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Part of AUTOSAR Standard	Classic Platform
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1 SWS_SAEJ1939RequestManager

1.1 Specification Item SWS_J1939Rm_00031

Trace References:

Content:

Table of development errors used by the J1939 Request Manager:

Type or error	Relevance Related error code	Value [hex]
An API was called while the module was uninitialized	Development J1939RM_E_UNINIT	0x01
The Init API was called twice	Development J1939RM_E_REINIT	0x02
J1939Rm_Init was called with an invalid configuration pointer	Development J1939RM_E_INIT_FAILED	0x03
An API service was called with a NULL pointer	Development J1939RM_E_PARAM_POINTER	0x10
An API service was called with a wrong ID	Development J1939RM_E_INVALID_PDU_SDU_ID	0x11
An API service was called with wrong network handle	Development J1939RM_E_INVALID_NETWORK_ID	0x12
The API J1939Rm_SetState was called with a wrong state	Development J1939RM_E_INVALID_STATE	0x13
An API was called with an illegal user ID	Development J1939RM_E_INVALID_USER	0x14
An API was called with an unknown or illegal PGN	Development J1939RM_E_INVALID_PGN	0x15
An API was called with an illegal priority	Development J1939RM_E_INVALID_PRIO	0x16
An API was called with an illegal node address	Development J1939RM_E_INVALID_ADDRESS	0x17
An API was called with an illegal Boolean option	Development J1939RM_E_INVALID_OPTION	0x18
An API was called with an illegal Ack Code	Development J1939RM_E_INVALID_ACK_CODE	0x19

Type or error	Relevance	Value [hex]
	Related error code	
An API was called with an illegal node ID	Development	0x1a
	J1939RM_E_INVALID_NODE_ID	
An API was called with invalid extended identifier bytes	J1939RM_E_INVALID_EXTID_INFO	0x1b
Development		

Development error values are of type uint8.

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

1.2 Specification Item SWS_J1939Rm_00049

Trace References:

Content:

Name:	J1939Rm_StateTypeJ1939Rm_StateType	
Type:	Enumeration	
Range:	J1939RM_STATE_ONLINEJ1939 0x00 OFFLINEJ1939Rm_StateType.J1939RM_STATE_ONLINE OFFLINE	Normal communication Only Request for AC
	J1939RM_STATE_OFFLINEJ1939 0x01 ONLINEJ1939Rm_StateType.J1939RM_STATE_OFFLINE ONLINE	Only Request for AC Normal communication
Description:	This type represents the communication state of the J1939 Request Manager.	

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #77719: [J1939Rm] Illogical sequence of enumerators

  Problem description:

  The sequence and the value of the enumerators of J1939Rm_StateType (SWS_J1939Rm_00049) should be exchanged.

  Agreed solution:

  Change sequence and values of the enumerators of J1939Rm_StateType (SWS_J1939Rm_00049) to:

J1939RM_STATE_OFFLINE 0x00 Only Request for AC
J1939RM_STATE_ONLINE 0x01 Normal communication
–Last change on issue 77719 comment 1–

BW-C-Level:

Application	Specification	Bus
1	4	1

1.3   Specification Item SWS_J1939Rm_00054

Trace References:

SRS_J1939_00016

Content:

Service name:	J1939Rm_SendRequestJ1939Rm_SendRequest	
Syntax:	Std_ReturnType J1939Rm_SendRequest(uint8 userId, NetworkHandleType channel, uint32 requestedPgn, const J1939Rm_ExtIdInfoType* extIdInfo, uint8 destAddress, uint8 priority, boolean checkTimeout)	
Service ID[hex]:	0x07	
Sync/Async:	Synchronous	
Reentrancy:	Reentrant	
Parameters (in):	userIdJ1939Rm_SendRequest.userId	Identification of the calling module.
	channelJ1939Rm_Send Request.channel	Channel on which the request shall be sent.
	requestedPgnJ1939Rm_Send Request.requestedPgn	PGN of the requested PG.
	extIdInfoJ1939Rm_SendRequest.extId Info	Extended identifier bytes. J1939RM_EXTID_NONE is assumed if a NULL pointer is provided.
	destAddressJ1939Rm_Send Request.destAddress	Address of the destination node or 0xFF for broadcast.
	priorityJ1939Rm_SendRequest.priority	Priority of the Request PG.
	checkTimeoutJ1939Rm_Send Request.checkTimeout	TRUE: Timeout supervision will be performed FALSE: No timeout supervision will be started
Parameters (inout):	None	
Parameters (out):	None	
Return value:	Std_ReturnType	E_OK: Transmission request is accepted E_NOT_OK: Transmission request is not accepted

Description:	Requests transmission of a Request or Request2 PG.

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #77385: [J1939Rm] Minor documentation issues

  Problem description:

  I found some minor documentation issues in J1939Rm as follows:

  1)
  As I can see # 68792 was created in order to have ACKM message with direct destination address (not always FF).

  However, the following sentences in chapter 7.5 (Transmission of Acknowledgements) are confusing:

  "The Acknowledgement PG is supposed to have a fixed destination address (FF), configured via CanIfTxPduCanId in the CAN Interface. The J1939 Request Manager shall use the meta data item type CAN_ID_32 so that it can modify the priority and source address."

  "The destination address is always the global address, as defined in [18]."

  I think these sentences need to be corrected.

  2)
  Chapter 3.2 refers to J1939-21 DEC2010, Data Link Layer.
  But for example, extended identifier bytes are completely missing from the DEC2010 Acknowledgment PGN definition. Therefore, I propose to refer to a newer version of J1939-21.

  3)
  Chapter 7.10:
  J1939NM_E_PARAM_POINTER   is   used   instead   of
  J1939RM_E_PARAM_POINTER.

  4)

SWS_J1939Dcm_00187 states:

"The parameter "extIdInfo" of J1939Rm_SendAck shall always be set to NULL_PTR."

I could not find any description in J1939Rm SWS about this use-case.
Therefore, requirement SWS_J1939Rm_00056 may be changed. API specification may allow NULL_PTR explicitly (see SWS_BSW_00212).

Agreed solution:

SWS J1939Rm:

- In section 3.2, replace DEC2010 by MAR2016.
- In section 7.10, replace J1939NM_E_PARAM_POINTER by J1939RM_E_PARAM_POINTER
- Update artifacts for J1939Rm_SendRequest (SWS_J1939Rm_00054), J1939Rm_CancelRequestTimeout (SWS_J1939Rm_00055), and J1939Rm_SendAck (SWS_J1939Rm_00056).

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BSW UML Model:

- In J1939Rm_SendRequest, J1939Rm_CancelRequestTimeout, and J1939Rm_SendAck, change the description of parameter extIdInfo by adding: "J1939RM_EXTID_NONE is assumed if a NULL pointer is provided."
–Last change on issue 77385 comment 6–

BW-C-Level:

Application	Specification	Bus
1	4	1

1.4   Specification Item SWS_J1939Rm_00055

Trace References:

SRS_J1939_00026

Content:

Service name:	J1939Rm_CancelRequestTimeoutJ1939Rm_CancelRequestTimeout

Syntax:	Std_ReturnType J1939Rm_CancelRequestTimeout(uint8 userId, NetworkHandleType channel, uint32 requestedPgn, const J1939Rm_ExtIdInfoType* extIdInfo, uint8 destAddress)	
Service ID[hex]:	0x08	
Sync/Async:	Synchronous	
Reentrancy:	Reentrant	
Parameters (in):	userIdJ1939Rm_CancelRequest Timeout.userId	Identification of the calling module.
	channelJ1939Rm_CancelRequest Timeout.channel	Channel on which the request was sent.
	requestedPgnJ1939Rm_CancelRequest Timeout.requestedPgn	PGN of the requested PG.
	extIdInfoJ1939Rm_CancelRequest Timeout.extIdInfo	Extended identifier bytes. J1939RM_EXTID_NONE is assumed if a NULL pointer is provided.
	destAddressJ1939Rm_CancelRequest Timeout.destAddress	Address of the destination node or 0xFF for broadcast.
Parameters (inout):	None	
Parameters (out):	None	
Return value:	Std_ReturnType	E_OK: Cancellation of request timeout was successful E_NOT_OK: Cancellation of request timeout was not successful
Description:	Cancels timeout monitoring of a request. If the request is not active, or timeout monitoring was not requested, this call has no effect.	

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

• RfC #77385: [J1939Rm] Minor documentation issues

Problem description:

I found some minor documentation issues in J1939Rm as follows:

1)
As I can see # 68792 was created in order to have ACKM message with direct destination address (not always FF).

However, the following sentences in chapter 7.5 (Transmission of Acknowl-edgements) are confusing:

"The Acknowledgement PG is supposed to have a fixed destination address (FF), configured via CanIfTxPduCanId in the CAN Interface. The J1939 Request

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Manager shall use the meta data item type CAN_ID_32 so that it can modify the priority and source address."

"The destination address is always the global address, as defined in [18]."

I think these sentences need to be corrected.

2)
Chapter 3.2 refers to J1939-21 DEC2010, Data Link Layer.
But for example, extended identifier bytes are completely missing from the DEC2010 Acknowledgment PGN definition. Therefore, I propose to refer to a newer version of J1939-21.

3)
Chapter 7.10:
J1939NM_E_PARAM_POINTER is used instead of J1939RM_E_PARAM_POINTER.

4)
SWS_J1939Dcm_00187 states:
"The parameter "extIdInfo" of J1939Rm_SendAck shall always be set to NULL_PTR."

I could not find any description in J1939Rm SWS about this use-case.
Therefore, requirement SWS_J1939Rm_00056 may be changed. API specification may allow NULL_PTR explicitly (see SWS_BSW_00212).

Agreed solution:

SWS J1939Rm:

- In section 3.2, replace DEC2010 by MAR2016.
- In section 7.10, replace J1939NM_E_PARAM_POINTER by J1939RM_E_PARAM_POINTER
- Update artifacts for J1939Rm_SendRequest (SWS_J1939Rm_00054), J1939Rm_CancelRequestTimeout (SWS_J1939Rm_00055), and J1939Rm_SendAck (SWS_J1939Rm_00056).

==

BSW UML Model:

- In J1939Rm_SendRequest, J1939Rm_CancelRequestTimeout, and J1939Rm_SendAck, change the description of parameter extIdInfo by adding: "J1939RM_EXTID_NONE is assumed if a NULL pointer is provided."
–Last change on issue 77385 comment 6–

BW-C-Level:

Application	Specification	Bus
1	4	1

1.5 Specification Item SWS_J1939Rm_00056

Trace References:

SRS_J1939_00017

Content:

Service name:	J1939Rm_SendAckJ1939Rm_SendAck
Syntax:	Std_ReturnType J1939Rm_SendAck(uint8 userId, NetworkHandleType channel, uint32 ackPgn, const J1939Rm_ExtIdInfoType* extIdInfo, J1939Rm_AckCode ackCode, uint8 ackAddress, uint8 priority, boolean broadcast)
Service ID[hex]:	0x09
Sync/Async:	Synchronous
Reentrancy:	Reentrant

Parameters (in):	userIdJ1939Rm_SendAck.userId	Identification of the calling module.
	channelJ1939Rm_SendAck.channel	Channel on which the acknowledgement shall be sent.
	ackPgnJ1939Rm_SendAck.ackPgn	Acknowledged PGN.
	extIdInfoJ1939Rm_SendAck.extIdInfo	Extended identifier bytes. J1939RM_EXTID_NONE is assumed if a NULL pointer is provided.
	ackCodeJ1939Rm_SendAck.ackCode	Type of acknowledgement, see definition of J1939Rm_AckCode for available codes.
	ackAddressJ1939Rm_SendAck.ackAddress	Address of the node that sent the request.
	priorityJ1939Rm_SendAck.priority	Priority of the Acknowledgement PG.
	broadcastJ1939Rm_SendAck.broadcast	Indicates whether the ACKM is a response to a broadcast request.

Parameters (inout):	None

Parameters (out):	None	
Return value:	Std_ReturnType	E_OK: Transmission request is accepted E_NOT_OK: Transmission request is not accepted
Description:	Requests transmission of an Acknowledgement PG.	

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #77385: [J1939Rm] Minor documentation issues

  Problem description:

  I found some minor documentation issues in J1939Rm as follows:

  1)
  As I can see # 68792 was created in order to have ACKM message with direct destination address (not always FF).

  However, the following sentences in chapter 7.5 (Transmission of Acknowledgements) are confusing:

  "The Acknowledgement PG is supposed to have a fixed destination address (FF), configured via CanIfTxPduCanId in the CAN Interface. The J1939 Request Manager shall use the meta data item type CAN_ID_32 so that it can modify the priority and source address."

  "The destination address is always the global address, as defined in [18]."

  I think these sentences need to be corrected.

  2)
  Chapter 3.2 refers to J1939-21 DEC2010, Data Link Layer.
  But for example, extended identifier bytes are completely missing from the DEC2010 Acknowledgment PGN definition. Therefore, I propose to refer to a newer version of J1939-21.

  3)
  Chapter 7.10:
  J1939NM_E_PARAM_POINTER is used instead of J1939RM_E_PARAM_POINTER.

4)
SWS_J1939Dcm_00187 states:
"The parameter "extIdInfo" of J1939Rm_SendAck shall always be set to NULL_PTR."

I could not find any description in J1939Rm SWS about this use-case.
Therefore, requirement SWS_J1939Rm_00056 may be changed. API specification may allow NULL_PTR explicitly (see SWS_BSW_00212).

Agreed solution:

SWS J1939Rm:

- In section 3.2, replace DEC2010 by MAR2016.
- In section 7.10, replace J1939NM_E_PARAM_POINTER by J1939RM_E_PARAM_POINTER
- Update artifacts for J1939Rm_SendRequest (SWS_J1939Rm_00054), J1939Rm_CancelRequestTimeout (SWS_J1939Rm_00055), and J1939Rm_SendAck (SWS_J1939Rm_00056).

==

BSW UML Model:

- In J1939Rm_SendRequest, J1939Rm_CancelRequestTimeout, and J1939Rm_SendAck, change the description of parameter extIdInfo by adding: "J1939RM_EXTID_NONE is assumed if a NULL pointer is provided."
–Last change on issue 77385 comment 6–

BW-C-Level:

Application	Specification	Bus
1	4	1

1.6 Specification Item SWS_J1939Rm_00067

Trace References:

Content:

The J1939 Request Manager shall reject transmission of a request by returning E_NOT_OK when the 'requestedPGN', the 'extIdType' element within the 'ext IdInfo', the 'destAddress', or the 'priority' are not in the valid range, or when the 'userId' is not one of the configured user IDs (see J1939RmUserId), or when 'checkTimeout' is true but timeout handling is disabled for the calling module (see J1939RmUserTimeoutSupervision).   If DET is enabled via J1939RmDevErrorDetect, the corresponding development error (see section [REF]) shall be reported: J1939RM_E_INVALID_USER for 'userId', J1939RM_E_INVALID_EXTID_INFO for 'ext IdInfo', J1939RM_E_INVALID_PGN for 'requestedPGN', J1939RM_E_INVALID_PRIO for 'priority', J1939RM_E_INVALID_ADDRESS for 'destAddress'or 'sourceAddress', and J1939RM_E_INVALID_OPTION for 'checkTimeout'.

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #77730: [J1939Rm] Inaccurate requirements regarding parameter checks

  Problem description:

  The following parameter check requirements should be corrected:

  1) SWS_J1939Rm_00067, SWS_J1939Rm_00069
  J1939Rm_SendRequest, J1939Rm_CancelRequestTimeout APIs
  - These function do not have 'sourceAddress' argument.

  2) SWS_J1939Rm_00070
  J1939Rm_SendAck API
  - Missing text: "or 'ackCode' is not in the valid range"
  - Missing text: "J1939RM_E_INVALID_USER for 'userId'"
  - This function does not have 'sourceAddress' nor 'destAddress' argument.

  Agreed solution:

  - Remove " or 'sourceAddress'" from SWS_J1939Rm_00067 and SWS_J1939Rm_00069.
  - In SWS_J1939Rm_00070, insert "J1939RM_E_INVALID_USER for 'userId', " before "J1939RM_E_INVALID_EXTID_INFO", remove " or 'sourceAddress'", and change 'destAddress' to 'ackAddress'.
  –Last change on issue 77730 comment 2–

  BW-C-Level:

Application	Specification	Bus
1	1	1

1.7 Specification Item SWS_J1939Rm_00069

Trace References:

Content:

The J1939 Request Manager shall ignore the timeout cancellation request when the 'requestedPGN', the 'extIdType' element within the 'extIdInfo', or the 'destAddress' are not in the valid range, or when the 'userId' is not one of the configured user IDs (see J1939RmUserId), or if no suitable entry can be found in the list of pending requests. If DET is enabled via J1939RmDevErrorDetect, the corresponding development error (see section [REF]) shall be reported: J1939RM_E_INVALID_USER for 'userId', J1939RM_E_INVALID_PGN for 'requestedPGN', J1939RM_E_INVALID_EXTID_INFO for 'extIdInfo', and J1939RM_E_INVALID_ADDRESS for 'destAddress'or 'sourceAddress'.

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #77730: [J1939Rm] Inaccurate requirements regarding parameter checks

    Problem description:

    The following parameter check requirements should be corrected:

    1) SWS_J1939Rm_00067, SWS_J1939Rm_00069
    J1939Rm_SendRequest, J1939Rm_CancelRequestTimeout APIs
    - These function do not have 'sourceAddress' argument.

    2) SWS_J1939Rm_00070
    J1939Rm_SendAck API
    - Missing text: "or 'ackCode' is not in the valid range"
    - Missing text: "J1939RM_E_INVALID_USER for 'userId'"
    - This function does not have 'sourceAddress' nor 'destAddress' argument.

    Agreed solution:

    - Remove " or 'sourceAddress'" from SWS_J1939Rm_00067 and SWS_J1939Rm_00069.
    - In SWS_J1939Rm_00070, insert "J1939RM_E_INVALID_USER for 'userId', " before "J1939RM_E_INVALID_EXTID_INFO", remove " or 'sourceAddress'", and change 'destAddress' to 'ackAddress'.
    –Last change on issue 77730 comment 2–

    BW-C-Level:

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Application	Specification	Bus
1	1	1

1.8   Specification Item SWS_J1939Rm_00070

Trace References:

Content:

The J1939 Request Manager shall reject transmission of an acknowledgement by returning E_NOT_OK when the 'ackPgn', the 'extIdType' element within the 'extIdInfo', the 'ack Address', or the 'priority' are not in the valid range, or when the 'userId' is not one of the configured user IDs (see J1939RmUserId). If DET is enabled via J1939RmDevErrorDetect, the corresponding development error (see section [REF]) shall be reported: J1939RM_E_INVALID_USER for 'userId', J1939RM_E_INVALID_EXTID_INFO for 'extId Info', J1939RM_E_INVALID_PGN for 'ackPgn', J1939RM_E_INVALID_ACK_CODE for 'ackCode', J1939RM_E_INVALID_ADDRESS for 'destAddress' or 'sourceackAddress', and J1939RM_E_INVALID_PRIO for 'priority'.

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #77730: [J1939Rm] Inaccurate requirements regarding parameter checks

   Problem description:

   The following parameter check requirements should be corrected:

   1) SWS_J1939Rm_00067, SWS_J1939Rm_00069
   J1939Rm_SendRequest, J1939Rm_CancelRequestTimeout APIs
   - These function do not have 'sourceAddress' argument.

   2) SWS_J1939Rm_00070
   J1939Rm_SendAck API
   - Missing text: "or 'ackCode' is not in the valid range"
   - Missing text: "J1939RM_E_INVALID_USER for 'userId'"
   - This function does not have 'sourceAddress' nor 'destAddress' argument.

   Agreed solution:

   - Remove " or 'sourceAddress'" from SWS_J1939Rm_00067 and SWS_J1939Rm_00069.
   - In SWS_J1939Rm_00070, insert "J1939RM_E_INVALID_USER for 'userId', " before "J1939RM_E_INVALID_EXTID_INFO", remove " or 'sourceAddress'", and

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change 'destAddress' to 'ackAddress'.
–Last change on issue 77730 comment 2–

BW-C-Level:

Application	Specification	Bus
1	1	1

1.9   Specification Item SWS_J1939Rm_00079

Trace References:

Content:

The J1939Rm_ComRxIpduCallout call back function shall only be available if at least one J1939RmComUseris configuredUserTimeoutSupervision is set for at least one user.

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #74619: [J1939Rm] J1939Rm_ComRxIpduCallout is relevant for request timeout supervision, not for COM users

  Problem description:

  SWS_J1939Rm_00079 defines that J1939Rm_ComRxIpduCallout shall only be available if at least one COM user is configured. This is wrong: The API is used to handle request timeout supervision.

  Agreed solution:

  Change SWS_J1939Rm_00079 to "The J1939Rm_ComRxIpduCallout call back function shall only be available if J1939RmUserTimeoutSupervision is set for at least one user."

  BW-C-Level:

Application	Specification	Bus
4	3	1

1.10   Specification Item SWS_J1939Rm_00126

Trace References:

SRS_J1939_00015

Content:

When an acknowledgement is sent, it shall also be handled internally as if it was received via J1939Rm_RxIndication.

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76815: [J1939Rm] Internal feedback of acknowledgement is missing

  Problem description:

  While transmitted Request messages are fed back as received messages (SWS_J1939Rm_00025), a similar mechanism is missing for transmitted Acknowledgement messages.

  Agreed solution:

  Add a new requirement to the end of section 7.5:
  [SWS_J1939Rm_xxxx1] /When an acknowledgement is sent, it shall also be handled internally as if it was received via J1939Rm_RxIndication./ (SRS_J1939_00015)
  –Last change on issue 76815 comment 4–

  BW-C-Level:

Application	Specification	Bus
4	4	1