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1 SWS_BSWModeManager

1.1 Specification Item ECUC_BswM_00800

Trace References:

none

Content:

Container Name	BswMGeneralBswMGeneral
Description	General configuration parameters of the Basic SW Mode Manager.
Configuration Parameters	

Included parameters:

Included Parameters	
Parameter Name	SWS Item ID
BswMCanSMEnabled	ECUC_BswM_00938
BswMCanSMIcomEnabled	ECUC_BswM_01029
BswMComMEnabled	ECUC_BswM_00939
BswMDcmEnabled	ECUC_BswM_00940
BswMDevErrorDetect	ECUC_BswM_00811
BswMEcuMEnabled	ECUC_BswM_00941
BswMEthIfEnabled	ECUC_BswM_01072
BswMEthSMEnabled	ECUC_BswM_00942
BswMFrSMEnabled	ECUC_BswM_00943
BswMGenericRequestEnabled	ECUC_BswM_00949
BswMJ1939DcmEnabled	ECUC_BswM_00987
BswMJ1939NmEnabled	ECUC_BswM_00965
BswMLinSMEnabled	ECUC_BswM_00944
BswMLinTPEnabled	ECUC_BswM_00945
BswMMainFunctionPeriod	ECUC_BswM_00813
BswMNMEnabled	ECUC_BswM_01071
BswMNVEnabled	ECUC_BswM_00946
BswMSchMEnabled	ECUC_BswM_00947
BswMSdEnabled	ECUC_BswM_01047
BswMVersionInfoApi	ECUC_BswM_00812
BswMWdgMEnabled	ECUC_BswM_00948

Included containers:

Included Containers		
Container Name	Multiplicity	Scope / Dependency
BswMUserIncludeFiles	0..1	Collection of header file names which shall be included by the BswM.

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76417: [BswM][BswM_NmIf_CarWakeUpIndication]: Enable/disable switch for BswM_NmIf_CarWakeUpIndication API

Problem description:

In AR4.2.2 a new interface BswM_NmIf_CarWakeUpIndication is introduced in BswM. The Nmif reports the indication status to BswM. However an enable/disable switch in the BswMGeneral container is not existing for the same.

Therefore the BswMNmEnabled switch shall be mentioned as part of the BswM-General configuration.

Agreed solution:

For the SWS BswM:

In ECUC_BswM_00800(BswMGeneral):

- add a new configuration parameter "BswMNmEnabled", based on the existing BswMComMEnabled parameter, but with this difference:
- Description: "enable/disable Nm module related BswM API: true: Enabled false: Disabled"
- Last change on issue 76417 comment 1–

BW-C-Level:

Application	Specification	Bus
1	3	1

- RfC #76637: Add new BswMEthIfEnabled parameter to enable or disable support for ethernet switch groups

Problem description:

Rfc# 67878 introduced a new API function BswM_EthIf_PortGroupLinkStateChg() in order for BswM to support state change notifications from ethernet switch groups.

However, it was omitted that this functionality is not always needed. As a result, according to the current specs, BswM must always provide this API and include the necessary header file (EthIf.h) to access specific data types.

Therefore I propose to introduce a new boolean BswMGeneral/BswMEthIfEnabled parameter, similar to the rest of BswM<Interface>Enabled parameters.

Agreed solution:

For the SWS BswM:

- 1) Add a new BswMEthIfEnabled parameter to BswMGeneral(ECUC_BswM_00800):
 - Name: "BswMEthIfEnabled"
 - Description: "enable/disable EthIf module related BswM API: true: Enabled false: Disabled"
 - All other fields same as for BswMCanSMEEnabled(ECUC_BswM_00938)

- 2) Add "BswM_EthIf.h" to SWS_BswM_00026

- 3) Add "EthIf.h" to Figure 1: File structure of BSW Mode Manager (SWS_BswM_00218)
—Last change on issue 76637 comment 3—

BW-C-Level:

Application	Specification	Bus
1	3	1

1.2 Specification Item ECUC_BswM_00826

Trace References:

none

Content:

Choice container Name	BswMAvailableActionsBswMAvailableActions
Description	Choice container including the available actions to be used in the action lists.

Included parameters:

No Included Parameters

Included containers:

Container Choices		
Container Name	Multiplicity	Scope / Dependency

Container Choices		
Container Name	Multiplicity	Scope / Dependency
BswMClearEventRequest	0..1	This container contains a reference to a BswMEventRequestPort which will be cleared (i.e. set to CLEAR state) when this action is executed.
BswMComMAllowCom	0..1	This container includes all parameters for the action to allow or to block communication for a ComM Channel. ComM_CommunicationAllowed is called when this action is configured.
BswMComMModelLimitation	0..1	This container includes all parameters related to a limitation of communication mode for a ComM Channel. ComM_LimitChannelToNoComMode is called when this action is configured.
BswMComMModeSwitch	0..1	This container includes all parameters related to a switch of communication mode for a ComM User. ComM_RequestComMode is called when this action is configured.
BswMCoreHaltMode	0..1	This container includes all parameters related to a switch of the activation state of core Halt.
BswMDeadlineMonitoringControl	0..1	This container includes all parameters related to enabling and disabling of deadline monitoring for one or several PDUs in COM. COM_Reception DMControl is called when this action is configured.
BswMEcuMDriverInitListBswM	0..1	This container defines the action to trigger an EcuM driver initialization list.
BswMEcuMGoDown	0..1	This container defines the UserId which shall be forwarded to the GoDown request.
BswMEcuMGoHalt	0..1	This container defines the action to trigger the EcuM_GoHalt from BswM.
BswMEcuMGoPoll	0..1	This container defines the action to trigger the EcuM_GoPoll from BswM.
BswMEcuMSelectShutdownTarget	0..1	This container defines the shutdown target.
BswMEcuMStateSwitch	0..1	This container defines the action to switch a State of the ECU State Manager.
BswMEthIfSwitchPortGroupRequest Mode	0..1	This container includes all parameters related to requesting a mode for the EthIfSwtPortGroup. The EthIf_SwitchPortGroupRequest Mode API is called when this action is executed.
BswMFrSMAllSlots	0..1	This container includes all parameter(s) for the action to request an exit from Flexray KeySlotOnlyMode. FrSM_All Slots is called when this action is executed.

Container Choices		
Container Name	Multiplicity	Scope / Dependency
BswMJ1939DcmStateSwitch	0..1	This container includes all parameters related to a switch of the J1939 Diagnostic Communication Managers network state for a J1939 node. J1939Dcm_SetState is called when this action is configured.
BswMJ1939RmStateSwitch	0..1	This container includes all parameters related to a switch of the J1939 Request Managers network state for a J1939 node. J1939Rm_SetState is called when this action is configured.
BswMLinScheduleSwitch	0..1	<p>This container includes all parameters related to a switch of LIN schedule table. LinSM_ScheduleRequest is called when this action is configured.</p> <p>The configuration for the "network" parameter can be accessed via the reference LinSMComMNetworkHandleRef contained in the parent container LinSMChannel of the container referenced by BswMLinScheduleRef.</p>
BswMNMControl	0..1	This container includes all parameters related to enabling and disabling of Network Management communication. Disabling of NM communication can be requested by DCM. Nm_EnableCommunication or Nm_DisableCommunication is called when this action is configured.
BswMPduGroupSwitch	0..1	This container includes references to the PDU groups that shall be enabled and disabled. Com_IpduGroupControl is called when this action is configured.
BswMPduRouterControl	0..1	This container includes all parameters related to enabling and disabling of routing of Routing Path Groups in the PDU Router. PduR_EnableRouting or PduR_DisableRouting is called when this action is configured.
BswMRteModeRequest	0..1	This container defines a mode request that the BswM may send to a SW-C which is acting as a mode-manager. RTE_Write is called when this action is configured.
BswMRteStart	0..1	This container defines the action to call the Rte_Start from BswM.
BswMRteStop	0..1	This container defines the action to call the Rte_Stop from BswM.
BswMRteSwitch	0..1	This container defines a mode switch indication that the BswM provides to the SW-C that need to be notified about the mode switch. RTE_Switch is called when this action is configured.

Container Choices		
Container Name	Multiplicity	Scope / Dependency
BswMSchMSwitch	0..1	This container defines a mode switch indication that the BswM provides to the SW-C that need to be notified about the mode switch. SchM_Switch is called when this action is configured.
BswMSdClientServiceModeRequest	0..1	This container includes all parameters related to the selection of a client service of Sd. Sd_ClientServiceSetState is called when this action is configured.
BswMSdConsumedEventGroupModeRequest	0..1	This container includes all parameters related to the selection of a consumed EventGroup of Sd. Sd_ConsumedEventGroupSetState is called when this action is configured.
BswMSdServerServiceModeRequest	0..1	This container includes all parameters related to the selection of a server service of Sd. Sd_ServerServiceSetState is called when this action is configured.
BswMSwitchIPduMode	0..1	This container includes all parameters related to the selection of the transmission mode an I-PDU to be sent by COM. Com_SwitchIpduTxMode is called when this action is configured.
BswMTimerControl	0..1	This container includes all parameters for the action to start or to stop a timer.
BswMTriggerIPduSend	0..1	This container includes all parameters related to the triggering of an I-PDU to be sent by COM. Com_TriggerIPDUSend is called when this action is configured.
BswMUserCallout	0..1	This container includes all details needed for a user defined function call.

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #65965: Part 2 of Initialization issues between BSW and SWC

Problem description:

Name: WP-A

Phone:

Role:

Description/Motivation:

Bugzilla # 53620 remaining open questions:

How does a mainfunction detect that Rte is initialized?

–Last change on issue 65965 comment 2–

Agreed solution:

SWS BasicSoftwareModeManager:

1.1) Ecuc Element BswMAvailableActions shall be extended with:

- BswMRteStart: This container defines the action to call the Rte_Start from BswM
- BswMRteStop: This container defines the action to call the Rte_Stop from BswM

1.2) Add new containers:

- BswMRteStart, Description "This container defines the action to start the Rte from BswM", No Included Containers
- BswMRteStop, Description "This container defines the action to stop the Rte from BswM", No Included Containers

1.3) Add new requirements:

- SWS_BSWM_xxxx0: If the action BswMRteStart is configured, the function Rte_Start(void) shall be called by the BswM when the action is executed.
- SWS_BSWM_xxxx1: If the action BswMRteStop is configured, the function Rte_Stop(void) shall be called by the BswM when the action is executed.

1.4) For BswMUserCalloutFunction(ECUC_BswM_00843):

- remove text "Action to call Rte_Start()"
- remove text "Action to call Rte_Stop()"

SWS EcuM: Already contains a standardized mode declaration group → no change to EcuM

Guide to Modemanagement:

Add a new paragraph in Guide to Modemanagement in chapter 3.3.2 below listing 3.10 "Rules and ActionLists for Startup" as follows:

"In order to ensure that the RTE is properly initialized before runnables in service modules call RTE API functions, those runnables can be disabled by a mode disabling dependency deactivating the runnable in all modes except EcuM mode RUN. For server runnables - which cannot be disabled - the Rte will ignore incoming client server requests as long as it is not initialized."

–Last change on issue 65965 comment 40–

BW-C-Level:

Application	Specification	Bus
1	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 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

1.3 Specification Item ECUC_BswM_00828

Trace References:

none

Content:

Container Name	BswMPduGroupSwitchBswMPduGroupSwitch
Description	This container includes references to the PDU groups that shall be enabled and disabled. Com_IpduGroupControl is called when this action is configured.
Configuration Parameters	

Included parameters:

Included Parameters	
Parameter Name	SWS Item ID
BswMPduGroupSwitchReinit	ECUC_BswM_00913

Included Parameters	
Parameter Name	SWS Item ID
BswMDisabledPduGroupRef	ECUC_BswM_00850
BswMEnabledPduGroupRef	ECUC_BswM_00849

Included containers:

No Included Containers

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 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

1.4 Specification Item ECUC_BswM_00830

Trace References:

none

Content:

Container Name	BswMDeadlineMonitoringControlBswMDeadlineMonitoringControl
Description	This container includes all parameters related to enabling and disabling of deadline monitoring for one or several PDUs in COM. COM_ReceptionDMControl is called when this action is configured.
Configuration Parameters	

Included parameters:

Included Parameters	
Parameter Name	SWS Item ID
BswMDisabledDMPduGroupRef	ECUC_BswM_00852
BswMEnabledDMPduGroupRef	ECUC_BswM_00851

Included containers:

No Included Containers

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 BswMDisabledDMP-
duGroupRef 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

1.5 Specification Item ECUC_BswM_00843

Trace References:

none

Content:

Name	BswMUserCalloutFunctionBswMUserCallout.BswMUserCalloutFunction		
Description	<p>This parameter specifies the complete function call including all parameters. The parameters are specified during configuration time, and cannot be changed during run time. Any return values passed by the callout will be ignored.</p> <p>Example usage can be: Actions to initialize other BSW modules Action to call Rte_Start() Action to call Rte_Stop() Action to call NvM_ReadAll() Action to call NvM_WriteAll()</p>		
Multiplicity	1		
Type	EcucStringParamDef		
Default value	–		
maxLength	–		
minLength	–		
regularExpression	–		
Post-Build Variant Value	false		
Value Configuration Class	Pre-compile time	X	All Variants
	Link time	–	
	Post-build time	–	
Scope / Dependency	scope: local		

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #65965: Part 2 of Initialization issues between BSW and SWC

Problem description:

Name: WP-A

Phone:

Role:

Description/Motivation:

Bugzilla # 53620 remaining open questions:

How does a mainfunction detect that Rte is initialized?

–Last change on issue 65965 comment 2–

Agreed solution:

SWS BasicSoftwareModeManager:

1.1) Ecuc Element BswMAvailableActions shall be extended with:

- BswMRteStart: This container defines the action to call the Rte_Start from BswM
- BswMRteStop: This container defines the action to call the Rte_Stop from BswM

1.2) Add new containers:

- BswMRteStart, Description "This container defines the action to start the Rte from BswM", No Included Containers
- BswMRteStop, Description "This container defines the action to stop the Rte from BswM", No Included Containers

1.3) Add new requirements:

- SWS_BSWM_xxxx0: If the action BswMRteStart is configured, the function Rte_Start(void) shall be called by the BswM when the action is executed.
- SWS_BSWM_xxxx1: If the action BswMRteStop is configured, the function Rte_Stop(void) shall be called by the BswM when the action is executed.

1.4) For BswMUserCalloutFunction(ECUC_BswM_00843):

- remove text "Action to call Rte_Start()"
- remove text "Action to call Rte_Stop()"

SWS EcuM: Already contains a standardized mode declaration group → no change to EcuM

Guide to Modemanagement:

Add a new paragraph in Guide to Modemanagement in chapter 3.3.2 below listing 3.10 "Rules and ActionLists for Startup" as follows:

"In order to ensure that the RTE is properly initialized before runnables in service modules call RTE API functions, those runnables can be disabled by a mode disabling dependency deactivating the runnable in all modes except EcuM mode RUN. For server runnables - which cannot be disabled - the Rte will ignore incoming client server requests as long as it is not initialized."

–Last change on issue 65965 comment 40–

BW-C-Level:

Application	Specification	Bus
1	3	1

1.6 Specification Item ECUC_BswM_00849

Trace References:

none

Content:

Name	BswMEnabledPduGroupRefBswMPduGroupSwitch.BswMEnabledPduGroupRef		
Parent Container	BswMPduGroupSwitch		
Description	<p>This is a reference to a PDU Group that should be enabled.</p> <p>Together with the BswMDisabledIPduGroupRef this This reference corresponds to the parameter "ipduIpduGroupVectorId" of the function Com_IpduGroupControlStart.</p>		
Multiplicity	0..*		
Type	Symbolic name reference to [ComIPduGroup]		
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 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

1.7 Specification Item ECUC_BswM_00850

Trace References:

none

Content:

Name	BswMDisabledPduGroupRefBswMPduGroupSwitch.BswMDisabledPduGroupRef		
Parent Container	BswMPduGroupSwitch		
Description	This is a reference to a PDU Group that should be disabled. Together with the BswMEnabledIPduGroupRef this This reference corresponds to the parameter "ipduIpduGroupVectorId" of the function Com_IpduGroupControlStop.		
Multiplicity	0..*		
Type	Symbolic name reference to [ComIPduGroup]		
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 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 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

1.8 Specification Item ECUC_BswM_00851

Trace References:

none

Content:

Name	BswMEnabledDMPduGroupRefBswMDeadlineMonitoringControl.BswMEnabledDMPduGroupRef		
Parent Container	BswMDeadlineMonitoringControl		
Description	This is a reference to a PDU Group for which the Deadline Monitoring should be enabled. Together with the BswMDisabledDMPduGroupRef this This reference corresponds to the parameter "ipduIpduGroupVectorId" of the function COM_ReceptionDMControlCom_EnableReceptionDM.		
Multiplicity	0..*		
Type	Symbolic name reference to [ComIPduGroup]		
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
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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 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

1.9 Specification Item ECUC_BswM_00852

Trace References:

none

Content:

Name	BswMDisabledDMPduGroupRefBswMDeadlineMonitoringControl.BswMDisabledDMPduGroupRef
Parent Container	BswMDeadlineMonitoringControl

Description	This is a reference to a PDU Group for which the Deadline Monitoring should be disabled. Together with the BswMEnabledDMPduGroupRef this This reference corresponds to the parameter "ipduIpduGroupVectorId" of the function COM_ReceptionDMControlCom_DisableReceptionDM.		
Multiplicity	0..*		
Type	Symbolic name reference to [ComIPduGroup]		
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 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 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 BswMDisabledDMP-
duGroupRef 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 ECUC_BswM_00856

Trace References:

none

Content:

Choice container Name	BswMModeRequestSourceBswMModeRequestSource
Description	This choice container specifies the source of the mode request or state/mode indication. The requester of a mode can be both SW-C:s and other BSW Modules, such as the bus specific State Managers.

Included parameters:

No Included Parameters

Included containers:

Container Choices		
Container Name	Multiplicity	Scope / Dependency
BswMBswModeNotification	0..1	This is a mode request source emanating from another BSW Module.
BswMCanSMIcomIndication	0..1	This is an indication from CanSM of the configuration Id of the Icom configuration
BswMCanSMIndication	0..1	This is an indication of the current state of the CAN State Manager.
BswMComMIndication	0..1	This is an indication of the current communication mode of a channel in the Communication Manager.
BswMComMPncRequest	0..1	This is a request of the current communication mode of a Partial Network Cluster in the Communication Manager.
BswMDcmComModeRequest	0..1	The source of the mode request is the Diagnostic Communication Manager.
BswMEcuMIndication	0..1	This is a notification of the current operation mode of the ECU State Manager. This container does not contain any parameters since there are no further configuration needed for this type of request.
BswMEcuMRUNRequestIndication	0..1	This is an indication of the current State of the RUN Request Protocol.
BswMEcuMWakeupSource	0..1	This is a notification of the current state of an ECU State Manager wakeup source.
BswMEthIfPortGroupLinkStateChg	0..1	This is an indication from the EthIf if the link state of a Ethernet interface switch port group has changed.

Container Choices		
Container Name	Multiplicity	Scope / Dependency
BswMEthSMIndication	0..1	This is an indication of the current state of the Ethernet State Manager.
BswMFrSMIndication	0..1	This is an indication of the current state of the FlexRay State Manager.
BswMGenericRequest	0..1	This mode request originates from a requester that is not among the list of standardized mode requesters (i.e. the different resource managers).
BswMJ1939DcmBroadcastStatus	0..1	This is a notification of the desired broadcast status per network, triggered via DM13.
BswMJ1939NmIndication	0..1	This is an indication of the current state of the J1939 network management module.
BswMLinSMIndication	0..1	This is an indication of the current state of the LIN State Manager.
BswMLinScheduleIndication	0..1	This is an indication of the currently active LIN Schedule Table for a specific LIN Interface.
BswMLinTpModeRequest	0..1	This is a LinTp mode request from the LinIf. This port corresponds to a call of the BswM_LinTp_RequestMode API.
BswMNmIfCarWakeUpIndication	0..1	<p>This is an indication of a CarWakeup from the NmIf.</p> <p>Please note that this container is deprecated and will be removed in future.</p> <p>Tags: atp.Status=obsolete atp.Status RevisionBegin=4.3.1</p>
BswMNvmJobModeIndication	0..1	Indicates the current status of the multiblock job. The job is identified via BswMNvmService. Possible values for this indication are the possible values of Nvm_RequestResultType.
BswMNvmRequest	0..1	<p>Via this Mode Request Source the Nvm indicates the current status of the specified block. Possible Values are:</p> <p>Nvm_RequestResultType</p> <p>NVM_REQ_OK</p> <p>NVM_REQ_NOT_OK</p> <p>NVM_REQ_PENDING</p> <p>NVM_REQ_INTEGRITY_FAILED</p> <p>NVM_REQ_BLOCK_SKIPPED</p> <p>NVM_REQ_NV_INVALIDATED</p> <p>NVM_REQ_CANCELED</p> <p>NVM_REQ_REDUNDANCY_FAILED</p> <p>NVM_REQ_RESTORED_FROM_ROM</p>
BswMSdClientServiceCurrentState	0..1	Used by Service Discovery module to indicate current state of the Client Service (available/down).
BswMSdConsumedEventGroupCurrent State	0..1	Used by Service Discovery to indicate current status of the EventHandler (requested/released).

Container Choices		
Container Name	Multiplicity	Scope / Dependency
BswMSdEventHandlerCurrentState	0..1	Used by Service Discovery to indicate current status of the EventHandler (requested/released).
BswMSwcModeNotification	0..1	This is a mode switch notification associated with a RTE switch interface.
BswMSwcModeRequest	0..1	The source of the mode request is a SW Component.
BswMTimer	0..1	<p>This is a timer which can be used for time dependent rules. This mode request port can be in one of three modes (depending on the state of the timer):</p> <ul style="list-style-type: none"> • BSWM_TIMER_STOPPED (initial) (The timer has been stopped by an action) • BSWM_TIMER_STARTED (The timer has been started by an action) • BSWM_TIMER_EXPIRED (The timer has expired)

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #77069: Different API Declarations for Car Wake Up in NM and BswM modules

Problem description:

Hello,

Requirement SWS_Nm_00285 specifies that in case no callback function is specified, the Nm shall call BswM_CarWakeUpIndication.

In the BswM module this function is not specified.
In BswM the function specified for Car Wake Up is:
BswM_NmIf_CarWakeUpIndication.

Which definition shall be used, the one specified in Nm or the one specified by BswM ?

Best Regards,
Lorant

Agreed solution:

In the SWS Nm:
A1)Change SWS_Nm_00285 to:

[SWS_Nm_00285] If the <bus>Nm calls NmCarWakeUpIndication and Nm-CarWakeUpCallout is not defined, the NM Interface shall call the function BswM_Nm_CarWakeUpIndication with nmNetworkHandle as parameter.
(SRS_Nm_02503)

A2)Change ECUC_Nm_00234 description to:

Name of the callout function to be called if Nm_CarWakeUpIndication() is called. If this parameter is not configured, the Nm will call BswM_Nm_CarWakeUpIndication.

In the SWS BswM:

B1) Change "NmIf" to "Nm" in all of the following spec items (names & descriptions):

- SWS_BswM_00235 (BswM_NmIf_CarWakeUpIndication)
- ECUC_BswM_00856 (BswMModeRequestSource)
- ECUC_BswM_01048 (BswMNmIfCarWakeUpIndication)

B2) Change "NmIf" to "Nm" in the descriptive text found in chapters:

- 5.17
- 8.3.23
- Last change on issue 77069 comment 19–

BW-C-Level:

Application	Specification	Bus
1	4	1

- RfC #77455: BswMNmIfCarWakeUpIndication should be an event request port

Problem description:

As the BswM_NmIf_CarWakeUpIndication API doesn't have a mode which can be changed it means that its associated port, BswMNmIfCarWakeUpIndication, is an event request port.

Therefore, it should be listed under BswMEventRequestSource (ECUC_BswM_01053) and removed from BswMModeRequestSource (ECUC_BswM_00856).

Agreed solution:

****Note:** due to RfC 77069, BswMNmIfCarWakeUpIndication might be renamed to BswMNMCarWakeUpIndication. However, this solution should still be implementable.**

for the SWS BswM:

- 1) Set BswM[Nmlf/Nm]CarWakeUpIndication(ECUC_BswM_01048) from BswM-ModeRequestSource(ECUC_BswM_00856) to status obsolete
 - 2) Add BswM[Nmlf/Nm]CarWakeUpIndication(ECUC_BswM_01048) to BswMEventRequestSource(ECUC_BswM_01053)
- Last change on issue 77455 comment 5–

BW-C-Level:

Application	Specification	Bus
1	4	1

1.11 Specification Item ECUC_BswM_00913

Trace References:

none

Content:

Name	BswMPduGroupSwitchReinitBswMPduGroupSwitch.BswMPduGroupSwitchReinit		
Parent Container	BswMPduGroupSwitch		
Description	This parameter defines if the data of the I-PDU, the shadow buffers of included signal groups, etc. are reinitialized during when a PDU Group Switch is started. This parameter corresponds to the parameter "initialize" of the function Com_IpduGroup ControlStart .		
Multiplicity	0..1		
Type	EcucBooleanParamDef		
Default value	false		
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 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 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

1.12 Specification Item ECUC_BswM_01048

Trace References:

none

Content:

Container Name	BswMNmIfCarWakeUpIndicationBswMNmIfCarWakeUpIndication
Description	This is an indication of a CarWakeUp from the NmIf. . Please note that this container is deprecated and will be removed in future. Tags: atp.Status=obsolete atp.StatusRevisionBegin=4.3.1
Configuration Parameters	

Included parameters:

Included Parameters	
Parameter Name	SWS Item ID
BswMNmChannelRef	ECUC_BswM_01049

Included containers:

No Included Containers

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #77069: Different API Declarations for Car Wake Up in NM and BswM modules

Problem description:

Hello,

Requirement SWS_Nm_00285 specifies that in case no callback function is specified, the Nm shall call BswM_CarWakeUpIndication.

In the BswM module this function is not specified.
In BswM the function specified for Car Wake Up is:
BswM_NmIf_CarWakeUpIndication.

Which definition shall be used, the one specified in Nm or the one specified by BswM ?

Best Regards,
Lorant

Agreed solution:

In the SWS Nm:
A1)Change SWS_Nm_00285 to:

[SWS_Nm_00285] If the <bus>Nm calls NmCarWakeUpIndication and Nm-CarWakeUpCallout is not defined, the NM Interface shall call the function BswM_Nm_CarWakeUpIndication with nmNetworkHandle as parameter.
(SRS_Nm_02503)

A2)Change ECUC_Nm_00234 description to:

Name of the callout function to be called if Nm_CarWakeUpIndication() is called. If this parameter is not configured, the Nm will call BswM_Nm_CarWakeUpIndication.

In the SWS BswM:
B1) Change "NmIf" to "Nm" in all of the following spec items (names & descriptions):

- SWS_BswM_00235 (BswM_Nmlf_CarWakeUpIndication)
- ECUC_BswM_00856 (BswMModeRequestSource)
- ECUC_BswM_01048 (BswMNmlfCarWakeUpIndication)

B2) Change "Nmlf" to "Nm" in the descriptive text found in chapters:

- 5.17
- 8.3.23
- Last change on issue 77069 comment 19–

BW-C-Level:

Application	Specification	Bus
1	4	1

- RfC #77455: BswMNmlfCarWakeUpIndication should be an event request port

Problem description:

As the BswM_Nmlf_CarWakeUpIndication API doesn't have a mode which can be changed it means that its associated port, BswMNmlfCarWakeUpIndication, is an event request port.

Therefore, it should be listed under BswMEventRequestSource (ECUC_BswM_01053) and removed from BswMModeRequestSource (ECUC_BswM_00856).

Agreed solution:

****Note:** due to RfC 77069, BswMNmlfCarWakeUpIndication might be renamed to BswMNmCarWakeUpIndication. However, this solution should still be implementable.**

for the SWS BswM:

- 1) Set BswM[Nmlf/Nm]CarWakeUpIndication(ECUC_BswM_01048) from BswM-ModeRequestSource(ECUC_BswM_00856) to status obsolete
- 2) Add BswM[Nmlf/Nm]CarWakeUpIndication(ECUC_BswM_01048) to BswMEventRequestSource(ECUC_BswM_01053)

–Last change on issue 77455 comment 5–

BW-C-Level:

Application	Specification	Bus
1	4	1

1.13 Specification Item ECUC_BswM_01049

Trace References:

none

Content:

Name	BswNMChannelRefBswNMIfCarWakeUpIndication.BswNMChannelRef container Ref		
Parent Container	BswNMIfCarWakeUpIndication		
Description	This is a reference to the channel handle that the indication corresponds to.		
Multiplicity	1		
Type	Symbolic name reference to [ComMChannel]		
Post-Build Variant Value	false		
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 #77069: Different API Declarations for Car Wake Up in NM and BswM modules

Problem description:

Hello,

Requirement SWS_Nm_00285 specifies that in case no callback function is specified, the Nm shall call BswM_CarWakeUpIndication.

In the BswM module this function is not specified.

In BswM the function specified for Car Wake Up is:

BswM_NmIf_CarWakeUpIndication.

Which definition shall be used, the one specified in Nm or the one specified by BswM ?

Best Regards,

Lorant

Agreed solution:

In the SWS Nm:

A1)Change SWS_Nm_00285 to:

[SWS_Nm_00285] If the <bus>Nm calls NmCarWakeUpIndication and Nm-CarWakeUpCallout is not defined, the NM Interface shall call the function BswM_Nm_CarWakeUpIndication with nmNetworkHandle as parameter.
(SRS_Nm_02503)

A2)Change ECUC_Nm_00234 description to:

Name of the callout function to be called if Nm_CarWakeUpIndication() is called. If this parameter is not configured, the Nm will call BswM_Nm_CarWakeUpIndication.

In the SWS BswM:

B1) Change "NmIf" to "Nm" in all of the following spec items (names & descriptions):

- SWS_BswM_00235 (BswM_NmIf_CarWakeUpIndication)
- ECUC_BswM_00856 (BswMModeRequestSource)
- ECUC_BswM_01048 (BswMNmIfCarWakeUpIndication)

B2) Change "NmIf" to "Nm" in the descriptive text found in chapters:

- 5.17
- 8.3.23
- Last change on issue 77069 comment 19–

BW-C-Level:

Application	Specification	Bus
1	4	1

- RfC #77455: BswMNmIfCarWakeUpIndication should be an event request port

Problem description:

As the BswM_NmIf_CarWakeUpIndication API doesn't have a mode which can be changed it means that its associated port, BswMNmIfCarWakeUpIndication, is an event request port.

Therefore, it should be listed under BswMEventRequestSource (ECUC_BswM_01053) and removed from BswMModeRequestSource (ECUC_BswM_00856).

Agreed solution:

****Note:** due to RfC 77069, BswMNmIfCarWakeUpIndication might be renamed to BswMNMCarWakeUpIndication. However, this solution should still be implementable.**

for the SWS BswM:

- 1) Set BswM[Nmlf/Nm]CarWakeUpIndication(ECUC_BswM_01048) from BswM-ModeRequestSource(ECUC_BswM_00856) to status obsolete
 - 2) Add BswM[Nmlf/Nm]CarWakeUpIndication(ECUC_BswM_01048) to BswMEventRequestSource(ECUC_BswM_01053)
- Last change on issue 77455 comment 5–

BW-C-Level:

Application	Specification	Bus
1	4	1

1.14 Specification Item ECUC_BswM_01053

Trace References:

none

Content:

Choice container Name	BswMEventRequestSourceBswMEventRequestSource
Description	This choice container specifies the source of the event request. The sender of the event can be another BSW Module, such as ComM.

Included parameters:

No Included Parameters

Included containers:

Container Choices		
Container Name	Multiplicity	Scope / Dependency
BswMComMInitiateReset	0..1	This is an indication from the ComM to signal a shutdown.
BswMDcmApplicationUpdatedIndication	0..1	This is a request to update application data from the DCM. This container does not contain any parameters since there are no further configuration needed for this type of request.
BswMModeSwitchErrorEvent	0..1	This is a notification that an error occurred because the partition containing mode users of the referenced PPort was restarted by the RTE. Because the Mode Machine Instance holding the current mode can reside on that terminated partition, the Mode Manager has to be informed about the loss of this partition.

Container Choices		
Container Name	Multiplicity	Scope / Dependency
BswMNmCarWakeUpIndication	0..1	This is an indication of a CarWakeup from the Nm.
BswMPartitionRestarted	0..1	This is a notification that an error occurred because the partition containing the BswM was restarted by the RTE. The Mode Users may lie in another (still running) partition. So the BswM has to be informed that the start of its partition is no normal startup but a restart of a single partition. This information can be used inside the Rules. This notification has to be used by the Restart Task of the particular partition.
BswMWdgMRequestPartitionReset	0..1	This is a Partition Reset request from from the WdgM. This port corresponds to a call of the BswM_WdgM_RequestPartitionReset API.

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #77455: BswMNmIfCarWakeUpIndication should be an event request port

Problem description:

As the BswM_NmIf_CarWakeUpIndication API doesn't have a mode which can be changed it means that its associated port, BswMNmIfCarWakeUpIndication, is an event request port.

Therefore, it should be listed under BswMEventRequestSource (ECUC_BswM_01053) and removed from BswMModeRequestSource (ECUC_BswM_00856).

Agreed solution:

****Note:** due to RfC 77069, BswMNmIfCarWakeUpIndication might be renamed to BswMNmCarWakeUpIndication. However, this solution should still be implementable.**

for the SWS BswM:

- 1) Set BswM[NmIf/Nm]CarWakeUpIndication(ECUC_BswM_01048) from BswM-ModeRequestSource(ECUC_BswM_00856) to status obsolete
 - 2) Add BswM[NmIf/Nm]CarWakeUpIndication(ECUC_BswM_01048) to BswMEventRequestSource(ECUC_BswM_01053)
- Last change on issue 77455 comment 5–

BW-C-Level:

Application	Specification	Bus
1	4	1

1.15 Specification Item ECUC_BswM_01071

Trace References:

none

Content:

Name	BswMNmEnabled		
Description	enable/disable Nm module related BswM API: true: Enabled false: Disabled		
Multiplicity	1		
Type	EcucBooleanParamDef		
Default value	false		
Post-Build Variant Value	false		
Value Configuration Class	Pre-compile time	X	All Variants
	Link time	—	
	Post-build time	—	
Scope / Dependency	scope: local		

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76417: [BswM][BswM_NmIf_CarWakeUpIndication]: Enable/disable switch for BswM_NmIf_CarWakeUpIndication API

Problem description:

In AR4.2.2 a new interface BswM_NmIf_CarWakeUpIndication is introduced in BswM. The Nmif reports the indication status to BswM. However an enable/disable switch in the BswMGeneral container is not existing for the same.

Therefore the BswMNmEnabled switch shall be mentioned as part of the BswM-General configuration.

Agreed solution:

For the SWS BswM:

In ECUC_BswM_00800(BswMGeneral):

- add a new configuration parameter "BswMNmEnabled", based on the existing BswMComMEnabled parameter, but with this difference:
- Description: "enable/disable Nm module related BswM API: true: Enabled false: Disabled"
- Last change on issue 76417 comment 1–

BW-C-Level:

Application	Specification	Bus
1	3	1

1.16 Specification Item ECUC_BswM_01072

Trace References:

none

Content:

Name	BswMEthIfEnabledBswMGeneral.BswMEthIfEnabled		
Description	enable/disable EthIf module related BswM API: true: Enabled false: Disabled		
Multiplicity	1		
Type	EcucBooleanParamDef		
Default value	false		
Post-Build Variant Value	false		
Value Configuration Class	Pre-compile time	X	All Variants
	Link time	–	
	Post-build time	–	
Scope / Dependency	scope: local		

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76637: Add new BswMEthIfEnabled parameter to enable or disable support for ethernet switch groups

Problem description:

Rfc# 67878 introduced a new API function BswM_EthIf_PortGroupLinkStateChg() in order for BswM to support state change notifications from ethernet switch groups.

However, it was omitted that this functionality is not always needed. As a result, according to the current specs, BswM must always provide this API and include the necessary header file (EthIf.h) to access specific data types.

Therefore I propose to introduce a new boolean BswMGeneral/BswMEthIfEnabled parameter, similar to the rest of BswM<Interface>Enabled parameters.

Agreed solution:

For the SWS BswM:

- 1) Add a new BswMEthIfEnabled parameter to BswMGeneral(ECUC_BswM_00800):
 - Name: "BswMEthIfEnabled"
 - Description: "enable/disable EthIf module related BswM API: true: Enabled false: Disabled"
 - All other fields same as for BswMCanSMEEnabled(ECUC_BswM_00938)

- 2) Add "BswM_EthIf.h" to SWS_BswM_00026

- 3) Add "EthIf.h" to Figure 1: File structure of BSW Mode Manager (SWS_BswM_00218)
—Last change on issue 76637 comment 3—

BW-C-Level:

Application	Specification	Bus
1	3	1

1.17 Specification Item ECUC_BswM_01073

Trace References:

none

Content:

Container Name	BswMRteStartBswMRteStart
Description	This container defines the action to start the Rte from BswM.
Configuration Parameters	

Included parameters:

No Included Parameters

Included containers:

No Included Containers

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #65965: Part 2 of Initialization issues between BSW and SWC

Problem description:

Name: WP-A

Phone:

Role:

Description/Motivation:

Bugzilla # 53620 remaining open questions:

How does a mainfunction detect that Rte is initialized?

–Last change on issue 65965 comment 2–

Agreed solution:

SWS BasicSoftwareModeManager:

1.1) Ecuc Element BswMAvailableActions shall be extended with:

- BswMRteStart: This container defines the action to call the Rte_Start from BswM
- BswMRteStop: This container defines the action to call the Rte_Stop from BswM

1.2) Add new containers:

- BswMRteStart, Description "This container defines the action to start the Rte from BswM", No Included Containers
- BswMRteStop, Description "This container defines the action to stop the Rte from BswM", No Included Containers

1.3) Add new requirements:

- SWS_BSWM_xxxx0: If the action BswMRteStart is configured, the function Rte_Start(void) shall be called by the BswM when the action is executed.
- SWS_BSWM_xxxx1: If the action BswMRteStop is configured, the function Rte_Stop(void) shall be called by the BswM when the action is executed.

1.4) For BswMUserCalloutFunction(ECUC_BswM_00843):

- remove text "Action to call Rte_Start()"
- remove text "Action to call Rte_Stop()"

SWS EcuM: Already contains a standardized mode declaration group → no change to EcuM

Guide to Modemanagement:

Add a new paragraph in Guide to Modemanagement in chapter 3.3.2 below listing 3.10 "Rules and ActionLists for Startup" as follows:

"In order to ensure that the RTE is properly initialized before runnables in service modules call RTE API functions, those runnables can be disabled by a mode disabling dependency deactivating the runnable in all modes except EcuM mode RUN. For server runnables - which cannot be disabled - the Rte will ignore incoming client server requests as long as it is not initialized."

—Last change on issue 65965 comment 40—

BW-C-Level:

Application	Specification	Bus
1	3	1

1.18 Specification Item ECUC_BswM_01074

Trace References:

none

Content:

Container Name	BswMRteStopBswMRteStop
Description	This container defines the action to stop the Rte from BswM
Configuration Parameters	

Included parameters:

No Included Parameters

Included containers:

No Included Containers

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #65965: Part 2 of Initialization issues between BSW and SWC

Problem description:

Name: WP-A

Phone:

Role:

Description/Motivation:

Bugzilla # 53620 remaining open questions:

How does a mainfunction detect that Rte is initialized?

–Last change on issue 65965 comment 2–

Agreed solution:

SWS BasicSoftwareModeManager:

1.1) Ecuc Element BswMAvailableActions shall be extended with:

- BswMRteStart: This container defines the action to call the Rte_Start from BswM
- BswMRteStop: This container defines the action to call the Rte_Stop from BswM

1.2) Add new containers:

- BswMRteStart, Description "This container defines the action to start the Rte from BswM", No Included Containers
- BswMRteStop, Description "This container defines the action to stop the Rte from BswM", No Included Containers

1.3) Add new requirements:

- SWS_BSWM_xxxx0: If the action BswMRteStart is configured, the function Rte_Start(void) shall be called by the BswM when the action is executed.
- SWS_BSWM_xxxx1: If the action BswMRteStop is configured, the function Rte_Stop(void) shall be called by the BswM when the action is executed.

1.4) For BswMUserCalloutFunction(ECUC_BswM_00843):

- remove text "Action to call Rte_Start()"
- remove text "Action to call Rte_Stop()"

SWS EcuM: Already contains a standardized mode declaration group → no change to EcuM

Guide to Modemanagement:

Add a new paragraph in Guide to Modemanagement in chapter 3.3.2 below listing 3.10 "Rules and ActionLists for Startup" as follows:

"In order to ensure that the RTE is properly initialized before runnables in service modules call RTE API functions, those runnables can be disabled by a mode disabling dependency deactivating the runnable in all modes except EcuM mode RUN. For server runnables - which cannot be disabled - the Rte will ignore incoming client server requests as long as it is not initialized."

–Last change on issue 65965 comment 40–

BW-C-Level:

Application	Specification	Bus
1	3	1

1.19 Specification Item ECUC_BswM_01075

Trace References:

none

Content:

Container Name	BswMNMCarWakeUpIndicationBswMNMCarWakeUpIndication
Description	This is an indication of a CarWakeUp from the Nm.
Configuration Parameters	

Included parameters:

Included Parameters	
Parameter Name	SWS Item ID
BswMNMChannelRef	ECUC_BswM_01049

Included containers:

No Included Containers

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #77455: BswMNMIfCarWakeUpIndication should be an event request port

Problem description:

As the BswM_Nmlf_CarWakeUpIndication API doesn't have a mode which can be changed it means that its associated port, BswMNmlfCarWakeUpIndication, is an event request port.

Therefore, it should be listed under BswMEventRequestSource (ECUC_BswM_01053) and removed from BswMModeRequestSource (ECUC_BswM_00856).

Agreed solution:

****Note:** due to RfC 77069, BswMNmlfCarWakeUpIndication might be renamed to BswMNMCarWakeUpIndication. However, this solution should still be implementable.**

for the SWS BswM:

- 1) Set BswM[Nmlf/Nm]CarWakeUpIndication(ECUC_BswM_01048) from BswM-ModeRequestSource(ECUC_BswM_00856) to status obsolete
 - 2) Add BswM[Nmlf/Nm]CarWakeUpIndication(ECUC_BswM_01048) to BswMEventRequestSource(ECUC_BswM_01053)
- Last change on issue 77455 comment 5–

BW-C-Level:

Application	Specification	Bus
1	4	1

1.20 Specification Item SWS_BswM_00001

Trace References:

SRS_BSW_00301

Content:

Module	Imported Type
CanSM	CanSM_BswMCurrentStateType
Com	Com_IpduGroupIdType
Com_IpduGroupVector	
ComM	ComM_InhibitionStatusType
	ComM_InitStatusType
	ComM_ModeType
	ComM_PncModeType
	ComM_UserHandleType

Module	Imported Type
ComStack_Types	IcomConfigIdType
	IcomSwitch_ErrorType
	NetworkHandleType
	PNCHandleType
	PdulIdType
Dcm	Dcm_CommunicationModeType
EcuM	EcuM_StateType
	EcuM_WakeupSourceType
	EcuM_WakeupStatusType
EcuM_flex	EcuM_RunStatusType
	EcuM_ShutdownTargetType
EthIf	EthIf_SwitchPortGroupIdxType
EthSM	EthSM_NetworkModeStateType
Eth_GeneralTypes	EthTrcv_LinkStateType
FrSm	FrSM_BswM_StateType
J1939Dcm	J1939Dcm_StateType
J1939Rm	J1939Rm_StateType
LinIf	LinIf_SchHandleType
	LinTp_Mode
LinSM	LinSM_ModeType
McOs	CoreIdType
Nm	Nm_StateType
NvM	NvM_BlockIdType
	NvM_RequestResultType
Os	ApplicationType
	IdleModeType
	StatusType
Sd	Sd_ClientServiceCurrentStateType
	Sd_ConsumedEventGroupCurrentStateType
	Sd_EventHandlerCurrentStateType
Std_Types	Std_ReturnType
	Std_VersionInfoType
UNDEFINED TYPES	implementation_specific

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 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

1.21 Specification Item SWS_BswM_00008**Trace References:**

SRS_BSW_00384

Content:

API function	Description
Com_ClearIpduGroupVector DisableReceptionDM	This service sets all bits of the given Com_IpduGroupVector to 0. Disables the reception deadline monitoring for the I-PDUs within the given I-PDU group.
Com_IpduGroupControl EnableReceptionDM	This service starts Enables the reception deadline monitoring for the I-PDUs within the given I-PDU groups.
Com_ReceptionDMControl IpduGroupStart	This service enables or disables Starts a preconfigured I-PDU groupDeadline Monitoring. . 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.

API function	Description
Com_SetIpduGroupStop	This service sets the value of a bit in an Stops a preconfigured I-PDU groupvector. . For example, cyclic I-PDUs will be stopped after the call of Com_IpduGroupStop().
Com_SwitchIpduTxMode	The service Com_SwitchIpduTxMode sets the transmission mode of the I-PDU referenced by Pduld to Mode. In case the transmission mode changes, the new mode shall immediately be effective (see SWS_Com_00239). In case the requested transmission mode was already active for this I-PDU, the call will have no effect.
ComM_GetCurrentComMode	Function to query the current Communication Mode. ComM shall use the corresponding interfaces of the Bus State Managers to get the current Communication Mode of the network. (Call to Bus State Manager API: XXXSM_GetCurrentComMode(...))
ComM_GetInhibitionStatus	Returns the inhibition status of a ComM channel.
ComM_GetMaxComMode	Function to query the maximum allowed Communication Mode of the corresponding user.
ComM_GetRequestedComMode	Function to query the currently requested Communication Mode of the corresponding user.
ComM_GetStatus	Returns the initialization status of the AUTOSAR Communication Manager. After a call to ComM_DelInit() ComM should have status COMM_UNINIT, and a new call to ComM_Init needed to make sure ComM restart internal state machines to default values.
ComM_GetVersionInfo	This function returns the published information (for details refer to table 10.3)
ComM_LimitChannelToNoComMode	Changes the inhibition status for the channel for changing from COMM_NO_COMMUNICATION to a higher Communication Mode. (See also ComM_LimitECUToNoComMode, same functionality but for all channels)
ComM_LimitECUToNoComMode	Changes the inhibition status for the ECU (=all channels) for changing from COMM_NO_COMMUNICATION to a higher Communication Mode. (See also ComM_LimitChannelToNoComMode, same functionality but for a specific channels)
ComM_PreventWakeUp	Changes the inhibition status COMM_NO_WAKEUP for the corresponding channel.
ComM_ReadInhibitCounter	This function returns the amount of rejected COMM_FULL_COMMUNICATION user requests.
ComM_RequestComMode	Requesting of a Communication Mode by a user. Note: Internally mode COMM_SILENT_COMMUNICATION is not a valid request for a user, mode used for synchronization at shutdown. Valid modes are COMM_NO_COMMUNICATION and COMM_FULL_COMMUNICATION. The communication request could also be released due to a ComM communication inhibition.
ComM_ResetInhibitCounter	This function resets the Inhibited COMM_FULL_COMMUNICATION request Counter.
ComM_SetECUGroupClassification	Changes the ECU Group Classification status (see chapter 10.2.2)
ControllIdle	This API allows the caller to select the idle mode action which is performed during idle time of the OS (e.g. if no Task/ISR is active). It can be used to implement energy savings. The real idle modes are hardware dependent and not standardized. The default idle mode on each core is IDLE_NO_HALT.
Det_ReportError	Service to report development errors.

API function	Description
EcuM_AL_DriverInitBswM_<x>	This callback shall provide BSW module initializations to be called by the BSW Mode Manager.
EcuM_GoDown	Instructs the ECU State Manager module to perform a power off or a reset depending on the selected shutdown target.
EcuM_GoHalt	Instructs the ECU State Manager module to go into a sleep mode where the microcontroller is halted, depending on the selected shutdown target.
EcuM_GoPoll	Instructs the ECU State Manager module to go into a polling sleep mode depending on the selected shutdown target.
EcuM_SelectShutdownTarget	EcuM_SelectShutdownTarget selects the shutdown target. EcuM_SelectShutdownTarget is part of the ECU Manager Module port interface.
EcuM_SetState	Function called by BswM to notify about State Switch.
FrSM Sm _AllSlots	This API function can be used to leave the KeySlotOnlyMode.
FrSM Sm _SetEcuPassive	This API function can be used to set all FlexRay clusters of the ECU to a receive only mode.
J1939Dcm_SetState	Changes the communication state of J1939Dcm to offline or online.
J1939Rm_SetState	Changes the communication state of J1939Rm to offline (only Request for AC supported) or online.
LinSM_ScheduleRequest	The upper layer requests a schedule table to be changed on one LIN network.
Nm_DisableCommunication	Disables the NM PDU transmission ability. For that purpose <BusNm>_DisableCommunication shall be called (e.g. CanNm_DisableCommunication function is called if channel is configured as CAN).
Nm_EnableCommunication	Enables the NM PDU transmission ability. For that purpose <BusNm>_EnableCommunication shall be called (e.g. CanNm_EnableCommunication function is called if channel is configured as CAN).

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #74626: [ComM] Specification of the mode limitation seem to be incomplete

Problem description:

Mode limitation is divided in 2 parts:

(1)[SWS_ComM_00303] ?The ComM module shall perform the limit to COMM_NO_COMMUNICATION mode by switching to COMM_FULL_COM_READY_SLEEP state to initiate a shutdown despite user requests for COMM_FULL_COMMUNICATION mode and ignoring new COMM_FULL_COMMUNICATION mode requests.?(SRS_ModeMgm_09071)
-> This cause an state change from "network_requested" to "network_release"

(2)[SWS_ComM_00841] ?The ComM module shall only perform the limit to COMM_NO_COMMUNICATION mode if the current state is COMM_FULL_COM_NETWORK_REQUESTED.?()

-> This means only channel state machines in state "COMM_FULL_COM_NETWORK_REQUESTED" are limited to "COMM_NO_COMMUNICATION". But this should also be done for channels in state "COMM_NO_COMMUNICATION". Otherwise a channel in "COMM_NO_COMMUNICATION" is not limited and if a "COMM_FULL_COM" is requested, the channel permit communication and violate the limitation.

This points should be clarified:

- according to (1): the change from "network_requested" to "network_release" should not be performed, because it is not necessary. Only limitation for this channel should take place. Additionally should a mode request to "COMM_FULL_COMMUNICATION" return E_OK in mode limitation.
- according to (2): if a channel is in "COMM_NO_COMMUNICATION" the mode limitation should also be activated for this channel.

Agreed solution:

- add note below [SWS_ComM_00841]:

Note: [SWS_ComM_00841] refers only to the state machine transitions. This means, other actions like update of the inhibition status due to a limit to COMM_NO_COMMUNICATION shall always be performed independent of the current state.

- add note below [SWS_ComM_00842]:

Note: [SWS_ComM_00841] and [SWS_ComM_00842] describe the behaviour if a local ComM user requests FULL_COM (active request) for a dedicated ComM channel. This means, limit to COMM_NO_COMMUNICATION shall only be performed if a channel was request actively. The limit to no communication shall not be performed, if a ComM channel is remotely kept awake due to a passive wakeup.

add note to the description of [SWS_ComM_00110]:

Note: The communication request could also be released due to a ComM communication inhibition

—Last change on issue 74626 comment 9—

BW-C-Level:

Application	Specification	Bus
1	1	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 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

- RfC #76404: [Det] Clarifications on runtime errors

Problem description:

There are several uncertainties/problems in the SWS DET:

1. According to SWS_Det_00180, the callouts should have the same signatures as the corresponding DET functions, but they are void(void) (SWS_Det_00181, SWS_Det_00184, SWS_Det_00187).
2. Section 8.2.3.1 does not describe how the instance ID is passed to DET.
3. Configuration of header files for all three error type callouts are missing.
4. Why does the development error callout reside in DetNotification, while the other two callouts reside in DetGeneral?
5. The limitation in section 4.1 regarding "supervisor mode" does not really make sense. It is assumed that the DET is ignorant regarding the call context, and the software receiving DET callbacks (like DLT or the implementers of the callouts) need to take care of resolving the calling context, if necessary (e.g. in multi-core environments).
6. SWS_Det_00302 defines several runtime errors. But apart from DET_E_CANNOT_REPORT, it is unclear in which situation these errors could be reported by DET: For errors reported by BSW, the DET has no means to validate anything that could lead to such an error. And for SWCs, the modeling already takes care that DET_E_WRONG_MODULE and DET_E_WRONG_INSTANCE cannot occur, while the other two errors can also not be checked by DET without further

configuration.

7. Det_ReportTransientFault (SWS_Det_01003) shall return the return value of a configured callout. But what shall happen if more than one callout exists, and the return different values?

8. SWS_Det_00052: The only API that can result in DET_E_PARAM_POINTER is Det_GetVersionInfo (as the error description mentions correctly). Please reformulate this requirement and move it to section 8.1.3.6 "Det_GetVersionInfo".

–Last change on issue 76404 comment 13–

Agreed solution:

1.

~change SWS_Det_00181/184/187 such that signatures match the APIs

~Figures 3,5, and 7 to be corrected (return missing)

5. remove from 4.1. the sentence: "It is assumed that the whole Basic Software runs in supervisor mode or the switch to supervisor mode is done by a system call within the error reporting function of the DET module."

6. remove SWS_Det_00302 and SWS_Det_00303 and all included errors

7. change SWS_Det_01003 (Return Value-Part only): "Std_ReturnType" If no callout exists it shall return E_OK, otherwise it shall return the value of the configured callout. In case several callouts are configured the logical or (sum) of the callout return values shall be returned. Rationale: since E_OK=0, E_OK will be only returned if all are E_OK, and for multiple error codes there is a good chance to detect several of them.

8. change SWS_Det_00052 from "in case a null pointer error occurs." to "in case a null pointer error occurs in Det_GetVersionInfo." Do not move the requirement, since otherwise the section 7.7 would be empty, but add the following sentence to 8.1.3.6: "In case a null pointer is passed, DET_E_PARAM_POINTER is returned, see SWS_Det_00052."

–Last change on issue 76404 comment 30–

BW-C-Level:

Application	Specification	Bus
1	4	1

1.22 Specification Item SWS_BswM_00026

Trace References:

SRS_BSW_00381, SRS_BSW_00412, SRS_BSW_00415

Content:

The BswM module shall provide the following set of header files for inclusion in other BSW modules only if the relevant configuration parameter is set to true. The header file shall provide interfaces and the corresponding types relevant to the other BSW module:

1. BswM header file: BswM.h, BswM_CanSM.h, BswM_ComM.h, BswM_Dcm.h, BswM_EcuM.h, BswM_EthIf.h, BswM_EthSM.h, BswM_FrSM.h, BswM_J1939Dcm.h, BswM_J1939Nm.h, BswM_LinSM.h, BswM_LinTp.h, BswM_Nm.h, BswM_NvM.h, BswM_Sd.h, BswM_WdgM.h
2. BswM configuration file: BswM_Cfg.h

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76637: Add new BswMEthIfEnabled parameter to enable or disable support for ethernet switch groups

Problem description:

Rfc# 67878 introduced a new API function BswM_EthIf_PortGroupLinkStateChg() in order for BswM to support state change notifications from ethernet switch groups.

However, it was omitted that this functionality is not always needed. As a result, according to the current specs, BswM must always provide this API and include the necessary header file (EthIf.h) to access specific data types.

Therefore I propose to introduce a new boolean BswMGeneral/BswMEthIfEnabled parameter, similar to the rest of BswM<Interface>Enabled parameters.

Agreed solution:

For the SWS BswM:

- 1) Add a new BswMEthIfEnabled parameter to BswMGeneral(ECUC_BswM_00800):
 - Name: "BswMEthIfEnabled"
 - Description: "enable/disable EthIf module related BswM API: true: Enabled false: Disabled"
 - All other fields same as for BswMCanSMEEnabled(ECUC_BswM_00938)

- 2) Add "BswM_EthIf.h" to SWS_BswM_00026

- 3) Add "EthIf.h" to Figure 1: File structure of BSW Mode Manager (SWS_BswM_00218)

—Last change on issue 76637 comment 3—

BW-C-Level:

Application	Specification	Bus
1	3	1

1.23 Specification Item SWS_BswM_00128

Trace References:

SRS_ModeMgm_09174, SRS_ModeMgm_09184

Content:

BswM shall keep internal variables as an accumulative storage of the results of BswMPduGroupSwitch actions. These internal variables shall be initialized to all-zeros when the BswM is initialized. These internal variables shall be used as the parameters when calling the Com_IpduGroupControl() function.

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 BswMDisabledDMP-
duGroupRef 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_BswM_00129

Trace References:

SRS_ModeMgm_09174, SRS_ModeMgm_09184

Content:

If any BswMPduGroupSwitch action(s) have been performed, the BswM shall execute the Com_IpduGroupControl commands at the end of its processing of the BswM main function or an immediate request 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 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 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_BswM_00224

Trace References:

SRS_BSW_00101**Content:**

BswM shall keep internal variables as an accumulative storage of the results of BswMDeadlineMonitoringControl actions. These internal variables shall be initialized to all-zeros when the BswM is initialized. These internal variables shall be used as the parameters when calling the Com_ReceptionDMControl() function.

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 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

1.26 Specification Item SWS_BswM_00225

Trace References:

[SRS_ModeMgm_09178](#)

Content:

If any BswMDeadlineMonitoringControl action(s) have been performed, the BswM shall execute the Com_ReceptionDMControl command at the end of its processing of the BswM main function or an immediate request 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 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 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

1.27 Specification Item SWS_BswM_00234

Trace References:

SRS_ModeMgm_09183, SRS_ModeMgm_09174, SRS_ModeMgm_09184

Content:

The BswM shall utilize two different internal IpduGroupVectors for BswMPduGroupSwitch actions. One vector shall accumulate only the BswMPduGroupSwitches which have BswMPduGroupSwitchReinit set to true, and the other vector shall accumulate all of BswMPduGroupSwitches (including those with BswMPduGroupSwitchReinit set to true). For the first

call of `Com_IpduGroupControl`, the vector for `BswMPduGroupSwitchReinit == true` shall be used. For the second call of `Com_IpduGroupControl`, the other vector shall be used. After the second call of `Com_IpduGroupControl`, the vector for `BswMPduGroupSwitchReinit == true` shall be overwritten with the value of the other vector.

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 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

1.28 Specification Item SWS_BswM_00235

Trace References:

SRS_ModeMgm_09228

Content:

Service name:	BswM_NmIf_CarWakeUpIndicationBswM_NmIf_CarWakeUpIndication
---------------	--

Syntax:	void BswM_NmIf_CarWakeUpIndication(NetworkHandleType Network)	
Service ID[hex]:	0x24	
Sync/Async:	Synchronous	
Reentrancy:	Non Reentrant	
Parameters (in):	NetworkBswM_NmIf_CarWakeUp Indication.Network	Identification of the Nm-Channel
Parameters (inout):	None	
Parameters (out):	None	
Return value:	None	
Description:	Function called by Nm If to indicate a CarWakeUp.	

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #77069: Different API Declarations for Car Wake Up in NM and BswM modules

Problem description:

Hello,

Requirement SWS_Nm_00285 specifies that in case no callback function is specified, the Nm shall call BswM_CarWakeUpIndication.

In the BswM module this function is not specified.

In BswM the function specified for Car Wake Up is:

BswM_NmIf_CarWakeUpIndication.

Which definition shall be used, the one specified in Nm or the one specified by BswM ?

Best Regards,
Lorant

Agreed solution:

In the SWS Nm:

A1)Change SWS_Nm_00285 to:

[SWS_Nm_00285] If the <bus>Nm calls NmCarWakeUpIndication and Nm-CarWakeUpCallout is not defined, the NM Interface shall call the function BswM_Nm_CarWakeUpIndication with nmNetworkHandle as parameter.
(SRS_Nm_02503)

A2)Change ECUC_Nm_00234 description to:

Name of the callout function to be called if Nm_CarWakeUpIndication() is called. If this parameter is not configured, the Nm will call BswM_Nm_CarWakeUpIndication.

In the SWS BswM:

B1) Change "NmIf" to "Nm" in all of the following spec items (names & descriptions):

- SWS_BswM_00235 (BswM_NmIf_CarWakeUpIndication)
- ECUC_BswM_00856 (BswMModeRequestSource)
- ECUC_BswM_01048 (BswMNmIfCarWakeUpIndication)

B2) Change "NmIf" to "Nm" in the descriptive text found in chapters:

- 5.17
- 8.3.23
- Last change on issue 77069 comment 19–

BW-C-Level:

Application	Specification	Bus
1	4	1

1.29 Specification Item SWS_BswM_00271

Trace References:

[SRS_ModeMgm_09178](#)

Content:

If the action BswMRteStart is configured, the function Rte_Start(void) shall be called by the BswM when the action is executed.

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #65965: Part 2 of Initialization issues between BSW and SWC

Problem description:

Name: WP-A

Phone:

Role:

Description/Motivation:

Bugzilla # 53620 remaining open questions:

How does a mainfunction detect that Rte is initialized?

–Last change on issue 65965 comment 2–

Agreed solution:

SWS BasicSoftwareModeManager:

1.1) Ecuc Element BswMAvailableActions shall be extended with:

- BswMRteStart: This container defines the action to call the Rte_Start from BswM
- BswMRteStop: This container defines the action to call the Rte_Stop from BswM

1.2) Add new containers:

- BswMRteStart, Description "This container defines the action to start the Rte from BswM", No Included Containers
- BswMRteStop, Description "This container defines the action to stop the Rte from BswM", No Included Containers

1.3) Add new requirements:

- SWS_BSWM_xxxx0: If the action BswMRteStart is configured, the function Rte_Start(void) shall be called by the BswM when the action is executed.
- SWS_BSWM_xxxx1: If the action BswMRteStop is configured, the function Rte_Stop(void) shall be called by the BswM when the action is executed.

1.4) For BswMUserCalloutFunction(ECUC_BswM_00843):

- remove text "Action to call Rte_Start()"
- remove text "Action to call Rte_Stop()"

SWS EcuM: Already contains a standardized mode declaration group → no change to EcuM

Guide to Modemanagement:

Add a new paragraph in Guide to Modemanagement in chapter 3.3.2 below listing 3.10 "Rules and ActionLists for Startup" as follows:

"In order to ensure that the RTE is properly initialized before runnables in service modules call RTE API functions, those runnables can be disabled by a mode disabling dependency deactivating the runnable in all modes except EcuM mode RUN. For server runnables - which cannot be disabled - the Rte will ignore incoming client server requests as long as it is not initialized."

–Last change on issue 65965 comment 40–

BW-C-Level:

Application	Specification	Bus
1	3	1

1.30 Specification Item SWS_BswM_00272

Trace References:

SRS_ModeMgm_09178

Content:

If the action BswMRteStop is configured, the function Rte_Stop(void) shall be called by the BswM when the action is executed.

RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #65965: Part 2 of Initialization issues between BSW and SWC

Problem description:

Name: WP-A

Phone:

Role:

Description/Motivation:

Bugzilla # 53620 remaining open questions:

How does a mainfunction detect that Rte is initialized?

–Last change on issue 65965 comment 2–

Agreed solution:

SWS BasicSoftwareModeManager:

1.1) Ecuc Element BswMAvailableActions shall be extended with:

- BswMRteStart: This container defines the action to call the Rte_Start from BswM
- BswMRteStop: This container defines the action to call the Rte_Stop from BswM

1.2) Add new containers:

- BswMRteStart, Description "This container defines the action to start the Rte from BswM", No Included Containers
- BswMRteStop, Description "This container defines the action to stop the Rte from BswM", No Included Containers

1.3) Add new requirements:

- SWS_BSWM_xxxx0: If the action BswMRteStart is configured, the function Rte_Start(void) shall be called by the BswM when the action is executed.
- SWS_BSWM_xxxx1: If the action BswMRteStop is configured, the function Rte_Stop(void) shall be called by the BswM when the action is executed.

1.4) For BswMUserCalloutFunction(ECUC_BswM_00843):

- remove text "Action to call Rte_Start()"
- remove text "Action to call Rte_Stop()"

SWS EcuM: Already contains a standardized mode declaration group → no change to EcuM

Guide to Modemanagement:

Add a new paragraph in Guide to Modemanagement in chapter 3.3.2 below listing 3.10 "Rules and ActionLists for Startup" as follows:

"In order to ensure that the RTE is properly initialized before runnables in service modules call RTE API functions, those runnables can be disabled by a mode disabling dependency deactivating the runnable in all modes except EcuM mode RUN. For server runnables - which cannot be disabled - the Rte will ignore incoming client server requests as long as it is not initialized."

–Last change on issue 65965 comment 40–

BW-C-Level:

Application	Specification	Bus
1	3	1

1.31 Specification Item SWS_BswM_00273

Trace References:

none

Content:

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.

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 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

1.32 Specification Item SWS_BswM_00274**Trace References:**

none

Content:

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.

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 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_SetIpduGroupAdd: 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_BswM_CONSTR_00003

Trace References:

none

Content:

The BswM shall reject configurations where a BswMDeadlineMonitoringControl container has a BswMDisabledDMPduGroupRef and a BswMEnabledDMPduGroupRef which reference the same 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 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_BswM_CONSTR_00004

Trace References:

none

Content:

The BswM shall reject configurations where a BswMPduGroupSwitch container has a BswMDisabledPduGroupRef and a BswMEnabledPduGroupRef which reference the same 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