Document Title	Requirements on Interoperability of Autosar Tools
Document Owner	AUTOSAR
Document Responsibility	AUTOSAR
Document Identification No	101
Document Classification	Auxiliary

Document Version	1.1.0
Document Status	Final
Part of Release	4.1
Revision	1

Document Change History			
Date	**Version**	**Changed by**	**Description**
20.11.2012	1.1.0	AUTOSAR Administration	• improved requirements traceability • harmonized document structure
14.12.2009	1.0.5	AUTOSAR Administration	Legal disclaimer revised
23.06.2008	1.0.4	AUTOSAR Administration	Legal disclaimer revised
31.01.2007	1.0.3	AUTOSAR Administration	• Document meta information extended • Samll layout adaptations made
24.01.2007	1.0.2	AUTOSAR Administration	• "'Advice for users'" revised • "'Revision information'" added
04.12.2006	1.0.1	AUTOSAR Administration	Legal disclaimer revised
12.12.2005	1.0.0	AUTOSAR Administration	Initial release

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Table of Contents

References

[1] Specification of Interoperability of AUTOSAR Tools
AUTOSAR_TR_InteroperabilityOfAutosarTools.pdf

[2] Meta Model
AUTOSAR_MMOD_MetaModel.eap

[3] Standardization Template
AUTOSAR_TPS_StandardizationTemplate.pdf

[4] Main Requirements
AUTOSAR_RS_Main.pdf

1 Introduction

1.1 Scope of this document

This document collects the requirements on the `Interoperability of Autosar Tools` specification (IAOT) [1].

1.2   Terminology

1. The `AUTOSAR metamodel`[2] is a UML2.0 model that defines the language for describing AUTOSAR systems. The AUTOSAR metamodel is a graphical representation of a template. UML2.0 class diagrams are used to describe the attributes and their interrelationships. Stereotypes and OCL (object constraint language) are used for defining specific semantics and constraints.

2. An `AUTOSAR model` is an instance of the `AUTOSAR metamodel`. The information contained in the AUTOSAR model can be anything that is representable according to the AUTOSAR metamodel. The AUTOSAR model can be stored in many different ways: it might be a set of files in a file system, an XML stream, a database or memory used by some running software tools, etc.

3. The `AUTOSAR XML Schema` is a W3C XML schema that defines the language for exchanging `AUTOSAR model`s. This Schema is derived from the `AUTOSAR metamodel` and defines the `AUTOSAR data exchange format`.

4. An `AUTOSAR XML description` describes the XML representation of an `AUTOSAR model`. The AUTOSAR XML description can consist of several fragments (e.g. files). Each individual fragment must validate successfully against the `AUTOSAR XML Schema`.

5. An `AUTOSAR tool` is a software tool which supports interpreting, processing and/or creating of `AUTOSAR XML descriptions`

6. An `Metadata` includes pertinent information about data, including information about the authorship, versioning, access-rights, timestamps etc.

1.3 Document Conventions

The representation of requirements in AUTOSAR documents follows the table specified in [TPS_STDT_00078], see Standardization Template, chapter Support for Traceability ([3]).

The verbal forms for the expression of obligation specified in [TPS_STDT_00053] shall be used to indicate requirements, see Standardization Template, chapter Support for Traceability ([3]).

1.4 Guidelines

Existing specifications shall be referenced (in form of a single requirement). Differences to these specifications are specified as additional requirements. All Requirements shall have the following properties:

- Redundancy
  Requirements shall not be repeated within one requirement or in other requirements.

- Clearness
  All requirements shall allow one possibility of interpretation only. Used technical terms that are not in the glossary must be defined.

- Atomicity
  Each Requirement shall only contain one requirement. A Requirement is atomic if it cannot be split up in further requirements.

- Testability
  Requirements shall be testable by analysis, review or test.

- Traceability
  The source and status of a requirement shall be visible at all times.

2 Requirements Tracing

The following table references the requirements specified in [4] and links to the fulfill-ments by this document.

Requirement	Description	Satisfied by
[RS_Main_00300]	AUTOSAR shall provide data exchange formats to support work-share in large inter and intra company development groups	[RS_IOAT_00001] [RS_IOAT_00002]

3 Requirements

This chapter provides a definition of the relevant requirements.

[RS_IOAT_00001] Support data exchange ⌈

Type:	valid
Description:	AUTOSAR SHALL define requirements on AUTOSAR tools AND requirements on the data exchange format which allow for seamless exchange of data between different AUTOSAR tools. The concept SHALL allow for exchanging of AUTOSAR models even if the AUTOSAR tools do not support all features defined in the AUTOSAR metamodel or methodology.
Rationale:	Within the AUTOSAR methodology AUTOSAR models will be exchanged between different parties. Each party could use different AUTOSAR tools which best fit to the step in the methodology. In order to facilitate seamless exchange of AUTOSAR models, a standardized AUTOSAR data exchange format is required. Additionally further requirements need to be defined on the AUTOSAR tools in order to keep AUTOSAR models consistent.
Dependencies:	–
Use Case:	–
Supporting Material:	–

⌋(RS_Main_00300)

[RS_IOAT_00002] Standardize the handling of errors in AUTOSAR models ⌈

Type:	valid
Description:	AUTOSAR SHALL provide a concept for a standardized mechanism for handling errors in AUTOSAR models. This concept SHALL not only be implemented by all AUTOSAR tools which interpret, modify or create AUTOSAR models.
Rationale:	Without a standard collection of possible errors, each tool would have its own sets, but the difference between these could cause relations created by one tool in a tool-chain be reported later as fatal errors by another tool.
Dependencies:	–
Use Case:	
Supporting Material:	–

⌋(RS_Main_00300)