AUTOSAR BswM User Manual

Document Change History				
Date (YYYY-MM-DD)	Ver.	Editor	Chap	Content
2020-11-09	1.0.0.0	Dinh Khanh Hiep	All	• Initial Version
2021-05-29	1.1.0.0	Kevin	All	• Update new BswM base on AR440 • Update multiple partition
2021-09-20	1.1.1.0	TriBD	All	• Update Logo and Company name • Update Change log
2021-12-09	1.1.2.0	TriBD	4.3.1 5.17 7.2	• Update Change log • Update BswMConfig Settings • Update Generator Error Message
2022-02-18	1.1.3.0	TriBD	4.3.1	• Update Change log
2022-04-13	1.1.3.1	TriBD	4.3.1	• Update Change log
2022-06-29	1.1.3.2	TriBD	4.3.1	• Update Change log
2022-08-12	1.1.4.0	Manje Woo	4.3.1	• Update Change log
2022-09-05	1.1.4.1	Manje Woo	4.3.1	• Update Change log
2022-12-06	1.1.5.0	TriBD	4.3.1	• Update Change log
2023-05-23	1.1.6.0	TanHX	4.3.1	• Update Change log
2023-07-09	1.2.0.0	NhanNV8	4.3.1	• Update Change log
2023-08-17	1.2.1.0	Hyeonseok Park	4.3.1 7.2	• Update Change log • Update Generator Error Codes

2023-09-26	1.3.0.0	Eugean Kim	4.3.1 5.18 7.2	• Update Change log • Update BswMConfig Settings • Update Generator Error Codes
2024-02-14	1.3.1.0	Hyeonseok Park	4.3.1 7.2	• Update Change log • Update Generator Error Message
2024-05-14	1.3.2.0	Hongsuk Kim	8	• Create Chapter 8

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1 Overview

This document provides cautions or reference points when users set parameters or design systems for Init Sequence setting, Reset/Off/Sleep request, etc. during Mode Management using the Hyundai Autosar platform.

It is written based on AUTOSAR standard SRS / SWS. If more detailed functional explanation is needed when using the module, see the Reference Manual. The interpretation of setting related category is as follows:

- Changeable (C): Items that can be set by the user
- Fixed (F): Items that cannot be changed by the user.
- Not Supported (N): Deprecated item

2 Reference

Sl. No.	Title	Version
1	AUTOSAR_SWS_BSWModeManager.pdf	4.4.0
2	AUTOSAR_SWS_ECUStateManager.pdf	4.4.0
3	AUTOSAR_EXP_ModemanagementGuide.pdf	4.4.0

3 AUTOSAR System

3.1 Mode Management Stack

In HYUNDAI AUTOEVER's AUTOSAR platform, the Mode Management Stack consists of an EcuM
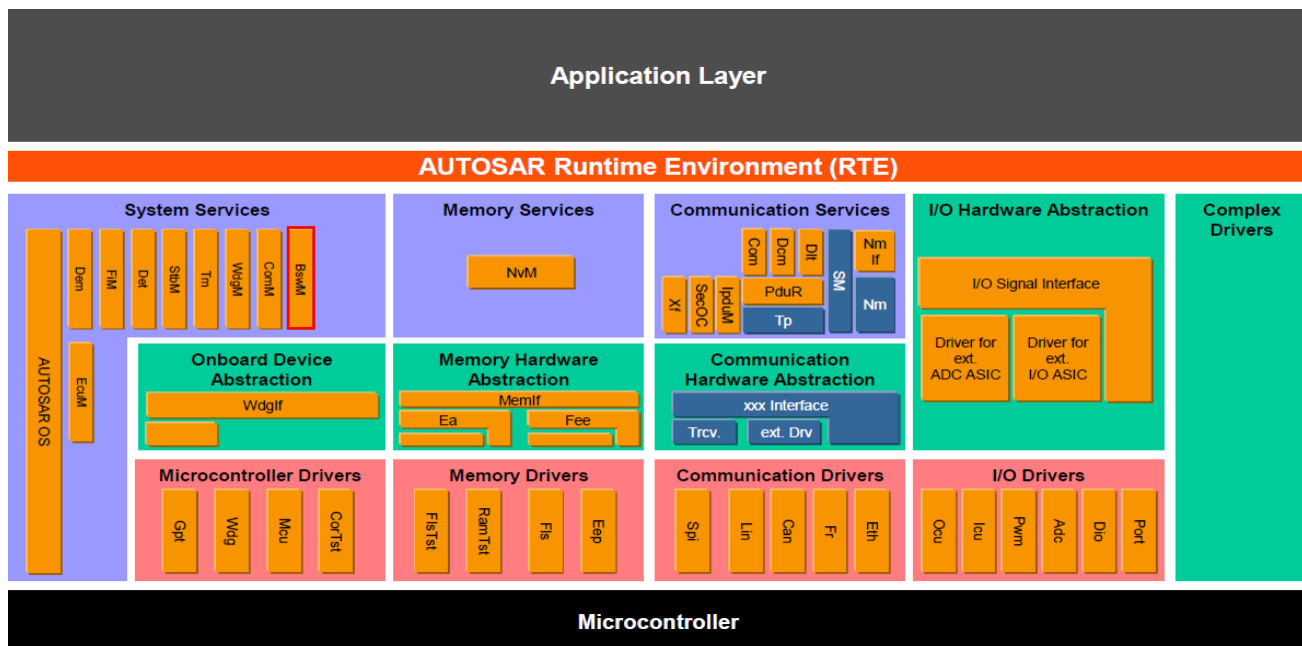
module that manages the ECU state and a BswM module that acts as a BSW Mode Manager.

Figure 1 BswM module in Autosar Platform

3.2 Mode Management for ECU state

HYUNDAI AUTOEVER's AUTOSAR platform provides ECU states as shown in the following figure. For ECU state management based on HYUNDAI AUTOEVER Mode Management policy, init operation is
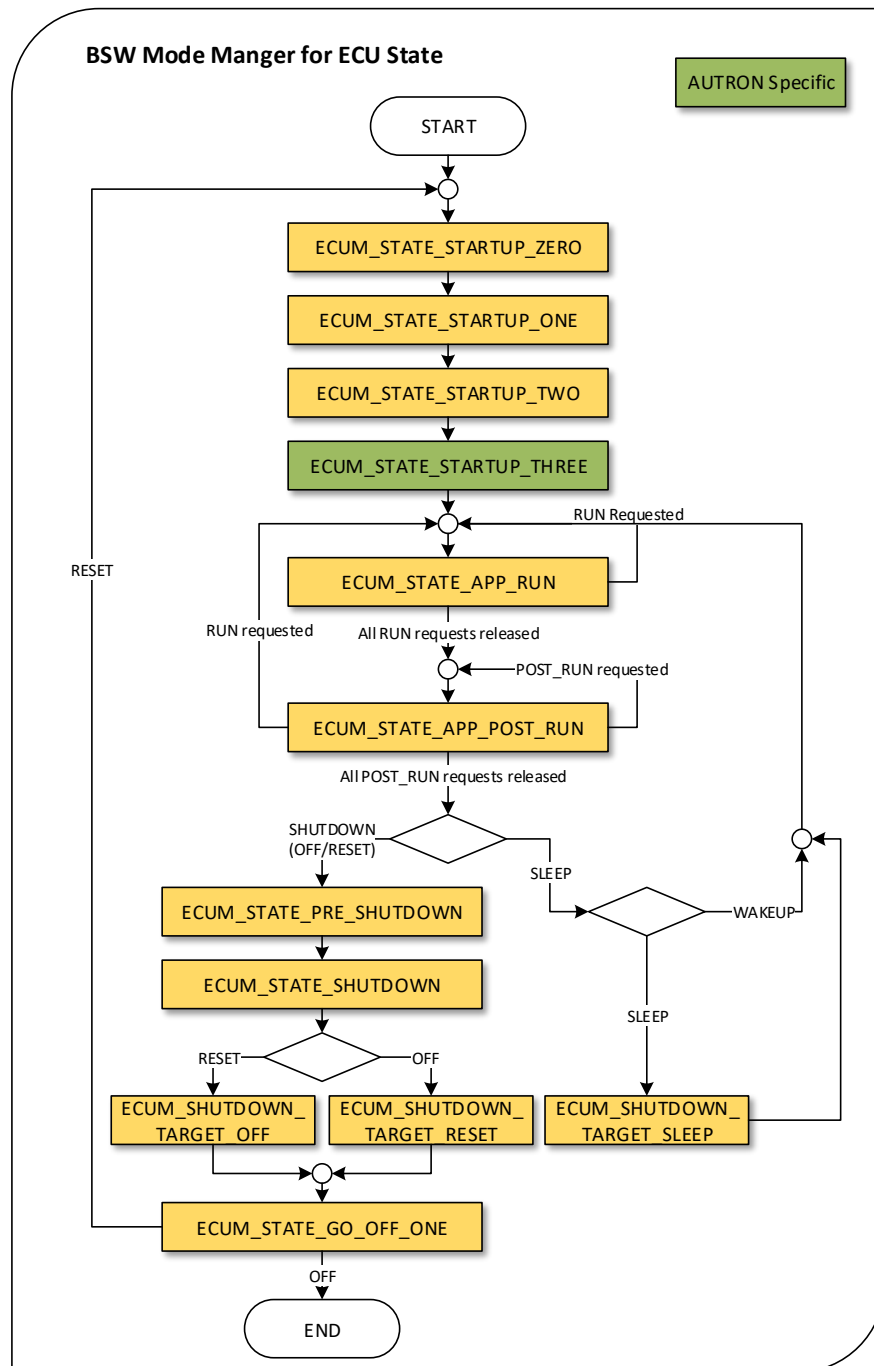
supported by adding ECUM_STATE_STARTUP_THREE in addition to the state defined in AUTOSAR EcuM specification.

- ➢ **Init Sequence**
  - In each state of STARTUP_ZERO/ONE/TWO/THREE, necessary module initialization can be performed.
  - STARTUP_ZERO/ONE is the setting of EcuM and executes the module's initialization code. Predefined AUTOSAR standard modules
  - STARTUP_TWO/THREE executes the module's initialization code by setting BswM. Both AUTOSAR standard modules and non-standard modules can be initialized. STARTUP_TWO performs the initialization of the module that should be performed before NvM_ReadAll() is completed, and STARTUP_THREE performs the initialization of the module that should be performed after NvM_ReadAll() is completed. In the case of standard modules, it is generally initialized in STARTUP_ZERO/ONE, but in the case of modules that need to complete NvM_ReadAll(), it is executed in STARTUP_THREE. Typically, Dem_Init() proceeds at STARTUP_THREE.
  - When it goes through the STARTUP_THREE stage and goes into the RUN state, it means that the platform initialization is complete.
- ➢ **Shutdown Sequence**
  - If the application is in the shutdown mechanism, it branches to SHUTDOWN or SLEEP status depends on the selected shutdown target which is updated by request of user or SWC. After that, RESET, OFF and SLEEP sequence are performed according to each status value.

3.3 Mode Management for Application (when using App Mode Request method)

- ➢ When deploying HYUNDAI AUTOEVER's AUTOSAR platform, we propose the following operation of Application Mode SWC to synchronize the operation state between the platform and the application.
- ➢ This is a method that requires Fg3 Task Activation when requesting App Mode using App Mode Request.
- ➢ Application Mode SWC requests Application Mode to BswM according to the operation state of the application. Application Mode is as follows.

Application Mode	Explanation
APP_MODE_ACTIVE	Application is running
APP_MODE_INACTIVE_OFF	With the application not running, make an OFF request.
APP_MODE_INACTIVE_RESET	With the application not running, make a RESET request.
APP_MODE_INACTIVE_SLEEP	With the application not running, make a SLEEP request.

> After completing initialization, the application changes the state to ACTIVE / INACTIVE depending on whether it is running and requests it to the BSW through SwcModeRequest.

> In order to operate the application, request to APP_MODE_ACTIVE and to stop the application, change to APP_MODE_INACTIVE_OFF/RESET/SLEEP to inform that the application is stopped and at the same time request Shutdown (OFF/RESET/SLEEP) to enter the shutdown sequence of the controller. Application Mode State Diagram according to mode notification between SWC and BSW Mode Manager is proposed as shown in the following figure.

3.4 Mode Management for Application (when using the API Call method)

> When App Mode is requested, Api Call method can be used so that Fg3 Task Activation is unnecessary. In this case, the application mode request is requested through the EcuM API Call.

Application Mode	Explanation	Use EcuM API
ECUM_REQUEST_RUN	Run requested state for the state in which the application is running	EcuM_RequestRUN
ECUM_RELEASE_RUN	Run release state for the state in which all application completed running	EcuM_ReleaseRUN
ECUM_REQUEST_POST_RUN	PostRun requested state for the state in which the application save important data or switch off peripherals before the shutdown.	EcuM_RequestPOST_RUN
ECUM_RELEASE_POST_RUN	PostRun release state for the state in which the application is ready to shutdown or sleep.	EcuM_ReleasePOST_RUN

ECUM_REQUEST_OFF	Application is not running, OFF is requested	EcuM_RequestOff
ECUM_REQUEST_RESET	Application is not working and RESET is requested.	EcuM_RequestReset
ECUM_REQUEST_SLEEP	Application is not running, SLEEP is requested.	EcuM_RequestSleep

➢ After completing initialization, the application can change the state by calling the EcuM API depending on whether it is running.

➢ Request ECUM_REQUEST_RUN for the application to run, and ECUM_REQUEST_OFF/ECUM_REQUEST_RESET/ ECUM_REQUEST_SLEEP to stop the application. At the same time, it notifies that the operation of the application has been stopped by requesting a request, and at the same time makes a Shutdown (OFF/RESET/SLEEP) request to enter the shutdown sequence of the controller.
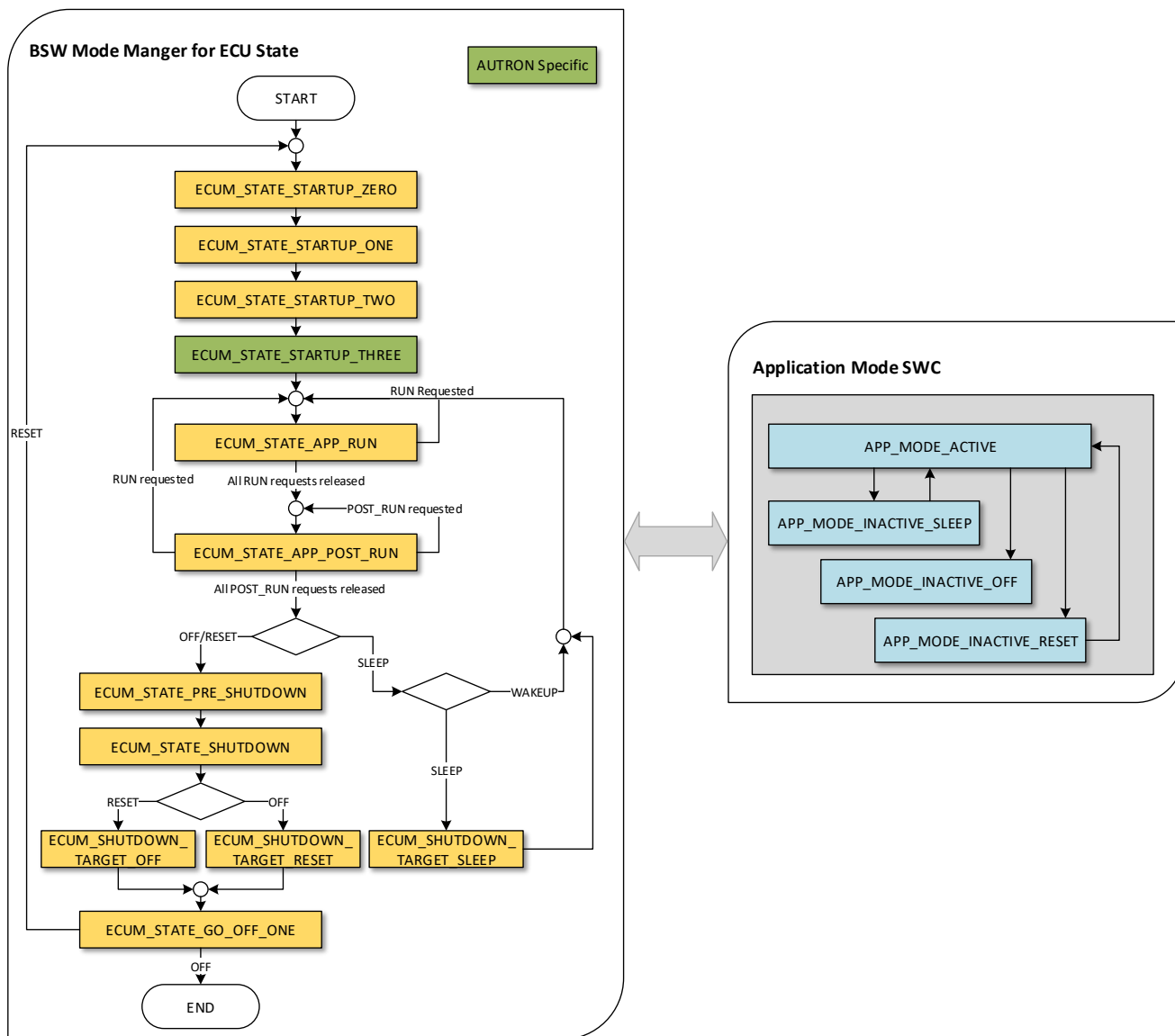
4 Product Release Notes

4.1 Overview

This chapter aims to provide the release information for the HYUNDAI AUTOEVER BswM module.

Describes the limitations and specifics about the software product release version

4.2 Scope of the Release

All information in this document is limited to the following HYUNDAI AUTOEVER BswM module.

Module Name	AUTOSAR Version	Module Version
BswM	4.4.0	1.3.1

Module version means Sw version of each module's BswModule Description (Bswmd) file.

4.3 Module Release Notes

4.3.1. Change log

4.3.1.1   Version 1.3.1.0

➢ Bug

▪ Validation Error ERR0420051 occurs when multiple Mode Declaration Group Prototypes have same type in bswmd_BswM.

Cause	When using BswModeNotification as the Mode Request Port of BswM, generation failed with ERR0420051 when multiple Mode Declaration Group Prototypes with the same type existed in bswmd_BswM. It's abnormal and validator implementation error.
Operation Impact	N/A
Configuration Impact	N/A
Required measure of ASW	N/A

4.3.1.2   Version 1.3.0.0

➢ Task

▪ Update Generator to create Action List for each Post Build variant.

▪ Updated BswM Generator Error Codes in User Manual

▪ Updated Post Build setting

4.3.1.3   Version 1.2.1.0

➢ Improvement

- ▪ Updated regex about BswM UserCallout naming rule

➢ Task

- ▪ Updated BswM Generator Error Codes in User Manual

   4.3.1.4   Version 1.2.0.0

➢ Task

- ▪ Update Generator to create BswM_MemMap.h to support for Arm compiler option
- ▪ Add new Dummy TestApp to check Generating BswM_MemMap.h file

   4.3.1.5   Version 1.1.6.0

➢ Improvement

- ▪ Remove unused type check of EcuM_WakeupStatusType

➢ Bug

- ▪ Fix a generation error that occurs when two or more P-Ports are created with one switch interface.

➢ Task

- ▪ Update Parameter Definition File for mobilgene C Studio BswM Editor

   4.3.1.6   Version 1.1.5.0

➢ Change Request

- ▪ Update generator and E-code for the new Post-build concept
- ▪ Fix unnecessary Spinlock is used in Multi-partition of single-core

   4.3.1.7   Version 1.1.4.1

➢ Bug

- ▪ Fix a generation error that occurs when the function name length called in ActionList is 50

   4.3.1.8   Version 1.1.4.0

➢ Improvement

- ▪ Update to fix violations of the UNECE secure coding rules

   4.3.1.9   Version 1.1.3.2

➢ Improvement

- ▪ Apply the latest template of DeliveryBoxHistory.
- ▪ Clarify the copyright of code in E-Code, Generated Code.
- ▪ Divide 'delivery' folder into 'delivery/src' and 'delivery/inc'.

4.3.1.10 Version 1.1.3.1

➢ Change Request

- ▪ Update make file to execute UT/IT in the x86 environment.

4.3.1.11 Version 1.1.3.0

➢ Improvement

- ▪ Update fixing for compile warning in BswM module.
- ▪ Update fixing memory section of BswM_DecideDirectCall api in Single-Core Platform.
- ▪ Update generator to support BswM_Memmap.h using GreenHills Compiler.
- ▪ Update template version 1.13.0 for BswM_SRS file.
- ▪ Update destination of OsTaskRef and OsEventRef in BswMConfig.

4.3.1.12 Version 1.1.2.0

➢ Improvement

- ▪ Update Multi request feature.
- ▪ Update fixing for compiling error in BswM_Memmap.h file.
- ▪ Update name of generator review report file.
- ▪ Add resource usage (RAM and ROM size) report.

4.3.1.13 Version 1.1.1.0

➢ Improvement

- ▪ Update Logo and Company name.
- ▪ Update ASPICE Compliance.

4.3.1.14 Version 1.1.0.0

➢ Improvement

- ▪ Change concept implementation for multiple partitions feature.
- ▪ Independency located for RAM, ROM, Data base on partition wise
- ▪ Support SwcModeNotification

4.3.1.15 Version 1.0.2.0

➢ Improvement

- Support Sd Client Service Curent State MRP
- Support Sd ConSumed Event Group Current
- Support Sd Event Handler Current State

4.3.1.16 Version 1.0.1.0

➢ Improvement

- Support Lin-Schedule
- Support CanSM_ICom
- Modify BswM Timer

4.3.1.17 Version 1.0.0.0

➢ Initial version for AUTOSAR 4.4.0

4.3.2 Limitations

➢ Event request port BswMModeSwitchErrorEvent which specifies a SwcModeModeManagerErrorEvent is not available.

4.3.3 Deviations

➢ Container BswMDataTypeMappingSets is redundant since data type mapping set is available on BswM's Service SWC.

5 Configuration Guide

The BswM setting of the AUTOSAR platform distributed by HYUNDAI AUTOEVER is a setting reflecting HYUNDAI AUTOEVER Policy's policy. Therefore, you should consult with HYUNDAI AUTOEVER.

5.1 BswMGeneral Settings

Parameter Name	Value	Category
BswMCanSMEnabled[1)	true / false	C
BswMCanSMIcomEnabled[2)	true / false	C
BswMComMEnabled[3)	true / false	C

BswMDcmEnabled[4)	true / false	C
BswMEcuMEnabled[5)	true / false	C
BswMEthIfEnabled[6)	true / false	C
BswMEthSMEnabled[7)	true / false	C
BswMFrSMEnabled[8)	true / false	C
BswMGenericRequestEnabled[9)	true / false	C
BswMJ1939DcmEnabled[10)	true / false	C
BswMJ1939NmEnabled[11)	true / false	C
BswMLinSMEnabled[12)	true / false	C
BswMLinTPEnabled[13)	true / false	C
BswMNmEnabled[14)	true / false	C
BswMNvMEnabled[15)	true / false	C
BswMSchMEnabled[16)	true / false	C
BswMSdEnabled[17)	true / false	C
BswMWdgMEnabled[18)	true / false	C
BswMDevErrorDetect[19)	true	F
BswMVersionInfoApi[20)	false	F
BswMMainFunctionPeriod[21)	0.01(sec)	F
BswMOsSpinLockRef[22)		F

1) BswMCanSMEnabled

   - True if BswM_CanSM_CurrentState() is used, false otherwise

2) BswMCanSMIcomEnabled

   - True if BswM_ComM_CurrentMode(), BswM_ComM_InitiateReset() or

     BswM_ComM_CurrentPNCMode() is

     used, false otherwise

3) BswMComMEnabled

   - True if BswM_CanSM_CurrentIcomConfiguration() is used, false otherwise

4) BswMDcmEnabled

   - True if BswM_Dcm_ApplicationUpdated() or

     BswM_Dcm_CommunicationMode_CurrentState() is used, false otherwise

5) BswMEcuMEnabled

- True if BswM_EcuM_CurrentState(), BswM_EcuM_CurrentWakeup() or

   BswM_EcuM_RequestedState() is used, false otherwise

6) BswMEthIfEnabled

- True if BswM_EthIf_PortGroupLinkStateChg() is used, false otherwise

7) BswMEthSMEnabled

- True if BswM_EthSM_CurrentState() is used, false otherwise

8) BswMFrSMEnabled

- True if BswM_FrSM_CurrentState() is used, false otherwise

9) BswMGenericRequestEnabled

- True if BswM_RequestMode() is used, false otherwise

10) BswMJ1939DcmEnabled

- True if BswM_J1939DcmBroadcastStatus() is used, false otherwise

11) BswMJ1939NmEnabled

- True if BswM_J1939Nm_StateChangeNotification() is used, false otherwise

12) BswMLinSMEnabled

- True if BswM_LinSM_CurrentSchedule() or BswM_LinSM_CurrentState() is used, false

   otherwise

13) BswMLinTPEnabled

- True if BswM_LinTp_RequestMode() is used, false otherwise

14) BswMNmEnabled

- True if BswM_Nm_CarWakeUpIndication() is used, false otherwise

15) BswMNvMEnabled

- True if BswM_NvM_CurrentBlockMode() or BswM_NvM_CurrentJobMode() is used, false

   otherwise

16) BswMSchMEnabled

- True if mode request port BswMBswModeNotification which referred by the BswMRule is

   configured, false otherwise

17) BswMSdEnabled

- True if BswM_Sd_ClientServiceCurrentState(), BswM_Sd_ConsumedEventGroupCurrentState()

   or BswM_Sd_EventHandlerCurrentState() is used, false otherwise

18) BswMWdgMEnabled

- True if BswM_WdgM_RequestPartitionReset() is used, false otherwise

19) BswMDevErrorDetect: fixed

20) BswMVersionInfoApi: fixed

21) BswMMainFunctionPeriod: fixed

22) BswMOsSpinLockRef: fixed

5.2 BswMUserIncludeFiles Settings

Parameter Name	Value	Category
BswMUserIncludeFile[1]		C

1) Setting to include required header file when setting Action or Rule.

5.3 BswMAction Settings

In BswM, Action means one function call unit. In BswMAvailableActions, a container under Action, it is divided into a predefined type and an undefined type (User Callout).

The type of BswMAvailableActions will be described as below.

5.3.1 BswMClearEventRequest Settings

Parameter Name	Value	Category
BswMClearEventRequestPortRef[1]		C

1) BswMClearEventRequestPortRef is refer to BswMEventRequestPort which will be cleared after event is set.

Generation code example

Reference to request port	Generation code
BswMWdgMRequestPartitionReset	BswM_WdgMRequestPartitionReset[0] = BSWM_EVENT_IS_CLEARED;

5.3.2 BswMComMAllowCom Settings

Parameter Name	Value	Category
BswMComAllowed[1]	true / false	C
BswMComMAllowChannelRef[2]		C

1) BswMComAllowed

2) BswMComMAllowChannelRef

Generation code example

BswMComMAllowed	Generation code
true	ComM_CommunicationAllowed(0, 1);
false	ComM_CommunicationAllowed(0, 0);

5.3.3 BswMComMModeLimitation Settings

Parameter Name	Value	Category
BswMComMLimitMode[1]	true / false	C
BswMComMLimitChannelRef[2]		C

1) BswMComMLimitMode

2) BswMComMLimitChannelRef

Generation code example

BswMComMLimitMode	Generation code
true	ComM_LimitChannelToNoComMode(0, 1);
false	ComM_LimitChannelToNoComMode(0, 0);

5.3.4 BswMComMModeSwitch Settings

Parameter Name	Value	Category
BswMComMRequestedMode[1]	BSWM_COMM_FULL_COMMUNICATION/ BSWM_COMM_NO_COMMUNICATION	C
BswMComMUserRef[2]		C

1) BswMComMRequestedMode

2) BswMComMUserRef

Generation code example

BswMComMLimitMode	Generation code
BSWM_COMM_FULL_COMMUNICATION	ComM_RequestComMode(0, COMM_FULL_COMMUNICATION)
BSWM_COMM_NO_COMMUNICATION	ComM_RequestComMode(0, COMM_NO_COMMUNICATION)

5.3.5 BswMCoreHaltMode Settings

Parameter Name	Value	Category
BswMCoreHaltActivationState[1]		C
BswMTargetCoreRef[2]		C

1) BswMCoreHaltActivationState

2) BswMTargetCoreRef

Generation code example

BswMCoreHaltActivationState	Generation code
IDLE_NO_HALT	ControlIdle(0, IDLE_NO_HALT)

5.3.6 BswMDeadlineMonitoringControl Settings

Parameter Name	Value	Category
BswMDisabledDMPduGroupRef[1]		C
BswMEnabledDMPduGroupRef[2]		C

1) BswMDisabledDMPduGroupRef

2) BswMEnabledDMPduGroupRef

Generation code example

Parameter	Generation code
When BswMDisabledDMPduGroupRef are set	uint8 index; Com_IpduGroupIdType id;

	for (index = (uint8)BSWM_ZERO; index < BswM_DMControlProperty[dmIndex].TotalDisable; index++) {
	
	    id = BswM_DMPduGroupList[BswM_DMControlProperty[dmIndex].IdDisable + index];
	      Com_DisableReceptionDM(id);
	}

When BswMEnabledDMPduGroupRef are set	uint8 index;
	Com_IpduGroupIdType id;
	
	for (index = (uint8)BSWM_ZERO; index < BswM_DMControlProperty[dmIndex].TotalEnable; index++) {
	  id = BswM_DMPduGroupList[BswM_DMControlProperty[dmIndex].IdEnable + index];
	  Com_EnableReceptionDM(id);
	}

5.3.7 BswMEcuMDriverInitListBswM Settings

Parameter Name	Value	Category
BswMEcuMDriverInitListBswMRef[1]		C

1) BswMEcuMDriverInitListBswMRef: To get short name of reference container.

Generation code example

Generation code
EcuM_AL_DriverInitBswM_DriverInitListThree();

5.3.8 BswMEcuMGoDownHaltPoll Settings

Parameter Name	Value	Category

BswMEcuMUserIdRef[1]		C

1) BswMEcuMUserIdRef

Generation code example

Generation code
EcuM_GoDownHaltPoll(42);

5.3.9 BswMEcuMSelectShutdownTarget Settings

Parameter Name	Value	Category
BswMEcuMShutdownTarget[1]	BSWM_ECUM_SHUTDOWN_TARGET_OFF / BSWM_ECUM_SHUTDOWN_TARGET_RESET / BSWM_ECUM_SHUTDOWN_TARGET_SLEEP	C
BswMEcuMResetModeRef[2]		C
BswMEcuMSleepModeRef[3]		C

1) BswMEcuMShutdownTarget

2) BswMEcuMResetModeRef

3) BswMEcuMSleepModeRef

Generation code example

BswMEcuMShutdownTarget	Generation code
BSWM_ECUM_SHUTDOWN_TARGET_OFF	EcuM_SelectShutdownTarget(ECUM_SHUTDOWN_TARGET_OFF, 0)
BSWM_ECUM_SHUTDOWN_TARGET_RESET	EcuM_SelectShutdownTarget(ECUM_SHUTDOWN_TARGET_RESET, 1)
BSWM_ECUM_SHUTDOWN_TARGET_SLEEP	EcuM_SelectShutdownTarget(ECUM_SHUTDOWN_TARGET_SLEEP, 3)

5.3.10 BswMEcuMSelectShutdownTarget Settings

Parameter Name	Value	Category
BswMEcuMState[1]	BSWM_ECUM_STATE_APP_POST_RUN / BSWM_ECUM_STATE_APP_RUN / BSWM_ECUM_STATE_SHUTDOWN /	C

	BSWM_ECUM_STATE_SLEEP / BSWM_ECUM_STATE_STARTUP	

1) BswMEcuMState

Generation code example

BswMEcuMState	Generation code
BSWM_ECUM_STATE_APP_POST_RUN	EcuM_SetState(ECUM_STATE_APP_POST_RUN);
BSWM_ECUM_STATE_APP_RUN	EcuM_SetState(ECUM_STATE_APP_RUN);
BSWM_ECUM_STATE_SHUTDOWN	EcuM_SetState(ECUM_STATE_SHUTDOWN);
BSWM_ECUM_STATE_SLEEP	EcuM_SetState(ECUM_STATE_SLEEP);
BSWM_ECUM_STATE_STARTUP	EcuM_SetState(ECUM_STATE_STARTUP);

5.3.11 BswMEthIfSwitchPortGroupRequestMode Settings

Parameter Name	Value	Category
BswMEthTrcvMode[1]	BSWM_ETHTRCV_MODE_ACTIVE / BSWM_ETHTRCV_MODE_DOWN	C
BswMEthIfSwitchPortGroupRef[2]		C

1) BswMEthTrcvMode
2) BswMEthIfSwitchPortGroupRef

Generation code example

BswMEthTrcvMode	Generation code
BSWM_ETHTRCV_MODE_ACTIVE	EthIf_SwitchPortGroupRequestMode(0, ETHTRCV_MODE_ACTIVE)
BSWM_ETHTRCV_MODE_DOWN	EthIf_SwitchPortGroupRequestMode(0, ETHTRCV_MODE_DOWN)

5.3.12 BswMFrSMAllSlots Settings

Parameter Name	Value	Category
BswMFrSMAllSlotsNetworkHandleRef[1]		C

1) BswMFrSMAllSlotsNetworkHandleRef

Generation code example

Generation code
FrSm_AllSlots(0);

5.3.13 BswMJ1939DcmStateSwitch Settings

Parameter Name	Value	Category
BswMJ1939DcmRequestedState[1]	BSWM_J1939DCM_STATE_OFFLINE / BSWM_J1939DCM_STATE_ONLINE	C
BswMJ1939DcmChannelRef[2]		C
BswMJ1939DcmNodeRef[3]		C

1) BswMJ1939DcmRequestedState

2) BswMJ1939DcmChannelRef

3) BswMJ1939DcmNodeRef

Generation code example

BswMJ1939DcmRequestedState	Generation code
BSWM_J1939DCM_STATE_OFFLINE[1]	J1939Dcm_SetState(2, 3, J1939DCM_STATE_OFFLINE);
BSWM_J1939DCM_STATE_ONLINE[2]	J1939Dcm_SetState(2, 3, J1939DCM_STATE_ ONLINE);

5.3.14 BswMJ1939RmStateSwitch Settings

Parameter Name	Value	Category
BswMJ1939RmRequestedState[1]	BSWM_J1939RM_STATE_OFFLINE / BSWM_J1939RM_STATE_ONLINE	C
BswMJ1939RmChannelRef[2]		C
BswMJ1939RmNodeRef[3]		C

1) BswMJ1939RmRequestedState

2) BswMJ1939RmChannelRef

3) BswMJ1939RmNodeRef

Generation code example

BswMJ1939RmRequestedState	Generation code
BSWM_J1939RM_STATE_OFFLINE	J1939Rm_SetState(0, 0, J1939RM_STATE_OFFLINE);
BSWM_J1939RM_STATE_ONLINE	J1939Rm_SetState(0, 0, J1939RM_STATE_ONLINE);

5.3.15 BswMLinScheduleSwitch Settings

Parameter Name	Value	Category
BswMLinScheduleRef[1]		C

1) BswMLinScheduleRef

Generation code example

Generation code
LinSM_ScheduleRequest(2, 1);

5.3.16 BswMNMControl Settings

Parameter Name	Value	Category
BswMNMAction[1]	BSWM_NM_DISABLE / BSWM_NM_ENABLE	C
BswMComMNetworkHandleRef[2]		

1) BswMNMAction
2) BswMComMNetworkHandleRef

Generation code example

BswMNMAction	Generation code
BSWM_NM_DISABLE	Nm_DisableCommunication(0);
BSWM_NM_ENABLE	Nm_EnableCommunication(0);

5.3.17 BswMPduGroupSwitch Settings

Parameter Name	Value	Category
BswMPduGroupSwitchReinit[1]	true / false	C
BswMDisabledPduGroupRef[2]		C
BswMEnabledPduGroupRef[3]		

1) BswMPduGroupSwitchReinit

2) BswMDisabledPduGroupRef

3) BswMEnabledPduGroupRef

Generation code example

Parameter	Generation code
When parameter BswMDisabledPduGroupRef are set	```uint8 index;
Com_IpduGroupIdType id;

for (index = (uint8)BSWM_ZERO; index <
BswM_PduGroupSwitchProperty[pgsIndex].TotalDisable;
index++)
{
  id =
BswM_PduGroupList[BswM_PduGroupSwitchProperty[pgsIndex]
.IdDisable + index];
    Com_IpduGroupStop(id);
}``` |
| When parameter BswMEnabledPduGroupRef are set | ```uint8 index;
Com_IpduGroupIdType id;

for (index = (uint8)BSWM_ZERO; index <
BswM_PduGroupSwitchProperty[pgsIndex].TotalEnable;
index++)
{
  id =
BswM_PduGroupList[BswM_PduGroupSwitchProperty[pgsIndex
].IdEnable + index];
    Com_IpduGroupStart(id,
BswM_PduGroupSwitchProperty[pgsIndex].Reinit);
}``` |

5.3.18 BswMPduRouterControl Settings

Parameter Name	Value	Category
BswMPduRouterAction[1]	BSWM_PDUR_DISABLE / BSWM_PDUR_ENABLE	C
BswMPduRouterDisableInitBuffer[2]	true / false	C
BswMPduRoutingPathGroupRef[3]		C

1) BswMPduRouterAction

2) BswMPduRouterDisableInitBuffer

3) BswMPduRoutingPathGroupRef

Generation code example

BswMPduRouterAction	Generation code
BSWM_PDUR_DISABLE	id = BswM_PduRoutingList[BswM_PduRouterControlProperty[pgsIndex].id + index]; PduR_DisableRouting(id, BswM_PduRouterControlProperty[pgsIndex].InitBuffer);
BSWM_PDUR_ENABLE	id = BswM_PduRoutingList[BswM_PduRouterControlProperty[pgsIndex].id + index]; PduR_EnableRouting(id);

5.3.19 BswMRteModeRequest Settings

Parameter Name	Value	Category
BswMRequestedModeRef[1]		C
BswMRteModeRequestPortRef[2]		C

1) BswMRequestedModeRef

2) BswMRteModeRequestPortRef

Generation code example

Generation code

Rte_Write_BswM_modeRequestPort_BswMModeControl_RequestPort0_ComMMode_FD_CAN1(
RTE_MODE_MDG_ComMMode_FULL_COM);

5.3.20 BswMRteStart Settings

Generation code

Rte_Start();

5.3.21 BswMRteStop Settings

Generation code

Rte_Stop();

5.3.22 BswMRteSwitch Settings

Parameter Name	Value	Category
BswMRteSwitchPortRef[1]		C
BswMSwitchedMode[2]		C

1) BswMRteSwitchPortRef

2) BswMSwitchedMode

Generation code example

Generation code

Rte_Switch_modeSwitchPort_ComMMode_FD_CAN1_ComMMode_FD_CAN1(RTE_MODE_MDG_
ComMMode_NO_COM);

5.3.23 BswMSchMSwitch Settings

Parameter Name	Value	Category
BswMSchMModeDeclarationGroupRef[1]		C
BswMSchMSwitchedMode[2]		C

1) BswMSchMModeDeclarationGroupRef

2) BswMSchMSwitchedMode

Generation code example

Generation code
SchM_Switch_BswM_modeSwitchPort_CurrentMode(RTE_MODE_EcuM_Mode_ECUM_STATE_APP _RUN);

5.3.24 BswMSdClientServiceModeRequest Settings

Parameter Name	Value	Category
BswMSdClientServiceState[1]	BSWM_SD_CLIENT_SERVICE_RELEASED / BSWM_SD_CLIENT_SERVICE_REQUESTED	C
BswMSdClientMethodsRef[2]		C

1) BswMSdClientServiceState

2) BswMSdClientMethodsRef

Generation code example

BswMSdClientServiceState	Generation code
BSWM_SD_CLIENT_SERVICE_RELEASED	Sd_ClientServiceSetState(0, SD_CLIENT_SERVICE_RELEASED)
BSWM_SD_CLIENT_SERVICE_REQUESTED	Sd_ClientServiceSetState(0, SD_CLIENT_SERVICE_REQUESTED)

5.3.25 BswMSdConsumedEventGroupModeRequest Settings

Parameter Name	Value	Category
BswMSdConsumedEventGroupState[1]	BSWM_SD_CONSUMED_EVENTGROUP_RELEASED / BSWM_SD_CONSUMED_EVENTGROUP_REQUESTED	C
BswMSdConsumedEventGroupRef[2]		C

1) BswMSdConsumedEventGroupState

2) BswMSdConsumedEventGroupRef

Generation code example

BswMSdConsumedEventGroupState	Generation code
BSWM_SD_CONSUMED_EVENTGROUP_RELEASED	Sd_ConsumedEventGroupSetState(0, SD_CONSUMED_EVENTGROUP_RELEASED)
BSWM_SD_CONSUMED_EVENTGROUP_REQUESTED	Sd_ConsumedEventGroupSetState(0, SD_CONSUMED_EVENTGROUP_REQUESTED)

5.3.26 BswMSdServerServiceModeRequest Settings

Parameter Name	Value	Category
BswMSdServerServiceState[1]	BSWM_SD_SERVER_SERVICE_AVAILABLE / BSWM_SD_SERVER_SERVICE_DOWN	C
BswMSdServerMethodsRef[2]		C

1) BswMSdServerServiceState

2) BswMSdServerMethodsRef

Generation code example

BswMSdServerServiceState	Generation code
BSWM_SD_SERVER_SERVICE_AVAILABLE	Sd_ServerServiceSetState(0, SD_SERVER_SERVICE_AVAILABLE)
BSWM_SD_SERVER_SERVICE_DOWN	Sd_ServerServiceSetState(0, SD_SERVER_SERVICE_DOWN)

5.3.27 BswMSwitchIPduMode Settings

Parameter Name	Value	Category
BswMSwitchIPduModeValue[1]	true / false	C
BswMSwitchIPduModeRef[2]		C

1) BswMSwitchIPduModeValue

2) BswMSwitchIPduModeRef

Generation code example

BswMSwitchIPduModeValue	Generation code
true	Com_SwitchIpduTxMode(10, 1);
false	Com_SwitchIpduTxMode(10, 0);

5.3.28 BswMTimerControl Settings

Parameter Name	Value	Category
BswMTimerAction[1]	BSWM_TIMER_START / BSWM_TIMER_STOP	C
BswMTimerValue[2]		C
BswMTimerRef[3]		C

1) BswMTimerAction

2) BswMTimerValue

   - Value must be multiple of BswMMainFunctionPeriod

3) BswMTimerRef

Generation code example

BswMSwitchIPduModeValue	Generation code
BSWM_TIMER_START	BswM_Timer[0].CurrentStatus = BSWM_TIMER_STARTED; BswM_Timer[0].TimerValue = 1;
BSWM_TIMER_STOP	BswM_Timer[0].CurrentStatus = BSWM_TIMER_STOPPED; BswM_Timer[0].TimerValue = 1;

5.3.29 BswMTriggerIPduSend Settings

Parameter Name	Value	Category
BswMTriggeredIPduRef[1]		C

1) BswMTriggeredIPduRef

Generation code example

Generation code
uint8 index; PduIdType id; for (index = (uint8)BSWM_ZERO; index < BswM_TriggerIpduSendProperty[tisIndex].Total; index++) { id = BswM_IpduList[BswM_TriggerIpduSendProperty[tisIndex].id + index];

```
    Com_TriggerIPDUSend(id);
}
```

5.3.30 BswMUserCallout Settings

Parameter Name	Value	Category
BswMUserCalloutFunction[1]		C

1) BswMUserCalloutFunction

- Set when an Action that is not predefined is needed
- All input parameters must be set
- Example: WdgM_DeInit()

5.4 BswMActionList Settings

Parameter Name	Value	Category
BswMActionListExecution[1]	BSWM_CONDITION / BSWM_TRIGGER	C

1) BswMActionListExecution

BswMActionList	CONDITION		TRIGGER	
	Previous Rule	Current Rule	Previous Rule	Current Rule
True Action List execute condition	-	TRUE	FALSE	TRUE
False Action List execute condition	-	FALSE	TRUE	FALSE

5.4.1 BswMActionListItem Settings

Parameter Name	Value	Category
BswMAbortOnFail[1]		C
BswMActionListItemIndex[2]		C
BswMReportFailRuntimeErrorId[3]		C
BswMActionListItemRef[4]		C

1) BswMAbortOnFail

- If set to True, if an Action fails, the Action list is immediately terminated.

2) BswMActionListItemIndex

- Determine the order of Action to be specified. The lower the value, the earlier it is executed.

3) BswMReportFailRuntimeErrorId

- If set, when the action fails during setting, report fail run time error ID to Det.

4) BswMActionListItemRef

- Generally, it refers to BswMAction to be executed, but BswMActionList or BswMRule is also possible.

5.5 BswMRteModeRequestPort Settings

It is set only when BswMRteModeRequest Action set and need to switch from BswM to other SWC. Refer to a SenderReceiverInterface to be used for VariantDataPrototype.

Parameter Name	Value	Category
BswMRteModeRequestPortInterfaceRef[1]		C
BswMRteModeRequestVariableDataPrototypeSRRef[2]		C

1) BswMRteModeRequestPortInterfaceRef
2) BswMRteModeRequestVariableDataPrototypeSRRef

5.6 BswMSwitchPort Settings

It is set only when mode switch from BswM to other SWC or other BSW. Refer to ModeSwitchInterface to be used for Mode Switch.

Parameter Name	Value	Category
BswMModeSwitchInterfaceRef[1]		C

1) BswMModeSwitchInterfaceRef

5.7 BswMModeRequestPort Settings

In BswM, Mode Request Port is divided into a unit that receives mode transmission from other modules. For example, when receiving mode transmission from 3 ComM Channels, each of 3 Mode Request Ports must be set. BswMModeRequestSource, a lower container of Mode Request Port, provides a predefined type.

Parameter Name	Value	Category
BswMRequestProcessing[1]	BSWM_DEFERRED / BSWM_IMMEDIATE	C

1) BswMRequestProcessing

The type of BswMModeRequestSource will be described as below.

5.7.1 BswMBswModeNotification Settings

Parameter Name	Value	Category
BswMBswModeDeclarationGroupPrototypeRef[1]		C

1) BswMBswModeDeclarationGroupPrototypeRef

   - Parameter to classify the Mode-Switch-Interface and R-Port of the received Mode

5.7.2 BswMCanSMIcomIndication Settings

Port setting to configure Rule with ActiveConfiguration delivered from CanSM module to BswM_CanSM_CurrentIcomConfiguration(Network, ActiveConfiguration, Error).

Parameter Name	Value	Category
BswMCanSMIcomIndicationSwitchError[1]	BSWM_ICOM_SWITCH_E_FAILED / BSWM_ICOM_SWITCH_E_OK	C
BswMCanSMChannelRef[2]		C

1) BswMCanSMIcomIndicationSwitchError

   - Parameter for classify Error of corresponding API

2) BswMCanSMChannelRef

   - Parameter for classify Network of corresponding API

5.7.3 BswMCanSMIndication Settings

Port setting to configure Rule with CurrentState delivered from CanSM module to

BswM_CanSM_CurrentState (Network, CurrentState)

Parameter Name	Value	Category
BswMCanSMChannelRef[1]		C

1) BswMCanSMChannelRef

- Parameter for classify Network of corresponding API

5.7.4 BswMComMIndication Settings

Port setting to configure Rule with RequestedMode delivered from ComM module to

BswM_ComM_CurrentMode(Network, RequestedMode)

Parameter Name	Value	Category
BswMComMChannelRef[1]		C

1) BswMComMChannelRef

- Parameter for classify Network of corresponding API

5.7.5 BswMComMPncRequest Settings

Port setting to configure Rule with CurrentPncMode delivered from ComM module to

BswM_ComM_CurrentPNCMode (PNC, CurrentPncMode)

Parameter Name	Value	Category
BswMComMPncRef[1]		C

1) BswMComMPncRef

- Parameter for classify PNC of corresponding API

5.7.6 BswMDcmComModeRequest Settings

Port setting to configure Rule with RequestedMode delivered from Dcm module to

BswM_Dcm_CommunicationMode_CurrentState(Network, RequestedMode)

Parameter Name	Value	Category
BswMDcmComMChannelRef[1]		C

1) BswMDcmComMChannelRef

- Parameter for classify Network of corresponding API

5.7.7 BswMEcuMIndication Settings

Port setting to configure Rule with CurrentState delivered from EcuM module to BswM_EcuM_CurrentState (CurrentState).

5.7.8 BswMEcuMRUNRequestIndication Settings

Port setting to configure Rule with CurrentState delivered from EcuM module to BswM_EcuM_RequestedState (State, CurrentStatus)

Parameter Name	Value	Category
BswMEcuMRUNRequestProtocolPort[1]	BSWM_ECUM_STATE_APP_POST_RUN / BSWM_ECUM_STATE_APP_RUN	C

1) BswMEcuMRUNRequestProtocolPort

- Parameter for classify State of corresponding API

5.7.9 BswMEcuMWakeupSource Settings

Port setting to configure Rule with state delivered from EcuM module to BswM_EcuM_CurrentWakeup(source, state)

Parameter Name	Value	Category
BswMEcuMWakeupSrcRef[1]		C

1) BswMEcuMWakeupSrcRef

- Parameter for classify source of corresponding API

5.7.10 BswMEthIfPortGroupLinkStateChg Settings

Port setting to configure Rule with PortGroupState delivered from EthIf module to

BswM_EthIf_PortGroupLinkStateChg(PortGroupIdx, PortGroupState)

Parameter Name	Value	Category
BswMEthIfSwitchPortGroupRef[1]		C

1) BswMEthIfSwitchPortGroupRef

   - Parameter for classify PortGroupIdx of corresponding API

5.7.11 BswMEthSMIndication Settings

Port setting to configure Rule with CurrentState delivered from EthSM module to

BswM_EthSM_CurrentState (Network, CurrentState)

Parameter Name	Value	Category
BswMEthSMChannelRef[1]		C

1) BswMEthSMChannelRef

   - Parameter for classify Network of corresponding API

5.7.12 BswMFrSMIndication Settings

Port setting to configure Rule with CurrentState delivered from EthSM module to

BswM_FrSM_CurrentState (Network, CurrentState)

Parameter Name	Value	Category
BswMFrSMChannelRef[1]		C

1) BswMFrSMChannelRef

   - Parameter for classify Network of corresponding API

5.7.13 BswMGenericRequest Settings

If there is no API defined by BswM, it is delivered to BswM_RequestMode(requesting_user,

requested_mode). Port setting to compose Rule with requested_mode.

Parameter Name	Value	Category
BswMModeRequesterId[1]		C

1) BswMModeRequesterId

   - Parameter for classify requesting_user of corresponding API

5.7.14 BswMJ1939DcmBroadcastStatus Settings

Port setting to configure Rule delivered from J1939Dcm module to BswM_J1939DcmBroadcastStatus (NetworkMask)

Parameter Name	Value	Category
BswMJ1939DcmChannelRef[1]		C

1) BswMJ1939DcmChannelRef

   - Parameter for classify a bit field NetworkMask of corresponding API. NetworkMask containing one bit for each available network.

5.7.15 BswMJ1939NmIndication Settings

Port setting to configure Rule with NmState delivered from J1939Nm module to BswM_J1939Nm_StateChangeNotification(Network, Node, NmState)

Parameter Name	Value	Category
BswMJ1939NmChannelRef[1]		C
BswMJ1939NmNodeRef[2]		C

1) BswMJ1939NmChannelRef

   - Parameter for classify Network of corresponding API.

2) BswMJ1939NmNodeRef

   - Parameter for classify Node of corresponding API.

5.7.16 BswMLinSMIndication Settings

Port setting to configure Rule with CurrentState delivered from LinSM module to BswM_LinSM_CurrentState (Network, CurrentState)

Parameter Name	Value	Category
BswMLinSMChannelRef[1]		C

1) BswMLinSMChannelRef

   - Parameter for classify Network of corresponding API.

5.7.17 BswMLinScheduleIndication Settings

Port setting to configure Rule delivered from LinSM module to

BswM_LinSM_CurrentSchedule(Network, CurrentSchedule)

Parameter Name	Value	Category
BswMLinScheduleRef[1]		C
BswMLinSMChannelRef[2]		C

1) BswMLinScheduleRef

   - Parameter for classify CurrentSchedule of corresponding API.

2) BswMLinSMChannelRef

   - Parameter for classify Network of corresponding API.

5.7.18 BswMLinTpModeRequest Settings

Port setting to configure Rule with LinTpRequestedMode delivered from LinTp module to

BswM_LinTp_RequestMode(Network, LinTpRequestedMode)

Parameter Name	Value	Category
BswMLinTpChannelRef[1]		C

1) BswMLinTpChannelRef

   - Parameter for classify Network of corresponding API.

5.7.19 BswMNvMJobModeIndication Settings

Port setting to configure Rule with CurrentJobMode delivered from NvM module to

BswM_NvM_CurrentJobMode(MultiBlockRequest, CurrentJobMode)

Parameter Name	Value	Category

BswMNvmService[1]	NvmCancelWriteAll / NvmFirstInitAll / NvmReadAll / NvmValidateAll / NvmWriteAll	C

1) BswMNvmService

- Parameter for classify MultiBlockRequest of corresponding API.

5.7.20 BswMNvMRequest Settings

Port setting to configure Rule with CurrentBlockMode delivered from NvM module to

BswM_NvM_CurrentBlockMode(Block, CurrentBlockMode)

Parameter Name	Value	Category
BswMNvMBlockRef[1]		C

1) BswMNvMBlockRef

- Parameter for classify Block of corresponding API.

5.7.21 BswMSdClientServiceCurrentState Settings

Port setting to configure Rule with CurrentClientState delivered from Sd module to

BswM_Sd_ClientServiceCurrentState(SdClientServiceHandleId, CurrentClientState)

Parameter Name	Value	Category
BswMSdClientMethodsRef[1]		C

1) BswMSdClientMethodsRef

- Parameter for classify SdClientServiceHandleId of corresponding API.

5.7.22 BswMSdConsumedEventGroupCurrentState Settings

Port setting to configure Rule with ConsumedEventGroupState delivered from Sd module to

BswM_Sd_ConsumedEventGroupCurrentState(SdConsumedEventGroupHandleId,

ConsumedEventGroupState)

Parameter Name	Value	Category

BswMSdConsumedEventGroupRef[1]		C

1) BswMSdConsumedEventGroupRef

- Parameter for classify SdConsumedEventGroupHandleId of corresponding API.

5.7.23 BswMSdEventHandlerCurrentState Settings

Port setting to configure Rule with EventHandlerStatus delivered from Sd module to

BswM_Sd_EventHandlerCurrentState(SdEventHandlerHandleId, EventHandlerStatus)

Parameter Name	Value	Category
BswMSdEventHandlerRef[1]		C

1) BswMSdEventHandlerRef

- Parameter for classify SdEventHandlerHandleId of corresponding API.

5.7.24 BswMSwcModeNotification Settings

Port setting to configure Rule with Mode transmitted from SWC to Rte_Switch(Mode)

Parameter Name	Value	Category
BswMSwcModeNotificationModeDeclarationGroupPrototypeRef[1]		C

1) BswMSwcModeNotificationModeDeclarationGroupPrototypeRef

- Parameter to classify the ModeSwitchInterface and R-Port of the received Mode.

5.7.25 BswMSwcModeRequest Settings

Port setting to configure Rule with Mode transmitted from SWC to Rte_Switch(Mode)

Parameter Name	Value	Category
BswMSwcModeRequestVariableDataPrototypeRef[1]		C

1) BswMSwcModeRequestVariableDataPrototypeRef

- Parameter to distinguish SenderReceiverInterface and R-Port of the received mode.

5.7.26 BswMTimer Settings

Port setting to configure Rule for timer purpose. This port can be in one of three modes (depending on the state of the timer such as BSWM_TIMER_STOPPED, BSWM_TIMER_STARTED or BSWM_TIMER_EXPIRED).

5.8 BswMModeInitValue Settings

This container defines the initial mode value that is used by BswM for the corresponding mode request after initialization.

Parameter Name	Value	Category
BswMBswModeInitValue[1]		C

1) BswMBswModeInitValue

5.9 BswMEventRequestPort Settings

In BswM, since the some kind of ports have nothing in common with mode request ports (i.e. they have no mode). This event port defines an event which can be sent to the BswM. Basic Software Modules may send these events to the BswM by calling the corresponding BswM C-API (for example: BswM_ComM_InitiateReset()). BswMEventRequestSource, a lower container of Event Request Port, provides a predefined type.

Parameter Name	Value	Category
BswMEventRequestProcessing[1]	BSWM_DEFERRED / BSWM_IMMEDIATE	C

1) BswMEventRequestProcessing

The type of BswMEventRequestSource will be described as below.

5.9.1 BswMComMInitiateReset Settings

Port setting to configure Rule when calling BswM_ComM_InitiateReset() from ComM module to signal a shutdown.

5.9.2 BswMDcmApplicationUpdatedIndication Settings

Port setting for configure Rule when calling BswM_Dcm_ApplicationUpdated() from Dcm to update application data.

5.9.3 BswMModeSwitchErrorEvent Settings

This container is not available.

5.9.4 BswMNmCarWakeUpIndication Settings

Port setting to configure Rule when calling BswM_Nm_CarWakeUpIndication(Network) from Nm module.

Parameter Name	Value	Category
BswMNmChannelRef[1]		C

1) BswMNmChannelRef

- Parameter for classify Network of corresponding API.

5.9.5 BswMPartitionRestarted Settings

Port setting for configure Rule when calling BswM_BswMPartitionRestarted() from Restart Task.

5.9.6 BswMPartitionRestarted Settings

Port setting for configure Rule when calling BswM_WdgM_RequestPartitionReset(Application) from WdgM request a partition reset.

Parameter Name	Value	Category
BswMWdgMRequestPartitionResetRef[1]		C

1) BswMWdgMRequestPartitionResetRef

- Parameter for classify Application of corresponding API.

5.10 BswMModeCondition Settings

Set a unit condition of conditional statement (if statement) in Rule. For example, it means condition A **AND** condition B to create a conditional statement that is if(A **&&** B).

Parameter Name	Value	Category
BswMConditionType[1]	BSWM_EQUALS / BSWM_EQUALS_NOT / BSWM_EVENT_IS_CLEARED / BSWM_EVENT_IS_SET	C

1) BswMConditionType

- Set the comparison operator of the unit condition
- == / != / BSWM_EVENT_IS_CLEARED / BSWM_EVENT_IS_SET

2) BswMConditionMode

- Refer to the previously set BswMModeRequestPort or BswMEventRequestPort.
- If refer to BswMModeRequestPort, BswMConditionType must be set to BSWM_EQUALS or BSWM_EQUALS_NOT
- If refer to BswMEventRequestPort, BswMConditionType must be set to BSWM_EVENT_IS_CLEARED or BSWM_EVENT_IS_SET

5.11 BswMConditionValue Settings

When BswMConditionMode container refer to BswMModeRequestPort, this container must be set.

5.12 BswMBswMode Settings

Set the value and type of a mode in the BSW.

Parameter Name	Value	Category
BswMBswRequestedMode[1]		C

1) BswMBswRequestedMode

- Set the value to be compared.

5.13 BswMCompuScaleModeValue Settings

Set the value and type of a mode in the BSW.

Parameter Name	Value	Category
BswMCompuConstText[1]		C
BswMCompuMethodRef[2]		C

1) BswMCompuConstText

  - Set the value of a mode which shall match the VT member of a CompuConst defined within the referenced CompuMethod in BswMCompuMethodRef value reference.

2) BswMCompuMethodRef

  - Set to verifying BswMCompuConstText.

5.14 BswMMModeDeclaration Settings

Set the value and type of a mode in the BSW.

Parameter Name	Value	Category
BswMMModeValueRef[1]		C

1) BswMMModeValueRef

  - Value reference to get the mode switch from RTE.

5.15 BswMLogicalExpression Settings

Complete the conditional statement (if statement) in the Rule. For example, to create a conditional statement that is if(A && B), condition A and condition B are connected.

Parameter Name	Value	Category
BswMLogicalOperator[1]	BSWM_AND / BSWM_NAND / BSWM_NOT / BSWM_OR / BSWM_XOR	C
BswMArgumentRef[2]		C

1) BswMLogicalOperator

  - Set the operator to connect conditional statements.

2) BswMArgumentRef

  - Refer to the Mode Conditions to be connected.

5.16 BswMRule Settings

Complete a Rule function by setting the Action List to be executed when the conditional statement is satisfied or not satisfied.

Parameter Name	Value	Category
BswMNestedExecutionOnly[1]	true / false	C
BswMRuleInitState[2]	BSWM_FALSE / BSWM_TRUE / BSWM_UNDEFINED	C
BswMRuleExpressionRef[3]		C
BswMRuleFalseActionList[4]		C
BswMRuleTrueActionList[5]		C

1) BswMNestedExecutionOnly

  - If true, the rule is not executed and only the state is updated.

2) BswMRuleInitState

  - When executing the Rule function for the first time, it sets the initial value for the previous condition result value.

3) BswMRuleExpressionRef

  - Refer to the conditional statement Logical Expression.

4) BswMRuleFalseActionList

  - Set the Action List to be executed when the conditional statement is not satisfied.

  - Reference destination may be Action List

5) BswMRuleTrueActionList

  - Set the Action List to be executed when the conditional statement is satisfied.

  - Reference destination may be Action List

5.17 BswMConfig Settings

The configuration set of BswM. This config existes only once per partition.

Parameter Name	Value	Category
BswMPartitionRef[1]		C
BswMOsTaskRef[2]		C
BswMOsEventRef[3]		C

1) BswMPartitionRef

   - The partition which is BswM shall run inside.

2) BswMOsTaskRef

   - The Os Task that the BswM dequeue processing shall run inside.

3) BswMEventRef

   - The Os Event that triggers the BswM dequeue processing.

5.18 PostBuild Settings

Change Mode to PostBuild:

- Implementation Config Variant set to <VARIANT_POST_BUILD/ VARIANT_POST_BUILD _SELECTABLE>

- Post Build Variant Used set to <True>

- Apply variant:

- Example:

Ⓢ InputFilesList -- BswM [/AUTRON/SCons/RTSW/Generation/BswM] (/rtu_tc38x_r44-22.07.1/Build/SCons.arxml)

Value

Filte

Values

- Ⓢ Ecud_Com
- Ⓢ Ecud_ComM
- Ⓢ Ecud_Crc
- Ⓢ Ecud_EcuC
- Ⓢ Ecud_EcuM
- Ⓢ Ecud_LinSM
- Ⓢ Ecud_NvM
- Ⓢ Ecud_Os
- Ⓢ Ecud_Rte
- Ⓢ MODE_PortInterfaces
- Ⓢ SafeRTE_PDF
- Ⓢ Swcd_Bsw_BswM
- Ⓢ AUTOSAR_DataTypes
- Ⓢ ECUConfigurationParameters
- Ⓢ PostBuildVariants

[Add] [Remove] [Up] [Down]

Postbuild Manager

[Add] [Remove]

Variant Value	Variant URI	Modules	Clusters
FRONT_LEFT (0)	/AUTRON/PostBuildSelectable/PostBuildCriterionValueSet_FL/@postB...	CanCM, CanTp, CanNm, Can, CanTrcv, CanIf, Com, PduR, Xcp, EcuC, Dcm, J1939Tp, J1939Dcm, J1939Nm, J1939Rm, Nm, ComM, ComXf, CanSM, OsekNm, IpduM, CDD_RouterIF, CDD_RouterTP, BswM	HSFC(Common), FDP1(Commo
FRONT_RIGHT (1)	/AUTRON/PostBuildSelectable/PostBuildCriterionValueSet_FR/@postB...	CanCM, CanTp, CanNm, CanTrcv, CanIf, Com, PduR, Xcp, Can, EcuC, Dcm, J1939Tp, J1939Dcm, J1939Nm, J1939Rm, Nm, ComM, ComXf, E2EXf, CanSM, OsekNm, IpduM, CDD_RouterIF, CDD_RouterTP, BswM	HSFC(Common), FDP1(Commo

Select an active variant: FRONT_LEFT 0) [/AUTRON/PostBuildSelectable/PostBuildCriterionValueSet_FL/@postBuildVariantCriterionValues.0 - /rtu02_tc36x_r44_Rte_PB/Configuration/PostBuildManager/PostBuildVariants.arxml]

[OK] [Cancel]

☐ BswM ✕

☐ **Overview**

General Information

Configuration of the BswM (Basic SW Mode Manager) module.

Short Name*:	☐	BswM	[Edit]
Definition:	☐	BswM [/AUTRON/BswM]	[...] [+]
Ecuc Def Edition:	▤		
Implementation Config Variant:	▤	VARIANT-POST-BUILD-SELECTABLE ▾	
Module Description:	◆	BswImplementation_BswM [/AUTOSAR_BswM/BswImpleme	[...] [+]
Post Build Variant Used:	▤	☑ true	
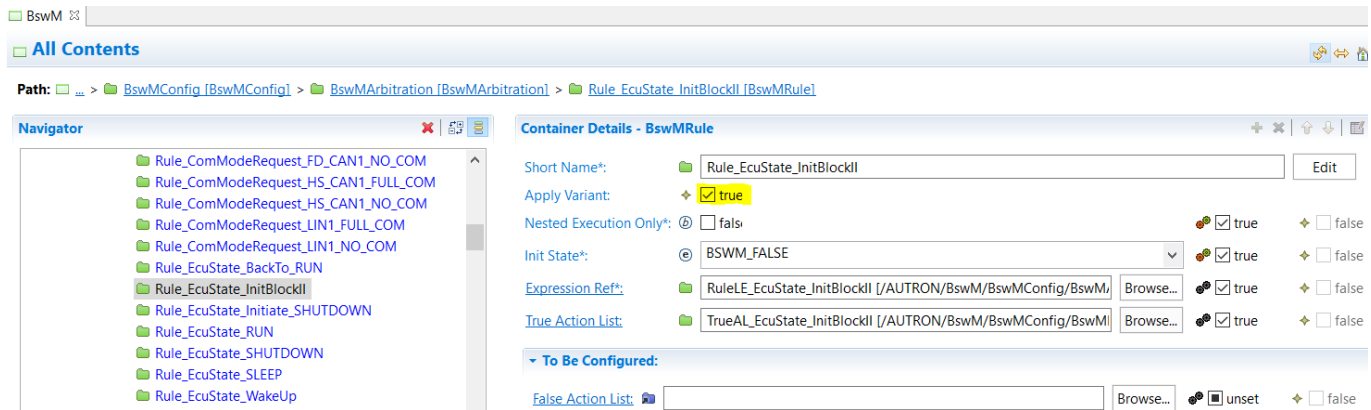
6 Application Programming Interface (API)

6.1 Type Definitions

6.1.1 BswM_ConfigType

Name:	BswM_ConfigType	
Type:	Structure	
Range:	-	The contents of this structure depends on the configuration
Description:	This structure contains all post-build configurable parameters of the BSW Mode Manager. A pointer to this structure is passed to the BSW Mode Manager initialization function for configuration.	
Available via:	BswM.h	

6.1.2 BswM_ModeType

Name:	BswM_ModeType		
Type:	uint16		
Range:	0-65535	--	The range of valid IDs depends on configuration and on the chosen platform type.
Description:	This type identifies the modes that can be requested by BswM Users.		

Available via:	BswM.h

6.1.3 BswM_UserType

Name:	BswM_UserType		
Type:	uint16		
Range:	0-65535	--	The range of valid IDs depends on configuration and on the chosen platform type.
Description:	This type identifies a BswM User that makes mode requests to the BswM.		
Available via:	BswM.h		

6.2 Macro Constants

None

6.3 Functions

6.3.1 BswM_BswMPartitionRestarted

Function Name	BswM_BswMPartitionRestarted
Syntax:	FUNC(void, BSWM_CODE) BswM_BswMPartitionRestarted(void)
Service ID [Hex]	0x1e
Sync/Async	Synchronous
Reentrancy	Reentrant
Parameters (In)	None
Parameters (Inout)	None
Parameters (Out)	None
Return Value	None
Description	Function called by Restart Task if the partition containing the BswM has been restarted.
Preconditions	BSWM_PARTITION_RESTARTED_ENABLED should be configured as 'TRUE'
Configuration	None

Dependency	
In Communication with application SW-C	None
Available via	BswM.h

6.3.2 BswM_CanSM_CurrentIcomConfiguration

Function Name	BswM_CanSM_CurrentIcomConfiguration	
Syntax:	FUNC(void, BSWM_CODE) BswM_CanSM_CurrentIcomConfiguration (NetworkHandleType Network, IcomConfigIdType ActiveConfiguration, IcomSwitch_ErrorType Error)	
Service ID [Hex]	0x1a	
Sync/Async	Synchronous	
Reentrancy	Reentrant	
Parameters (In)	Network	The CAN channel the requested state corresponds to.
	ActiveConfiguration	The configuration Id of the Icom configuration.
	Error	ICOM_SWITCH_E_OK: No Error ICOM_SWITCH_E_FAILED: Switch to requested Configuration failed. Severe Error.
Parameters (Inout)	None	
Parameters (Out)	None	
Return Value	None	
Description	Function to inform BswM about the switch of Icom Configuration.	
Preconditions	BSWM_CANSM_ICOM_ENABLED should be configured as 'TRUE'	
Configuration Dependency	This API is available only if configuration parameter BswMCanSMIcomEnabled is set to true.	
In Communication with application SW-C	None	
Available via	BswM_CanSM.h	

6.3.3 BswM_CanSM_CurrentState

Function Name	BswM_CanSM_CurrentState	
Syntax:	FUNC(void, BSWM_CODE) BswM_CanSM_CurrentState (NetworkHandleType Network, CanSM_BswMCurrentStateType CurrentState)	
Service ID [Hex]	0x05	
Sync/Async	Synchronous	
Reentrancy	Reentrant	
Parameters (In)	Network	The CAN channel that the indicated state corresponds to.
	CurrentState	The current state of the CAN channel.
Parameters (Inout)	None	
Parameters (Out)	None	
Return Value	None	
Description	Function called by CanSM to indicate its current state.	
Preconditions	BSWM_CANSM_ENABLED should be configured as 'TRUE'	
Configuration Dependency	This API is available only if configuration parameter BswMCanSMEnabled is set to true.	
In Communication with application SW-C	None	
Available via	BswM_CanSM.h	

6.3.4 BswM_ComM_CurrentMode

Function Name	BswM_ComM_CurrentMode	
Syntax:	FUNC(void, BSWM_CODE) BswM_ComM_CurrentMode (NetworkHandleType Network, ComM_ModeType RequestedMode)	
Service ID [Hex]	0x0e	
Sync/Async	Synchronous	
Reentrancy	Reentrant	
Parameters (In)	Network	The ComM communication channel that the indicated state corresponds to.
	RequestedMode	The current state of the ComM communication channel
Parameters (Inout)	None	
Parameters (Out)	None	
Return Value	None	

Description	Function called by ComM to indicate the current communication mode of a ComM channel.
Preconditions	BSWM_COMM_ENABLED should be configured as 'TRUE'
Configuration Dependency	This API is available only if configuration parameter BswMComMEnabled is set to true.
In Communication with application SW-C	None
Available via	BswM_ComM.h

6.3.5 BswM_ComM_CurrentPNCMode

Function Name	BswM_ComM_CurrentPNCMode	
Syntax:	FUNC(void, BSWM_CODE) BswM_ComM_CurrentPNCMode (PNCHandleType PNC, ComM_PncModeType CurrentPncMode)	
Service ID [Hex]	0x15	
Sync/Async	Synchronous	
Reentrancy	Reentrant	
Parameters (In)	PNC	The handle of the PNC for which the current state is reported.
	CurrentPncMode	The current mode of the PNC.
Parameters (Inout)	None	
Parameters (Out)	None	
Return Value	None	
Description	Function called by ComM to indicate the current mode of the PNC.	
Preconditions	BSWM_COMM_ENABLED should be configured as 'TRUE'	
Configuration Dependency	This API is available only if configuration parameter BswMComMEnabled is set to true.	
In Communication with application SW-C	None	
Available via	BswM_ComM.h	

6.3.6 BswM_ComM_InitiateReset

Function Name	BswM_ComM_InitiateReset
Syntax:	FUNC(void, BSWM_CODE) BswM_ComM_InitiateReset(void)

Service ID [Hex]	0x22
Sync/Async	Synchronous
Reentrancy	Reentrant
Parameters (In)	None
Parameters (Inout)	None
Parameters (Out)	None
Return Value	None
Description	Function called by ComM to signal a shutdown.
Preconditions	BSWM_COMM_ENABLED should be configured as 'TRUE'
Configuration Dependency	This API is available only if configuration parameter BswMComMEnabled is set to true.
In Communication with application SW-C	None
Available via	BswM_ComM.h

6.3.7 BswM_Dcm_ApplicationUpdated

Function Name	BswM_Dcm_ApplicationUpdated
Syntax:	FUNC(void, BSWM_CODE) BswM_Dcm_ApplicationUpdated(void)
Service ID [Hex]	0x14
Sync/Async	Synchronous
Reentrancy	Reentrant
Parameters (In)	None
Parameters (Inout)	None
Parameters (Out)	None
Return Value	None
Description	This function is called by the DCM in order to report an updated application.
Preconditions	BSWM_DCM_ENABLED should be configured as 'TRUE'
Configuration Dependency	This API is available only if configuration parameter BswMDcmEnabled is set to true.
In Communication with application SW-C	None
Available via	BswM_Dcm.h

6.3.8 BswM_Dcm_CommunicationMode_CurrentState

Function Name	BswM_Dcm_CommunicationMode_CurrentState

Syntax:	FUNC(void, BSWM_CODE) BswM_Dcm_CommunicationMode_CurrentState (NetworkHandleType Network, Dcm_CommunicationModeType RequestedMode)	
Service ID [Hex]	0x06	
Sync/Async	Synchronous	
Reentrancy	Reentrant	
Parameters (In)	Network	The communication channel that the diagnostic mode corresponds to.
	RequestedMode	The requested diagnostic communication mode.
Parameters (Inout)	None	
Parameters (Out)	None	
Return Value	None	
Description	Function called by DCM to inform the BswM about the current state of the communication mode.	
Preconditions	BSWM_DCM_ENABLED should be configured as 'TRUE'	
Configuration Dependency	This API is available only if configuration parameter BswMDcmEnabled is set to true.	
In Communication with application SW-C	None	
Available via	BswM_Dcm.h	

6.3.9 BswM_Deinit

Function Name	BswM_Deinit
Syntax:	FUNC(void, BSWM_CODE) BswM_Deinit(void)
Service ID [Hex]	0x04
Sync/Async	Synchronous
Reentrancy	Non Reentrant
Parameters (In)	None
Parameters (Inout)	None
Parameters (Out)	None

Return Value	None
Description	Deinitializes the BSW Mode Manager.
Preconditions	None
Configuration Dependency	None
In Communication with application SW-C	None
Available via	BswM_Dcm.h

6.3.10 BswM_EcuM_CurrentState

Function Name	BswM_EcuM_CurrentState	
Syntax:	FUNC(void, BSWM_CODE) BswM_EcuM_CurrentState (EcuM_StateType CurrentState)	
Service ID [Hex]	0x0f	
Sync/Async	Synchronous	
Reentrancy	Reentrant	
Parameters (In)	Network	The communication channel that the diagnostic mode corresponds to.
Parameters (Inout)	None	
Parameters (Out)	None	
Return Value	None	
Description	Function called by EcuM to indicate the current ECU Operation Mode.	
Preconditions	BSWM_ECUM_ENABLED should be configured as 'TRUE'	
Configuration Dependency	This API is available only if configuration parameter BswMEcuMEnabled is set to true.	
In Communication with application SW-C	None	
Available via	BswM_EcuM.h	

6.3.11 BswM_EcuM_CurrentWakeup

Function Name	BswM_EcuM_CurrentWakeup	
Syntax:	FUNC(void, BSWM_CODE) BswM_EcuM_CurrentWakeup (EcuM_WakeupSourceType source, EcuM_WakeupStatusType State)	
Service ID [Hex]	0x10	
Sync/Async	Synchronous	
Reentrancy	Reentrant	
Parameters (In)	source	Wakeup source(s) that changed state.
	state	The new state of the wakeup source(s)
Parameters (Inout)	None	
Parameters (Out)	None	
Return Value	None	
Description	Function called by EcuM to indicate the current state of a wakeup source.	
Preconditions	BSWM_ECUM_ENABLED should be configured as 'TRUE'	
Configuration Dependency	This API is available only if configuration parameter BswMEcuMEnabled is set to true.	
In Communication with application SW-C	None	
Available via	BswM_EcuM.h	

6.3.12 BswM_EcuM_RequestedState

Function Name	BswM_EcuM_RequestedState	
Syntax:	FUNC(void, BSWM_CODE) BswM_EcuM_RequestedState (EcuM_StateType State, EcuM_RunStatusType CurrentStatus)	
Service ID [Hex]	0x23	
Sync/Async	Synchronous	
Reentrancy	Reentrant	
Parameters (In)	State	The requested state by EcuMFlex.
	CurrentStatus	Result of the Run Request Protocol.
Parameters (Inout)	None	

Parameters (Out)	None
Return Value	None
Description	Function called by EcuM to notify about current Status of the Run Request Protocol.
Preconditions	BSWM_ECUM_ENABLED should be configured as 'TRUE'
Configuration Dependency	This API is available only if configuration parameter BswMEcuMEnabled is set to true.
In Communication with application SW-C	None
Available via	BswM_EcuM.h

6.3.13 BswM_EthIf_PortGroupLinkStateChg

Function Name	BswM_EthIf_PortGroupLinkStateChg	
Syntax:	FUNC(void, BSWM_CODE) BswM_EthIf_PortGroupLinkStateChg (EthIf_SwitchPortGroupIdxType PortGroupIdx, EthTrcv_LinkStateType PortGroupState)	
Service ID [Hex]	0x26	
Sync/Async	Synchronous	
Reentrancy	Reentrant	
Parameters (In)	PortGroupIdx	The port group index in the context of the Ethernet Interface
	PortGroupState	The state of the port group. State is derived from the physical link of the Ethernet Transceiver: ETHTRCV_LINK_STATE_DOWN == Port group has link down. ETHTRCV_LINK_STATE_ACTIVE == Port group has link up.
Parameters (Inout)	None	
Parameters (Out)	None	
Return Value	None	

Description	Function called by EthIf to indicate the link state change of a certain Ethernet switch port group.
Preconditions	BSWM_ETHIF_ENABLED should be configured as 'TRUE'
Configuration Dependency	This API is available only if configuration parameter BswMEthIfEnabled is set to true.
In Communication with application SW-C	None
Available via	BswM_EthIf.h

6.3.14 BswM_EthSM_CurrentState

Function Name	BswM_EthSM_CurrentState	
Syntax:	FUNC(void, BSWM_CODE) BswM_EthSM_CurrentState (NetworkHandleType Network, EthSM_NetworkModeStateType CurrentState)	
Service ID [Hex]	0x0d	
Sync/Async	Synchronous	
Reentrancy	Reentrant	
Parameters (In)	Network	The Ethernet channel that the indicated state corresponds to.
	CurrentState	The current state of the Ethernet channel.
Parameters (Inout)	None	
Parameters (Out)	None	
Return Value	None	
Description	Function called by EthSM to indicate its current state.	
Preconditions	BSWM_ETHSM_ENABLED should be configured as 'TRUE'	
Configuration Dependency	This API is available only if configuration parameter BswMEthSMEnabled is set to true.	
In Communication with application SW-C	None	
Available via	BswM_EthSM.h	

6.3.15 BswM_FrSM_CurrentState

Function Name	BswM_FrSM_CurrentState	
Syntax:	FUNC(void, BSWM_CODE) BswM_FrSM_CurrentState (NetworkHandleType Network, FrSM_BswM_StateType CurrentState)	
Service ID [Hex]	0x0c	
Sync/Async	Synchronous	
Reentrancy	Reentrant	
Parameters (In)	Network	The FlexRay cluster that the indicated state corresponds to.
	CurrentState	The corrent state of the FlexRay cluster.
Parameters (Inout)	None	
Parameters (Out)	None	
Return Value	None	
Description	Function called by FrSM to indicate its current state.	
Preconditions	BSWM_FRSM_ENABLED should be configured as 'TRUE'	
Configuration Dependency	This API is available only if configuration parameter BswMFrSMEnabled is set to true.	
In Communication with application SW-C	None	
Available via	BswM_FrSM.h	

6.3.16 BswM_GetVersionInfo

Function Name	BswM_GetVersionInfo	
Syntax:	FUNC(void, BSWM_CODE) BswM_GetVersionInfo (P2VAR(Std_VersionInfoType, AUTOMATIC, BSWM_APPL_DATA) VersionInfo)	
Service ID [Hex]	0x01	
Sync/Async	Synchronous	
Reentrancy	Reentrant	
Parameters (In)	VersionInfo	Pointer to where to store the version information of the module.

Parameters (Inout)	None
Parameters (Out)	None
Return Value	None
Description	Returns the version information of this module.
Preconditions	BSWM_VERSION_INFO_API should be configured as 'TRUE'
Configuration Dependency	This API is available only if configuration parameter BswMVersionInfoApi is set to true
In Communication with application SW-C	Rte_Call_<P>_GetVersionInfo(Std_VersionInfoType* versioninfo) <P> : R-Port Name
Available via	BswM_FrSM.h

6.3.17 BswM_Init

Function Name	BswM_Init	
Syntax:	FUNC(void, BSWM_CODE) BswM_Init (P2CONST(BswM_ConfigType, AUTOMATIC, BSWM_APPL_CONST) ConfigPtr)	
Service ID [Hex]	0x00	
Sync/Async	Synchronous	
Reentrancy	Non Reentrant	
Parameters (In)	ConfigPtr	Pointer to post-build configuration data
Parameters (Inout)	None	
Parameters (Out)	None	
Return Value	None	
Description	Initializes the BSW Mode Manager.	
Preconditions	BSWM_VERSION_INFO_API should be configured as 'TRUE'	
Configuration Dependency	None	
In Communication with application SW-C	None	
Available via	BswM.h	

6.3.18 BswM_J1939DcmBroadcastStatus

Function Name	BswM_J1939DcmBroadcastStatus	
Syntax:	FUNC(void, BSWM_CODE) BswM_J1939DcmBroadcastStatus (uint16 NetworkMask)	
Service ID [Hex]	0x1B	
Sync/Async	Synchronous	
Reentrancy	Reentrant	
Parameters (In)	NetworkMask	Mask containing one bit for each available network. The bit position within this mask corresponds to the ComMChannel.ComMChannelId for the communication channel (so ComMChannelID 0 is represented by bit 0). The meaning for each bit is: 1: Network enabled, 0: Network disabled. Note: only the first 16 communication channel IDs can be supported by this API.
Parameters (Inout)	None	
Parameters (Out)	None	
Return Value	None	
Description	This API tells the BswM the desired communication status of the available networks. The status will typically be activated via COM I-PDU group switches.	
Preconditions	BSWM_J1939DCM_ENABLED should be configured as 'TRUE'	
Configuration Dependency	This API is available only if configuration parameter BswMJ1939DcmEnabled is set to true.	
In Communication with application SW-C	None	
Available via	BswM_J1939Dcm.h	

6.3.19 BswM_J1939Nm_StateChangeNotification

Function Name	BswM_J1939Nm_StateChangeNotification
Syntax:	FUNC(void, BSWM_CODE) BswM_J1939Nm_StateChangeNotification

	(NetworkHandleType Network, uint8 Node, Nm_StateType NmState)	
Service ID [Hex]	0x18	
Sync/Async	Synchronous	
Reentrancy	Reentrant	
Parameters (In)	Network	Identification of the J1939 channel
	Node	Identification of the J1939 node
	NmState	Current (new) state of the J1939 node
Parameters (Inout)	None	
Parameters (Out)	None	
Return Value	None	
Description	Notification of current J1939Nm state after state changes.	
Preconditions	BSWM_J1939NM_ENABLED should be configured as 'TRUE'	
Configuration Dependency	This API is available only if configuration parameter BswMJ1939NmEnabled is set to true.	
In Communication with application SW-C	None	
Available via	BswM_J1939Nm.h	

6.3.20 BswM_LinSM_CurrentSchedule

Function Name	BswM_LinSM_CurrentSchedule	
Syntax:	FUNC(void, BSWM_CODE) BswM_LinSM_CurrentSchedule (NetworkHandleType Network, LinIf_SchHandleType CurrentSchedule)	
Service ID [Hex]	0x0a	
Sync/Async	Synchronous	
Reentrancy	Reentrant	
Parameters (In)	Network	The LIN channel that the schedule table switch have occurred on.
	CurrentSchedule	The currently active schedule table of the LIN channel.
Parameters (Inout)	None	
Parameters (Out)	None	

Return Value	None
Description	Function called by LinSM to indicate the currently active schedule table for a specific LIN channel.
Preconditions	BSWM_LINSM_ENABLED should be configured as 'TRUE'
Configuration Dependency	This API is available only if configuration parameter BswMLinSMEnabled is set to true.
In Communication with application SW-C	None
Available via	BswM_LinSM.h

6.3.21 BswM_LinSM_CurrentState

Function Name	BswM_LinSM_CurrentState	
Syntax:	FUNC(void, BSWM_CODE) BswM_LinSM_CurrentSchedule (NetworkHandleType Network, LinIf_SchHandleType CurrentSchedule)	
Service ID [Hex]	0x09	
Sync/Async	Synchronous	
Reentrancy	Reentrant	
Parameters (In)	Network	The LIN channel that the indicated state corresponds to.
	CurrentState	The current state of the LIN channel.
Parameters (Inout)	None	
Parameters (Out)	None	
Return Value	None	
Description	Function called by LinSM to indicate its current state.	
Preconditions	BSWM_LINSM_ENABLED should be configured as 'TRUE'	
Configuration Dependency	This API is available only if configuration parameter BswMLinSMEnabled is set to true.	
In Communication with application SW-C	None	
Available via	BswM_LinSM.h	

Parameters (Inout)	None
Parameters (Out)	None
Return Value	None
Description	Function called by Nm to indicate a CarWakeup.
Preconditions	BSWM_NM_ENABLED should be configured as 'TRUE'
Configuration Dependency	This API is available only if configuration parameter BswMNmEnabled is set to true.
In Communication with application SW-C	None
Available via	BswM_Nm.h

6.3.24 BswM_NvM_CurrentBlockMode

Function Name	BswM_NvM_CurrentBlockMode	
Syntax:	FUNC(void, BSWM_CODE) BswM_NvM_CurrentBlockMode (NvM_BlockIdType Block, NvM_RequestResultType CurrentBlockMode)	
Service ID [Hex]	0x16	
Sync/Async	Synchronous	
Reentrancy	Reentrant	
Parameters (In)	Block	The Block that the new NvM Mode corresponds to.
	CurrentBlockMode	The current block mode of the NvM block.
Parameters (Inout)	None	
Parameters (Out)	None	
Return Value	None	
Description	Function called by NvM to indicate the current block mode of an NvM block.	
Preconditions	BSWM_NVM_ENABLED should be configured as 'TRUE'	
Configuration Dependency	This API is available only if configuration parameter BswMNvMEnabled is set to true.	
In Communication with application SW-C	None	

Available via	BswM_NvM.h

6.3.25 BswM_NvM_CurrentJobMode

Function Name	BswM_NvM_CurrentJobMode	
Syntax:	FUNC(void, BSWM_CODE) BswM_NvM_CurrentJobMode (NvM_MultiBlockRequestType MultiBlockRequest, NvM_RequestResultType CurrentJobMode)	
Service ID [Hex]	0x17	
Sync/Async	Synchronous	
Reentrancy	Reentrant	
Parameters (In)	MultiBlockRequest	Indicates which multi block service this callback refers to.
	CurrentJobMode	Current state of the multi block job indicated by parameter MultiBlockRequest
Parameters (Inout)	None	
Parameters (Out)	None	
Return Value	None	
Description	Function called by NvM to inform the BswM about the current state of a multi block job.	
Preconditions	BSWM_NVM_ENABLED should be configured as 'TRUE'	
Configuration Dependency	This API is available only if configuration parameter BswMNvMEnabled is set to true.	
In Communication with application SW-C	None	
Available via	BswM_NvM.h	

6.3.26 BswM_RequestMode

Function Name	BswM_RequestMode	
Syntax:	FUNC(void, BSWM_CODE) BswM_RequestMode (BswM_UserType requesting_user, BswM_ModeType requested_mode)	
Service ID [Hex]	0x02	
Sync/Async	Synchronous	
Reentrancy	Reentrant	
Parameters (In)	requesting_user	The user that requests the mode

	requested_mode	The requested mode.
Parameters (Inout)	None	
Parameters (Out)	None	
Return Value	None	
Description	Generic function call to request modes. This function shall only be used by other BSW modules that does not have a specific mode request interface.	
Preconditions	BSWM_GENERIC_REQUEST_ENABLED should be configured as 'TRUE'	
Configuration Dependency	This API is available only if configuration parameter BswMGenericRequestEnabled is set to true.	
In Communication with application SW-C	None	
Available via	BswM.h	

6.3.27 BswM_Sd_ClientServiceCurrentState

Function Name	BswM_Sd_ClientServiceCurrentState	
Syntax:	FUNC(void, BSWM_CODE) BswM_Sd_ClientServiceCurrentState (uint16 SdClientServiceHandleId, Sd_ClientServiceCurrentStateType CurrentClientState)	
Service ID [Hex]	0x1f	
Sync/Async	Synchronous	
Reentrancy	Reentrant	
Parameters (In)	SdClientServiceHandleId	HandleId to identify the ClientService
	CurrentClientState	Current state of the ClientService
Parameters (Inout)	None	
Parameters (Out)	None	
Return Value	None	
Description	Function called by Service Discovery to indicate current state of the Client Service (available/down).	
Preconditions	BSWM_SD_ENABLED should be configured as 'TRUE'	
Configuration Dependency	This API is available only if configuration parameter BswMSdEnabled is set to true.	
In Communication with	None	

application SW-C	
Available via	BswM_Sd.h

6.3.28 BswM_Sd_ConsumedEventGroupCurrentState

Function Name	BswM_Sd_ConsumedEventGroupCurrentState	
Syntax:	FUNC(void, BSWM_CODE) BswM_Sd_ConsumedEventGroupCurrentState (uint16 SdConsumedEventGroupHandleId, Sd_ConsumedEventGroupCurrentStateType ConsumedEventGroupState)	
Service ID [Hex]	0x21	
Sync/Async	Synchronous	
Reentrancy	Reentrant	
Parameters (In)	SdConsumedEventGroupHandleId	HandleId to identify the Consumed Eventgroup
	ConsumedEventGroupState	Status of the Consumed Eventgroup
Parameters (Inout)	None	
Parameters (Out)	None	
Return Value	None	
Description	Function called by Service Discovery to indicate current status of the Consumed Eventgroup (available/down).	
Preconditions	BSWM_SD_ENABLED should be configured as 'TRUE'	
Configuration Dependency	This API is available only if configuration parameter BswMSdEnabled is set to true.	
In Communication with application SW-C	None	
Available via	BswM_Sd.h	

6.3.29 BswM_Sd_EventHandlerCurrentState

Function Name	BswM_Sd_EventHandlerCurrentState
Syntax:	FUNC(void, BSWM_CODE) BswM_Sd_EventHandlerCurrentState (uint16 SdEventHandlerHandleId, Sd_EventHandlerCurrentStateType EventHandlerStatus)
Service ID [Hex]	0x20
Sync/Async	Synchronous

Reentrancy	Reentrant	
Parameters (In)	SdEventHandlerHandleId	HandleId to identify the EventHandler
	EventHandlerStatus	Status of the EventHandler
Parameters (Inout)	None	
Parameters (Out)	None	
Return Value	None	
Description	Function called by Service Discovery to indicate current status of the EventHandler (requested/released).	
Preconditions	BSWM_SD_ENABLED should be configured as 'TRUE'	
Configuration Dependency	This API is available only if configuration parameter BswMSdEnabled is set to true.	
In Communication with application SW-C	None	
Available via	BswM_Sd.h	

6.3.30 BswM_MainFunction

Function Name	BswM_MainFunction
Syntax:	FUNC(void, BSWM_CODE) BswM_MainFunction(void)
Service ID [Hex]	0x03
Sync/Async	Synchronous
Reentrancy	Non Reentrant
Parameters (In)	None
Parameters (Inout)	None
Parameters (Out)	None
Return Value	None
Description	Main function of the BswM
Preconditions	Startup Two must be completed.
Configuration Dependency	None
In Communication with	None

application SW-C	
Available via	SchM_BswM.h

6.3.31 BswM_InitializeRulePreviousResult

Function Name	BswM_InitializeRulePreviousResult
Syntax:	FUNC(void, BSWM_CODE) BswM_InitializeRulePreviousResult (BswM_RuleIdType RuleId)
Service ID [Hex]	None
Sync/Async	Synchronous
Reentrancy	Non Reentrant
Parameters (In)	None
Parameters (Inout)	None
Parameters (Out)	None
Return Value	None
Description	This Service Initializes the previous rule evaluation result with configured init value.
Preconditions	The Bsw Mode manager must be initialized.
Configuration Dependency	None
In Communication with application SW-C	None
Available via	SchM_BswM.h

7 Generator

7.1 Generator Option

Options	Description
-G,--Generation	Symbolic parameters to be used for fore generation (skip validation).
-H,--Help	Display this help message.
-I,--Input <I>	ECU description file path of the module for which generation tool need to run.
-L,--Log	Symbolic parameters to be used for generation error log.
-M,--Module <M>	Specify module name and version to be generated code for.

-O,--Output <O>	Project-relative path to location where the generated code is to be placed.
-T,--Top_path <T>	Symbolic parameters to be used for set path of module.
-V,--Validate	Symbolic parameters to be used for invoking validation checks.

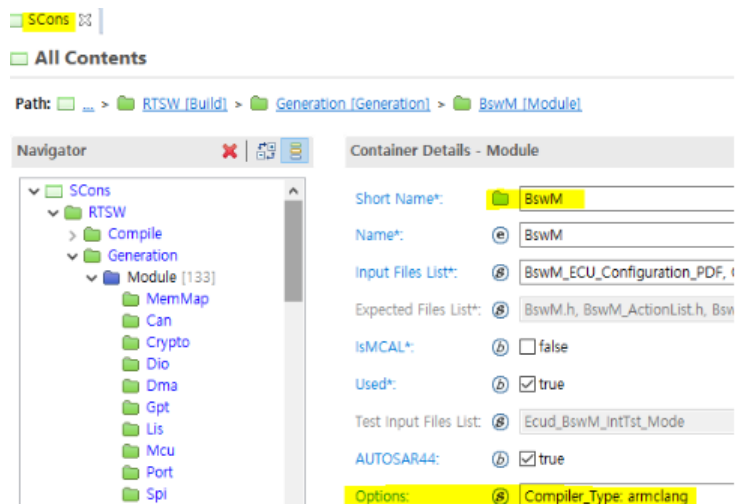### 7.1.1 Generator option for ARM, GHS compiler type.

The example apply for ARM, GHS compiler type.

Step: Add compiler type to SCons.

Set Key: Compiler_Type

Set Value: armclang is for ARM, ghs is for GHS.

Empty options is for tasking.

7.2 Generator Error Message

ERR0420001: There is no valid P-Port related to BswMRteSwitch Action.

This error occurs, if BswMRteSwitch Action has invalid P-Port reference.

ERR0420002: The foreign reference configured in the parameter of the container 'BswMRteSwitch' should have a valid reference to

This error occurs, if the foreign reference configured for the parameter Port Ref in the container BswMRteSwitch is invalid.

ERR0420003: The foreign reference configured in the parameter of the container 'BswMSchMSwitch' should have a valid reference to

This error occurs, if the foreign reference configured for the parameter Port Ref in the container BswMSchMSwitch is invalid.

ERR0420004: If Action type is 'type', the parameter 'BswMReportFailRuntimeErrorId' is invalid because this

Action type does not return Std_ReturnType.

This error occurs, if Action List with 'BswMReportFailRuntimeErrorId' has Action type does not return Std_RetrunType.

ERR0420005: If Action type is 'type', the parameter 'BswMAbortOnFail' should not be configured to 'true' because this Action type does not return Std_ReturnType.

This error occurs, if Action List with 'BswMAbortOnFail' has Action type does not return Std_RetrunType.

ERR0420006: The container 'OsApplication' of Os Module should be configured when the EventRequestPort 'BswMWdgMRequestPartitionReset' is configured.

This error occurs, if the container 'OsApplication' of Os Module is not configured when the EventRequestPort 'BswMWdgMRequestPartitionReset' is configured.

ERR0420007: The parameter 'OsAppEcucPartitionRef' in the container 'OsApplication' of Os Module should be configured when the EventRequestPort 'BswMWdgMRequestPartitionReset' is configured.

This error occurs, if the parameter 'OsAppEcucPartitionRef' in the container 'OsApplication' of Os Module is not configured when the ModeRequestPort 'BswMWdgMRequestPartitionReset' is configured.

ERR0420008: The configuration related to Mode Request Port occurs the ERROR. Please check the

(Request)R-Port and Runnable Entity.

This error occurs, if the reference '(Request)R-Port' or 'Runnable Entity' related to Mode Request Port is invalid.

ERR0420009: The configuration related to Mode Request Port occurs the ERROR. Please check the (Notification)R-Port and Runnable Entity.

This error occurs, if the reference '(Notification)R-Port' or 'Runnable Entity' related to Mode Request Port is invalid.

ERR0420010: The configuration related to Mode Request Port occurs the ERROR. Please check the

Required Mode Groups and Runnable Entity.

This error occurs, if the reference '(Notification)R-Port' or 'Runnable Entity' related to Mode Request Port is invalid.

ERR0420011: Value of the macro 'Macro' should be 'STD_ON' when the container 'Container' is configured.

This error occurs, if 'Macro' value is not STD_ON when 'Container' is configured

Macro	Container
BSWM_CANSM_ENABLED	BswMCanSMIndication
BSWM_CANSM_ICOM_ENABLED	BswMCanSMIcomIndication
BSWM_COMM_ENABLED	BswMComMIndication, BswMComMPncRequest, BswMComMInitiateReset
BSWM_DCM_ENABLED	BswMDcmComModeRequest, BswMDcmApplicationUpdatedIndication
BSWM_ECUM_ENABLED	BswMEcuMIndication, BswMEcuMRUNRequestIndication, BswMEcuMWakeupSource
BSWM_ETHIF_ENABLED	BswMEthIfPortGroupLinkStateChg
BSWM_ETHSM_ENABLED	BswMEthSMIndication
BSWM_FRSM_ENABLED	BswMFrSMIndication
BSWM_GENERIC_REQUEST_ENABLED	BswMGenericRequest

BSWM_J1939DCM_ENABLED	BswMJ1939DcmBroadcastStatus
BSWM_J1939NM_ENABLED	BswMJ1939NmIndication
BSWM_LINSM_ENABLED	BswMLinSMIndication, BswMLinScheduleIndication
BSWM_LINTP_ENABLED	BswMLinTpModeRequest
BSWM_NM_ENABLED	BswMNmCarWakeUpIndication
BSWM_NVM_ENABLED	BswMNvMJobModeIndication, BswMNvMRequest
BSWM_SCHM_ENABLED	BswMBswModeNotification
BSWM_SD_ENABLED	BswMSdClientServiceCurrentState, BswMSdConsumedEventGroupCurrentState, BswMSdEventHandlerCurrentState
BSWM_WDGM_ENABLED	BswMWdgMRequestPartitionReset

ERR042012: Main Function Period(0.01) should be matched with the period of Bsw Timing Event(0.01).

This error occurs, if Main Function Period is not matched with the period of Bsw Timing Event

ERR042013: Parameter BswMActionListItemIndex should be unique in action list.

This error occurs, if Parameter BswMActionListItemIndex is not unique in action list.

ERR042014: One ComIPduGroup shall not be configured for Enabled/DisabledPduGroupRef in a BswMAction.

This error occurs, if a single ComIPduGroup is configured for both Enabled and Disabled PduGroupRef in a BswMAction.

ERR042015: ModeDeclarationGroupPrototype in the role of ProvidedModeGroup should be configured in BswModuleDescription of BswM.

This error occurs, if ModeDeclarationGroupPrototype is not configured.

ERR042016: Only one ModeDeclarationGroupPrototype in the role of ProvidedModeGroup should be configured in BswModuleDescription of BswM.

This error occurs, if multiple ModeDeclarationGroupPrototypes are configured.

ERR0420019: Value 'ModeDeclaration' configured for the parameter 'BswMModeDeclaration' in a Mode Condition should have a valid reference.

This error occurs, if the reference of 'BswMModeDeclaration' is invalid (null or empty). Or parent name of 'BswMModeDeclaration' is missed

ERR0420022: Event/Mode Request Source of 'RequestPort' is not supported.

This error occurs, if not supported BswMModeRequestSource/BswMEventRequestSource is confgured.

ERR0420024: The recursive count of 'LogicalExpression' exceeds the maximum count 'LogicalExpressionRecursionCount'.

This error occurs, if 'ExpressionRef' in the container 'Rule' is not unique.

ERR0420026: The parameter 'LogicalOperator' in the container {ecuc(<logicalExpression>.shortName)} should be configured when multiple references are configured in the parameter 'ArgumentRef'.

This error occurs, if 'LogicalOperator' is not configured when multiple references are configured in the parameter 'ArgumentRef'.

ERR0420027: The parameter 'LogicalOperator' in the container 'LogicalExpression' should not be configured when a single reference is configured in the parameter 'ArgumentRef'.

This error occurs, if 'LogicalOperator' is configured when single references are configured in the parameter 'ArgumentRef'.

ERR0420028: Values configured for the parameter 'ArgumentRef' in a Logical expression container 'LogicalExpression' should not contain self reference.

This error occurs, if 'ArgumentRef' has 'LogicalExpression' as self reference.

ERR0420029: SWC-BEHAVIOR-REF should be configured.

This error occurs, if SWC-BEHAVIOR-REF is not configured.

ERR0420030: BSW-BEHAVIOR-REF for 'SwcBswMap' should be equal to BEHAVIOR-REF for 'BswImplementation'.

This error occurs, if BSW-BEHAVIOR-REF is different.

ERR0420031: BSW-BEHAVIOR-REF should be configured.

This error occurs, if BSW-BEHAVIOR-REF is not configured.

ERR0420032: SWC-BSW-MAPPING should be configured properly for BswM.

This error occurs, if SWC-BSW-MAPPING is not configured properly.

ERR0420033: SWC-BSW-MAPPING-REF should be configured.

This error occurs, if SWC-BSW-MAPPING-REF is not configured.

ERR0420034: Unresolved Data Type. If 'TYPE-TREF'' is a type of ApplicationDataType, it should be mapped to ImplementationDataType in DataTypeMap of DataTypeMappingSet.

This error occurs, if APPLICATION-DATA-TYPE 'TYPE-TREF'' is not mapped to IMPLEMENTATIONDATA-TYPE.

ERR0420035: The receive point shall be set one of DataReadAccess, DataReceivePointByValues and DataReceivePointByArguments for 'R-port'.

This error occurs, if receive point is not setted.

ERR0420036: In case of IMMEDIATE SwcModeRequest, DataReceivedEvent & RunnableEntity should be configured properly.

This error occurs, if DATA-RECEIVED-EVENT & RUNNABLE-ENTITY is not configured properly in case of IMMEDIATE SwcModeRequest.

ERR0420037: In case of DEFERRED SwcModeRequest, RunnableEntity should be configured properly.

This error occurs, if RUNNABLE-ENTITY is not configured properly in case of DEFERRED SwcModeRequest.

ERR0420038: In case of BswM Service SWC, R-Port of this SenderReceiverInterface should be configured.

This error occurs, if R-Port of this SENDER-RECEIVER-INTERFACE is not configured in case of BswM Service SWC.

ERR0420039: In case of BswM Service SWC, too many R-Ports 'Count' of this SENDER-RECEIVERINTERFACE are configured.

This error occurs, if too many R-Ports of this SENDER-RECEIVER-INTERFACE is configured in case of BswM Service SWC.

ERR0420040: ModeDeclarationGroup's type 'TYPE-TREF' should be mapped to ImplementationDataType in ModeRequestTypeMap of DataTypeMappingSet.

This error occurs, if MODE-DECLARATION-GROUP 'TYPE-TREF' in not mapped to IMPLEMENTATIONDATA-TYPE in MODE-REQUEST-TYPE-MAP of DATA-TYPE-MAPPING-SET.

ERR0420041: The mode access point should be configured properly for 'R-Port'.

This error occurs, if mode access point is not configured properly for 'R-port'.

ERR0420042: In case of IMMEDIATE SwcModeNotification, SwcModeSwitchEvent & RunnableEntity should be configured properly.

This error occurs, if SWC-MODE-SWITCH-EVENT & RUNNABLE-ENTITY is not configured properly in case of IMMEDIATE SwcModeNotification.

ERR0420043: In case of DEFERRED SwcModeNotification, RunnableEntity should be configured properly.

This error occurs, if RUNNABLE-ENTITY is not configured properly in case of DEFERRED SwcModeNotification.

ERR0420044: In case of BswM Service SWC, R-Port of this ModeSwitchInterface should be configured.

This error occurs, if R-Port of this MODE-SWITCH-INTERFACE is not configured in case of BswM Service SWC.

ERR0420045: In case of BswM Service SWC, too many R-Ports 'Count' of this ModeSwitchInterface are configured.

This error occurs, if too many R-Ports of this MODE-SWITCH-INTERFACE is configured in case of BswM Service SWC.

ERR0420047: The accessed mode group should be configured properly for 'ModeDeclartionGroupPrototype'.

This error occurs, if accessed mode group is not configured for 'R-port' properly.

ERR0420048: In case of IMMEDIATE BswModeNotification, SwcModeSwitchEvent & BswSchedulableEntity should be configured properly.

This error occurs, if MODE-SWITCH-EVENT & SCHEDULABLE-ENTITY is not configured properly in case of IMMEDIATE BswModeNotification.

ERR0420049: In case of DEFERRED BswModeNotification, BswSchedulableEntity should be configured properly.

This error occurs, if SCHEDULABLE-ENTITY is not configured properly In case of DEFERRED BswModeNotification.

ERR0420050: In case of BswM Module Description, RequiredModeGroup of this ModeDeclarationGroupPrototype
should be configured.

This error occurs, if RequiredModeGroup of this ModeDeclarationGroupPrototype is not configured in case of BswM Module Description.

ERR0420051: In case of BswM Module Description, too many RequiredModeGroups 'Count' of this ModeSwitchInterface are configured.

This error occurs, if too many RequiredModeGroups of this ModeDeclarationGroupPrototype are configured in case of BswM Module Description.

ERR0420052: The parameter 'BswMEcuMSleepModeRef' in the container 'BswMEcuMSelectShutdownTarget' should be configured since the parameter 'BswMEcuMShutdownTarget' is configured as 'BSWM_ECUM_SHUTDOWN_TARGET_SLEEP'.

This error occurs, if BswMEcuMShutdownTarget is configured as 'BSWM_ECUM_SHUTDOWN_TARGET_SLEEP' but BswMEcuMSleepModeRef is not configured.

ERR0420053: The parameter 'BswMEcuMResetModeRef' in the container 'BswMEcuMSelectShutdownTarget' should be configured since the parameter 'BswMEcuMShutdownTarget' is configured as 'BSWM_ECUM_SHUTDOWN_TARGET_RESET'.

This error occurs, if BswMEcuMShutdownTarget is configured as 'BSWM_ECUM_SHUTDOWN_TARGET_RESET' but BswMEcuMResetModeRef is not configured.

ERR0420062: 'Mandatory Modules' Component is not present in the input file(s).

This error occurs, if any one of **:** 'Mandatory Modules' components is not present in any of the input ECU

ERR0420063: Destination 'destination' of the reference path 'Ref Path' provided for the parameter 'Ref Path Definition' in the container 'Container Definition' having short name 'Container' is incorrect.

This error occurs, if incorrect reference path is configured for the parameter 'Parameter Name' in Data Table below

Container Name	Reference Parameter	Destination
BswMCanSMIcomIndication	BswMCanSMChannelRef	ComMChannelId
BswMCanSMIndication	BswMCanSMChannelRef	ComMChannelId
BswMComMIndication	BswMComMChannelRef	ComMChannelId
BswMComMPncRequest	BswMComMPncRef	ComMPncId
BswMDcmComModeRequest	BswMDcmComMChannelRef	ComMChannelId
BswMEcuMWakeupSource	BswMEcuMWakeupSrcRef	EcuMWakeupSourceId
BswMEthIfPortGroupLinkStateChg	BswMEthIfSwitchPortGroupRef	EthIfSwitchPortGroupIdx
BswMEthSMIndication	BswMEthSMChannelRef	ComMChannelId
BswMFrSMIndication	BswMFrSMChannelRef	ComMChannelId
BswMJ1939DcmBroadcastStatus	BswMJ1939DcmChannelRef	ComMChannelId
BswMJ1939NmIndication	BswMJ1939NmChannelRef	ComMChannelId
BswMJ1939NmIndication	BswMJ1939NmNodeRef	J1939NmNodeId
BswMLinScheduleIndication	BswMLinScheduleRef	LinSMScheduleIndex
	BswMLinSMChannelRef	ComMChannelId
BswMLinSMIndication	BswMLinSMChannelRef	ComMChannelId
BswMLinTpModeRequest	BswMLinTpChannelRef	ComMChannelId
BswMNmCarWakeUpIndication	BswMNmChannelRef	ComMChannelId
BswMNvMRequest	BswMNvMBlockRef	NvMNvramBlockIdentifier
BswMSdClientServiceCurrentState	BswMSdClientMethodsRef	SdClientServiceHandleId
BswMSdConsumedEventGroupCurrentState	BswMSdConsumedEventGroupRef	SdConsumedEventGroupHandleId
BswMSdEventHandlerCurrentState	BswMSdEventHandlerRef	SdEventHandlerHandleId
BswMComMAllowCom	BswMComMAllowChannelRef	ComMChannelId
BswMComMModeLimitation	BswMComMLimitChannelRef	ComMChannelId
BswMComMModeSwitch	BswMComMUserRef	ComMUserIdentifier
BswMCoreHaltMode	BswMTargetCoreRef	EcucCoreId
BswMDeadlineMonitoringControl	BswMDisabledDMPduGroupRef	ComIPduGroupHandleId
	BswMEnabledDMPduGroupRef	ComIPduGroupHandleId
BswMEcuMDriverInitListBswM	BswMEcuMDriverInitListBswMRef	SHORT-NAME
BswMEcuMGoDownHaltPoll	BswMEcuMUserIdRef	EcuMFlexUser
BswMEcuMSelectShutdownTarget	BswMEcuMSleepModeRef	EcuMSleepModeId
	BswMEcuMResetModeRef	EcuMResetModeId
BswMEthIfSwitchPortGroupRequestMode	BswMEthIfSwitchPortGroupRef	EthIfSwitchPortGroupIdx
BswMFrSMAllSlots	BswMFrSMAllSlotsNetworkHandleRef	ComMChannelId
BswMJ1939DcmStateSwitch	BswMJ1939DcmChannelRef	ComMChannelId
BswMJ1939DcmStateSwitch	BswMJ1939DcmNodeRef	J1939NmNodeId
BswMJ1939RmStateSwitch	BswMJ1939RmChannelRef	ComMChannelId
BswMJ1939RmStateSwitch	BswMJ1939RmNodeRef	J1939NmNodeId

BswMLinScheduleSwitch	BswMLinScheduleRef	LinSMScheduleIndex
BswMNMControl	BswMComMNetworkHandleRef	ComMChannelId
BswMPduGroupSwitch	BswMDisabledPduGroupRef	ComIPduGroupHandleId
	BswMEnabledPduGroupRef	ComIPduGroupHandleId
BswMPduRouterControl	BswMPduRoutingPathGroupRef	PduRRoutingPathGroupId
BswMSdClientServiceModeRequest	BswMSdClientMethodsRef	SdClientServiceHandleId
BswMSdConsumedEventGroupModeRequest	BswMSdConsumedEventGroupRef	SdConsumedEventGroupHandleId
BswMSdServerServiceModeRequest	BswMSdServerMethodsRef	SdServerServiceHandleId
BswMSwitchIPduMode	BswMSwitchIPduModeRef	ComIPduHandleId
BswMTriggerIPduSend	BswMTriggeredIPduRef	ComIPduHandleId
BswMBswMode/BswMCompuScaleModeValue	BswMCompuMethodRef	Check Null Or Empty
BswMModeDeclaration	BswMModeValueRef	Check Null Or Empty
BswMModeInitValue/BswMCompuScaleModeValue	BswMCompuMethodRef	Check Null Or Empty
BswMBswModeNotification	BswMBswModeDeclarationGroupPrototypeRef	Check Null Or Empty
BswMSwcModeNotification	BswMSwcModeNotificationModeDeclarationGroupPrototypeRef	Check Null Or Empty
BswMSwcModeRequest	BswMSwcModeRequestVariableDataPrototypeRef	Check Null Or Empty
BswMRteModeRequest	BswMRequestedModeRef	Check Null Or Empty
BswMRteSwitch	BswMSwitchedMode	Check Null Or Empty
BswMSchMSwitch	BswMSchMModeDeclarationGroupRef	Check Null Or Empty
	BswMSchMSwitchedMode	Check Null Or Empty
BswMRteModeRequestPort	BswMRteModeRequestVariableDataPrototypeSRRef	Check Null Or Empty
	BswMRteModeRequestPortInterfaceRef	If destination value type VariableDataPrototype is null or empty => Check Null Or Empty
BswMSwitchPort	BswMModeSwitchInterfaceRef	Check Null Or Empty
+ BswMGeneral	+ BswMOsSpinLockRef	SHORT-NAME
BswMCanSMIcomIndication	BswMCanSMChannelRef	ComMChannelId
BswMCanSMIndication	BswMCanSMChannelRef	ComMChannelId

ERR0420082: There are more than one BswMConfig sets have same BswMRule.

This error occurs, when multiple BswMRule name set in each BswMConfig or in same Post-Build variant.

ERR0600005 The parameter <parameter name> in the container <container name> should be configured.

This error message is displayed if the following parameters are not configured.

Parameter name	Container name
AR-RELEASE-VERSION	BSW-IMPLEMENTATION
SW-VERSION	BSW-IMPLEMENTATION
VENDOR-ID	BSW-IMPLEMENTATION

<End example>

ERR0420118: The reference parameter 'BswMOsTaskRef' of the container 'BswMConfig' should be configured.

This error occurs, BswMOsTaskRef is not configured.

ERR0420119: There are more than one BswMConfig sets have same BswMOsTaskRef refer to a OsTask.

This error occurs, when more than one BswMConfig sets have BswMOsTaskRef which are configured as the same reference.

ERR0420120: The parameter reference 'BswMOsTaskRef' of the container 'BswMConfig' should be configured with the Os Task that will be in the same partition with the parameter reference 'BswMPartitionRef'.

This error occurs, In case multi-partition support, the parameter reference 'BswMOsTaskRef' of the container 'BswMConfig' should be configured with the Os Task that in the same partition with the parameter reference 'BswMPartitionRef'

ERR0420121: There are more than one BswMConfig sets have same BswMOsEventRef refer to a OsEvent.

This error occurs, when more than one BswMConfig sets have BswMOsEventRef which are configured as the same reference.

ERR0420122: The parameter reference BswMOsEventRef of the container BswMConfig should be reference by the OsTask in the parameter reference BswMOsTaskRef.

This error occurs. The parameter reference BswMOsEventRef of the container BswMConfig was not referenced by the OsTask in the parameter reference 'BswMOsTaskRef'.

8 SWP Error Code

8.1 DET Error

Type of error	Relevance	Related error code	Value [hex]
A service was called prior to initialization	Development	BSWM_E_UNINIT	0x01
A null pointer was passed as an argument	Development	BSWM_E_NULL_POINTER	0x02
A parameter was invalid (unspecific)	Development	BSWM_E_PARAM_INVALID	0x03
A requesting user was out of range	Development	BSWM_E_REQ_USER_OUT_OF_RANGE	0x04
A requested mode was out of range	Development	BSWM_E_REQ_MODE_OUT_OF_RANGE	0x05
The provided configuration is inconsistent	Development	BSWM_E_PARAM_CONFIG	0x06
A parameter pointer was invalid	Development	BSWM_E_PARAM_POINTER	0x07
Invalid configuration set selection	Development	BSWM_E_INIT_FAILED	0x08
An action returned E_NOT_OK	Runtime	BSWM_E_ACTION_FAILED	0x80..0xFF (as configured in BswMReportFailRuntimeErrorId)

9 Appendix

9.1 Harmonization for BswM multiple partition

The example apply for module CanSM.

Step 1: Create one empty Ecud_BswM.arxml, and add it into Ecuc Modules
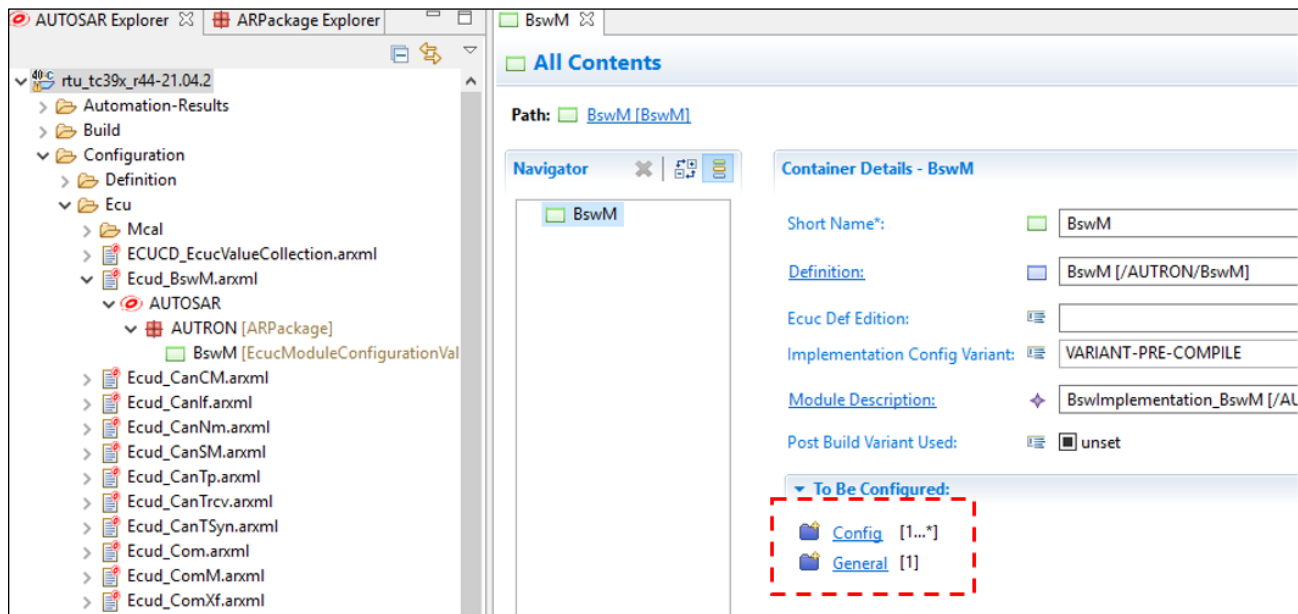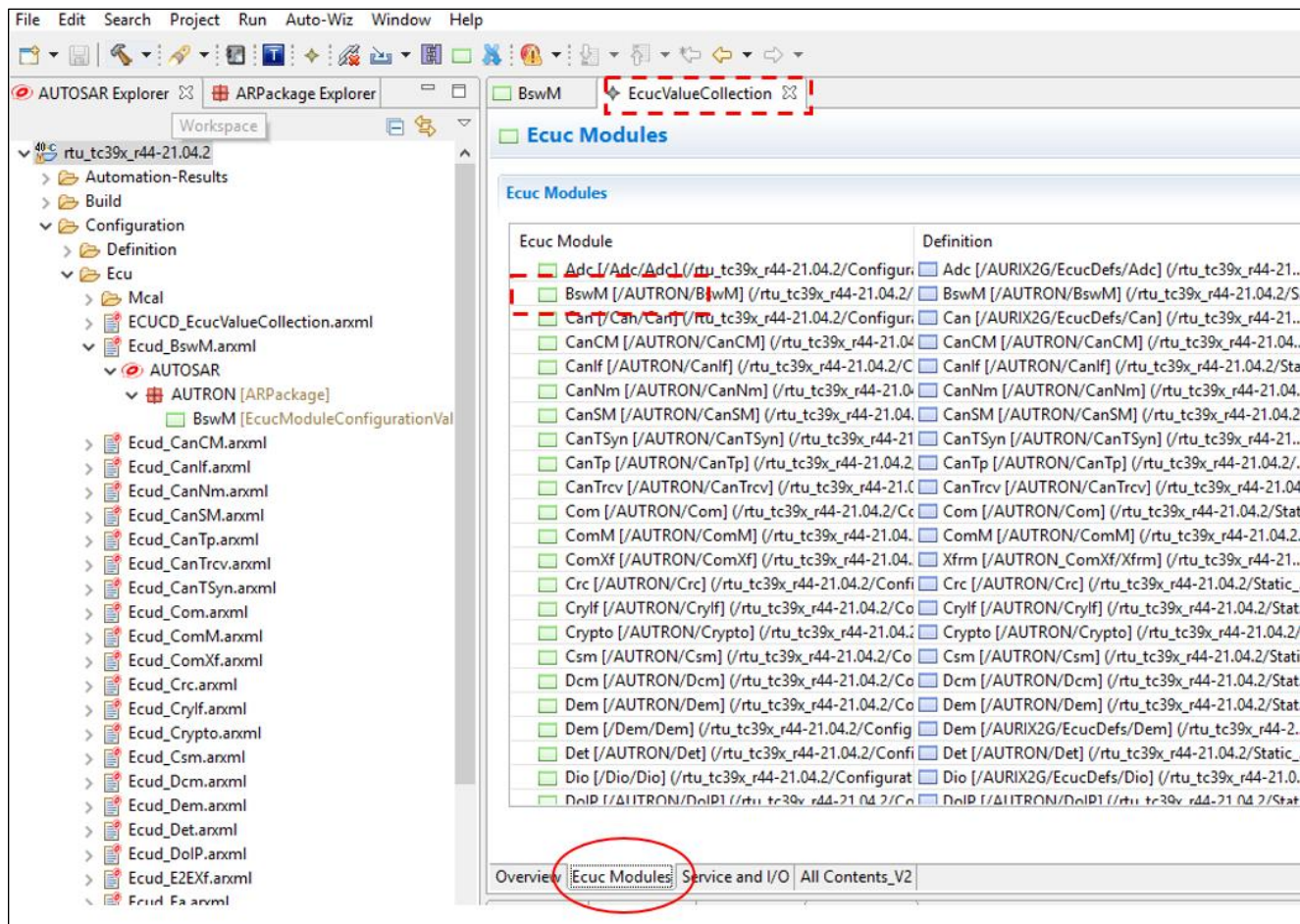
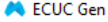Step 2: Add BswDistinguishedPartition_CanSM into EcucPartition_Sub1
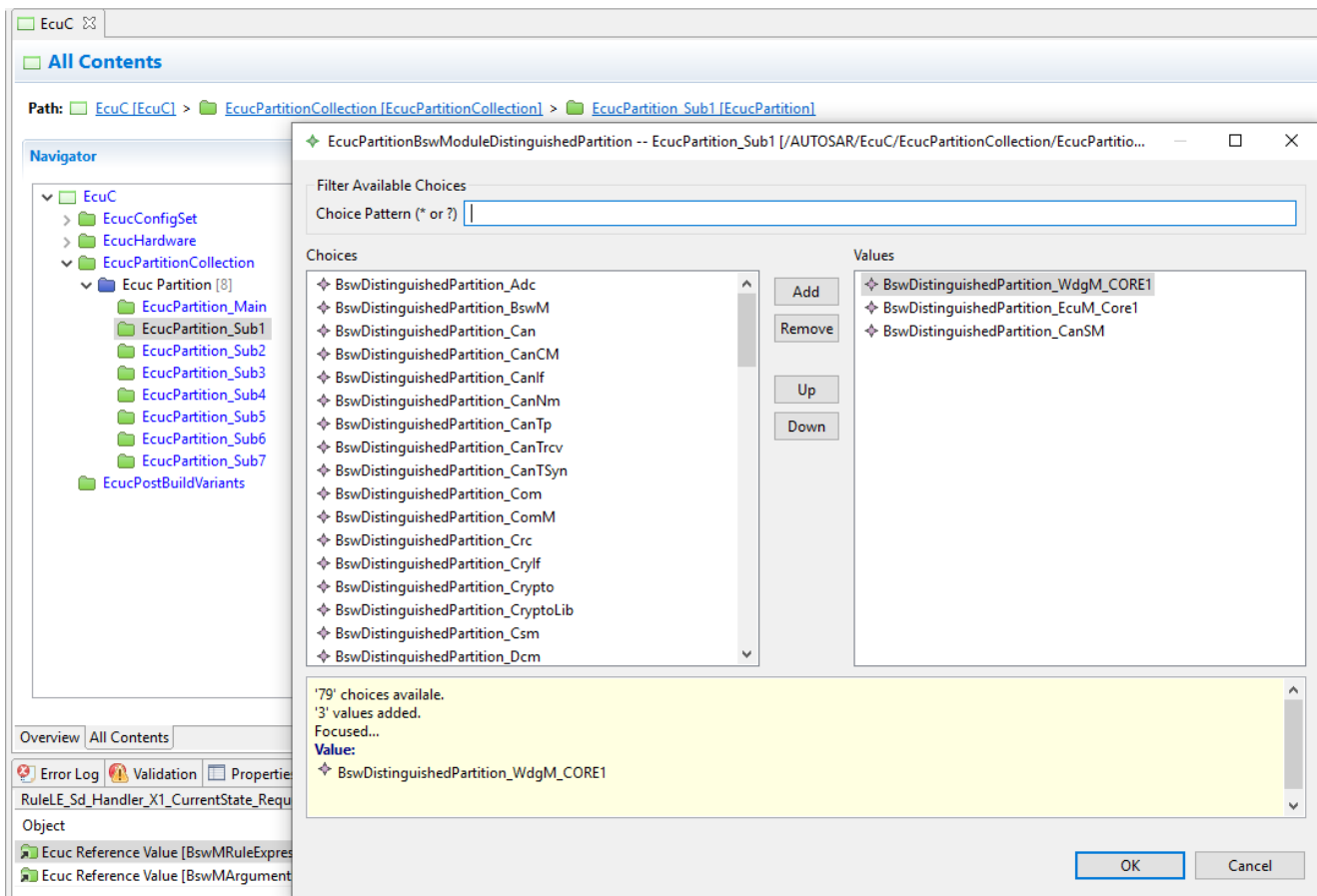
Step 3: Do harmonize for BswM with option as below