

# **AADL Inspector 1.2**

## **AADL Consistency Rules**

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# 1 Static Rules Checkers

**AADL Inspector** comes with a set of pre-defined static rules checkers. Their goal is to cover the various semantic rules specified by the **AADL** standard. In the standard document **SAE-AS5506B**, they are classified into three categories:

- *naming rules*: specify the appropriate usage of identifiers.
- *legality rules*: express semantic restrictions on syntactically valid text.
- *consistency rules*: define constraints related to the instance model.

This document describes the **AADL Inspector** Consistency Rules checker.

These standard consistency rules are not fully implemented in the current version of the tool and the following sub-sections provide details about the actual **AADL** rules coverage. For easier traceability, precise references to the standard document are given for each implemented rule.

## 2 Covered AADL subset

Consistency rule identifiers are composed the letter **c** followed by an integer number. Numbering restarts at the beginning of each section in the **AADL** standard document. Rules that are currently implemented refer to the following sections of the document **SAE-AS5506B**:

- *Subcomponents*: section 4.5

### 2.1 *Subcomponents (AS5506B-4.5)*

Checked consistency rule for **AADL** subcomponents is **c1**.

## 3 Test Cases

### 3.1 Subcomponents (AS5506B-4.5)

- C1 The classifier of a subcomponent cannot recursively contain subcomponents with the same component classifier. In other words, there cannot be a cyclic containment dependency between components.

```
PACKAGE P1
PUBLIC
WITH P2;

SYSTEM S1
END S1;

SYSTEM IMPLEMENTATION S1.I
SUBCOMPONENTS
  S : SYSTEM S2.I;
END S1.I;

SYSTEM S2
END S2;

SYSTEM IMPLEMENTATION S2.I
SUBCOMPONENTS
  S : SYSTEM P2::S2.I;
END S2.I;

END P1;

PACKAGE P2
PUBLIC
WITH P1;

SYSTEM S2
END S2;

SYSTEM IMPLEMENTATION S2.I
SUBCOMPONENTS
  S : SYSTEM P1::S1.I;
END S2.I ;
```

END P2;

*ERROR lines 15 and 37: cyclic containment dependency between components is forbidden (ref. AADL v2 - 4.5 - C1)*

*ERROR lines 23 and 15: cyclic containment dependency between components is forbidden (ref. AADL v2 - 4.5 - C1)*

*ERROR lines 37 and 23: cyclic containment dependency between components is forbidden (ref. AADL v2 - 4.5 - C1)*







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