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[2] MISRA C++:2023: Guidelines for the use of C++17 in critical systems, ISBN 978-1911700104

[3] ISO/IEC 14882:2017, Programming languages – C++
https://www.iso.org

[4] ISO/IEC 14882:2020, Programming languages – C++
https://www.iso.org

[5] Specification of Remote Persistency
AUTOSAR_AP_SWS_RemotePersistency

1 Introduction

1.1 Scope of This Document

This document provides an overview of the AUTOSAR standard Adaptive Platform release R26-11.

1.2 Terminology and Licenses

1.2.1 Disclaimer Regarding Language in This Release

This release may contain terminology or phrasing that, while historically or technically conventional, could be perceived as outdated, insensitive, or discriminatory in modern contexts. AUTOSAR wishes to explicitly state that any such language is unintentional and is not meant to offend, exclude, or imply prejudice against any individual or group.

Such instances typically arise from:

Historical Usage Terms that were once common in technical or industry parlance.

Legacy Systems Descriptions inherited from older systems or standards that predate current inclusive language guidelines.

Technical Specificity Language chosen for precise technical meaning, which may inadvertently carry unintended connotations.

Backward Compatibility and External References In some cases, specific terminologies cannot be altered without breaking backward compatibility with existing systems, codebases, or processes. Additionally, certain terms may be retained to align with established industry standards, external specifications, or third-party documentation, where consistency is critical for interoperability and clear communication across different platforms and organizations.

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If you encounter any language within this document that you find concerning, AUTOSAR encourages you to provide feedback so AUTOSAR can address the feedback in future revisions.

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 be of but are not limited to 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 and
- Non-AUTOSAR platforms to AUTOSAR platforms.

1.3.4 Dependencies Between Standards

Each release of Classic and Adaptive Platform relies on a dedicated version of Foundation. The specific dependency is documented in chapter 1.4.3.

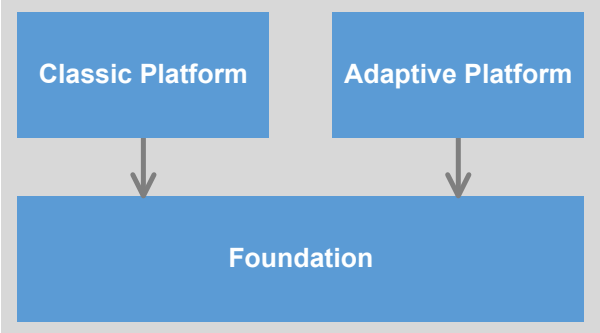


Figure 1.1: Dependencies of AUTOSAR standards

1.3.5 Precedence of Standards

In case of contradictions between AUTOSAR documents, the following precedence applies. For all externally observable communication behavior - such as on-wire message formats and encodings, timing constraints, state machines, and protocol semantics - the Protocol Specifications (PRS) are authoritative.

For software-internal aspects - such as module APIs, configuration parameters, internal state handling, and error reporting that do not affect on-wire behavior - the relevant SWS is authoritative. Where both a PRS and an SWS cover the same subject matter, the PRS shall prevail.

1.3.6 Dependencies to Other Standards

This release of the Adaptive Platform depends on the standard Foundation in release R26-11, which

- defines protocols implemented by Adaptive Platform
- contains the project objectives and the common requirements from which the features of the Adaptive Platform are derived
- contains common specification parts which apply to both, the Adaptive Platform and the Classic Platform

These dependencies are refined in the trace information of the requirements in the respective specifications.

1.4 Release Numbering and Life Cycle

1.4.1 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, for example, R20-11 for the November 2020 release.

1.4.2 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. This is newly introduced in the Adaptive Platform. For Foundation, this leads to a discontinuation of the former numbering pattern (e.g., R1.5.0).
A mapping between Platform Releases and corresponding internal release numbers can be found in chapter 1.4.3. 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.

1.4.3 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

Table 1.1: Mapping schema version to platform releases (until CP R4.4.0/AP R19-03)

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
AUTOSAR_00053	R24-11	R4.10.0
AUTOSAR_00054	R25-11	R4.11.0
AUTOSAR_00055	**R26-11**	**R4.12.0**

Table 1.2: Mapping schema version to platform release and internal release number (since R19-11)

1.4.4 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 the 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; only maintenance of existing content is provided through zero, one or several revisions (e.g., R3.2.2).
4. Issue Notice: No more revisions but zero, one or several issue notices, i.e., updates of the list of known issues until the end of life cycle.

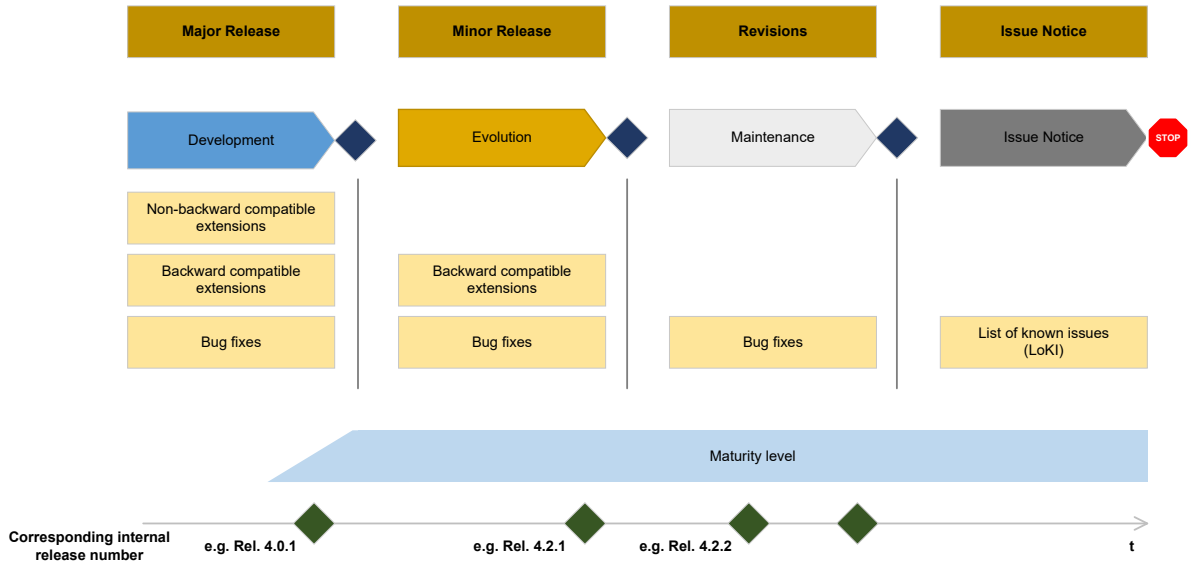


Figure 1.2: Life cycle model of AUTOSAR standards

According to the release life cycle of AUTOSAR the release R26-11 is a minor release.

1.4.5 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 “Status”. The states are the same as the specification item states.

1.5 Introduction to the Adaptive Platform

The AUTOSAR Adaptive Platform is the standardized platform for microprocessor-based ECUs supporting use cases like highly automated driving as well as high speed on-board and off-board communication.

The Adaptive Platform differs in from the standardization approach of the Classic Platform as it specifies functional clusters instead of modules.

1.5.1 Specification Depth

Based on the development history of the Classic Platform, AUTOSAR has decided to specify functional clusters for the Adaptive Platform instead of a specific software architecture to provide the implementers with options to find efficient solutions for the standardized features.

1.5.2 Minimal C++ version

In order to formally align with MISRA C++:2023 [2] and due to some OS suppliers deprecating support for C++14 (QNX v8), the minimum C++ version for the AUTOSAR code base has been set to C++17 (see [3]).
Due to further language-safety related improvements in C++20 (see [4]), AUTOSAR is currently evaluating a further move to C++20 in the coming releases.

1.6 Content of Chapters

This document is structured as follows:

- Chapter 1 provides an introduction to AUTOSAR's release strategy, the Adaptive Platform and its standardization approach.
- Chapter 2 provides a summary of changes since the previous release of the Adaptive Platform.
- Chapter 3 contains the overview of specifications comprising the release R26-11. This chapter is structured according to the clusters of AUTOSAR release R26-11.
- Chapter 4 contains remarks about known technical deficiencies.
- Chapter 5 contains the detailed release history of all released specifications.

2 Summary of Changes in Release R26-11

This chapter contains a summary of changes which have been implemented since the previous release R25-11.

Several concepts affecting the Adaptive Platform have been introduced with release R26-11 thereby adding functionality to the platform.
Additionally one concept targets the Classic and Adaptive Platform, strengthening the interaction between the two platforms.

2.1 Concepts

2.1.1 Introduced Concepts

The following concepts in 2.1.1.1- 2.1.1.1 have been introduced.

2.1.1.1 Encryption Support in SecOC

The Secure Onboard Communication functionality has been extended to optionally protect the confidentiality of selected I-PDUs in addition to their authenticity and freshness. Authenticated Encryption with Associated Data (AEAD) can be configured as an alternative to authentication-only protection, sufficient payload capacity of the underlaying communication channel provided. The SecOC processing, configuration, and protocol specifications were updated to support encryption and decryption through the Crypto Service Manager and to introduce dedicated nonce-management interfaces. The corresponding specifications for the AUTOSAR Classic and Adaptive Platforms were updated while retaining backward compatibility with existing authentication-only configurations.

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.
- If specifications or models like the BSW UML model or the ECUC model are only indirectly affected because they just provide artifacts for other specifications, they are not listed here.

Concept Name	Specification Name	Affected Standard	Concept Lifecycle
Encryption Support in SecOC	CP TPS SoftwareComponentTemplate	Classic Platform, Adaptive Platform, Foundation	valid
	CP TPS SystemTemplate		
	CP SWS CryptoServiceManager		
	AP TPS ManifestSpecification		
	AP SWS Communication-Management		
	CP SWS SecureOnboard-Communication		
	FO PRS SecOCProtocol		
	FO EXP SecurityOverview		
	FO TR Features		

Table 2.1: Impact of concepts

2.1.3 Validated Concepts

The following concepts have been validated:

- none

2.2 Specifications

2.2.1 New Specifications

The following new specifications have been introduced via concepts:

- none

In addition to the above listed new specifications, the following documents have been added with this release:

- AP SWS General (General Specification of Adaptive Platform, UID 1142)

2.2.2 Migrated Specifications

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

- none

2.2.3 Obsolete Specifications

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

- none

2.2.4 Removed Specifications

The following specifications have been removed from the AUTOSAR standard:

- AP TPS TimingExtensions
  (Specification of Timing Extensions for Adaptive Platform, UID 968)
- AP RS Cryptography
  (Requirements on Cryptography, UID 889)
- AP RS Persistency
  (Requirements on Persistency, UID 857)
- AP RS CommunicationManagement
  (Requirements on Communication Management, UID 716)

2.2.5 Reworked Specifications

The following specifications have been changed fundamentally in this release:

- none

2.2.6 Moved Specification Parts

The following specification parts have been moved to other documents in this release:

- none

2.2.7 Renamed Specifications

The following specifications have been renamed in this release:

- AP SWS DemandsConstraintsBaseSW
  (Specification of Demand and Constraints on Base Software, UID 1120)

2.3 Release Documentation

There are no major changes in the Release Documentation.

3 Specification Overview

The published specifications are divided into the clusters:

- ReleaseDocumentation
- AdaptiveFoundation
- AdaptiveServices
- General
- MethodologyAndTemplates

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

Specification Name	Long Name	File Name	Life cycle changes
ReleaseDocumentation			
AP TR ReleaseOverview	Adaptive Platform Release Overview	AUTOSAR_AP_TR_Release Overview	
AP TR SpecificationHashes	AUTOSAR Adaptive Platform Specification Hashes	AUTOSAR_AP_TR_ SpecificationHashes	
AdaptiveFoundation			
AP EXP ARAComAPI	Explanation of ara::com API	AUTOSAR_AP_EXP_ARACom API	
AP EXP IPsecImplementation Guidelines	Explanation of IPsec Implementation Guidelines	AUTOSAR_AP_EXP_IPsec ImplementationGuidelines	
AP EXP IdentityAndAccess Management	Explanation of Identity and Access Management	AUTOSAR_AP_EXP_Identity AndAccessManagement	
AP EXP MACsec	Explanation of MACsec and MKA Protocols implementation and configuration guidelines	AUTOSAR_AP_EXP_MACsec	
AP EXP SOVD	Explanation of Service-Oriented Vehicle Diagnostics	AUTOSAR_AP_EXP_SOVD	
AP RS ExecutionManagement	Requirements on Execution Management	AUTOSAR_AP_RS_Execution Management	
AP RS OperatingSystem Interface	Requirements on Operating System Interface	AUTOSAR_AP_RS_Operating SystemInterface	
AP RS PlatformHealth Management	Requirements on Platform Health Management	AUTOSAR_AP_RS_Platform HealthManagement	
AP SWS Communication Management	Specification of Communication Management	AUTOSAR_AP_SWS_ CommunicationManagement	
AP SWS Core	Specification of Adaptive Platform Core	AUTOSAR_AP_SWS_Core	
AP SWS Cryptography	Specification of Cryptography	AUTOSAR_AP_SWS_ Cryptography	
AP SWS Diagnostics	Specification of Diagnostics	AUTOSAR_AP_SWS_ Diagnostics	
AP SWS Execution Management	Specification of Execution Management	AUTOSAR_AP_SWS_ ExecutionManagement	
AP SWS Firewall	Specification of Firewall for Adaptive Platform	AUTOSAR_AP_SWS_Firewall	

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Specification Name	Long Name	File Name	Life cycle changes
AP SWS IntrusionDetection SystemManager	Specification of Intrusion Detection System Manager for Adaptive Platform	AUTOSAR_AP_SWS_Intrusion DetectionSystemManager	
AP SWS LanguageBindingFor ModeledAPdatatypes	Specification of Language Binding for modeled AP data types	AUTOSAR_AP_SWS_ LanguageBindingForModeled APdatatypes	
AP SWS LogAndTrace	Specification of Log and Trace	AUTOSAR_AP_SWS_LogAnd Trace	
AP SWS NetworkManagement	Specification of Network Management	AUTOSAR_AP_SWS_Network Management	
AP SWS OperatingSystem Interface	Specification of Operating System Interface	AUTOSAR_AP_SWS_ OperatingSystemInterface	
AP SWS Persistency	Specification of Persistency	AUTOSAR_AP_SWS_ Persistency	
AP SWS PlatformHealth Management	Specification of Platform Health Management	AUTOSAR_AP_SWS_Platform HealthManagement	
AP SWS RawDataStream	Specification of Raw Data Stream	AUTOSAR_AP_SWS_Raw DataStream	
AP SWS TimeSynchronization	Specification of Time Synchronization	AUTOSAR_AP_SWS_Time Synchronization	
AP TR DDSSecurityIntegration	Integration of DDS Security	AUTOSAR_AP_TR_ DDSSecurityIntegration	
AdaptiveServices			
AP EXP AutomotiveAPI	Explanation of Automotive API	AUTOSAR_AP_EXP_ AutomotiveAPI	
AP EXP SafeHardware AccelerationAPI	Explanation of Safe API for hardware accelerators	AUTOSAR_AP_EXP_Safe HardwareAccelerationAPI	
AP EXP SensorInterfaces	Explanation of Sensor Interfaces	AUTOSAR_AP_EXP_Sensor Interfaces	
AP RS AutomatedDriving Interfaces	Requirements on Automated Driving Interfaces	AUTOSAR_AP_RS_Automated DrivingInterfaces	
AP RS AutomotiveAPIGateway	Requirements on Automotive API Gateway	AUTOSAR_AP_RS_ AutomotiveAPIGateway	
AP RS HWTestManager	Requirements on HWTestManager	AUTOSAR_AP_RS_HWTest Manager	
AP RS SafeHardware Acceleration	Requirements on Safe Hardware Acceleration	AUTOSAR_AP_RS_Safe HardwareAcceleration	
AP RS StateManagement	Requirements of State Management	AUTOSAR_AP_RS_State Management	
AP RS UpdateAnd ConfigurationManagement	Requirements on Update and Configuration Management	AUTOSAR_AP_RS_Update AndConfigurationManagement	
AP RS VehicleUpdateAnd ConfigurationManagement	Requirements on Vehicle Update and Configuration Management	AUTOSAR_AP_RS_Vehicle UpdateAndConfiguration Management	
AP SWS Automotive APIGateway	Specification of Automotive API Gateway	AUTOSAR_AP_SWS_ AutomotiveAPIGateway	
AP SWS RemotePersistency	Specification of Remote Persistency	AUTOSAR_AP_SWS_Remote Persistency	
AP SWS SafeHardware Acceleration	Specification of Safe Hardware Acceleration	AUTOSAR_AP_SWS_Safe HardwareAcceleration	
AP SWS SensorInterfaces	Specification of Sensor Interfaces	AUTOSAR_AP_SWS_Sensor Interfaces	

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Specification Name	Long Name	File Name	Life cycle changes
AP SWS StateManagement	Specification of State Management	AUTOSAR_AP_SWS_State Management	
AP SWS UpdateAnd ConfigurationManagement	Specification of Update and Configuration Management	AUTOSAR_AP_SWS_Update AndConfigurationManagement	
AP SWS VehicleUpdateAnd ConfigurationManagement	Specification of Vehicle Update and Configuration Management	AUTOSAR_AP_SWS_Vehicle UpdateAndConfiguration Management	
AP TR OperatingSystem TracingInterface	Technical Report on Operating System Tracing Interface	AUTOSAR_AP_TR_Operating SystemTracingInterface	
AP TR VSSRepresentation	Technical Report on VSS Representation	AUTOSAR_AP_TR_ VSSRepresentation	
General			
AP EXP ARARustApplications	Explanation of ARA Applications in Rust	AUTOSAR_AP_EXP_ARARust Applications	
AP EXP InterfacesGuidelines	Guidelines for using Adaptive Platform interfaces	AUTOSAR_AP_EXP_ InterfacesGuidelines	
AP EXP ParallelProcessing Guidelines	Design guidelines for using parallel processing technologies on Adaptive Platform	AUTOSAR_AP_EXP_Parallel ProcessingGuidelines	
AP EXP PlatformDesign	Explanation of Adaptive Platform Design	AUTOSAR_AP_EXP_Platform Design	
AP EXP SWArchitecture	Explanation of Adaptive Platform Software Architecture	AUTOSAR_AP_EXP_ SWArchitecture	
AP RS General	General Requirements specific to Adaptive Platform	AUTOSAR_AP_RS_General	
AP SWS DemandsConstraints BaseSW	Specification of Demands and Constraints on Base Software	AUTOSAR_AP_SWS_ DemandsConstraintsBaseSW	
AP SWS General	General Specification of Adaptive Platform	AUTOSAR_AP_SWS_General	initial release
MethodologyAndTemplates			
AP MOD GeneralBlueprints	Collection of blueprints for AUTOSAR Adaptive Platform M1 models	AUTOSAR_AP_MOD_General Blueprints	
AP MOD MachineConfiguration Parameters	Specification of Machine Configuration Parameters	AUTOSAR_AP_MOD_Machine ConfigurationParameters	
AP SWS PlatformTypes	Specification of Platform Types for Adaptive Platform	AUTOSAR_AP_SWS_Platform Types	
AP TPS MachineConfiguration	Adaptive Platform Machine Configuration	AUTOSAR_AP_TPS_Machine Configuration	
AP TPS ManifestSpecification	Specification of Manifest	AUTOSAR_AP_TPS_Manifest Specification	
AP TR Methodology	Methodology for Adaptive Platform	AUTOSAR_AP_TR_ Methodology	

Table 3.1: Specification overview

4 Remarks to Known Technical Deficiencies

This section and its subsections provide an overview of several important technical deficiencies of the specification. All known technical deficiencies and limitations are detailed in the individual documents.

Document UID	Document name	Document type	Section reference
723	AP SWS Diagnostics	SWS	4.4
858	AP SWS Persistency	SWS	4.2
898	AP SWS NetworkManagement	SWS	4.3
903	AP SWS Core	SWS	4.5
1099	AP SWS RemotePersistency	SWS	4.1

4.1 AP SWS RemotePersistency

- The service interface of Remote Persistency (see [5] Chapter 9) is in a preliminary state. It is currently not available as a blueprint like the service interfaces of other functional clusters.
- Remote Persistency does not support access to files. The feature of File Storages of the underlaying Persistency is not supported.

4.2 AP SWS Persistency

- The Table 10.1 "Correspondence between APMC (M1) elements and Meta-Model (M2) elements for FunctionalCluster Persistency" between model elements in the [2, TPS Manifest Specification] and the APMC model elements described in Chapter 10.1 "Configuration Specification" is in some places misleading due to limitations of the document tooling, e.g. PersistencyFile.ElementUpdateStrategy.DELETE should actually only map to PersistencyElementLevelUpdateStrategyEnum.delete and not also to PersistencyCollectionLevelUpdateStrategyEnum.delete.

4.3 AP SWS NetworkManagement

- The Adaptive Network Management is actually only supporting UdpNM.
- The Adaptive Network Management does not allow node detection through asking other nodes to enter Repeat Message State, but handles incoming Repeat Message requests.
- The Adaptive Network Management cannot be configured as the NM coordinator.

- The Adaptive Network Management does not support coordinated shutdown using the information in CBV.
- The Adaptive Network Management does not support passive mode and passive start-up. Passive start-up would mean that a node has started (i.e. goes to Normal Mode), but the network has been woken up by another node.
- Update and access of User Data was removed as the service interface to Applications has been removed. State Management will control the network request/release and it must be clarified if user data changes/indications shall be done via State Management or directly by applications.
- The Adaptive Network Management does currently not support PNC Gateway. Refer to PRS NetworkManagementProtocol [3].
- The Adaptive Network Management does not support CAN Network Management and therefore CAN Partial Networking is not supported.

4.4 AP SWS Diagnostics

- For details see chapter 4.1 in AP SWS Diagnostics.

4.5 AP SWS Core

- The scope of "supporting constructs" of ara::core::ErrorCode, ara::core::StringView, and ara::core::Result in SWS_CORE_15002 is not precisely defined.
- The memory allocation behavior of ara::core::Map, ara::core::Vector, and ara::core::String is only described as "implementation-defined". The interaction with ara::core::MemoryResource and derived types is not defined.
- A specialization of ara::core::Future and ara::core::Promise for reference types (T&) and an unwrapping constructor of ara::core::Future are not specified.
- The types that are accepted as error type E of ara::core::Future and ara::core::Promise are not specified.
- The behavior of ara::core::SetAbortHandler is not specified if the maximum number of abort handlers is already installed.
- The assignment operators of ara::core::Result are not constexpr.
- The behavior of ThrowAsException() of ara::core::ErrorDomain sub-classes for error codes of unrelated error domains is not specified.

5 Release History

5.1 Release R26-11

Specification Name	Specification history entry
AP EXP ARAComAPI	• Added chapter on using executors • Removed InstanceIdentifier
AP EXP ARARustApplications	• No content changes
AP EXP AutomotiveAPI	• No content changes
AP EXP IPsecImplementationGuidelines	• added IKEv2 Post-quantum Security Extension according to IETF RFC 8784
AP EXP IdentityAndAccessManagement	• No content changes
AP EXP InterfacesGuidelines	• Added the Cryptography chapter and ara::crypto interface guidance. • Added C++ compatibility guidelines for application developers. • Updated Execution Management error codes in code examples.
AP EXP MACsec	• No content changes
AP EXP ParallelProcessingGuidelines	• No content changes
AP EXP PlatformDesign	• Refinement of Functional Cluster categories in the Architecture chapter and removed the category "Standardized App/Interface" FCs. • Updates of Persistency and Update and Configuration Management. • Removal of Truseted Platform from Execution Management to sync with the SWS Execution Management update. • Updates of Cryptography. • Updates of Operating System Interface. • Removal of Sensor Interface. • Updates of Platform Health Management. • Updates of Core.
AP EXP SOVD	• No content changes
AP EXP SWArchitecture	• Added implicit dependencies between Functional Clusters. • Included generated APIs (e.g., ara::com Proxy) in Building Block View. • Updated interfaces of Cryptography and Diagnostic Management.
AP EXP SafeHardwareAccelerationAPI	• No content changes
AP EXP SensorInterfaces	• No content changes
AP RS AutomatedDrivingInterfaces	• No content changes;
AP RS AutomotiveAPIGateway	• No content changes
AP RS ExecutionManagement	• Removed: RS_EM_00014 • Minor changes, document clean up
AP RS General	• Compatibility with newer ISO 14882 C++ standards • Consolidation of InstanceSpecifier related Violations • Guideline for the use of `[[nodiscard]]` • Logging: parameter types with units and log level usage guidance
AP RS HWTestManager	• No content changes
AP RS OperatingSystemInterface	• Moved content to other AUTOSAR documents
AP RS PlatformHealthManagement	• Clarified allocation of Supervisions to threads and processes in RS_PHM_00105 and RS_PHM_00106 • Removed "Draft" status from all requirements
AP RS SafeHardwareAcceleration	• Set requirement statuses to valid



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Specification Name	Specification history entry
AP RS StateManagement	• Minor changes, document clean up
AP RS UpdateAndConfigurationManagement	• Validation of draft requirements
AP RS VehicleUpdateAndConfiguration Management	• No changes
AP SWS AutomotiveAPIGateway	• Clarified VISS subscription event message handling
AP SWS CommunicationManagement	• Added thread safety specification for ara::com C++ APIs • Added new Proxy constructor APIs • Added SOME/IP support for Client ID prefix and fixed length string (de)serialization • Enhanced security protocols and defined security events • Removed data type InstanceIdentifier • Clarifications, bugfixes, and editorial changes
AP SWS Core	• Move general specifications (error handling, thread safety, header file conventions, Functional Cluster error domain identifiers, names and Log and Trace settings) to AP SWS General • Add and_then(), transform() and or_else() to ara::core::Optional • Make ara::core::Result member functions and comparison operators constexpr • Introduce various minor extensions, corrections, and clarifications to the C++ data-type specifications
AP SWS Cryptography	• Added APMC • Changed in Violations • Removed references to RS Cryptography
AP SWS DemandsConstraintsBaseSW	• Change of document type from TR (Technical Report) to SWS (SW Specification) • New contribution 7.1.1 Security Events • Contributions on MACsec, Trusted Platform, ARTI Tracing in Sec. 7 • new subsection on MACsec default values in Sec. 10 • Introduction of common text for non applicable (sub-) sections
AP SWS Diagnostics	• Updates to SOVD Version 1.1 (ISO 17978-3:2026) • Overview of contributing SOVD entities. • Updates to the DoIP transport layer • Support of Manufacturer-specific DoIP payload • Support of UDS Service 0x2F InputOutputControlByIdentifier • Enhance Code Quality, Reliability, and Robustness • Improvements in chapter organization • Support of APMC
AP SWS ExecutionManagement	• Removed Trusted Platform • Added configuration of UID, GID, and supplementary GIDs • Clarified the API • Added content to the demands and constraints chapter
AP SWS Firewall	• Removed upwards tracing to `FO_RS_Firewall` • Restructured related documentation
AP SWS General	• Initial release
AP SWS IntrusionDetectionSystemManager	• Support of APMC configuration • Minor improvements and clarifications

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Specification Name	Specification history entry
AP SWS LanguageBindingForModeled APdatatypes	• Reference for the multiple inclusion guard changed from AP SWS Core to AP SWS General • Clarified the return value of ErrorDomain::Name() • Editorial changes
AP SWS LogAndTrace	• Unified abbrevation of Log and Trace (LT) • Consolidated requirements • Refactoring and editorial changes
AP SWS NetworkManagement	• Added Partial Networking State Machine handling • Functional Cluster Lifecycle improved and standard violations updated and added to ctor • Introduced APMC parameters • Editorial changes
AP SWS OperatingSystemInterface	• Moved content to other AUTOSAR documents
AP SWS Persistency	• Added `kVerificationHashInvalid` • Removed definition of violations – `CalledWhileUnititializedViolation` was replaced by `AraNotInitializedViolation` – `OutOfMemoryViolation` was replaced by `IsoStdBadAllocViolation` – `InvalidConfiguration` was deemed implementation specific • Added `MaxNumberOfFiles`, `DeleteStrategy`, and `WRITE_ONLY_ONCE` to APMC • Adapted to current template and improved APMC tables, removed references to AP RS Persistency, fixed references to SWS General
AP SWS PlatformHealthManagement	• Added DaemonUnreachableViolation and aggregated several violations to UnresolvableInstanceSpecifierViolation • Added support of multiple Supervised Entities for same process • Extended support of disabling supervisions for Suspend To RAM
AP SWS PlatformTypes	• editorial changes;
AP SWS RawDataStream	• Harmonized violations • Removed references to discontinued RS documents • Editorial changes and bugfixes
AP SWS RemotePersistency	• Removed references to RS Persistency • Editorial improvements
AP SWS SafeHardwareAcceleration	• Minor changes, document clean up
AP SWS SensorInterfaces	• Freeze document
AP SWS StateManagement	• Clarified interaction with Network Management • Moved provision of UpdateAllowed to SMControlApplication • Changed error domain
AP SWS TimeSynchronization	• Update lists of violation messages • Add notification on rate deviation status change
AP SWS UpdateAndConfigurationManagement	• Minor improvements and bugfixes
AP SWS VehicleUpdateAndConfiguration Management	• Convert M2 modeling to APMC
AP TPS MachineConfiguration	• Harmonized “meta-requirements” to M1 models with EcuC

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Specification Name	Specification history entry
AP TPS ManifestSpecification	• Improve support for SOVD • Improve support for Crypto • Improve interaction of functional clusters • minor corrections / clarifications / editorial changes
AP TR DDSSecurityIntegration	• No content changes
AP TR Methodology	• Describe Machine setup
AP TR OperatingSystemTracingInterface	• Removed uptraces to deleted requirement [RS_OSI_00210]
AP TR ReleaseOverview	• Release Life Cycle Status: R26-11 is in Evolution, R26-11 supersedes R25-11
AP TR VSSRepresentation	• No content changes

Table 5.1: Overview of specification changes in R26-11