

Document Title	SWS_SAEJ1939TransportLayer: Complete Change Documentation 4.3.0 - 4.3.1
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Document Status	Final
Part of AUTOSAR Standard	Classic Platform
Part of Standard Release	4.3.1

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1 SWS_SAEJ1939TransportLayer

1.1 Specification Item SWS_J1939Tp_00025

Trace References:

SRS_BSW_00407, SRS_J1939_00011

Content:

If **default development** error detection (DET) for the J1939Tp module is enabled, the J1939Tp module shall raise an error (J1939TP_E_UNINIT) when any function excepting J1939Tp_GetVersionInfo is called before the function J1939Tp_Init() has been called.

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 "developement 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 developement 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 "developement 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 "AU-

TOSAR_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

1.2 Specification Item SWS_J1939Tp_00115

Trace References:

SRS_BSW_00327, SRS_BSW_00337, SRS_BSW_00385, SRS_BSW_00441

Content:

J1939Tp shall use the following development errors:

Type or error	Relevance Related error code	Value [hex]
API service used in state J1939TP_OFF.	Development J1939TP_E_UNINIT	0x01
J1939Tp_Init() called in state J1939TP_ON.	Development J1939TP_E_REINIT	0x02
J1939Nm_Init was called with an invalid configuration pointer	Development J1939NM_E_INIT_FAILED	0x03
API service called with null pointer.	Development J1939TP_E_PARAM_POINTER	0x10
API service called with wrong ID.	Development J1939TP_E_INVALID_PDU_SDU_ID	0x11
Timeout occurred on receiver side after reception of an intermediate TP.DT frame of a block.	Development	J1939TP_E_TIMEOUT_T1

Type or error	Relevance Related error code	Value [hex]
Timeout occurred on receiver side after transmission of a TP.CM/CTS frame.	Development	J1939TP_E_TIMEOUT_T2
Timeout occurred on transmitter side after transmission of the last TP.DT frame of a block.	Development	J1939TP_E_TIMEOUT_T3
Timeout occurred on transmitter side after reception of a TP.CM/CTS(0) frame.	Development	J1939TP_E_TIMEOUT_T4
Timeout occurred on transmitter or receiver side while trying to send the next TP.DT or TP.CM frame.	Development	J1939TP_E_TIMEOUT_TR
Timeout occurred on receiver side while trying to send the next TP.CM/CTS frame after a TP.CM/CTS(0) frame.	Development	J1939TP_E_TIMEOUT_TH
Invalid value for "total message size" in received TP.CM/RTS frame.	Development	J1939TP_E_INVALID_TMS
Value for "total number of packets" in received TP.CM/RTS frame does not match the "total message size".	Development	J1939TP_E_INVALID_TNOP
Invalid value for "maximum number of packets" in received TP.CM/RTS frame.	Development	J1939TP_E_INVALID_MNOP
Unexpected PGN in received TP.CM frame.	Development	J1939TP_E_INVALID_PGN
Invalid value for "number of packets" in received TP.CM/CTS frame.	Development	J1939TP_E_INVALID_NOP
Invalid value for "next packet number" in received TP.CM/CTS frame.	Development	J1939TP_E_INVALID_NPN
Invalid value for "connection abort reason" in received TP.Conn_Abort frame.	Development	J1939TP_E_INVALID_CAR
Unexpected serial number in received TP.DT frame.	Development	J1939TP_E_INVALID_SN

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_J1939Tp_00116

Trace References:

none

Content:

API function	Description
CanIf_Transmit	Requests transmission of a PDU.
Det_ReportRuntimeError	Service to report runtime errors. If a callout has been configured then this callout shall be called.
PduR_J1939TpCopyRxData	This function is called to provide the received data of an I-PDU segment (N-PDU) to the upper layer. Each call to this function provides the next part of the I-PDU data. The size of the remaining data buffer is written to the position indicated by bufferSizePtr.
PduR_J1939TpCopyTxData	This function is called to acquire the transmit data of an I-PDU segment (N-PDU). Each call to this function provides the next part of the I-PDU data unless retry->TpDataState is TP_DATA_RETRY. In this case the function restarts to copy the data beginning at the offset from the current position indicated by retry->TxTpDataCnt. The size of the remaining data is written to the position indicated by availableDataPtr.
PduR_J1939TpRxIndication	Called after an I-PDU has been received via the TP API, the result indicates whether the transmission was successful or not.
PduR_J1939TpStartOfReception	This function is called at the start of receiving an N-SDU. The N-SDU might be fragmented into multiple N-PDUs (FF with one or more following CFs) or might consist of a single N-PDU (SF). The service shall provide the currently available maximum buffer size when invoked with TpSduLength equal to 0.
PduR_J1939TpTxConfirmation	This function is called after the I-PDU has been transmitted on its network, the result indicates whether the transmission was successful or not.

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 #77935: [PduR] Misleading description of CopyRxData

Problem description:

Name: Martin Schlodder

Role: Member of WP-A2

Description/Motivation:

The description of the CopyRxData API says: "The size of the remaining data is written to the position indicated by bufferSizePtr."

This text seems to have been copied from the CopyTxData call, where it is correct. CopyRxData should talk about "remaining buffer", not "remaining data".

Agreed solution:

In the description of the API PduR_<User:LoTp>CopyRxData (SWS_PduR_00512), replace "remaining data" by "remaining buffer".

BW-C-Level:

Application	Specification	Bus
1	1	1

1.4 Specification Item SWS_J1939Tp_00188

Trace References:

SRS_BSW_00323

Content:

If **default development** error detection for the J1939Tp is enabled, all APIs using a SDU- or PDU-Identifier shall check the input Identifier and raise the development error: J1939TP_E_INVALID_PDU_SDU_ID in case the API has been called for a not configured PDU or SDU.

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 "developement error tracer"!))

Blueprint/Example:

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

- "[SWS_xxx_yyyyyy]

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_yyyyyy]

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_yyyyyy]

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_yyyyyy]

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_J1939Tp_00193

Trace References:

none

Content:

The implementation source files shall include Det.h to import the default development and runtime error notification API. This API is optional; the header is included depending on ECUC_J1939Tp_00042 : . See also section REF.

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 #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 "developement 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 developement 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 "developement 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

1.6 Specification Item SWS_J1939Tp_00233

Trace References:

none

Content:

If several receiving connections are configured with identical PGNs and matching channel parameters, the J1939Tp shall allocate an arbitrary free connection with matching parameters.

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #77294: [J1939Tp] Rationale behind configuring multiple N-SDUs per Tx/RxPg should be specified

Problem description:

It is currently possible to configure more than one N-SDU per Tx/RxPg (multiplicity is defined as 1..*), however there are no requirements on how J1939Tp shall behave for:

- a received N-PDU. Which N-SDU shall be indicated to the upper layers for reception? Or is the intention to create a fan-out?
- a transmission request of an N-SDU while another N-SDU belonging to the same J1939TpTxPg is on-going. Is this a use case?

Note: A statement in RfC # 70228 comment # 4 states regarding the first point "That is intentional. The J1939Tp will select an arbitrary unoccupied N-SDU during reception.". Is it really the intention to introduce this non-determinism in the module behavior?

Agreed solution:

Add the following new SWS item and note after SWS_J1939Tp_00231:

[SWS_J1939Tp_xxxx1] /If several connections are configured with identical PGNs and matching channel parameters, the J1939Tp shall allocate an arbitrary free connection with matching parameters./ (SRS_J1939_00043, SRS_J1939_00044, SRS_J1939_00018, SRS_J1939_00025)

Note: This scenario is typically only useful if all of these similar connections are configured to end up at the same upper layer module.

—Last change on issue 77294 comment 6—

BW-C-Level:

Application	Specification	Bus
1	1	1

1.7 Specification Item SWS_J1939Tp_00234

Trace References:

none

Content:

J1939Tp shall use the following runtime errors:

Type or error	Related error code	Value [hex]
Timeout occurred on receiver side after reception of an intermediate TP.DT frame of a block.	J1939TP_E_TIMEOUT_T1	0x30
Timeout occurred on receiver side after transmission of a TP.CM/CTS frame.	J1939TP_E_TIMEOUT_T2	0x31
Timeout occurred on transmitter side after transmission of the last TP.DT frame of a block.	J1939TP_E_TIMEOUT_T3	0x32
Timeout occurred on transmitter side after reception of a TP.CM/CTS(0) frame.	J1939TP_E_TIMEOUT_T4	0x33
Timeout occurred on transmitter or receiver side while trying to send the next TP.DT or TP.CM frame.	J1939TP_E_TIMEOUT_TR	0x34
Timeout occurred on receiver side while trying to send the next TP.CM/CTS frame after a TP.CM/CTS(0) frame.	J1939TP_E_TIMEOUT_TH	0x35
Invalid value for "total message size" in received TP.CM/RTS frame.	J1939TP_E_INVALID_TMS	0x40
Value for "total number of packets" in received TP.CM/RTS frame does not match the "total message size".	J1939TP_E_INVALID_TNOP	0x41
Invalid value for "maximum number of packets" in received TP.CM/RTS frame.	J1939TP_E_INVALID_MNOP	0x42
Unexpected PGN in received TP.CM frame.	J1939TP_E_INVALID_PGN	0x43
Invalid value for "number of packets" in received TP.CM/CTS frame.	J1939TP_E_INVALID_NOP	0x44
Invalid value for "next packet number" in received TP.CM/CTS frame.	J1939TP_E_INVALID_NPN	0x45

Type or error	Related error code	Value [hex]
Invalid value for "connection abort reason" in received TP.Conn_Abort frame.	J1939TP_E_INVALID_CAR	0x46
Unexpected serial number in received TP.DT frame.	J1939TP_E_INVALID_SN	0x47

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