

Visualization of Code Component Architecture in Open Source Software Products

Summary

The reuse of Free/Libre and Open Source Software (FLOSS) components is becoming more prevalent. Because of that, software developers need to understand the code component architecture of their products and projects.

We called this component architecture the product model and developed a tool that derives this model from build artifacts (build scripts and source files). Besides a deeper understanding of the component architecture, the tool allows applying of different algorithms on each component and its metadata. One use case for this tool is license compliance checking, where a license mismatch between all components of a software project can be detected.

The goal of this master thesis is to develop a web-UI to visualize the component graph of an Open Source Software project in a meaningful way.

An Open Source Software (OSS) project can quickly reach a high number of included components (with transitive dependency). Therefore a simple visualization of all components and its dependencies is insufficient and results in a big ball of mud.

Work Results

- Literature review
 - Code component architectures, component-based architectures
 - Visualization concepts
 - Existing software, like Graphviz or D3.js
- Thesis methods
 - Definition of requirements.
 - Design and implementation of a solution.
 - Evaluation of work.
- Thesis results
 - A concept about how to visualize a component graph.
 - Implement a web-UI to visualize a component graph.
 - Provide some abstraction of the component graph.
 - Provide detail views for a single component.

Supervisor

Andreas Bauer, andi.bauer@fau.de;

Prof. Dr. Dirk Riehle, dirk.riehle@fau.de

Open Source Research Group, Computer Science Department, Friedrich-Alexander University

More information: <http://osr.cs.fau.de/theses/resources/>