

HYUNDAI AUTOEVER

AUTOSAR Det User Manual

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1. Overview

This document provides references and guidance for users on parameter configuration and system design during using the AUTOSAR platform for Det. The document has been created based on the AUTOSAR standard SRS/SWS. For more detailed functional description, please refer to the reference documents below.

Each configuration category is defined as follows.

- Changeable (C): Items that can be configured by users
- Fixed (F): Items that cannot be changed by users
- NotSupported (N): Unavailable items

2. Reference

Sl. No.	Title	Version
1.	AUTOSAR BSW Service API Guide.doc	1.0.0 or later
2.	AUTOSAR_SWS_DiagnosticEventManager.pdf	4.2.0

Sl. No.	Title	Version
3.	AUTOSAR_SWS_DevelopmentErrorTracer.pdf	2.2.0
4.	AUTOSAR_SWS_FunctionInhibitionManager.pdf	3.2.0
5.	AUTOSAR_SWS_DiagnosticCommunicationManager.pdf	4.2.0
6.		
7.		

3.Acronyms and abbreviations

Acronym:	Description:
N_OK	Not OK
PossibleErrors	PossibleErrors means the ApplicationErrors as defined in meta model
Application Layer	The Application Layer is placed above the RTE. Within the Application Layer the AUTOSAR Software-Components are placed.

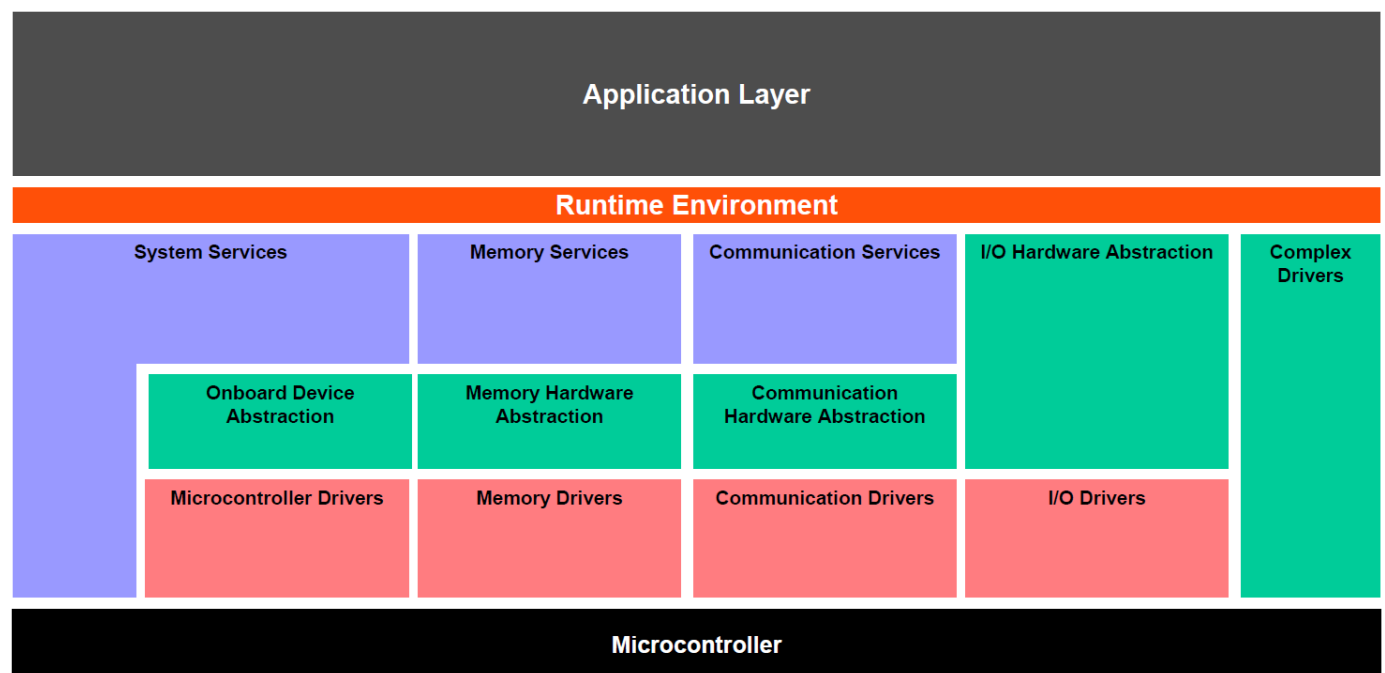
Abbreviation:	Description:
API	Application Programming Interface
AUTOSAR	AUTomotive Open System ARchitecture
BSW	Basic SoftWare
DET/Det	Development Error Tracer
DLT/Dlt	Diagnostic Log and Trace
ID/Id	Identifier
RAM	Random Access Memory
SRS	Software Requirements Specification
STS	System Test Specification
SWS	SoftWare Specification

SID	Service Id
SW-C	SoftWare Component
API	Application Programming Interface
AUTOSAR	AUTomotive Open System ARchitecture
BSW	Basic SoftWare
DET/Det	Development Error Tracer
DLT/Dlt	Diagnostic Log and Trace

4.AUTOSAR System

4.1 Overview of Software Layers

The layered architecture of the AUTOSAR platform is illustrated below. The AUTOSAR platform is composed of Service Layer, ECU Abstraction Layer, Complex Device Drivers, and Microcontroller Abstraction Layer.



4.2AUTOSAR Diagnostic Stack

4.2.1 Function Inhibition Manager

Depending on event status (Test Failed, etc.), the permission status of SW-C functionality is changed.

SW-C monitors the permission status of its functionality and determines whether it should work or not.

4.2.2 Diagnostic Event Manager

It processes an event created in SW-C and the BSW module.

4.2.3 Diagnostic Communication Manager

It manages diagnostic data flow and diagnostic state, while performing diagnosis as requested.

4.2.4 Development Error Tracer

It manages errors generated during development.

5.Product Release Notes

5.1Overview

This chapter provides the release information of Hyundai AutoEver diagnostic products, describing the features and restrictions of different release versions of the diagnostic stack software.

5.2Scope of the Release

Module	Autosar version	SWS version	Module version
Det	4.0.3	3.2.0	1.0.8.1

5.2.1 Module release notes

5.2.2 Change Log

➤ Version 1.0.8.1 (2023-04-06)

- Improvements
- Erase the comment that 'this module is excluded in SOP' in user manual

Cause	There is not correct comment that 'this module is excluded in SOP'.
Operation effect	None
Setting effect	None
ASW Action	None

➤ Version 1.0.8.0 (2023-03-06)

- Improvements
- Added Det_ReportTransientFault, Det_ReportRuntimeError function for apply Autosar R4.4.0 Mcal

Cause	There is no definition linking with Det_ReportTransientFault, Det_ReportRuntimeError function
Operation effect	None
Setting effect	None
ASW Action	None

➤ Version 1.0.7.0 (2022-08-31)

- Improvements
- Added Det_ReportRuntimeError and Det_ReportTransientFault Dummy functions

Cause	Added API dummy codes for compatibility with S32K31x MCAL (AUTOSAR R4.4.0)
Operation effect	None
Setting effect	None
ASW Action	None

➤ Version 1.0.6.0 (2020-12-30)

- Improvements
- Corrected MISRA-C violation

Cause	Corrected MISRA-C violation
Operation effect	None
Setting effect	None
ASW Action	None

➤ Version 1.0.5 (2017-05-30)

- Improvements
- Corrected compile warning

Cause	Corrected compile warning
Operation effect	None
Setting effect	None

ASW Action	None
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- Removed the error hook usage configuration

Cause	Removed the error hook usage configuration
Operation effect	None
Setting effect	None
ASW Action	None

➤ Version 1.0.2 (2015-08-25)

- Modified the module version check macro (no functionality changes)

5.2.3 Limitations

- 1) Only Pre-Compile is supported.

5.2.4 Deviation

6.Configuration Guide

- (1) Parameters are basically based on AUTOSAR specifications unless mentioned otherwise.
The parameters added by Hyundai AutoEver are marked as “AutoEver specific.”

- (2) If there is a default value for an item indicated as “not supported,” its set values must not be changed.

6.1General

None

6.2DetGeneral

Parameter Name	Value	Category
DetRamBufferSize(1)		C
DetForwardToDlt	FALSE	F
DetVersionInfoApi	FALSE	F

- (1) DetRamBufferSize :

This parameter specifies RAM buffer size

6.3DetNotification

See the following configurations.

Parameter Name	Value	Category
DetErrorHook		C

6.4System Configuration

6.4.1 Configuration of ApplicationSwComponentType

※See AUTOSAR BSW Service API Guide.doc.

6.4.2 Configuration of CompositionSwComponentType

※See AUTOSAR BSW Service API Guide.doc.

7.Application Programming Interface (API)

7.1Type Definitions

No module specific types are required.

7.2Interfaces

Note: ModuleId can be used in "port defined argument value".

7.2.1 DETService

ReportError

Function Name	Xxx_ReportError	
Syntax:	FUNC(Std_ReturnType, DET_CODE) Xxx_ReportError(uint8 InstanceId, uint8 ApId, uint8 ErrorId)	
Sync/Async	Depending on implemented functionality: 1. Breakpoint set: no return 2. Internal error counting/logging in RAM: synchronous 3. External error logging via communication interface: asynchronous: Not supported	
Reentrancy	Reentrant	
Parameters (In)	ModuleId	Module ID of calling module.
	InstanceId	The identifier of the index based instance of a module, starting from 0, If the module is a single instance module it shall pass 0 as the InstanceId.
	ApId	ID of API service in which error is detected(defined in SWS of calling module)
	ErrorId	ID of detected development error(defined in SWS of calling module).
Parameters (Inout)	None	
Parameters (Out)	None	
Return Value	Std_ReturnType	returns always E_OK (is required for services)
Description	Service to report development errors.	
Preconditions	None	
Configuration Dependency	None	

7.2.2 Notes

In Communication with application SW-C

For information about the prototype of functions created based on RTE, see AUTOSAR BSW Service API Guide.doc

8. Generator

8.1 Generator Option

Option	Description
-H/-Help	To display help regarding usage of the tool.
-O/-Output	To generate the output files in the specified directory location.
-V/-Version	To display the copyright information and the tool version.
-L/-Log	To generate W"\$BswConfig::Lis_File_NameW" file.
-D/-DryRun	To execute in validation mode.
-I/-Info	To disable Information Messages.
-W/-Warn	To disable Warning Messages.
-DDT	To disable the generation of Date and Time Information in the Tool Generated Output Files.

8.2 Generator Error Message

This section helps to analyze the errors or warnings displayed during the execution of the tool. It ensures conformance of input file(s) with syntax and semantics.

The Generation Tool displays errors or warnings or information when the user has configured incorrect inputs. The format of Error/Warning/Information message is as shown below:

- ERR/WRN/INF<mid><xxx>: < Error/Warning/Information Message>
- Where,
- <mid>: 015 – Det Module Id (15) for user configuration checks.
- 000 – for command line checks.
- <xxx>: 001 – 999 – Message ID.
- File Name : Name of the file in which the error has occurred
- Path : Absolute path of the container in which the parameter is present

‘File Name’ and ‘Path’ are optional.

Below section provides the list of module specific error, warning and information messages.

8.2.1 Error Messages

ERR015003: ‘Component Name’ Component is not present in the input file(s).

This error occurs, if any of the component Det is (are) not present in any of the input ECU Configuration Description File(s).

ERR015005: The parameter 'Parameter Name' in the container 'Container Name' should be configured.

This error occurs, if any of the below mentioned mandatory parameters are not configured.

Container Name	Parameter Name
BSW-IMPLEMENTATION	AR-RELEASE-VERSION
	VENDOR-ID
	SW-VERSION
BSW-MODULE-DESCRIPTION	MODULE-ID
DetGeneral	DetVersionInfoApi

ERR015006: The value configured for the parameter 'Parameter Name' in the container 'Container Name' should follow the pattern: <Pattern>.

This error occurs, if the string parameters configured do not follow C syntax. The list of string type parameters is as follows:

Parameter Name	Container Name	Pattern	Example
AR-RELEASE-VERSION	BSW-IMPLEMENTATION	<4.[0-9]+.[0-9]+>	4.0.3
SW-VERSION			
DetErrorHook	DetNotification	[a-zA-Z][a-zA-Z0-9W_]*	ErrHk_Func1

8.2.2 Warning Messages

None

8.2.3 Information Messages

INF015015: AUTOSAR Release version <version> configured for the parameter 'AR-RELEASE-VERSION' in provided MDT file is not correct. AUTOSAR Release version should be one of the following: 4.0.3.

This information occurs, if the value of the element AR-RELEASE-VERSION present in the BSW Module Description template is configured other than 4.0.3.

9.Det Error

None

10. Appendix