Elektrobit

EB tresos® AutoCore Generic 8 Icv documentation

Module release 1.1.5

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Legal disclaimer

Confidential information.

Table of Contents

1. Overview

Welcome to the Icv product release notes and documentation.

This document provides:

- Chapter 2, “Icv module release notes“: details of changes and new features in the current release
- Chapter 3, “Icv user's guide“: concept information and configuration instructions
- Chapter 4, “Icv module references“: configuration parameters and the application programming interface

2. Icv module release notes

- Module version: 1.1.5.B567464
- Supplier: Elektrobit Automotive GmbH

2.1. Change log

This chapter lists the changes between different versions.

Module version 1.1.5

2020-08-24

Module version 1.1.4

2019-04-08

Module version 1.1.3

2018-12-20

Module version 1.1.2

2017-12-22

Module version 1.1.1

2017-09-14

- `Group`'s `Version` field was renamed to `Variant`.
- Removed unnecessary validation contraints on the `Id`, `Version`, `State` and `Description` fields.

- A list of covered requirements was added to `Rule`.
- Generated files were reworked, report was improved.

Module version 1.1.0

2017-05-17

- initial release

2.2. New features

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

2.3. Elektrobit-specific enhancements

This module is not part of the AUTOSAR specification.

2.4. Deviations

This module is not part of the AUTOSAR specification.

2.5. 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.

2.6. Open-source software

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

3. Icv user's guide

3.1. Overview

The Icv module allows the user to specify XPath expressions for systematic validation of the EB tresos Studio module configuration. Whenever the user changes a configuration value, the collection of validation expressions is being evaluated so an immediate error reporting is done.

3.2. Usage

Section Section 3.2.1, “Prerequisites” shortly discuesses the required knowledge for working with Icv. Section Section 3.2.2, “Specification of validation criteria” then deals with the actual specification of validation criteria. Section Section 3.2.2.3, “Examples” finally shows some example use cases.

3.2.1. Prerequisites

The usage of Icv requires basic of knowledge of XPath, which is not dealt with in this document. Moreover, in order to make work with and adaption of XPath expressions for configuration nodes easier, EB tresos Studio's XPath console and code template console are very helpful. They can be enabled in the preferences (*Window* > *Preferences* > *EB tresos Studio* > *Developer features* > *Show template path in Properties view* and *Show actions 'XPath console' and 'Codetemplate console' in Outline view*). See EB tresos Studio user's guide for further usage information and XPath support in EB tresos Studio.

3.2.2. Specification of validation criteria

3.2.2.1. Obtaining XPath expressions for configuration nodes

EB tresos Studio allows to use various kinds of XPath functionality which can therefore also be used in Icv. Refer to EB tresos Studiodeveloper's guide, section 7.3 *XPath API*. As an example, the following XPath represents the content of the *OsScheduleTableRepeating* configuration parameter in the Os module:

```
as:modconf('Os')[1]/OsScheduleTable/*[1]/OsScheduleTableRepeating
```

Such an expression does not need to be created by hand every time. For a selected node, its XPath in the configuration is shown inside the Properties view (*Window* > *Show view* > *Properties* > *Information* > *Paths* > *Path in Template* if the Developer features were enabled as mentioned previously in this document), can be copied from there and then adapted.

3.2.2.2. Configuring Icv

Icv allows configuration of XPath validation expressions. They are then aggregated on multiple levels. A list of XPath validation expressions are called *rule*, a list of *rules* makes up a *group*, and a list of *groups* makes up the *IcvConfigSet* (no multiplicity), see figure Figure 3.1, "Icv's configuration structure". Detected problems will be reported as an entry in EB tresos Studio's *Problems* view.

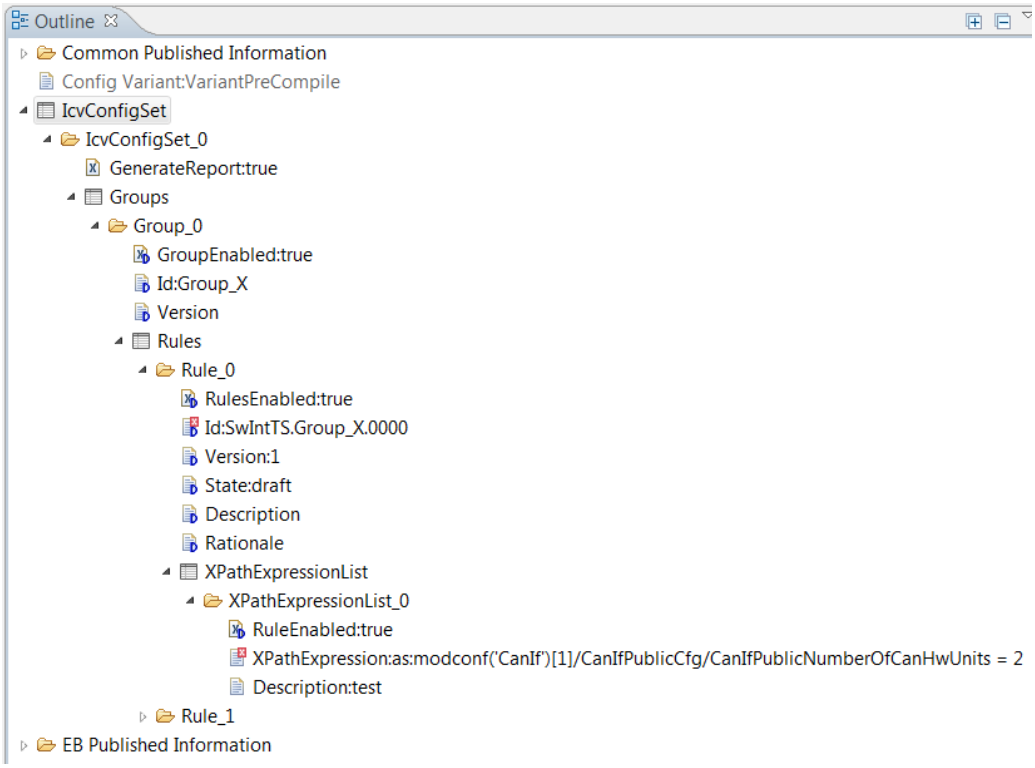

Figure 3.1. Icv's configuration structure

3.2.2.3. Examples

The following validation XPath expression checks whether ComM main function period has the value 0.01:

```
as:modconf('ComM')[1]/ComMConfigSet/*/ComMChannel/*[@name='ComMChannel_0']/ \
    ComMMainFunctionPeriod = 0.01
```

The following validation XPath expression checks for *ASR31SchMExclusiveAreaAPISupport* of a list of modules:

```
as:modconf(Rte)[1]/RteBswModuleInstance/*[name(.)=text:concat(BSW_-,text:split( \
    CanDioPortMcuGptWdgCanFr))]/ASR31SchMExclusiveAreaAPISupport=true
```

The following set of validation XPath expression checks for `Dcm` main function being scheduled after `Tp` main function:

1. Check whether they are in the same task.
2. Check whether they are in the right order.

```
as:modconf('Rte')[1]/RteBswModuleInstance/*[name(.)='BSW_CanTp']/ \
    RteBswEventToTaskMapping/*[name(.)='TimingEvent_MainFunction']/RteBswMappedToTaskRef \
    = as:modconf('Rte')[1]/RteBswModuleInstance/*[name(.)='BSW_Dcm']/ \
    RteBswEventToTaskMapping/*[name(.)='TimingEvent_MainFunction']/RteBswMappedToTaskRef

as:modconf('Rte')[1]/RteBswModuleInstance/*[name(.)='BSW_CanTp']/ \
    RteBswEventToTaskMapping/*[name(.)='TimingEvent_MainFunction']/RteBswPositionInTask \
    < as:modconf('Rte')[1]/RteBswModuleInstance/*[name(.)='BSW_Dcm']/ \
    RteBswEventToTaskMapping/*[name(.)='TimingEvent_MainFunction']/RteBswPositionInTask
```

3.2.3. Validation report

For the *IcvConfigSet*, it can be specified whether validation report documents (see Figure 3.2, “`Icv` HTML report” for an example) shall be created during the default code generation mode. Generation uses `EB tresos Studio`'s template-based code generator feature. The output documents can be adapted in `Icv`'s plug-in *generate* folder. Note that some of the shipped report templates may be in an unstable development state and therefore not useful without further adaptions.

Expressions total	passed	failed	disabled
5	2	3	0

– Detailed results

Show failed groups/rules only

Show failed expressions only

\+ Group_0: asdf - PASSED

– Group_1: 2345 - FAILED

Expressions total	passed	failed	disabled
3	0	3	0

\+ Rule_0: - FAILED

– Rule_1: - FAILED

Expressions total	passed	failed	disabled
2	0	2	0

Expression Name	Description / Expression
XPathExpressionList_0	as:modconf('Com')/ComConfig/ComConfig/ComTimeBase /ComRxTimeBase != 0.005
XPathExpressionList_1	as:modconf('Com')/ComConfig/ComConfig/ComTimeBase /ComRxTimeBase != 0.005

Figure 3.2. `Icv` HTML report

4. Icv module references

Icv configuration parameter reference is not available.

Icv API reference is not available.

4.1. Integration notes

4.1.1.1. Icv dependencies

Module has no dependencies