List of Tools and Components Used

Revision

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SME

Charles Wilson

Abstract

This document describes the process to track the software used in the creation of an autonomous vehicle.

Group / Owner

Development / Software Developer

Motivation

This document is motivated by the need to have formal processes in place tracking the tools and components used in creation of safety-critical, cyber-physical systems for certification of compliance to standards such as **ISO/SAE 21434** and **ISO 26262**.

License

Overview

In order to ensure the security of the software to be produced, it is necessary to validate and enumerate the software used in its creation. The process of selection and validation of the tools used is documented in the **List of Approved Tools and Components** secondary document. During the actual creation of the software, it is necessary to verify that the tools and components being used are the ones approved during that process.

Below is the overview of the process use to verify that the appropriate tools / components are being used for product creation.
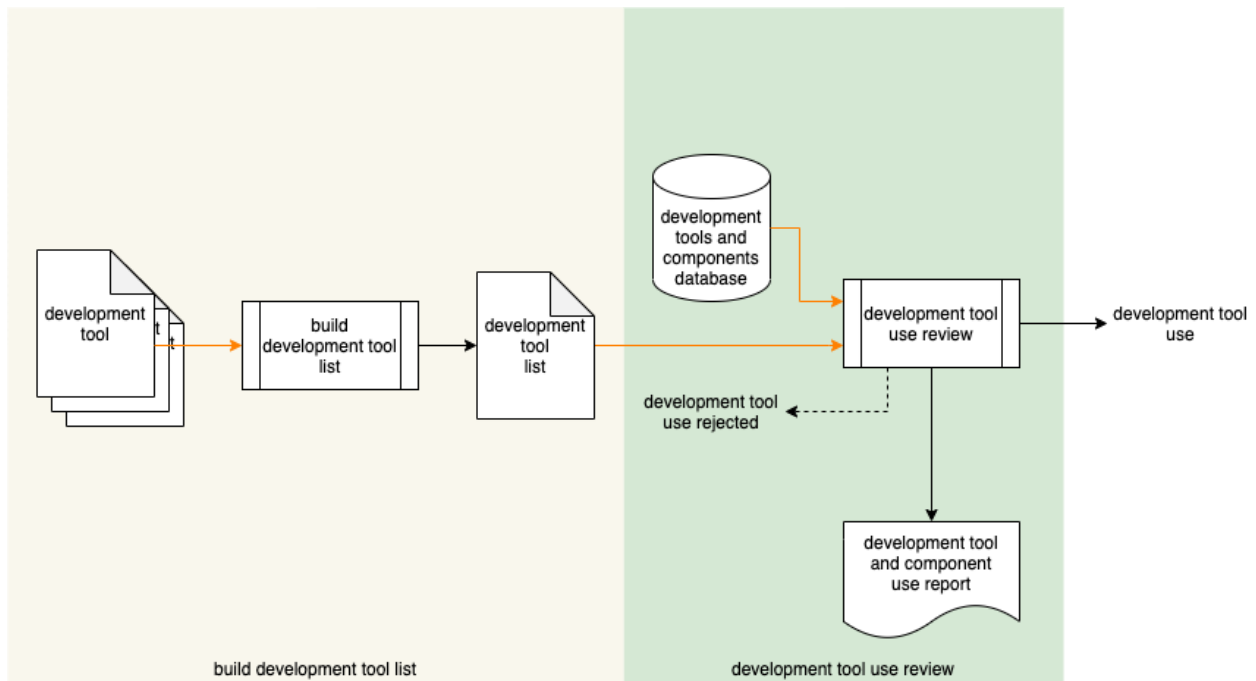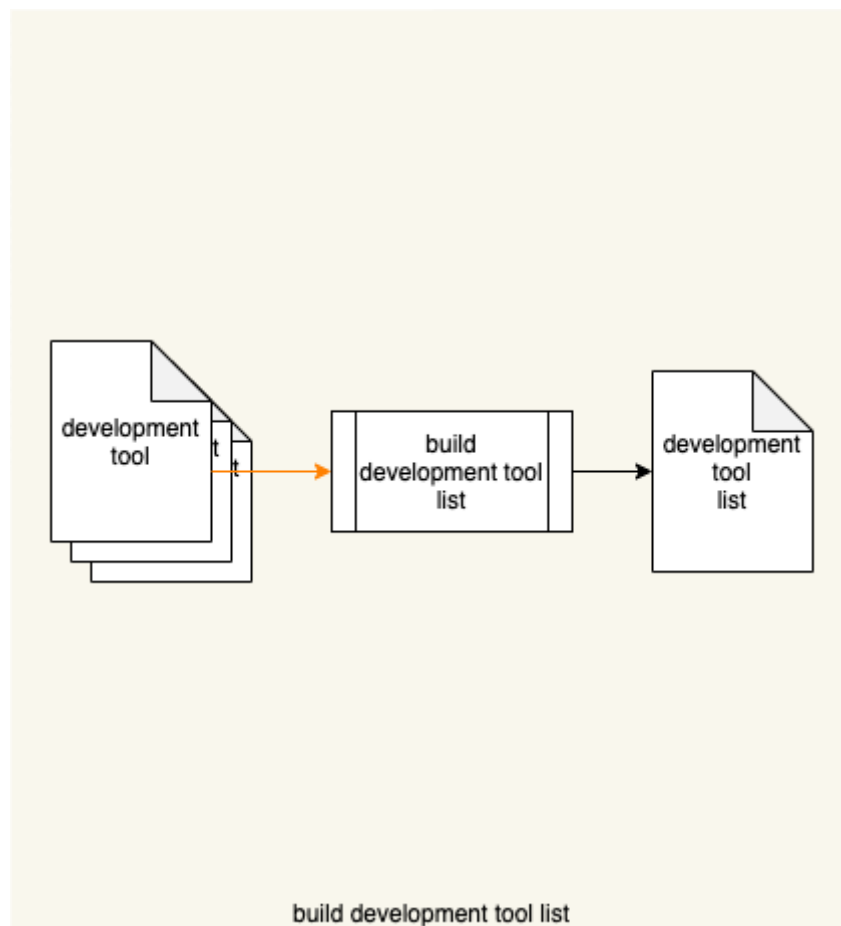

Note: This process is intended to be inserted into an existing build process.

Note: In order to avoid constantly repeating the phrase "tool / component," **tool** is used to refer to either a **tool** or a **component**.

Process

Build Development Tool List

|	
Inputs	development tool(s)
Outputs	development tool list
Participants	none

build development tool list

A list of development tools to be used is constructed a **development tools list**. This list should be constructed from the individual tools' metadata information.

Note: The preferred form of tool metadata is SPDX encoded JSON for software components (raw source / libraries) and SWID encoded JSON for executables.

Development Tool Use Review

Inputs	development tool list development tools database
Outputs	none
Participants	none

development tool use review
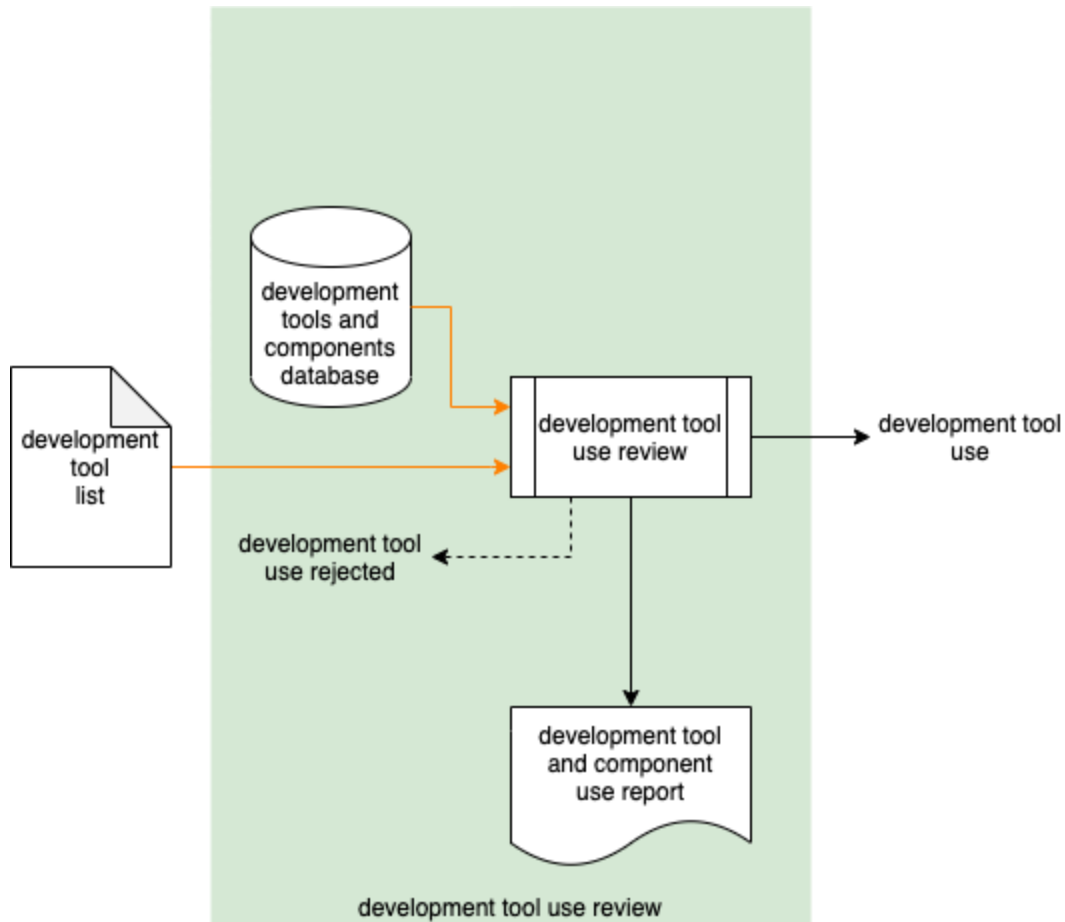
The **development tools list** is reviewed against the **development tools and components database** to verify that all entries in the list have been approved for use in the project. A **development tool and component use report** documenting the outcome of the review is generated. If any tools are not in the set approved for the project, a **development tool use rejected** notification is generated.

References

1. **List of Approved Tools and Components** (AVCDL secondary document)
2. **Software Package Data Exchange® (SPDX®)**
   https://spdx.dev/wp-content/uploads/sites/41/2017/12/spdxversion2.1.pdf
3. ISO 19770-2:2015 **Information technology - IT asset management - Part 2: Software identification tag**
   https://www.iso.org/standard/65666.html
4. NIST IR 8060 **Guidelines for the Creation of Interoperable Software Identification (SWID) Tags**
   https://nvlpubs.nist.gov/nistpubs/ir/2016/NIST.IR.8060.pdf