ASAM OpenSCENARIO XML v1.3.0
Checker Rules Definition – Maintenance Project – Proposal Workshops

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Teams

ASAM
Association for Standardization of
Automation and Measuring Systems

Agenda

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Introduction

- The ASAM OpenSCENARIO XML standard
    - o Defines the dynamic behavior in traffic scenarios
    - o Used for describing complex, synchronized maneuvers with multiple entities
    - o Used together with OpenDRIVE and OpenCRG

- Maintenance project
    - o Part of the continuous work on improving the standard
    - o Avoid ambiguities and interoperability issues
    - o Focus on defining rules
    - o ASAM Quality Checker Framework

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Motivation

- Need for a consistent and homogeneous implementation.

- Interoperability and compatibility issues

- Addressing the issues

This project will establish a comprehensive suite of rules in the form of normative deliverables for this and future ASAM releases.

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Relation to Other Standards

- ASAM OpenSCENARIO XML - focusing on versions from 1.0.0 to 1.3.0

- Collaboration with ASAM OpenDRIVE
  - o Common rules might be defined

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Mode of Operation

- Weekly meetings in the beginning of the project
  - Divide group to work on finding rules in the different chapters of the standard documentation
  - Review of all proposed rules with some discussion

- Bi-weekly meeting
  - Start work on prioritizing the rules – by voting

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Recent Progress

- Rules are collected in the following table: Rules.xlsx
- Workflow differing from OpenDRIVE:

OpenDRIVE Sample:

Rules

The following rules apply to lane rule:

- `<rule>` elements shall be defined in ascending order according to the s-coordinate.
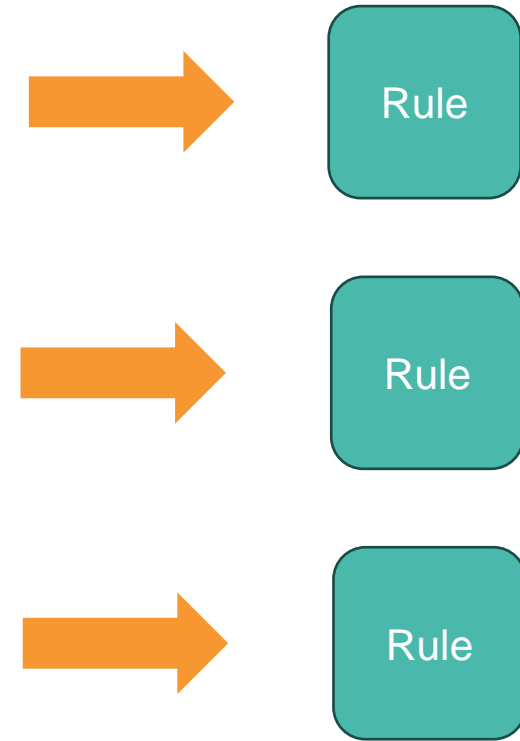
OpenSCENARIO Sample 1:

The following constraints are defined:

- S-coordinates are applicable within the length of the respective trajectory line only.

OpenSCENARIO Sample 2:

Although ASAM OpenSCENARIO allows to omit the `controllerRef` attribute for the sake of a backward compatibility if only a single controller is assigned (regardless implicitly or explicitly) to the concerned entity, it is considered not meaningful in case of multiple assigned controllers. This is expected to be addressed in one of the follow-up major versions, where the attribute shall be defined as mandatory to exclude an ambiguity in specifying the referenced controller.

Rule

Rule

Rule

Recent Progress

- Rules.xlsx structure:
  - Each row contains a rule with the following attributes
    - **Chapter Index**: the index of the section in the according user guide
    - **Chapter Headline**: headline of this section
    - **Rule ID**: an increasing integer number to identify and talk about rules (only during discussion process). Different from: [Rule UID documentation by MatteoRagni · Pull Request #19 · asam-ev/qc-framework (github.com)](github.com)
    - **Covered by Rule**: the Rule ID which already covers this rule
    - **Proposed or Existing**: is this rule based on the current document or is there a proposal for change in OpenSCENARIO standard
    - **Agreement on Rule**: there is a consensus in the consortium regarding this rule
    - **Proposed by**: the proposer of this rule
    - **Name**: a describing name of this rule
    - **Rule Description**: a detailed description of this rule
    - **Involves Parameters**: whether this rule affects OpenSCENARIO parameters or not
    - **Pertains to Version**: check to which this rule pertains to
    - **Covered by**: xml schema, check, ...
    - **Tags**: a list of string tags for this rule. E.g. requires-map
    - **Check Name**: if a check is already defined, the name of the function
    - **Severity**: target default severity level of violating this rule
    - **Priority**: priority according to priority voting

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Backward Compatibility

- Rule definition started with version 1.2.0
- Now, 1.3.0 is released
  - A detailed check of new rules / relevance of old rules is pending
  - Also a detailed check with prior versions of OpenSCENARIO
- Current work progress indicates that most of the rules apply across versions
- OpenDRIVE plays a major role
  - Rules that require map reference are mostly version independent of OpenDRIVE
  - A detailed check is pending

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Deliverables

Documents

- Definition and documentation of a normative suite ASAM OpenSCENARIO XML rules according to the priority
- Specification

Supplementary Files

- XML schema file
- UML model
- UML Model reference documentation (HTML)
- Examples
- Migration scripts and schemas

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