

HYUNDAI AUTOEVER

AUTOSAR Wdglf User Manual

DOC. NO

SCOPE OF APPLICATION All Project/Engineering
Responsibility : Classic AUTOSAR Team

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1. Overview

This document is created based on the AUTOSAR standard SRS/SWS. For more detailed functional descriptions, please refer to the below reference documents.

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) : Items that are not used

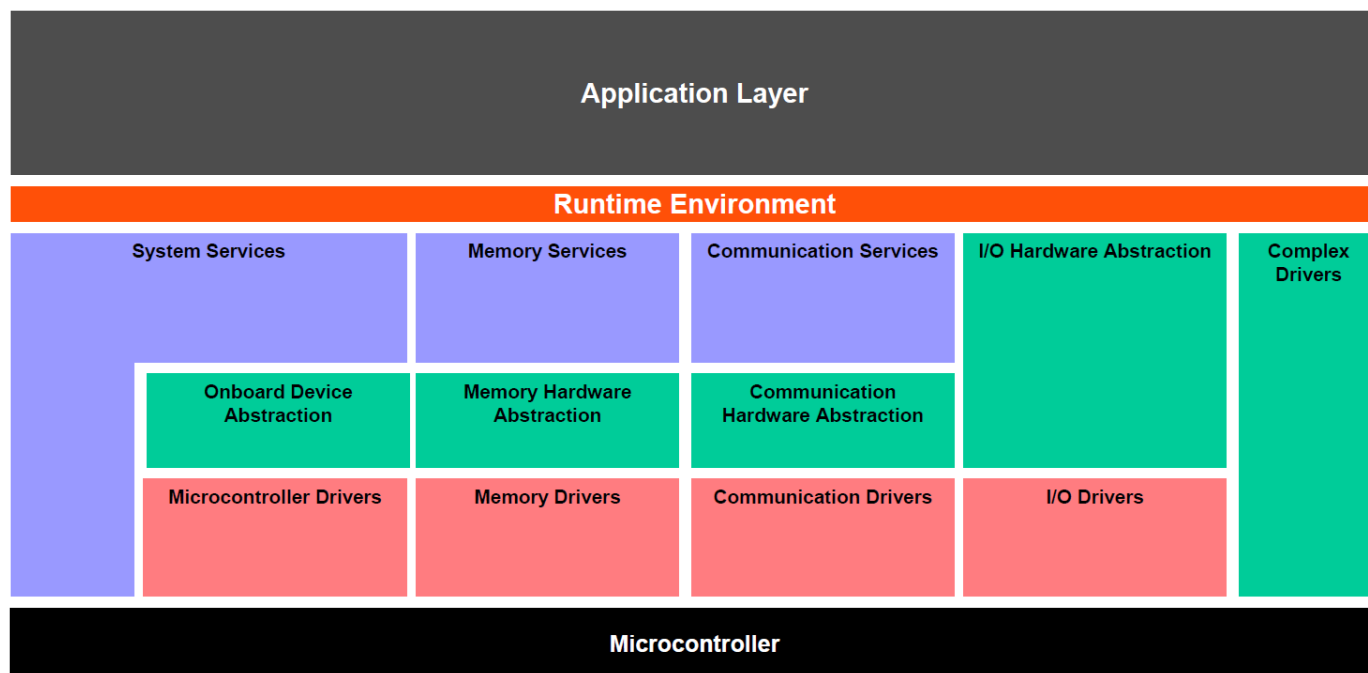
2. Reference

Sl. No.	Title	Version
1.	AUTOSAR_SWS_WatchdogInterface.pdf	2.5.0
2.	AUTOSAR_TR_BSWModuleList.pdf	1.6.0

3. AUTOSAR System

3.1 Overview of Software Layers

The AUTOSAR platform has a layered architecture as illustrated below. The AUTOSAR platform can be divided into Service Layer, ECU Abstraction Layer, Complex Device Drivers, and Microcontroller Abstraction Layer.



3.2 AUTOSAR WdgIf Module

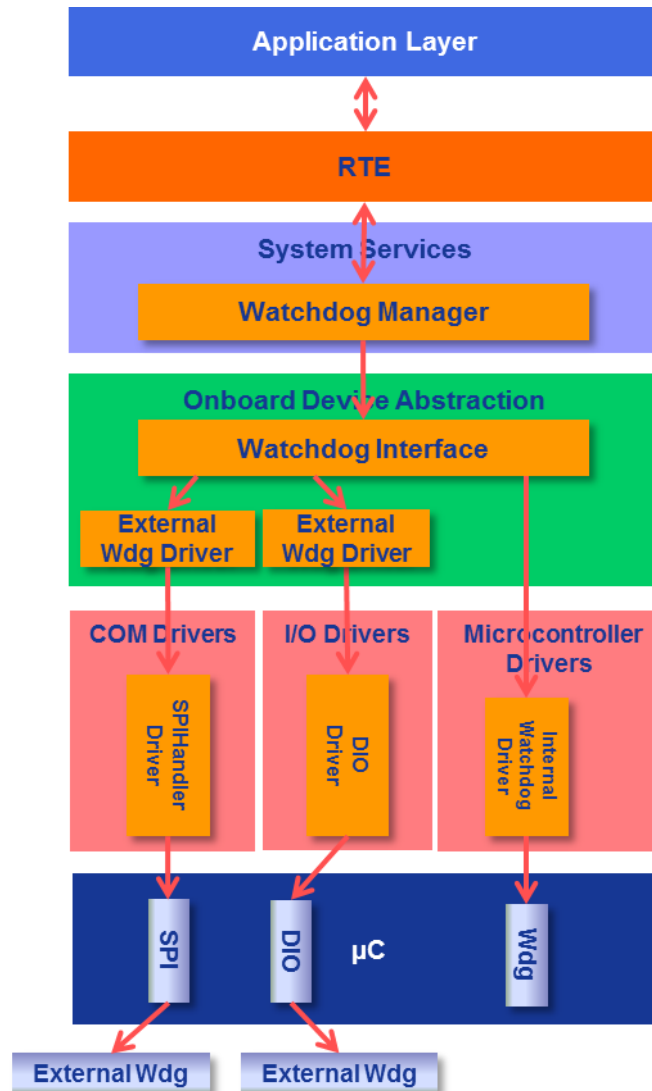
The AUTOSAR layers and the interface between modules for using the Wdg Stack are shown below.

The Wdg Stack consists of modules WdgM (Watchdog Manager), WdgIf (Watchdog Interface), and Wdg (Watchdog Driver).

WdgM: monitors the operation of devices, provides triggering conditions for Wdg, makes requests for switching Wdg modes, and handles errors.

WdgIf: serves as an abstraction of Wdg.

Wdg: triggers HW Wdg, and controls HW Wdg modes.



4. Product Release Notes

4.1 Overview

This chapter provides the release information of the Hyundai AutoEver Wdglf module, describing the features and restrictions of different versions of the Wdglf software product.

4.2 Scope of the release

All content in this document applies only to the following Hyundai AutoEver Wdglf module.

Module	Autosar version	Module version
Wdglf	4.0.3	1.2.9

※ Module version refers to the SW version of the BswModule Description (Bswmd) file of each module.

4.3 Change Log

4.3.1 Version 1.2.9.0

➤ Improvements

- Improve to sort input file list of generation files
- Cause: Generator results changed even though there was no configuration change
- Operation effect: None
- Setting effect: None
- ASW Action: None

4.3.2 Version 1.2.8.1

➤ Improvements

- An english UM document added
- Cause: Request for english UM document
- Operation effect: None
- Setting effect: None
- ASW Action: None

4.3.3 Version 1.2.8.0

➤ Improvements

- Code improvement to comply with the UNECE Cyber Security regulations.
- Cause: Required to comply with the UNECE Cyber Security regulations.
- Operation effect: None
- Setting effect: None
- ASW Action: None

4.3.4 Version 1.2.7.0

➤ Improvements

- Adaptations to the Vendor Api Infix of F1KM's new MCAL
- Cause: The Vendor Api Infix has been modified in F1KM's new MCAL, but the name of the API remained the same; changes have been made so that Wdglf generates the Wdg driver API with the existing API name.
- Operation effect: None
- Setting effect: None
- ASW Action: None

4.3.5 Version 1.2.6.0

➤ Improvements

- Code improvement to comply with the UNECE Cyber Security regulations.
- Cause: Violation of the UNECE Cyber Security regulations occurred.
- Operation effect: None
- Setting effect: None
- ASW Action: None
- Applied a new document template.
- Cause: The document template has been changed due to business merger
- Operation effect: None
- Setting effect: None
- ASW Action: None

4.3.6 Version 1.2.5.0

➤ Improvements

- Addressed or justified static analysis violations
- Cause: Static analysis was necessary
- Operation effect: None
- Setting effect: None
- ASW Action: None

4.3.7 Version 1.2.4.0

➤ Improvements

- Modified file structure and parameter categories
- Cause: Changes to file structure and parameters was necessary to make code available for partners
- Operation effect: None
- Setting effect: None
- ASW Action: None

4.3.8 Version 1.2.4

➤ Improvements

- Sorted the input file components to make sure the results are always consistent
- Cause: The input file part of the files generated by the Generator were not sorted and could

cause the results to vary (it did not affect the action since the input files are commented out).

- Operation effect: None
- Setting effect: None
- ASW Action: None
- Applied MISRA-C 2012
- Cause: Static analysis was required.
- Operation effect: None
- Setting effect: None
- ASW Action: None

4.3.9 Previous Version

➤ Version 1.2.1

- Created the UM

➤ Version 1.2.1

- MISRA-C violations corrected

➤ Version 1.2.0

- Fixed code generation errors due to changes in WdgIfDetErrorDetect and WdgIfGetVersionInfo configurations

4.4 Limitations

N/A

4.5 Deviations

N/A

5. Configuration Guide

5.1 WdglfGeneral Container

Parameter Name	Value	Category
Short Name	User Defined	C
Dev Error Detect	True	C
Version Info Api	False	C

5.2 WdglfDevice Container

Configure the same number of this container as the number of WdgGeneral.

Parameter Name	Value	Category
Short Name	User Defined	C
Index	Increases incrementally starting from 0.	C
Driver Ref1)	Reference to the Watchdog driver controlled by the Watchdog Interface	C

5.3 System Configuration

N/A

6. Application Programming Interface (API)

6.1 Type Definitions

Wdgf_Mode_Type

Type:	Enumeration		
Range:	WDGIF_OFF_MODE	0	In this mode, the watchdog driver is disabled (switched off)
	WDGIF_SLOW_MODE	1	In this mode, the watchdog driver is set up for a long timeout period (slow triggering).
	WDGIF_FAST_MODE	2	In this mode, the watchdog driver is set up for a short timeout period (fast triggering).
Description:	Mode Type of the WdgIf module		

6.2 Macro Constants

N/A

6.3 Functions

N/A

6.4 Notes

N/A

7. Generator

7.1 Generator Option

7.1.1 Error Messages

- 1) **ERR043003: 'Component Name' Component is not present in the input file(s).**
 - This error occurs, if any one of WdgIf and Wdg component is not present in any of the input ECU Configuration Description File(s).
- 2) **ERR043004: The reference path is empty for the parameter 'WdgIfDriverRef' in the container 'WdgIfDevice', having short name 'short name'.**
 - This error occurs, if reference path is not provided for the parameter WdgIfDriverRef in the container WdgIfDevice.
- 3) **ERR043005: The parameter 'Parameter Name' in the container 'Container Name' should be configured.**
 - This error occurs, if any of the mandatory configuration parameters mentioned below is not configured in ECU Configuration Description File.

Container Name	Parameter Name
BSW-IMPLEMENTATION	AR-RELEASE-VERSION
	VENDOR-ID
	SW-VERSION
BSW-MODULE-DESCRIPTION	MODULE-ID
WdgIfGeneral	WdgIfDevErrorDetect
	WdgIfVersionInfoApi
WdgIfDevice	WdgIfDeviceIndex

- 4) **ERR043006: The value configured for the parameter 'Parameter Name' in the container 'Container Name' should follow the pattern: <Pattern>**
 - This error occurs, when the parameter 'Parameter Name' is not configured as per the pattern.

Parameter Name	Container Name	Pattern	Example
AR-RELEASE-VERSION	BSW-IMPLEMENTATION	4.[0-9]+.[0-9]+	4.0.3
SW-VERSION		1.[0-9]+.[0-9]+	1.0.0

- 5) **ERR043013: The reference path <Reference Path> provided for the parameter 'WdgIfDriverRef' in the container 'WdgIfDevice', having short name <Container Short Name> is incorrect.**
 - This error occurs, if incorrect reference is provided for the parameter WdgIfDriverRef in the container WdgIfDevice.
- 6) **ERR043051: The value configured for the parameter 'WdgIfDeviceIndex' should be unique in the container 'WdgIfDevice'.**

- This error occurs, if the value configured for the parameter WdgIfDeviceIndex in the container WdgIfDevice is not unique.
- 7) **ERR043052: Reference path configured for the parameter 'WdgIfDriverRef' in the container 'WdgIfDevice' should be unique.**
 - This error occurs, if the reference path configured for the parameter WdgIfDeviceIndex in the container WdgIfDevice is not unique.
- 8) **ERR043053: The value configured for the parameter 'WdgIfDeviceIndex' in the container 'WdgIfDevice' should be sequential.**
 - This error occurs, if the value configured for the parameter WdgIfDeviceIndex in the container WdgIfDevice is not sequential.
- 9) **ERR043054: The value of the parameter 'WdgIfDeviceIndex' in the container 'WdgIfDevice' should start with <0>.**
 - This error occurs, if the value configured for the parameter WdgIfDeviceIndex in the container WdgIfDevice does not start with <0>.

7.1.2 Warning Messages

None

7.1.3 Information Messages

- 1) **INF013015: 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: <Versions>.**
 - This information message occurs, if the value of the element AR-RELEASE-VERSION present in the BSW Module Description template is configured other than 4.0.3

8. Appendix

8.1 RTE module

8.1.1 RteBswModuleInstance Container

Rte configurations of WdgIf as a BSW module

8.1.1.1 BswInstance_WdgIf Configuration

Deployment will vary depending on the Wdg used on the platform

- 1) RteBswModuleInstance configuration
- 2) RteBswEventToTaskMapping configuration
- 3) RteBswExclusiveAreaImpl configuration

8.1.1.1.1 BswInstance_WdgIf Configuration

- 1) RteBswModuleInstance configuration

Parameter Name	Value	Category
Short Name	BswInstance_WdgIf	C
Bsw Implementation Ref	BswImplementation_WdgIf	C
Bsw Module Configuration Ref	WdgIf	C

8.2 Precautions on Design

8.2.1 Multiple Wdg Devices

1) When there are two or more Wdg devices enabled:

- -- each Wdg module should be made distinguishable using the VendorId and VendorApilnfix of the Wdg BswImplementation.

example) When using [VendorId: 17, VendorApilnfix: Scu] configuration for Wdg BswImplementation, use the following WdgIf.

✓ Header file: Wdg_17_Scu.h

1) API : Wdg_17_Scu_SetMode, Wdg_17_Scu_SetTriggerCondition