Elektrobit

EB tresos Modules for Essentials

ETS documentation

module release 2.5.0

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Legal disclaimer

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Table of Contents

1. Overview of EB tresos Modules for Essentials ETS documentation

Welcome to the EB tresos Modules for Essentials ETS (Enhanced Testability Service) product documentation.

This document provides:

- Chapter 2, “ETS release notes“: release notes for the ETS module
- Chapter 3, “ETS user guide“: background information and instructions
- Chapter 4, “ETS module references“: configuration parameters and the application programming interface

2. ETS release notes

2.1. Overview

This chapter provides the ETS product specific release notes. General release notes that are applicable to all products are provided in the EB tresos AutoCore Generic documentation. Refer to the general release notes in addition to the product release notes documented here.

2.2. Scope of the release

2.2.1. Configuration tool

Your release of EB tresos AutoCore is compatible with the release of the EB tresos Studio configuration tool:

- EB tresos Studio: 29.2.0 b220916-0321

2.2.2. AUTOSAR modules

The following table lists the AUTOSAR modules that are part of this ETS release.

Module name	AUTOSAR version and revision	SWS version and revision	Module version	Supplier
No AUTOSAR modules available				

Table 2.1. Hardware-Independent Modules specified by the AUTOSAR standard

2.2.3. EB (Elektrobit) modules

The following table lists all modules which are part of this release but are not specified by the AUTOSAR standard. These modules include tooling developed by EB or they may hold files shared by all other modules.

Module name	Module version	Supplier
ETS	2.5.0	Elektrobit Automotive GmbH

Table 2.2. Modules not specified by the AUTOSAR standard

2.2.4. MCAL modules and EB tresos AutoCore OS

For information about MCAL modules and OS, refer to the respective documentation, which is available as PDF at `$TRESOS_BASE/doc/3.0_EB_tresos_AutoCore_OS` and `$TRESOS_BASE/doc/5.0_MCAL_modules`[1]. It is also available in the online help in EB tresos Studio. Browse to the folders `EB tresos AutoCore OS` and `MCAL modules`.

2.3. Module release notes

2.3.1. ETS module release notes

- Module version: 2.5.0.B604689
- Supplier: Elektrobit Automotive GmbH

2.3.1.1. Change log

This chapter lists the changes between different versions.

Module version 2.5.0
2022-10-28

- Minor improvements

Module version 2.4.0
2022-07-22

- Error correction and maturization

Module version 2.3.0
2022-03-25

- Error correction and maturization

[1] `$TRESOS_BASE` is the location at which you installed EB tresos Studio.

Module version 2.2.0
2021-11-26

- Error correction and maturization

Module version 2.1.0
2021-04-28

- Error correction and maturization

Module version 2.0.0
2020-06-29

- Error correction and maturization

Module version 1.0.0
2020-02-21

- First version of module

2.3.1.2. New features

- No new features have been added since the last release.

2.3.1.3. Elektrobit-specific enhancements

This module is not part of the AUTOSAR specification.

2.3.1.4. Deviations

This module is not part of the AUTOSAR specification.

2.3.1.5. Limitations

This chapter lists the limitations of the module. Refer to the module references chapter *Integration notes*, subsection *Integration requirements* for requirements on integrating this module.

2.3.1.6. Open-source software

Open-source software information is not available for this module.

3. ETS user guide

3.1. Overview

ETS (Enhanced Testability Service) module is used to test that the whole software chain from Ethernet port up to SOME/IP Transformer correctly work. The protocol parts currently addressed by the Enhanced Testability Service include: `SOME/IP Stack`, `Service Discovery`, `SOME/IP Stack`, `Serialization`, `SOME/IP Stack`, `Remote Procedure Call`, `SOME/IP Stack`, `Service Discovery`, `SOME/IP Stack`.

The Enhanced Testability Service also enables different categories of tests, for example when used in component testing scenarios for devices under test (DUTs). These include positive tests (testing using valid messages), negative tests (testing error handling), load testing, and regression testing.

This chapter describes the configuration and integration of the Enhanced Testing System ETS module. The external tester sends various types tests to the ETS module and the ETS module responds back in specified way (echoing back parameters, notifying different events, get and set fields or parameters, triggers timers etc.).

The ETS module also manages specific service requests (SubscribeEventgroup, client server calls, check supported byte order), and passes them forward. There should always be an expected result in ETS response to the Tester data that are sent.

3.1.1. Graphical representation

Figure 3.1, “ETS interactions” shows module interactions in the system.

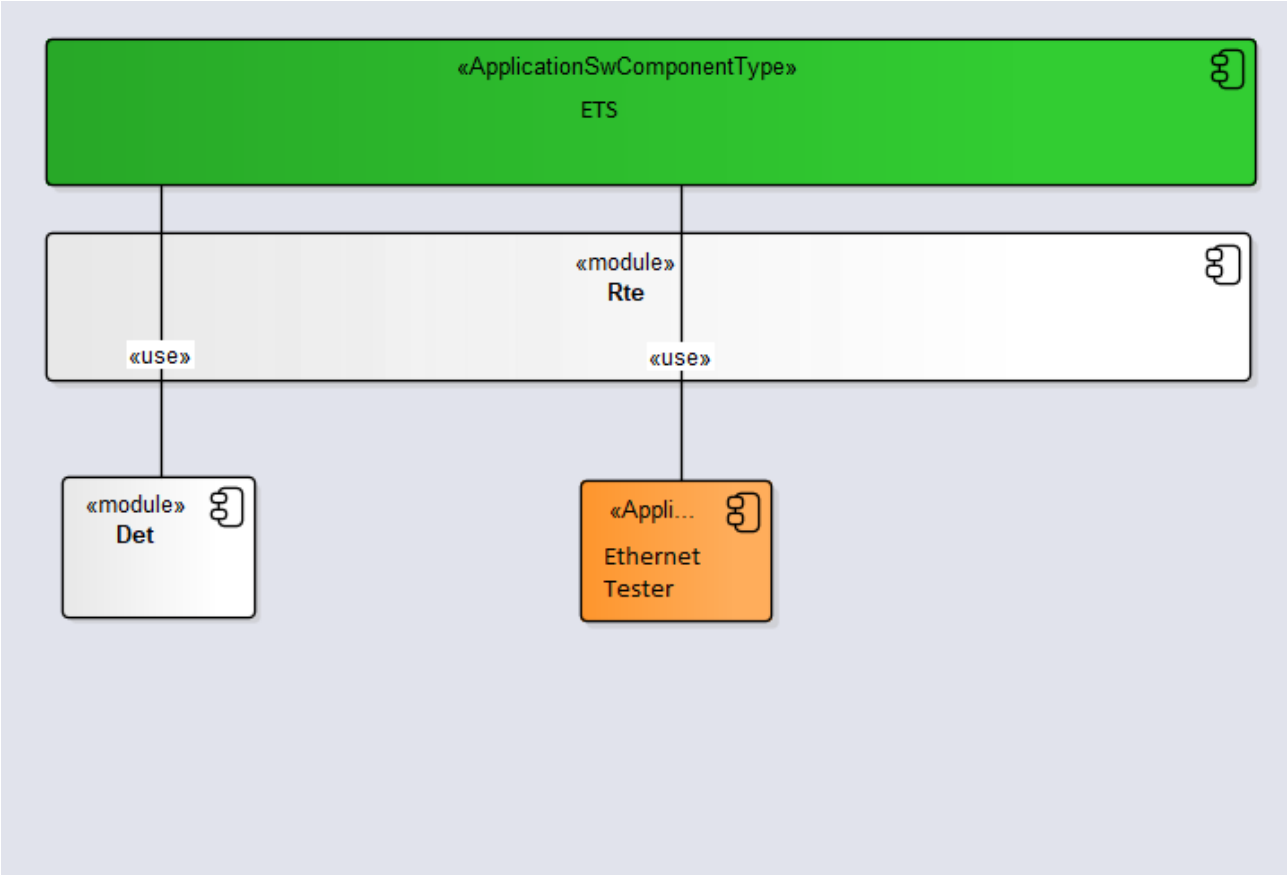

Figure 3.1. ETS interactions

3.1.2. Tester service interactions

The Service module is the main part of the ETS, and contains the main function. The main function manages the event check whenever it is called, and therefore also contains some parts of trigger and test events functionality. All initializations are also performed here.

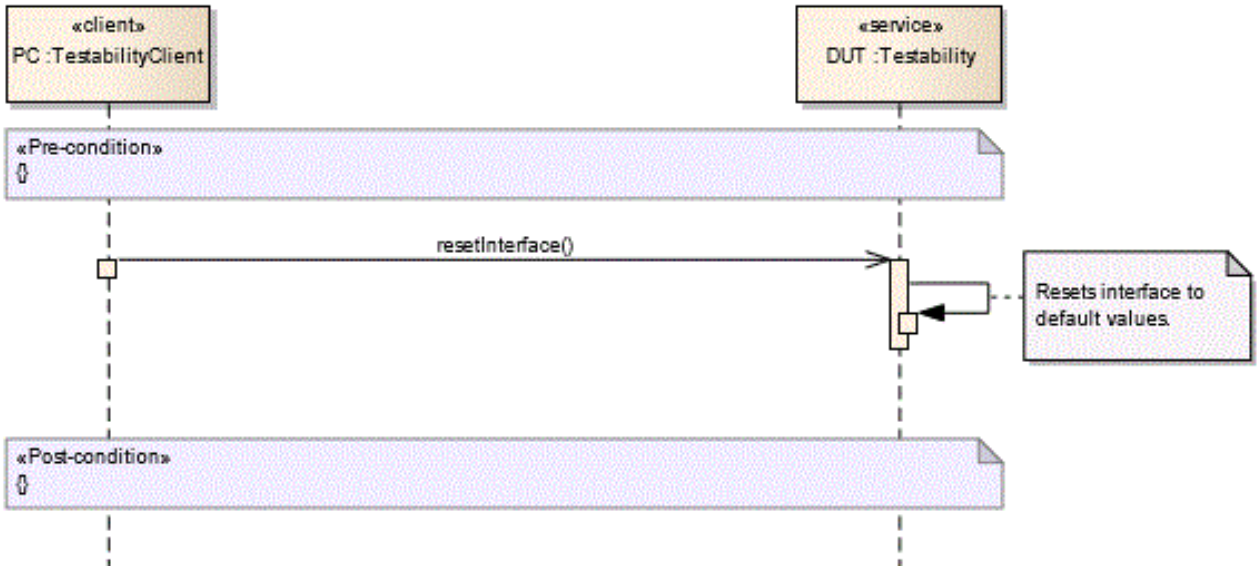

Figure 3.2. ETS Service Example

When the Ethernet Tester calls the `client service activate` function, the ETS receives the start value through RTE interface and starts the timer with activate client event and start parameters.

3.1.3. Tester trigger test event interactions

ETS receives trigger test events from the ethernet testing software components (Ethernet Tester). Event reporting is managed via RTE 'DataReceivedEvent' mechanism to ensure a prompt storage of the event.

ETS software ensures that the type of event is received, and that it does the required action (such as sending specific stored integer value periodically). The receiving notification of the event is sent to Ethernet Tester if the event is related to setting or getting stored fields handling.

These test client server connections are bound to events and need to be activated by sending subscribe message via RTE and deactivate by sending deactivate to RTE. This is done by receiving activate client event. Event reset interface initializes SW.

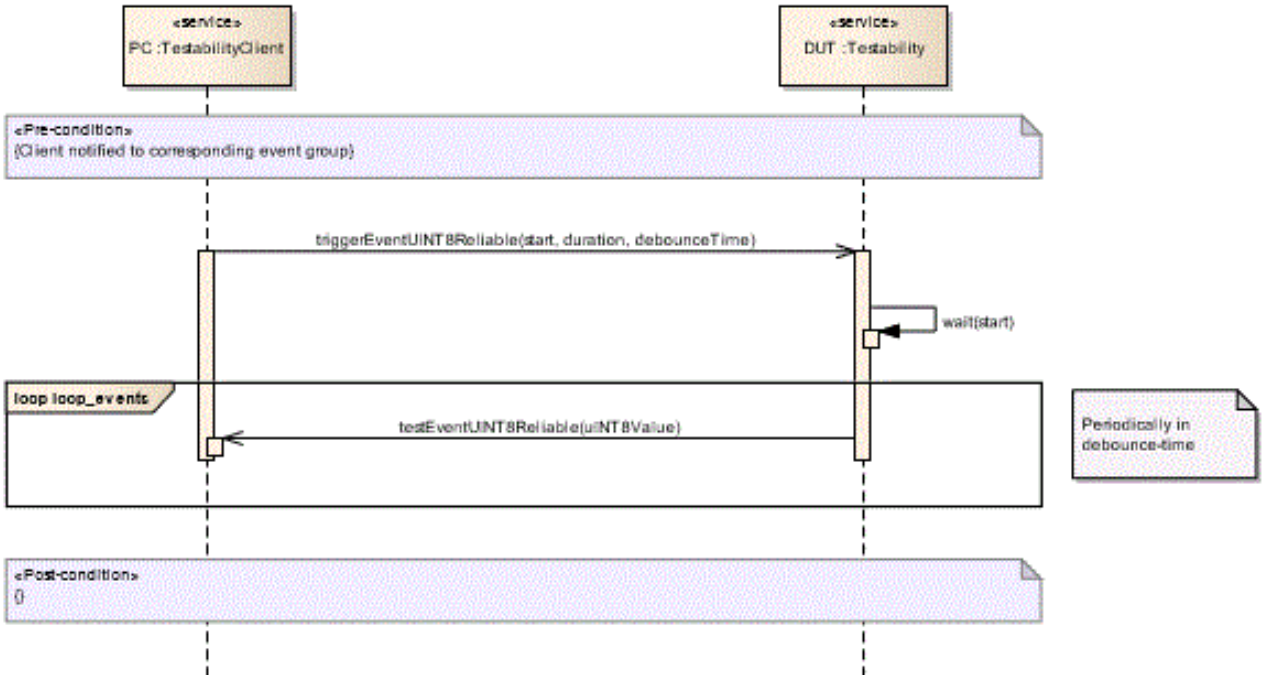

Figure 3.3. ETS Trigger Event Example

3.1.4. Tester echo interactions

ETS receives echo test from the ethernet testing software components (Ethernet Tester). Echo tests are implemented as direct client-server interfaces. When a specific ETS echo function is called with specific parameters, the function copies the input parameter values to the output parameter values, and the testing software components (Ethernet Tester) can verify that data is correctly looped.

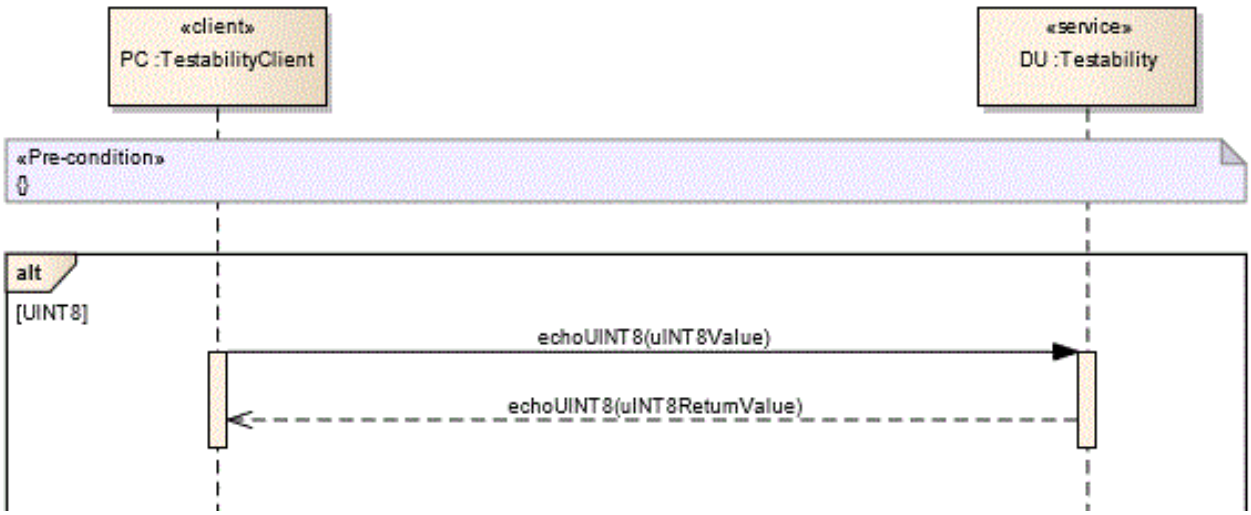

Figure 3.4. ETS Echo Example

There are different kinds of echo functions such as for common data types, different integers and floats, different kind of arrays, enums, typedef, structures.

3.1.5. Tester fields interactions

ETS receives `get` or `set` field requests from the ethernet testing software components (Ethernet Tester). These tests are implemented as direct client-server interfaces.

When specific ETS `set` field function is called with specific parameters, the function sets the parameter given data to stored value where it can be read later. A notification message is then sent to Ethernet Tester.

When specific ETS `get` field function is called, the function reads stored value and adds it. As a return parameter, Ethernet Tester gets the stored value from ETS.

Only the `set` field sends interface version value in the notification message. The get field interface version reads the stored value, and sends it directly. As a return parameter, Ethernet Tester gets the stored value from ETS.

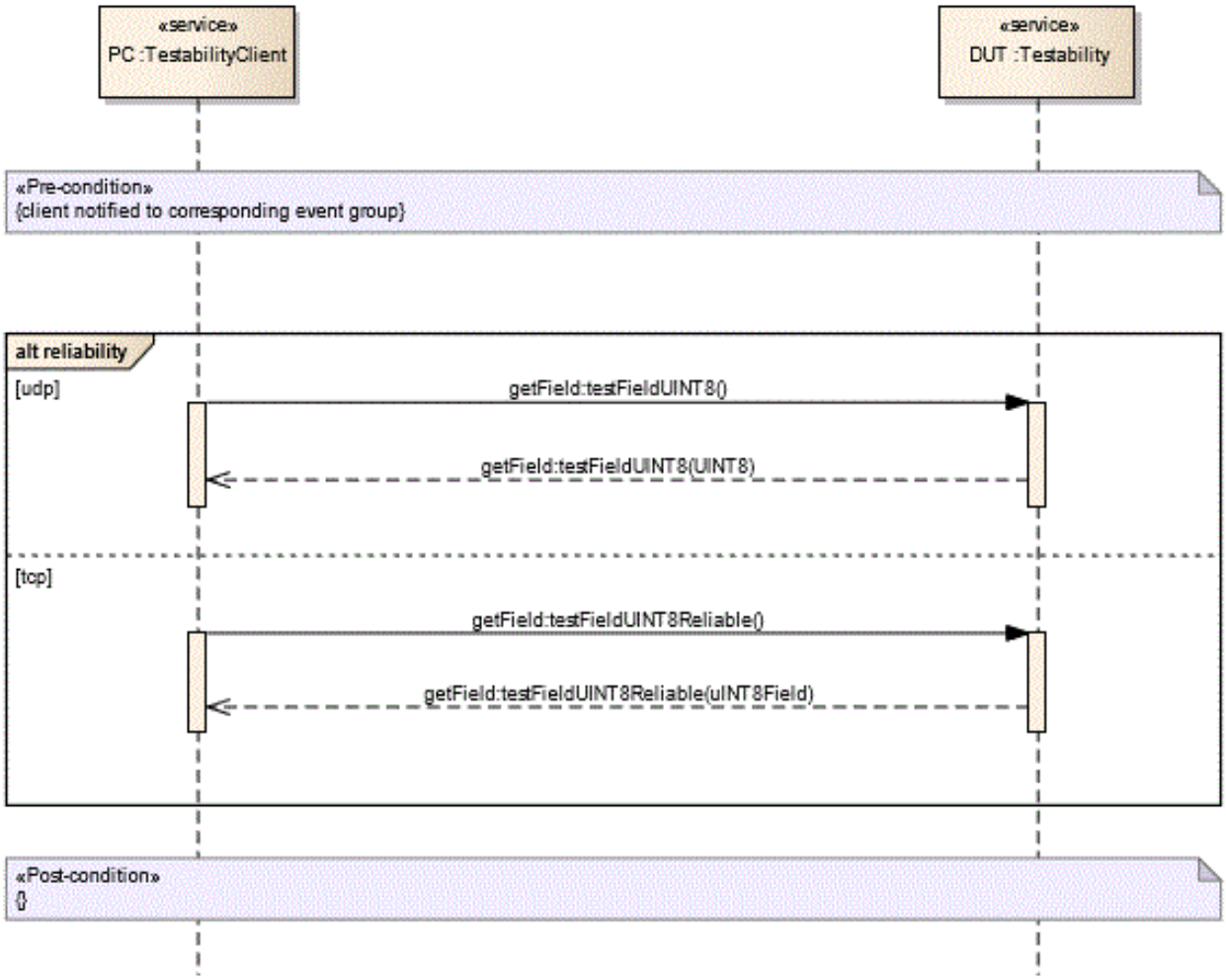

Figure 3.5. ETS Fields Example

3.1.6. Error management

The ETS errors are managed through DET RTE error interface. All modules have unique id values and when activated, the errors can be traced to a specific module.

3.2. Software Component Description

A software component description (SWCD) is needed for the final integration of the ETS into the complete system model. The description is an arxml file that can be generated with EB tresos Studio after completing the configuration of the ETS.

For generating the arxml file see `Integration Guide` chapter how to connect interfaces in EB tresos Studio.

3.3. ETS configuration in EB tresos Studio

This section presents the configuration views for ETS and describes the individual configuration parameters.

To adjust the main function period, go to the **General** tab of this menu. Default value is 20ms.

To activate or deactivate DevErrorDetect (DET) error reporting, check the selection box from the **General** tab.

3.3.1. General tab

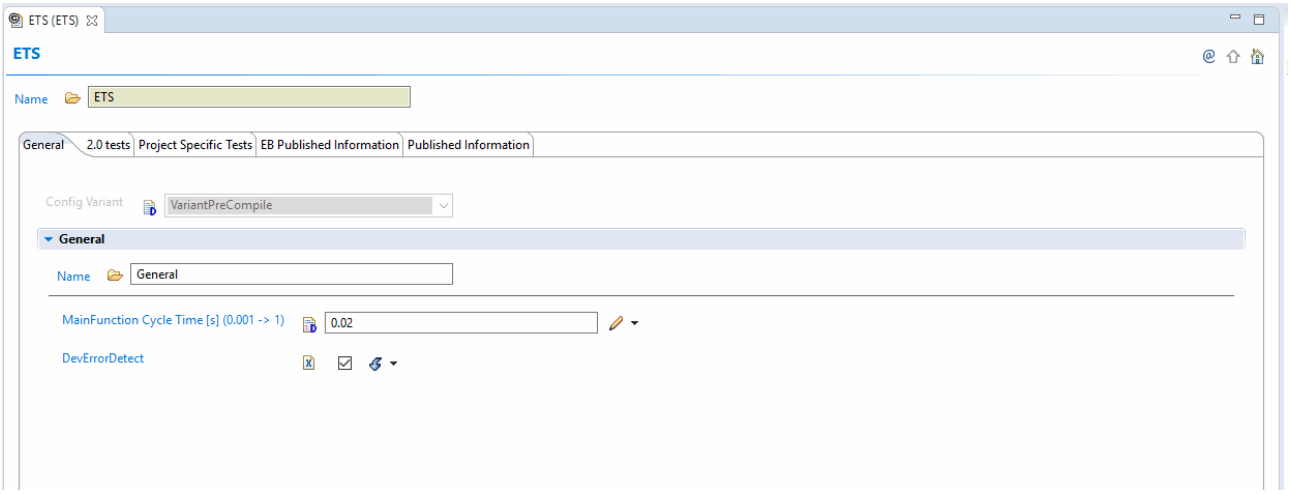

Figure 3.6. General tab

3.3.2. Enhanced Testability Service tab

This section shows the Enhanced Testability Service tests of ETS.

3.3.2.1. Echo tests

You can select echo tests individually. All tests are selected by default.

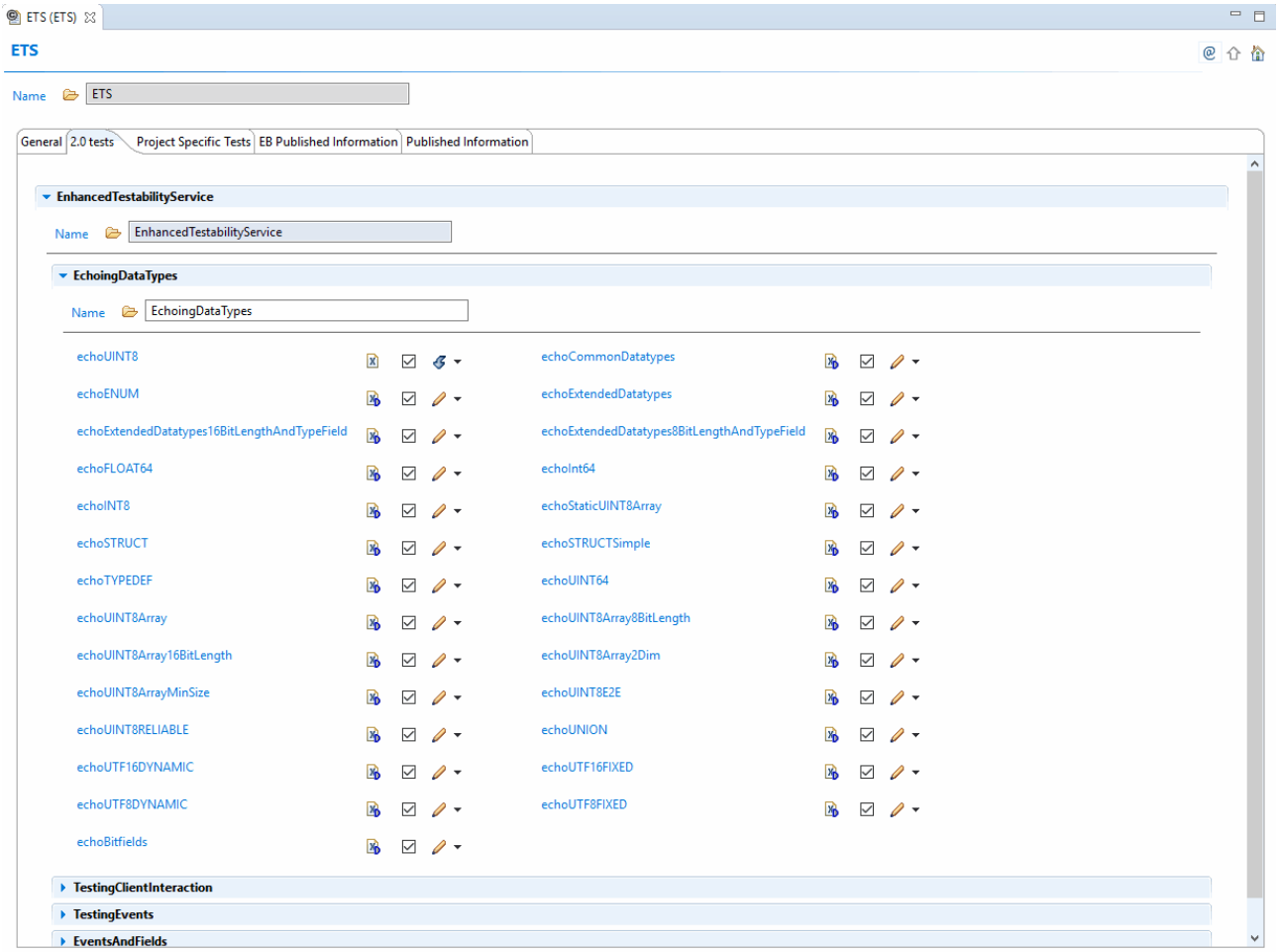

Figure 3.7. Echoing data types sub group

3.3.2.2. Single service tests

You can select client interaction tests individually. All tests are selected by default. These tests are related to service handling functionalities.

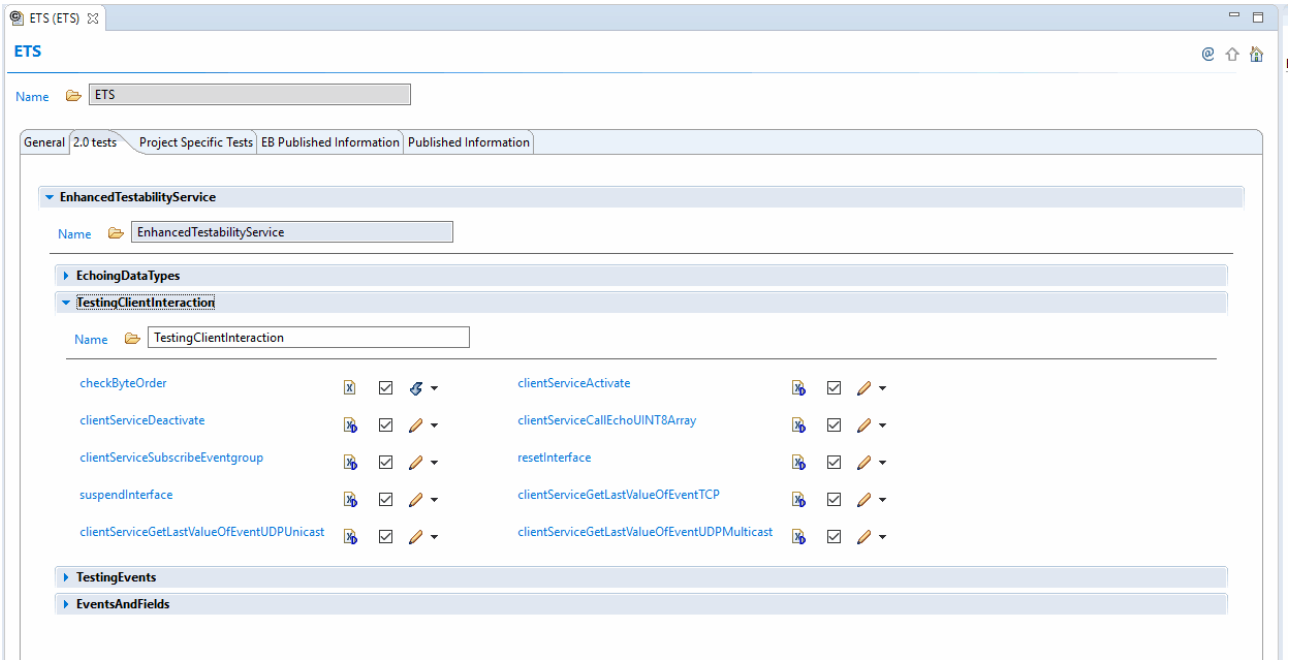

Figure 3.8. TestingClientInteraction group

3.3.2.3. Single event tests

You can select individual event tests individually. All tests are selected by default. These tests are related to trigger envents functionalities.

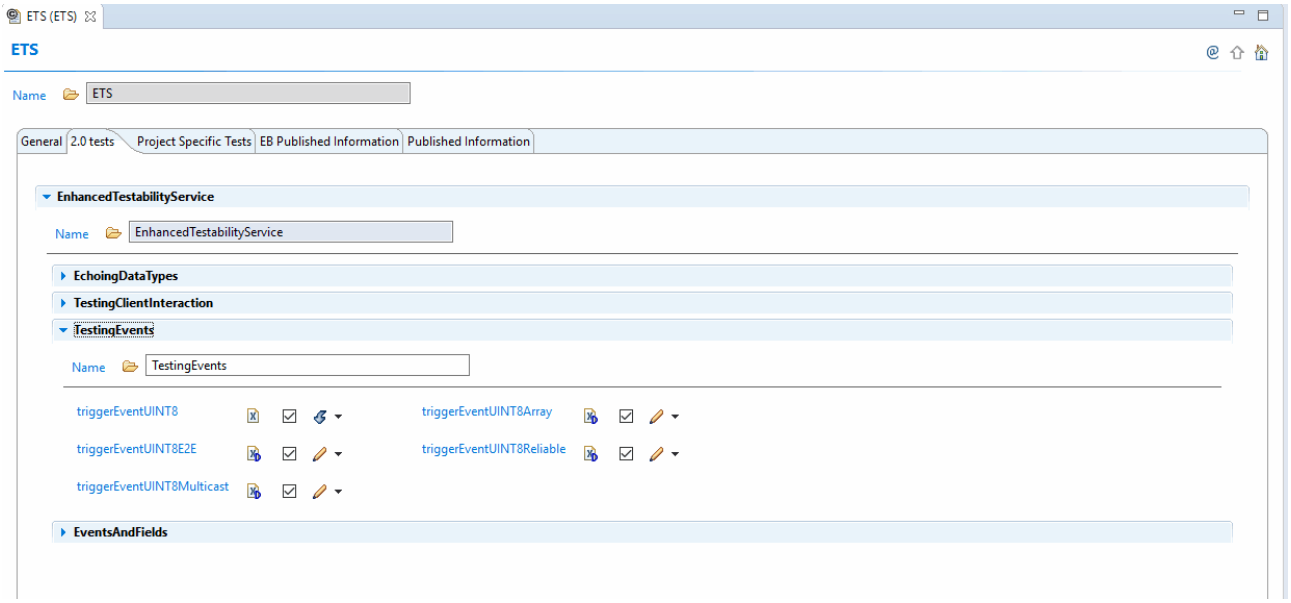

Figure 3.9. TestingEvents group

3.3.2.4. Events and fields tests

You can select the events and fields tests individually. All tests are selected by default. These tests are related to test events and test fields functionalities. InterfaceVersion and timerEventUINT8E2E tests are also available.

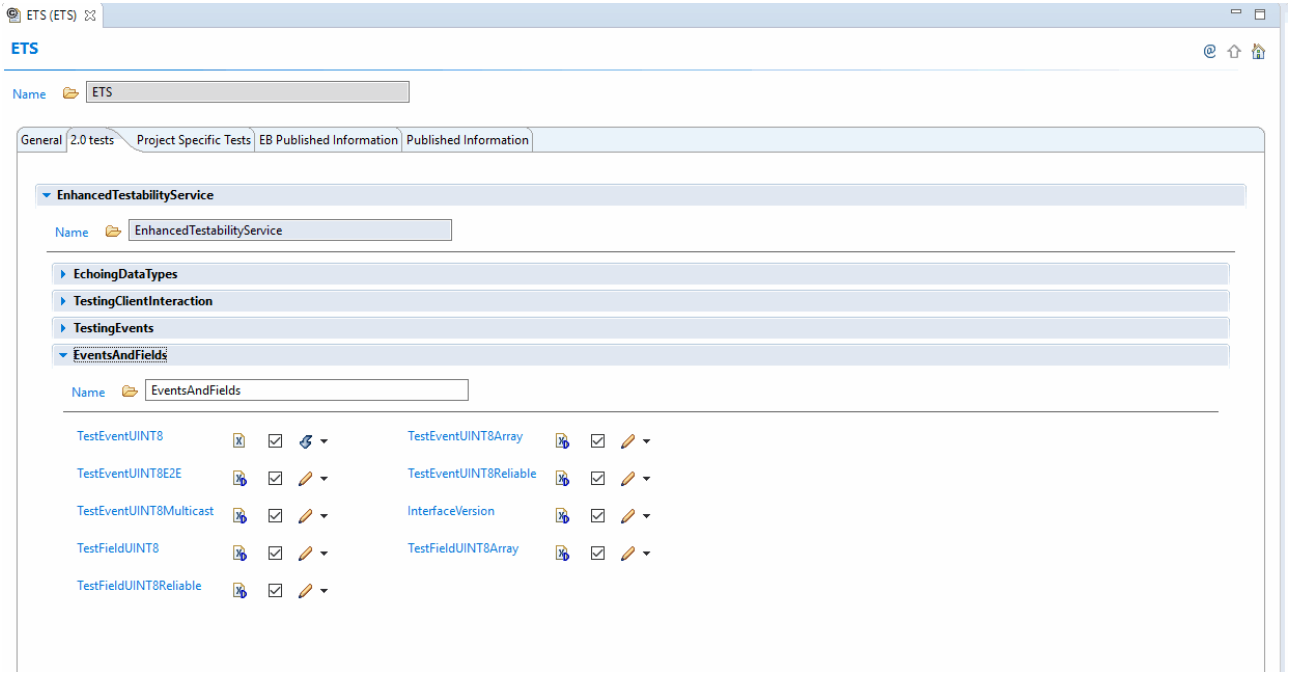

Figure 3.10. EventsAndFields group

3.3.3. Project Specific Tests tab

This section presents the project specific customer created tests of ETS. If customer want's to modify existings tests for his own needs or create totally new special tests, these configurations can be listed here and all can be checked on/off each test individually. Add test by pressing add icon.

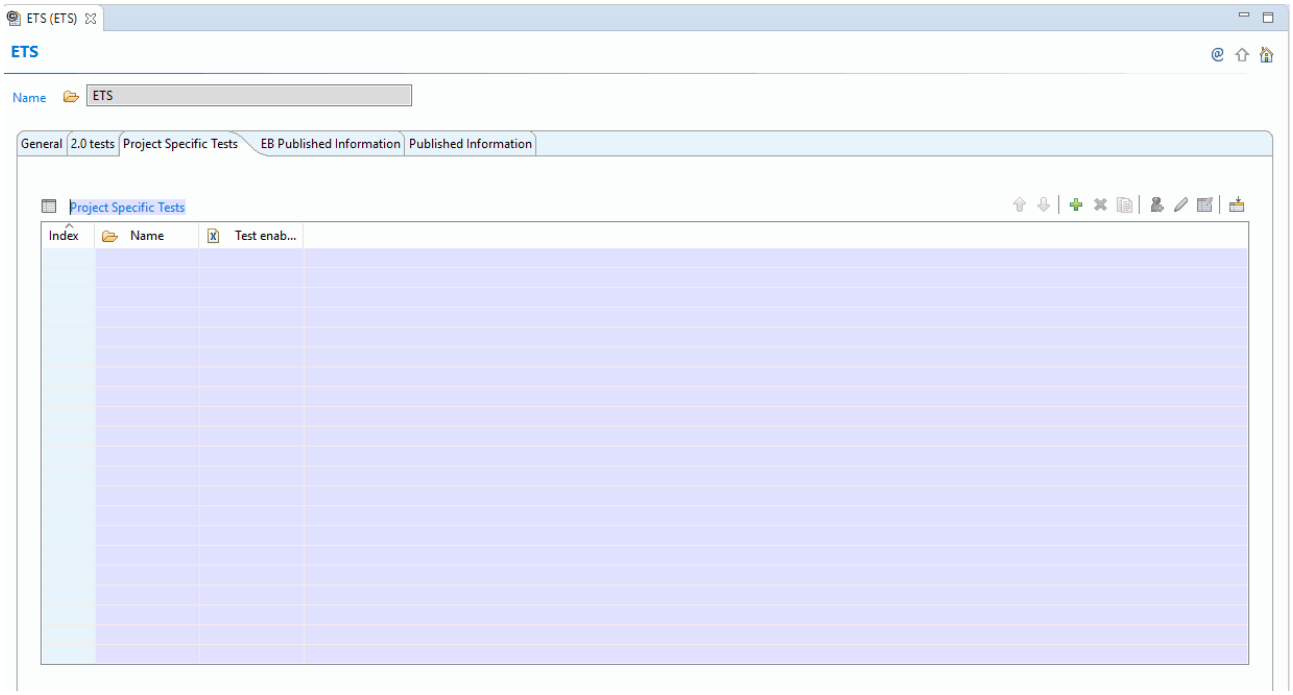

Figure 3.11. Project specific tests default

After adding the test it can be renamed.

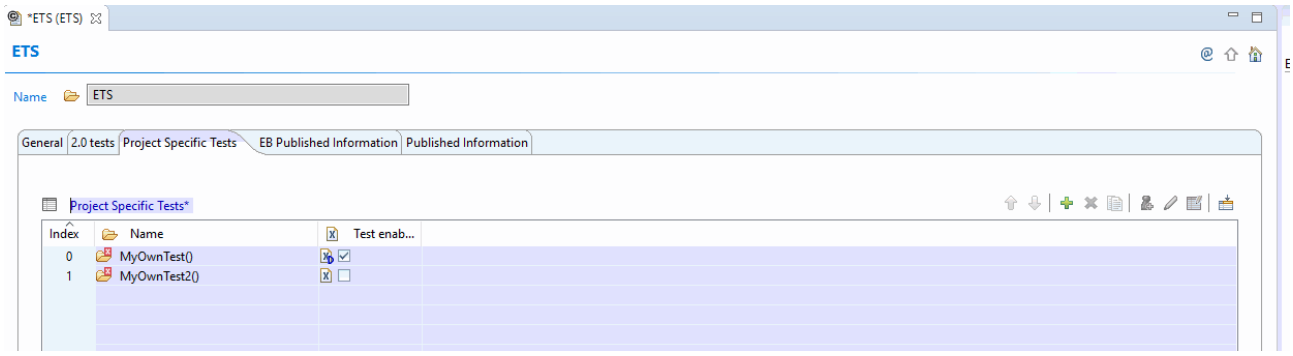

Figure 3.12. Project specific tests example

After renaming it should be generated as follows

Figure 3.13. Project specific tests generate

and after generation the empty skeleton of function is created to test area template and you can use this functions as a base you own test.

Figure 3.14. Project specific tests result

You can check on/off each test individually. By default, the list of tests is empty.

3.3.4. EB PublishedInformation tab

EB PublishedInformation default value is false.

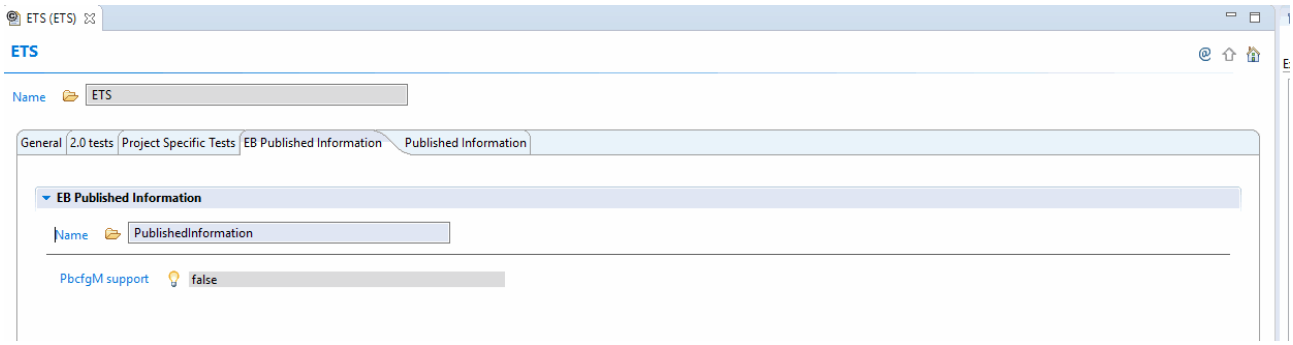

Figure 3.15. EB PublishedInformation

3.3.5. PublishedInformation tab

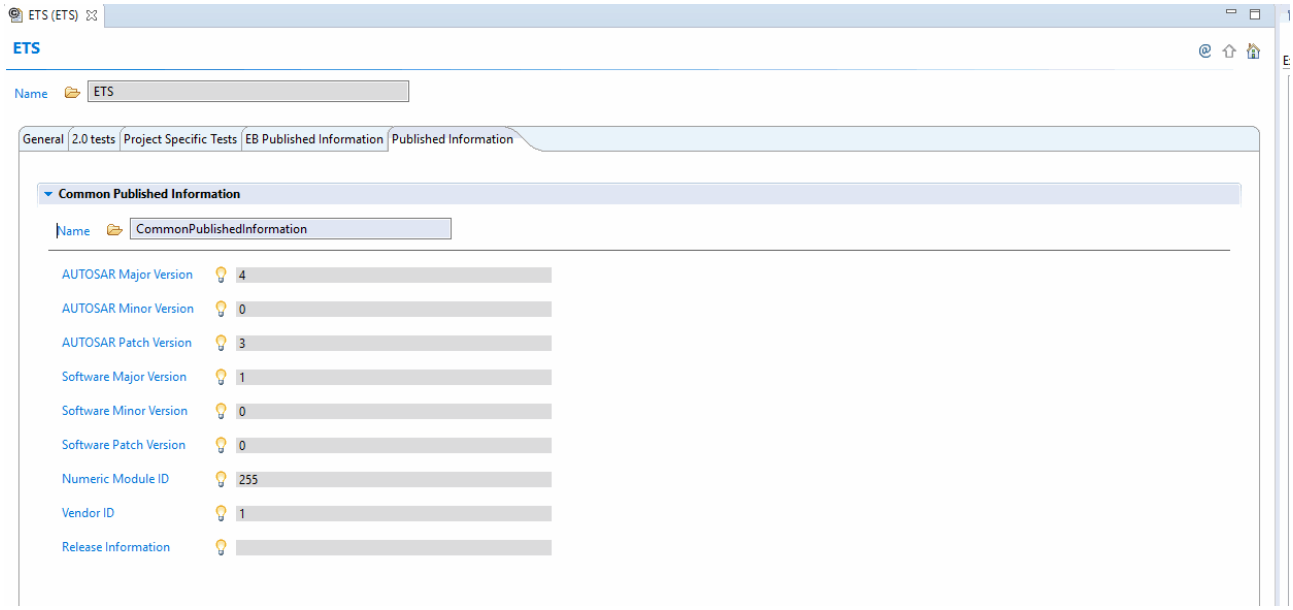

Figure 3.16. CommonPublishedInformation

3.4. Usage of the ETS module

This ETS is used to testing SOME/IP protocol. External testing device is connected to tested device via Ethernet cable. Tester executes test cases and SOME/IP messages are routed up to ETS that perform the specified tasks and send response back to tester. The tester can then verify the expected result.

3.5. External Connections

This section describes the external connections from ETS to facilitate module integration. Refer to *Integration notes* section for integration requirements.

3.5.1. AUTOSAR Interfaces

This section lists the interfaces between ETS and the ETS tester.

The following related tasks are also managed: `subscribe to eventgroups`, `client service activate`, and `deactivate`. When the Ethernet Tester calls the `subscribe eventgroup` function, the ETS receives a timer period through RTE interface and starts the timer with subscribe client event, start and duration parameters. When the Ethernet Tester calls the `client service activate` function, the ETS receives the start value through RTE interface and starts the timer with activate client event and start parameters.

The following service-related functions are available:

- `check byte order`: the Ethernet Tester checks that the ETS target platform uses little or big endian.
- `suspend interface`: the Ethernet Tester sets the ETS client service interface to wait a certain time (using the duration and start parameters).
- `reset interface`: the Ethernet Tester initializes again the interface parameters by running the `initialize` function.

The module also contains `get` and `set` testfields interface functions that the Ethernet Tester can directly call via a client-server interface. These functions are available from the interface listing.

The ETS errors are managed through DET RTE error interface. All modules have unique id values and when activated, the errors can be traced to a specific module.

3.5.1.1. Data Mappings

We are mapping here C/S Interfaces from the COM Stack to the SWC.

3.5.1.1.1. Service Client-Server Interfaces

```
ClientServerInterface ETS_CheckByteOrder
{

  ETS_CheckByteOrder
  (
```

```
    IN uint8 summandUINT8
    IN uint16 summandUINT16
    OUT uint32 sum
  )
}


ClientServerInterface ETS_ClientServiceCallEchoUINT8Array
{

  ETS_ClientServiceCallEchoUINT8Array
  (
    INOUT ETS_Uint8Array uINT8ARRAY
  )
}


ClientServerInterface ETS_ClientServiceGetLastValueOfEventTCP
{

  ETS_ClientServiceGetLastValueOfEventTCP
  (
    OUT uint8 lastValue
  )
}


ClientServerInterface ETS_ClientServiceGetLastValueOfEventUDPMulticast
{

  ETS_ClientServiceGetLastValueOfEventUDPMulticast
  (
    OUT uint8 lastValue
  )
}


ClientServerInterface ETS_ClientServiceGetLastValueOfEventUDPUnicast
{

  ETS_ClientServiceGetLastValueOfEventUDPUnicast
  (
    OUT uint8 lastValue
  )
}
```

```
ClientServerInterface ETS_TestFieldUINT8Reliable
{

  getFieldTestFieldUINT8Reliable
  (
    OUT uint8 Getter
  )

  setFieldTestFieldUINT8Reliable
  (
    INOUT uint8 Setter
  )
}



ClientServerInterface ETS_TestFieldUINT8
{

  getFieldTestFieldUINT8
  (
    OUT uint8 Getter
  )

  setFieldTestFieldUINT8
  (
    INOUT uint8 Setter
  )
}



ClientServerInterface ETS_TestFieldUINT8Array
{

  getFieldTestFieldUINT8Array
  (
    OUT ETS_Uint8Array Getter
  )

  setFieldTestFieldUINT8Array
  (
    INOUT ETS_Uint8Array Setter
  )
}
```

3.5.1.1.2. Service Sender-Receiver Interfaces

```
SenderReceiverInterface ETS_ClientServiceActivate
{
  uint8 start
}


SenderReceiverInterface ETS_ClientServiceDeactivate
{
  uint8 start
}


SenderReceiverInterface ETS_ClientServiceSubscribeEventgroup
{
  ETS_TimePeriod clientServiceSubscribeEventgroup
}


SenderReceiverInterface ETS_ModeRequest_SD_ClientService
{
  ETS_SD_ClientServiceModeType requestedMode
}


SenderReceiverInterface ETS_ModeRequest_SD_ConsumeEventGroup
{
  ETS_SD_ConsumeEventGroupModeType requestedMode
}


SenderReceiverInterface ETS_ModeRequest_SD_ServerService
{
  ETS_SD_ServerServiceModeType requestedMode
}


SenderReceiverInterface ETS_SuspendInterface
```

```
{
  ETS_TimePeriod suspendInterface
}


SenderReceiverInterface ETS_TestEventUINT8
{
  ETS_Uint8Value TestEventUINT8
}


SenderReceiverInterface ETS_TestEventUINT8Array
{
  ETS_Uint8Array TestEventUINT8Array
}


SenderReceiverInterface ETS_TestEventUINT8E2E
{
  ETS_Uint8Value TestEventUINT8E2E
}


SenderReceiverInterface ETS_TestEventUINT8Multicast
{
  ETS_Uint8Value TestEventUINT8Multicast
}


SenderReceiverInterface ETS_TestEventUINT8Reliable
{
  ETS_Uint8Value TestEventUINT8Reliable
}


SenderReceiverInterface ETS_TriggerEventUINT8
{
  ETS_TriggerEventType triggerEventUINT8
}


SenderReceiverInterface ETS_TriggerEventUINT8Array
{
```

```
  ETS_TriggerEventType triggerEventUINT8Array
}


SenderReceiverInterface ETS_TriggerEventUINT8E2E
{
  ETS_TriggerEventType triggerEventUINT8E2E
}


SenderReceiverInterface ETS_TriggerEventUINT8Multicast
{
  ETS_TriggerEventType triggerEventUINT8Multicast
}


SenderReceiverInterface ETS_TriggerEventUINT8Reliable
{
  ETS_TriggerEventType triggerEventUINT8Reliable
}
```

3.5.1.1.3. Service ModeSwitch Interfaces

```
ModeSwitchInterface ETS_SwitchPort_CurrentMode
{
  ETS_CurrentMode CurrentMode
}
```

3.5.1.1.4. Echo Client-Server Interfaces

```
ClientServerInterface ETS_EchoBitfields
{

  EchoBitfields
  (
    IN ETS_Bitfield_uint8 bitfield8_in
    IN ETS_Bitfield_uint16 bitfield16_in
    IN ETS_Bitfield_uint32 bitfield32_in
    OUT ETS_Bitfield_uint8_return bitfield8_out
```

```
    OUT ETS_Bitfield_uint16_return bitfield16_out
    OUT ETS_Bitfield_uint32_return bitfield32_out
  )
}


ClientServerInterface ETS_EchoCommonDatatypes
{

  EchoCommonDatatypes
  (
    IN boolean bOOLEAN_in
    IN uint8 uINT8_in
    IN uint16 uINT16_in
    IN uint32 uINT32_in
    IN sint8 iNT8_in
    IN sint16 iNT16_in
    IN sint32 iNT32_in
    IN float32 fLOAT32_in
    IN float64 fLOAT64_in
    OUT float64 fLOAT64_out
    OUT float32 fLOAT32_out
    OUT sint32 iNT32_out
    OUT sint16 iNT16_out
    OUT sint8 iNT8_out
    OUT uint32 uINT32_out
    OUT uint16 uINT16_out
    OUT uint8 uINT8_out
    OUT boolean bOOLEAN_out
  )
}


ClientServerInterface ETS_EchoENUM
{

  EchoENUM
  (
    IN ETS_ENUM ENUMValue
    OUT ETS_ENUM ENUMReturnValue
  )
}


ClientServerInterface ETS_EchoFLOAT64
```

```
{

  EchoFLOAT64
  (
    IN float64 float64Value
    OUT float64 float64ReturnValue
  )
}



ClientServerInterface ETS_EchoINT64
{

  EchoINT64
  (
    IN sint64 int64Value
    OUT sint64 int64ReturnValue
  )
}



ClientServerInterface ETS_EchoINT8
{

  EchoINT8
  (
    IN sint8 Int8Value
    OUT sint8 Int8ReturnValue
  )
}



ClientServerInterface ETS_EchoSTRUCTSimple
{

  EchoSTRUCTSimple
  (
    IN ETS_SimpleStructArray structElement
    OUT ETS_SimpleStructArray structReturnElement
  )
}



ClientServerInterface ETS_EchoStaticUINT8Array
```

```
{

  EchoStaticUINT8Array
  (
    IN ETS_StaticUint8Array ES_uINT8Array
    OUT ETS_StaticUint8Array ES_uINT8ArrayReturnValue
  )
}



ClientServerInterface ETS_EchoTYPEDEF
{

  EchoTYPEDEF
  (
    IN uint8 typeDefElement
    OUT uint8 typeDefreturnElement
  )
}



ClientServerInterface ETS_EchoUINT64
{

  EchoUINT64
  (
    IN uint64 Uint64Value
    OUT uint64 Uint64ReturnValue
  )
}



ClientServerInterface ETS_EchoUINT8
{

  EchoUINT8
  (
    IN uint8 Uint8Value
    OUT uint8 Uint8ReturnValue
  )
}



ClientServerInterface ETS_EchoUINT8Array
```

```
{

  EchoUINT8Array
  (
    INOUT ETS_Uint8Array uint8Array
  )
}



ClientServerInterface ETS_EchoUINT8Array16Bitlength
{

  EchoUINT8Array16Bitlength
  (
    INOUT ETS_Uint8Array E_uINT8Array
  )
}



ClientServerInterface ETS_EchoUINT8Array2Dim
{

  EchoUINT8Array2Dim
  (
    IN ETS_TwoDimUint8Array uINT8Array_2D
    OUT ETS_TwoDimUint8Array uINT8ArrayReturnValue_2D
  )
}



ClientServerInterface ETS_EchoUINT8Array8BitLength
{

  EchoUINT8Array8BitLength
  (
    INOUT ETS_Uint8Array uINT8Array_BL
  )
}



ClientServerInterface ETS_EchoUINT8ArrayMinSize
{

  EchoUINT8ArrayMinSize
```

```
  (
    IN ETS_Uint8Array uINT8Array_MS
    OUT ETS_Uint8Array uINT8ArrayReturnValue_MS
  )
}



ClientServerInterface ETS_EchoUINT8E2E
{

  EchoUINT8E2E
  (
    INOUT uint32 cRCId
    INOUT uint16 alive
    INOUT uint32 cRC
    INOUT uint8 uINT8Value
  )
}



ClientServerInterface ETS_EchoUINT8RELIABLE
{

  EchoUINT8RELIABLE
  (
    IN uint8 Uint8Value
    OUT uint8 Uint8ReturnValue
  )
}



ClientServerInterface ETS_EchoUNION
{

  EchoUNION
  (
    IN ETS_UNION uINT8Union
    OUT ETS_UNION uINT8UnionReturnValue
  )
}



ClientServerInterface ETS_EchoUTF16FIXED
{
```

```
  EchoUTF16FIXED
  (
    IN ETS_UTF16FixedArray uINT16Array
    OUT ETS_UTF16FixedArray uINT16ArrayReturnValue
  )
}


ClientServerInterface ETS_EchoUTF8FIXED
{

  EchoUTF8FIXED
  (
    IN ETS_UTF8FixedArray uINT8Array_FX
    OUT ETS_UTF8FixedArray uINT8ArrayReturnValue
  )
}
```

3.5.1.1.5. Fields Client-Server Interfaces

```
ClientServerInterface ETS_InterfaceVersion
{

  getFieldInterfaceVersion
  (
    OUT ETS_VersionType Getter
  )
}


SenderReceiverInterface ETS_NotifyFieldInterfaceVersion
{
  ETS_VersionType Notifier
}


SenderReceiverInterface ETS_NotifyFieldTestFieldUINT8
{
  uint8 Notifier
}
```

```
SenderReceiverInterface ETS_NotifyFieldTestFieldUINT8Array
{
  ETS_Uint8Array Notifier
}
```

```
SenderReceiverInterface ETS_NotifyFieldTestFieldUINT8Reliable
{
  uint8 Notifier
}
```

3.5.1.2. Project Specific Interfaces

```
ClientServerInterface ETS_Pst<ProjectSpecificTest>
{

  ETS_Cbk_<ProjectSpecificTest>
  (
  )
}
```

3.5.1.3. Interface to Det (optional)

```
ClientServerInterface DetService
{
  PossibleError
  {
    E_OK = 0
    E_NOT_OK = 1
  }

  ReportError
  (
    IN uint8 InstanceId
    IN uint8 ApiId
    IN uint8 ErrorId
    ERR { E_OK, E_NOT_OK }
  )
}
```

3.5.2. Ports

This section lists the ports between ETS and Ethernet Tester and Det modules.

NOTE

The ASSOCIATED INTERFACE name to be connected is derived from the customer arxml files.

DIRECTION	PORT NAME	TARGET MODULE	ASSOCIATED INTERFACE	OPTIONALITY
RequirePort	Det	BswM	DetService	Yes
ProvidePort	ETS_CheckByteOrder	Ethernet Tester	ETS_CheckByteOrder	Yes
ProvidePort	ETS_ClientServiceCallEchoUINT8Array	Ethernet Tester	ETS_ClientServiceCallEchoUINT8Array	Yes
ProvidePort	ETS_ClientServiceGetLastValueOfEventTCP	Ethernet Tester	ETS_ClientServiceGetLastValueOfEventTCP	Yes
ProvidePort	ETS_ClientServiceGetLastValueOfEventUDPMulticast	Ethernet Tester	ETS_ClientServiceGetLastValueOfEventUDPMulticast	Yes
ProvidePort	ETS_ClientServiceGetLastValueOfEventUDPUnicast	Ethernet Tester	ETS_ClientServiceGetLastValueOfEventUDPUnicast	Yes
ProvidePort	ETS_EchoBitfields	Ethernet Tester	ETS_EchoBitfields	Yes
ProvidePort	ETS_EchoCommonDatatypes	Ethernet Tester	ETS_EchoCommonDatatypes	Yes
ProvidePort	ETS_EchoENUM	Ethernet Tester	ETS_EchoENUM	Yes
ProvidePort	ETS_EchoFLOAT64	Ethernet Tester	ETS_EchoFLOAT64	Yes
ProvidePort	ETS_EchoINT64	Ethernet Tester	ETS_EchoINT64	Yes
ProvidePort	ETS_EchoINT8	Ethernet Tester	ETS_EchoINT8	Yes
ProvidePort	ETS_EchoSTRUCTSimple	Ethernet Tester	ETS_EchoSTRUCTSimple	Yes

DIRECTION	PORT NAME	TARGET MODULE	ASSOCIATED INTERFACE	OPTIONALITY
ProvidePort	ETS_EchoStaticUINT8Array	Ethernet Tester	ETS_EchoStaticUINT8Array	Yes
ProvidePort	ETS_EchoTYPEDEF	Ethernet Tester	ETS_EchoTYPEDEF	Yes
ProvidePort	ETS_EchoUINT64	Ethernet Tester	ETS_EchoUINT64	Yes
ProvidePort	ETS_EchoUINT8	Ethernet Tester	ETS_EchoUINT8	Yes
ProvidePort	ETS_EchoUINT8Array	Ethernet Tester	ETS_EchoUINT8Array	Yes
ProvidePort	ETS_EchoUINT8Array16Bitlength	Ethernet Tester	ETS_EchoUINT8Array16Bitlength	Yes
ProvidePort	ETS_EchoUINT8Array2Dim	Ethernet Tester	ETS_EchoUINT8Array2Dim	Yes
ProvidePort	ETS_EchoUINT8Array8BitLength	Ethernet Tester	ETS_EchoUINT8Array8BitLength	Yes
ProvidePort	ETS_EchoUINT8ArrayMinSize	Ethernet Tester	ETS_EchoUINT8ArrayMinSize	Yes
ProvidePort	ETS_EchoUINT8E2E	Ethernet Tester	ETS_EchoUINT8E2E	Yes
ProvidePort	ETS_EchoUINT8RELIABLE	Ethernet Tester	ETS_EchoUINT8RELIABLE	Yes
ProvidePort	ETS_EchoUNION	Ethernet Tester	ETS_EchoUNION	Yes
ProvidePort	ETS_EchoUTF16FIXED	Ethernet Tester	ETS_EchoUTF16FIXED	Yes
ProvidePort	ETS_EchoUTF8FIXED	Ethernet Tester	ETS_EchoUTF8FIXED	Yes
ProvidePort	ETS_InterfaceVersion	Ethernet Tester	ETS_InterfaceVersion	Yes
ProvidePort	ETS_NotifyFieldTestFieldUINT8	Ethernet Tester	ETS_NotifyFieldTestFieldUINT8	Yes
ProvidePort	ETS_NotifyFieldTestFieldUINT8Array	Ethernet Tester	ETS_NotifyFieldTestFieldUINT8Array	Yes
ProvidePort	ETS_NotifyFieldTestFieldUINT8Reliable	Ethernet Tester	ETS_NotifyFieldTestFieldUINT8Reliable	Yes

DIRECTION	PORT NAME	TARGET MODULE	ASSOCIATED INTERFACE	OPTIONALITY
ProvidePort	ETS_NotifyFieldsInterfaceVersion	Ethernet Tester	ETS_NotifyFieldsInterfaceVersion	Yes
ProvidePort	ETS_SD_ClientServiceRequest	Ethernet Tester	ETS_ModeRequest_SD_ClientService	Yes
ProvidePort	ETS_SD_ConsumedEventGroupRequest	Ethernet Tester	ETS_ModeRequest_SD_ConsumeEventGroup	Yes
ProvidePort	ETS_SD_ServerServiceRequest	Ethernet Tester	ETS_ModeRequest_SD_ServerService	Yes
ProvidePort	ETS_TestEventUINT8	Ethernet Tester	ETS_TestEventUINT8	Yes
ProvidePort	ETS_TestEventUINT8Array	Ethernet Tester	ETS_TestEventUINT8Array	Yes
ProvidePort	ETS_TestEventUINT8E2E	Ethernet Tester	ETS_TestEventUINT8E2E	Yes
ProvidePort	ETS_TestEventUINT8Multicast	Ethernet Tester	ETS_TestEventUINT8Multicast	Yes
ProvidePort	ETS_TestEventUINT8Reliable	Ethernet Tester	ETS_TestEventUINT8Reliable	Yes
ProvidePort	ETS_TestFieldUINT8	Ethernet Tester	ETS_TestFieldUINT8	Yes
ProvidePort	ETS_TestFieldUINT8Array	Ethernet Tester	ETS_TestFieldUINT8Array	Yes
ProvidePort	ETS_TestFieldUINT8Reliable	Ethernet Tester	ETS_TestFieldUINT8Reliable	Yes
ProvidePort	ETS_Pst<ProjectSpecificTest>	Ethernet Tester	ETS_Pst<ProjectSpecificTest>	Yes
RequirePort	ETS_ClientServiceActivate	Ethernet Tester	ETS_ClientServiceActivate	Yes
RequirePort	ETS_ClientServiceDeactivate	Ethernet Tester	ETS_ClientServiceDeactivate	Yes

DIRECTION	PORT NAME	TARGET MODULE	ASSOCIATED INTERFACE	OPTIONALITY
RequirePort	ETS_ClientServiceSubscribeEventgroup	Ethernet Tester	ETS_ClientServiceSubscribeEventgroup	Yes
RequirePort	ETS_EchoUINT8ArrayClient	Ethernet Tester	ETS_EchoUINT8Array	Yes
RequirePort	ETS_ResetInterface	Ethernet Tester	ETS_ResetInterface	Yes
RequirePort	ETS_SuspendInterface	Ethernet Tester	ETS_SuspendInterface	Yes
RequirePort	ETS_TestEventUINT8ArrayClient	Ethernet Tester	ETS_TestEventUINT8Array	Yes
RequirePort	ETS_TestEventUINT8Client	Ethernet Tester	ETS_TestEventUINT8	Yes
RequirePort	ETS_TestEventUINT8E2EClient	Ethernet Tester	ETS_TestEventUINT8E2E	Yes
RequirePort	ETS_TestEventUINT8MulticastClient	Ethernet Tester	ETS_TestEventUINT8Multicast	Yes
RequirePort	ETS_TestEventUINT8ReliableClient	Ethernet Tester	ETS_TestEventUINT8Reliable	Yes
RequirePort	ETS_TriggerEventUINT8	Ethernet Tester	ETS_TriggerEventUINT8	Yes
RequirePort	ETS_TriggerEventUINT8Array	Ethernet Tester	ETS_TriggerEventUINT8Array	Yes
RequirePort	ETS_TriggerEventUINT8E2E	Ethernet Tester	ETS_TriggerEventUINT8E2E	Yes
RequirePort	ETS_TriggerEventUINT8Multicast	Ethernet Tester	ETS_TriggerEventUINT8Multicast	Yes
RequirePort	ETS_TriggerEventUINT8Reliable	Ethernet Tester	ETS_TriggerEventUINT8Reliable	Yes
RequirePort	currentMode	Ethernet Tester	ETS_SwitchPort_CurrentMode	Yes

Table 3.1. List of available ports

Details on optional ports:

Yes: the ports are present when configuration option of each port has been enabled.

3.6. Integration Guide

ETS as a software component is used to test signals related to SOMEIP-SD and SOMEIP transformer. Different kinds of interfaces are implemented to test unit8array, structures, echoing of different data types, resetting the interfaces.

3.6.1. Product specific key checks

- SOME/IP signals to be checked with tags DATA-TRANSFORMATIONS, TRANSFORMATION-TECHNOLOGY.
- Client server to signal mappings and sender receiver to signal mappings to be checked with tags CLIENT-SERVER-TO-SIGNAL-MAPPING, SENDER-RECEIVER-TO-SIGNAL-MAPPING.
- Signal I-PDU should contain transfer property.

3.6.2. Connections

Create ETS swc prototype as part of CPU instance.

ETS contains the client server interfaces with the same configurations as in product and ports related to CSI and these signals can map to ports.

Select the interface, then search the P port and R port of selected interface, and map the signals to the ports tasking reference from the product. In case of missing ports or missing interfaces, report to ETS author. You can map the signals to be mapped from the CS – Signal mapping. For example: CSO: ETS_ClientServiceCallEchoUINT8Array, P Port: ETS_ClientServiceCallEchoUINT8Array, R port: ETS_-EchoUINT8ArrayClient

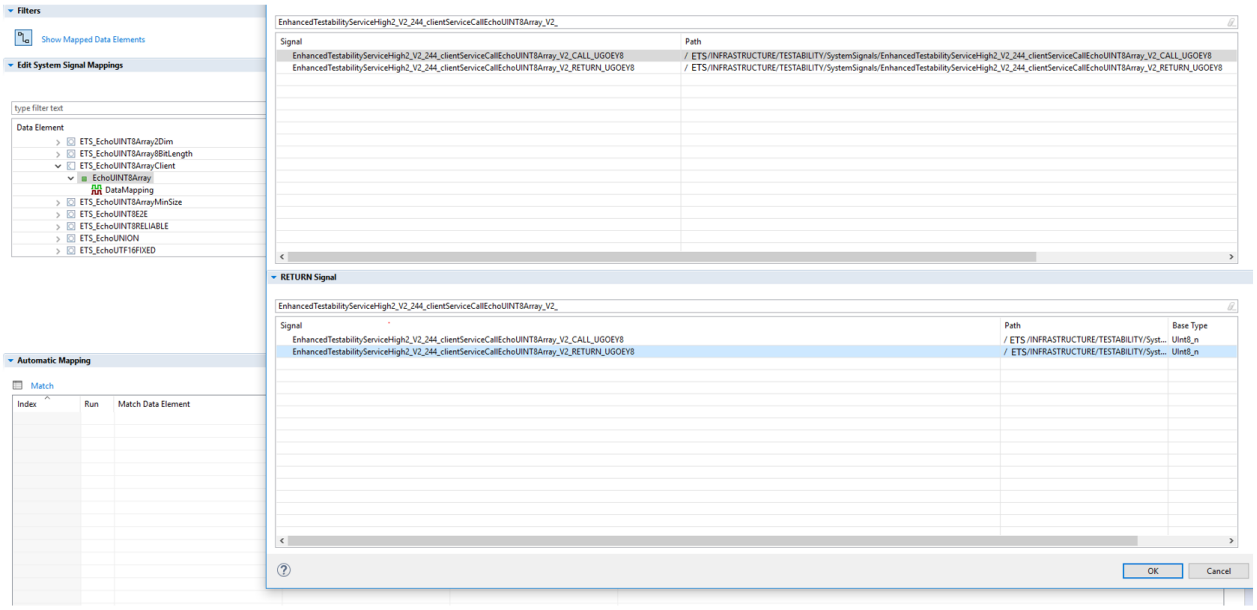

Figure 3.17. R port signal mapping

Figure 3.18. R port signal mappings

Similarly map signal of P port

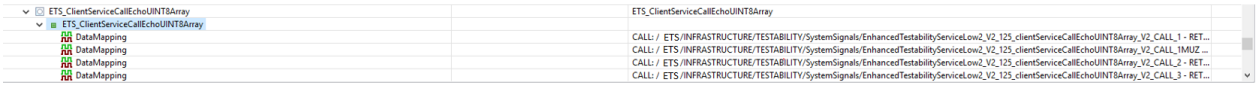

Figure 3.19. Signal mappings of P port

The sender receiver interfaces are used to test Service discovery: methods, events and fields (Getter, Setter, Notifier). Make sure to map the signals related to SRI.

- clientServiceActivate (searches all signals in product and map)
- clientServiceDeactivate (searches all signals in product and map)
- clientServiceSubscribeEventgroup (searches all signals in product and map)
- suspendInterface (searches all signals in product and map)

NOTE

Do not map signals to wrong ports. A keyword can be the interface name, and most of ETS configuration mapping information could be retrieved from Interface mappings in Symphony.

3.6.3. BSWM Configurations

It is recommended to configure ETS initialization as the last StartuptwoB actionlist action.

3.6.3.1. BSWM – ETS Connection

For notification (server service availability), requests (client), switching modes (ETS mode), connect ETS Ports currentMode, ETS_SD_ClientServiceRequest, ETS_SD_ConsumedEventGroupRequest, ETS_SD_-ServerServiceRequest To related BswM ports Related Bswm Ports are generated if BSWM SWITCH port, Mode request ports are configured in BSWM()

3.6.3.2. BSWM SWITCH PORT

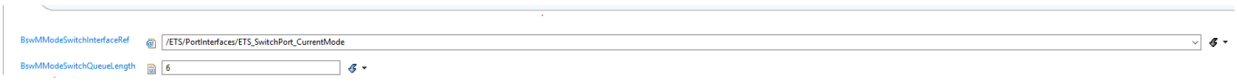

Figure 3.20.

3.6.3.3. Mode request Ports

ETS_SD_ClientServiceModeRequest:

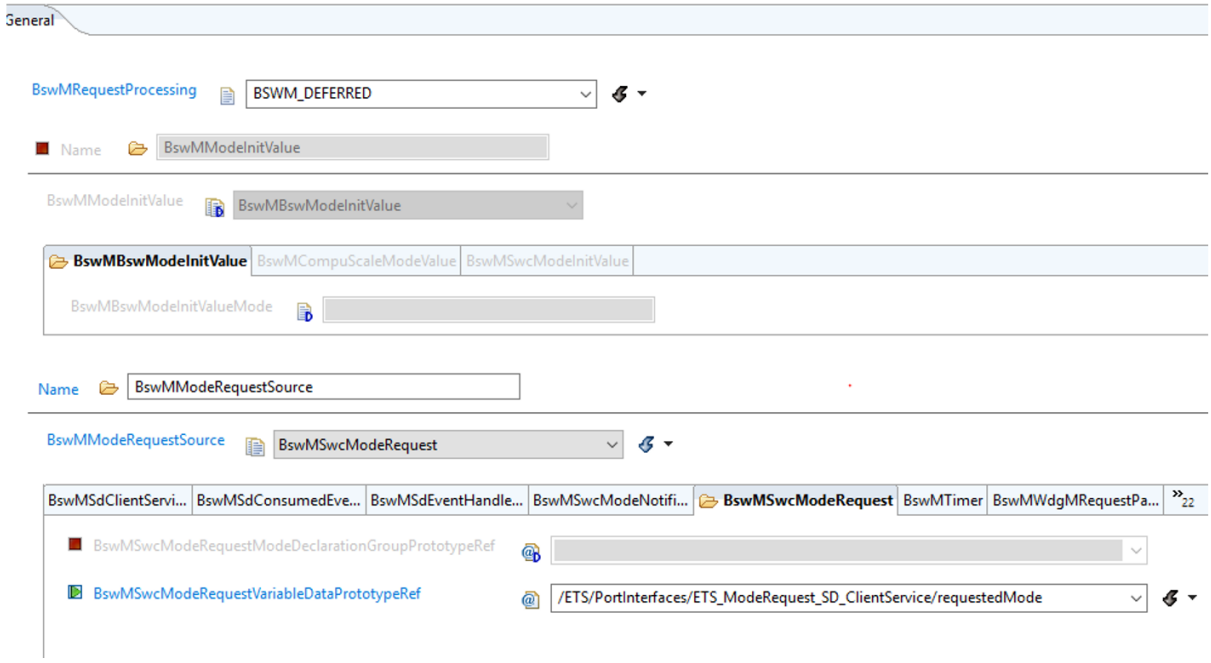

Figure 3.21. Client service mode request port

ETS_SD_Server serviceModeRequest:

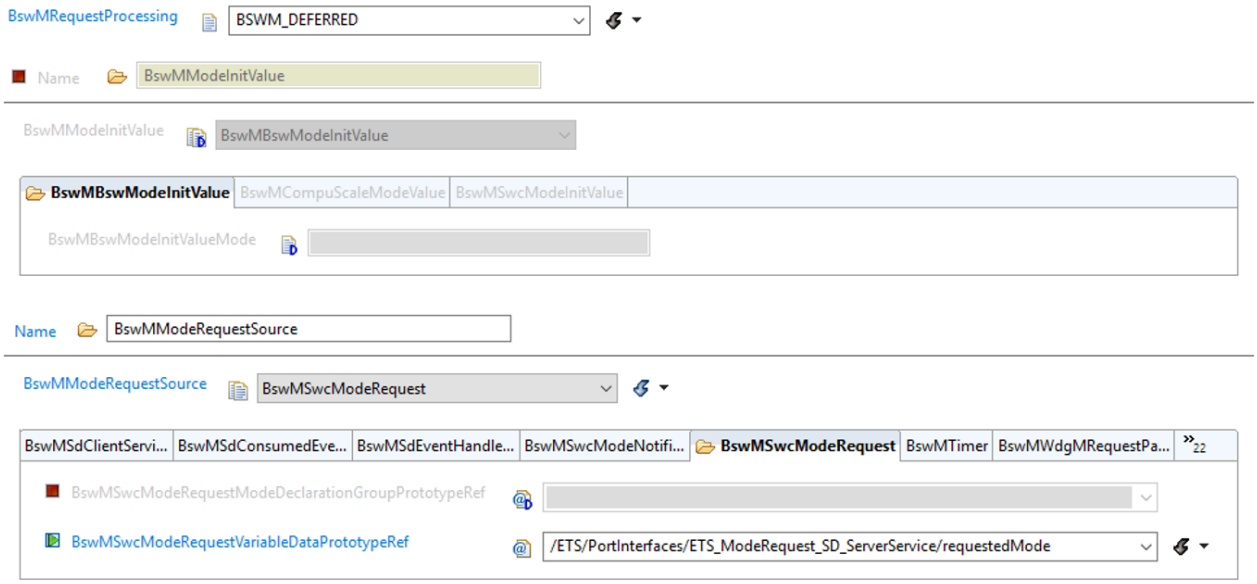

Figure 3.22. Server service mode request port

3.6.3.4. Mode conditions

Create mode conditions for ETS_ClientServiceActivate, ETS_ServerServiceActivate, ConsumedEventGroup. Each equals to ETS_SD_CLIENT_SERVICE_REQUESTED, ETS_SD_SERVER_SERVICE_AVAILABLE, ETS_SD_CONSUMED_EVENTGROUP_REQUESTED respectively.

3.6.3.5. Logical expression, rule and action

Sequence: if the signal is received to request the client service state to ETS SWC, ETS sends a notification. Based on this notification, BswM has to perform the action to request for the service.

3.6.3.5.1. For client services

Activate and deactivate client services.

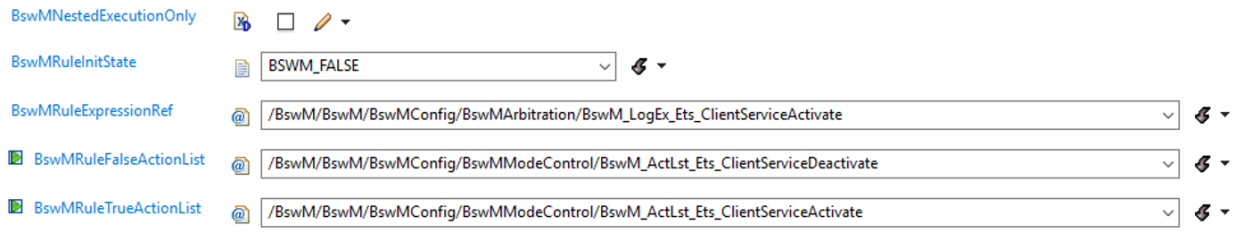

Figure 3.23. ETS Client service rule

Figure 3.23, “ETS Client service rule” configures the available action to BswMClientServiceModeRequest with service state requested and Reference to client service.

True action to “Requested”, False action to “Released” .

3.6.3.5.2. For consumed event groups

Configure the available action BswMSdConsumedEventGroupModeRequest with BSWM_SD_CONSUMED_-EVENTGROUP_REQUESTED for true action and BSWM_SD_CONSUMED_EVENTGROUP_RELEASE for false action.

NOTE Do this for each Event group in the service.

3.6.3.5.3. For server services

Configure the available action to BswMSdServerServiceModeRequest with service state BSWM_SD_SERVER_SERVICE_AVAILABLE for true action and BSWM_SD_SERVER_SERVICE_DOWN for false action.

3.7. Resources

This chapter describes the resource consumption for a number of configurations. The resources are specified for various targets and compilers.

4. ETS module references

4.1. Overview

This chapter provides module references for the ETS product modules. These include a detailed description of all configuration parameters. Furthermore this chapter lists the application programming interface with all data types, constants and functions.

The content of the sections is sorted alphabetically according the EB tresos AutoCore Generic module names.

For further information on the functional behavior of these modules, refer to the chapter ETS user's guide.

4.1.1. Notation in EB module references

EB notation may differ from the AUTOSAR standard notation in the software specification documents (SWS). This section describes the notation of *default value* and *range* fields in the EB module references.

4.1.1.1. Default value of configuration parameters

If there is no default value specified for a parameter, the default value field is omitted to prevent ambiguity with parameters that have `--` as default values.

Example: The parameter `BswMCompuConstText` of the `BswM` module of EB tresos AutoCore Generic 8 Mode Management has no default value field, therefore it is omitted.

4.1.1.2. Range information of configuration parameters

The range of a configuration parameter contains an upper and a lower boundary. However, in special cases the range of allowed values can be computed by means of an XPath function that is evaluated at configuration time. An XPath function can either be a standard `xpath:<function>()` or a custom `cxpath:<function>()` function. The range of a configuration parameter may be computed based on other configuration parameters that are referenced from the XPath function. For more information on custom XPath functions, see section *Custom XPath Functions API* of the EB tresos Studio developer's guide.

Example: The parameter `BswMCompuConstText` of the `BswM` module of EB tresos AutoCore Generic 8 Mode Management has the custom XPath function `cxpath:getCompuMethodsVT()` in the range field which provides the allowed values.

4.2. ETS

4.2.1. Configuration parameters

Containers included		
Container name	**Multiplicity**	**Description**
CommonPublishedInformation	1..1	**Label:** Common Published Information Common container, aggregated by all modules. It contains published information about vendor and versions.
General	1..1	General view.
EnhancedTestabilityService	1..1	2.0 test cases.
ProjectSpecificTests	0..n	Project Specific test cases.
PublishedInformation	1..1	**Label:** EB Published Information Additional published parameters not covered by CommonPublishedInformation container.

Parameters included	
Parameter name	**Multiplicity**
IMPLEMENTATION_CONFIG_VARIANT	1..1

Parameter Name	IMPLEMENTATION_CONFIG_VARIANT
Label	Config Variant
Description	Select the configuration variant. Currently only PreCompile is supported.
Multiplicity	1..1
Type	ENUMERATION
Default value	VariantPreCompile
Range	VariantPreCompile

4.2.1.1. CommonPublishedInformation

Parameters included	
Parameter name	**Multiplicity**
ArMajorVersion	1..1

Parameters included	
ArMinorVersion	1..1
ArPatchVersion	1..1
SwMajorVersion	1..1
SwMinorVersion	1..1
SwPatchVersion	1..1
ModuleId	1..1
VendorId	1..1
Release	1..1

Parameter Name	ArMajorVersion
Label	AUTOSAR Major Version
Description	Major version number of AUTOSAR specification on which the appropriate implementation is based on.
Multiplicity	1..1
Type	INTEGER_LABEL
Default value	0
Configuration class	PublishedInformation:
Origin	Elektrobit Automotive GmbH

Parameter Name	ArMinorVersion
Label	AUTOSAR Minor Version
Description	Minor version number of AUTOSAR specification on which the appropriate implementation is based on.
Multiplicity	1..1
Type	INTEGER_LABEL
Default value	0
Configuration class	PublishedInformation:
Origin	Elektrobit Automotive GmbH

Parameter Name	ArPatchVersion
Label	AUTOSAR Patch Version
Description	Patch level version number of AUTOSAR specification on which the appropriate implementation is based on.
Multiplicity	1..1

Type	INTEGER_LABEL
Default value	0
Configuration class	**PublishedInformation:**
Origin	Elektrobit Automotive GmbH

Parameter Name	**SwMajorVersion**
Label	Software Major Version
Description	Major version number of the vendor specific implementation of the module.
Multiplicity	1..1
Type	INTEGER_LABEL
Default value	2
Configuration class	**PublishedInformation:**
Origin	Elektrobit Automotive GmbH

Parameter Name	**SwMinorVersion**
Label	Software Minor Version
Description	Minor version number of the vendor specific implementation of the module. The numbering is vendor specific.
Multiplicity	1..1
Type	INTEGER_LABEL
Default value	5
Configuration class	**PublishedInformation:**
Origin	Elektrobit Automotive GmbH

Parameter Name	**SwPatchVersion**
Label	Software Patch Version
Description	Patch level version number of the vendor specific implementation of the module. The numbering is vendor specific.
Multiplicity	1..1
Type	INTEGER_LABEL
Default value	0
Configuration class	**PublishedInformation:**
Origin	Elektrobit Automotive GmbH

Parameter Name	**ModuleId**

Label	Numeric Module ID
Description	Module ID of this module from Module List
Multiplicity	1..1
Type	INTEGER_LABEL
Default value	0
Configuration class	**PublishedInformation:**
Origin	Elektrobit Automotive GmbH

Parameter Name	**VendorId**
Label	Vendor ID
Description	Vendor ID of the dedicated implementation of this module according to the AUTOSAR vendor list
Multiplicity	1..1
Type	INTEGER_LABEL
Default value	1
Configuration class	**PublishedInformation:**
Origin	Elektrobit Automotive GmbH

Parameter Name	**Release**
Label	Release Information
Multiplicity	1..1
Type	STRING_LABEL
Default value	
Configuration class	**PublishedInformation:**
Origin	Elektrobit Automotive GmbH

4.2.1.2. General

Parameters included	
Parameter name	**Multiplicity**
MainFunctionPeriod	1..1
ETS_EnableDET	1..1

Parameter Name	**MainFunctionPeriod**

Label	MainFunction Cycle Time [s]	
Description	Configuration option for how often main function is called. Time in seconds. Default interval is 20ms	
Multiplicity	1..1	
Type	FLOAT	
Default value	0.02	
Range	<=1 >=0.001	
Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	EB	

Parameter Name	**ETS_EnableDET**	
Label	DevErrorDetect	
Description	Configuration option for enabling Development Error Tracer. Used only in development time.	
Multiplicity	1..1	
Type	BOOLEAN	
Default value	FALSE	
Configuration class	**VariantPreCompile:**	VariantPreCompile

4.2.1.3. EnhancedTestabilityService

Containers included		
Container name	**Multiplicity**	**Description**
EchoingDataTypes	1..1	Configuration for enabling particular echo test.
TestingClientInteraction	1..1	Configuration for enabling particular service test.
TestingEvents	1..1	Configuration for enabling particular event test..
EventsAndFields	1..1	Configuration for enabling particular event or field test..

4.2.1.4. EchoingDataTypes

Parameters included	
Parameter name	**Multiplicity**

Parameters included	
echoUINT8	1..1
echoCommonDatatypes	1..1
echoENUM	1..1
echoExtendedDatatypes	1..1
echoExtendedDatatypes16BitLengthAndTypeField	1..1
echoExtendedDatatypes8BitLengthAndTypeField	1..1
echoFLOAT64	1..1
echoInt64	1..1
echoINT8	1..1
echoStaticUINT8Array	1..1
echoSTRUCT	1..1
echoSTRUCTSimple	1..1
echoTYPEDEF	1..1
echoUINT64	1..1
echoUINT8Array	1..1
echoUINT8Array8BitLength	1..1
echoUINT8Array16BitLength	1..1
echoUINT8Array2Dim	1..1
echoUINT8ArrayMinSize	1..1
echoUINT8E2E	1..1
echoUINT8RELIABLE	1..1
echoUNION	1..1
echoUTF16DYNAMIC	1..1
echoUTF16FIXED	1..1
echoUTF8DYNAMIC	1..1
echoUTF8FIXED	1..1
echoBitfields	1..1

Parameter Name	echoUINT8
Label	echoUINT8
Description	Echo UINT8 test is used.
Multiplicity	1..1

Type	BOOLEAN	
Default value	TRUE	
Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

Parameter Name	**echoCommonDatatypes**	
Label	echoCommonDatatypes	
Description	EchoCommonDatatypes test is actived.	
Multiplicity	1..1	
Type	BOOLEAN	
Default value	TRUE	
Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

Parameter Name	**echoENUM**	
Label	echoENUM	
Description	EchoENUM test is actived.	
Multiplicity	1..1	
Type	BOOLEAN	
Default value	TRUE	
Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

Parameter Name	**echoExtendedDatatypes**	
Label	echoExtendedDatatypes	
Description	EchoExtendedDatatypes test is actived.	
Multiplicity	1..1	
Type	BOOLEAN	
Default value	TRUE	
Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

Parameter Name	**echoExtendedDatatypes16BitLengthAndTypeField**
Label	echoExtendedDatatypes16BitLengthAndTypeField

Description	EchoExtendedDatatypes16BitLengthAndTypeField test is actived.	
Multiplicity	1..1	
Type	BOOLEAN	
Default value	TRUE	
Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

Parameter Name	**echoExtendedDatatypes8BitLengthAndTypeField**	
Label	echoExtendedDatatypes8BitLengthAndTypeField	
Description	EchoExtendedDatatypes8BitLengthAndTypeField test is actived.	
Multiplicity	1..1	
Type	BOOLEAN	
Default value	TRUE	
Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

Parameter Name	**echoFLOAT64**	
Label	echoFLOAT64	
Description	EchoFLOAT64 test is actived.	
Multiplicity	1..1	
Type	BOOLEAN	
Default value	TRUE	
Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

Parameter Name	**echoInt64**	
Label	echoInt64	
Description	EchoInt64 test is actived.	
Multiplicity	1..1	
Type	BOOLEAN	
Default value	TRUE	
Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

Parameter Name	**echoINT8**	
Label	echoINT8	
Description	EchoINT8 test is actived.	
Multiplicity	1..1	
Type	BOOLEAN	
Default value	TRUE	
Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

Parameter Name	**echoStaticUINT8Array**	
Label	echoStaticUINT8Array	
Description	EchoStaticUINT8Array test is actived.	
Multiplicity	1..1	
Type	BOOLEAN	
Default value	TRUE	
Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

Parameter Name	**echoSTRUCT**	
Label	echoSTRUCT	
Description	EchoSTRUCT test is actived.	
Multiplicity	1..1	
Type	BOOLEAN	
Default value	TRUE	
Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

Parameter Name	**echoSTRUCTSimple**
Label	echoSTRUCTSimple
Description	EchoSTRUCTSimple test is actived.
Multiplicity	1..1
Type	BOOLEAN
Default value	TRUE

Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

Parameter Name	**echoTYPEDEF**	
Label	echoTYPEDEF	
Description	EchoTYPEDEF test is actived.	
Multiplicity	1..1	
Type	BOOLEAN	
Default value	TRUE	
Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

Parameter Name	**echoUINT64**	
Label	echoUINT64	
Description	EchoUINT64 test is actived.	
Multiplicity	1..1	
Type	BOOLEAN	
Default value	TRUE	
Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

Parameter Name	**echoUINT8Array**	
Label	echoUINT8Array	
Description	EchoUINT8Array test is actived.	
Multiplicity	1..1	
Type	BOOLEAN	
Default value	TRUE	
Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

Parameter Name	**echoUINT8Array8BitLength**
Label	echoUINT8Array8BitLength
Description	EchoUINT8Array8BitLength test is actived.
Multiplicity	1..1

Type	BOOLEAN	
Default value	TRUE	
Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

Parameter Name	**echoUINT8Array16BitLength**	
Label	echoUINT8Array16BitLength	
Description	EchoUINT8Array16BitLength test is actived.	
Multiplicity	1..1	
Type	BOOLEAN	
Default value	TRUE	
Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

Parameter Name	**echoUINT8Array2Dim**	
Label	echoUINT8Array2Dim	
Description	EchoUINT8Array2Dim test is actived.	
Multiplicity	1..1	
Type	BOOLEAN	
Default value	TRUE	
Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

Parameter Name	**echoUINT8ArrayMinSize**	
Label	echoUINT8ArrayMinSize	
Description	EchoUINT8ArrayMinSize test is actived.	
Multiplicity	1..1	
Type	BOOLEAN	
Default value	TRUE	
Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

Parameter Name	**echoUINT8E2E**
Label	echoUINT8E2E

Description	EchoUINT8E2E test is actived.	
Multiplicity	1..1	
Type	BOOLEAN	
Default value	TRUE	
Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

Parameter Name	**echoUINT8RELIABLE**	
Label	echoUINT8RELIABLE	
Description	EchoUINT8RELIABLE test is actived.	
Multiplicity	1..1	
Type	BOOLEAN	
Default value	TRUE	
Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

Parameter Name	**echoUNION**	
Label	echoUNION	
Description	EchoUNION test is actived.	
Multiplicity	1..1	
Type	BOOLEAN	
Default value	TRUE	
Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

Parameter Name	**echoUTF16DYNAMIC**	
Label	echoUTF16DYNAMIC	
Description	EchoUTF16DYNAMIC test is actived.	
Multiplicity	1..1	
Type	BOOLEAN	
Default value	TRUE	
Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

Parameter Name	**echoUTF16FIXED**	
Label	echoUTF16FIXED	
Description	EchoUTF16FIXED test is actived.	
Multiplicity	1..1	
Type	BOOLEAN	
Default value	TRUE	
Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

Parameter Name	**echoUTF8DYNAMIC**	
Label	echoUTF8DYNAMIC	
Description	EchoUTF8DYNAMIC test is actived.	
Multiplicity	1..1	
Type	BOOLEAN	
Default value	TRUE	
Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

Parameter Name	**echoUTF8FIXED**	
Label	echoUTF8FIXED	
Description	EchoUTF8FIXED test is actived.	
Multiplicity	1..1	
Type	BOOLEAN	
Default value	TRUE	
Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

Parameter Name	**echoBitfields**
Label	echoBitfields
Description	EchoBitfields test is actived.
Multiplicity	1..1
Type	BOOLEAN
Default value	TRUE

Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

4.2.1.5. TestingClientInteraction

Parameters included	
Parameter name	**Multiplicity**
checkByteOrder	1..1
clientServiceActivate	1..1
clientServiceDeactivate	1..1
clientServiceCallEchoUINT8Array	1..1
clientServiceSubscribeEventgroup	1..1
resetInterface	1..1
suspendInterface	1..1
clientServiceGetLastValueOfEventTCP	1..1
clientServiceGetLastValueOfEventUDPUnicast	1..1
clientServiceGetLastValueOfEventUDPMulticast	1..1

Parameter Name	**checkByteOrder**	
Label	checkByteOrder	
Description	CheckByteOrder test is actived.	
Multiplicity	1..1	
Type	BOOLEAN	
Default value	TRUE	
Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

Parameter Name	**clientServiceActivate**
Label	clientServiceActivate
Description	ClientServiceActivate test is actived.
Multiplicity	1..1
Type	BOOLEAN
Default value	TRUE

Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

Parameter Name	**clientServiceDeactivate**	
Label	clientServiceDeactivate	
Description	ClientServiceDeactivate test is actived.	
Multiplicity	1..1	
Type	BOOLEAN	
Default value	TRUE	
Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

Parameter Name	**clientServiceCallEchoUINT8Array**	
Label	clientServiceCallEchoUINT8Array	
Description	ClientServiceCallEchoUINT8Array test is actived.	
Multiplicity	1..1	
Type	BOOLEAN	
Default value	TRUE	
Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

Parameter Name	**clientServiceSubscribeEventgroup**	
Label	clientServiceSubscribeEventgroup	
Description	ClientServiceSubscribeEventgroup test is actived.	
Multiplicity	1..1	
Type	BOOLEAN	
Default value	TRUE	
Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

Parameter Name	**resetInterface**
Label	resetInterface
Description	ResetInterface test is actived.
Multiplicity	1..1

Type	BOOLEAN	
Default value	TRUE	
Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

Parameter Name	**suspendInterface**	
Label	suspendInterface	
Description	SuspendInterface test is actived.	
Multiplicity	1..1	
Type	BOOLEAN	
Default value	TRUE	
Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

Parameter Name	**clientServiceGetLastValueOfEventTCP**	
Label	clientServiceGetLastValueOfEventTCP	
Description	ClientServiceGetLastValueOfEventTCP test is actived.	
Multiplicity	1..1	
Type	BOOLEAN	
Default value	TRUE	
Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

Parameter Name	**clientServiceGetLastValueOfEventUDPUnicast**	
Label	clientServiceGetLastValueOfEventUDPUnicast	
Description	ClientServiceGetLastValueOfEventUDPUnicast test is actived.	
Multiplicity	1..1	
Type	BOOLEAN	
Default value	TRUE	
Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

Parameter Name	**clientServiceGetLastValueOfEventUDPMulticast**
Label	clientServiceGetLastValueOfEventUDPMulticast

Description	ClientServiceGetLastValueOfEventUDPMulticast test is actived.	
Multiplicity	1..1	
Type	BOOLEAN	
Default value	TRUE	
Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

4.2.1.6. TestingEvents

Parameters included	
Parameter name	**Multiplicity**
triggerEventUINT8	1..1
triggerEventUINT8Array	1..1
triggerEventUINT8E2E	1..1
triggerEventUINT8Reliable	1..1
triggerEventUINT8Multicast	1..1

Parameter Name	**triggerEventUINT8**	
Label	triggerEventUINT8	
Description	TriggerEventUINT8 test is actived.	
Multiplicity	1..1	
Type	BOOLEAN	
Default value	TRUE	
Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

Parameter Name	**triggerEventUINT8Array**	
Label	triggerEventUINT8Array	
Description	TriggerEventUINT8Array test is actived.	
Multiplicity	1..1	
Type	BOOLEAN	
Default value	TRUE	
Configuration class	**VariantPreCompile:**	VariantPreCompile

Origin	Elektrobit Automotive GmbH

Parameter Name	**triggerEventUINT8E2E**	
Label	triggerEventUINT8E2E	
Description	TriggerEventUINT8E2E test is actived.	
Multiplicity	1..1	
Type	BOOLEAN	
Default value	TRUE	
Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

Parameter Name	**triggerEventUINT8Reliable**	
Label	triggerEventUINT8Reliable	
Description	TriggerEventUINT8Reliable test is actived.	
Multiplicity	1..1	
Type	BOOLEAN	
Default value	TRUE	
Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

Parameter Name	**triggerEventUINT8Multicast**	
Label	triggerEventUINT8Multicast	
Description	TriggerEventUINT8Multicast test is actived.	
Multiplicity	1..1	
Type	BOOLEAN	
Default value	TRUE	
Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

4.2.1.7. EventsAndFields

Parameters included	
Parameter name	**Multiplicity**

Parameters included	
TestEventUINT8	1..1
TestEventUINT8Array	1..1
TestEventUINT8E2E	1..1
TestEventUINT8Reliable	1..1
TestEventUINT8Multicast	1..1
InterfaceVersion	1..1
TestFieldUINT8	1..1
TestFieldUINT8Array	1..1
TestFieldUINT8Reliable	1..1

Parameter Name	TestEventUINT8	
Label	TestEventUINT8	
Description	TestEventUINT8 test is actived.	
Multiplicity	1..1	
Type	BOOLEAN	
Default value	TRUE	
Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

Parameter Name	TestEventUINT8Array	
Label	TestEventUINT8Array	
Description	TestEventUINT8Array test is actived.	
Multiplicity	1..1	
Type	BOOLEAN	
Default value	TRUE	
Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

Parameter Name	TestEventUINT8E2E
Label	TestEventUINT8E2E
Description	TestEventUINT8E2E test is actived.
Multiplicity	1..1
Type	BOOLEAN

Default value	TRUE	
Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

Parameter Name	**TestEventUINT8Reliable**	
Label	TestEventUINT8Reliable	
Description	TestEventUINT8Reliable test is actived.	
Multiplicity	1..1	
Type	BOOLEAN	
Default value	TRUE	
Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

Parameter Name	**TestEventUINT8Multicast**	
Label	TestEventUINT8Multicast	
Description	TestEventUINT8Multicast test is actived.	
Multiplicity	1..1	
Type	BOOLEAN	
Default value	TRUE	
Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

Parameter Name	**InterfaceVersion**	
Label	InterfaceVersion	
Description	InterfaceVersion test is actived.	
Multiplicity	1..1	
Type	BOOLEAN	
Default value	TRUE	
Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

Parameter Name	**TestFieldUINT8**
Label	TestFieldUINT8
Description	TestFieldUINT8 test is actived.

Multiplicity	1..1	
Type	BOOLEAN	
Default value	TRUE	
Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

Parameter Name	**TestFieldUINT8Array**	
Label	TestFieldUINT8Array	
Description	TestFieldUINT8Array test is actived.	
Multiplicity	1..1	
Type	BOOLEAN	
Default value	TRUE	
Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

Parameter Name	**TestFieldUINT8Reliable**	
Label	TestFieldUINT8Reliable	
Description	TestFieldUINT8Reliable test is actived.	
Multiplicity	1..1	
Type	BOOLEAN	
Default value	TRUE	
Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

4.2.1.8. ProjectSpecificTests

Parameters included	
Parameter name	**Multiplicity**
ActivateTest	1..1

Parameter Name	**ActivateTest**
Label	Test enabled
Description	Enable customer test cases.

Multiplicity	1..1	
Type	BOOLEAN	
Default value	FALSE	
Configuration class	**VariantPreCompile:**	VariantPreCompile
Origin	Elektrobit Automotive GmbH	

4.2.1.9. PublishedInformation

Parameters included	
Parameter name	**Multiplicity**
PbcfgMSupport	1..1

Parameter Name	**PbcfgMSupport**	
Label	PbcfgM support	
Description	Specifies whether or not the ETS can use the PbcfgM module for post-build support.	
Multiplicity	1..1	
Type	BOOLEAN	
Default value	false	
Configuration class	**PublishedInformation:**	
Origin	Elektrobit Automotive GmbH	

4.2.2. Application programming interface (API)

API Reference is not available.

4.2.3. Integration notes

4.2.3.1. Exclusive areas

Exclusive areas information is not available for this module.

4.2.3.2. Production errors

Production errors information is not available for this module.

4.2.3.3. Memory mapping

General information about memory mapping is provided in the EB tresos AutoCore Generic documentation. Refer to the section `Memory mapping and compiler abstraction` in the `Integration notes` section for details.

Memory mapping information is not available for this module.

4.2.3.4. Integration requirements

WARNING **Integration requirements list is not exhaustive**

The following list of integration requirements helps you to integrate your product. However, this list is not exhaustive. You also require information from the user's guide, release notes, and EB tresos AutoCore known issues to successfully integrate your product.

4.2.3.4.1. doc.EB.ETS.Conf.1

Description	ETS shall implement a configuration for main periodicity.

4.2.3.4.2. doc.EB.ETS.Conf.2

Description	ETS DET Runnable for error tracing.

4.2.3.4.3. doc.EB.ETS.Conf.5

Description	ETS shall implement a configuration for enabling/disabling single echo tests.

4.2.3.4.4. doc.EB.ETS.Conf.6

Description	ETS shall implement a configuration option for enabling/disabling single service tests.

4.2.3.4.5. doc.EB.ETS.Conf.7

Description	ETS shall implement a configuration for enabling/disabling single event tests.