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# 1 SWS\_EthernetTransceiverDriver

## 1.1 Specification Item ECUC\_EthTrcv\_00001

### Trace References:

none

### Content:

Container Name	EthTrcvGeneralEthTrcvGeneral
Description	General configuration of Ethernet Transceiver Driver module
Configuration Parameters	

### Included parameters:

Included Parameters	
Parameter Name	SWS Item ID
EthTrcvDevErrorDetect	ECUC_EthTrcv_00003
EthTrcvGetBaudRateApi	ECUC_EthTrcv_00010
EthTrcvGetCableDiagnosticsResultApi	ECUC_EthTrcv_00049
EthTrcvGetDuplexModeApi	ECUC_EthTrcv_00011
EthTrcvGetLinkStateApi	ECUC_EthTrcv_00009
EthTrcvGetPhyIdentifierApi	ECUC_EthTrcv_00046
EthTrcvGetPhySignalQualityApi	ECUC_EthTrcv_00045
EthTrcvGetTransceiverModeApi	ECUC_EthTrcv_00007
EthTrcvGetTransceiverWakeupModeApi	ECUC_EthTrcv_00031
EthTrcvIndex	ECUC_EthTrcv_00020
EthTrcvMainFunctionPeriod	ECUC_EthTrcv_00032
EthTrcvMaxTrcvsSupported	ECUC_EthTrcv_00002
EthTrcvSetPhyTestModeApi	ECUC_EthTrcv_00047
EthTrcvSetPhyTxModeApi	ECUC_EthTrcv_00048
EthTrcvSetTransceiverModeApi	ECUC_EthTrcv_00006
EthTrcvStartAutoNegotiationApi	ECUC_EthTrcv_00008
EthTrcvVersionInfoApi	ECUC_EthTrcv_00004
EthTrcvVersionInfoApiMacro	ECUC_EthTrcv_00005
EthTrcvWakeUpSupport	ECUC_EthTrcv_00030

### Included containers:

No Included Containers
------------------------

**RfCs affecting this spec item between releases 4.3.0 and 4.3.1:**

- RfC #77628: [EthSwt] Behaviour of certain APIs for ports without EthSwtPortTrcvRef (part I)

**Problem description:**

The following APIs have partly a description regarding the handling of ports without EthSwtPortTrcvRef:

EthSwt\_GetPortSignalQuality  
 EthSwt\_GetPortIdentifier  
 EthSwt\_SetPortTestMode  
 EthTrcv\_SetPhyTestMode  
 EthSwt\_SetPortTxMode  
 EthSwt\_GetPortCableDiagnosticsResult

The description should be adjusted and harmonized with related requirements.  
 –Last change on issue 77628 comment 2–

**Agreed solution:**

=== EthSwt ===

~[SWS\_EthSwt\_91014]EthSwt\_GetPortSignalQuality

Description:

The function retrieves the signal quality of the link of the indexed Ethernet switch port.

~[SWS\_EthSwt\_00293]

The function EthSwt\_GetPortSignalQuality() shall obtain the signal quality by calling the function EthTrcv\_GetPhySignalQuality() of the referenced Ethernet Transceiver Driver. If the current signal quality is not available, the signal quality shall be set to 0xFF.

-[SWS\_EthSwt\_00298]as # 77349 introduces a general req

~[SWS\_EthSwt\_91015]EthSwt\_GetPortIdentifier

Return value

E\_NOT\_OK: organizationally unique identifier of the Ethernet transceiver could not be obtained (i.e. OUI is not available)

Description:

This function retrieves the OUI (24 bit) of the indexed Ethernet switch port.

~[SWS\_EthSwt\_00299]

The function EthSwt\_GetPortIdentifier() shall return the value of the organizationally unique identifier (OUI 24 bit) of the indexed Ethernet switch port that is connected to the indexed Ethernet switch. It shall set the 8 most significant bits of the OUI

to 0xFFxxxxxx. If the Ethernet switch port references an Ethernet transceiver, the function shall obtain the OUI by calling the function `EthTrcv_GetPhyIdentifier()` and set the 8 most significant bits of the OUI to 0x00xxxxxx.

SWS\_EthSwT\_xxxxx] If neither the Ethernet switch port nor the Ethernet Transceiver Driver can provide an OUI the function `EthSwT_GetPortIdentifier()` shall return `E_NOT_OK`.

-[SWS\_EthSwT\_00304]as # 77349 introduces a general req

~[SWS\_EthSwT\_91029] `EthSwT_SetPortTestMode`

Description:

Activates a given test mode of the indexed Ethernet switch port.

~[SWS\_EthSwT\_00328]

The function `EthSwT_SetPortTestMode` shall forward the call with the given test mode by calling the function `EthTrcv_SetPhyTestMode()` of the referenced Ethernet Transceiver Driver.

-[SWS\_EthSwT\_00333]as # 77349 introduces a general req

~[SWS\_EthSwT\_91023] `EthSwT_SetPortLoopbackMode`

Description:

Activates a given test loop-back mode of the indexed Ethernet switch port.

~[SWS\_EthSwT\_00334]

The function `EthSwT_SetPortLoopbackMode()` shall forward the call with the given loop-back mode by calling the function `EthTrcv_SetPhyLoopbackMode()` of the referenced Ethernet Transceiver Driver.

-[SWS\_EthSwT\_00339] as # 77349 introduces a general req

~[SWS\_EthSwT\_91024] `EthSwT_SetPortTxMode`

Description:

Activates a given transmission mode of the indexed Ethernet switch port.

~[SWS\_EthSwT\_00340]

The function `EthSwT_SetPortTxMode()` shall forward the call with the given transmission mode by calling the function `EthTrcv_SetPhyTxMode()` of the referenced Ethernet Transceiver Driver.

-[SWS\_EthSwT\_00345] as # 77349 introduces a general req

~[SWS\_EthSwT\_91025]`EthSwT_GetPortCableDiagnosticsResult`

Description:

Retrieves the cable diagnostics result of the indexed Ethernet switch port respec-

tively the referenced Ethernet Transceiver Driver.

~[SWS\_EthSwT\_00346]

The function EthSwT\_GetPortCableDiagnosticsResult() shall obtain the cable diagnostics result by calling the function EthTrcv\_GetCableDiagnosticsResult() of the referenced Ethernet Transceiver Driver. If no Ethernet transceiver is referenced by the Ethernet switch port and development error detection is not enabled, the cable diagnostic result shall be set to ETHTRCV\_CABLEDIAG\_OK.

-[SWS\_EthSwT\_00351] as # 77349 introduces a general req

=== EthTrcv ===

add certain parameter to enable/disable API functions:

+ SWS item ECUC\_EthTrcv\_xxxx1

Name EthTrcvGetPhySignalQualityApi

Description Enables / Disables EthTrcv\_GetPhySignalQuality API

+ SWS item ECUC\_EthTrcv\_xxxx2

Name EthTrcvGetPhyIdentifierApi

Description Enables / Disables EthTrcv\_GetPhyIdentifier API

+ SWS item ECUC\_EthTrcv\_xxxx3

Name EthTrcvSetPhyTestModeApi

Description Enables / Disables EthTrcv\_SetPhyTestMode API

+ SWS item ECUC\_EthTrcv\_xxxx4

Name EthTrcvSetPhyTxModeApi

Description Enables / Disables EthTrcv\_SetPhyTxMode API

+ SWS item ECUC\_EthTrcv\_xxxx5

Name EthTrcvGetCableDiagnosticsResultApi

Description Enables / Disables EthTrcv\_GetCableDiagnosticsResult API

add the following specification to the configuration parameter above:

Multiplicity 1

Type EcucBooleanParamDef

Default value –

Post-Build Variant Value false

Value Configuration

Class Pre-compile time X

All Variants Link time –

Post-build time –

Scope / Dependency scope: local

–Last change on issue 77628 comment 31–

**BW-C-Level:**

Application	Specification	Bus
1	4	1

## 1.2 Specification Item ECUC\_EthTrcv\_00012

**Trace References:**

none

**Content:**

Container Name	EthTrcvConfigEthTrcvConfig
Description	Configuration of the individual transceiver
Configuration Parameters	

**Included parameters:**

Included Parameters	
Parameter Name	SWS Item ID
EthTrcvAutoNegotiationEnabled	ECUC_EthTrcv_00021
EthTrcvConnNeg	ECUC_EthTrcv_00025
EthTrcvCtrlIdx	ECUC_EthTrcv_00014
EthTrcvDuplexMode	ECUC_EthTrcv_00023
EthTrcvIdx	ECUC_EthTrcv_00013
EthTrcvPhysLayerType	ECUC_EthTrcv_00024
EthTrcvPortMacLayerSpeed	ECUC_EthTrcv_00044
EthTrcvPortMacLayerSubType	ECUC_EthTrcv_00043
EthTrcvPortMacLayerType	ECUC_EthTrcv_00035
EthTrcvSpeed	ECUC_EthTrcv_00022
EthTrcvWakeUpCallout	ECUC_EthTrcv_00028
EthTrcvLcuChannelRef	ECUC_EthTrcv_00026

**Included containers:**

Included Containers		
Container Name	Multiplicity	Scope / Dependency

Included Containers		
Container Name	Multiplicity	Scope / Dependency
EthTrcvDemEventParameterRefs	0..1	Container for the references to Dem EventParameter elements which shall be invoked using the API Dem_SetEvent Status in case the corresponding error occurs. The EventId is taken from the referenced DemEventParameter's Dem EventId symbolic value. The standardized errors are provided in this container and can be extended by vendor-specific error references.
EthTrcvMgmtInterface	0..1	The choice container allow to configure either the EthTrcv is accessed by a MII interface or Switch interface.
EthTrcvWakeupMap	0..7	Container for the mapping of wake up reasons to wake up sources. At least one container is needed if EthTrcvWake UpSupport is not ETHTRCV_WAKEUP_NOT_SUPPORTED.

**RfCs affecting this spec item between releases 4.3.0 and 4.3.1:**

- RfC #76343: Configuration parameters for Ethernet MAC layer types is incomplete

**Problem description:**

With [https://www.autosar.org/bugzilla/show\\_bug.cgi?id=73074](https://www.autosar.org/bugzilla/show_bug.cgi?id=73074) the configuration of the MAC layer type was separated from the physical layer type. The configuration parameter EthSwtPortMacLayerType allows for the configuration of "families" of MAC layer types, namely xMII, xGMII, and xxGMII.

The concrete MAC layer type (e.g., SGMII vs. RGMII) however cannot be configure by this parameter. - Available switches (e.g., Broadcom's "Leo") however require the configuration of a \*concrete\* MAC layer type (and not only the configuration of a "family" of MAC layer types) for the individual port.

The same holds probably true for the Ethernet Driver and the Ethernet Transceiver driver.

One possibility to solve this is to introduce an additional config parameter named something like EthSwtPortMacLayerSubType with the following enum values "standard", "reduced", "reversed", "serial", "universal serial". - Thus for example the combination of EthSwtPortMacLayerType=xGMII and EthSwtPortMacLayerSubType="reversed" would yield RvGMII.

**Agreed solution:**

EthSwt:

add config parameter to container EthSwtPort named EthSwtPortMacLayerSub-

Type with the following enum values "STANDARD: standard media-independent interface", "REDUCED: Reduced media-independent interface", "REVERSED: reversed media-independent interface (to provide direct connection between two Ethernet MACs)", "SERIAL: low-power and low pin-count serial 8b/10b-coded media-independent interface", "UNIVERSAL SERIAL": Universal low-power and low pin-count serial 8b/10b-coded media-independent interface".

add config parameter to container EthSwPort named EthSwPortMacLayerSpeed with the following enum values "ETH\_MAC\_LAYER\_SPEED\_10M", "ETH\_MAC\_LAYER\_SPEED\_100M", "ETH\_MAC\_LAYER\_SPEED\_1G", "ETH\_MAC\_LAYER\_SPEED\_10G".

All parameters shall have the same Multiplicity, Variant and config class as EthSwPortMacLayerType.

add description for EthSwPortMacLayerSubTypes:  
Defines the MAC layer subtype of a switch port

add description for EthSwPortMacLayerSpeed:  
Defines the baud rate of the MAC layer

Eth:

add config parameter to container EthCtrlConfig named EthCtrlMacLayerSubType with the following enum values "STANDARD", "REDUCED", "REVERSED", "SERIAL", "UNIVERSAL SERIAL". - Thus for example the combination of EthCtrlMacLayerType=xGMII and EthCtrlMacLayerSubType ="REVERSED" would yield RvGMII.

add config parameter to container EthCtrlConfig named EthCtrlMacLayerSpeed with the following enum values "ETH\_MAC\_LAYER\_SPEED\_10M", "ETH\_MAC\_LAYER\_SPEED\_100M", "ETH\_MAC\_LAYER\_SPEED\_1G", "ETH\_MAC\_LAYER\_SPEED\_10G".

add description for EthPortMacLayerSubTypes:  
Defines the MAC layer subtype of a switch port

add description for EthPortMacLayerSpeed:  
Defines the baud rate of the MAC layer

EthTrcv:

add config parameter to container EthTrcvCtrlConfig named EthTrcvPortMacLayerSubType with the following enum values "STANDARD", "REDUCED", "REVERSED", "SERIAL", "UNIVERSAL SERIAL". - Thus for example the combination of EthTrcvPortMacLayerType=xGMII and EthTrcvPortMacLayerSubType="REVERSED" would

yield RvGMII.

add config parameter to container EthTrcvCtrlConfig named EthTrcvPortMacLayerSpeed with the following enum values "ETH\_MAC\_LAYER\_SPEED\_10M", "ETH\_MAC\_LAYER\_SPEED\_100M", "ETH\_MAC\_LAYER\_SPEED\_1G", "ETH\_MAC\_LAYER\_SPEED\_10G".

add description for EthTrcv\_PortMacLayerSubTypes:  
 Defines the MAC layer subtype of a switch port

add description for EthTrcv\_PortMacLayerSpeed:  
 Defines the baud rate of the MAC layer

All parameters shall have the same Multiplicity, Variant and config class as EthSwtPortMacLayerType.

No upstream Mapping as this decision is made on ECU-Configuration.  
 –Last change on issue 76343 comment 30–

**BW-C-Level:**

Application	Specification	Bus
1	1	1

### 1.3 Specification Item ECUC\_EthTrcv\_00043

**Trace References:**

none

**Content:**

Name	EthTrcvPortMacLayerSubTypeEthTrcvConfig.EthTrcvPortMacLayerSubType
Description	Defines the MAC layer subtype of a switch port
Multiplicity	0..1
Type	EcucEnumerationParamDef

Range	REDUCEEthTrcvConfig.EthTrcvPortMacLayerSubType.REDUCED	-	
	REVERSEEthTrcvConfig.EthTrcvPortMacLayerSubType.REVERSED	-	
	SERIEthTrcvConfig.EthTrcvPortMacLayerSubType.SERIAL	-	
	STANDARDEthTrcvConfig.EthTrcvPortMacLayerSubType.STANDARD	-	
	UNIVERSAL_SERIEthTrcvConfig.EthTrcvPortMacLayerSubType.UNIVERSAL_SERIAL	-	
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, VARIANT-POST-BUILD
	Post-build time	-	
Value Configuration Class	Pre-compile time	X	VARIANT-PRE-COMPILE
	Link time	X	VARIANT-LINK-TIME, VARIANT-POST-BUILD
	Post-build time	-	
Scope / Dependency	scope: ECU		

**RfCs affecting this spec item between releases 4.3.0 and 4.3.1:**

- RfC #76343: Configuration parameters for Ethernet MAC layer types is incomplete

**Problem description:**

With [https://www.autosar.org/bugzilla/show\\_bug.cgi?id=73074](https://www.autosar.org/bugzilla/show_bug.cgi?id=73074) the configuration of the MAC layer type was separated from the physical layer type. The configuration parameter EthSwtPortMacLayerType allows for the configuration of "families" of MAC layer types, namely xMII, xGMII, and xxGMII.

The concrete MAC layer type (e.g., SGMII vs. RGMII) however cannot be configure by this parameter. - Available switches (e.g., Broadcom's "Leo") however require the configuration of a \*concrete\* MAC layer type (and not only the configu-

ration of a "family" of MAC layer types) for the individual port.

The same holds probably true for the Ethernet Driver and the Ethernet Transceiver driver.

One possibility to solve this is to introduce an additional config parameter named something like EthSwPortMacLayerSubType with the following enum values "standard", "reduced", "reversed", "serial", "universal serial". - Thus for example the combination of EthSwPortMacLayerType=xGMII and EthSwPortMacLayerSubType="reversed" would yield RvGMII.

#### **Agreed solution:**

EthSw:

add config parameter to container EthSwPort named EthSwPortMacLayerSubType with the following enum values "STANDARD: standard media-independent interface", "REDUCED: Reduced media-independent interface", "REVERSED: reversed media-independent interface (to provide direct connection between two Ethernet MACs)", "SERIAL: low-power and low pin-count serial 8b/10b-coded media-independent interface", "UNIVERSAL SERIAL": Universal low-power and low pin-count serial 8b/10b-coded media-independent interface".

add config parameter to container EthSwPort named EthSwPortMacLayerSpeed with the following enum values "ETH\_MAC\_LAYER\_SPEED\_10M", "ETH\_MAC\_LAYER\_SPEED\_100M", "ETH\_MAC\_LAYER\_SPEED\_1G", "ETH\_MAC\_LAYER\_SPEED\_10G".

All parameters shall have the same Multiplicity, Variant and config class as EthSwPortMacLayerType.

add description for EthSw\_PortMacLayerSubTypes:

Defines the MAC layer subtype of a switch port

add description for EthSw\_PortMacLayerSpeed:

Defines the baud rate of the MAC layer

Eth:

add config parameter to container EthCtrlConfig named EthCtrlMacLayerSubType with the following enum values "STANDARD", "REDUCED", "REVERSED", "SERIAL", "UNIVERSAL SERIAL". - Thus for example the combination of EthCtrlMacLayerType=xGMII and EthCtrlMacLayerSubType="REVERSED" would yield RvGMII.

add config parameter to container EthCtrlConfig named EthCtrlMacLayerSpeed with the following enum values "ETH\_MAC\_LAYER\_SPEED\_10M",

"ETH\_MAC\_LAYER\_SPEED\_100M", "ETH\_MAC\_LAYER\_SPEED\_1G",  
 "ETH\_MAC\_LAYER\_SPEED\_10G".

add description for Eth\_PortMacLayerSubTypes:  
 Defines the MAC layer subtype of a switch port

add description for Eth\_PortMacLayerSpeed:  
 Defines the baud rate of the MAC layer

EthTrcv:

add config parameter to container EthTrcvCtrlConfig named EthTrcvPortMacLayerSubType with the following enum values "STANDARD", "REDUCED", "REVERSED", "SERIAL", "UNIVERSAL SERIAL". - Thus for example the combination of EthTrcvPortMacLayerType=xGMII and EthTrcvPortMacLayerSubType="REVERSED" would yield RvGMII.

add config parameter to container EthTrcvCtrlConfig named EthTrcvPortMacLayerSpeed with the following enum values "ETH\_MAC\_LAYER\_SPEED\_10M", "ETH\_MAC\_LAYER\_SPEED\_100M", "ETH\_MAC\_LAYER\_SPEED\_1G", "ETH\_MAC\_LAYER\_SPEED\_10G".

add description for EthTrcv\_PortMacLayerSubTypes:  
 Defines the MAC layer subtype of a switch port

add description for EthTrcv\_PortMacLayerSpeed:  
 Defines the baud rate of the MAC layer

All parameters shall have the same Multiplicity, Variant and config class as EthSwtPortMacLayerType.

No upstream Mapping as this decision is made on ECU-Configuration.  
 –Last change on issue 76343 comment 30–

**BW-C-Level:**

Application	Specification	Bus
1	1	1

## 1.4 Specification Item ECUC\_EthTrcv\_00044

**Trace References:**

none

**Content:**

Name	EthTrcvPortMacLayerSpeedEthTrcvConfig.EthTrcvPortMacLayerSpeedin container EthTrcv Config		
Description	Defines the baud rate of the MAC layer.		
Multiplicity	0..1		
Type	EcucEnumerationParamDef		
Range	ETH_MAC_LAYER_SPEED_100MEth TrcvConfig.EthTrcvPortMac Layer Speed.ETH_MAC_LAYER_SPEED_100M		
	ETH_MAC_LAYER_SPEED_10GEth TrcvConfig.EthTrcvPortMac Layer Speed.ETH_MAC_LAYER_SPEED_10G		
	ETH_MAC_LAYER_SPEED_10MEth TrcvConfig.EthTrcvPortMac Layer Speed.ETH_MAC_LAYER_SPEED_10M		
	ETH_MAC_LAYER_SPEED_1GEth TrcvConfig.EthTrcvPortMac Layer Speed.ETH_MAC_LAYER_SPEED_1G		
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, VARIANT-POST-BUILD
	Post-build time	-	
Value Configuration Class	Pre-compile time	X	VARIANT-PRE-COMPILE
	Link time	X	VARIANT-LINK-TIME, VARIANT-POST-BUILD
	Post-build time	-	
Scope / Dependency	scope: ECU		

**RfCs affecting this spec item between releases 4.3.0 and 4.3.1:**

- RfC #76343: Configuration parameters for Ethernet MAC layer types is incomplete

**Problem description:**

With [https://www.autosar.org/bugzilla/show\\_bug.cgi?id=73074](https://www.autosar.org/bugzilla/show_bug.cgi?id=73074) the configuration of the MAC layer type was separated from the physical layer type. The configuration parameter `EthSwtPortMacLayerType` allows for the configuration of "families" of MAC layer types, namely xMII, xGMII, and xxGMII.

The concrete MAC layer type (e.g., SGMII vs. RGMII) however cannot be configured by this parameter. - Available switches (e.g., Broadcom's "Leo") however require the configuration of a \*concrete\* MAC layer type (and not only the configuration of a "family" of MAC layer types) for the individual port.

The same holds probably true for the Ethernet Driver and the Ethernet Transceiver driver.

One possibility to solve this is to introduce an additional config parameter named something like `EthSwtPortMacLayerSubType` with the following enum values "standard", "reduced", "reversed", "serial", "universal serial". - Thus for example the combination of `EthSwtPortMacLayerType=xGMII` and `EthSwtPortMacLayerSubType="reversed"` would yield RvGMII.

#### **Agreed solution:**

EthSwt:

add config parameter to container `EthSwtPort` named `EthSwtPortMacLayerSubType` with the following enum values "STANDARD: standard media-independent interface", "REDUCED: Reduced media-independent interface", "REVERSED: reversed media-independent interface (to provide direct connection between two Ethernet MACs)", "SERIAL: low-power and low pin-count serial 8b/10b-coded media-independent interface", "UNIVERSAL SERIAL: Universal low-power and low pin-count serial 8b/10b-coded media-independent interface".

add config parameter to container `EthSwtPort` named `EthSwtPortMacLayerSpeed` with the following enum values "ETH\_MAC\_LAYER\_SPEED\_10M", "ETH\_MAC\_LAYER\_SPEED\_100M", "ETH\_MAC\_LAYER\_SPEED\_1G", "ETH\_MAC\_LAYER\_SPEED\_10G".

All parameters shall have the same Multiplicity, Variant and config class as `EthSwtPortMacLayerType`.

add description for `EthSwt_PortMacLayerSubTypes`:

Defines the MAC layer subtype of a switch port

add description for `EthSwt_PortMacLayerSpeed`:

Defines the baud rate of the MAC layer

**Eth:**

add config parameter to container EthCtrlConfig named EthCtrlMacLayerSubType with the following enum values "STANDARD", "REDUCED", "REVERSED", "SERIAL", "UNIVERSAL SERIAL". - Thus for example the combination of EthCtrlMacLayerType=xGMII and EthCtrlMacLayerSubType ="REVERSED" would yield RvGMII.

add config parameter to container EthCtrlConfig named EthCtrlMacLayerSpeed with the following enum values "ETH\_MAC\_LAYER\_SPEED\_10M", "ETH\_MAC\_LAYER\_SPEED\_100M", "ETH\_MAC\_LAYER\_SPEED\_1G", "ETH\_MAC\_LAYER\_SPEED\_10G".

add description for Eth\_PortMacLayerSubTypes:  
 Defines the MAC layer subtype of a switch port

add description for Eth\_PortMacLayerSpeed:  
 Defines the baud rate of the MAC layer

**EthTrcv:**

add config parameter to container EthTrcvCtrlConfig named EthTrcvPortMacLayerSubType with the following enum values "STANDARD", "REDUCED", "REVERSED", "SERIAL", "UNIVERSAL SERIAL". - Thus for example the combination of EthTrcvPortMacLayerType=xGMII and EthTrcvPortMacLayerSubType="REVERSED" would yield RvGMII.

add config parameter to container EthTrcvCtrlConfig named EthTrcvPortMacLayerSpeed with the following enum values "ETH\_MAC\_LAYER\_SPEED\_10M", "ETH\_MAC\_LAYER\_SPEED\_100M", "ETH\_MAC\_LAYER\_SPEED\_1G", "ETH\_MAC\_LAYER\_SPEED\_10G".

add description for EthTrcv\_PortMacLayerSubTypes:  
 Defines the MAC layer subtype of a switch port

add description for EthTrcv\_PortMacLayerSpeed:  
 Defines the baud rate of the MAC layer

All parameters shall have the same Multiplicity, Variant and config class as EthSwtPortMacLayerType.

No upstream Mapping as this decision is made on ECU-Configuration.  
 –Last change on issue 76343 comment 30–

**BW-C-Level:**

Application	Specification	Bus
1	1	1

## 1.5 Specification Item ECUC\_EthTrcv\_00045

### Trace References:

none

### Content:

Name	EthTrcvGetPhySignalQualityApiEthTrcvGeneral.EthTrcvGetPhySignalQualityApi		
Parent Container	EthTrcvGeneral		
Description	Enables / Disables EthTrcv_GetPhySignalQuality API.		
Multiplicity	1		
Type	EcucBooleanParamDef		
Default value	-		
Post-Build Variant Multiplicity	false		
Post-Build Variant Value	false		
Multiplicity Configuration Class	Pre-compile time	X	All Variants
	Link time	-	
	Post-build time	-	
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 #77628: [EthSwt] Behaviour of certain APIs for ports without EthSwtPortTrcvRef (part I)

#### Problem description:

The following APIs have partly a description regarding the handling of ports without EthSwtPortTrcvRef:

EthSwt\_GetPortSignalQuality  
 EthSwt\_GetPortIdentifier  
 EthSwt\_SetPortTestMode  
 EthTrcv\_SetPhyTestMode  
 EthSwt\_SetPortTxMode  
 EthSwt\_GetPortCableDiagnosticsResult

The description should be adjusted and harmonized with related requirements.  
–Last change on issue 77628 comment 2–

**Agreed solution:**

=== EthSwT ===

~[SWS\_EthSwT\_91014]EthSwT\_GetPortSignalQuality

Description:

The function retrieves the signal quality of the link of the indexed Ethernet switch port.

~[SWS\_EthSwT\_00293]

The function EthSwT\_GetPortSignalQuality() shall obtain the signal quality by calling the function EthTrcv\_GetPhySignalQuality() of the referenced Ethernet Transceiver Driver. If the current signal quality is not available, the signal quality shall be set to 0xFF.

-[SWS\_EthSwT\_00298]as # 77349 introduces a general req

~[SWS\_EthSwT\_91015]EthSwT\_GetPortIdentifier

Return value

E\_NOT\_OK: organizationally unique identifier of the Ethernet transceiver could not be obtained (i.e. OUI is not available)

Description:

This function retrieves the OUI (24 bit) of the indexed Ethernet switch port.

~[SWS\_EthSwT\_00299]

The function EthSwT\_GetPortIdentifier() shall return the value of the organizationally unique identifier (OUI 24 bit) of the indexed Ethernet switch port that is connected to the indexed Ethernet switch. It shall set the 8 most significant bits of the OUI to 0xFFxxxxxx. If the Ethernet switch port references an Ethernet transceiver, the function shall obtain the OUI by calling the function EthTrcv\_GetPhyIdentifier() and set the 8 most significant bits of the OUI to 0x00xxxxxx.

SWS\_EthSwT\_xxxxx] If neither the Ethernet switch port nor the Ethernet Transceiver Driver can provide an OUI the function EthSwT\_GetPortIdentifier() shall return E\_NOT\_OK.

-[SWS\_EthSwT\_00304]as # 77349 introduces a general req

~[SWS\_EthSwT\_91029] EthSwT\_SetPortTestMode

Description:

Activates a given test mode of the indexed Ethernet switch port.

~[SWS\_EthSwT\_00328]

The function EthSwt\_SetPortTestMode shall forward the call with the given test mode by calling the function EthTrcv\_SetPhyTestMode() of the referenced Ethernet Transceiver Driver.

-[SWS\_EthSwt\_00333] as # 77349 introduces a general req

~[SWS\_EthSwt\_91023] EthSwt\_SetPortLoopbackMode

Description:

Activates a given test loop-back mode of the indexed Ethernet switch port.

~[SWS\_EthSwt\_00334]

The function EthSwt\_SetPortLoopbackMode() shall forward the call with the given loop-back mode by calling the function EthTrcv\_SetPhyLoopbackMode() of the referenced Ethernet Transceiver Driver.

-[SWS\_EthSwt\_00339] as # 77349 introduces a general req

~[SWS\_EthSwt\_91024] EthSwt\_SetPortTxMode

Description:

Activates a given transmission mode of the indexed Ethernet switch port.

~[SWS\_EthSwt\_00340]

The function EthSwt\_SetPortTxMode() shall forward the call with the given transmission mode by calling the function EthTrcv\_SetPhyTxMode() of the referenced Ethernet Transceiver Driver.

-[SWS\_EthSwt\_00345] as # 77349 introduces a general req

~[SWS\_EthSwt\_91025] EthSwt\_GetPortCableDiagnosticsResult

Description:

Retrieves the cable diagnostics result of the indexed Ethernet switch port respectively the referenced Ethernet Transceiver Driver.

~[SWS\_EthSwt\_00346]

The function EthSwt\_GetPortCableDiagnosticsResult() shall obtain the cable diagnostics result by calling the function EthTrcv\_GetCableDiagnosticsResult() of the referenced Ethernet Transceiver Driver. If no Ethernet transceiver is referenced by the Ethernet switch port and development error detection is not enabled, the cable diagnostic result shall be set to ETHTRCV\_CABLEDIAG\_OK.

-[SWS\_EthSwt\_00351] as # 77349 introduces a general req

=== EthTrcv ===

add certain parameter to enable/disable API functions:

+ SWS item ECUC\_EthTrcv\_xxxx1

Name EthTrcvGetPhySignalQualityApi

Description Enables / Disables EthTrcv\_GetPhySignalQuality API

- + SWS item ECUC\_EthTrcv\_xxxx2  
 Name EthTrcvGetPhyIdentifierApi  
 Description Enables / Disables EthTrcv\_GetPhyIdentifier API
  
- + SWS item ECUC\_EthTrcv\_xxxx3  
 Name EthTrcvSetPhyTestModeApi  
 Description Enables / Disables EthTrcv\_SetPhyTestMode API
  
- + SWS item ECUC\_EthTrcv\_xxxx4  
 Name EthTrcvSetPhyTxModeApi  
 Description Enables / Disables EthTrcv\_SetPhyTxMode API
  
- + SWS item ECUC\_EthTrcv\_xxxx5  
 Name EthTrcvGetCableDiagnosticsResultApi  
 Description Enables / Disables EthTrcv\_GetCableDiagnosticsResult API

add the following specification to the configuration parameter above:

Multiplicity 1  
 Type EcucBooleanParamDef  
 Default value –  
 Post-Build Variant Value false  
 Value Configuration  
 Class Pre-compile time X  
 All Variants Link time –  
 Post-build time –  
 Scope / Dependency scope: local  
 –Last change on issue 77628 comment 31–

**BW-C-Level:**

Application	Specification	Bus
1	4	1

## 1.6 Specification Item ECUC\_EthTrcv\_00046

**Trace References:**

none

**Content:**

Name	EthTrcvGetPhyIdentifierApiEthTrcvGeneral.EthTrcvGetPhyIdentifierApi
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Parent Container	EthTrcvGeneral		
Description	Enables / Disables EthTrcv_GetPhyIdentifier API.		
Multiplicity	1		
Type	EcucBooleanParamDef		
Default value	-		
Post-Build Variant Multiplicity	false		
Post-Build Variant Value	false		
Multiplicity Configuration Class	Pre-compile time	X	All Variants
	Link time	-	
	Post-build time	-	
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 #77628: [EthSwt] Behaviour of certain APIs for ports without EthSwtPortTrcvRef (part I)

**Problem description:**

The following APIs have partly a description regarding the handling of ports without EthSwtPortTrcvRef:

- EthSwt\_GetPortSignalQuality
- EthSwt\_GetPortIdentifier
- EthSwt\_SetPortTestMode
- EthTrcv\_SetPhyTestMode
- EthSwt\_SetPortTxMode
- EthSwt\_GetPortCableDiagnosticsResult

The description should be adjusted and harmonized with related requirements.  
 –Last change on issue 77628 comment 2–

**Agreed solution:**

=== EthSwt ===  
 ~[SWS\_EthSwt\_91014]EthSwt\_GetPortSignalQuality  
 Description:

The function retrieves the signal quality of the link of the indexed Ethernet switch port.

~[SWS\_EthSwt\_00293]

The function EthSwt\_GetPortSignalQuality() shall obtain the signal quality by calling the function EthTrcv\_GetPhySignalQuality() of the referenced Ethernet Transceiver Driver. If the current signal quality is not available, the signal quality shall be set to 0xFF.

-[SWS\_EthSwt\_00298]as # 77349 introduces a general req

~[SWS\_EthSwt\_91015]EthSwt\_GetPortIdentifier

Return value

E\_NOT\_OK: organizationally unique identifier of the Ethernet transceiver could not be obtained (i.e. OUI is not available)

Description:

This function retrieves the OUI (24 bit) of the indexed Ethernet switch port.

~[SWS\_EthSwt\_00299]

The function EthSwt\_GetPortIdentifier() shall return the value of the organizationally unique identifier (OUI 24 bit) of the indexed Ethernet switch port that is connected to the indexed Ethernet switch. It shall set the 8 most significant bits of the OUI to 0xFFxxxxxx. If the Ethernet switch port references an Ethernet transceiver, the function shall obtain the OUI by calling the function EthTrcv\_GetPhyIdentifier() and set the 8 most significant bits of the OUI to 0x00xxxxxx.

SWS\_EthSwt\_xxxxx] If neither the Ethernet switch port nor the Ethernet Transceiver Driver can provide an OUI the function EthSwt\_GetPortIdentifier() shall return E\_NOT\_OK.

-[SWS\_EthSwt\_00304]as # 77349 introduces a general req

~[SWS\_EthSwt\_91029] EthSwt\_SetPortTestMode

Description:

Activates a given test mode of the indexed Ethernet switch port.

~[SWS\_EthSwt\_00328]

The function EthSwt\_SetPortTestMode shall forward the call with the given test mode by calling the function EthTrcv\_SetPhyTestMode() of the referenced Ethernet Transceiver Driver.

-[SWS\_EthSwt\_00333]as # 77349 introduces a general req

~[SWS\_EthSwt\_91023] EthSwt\_SetPortLoopbackMode

**Description:**

Activates a given test loop-back mode of the indexed Ethernet switch port.

~[SWS\_EthSwT\_00334]

The function EthSwT\_SetPortLoopbackMode() shall forward the call with the given loop-back mode by calling the function EthTrcv\_SetPhyLoopbackMode() of the referenced Ethernet Transceiver Driver.

-[SWS\_EthSwT\_00339] as # 77349 introduces a general req

~[SWS\_EthSwT\_91024] EthSwT\_SetPortTxMode

**Description:**

Activates a given transmission mode of the indexed Ethernet switch port.

~[SWS\_EthSwT\_00340]

The function EthSwT\_SetPortTxMode() shall forward the call with the given transmission mode by calling the function EthTrcv\_SetPhyTxMode() of the referenced Ethernet Transceiver Driver.

-[SWS\_EthSwT\_00345] as # 77349 introduces a general req

~[SWS\_EthSwT\_91025]EthSwT\_GetPortCableDiagnosticsResult

**Description:**

Retrieves the cable diagnostics result of the indexed Ethernet switch port respectively the referenced Ethernet Transceiver Driver.

~[SWS\_EthSwT\_00346]

The function EthSwT\_GetPortCableDiagnosticsResult() shall obtain the cable diagnostics result by calling the function EthTrcv\_GetCableDiagnosticsResult() of the referenced Ethernet Transceiver Driver. If no Ethernet transceiver is referenced by the Ethernet switch port and development error detection is not enabled, the cable diagnostic result shall be set to ETHTRCV\_CABLEDIAG\_OK.

-[SWS\_EthSwT\_00351] as # 77349 introduces a general req

=== EthTrcv ===

add certain parameter to enable/disable API functions:

+ SWS item ECUC\_EthTrcv\_xxxx1

Name EthTrcvGetPhySignalQualityApi

Description Enables / Disables EthTrcv\_GetPhySignalQuality API

+ SWS item ECUC\_EthTrcv\_xxxx2

Name EthTrcvGetPhyIdentifierApi

Description Enables / Disables EthTrcv\_GetPhyIdentifier API

+ SWS item ECUC\_EthTrcv\_xxxx3

Name EthTrcvSetPhyTestModeApi

Description Enables / Disables EthTrcv\_SetPhyTestMode API

+ SWS item ECUC\_EthTrcv\_xxxx4

Name EthTrcvSetPhyTxModeApi

Description Enables / Disables EthTrcv\_SetPhyTxMode API

+ SWS item ECUC\_EthTrcv\_xxxx5

Name EthTrcvGetCableDiagnosticsResultApi

Description Enables / Disables EthTrcv\_GetCableDiagnosticsResult API

add the following specification to the configuration parameter above:

Multiplicity 1

Type EcucBooleanParamDef

Default value –

Post-Build Variant Value false

Value Configuration

Class Pre-compile time X

All Variants Link time –

Post-build time –

Scope / Dependency scope: local

–Last change on issue 77628 comment 31–

**BW-C-Level:**

Application	Specification	Bus
1	4	1

## 1.7 Specification Item ECUC\_EthTrcv\_00047

**Trace References:**

none

**Content:**

Name	EthTrcvSetPhyTestModeApiEthTrcvGeneral.EthTrcvSetPhyTestModeApi
Parent Container	EthTrcvGeneral
Description	Enables / Disables EthTrcv_SetPhyTestMode API.
Multiplicity	1
Type	EcucBooleanParamDef
Default value	–
Post-Build Variant Multiplicity	false

Post-Build Variant Value	false		
Multiplicity Configuration Class	Pre-compile time	X	All Variants
	Link time	-	
	Post-build time	-	
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 #77628: [EthSwt] Behaviour of certain APIs for ports without EthSwtPortTrcvRef (part I)

**Problem description:**

The following APIs have partly a description regarding the handling of ports without EthSwtPortTrcvRef:

- EthSwt\_GetPortSignalQuality
- EthSwt\_GetPortIdentifier
- EthSwt\_SetPortTestMode
- EthTrcv\_SetPhyTestMode
- EthSwt\_SetPortTxMode
- EthSwt\_GetPortCableDiagnosticsResult

The description should be adjusted and harmonized with related requirements.  
 –Last change on issue 77628 comment 2–

**Agreed solution:**

=== EthSwt ===

~[SWS\_EthSwt\_91014]EthSwt\_GetPortSignalQuality

Description:

The function retrieves the signal quality of the link of the indexed Ethernet switch port.

~[SWS\_EthSwt\_00293]

The function EthSwt\_GetPortSignalQuality() shall obtain the signal quality by calling the function EthTrcv\_GetPhySignalQuality() of the referenced Ethernet Transceiver Driver. If the current signal quality is not available, the signal quality shall be set to 0xFF.

-[SWS\_EthSwt\_00298]as # 77349 introduces a general req

~[SWS\_EthSwT\_91015]EthSwT\_GetPortIdentifier

Return value

E\_NOT\_OK: organizationally unique identifier of the Ethernet transceiver could not be obtained (i.e. OUI is not available)

Description:

This function retrieves the OUI (24 bit) of the indexed Ethernet switch port.

~[SWS\_EthSwT\_00299]

The function EthSwT\_GetPortIdentifier() shall return the value of the organizationally unique identifier (OUI 24 bit) of the indexed Ethernet switch port that is connected to the indexed Ethernet switch. It shall set the 8 most significant bits of the OUI to 0xFFxxxxxx. If the Ethernet switch port references an Ethernet transceiver, the function shall obtain the OUI by calling the function EthTrcv\_GetPhyIdentifier() and set the 8 most significant bits of the OUI to 0x00xxxxxx.

SWS\_EthSwT\_xxxxx] If neither the Ethernet switch port nor the Ethernet Transceiver Driver can provide an OUI the function EthSwT\_GetPortIdentifier() shall return E\_NOT\_OK.

-[SWS\_EthSwT\_00304]as # 77349 introduces a general req

~[SWS\_EthSwT\_91029] EthSwT\_SetPortTestMode

Description:

Activates a given test mode of the indexed Ethernet switch port.

~[SWS\_EthSwT\_00328]

The function EthSwT\_SetPortTestMode shall forward the call with the given test mode by calling the function EthTrcv\_SetPhyTestMode() of the referenced Ethernet Transceiver Driver.

-[SWS\_EthSwT\_00333]as # 77349 introduces a general req

~[SWS\_EthSwT\_91023] EthSwT\_SetPortLoopbackMode

Description:

Activates a given test loop-back mode of the indexed Ethernet switch port.

~[SWS\_EthSwT\_00334]

The function EthSwT\_SetPortLoopbackMode() shall forward the call with the given loop-back mode by calling the function EthTrcv\_SetPhyLoopbackMode() of the referenced Ethernet Transceiver Driver.

-[SWS\_EthSwT\_00339] as # 77349 introduces a general req

~[SWS\_EthSwt\_91024] EthSwt\_SetPortTxMode

Description:

Activates a given transmission mode of the indexed Ethernet switch port.

~[SWS\_EthSwt\_00340]

The function EthSwt\_SetPortTxMode() shall forward the call with the given transmission mode by calling the function EthTrcv\_SetPhyTxMode() of the referenced Ethernet Transceiver Driver.

-[SWS\_EthSwt\_00345] as # 77349 introduces a general req

~[SWS\_EthSwt\_91025]EthSwt\_GetPortCableDiagnosticsResult

Description:

Retrieves the cable diagnostics result of the indexed Ethernet switch port respectively the referenced Ethernet Transceiver Driver.

~[SWS\_EthSwt\_00346]

The function EthSwt\_GetPortCableDiagnosticsResult() shall obtain the cable diagnostics result by calling the function EthTrcv\_GetCableDiagnosticsResult() of the referenced Ethernet Transceiver Driver. If no Ethernet transceiver is referenced by the Ethernet switch port and development error detection is not enabled, the cable diagnostic result shall be set to ETHTRCV\_CABLEDIAG\_OK.

-[SWS\_EthSwt\_00351] as # 77349 introduces a general req

=== EthTrcv ===

add certain parameter to enable/disable API functions:

+ SWS item ECUC\_EthTrcv\_xxxx1

Name EthTrcvGetPhySignalQualityApi

Description Enables / Disables EthTrcv\_GetPhySignalQuality API

+ SWS item ECUC\_EthTrcv\_xxxx2

Name EthTrcvGetPhyIdentifierApi

Description Enables / Disables EthTrcv\_GetPhyIdentifier API

+ SWS item ECUC\_EthTrcv\_xxxx3

Name EthTrcvSetPhyTestModeApi

Description Enables / Disables EthTrcv\_SetPhyTestMode API

+ SWS item ECUC\_EthTrcv\_xxxx4

Name EthTrcvSetPhyTxModeApi

Description Enables / Disables EthTrcv\_SetPhyTxMode API

+ SWS item ECUC\_EthTrcv\_xxxx5

Name EthTrcvGetCableDiagnosticsResultApi

Description Enables / Disables EthTrcv\_GetCableDiagnosticsResult API

add the following specification to the configuration parameter above:

Multiplicity 1  
 Type EcucBooleanParamDef  
 Default value –  
 Post-Build Variant Value false  
 Value Configuration  
 Class Pre-compile time X  
 All Variants Link time –  
 Post-build time –  
 Scope / Dependency scope: local  
 –Last change on issue 77628 comment 31–

**BW-C-Level:**

Application	Specification	Bus
1	4	1

## 1.8 Specification Item ECUC\_EthTrcv\_00048

**Trace References:**

none

**Content:**

Name	EthTrcvSetPhyTxModeApiEthTrcvGeneral.EthTrcvSetPhyTxModeApi		
Parent Container	EthTrcvGeneral		
Description	Enables / Disables EthTrcv_SetPhyTxMode API.		
Multiplicity	1		
Type	EcucBooleanParamDef		
Default value	–		
Post-Build Variant Multiplicity	false		
Post-Build Variant Value	false		
Multiplicity Configuration Class	Pre-compile time	X	All Variants
	Link time	–	
	Post-build time	–	

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 #77628: [EthSwt] Behaviour of certain APIs for ports without EthSwtPortTrcvRef (part I)

**Problem description:**

The following APIs have partly a description regarding the handling of ports without EthSwtPortTrcvRef:

- EthSwt\_GetPortSignalQuality
- EthSwt\_GetPortIdentifier
- EthSwt\_SetPortTestMode
- EthTrcv\_SetPhyTestMode
- EthSwt\_SetPortTxMode
- EthSwt\_GetPortCableDiagnosticsResult

The description should be adjusted and harmonized with related requirements.  
 –Last change on issue 77628 comment 2–

**Agreed solution:**

=== EthSwt ===

~[SWS\_EthSwt\_91014]EthSwt\_GetPortSignalQuality

Description:

The function retrieves the signal quality of the link of the indexed Ethernet switch port.

~[SWS\_EthSwt\_00293]

The function EthSwt\_GetPortSignalQuality() shall obtain the signal quality by calling the function EthTrcv\_GetPhySignalQuality() of the referenced Ethernet Transceiver Driver. If the current signal quality is not available, the signal quality shall be set to 0xFF.

-[SWS\_EthSwt\_00298]as # 77349 introduces a general req

~[SWS\_EthSwt\_91015]EthSwt\_GetPortIdentifier

Return value

E\_NOT\_OK: organizationally unique identifier of the Ethernet transceiver could not

be obtained (i.e. OUI is not available)

Description:

This function retrieves the OUI (24 bit) of the indexed Ethernet switch port.

~[SWS\_EthSwt\_00299]

The function EthSwt\_GetPortIdentifier() shall return the value of the organizationally unique identifier (OUI 24 bit) of the indexed Ethernet switch port that is connected to the indexed Ethernet switch. It shall set the 8 most significant bits of the OUI to 0xFFxxxxxx. If the Ethernet switch port references an Ethernet transceiver, the function shall obtain the OUI by calling the function EthTrcv\_GetPhyIdentifier() and set the 8 most significant bits of the OUI to 0x00xxxxxx.

SWS\_EthSwt\_xxxxx] If neither the Ethernet switch port nor the Ethernet Transceiver Driver can provide an OUI the function EthSwt\_GetPortIdentifier() shall return E\_NOT\_OK.

-[SWS\_EthSwt\_00304]as # 77349 introduces a general req

~[SWS\_EthSwt\_91029] EthSwt\_SetPortTestMode

Description:

Activates a given test mode of the indexed Ethernet switch port.

~[SWS\_EthSwt\_00328]

The function EthSwt\_SetPortTestMode shall forward the call with the given test mode by calling the function EthTrcv\_SetPhyTestMode() of the referenced Ethernet Transceiver Driver.

-[SWS\_EthSwt\_00333]as # 77349 introduces a general req

~[SWS\_EthSwt\_91023] EthSwt\_SetPortLoopbackMode

Description:

Activates a given test loop-back mode of the indexed Ethernet switch port.

~[SWS\_EthSwt\_00334]

The function EthSwt\_SetPortLoopbackMode() shall forward the call with the given loop-back mode by calling the function EthTrcv\_SetPhyLoopbackMode() of the referenced Ethernet Transceiver Driver.

-[SWS\_EthSwt\_00339] as # 77349 introduces a general req

~[SWS\_EthSwt\_91024] EthSwt\_SetPortTxMode

Description:

Activates a given transmission mode of the indexed Ethernet switch port.

~[SWS\_EthSwt\_00340]

The function EthSwt\_SetPortTxMode() shall forward the call with the given transmission mode by calling the function EthTrcv\_SetPhyTxMode() of the referenced Ethernet Transceiver Driver.

-[SWS\_EthSwt\_00345] as # 77349 introduces a general req

~[SWS\_EthSwt\_91025]EthSwt\_GetPortCableDiagnosticsResult

Description:

Retrieves the cable diagnostics result of the indexed Ethernet switch port respectively the referenced Ethernet Transceiver Driver.

~[SWS\_EthSwt\_00346]

The function EthSwt\_GetPortCableDiagnosticsResult() shall obtain the cable diagnostics result by calling the function EthTrcv\_GetCableDiagnosticsResult() of the referenced Ethernet Transceiver Driver. If no Ethernet transceiver is referenced by the Ethernet switch port and development error detection is not enabled, the cable diagnostic result shall be set to ETHTRCV\_CABLEDIAG\_OK.

-[SWS\_EthSwt\_00351] as # 77349 introduces a general req

=== EthTrcv ===

add certain parameter to enable/disable API functions:

+ SWS item ECUC\_EthTrcv\_xxxx1

Name EthTrcvGetPhySignalQualityApi

Description Enables / Disables EthTrcv\_GetPhySignalQuality API

+ SWS item ECUC\_EthTrcv\_xxxx2

Name EthTrcvGetPhyIdentifierApi

Description Enables / Disables EthTrcv\_GetPhyIdentifier API

+ SWS item ECUC\_EthTrcv\_xxxx3

Name EthTrcvSetPhyTestModeApi

Description Enables / Disables EthTrcv\_SetPhyTestMode API

+ SWS item ECUC\_EthTrcv\_xxxx4

Name EthTrcvSetPhyTxModeApi

Description Enables / Disables EthTrcv\_SetPhyTxMode API

+ SWS item ECUC\_EthTrcv\_xxxx5

Name EthTrcvGetCableDiagnosticsResultApi

Description Enables / Disables EthTrcv\_GetCableDiagnosticsResult API

add the following specification to the configuration parameter above:

Multiplicity 1

Type EcucBooleanParamDef

Default value –  
 Post-Build Variant Value false  
 Value Configuration  
 Class Pre-compile time X  
 All Variants Link time –  
 Post-build time –  
 Scope / Dependency scope: local  
 –Last change on issue 77628 comment 31–

**BW-C-Level:**

Application	Specification	Bus
1	4	1

## 1.9 Specification Item ECUC\_EthTrcv\_00049

**Trace References:**

none

**Content:**

Name	EthTrcvGetCableDiagnosticsResultApiEthTrcvGeneral.EthTrcvGetCableDiagnosticsResultApi		
Parent Container	EthTrcvGeneral		
Description	Enables / Disables EthTrcv_GetCableDiagnosticsResult API.		
Multiplicity	1		
Type	EcucBooleanParamDef		
Default value	–		
Post-Build Variant Multiplicity	false		
Post-Build Variant Value	false		
Multiplicity Configuration Class	Pre-compile time	X	All Variants
	Link time	–	
	Post-build time	–	
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 #77628: [EthSwt] Behaviour of certain APIs for ports without EthSwtPortTrcvRef (part I)

**Problem description:**

The following APIs have partly a description regarding the handling of ports without EthSwtPortTrcvRef:

EthSwt\_GetPortSignalQuality  
 EthSwt\_GetPortIdentifier  
 EthSwt\_SetPortTestMode  
 EthTrcv\_SetPhyTestMode  
 EthSwt\_SetPortTxMode  
 EthSwt\_GetPortCableDiagnosticsResult

The description should be adjusted and harmonized with related requirements.  
 –Last change on issue 77628 comment 2–

**Agreed solution:**

=== EthSwt ===

~[SWS\_EthSwt\_91014]EthSwt\_GetPortSignalQuality

Description:

The function retrieves the signal quality of the link of the indexed Ethernet switch port.

~[SWS\_EthSwt\_00293]

The function EthSwt\_GetPortSignalQuality() shall obtain the signal quality by calling the function EthTrcv\_GetPhySignalQuality() of the referenced Ethernet Transceiver Driver. If the current signal quality is not available, the signal quality shall be set to 0xFF.

-[SWS\_EthSwt\_00298]as # 77349 introduces a general req

~[SWS\_EthSwt\_91015]EthSwt\_GetPortIdentifier

Return value

E\_NOT\_OK: organizationally unique identifier of the Ethernet transceiver could not be obtained (i.e. OUI is not available)

Description:

This function retrieves the OUI (24 bit) of the indexed Ethernet switch port.

~[SWS\_EthSwt\_00299]

The function EthSwt\_GetPortIdentifier() shall return the value of the organizationally unique identifier (OUI 24 bit) of the indexed Ethernet switch port that is connected to the indexed Ethernet switch. It shall set the 8 most significant bits of the OUI

to 0xFFxxxxxx. If the Ethernet switch port references an Ethernet transceiver, the function shall obtain the OUI by calling the function `EthTrcv_GetPhyIdentifier()` and set the 8 most significant bits of the OUI to 0x00xxxxxx.

SWS\_EthSwT\_xxxxx] If neither the Ethernet switch port nor the Ethernet Transceiver Driver can provide an OUI the function `EthSwT_GetPortIdentifier()` shall return `E_NOT_OK`.

-[SWS\_EthSwT\_00304]as # 77349 introduces a general req

~[SWS\_EthSwT\_91029] `EthSwT_SetPortTestMode`

Description:

Activates a given test mode of the indexed Ethernet switch port.

~[SWS\_EthSwT\_00328]

The function `EthSwT_SetPortTestMode` shall forward the call with the given test mode by calling the function `EthTrcv_SetPhyTestMode()` of the referenced Ethernet Transceiver Driver.

-[SWS\_EthSwT\_00333]as # 77349 introduces a general req

~[SWS\_EthSwT\_91023] `EthSwT_SetPortLoopbackMode`

Description:

Activates a given test loop-back mode of the indexed Ethernet switch port.

~[SWS\_EthSwT\_00334]

The function `EthSwT_SetPortLoopbackMode()` shall forward the call with the given loop-back mode by calling the function `EthTrcv_SetPhyLoopbackMode()` of the referenced Ethernet Transceiver Driver.

-[SWS\_EthSwT\_00339] as # 77349 introduces a general req

~[SWS\_EthSwT\_91024] `EthSwT_SetPortTxMode`

Description:

Activates a given transmission mode of the indexed Ethernet switch port.

~[SWS\_EthSwT\_00340]

The function `EthSwT_SetPortTxMode()` shall forward the call with the given transmission mode by calling the function `EthTrcv_SetPhyTxMode()` of the referenced Ethernet Transceiver Driver.

-[SWS\_EthSwT\_00345] as # 77349 introduces a general req

~[SWS\_EthSwT\_91025]`EthSwT_GetPortCableDiagnosticsResult`

Description:

Retrieves the cable diagnostics result of the indexed Ethernet switch port respec-

tively the referenced Ethernet Transceiver Driver.

~[SWS\_EthSwT\_00346]

The function EthSwT\_GetPortCableDiagnosticsResult() shall obtain the cable diagnostics result by calling the function EthTrcv\_GetCableDiagnosticsResult() of the referenced Ethernet Transceiver Driver. If no Ethernet transceiver is referenced by the Ethernet switch port and development error detection is not enabled, the cable diagnostic result shall be set to ETHTRCV\_CABLEDIAG\_OK.

-[SWS\_EthSwT\_00351] as # 77349 introduces a general req

=== EthTrcv ===

add certain parameter to enable/disable API functions:

+ SWS item ECUC\_EthTrcv\_xxxx1

Name EthTrcvGetPhySignalQualityApi

Description Enables / Disables EthTrcv\_GetPhySignalQuality API

+ SWS item ECUC\_EthTrcv\_xxxx2

Name EthTrcvGetPhyIdentifierApi

Description Enables / Disables EthTrcv\_GetPhyIdentifier API

+ SWS item ECUC\_EthTrcv\_xxxx3

Name EthTrcvSetPhyTestModeApi

Description Enables / Disables EthTrcv\_SetPhyTestMode API

+ SWS item ECUC\_EthTrcv\_xxxx4

Name EthTrcvSetPhyTxModeApi

Description Enables / Disables EthTrcv\_SetPhyTxMode API

+ SWS item ECUC\_EthTrcv\_xxxx5

Name EthTrcvGetCableDiagnosticsResultApi

Description Enables / Disables EthTrcv\_GetCableDiagnosticsResult API

add the following specification to the configuration parameter above:

Multiplicity 1

Type EcucBooleanParamDef

Default value –

Post-Build Variant Value false

Value Configuration

Class Pre-compile time X

All Variants Link time –

Post-build time –

Scope / Dependency scope: local

–Last change on issue 77628 comment 31–

**BW-C-Level:**

Application	Specification	Bus
1	4	1

## 1.10 Specification Item SWS\_EthTrcv\_00017

**Trace References:**

none

**Content:**

Type or error	Relevance	Related error code	Value [hex]
Invalid transceiver index	Default Development error	ETHTRCV_E_INV_TRCV_IDX	0x01
EthTrcv module was not initialized	Default Development error	ETHTRCV_E_NOT_INITIALIZED UNINIT	0x02
Invalid pointer in parameter list	Default Development error	ETHTRCV_E_PARAM_POINTER	0x03

**RfCs affecting this spec item between releases 4.3.0 and 4.3.1:**

- RfC #59085: Rollout of 'Runtime errors'

**Problem description:**

Inconsistencies in SWS with semantics of Default errors  
 –Last change on issue 59085 comment 26–

**Agreed solution:**

solution in Column "G" of the new attachment  
<https://www.autosar.org/bugzilla/attachment.cgi?id=4604>

**Notes:**

- It is not enough just to migrate the error from one classification table to another. Please also check the related requirements (and background information) which is referring to that error and adapt them if needed.
- The review task of the ITs shall be done by the WP to which the specification "belongs".

\*\*\* BSW UML Model \*\*\*

SWS\_CanNm:

\_\_\_\_\_

Chapter 8.6.1 Optional Interfaces:

Add within SWS\_CanNm\_00325 the API function Det\_ReportRuntimeError

SWS\_LinIf:

\_\_\_\_\_

SWS\_LinIf\_00359: add Det\_ReportRuntimeError

SWS\_UdpNm:

\_\_\_\_\_

Replace UDPNM\_E\_NO\_INIT with UDPNM\_E\_UNINIT in description of API UdpNm\_MainFunction\_<Instance Id> (SWS\_UdpNm\_00234)

\*\*\* ECUC XML \*\*\*

Not affected. No configuration of runtime error reporting required (see SWS BSW General).

–Last change on issue 59085 comment 88–

**BW-C-Level:**

Application	Specification	Bus
1	4	1

## 1.11 Specification Item SWS\_EthTrcv\_00027

**Trace References:**

none

**Content:**

Module	Imported Type
ComStack_Types	BufReq_ReturnType
Dem	Dem_EventIdType
	Dem_EventStatusType
EcuM	EcuM_WakeupSourceType

Module	Imported Type
Eth_GeneralTypes	EthTrcv_BaudRateType
	EthTrcv_CableDiagResultType
	EthTrcv_ConfigType
	EthTrcv_DuplexModeType
	EthTrcv_LinkStateType
	EthTrcv_ModeType
	EthTrcv_PhyLoopbackModeType
	EthTrcv_PhyTestModeType
	EthTrcv_PhyTxModeType
	EthTrcv_WakeupModeType
Eth_BuflIdxType	
Eth_ConfigType	
Eth_FrameType	
Eth_ModeType	
Eth_RxStatusType	
Icu	Icu_ChannelType
Std_Types	Std_ReturnType
	Std_VersionInfoType

### RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76879: [EthTrcv] Add EthSwt API's to optional interfaces

#### Problem description:

Optional interfaces are missing, in case the Ethernet transceiver is connected to a Ethernet switch

#### Agreed solution:

add the following API's to optional interfaces:

EthSwt\_ReadTrcvRegister

EthSwt\_WriteTrcvRegister

move the following API's from mandatory interfaces to optional interfaces:

Eth\_ReadMii

Eth\_WriteMii

–Last change on issue 76879 comment 1–

#### BW-C-Level:

Application	Specification	Bus
1	1	1

## 1.12 Specification Item SWS\_EthTrcv\_00044

### Trace References:

none

### Content:

If **default development** error detection is enabled: the function shall check that the service EthTrcv\_Init was previously called. If the check fails, the function shall raise the **default development** error ETHTRCV\_E\_NOT\_INITIALIZED UNINIT otherwise (if DET is disabled) return E\_NOT\_OK.

### RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #59085: Rollout of 'Runtime errors'

#### Problem description:

Inconsistencies in SWS with semantics of Default errors  
 –Last change on issue 59085 comment 26–

#### Agreed solution:

solution in Column "G" of the new attachment  
<https://www.autosar.org/bugzilla/attachment.cgi?id=4604>

#### Notes:

- It is not enough just to migrate the error from one classification table to another. Please also check the related requirements (and background information) which is referring to that error and adapt them if needed.
- The review task of the ITs shall be done by the WP to which the specification "belongs".

\*\*\* BSW UML Model \*\*\*

SWS\_CanNm:

\_\_\_\_\_

Chapter 8.6.1 Optional Interfaces:

Add within SWS\_CanNm\_00325 the API function Det\_ReportRunTimeError

SWS\_LinIf:

\_\_\_\_\_

SWS\_LinIf\_00359: add Det\_ReportRuntimeError

SWS\_UdpNm:

\_\_\_\_\_

Replace UDPNM\_E\_NO\_INIT with UDPNM\_E\_UNINIT in description of API UdpNm\_MainFunction\_<Instance Id> (SWS\_UdpNm\_00234)

\*\*\* ECUC XML \*\*\*

Not affected. No configuration of runtime error reporting required (see SWS BSW General).

–Last change on issue 59085 comment 88–

**BW-C-Level:**

Application	Specification	Bus
1	4	1

### 1.13 Specification Item SWS\_EthTrcv\_00050

**Trace References:**

none

**Content:**

If **default development** error detection is enabled: the function shall check that the service EthTrcv\_Init was previously called. If the check fails, the function shall raise the **default development** error ETHTRCV\_E\_ **NOT\_INITIALIZED UNINIT** otherwise (if DET is disabled) return E\_NOT\_OK.

**RfCs affecting this spec item between releases 4.3.0 and 4.3.1:**

- RfC #59085: Rollout of 'Runtime errors'

**Problem description:**

Inconsistencies in SWS with semantics of Default errors

–Last change on issue 59085 comment 26–

**Agreed solution:**

solution in Column "G" of the new attachment <https://www.autosar.org/bugzilla/attachment.cgi?id=4604>

Notes:

- It is not enough just to migrate the error from one classification table to another. Please also check the related requirements (and background information) which is referring to that error and adapt them if needed.
- The review task of the ITs shall be done by the WP to which the specification "belongs".

\*\*\* BSW UML Model \*\*\*

SWS\_CanNm:

\_\_\_\_\_

Chapter 8.6.1 Optional Interfaces:

Add within SWS\_CanNm\_00325 the API function Det\_ReportRuntimeError

SWS\_LinIf:

\_\_\_\_\_

SWS\_LinIf\_00359: add Det\_ReportRuntimeError

SWS\_UdpNm:

\_\_\_\_\_

Replace UDPNM\_E\_NO\_INIT with UDPNM\_E\_UNINIT in description of API UdpNm\_MainFunction\_<Instance Id> (SWS\_UdpNm\_00234)

\*\*\* ECUC XML \*\*\*

Not affected. No configuration of runtime error reporting required (see SWS BSW General).

–Last change on issue 59085 comment 88–

**BW-C-Level:**

Application	Specification	Bus
1	4	1

## 1.14 Specification Item SWS\_EthTrcv\_00057

**Trace References:**

none

**Content:**

If **default development** error detection is enabled: the function shall check that the service EthTrcv\_Init was previously called. If the check fails, the function shall raise the **default de-**

development error ETHTRCV\_E\_NOT\_INITIALIZED UNINIT otherwise (if DET is disabled)  
return E\_NOT\_OK.

### RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #59085: Rollout of 'Runtime errors'

#### Problem description:

Inconsistencies in SWS with semantics of Default errors  
–Last change on issue 59085 comment 26–

#### Agreed solution:

solution in Column "G" of the new attachment  
<https://www.autosar.org/bugzilla/attachment.cgi?id=4604>

#### Notes:

- It is not enough just to migrate the error from one classification table to another. Please also check the related requirements (and background information) which is referring to that error and adapt them if needed.
- The review task of the ITs shall be done by the WP to which the specification "belongs".

#### \*\*\* BSW UML Model \*\*\*

##### SWS\_CanNm:

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##### Chapter 8.6.1 Optional Interfaces:

Add within SWS\_CanNm\_00325 the API function Det\_ReportRunTimeError

##### SWS\_LinIf:

---

SWS\_LinIf\_00359: add Det\_ReportRuntimeError

##### SWS\_UdpNm:

---

Replace UDPNM\_E\_NO\_INIT with UDPNM\_E\_UNINIT in description of API  
UdpNm\_MainFunction\_<Instance Id> (SWS\_UdpNm\_00234)

#### \*\*\* ECUC XML \*\*\*

Not affected. No configuration of runtime error reporting required (see SWS BSW  
General).

–Last change on issue 59085 comment 88–

**BW-C-Level:**

Application	Specification	Bus
1	4	1

## 1.15 Specification Item SWS\_EthTrcv\_00063

**Trace References:**

none

**Content:**

If **default development** error detection is enabled: the function shall check that the service EthTrcv\_Init was previously called. If the check fails, the function shall raise the **default development** error ETHTRCV\_E\_NOT\_INITIALIZED UNINIT otherwise (if DET is disabled) return E\_NOT\_OK.

**RfCs affecting this spec item between releases 4.3.0 and 4.3.1:**

- RfC #59085: Rollout of 'Runtime errors'

**Problem description:**

Inconsistencies in SWS with semantics of Default errors  
 –Last change on issue 59085 comment 26–

**Agreed solution:**

solution in Column "G" of the new attachment  
<https://www.autosar.org/bugzilla/attachment.cgi?id=4604>

**Notes:**

- It is not enough just to migrate the error from one classification table to another. Please also check the related requirements (and background information) which is referring to that error and adapt them if needed.
- The review task of the ITs shall be done by the WP to which the specification "belongs".

\*\*\* BSW UML Model \*\*\*

SWS\_CanNm:

\_\_\_\_\_

Chapter 8.6.1 Optional Interfaces:

Add within SWS\_CanNm\_00325 the API function Det\_ReportRunTimeError

**SWS\_LinIf:**

SWS\_LinIf\_00359: add Det\_ReportRuntimeError

**SWS\_UdpNm:**

Replace UDPNM\_E\_NO\_INIT with UDPNM\_E\_UNINIT in description of API UdpNm\_MainFunction\_<Instance Id> (SWS\_UdpNm\_00234)

\*\*\* ECUC XML \*\*\*

Not affected. No configuration of runtime error reporting required (see SWS BSW General).

–Last change on issue 59085 comment 88–

**BW-C-Level:**

Application	Specification	Bus
1	4	1

## 1.16 Specification Item SWS\_EthTrcv\_00070

**Trace References:**

none

**Content:**

If **default development** error detection is enabled: the function shall check that the service EthTrcv\_Init was previously called. If the check fails, the function shall raise the **default development** error ETHTRCV\_E\_NOT\_INITIALIZED\_UNINIT otherwise (if DET is disabled) return E\_NOT\_OK.

**RfCs affecting this spec item between releases 4.3.0 and 4.3.1:**

- RfC #59085: Rollout of 'Runtime errors'

**Problem description:**

Inconsistencies in SWS with semantics of Default errors

–Last change on issue 59085 comment 26–

**Agreed solution:**

solution in Column "G" of the new attachment  
<https://www.autosar.org/bugzilla/attachment.cgi?id=4604>

Notes:

- It is not enough just to migrate the error from one classification table to another. Please also check the related requirements (and background information) which is referring to that error and adapt them if needed.
- The review task of the ITs shall be done by the WP to which the specification "belongs".

\*\*\* BSW UML Model \*\*\*

SWS\_CanNm:

\_\_\_\_\_

Chapter 8.6.1 Optional Interfaces:

Add within SWS\_CanNm\_00325 the API function Det\_ReportRuntimeError

SWS\_LinIf:

\_\_\_\_\_

SWS\_LinIf\_00359: add Det\_ReportRuntimeError

SWS\_UdpNm:

\_\_\_\_\_

Replace UDPNM\_E\_NO\_INIT with UDPNM\_E\_UNINIT in description of API UdpNm\_MainFunction\_<Instance Id> (SWS\_UdpNm\_00234)

\*\*\* ECUC XML \*\*\*

Not affected. No configuration of runtime error reporting required (see SWS BSW General).

–Last change on issue 59085 comment 88–

**BW-C-Level:**

Application	Specification	Bus
1	4	1

## 1.17 Specification Item SWS\_EthTrcv\_00077

**Trace References:**

none

**Content:**

If **default development** error detection is enabled: the function shall check that the service EthTrcv\_Init was previously called. If the check fails, the function shall raise the **default development** error ETHTRCV\_E\_NOT\_INITIALIZED\_UNINIT otherwise (if DET is disabled) return E\_NOT\_OK.

**RfCs affecting this spec item between releases 4.3.0 and 4.3.1:**

- RfC #59085: Rollout of 'Runtime errors'

**Problem description:**

Inconsistencies in SWS with semantics of Default errors  
–Last change on issue 59085 comment 26–

**Agreed solution:**

solution in Column "G" of the new attachment  
<https://www.autosar.org/bugzilla/attachment.cgi?id=4604>

**Notes:**

- It is not enough just to migrate the error from one classification table to another. Please also check the related requirements (and background information) which is referring to that error and adapt them if needed.
- The review task of the ITs shall be done by the WP to which the specification "belongs".

\*\*\* BSW UML Model \*\*\*

SWS\_CanNm:

---

Chapter 8.6.1 Optional Interfaces:

Add within SWS\_CanNm\_00325 the API function Det\_ReportRunTimeError

SWS\_LinIf:

---

SWS\_LinIf\_00359: add Det\_ReportRuntimeError

SWS\_UdpNm:

---

Replace UDPNM\_E\_NO\_INIT with UDPNM\_E\_UNINIT in description of API  
UdpNm\_MainFunction\_<Instance Id> (SWS\_UdpNm\_00234)

\*\*\* ECUC XML \*\*\*

Not affected. No configuration of runtime error reporting required (see SWS BSW General).

–Last change on issue 59085 comment 88–

**BW-C-Level:**

Application	Specification	Bus
1	4	1

## 1.18 Specification Item SWS\_EthTrcv\_00085

**Trace References:**

none

**Content:**

API function	Description
Dem_SetEventStatus	Called by SW-Cs or BSW modules to report monitor status information to the Dem. BSW modules calling Dem_SetEvent Status can safely ignore the return value.
Eth_GetControllerMode	Obtains the state of the indexed controller
Eth_GetPhysAddr	Obtains the physical source address used by the indexed controller
Eth_GetVersionInfo	Returns the version information of this module
Eth_Init	Initializes the Ethernet Driver
Eth_ProvideTxBuffer	Provides access to a transmit buffer of the FIFO related to the specified priority
Eth_ReadMii	Reads a transceiver register
Eth_Receive	Receive a frame from the related fifo.
Eth_SetControllerMode	Enables / disables the indexed controller
Eth_Transmit	Triggers transmission of a previously filled transmit buffer
Eth_TxConfirmation	Triggers frame transmission confirmation
Eth_WriteMii	Configures a transceiver register or triggers a function offered by the receiver
EthIf_TrcvModeIndication	Called asynchronously when mode a mode change has been read out. Triggered by previous EthIf green function is triggered by previous call of EthTrcv_SetTransceiverMode call. Can it can directly be called within the trigger functionsfunction.
SchM_Enter_EthTrcv	Invokes the SchM_Enter function to enter a module local exclusive area.
SchM_Exit_EthTrcv	Invokes the SchM_Exit function to exit an exclusive area.

**RfCs affecting this spec item between releases 4.3.0 and 4.3.1:**

- RfC #59085: Rollout of 'Runtime errors'

**Problem description:**

Inconsistencies in SWS with semantics of Default errors  
 –Last change on issue 59085 comment 26–

**Agreed solution:**

solution in Column "G" of the new attachment  
<https://www.autosar.org/bugzilla/attachment.cgi?id=4604>

**Notes:**

- It is not enough just to migrate the error from one classification table to another. Please also check the related requirements (and background information) which is referring to that error and adapt them if needed.
- The review task of the ITs shall be done by the WP to which the specification "belongs".

**\*\*\* BSW UML Model \*\*\***

**SWS\_CanNm:**

\_\_\_\_\_

**Chapter 8.6.1 Optional Interfaces:**

Add within SWS\_CanNm\_00325 the API function Det\_ReportRunTimeError

**SWS\_LinIf:**

\_\_\_\_\_

SWS\_LinIf\_00359: add Det\_ReportRuntimeError

**SWS\_UdpNm:**

\_\_\_\_\_

Replace UDPNM\_E\_NO\_INIT with UDPNM\_E\_UNINIT in description of API  
 UdpNm\_MainFunction\_<Instance Id> (SWS\_UdpNm\_00234)

**\*\*\* ECUC XML \*\*\***

Not affected. No configuration of runtime error reporting required (see SWS BSW  
 General).

–Last change on issue 59085 comment 88–

**BW-C-Level:**

Application	Specification	Bus
1	4	1

- RfC #76528: [EthTrcv] Description of mandatory API "EthIf\_TrvcModeIndication" seem to be partly wrong

**Problem description:**

The description for the mandatory API "EthIf\_TrvcModeIndication" says:

"  
 ...  
 Triggered by Eth\_SetTranceiverMode ...  
 ...  
 "

I think this should changed to "Triggered by EthTrcv\_SetTranceiverMode"

**Agreed solution:**

Change API name in the description of EthIf\_TrvcModeIndication in requirement SWS\_EthTrcv\_00085 from ... Eth\_SetTranceiverMode ... to ... EthTrcv\_SetTranceiverMode ...

Also change the description in the EthIf ~SWS\_EthIf\_00232  
 –Last change on issue 76528 comment 2–

**BW-C-Level:**

Application	Specification	Bus
1	1	1

- RfC #76628: [EthTrcv] Remove certain Ethernet API's form chapter mandatory interfaces

**Problem description:**

Some mandatory API's provided by the Ethernet Driver are not used in the Ethernet Transceiver Driver:

- Eth\_GetControllerMode
- Eth\_SetControllerMode
- Eth\_GetPhysAddr
- Eth\_GetVersionInfo
- Eth\_Init
- Eth\_ProvideTxBuffer
- Eth\_Receive
- Eth\_Transmit

Eth\_TxConfirmation  
 –Last change on issue 76628 comment 1–

**Agreed solution:**

~SWS\_EthTrcv\_00085: remove the following mandatory API's :

- Eth\_GetControllerMode
- Eth\_SetControllerMode
- Eth\_GetPhysAddr
- Eth\_GetVersionInfo
- Eth\_Init
- Eth\_ProvideTxBuffer
- Eth\_Receive
- Eth\_Transmit
- Eth\_TxConfirmation

**BW-C-Level:**

Application	Specification	Bus
1	1	1

- RfC #77250: [EthIf][EthSwt][EthTrcv] EthSwt\_SetSwitchPortMode() broken for ports without Ethernet transceiver

**Problem description:**

SWS\_EthSwt\_00019 states that EthSwt\_SetSwitchPortMode() shall (unconditionally) invoke EthTrcv\_SetTransceiverMode() of the Ethernet Transceiver Driver.

This is bogus for the following two reasons:

- 1) a particular switch port does not necessarily have an associated Ethernet transceiver. - In that case EthSwtPortTrcvRef won't be present. This is probably the case for MAC2MAC links if EthSwtPortRole is present and either set to ETH-SWT\_HOST\_PORT or to ETHSWT\_UP\_LINK\_PORT.
- 2) Even if the particular switch port has an associated Ethernet transceiver, SWS\_EthTrcv\_00043 states that the EthTrcv shall invoke EthIf\_TrcvModeIndication() as a response to EthTrcv\_SetTransceiverMode().

IMHO 1) should be solved by extending SWS\_EthSwt\_00019 distinguishing between ports which are associated with a transceiver (i.e., EthSwtPortTrcvRef present) - in that case EthTrcv\_SetTransceiverMode() should be called - and ports which are not associated with a transceiver (i.e., EthSwtPortTrcvRef is not present) - in that case something else has to happen and this needs to be specified (probably the switch port shall be internally just disabled - maybe this needs to happen in the first case as well?)

2) leads to the following call chain: EthIf\_SwitchPortGroupRequestMode()  
 -> EthSwt\_SetSwitchPortMode() -> EthTrcv\_SetTransceiverMode() ->  
 EthIf\_TrvcvModeIndication(). Thus the indication actually bypasses the EthSwt  
 which IMHO is extremely ugly. Additionally for switch ports without associated  
 transceiver, the EthIf will never get a EthIf\_TrvcvModeIndication() ...

**Agreed solution:**

=== System Template ===

+ Add upstream mapping of EthSwtPortTrcvRef to CouplingPort.physicalLayerType

=== EthSwt ===

~ch. 7.2.4 Production Errors

move SWS\_EthSwt\_00113 to 7.2.5 Extended production Errors

~SWS\_EthSwt\_00113 change detection criteria to

Fail:When access to the Ethernet Switch fails the module shall report the extended  
 production error with event status DEM\_EVENT\_STATUS\_PREFAILED to DEM.

Pass:When access to the Ethernet Switch succeeds the module shall report the  
 extended production error with event status DEM\_EVENT\_STATUS\_PREPASSED  
 to DEM.

+ SWS\_EthSwt\_xxxxx new ext. production Error

Error Name: ETHSWT\_E\_SYNCPORT2PHY

Short Description: Ethernet switch port and the referenced Ethernet transceiver are  
 in contradicting modes.

Long description: While getting the Ethernet switch port mode, the Ethernet  
 switch driver detected an inconsistent state between Ethernet switch port and the  
 referenced Ethernet transceiver Mode.

Detection Criteria: Fail: When getting the Ethernet switch port mode together with  
 the Ethernet transceiver mode and the mode of the two referenced modules was  
 found

inconsistent the module shall report the extended production error with event status  
 DEM\_EVENT\_STATUS\_PREFAILED to DEM.

Pass:When getting the Ethernet switch port mode together with the Ethernet  
 transceiver mode and the mode of the two referenced modules was found

consistent the module shall report the extended production error with event status  
 DEM\_EVENT\_STATUS\_PREPASSED to DEM.

all other attributer: N/A

~ ch. 8.3.2 EthSwt\_SwitchInit

~[SWS\_EthSwt\_00016] change "production error" to "extended production error"

## ~ch. 8.3.3 EthSwt\_SetSwitchPortMode

~[SWS\_EthSwt\_00019]The function EthSwt\_SetSwitchPortMode() shall put the indexed port of the switch into the specified mode. If EthSwtPort references an EthTrcv then the function EthTrcv\_SetTransceiverMode() of the Ethernet Transceiver Driver shall additionally be called with the corresponding transceiver mode.

+ [SWS\_EthSwt\_xxxxx] When calling the function EthSwt\_SetSwitchPortMode() with mode ETHTRCV\_MODE\_DOWN, the EthSwt shall disable the Ethernet switch port directly for reduction of power consumption, if it is possible.

+ [SWS\_EthSwt\_xxxxx] When calling the function EthSwt\_SetSwitchPortMode(), the function shall check the access to the Ethernet switch driver. If the check fails, the function shall raise the extended production error ETHSWT\_E\_ACCESS and return E\_NOT\_OK, otherwise pass the extended production error ETHSWT\_E\_ACCESS and return E\_OK.

+ [SWS\_EthSwt\_xxxxxx] If EthSwtPort does not references an EthTrcv, EthSwt shall indicate a mode of the port by the API EthIf\_SwitchPortModeIndication latest during the next EthSwt\_MainFunction.(SRS\_ETH\_00118)

## ~ch. 10.1.3 EthSwtDemEventParameterRefs

+ SWS Item ECUC\_EthSwt\_xxxxx1 : Name ETHSWT\_E\_SYNCPORT2PHY

Parent Container EthSwtDemEventParameterRefs

Description Reference to the DemEventParameter which shall be issued when the error "Ethernet switch port and the referenced Ethernet transceiver are in contradicting modes" has occurred.

Multiplicity 0..1

Type Symbolic name reference to [ DemEventParameter ]

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

## ~ch. 10.1.5 EthSwtPort

~ECUC\_EthSwt\_00041 EthSwtPortTrcvRef change following attributes:  
 Multiplicity Configuration Class | Link time | VARIANT-LINK-TIME, VARIANT-POST-BUILD  
 | Post build | –  
 add to dependency: If EthSwtPortPhysicalLayerType is defined, then EthSwtPortTrcvRef holds the reference to the corresponding EthTrcv.

~ECUC\_EthSwt\_00054 add dependency to EthSwtPortPhysicalLayerType: If a EthSwtPort has an EthSwtPortPhysicalLayerType then EthSwtPort shall reference an EthTrcv.

=== EthIf ===

Add to chapter 8.4 (callback notifications):

+ EthIf\_SwitchPortModeIndication

Syntax: void EthIf\_SwitchPortModeIndication( uint8 SwitchIdx, uint8 SwitchPortIdx, EthSwt\_ModeType PortMode)

Service ID: pick a free one

Sync/Async: Synchronous

Reentrancy: Non Reentrant

Parameters in: SwitchIdx: Index of the switch within the context of the Ethernet Switch Driver

SwitchPortIdx: Index of the port at the addressed switch

PortMode: notified Ethernet Switch port mode.

Description: The EthIf shall determine the expected notifications based on the EthSwtPort configuration. In case the EthSwtPort references an EthTrcv the EthIf expects a notification from the EthTrcv via API EthIf\_TrvcModeIndication(). Otherwise the EthIf expects a notification from the EthSwt via API EthIf\_SwitchPortModeIndication().

~SWS\_EthIf\_00232

change from

Called asynchronously when mode has been read out. Triggered by previous EthTrcv\_SetTransceiverMode call. Can directly be called within the trigger functions.

To

Called asynchronously when a mode change has been read out. If the function is triggered by previous call of

EthTrcv\_SetTransceiverMode it can directly be called within the trigger function.

–Last change on issue 77250 comment 50–

**BW-C-Level:**

Application	Specification	Bus
1	4	1

## 1.19 Specification Item SWS\_EthTrcv\_00086

### Trace References:

none

### Content:

API function	Description
Det_ReportError	Service to report development errors.
EcuM_SetWakeupEvent	Sets the wakeup event.
Eth_ReadMii	Reads a transceiver register
Eth_WriteMii	Configures a transceiver register or triggers a function offered by the receiver
EthSwT_ReadTrcvRegister	Generic API for reading the content of a transceiver register
EthSwT_WriteTrcvRegister	Generic API for writing the content of a transceiver register
Icu_DisableNotification	This function disables the notification of a channel.
Icu_EnableNotification	This function enables the notification on the given channel.

### RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- 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 can-

not 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

- RfC #76879: [EthTrcv] Add EthSwt API's to optional interfaces

**Problem description:**

Optional interfaces are missing, in case the Ethernet transceiver is connected to a Ethernet switch

**Agreed solution:**

add the following API's to optional interfaces:

EthSwt\_ReadTrcvRegister

EthSwt\_WriteTrcvRegister

move the following API's from mandatory interfaces to optional interfaces:

Eth\_ReadMii

Eth\_WriteMii

–Last change on issue 76879 comment 1–

**BW-C-Level:**

Application	Specification	Bus
1	1	1

## 1.20 Specification Item SWS\_EthTrcv\_00122

**Trace References:**

none

**Content:**

If **default development** error detection is enabled: The function EthTrcv\_Set TransceiverWakeupMode() shall check that the service EthTrcv\_Init was previously called. If the check fails, the function shall raise the **default development** error ETHTRCV\_E\_NOT\_INITIALIZED UNINIT otherwise (if DET is disabled) return E\_NOT\_OK.

**RfCs affecting this spec item between releases 4.3.0 and 4.3.1:**

- RfC #59085: Rollout of 'Runtime errors'

**Problem description:**

Inconsistencies in SWS with semantics of Default errors

–Last change on issue 59085 comment 26–

**Agreed solution:**

solution in Column "G" of the new attachment <https://www.autosar.org/bugzilla/attachment.cgi?id=4604>

**Notes:**

- It is not enough just to migrate the error from one classification table to another. Please also check the related requirements (and background information) which is referring to that error and adapt them if needed.

- The review task of the ITs shall be done by the WP to which the specification "belongs".

\*\*\* BSW UML Model \*\*\*

SWS\_CanNm:

\_\_\_\_\_

Chapter 8.6.1 Optional Interfaces:

Add within SWS\_CanNm\_00325 the API function Det\_ReportRunTimeError

SWS\_LinIf:

\_\_\_\_\_

SWS\_LinIf\_00359: add Det\_ReportRuntimeError

SWS\_UdpNm:

\_\_\_\_\_

Replace UDPNM\_E\_NO\_INIT with UDPNM\_E\_UNINIT in description of API UdpNm\_MainFunction\_<Instance Id> (SWS\_UdpNm\_00234)

\*\*\* ECUC XML \*\*\*

Not affected. No configuration of runtime error reporting required (see SWS BSW General).

–Last change on issue 59085 comment 88–

**BW-C-Level:**

Application	Specification	Bus
1	4	1

## 1.21 Specification Item SWS\_EthTrcv\_00129

**Trace References:**

none

**Content:**

If **default development** error detection is enabled: The function EthTrcv\_GetTransceiverWakeupMode() shall check that the service EthTrcv\_Init was previously called. If the check fails, the function shall raise the **default development** error ETHTRCV\_E\_NOT\_INITIALIZED UNINIT otherwise (if DET is disabled) return E\_NOT\_OK.

**RfCs affecting this spec item between releases 4.3.0 and 4.3.1:**

- RfC #59085: Rollout of 'Runtime errors'

**Problem description:**

Inconsistencies in SWS with semantics of Default errors  
 –Last change on issue 59085 comment 26–

**Agreed solution:**

solution in Column "G" of the new attachment  
<https://www.autosar.org/bugzilla/attachment.cgi?id=4604>

**Notes:**

- It is not enough just to migrate the error from one classification table to another. Please also check the related requirements (and background information) which is referring to that error and adapt them if needed.
- The review task of the ITs shall be done by the WP to which the specification "belongs".

**\*\*\* BSW UML Model \*\*\***

**SWS\_CanNm:**

\_\_\_\_\_

**Chapter 8.6.1 Optional Interfaces:**

Add within SWS\_CanNm\_00325 the API function Det\_ReportRunTimeError

**SWS\_LinIf:**

\_\_\_\_\_

SWS\_LinIf\_00359: add Det\_ReportRuntimeError

**SWS\_UdpNm:**

\_\_\_\_\_

Replace UDPNM\_E\_NO\_INIT with UDPNM\_E\_UNINIT in description of API  
 UdpNm\_MainFunction\_<Instance Id> (SWS\_UdpNm\_00234)

**\*\*\* ECUC XML \*\*\***

Not affected. No configuration of runtime error reporting required (see SWS BSW  
 General).

–Last change on issue 59085 comment 88–

**BW-C-Level:**

Application	Specification	Bus
1	4	1

## 1.22 Specification Item SWS\_EthTrcv\_00131

### Trace References:

none

### Content:

If **default development** error detection is enabled: The function EthTrcv\_GetTransceiverWakeupMode() shall check the parameter TrcvWakeupModePtr for being valid. If the check fails, the function shall raise the **default development** error ETHTRCV\_E\_INVPARAM\_POINTER otherwise (if DET is disabled) return E\_NOT\_OK.

### RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #76524: [EthIf][EthTrcv] missing definition for ETHIF\_E\_INV\_POINTER / ETHTRCV\_E\_INV\_POINTER

#### Problem description:

ETHIF\_E\_INV\_POINTER appears in [SWS\_EthIf\_00242] [SWS\_EthIf\_00323] [SWS\_EthIf\_00333] [SWS\_EthIf\_00337] [SWS\_EthIf\_00338] [SWS\_EthIf\_00339].

However, there's no definition for ETHIF\_E\_INV\_POINTER.

As **default error list** ([SWS\_EthIf\_00017]) already have ETHIF\_E\_PARAM\_POINTER 0x05 (I believe it fits to the purpose of ETHIF\_E\_INV\_POINTER), could you consider to replace ETHIF\_E\_INV\_POINTER with ETHIF\_E\_PARAM\_POINTER, please?

Also, same issue exists at EthTrcv (ETHTRCV\_E\_INV\_POINTER not defined at [SWS\_EthTrcv\_00131], ETHTRCV\_E\_PARAM\_POINTER exists).

#### Note:

- EthSwt has ETHSWT\_E\_INV\_POINTER, but no ETHSWT\_E\_PARAM\_POINTER (different default error identifier style has been applied, is handled by RfC # 76195).
- WdgIf has both WDGIF\_E\_INV\_POINTER (this is used) and WDGIF\_E\_PARAM\_POINTER (added by RfC # 59818 and RfC # 62544), but WDGIF\_E\_PARAM\_POINTER is not used in the SWS (as mentioned in 62544).

- Xcp @ R4.2.2 has both XCP\_E\_INV\_POINTER (this is used) and XCP\_E\_PARAM\_POINTER, but XCP\_E\_PARAM\_POINTER is not used in the SWS.
- Xcp @ R4.3.0 has both XCP\_E\_PARAM\_POINTER (this is used) and XCP\_E\_INV\_POINTER, but XCP\_E\_INV\_POINTER is not used in the SWS. (changed from R4.2.2)

**Remarks:**

Even though there're two similar errors, <MA>\_E\_INV\_POINTER and <MA>\_E\_PARAM\_POINTER, I think there's no strong need to replace one of them with other. It's sufficient if this "undefined" issue was resolved, I think.

–Last change on issue 76524 comment 6–

**Agreed solution:**

SWS EthIf

=====  
 replace ETHIF\_E\_INV\_POINTER by ETHIF\_E\_PARAM\_POINTER

SWS EthTrcv

=====  
 replace ETHTRCV\_E\_INV\_POINTER by ETHTRCV\_E\_PARAM\_POINTER

SWS Xcp

=====  
 remove XCP\_E\_INV\_POINTER from the table [SWS\_Xcp\_00857]  
 –Last change on issue 76524 comment 8–

**BW-C-Level:**

Application	Specification	Bus
1	1	1

## 1.23 Specification Item SWS\_EthTrcv\_00137

**Trace References:**

none

**Content:**

If **default development** error detection is enabled: The function EthTrcv\_CheckWakeup() shall check that the service EthTrcv\_Init was previously called. If the check fails, the func-

tion shall raise the **default development** error ETHTRCV\_E\_NOT\_INITIALIZED UNINIT otherwise (if DET is disabled) return E\_NOT\_OK.

### RfCs affecting this spec item between releases 4.3.0 and 4.3.1:

- RfC #59085: Rollout of 'Runtime errors'

#### Problem description:

Inconsistencies in SWS with semantics of Default errors  
–Last change on issue 59085 comment 26–

#### Agreed solution:

solution in Column "G" of the new attachment  
<https://www.autosar.org/bugzilla/attachment.cgi?id=4604>

#### Notes:

- It is not enough just to migrate the error from one classification table to another. Please also check the related requirements (and background information) which is referring to that error and adapt them if needed.
- The review task of the ITs shall be done by the WP to which the specification "belongs".

#### \*\*\* BSW UML Model \*\*\*

##### SWS\_CanNm:

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##### Chapter 8.6.1 Optional Interfaces:

Add within SWS\_CanNm\_00325 the API function Det\_ReportRunTimeError

##### SWS\_LinIf:

---

SWS\_LinIf\_00359: add Det\_ReportRuntimeError

##### SWS\_UdpNm:

---

Replace UDPNM\_E\_NO\_INIT with UDPNM\_E\_UNINIT in description of API UdpNm\_MainFunction\_<Instance Id> (SWS\_UdpNm\_00234)

#### \*\*\* ECUC XML \*\*\*

Not affected. No configuration of runtime error reporting required (see SWS BSW General).

–Last change on issue 59085 comment 88–

**BW-C-Level:**

Application	Specification	Bus
1	4	1

## 1.24 Specification Item SWS\_EthTrcv\_00142

**Trace References:**

none

**Content:**

If **default development** error detection is enabled: The function EthTrcv\_MainFunction() shall check that the service EthTrcv\_Init was previously called. If the check fails, the function shall raise the **default development** error ETHTRCV\_E\_NOT\_INITIALIZEDUNINIT.

**RfCs affecting this spec item between releases 4.3.0 and 4.3.1:**

- RfC #59085: Rollout of 'Runtime errors'

**Problem description:**

Inconsistencies in SWS with semantics of Default errors  
 –Last change on issue 59085 comment 26–

**Agreed solution:**

solution in Column "G" of the new attachment  
<https://www.autosar.org/bugzilla/attachment.cgi?id=4604>

**Notes:**

- It is not enough just to migrate the error from one classification table to another. Please also check the related requirements (and background information) which is referring to that error and adapt them if needed.
- The review task of the ITs shall be done by the WP to which the specification "belongs".

\*\*\* BSW UML Model \*\*\*

SWS\_CanNm:

Chapter 8.6.1 Optional Interfaces:

Add within SWS\_CanNm\_00325 the API function Det\_ReportRunTimeError

SWS\_LinIf:

SWS\_LinIf\_00359: add Det\_ReportRuntimeError

SWS\_UdpNm:

Replace UDPNM\_E\_NO\_INIT with UDPNM\_E\_UNINIT in description of API UdpNm\_MainFunction\_<Instance Id> (SWS\_UdpNm\_00234)

\*\*\* ECUC XML \*\*\*

Not affected. No configuration of runtime error reporting required (see SWS BSW General).

–Last change on issue 59085 comment 88–

**BW-C-Level:**

Application	Specification	Bus
1	4	1

## 1.25 Specification Item SWS\_EthTrcv\_91001

**Trace References:**

SRS\_Eth\_00117

**Content:**

Service name:	EthTrcv_GetPhySignalQualityEthTrcv_GetPhySignalQuality	
Syntax:	Std_ReturnType EthTrcv_GetPhySignalQuality( uint8 TrcvIdx, uint8* uint32* SignalQualityPtr )	
Service ID[hex]:	0x10	
Sync/Async:	Synchronous	
Reentrancy:	Reentrant for different TrcvIdx. Non reentrant for the same TrcvIdx.	
Parameters (in):	TrcvIdxEthTrcv_GetPhySignalQuality.TrcvIdx	Index of the transceiver within the context of the Ethernet Transceiver Driver
Parameters (inout):	None	
Parameters (out):	SignalQualityPtrEthTrcv_GetPhySignalQuality.SignalQualityPtr	Pointer to the memory where the signal quality <b>in percent</b> shall be stored.
Return value:	Std_ReturnType	E_OK: The request has been accepted E_NOT_OK: The request has not been accepted.
Description:	Obtains the current signal quality of the link of the indexed transceiver	

**RfCs affecting this spec item between releases 4.3.0 and 4.3.1:**

- RfC #77676: [EthIf][EthSwt][EthTrcv] Complete handling to determine signal quality

**Problem description:**

AR4.3.0 introduce APIs EthSwt\_GetPortSignalQuality and EthTrcv\_GetPhySignalQuality. This API's return the result of the signal quality measured by a dedicated Ethernet transceiver. But there is a lack of how the measurement for the signal quality shall be triggered respectively handled.

**Agreed solution:**

=== EthTrcv ===

~[SWS\_EthTrcv\_91001] EthTrcv\_GetPhySignalQuality

~ uint8\* SignalQualityPtr change to uint32\* SignalQualityPtr

~ change the description of parameter SignalQualityPtr to "Pointer to the memory where the signal quality shall be stored."

=== EthSwt ===

~[SWS\_EthSwt\_91014] EthSwt\_GetPortSignalQuality

~ uint8\* SignalQualityPtr change to uint32\* SignalQualityPtr

~ change the description of parameter SignalQualityPtr to "Pointer to the memory where the signal quality shall be stored."

~ change the description: "...If no transceiver is referenced the signal quality shall be set to 0xFFFFFFFF."

~[SWS\_EthSwt\_00293] change "0xFF" to "0xFFFFFFFF"

=== EthIf ===

~ch.8.2

+ [EthIf\_xxxxx1] EthIf\_SignalQualityResultType

Type Structure

Element uint32 HighestSignalQuality the highest signal quality of a link since last clear

Element uint32 LowestSignalQuality the lowest link signal quality of a link since last clear

Element uint32 ActualSignalQuality the actual signal quality

~ch. 8.3

~ [SWS\_EthIf\_91019] set EthIf\_GetPhySignalQuality to "deprecated"

+ [EthIf\_xxxxx2] EthIf\_GetTrcvSignalQuality

Syntax: Std\_ReturnType EthIf\_GetTrcvSignalQuality(  
uint8 TrcvIdx,

EthIf\_SignalQualityResultType\* ResultPtr)

Sync/Async: Synchronous

Reentrancy: Reentrant for different TrcvIdx. Non reentrant for the same TrcvIdx.

Parameters (in): TrcvIdx Index of the transceiver within the context of the Ethernet Interface

Parameters (inout): None

Parameters (out): ResultPtr Pointer to the memory where the signal quality in percent shall be stored.

Return value: Std\_ReturnType

E\_OK: The signal quality retrieved successfully

E\_NOT\_OK: The signal quality not retrieved successfully

Description: Retrieves the signal quality of the link of the given Ethernet transceiver

+ [EthIf\_XXXXX3] EthIf\_GetSwitchPortSignalQuality

Syntax: Std\_ReturnType EthIf\_GetSwitchPortSignalQuality(

uint8 SwitchIdx,

uint8 SwitchPortIdx,

EthIf\_SignalQualityResultType\* ResultPtr)

Sync/Async: Synchronous

Reentrancy: Reentrant for different Ethernet switch indexes and Ethernet Switch port indexes. Non reentrant for the same SwitchPortIdx.

Parameters (in): SwitchIdx Index of the Ethernet switch within the context of the Ethernet Interface

SwitchPortIdx Index of the Ethernet switch port within the context of the Ethernet Interface

Parameters (inout): None

Parameters (out): ResultPtr Pointer to the memory where the signal quality in percent shall be stored.

Return value: Std\_ReturnType

E\_OK: The signal quality retrieved successfully

E\_NOT\_OK: The signal quality not retrieved successfully

Description: Retrieves the signal quality of the link of the given Ethernet switch port

+ [EthIf\_XXXXX4] EthIf\_ClearTrcvSignalQuality

Syntax: Std\_ReturnType EthIf\_ClearTrcvSignalQuality(

uint8 TrcvIdx)

Sync/Async: Synchronous

Reentrancy: Reentrant for different TrcvIdx. Non reentrant for the same TrcvIdx.

Parameters (in): TrcvIdx Index of the transceiver within the context of the Ethernet Interface

Parameters (inout): None

Parameters (out): None

Return value: Std\_ReturnType

E\_OK: The signal quality cleared successfully

E\_NOT\_OK: The signal quality cleared not successfully

Description: Clear the stored signal quality of the link of the given Ethernet transceiver

+`[EthIf_XXXXX5]` `EthIf_ClearSwitchPortSignalQuality`

Syntax: `Std_ReturnType EthIf_ClearSwitchPortSignalQuality(`

`uint8 SwitchIdx,`

`uint8 SwitchPortIdx)`

Sync/Async: Synchronous

Reentrancy: Reentrant for different Ethernet switch indexes and Ethernet Switch port indexes. Non reentrant for the same `SwitchPortIdx`.

Parameters (in): `SwitchIdx` Index of the Ethernet switch within the context of the Ethernet Interface

`SwitchPortIdx` Index of the Ethernet switch port within the context of the Ethernet Interface

Parameters (inout): None

Parameters (out): None

Return value: `Std_ReturnType`

E\_OK: The signal quality cleared successfully

E\_NOT\_OK: The signal quality cleared not successfully

Description: Clear the stored signal quality of the link of the given Ethernet switch port

~ch. 8.5 Scheduled functions

~ `SWS_EthIf_91104 EthIf_MainFunctionState`

~Description: The function is polling different communication hardware (Ethernet transceiver, Ethernet switch ports) related information, e.g. link state, signal quality.

+`[EthIf_XXXX12]` The `EthIf_MainFunctionState` shall poll Ethernet communication hardware related information with the period of `EthIfMainFunctionStatePeriod`.

+`[EthIf_XXXXX6]` For each Ethernet switch port where a link state of `ETH_SWT_LINK_STATE_ACTIVE` is yielded and references an Ethernet Transceiver the function shall poll the signal quality by calling `EthSwt_GetPortSignalQuality()`.

+`[EthIf_XXXXX7]` For each Ethernet transceiver where a link state of `ETHTRCV_LINK_STATE_ACTIVE` is yielded the function shall poll the signal quality by calling `EthTrcv_GetPhySignalQuality()`.

+`[EthIf_XXXXX9]` The obtained signal quality value shall be stored as type of `EthIf_SignalQualityResultType`. The value shall always be stored as `ActualSig-`

nalQuality. If the obtained signal quality is higher than the stored highest signal quality (HighestSignalQuality), then HighestSignalQuality shall be updated with the obtained signal quality. If the obtained signal quality is lower than the lowest signal quality (LowestSignalQuality), then LowestSignalQuality shall be updated with the obtained signal quality.

~ch. 10 Configuration specification

add the following parameters to section 10.1.2 EthIfGeneral

+ [ECUC\_EthIf\_XXXXX1] EthIfEnableSignalQualityApi

+ Description: enable/disable the APIs read and clear the signal quality

+ Multiplicity : 1

+ Type : EcucBooleanParamDef

+ Scope / Dependency : scope: local

+ [ECUC\_EthIf\_XXXXX2] EthIfSignalQualityCheckPeriod

+ Description : Specifies the period in units of seconds in which the signal quality it polled in the context of EthIf\_MainfunctionState. The value shall be an integral multiple of EthIfMainFunctionStatePeriod.

+ Multiplicity : 0..1

+ Type : EcucFloatParamDef

+ Scope / Dependency : scope: local

dependency: If this parameter is defined, the EthIf\_MainFunctionState shall be generated and parameter EthIfEnableSignalQualityApi shall be set to TRUE.

–Last change on issue 77676 comment 38–

**BW-C-Level:**

Application	Specification	Bus
1	4	1