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2023-11-23	R23-11	AUTOSAR Release Management	• Release Life Cycle Status: R23-11 is in Evolution, R23-11 supersedes R22-11

Disclaimer

Contents

References

[1] Standardization Template
AUTOSAR_FO_TPS_StandardizationTemplate

1 Introduction

1.1 Scope of This Document

This document provides an overview of the AUTOSAR standard Foundation Release R23-11.

1.2 Terminology and Licenses

1.2.1 Terminology Statement

AUTOSAR has identified a use of previously common terminology that can be considered oppressive or racist, such as master/slave and black/white list, or in other contexts such as gender or age as harmful connotations. AUTOSAR has started a discussion with all the working groups to replace these terms. AUTOSAR is committed to provide all specification documents without these terminology in the coming and future releases. Nevertheless, it may take several releases before the terms are completely replaced, as AUTOSAR has to continue its operations and thousands of pages of existing specifications have to be reviewed and updated in parallel.

1.2.2 Usage of W3C XML Schema

The AUTOSAR XML Schema requires the XML namespace definition file xml.xsd.

There are several occurrences of the "xml.xsd" file within this release. For all occurrences the W3C license applies which can be found on `https://www.w3.org/Consortium/Legal/2015/copyright-software-and-document`.

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1.3 AUTOSAR Standards

1.3.1 Introduction

AUTOSAR addresses a wide range of use cases in automotive software development with its standards. These use cases have different requirements and lead to different technical solutions.

Packaging its deliverables into different "standards"

- eases the access to AUTOSAR solutions for users and
- allows AUTOSAR to scale with market needs.

1.3.2 Definition

An AUTOSAR standard is a consistent set of AUTOSAR deliverables, which are released at the same time. AUTOSAR deliverables can, but are not limited to be of the following kinds:

- textual explanations
- textual specifications
- test specifications
- source code
- other formal or semi-formal textual formats (e.g., ARXML, UML models, XML Schemata)

At the time of release, AUTOSAR ensures that dependencies are fulfilled.

1.3.3 Overview of AUTOSAR's Standards

AUTOSAR delivers the following standards:

Standard	Abbreviation
Adaptive Platform	AP
Classic Platform	CP
Foundation	FO

1.3.3.1 Adaptive Platform

The Adaptive Platform is AUTOSAR's solution for high-performance computing ECUs to build safety-related systems for use cases such as highly automated and autonomous driving.

1.3.3.2 Classic Platform

The Classic Platform is AUTOSAR's solution for embedded systems with hard real-time and safety constraints.

1.3.3.3 Foundation

The purpose of the Foundation standard is to enforce interoperability between the AUTOSAR platforms.

Foundation contains the generic artifacts that are common for AP and CP to ensure compatibility between

- Classic- and Adaptive Platform
- Non-AUTOSAR platforms to AUTOSAR platforms

1.3.4 Naming Scheme for Files and Specification Items

AUTOSAR has extended the naming scheme for files and specification items. The objective is to consistently include the AUTOSAR Standard to which the file or specification item belongs in the name. This addition also provides namespaces for the three AUTOSAR Standards and avoids conflicting names for specifications on the same topic in different AUTOSAR Standards. According to the new naming scheme, the abbreviation of the AUTOSAR Standard (AP, CP or FO) is added as first part of specification item IDs and as second part of file names. For details, please refer to [1].

From R23-11 onwards, the names of all files that are part of the release follow the new naming scheme. The IDs of existing specification items are not changed to avoid issues and migrations for AUTOSAR Partners that use these IDs internally.

1.3.5 Dependencies Between Standards

Each release of Classic and Adaptive Platform relies on a dedicated version of Foundation. The specific dependency is documented in chapter 1.4.5.

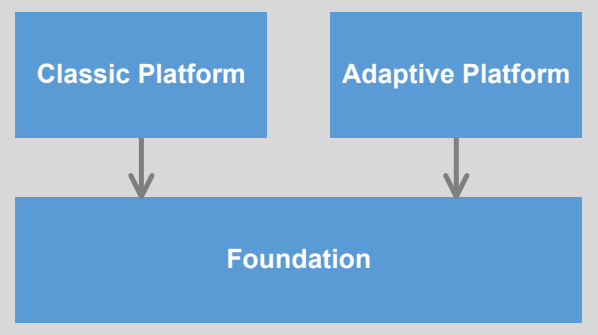

Figure 1.1: Dependencies of AUTOSAR standards

1.4 Release Numbering and Life Cycle

1.4.1 Release Life Cycle of a Major Release

Each major release goes through four consecutive steps within its life cycle (examples based on the internal release numbering scheme):

1. Development: Between start of life cycle and the initial release (e.g., R4.0.1)
2. Evolution: Following the initial release with zero, one or several minor releases and/or revisions (e.g., R4.0.2, R4.1.1)
3. Maintenance: No new content is added to a major release but only maintenance of the existing content with zero, one or several revisions (e.g., R3.2.2) is provided
4. Issue Notice: No more revisions but zero, one or several issue notices, i.e., updates of the list of known issues until end of life cycle.

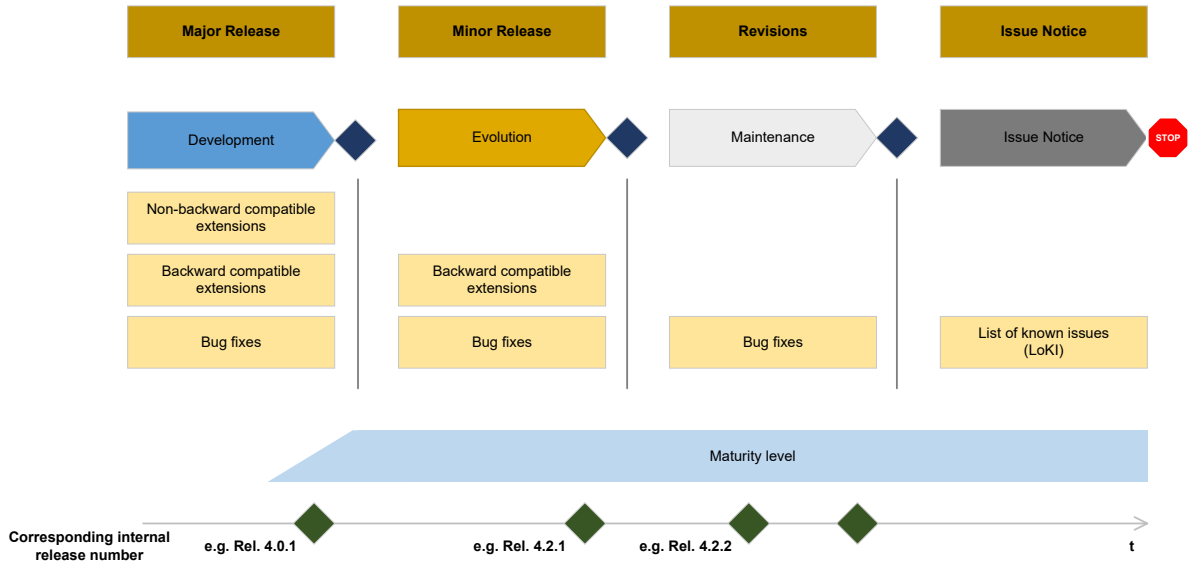

Figure 1.2: Life cycle model of AUTOSAR standards

1.4.2 Life Cycle States of Specification Items and Requirements

The life cycle state of a specification item is found after the specification item ID surrounded by curly brackets. The states are:

- {Valid}: This indicates that the related entity is a valid part of the document. This is the default and also applies if no dedicated life cycle status is annotated for the related entity.
- {Draft}: This indicates that the related entity is newly introduced but still experimental. This information is published but is subject to change without backward compatibility guarantee.
- {Obsolete}: This indicates that the related entity is subject to be removed in one of the following releases without further notice.

The life cycle state of a requirement is found in the attribute "type". The states are the same as the specification item states.

1.4.3 Platform Release Number

AUTOSAR applies a four-digit numbering scheme Ryy-mm to identify releases. The identifiers “yy” and “mm” depict the year and month of the release date, e.g., R20-11 for the November 2020 release.

1.4.4 Internal Release Number

AUTOSAR additionally maintains an internal release number for different purposes (e.g., usage in BSW modules in Classic Platform).
The internal release number is used for all platforms and follows up on the Classic Platform release number. In Adaptive Platform this is newly introduced. In Foundation this leads to a discontinuation of the former numbering pattern (e.g., R1.5.0).
A mapping list between Platform Releases and corresponding internal release numbers can be found in chapter 1.4.5. The internal release number uses a three-digit numbering scheme R<major>.<minor>.<revision> to identify releases. Its primary purpose is to identify a release as

- a major release: Valid and draft specification parts may be changed backward incompatibly.
- a minor release: Valid specification parts may only be changed backward compatibly. Draft specification parts may be changed backward incompatibly.
- a revision: Does not contain extensions but only backward compatible bugfixes.

1.4.5 Overview of AUTOSAR Releases and Corresponding AUTOSAR Schema Versions

Until the Releases CP R4.4.0 and AP R19-03, AUTOSAR released the platforms separately where a Foundation release went along with each platform release. Since compatibility between the platforms is essential to be able to have AP and CP ECUs within one vehicle project, an XML schema needs to be available that works with the different releases. The following table gives an overview about the different schema versions and the corresponding platform releases they can be used for.

The AUTOSAR schema does not have an impact on the Foundation. The Foundation releases are mentioned for the sake of completeness.

Schema Version	Classic Platform release	Adaptive Platform release	Foundation release
AUTOSAR_00042	R4.3.0	R17-03	R1.1.0
AUTOSAR_00043	R4.3.0	R17-10	R1.2.0
AUTOSAR_00044	R4.3.1	R17-10	R1.3.0
AUTOSAR_00045	R4.3.1	R18-03	R1.4.0
AUTOSAR_00046	R4.4.0	R18-10	R1.5.0
AUTOSAR_00047	R4.4.0	R19-03	R1.5.1

Starting with release R19-11, all platforms are released as one AUTOSAR release and therefore come along with one schema version.

Schema Version	Platform release	Internal release number
AUTOSAR_00048	R19-11	R4.5.0
AUTOSAR_00049	R20-11	R4.6.0
AUTOSAR_00050	R21-11	R4.7.0
AUTOSAR_00051	R22-11	R4.8.0
AUTOSAR_00052	**R23-11**	**R4.9.0**

According to the release life cycle of AUTOSAR the release R23-11 is a minor release.

1.5 Content of Chapters

This document is structured as follows:

- Chapter 1 provides an introduction to AUTOSAR's release strategy and its standardization approach.
- Chapter 2 provides a summary of changes since the previous release of the Foundation.
- Chapter 3 contains the overview of specifications comprising the AUTOSAR Foundation Release R21-11. This chapter is structured according to the clusters being in use in AUTOSAR Foundation Release R21-11.
- Chapter 4 contains remarks about known technical deficiencies.
- Chapter 5 contains the detailed revision history of all released specifications.

2 Summary of Changes in Release R23-11

This chapter contains a summary of changes which have been implemented since the previous release R22-11. The purpose of the Foundation standard is to enforce interoperability between the AUTOSAR platforms and therefore contains common requirements and technical specifications (e.g. protocols) shared between the AUTOSAR platforms.

2.1 Concepts

2.1.1 Introduced Concepts

The following concepts in 2.1.1.1 - 2.1.1.6 have been introduced.

2.1.1.1 Tracing for Adaptive Platform

The concept introduces a tracing approach to capture timing information of software. It provides a mechanism to specify trace points in functional clusters or applications. The trace data can be collected with tracing tools with minimal runtime overhead. The trace points are configurable at compile time and tracing can be generally enabled or disabled at runtime using the manifest. It also provides a mechanism for low level tracing of operating system events at Kernel-Level with minimal overhead.

2.1.1.2 Secure SOME/IP-ACL

This concept introduces the possibility to limit the SOME/IP communication from only known permitted listed authenticated communication partners to specific service instance, so secured service instance can only be accessed (Offered, Subscribed or Consumed) by defined partners.

2.1.1.3 Firewall in Classic AUTOSAR

The concept introduces a firewall to inspect and filter Ethernet traffic based on predefined firewall rules. The firewall supports stateless packet inspection, stateful packet inspection and deep packet inspection as well as rate-based filtering of network packets. Furthermore, the firewall also supports the Intrusion Detection System by raising Security Events to the IdsM.

2.1.1.4 Service Oriented Vehicle Diagnostics

The concept extends the Diagnostic Manager to support an SOVD interface according to the ASAM SOVD standard beside the already existing UDS interface.

This allows the implementation of diagnostics based on the HTTPS protocol resp. the RESTful approach.

2.1.1.5 Deterministic Communication with TSN

The concept part "Support of PTP physical clock adjustment" focused to support accuracy for syntonization/synchronization of the local clock to master clock, which is required for time sensitive use cases in an Ethernet switched network. Therefore rate ratio calculation, support of multiple PTP hardware clocks and PTP hardware clock adjustment were introduced. Additionally, FO_EXP_TimeSensitiveNetworkFeatures was introduced to explain time sensitive related network features supported by AUTOSAR.

2.1.1.6 Time Validation

The Time Validation for the AUTOSAR Classic Platform is to perform all. the checks that can be done locally within the ECU in order to verity that the local instance of the synchronized time is safe.

Basic Functions:

- The Time Validation Component monitors the synchronization process, itself.
- The Time Validation Component monitors the progress of the (local instance of) GlobalTime.
- The Time Validation Component makes the integrity status information of the timebase available to other Software Components.
- The Time Validation Component ensures continuous time progression of the validated time base after detected errors by providing a local fallback extrapolation.

2.1.2 Impact of Concepts

The introduced concepts had impact on several specifications. The following table provides a detailed overview.

Please note that some of the specifications are marked by special text formatting:

- Specifications in **bold** font are completely new specifications originating from the particular concept.

- Specifications in *italic* font are affected indirectly as they provide artefacts for the actually impacted specifications.

Concept Name	Specification Long Name	Standard	Concept Lifecycle
Service Oriented Vehicle Diagnostics	Explanation of Service-Oriented Vehicle Diagnostics	Foundation	draft
	Requirements on Diagnostics		
	Specification of Manifest	Adaptive Platform	
	Specification of Diagnostics		
Deterministic Communication with TSN	Specification of Communication Stack Types	Classic Platform	draft
	Specification of Ethernet Interface		
	Requirements on Ethernet Support in AUTOSAR		
	Specification of Synchronized Time-Base Manager		
	Specification of Ethernet Driver		
	Specification of Time Synchronization over Ethernet		
	Requirements on Gateway		
	System Template		
	Specification of ECU Configuration		
	Requirements on System Template		
	Specification of Ethernet Switch Driver		
	Specification for CAN XL Driver		
	List of Basic Software Modules		
	Specification of IEEE1722 Transport Protocol Module		
	Specification of Linklayer Sdu Routing Module		
	Time Synchronization Protocol Specification	Foundation	
	Requirements on Time Synchronization		
	Main Requirements		
	Glossary		
	Explanation of Time Sensitive Network features		
	Requirements on IEEE1722		

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Concept Name	Specification Long Name	Standard	Concept Lifecycle
Firewall in Classic AUTOSAR	Layered Software Architecture	Classic Platform	draft
	System Template		
	List of Basic Software Modules		
	Specification of Basic Software Mode Manager		
	Specification of Ethernet Interface		
	Specification of Ethernet Switch Driver		
	Specification of Firewall for Classic Platform		
	Standardized M1 Models used for the Definition of AUTOSAR	Foundation	
	Requirements on Firewall		
Tracing for Adaptive Platform	Specification of Manifest	Adaptive Platform	draft
	Technical Report on Operating System Tracing Interface		
	Requirements on Operating System Interface		
	Specification of Operating System Interface		
	Requirements on Execution Management		
	Specification of Execution Management		
	Specification of Log and Trace		
	Requirements on Debugging, Tracing and Profiling support of AUTOSAR Components	Foundation	
	Requirements on Log and Trace		
	Standardized M1 Models used for the Definition of AUTOSAR		
Secure SOME/IP-ACL	Main Requirements	Foundation	draft
	Standardized M1 Models used for the Definition of AUTOSAR		
	System Template	Classic Platform	
	Specification of Socket Adaptor		
	Requirements on Ethernet Support in AUTOSAR		
	Specification of Service Discovery		
Time Validation	Specification of Synchronized Time-Base Manager	Classic Platform	draft

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Concept Name	Specification Long Name	Standard	Concept Lifecycle
	Requirements on Time Synchronization		

Table 2.1: Impact of concepts

2.1.3 Validated Concepts

The following concepts have been validated:

- Classic Platform Flexibility, only the R20-11 feature set of Classic Platform Flexibility has been validated

2.2 Specifications

2.2.1 New Specifications

The following new specifications have been introduced via concepts:

- Explanation of Time Sensitive Network features (UID 1091, EXP)
- Requirements on IEEE1722 (UID 1092, RS)

In addition to the above listed new specifications, the following documents have been added with R23-11:

- none

2.2.2 Renamed Specifications

- none

2.2.3 Migrated Specifications

With this release, the following specification has been moved from Adaptive Platform to the Foundation standard:

- none

With this release, the following specification has been moved from Classic Platform to the Foundation standard:

- none

2.2.4 Obsolete Specifications

The following specifications have been set to status "obsolete" in this release:

- none

2.2.5 Removed Specifications

The following specifications have been set to status "removed" in this release:

- none

2.2.6 Reworked Specifications

The following documents have been changed significantly in R23-11

- none

2.2.7 Moved Specification Parts

The following specification parts have been moved to other documents in R23-11

- none

2.3 Release Documentation

There are no major changes in the Release Documentation.

3 Specification Overview

The published specifications are divided into the clusters:

- Release Documentation
- Communication Management
- Diagnostics
- General
- Health Monitoring
- Methodology and Templates
- Protocols
- Safety
- Security
- System Services

The assignment of the specifications to these clusters is shown below.

Long Name	File Name	Life cycle changes
Release Documentation		
Foundation Release Overview	AUTOSAR_FO_TR_ReleaseOverview	
AUTOSAR Foundation Specification Hashes	AUTOSAR_FO_TR_Specification Hashes	
Communication Management		
Explanation of Time Sensitive Network features	AUTOSAR_FO_EXP_ TimeSensitiveNetworkFeatures	Initial release
Requirements on AUTOSAR Network Management	AUTOSAR_FO_RS_ NetworkManagement	
Requirements on Debugging, Tracing and Profiling support of AUTOSAR Components	AUTOSAR_FO_RS_DebugTraceProfile	
Requirements on E2E	AUTOSAR_FO_RS_E2E	
Requirements on IEEE1722	AUTOSAR_FO_RS_IEEE1722	Initial release
Requirements on Log and Trace	AUTOSAR_FO_RS_LogAndTrace	
Requirements on MACsec	AUTOSAR_FO_RS_MACsec	
Diagnostics		
Requirements on Diagnostics	AUTOSAR_FO_RS_Diagnostics	
General		
Explanation of Adaptive and Classic Platform Software Architectural Decisions	AUTOSAR_FO_EXP_ SWArchitecturalDecisions	
Explanation of Diagram Source	AUTOSAR_FO_EXP_DiagramSource	
Explanation of Safety Overview	AUTOSAR_FO_EXP_SafetyOverview	
Explanation of Security Overview	AUTOSAR_FO_EXP_ SecurityOverview	

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Long Name	File Name	Life cycle changes
Glossary	AUTOSAR_FO_TR_Glossary	
Main Requirements	AUTOSAR_FO_RS_Main	
Predefined Names in AUTOSAR	AUTOSAR_FO_TR_PredefinedNames	
Project Objectives	AUTOSAR_FO_RS_ProjectObjectives	
Health Monitoring		
Explanation of System Health Monitoring	AUTOSAR_FO_EXP_ SystemHealthMonitoring	
Requirements on Health Monitoring	AUTOSAR_FO_RS_HealthMonitoring	
Specification of Health Monitoring	AUTOSAR_FO_ASWS_ HealthMonitoring	
Methodology and Templates		
ARXML Serialization Rules	AUTOSAR_FO_TPS_ ARXMLSerializationRules	
AUTOSAR Feature Model Exchange Format	AUTOSAR_FO_TPS_ FeatureModelExchangeFormat	
AUTOSAR Feature Model Exchange Format Requirements	AUTOSAR_FO_RS_ FeatureModelExchangeFormat	
AUTOSAR Miscellaneous Support Files	AUTOSAR_FO_MOD_MiscSupport	
AUTOSAR XML Schema Production Rules	AUTOSAR_FO_TPS_ XMLSchemaProductionRules	
Collection of blueprints for AUTOSAR M1 models	AUTOSAR_FO_MOD_ GeneralBlueprints	
Collection of constraints on AUTOSAR M1 models	AUTOSAR_FO_TR_ AutosarModelConstraints	
Generic Structure Template	AUTOSAR_FO_TPS_ GenericStructureTemplate	
Interoperability of Autosar Tools Supplement	AUTOSAR_FO_TR_Interoperability-OfAutosarToolsSupplement	
Log And Trace Extract Template	AUTOSAR_FO_TPS_ LogAndTraceExtract	
Meta Model	AUTOSAR_FO_MMOD_MetaModel	
Meta Model-generated XML Schema	AUTOSAR_FO_MMOD_XMLSchema	
Requirements on Methodology for Classic and Adaptive Platform	AUTOSAR_FO_RS_Methodology	
Requirements on Security Extract Template	AUTOSAR_FO_RS_ SecurityExtractTemplate	
Requirements on Standardization Template	AUTOSAR_FO_RS_ StandardizationTemplate	
Requirements on Timing Extensions	AUTOSAR_FO_RS_TimingExtensions	
Security Extract Template	AUTOSAR_FO_TPS_ SecurityExtractTemplate	
Specification of Abstract Platform	AUTOSAR_FO_TPS_ AbstractPlatformSpecification	
Standardization Template	AUTOSAR_FO_TPS_ StandardizationTemplate	
Standardized M1 Models used for the Definition of AUTOSAR	AUTOSAR_FO_MOD_ GeneralDefinitions	
Supplementary material of the AUTOSAR XML Schema	AUTOSAR_FO_TR_ XMLSchemaSupplement	
Protocols		

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Long Name	File Name	Life cycle changes
E2E Protocol Specification	AUTOSAR_FO_PRS_E2EProtocol	
Log and Trace Protocol Specification	AUTOSAR_FO_PRS_ LogAndTraceProtocol	
Requirements on Data Distribution Service	AUTOSAR_FO_RS_ DataDistributionService	
Requirements on IPsec Protocol	AUTOSAR_FO_RS_IPsecProtocol	
Requirements on SOME/IP Protocol	AUTOSAR_FO_RS_SOMEIPProtocol	
Requirements on SOME/IP Service Discovery Protocol	AUTOSAR_FO_RS_ SOMEIPServiceDiscoveryProtocol	
Requirements on Time Synchronization	AUTOSAR_FO_RS_TimeSync	
SOME/IP Protocol Specification	AUTOSAR_FO_PRS_ SOMEIPProtocol	
SOME/IP Service Discovery Protocol Specification	AUTOSAR_FO_PRS_ SOMEIPServiceDiscoveryProtocol	
Specification of Intrusion Detection System Protocol	AUTOSAR_FO_PRS_ IntrusionDetectionSystem	
Specification of Secure Onboard Communication Protocol	AUTOSAR_FO_PRS_SecOcProtocol	
Specification of the AUTOSAR Network Management Protocol	AUTOSAR_FO_PRS_ NetworkManagementProtocol	
Time Synchronization Protocol Specification	AUTOSAR_FO_PRS_ TimeSyncProtocol	
Vehicle-2-X Remote Access Layer Protocol Specification	AUTOSAR_FO_PRS_ V2XRemoteAccessLayer	
Safety		
Safety Requirements for AUTOSAR Adaptive Platform and AUTOSAR Classic Platform	AUTOSAR_FO_RS_Safety	
Security		
List of known Issues of Secure Hardware Extensions	AUTOSAR_FO_TR_ListOfKnownIs-suesSecureHardwareExtensions	
Requirements on Firewall	AUTOSAR_FO_RS_Firewall	
Requirements on Intrusion Detection System	AUTOSAR_FO_RS_ IntrusionDetectionSystem	
Specification of Secure Hardware Extensions	AUTOSAR_FO_TR_ SecureHardwareExtensions	
System Services		
Timing Analysis and Design	AUTOSAR_FO_TR_TimingAnalysis	

Table 3.1: Specification overview

4 Remarks to Known Technical Deficiencies

The technical deficiencies per specification are - if applicable - mentioned inside the respective specification in a chapter "Known Limitations" located after the table of contents.

The following technical deficiencies are to be mentioned, where clicking on the section reference will bring you to the respective document:

Document UID	Long Name	Document Type	Section Reference
1091	Explanation of Time Sensitive Network features	EXP	4.1

Table 4.1: Overview of known technical deficiencies

4.1 Explanation of Time Sensitive Network Features (UID 1091 EXP)

AUTOSAR does not support the following TSN features:

- time aware shapers
- active stream identification
- frame replication

AUTOSAR assumes that all Ethernet switches in the network are VLAN-aware. VLAN-unaware Ethernet switches are not supported.

5 Release History

5.1 Release R23-11

The following deliverables had major changes.

Name	Specification history entry
Specification of Health Monitoring	• Added Chapter History of Constraints and Specification Items • Several editorial changes
Explanation of Safety Overview	• Editorial changes • Update Figure 1.2 and 1.3 • add chapter 3.4 Security • update functional cluster in 6.2.x • update functional cluster list
Explanation of Security Overview	• No content changes
Explanation of Adaptive and Classic Platform Software Architectural Decisions	• Added architectural decisions for release R23-11 • Clarified the expected handling of errors in architectural decision "Harmonized error handling for lost daemon connection" • Adapted architectural decision "Granularity of diagnostics" due to the removal of structural dependencies between Software Clusters
Explanation of System Health Monitoring	• No content changes
Explanation of Time Sensitive Network features	• Initial release
E2E Protocol Specification	• Description of E2E state machine reworked
Specification of Intrusion Detection System Protocol	• Correct Message Header Length
Log and Trace Protocol Specification	• Offset corrections in Storage Header • Segmentation-Information refinement • LogLevel type "Information" updated
Specification of the AUTOSAR Network Management Protocol	• Updates for AP and CP NetworkManagement harmonization • Reintroduced Use Cases chapter
Specification of Secure Onboard Communication Protocol	• Removal of implementation specific contents • Editorial changes
SOME/IP Protocol Specification	• Clarifications in Payload Compatibility Rules table • Changed [PRS_SOMEIP_00163] to allow sharing of local endpoint between different required service instances of the same service • Made length field required in dynamic arrays • Editorial Changes
SOME/IP Service Discovery Protocol Specification	• Adaptions in IPv4/6 SD endpoint options handling for AP compatibility • Editorial changes
Time Synchronization Protocol Specification	• Integrated Support of PTP physical clock adjustment and Introduce IEEE 1722 related features handling of streams and tunneling legacy communication (CAN and LIN) • updates of ranges in domainNumber and OfsTimeDomain

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Name	Specification history entry
Vehicle-2-X Remote Access Layer Protocol Specification	• Re-Format FO_PRS_V2xRAL_00007 (editorial) • List non-applicable requirements from SRS V2x Communication
Requirements on Data Distribution Service	• Editorial changes
Requirements on Debugging, Tracing and Profiling support of AUTOSAR Components	• Editorial changes
Requirements on Diagnostics	• New requirements for CP and AP • Correction of requirement assignment to CP and AP • Added futher requirements for SOVD support (e.g. for SW Update and Logging)
Requirements on E2E	• Editorial changes
AUTOSAR Feature Model Exchange Format Requirements	• No content changes
Requirements on Firewall	• Added requirement for support for hardware-accelerated filtering
Requirements on Health Monitoring	• Added Chapter History of Constraints and Specification Items
Requirements on IEEE1722	• Initial release
Requirements on Intrusion Detection System	• No content changes
Requirements on IPsec Protocol	• No content changes
Requirements on Log and Trace	• Fix "AppliesTo: (FO) -> (CP,AP)"
Requirements on MACsec	• No content changes
Main Requirements	• Introduced IEEE 1722 related features handling of streams and tunneling legacy communication (CAN and LIN) and Methodology extension for modelling of TSN related features • Introduced Secure SOME/IP-ACL
Requirements on Methodology for Classic and Adaptive Platform	• No content changes • Editorial changes - fix uptraces to removed main requirements
Requirements on AUTOSAR Network Management	• Editorial changes/clarifications
Project Objectives	• No content changes
Safety Requirements for AUTOSAR Adaptive Platform and AUTOSAR Classic Platform	• Fix editorial issues • include linked requirements from AP_RS_OperatingSystemInterface
Requirements on Security Extract Template	• No content changes
Requirements on SOME/IP Protocol	• No content changes
Requirements on SOME/IP Service Discovery Protocol	• No content changes
Requirements on Standardization Template	• No content changes
Requirements on Time Synchronization	• Time Validation for Classic Platform incorporated • Support of PTP physical clock adjustment incorporated
Requirements on Timing Extensions	• Editorial changes
Specification of Abstract Platform	• Editorial changes
ARXML Serialization Rules	• Minor clarifications
AUTOSAR Feature Model Exchange Format	• Editorial table updates
Generic Structure Template	• Improve Splitable • Improve Permitted Life Cycle States

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Name	Specification history entry
Log And Trace Extract Template	• Changed existing statements into formal constraints; for details please see the change history • editorial changes
Security Extract Template	• No content changes
Standardization Template	• Add chapter on AUTOSAR Imposition Times • Remove SAFEX traceable item category • Various editorial changes
AUTOSAR XML Schema Production Rules	• Editorial changes
Glossary	• Improved definition of Processed Manifest • Extended abbreviation list
List of known Issues of Secure Hardware Extensions	• No content changes
Predefined Names in AUTOSAR	• No content changes
Foundation Release Overview	• Release Life Cycle Status: R23-11 is in Evolution, R23-11 supersedes R22-11
Specification of Secure Hardware Extensions	• No content changes
Timing Analysis and Design	• Added System Level Logical Execution Time • Reworked functional level use-cases in chapter 4 • Updated TIMEX to ARTI mapping in appendix B • Updates on use-cases and improvements

Table 5.1: Overview of specification release histories