



Elektrobit

Release Notes

EB tresos Safety E2E Transformers

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1. Document history

Version	Date	Author	State	Description
0.1	2018-01-12	Elektrobit Automotive GmbH	PROPOSED	Initial version
0.2	2018-02-14	Elektrobit Automotive GmbH	RELEASED	Update grammar and SomelpXf checker
0.3	2019-06-14	Elektrobit Automotive GmbH	RELEASED	Update checker queries
0.4	2019-07-12	Elektrobit Automotive GmbH	RELEASED	Integrated code inspection findings
0.5	2019-08-09	Elektrobit Automotive GmbH	RELEASED	Integrated code inspection findings
0.6	2019-09-05	Elektrobit Automotive GmbH	RELEASED	Added application queries
0.7	2019-10-11	Elektrobit Automotive GmbH	RELEASED	Finished code inspections for XfrmCV, E2EXfCV, ComXfCV
0.8	2019-10-30	Elektrobit Automotive GmbH	RELEASED	Update grammar and SomelpXf checker, backport ACG-8.5.4
0.9	2020-02-21	Elektrobit Automotive GmbH	RELEASED	Update grammar and SomelpXf checker, ASIL-D ready
1.0	2020-03-20	Elektrobit Automotive GmbH	RELEASED	Update version of the SM
1.1	2020-03-25	Elektrobit Automotive GmbH	RELEASED	Update grammar and SomelpXf checker

Version	Date	Author	State	Description
1.2	2020-06-19	Elektrobit Automotive GmbH	RELEASED	Update grammar, ComXf, E2EXf and SomelpXf checker
1.3	2020-08-06	Elektrobit Automotive GmbH	RELEASED	Update grammar, ComXf, E2EXf and SomelpXf checker
1.4	2020-10-21	Elektrobit Automotive GmbH	RELEASED	Update grammar, E2EXf and SomelpXf checker
1.5	2020-12-18	Elektrobit Automotive GmbH	RELEASED	Added report queries, updated DB
1.6	2021-03-02	Elektrobit Automotive GmbH	RELEASED	Update grammar, ComXf, E2EXf and SomelpXf checker
1.7	2021-08-21	Elektrobit Automotive GmbH	RELEASED	Add reference platform
1.8	2022-02-17	Elektrobit Automotive GmbH	RELEASED	Update grammar, ComXf, E2EXf and SomelpXf checker, ASIL-D ready
1.9	2022-04-27	Elektrobit Automotive GmbH	RELEASED	Updated report query for SomelpXf checker, update due to TE review

Table 1.1. Document history



2. Overview of EB tresos Safety E2E Transformers

2.1. Purpose

Welcome to the [EB tresos Safety E2E Transformers](#) release notes.

This document provides.

- ▶ [Chapter 3, “Safety E2E Transformer release notes”](#): release notes of the EB tresos Safety E2E Transformers

3. Safety E2E Transformer release notes

3.1. Overview

This chapter provides the common [Safety Transformers](#) product release notes. General release notes that are applicable to all products are provided in the EB tresos AutoCore Generic documentation. Refer to the EB tresos E2E Transformer (E2E) documentation [\[E2EXFUG\]](#), EB tresos AutoCore Generic 8 Transformers documentation [\[ACGTRANSFORMERUG\]](#) and profile specific product release notes in addition.

3.2. Scope of this release

3.2.1. Checker Tools

The following table lists all configuration [checker tools](#) which are part of this release.

Tool name	Description	Module version
Generic Checker Library	is part of Xfrm module	1.0.11
E2EXf Checker	is part of E2EXf module	1.0.8
ComXf Checker	is part of ComXf module	1.0.6
SomelpXf Checker	is part of SomelpXf module	1.0.10

Table 3.1. List of configuration checker tools

3.2.2. Safety Manual

The following table lists the safety manual which is part of this release.

Document name	Module version
EB tresos Safety E2E Transformers Safety Manual	1.9

Table 3.2. List of documents

3.3. Generic Checker Library release notes

3.3.1. Change log

This chapter lists the changes between different versions.

Module version 1.0.11

2022-03-09

- ▶ Updated grammar to support tag-length-value (TLV) encoding of the SOMEIP Transformer.

Module version 1.0.10

2021-03-05

- ▶ Updated grammar to allow only PC-lint compatible preprocessor include guards.
- ▶ Updated checker grammar to support macro infix changes for endianness in SomeIpXf code.
- ▶ Updated checker grammar to expect unsigned suffix in C data element path for array members.

Module version 1.0.9

2020-12-18

- ▶ Internal module improvement. This module version update does not affect module functionality.

Module version 1.0.8

2020-11-06

- ▶ Internal module improvement. This module version update does not affect module functionality.

Module version 1.0.7

2020-10-23

- ▶ Removed restriction on maximum number of dimensions for SomeIpXf variable size arrays of profile FULLY_FLEXIBLE from the grammar

Module version 1.0.6

2020-07-16

- ▶ Added support for session handling in the SomeIpXf module

Module version 1.0.5

2020-06-19

- ▶ Changed checker grammar to allow `CLEARED` as a memory section infix of `ASIL_D_UNSPECIFIED` E2EXf memory section.

Module version 1.0.4

2020-03-25

- ▶ Added check query for matching macro names in macro double declaration guards.
- ▶ Removed 'MAX_NUM_' from the checker grammar as a valid namespace prefix of macro declarations.

Module version 1.0.3

2020-02-21

- ▶ Updated checker grammar to allow only SOMEIPXF_XFRMBUFFERLENGTH_TYPE as buffer type value in SomelpXf code.
- ▶ Updated checker grammar/lexer to detect unknown characters in a parsed file.
- ▶ Updated checker grammar to allow any positive decimal integer value in foot and head sequences.
- ▶ Updated checker grammar to allow arbitrary array indices, not limited by maximum of 4 anymore.

Module version 1.0.2

2020-01-24

- ▶ Fixed failing self check for case when External Trigger and sender-receiver communication is configured in the same memory partition.

Module version 1.0.1

2019-10-31

- ▶ Extended SomelpXf grammar to allow lowercase arraysize datatype names.

Module version 1.0.0

2019-09-17

- ▶ Internal module improvement. This module version update does not affect module functionality.

Module version 0.7.9

2019-09-06

- ▶ Internal module improvement. This module version update does not affect module functionality.

Module version 0.7.8

2019-08-09

- ▶ Internal module improvement. This module version update does not affect module functionality.

Module version 0.7.7

2019-07-12

- ▶ Internal module improvement. This module version update does not affect module functionality.

- ▶ Added open-source statement to release notes.

Module version 0.7.6

2019-06-14

- ▶ Internal module improvement. This module version update does not affect module functionality.

Module version 0.7.5

2019-04-18

- ▶ Added check query for detection of multiple header file inclusion

Module version 0.7.4

2019-03-22

- ▶ Updated checker grammar to support MODULEPREFIX_MemMap.h but not MemMap.h as included file anymore.

Module version 0.7.3

2019-01-25

- ▶ Added check query for preprocessor symbol match

Module version 0.7.2

2018-12-21

- ▶ Updated checker grammar to support E2EXF_WAIT_FOR_FIRST_DATA_INIT_VALUE and E2ESM_MAX_WINDOW_SIZE in E2EXf module.

Module version 0.7.1

2018-10-30

- ▶ Updated checker grammar to support macro guards for SOMEIPXF_DATA_TYPE_NAME macro in SomeIpXf module.

Module version 0.7.0

2018-08-24

- ▶ Updated checker grammar to support partition-specific ASIL-D sections in E2EXf module.

Module version 0.6.0

2018-06-22

- ▶ Release of the generic checker library as a standalone module

Module version 0.5.1

2018-02-14

- ▶ Update of grammar to support client/server APIs and external trigger APIs in the SomelpXf module.

Module version 0.5.0

2018-01-25

- ▶ Initial version

3.4. E2EXf Checker release notes

3.4.1. Change log

This chapter lists the changes between different versions.

Module version 1.0.8

2022-03-09

- ▶ Added report query to contain E2EXF_XFRMBUFFERLENGTH_TYPE, E2EXF_WAIT_FOR_FIRST_DATA_INIT_VALUE, E2ESM_MAX_WINDOW_SIZE in the report.

Module version 1.0.7

2021-03-05

- ▶ Updated preprocessor include guards to be PC-lint compatible

Module version 1.0.6

2020-11-06

- ▶ Added report query for parameters of client/server and external trigger transformer function definitions

Module version 1.0.5

2020-10-23

- ▶ Internal module improvement. This module version update does not affect module functionality.

Module version 1.0.4

2020-08-05

- ▶ Corrected maximum allowed value of `MaxDataLength` parameter to 65536 bits in Profile P04. Added report query for Profile P04 so that a warning is reported if `MaxDataLength` is higher than 32768 bits.

Module version 1.0.3

2020-07-08



- ▶ Internal module improvement. This module version update does not affect module functionality.

Module version 1.0.2

2020-06-19

- ▶ Changed all NO_INIT memory sections to CLEARED in report queries

Module version 1.0.1

2020-05-22

- ▶ Removed E2EXF_VERSION_INFO_API and E2EXF_IN_USE as mandatory preprocessor symbols

Module version 1.0.0

2019-09-27

- ▶ Internal module improvement. This module version update does not affect module functionality.

Module version 0.6.10

2019-09-06

- ▶ Added check query for detection of wrong header prefixes in Partition Api header files

Module version 0.6.9

2019-08-09

- ▶ Internal module improvement. This module version update does not affect module functionality.

Module version 0.6.8

2019-07-12

- ▶ Added open-source statement to release notes

Module version 0.6.7

2019-06-14

- ▶ Updated check query E2EXF_Profile_IncludeStatement_In_Appropriate_File, added check queries E2EXF_Profile_IncludeStatement_In_PartitionApi_h_File and E2EXF_Profile_IncludeStatement_In_PartitionApi_c_File.
- ▶ Updated boundary values for DataLength, MinDataLength, and MaxDataLength in profile check queries

Module version 0.6.6

2019-05-17

- ▶ Updated check query E2EXF_Preprocessor_Symbols_Valid_Values to detect invalid values of E2EXF_WAIT_FOR_FIRST_DATA_INIT_VALUE preprocessor.

Module version 0.6.5

2019-04-18



- ▶ Updated E2EXF_IncludeStatement_Only_Once_In_Appropriate_Files checker query to detect missing or multiple includes in E2EXf_Api.h files.
- ▶ Added check query for detection of multiple transformer function declarations
- ▶ Added check query E2EXF_Profile_IncludeStatement_In_Appropriate_Files to detect invalid profile header file includes.
- ▶ Changed check query E2EXF_IncludeStatement_In_Appropriate_Files to detect missing header file includes but no multiple includes.

Module version 0.6.4

2019-03-22

- ▶ Added query so that an error is reported if include statement is missing or existing more than once.
- ▶ Corrected maximum allowed value of DataLength parameter to 256 bits in Profile PJLR
- ▶ Corrected maximum allowed value of DataLength parameter to 256 bits in Profile P01
- ▶ Updated IncludeStatement query to detect missing or multiple E2EXf_PARTITIONINFIX_Partitionapi.h includes.

Module version 0.6.3

2019-02-15

- ▶ Added query so that an error is reported if preprocessor symbol is not in given range.

Module version 0.6.2

2019-01-25

- ▶ Internal module improvement. This module version update does not affect module functionality.

Module version 0.6.1

2018-12-21

- ▶ Added support for JLR profile

Module version 0.6.0

2018-06-22

- ▶ Release of the E2EXf safety checker as a standalone module

Module version 0.5.1

2018-02-14

- ▶ Internal module improvement. This module version update does not affect module functionality.

Module version 0.5.0

2018-01-25

- ▶ Initial version

3.5. ComXf Checker release notes

3.5.1. Change log

This chapter lists the changes between different versions.

Module version 1.0.6

2022-03-09

- ▶ Added report and check queries for preprocessor symbol COMXF_XFRMBUFFER-LENGTHTYPE_ISUINT32

Module version 1.0.5

2021-03-05

- ▶ Updated preprocessor include guards to be PC-lint compatible

Module version 1.0.4

2020-11-06

- ▶ Internal module improvement. This module version update does not affect module functionality.

Module version 1.0.3

2020-10-23

- ▶ Internal module improvement. This module version update does not affect module functionality.

Module version 1.0.2

2020-07-08

- ▶ Internal module improvement. This module version update does not affect module functionality.

Module version 1.0.1

2020-06-19

- ▶ Internal module improvement. This module version update does not affect module functionality.

Module version 1.0.0

2019-09-27

- ▶ Internal module improvement. This module version update does not affect module functionality.

Module version 0.6.9

2019-09-06

- ▶ Changed check query COMXF_Mandatory_Define_Symbols to detect wrong prefixes.



Module version 0.6.8

2019-08-09

- ▶ Internal module improvement. This module version update does not affect module functionality.

Module version 0.6.7

2019-07-12

- ▶ Internal module improvement. This module version update does not affect module functionality.
- ▶ Added open-source statement to release notes
- ▶ Changed mandatory include header file from ComXf_S_Stc.h to E2E_ComXf_S_Stc.h

Module version 0.6.6

2019-06-14

- ▶ Internal module improvement. This module version update does not affect module functionality.

Module version 0.6.5

2019-04-18

- ▶ Changed check query COMXF_IncludeStatement_In_Appropriate_Files to detect missing mandatory header file includes but no multiple includes.

Module version 0.6.4

2019-03-22

- ▶ Added check query COMXF_IncludeStatement_In_Appropriate_Files to detect missing mandatory header file includes
- ▶ Added check query for detection of mandatory file double include protection.

Module version 0.6.3

2019-02-15

- ▶ Internal module improvement. This module version update does not affect module functionality.

Module version 0.6.2

2019-01-25

- ▶ Added names and values of the preprocessor symbols from ComXf_Cfg.h file to the generated report

Module version 0.6.1

2018-12-21

- ▶ Internal module improvement. This module version update does not affect module functionality.

Module version 0.6.0

2018-06-22



- ▶ Release of the ComXf safety checker as a standalone module

Module version 0.5.1

2018-02-14

- ▶ Internal module improvement. This module version update does not affect module functionality.

Module version 0.5.0

2018-01-25

- ▶ Initial version

3.6. SomelpXf Checker release notes

3.6.1. Change log

This chapter lists the changes between different versions.

Module version 1.0.10

2022-04-26

- ▶ Updated report query to fix output of fields `variableSizeArray_sizeLengthField` and `variableSizeArray_numberOfDimensions`.

Module version 1.0.9

2022-03-09

- ▶ Added check query to detect data type incompatibility of sender-receiver transformer API and its configuration array.

Module version 1.0.8

2022-01-28

- ▶ Added support for tag-length-value (TLV) encoding

Module version 1.0.7

2021-03-05

- ▶ Updated preprocessor include guards to be PC-lint compatible
- ▶ Added support for macro infix changes for endianness

Module version 1.0.6

2020-12-18

- ▶ Internal module improvement. This module version update does not affect module functionality.

Module version 1.0.5

2020-11-06

- ▶ Internal module improvement. This module version update does not affect module functionality.

Module version 1.0.4

2020-10-23

- ▶ Internal module improvement. This module version update does not affect module functionality.

Module version 1.0.3

2020-07-08

- ▶ Internal module improvement. This module version update does not affect module functionality.

Module version 1.0.2

2020-06-19

- ▶ Internal module improvement. This module version update does not affect module functionality.

Module version 1.0.1

2020-05-22

- ▶ Added report query that writes the value of buffer length type macro into the report.
- ▶ Added check queries to verify the existence and value of buffer length type macro.

Module version 1.0.0

2020-02-21

- ▶ Added check queries to detect invalid values of preprocessor symbols related to Variable Size Arrays and Fixed Size Arrays with Length Fields (also referred to as extensible Fixed Size Arrays).
- ▶ Added check query to verify that the data element name and endianness are identical in the name of config struct and configuration array size macro name.

Module version 0.6.12

2019-10-31

- ▶ Removed check that requires SomelpXf_Cfg.h files to #include stddef.h

Module version 0.6.11

2019-09-27

- ▶ Internal module improvement. This module version update does not affect module functionality.

Module version 0.6.10

2019-09-06



- ▶ Added check query SOMEIPXF_Mandatory_Define_Symbols to detect invalid prefixes in config header files.
- ▶ Updated query SOMEIPXF_Mandatory_Define_Symbols to also detect invalid prefixes in Partition Api header files.

Module version 0.6.9

2019-08-09

- ▶ Internal module improvement. This module version update does not affect module functionality.

Module version 0.6.8

2019-07-12

- ▶ Internal module improvement. This module version update does not affect module functionality.
- ▶ Added open-source statement to release notes

Module version 0.6.7

2019-06-14

- ▶ Internal module improvement. This module version update does not affect module functionality.

Module version 0.6.6

2019-05-17

- ▶ Added check query SOMEIPXF_External_Array_Variable_Definitions to detect invalid external array variable definitions in SomeIpXf_Int_Cfg.h file.

Module version 0.6.5

2019-04-18

- ▶ Added check query SOMEIPXF_IncludeStatement_In_Appropriate_Files to detect missing mandatory header file includes.
- ▶ Added check query SOMEIPXF_IncludeStatement_In_Optional_Cfg_c_file to detect missing header file includes in optional file SomeIpXf_Cfg.c.

Module version 0.6.4

2019-03-22

- ▶ Internal module improvement. This module version update does not affect module functionality.

Module version 0.6.3

2019-02-15

- ▶ Internal module improvement. This module version update does not affect module functionality.

Module version 0.6.2

2019-01-25



- ▶ Internal module improvement. This module version update does not affect module functionality.

Module version 0.6.1

2018-12-21

- ▶ Internal module improvement. This module version update does not affect module functionality.

Module version 0.6.0

2018-06-22

- ▶ Release of the SomelpXf safety checker as a standalone module

Module version 0.5.1

2018-02-14

- ▶ Support recursive queries for nested data structures

Module version 0.5.0

2018-01-25

- ▶ Initial version

3.6.2. Limitations

The SomelpXf checker tool does not verify the generated code of client/server APIs and external trigger APIs of the SomelpXf module.

4. Reference Platforms

This release of [EB tresos Safety E2E Transformers](#) was tested on WIN32X86 and at least the reference platforms listed in the sections below.

4.1. AURIX TC29XT

- ▶ MCU: AURIX TC29XT
- ▶ Type: 32-bit, TriCore with 3 independent CPUs, little endian
- ▶ Compiler: Tasking 50r2

The compiler options summarize under which conditions the module is to be built. The module is tested using these compiler options. If you change the compiler options, consider the module untested.

Compiler	Options
TC29XT tasking 50r2	<code>--core=tc1.6.x --eabi-compliant --integer-enumeration --language=-comments,-gcc, +volatile,-strings --switch=auto --align=0 --default-near-size=0 --default-a0-size=0 -- default-a1-size=0 -O2ROPFG --tradeoff=4 -Wa-Ogs -Wa-gAHLs --emit-locals=-equis,- symbols -g --source --iso=99 -DOS_TRICOREARCH=OS_TRICOREARCH_16EP -DOS_CPU=OS_TC29XT -DCOMPILERCFG_EXTENSION_MCAL_FILE -t - DBOARD_DERIVATE=TC29XT</code>

Table 4.1.

Appendix A. Document configuration information

This document has been created by the DocBook engine using the source files and revisions listed below. All paths are relative to the directory https://subversion.ebgroup.elektrobit.com/svn/autosar/asc_E2ESE/asc_-E2ESEXfmgmt/stable/RFI_ACG-8.8.5_Safety_2/doc/RN.

Filename	Revision
ASCE2ESE-623-Safety_E2E_Transformers_release_notes.xml	4707
History.xml	4893
Introduction.xml	3715
Reference_Platforms.xml	4893
Release_Notes.xml	4893

Glossary

Safety Transformer
Checker

The Safety Transformers Checker is a tool to verify the generated code from SomelpXf, ComXf, and E2EXf. In this way, the confidence in the generated code is increased. Each of the Transformers (SomelpXf, ComXf, and E2EXf) has an own dedicated checker tool and this is included in the module plugin.

- ▶ The E2EXf checker tool verifies the generated code of the *E2EXf* module.
- ▶ The SomelpXf checker tool verifies the generated code of the *SomelpXf* module.
- ▶ The ComXf checker tool verifies the generated code of the *ComXf* module.

EB tresos Safety E2E
Transformers

EB tresos Safety E2E Transformers, short Safety Transformers, is composed of the following products:

- ▶ *EB tresos Safety E2E Transformer (E2E)*
- ▶ *EB tresos Safety E2E Transformer (SOME/IP)*
- ▶ *EB tresos Safety E2E Transformer (COM)*

The end-to-end protected sending and receiving of data with an AUTOSAR stack. The EB tresos Safety E2E Transformers consists of an end-to-end communication protection library (*E2E*), the actual end-to-end communication transformer module (*E2EXf*), a module for data serialization and de-serialization, i.e. either *SomelpXf* or *ComXf*, a state machine *E2ESM*, *SCrc* and different profiles, e.g. P01, P02, P04, P05, P06, and P07, for the integration into an AUTOSAR basic software stack.

Bibliography

**[ACGTRANS-
FORMERUG]**

EB tresos AutoCore Generic 8 Transformers documentation:

[AutoCore_Generic_Transformers_documentation.pdf](#)

[E2EXFUG]

EB tresos E2E Transformer (E2E) documentation:

[E2E_E2EXF_documentation.pdf](#)