EB tresos® Studio for ACG8

release notes

product release 8.7.1

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1. General information

1.1. Interpretation of version information

The EB tresos *product line release* occurs according to the EB tresos AutoCore Generic release schedule.

EB tresos Studio is released as a part a of the EB tresos product line. Each product of the product line has a *product version number*.

You can find the EB tresos product line version number in the documentation and in the release notes. The EB tresos Studio product version number is shown in the title bar of the main window, in the **EB tresos details** dialog in the **Help** menu, as well as on the splash screen, and the commandline.

The EB tresos Studio product version number follows the scheme `<major>.<minor>.<patch>`, like for example in *Studio 26.1.0*.

▶ An increment of the *major* version number indicates that the release contains major new features and changes compared to the previous major version.

▶ An increment of the *minor* version number indicates that the release contains minor new features and changes compared to the previous minor version.

▶ An increment of the *patch* version number indicates that the release fixes known problems.

NOTE	**Major release affects backward compatibility**
(i)	A major release is not fully backwards compatible, e.g. regarding the provided Java API. Please see Section 2.4, "Incompatibilities to previous releases" for further information then. A minor release won't cause any issues of that case.

Furthermore there can be a *qualifier* as a suffix to the EB tresos Studio product version number, like for example in *Studio 26.1.0 (X2-DEVELOPMENT-SNAPSHOT)*. Such qualifiers mark development snapshot releases, which are not meant for *General Availability* and therefore may not be used in production environments. There is also no automatic upgrade path for existing configuration projects provided in development snapshot releases.

2. Release notes EB tresos Studio

2.1. Version information

Release notes for EB tresos Studio 26.2.

2.2. Limitations and restrictions

Summary:	**No support to split the system model attribute `McDataInstance.symbol` to separate input files**
Description:	With AUTOSAR 4.4.0, the attribute `McDataInstance.symbol` was tagged with the stereotype `atpSplitable`. This is not supported by EB tresos Studio, which treats the attribute as-if it was not splitable, e.g. when you import system model data.
Rationale:	Currently not implemented.
ID:	TRESOSWP-3653

Summary:	**No support for use case specific extensions in AUTOSAR formula language**
Description:	The formula language interpreter of EB tresos Studio does not support use case specific extensions as specified by the AUTOSAR traceable [TPS_GST_00293].
Rationale:	EB tresos Studio uses ANTLR technology to implement the formula language parser in Java. Additions to the ANTLR grammar require to re-generate and re-compile it.
ID:	TRESOSWP-3449

Summary:	**Integer range in AUTOSAR formula language**
Description:	Deviating from the AUTOSAR traceable [TPS_GST_00008], the formula language interpreter of EB tresos Studio supports only the *signed* 64-bit range for integer values, i.-e. from `0x8000000000000000` (-9223372036854775808) to `0x7fffffffffffffff` (9223372036854775807).
Rationale:	The formula language parser of EB tresos Studio is implemented in Java. It uses the `long` primitive type for integer values and therefore can only support the restricted range.
ID:	TRESOSWP-3449

Summary:	**No support for foreign references within ECUC query expressions**

Description:	The current implementation of the ECUC query expression language does not support foreign references into the system model in the `deref` function.
Rationale:	Currently not implemented.
ID:	TRESOS-4393

Summary:	**Exported AUTOSAR system description files cannot always be validated against their schema files**
Description:	If the EB tresos Studio system model is exported into an AUTOSAR system description file, it cannot be guaranteed that the file can be validated against its AUTOSAR schema file.
Rationale:	Non AUTOSAR file formats, such as DBC, LDF, and Fibex do not provide all the data that AUTOSAR system models require. The importers for these file formats do not configure unavailable data in the EB tresos Studio internal system model, leaving it "incomplete". If such "incomplete" EB tresos Studio system models are exported to AUTOSAR system description files, these files won't validate against their AUTOSAR schema file due to the missing data.

Similar validation problems will arise if an AUTOSAR system description file of an older revision, e.g. AUTOSAR 3.1 is exported into an AUTOSAR system description file of a more recent revision, e.g. AUTOSAR 4.0. |
| ID: | TRESOS-3495 |

Summary:	**Exported AUTOSAR system description files will not contain relative paths anymore**
Description:	In EB tresos Studio relative paths in the system model are resolved to absolute paths. Therefore exported AUTOSAR files do not contain any relative paths anymore.
Rationale:	The approach to store the imported system model in a database does not provide the possibility to store relative paths.
ID:	TRESOS-4383

Summary:	**Variant resolving with relative paths restricted to same file**
Description:	In EB tresos Studio when you import system description files it is possible to select a specific variant which will be imported to the system model. Relative paths which need to be resolved for calculating the variant condition require their reference base inside the same file. Otherwise resolving the relative path is not possible.
Rationale:	EB tresos Studio checks which entities need to be imported for a specific variant on file basis, before merging the content of several files.
ID:	TRESOS-4351

Summary:	**The VSMD rule EcucSws_6046 is not always checked**
Description:	The requirement EcucSws_6046 defines that the `DESTINATION-REF` of a reference shall start with `/AUTOSAR/EcucDefs`, if it points to a StMD. This is only checked by the command **legacy vsmdcheck** if the references point into a VSMD that is contained within one of the input files. Otherwise no violation is created.
Rationale:	EB tresos Studio does not support to define a file containing all available StMDs, so it is not possible to check this rule fully.
ID:	TRESOSWP-2050

Summary:	**The preference General/Always run in background cannot be disabled in EB tresos Studio.**
Description:	You cannot change the value of the Eclipse preference **General/Always run in background**. It is always forced to *true* by EB tresos Studio.
Rationale:	Setting this option to *false* would lead to the consumption of unnecessary resources in the operating system and eventually to a crash of EB tresos Studio

Summary:	**The `ADMIN-DATA` tag is not supported in files prior to AUTOSAR 3.0.**
Description:	EB tresos Studio ignores the `ADMIN-DATA` tag and all sub-tags in AUTOSAR files prior to AUTOSAR 3.0.
Rationale:	Support for files prior to AUTOSAR 3.0 has not been implemented.

Summary:	**`BSWModuleTemplate` is no longer imported**
Description:	EB tresos Studio no longer imports or exports the ARElement `BSWModuleTemplate` for AUTOSAR 3.x releases.
Rationale:	The information from the BSWModuleTemplate is not needed to configure BSW modules prior to AUTOSAR 4.0.

Summary:	**The value of the `DEST` attribute is ignored**
Description:	The value of the `DEST` attribute is ignored. If the appropriate reference-target does not match the type specified by the `DEST` attribute, no error or warning is created.
Rationale:	EB tresos Studio does not need the value of the `DEST` attribute to follow references. Support for the `DEST` attribute would waste memory.

Summary:	**When you convert or merge files, the `DEST` attribute requires an appropriate reference-target**
Description:	When converting or merging files, the `DEST` attribute for `REFERENCE` values and `CON-FIGURATION-CLASS-AFFECTION` is only written correctly, if the appropriate refer-

	ence-target exists. If the target does not exist, a default-value is written to ensure validity of the converted or merged XML file.
Rationale:	As EB tresos Studio does not store the value of the `DEST` attribute the value can only be determined from the reference-target.

Summary:	**If a configuration with missing values is converted or exported to an AUTOSAR file format, the XML tag `VALUE` is suppressed.**
Description:	If a configuration lacks values and is converted or exported to an AUTOSAR file format, the XML tag `VALUE` is suppressed. Even though the file validates against the AUTOSAR XSD file, suppressing this tag is not allowed according to the `Specification of ECU Configuration`.
Rationale:	If the configuration lacks a value a valid value cannot be determined.
ID:	TRESOSWP-1063

Summary:	**EB tresos Studio can handle numbers only up to 56-bit in XPath expressions.**
Description:	The XPath engine used in EB tresos Studio can handle numbers only up to 56-bit. However, the functions in the namespace `num:` are able to deal with 64-bit signed numbers if the input is provided as string.
Rationale:	This is a limitation introduced by the XPath engine, on which EB tresos Studio is built.

Summary:	**The XPath function `num:order()` removes duplicate elements**
Description:	The XPath function `num:order()` removes duplicate elements. This behavior is intended.
Rationale:	Although you may expect this function to be implemented in a different way, the EB tresos Studio implementation meets the XPath specification.

Summary:	**The EB tresos Studio GUI fails to start when it is installed under the root directory**
Description:	If you have installed EB tresos Studio directly under the root directory, or if a drive letter is assigned to the EB tresos Studio base directory (e.g.`X:\bin\tresos_gui.exe`), you cannot start the EB tresos Studio GUI. In this case an error message appears saying that the Java Virtual Machine has been terminated. The EB tresos Studio command line applications are not affected by this issue. Two alternative workarounds are available: 1. To start the EB tresos Studio GUI with EB tresos Studio installed under the root directory, specify the EB tresos Studio base directory in the file `bin\tresos_gui.ini` with the EB tresos Studio command line: ► Right before line `-vm`, enter the line `-install`.

► After the line `-install`, enter a line containing your EB tresos Studio base directory and terminate the EB tresos Studio base directory with a slash.

E.g.:

```
-install
```

```
X:/
```

2. If you always start `tresos_gui.exe` from the `bin` directory, specify `..` as EB tresos Studio base directory.

Rationale:	This problem occurs, because the underlying Eclipse startup code that searches for the current installation location is inaccurate.
ID:	TRESOS-2364

Summary:	**Parts of an AUTOSAR system description file may be ignored**
Description:	There are several limitations to the **System Description Importer** since EB tresos Studio does not support all XML-tags defined by AUTOSAR. Additionally this depends on the AUTOSAR version of the input file. A warning is shown at the end of the import process for each element that is not imported.
Rationale:	

Summary:	**Signal based gateway information cannot be imported from the AUTOSAR 3.1.4 format**
Description:	EB tresos Studio does not support `SignalMapping` elements in AUTOSAR version 3.1.4 system description files. If you import an AUTOSAR version 3.1.4 system description file that contains `SignalMapping` elements into EB tresos Studio, these `SignalMapping` elements are skipped and a warning is reported.
Rationale:	In the system description files of AUTOSAR version 3.1.4, a major change was done to `SignalMapping` elements. Therefore, AUTOSAR version 3.1.4 `SignalMapping` elements are incompatible to older versions.

Summary:	**System Description Importer: AUTOSAR version 3.1.4 `CanCommunicationController` elements are only partly supported**
Description:	EB tresos Studio only supports parts of the AUTOSAR version 3.1.4 system description file elements `CanCommunicationController`: The subelement `CanCommunicationControllerAttributes/CanControllerConfigurationRequirements` and the subelement attribute `CanCommunicationControllerAttributes/CanControllerConfiguration/propagationDelay` are not supported. If you import an AUTOSAR version 3.1.4 system description file that contains one or more of the named elements into EB tresos Studio, these elements are skipped and a warning is reported.

Rationale:	In the system description files of AUTOSAR version 3.1.4, a major change was done to `CanCommunicationController` elements. Therefore, AUTOSAR version 3.1.4 `Can-CommunicationController` elements are incompatible to older versions.

Summary:	**Default buffer assignments may lead to high CPU load and to manually created hardware objects not receiving any CAN-IDs anymore**
Description:	If you configure the modules `Can` and `CanIf` in a configuration import and select **Create default buffer assignment** in the **Buffer Assignment in Can/CanIf** drop-down list box, up to two CAN Rx and up to two Tx hardware objects are created. These default objects handle all standard and extended CAN-IDs your ECU is sending and receiving. The Rx hardware objects have their hardware filters turned off, which means the `CanIf` must filter for valid incoming CAN-IDs in software. This may lead to a high CPU load if your ECU receives many PDUs. Moreover, hardware objects that were created manually before the configuration import will no longer receive any CAN-IDs after the configuration import.
Rationale:	The configuration importer cannot make any assumptions on the properties of the CAN cells of your ECU and therefore creates this default assignment which works on virtually every CAN cell. In order to obtain a buffer assignment tailored to the CAN cells of your ECU, use the **CAN Buffer Assignment Editor**, which is described in the EB tresos AutoCore com stack users guide.

Summary:	**The XPath engine evaluates calculations with infinity produce a non IEEE754 compliant result**
Description:	If you get an infinite value as an intermediate result of a calculation in the XPath engine, further calculations with this value yield a result that is not conforming to the IEEE754 standard. Infinite values cannot be used directly in calculations, but you can get them as intermediate results, e.g. by computing `1 div 0`. Examples: ▶ `[!"(1 div 0) mod 1.0"!]` returns `0.0` but should be `NaN` ▶ `[!"(1 div 0) mod 2.0"!]` returns `1.0` but should be `NaN` The affected functions are: ▶ the XPath function `mod` ▶ public API Custom XPath functions using methods `AbstractXPathFunctions.toInt` or `AbstractXPathFunctions.toInts` ▶ any public API Custom XPath functions with a long as parameter
Rationale:	The XPath engine used in EB tresos Studio usually represents floating point numbers with the Java data type `double`. But for some calculations they are converted to integer numbers which are represented by the Java data type `long`. During this conversion, the "infinity" value is lost and accidentally replaced by the largest representable long value,

	which is `9223372036854775807`. This value is then used for the following calculations and thus yields in wrong results.
ID:	TRESOS-3272

Summary:	**Fibex importer always uses first conversion formula for configuring the upper and lower limits of a signal**
Description:	Fibex files offer the possibility to define more than one conversion formula for converting a signal value from its internal representation (representing the signal bistream on the bus) to its physical one (representing the actual physical value of the signal). These multiple functions are to be applied on different, non overlapping intervals of the signal value range. The Fibex specification refers to this as SCALE-LINEAR conversion. Since Fibex is specifying the upper and lower limits of a signal in their physical representation but AUTOSAR requires the internal one, the Fibex importer must apply the conversion itself. It however, only uses the first available conversion formula, even if two or more formulas are provided. This may result in incorrectly imported upper and lower limits of a signal.
Rationale:	As for now, SCALE-LINEAR conversion functions have not been found in production Fibex files.
ID:	TRESOS-3269

Summary:	**Limited upgrade support for AUTOSAR 3.1 `END-TO-END-PROTECTION` elements**
Description:	AUTOSAR 3.1 `END-TO-END-PROTECTION` elements are upgraded to AUTOSAR 4.0.x in such a way that only the first contained `END-TO-END-PROTECTION-VARIABLE-PROTO-TYPE` is available in AUTOSAR 4.0.x.
Rationale:	During the model upgrade, AUTOSAR 3.1 system models are converted to AUTOSAR 4.-0.2, which allow at most one `END-TO-END-PROTECTION-VARIABLE-PROTOTYPE` sub element per `END-TO-END-PROTECTION` element.
Workaround:	After the AUTOSAR 3.1 system description file has been imported, re-export it to AUTOSAR 4.0.3 using the system description exporter, add the missing `END-TO-END-PRO-TECTION-VARIABLE-PROTOTYPE` elements per hand in the exported system description file, then repeat the import using the adapted AUTOSAR 4.0.3 system description file.
ID:	TRESOS-3138

Summary:	**EB tresos Studio on Linux**
Description:	Currently the EB tresos Studio does not provide support for the following features ▷ EB tresos Studio GUI mode ▷ Fibex Importer
Rationale:	This is a limitation introduced on the Linux version of the EB tresos Studio.

ID:	TRESOSWP-3405

2.3. Known problems

Summary:	**Containers introduced at pre-compile time can be removed at post-build time**
Description:	According to AUTOSAR it shall not be possible to remove any container which was introduced at pre-compile time. But it is possible to remove such a container at post-build time if its config class is post-build and it is not referenced by a reference with config class pre-compile or link-time.
Workaround:	No workaround is available.
ID:	TRESOS-4149

Summary:	**The compare editor for XDM files does not support variant conditions for parameters**
Description:	The problem only occurs when you diff variant-affected configurations. The compare editor for XDM files does not display changes in the variant conditions of variant-affected parameters.
Workaround:	If you develop projects for several variants, use a XML differ to diff variant-affected configuration files instead of the EB tresos Studio compare editor for XDM files.
ID:	TRESOS-4129

Summary:	**Order of references gets broken if referenced elements are spread over different input files**
Description:	If you import ARXML files using the **System Description Importer** that contain references into each other, then the order of the references after the import will be different than in the input file. This occurs under the following conditions: ► an entity contains an *ordered* list of references ► some of the referenced target entities are within the same file, some are in another file
Workaround:	Put the ordered list of references and all referenced elements into the same input ARXML file.
ID:	TRESOS-3741

Summary:	**AUTOSAR system description files written by EB tresos Studio always use Windows line endings**
Description:	AUTOSAR system description files that are written by EB tresos Studio, e.g. via the **System Description Exporter**, always use Windows line endings (\r\n). That is indepen-

dent of which setting you choose for the option **Use Unix line endings for configuration data files**.

Workaround:	You can convert the file to use Unix line endings (`\n`) with the use of an external tool or editor, e.g. the free tool `dos2unix`.
ID:	TRESOS-2843

Summary:	**If a function processes the result of an inner function, XPaths compute the wrong value**
Description:	If a function processes the result of an inner function, XPaths compute the wrong value under certain conditions. The conditions are: ► The result of the inner function is a list, which is filtered by a predicate expression. ► Additionally the outer function is able to handle lists and single values at the same time. If all these conditions apply, the result of the inner function is always the last element of the list result, instead of the correct result. An example of an XPath expression which computes the wrong result is e.g. `num:i( text split('1,2,3,4,5',',')[position() = 2])`. This expression returns `'5'` instead of `'2'`.
Workaround:	No workaround is available.
ID:	TRESOS-1886

Summary:	**You can only correctly import ECU configuration projects if the configuration XDM files are located beneath the project path of the imported project**
Description:	You can only correctly import ECU configuration projects if the configuration XDM files are located beneath the project path of the imported project.
Workaround:	If you are adding modules to a project, either keep the default file location or make sure to select subdirectory of the project directory.
ID:	TRESOS-1343

Summary:	**The System Description Importer and the tresosDB Importer cannot detect duplicate `SHORT-NAME` elements**
Description:	The System Description Importer and the tresosDB Importer cannot detect duplicate `SHORT-NAME` elements. As a result, duplicate `SHORT-NAME` elements may cause you to loose configuration parameters. However, modules such as e.g. the `Rte` may rely on these parameters and may report problems due to the loss of parameters.
Workaround:	No workaround is available.
ID:	TRESOS-2016

Summary:	The `legacy convert` command of the EB tresos Studio commandline ignores the output-path option (`-o`)
Description:	If you use the command `legacy convert` on the EB tresos Studio command line to convert files, specifying an output-path with the `-o` switch has no effect.
Workaround:	Specify the output file with an absolute path or with a path relative to the current working directory.
ID:	TRESOS-2197

Summary:	The XPath engine uses not existing nodes in calculations
Description:	In XPath expressions you may use node names that do not exist or that are optional and are disabled in the current module configuration. If you use such nodes in XPath expressions that do calculations based on the value of the nodes, the XPath engine assumes values for the nodes even if the nodes do not exist.

For optional nodes this only leads to unexpected results, if the node in question is disabled in the module configuration on which the expression is executed. So, e.g. for the template-based code generator, this behavior is only observed, if the node in question is used in the code template, and if it is disabled in the current module configuration.

The value of not existing nodes, which is strictly speaking *nothing*, is converted into the data type that is required by the expression operands and by the expression type:

► If the expression is a mathematical operation, i.e. if the expression uses one of the operators: `+`, `-`, `div`, `*`, or `mod`, not existing nodes are treated as if they had the value `0.0`:

    ► If for example `NotExistingNode` is a not existing node, the expression `NotExistingNode + 3.0` returns `3.0`.

► If the expression is an equality check, i.e. if the expression uses the `=` operator, the result is always `false`:

    ► If, for example, `NotExistingNode` is a not existing node, the expression `NotExistingNode = 'somevalue'` returns `false`. In this case the second operand used for the comparison is not taken into account. Thus, the same node from the example before, the expressions `NotExistingNode = ''`, `NotExistingNode = true()`, `NotExistingNode = false()`, `NotExistingNode = NotExistingNode` all return `false`.

► If the expression is an inequality check, i.e. if the expression uses the `!=` operator, the result is always `true`:

    ► If, for example, `NotExistingNode` is a not existing node, the expression `NotExistingNode != 'somevalue'` returns `true`. The second operand used for the comparison is not taken into account. E.g. with the same node from the |

> example before, the expressions `NotExistingNode != NotExistingNode` also returns `true`.

► If the expression is a relational expression, i.e. if the expression uses one of the operators `<`, `<=`, `>` or `>=`, the value `0.0` is used in the calculations:

►► If, for example, `NotExistingNode` is a not existing node, the expressions `NotExistingNode < 0` and `NotExistingNode > 0` both return `false`. However, the expressions `NotExistingNode <= 0` and `NotExistingNode >= 0` both return `true`.

Although the node behaves as being equal to `0.0`, please keep in mind that the equality check is not `true`, as is explained in the second item of this list.

► If the expression is a unary expression, i.e. if the expression uses the unary operator `-`, the value `0.0` is used in the calculation. Therefore, the entire expression is evaluated as `-0.0`.

► If the expression is a union expression, i.e. if the expression uses the union operator `|`, an empty node-set is used in the calculation.

If a not existing node is passed as a parameter to a function defined by the XPath standard, the value of the not existing node is converted into the data type that is required by the function (e.g. to `0.0`, to the empty node-set, or to `false`). Functions defined by the XPath standard are easy to recognize: either they have no namespace or the namespace is `fn`.

If a node is passed as a parameter to the function supplied by EB tresos Studio as an extension of the XPath engine, an error message is shown. However, this only applies to nodes that are provided as parameter without any additional calculations. If an expression is passed as an argument, the expression is evaluated by the XPath engine.

Workaround:	Use the `node:empty(...)` or `node:exists(...)` XPath functions to explicitly test whether a node exists. As you can see in the examples above, using not existing nodes can lead to unexpected results.
ID:	TRESOS-2453

Summary:	**The EB tresos Studio legacy generate command line can only handle one configuration of one module type correctly in one session**
Description:	If you supply more than one configuration for one module type, e.g. `Can`, `CanIf`, `Com`, etc., to the legacy code generation commands **legacy make**, **legacy generate**, or **legacy verify**, you may receive incorrect verification results or even incorrect code.
	AUTOSAR allows you to supply more than one configuration for one module type for some driver modules, e.g. `Wdg`. In this case the command line could look as follows:
	`tresos_cmd legacy generate Wdg1.arxml@asc3.1 Wdg2.arxml@asc3.1`

However, depending on which code generators the involved modules use, the code generators may access wrong configurations. This problem occurs when:

▶ code generators access the variables enabledConfigs or generateConfigs, or

▶ when the code generators reference parameters via relative paths in XPath expressions and expect that XPath expressions can be resolved relative to the `MODULE-CONFIGURATION` node, or

▶ when code generators use the XPath function `as:modconf()` and always access the first returned module configuration.

Workaround:	Generate configurations in separate runs of the command line.
ID:	TRESOS-2603

Summary:	**External code generators with `generateIntoOneFile` set to `false` do not work with modules with more than one configuration**
Description:	Modules, which have the extension point parameter `allowMultiple` set to `true` and which actually have more than one configuration in a project, cannot be properly generated with an external code generator, if it's extension point parameter `generateIntoOneFile` is set to `false`. In that case, only the first enabled configuration as listed in the `preferences.xdm` is generated, and a warning message like **Module \<SomeModule\> has multiple configurations. Generating only first one** is logged.
Workaround:	Either set the extension point parameter `generateIntoOneFile` to `true` for any modules that allow multiple configurations, or simply disable all but one of the configurations and generate those configurations one after another.
ID:	TRESOS-2816

Summary:	**Calling `DCtxt.opt.setExistingNodesOnly( true )` might have no effect**
Description:	Calling the method `DCtxt.opt.setExistingNodesOnly( true )` has no effect, if the context currently points to a non-existing node or to an invalid node. However, if you do the opposite and call `DCtxt.opt.setExistingNodesOnly( false )`, the option is set to `false`.
Workaround:	Always check the return value of the method and implement code that handles `false` as return value.
ID:	TRESOS-2771

Summary:	**The `AUTOSAR` element does not support the `ADMIN-DATA` attribute**
Description:	If you import an AUTOSAR file, the `ADMIN-DATA` attribute of the `AUTOSAR` element is not imported.
Workaround:	No workaround is available.

ID:	TRESOS-2728

Summary:	**The Compare editor for XDM files does not behave correctly when you close, re-name or delete the project**
Description:	If you have changed an XDM file with the **Compare** editor for XDM files and then close, rename or delete the project in which this XDM file is stored, the **Compare** editor for XDM files does not handle those changes correctly:
	► When you close the project, the **Compare** editor for XDM files does not close, too.
	► After you have renamed or deleted the project, the **Compare** editor for XDM files saves the edited file always under its former path, when you want to save the changes.
Workaround:	No workaround is available.
ID:	TRESOS-2956

Summary:	**Some XPath functions are incompatible with the built-in XPath functions**
Description:	If you combine a built-in XPath function with an XPath function provided by EB tresos Studio, some combinations return `NaN` instead of the correct result. This is caused by in-compatibilities in the internal number representation. If you print out the values, you will not see a difference between an incompatible and a compatible number.
	For example, the expression `num:mul(2,1.1)` returns `2.2`. But if you pass the re-sult to the `floor` function, the expression `floor(num:mul(2,1.1))` returns `NaN` instead of `2.0`. Furthermore, in such cases the `round` function returns `0.0`. E.g. `round(num:mul(2,1.1))`.
	However, not all combinations of functions are affected. The affected built-in functions that return `NaN` when combined with a EB tresos Studio function are:
	► `number`, e.g. `number(num:mul(2,1.1))`
	► `floor`, e.g. `floor(num:mul(2,1.1))`
	► `ceiling`, e.g. `ceiling(num:mul(2,1.1))`
	The affected EB tresos Studio functions that lead to `NaN` when passed to built-in functions are:
	► `num:add`, e.g. `floor(num:add(2,3))`
	► `num:div`, e.g. `floor(num:div(2,3))`
	► `num:mod`, e.g. `floor(num:mod(5,2))`
	► `num:mul`, e.g. `floor(num:mul(5,2))`
	► `num:negate`, e.g. `floor(num:negate(5))`

> ▶ `num:sub`, **e.g.** `floor(num:sub(4.8,2))`

> ▶ `num:order`, **e.g.** `floor(num:order(4.8))`

The `round` function always returns `0.0` if the argument is one of the broken EB tresos Studio functions.

The following EB tresos Studio functions have been verified to work correctly:

> ▶ `num:i`, **e.g.** `floor(num:i(4.8))`

> ▶ `num:f`, **e.g.** `floor(num:f(4.8))`

> ▶ `num:min`, **e.g.** `floor(num:min(4.8))`

> ▶ `num:max`, **e.g.** `floor(num:max(4.8))`

> ▶ `num:hextoint`, **e.g.** `floor(num:hextoint('0x22'))`

> ▶ `num:octtoint`, **e.g.** `floor(num:octtoint('022'))`

> ▶ `num:bintoint`, **e.g.** `floor(num:bintoint('b101'))`

> ▶ `num:dectoint`, **e.g.** `floor(num:dectoint('12'))`

> ▶ `num:radixtoint`, **e.g.** `floor(num:radixtoint('b1110'))`

Workaround:	Use the `num:f` function to convert a number into a compatible format, e.g. `ceiling(num:f(num:mul(2,1.1)))`.
ID:	TRESOS-3020

Summary:	**The Compare editor for XDM files does not recognize intermediate changes of the edited file**
Description:	If the file currently edited in the **Compare** editor for XDM files changes, the **Compare** editor for XDM files will overwrite those changes when you save your changes in the **Compare** editor for XDM files. For example, if you update the XDM file via your version control system, or edit the XDM file in a different text editor than the **Compare** editor for XDM files while having the same file opened in your **Compare** editor for XDM, the SVN update or the edit of the text editor are being overwritten when you save the XDM file from the **Compare** editor for XDM files.
Workaround:	No workaround is available.
ID:	TRESOS-2962

Summary:	**The Save button is enabled for guided configuration wizards opened from the Sidebar view**
Description:	Since EB tresos Studio version 13.0, the **Save** button is enabled by default, when you work on guided configuration wizards opened from the **Sidebar** view. However, clicking the **Save** button has no effect.
Workaround:	No workaround is available.

ID:	TRESOS-3407

Summary:	**The parameters of macro functions in the template-based code generator are treated identically to global variables**
Description:	If you define a macro with a parameter, the parameter is treated like a global variable. This means that if you defined a variable with the same name, changes to the parameter of the macro also change the global variable.
Workaround:	Make sure not to use the same name for macro parameters and global variables, e.g. by using a prefix for parameters.
ID:	TRESOS-3249

Summary:	**Ecu Config Import selecting single Config Classes does not work as expected**
Description:	When using the Autosar Importer for Ecu Configurations and using one of the options **Replace specific config classes** or **Merge specific config classes**, the import does not work as expected and may lead to unexpected results. It is therefore recommended not to use these options or to carefully check the result of the import process - e.g. when you export the ECU configuration before and after the import and then compare the exported files.
Workaround:	No workaround is available.
ID:	TRESOS-3560

Summary:	**EB tresos Studio might hang in commandline mode if the workspace contains older Subversion working copy meta data**
Description:	With EB tresos Studio 14.0 the built-in Subclipse (Eclipse team support provider for SVN) was updated to revision 1.8 for it's 64-bit support. This Subclipse version is built on SVN 1.7, which in turn uses a new file format for it's working copy meta data. The EB tresos Studio GUI provides an option for upgrading SVN managed workspace resources from older SVN revisions. But when running in commandline mode, EB tresos Studio might hang if there are older SVN managed workspace resources, due to a limitation within the Subclipse team support provider.
Workaround:	Several workarounds exist: 1. Upgrade the SVN metadata before running the EB tresos Studio in commandline mode. You can do this either with EB tresos Studio in the **Project Explorer**, context menu **Team->Upgrade**. Or just use any other SVN 1.7 client for that. 2. Disconnect the ECU configuration projects from team support (**Project Explorer**, context menu **Team->Disconnect...**). 3. Disable the built-in SVN support in EB tresos Studio. To achieve this, first copy the file `disableSVN.bat` from the `tools` directory to the `bin` directory of your EB tresos Studio installation. Make sure that EB tresos Studio is not running, and then run

	the batch file. You can use the file `reenableSVN.bat` in the same manner to reenable the SVN support later on.
ID:	TRESOS-3646

Summary:	**Instance references do not work as expected**
Description:	Users cannot use the list of context references of an instance reference from a drop-down list box within the generic editor to choose one of the possible reference targets. Additionally, the configured values are not verified and must therefore be checked by the code generator.
| **Workaround:** | As a workaround, the modules schema xdm file must be adapted as follows:<br><br>```
<v:ref name="CONTEXT" type="REFERENCE">
  <a:da name="REF"
    <a:v>ASTyped:ModeDeclarationGroupPrototype</a:v>
    <a:v>ASTyped:PortPrototype</a:v>
  </a:da>
  <a:da name="RANGE" type="IRefCtxt">
    <a:tst expr="MODE-DECLARATION-GROUP-PROTOTYPE"/>
    <a:tst expr="PORT-PROTOTYPE*"/>
  </a:da>
</v:ref>
```<br><br>The example above defines the REF attribute to provide the possible reference targets for users. The RANGE attribute is required for a correct conversion back to the AUTOSAR format. Even with this workaround, the configured reference targets are not verified. |
| **ID:** | TRESOS-3761 |

2.4. Incompatibilities to previous releases

Summary:	**Dropped support for attribute `NmUserDataLength` of the element `UdpNmCluster`**
Description:	With the AUTOSAR 4.4.0 metamodel, the attribute `NmUserDataLength` of the system model element `UdpNmCluster` was eventually removed from the AUTOSAR classic platform. It had already been marked as deprecated since AUTOSAR 4.1.3. Starting with EB tresos Studio 26.0, the attribute is therefore not supported any longer. If you try to import ARXML data, the respective XML tag will be ignored, even if the input file complies to earlier AUTOSAR versions. This also applies to the Java API, where the respective methods to access the attribute were removed, too.
Workaround:	No workaround is available.
ID:	TRESOSWP-3642

Summary:	**Incompatible system model API due to changes that were introduced with AU-TOSAR 4.3.1**
Description:	Starting with the AUTOSAR 4.3.1 metamodel, the `SenderComSpec` and `Receiver-ComSpec` elements may now refer to any `AutosarDataPrototype` data elements instead of just `VariableDataPrototype` data elements. Therefore, the respective API classes `ISenderComSpec` and `IReceiverComSpec` are incompatible to previous releases of EB tresos Studio 25.0 in this regard.
Workaround:	No workaround is available.
ID:	TRESOSWP-3538

Summary:	**Incompatible tresosDB API changes with the support for bigger numbers in EB tresos Studio 24.0**

Description:	In EB tresos Studio 24.0, former limitations in the system model regarding the range of the AUTOSAR `PositiveUnlimitedInteger`, `UnlimitedInteger` and `Numerical` primitive types have been removed. This leads to incompatibilities in the tresosDB project Java API for the access of system model data in the places, where attributes of those primitive types are handled. The API to access `PositiveUnlimitedInteger` and `UnlimitedInteger` attributes now uses `java.math.BigInteger` objects instead of `java.lang.Long`. Accessing `Numerical` attributes now works with the new type `dreisoft.tresos.tresosdb.api.model.types.Numerical` instead of `java.lang.Double`.
	
	 These attributes are affected:
	
	 ▶ `PositiveUnlimitedInteger` attributes:
	
	    ▶ SystemTemplate.Fibex.Fibex4Can.CanTopology.AbstractCanCluster → canFd-Baudrate
	
	    ▶ SystemTemplate.Fibex.Fibex4Can.CanTopology.CanCommunicationConnector → pncWakeupDataMask
	
	    ▶ SystemTemplate.Fibex.Fibex4Ethernet.EthernetTopology.EthernetCommunica-tionConnector → pncFilterDataMask
	
	    ▶ SystemTemplate.Fibex.Fibex4Flexray.FlexrayTopology.FlexrayCommunication-Connector → pncFilterDataMask
	
	    ▶ SystemTemplate.Fibex.FibexCore.CoreTopology.CommunicationCluster → bau-drate
	
	 ▶ `UnlimitedInteger` attributes:
	
	    ▶ CommonStructure.Filter.DataFilter → mask
	
	    ▶ CommonStructure.Filter.DataFilter → max
	
	    ▶ CommonStructure.Filter.DataFilter → min

► CommonStructure.Filter.DataFilter → x

► `Numerical` attributes:

► CommonStructure.Axis.SwGenericAxisParam → vf

► CommonStructure.CalibrationValue.SwValues → v

► CommonStructure.CalibrationValue.SwValues → vf

► CommonStructure.CalibrationValue.ValueGroup → v

► CommonStructure.CalibrationValue.ValueGroup → vf

► CommonStructure.Constants.NumericalOrText → vf

► CommonStructure.Constants.NumericalValueSpecification → value

► CommonStructure.Constants.RuleArguments → v

► CommonStructure.Constants.RuleArguments → vf

► CommonStructure.DataDefProperties.SwDataDefProps → swIntendedResolution

► CommonStructure.DataDefProperties.SwDataDefProps → swValueBlockSize

► CommonStructure.DataDefProperties.ValueList → v

► CommonStructure.DataDefProperties.ValueList → vf

► CommonStructure.GlobalConstraints.InternalConstrs → maxDiff

► CommonStructure.GlobalConstraints.InternalConstrs → maxGradient

► CommonStructure.GlobalConstraints.PhysConstrs → maxDiff

► CommonStructure.GlobalConstraints.PhysConstrs → maxGradient

► GenericStructure.VariantHandling.SwSystemconstValue → value

► SWComponentTemplate.Datatype.ComputationMethod.CompuConst → v

► SWComponentTemplate.Datatype.ComputationMethod.CompuConst → vf

► SWComponentTemplate.Datatype.ComputationMethod.CompuNominatorDenominator → v

► SWComponentTemplate.Datatype.Units.PhysicalDimension → currentExp

► SWComponentTemplate.Datatype.Units.PhysicalDimension → lengthExp

► SWComponentTemplate.Datatype.Units.PhysicalDimension → luminousIntensityExp

► SWComponentTemplate.Datatype.Units.PhysicalDimension → massExp

► SWComponentTemplate.Datatype.Units.PhysicalDimension → molarAmountExp

► SWComponentTemplate.Datatype.Units.PhysicalDimension → temperatureExp

	► SWComponentTemplate.Datatype.Units.PhysicalDimension → timeExp
	► SWComponentTemplate.PortInterface.TextTableValuePair → firstValue
	► SWComponentTemplate.PortInterface.TextTableValuePair → secondValue
	► SystemTemplate.ClientIdDefinition → clientId
Workaround:	No workaround is available.
ID:	TRESOS-3306

Summary:	**Incompatibilities in EB tresos Studio 23.0 due to the update of the Eclipse platform to Neon**
Description:	The plug-ins `org.eclipse.core.runtime.compatibility` and `org.eclipse.core.runtime.compatibility.auth` are removed in Eclipse Neon (4.6.2) and are therefore no longer included in EB tresos Studio 23.0. These plug-ins were already marked as deprecated in Eclipse 3.0. Declared dependencies in the `MANIFEST.MF` file of any EB tresos Studio plug-ins were already likely unnecessary before. As a consequence of `org.eclipse.core.runtime.compatibility.auth` being removed in Eclipse Luna, the method `org.eclipse.core.runtime.Platform.getPlugin(String)` always returns `null` now. Hence the method `dreisoft.tresos.generator.api.generator.CodeGeneratorContext.getPlugin()` which returned a `org.eclipse.core.runtime.Plugin` was removed and is now replaced by `dreisoft.tresos.generator.api.generator.CodeGeneratorContext.getBundle()` which now returns a `org.osgi.framework.Bundle`. For more information on how to migrate your plug-ins to the updated Eclipse platform, see the _Eclipse Plug-in Migration Guide_.
Workaround:	Remove the dependencies to `org.eclipse.core.runtime.compatibility` and `org.eclipse.core.runtime.compatibility.auth` from your plug-ins and rebuild. If your Java code generator code called the method `CodeGeneratorContext.getPlugin()`, check first if you can use the new method `CodeGeneratorContext.getBundle()` instead. If you actually require the instance of your code generator's `Plugin`, use a `Bundle-Activator:` class in your `MANIFEST.MF` and cache a static instance within the `Plugin.start(BundleContext)` lifecycle method.
ID:	TRESOSWP-3290

Summary:	**Incompatible system model API changes with AUTOSAR 4.3.0**
Description:	Due to a changed class structure within the AUTOSAR metamodel, several API classes are incompatible to previous releases of EB tresos Studio 23.0.0 due to the support of AUTOSAR 4.3.0. Affected classes are the following: `IDiagnosticDataByIdentifier`, `IGenericEthernetFrame`, `IIeee1722TpEthernetFrame`, `IUserDefinedEthernetFrame`, `IAnyInstanceRef`, and `ICollection`.

Workaround:	No workaround is available.
ID:	TRESOSWP-3379

Summary:	**ImporterConstants for RCtxt API changed**
Description:	In versions prior to EB tresos Studio 23.0, when you used the DCtxt Resource API (RC-txt) to import an ECU configuration from the system description of DBC, LDF, or FIBEX files you specified the `name` of the System and EcuInstance by setting the options **OPTION_SYSTEM** and **OPTION_ECU_INSTANCE**. Now you must always specify the paths of the System or EcuInstance.

Therefore you need to adapt each call to RCtxt.load() using those options for DBC, LDF, or FIBEX input files. |
| Workaround: | No workaround is available. |
| ID: | TRESOSWP-3291 |

Summary:	**Fixed import strategy Replace of AUTOSAR Importer**
Description:	In versions prior to 22.0, when you used the **Replace** import strategy inside the **AUTOSAR Importer**, EB tresos Studio did not replace the current configuration with the given input file. This bug is fixed now.

Therefore the outcome of the importer run now differs from the outcome prior to version 22.0 when you use the strategy **Replace**. |
| Workaround: | No workaround is available. |
| ID: | TRESOS-3945 |

Summary:	**XPath license check function: `boolean lic:feature('moduleId','feature')` is deprecated**
Description:	In versions prior to 17.0, EB tresos Studio was using a license system which allowed to license features in the context of configuration modules by providing module specific license files. The new license system is now using Flexera Licensing which does not allow such context any more. Therefore the above XPath function was marked deprecated. EB tresos Studio will report a warning in the **Error Log** when it detects a call to it, and the `moduleId` parameter will be ignored.
Workaround:	Use `boolean lic:feature('feature')` instead.
ID:	TRESOSWP-2781

Summary:	**EcuExtractCreator workflow command removed**
Description:	The following workflow command was removed:

`dreisoft.tresos.workflow.api.plugin.EcuExtractCreatorCommand`, which was introduced in EB tresos Studio release 16.0. |

Workaround:	As now an unattended wizard is available for ECU extract creation, you can use the following command instead: `dreisoft.tresos.guidedconfig.api.plug-in.AutoConfigureTriggerCommand(triggerId=EcuExtractCreator)`
ID:	TRESOSWP-2908

Summary:	**New scheme for the short names of software component prototypes in the ECU extract**
Description:	In versions prior to 16.0, EB tresos Studio used a different scheme for creating short names of software component prototypes in the ECU extract. This scheme was non-deterministic and could lead to short names, which did not comply to the AUTOSAR specification, and to short name clashes. For EB tresos Studio 16.0 a new naming scheme was defined and implemented, which leads to different short names. If your configuration project contains references into the ECU extract (e.g. within the Rte module), you will need to update those references to the new short name paths.
Workaround:	No workaround is available.
ID:	TRESOSWP-2673

Summary:	**Removed obsolete batch files and executable from `bin` folder**
Description:	In versions prior to 16.0, a EB tresos Studio installation included the files `cp.bat`, `move.bat`, `rm.bat` and `make.exe` within the subfolder `bin` of the installation directory. Those files are no more required by EB tresos Studio itself and hence are no more part of the delivery.
Workaround:	No workaround is available.
ID:	TRESOSWP-2701

2.5. Changes in version 26.2.0

2.5.1. Fixed problems

Summary:	**AUTOSAR importer and ImportEcuConfig wizards overwrote the imported values in the other variants**

Description:	In earlier releases of EB tresos Studio, the **AUTOSAR importer** and the **ImportEcuConfig** wizards overwrote the imported values in the other variants under the following condition: The imported variant definitions were not created with the **Edit Selectable Post-BuildVariants** wizard of EB tresos Studio. This bug is fixed now.
ID:	TRESOS-4644

Summary:	**Fixed ENUM attribute handling in the DBC Importer**
Description:	In earlier releases of EB tresos Studio, the DBC Importer mapped `ENUM` attribute values to incorrect enumeration string values if the list of string values in the `ENUM` attribute definition contains one and the same enumeration string multiple times. This problem only occurs if an Import Customization reads such attribute values after the DBC import. In that case, the canonical AUTOSAR parameters, which the Import Customization writes depending on the read atttribute values, will be configured incorrectly. As a consequence, the incorrectly configured parameter values may propagate to downstream configuration tools which are reading them in turn. This bug is fixed now.
ID:	TRESOS-4626

Summary:	**EcuExtractCreator did not automatically delegate ports that contain signal mappings**
Description:	In earlier releases of EB tresos Studio, the **EcuExtractCreator** did not automatically delegate the ports under the following circumstances: the ports are not delegated to the top level composition in the hierarchical system model and the ports contain signal mappings. This bug is fixed now.
ID:	TRESOS-4507

Summary:	**EB tresos Studio issues a `NullPointerException` from the Workflows view**
Description:	In earlier releases, EB tresos Studio may have issued a `NullPointerException`, if the formerly selected workflow step for a project is not available any longer in the **workflow** definition. This bug is fixed now.
ID:	TRESOS-4624

Summary:	**Fixed slow down due to logging**
Description:	In earlier releases of EB tresos Studio, logging messages could cause slow downs under certain circumstances. This bug is fixed now.
ID:	TRESOS-4622

Summary:	**EB tresos Studio wrongly creates additional entries for variant-aware nodes of module configurations**

Description:	In earlier releases, EB tresos Studio wrongly created additional entries for variant-aware nodes, if the configuration project did not have a currently active selectable or loadable postbuild variant selected. This bug is fixed now.
ID:	TRESOS-4542

Summary:	**EB tresos Studio only reports a generic error message if you run an unattended wizard with configuration problems**
Description:	In earlier releases, EB tresos Studio reported only a generic error message like **Wizard "<some wizard>" is not configured correctly** if you tried to run an unattended wizard with configuration problems. This bug is fixed now.
ID:	TRESOS-4634

Summary:	**Content type auto-detection fails for schema versions AUTOSAR_00045 and AU-TOSAR_00047**
Description:	In earlier releases, EB tresos Studio failed to auto-detect the content types for the schema versions AUTOSAR_00045 and AUTOSAR_00047, which are now also mapped to the AUTOSAR classic platform releases 4.3.1 and 4.4.0 respectively. This bug is fixed now.
ID:	TRESOS-4655

2.5.2. Changes/new features

Summary:	**Optionally store and load IMPORTER_INFO to and from `ADMIN-DATA` tag in `arxml-files`**
Description:	In EB tresos Studio, you can now optionally store and load `IMPORTER_INFO` attributes as special data groups in the `ADMIN-DATA` tag. Any `ADMIN-DATA` that contains of `GID="EB-ASR-STUDIO"` and `GID="IMPORTER_INFOS"` will be ignored during loading. You can enable this feature in the `legacy convert` command by setting the value of the property `-DwriteImporterInfoAttributes` and `-DreadImporterInfoAttributes` to true.
ID:	TRESOSWP-3730

Summary:	**The non strict xsd schema is the default for system description import.**
Description:	If you create a new system description importer, the default value for **AUTOSAR schema variant** is now **standard** instead of **strict**.
ID:	TRESOSWP-3743

2.6. Changes in version 26.1.0

2.6.1. Fixed problems

Summary:	GeneratorWriter unexpected behavior when redirecting to StringBuffer
Description:	In earlier releases of EB tresos Studio, the methods `write(int)` and `write(String, int, int)` of `dreisoft.tresos.generator.api.generator.GeneratorWriter` would write unexpected contents after a call to `startRedirect(StringBuffer)`. This bug is fixed now.
ID:	TRESOS-4611

Summary:	Warnings during import of variants
Description:	In previous releases of EB tresos Studio, a lot of warnings with code 1060: `Cannot merge nodes with different type but the same path` were created when you imported a file containing multiple variants. This bug is fixed now.
ID:	TRESOS-4610

Summary:	Variant parameters were not imported
Description:	In previous releases of EB tresos Studio, parameters were not imported in case they had lower and upper multiplicity set to `1` and if the input file contained multiple parameters pointing to the same definition element. This bug is fixed now.
ID:	TRESOS-4612

Summary:	Code generators based on the NG Generator API now also work for JAR file plug-ins
Description:	In previous releases of EB tresos Studio, code generators which used the NG Generator API only worked for directory plug-ins, but not for JAR file plug-ins. This bug is fixed now.
ID:	TRESOS-4604

Summary:	Modules with multiple editor nodes add an unnecessary layer in the Project Explorer
Description:	In previous releases, EB tresos Studio showed an additional layer in the **Project Explorer** for any module that comes with a custom editor, even if the project had just one configuration for the module. This bug is fixed now.
ID:	TRESOS-4533

Summary:	The API method `DCtxt.rollbackTransaction()` resets dirty indicators

Description:	In previous releases of EB tresos Studio, if you tried to roll back a `DCtxt` transaction, the dirty indicators of all nodes which where changed within the transaction were reset. This bug is fixed now.
ID:	TRESOS-4573

Summary:	**The API method `DCtxt.rollbackTransaction()` changes the state of the Calculate button**
Description:	In previous releases of EB tresos Studio, if you tried to roll back a `DCtxt` transaction, the **Calculate** button may have been changed afterwards, if the method `DCtxt.any.-setImporterInfo()` was called for the respective parameter during the transaction. This bug is fixed now.
ID:	TRESOS-4573

Summary:	**Nested log entries are not shown correctly**
Description:	In former releases of EB tresos Studio, the **Error Log** view often contained duplicated entries. Additionally, the hierarchy of those entries were often wrong, i.e. the parent entry was shown as a sub-entry. This bug is fixed now.
ID:	TRESOS-4582

Summary:	**Message filtering did not work in batch mode**
Description:	In former releases of EB tresos Studio, the system options `-Dmsg[...]` to filter out messages did not work in batch mode. This bug is fixed now.
ID:	TRESOS-4591

Summary:	**Currently selected variant changes during code generation**
Description:	In former releases of EB tresos Studio, if you configured variants in your project and executed code generation, the currently selected variant changed unexpectedly. This bug is fixed now.
ID:	TRESOS-4586

Summary:	**Performance improvements when accessing system model data**
Description:	Performance has been improved by up to factor 20 when accessing multiple value attributes from the system model.
ID:	TRESOS-4508

Summary:	**`ASSOCIATED-RTE-PLUGIN-REF` elements not imported**
Description:	Although EB tresos Studio 26.0.0 claims to support AUTOSAR 4.4.0 ARXML files in the **System Desciption Importer**, `ASSOCIATED-RTE-PLUGIN-REF` elements were not imported. This bug is fixed now.

ID:	TRESOS-4576

Summary:	**Error while executing ImportEcuConfig from a MultiTask unattended wizard a second time**
Description:	In former releases of EB tresos Studio, if you run an **Execute multiple tasks** wizard, which itself triggers a **System Decription Importer** between two calls of a **Create ECU Configuration** unattended wizard, then EB tresos Studio reported an error message like **(36077) An error occurred while running the wizard "ImportEcuConfig": TresosDBException: TresosDB is closed** during the second execution of the **Create ECU Configuration** unattended wizard. This bug is fixed now.
ID:	TRESOS-4594

Summary:	**Order of Data mappings during ECU extract creation was undeterministic**
Description:	In former releases of EB tresos Studio, when creating an ECU extract, the order in which the data mappings appeared in the ECU extract was not stable, even if the input did not change. This may have caused unexpected changes in the generated code. This bug is fixed now.
ID:	TRESOS-4581

Summary:	**ECU Extract creator does not copy the `RTE-PLUGIN-PROPS` elements from the hierarchical system model to the ECU Extract model**
Description:	Although EB tresos Studio 26.0.0 claims to support the new element `RTE-PLUGIN-PROPS` introduced in AUTOSAR 4.4.0, the ECU Extract creator was ignoring these elements and did not copy them to the `FlatInstanceDescriptors` in the ECU Extract model. This bug is fixed now.
ID:	TRESOS-4618

2.6.2. Changes/new features

Summary:	**The `legacy convert` command of the EB tresos Studio commandline writes the XPath expressions that are part of `INVALID` and `WARNING` XPath data attributes to the target ARXML file.**
Description:	In former releases of EB tresos Studio, the `legacy convert` command ignored the XPath expressions that are part of `INVALID` XPath data attribute and did not write them into the target ARXML file. EB tresos Studio now writes these validation expressions as special data groups into the ADMIN-DATA tag of the respective schema node. You can enable this feature in `legacy`

	`convert` command by setting the value of the property `-DwriteInvalidXPathAt-tributes` to true.
ID:	TRESOSWP-3628

Summary:	**Public Java API documentation is now delivered as ZIP archive**
Description:	The Public Java API documentation of EB tresos Studio is now delivered as a ZIP archive. In earlier release of EB tresos Studio overlong pathnames caused problems. This issue is fixed now. The ZIP archive file is located here: `<INSTDIR>\doc\2.0_EB_-tresos_Studio\Studio Public API Java.zip`

You must extract the ZIP archive before usage. Note that the Java documentation is also available in the online help and directly from Eclipse after you have set-up the EB tresos Studio Eclipse tooling as described in the EB tresos Studio developer's guide. |
| **ID:** | TRESOSWP-3689 |

Summary:	**Unattended Wizard result view improved**
Description:	In previous EB tresos Studio releases, the **Unattended Wizard** result view did not provide the ability to filter the messages based on their severity level.

EB tresos Studio now provides filter buttons in the **Unattended Wizard** result view. You can now use them to filter the messages based on their severity level. |
| **ID:** | TRESOSWP-3690 |

2.7. Changes in version 26.0.0

2.7.1. Fixed problems

Summary:	**Ordered AUTOSAR system model elements are sometimes merged incorrectly**
Description:	If an ARXML input file for the **System Description Importer** contained *ordered* child elements and there were already child elements for the same parent but with a *different order*, then the resulting order of elements in the project's system model only matched the order from the input file until the project was loaded the next time. This applied only if you used the **Merge content of selected files into existing model** option of the **System Description Importer**.

Note that this also applied to *ordered* model elements that were created and merged into the existing system model by running the **Update Service Component and BSWM Descriptions(SwdUpdater_Trigger)** unattended wizard that is supplied by EB tresos Au- |

toCore. This may e.g. have lead to a wrong order of arguments in method signatures in the generated C code.

This bug is fixed now.

ID:	TRESOS-4402

Summary:	**Loss of data during import of atp splitable system description data**
Description:	When you imported splitable system description data, all existing non-splitable child elements of any parent of the imported splitable elements were lost. In this case, the elements were deleted during the import, or not imported if they were contained in one of multiple input files. This bug is fixed now.
ID:	TRESOS-4554

Summary:	**Single module generation blocks multitask execution with popup**
Description:	The unattended MultiTask Wizard was not working as intended. The execution of predefined tasks could be interrupted by error prompts generated by single module generation blocks. This bug is fixed now.
ID:	TRESOS-4536

Summary:	**Rte editor and sidebar stops working after edit of XDM files and project reload**
Description:	In former releases of EB tresos Studio, the Rte editor and the sidebar stopped working if you changed the XDM files for the ECU configuration by using a text editor and reloaded the project. This bug is fixed now.
ID:	TRESOS-4521

Summary:	**Creation of a Support Package fails because of broken filesystem links**
Description:	In earlier releases of EB tresos Studio the creation of a support package failed if the selected project files for the package contained a filesystem link, which pointed to a file or directory, that did not exist. This bug is fixed now.
ID:	TRESOS-4532

Summary:	**Error message with missing information occurs if a child with a short name already exists**
Description:	In earlier releases of EB tresos Studio an error message occured if a child with the same short name already exists. This message did not contain all needed information like the short name path of the identifiable. This bug is fixed now.
ID:	TRESOS-4475

Summary:	**Enabling the profiler for the template-based code generator leads to FileNotFoundException**

Description:	In earlier releases, EB tresos Studio may have logged errors like **java.io.FileNot-FoundException: <pathToSomeGeneratorTemplate>.profile (The system cannot find the path specified)** after you enabled the profiler for the template-based code generator in the preferences. This bug is fixed now.
ID:	TRESOS-4530

Summary:	**Call to legacy convert fails for certain XDM schema files**
Description:	In EB tresos Studio 25.1.0, a call to `legacy convert` on the command line might have failed with an error message like **(1803) Invalid XPath-expression for Attribute "MAX" of node "<some node path>": <...>**. This happened under the following circumstances, even if you set the option `writeXPathAttributes=false`: The XDM schema file that you used as input contained a list element with a computed `MAX` or `MIN` attribute and the used XPath expression could not be evaluated for some reason, e.g. because it referred to a value in the ECU configuration data model. This bug is fixed now.
ID:	TRESOS-4527

Summary:	**EB tresos Studio hangs up when you switch variants**
Description:	In earlier releases, EB tresos Studio may have hung up under certain circumstances after you changed the post-build variant of your variant-enabled configuration project by using the combo box from the tool bar. This bug is fixed now.
ID:	TRESOS-4524

Summary:	**Build Project submenu contains * item**
Description:	In earlier releases, EB tresos Studio showed a menu item * within the **Project** -> **Build Project** submenus if a code generator was installed, which was based on the NG Generator API and had registered a mode-independent parameter. Users might have misinterpreted this menu item as *run all modes*, which was not the case. This bug is fixed now and the * entry does not appear anymore in those menus.
ID:	TRESOS-4523

Summary:	**EcuExtractCreator does not create `ClientServerToSignalMappings` if the associated `SystemSignal` refers to more than one `IISignalTriggerings`**
Description:	In earlier releases of EB tresos Studio **EcuExtractCreator** considered only the last `IISignalTriggering` referred by the `SystemSignal` associated with the `ClientServerToSignalMappings`. As a consequence, certain signals associated with `ClientServerToSignalMappings` were considered not part of the `EcuInstance` and as a further consequence such `ClientServerToSignalMappings` were not copied to the EcuExtract. This bug is fixed now.
ID:	TRESOS-4525

Summary:	**The API method `DCtxt.rollbackTransaction()` failed if the transaction contains a call to `DCtxt.any.setImporterInfo()`**
Description:	In previous releases of EB tresos Studio, if you tried to roll back a `DCtxt` transaction that contains a call to `DCtxt.any.setImporterInfo()`, the roll back failed. This bug is fixed now.
ID:	TRESOS-4538

Summary:	**The Unattended Wizard result view showed wrong result if the wizard uses `DCtxt.rollbackTransaction()`**
Description:	In previous releases of EB tresos Studio, if you tried to roll back a `DCtxt` transaction that contains some atomic operations, the **Unattended Wizard** detailed result view showed wrong changed data nodes. This bug is fixed now.
ID:	TRESOS-4539

Summary:	**Call to `legacy generate` failed for configurations with variants**
Description:	In previous EB tresos Studio releases, the code generation for a configuration with variants using **legacy generate** failed. This bug is fixed now.
ID:	TRESOS-4563

2.7.2. Changes/new features

Summary:	**EB tresos Studio supports AUTOSAR 4.4.0**
Description:	EB tresos Studio provides support for the relevant parts of the system model and ECU configuration of AUTOSAR release 4.4.0. You can now import and export system description and ECU configuration ARXML files up to AUTOSAR 4.4.0.
ID:	TRESOSWP-3621

Summary:	**New VSMD check EB09: EB specific rule to check the consistency of parameter `postBuildVariantUsed`**
Description:	EB tresos Studio provides the new rule **EB09** to check Vendor Specific Module Definitions (VSMD) against the Standardized Module Defintition (StMD). In case the VSMD is provided as an xdm file, this rule checks the consistency of the parameter postBuildVariantUsed. The new check is added to the ruleset `asc:4.4.0`.
ID:	TRESOSWP-3659

Summary:	**WibuKey Runtime for dongled licenses updated**

Description:	EB tresos Studio now bundles the new version 6.50a of the WibuKey Runtime for Windows 64 bit. Note that this update also solves issues which occurred during the installation of the WibuKeyRuntime package by the EB tresos Studio installer (setup.exe), which did not work reliably in former releases.
ID:	TRESOSWP-3672

Summary:	**Added API documentation for accessing the system model**
Description:	EB tresos Studio now includes documentation for the System Model Access API, which is provided by the `dreisoft.tresos.tresosDB.api.plugin` plug-in. The documentation consists of a chapter in the EB tresos Studio developer's guide, the JavaDoc and a new demo plug-in.
ID:	TRESOSWP-3564

2.8. Changes in version 25.1.0

2.8.1. Fixed problems

Summary:	**EB tresos Studio issues a `NullPointerException` from the Workflows view**
Description:	In earlier releases, EB tresos Studio may have issued a `NullPointerException` under certain circumstances, if you had opened the **Workflows** view and you changed the current selection in your workbench. This bug is fixed now.
ID:	TRESOS-4482

Summary:	**GuidedConfig API: listener is not called on selection changes for `SWTCheckBox` widgets**
Description:	In earlier releases of EB tresos Studio, when you registered a listener via the method `addSelectionEventListener(ISelectionEventListener)` at the respective `SWTCheckBoxController`, then this listener was not called when the user changed the state of the check-box. This bug is fixed now.
ID:	TRESOS-4518

Summary:	**Editor elements are not updated correctly when switching variants**
Description:	In earlier releases of EB tresos Studio, when you switched to another selectable variant, currently shown editor elements might not get updated correctly and could become editable or non editable. This bug is fixed now.

ID:	TRESOS-4514

Summary:	**EB tresos Studio failed to write an XML file that contained the `EcucValueCollection` element**
Description:	In earlier releases, EB tresos Studio failed to write an AUTOSAR XML file if the `ECUC-VALUE-COLLECTION` element with multiple references was included in this file. This bug is fixed now.
ID:	TRESOS-4509

Summary:	**EB tresos Studio Eclipse tooling removes certain UI elements from Eclipse IDE**
Description:	In earlier releases of EB tresos Studio, if you installed the EB tresos Studio Eclipse tooling from `tools\eclipse_tools.zip`, certain elements were removed from the Eclipse IDE, e.g. the page **Console** under category **Run/Debug** in the **Preferences** dialog. This bug is now fixed.
ID:	TRESOS-4510

Summary:	**The EcuExtractCreator takes too long for subsequent runs**
Description:	In earlier releases of EB tresos Studio, the **EcuExtractCreator** may have taken very long for subsequent runs. This bug is now fixed.
ID:	TRESOS-4506

Summary:	**NG Generator Ant task `ng.getgeneratorvar` fails for variables of type `Set<String>`**
Description:	In earlier releases of EB tresos Studio, the NG Generator Ant task `ng.getgeneratorvar` did not return values for context variables which are of type `Set<String>`, like e.g. `configs` or `generationPaths`. This bug is fixed and the respective Ant properties are now set to comma separated lists.
ID:	TRESOS-4504

Summary:	**VSMD check ignores pure vendor specific references**
Description:	In earlier releases of EB tresos Studio, the rule EcucSws_2038_2040 did not check pure vendor specific references. This bug is fixed now.
ID:	TRESOS-4498

Summary:	**VSMD check does now accept multiple StMDs**
Description:	In earlier releases of EB tresos Studio it was not possible to check references pointing to another module using the `legacy vsmdcheck` command. Furthermore, it was not possible to provide multiple StMDs without an equal number of matching VSMDs. This bug is fixed now.

ID:	TRESOS-4491

Summary:	**EB tresos Studio may have issued a `NullPointerException` when a Guided Configuration editor is closed by the user**
Description:	In earlier releases, EB tresos Studio may have issued a `NullPointerException` when you tried to close the Guided Configuration editor that you had opened via the **Sidebar** view before. This bug is now fixed.
ID:	TRESOS-4319

Summary:	**EB tresos Studio may have issued a `NullPointerException` when writing ECU configuration values to ARXML files**
Description:	In earlier releases, EB tresos Studio under certain circumstances issued a `NullPointerException` when writing numerical ECU configuration values to the ARXML file format. This bug is now fixed.
ID:	TRESOS-4486

Summary:	**Results view of the Create an ECU Extract unattended wizard doesn't account for errors**
Description:	In earlier releases of EB tresos Studio, the **Results** view of the **Create an ECU Extract** unattended wizard would show `0 errors` and no messages despite errors being shown in the **Error Log** view. This bug is now fixed. The **Results** view now reports the occurrence of errors properly.
ID:	TRESOS-4479

Summary:	**System Description Importer shows warnings about invalid reference values which no longer exist when the legacy merge algorithm is used**
Description:	In earlier releases of EB tresos Studio, if you tried to import a system description file that previously raised warnings regarding invalid references. Such a warning would persist on subsequent imports even after removing the invalid reference from the input ARXML files. In earlier releases, the project needed to be closed and opened again to clean up the old warnings. This bug affected only System Description Importers configured to merge the contents of the selected files into the existing model using the legacy merge algorithm. This bug is fixed now.
ID:	TRESOS-4489

Summary:	**System Description Importer fails with XML parsing errors even after the system description file is fixed**
Description:	In earlier releases of EB tresos Studio, if you tried to import a system description file that previously failed due to an XML syntax error, such an error would persist on subsequent imports even after fixing the XML syntax. The **Create, manage and run im- and ex-**

	porters window needed to be closed and opened again to clean up the old parse errors. This bug is now fixed.
ID:	TRESOS-4170

Summary:	**POST-BUILD-VARIANT-MULTIPLICITY is always written**
Description:	In earlier releases of EB tresos Studio, the xml tag POST-BUILD-VARIANT-MULTIPLICI-TY was always written to arxml files for all elements inside a module definition although they are not applicable. This violated the AUTOSAR constraints [constr_5506] and [constr_5508]. This bug is fixed now. The tag is only written to elements, which have a LOWER-MULTIPLICITY below the UPPER-MULTIPLICITY.
ID:	TRESOS-4462

Summary:	**Messages from the NG generator Ant task `ng.tmplgen` are not logged**
Description:	In earlier releases of EB tresos Studio, if an NG generator used the Ant task `ng.tmplgen` and the referred template contained message statements like `[!INFO "<Message>"!]` or `[!WARNING "<Message>"!]`, then these messages were not logged to the **Error Log**. This bug is fixed now.
ID:	TRESOS-4494

Summary:	**System Description Importer and System Description Exporter store project-relative file paths as absolute paths**
Description:	In earlier releases of EB tresos Studio, the preferences files of the **System Description Importer** and **System Description Exporter** would store project-relative file paths as absolute paths. This bug is now fixed. The source files of **System Description Importer** whereas the target path of the **System Description Exporter** are stored as relative paths if the referenced files are placed inside the project which defines the **Importer** or **Exporter**.
ID:	TRESOS-4501

2.8.2. Changes/new features

Summary:	**Support for `UriReferenceDef` elements**
Description:	The ARXML parser as well as the XDM file format now include support for URI references as introduced by AUTOSAR 4.2.1. The XDM file revision therefore increased to 7.0.
ID:	TRESOSWP-3586

Summary:	**Code generation without verification**

Description:	In commandline mode, EB tresos Studio now provides the possibility to disable the verification prior code generation. For this, you have to add `-DVerify=false` to the command line. This works both for the legacy and the project mode.
ID:	TRESOSWP-3613

Summary:	**Code generation for specific module configurations**
Description:	In commandline mode, EB tresos Studio now provides the possibility to generate specific module configurations only. For this, you have to add one `-v <config>` for each module configuration you want to generate. This option can be used in combination with -g to generate specific modules and configurations only.
ID:	TRESOSWP-3614

Summary:	**Unattended wizard for code generation**
Description:	A new unattended wizard to generate code is now available. The main features of this wizard are the possibility to ignore verification problems and to generate specific module configurations only.
ID:	TRESOSWP-3611

Summary:	**AUTOSAR Importer allows manual path mapping entries with targets of any type**
Description:	In previous versions of EB tresos Studio, the manual path mapping feature of the **AUTOSAR Importer** allowed only ECU configuration elements as targets.

Now the target combobox for manual path mapping entries is editable and the target path can be set to paths referencing other types of elements than only ECU configuration elements. |
| **ID:** | TRESOSWP-3618 |

2.9. Changes in version 25.0.0

2.9.1. Fixed problems

Summary:	**Output of external command configured by an unattended wizard of type MultiTask is not available in command line mode**
Description:	In earlier releases of EB tresos Studio, if you configured an unattended wizard of type **MultiTask** to run an external command, the output would be shown in the **Results** view if executed in the GUI but not if executed via the command line `autoconfigure`. This bug

	is now fixed and the output is also available when executing such unattended wizard in command line mode.
ID:	TRESOS-4160

Summary:	**VSMD check rule TpsEcuc_08005 raises a false violation**
Description:	With AUTOSAR 4.2.1, the requirement TpsEcuc_08005 has been changed. In earlier versions it defined rules for the `postBuildChangeable` attribute. With AUTOSAR 4.2.1, the attribute `multiplicityConfigClass` is checked instead. In earlier releases of EB tresos Studio, the check for the `postBuildChangeable` attribute was still done when you executed the command `legacy vsmdcheck` with rule-set `asc:4.2.1` or a later one. As a consequence, a rule violation was reported. This bug is fixed now.
ID:	TRESOS-4487

Summary:	**EB tresos Studio occasionally hung up while the verifier was running**
Description:	In earlier releases, EB tresos Studio may have hung up under certain circumstances, while the configuration verifier was running. This bug is fixed now.
ID:	TRESOS-4484

Summary:	**EB tresos Studio may have issued a `NullPointerException` when you created a Support Package**
Description:	In earlier releases of EB tresos Studio, if you configured a specific **Generation Path** for a module in your project, and this path did not exist in the file system, then the creation of a **Support Package** for that project may have failed with a `NullPointerException`. This bug is fixed now.
ID:	TRESOS-4481

Summary:	**EB tresos Studio command line does not propagate the error level**
Description:	In earlier releases of EB tresos Studio, if you called the command line from another process, EB tresos Studio did not propagate the error level correctly. If you called the EB tresos Studio command line from another process and an error occured, EB tresos Studio reported the error messages, but the exit code was 0. But it is expected to return 1 in the event of an error. This bug is now fixed and the error levels are propagated correctly to the calling process.
ID:	TRESOS-4466

Summary:	**Calling `upgradeModuleConfigs` without specifiying a target module may lead to unexpected transformations**
Description:	In earlier releases of EB tresos Studio, if you had installed several modules for a given type and target/derivate, which all had the same software version, and you called the up–

`gradeModuleConfigs` command line for a project that had such modules configured, then those module configurations may have been transformed arbitrarily into each other. This bug is fixed now.

Note that you still can run into unexpected results, if you do not explicitly specify the module configurations and target modules for the upgrade, if there are modules installed that match the same type and target/derivate, and exactly one of them has a highest software version.

ID:	TRESOS-4476

Summary:	**The LDF Importer configures signals incorrectly that are sent by slaves**
Description:	In earlier releases of EB tresos Studio the LDF files are imported incorrectly if they contained frames that were sent by slave nodes and these frames contained signals received by slave nodes and partly by the master node. If one of these signals was not received by the master node, all subsequent signals of the frame were imported as if they were not received by the master node as well, even if the LDF file listed the master node as a receiver. This bug is fixed now.
ID:	TRESOS-4469

Summary:	**NG Generator fails to find template if the plugin that contains the template is added via `*.link` file**
Description:	In earlier releases of EB tresos Studio if your installation contained a plugin with a code generator based on the NG generator API, which used the `ng.tmplgen` Ant task, and that plugin was added to the installation via a `*.link` file in the `links` folder, EB tresos Studio may have shown an error that the template file could not be found. This bug is fixed now.
ID:	TRESOS-4467

Summary:	**XPath function `num:f` cannot handle `Nan` and `Infinity`**
Description:	In earlier releases of EB tresos Studio the XPath function `num:f` failed with an error for the input values `Nan`, `Infinity` and `-Infinity`. As AUTOSAR allows these values within the ECU configuration model, the XPath function `num:f` was adapted to also accept these values as input.
ID:	TRESOS-4463

Summary:	**XDM schema conversion to AUTOSAR 4.3.1 format failed for float parameters with a calculated default value**
Description:	If you attempted to convert an XDM schema file in EB tresos Studio 24.0.0 to the AUTOSAR 4.3.1 format, and your module definition contained a float parameter with a calculated default attribute, then the conversion of the XDM schema file failed and an error message appeared: **(1803) Invalid XPath-expression for Attribute "DEFAULT"**

of node "<path to your float parameter>": (2222) Cannot parse value "" to an dou-ble-value. This conversion error even happened if you used the `node:fallback` XPath function to calculate the default. This bug is fixed now.

ID:	TRESOS-4459

Summary:	**VSMD check rules TpsEcuc_08032 and TpsEcuc_08033 raise false violations**
Description:	In earlier releases of EB tresos Studio the vsmd check rules **TpsEcuc_08032** and **TpsEcuc_08033** falsely reported a violation for each pure vendor-specific parameter, if the module supports postbuild variants. That is if `postBuildVariantSupport` is set to `true` at the module definition. This bug is fixed now.
ID:	TRESOS-4460

Summary:	**Generic editor moves parameters out of their container to a new tab page**
Description:	As soon as there are more than 100 elements to be rendered to the same tab page, EB tresos Studio creates a new tab page to prevent an **Out of handles** error. In former re-leases of EB tresos Studio, this might move elements out of their grouping container to a new tab page. This is not the desired behavior as only complete containers shall be moved to a new tab page. This bug is fixed now.
ID:	TRESOS-4438

Summary:	**Module and project are not marked as modified after a module upgrade**
Description:	Under certain circumstances, if you loaded a project with a module configuration that was based on an earlier version of the module than the installed version, EB tresos Studio did not mark this module as modified. Thus, the module version number in the associat-ed XDM file of the configuration was not updated until you applied another change to this module configuration and saved the project. This bug is fixed now.
ID:	TRESOS-4449

Summary:	**Unattended wizard configurations are lost after a project import**
Description:	If you import a project with several unattended wizard configurations that was based on EB tresos Studio 23.1.0 or on any preliminary releases of EB tresos Studio 24.0.0, the unattended wizard configurations were lost. This bug is fixed now.
ID:	TRESOS-4452

Summary:	**Changes to comments cannot be applied if a node is selected from the Outline view**
Description:	When you selected a configuration node from the Outline view it was not possible to ap-ply changes in the Comments tab of the Properties view. This occured because the **Ap-ply** button was not enabled. This bug is fixed now.
ID:	TRESOS-4221

Summary:	**EcuExtractCreator does not create `SenderReceiverToSignalMappings` for ports which receive values via both, `SenderReceiverToSignalMapping` and `AssemblyConnector`**
Description:	In previous releases of EB tresos Studio **EcuExtractCreator** did neither create `SenderReceiverToSignalMappings` nor automatically delegate ports in the `EcuExtract` for the ports which are targeted by `SenderReceiverToSignalMappings` and are also connected via an `AssemblyConnector`. This bug is fixed now.
ID:	TRESOS-4414

2.9.2. Changes/new features

Summary:	**Guided Configuration API: a new method to select multiple rows in a `SWTTable` widget**
Description:	The Guided Configuration API of EB tresos Studio now features the method `SWTTable.setSelection(int[])`. You can use it to programmatically select *multiple* rows of a `SWTTable` widget.
ID:	TRESOSWP-3550

Summary:	**New VSMD check Constr_5505: Configuration class of the elements of the EcucQueryExpression**
Description:	EB tresos Studio provides the new rule **Constr_5505** for checking Vendor Specific Module Definitions (VSMD) against the Standardized Module Defintition (StMD). The check covers the AUTOSAR constraint `[constr_5505]` **Configuration class of the elements of the EcucQueryExpression**. The new check is added to the existing rulesets `asc:4.1.3`, `asc:4.2.1`, `asc:4.2.2`, `asc:4.3.0` and `asc:4.3.1`.
ID:	TRESOSWP-3463

Summary:	**`SenderComSpec.dataElement` and `ReceiverComSpec.dataElement` are not limited to `VariableDataPrototype` any more**
Description:	In EB tresos Studio 24.0, the support for AUTOSAR 4.3.1 was limited as `SenderComSpec.dataElement` and `ReceiverComSpec.dataElement` may only have referenced elements of the class `VariableDataPrototype`. This limitation is removed. These elements may now may reference any subclass of `AutosarDataPrototype`.
ID:	TRESOSWP-3538

Summary:	**EcuExtractCreator copies the `DataTypeMappingSets` to the root software composition**

Description:	Now the **EcuExtractCreator** copies the `DataTypeMappingSets` from the hierarchical top level composition to the flattened top level composition.
ID:	TRESOSWP-3171

Summary:	**Command line support on Linux**
Description:	Now the EB tresos Studio provided the command line support on Linux platform
ID:	TRESOSWP-3405

2.10. Changes in version 24.0.0

2.10.1. Fixed problems

Summary:	**Order of Automatically delegate unconnected ports during ECU extract creation was undeterministic**
Description:	In former releases of EB tresos Studio, when creating an ECU extract with the option **Automatically delegate unconnected ports** enabled, the order in which delegation ports and system mappings appeared in the ECU extract was not stable, even if the input did not change. This may have caused unexpected changes in the generated code. For example, the order of the callback functions in the generated Rte code changed. This bug is fixed now.
ID:	TRESOS-4439

Summary:	**Result of AUTOSAR Im-/Exporter with strategy Merge changes**
Description:	Since EB tresos Studio 22.0, if you used the **Merge** strategy in an AUTOSAR importer, EB tresos Studio did not replace parameters with their default values, if previously imported parameters were not part of the input file of the same importer anymore. This bug is now fixed. If the input file of a given importer does not contain these specific elements of a previous import run, these specific elements are reset to their default value. There is no reset if these elements were edited manually or overwritten by another importer in the meantime. The exact outcome depends on the specific element: optional elements are disabled, list elements are removed, mandatory containers and their children are reset to their default state, and parameter values are either reset to their default, or unset, if there is no default value.
ID:	TRESOS-4374

Summary:	**Performance optimization for XPath functions `as:ref`, `node:refs` and `node:ref`**
Description:	In former releases of EB tresos Studio the XPath functions `as:ref`, `node:refs` and `node:ref` did not perform well in large projects. The performance has been improved for the case that a reference node is given as parameter to one of the functions. There is no performance improvement in case a string is given as argument.
ID:	TRESOS-4434

Summary:	**Enabling or disabling modules took very long in larger projects**
Description:	In former releases of EB tresos Studio, it took very long to disable or enable a set of modules selected in the **Project Explorer** in larger projects. This bug is fixed now.
ID:	TRESOS-4435

Summary:	**Import strategy Replace of the AUTOSAR Importer did not replace existing Multiple Configuration Container (MCC) elements**
Description:	In former releases of EB tresos Studio, if you used a **Replace** strategy in an **AUTOSAR Importer**, then EB tresos Studio did not replace existing Multiple Configuration Container (MCC) elements as expected. This bug is fixed now.
	Note that if you use a **Merge** strategy, then MCC elements will be kept, even if they had been imported by an AUTOSAR importer with the same name before. This is not the case for ordinary list containers, which will be removed in that case.
ID:	TRESOS-4430

Summary:	**EB tresos Studio reported errors when reading log file entries**
Description:	In the last two releases of EB tresos Studio, if a code generator template reported error messages with multiple lines, EB tresos Studio failed to restore the **Error Log** view on the next restart. This resulted in error messages like **java.lang.IllegalStateException: error reading error log entries, marker STACKTRACE expected. Current line is: ..."**. This bug is fixed now.
	Besides this error message, EB tresos Studio may have hung-up if any other errors were logged during start-up.
	Note that you need to remove any defect logfiles from your workspace, i.e. any `<WORKS-PACE>\.metadata\.tresoslog*` files.
ID:	TRESOS-4410

Summary:	**EB tresos Studio wrongly executed external code generators in parallel**
Description:	In former releases, if the preference `generateExternalParallel` was explicitly set to `true` in the `<INSTDIR>/configuration/defaultPreferences.properties` file,

	EB tresos Studio executed every external code generator in parallel. This occurred even if they were registered with `canRunParallel="false"` in their `plugin.xml` file. This bug is fixed now.
ID:	TRESOS-4422

Summary:	**EB tresos Studio now supports the complete range for certain number attributes in the system model**
Description:	In former releases of EB tresos Studio, the supported range for AUTOSAR system model attributes of the primitive types `PositiveUnlimitedInteger`, `UnlimitedInteger` and `Numerical` was limited due to the used Java types. This bug is fixed now. Note that this leads to incompatibilities in the tresosDB project Java API. For more information, see the *Incompatibilities to previous releases* section above.
ID:	TRESOS-3306

Summary:	**Generated files from NG generator Ant tasks are only available after the build script is finished**
Description:	In former releases of EB tresos Studio, if you used the `ng.tmplgen`, `ng.jetgen`, or `ng.jetgen.src` Ant tasks to generate code, the respective output files were only available after the Ant build script was finished. Therefore, files that were generated within one Ant build script could not be further processed within the same Ant build script. This bug is fixed now.
ID:	TRESOS-4415

Summary:	**References cause problems if you rename a choice container**
Description:	If you rename a choice container and point to it via a reference, the reference gets an error marker that states that the reference is not valid. This bug is fixed now.
ID:	TRESOS-4406

Summary:	**EB tresos Studio fails to import a project without .project file**
Description:	When you import a project created with EB tresos Studio that does not have a `.project` file, a `NullPointerException` is thrown and the import process is aborted. This bug is fixed now.
ID:	TRESOS-4365

Summary:	**Importing a project via the command line throws a NullPointerException if option -c is used**
Description:	When you import a project created with EB tresos Studio that is already imported, prior to version 24.0, a `NullPointerException` is thrown and the load process is aborted. This bug is fixed now.

ID:	TRESOS-4177

Summary:	**The preferences for multiple instances of unattended wizards are not saved in seperate files**
Description:	Starting with EB tresos Studio 23.1.0, the preferences for every importer and exporter instance are saved in seperate files. But the preferences for multiple instances of unattended wizards are not saved in seperate files. This bug is now fixed. Now you can share an unattended wizard configuration easily by copying the individual wizard preference file (`<wizardConfigName>_pref_wizard.xdm`) along with the corresponding memento file (`<wizardConfigName>.mem`) to another project.
ID:	TRESOS-4436

2.10.2. Changes/new features

Summary:	**EB tresos Studio now supports arbitrary integer values for ECU configuration**
Description:	You can now use integer values without a practical limitation regarding the value range in the ECU configuration data model. The `DCtxt` API was extended for this purpose. You can now access integer parameters through the `Var` class using `java.math.BigInteger` objects.
ID:	TRESOSWP-3487

Summary:	**Enhanced EB tresos Studio batch mode**
Description:	The EB tresos Studio batch mode now allows you to redirect infos, warnings, and error messages separately for each command in a batch file. Moreover, the batch mode command line provides an additional option that allows you to continue the batch mode execution even when the execution of one of the commands in the batch file issued an error.
ID:	TRESOSWP-3481

Summary:	**EB tresos Studio now supports to export all variants from ECU configuration**
Description:	You can now export an AUTOSAR ECU configuration that includes all variants from your project. This export is only possible if there is a currently active post-build selectable variant configured in the project. In the AUTOSAR Im-/Exporter GUI, the new option `All variants` is available. For EPCFileGenerator/External Generator, the new option `allVariants` was introduced. This new option is not selected by default. In addition to the exported ECU configuration, another file is written that contains all post-build selectable variant definitions. For further details, see the EB tresos Studio new and noteworthy document.
ID:	TRESOSWP-2984

Summary:	**EB tresos Studio supports AUTOSAR 4.3.1**
Description:	EB tresos Studio provides support for the relevant parts of the system model and ECU configuration of AUTOSAR release 4.3.1. You may now import and export system description and ECU configuration ARXML files up to AUTOSAR 4.3.1. Support for Autosar release 4.3.1 allows the special float values INF and -INF as defaultValue for EcucFloat-ParamDef.
ID:	TRESOSWP-3434

Summary:	**The CDS Generator now supports 64-bit integer primitive types**
Description:	The C Data Structures (CDS) Generator now comes with built-in support for signed and unsigned 64-bit primitive integer types.
ID:	TRESOSWP-3393

Summary:	**EB tresos Studio now supports to import selectable variants from ECU configuration files**
Description:	You can now import AUTOSAR ECU configuration files that contain postbuild selectable variants into your project. This is only possible, if there are variants configured in your project. It is still possible to import an Ecu configuration file which does not contain selectable variants. Its configuration data is then only imported to the currently selected variant.
ID:	TRESOSWP-3433

2.11. Changes in version 23.1.0

2.11.1. Fixed problems

Summary:	**Projects from older releases cannot be loaded**
Description:	When loading a project created with EB tresos Studio prior to version 23.0, a `Class-CastException` is thrown and the load process is aborted. The same exception occurs when converting the `SystemModel2.tdb` file from such a project to ARXML. This bug is fixed now.
ID:	TRESOS-4391

Summary:	**Configuration variant VARIANT-POST-BUILD-SELECTABLE wrongly written to XDM**

Description:	In EB tresos Studio 23.0 an invalid XDM file was written if an element had the configuration variant `VARIANT-POST-BUILD-SELECTABLE`, e.g. when converting EPD to XDM. When the resulting file was read, EB tresos Studio 23.0 then reported an error message like the following **The configuration variant "VariantPostBuildSelectable" is not supported by AUTOSAR for multiplicity- and value-configuration.** This bug is fixed now.
ID:	TRESOS-4377

Summary:	**DBC Importer configured COMPU-METHOD elements that caused errors in the RTE consistency checker**
Description:	In earlier versions of EB tresos Studio, the DBC Importer created `COMPU-METHOD` elements that caused errors in the consistency checker of the RTE:
	► The `CATEGORY` field of the `COMPU-METHOD` was set to `LINEAR` even if the `COMPU-METHOD` contained one or more `COMPU-SCALE` elements that represented symbolic values. This caused the RTE consistency checker to issue:
	`The COMPU-METHOD <name> of category LINEAR contains too many COMPU-SCALE elements. The COMPU-INTERNAL-TO-PHYS or COMPU-PHYS-TO-INTERNAL must contain exactly one COMPU-SCALE. [constr_1375]`
	► Symbolic names of signals were written into the `COMPU-CONST/VT` field of a `COMPU-SCALE` even if the symbolic name was not a valid C language identifier. This caused the RTE consistency checker to issue:
	`The COMPU-METHOD <name> contains a COMPU-SCALE with an invalid enumeration literal for point range <numval>. [rte_sws_3851]`
	► Symbolic names of signals were written into the `COMPU-CONST/VT` field of a `COMPU-SCALE` even if the symbolic name was already used by a second signal. This caused the RTE consistency checker to issue:
	`The enumeration literal reserved by COMPU-METHOD <name> is not unique and redefines the enumeration point range. [rte_sws_-3813]`
	The issues listed above are fixed now.
ID:	TRESOS-4378

Summary:	**Variant-affected icon disappeared in Generic Configuration Editor**
Description:	In previous EB tresos Studio releases, the variant-affected icon disappeared from the type icon inside the Generic Configuration Editor under some circumstances. This bug is fixed now. As a workaround it was always possible to open the **Edit variant conditions** dialog via the **Node Outline** view.

ID:	TRESOS-4379

Summary:	**Relative paths to system variables necessary for resolving variants cannot be re-solved**
Description:	When you imported a specific variant in the System Description Importer in previous versions of EB tresos Studio, relative paths (referenceBase) necessary to resolve the variant could not be resolved. Now EB tresos Studio is able to resolve variants which refer to system constants with relative paths. Splitted referenceBase definitions in other files are not supported yet.
ID:	TRESOS-4351

Summary:	**Content type auto-detection for System Description Importer**
Description:	When you used the System Description Importer in previous versions of EB tresos Studio, the content type of an AUTOSAR file could not be detected automatically if it started with a huge comment. This bug is fixed now.
ID:	TRESOS-4344

Summary:	**Error occurs when system model data is imported with Import customization en-abled**
Description:	In previous releases, under certain circumstances EB tresos Studio reported an error message like the following if the importer was configured with an **Import customization**: **"Could not create a temporary TresosDB for the non-persistent IEntity: The persistent association "<SomeModelElement>.<SomeAssociation>" in identifiable "<PathToSomeElement>" is pointing to a not persistent <SomeAssociatedModelElement> and can therefore not be saved."** This bug is fixed now.
ID:	TRESOS-4356

Summary:	**XPath function `node:refvalid` does not behave as documented**
Description:	In previous EB tresos Studio releases the XPath function `node:refvalid` did under certain circumstances account for additional restrictions of the referenced node (e.g. `RANGE`) in contrast to the documented behavior. This bug is fixed now.
ID:	TRESOS-4347

Summary:	**Disabled nodes could not be accessed with `ASPath:` pointer type expressions**
Description:	In previous EB tresos Studio releases you could not access a disabled node via an AUTOSAR path expression which starts with `ASPath:` within the `DCtxt` API. This behavior applied even if you explicitly set the option to gain access to disabled nodes via `DCtxt.opt.setExistingNodesOnly(false)`. This bug is fixed now.

ID:	TRESOS-4355

Summary:	**Template-based code generator detects missing closing tags**
Description:	In previous EB tresos Studio releases the template-based code generator did not always detect a missing closing tag. Therefore the next command was ignored. This bug is fixed now.
ID:	TRESOS-4341

Summary:	**Upward button to navigate one container upward was sometimes disabled**
Description:	In previous EB tresos Studio releases the **Upward** button in the upper right-hand corner of the generic configuration editor was erroneously disabled. This bug is fixed now.
ID:	TRESOS-4345

Summary:	**VSMD check reported violation EcucSws_6015**
Description:	In previous EB tresos Studio releases, the command `legacy vsmdcheck` sometimes reported a violation to rule EcucSws_6015 although there was no problem. Under some circumstances it did not report a real violation. This bug is fixed now. Note that this might lead to violations now which were not reported in previous releases.
ID:	TRESOS-4076

Summary:	**Warnings were not removed after you run a guided configuration wizard**
Description:	In previous EB tresos Studio releases, the verifier was not started after you run a guided configuration wizard. This behavior might lead to warnings within the **Properties** view which might already be resolved by the wizard. This bug is fixed now.
ID:	TRESOS-4084

Summary:	**Running unattended wizards now blocks the GUI**
Description:	When you executed a long running unattended wizard in previous EB tresos Studio releases, it was possible to change the configuration during the wizard run under some circumstances as the GUI was not blocked during execution. This bug is fixed now and a progress dialog is shown.
ID:	TRESOS-3995

Summary:	**Code generation in verify mode now also runs if a module configuration contains errors**
Description:	In earlier releases of EB tresos Studio you could not start code generation in verify mode if there were configuration errors, e.g. if the **Problems** view showed errors for your configuration project. Now EB tresos Studio runs the code generation in verify mode also if

the module configuration data is considered invalid. In this case the GUI does not prompt you anymore if you really want to start the code generation in verify mode. This behavior also applies to the command line in project mode, as well as for the legacy command line mode.

ID:	TRESOS-4264

Summary:	**EB tresos Studio does not contain the menu item Help -> Cheat Sheets... any more**
Description:	EB tresos Studio 23.0 accidentally had the entry **Cheat Sheets...** within the **Help** menu. When you clicked it, EB tresos Studio showed a prompt which stated that the selected operation is currently not available and an error was logged. This bug is fixed now as EB tresos Studio does not contain the menu item any more.
ID:	TRESOS-4332

Summary:	**VSMD check reports violation for rule EcucSws_6051**
Description:	In EB tresos Studio 23.0, the command `legacy vsmdcheck` sometimes reported a violation to rule EcucSws_6051 although there was no problem. This bug is fixed now.
ID:	TRESOS-4333

Summary:	**Code generation fails with message Failed to remove file tresos_generator[...].tmp**
Description:	In earlier releases of EB tresos Studio code generation failed if temporary files could not be deleted. This may have happened for example when antivirus software is scanning the file while EB tresos Studio tried to delete it. Now, code generation no longer reports an error in this situation and the file is deleted on exiting EB tresos Studio.
ID:	TRESOS-4376

Summary:	**Codetemplate console does not support all the pre-defined variables**
Description:	In earlier releases of EB tresos Studio the codetemplate console did not support all the pre-defined variables that are supported by the template-based code generator. This bug is fixed now.
ID:	TRESOS-4230

Summary:	**Template-based code generator does not handle UTF-8 characters in templates correctly**
Description:	In earlier releases of EB tresos Studio under certain circumstances, UTF-8 characters present in template files were corrupted when running e.g. `generate_swcd`. When importing the resulting ARXML files with a **System Description Importer** the error **invalid byte 3 of 3-byte UTF-8 sequence** or similar occured. This bug is fixed now.
ID:	TRESOS-4381

2.11.2. Changes/new features

Summary:	The compatibility of EB tresos Studio to Microsoft Windows 10 has been tested
Description:	The compatibility of EB tresos Studio with Microsoft Windows 10 Enterprise 2016 (Version 10.0.14393 Build 14393) has been tested.
ID:	TRESOSWP-3395

Summary:	Formula language interpreter updated to AUTOSAR revision 4.3.0
Description:	The AUTOSAR formula language interpreter, which is integrated in EB tresos Studio, now conforms closer to the refined specification of the **Generic Structure Template AUTOSAR CP Release 4.3.0**. See also the *Limitations and restrictions* section above.
ID:	TRESOSWP-3449

Summary:	The EPC File Generator can generate files for specific module types
Description:	Starting with EB tresos Studio 23.1.0, the EPC File Generator can generate configuration files for specific module types. For more information, see the EB tresos Studio developer's guide, chapter *Generating EPC files*, parameter `generateModuleTypes`.
ID:	TRESOSWP-3390

Summary:	Upgrade module configuration using the command line
Description:	Starting with EB tresos Studio 23.1.0, a new command has been added to the command line interface. It is called `upgradeModuleConfigs` and when invoked, it upgrades the module configurations of a project based on the given parameters. For more information, see the EB tresos Studio developer's guide, chapter *Upgrading module configurations for a project*.
ID:	TRESOSWP-3427

Summary:	System description importer now supports variables and glob wildcards
Description:	Starting with EB tresos Studio 23.1.0, the system description importer supports to insert relative and absolute file paths using variables and [glob](#) wildcards. For more information, see the EB tresos Studio new and noteworthy document and the EB tresos Studio user's guide, chapter *Importing AUTOSAR system descriptions*.
ID:	TRESOSWP-3398

Summary:	Improved protection against running out of Windows GUI handles in the generic editor
Description:	Starting with EB tresos Studio 23.1.0, the generic editor automatically distributes elements to additional tabs if a certain number of elements per tab is exceeded. This behavior lowers the risk of running into **SWTError: No more handles** error messages.

ID:	TRESOSWP-3406

Summary:	**New VSMD check rulesets `asc:4.1.3`, `asc:4.2.1`, `asc:4.2.2` and `asc:4.3.0`**
Description:	EB tresos Studio 23.1.0 provides new rulesets for checking Vendor Specific Module Definitions (VSMD) against the AUTOSAR specification of the revisions 4.1.3 up to 4.3.0.

For details, see the *EB tresos Studio new and noteworthy* document. |
| ID: | TRESOSWP-3394 |

Summary:	**Guided Configuration API `AbstractBackend` class provides possibility to show progress information during wizard run**
Description:	To implement a wizard in previous EB tresos Studio releases, the `doRun()` method had to be implemented. But it was neither possible to show any progress information to the user nor to cancel the process. Now the `AbstractBackend` class provides the method `doRun(IProgressMonitor)`. For information on how to display progress information and to react on cancel events, see the Javadoc of the new method. Do not implement both methods. Either implement `AbstractBackend#doRun()` or `AbstractBackend#doRun(IProgressMonitor)`.
ID:	TRESOS-3995

Summary:	**EcuExtractCreator now generates `FlatInstanceDescriptors` for any Variable-DataPrototype aggregated by an `NvDataInterface`**
Description:	In earlier releases of EB tresos Studio the **EcuExtractCreator** did not generate the `FlatInstanceDescriptors` for `NvDataInterfaces`. Now the **EcuExtractCreator** generates the `FlatInstanceDescriptors` for every variable data prototype aggregated by the `NvDataInterface` in the input hierarchical system model.
ID:	TRESOSWP-3280

Summary:	**Separate preference files for importers and exporters**
Description:	In earlier releases of EB tresos Studio sharing a workflow file between projects was difficult when the projects had importers and exporters associated with them. This issue required manual merging of importer-related and exporter-related information between `preferences.xdm` files. It was difficult due to the fact that the preferences for the various importers and exporters were saved in one `preferences.xdm` file along with other non-importer and non-exporter preferences. Starting with EB tresos Studio 23.1.0, the preferences for every importer and exporter instance are saved in a seperate file. If you import a project from an earlier version of EB tresos Studio the preferences related to importers and exporters are now automatically saved to individual preference files. Now you can share workflows between projects easily by copying these individual importer preference files to the other project with which you want to share the workflow.

ID:	TRESOSWP-3397

Summary:	**Possibility to cache calculations**
Description:	If e.g. your custom XPath function contains time-consuming or often called calculations, it is often required to have the possibility to cache the results in a thread-safe way and automatically trigger a re-calculation after a model change. For this purpose, the class `dreisoft.tresos.datamodel2.api.model.Cache<T>` was introduced which provides an easy way to do so.
ID:	TRESOSWP-3431

Summary:	**Support for ECUC condition specification**
Description:	You can now define an `ENABLE` data attribute of the `EcucCond` type for an ECUC definition element in the schema `XDM` file. With this attribute you can define the existence of ECUC parameters based on the other ECUC parameter values. A parameter with this `ENABLE` attribute is only enabled if the condition formula evaluates to true.

When the `ARXML` schema files are converted to XDM format, the ECUC condition specification in the `ARXML` files are converted to an `ENABLE` data attribute of the `EcucCond` type. The AUTOSAR formula and the ECUC query expressions are stored as part of the `ENABLE` attribute. When the `XDM` files are converted to `ARXML` files, the `ENABLE` data attribute of the `EcucCond` type is converted back to the corresponding `ARXML` element. |
| ID: | TRESOSWP-3450 |

Summary:	**XPath functions for ecuc query and formula language**
Description:	XPath functions are now available for executing the AUTOSAR formulas and ecuc query expressions. You can now execute them in the XPath console.
ID:	TRESOSWP-3467

Summary:	**Support for ECUC validation conditions**
Description:	You can now define an `INVALID` data attribute of the `EcucValidCond` type for an ECUC definition element in the schema `XDM` file. With this attribute you can describe validity constrains on a configuration. A parameter with this `INVALID` attribute is only valid if all validation formulas evaluate to true.

When the `ARXML` schema files are converted to `XDM` format, the ECUC validation conditions in the `ARXML` files are converted to an `INVALID` data attribute of the `EcucValid-Cond` type. The AUTOSAR validation formulas and the ECUC query expressions are stored as part of the `INVALID` attribute. When the `XDM` files are converted to `ARXML` files, the `INVALID` data attribute of the `EcucValidCond` type is converted back to the corresponding `ARXML` element. |

ID:	TRESOSWP-3455

2.12. Changes in version 23.0.0

2.12.1. Fixed problems

Summary:	**Automatically adapting references to a container does not work**
Description:	When you renamed a container in earlier releases of EB tresos Studio, not all references which point to or into this container were updated. This bug is fixed now.
ID:	TRESOS-4287

Summary:	**Config XDM files with named containers from pre-configurations cannot be loaded**
Description:	In previous versions of EB tresos Studio, a pre-configuration which contains a container with a changed `SHORT-NAME` could not be loaded. The error `(1133) Cannot change the readonly node...` occured in this case. This bug is fixed now.
ID:	TRESOS-4325

Summary:	**XPath function `util:generationDir` did not work in legacy mode**
Description:	In previous versions of EB tresos Studio, the XPath function `util:generationDir` always returned an empty string in legacy command line mode. This bug is fixed now.
ID:	TRESOS-4232

Summary:	**The short name in the Generic Configuration Editor was not updated after a model change**
Description:	In previous versions of EB tresos Studio, if a short name changed in the model the Generic Editor did not show the updated value in the respective group component. This occurred for instance via an API call to `DCtxt.attr.setString(...)`. This bug is fixed now.
ID:	TRESOS-4302

Summary:	**Removed default value for attribute `ReceiverComSpec.usesEndToEndProtection`**
Description:	In AUTOSAR 4.3.0, the attribute `usesEndToEndProtection` of `ReceiverComSpec` became optional. In prior releases of EB tresos Studio it was mandatory and EB tresos

	Studio automatically applied the default value `false` if it was not set explicitly. This is not the case anymore. Therefore the value remains unset - even for AUTOSAR versions prior to 4.3.0.
ID:	TRESOS-4324

Summary:	**Performance of XDM differ**
Description:	In previous versions of EB tresos Studio, it could took a lot of time to execute the action **Only show unprocessed changes** within the XDM differ. This is due to a bug within the Eclipse JFace implementation. As a workaround, the tree is now automatically collapsed and re-expanded during this action. This workaround significantly increases the performance but as a drawback, the selection inside the tree is lost.
ID:	TRESOS-4308

Summary:	**Schema nodes with calculated enablement**
Description:	In previous versions of EB tresos Studio, when you loaded a schema node with calculated enablement (XPath attribute `ENABLE`) and `postBuildVariantMultiplicity`/`multiplicityConfigClass`, the `postBuildVariantMultiplicity` and `multiplicityConfigClass` were removed automatically with the message: **The attributes postBuildVariantMultiplicity and multiplicityConfigClass may only be used for optional-, list- or choice-elements.** This bug is fixed now.
ID:	TRESOS-4297

Summary:	**Boolean XPath attributes with multiple tests**
Description:	In previous versions of EB tresos Studio, it was not possible to define multiple tests within an XDM schema file for boolean XPath attributes like `EDITABLE`. This bug is fixed now.
ID:	TRESOS-4204

Summary:	**Problems view showed wrong content**
Description:	In previous versions of EB tresos Studio, the **Problems view** showed wrong content if you selected **Export log to a file**. This bug is fixed now.
ID:	TRESOS-4292

Summary:	**Content type auto-detection**
Description:	In previous versions of EB tresos Studio, the content type of an AUTOSAR file could not be detected automatically if it starts with a huge comment. This bug is fixed now.
ID:	TRESOS-4241

Summary:	**Support `INTERVAL-TYPE` for float parameters**

Description:	In previous versions of EB tresos Studio, the XML attribute `INTERVAL-TYPE` was not supported for the `MIN/MAX` tag of float parameters. If a file contained the `INTERVAL-TYPE` attribute, an error message **Variant handling is not supported.** occured and loading the file was cancelled. This bug is fixed now.
ID:	TRESOS-3892

Summary:	**Fixed `NullPointerException` if the Error Log view was not open**
Description:	In previous releases, EB tresos Studio may have logged `NullPointerException` errors if the **Error Log** view was not open, e.g. when you tried to generate code. This bug is fixed now.
ID:	TRESOS-4284

Summary:	**Optional elements were disabled during AUTOSAR import**
Description:	In previous releases of EB tresos Studio, optional containers and parameters were disabled during import of an AUTOSAR file, if these elements were not contained in the input file. This is fixed in a way that only if you run the same importer multiple times, optional elements are now disabled which were removed from the input file.
ID:	TRESOS-4210

Summary:	**Automatic XDM file conversion for legacy config class**
Description:	For compatibility reasons, EB tresos Studio accepts in XDM files a config class for elements which represents the value config class and the multiplicity config class. When you load a file and one of these config classes cannot be applied due to the rules of AUTOSAR, it is now automatically converted to the appropriate specialized config class. As a consequence, the output of newly written XDM files may differ from previous EB tresos Studio releases. This change only affects XDM files which contain a module definition.
ID:	TRESOS-4131

Summary:	**AUTOSAR packages which contain system model and ECU configuration nodes lead to errors**
Description:	In previous releases of EB tresos Studio, `SHORT-NAME` paths could not always be resolved if its target was contained in an AUTOSAR package which contains both system model and ECU configuration data. This is fixed now.
ID:	TRESOS-4166

Summary:	**The create_epds_4xy.pl perl scripts removed the EcucDefs subpackage**
Description:	In previous EB tresos Studio releases, the Perl scripts delivered within the `<INST-DIR>/autosar/4.*` folders created files, where the standard module definitions were falsely located within the package `/AUTOSAR` instead of `/AUTOSAR/EcucDefs`. This is fixed now.

ID:	TRESOS-4270

Summary:	**Invalid relative AUTOSAR paths cannot be configured anymore**
Description:	In previous EB tresos Studio releases, you could configure a reference with an invalid relative AUTOSAR short name path. This is fixed. Now EB tresos Studio shows a verification error in this case.
ID:	TRESOS-3152

Summary:	**64-bit values are allowed when variants are resolved**
Description:	In previous EB tresos Studio releases, you could not import integer values bigger than 32-bit from a system description file when **Variant Resolving** was enabled. This is fixed. Now you can import values up to 64-bit.
ID:	TRESOS-4249

Summary:	**Error Log view and Problems view support line breaks**
Description:	In previous EB tresos Studio releases, the details dialog of the **Error Log** view and the **Problems** view did not display line breaks contained in the actual error message. This is fixed now.
ID:	TRESOS-4223

Summary:	**Search result view improved**
Description:	In previous EB tresos Studio releases, the **Search** view was cleared after you renamed or reloaded the project. But it still displayed the number of nodes found by the last search. This is fixed now. Additionally, you can now re-run the last searches.
ID:	TRESOS-3947

Summary:	**License checks failed for single user licenses after setting the license preferences**
Description:	In previous releases EB tresos Studio may have falsely reported license errors after you had set the license preferences in the GUI although you had correctly activated your single user license code. This bug is now fixed.
ID:	TRESOS-4238

Summary:	**Code generator Java API does not provide the variable `generationPaths` properly**
Description:	In EB tresos Studio 22.0, the order of entries in the `generationPaths` variable was not the same as in the `generateConfigs` variable. This behavior applied only if you retrieved these variables using the Java API class `CodeGeneratorContext`.
ID:	TRESOS-4237

Summary:	**Template-based code generators now also work for JAR file plug-ins**

Description:	In previous releases of EB tresos Studio template-based code generators only worked for directory plug-ins, but not for JAR file plug-ins. This behavior applied only if the plug-in was not signed.
ID:	TRESOS-4242

2.12.2. Changes/new features

Summary:	**Eclipse platform updated from Luna to Neon**
Description:	The platform on which EB tresos Studio 23.0 is built upon was updated from Luna (3.8.0) to Neon (4.6.2).
ID:	TRESOSWP-3290

Summary:	**Update of Java Runtime Environment**
Description:	EB tresos Studio is now delivered with an updated Oracle Java Runtime Environment and now runs with version 1.8.0_121.
ID:	TRESOSWP-3363

Summary:	**Improved Create Support Package dialog**
Description:	In previous versions of EB tresos Studio you could only influence the content of the support package on a very rough basis. Now you can select each item that shall be contained in the support package. You can also create a support package if a project does not exist, so you can send a system report, **Error Log** entries, and a list of licensed features to the customer support team. In the **Create Support Package** dialog you can add information for several (non-closed) projects to the support package which include also linked resources as importer input files, external configuration files, and external generation files.
ID:	TRESOSWP-3294

Summary:	**Guided configuration wizards may now run even if there are validation errors**
Description:	In previous versions of EB tresos Studio you could only run a guided configuration wizard if no validation errors were present. Now you can configure the backend class to be able to run also in case of validation errors. The `AbstractBackend` class provides a new method `doIsRunPossible()` which you can overwrite to change the default behavior.
ID:	TRESOSWP-3338

Summary:	**Removed ECU Configuration from importers**
Description:	In previous versions of EB tresos Studio it was possible to import the ECU Configuration during importer runs (e.g. DBC, Fibex, ...). Now you can now use the unattended wizard

	Create ECU Configuration for that purpose. In addition to that it is now possible to start ECU Configuration import from the commandline, use it inside workflows and also in MultiTask wizards.
ID:	TRESOSWP-3291

Summary:	**Removed DBC attribute definition files (DADF) support**
Description:	In previous versions of EB tresos Studio it was possible to refine the configuration of messages and signals of DBC files by so-called DBC attribute definition files. EB tresos Studio does not support refining DBC imports using such files anymore. For processing attributes in DBC files, import customizations can be used instead.
ID:	TRESOSWP-3291

Summary:	**Removed option to filter for Can IDs**
Description:	In previous versions of EB tresos Studio it was possible to specify ranges of CAN-IDs that you do not wanted to import. It was possible to enter multiple IDs or ID-ranges separated by semicolons, e.g. 0-10;0x12;0x14-0x16;. EB tresos Studio does not support this anymore. Therefore also the system property available on the commandline `canIdFilterValueDBC` is removed. For filtering CAN-IDs, import customizations can be used instead.
ID:	TRESOSWP-3291

Summary:	**Performance optimized when loading and importing huge files**
Description:	Performance of loading and importing huge ARXML, EPC, and XDM files was improved significantly, depending on the file size and the contained data.
ID:	TRESOS-4199

Summary:	**EcuExtractCreator now copies the attributes of the SwDataDefProps from the user-defined FlatInstanceDescriptor to its equivalent FlatInstanceDescriptor in the ECU Extract**
Description:	In earlier releases of EB tresos Studio the **EcuExtractCreator** assigned only the name of the user-defined `FlatInstanceDescriptor` to its equivalent `FlatInstanceDescriptor` in the ECU Extract. Now the **EcuExtractCreator** copies the allowed attributes of the `SwDataDefProps` from the user-defined `FlatInstanceDescriptor` to its equivalent `FlatInstanceDescriptor` in the ECU Extract.
ID:	TRESOSWP-3289

Summary:	**EcuExtractCreator now marks FlatInstanceDescriptors with a custom SDG attribute**
Description:	Now the **EcuExtractCreator** marks `FlatInstanceDescriptors` in the Ecu Extract model with a custom SDG attribute, if there is an equivalent `FlatInstanceDescriptor` in the hierarchical system model.
ID:	TRESOSWP-3292

Summary:	**EcuExtractCreator now merges TextTableMappings of DataPrototypeMappings**
Description:	In previous versions of EB tresos Studio during the creation of an ECU Extract, `DataPrototypeMappings` that contain `TextTableMappings` were not merged. Now EB tresos Studio merges `TextTableMappings` when a string of connectors is unrolled.
ID:	TRESOSWP-3100

Summary:	**EB tresos Studio supports AUTOSAR 4.3.0**
Description:	EB tresos Studio provides support for the relevant parts of the system model and ECU configuration of AUTOSAR release 4.3.0. You may now import and export system description and ECU configuration ARXML files up to AUTOSAR 4.3.0.
ID:	TRESOSWP-3192

Summary:	**EcuExtractCreator now handles ClientIdDefinitions**
Description:	In earlier releases of EB tresos Studio the **EcuExtractCreator** ignored the ClientIdDefinitions specified in the hierarchical system model. Now the **EcuExtractCreator** copies the ClientIdDefinitions from the hierarchical system model to the ECU Extract flattened model and adapts the references to point to the flattened model.
ID:	TRESOSWP-3293

2.13. Changes in version 22.0.0

2.13.1. Fixed problems

Summary:	**Guided Configuration API method MementoOperationHandler.commitTransaction() now returns true on success**
Description:	In previous releases of EB tresos Studio the method `MementoOperationHandler.commitTransaction()` of the Guided Configuration API returned `false` on success and `true` on error. Now the method returns `true` on success and `false` on error, as described in the Javadoc of the method.
ID:	TRESOS-4211

Summary:	**Save button not enabled after you changed the variant condition**
Description:	The **Save** button was not always enabled after you changed the variant condition for an element which is not part of the current variant after the change. This bug is fixed now.
ID:	TRESOS-4033

Summary:	**Code generation fails with error message "Failed to remove file ..."**
Description:	After you ran code generators, an error message such as **Failed to remove file C:\Users\YourName\ebtresos12...3\tresos_generator57...8.tmp** might occur in earlier versions of EB tresos Studio. This bug is fixed now.
ID:	TRESOS-3959

Summary:	**Fixed performance issues when you imported ECU configuration data from the system model**
Description:	If you triggered the **ECU Configuration Import** unattended wizard, you may have experienced performance issues. For example these issues occurred if you automatically configured your COM stack modules with data of the system model and many configuration containers had to be created in the process. This bug is fixed now and the performance improved.
ID:	TRESOS-4111

Summary:	**Error while loading: "Cannot find MODULE-DEF refered to by..."**
Description:	Under seldom circumstances during project load or legacy generate on the command line an error message like **Cannot find MODULE-DEF refered to by...** might occur in earlier versions of EB tresos Studio. This bug is fixed now.
ID:	TRESOS-4193

Summary:	**Code generators executed despite verification errors in post-build variant projects in command line mode**
Description:	If you triggered the code generation for post-build variant projects using the command-line, EB tresos Studio executed code generators for post-build variants other than the currently active one even if these variants had verification errors. This bug is fixed now.
ID:	TRESOS-4173

Summary:	**Fixed import strategy Replace of AUTOSAR Importer**
Description:	In versions prior to 22.0, when you used the **Replace** import strategy inside the **AUTOSAR Importer**, EB tresos Studio did not replace the current configuration with the given input file. This bug is fixed now. Therefore the outcome of the importer run now differs from the outcome prior to version 22.0 when you use the strategy **Replace**.
ID:	TRESOS-3945

Summary:	**Fixed `NullPointerException` when you configure a System Description Exporter without selecting an AUTOSAR version**

Description:	In earlier versions of EB tresos Studio, if you tried to configure a **System Description Exporter** without selecting an AUTOSAR version and you applied this exporter configuration, EB tresos Studio issued a `NullPointerException`. This problem is fixed. Now the latest supported AUTOSAR version is preselected when you create a **System Description Exporter**.
ID:	TRESOS-4145

Summary:	**Problems view did not show expected error markers**
Description:	In earlier releases, EB tresos Studio did not show the expected error markers of configuration nodes in all cases in the **Problems** view. This bug is fixed now.
ID:	TRESOS-4161

Summary:	**Fixed NullPointerException in the legacy commands**
Description:	In earlier releases, EB tresos Studio reported an error like **java.lang.NullPointerException: null** on the command line for different commands like `legacy convert` or `legacy vsmd`. This behavior occurred if you specified an output file name without explicitly defining the file content type, and for which EB tresos Studio could not derive the content type from the file extension. Now EB tresos Studio reports an error message like **The content type could not be detected for extension of file FrTSynStub40.xdm.m4** instead.
ID:	TRESOS-4167

Summary:	**Removed some limitations of the XPath function `node:fallback`**
Description:	In former releases of EB tresos Studio, the `node:fallback` function had some limitations. Due to these limitations you could not even use the function for some common use cases. Now you can avoid these limitations when you define the expression to be evaluated as a string prefixed with `->;`. For examples, see the EB tresos Studio developer's guide.
ID:	TRESOS-4164

Summary:	**Fixed incorrect multiplexer configuration in the DBC Importer**
Description:	In former releases of EB tresos Studio, the DBC Importer created invalid multiplexer segments if the following conditions are true:
	► The option **Configure Selector Fields in MUX PDUs as signal** is set to **AUTOSAR compliant mapping**.
	► At least one CAN frame contains two mode-dependent signals that start at the same bit offset.
	► These mode-dependent signals are associated with different modes.
ID:	TRESOS-4186

Summary:	**Generators can now consider generation output folders individually configured for BSW modules.**
Description:	In former releases of EB tresos Studio, generators were not able to consider generation output folders individually configured for a BSW module. This option is now available via variables, XPath functions and Java API.
ID:	TRESOS-4157

Summary:	**Result of XPath expressions is not cached for invalid cases anymore in the template-based code generator**
Description:	In previous versions of EB tresos Studio, the result of XPath expressions was cached and reused in some cases where this is not valid.
	This problem occurred in the template-based code generator only if the context node did not change between the invocations, and only if no variable was accessed using the `$` operator. Also this problem is restricted to expressions in the following code generator commands (excluding the body where it exists):
	▶ `ASSERT`
	▶ `INFO`
	▶ `WARNING`
	▶ `ERROR`
	▶ `MACRO`
	▶ `CALL`
	▶ `FOR`
	▶ `IF` and `ELSEIF`
	▶ `WHEN`
	▶ `INCLUDE`
	Expressions for which the result is directly inserted (`[!"<expression>"!]`) are not affected. Also, one XPath expression which is evaluated for each iteration of a `LOOP` / `SELECT` is not affected as the context node changes for each iteration.
	In most cases, reusing a cached result instead of repeatedly evaluating the same expression is valid. Problems only occur if the expression uses an XPath function that either has a side effect, e.g. increasing a counter, or where the result does not solely depend on the parameters of the function and the data model, e.g. a time stamp. **Out of the XPath functions shipped with EB tresos Studio, only `var:defined` is affected.**
	Consequently, e.g. the following code did not have the correct result as the content of the second `IF` was also contained in the output:

```
[!IF "not(var:defined('X'))"!]
  [!VAR "X"="'someValue'"!]
[!ENDIF!]

[!IF "not(var:defined('X'))"!]
  This is a bug! Variable is: [!"$X"!]
[!ENDIF!]
```

This problem is fixed now. Note that, to be on the safe side, all XPath functions that are not explicitly known to be cacheable are excluded from caching now.

ID:	TRESOS-4218

2.13.2. Changes/new features

Summary:	**Comments tab is available in the Properties view**
Description:	When you select a configuration element the **Comments** tab is now available in the **Properties** view in EB tresos Studio. In the **Comments** tab you can view or edit comments for the current selected node.
ID:	TRESOSWP-2601

Summary:	**Improved performance of configuration verification**
Description:	In earlier releases, EB tresos Studio only used multiple CPU cores for the verification of module configurations if you had enabled the preference option **Enable continuous verification**. Now EB tresos Studio always uses multiple CPU cores for the verification of module configurations. Besides that, this release contains several optimizations which improve the overall performance of the configuration verification. Since the verification is a mandatory part of the code generation, these improvements reduce the time for code generation as well.
ID:	TRESOSWP-3177

Summary:	**Systems of category `ECU_EXTRACT` can now be selected**
Description:	In earlier releases, EB tresos Studio only displayed `System` elements which were not of *category* `ECU_EXTRACT` in the project properties dialog. Now you can select any `System` element that does not reside within the *package* with the short name path `/EcuExtract/`. This package is reserved for the `System` created by the **Create an ECU Extract** unattended wizard. Note that you still need to run the **Create an ECU Extract** unattended wizard if you configure an Rte in your project.

ID:	TRESOSWP-3243

Summary:	**Result of AUTOSAR Im-/Exporter with strategy Merge changes**
Description:	In versions prior to 22.0, when you used the **Merge** import strategy inside AUTOSAR Im-/Exporter, EB tresos Studio replaced parameters with their default values if previously imported parameters were not part of the import file anymore. This behavior only occurred if you used the same importer.

Now parameters remain as they are. The only exception is that a list entry is removed if it was imported by the same importer in an earlier run and is not contained in the input files anymore. |
| **ID:** | TRESOS-4163 |

Summary:	**Importers now support relative file paths**
Description:	Importers (AUTOSAR, DBC, LDF, Fibex, TDB and Oil Importer) now support absolute and relative paths that may contain variables. Relative paths are resolved based on the project location. When you select a file via browse dialog that is located inside the project, the path is automatically converted into a project relative path.
ID:	TRESOSWP-3170

Summary:	**Guided Configuration API: new methods for class MementoOperationHandler to unset an attribute**
Description:	There are already methods to unset an attribute using the Memento class. But the MementoOperationHandler class which provides undo/redo functionality did not support removing an attribute. Now the MementoOperationHandler class provides the methods `unsetAttribute(Memento memento, String attributeName)` and `unsetAttribute(String path)` to unset an attribute including undo/redo support.
ID:	TRESOSWP-3239

Summary:	**Allow to change the column head of a SWTTable and SWTTreeTable during runtime**
Description:	Now it is posible to change the name of the column of a SWTTable and SWTTreeTable during runtime. Use SWTColumnDescription.setName(String) to set a new name for a specific column.
ID:	TRESOSWP-1884

Summary:	**Batch mode introduced to execute multiple commands**
Description:	Each time you want to execute a command line command, you must restart EB tresos Studio. When you execute many commands, this may be very time consuming. Therefore, the `batch` command was introduced to execute any number of commands at the command line while you start EB tresos Studio just once.

ID:	TRESOSWP-3158

Summary:	**Wildcard support for legacy command line added**
Description:	Now you can use wildcards for input files of the commands `legacy convert` and `legacy generate` to match multiple files with one specified wildcard file name.
ID:	TRESOSWP-3158

Summary:	**Support for custom attributes**
Description:	You can now add custom attributes like **Labels** to a configuration data node in the **Properties** view. You can search for custom attributes and their values in the **ECU Configuration Search**. You can register new custom attributes via the extension point `dreisoft.tresos.datamodel2.api.plugin.customattribute`. You can use the DCtxt API methods `Any.getCustomAttributeValues()` and `Any.setCustomAttributeValues()` to get and set the values of a custom attribute. Use `Any.isCustomAttributeValueSet()` to check whether a node actually has some attribute set. You can also use the XPath functions `custAttr:getValues` to retrieve the values of a custom attribute, e.g. within a code generator template.
ID:	TRESOSWP-3173

Summary:	**EB tresos Studio now adapts the references when you rename a container**
Description:	In earlier releases of EB tresos Studio, when you renamed a container, the references that refer to this container were not updated automatically. Now, when you rename a container, an **Adapt references** dialog is displayed with which you can decide to adapt or not to adapt the references. This dialog also allows you to save your decision, so that you do not need to specify your choice every time. Alternatively you can use the **Preferences EB tresos Studio** window to modify and save your decision.
ID:	TRESOSWP-2971

Summary:	**The generated ECU Extract can be automatically exported**
Description:	Now you can choose to export the generated ECU Extract into the `EcuExtract.arxml` file in the `systemmod` directory of the current project when you use the **Create an ECU Extract** unattended wizard. This behavior is enabled by default.
ID:	TRESOSWP-3233

Summary:	**`tresos_cmd.bat` returns EB tresos Studio process return code**

Description:	If you start the command line mode of EB tresos Studio, the return code of the `tresos_cmd.bat` script is now always the return code of the EB tresos Studio Java process.
ID:	TRESOSWP-3247

Summary:	**Multiple instances of unattended wizards are now sorted alphabetically**
Description:	Multiple instances of unattended wizards configurations are now listed in alphabetical order. This applies to the main menu and the toolbar menu, as well as the **Unattended Wizards** dialog. Until now, the sorting was done only by the type of wizard, but not within multiple instances of the same wizard.
ID:	TRESOSWP-3251

Summary:	**Improvements in Edit PostBuildVariants wizards**
Description:	There are now two wizards available in the **Sidebar** view to edit loadable and selectable variants: **Edit Loadable PostBuildVariants** and **Edit Selectable PostBuildVariants**. With the wizards you can now also create, delete, and rename criterions, and configure references between criterions and variants. You can see all variant configurations at a glance in the variant configuration matrix.
ID:	TRESOSWP-3214

2.14. Changes in version 21.0.0

2.14.1. Fixed problems

Summary:	**Wrong error messages about nodes to exist multiple times**
Description:	Under certain circumstances EB tresos Studio 20.1.0 reported wrong error messages like **(95015) The node <SomeNodePath> exists multiple times in this variant - please adapt the variant condition**. This behavior happened e.g. if in an XDM file parameters within a list had equal name attributes. These parameters are not supposed to have name attributes at all. Now EB tresos Studio does not report an error in this situation any longer, like in releases prior to 20.1.0.
ID:	TRESOS-4148

Summary:	**Errors during code generation or from Guided Configuration wizards might not have been reported**
Description:	Under certain circumstances errors that occurred were not reported as expected when you generated code or executed Guided Configuration wizards. This bug is fixed now.

ID:	TRESOS-4043

Summary:	**Calculated entries are not marked as calculated in the GUI**
Description:	Nodes created by the Service Needs Editor were not marked as **calculated** and could not be distinguished from manually edited or imported nodes. This bug is fixed now.
ID:	TRESOS-4142

Summary:	**Projects with inconsistent system model could not be deleted**
Description:	In earlier releases of EB tresos Studio, if you loaded a project with an inconsistent system model, e.g. because it was used with a pre-release version of EB tresos Studio, you could not delete the project afterwards. In this case EB tresos Studio might have reported an internal error like **Problems encountered while deleting resources**. This bug is fixed now.
ID:	TRESOS-4144

2.14.2. Changes/new features

Summary:	**Removed Export system report... button**
Description:	The **Export system report...** button was removed from the **EB tresos Details** dialog. The system report is now part of the customer support package, which you can create via **Help** -> **Create Support Package...**.
ID:	TRESOSWP-3108

Summary:	**The extension point to set post-build variants now allows multiple contributions**
Description:	The extension point `dreisoft.tresos.autosar2.api.plugin.postbuildSetup` now allows muliple configurations as long as they are unique regarding the `selectableRefs` attribute. Refer to the extension point description for more details.
ID:	TRESOSWP-3153

Summary:	**Now you can search for post-build variant handling elements with the ECU Configuration Search**
Description:	Now you can search for ECU configuration elements which are subject to variant handling with the **Search** dialog. This means that you can limit the result to elements, that *may* vary between different post-build variants (formerly known as post-build selectable configuration sets). The **Search** result view displays these parameters regardless whether you actually configured any variants in your ECU configuration project or not.
ID:	TRESOSWP-3154

Summary:	**Import ECU Configuration wizard improved**
Description:	When you use different importers with enabled **ECU Configuration Import**, elements created by one importer are not removed by another importer. For example if you create Can/CanIf buffer assignments with importer A, then importer B with the enabled option *Do not create buffer assignment* does not remove these buffer assignments created by importer A. Now this scenario is also possible when you use the new unattended **Import ECU Configuration** wizard and create different instances of this wizard.
ID:	TRESOSWP-3161

Summary:	**EB tresos Studio now considers the SubElementMappings defined between composite data elements**
Description:	ECU Extract creation now merges the SubElementMappings defined between composite data elements when a string of connectors is unrolled into a single connector.
ID:	TRESOSWP-2933

Summary:	**EB tresos Studio now considers the subelement mappings defined between a data element typed by an `ApplicationDataType` and a data element typed by an `ImplementationDataType` or vice versa**
Description:	In earlier releases of EB tresos Studio, ECU Extract creation ignored subelement mappings defined between a data element typed by an `ApplicationDataType` and a data element typed by an `ImplementationDataType` or vice versa. ECU Extract creation now merges these subelement mappings.
ID:	TRESOSWP-2934

Summary:	**Improved performance when handling output of external generators**
Description:	The output handling for external generators was reworked and by that the performance improved considerably. Additionally, the reliability was improved for cases where the external generator produces messages on standard output and standard error output in parallel.
ID:	TRESOSWP-3092

2.15. Changes in version 20.1.0

2.15.1. Fixed problems

Summary:	**Insufficient information in error message**

Description:	If the module definition defines calculated attributes whose calculation formula leads to an error, the error message did not contain enough information to locate the error. This bug is fixed now.
ID:	TRESOS-4081

Summary:	**A deadlock might occur when a configuration is verified**
Description:	In earlier releases of EB tresos Studio, a deadlock might occur during verification if a parameter uses the XPath function `ecu:get` which accesses a subderivate. This bug is fixed now.
ID:	TRESOS-4099

Summary:	**An XDM schema node with an automatic ENABLE data attribute did not convert to lower-multiplicity = 0**
Description:	In earlier releases of EB tresos Studio, an XDM schema node with an automatic ENABLE data attribute did not convert to `<LOWER-MULTIPLICITY>0</LOWER-MULTIPLICITY>` within the AUTOSAR definition element as expected. This bug is fixed now.
ID:	TRESOS-4086

Summary:	**An XDM schema node with an OPTIONAL attribute and an ENABLE data attribute both set to false did not convert to lower-multiplicity = upper-multiplicity = 0**
Description:	In earlier releases of EB tresos Studio, an XDM schema node with an OPTIONAL attribute and an ENABLE data attribute both set to false did not convert to `<LOWER-MULTIPLICITY>0</LOWER-MULTIPLICITY>` and `<UPPER-MULTIPLICITY>0</UPPER-MULTIPLICITY>` as expected. This bug is fixed now.
ID:	TRESOS-4105

Summary:	**Fixed `NullPointerException` when you create an ECU Extract for a system model with ClientServerInterfaceMapping**
Description:	In earlier versions of EB tresos Studio, if you tried to create an ECU Extract for a system model which contains a chain of delegation connectors which all reference a `ClientServerInterfaceMapping` except for one connector, EB tresos Studio issued a `NullPointerException`. This problem is fixed now.
ID:	TRESOS-4080

Summary:	**Wrong validation errors in AUTOSAR Im-/Exporter due to overlength short names**
Description:	In earlier releases of EB tresos Studio, if you imported or exported ECU configuration data with schema validation enabled, validation errors may have occurred in **AUTOSAR Im-/Exporter** due to overlength short names, even though the preference option **Use AUTOSAR-compliant maximum SHORT-NAME length** was not set. This bug is fixed now.

ID:	TRESOS-4116

Summary:	**Subelement mappings are not created properly by the ECU Extract creator if one of the connectors in the connection path does not reference a `PortInterfaceMapping`**
Description:	In earlier versions of EB tresos Studio, if you tried to create an ECU Extract for a system model which contains a chain of delegation connectors which all reference a `VariableAndParameterInterfaceMapping` except for one connector, the subelement mappings created by the ECU Extract creator were not complete. This bug is fixed now.
ID:	TRESOS-4134

2.15.2. Changes/new features

Summary:	**Support for variant handling added**
Description:	EB tresos Studio now supports variant handling for ECU configuration. For more information, see the EB tresos Studio new and noteworthy document and EB tresos Studio user's guide chapter *Variant handling*.
ID:	TRESOSWP-3037

Summary:	**Reference changes when you copy a container**
Description:	When you copy a container which contains references pointing into the container itself, the references of the copied container now point into the copied container. In earlier releases of EB tresos Studio they all pointed to the original container, which was not the desired behavior.
ID:	TRESOSWP-490

Summary:	**Codetemplate console now supports pre-defined variables**
Description:	The Codetemplate console now supports the following pre-defined variables: `buildnr`, `derivate`, `ecuid`, `module`, `moduleCategory`, `moduleLayer`, `moduleReleaseVer`, `moduleSoftwareVer`, `moduleSpecVer`, `moduleType`, `project`, `projectDir`, `relversion`, `target`, `tresosBase`, `variant`.
ID:	TRESOSWP-3039

Summary:	**EB tresos Studio now always considers the default license sources**
Description:	The default license sources, e.g. the `bin` directory of your EB tresos Studio installation, are now always appended to the FlexLM license search path. These sources are appended even if you define specific license sources on the **Licenses** page of the **Preferences** dialog.

ID:	TRESOSWP-3088

Summary:	**New XPath functions to access post-build variant information**
Description:	Now the XPath API provides functions to access information about post-build variants in the ECU configuration. You can query with this new functions whether there is a currently active variant in the project and its name, how many variants are configured and their names, whether a node is able to have variants, and whether a node has variant conditions. For further information on the new XPath functions, see the EB tresos Studio developer's guide chapter *Variant functions*.
ID:	TRESOSWP-2833

2.16. Changes in version 20.0.0

2.16.1. Fixed problems

Summary:	**The Execute multiple tasks wizard freezes when you run an external command which writes more than a few lines of error output**
Description:	Earlier releases of EB tresos Studio terminated if you tried to run an external command within the **Execute multiple tasks** wizard, which wrote more than just a view lines to the error output, i.e. `stderr`. This bug is fixed now.
ID:	TRESOS-4037

Summary:	**Continuous verification blocks other actions in the GUI**
Description:	If you had the preference option **Enable continuous verification** enabled in earlier releases of EB tresos Studio, a running continuous verification blocked several other actions in the GUI, e.g. when you tried to open a guided configuration editor or a System Description Importer. This behavior was especially critical if the verification took long in your configuration project, as the GUI was effectively blocked during that time. This bug is fixed now.
ID:	TRESOS-4032

Summary:	**Paths contain invalid `SHORT-NAME` elements in System Configuration**
Description:	You can import invalid system data using a **System Description Importer** without validation. In previous EB tresos Studio versions you could select a `System` or `EcuInstance`

with an invalid SHORT-NAME in the **System Configuration** of the project properties. Now you can only select a System or EcuInstance with a valid path.

In previous EB tresos Studio versions in the **Create System and EcuInstance from TopLevelComposition** dialog you could insert invalid SHORT-NAMES for the newly created System and EcuInstance. This bug is also fixed now.

When you access the **System Configuration**, a warning is written to the ErrorLog for each invalid path of the following entitites: System, EcuInstance or TopLevelComposition.

ID:	TRESOS-4011

Summary:	**Results view of unattended wizards stays empty**
Description:	If you run an unattended wizard of type **MultiTask** which calls another unattended wizard of type **MultiTask**, the **Results** view stays empty and an error is shown in the **Error Log** view. This bug is fixed now.
ID:	TRESOS-4010

Summary:	**Improved warning message if there is no EcuInstance referenced by a System via a FibexElement**
Description:	Since EB tresos Studio 17.0, you can select a System and an EcuInstance for a configuration project within the **Project Properties** dialog. But you can can only select from any EcuInstance elements which are referenced by the selected System via a FibexElement reference. If these elements cannot be found, EB tresos Studio now displays a warning message that these EcuInstance elements need to be referenced by a System via a FibexElement.
ID:	TRESOSWP-4006

Summary:	**Fixed conversion of `CanTpConnectionChannel.targetRef` in AUTOSAR 3.2 to 4.-0 model upgrade**
Description:	In earlier versions of EB tresos Studio, the system model upgrade from AUTOSAR 3.2 to 4.0 converted the CanTpConnectionChannel.targetRef references incorrectly. This behavior occurred if the AUTOSAR 3.2 model also contained Transport Layer connections for other bus types, i.e. elements of type FlexRayTpConnection, FlexrayIsoTpConnection, or LinTpChannel. This bug is fixed now.
ID:	TRESOS-4034

Summary:	**Fixed `NullPointerException` while a customer support package is created**
Description:	If you used the **Create support package** dialog to create a customer support package, EB tresos Studio may have reported a NullPointerException to the **Error Log**. This bug is fixed now.

ID:	TRESOS-4066

2.16.2. Changes/new features

Summary:	**ECU Extract creation now automatically delegates port prototypes mapped to a system signal**
Description:	In previous versions of EB tresos Studio, port prototypes which were not delegated up to the top level composition and not connected to assembly ports were ignored and did not appear in the ECU Extract. Now such ports are automatically delegated up to the top level composition of the ECU Extract if they are referenced by a data mapping. This delegation only affects the flattened ECU Extract and not the hierarchical system model.
ID:	TRESOSWP-3055

Summary:	**The System Decription Importer can now import the AUTOSAR XML tag `TRIGGER-IREF` in `TRANSFORMER-HARD-ERROR-EVENT`**
Description:	In previous versions of EB tresos Studio if you tried to import an AUTOSAR XML file using the **System Decription Importer** which contained the XML tag `TRIGGER-IREF` inside a `TRANSFORMER-HARD-ERROR-EVENT`, the element was ignored and therefore unavailable inside EB tresos Studio. Now this element is also imported.
ID:	TRESOSWP-3048

Summary:	**Overwrite an already existing output file with an AUTOSAR exporter**
Description:	In earlier releases of EB tresos Studio, if you run an AUTOSAR exporter more than once, EB tresos Studio prompted you to overwrite the already existing output file. Now if no error occurs during export, the file is always overwritten. If an error occurs, e.g. during validation, then the file remains unchanged and a temporary file with the suffix `.temp` is written instead.
ID:	TRESOSWP-2311

Summary:	**Restructured EB tresos Studio Preferences**
Description:	The EB tresos Studio **Preferences** are restructured to be detectable more intuitively. The developer options are split up into several single preferences which precisely mention what is affected by the particular preference.
ID:	TRESOSWP-1878

Summary:	**Profiler introduced for the verifier**
Description:	Now you can locate performance problems during the verification of the configuration with a simple profiler. To enable the profiler, select the preference **Enable profiler for the ver-**

	ifier. Once the profiler is enabled, it writes profiling information to a logfile every time the verification process finishes.
ID:	TRESOSWP-3073

Summary:	**Reduced startup time**
Description:	In previous versions of EB tresos Studio, feature licenses were checked directly during startup of the tool. Depending on your specific setup, this may have increased the start-up time by several seconds or even more. Now feature licenses are checked in a back-ground job, which leads to improved startup times.
ID:	TRESOSWP-3101

Summary:	**Additional contents for customer support packages**
Description:	A customer support package, which you can create with the **Create support package** di-alog and hand over to the EB tresos Studio support, now also contains the system report. Additionally you can now include any importer input files to the package.
ID:	TRESOSWP-3065

Summary:	**EB tresos Studio supports AUTOSAR 4.2.2**
Description:	EB tresos Studio provides support for ECU Configuration of AUTOSAR release 4.2.2. Now you can import and export ECU Configuration `arxml` files up to AUTOSAR 4.2.2.
ID:	TRESOSWP-3005

2.17. Changes in version 19.0.0

2.17.1. Fixed problems

Summary:	**The ECU Extract creator still kept service components and service connectors**
Description:	If you recreated an ECU Extract in earlier versions of EB tresos Studio, all service compo-nent prototypes and connectors between service ports were preserved from the previous ECU extract. Since the workflow was changed and harmonized with EB tresos Studio 17.-0, these components and service ports now shall not be kept any more.
ID:	TRESOS-4016

Summary:	**Parameters become read-only after module upgrade**

Description:	In earlier releases of EB tresos Studio, parameters might become read-only when a module is upgraded to a newer version if the new module defined a pre-configuration. This bug is fixed now.
ID:	TRESOS-3971

Summary:	**Modules with configurations that were disabled for code generation in the GUI were not generated if specified via the `-g` command line option**
Description:	If you specified one or several modules via the `-g` command line option and configurations of these modules were disabled for code generation in the GUI, they were skipped in the command line as well in previous releases of EB tresos Studio. This behavior was not intended, as the user documentation stated that the `-g` option overrides the setting in the GUI. This bug is fixed now and the modules are generated if specified via the `-g` command line option regardless whether their configurations are enabled for code generation or not.
ID:	TRESOS-3885

Summary:	**Exceptions during an unattended wizard run were suppressed**
Description:	If exceptions occured during an unattended wizard run in earlier versions of EB tresos Studio, these were suppressed in the **Results** view. This bug is fixed now.
ID:	TRESOS-3987

Summary:	**Import of empty choice containers changed the configuration**
Description:	In earlier versions of EB tresos Studio, if you imported an ECU configuration which contains a container for a choice which does not define any chosen container for this choice, the first available container was set as the chosen container. This bug is fixed now.
ID:	TRESOS-3943

Summary:	**ASTyped references have not been correctly updated after system model change**
Description:	In earlier versions of EB tresos Studio, ASTyped references in the Generic Configuration Editor were not correctly updated after the system model was changed, e.g. when the ECU Exctract was created. This bug is fixed now.
ID:	TRESOS-3996

Summary:	**Variant-affected integer attributes not set on system import**
Description:	In earlier versions of EB tresos Studio, the value of integer attributes was not imported in the **System Description Importer** if it was expressed by a system description formula in the import file. In this case, a warning like *"Failed to set the attribute of type Long to the value ..."* was shown and the value was not imported. This bug is fixed now.
ID:	TRESOS-4002

Summary:	**Improved performance when loading system model data**
Description:	Due to a performance bug in earlier versions of EB tresos Studio, loading of system model data for the first time after EB tresos Studio was started took longer than necessary. This bug is fixed now.
ID:	TRESOS-4000

Summary:	**Entries in the Error Log view are now ordered as expected**
Description:	In earlier versions of EB tresos Studio, entries in the **Error Log** view may not have been shown in the correct order if the **Timestamp** column was configured as the sorting column. This bug is fixed now.
ID:	TRESOS-3999

Summary:	**No more warnings about failed license checks for optional features when the generic editor is opened or during code generation**
Description:	In earlier versions of EB tresos Studio, when you opened the Generic Configuration Editor or during code generation, EB tresos Studio may have reported unnecessary warning messages like *License check operation failed: No such feature exists.* in the **Error Log** view. This bug is fixed now.
ID:	TRESOS-3980

2.17.2. Changes/new features

Summary:	**Generating selected module configurations**
Description:	You can now generate selected module configurations using the context menu of the **Project Explorer** view.
ID:	TRESOSWP-2953

Summary:	**ECU Extract creation now copies the TriggerToSignalMapping from the system model to the ECU Extract model**
Description:	In previous versions of EB tresos Studio during the creation of an ECU Extract, EB tresos Studio ignored the TriggerToSignalMapping. Now EB tresos Studio creates a new TriggerToSignalMapping by transforming the TriggerToSignalMapping from the system model for the triggers present in the TriggerInterface of the delegation port.
ID:	TRESOSWP-3020

Summary:	**Check for maximum SHORT-NAME length configurable for all AUTOSAR releases**
Description:	In earlier releases of EB tresos Studio you could only configure the maximum SHORT-NAME length for AUTOSAR releases prior to 3.2. Now you can set the SHORT-NAME

length in the **Preferences** to **Use AUTOSAR-compliant maximum `SHORT-NAME` length (128 chars for AUTOSAR releases starting with 3.2, 32 chars for earlier releases)**.

ID:	TRESOSWP-3035

Summary:	**System information can now be imported into the ECU configuration by using an unattended wizard**
Description:	The **Import ECU Configuration** unattended wizard was introduced to allow the import of system description information into the ECU configuration. The wizard is available only after the system information was imported by using any of the importers.
ID:	TRESOSWP-2797

Summary:	**Data mappings can now be created for the data elements of the sender-receiver port and the operations of the client-server port.**
Description:	With the **Signal Mapping Editor** you can create data mappings for the data elements of the sender-receiver port and the operations of the client-server port. In previous versions of EB tresos Studio the data mappings were only added to the ECU extract. Because the ECU extract was potentially generated each time a system description importer was executed, for example after a re-import, all data mappings were lost. Now the Signal Mapping Editor executes these actions on the hierarchical model.
ID:	TRESOSWP-3061

Summary:	**The `atpSplitable` merge algorithm does not always merge splitable, non-matchable, multiple target elements any more**
Description:	In earlier versions of EB tresos Studio the `atpSplitable` merge algorithm always merged certain lists of elements. These lists of elements are sterotyped as `atpSplitable`, but are non-matchable, that is they have neither `UUID`, nor `SHORT-NAME`, nor `SHORT-LABEL` attributes.
	Merging these lists is not always the expected behavior. Therefore in selected use cases these lists are not merged any more.
	The new behavior fixes problems with EB tresos Studio release 18.1.0 that lead to duplicate elements created by the **System Description Importer** or the **Update Service Component and BSWM Descriptions** wizard.
ID:	TRESOS-4021

Summary:	**EB tresos Studio has a new dialog to create a customer support package**
Description:	The new dialog is called **Create support package**. Using this dialog you can create a support package that contains relevant information about your project. The dialog can be opened from the **Help** menu. The support package will always contains the files of the project, licensed features, information about installed bundles and contents from the Error

	Log and Problems view. You can select options to add information about the ECU Configuration, the System Model and the plug-ins for configured modules. The support package is a zip package with the extension ".tsp"(Tresos Support Package) that you can send to the EB tresos customer support team.
ID:	TRESOSWP-3051

2.18. Changes in version 18.1.0

2.18.1. Fixed problems

Summary:	**Fixed code generation issue in CDSGen**
Description:	In case an array of pointers was used to generate the definition of a variable, a space between the type and the name of the variable was missing. This resulted in CDSGen producing invalid C code.
ID:	TRESOS-3986

Summary:	**The XPath function `as:name` and the API method `DCtxt.getShortName()` failed for system model elements**
Description:	In previous releases of EB tresos Studio, if you tried to retrieve the short name of a referrable element outside the **ECU Configuration** model (e.g. in the **System** model) using either the XPath function `as:name`, or the method `DCtxt.getShortName()` of the Java API, either an Exception was raised or null was returned respectively. This is fixed now, and you can retrieve the short names of such elements with these API functions.
ID:	TRESOS-3988

Summary:	**System Description Exporter does not allow to configure invalid AUTOSAR versions**
Description:	If you configured a **System Description Exporter** in previous releases of EB tresos Studio, you could choose an AUTOSAR version from the list which was not valid for your configuration project. Now you can only select valid AUTOSAR versions to configure a **System Description Exporter** for your project.
ID:	TRESOS-3941

Summary:	**Improved default configuration for Calculate Derivable Values wizard**
Description:	The **Calculate Derivable Values** wizard (AutoCalcWizard) per default only recalculated the value for *calculated* nodes. Now, per default only *default* values are recalculated.

ID:	TRESOS-3963

Summary:	**Fixed handling of `QueuedReceiverComSpec` elements during model upgrade**
Description:	In earlier versions of EB tresos Studio, the system model upgrade from AUTOSAR 3.x to 4.0 issued an error if the imported system model contained `QueuedReceiverComSpec` elements which are aggregating a `DataFilter` element. This problem has been resolved. Moreover a warning is issued indicating that the `DataFilter` cannot be upgraded since AUTOSAR 4.0 does not support `QueuedReceiverComSpec` elements containing a `DataFilter`.
ID:	TRESOS-3974

Summary:	**Removed configuration of `initValue` of `PerInstanceMemory` elements during model upgrade**
Description:	In earlier versions of EB tresos Studio, the system model upgrade from AUTOSAR 3.x to 4.0 set the `initValue` of `PerInstanceMemory` elements unconditionally to "0", which caused compile errors in the generated RTE code for `PerInstanceMemory` elements that were either arrays or structures. The `initValue` of `PerInstanceMemory` elements is now left unconfigured which avoids the compile errors since no explicit initializer code is being generated. The removal of the initializer code has no effect since `PerInstanceMemory` elements are represented as static variables which are implicitly filled with zeros.
ID:	TRESOS-3981

Summary:	**EcuExtractCreator throws a null pointer exception**
Description:	In EB tresos Studio 18.0, if you tried to create an `EcuExtract` for a **System** that contains both `ClientServerToSignalMapping` and `SenderReceiverToSignalGroupMapping`, a `NullPointerException` was raised. This bug is fixed now.
ID:	TRESOS-3991

2.18.2. Changes/new features

Summary:	**CDSGen support for modifiers**
Description:	The C Data Structures Generator now offers support for adding C modifiers to variables and type definitions. The CType class now provides the addModifier method by which users can add the desired modifier for the generated variable or type. The new CModifier enum provides support for three C modifiers (static, extern and volatile).
ID:	TRESOSWP-3015

Summary:	CDS support for external type definitions
Description:	The C Data Structures Generator now offers support for external type definitions. If you use CDS, but do not want the CDSGen to generate a type definition for a certain class, e.g. if generated code is mixed with already written C code, it can implement the marker interface IExternalType. If you generate type definitions for a complex object, the CDS skips CType instances which also implement IExternalType.
ID:	TRESOSWP-3016

Summary:	CDS support for symbolic names
Description:	The C Data Structures Generator now offers support for symbolic names in case of primitive types. The provided data types can now implement the ISymbol interface and its getSymbolName method in order to specify that the C variable is initialized with the respective symbol name.
ID:	TRESOSWP-3017

Summary:	The Outline view now provides the possibility to expand and collapse nodes
Description:	The Outline view now provides tool bar buttons and context menu entries to expand and collapse the node hierarchy for selected nodes. If no node is selected in the Outline view and the tool bar buttons are used, the complete tree is expanded or collapsed.
ID:	TRESOSWP-2987

Summary:	Each list with the same name is placed in a separate tab now
Description:	In previous releases of EB tresos Studio lists with the same name were placed in the same tab. Due to this behavior it was easy to mix them up and to configure the wrong list. Now, each list is placed in its own tab, which has an unique name.
ID:	TRESOS-3072

Summary:	The Properties view now shows the information of the edited table cell
Description:	In previous EB tresos Studio releases, the **Properties** view always showed the information of the selected row from a table within the Generic Configuration Editor even if you were editing only one specific cell. Now, the information of the currently edited cell is displayed instead.
ID:	TRESOS-2983

Summary:	EB tresos Studio now supports the export of UUID attributes
Description:	Starting with this release the **System Description Exporter** provides an option to export UUID attributes.
ID:	TRESOSWP-2988

Summary:	**Fibex Importer now supports BMW manufacturer extension schema version 0.5**
Description:	Starting with this release the **Fibex Importer** supports the validation of Fibex instances against BMW manufacturer extension schema version 0.5.
ID:	TRESOSWP-2991

Summary:	**Detailed messages are now selectable and copyable**
Description:	Detailed messages in **Error Log Entry Details**, **Problems View Entry Details**, and **Message Details** dialogs are now selectable and copyable.
ID:	TRESOSWP-2992

Summary:	**Pre-Configuration and Recommended Configuration now available during legacy generate and legacy make commands**
Description:	You can now use **Pre-Configuration** and **Recommended Configuration** of existing module plugins for the `legacy generate` and `legacy make` commands on the command line. For more details, see the chapter *Commands for legacy code generation* in the EB tresos Studio user's guide.
ID:	TRESOS-3856

Summary:	**Specific generation path for each module configuration in Module Configurations**
Description:	You can now configure specific code generation output paths for each module configuration.
ID:	TRESOSWP-2952

Summary:	**Model upgrader issues a warning if the invalidation policy of a `SenderReceiverInterface` cannot be determined**
Description:	If the model upgrader detects a `SenderReceiverInterface` which contains a data element that has one or more `UnqueuedSenderComSpec` elements assigned, but no `UnqueuedReceiverComSpec`, a warning is issued: Since the data element has one or more `UnqueuedSenderComSpec` elements assigned, it is likely that the upgraded data element requires an invalidation policy. However, if no `UnqueuedSenderComSpec` is available, it is impossible to determine the kind of invalidation policy that must be configured. If an invalidation policy is required in these cases, it must be added by hand.
ID:	TRESOS-3952

Summary:	**EB tresos Studio supports AUTOSAR 4.2.2**
Description:	EB tresos Studio provides support for the relevant parts of the system model for the AUTOSAR release 4.2.2. You may now import and export system description `arxml` files up to AUTOSAR 4.2.2.

ID:	TRESOSWP-3003

2.19. Changes in version 18.0.0

2.19.1. Fixed problems

Summary:	**Fixed exception if an AUTOSAR ECU configuration file was written with an empty `ADMIN-DATA`**
Description:	If you tried to write an AUTOSAR ECU configuration file from a datamodel that contained an empty `ADMIN-DATA` element in its XDM file in earlier EB tresos Studio releases, an `Array index out of range` exception was shown. This behavior occured e.g. if you used the **legacy convert** command on the commandline or the **AUTOSAR Im-/Exporter** in export mode. This bug is fixed now.
ID:	TRESOS-3930

Summary:	**Duplicated and incomplete errors in commandline mode**
Description:	In earlier versions of EB tresos Studio, code generation via commandline printed out every error and warning twice if the configuration contained at least one verification problem. Additionally the verification stopped after the first module that contained verification problems. Therefore this behavior gave the impression that the commandline mode does not detect all errors. This bug is fixed now.
ID:	TRESOS-3922

Summary:	**Renaming a project is not possible while a guided configuration editor is open**
Description:	Now it is not possible to rename a project while a guided configuration editor is open. If you try to rename a project while a guided configuration editor is open, an error message prompts you to close the wizard first before you try to rename the project again.
ID:	TRESOS-3927

Summary:	**Parameters with configuration class `PreCompile` or `Link` were still editable at Post Build configuration time**
Description:	If you configured your project in previous releases of EB tresos Studio for configuration time **Post Build** only, parameters with configuration class `PreCompile` or `Link` were still editable in the Generic Configuration Editor under certain circumstances. This behavior occured if a Multiple Configuration Container contained these parameters directly or indirectly. This bug is fixed now.

ID:	TRESOS-3886

Summary:	**Empty reload results dialog**
Description:	In previous releases, EB tresos Studio may have opened an unexpected **Reload results** dialog with a message like **(11124) No changes to reload for project "<YourProject>"**, e.g. after you had just configured an importer. This bug is fixed now.
ID:	TRESOS-3820

Summary:	**Generic Configuration Editor failed to handle whitespaces for string parameters in tables**
Description:	In previous releases of EB tresos Studio, the Generic Configuration Editor did not handle whitespaces of string parameters in a table correctly. This bug is fixed now.
ID:	TRESOS-3831

Summary:	**EB tresos Studio does not falsely report errors any more**
Description:	In previous releases, EB tresos Studio under certain circumstances reported false error messages like **Path ASPath:/TS_T2D17M10I0R0/Resource/ResourceGeneral/ResourceSubderivative does not point to a SchemaNode**. This occured e.g. if you run a **Calculate Handle IDs** unattended wizard. This bug is fixed now.

As these error messages may be helpful during module development, you can enable them again if you apply the `-debug` switch when you start EB tresos Studio. |
| ID: | TRESOS-3817 |

Summary:	**Calculate Derivable Values wizard now only recalculates values for enabled module configurations**
Description:	In previous EB tresos Studio releases the **Calculate Derivable Values** wizard recalculated values for all module configurations of the currently selected project. Now only values for enabled module configurations are calculated. Therefore you can control for which module configuration the wizard shall calculate values by enabling and disabling module configurations.
ID:	TRESOS-3223

Summary:	**Undo/Redo for MementoOperationHandler.unsetMemento was broken if the parent contained multiple children**
Description:	If `dreisoft.tresos.guidedconfig.api.gui.databinding.MementoOperationHandler.unsetMemento(Memento)` or `dreisoft.tresos.guidedconfig.api.gui.databinding.MementoOperationHandler.unsetMemento(String)` was used in previous EB tresos Studio releases and the operation was reverted via **Undo**, the removed Memento was not added at its former

	position in the children list of its parent Memento. Instead, the removed Memento was added as last child. This behavior caused additional problems if **Redo** was used. Now, **Undo** and **Redo** work as expected.
ID:	TRESOS-3882

Summary:	**File names with blanks do not lead to an Invalid filename! error any more**
Description:	In previous releases, EB tresos Studio falsely reported the error **Invalid filename!**. This behavior occured e.g. if you entered a valid file name with blanks via the **Browse...** button in the **Module Configurations** dialog. This bug is fixed now.
ID:	TRESOS-3915

Summary:	**Error log entries from exceptions within NG Generator JET templates did not provide enough information**
Description:	In previous releases of EB tresos Studio, the NG Generator API did not provide sufficient trace output if an exception occured in the Java code of a JET template. This bug is fixed now.
ID:	TRESOS-3916

2.19.2. Changes/new features

Summary:	**EB tresos Studio now uses Java 8**
Description:	Starting with this release EB tresos Studio is built on and runs with Java 8 (v. 1.8.0_45).
ID:	TRESOSWP-2793

Summary:	**EB tresos Studio does not provide support for 32-bit Windows operating systems any longer**
Description:	Starting with this release EB tresos Studio requires a 64-bit Windows operating system.
ID:	TRESOSWP-2949

Summary:	**Non-existing files are not removed automatically from System Description Importer file list anymore**
Description:	If you selected a **System Description Importer** in the **Create, manage and run im- and exporters** dialog in previous EB tresos Studio releases, all files that no longer existed would have been removed automatically from the list. Now these files are not removed automatically anymore. You are notified that one or more files no longer exist. In this case you cannot run the importer until the input file list is revised.
ID:	TRESOSWP-2652

Summary:	Custom memento operations can be executed using `MementoOperationHandler.execute(AbstractMementoOperation)`
Description:	The Guided Configuration API was extended to allow custom operations to be implemented. These operations can be executed using the `dreisoft.tresos.guidedconfig.api.gui.databinding.MementoOperationHandler.execute(AbstractMementoOperation)` method. Such operations are included in the **Undo/Redo** stack and can be part of a transaction. Such a custom operation must extend `dreisoft.tresos.guidedconfig.api.memento.AbstractMementoOperation`.
ID:	TRESOSWP-2925

Summary:	The label of an integer parameter with a range now changes with the radix
Description:	In the Generic Configuration Editor, a label on the left side of an integer input field now shows its configured min/max range using the currently selected radix. If the displayed range of the configured radix is too large for the label, a tooltip is added to the label which always shows the whole label text. For example big ranges and the `BIN` radix do not fit on the label.
ID:	TRESOSWP-2912

Summary:	The initial size for guided configuration wizards of type dialog can now be specified
Description:	Now you can specify the initial size of guided configuration dialogs with the optional attributes `width` and `height` in the `dreisoft.tresos.guidedconfig.api.plugin.trigger` extension point. Correct values for the attributes are integers greater than zero.
ID:	TRESOSWP-2944

Summary:	Public API Generators like e.g. the NG Generator can now be configured to not create empty files
Description:	Until now, empty files were always created. To be able to prevent creating empty files, a new parameter `createEmptyFiles` was added to the `dreisoft.tresos.generator.api.plugin.generator` extension point. If this parameter is either not set at all, or is set to `true`, the code generator creates empty files as it used to. If you set it to `false`, no empty files are created by this Public API Generator.
ID:	TRESOSWP-2935

Summary:	Rename projects at the commandline
Description:	You can now use the new command **renameProject <project> <newProject>** to rename an existing project at the commandline.
ID:	TRESOSWP-2954

2.20. Changes in version 17.1.0

2.20.1. Fixed problems

Summary:	**Fixed bad verifier performance when modules use the XPath function lic:feature for non-licensed features**
Description:	If in EB tresos Studio 17.0.0 modules used the XPath function **lic:feature** extensively and the requested features were not licensed, the configuration verifier took very long. This error is fixed now.
ID:	TRESOS-3895

Summary:	**System Description Importer falsely denoted the supported AUTOSAR 4.2.1 meta model version as PRELIMINARY**
Description:	In EB tresos Studio 17.0.0 support for the final AUTOSAR 4.2.1 meta model revision was added. However, the **System Description Importer** still displayed **AUTOSAR 4.2.1 (XSD Document Version PRELIMINARY, xmlns="http://autosar.org/r4.0")**. This error is fixed now.
ID:	TRESOS-3890

2.20.2. Changes/new features

Summary:	**ECU Extract creation now copies the ClientServerToSignalMapping from the System model to the ECU Extract model**
Description:	In previous versions of EB tresos Studio during the creation of an ECU Extract, EB tresos Studio ignored the ClientServerToSignalMapping. Now EB tresos Studio creates new ClientServerToSignalMapping for every operation present in the ClientServerInterface of the Delegation port.
ID:	TRESOSWP-2918

Summary:	**ECU Extract creation now allows the subelement mapping of a structure to another structure**
Description:	In previous versions of EB tresos Studio during the creation of an ECU Extract, EB tresos Studio ignored the subelement mapping of a structure to another structure. Now EB tresos Studio copies the subelement mapping of structures and merges it during the ECU Extract creation.

ID:	TRESOSWP-2882

2.21. Changes in version 17.0.0

2.21.1. Fixed problems

Summary:	**Automatical detection of files content type in AUTOSAR ECU configuration importer**
Description:	In previous releases of EB tresos Studio, when selecting a file within the **AUTOSAR importer**, EB tresos Studio could not automatically detect the content-type for files ending with .ARXML. This bug is fixed now and EB tresos Studio automatically selects the content type in the combobox below the file-selection text field.
ID:	TRESOS-3854

Summary:	**Use -debug switch to get more information about NGGenerator errors**
Description:	If an error occurs while the build file of an NGGenerator is executed, you can use the -debug switch to get more detailed information about the error. For further information on using the -debug option, see the EB tresos Studio developer's guide chapter **Generating code**.
ID:	TRESOS-3597

Summary:	**AUTOSAR Importer does not show all calculated path mapping entries**
Description:	In previous releases of EB tresos Studio, the AUTOSAR importer for ECU configurations did not show all automatically calculated path mappings once it has been enabled. This bug is fixed now.
ID:	TRESOS-3842

Summary:	**Validate against XML schema is now possible in the System Description Importer if different AUTOSAR meta models versions are auto-detected**
Description:	In previous versions of EB tresos Studio, you could not enable the **Validate against XML schema** option in the system description importer, if your input files had different meta models versions and the option **Auto detect for each file** was set. EB tresos Studio showed the error message **"Different meta model versions are detected for the given files. You may disable the XML Schema validation for importer run."** and you could not run the importer. This bug is fixed now.

ID:	TRESOS-3849

Summary:	**Fixed the Create ECU configuration from system description dialog**
Description:	If you tried to open the **Create ECU configuration from system description** dialog in EB tresos Studio 16.0, an SWTException occurred with *Invalid thread access* and you could not select any module configurations to configure in the dialog. This bug is fixed now.
ID:	TRESOS-3845

Summary:	**Sorting of ECU configuration container values according to the AUTOSAR specification** `[ecuc_sws_6067]`
Description:	AUTOSAR 4.0.3 specifies that module configuration containers shall be sorted by their short names. Starting with AUTOSAR 4.1.3, containers shall be sorted by the index attribute, provided the attribute requiresIndex is set to true in the container definition. Otherwise the containers shall be sorted by their short names. In prior releases of EB tresos Studio, containers were not always sorted according to the AUTOSAR specifications. This bug is fixed now.
ID:	TRESOS-3830

Summary:	**Disabling a Guided Configuration table disables its scrollbar too**
Description:	If a table control of the Guided Configuration API was disabled in prior releases of EB tresos Studio, its scrollbars were also disabled. Thus, only some of the content was visible for the user. This bug is fixed now. You can now use the scrollbar of disabled Guided Configuration tables and read all the data.
ID:	TRESOS-3432

Summary:	**ErrorLog view shows wrong time stamps**
Description:	In prior releases of EB tresos Studio the **ErrorLog** view sometimes contained entries with a wrong time stamp. The time stamp could even lie in the future. This bug is fixed now for newly created log entries.
ID:	TRESOS-3765

Summary:	**Project could not be deleted after API usage**
Description:	In prior releases of EB tresos Studio it was possible to use the public API methods `ProjectAccess.merge` and `ProjectAccess.substitute` on projects which are not yet loaded. As a consequence, the project could not be deleted anymore. This bug is fixed now. The project gets loaded on demand.
ID:	TRESOS-3808

Summary:	**SWTComboBox does not promote selection events to registered listeners**

Description:	In former releases, the **Guided Configuration SWTComboBox** did not promote selection events to its registered listeners. This bug is fixed now.
ID:	TRESOS-3756

Summary:	**Guided Configuration results view contains empty entries**
Description:	In former releases, the **Guided Configuration results view** contained empty entries (e.g. to group errors) which does not have a text. This bug is fixed now.
ID:	TRESOS-3679

Summary:	**EB tresos Studio does not free the memory of a closed project completely**
Description:	In former releases, EB tresos Studio did not release all of the memory it used for a project after you closed that project. This bug is fixed now.
ID:	TRESOS-3502,TRESOS-3415

Summary:	**Expression language used by Guided Configuration API treats expressions incorrect**
Description:	In former releases, the expression language used by **Guided Configuration API** treated expressions as `false` if an undefined variable was used. The problem occured when using the `visibility` expression for extension point `dreisoft.tresos.guidedconfig.api.plugin.trigger` and `event` expression for extension point `dreisoft.-tresos.guidedconfig.api.plugin.pushservice`. This problem is fixed now.
ID:	TRESOS-3124

Summary:	**Renaming a project often requires to refresh it first**
Description:	In former releases, EB tresos Studio often showed an error message like **Resource <SomeProject> is out of sync with file system** if you tried to rename a loaded project. Therefore, you had to refresh the project first before you could finally rename it. This bug is fixed now.
ID:	TRESOS-3739

Summary:	**Removing a mandatory model extender is not possible anymore**
Description:	In previous versions of EB tresos Studio, it was possible to remove a model extender (e.-g. System (Autosar 3.2 and newer)) in the Project Properties although a module configuration required this model extender. As a consequence the module was disabled in this case. But when enabling the module configuration again, the mandatory extender was not added automatically. It is not possible anymore to remove a model extender which is required by a module configuration.

ID:	TRESOS-3126

Summary:	**ECU extract operation reports an unnecessary additional error if a delegation connector references a non existing port**
Description:	In previous versions of EB tresos Studio, the ECU extract operation was reporting an unnecessary additional error if the delegation connector references a non existing port. This problem is fixed now.
ID:	TRESOS-3843

2.21.2. Changes/new features

Summary:	**EB tresos Studio supports AUTOSAR 4.2.1**
Description:	EB tresos Studio provides support for the relevant parts of the system model and ECU configuration of AUTOSAR release 4.2.1. You may now import and export system description and ECU configuration ARXML files up to AUTOSAR 4.2.1.
ID:	TRESOSPF-150

Summary:	**EcuExtractCreator workflow command removed**
Description:	In EB tresos Studio release 16.0 a workflow command was introduced: `dreisoft.tresos.workflow.api.plugin.EcuExtractCreatorCommand`. As a new unattended wizard is now available for ECU extract creation, this command is removed and you can replace it with the following command: `dreisoft.tresos.guidedconfig.api.plug-in.AutoConfigureTriggerCommand(triggerId=EcuExtractCreator)` When you run this command, the ECU extract is created with the System and EcuInstance that are selected in the **Project properties** dialog. If no values have been selected, you are prompted to select System and EcuInstance. An ECU extract is only created if you select values and system data is available.
ID:	TRESOSWP-2908

Summary:	**EB tresos Studio converts the `PncMapping.pncIdentifier` field of AUTOSAR 4.1.0 system description files**
Description:	As of AUTOSAR 4.1.1, `PncMapping.pncIdentifier` represents the absolute position of the PNC bit in the NM PDU. In AUTOSAR 4.1.0 and earlier, `PncMapping.pncIdentifier` was interpreted as the zero-based index of the PNC bit within the PNC vec-

	tor. The bit offset of the PNC vector within the NM PDU is greater than zero, see also [AUTOSAR RFC #52483](). EB tresos Studio now converts all `PncMapping.pncIdentifier` values by adding the bit offset of the PNC vector if 4.1.0 and earlier system description files are imported.
ID:	TRESOSWP-2821

Summary:	**The Node Outline filter Hide not editable elements did not work correctly**
Description:	In prior releases of EB tresos Studio, if you used the **Outline** view filter **Hide not editable elements**, the **Outline** view did not show editable child elements if the parent element itself was not editable. This is fixed now.
ID:	TRESOSWP-2348

Summary:	**The text input for specifying the module configuration file and the import/export files now supports variables**
Description:	In previous versions of EB tresos Studio the module configuration file and the import or export files could only be specified manually or by browsing through the file system. Now they can be specified also using predefined variables, selecting them from the Variables dialog.
ID:	TRESOSWP-551

Summary:	**The installation of the WibuKey driver is now optional**
Description:	When you installed previous versions of EB tresos Studio using the EB tresos Installer, the WibuKey driver software was always installed, too. Now you can choose to not install it together with EB tresos Studio, e.g. because you are not using dongled licenses, or e.g. if the driver is already installed on your PC.
ID:	TRESOSWP-2873

Summary:	**System (AUTOSAR 3.1 and older) is no longer supported for new projects**
Description:	The System (AUTOSAR 3.1 and older) is no longer supported by the EcuExtract creation and has been removed from the **New Project Wizard** and the **Configuration Project** properties page.
ID:	TRESOSWP-2872

Summary:	**The check box run all importers after project creation on the Importers/Exporters page is disabled by default**
Description:	In previous versions of EB tresos Studio the check box was enabled by default. Now the check box is disabled by default. Otherwise all importers run in alphabetical order, as opposed to the MultiTask wizard where several importers can run in a specific order.
ID:	TRESOSWP-2871

Summary:	**The System Description Importer does not create the ECU Extract anymore**
Description:	The ECU Extract is not created anymore by the System Description Importer. Use the new unattended ECU Extract creation wizard instead. For more details, see the *EB tresos Studio new and noteworthy* document.
ID:	TRESOSWP-2860

Summary:	**Selected System and ECU Instance are stored in the project properties**
Description:	The selected System and ECU Instance is now stored centrally in the project properties for each configuration project. The selected instances are used, for example if components and connections are created in the Connection Editor or the ECU Extract is created. You can change the values on page **Configuration Project/System Configuration** in the **Project Properties** dialog.
ID:	TRESOSWP-2856

Summary:	**ECU extract creation will now set the interface of the delegation required port as that of its counter delegation provider port**
Description:	In previous versions of EB tresos Studio during the creation of an ECU extract, EB tresos Studio set the interface of a delegation required port of the ECU extract composition the same as the interface of its corresponding inner port. Now EB tresos Studio sets the interface of such delegation required port as the interface of the corresponding counter delegation provider port across the ECU border.
ID:	TRESOSWP-2880

Summary:	**New action Reload workflows provided for Workflows view**
Description:	EB tresos Studio now supports to reload all workflows. To make the new action visible in the **workflow selection** view menu, enable the developer features in the EB tresos Studio preferences. This makes it easier to adapt a workflow to your needs. Just edit the workflow .XML file (either a common workflow file registered via `plugin.xml` or a project-specific workflow file) inside EB tresos Studio and select the **Reload workflows** action. It is also possible to add or remove project-specific workflows files.
ID:	TRESOSWP-1321

Summary:	**ECU extract creation will now merge the SubElementMappings of the VariableAndParameterInterfaceMapping when unrolling a string of connectors into a single connector**
Description:	In previous versions of EB tresos Studio during the creation of an ECU extract, EB tresos Studio ignored the SubElementMappings of the VariableAndParameterInterfaceMapping. Now EB tresos Studio merges the SubElementMappings of a VariableAndParameterIn-

	terfaceMapping when unrolling a string of connectors. Please note that only the sub elements of composite data types (structures, but not arrays) mapped to primitive data types are considered.
ID:	TRESOSWP-2881

Summary:	**ECU extract creation will now merge the TextTableMapping of the VariableAndParameterInterfaceMapping when unrolling a string of connectors into a single connector**
Description:	In previous versions of EB tresos Studio during the creation of an ECU extract, EB tresos Studio ignored the TextTableMappings of the VariableAndParameterInterfaceMapping. Now EB tresos Studio merges the TextTableMappings of a VariableAndParameterInterfaceMapping when unrolling a string of connectors. Please note that the merging of TextTableMappings happens only if there is only one connector with a TextTableMapping.
ID:	TRESOSWP-2894

Summary:	**License protection is now based on FlexNet**
Description:	EB tresos Studio now uses FlexNet Licensing from Flexera Software. This enables customers to manage their EB tresos Studio software licenses in the [EB FlexNet Customer portal](). For more details, see the *EB tresos Studio new and noteworthy* document.
ID:	TRESOSPF-153

2.22. Changes in version 16.0.0

2.22.1. Fixed problems

Summary:	**Conversion to file content type @tdb produces an error**
Description:	In previous EB tresos Studio releases, the conversion of a file using **legacy convert** to the file content type **@tdb** could lead to the error **Cannot load merge properties file**. This bug is fixed now.
ID:	TRESOS-3697

Summary:	**An error occurs when using Copy to clipboard within the Properties view**
Description:	In previous EB tresos Studio releases, an error occurred when choosing **Copy to clipboard** from the context-menu within the **Information** tab of the **Properties View** if a category node (e.g. **General**) was selected. This bug is fixed now.

ID:	TRESOS-3700

Summary:	**Generator variable projectDir not available**
Description:	The external generator variable **projectDir** which points to the location of the generated project was not available in previous EB tresos Studio releases. This bug is fixed now.
ID:	TRESOS-3789

Summary:	**Error Log messages are not filtered correctly in EB tresos Studio GUI**
Description:	The commandline parameter `-Dmsg<Error Code>` can also be used to filter messages in the EB tresos Studio GUI. To do so, just add `-Dmsg<Error Code>` into the `tresos_gui.ini` file of the EB tresos Studio installation. In previous EB tresos Studio releases filtering messages in the GUI did not work correctly. This bug is fixed now.
ID:	TRESOS-3772

Summary:	**System description importer silently merged two elements within different containers due to UUID match**
Description:	The system description importer silently merged two elements with the same UUID, but different parent elements. This behavior occurred if the merge algorithm based on AUTOSAR stereotype `atpSplitable` and UUID matching was used. Now EB tresos Studio reports a warning for each moved or renamed element during import.
ID:	TRESOS-3712

Summary:	**Behavior of System Model verifier changed for mandatory elements**
Description:	The behavior of EB tresos Studio changed between previous EB tresos Studio releases when importing system model files. Affected were parameters which were or got mandatory between the imported files AUTOSAR release and the last release which is supported by EB tresos Studio. This verifier is provided as public API and can therefore be used by any EB tresos Studio extension. It is e.g. called when opening the Rte Editor and could prevent opening it due to a wrong verifier error. This bug is fixed now.
ID:	TRESOS-3787

Summary:	**Suppress messages for certain unsupported tags when importing system description files**
Description:	In previous EB tresos Studio releases, a message is shown for every occurred LONG-NAME, ADMIN-DATA and DESC xml-tag when importing a system description file of the latest supported AUTOSAR version. This bug is fixed now. Those messages are suppressed in the same ways as they get suppressed for older AUTOSAR versions.
ID:	TRESOS-3738

Summary:	**Long tooltips get linebreaks**

Description:	In previous EB tresos Studio releases, tooltips may become very large and may cut across the visible screen border. This bug is fixed now. If a tooltip gets too large, it will be separated by line breaks.
ID:	TRESOS-3773

Summary:	**No deadlock anymore when using selection dependent variables in Generation Path**
Description:	In previous EB tresos Studio releases, the GUI locked up if you used a selection dependent variable (e.g. `${workspace_loc}`,`${project_loc}`) in the project preference **Generation Path** and selected a node other than the project node in the **Project explorer**. This bug is fixed now. Do not use selection dependent variables as they will not work for all selections (see also following entry).
ID:	TRESOS-3766

Summary:	**Parameter substitution for selection dependent variables**
Description:	In rare cases where paths are used in EB tresos Studio (e.g. the Generation path) it is possible to use variables (e.g. `${workspace_loc}`, `${project_loc}`). Some of these variables depend on the current selection, e.g. `${project_loc}`. Therefore it can occur that the path cannot be resolved, e.g. if there is a configuration file selected in the Project Explorer instead of the project node. In these cases an error is logged into the Error Log. Hint: You may replace occurences of `${project_loc}` with `${project_-loc:<project-name>}`.
ID:	TRESOS-3779

Summary:	**Spaces in paths are removed**
Description:	In previous EB tresos Studio releases, paths with trailing or leading spaces were accepted without removing these spaces. Therefore, an export again contained these spaces and even the code generator was able to get them. This bug is fixed now. All leading and trailing spaces are automatically removed from paths.
ID:	TRESOS-3652

Summary:	**Properties view got empty after selecting or opening another EB tresos Studio view**
Description:	When you select nodes inside the **Project explorer**, **Outline** view or **Generic configuration editor**, the **Properties** view shows information about the current selection. In the previous EB tresos Studio release, the **Properties** view got empty after selecting or opening another EB tresos Studio view, e.g. **Workflows** view. This bug is fixed now.
ID:	TRESOS-3640

Summary:	**No default ADMIN-DATA attribute created when deriving a StMD**

Description:	In previous EB tresos Studio releases, the command **legacy vsmd** did not create a default ADMIN-DATA attribute for the module definition if the target file was an `xdm` file or an 3.2 AUTOSAR `arxml` file. This bug is fixed now.
ID:	TRESOS-3237

Summary:	**VSMD rule EcucSws_1014 erroneously reports a violation**
Description:	In previous EB tresos Studio releases the **legacy vsmdcheck** command erroneously reported a violation if a vendor-specific parameter was added in *case-insensitive* alphabetical order. This bug is fixed now. For compatibility reasons, it is now allowed to add vendor-specific parameters either in *case-sensitive* (*ASCII-order*) or in *case-insensitive* alphabetical order.
ID:	TRESOS-3538

Summary:	**VSMD rule EcucSws_1008 erroneously reports a violation**
Description:	In previous EB tresos Studio releases the **legacy vsmdcheck** command erroneously reported a violation under certain circumstances. The involved nodes were not mentioned in this case. This bug is fixed now.
ID:	TRESOS-3403

Summary:	**Autosar Importer configuration mask logs an Exception**
Description:	In previous EB tresos Studio releases an error was logged to the **Error Log** view when the user typed the path to a file into the Importer/Exporter configuration mask. This bug is fixed now.
ID:	TRESOS-3748

Summary:	**VSMD checker falsely reported a violation for rule 6051**
Description:	In previous EB tresos Studio releases vsmd checker rule 6051 reported an error that the implementationConfigClass in VSMD must be the same as in StMD, although the scope of the ConfigParameter or ConfigReference in StMD was not ECU. This bug is fixed now.
ID:	TRESOS-3052

Summary:	**Errors logged when using the Licenses dialog**
Description:	In EB tresos Studio 15.0, after you e.g. installed a new license file using the **Licenses** dialog, EB tresos Studio may have logged an error message like **Cannot start a write-operation (Installing Licenses) from a read-operation (-)**. This bug is fixed now.
ID:	TRESOS-3658

Summary:	**Fibex importer now imports `PDU-TIMING` of one `PDU-TRIGGERING` if multiple `PDU-TRIGGERING` elements refer to the same PDU**

Description:	In earlier versions of EB tresos Studio all `PDU-TIMING` elements of PDUs got lost due to a limitation of AUTOSAR version 4.x, where `PDU-TIMING` elements are not aggregated by `PDU-TRIGGERING` elements anymore. This behavior occurred if you imported Fibex files which contained `PDU-TRIGGERING` elements that referred to these PDUs. Fibex importer now imports the `PDU-TIMING` of one of the `PDU-TRIGGERING` elements.
ID:	TRESOS-3736

Summary:	**EB tresos Studio now preserves the order of child aggregations during merge**
Description:	In earlier versions, EB tresos Studio did not preserve the order of the elements from the input file if the existing model already contained some of the elements. This behavior occurred if you imported `arxml` files using the **System Description Importer** which contained ordered elements, This bug is fixed now.
ID:	TRESOS-3711

Summary:	**`DEST` attribute not required when loading AUTOSAR ECU Configuration files**
Description:	In earlier versions of EB tresos Studio, it was not possible to load an AUTOSAR ECU Configuration file if the `DEST` attribute of a parameter was not defined. This bug is fixed now.
ID:	TRESOS-3615

Summary:	**Problems entering negative float values in scientific notation**
Description:	In earlier versions of EB tresos Studio, it was not possible to enter negative float values in scientific notation in the **Generic Configuration Editor** or the **Guided Configuration wizard** (e.g. - 1.5 E -12). This bug is fixed now.
ID:	TRESOS-3607

Summary:	**Properties view shows empty page**
Description:	In earlier versions of EB tresos Studio, the **Properties** view did not display the properties of the currently selected parameter anymore but became empty instead. This behavior occurred if you opened or selected a view, e.g. the **Workflows** view). This bug is fixed now.
ID:	TRESOS-3640

Summary:	**Sporadic error during project load**
Description:	In earlier versions, EB tresos Studio sporadically reported an error message if you tried to load a project: **(11071) The file(s) <file name> do(es) not contain a module definition at path <path> as defined in Module <module-name> of plugin <plugin-name>**. This bug is fixed now.
ID:	TRESOS-3636

Summary:	**Saving changes in the ECU configuration took longer than necessary**
Description:	In EB tresos Studio 15.0, due to a performance bug, saving changes in your ECU configuration project may have taken longer than necessary. This bug is fixed now.
ID:	TRESOS-3689

Summary:	**Public API Java Documentation not available in the Java editor of the Eclipse IDE**
Description:	In former releases of EB tresos Studio the **Public API Java Documentation** was not available from within the Java editor (only within the help window). This behavior occurred after you set up an Eclipse environment for developing extensions to EB tresos Studio as described in the EB tresos Studio developer's guide, This problem is fixed and now you have the EB tresos Studio **Public API Java Documentation** directly at hand within the Eclipse Java editor.
ID:	TRESOS-3590

Summary:	**EB tresos Studio does not delete temporary TDB files**
Description:	In former releases, EB tresos Studio did not delete some temporary `TresosDB` files under certain circumstances. This problem is fixed and now these files are deleted when you exit EB tresos Studio.
ID:	TRESOS-3699

2.22.2. Changes/new features

Summary:	**EB tresos Studio supports Provided and Required Ports**
Description:	EB tresos Studio now supports `PRPortPrototypes` in the `SystemModel` which combine the functionality of `PPortPrototypes` and `RPortPrototypes`. As a drawback of this change, the API got incompatible. Anywhere the interface `IPPortPrototype` or `IRPortPrototype` is used, the appropriate *abstract interface* (`IAbstractProvidedPortPrototype` or `IAbstractRequiredPortPrototype`) must be used now. The convenient method **getInterface** has been introduced to be able to access the required/provided interface without the need to cast to the right interface (`IPPortPrototype`, `IRPortPrototype` or `IPRPortPrototype`).
ID:	TRESOSPF-148

Summary:	**EB tresos Studio supports AUTOSAR 4.1.3 system model version**
Description:	EB tresos Studio provides support for the relevant parts of the system model of AUTOSAR release 4.1.3. You may now import and export system description and ECU configuration `arxml` files up to AUTOSAR 4.1.3.

ID:	TRESOSPF-140

Summary:	**EB tresos Studio supports a preliminary AUTOSAR 4.2.1 system model**
Description:	EB tresos Studio provides support for the relevant parts of the system model of a preliminary AUTOSAR 4.2.1 revision.
ID:	TRESOSPF-139

Summary:	**Defined naming conventions for the ECU extract creation**
Description:	EB tresos Studio now provides defined naming conventions for the creation of the ECU extract (for AUTOSAR 3.2 and above). This applies to the short names of software component prototypes, as well as to other elements in the ECU extract. For details see the EB tresos Studio User's guide, chapter *8.2. Creation of the ECU Extract*.
ID:	TRESOSWP-2673

Summary:	**ECU Configuration Search now supports parameter comments**
Description:	EB tresos Studio now provides the possibility to search for parameter comments (summary, description, status, language) in the **ECU Configuration Search**.
ID:	TRESOSWP-2706

Summary:	**ECU Configuration Search now supports config classes**
Description:	EB tresos Studio now provides the possibility to search for parameters with a specific config class.
ID:	TRESOSWP-2066

Summary:	**The Properties view shows information about selected nodes in the Project Explorer**
Description:	The **Properties** view now shows information about ECU configuration nodes (e.g. AUTOSAR release version, target and derivate) or Module configuration nodes (e.g. Module-ID, selected pre-configuration, etc.) when you select those in the **Project Explorer** view.
ID:	TRESOSWP-2704

Summary:	**Import and export of special datagroups now supported**
Description:	Special data groups(`SDGS`) in `ADMIN-DATA` tags are now imported and can also be exported via the System Description Importer and Exporter. The order of special data groups of the exported file can vary from the order of the import file. EB tresos Studio does not support `SDG` elements inside `SD` elements. Only the following hierarchy depth is supported: `ADMIN-DATA/SDGS/SDG/SD`.

ID:	TRESOSWP-2769

Summary:	**Behavior of DCtxt method `opt.setNoSchema(true/false)` changed**
Description:	In previous EB tresos Studio releases, the method `opt.setNoSchema` acted differently if the parameter was true or false. In case the parameter was true, the option to also accept DataNodes without a schema was simply set to true. If the parameter was false, the node was checked if it was already bound to a schema. If it was not bound, a CtxtException was thrown and setting the option to false failed. It was only possible to set the option to false by navigating to a bound node via DCtxt and call the `opt.setNoSchema(false)` there.

Now it is always possible to set or unset the option on every node, whether the node is bound to a schema or not. The method is always successful and returns true. No exception is thrown anymore. |
| ID: | TRESOS-3753 |

Summary:	**Project-specific workflows supported**
Description:	Until now it was only possible to register workflow files via extension point or Java API. These commonly registered workflows are available for all projects in the workspace. Now EB tresos Studio also supports to register project-specific workflows by just copying the workflows description file into the project. For details, see the *EB tresos Studio new and noteworthy* document.
ID:	TRESOSWP-2759

Summary:	**New workflow command for ECU extract creation**
Description:	EB tresos Studio now supports a new workflow command to create an ECU extract for a configuration project. The command with the ID `dreisoft.tresos.workflow.api.-plugin.EcuExtractCreatorCommand` starts the ECU extract creation. For further information see the EB tresos Studio developer's guide chapter *Ecu extract creator command*.
ID:	TRESOSWP-2796

Summary:	**Multiple instances of unattended wizard configurations supported**
Description:	Until now there was only one instance available for each registered unattended wizard. Therefore if a task (e.g. Calculate Handle IDs) was necessary in different configurations to support several use-cases, it was necessary to change the configuration each time before running it. The **Unattended Wizards** configuration dialog now provides the possibility to create several instances for each registered unattended wizard. You can run these instances from the GUI (either via the **Unattended Wizards** dialog or via a workflow command) or the command line. For details, see the *EB tresos Studio new and noteworthy* document.

ID:	TRESOSWP-2749

Summary:	**New unattended wizard for execution of multiple tasks introduced**
Description:	EB tresos Studio now provides the new unattended wizard **Execute multiple tasks**, where it is possible to arrange several actions in a specified order. Possible actions are the following: ► Run importer ► Run exporter ► Run unattended wizard ► Run code generation ► Run an external command You can also control the execution of the wizard by telling the wizard that the execution shall stop if an action returns with errors or warnings. You can use the **Execute multiple tasks** wizard to define a set of actions which must be performed several times in project lifecycle. For details, see the *EB tresos Studio new and noteworthy* document.
ID:	TRESOSWP-2771, TRESOSWP-2794

2.23. Changes in version 15.0.0

2.23.1. Fixed problems

Summary:	**The `IMPLEMENTATION-CONFIG-VARIANT` is now automatically converted if an ECU Configuration is exported**
Description:	The `IMPLEMENTATION-CONFIG-VARIANT` is now automatically converted to `VARIANT-POST-BUILD` if the following conditions apply: ► The `IMPLEMENTATION-CONFIG-VARIANT` of a module configuration is set to either `VARIANT-POST-BUILD-SELECTABLE` or `VARIANT-POST-BUILD-LOADABLE`. ► The configuration is exported to an AUTOSAR format that does not support these values (prior AUTOSAR 3.2 and prior AUTOSAR 4.0.3). Previous EB tresos Studio releases lacked this value conversion and the exported file violated the AUTOSAR schema in those cases. This problem is now fixed.
ID:	TRESOS-3631

Summary:	**EB tresos Studio does not freeze anymore while it verifies the configuration**
Description:	In former releases, EB tresos Studio might freeze while it verified the configuration. This problem is fixed now.
ID:	TRESOS-3693

Summary:	**Improved speed of model upgrade of AUTOSAR 3.1 files to AUTOSAR 4.0**
Description:	In earlier releases of EB tresos Studio the upgrade of imported AUTOSAR 3.1 system description files to AUTOSAR 4.0 took very long if the imported files contained a large number of `INTERFACE` and `DATA-ELEMENT-PROTOTYPE` elements. This problem is fixed now.
ID:	TRESOS-3682

Summary:	**The Fibex Importer imports `INTERNAL-CONSTR[@VALIDITY="VALID"]` elements**
Description:	The **Fibex Importer** did not import `INTERNAL-CONSTR[@VALIDITY="VALID"]` elements. This is fixed now.
ID:	TRESOS-3672

Summary:	**EB tresos Studio no longer deletes existing output files on error if you call legacy convert**
Description:	In previous versions of EB tresos Studio if e.g. a validation error occurred during the commandline call to **legacy convert**, EB tresos Studio deleted output files even if they already existed before. This is fixed now.
ID:	TRESOS-3661

Summary:	**System Description Importer and System Description Exporter failed to handle special numerical values**
Description:	If you tried to import data with the **System Description Importer** that contained the special numerical values `NaN`, `INF`, or `-INF`, the import failed. The following error message was reported: `Failed to set the attribute "value" of type Double to the value "NaN", (invalid_issue.arxml, line 24)`. If you used the **System Description Exporter**, the special numerical values `INF` or `-INF` were exported erroneously (as `Infinity` or `-Infinity` respectively). Both issues are fixed now.
ID:	TRESOS-3664,TRESOS-3681

Summary:	**Fixed keyboard navigation in Outline view**
Description:	In some cases (lists with choice and ref containers) keyboard navigation (up/down) did not work inside the **Outline** view. This is fixed now.

ID:	TRESOS-3503,TRESOS-3599

Summary:	**Fixed disappearing window after sending EB tresos Studio to background and then to foreground again**
Description:	When an error was shown during project load then after sending EB tresos Studio to background and to foreground again, the modal dialog to choose the behavior after the load error did not appear again. As it was not possible to confirm the modal dialog, the EB tresos Studio process hang and it was necessary to kill the EB tresos Studio process. This is fixed now.
ID:	TRESOS-3657

Summary:	**Fixed hyperlinks in Java Public API documentation**
Description:	When you opened the Java Public API from `<tresosInstallpath>\doc\2.0_-EB_tresos_Studio\Studio Public API Java` several hyperlinks in package `dreisoft.tresos.datamodel2.api.model` did not work. This is fixed now.
ID:	TRESOS-3633

Summary:	**Fibex Importer no longer creates undefined content for elements that contain empty strings**
Description:	If an element contains an empty string (if allowed by the schema or if validation is turned off), the Fibex Importer creates undefined content instead of an empty string. This is fixed now.
ID:	TRESOS-3630

Summary:	**Improved performance of filtered tables**
Description:	In some cases working with filtered tables in the Generic Configuration Editor or a sidebar wizard took very long. Now refreshing applied values within filtered tables is improved.
ID:	TRESOS-3629

Summary:	**A warning is logged when a module defines duplicate attributes that are ignored**
Description:	If a module definition schema file defines an attribute twice for the same parameter, EB tresos Studio tries to merge them into one attribute that provides the same functionality of both single attributes. If a merge is not possible, a warning is logged and one of the attributes is skipped.
ID:	TRESOS-3627

Summary:	**References are no longer lost during a merge with the atpSplitable merge algorithm**
Description:	Up to this version of EB tresos Studio references with a cardinality of n to 1 were lost when two system models were merged and the atpSplitable merge algorithm was used.

	This applies e.g. for the reference from InternalBehavior to AtomicSoftwareComponent-Type in the AUTOSAR 3.2 system model. These references are merged correctly now.
ID:	TRESOS-3625

Summary:	**EB tresos Studio falsely reported an error when executing a step in the Workflows view**
Description:	Under certain circumstances, when you tried to execute a step in the **Workflows** view, EB tresos Studio did not execute the command but falsely reported an error. In this case, a message dialog with the message **The chosen operation is not enabled.** was shown. This is fixed now.
ID:	TRESOS-3593

Summary:	**Dependencies between module configuration plugins are now considered correctly**
Description:	Starting with EB tresos Studio 14.1.0, as a module developer you can define dependencies between your module plug-ins if a read-only ECU configuration parameter with a calculated default value refers to another module definition (e.g. when using subderivatives with ECU resource properties). EB tresos Studio may have failed to compute these default values correctly in certain cases when the project was loaded. This is fixed now.
ID:	TRESOS-3520

Summary:	**ECU configuration and system data may share the same package base path**
Description:	In former releases of EB tresos Studio an error was reported if you tried to use the same AUTOSAR package base path (e.g. `/SomeVendor/...`) for ECU configuration and system data. This is fixed now.
ID:	TRESOS-3596

Summary:	**Relative path in reference bases does work now, global references are not supported anymore**
Description:	According to AUTOSAR constraint constr_2538, global references may only be used for documentation-related elements and are therefore not supported anymore in EB tresos Studio. The reference base used by a relative reference may now also be relative.
ID:	TRESOS-3586

Summary:	**Fixed processing of `SwDataDefProps` elements in system model upgrade**
Description:	In previous versions of EB tresos Studio the system model upgrade incorrectly moved source model AUTOSAR 3.x `SwDataDefProps` elements contained in `RecordElements`, `ArrayElements`, or `InterRunnableVariables` into arbitrary `VariableDataPrototypes` in the generated AUTOSAR 4.0 model. If the `VariableDataPrototypes` already contained an `SwDataDefProps` element, the upgrade terminated and an error was issued. This problem is fixed now.

ID:	TRESOS-3620

Summary:	**Fixed processing of `UUID` values in system model upgrade**
Description:	In previous versions of EB tresos Studio the system model upgrade incorrectly duplicated `UUID` attributes of several AUTOSAR 3.x source model elements. This duplication resulted in an error if you selected *impoved merge algorithm based on UUID matching* in an import configuration for a Fibex, LDF, or AUTOSAR 3.x system description file. This problem is fixed now.
ID:	TRESOS-3623

Summary:	**Fixed handling of initial values and invalid values of signals during model upgrade**
Description:	In earlier versions of EB tresos Studio, the system model upgrade from AUTOSAR 3.x to 4.0 did not support opaque literals as invalid and initial values of signals. This restriction is now removed.
ID:	TRESOS-3582

Summary:	**Fixed error during generation of unique container names for ECU configuration import**
Description:	In earlier versions of EB tresos Studio the configuration import terminated with the error message **Could not generate mangled name for <identifier_name>**, where `<identifier_name>` was a `SHORT-NAME` that ended with an underscore followed by a numerical value equal to or above 10000. This problem is fixed now.
ID:	TRESOS-3637

Summary:	**LDF Importer imports `AssignNAD` frames in LDF 2.0 files correctly now**
Description:	In earlier versions of EB tresos Studio, the LDF Importer terminated with an error message if an imported LDF 2.0 file contained an `AssignNAD` frame in which the `oldNad` field did not match the `configured_NAD` of any of the slave nodes of the file. This incorrect behaviour is fixed now. The `newNad` field of an `AssignNAD` frame is compared with the `configured_NAD` field of the slaves.
ID:	TRESOS-3645

Summary:	**The System Description Importer now always evaluates file availability before an import**
Description:	In previous EB tresos Studio releases you could run a **System Description Importer** even if one or more of the input files did not exist anymore. This was possible if you launched an existing **System Description Importer** without inspecting the file list on the **All Models** tab before. In this case, the importer was executed without indicating the missing files. This problem is fixed now.

ID:	TRESOS-3523

Summary:	**The template-based code generator now can include files with arbitrary relative paths**
Description:	In earlier versions of EB tresos Studio the `INCLUDE` command in a generator template failed to resolve files with arbitrary relative paths, i.e. ones that started with more than one `../` section, or contained `../` sections in between (not normalized paths). This problem is fixed now.
ID:	TRESOS-3505

Summary:	**The System Description Exporter no longer deletes existing output files if an export fails**
Description:	In previous versions of EB tresos Studio the **System Description Exporter** deleted already existing output files if an error occurred during an export. Thus, a file that was created by a previous exporter run was deleted if e.g. the schema validation during a subsequent exporter run failed. This issue is fixed now. The **System Description Exporter** now only overwrites existing files if the export is completed successfully.
ID:	TRESOS-3080

Summary:	**Fixed inappropriate error message from XPath function `node:value`**
Description:	If a schema node referred to a node with a later configuration class in a call to the XPath function `node:value` (e.g. in an INVALID test expression), earlier versions of EB tresos Studio reported a wrong error message in the **Problems View**: **"(1818) No value found for object"**. This problem is fixed. EB tresos Studio now issues the right error message for this situation: **"(1822) Attempt to read value of node {0} with config class {1} which is not allowed in this context"**.
ID:	TRESOS-3643

Summary:	**Several small handling improvements in the GUI**
Description:	The behavior of the EB tresos Studio GUI is improved. Several small handling problems like wrong enablement of GUI buttons are corrected.
ID:	TRESOS-3026, TRESOS-3029, TRESOS-3398, TRESOS-3501, TRESOS-3583, TRESOS-3594, TRESOS-3609

Summary:	**Fixed `NullPointerException` when you convert to an unknown tresosDB content type version**
Description:	When you tried to convert some input files to an unknown tresosDB file content type version (e.g. `tdb:2.6`) on the command line, earlier versions of EB tresos Studio issued a `NullPointerException`. This problem is fixed. Now EB tresos Studio reports a proper error message in this case.

ID:	TRESOS-3648

Summary:	**The System Decription Importer can now import the AUTOSAR XML tag `<P-TRIG-GER-IN-ATOMIC-SWC-TYPE-INSTANCE-REF>`**
Description:	In previous versions of EB tresos Studio if you tried to import an AUTOSAR XML file using the **System Decription Importer** which contained the XML tag `<P-TRIGGER-IN-ATOMIC-SWC-TYPE-INSTANCE-REF>` (within a `<TRIGGER-IREF>`) the import failed with the warning message **"P-TRIGGER-IN-ATOMIC-SWC-TYPE-INSTANCE-REF is not supported within TRIGGER-IREF"**. This bug is now fixed and the data is imported.
ID:	TRESOS-3521

Summary:	**The Select a workflow dialog displays long descriptions completely**
Description:	In previous versions of EB tresos Studio it may occurred that the workflow description was not displayed correctly if you opened the dialog to select a workflow. This problem is fixed now.
ID:	TRESOS-3644

Summary:	**The import customization of different importers was removed silently if not existing anymore**
Description:	In previous versions of EB tresos Studio it may occurred that when selecting an existing importer in the **Im- and Exporters** dialog, the import customization was removed without notification if it did not exist anymore in the EB tresos Studio installation. Now the user will be notified and needs to check the import customization, before being able to run the importer.
ID:	TRESOS-3613

2.23.2. Changes/new features

Summary:	**EB tresos Studio supports AUTOSAR 4.1.1 and 4.1.2 system models**
Description:	EB tresos Studio provides support for the relevant parts of the system model as of AUTOSAR releases 4.1.1 and 4.1.2. You may now import and export system description files up to AUTOSAR 4.1.2.
ID:	TRESOSPF-96

Summary:	**EB tresos Studio does not log errors about missing optional plug-ins any more**
Description:	Executable extensions on one of the specific extension points that EB tresos Studio provides can declare that the implementing class shall be loaded from another plugin. This plugin may not be available at runtime, if it is only optionally required by your plugin. Ear-

	lier versions of EB tresos Studio reported an error in this case, now the executable extension is silently ignored.
ID:	TRESOSWP-1836

Summary:	**The LDF Importer supports LDF 2.1 and LDF 2.2 files**
Description:	The LDF Importer now supports the import of LDF versions 2.1 and 2.2.
ID:	TRESOSWP-2658

Summary:	**The LDF Importer supports `Signal_encoding_types` section**
Description:	The LDF Importer now uses the content of the `Signal_encoding_types` section in LDF files to generate corresponding AUTOSAR data types. A signal that is assigned to one of the encodings in the `Signal_encoding_types` section in the LDF file is imported as an AUTOSAR signal. This AUTOSAR signal references the corresponding AUTOSAR data type.
ID:	TRESOSWP-2690

Summary:	**The Element Outline views are replaced by a standard Eclipse Properties view**
Description:	Former versions of EB tresos Studio used three separate proprietary **Element Outline** views to show details about the currently selected parameter: **Description**, **Information**, and **Errors**. These proprietary views are replaced by a standard Eclipse **Properties** view that displays the same information. For further information about the new **Properties** view, see the chapter `Properties view` in the EB tresos Studio Users guide.
	Although the new **Properties** view is now used in the default perspective, you can still switch back to the old **Element Outline** views. For further instructions how to do this, see the section `Opening a view` in the EB tresos Studio Users guide.
ID:	TRESOSPF-51

Summary:	**EB tresos Studio supports the import of ECU configuration data with arbitrary package structure**
Description:	Up to this release, the **AUTOSAR Importer** of EB tresos Studio could not import ECU configuration data with a package structure different from the one that is used within the project. This problem occurred in some cases where third-party tools were used to create the configuration files. The **AUTOSAR Importer** is improved and can now import such files regardless of the package structure.
	You can enable and customize the path mapping of elements within the input file to elements in the project model on the **Path Mapping** tab in the importer configuration.
	It is also possible to specify path mappings on the command line for legacy generate and legacy convert.

ID:	TRESOSPF-33

Summary:	**Verify Project and Generate Project are now enabled for arbitrary selections**
Description:	In former releases of EB tresos Studio you needed to select specific nodes for your **Configuration Project** in the **Project Explorer** to enable the menu items **Verify Project**, **Generate Project** and **Build Project**, and their respective counterparts in the tool bar. Now you can select any node of a **Configuration Project** to enable those items.
ID:	TRESOSWP-2045

Summary:	**Improved consistency checks of the NLS/OS builder config files**
Description:	The NLS/OS builder (part of the EB tresos Studio Eclipse tooling) does now apply more consistency checks and report errors also if a localized message (e.g. some `L-en` property) ► contains an invalid placeholder (e.g. a parameter index that is out of range, or `'{0}'` that requires a quotation: `''{0}''`), or ► does not refer to all configured parameters. For further details about the config file format and the NLS/OS builder, see the EB tresos Studio developer's guide, chapter `How to use the National Language Support (NLS)/Operation Status (OS)`.
ID:	TRESOSWP-1937

Summary:	**The XPath function node:name may not return the correct name of an AUTOSAR data node**
Description:	For containers with UPPER-MULTIPLICITY=1 the XPath expression `node:name(container)` returns the AUTOSAR schema node name instead of the data node name. New XPath(`as:name`) and DCtxt(`getShortName()`) functions are introduced as a solution. They return the `SHORT-NAME` of the context node or null on error if the context node does not have a `SHORT-NAME` (this is e.g. the case for list nodes and variable data nodes). The `SHORT-NAME` of a node might be different from the name, e.g. when the user manually changes the `SHORT-NAME` via the editor or the `SHORT-NAME` is changed during an import.
ID:	TRESOS-3598

Summary:	**Behavior change for confirmation dialogs**
Description:	There are now two different types of confirmation dialogs:

1. Confirmation dialog with **Do not show this dialog again** check box. If the check box is checked and the action is performed, then the decision persists. If you perform the same action again, the confirmation dialog will not appear again. If, however, the action was cancelled although the **Do not show this dialog again** check box was checked, the action will not persist and the confirmation dialog will appear again.

2. Confirmation dialog with **Remember my decision** check box. For some actions the check box is renamed to **Remember my decision**. If the check box is checked then your choice persists and is used for all further executions of this action. This is independent of whether you choose to apply or discard your changes.

You can re-enable both types of dialogs in the EB tresos Studio preferences.

ID:	TRESOSWP-2608

Summary:	**Improved tooltips for the Error Log view and the Problems View view**
Description:	The tooltips shown in the **Error Log** view and the **Problems View** view do now contain line breaks to not exceed the maximum available space of the screen and to provide better readability.
ID:	TRESOSWP-2691, TRESOSWP-1938

Summary:	**Values in reference combo boxes are sorted alphanumerically**
Description:	In previous EB tresos Studio releases the items in reference combo boxes were sorted lexicographically. This lead to a strange behavior when using a `NAME_PATTERN`, e.g. 'MyContainer_-?'. The values were not sorted in ascending order, for instance 'MyContainer_10' was placed before 'MyContainer_2'. Now the items are sorted alphanumerically in ascending order.
ID:	TRESOSWP-2605

2.24. Changes in version 14.2.0

2.24.1. Fixed problems

Summary:	**Undo was not possible after changing a value within a table in the Generic Configuration Editor**
Description:	In EB tresos Studio version 14.1, after you changed a value within a table cell in the Generic Configuration Editor, you could not revert the change by pressing the **Undo** button. This bug is now fixed.

ID:	TRESOS-3571

Summary:	**An error message is shown when you try to rename a project to an invalid name**
Description:	In previous versions of EB tresos Studio, you could rename a project to an invalid name. An invalid name is a name that is not a valid AUTOSAR `SHORT-NAME`, e.g. a name that contains spaces. In that case the project was not fully usable and e.g. displayed errors during code generation. This is fixed now. If you try to rename a project to an invalid name, an error message is shown and you cannot complete the rename action.
ID:	TRESOS-1119

Summary:	**No more outdated entries in tables of the Generic Configuration Editor after the execution of a guided configuration wizard**
Description:	In previous versions of EB tresos Studio, sometimes multiple entries with the same index value were visible in the Generic Configuration Editor after you executed a guided configuration wizard. This is fixed now.
ID:	TRESOS-3488

Summary:	**The display of Published Information parameters and containers has been fixed**
Description:	In previous versions of EB tresos Studio, containers with a name that ends in `PublishedInformation` were rendered incorrectly. Previously only the first element of lists was shown and all parameters were shown on the **Published Information** tab. This has been fixed now. The items with a name that ends in `PublishedInformation` are now treated equally to normal editor items with respect to the location in the editor. Also all elements of lists are displayed. Only the container named `CommonPublishedInformation` is treated specially. This is required by AUTOSAR.
ID:	TRESOS-3154

Summary:	**Module Configuration Editor only shows valid reference targets**
Description:	In previous releases of EB tresos Studio, the Module Configuration Editor offered invalid reference targets for references that point into a choice container. This led to subsequent errors during model validation, if such an invalid node was selected. This problem is fixed now. Only valid reference targets are shown now.
ID:	TRESOS-3307

Summary:	**Compare editor for XDM files no longer hangs up**

Description:	In previous releases of EB tresos Studio, the EB tresos Studio GUI may have hung up when you compared XDM files with the **Compare** editor for XDM files which contained lists with many nodes that were moved to another position. This is fixed now.
ID:	TRESOS-3406

Summary:	**The XPath function `substring()` logs a warning message if it is used with `0` as start position**
Description:	If you use the XPath function `substring()` with three arguments and provide `0` as start position, EB tresos Studio now displays a warning message every time the function is executed. The function is not defined for start position `0` in the XPath standard. In the implementation provided by EB tresos Studio the function returns a result but the result is clearly wrong because it is shorter than the specified length. In previous releases of EB tresos Studio, the identical value was returned, but no warning was shown.
ID:	TRESOS-3242

Summary:	**`tresos_cmd.bat legacy` command line does not report erroneously unresolved references any more**
Description:	In EB tresos Studio 14.1.0, the `tresos_cmd.bat legacy` command line under certain circumstances reported that references defined in AUTOSAR system description files could not be resolved although the references were resolved. Additionally, warnings about unresolved references may have been reported multiple times. This also was the case for the falsely reported ones stated above. Those problems are fixed now. EB tresos Studio now only reports actually unresolved references once.
ID:	TRESOS-3509

Summary:	**Resolved delays before code generation**
Description:	In EB tresos Studio 14.1.0, configuration code generation started with a significant delay when WibuKey dongles were employed for license authentication and a large number of module configurations were generated in parallel. The causes for these delays have been removed now.
ID:	TRESOS-3548

Summary:	**Your choice is now persistent when you apply changes in confirmation dialogs**
Description:	In previous releases of EB tresos Studio the check box to apply changes in confirmation dialogs for several actions was named **Do not show this dialog again.**. Regardless

| | whether you checked or unchecked the check box, your choice was not persistent and a default action was performed when you applied the same change again.

Now the check box is renamed **Remember my decision**, and your choice is persistent and used for all same applied changes. You can revoke your choice in the EB tresos Studio preferences. |
|---|---|
| **ID:** | TRESOS-2668 |

2.24.2. Changes/new features

Summary:	**Configurable multiple configuration support for AUTOSAR 4.1.1 post-build scenarios**
Description:	EB tresos Studio now features enhanced support for the Multiple Configuration Container (MCC) approach for post-build ECU configuration scenarios as specified by AUTOSAR 4.1.1.

With the help of a specific post-build configuration management module, you can now aggregate selected MCCs of your project into named MCC sets and select one of those sets to be the current working set. After you switch such a configuration project into post-build only mode, EB tresos Studio on the one hand will perform additional checks of the consistency of the configuration data in the different MCCs. On the other hand, EB tresos Studio will hinder you from changing certain ECU configuration parameters that were already configured. For details, see the *EB tresos Studio new and noteworthy* document. |
| **ID:** | TRESOSPF-44 |

Summary:	**New rules implemented for the legacy vsmdcheck command regarding AUTOSAR 4.1.1 post-build**
Description:	EB tresos Studio 14.2 provides new rules for checking Vendor Specific Module Definitions (VSMD) against the refined AUTOSAR 4.1.1 specification for post-build capable modules.

The new rules cover the following AUTOSAR constraints and requirements: `[constr_5500]`, `[TPS_ECUC_02132]`, `[TPS_ECUC_06051]`, `[TPS_ECUC_08005]` and `[TPS_ECUC_08007]`.

Additionally EB tresos Studio 14.2 provides a new rule set named `asc:4.0.3.RFCs` which complements the existing `asc:4.0.3` ruleset according to the changed AUTOSAR requirements. |
| **ID:** | TRESOSPF-91 |

Summary:	**Post-build verification of function names ([constr_5502])**

Description:	In compliance to the AUTOSAR constraint `[constr_5502]`, EB tresos Studio now also verifies that you do not accidentally introduce new function names during post build time, and creates entries in the **Problems View** accordingly.
ID:	TRESOSWP-2532

Summary:	**Selectable AUTOSAR XML schema variant in System Description Importer**
Description:	For AUTOSAR releases that come with different XML schema variants (e.g. AUTOSAR 4), you may now choose the AUTOSAR schema variant that EB tresos Studio shall use to validate the XML file when you import system data with the **System Description Importer**. In previous releases, this choice was not available and the strict schema supplied by AUTOSAR was always used.
ID:	TRESOSPF-30

Summary:	**Limitations section cleaned up**
Description:	The *Limitations* section of the EB tresos Studio release notes has been cleaned up. Some long open limitations have been moved into the matching places in the EB tresos Studio user's guide or developer's guide.
ID:	n/a

Summary:	**Workflows view is now project-specific**
Description:	In previous releases of EB tresos Studio, the **Workflows** view had one globally saved state. This was problematic when users performed one single workflow for several projects. They did not know anymore where they interrupted their work for each project. Now the **Workflows** view is project-specific and the state information is stored in each project. When users select the open project now, the state information gets restored and is displayed in the **Workflows** view.
ID:	TRESOSPF-42

Summary:	**Parameters within optional containers are displayed now in GUI tables**
Description:	In previous releases of EB tresos Studio, the parameters inside an optional container could only be seen in the **Generic Editor**. Now the tables in the GUI also display these parameters as columns. If the container element is disabled, the parameters are not editable. The parameters inside optional containers also appear in the **Column Selection Dialog** and the **Bulk Change Editor**.
ID:	TRESOSWP-2599

Summary:	**Enhancements for Bulk Change Editor - displaying optional parameters**

Description:	In previous releases of EB tresos Studio, the Bulk Change was possible only for configuration parameters that were not optional, were not in a subcontainer (list in list), and were visible as column in the corresponding table. Bulk Change now also supports enabling and disabling optional parameters. The Bulk Change of all parameters in the container including optional parameters is possible. The parameters inside optional containers are also visible in the Bulk Change Editor, however their modification is only possible if the parent container is enabled.
ID:	TRESOSPF-32

3. Release notes Connection Editor

3.1. Version information

Release notes for Connection Editor 1.3.0.

3.2. Limitations and restrictions

Summary:	**Port groups are not supported and thus not shown**
Description:	You can neither see port groups, nor are they editable in any way.
Rationale:	

Summary:	**`PassThroughSwConnectors` are shown, but not supported**
Description:	You cannot create `PassThroughSwConnectors`, although existing ones are shown.
Rationale:	

Summary:	**Communication scenario `m:n` for sender-receiver communication unchecked**
Description:	The AUTOSAR Software Component Template [constr_1033] specifies the following for sender-receiver communication: it is not allowed to create a communication scenario where n senders are connected to m receivers if m and n are both greater than 1. This constraint is not checked.
Rationale:	

Summary:	**Local communication of mode switches unchecked**
Description:	The AUTOSAR Software Component Template [constr_4000] specifies that ports with `ModeSwitchInterfaces` cannot be connected across ECU boundaries. This constraint is not checked.
Rationale:	

Summary:	**Combinations of `SwcToEcuMapping` targets**
Description:	The AUTOSAR System Template [constr_3032] specifies that one `SwcToEcuMapping` shall be used for each combination of the following: ► `EcuInstance` ► The optional `processingUnit`

	► The optional partition
	► The optional `controlledHwElement`
	This constraint may be violated. All component prototypes that you add are automatically mapped to the selected ECU instance. These mappings are aggregated under a custom `SwcToEcuMapping` only used for these component prototypes. There may already exist a `SwcToEcuMapping` for the `EcuInstance` in your system description.
Rationale:	

3.3. Changes in version 1.6.0

3.3.1. Changes/new features

Summary:	**Connection Editor: Allow connection of incompatible ports**
Description:	Now it is possible to connect incompatible ports in Connection Editor.
ID:	ASCSWCAS-528

3.4. Changes in version 1.5.1

3.4.1. Changes/new features

Summary:	**Internal module improvement**
Description:	This module version update does not affect module functionality.
ID:	ASCSWCAS-510

3.5. Changes in version 1.5.0

3.5.1. Changes/new features

Summary:	**Support for connecting service ports from command line**

Description:	In previous releases of the Connection Editor, the auto-connect command was available only from the Connection Editor. Now the auto-connect command is available from the command line.
ID:	ASCSWCAS-475

3.6. Changes in version 1.4.7

3.6.1. Fixed problems

Summary:	**NullPointerException on opening Connection Editor**
Description:	In previous releases of the Connection Editor, a null pointer exception was triggered when you expand the node of component prototypes or when you expand a specific node of a port inside the component prototype in the Connection Editor. Thas was because if inside the configuration had an invalid reference to the ports. This bug is fixed now.
ID:	ASCSWCAS-473

3.7. Changes in version 1.4.2

3.7.1. Fixed problems

Summary:	**Connection Editor allows to create multiple instances of single-instance AtomicSw-Components**
Description:	In previous releases of the Connection Editor, you were able to instantiate an `AtomicSw-ComponentType` more than once even if the attribute `supportsMultipleInstantiation` of its `InternalBehavior` was set to false. This bug is fixed now.
ID:	ASCSWCAS-403

Summary:	**You cannot add connections if a connector across ECU boundaries exists in the system model**
Description:	In previous releases, a null pointer exception was logged when you tried to add a connector and another connector across ECU boundaries existed. Now, the Connection Editor shows connectors across ECU boundaries. The connectors across ECU boundaries are shown with an updated icon which resembles a *cut connection*. The target from the other ECU is also computed and displayed.

ID:	ASCSWCAS-426

3.7.2. Changes/new features

Summary:	**Multi-select enabled actions have one undo/redo step**
Description:	In the Connection Editor, the undo/redo action now works in one step for actions executed for multiple selected elements at once.
ID:	ASCSWCAS-397

Summary:	**The Connection Editor shows the port interface name**
Description:	The Connection Editor shows the port interface name in the main table and the **Add Connector** dialog.
ID:	ASCSWCAS-313

3.8. Changes in version 1.4.0

3.8.1. Changes/new features

Summary:	**The Connection Editor shows compositions and components that are implicitly mapped to the current ECU**
Description:	The Connection Editor now shows compositions and components that are implicitly mapped to the current ECU. Compositions that are not mapped to the current ECU but contain components that are mapped to the current ECU are considered implicitly mapped to the current ECU.
ID:	ASCSWCAS-405

3.9. Changes in version 1.3.0

3.9.1. Fixed problems

Summary:	**Changes made by the Signal Mapping Editor or Connection Editor may not be saved to the system model if opened for the second time**

Description:	In previous releases of the Signal Mapping Editor, changes made by using the Signal Mapping Editor or Connection Editor were not saved to the system model under the following circumstance: You created a data mapping using the Signal Mapping Editor and saved the changes. Then again you opened the Signal Mapping Editor and added a new data mapping or opened the Connection Editor, performed any change and saved the changes. Then the changes were not saved and a `NullPointerException` was logged. This bug is fixed now.
ID:	ASCSWCAS-385

Summary:	**Incomplete check of AUTOSAR short name**
Description:	In previous releases of the Connection Editor, the check for an unique AUTOSAR short name was incomplete when you created component prototypes, delegation ports, and connectors. This bug is fixed now.
ID:	ASCSWCAS-110

Summary:	**Connections cannot be added in the Connection Editor**
Description:	In previous releases of the Connection Editor, you could not add a connector in the Connection Editor if the system model contained a delegation connector with an invalid outer port reference. This bug is fixed now.
ID:	ASCSWCAS-363

3.9.2. Changes/new features

Summary:	**Support multiple selection of elements**
Description:	You can now select multiple elements in the main tree view. Several actions now support multiple elements at once, such as delegating ports or removing connectors or component prototypes.
ID:	ASCSWCAS-367

3.10. Changes in version 1.2.0

3.10.1. Fixed problems

Summary:	**The inner port is no longer removed**

Description:	In previous releases of the Connection Editor, if you deleted a recently created delegation port, the inner port was removed also. This bug is fixed now.
ID:	ASCSWCAS-360

3.11. Changes in version 1.1.0

3.11.1. Fixed problems

Summary:	**Unchecked multiplicity constraints for adding connections**
Description:	In previous releases of the Connection Editor, multiplicity constraints for adding connections to client-server, `ModeSwitch`, and trigger ports were not checked. This bug is fixed now.
ID:	ASCSWCAS-328

Summary:	**Only directly connected ports are filtered out**
Description:	In previous releases of the Connection Editor, only directly connected ports were filtered out if you selected a port to be connected. This bug is fixed now.
ID:	ASCSWCAS-330

Summary:	**Filter text has no effect on connectors**
Description:	In previous releases of the Connection Editor, when you entered a search string in the text box **type filter text**, it had no effect on connectors. This bug is fixed now.
ID:	ASCSWCAS-327

Summary:	**Newly created ports cannot be connected**
Description:	In previous releases of the Connection Editor, you could not connect newly created delegation ports. This bug is fixed now.
ID:	ASCSWCAS-325

Summary:	**Delegation connector is added instead of an assembly connector**
Description:	In previous releases of the Connection Editor, a delegation connector was added instead of an assembly connection under certain circumstances. This bug is fixed now.
ID:	ASCSWCAS-324

Summary:	**`AddComponentPrototype` allows to add a non-unique name**

Description:	In previous releases of the Connection Editor, you could add a component prototypes with a non-unique name if multiple prototypes are added at once. This bug is fixed now.
ID:	ASCSWCAS-323

Summary:	**AddComponentPrototype dialog does not show icon for service component**
Description:	In previous releases of the Connection Editor, no icon was shown in the **Add component** dialog for service component types. This bug is fixed now.
ID:	ASCSWCAS-321

3.11.2. Changes/new features

Summary:	**Missing constraints for connecting ports are added**
Description:	Additional checks for AUTOSAR constraints concerning port connectability are added: constr_1101, constr_1104, constr_1202, constr_1204
ID:	ASCSWCAS-318

Summary:	**Improved prevention of creation of cyclic composition hierarchies**
Description:	Improved prevention of creation of cyclic composition hierarchies in `AddComponentPrototypesDialog`.
ID:	ASCSWCAS-299

Summary:	**Compositions without children are hidden**
Description:	Changed display of compositions to hide compositions that contain neither component prototypes nor ports that pass the current filter settings.
ID:	ASCSWCAS-311

Summary:	**Added action to copy short name to clipboard in main tree table**
Description:	Restructured actions to be available in the tool bar and added an action to copy short names to the clipboard in the main tree table.
ID:	ASCSWCAS-286

Summary:	**Improved GUI in the Auto Connect section**
Description:	Added check boxes to enable and disable single auto connect rules and added a comment field to auto connect rules in the **Auto Connect** section.
ID:	ASCSWCAS-314

Summary:	**Implemented undo and redo support**

Description:	Undo and redo support is implemented for the Connection Editor.
ID:	ASCSWCAS-306

3.12. Changes in version 1.0.0

3.12.1. Changes/new features

Summary:	**Initial release**
Description:	Initial release of the Connection Editor.

4. Release notes System Model Viewer

4.1. Version information

Release notes for System Model Viewer 1.0.

4.2. Changes in version 1.0.0

4.2.1. Changes/new features

Summary:	Initial release
Description:	Initial release of the System Model Viewer.

5. Release notes Signal Mapping Editor

5.1. Version information

Release notes for Signal Mapping Editor 1.3.0.

5.2. Limitations and restrictions

Summary:	`TriggerToSignalMapping` instances are not supported
Description:	The Signal Mapping Editor does neither display trigger ports and `TriggerToSignalMappings` nor can you add `TriggerToSignalMappings` instances.
Rationale:	
Workaround:	Create `TriggerToSignalMapping` instances outside of EB tresos Studio and use the system description importer to import them into your project.
ID:	ASCSWCAS-375

Summary:	`SenderReceiverCompositeElementToSignalMapping` not supported
Description:	A `SenderReceiverCompositeElementToSignalMapping` is used to map an `ApplicationCompositeElementDataPrototype` that is aggregated within a composite data type (record element or array element) to a `SystemSignal`. The Signal Mapping Editor does currently neither display `SenderReceiverCompositeElementToSignalMapping` instances nor can you add them.
Rationale:	
Workaround:	Create `SenderReceiverCompositeElementToSignalMapping` instances outside of EB tresos Studio and use the system description importer to import them into your project.

Summary:	`ClientServerToSignalGroupMapping` not supported
Description:	The concept of `ClientServerToSignalGroupMapping` introduced in AUTOSAR R4.-0.1 was removed in 4.2.1 and is unsupported by the Signal Mapping Editor.
Rationale:	
Workaround:	Create `ClientServerToSignalGroupMapping` instances outside of EB tresos Studio and use the system description importer to import them into your project.

Summary:	**No detailed view of `SenderReceiverToSignalGroupMapping` instances that were created outside of EB tresos Studio available**
Description:	Currently details of `SenderReceiverToSignalGroupMapping` instances (the subelement mappings) can only be displayed for mappings created by the Signal Mapping Editor.
Rationale:	

Summary:	**`DataMapping.communicationDirection` is unsupported**
Description:	Currently the attribute `DataMapping.communicationDirection` is not set by the Signal Mapping Editor. Any added data mappings that reference a `PRPortPrototype` instance are therefore not considered valid according to AUTOSAR.
Rationale:	
Workaround:	Create data mappings for `PRPortPrototypes` outside of EB tresos Studio and use the system description importer to import them into your project.
ID:	ASCSWCAS-395

5.3. Changes in version 1.6.0

5.3.1. Changes/new features

Summary:	**Support automatic mapping for signal groups**
Description:	In the Signal Mapping Editor, automatic mapping signal groups is possible. It is also available from the command line version.
ID:	ASCSWCAS-517

5.4. Changes in version 1.5.1

5.4.1. Changes/new features

Summary:	**Internal module improvement**
Description:	This module version update does not affect module functionality.

ID:	ASCSWCAS-510

5.5. Changes in version 1.5.0

5.5.1. Changes/new features

Summary:	**Support for connecting service ports from command line**
Description:	In the Signal Mapping Editor now the auto-map command is available from the command line.
ID:	ASCSWCAS-475

5.6. Changes in version 1.4.7

5.6.1. Changes/new features

Summary:	**Support byte array to signal group mapping**
Description:	In the Signal Mapping Editor now you can map byte arrays to signal groups.
ID:	ASCSWCAS-460

5.7. Changes in version 1.4.2

5.7.1. Changes/new features

Summary:	**Multi-select enabled actions have one undo/redo step**
Description:	In the Signal Mapping Editor, the undo/redo action now works in one step for actions executed for multiple selected elements at once.
ID:	ASCSWCAS-397

Summary:	**The Signal Mapping Editor now allows mapping of byte array signals to a primitive type**
Description:	The Signal Mapping Editor now gives the possibility to map byte array signals to a primitive type. When starting the Add SenderReceiverToSignalMapping Editor, the signals with base type UInt8_n are now shown as compatible signals. The Signals with the same base type as the DataElement are now displayed at the begining of the list inside the SenderReceiverToSignalMapping Editor. The signals with base type UInt8_n are displayed at the end of the list.
ID:	ASCSWCAS-399

5.8. Changes in version 1.4.0

5.8.1. Changes/new features

Summary:	**The Signal Mapping Editor shows compositions and components that are implicitly mapped to the current ECU**
Description:	The Signal Mapping Editor now shows compositions and components that are implicitly mapped to the current ECU. Compositions that are not mapped to the current ECU but contain components that are mapped to the current ECU are considered implicitly mapped to the current ECU.
ID:	ASCSWCAS-405

5.9. Changes in version 1.3.1

5.9.1. Fixed problems

Summary:	**The Signal Mapping Editor now displays all ports if a data element typed by a composite data type is mapped via a SenderReceiverToSignalMapping**
Description:	In previous releases of the Signal Mapping Editor, the ports were not displayed if a data element typed by a composite data type was mapped via a `SenderReceiverToSignalMapping`. This bug is fixed now.
ID:	ASCSWCAS-411

5.9.2. Changes/new features

Summary:	**Wildcard search in the Signal Mapping Editor now displays children of elements in the main table**
Description:	In previous releases, a wildcard search in the Signal Mapping Editor displayed only matching elements and their parent structure. Now, also the children structure is displayed.
ID:	ASCSWCAS-374

Summary:	**The Signal Mapping Editor now allows creation of SenderReceiverToSignalMapping for data elements typed by composite data type**
Description:	In previous releases, the Signal Mapping Editor allowed to create only `Sender-ReceiverToSignalGroupMapping` for a data element typed by a composite data type. Now, the Signal Mapping Editor also allows to create SenderReceiverToSignalMapping for such data elements.
ID:	ASCSWCAS-376

5.10. Changes in version 1.3.0

5.10.1. Fixed problems

Summary:	**A ClientServerToSignalMapping cannot be added with only a RETURN signal but no CALL signal**
Description:	When you tried to add a `ClientServerToSignalMapping` in previous releases of the Signal Mapping Editor with only a RETURN signal but no CALL signal to a operation of a ClientServer port, no `DataMapping` was created and a `NullPointerException` was logged. This bug is fixed now.
ID:	ASCSWCAS-393

Summary:	**Changes made by the Signal Mapping Editor or Connection Editor may not be saved to the system model if opened for the second time**
Description:	In previous releases of the Signal Mapping Editor, changes made by using the Signal Mapping Editor or Connection Editor were not saved to the system model under the following circumstance: You created a data mapping using the Signal Mapping Editor and saved the changes. Then again you opened the Signal Mapping Editor and added a new data mapping or opened the Connection Editor, performed any change, and saved

	the changes. Then the changes were not saved and a `NullPointerException` was logged. This is fixed now.
ID:	ASCSWCAS-385

Summary:	**A system signal with base data type `FROM-COM-SPEC` cannot be used for creating `SenderReceiverToSignalMapping`**
Description:	In previous releases of the Signal Mapping Editor, the creation of a `SenderReceiver-ToSignalMapping` was not possible if the base data type of the system signal was `FROM-COM-SPEC`. Now such signals can be mapped to any data element.
ID:	ASCSWCAS-384

Summary:	**Incorrectly displayed dialog for adding or editing `SignalGroupMappings`**
Description:	In previous releases of the Signal Mapping Editor, the dialog for adding or editing `SignalGroupMappings` was displayed incorrectly if the system model contained many elements. This bug is fixed now.
ID:	ASCSWCAS-380

Summary:	**Invalid data mappings are silently ignored during pull with no warning**
Description:	In previous releases of the Signal Mapping Editor, invalid data mappings were not reported when you opened the Signal Mapping Editor. Now invalid data mappings are reported when you open the Signal Mapping Editor and are removed when you save the changes to the system model.
ID:	ASCSWCAS-365

5.10.2. Changes/new features

Summary:	**The Signal Mapping Editor now allows to add data mappings to data elements or operations of ports anywhere in the composition hierarchy**
Description:	In previous releases of the Signal Mapping Editor, only the top level composition and its ports were displayed and available for adding data mappings. Now, the whole composition hierarchy and all `SenderReceiver` and `ClientServer` ports are displayed and data mappings can be added to the data elements or operations of all shown ports.
ID:	ASCSWCAS-377

Summary:	**Support Multi Selection of data mappings**
Description:	You can now select multiple data mappings and delete them at once.
ID:	ASCSWCAS-367

5.11. Changes in version 1.0.0

5.11.1. Changes/new features

Summary:	Initial release
Description:	Initial release of the Signal Mapping Editor.

6. Release notes Export/Import Split Configuration

6.1. Version information

Release notes for Export/Import Split Configuration 1.3.0.

6.2. Limitations and restrictions

Summary:	Input folder path restrictions
Description:	You can only specify one input folder path in the **Import Split Configuration** wizard. All import files need to be placed on the same level within the input folder. Subdirectories are not taken into account. You cannot import files from different input folders in one session.
Rationale:	A complex logic would be needed to import files to two or more locations.

Summary:	Supported file extensions for the importer
Description:	The **Import Split Configuration** wizard only considers input files with `*.arxml` and `*.ecuconfig` extensions.
Rationale:	These extensions are most common.

Summary:	Required naming convention
Description:	The imported files need to follow the naming pattern `<Module Configuration Name>.<SPLITTAG>.<extension>`.
Rationale:	During import, the `<SPLITTAG>` value is set as a **Splittag** custom attribute for all nodes in the input files. During export, all files that contain these nodes have the same names.

Summary:	Output folder path restrictions
Description:	You can only specify one output folder path in the **Export Split Configuration** wizard.
Rationale:	A complex logic would be needed to export files to two or more locations.

Summary:	Exported files
Description:	The **Export Split Configuration** wizard exports at least one file per module.
Rationale:	The files will contain a split configuration based on the values of the splittag.

Summary:	Splittag name
Description:	The `<SPLITTAG>` name must not contain special characters.
Rationale:	The `<SPLITTAG>` name is not allowed to include the following special characters: `/ \ : < ? | * > "`

6.3. Changes in version 2.0.0

6.3.1. Fixed problems

Summary:	**SplittableExporter wizard creates wrong export files with more elements than expected**
Description:	The **Export Split Configuration** wizard exports faulty elements into the generated output files, which causes the project to crash during re-import. This bug is fixed now.
ID:	TOOLSPLITIMEX-64

Summary:	**SplittableImporter wizard loses first part of split tag name if it contains character '.'**
Description:	The **Import Split Configuration** wizard fails to fetch a **SPLITTAG** if it contains multiple '.' characters in the input file name, e.g. `Can.BASE.BASE.arxml`. This bug is fixed now.
ID:	TOOLSPLITIMEX-91

6.3.2. Changes/new features

Summary:	**Allow the separation of parameters according to IMPORTER_INFO during export**
Description:	Implemented **Export data filter** options for the **Export Split Configuration** wizard. This set of options allows you to decide which parameters should be exported to the respective output files.
ID:	TOOLSPLITIMEX-53

Summary:	**Store the IMPORTER_INFO during the import in Replace mode.**
Description:	Implemented the **Restore parameter state information** checkbox for the **Import Split Configuration** wizard. This checkbox gives you the option to restore the `IMPORTER_INFO` of each parameter in the `ADMIN-DATA` tag of `XDM` files.
ID:	TOOLSPLITIMEX-71

Summary:	**Validate splittag name for special characters during export**
Description:	Implemented a validation for special characters when creating the splittag name in **CustomAttributes** of the **Properties** view. When a special character is used as splittag name, an information dialog is displayed that lists all invalid characters.
ID:	TOOLSPLITIMEX-94

6.4. Changes in version 1.5.0

6.4.1. Fixed problems

Summary:	**SplittableExporter wizard exports Calculated and Calculated Default elements to splittag files if the parent container has a SPLITTAG set**
Description:	The **Export Split Configuration** wizard exports the elements `Calculated Default` or `Calculated` to the **SPLITTAG** file if the parent container has the **SPLITTAG** set explicitly. This bug is fixed now.
ID:	TOOLSPLITIMEX-84

6.4.2. Changes/new features

Summary:	**Store IMPORTER_INFO of a parameter**
Description:	Implemented the **Store parameter state information** checkbox for the **Export Split Configuration** wizard. This checkbox gives you the option to store the `IMPORTER_INFO` of each parameter in the `ADMIN-DATA` tag of `ARXML` files.
ID:	TOOLSPLITIMEX-86

6.5. Changes in version 1.4.0

6.5.1. Fixed problems

Summary:	**SplittableImporter wizard imports files that are not covered by include pattern**

Description:	During file import, the **Import Split Configuration** wizard does not consider the `File glob pattern` if the `Select file action` is set to `INCLUDE`. This bug is fixed now.
ID:	TOOLSPLITIMEX-59

Summary:	**SplittableExporter wizard creates wrong export files due to a wrong treatment of split tag, default, and calculated value**
Description:	The **Export Split Configuration** wizard exports the `IMPORTER_INFO` value of `Calculated Default` as `Default`. Also, the wizard ignores the explicitly defined **SPLITTAG** if the `IMPORTER_INFO` type is set to `Calculated` or `Calculated Default`. This bug is fixed now.
ID:	TOOLSPLITIMEX-62

Summary:	**Files created by the SplittableExporter wizard are not shown in project explorer after wizard run**
Description:	The **Export Split Configuration** wizard exports the expected files and contents, but the exported files are not visible in the Project Explorer view. This bug is fixed now.
ID:	TOOLSPLITIMEX-60

Summary:	**Failure to export list elements that are not a container**
Description:	The **Export Split Configuration** wizard fails to export when two or more elements have the same shortname and are marked with different **SPLITTAG**s. This bug is fixed now.
ID:	TOOLSPLITIMEX-51

6.6. Changes in version 1.3.0

6.6.1. Changes/new features

Summary:	**New AUTOSAR version drop-down list box allows the selection of the released AUTOSAR versions**
Description:	Replaced the **AUTOSAR version** text field by the **AUTOSAR version** drop-down list box for the **Export Split Configuration** wizard. The list box allows you to select the desired AUTOSAR version.
ID:	TOOLSPLITIMEX-43

6.7. Changes in version 1.2.0

6.7.1. Changes/new features

Summary:	**Splittag custom attribute provides a drop-down list box with already used tags**
Description:	Implemented a drop-down list box for the **Splittag** custom attribute. The list box provides the splittags that were already used within the selected project.
ID:	TOOLSPLITIMEX-39

Summary:	**Select file action**
Description:	Implemented **Exclude** and **Include** options for the **Import Split Configuration** wizard.
ID:	TOOLSPLITIMEX-38

6.8. Changes in version 1.1.0

6.8.1. Fixed problems

Summary:	**Issues with the preview table of the exporter**
Description:	In the initial release, the preview table of the **Export Split Configuration** wizard configuration page did not show all expected entries. This bug is fixed now.
ID:	TOOLSPLITIMEX-10

Summary:	**No error message when exporting with an unsupported AUTOSAR version**
Description:	No error message appeared, if you tried to run the export with an unsupported AUTOSAR version in the initial release. This bug is fixed now.
ID:	TOOLSPLITIMEX-21

6.8.2. Changes/new features

Summary:	**Replace or Merge option**
Description:	Implemented **Replace** and **Merge** options for the **Import Split Configuration** wizard.

ID:	TOOLSPLITIMEX-9

6.9. Changes in version 1.0.0

6.9.1. Changes/new features

Summary:	**Initial release**
Description:	Initial release of the **Export/Import Split Configuration** unattended wizards.