

Document Title	SWS_WatchdogManager: Complete Change Documentation 4.3.0 - 4.3.1
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Part of AUTOSAR Standard	Classic Platform
Part of Standard Release	4.3.1

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1 SWS_WatchdogManager

1.1 Specification Item SWS_WdgM_00004

Trace References:

SRS_BSW_00327, SRS_BSW_00337, SRS_BSW_00385

Content:

The Watchdog Manager module shall be able to detect the following development errors:

Type or error	Related error code	Value
API service used in wrong context (without module initialization)	WDGM_E_NO_INIT	0x10
API service used in wrong context - WdgM_Init called when module is not deinitialized (global status is not WDGM_GLOBAL_STATUS_DEACTIVATED)	WDGM_E_NO_DEINIT	0x1A
API service Wdg_Init was called with an erroneous configuration set.	WDGM_E_PARAM_CONFIG	0x11
API service called with wrong "mode" parameter	WDGM_E_PARAM_MODE	0x12
API service called with wrong "supervised entity identifier" parameter	WDGM_E_PARAM_SEID	0x13
API service called with a null pointer parameter	WDGM_E_INV_POINTER	0x14
Disabling of watchdog not allowed (e.g. in safety-related systems)	WDGM_E_DISABLE_NOT_ALLOWED	0x15
API service used with an invalid CheckpointId.	WDGM_E_CPID	0x16
Deprecated API service was used.	WDGM_E_DEPRECATED	0x17
Function WdgM_UpdateAliveIndication cannot determine the Checkpoint, because there are more than one alive supervisions configured in the current mode for the given Supervised Entity.	WDGM_E_AMBIGIOUS	0x18
API service used with a checkpoint of a Supervised Entity that is deactivated in the current Watchdog Manager mode.	WDGM_E_SEDEACTIVATED	0x19

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #59085: Rollout of 'Runtime errors'

Problem description:

Inconsistencies in SWS with semantics of Default errors
–Last change on issue 59085 comment 26–

Agreed solution:

solution in Column "G" of the new attachment
<https://www.autosar.org/bugzilla/attachment.cgi?id=4604>

Notes:

- It is not enough just to migrate the error from one classification table to another. Please also check the related requirements (and background information) which is referring to that error and adapt them if needed.
- The review task of the ITs shall be done by the WP to which the specification "belongs".

*** BSW UML Model ***

SWS_CanNm:

Chapter 8.6.1 Optional Interfaces:

Add within SWS_CanNm_00325 the API function Det_ReportRuntimeError

SWS_LinIf:

SWS_LinIf_00359: add Det_ReportRuntimeError

SWS_UdpNm:

Replace UDPNM_E_NO_INIT with UDPNM_E_UNINIT in description of API
UdpNm_MainFunction_<Instance Id> (SWS_UdpNm_00234)

*** ECUC XML ***

Not affected. No configuration of runtime error reporting required (see SWS BSW General).

–Last change on issue 59085 comment 88–

BW-C-Level:

Application	Specification	Bus
1	4	1

- RfC #78796: CP_R4.3.1 Document finalization

Problem description:

- 1) The change history entry needs to be updated for CP Release 4.3.1.
- 2) For Word documents: A document shall meet formal requirements before releasing.

- 3) Hiding of internal document change history
- 4) For MOD files: Adaption of "_readme.txt"
- 5) For documents delivered as ZIP archive: Usage of current AUTOSAR XML schema in every arxml file

Agreed solution:

In case that your document has not been changed since last release, please leave a short comment in your implementation task and set it to closed/invalid.

Please note: the following changes shall be done when all the changes of your document are clear (for R4.3.1)!

ad 1)

Please insert a change history entry for document finalization at the beginning of the Document Change History table in your document and use the following content:

Date	Release	Changed by	Change Description
2017-12-08	4.3.1	AUTOSAR Release Management	[cd]

A) In case your document has been changed since last release, the Change Description [cd] comprises up to 4 bullet points describing the major changes from Release 4.3.0 to Release 4.3.1. The description shall contain no references to Bugzilla issue numbers. This text will make up the Change History of the to-be-released document. Please state major changes with a high impact (e.g. high BWC or usage) or put this standard entry: "minor corrections / clarifications / editorial changes; For details please refer to the ChangeDocumentation"

B) In case your document will be released for the first time, please use as Change Description [cd] the entry "Initial release".

C) In case your document has been already released (in another standard), please put as first line of Change Description [cd] the following:
–Migration of document to standard "Classic Platform"–

ad 2)

*** For Word documents ***

Please check your document once more against this checklist:

https://svn.autosar.org/repos/work/02_ProjectOrganization/06_Templates/AUTOSAR_Checklist_F

Please verify also the PDF file as this is the one which will be released (it is automatically generated right next to the Word source document within four hours).

ad 3)

If not already done, please hide the whole internal document change history.

Please check the PDF file and ensure that nothing of the internal document change history is shown. Especially in case of remaining bullet points, please follow this instruction to get rid of those in your Word document, as well:

https://www.autosar.org/wiki/doku.php?id=collab_guide:hide_internal_changehistory_man

ad 4)

*** For MOD documents only ***

Please create or adapt the folder "contents". That folder shall include all files which will be used for the release R4.3.1 (zip-archive). That folder shall also include the two files: "_disclaimer.txt" and "_readme.txt"

The file "_readme.txt" shall include (besides existing information):

- Document Title: DOC LONG NAME
- Document Owner: AUTOSAR
- Document Responsibility: AUTOSAR
- Document Identification Number: UID
- Document Status: Final
- Part of AUTOSAR Standard: Classic Platform
- Part of AUTOSAR Release: 4.3.1
- Date: 2017-12-08

ad 5)

*** For documents delivered as ZIP archive ***

In case the archive contains arxml files, please check whether every arxml file references the current AUTOSAR XML schema:

xsi:schemaLocation="http://autosar.org/schema/r4.0 AUTOSAR_00044.xsd"

If another schema location is given, please contact technical.office@autosar.org.

BW-C-Level:

Application	Specification	Bus
1	1	1

1.2 Specification Item SWS_WdgM_00161

Trace References:

none

Content:

API function	Description
<code>Det_ReportRuntimeError</code>	Service to report runtime errors. If a callout has been configured then this callout shall be called.
<code>GetElapsedValue</code>	This service gets the number of ticks between the current tick value and a previously read tick value.
<code>WdgIf_SetMode</code>	Map the service <code>WdgIf_SetMode</code> to the service <code>Wdg_SetMode</code> of the corresponding Watchdog Driver.
<code>WdgIf_SetTriggerCondition</code>	Map the service <code>WdgIf_SetTriggerCondition</code> to the service <code>Wdg_SetTriggerCondition</code> of the corresponding Watchdog Driver.

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #59085: Rollout of 'Runtime errors'

Problem description:

Inconsistencies in SWS with semantics of Default errors
–Last change on issue 59085 comment 26–

Agreed solution:

solution in Column "G" of the new attachment
<https://www.autosar.org/bugzilla/attachment.cgi?id=4604>

Notes:

- It is not enough just to migrate the error from one classification table to another. Please also check the related requirements (and background information) which is referring to that error and adapt them if needed.
- The review task of the ITs shall be done by the WP to which the specification "belongs".

*** BSW UML Model ***

SWS_CanNm:

Chapter 8.6.1 Optional Interfaces:

Add within SWS_CanNm_00325 the API function `Det_ReportRunTimeError`

SWS_LinIf:

SWS_LinIf_00359: add Det_ReportRuntimeError

SWS_UdpNm:

Replace UDPNM_E_NO_INIT with UDPNM_E_UNINIT in description of API UdpNm_MainFunction_<Instance Id> (SWS_UdpNm_00234)

*** ECUC XML ***

Not affected. No configuration of runtime error reporting required (see SWS BSW General).

–Last change on issue 59085 comment 88–

BW-C-Level:

Application	Specification	Bus
1	4	1

1.3 Specification Item SWS_WdgM_00344

Trace References:

none

Content:

If **default development** error detection for the Watchdog Manager module is enabled, then the function WdgM_GetGlobalStatus shall check whether the parameter Status is a NULL pointer (NULL_PTR). If Status is a NULL pointer, then the function shall raise the development error WDGM_E_INV_POINTER (i.e. invalid pointer) and return.

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #73570: No "default error" in AUTOSAR

Problem description:

The DET was renamed from development error tracer to default error tracer.

This change was most of the time done automatically and unfortunately renamed "development error" to "default error".

"default error" should always be followed by "tracer", otherwise, "development

error" is probably the right term.

This could increase the impact (compared to my selection of impacted document, but formally, the configuration parameters *DevErrorDetect are not using the correct description:

"Switches the Default Error Tracer (Det) detection and notification..."

The parameter switches on/off the development error detection. The DET does not need to be detected and can be present even when the parameter is set to false.

Agreed solution:

Rename "default error" to "development error" in all impacted documents, but not in an automated way (Do not change "default error tracer" to "development error tracer"!)

Blueprint/Example:

- sub chapter is now called "7.x Default errors"

- "[SWS_xxx_yyyyy]

In case default error detection is enabled for the xxxx module: The xxxx module shall check API parameters for validity and report detected errors to the DET. ()"

- "[SWS_xxx_yyyyy]

If default error detection is enabled: the function shall check that the service xxx_Init was previously called. If the check fails, the function shall raise the default error XXX_E_NOT_INITIALIZED otherwise (if DET is disabled) return E_NOT_OK. ()"

- "In case default errors are enabled,..."

- "module raises the Default error XXX_E_TRANSITION"

- "The DET provides services to store default errors"

...

The correct text would be:

- sub chapter is called "7.x Development errors"

- "[SWS_xxx_yyyyy]

In case development error detection is enabled for the xxxx module: The xxxx module shall check API parameters for validity and report detected development errors to the DET. ()"

- "[SWS_xxx_yyyyy]

If development error detection is enabled: the function shall check that the service xxx_Init was previously called. If the check fails, the function shall raise the development error XXX_E_NOT_INITIALIZED otherwise (if DET is disabled) return E_NOT_OK. ()"

- "In case development errors are enabled,..."

- "module raises the development error XXX_E_TRANSITION"
- "The DET provides services to store development errors"

Solution for SWS_RTE:

- SWS_RTE —
- Change 4.8 Default errors to 4.8 Development errors
- Change "Errors which can occur at runtime in the RTE are classified as default errors" to "Errors which can occur at runtime in the RTE are classified as development errors"
- Remove [SWS_Rte_07676]
- Change [SWS_RTE_06611]"If a violation is detected the RTE shall report a default error to the DET." to "If a violation is detected the RTE shall report a development error to the DET."
- Change [SWS_Rte_06631]
[SWS_Rte_06631] d The RTE shall use the OS Application Identifier as the Instance Id to enable the developer to identify in which runtime section of the RTE the error occurs. This Instance ID is even unique across multi cores and so implicitly allows the development error to be traced to a specific core. c(SRS_BSW_00337)

SRS_Libraries:

- In chapter "3 Acronyms and abbreviations": Rename "Development Error Tracer" to "Default Error Tracer"

SRS_SPALGeneral:

- In chapter "6.1.1.3.1 [SRS_SPAL_00157] ...": Rename "Development Error Tracer" to "Default Error Tracer"
- In chapter "6.1.1.4.2 [SRS_SPAL_12448] ...": Rename "Development Error Tracer" to "Default Error Tracer"

SRS_FlashTest:

- In chapter "6.1 Functional Requirements": Rename "Development Error Tracer" to "Default Error Tracer"
- In chapter "7 References":
Rename "Development Error Tracer" to "Default Error Tracer"
Rename "AUTOSAR_SWS_DevelopmentErrorTracer" to "AUTOSAR_SWS_DefaultErrorTracer"

SWS_MFXLibrary:

- In chapter "2 Acronyms and abbreviations": Rename "Development Error Tracer"

to "Default Error Tracer"

SWS_MemoryAbstractionInterface:

- In chapter "3.1 Input documents":

Rename "Development Error Tracer" to "Default Error Tracer"

Rename "AUTOSAR_SWS_DevelopmentErrorTracer" to "AUTOSAR_SWS_DefaultErrorTracer"

SWS_FlexRayNetworkManagement:

- In chapter "3.3 Related AUTOSAR documents":

Rename "Development Error Tracer" to "Default Error Tracer"

Rename "AUTOSAR_SWS_DevelopmentErrorTracer" to "AUTOSAR_SWS_DefaultErrorTracer"

SWS_CANStateManager:

- In chapter "3.1 Input documents": Rename "AUTOSAR_SWS_DevelopmentErrorTracer" to "AUTOSAR_SWS_DefaultErrorTracer"

SWS_PDURouter:

- In chapter "3.1 Input documents": Rename "AUTOSAR_SWS_DevelopmentErrorTracer" to "AUTOSAR_SWS_DefaultErrorTracer"

SWS_EEPROMDriver:

- In chapter "3.1 Input documents": Rename "AUTOSAR_SWS_DevelopmentErrorTracer" to "AUTOSAR_SWS_DefaultErrorTracer"

–Last change on issue 73570 comment 47–

BW-C-Level:

Application	Specification	Bus
1	1	1

1.4 Specification Item SWS_WdgM_00347

Trace References:

none

Content:

If **default development** error detection for the Watchdog Manager module is enabled, then the function `WdgM_GetFirstExpiredSEID()` shall check whether the parameter SEID is a NULL pointer (`NULL_PTR`). If Status is a NULL pointer, then the function shall raise the development error `WDGM_E_INV_POINTER` (i.e. invalid pointer) and return.

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #73570: No "default error" in AUTOSAR

Problem description:

The DET was renamed from development error tracer to default error tracer.

This change was most of the time done automatically and unfortunately re-named "development error" to "default error".

"default error" should always be followed by "tracer", otherwise, "development error" is probably the right term.

This could increase the impact (compared to my selection of impacted document, but formally, the configuration parameters `*DevErrorDetect` are not using the correct description:

"Switches the Default Error Tracer (Det) detection and notification..."

The parameter switches on/off the development error detection. The DET does not need to be detected and can be present even when the parameter is set to false.

Agreed solution:

Rename "default error" to "development error" in all impacted documents, but not in an automated way (Do not change "default error tracer" to "development error tracer"!)

Blueprint/Example:

- sub chapter is now called "7.x Default errors"

- "[SWS_xxx_yyyyy]

In case default error detection is enabled for the xxxx module: The xxxx module shall check API parameters for validity and report detected errors to the DET. ()"

- "[SWS_xxx_yyyyy]

If default error detection is enabled: the function shall check that the service `xxx_Init` was previously called. If the check fails, the function shall raise the default error `XXX_E_NOT_INITIALIZED` otherwise (if DET is disabled) return `E_NOT_OK`. ()"

- "In case default errors are enabled,..."
- "module raises the Default error XXX_E_TRANSITION"
- "The DET provides services to store default errors"
- ...

The correct text would be:

- sub chapter is called "7.x Development errors"
- "[SWS_xxx_yyyyy]

In case development error detection is enabled for the xxxx module: The xxxx module shall check API parameters for validity and report detected development errors to the DET. ()"

- "[SWS_xxx_yyyyy]

If development error detection is enabled: the function shall check that the service xxx_Init was previously called. If the check fails, the function shall raise the development error XXX_E_NOT_INITIALIZED otherwise (if DET is disabled) return E_NOT_OK. ()"

- "In case development errors are enabled,..."
- "module raises the development error XXX_E_TRANSITION"
- "The DET provides services to store development errors"

Solution for SWS_RTE:

— SWS_RTE —

- Change 4.8 Default errors to 4.8 Development errors
- Change "Errors which can occur at runtime in the RTE are classified as default errors" to "Errors which can occur at runtime in the RTE are classified as development errors"
- Remove [SWS_Rte_07676]
- Change [SWS_RTE_06611]"If a violation is detected the RTE shall report a default error to the DET." to "If a violation is detected the RTE shall report a development error to the DET."
- Change [SWS_Rte_06631]
[SWS_Rte_06631] d The RTE shall use the OS Application Identifier as the Instance Id to enable the developer to identify in which runtime section of the RTE the error occurs. This Instance ID is even unique across multi cores and so implicitly allows the development error to be traced to a specific core. c(SRS_BSW_00337)

SRS_Libraries:

- In chapter "3 Acronyms and abbreviations": Rename "Development Error Tracer" to "Default Error Tracer"

SRS_SPALGeneral:

- In chapter "6.1.1.3.1 [SRS_SPAL_00157] ...": Rename "Development Error Tracer" to "Default Error Tracer"
- In chapter "6.1.1.4.2 [SRS_SPAL_12448] ...": Rename "Development Error Tracer" to "Default Error Tracer"

SRS_FlashTest:

- In chapter "6.1 Functional Requirements": Rename "Development Error Tracer" to "Default Error Tracer"
- In chapter "7 References":
Rename "Development Error Tracer" to "Default Error Tracer"
Rename "AUTOSAR_SWS_DevelopmentErrorTracer" to "AUTOSAR_SWS_DefaultErrorTracer"

SWS_MFXLibrary:

- In chapter "2 Acronyms and abbreviations": Rename "Development Error Tracer" to "Default Error Tracer"

SWS_MemoryAbstractionInterface:

- In chapter "3.1 Input documents":
Rename "Development Error Tracer" to "Default Error Tracer"
Rename "AUTOSAR_SWS_DevelopmentErrorTracer" to "AUTOSAR_SWS_DefaultErrorTracer"

SWS_FlexRayNetworkManagement:

- In chapter "3.3 Related AUTOSAR documents":
Rename "Development Error Tracer" to "Default Error Tracer"
Rename "AUTOSAR_SWS_DevelopmentErrorTracer" to "AUTOSAR_SWS_DefaultErrorTracer"

SWS_CANStateManager:

- In chapter "3.1 Input documents":
Rename "AUTOSAR_SWS_DevelopmentErrorTracer" to "AUTOSAR_SWS_DefaultErrorTracer"

SWS_PDURouter:

- In chapter "3.1 Input documents":
Rename "AUTOSAR_SWS_DevelopmentErrorTracer" to "AUTOSAR_SWS_DefaultErrorTracer"

SWS_EEPROMDriver:

- In chapter "3.1 Input documents": Rename "AUTOSAR_SWS_DevelopmentErrorTracer" to "AUTOSAR_SWS_DefaultErrorTracer"
–Last change on issue 73570 comment 47–

BW-C-Level:

Application	Specification	Bus
1	1	1

1.5 Specification Item SWS_WdgM_00402

Trace References:

SRS_BSW_00327, SRS_BSW_00337, SRS_BSW_00385

Content:

The Watchdog Manager module shall be able to detect the following runtime errors:

Type or error	Related error code	Value
Disabling of watchdog not allowed (e.g. in safety-related systems)	WDGM_E_DISABLE_NOT_ALLOWED	0x15
API service used with a checkpoint of a Supervised Entity that is deactivated in the current Watchdog Manager mode.	WDGM_E_SEDEACTIVATED	0x19

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #59085: Rollout of 'Runtime errors'

Problem description:

Inconsistencies in SWS with semantics of Default errors

–Last change on issue 59085 comment 26–

Agreed solution:

solution in Column "G" of the new attachment
<https://www.autosar.org/bugzilla/attachment.cgi?id=4604>

Notes:

- It is not enough just to migrate the error from one classification table to another.

Please also check the related requirements (and background information) which is referring to that error and adapt them if needed.

- The review task of the ITs shall be done by the WP to which the specification "belongs".

*** BSW UML Model ***

SWS_CanNm:

Chapter 8.6.1 Optional Interfaces:

Add within SWS_CanNm_00325 the API function Det_ReportRunTimeError

SWS_LinIf:

SWS_LinIf_00359: add Det_ReportRuntimeError

SWS_UdpNm:

Replace UDPNM_E_NO_INIT with UDPNM_E_UNINIT in description of API UdpNm_MainFunction_<Instance Id> (SWS_UdpNm_00234)

*** ECUC XML ***

Not affected. No configuration of runtime error reporting required (see SWS BSW General).

—Last change on issue 59085 comment 88—

BW-C-Level:

Application	Specification	Bus
1	4	1