Manifest Generation

Revision

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Author

Charles Wilson

Abstract

This document describes the process used to generate the vehicle manifest.

Group / Owner

DevOps / Information Systems Security Developer

Motivation

This document is motivated by the need to adopt best practices regarding creation of vehicle manifests, to allow for certification of compliance to standards such as **ISO/SAE 21434** and **ISO 26262**.

**Note:** This document is not subject to certification body review.

License

Overview

The vehicle manifest is a comprehensive listing of all software in the vehicle. Given the complexity of autonomous vehicles, the manifest represents not only simple embedded systems, but also highly complex sensors and server-class system computers. The manifest organizes a collection of Software Bills-of-Material (SBOMs).

The following diagram illustrates the process to be used in the creation of the manifest:
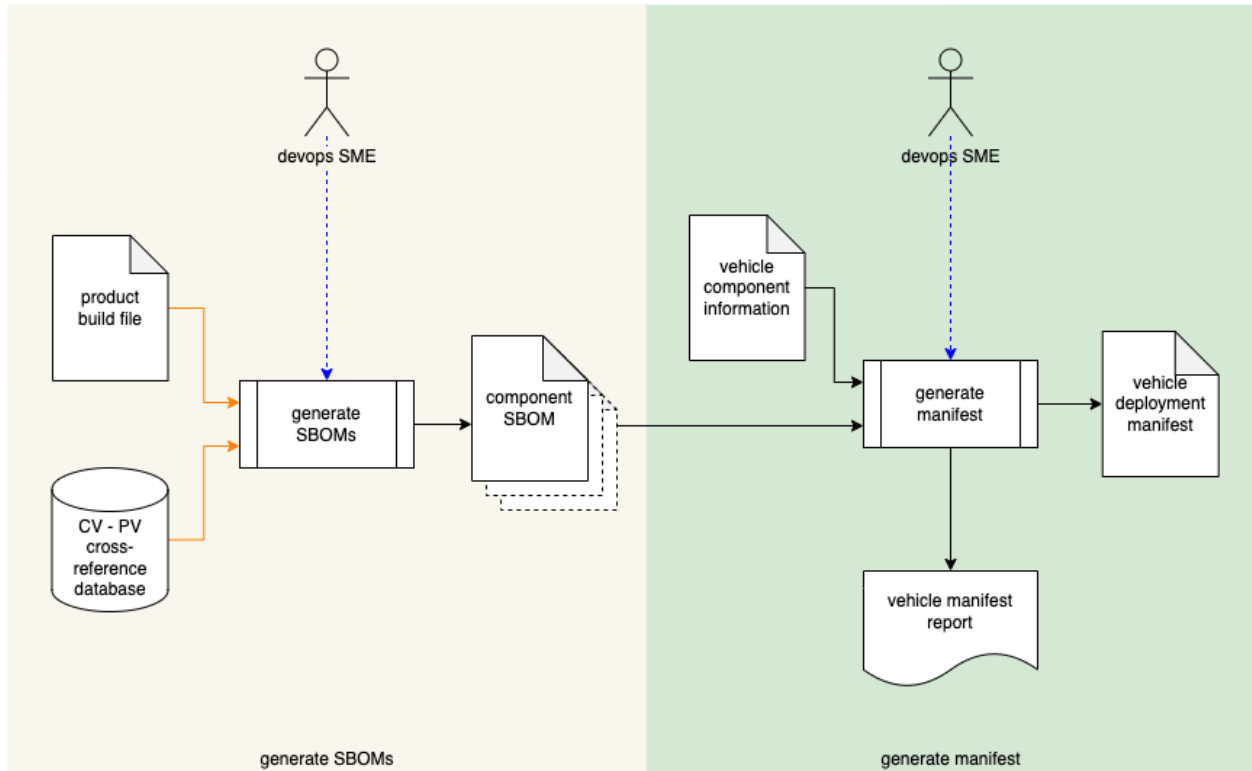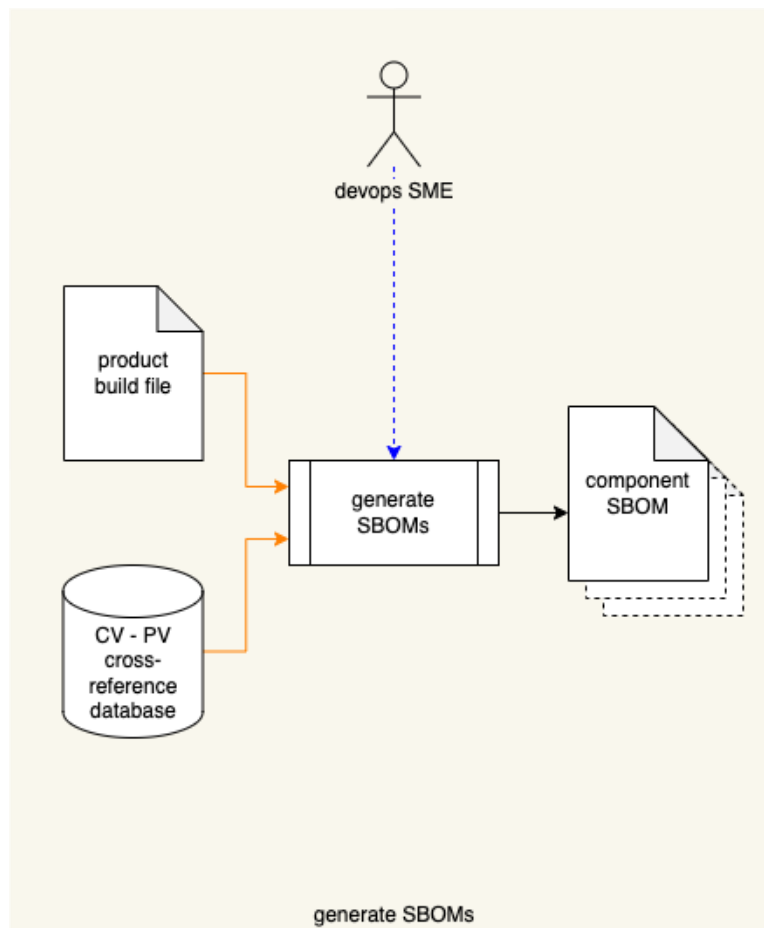

Note: The overall SBOM lifecycle is addressed in **Software Bill of Materials** [1].

Process

Generate SBOMs

|	
Inputs	Product build file Component / version – product / version cross-reference database
Outputs	Component SBOM(s)
Participants	Devops SME (optional)

generate SBOMs

Using the **product build file** and the **component / version – product / version cross-reference database** [2], SBOMs are generated. This operation may be fully automated or performed by a devops SME. The output of this process is a set of **component SBOM**s.

Note: Specific tooling [5, 6], formats (**SPDX** [7], **SWID** [8, 9]), and embodiments (**XML**, **JSON**) of the SBOM are not the subject of this document.

Generate Manifest

Inputs	Component SBOM(s) Vehicle component information
Outputs	Vehicle deployment manifest Vehicle manifest report
Participants	Devops SME (optional)
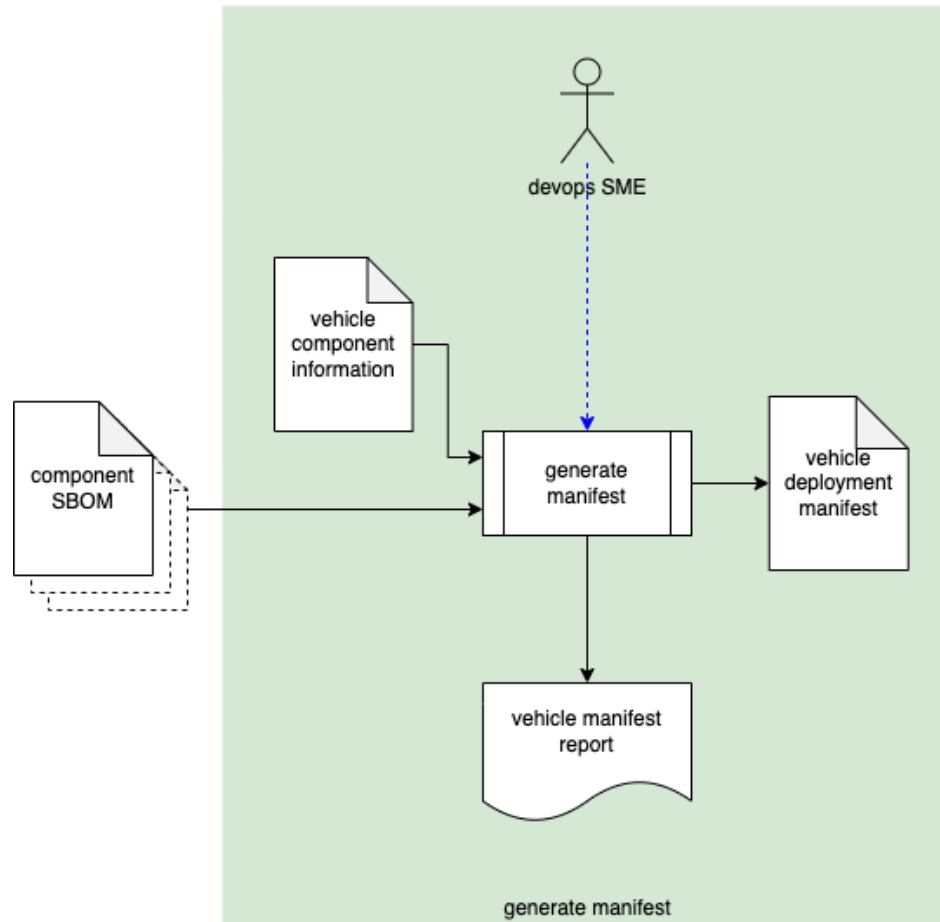
generate manifest

Using the **component SBOM**(s) and **vehicle component information**, a manifest is created. This operation may be fully automated or performed by a devops SME. The result is a **vehicle deployment manifest**. A **vehicle manifest report** is generated.

Note: The format and embodiment of the **vehicle deployment manifest** is not addressed in this document.

References

1. **Software Bill of Materials** (AVCDL elaboration document)
2. **Component / Version – Product / Version Cross-reference Document** (AVCDL secondary document)
3. **Code Protection Plan** (AVCDL secondary document)
4. **SOFTWARE BILL OF MATERIALS**
   https://www.ntia.gov/SBOM
5. **Tooling Ecosystem working with SPDX**
   https://docs.google.com/document/d/1A1jFIYihB-IyT0gv7E_KoSjLbwNGmu_wOXBs6siemXA/edit
6. **Tooling Ecosystem working with SWID**
   https://docs.google.com/document/d/1oebYvHcOhtMG8Uhnd5he0l_vhty7MsTjp6fYCOwUmwM/edit
7. **Software Package Data Exchange® (SPDX®)**
   https://spdx.dev/wp-content/uploads/sites/41/2017/12/spdxversion2.1.pdf
8. ISO 19770-2:2015 **Information technology - IT asset management - Part 2: Software identification tag**
   https://www.iso.org/standard/65666.html
9. NIST IR 8060 **Guidelines for the Creation of Interoperable Software Identification (SWID) Tags**
   https://nvlpubs.nist.gov/nistpubs/ir/2016/NIST.IR.8060.pdf