

Bill of Materials Generation and Tracking

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. Another important use case is the creation of a Software Bill of Materials (BOM) artifacts. The BOM describes the components in a product.

The goal of this bachelor thesis is to design and develop a solution for automated generation and tracking of Bill of Materials artifacts.

Work Results

- Literature review
 - Existing standards, e.g. SPDX
- Thesis methods
 - Definition of requirements.
 - Design and implementation of solution.
 - Evaluation of work.
- Thesis results
 - Design the structure of a Bill of Materials artifact (in Java).
 - Consider existing standards.
 - Implement a generator for Bill of Materials artifacts.
 - Automated creation of BOM artifacts.
 - SPDX artifact
 - Simple readable text document
 - Tracking of changes in BOM artifacts.
 - Can be used in a continuous integration / continuous deployment pipeline.

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