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Part of AUTOSAR Standard	Classic Platform
Part of Standard Release	4.3.1

Table of Contents

1 SWS_COM

1.1 Specification Item ECUC_Com_00180

Trace References:

none

Content:

Name	ComTxModeTimeOffsetComTxMode.ComTxModeTimeOffset		
Parent Container	ComTxMode		
Description	Defines the period in seconds between the start of the I-PDU by Com_IpduGroupControl Start and the first transmission request in case ComTxModeMode is configured to PERIODIC or MIXED. In case of the mixed transmission mode only the periodic part is affected. In case ComTxModeTimeOffset is omitted or configured to 0, the first periodic transmission shall be transmitted within the next invocation of Com_MainFunctionTx.		
Multiplicity	0..1		
Type	EcucFloatParamDef		
Range	[0 .. 3600]		
Default value	–		
Post-Build Variant Multiplicity	true		
Post-Build Variant Value	true		
Multiplicity Configuration Class	Pre-compile time	X	VARIANT-PRE-COMPILE
	Link time	X	VARIANT-LINK-TIME
	Post-build time	X	VARIANT-POST-BUILD
Value Configuration Class	Pre-compile time	X	VARIANT-PRE-COMPILE
	Link time	X	VARIANT-LINK-TIME
	Post-build time	X	VARIANT-POST-BUILD
Scope / Dependency	scope: local		

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76213: The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch.

  Problem description:

  The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroup-Switch. In case both actions are applied on the same BswM MainFunction cycle, BswMPduGroupSwitch will revert BswMSwitchIPduMode due to the late execution of BswMPduGroupSwitch.
  Example:
  ActionList: BswMPduGroupSwitch; ; BswMSwitchIPduMode; (both actions are applied on the same IPDU)

The expected result is that the IPduMode and the IPduGroup are switched. In reality the IPduGroup switch is postponed to MainFunction (see Handling of I-PDU Group Actions). By this postponement the switched IPduMode is reverted.

Before adding more and more BswM actions for late execution we would recommend to execute the BswMPduGroupSwitch immediately as we did it in AUTOSAR 3. This will simplify the IPduGroup handling in BswM and force a more robust handling in general.

Agreed solution:

COM
==========

remove Com_IpduGroupControl (SWS_Com_00751, SWS_Com_00792)
remove Com_ReceptionDMControl (SWS_Com_00752, SWS_Com_00616, SWS_Com_00617, SWS_Com_00618)
remove Com_ClearIpduGroupVector (SWS_Com_00749, SWS_Com_00750, SWS_Com_00623)
remove Com_IpduGroupVector (SWS_Com_00823)
remove Com_SetIpduGroup (SWS_Com_00750, SWS_Com_00623)

re-introduce void Com_IpduGroupStart(Com_PduGroupIdType IpduGroupId, boolean Initialize) (as in AUTOSAR 3.2)
re-introduce void void Com_IpduGroupStop(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_DisableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_EnableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)

adapt the SWS_Com requirements which contain the removed APIs, for example: in SWS_Com_00114, the "Com_IpduGroupControl" would be replaced with "Com_IpduGroupStart".

make sure that the I-PDU group activation rules remain as in AUTOSAR 4.X

BswM
==========

*) Remove chapter 7.2.6 Handling of I-PDU Group Actions

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMDeadlineMonitoringControl container has a BswMDisabledDMPduGroupRef and a BswMEnabledDMPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMPduGroupSwitch container has a BswMDisabledPduGroupRef and a BswMEnabledPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_XXXXX "When a BswMPduGroupSwitch action is executed, the BswM shall call Com_IpduGroupStart for each BswMEnabledPduGroupRef, and call Com_IpduGroupStop for each BswMDisabledPduGroupRef. The ordering of these calls to Com is undefined."

*) Add SWS_BswM_XXXXX "When a BswMDeadlineMonitoringControl action is executed, the BswM shall call Com_EnableReceptionDM for each BswMEnabledDMPduGroupRef, and call Com_DisableReceptionDM for each BswMDisabledDMPduGroupRef. The ordering of these calls to Com is undefined."

*) Note: If a strict ordering of the calls to Com_IpduGroupStart, Com_IpduGroupStop, Com_EnableReceptionDM, or Com_DisableReceptionDM is required, then this can be achieved by configuring individual actions (BswMPduGroupSwitch/BswMDeadlineMonitoringControl, each with just a single BswM*PduGroupRef) within an ordered action list.

EcuC
==========
*) Adapt the descriptions of the following ECUC parameters
SWS Item ECUC_BswM_00852 :
Name
BswMDisabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_DisableReceptionDM.

SWS Item ECUC_BswM_00851 :
Name
BswMEnabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be enabled.

This reference corresponds to the parameter "IpduGroupId" of the function Com_EnableReceptionDM.

SWS Item ECUC_BswM_00913 :
Name
BswMPduGroupSwitchReinit
Description This parameter defines if the data of the I-PDU, the shadow buffers of included signal groups, etc. are reinitialized when a PDU Group is started.
This parameter corresponds to the parameter "initialize" of the function Com_IpduGroupStart.

SWS Item ECUC_BswM_00850 :
Name
BswMDisabledPduGroupRef
Description This is a reference to a PDU Group that should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStop.

SWS Item ECUC_BswM_00849 :
Name
BswMEnabledPduGroupRef
Description This is a reference to a PDU Group that should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStart.

*) Remove "Com_IpduGroupControl is called when this action is configured." from description of BswMPduGroupSwitch (ECUC_BswM_00828)

*) Remove "COM_ReceptionDMControl is called when this action is configured." from description of BswMDeadlineMonitoringControl (ECUC_BswM_00830)

BSW UML
==========
*) Update the table of optional interfaces (SWS_BswM_00008):
Remove Com_ClearIpduGroupVector; Com_IpduGroupControl; Com_ReceptionDMControl; Com_SetIpduGroup
Add: Com_IpduGroupStop; Com_IpduGroupStart; Com_EnableReceptionDM; Com_DisableReceptionDM

*) Remove Com_IpduGroupVector from imported types (SWS_BswM_00001)

*) Remove:
SWS_Com_00749
SWS_Com_00750
SWS_Com_00751
SWS_Com_00752
SWS_Com_00823
–Last change on issue 76213 comment 33–

BW-C-Level:

Application	Specification	Bus
1	4	1

1.2 Specification Item ECUC_Com_00437

Trace References:

none

Content:

Name	ComSignalLengthComSignal.ComSignalLength		
Description	Description: For ComSignalType UINT8_N this parameter specifies the length n in bytes. For ComSignalType UINT8_DYN it specifies the maximum length in bytes. For all other types this parameter shall be ignored. Range: 0..8 for normal CAN / LINI-PDUs, 0..64 The supported maximum length is restricted by the used transportation system. For non TP-PDUs the maximum size of a PDU, and therefore also of any included signal, is limited by the concrete bus characteristic. For example, the limit is 8 bytes for CAN and LIN, 64 bytes for CAN FD I-PDUs, 0..254 for normal and 254 for Flex RayI-PDUs (all of ComIPduType NORMAL), 0..4294967295 for I-PDUs with ComIPduType TP.		
Multiplicity	0..1		
Type	EcucIntegerParamDef		
Range	0 .. 4294967295		
Default value	–		
Post-Build Variant Multiplicity	false		
Post-Build Variant Value	false		
Multiplicity Configuration Class	Pre-compile time	X	VARIANT-PRE-COMPILE
	Link time	X	VARIANT-LINK-TIME, VARIANT-POST-BUILD
	Post-build time	–	
Value Configuration Class	Pre-compile time	X	VARIANT-PRE-COMPILE
	Link time	X	VARIANT-LINK-TIME, VARIANT-POST-BUILD
	Post-build time	–	
Scope / Dependency	scope: local		

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76978: [COM] Remove/Update bus-specific constraint in ECUC_Com_00437

  Problem description:

  The ECUC_Com_00437 states:
  For ComSignalType UINT8_N this parameter specifies the length n in bytes. For ComSignalType UINT8_DYN it specifies the maximum length in bytes. For all other types this parameter shall be ignored.
  Range: 0..8 for normal CAN/ LIN I-PDUs,
  0..64 for CAN FD I-PDUs,
  0..254 for normal FlexRay I-PDUs (all of ComIPduType NORMAL),
  0..4294967295 for I-PDUs with ComIPduType TP.

  What is really the argumentation behind these restrictions, the COM should be bus independent?

  For Ethernet this becomes a problem. Strictly speaking this means that it is ONLY allowed to have TP for Ethernet PDUs.

  Agreed solution:

  ===ECUC===

  In the description of ComSignalLength (ECUC_Com_00437) replace

  —
  Range: 0..8 for normal CAN/ LIN I-PDUs, 0..64 for CAN FD I-PDUs, 0..254 for normal FlexRay I-PDUs (all of ComIPduType NORMAL), 0..4294967295 for I-PDUs with ComIPduType TP.
  —

  by

  —
  The supported maximum length is restricted by the used transportation system. For non TP-PDUs the maximum size of a PDU, and therefore also of any included signal, is limited by the concrete bus characteristic. For example, the limit is 8 bytes for CAN and LIN, 64 bytes for CAN FD and 254 for FlexRay.
  —

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–Last change on issue 76978 comment 5–

BW-C-Level:

Application	Specification	Bus
1	1	1

1.3 Specification Item ECUC_Com_00540

Trace References:

none

Content:

Module Name	ComCom
Module Description	Configuration of the AUTOSAR COM module.
Post-Build Variant Support	true
Supported Config Variants	VARIANT-LINK-TIME, VARIANT-POST-BUILD, VARIANT-PRE-COMPILE

Included containers:

Included Containers		
Container Name	Multiplicity	Scope / Dependency
ComConfig	1	This container contains the configuration parameters and sub containers of the AUTOSAR COM module. This container is a MultipleConfigurationContainer, i.e. this container and its sub-containers exist once per configuration set.
ComGeneral	1	Contains the general configuration parameters of the AUTOSAR COM module.

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #77386: MultipleConfigurationContainer occurrences

  Problem description:

  As far as I know, MultipleConfigurationContainer type has been removed from the standard.
  However, there are some SWS documents which mention MultipleConfigurationContainer.

COM:
Figure 10: ComConfig: "multipleConfigurationContainer = true"
ECUC_Com_00540: "This container is a MultipleConfigurationContainer, i.e. this container and its sub-containers exist once per configuration set."

J1939Nm:
ECUC_J1939Nm_00027, ECUC_J1939Nm_00028: "This container is a MultipleConfigurationContainer, i.e. this container and its sub-containers exist once per configuration set."

PduR:
Figure 33: ComConfig: "multipleConfigurationContainer = true", CanIfInitCfg: "multipleConfigurationContainer = true"

Rte:
Chapter 5.3.10: "RtePostBuildVariantConfiguration is a multipleConfigurationContainer"

Agreed solution:

COM:
Remove multipleConfigurationContainer from (description of) ComConfig and regenerate and update chap10/Com.html and Figure 10 (The AUTOSAR COM modules Configuration Overview).

==========

Rte:
- In chapter 5.3.10 remove block "RtePostBuildVariantConfiguration is a multipleConfigurationContainer... post build configurable inside the RTE."

- In chapter 5.3.10.3 replace "And likewise for the example 2 header file the RTE generator can declare and initialize in the Rte_PBcfg.c file all possible PostBuildVariantCriterionValueSets
and the RtePostBuildVariantConfigurations using references to these variant sets." with "And likewise for the example 2 header file the RTE generator can declare and initialize in the Rte_PBcfg.c file all possible PostBuildVariantCriterionValueSets and the RtePostBuildVariantConfiguration using references to these variant sets."

- In chapter 7.4 replace "Each instance of this container specifies one PostBuild variant of the generated Rte. The shortName of the container RtePostBuildVariantConfiguration specifies the variant name." with "Each instance of RtePostBuildUsedPredefinedVariant inside this container specifies one PostBuild variant of the generated Rte. The shortName of the RtePostBuildUsedPredefined-

Variant specifies the variant name."

- [ECUC_Rte_09084]: Remove "The shortName of this container defines the name of the RtePostBuildVariant."

- [ECUC_Rte_09083]: Add "The shortName of the referenced PredefinedVariant defines the name of the RtePostBuildVariant."

==========

J1939Nm:
Change the description of J1939NmConfigSet (ECUC_J1939Nm_00027) to: "This container contains the configuration parameters and sub containers of the AUTOSAR J1939Nm module."

==========

PduR:
Remove multipleConfigurationContainer from ComConfig and CanIfInitConfig on Figure 29.

==========
–Last change on issue 77386 comment 8–

BW-C-Level:

Application	Specification	Bus
1	1	1

1.4 Specification Item ECUC_Com_00576

Trace References:

none

Content:

Name	ComTxIPduClearUpdateBitComTxIPdu.ComTxIPduClearUpdateBit
Parent Container	ComTxIPdu
Description	Defines when the update-bits of signals or signal groups, contained in this I-PDU, will be cleared.
Multiplicity	0..1
Type	EcucEnumerationParamDef

Range	ConfirmationComTx IPdu.ComTxIPduClear UpdateBit.Confirmation	The update-bits are cleared when the transmission of the I-PDU was confirmed. In case of Direct/N-Times transmission mode the update bits will be cleared with respect to the confirmation behaviour of ECUCSWS_Com_00305.	
	TransmitComTxIPdu.ComTx IPduClearUpdateBit.Transmit	The update-bits are cleared directly after the invocation of Pdu R_ComTransmit.	
	TriggerTransmitComTx IPdu.ComTxIPduClear UpdateBit.TriggerTransmit	The update-bits are cleared after the I-PDU was fetched via Com_TriggerTransmit.	
Post-Build Variant Multiplicity	true		
Post-Build Variant Value	true		
Multiplicity Configuration Class	Pre-compile time	X	VARIANT-PRE-COMPILE
	Link time	X	VARIANT-LINK-TIME
	Post-build time	X	VARIANT-POST-BUILD
Value Configuration Class	Pre-compile time	X	VARIANT-PRE-COMPILE
	Link time	X	VARIANT-LINK-TIME
	Post-build time	X	VARIANT-POST-BUILD
Scope / Dependency	scope: local		

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #77881: [Com] Replace ECUC_Com_00305 with the correct SWS requirement

  Problem description:

  ECUC_Com_00576 refer in section Range.Confirmation to ECUC_Com_00305. ECUC_Com_00305 is a non existing requirement.

  Agreed solution:

  In description of ComTxIPduClearUpdateBit.Range.Confirmation (ECUC_Com_00576):

  replace ECUC_Com_00305 with SWS_Com_00305
  –Last change on issue 77881 comment 1–

  BW-C-Level:

Application	Specification	Bus
1	1	1

1.5 Specification Item SWS_Com_00114

Trace References:

SRS_Com_00218

Content:

If an I-PDU is started as result of a call to by Com_IpduGroupControlStart, the AUTOSAR COM module shall permit to transmit/ receive its signals and signal groups, see also Table 4.

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76213: The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch.

  Problem description:

  The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroup-Switch. In case both actions are applied on the same BswM MainFunction cycle, BswMPduGroupSwitch will revert BswMSwitchIPduMode due to the late execution of BswMPduGroupSwitch.
  Example:
  ActionList: BswMPduGroupSwitch; ; BswMSwitchIPduMode; (both actions are applied on the same IPDU)

  The expected result is that the IPduMode and the IPduGroup are switched. In reality the IPduGroup switch is postponed to MainFunction (see Handling of I-PDU Group Actions). By this postponement the switched IPduMode is reverted.

  Before adding more and more BswM actions for late execution we would recommend to execute the BswMPduGroupSwitch immediately as we did it in AUTOSAR 3. This will simplify the IPduGroup handling in BswM and force a more robust handling in general.

  Agreed solution:

  COM
  ==========

  remove Com_IpduGroupControl (SWS_Com_00751, SWS_Com_00792)
  remove Com_ReceptionDMControl (SWS_Com_00752, SWS_Com_00616, SWS_Com_00617, SWS_Com_00618)
  remove Com_ClearIpduGroupVector (SWS_Com_00749, SWS_Com_00750, SWS_Com_00623)
  remove Com_IpduGroupVector (SWS_Com_00823)
  remove Com_SetIpduGroup (SWS_Com_00750, SWS_Com_00623)

  re-introduce void Com_IpduGroupStart(Com_PduGroupIdType IpduGroupId, boolean Initialize) (as in AUTOSAR 3.2)

re-introduce void void Com_IpduGroupStop(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_DisableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_EnableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)

adapt the SWS_Com requirements which contain the removed APIs, for example: in SWS_Com_00114, the "Com_IpduGroupControl" would be replaced with "Com_IpduGroupStart".

make sure that the I-PDU group activation rules remain as in AUTOSAR 4.X

BswM
==========

*) Remove chapter 7.2.6 Handling of I-PDU Group Actions

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMDeadlineMonitoringControl container has a BswMDisabledDMPduGroupRef and a BswMEnabledDMPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMPduGroupSwitch container has a BswMDisabledPduGroupRef and a BswMEnabledPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_XXXXX "When a BswMPduGroupSwitch action is executed, the BswM shall call Com_IpduGroupStart for each BswMEnabledPduGroupRef, and call Com_IpduGroupStop for each BswMDisabledPduGroupRef. The ordering of these calls to Com is undefined."

*) Add SWS_BswM_XXXXX "When a BswMDeadlineMonitoringControl action is executed, the BswM shall call Com_EnableReceptionDM for each BswMEnabledDMPduGroupRef, and call Com_DisableReceptionDM for each BswMDisabledDMPduGroupRef. The ordering of these calls to Com is undefined."

*) Note: If a strict ordering of the calls to Com_IpduGroupStart, Com_IpduGroupStop, Com_EnableReceptionDM, or Com_DisableReceptionDM is required, then this can be achieved by configuring individual actions (BswMPduGroupSwitch/BswMDeadlineMonitoringControl, each with just a single

BswM*PduGroupRef) within an ordered action list.

EcuC
==========
*) Adapt the descriptions of the following ECUC parameters
SWS Item ECUC_BswM_00852 :
Name
BswMDisabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_DisableReceptionDM.

SWS Item ECUC_BswM_00851 :
Name
BswMEnabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_EnableReceptionDM.

SWS Item ECUC_BswM_00913 :
Name
BswMPduGroupSwitchReinit
Description This parameter defines if the data of the I-PDU, the shadow buffers of included signal groups, etc. are reinitialized when a PDU Group is started.
This parameter corresponds to the parameter "initialize" of the function Com_IpduGroupStart.

SWS Item ECUC_BswM_00850 :
Name
BswMDisabledPduGroupRef
Description This is a reference to a PDU Group that should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStop.

SWS Item ECUC_BswM_00849 :
Name
BswMEnabledPduGroupRef
Description This is a reference to a PDU Group that should be enabled.

This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStart.

*) Remove "Com_IpduGroupControl is called when this action is configured." from description of BswMPduGroupSwitch (ECUC_BswM_00828)

*) Remove "COM_ReceptionDMControl is called when this action is configured." from description of BswMDeadlineMonitoringControl (ECUC_BswM_00830)

BSW UML
==========
*) Update the table of optional interfaces (SWS_BswM_00008):
Remove Com_ClearIpduGroupVector; Com_IpduGroupControl; Com_ReceptionDMControl; Com_SetIpduGroup
Add: Com_IpduGroupStop; Com_IpduGroupStart; Com_EnableReceptionDM; Com_DisableReceptionDM

*) Remove Com_IpduGroupVector from imported types (SWS_BswM_00001)

*) Remove:
SWS_Com_00749
SWS_Com_00750
SWS_Com_00751
SWS_Com_00752
SWS_Com_00823
–Last change on issue 76213 comment 33–

BW-C-Level:

Application	Specification	Bus
1	4	1

1.6 Specification Item SWS_Com_00115

Trace References:

SRS_Com_00218

Content:

If an I-PDU is stopped as result of a call to by Com_IpduGroupControlStop, the AUTOSAR COM module shall cancel the deadline monitoring for all pending confirmations.

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76213: The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch.

  Problem description:

  The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch. In case both actions are applied on the same BswM MainFunction cycle, BswMPduGroupSwitch will revert BswMSwitchIPduMode due to the late execution of BswMPduGroupSwitch.
  Example:
  ActionList: BswMPduGroupSwitch; ; BswMSwitchIPduMode; (both actions are applied on the same IPDU)

  The expected result is that the IPduMode and the IPduGroup are switched. In reality the IPduGroup switch is postponed to MainFunction (see Handling of I-PDU Group Actions). By this postponement the switched IPduMode is reverted.

  Before adding more and more BswM actions for late execution we would recommend to execute the BswMPduGroupSwitch immediately as we did it in AUTOSAR 3. This will simplify the IPduGroup handling in BswM and force a more robust handling in general.

  Agreed solution:

  COM
  ==========

  remove Com_IpduGroupControl (SWS_Com_00751, SWS_Com_00792)
  remove Com_ReceptionDMControl (SWS_Com_00752, SWS_Com_00616, SWS_Com_00617, SWS_Com_00618)
  remove Com_ClearIpduGroupVector (SWS_Com_00749, SWS_Com_00750, SWS_Com_00623)
  remove Com_IpduGroupVector (SWS_Com_00823)
  remove Com_SetIpduGroup (SWS_Com_00750, SWS_Com_00623)

  re-introduce void Com_IpduGroupStart(Com_PduGroupIdType IpduGroupId, boolean Initialize) (as in AUTOSAR 3.2)
  re-introduce void void Com_IpduGroupStop(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
  re-introduce void Com_DisableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
  re-introduce void Com_EnableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)

adapt the SWS_Com requirements which contain the removed APIs, for example: in SWS_Com_00114, the "Com_IpduGroupControl" would be replaced with "Com_IpduGroupStart".

make sure that the I-PDU group activation rules remain as in AUTOSAR 4.X

BswM
==========

*) Remove chapter 7.2.6 Handling of I-PDU Group Actions

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMDeadlineMonitoringControl container has a BswMDisabledDMPduGroupRef and a BswMEnabledDMPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMPduGroupSwitch container has a BswMDisabledPduGroupRef and a BswMEnabledPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_XXXXX "When a BswMPduGroupSwitch action is executed, the BswM shall call Com_IpduGroupStart for each BswMEnabledPduGroupRef, and call Com_IpduGroupStop for each BswMDisabledPduGroupRef. The ordering of these calls to Com is undefined."

*) Add SWS_BswM_XXXXX "When a BswMDeadlineMonitoringControl action is executed, the BswM shall call Com_EnableReceptionDM for each BswMEnabledDMPduGroupRef, and call Com_DisableReceptionDM for each BswMDisabledDMPduGroupRef. The ordering of these calls to Com is undefined."

*) Note: If a strict ordering of the calls to Com_IpduGroupStart, Com_IpduGroupStop, Com_EnableReceptionDM, or Com_DisableReceptionDM is required, then this can be achieved by configuring individual actions (BswMPduGroupSwitch/BswMDeadlineMonitoringControl, each with just a single BswM*PduGroupRef) within an ordered action list.

EcuC
==========

*) Adapt the descriptions of the following ECUC parameters
SWS Item ECUC_BswM_00852 :
Name
BswMDisabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_DisableReceptionDM.

SWS Item ECUC_BswM_00851 :
Name
BswMEnabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_EnableReceptionDM.

SWS Item ECUC_BswM_00913 :
Name
BswMPduGroupSwitchReinit
Description This parameter defines if the data of the I-PDU, the shadow buffers of included signal groups, etc. are reinitialized when a PDU Group is started.
This parameter corresponds to the parameter "initialize" of the function Com_IpduGroupStart.

SWS Item ECUC_BswM_00850 :
Name
BswMDisabledPduGroupRef
Description This is a reference to a PDU Group that should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStop.

SWS Item ECUC_BswM_00849 :
Name
BswMEnabledPduGroupRef
Description This is a reference to a PDU Group that should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStart.

*) Remove "Com_IpduGroupControl is called when this action is configured." from description of BswMPduGroupSwitch (ECUC_BswM_00828)

*) Remove "COM_ReceptionDMControl is called when this action is configured." from description of BswMDeadlineMonitoringControl (ECUC_BswM_00830)

BSW UML
==========
*) Update the table of optional interfaces (SWS_BswM_00008):
Remove Com_ClearIpduGroupVector; Com_IpduGroupControl; Com_ReceptionDMControl; Com_SetIpduGroup
Add: Com_IpduGroupStop; Com_IpduGroupStart; Com_EnableReceptionDM; Com_DisableReceptionDM

*) Remove Com_IpduGroupVector from imported types (SWS_BswM_00001)

*) Remove:
SWS_Com_00749
SWS_Com_00750
SWS_Com_00751
SWS_Com_00752
SWS_Com_00823
–Last change on issue 76213 comment 33–

BW-C-Level:

Application	Specification	Bus
1	4	1

1.7 Specification Item SWS_Com_00222

Trace References:

SRS_Com_00218

Content:

If an I-PDU is started as result of a call by Com_IpduGroupControl Start with parameter Initialize set to true, the AUTOSAR COM module shall additionally to SWS_Com_00787 initialize the following attributes of this I-PDU:

1. the data of the I-PDU as defined in SWS_Com_00217
2. the shadow buffers of included signal groups
3. old_value of the filtering mechanisms for each signal to the ComSignalInitValue

4. ComTxModeTimePeriod and ComTxModeTimeOffset of I-PDUs in Periodic or MIXED transmission mode

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76213: The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch.

  Problem description:

  The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch. In case both actions are applied on the same BswM MainFunction cycle, BswMPduGroupSwitch will revert BswMSwitchIPduMode due to the late execution of BswMPduGroupSwitch.
  Example:
  ActionList: BswMPduGroupSwitch; ; BswMSwitchIPduMode; (both actions are applied on the same IPDU)

  The expected result is that the IPduMode and the IPduGroup are switched. In reality the IPduGroup switch is postponed to MainFunction (see Handling of I-PDU Group Actions). By this postponement the switched IPduMode is reverted.

  Before adding more and more BswM actions for late execution we would recommend to execute the BswMPduGroupSwitch immediately as we did it in AUTOSAR 3. This will simplify the IPduGroup handling in BswM and force a more robust handling in general.

  Agreed solution:

  COM
  ==========

  remove Com_IpduGroupControl (SWS_Com_00751, SWS_Com_00792)
  remove Com_ReceptionDMControl (SWS_Com_00752, SWS_Com_00616, SWS_Com_00617, SWS_Com_00618)
  remove Com_ClearIpduGroupVector (SWS_Com_00749, SWS_Com_00750, SWS_Com_00623)
  remove Com_IpduGroupVector (SWS_Com_00823)
  remove Com_SetIpduGroup (SWS_Com_00750, SWS_Com_00623)

  re-introduce void Com_IpduGroupStart(Com_PduGroupIdType IpduGroupId, boolean Initialize) (as in AUTOSAR 3.2)
  re-introduce void void Com_IpduGroupStop(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
  re-introduce void Com_DisableReceptionDM(Com_PduGroupIdType IpduGroupId

) (as in AUTOSAR 3.2)
re-introduce void Com_EnableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)

adapt the SWS_Com requirements which contain the removed APIs, for example: in SWS_Com_00114, the "Com_IpduGroupControl" would be replaced with "Com_IpduGroupStart".

make sure that the I-PDU group activation rules remain as in AUTOSAR 4.X

BswM
==========

*) Remove chapter 7.2.6 Handling of I-PDU Group Actions

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMDeadlineMonitoringControl container has a BswMDisabledDMPduGroupRef and a BswMEnabledDMPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMPduGroupSwitch container has a BswMDisabledPduGroupRef and a BswMEnabledPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_XXXXX "When a BswMPduGroupSwitch action is executed, the BswM shall call Com_IpduGroupStart for each BswMEnabledPduGroupRef, and call Com_IpduGroupStop for each BswMDisabledPduGroupRef. The ordering of these calls to Com is undefined."

*) Add SWS_BswM_XXXXX "When a BswMDeadlineMonitoringControl action is executed, the BswM shall call Com_EnableReceptionDM for each BswMEnabledDMPduGroupRef, and call Com_DisableReceptionDM for each BswMDisabledDMPduGroupRef. The ordering of these calls to Com is undefined."

*) Note: If a strict ordering of the calls to Com_IpduGroupStart, Com_IpduGroupStop, Com_EnableReceptionDM, or Com_DisableReceptionDM is required, then this can be achieved by configuring individual actions (BswMPduGroupSwitch/BswMDeadlineMonitoringControl, each with just a single BswM*PduGroupRef) within an ordered action list.

EcuC
==========
*) Adapt the descriptions of the following ECUC parameters
SWS Item ECUC_BswM_00852 :
Name
BswMDisabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_DisableReceptionDM.

SWS Item ECUC_BswM_00851 :
Name
BswMEnabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_EnableReceptionDM.

SWS Item ECUC_BswM_00913 :
Name
BswMPduGroupSwitchReinit
Description This parameter defines if the data of the I-PDU, the shadow buffers of included signal groups, etc. are reinitialized when a PDU Group is started.
This parameter corresponds to the parameter "initialize" of the function Com_IpduGroupStart.

SWS Item ECUC_BswM_00850 :
Name
BswMDisabledPduGroupRef
Description This is a reference to a PDU Group that should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStop.

SWS Item ECUC_BswM_00849 :
Name
BswMEnabledPduGroupRef
Description This is a reference to a PDU Group that should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStart.

*) Remove "Com_IpduGroupControl is called when this action is configured." from description of BswMPduGroupSwitch (ECUC_BswM_00828)

*) Remove "COM_ReceptionDMControl is called when this action is configured." from description of BswMDeadlineMonitoringControl (ECUC_BswM_00830)

BSW UML
==========
*) Update the table of optional interfaces (SWS_BswM_00008):
Remove Com_ClearIpduGroupVector; Com_IpduGroupControl; Com_ReceptionDMControl; Com_SetIpduGroup
Add: Com_IpduGroupStop; Com_IpduGroupStart; Com_EnableReceptionDM; Com_DisableReceptionDM

*) Remove Com_IpduGroupVector from imported types (SWS_BswM_00001)

*) Remove:
SWS_Com_00749
SWS_Com_00750
SWS_Com_00751
SWS_Com_00752
SWS_Com_00823
–Last change on issue 76213 comment 33–

BW-C-Level:

Application	Specification	Bus
1	4	1

1.8 Specification Item SWS_Com_00223

Trace References:

SRS_Com_00218

Content:

If an I-PDU is started as result of a call to by Com_IpduGroupControlStart, the AUTOSAR COM module shall determine its transmission mode according to its current data content.

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76213: The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch.

  Problem description:

  The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch. In case both actions are applied on the same BswM MainFunction cycle, BswMPduGroupSwitch will revert BswMSwitchIPduMode due to the late execution of BswMPduGroupSwitch.
  Example:
  ActionList: BswMPduGroupSwitch; ; BswMSwitchIPduMode; (both actions are applied on the same IPDU)

  The expected result is that the IPduMode and the IPduGroup are switched. In reality the IPduGroup switch is postponed to MainFunction (see Handling of I-PDU Group Actions). By this postponement the switched IPduMode is reverted.

  Before adding more and more BswM actions for late execution we would recommend to execute the BswMPduGroupSwitch immediately as we did it in AUTOSAR 3. This will simplify the IPduGroup handling in BswM and force a more robust handling in general.

  Agreed solution:

  COM
  ==========

  remove Com_IpduGroupControl (SWS_Com_00751, SWS_Com_00792)
  remove Com_ReceptionDMControl (SWS_Com_00752, SWS_Com_00616, SWS_Com_00617, SWS_Com_00618)
  remove Com_ClearIpduGroupVector (SWS_Com_00749, SWS_Com_00750, SWS_Com_00623)
  remove Com_IpduGroupVector (SWS_Com_00823)
  remove Com_SetIpduGroup (SWS_Com_00750, SWS_Com_00623)

  re-introduce void Com_IpduGroupStart(Com_PduGroupIdType IpduGroupId, boolean Initialize) (as in AUTOSAR 3.2)
  re-introduce void void Com_IpduGroupStop(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
  re-introduce void Com_DisableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
  re-introduce void Com_EnableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)

  adapt the SWS_Com requirements which contain the removed APIs, for ex-

ample: in SWS_Com_00114, the "Com_IpduGroupControl" would be replaced with "Com_IpduGroupStart".

make sure that the I-PDU group activation rules remain as in AUTOSAR 4.X

BswM
==========

*) Remove chapter 7.2.6 Handling of I-PDU Group Actions

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMDeadlineMonitoringControl container has a BswMDisabledDMPduGroupRef and a BswMEnabledDMPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMPduGroupSwitch container has a BswMDisabledPduGroupRef and a BswMEnabledPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_XXXXX "When a BswMPduGroupSwitch action is executed, the BswM shall call Com_IpduGroupStart for each BswMEnabledPduGroupRef, and call Com_IpduGroupStop for each BswMDisabledPduGroupRef. The ordering of these calls to Com is undefined."

*) Add SWS_BswM_XXXXX "When a BswMDeadlineMonitoringControl action is executed, the BswM shall call Com_EnableReceptionDM for each BswMEnabledDMPduGroupRef, and call Com_DisableReceptionDM for each BswMDisabledDMPduGroupRef. The ordering of these calls to Com is undefined."

*) Note: If a strict ordering of the calls to Com_IpduGroupStart, Com_IpduGroupStop, Com_EnableReceptionDM, or Com_DisableReceptionDM is required, then this can be achieved by configuring individual actions (BswMPduGroupSwitch/BswMDeadlineMonitoringControl, each with just a single BswM*PduGroupRef) within an ordered action list.

EcuC
==========
*) Adapt the descriptions of the following ECUC parameters
SWS Item ECUC_BswM_00852 :

Name
BswMDisabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_DisableReceptionDM.

SWS Item ECUC_BswM_00851 :
Name
BswMEnabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_EnableReceptionDM.

SWS Item ECUC_BswM_00913 :
Name
BswMPduGroupSwitchReinit
Description This parameter defines if the data of the I-PDU, the shadow buffers of included signal groups, etc. are reinitialized when a PDU Group is started.
This parameter corresponds to the parameter "initialize" of the function Com_IpduGroupStart.

SWS Item ECUC_BswM_00850 :
Name
BswMDisabledPduGroupRef
Description This is a reference to a PDU Group that should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStop.

SWS Item ECUC_BswM_00849 :
Name
BswMEnabledPduGroupRef
Description This is a reference to a PDU Group that should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStart.

*) Remove "Com_IpduGroupControl is called when this action is configured." from description of BswMPduGroupSwitch (ECUC_BswM_00828)

*) Remove "COM_ReceptionDMControl is called when this action is configured." from description of BswMDeadlineMonitoringControl (ECUC_BswM_00830)

BSW UML
==========
*) Update the table of optional interfaces (SWS_BswM_00008):
Remove Com_ClearIpduGroupVector; Com_IpduGroupControl; Com_ReceptionDMControl; Com_SetIpduGroup
Add: Com_IpduGroupStop; Com_IpduGroupStart; Com_EnableReceptionDM; Com_DisableReceptionDM

*) Remove Com_IpduGroupVector from imported types (SWS_BswM_00001)

*) Remove:
SWS_Com_00749
SWS_Com_00750
SWS_Com_00751
SWS_Com_00752
SWS_Com_00823
–Last change on issue 76213 comment 33–

BW-C-Level:

Application	Specification	Bus
1	4	1

1.9 Specification Item SWS_Com_00224

Trace References:

SRS_Com_00192

Content:

If the reception deadline monitoring state of an I-PDU is changed by a call to Com_ReceptionDMControl from disabled to enabledenabled by Com_EnableReception DM, the AUTOSAR COM module shall set the reception deadline monitoring timer for the included signals and signal groups to the configured ComFirstTimeout value.

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76213: The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch.

Problem description:

The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch. In case both actions are applied on the same BswM MainFunction cycle, BswMPduGroupSwitch will revert BswMSwitchIPduMode due to the late execution of BswMPduGroupSwitch.
Example:
ActionList: BswMPduGroupSwitch; ; BswMSwitchIPduMode; (both actions are applied on the same IPDU)

The expected result is that the IPduMode and the IPduGroup are switched. In reality the IPduGroup switch is postponed to MainFunction (see Handling of I-PDU Group Actions). By this postponement the switched IPduMode is reverted.

Before adding more and more BswM actions for late execution we would recommend to execute the BswMPduGroupSwitch immediately as we did it in AUTOSAR 3. This will simplify the IPduGroup handling in BswM and force a more robust handling in general.

Agreed solution:

COM
==========

remove Com_IpduGroupControl (SWS_Com_00751, SWS_Com_00792)
remove Com_ReceptionDMControl (SWS_Com_00752, SWS_Com_00616, SWS_Com_00617, SWS_Com_00618)
remove Com_ClearIpduGroupVector (SWS_Com_00749, SWS_Com_00750, SWS_Com_00623)
remove Com_IpduGroupVector (SWS_Com_00823)
remove Com_SetIpduGroup (SWS_Com_00750, SWS_Com_00623)

re-introduce void Com_IpduGroupStart(Com_PduGroupIdType IpduGroupId, boolean Initialize) (as in AUTOSAR 3.2)
re-introduce void void Com_IpduGroupStop(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_DisableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_EnableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)

adapt the SWS_Com requirements which contain the removed APIs, for example: in SWS_Com_00114, the "Com_IpduGroupControl" would be replaced with "Com_IpduGroupStart".

make sure that the I-PDU group activation rules remain as in AUTOSAR 4.X

BswM
==========

*) Remove chapter 7.2.6 Handling of I-PDU Group Actions

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMDeadlineMonitoringControl container has a BswMDisabledDMPduGroupRef and a BswMEnabledDMPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMPduGroupSwitch container has a BswMDisabledPduGroupRef and a BswMEnabledPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_XXXXX "When a BswMPduGroupSwitch action is executed, the BswM shall call Com_IpduGroupStart for each BswMEnabledPduGroupRef, and call Com_IpduGroupStop for each BswMDisabledPduGroupRef. The ordering of these calls to Com is undefined."

*) Add SWS_BswM_XXXXX "When a BswMDeadlineMonitoringControl action is executed, the BswM shall call Com_EnableReceptionDM for each BswMEnabledDMPduGroupRef, and call Com_DisableReceptionDM for each BswMDisabledDMPduGroupRef. The ordering of these calls to Com is undefined."

*) Note: If a strict ordering of the calls to Com_IpduGroupStart, Com_IpduGroupStop, Com_EnableReceptionDM, or Com_DisableReceptionDM is required, then this can be achieved by configuring individual actions (BswMPduGroupSwitch/BswMDeadlineMonitoringControl, each with just a single BswM*PduGroupRef) within an ordered action list.

EcuC
==========
*) Adapt the descriptions of the following ECUC parameters
SWS Item ECUC_BswM_00852 :
Name
BswMDisabledDMPduGroupRef

Description This is a reference to a PDU Group for which the Deadline Monitoring should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_DisableReceptionDM.

SWS Item ECUC_BswM_00851 :
Name
BswMEnabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_EnableReceptionDM.

SWS Item ECUC_BswM_00913 :
Name
BswMPduGroupSwitchReinit
Description This parameter defines if the data of the I-PDU, the shadow buffers of included signal groups, etc. are reinitialized when a PDU Group is started.
This parameter corresponds to the parameter "initialize" of the function Com_IpduGroupStart.

SWS Item ECUC_BswM_00850 :
Name
BswMDisabledPduGroupRef
Description This is a reference to a PDU Group that should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStop.

SWS Item ECUC_BswM_00849 :
Name
BswMEnabledPduGroupRef
Description This is a reference to a PDU Group that should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStart.

*) Remove "Com_IpduGroupControl is called when this action is configured." from description of BswMPduGroupSwitch (ECUC_BswM_00828)

*) Remove "COM_ReceptionDMControl is called when this action is configured." from description of BswMDeadlineMonitoringControl (ECUC_BswM_00830)

BSW UML
==========
*) Update the table of optional interfaces (SWS_BswM_00008):
Remove Com_ClearIpduGroupVector; Com_IpduGroupControl; Com_ReceptionDMControl; Com_SetIpduGroup
Add: Com_IpduGroupStop; Com_IpduGroupStart; Com_EnableReceptionDM; Com_DisableReceptionDM

*) Remove Com_IpduGroupVector from imported types (SWS_BswM_00001)

*) Remove:
SWS_Com_00749
SWS_Com_00750
SWS_Com_00751
SWS_Com_00752
SWS_Com_00823
–Last change on issue 76213 comment 33–

BW-C-Level:

Application	Specification	Bus
1	4	1

1.10 Specification Item SWS_Com_00225

Trace References:

SRS_Com_00192

Content:

The AUTOSAR COM module shall silently ignore setting the reception deadline monitoring of an I-PDU to disabled by a call to Com_ReceptionDMControlCom_DisableReceptionDM, in case the reception deadline monitoring is already disabled for this I-PDU.

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76213: The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch.

  Problem description:

  The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroup-Switch. In case both actions are applied on the same BswM MainFunction cycle,

BswMPduGroupSwitch will revert BswMSwitchIPduMode due to the late execution of BswMPduGroupSwitch.
Example:
ActionList: BswMPduGroupSwitch; ; BswMSwitchIPduMode; (both actions are applied on the same IPDU)

The expected result is that the IPduMode and the IPduGroup are switched. In reality the IPduGroup switch is postponed to MainFunction (see Handling of I-PDU Group Actions). By this postponement the switched IPduMode is reverted.

Before adding more and more BswM actions for late execution we would recommend to execute the BswMPduGroupSwitch immediately as we did it in AUTOSAR 3. This will simplify the IPduGroup handling in BswM and force a more robust handling in general.

Agreed solution:

COM
==========

remove Com_IpduGroupControl (SWS_Com_00751, SWS_Com_00792)
remove Com_ReceptionDMControl (SWS_Com_00752, SWS_Com_00616, SWS_Com_00617, SWS_Com_00618)
remove Com_ClearIpduGroupVector (SWS_Com_00749, SWS_Com_00750, SWS_Com_00623)
remove Com_IpduGroupVector (SWS_Com_00823)
remove Com_SetIpduGroup (SWS_Com_00750, SWS_Com_00623)

re-introduce void Com_IpduGroupStart(Com_PduGroupIdType IpduGroupId, boolean Initialize) (as in AUTOSAR 3.2)
re-introduce void void Com_IpduGroupStop(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_DisableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_EnableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)

adapt the SWS_Com requirements which contain the removed APIs, for example: in SWS_Com_00114, the "Com_IpduGroupControl" would be replaced with "Com_IpduGroupStart".

make sure that the I-PDU group activation rules remain as in AUTOSAR 4.X

BswM
==========

*) Remove chapter 7.2.6 Handling of I-PDU Group Actions

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMDeadlineMonitoringControl container has a BswMDisabledDMPduGroupRef and a BswMEnabledDMPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMPduGroupSwitch container has a BswMDisabledPduGroupRef and a BswMEnabledPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_XXXXX "When a BswMPduGroupSwitch action is executed, the BswM shall call Com_IpduGroupStart for each BswMEnabledPduGroupRef, and call Com_IpduGroupStop for each BswMDisabledPduGroupRef. The ordering of these calls to Com is undefined."

*) Add SWS_BswM_XXXXX "When a BswMDeadlineMonitoringControl action is executed, the BswM shall call Com_EnableReceptionDM for each BswMEnabledDMPduGroupRef, and call Com_DisableReceptionDM for each BswMDisabledDMPduGroupRef. The ordering of these calls to Com is undefined."

*) Note: If a strict ordering of the calls to Com_IpduGroupStart, Com_IpduGroupStop, Com_EnableReceptionDM, or Com_DisableReceptionDM is required, then this can be achieved by configuring individual actions (BswMPduGroupSwitch/BswMDeadlineMonitoringControl, each with just a single BswM*PduGroupRef) within an ordered action list.

EcuC
==========
*) Adapt the descriptions of the following ECUC parameters
SWS Item ECUC_BswM_00852 :
Name
BswMDisabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_DisableReceptionDM.

SWS Item ECUC_BswM_00851 :
Name
BswMEnabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_EnableReceptionDM.

SWS Item ECUC_BswM_00913 :
Name
BswMPduGroupSwitchReinit
Description This parameter defines if the data of the I-PDU, the shadow buffers of included signal groups, etc. are reinitialized when a PDU Group is started.
This parameter corresponds to the parameter "initialize" of the function Com_IpduGroupStart.

SWS Item ECUC_BswM_00850 :
Name
BswMDisabledPduGroupRef
Description This is a reference to a PDU Group that should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStop.

SWS Item ECUC_BswM_00849 :
Name
BswMEnabledPduGroupRef
Description This is a reference to a PDU Group that should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStart.

*) Remove "Com_IpduGroupControl is called when this action is configured." from description of BswMPduGroupSwitch (ECUC_BswM_00828)

*) Remove "COM_ReceptionDMControl is called when this action is configured." from description of BswMDeadlineMonitoringControl (ECUC_BswM_00830)

BSW UML
==========
*) Update the table of optional interfaces (SWS_BswM_00008):

Remove Com_ClearIpduGroupVector; Com_IpduGroupControl; Com_ReceptionDMControl; Com_SetIpduGroup
Add: Com_IpduGroupStop; Com_IpduGroupStart; Com_EnableReceptionDM; Com_DisableReceptionDM

*) Remove Com_IpduGroupVector from imported types (SWS_BswM_00001)

*) Remove:
SWS_Com_00749
SWS_Com_00750
SWS_Com_00751
SWS_Com_00752
SWS_Com_00823
–Last change on issue 76213 comment 33–

BW-C-Level:

Application	Specification	Bus
1	4	1

1.11 Specification Item SWS_Com_00228

Trace References:

SRS_Com_00218

Content:

In some cases, an I-PDU is started as result of a call to by Com_ IpduGroupControl Start before all its contained signals have been written. In this case, the AUTOSAR COM module shall use the ComSignalInitValue for the missing signal data.

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76213: The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch.

  Problem description:

  The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroup-Switch. In case both actions are applied on the same BswM MainFunction cycle, BswMPduGroupSwitch will revert BswMSwitchIPduMode due to the late execution of BswMPduGroupSwitch.
  Example:
  ActionList: BswMPduGroupSwitch; ; BswMSwitchIPduMode; (both actions are

applied on the same IPDU)

The expected result is that the IPduMode and the IPduGroup are switched. In reality the IPduGroup switch is postponed to MainFunction (see Handling of I-PDU Group Actions). By this postponement the switched IPduMode is reverted.

Before adding more and more BswM actions for late execution we would recommend to execute the BswMPduGroupSwitch immediately as we did it in AUTOSAR 3. This will simplify the IPduGroup handling in BswM and force a more robust handling in general.

Agreed solution:

COM
==========

remove Com_IpduGroupControl (SWS_Com_00751, SWS_Com_00792)
remove Com_ReceptionDMControl (SWS_Com_00752, SWS_Com_00616, SWS_Com_00617, SWS_Com_00618)
remove Com_ClearIpduGroupVector (SWS_Com_00749, SWS_Com_00750, SWS_Com_00623)
remove Com_IpduGroupVector (SWS_Com_00823)
remove Com_SetIpduGroup (SWS_Com_00750, SWS_Com_00623)

re-introduce void Com_IpduGroupStart(Com_PduGroupIdType IpduGroupId, boolean Initialize) (as in AUTOSAR 3.2)
re-introduce void void Com_IpduGroupStop(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_DisableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_EnableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)

adapt the SWS_Com requirements which contain the removed APIs, for example: in SWS_Com_00114, the "Com_IpduGroupControl" would be replaced with "Com_IpduGroupStart".

make sure that the I-PDU group activation rules remain as in AUTOSAR 4.X

BswM
==========

*) Remove chapter 7.2.6 Handling of I-PDU Group Actions

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMDeadlineMonitoringControl container has a BswMDisabledDMPduGroupRef and a BswMEnabledDMPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMPduGroupSwitch container has a BswMDisabledPduGroupRef and a BswMEnabledPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_XXXXX "When a BswMPduGroupSwitch action is executed, the BswM shall call Com_IpduGroupStart for each BswMEnabledPduGroupRef, and call Com_IpduGroupStop for each BswMDisabledPduGroupRef. The ordering of these calls to Com is undefined."

*) Add SWS_BswM_XXXXX "When a BswMDeadlineMonitoringControl action is executed, the BswM shall call Com_EnableReceptionDM for each BswMEnabledDMPduGroupRef, and call Com_DisableReceptionDM for each BswMDisabledDMPduGroupRef. The ordering of these calls to Com is undefined."

*) Note: If a strict ordering of the calls to Com_IpduGroupStart, Com_IpduGroupStop, Com_EnableReceptionDM, or Com_DisableReceptionDM is required, then this can be achieved by configuring individual actions (BswMPduGroupSwitch/BswMDeadlineMonitoringControl, each with just a single BswM*PduGroupRef) within an ordered action list.

EcuC
==========
*) Adapt the descriptions of the following ECUC parameters
SWS Item ECUC_BswM_00852 :
Name
BswMDisabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_DisableReceptionDM.

SWS Item ECUC_BswM_00851 :
Name
BswMEnabledDMPduGroupRef

Description This is a reference to a PDU Group for which the Deadline Monitoring should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_EnableReceptionDM.

SWS Item ECUC_BswM_00913 :
Name
BswMPduGroupSwitchReinit
Description This parameter defines if the data of the I-PDU, the shadow buffers of included signal groups, etc. are reinitialized when a PDU Group is started.
This parameter corresponds to the parameter "initialize" of the function Com_IpduGroupStart.

SWS Item ECUC_BswM_00850 :
Name
BswMDisabledPduGroupRef
Description This is a reference to a PDU Group that should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStop.

SWS Item ECUC_BswM_00849 :
Name
BswMEnabledPduGroupRef
Description This is a reference to a PDU Group that should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStart.

*) Remove "Com_IpduGroupControl is called when this action is configured." from description of BswMPduGroupSwitch (ECUC_BswM_00828)

*) Remove "COM_ReceptionDMControl is called when this action is configured." from description of BswMDeadlineMonitoringControl (ECUC_BswM_00830)

BSW UML
==========
*) Update the table of optional interfaces (SWS_BswM_00008):
Remove Com_ClearIpduGroupVector; Com_IpduGroupControl; Com_ReceptionDMControl; Com_SetIpduGroup
Add: Com_IpduGroupStop; Com_IpduGroupStart; Com_EnableReceptionDM; Com_DisableReceptionDM

*) Remove Com_IpduGroupVector from imported types (SWS_BswM_00001)

*) Remove:
SWS_Com_00749
SWS_Com_00750
SWS_Com_00751
SWS_Com_00752
SWS_Com_00823
–Last change on issue 76213 comment 33–

BW-C-Level:

Application	Specification	Bus
1	4	1

1.12 Specification Item SWS_Com_00304

Trace References:

SRS_Com_02037

Content:

If the transmission does not occur, i.e. there is When a transmission deadline monitoring timer elapses, that is there was no successful transmit confirmation for an I-PDU transmission, then the transmission deadline monitoring timer elapses and the in time, the AUTOSAR COM module shall notify the RTE by invoking the all configured ComTimeout NotificationNotifications for contained signals or signal groups, see ECUC_Com_00552.

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76376: [Com] Clarification of deadline monitoring

  Problem description:

  While it is now pretty clear how to implement transmission deadline monitoring for send mode NONE, it is unfortunately not at all clear when to start deadline monitoring for pending signals or send mode periodic.

  Agreed solution:

  Regarding Transmission Deadline Monitoring:

  Replace the explanatory text of the section 7.3.6.2 "Transmission Deadline Monitoring":

The general idea of the AUTOSAR COM transmission deadline monitoring is to supervise the lower layers and the bus but not the COM module itself. Hence, the transmission monitoring timer is generally started, when the COM module sends an I-PDU to the lower layer. This is independent of a transmission mode or a transfer property. In generally the transmission monitoring timer is not re-started or reset if it is currently running.

Add new requirement to section 7.3.6.2 "Transmission Deadline Monitoring":

SWS_Com_XXX0: The AUTOSAR COM shall start a configured transmission deadline monitoring timer of a signal (group) if it is sent (within an I-PDU) to the lower layer, unless the timer is already running.

SWS_Com_XXX0 does not consider a potential return code, thus the timer is started even if the sent request fails immediately.

If the timer is already running a new send request does not reset or restart a running timer, but the currently outstanding send request is monitored further on. Unless otherwise specified, the timer is started regardless of the trigger that lead to a potential I-PDU send request. Such triggers are for example a cyclic send request of a signal, a Transmission Mode Switch, or an explicit I-PDU sent request via Com_TriggerIPduSend.

SWS_Com_XXX1: The transmission deadline monitoring timer shall be started with the configured ComFirstTimeout value if the timer is started for the first time after a (re-)start of the transmission deadline monitoring service for this I-PDU, otherwise the timer shall be started with ComTimeout value.

SWS_Com_XXX2: When the AUTOSAR COM receives a transmit confirmation for an I-PDU, it shall cancel all running transmission deadline monitoring timers for all contained signals and signal groups.

Update [SWS_Com_00304] and move it to Chapter 7.3.6.2 "Transmission Deadline Monitoring":

[SWS_Com_00304] When a transmission deadline monitoring timer elapses, that is there was no successful transmit confirmation for an I-PDU in time, the AUTOSAR COM module shall notify the RTE by invoking all configured ComTimeoutNotifications for contained signals or signal groups, see ECUC_Com_00552. (SRS_Com_02037)

If the transmission deadline monitoring timer runs out, there will be a timeout

notification regardless of the reason. For example the notification will even take place, if the transmission was filtered out by an I-PDU callout.

Since the AUTOSAR COM overrules the OSEK COM now completely, remove 7.3.6.2.1 Clarifications with respect to [17]. (after moving SWS_Com_00304 upwards the chapter does not contain any requirement anymore)

—-

Regarding reception deadline monitoring:

SWS_Com_00872: The Signal Gateway shall support the following I-PDU/ signal-processing stages on the receiver side (see also Figure 6):
1) reset reception deadline monitoring timer for I-PDU based monitoring
2) I-PDU callout
3) check of updatebits
4) endianness conversion and sign extension

SWS_Com_00873: The Signal Gateway shall support the following I-PDU/ signal-processing stages on the sender side (see also Figure 6):
1) set of update-bits
2) endianness conversion and sign extension
3) I-PDU transmission mode selection
4) I-PDU callout

Update SWS_Com_00396:
SWS_Com_00396: A received signal or signal group can be configured for various processing steps. The AUTOSAR COM module shall execute the configured processing steps in the following order:
1) reset reception deadline monitoring timer for I-PDU based monitoring
2) check update-bits
3) endianness conversion and sign extension
4) data invalidation
5) reception filtering
6) reset reception deadline monitoring timer for signal based monitoring
7) notification

Adapt figures 4-6 accordingly to the requirements SWS_Com_00872, SWS_Com_00873, and SWS_Com_00396.

General bug fix:

In SWS_Com_00787 update item 2) to:

- restart all reception deadline monitoring timer for all signals with a non-zero configured ComFirstTimeout
- cancel all transmission deadline monitoring timer and use ComFirstTimeout (if configured) as value when a transmission timer is started the first time after the I-PDU activation
–Last change on issue 76376 comment 43–

BW-C-Level:

Application	Specification	Bus
4	4	1

1.13 Specification Item SWS_Com_00396

Trace References:

SRS_Com_02037

Content:

A received signal or signal group can be configured to have filtering, data invalidation and notificationfor various processing steps. The AUTOSAR COM module shall execute these services, if configured , the configured processing steps in the following order:

1. Data reset reception deadline monitoring timer for I-PDU based monitoring
2. check update-bits
3. endianness conversion and sign extension
4. data invalidation
5. Filtering reception filtering
6. Notification reset reception deadline monitoring timer for signal based monitoring
7. notification

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76376: [Com] Clarification of deadline monitoring

  Problem description:

  While it is now pretty clear how to implement transmission deadline monitoring for send mode NONE, it is unfortunately not at all clear when to start deadline monitoring for pending signals or send mode periodic.

  Agreed solution:

Regarding Transmission Deadline Monitoring:

Replace the explanatory text of the section 7.3.6.2 "Transmission Deadline Monitoring":

The general idea of the AUTOSAR COM transmission deadline monitoring is to supervise the lower layers and the bus but not the COM module itself. Hence, the transmission monitoring timer is generally started, when the COM module sends an I-PDU to the lower layer. This is independent of a transmission mode or a transfer property. In generally the transmission monitoring timer is not re-started or reset if it is currently running.

Add new requirement to section 7.3.6.2 "Transmission Deadline Monitoring":

SWS_Com_XXX0: The AUTOSAR COM shall start a configured transmission deadline monitoring timer of a signal (group) if it is sent (within an I-PDU) to the lower layer, unless the timer is already running.

SWS_Com_XXX0 does not consider a potential return code, thus the timer is started even if the sent request fails immediately.

If the timer is already running a new send request does not reset or restart a running timer, but the currently outstanding send request is monitored further on. Unless otherwise specified, the timer is started regardless of the trigger that lead to a potential I-PDU send request. Such triggers are for example a cyclic send request of a signal, a Transmission Mode Switch, or an explicit I-PDU sent request via Com_TriggerIPduSend.

SWS_Com_XXX1: The transmission deadline monitoring timer shall be started with the configured ComFirstTimeout value if the timer is started for the first time after a (re-)start of the transmission deadline monitoring service for this I-PDU, otherwise the timer shall be started with ComTimeout value.

SWS_Com_XXX2: When the AUTOSAR COM receives a transmit confirmation for an I-PDU, it shall cancel all running transmission deadline monitoring timers for all contained signals and signal groups.

Update [SWS_Com_00304] and move it to Chapter 7.3.6.2 "Transmission Deadline Monitoring":

[SWS_Com_00304] When a transmission deadline monitoring timer elapses, that is there was no successful transmit confirmation for an I-PDU in time, the AUTOSAR COM module shall notify the RTE by invoking all configured ComTime-

outNotifications for contained signals or signal groups, see ECUC_Com_00552. (SRS_Com_02037)

If the transmission deadline monitoring timer runs out, there will be a timeout notification regardless of the reason. For example the notification will even take place, if the transmission was filtered out by an I-PDU callout.

Since the AUTOSAR COM overrules the OSEK COM now completely, remove 7.3.6.2.1 Clarifications with respect to [17]. (after moving SWS_Com_00304 upwards the chapter does not contain any requirement anymore)

—-

Regarding reception deadline monitoring:

SWS_Com_00872: The Signal Gateway shall support the following I-PDU/ signal-processing stages on the receiver side (see also Figure 6):
1) reset reception deadline monitoring timer for I-PDU based monitoring
2) I-PDU callout
3) check of updatebits
4) endianness conversion and sign extension

SWS_Com_00873: The Signal Gateway shall support the following I-PDU/ signal-processing stages on the sender side (see also Figure 6):
1) set of update-bits
2) endianness conversion and sign extension
3) I-PDU transmission mode selection
4) I-PDU callout

Update SWS_Com_00396:
SWS_Com_00396: A received signal or signal group can be configured for various processing steps. The AUTOSAR COM module shall execute the configured processing steps in the following order:
1) reset reception deadline monitoring timer for I-PDU based monitoring
2) check update-bits
3) endianness conversion and sign extension
4) data invalidation
5) reception filtering
6) reset reception deadline monitoring timer for signal based monitoring
7) notification

Adapt figures 4-6 accordingly to the requirements SWS_Com_00872, SWS_Com_00873, and SWS_Com_00396.

General bug fix:

In SWS_Com_00787 update item 2) to:
- restart all reception deadline monitoring timer for all signals with a non-zero configured ComFirstTimeout
- cancel all transmission deadline monitoring timer and use ComFirstTimeout (if configured) as value when a transmission timer is started the first time after the I-PDU activation
–Last change on issue 76376 comment 43–

BW-C-Level:

Application	Specification	Bus
4	4	1

1.14 Specification Item SWS_Com_00479

Trace References:

SRS_Com_00218

Content:

If an I-PDU is stopped as result of a call to by Com_IpduGroupControlStop, the AUTOSAR COM module shall immediately invoke the configured ComErrorNotification (ECUC_Com_00499), for outstanding not confirmed transmitted signals/ signal groups of the stopped I-PDU.

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76213: The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch.

  Problem description:

  The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch. In case both actions are applied on the same BswM MainFunction cycle, BswMPduGroupSwitch will revert BswMSwitchIPduMode due to the late execution of BswMPduGroupSwitch.
  Example:
  ActionList: BswMPduGroupSwitch; ; BswMSwitchIPduMode; (both actions are applied on the same IPDU)

  The expected result is that the IPduMode and the IPduGroup are switched.

In reality the IPduGroup switch is postponed to MainFunction (see Handling of I-PDU Group Actions). By this postponement the switched IPduMode is reverted.

Before adding more and more BswM actions for late execution we would recommend to execute the BswMPduGroupSwitch immediately as we did it in AUTOSAR 3. This will simplify the IPduGroup handling in BswM and force a more robust handling in general.

Agreed solution:

COM
==========

remove Com_IpduGroupControl (SWS_Com_00751, SWS_Com_00792)
remove Com_ReceptionDMControl (SWS_Com_00752, SWS_Com_00616, SWS_Com_00617, SWS_Com_00618)
remove Com_ClearIpduGroupVector (SWS_Com_00749, SWS_Com_00750, SWS_Com_00623)
remove Com_IpduGroupVector (SWS_Com_00823)
remove Com_SetIpduGroup (SWS_Com_00750, SWS_Com_00623)

re-introduce void Com_IpduGroupStart(Com_PduGroupIdType IpduGroupId, boolean Initialize) (as in AUTOSAR 3.2)
re-introduce void void Com_IpduGroupStop(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_DisableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_EnableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)

adapt the SWS_Com requirements which contain the removed APIs, for example: in SWS_Com_00114, the "Com_IpduGroupControl" would be replaced with "Com_IpduGroupStart".

make sure that the I-PDU group activation rules remain as in AUTOSAR 4.X

BswM
==========

*) Remove chapter 7.2.6 Handling of I-PDU Group Actions

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations

where a BswMDeadlineMonitoringControl container has a BswMDisabledDMPduGroupRef and a BswMEnabledDMPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMPduGroupSwitch container has a BswMDisabledPduGroupRef and a BswMEnabledPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_XXXXX "When a BswMPduGroupSwitch action is executed, the BswM shall call Com_IpduGroupStart for each BswMEnabledPduGroupRef, and call Com_IpduGroupStop for each BswMDisabledPduGroupRef. The ordering of these calls to Com is undefined."

*) Add SWS_BswM_XXXXX "When a BswMDeadlineMonitoringControl action is executed, the BswM shall call Com_EnableReceptionDM for each BswMEnabledDMPduGroupRef, and call Com_DisableReceptionDM for each BswMDisabledDMPduGroupRef. The ordering of these calls to Com is undefined."

*) Note: If a strict ordering of the calls to Com_IpduGroupStart, Com_IpduGroupStop, Com_EnableReceptionDM, or Com_DisableReceptionDM is required, then this can be achieved by configuring individual actions (BswMPduGroupSwitch/BswMDeadlineMonitoringControl, each with just a single BswM*PduGroupRef) within an ordered action list.

EcuC
==========
*) Adapt the descriptions of the following ECUC parameters
SWS Item ECUC_BswM_00852 :
Name
BswMDisabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_DisableReceptionDM.

SWS Item ECUC_BswM_00851 :
Name
BswMEnabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function

Com_EnableReceptionDM.

SWS Item ECUC_BswM_00913 :
Name
BswMPduGroupSwitchReinit
Description This parameter defines if the data of the I-PDU, the shadow buffers of included signal groups, etc. are reinitialized when a PDU Group is started.
This parameter corresponds to the parameter "initialize" of the function Com_IpduGroupStart.

SWS Item ECUC_BswM_00850 :
Name
BswMDisabledPduGroupRef
Description This is a reference to a PDU Group that should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStop.

SWS Item ECUC_BswM_00849 :
Name
BswMEnabledPduGroupRef
Description This is a reference to a PDU Group that should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStart.

*) Remove "Com_IpduGroupControl is called when this action is configured." from description of BswMPduGroupSwitch (ECUC_BswM_00828)

*) Remove "COM_ReceptionDMControl is called when this action is configured." from description of BswMDeadlineMonitoringControl (ECUC_BswM_00830)

BSW UML
==========
*) Update the table of optional interfaces (SWS_BswM_00008):
Remove Com_ClearIpduGroupVector; Com_IpduGroupControl; Com_ReceptionDMControl; Com_SetIpduGroup
Add: Com_IpduGroupStop; Com_IpduGroupStart; Com_EnableReceptionDM; Com_DisableReceptionDM

*) Remove Com_IpduGroupVector from imported types (SWS_BswM_00001)

*) Remove:
SWS_Com_00749
SWS_Com_00750
SWS_Com_00751
SWS_Com_00752
SWS_Com_00823
–Last change on issue 76213 comment 33–

BW-C-Level:

Application	Specification	Bus
1	4	1

1.15 Specification Item SWS_Com_00486

Trace References:

SRS_Com_00192

Content:

The AUTOSAR COM module shall silently ignore setting the reception deadline monitoring of an I-PDU to enabled by a call to Com_ReceptionDMControlCom_EnableReceptionDM, in case the reception deadline monitoring is already enabled for this I-PDU.

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76213: The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch.

  Problem description:

  The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch. In case both actions are applied on the same BswM MainFunction cycle, BswMPduGroupSwitch will revert BswMSwitchIPduMode due to the late execution of BswMPduGroupSwitch.
  Example:
  ActionList: BswMPduGroupSwitch; ; BswMSwitchIPduMode; (both actions are applied on the same IPDU)

  The expected result is that the IPduMode and the IPduGroup are switched. In reality the IPduGroup switch is postponed to MainFunction (see Handling of I-PDU Group Actions). By this postponement the switched IPduMode is reverted.

  Before adding more and more BswM actions for late execution we would rec-

ommend to execute the BswMPduGroupSwitch immediately as we did it in AUTOSAR 3. This will simplify the IPduGroup handling in BswM and force a more robust handling in general.

Agreed solution:

COM
==========

remove Com_IpduGroupControl (SWS_Com_00751, SWS_Com_00792)
remove Com_ReceptionDMControl (SWS_Com_00752, SWS_Com_00616, SWS_Com_00617, SWS_Com_00618)
remove Com_ClearIpduGroupVector (SWS_Com_00749, SWS_Com_00750, SWS_Com_00623)
remove Com_IpduGroupVector (SWS_Com_00823)
remove Com_SetIpduGroup (SWS_Com_00750, SWS_Com_00623)

re-introduce void Com_IpduGroupStart(Com_PduGroupIdType IpduGroupId, boolean Initialize) (as in AUTOSAR 3.2)
re-introduce void void Com_IpduGroupStop(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_DisableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_EnableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)

adapt the SWS_Com requirements which contain the removed APIs, for example: in SWS_Com_00114, the "Com_IpduGroupControl" would be replaced with "Com_IpduGroupStart".

make sure that the I-PDU group activation rules remain as in AUTOSAR 4.X

BswM
==========

*) Remove chapter 7.2.6 Handling of I-PDU Group Actions

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMDeadlineMonitoringControl container has a BswMDisabledDMPduGroupRef and a BswMEnabledDMPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMPduGroupSwitch container has a BswMDisabledPduGroupRef and a BswMEnabledPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_XXXXX "When a BswMPduGroupSwitch action is executed, the BswM shall call Com_IpduGroupStart for each BswMEnabledPduGroupRef, and call Com_IpduGroupStop for each BswMDisabledPduGroupRef. The ordering of these calls to Com is undefined."

*) Add SWS_BswM_XXXXX "When a BswMDeadlineMonitoringControl action is executed, the BswM shall call Com_EnableReceptionDM for each BswMEnabled-DMPduGroupRef, and call Com_DisableReceptionDM for each BswMDisabledDM-PduGroupRef. The ordering of these calls to Com is undefined."

*) Note: If a strict ordering of the calls to Com_IpduGroupStart, Com_IpduGroupStop, Com_EnableReceptionDM, or Com_DisableReceptionDM is required, then this can be achieved by configuring individual actions (BswM-PduGroupSwitch/BswMDeadlineMonitoringControl, each with just a single BswM*PduGroupRef) within an ordered action list.

EcuC
==========
*) Adapt the descriptions of the following ECUC parameters
SWS Item ECUC_BswM_00852 :
Name
BswMDisabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_DisableReceptionDM.

SWS Item ECUC_BswM_00851 :
Name
BswMEnabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_EnableReceptionDM.

SWS Item ECUC_BswM_00913 :

Name
BswMPduGroupSwitchReinit
Description This parameter defines if the data of the I-PDU, the shadow buffers of included signal groups, etc. are reinitialized when a PDU Group is started.
This parameter corresponds to the parameter "initialize" of the function Com_IpduGroupStart.

SWS Item ECUC_BswM_00850 :
Name
BswMDisabledPduGroupRef
Description This is a reference to a PDU Group that should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStop.

SWS Item ECUC_BswM_00849 :
Name
BswMEnabledPduGroupRef
Description This is a reference to a PDU Group that should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStart.

*) Remove "Com_IpduGroupControl is called when this action is configured." from description of BswMPduGroupSwitch (ECUC_BswM_00828)

*) Remove "COM_ReceptionDMControl is called when this action is configured." from description of BswMDeadlineMonitoringControl (ECUC_BswM_00830)

BSW UML
==========
*) Update the table of optional interfaces (SWS_BswM_00008):
Remove Com_ClearIpduGroupVector; Com_IpduGroupControl; Com_ReceptionDMControl; Com_SetIpduGroup
Add: Com_IpduGroupStop; Com_IpduGroupStart; Com_EnableReceptionDM; Com_DisableReceptionDM

*) Remove Com_IpduGroupVector from imported types (SWS_BswM_00001)

*) Remove:
SWS_Com_00749
SWS_Com_00750
SWS_Com_00751

SWS_Com_00752
SWS_Com_00823
–Last change on issue 76213 comment 33–

BW-C-Level:

Application	Specification	Bus
1	4	1

1.16 Specification Item SWS_Com_00495

Trace References:

SRS_Com_02082

Content:

When a call to Com_SendSignal or Com_SendSignalGroup results into a change of the transmission mode of a started I-PDU to the transmission mode PERIODIC or MIXED, then the AUTOSAR COM module shall start the new transmission cycle with a call to PduR_ComTransmit within the next main function at the latest. The transmission shall be initiated regardless of the transfer property of the signal or signal group that caused the transmission mode switch. The minimum delay time and ComTxModeTimeOffset shall still be respected. See also Figure 5 The AUTOSAR COM module's interaction model for reception.

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #77936: [COM] Contradicting assumptions regarding ComTxModeTimeOffset

  Problem description:

  Name: Vector Informatik
  Role: Implementor

  Description/Motivation:

  SWS_Com_00495 defines that the first transmission after a Tx mode change shall occur within the next main function LATEST, but still a configured ComTxModeTimeOffset and ComMinimumDelayTime should be considered.

  On the other hand, it is not defined how Com_SwitchIpduTxMode shall behave in this respect, the assumption seems to be that here also SWS_Com_00495 holds true.

Our proposal would be to always respect ComMinimumDelayTime, but to consider ComTxModeTimeOffset only for Tx mode changes triggered by Com_IpduGroupControl and Com_SwitchIpduTxMode.
–Last change on issue 77936 comment 3–

Agreed solution:

Update SWS_Com_00495 (and add a note) to:

When a call to Com_SendSignal or Com_SendSignalGroup results into a change of the transmission mode of a started I-PDU to the transmission mode PERIODIC or MIXED, then the AUTOSAR COM module shall start the new transmission cycle with a call to PduR_ComTransmit within the next main function at the latest. The transmission shall be initiated regardless of the transfer property of the signal or signal group that caused the transmission mode switch. The minimum delay time shall still be respected. See also Figure 5 The AUTOSAR COM modules interaction model for reception.

The ComTxModeTimeOffset is not respected. It is only respected by explicit I-PDU mode switches, for example by Com_IpduGroupControl or Com_SwitchIpduTxMode.

In the note below SWS_Com_00625 remove "or the transmission offset (ComTxModeTimeOffset)" it is confusing anyhow, because the requirement talks about the direct transmission.

Below SWS_Com_00784 (Com_SwitchIpduTxMode) add a new requirement:

SWS_Com_XXX0:When the transmission mode of an I-PDU is explicitly set by Com_SwitchIpduTxMode, the AUTOSAR COM shall defer the cyclic transmissions of this I-PDU by ComTxModeTimeOffset.
–Last change on issue 77936 comment 7–

BW-C-Level:

Application	Specification	Bus
4	4	4

1.17 Specification Item SWS_Com_00534

Trace References:

SRS_Com_00192

Content:

If Com_ReceptionDMControl EnableReceptionDM or Com_DisableReceptionDM is invoked on an I-PDU group containing Tx-I-PDUs, then the AUTOSAR COM module shall silently ignore this request.

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76213: The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch.

  Problem description:

  The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch. In case both actions are applied on the same BswM MainFunction cycle, BswMPduGroupSwitch will revert BswMSwitchIPduMode due to the late execution of BswMPduGroupSwitch.
  Example:
  ActionList: BswMPduGroupSwitch; ; BswMSwitchIPduMode; (both actions are applied on the same IPDU)

  The expected result is that the IPduMode and the IPduGroup are switched. In reality the IPduGroup switch is postponed to MainFunction (see Handling of I-PDU Group Actions). By this postponement the switched IPduMode is reverted.

  Before adding more and more BswM actions for late execution we would recommend to execute the BswMPduGroupSwitch immediately as we did it in AUTOSAR 3. This will simplify the IPduGroup handling in BswM and force a more robust handling in general.

  Agreed solution:

  COM
  ==========

  remove Com_IpduGroupControl (SWS_Com_00751, SWS_Com_00792)
  remove Com_ReceptionDMControl (SWS_Com_00752, SWS_Com_00616, SWS_Com_00617, SWS_Com_00618)
  remove Com_ClearIpduGroupVector (SWS_Com_00749, SWS_Com_00750, SWS_Com_00623)

remove Com_IpduGroupVector (SWS_Com_00823)
remove Com_SetIpduGroup (SWS_Com_00750, SWS_Com_00623)

re-introduce void Com_IpduGroupStart(Com_PduGroupIdType IpduGroupId, boolean Initialize) (as in AUTOSAR 3.2)
re-introduce void void Com_IpduGroupStop(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_DisableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_EnableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)

adapt the SWS_Com requirements which contain the removed APIs, for example: in SWS_Com_00114, the "Com_IpduGroupControl" would be replaced with "Com_IpduGroupStart".

make sure that the I-PDU group activation rules remain as in AUTOSAR 4.X

BswM
==========

*) Remove chapter 7.2.6 Handling of I-PDU Group Actions

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMDeadlineMonitoringControl container has a BswMDisabledDMPduGroupRef and a BswMEnabledDMPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMPduGroupSwitch container has a BswMDisabledPduGroupRef and a BswMEnabledPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_XXXXX "When a BswMPduGroupSwitch action is executed, the BswM shall call Com_IpduGroupStart for each BswMEnabledPduGroupRef, and call Com_IpduGroupStop for each BswMDisabledPduGroupRef. The ordering of these calls to Com is undefined."

*) Add SWS_BswM_XXXXX "When a BswMDeadlineMonitoringControl action is executed, the BswM shall call Com_EnableReceptionDM for each BswMEnabledDMPduGroupRef, and call Com_DisableReceptionDM for each BswMDisabledDMPduGroupRef. The ordering of these calls to Com is undefined."

*) Note: If a strict ordering of the calls to Com_IpduGroupStart, Com_IpduGroupStop, Com_EnableReceptionDM, or Com_DisableReceptionDM is required, then this can be achieved by configuring individual actions (BswM-PduGroupSwitch/BswMDeadlineMonitoringControl, each with just a single BswM*PduGroupRef) within an ordered action list.

EcuC
==========
*) Adapt the descriptions of the following ECUC parameters
SWS Item ECUC_BswM_00852 :
Name
BswMDisabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_DisableReceptionDM.

SWS Item ECUC_BswM_00851 :
Name
BswMEnabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_EnableReceptionDM.

SWS Item ECUC_BswM_00913 :
Name
BswMPduGroupSwitchReinit
Description This parameter defines if the data of the I-PDU, the shadow buffers of included signal groups, etc. are reinitialized when a PDU Group is started.
This parameter corresponds to the parameter "initialize" of the function Com_IpduGroupStart.

SWS Item ECUC_BswM_00850 :
Name
BswMDisabledPduGroupRef
Description This is a reference to a PDU Group that should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStop.

SWS Item ECUC_BswM_00849 :
Name
BswMEnabledPduGroupRef
Description This is a reference to a PDU Group that should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStart.

*) Remove "Com_IpduGroupControl is called when this action is configured." from description of BswMPduGroupSwitch (ECUC_BswM_00828)

*) Remove "COM_ReceptionDMControl is called when this action is configured." from description of BswMDeadlineMonitoringControl (ECUC_BswM_00830)

BSW UML
==========
*) Update the table of optional interfaces (SWS_BswM_00008):
Remove Com_ClearIpduGroupVector; Com_IpduGroupControl; Com_ReceptionDMControl; Com_SetIpduGroup
Add: Com_IpduGroupStop; Com_IpduGroupStart; Com_EnableReceptionDM; Com_DisableReceptionDM

*) Remove Com_IpduGroupVector from imported types (SWS_BswM_00001)

*) Remove:
SWS_Com_00749
SWS_Com_00750
SWS_Com_00751
SWS_Com_00752
SWS_Com_00823
–Last change on issue 76213 comment 33–

BW-C-Level:

Application	Specification	Bus
1	4	1

1.18 Specification Item SWS_Com_00587

Trace References:

SRS_Com_02099

Content:

For all I-PDUs with ComIPduDirection configured to RECEIVE that have a configured Com IPduCounter, the AUTOSAR COM module shall accept any incoming I-PDU, regardless of the value of the I-PDU counter, after the I-PDU was initialized by Com_Init or reinitialized by Com_IpduGroupControlStart.

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76213: The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch.

  Problem description:

  The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch. In case both actions are applied on the same BswM MainFunction cycle, BswMPduGroupSwitch will revert BswMSwitchIPduMode due to the late execution of BswMPduGroupSwitch.
  Example:
  ActionList: BswMPduGroupSwitch; ; BswMSwitchIPduMode; (both actions are applied on the same IPDU)

  The expected result is that the IPduMode and the IPduGroup are switched. In reality the IPduGroup switch is postponed to MainFunction (see Handling of I-PDU Group Actions). By this postponement the switched IPduMode is reverted.

  Before adding more and more BswM actions for late execution we would recommend to execute the BswMPduGroupSwitch immediately as we did it in AUTOSAR 3. This will simplify the IPduGroup handling in BswM and force a more robust handling in general.

  Agreed solution:

  COM
  ==========

  remove Com_IpduGroupControl (SWS_Com_00751, SWS_Com_00792)
  remove Com_ReceptionDMControl (SWS_Com_00752, SWS_Com_00616, SWS_Com_00617, SWS_Com_00618)
  remove Com_ClearIpduGroupVector (SWS_Com_00749, SWS_Com_00750, SWS_Com_00623)
  remove Com_IpduGroupVector (SWS_Com_00823)
  remove Com_SetIpduGroup (SWS_Com_00750, SWS_Com_00623)

re-introduce void Com_IpduGroupStart(Com_PduGroupIdType IpduGroupId, boolean Initialize) (as in AUTOSAR 3.2)
re-introduce void void Com_IpduGroupStop(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_DisableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_EnableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)

adapt the SWS_Com requirements which contain the removed APIs, for example: in SWS_Com_00114, the "Com_IpduGroupControl" would be replaced with "Com_IpduGroupStart".

make sure that the I-PDU group activation rules remain as in AUTOSAR 4.X

BswM
==========

*) Remove chapter 7.2.6 Handling of I-PDU Group Actions

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMDeadlineMonitoringControl container has a BswMDisabledDMPduGroupRef and a BswMEnabledDMPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMPduGroupSwitch container has a BswMDisabledPduGroupRef and a BswMEnabledPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_XXXXX "When a BswMPduGroupSwitch action is executed, the BswM shall call Com_IpduGroupStart for each BswMEnabledPduGroupRef, and call Com_IpduGroupStop for each BswMDisabledPduGroupRef. The ordering of these calls to Com is undefined."

*) Add SWS_BswM_XXXXX "When a BswMDeadlineMonitoringControl action is executed, the BswM shall call Com_EnableReceptionDM for each BswMEnabledDMPduGroupRef, and call Com_DisableReceptionDM for each BswMDisabledDMPduGroupRef. The ordering of these calls to Com is undefined."

*) Note: If a strict ordering of the calls to Com_IpduGroupStart, Com_IpduGroupStop, Com_EnableReceptionDM, or Com_DisableReceptionDM is

required, then this can be achieved by configuring individual actions (BswM-PduGroupSwitch/BswMDeadlineMonitoringControl, each with just a single BswM*PduGroupRef) within an ordered action list.

EcuC
==========
*) Adapt the descriptions of the following ECUC parameters
SWS Item ECUC_BswM_00852 :
Name
BswMDisabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_DisableReceptionDM.

SWS Item ECUC_BswM_00851 :
Name
BswMEnabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_EnableReceptionDM.

SWS Item ECUC_BswM_00913 :
Name
BswMPduGroupSwitchReinit
Description This parameter defines if the data of the I-PDU, the shadow buffers of included signal groups, etc. are reinitialized when a PDU Group is started.
This parameter corresponds to the parameter "initialize" of the function Com_IpduGroupStart.

SWS Item ECUC_BswM_00850 :
Name
BswMDisabledPduGroupRef
Description This is a reference to a PDU Group that should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStop.

SWS Item ECUC_BswM_00849 :
Name

BswMEnabledPduGroupRef
Description This is a reference to a PDU Group that should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStart.

*) Remove "Com_IpduGroupControl is called when this action is configured." from description of BswMPduGroupSwitch (ECUC_BswM_00828)

*) Remove "COM_ReceptionDMControl is called when this action is configured." from description of BswMDeadlineMonitoringControl (ECUC_BswM_00830)

BSW UML
==========
*) Update the table of optional interfaces (SWS_BswM_00008):
Remove Com_ClearIpduGroupVector; Com_IpduGroupControl; Com_ReceptionDMControl; Com_SetIpduGroup
Add: Com_IpduGroupStop; Com_IpduGroupStart; Com_EnableReceptionDM; Com_DisableReceptionDM

*) Remove Com_IpduGroupVector from imported types (SWS_BswM_00001)

*) Remove:
SWS_Com_00749
SWS_Com_00750
SWS_Com_00751
SWS_Com_00752
SWS_Com_00823
–Last change on issue 76213 comment 33–

BW-C-Level:

Application	Specification	Bus
1	4	1

1.19 Specification Item SWS_Com_00616

Trace References:

SRS_Com_00192

Content:

First, the function Com_ReceptionDMControl shall set the reception deadline monitoring state of all I-PDU groups to the requested state.

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76213: The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch.

  Problem description:

  The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch. In case both actions are applied on the same BswM MainFunction cycle, BswMPduGroupSwitch will revert BswMSwitchIPduMode due to the late execution of BswMPduGroupSwitch.
  Example:
  ActionList: BswMPduGroupSwitch; ; BswMSwitchIPduMode; (both actions are applied on the same IPDU)

  The expected result is that the IPduMode and the IPduGroup are switched. In reality the IPduGroup switch is postponed to MainFunction (see Handling of I-PDU Group Actions). By this postponement the switched IPduMode is reverted.

  Before adding more and more BswM actions for late execution we would recommend to execute the BswMPduGroupSwitch immediately as we did it in AUTOSAR 3. This will simplify the IPduGroup handling in BswM and force a more robust handling in general.

  Agreed solution:

  COM
  ==========

  remove Com_IpduGroupControl (SWS_Com_00751, SWS_Com_00792)
  remove Com_ReceptionDMControl (SWS_Com_00752, SWS_Com_00616, SWS_Com_00617, SWS_Com_00618)
  remove Com_ClearIpduGroupVector (SWS_Com_00749, SWS_Com_00750, SWS_Com_00623)
  remove Com_IpduGroupVector (SWS_Com_00823)
  remove Com_SetIpduGroup (SWS_Com_00750, SWS_Com_00623)

  re-introduce void Com_IpduGroupStart(Com_PduGroupIdType IpduGroupId, boolean Initialize) (as in AUTOSAR 3.2)
  re-introduce void void Com_IpduGroupStop(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
  re-introduce void Com_DisableReceptionDM(Com_PduGroupIdType IpduGroupId

) (as in AUTOSAR 3.2)
re-introduce void Com_EnableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)

adapt the SWS_Com requirements which contain the removed APIs, for example: in SWS_Com_00114, the "Com_IpduGroupControl" would be replaced with "Com_IpduGroupStart".

make sure that the I-PDU group activation rules remain as in AUTOSAR 4.X

BswM
==========

*) Remove chapter 7.2.6 Handling of I-PDU Group Actions

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMDeadlineMonitoringControl container has a BswMDisabledDMPduGroupRef and a BswMEnabledDMPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMPduGroupSwitch container has a BswMDisabledPduGroupRef and a BswMEnabledPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_XXXXX "When a BswMPduGroupSwitch action is executed, the BswM shall call Com_IpduGroupStart for each BswMEnabledPduGroupRef, and call Com_IpduGroupStop for each BswMDisabledPduGroupRef. The ordering of these calls to Com is undefined."

*) Add SWS_BswM_XXXXX "When a BswMDeadlineMonitoringControl action is executed, the BswM shall call Com_EnableReceptionDM for each BswMEnabledDMPduGroupRef, and call Com_DisableReceptionDM for each BswMDisabledDMPduGroupRef. The ordering of these calls to Com is undefined."

*) Note: If a strict ordering of the calls to Com_IpduGroupStart, Com_IpduGroupStop, Com_EnableReceptionDM, or Com_DisableReceptionDM is required, then this can be achieved by configuring individual actions (BswMPduGroupSwitch/BswMDeadlineMonitoringControl, each with just a single BswM*PduGroupRef) within an ordered action list.

EcuC
==========
*) Adapt the descriptions of the following ECUC parameters
SWS Item ECUC_BswM_00852 :
Name
BswMDisabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_DisableReceptionDM.

SWS Item ECUC_BswM_00851 :
Name
BswMEnabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_EnableReceptionDM.

SWS Item ECUC_BswM_00913 :
Name
BswMPduGroupSwitchReinit
Description This parameter defines if the data of the I-PDU, the shadow buffers of included signal groups, etc. are reinitialized when a PDU Group is started.
This parameter corresponds to the parameter "initialize" of the function Com_IpduGroupStart.

SWS Item ECUC_BswM_00850 :
Name
BswMDisabledPduGroupRef
Description This is a reference to a PDU Group that should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStop.

SWS Item ECUC_BswM_00849 :
Name
BswMEnabledPduGroupRef
Description This is a reference to a PDU Group that should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStart.

*) Remove "Com_IpduGroupControl is called when this action is configured." from description of BswMPduGroupSwitch (ECUC_BswM_00828)

*) Remove "COM_ReceptionDMControl is called when this action is configured." from description of BswMDeadlineMonitoringControl (ECUC_BswM_00830)

BSW UML
==========
*) Update the table of optional interfaces (SWS_BswM_00008):
Remove Com_ClearIpduGroupVector; Com_IpduGroupControl; Com_ReceptionDMControl; Com_SetIpduGroup
Add: Com_IpduGroupStop; Com_IpduGroupStart; Com_EnableReceptionDM; Com_DisableReceptionDM

*) Remove Com_IpduGroupVector from imported types (SWS_BswM_00001)

*) Remove:
SWS_Com_00749
SWS_Com_00750
SWS_Com_00751
SWS_Com_00752
SWS_Com_00823
–Last change on issue 76213 comment 33–

BW-C-Level:

Application	Specification	Bus
1	4	1

1.20 Specification Item SWS_Com_00617

Trace References:

SRS_Com_00192

Content:

Second, the function Com_ReceptionDMControl shall start or stop the reception deadline monitoring for all I-PDUs that change their reception deadline monitoring state because of this call of Com_ReceptionDMControl respectively.

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76213: The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch.

  Problem description:

  The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch. In case both actions are applied on the same BswM MainFunction cycle, BswMPduGroupSwitch will revert BswMSwitchIPduMode due to the late execution of BswMPduGroupSwitch.
  Example:
  ActionList: BswMPduGroupSwitch; ; BswMSwitchIPduMode; (both actions are applied on the same IPDU)

  The expected result is that the IPduMode and the IPduGroup are switched. In reality the IPduGroup switch is postponed to MainFunction (see Handling of I-PDU Group Actions). By this postponement the switched IPduMode is reverted.

  Before adding more and more BswM actions for late execution we would recommend to execute the BswMPduGroupSwitch immediately as we did it in AUTOSAR 3. This will simplify the IPduGroup handling in BswM and force a more robust handling in general.

  Agreed solution:

  COM
  ==========

  remove Com_IpduGroupControl (SWS_Com_00751, SWS_Com_00792)
  remove Com_ReceptionDMControl (SWS_Com_00752, SWS_Com_00616, SWS_Com_00617, SWS_Com_00618)
  remove Com_ClearIpduGroupVector (SWS_Com_00749, SWS_Com_00750, SWS_Com_00623)
  remove Com_IpduGroupVector (SWS_Com_00823)
  remove Com_SetIpduGroup (SWS_Com_00750, SWS_Com_00623)

  re-introduce void Com_IpduGroupStart(Com_PduGroupIdType IpduGroupId, boolean Initialize) (as in AUTOSAR 3.2)
  re-introduce void void Com_IpduGroupStop(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
  re-introduce void Com_DisableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
  re-introduce void Com_EnableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)

  adapt the SWS_Com requirements which contain the removed APIs, for ex-

ample: in SWS_Com_00114, the "Com_IpduGroupControl" would be replaced with "Com_IpduGroupStart".

make sure that the I-PDU group activation rules remain as in AUTOSAR 4.X

BswM
==========

*) Remove chapter 7.2.6 Handling of I-PDU Group Actions

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMDeadlineMonitoringControl container has a BswMDisabledDMPduGroupRef and a BswMEnabledDMPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMPduGroupSwitch container has a BswMDisabledPduGroupRef and a BswMEnabledPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_XXXXX "When a BswMPduGroupSwitch action is executed, the BswM shall call Com_IpduGroupStart for each BswMEnabledPduGroupRef, and call Com_IpduGroupStop for each BswMDisabledPduGroupRef. The ordering of these calls to Com is undefined."

*) Add SWS_BswM_XXXXX "When a BswMDeadlineMonitoringControl action is executed, the BswM shall call Com_EnableReceptionDM for each BswMEnabledDMPduGroupRef, and call Com_DisableReceptionDM for each BswMDisabledDMPduGroupRef. The ordering of these calls to Com is undefined."

*) Note: If a strict ordering of the calls to Com_IpduGroupStart, Com_IpduGroupStop, Com_EnableReceptionDM, or Com_DisableReceptionDM is required, then this can be achieved by configuring individual actions (BswMPduGroupSwitch/BswMDeadlineMonitoringControl, each with just a single BswM*PduGroupRef) within an ordered action list.

EcuC
==========
*) Adapt the descriptions of the following ECUC parameters
SWS Item ECUC_BswM_00852 :

Name
BswMDisabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_DisableReceptionDM.

SWS Item ECUC_BswM_00851 :
Name
BswMEnabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_EnableReceptionDM.

SWS Item ECUC_BswM_00913 :
Name
BswMPduGroupSwitchReinit
Description This parameter defines if the data of the I-PDU, the shadow buffers of included signal groups, etc. are reinitialized when a PDU Group is started.
This parameter corresponds to the parameter "initialize" of the function Com_IpduGroupStart.

SWS Item ECUC_BswM_00850 :
Name
BswMDisabledPduGroupRef
Description This is a reference to a PDU Group that should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStop.

SWS Item ECUC_BswM_00849 :
Name
BswMEnabledPduGroupRef
Description This is a reference to a PDU Group that should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStart.

*) Remove "Com_IpduGroupControl is called when this action is configured." from description of BswMPduGroupSwitch (ECUC_BswM_00828)

*) Remove "COM_ReceptionDMControl is called when this action is configured." from description of BswMDeadlineMonitoringControl (ECUC_BswM_00830)

BSW UML
==========
*) Update the table of optional interfaces (SWS_BswM_00008):
Remove Com_ClearIpduGroupVector; Com_IpduGroupControl; Com_ReceptionDMControl; Com_SetIpduGroup
Add: Com_IpduGroupStop; Com_IpduGroupStart; Com_EnableReceptionDM; Com_DisableReceptionDM

*) Remove Com_IpduGroupVector from imported types (SWS_BswM_00001)

*) Remove:
SWS_Com_00749
SWS_Com_00750
SWS_Com_00751
SWS_Com_00752
SWS_Com_00823
–Last change on issue 76213 comment 33–

BW-C-Level:

Application	Specification	Bus
1	4	1

1.21 Specification Item SWS_Com_00618

Trace References:

SRS_Com_00192

Content:

For all I-PDUs that do not change their deadline monitoring state the function, Com_ReceptionDMControl shall do nothing.

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76213: The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch.

  Problem description:

The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch. In case both actions are applied on the same BswM MainFunction cycle, BswMPduGroupSwitch will revert BswMSwitchIPduMode due to the late execution of BswMPduGroupSwitch.
Example:
ActionList: BswMPduGroupSwitch; ; BswMSwitchIPduMode; (both actions are applied on the same IPDU)

The expected result is that the IPduMode and the IPduGroup are switched. In reality the IPduGroup switch is postponed to MainFunction (see Handling of I-PDU Group Actions). By this postponement the switched IPduMode is reverted.

Before adding more and more BswM actions for late execution we would recommend to execute the BswMPduGroupSwitch immediately as we did it in AUTOSAR 3. This will simplify the IPduGroup handling in BswM and force a more robust handling in general.

Agreed solution:

COM
==========

remove Com_IpduGroupControl (SWS_Com_00751, SWS_Com_00792)
remove Com_ReceptionDMControl (SWS_Com_00752, SWS_Com_00616, SWS_Com_00617, SWS_Com_00618)
remove Com_ClearIpduGroupVector (SWS_Com_00749, SWS_Com_00750, SWS_Com_00623)
remove Com_IpduGroupVector (SWS_Com_00823)
remove Com_SetIpduGroup (SWS_Com_00750, SWS_Com_00623)

re-introduce void Com_IpduGroupStart(Com_PduGroupIdType IpduGroupId, boolean Initialize) (as in AUTOSAR 3.2)
re-introduce void void Com_IpduGroupStop(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_DisableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_EnableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)

adapt the SWS_Com requirements which contain the removed APIs, for example: in SWS_Com_00114, the "Com_IpduGroupControl" would be replaced with "Com_IpduGroupStart".

make sure that the I-PDU group activation rules remain as in AUTOSAR 4.X

BswM
==========

*) Remove chapter 7.2.6 Handling of I-PDU Group Actions

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMDeadlineMonitoringControl container has a BswMDisabledDMPduGroupRef and a BswMEnabledDMPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMPduGroupSwitch container has a BswMDisabledPduGroupRef and a BswMEnabledPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_XXXXX "When a BswMPduGroupSwitch action is executed, the BswM shall call Com_IpduGroupStart for each BswMEnabledPduGroupRef, and call Com_IpduGroupStop for each BswMDisabledPduGroupRef. The ordering of these calls to Com is undefined."

*) Add SWS_BswM_XXXXX "When a BswMDeadlineMonitoringControl action is executed, the BswM shall call Com_EnableReceptionDM for each BswMEnabledDMPduGroupRef, and call Com_DisableReceptionDM for each BswMDisabledDMPduGroupRef. The ordering of these calls to Com is undefined."

*) Note: If a strict ordering of the calls to Com_IpduGroupStart, Com_IpduGroupStop, Com_EnableReceptionDM, or Com_DisableReceptionDM is required, then this can be achieved by configuring individual actions (BswMPduGroupSwitch/BswMDeadlineMonitoringControl, each with just a single BswM*PduGroupRef) within an ordered action list.

EcuC
==========
*) Adapt the descriptions of the following ECUC parameters
SWS Item ECUC_BswM_00852 :
Name
BswMDisabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be disabled.

This reference corresponds to the parameter "IpduGroupId" of the function Com_DisableReceptionDM.

SWS Item ECUC_BswM_00851 :
Name
BswMEnabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_EnableReceptionDM.

SWS Item ECUC_BswM_00913 :
Name
BswMPduGroupSwitchReinit
Description This parameter defines if the data of the I-PDU, the shadow buffers of included signal groups, etc. are reinitialized when a PDU Group is started.
This parameter corresponds to the parameter "initialize" of the function Com_IpduGroupStart.

SWS Item ECUC_BswM_00850 :
Name
BswMDisabledPduGroupRef
Description This is a reference to a PDU Group that should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStop.

SWS Item ECUC_BswM_00849 :
Name
BswMEnabledPduGroupRef
Description This is a reference to a PDU Group that should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStart.

*) Remove "Com_IpduGroupControl is called when this action is configured." from description of BswMPduGroupSwitch (ECUC_BswM_00828)

*) Remove "COM_ReceptionDMControl is called when this action is configured." from description of BswMDeadlineMonitoringControl (ECUC_BswM_00830)

BSW UML

==========
*) Update the table of optional interfaces (SWS_BswM_00008):
Remove Com_ClearIpduGroupVector; Com_IpduGroupControl; Com_ReceptionDMControl; Com_SetIpduGroup
Add: Com_IpduGroupStop; Com_IpduGroupStart; Com_EnableReceptionDM; Com_DisableReceptionDM

*) Remove Com_IpduGroupVector from imported types (SWS_BswM_00001)

*) Remove:
SWS_Com_00749
SWS_Com_00750
SWS_Com_00751
SWS_Com_00752
SWS_Com_00823
–Last change on issue 76213 comment 33–

BW-C-Level:

Application	Specification	Bus
1	4	1

1.22 Specification Item SWS_Com_00623

Trace References:

SRS_Com_02090

Content:

The function Com_SetIpduGroup shall set the bit of the given I-PDU group vector that corresponds to the given I-PDU group, that is the n-th bit for the I-PDU group with ID n, to bitval.

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76213: The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch.

  Problem description:

  The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch. In case both actions are applied on the same BswM MainFunction cycle, BswMPduGroupSwitch will revert BswMSwitchIPduMode due to the late execution of BswMPduGroupSwitch.

Example:
ActionList: BswMPduGroupSwitch; ; BswMSwitchIPduMode; (both actions are applied on the same IPDU)

The expected result is that the IPduMode and the IPduGroup are switched. In reality the IPduGroup switch is postponed to MainFunction (see Handling of I-PDU Group Actions). By this postponement the switched IPduMode is reverted.

Before adding more and more BswM actions for late execution we would recommend to execute the BswMPduGroupSwitch immediately as we did it in AUTOSAR 3. This will simplify the IPduGroup handling in BswM and force a more robust handling in general.

Agreed solution:

COM
==========

remove Com_IpduGroupControl (SWS_Com_00751, SWS_Com_00792)
remove Com_ReceptionDMControl (SWS_Com_00752, SWS_Com_00616, SWS_Com_00617, SWS_Com_00618)
remove Com_ClearIpduGroupVector (SWS_Com_00749, SWS_Com_00750, SWS_Com_00623)
remove Com_IpduGroupVector (SWS_Com_00823)
remove Com_SetIpduGroup (SWS_Com_00750, SWS_Com_00623)

re-introduce void Com_IpduGroupStart(Com_PduGroupIdType IpduGroupId, boolean Initialize) (as in AUTOSAR 3.2)
re-introduce void void Com_IpduGroupStop(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_DisableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_EnableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)

adapt the SWS_Com requirements which contain the removed APIs, for example: in SWS_Com_00114, the "Com_IpduGroupControl" would be replaced with "Com_IpduGroupStart".

make sure that the I-PDU group activation rules remain as in AUTOSAR 4.X

BswM

==========

*) Remove chapter 7.2.6 Handling of I-PDU Group Actions

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMDeadlineMonitoringControl container has a BswMDisabledDMPduGroupRef and a BswMEnabledDMPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMPduGroupSwitch container has a BswMDisabledPduGroupRef and a BswMEnabledPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_XXXXX "When a BswMPduGroupSwitch action is executed, the BswM shall call Com_IpduGroupStart for each BswMEnabledPduGroupRef, and call Com_IpduGroupStop for each BswMDisabledPduGroupRef. The ordering of these calls to Com is undefined."

*) Add SWS_BswM_XXXXX "When a BswMDeadlineMonitoringControl action is executed, the BswM shall call Com_EnableReceptionDM for each BswMEnabledDMPduGroupRef, and call Com_DisableReceptionDM for each BswMDisabledDMPduGroupRef. The ordering of these calls to Com is undefined."

*) Note: If a strict ordering of the calls to Com_IpduGroupStart, Com_IpduGroupStop, Com_EnableReceptionDM, or Com_DisableReceptionDM is required, then this can be achieved by configuring individual actions (BswMPduGroupSwitch/BswMDeadlineMonitoringControl, each with just a single BswM*PduGroupRef) within an ordered action list.

EcuC

==========

*) Adapt the descriptions of the following ECUC parameters
SWS Item ECUC_BswM_00852 :
Name
BswMDisabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_DisableReceptionDM.

SWS Item ECUC_BswM_00851 :

Name
BswMEnabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_EnableReceptionDM.

SWS Item ECUC_BswM_00913 :
Name
BswMPduGroupSwitchReinit
Description This parameter defines if the data of the I-PDU, the shadow buffers of included signal groups, etc. are reinitialized when a PDU Group is started.
This parameter corresponds to the parameter "initialize" of the function Com_IpduGroupStart.

SWS Item ECUC_BswM_00850 :
Name
BswMDisabledPduGroupRef
Description This is a reference to a PDU Group that should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStop.

SWS Item ECUC_BswM_00849 :
Name
BswMEnabledPduGroupRef
Description This is a reference to a PDU Group that should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStart.

*) Remove "Com_IpduGroupControl is called when this action is configured." from description of BswMPduGroupSwitch (ECUC_BswM_00828)

*) Remove "COM_ReceptionDMControl is called when this action is configured." from description of BswMDeadlineMonitoringControl (ECUC_BswM_00830)

BSW UML
==========
*) Update the table of optional interfaces (SWS_BswM_00008):
Remove Com_ClearIpduGroupVector; Com_IpduGroupControl; Com_ReceptionDMControl; Com_SetIpduGroup

Add: Com_IpduGroupStop; Com_IpduGroupStart; Com_EnableReceptionDM; Com_DisableReceptionDM

*) Remove Com_IpduGroupVector from imported types (SWS_BswM_00001)

*) Remove:
SWS_Com_00749
SWS_Com_00750
SWS_Com_00751
SWS_Com_00752
SWS_Com_00823
–Last change on issue 76213 comment 33–

BW-C-Level:

Application	Specification	Bus
1	4	1

1.23 Specification Item SWS_Com_00684

Trace References:

SRS_Com_00218

Content:

If an I-PDU is stopped as result of a call to by Com_IpduGroupControlStop, the AUTOSAR COM module shall disable its reception processing.

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76213: The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch.

  Problem description:

  The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroup-Switch. In case both actions are applied on the same BswM MainFunction cycle, BswMPduGroupSwitch will revert BswMSwitchIPduMode due to the late execution of BswMPduGroupSwitch.
  Example:
  ActionList: BswMPduGroupSwitch; ; BswMSwitchIPduMode; (both actions are applied on the same IPDU)

  The expected result is that the IPduMode and the IPduGroup are switched.

In reality the IPduGroup switch is postponed to MainFunction (see Handling of I-PDU Group Actions). By this postponement the switched IPduMode is reverted.

Before adding more and more BswM actions for late execution we would recommend to execute the BswMPduGroupSwitch immediately as we did it in AUTOSAR 3. This will simplify the IPduGroup handling in BswM and force a more robust handling in general.

Agreed solution:

COM
==========

remove Com_IpduGroupControl (SWS_Com_00751, SWS_Com_00792)
remove Com_ReceptionDMControl (SWS_Com_00752, SWS_Com_00616, SWS_Com_00617, SWS_Com_00618)
remove Com_ClearIpduGroupVector (SWS_Com_00749, SWS_Com_00750, SWS_Com_00623)
remove Com_IpduGroupVector (SWS_Com_00823)
remove Com_SetIpduGroup (SWS_Com_00750, SWS_Com_00623)

re-introduce void Com_IpduGroupStart(Com_PduGroupIdType IpduGroupId, boolean Initialize) (as in AUTOSAR 3.2)
re-introduce void void Com_IpduGroupStop(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_DisableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_EnableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)

adapt the SWS_Com requirements which contain the removed APIs, for example: in SWS_Com_00114, the "Com_IpduGroupControl" would be replaced with "Com_IpduGroupStart".

make sure that the I-PDU group activation rules remain as in AUTOSAR 4.X

BswM
==========

*) Remove chapter 7.2.6 Handling of I-PDU Group Actions

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations

where a BswMDeadlineMonitoringControl container has a BswMDisabledDMPduGroupRef and a BswMEnabledDMPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMPduGroupSwitch container has a BswMDisabledPduGroupRef and a BswMEnabledPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_XXXXX "When a BswMPduGroupSwitch action is executed, the BswM shall call Com_IpduGroupStart for each BswMEnabledPduGroupRef, and call Com_IpduGroupStop for each BswMDisabledPduGroupRef. The ordering of these calls to Com is undefined."

*) Add SWS_BswM_XXXXX "When a BswMDeadlineMonitoringControl action is executed, the BswM shall call Com_EnableReceptionDM for each BswMEnabledDMPduGroupRef, and call Com_DisableReceptionDM for each BswMDisabledDMPduGroupRef. The ordering of these calls to Com is undefined."

*) Note: If a strict ordering of the calls to Com_IpduGroupStart, Com_IpduGroupStop, Com_EnableReceptionDM, or Com_DisableReceptionDM is required, then this can be achieved by configuring individual actions (BswMPduGroupSwitch/BswMDeadlineMonitoringControl, each with just a single BswM*PduGroupRef) within an ordered action list.

EcuC
==========
*) Adapt the descriptions of the following ECUC parameters
SWS Item ECUC_BswM_00852 :
Name
BswMDisabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_DisableReceptionDM.

SWS Item ECUC_BswM_00851 :
Name
BswMEnabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function

Com_EnableReceptionDM.

SWS Item ECUC_BswM_00913 :
Name
BswMPduGroupSwitchReinit
Description This parameter defines if the data of the I-PDU, the shadow buffers of included signal groups, etc. are reinitialized when a PDU Group is started.
This parameter corresponds to the parameter "initialize" of the function Com_IpduGroupStart.

SWS Item ECUC_BswM_00850 :
Name
BswMDisabledPduGroupRef
Description This is a reference to a PDU Group that should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStop.

SWS Item ECUC_BswM_00849 :
Name
BswMEnabledPduGroupRef
Description This is a reference to a PDU Group that should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStart.

*) Remove "Com_IpduGroupControl is called when this action is configured." from description of BswMPduGroupSwitch (ECUC_BswM_00828)

*) Remove "COM_ReceptionDMControl is called when this action is configured." from description of BswMDeadlineMonitoringControl (ECUC_BswM_00830)

BSW UML
==========
*) Update the table of optional interfaces (SWS_BswM_00008):
Remove Com_ClearIpduGroupVector; Com_IpduGroupControl; Com_ReceptionDMControl; Com_SetIpduGroup
Add: Com_IpduGroupStop; Com_IpduGroupStart; Com_EnableReceptionDM; Com_DisableReceptionDM

*) Remove Com_IpduGroupVector from imported types (SWS_BswM_00001)

*) Remove:
SWS_Com_00749
SWS_Com_00750
SWS_Com_00751
SWS_Com_00752
SWS_Com_00823
–Last change on issue 76213 comment 33–

BW-C-Level:

Application	Specification	Bus
1	4	1

1.24 Specification Item SWS_Com_00685

Trace References:

SRS_Com_00218

Content:

If an I-PDU is stopped as result of a call to by Com_IpduGroupControlStop, the AUTOSAR COM module shall cancel its deadline monitoring.

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76213: The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch.

  Problem description:

  The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroup-Switch. In case both actions are applied on the same BswM MainFunction cycle, BswMPduGroupSwitch will revert BswMSwitchIPduMode due to the late execution of BswMPduGroupSwitch.
  Example:
  ActionList: BswMPduGroupSwitch; ; BswMSwitchIPduMode; (both actions are applied on the same IPDU)

  The expected result is that the IPduMode and the IPduGroup are switched. In reality the IPduGroup switch is postponed to MainFunction (see Handling of I-PDU Group Actions). By this postponement the switched IPduMode is reverted.

  Before adding more and more BswM actions for late execution we would recommend to execute the BswMPduGroupSwitch immediately as we did it in

AUTOSAR 3. This will simplify the IPduGroup handling in BswM and force a more robust handling in general.

Agreed solution:

COM
==========

remove Com_IpduGroupControl (SWS_Com_00751, SWS_Com_00792)
remove Com_ReceptionDMControl (SWS_Com_00752, SWS_Com_00616, SWS_Com_00617, SWS_Com_00618)
remove Com_ClearIpduGroupVector (SWS_Com_00749, SWS_Com_00750, SWS_Com_00623)
remove Com_IpduGroupVector (SWS_Com_00823)
remove Com_SetIpduGroup (SWS_Com_00750, SWS_Com_00623)

re-introduce void Com_IpduGroupStart(Com_PduGroupIdType IpduGroupId, boolean Initialize) (as in AUTOSAR 3.2)
re-introduce void void Com_IpduGroupStop(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_DisableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_EnableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)

adapt the SWS_Com requirements which contain the removed APIs, for example: in SWS_Com_00114, the "Com_IpduGroupControl" would be replaced with "Com_IpduGroupStart".

make sure that the I-PDU group activation rules remain as in AUTOSAR 4.X

BswM
==========

*) Remove chapter 7.2.6 Handling of I-PDU Group Actions

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMDeadlineMonitoringControl container has a BswMDisabledDMPduGroupRef and a BswMEnabledDMPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations

where a BswMPduGroupSwitch container has a BswMDisabledPduGroupRef and a BswMEnabledPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_XXXXX "When a BswMPduGroupSwitch action is executed, the BswM shall call Com_IpduGroupStart for each BswMEnabledPduGroupRef, and call Com_IpduGroupStop for each BswMDisabledPduGroupRef. The ordering of these calls to Com is undefined."

*) Add SWS_BswM_XXXXX "When a BswMDeadlineMonitoringControl action is executed, the BswM shall call Com_EnableReceptionDM for each BswMEnabled-DMPduGroupRef, and call Com_DisableReceptionDM for each BswMDisabledDM-PduGroupRef. The ordering of these calls to Com is undefined."

*) Note: If a strict ordering of the calls to Com_IpduGroupStart, Com_IpduGroupStop, Com_EnableReceptionDM, or Com_DisableReceptionDM is required, then this can be achieved by configuring individual actions (BswM-PduGroupSwitch/BswMDeadlineMonitoringControl, each with just a single BswM*PduGroupRef) within an ordered action list.

EcuC
==========
*) Adapt the descriptions of the following ECUC parameters
SWS Item ECUC_BswM_00852 :
Name
BswMDisabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_DisableReceptionDM.

SWS Item ECUC_BswM_00851 :
Name
BswMEnabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_EnableReceptionDM.

SWS Item ECUC_BswM_00913 :
Name

BswMPduGroupSwitchReinit
Description This parameter defines if the data of the I-PDU, the shadow buffers of included signal groups, etc. are reinitialized when a PDU Group is started.
This parameter corresponds to the parameter "initialize" of the function Com_IpduGroupStart.

SWS Item ECUC_BswM_00850 :
Name
BswMDisabledPduGroupRef
Description This is a reference to a PDU Group that should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStop.

SWS Item ECUC_BswM_00849 :
Name
BswMEnabledPduGroupRef
Description This is a reference to a PDU Group that should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStart.

*) Remove "Com_IpduGroupControl is called when this action is configured." from description of BswMPduGroupSwitch (ECUC_BswM_00828)

*) Remove "COM_ReceptionDMControl is called when this action is configured." from description of BswMDeadlineMonitoringControl (ECUC_BswM_00830)

BSW UML
==========
*) Update the table of optional interfaces (SWS_BswM_00008):
Remove Com_ClearIpduGroupVector; Com_IpduGroupControl; Com_ReceptionDMControl; Com_SetIpduGroup
Add: Com_IpduGroupStop; Com_IpduGroupStart; Com_EnableReceptionDM; Com_DisableReceptionDM

*) Remove Com_IpduGroupVector from imported types (SWS_BswM_00001)

*) Remove:
SWS_Com_00749
SWS_Com_00750
SWS_Com_00751
SWS_Com_00752

SWS_Com_00823
–Last change on issue 76213 comment 33–

BW-C-Level:

Application	Specification	Bus
1	4	1

1.25 Specification Item SWS_Com_00687

Trace References:

SRS_Com_02101

Content:

For all I-PDUs with ComIPduDirection configured to SEND that have a configured Com IPduCounter, the AUTOSAR COM module shall set the I-PDU counter to 0, after the I-PDU was initialized by Com_Init or reinitialized by Com_IpduGroupControlStart.

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76213: The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch.

  Problem description:

  The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch. In case both actions are applied on the same BswM MainFunction cycle, BswMPduGroupSwitch will revert BswMSwitchIPduMode due to the late execution of BswMPduGroupSwitch.
  Example:
  ActionList: BswMPduGroupSwitch; ; BswMSwitchIPduMode; (both actions are applied on the same IPDU)

  The expected result is that the IPduMode and the IPduGroup are switched. In reality the IPduGroup switch is postponed to MainFunction (see Handling of I-PDU Group Actions). By this postponement the switched IPduMode is reverted.

  Before adding more and more BswM actions for late execution we would recommend to execute the BswMPduGroupSwitch immediately as we did it in AUTOSAR 3. This will simplify the IPduGroup handling in BswM and force a more robust handling in general.

  Agreed solution:

COM
==========

remove Com_IpduGroupControl (SWS_Com_00751, SWS_Com_00792)
remove Com_ReceptionDMControl (SWS_Com_00752, SWS_Com_00616, SWS_Com_00617, SWS_Com_00618)
remove Com_ClearIpduGroupVector (SWS_Com_00749, SWS_Com_00750, SWS_Com_00623)
remove Com_IpduGroupVector (SWS_Com_00823)
remove Com_SetIpduGroup (SWS_Com_00750, SWS_Com_00623)

re-introduce void Com_IpduGroupStart(Com_PduGroupIdType IpduGroupId, boolean Initialize) (as in AUTOSAR 3.2)
re-introduce void void Com_IpduGroupStop(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_DisableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_EnableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)

adapt the SWS_Com requirements which contain the removed APIs, for example: in SWS_Com_00114, the "Com_IpduGroupControl" would be replaced with "Com_IpduGroupStart".

make sure that the I-PDU group activation rules remain as in AUTOSAR 4.X

BswM
==========

*) Remove chapter 7.2.6 Handling of I-PDU Group Actions

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMDeadlineMonitoringControl container has a BswMDisabledDMPduGroupRef and a BswMEnabledDMPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMPduGroupSwitch container has a BswMDisabledPduGroupRef and a BswMEnabledPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_XXXXX "When a BswMPduGroupSwitch action is executed,

the BswM shall call Com_IpduGroupStart for each BswMEnabledPduGroupRef, and call Com_IpduGroupStop for each BswMDisabledPduGroupRef. The ordering of these calls to Com is undefined."

*) Add SWS_BswM_XXXXX "When a BswMDeadlineMonitoringControl action is executed, the BswM shall call Com_EnableReceptionDM for each BswMEnabled-DMPduGroupRef, and call Com_DisableReceptionDM for each BswMDisabledDM-PduGroupRef. The ordering of these calls to Com is undefined."

*) Note: If a strict ordering of the calls to Com_IpduGroupStart, Com_IpduGroupStop, Com_EnableReceptionDM, or Com_DisableReceptionDM is required, then this can be achieved by configuring individual actions (BswM-PduGroupSwitch/BswMDeadlineMonitoringControl, each with just a single BswM*PduGroupRef) within an ordered action list.

EcuC
==========
*) Adapt the descriptions of the following ECUC parameters
SWS Item ECUC_BswM_00852 :
Name
BswMDisabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_DisableReceptionDM.

SWS Item ECUC_BswM_00851 :
Name
BswMEnabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_EnableReceptionDM.

SWS Item ECUC_BswM_00913 :
Name
BswMPduGroupSwitchReinit
Description This parameter defines if the data of the I-PDU, the shadow buffers of included signal groups, etc. are reinitialized when a PDU Group is started.
This parameter corresponds to the parameter "initialize" of the function

Com_IpduGroupStart.

SWS Item ECUC_BswM_00850 :
Name
BswMDisabledPduGroupRef
Description This is a reference to a PDU Group that should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStop.

SWS Item ECUC_BswM_00849 :
Name
BswMEnabledPduGroupRef
Description This is a reference to a PDU Group that should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStart.

*) Remove "Com_IpduGroupControl is called when this action is configured." from description of BswMPduGroupSwitch (ECUC_BswM_00828)

*) Remove "COM_ReceptionDMControl is called when this action is configured." from description of BswMDeadlineMonitoringControl (ECUC_BswM_00830)

BSW UML
==========
*) Update the table of optional interfaces (SWS_BswM_00008):
Remove Com_ClearIpduGroupVector; Com_IpduGroupControl; Com_ReceptionDMControl; Com_SetIpduGroup
Add: Com_IpduGroupStop; Com_IpduGroupStart; Com_EnableReceptionDM; Com_DisableReceptionDM

*) Remove Com_IpduGroupVector from imported types (SWS_BswM_00001)

*) Remove:
SWS_Com_00749
SWS_Com_00750
SWS_Com_00751
SWS_Com_00752
SWS_Com_00823
–Last change on issue 76213 comment 33–

BW-C-Level:

Application	Specification	Bus
1	4	1

1.26 Specification Item SWS_Com_00692

Trace References:

SRS_Com_02095

Content:

Service name:	Com_CopyRxDataCom_CopyRxData	
Syntax:	BufReq_ReturnType Com_CopyRxData(PduIdType id, const PduInfoType* info, PduLengthType* bufferSizePtr)	
Service ID[hex]:	0x44	
Sync/Async:	Synchronous	
Reentrancy:	Reentrant	
Parameters (in):	idCom_CopyRxData.id	Identification of the received I-PDU.
	infoCom_CopyRxData.info	Provides the source buffer (SduDataPtr) and the number of bytes to be copied (SduLength). An SduLength of 0 can be used to query the current amount of available buffer in the upper layer module. In this case, the SduDataPtr may be a NULL_PTR.
Parameters (inout):	None	
Parameters (out):	bufferSizePtrCom_CopyRxData.buffer SizePtr	Available receive buffer after data has been copied.
Return value:	BufReq_ReturnType	BUFREQ_OK: Data copied successfully BUFREQ_E_NOT_OK: Data was not copied because an error occurred.
Description:	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 bufferSize Ptr.	

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- 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

1.27 Specification Item SWS_Com_00693

Trace References:

SRS_Com_02095

Content:

Service name:	Com_CopyTxDataCom_CopyTxData
Syntax:	BufReq_ReturnType Com_CopyTxData(PduIdType id, const PduInfoType* info, const RetryInfoType* retry, PduLengthType* availableDataPtr)
Service ID[hex]:	0x43
Sync/Async:	Synchronous
Reentrancy:	Reentrant

Parameters (in):	idCom_CopyTxData.id	Identification of the transmitted I-PDU.
	infoCom_CopyTxData.info	Provides the destination buffer (SduData Ptr) and the number of bytes to be copied (SduLength). If not enough transmit data is available, no data is copied by the upper layer module and BUFREQ_E_BUSY is returned. The lower layer module may retry the call. An SduLength of 0 can be used to indicate state changes in the retry parameter or to query the current amount of available data in the upper layer module. In this case, the SduDataPtr may be a NULL_PTR.
	retryCom_CopyTxData.retry	This parameter is used to acknowledge transmitted data or to retransmit data after transmission problems. If the retry parameter is a NULL_PTR, it indicates that the transmit data can be removed from the buffer immediately after it has been copied. Otherwise, the retry parameter must point to a valid RetryInfo Type element. If TpDataState indicates TP_CONFPENDING, the previously copied data must remain in the TP buffer to be available for error recovery. TP_DATACONF indicates that all data that has been copied before this call is confirmed and can be removed from the TP buffer. Data copied by this API call is excluded and will be confirmed later. TP_DATARETRY indicates that this API call shall copy previously copied data in order to recover from an error. In this case TxTpDataCnt specifies the offset in bytes from the current data copy position.
Parameters (inout):	None	
Parameters (out):	availableDataPtrCom_CopyTx Data.availableDataPtr	Indicates the remaining number of bytes that are available in the upper layer module's Tx buffer. availableDataPtr can be used by TP modules that support dynamic payload lengths (e.g. FrIsoTp) to determine the size of the following CFs.
Return value:	BufReq_ReturnType	BUFREQ_OK: Data has been copied to the transmit buffer completely as requested. BUFREQ_E_BUSY: Request could not be fulfilled, because the required amount of Tx data is not available. The lower layer module may retry this call later on. No data has been copied. BUFREQ_E_NOT_OK: Data has not been copied. Request failed.
Description:	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->Tp DataState is TP_DATARETRY. 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.	

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #68035: [diverse] Introduce rules defining which input parameters shall be passed per value and which ones per const reference

  Problem description:

  SWS_BSW_00186 especially states that input pointer parameters shall use the const qualifier (i.e., shall be P2CONST).

  In addition to that there shall be a SWS item that states that input parameters of integral and enum type shall be passed by value whereas input parameters of structure type shall be passed by reference.

  The various transformer SWS documents shall be adapted accordingly.
  –Last change on issue 68035 comment 4–

  Agreed solution:

  BSW UML model
  ————-
  The attachment "Changed Proposal in WP-A meeting" contains a list of changes to the APIs in the model (see column H). Afterwards all related documents (included in impact list) shall update their
  generated artifacts.

  General Requirements on Basic Software Modules
  ~~~~~~

  Introduce the following requirements prior to SRS_BSW_00371:

  SRS_BSW_xxxxx: Input parameters of scalar and enum types shall be passed as a value.
  Type: valid
  Description: All input parameters of scalar or enum type shall be passed as a value.
  Rationale:

  Use case: For example a function named <Mip>_SomeFunction with a return type of Std_ReturnType and a single parameter named SomeParameter of type uint8 is defined with the following signature:

  Std_ReturnType <Mip>_SomeFunction(uint8 SomeParameter);
  Dependencies: –
  ~~~~~~

Supporting Material: —

SRS_BSW_yyyyy: Input parameters of structure type shall be passed as a reference to a constant structure
Type: valid
Description: All input parameters of structure type shall be passed as a reference constant structure
Rationale: Passing input parameters of structure type by value would result in additional run-time overhead due to efforts for copying the whole structure.
Use case: For example a function named <Mip>_SomeFunction with a return type of Std_ReturnType and a single parameter named SomeParameter of type SomeStructure (where SomeStructure is a struct) is defined with the following signature:

Std_ReturnType <Mip>_SomeFunction(P2CONST(SomeStructure, AUTOMATIC, <MIP>_APPL_DATA) SomeParameter);
Dependencies: –
Supporting Material: —

SRS_BSW_zzzzz: Input parameters of array type shall be passed as a reference to the constant array base type
Type: valid
Description: All input parameters of array type shall be passed as a reference to the constant array base type
Rationale: This effectively matches the behavior specified in the ISO-C:90 namely that a "declaration of a parameter as 'array of type' shall be adjusted to 'qualified pointer to
type'".
Use case: For example a function named <Mip>_SomeFunction with a return type of Std_ReturnType and a single parameter named SomeParameter of type array of uint8 is defined with the following signature:

Std_ReturnType <Mip>_SomeFunction(P2CONST(uint8, AUTOMATIC, <MIP>_APPL_DATA) SomeParameter);
Dependencies: –
Supporting Material: —

General Specification of Transformers
~~~~~~
~~~~~~

In SWS_Xfrm_00036 change

const <type>* dataElement

to

<paramtype> dataElement

and add the following to the where clause after the API table after the bullet "type is data type of the data element
"

<paramtype> is derived from <type> according to the parameter passing rules rules defined by the SRS BSW General (see SRS_BSW_xxxxx, SRS_BSW_yyyyy, and SRS_BSW_zzzzz) and SWS BSW General (see SWS_BSW_00186 and SWS_BSW_00187).

In SWS_Xfrm_00038 change

[<type> data_1,] ...
[<type> data_n]

to

[<paramtype> data_1,] ...
[<paramtype> data_n]

and add the following to the where clause after the API table after the bullet "type is data type of the data element
"

<paramtype> is derived from <type> according to the parameter passing rules rules defined by the SRS BSW General (see SRS_BSW_xxxxx, SRS_BSW_yyyyy, and SRS_BSW_zzzzz) and SWS BSW General (see SWS_BSW_00186 and SWS_BSW_00187).

The following paragraph shall then be removed:

For the arguments of ClientServerOperation which are handed over to the transformer as data_1, ..., data_n the requirements to API parameters stated in chapter API Parameters of [5, SWS RTE] are valid (especially [SWS_Rte_01017],

[SWS_Rte_01018] and [SWS_Rte_05107]).

In SWS_Xfrm_00040 change

[<originalData1>, ...
<originalDataN>]

to

[<paramtype> originalData1,] ...
[<paramtype> originalDataN]

and add the following to the where clause after the API table after the bullet "type is data type of the data element
"

<paramtype> is derived from <type> according to the parameter passing rules rules defined by the SRS BSW General (see SRS_BSW_xxxxx, SRS_BSW_yyyyy, and SRS_BSW_zzzzz) and SWS BSW General (see SWS_BSW_00186 and SWS_BSW_00187).

In SWS_Xfrm_00044 change

<type> *data_1, ...
<type> *data_n

to

[<paramtype> data_1,] ...
[<paramtype> data_n]

and add the following to the where clause after the API table after the bullet "type is data type of the data element
"

<paramtype> is derived from <type> according to the parameter passing rules rules defined by the SRS BSW General (see SRS_BSW_xxxxx, SRS_BSW_yyyyy, and SRS_BSW_zzzzz) and SWS BSW General (see SWS_BSW_00186 and SWS_BSW_00187).

The following paragraph shall then be removed:

For the arguments of ClientServerOperation which are handed over to the transformer as data_1, ..., data_n the requirements to API parameters stated in chapter API Parameters of [5, SWS RTE] are valid (especially [SWS_Rte_01017], [SWS_Rte_01018] and [SWS_Rte_05107]).

Speci?cation of SOME/IP Transformer
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

In SWS_SomeIpXf_00138 change

const <type>* dataElement

to

<paramtype> dataElement

and add the following to the where clause after the API table after the bullet "type is data type of the data element
"

<paramtype> is derived from <type> according to the parameter passing rules rules defined by the SRS BSW General (see SRS_BSW_xxxxx, SRS_BSW_yyyyy, and SRS_BSW_zzzzz) and SWS BSW General (see SWS_BSW_00186 and SWS_BSW_00187).

In SWS_SomeIpXf_00141 change

[<type> data_1,] ...
[<type> data_n]

to

[<paramtype> data_1,] ...
[<paramtype> data_n]

and add the following to the where clause after the API table after the bullet "type is data type of the data element
"
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

<paramtype> is derived from <type> according to the parameter passing rules rules defined by the SRS BSW General (see SRS_BSW_xxxxx, SRS_BSW_yyyyy, and SRS_BSW_zzzzz) and SWS BSW General (see SWS_BSW_00186 and SWS_BSW_00187).

The following paragraph shall then be removed:

For the arguments of ClientServerOperation which are handed over to the transformer as data_1, ..., data_n the requirements to API parameters stated in chapter API Parameters of [5, SWS RTE] are valid (especially [SWS_Rte_01017], [SWS_Rte_01018] and [SWS_Rte_05107]).

In SWS_SomeIpXf_00145 change

<type> *data_1, ...
<type> *data_n

to

[<paramtype> data_1,] ...
[<paramtype> data_n]

and add the following to the where clause after the API table after the bullet "type is data type of the data element
"

<paramtype> is derived from <type> according to the parameter passing rules rules defined by the SRS BSW General (see SRS_BSW_xxxxx, SRS_BSW_yyyyy, and SRS_BSW_zzzzz) and SWS BSW General (see SWS_BSW_00186 and SWS_BSW_00187).

The following paragraph shall then be removed:

For the arguments of ClientServerOperation which are handed over to the transformer as data_1, ..., data_n the requirements to API parameters stated in chapter API Parameters of [5, SWS RTE] are valid (especially [SWS_Rte_01017], [SWS_Rte_01018] and [SWS_Rte_05107]).

Specification of COM Based Transformer

~~~~~~

In SWS_ComXf_00007 change

const <type>* dataElement

to

<paramtype> dataElement

and add the following to the where clause after the API table after the bullet "type is data type of the data element
"

<paramtype> is derived from <type> according to the parameter passing rules rules defined by the SRS BSW General (see SRS_BSW_xxxxx, SRS_BSW_yyyyy, and SRS_BSW_zzzzz) and SWS BSW General (see SWS_BSW_00186 and SWS_BSW_00187).

Specification of Time Sync over Ethernet
~~~~~~

In SWS_EthTSyn_00040 make the parameter DataPtr of EthTSyn_RxIndication const.

Specification of SWS FlexRay Interface
~~~~~~

Change SWS_FrIf_05073 from
FrIf_NumOfStartupFramesPtr (IN)
to
FrIf_NumOfStartupFramesPtr (OUT)

Specification of ADC
~~~~~~

~[SWS_Adc_00419] Adc_SetupResultBuffer: change Adc_ValueGroupType* to const Adc_ValueGroupType*
~[SWS_Adc_00369] Adc_ReadGroup: move Adc_ValueGroupType * from Parame-

ters (in) to Parameters (out)

There is no need to change parameter from IN to INOUT in Adc_SetupResultBuffer

Specification of Com
~~~~~~
Change type of parameter MetaData of Com_TriggerIPDUSendWithMetaData from uint8* to const uint8*

Specification of ComM
~~~~~~
no change required

Specification of Dem
~~~~~~
no change required

Specification of DLT
~~~~~~
no change required

Specification of DoIP
~~~~~~
From:
Std_ReturnType <User>_DoIPRoutingActivationConfirmation(boolean* Confirmed, uint8* ConfirmationReqData, uint8* ConfirmationResData)
Std_ReturnType <User>_DoIPRoutingActivationAuthentication(boolean* Authentified, uint8* AuthenticationReqData, uint8* AuthenticationResData)

To:
Std_ReturnType <User>_DoIPRoutingActivationConfirmation(boolean* Confirmed, const uint8* ConfirmationReqData, uint8* ConfirmationResData)
Std_ReturnType <User>_DoIPRoutingActivationAuthentication(boolean* Authentified, const uint8* AuthenticationReqData, uint8* AuthenticationResData)

Specification of E2ELibrary
~~~~~~

no change required

Specification of Eth
~~~~~~
no change required

Specification of EthIf
~~~~~~
no change required

Specification of EthSwitchDriver
~~~~~~
no change required

Specification of ICUDriver
~~~~~~
SWS_Icu_00201: Icu_StartTimestamp
Parameter (IN): Icu_ValueType* BufferPtr shall be changed to Parameters (out) type

Specification of LdCom
~~~~~~
[SWS_LDCOM_00027]: LdCom_CopyTxData
BufReq_ReturnType LdCom_CopyTxData(PduIdType id, const PduInfoType* info, RetryInfoType* retry, PduLengthType* availableDataPtr) shall be changed to
BufReq_ReturnType LdCom_CopyTxData(PduIdType id, const PduInfoType* info, const RetryInfoType* retry, PduLengthType* availableDataPtr)

[SWS_LDCOM_00036]: Rte_LdComCbkCopyTxData_<sn>
BufReq_ReturnType Rte_LdComCbkCopyTxData_<sn>(const PduInfoType* info, RetryInfoType* retry, PduLengthType* availableDataPtr) shall be changed to
BufReq_ReturnType Rte_LdComCbkCopyTxData_<sn>(const PduInfoType* info, const RetryInfoType* retry, PduLengthType* availableDataPtr)

Specification of Lin
~~~~~~
PduInfoPtr needs to be const in Std_ReturnType Lin_SendFrame(uint8 Channel, const Lin_PduType* PduInfoPtr)

Specification of PduR
~~~~~~
* PduR_<User:LoTp>CopyTxData
add const to "RetryInfoType* retry"

Specification of J1939Nm
~~~~~~
Change parameter 'name' of User_AddressClaimedIndication to type 'const uint8*'

Specification of SoAd
~~~~~~
=> everything already fixed with RfC 65633

Specification of SPIHandlerDriver
~~~~~~
==> nothing to change for SWS SPI

Specification of SynchronizedTimeBaseManager
~~~~~~
"StbM not affected. All issues listed in the WP-A attachment have been already implemented by IT 69124 in context of RfC 65633"

Specification of TcpIp
~~~~~~
~[SWS_TCPIP_00040] TcpIp_DhcpReadOption: change DataPtr from (IN) to (OUT)
~[SWS_TCPIP_00189] TcpIp_DhcpV6ReadOption: change DataPtr from (IN) to (OUT)
=> everything else already fixed with RfC 65633

Specification of TimeSyncOverFlexRay
~~~~~~
"Change SWS_FrTSyn_00064: parameter versioninfo of type Std_VersionInfoType* is marked wrongly as IN. Change to OUT"
~~~~~~

Specification of EFX
~~~~~~~~~~~~~~~~~~~~~

~ [SWS_Efx_00355] Efx_Debounce_u8_u8: Include constant for pointer Input-parameter as like below.
uint8 Efx_Debounce_u8_u8(boolean X, Efx_DebounceState_Type * State, const Efx_DebounceParam_Type * Param, sint32 dT)

~ [SWS_Efx_00376] Efx_MedianSort: The parameter <InType>* Array should be InOut instead of In parameter as like below.
Parameters (in): N Size of an array
Parameters (inout): Array Pointer to an array

~ [SWS_Efx_00309] Efx_RampCheckActivity: Include constant for pointer Input-parameter as like below.
boolean Efx_RampCheckActivity(const Efx_StateRamp_Type* State_cpst)

~ [SWS_Efx_00307] Efx_RampGetSwitchPos: Include constant for pointer Input-parameter as like below.
boolean Efx_RampGetSwitchPos(const Efx_StateRamp_Type* State_cpst)

~ [SWS_Efx_00193] Efx_Array_Average: Include constant for pointer Input-parameter as like below.
<OutType> Efx_Array_Average_<InTypeMn>_<OutTypeMn>(const <InType>* Array, uint16 Count)

Specification of MFL
~~~~~~~~~~~~~~~~~~~~~

~ [SWS_Mfl_00192] Mfl_Debounce_u8_u8: Include constant for pointer Input-parameter as like below.
boolean Mfl_Debounce_u8_u8(boolean X, Mfl_DebounceState_Type* State, const Mfl_DebounceParam_Type* Param, float32 dT)

~ [SWS_Mfl_00266] Mfl_DebounceInit: The parameter Mfl_DebounceState_Type* State should be Out instead of In parameter as like below.
Parameters (in): X Initial value for the input state
Parameters (out): State Pointer to structure for debouncing state variables

~ [SWS_Mfl_00246] Mfl_HystDeltaRight_f32_u8: Include constant for pointer Input-parameter as like below.
boolean Mfl_HystDeltaRight_f32_u8(float32 X, float32 Delta, float32 Rsp, const uint8* State)

~ [SWS_Mfl_00285] Mfl_MedianSort_f32_f32: The parameter Array should be InOut instead of In parameter as like below.
Parameters (in): N Size of an array
Parameters (inout): Array Pointer to an array

~ [SWS_Mfl_00037] Mfl_PT1SetState: The parameter State_cpst should be Out instead of In parameter as like below.
Parameters (in): X1_f32 Initial value for input state
Y1_f32 Initial value for output state
Parameters (out): State_cpst Pointer to internal state structure

~ [SWS_Mfl_00225] Mfl_RampCheckActivity: Include constant for pointer Input-parameter as like below.
boolean Mfl_RampCheckActivity(const Mfl_StateRamp_Type* State_cpst)

~ [SWS_Mfl_00223] Mfl_RampGetSwitchPos: Include constant for pointer Input-parameter as like below.
boolean Mfl_RampGetSwitchPos(const Mfl_StateRamp_Type* State_cpst)
–Last change on issue 68035 comment 135–

BW-C-Level:

Application	Specification	Bus
1	4	1

1.28 Specification Item SWS_Com_00713

Trace References:

SRS_Com_00218

Content:

If a large I-PDU is stopped as result of a call to by Com_IpduGroupControlStop, the AUTOSAR COM module shall stop the reception process and ignore the partly received I-PDU.

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76213: The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch.

  Problem description:

The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch. In case both actions are applied on the same BswM MainFunction cycle, BswMPduGroupSwitch will revert BswMSwitchIPduMode due to the late execution of BswMPduGroupSwitch.
Example:
ActionList: BswMPduGroupSwitch; ; BswMSwitchIPduMode; (both actions are applied on the same IPDU)

The expected result is that the IPduMode and the IPduGroup are switched. In reality the IPduGroup switch is postponed to MainFunction (see Handling of I-PDU Group Actions). By this postponement the switched IPduMode is reverted.

Before adding more and more BswM actions for late execution we would recommend to execute the BswMPduGroupSwitch immediately as we did it in AUTOSAR 3. This will simplify the IPduGroup handling in BswM and force a more robust handling in general.

Agreed solution:

COM
==========

remove Com_IpduGroupControl (SWS_Com_00751, SWS_Com_00792)
remove Com_ReceptionDMControl (SWS_Com_00752, SWS_Com_00616, SWS_Com_00617, SWS_Com_00618)
remove Com_ClearIpduGroupVector (SWS_Com_00749, SWS_Com_00750, SWS_Com_00623)
remove Com_IpduGroupVector (SWS_Com_00823)
remove Com_SetIpduGroup (SWS_Com_00750, SWS_Com_00623)

re-introduce void Com_IpduGroupStart(Com_PduGroupIdType IpduGroupId, boolean Initialize) (as in AUTOSAR 3.2)
re-introduce void void Com_IpduGroupStop(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_DisableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_EnableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)

adapt the SWS_Com requirements which contain the removed APIs, for example: in SWS_Com_00114, the "Com_IpduGroupControl" would be replaced with "Com_IpduGroupStart".

make sure that the I-PDU group activation rules remain as in AUTOSAR 4.X

BswM
==========

*) Remove chapter 7.2.6 Handling of I-PDU Group Actions

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMDeadlineMonitoringControl container has a BswMDisabledDMPduGroupRef and a BswMEnabledDMPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMPduGroupSwitch container has a BswMDisabledPduGroupRef and a BswMEnabledPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_XXXXX "When a BswMPduGroupSwitch action is executed, the BswM shall call Com_IpduGroupStart for each BswMEnabledPduGroupRef, and call Com_IpduGroupStop for each BswMDisabledPduGroupRef. The ordering of these calls to Com is undefined."

*) Add SWS_BswM_XXXXX "When a BswMDeadlineMonitoringControl action is executed, the BswM shall call Com_EnableReceptionDM for each BswMEnabledDMPduGroupRef, and call Com_DisableReceptionDM for each BswMDisabledDMPduGroupRef. The ordering of these calls to Com is undefined."

*) Note: If a strict ordering of the calls to Com_IpduGroupStart, Com_IpduGroupStop, Com_EnableReceptionDM, or Com_DisableReceptionDM is required, then this can be achieved by configuring individual actions (BswMPduGroupSwitch/BswMDeadlineMonitoringControl, each with just a single BswM*PduGroupRef) within an ordered action list.

EcuC
==========
*) Adapt the descriptions of the following ECUC parameters
SWS Item ECUC_BswM_00852 :
Name
BswMDisabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be disabled.

This reference corresponds to the parameter "IpduGroupId" of the function Com_DisableReceptionDM.

SWS Item ECUC_BswM_00851 :
Name
BswMEnabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_EnableReceptionDM.

SWS Item ECUC_BswM_00913 :
Name
BswMPduGroupSwitchReinit
Description This parameter defines if the data of the I-PDU, the shadow buffers of included signal groups, etc. are reinitialized when a PDU Group is started.
This parameter corresponds to the parameter "initialize" of the function Com_IpduGroupStart.

SWS Item ECUC_BswM_00850 :
Name
BswMDisabledPduGroupRef
Description This is a reference to a PDU Group that should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStop.

SWS Item ECUC_BswM_00849 :
Name
BswMEnabledPduGroupRef
Description This is a reference to a PDU Group that should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStart.

*) Remove "Com_IpduGroupControl is called when this action is configured." from description of BswMPduGroupSwitch (ECUC_BswM_00828)

*) Remove "COM_ReceptionDMControl is called when this action is configured." from description of BswMDeadlineMonitoringControl (ECUC_BswM_00830)

BSW UML

==========
*) Update the table of optional interfaces (SWS_BswM_00008):
Remove Com_ClearIpduGroupVector; Com_IpduGroupControl; Com_ReceptionDMControl; Com_SetIpduGroup
Add: Com_IpduGroupStop; Com_IpduGroupStart; Com_EnableReceptionDM; Com_DisableReceptionDM

*) Remove Com_IpduGroupVector from imported types (SWS_BswM_00001)

*) Remove:
SWS_Com_00749
SWS_Com_00750
SWS_Com_00751
SWS_Com_00752
SWS_Com_00823
–Last change on issue 76213 comment 33–

BW-C-Level:

Application	Specification	Bus
1	4	1

1.29 Specification Item SWS_Com_00733

Trace References:

SRS_Com_00218

Content:

If an I-PDU is started as result of a call to by Com_IpduGroupControl Start and the I-PDU contains signals that have deadline monitoring configured (ECUC_Com_00183, ECUC_Com_00263), the AUTOSAR COM module shall start the deadline monitoring for these signals independently of the value of the initialize parameter.

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76213: The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch.

  Problem description:

  The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroup-Switch. In case both actions are applied on the same BswM MainFunction cycle, BswMPduGroupSwitch will revert BswMSwitchIPduMode due to the late execution

of BswMPduGroupSwitch.
Example:
ActionList: BswMPduGroupSwitch; ; BswMSwitchIPduMode; (both actions are applied on the same IPDU)

The expected result is that the IPduMode and the IPduGroup are switched. In reality the IPduGroup switch is postponed to MainFunction (see Handling of I-PDU Group Actions). By this postponement the switched IPduMode is reverted.

Before adding more and more BswM actions for late execution we would recommend to execute the BswMPduGroupSwitch immediately as we did it in AUTOSAR 3. This will simplify the IPduGroup handling in BswM and force a more robust handling in general.

Agreed solution:

COM
==========

remove Com_IpduGroupControl (SWS_Com_00751, SWS_Com_00792)
remove Com_ReceptionDMControl (SWS_Com_00752, SWS_Com_00616, SWS_Com_00617, SWS_Com_00618)
remove Com_ClearIpduGroupVector (SWS_Com_00749, SWS_Com_00750, SWS_Com_00623)
remove Com_IpduGroupVector (SWS_Com_00823)
remove Com_SetIpduGroup (SWS_Com_00750, SWS_Com_00623)

re-introduce void Com_IpduGroupStart(Com_PduGroupIdType IpduGroupId, boolean Initialize) (as in AUTOSAR 3.2)
re-introduce void void Com_IpduGroupStop(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_DisableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_EnableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)

adapt the SWS_Com requirements which contain the removed APIs, for example: in SWS_Com_00114, the "Com_IpduGroupControl" would be replaced with "Com_IpduGroupStart".

make sure that the I-PDU group activation rules remain as in AUTOSAR 4.X

BswM
==========

*) Remove chapter 7.2.6 Handling of I-PDU Group Actions

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMDeadlineMonitoringControl container has a BswMDisabledDMPduGroupRef and a BswMEnabledDMPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMPduGroupSwitch container has a BswMDisabledPduGroupRef and a BswMEnabledPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_XXXXX "When a BswMPduGroupSwitch action is executed, the BswM shall call Com_IpduGroupStart for each BswMEnabledPduGroupRef, and call Com_IpduGroupStop for each BswMDisabledPduGroupRef. The ordering of these calls to Com is undefined."

*) Add SWS_BswM_XXXXX "When a BswMDeadlineMonitoringControl action is executed, the BswM shall call Com_EnableReceptionDM for each BswMEnabledDMPduGroupRef, and call Com_DisableReceptionDM for each BswMDisabledDMPduGroupRef. The ordering of these calls to Com is undefined."

*) Note: If a strict ordering of the calls to Com_IpduGroupStart, Com_IpduGroupStop, Com_EnableReceptionDM, or Com_DisableReceptionDM is required, then this can be achieved by configuring individual actions (BswMPduGroupSwitch/BswMDeadlineMonitoringControl, each with just a single BswM*PduGroupRef) within an ordered action list.

EcuC
==========
*) Adapt the descriptions of the following ECUC parameters
SWS Item ECUC_BswM_00852 :
Name
BswMDisabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_DisableReceptionDM.

SWS Item ECUC_BswM_00851 :
Name
BswMEnabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_EnableReceptionDM.

SWS Item ECUC_BswM_00913 :
Name
BswMPduGroupSwitchReinit
Description This parameter defines if the data of the I-PDU, the shadow buffers of included signal groups, etc. are reinitialized when a PDU Group is started.
This parameter corresponds to the parameter "initialize" of the function Com_IpduGroupStart.

SWS Item ECUC_BswM_00850 :
Name
BswMDisabledPduGroupRef
Description This is a reference to a PDU Group that should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStop.

SWS Item ECUC_BswM_00849 :
Name
BswMEnabledPduGroupRef
Description This is a reference to a PDU Group that should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStart.

*) Remove "Com_IpduGroupControl is called when this action is configured." from description of BswMPduGroupSwitch (ECUC_BswM_00828)

*) Remove "COM_ReceptionDMControl is called when this action is configured." from description of BswMDeadlineMonitoringControl (ECUC_BswM_00830)

BSW UML
==========
*) Update the table of optional interfaces (SWS_BswM_00008):
Remove Com_ClearIpduGroupVector; Com_IpduGroupControl;

Com_ReceptionDMControl; Com_SetIpduGroup
Add: Com_IpduGroupStop; Com_IpduGroupStart; Com_EnableReceptionDM; Com_DisableReceptionDM

*) Remove Com_IpduGroupVector from imported types (SWS_BswM_00001)

*) Remove:
SWS_Com_00749
SWS_Com_00750
SWS_Com_00751
SWS_Com_00752
SWS_Com_00823
–Last change on issue 76213 comment 33–

BW-C-Level:

Application	Specification	Bus
1	4	1

1.30 Specification Item SWS_Com_00738

Trace References:

SRS_Com_02089

Content:

The I-PDU based reception deadline monitoring timer mechanism shall not take the values of the signals into account. Hence, the AUTOSAR COM module shall restart the reception deadline monitoring timer also in case of receiving an invalid value.

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76376: [Com] Clarification of deadline monitoring

  Problem description:

  While it is now pretty clear how to implement transmission deadline monitoring for send mode NONE, it is unfortunately not at all clear when to start deadline monitoring for pending signals or send mode periodic.

  Agreed solution:

  Regarding Transmission Deadline Monitoring:

  Replace the explanatory text of the section 7.3.6.2 "Transmission Deadline

Monitoring":

The general idea of the AUTOSAR COM transmission deadline monitoring is to supervise the lower layers and the bus but not the COM module itself. Hence, the transmission monitoring timer is generally started, when the COM module sends an I-PDU to the lower layer. This is independent of a transmission mode or a transfer property. In generally the transmission monitoring timer is not re-started or reset if it is currently running.

Add new requirement to section 7.3.6.2 "Transmission Deadline Monitoring":

SWS_Com_XXX0: The AUTOSAR COM shall start a configured transmission deadline monitoring timer of a signal (group) if it is sent (within an I-PDU) to the lower layer, unless the timer is already running.

SWS_Com_XXX0 does not consider a potential return code, thus the timer is started even if the sent request fails immediately.

If the timer is already running a new send request does not reset or restart a running timer, but the currently outstanding send request is monitored further on. Unless otherwise specified, the timer is started regardless of the trigger that lead to a potential I-PDU send request. Such triggers are for example a cyclic send request of a signal, a Transmission Mode Switch, or an explicit I-PDU sent request via Com_TriggerIPduSend.

SWS_Com_XXX1: The transmission deadline monitoring timer shall be started with the configured ComFirstTimeout value if the timer is started for the first time after a (re-)start of the transmission deadline monitoring service for this I-PDU, otherwise the timer shall be started with ComTimeout value.

SWS_Com_XXX2: When the AUTOSAR COM receives a transmit confirmation for an I-PDU, it shall cancel all running transmission deadline monitoring timers for all contained signals and signal groups.

Update [SWS_Com_00304] and move it to Chapter 7.3.6.2 "Transmission Deadline Monitoring":

[SWS_Com_00304] When a transmission deadline monitoring timer elapses, that is there was no successful transmit confirmation for an I-PDU in time, the AUTOSAR COM module shall notify the RTE by invoking all configured ComTimeoutNotifications for contained signals or signal groups, see ECUC_Com_00552. (SRS_Com_02037)

If the transmission deadline monitoring timer runs out, there will be a timeout notification regardless of the reason. For example the notification will even take place, if the transmission was filtered out by an I-PDU callout.

Since the AUTOSAR COM overrules the OSEK COM now completely, remove 7.3.6.2.1 Clarifications with respect to [17]. (after moving SWS_Com_00304 upwards the chapter does not contain any requirement anymore)

—-

Regarding reception deadline monitoring:

SWS_Com_00872: The Signal Gateway shall support the following I-PDU/ signal-processing stages on the receiver side (see also Figure 6):
1) reset reception deadline monitoring timer for I-PDU based monitoring
2) I-PDU callout
3) check of updatebits
4) endianness conversion and sign extension

SWS_Com_00873: The Signal Gateway shall support the following I-PDU/ signal-processing stages on the sender side (see also Figure 6):
1) set of update-bits
2) endianness conversion and sign extension
3) I-PDU transmission mode selection
4) I-PDU callout

Update SWS_Com_00396:
SWS_Com_00396: A received signal or signal group can be configured for various processing steps. The AUTOSAR COM module shall execute the configured processing steps in the following order:
1) reset reception deadline monitoring timer for I-PDU based monitoring
2) check update-bits
3) endianness conversion and sign extension
4) data invalidation
5) reception filtering
6) reset reception deadline monitoring timer for signal based monitoring
7) notification

Adapt figures 4-6 accordingly to the requirements SWS_Com_00872, SWS_Com_00873, and SWS_Com_00396.

General bug fix:

In SWS_Com_00787 update item 2) to:
- restart all reception deadline monitoring timer for all signals with a non-zero configured ComFirstTimeout
- cancel all transmission deadline monitoring timer and use ComFirstTimeout (if configured) as value when a transmission timer is started the first time after the I-PDU activation
–Last change on issue 76376 comment 43–

BW-C-Level:

Application	Specification	Bus
4	4	1

1.31 Specification Item SWS_Com_00749

Trace References:

SRS_Com_02090

Content:

Service name:	Com_ClearIpduGroupVector (obsolete)Com_ClearIpduGroupVector	
Syntax:	void Com_ClearIpduGroupVector(Com_IpduGroupVector ipduGroupVector)	
Service ID[hex]:	0x1c	
Sync/Async:	Synchronous	
Reentrancy:	Non Reentrant	
Parameters (in):	None	
Parameters (inout):	ipduGroupVectorCom_ClearIpduGroupVector.ipduGroupVector	I-PDU group vector to be cleared
Parameters (out):	None	
Return value:	None	
Description:	This service sets all bits of the given Com_IpduGroupVector to 0. Tags: atp.Status=obsolete	

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76213: The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch.

  Problem description:

  The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroup-Switch. In case both actions are applied on the same BswM MainFunction cycle,

BswMPduGroupSwitch will revert BswMSwitchIPduMode due to the late execution of BswMPduGroupSwitch.
Example:
ActionList: BswMPduGroupSwitch; ; BswMSwitchIPduMode; (both actions are applied on the same IPDU)

The expected result is that the IPduMode and the IPduGroup are switched. In reality the IPduGroup switch is postponed to MainFunction (see Handling of I-PDU Group Actions). By this postponement the switched IPduMode is reverted.

Before adding more and more BswM actions for late execution we would recommend to execute the BswMPduGroupSwitch immediately as we did it in AUTOSAR 3. This will simplify the IPduGroup handling in BswM and force a more robust handling in general.

Agreed solution:

COM
==========

remove Com_IpduGroupControl (SWS_Com_00751, SWS_Com_00792)
remove Com_ReceptionDMControl (SWS_Com_00752, SWS_Com_00616, SWS_Com_00617, SWS_Com_00618)
remove Com_ClearIpduGroupVector (SWS_Com_00749, SWS_Com_00750, SWS_Com_00623)
remove Com_IpduGroupVector (SWS_Com_00823)
remove Com_SetIpduGroup (SWS_Com_00750, SWS_Com_00623)

re-introduce void Com_IpduGroupStart(Com_PduGroupIdType IpduGroupId, boolean Initialize) (as in AUTOSAR 3.2)
re-introduce void void Com_IpduGroupStop(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_DisableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_EnableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)

adapt the SWS_Com requirements which contain the removed APIs, for example: in SWS_Com_00114, the "Com_IpduGroupControl" would be replaced with "Com_IpduGroupStart".

make sure that the I-PDU group activation rules remain as in AUTOSAR 4.X

BswM
==========

*) Remove chapter 7.2.6 Handling of I-PDU Group Actions

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMDeadlineMonitoringControl container has a BswMDisabledDMPduGroupRef and a BswMEnabledDMPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMPduGroupSwitch container has a BswMDisabledPduGroupRef and a BswMEnabledPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_XXXXX "When a BswMPduGroupSwitch action is executed, the BswM shall call Com_IpduGroupStart for each BswMEnabledPduGroupRef, and call Com_IpduGroupStop for each BswMDisabledPduGroupRef. The ordering of these calls to Com is undefined."

*) Add SWS_BswM_XXXXX "When a BswMDeadlineMonitoringControl action is executed, the BswM shall call Com_EnableReceptionDM for each BswMEnabledDMPduGroupRef, and call Com_DisableReceptionDM for each BswMDisabledDMPduGroupRef. The ordering of these calls to Com is undefined."

*) Note: If a strict ordering of the calls to Com_IpduGroupStart, Com_IpduGroupStop, Com_EnableReceptionDM, or Com_DisableReceptionDM is required, then this can be achieved by configuring individual actions (BswMPduGroupSwitch/BswMDeadlineMonitoringControl, each with just a single BswM*PduGroupRef) within an ordered action list.

EcuC
==========
*) Adapt the descriptions of the following ECUC parameters
SWS Item ECUC_BswM_00852 :
Name
BswMDisabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_DisableReceptionDM.

SWS Item ECUC_BswM_00851 :
Name
BswMEnabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_EnableReceptionDM.

SWS Item ECUC_BswM_00913 :
Name
BswMPduGroupSwitchReinit
Description This parameter defines if the data of the I-PDU, the shadow buffers of included signal groups, etc. are reinitialized when a PDU Group is started.
This parameter corresponds to the parameter "initialize" of the function Com_IpduGroupStart.

SWS Item ECUC_BswM_00850 :
Name
BswMDisabledPduGroupRef
Description This is a reference to a PDU Group that should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStop.

SWS Item ECUC_BswM_00849 :
Name
BswMEnabledPduGroupRef
Description This is a reference to a PDU Group that should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStart.

*) Remove "Com_IpduGroupControl is called when this action is configured." from description of BswMPduGroupSwitch (ECUC_BswM_00828)

*) Remove "COM_ReceptionDMControl is called when this action is configured." from description of BswMDeadlineMonitoringControl (ECUC_BswM_00830)

BSW UML
==========
*) Update the table of optional interfaces (SWS_BswM_00008):

Remove Com_ClearIpduGroupVector; Com_IpduGroupControl; Com_ReceptionDMControl; Com_SetIpduGroup
Add: Com_IpduGroupStop; Com_IpduGroupStart; Com_EnableReceptionDM; Com_DisableReceptionDM

*) Remove Com_IpduGroupVector from imported types (SWS_BswM_00001)

*) Remove:
SWS_Com_00749
SWS_Com_00750
SWS_Com_00751
SWS_Com_00752
SWS_Com_00823
–Last change on issue 76213 comment 33–

BW-C-Level:

Application	Specification	Bus
1	4	1

1.32 Specification Item SWS_Com_00750

Trace References:

SRS_Com_02090

Content:

Service name:	Com_SetIpduGroup (obsolete)Com_SetIpduGroup	
Syntax:	void Com_SetIpduGroup(Com_IpduGroupVector ipduGroupVector, Com_IpduGroupIdType ipduGroupId, boolean bitval)	
Service ID[hex]:	0x1d	
Sync/Async:	Synchronous	
Reentrancy:	Non Reentrant	
Parameters (in):	ipduGroupIdCom_SetIpduGroup.ipduGroupId	ipduGroup used to identify the corresponding bit in the I-PDU group vector
	bitvalCom_SetIpduGroup.bitval	New value of the corresponding bit
Parameters (inout):	ipduGroupVectorCom_SetIpduGroup.ipduGroupVector	I-PDU group vector to be modified
Parameters (out):	None	
Return value:	None	

Description:	This service sets the value of a bit in an I-PDU group vector. Tags: atp.Status=obsolete

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76213: The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch.

  Problem description:

  The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch. In case both actions are applied on the same BswM MainFunction cycle, BswMPduGroupSwitch will revert BswMSwitchIPduMode due to the late execution of BswMPduGroupSwitch.
  Example:
  ActionList: BswMPduGroupSwitch; ; BswMSwitchIPduMode; (both actions are applied on the same IPDU)

  The expected result is that the IPduMode and the IPduGroup are switched. In reality the IPduGroup switch is postponed to MainFunction (see Handling of I-PDU Group Actions). By this postponement the switched IPduMode is reverted.

  Before adding more and more BswM actions for late execution we would recommend to execute the BswMPduGroupSwitch immediately as we did it in AUTOSAR 3. This will simplify the IPduGroup handling in BswM and force a more robust handling in general.

  Agreed solution:

  COM
  ==========

  remove Com_IpduGroupControl (SWS_Com_00751, SWS_Com_00792)
  remove Com_ReceptionDMControl (SWS_Com_00752, SWS_Com_00616, SWS_Com_00617, SWS_Com_00618)
  remove Com_ClearIpduGroupVector (SWS_Com_00749, SWS_Com_00750, SWS_Com_00623)
  remove Com_IpduGroupVector (SWS_Com_00823)
  remove Com_SetIpduGroup (SWS_Com_00750, SWS_Com_00623)

  re-introduce void Com_IpduGroupStart(Com_PduGroupIdType IpduGroupId, boolean Initialize) (as in AUTOSAR 3.2)
  re-introduce void void Com_IpduGroupStop(Com_PduGroupIdType IpduGroupId)

(as in AUTOSAR 3.2)
re-introduce void Com_DisableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_EnableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)

adapt the SWS_Com requirements which contain the removed APIs, for example: in SWS_Com_00114, the "Com_IpduGroupControl" would be replaced with "Com_IpduGroupStart".

make sure that the I-PDU group activation rules remain as in AUTOSAR 4.X

BswM
==========

*) Remove chapter 7.2.6 Handling of I-PDU Group Actions

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMDeadlineMonitoringControl container has a BswMDisabledDMPduGroupRef and a BswMEnabledDMPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMPduGroupSwitch container has a BswMDisabledPduGroupRef and a BswMEnabledPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_XXXXX "When a BswMPduGroupSwitch action is executed, the BswM shall call Com_IpduGroupStart for each BswMEnabledPduGroupRef, and call Com_IpduGroupStop for each BswMDisabledPduGroupRef. The ordering of these calls to Com is undefined."

*) Add SWS_BswM_XXXXX "When a BswMDeadlineMonitoringControl action is executed, the BswM shall call Com_EnableReceptionDM for each BswMEnabledDMPduGroupRef, and call Com_DisableReceptionDM for each BswMDisabledDMPduGroupRef. The ordering of these calls to Com is undefined."

*) Note: If a strict ordering of the calls to Com_IpduGroupStart, Com_IpduGroupStop, Com_EnableReceptionDM, or Com_DisableReceptionDM is required, then this can be achieved by configuring individual actions (BswMPduGroupSwitch/BswMDeadlineMonitoringControl, each with just a single BswM*PduGroupRef) within an ordered action list.

EcuC
==========
*) Adapt the descriptions of the following ECUC parameters
SWS Item ECUC_BswM_00852 :
Name
BswMDisabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_DisableReceptionDM.

SWS Item ECUC_BswM_00851 :
Name
BswMEnabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_EnableReceptionDM.

SWS Item ECUC_BswM_00913 :
Name
BswMPduGroupSwitchReinit
Description This parameter defines if the data of the I-PDU, the shadow buffers of included signal groups, etc. are reinitialized when a PDU Group is started.
This parameter corresponds to the parameter "initialize" of the function Com_IpduGroupStart.

SWS Item ECUC_BswM_00850 :
Name
BswMDisabledPduGroupRef
Description This is a reference to a PDU Group that should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStop.

SWS Item ECUC_BswM_00849 :
Name
BswMEnabledPduGroupRef
Description This is a reference to a PDU Group that should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function

Com_IpduGroupStart.

*) Remove "Com_IpduGroupControl is called when this action is configured." from description of BswMPduGroupSwitch (ECUC_BswM_00828)

*) Remove "COM_ReceptionDMControl is called when this action is configured." from description of BswMDeadlineMonitoringControl (ECUC_BswM_00830)

BSW UML
==========
*) Update the table of optional interfaces (SWS_BswM_00008):
Remove Com_ClearIpduGroupVector; Com_IpduGroupControl; Com_ReceptionDMControl; Com_SetIpduGroup
Add: Com_IpduGroupStop; Com_IpduGroupStart; Com_EnableReceptionDM; Com_DisableReceptionDM

*) Remove Com_IpduGroupVector from imported types (SWS_BswM_00001)

*) Remove:
SWS_Com_00749
SWS_Com_00750
SWS_Com_00751
SWS_Com_00752
SWS_Com_00823
–Last change on issue 76213 comment 33–

BW-C-Level:

Application	Specification	Bus
1	4	1

1.33 Specification Item SWS_Com_00751

Trace References:

SRS_Com_00218

Content:

Service name:	Com_IpduGroupControl (obsolete)Com_IpduGroupControl

Syntax:	void Com_IpduGroupControl(Com_IpduGroupVector ipduGroupVector, boolean initialize)	
Service ID[hex]:	0x03	
Sync/Async:	Synchronous	
Reentrancy:	Non Reentrant	
Parameters (in):	ipduGroupVectorCom_IpduGroup Control.ipduGroupVector	I-PDU group vector containing the activation state (stopped = 0/ started = 1) for all I-PDU groups.
	initializeCom_IpduGroupControl.initialize	flag to request initialization of the I-PDUs which are newly started
Parameters (inout):	None	
Parameters (out):	None	
Return value:	None	
Description:	This service starts I-PDU groups. Tags: atp.Status=obsolete	

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76213: The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch.

  Problem description:

  The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch. In case both actions are applied on the same BswM MainFunction cycle, BswMPduGroupSwitch will revert BswMSwitchIPduMode due to the late execution of BswMPduGroupSwitch.
  Example:
  ActionList: BswMPduGroupSwitch; ; BswMSwitchIPduMode; (both actions are applied on the same IPDU)

  The expected result is that the IPduMode and the IPduGroup are switched. In reality the IPduGroup switch is postponed to MainFunction (see Handling of I-PDU Group Actions). By this postponement the switched IPduMode is reverted.

  Before adding more and more BswM actions for late execution we would recommend to execute the BswMPduGroupSwitch immediately as we did it in AUTOSAR 3. This will simplify the IPduGroup handling in BswM and force a more robust handling in general.

  Agreed solution:

COM
==========

remove Com_IpduGroupControl (SWS_Com_00751, SWS_Com_00792)
remove Com_ReceptionDMControl (SWS_Com_00752, SWS_Com_00616, SWS_Com_00617, SWS_Com_00618)
remove Com_ClearIpduGroupVector (SWS_Com_00749, SWS_Com_00750, SWS_Com_00623)
remove Com_IpduGroupVector (SWS_Com_00823)
remove Com_SetIpduGroup (SWS_Com_00750, SWS_Com_00623)

re-introduce void Com_IpduGroupStart(Com_PduGroupIdType IpduGroupId, boolean Initialize) (as in AUTOSAR 3.2)
re-introduce void void Com_IpduGroupStop(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_DisableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_EnableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)

adapt the SWS_Com requirements which contain the removed APIs, for example: in SWS_Com_00114, the "Com_IpduGroupControl" would be replaced with "Com_IpduGroupStart".

make sure that the I-PDU group activation rules remain as in AUTOSAR 4.X

BswM
==========

*) Remove chapter 7.2.6 Handling of I-PDU Group Actions

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMDeadlineMonitoringControl container has a BswMDisabledDMPduGroupRef and a BswMEnabledDMPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMPduGroupSwitch container has a BswMDisabledPduGroupRef and a BswMEnabledPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_XXXXX "When a BswMPduGroupSwitch action is executed,

the BswM shall call Com_IpduGroupStart for each BswMEnabledPduGroupRef, and call Com_IpduGroupStop for each BswMDisabledPduGroupRef. The ordering of these calls to Com is undefined."

*) Add SWS_BswM_XXXXX "When a BswMDeadlineMonitoringControl action is executed, the BswM shall call Com_EnableReceptionDM for each BswMEnabled-DMPduGroupRef, and call Com_DisableReceptionDM for each BswMDisabledDM-PduGroupRef. The ordering of these calls to Com is undefined."

*) Note: If a strict ordering of the calls to Com_IpduGroupStart, Com_IpduGroupStop, Com_EnableReceptionDM, or Com_DisableReceptionDM is required, then this can be achieved by configuring individual actions (BswM-PduGroupSwitch/BswMDeadlineMonitoringControl, each with just a single BswM*PduGroupRef) within an ordered action list.

EcuC
==========
*) Adapt the descriptions of the following ECUC parameters
SWS Item ECUC_BswM_00852 :
Name
BswMDisabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_DisableReceptionDM.

SWS Item ECUC_BswM_00851 :
Name
BswMEnabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_EnableReceptionDM.

SWS Item ECUC_BswM_00913 :
Name
BswMPduGroupSwitchReinit
Description This parameter defines if the data of the I-PDU, the shadow buffers of included signal groups, etc. are reinitialized when a PDU Group is started.
This parameter corresponds to the parameter "initialize" of the function

Com_IpduGroupStart.

SWS Item ECUC_BswM_00850 :
Name
BswMDisabledPduGroupRef
Description This is a reference to a PDU Group that should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStop.

SWS Item ECUC_BswM_00849 :
Name
BswMEnabledPduGroupRef
Description This is a reference to a PDU Group that should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStart.

*) Remove "Com_IpduGroupControl is called when this action is configured." from description of BswMPduGroupSwitch (ECUC_BswM_00828)

*) Remove "COM_ReceptionDMControl is called when this action is configured." from description of BswMDeadlineMonitoringControl (ECUC_BswM_00830)

BSW UML
==========
*) Update the table of optional interfaces (SWS_BswM_00008):
Remove Com_ClearIpduGroupVector; Com_IpduGroupControl; Com_ReceptionDMControl; Com_SetIpduGroup
Add: Com_IpduGroupStop; Com_IpduGroupStart; Com_EnableReceptionDM; Com_DisableReceptionDM

*) Remove Com_IpduGroupVector from imported types (SWS_BswM_00001)

*) Remove:
SWS_Com_00749
SWS_Com_00750
SWS_Com_00751
SWS_Com_00752
SWS_Com_00823
–Last change on issue 76213 comment 33–

BW-C-Level:

Application	Specification	Bus
1	4	1

1.34 Specification Item SWS_Com_00752

Trace References:

SRS_Com_00192

Content:

Service name:	Com_ReceptionDMControl (obsolete)Com_ReceptionDMControl	
Syntax:	void Com_ReceptionDMControl(Com_IpduGroupVector ipduGroupVector)	
Service ID[hex]:	0x06	
Sync/Async:	Synchronous	
Reentrancy:	Non Reentrant	
Parameters (in):	ipduGroupVectorCom_Reception DMControl.ipduGroupVector	I-PDU group vector containing the requested deadline monitoring state (disabled = 0/ enabled = 1) for all I-PDU groups.
Parameters (inout):	None	
Parameters (out):	None	
Return value:	None	
Description:	This service enables or disables I-PDU group Deadline Monitoring. Tags: atp.Status=obsolete	

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76213: The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch.

  Problem description:

  The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch. In case both actions are applied on the same BswM MainFunction cycle, BswMPduGroupSwitch will revert BswMSwitchIPduMode due to the late execution of BswMPduGroupSwitch.
  Example:
  ActionList: BswMPduGroupSwitch; ; BswMSwitchIPduMode; (both actions are applied on the same IPDU)

  The expected result is that the IPduMode and the IPduGroup are switched.

In reality the IPduGroup switch is postponed to MainFunction (see Handling of I-PDU Group Actions). By this postponement the switched IPduMode is reverted.

Before adding more and more BswM actions for late execution we would recommend to execute the BswMPduGroupSwitch immediately as we did it in AUTOSAR 3. This will simplify the IPduGroup handling in BswM and force a more robust handling in general.

Agreed solution:

COM
==========

remove Com_IpduGroupControl (SWS_Com_00751, SWS_Com_00792)
remove Com_ReceptionDMControl (SWS_Com_00752, SWS_Com_00616, SWS_Com_00617, SWS_Com_00618)
remove Com_ClearIpduGroupVector (SWS_Com_00749, SWS_Com_00750, SWS_Com_00623)
remove Com_IpduGroupVector (SWS_Com_00823)
remove Com_SetIpduGroup (SWS_Com_00750, SWS_Com_00623)

re-introduce void Com_IpduGroupStart(Com_PduGroupIdType IpduGroupId, boolean Initialize) (as in AUTOSAR 3.2)
re-introduce void void Com_IpduGroupStop(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_DisableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_EnableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)

adapt the SWS_Com requirements which contain the removed APIs, for example: in SWS_Com_00114, the "Com_IpduGroupControl" would be replaced with "Com_IpduGroupStart".

make sure that the I-PDU group activation rules remain as in AUTOSAR 4.X

BswM
==========

*) Remove chapter 7.2.6 Handling of I-PDU Group Actions

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations

where a BswMDeadlineMonitoringControl container has a BswMDisabledDMPduGroupRef and a BswMEnabledDMPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMPduGroupSwitch container has a BswMDisabledPduGroupRef and a BswMEnabledPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_XXXXX "When a BswMPduGroupSwitch action is executed, the BswM shall call Com_IpduGroupStart for each BswMEnabledPduGroupRef, and call Com_IpduGroupStop for each BswMDisabledPduGroupRef. The ordering of these calls to Com is undefined."

*) Add SWS_BswM_XXXXX "When a BswMDeadlineMonitoringControl action is executed, the BswM shall call Com_EnableReceptionDM for each BswMEnabledDMPduGroupRef, and call Com_DisableReceptionDM for each BswMDisabledDMPduGroupRef. The ordering of these calls to Com is undefined."

*) Note: If a strict ordering of the calls to Com_IpduGroupStart, Com_IpduGroupStop, Com_EnableReceptionDM, or Com_DisableReceptionDM is required, then this can be achieved by configuring individual actions (BswMPduGroupSwitch/BswMDeadlineMonitoringControl, each with just a single BswM*PduGroupRef) within an ordered action list.

EcuC
==========
*) Adapt the descriptions of the following ECUC parameters
SWS Item ECUC_BswM_00852 :
Name
BswMDisabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_DisableReceptionDM.

SWS Item ECUC_BswM_00851 :
Name
BswMEnabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function

Com_EnableReceptionDM.

SWS Item ECUC_BswM_00913 :
Name
BswMPduGroupSwitchReinit
Description This parameter defines if the data of the I-PDU, the shadow buffers of included signal groups, etc. are reinitialized when a PDU Group is started.
This parameter corresponds to the parameter "initialize" of the function Com_IpduGroupStart.

SWS Item ECUC_BswM_00850 :
Name
BswMDisabledPduGroupRef
Description This is a reference to a PDU Group that should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStop.

SWS Item ECUC_BswM_00849 :
Name
BswMEnabledPduGroupRef
Description This is a reference to a PDU Group that should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStart.

*) Remove "Com_IpduGroupControl is called when this action is configured." from description of BswMPduGroupSwitch (ECUC_BswM_00828)

*) Remove "COM_ReceptionDMControl is called when this action is configured." from description of BswMDeadlineMonitoringControl (ECUC_BswM_00830)

BSW UML
==========
*) Update the table of optional interfaces (SWS_BswM_00008):
Remove Com_ClearIpduGroupVector; Com_IpduGroupControl; Com_ReceptionDMControl; Com_SetIpduGroup
Add: Com_IpduGroupStop; Com_IpduGroupStart; Com_EnableReceptionDM; Com_DisableReceptionDM

*) Remove Com_IpduGroupVector from imported types (SWS_BswM_00001)

*) Remove:
SWS_Com_00749
SWS_Com_00750
SWS_Com_00751
SWS_Com_00752
SWS_Com_00823
–Last change on issue 76213 comment 33–

BW-C-Level:

Application	Specification	Bus
1	4	1

1.35 Specification Item SWS_Com_00777

Trace References:

SRS_Com_00218

Content:

If an I-PDU is stopped as result of a call to by Com_IpduGroupControlStop, the AUTOSAR COM module shall cancel any outstanding transmission requests for this I-PDU. This includes cancelling any potential retries with respect to ComRetryFailedTransmitRequests.

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76213: The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch.

  Problem description:

  The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch. In case both actions are applied on the same BswM MainFunction cycle, BswMPduGroupSwitch will revert BswMSwitchIPduMode due to the late execution of BswMPduGroupSwitch.
  Example:
  ActionList: BswMPduGroupSwitch; ; BswMSwitchIPduMode; (both actions are applied on the same IPDU)

  The expected result is that the IPduMode and the IPduGroup are switched. In reality the IPduGroup switch is postponed to MainFunction (see Handling of I-PDU Group Actions). By this postponement the switched IPduMode is reverted.

  Before adding more and more BswM actions for late execution we would rec-

ommend to execute the BswMPduGroupSwitch immediately as we did it in AUTOSAR 3. This will simplify the IPduGroup handling in BswM and force a more robust handling in general.

Agreed solution:

COM
==========

remove Com_IpduGroupControl (SWS_Com_00751, SWS_Com_00792)
remove Com_ReceptionDMControl (SWS_Com_00752, SWS_Com_00616, SWS_Com_00617, SWS_Com_00618)
remove Com_ClearIpduGroupVector (SWS_Com_00749, SWS_Com_00750, SWS_Com_00623)
remove Com_IpduGroupVector (SWS_Com_00823)
remove Com_SetIpduGroup (SWS_Com_00750, SWS_Com_00623)

re-introduce void Com_IpduGroupStart(Com_PduGroupIdType IpduGroupId, boolean Initialize) (as in AUTOSAR 3.2)
re-introduce void void Com_IpduGroupStop(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_DisableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_EnableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)

adapt the SWS_Com requirements which contain the removed APIs, for example: in SWS_Com_00114, the "Com_IpduGroupControl" would be replaced with "Com_IpduGroupStart".

make sure that the I-PDU group activation rules remain as in AUTOSAR 4.X

BswM
==========

*) Remove chapter 7.2.6 Handling of I-PDU Group Actions

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMDeadlineMonitoringControl container has a BswMDisabledDMPduGroupRef and a BswMEnabledDMPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMPduGroupSwitch container has a BswMDisabledPduGroupRef and a BswMEnabledPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_XXXXX "When a BswMPduGroupSwitch action is executed, the BswM shall call Com_IpduGroupStart for each BswMEnabledPduGroupRef, and call Com_IpduGroupStop for each BswMDisabledPduGroupRef. The ordering of these calls to Com is undefined."

*) Add SWS_BswM_XXXXX "When a BswMDeadlineMonitoringControl action is executed, the BswM shall call Com_EnableReceptionDM for each BswMEnabled-DMPduGroupRef, and call Com_DisableReceptionDM for each BswMDisabledDM-PduGroupRef. The ordering of these calls to Com is undefined."

*) Note: If a strict ordering of the calls to Com_IpduGroupStart, Com_IpduGroupStop, Com_EnableReceptionDM, or Com_DisableReceptionDM is required, then this can be achieved by configuring individual actions (BswM-PduGroupSwitch/BswMDeadlineMonitoringControl, each with just a single BswM*PduGroupRef) within an ordered action list.

EcuC
==========
*) Adapt the descriptions of the following ECUC parameters
SWS Item ECUC_BswM_00852 :
Name
BswMDisabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_DisableReceptionDM.

SWS Item ECUC_BswM_00851 :
Name
BswMEnabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_EnableReceptionDM.

SWS Item ECUC_BswM_00913 :

Name
BswMPduGroupSwitchReinit
Description This parameter defines if the data of the I-PDU, the shadow buffers of included signal groups, etc. are reinitialized when a PDU Group is started.
This parameter corresponds to the parameter "initialize" of the function Com_IpduGroupStart.

SWS Item ECUC_BswM_00850 :
Name
BswMDisabledPduGroupRef
Description This is a reference to a PDU Group that should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStop.

SWS Item ECUC_BswM_00849 :
Name
BswMEnabledPduGroupRef
Description This is a reference to a PDU Group that should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStart.

*) Remove "Com_IpduGroupControl is called when this action is configured." from description of BswMPduGroupSwitch (ECUC_BswM_00828)

*) Remove "COM_ReceptionDMControl is called when this action is configured." from description of BswMDeadlineMonitoringControl (ECUC_BswM_00830)

BSW UML
==========
*) Update the table of optional interfaces (SWS_BswM_00008):
Remove Com_ClearIpduGroupVector; Com_IpduGroupControl; Com_ReceptionDMControl; Com_SetIpduGroup
Add: Com_IpduGroupStop; Com_IpduGroupStart; Com_EnableReceptionDM; Com_DisableReceptionDM

*) Remove Com_IpduGroupVector from imported types (SWS_BswM_00001)

*) Remove:
SWS_Com_00749
SWS_Com_00750
SWS_Com_00751

SWS_Com_00752
SWS_Com_00823
–Last change on issue 76213 comment 33–

BW-C-Level:

Application	Specification	Bus
1	4	1

1.36 Specification Item SWS_Com_00787

Trace References:

SRS_Com_00218

Content:

If an I-PDU is started as result of a call by Com_IpduGroupControlStart, the AUTOSAR COM module shall always initialize the following attributes of this I-PDU:

1. ComMinimumDelayTime of I-PDUs in transmission mode DIRECT or MIXED
2. timeout attributes of I-PDUs for deadline monitoring aspect: all timeout timers (restart all reception deadline monitoring timers for all signals with a non-zero configured ComFirstTimeout , ComTimeout) shall restart
3. cancel all transmission deadline monitoring timers and use ComFirstTimeout (if configured) as value when a transmission timer is started the first time after the I-PDU activation
4. all included update-bits shall be cleared
5. reset OCCURRENCE of filter filters with ComFilterAlgorithm ONE_EVERY_N
6. set the I-PDU counter to 0 for I-PDUs with ComIPduDirection configured to SEND
7. accept for I-PDUs with ComIPduDirection configured to RECEIVED any next incoming I-PDU counter

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76213: The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch.

  Problem description:

  The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch. In case both actions are applied on the same BswM MainFunction cycle,

BswMPduGroupSwitch will revert BswMSwitchIPduMode due to the late execution of BswMPduGroupSwitch.
Example:
ActionList: BswMPduGroupSwitch; ; BswMSwitchIPduMode; (both actions are applied on the same IPDU)

The expected result is that the IPduMode and the IPduGroup are switched. In reality the IPduGroup switch is postponed to MainFunction (see Handling of I-PDU Group Actions). By this postponement the switched IPduMode is reverted.

Before adding more and more BswM actions for late execution we would recommend to execute the BswMPduGroupSwitch immediately as we did it in AUTOSAR 3. This will simplify the IPduGroup handling in BswM and force a more robust handling in general.

Agreed solution:

COM
==========

remove Com_IpduGroupControl (SWS_Com_00751, SWS_Com_00792)
remove Com_ReceptionDMControl (SWS_Com_00752, SWS_Com_00616, SWS_Com_00617, SWS_Com_00618)
remove Com_ClearIpduGroupVector (SWS_Com_00749, SWS_Com_00750, SWS_Com_00623)
remove Com_IpduGroupVector (SWS_Com_00823)
remove Com_SetIpduGroup (SWS_Com_00750, SWS_Com_00623)

re-introduce void Com_IpduGroupStart(Com_PduGroupIdType IpduGroupId, boolean Initialize) (as in AUTOSAR 3.2)
re-introduce void void Com_IpduGroupStop(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_DisableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_EnableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)

adapt the SWS_Com requirements which contain the removed APIs, for example: in SWS_Com_00114, the "Com_IpduGroupControl" would be replaced with "Com_IpduGroupStart".

make sure that the I-PDU group activation rules remain as in AUTOSAR 4.X

BswM
==========

*) Remove chapter 7.2.6 Handling of I-PDU Group Actions

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMDeadlineMonitoringControl container has a BswMDisabledDMPduGroupRef and a BswMEnabledDMPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMPduGroupSwitch container has a BswMDisabledPduGroupRef and a BswMEnabledPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_XXXXX "When a BswMPduGroupSwitch action is executed, the BswM shall call Com_IpduGroupStart for each BswMEnabledPduGroupRef, and call Com_IpduGroupStop for each BswMDisabledPduGroupRef. The ordering of these calls to Com is undefined."

*) Add SWS_BswM_XXXXX "When a BswMDeadlineMonitoringControl action is executed, the BswM shall call Com_EnableReceptionDM for each BswMEnabledDMPduGroupRef, and call Com_DisableReceptionDM for each BswMDisabledDMPduGroupRef. The ordering of these calls to Com is undefined."

*) Note: If a strict ordering of the calls to Com_IpduGroupStart, Com_IpduGroupStop, Com_EnableReceptionDM, or Com_DisableReceptionDM is required, then this can be achieved by configuring individual actions (BswMPduGroupSwitch/BswMDeadlineMonitoringControl, each with just a single BswM*PduGroupRef) within an ordered action list.

EcuC
==========
*) Adapt the descriptions of the following ECUC parameters
SWS Item ECUC_BswM_00852 :
Name
BswMDisabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_DisableReceptionDM.

SWS Item ECUC_BswM_00851 :
Name
BswMEnabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_EnableReceptionDM.

SWS Item ECUC_BswM_00913 :
Name
BswMPduGroupSwitchReinit
Description This parameter defines if the data of the I-PDU, the shadow buffers of included signal groups, etc. are reinitialized when a PDU Group is started.
This parameter corresponds to the parameter "initialize" of the function Com_IpduGroupStart.

SWS Item ECUC_BswM_00850 :
Name
BswMDisabledPduGroupRef
Description This is a reference to a PDU Group that should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStop.

SWS Item ECUC_BswM_00849 :
Name
BswMEnabledPduGroupRef
Description This is a reference to a PDU Group that should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStart.

*) Remove "Com_IpduGroupControl is called when this action is configured." from description of BswMPduGroupSwitch (ECUC_BswM_00828)

*) Remove "COM_ReceptionDMControl is called when this action is configured." from description of BswMDeadlineMonitoringControl (ECUC_BswM_00830)

BSW UML
==========
*) Update the table of optional interfaces (SWS_BswM_00008):

Remove Com_ClearIpduGroupVector; Com_IpduGroupControl; Com_ReceptionDMControl; Com_SetIpduGroup
Add: Com_IpduGroupStop; Com_IpduGroupStart; Com_EnableReceptionDM; Com_DisableReceptionDM

*) Remove Com_IpduGroupVector from imported types (SWS_BswM_00001)

*) Remove:
SWS_Com_00749
SWS_Com_00750
SWS_Com_00751
SWS_Com_00752
SWS_Com_00823
–Last change on issue 76213 comment 33–

BW-C-Level:

Application	Specification	Bus
1	4	1

- RfC #76376: [Com] Clarification of deadline monitoring

  Problem description:

  While it is now pretty clear how to implement transmission deadline monitoring for send mode NONE, it is unfortunately not at all clear when to start deadline monitoring for pending signals or send mode periodic.

  Agreed solution:

  Regarding Transmission Deadline Monitoring:

  Replace the explanatory text of the section 7.3.6.2 "Transmission Deadline Monitoring":

  The general idea of the AUTOSAR COM transmission deadline monitoring is to supervise the lower layers and the bus but not the COM module itself. Hence, the transmission monitoring timer is generally started, when the COM module sends an I-PDU to the lower layer. This is independent of a transmission mode or a transfer property. In generally the transmission monitoring timer is not re-started or reset if it is currently running.

  Add new requirement to section 7.3.6.2 "Transmission Deadline Monitoring":

  SWS_Com_XXX0: The AUTOSAR COM shall start a configured transmission deadline monitoring timer of a signal (group) if it is sent (within an I-PDU) to the

lower layer, unless the timer is already running.

SWS_Com_XXX0 does not consider a potential return code, thus the timer is started even if the sent request fails immediately.

If the timer is already running a new send request does not reset or restart a running timer, but the currently outstanding send request is monitored further on. Unless otherwise specified, the timer is started regardless of the trigger that lead to a potential I-PDU send request. Such triggers are for example a cyclic send request of a signal, a Transmission Mode Switch, or an explicit I-PDU sent request via Com_TriggerIPduSend.

SWS_Com_XXX1: The transmission deadline monitoring timer shall be started with the configured ComFirstTimeout value if the timer is started for the first time after a (re-)start of the transmission deadline monitoring service for this I-PDU, otherwise the timer shall be started with ComTimeout value.

SWS_Com_XXX2: When the AUTOSAR COM receives a transmit confirmation for an I-PDU, it shall cancel all running transmission deadline monitoring timers for all contained signals and signal groups.

Update [SWS_Com_00304] and move it to Chapter 7.3.6.2 "Transmission Deadline Monitoring":

[SWS_Com_00304] When a transmission deadline monitoring timer elapses, that is there was no successful transmit confirmation for an I-PDU in time, the AUTOSAR COM module shall notify the RTE by invoking all configured ComTimeoutNotifications for contained signals or signal groups, see ECUC_Com_00552. (SRS_Com_02037)

If the transmission deadline monitoring timer runs out, there will be a timeout notification regardless of the reason. For example the notification will even take place, if the transmission was filtered out by an I-PDU callout.

Since the AUTOSAR COM overrules the OSEK COM now completely, remove 7.3.6.2.1 Clarifications with respect to [17]. (after moving SWS_Com_00304 upwards the chapter does not contain any requirement anymore)

—-

Regarding reception deadline monitoring:

SWS_Com_00872: The Signal Gateway shall support the following I-PDU/

signal-processing stages on the receiver side (see also Figure 6):
1) reset reception deadline monitoring timer for I-PDU based monitoring
2) I-PDU callout
3) check of updatebits
4) endianness conversion and sign extension

SWS_Com_00873: The Signal Gateway shall support the following I-PDU/ signal-processing stages on the sender side (see also Figure 6):
1) set of update-bits
2) endianness conversion and sign extension
3) I-PDU transmission mode selection
4) I-PDU callout

Update SWS_Com_00396:
SWS_Com_00396: A received signal or signal group can be configured for various processing steps. The AUTOSAR COM module shall execute the configured processing steps in the following order:
1) reset reception deadline monitoring timer for I-PDU based monitoring
2) check update-bits
3) endianness conversion and sign extension
4) data invalidation
5) reception filtering
6) reset reception deadline monitoring timer for signal based monitoring
7) notification

Adapt figures 4-6 accordingly to the requirements SWS_Com_00872, SWS_Com_00873, and SWS_Com_00396.

General bug fix:

In SWS_Com_00787 update item 2) to:
- restart all reception deadline monitoring timer for all signals with a non-zero configured ComFirstTimeout
- cancel all transmission deadline monitoring timer and use ComFirstTimeout (if configured) as value when a transmission timer is started the first time after the I-PDU activation
–Last change on issue 76376 comment 43–

BW-C-Level:

Application	Specification	Bus
4	4	1

1.37 Specification Item SWS_Com_00792

Trace References:

SRS_Com_00218

Content:

At invocation of the function Com_IpduGroupControl, the AUTOSAR COM module shall start/stop every ComIPdu according to the passed states of the ComIpduGroups in the parameter ipduGroupVector.

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76213: The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch.

  Problem description:

  The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch. In case both actions are applied on the same BswM MainFunction cycle, BswMPduGroupSwitch will revert BswMSwitchIPduMode due to the late execution of BswMPduGroupSwitch.
  Example:
  ActionList: BswMPduGroupSwitch; ; BswMSwitchIPduMode; (both actions are applied on the same IPDU)

  The expected result is that the IPduMode and the IPduGroup are switched. In reality the IPduGroup switch is postponed to MainFunction (see Handling of I-PDU Group Actions). By this postponement the switched IPduMode is reverted.

  Before adding more and more BswM actions for late execution we would recommend to execute the BswMPduGroupSwitch immediately as we did it in AUTOSAR 3. This will simplify the IPduGroup handling in BswM and force a more robust handling in general.

  Agreed solution:

  COM
  ==========

  remove Com_IpduGroupControl (SWS_Com_00751, SWS_Com_00792)
  remove Com_ReceptionDMControl (SWS_Com_00752, SWS_Com_00616, SWS_Com_00617, SWS_Com_00618)
  remove Com_ClearIpduGroupVector (SWS_Com_00749, SWS_Com_00750, SWS_Com_00623)

remove Com_IpduGroupVector (SWS_Com_00823)
remove Com_SetIpduGroup (SWS_Com_00750, SWS_Com_00623)

re-introduce void Com_IpduGroupStart(Com_PduGroupIdType IpduGroupId, boolean Initialize) (as in AUTOSAR 3.2)
re-introduce void void Com_IpduGroupStop(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_DisableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_EnableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)

adapt the SWS_Com requirements which contain the removed APIs, for example: in SWS_Com_00114, the "Com_IpduGroupControl" would be replaced with "Com_IpduGroupStart".

make sure that the I-PDU group activation rules remain as in AUTOSAR 4.X

BswM
==========

*) Remove chapter 7.2.6 Handling of I-PDU Group Actions

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMDeadlineMonitoringControl container has a BswMDisabledDMPduGroupRef and a BswMEnabledDMPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMPduGroupSwitch container has a BswMDisabledPduGroupRef and a BswMEnabledPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_XXXXX "When a BswMPduGroupSwitch action is executed, the BswM shall call Com_IpduGroupStart for each BswMEnabledPduGroupRef, and call Com_IpduGroupStop for each BswMDisabledPduGroupRef. The ordering of these calls to Com is undefined."

*) Add SWS_BswM_XXXXX "When a BswMDeadlineMonitoringControl action is executed, the BswM shall call Com_EnableReceptionDM for each BswMEnabledDMPduGroupRef, and call Com_DisableReceptionDM for each BswMDisabledDMPduGroupRef. The ordering of these calls to Com is undefined."

*) Note: If a strict ordering of the calls to Com_IpduGroupStart, Com_IpduGroupStop, Com_EnableReceptionDM, or Com_DisableReceptionDM is required, then this can be achieved by configuring individual actions (BswM-PduGroupSwitch/BswMDeadlineMonitoringControl, each with just a single BswM*PduGroupRef) within an ordered action list.

EcuC
==========
*) Adapt the descriptions of the following ECUC parameters
SWS Item ECUC_BswM_00852 :
Name
BswMDisabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_DisableReceptionDM.

SWS Item ECUC_BswM_00851 :
Name
BswMEnabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_EnableReceptionDM.

SWS Item ECUC_BswM_00913 :
Name
BswMPduGroupSwitchReinit
Description This parameter defines if the data of the I-PDU, the shadow buffers of included signal groups, etc. are reinitialized when a PDU Group is started.
This parameter corresponds to the parameter "initialize" of the function Com_IpduGroupStart.

SWS Item ECUC_BswM_00850 :
Name
BswMDisabledPduGroupRef
Description This is a reference to a PDU Group that should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStop.

SWS Item ECUC_BswM_00849 :
Name
BswMEnabledPduGroupRef
Description This is a reference to a PDU Group that should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStart.

*) Remove "Com_IpduGroupControl is called when this action is configured." from description of BswMPduGroupSwitch (ECUC_BswM_00828)

*) Remove "COM_ReceptionDMControl is called when this action is configured." from description of BswMDeadlineMonitoringControl (ECUC_BswM_00830)

BSW UML
==========
*) Update the table of optional interfaces (SWS_BswM_00008):
Remove Com_ClearIpduGroupVector; Com_IpduGroupControl; Com_ReceptionDMControl; Com_SetIpduGroup
Add: Com_IpduGroupStop; Com_IpduGroupStart; Com_EnableReceptionDM; Com_DisableReceptionDM

*) Remove Com_IpduGroupVector from imported types (SWS_BswM_00001)

*) Remove:
SWS_Com_00749
SWS_Com_00750
SWS_Com_00751
SWS_Com_00752
SWS_Com_00823
–Last change on issue 76213 comment 33–

BW-C-Level:

Application	Specification	Bus
1	4	1

1.38 Specification Item SWS_Com_00803

Trace References:

SRS_BSW_00337

Content:

API service called with wrong parameter:

- error code: COM_E_PARAM
- value [hex]: 0x01

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #77161: Tables in specification documents contain trace items

  Problem description:

  _____
  Name: Wolf-Hendrik Kaps
  Phone: 0711-811-23288
  Role: Jg-Tooling member
  _____
  Description/Motivation:

  Some specification documents contain tables which include trace items. E.g. SWS_Com, table in 7.12.1 Development Errors, SWS_Rte, Table 5.4: RTE Error and Status values.

  As discussed in tooling session we should extend ValidateARXML routine to elicit trace items inside tables.

  Further on we shall ensure that tracebles do not contain figures and tables (77206, 74860)
  –Last change on issue 77161 comment 3–

  Agreed solution:

  1. Affected Documents
  ==========

  1. Move the Traceable out of the f**ing tables (see attachment)
  2. move Tables and figures out of the Traceable

  2. Word2arxml and latex2arxml which is used by checkDocumentSource
  ==========

let these scripts complain also requested by 77206, 74860 but summarized here

* Tables in Traceable
* Traceable in Tables
* Figures in Traceable

2.1 GST: add these contraints
==========

3. CP_Tool_Scripts
==========

* let latexinstatiaator complain about Figures in Traceable
* note: tha table in traceable violates the schema and is flagged already
* let latexinstantiator complain about traceable in tables
–Last change on issue 77161 comment 7–

BW-C-Level:

Application	Specification	Bus
1	1	1

1.39 Specification Item SWS_Com_00804

Trace References:

SRS_BSW_00337

Content:

Error code if any other API service, except Com_GetStatus, is called before the AUTOSAR COM module was initialized with Com_Init or after a call to Com_Deinit:

- error code: COM_E_UNINIT
- value [hex]: 0x02

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #77161: Tables in specification documents contain trace items

  Problem description:

  Name: Wolf-Hendrik Kaps

Phone: 0711-811-23288
Role: Jg-Tooling member

Description/Motivation:

Some specification documents contain tables which include trace items. E.g. SWS_Com, table in 7.12.1 Development Errors, SWS_Rte, Table 5.4: RTE Error and Status values.

As discussed in tooling session we should extend ValidateARXML routine to elicit trace items inside tables.

Further on we shall ensure that tracebles do not contain figures and tables (77206, 74860)
–Last change on issue 77161 comment 3–

Agreed solution:

1. Affected Documents
==========

1. Move the Traceable out of the f**ing tables (see attachment)
2. move Tables and figures out of the Traceable

2. Word2arxml and latex2arxml which is used by checkDocumentSource
==========

let these scripts complain also requested by 77206, 74860 but summarized here

* Tables in Traceable
* Traceable in Tables
* Figures in Traceable

2.1 GST: add these contraints
==========

3. CP_Tool_Scripts
==========

* let latexinstatiaator complain about Figures in Traceable
* note: tha table in traceable violates the schema and is flagged already

* let latexinstantiator complain about traceable in tables
–Last change on issue 77161 comment 7–

BW-C-Level:

Application	Specification	Bus
1	1	1

1.40 Specification Item SWS_Com_00805

Trace References:

SRS_BSW_00414

Content:

NULL pointer checking:

- error code: COM_E_PARAM_POINTER
- value [hex]: 0x03

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #77161: Tables in specification documents contain trace items

  Problem description:

  ———————————
  Name: Wolf-Hendrik Kaps
  Phone: 0711-811-23288
  Role: Jg-Tooling member
  ———————————
  Description/Motivation:

  Some specification documents contain tables which include trace items. E.g. SWS_Com, table in 7.12.1 Development Errors, SWS_Rte, Table 5.4: RTE Error and Status values.

  As discussed in tooling session we should extend ValidateARXML routine to elicit trace items inside tables.

  Further on we shall ensure that tracebles do not contain figures and tables (77206, 74860)
  –Last change on issue 77161 comment 3–

Agreed solution:

1. Affected Documents
==========

1. Move the Traceable out of the f**ing tables (see attachment)
2. move Tables and figures out of the Traceable

2. Word2arxml and latex2arxml which is used by checkDocumentSource
==========

let these scripts complain also requested by 77206, 74860 but summarized here

* Tables in Traceable
* Traceable in Tables
* Figures in Traceable

2.1 GST: add these contraints
==========

3. CP_Tool_Scripts
==========

* let latexinstatiaator complain about Figures in Traceable
* note: tha table in traceable violates the schema and is flagged already
* let latexinstantiator complain about traceable in tables
–Last change on issue 77161 comment 7–

BW-C-Level:

Application	Specification	Bus
1	1	1

1.41 Specification Item SWS_Com_00823

Trace References:

SRS_Com_02090, SRS_BSW_00441

Content:

Name:	Com_IpduGroupVector (obsolete)Com_IpduGroupVector (obsolete)		
Type:	uint8[(ComSupportedIPduGroups-1)/8+1]		
Range:	bitfieldCom_IpduGroup Vector.bitfield	–	The bitfield is an array of uint8[(ComSupportedIPdu Groups - 1)/8 + 1], i.e. there are bit0 - bit<ComSupported IPduGroups - 1>
Description:	This type can be used to store a flag (bit) for each I-PDU group within the system. It is used for setting the activation state and deadline monitoring state for I-PDU groups within one function call Tags: atp.Status=obsolete		

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76213: The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch.

  Problem description:

  The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroup-Switch. In case both actions are applied on the same BswM MainFunction cycle, BswMPduGroupSwitch will revert BswMSwitchIPduMode due to the late execution of BswMPduGroupSwitch.
  Example:
  ActionList: BswMPduGroupSwitch; ; BswMSwitchIPduMode; (both actions are applied on the same IPDU)

  The expected result is that the IPduMode and the IPduGroup are switched. In reality the IPduGroup switch is postponed to MainFunction (see Handling of I-PDU Group Actions). By this postponement the switched IPduMode is reverted.

  Before adding more and more BswM actions for late execution we would recommend to execute the BswMPduGroupSwitch immediately as we did it in AUTOSAR 3. This will simplify the IPduGroup handling in BswM and force a more robust handling in general.

  Agreed solution:

  COM
  ==========

  remove Com_IpduGroupControl (SWS_Com_00751, SWS_Com_00792)
  remove Com_ReceptionDMControl (SWS_Com_00752, SWS_Com_00616, SWS_Com_00617, SWS_Com_00618)
  remove Com_ClearIpduGroupVector (SWS_Com_00749, SWS_Com_00750,

SWS_Com_00623)
remove Com_IpduGroupVector (SWS_Com_00823)
remove Com_SetIpduGroup (SWS_Com_00750, SWS_Com_00623)

re-introduce void Com_IpduGroupStart(Com_PduGroupIdType IpduGroupId, boolean Initialize) (as in AUTOSAR 3.2)
re-introduce void void Com_IpduGroupStop(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_DisableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_EnableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)

adapt the SWS_Com requirements which contain the removed APIs, for example: in SWS_Com_00114, the "Com_IpduGroupControl" would be replaced with "Com_IpduGroupStart".

make sure that the I-PDU group activation rules remain as in AUTOSAR 4.X

BswM
==========

*) Remove chapter 7.2.6 Handling of I-PDU Group Actions

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMDeadlineMonitoringControl container has a BswMDisabledDMPduGroupRef and a BswMEnabledDMPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMPduGroupSwitch container has a BswMDisabledPduGroupRef and a BswMEnabledPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_XXXXX "When a BswMPduGroupSwitch action is executed, the BswM shall call Com_IpduGroupStart for each BswMEnabledPduGroupRef, and call Com_IpduGroupStop for each BswMDisabledPduGroupRef. The ordering of these calls to Com is undefined."

*) Add SWS_BswM_XXXXX "When a BswMDeadlineMonitoringControl action is executed, the BswM shall call Com_EnableReceptionDM for each BswMEnabledDMPduGroupRef, and call Com_DisableReceptionDM for each BswMDisabledDM-

PduGroupRef. The ordering of these calls to Com is undefined."

*) Note: If a strict ordering of the calls to Com_IpduGroupStart, Com_IpduGroupStop, Com_EnableReceptionDM, or Com_DisableReceptionDM is required, then this can be achieved by configuring individual actions (BswM-PduGroupSwitch/BswMDeadlineMonitoringControl, each with just a single BswM*PduGroupRef) within an ordered action list.

EcuC
==========
*) Adapt the descriptions of the following ECUC parameters
SWS Item ECUC_BswM_00852 :
Name
BswMDisabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_DisableReceptionDM.

SWS Item ECUC_BswM_00851 :
Name
BswMEnabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_EnableReceptionDM.

SWS Item ECUC_BswM_00913 :
Name
BswMPduGroupSwitchReinit
Description This parameter defines if the data of the I-PDU, the shadow buffers of included signal groups, etc. are reinitialized when a PDU Group is started.
This parameter corresponds to the parameter "initialize" of the function Com_IpduGroupStart.

SWS Item ECUC_BswM_00850 :
Name
BswMDisabledPduGroupRef
Description This is a reference to a PDU Group that should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function

Com_IpduGroupStop.

SWS Item ECUC_BswM_00849 :
Name
BswMEnabledPduGroupRef
Description This is a reference to a PDU Group that should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStart.

*) Remove "Com_IpduGroupControl is called when this action is configured." from description of BswMPduGroupSwitch (ECUC_BswM_00828)

*) Remove "COM_ReceptionDMControl is called when this action is configured." from description of BswMDeadlineMonitoringControl (ECUC_BswM_00830)

BSW UML
==========
*) Update the table of optional interfaces (SWS_BswM_00008):
Remove Com_ClearIpduGroupVector; Com_IpduGroupControl; Com_ReceptionDMControl; Com_SetIpduGroup
Add: Com_IpduGroupStop; Com_IpduGroupStart; Com_EnableReceptionDM; Com_DisableReceptionDM

*) Remove Com_IpduGroupVector from imported types (SWS_BswM_00001)

*) Remove:
SWS_Com_00749
SWS_Com_00750
SWS_Com_00751
SWS_Com_00752
SWS_Com_00823
–Last change on issue 76213 comment 33–

BW-C-Level:

Application	Specification	Bus
1	4	1

1.42 Specification Item SWS_Com_00837

Trace References:

SRS_BSW_00414

Content:

Invalid configuration set selection:

- error code: COM_E_INIT_FAILED
- value [hex]: 0x04

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #77161: Tables in specification documents contain trace items

  Problem description:

  Name: Wolf-Hendrik Kaps
  Phone: 0711-811-23288
  Role: Jg-Tooling member

  Description/Motivation:

  Some specification documents contain tables which include trace items. E.g. SWS_Com, table in 7.12.1 Development Errors, SWS_Rte, Table 5.4: RTE Error and Status values.

  As discussed in tooling session we should extend ValidateARXML routine to elicit trace items inside tables.

  Further on we shall ensure that tracebles do not contain figures and tables (77206, 74860)
  –Last change on issue 77161 comment 3–

  Agreed solution:

  1. Affected Documents
  ==========

  1. Move the Traceable out of the f**ing tables (see attachment)
  2. move Tables and figures out of the Traceable

2. Word2arxml and latex2arxml which is used by checkDocumentSource
==========

let these scripts complain also requested by 77206, 74860 but summarized here

* Tables in Traceable
* Traceable in Tables
* Figures in Traceable

2.1 GST: add these contraints
==========

3. CP_Tool_Scripts
==========

* let latexinstatiaator complain about Figures in Traceable
* note: tha table in traceable violates the schema and is flagged already
* let latexinstantiator complain about traceable in tables
–Last change on issue 77161 comment 7–

BW-C-Level:

Application	Specification	Bus
1	1	1

1.43 Specification Item SWS_Com_00840

Trace References:

SRS_Com_00218

Content:

If an I-PDU is not assigned to any I-PDU group, the AUTOSAR COM shall start this I-PDU within Com_Init as if it would be started by Com_IpduGroupControl Start with parameter Initialize set to true (see Chapter 7.3.5.2).

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76213: The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch.

Problem description:

The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch. In case both actions are applied on the same BswM MainFunction cycle, BswMPduGroupSwitch will revert BswMSwitchIPduMode due to the late execution of BswMPduGroupSwitch.
Example:
ActionList: BswMPduGroupSwitch; ; BswMSwitchIPduMode; (both actions are applied on the same IPDU)

The expected result is that the IPduMode and the IPduGroup are switched. In reality the IPduGroup switch is postponed to MainFunction (see Handling of I-PDU Group Actions). By this postponement the switched IPduMode is reverted.

Before adding more and more BswM actions for late execution we would recommend to execute the BswMPduGroupSwitch immediately as we did it in AUTOSAR 3. This will simplify the IPduGroup handling in BswM and force a more robust handling in general.

Agreed solution:

COM
==========

remove Com_IpduGroupControl (SWS_Com_00751, SWS_Com_00792)
remove Com_ReceptionDMControl (SWS_Com_00752, SWS_Com_00616, SWS_Com_00617, SWS_Com_00618)
remove Com_ClearIpduGroupVector (SWS_Com_00749, SWS_Com_00750, SWS_Com_00623)
remove Com_IpduGroupVector (SWS_Com_00823)
remove Com_SetIpduGroup (SWS_Com_00750, SWS_Com_00623)

re-introduce void Com_IpduGroupStart(Com_PduGroupIdType IpduGroupId, boolean Initialize) (as in AUTOSAR 3.2)
re-introduce void void Com_IpduGroupStop(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_DisableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_EnableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)

adapt the SWS_Com requirements which contain the removed APIs, for example: in SWS_Com_00114, the "Com_IpduGroupControl" would be replaced with "Com_IpduGroupStart".

make sure that the I-PDU group activation rules remain as in AUTOSAR 4.X

BswM
==========

*) Remove chapter 7.2.6 Handling of I-PDU Group Actions

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMDeadlineMonitoringControl container has a BswMDisabledDMPduGroupRef and a BswMEnabledDMPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMPduGroupSwitch container has a BswMDisabledPduGroupRef and a BswMEnabledPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_XXXXX "When a BswMPduGroupSwitch action is executed, the BswM shall call Com_IpduGroupStart for each BswMEnabledPduGroupRef, and call Com_IpduGroupStop for each BswMDisabledPduGroupRef. The ordering of these calls to Com is undefined."

*) Add SWS_BswM_XXXXX "When a BswMDeadlineMonitoringControl action is executed, the BswM shall call Com_EnableReceptionDM for each BswMEnabledDMPduGroupRef, and call Com_DisableReceptionDM for each BswMDisabledDMPduGroupRef. The ordering of these calls to Com is undefined."

*) Note: If a strict ordering of the calls to Com_IpduGroupStart, Com_IpduGroupStop, Com_EnableReceptionDM, or Com_DisableReceptionDM is required, then this can be achieved by configuring individual actions (BswMPduGroupSwitch/BswMDeadlineMonitoringControl, each with just a single BswM*PduGroupRef) within an ordered action list.

EcuC
==========
*) Adapt the descriptions of the following ECUC parameters
SWS Item ECUC_BswM_00852 :
Name
BswMDisabledDMPduGroupRef

Description This is a reference to a PDU Group for which the Deadline Monitoring should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_DisableReceptionDM.

SWS Item ECUC_BswM_00851 :
Name
BswMEnabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_EnableReceptionDM.

SWS Item ECUC_BswM_00913 :
Name
BswMPduGroupSwitchReinit
Description This parameter defines if the data of the I-PDU, the shadow buffers of included signal groups, etc. are reinitialized when a PDU Group is started.
This parameter corresponds to the parameter "initialize" of the function Com_IpduGroupStart.

SWS Item ECUC_BswM_00850 :
Name
BswMDisabledPduGroupRef
Description This is a reference to a PDU Group that should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStop.

SWS Item ECUC_BswM_00849 :
Name
BswMEnabledPduGroupRef
Description This is a reference to a PDU Group that should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStart.

*) Remove "Com_IpduGroupControl is called when this action is configured." from description of BswMPduGroupSwitch (ECUC_BswM_00828)

*) Remove "COM_ReceptionDMControl is called when this action is configured." from description of BswMDeadlineMonitoringControl (ECUC_BswM_00830)

BSW UML
==========
*) Update the table of optional interfaces (SWS_BswM_00008):
Remove Com_ClearIpduGroupVector; Com_IpduGroupControl; Com_ReceptionDMControl; Com_SetIpduGroup
Add: Com_IpduGroupStop; Com_IpduGroupStart; Com_EnableReceptionDM; Com_DisableReceptionDM

*) Remove Com_IpduGroupVector from imported types (SWS_BswM_00001)

*) Remove:
SWS_Com_00749
SWS_Com_00750
SWS_Com_00751
SWS_Com_00752
SWS_Com_00823
–Last change on issue 76213 comment 33–

BW-C-Level:

Application	Specification	Bus
1	4	1

1.44 Specification Item SWS_Com_00841

Trace References:

SRS_Com_02112

Content:

The UINT8-array based access to signal groups shall only be used if the following preconditions apply:

- Uses uses only fix sized data types for the composite data .
- Signal signal groups, which are mapped byte aligned to the I-PDU .
- Signal groupswhere all group signals are mapped consecutively to the I-PDU on transmission side. signal groups, which are not intermitted by other signals (but may contain gaps)

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #74115: [ComXf]: Limitation SWS_ComXf_00023 can be updated as per Com requirement SWS_Com_00841

  Problem description:

  As per Bugzilla # 68315

  It is concluded that during reception of Signal Group Array the group signals in it may not be consecutive and other signals may be interleaved or gaps can be there.(as per SWS_Com_00841)

  But in Com based transformer Specification
  There is a limitation
  SWS_ComXf_00023: The COM Based Transformer only supports signal groups where all group signals are mapped consecutively to the IPdu.

  As per Bugzilla # 68315 during reception of signalgroup, Group signals need not be mapped consecutively.

  Hence can we update the mentioned limitation as below

  SWS_ComXf_00023: The COM Based Transformer only supports signal groups where all group signals are mapped consecutively to the IPdu on transmission side.

  If above mentioned solution is acceptable

  During reception: Com based transformer shall get buffer from RTE (RTE shall get data from Com_ReceiveSignalGroupArray), in which along with group signals there may be some other signals data (which are not part of this signal group) or some other data (if gaps are there).

  But Com Based transformer shall extract the Groupsignals in that signal group based on bit positions configured. Data that is not related to this signal group shall be untouched.

  Is this understanding correct? please clarify

  Regards,
  KPIT

  Update:
  ComXf should be updated to respect the "ComTxIPduUnusedAreaDefault"

value in order to have well defined values for unused bits in the byte array prepared by ComXf. This can be done by referring SystemTemplate::Fibex::FibexCore::CoreCommunication::ISignalIPdu.unusedBitPattern of the respective System Signal Group or
ComIPdu:ComTxIPdu:ComTxIPduUnusedAreasDefault parameter.

This approach would allow gaps in the signal group definition (Normal signal and other Signal group shall not be mapped in the gap) and also define the value for the unused bits of signal which are shorter than 8 bits.
–Last change on issue 74115 comment 14–

Agreed solution:

SWS ComXf
- Update SWS_ComXf_00023 to:

SWS_ComXf_00023: The COM Based Transformer shall support signal group where all group signals are mapped successively (possibly with gaps where positions in the signal group layout have no corresponding signal defined) to the IPdu.

- Add before [SWS_ComXf_00014]:
[SWS_ComXf_000x1] If the signal layout of the signal group array representation contains gaps, those gaps shall be set during transmission to the value defined by the ComTxIPduUnusedAreasDefault of the respective ComIPdu that this signal group is mapped to.

Gaps in the signal group array representation may occur because the layout is not fully packed and there are bits (or even bytes) that have no signal defined for.

- Add attached figure for further explanation

COM parameter ComTxIPduUnusedAreasDefault shall be added in "B Used ECU Configuration" along with other COM parameters used by ComXf.

==========
COM SWS

SWS_Com_00841: The UINT8-array based access to signal groups shall only be used if the following preconditions apply:
Uses only fix sized data types for the composite data.
Signal groups, which are mapped byte aligned to the I-PDU.
Signal groups where all group signals are mapped consecutively to the I-PDU on transmission side.

to

SWS_Com_00841: The UINT8-array based access to signal groups shall only be used if the following preconditions apply:
Uses only fix sized data types for the composite data.
Signal groups, which are mapped byte aligned to the I-PDU.
Signal groups, which are not intermitted by other signals (but may contain gaps).

Remove following Note after SWS_COM_00845

Note: Please note that for reception the signal group may not be consecutive and other signals may be interleaved in the uint8-array representation of the received signal group.
–Last change on issue 74115 comment 27–

BW-C-Level:

Application	Specification	Bus
1	1	1

1.45 Specification Item SWS_Com_00858

Trace References:

SRS_Com_02037

Content:

Service name:	Com_TriggerIPDUSendWithMetaDataCom_TriggerIPDUSendWithMetaData	
Syntax:	Std_ReturnType Com_TriggerIPDUSendWithMetaData(PduIdType PduId, const uint8* MetaData)	
Service ID[hex]:	0x28	
Sync/Async:	Synchronous	
Reentrancy:	Non Reentrant	
Parameters (in):	PduIdCom_TriggerIPDUSendWithMeta Data.PduId	The I-PDU-ID of the I-PDU that shall be triggered for sending
	MetaDataCom_TriggerIPDUSendWith MetaData.MetaData	A pointer to the metadata for the triggered send-request
Parameters (inout):	None	
Parameters (out):	None	
Return value:	Std_ReturnType	E_OK: I-PDU was triggered for transmission E_NOT_OK: I-PDU is stopped, the transmission could not be triggered

Description:	By a call to Com_TriggerIPDUSendWithMetaData the AUTOSAR COM module updates its internal metadata for the I-PDU with the given ID by copying the metadata from the given position and with respect to length of the globally configured MetaData Type of this I-PDU. Then the I-PDU is triggered for transmission.

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #68035: [diverse] Introduce rules defining which input parameters shall be passed per value and which ones per const reference

  Problem description:

  SWS_BSW_00186 especially states that input pointer parameters shall use the const qualifier (i.e., shall be P2CONST).

  In addition to that there shall be a SWS item that states that input parameters of integral and enum type shall be passed by value whereas input parameters of structure type shall be passed by reference.

  The various transformer SWS documents shall be adapted accordingly.
  –Last change on issue 68035 comment 4–

  Agreed solution:

  BSW UML model
  ————-
  The attachment "Changed Proposal in WP-A meeting" contains a list of changes to the APIs in the model (see column H). Afterwards all related documents (included in impact list) shall update their
  generated artifacts.

  General Requirements on Basic Software Modules
  ~~~~~~

  Introduce the following requirements prior to SRS_BSW_00371:

  SRS_BSW_xxxxx: Input parameters of scalar and enum types shall be passed as a value.
  Type: valid
  Description: All input parameters of scalar or enum type shall be passed as a value.
  Rationale:
  ~~~~~~

Use case: For example a function named <Mip>_SomeFunction with a return type of Std_ReturnType and a single parameter named SomeParameter of type uint8 is defined with the following signature:

Std_ReturnType <Mip>_SomeFunction(uint8 SomeParameter);
Dependencies: –
Supporting Material: —

SRS_BSW_yyyyy: Input parameters of structure type shall be passed as a reference to a constant structure
Type: valid
Description: All input parameters of structure type shall be passed as a reference constant structure
Rationale: Passing input parameters of structure type by value would result in additional run-time overhead due to efforts for copying the whole structure.
Use case: For example a function named <Mip>_SomeFunction with a return type of Std_ReturnType and a single parameter named SomeParameter of type SomeStructure (where SomeStructure is a struct) is defined with the following signature:

Std_ReturnType <Mip>_SomeFunction(P2CONST(SomeStructure, AUTOMATIC, <MIP>_APPL_DATA) SomeParameter);
Dependencies: –
Supporting Material: —

SRS_BSW_zzzzz: Input parameters of array type shall be passed as a reference to the constant array base type
Type: valid
Description: All input parameters of array type shall be passed as a reference to the constant array base type
Rationale: This effectively matches the behavior specified in the ISO-C:90 namely that a "declaration of a parameter as 'array of type' shall be adjusted to 'qualified pointer to
type'".
Use case: For example a function named <Mip>_SomeFunction with a return type of Std_ReturnType and a single parameter named SomeParameter of type array of uint8 is defined with the following signature:

Std_ReturnType <Mip>_SomeFunction(P2CONST(uint8, AUTOMATIC, <MIP>_APPL_DATA) SomeParameter);
Dependencies: –

Supporting Material: —

General Specification of Transformers
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

In SWS_Xfrm_00036 change

const <type>* dataElement

to

<paramtype> dataElement

and add the following to the where clause after the API table after the bullet "type is data type of the data element
"

<paramtype> is derived from <type> according to the parameter passing rules rules defined by the SRS BSW General (see SRS_BSW_xxxxx, SRS_BSW_yyyyy, and SRS_BSW_zzzzz) and SWS BSW General (see SWS_BSW_00186 and SWS_BSW_00187).

In SWS_Xfrm_00038 change

[<type> data_1,] ...
[<type> data_n]

to

[<paramtype> data_1,] ...
[<paramtype> data_n]

and add the following to the where clause after the API table after the bullet "type is data type of the data element
"

<paramtype> is derived from <type> according to the parameter passing rules rules defined by the SRS BSW General (see SRS_BSW_xxxxx, SRS_BSW_yyyyy, and SRS_BSW_zzzzz) and SWS BSW General (see SWS_BSW_00186 and SWS_BSW_00187).
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

The following paragraph shall then be removed:

For the arguments of ClientServerOperation which are handed over to the transformer as data_1, ..., data_n the requirements to API parameters stated in chapter API Parameters of [5, SWS RTE] are valid (especially [SWS_Rte_01017], [SWS_Rte_01018] and [SWS_Rte_05107]).

In SWS_Xfrm_00040 change

[<originalData1>, ...
<originalDataN>]

to

[<paramtype> originalData1,] ...
[<paramtype> originalDataN]

and add the following to the where clause after the API table after the bullet "type is data type of the data element
"

<paramtype> is derived from <type> according to the parameter passing rules rules defined by the SRS BSW General (see SRS_BSW_xxxxx, SRS_BSW_yyyyy, and SRS_BSW_zzzzz) and SWS BSW General (see SWS_BSW_00186 and SWS_BSW_00187).

In SWS_Xfrm_00044 change

<type> *data_1, ...
<type> *data_n

to

[<paramtype> data_1,] ...
[<paramtype> data_n]

and add the following to the where clause after the API table after the bullet "type is data type of the data element
"

<paramtype> is derived from <type> according to the parameter passing rules rules defined by the SRS BSW General (see SRS_BSW_xxxxx, SRS_BSW_yyyyy, and SRS_BSW_zzzzz) and SWS BSW General (see SWS_BSW_00186 and SWS_BSW_00187).

The following paragraph shall then be removed:

For the arguments of ClientServerOperation which are handed over to the transformer as data_1, ..., data_n the requirements to API parameters stated in chapter API Parameters of [5, SWS RTE] are valid (especially [SWS_Rte_01017], [SWS_Rte_01018] and [SWS_Rte_05107]).

Speci?cation of SOME/IP Transformer
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

In SWS_SomeIpXf_00138 change

const <type>* dataElement

to

<paramtype> dataElement

and add the following to the where clause after the API table after the bullet "type is data type of the data element
"

<paramtype> is derived from <type> according to the parameter passing rules rules defined by the SRS BSW General (see SRS_BSW_xxxxx, SRS_BSW_yyyyy, and SRS_BSW_zzzzz) and SWS BSW General (see SWS_BSW_00186 and SWS_BSW_00187).

In SWS_SomeIpXf_00141 change

[<type> data_1,] ...
[<type> data_n]

to

[<paramtype> data_1,] ...
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

[<paramtype> data_n]

and add the following to the where clause after the API table after the bullet "type is data type of the data element
"

<paramtype> is derived from <type> according to the parameter passing rules rules defined by the SRS BSW General (see SRS_BSW_xxxxx, SRS_BSW_yyyyy, and SRS_BSW_zzzzz) and SWS BSW General (see SWS_BSW_00186 and SWS_BSW_00187).

The following paragraph shall then be removed:

For the arguments of ClientServerOperation which are handed over to the transformer as data_1, ..., data_n the requirements to API parameters stated in chapter API Parameters of [5, SWS RTE] are valid (especially [SWS_Rte_01017], [SWS_Rte_01018] and [SWS_Rte_05107]).

In SWS_SomeIpXf_00145 change

<type> *data_1, ...
<type> *data_n

to

[<paramtype> data_1,] ...
[<paramtype> data_n]

and add the following to the where clause after the API table after the bullet "type is data type of the data element
"

<paramtype> is derived from <type> according to the parameter passing rules rules defined by the SRS BSW General (see SRS_BSW_xxxxx, SRS_BSW_yyyyy, and SRS_BSW_zzzzz) and SWS BSW General (see SWS_BSW_00186 and SWS_BSW_00187).

The following paragraph shall then be removed:

For the arguments of ClientServerOperation which are handed over to the

transformer as data_1, ..., data_n the requirements to API parameters stated in chapter API Parameters of [5, SWS RTE] are valid (especially [SWS_Rte_01017], [SWS_Rte_01018] and [SWS_Rte_05107]).

Specification of COM Based Transformer
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

In SWS_ComXf_00007 change

const <type>* dataElement

to

<paramtype> dataElement

and add the following to the where clause after the API table after the bullet "type is data type of the data element
"

<paramtype> is derived from <type> according to the parameter passing rules rules defined by the SRS BSW General (see SRS_BSW_xxxxx, SRS_BSW_yyyyy, and SRS_BSW_zzzzz) and SWS BSW General (see SWS_BSW_00186 and SWS_BSW_00187).

Specification of Time Sync over Ethernet
~~~~~~

In SWS_EthTSyn_00040 make the parameter DataPtr of EthTSyn_RxIndication const.

Specification of SWS FlexRay Interface
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

Change SWS_FrIf_05073 from
FrIf_NumOfStartupFramesPtr (IN)
to
FrIf_NumOfStartupFramesPtr (OUT)
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

Specification of ADC
~~~~~~
~[SWS_Adc_00419] Adc_SetupResultBuffer: change Adc_ValueGroupType* to const Adc_ValueGroupType*
~[SWS_Adc_00369] Adc_ReadGroup: move Adc_ValueGroupType * from Parameters (in) to Parameters (out)

There is no need to change parameter from IN to INOUT in Adc_SetupResultBuffer

Specification of Com
~~~~~~
Change type of parameter MetaData of Com_TriggerIPDUSendWithMetaData from uint8* to const uint8*

Specification of ComM
~~~~~~
no change required

Specification of Dem
~~~~~~
no change required

Specification of DLT
~~~~~~
no change required

Specification of DoIP
~~~~~~
From:
Std_ReturnType <User>_DoIPRoutingActivationConfirmation(boolean* Confirmed, uint8* ConfirmationReqData, uint8* ConfirmationResData)
Std_ReturnType <User>_DoIPRoutingActivationAuthentication(boolean* Authentified, uint8* AuthenticationReqData, uint8* AuthenticationResData)

To:
Std_ReturnType <User>_DoIPRoutingActivationConfirmation(boolean* Confirmed, const uint8* ConfirmationReqData, uint8* ConfirmationResData)

Std_ReturnType <User>_DoIPRoutingActivationAuthentication(boolean* Authentified, const uint8* AuthenticationReqData, uint8* AuthenticationResData)

Specification of E2ELibrary
~~~~~~
no change required

Specification of Eth
~~~~~~
no change required

Specification of EthIf
~~~~~~
no change required

Specification of EthSwitchDriver
~~~~~~
no change required

Specification of ICUDriver
~~~~~~
SWS_Icu_00201: Icu_StartTimestamp
Parameter (IN): Icu_ValueType* BufferPtr shall be changed to Parameters (out) type

Specification of LdCom
~~~~~~
[SWS_LDCOM_00027]: LdCom_CopyTxData
BufReq_ReturnType LdCom_CopyTxData(PduIdType id, const PduInfoType* info, RetryInfoType* retry, PduLengthType* availableDataPtr) shall be changed to
BufReq_ReturnType LdCom_CopyTxData(PduIdType id, const PduInfoType* info, const RetryInfoType* retry, PduLengthType* availableDataPtr)

[SWS_LDCOM_00036]: Rte_LdComCbkCopyTxData_<sn>
BufReq_ReturnType Rte_LdComCbkCopyTxData_<sn>(const PduInfoType* info, RetryInfoType* retry, PduLengthType* availableDataPtr) shall be changed to
BufReq_ReturnType Rte_LdComCbkCopyTxData_<sn>(const PduInfoType* info, const RetryInfoType* retry, PduLengthType* availableDataPtr)

Specification of Lin
~~~~~~
PduInfoPtr needs to be const in Std_ReturnType Lin_SendFrame(uint8 Channel, const Lin_PduType* PduInfoPtr)

Specification of PduR
~~~~~~
* PduR_<User:LoTp>CopyTxData
add const to "RetryInfoType* retry"

Specification of J1939Nm
~~~~~~
Change parameter 'name' of User_AddressClaimedIndication to type 'const uint8*'

Specification of SoAd
~~~~~~
=> everything already fixed with RfC 65633

Specification of SPIHandlerDriver
~~~~~~
==> nothing to change for SWS SPI

Specification of SynchronizedTimeBaseManager
~~~~~~
"StbM not affected. All issues listed in the WP-A attachment have been already implemented by IT 69124 in context of RfC 65633"

Specification of TcpIp
~~~~~~
~[SWS_TCPIP_00040] TcpIp_DhcpReadOption: change DataPtr from (IN) to (OUT)
~[SWS_TCPIP_00189] TcpIp_DhcpV6ReadOption: change DataPtr from (IN) to (OUT)
=> everything else already fixed with RfC 65633
~~~~~~

Specification of TimeSyncOverFlexRay
~~~~~~
"Change SWS_FrTSyn_00064: parameter versioninfo of type Std_VersionInfoType* is marked wrongly as IN. Change to OUT"

Specification of EFX
~~~~~~~~~~~~~~~~~~~~~~
~ [SWS_Efx_00355] Efx_Debounce_u8_u8: Include constant for pointer Input-parameter as like below.
uint8 Efx_Debounce_u8_u8(boolean X, Efx_DebounceState_Type * State, const Efx_DebounceParam_Type * Param, sint32 dT)

~ [SWS_Efx_00376] Efx_MedianSort: The parameter <InType>* Array should be InOut instead of In parameter as like below.
Parameters (in): N Size of an array
Parameters (inout): Array Pointer to an array

~ [SWS_Efx_00309] Efx_RampCheckActivity: Include constant for pointer Input-parameter as like below.
boolean Efx_RampCheckActivity(const Efx_StateRamp_Type* State_cpst)

~ [SWS_Efx_00307] Efx_RampGetSwitchPos: Include constant for pointer Input-parameter as like below.
boolean Efx_RampGetSwitchPos(const Efx_StateRamp_Type* State_cpst)

~ [SWS_Efx_00193] Efx_Array_Average: Include constant for pointer Input-parameter as like below.
<OutType> Efx_Array_Average_<InTypeMn>_<OutTypeMn>(const <InType>* Array, uint16 Count)

Specification of MFL
~~~~~~~~~~~~~~~~~~~~~~
~ [SWS_Mfl_00192] Mfl_Debounce_u8_u8: Include constant for pointer Input-parameter as like below.
boolean Mfl_Debounce_u8_u8(boolean X, Mfl_DebounceState_Type* State, const Mfl_DebounceParam_Type* Param, float32 dT)

~ [SWS_Mfl_00266] Mfl_DebounceInit: The parameter Mfl_DebounceState_Type* State should be Out instead of In parameter as like below.
Parameters (in): X Initial value for the input state
~~~~~~~~~~~~~~~~~~~~~~

Parameters (out): State Pointer to structure for debouncing state variables

~ [SWS_Mfl_00246] Mfl_HystDeltaRight_f32_u8: Include constant for pointer Input-parameter as like below.
boolean Mfl_HystDeltaRight_f32_u8(float32 X, float32 Delta, float32 Rsp, const uint8* State)

~ [SWS_Mfl_00285] Mfl_MedianSort_f32_f32: The parameter Array should be InOut instead of In parameter as like below.
Parameters (in): N Size of an array
Parameters (inout): Array Pointer to an array

~ [SWS_Mfl_00037] Mfl_PT1SetState: The parameter State_cpst should be Out instead of In parameter as like below.
Parameters (in): X1_f32 Initial value for input state
Y1_f32 Initial value for output state
Parameters (out): State_cpst Pointer to internal state structure

~ [SWS_Mfl_00225] Mfl_RampCheckActivity: Include constant for pointer Input-parameter as like below.
boolean Mfl_RampCheckActivity(const Mfl_StateRamp_Type* State_cpst)

~ [SWS_Mfl_00223] Mfl_RampGetSwitchPos: Include constant for pointer Input-parameter as like below.
boolean Mfl_RampGetSwitchPos(const Mfl_StateRamp_Type* State_cpst)
–Last change on issue 68035 comment 135–

BW-C-Level:

Application	Specification	Bus
1	4	1

1.46 Specification Item SWS_Com_00864

Trace References:

SRS_BSW_00452

Content:

Transmission request was skipped:

- error code: COM_E_SKIPPED_TRANSMISSION
- value [hex]: 0x05

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #77161: Tables in specification documents contain trace items

  Problem description:

  _____

  Name: Wolf-Hendrik Kaps
  Phone: 0711-811-23288
  Role: Jg-Tooling member
  _____

  Description/Motivation:

  Some specification documents contain tables which include trace items. E.g. SWS_Com, table in 7.12.1 Development Errors, SWS_Rte, Table 5.4: RTE Error and Status values.

  As discussed in tooling session we should extend ValidateARXML routine to elicit trace items inside tables.

  Further on we shall ensure that tracebles do not contain figures and tables (77206, 74860)
  –Last change on issue 77161 comment 3–

  Agreed solution:

  1. Affected Documents
  ==========

  1. Move the Traceable out of the f**ing tables (see attachment)
  2. move Tables and figures out of the Traceable

  2. Word2arxml and latex2arxml which is used by checkDocumentSource
  ==========

  let these scripts complain also requested by 77206, 74860 but summarized here

  * Tables in Traceable
  * Traceable in Tables
  * Figures in Traceable

  2.1 GST: add these contraints

==========

3. CP_Tool_Scripts
==========

* let latexinstatiaator complain about Figures in Traceable
* note: tha table in traceable violates the schema and is flagged already
* let latexinstantiator complain about traceable in tables
–Last change on issue 77161 comment 7–

BW-C-Level:

Application	Specification	Bus
1	1	1

1.47 Specification Item SWS_Com_00872

Trace References:

SRS_PduR_06055, SRS_PduR_06089

Content:

The Signal Gateway shall support the following I-PDU/ signal-processing stages on the receiver side (see also Figure 6):

1. reset reception deadline monitoring timer for I-PDU based deadline monitoring
2. I-PDU callout
3. check of update-bits
4. endianness conversion and sign extension

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76376: [Com] Clarification of deadline monitoring

  Problem description:

  While it is now pretty clear how to implement transmission deadline monitoring for send mode NONE, it is unfortunately not at all clear when to start deadline monitoring for pending signals or send mode periodic.

  Agreed solution:

  Regarding Transmission Deadline Monitoring:

Replace the explanatory text of the section 7.3.6.2 "Transmission Deadline Monitoring":

The general idea of the AUTOSAR COM transmission deadline monitoring is to supervise the lower layers and the bus but not the COM module itself. Hence, the transmission monitoring timer is generally started, when the COM module sends an I-PDU to the lower layer. This is independent of a transmission mode or a transfer property. In generally the transmission monitoring timer is not re-started or reset if it is currently running.

Add new requirement to section 7.3.6.2 "Transmission Deadline Monitoring":

SWS_Com_XXX0: The AUTOSAR COM shall start a configured transmission deadline monitoring timer of a signal (group) if it is sent (within an I-PDU) to the lower layer, unless the timer is already running.

SWS_Com_XXX0 does not consider a potential return code, thus the timer is started even if the sent request fails immediately.

If the timer is already running a new send request does not reset or restart a running timer, but the currently outstanding send request is monitored further on. Unless otherwise specified, the timer is started regardless of the trigger that lead to a potential I-PDU send request. Such triggers are for example a cyclic send request of a signal, a Transmission Mode Switch, or an explicit I-PDU sent request via Com_TriggerIPduSend.

SWS_Com_XXX1: The transmission deadline monitoring timer shall be started with the configured ComFirstTimeout value if the timer is started for the first time after a (re-)start of the transmission deadline monitoring service for this I-PDU, otherwise the timer shall be started with ComTimeout value.

SWS_Com_XXX2: When the AUTOSAR COM receives a transmit confirmation for an I-PDU, it shall cancel all running transmission deadline monitoring timers for all contained signals and signal groups.

Update [SWS_Com_00304] and move it to Chapter 7.3.6.2 "Transmission Deadline Monitoring":

[SWS_Com_00304] When a transmission deadline monitoring timer elapses, that is there was no successful transmit confirmation for an I-PDU in time, the AUTOSAR COM module shall notify the RTE by invoking all configured ComTimeoutNotifications for contained signals or signal groups, see ECUC_Com_00552. (SRS_Com_02037)

If the transmission deadline monitoring timer runs out, there will be a timeout notification regardless of the reason. For example the notification will even take place, if the transmission was filtered out by an I-PDU callout.

Since the AUTOSAR COM overrules the OSEK COM now completely, remove 7.3.6.2.1 Clarifications with respect to [17]. (after moving SWS_Com_00304 upwards the chapter does not contain any requirement anymore)

—-

Regarding reception deadline monitoring:

SWS_Com_00872: The Signal Gateway shall support the following I-PDU/ signal-processing stages on the receiver side (see also Figure 6):
1) reset reception deadline monitoring timer for I-PDU based monitoring
2) I-PDU callout
3) check of updatebits
4) endianness conversion and sign extension

SWS_Com_00873: The Signal Gateway shall support the following I-PDU/ signal-processing stages on the sender side (see also Figure 6):
1) set of update-bits
2) endianness conversion and sign extension
3) I-PDU transmission mode selection
4) I-PDU callout

Update SWS_Com_00396:
SWS_Com_00396: A received signal or signal group can be configured for various processing steps. The AUTOSAR COM module shall execute the configured processing steps in the following order:
1) reset reception deadline monitoring timer for I-PDU based monitoring
2) check update-bits
3) endianness conversion and sign extension
4) data invalidation
5) reception filtering
6) reset reception deadline monitoring timer for signal based monitoring
7) notification

Adapt figures 4-6 accordingly to the requirements SWS_Com_00872, SWS_Com_00873, and SWS_Com_00396.

General bug fix:

In SWS_Com_00787 update item 2) to:
- restart all reception deadline monitoring timer for all signals with a non-zero configured ComFirstTimeout
- cancel all transmission deadline monitoring timer and use ComFirstTimeout (if configured) as value when a transmission timer is started the first time after the I-PDU activation
–Last change on issue 76376 comment 43–

BW-C-Level:

Application	Specification	Bus
4	4	1

1.48 Specification Item SWS_Com_00873

Trace References:

SRS_PduR_06055, SRS_PduR_06089

Content:

The Signal Gateway shall support the following I-PDU/ signal-processing stages on the sender side (see also Figure 6):

1) set of update-bits

2) endianness conversion and sign extension

3) I-PDU transmission mode selection

4) I-PDU callout

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76376: [Com] Clarification of deadline monitoring

  Problem description:

  While it is now pretty clear how to implement transmission deadline monitoring for send mode NONE, it is unfortunately not at all clear when to start deadline monitoring for pending signals or send mode periodic.

  Agreed solution:

  Regarding Transmission Deadline Monitoring:

  Replace the explanatory text of the section 7.3.6.2 "Transmission Deadline

Monitoring":

The general idea of the AUTOSAR COM transmission deadline monitoring is to supervise the lower layers and the bus but not the COM module itself. Hence, the transmission monitoring timer is generally started, when the COM module sends an I-PDU to the lower layer. This is independent of a transmission mode or a transfer property. In generally the transmission monitoring timer is not re-started or reset if it is currently running.

Add new requirement to section 7.3.6.2 "Transmission Deadline Monitoring":

SWS_Com_XXX0: The AUTOSAR COM shall start a configured transmission deadline monitoring timer of a signal (group) if it is sent (within an I-PDU) to the lower layer, unless the timer is already running.

SWS_Com_XXX0 does not consider a potential return code, thus the timer is started even if the sent request fails immediately.

If the timer is already running a new send request does not reset or restart a running timer, but the currently outstanding send request is monitored further on. Unless otherwise specified, the timer is started regardless of the trigger that lead to a potential I-PDU send request. Such triggers are for example a cyclic send request of a signal, a Transmission Mode Switch, or an explicit I-PDU sent request via Com_TriggerIPduSend.

SWS_Com_XXX1: The transmission deadline monitoring timer shall be started with the configured ComFirstTimeout value if the timer is started for the first time after a (re-)start of the transmission deadline monitoring service for this I-PDU, otherwise the timer shall be started with ComTimeout value.

SWS_Com_XXX2: When the AUTOSAR COM receives a transmit confirmation for an I-PDU, it shall cancel all running transmission deadline monitoring timers for all contained signals and signal groups.

Update [SWS_Com_00304] and move it to Chapter 7.3.6.2 "Transmission Deadline Monitoring":

[SWS_Com_00304] When a transmission deadline monitoring timer elapses, that is there was no successful transmit confirmation for an I-PDU in time, the AUTOSAR COM module shall notify the RTE by invoking all configured ComTimeoutNotifications for contained signals or signal groups, see ECUC_Com_00552. (SRS_Com_02037)

If the transmission deadline monitoring timer runs out, there will be a timeout notification regardless of the reason. For example the notification will even take place, if the transmission was filtered out by an I-PDU callout.

Since the AUTOSAR COM overrules the OSEK COM now completely, remove 7.3.6.2.1 Clarifications with respect to [17]. (after moving SWS_Com_00304 upwards the chapter does not contain any requirement anymore)

—-

Regarding reception deadline monitoring:

SWS_Com_00872: The Signal Gateway shall support the following I-PDU/ signal-processing stages on the receiver side (see also Figure 6):
1) reset reception deadline monitoring timer for I-PDU based monitoring
2) I-PDU callout
3) check of updatebits
4) endianness conversion and sign extension

SWS_Com_00873: The Signal Gateway shall support the following I-PDU/ signal-processing stages on the sender side (see also Figure 6):
1) set of update-bits
2) endianness conversion and sign extension
3) I-PDU transmission mode selection
4) I-PDU callout

Update SWS_Com_00396:
SWS_Com_00396: A received signal or signal group can be configured for various processing steps. The AUTOSAR COM module shall execute the configured processing steps in the following order:
1) reset reception deadline monitoring timer for I-PDU based monitoring
2) check update-bits
3) endianness conversion and sign extension
4) data invalidation
5) reception filtering
6) reset reception deadline monitoring timer for signal based monitoring
7) notification

Adapt figures 4-6 accordingly to the requirements SWS_Com_00872, SWS_Com_00873, and SWS_Com_00396.

General bug fix:

In SWS_Com_00787 update item 2) to:
- restart all reception deadline monitoring timer for all signals with a non-zero configured ComFirstTimeout
- cancel all transmission deadline monitoring timer and use ComFirstTimeout (if configured) as value when a transmission timer is started the first time after the I-PDU activation
–Last change on issue 76376 comment 43–

BW-C-Level:

Application	Specification	Bus
4	4	1

1.49 Specification Item SWS_Com_00877

Trace References:

SRS_Com_00218

Content:

If an I-PDU is not part of any I-PDU Group, it is started during the initialization of COM. Its starting transmission mode shall be evaluated according to the ComSignalInitValue of the signals contributing to its TMS.

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #77275: [Com] Introduce a default TMS for each I-PDU with I-Signals contribute to the TMS

  Problem description:

  The TMS is re-calculated for an I-PDU if the contained (contribute) I-Signal was updated.
  Which TMS shall be used for the I-PDU's if no contained (contribute) I-Signal's where updated, e.g. after startup?

  Agreed solution:

  [SWS_Com_00xxx] If an I-PDU is not part of any I-PDU Group, it is started during the initialization of COM. Its starting transmission mode shall be evaluated according to the ComSignalInitValue of the signals contributing to its TMS.

  This evaluation can already be done at configuration time, since the signals cannot be written before the initialization of COM.
  –Last change on issue 77275 comment 7–

BW-C-Level:

Application	Specification	Bus
1	3	3

1.50 Specification Item SWS_Com_00878

Trace References:

SRS_Com_02037

Content:

The AUTOSAR COM shall start a configured transmission deadline monitoring timer of a signal (group) if it is sent (within an I-PDU) to the lower layer, unless the timer is already running.

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76376: [Com] Clarification of deadline monitoring

  Problem description:

  While it is now pretty clear how to implement transmission deadline monitoring for send mode NONE, it is unfortunately not at all clear when to start deadline monitoring for pending signals or send mode periodic.

  Agreed solution:

  Regarding Transmission Deadline Monitoring:

  Replace the explanatory text of the section 7.3.6.2 "Transmission Deadline Monitoring":

  The general idea of the AUTOSAR COM transmission deadline monitoring is to supervise the lower layers and the bus but not the COM module itself. Hence, the transmission monitoring timer is generally started, when the COM module sends an I-PDU to the lower layer. This is independent of a transmission mode or a transfer property. In generally the transmission monitoring timer is not re-started or reset if it is currently running.

  Add new requirement to section 7.3.6.2 "Transmission Deadline Monitoring":

  SWS_Com_XXX0: The AUTOSAR COM shall start a configured transmission deadline monitoring timer of a signal (group) if it is sent (within an I-PDU) to the

lower layer, unless the timer is already running.

SWS_Com_XXX0 does not consider a potential return code, thus the timer is started even if the sent request fails immediately.

If the timer is already running a new send request does not reset or restart a running timer, but the currently outstanding send request is monitored further on. Unless otherwise specified, the timer is started regardless of the trigger that lead to a potential I-PDU send request. Such triggers are for example a cyclic send request of a signal, a Transmission Mode Switch, or an explicit I-PDU sent request via Com_TriggerIPduSend.

SWS_Com_XXX1: The transmission deadline monitoring timer shall be started with the configured ComFirstTimeout value if the timer is started for the first time after a (re-)start of the transmission deadline monitoring service for this I-PDU, otherwise the timer shall be started with ComTimeout value.

SWS_Com_XXX2: When the AUTOSAR COM receives a transmit confirmation for an I-PDU, it shall cancel all running transmission deadline monitoring timers for all contained signals and signal groups.

Update [SWS_Com_00304] and move it to Chapter 7.3.6.2 "Transmission Deadline Monitoring":

[SWS_Com_00304] When a transmission deadline monitoring timer elapses, that is there was no successful transmit confirmation for an I-PDU in time, the AUTOSAR COM module shall notify the RTE by invoking all configured ComTimeoutNotifications for contained signals or signal groups, see ECUC_Com_00552. (SRS_Com_02037)

If the transmission deadline monitoring timer runs out, there will be a timeout notification regardless of the reason. For example the notification will even take place, if the transmission was filtered out by an I-PDU callout.

Since the AUTOSAR COM overrules the OSEK COM now completely, remove 7.3.6.2.1 Clarifications with respect to [17]. (after moving SWS_Com_00304 upwards the chapter does not contain any requirement anymore)

—-

Regarding reception deadline monitoring:

SWS_Com_00872: The Signal Gateway shall support the following I-PDU/

signal-processing stages on the receiver side (see also Figure 6):
1) reset reception deadline monitoring timer for I-PDU based monitoring
2) I-PDU callout
3) check of updatebits
4) endianness conversion and sign extension

SWS_Com_00873: The Signal Gateway shall support the following I-PDU/ signal-processing stages on the sender side (see also Figure 6):
1) set of update-bits
2) endianness conversion and sign extension
3) I-PDU transmission mode selection
4) I-PDU callout

Update SWS_Com_00396:
SWS_Com_00396: A received signal or signal group can be configured for various processing steps. The AUTOSAR COM module shall execute the configured processing steps in the following order:
1) reset reception deadline monitoring timer for I-PDU based monitoring
2) check update-bits
3) endianness conversion and sign extension
4) data invalidation
5) reception filtering
6) reset reception deadline monitoring timer for signal based monitoring
7) notification

Adapt figures 4-6 accordingly to the requirements SWS_Com_00872, SWS_Com_00873, and SWS_Com_00396.

General bug fix:

In SWS_Com_00787 update item 2) to:
- restart all reception deadline monitoring timer for all signals with a non-zero configured ComFirstTimeout
- cancel all transmission deadline monitoring timer and use ComFirstTimeout (if configured) as value when a transmission timer is started the first time after the I-PDU activation
–Last change on issue 76376 comment 43–

BW-C-Level:

Application	Specification	Bus
4	4	1

1.51 Specification Item SWS_Com_00879

Trace References:

SRS_Com_02037

Content:

The transmission deadline monitoring timer shall be started with the configured ComFirst Timeout value if the timer is started for the first time after a (re-)start of the transmission deadline monitoring service for this I-PDU, otherwise the timer shall be started with Com Timeout value.

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76376: [Com] Clarification of deadline monitoring

  Problem description:

  While it is now pretty clear how to implement transmission deadline monitoring for send mode NONE, it is unfortunately not at all clear when to start deadline monitoring for pending signals or send mode periodic.

  Agreed solution:

  Regarding Transmission Deadline Monitoring:

  Replace the explanatory text of the section 7.3.6.2 "Transmission Deadline Monitoring":

  The general idea of the AUTOSAR COM transmission deadline monitoring is to supervise the lower layers and the bus but not the COM module itself. Hence, the transmission monitoring timer is generally started, when the COM module sends an I-PDU to the lower layer. This is independent of a transmission mode or a transfer property. In generally the transmission monitoring timer is not re-started or reset if it is currently running.

  Add new requirement to section 7.3.6.2 "Transmission Deadline Monitoring":

  SWS_Com_XXX0: The AUTOSAR COM shall start a configured transmission deadline monitoring timer of a signal (group) if it is sent (within an I-PDU) to the lower layer, unless the timer is already running.

  SWS_Com_XXX0 does not consider a potential return code, thus the timer is started even if the sent request fails immediately.

If the timer is already running a new send request does not reset or restart a running timer, but the currently outstanding send request is monitored further on. Unless otherwise specified, the timer is started regardless of the trigger that lead to a potential I-PDU send request. Such triggers are for example a cyclic send request of a signal, a Transmission Mode Switch, or an explicit I-PDU sent request via Com_TriggerIPduSend.

SWS_Com_XXX1: The transmission deadline monitoring timer shall be started with the configured ComFirstTimeout value if the timer is started for the first time after a (re-)start of the transmission deadline monitoring service for this I-PDU, otherwise the timer shall be started with ComTimeout value.

SWS_Com_XXX2: When the AUTOSAR COM receives a transmit confirmation for an I-PDU, it shall cancel all running transmission deadline monitoring timers for all contained signals and signal groups.

Update [SWS_Com_00304] and move it to Chapter 7.3.6.2 "Transmission Deadline Monitoring":

[SWS_Com_00304] When a transmission deadline monitoring timer elapses, that is there was no successful transmit confirmation for an I-PDU in time, the AUTOSAR COM module shall notify the RTE by invoking all configured ComTimeoutNotifications for contained signals or signal groups, see ECUC_Com_00552. (SRS_Com_02037)

If the transmission deadline monitoring timer runs out, there will be a timeout notification regardless of the reason. For example the notification will even take place, if the transmission was filtered out by an I-PDU callout.

Since the AUTOSAR COM overrules the OSEK COM now completely, remove 7.3.6.2.1 Clarifications with respect to [17]. (after moving SWS_Com_00304 upwards the chapter does not contain any requirement anymore)

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Regarding reception deadline monitoring:

SWS_Com_00872: The Signal Gateway shall support the following I-PDU/ signal-processing stages on the receiver side (see also Figure 6):
1) reset reception deadline monitoring timer for I-PDU based monitoring
2) I-PDU callout
3) check of updatebits
4) endianness conversion and sign extension

SWS_Com_00873: The Signal Gateway shall support the following I-PDU/ signal-processing stages on the sender side (see also Figure 6):
1) set of update-bits
2) endianness conversion and sign extension
3) I-PDU transmission mode selection
4) I-PDU callout

Update SWS_Com_00396:
SWS_Com_00396: A received signal or signal group can be configured for various processing steps. The AUTOSAR COM module shall execute the configured processing steps in the following order:
1) reset reception deadline monitoring timer for I-PDU based monitoring
2) check update-bits
3) endianness conversion and sign extension
4) data invalidation
5) reception filtering
6) reset reception deadline monitoring timer for signal based monitoring
7) notification

Adapt figures 4-6 accordingly to the requirements SWS_Com_00872, SWS_Com_00873, and SWS_Com_00396.

General bug fix:

In SWS_Com_00787 update item 2) to:
- restart all reception deadline monitoring timer for all signals with a non-zero configured ComFirstTimeout
- cancel all transmission deadline monitoring timer and use ComFirstTimeout (if configured) as value when a transmission timer is started the first time after the I-PDU activation
–Last change on issue 76376 comment 43–

BW-C-Level:

Application	Specification	Bus
4	4	1

1.52 Specification Item SWS_Com_00880

Trace References:

SRS_Com_02037

Content:

When the AUTOSAR COM receives a transmit confirmation for an I-PDU, it shall cancel all running transmission deadline monitoring timers for all contained signals and signal groups.

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76376: [Com] Clarification of deadline monitoring

  Problem description:

  While it is now pretty clear how to implement transmission deadline monitoring for send mode NONE, it is unfortunately not at all clear when to start deadline monitoring for pending signals or send mode periodic.

  Agreed solution:

  Regarding Transmission Deadline Monitoring:

  Replace the explanatory text of the section 7.3.6.2 "Transmission Deadline Monitoring":

  The general idea of the AUTOSAR COM transmission deadline monitoring is to supervise the lower layers and the bus but not the COM module itself. Hence, the transmission monitoring timer is generally started, when the COM module sends an I-PDU to the lower layer. This is independent of a transmission mode or a transfer property. In generally the transmission monitoring timer is not re-started or reset if it is currently running.

  Add new requirement to section 7.3.6.2 "Transmission Deadline Monitoring":

  SWS_Com_XXX0: The AUTOSAR COM shall start a configured transmission deadline monitoring timer of a signal (group) if it is sent (within an I-PDU) to the lower layer, unless the timer is already running.

  SWS_Com_XXX0 does not consider a potential return code, thus the timer is started even if the sent request fails immediately.

  If the timer is already running a new send request does not reset or restart a running timer, but the currently outstanding send request is monitored further on. Unless otherwise specified, the timer is started regardless of the trigger that lead to a potential I-PDU send request. Such triggers are for example a cyclic send request of a signal, a Transmission Mode Switch, or an explicit I-PDU sent request via Com_TriggerIPduSend.

SWS_Com_XXX1: The transmission deadline monitoring timer shall be started with the configured ComFirstTimeout value if the timer is started for the first time after a (re-)start of the transmission deadline monitoring service for this I-PDU, otherwise the timer shall be started with ComTimeout value.

SWS_Com_XXX2: When the AUTOSAR COM receives a transmit confirmation for an I-PDU, it shall cancel all running transmission deadline monitoring timers for all contained signals and signal groups.

Update [SWS_Com_00304] and move it to Chapter 7.3.6.2 "Transmission Deadline Monitoring":

[SWS_Com_00304] When a transmission deadline monitoring timer elapses, that is there was no successful transmit confirmation for an I-PDU in time, the AUTOSAR COM module shall notify the RTE by invoking all configured ComTimeoutNotifications for contained signals or signal groups, see ECUC_Com_00552. (SRS_Com_02037)

If the transmission deadline monitoring timer runs out, there will be a timeout notification regardless of the reason. For example the notification will even take place, if the transmission was filtered out by an I-PDU callout.

Since the AUTOSAR COM overrules the OSEK COM now completely, remove 7.3.6.2.1 Clarifications with respect to [17]. (after moving SWS_Com_00304 upwards the chapter does not contain any requirement anymore)

—-

Regarding reception deadline monitoring:

SWS_Com_00872: The Signal Gateway shall support the following I-PDU/ signal-processing stages on the receiver side (see also Figure 6):
1) reset reception deadline monitoring timer for I-PDU based monitoring
2) I-PDU callout
3) check of updatebits
4) endianness conversion and sign extension

SWS_Com_00873: The Signal Gateway shall support the following I-PDU/ signal-processing stages on the sender side (see also Figure 6):
1) set of update-bits
2) endianness conversion and sign extension
3) I-PDU transmission mode selection

4) I-PDU callout

Update SWS_Com_00396:
SWS_Com_00396: A received signal or signal group can be configured for various processing steps. The AUTOSAR COM module shall execute the configured processing steps in the following order:
1) reset reception deadline monitoring timer for I-PDU based monitoring
2) check update-bits
3) endianness conversion and sign extension
4) data invalidation
5) reception filtering
6) reset reception deadline monitoring timer for signal based monitoring
7) notification

Adapt figures 4-6 accordingly to the requirements SWS_Com_00872, SWS_Com_00873, and SWS_Com_00396.

General bug fix:

In SWS_Com_00787 update item 2) to:
- restart all reception deadline monitoring timer for all signals with a non-zero configured ComFirstTimeout
- cancel all transmission deadline monitoring timer and use ComFirstTimeout (if configured) as value when a transmission timer is started the first time after the I-PDU activation
–Last change on issue 76376 comment 43–

BW-C-Level:

Application	Specification	Bus
4	4	1

1.53 Specification Item SWS_Com_00881

Trace References:

SRS_Com_02082

Content:

When the transmission mode of an I-PDU is explicitly set by Com_SwitchIpduTxMode, the AUTOSAR COM shall defer the cyclic transmissions of this I-PDU by ComTxModeTime Offset.

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #77936: [COM] Contradicting assumptions regarding ComTxModeTimeOffset

  Problem description:

  Name: Vector Informatik
  Role: Implementor

  Description/Motivation:

  SWS_Com_00495 defines that the first transmission after a Tx mode change shall occur within the next main function LATEST, but still a configured ComTxModeTimeOffset and ComMinimumDelayTime should be considered.

  On the other hand, it is not defined how Com_SwitchIpduTxMode shall behave in this respect, the assumption seems to be that here also SWS_Com_00495 holds true.

  Our proposal would be to always respect ComMinimumDelayTime, but to consider ComTxModeTimeOffset only for Tx mode changes triggered by Com_IpduGroupControl and Com_SwitchIpduTxMode.
  –Last change on issue 77936 comment 3–

  Agreed solution:

  Update SWS_Com_00495 (and add a note) to:

  When a call to Com_SendSignal or Com_SendSignalGroup results into a change of the transmission mode of a started I-PDU to the transmission mode PERIODIC or MIXED, then the AUTOSAR COM module shall start the new transmission cycle with a call to PduR_ComTransmit within the next main function at the latest. The transmission shall be initiated regardless of the transfer property of the signal or signal group that caused the transmission mode switch. The minimum delay time shall still be respected. See also Figure 5 The AUTOSAR COM modules interaction model for reception.

  The ComTxModeTimeOffset is not respected. It is only respected by explicit I-PDU mode switches, for example by Com_IpduGroupControl or Com_SwitchIpduTxMode.

  In the note below SWS_Com_00625 remove "or the transmission offset (ComTxModeTimeOffset)" it is confusing anyhow, because the requirement talks about the

direct transmission.

Below SWS_Com_00784 (Com_SwitchIpduTxMode) add a new requirement:

SWS_Com_XXX0:When the transmission mode of an I-PDU is explicitly set by Com_SwitchIpduTxMode, the AUTOSAR COM shall defer the cyclic transmissions of this I-PDU by ComTxModeTimeOffset.
–Last change on issue 77936 comment 7–

BW-C-Level:

Application	Specification	Bus
4	4	4

1.54 Specification Item SWS_Com_91001

Trace References:

SRS_Com_00218

Content:

Service name:	Com_IpduGroupStartCom_IpduGroupStart	
Syntax:	void Com_IpduGroupStart(Com_IpduGroupIdType IpduGroupId, boolean initialize)	
Service ID[hex]:	0x03	
Sync/Async:	Synchronous	
Reentrancy:	Reentrant for different I-PDU groups. Non reentrant for the same I-PDU group.	
Parameters (in):	IpduGroupIdCom_IpduGroupStart.IpduGroupId	Id of I-PDU group to be started
	initializeCom_IpduGroupStart.initialize	flag to request initialization of the data in the I-PDUs of this I-PDU group
Parameters (inout):	None	
Parameters (out):	None	
Return value:	None	
Description:	Starts a preconfigured I-PDU group. For example, cyclic I-PDUs will be sent out cyclically after the call of Com_IpduGroupStart(). If Initialize is true all I-PDUs of the I-PDU group shall be (re-)initialized before the I-PDU group is started. That is they shall behave like after a start-up of COM, for example the old_value of the filter objects and shadow buffers of signal groups have to be (re-)initialized.	

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76213: The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch.

  Problem description:

  The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch. In case both actions are applied on the same BswM MainFunction cycle, BswMPduGroupSwitch will revert BswMSwitchIPduMode due to the late execution of BswMPduGroupSwitch.
  Example:
  ActionList: BswMPduGroupSwitch; ; BswMSwitchIPduMode; (both actions are applied on the same IPDU)

  The expected result is that the IPduMode and the IPduGroup are switched. In reality the IPduGroup switch is postponed to MainFunction (see Handling of I-PDU Group Actions). By this postponement the switched IPduMode is reverted.

  Before adding more and more BswM actions for late execution we would recommend to execute the BswMPduGroupSwitch immediately as we did it in AUTOSAR 3. This will simplify the IPduGroup handling in BswM and force a more robust handling in general.

  Agreed solution:

  COM
  ==========

  remove Com_IpduGroupControl (SWS_Com_00751, SWS_Com_00792)
  remove Com_ReceptionDMControl (SWS_Com_00752, SWS_Com_00616, SWS_Com_00617, SWS_Com_00618)
  remove Com_ClearIpduGroupVector (SWS_Com_00749, SWS_Com_00750, SWS_Com_00623)
  remove Com_IpduGroupVector (SWS_Com_00823)
  remove Com_SetIpduGroup (SWS_Com_00750, SWS_Com_00623)

  re-introduce void Com_IpduGroupStart(Com_PduGroupIdType IpduGroupId, boolean Initialize) (as in AUTOSAR 3.2)
  re-introduce void void Com_IpduGroupStop(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
  re-introduce void Com_DisableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
  re-introduce void Com_EnableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)

adapt the SWS_Com requirements which contain the removed APIs, for example: in SWS_Com_00114, the "Com_IpduGroupControl" would be replaced with "Com_IpduGroupStart".

make sure that the I-PDU group activation rules remain as in AUTOSAR 4.X

BswM
==========

*) Remove chapter 7.2.6 Handling of I-PDU Group Actions

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMDeadlineMonitoringControl container has a BswMDisabledDMPduGroupRef and a BswMEnabledDMPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMPduGroupSwitch container has a BswMDisabledPduGroupRef and a BswMEnabledPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_XXXXX "When a BswMPduGroupSwitch action is executed, the BswM shall call Com_IpduGroupStart for each BswMEnabledPduGroupRef, and call Com_IpduGroupStop for each BswMDisabledPduGroupRef. The ordering of these calls to Com is undefined."

*) Add SWS_BswM_XXXXX "When a BswMDeadlineMonitoringControl action is executed, the BswM shall call Com_EnableReceptionDM for each BswMEnabledDMPduGroupRef, and call Com_DisableReceptionDM for each BswMDisabledDMPduGroupRef. The ordering of these calls to Com is undefined."

*) Note: If a strict ordering of the calls to Com_IpduGroupStart, Com_IpduGroupStop, Com_EnableReceptionDM, or Com_DisableReceptionDM is required, then this can be achieved by configuring individual actions (BswMPduGroupSwitch/BswMDeadlineMonitoringControl, each with just a single BswM*PduGroupRef) within an ordered action list.

EcuC
==========

*) Adapt the descriptions of the following ECUC parameters
SWS Item ECUC_BswM_00852 :
Name
BswMDisabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_DisableReceptionDM.

SWS Item ECUC_BswM_00851 :
Name
BswMEnabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_EnableReceptionDM.

SWS Item ECUC_BswM_00913 :
Name
BswMPduGroupSwitchReinit
Description This parameter defines if the data of the I-PDU, the shadow buffers of included signal groups, etc. are reinitialized when a PDU Group is started.
This parameter corresponds to the parameter "initialize" of the function Com_IpduGroupStart.

SWS Item ECUC_BswM_00850 :
Name
BswMDisabledPduGroupRef
Description This is a reference to a PDU Group that should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStop.

SWS Item ECUC_BswM_00849 :
Name
BswMEnabledPduGroupRef
Description This is a reference to a PDU Group that should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStart.

*) Remove "Com_IpduGroupControl is called when this action is configured." from description of BswMPduGroupSwitch (ECUC_BswM_00828)

*) Remove "COM_ReceptionDMControl is called when this action is configured." from description of BswMDeadlineMonitoringControl (ECUC_BswM_00830)

BSW UML
==========
*) Update the table of optional interfaces (SWS_BswM_00008):
Remove Com_ClearIpduGroupVector; Com_IpduGroupControl; Com_ReceptionDMControl; Com_SetIpduGroup
Add: Com_IpduGroupStop; Com_IpduGroupStart; Com_EnableReceptionDM; Com_DisableReceptionDM

*) Remove Com_IpduGroupVector from imported types (SWS_BswM_00001)

*) Remove:
SWS_Com_00749
SWS_Com_00750
SWS_Com_00751
SWS_Com_00752
SWS_Com_00823
–Last change on issue 76213 comment 33–

BW-C-Level:

Application	Specification	Bus
1	4	1

1.55 Specification Item SWS_Com_91002

Trace References:

SRS_Com_00218

Content:

Service name:	Com_IpduGroupStopCom_IpduGroupStop
Syntax:	void Com_IpduGroupStop(Com_IpduGroupIdType IpduGroupId)
Service ID[hex]:	0x04
Sync/Async:	Synchronous
Reentrancy:	Reentrant for different I-PDU groups. Non reentrant for the same I-PDU group.

Parameters (in):	IpduGroupIdCom_IpduGroupStop.IpduGroupId	Id of I-PDU group to be stopped
Parameters (inout):	None	
Parameters (out):	None	
Return value:	None	
Description:	Stops a preconfigured I-PDU group. For example, cyclic I-PDUs will be stopped after the call of Com_IpduGroupStop().	

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76213: The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch.

  Problem description:

  The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch. In case both actions are applied on the same BswM MainFunction cycle, BswMPduGroupSwitch will revert BswMSwitchIPduMode due to the late execution of BswMPduGroupSwitch.
  Example:
  ActionList: BswMPduGroupSwitch; ; BswMSwitchIPduMode; (both actions are applied on the same IPDU)

  The expected result is that the IPduMode and the IPduGroup are switched. In reality the IPduGroup switch is postponed to MainFunction (see Handling of I-PDU Group Actions). By this postponement the switched IPduMode is reverted.

  Before adding more and more BswM actions for late execution we would recommend to execute the BswMPduGroupSwitch immediately as we did it in AUTOSAR 3. This will simplify the IPduGroup handling in BswM and force a more robust handling in general.

  Agreed solution:

  COM
  ==========

  remove Com_IpduGroupControl (SWS_Com_00751, SWS_Com_00792)
  remove Com_ReceptionDMControl (SWS_Com_00752, SWS_Com_00616, SWS_Com_00617, SWS_Com_00618)
  remove Com_ClearIpduGroupVector (SWS_Com_00749, SWS_Com_00750, SWS_Com_00623)

remove Com_IpduGroupVector (SWS_Com_00823)
remove Com_SetIpduGroup (SWS_Com_00750, SWS_Com_00623)

re-introduce void Com_IpduGroupStart(Com_PduGroupIdType IpduGroupId, boolean Initialize) (as in AUTOSAR 3.2)
re-introduce void void Com_IpduGroupStop(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_DisableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_EnableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)

adapt the SWS_Com requirements which contain the removed APIs, for example: in SWS_Com_00114, the "Com_IpduGroupControl" would be replaced with "Com_IpduGroupStart".

make sure that the I-PDU group activation rules remain as in AUTOSAR 4.X

BswM
==========

*) Remove chapter 7.2.6 Handling of I-PDU Group Actions

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMDeadlineMonitoringControl container has a BswMDisabledDMPduGroupRef and a BswMEnabledDMPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMPduGroupSwitch container has a BswMDisabledPduGroupRef and a BswMEnabledPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_XXXXX "When a BswMPduGroupSwitch action is executed, the BswM shall call Com_IpduGroupStart for each BswMEnabledPduGroupRef, and call Com_IpduGroupStop for each BswMDisabledPduGroupRef. The ordering of these calls to Com is undefined."

*) Add SWS_BswM_XXXXX "When a BswMDeadlineMonitoringControl action is executed, the BswM shall call Com_EnableReceptionDM for each BswMEnabledDMPduGroupRef, and call Com_DisableReceptionDM for each BswMDisabledDMPduGroupRef. The ordering of these calls to Com is undefined."

*) Note: If a strict ordering of the calls to Com_IpduGroupStart, Com_IpduGroupStop, Com_EnableReceptionDM, or Com_DisableReceptionDM is required, then this can be achieved by configuring individual actions (BswM-PduGroupSwitch/BswMDeadlineMonitoringControl, each with just a single BswM*PduGroupRef) within an ordered action list.

EcuC
==========
*) Adapt the descriptions of the following ECUC parameters
SWS Item ECUC_BswM_00852 :
Name
BswMDisabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_DisableReceptionDM.

SWS Item ECUC_BswM_00851 :
Name
BswMEnabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_EnableReceptionDM.

SWS Item ECUC_BswM_00913 :
Name
BswMPduGroupSwitchReinit
Description This parameter defines if the data of the I-PDU, the shadow buffers of included signal groups, etc. are reinitialized when a PDU Group is started.
This parameter corresponds to the parameter "initialize" of the function Com_IpduGroupStart.

SWS Item ECUC_BswM_00850 :
Name
BswMDisabledPduGroupRef
Description This is a reference to a PDU Group that should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStop.

SWS Item ECUC_BswM_00849 :
Name
BswMEnabledPduGroupRef
Description This is a reference to a PDU Group that should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStart.

*) Remove "Com_IpduGroupControl is called when this action is configured." from description of BswMPduGroupSwitch (ECUC_BswM_00828)

*) Remove "COM_ReceptionDMControl is called when this action is configured." from description of BswMDeadlineMonitoringControl (ECUC_BswM_00830)

BSW UML
==========
*) Update the table of optional interfaces (SWS_BswM_00008):
Remove Com_ClearIpduGroupVector; Com_IpduGroupControl; Com_ReceptionDMControl; Com_SetIpduGroup
Add: Com_IpduGroupStop; Com_IpduGroupStart; Com_EnableReceptionDM; Com_DisableReceptionDM

*) Remove Com_IpduGroupVector from imported types (SWS_BswM_00001)

*) Remove:
SWS_Com_00749
SWS_Com_00750
SWS_Com_00751
SWS_Com_00752
SWS_Com_00823
–Last change on issue 76213 comment 33–

BW-C-Level:

Application	Specification	Bus
1	4	1

1.56 Specification Item SWS_Com_91003

Trace References:

SRS_Com_00192

Content:

Service name:	Com_DisableReceptionDMCom_DisableReceptionDM	
Syntax:	void Com_DisableReceptionDM(Com_IpduGroupIdType IpduGroupId)	
Service ID[hex]:	0x05	
Sync/Async:	Synchronous	
Reentrancy:	Reentrant for different I-PDU groups. Non reentrant for the same I-PDU group.	
Parameters (in):	IpduGroupIdCom_DisableReceptionDM.IpduGroupId	Id of I-PDU group where reception DM shall be disabled.
Parameters (inout):	None	
Parameters (out):	None	
Return value:	None	
Description:	Disables the reception deadline monitoring for the I-PDUs within the given I-PDU group.	

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76213: The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch.

  Problem description:

  The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch. In case both actions are applied on the same BswM MainFunction cycle, BswMPduGroupSwitch will revert BswMSwitchIPduMode due to the late execution of BswMPduGroupSwitch.
  Example:
  ActionList: BswMPduGroupSwitch; ; BswMSwitchIPduMode; (both actions are applied on the same IPDU)

  The expected result is that the IPduMode and the IPduGroup are switched. In reality the IPduGroup switch is postponed to MainFunction (see Handling of I-PDU Group Actions). By this postponement the switched IPduMode is reverted.

  Before adding more and more BswM actions for late execution we would recommend to execute the BswMPduGroupSwitch immediately as we did it in AUTOSAR 3. This will simplify the IPduGroup handling in BswM and force a more robust handling in general.

Agreed solution:

COM
==========

remove Com_IpduGroupControl (SWS_Com_00751, SWS_Com_00792)
remove Com_ReceptionDMControl (SWS_Com_00752, SWS_Com_00616, SWS_Com_00617, SWS_Com_00618)
remove Com_ClearIpduGroupVector (SWS_Com_00749, SWS_Com_00750, SWS_Com_00623)
remove Com_IpduGroupVector (SWS_Com_00823)
remove Com_SetIpduGroup (SWS_Com_00750, SWS_Com_00623)

re-introduce void Com_IpduGroupStart(Com_PduGroupIdType IpduGroupId, boolean Initialize) (as in AUTOSAR 3.2)
re-introduce void void Com_IpduGroupStop(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_DisableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_EnableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)

adapt the SWS_Com requirements which contain the removed APIs, for example: in SWS_Com_00114, the "Com_IpduGroupControl" would be replaced with "Com_IpduGroupStart".

make sure that the I-PDU group activation rules remain as in AUTOSAR 4.X

BswM
==========

*) Remove chapter 7.2.6 Handling of I-PDU Group Actions

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMDeadlineMonitoringControl container has a BswMDisabledDMPduGroupRef and a BswMEnabledDMPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMPduGroupSwitch container has a BswMDisabledPduGroupRef and a BswMEnabledPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_XXXXX "When a BswMPduGroupSwitch action is executed, the BswM shall call Com_IpduGroupStart for each BswMEnabledPduGroupRef, and call Com_IpduGroupStop for each BswMDisabledPduGroupRef. The ordering of these calls to Com is undefined."

*) Add SWS_BswM_XXXXX "When a BswMDeadlineMonitoringControl action is executed, the BswM shall call Com_EnableReceptionDM for each BswMEnabled-DMPduGroupRef, and call Com_DisableReceptionDM for each BswMDisabledDM-PduGroupRef. The ordering of these calls to Com is undefined."

*) Note: If a strict ordering of the calls to Com_IpduGroupStart, Com_IpduGroupStop, Com_EnableReceptionDM, or Com_DisableReceptionDM is required, then this can be achieved by configuring individual actions (BswM-PduGroupSwitch/BswMDeadlineMonitoringControl, each with just a single BswM*PduGroupRef) within an ordered action list.

EcuC
==========
*) Adapt the descriptions of the following ECUC parameters
SWS Item ECUC_BswM_00852 :
Name
BswMDisabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_DisableReceptionDM.

SWS Item ECUC_BswM_00851 :
Name
BswMEnabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_EnableReceptionDM.

SWS Item ECUC_BswM_00913 :
Name
BswMPduGroupSwitchReinit
Description This parameter defines if the data of the I-PDU, the shadow buffers of

included signal groups, etc. are reinitialized when a PDU Group is started.
This parameter corresponds to the parameter "initialize" of the function Com_IpduGroupStart.

SWS Item ECUC_BswM_00850 :
Name
BswMDisabledPduGroupRef
Description This is a reference to a PDU Group that should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStop.

SWS Item ECUC_BswM_00849 :
Name
BswMEnabledPduGroupRef
Description This is a reference to a PDU Group that should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStart.

*) Remove "Com_IpduGroupControl is called when this action is configured." from description of BswMPduGroupSwitch (ECUC_BswM_00828)

*) Remove "COM_ReceptionDMControl is called when this action is configured." from description of BswMDeadlineMonitoringControl (ECUC_BswM_00830)

BSW UML
==========
*) Update the table of optional interfaces (SWS_BswM_00008):
Remove Com_ClearIpduGroupVector; Com_IpduGroupControl; Com_ReceptionDMControl; Com_SetIpduGroup
Add: Com_IpduGroupStop; Com_IpduGroupStart; Com_EnableReceptionDM; Com_DisableReceptionDM

*) Remove Com_IpduGroupVector from imported types (SWS_BswM_00001)

*) Remove:
SWS_Com_00749
SWS_Com_00750
SWS_Com_00751
SWS_Com_00752
SWS_Com_00823
–Last change on issue 76213 comment 33–

BW-C-Level:

Application	Specification	Bus
1	4	1

1.57 Specification Item SWS_Com_91004

Trace References:

SRS_Com_00192

Content:

Service name:	Com_EnableReceptionDMCom_EnableReceptionDM	
Syntax:	void Com_EnableReceptionDM(Com_IpduGroupIdType IpduGroupId)	
Service ID[hex]:	0x06	
Sync/Async:	Synchronous	
Reentrancy:	Reentrant for different I-PDU groups. Non reentrant for the same I-PDU group.	
Parameters (in):	IpduGroupIdCom_EnableReception DM.IpduGroupId	Id of I-PDU group where reception DM shall be enabled.
Parameters (inout):	None	
Parameters (out):	None	
Return value:	None	
Description:	Enables the reception deadline monitoring for the I-PDUs within the given I-PDU group.	

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76213: The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch.

  Problem description:

  The BswM action BswMSwitchIPduMode conflicts with the action BswMPduGroupSwitch. In case both actions are applied on the same BswM MainFunction cycle, BswMPduGroupSwitch will revert BswMSwitchIPduMode due to the late execution of BswMPduGroupSwitch.
  Example:
  ActionList: BswMPduGroupSwitch; ; BswMSwitchIPduMode; (both actions are applied on the same IPDU)

The expected result is that the IPduMode and the IPduGroup are switched. In reality the IPduGroup switch is postponed to MainFunction (see Handling of I-PDU Group Actions). By this postponement the switched IPduMode is reverted.

Before adding more and more BswM actions for late execution we would recommend to execute the BswMPduGroupSwitch immediately as we did it in AUTOSAR 3. This will simplify the IPduGroup handling in BswM and force a more robust handling in general.

Agreed solution:

COM
==========

remove Com_IpduGroupControl (SWS_Com_00751, SWS_Com_00792)
remove Com_ReceptionDMControl (SWS_Com_00752, SWS_Com_00616, SWS_Com_00617, SWS_Com_00618)
remove Com_ClearIpduGroupVector (SWS_Com_00749, SWS_Com_00750, SWS_Com_00623)
remove Com_IpduGroupVector (SWS_Com_00823)
remove Com_SetIpduGroup (SWS_Com_00750, SWS_Com_00623)

re-introduce void Com_IpduGroupStart(Com_PduGroupIdType IpduGroupId, boolean Initialize) (as in AUTOSAR 3.2)
re-introduce void void Com_IpduGroupStop(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_DisableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)
re-introduce void Com_EnableReceptionDM(Com_PduGroupIdType IpduGroupId) (as in AUTOSAR 3.2)

adapt the SWS_Com requirements which contain the removed APIs, for example: in SWS_Com_00114, the "Com_IpduGroupControl" would be replaced with "Com_IpduGroupStart".

make sure that the I-PDU group activation rules remain as in AUTOSAR 4.X

BswM
==========

*) Remove chapter 7.2.6 Handling of I-PDU Group Actions

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMDeadlineMonitoringControl container has a BswMDisabledDMPduGroupRef and a BswMEnabledDMPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_CONSTR_XXXXX "The BswM shall reject configurations where a BswMPduGroupSwitch container has a BswMDisabledPduGroupRef and a BswMEnabledPduGroupRef which reference the same PDU Group."

*) Add SWS_BswM_XXXXX "When a BswMPduGroupSwitch action is executed, the BswM shall call Com_IpduGroupStart for each BswMEnabledPduGroupRef, and call Com_IpduGroupStop for each BswMDisabledPduGroupRef. The ordering of these calls to Com is undefined."

*) Add SWS_BswM_XXXXX "When a BswMDeadlineMonitoringControl action is executed, the BswM shall call Com_EnableReceptionDM for each BswMEnabledDMPduGroupRef, and call Com_DisableReceptionDM for each BswMDisabledDMPduGroupRef. The ordering of these calls to Com is undefined."

*) Note: If a strict ordering of the calls to Com_IpduGroupStart, Com_IpduGroupStop, Com_EnableReceptionDM, or Com_DisableReceptionDM is required, then this can be achieved by configuring individual actions (BswMPduGroupSwitch/BswMDeadlineMonitoringControl, each with just a single BswM*PduGroupRef) within an ordered action list.

EcuC
==========
*) Adapt the descriptions of the following ECUC parameters
SWS Item ECUC_BswM_00852 :
Name
BswMDisabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_DisableReceptionDM.

SWS Item ECUC_BswM_00851 :
Name
BswMEnabledDMPduGroupRef
Description This is a reference to a PDU Group for which the Deadline Monitoring

should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_EnableReceptionDM.

SWS Item ECUC_BswM_00913 :
Name
BswMPduGroupSwitchReinit
Description This parameter defines if the data of the I-PDU, the shadow buffers of included signal groups, etc. are reinitialized when a PDU Group is started.
This parameter corresponds to the parameter "initialize" of the function Com_IpduGroupStart.

SWS Item ECUC_BswM_00850 :
Name
BswMDisabledPduGroupRef
Description This is a reference to a PDU Group that should be disabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStop.

SWS Item ECUC_BswM_00849 :
Name
BswMEnabledPduGroupRef
Description This is a reference to a PDU Group that should be enabled.
This reference corresponds to the parameter "IpduGroupId" of the function Com_IpduGroupStart.

*) Remove "Com_IpduGroupControl is called when this action is configured." from description of BswMPduGroupSwitch (ECUC_BswM_00828)

*) Remove "COM_ReceptionDMControl is called when this action is configured." from description of BswMDeadlineMonitoringControl (ECUC_BswM_00830)

BSW UML
==========
*) Update the table of optional interfaces (SWS_BswM_00008):
Remove Com_ClearIpduGroupVector; Com_IpduGroupControl; Com_ReceptionDMControl; Com_SetIpduGroup
Add: Com_IpduGroupStop; Com_IpduGroupStart; Com_EnableReceptionDM; Com_DisableReceptionDM

*) Remove Com_IpduGroupVector from imported types (SWS_BswM_00001)

*) Remove:
SWS_Com_00749
SWS_Com_00750
SWS_Com_00751
SWS_Com_00752
SWS_Com_00823
–Last change on issue 76213 comment 33–

BW-C-Level:

Application	Specification	Bus
1	4	1

- RfC #76783: Typo or copy/paste mistakes

  Problem description:

  Hello,

  I found some other mistakes in the specification documents. Most of them are typos or copy/paste mistakes. As document owner of the CryptoServiceManager, I need a confirmation from someone else, before I can implement them into the document.

  AUTOSAR_SWS_CryptoDriver:
  [SWS_Crypto_00139]: CRYPTO_E_KEY_EXTRACT_DENIED does not exist anymore. Replace error code with CRYPTO_E_KEY_READ_FAIL.
  [SWS_Crypto_91005]: Crypto_KeyValidSet() shall be named analogously to Csm_KeySetValid() and CryIf_KeySetValid(). Therefore, rename Crypto_KeyValidSet() to Crypto_KeySetValid().
  [SWS_Crypto_00071]: In table: inputLengthPtr, secondaryInputLengthPtr, tertiaryInputLengthPtr are no pointer anymore. rename them to inputLength, secondaryInputLength, tertiaryInputLength

  AUTOSAR_SWS_CryptoServiceManager:
  [SWS_Csm_01035]: Csm_KeyCopy() shall call CryIf_KeyCopy() not CryIf_KeyElementCopy().
  [SWS_Csm_01080]: Csm_AsymPrivateKeyType is not up-to-date. It should be modified like [SWS_Csm_00076] Csm_AsymPublicKeyType or [SWS_Csm_01082] Csm_SymKeyType.
  SWS_Csm_00455
  [SWS_Csm_00455]: tag as obsolete

[ECUC_Csm_00188]: typo: CsmMacGenerateAlgorithmFamiliy -> CsmMacGenerateAlgorithmFamily
[ECUC_Csm_00049]: CsmMacVerifyAlgorithmMode missing. (see analogues CsmMacGenerateAlgorithmMode [ECUC_Csm_00189])
[SWS_Csm_00966]: CopyPaste mistake: Delete: "Wrong return values - here are the correct ones:"
[SWS_Csm_01023]: plaintextLength description wrong. replace with "Contains the number of bytes to encrypt."
[SWS_Csm_01023]: typo "associtatedDataLengthPtr" and it is no pointer. replace with: "associatedDataLength"
[SWS_Csm_01025]: typo, replace line "job->jobPrimitiveInputOutput.outputLength = ciphertextLength," with
"job->jobPrimitiveInputOutput.outputLengthPtr = ciphertextLengthPtr,"
[SWS_Csm_01013]: typo: rename "PrimitiveInputOutput" to "jobPrimitiveInputOutput". Or is this rename intended?
Then every assignment of "jobPrimitiveInputOutput" has to be renamed to "primitiveInputOutput" like
"job->jobPrimitiveInputOutput.mode = mode," has to be modified to "job->primitiveInputOutput.mode = mode,"
[SWS_Csm_01026]: typo: replace "associtatedDataLength" with "associatedDataLength"
[SWS_Csm_01027]: missing line: "job->jobPrimitiveInputOutput.verifyPtr = verifyPtr."
[SWS_Csm_00992]: copypaste mistake: replace "mode: The Crypto_JobInfoType job with the corresponding jobId shall be modified in the following way:" with ""mode: Indicates which operation mode(s) to perfom."
[SWS_Csm_00992]: copypaste mistake: replace "resultLengthPtr: Contains the number of bytes of the associated data." with ""resultLengthPtr: Holds a pointer to the memory location in which the output length in bytes of the signature is stored. On calling this function, this parameter shall contain the size of the buffer provided by resultPtr. When the request has finished, the actual length of the returned value shall be stored."
[SWS_Csm_01543]: description wrong. replace with "Generate a random number and stores it in the memory location pointed by the result pointer."
[SWS_Csm_00168]: description wrong, there is no IV. replace with "This function is deprecated. Sets the key for symmetrical encryption."
[SWS_Csm_01031]: description wrong, it is not decrement. "CRYPTO_SECCOUNTERREAD 0x0A SecureCounterRead Service"

A proposed solution is added, too.

Agreed solution:

AUTOSAR_SWS_CryptoDriver:
[SWS_Crypto_00139]: Replace CRYPTO_E_KEY_EXTRACT_DENIED with CRYPTO_E_KEY_READ_FAIL.
[SWS_CryIf_91015]: Remove CRYPTO_E_KEY_EXTRACT_DENIED
[SWS_Crypto_91005]: Set Crypto_KeyValidSet obsolete.
[SWS_Crypto_xxx]: Add Crypto_KeySetValid as API (Description according to SWS_Crypto_91005)
[SWS_Crypto_00082]: Set Crypto_KeyValidSet obsolete.
[SWS_Crypto_xxx]: Add E_UNINIT DET check SWS for Crypto_KeySetValid (Text according to SWS_Crypto_00082)
[SWS_Crypto_00083]: Set Crypto_KeyValidSet obsolete.
[SWS_Crypto_xxx]: Add E_PARAM_HANDLE DET check SWS for Crypto_KeySetValid (Text according to SWS_Crypto_00083)
last sentence in 8.2.4.1.2: Rename Crypto_KeyValidSet to Crypto_KeySetValid

[SWS_Crypto_00071]: rename inputLengthPtr, secondaryInputLengthPtr, tertiaryInputLengthPtr to inputLength, secondaryInputLength, tertiaryInputLength

AUTOSAR_SWS_CryptoServiceManager:
[SWS_Csm_01035]: CryIf_KeyElementCopy() shall be replaced with CryIf_KeyCopy().

[SWS_Csm_01080]: replace with (see [SWS_Csm_00076]):
Name: Csm_AsymPrivateKeyType
Kind: Structure
Elements:
length: uint32: This element contains the length in bytes of the key stored in element 'data'
data: Csm_AsymPrivateKeyArrayType: This element contains the key data or a key handle.
Description: Structure for the private asymmetrical key.
Variation: –

[SWS_Csm_00455]: tag as obsolete

[ECUC_Csm_00188]: typo: CsmMacGenerateAlgorithmFamiliy -> CsmMacGenerateAlgorithmFamily
[ECUC_Csm_00049]: add CsmMacVerifyAlgorithmMode (see analogues CsmMacGenerateAlgorithmMode [ECUC_Csm_00189])
[ECUC_Csm_00049]: add CsmMacVerifyAlgorithmModeCustom (see analogues CsmMacGenerateAlgorithmModeCustom [ECUC_Csm_00189])
[ECUC_Csm_00049]: add CsmMacVerifyAlgorithmKeyLength (see analogues CsmMacGenerateAlgorithmKeyLength [ECUC_Csm_00189])

[SWS_Csm_00966]: Delete: "Wrong return values - here are the correct ones:"
[SWS_Csm_01023]: Replace description with: "Contains the number of bytes to encrypt."
[SWS_Csm_01023]: Replace "associatedDataLengthPtr" with "associatedDataLength"
[SWS_Csm_01025]: Replace line "job->jobPrimitiveInputOutput.outputLength = ciphertextLength," with
"job->jobPrimitiveInputOutput.outputLengthPtr = ciphertextLengthPtr,"
[SWS_Csm_01013]: rename "PrimitiveInputOutput" to "jobPrimitiveInputOutput". rename "state" to "jobState".
[SWS_Csm_01026]: replace "associtatedDataLength" with "associatedDataLength"
[SWS_Csm_01027]: add line: "job->jobPrimitiveInputOutput.verifyPtr = verifyPtr."
[SWS_Csm_00992]: replace "mode: The Crypto_JobInfoType job with the corresponding jobId shall be modified in the following way:" with ""mode: Indicates which operation mode(s) to perform."
[SWS_Csm_00992]: replace "resultLengthPtr: Contains the number of bytes of the associated data." with ""resultLengthPtr: Holds a pointer to the memory location in which the output length in bytes of the signature is stored. On calling this function, this parameter shall contain the size of the buffer provided by resultPtr. When the request has finished, the actual length of the returned value shall be stored."
[SWS_Csm_01543]: replace description with "Generate a random number and stores it in the memory location pointed by the result pointer."
[SWS_Csm_00168]: replace description with "This function is deprecated. Sets the key for symmetrical encryption."
[SWS_Csm_01031]: replace "CRYPTO_SECCOUNTERREAD 0x0A SecureCounterDecrement Service" with "CRYPTO_SECCOUNTERREAD 0x0A SecureCounterRead Service"
–Last change on issue 76783 comment 29–

BW-C-Level:

Application	Specification	Bus
4	3	1