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## Release Notes

### Release v4.2.14 (9 items)

#### C++

TES-3714

Fixed error in generated driver for function with template parameter.

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#### CTE

TES-3704

Fixed an missing update of the advanced stub call vector size when using vector values (e.g. "{1,2,3}").

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#### CTE

TES-3705

Fixed problem with dynamic objects: Dynamic test data entries were deleted in CTE when not referenced by a pointer in the same CTE node.

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#### Compiler/Target/Microcontroller

*Enhancement*

TES-3657

Reduced test execution time for NXP (former Freescale) CodeWarrior 10/11.

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#### Compiler/Target/Microcontroller

TES-3713

Fixed Makefile template for GNU Tools for ARM with TRACE32.

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#### Compiler/Target/Microcontroller

*Enhancement*

TES-3719

Implemented optional SOFT breakpoints for TRACE32's timer feature.

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#### Driver

TES-3715

Fixed possible error generating driver if a pointer targets a dynamic object created at another pointer in "Inputs" section of TDE and a normal target in "Outputs" section or vice versa.

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## Release v4.2.14 (9 items)

### Interface Editor (TIE)

TES-3722

If a class members was set to EXTERN all members might become EXTERN when loading the test object again.

### Test Execution

TES-3708

Fixed possible error generating report during batch test execution when advanced stubs are used for other test objects called by the test object under test.

## Release v4.2.13 (35 items)

### ASAP Conversion

TES-3680

Fixed reuse of expressions in modules where ASAP is enabled.

### C++

TES-3619

Fixed problem testing functions using a class where a member variable and an inherited member variable have an equal name.

### CTE

TES-3672

CTE-536 Fix an error in the image export of CTE diagrams grey as default color in the view showing the root node.

### CTE

TES-3686

Fixed saving values for union components.

### Compiler/Target/Microcontroller

TES-3578

Added C++ support for IAR 8051.

**New Feature**

### Compiler/Target/Microcontroller

TES-3610

New combination for HighTec TriCore compiler and TASKING VX debugger.

**New Feature**

### Compiler/Target/Microcontroller

TES-3621

Fixed Microchip dsPIC configuration regarding Object Module Format.

### Compiler/Target/Microcontroller

TES-3644

Implemented support of Check Driver Layers type test for 16 bit targets.

**Enhancement**

### Compiler/Target/Microcontroller

TES-3647

Fixed building of board files in Renesas RX(++) e2studio Makefile templates.

**Release v4.2.13 (35 items)****Compiler/Target/Microcontroller*****New Feature***

TES-3648

Added C++ support for IAR RX.

**Compiler/Target/Microcontroller*****Enhancement***

TES-3649

Added File Compression support for 16 bit character targets.

**Compiler/Target/Microcontroller**

TES-3650

Fixed Check Driver Layers feature for Green Hills MULTI.

**Compiler/Target/Microcontroller*****Enhancement***

TES-3666

Implemented parallel execution support for TASKING VX. Set attribute "Target Concurrency" to 1 when using hardware.

**Compiler/Target/Microcontroller**

TES-3677

Fixed possible compile time error concerning tstcomm\_send\_compress().

**Compiler/Target/Microcontroller*****Enhancement***

TES-3695

Changed default optimization in TEE attribute Tricore Compiler Options to no optimization.

**Defines**

TES-3661

Fixed possible access violation in defines parser.

**Driver**

TES-2790

Fixed erroneously generated test driver for anonymous unions in IAR compiler headers.

**Driver**

TES-3039

Fixed evaluation of reference member variables.

**Driver**

TES-3625

Fixed terminating master after slave exits with error.

**Driver**

TES-3629

Fixed possible missing function prototypes in generated slave source files in modules with multiple source files.

**Driver**

TES-3667

Fixed erroneous namespace for inner struct in class used as parameter for a constructor of a class in a different namespace.

## Release v4.2.13 (35 items)

### Driver

TES-3687

Fixed generating advanced stub variable declarations with typedef names containing 'struct', 'union' or 'enum' as part of the name.

### Instrumenter

TES-3626

Fixed wrongly instrumented code for CPC coverage in case of a switch expression that was surrounded with additional parentheses.

### Instrumenter

TES-3673

The module attribute "Instrumentation Exclude List" was not working for inline functions.

### Interface Database (IDB)

TES-3630

Possible wrong call trace and/or stub code if template functions were used.

### Interface Database (IDB)

TES-3631

Exclude template functions as test objects.

### Parser

TES-3671

Fixed parsing source using `_Static_assert` with legacy parser.

### Script Editor

TES-3623

Fixed erroneous test data status (grey test cases) in case of unused dynamic objects still present within script inputs section.

### Script Editor

TES-3662

Correctly parse multiline strings with Unix EOL in scripts.

### TESSY (General)

TES-3639

Add filter text in Attribute Section in Properties View.

*Enhancement*

### TESSY (General)

TES-3668

Fixed potentially suppressed error messages within the messages view.

### Test Data Editor (TDE)

TES-3642

Fixed "Copy Actual Value" for arrays.

## Release v4.2.13 (35 items)

### Test Database (TDB)

TES-3627

Fixed missing values of dynamic objects (that have passing OUT only) if a new dynamic object was created after a new test case was added.

### Test Database (TDB)

TES-3654

Fixed copying inherited test steps within the test items view. Inherited test data has not been copied to the newly pasted test steps.

### Variant Management

TES-3640

Corrected behavior for overwriting inherited test cases.

## Release v4.2.12 (24 items)

### C++

TES-3576

Fixed parser crash if a call expression is used to initialize an enumeration value.

### CTE

TES-3565

Fix the execution result icon in the CTE is not synchron with the icon in the project view.

### CTE

TES-3604

***New Feature***

CTE-530 Fix replacing a string with the empty string is not allowed.

CTE-521 Fix some problems with the find next/previous button in the CTEs find dialog.

CTE-523 Fixed wrong initial path in save to dialog

CTE-172 Now warning decorations will also be attached to dependencies.

CTE-516 The CTEs search result view has now a refresh button.

CTE-467 Now it is also possible to show only relevant or transitive relevant dependencies.

CTE-466 The line from a leaf class to its mark was not correctly aligned for some special cases.

CTE-495 CTE has now a context menu entry to delete all styles of the selected object. Remark: Inherited styles are not affected by this.

CTE-518 Fix that the number of test cases in nested groups is zero.

CTE-377 Fix the mark of a white class between two colored classes is not white but has the color of the left class.

CTE-483 Now leaf class sorting feature based on the node name is available.

CTE-512 Fix error when migrating legacy CTE files with refinements without content.

### Compiler/Target/Microcontroller

TES-2427

***Enhancement***

Changed communication technique for the MetaWare debugger to improve execution speed. Please, refer to the application note for further important hints.

### Compiler/Target/Microcontroller

TES-3556

***Enhancement***

Updated GNU Tools for ARM TKS file and Makefile template.

## Release v4.2.12 (24 items)

### Compiler/Target/Microcontroller

TES-3564

Fixed THAI for GCC/CDT.

### Compiler/Target/Microcontroller

TES-3566

Added backward compatibility for older Keil (X)C166 compilers.

### Compiler/Target/Microcontroller

TES-3575

The communication type for the e2 studio adaption changed to file communication. Please open TEE once and save the configuration.

*Enhancement*

### Compiler/Target/Microcontroller

TES-3577

Fixed built-in module, which failed to compile using the callback function.

### Compiler/Target/Microcontroller

TES-3588

Updated IAR TKS template file.

*Enhancement*

### Compiler/Target/Microcontroller

TES-3592

Added Makefile template for TASKING ARM and Lauterbach TRACE32 to use the carm compiler instead of ccarm.

*New Feature*

### Compiler/Target/Microcontroller

TES-3595

Implemented file communication for Green Hills MULTI. Please read the application note for important instructions!

*Enhancement*

### Compiler/Target/Microcontroller

TES-3606

Added missing UDE master object file.

### Component Test

TES-3558

Fixed error in test driver if a mode variable is used that is not defined in the first source file.

### Driver

TES-3591

Fixed possible crash when generating the test driver for a component test.

### Import/Export

TES-3616

PTU import now supports range based indices for arrays, e.g. ARRAY myArray[0..9], INIT = { 0..8 =&gt; 5, others =&gt; 0}

*Enhancement*

## Release v4.2.12 (24 items)

### Interface Database (IDB)

TES-3611

Fixed false negative message that a dynamic object has been removed when auto reusing a test object.

### Parser

TES-3617

Fixed detecting pass direction of dereferenced struct pointer components. This changed behavior of the parser can be disabled to keep compatibility with earlier TESSY v4.x minor versions by adding a boolean type attribute "Disable TES-3617" into the TEE configuration of your project with a value of "true".

### TESSY (General)

TES-3505

Toggle check boxes in the test object filter dialog using the space key.

*Enhancement*

### TESSY (General)

TES-3563

Fixed preferences occasionally being reset to their default values when starting TESSY.

### TESSY (General)

TES-3614

Fixed missing refresh of compiler includes/defines after updates of TEE environments. The module properties still showed old inherited values and those old values were also written into the control files for module analysis.

### Test Data Editor (TDE)

TES-3585

Fixed possible error with advanced stub variables after analyze in test object in called function using const variables.

### Test Data Editor (TDE)

TES-3596

Automatically make matching array elements visible when searching for the next/previous passed/failed/undefined value in the test data editor.

### Variant Management

TES-3590

Inherit/overwrite description and specification for variant modules and test items.

*Enhancement*

## Release v4.2.11 (30 items)

### ASAP Conversion

TES-3504

Added new attribute "Enable ASAP Test File" (default: true) to enable/disable loading of ASAP test file.

*Enhancement*

### ASAP Conversion

TES-3523

The attribute "Float Eval Epsilon" is not applied any more to physical integer values.

## Release v4.2.11 (30 items)

### ASAP Conversion

TES-3552

Fixed missing MIN/MAX values within ASAP properties if the environment variable ASAP\_IGNORE\_FORMAT\_FOR\_MIN\_MAX was used.

### C++

TES-3503

Default constructors for STL classes will not be generated into the test driver application any more.

### Compiler/Target/Microcontroller

*Enhancement*

TES-3458

Updated TKS file for Microchip compilers.

### Compiler/Target/Microcontroller

*Enhancement*

TES-3463

Significantly diminished test execution time using PLS UDE.

### Compiler/Target/Microcontroller

TES-3481

Fixed timer file feature in communication Makefiles and Makefile templates.

### Compiler/Target/Microcontroller

TES-3489

Updated MPLAB X TESSY target handler to support ATSAMD21G17D.

### Compiler/Target/Microcontroller

TES-3513

Fixed THAI implementation in combination with file communication.

### Compiler/Target/Microcontroller

*Enhancement*

TES-3526

IAR ARM was set to obsolete. It was replaced by IAR ARM V5 long ago.

### Compiler/Target/Microcontroller

*Enhancement*

TES-3536

Set attribute "Post Execution Command" for MPLAB and set attribute "Quit Target Handler" to false.

### Compiler/Target/Microcontroller

TES-3538

Fixed Microchip XC32 Makefile templates regarding linker script option.

### Compiler/Target/Microcontroller

*Enhancement*

TES-3540

Updated GNU ARM TKS file.

### Compiler/Target/Microcontroller

TES-3544

Fixed type table file link for Linaro GNU ARM C++.

## Release v4.2.11 (30 items)

### Compiler/Target/Microcontroller

*Enhancement*

TES-3546

TEE attribute "Method Stub Exclude List" was set to std::\* by default.

### Compiler/Target/Microcontroller

TES-3548

Fixed some bugs regarding Synopsys MetaWare debugger and added support for parallel execution.

### Driver

*Enhancement*

TES-3506

Enabled Attribute 'Synthetic Declarations In Source' for CLANG driver.

### Import/Export

TES-2034

Fixed importing test data for dynamic objects for

- pointer to pointer
- dynamic structs with struct array component
- dynamic objects from pointer components inside dynamic array of structs

### Instrumenter

TES-3553

Fixed CPC instrumentation when sizeof( ) is used as parameter for a function call.

### Interface Editor (TIE)

*Enhancement*

TES-3266

Disabled 'Use In Report' for IRRELEVANT variables.

### Interface Editor (TIE)

TES-3539

Allow passing IN for a parameter reference to class without members.

### Parser

TES-3480

Fixed TKS file for Keil C166 and C51 compilers.

### Parser

*Enhancement*

TES-3508

Added CLANG support for Synopsys DesignWare and MetaWare compilers.

### Parser

TES-3519

Fixed TKS file for IAR concerning va\_list.

### Parser

TES-3528

Updated TKS file for ARM V5.

## Release v4.2.11 (30 items)

### Parser

TES-3543

If a struct without a tagname is used as recursion pointer target, the parser was unable to find the pointer target type id.

### Requirements

TES-1881

Added import/export of link matrix in XML format.

*Enhancement*

### Script Editor

TES-3545

Fix test steps with unused dynamic objects not being executable after committing the script editor.

### TESSY (General)

TES-3532

Added support for UNC paths including the user appdata directory.

*Enhancement*

### Test Evaluation

TES-3530

The "Float Eval Epsilon" attribute will now also be applied for float values when using the eval mode "not equal". A deviation within the epsilon range will be evaluated as failed (e.g. an actual value of 1.009 will be failed for an expected value of !=1.0 if the epsilon is 0.01).

## Release v4.2.10 (24 items)

### ASAP Conversion

TES-3487

Fixed parse error for A2L files containing "\\" as string.

### CTE

TES-3128

Now "Find CTE Validation Issues" context menu entry is available in the document tree view to find validation issues in CTE documents referenced by test objects. Results will be listed in the problems view.

*Enhancement*

### CTE

TES-3373

Now a classification is generated for a nested enum in (pointer to) structure.

### CTE

TES-3459

Fix CTE opens for test objects with incomplete interface.

### CTE

TES-3464

Fixed an error which prevents the update of the result status of CTE test case icons.

*Enhancement*

## Release v4.2.10 (24 items)

### CTE

TES-3474

Fix interface elements are still associated with CTE node after setting passing to "IRRELEVANT".

### CTE

TES-3475

TESSY will now show a warning if a CTE file specified for a test object does not exist.

### Command Line (tessycmd)

TES-3491

TESSYD failed to stop the running instance if TESSY is installed inside a folder that resides on a drive created with 'subst'.

*Enhancement*

### Compiler/Target/Microcontroller

TES-3423

Added "defines" support for Microchip AVR IDB Makefile.

*Enhancement*

### Compiler/Target/Microcontroller

TES-3444

Keil ARMv5 IDB Makefile now supports preprocessing source files with doxygen comments.

### Compiler/Target/Microcontroller

TES-3447

Updated IAR ARM V5 Makefiles.

*Enhancement*

### Compiler/Target/Microcontroller

TES-3451

Updated IAR RL78 V2 configurations.

*Enhancement*

### Compiler/Target/Microcontroller

TES-3456

Implemented File Communication for PLS UDE.

*Enhancement*

### Compiler/Target/Microcontroller

TES-3465

New combination of GNU Tools for ARM compiler with iSYSTEM winIDEA debugger.

*Enhancement*

### Compiler/Target/Microcontroller

TES-3495

Adapted IDB Makefile for XC8-CC to support the latest compiler version.

*Enhancement*

### Defines

TES-3486

Fixed possible wrong calculation of 64 bit integer expressions and defines.

### Instrumenter

TES-3469

Insert User Declarations to source file if test runs with fault injection.

## Release v4.2.10 (24 items)

### Instrumenter

TES-3501

The instrumenter failed to find the test object if a class or struct is present that initializes a field using an alignof operator.

### Parser

TES-3482

Fixed problem in idb-arm-gcc.mak that occurred when parsing multiple source files.

### Parser

TES-3490

Fixed finding doxygen specification for functions if the doxygen feature 'grouping' is used.

### Requirements

*Enhancement*

TES-3492

Added UUID of modules, test objects and test cases into Excel export of link matrix. Also added Excel import function that creates links for the elements available within the link matrix.

### Save/Restore Database (TMB Files)

TES-3473

Fixed non-functional "No" button within save modules dialog when closing TESSY.

### TESSY (General)

TES-3472

Generate doxygen specification although doxygen has written an error log file.

### Test Execution

TES-3499

Fixed potential deadlock during test execution.

## Release v4.2.9 (33 items)

### CTE

*Enhancement*

TES-2020

Now the CTE migration dialog remembers the user decision

### CTE

TES-3368

Fixed generating pointer value classes for \*min\* and \*max\* values (now without parentheses which caused the generated test data for pointer values being invalid).

### CTE

TES-3376

Fix missing CTE node name to test data generation for pointer parameters with INOUT target passing.

### CTE

TES-3378

Fix that the "CTE Node name to test data" evaluates macros instead of saving the macro expression.

**Release v4.2.9 (33 items)****CTE**

TES-3392

Extended generated 'Return' node subtree in external function call when structure is returned.

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**CTE**

TES-3415

Enhanced node name wording for generated min/max class nodes.

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**Enhancement****CTE**

TES-3429

Fixed a NPE when saving the CTE after deleting a tree node.

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**CTE**

TES-3430

Optimized the CTE save process.

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**CTE**

TES-3439

CTE\_505 Now some more space was added to the table bottom to optimize better context menu handling

CTE\_507 The Search Result View allows now to replace the text in the selected or in all rows.

CTE\_512 Fix error when migrating legacy CTE files with refinements without content.

CTE\_444 Optimized mark cursor positioning when switching between refinements.

CTE\_511 Fix error with copy and paste refinements.

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**Compiler/Target/Microcontroller**

TES-2047

Enabled CLANG support for IAR STM8 by default.

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**Enhancement****Compiler/Target/Microcontroller**

TES-2367

Added CLANG support for Keil compilers.

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**Enhancement****Compiler/Target/Microcontroller**

TES-3366

Fixed defines problem for Fujitsu FFMC32/FFMC16 compiler.

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**Compiler/Target/Microcontroller**

TES-3389

Fixed duplicate defines header feature, which failed for paths containing spaces.

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**Compiler/Target/Microcontroller**

TES-3428

Fixed Makefile templates for Green Hills/e2studio and HighTec TriCore/TRACE32/winIDEA which contain TASKING\_HOME by mistake.

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**Compiler/Target/Microcontroller**

TES-3434

Fixed problem that may occur when switching between socket and file communication with TRACE32. Please remove all TS\_SUPPORT\_SCRIPT defines from your project's Makefile templates.

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## Release v4.2.9 (33 items)

### Component Test

TES-3443

Test was executable although no work task was selected.

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### Coverage Measurement

TES-2988

Added attribute 'Instrumentation Exclude List' to specify functions to be excluded from coverage measurement.

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*Enhancement*

### Defines

TES-3374

Added attribute "Define Value Collapse Exclude List" to exclude defines from being collapsed.

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### Driver

TES-3355

Fixed generated code for array with pointers to array with pointers of any type.

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### Driver

TES-3394

Fixed generating enum initialization for C++ standard 98 and 03.

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### Driver

TES-3411

Fixed crash of master after slave signals an error.

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### Instrumenter

TES-3425

Fixed instrumenting methods after an access specifier following a deleted function.

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### Instrumenter

TES-3427

Fixed erroneous call pair coverage code at asm(...) statements.

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### Interface Assigner (IDA)

TES-3401

Fixed assignment of test objects with CTE specification containing references to interface objects.

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### Interface Database (IDB)

TES-3370

When CLANG is enabled unknown array sizes are now ignored if the array is IRRELEVANT.

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*Enhancement*

### Interface Database (IDB)

TES-3377

Fixed initial passing of new componts in advanced stub struct variable.

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### Interface Database (IDB)

TES-3436

Fixed problem with comments in defines for Keil ARM v5 IDB Makefile.

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## Release v4.2.9 (33 items)

### Interface Editor (TIE)

TES-3369

Allow editing unknown array size at advanced stub variables.

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### Makefile Templates

TES-3391

Fixed include option for TI ARM IDB Makefile.

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### Parser

TES-3381

Fixed recognizing integer type and size of typedefs using mode attribute for Microchip AVR compiler.

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### Parser

TES-3426

Fixed parsing `__attribute__((__vector_size__(x)))`.

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### Scenario Editor (SCE)

TES-3433

Removed sorting of work tasks when saving a scenario.

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### Script Editor

TES-3384

Enhanced syntax error messages when importing script files.

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*Enhancement*

## Release v4.2.8 (41 items)

### C++

TES-3263

Fixed possible invalid interface database if enum types are declared inside a class.

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*Enhancement*

### C++

TES-3310

Fixed generating helper variable names for advanced stub functions if an overloaded operator is used as advanced stub.

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### CTE

TES-3233

Now synthetic variables are considered for tree generation by default.

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*Enhancement*

### CTE

TES-3282

CTE\_508 FIX error during batch exports.

CTE\_506 FIX error after closing an refinement editor.

CTE\_509 Reduce low level parallelization which leads to deadlocks in some cases.

CTE\_499 Fixed random sorting of table entries on drag&drop operation

CTE\_93 Now a search dialog is available to find strings in tree nodes and table entries.

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## Release v4.2.8 (41 items)

### CTE

TES-3309

Fixed generating CTE for interface containing only external and no other global variables.

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### CTE

TES-3337

Fixed restoring module with CTE file located outside database folder.

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### Compiler/Target/Microcontroller

*New Feature*

TES-2939

New NXP Clang compiler with NXP Smart Card Composer's gdbserver as debugger.

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### Compiler/Target/Microcontroller

*Enhancement*

TES-3205

Fixed tks file for TASKING TriCore: remove \_\_align from analyzing.

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### Compiler/Target/Microcontroller

TES-3206

Fix pragma asm problem in Green Hills tks file.

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### Compiler/Target/Microcontroller

*Enhancement*

TES-3243

TI TMS 320/C2000: Improved handling of special keywords for the CLANG parser.

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### Compiler/Target/Microcontroller

TES-3267

Es fehlt <token name="\_Bool" value="TK\_BOOL" output="\_Bool"/>

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### Compiler/Target/Microcontroller

TES-3302

Fixed COMM-Makefiles. Generate Builtin Data failed in combination with support callback.

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### Compiler/Target/Microcontroller

*Enhancement*

TES-3335

Updated Wind River TriCore / Lauterbach TRACE32 Makefile template to support quotation marks within defines and removed wrenv dependency.

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### Compiler/Target/Microcontroller

TES-3336

Fixed Renesas SuperH / Lauterbach TRACE32 COMM Makefile.

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### Compiler/Target/Microcontroller

*Enhancement*

TES-3341

Optimized handling of arrays within the TESSY-MATLAB interface.

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### Component Test

TES-3214

Fixed missing test evaluation of component tests when the "Apply to test result" preference option is set for a metric.

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## Release v4.2.8 (41 items)

### Defines

TES-3316

Fixed possible crash in defines parser when defines contain their name in the value (e.g. #define IO\_ADDRESS IO\_STRUCT.IO\_ADDRESS)

### Defines

TES-3346

Some define values were possibly not available if a source contains defines without a value.

### Driver

TES-1857

Use Module stub code for unused external functions if available.

*Enhancement*

### Driver

TES-3245

Sort compiler includes such that module includes are displayed first (and also used first when compiling the test driver code).

*Enhancement*

### Driver

TES-3296

Fixed duplicate const at pointer to array parameter declaration.

### Driver

TES-3350

Fixed generating initializer for enum class types.

### Fault Injection

TES-3198

Fault injection could fail, if more than one source file was present in a module.

### Instrumenter

TES-3351

Fixed instrumenting test object declared extern "C" inside C++ namespace.

### Interface Assigner (IDA)

TES-3332

Fixed possibly incorrect test data, user code and CTE tree after renaming a test object.

### Interface Database (IDB)

TES-3276

If an advanced stub pointer targets a component inside a dynamic struct the value was lost after an interface change.

### Interface Database (IDB)

TES-3325

Fixed erroneous display and driver of constructor with a function pointer parameter and following parameter.

## Release v4.2.8 (41 items)

### Interface Editor (TIE)

TES-3329

Fixed initial passing for advanced stub variables that are pointers to incomplete structs.

### Parser

TES-3199

Speed up the preparation of very large files with a huge number of empty lines for analysis.

*Enhancement*

### Parser

TES-3291

Fixed parsing @ address directives for Cosmic compiler with legacy parser.

### Parser

TES-3328

Fixed "asm volatile" problem in tks-windriver.tpl.

### Plot View

TES-3287

Fixed potential exception in plot view when selecting modules, tasks, folders or test collections during the plot view update.

### Report

TES-3314

Added optional TS/C metric into test details report.

### Report

TES-3323

Fixed column width of statistics table within test details report.

*Enhancement*

### Requirements

TES-3339

Various bugfixes for ReqIF import and export.

### Requirements

TES-3420

Fixed possible deadlock when creating/editing/deleting attributes for requirement and test case documents. Also fixed possible deadlock for ReqIF import using attributes.

### Test Data Editor (TDE)

TES-3237

Fixed handling of erroneous inputs within "Show Array Elements" dialog.

### Test Data Editor (TDE)

TES-3300

Fixed displaying test data of member variables of class reference parameter.

### Test Data Editor (TDE)

TES-3312

Fixed creating dynamic object for triple \*\*\* pointer.

## Release v4.2.8 (41 items)

### Variant Management

TES-3297

Fixed transferring call trace and prolog/epilog to variant module from test cases created with CTE in the base module.

### Variant Management

TES-3298

Fixed synchronising test data from CTE. Inherited test data was possibly marked as overwritten.

## Release v4.2.7 (43 items)

### C++

TES-3202

The "this" object was sometimes not visible in test data editor TDE.

### C++

TES-3239

Added new attributes 'Declare Constructors' and 'Deleted Constructors' to handle classes without or explicit deleted default constructor.

### CTE

TES-3159

Fixed generating classification tree for bit field components.

### CTE

TES-3217

From now modules can only be analyzed if all its CTE documents are saved. Moreover the CTE documents are closed automatically to force a reopen after module analysis.

*Enhancement*

### CTE

TES-3254

Now CTE document generation based on C++ sources is available.

*New Feature*

### CTE

TES-3275

CTE\_451 Now it's possible to change the text color.

CTE\_54 Now the user can define font styles (type, weight, size) and text color for tree nodes and table entries.

### CTE

TES-3277

Fixed updating of test data stemming from parsing CTE class node names with manually assigned test data for CTE tree nodes. All CTE-generated test data will be updated or deleted. Manually assigned test data for CTE class nodes that contain no parsable value will remain untouched.

### CTE

TES-3284

Now the Test Data View will show generated test data without reselecting the CTE node.

## Release v4.2.7 (43 items)

### Compiler/Target/Microcontroller

*New Feature*

TES-3113

New combination for Wind River TriCore compiler with Lauterbach TRACE32 debugger.

---

### Compiler/Target/Microcontroller

TES-3170

Fixed idb-freescale-s12z.mk to support test object defines.

---

### Compiler/Target/Microcontroller

TES-3178

Fixed idb-microchip-xc8.mak file. On some systems analyzing failed due to special preprocessor entries.

---

### Compiler/Target/Microcontroller

TES-3179

Added support for the latest Green Hills V850 linker.

---

### Compiler/Target/Microcontroller

TES-3183

Added support to TESSY's CLANG parser for `__int24` and `__uint24` data types for Microchip XC8 compiler.

---

### Compiler/Target/Microcontroller

TES-3188

Fixed Makefile template for Cosmic S12Z in combination with winIDEA.

---

### Compiler/Target/Microcontroller

*Enhancement*

TES-3189

Prepared GNU Tools for ARM+QEMU as well as all Crosscore Makefile template for parallel build.

---

### Compiler/Target/Microcontroller

TES-3196

Added Compiler Dialect variable to Microchip XC8-CC Makefile template.

---

### Compiler/Target/Microcontroller

*New Feature*

TES-3201

Implemented support for multiple files in TEE attribute 'Duplicated Defines Header'.

---

### Compiler/Target/Microcontroller

*Enhancement*

TES-3257

Added option `-Xlicense-wait` to all Wind River Makefile templates.

---

### Compiler/Target/Microcontroller

*Enhancement*

TES-3259

Activated optional attribute "Wait Timeout" for GNU GCC/CDT test runs.

---

### Component Test

TES-3182

Fixed component test driver for targets using file communication.

---

## Release v4.2.7 (43 items)

### Driver

TES-3218

Fixed error when a pointer member inside a dynamic struct with passing OUT -> OUT is set to a dynamic object in one test case and set to NULL in a second test case.

### Environment Editor (TEE)

TES-3169

Fixed TEE attributes with hex format flag.

### Import/Export

TES-3211

Fixed errors in PTU import for array type variables.

### Instrumenter

TES-3226

Instrumenter failed if a class member was defined "using namespace::class" but not directly inside the namespace.

### Instrumenter

TES-3244

The instrumenter could crash if C++14 digit separators are used. [e.g. const double PI = 3.14159'26535'89793; const int MILLION = 1'000'000;]

### Instrumenter

TES-3272

Instrumenter failed instrumenting static local variables when multiple variables are defined separated with comma and initialized using curly braces.

### Interface Assigner (IDA)

TES-3307

Fixed assignment of members in unassigned structs.

### Interface Database (IDB)

TES-3197

Enum constants of enums without type name and tagname ( enum {A, B, C}; ) used in test data had different values after automatic reuse.

### Interface Database (IDB)

TES-3240

Consider change of bitfield size when comparing interface database.

### Interface Database (IDB)

TES-3265

Possibly wrong associations between CTE tree elements and interface objects in test objects without test cases after module analysis.

### Makefile Templates

TES-3208

Added support for defines using Atollic's GNU ARM compiler.

*Enhancement*

## Release v4.2.7 (43 items)

### Parser

TES-3074

Updated all TKS template files and added a new TKS header for the AD compiler.

---

### Parser

TES-3184

The parser could crash when trying to resolve header files from which static and inline functions should be excluded.

---

### Parser

TES-3191

Fixed problem in ARMv6 TKS template file concerning volatile assembler functions.

---

### Parser

TES-3241

Fixed possibly wrong typedef name for struct used in STL container template class.

---

### Report

TES-3288

Fixed error when creating test details reports in non-PDF format for tasks with attachments.

---

### Save/Restore Database (TMB Files)

TES-3210

Fixed possible removal of all CTE files during TMB import.

---

### Scenario Editor (SCE)

TES-3223

Fixed possible test data loss in scenario during time-consuming module analysis.

---

### Scenario Editor (SCE)

TES-3232

When using the mode variable, it was possible to select static local variables. Also, for integer type variables it was not possible to assign a value.

---

### TESSY (General)

TES-3204

Fixed skipping superfluous folder in module backup files saved with TESSY 4.2.5.

---

### Test Database (TDB)

TES-3203

Fixed saving classification tree with pointers to nested unions.

---

### Usercode Editor (UCE)

TES-2807

Apply attributes "Float Precision" and "Double Precision" to eval macros used in usercode.

---

### Variant Management

TES-3238

Fixed purging obsolete comparison interface database to avoid annoying error message.

---

## Release v4.2.6 (23 items)

### C++

TES-3132

Fixed inserting stub code for a function following a struct template specialization.

---

### C++

TES-3134

Fixed inserting stub code for static template method.

---

### C++

TES-3153

Fixed generating parameter proxy class name for templates with reference or pointer template parameter.

---

### C++

TES-3175

Fixed erroneous display of class reference parameter in TDE.

---

### CTE

TES-3139

Fixed internal key collision error when using array parameters with "use as pointer".

---

### CTE

TES-3147

Fixed showing result at CTE Testcases in CTE perspective.

---

### CTE

TES-3161

Fix that test data will not be generated automatically on CTE nodes for new pointer targets.

---

### Command Line (tessycmd)

TES-3166

Fixed timestamp of problems.zlog file.

---

### Command Line (tessycmd)

TES-3168

The TESSYD option --copy-log now creates the given directory if it does not exist.

---

*Enhancement*

### Compiler/Target/Microcontroller

TES-3094

Reduced number of objects to be built and linked by default within TESSY's master Makefiles.

---

*Enhancement*

### Compiler/Target/Microcontroller

TES-3155

IAR C-Spy: Settings folder was copied and right away deleted.

---

### Driver

TES-3090

User defines were erroneously visible in slave control file.

---

## Release v4.2.6 (23 items)

### Import/Export

TES-3135

Fixed creating synthetic structs and enums with typedef names on test data import.

---

### Instrumenter

TES-3131

Fixed inserting user declarations to file with partly invalid preprocessor file information (in GNU syntax but with missing flag).

---

### Interface Database (IDB)

TES-3158

Possible failure to rename large Interface Database folders when an antivirus software is running.

---

### Metrics

TES-3137

Error enabling ET/AT metric or analyzing module when ET/AT metrics is enabled.

---

### Report

TES-3146

Fixed series names of cyclomatic complexity (CC) metric graphics within overview report.

---

### TESSY (General)

TES-3141

Fixed restoring and importing TMB archives: A superfluous folder was created in TMB archives which caused the restore operation to fail.

---

### TESSY (General)

TES-3157

Fixed potential timeout problem when starting processes.

---

### TESSY hardware adapter interface (THAI)

TES-3142

Fixed evaluation of component tests when there are time steps that do not set signals within a scenario.

---

### Test Database (TDB)

TES-3177

Fixed possible loss of generated test steps for generator test cases after automatic reuse operation.

---

### Variant Management

TES-3140

Fixed wrong test data in variant test objects after synchronization if stub vector size has changed.

---

### Variant Management

TES-3144

Fixed an exception during synchronization if a test object that is marked as removed is present.

---

## Release v4.2.5 (94 items)

### Application Notes

TES-2875

Updated TASKING VX application note.

---

#### C++

TES-2884

When a typedef of a struct declared inside a class is used in a template its namespace was missing in the interface database.

---

#### C++

TES-2995

Class member variables were not evaluated when a class has a copy constructor or the tested method uses its own class as parameter. This could result in tests being shown as passed even though the member variables did not yield the expected result.

---

#### C++

TES-2998

Fixed possible error loading the interface database if a typedef inside a class uses a qualified type that is an inherited type of its base class.

---

#### C++

TES-3009

Support references to scalar types in advanced stubs.

---

*Enhancement*

#### C++

TES-3013

In certain situations, an object used as a parameter for calling the test object can or must be created in the user code.

To be able to bind that object to the parameter used by TESSY for the test object call, for each parameter that is a reference to a structure or class with passing direction EXTERNAL, TESSY creates a template with the name "TESSY\_BIND\_PARAMETER\_<name of parameter>", e.g. "TESSY\_BIND\_PARAMETER\_foo\_param".

This template can be used in the prolog to bind the user-generated object to the parameter. [e.g. MyClass & myVariable = MyFactory::createObject; TESSY\_BIND\_PARAMETER\_myParameter(myVariable);]

Creating these templates will be enabled via the "Generate Parameter Proxies" attribute.

---

*Enhancement*

#### C++

TES-3035

Enabled setjmp/longjmp for C++ test objects.

---

#### C++

TES-3037

Pass direction of class members can now be set to EXTERN.

---

#### C++

TES-3060

For test objects, that are extern "C" contained in a namespace, TESSY failed to open the coverage flow file.

---

## Release v4.2.5 (94 items)

### C++

TES-3098

If the attribute "Generate Parameter Proxies" is enabled an erroneous code was generated for template parameter.

### C++

TES-3125

For test objects, that are extern "C" functions contained in a namespace, the stub code was missing.

### C++

TES-3127

If a method definition, for that another method with the same name exists, is explicitly specified inline, the instrumenter failed to find the method.

### CTE

TES-3051

Fix that the CTE shows an error when saving documents for C++ test objects.

### CTE

TES-3057

*Enhancement*

CTE152 Now "Select All" (CTRL+A) selects all marks in the same test table column of the currently selected mark.

CTE457 Fixed that the CTE failed to open a refinement.

CTE477 Fixed typo in the layout preference page.

CTE465 Fixes an error with multiary dependency operators (AND, OR, XOR). Improves error messages when dependency inputs are missing.

CTE456 Fix that marks of refined nodes are sometimes shown as conflicting after all conflicts in the sub tree are solved.

CTE448 Fixed an issue where validation error markers at the top of the table moved downwards.

CTE450 Fixed that it was possible to copy and paste the table itself.

CTE476 Fixes that a group could be moved to itself or to an own subgroup.

CTE439 Now a test case is converted into a test step when dropping it into a test sequence.

CTE453 The synchronisation of the selected table entry sometimes stopped working.

CTE468 Fixes an error where already existing test cases are added again.

CTE460 Fixed that color is not removable with the red cross next to the color chooser.

CTE454 Fixed an error where opening refinements containing only one composition or classification failed.

CTE342 Now an automatic layout of the changed subtree is triggered when the layout mode was changed via properties view. This feature can be enabled/disabled via Preferences > CTE > Layout Settings

CTE381 Now very fast inserted tree nodes will always be placed side by side.

CTE469 Fixed message text in validation issues view for incomplete dependency operations (NOT, AND, OR, XOR).

CTE447 Optimized the insertion point of new children. Pasted nodes won't hide existing children of the current parent anymore.

CTE479 Fix that sometimes the CTE import of legacy '\*.cte' files does not insert refinements in the tree structure.

### CTE

TES-3064

*Enhancement*

Now the automatic tree generation creates additional min value nodes for enums with min value > 0.

### CTE

TES-3066

Fix that a potential stale CTE is not closed after an external change to a test object.

## Release v4.2.5 (94 items)

### CTE

TES-3092

Don't try to generate a interface based classification tree for test objects from C++ projects which leads to errors. Currently this operation is only supported for C projects.

### CTE

TES-3110

Fixed hidden CTE editor after resetting the CTE Perspective.

### CTE

TES-3111

Optimized opening large CTEs.

### CTE

TES-3130

CTE484 Changed the default for preference "Pin original layout on import" to true.

CTE140 Optimized redraw of CTE while resizing the editor.

CTE488 Optimized time needed to close a CTE document.

CTE486 Newly created test table entries are visible and selected in all open editors of the same resource.

*Enhancement*

### Command Line (tessycmd)

TES-3096

Fixed error reporting for CLI so that all errors/warnings appear within the problems log.

### Command Line (tessycmd)

TES-3107

Create problems.zlog archive on exit to keep the errors/warnings from multiple subsequent TESSY sessions. Also added "--copy-log <directory>" option to TESSYD to allow copying the problems.zlog to the Jenkins workspace for archiving of artefacts in CLI operation mode.

*Enhancement*

### Compiler/Target/Microcontroller

TES-2897

Added optional file communication for TRACE32 to speed up execution time on target hardware.

*New Feature*

### Compiler/Target/Microcontroller

TES-2917

Fixed and updated Wind River makefile templates.

### Compiler/Target/Microcontroller

TES-2929

New combination for GNU Tools for ARM with iSYSTEM winIDEA.

*New Feature*

### Compiler/Target/Microcontroller

TES-2942

Added support for MATLAB TargetLink.

*Enhancement*

### Compiler/Target/Microcontroller

TES-2944

New combination for Keil ARM compiler version 6 with SEGGER JLink.

*Enhancement*

## Release v4.2.5 (94 items)

### Compiler/Target/Microcontroller

TES-2973

Fixed TEE attribute substitution and validation: It was possible that attributes (e.g. "Compiler Install Path") were substituted with attribut values of lower levels (e.g. "Target Install Path"). Also the error/warning icons were shown in some situations for inherited and not overwritten attributes.

### Compiler/Target/Microcontroller

TES-2993

Fixed Boolean value in Renesas RX C++ type table.

### Compiler/Target/Microcontroller

TES-3007

Fixed type table entries concerning `_Bool`.

### Compiler/Target/Microcontroller

TES-3016

Added missing compiler Ids to `tki-iar.tpl`.

### Compiler/Target/Microcontroller

TES-3023

Fixed tracing for `gdb-file master`.

### Compiler/Target/Microcontroller

TES-3033

Microchip compiler XC8 was set to obsolete. Please use Microchip compiler XC8-CC instead or select "Show Obsolete Entries" from the TEE menu.

*Enhancement*

### Compiler/Target/Microcontroller

TES-3071

Fixed race condition in multiple makefile templates, which occurred when attribute "Make Options" was set to compile in parallel, e.g. `'-j 20'`, with multiple source files attached.

### Component Test

TES-2980

Fixed possible loss of test data for dynamic objects if a pointer is removed from the interface.

### Coverage Viewer (CV)

TES-2545

Generating the flow chart report failed if the 'Logo Image' path within the report preferences was not empty and did not contain an absolute path name.

### Coverage Viewer (CV)

TES-3017

Fixed CPC coverage call position calculation (for display of source locations) for calls directly following a return statement.

### Defines

TES-3062

Take "Float Precision" and/or "Double Precision" attribute into account when collecting define values.

## Release v4.2.5 (94 items)

### Driver

TES-2992

Fixed erroneous struct declaration of typedef struct in old test driver when Enable User Includes is enabled.

---

### Driver

TES-2999

Fixed possible communication error when resolving first union component as pointer target.

---

### Driver

TES-3038

Fixed error generating parameter helper variable of a reference to a template with reference template parameter.

---

### Driver

TES-3043

Declare synthetic variables in all sources where the type is known.

---

### Driver

TES-3084

Fixed generating #undef statements for static variable #define prior to all stub functions having a parameter with the same name as the static variable.

---

### Driver

TES-3101

Fixed generating code for complex reference parameter when attribute 'Generate Constructors' is false.

---

### Environment Editor (TEE)

TES-3055

Fixed using the internal environment variable TESSY\_SOURCE\_ROOT instead of SOURCEROOT when collapsing a file or directory path.

---

### Import/Export

TES-3089

Restoring projects with C++ Test Objects and CTE documents fails if the test objects have long signatures.

---

### Instrumenter

TES-2701

Added support for range based "for" loops [e.g. for (int i : array) { ... }].

---

*Enhancement*

### Instrumenter

TES-2971

The instrumenter failed to match the destructor in a template class if not inlined. Due to that stub code written for the constructor was also inserted into the destructor.

---

### Instrumenter

TES-2982

The instrumenter failed to stub methods inside a class that follows immediately after a function template.

---

## Release v4.2.5 (94 items)

### Instrumenter

TES-2984

The instrumenter failed to find function definitions if a preprocessor line is present between name and parameter list.

### Instrumenter

TES-3047

Allow wildcards in header file names within TEE attribute "Instrumenter Header Exclude List".

*Enhancement*

### Instrumenter

TES-3053

The instrumenter failed to find function definitions if the return type is a pointer or reference to a qualified template, e.g.:

```
std::pair<int,int> & function_name (...  
std::pair<int,int> * function_name (...
```

### Instrumenter

TES-3119

Missing instrumentation if the initialization statement of a "for" loop ends with a function call. [e.g. for (int i = foo();...)]

### Instrumenter

TES-3120

If call pair coverage (CPC) is enabled, the initialization expression for a local variable could be missing.

### Interface Assigner (IDA)

TES-2983

Fixed automatic assignment of static global variables.

### Interface Assigner (IDA)

TES-3027

Fix changed component names for pointer targeting the component in a dynamic struct,

### Interface Assigner (IDA)

TES-3114

Test specification (CTE File) was deleted when renaming a test object.

### Interface Database (IDB)

TES-2108

Fixed memory and performance problems when comparing large C++ interface databases.

### Interface Database (IDB)

TES-2994

Possible missing stub code after auto reuse for external stub functions, if only the scope of that function has changed.

### Interface Database (IDB)

TES-3010

Fixed possible loss of test data during comparison of interfaces with more than 500 functions when using the legacy parser.

## Release v4.2.5 (94 items)

### Interface Database (IDB)

*Enhancement*

TES-3046

Allowing wildcards in header file names within the TEE attributes "Header File Exclude List" and "Header File Include List".

### Interface Database (IDB)

TES-3082

OUT/EXTERN const variables were set to IRRELEVANT after importing TMB files from TESSY v4.0 or prior.

### Interface Database (IDB)

TES-3085

Fixed performance problem when reusing interface databases with pointers.

### Interface Database (IDB)

TES-3099

Possibly erroneous test driver for const class member variables.

### Interface Editor (TIE)

TES-3080

Fixed missing properties view contents for variables within TIE.

### Interface Editor (TIE)

*Enhancement*

TES-3087

Allow pass direction EXTERN for const variables.

### Metrics

*Enhancement*

TES-3103

Update the default formula for estimated time calculation.

### Parser

TES-2922

Fixed parser error if ARMv5 builtins \_\_svc, \_\_svc\_indirect or \_\_align are used.

### Parser

TES-2991

Parser failed to parse file if an initializer expression was neither int nor float.

### Parser

TES-3030

Added \_\_int24, \_\_uint24, and \_\_at() to Microchip TKS and header files.

### Parser

TES-3091

Fixed storing source number of types when attribute 'Collect All Enums' is true.

### Parser

TES-3095

Fixed parsing local static variables of test objects that were declared after a statement block.

## Release v4.2.5 (94 items)

### Parser

TES-3171

Support usage of gcc option -funsigned-char.

---

### Report

TES-2974

Overview report XML: Fixed percentage attribute value for called function coverage (without '%' now).

---

### Report

TES-3004

Fix plots not being rendered in reports in Windows 10 versions newer than 1803.

---

### Report

TES-3380

Fixed potential deadlock problem when generating test details report that includes notes.

---

### Requirements

TES-3003

Test case links could get lost in certain situations: Changes of test case links (adding, updating or deleting links) caused all not altered links of all test cases of the respective test object to be lost if TESSY was restarted. As a workaround, when executing such test objects after changing the links, the changes were persisted correctly and no links were lost.

---

### Requirements

TES-3032

Fix display error in VxV matrix view when adjusting column width.

---

### Save/Restore Database (TMB Files)

TES-2510

If a test object is removed, has interface changes, or does not have a valid interface, it will no longer be attempted to save a script file for it during database backup.

---

### Save/Restore Database (TMB Files)

TES-2986

Allow canceling TESSY shutdown when backing up modules or if any jobs are still running.

---

### Scenario Editor (SCE)

TES-3097

Added alphabetical sorting of functions within the component functions and called functions view.

---

### Scenario Editor (SCE)

TES-3112

Fixed potential exceptions when switching to invalid scenarios or test objects with changed interface.

---

### Script Editor

TES-2854

Committing script editor changes for component tests caused loss of dynamic objects under certain conditions.

---

## Release v4.2.5 (94 items)

### Script Editor

TES-3034

Fixed problems when working with the script editor or importing/saving/restoring script files: Special characters within the time unit of component tests and stub functions with array indices within the signature caused problems.

### TESSY (General)

*Enhancement*

TES-2990

Enhanced DOXYGEN comment handling: In case of errors while parsing the DOXYGEN output, existing specification entries will be voided. Comments inside the function will not be collected by default.

### TESSY (General)

*Enhancement*

TES-3014

All source and header files that are shown in the TESSY Message Console are now displayed as hyperlinks and can be opened with a double-click in the C/C++ perspective.

### TESSY (General)

TES-3108

Fixed potential race condition when starting TESSY which caused the derby daemon to be terminated.

### Test Data Editor (TDE)

TES-3011

Fixed missing child elements for pointer and reference objects in the usercode proposal list.

### Test Data Editor (TDE)

TES-3012

Fixed wrong entries in the usercode proposal list for "THIS" if the object class is located inside a namespace.

### Test Database (TDB)

TES-3028

The unexpected shutdown of the DBD process after module analysis was fixed. This error occurred if no test objects were available after the analysis due to a filter, but they were available after the filter was corrected.

### Variant Management

TES-2981

If an expression is used as expected value for an interface object with passing direction INOUT, this value was set to null during test data verification in variant test objects.

### Variant Management

TES-2997

Disable "Create Pointer Target Value" for test objects in variant modules (regardless whether inherited or not).

### Variant Management

TES-3018

Define values in the test data of variants created with a TESSY version prior to 4.1 were marked as invalid after module synchronization.

## Release v4.2.5 (94 items)

### Variant Management

TES-3026

For pointers with passing direction OUT pointing into a dynamic object with passing direction IN, these pointers were marked as failed during test evaluation.

## Release v4.2.4 (19 items)

### CTE

*New Feature*

TES-2517

A generator for classification trees has been added that generates a new tree based on the interface of a test object. A classification will be generated for each input variable with the possible values as classes according to the equivalence partitioning method.

### CTE

*Enhancement*

TES-2576

Improved version of pair-wise test case generation.

### CTE

*New Feature*

TES-2610

The new project-wide data dictionary provides means to assign application domain related names to implementation variables that can be used throughout all CTE test specifications. Data dictionary entries will be synchronized on interface changes and related CTE classifications will be updated automatically.

### Compiler/Target/Microcontroller

*Enhancement*

TES-2667

IAR C-SPY simulator test runs are executed in parallel now which reduces overall execution time.

### Compiler/Target/Microcontroller

*New Feature*

TES-2716

New combination for GNU Toolchain for PowerPC in conjunction with PLS UDE.

### Component Test

*Enhancement*

TES-1255

Fixed problems with test driver generation when multiple source files were used.

### Component Test

*New Feature*

TES-2002

The component test feature is now also available for C++ modules.

### Coverage Measurement

*New Feature*

TES-2559

The new call pair coverage measurement (CPC) now supports measuring if all call locations of functions or methods within the test object have been exercised at least once. This fulfills the requirements of ISO 26262 as an alternate coverage method for integration testing instead of applying the function coverage (FC) method.

### Fault Injection

*New Feature*

TES-1863

Added option to automatically leave code loops after the first loop iteration using fault injections.

## Release v4.2.4 (19 items)

### License Manager

*Enhancement*

TES-1517

Enable and disable license server usage statistic logging by flsutil.

### Metrics

*New Feature*

TES-2792

Added "Test Step To Complexity Ratio" metric.

### Requirements

*Enhancement*

TES-840

The requirement document preview is now available for all TESSY perspectives. The desired document to display can be selected within the view.

### Requirements

*New Feature*

TES-1468

A new task element provides means to protocol external tests and reviews and link them to requirements. This allows full verification coverage of requirements that are not testable with a normal unit or integration test.

### Requirements

*Enhancement*

TES-2913

The default test means "Unit" and "Component" will now only be created on startup of TESSY if there are no other test means defined (e.g. if the default ones have been renamed).

### Save/Restore Database (TMB Files)

*Enhancement*

TES-2624

New option "Use default coverage selection for all modules" added to coverage preference page in order to overwrite coverage selections stored within TMB files being imported.

### TESSY (General)

*Enhancement*

TES-2035

Completely reworked error handling to provide enhanced error messages and logging capabilities for command line execution. New error dialog shows the full exception chain, the context (e.g. the affected test object) and provides easy access to the error log file.

### TESSY (General)

*New Feature*

TES-2117

The new testing effort estimation is based on a customizable formula that is based on the available metrics provided by TESSY. Additional metrics have been added that can also be used within the time estimation formula:

- Number of statements
- Number of calls
- Nesting depth

When analyzing a module, the estimated time is updated based on the given formula. The actual time can be tracked within the test project view for each test object.

### TESSY (General)

*Enhancement*

TES-2586

Enhanced handling and feedback when configuring the TESSY floating license manager.

## Release v4.2.4 (19 items)

### Test Execution

*Enhancement*

TES-2715

Added option to automatically retry execution for aborted test objects.

---