Document Change History				
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2020-03-06	1.0.0	ThuanNM2	All	• WdgIf Module Manual Initial Creation
2021-08-25	1.0.1	YongHyun Han	Alls	• Apply new template
2021-09-10	1.1.0	HiepVT1	4.2 4.3	• Update 4.2 Scope of the release • Add 4.3.3 Version 1.1.0.0
2021-12-23	1.2.0	HiepVT1	4.2 4.3	• Update 4.2 Scope of the release • Add 4.3.3 Version 1.2.0.0
2022-02-22	1.3.0	HiepVT1	4.2 4.3	• Update 4.2 Scope of the release • Add 4.3.3 Version 1.3.0.0
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2023-07-28	1.4.2	Jeonghyun Kim	4.3	• Add Version 1.4.2.0 in Change Log
2023-08-23	1.4.2	Jeonghyun Kim	4.3	• Add Version 1.4.2.1 in Change Log
2024-01-29	1.4.3	Jeonghyun Kim	4.3	• Add Version 1.4.3.0 in Change Log

Table of Contents

1.   Overview

It is written based on Autosar standard SRS / SWS and if you need more detailed functional explanation when using the module, refer to the reference document below.

The interpretation of the category related to setting is as follows.

- Changeable (C) : Items that can be set by the user
- Fixed (F) : Items that cannot be changed by the user
- Not Supported (N) : Deprecated item

2.   Reference

Sl. No.	Title	Version
1.	AUTOSAR_SWS_WatchdogInterface.pdf	4.4.0
2.	AUTOSAR_TR_BSWModuleList.pdf	4.4.0

3.   AUTOSAR System

3.1   Overview of Software Layers

Layered Architecture of AUTOSAR Platform is as following. The AUTOSAR platform can be divided into Service Layer, ECU Abstraction Layer, Complex Device Drivers, and Microcontroller Abstraction Layer.
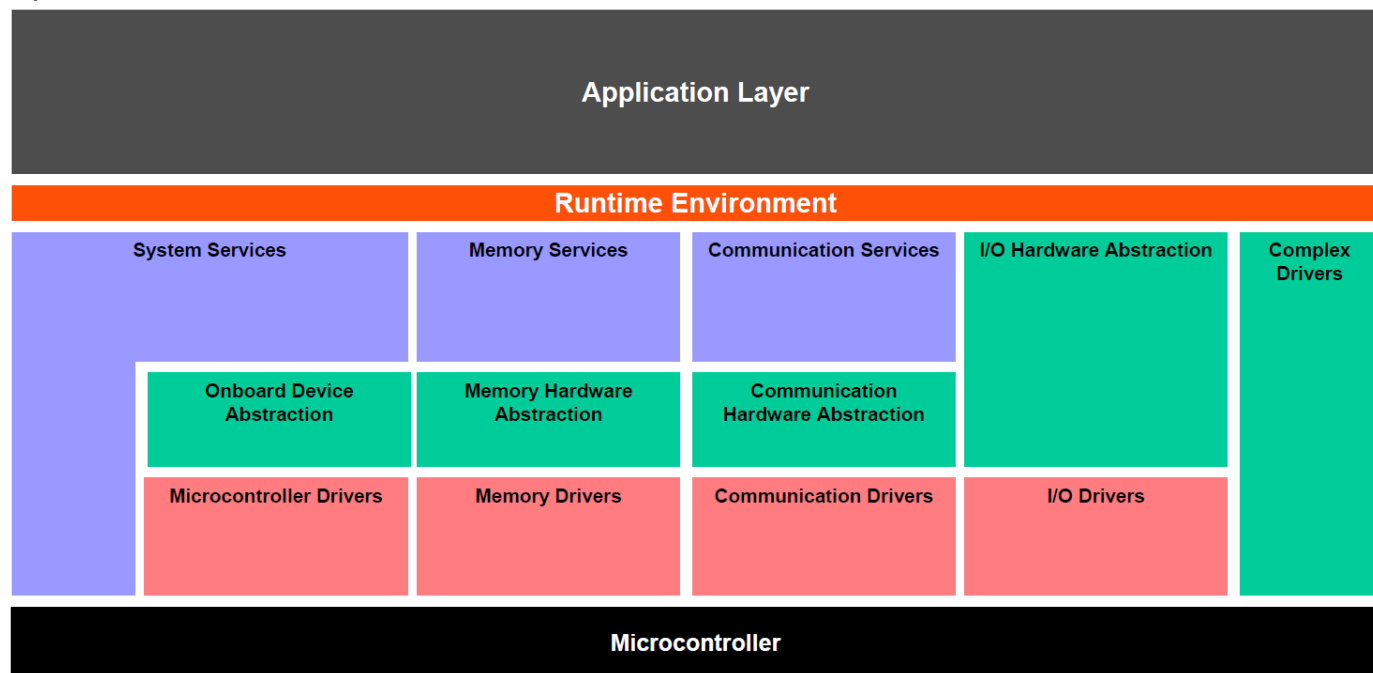
3.2 AUTOSAR WdgIf Module

The AUTOSAR layer and the interface between each module to use the Wdg Stack are as following.

The modules that make up the Wdg Stack are WdgM (Watchdog Manager), WdgIf (Watchdog Interface), and Wdg (Watchdog Driver).

WdgM: Monitors the operation to be monitored, provides the Wdg triggering condition, requests the Wdg mode change, and error handling

WdgIf: Wdg abstraction

Wdg: HW Wdg trigger, HW Wdg mode control
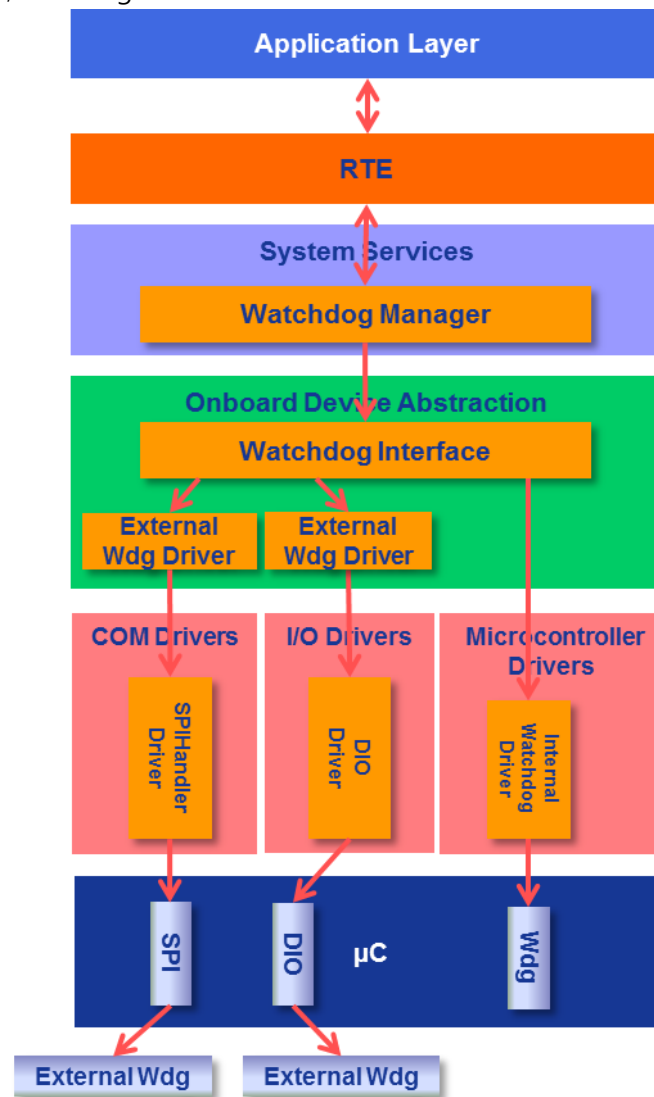
4. Product Release Notes

4.1 Overview

This chapter is intended to provide the release information for the Hyundai Autoever WdgIf

Module. It describes the limitations and specifics of the WdgIf Software product release version.

4.2 Scope of the release

All information in this document is limited to the following Hyundai Autoever WdgIf modules:

For the details of Internal WdgIf module, refer to the Appendix of WdgM UM.

Module	Autosar version	Module version
WdgIf	4.4.0	1.4.3

※ Module version means Sw version of BswModuleDescription (Bswmd) file of each module.

4.3 Change Log

4.3.1 Version 1.4.3.0

- Improvement:
  - Modify the API generation logic due to the renaming of 'providedEntry' to 'implementedEntry'

Cause	From AUTOSAR specification R4.3.1 and beyond, the name "providedEntry" has been changed to "implementedEntry."
Operation effect	None
Setting effect	None
ASW Action	None

4.3.2 Version 1.4.2.1

- Improvement:

- ■ Correct invalid categories in SRS

4.3.3 **Version 1.4.2.0**

- Improvement:
  - ■ Modify the logic of generating include file names based on vendor ID, vendor API Infix
  - ■ Modify the logic of generating API names based on vendor ID, vendor API Infix

4.3.4 **Version 1.4.1.0**

- Improvement:
  - ■ Update Trace SRS in SQT Testspect
  - ■ Update Trace of SAD-SUD in EA
  - ■ Update SAD mapping in IT TestApplication
  - ■ Change Schema for some arxml file to fix violation from final inspection

4.3.5 **Version 1.4.0.0**

- Improvement:
  - ■ Apply Test Methodology, Test method, Test Case Design Methods of ASIL-D level for WdgIf
  - ■ Update SQT, SIT, SUT to verify WdgIf in TC39x environment

4.3.6 **Version 1.3.1.0**

- Improvement:
  - ■ Add new macro and checking condition for the new version AR440 of Wdg internal driver.
  - ■ Update code for safety coding rule and UNECE standard.

4.3.7 **Version 1.3.0.1**

- Improvement:

- Update file autron_wdgif_defs.mak to fix issue when run IT_x86 in Jenkins

4.3.8 **Version 1.3.0.0**

- Improvement:
  - Update WdgIf to support TC37x platform

4.3.9 **Version 1.2.0.0**

- Improvement:
  - Update WdgIf to support TC33x platform
  - Update WdgIf for improvement requests for ASPICE
  - Update WdgIf to support complexly package structure of BSWM Wdg MCal file

4.3.10 **Version 1.1.0.0**

- Improvement:
  - Update WdgIf to comply new CM

4.3.11 **Version 1.0.0.1**

- Improvement:
  - Apply new document template

4.3.12 **Version 1.0.0.0**

- Features:
  - Initial Release

4.4 **Limitations**

N/A

4.5   **Deviations**

N/A

5. Configuration Guide

5.1 WdgIfGeneral Container

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

5.2 WdgIfDevice Container

Parameter Name	Value	Category
Short Name	User Defined	C
Index	Sequentially starting at 0	F
Driver Ref[1]	From SRS	F

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

6.3.1 WdgIf_SetMode

Function Name	WdgIf_SetMode
Syntax:	Std_ReturnType WdgIf_SetMode(uint8 DeviceIndex, WdgIf_ModeType WdgMode)
Service ID	0x01
Sync/Async	Synchronous
Reentrancy	Non reentrant
Parameters (In)	DeviceIndex: Identifies the Watchdog Driver instance WdgMode: The watchdog driver mode (see Watchdog Driver).
Parameters (Inout)	None
Parameters (Out)	None
Return Value	Std_ReturnType
Description	Map the service WdgIf_SetMode to the service Wdg_SetMode of the corresponding Watchdog Driver.
Available via	WdgIf.h

6.3.2 **WdgIf_SetTriggerCondition**

Function Name	WdgIf_SetTriggerCondition
Syntax:	void WdgIf_SetTriggerCondition(uint8 DeviceIndex, uint16 Timeout)
Service ID	0x02
Sync/Async	Synchronous
Reentrancy	Non reentrant
Parameters (In)	DeviceIndex: Identifies the Watchdog Driver instance Timeout: Timeout value (milliseconds) for setting the trigger counter
Parameters (Inout)	None
Parameters (Out)	None
Return Value	None
Description	Map the service WdgIf_SetTriggerCondition to the service Wdg_SetTriggerCondition of the corresponding Watchdog Driver.
Available via	WdgIf.h

6.3.3 WdgIf_GetVersionInfo

Function Name	WdgIf_GetVersionInfo
Syntax:	void WdgIf_GetVersionInfo(Std_VersionInfoType* VersionInfoPtr)
Service ID	0x03
Sync/Async	Synchronous
Reentrancy	Reentrant
Parameters (In)	None
Parameters (Inout)	None
Parameters (Out)	VersionInfoPtr: Pointer to where to store the version information of this module.
Return Value	None
Description	Returns the version information
Available via	WdgIf.h

6.4 Note

N/A

7. Generator

7.1 Error Messages

1) **ERR043001: Value of ModuleId in file BSWMDT is not equals with the ModuleId of Wdg.**
   - This error occurs, if ModuleId in file BSWMDT is not equals with the ModuleId of Wdg.

2) **ERR043002: 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

3) **ERR043003: 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
SW-VERSION	BSW-IMPLEMENTATION	1.[0-9]+.[0-9]+	1.0.0

4) **ERR043004: The value configured for the parameter 'AR-RELEASE-VERSION' in the**

container 'BSW-IMPLEMENTATION' should be 4.4.0
- This error occurs, if the value configured for the parameter 'AR-RELEASE-VERSION' in the container 'BSW-IMPLEMENTATION' should be 4.4.0

5) **ERR043005: 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) **ERR043006: 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) **ERR043007: 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.

8) **ERR043008: The parameter 'Vendor Id' should be defined.**
- This error occurs, if the parameter 'Vendor Id' is not defined.

7.2 Warning Messages

None

7.3 Information Messages

None

8. Appendix

8.1 Rte Module

8.1.1 BswInstance_WdgIf Settings

Different distribution depending on the Wdg used by the platform

1) RteBswModuleInstance Setting
2) RteBswEventToTaskMapping Setting
3) RteBswExclusiveAreaImpl Setting

8.1.2 BswInstance_WdgIf Setting

RteBswModuleInstance Setting

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

8.2 Design Considerations

Enable more than one Wdg Device

- The WdgIf BswImplementation VendorId and VendorApiInfix must be used to identify

 each Wdg module.

 Ex) WdgIf VendorId of BswImplementation: 17, VendorApiInfix: Scu is set, WdgIf uses

 the following:

 ✓ Header file : Wdg_17_Scu.h

 ✓ API : Wdg_17_Scu_SetMode, Wdg_17_Scu_SetTriggerCondition