D to the left, the Recoder to the right and the Analyzer is adjacent to and below the Core. It is no mistake that the Analyzer has a higher coupling to the Core since it offers more than one service (focusing, metric and other high level analysis).

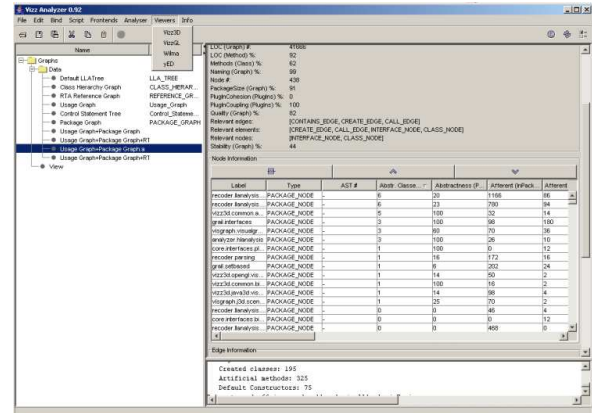


Figure 1: GUI of the VizzAnalyzer Framework

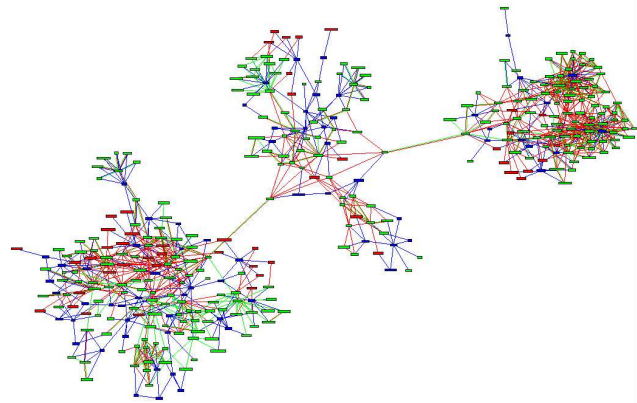


Figure 2: VizzAnalyzer Architecture

- [1] D. Beyer and C. Lewerentz. CrocoPat: Efficient Pattern Analysis in Object-Oriented Programs. In *11th Int. Workshop Reverse Engineering, Portland, USA*, May 2003.
- [2] A. Ludwig. Recoder. <http://recoder.sf.net>, 2002.
- [3] T. Panas, J.Lundberg, and W. Löwe. Reuse in Reverse Engineering. In *12th International Workshop on Reverse Engineering, Bari, Italy*, June 2004.
- [4] Wilmascope 3D. <http://www.wilmascope.org/>, 2004.
- [5] yWorks. <http://www.yworks.com>, 2004.